

Caterpillar Performance Handbook

Edition 35

CATERPILLAR®

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CATERPILLAR® PERFORMANCE HANDBOOK

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Performance information in this booklet is intended for estimating purposes only. Because of the many variables peculiar to individual jobs (including material characteristics, operator efficiency, underfoot conditions, altitude, etc.), neither Caterpillar Inc. nor its dealers warrant that the machines described will perform as estimated.

Materials and specifications are subject to change without notice.

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PREFACE

Machine performance must ultimately be measured in unit cost of material moved, a measure that includes both production and costs. Factors bearing directly on productivity include such things as weight to horsepower ratio, capacity, type of transmission, speeds and operating costs. The Performance Handbook considers these factors in detail. There are other less direct machine performance factors for which no tables, charts or graphs are possible. Serviceability, parts availability and operator convenience are examples. In comparing machine performance, all factors should be considered. This Handbook is intended as an aid which, when coupled with experience and a good knowledge of local conditions, can assist in estimating true machine performance.

Many sections of the Handbook include tables or curves showing cycle times or hourly production figures for Caterpillar machines under certain conditions. Statements of conditions always accompany or precede the curves or tables. Before using any performance information in this Handbook, a complete understanding of the qualifying conditions is essential. The data is based on field testing, computer analysis, laboratory research and experience; and every effort has been made to assure their correctness.

However, all such data is based upon 100% efficiency in operation — a status which cannot be achieved continuously even under ideal conditions. Thus, in using such performance and production data, it is necessary to correct the results indicated in the handbook tables by appropriate factors. This allows for the anticipated actual job efficiency, operator efficiency, material characteristics, haul road conditions, altitude and other factors which may reduce performance or production on a particular job.

Methods for estimating machine owning and operating costs vary widely, depending on locality, industry practices, owner preferences and other factors. One method is suggested in the Handbook section on Owning and Operating Costs. When used with good judgment, it has provided reasonably accurate estimates in the past. Included in the Owning and Operating Section are guidelines, based on working conditions, to assist in estimating consumption of fuel and lubricants, tire life and repair costs for Caterpillar machines. However, what one Handbook user regards as “excellent” conditions, another may consider “severe” or “average”, depending on his own experience and basis of comparison. Therefore, these guidelines should be considered only approximations.

Caterpillar Inc. has made every effort to assure that the information contained in this Handbook is accurate and is a fair statement of the results to be achieved in the circumstances indicated. However, because of the many variables involved in estimating the production or performance of earthmoving machinery, their consumption of fuel and lubricants, tire life and repair costs, and the possibility of inadvertent errors or omissions in assembling this data, Caterpillar cannot and does not imply that all data in this book are complete nor that this level of performance will be achieved on a given job.

Specifications shown in this Handbook were current at time of printing. However, due to Caterpillar’s many machine improvement programs, specifications and materials may change without notice. For current specifications relating to a machine’s performance, please refer to the most recent Caterpillar product specification sheet.

Caterpillar Inc.

OPERATOR AND MACHINE PROTECTION

A well trained operator, working under suitable conditions, utilizing a modern, properly-equipped machine provides a machine-operator team capable of giving maximum production. These factors, along with appropriate job site rules and communication procedures, are essential to coordinate people and machines working together. Appropriately protected and maintained machines are less likely to suffer premature component failure or damage, and give operators the confidence and assurance they need to carry out their work. Furthermore, training is not complete until the operator reads, understands and agrees to follow the instructions provided in the Operation and Maintenance Manual included with every Caterpillar machine.

Employers have a duty to provide a safe work place for their employees. The purchaser of a Caterpillar machine has a duty to review his/her particular application and job site for the machine to identify potential hazards inherent to that application or job site. Based on the results of this hazard analysis, the appropriate operator and machine protection configuration can be determined.

Caterpillar designs, builds, and tests its products to ensure the safety of operators, maintenance persons, service persons, and bystanders. Caterpillar provides as standard equipment the appropriate operator and machine protection for most applications. However, particular applications may require additional operator and/or machine protection. Caterpillar offers related options for most such applications. However, there may be very special applications where the Caterpillar Dealer or the Purchaser may want to fabricate, or request Caterpillar to provide, custom or special guarding. Your Caterpillar Dealer can help you with this hazard analysis and guarding configuration process.

I. Operator Training and Protection Practices

Remember that any kind of machine or mechanical device can be hazardous if not kept in good condition, or if operated by careless or improperly trained operators, or if operated in an irresponsible manner.

Listed below are some recommended basic steps that can be broadly applied to most work environments:

- Train operators for the job they are assigned to do. The length and type of training must comply with governmental and local regulations wherever they apply. As an example, machine operators in mining activities must be trained in accordance with Mine Safety and Health Administration (MSHA) regulations. Where specific regulations do not apply, no operator should be assigned to a job until he or she meets the following minimum requirements:
 - Completes proper training to operate the assigned machine and understands that seat belts must be worn whenever seated in operator's compartment.
 - Reads and understands the Operation & Maintenance manual for that machine, and knows that a copy of that manual is stored in the operator's compartment.
 - Reads and understands the EMI (Equipment Manufacturer's Institute), CIMA (Construction Industry Manufacturers Association), or any other furnished manual related to rules for safe machine operation and identification of hazards.
 - Has appropriate personal safety equipment and knows how to use it. This includes such things as hard hat, gloves, safety glasses, hearing protection and safety shoes.
 - Knows what the job requirements are, what other machines are working in the area, and is aware of any hazardous conditions that may arise.
- Be sure operators are alert and in proper physical and mental condition to perform their work assignments safely. No machine should be operated by a person who is drowsy, under the affect of medicines or drugs, suffers blackouts, or is suffering from any physical or mental distraction that could contribute to unsafe operation.

- Maintain proper job conditions and working procedures. Check the job for possible hazards, both above and below ground level. Look for all possible sources of danger to the operator and others in the area. Pay particular attention to conditions which may be hazardous or near the operating limits of the machine: e.g., side slopes, steep grades, potential overloads, etc. Examine the work site for restricted traffic patterns, obstructed views, congestion, etc. Hazardous work conditions should be corrected wherever possible and adequate warnings should be posted when applicable.
- Provide the correct machine to handle the job and equip it properly for the job to provide the necessary operator protection. Check for compliance with all applicable governmental and local regulations. It is the machine owner's or employer's legal responsibility to see that his equipment complies with, and is operated in accordance with, all such requirements.
- Make sure the machine is properly maintained. A walk-around inspection should be performed at the beginning of each shift before the machine is placed in operation. If this inspection reveals any problems that could affect safety, the machine must not be operated until these problems are corrected. Some examples include:
 - Loose, bent or missing grab irons, railings or steps;
 - Worn, cut or missing seat belts (any seat belt over three (3) years old must be replaced regardless of condition);
 - Damaged windows in the operator's compartment;
 - Worn, rubbing or abraded electrical insulation and hoses;
 - Any fluid leaks; and
 - Missing or damaged guards.

It is the machine owner's or employer's responsibility to ensure the machine is properly maintained. Your Caterpillar Dealer will be glad to assist you in selecting and equipping the machine best suited for your job and in providing maintenance for your machines.

II. Machine Modifications

Modifications must not be made to the machine that:

- Interfere with operator visibility;
- Interfere with ingress, egress from the machine;
- Exceed the rated payload or gross combination weight of the machine resulting in overloading the braking and/or steering system or the roll-over protective structure (ROPS) capacity rating (shown on a plate affixed to the ROPS); or
- Place objects in the cab that intrude into the operator's space or that are not firmly fixed into place.

III. Operator-related Equipment Options

Each job presents unique conditions that must be taken into account. Consider direct dangers to the operator as well as all possible sources of distraction that could reduce operator efficiency and increase the chances of costly and dangerous mistakes. Climate-controlled, sound-suppressed cabs, and special exterior lighting are options available from Caterpillar that can address requirements of special working environments.

"Flexible" machines include hydraulic excavators (track-type, wheel-type, and compact), skid-steer loaders, backhoe loaders and integrated tool-carriers. Work tools or any tool used in hazardous applications like demolition and logging, can create a need for special operator guarding. When flying debris from impact, cutting, shearing or sweeping attachments is present, additional protective devices such as a front screen, Falling Object Guarding System (FOGS, includes top & front guarding), thick polycarbonate windshields or a combination of these is recommended by Caterpillar. Contact your Caterpillar Dealer for operator guarding options on your machine.

IV. Machine Protection

Check the job for unusually demanding conditions that could cause premature failure or excessive wear of machine components. Additional protective devices such as heavy-duty radiator guards, crankcase guards, engine enclosures, track roller guards and/or brake shields may be needed. Also, consider the use of anti-vandalism devices, such as cap locks and instrument panel guards. Contact your Caterpillar dealer for machine-protection and vandalism-prevention options for your machine.

V. Fire Prevention

Remember that most fluids on your machine are flammable!

To minimize the risk of fire, Caterpillar recommends following these basic steps:

- Remove trash (leaves, twigs, papers, etc.) that may accumulate in the engine compartment.
- Do not operate a machine if leakage of flammable fluids is noticed. Repair leaks before resuming machine operation. Most fluids used in Caterpillar machines should be considered flammable.
- Keep access doors to major machine compartments in working order to permit the use of fire fighting equipment, should a fire occur.
- Avoid attaching electrical wiring to hoses and tubes that contain flammable or combustible fluids.

- Replace any rubbing, damaged, frayed, kinked or leaking hydraulic hoses or fittings.
- Follow safe fueling practices as described in Caterpillar Operation & Maintenance Manuals, EMI or CIMA Safety Manuals, and local regulations.

As an additional safety measure, keep a 10-pound (4.5 kg) minimum fire extinguisher on the machine in a location as specified in the Operator and Maintenance Manual.

VI. Safety Regulations

Regulations vary from country to country and often within country. Your Caterpillar dealer can assist you in properly equipping your machine to meet applicable requirements. **Note: The general summaries given below are not substitutes for reading and being familiar with the appropriate local laws.**

(a) United States (US)

With a few exceptions, all machine operations in the United States are covered by federal and/or state regulations. If the machine is used in mining activities, the regulations are administered by the Mine Safety and Health Administration (MSHA). Other activities, including construction, are under regulations administered by the Occupational Safety and Health Administration (OSHA). These agencies require employers to provide a safe working environment for employees. Caterpillar has the same objective.

OSHA and MSHA have adopted criteria for ROPS, Falling Object Protective Structures (FOPS), seat belts, warning horns, back-up alarms, operator sound levels, steering systems, and braking systems. Additional operator's compartment protection may be required for machines engaged in logging, demolition and other special applications.

(b) European Union (EU)

The EU Machinery Safety Directive applies to Caterpillar machines and most work tools. It requires that the "CE mark" be applied to the product and that a manufacturer's declaration be provided. The "CE mark" indicates that safety issues have been addressed by applying the appropriate safety standards in the design and manufacture of the machine. The objective of the Safety Directive is to protect operators, spectators and maintenance personnel. Caterpillar fully supports this objective.

VII. Sound Suppression

Different marketing areas have different noise emission requirements. Noise regulations usually specify limits for operators and spectators.

(a) United States

OSHA and MSHA noise-control regulations set permissible noise-exposure limits for machine operators and employees. Operator protection from machine noise can be achieved by use of factory-built cabs as offered in the Caterpillar Price List. These cabs, when properly maintained and operated with the doors and windows closed, reduce the operator sound level for an eight-hour operating period to meet the OSHA and MSHA noise-exposure limits in effect at the date of manufacture. Variables that may be encountered on the job site, such as other nearby noise sources or noise-reflecting surfaces, may reduce the allowable work hours. If this occurs, ear protective devices may be required.

(b) European Union

Operator sound-exposure requirements for machines in Europe are very similar to the OSHA and MSHA regulations mentioned above. In addition to operator sound-exposure requirements, certain types of Caterpillar machines are subject to European Commission regulations for exterior sound levels. Caterpillar ensures its products sold in the EU comply with the applicable noise regulations.

VIII. Replacement Parts for your Caterpillar Machine

WARNING

When replacement parts are required for this product, Caterpillar recommends using Caterpillar replacement parts or parts with equivalent specifications including, but not limited to, physical dimensions, type, strength and material. Failure to heed this warning can lead to premature failures, product damage, personal injury or death.

Nomenclature

THE CATERPILLAR PRODUCT LINE

TRACK-TYPE TRACTORS

Flywheel power 52 to 634 kW (70 to 850 hp)

*Waste Handling Arrangements (WHA)

available for sanitary landfill applications



D3G XL
D3G LGP



D4G XL
D4G LGP



D5G XL
D5G LGP



D5N XL
D5N LGP



D6N XL
D6N LGP



D6G



D6R Series II*
D6R XL Series II*
D6R XW Series II*
D6R LGP Series II*



D7G



D7R Series II*
D7R XR Series II*
D7R LGP Series II*



D8R
D8T*
D8R LGP
D8T LGP



D9R
D9T*



D10T*



D11R
D11R CD

MOTOR GRADERS

Flywheel power 104 to 373 kW (140 to 500 hp)

*All Wheel Drive.



120H Standard
120H Global



135H Standard
135H Global



12H Standard
12H Global



140H Standard
140H Global



143H* Global



160H Standard
160H Global



163H* Global



14H Global



16H Global



24H Global

SKID STEER LOADERS

Operating Weight 2600 to 4350 kg (5710 to 9570 lb)



216B/226B
232B



236B/242B
246B/248B
252B/262B
268B



Multi-Terrain
247B/257B
267B/277B
287B

HYDRAULIC EXCAVATORS

Operating Weight 1650 to 316 600 kg (3640 to 698,000 lb)

Track Models



301.5
301.6
301.8



302.5



301.5 CR
303 CR/SR
304 CR
305 CR/SR



307C
307C SB



308C CR/SR



311C U



312C
312C L



313C CR
313C SR



314C CR
314C LCR



315C
315C L



318C
318C L



318C LN
318C N

320C
320C U

320C L
320C LU

320C LN
320C S



321C LCR



322C
322C L
322C LN



325C
325C L
325C LN



330C
330C L
330C LN



345B Series II
345B L Series II – FIX
345B L Series II – VG
345B L Series II – WVW



365B L Series II



385B 385B L



5110B ME 5110B L



5130B ME



5230B ME

Front Shovels

Operating Weight 55 600 to 318 500 kg (122,600 to 702,000 lb)



345B L Series II FS
365B L Series II FS



5090B



5130B FS



5230B FS

Wheel Models



M313C



M315C



M316C



M318C



M322C

BACKHOE LOADERS

Digging depth 4420 to 6528 mm (14'6" to 21'5")



416D 420D/420D IT



424D 428D



430D/430D IT



432D 442D



446D

FOREST PRODUCTS

Wheel Skidders



525B
535B
545

Track Skidders



517 Cable
527 Cable



517 Grapple
527 Grapple

Track Forest Machines

320C FM
322C FM
325C FM
330C FM

Wheel Forest Machines

914G IT14G
924Gz IT24G
928G IT28G
938G IT38G
962G IT62G
966G
980G
988G
990G

Work Tools

Grapples
Logging Forks
Woodchip Dozers
Scoops
Rakes

PIPELAYERS

Lifting capacity 18 145 to 104 330 kg (40,000 to 230,000 lb)



561N



572R Series II



583R



589

WHEEL TRACTOR-SCRAPERS

*Available in auger scraper version

Standard Models

Heaped capacity 17 to 33.6 m³ (22 to 44 yd³)



621G*



631G*



651E*

Tandem Powered Scrapers

Heaped capacity 15.3 to 33.6 m³ (20 to 44 yd³)



627G*



637G*



657E*

Elevating Scrapers

Heaped capacity 8.4 to 26 m³ (11 to 34 yd³)



613C Series II



615C Series II



623G

Push-Pull Scrapers

Heaped capacity 15.3 to 33.6 m³ (20 to 44 yd³)



627G



637G



657E

CONSTRUCTION & MINING TRUCKS/TRACTORS

Construction & Mining Trucks

Capacity 37 to 326 metric ton — 41 to 359 U.S. tons



769D
771D



773E
775E



777D



785C



789C



793C



797B

Construction & Mining Tractors

Flywheel power 699 to 962 kW (938 to 1290 hp)



776D



784C

ARTICULATED TRUCKS

Capacity 22.7 to 36.3 metric tons (25 to 40 U.S. tons)



725



730



735



740
740 Ejector

WHEEL DOZERS

Flywheel power 164 to 597 kW (220 to 800 hp)



814F



824G Series II



834G



844



854G

LANDFILL COMPACTORS

Flywheel power 164 to 358 kW (220 to 480 hp)



816F



826G Series II



836G



815F



825G Series II

WHEEL LOADERS & INTEGRATED TOOLCARRIERS

Bucket Capacity (Heaped) 0.6 to 30 m³ (0.78 to 40 yd³)

* High lift arrangement available.
† Waste handling arrangement available.



902



906



908



914G/IT14G



924Gz†



924G Pin On
924G Hook On†



928G/IT28G†



938G*†
IT38G†



950G Series II†



962G Series II†
IT62G Series II†



966G Series II†



972G Series II†



980G Series II†



988G*



990 Series II*



992G*



994D*

TRACK LOADERS

Bucket Capacity (Heaped)* 1.15 to 3.6 m³ (1.5 to 4.2 yd³)

*General Purpose Bucket.
†Waste handling arrangement available.



939C



953C†



963C†



973C†

TELESCOPIC HANDLERS



TH210



TH215



TH220B



TH330B



TH340B



TH350B



TH360B



TH460B



TH560B



TH580B

PAVING PRODUCTS

Cold Planers

Cutting width 2100 mm (6'11")
Flywheel power 466 kW (625 hp)



PM-565B

Reclaimer/Soil Stabilizers

Flywheel power 250-321 kW (335-430 hp)
Cutting width 2438 mm (8'0")



RM-250C



RM-350B

Windrow Elevators

Operating weight 7984 kg (17,600 lb)



BG-650

Asphalt Pavers

Paving width 914 to 9754 mm (3 to 32 ft)



AP-800C



AP-900B



AP-1000B



AP-650B



AP-655C



AP-1050B



AP-1055B



BG-230



BG-240C



BG-260C



BG-225C



BG-245C



BG-2455C

PAVING PRODUCTS (Continued)

Vibratory and Pneumatic Tire Compactors

Single Drum Smooth

Drum width 1270 to 2130 mm (4'2" to 7'0")



CS-323C



CS-423E



CS-433E



CS-533E



CS-563E



CS-573E



CS-583E



CS-663E



CS-683E

Single Drum, Padded

Drum width 1270 to 2130 mm (4'2" to 7'0")



CP-323C



CP-433E



CP-533E



CP-563E



CP-573E



CP-583E



CP-663E

Double Drum and Combi

Drum width 1000 to 2130 mm (3'3.4" to 7'0")



CB-214E



CB-224E



CB-225E



CB-334E



CB-335E



CB-434D



CB-534D



CB-534D XW



CB-634D

Pneumatic Tire Asphalt Compactors

Wheel loads 1134 to 5000 kg (2500 to 11,020 lb)



PS-150C



PS-360B



PF-300B PS-300B

UNDERGROUND MINING

Load-Haul-Dump

Bucket sizes 2.8-8.8 m³ (3.7-15 yd³)



R1300G



R1600G



R1700G



R2900G
R2900G XTRA

Articulated Trucks

40-55 t (44-61 T) capacity



AD30



AD45



AD55

HYDROMECHANICAL WORK TOOLS

Hydraulic Hammers

H45/H45s H70/H70s
H50/H50s H90/H90s
H63/H63s H100/H100s

Mobile Scrap and Demolition Shears

S305 S340
S320 S365
S325 S390

Concrete Crushers

CR20 CR35
CR28 CR50

Multi-Processors

MP15 MP30
MP20 MP40

Sorting and Demolition Grapples

G315 G310B
G320 G315B
G330 G320B

Orange Peel Grapples

GSH9 GSH20
GSH15 GSH22

TRACK-TYPE TRACTORS

Hydraulic Controls

Bulldozers

Rippers & Winches

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TRACK-TYPE TRACTORS

Features:

- **Cat Diesel Engines** provide the power, high torque rise, reliability and performance you can depend on.
- **Hydraulic Electronic Unit Injection (HEUI)** on D5N, D6N, D6R Series II, D9R and D10T increases fuel efficiency, reduces smoke, improves cold starting and enhances diagnostic capabilities.
- **Electronic Unit Injection (EUI)** on D7R Series II, D8T and D11R. The Electronic Control Module (ECM) performs much like a mechanical governor, but has no moving parts. The ECM signals the injectors regulating the fuel supply thus controlling engine speed and power. EUI provides: Reduced exhaust smoke, automatic altitude compensation and cold start protection.
- **Oil cooled steering clutches and brakes** standard on D5N, D6N, D6N FTC, D6R, D7R, D9R, D10T and D11R.
- **Finger Tip Controls (FTC)** of transmission, steering clutches and brakes on D5N, D6N FTC, D6R Series II, D7R Series II, D10T and D11R.
- **Differential steering** allows infinitely variable turning radius. Standard on the D6N D/S, D8R and D8T and optional on the D6R Series II, D7R Series II and D9R, allows the tractor to make a “power turn” keeping both tracks working for more traction and higher performance.
- **Electronic Hydrostatic Power Train System** on D3G thru D5G allows power turns, stepless speed range, smooth modulation, dynamic hydrostatic braking, superior maneuverability and excellent controllability.
- **Combined hand lever steering** located left of operator provides easier operation on D9R.
- **Standard Tractors** designed for heavy dozing and general grading.
- **XL Tractor D6R Series II** offers higher horsepower and longer roller frames for increased finish grading capability, flotation and productivity.
- **Extra Wide (XW) gauge** on D6R Series II XL length roller frame provides wider shoes for greater flotation and stability for steep slope grading.
- **Sealed and Lubricated Track** reduces pin and bushing wear for lower undercarriage repair costs. Heavy duty track chain available on D5G, D5N, D6N, D6R Series II and D7R Series II improves wear life and reduces pin/bore stretching and cracking.
- **Elevated sprockets** on D5N XL and up eliminate final drive stress induced by roller frame movement and ground impact loads. Final drives pull chain only. Seals moved up out of dirt, sand and water for longer life. Blade visibility improved because operator sits higher.
- **Resilient mounted bogie undercarriage** on D8R, D8T, D9R, D10T and D11R reduces shock transmitted to tractor. Allows track to conform to rough ground for better traction.
- **Solid mounted undercarriage** standard on D3G through D7R Series II and optional on the D8R and D8T provides stable platform for low impact, and high abrasion applications. Provides optimum finish grading performance.
- **Accessible modular design** on D5N XL and up greatly reduces drive train removal and installation time resulting in reduced repair costs.
- **Tag link** on D7R Series II and up; L-shaped push arms on D6N through D6R Series II. Both designs allow closer mounting of dozer blades. This reduces total tractor length, improves maneuverability, balance, blade penetration and pryout.
- **Low ground pressure (LGP)** tractors offer greater flotation in soft, swampy conditions.

MODEL	 D3G XL Hystat		 D3G LGP Hystat		 D4G XL Hystat		 D4G LGP Hystat	
Flywheel Power	52 kW	70 hp	52 kW	70 hp	60 kW	80 hp	60 kW	80 hp
Operating Weight*	7351 kg	16,227 lb	7784 kg	17,160 lb	7855 kg	17,317 lb	8198 kg	18,073 lb
Engine Model	3046 T		3046 T		3046 T		3046 T	
Rated Engine RPM	2200		2200		2200		2200	
No. of Cylinders	6		6		6		6	
Bore	94 mm	3.7"	94 mm	3.7"	94 mm	3.7"	94 mm	3.7"
Stroke	120 mm	4.7"	120 mm	4.7"	120 mm	4.7"	120 mm	4.7"
Displacement	5 L	305 in³	5 L	305 in³	5 L	305 in³	5 L	305 in³
Track Rollers (Each Side)	6		6		7		7	
Width of Standard Track Shoe	406 mm	16"	635 mm	25"	457 mm	18"	635 mm	25"
Length of Track on Ground	2055 mm	6'8.9"	2055 mm	6'8.9"	2210 mm	7'3"	2210 mm	7'3"
Ground Contact Area (W/Std. Shoe)	1.67 m ²	2586 in²	2.61 m ²	4045 in²	2.03 m ²	3153 in²	2.80 m ²	4352 in²
Track Gauge	1448 mm	4'9"	1676 mm	5'6"	1499 mm	4'11"	1676 mm	5'6"
GENERAL DIMENSIONS:								
Height (To Top of ROPS)	2.77 m	9'1"	2.77 m	9'1"	2.77 m	9'1"	2.77 m	9'1"
Overall Length (With P Blade)	4.02 m	13'2"	4.02 m	13'2"	4.04 m	13'3"	4.04 m	13'3"
(Without Blade)	3.10 m	10'2"	3.10 m	10'2"	3.10 m	10'2"	3.10 m	10'2"
Width (W/O Trunnion — Std. Shoe)	1.85 m	6'1"	2.31 m	7'7"	1.96 m	6'5"	2.31 m	7'6"
Ground Clearance	374 mm	14.7"	374 mm	14.7"	374 mm	14.7"	374 mm	14.7"
Blade Types and Widths:								
"P" Straight	2.46 m	8'1"	3.15 m	10'4"	2.67 m	8'9"	3.15 m	10'4"
Angled	2.25 m	7'5"	2.87 m	9'5"	2.44 m	8'0"	2.87 m	9'5"
Fuel Tank Refill Capacity	165 L	43.6	165 L	43.6	187 L	48.6	187 L	48.6
		U.S. gal		U.S. gal		U.S. gal		U.S. gal

*Operating Weight includes ROPS canopy, operator, lubricants, coolant, full fuel tank, hydraulic controls and fluids, back-up alarm, seat belts, lights, rigid drawbar, front pull device and standard service crankcase guard.



MODEL	D5G XL Hystat		D5G LGP Hystat		D5N XL		D5N LGP	
Flywheel Power:								
Hydrostatic	67.1 kW	90 hp	67.1 kW	90 hp	—	—	—	—
Power Shift	—	—	—	—	90 kW	121 hp	90 kW	121 hp
Operating Weight:*								
Hydrostatic	8919 kg	19,662 lb	9269 kg	20,434 lb	—	—	—	—
Power Shift	—	—	—	—	12 818 kg	28,258 lb	13 665 kg	30,126 lb
Engine Model	3046 T		3046 T		3126B DITAAC		3126B DITAAC	
Rated Engine RPM	2200		2200		2000		2000	
No. of Cylinders	6		6		6		6	
Bore	94 mm	3.7"	94 mm	3.7"	110 mm	4.33"	110 mm	4.33"
Stroke	120 mm	4.7"	120 mm	4.7"	127 mm	5"	127 mm	5"
Displacement	5 L	305 in³	5 L	305 in³	7.2 L	439 in³	7.2 L	439 in³
Track Rollers (Each Side)	7		7		7		8	
Width of Standard Track Shoe	510 mm	20"	660 mm	26"	560 mm	22"	760 mm	30"
Length of Track on Ground	2317 mm	7'7.2"	2317 mm	7'7"	2388 mm	7'10"	2604 mm	8'7"
Ground Contact Area (W/Std. Shoe)	2.36 m ²	3663 in²	3.06 m ²	4741 in²	2.67 m ²	4144 in²	3.96 m ²	6135 in²
Track Gauge	1549 mm	5'1"	1727 mm	5'8"	1770 mm	5'10"	2000 mm	6'7"
GENERAL DIMENSIONS:								
Height (Stripped Top)**	—	—	1.75 m	5'9"	2.26 m	7'5"	2.38 m	7'9"
Height (To Top of ROPS Canopy)	—	—	2.78 m	9'1"	3.00 m	9'10"	3.04 m	10'0"
Height (To Top of ROPS)	2.78 m	9'1"	—	—	—	—	—	—
Height (To Top of ROPS Cab)	—	—	—	—	3.00 m	9'10"	3.04 m	10'0"
Overall Length (With P Blade)***	4.34 m	14'3"	4.25 m	13'0"	4.56 m	15'0"	5.06 m	16'1"
(Without Blade)	3.18 m	10'5"	3.19 m	10'5"	3.54 m	11'8"	3.72 m	12'2"
Width (W/O Trunnion — Std. Shoe)	2.06 m	6'9"	—	—	—	—	—	—
Width (W/O Trunnion & Blade — Std. Shoe)	—	—	2.39 m	7'10"	2.33 m	7'8"	2.76 m	9'1"
Ground Clearance	384 mm	15.1"	384 mm	15.1"	378 mm	15"	422 mm	17"
Blade Types and Widths:								
"P" Straight	2.69 m	8'10"	3.25 m	10'8"	—	—	—	—
Angled	2.46 m	8'2"	2.97 m	9'9"	—	—	—	—
VPAT	—	—	—	—	3.08 m	10'1"	3.36 m	11'0"
Fuel Tank Refill Capacity	187 L	48.6 U.S. gal	187 L	48.6 U.S. gal	257 L	67.9 U.S. gal	257 L	67.9 U.S. gal

*Operating Weight includes ROPS canopy, operator, lubricants, coolant, full fuel tank, hydraulic controls and fluids, back-up alarm, seat belts, lights, rigid drawbar, front pull device and standard service crankcase guard.

**Height (stripped top) — without ROPS, exhaust, seat back or other easily removed encumbrances.

***D5N XL, D5N LGP with VPAT blade (Variable Pitch, Angle and Tilt).

MODEL	 D6N XL		 D6N LGP		 D6G****		 D6R Series II	
	108 kW	145 hp	108 kW	145 hp	116 kW	155 hp	123 kW	165 hp
Flywheel Power	108 kW	145 hp	108 kW	145 hp	116 kW	155 hp	123 kW	165 hp
Operating Weight:*	—		—		15 430 kg	34,017 lb	—	
Power Shift	—		—		—		—	
Power Shift Clutch Brake (FTC)	15 498 kg	34,167 lb	17 632 kg	38,872 lb	—		17 826 kg	39,300 lb
Direct Drive	—		—		—		18 053 kg**	39,800 lb
Power Shift Differential Steer	16 085 kg	35,462 lb	18 219 kg	40,166 lb	—		18 099 kg	39,900 lb
Engine Model	3126B DITAAC		3126B DITAAC		3306 T		C9 ATAAC	
Rated Engine RPM: Power Shift	2200		2200		1900		2000	
No. of Cylinders	6		6		6		6	
Bore	110 mm	4.33"	110 mm	4.33"	121 mm	4.75"	112 mm	4.4"
Stroke	127 mm	5"	127 mm	5"	152 mm	6"	149 mm	5.9"
Displacement	7.2 L	439 in ³	7.2 L	439 in ³	10.5 L	638 in ³	8.8 L	537 in ³
Track Rollers (Each Side)	7		8		7		6	
Width of Standard Track Shoe	610 mm	24"	860 mm	34"	508 mm	20"	560 mm	22"
Length of Track on Ground	2.55 m	8'4"	3.10 m	10'1"	2.67 m	8'9"	2.61 m	8'7"
Ground Contact Area (W/Std. Shoe)	3.11 m ²	4822 in ²	5.34 m ²	8217 in ²	2.72 m ²	4216 in ²	2.92 m ²	4532 in ²
Track Gauge	1.89 m	6'2"	2.16 m	7'1"	1.88 m	6'2"	1.88 m	6'2"
GENERAL DIMENSIONS:								
Height (Stripped Top)***	2.36 m	7'9"	2.47 m	8'1"	2.10 m	6'11"	2.38 m	7'5"
Height (To Top of ROPS Canopy)	3.02 m	9'11"	3.14 m	10'4"	2.90 m	9'5"	3.20 m	10'6"
Height (To Top of ROPS Cab)	3.08 m	10'1"	3.20 m	10'6"	3.10 m	10'3"	3.19 m	10'5"
Overall Length (With VPAT Blade)	4.80 m	15'9"	5.39 m	17'8"	—		—	
(Without Blade)	3.74 m	12'3"	4.15 m	13'7"	3.70 m	12'3"	—	
Overall Length (With S Blade)†	4.92 m	16'2"	—		5.00 m	16'4"	5.11 m	16'9"
(Without Blade)	3.74 m	12'3"	4.15 m	13'7"	3.94 m	12'9"	4.08 m	13'4"
Width (Over Trunnion)	2.63 m	8'7"	—		—		2.64 m	8'8"
Width (W/O Trunnion — Std. Shoe)	2.49 m	8'2"	3.02 m	9'11"	2.39 m	7'10"	2.44 m	8'0"
Ground Clearance	424 mm	16.7"	538 mm	19.2"	310 mm	12.2"	383 mm	14.8"
Blade Types and Widths:								
Straight	—		—		3.20 m	10'6"	3.35 m	11'0"
Angle Straight	—		—		3.90 m	12'9"	4.20 m	13'8"
Full 25° Angle	—		—		—		3.78 m	12'5"
Semi-U	3.17 m	10'6"	—		3.20 m	10'6"	3.26 m	10'8"
VPAT (Variable pitch, angle & tilt)	3.27 m	10'9"	4.08 m	13'5"	—		—	
Fuel Tank Refill Capacity	299 L	79 U.S. gal	299 L	79 U.S. gal	300 L	79 U.S. gal	382 L	101 U.S. gal

FTC — Fingertip clutch/brake control

*Operating Weight includes ROPS canopy, operator, lubricants, coolant, full fuel tank, hydraulic controls and fluids, straight dozer with tilt (VPAT on D6N) rigid drawbar, front towing device, engine enclosures and suspension seat.

**Japan only.

***Height (stripped top) — without ROPS canopy, exhaust, pre-cleaner, seat back or other easily removed encumbrances.

****Not sold in U.S., Canada, Japan or Europe.

†SU blade on D6N.



MODEL	D6R XL Series II		D6R XW Series II		D6R LGP Series II		D7G***	
Flywheel Power	138 kW	185 hp	138 kW	185 hp	138 kW	185 hp	149 kW	200 hp
Operating Weight:*								
Power Shift Clutch Brake (FTC)	18 711 kg	41,250 lb	—		20 865 kg	46,000 lb	20 094 kg	44,300 lb
Power Shift Differential Steer	18 847 kg	41,550 lb	19 550 kg	43,100 lb	21 047 kg	46,400 lb	—	
Engine Model	C9 ATAAC		C9 ATAAC		C9 ATAAC		3306 T	
Rated Engine RPM	2000		2000		2000		2000	
No. of Cylinders	6		6		6		6	
Bore	112 mm	4.4"	112 mm	4.4"	112 mm	4.4"	121 mm	4.75"
Stroke	149 mm	5.9"	149 mm	5.9"	149 mm	5.9"	152 mm	6"
Displacement	8.8 L	537 in³	8.8 L	537 in³	8.8 L	537 in³	10.5 L	638 in³
Track Rollers (Each Side)	7		7		8		6	
Width of Standard Track Shoe	560 mm	22"	762 mm	30"	915 mm	36"	508 mm	20"
Length of Track on Ground	2.82 m	9'3"	2.82 m	9'3"	3.25 m	10'8"	2.72 m	8'11"
Ground Contact Area (W/Std. Shoe)	3.16 m ²	4888 in²	4.3 m ²	6661 in²	5.93 m ²	9254 in²	2.76 m ²	4280 in²
Track Gauge	1.88 m	6'2"	2.03 m	6'8"	2.23 m	7'3"	1.98 m	6'6"
GENERAL DIMENSIONS:								
Height (Stripped Top)**	2.38 m	7'5"	2.38 m	7'5"	2.43 m	7'7"	2.27 m	7'5"
Height (To Top of ROPS Canopy)	3.20 m	10'6"	3.20 m	10'6"	3.25 m	10'8"	3.25 m	10'8"
Height (To Top of ROPS Cab)	3.20 m	10'6"	3.20 m	10'6"	3.25 m	10'8"	—	
Overall Length (With S Blade)	—		—		5.46 m	17'11"	5.28 m	17'4"
(Without Blade)	4.08 m	13'4"	4.08 m	13'4"	4.24 m	13'11"	4.19 m	13'9"
Width (Over Trunnion)	2.64 m	8'8"	2.95 m	9'8"	3.43 m	11'3"	—	
Width (W/O Trunnion — Std. Shoe)	2.44 m	8'0"	2.74 m	9'0"	3.14 m	10'3.6"	2.55 m	8'5"
Ground Clearance	383 mm	15"	383 mm	15"	433 mm	17"	347 mm	13.7"
Blade Types and Widths:								
Straight	—		—		3.99 m	13'1"	3.66 m	12'0"
Angle Straight	4.20 m	13'8"	4.20 m	13'8"	—		4.27 m	14'0"
Full 25° Angle	3.78 m	12'5"	3.80 m	12'6"	—		3.90 m	12'8"
Semi-U	3.26 m	10'8"	3.56 m	11'8"	—		—	
PAT Straight	3.62 m	11'10"	3.80 m	12'6"	4.17 m	13'7"	—	
PAT Full 25° Angle	3.30 m	10'9"	3.44 m	11'3"	3.75 m	12'4"	—	
Fuel Tank Refill Capacity	382 L	101 U.S. gal	382 L	101 U.S. gal	382 L	101 U.S. gal	435 L	115 U.S. gal

FTC — Fingertip clutch/brake control

*Operating Weight includes ROPS canopy, operator, lubricants, coolant, full fuel tank, hydraulic controls and fluid, straight dozer with tilt, horn, back-up alarm, retrieval hitch and front pull hook.

— D7G includes end track guiding guards.

**Height (stripped top) — without ROPS canopy, exhaust, seat back or other easily removed encumbrances.

***Not sold in U.S., Canada, Japan or Europe.



MODEL	D7R Series II		D7R XR Series II		D7R LGP Series II		D8R	
Flywheel Power	179 kW	240 hp	179 kW	240 hp	179 kW	240 hp	228 kW	305 hp
Operating Weight*:								
Power Shift Clutch Brake (FTC)	24 766 kg	54,600 lb	25 310 kg	55,800 lb	26 762 kg	59,000 lb	—	
Power Shift Differential Steer	24 970 kg	55,050 lb	25 673 kg	56,600 lb	27 034 kg	59,600 lb	37 580 kg	82,850 lb
Engine Model	3176C SCAC		3176C SCAC		3176C SCAC		3406E TA	
Rated Engine RPM	2100		2100		2100		2100	
No. of Cylinders	6		6		6		6	
Bore	125 mm	4.92"	125 mm	4.92"	125 mm	4.92"	137 mm	5.4"
Stroke	140 mm	5.5"	140 mm	5.5"	140 mm	5.5"	165 mm	6.5"
Displacement	10.3 L	629 in³	10.3 L	629 in³	10.3 L	629 in³	14.6 L	893 in³
Track Rollers (Each Side)	7		8		7		8	
ERF†	—		—		9		—	
Width of Standard Track Shoe	560 mm	22"	610 mm	24"	914 mm	36"	560 mm	22"
Length of Track on Ground	2.89 m	9'5"	3.05 m	10'0"	3.16 m	10'5"	3.21 m	10'6"
Ground Contact Area (W/Std. Shoe)	3.22 m ²	4996 in²	3.72 m ²	5768 in²	5.78 m ²	8960 in²	3.57 m ²	5544 in²
Track Gauge	1.98 m	6'6"	1.98 m	6'6"	2.24 m	7'4"	2.08 m	6'10"
GENERAL DIMENSIONS:								
Height (Stripped Top)**	2.56 m	8'5"	2.56 m	8'5"	2.74 m	9'0"	2.67 m	8'9"
Height (To Top of ROPS Canopy)	3.53 m	11'7"	3.53 m	11'7"	3.52 m	11'6"	3.51 m	11'6"
Height (To Top of ROPS Cab)	3.43 m	11'2"	3.43 m	11'2"	3.58 m	11'9"	3.45 m	11'3"
Overall Length (With SU Blade)***	—	—	—	—	—	—	6.91 m	22'8"
(Without Blade)	—	—	—	—	—	—	4.93 m	16'2"
Overall Length (With S Blade)	5.69 m	18'8"	5.81 m	19'1"	5.78 m	19'0"	—	—
(Without Blade)	4.67 m	15'4"	4.67 m	15'4"	4.67 m	15'4"	—	—
Width (Over Trunnion)	2.87 m	9'5"	2.87 m	9'5"	3.37 m	11'1"	3.05 m	10'0"
Width (W/O Trunnion — Std. Shoe)	2.54 m	8'4"	2.59 m	8'6"	3.15 m	10'4"	2.70 m	8'8"
Ground Clearance	414 mm	16.3"	414 mm	16.3"	496 mm	17.5"	606 mm	1'11"
Blade Types and Widths:								
Straight	3.52 m	11'7"	3.32 m	11'7"	4.55 m	14'11"	—	—
Angle Straight	4.50 m	14'9"	4.50 m	14'9"	—	—	4.99 m	16'4"
Full 25° Angle	4.12 m	13'6"	4.12 m	13'6"	—	—	4.52 m	14'10"
Universal	3.98 m	13'1"	3.98 m	13'1"	—	—	4.26 m	14'0"
Semi-U	3.69 m	12'2"	3.69 m	12'2"	—	—	3.94 m	12'11"
Fuel Tank Refill Capacity	479 L	127 U.S. gal	479 L	127 U.S. gal	479 L	127 U.S. gal	625 L	165 U.S. gal

FTC — Fingertip clutch/brake control

*Operating Weight includes ROPS canopy, operator, lubricants, coolant, full fuel tank, hydraulic controls and fluid, straight dozer with tilt, horn, back-up alarm, retrieval hitch and front pull hook.

— D8R equipped with track guides, ROPS/FOPS cab, single shank ripper and SU blade.

**Height (stripped top) — without ROPS canopy, exhaust, seat back or other easily removed encumbrances.

***Includes drawbar.

†ERF — Extended Track Roller Frame. Extends frame 366 mm (14.4"), adds 3 track sections and 2 rollers/side.



MODEL	D8T		D8R LGP		D8T LGP		D9R	
Flywheel Power	231 kW	310 hp	228 kW	305 hp	231 kW	310 hp	306 kW	410 hp
Operating Weight:* Power Shift Clutch Brake	—		—		—		49 147 kg	108,350 lb
Power Shift Differential Steer	38 488 kg	84,850 lb	33 730 kg	74,360 lb	35 188 kg	77,576 lb	49 510 kg	109,150 lb
Engine Model	C15 ACERT		3406E SCAC		C15 ACERT		3408E SCAC	
Rated Engine RPM	1850		2100		1850		1900	
No. of Cylinders	6		6		6		8	
Bore	137 mm	5.4"	137 mm	5.4"	137 mm	5.4"	137 mm	5.4"
Stroke	172 mm	6.75"	165 mm	6.5"	172 mm	6.75"	152 mm	6"
Displacement	15.2 L	928 in³	14.6 L	893 in³	15.2 L	928 in³	18 L	1099 in³
Track Rollers (Each Side)	8		8		8		8	
Width of Standard Track Shoe	560 mm	22"	965 mm	38"	965 mm	38"	610 mm	24"
Length of Track on Ground	3.21 m	10'6"	3.20 m	10'6"	3.20 m	10'6"	3.47 m	11'5"
Ground Contact Area (W/Std. Shoe)	3.57 m ²	5544 in²	6.2 m ²	9576 in²	6.2 m ²	9576 in²	4.24 m ²	6569 in²
Track Gauge	2.08 m	6'10"	2.34 m	7'8"	2.34 m	7'8"	2.25 m	7'5"
GENERAL DIMENSIONS:								
Height (Stripped Top)**	2.67 m	8'9"	2.67 m	8'9"	2.67 m	8'9"	3.00 m	9'10"
Height (To Top of ROPS Canopy)	3.46 m	11'4"	3.51 m	11'6"	3.45 m	11'4"	3.99 m	13'1"
Height (To Top of ROPS Cab)	3.46 m	11'4"	3.45 m	11'3"	3.45 m	11'4"	3.82 m	12'6"
Overall Length (With SU Blade)***	6.09 m	20'0"	6.91 m	22'8"	6.09 m	20'0"	6.84 m	22'5"
(Without Blade)	4.64 m	15'3"	4.93 m	16'2"	4.98 m	16'4"	5.18 m	17'0"
Width (Over Trunnion)	3.06 m	10'0"	3.55 m	11'7"	3.06 m	10'0"	3.30 m	10'10"
Width (W/O Trunnion — Std. Shoe)	2.64 m	8'8"	3.30 m	10'10"	2.64 m	8'8"	2.93 m	9'8"
Ground Clearance	573 mm	1'10"	574 mm	1'11"	564 mm	1'10"	591 mm	1'11"■
Blade Types and Widths:								
Angle Straight	4.99 m	16'4"	—	—	—	—	—	—
Full 25° Angle	4.52 m	14'10"	—	—	—	—	—	—
Universal	4.26 m	14'0"	—	—	—	—	4.65 m	15'3"
Semi-U	3.94 m	12'11"	4.40 m	14'5"	4.40 m	14'5"	4.31 m	14'2"
Fuel Tank Refill Capacity	643 L	170 U.S. gal	625 L	165 U.S. gal	643 L	170 U.S. gal	818 L	216 U.S. gal

*Operating Weight includes ROPS canopy, operator, lubricants, coolant, full fuel tank, hydraulic controls and fluids, semi universal blade with tilt, back-up alarm, seat belts, lights, rigid drawbar and front towing device.

— D8R and D9R equipped with track guides, ROPS/FOPS cab, single shank ripper and SU blade.

**Height (stripped top) — without ROPS canopy, exhaust, seat back or other easily removed encumbrances.

***Includes drawbar.

■SAE J1234.



MODEL	D9T		D10T		D11R		D11R CD	
Flywheel Power	306 kW	410 hp	433 kW	580 hp	634 kW	850 hp	634 kW	850 hp
Operating Weight:*	—		66 407 kg 146,400 lb		104 600 kg 230,100 lb		113 000 kg 248,600 lb	
Power Shift Clutch Brake	—		—		—		—	
Power Shift Differential Steer	47 900 kg	105,600 lb	—		—		—	
Engine Model	C18 ACERT		C27 ACERT		3508B TA		3508B TA	
Rated Engine RPM	1800		1800		1800		1800	
No. of Cylinders	6		12		8		8	
Bore	145 mm	5.7"	137 mm	5.4"	170 mm	6.7"	170 mm	6.7"
Stroke	185 mm	7.3"	152 mm	6"	190 mm	7.5"	190 mm	7.5"
Displacement	18.1 L	1104 in ³	27 L	1647.5 in ³	34.5 L	2105 in ³	34.5 L	2105 in ³
Track Rollers (Each Side)	8		8		8		8	
Width of Standard Track Shoe	610 mm	24"	610 mm	24"	710 mm	28"	915 mm	36"
Length of Track on Ground (Idler to Idler)	3.47 m	11'5"	3.88 m	12'9"	4.44 m	14'7"	4.44 m	14'7"
Ground Contact Area (W/Std. Shoe)	4.24 m ²	6569 in ²	4.74 m ²	7347 in ²	6.31 m ²	9800 in ²	8.13 m ²	12,600 in ²
Track Gauge	2.25 m	7'5"	2.55 m	8'4"	2.89 m	9'6"	2.89 m	9'6"
GENERAL DIMENSIONS:								
Height (Stripped Top)**	—		3.222 m	10'7"	3.48 m	11'5"	3.48 m	11'5"
Height (To Top of ROPS Canopy)	3.999 m	13'1"	4.340 m	14'3"	4.57 m	15'0"	4.57 m	15'0"
Height (To Top of ROPS Cab)	3.815 m	12'6"	4.078 m	13'4"	4.30 m	14'1"	4.30 m	14'1"
Overall Length:								
(With SU Blade & Ripper)	6.963 m	22'10"	9.260 m	30'5"	10.58 m	34'9"	10.92 m	35'10"
(Without Blade & Ripper)	5.242 m	17'2"	5.331 m	17'6"	5.21 m	17'1"	5.21 m	17'1"
Width (Over Trunnion)	3.308 m	10'10"	3.716 m	12'2"	4.37 m	14'4"	4.37 m	14'4"
Width (W/O Trunnion — Std. Shoe)	2.865 m	9'5"	3.160 m	10'4"	3.60 m	11'10"	3.81 m	12'6"
Ground Clearance	596 mm	1'11"	615 mm	2'0"	574 mm	1'11"■	574 mm	1'11"■
Blade Types and Widths:								
Straight (Carry Dozer)	—		—		—		6.71 m	22'0"
Universal	4.65 m	15'3"	5.26 m	17'3"	6.35 m	20'10"	—	
Semi-U	4.31 m	14'2"	4.86 m	15'11"	5.60 m	18'4"	—	
Fuel Tank Refill Capacity	889 L	235	1204 L	318	1609 L	425	1609 L	425
	U.S. gal		U.S. gal		U.S. gal		U.S. gal	

*Operating Weight includes operator, lubricants, coolant, full fuel tank, hydraulic controls and fluids, SU blade with tilt, back-up alarm, seat belts, lights, rigid drawbar and front towing device.

— D10T includes 10 SU blade single shank ripper and ROPS cab.

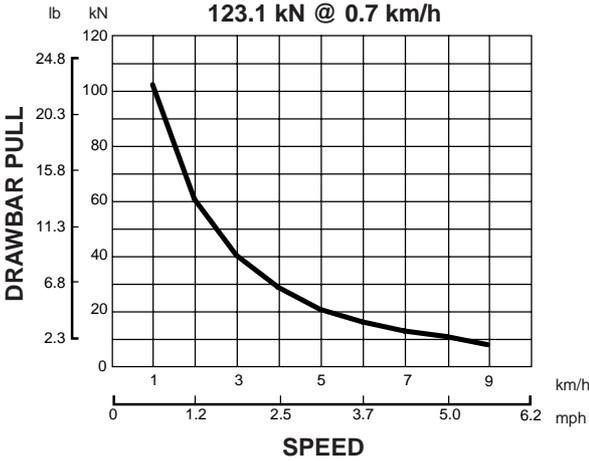
— D11R includes 11U ABR Dual Tilt Bulldozer, single shank ripper with pin puller, ROPS cab, fast fuel fill and engine doors.

— D11R CD includes 11D Dual Tilt Bulldozer, single shank ripper with pin puller, ROPS cab, fast fuel fill and engine doors.

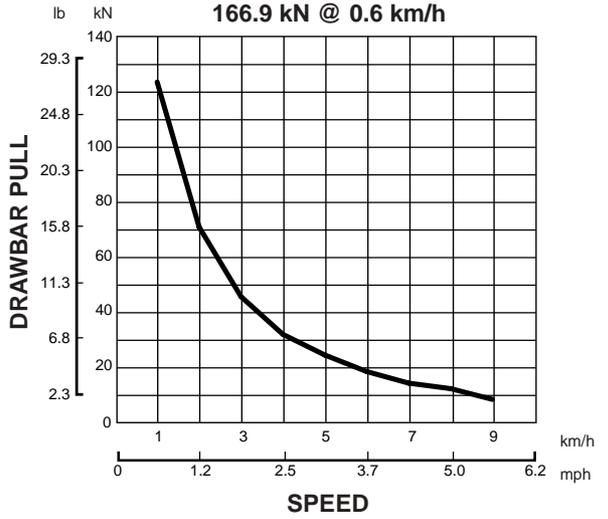
**Height (stripped top) — without ROPS canopy, exhaust, seat back or other easily removed encumbrances.

■ SAE J1234.

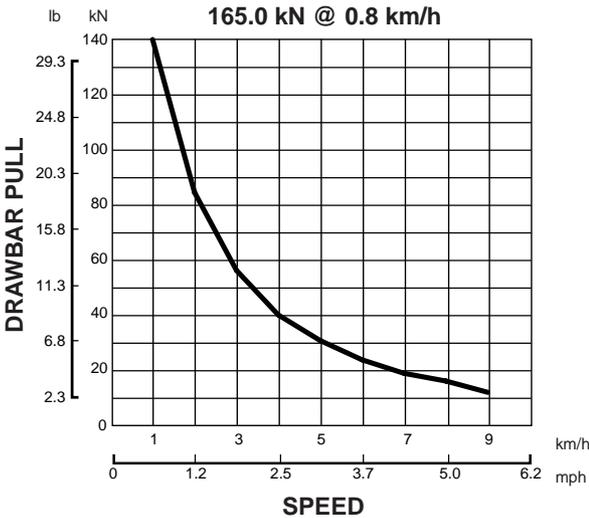
D3G XL Hystat
D3G LGP Hystat



D4G XL Hystat
D4G LGP Hystat

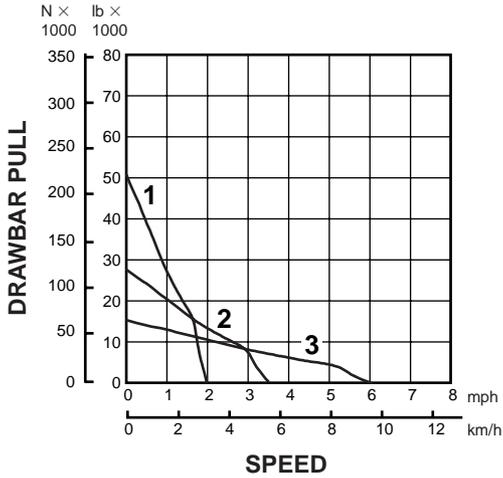


D5G XL Hystat
D5G LGP Hystat

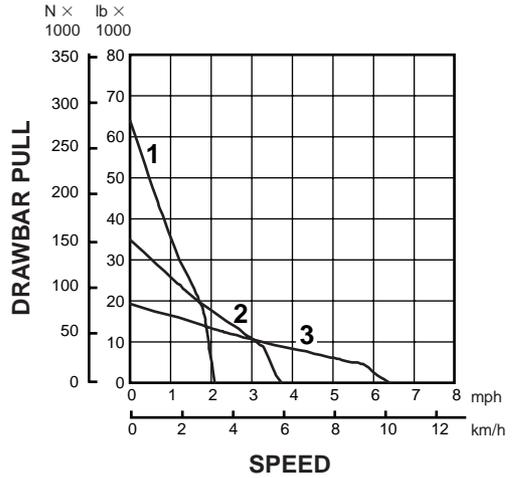


- NOTES:** Usable pull will depend upon weight and traction of equipped tractor.
- Assumes sufficient machine weight for <5% track slip at POR pressure.
 - Assumes pumps and motors are broken in.
 - Assumes nominal engine power and valve settings.
 - Drawbar pull at track stall will be lower.

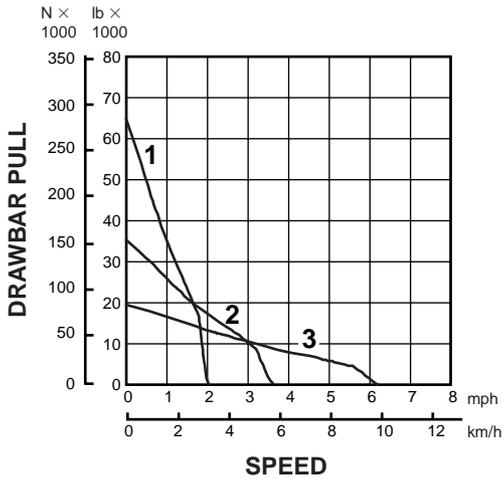
**D5N XL
D5N LGP**



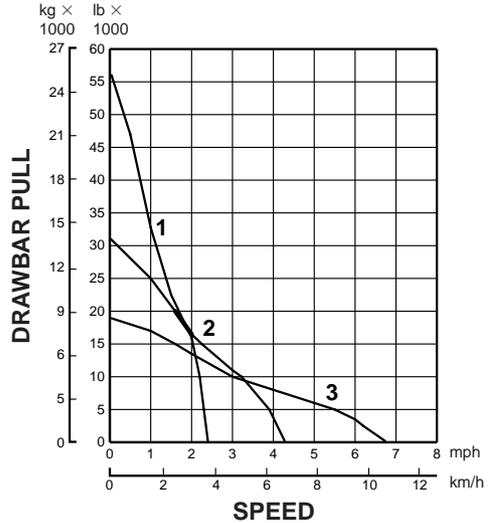
**D6N
Steering Clutches & Brakes (FTC)**



**D6N
Differential Steering (D/S)**



D6G

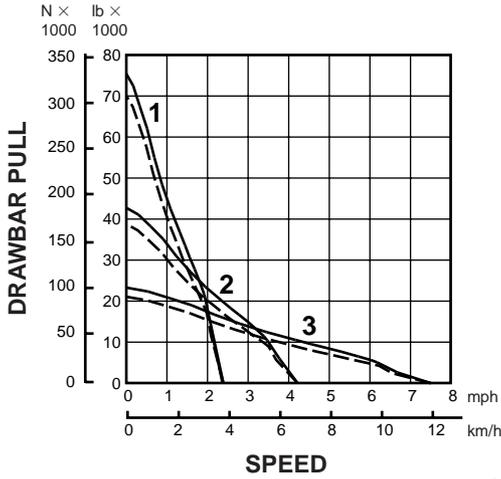


KEY

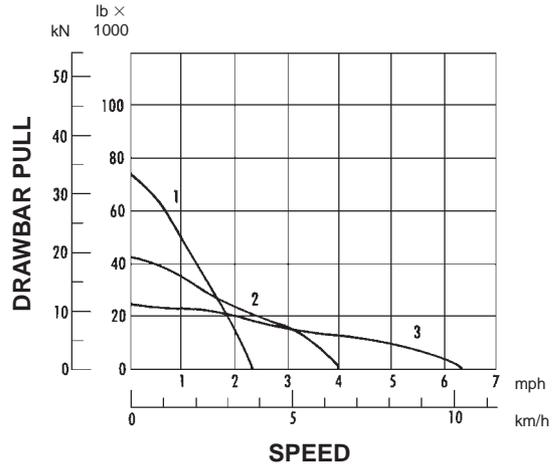
- 1 — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear

NOTE: Usable pull will depend upon weight and traction of equipped tractor.

D6R Series II

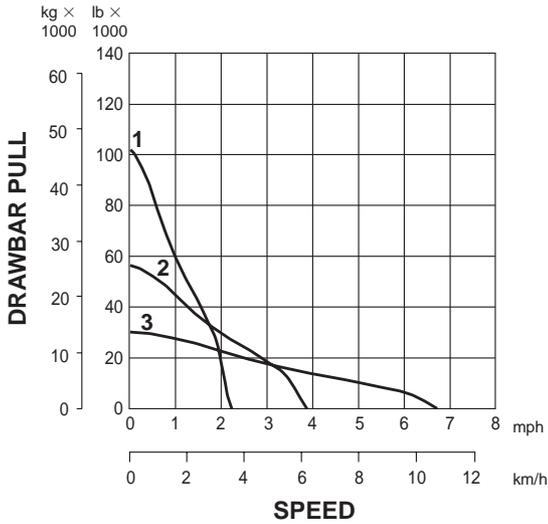


D7G

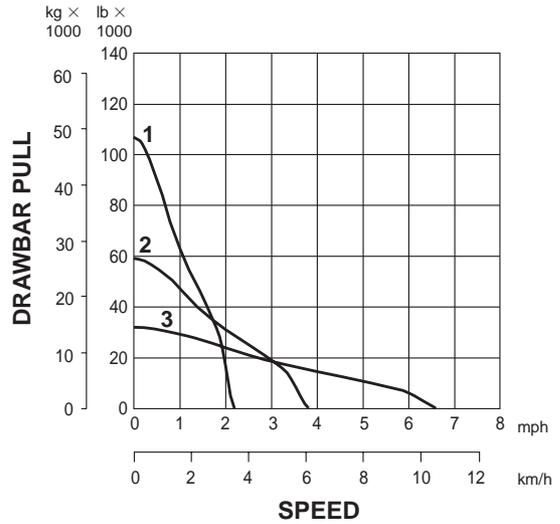


KEY
 --- STD
 — XL/XW/LGP

**D7R Series II Standard/XR/LGP
 Steering Clutches & Brakes (FTC)**



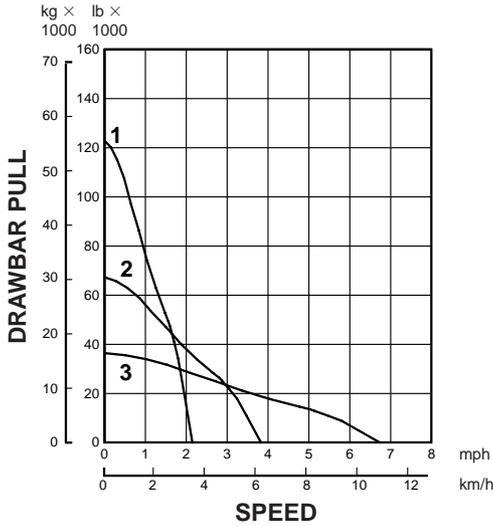
**D7R Series II Standard/XR/LGP
 Differential Steer**



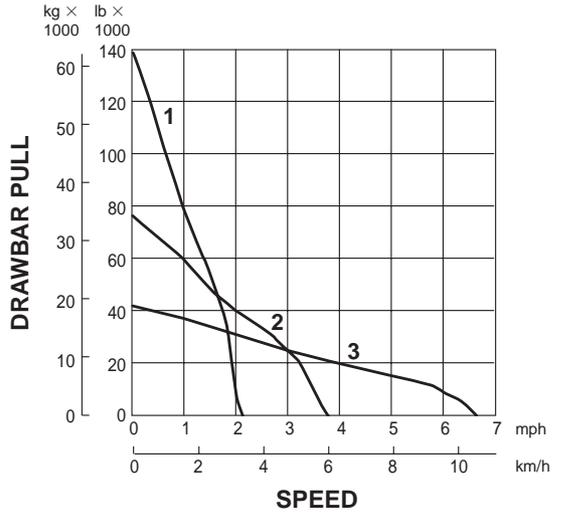
KEY
 1 — 1st Gear
 2 — 2nd Gear
 3 — 3rd Gear

NOTE: Usable pull will depend upon weight and traction of equipped tractor.

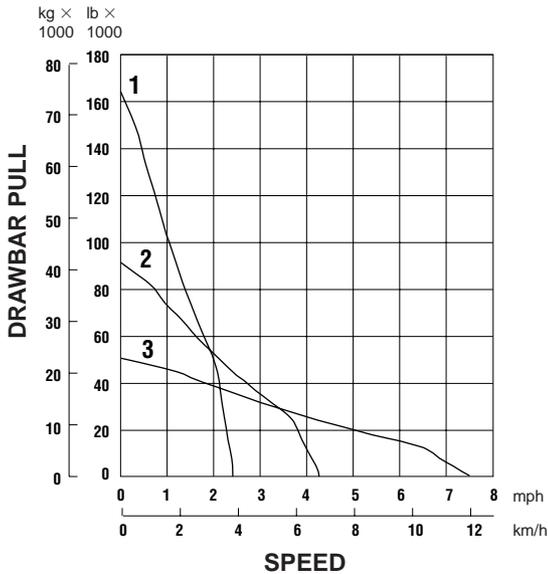
**D8R
D8R LGP**



**D8T
D8T LGP**



**D9R Power Shift with
Steering Clutches & Brakes**

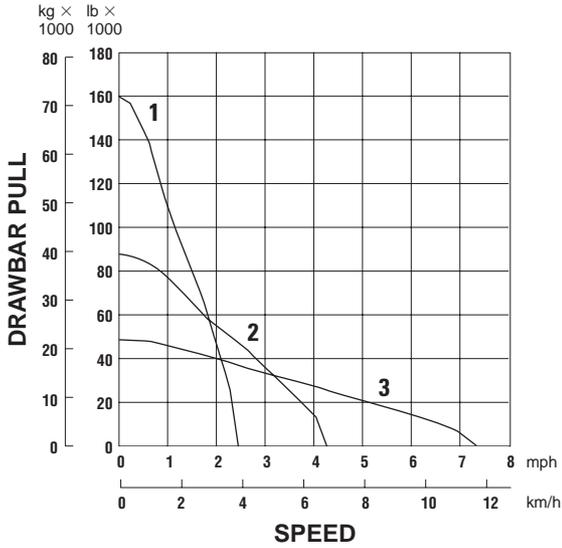


KEY

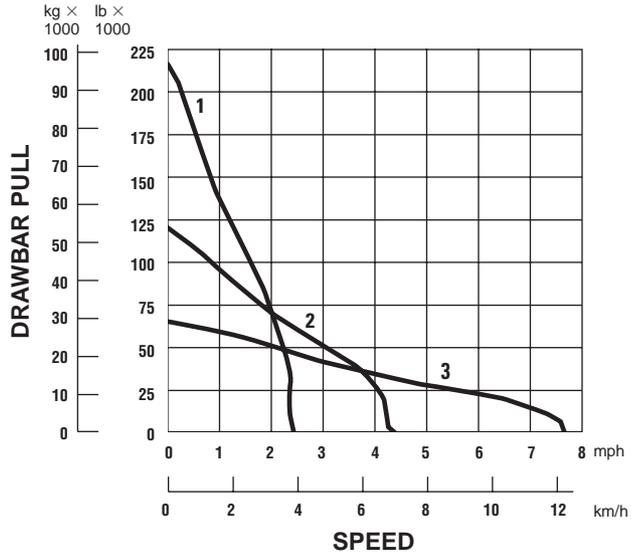
- 1 — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear

NOTE: Usable pull will depend upon weight and traction of equipped tractor.

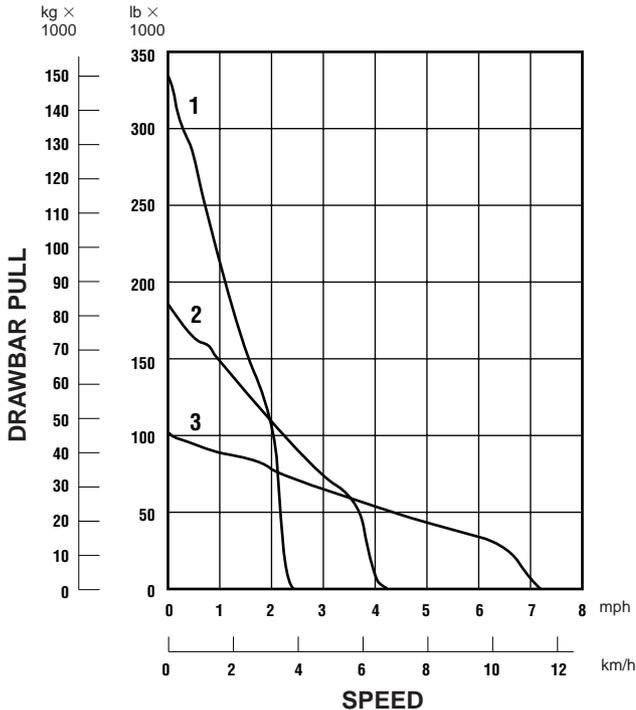
D9T Differential Steering



D10T



D11R/D11R CD



KEY

- 1 — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear

NOTE: Usable pull will depend upon weight and traction of equipped tractor. Tractors with suspended undercarriage can provide up to 15% more tractive effort than tractors with non-suspended undercarriage.

TRAVEL SPEED

POWER SHIFT MODEL	D3G		D4G		D5G		D5N LGP*				D6N FTC	
	All Models		All Models		All Models		D5N XL/LGP		PS DD			
	km/h	mph	km/h	mph	km/h	mph	km/h	mph	km/h	mph	km/h	mph
FORWARD	—	—	—	—	—	—	3.1	1.9	2.8	1.7	3.3	2.0
1	—	—	—	—	—	—	5.4	3.3	5.0	3.1	5.7	3.5
2	—	—	—	—	—	—	9.1	5.6	8.7	5.4	10.0	6.2
3	—	—	—	—	—	—	—	—	—	—	—	—
REVERSE	—	—	—	—	—	—	3.8	2.3	—	—	4.0	2.5
1	—	—	—	—	—	—	6.7	4.1	**	—	7.2	4.4
2	—	—	—	—	—	—	11.3	6.9	—	—	12.3	7.6
3	—	—	—	—	—	—	—	—	—	—	—	—
HYDROSTATIC	—	—	—	—	—	—	—	—	—	—	—	—
FORWARD	0-9.0	0-5.6	0-9.0	0-5.6	0-9.0	0-5.6	—	—	—	—	—	—
REVERSE	0-9.6	0-6.0	0-9.6	0-6.0	0-9.6	0-6.0	—	—	—	—	—	—

POWER SHIFT MODEL	D6N D/S		D6G		D6R Series II (FTC)		Differential Steer D6R Series II		D7G		D7R Series II (FTC)		Differential Steer D7R Series II	
	km/h	mph	km/h	mph	km/h	mph	km/h	mph	km/h	mph	km/h	mph	km/h	mph
FORWARD	3.3	2.0	4.0	2.5	3.8	2.4	3.8	2.3	3.7	2.3	3.7	2.3	3.5	2.2
1	5.7	3.5	6.9	4.3	6.6	4.1	6.6	4.1	6.4	4.0	6.4	4.0	6.2	3.8
2	9.7	6.0	10.8	6.7	11.5	7.2	11.4	7.1	10.0	6.2	11.1	6.9	10.7	6.7
3	—	—	—	—	—	—	—	—	—	—	—	—	—	—
REVERSE	4.0	2.5	4.8	3.0	4.9	3.0	4.8	3.0	4.5	2.8	4.8	3.0	4.6	2.9
1	7.0	4.3	8.4	5.2	8.5	5.3	8.4	5.2	7.9	4.9	8.3	5.1	8.0	5.0
2	12.0	7.4	12.9	8.0	14.7	9.1	14.5	9.0	11.9	7.4	14.3	8.9	13.8	8.6
3	—	—	—	—	—	—	—	—	—	—	—	—	—	—

POWER SHIFT MODEL	Differential Steer D8R		D8T		D9R		D9T		D10T		D11R/CD		D11R/CD High Altitude	
	km/h	mph	km/h	mph	km/h	mph	km/h	mph	km/h	mph	km/h	mph	km/h	mph
FORWARD	3.5	2.2	3.4	2.1	3.8	2.4	3.9	2.4	4.0	2.5	3.9	2.4	4.0	2.5
1	6.2	3.9	6.1	3.8	6.8	4.2	6.8	4.2	7.2	4.5	6.8	4.2	7.0	4.4
2	10.8	6.7	10.6	6.6	11.9	7.4	11.7	7.3	12.7	7.9	11.8	7.3	12.0	7.5
3	—	—	—	—	—	—	—	—	—	—	—	—	—	—
REVERSE	4.7	2.9	4.5	2.8	4.7	2.9	4.7	2.9	5.2	3.2	4.7	2.9	4.8	3.0
1	8.1	5.0	8.0	5.0	8.4	5.2	8.4	5.2	9.0	5.6	8.2	5.1	8.3	5.2
2	13.9	8.6	14.2	8.8	14.7	9.1	14.3	8.9	15.8	9.8	14.0	8.7	14.9	9.0
3	—	—	—	—	—	—	—	—	—	—	—	—	—	—

*Power Shift direct drive transmission available for Japan domestic market only.

**Not available at time of printing.

TRAVEL SPEED

DIRECT DRIVE MODEL	D6R** P.S./D.D.	
	km/h	mph
FORWARD		
1	3.4	2.1
2	5.9	3.7
3	10.4	6.5
4	—	—
5	—	—
6	—	—
REVERSE		
1	4.3	2.7
2	7.5	4.7
3	13.3	8.3
4	—	—
5	—	—
6	—	—

DRAWBAR PULL FORWARD*

FORWARD	At Rated RPM		
	kN	kg	lb
1	122.5	12 500	27,530
2	93.2	9520	20,960
3	70.0	7140	15,740
4	—	—	—
5	—	—	—
6	—	—	—
	Max. at Lug		
1	159.0	16 220	35,750
2	121.6	12 410	27,340
3	91.9	9370	20,650
4	—	—	—
5	—	—	—
6	—	—	—

*Specified pull is based on nominal engine performance derated for transmission lube, control and optional implement hydraulic pumps, with corrections made for drive-line mechanical efficiency and rolling resistance on firm level ground. Usable pull will depend on particular attachments, weight and traction of equipped tractor.

**Japan only.

NOTE: For Variable Horsepower Tractor Information, see the Agricultural Tractor section in this handbook.

GROUND PRESSURES

Pressures computed from operating weights given earlier in this section in the specifications tables.

MODEL	SHOE WIDTH		CONTACT AREA		GROUND PRESSURE	
	mm	in	m ²	in ²	kPa	psi
D3G XL Hystat	406	16	1.67	2586	43.2	6.27
D3G LGP Hystat	635	25	2.61	4045	29.3	4.24
D4G XL Hystat	457	18	2.03	3153	38.0	5.49
D4G LGP Hystat	635	25	2.81	4352	28.6	4.15
D5G XL Hystat	510	20	2.36	3663	37.1	5.37
D5G LGP Hystat	660	26	3.06	4741	29.7	4.31
D5N XL	510	20	2.44	3775	48.6	7.05
◀	560	22	2.67	4146	45.3	6.51
D5N LGP	610	24	3.18	4924	42.2	5.98
◀	760	30	3.96	6135	34.5	4.87
	770	30	4.01	6216	34.9	4.97
D6N XL (FTC)	560	22	2.86	4427	52.6	7.63
◀	600	24	3.06	4743	49.1	7.12
D6N LGP (FTC)	710	28	4.40	6820	39.2	5.58
◀	840	33	5.21	8078	33.8	4.81
	860	34	5.34	8277	33.0	4.69
	865	34	5.37	8324	33.0	4.69
D6G	457	18	2.43	3766	60.0	8.70
◀	508	20	2.71	4200	54.0	7.83
	560	22	2.98	4619	49.0	7.10
	610	24	3.25	5040	45.0	6.54
D6R Series II	560	22	2.92	4531	61.0	8.82
◀	610	24	3.18	4936	56.0	8.14
D6R XL Series II	560	22	3.16	4897	58.5	8.48
◀	610	24	3.44	5335	53.7	7.79
D6R XW Series II	762	30	4.30	6664	44.0	6.50
D6R LGP Series II	760	30	4.93	7641	41.9	6.07
◀	915	36	5.93	9199	35.0	5.04
	1000	39	6.49	10,053	32.0	4.62
D6N XL (DS)	560	22	2.86	4427	54.3	7.88
◀	600	24	3.06	4743	50.9	7.39
D6N LGP (DS)	710	28	4.40	6820	40.6	5.77
◀	840	33	5.21	8078	34.9	4.97
	860	34	5.34	8277	34.1	4.84
	865	34	5.37	8324	34.1	4.84

◀ Standard Shoe.

FTC — Finger Tip Control

DS — Differential Steer

MODEL	SHOE WIDTH		CONTACT AREA		GROUND PRESSURE	
	mm	in	m ²	in ²	kPa	psi
D7G	508	20	2.76	4280	73.0	10.60
◀	559	22	3.04	4708	66.0	9.60
	610	24	3.31	5136	60.0	8.80
D7R Series II	510	20	2.94	4560	83.4	11.71
◀	560	22	3.24	5016	76.0	10.69
	610	24	3.53	5472	69.8	9.87
	660	26	3.82	5928	64.0	9.17
D7R XR Series II	560	22	3.43	5315	71.5	10.16
◀	610	24	3.75	5808	65.9	9.37
	660	26	4.06	6282	61.2	8.70
D7R LGP Series II	760	30	4.80	7504	55.1	7.74
	915	36	5.82	9029	46.0	6.55
D7R LGP ERF Series II*	915	36	6.49	10,060	42.0	6.09
D8R/D8T	560	22	3.59	5565	103.4	14.98
◀	610	24	3.91	6062	94.9	13.76
	660	26	4.23	6559	87.7	12.71
	710	28	4.55	7056	81.5	11.82
D8R LGP/D8T LGP	965	38	6.20	9746	54.0	7.82
D9R/D9T	560	22	3.89	6031	124.8	18.10
◀	610	24	4.24	6569	114.6	16.62
	685	27	4.74	7374	102.0	14.80
	760	30	5.28	8185	92.0	13.34
D10T	610	24	4.74	7321	135.7	19.63
◀	710	28	5.52	8551	116.2	16.86
	800	31.5	6.22	9635	103.1	14.97
D11R	710	28	6.31	9781	162.4	23.57
◀	810	32	7.20	11,159	142.4	20.66
	915	36	8.13	12,605	126.0	18.29
D11R CD	810	32	7.20	11,159	153.8	22.32
◀	915	36	8.13	12,594	136.7	19.76

* Extended track roller frame.

◀ Standard shoe.

NOTE: Ground contact area = width of track shoe × length of track on ground × 2.

$$\text{Ground pressure} = \frac{\text{operating weight}}{\text{ground contact area}}$$

EXTREME SLOPE OPERATION

The following table gives the MAXIMUM fore and aft slope on which each tractor will have proper lubrication. Consult Operation & Maintenance Manual (if applicable) for POWER TRAIN fluid level overfill requirements for operation on extreme slopes. Extreme slope operation is anytime the slope exceeds 25° (47%).

Tractor	D3G	D4G	D5G	D5N	D6N
Percent Grade or Degrees Slope	100 45	100 45	100 45	100 45	100 45

Tractor	D6G/ D6R Series II	D7G/ D7R Series II	D8R/ D8T	D9R/ D9T	D10T	D11R/ D11R CD
Percent Grade or Degrees Slope	100 45	100 45*	100 45	100 45	100 45	100 45

Pipelayer	561M	572R	583R	589
Percent Grade or Degrees Slope	100 45	100 45	100 45	100 45

The ENGINE should never be overfilled with oil. This may lead to rapid overheating. For extreme slope operation, engine oil should be maintained at the full mark.

NOTE: Both ENGINE and POWER TRAIN fluid levels should be checked on level ground before working sidehills and slopes.

When working sidehills and slopes, consideration should be given to the following important points:

- Speed of travel — At higher speeds, inertia forces tend to make the tractor less stable.
- Roughness of terrain or surface — Ample allowance should be made where the terrain or surface is uneven.
- Mounted equipment — Bulldozers, sidebooms, winches, and other mounted equipment cause the tractor to balance differently.
- Nature of surface — New earthen fills may give way with the weight of the tractor. Rocky surfaces may promote side slipping of tractor.
- Track slippage due to excessive loads — This may cause downhill track to “dig in,” increasing angle of tractor.

- Implements hitched to the drawbar — This may decrease weight on uphill track, e.g., logging arch, two-wheel wagon.
- Height of hitch on tractor — When a high drawbar is used the tractor is less stable than with the standard drawbar.
- Width of shoes — Wide track shoes tend to decrease “digging in”, hence tractor is more stable.
- Operated equipment — Be aware of the stability and other performance features of the equipment operated by the tractor.
- Keep all attachments or pulled loads low to the ground for optimum stability.

*The D7G requires a 23 L (6 gal) transmission overfill for acceptable operation on slopes above 25° (47%).

NOTE: Safe operation on steep slopes may require special machine maintenance as well as excellent operator skill and proper equipment for the specific application. Consult Operation & Maintenance Manual (if applicable) for proper fluid level requirements.

HYDRAULIC CONTROLS

CONTENTS

Features	1-19
Specifications	1-20

Features:

- **Designed and built for specific tractor applications.** Valves and components sized for exacting quality and performance.
- **Job requirements matched** through various arrangements.
- **Hydraulic blade and ripper controls:** Mechanical controls on G and M Series. Pressure compensated on D6R Series II and D9R. Pilot operated on D7R Series II. Electro hydraulic blade and ripper controls on D8T, D9T, D10T and D11R.
- **Full flow filters***... all oil completely filtered.
- **Dual tilt** — standard on D11R, optional on D9R and D10T.

*Exception — D8R 2-pump.

MODEL	D3G Hystat	D4G Hystat	D5G Hystat
Mounting Point	Fender	Fender	Fender
Number of Valves	3 or 4	3 or 4	3 or 4
Flow at 6890 kPa (1000 psi)	61.1 L/min @ 2200 RPM 16.1 gpm	61.1 L/min @ 2200 RPM 16.1 gpm	61.1 L/min @ 2200 RPM 16.1 gpm
Tank Capacity (Oil)	47 L 12 U.S. gal	47 L 12 U.S. gal	47 L 12 U.S. gal
Lift Relief Valve Setting	20 000 kPa 2900 psi	20 000 kPa 2900 psi	20 000 kPa 2900 psi
Weight Installed	16 kg 36 lb* (Four Valves)	16 kg 36 lb* (Four Valves)	16 kg 36 lb* (Four Valves)

MODEL	D5N	D6N
Mounting Point	Right Rear Fender	Right Rear Fender
Number of Valves	3 or 4	3 or 4
Flow at 6890 kPa (1000 psi)	100 L/min @ 2200 RPM 26.4 gpm	133 L/min @ 2200 RPM 35.2 gpm
Tank Capacity (Oil)	29.5 L 7.8 U.S. gal	29.5 L 7.8 U.S. gal
Lift Relief Valve Setting XL & LGP	21 000 kPa 3000 psi	25 000 kPa 3600 psi
Weight Installed: 3 Valve	216 kg 440 lb	295 kg 650 lb
4 Valve	232 kg 475 lb	314 kg 703 lb

MODEL	D6G	D6R Series II	D6R Series II (Differential Steer)
Mounting Point	Dash	Under Operators Platform	Under Operators Platform
Number of Valves	1, 2 or 3	2, 3 or 4	2, 3, 4 or 5
Flow at 6890 kPa (1000 psi)	167 L/min @ 1900 RPM 44 gpm	216 L/min @ 2125 RPM (PMP) 57 gpm	214 L/min @ 2125 RPM (PMP) 57 gpm
Tank Capacity (Oil)	49 L 13 U.S. gal	47.3 L 12.5 U.S. gal	47.3 L 12.5 U.S. gal
Lift Relief Valve Setting	15 500 kPa 2250 psi	19 305 kPa 2800 psi	19 305 kPa 2800 psi
Weight Installed	318 kg 700 lb (Two Valves)	311 kg 685 lb (Two Valves)	311 kg 686 lb (Two Valves)

MODEL	D7G (173B)	D7R Series II	D7R Series II (Differential Steer)
Mounting Point	Fender	Under Operators Platform	Under Operators Platform
Number of Valves	1, 2 or 3	2 or 3	2 or 3
Flow at 6890 kPa (1000 psi)	227 L/min @ 2080 RPM 60 gpm	227 L/min @ 2231 RPM (PMP) 60 gpm	289 L/min @ 2231 RPM (PMP) 76 gpm
Tank Capacity (Oil)	91 L 24 U.S. gal	54 L 14.3 U.S. gal	54 L 14.3 U.S. gal
Lift Relief Valve Setting	15 500 kPa 2250 psi	22 750 kPa 3300 psi	22 750 kPa 3300 psi
Weight Installed	458 kg 1010 lb (Two Valves)	358 kg 789 lb (Two Valves)	358 kg 784 lb (Two Valves)

*Hydraulic tank not included.

**Steering system not included.

NOTE: Weight installed, two valves, includes pump, tank with filters, valves, lines, linkage, oil cooler and control levers.

MODEL	D8R	D8T	D9R	D9T
Mounting Point	Under Operators Platform	At Rear Under Fuel Tank	Under Operators Platform	Under Operators Platform
Number of Valves	2 Std. 4 with Ripper◀ Pilot Control System	2 Std. 4 with Ripper Electro/Hydraulic Control System	4 + Dual Tilt (Attach.) Radiator Guard	4 + Dual Tilt (Attach.) Electro/Hydraulic Control System
Flow at 6890 kPa (1000 psi)	240 L/min 63 gpm @ 2100 RPM (PMP)	270 L/min 71.3 gpm @ 2200 RPM	239 L/min 63 gpm @ 1900 RPM	239 L/min 63 gpm @ 1900 RPM
Tank Capacity (Oil)	72 L 19 U.S. gal	75 L 19.8 U.S. gal	77.2 L 20.4 U.S. gal	89 L 23.5 U.S. gal
Lift Relief Valve Setting	24 200 kPa 3500 psi	24 200 kPa 3500 psi	26 200 kPa 3800 psi	26 200 kPa 3800 psi
Weight Installed	Included in Std. Tractor (Two Valves)	Included in Std. Tractor	Included in Std. Tractor (Two Valves)	Included in Std. Tractor

MODEL	D10T	D11R	D11R CD
Mounting Point	Under Operators Platform	Under Operators Platform	Under Operators Platform
Number of Valves	2 Std. 4 with Ripper At Rear Under Fuel Tank 1◀ + Dual Tilt (Attach.) Radiator Guard	2 At Rear Under Fuel Tank 1◀ + Dual Tilt Standard Radiator Guard	2 At Rear Under Fuel Tank 1◀ Dual Tilt Standard Quick Dump Valve Standard Both on Radiator Guard
Flow at 6890 kPa (1000 psi)	450 L/min 118.7 gpm @ 1800 RPM	620 L/min 164 gpm @ 1890 RPM	670 L/min 177 gpm @ 1890 RPM
Tank Capacity (Oil)	139 L 36.7 U.S. gal	227 L 60 U.S. gal	227 L 60 U.S. gal
Lift Relief Valve Setting	Lift: 18 790 kPa 2725 psi Tilt: 20 325 kPa 2950 psi	22 750 kPa 3300 psi	24 115 kPa 3500 psi
Weight Installed	Included in Std. Tractor (Two Valves)	Included in Std. Tractor (Two Valves)	Included in Std. Tractor (Two Valves)

◀Ripper valve.

NOTE: Weight installed, two valves, includes pump, tank with filters, valves, lines, linkage, oil cooler and control levers.

BULLDOZERS

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Features:

- **Straight Bulldozers** — adjustable pitch angle controls blade penetration.
- **Variable cutting edge Power Angle and Tilt (VPAT)** — blade is available on the D3G, D4G, D5G, D5N and D6N. The blade can be mechanically tipped forward for improved penetration or back for more productivity and easier finish grading.
- **Power Angle and Tilt (PAT)** — blade is available for D6R Series II as a custom product. Provides greater versatility for finish grading, V ditching, windrowing and medium to heavy dozing in dirt, clay, sand and other non-rock materials. Not intended for land clearing.
- **Angling Bulldozers** — 25° right/left angling; C-frame allows mounting other tools.
- **Universal Bulldozers** — 25° wings provide increased capacity, less spillage.
- **Semi-Universal Bulldozers** — combines penetration ability of straight blade with increased load capacity provided by short 25° wings.
- **Wheel Dozer blades** are straight design, with hydraulic pitch and tilt control.
- **Box-section construction** on blades adds rigidity and strength.
- **Cutting edges** are heat treated and reversible for extra life.

CATERPILLAR BLADES

SPECIAL BLADES

MODEL	S	U	SU	A	FS	LFS	P	VP	RC	WC	CL	HU	LF	TW	CU	CPB	CB	VR	WCB	CS	WCS	W	
D3G XL								●															
D3G LGP								●															
D4G XL								●															
D4G LGP								●															
D5G XL								●															
D5G LGP								●															
D5N XL								●						●									
D5N LGP								●						●									
D5E				●				●						●									
D6N XL			●					●						●									
D6N LGP								●						●									
D6R Series II	●		●	●						●	●	●	●						●				
D6R XL Series II			●	●				●															
D6R LGP Series II	●							●		●	●		●						●				
D6R XW Series II			●	●				●															
D6G	●			●							●		●	●									
D7R	●	●	●	●						●	●	●	●	●					●				
D7R LGP	●												●	●					●				
D7G	●	●		●						●	●	●	●	●	●	●	●	●	●				
D8R/D8T		●	●	●					●	●	●	●	●		●	●			●				
D8R LGP/D8T LGP															●								
D9R/D9T		●	●							●	●		●		●	●	●			●			
D10T		●	●						●	●	●		●		●	●	●						
D11R		●	●						●		●												
814F	●										●	●									●	●	
815F					●																		
816F						●							●										●
824G	●									●	●	●									●	●	
825G					●																		
826G						●							●										●
834G	●	●								●	●										●	●	
836													●										●

CATERPILLAR SUPPLIED

S — Straight
 U — Universal
 SU — Semi-Universal
 A — Angling
 FS — Fill Spreading
 LFS — Landfill Spreading
 P — Power Angle Tilt
 VP — Variable Pitch, Lower, Angle & Tilt (VPAT)

SPECIAL SUPPLIED

RC — Reclamation U — Two-Way Dozer
 WC — Woodchips CU — Cushion Dozer
 CL — Coal CPB — Cushion Push Block
 HU — Heavy U CB — Coal Bowldozer
 LF — Landfill VR — Variable Radius

WCB — Wood Chip Bowldozer
 CS — Coal Scoop
 WCS — Wood Chip Scoop
 W — W-Blade

NOTE: This chart suggests a range of blade options for Caterpillar built machines. It is not totally inclusive of all blades available. For additional information consult your Caterpillar Dealer.

BLADE SELECTION

Properly matching tractor and dozer is a basic requirement for maximizing production. First consider the kind of work the tractor will be doing most of its life. Then evaluate:

- Material to be moved.
- Tractor limitations.

Materials to be moved

Most materials are dozeable. However, dozer performance will vary with material characteristics such as:

Particle Size & Shape — The larger the individual particle size, the harder it is for a cutting edge to penetrate. Particles with sharp edges resist the natural rolling action of a dozer blade. These particles require more horsepower to move than a similar volume of material with rounded edges.

Voids — Few voids or the absence of voids means the individual particles have most or all of their surface area in contact with other particles. This forms a bond which must be broken. A well graded material, which lacks voids, is generally heavy, and will be hard to remove from the bank state.

Water Content — In most materials the lack of moisture increases the bond between particles and makes the material difficult to remove from the bank state. A high moisture content makes dozing difficult because the material is heavy and requires more force to move. Optimum moisture reduces dust and offers the best condition for dozing ease and operator comfort.

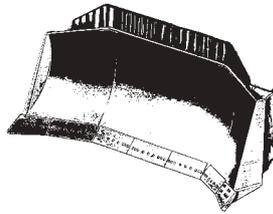
The effect of freezing depends on the moisture content. When frozen, the material's bond strengthens as moisture content increases and temperature decreases. However, freezing a completely dry material does not change its characteristics.

An indication of a blade's ability to penetrate and obtain a blade load is kW per meter (or horsepower per foot) of cutting edge. The higher the kW/meter (HP/foot), the more aggressive the blade. Kilowatt per Lm^3 (horsepower per loose cubic yard) indicates a blade's ability to push material. The higher the kW/ Lm^3 (HP/LCY), the greater the blade's potential capability for carrying material at a greater speed.

Tractor Limitations

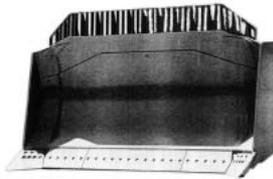
The weight and horsepower of the machine determines its ability to push. No tractor can exert more pounds push than the machine itself weighs and its power train can develop. Various terrain and underfoot conditions on the job limit the tractor's ability to use its weight and horsepower. The "approximate coefficient of traction factors" chart in the Tables Section presents these traction factors for common materials. To use the chart, take the total tractor weight (with attachments) times the factor to arrive at the maximum usable push the dozer can exert.

Production Dozing Tools



"U" — Universal blade — the large wings on this blade include one end bit and at least one section of cutting edge which make it efficient for moving big loads over long distances as in land reclamation, stockpile

work, charging hoppers and trapping for loaders. As this blade has a lower kW/meter (HP/foot) of cutting edge than an "S" or "SU", penetration should not be a prime objective. With a lower kW/ Lm^3 (HP/LCY) than an "S" or "SU", this blade is best for lighter or relatively easily dozed material. If equipped with tilt cylinders the U blade can be used to pry out, level, cut ditches and steer the tractor.



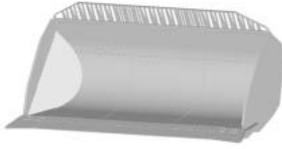
"SU" — The Semi-U blade combines the desirable characteristics of S and U-blades into one package. It has increased capacity by the addition of short wings which include only the dozer end

bits. The wings provide improved load retention capabilities while maintaining the blade's ability to penetrate and load quickly in tightly packed materials and to handle a wide variety of materials in production oriented applications. Tilt cylinder(s) increase both the productivity and versatility of this dozer. Equipped with a push plate, it is effectively used for push loading scrapers.

Bulldozers

Blade Selection

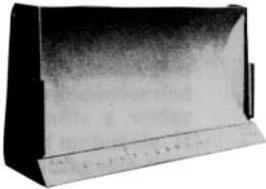
- Production Dozing Tools
- General Purpose Dozing Tools
- Special Attachments “VR Blades”
- Special Application Dozing Tools



“CD” — The CD or Carrydozer Blade is available for the D11R Carrydozer only. It is built to the same high standard of structural integrity as the “U” and “SU” Dozers. The CD Blade has

a unique “bucket” shape that allows it to carry several cubic yards or cubic meters of material in the blade. This acts as a disposable counterweight that allows the Carrydozer to push more material per pass than a standard D11R. The Carrydozer will not be as effective as the “U” or “SU” dozer in tightly packed or poorly shot material. It is also more sensitive to the carry-back in sticky materials.

General Purpose Dozing Tools



“S” — The Straight blade provides excellent versatility. Since it is physically smaller than the SU or U-blade, it is easier to maneuver and can handle a wider range of materials. It has a higher kW/meter (HP/foot) of cutting

edge than the SU or U-blade; consequently, the “S” is more aggressive in penetrating and obtaining a blade load. A tilt cylinder increases both the productivity and versatility of this dozer. With a high kW/Lm³ (HP/LCY), the S-blade can handle heavy material easily.



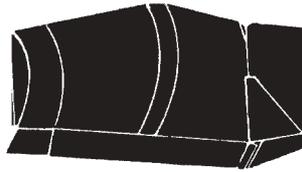
Power Angle and Tilt blade — Versatility is its key feature with its ability to perform a variety of site development to general dozing work as well as heavy-duty applications. Angle and tilt control is with 2 levers on some machines, 1 lever on others.

Variable Power Angle and Tilt (VPAT) blade can be mechanically tipped forward for improved penetration or shedding sticky material and backward for finish grading and improved productivity.

Special Application Dozing Tools

Caterpillar and other blade manufacturers provide specialty bulldozers for specific applications. The blades are designed to increase production while performing certain tasks. However, specialization may reduce the blade versatility. Following are the most popular special applications blades.

“VR Blades” (Variable Radius)



The Variable Radius Semi-U-Blade combines the benefits of a semi-U-blade such as “cutting” ability and ground penetration with U-blade characteristics of better

load retention and less side spill.

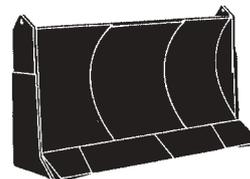
This is achieved with the variable radius moldboard. The variable radius moldboard causes dirt to move to the center of the blade creating more rolling action. The extended side plates retain the load and increase capacities.

The variable radius semi-U-blade is an excellent tool for land improvement, soil conservation and reclamation.



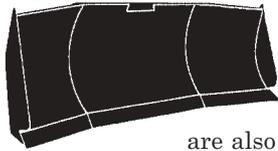
“A” — Or Angling blade can be positioned straight or angled 25 degrees to either side. It is designed for side-casting, pioneering roads, backfilling, cutting

ditches and other similar tasks. It can reduce the amount of maneuvering required to do these jobs. Its “C” frame can be used for attachments such as pushing, land clearing, or snow removal tools. A-blades are not recommended for rock or severe applications.



“CU” — The Cushion blade is used for on-the-go push-loading. Rubber cushions allow the dozer to absorb the impact of contacting a scraper push block. When not push-loading, the dozer

can be used for cut maintenance and other general dozing jobs. The narrow width of the C-blade increases machine maneuverability in congested cuts and reduces the possibility of cutting tires associated with SU and U-blades.



“U-Blades” — Provide high volume movement of light non-cohesive materials such as coal and wood-chips. Heavier U-blades

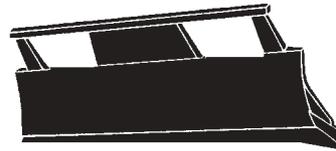
are also offered for production dozing and reclamation work.



“Rakes” — Caterpillar offers a variety of rakes for use in land clearing applications. They handle vegetation up to tree size, and offer good soil penetration for removal

of small stumps, rocks and roots. In most cases rake tines are replaceable.

“Landfill” — Designed to handle refuse and cover material. Open trash screen on top of blade allows good visibility and protects radiator. Curved mold-board keeps cover material rolling evenly.



“K/G” — Offered by Rimco and Rome, the K/G-blade is used in many land clearing applications. In

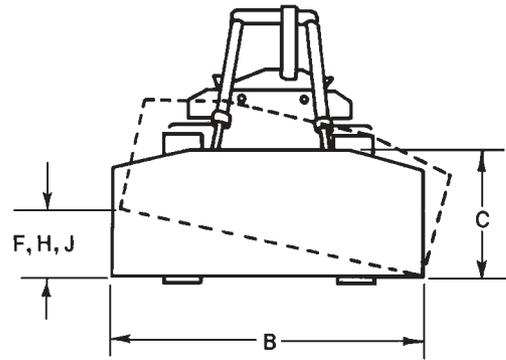
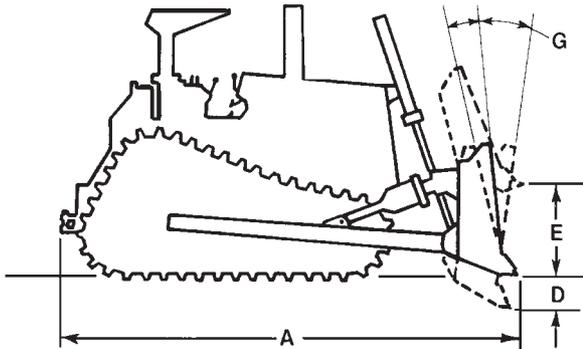
addition to cutting trees this versatile blade can pile vegetation, cut v-type drainage ditches and build woods roads and firebreaks.

“Two-Way Dozer” — Designed for use inside ship holds to move cargo such as grain, salt, iron ore, coal and chips. These blades can scrape material off walls and doze to center of hold. They can doze material forward or pull material.

Bulldozers

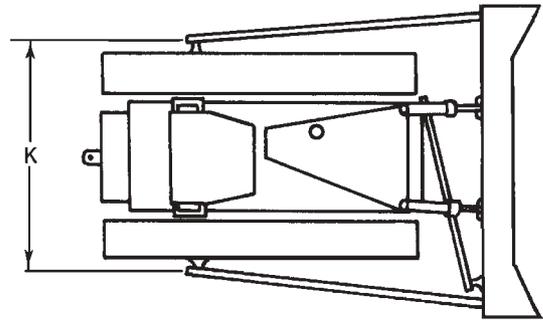
General Dimensions Key

- Tractor and Blade
- SAE Blade Capacity Definition



KEY

- A** Length (Blade Straight) Blade:
- B** Width (including standard end bits)
- C** Height
- D** Maximum Digging Depth
- E** Ground Clearance @ Full Lift
- F** Maximum Tilt (Manual)
- G** Maximum Pitch Adjustment
- H** Maximum Hydraulic Tilt
- J** Hydraulic Tilt (manual brace centered)
- K** Push Arm Trunnion Width (to Ball Centers)



Blade capacities on the following pages are as determined by SAE recommended practice J1265. Capacities are defined as:

$$V_s = 0.8 WH^2.$$

$$V_u = ZH(W-Z) \tan X.$$

Where: V_s = Capacity of straight or angling blade.

V_u = Capacity of semi-U or full U-blade.

W = Blade width exclusive of end bits.

H = Effective blade height considering tapered top corners, etc.

Z = Wing length measured parallel to blade width @ ground line of cutting edges.

X = Wing angle.

- D3G Hystat
- D4G Hystat
- D5G Hystat

MODEL	D3G			
	D3G XL		D3G LGP	
Type	Variable Power Angling and Tilt		Variable Power Angling and Tilt	
Blade Capacities*	1.44 m ³	1.88 yd ³	1.53 m ³	2 yd ³
Weight Shipping** (Dozer)	1011 kg	2229 lb	1071 kg	2361 lb
Tractor & Dozer Dimensions:				
A Length (Blade Straight)	4.03 m	13'3"	4.00 m	13'1"
Length (Blade Angled)	4.50 m	14'9"	4.59 m	15'1"
Width (Blade Angled)	2.25 m	7'5"	2.87 m	9'5"
Width (with C-Frame only)	—		—	
Blade Dimensions:				
B Width (including std. end bits)	2.46 m	8'1"	3.15 m	10'4"
C Height	936 mm	3'1"	843 mm	2'9"
D Max. Digging Depth	554 mm	1'9"	527 mm	1'9"
E Ground Clearance @ Full Lift	688 mm	2'3"	695 mm	2'3"
G Pitch Adjustment	50°–55°		50°–55°	
J Hydraulic Tilt	369 mm	15"	456 mm	18"
Blade Angle	25°		25°	

MODEL	D4G				D5G			
	D4G XL		D4G LGP		D5G XL		D5G LGP	
Type	Variable Power Angling and Tilt		Variable Power Angling and Tilt		Power Angling and Tilt		Power Angling and Tilt	
Blade Capacities*	1.92 m ³	2.5 yd ³	1.84 m ³	2.4 yd ³	2.19 m ³	2.86 yd ³	2.34 m ³	3.1 yd ³
Weight Shipping** (Dozer)	1114 kg	2456 lb	1179 kg	2599 lb	1250 kg	2756 lb	1261 kg	2780 lb
Tractor & Dozer Dimensions:								
A Length (Blade Straight)	4.04 m	13'3"	4.03 m	13'3"	4.28 m	14'1"	4.21 m	13'10"
Length (Blade Angled)	4.53 m	14'10"	4.62 m	15'2"	4.79 m	15'9"	4.85 m	15'11"
Width (Blade Angled)	2.44 m	8'0"	2.87 m	9'5"	2.46 m	8'1"	2.97 m	9'9"
Blade Dimensions:								
B Width (including std. end bits)	2.67 m	8'9"	3.15 m	10'4"	2.69 m	8'10"	3.25 m	10'8"
C Height	1028 mm	3'4"	922 mm	3'0"	1101 mm	3'7"	1028 mm	3'4"
D Max. Digging Depth	568 mm	1'10"	521 mm	1'9"	630 mm	2'1"	582 mm	1'11"
E Ground Clearance @ Full Lift	686 mm	2'3"	733 mm	2'5"	760 mm	2'6"	789 mm	2'7"
G Pitch Adjustment	50°–55°		50°–55°		50°–55°		50°–55°	
J Hydraulic Tilt	387 mm	15"	456 mm	18"	390 mm	15"	471 mm	19"
Blade Angle	25°		25°		25°		25°	

*Blade capacities as determined by SAE J1265.

**Shipping Weight — Total Bulldozer Arrangement includes: Blade, push arms or C-frame, braces, cylinders, lines, trunnions and lift cylinder mountings.

Bulldozers

Blade Specifications

- D5N XL ● D5N LGP ● D6N XL ● D6N LGP
- D6R Series II ● D6R XL Series II ● D6R LGP Series II

MODEL	D5N XL		D5N LGP		D6N XL			
	5VPAT		5VPAT LGP		6SU		6VPAT	
Type	Variable Pitch Power Angling and Tilt		Variable Pitch Power Angling and Tilt		Semi-U		Variable Pitch Power Angling and Tilt	
Blade Capacities*	2.6 m ³	3.4 yd ³	2.6 m ³	3.4 yd ³	4.28 m ³	5.57 yd ³	3.18 m ³	4.16 yd ³
Weight, Shipping** (Dozer)	1932 kg	4259 lb	2000 kg	4409 lb	2427 kg	5351 lb	2372 kg	5229 lb
Tractor & Dozer Dimensions:								
A Length (Blade Straight)	4.56 m	14'11"	5.06 m	16'1"	4.92 m	16'2"	4.80 m	15'9"
Length (Blade Angled)	5.09 m	16'8"	5.50 m	18'0"	—	—	5.53 m	17'10"
Width (Blade Angled)	2.79 m	9'2"	3.11 m	10'1"	—	—	2.96 m	9'9"
Width (with C-Frame only)	—		—		—		—	
Blade Dimensions:								
B Width (including std. end bits)	(inside mounted)		(inside mounted)		(outside mounted)		(inside mounted)	
C Height	3.08 m	10'1"	3.36 m	11'0"	3.19 m	10'4"	3.27 m	10'9"
D Max. Digging Depth	1109 mm	43.7"	1127 mm	35.8"	1244 mm	4'1"	1195 mm	3'11"
E Ground Clearance @ Full Lift	430 mm	16.9"	415 mm	13.2"	520 mm	1'8.5"	538 mm	21.1"
G Max. Pitch	933 mm	36.7"	1001 mm	39.3"	983 mm	3'2.7"	822 mm	33"
H Max. Hydraulic Tilt	+2°–6°		+2°–6°		±5°		+2°–6°	
J Hydraulic Tilt	—		—		665 mm	2'2.2"	—	
Blade Angle	—		—		372 mm	14.6"	497 mm	20"
	25°		25°		—		25°	

*Blade capacities as determined by SAE J1265.

**Shipping Weight — Total Bulldozer Arrangement includes: Blade, push arms or C-frame, braces, cylinders, lines, trunnions and lift cylinder mountings.

MODEL	D6N LGP		D6R Series II, D6R XL Series II & D6R LGP Series II					
	6VPAT LGP		6A		6A Heavy Duty		6A XL	
Gauge	—		1880 mm	74"	1880 mm	74"	1880 mm	74"
Type	Variable Pitch Power Angling and Tilt		Angling		Angling		Angling	
Blade Capacities*	3.16 m ³	4.11 yd ³	3.18 m ³	4.16 yd ³	3.93 m ³	5.14 yd ³	3.93 m ³	5.14 yd ³
Weight, Shipping** (Dozer)	2819 kg	6215 lb	2727 kg	5999 lb	3218 kg	7079 lb	3109 kg	6839 lb
Tractor & Dozer Dimensions:								
A Length (Blade Straight)	5.39 m	17'8"	5.22 m	17'1"	5.22 m	17'1"	5.43 m	17'10"
Length (Blade Angled)	6.20 m	20'4"	6.05 m	19'10"	6.05 m	19'10"	6.26 m	20'6"
Width (Blade Angled)	3.70 m	12'2"	3.78 m	12'5"	3.78 m	12'5"	3.78 m	12'5"
Width (with C-Frame only)	—		2.91 m	9'7"	2.91 m	9'7"	2.98 m	9'10"
Blade Dimensions:								
B Width (including std. end bits)	(inside mounted)		4.16 m	13'8"	4.16 m	13'8"	4.16 m	13'8"
C Height	4.08 m	13'5"	1033 mm	3'4.7"	1155 mm	3'9.5"	1155 mm	3'9.5"
D Max. Digging Depth	1025 mm	3'4.4"	506 mm	1'7.9"	506 mm	1'7.9"	524 mm	1'8.6"
E Ground Clearance @ Full Lift	433 mm	17.0"	1141 mm	3'8.9"	1141 mm	3'8.9"	1205 mm	3'11.4"
F Manual Tilt	1024 mm	3'4.3"	408 mm	16.1"	408 mm	16.1"	408 mm	16.1"
G Max. Pitch	+2°–6°		—		—		—	
H Max. Hydraulic Tilt	598 mm	1'11.5"	408 mm	16.1"◀	408 mm	16.1"◀	408 mm	16.1"
Blade Angle	25°		25°		25°		25°	

*Blade capacities as determined by SAE J1265.

Notice that the capacity of the U-blade is the volume carried by a straight blade of the same dimensions plus the volume included in the "cup" of the U-blade. It is intended for **relative comparisons of dozer sizes**, and not for predicting capacities or productivities in actual field conditions.

**Shipping Weight — Total Bulldozer Arrangement includes: Blade, push arms or C-frame, braces, cylinders, lines, trunnions and lift cylinder mountings.

◀ Attachment includes two cylinders.

Blade Specifications

- D6R XL Series II
- D6R XW Series II
- D6R LGP Series II
- D6R Series II

Bulldozers

MODEL	D6R XL Series II, D6R XW Series II & D6R LGP Series II							
	6PAT XL		6PAT XL		6PAT XW		6PAT LGP	
Gauge	1880 mm	74"	2235 mm	88"	2032 mm	80"	2235 mm	88"
Type	PAT		PAT		PAT		PAT	
Blade Capacities*	4.84 m ³	6.33 yd ³	4.2 m ³	5.5 yd ³	5.08 m ³	6.65 yd ³	4.2 m ³	5.5 yd ³
Weight, Shipping** (Dozer)	3246 kg	7150 lb	3522 kg	7750 lb	3319 kg	7300 lb	3670 kg	8070 lb
Tractor & Dozer Dimensions:								
A Length (Blade Straight)	5.44 m	17'10"	5.44 m	17'10"	5.44 m	17'10"	—	
Length (Blade Angled)	5.94 m	19'6"	5.94 m	19'6"	5.94 m	19'6"	—	
Width (Blade Angled)	3.29 m	10'9"	3.75 m	12'4"	3.44 m	11'1"	3.75 m	12'4"
Width (with C-Frame only)	2.49 m	8'2"	—		—		—	
Blade Dimensions:								
B Width (including std. end bits)	3.62 m	11'9"	4.14 m	13'7"	3.79 m	12'5"	4.14 m	13'7"
C Height	1372 mm	54"	1228 mm	48.4"	1372 mm	54"	1228 mm	48.4"
D Max. Digging Depth	732 mm	28.7"	732 mm	28.7"	732 mm	28.7"	711 mm	28"
E Ground Clearance @ Full Lift	1181 mm	46.5"	1181 mm	46.5"	1181 mm	46.5"	1283 mm	50.5"
F Manual Tilt	—		—		—		—	
G Max. Pitch	—		—		—		—	
H Max. Hydraulic Tilt	440 mm	17.3"	502 mm	19.8"	460 mm	18.1"	502 mm	19.8"
Blade Angle	25°		25°		25°		25°	
J Hydraulic Tilt (Manual Brace Centered)	—		—		—		—	

MODEL	D6R Series II, D6R XL Series II & D6R LGP Series II					
	6S		6SU		6SU XL	
Type	Straight		Semi Universal		Semi Universal	
Blade Capacities*	3.89 m ³	5.09 yd ³	5.61 m ³	7.34 yd ³	5.61 m ³	7.34 yd ³
Weight, Shipping** (Dozer)	2599 kg	5717 lb	2699 kg	5937 lb	2973 kg	6540 lb
Tractor & Dozer Dimensions:						
A Length (Blade Straight)	5.12 m	16'9"	5.31 m	17'5"	5.55 m	18'2"
Length (Blade Angled)	—		—		—	
Width (Blade Angled)	—		—		—	
Width (with C-Frame only)	—		—		—	
Blade Dimensions:						
B Width (including std. end bits)	3.36 m	11'0"	3.26 m	10'8"	3.26 m	10'8"
C Height	1257 mm	4'1.5"	1411 mm	4'7.6"	1411 mm	4'7.6"
D Max. Digging Depth	473 mm	18.6"	473 mm	18.6"	459 mm	18.1"
E Ground Clearance @ Full Lift	1104 mm	3'7.5"	1104 mm	3'7.5"	1195 mm	3'11.1"
F Manual Tilt	689 mm	2'3.1"	670 mm	2'2.4"	670 mm	2'2.4"
G Max. Pitch	+5.3°–4.8°		+5.3°–4.8°		+5.3°–4.8°	
H Max. Hydraulic Tilt	764 mm	2'6.1"	743 mm	2'5.3"	743 mm	2'5.3"
Blade Angle	—		—		—	
J Hydraulic Tilt (Manual Brace Centered)	420 mm	16.5"	408 mm	16.1"	408 mm	16.1"

* Blade capacities as determined by SAE J1265.

Notice that the capacity of the U-blade is the volume carried by a straight blade of the same dimensions plus the volume included in the "cup" of the U-blade. It is intended for **relative comparisons of dozer sizes**, and not for predicting capacities or productivities in actual field conditions.

** Shipping Weight — Total Bulldozer Arrangement includes: Blade, push arms or C-frame, braces, cylinders, lines, trunnions and lift cylinder mountings.

Bulldozers

Blade Specifications

- D6R Series II ● D6R XL Series II ● D6R LGP Series II
- D7R Series II ● D7R LGP Series II

MODEL	D6R Series II, D6R XL Series II & D6R LGP Series II					
	6S LGP		6A XW		6SU XW	
Type	Straight		Angling		Semi Universal	
Blade Capacities*	3.70 m ³	4.83 yd³	4.3 m ³	5.63 yd³	5.62 m ³	7.4 yd³
Weight, Shipping** (Dozer)	2801 kg	6162 lb	3260 kg	7180 lb	2950 kg	6500 lb
Tractor & Dozer Dimensions:						
A Length (Blade Straight)	5.71 m	18'9"	5.43 m	17'10"	—	—
Length (Blade Angled)	—	—	5.94 m	19'6"	—	—
Blade Dimensions:						
B Width (including std. end bits)	3.99 m	13'1"	4.20 m	13'8"	3.56 m	11'8"
C Height	1101 mm	3'7.3"	1169 mm	3'10"	1412 mm	4'8"
D Max. Digging Depth	655 mm	2'1.2"	500 mm	1'7.7"	459 mm	18.1"
E Ground Clearance @ Full Lift	1083 mm	3'6.6"	1242 mm	4'1"	1195 mm	3'11"
F Manual Tilt	632 mm	2'0.9"	408 mm	16.1"	670 mm	2'2.4"
G Max. Pitch	+5.3°–4.8°		+5.3°–4.8°		+5.3°–4.8°	
H Max. Hydraulic Tilt	701 mm	2'3.6"	408 mm	16.1"	743 mm	2'5.3"
J Hydraulic Tilt (Manual Brace Centered)	385 mm	15.2"	408 mm	16.1"	743 mm	2'5.3"

* Blade capacities as determined by SAE J1265.

Notice that the capacity of the U-blade is the volume carried by a straight blade of the same dimensions plus the volume included in the "cup" of the U-blade. It is intended for **relative comparisons of dozer sizes**, and not for predicting capacities or productivities in actual field conditions.

** Shipping Weight — Total Bulldozer Arrangement includes: Blade, push arms or C-frame, braces, cylinders, lines, trunnions and lift cylinder mountings.

MODEL	D7R Series II & D7R LGP Series II					
	7A		7S		7SU	
Type	Angling		Straight		Semi Universal	
Blade Capacities*	3.89 m ³	5.08 yd³	5.16 m ³	6.75 yd³	6.86 m ³	8.98 yd³
Weight, Shipping** (Dozer)	3527 kg	7750 lb	3500 kg	7716 lb	3593 kg	7904 lb
Tractor & Dozer Dimensions:						
A Length (Blade Straight)	6.10 m	20'0"	5.81 m	19'1"	6.03 m	19'9"
Length (Blade Angled)	6.98 m	22'11"	—	—	—	—
Width (Blade Angled)	4.12 m	13'6"	—	—	—	—
Width (with C-Frame only)	3.09 m	10'1"	—	—	—	—
Blade Dimensions:						
B Width (including std. end bits)	4.50 m	14'9"	3.90 m	12'10"	3.69 m	12'1"
C Height	1111 mm	3'7.7"	1363 mm	4'5.7"	1524 mm	5'0"
D Max. Digging Depth	669 mm	2'2.3"	527 mm	1'8.7"	527 mm	1'8.7"
E Ground Clearance @ Full Lift	1115 mm	3'7.9"	1145 mm	3'9.1"	1145 mm	3'9.1"
F Manual Tilt	466 mm	18.3"	—	—	—	—
G Max. Pitch Adjustment	—	—	+3.1°–3.9°		+3.1°–3.9°	
Blade Angle (either side)	25°	—	—	—	—	—
H Max. Hydraulic Tilt	627 mm	2'0.7"◀	845 mm	2'9.3"	799 mm	2'7.4"
J Hydraulic Tilt (Manual Brace Centered)	—	—	501 mm	1'7.7"	474 mm	18.6"

* Blade capacities as determined by SAE J1265.

Notice that the capacity of the U-blade is the volume carried by a straight blade of the same dimensions plus the volume included in the "cup" of the U-blade. It is intended for **relative comparisons of dozer sizes**, and not for predicting capacities or productivities in actual field conditions.

** Shipping Weight — Total Bulldozer Arrangement includes: Blade, push arms or C-frame, braces, cylinders, lines, trunnions and lift cylinder mountings.

◀ Attachment includes two cylinders.

MODEL	D7R Series II & D7R LGP Series II					
	7U		7S LGP		7S LGP ERF†	
Type	Universal		Straight		Straight	
Blade Capacities*	8.34 m ³	10.91 yd ³	5.89 m ³	7.7 yd ³	5.89 m ³	7.7 yd ³
Weight, Shipping** (Dozer)	3920 kg	8624 lb	3732 kg	8229 lb	3732 kg	8210 lb
Tractor & Dozer Dimensions:						
A Length (Blade Straight)	6.27 m	20'7"	5.81 m	19'1"	5.81 m	19'1"
Length (Blade Angled)	—	—	—	—	—	—
Width (Blade Angled)	—	—	—	—	—	—
Width (with C-Frame only)	—	—	—	—	—	—
Blade Dimensions:						
B Width (including std. end bits)	3.98 m	13'1"	4.50 m	14'9"	4.50 m	14'9"
C Height	1553 mm	5'1.1"	1343 mm	4'4.9"	1343 mm	4'4.9"
D Max. Digging Depth	527 mm	1'8.7"	668 mm	2'2.3"	668 mm	2'2.3"
E Ground Clearance @ Full Lift	1145 mm	3'9.1"	1153 mm	3'9.4"	1153 mm	3'9.4"
F Manual Tilt	—	—	—	—	—	—
G Max. Pitch Adjustment	+3.1°–3.9°		+3.0°–3.9°		+3.0°–3.9°	
Blade Angle (either side)	—		—		—	
H Max. Hydraulic Tilt	861 mm	2'9.9"	686 mm	2'3"	686 mm	2'3"
J Hydraulic Tilt (Manual Brace Centered)	511 mm	1'8.1"	426 mm	16.8"	426 mm	16.8"

* Blade capacities as determined by SAE J1265.

Notice that the capacity of the U-blade is the volume carried by a straight blade of the same dimensions plus the volume included in the "cup" of the U-blade. It is intended for **relative comparisons of dozer sizes**, and not for predicting capacities or productivities in actual field conditions.

** Shipping Weight — Total Bulldozer Arrangement includes: Blade, push arms or C-frame, braces, cylinders, lines, trunnions and lift cylinder mountings.

† Extended track roller frame.

MODEL	D8R/D8T						D9R/D9T			
	8A		8SU		8U		9SU		9U	
Type	Angling		Semi-U		Universal		Semi-U		Universal	
Blade Capacities*	4.7 m ³	6.1 yd ³	8.7 m ³	11.4 yd ³	11.7 m ³	15.3 yd ³	13.5 m ³	17.7 yd ³	16.4 m ³	21.4 yd ³
Weight, Shipping** (Dozer)	5459 kg	12,009 lb	4789 kg	10,557 lb	5352 kg	11,800 lb	6543 kg	14,425 lb	7134 kg	15,727 lb
Tractor & Dozer Dimensions:										
A Length (Blade Straight)	6.57 m	21'7"	6.39 m	21'0"	6.79 m	22'3"	6.84 m	22'5"	7.18 m	23'7"
Length (Blade Angled)	7.62 m	25'0"	—	—	—	—	—	—	—	—
Width (Blade Angled)	4.52 m	14'10"	—	—	—	—	—	—	—	—
Width (with C-Frame only)	3.38 m	11'1"	—	—	—	—	—	—	—	—
Blade Dimensions:										
B Width (including std. end bits)	4.99 m	16'4"	3.94 m	12'11"	4.26 m	14'0"	4.31 m	14'2"	4.65 m	15'3"
C Height	1174 mm	3'10.2"	1690 mm	5'6.5"	1740 mm	5'8.5"	1934 mm	6'4.1"	1934 mm	6'4.1"
D Max. Digging Depth	628 mm	2'0.7"	575 mm	22.6"	575 mm	22.6"	606 mm	1'11.9"	606 mm	1'11.9"
E Ground Clearance @ Full Lift	1308 mm	4'3.5"	1225 mm	48.2"	1225 mm	48.2"	1422 mm	4'8"	1422 mm	4'8"
G Max. Pitch Adjustment	—	—	+3.0°–2.9°	—	+3.0°–2.9°	—	+3.4°–2.9°	—	+3.4°–2.9°	—
Blade Angle (either side)	25°	—	—	—	—	—	—	—	—	—
H Max. Hydraulic Tilt	729 mm	2'4.7"◀	883 mm	34.8"	954 mm	37.5"	940 mm	3'1"	1014 mm	3'3.9"
J Hydraulic Tilt (Manual Brace Centered)	—	—	596 mm	23"	644 mm	25"	570 mm	1'10.4"	616 mm	2'0.3"
K Push Arm Trunnion Width (to Ball Centers)	2.98 m	9'9"	2.98 m	9'9"	2.98 m	9'9"	3.17 m	10'3"	3.17 m	10'3"
Maximum Track Width Permitted	712 mm	2'4"	711 mm	2'4"	711 mm	2'4"	762 mm	2'6"	762 mm	2'6"
Dual Tilt Option										
G Dual Pitch Adj.	—	—	±4.6°	—	±4.6°	—	+4.8°–5.2°	—	+4.8°–4.9°	—
H Dual Max. Hyd. Tilt	—	—	879 mm	34.5"	950 mm	37.3"	1139 mm	3'8.8"	1231 mm	4'0.5"

* Blade capacities as determined by SAE J1265.

Notice that the capacity of the U-blade is the volume carried by a straight blade of the same dimensions plus the volume included in the "cup" of the U-blade. It is intended for **relative comparisons of dozer sizes**, and not for predicting capacities or productivities in actual field conditions.

** Shipping Weight — Total Bulldozer Arrangement includes: Blade, push arms or C-frame, braces, cylinders, lines, trunnions and lift cylinder mountings.

◀ Attachment includes two cylinders.

MODEL	D10T				D11R					
	10SU		10U		11SU		11U		11 CD	
Type	Semi-U		Universal		Semi-U		Universal		Universal	
Blade Capacities*	18.5 m ³	24.2 yd ³	22.0 m ³	28.7 yd ³	27.2 m ³	35.5 yd ³	34.4 m ³	45.0 yd ³	43.6 m ³	57.0 yd ³
Weight, Shipping**										
Standard Dozer	10 229 kg	22,550 lb	10 784 kg	23,775 lb	14 813 kg	32,658 lb	17 296 kg	38,131 lb	22 070 kg	48,660 lb
Abrasion Dozer	11 069 kg	24,403 lb	12 413 kg	27,366 lb	16 192 kg	35,698 lb	18 823 kg	41,498 lb	—	
Tractor & Dozer Dimensions:										
A Length	7.76 m	25'5"	8.01 m	26'3"	8.38 m	27'6"	8.83 m	28'11"	8.34 m	26'8"
Width	4.86 m	15'11"	5.26 m	17'3"	5.60 m	18'4"	6.35 m	20'10"	6.71 m	22'0"
Blade Dimensions:										
B Width (including std. end bits)	4.86 m	15'11"	5.26 m	17'3"	5.60 m	18'4"	6.35 m	20'10"	6.71 m	22'0"
C Height	2.12 m	6'11"	2.12 m	6'11"	2.37 m	7'9"	2.37 m	7'9"	3.26 m	10'8"
D Max. Digging Depth	674 mm	2'2.5"	674 mm	2'2.5"	766 mm	2'6.2"	766 mm	2'6.2"	766 mm	2'6.2"
E Ground Clearance @ Full Lift	1497 mm	4'10.9"	1497 mm	4'10.9"	1533 mm	5'0.4"	1533 mm	5'0.4"	1533 mm	5'0.4"
G Max. Pitch Adjustment	+1.7°–2.3°		+1.7°–2.3°		+2.1°–2.2°		+2.1°–2.2°		—	
H Max. Hydraulic Tilt	993 mm	3'3.1"	1074 mm	3'6.3"	1184 mm	3'10.6"	1344 mm	4'4.9"	1344 mm	4'4.9"
J Hydraulic Tilt (Manual Brace Centered)	722 mm	2'4.4"	782 mm	2'6.8"	886 mm	2'10.9"	1006 mm	3'3.6"	—	
K Push Arm Trunnion Width (to Ball Centers)	3.60 m	11'10"	3.60 m	11'10"	4.18 m	13'9"	4.18 m	13'9"	4.18 m	13'9"
Maximum Track Width Permitted	762 mm	2'6"	762 mm	2'6"	914 mm	3'0"	914 mm	3'0"	914 mm	3'0"
Dual Tilt Option					+7.5°–7.6° or		+7.5°–7.6° or			
G Dual Pitch Adj.	+5.2°–5.5°		+5.2°–5.5°		+0°–13°		+0°–13°		+47.8°–10.4°	
H Dual Max. Hyd. Tilt	1441 mm	4'8.7"	1560 mm	5'1.4"	1706 mm	5'7.2"	1938 mm	6'4.3"	—	

*Blade capacities as determined by SAE J1265.

Notice that the capacity of the U-blade is the volume carried by a straight blade of the same dimensions plus the volume included in the "cup" of the U-blade. It is intended for **relative comparisons of dozer sizes**, and not for predicting capacities or productivities in actual field conditions.

**Shipping Weight — Total Bulldozer Arrangement includes: Blade, push arms or C-frame, braces, cylinders, lines, trunnions and lift cylinder mountings.

MODEL	D4E SR	
	4A	
Type	Angling	
Blade Capacities	1.28 m ³	1.65 yd ³
Weight, Shipping* (Dozer)	1395 kg	3075 lb
Tractor & Dozer Dimensions:		
A Length (Blade Straight)	3.87 m	12'9"
Length (Blade Angled)	4.50 m	14'9"
Width (Blade Angled)	2.84 m	9'4"
Width (with C-frame only)	2.39 m	7'10"
Blade Dimensions:		
B Width (including std. end bits)	3.12 m	10'3"
C Height	706 mm	2'3.8"
D Max. Digging Depth	240 mm	9.4"
E Ground Clearance @ Full Lift	811 mm	2'7.9"
F Manual Tilt	475 mm	18.7"
G Max. Pitch Adjustment	—	
Blade Angle (either side)	25°	
H Max. Hydraulic Tilt	330 mm	13"
J Hydraulic Tilt (Manual Brace Centered)	—	

MODEL	D6G					
	6A		6S		6SU ▶	
Type	Angling		Straight		Semi-U	
Blade Capacities	2.40 m ³	3.14 yd ³	3.27 m ³	4.28 yd ³	3.80 m ³	4.96 yd ³
Weight, Shipping* (Dozer)	2325 kg	5126 lb	1998 kg	4405 lb	2460 kg	5423 lb
Tractor & Dozer Dimensions:						
A Length (Blade Straight)	5.15 m	16'11"	5.07 m	16'8"	5.13 m	16'10"
Length (Blade Angled)	5.91 m	19'5"	—		—	
Width (Blade Angled)	3.52 m	11'6"	—		—	
Width (with C-frame only)	2.85 m	9'4"	—		—	
Blade Dimensions:						
B Width (including std. end bits)	3.88 m	12'9"	3.23 m	10'7"	3.20 m	10'6"
C Height	924 mm	3'0.4"	1126 mm	3'8.3"	1235 mm	4'0.6"
D Max. Digging Depth	444 mm	17.5"	474 mm	18.7"	472 mm	18.6"
E Ground Clearance @ Full Lift	908 mm	35.7"	907 mm	2'11.7"	915 mm	3'0"
F Manual Tilt	367 mm	14.4"	679 mm	2'2.7"	680 mm	2'2.8"
G Max. Pitch Adjustment	—		—		—	
Blade Angle (either side)	25°		—		—	
H Max. Hydraulic Tilt	—		810 mm	2'8"	810 mm	2'7.9"
J Hydraulic Tilt (Manual Brace Centered)	—		467 mm	18.4"	465 mm	18.3"

*Shipping Weight — Total Bulldozer Arrangement includes: Blade, push arms or C-frame, braces, cylinders, lines, trunnions and lift cylinder mountings.

Notice that the capacity of the SU-blade is the volume carried by a straight blade of the same dimensions plus the volume included in the "cup" of the SU-blade. It is intended for **relative comparisons of dozer sizes**, and not for predicting capacities or productivities in actual field conditions.

▶ Caterpillar Custom Product.

MODEL	D7G			
	7A		7S	
Type	Angling		Straight	
Blade Capacities*	2.9 m ³	3.8 yd³	4.2 m ³	5.5 yd³
Weight, Shipping** (Dozer)	3227 kg	7115 lb	3475 kg	7660 lb
Tractor & Dozer Dimensions:				
A Length (Blade Straight)	5.49 m	18'0"	5.30 m	17'5"
Length (Blade Angled)	6.35 m	20'10"	—	—
Width (Blade Angled)	3.86 m	12'8"	—	—
Width (with C-Frame only)	3.12 m	10'3"	—	—
Blade Dimensions:				
B Width (including std. end bits)	4.26 m	14'0"	3.65 m	12'0"
C Height	960 mm	3'1.8"	1274 mm	4'2.1"
D Max. Digging Depth	468 mm	18.4"	438 mm	17.2"
E Ground Clearance @ Full Lift	1206 mm	3'11.5"	1188 mm	3'10.8"
F Manual Tilt	—	—	—	—
G Max. Pitch Adjustment	—	—	+5.2°–3.0°	
Blade Angle (either side)	25°	—	—	—
H Max. Hydraulic Tilt	300 mm	11.8"◀	721 mm	2'4.4"
J Hydraulic Tilt (Manual Brace Centered)	—	—	505 mm	1'7.9"

* Blade capacities as determined by SAE J1265.

** Shipping Weight — Total Bulldozer Arrangement includes: Blade, push arms or C-frame, braces, cylinders, lines, trunnions and lift cylinder mountings.

◀ Attachment includes two cylinders.

BULLDOZER PRODUCTION OFF-THE-JOB

You can estimate bulldozer production using the production curves that follow and the correction factors that are applicable. Use this formula:

$$\text{Production (Lm}^3\text{/hr)} = \frac{\text{Maximum production}}{\text{(LCY/hr)}} \times \frac{\text{Correction factors}}$$

The bulldozer production curves give maximum uncorrected production for universal, semi-universal, and straight blades and are based on the following conditions:

1. 100% efficiency (60 minute hour — level cycle).
2. Power shift machines with 0.05 min. fixed times.
3. Machine cuts for 15 m (50 feet), then drifts blade load to dump over a high wall. (Dump time — 0 sec.)
4. Soil density of 1370 kg/Lm³ (2300 lb/LCY).
5. Coefficient of traction:*
 - a. Track machines — 0.5 or better
 - b. Wheel machines — 0.4 or better
6. Hydraulic controlled blades used.
7. Dig 1F**
Carry 2F**
Return 2R**

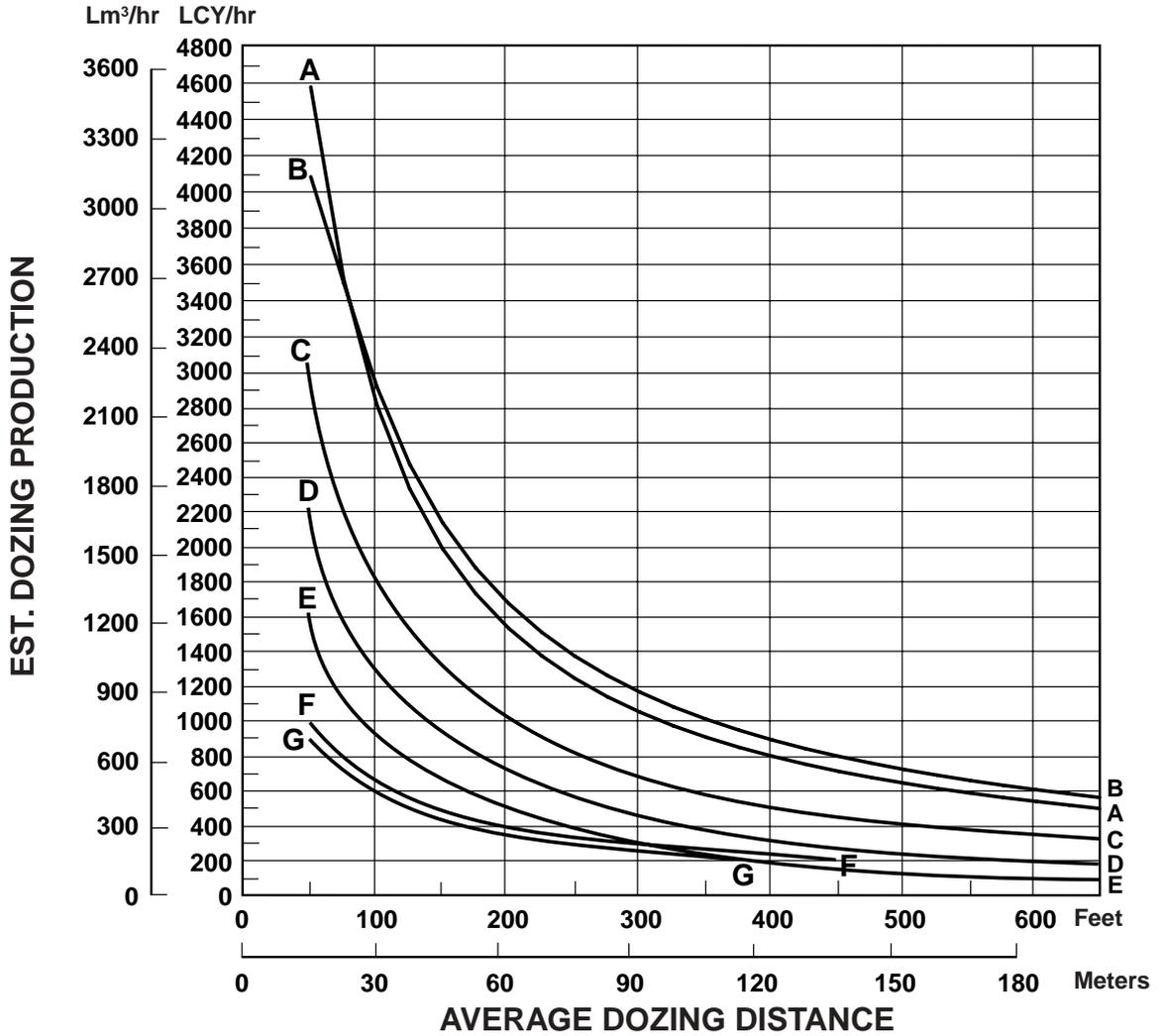
To obtain estimated production in bank cubic meters or bank cubic yards, appropriate load factor from the Tables section should be applied to the corrected production as calculated above.

$$\text{Production Bm}^3\text{/hr} = \frac{\text{Lm}^3\text{/hr} \times \text{LF}}{\text{(BCY/h)} \times \text{LF}}$$

*Coefficient of traction assumed to be at least 0.4. While poor traction affects both track and wheel vehicles, causing them to take smaller blade loads, wheeled units are affected more severely and production falls much more rapidly. While no fixed rules can predict this production loss, a rough rule of thumb is that wheel dozer production falls off 4% for each one-hundredth decrease in coefficient of traction below 0.40. If, for example, coefficient of traction is 0.30, the difference is ten-hundredths (0.10), and production is 60% (10 × 4% = 40% decrease).

**This gear sequence is based on level to downhill terrain, light to medium density material, and no blade extensions such as spill plates, rock guards, etc. Exceeding these conditions may require carry in 1F, but productivity should equal or exceed “standard conditions” due to the larger loads that can be carried in 1F.

ESTIMATED DOZING PRODUCTION • Universal Blades • D7G through D11R

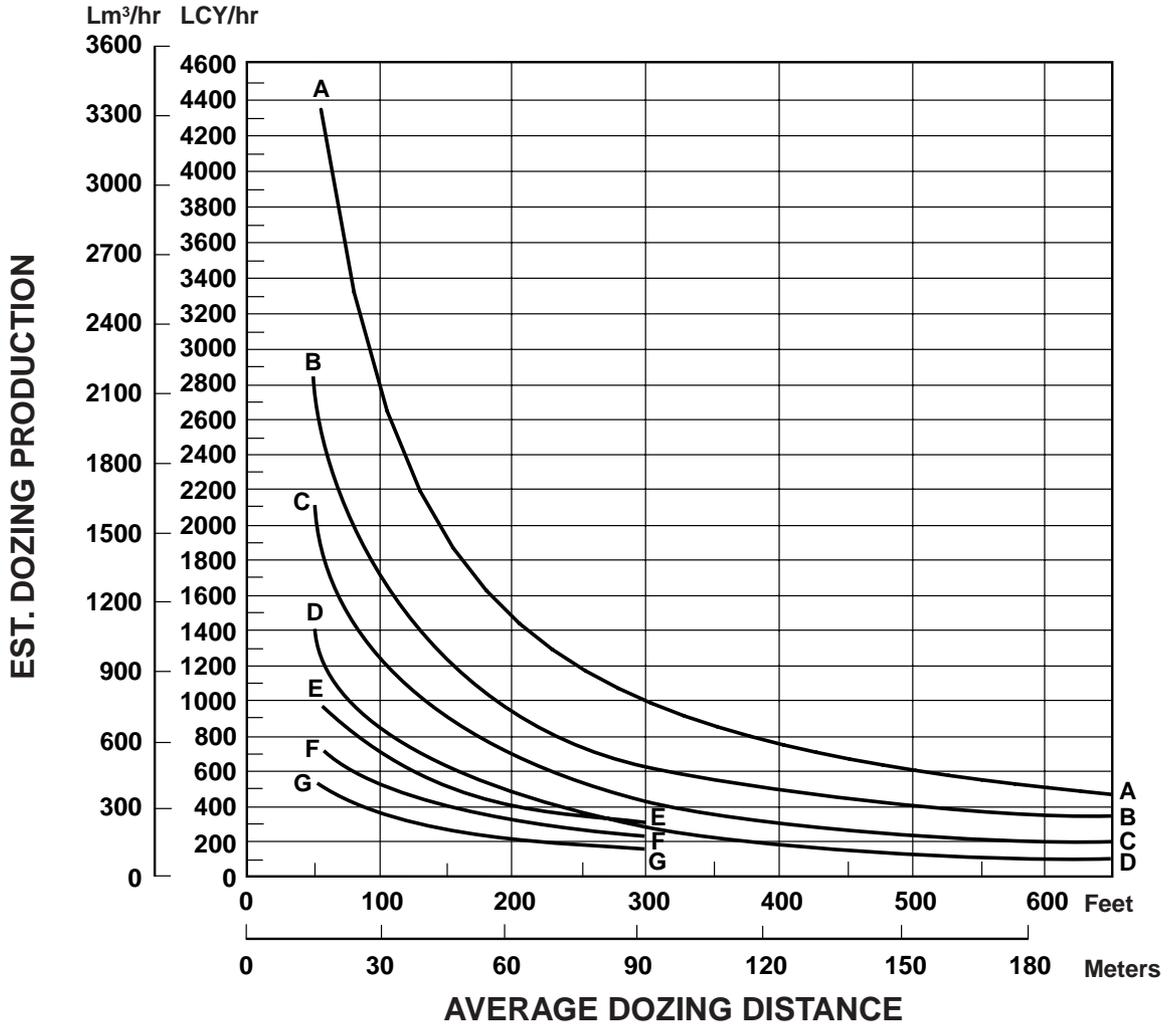


KEY

- A — D11R-11U
- B — D11R CD
- C — D10T-10U
- D — D9R/D9T-9U
- E — D8R/D8T-8U
- F — D7R Series II-7U
- G — D7G-7U

NOTE: This chart is based on numerous field studies made under varying job conditions. Refer to correction factors following these charts.

ESTIMATED DOZING PRODUCTION ● Semi-Universal Blades ● D6N through D11R

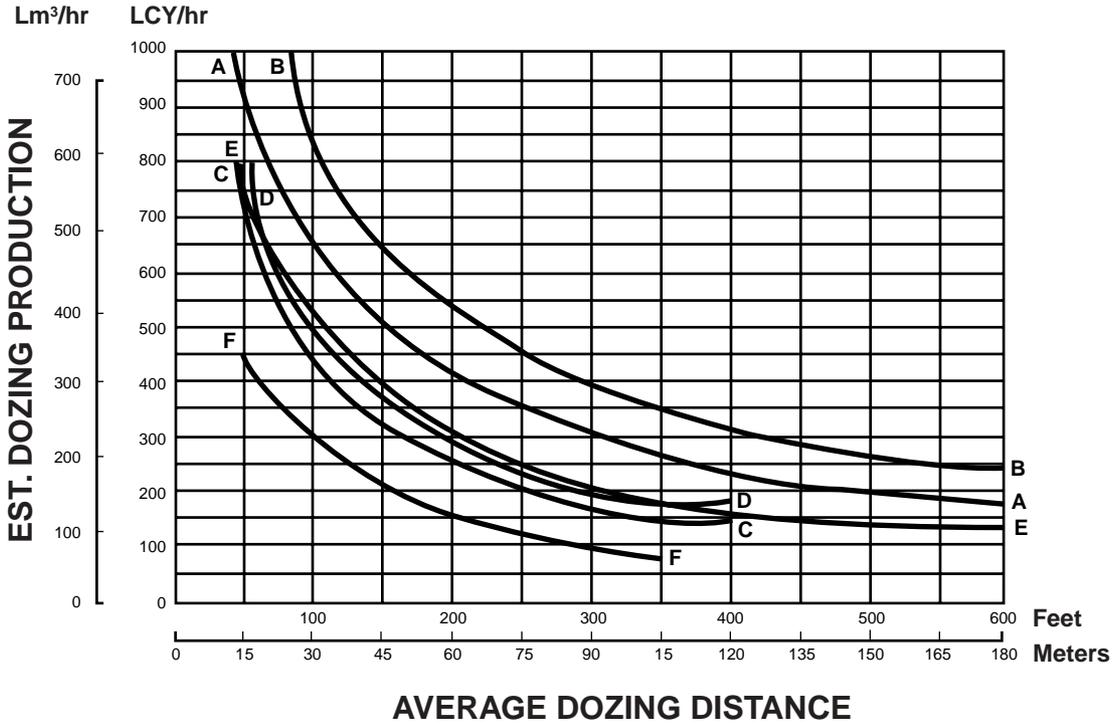


KEY

- A — D11R-11SU
- B — D10T-10SU
- C — D9R/D9T-9SU
- D — D8R/D8T-8SU
- E — D7R Series II-7SU
- F — D6R Series II-6SU
- G — D6N-6SU

NOTE: This chart is based on numerous field studies made under varying job conditions. Refer to correction factors following these charts.

ESTIMATED DOZING PRODUCTION
 Straight Blades • D6, D7, 814, 824, 834



NOTE: This chart is based on numerous field studies made under varying job conditions. Refer to correction factors on the next page.

Estimated production of the 834B with U-blade can be found in the Coal Handling section of this handbook.

KEY

- A — 824-S
- B — 834-S
- C — D7G-7S
- D — D7R Series II-7S
- E — 814-S
- F — D6R Series II-6S

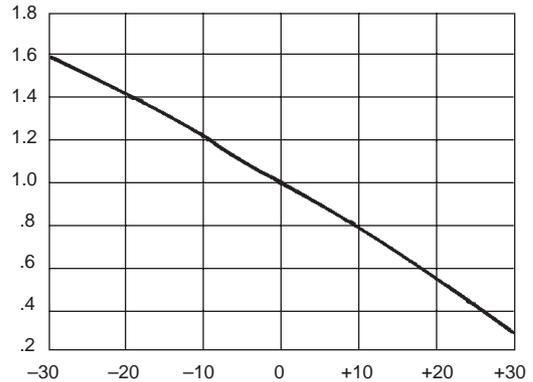
JOB CONDITION CORRECTION FACTORS

	TRACK- TYPE TRACTOR	WHEEL- TYPE TRACTOR
OPERATOR —		
Excellent	1.00	1.00
Average	0.75	0.60
Poor	0.60	0.50
MATERIAL —		
Loose stockpile	1.20	1.20
Hard to cut; frozen —		
with tilt cylinder	0.80	0.75
without tilt cylinder	0.70	—
Hard to drift; “dead” (dry, non-cohesive material) or very sticky material	0.80	0.80
Rock, ripped or blasted	0.60-0.80	—
SLOT DOZING	1.20	1.20
SIDE BY SIDE DOZING	1.15-1.25	1.15-1.25
VISIBILITY —		
Dust, rain, snow, fog or darkness	0.80	0.70
JOB EFFICIENCY —		
50 min/hr	0.83	0.83
40 min/hr	0.67	0.67
BULLDOZER*		
Adjust based on SAE capacity relative to the base blade used in the Estimated Dozing Production graphs.		
GRADES — See following graph.		

*NOTE: Angling blades and cushion blades are not considered production dozing tools. Depending on job conditions, the A-blade and C-blade will average 50-75% of straight blade production.

% Grade vs. Dozing Factor

(-) Downhill
 (+) Uphill



ESTIMATING DOZER PRODUCTION OFF-THE-JOB

Example problem:

Determine average hourly production of a D8T/8SU (with tilt cylinder) moving hard-packed clay an average distance of 45 m (150 feet) down a 15% grade, using a slot dozing technique.

Estimated material weight is 1600 kg/Lm³ (2650 lb/LCY). Operator is average. Job efficiency is estimated at 50 min/hr.

Uncorrected Maximum Production — 458 Lm³/h (600 LCY/hr) (example only)

Applicable Correction Factors:

- Hard-packed clay is “hard to cut” material -0.80
- Grade correction (from graph)-1.30
- Slot dozing-1.20
- Average operator-0.75
- Job efficiency (50 min/hr)-0.83
- Weight correction(2300/2650)-0.87

$$\begin{aligned}
 \text{Production} &= \text{Maximum Production} \times \text{Correction Factors} \\
 &= (600 \text{ LCY/hr}) (0.80) (1.30) (1.20) \\
 &\quad (0.75) (0.83) (0.87) \\
 &= 405.5 \text{ LCY/hr}
 \end{aligned}$$

To obtain production in metric units, the same procedure is used substituting maximum uncorrected production in Lm³.

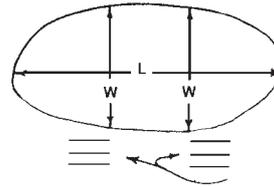
$$\begin{aligned}
 &= 458 \text{ Lm}^3/\text{h} \times \text{Factors} \\
 &= 309.6 \text{ Lm}^3/\text{h}
 \end{aligned}$$

MEASURING PRODUCTION ON-THE-JOB

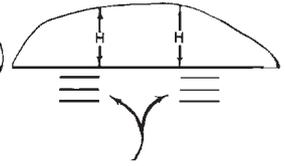
Three generally accepted methods of measuring bulldozer production are listed below. The third method is empirical, but is the simplest to conduct.

1. Employing Surveying Techniques
 - a. Conduct time study and then cross-section the cut to determine the volume of material removed. (Production in Bm^3 or BCY per unit of time)
 - b. Conduct time study and then cross-section the fill to determine the volume of fill material. (Production in Lm^3 or LCY per unit of time)
2. Weighing Blade Loads
Conduct time study and weigh material moved by bulldozer by weighing the loader bucket loads.
3. Measuring Blade Loads
 - a. Dozer operation
 - (1) Pick up and carry load onto a level area and stop.
 - (2) Raise the blade directly over the pile pulling forward slightly as blade comes up, leaving a nearly symmetrical pile.
 - (3) Reverse to clear the pile.
 - b. Measurements
 - (1) The average *height* (H) of the pile in feet. Hold the tape vertically at the inside edge of each grouser mark. Sight along top of the pile to obtain the correct measurement.

TOP VIEW



SIDE VIEW



GROUSER MARKS

- (2) The average *width* (W) of the pile in feet. Hold the tape horizontally over the pile and sight at the inside edge of each grouser mark and the corresponding opposite side of the pile.
- (3) The greatest *length* (L) of the pile in feet. Hold the tape horizontally over the pile and sight at each end of the pile.
- c. With the above measurements, now compute the blade load.
 - (1) Average the height measurement (H)
 - (2) Average the width measurement (W)
 - (3) Load (Lm^3 or LCY) = $0.0138 \times (HWL)$
 - (4) Load (Bm^3 or BCY) = Lm^3 or $LCY \times LF$
- d. Combine the calculated blade load with time study to figure production.

WORK TOOLS

VARIABLE RADIUS (VR) SEMI-U BLADES

	D6R Series II		D7R Series II		D8R/D8T	
Capacity	5.81 m ³	7.6 yd ³	7.84 m ³	10.25 yd ³	11.28 m ³	14.75 yd ³
Width	3349 mm	11'0"	3912 mm	12'10"	4369 mm	14'4"
Height	1473 mm	4'10"	1626 mm	5'4"	1778 mm	5'10"
Weight	1360 kg	3000 lb	2000 kg	4400 lb	3010 kg	6640 lb

LANDFILL BLADES

	D6R Series II		D7R Series II		D8R/D8T		D9R/D9T	
Capacity	12.5 m ³	16.4 yd ³	18.1 m ³	23.7 yd ³	24.4 m ³	32 yd ³	38.5 m ³	50.3 yd ³
Width	3886 mm	12'9"	4267 mm	14'0"	4928 mm	16'2"	5442 mm	17'10"
Height	1796 mm	5'10.7"	2083 mm	6'10"	2286 mm	7'6"	2178 mm	7'1.75"
Weight	1450 kg	3200 lb	2608 kg	5750 lb	3175 kg	7000 lb	4900 kg	10,800 lb

This list is not all inclusive. Contact your Caterpillar Dealer for special attachment needs.

Bulldozers

Special Attachments

- Cushion Dozers
- Coal U-Blades
- Woodchip Dozers
- Reclamation U-Blades

COAL U-BLADES	D6R Series II		D7R Series II		D8R/D8T		D9R/D9T	
Capacity	9.7 m ³	12.63 yd³	16.1 m ³	21.0 yd³	21.4 m ³	28 yd³	37 m ³	48 yd³
Width	4267 mm	14'0"	4953 mm	16'3"	5537 mm	18'2"	5940 mm	18'10"
Height	1473 mm	4'10"	1829 mm	6'0"	1930 mm	6'4"	2540 mm	8'4"
Weight	1452 kg	3200 lb	2405 kg	5300 lb	3200 kg	7050 lb	4490 kg	9900 lb

COAL U-BLADES	D10T		D11R	
Capacity	46.1 m ³	60.3 yd³	74.9 m ³	98.0 yd³
Width	6191 mm	20'1"	7416 mm	24'4"
Height	2794 mm	9'2"	3330 mm	10'11"
Weight	6670 kg	14,700 lb	11 340 kg	25,000 lb

WOODCHIP DOZERS	D6R Series II		D7R Series II		D8R/D8T		D9R/D9T		D10T	
Capacity	15 m ³	20 yd³	19.9 m ³	26 yd³	28.3 m ³	37 yd³	45.9 m ³	60 yd³	72.6 m ³	95 yd³
Width	4267 mm	14'0"	4826 mm	16'8"	5486 mm	18'0"	5486 mm	18'0"	6300 mm	20'8"
Height	1880 mm	6'2"	2083 mm	6'10"	2337 mm	7'8"	3086 mm	10'1.5"	3480 mm	11'5"
Weight	1724 kg	3800 lb	2765 kg	6100 lb	2903 kg	6400 lb	5080 kg	11,200 lb	7575 kg	16,700 lb

RECLAMATION U-BLADES	D8R/D8T		D9R/D9T		D10T	
Capacity	16.4 m ³	21.5 yd³	20.9 m ³	27.3 yd³	30.6 m ³	40 yd³
Width	4877 mm	16'0"	5182 mm	17'0"	5664 mm	18'7"
Height	1880 mm	6'2"	2032 mm	6'8"	2388 mm	7'10"
Weight	3810 kg	8400 lb	5220 kg	11,500 lb	6440 kg	14,200 lb

CUSHION DOZERS	D8R/D8T		D9R/D9T		D10T		D11R	
Width	2889 mm	9'5.75"	3048 mm	10'0"	3505 mm	11'6"		
Height	1499 mm	4'11"	1575 mm	5'2"	1676 mm	5'6"	*	
Weight	3185 kg	7020 lb	4310 kg	9500 lb	6440 kg	14,200 lb		
Rear Cushion Push Block	*		2175 kg	4800 lb	3105 kg	6850 lb	*	

*Available upon request.

This list is not all inclusive. Contact your Caterpillar Dealer.

RIPPERS

CONTENTS

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Features:

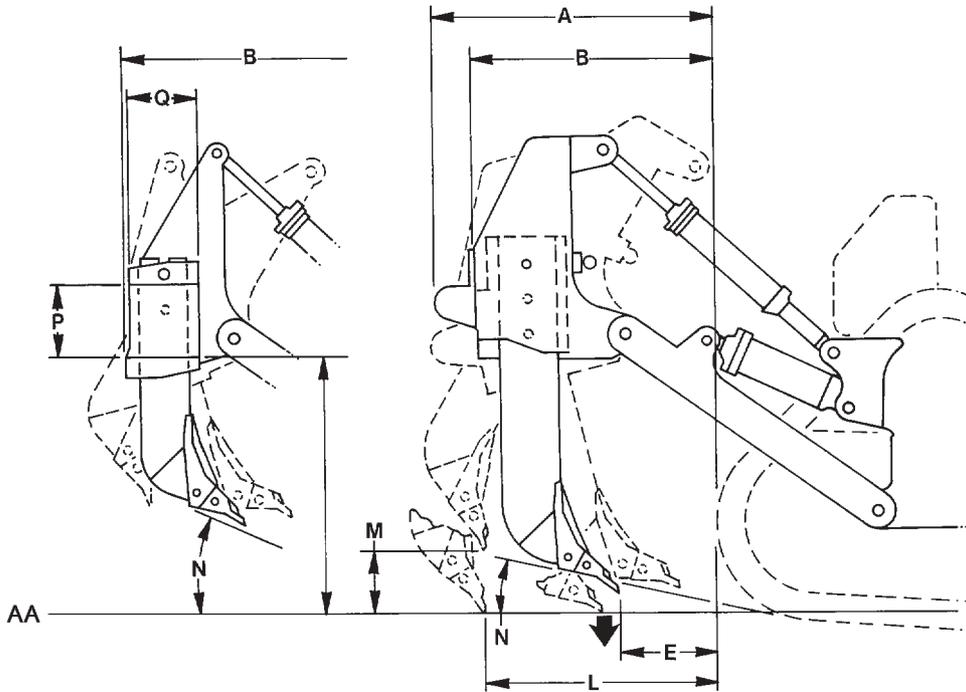
- **Parallelogram linkage with hydraulically variable pitch** on D8R/D8T, D9R/D9T, D10T, D11R and optional on D7R Series II. Operator can adjust angle of ripper tip to the material for penetration at all ripping depths to increase production.
- **Fixed Parallelogram linkage design** used on D3G, D4G, D5G, D6N, D6G, D6R Series II, D7G, D6R XR Series II, D6R XL Series II, D7R Series II and D7R XR Series II. This design holds tooth angle constant at all ripping depths.
- **Fixed Radial rippers** are Multishank with wide beam coverage for utility ripping close to walls, footings and embankments. Ripper tooth angle changes as ripper is raised or lowered. Three shanks available for the D5N.
- **Adjustable Single shank** arrangements available for D8R/D8T, D9R/D9T, D10T and D11R for tough ripping applications and deep ripping requirements.
- **Hydraulically Variable Pitch Multishank** arrangements available on D8R/D8T, D9R/D9T, D10T and D11R allow wide-beam coverage in easier-to-rip materials.

DEFINITION OF FORCES SHOWN IN TABLES THAT FOLLOW

“Pryout,” (Breakout) newtons (and pounds) — the maximum sustained upward force, generated by the lift cylinders measured at the ripper tip. Breakout force is measured with the shank in the top hole, shank vertical and ripper full down. Breakout force may be hydraulically or balance limited.

“Penetration force,” kilonewtons (and pounds) — the maximum sustained downward force, generated by the ripper lift cylinders measured at the ripper tip, which is required to raise the back end of the vehicle with the tip on ground and the shank (pinned in the top hole) vertical.

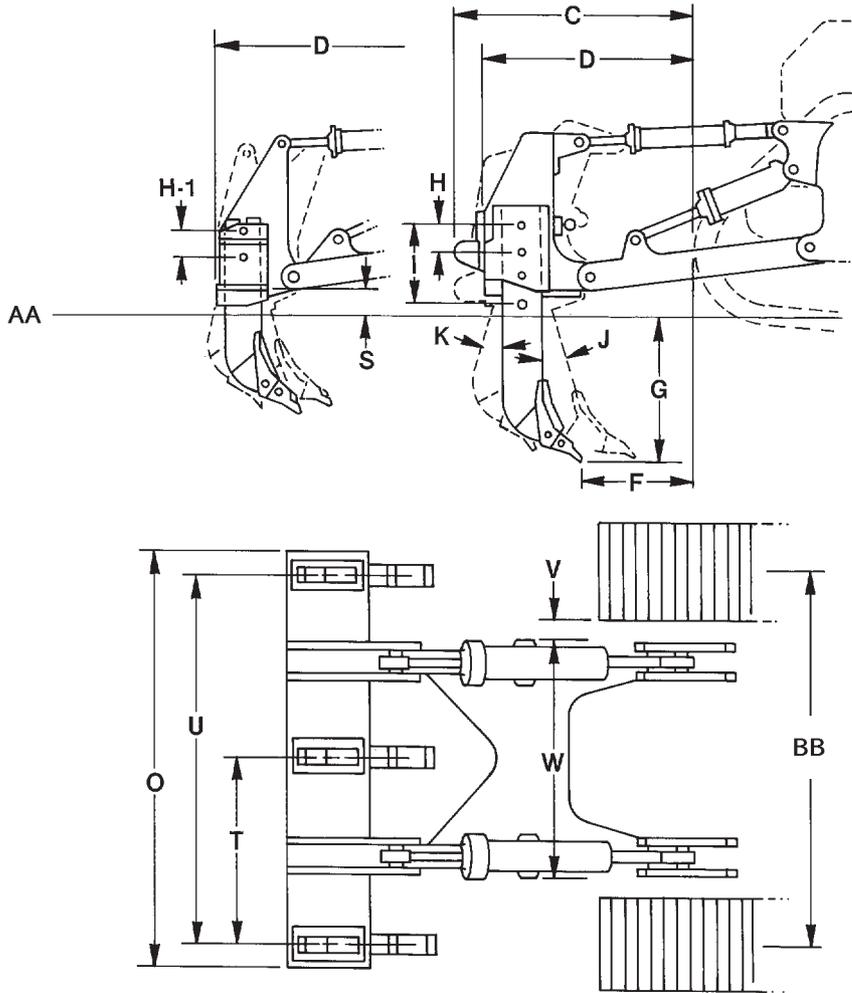
Adjustable Parallelogram Ripper



NOTE: Letters correspond to ripper specifications on pages that follow.

KEY
 AA — Ground Line

Adjustable Parallelogram Ripper



NOTE: Letters correspond to ripper specifications on pages that follow.

KEY

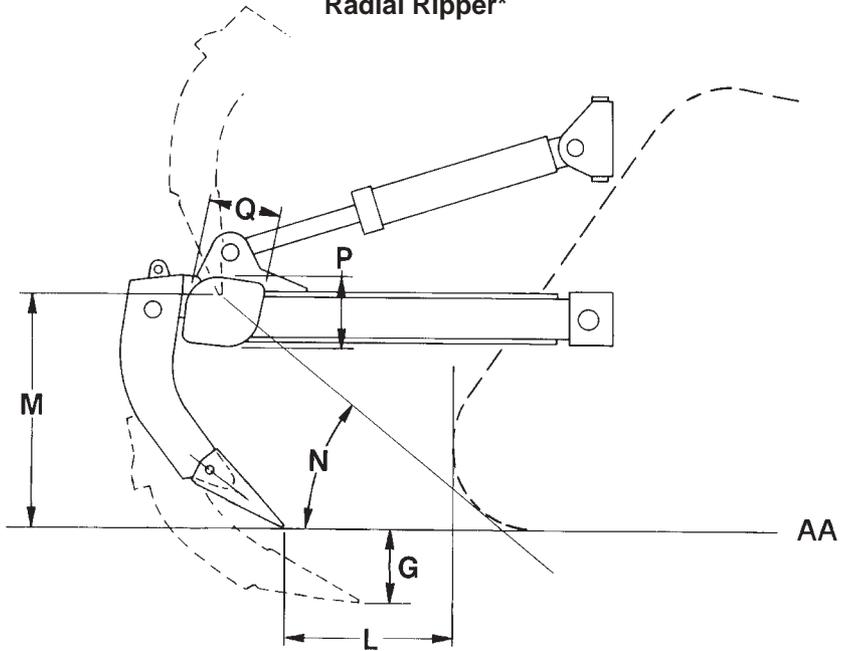
- AA — Ground Line
- BB — Track Gauge

Rippers

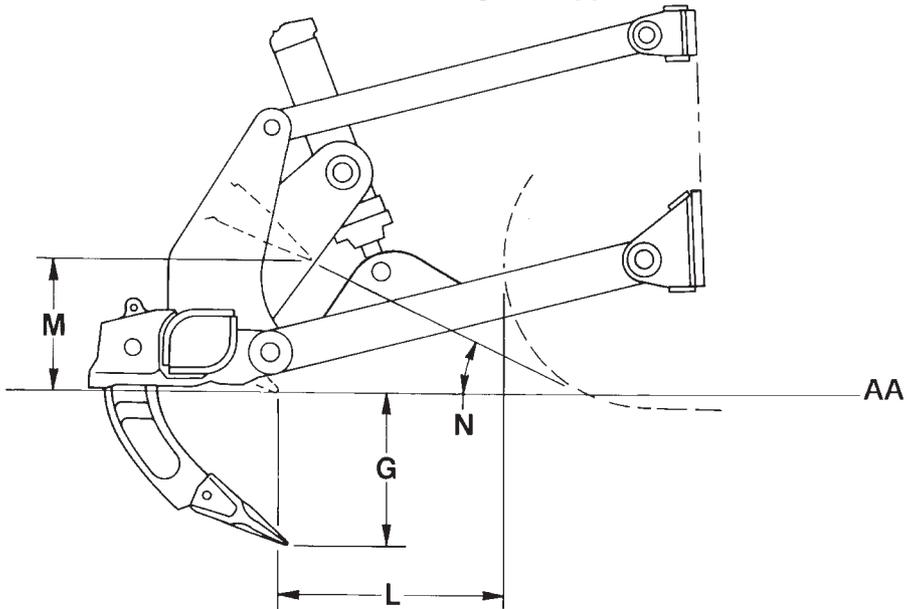
Specification Diagrams

- Radial Ripper
- Fixed Parallelogram Ripper

Radial Ripper*



Fixed Parallelogram Ripper



NOTE: Letters correspond to ripper specifications on pages that follow.

KEY

- AA — Ground Line
- * — Tip Standard

TRACTOR/RIPPER	D3G		D4G		D5G		D5N XL**	
Ripper Type	Fixed Parallelogram		Fixed Parallelogram		Fixed Parallelogram		Radial	
Dimensions:								
Ripper Shank								
G Maximum digging depth	337 mm	13.3"	337 mm	13.3"	337 mm	13.3"	350 mm	13.8"
L Maximum reach at ground line	739 mm	2'5"	627 mm	2'1"	615 mm	2'0"	668 mm	2'2.3"
M Maximum ground clearance under tip (shank pinned in bottom hole)	412 mm	1'4"	412 mm	1'4"	423 mm	1'5"	482 mm	1'7"
N Maximum ramp angle, ripper up (shank pinned in bottom hole)	26°		30°		30°		25.2°	
Shank section	36 × 76 mm (1.4" × 3")				36 × 76 mm (1.4" × 3")		58 × 139 mm (2.3" × 5.5")	
Ripper Beam								
O Overall width	1.71 m	5'7"	1.71 m	5'7"	1.71 m	5'7"	1.95 m	6'5"
P Height	165 mm	6.5"	165 mm	6.5"	165 mm	6.5"	165 mm	6.5"
Q Length	190 mm	7.5"	190 mm	7.5"	190 mm	7.5"	211 mm	8.3"
Number of Pockets	3		3		3		3	
T Pocket Spacing	775 mm	2'7"	775 mm	2'7"	775 mm	2'7"	896 mm	2'11.3"
U Shank Gauge	1.55 m	5'1"	1.55 m	5'1"	1.55 m	5'1"	1.79 m	5'10"
V Track clearance with standard shoe	113 mm	4.4"	113 mm	4.4"	113 mm	4.4"	108 mm	4.3"
Installed weights:								
Ripper with standard shank	554 kg	1220 lb	554 kg	1220 lb	554 kg	1220 lb	758 kg	1671 lb
Each additional shank	—		—		11 kg	24 lb	34 kg	74 lb
Ripper Forces:*								
Penetration Force	2250 kg	4970 lb	2520 kg	5560 lb	2780 kg	6130 lb	4010 kg	8840 lb
Pryout Force	44 kN	9900 lb	44 kN	9900 lb	44 kN	9900 lb	188 kN	42,165 lb

*This value may vary slightly with various vehicle configurations.

**D5N XL Penetration and pryout forces are for machines equipped with VPAT-Blade and Power Shift Transmission.

NOTE: Letters correspond to ripper dimension drawings.

Rippers

Specifications

- D5N LGP
- D6N XL ● D6N LGP

TRACTOR/RIPPER	D5N LGP		D6N XL		D6N LGP	
Ripper Type	Radial		Parallelogram		Parallelogram	
Dimensions:						
Ripper Shank						
G Maximum digging depth	298 mm	11.7"	474 mm	18.6"	360 mm	14.2"
L Maximum reach at ground line	696 mm	2'3.4"	516 mm	1'8.3"	453 mm	17.8"
M Maximum ground clearance under tip (shank pinned in bottom hole)	536 mm	1'9.1"	392 mm	15.4"	506 mm	17.3"
N Maximum ramp angle, ripper up (shank pinned in bottom hole)	25.9°		34.4°		49.5°	
Shank section	58 × 139 mm (2.3" × 5.5")		73 × 176 mm (2.9" × 6.9")		73 × 176 mm (2.9" × 6.9")	
Ripper Beam						
O Overall width	1.95 m	6'5"	2.20 m	7'3"	2.20 m	7'3"
P Height	165 mm	6.5"	216 mm	8.5"	216 mm	8.5"
Q Length	211 mm	8.3"	254 mm	10"	254 mm	10"
Number of Pockets	3		3		3	
T Pocket Spacing	896 mm	2'11.3"	1000 mm	3'3.4"	1000 mm	3'3.4"
U Shank Gauge	1.79 m	5'10"	2 m	6'7"	2 m	6'7"
V Track clearance with standard shoe	124 mm	4.9"	99 mm	3.9"	104 mm	4.1"
Installed weights:						
Ripper with standard shank	758 kg	1671 lb	1406 kg	3100 lb	1406 kg	3100 lb
Each additional shank	34 kg	74 lb	78 kg	172 lb	78 kg	172 lb
Ripper Forces:*						
Penetration Force	4669 kg	10,293 lb	6023 kg	13,278 lb	7198 kg	15,869 lb
Pryout Force	19 260 kg	42,461 lb	12 600 kg	27,778 lb	12 600 kg	27,778 lb

*This value may vary slightly with various vehicle configurations. D5N LGP and D6N LGP equipped with VPAT-blade and Power Shift Transmission.

NOTE: Letters correspond to ripper dimension drawings.

TRACTOR/RIPPER	D6R Series II		D6R XL Series II		D7R Series II	
Ripper Type	Parallelogram		Parallelogram		Parallelogram	
Dimensions:						
Ripper Shank						
G Maximum digging depth	500 mm	1'7.7"	500 mm	1'7.7"	748 mm	2'5.4"
L Maximum reach at ground line	729 mm	2'4.7"	729 mm	2'4.7"	1.07 m	3'6.1"
M Maximum ground clearance under tip (shank pinned in bottom hole)	520 mm	1'8.5"	520 mm	1'8.5"	638 mm	2'1.1"
N Maximum ramp angle, ripper up (shank pinned in bottom hole)	26°		26°		26.6°	
Shank section	74 × 175 mm (2.9" × 6.9")		74 × 175 mm (2.9" × 6.9")		72 × 228 mm (2.8" × 6.9")	
Ripper Beam						
O Overall width	2.20 m	7'3"	2.20 m	7'3"	2.21 m	7'3"
P Height	216 mm	8.5"	216 mm	8.5"	279 mm	11"
Q Length	254 mm	10"	254 mm	10"	343 mm	13.5"
Number of Pockets	3		3		3	
T Pocket Spacing	1000 mm	3'3.4"	1000 mm	3'3.4"	991 mm	3'3"
U Shank Gauge	2 m	6'7"	2 m	6'7"	1.98 m	6'6"
V Track clearance with standard shoe	120 mm	4.7"	120 mm	4.7"	95 mm	3.7"
Installed weights:						
Ripper with standard shank	1456 kg	3203 lb	1456 kg	3203 lb	3277 kg	7225 lb
Each additional shank	70 kg	154 lb	70 kg	154 lb	138 kg	305 lb
Ripper Forces:*						
Penetration Force	6558 kg	14,428 lb	7485 kg	16,505 lb	8664 kg	19,104 lb
Pryout Force	9155 kg	20,140 lb	9155 kg	20,140 lb	18 007 kg	39,705 lb

*Tractor equipped with ripper, OROPS, SU dozer and heavy duty track. Values may vary slightly with various configurations.

NOTE: Letters correspond to ripper dimension drawings.

TRACTOR/RIPPER

D8R/D8T

D9R/D9T

Ripper Type	Adjustable Parallelogram		Adjustable Parallelogram	
	Single Shank	Multishank	Single Shank	Multishank
Dimensions:				
Ripper to Track				
Ripper length behind track, shank vertical, ripper up				
A With Pushblock	N/A	N/A	N/A	N/A
B Without Pushblock	1.69 m 5'7"	1.6 m 5'2"	1.57 m 5'2"	1.33 m 4'4"
Ripper length behind track, shank vertical, ripper down				
C With Pushblock	N/A	N/A	N/A	N/A
D Without Pushblock	1.84 m 6'0"	1.71 m 5'7"	1.88 m 6'2"	1.71 m 5'7"
Tip to track distance, shank vertical				
E Ripper Up	694 mm 2'3.3"	640 mm 2'1.2"	689 mm 2'3.2"	510 mm 1'8.1"
F Ripper Down	950 mm 3'1.4"	899 mm 2'11.4"	944 mm 3'1.2"	890 mm 2'11"
Ripper Shank*				
G Maximum digging depth	1130 mm 3'8.5"	780 mm 2'6.7"	1231 mm 4'0.6"	798 mm 2'7.6"
H Dig adjustment per hole	305 mm 12"	250 mm 10"	295 mm 12"	250 mm 10"
I Total dig adjustment	610 mm 2'0"	250 mm 10"	590 mm 1'11.2"	250 mm 10"
Pitch Adjustment, ripper down:				
J Forward	15°	14.9°	10.6°	10°
K Backward	9.9°	10°	15.2°	15.1°
L Maximum reach at ground line	1.32 m 4'3"	1.17 m 3'10"	1.25 m 4'1"	1.16 m 3'10"
M Maximum ground clearance under tooth (shank pinned in bottom hole)	636 mm 2'1"	593 mm 1'11.3"	882 mm 2'10.9"	885 mm 2'10.7"
N Maximum ramp angle, ripper up (shank pinned in bottom hole)	28.2°	28.4°	36.9°	37.5°
Shank Section				
	75 × 333 mm 2.9" × 13.1"	75 × 333 mm 2.9" × 13.1"	90 × 355 mm 3.5" × 14"	75 × 333 mm 2.9" × 13.1"
Ripper Beam				
O Overall width	N/A	2.46 m 8'1"	N/A	2.64 m 8'8"
P Height	N/A	334 mm 13.1"	N/A	380 mm 15"
Q Length	N/A	457 mm 18"	N/A	457 mm 18"
Clearance under beam, shank vertical				
R Ripper Up	N/A	1.55 m 5'1"	N/A	1.77 m 5'10"
S Ripper Down	N/A	449 mm 17.7"	N/A	378 mm 14.9"
Number of Pockets				
	1	3	1	3
T Pocket Spacing	N/A	1092 mm 3'7"	N/A	1180 mm 3'10.4"
U Shank Gauge	N/A	2.17 m 7'1"	N/A	2.35 m 7'8"
V Track Clearance with standard shoe	76 mm 3"	76 mm 3"	71 mm 2.8"	71 mm 2.8"
W Width across widest part of lift cylinders	1.37 m 4'5"	1.37 m 4'5"	1.50 m 4'11"	1.50 m 4'11"
Installed Weights:				
Ripper with standard shank				
	4085 kg 9005 lb	4213 kg 9287 lb	4854 kg 10,700 lb	4885 kg 10,770 lb
Each additional tooth group				
	N/A	332 kg 730 lb	N/A	332 kg 733 lb
Ripper Forces:**				
Penetration Force, shank vertical				
	127 400 N 28,620 lb	124 200 N 27,920 lb	153 885 N 34,581 lb	147 958 N 33,249 lb
Pryout Force, shank vertical				
	222 800 N 50,070 lb	227 900 N 51,230 lb	320 511 N 72,025 lb	324 680 N 74,639 lb

*Deep Ripping Shank is available for D8R/D8T and D9R/D9T single shank rippers. Hydraulic pin puller is standard with deep ripping shank. Deep Ripping Arrangement maximum digging depth is 1.57 m (5'2") for D8R/D8T and 1.66 m (5'5") for D9R/D9T.

**Forces are for a ripper on a tractor equipped with EROPS, U-Dozer and performance track. Forces will vary slightly with other vehicle configurations.

NOTE: Letters correspond to ripper dimension drawings.

TRACTOR/RIPPER	D10T				D11R		D11R	
	Adjustable Parallelogram				Adjustable Parallelogram Single Shank		CD Single Shank	
Ripper Type	Single Shank		Multishank					
Dimensions:								
Ripper to Track								
Ripper length behind track, shank vertical, ripper up (A)								
A With Pushblock	2.08 m	6'10"	N/A		2.19 m	7'2"	N/A	
B Without Pushblock	1.76 m	5'9"	1.56 m	5'1"	1.85 m	6'1"	2.04 m	6'8"
Ripper length behind track, shank vertical, ripper down (A)								
C With Pushblock	2.48 m	8'2"	N/A		2.59 m	8'6"	N/A	
D Without Pushblock	2.16 m	7'1"	1.96 m	6'5"	2.29 m	7'6"	2.48 m	8'2"
Tip to track distance, shank vertical (A)								
E Ripper Up	730 mm	2'4.7"	651 mm	2'1.6"	622 mm	2'0.5"	622 mm	2'0.5"
F Ripper Down	1130 mm	3'8.5"	1050 mm	3'5.3"	1041 mm	3'5"	1041 mm	3'5"
Ripper Shank*								
G Maximum digging depth	1494 mm	4'11"	876 mm	2'10.5"	1612 mm	5'3.5"	1612 mm	5'3.5"
H Dig adjustment per hole	355 mm	14"	250 mm	10"	280 mm	11"	280 mm	11"
I Total dig adjustment	710 mm	2'4"	250 mm	10"	840 mm	2'9.1"	840 mm	2'9.1"
Pitch Adjustment, ripper down:								
J Forward	15.7°		18°		15°		15°	
K Backward	23.5°		19.7°		18.3°		18.3°	
L Maximum reach at ground line	1.50 m	4'11"	1.36 m	4'6"	1.73 m	5'8"	1.73 m	5'8"
M Maximum ground clearance under tooth (shank pinned in bottom hole)	1058 mm	3'5.7"	1045 mm	3'5.1"	1115 mm	3'7.9"	1115 mm	3'7.9"
N Maximum ramp angle, ripper up (shank pinned in bottom hole)	36.9°		37.5°		33.9°		33.9°	
Shank Section								
	100 × 400 mm 4" × 15.75"		90 × 355 mm 3.5" × 14"		110 × 450 mm 4.3" × 17.7"		110 × 450 mm 4.3" × 17.7"	
Ripper Beam								
O Overall width	N/A		2.92 m	9'7"	N/A		N/A	
P Height	N/A		460 mm	18.1"	N/A		N/A	
Q Length	N/A		485 mm	1'7.1"	N/A		N/A	
Clearance under beam, shank vertical								
R Ripper Up	N/A		2.03 m	6'8"	N/A		N/A	
S Ripper Down	N/A		380 mm	15"	N/A		N/A	
Number of Pockets								
	1		3		1		1	
T Pocket Spacing	N/A		1320 mm	4'4"	N/A		N/A	
U Shank Gauge	N/A		2.63 m	8'8"	N/A		N/A	
V Track Clearance with standard shoe	97 mm	4"	97 mm	4"	141 mm	5.6"	141 mm	5.6"
W Width across widest part of lift cylinders	1.75 m	5'9"	1.75 m	5'9"	1.90 m	6'3"	1.90 m	6'3"
Installed Weights:								
Ripper with standard shank								
	7117 kg	15,690 lb	6919 kg	15,253 lb	9643 kg	21,215 lb	12 971 kg	28,536 lb
Each additional tooth group								
	N/A		524 kg 1155 lb		N/A		N/A	
Ripper Forces:**								
Penetration Force, shank vertical								
	205 000 N	45,980 lb	205 000 N	45,980 lb	279 860 N	62,890 lb	311 903 N	70,091 lb
Pryout Force, shank vertical								
	429 000 N	96,360 lb	429 000 N	96,360 lb	657 840 N	147,830 lb	625 577 N	140,579 lb

*Deep Ripping Shank is available for D10T and D11R single shank rippers. Hydraulic pin puller is standard with deep ripping shank. Deep Ripping Arrangement maximum digging depth is 1.86 m (6'3") for D10T and 2.18 m (7'2") for D11R.

**Forces are for a ripper on a tractor equipped with an EROPS, U-Dozer and performance track. Forces will vary slightly with other vehicle configurations.

TRACTOR/RIPPER	D11R		D11R		D11R	
Ripper Type	CD Single Shank		CD Multishank		Multishank	
Dimensions:						
Ripper to Track						
Ripper length behind track, shank vertical, ripper up (A)						
A With Pushblock	N/A		N/A		N/A	
B Without Pushblock	2.04 m	6'8"	1.92 m	6'4"	1.92 m	6'4"
Ripper length behind track, shank vertical, ripper down (A)						
C With Pushblock	N/A		N/A		N/A	
D Without Pushblock	2.48 m	8'2"	1.92 m	6'4"	1.92 m	6'4"
Tip to track distance, shank vertical (A)						
E Ripper Up	622 mm	2'0.5"	651 mm	2'1.6"	651 mm	2'1.6"
F Ripper Down	1041 mm	3'5"	1030 mm	3'4.6"	1030 mm	3'4.6"
Ripper Shank*						
G Maximum digging depth	1612 mm	5'3.5"	1070 mm	3'6.1"	1070 mm	3'6.1"
H Dig adjustment per hole	280 mm	11"	280 mm	11"	280 mm	11"
I Total dig adjustment	840 mm	2'9.1"	280 mm	11"	280 mm	11"
Pitch Adjustment, ripper down:						
J Forward	15°		15°		15°	
K Backward	18.3°		18.5°		18.5°	
L Maximum reach at ground line	1.73 m	5'8"	1.57 m	5'2"	1.57 m	5'2"
M Maximum ground clearance under tooth (shank pinned in bottom hole)	1115 mm	3'7.9"	1137 mm	3'8.8"	1137 mm	3'8.8"
N Maximum ramp angle, ripper up (shank pinned in bottom hole)	33.9°		37.1°		37.1°	
Shank Section						
	110 × 450 mm 4.3" × 17.7"		100 × 400 mm 3.9" × 15.7"		100 × 400 mm 3.9" × 15.7"	
Ripper Beam						
O Overall width	N/A		3.33 m	10'11"	3.33 m	10'11"
P Height	N/A		560 mm	1'10"	560 mm	1'10"
Q Length	N/A		560 mm	1'10"	560 mm	1'10"
Clearance under beam, shank vertical						
R Ripper Up	N/A		2.06 m	6'9"	2.06 m	6'9"
S Ripper Down	N/A		282 mm	11.1"	282 mm	11.1"
Number of Pockets						
	1		3		3	
T Pocket Spacing	N/A		1500 mm	5'9"	1500 mm	5'9"
U Shank Gauge	N/A		2.99 m	9'10"	2.99 m	9'10"
V Track Clearance with standard shoe	141 mm	5.6"	166 mm	5.6"	166 mm	5.6"
W Width across widest part of lift cylinders	1.9 m	6'3"	1.9 m	6'3"	1.9 m	6'3"
Installed Weights:						
Ripper with standard shank						
	12 971 kg	28,536 lb	12,389 kg	27,256 lb	9545 kg	21,000 lb
Each additional tooth group						
	N/A		N/A		N/A	
Ripper Forces:**						
Penetration Force, shank vertical						
	295 807 N	66,494 lb	274 917 N	61,804 lb	225 680 N	50,715 lb
Pryout Force, shank vertical						
	625 577 N	140,579 lb	549 834 N	123,608 lb	451 360 N	101,430 lb

*Hydraulic pin puller is standard with deep ripping shank. Deep Ripping Arrangement maximum digging depth is 2.18 m (7'2").

**Forces are for a ripper on a tractor equipped with an EROPS, U-Dozer and performance track. Forces will vary slightly with other vehicle configurations.

TRACTOR/RIPPER	D6G/No. 6		D7G/No. 7	
Ripper Type	Parallelogram		Parallelogram	
Dimensions:				
Ripper Shank				
G Maximum digging depth	530 mm	1'8.9"	737 mm	2'5"
L Maximum reach at ground line	551 mm	1'9.7"	994 mm	3'3.1"
M Maximum ground clearance under tip (shank pinned in bottom hole)	218 mm	8.6"	462 mm	18.2"
N Maximum ramp angle, ripper up (shank pinned in bottom hole)		16°		21°
Shank Section	76 × 178 mm 3" × 7"		72 × 228 mm 2.8" × 9"	
Ripper Beam				
O Overall width	2.34 m	7'8"	2.21 m	7'3"
P Height	214 mm	8.4"	279 mm	11"
Q Length	254 mm	10"	343 mm	13.5"
Number of Pockets		5		3
T Pocket Spacing	536 mm	1'9.1"	991 mm	3'3"
U Shank Gauge	2.15 m	7'1"	1.98 m	6'6"
V Track clearance with standard shoe	213 mm	8.4"	185 mm	7.3"
Installed weights:				
Ripper with standard shank	1500 kg	3300 lb	2429 kg	5344 lb
Each additional shank	64 kg	141 lb	155 kg	341 lb

NOTE: Letters correspond to ripper dimension drawings.

TIP SELECTION FOR THE D8R/D8T, D9R/D9T, D10T AND D11R RIPPERS

Three tip configurations (short, intermediate and long) in two styles (centerline and penetration) are available for economical operation in a variety of conditions.

RECOMMENDED TIP USAGE

Short — Use in high impact conditions where breakage problems occur. The shorter the tip, the more it resists breakage.

Intermediate — Most effective in moderate impact conditions where abrasion is not excessive.

Long — Use in loose, abrasive materials where breakage is not a problem. Generally offers the most wear material.

Centerline vs Penetration

The materials being ripped and the tractor doing the ripping will both have an effect on which tip will do the best job. High density material requires a “penetration” tip. High impact material requires a “centerline” tip. The following is a general guide to tip application.

Ripping Condition	Tips to use		
	D8R/D8T D9R/D9T	D10T	D11R
Tandem Tractors	Short	Short	Short
Single Shank & Multi-Shank			
Extreme Duty	Int.	Short	Short
Medium Duty	Long	Int.	Int.
Abrasive Duty	Long	Long	Long

Always use the longest tip that will wear without excessive breakage. Different tips should be tried to determine the most economical.

ESTIMATING RIPPING PRODUCTION

Ripping costs must be compared to other methods of loosening the material — usually drilling and blasting — on a cost per ton or bank cubic yard basis. Thus, an accurate estimation of ripper production is needed to determine unit ripping costs.

There are three general methods of estimating ripping production:

1. The best method is to record the time spent ripping, then remove (using scrapers or loaders and trucks) and weigh the ripped material. The total weight divided by the time spent will give hourly production. If the contractor is paid by volume, then a density must be used and the accuracy is only as good as the density used. For payment by volume removed, method 2 may be desirable. Some care will be needed to assure that only ripped material is removed.
2. Another method is to cross-section the area and then record the time spent ripping. After the material has been removed, cross-section the area again to determine the volume of rock removed. The volume divided by the time spent ripping gives the ripping rate per minute or hour.
3. Timing the ripper over a measured distance is the least accurate method, but valuable for quick estimating on the job. An average cycle time should be determined from a number of timed cycles. Turn-around or back-up time must be included. Measure the average rip distance, rip spacing and depth of penetration. This data will give the volume per cycle from which the production in bank cubic yards can be calculated. Experience has shown results obtained from this method are about 10 to 20% higher than the more accurate method of cross-sectioning.

An example of the measured distance method for calculating ripper production is:

Data — D10T — No. 10 with one shank.
910 mm (36 in) between passes.
1.6 km/h (1 mph) average speed (including slippage and stalls).

Every 91 m (300 ft) requires 0.25 min to raise, pivot, turn, and lower again: 91 m (300 ft) = 1 pass.

610 mm (24 in) penetration.
Full time ripping (no pushing or dozing assignment).

Example of Estimating Production (Metric)

Time per pass:

1.6 km/h = 26.7 m/min. Then $\frac{91 \text{ m}}{26.7 \text{ m/min}} = 3.41 \text{ min};$

3.41 min + 0.25 min (turn time) = 3.66 min/pass.

If the operator works an average of 45 min per h, it is possible to make $= \frac{45}{3.66} = 12.3$ passes per h

Volume ripped: $91 \text{ m} \times 0.9 \text{ m} \times 0.6 \text{ m} = 49.1 \text{ BCM}$ per pass

Production = $49.1 \times 12.3 = 604 \text{ BCM}$ per h

Remember the results from this method are usually 10 to 20 per cent higher than the actual production that can be expected on the job.

•••

Example of Estimating Production (English)

Time per pass:

MPH = 88 fpm. Then $\frac{300 \text{ ft}}{88 \text{ fpm}} = 3.41 \text{ min};$

3.41 min + 0.25 min. (turn time) = 3.66 min/pass.

If the operator works an average of 45 min per h, it is possible to make $\frac{45}{3.66} = 12.3$ passes per hr

Volume ripped: $\frac{300 \times 3 \times 2}{27} = 66.7 \text{ BCY}$ per pass

Production = $66.7 \times 12.3 = 820 \text{ BCY}$ per hr

•••

NOTE: The demands of heavy ripping will increase the normal owning and operating costs of the tractor.

These costs should be increased no less than 30-40% in heavy ripping applications to estimate rock loosening costs.

There is no ready answer or rule-of-thumb solution to predict ripping production. Even if everything is known about the seismic velocity of the material, its composition, job conditions, equipment and operator, only a "guesstimate" can be given. The final answer must come from a production study obtained on the job site.

Sample problem (Metric)

Determine the loosening costs in the following situation:

Machine	— D10T Tractor with No. 10 Single Shank Ripper
Rip Spacing	— 915 mm
Ripper Penetration	— 610 mm
Rip Distance	— 91 m
Rip Time	— 3.41 minutes
Maneuver Time	— 0.25 minutes
Seismic Velocity	— 1830 meters per second
Assume	60 min. hour

Solution:

- Total Cycle Time = $3.41 + 0.25 = 3.66 \text{ min}$
Cycles/hour = $\frac{60 \text{ min/hr}}{3.66 \text{ min/cycle}} = 16.4$
- Production per cycle = $91 \text{ m} \times 0.9 \text{ m} \times 0.6 \text{ m} = 49.1 \text{ BCM/cycle}$
- Production = $49.1 \text{ BCM/cycle} \times 16.4 \text{ cycles/h} = 805 \text{ BCM/h}$
- Remember results of this method are usually 10 to 20% high.
Actual Production = 80% of 805 BCM/h = 644 BCM/h
Or 90% of 805 BCM/h = 725 BCM/h
- Owning and Operating Costs
A D10T (ripping only) could have a \$115.00/h O & O costs including \$30/h operator.
- Loosening Costs
 $\$115.00/\text{hr} \div 644 \text{ BCM/h} = \$0.179/\text{BCM}$
 $\$115.00/\text{hr} \div 725 \text{ BCM/h} = \$0.159/\text{BCM}$
The loosening cost should range from 15.9¢ to 17.9¢/BCM

•••

Sample problem (English)

Determine the loosening costs in the following situation:

Machine	— D10T Tractor with No. 10 Single Shank Ripper
Rip Spacing	— 3 feet
Ripper Penetration	— 2 feet
Rip Distance	— 300 feet
Rip Time	— 3.41 minutes
Maneuver Time	— 0.25 minutes
Seismic Velocity	— 6000 feet per second
Assume	60 min. hour

Solution:

$$1. \text{ Total Cycle Time} = 3.41 + 0.25 = 3.66 \text{ min}$$

$$\text{Cycles/hour} = \frac{60 \text{ min/hr}}{3.66 \text{ min/cycle}} = 16.4$$

$$2. \text{ Production per cycle} = \frac{300 \times 3 \times 2}{27} = 66.7 \text{ BCY/cycle}$$

$$3. \text{ Production} = 66.7 \text{ BCY/cycle} \times 16.4 \text{ cycles/hr} = 1094 \text{ BCY/hour}$$

4. Remember results of this method are usually 10 to 20% high.

$$\text{Actual Production} = 80\% \times 1094 = 875 \text{ BCY/hr}$$

$$\text{or } 90\% \times 1094 = 984 \text{ BCY/hr}$$

5. Owning and Operating Costs

AD10T (ripping only) could have a \$115.00/hr
O & O costs including \$30/hr operator

6. Loosening Costs

$$\$115.00/\text{hr} \div 875 \text{ BCY/hr} = \$0.131/\text{BCY}$$

$$\$115.00/\text{hr} \div 984 \text{ BCY/hr} = \$0.117/\text{BCY}$$

The loosening cost should range from 11.7¢ to 13.1¢/BCY



— Low seismic velocities of sedimentaries can indicate probable rippability. However, if the fractures and bedding joints do not allow tooth penetration, the material may not be ripped effectively.

— Pre-blasting or “popping” may induce sufficient fracturing to permit tooth entry, particularly in the caliches, conglomerates and some other rocks; but the economics should be checked carefully when considering popping in the higher grades of sandstones, limestones and granites.

Ripping is still more art than science, and much will depend on operator skill and experience. Ripping for scraper loading may call for different techniques than if the same material is to be dozed away. Cross-ripping requires a change in approach. The number of shanks used, length and depth of shank, tooth angle, direction, throttle position — all must be adjusted according to field conditions. Ripping success may well depend on the operator finding the proper combination for those conditions.

USE OF SEISMIC VELOCITY CHARTS

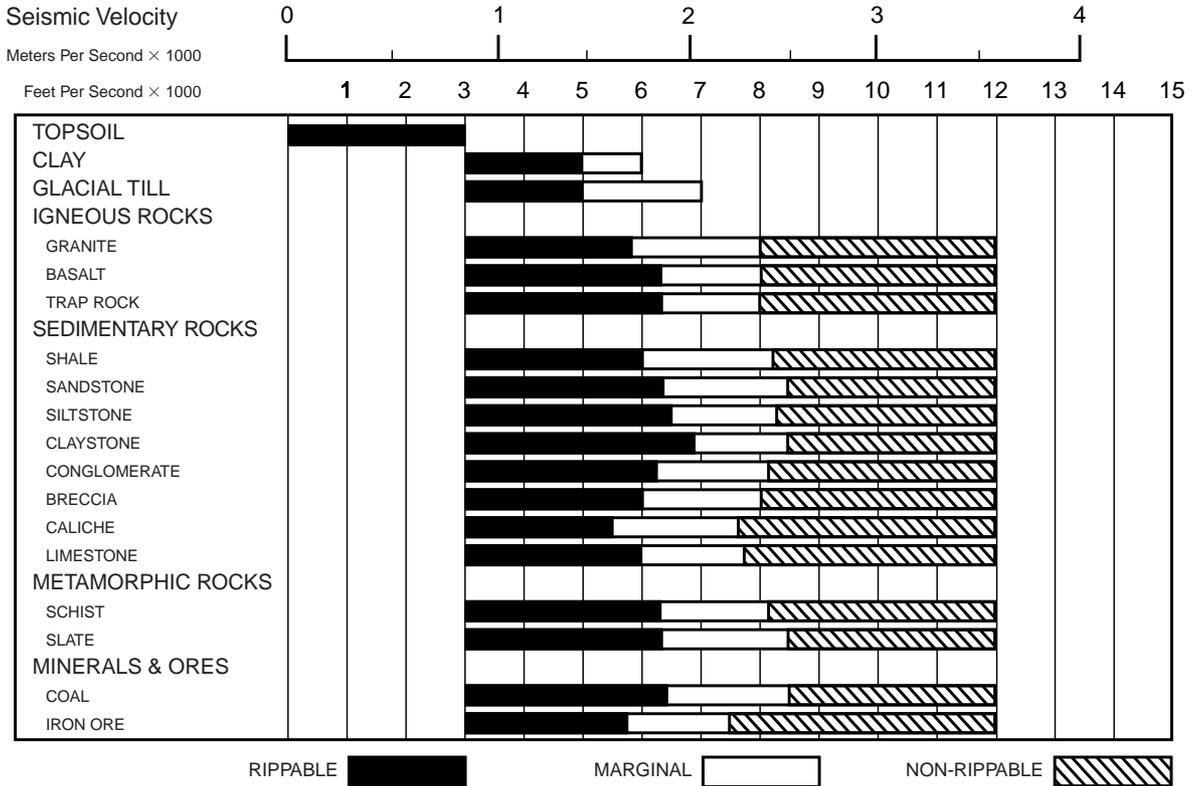
The charts of ripper performance estimated by seismic wave velocities have been developed from field tests conducted in a variety of materials. Considering the extreme variations among materials and even among rocks of a specific classification, the charts must be recognized as being at best only one indicator of rippability.

Accordingly, consider the following precautions when evaluating the feasibility of ripping a given formation:

— Tooth penetration is often the key to ripping success, regardless of seismic velocity. This is particularly true in homogeneous materials such as mudstones and claystones and the fine-grained caliches. It is also true in tightly cemented formations such as conglomerates, some glacial tills and caliches containing rock fragments.

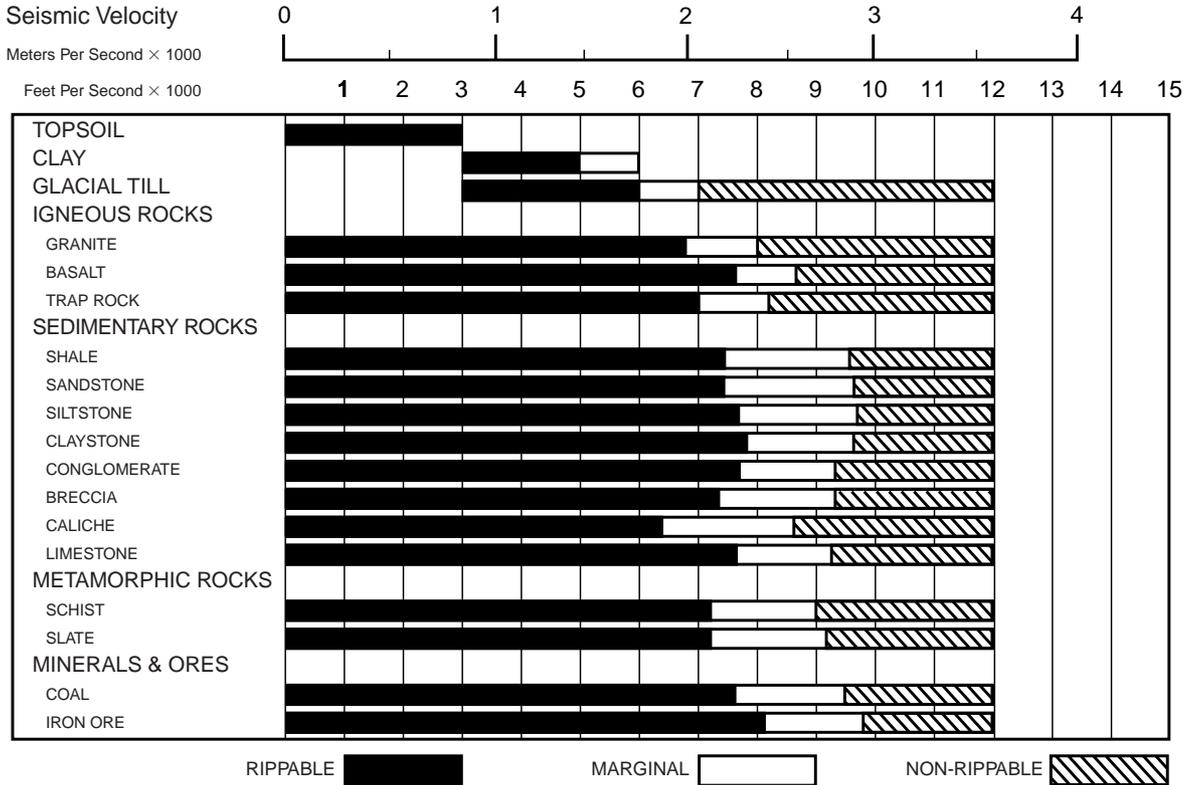
D8R/D8T

- Multi or Single Shank No. 8 Ripper
- Estimated by Seismic Wave Velocities



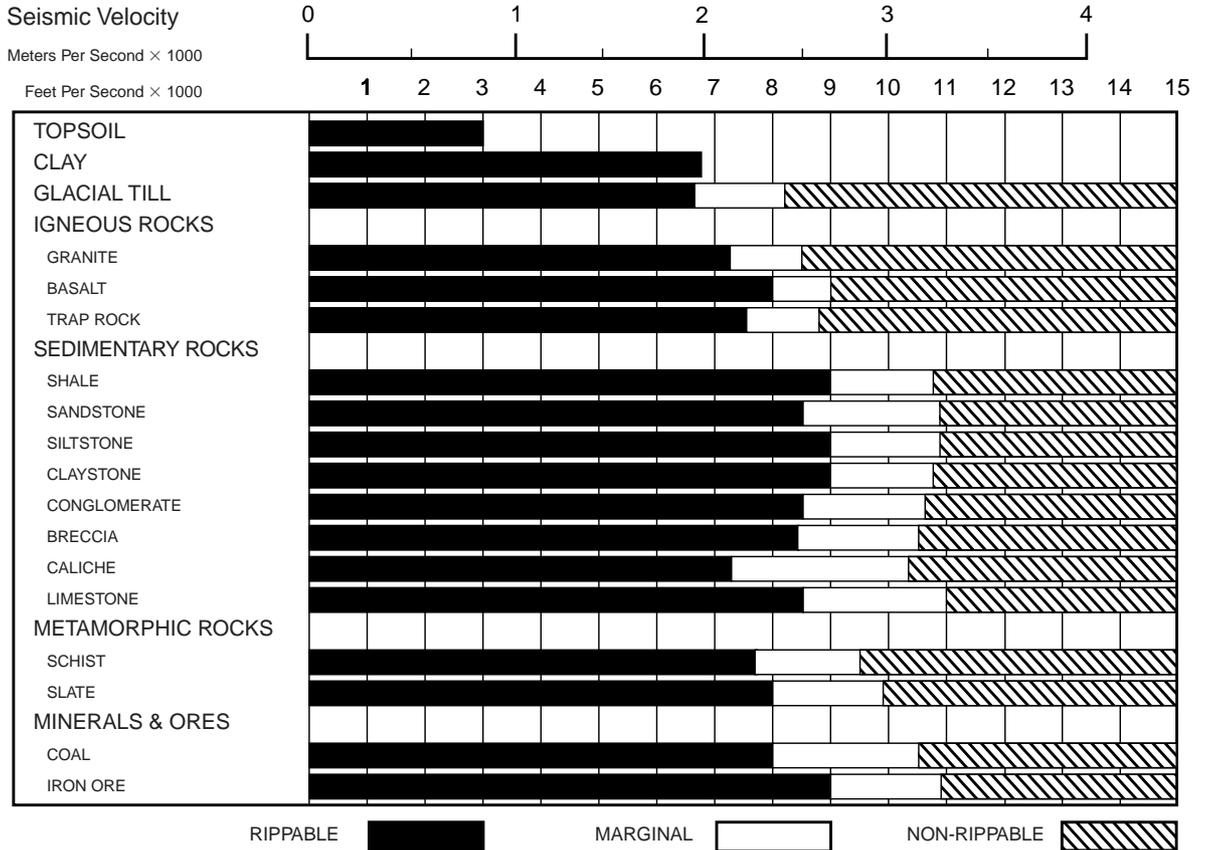
D9R/D9T

- Multi or Single Shank No. 9 Ripper
- Estimated by Seismic Wave Velocities



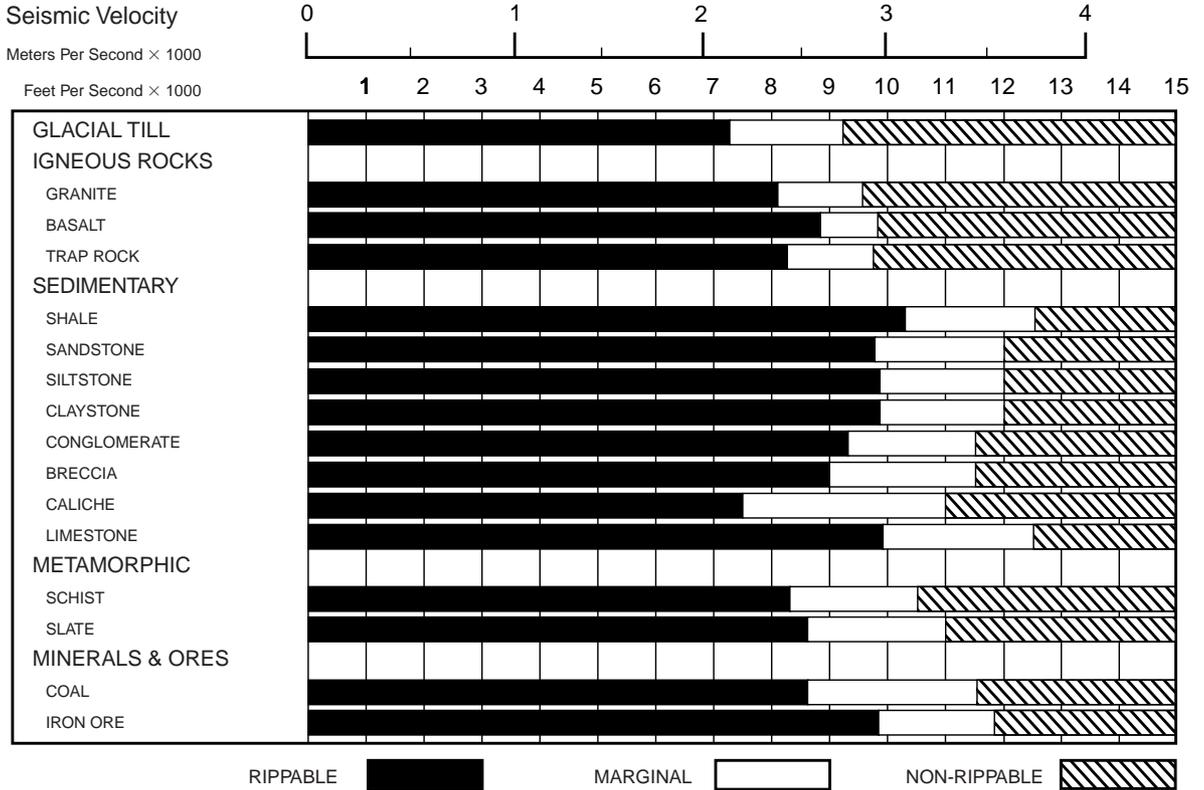
D10T

- Multi or Single Shank No. 10 Ripper
- Estimated by Seismic Wave Velocities



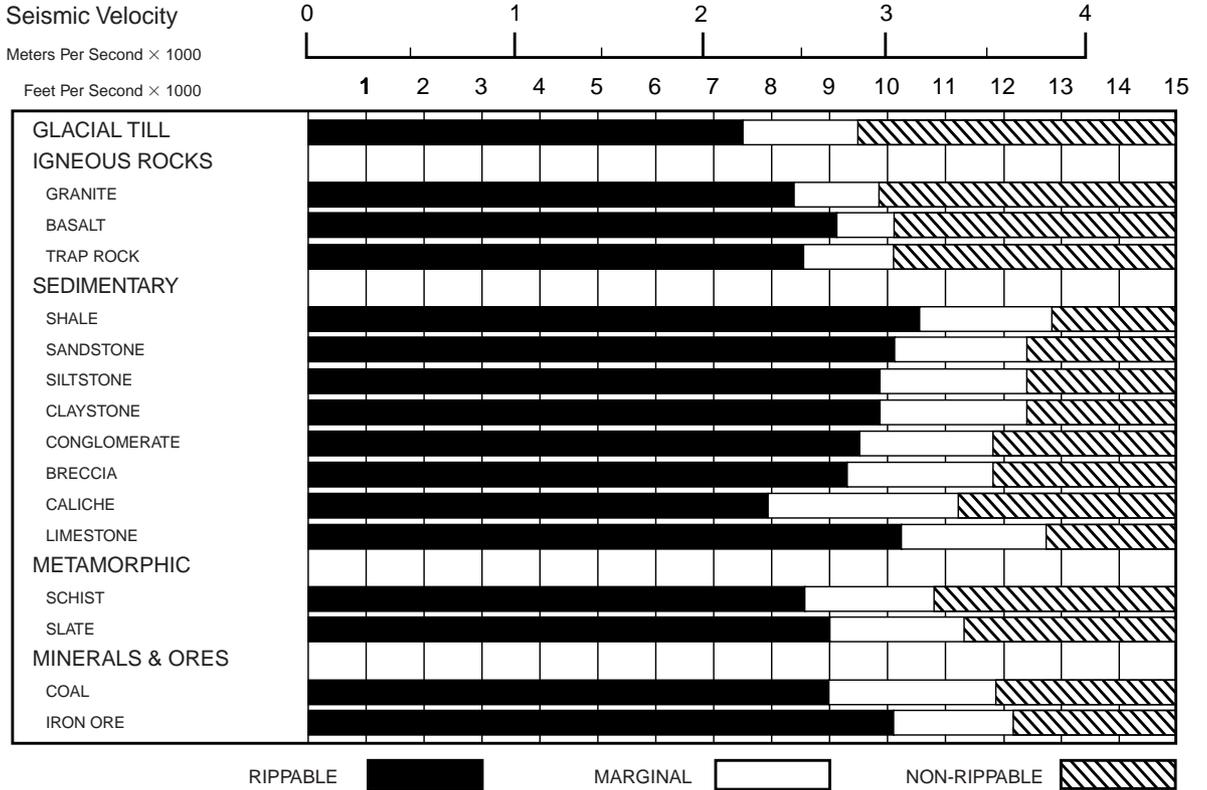
D11R

- Multi or Single Shank No. 11 Ripper
- Estimated by Seismic Wave Velocities



D11R CD

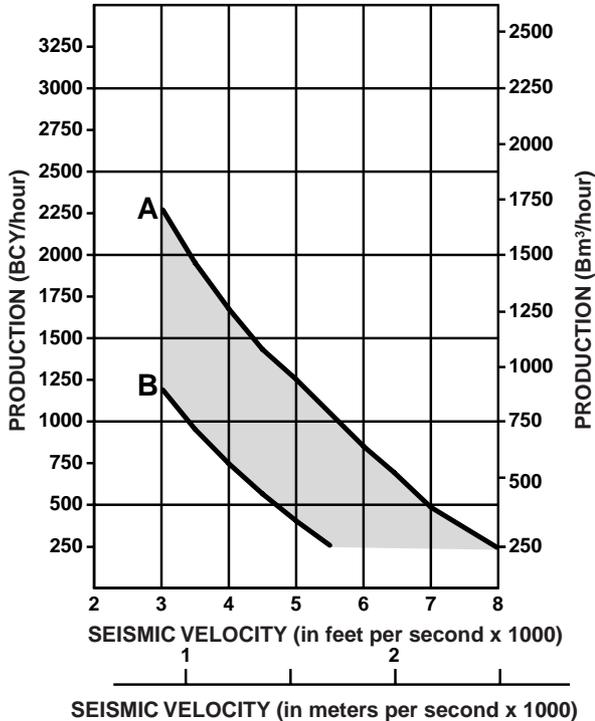
- Single Shank No. 11 Ripper
- Estimated by Seismic Wave Velocities



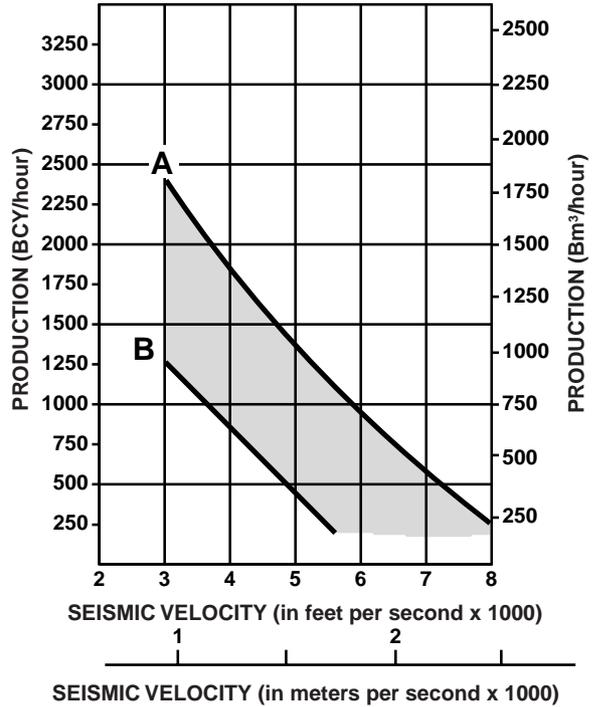
CONSIDERATIONS FOR USING PRODUCTION ESTIMATED GRAPHS:

- Machine rips full-time — no dozing.
- Power shift tractors with single shank rippers.
- 100% efficiency (60 min hour).
- Charts are for all classes of material.
- In igneous rock with seismic velocity of 8000 fps (2450 mps) or higher for the D11R, and 6000 fps (1830 mps) or higher for the D10T, D9R/D9T and D8R/D8T, the production figures shown should be reduced by 25%.
- Upper limit of charts reflect ripping under ideal conditions only. If conditions such as thick lamination, vertical lamination or any factor which would adversely affect production are present, the lower limit should be used.

D8R/D8T WITH SINGLE SHANK

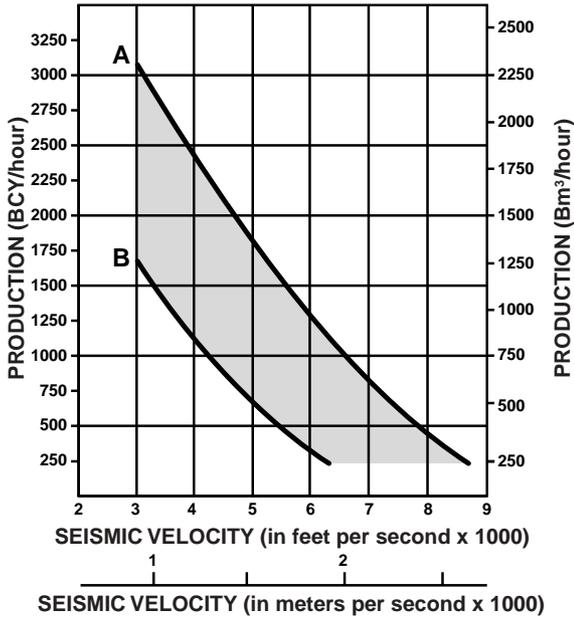


D9R/D9T WITH SINGLE SHANK

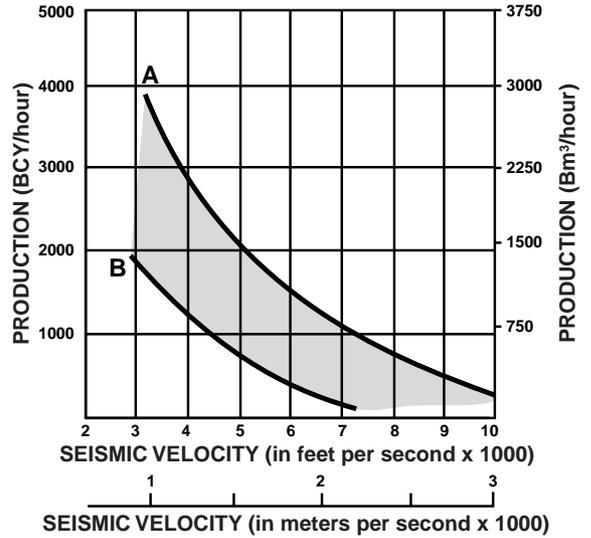


KEY
 A — IDEAL
 B — ADVERSE

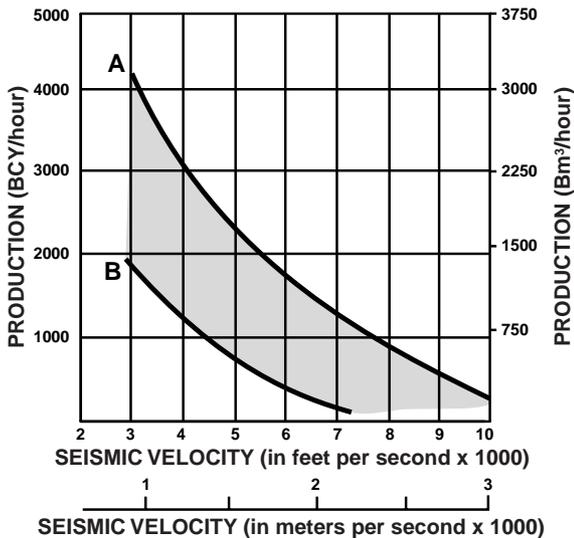
D10T WITH SINGLE SHANK



D11R WITH SINGLE SHANK



D11R CD WITH SINGLE SHANK



KEY
 A — IDEAL
 B — ADVERSE

WINCHES PACCAR ALLIED

CONTENTS

Paccar features1-67
 Allied features1-68
 Physical specifications1-69
 Operating specifications1-78

Paccar Features:

PA40

- **Durable cast winch case** with fairlead mounting lugs, log arch mounting lugs, and heavy duty drawbar.
- **Closed loop hydrostatic operation** with variable displacement motor and dedicated variable displacement pump.
- **Infinitely variable control** of line speed and line pull including positive inching control at maximum rated line pull.
- **Standard full function “reel-in” and “reel-out” control.** This is optional on most competitive winches.
- **Standard “drive-away” and “free spool”** with easily adjustable drag.

PA55, PA56 & PA80

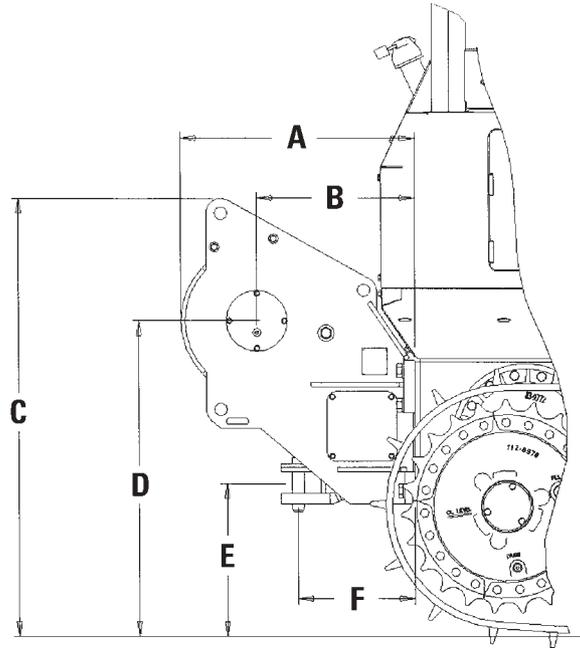
- **Durable cast winch case** with fairlead mounting lugs, log arch mounting lugs, and heavy duty drawbar.
- **Internal Hydraulic System** with maintenance-free gear pump and accumulator for easy installation.
- **Equal speed gearing in forward and reverse** to provide smooth and predictable performance.
- **Single lever control** for hydraulically actuated multiple disc clutches, brake, and free spool for ease of operation.
- **Standard “drive-away” and available “free spool”** with easily adjustable drag.

H70VS, PA110BVS & PA140VS

- **Fabricated steel winch case** with integral heavy duty drawbar provides excellent durability and easy weldability.
- **Hydraulically driven winch** for infinitely variable control of line speed and line pull including positive inching control at maximum rated line pull.
- **Dual braking system** provides a static brake with sprag clutch to eliminate fall-back and a hydraulic brake valve for dynamic braking.
- **Single lever joystick control** for ease of operation. **Pilot hydraulic** control system requires no regular maintenance.
- **Three roller fairlead** is standard for improved wire rope life during side pulls.

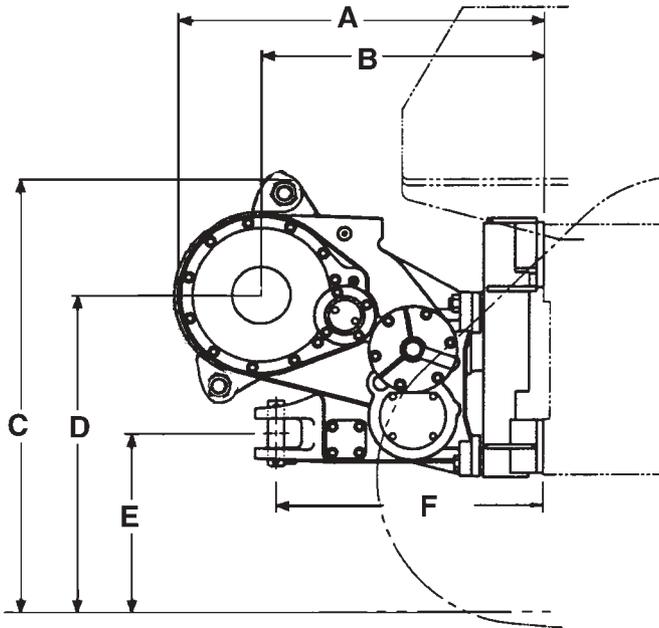
Allied Features:

- **Over 70 years of reliability on Caterpillar tractors** starting with Hyster winches. Allied acquired Hyster winches and continues with the design and tradition. Existing dealer parts inventory will support the thousands of Allied/Hyster winches in the field.
- **Electronic Control** available for all models for precise speed control. Simple plug-in connection makes installation easy.
- **Self-Contained Hydraulics (SCH) design.** All hoses, pump and valve are inside winch frame, totally eliminating external leakage. Installation is a simple task of a few hours.
- **Full line of power take-off (PTO) driven winch** available for D5N, D6N, D6R, D6G, D7G, D7R, D8R/D8T, D9R/D9T and D10T. PTO-driven winches deliver virtually full engine horsepower for heavy-duty pull. As much as four times more powerful than hydraulic winches driven by auxiliary ripper circuit. Hydrostatic winch is also available.
- **Fabricated steel frame** withstands tough conditions. Easy to weld on attachments, and easy to repair.
- **Standard equipment:**
 - Multiple-disk oil clutches and brake are constantly oil-cooled for long life.
 - Adjustable freespool drag to allow cable to be pulled easily by hand.
 - Heavy-duty drawbar provides an additional hitch for pulling.
 - Brake-off (half-brake) design keeps cable tight to prevent cable bird-nesting.
 - Power reel-in and power reel-out.
- **Optional equipment:**
 - Fairlead to handle maximum line pull from all angles. Strong vertical and horizontal rollers reduce cable wear to extend cable life.
 - Arch works like a raised fairlead to lift logs off ground for efficient log skidding. Vertical and horizontal rollers extend cable life.
 - Choice of standard gear ratio for fast operation in logging, and slow speed gear ratio for fine speed control in pipelaying and construction applications.



WINCH MODEL	PA40VS			
TRACTOR MODEL	D3G, D4G		D5G	
Transmission	Hydrostatic		Hydrostatic	
A Tractor to rear of winch	705 mm	2'4"	705 mm	2'4"
B Tractor to drum centerline	476 mm	1'7"	476 mm	1'7"
C Ground to top of winch	1315 mm	4'4"	1325 mm	4'4"
D Ground to drum centerline	947 mm	3'1"	957 mm	3'2"
E Ground to center of hitch	448 mm	1'6"	458 mm	1'6"
F Tractor to pin centerline	365 mm	1'2"	365 mm	1'2"
Overall width (not shown)	741 mm	2'5"	741 mm	2'5"
Drum diameter (not shown)	254 mm	10"	254 mm	10"
Weight*	685 kg	1510 lb	685 kg	1510 lb
Oil refill capacity (gear train)	4.3 L	4.5 qts	4.3 L	4.5 qts
Wire rope diameter:				
Recommended	16 mm	0.625"	16 mm	0.625"
Optional	19 mm	0.75"	19 mm	0.75"
Drum capacity:				
Recommended rope	113 m	371'0"	113 m	371'0"
Optional rope	78 m	257'0"	78 m	257'0"
Wire rope ferrule size (length)	54 × 65 mm	2.12 × 2.56"	54 × 65 mm	2.12 × 2.56"

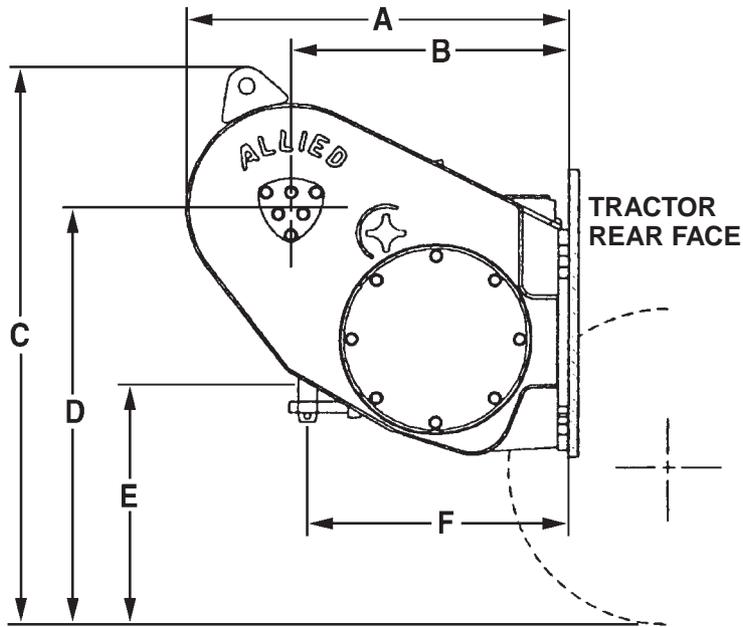
*Operating weight includes weight of installation arrangement and auxiliary pump drive.



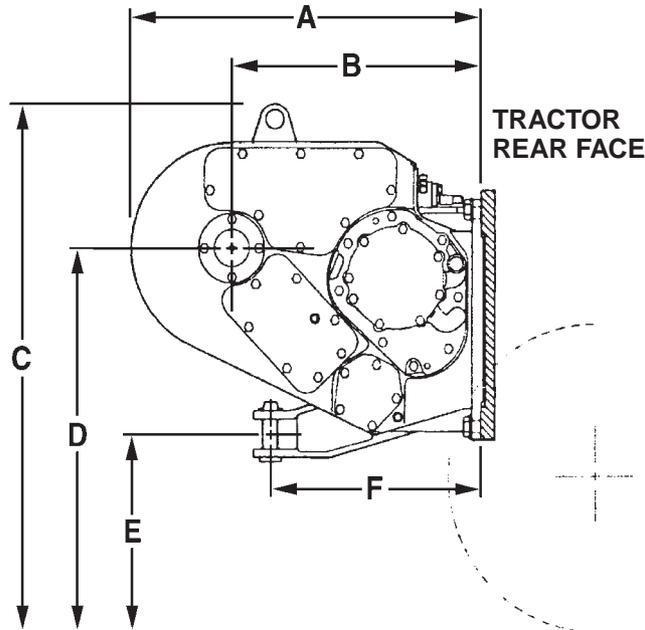
WINCH MODEL	PA55							
TRACTOR MODEL	D5N XL		D5N LGP		D6N XL		D6N LGP	
Transmission	Powershift		Powershift		Powershift		Powershift	
Winch drive	PTO		PTO		PTO		PTO	
A Tractor to rear of winch	1145 mm	3'9.1"						
B Tractor to drum centerline	890 mm	2'11.1"						
C Ground to top of winch	1330 mm	4'4.3"	1380 mm	4'6.3"	1395 mm	4'7"	1510 mm	4'11.5"
D Ground to drum centerline	960 mm	3'1.8"	1010 mm	3'3.8"	1030 mm	3'4.5"	1145 mm	3'9"
E Ground to center of hitch	525 mm	1'8.7"	575 mm	1'10.7"	595 mm	1'11.4"	710 mm	2'3.9"
F Tractor to pin centerline	845 mm	2'9.2"						
Overall width* (not shown)	975 mm	3'2.3"						
Drum diameter (not shown)	255 mm	10"						
Weight**	1180 kg	2600 lb						
Oil refill capacity	74 L	19.5 U.S. gal						
Wire rope diameter:								
Recommended	19 mm	0.75"						
Optional	22 mm	0.88"						
Drum capacity:								
Recommended rope	122 m	400'0"						
Optional rope	88 m	290'0"						
Wire rope ferrule size (length)	54 ×	2.1 ×	54 ×	2.1 ×	54 ×	2.1 ×	54 ×	2.1 ×
	65 mm	2.63"						

*Width does not include mounting brackets/adapters (if any).

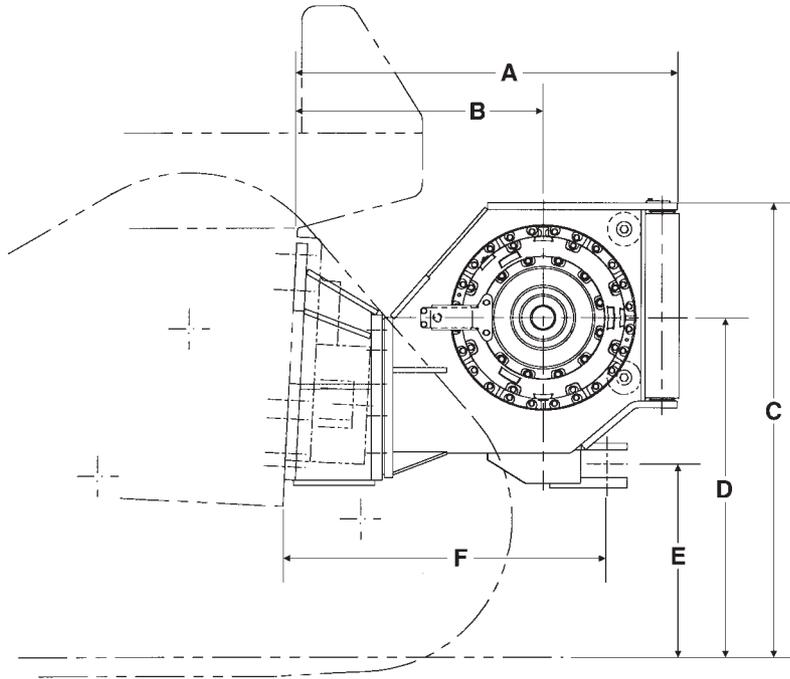
**Weight shown includes installation arrangement and oil but does not include wire rope.



WINCH MODEL	H4A			
TRACTOR MODEL	D5N XL		D5N LGP	
Transmission	Hydrostatic		Hydrostatic	
A Tractor to rear of winch	991 mm	3'3"	991 mm	3'3"
B Tractor to drum centerline	787 mm	2'7"	787 mm	2'7"
C Ground to top of winch	582 mm	4'5"	603 mm	4'7"
D Ground to drum centerline	914 mm	3'0"	965 mm	3'2"
E Ground to center of hitch	508 mm	1'10"	610 mm	2'0"
F Tractor to pin centerline	762 mm	2'6"	762 mm	2'6"
Overall width (not shown)	737 mm	2'5"	737 mm	2'5"
Drum diameter (not shown)	203 mm	8"	203 mm	8"
Weight	644 kg	1420 lb	644 kg	1420 lb
Oil refill capacity	76 L	20 U.S. gal	76 L	20 U.S. gal
Wire rope diameter:				
Recommended	16 mm	0.625"	16 mm	0.625"
Optional	19 mm	0.75"	19 mm	0.75"
Drum capacity:				
Recommended rope	84 m	277'0"	84 m	277'0"
Optional rope	59 m	195'0"	59 m	195'0"
Wire rope ferrule size (length)	38 × 51 mm	1.5 × 2.0"	38 × 51 mm	1.5 × 2.0"



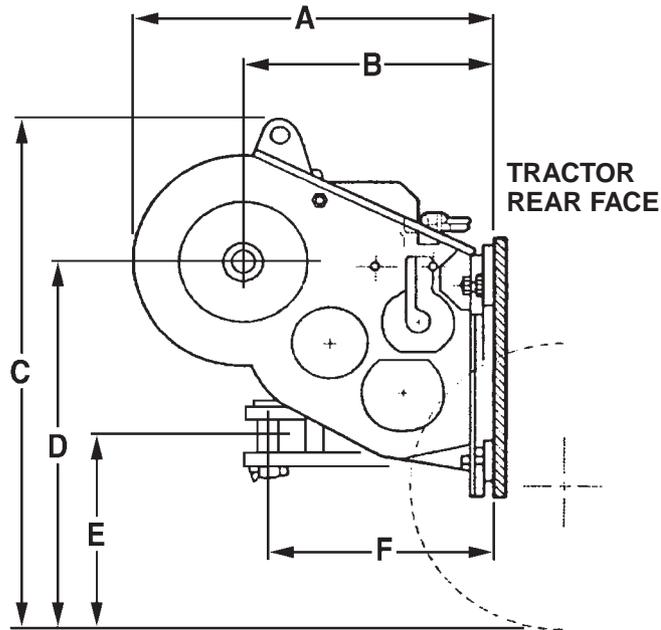
WINCH MODEL	W5C					
TRACTOR MODEL	D5N XL		D5N LGP		D6N XL	
Transmission	Powershift		Powershift & Direct Drive			
A Tractor to rear of winch	1041 mm	3'5"	1041 mm	3'5"	1041 mm	3'5"
B Tractor to drum centerline	813 mm	2'8"	813 mm	2'8"	813 mm	2'8"
C Ground to top of winch	1219 mm	4'0"	1270 mm	4'2"	1287 mm	4'3"
D Ground to drum centerline	914 mm	3'0"	965 mm	3'2"	982 mm	3'3"
E Ground to center of hitch	508 mm	1'8"	559 mm	1'10"	576 mm	1'11"
F Tractor to pin centerline	711 mm	2'4"	711 mm	2'4"	711 mm	2'4"
Overall width (not shown)	813 mm	2'8"	813 mm	2'8"	813 mm	2'8"
Drum diameter (not shown)	217 mm	8.56"	217 mm	8.56"	217 mm	8.56"
Weight	953 kg	2100 lb	953 kg	2100 lb	953 kg	2100 lb
Oil refill capacity	49 L	13 U.S. gal	49 L	13 U.S. gal	49 L	13 U.S. gal
Wire rope diameter:						
Recommended	19 mm	0.75"	19 mm	0.75"	19 mm	0.75"
Optional	22 mm	0.875"	22 mm	0.875"	22 mm	0.875"
Drum capacity:						
Recommended rope	91 m	298'0"	91 m	298'0"	91 m	298'0"
Optional rope	66 m	215'0"	66 m	215'0"	66 m	215'0"
Wire rope ferrule size (length)	51 × 57 mm	2.0 × 2.25"	51 × 57 mm	2.0 × 2.25"	51 × 57 mm	2.0 × 2.25"



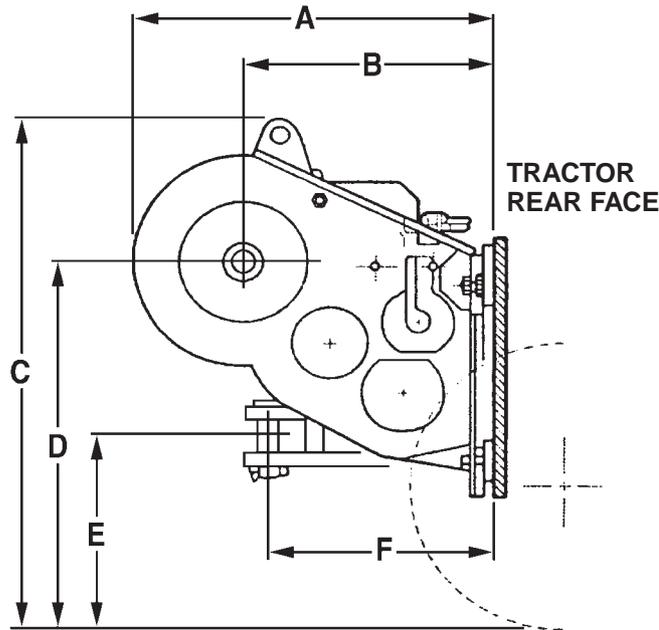
WINCH MODEL	PA56		PA57G		PA80			
TRACTOR MODEL	D6G	D6R Series II	D7G	D7G	D7G			
Transmission	Powershift		—	Powershift				
Winch drive	PTO		—	PTO				
A Tractor to rear of winch	950 mm	3'1.4"	1200 mm	3'11.2"	973 mm	3'2.3"	950 mm	3'1.4"
B Tractor to drum centerline	695 mm	2'3.4"	945 mm	3'1.2"	693 mm	2'3.3"	695 mm	2'3.4"
C Ground to top of winch	1430 mm	4'8.4"	1475 mm	4'10.1"	1570 mm	5'1.7"	1515 mm	4'11.6"
D Ground to drum centerline	1065 mm	3'5.9"	1110 mm	3'7.6"	1176 mm	3'10.3"	1145 mm	3'9.1"
E Ground to center of hitch	630 mm	2'0.8"	680 mm	2'2.7"	610 mm	2'0"	710 mm	2'4"
F Tractor to pin centerline	650 mm	2'1.5"	915 mm	3'0"	752 mm	2'5.6"	650 mm	2'1.5"
Overall width* (not shown)	975 mm	3'2.3"	975 mm	3'2.3"	1148 mm	3'9.2"	975 mm	3'2.3"
Drum diameter (not shown)	255 mm	10"	255 mm	10"	305 mm	12"	305 mm	12"
Weight**	1180 kg	2600 lb	1180 kg	2600 lb	1727 kg	3800 lb	1180 kg	2600 lb
Oil refill capacity	74 L	19.5 U.S. gal	67 L	17.75 U.S. gal	75 L	20 U.S. gal	74 L	19.5 U.S. gal
Wire rope diameter:								
Recommended	22 mm	0.88"	22 mm	0.88"	25 mm	1"	22 mm	0.88"
Optional	25 mm	1"	25 mm	1"	29 mm	1.13"	25 mm	1"
Drum capacity:								
Recommended rope	88 m	290'0"	88 m	290'0"	73 m	239'0"	88 m	290'0"
Optional rope	67 m	220'0"	67 m	220'0"	58 m	190'0"	67 m	220'0"
Wire rope ferrule size (length)	54 ×	2.1 ×	54 ×	2.1 ×	60 ×	2.38 ×	54 ×	2.1 ×
	65 mm	2.63"	65 mm	2.63"	70 mm	2.75"	65 mm	2.63"

*Width does not include mounting brackets/adapters (if any).

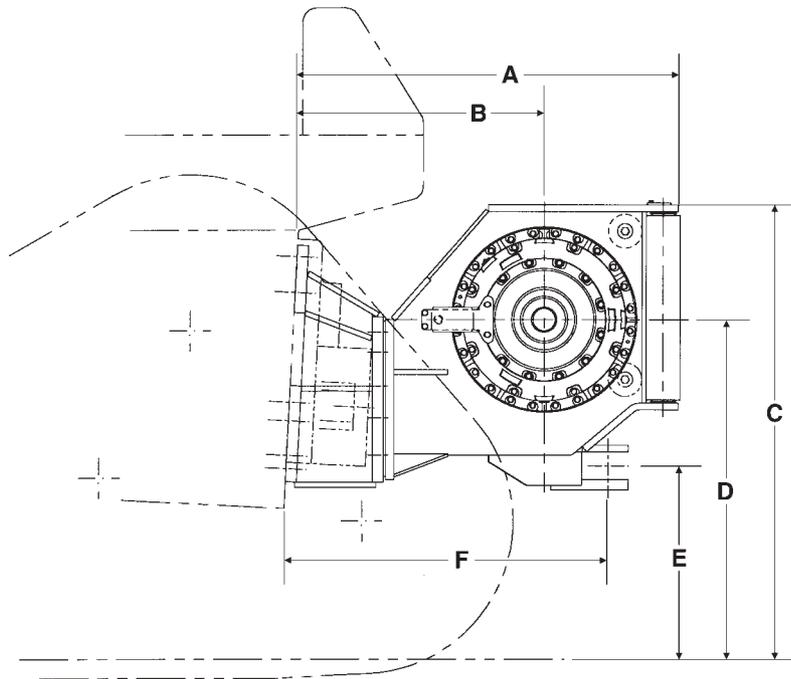
**Weight shown includes installation arrangement and oil but does not include wire rope.



WINCH MODEL	W6G					
	D6G		D6N		D6R	
A Tractor to rear of winch	965 mm	3'2"	1194 mm	3'11"	1270 mm	4'2"
B Tractor to drum centerline	686 mm	2'3"	940 mm	3'1"	991 mm	3'3"
C Ground to top of winch	1524 mm	5'0"	1473 mm	4'10"	1524 mm	5'0"
D Ground to drum centerline	1143 mm	3'9"	1092 mm	3'7"	1143 mm	3'9"
E Ground to center of hitch	686 mm	2'3"	457 mm	1'6"	686 mm	2'3"
F Tractor to pin centerline	635 mm	2'1"	889 mm	2'11"	940 mm	3'1"
Overall width (not shown)	991 mm	3'3"	991 mm	3'3"	991 mm	3'3"
Drum diameter (not shown)	254 mm	10"	254 mm	10"	254 mm	10"
Weight	1134 kg	2500 lb	1406 kg	3100 lb	1406 kg	3100 lb
Oil refill capacity	72 L	19 U.S. gal	72 L	19 U.S. gal	72 L	19 U.S. gal
Wire rope diameter:						
Recommended	22 mm	0.88"	22 mm	0.88"	22 mm	0.88"
Optional	25 mm	1"	25 mm	1"	25 mm	1"
Drum capacity:						
Recommended rope	87 m	287'0"	87 m	287'0"	87 m	287'0"
Optional rope	68 m	223'0"	68 m	223'0"	68 m	223'0"
Wire rope ferrule size (length)	51 × 57 mm	2.0 × 2.25"	51 × 57 mm	2.0 × 2.25"	51 × 57 mm	2.0 × 2.25"



WINCH MODEL	W8L					
	D7G		D7R		D8R/D8T	
A Tractor to rear of winch	864 mm	2'10"	1245 mm	4'1"	1245 mm	4'1"
B Tractor to drum centerline	584 mm	1'11"	965 mm	3'2"	965 mm	3'2"
C Ground to top of winch	1575 mm	5'2"	1600 mm	5'3"	1727 mm	5'8"
D Ground to drum centerline	1194 mm	3'11"	1219 mm	4'0"	1346 mm	4'5"
E Ground to center of hitch	559 mm	1'10"	610 mm	2'0"	737 mm	2'5"
F Tractor to pin centerline	686 mm	2'3"	1067 mm	3'6"	1067 mm	3'6"
Overall width (not shown)	1041 mm	3'5"	1041 mm	3'5"	1041 mm	3'5"
Drum diameter (not shown)	305 mm	12"	305 mm	12"	305 mm	12"
Weight	1270 kg	2800 lb	1543 kg	3400 lb	1725 kg	3800 lb
Oil refill capacity	79 L	21 U.S. gal	79 L	21 U.S. gal	79 L	21 U.S. gal
Wire rope diameter:						
Recommended	25 mm	1"	25 mm	1"	25 mm	1"
Optional	29 mm	1.13"	29 mm	1.13"	29 mm	1.13"
Drum capacity:						
Recommended rope	84 m	275'0"	84 m	275'0"	84 m	275'0"
Optional rope	67 m	220'0"	67 m	220'0"	67 m	220'0"
Wire rope ferrule size (length)	57 × 60 mm	2.25 × 2.38"	57 × 60 mm	2.25 × 2.38"	57 × 60 mm	2.25 × 2.38"

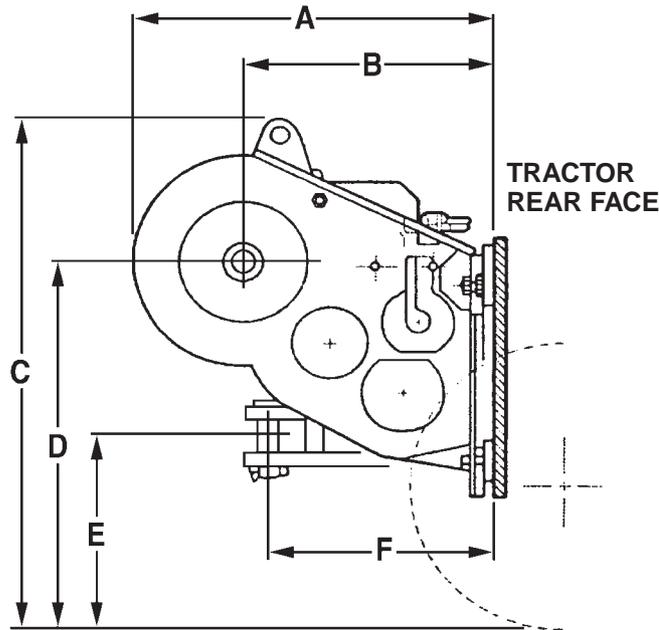


WINCH MODEL	H70VS		PA110BVS		PA140VS			
TRACTOR MODEL	D6R Series II		D7R Series II		D8R/D8T		D9R/D9T	
Winch drive	Hydraulic		Hydraulic		Hydraulic		Hydraulic	
A Tractor to rear of winch	1380 mm	4'6.4"	1435 mm	4'8.5"	1430 mm	4'8.4"	1550 mm	5'1.1"
B Tractor to drum centerline	880 mm	2'10.7"	925 mm	3'0.4"	940 mm	3'1"	1040 mm	3'5"
C Ground to top of winch	1680 mm	5'6.3"	1715 mm	5'7.5"	1710 mm	5'7.4"	1740 mm	5'8.4"
D Ground to drum centerline	1235 mm	3'9.6"	1275 mm	4'2.2"	1275 mm	4'2.1"	1300 mm	4'3.1"
E Ground to center of hitch	670 mm	2'2.4"	725 mm	2'4.5"	720 mm	2'4.4"	745 mm	2'5.4"
F Tractor to pin centerline	1160 mm	3'9.7"	1220 mm	4'0"	1215 mm	3'11.9"	1285 mm	4'2.5"
Overall width* (not shown)	1090 mm	3'7"	1160 mm	3'9.6"	1160 mm	3'9.6"	1160 mm	3'9.6"
Drum diameter (not shown)	320 mm	12.5"	320 mm	12.5"	320 mm	12.5"	320 mm	12.5"
Weight**	1630 kg	3600 lb	1790 kg	950 lb	1790 kg	3950 lb	1790 kg	3950 lb ***
Oil refill capacity	15 L	4 U.S. gal	15 L	4 U.S. gal	15 L	4 U.S. gal	15 L	4 U.S. gal
Wire rope diameter:								
Recommended	25 mm	1"	29 mm	1.13"	29 mm	1.13"	29 mm	1.13"
Optional	29 mm	1.13"	32 mm	1.25"	32 mm	1.25"	32 mm	1.25"
Drum capacity:								
Recommended rope	62 m	203'0"	84 m	276'0"	84 m	276'0"	84 m	276'0"
Optional rope	57 m	187'0"	58 m	193'0"	58 m	193'0"	58 m	193'0"
Wire rope ferrule size (length)	60 ×	2.38 ×	60 ×	2.38 ×	60 ×	2.38 ×	60 ×	2.38 ×
	65 mm	2.56"	70 mm	2.75"	70 mm	2.75"	70 mm	2.75"

*Width does not include mounting brackets/adapters (if any).

**Weight shown includes installation arrangement and oil but does not include wire rope.

***3700 kg (8150 lb) with counterweight.



WINCH MODEL	W12E					
TRACTOR MODEL	D8R/D8T		D9R/D9T		D10T	
A Tractor to rear of winch	1475 mm	4'10"	1422 mm	4'8"	1422 mm	4'8"
B Tractor to drum centerline	1168 mm	3'10"	1067 mm	3'8"	1067 mm	3'8"
C Ground to top of winch	1727 mm	5'8"	1675 mm	5'6"	2057 mm	6'9"
D Ground to drum centerline	1321 mm	4'4"	1270 mm	4'2"	1651 mm	5'5"
E Ground to center of hitch	660 mm	2'2"	610 mm	2'0"	991 mm	3'3"
F Tractor to pin centerline	1219 mm	4'0"	1219 mm	4'0"	1219 mm	4'0"
Overall width (not shown)	1219 mm	4'0"	1219 mm	4'0"	1219 mm	4'0"
Drum diameter (not shown)	355 mm	14"	355 mm	14"	355 mm	14"
Weight	2860 kg	6300 lb	2860 kg	6300 lb	3766 kg	8300 lb
Oil refill capacity	114 L	30 U.S. gal	114 L	30 U.S. gal	114 L	30 U.S. gal
Wire rope diameter:						
Recommended	29 mm	1.13"	29 mm	1.13"	29 mm	1.13"
Optional	32 mm	1.25"	32 mm	1.25"	32 mm	1.25"
Drum capacity:						
Recommended rope	69 m	228'0"	69 m	228'0"	69 m	228'0"
Optional rope	55 m	181'0"	55 m	181'0"	55 m	181'0"
Wire rope ferrule size (length)	57 × 60 mm	2.25 × 2.38"	57 × 60 mm	2.25 × 2.38"	57 × 60 mm	2.25 × 2.38"

WINCH MODEL		PA40VS	H70VS	PA110BVS	
TRACTOR MODEL		D3G, D4G, D5G	D6R Series II	D7R Series II	D7R Series II
British Units of Measure					
Transmission		Hydrostatic	Powershift D/S	Powershift D/S	Powershift C/B
Winch Drive		Hydrostatic	Hydraulic	Hydraulic	Hydraulic
Bare Drum	Maximum line pull ⁽¹⁾	40,000	90,000	110,000	101,200
	Rated line speed ⁽²⁾	—	54	33	30
	Maximum line speed ⁽³⁾	132	87	100	68
Full Drum	Maximum line pull ⁽¹⁾	25,000	56,600	73,600	65,400
	Rated line speed ⁽²⁾	—	85	52	47
	Maximum line speed ⁽³⁾	207	139	154	103
Metric Units of Measure					
Bare Drum	Maximum line pull ⁽¹⁾	18 140	40 800	49 900	45 900
	Rated line speed ⁽²⁾	—	16	10	9
	Maximum line speed ⁽³⁾	40	26	30	21
Full Drum	Maximum line pull ⁽¹⁾	11 340	25 650	33 400	29 650
	Rated line speed ⁽²⁾	—	26	16	14
	Maximum line speed ⁽³⁾	63	42	47	31

⁽¹⁾“Maximum line pull” is lesser of winch catalog rating or predicted line pull at maximum tractor hydraulic system pressure.

⁽²⁾“Rated line speed” is actual line speed at maximum line pull.

⁽³⁾“Maximum line speed” is no-load speed at maximum tractor hydraulic system flow.

⁽⁴⁾Hydraulic winch line pull ratings are based on gear train mechanical efficiency of 91%.

WINCH MODEL		PV140VS			
TRACTOR MODEL		D8R	D8T	D9R	D9T
British Units of Measure					
Transmission		Powershift	Powershift	Powershift	Powershift
Winch Drive		Hydraulic	Hydraulic	Hydraulic	Hydraulic
Bare Drum	Maximum line pull ⁽¹⁾	140,000	140,000	140,000	140,000
	Rated line speed ⁽²⁾	23	23	24	23
	Maximum line speed ⁽³⁾	47	46	49	46
Full Drum	Maximum line pull ⁽¹⁾	90,300	90,300	96,200	98,000
	Rated line speed ⁽²⁾	37	36	38	36
	Maximum line speed ⁽³⁾	73	71	76	71
Metric Units of Measure					
Bare Drum	Maximum line pull ⁽¹⁾	63 500	63 500	63 500	63 500
	Rated line speed ⁽²⁾	7	7	7	7
	Maximum line speed ⁽³⁾	14	14	15	14
Full Drum	Maximum line pull ⁽¹⁾	40 950	40 950	43 600	44 450
	Rated line speed ⁽²⁾	11	11	12	11
	Maximum line speed ⁽³⁾	22	22	23	22

⁽¹⁾“Maximum line pull” is lesser of winch catalog rating or predicted line pull at maximum tractor hydraulic system pressure.

⁽²⁾“Rated line speed” is actual line speed at maximum line pull.

⁽³⁾“Maximum line speed” is no-load speed at maximum tractor hydraulic system flow.

⁽⁴⁾Hydraulic winch line pull ratings are based on gear train mechanical efficiency of 91%.

WINCH MODEL		PA55		PA56		PA80
TRACTOR MODEL		D5N	D6N	D6G	D6R Series II	D7G
British Units of Measure <i>Standard speed gearing</i>						
Transmission		Powershift	Powershift	Powershift	Powershift	Powershift
Winch Drive		PTO	PTO	PTO	PTO	PTO
Bare Drum	Rated line pull ⁽¹⁾lb	31,600	36,600	58,700	59,100	45,100
	Maximum line pull ⁽²⁾lb	64,200	69,200	89,800	89,800	86,900
	Rated line speed ⁽³⁾fpm	85	97	70	80	107
	Maximum line speed ⁽⁴⁾fpm	150	147	132	130	190
Full Drum	Rated line pull ⁽¹⁾lb	18,100	21,000	34,200	34,400	29,900
	Maximum line pull ⁽²⁾lb	36,700	54,100	65,400	76,300	57,500
	Rated line speed ⁽³⁾fpm	148	169	120	136	161
	Maximum line speed ⁽⁴⁾fpm	263	257	226	224	286
<i>Slow speed gearing</i>						
Bare Drum	Rated line pull ⁽¹⁾lb	50,000	50,000	70,000	70,000	—
	Maximum line pull ⁽²⁾lb	69,200	69,200	89,800	89,800	—
	Rated line speed ⁽³⁾fpm	35	40	31	35	—
	Maximum line speed ⁽⁴⁾fpm	63	61	59	58	—
Full Drum	Rated line pull ⁽¹⁾lb	43,300	50,000	70,000	70,000	—
	Maximum line pull ⁽²⁾lb	69,200	69,200	89,800	89,800	—
	Rated line speed ⁽³⁾fpm	62	70	56	63	—
	Maximum line speed ⁽⁴⁾fpm	110	107	104	103	—
Metric Units of Measure <i>Standard speed gearing</i>						
Bare Drum	Rated line pull ⁽¹⁾kg	14 350	16 600	26 600	26 800	20 450
	Maximum line pull ⁽²⁾kg	29 100	31 400	40 750	40 750	40 750
	Rated line speed ⁽³⁾mpm	26	30	21	24	33
	Maximum line speed ⁽⁴⁾mpm	46	45	40	40	58
Full Drum	Rated line pull ⁽¹⁾kg	8200	9500	15 500	15 600	13 550
	Maximum line pull ⁽²⁾kg	16 650	24 550	29 650	34 600	26 100
	Rated line speed ⁽³⁾mpm	45	52	37	41	49
	Maximum line speed ⁽⁴⁾mpm	80	78	69	68	87
<i>Slow speed gearing</i>						
Bare Drum	Rated line pull ⁽¹⁾kg	22 650	22 650	31 750	31 750	—
	Maximum line pull ⁽²⁾kg	31 400	31 400	40 750	40 750	—
	Rated line speed ⁽³⁾mpm	11	12	9	11	—
	Maximum line speed ⁽⁴⁾mpm	19	19	18	18	—
Full Drum	Rated line pull ⁽¹⁾kg	19 650	19 650	31 750	31 750	—
	Maximum line pull ⁽²⁾kg	31 400	31 400	40 750	40 750	—
	Rated line speed ⁽³⁾mpm	19	21	17	19	—
	Maximum line speed ⁽⁴⁾mpm	34	33	32	31	—

⁽¹⁾"Rated line pull" is lesser of winch catalog rating or actual line pull at maximum PTO horsepower.
⁽²⁾"Maximum line pull" is lesser of actual line pull at maximum PTO output torque or catalog breaking strength of maximum optional size new IWRC IPS wire rope.
⁽³⁾"Rated line speed" is actual line speed at maximum PTO output horsepower.
⁽⁴⁾"Maximum line speed" is no-load speed at maximum tractor engine rpm.
⁽⁵⁾Mechanical winch line pull ratings are based on gear train mechanical efficiency of 90%.

WINCH MODEL		H4A	W5C	
TRACTOR MODEL		D5N	D5N	D6N
British Units of Measure				
<i>Standard speed gearing</i>				
Winch Drive		HYD	PTO	PTO
Bare Drum	Rated line pull	—	25,203	69,200
	Maximum line pull	44,000	57,083	69,200
	Rated line speed	—	107	34
	Maximum line speed	85	170	60
Full Drum	Rated line pull	—	13,868	59,496
	Maximum line pull	25,475	30,897	69,200
	Rated line speed	—	197	63
	Maximum line speed	148	314	112
<i>Slow/Low speed gearing</i>				
Bare Drum	Rated line pull	—	69,200	—
	Maximum line pull	—	69,200	—
	Rated line speed	—	37	—
	Maximum line speed	—	59	—
Full Drum	Rated line pull	—	39,621	—
	Maximum line pull	—	69,200	—
	Rated line speed	—	69	—
	Maximum line speed	—	110	—
Tractor rating		—	115 hp @ 1560 rpm	140 hp @ 2200 rpm
Metric Units of Measure				
<i>Standard speed gearing</i>				
Bare Drum	Rated line pull	—	11 432	31 389
	Maximum line pull	19 958	25 892	31 389
	Rated line speed	—	32.6	10.4
	Maximum line speed	25.9	51.8	18.3
Full Drum	Rated line pull	—	6290	26 987
	Maximum line pull	11 555	14 015	31 389
	Rated line speed	—	60.0	19.2
	Maximum line speed	45.1	95.7	34.1
<i>Slow/Low speed gearing</i>				
Bare Drum	Rated line pull	—	31 389	—
	Maximum line pull	—	31 389	—
	Rated line speed	—	11.3	—
	Maximum line speed	—	18.0	—
Full Drum	Rated line pull	—	17 972	—
	Maximum line pull	—	31 389	—
	Rated line speed	—	21.0	—
	Maximum line speed	—	33.5	—
Tractor rating		—	86 kW @ 1560 rpm	104 kW @ 2200 rpm

WINCH MODEL		W6G		
TRACTOR MODEL		D6G	D6N	D6R
British Units of Measure				
<i>Standard speed gearing</i>				
Winch Drive		PTO	PTO	PTO
Bare Drum	Rated line pull .lb	45,013	40,736	50,544
	Maximum line pull .lb	89,800	89,800	89,800
	Rated line speed .fpm	85	88	79
	Maximum line speed .fpm	141	156	145
Full Drum	Rated line pull .lb	24,757	22,405	27,799
	Maximum line pull .lb	54,683	49,669	56,765
	Rated line speed .fpm	154	161	144
	Maximum line speed .fpm	257	284	264
<i>Slow/Low speed gearing</i>				
Bare Drum	Rated line pull .lb	89,800	90	89,800
	Maximum line pull .lb	89,800	89,800	89,800
	Rated line speed .fpm	25	26	23
	Maximum line speed .fpm	42	46	43
Full Drum	Rated line pull .lb	84,175	76,179	89,800
	Maximum line pull .lb	89,800	89,800	89,800
	Rated line speed .fpm	45	47	46
	Maximum line speed .fpm	76	84	78
Tractor rating		155 hp @ 1900 rpm	158 hp @ 2160 rpm	165 hp @ 1800 rpm
Metric Units of Measure				
<i>Standard speed gearing</i>				
Bare Drum	Rated line pull .kg	20 418	18 478	22 926
	Maximum line pull .kg	40 733	40 733	40 733
	Rated line speed .mpm	25.9	26.8	24.1
	Maximum line speed .mpm	43.0	47.5	44.2
Full Drum	Rated line pull .kg	11 230	10 163	12 609
	Maximum line pull .kg	24 804	22 529	25 748
	Rated line speed .mpm	46.9	49.1	43.9
	Maximum line speed .mpm	78.3	86.6	80.5
<i>Slow/Low speed gearing</i>				
Bare Drum	Rated line pull .kg	40 733	41	40 733
	Maximum line pull .kg	40 733	40 733	40 733
	Rated line speed .mpm	7.6	7.9	7.0
	Maximum line speed .mpm	12.8	14.0	13.1
Full Drum	Rated line pull .kg	38 181	34 554	40 733
	Maximum line pull .kg	40 733	40 733	40 733
	Rated line speed .mpm	13.7	14.3	14.0
	Maximum line speed .mpm	23.2	25.6	23.8
Tractor rating		116 kW @ 1900 rpm	118 kW @ 2160 rpm	123 kW @ 1800 rpm

WINCH MODEL		W8L		
TRACTOR MODEL		D7G	D7R	D8R/D8RT
British Units of Measure				
<i>Standard speed gearing</i>				
Winch Drive		PTO	PTO	PTO
Bare Drum	Rated line pull	51,942	57,328	113,000
	Maximum line pull	113,000	113,000	113,000
	Rated line speed	97	110	60
	Maximum line speed	166	171	89
Full Drum	Rated line pull	31,894	35,745	74,605
	Maximum line pull	69,447	78,337	113,000
	Rated line speed	157	176	99
	Maximum line speed	270	274	147
<i>Slow/Low speed gearing</i>				
Bare Drum	Rated line pull	98,044	108,209	113,000
	Maximum line pull	113,000	113,000	113,000
	Rated line speed	51	58	45
	Maximum line speed	88	90	67
Full Drum	Rated line pull	60,202	67,471	99,209
	Maximum line pull	113,000	113,000	113,000
	Rated line speed	83	93	75
	Maximum line speed	143	145	110
Tractor rating		200 hp @ 2000 rpm	240 hp @ 2100 rpm	305 hp @ 2100 rpm
Metric Units of Measure				
<i>Standard speed gearing</i>				
Bare Drum	Rated line pull	23 560	26 004	51 256
	Maximum line pull	51 256	51 256	51 256
	Rated line speed	29.6	33.5	18.3
	Maximum line speed	50.6	52.1	27.1
Full Drum	Rated line pull	14 467	16 214	33 840
	Maximum line pull	31 501	35 533	51 256
	Rated line speed	47.9	53.6	30.2
	Maximum line speed	82.3	83.5	44.8
<i>Slow/Low speed gearing</i>				
Bare Drum	Rated line pull	44 472	49 083	51 256
	Maximum line pull	51 256	51 256	51 256
	Rated line speed	15.5	17.7	13.7
	Maximum line speed	26.8	27.4	20.4
Full Drum	Rated line pull	27 307	30 604	45 000
	Maximum line pull	51 256	51 256	51 256
	Rated line speed	25.3	28.3	22.9
	Maximum line speed	43.6	44.2	33.5
Tractor rating		149 kW @ 2000 rpm	179 kW @ 2100 rpm	231 kW @ 2000 rpm

WINCH MODEL		W12E		
TRACTOR MODEL		D8R/D8RT	D9R/D9T	D10T
British Units of Measure				
<i>Standard speed gearing</i>				
Winch Drive		PTO	PTO	PTO
Bare Drum	Rated line pull	95,600	138,800	138,800
	Maximum line pull	138,800	138,800	138,800
	Rated line speed	79	38	40
	Maximum line speed	117	56	58
Full Drum	Rated line pull	61,400	138,800	138,800
	Maximum line pull	138,800	138,800	138,800
	Rated line speed	123	59	62
	Maximum line speed	182	87	91
<i>Slow/Low speed gearing</i>				
Bare Drum	Rated line pull	138,800	—	—
	Maximum line pull	138,800	—	—
	Rated line speed	45	—	—
	Maximum line speed	66	—	—
Full Drum	Rated line pull	109,000	—	—
	Maximum line pull	138,800	—	—
	Rated line speed	69	—	—
	Maximum line speed	102	—	—
Tractor rating		370 hp @ 2000 rpm	405 hp @ 1900 rpm	570 hp @ 1900 rpm
Metric Units of Measure				
<i>Standard speed gearing</i>				
Bare Drum	Rated line pull	43 363	62 959	62 959
	Maximum line pull	62 959	62 959	62 959
	Rated line speed	24.1	11.6	12.2
	Maximum line speed	35.7	17.1	17.7
Full Drum	Rated line pull	27 851	62 959	62 959
	Maximum line pull	62 959	62 959	62 959
	Rated line speed	37.5	18.0	18.9
	Maximum line speed	55.5	26.5	27.7
<i>Slow/Low speed gearing</i>				
Bare Drum	Rated line pull	62 959	—	—
	Maximum line pull	62 959	—	—
	Rated line speed	13.7	—	—
	Maximum line speed	20.1	—	—
Full Drum	Rated line pull	49 442	—	—
	Maximum line pull	62 959	—	—
	Rated line speed	21.0	—	—
	Maximum line speed	31.1	—	—
Tractor rating		231 kW @ 2000 rpm	302 kW @ 1900 rpm	425 kW @ 1900 rpm

MOTOR GRADERS

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Industries Served

The motor grader is one of the most versatile work tools in the Caterpillar product line. The H-Series machines are used in numerous applications within a wide range of industries. The major industries using Cat motor graders, along with the typical applications within each, are summarized below.

- **Heavy Construction**
 - Highway Construction
 - Paving/Resurfacing
 - Airport Construction
 - Railroad Construction
 - Dam and Levee Construction
 - Haul Road Maintenance
- **Governmental**
 - Road Maintenance
 - Road Construction
 - Ditch Building/Cleaning
 - Snow Removal
- **Building Construction**
 - Residential Construction
 - Commercial Construction
 - Industrial Construction
 - Sewer and Water Systems
- **Industrial**
 - Waste Disposal
 - Pipeline Construction

- **Mining**
 - Haul Road Maintenance
 - Snow Removal
- **Forestry**
 - Access Road Construction
 - Forest Development
 - Snow Removal
 - Haul Road Maintenance

Features, H-Series Motor Graders:

- **Geographic Versions** — The H-Series was specifically designed to meet the needs of different geographic regions. Standard and Global Versions are available with an assortment of standard features and optional equipment. All motor graders feature advanced electronically controlled Caterpillar engines, power train components, hydraulics and machine structures. The 24H was designed to meet the productivity and durability expectations of Caterpillar mining customers.
- **Power to the Ground** — Proven Caterpillar designed and manufactured components are carefully matched to maximize productivity and efficiency. Caterpillar H-Series engines have excellent lugging performance and fuel economy. Variable Horsepower (VHP) (Global Versions only — standard on models 143H and 163H, optional on all other models) provides more power in gears 4F-8F and 3R-6R to increase productivity and improve gradeability when roading. VHP Plus — provides even more power in gears 4F-6F and 7F-8F. (Optional on 12H, 140H, 143H, 160H and 163H). Engine Power Management (standard on all Global and Standard Versions except 12H) delivers full rated power in gears 4F-8F and 3R-6R. In lower gears, where traction is limited, engine horsepower is automatically reduced, lowering fuel consumption and reducing tire slippage. All models have Caterpillar transmissions that provide on-the-go, full-power shifting and inching capability. Auto-shift is standard equipment on the 24H and optional on certain Global models. In addition, the 24H is equipped with a lockup clutch torque converter which allows the machine to operate in direct drive at high output speeds.

- **Blade Positioning** — The H-Series provides a broad range of extended blade positions particularly beneficial in mid-range bank sloping, ditch cutting and ditch cleaning. Along wheel base allows for an aggressive blade angle permitting material to roll more freely, reducing power requirements.
- **Brakes** — Caterpillar designs and builds multi-disc brakes that are completely sealed, oil-bathed, adjustment-free and offer unmatched reliability and durability. They are located at each tandem wheel to eliminate braking loads on the power train and to speed up servicing. The large brake surface provides dependable braking capability and long life. The 24H brakes are oil-actuated and all other models are air-actuated.
- **Visibility** — Ample glass area and carefully placed components provide excellent visibility to enhance operator confidence and productivity in all motor grader applications. The H-Series gives the operator an exceptional view forward to the blade toe, working surface and front tires. Rearward visibility to the ripper and tandem tires and sideways to the blade heel and front tandem tires is maximized. The slanted rear window and optional sunshade reduce glare.
- **Controllability** — The H-Series features motor grader-specific hydraulic controls providing smooth, predictable response every time a lever is moved. The machines can perform multiple, hydraulic-control operations with little effect on the engine or implement speeds. The result is more production in almost any application. The Proportional, Priority, Pressure-Compensated (PPPC) Hydraulic System is load-sensing and provides hydraulic power on demand, consuming horsepower only when needed. The system provides proportionate flow to each circuit when the system demand exceeds the available flow. Lock valves, built into all control valves, maintain exact cylinder positioning. The implement valves provide superior modulation, system response and predictability.
- **Safety** — The H-Series machines provide a safe working environment for both the operator and ground personnel. ROPS and FOPS structures meeting current SAE and ISO requirements are standard on all Global machines. Back-up alarms are also standard on the Global Version, and all models are equipped with a horn that meets ISO sound requirements. A fully hydraulic power steering system is standard on all models, ensuring precise machine control. Optional secondary steering system, available on all Global Versions (standard on 24H), provides steering if the main hydraulic pump fails. Sturdy, well-placed access steps provide safe entry into the cab, and a cloth contour suspension seat with retractable seat belt (standard on Global Versions) secures the operator once in the cab. The best visibility in the industry allows the operator to see what is happening around the machine. Various work and warning light packages are also available which provide even more visibility for the operator. A circle drive slip clutch, standard on all H-Series models, reduces the possibility of the grader making abrupt directional changes when hidden objects are encountered. Optional blade lift accumulators absorb vertical shocks when immovable objects are encountered, further protecting both the machine and the operator.
- **Operator Comfort** — The H-Series provides a comfortable environment to keep the operator alert and focused. Conveniently located, low-effort controls reduce fatigue. The interior noise level is maintained between 75 and 80 dBA with the doors and windows closed. Other standard and optional operator-comfort features may include (availability dependent on model):
 - key engine start-stop switch
 - pressurized cab
 - air conditioning and heating (16 air vents)
 - fully adjustable Caterpillar Contour Series Seat
 - adjustable steering and implement control console
 - easy-to-see gauges
 - provisions for entertainment and communication radios
 - lunch box location
 - coat hook
 - sweepout cab floor
 - suspended pedals
 - cigarette lighter and ashtray
 - cupholder
 - 12 volt power port
 - lower-opening front windows
 - sliding side windows
 - speedometer/tachometer
 - hour meter
 - defroster fans
 - rear sunshade
 - intermittent wipers

- **Environmental Design** — The H-Series responds to important environmental concerns such as noise and air pollution. Designed with low exterior sound levels and low-emissions engines (except on Standard Version models 12H, 140H and 160H), Caterpillar motor graders are quiet and clean. Low exterior sound levels range from 80 to 84 dBA due to slower engine speeds, underhood mufflers, rubber-mounted engines, transmissions and slower fans. R134a refrigerant is used in the air conditioner. To minimize oil leaks and withstand high working pressures and temperatures, Caterpillar designed, heavy-duty XT hose and O-ring face seals are used.
- **Serviceability** — H-Series motor graders are designed for fast, easy servicing. Easy access to service areas allows for quick maintenance and ensures that routine service is performed on time. Features promoting easy servicing include:
 - Electronic Monitoring System (EMS III on all Global Versions) to alert the operator to potential problems (EMS II on the 24H)
 - easily replaceable wear inserts to keep the drawbar, circle and blade tight and prevent damage to expensive components
 - large, hinged, engine side doors to provide ample access to the engine and transmission service points (optional on Standard Versions)
 - air cleaner located above the engine, accessible from left side
 - hydraulic oil level sight gauge
 - tandem oil level sight gauge (24H)
 - extended oil change interval — 500 hours between engine oil and filter changes
 - sample ports for engine, hydraulic, transmission fluids, coolant and fuel
 - oil sampling capability from tandem and power train systems (24H)
 - clustered lube points located at the bolster, drawbar, articulation joint and ripper for ground-level service (24H)
 - auto-lube option available (24H)
 - diagnostic connectors for Electronic Technician (ET) (excluding 14H and 16H)
 - modular wiring harness
 - engine disconnect switch
 - fuse panel located inside the cab
 - spin on filters
 - lockable battery box cover is easily removed without tools
 - modular powertrain components
 - radiator cleanout access
 - Extended Life Coolant (ELC) extends coolant life to 6000 hours
 - ATAAC (Air to Air Aftercooler)
- **143H and 163H All Wheel Drive Motor Graders** — All Wheel Drive (AWD) improves tractive performance in poor underfoot conditions such as snow, mud and sand. This feature also provides excellent steering and sidedraft control. AWD is available in gears 1F-7F and 1R-5R, making it effective in both low-speed and high-speed applications. VHP is standard (VHP Plus optional) on AWD models and delivers maximum power in all gears when AWD is engaged. Three operating modes are available: automatic, manual or off.
- **24H Motor Grader** — To meet the specialized needs of Caterpillar's large mining customers, the 24H is sized to maintain haul roads for large mining-truck fleets. The Caterpillar 3412E Hydraulic Electronic Unit Injector (HEUI) engine, power train components and machine structures are designed to meet the rigors of this application.
- **Best Product Support** — Caterpillar motor grader users are assured the best product support anywhere in the world. With industry-best parts availability, training and an offering of inspection, maintenance and repair, Caterpillar dealers can provide the support needed to keep the machines productive.

APPLICATIONS

The Caterpillar H-Series line of motor graders consists of 10 different models, ranging from the versatile 120H up to the rugged 24H. This broad line allows the customer to choose a motor grader that best fits the intended application. Below is a summary of the typical motor grader applications.

Finish Grading

This application involves preparing a roadway or site surface for future paving or other construction activity. The material being moved is usually a hard, dry base material on a solid underfoot. Finish blading is the motor grader application that requires the highest degree of accuracy. Thus, it is primarily done at low operating speeds — usually less than 3 mph — in gears 1 and 2. To ensure a smooth, even finished surface, one gear is usually maintained for a given pass. Pass lengths during this application are usually less than 600 m (2000 feet) for road construction and 150 m (500 feet) for site development. Most finish blading is performed by contractors in the Heavy Construction and Building Construction industries.

Heavy Blading

This application involves cutting, moving, and mixing material, usually in the initial stages of surface preparation. A variety of material types are moved in this manner, and the blade tip position varies accordingly. Full blade loads are usually experienced during heavy blading, since moving material is the primary goal. Pass lengths within this application vary, but are usually less than 600 m (2000 feet). Unlike with finish blading, the speed of the machine is dependent on the load being moved when heavy-blading material. Typical operating speeds are from 0-10 km/h (0 to 6 mph). Therefore, gears 2 through 4 are frequently used in this application. Most heavy blading activity is performed by contractors in the Heavy Construction, Governmental, Industrial, and Forestry industries.

Site Preparation

This application involves any material cutting, moving, and mixing necessary to prepare a residential, commercial, or industrial site for construction. A variety of materials are encountered in this application. Blade loads vary depending on the activity being performed. Both heavy blading and

finish blading are performed when preparing a site. Pass lengths are typically in the range of 30-300 m (100 to 1000 feet). Typical operating speeds for site preparation vary depending on whether heavy blading or finish blading activities are being performed. Most site preparation activities are performed by contractors in the Building Construction industry.

Road Maintenance

This application involves reshaping dirt or gravel roads to maintain a crown or superelevation, or restoring the surface itself. This generally involves secondary roads maintained by governmental bodies such as townships and counties. Materials being moved in this application vary from extremely hard dirt bases to moist gravel surfaces. The typical blade load falls between that of finish blading and heavy blading. Pass lengths are frequently longer than 600 m (2000 feet), and can extend for miles. The general speed range for this application is 5-16 km/h (3 to 10 mph), corresponding to gears 2 (heavy dirt) through 5 (soft gravel). As with finish blading, accuracy of the graded surface is the primary concern in this application. Thus, frequent shifts should be avoided whenever possible. A gear should be chosen and maintained unless there is a significant change in the material being moved. Most road maintenance activities are performed by the Governmental industry.

Haul Road Maintenance

This application of the motor grader involves reshaping haul roads at mining, construction, or forestry work sites, usually for the purpose of maintaining smooth travel surfaces for equipment. Materials being moved while maintaining haul roads vary widely depending on the application. Typical blade loads are about one-third to half of full capacity. Some haul roads that experience large hauling units travelling on soft material may require heavy blade loads in order to reshape the road surface. Pass lengths vary depending on the application, but can extend for miles on remote forestry or large mine haul roads. The general speed range for haul road maintenance is heavily dependent on the material being moved as well as the grade of the haul road. Many mine sites are in mountainous areas, requiring haul roads with steep grades. Generally, haul-road maintenance is performed at speeds similar to those required for general road maintenance 5-16 km/h (3 to 10 mph).

A travel surface that allows for the safe and efficient movement of machinery is the ultimate goal with this motor grader application. Very precise roadway elevations and slopes are desired, but are not as crucial as they are when finish blading. Most haul road maintenance activities are performed by the Mining, Heavy Construction, and Forestry industries.

Side/Bank Slope Work

This application involves preparing side slopes or bank slopes along roadways by placing the moldboard on a sloped surface. Slopes of up to a 2:1 angle can be cut using a motor grader. Often the motor grader is operated on the level surface adjacent to the slope, and the moldboard is extended outward to the sloped surface. Fine soils are generally encountered in this application of the motor grader. Blade loads are usually less than half of the full-blade capacity, and pass lengths are seldom longer than 600 m (2000 feet). A smooth-graded sloped surface is the primary concern in this application, so frequent shifts should be avoided. The typical speed range is 0-6 km/h (0 to 4 mph), corresponding to a gear selection of 1 to 3. The nominal speed is heavily dependent on the type of material being moved and on the slope of the surface. Most side/bank slope work is performed by the Heavy Construction and Governmental industries.

Ditch Building/Cleaning

This application involves cutting “V” and flat-bottom ditches for drainage purposes and rebuilding them when necessary. Due to excessive rain and/or poor material, ditches often need cleaning and reshaping. When building ditches, materials with a wide range of densities are encountered. Blade loads vary accordingly, from half to full-blade capacity. Pass lengths are usually less than 600 m (2000 feet). The primary objective is to move material in a manner that yields a ditch with the desired slope. Ditch building often involves cutting and moving material of high density. Therefore, typical speed ranges vary. Most ditch-building work, however, is performed in gears 1 through 3, corresponding to a maximum speed of about 8 km/h (5 mph). Ditch cleaning usually involves blading moist materials underneath a sod cover. Blade loads are usually less than half of full-blade capacity when cleaning ditches, and pass lengths are similar to those encountered in ditch building. Typical maximum speeds for this activity are similar to that of ditch building, but less of a blade load is experienced. Ditch building and cleaning

activities are usually performed by the Heavy Construction and Governmental industries.

Ripping/Scarifying

This application involves conditioning hard, rough soils before they are bladed. Shanks on the ripper and/or scarifier are pushed into the ground, thus breaking up otherwise hard surfaces. Hard materials such as asphalt can also be loosened in order to make grading operations less damaging to the moldboard. Rippers and scarifiers can also be used to mix aggregates together. The materials being ripped/scarified are usually hard and dry. Rippers generally penetrate 150-300 mm (6 to 12 inches) into the ground, while scarifiers typically penetrate to a depth of 25-200 mm (1 to 8 inches). Pass lengths are generally less than 600 m (2000 feet) for both activities.

Since the material being ripped/scarified is generally hard, the typical maximum speed for this application is about 6 km/h (4 mph) gears 1-2. If the ripper/scarifier is used for mixing aggregates, the typical operating range becomes 6-20 km/h (4 to 12 mph) gears 3-6. Most ripping/scarifying activities are performed by the Heavy Construction and Governmental industries.

Snow Removal

Snow removal is the process of cutting and removing snow or ice from the roadway. In addition to the standard motor grader moldboard, other attachments such as a snow wing, V-plow, one-way plow, or reversible plow can be used to remove the snow. The moldboard itself is the most commonly used attachment for snow plowing. It is used in areas where snow depths are low, the terrain is relatively flat, and where excessive drifting does not occur. A snow wing is a moldboard that attaches to the machine's right side. The wing's curvature lifts the snow and “wings” it off the plowed surface. The snow wing is often used in conjunction with the standard moldboard, where the moldboard cuts the material and feeds it onto the wing. V-plows are mounted in front of the motor grader and are designed to dig into and lift packed snow.

The typical speed range for snow removal is 10-30 km/h (6 to 18 mph), corresponding to a gear range of 3 to 7. Snow plowing often involves lower speeds than snow removal. The typical operating range for snow plowing is 8-19 km/h (5 to 12 mph) gears 2 through 4. The majority of Snow Removal/Plowing operations are performed by the Governmental, Mining, and Forestry industries.

Motor Graders Standard Versions

Specifications



MODEL	120H		135H		12H	
Net Flywheel Power: Gears 4-8	104 kW	140 hp	116 kW	155 hp	104 kW	140 hp
Gears 1-3▲	93 kW	125 hp	101 kW	135 hp	104 kW	140 hp
Operating Weight*	11 358 kg	25,040 lb	11 788 kg	25,990 lb	13 077 kg	28,830 lb
Engine Model	3116 DITA		3116 DITA		3306 DINA	
Rated Engine RPM	2000		2000		2000	
No. of Cylinders	6		6		6	
Displacement	6.6 L	403 in ³	6.6 L	403 in ³	10.45 L	638 in ³
Max. Torque Rise	33%		33%		30%	
No. of Speeds Forward/Reverse	8/6		8/6		8/6	
Top Speed: Forward	42.6 km/h	26.5 mph	41.9 km/h	26 mph	41.7 km/h	25.9 mph
Reverse	33.7 km/h	20.9 mph	33.1 km/h	20.6 mph	32.9 km/h	20.5 mph
Std. Tires — Front & Rear	13.00-24 (10 PR) (G-2)		13.00-24 (10 PR) (G-2)		13.00-24 (10 PR) (G-2)	
Front Axle/Steering:						
Oscillation Angle	32°		32°		32°	
Wheel Lean Angle	18°		18°		18°	
Steering Angle	50°		50°		50°	
Articulation Angle	20°		20°		20°	
Minimum Turning Radius**	7.2 m	23'8"	7.2 m	23'8"	7.4 m	24'3"
Front Frame Section Modulus:						
Min.	1619 cm ³	99 in ³	1619 cm ³	99 in ³	2083 cm ³	127 in ³
Max.	3681 cm ³	225 in ³	3681 cm ³	225 in ³	4785 cm ³	291 in ³
No. Circle Support Shoes	4		4		6	
Hydraulics: Pump Type	Axial Piston		Axial Piston		Axial Piston	
Max. Pump Flow	148 L/min	39 gpm	148 L/min	39 gpm	148 L/min	39 gpm
System Capacity	61 L	16 U.S. gal	61 L	16 U.S. gal	73 L	19 U.S. gal
Implement Pressure: Max.	24 150 kPa	3500 psi	24 150 kPa	3500 psi	24 150 kPa	3500 psi
Min.	3100 kPa	450 psi	3100 kPa	450 psi	3100 kPa	450 psi
Electrical:						
System Size	24V		24V		24V	
Std. Battery CCA @ 0° F	750		750		750	
Std. Alternator	35 amp		35 amp		35 amp	
GENERAL DIMENSIONS:						
Height (to top of ROPS)	3.11 m	10'2"	3.11 m	10'2"	3.11 m	10'2"
Height (stripped top)***	2.91 m	9'7"	2.91 m	9'7"	3.05 m	10'0"
Overall Length	8.14 m	26'9"	8.14 m	26'9"	8.45 m	27'9"
With Ripper & Pushplate	9.64 m	31'8"	9.64 m	31'8"	10.01 m	32'10"
Wheelbase	5.87 m	19'3"	5.87 m	19'3"	6.09 m	20'0"
Blade Base	2.60 m	8'6"	2.60 m	8'6"	2.57 m	8'5"
Overall Width (at top of front tires)	2.44 m	8'0"	2.44 m	8'0"	2.44 m	8'0"
Standard Blade: Length	3.66 m	12'0"	3.66 m	12'0"	3.66 m	12'0"
Height	610 mm	2'0"	610 mm	2'0"	610 mm	2'0"
Thickness	22 mm	0.87"	22 mm	0.87"	22 mm	0.87"
Lift Above Ground	457 mm	18"	457 mm	18"	452 mm	18.9"
Max. Shoulder Reach:◀						
Frame Straight	1.84 m	6'0"	1.84 m	6'0"	1.85 m	6'1"
Articulated Position	2.78 m	9'1"	2.78 m	9'1"	2.96 m	9'2"
Fuel Tank Capacity	284 L	75 U.S. gal	284 L	75 U.S. gal	284 L	75 U.S. gal

*Operating Weight — based on standard machine configuration, full fuel tank, coolant, lubricants and operator.

**Minimum Turning Radius — combining the use of articulated frame steering, front wheel steer and unlocked differential.

***Height (stripped top) — without ROPS, exhaust, or other easily removed encumbrances.

◀ Applicable for the standard blade with hydraulic sideshift and tip control. Maximum shoulder reach is obtainable to the right.

▲ Engine Power Management automatically reduces power in gears 1F-3F and 1R-2R.



MODEL	140H		160H	
Net Flywheel Power: Gears 4-8	138 kW	185 hp	149 kW	200 hp
Gears 1-3▲	123 kW	165 hp	134 kW	180 hp
Operating Weight*	13 552 kg	29,880 lb	14 416 kg	31,780 lb
Engine Model	3306 DIT		3306 DIT	
Rated Engine RPM	1900		1900	
No. of Cylinders	6		6	
Displacement	10.45 L	638 in ³	10.45 L	638 in ³
Max. Torque Rise	33%		33%	
No. of Speeds Forward/Reverse	8/6		8/6	
Top Speed: Forward	41.1 km/h	25.5 mph	40.7 km/h	25.3 mph
Reverse	32.4 km/h	20.2 mph	32.1 km/h	20 mph
Std. Tires — Front & Rear	14.00-24 (10 PR) (G-2)		14.00-24 (10 PR) (G-2)	
Front Axle/Steering:				
Oscillation Angle	32°		32°	
Wheel Lean Angle	18°		18°	
Steering Angle	50°		50°	
Articulation Angle	20°		20°	
Minimum Turning Radius**	7.4 m	24'3"	7.4 m	24'3"
Front Frame Section Modulus:				
Min.	2083 cm ³	127 in ³	2083 cm ³	127 in ³
Max.	4785 cm ³	291 in ³	4785 cm ³	291 in ³
No. Circle Support Shoes	6		6	
Hydraulics: Pump Type	Axial Piston		Axial Piston	
Max. Pump Flow	155 L/min	40.9 gpm	155 L/min	40.9 gpm
System Capacity	73 L	19 U.S. gal	73 L	19 U.S. gal
Implement Pressure: Max.	24 150 kPa	3500 psi	24 150 kPa	3500 psi
Min.	3100 kPa	450 psi	3100 kPa	450 psi
Electrical:				
System Size	24V		24V	
Std. Battery CCA @ 0° F	750		750	
Std. Alternator	35 amp		35 amp	
GENERAL DIMENSIONS:				
Height (to top of ROPS)	3.12 m	10'3"	3.12 m	10'3"
Height (stripped top)***	3.05 m	10'0"	3.05 m	10'0"
Overall Length	8.49 m	27'10"	8.49 m	27'10"
With Ripper & Pushplate	10.01 m	32'10"	10.01 m	32'10"
Wheelbase	6.09 m	20'0"	6.09 m	20'0"
Blade Base	2.57 m	8'5"	2.52 m	8'3"
Overall Width (at top of front tires)	2.46 m	8'1"	2.46 m	8'1"
Standard Blade: Length	3.66 m	12'0"	4.27 m	14'0"
Height	610 mm	2'0"	686 mm	2'3"
Thickness	22 mm	0.87"	25 mm	1"
Lift Above Ground	480 mm	18.9"	452 mm	17.8"
Max. Shoulder Reach:◀				
Frame Straight	1.85 m	6'1"	1.85 m	6'1"
Articulated Position	2.96 m	9'2"	2.96 m	9'2"
Fuel Tank Capacity	284 L	75 U.S. gal	341 L	90 U.S. gal

*Operating Weight — based on standard machine configuration with full fuel tank, coolant, lubricants and operator.

**Minimum Turning Radius — combining the use of articulated frame steering, front wheel steer and unlocked differential.

***Height (stripped top) — without ROPS, exhaust, or other easily removed encumbrances.

◀ Applicable for the standard blade with hydraulic sideshift and tip control. Maximum shoulder reach is obtainable to the right.

▲ Engine Power Management automatically reduces power in gears 1F-3F and 1R-2R.



MODEL	120H		135H		12H	
Net Flywheel Power	93 kW	125 hp	101 kW	135 hp	108 kW	145 hp
Variable Horsepower: Gears 4-8	104 kW	140 hp	116 kW	155 hp	123 kW	165 hp
Variable Horsepower Plus: Gears 7-8	—		—		138 kW	185 hp
Operating Weight*	12 650 kg	27,880 lb	13 080 kg	28,840 lb	14 200 kg	31,320 lb
Engine Model	3126B		3126B		C-9	
Rated Engine RPM	2000		2000		2000	
No. of Cylinders	6		6		6	
Displacement	7.2 L	439 in³	7.2 L	439 in³	8.8 L	537 in³
Max. Torque Rise	50%		50%		50%	
No. of Speeds Forward/Reverse	8/6		8/6		8/6	
Top Speed: Forward	42.6 km/h	26.5 mph	41.9 km/h	26.1 mph	44 km/h	27.4 mph
Reverse	33.7 km/h	20.9 mph	33.1 km/h	20.6 mph	34.7 km/h	21.6 mph
Std. Tires — Front & Rear	13.00-24 (10 PR) (G-2)		13.00-24 (10 PR) (G-2)		13.00-24 (10 PR) (G-2)	
Front Axle/Steering:						
Oscillation Angle	32°		32°		32°	
Wheel Lean Angle	18°		18°		18°	
Steering Angle	50°		50°		50°	
Articulation Angle	20°		20°		20°	
Minimum Turning Radius**	7.3 m	24'0"	7.3 m	24'0"	7.4 m	24'3"
Front Frame Section Modulus:						
Min.	1619 cm ³	99 in³	1619 cm ³	99 in³	2083 cm ³	127 in³
Max.	3681 cm ³	225 in³	3681 cm ³	225 in³	4785 cm ³	291 in³
No. Circle Support Shoes	4		4		6	
Hydraulics: Pump Type	Axial Piston		Axial Piston		Axial Piston	
Max. Pump Flow	148 L/min	39 gpm	148 L/min	39 gpm	196 L/min	51.9 gpm
System Capacity	53 L	14 U.S. gal	53 L	14 U.S. gal	80 L	20.8 U.S. gal
Implement Pressure: Max.	24 150 kPa	3500 psi	24 150 kPa	3500 psi	24 150 kPa	3500 psi
Min.	3100 kPa	450 psi	3100 kPa	450 psi	3100 kPa	450 psi
Interior Sound Level/SAE J919	75 dBA		75 dBA		75 dBA	
Electrical:						
System Size	24V		24V		24V	
Std. Battery CCA @ 0° F	750		750		750	
Std. Alternator	50 amp		50 amp		35 amp	
GENERAL DIMENSIONS:						
Height (to top of ROPS)	3.11 m	10'2"	3.11 m	10'2"	3.11 m	10'2"
Height (stripped top)***	2.91 m	9'7"	2.91 m	9'7"	3.04 m	10'0"
Overall Length	8.31 m	27'3"	8.31 m	27'3"	8.57 m	28'1"
With Pushplate	8.55 m	28'0"	8.55 m	28'0"	10.01 m	32'10"▼
Wheelbase	5.92 m	19'5"	5.92 m	19'5"	6.09 m	20'0"
Blade Base	2.60 m	8'6"	2.60 m	8'6"	2.57 m	8'5"
Overall Width (at top of front tires)	2.44 m	8'0"	2.44 m	8'0"	2.44 m	8'0"
Standard Blade: Length	3.66 m	12'0"	3.66 m	12'0"	3.66 m	12'0"
Height	610 mm	2'0"	610 mm	2'0"	610 mm	2'0"
Thickness	22 mm	0.87"	22 mm	0.87"	22 mm	0.87"
Lift Above Ground	457 mm	18"	457 mm	18"	480 mm	18.9"
Max. Shoulder Reach:◀						
Frame Straight	1.91 m	6'3"	1.91 m	6'3"	1.97 m	6'6"
Articulated Position	2.85 m	9'4"	2.85 m	9'4"	2.91 m	9'7"
Fuel Tank Capacity	340 L	90 U.S. gal	340 L	90 U.S. gal	378 L	100 U.S. gal

***Operating Weight** — based on standard machine configuration with full fuel tank, coolant, lubricants and operator.

****Minimum Turning Radius** — combining the use of articulated frame steering, front wheel steer and unlocked differential.

*****Height (stripped top)** — without ROPS, exhaust, seat back or other easily removed encumbrances.

◀ Applicable for the standard blade with hydraulic sideshift and tip control. Maximum shoulder reach is obtainable to the right.

▼ Includes optional rear ripper.



MODEL	140H		143H		160H		163H	
Net Flywheel Power	123 kW	165 hp	123 kW	165 hp	134 kW	180 hp	134 kW	180 hp
Variable Horsepower: Gears 4-8	138 kW	185 hp	138 kW	185 hp	149 kW	200 hp	149 kW	200 hp
Variable Horsepower Plus: Gears 7-8	153 kW	205 hp	153 kW	205 hp	164 kW	220 hp	164 kW	220 hp
Operating Weight*	14 680 kg	32,360 lb	15 270 kg	33,670 lb	15 680 kg	34,560 lb	16 280 kg	35,890 lb
Engine Model	3176C		3176C		3176C		3176C	
Rated Engine RPM	2000		2000		2000		2000	
No. of Cylinders	6		6		6		6	
Displacement	10.3 L	628 in^{3}	10.3 L	628 in^{3}	10.3 L	628 in^{3}	10.3 L	628 in³
Max. Torque Rise	50%		50%		50%		50%	
No. of Speeds Forward/Reverse	8/6		8/6		8/6		8/6	
Top Speed: Forward	44 km/h	27.4 mph	44 km/h	27.4 mph	43.6 km/h	27.1 mph	43.6 km/h	27.1 mph
Reverse	34.7 km/h	21.6 mph	34.7 km/h	21.6 mph	34.4 km/h	21.4 mph	34.4 km/h	21.4 mph
Std. Tires — Front & Rear	14.00-24 (10 PR) (G-2)		14.00-24 (10 PR) (G-2)		14.00-24 (12 PR) (G-2)		14.00-24 (12 PR) (G-2)	
Front Axle/Steering:								
Oscillation Angle	32°		32°		32°		32°	
Wheel Lean Angle	18°		18°		18°		18°	
Steering Angle	50°		50°		50°		50°	
Articulation Angle	20°		20°		20°		20°	
Minimum Turning Radius**	7.5 m	24'7"	7.5 m	24'7"	7.5 m	24'7"	7.5 m	24'7"
Front Frame Section Modulus:								
Min.	2083 cm ³	127 in³	2083 cm^{3}	127 in^{3}	2083 cm^{3}	127 in^{3}	2083 cm^{3}	127 in^{3}
Max.	4785 cm ³	291 in³						
No. Circle Support Shoes	6		6		6		6	
Hydraulics: Pump Type	Axial Piston		Axial Piston		Axial Piston		Axial Piston	
Max. Pump Flow	206 L/min	54.4 gpm	206 L/min	54.4 gpm	206 L/min	54.4 gpm	206 L/min	54.4 gpm
System Capacity	80 L	20.8 U.S. gal	98 L	25.5 U.S. gal	80 L	20.8 U.S. gal	98 L	25.5 U.S. gal
Implement Pressure: Max.	24 150 kPa	3500 psi	24 150 kPa	3500 psi	24 150 kPa	3500 psi	24 150 kPa	3500 psi
Min.	3100 kPa	450 psi						
Interior Sound Level/SAE J919	75 dBA		77 dBA		75 dBA		77 dBA	
Electrical:								
System Size	24V		24V		24V		24V	
Std. Battery CCA @ 0° F	1100		1100		1100		1100	
Std. Alternator	75 amp		75 amp		75 amp		75 amp	
GENERAL DIMENSIONS:								
Height (to top of ROPS)	3.12 m	10'3"	3.12 m	10'3"	3.12 m	10'3"	3.12 m	10'3"
Height (stripped top)***	3.04 m	10'0"	3.04 m	10'0"	3.04 m	10'0"	3.04 m	10'0"
Overall Length	8.71 m	28'7"	8.71 m	28'7"	8.71 m	28'7"	8.71 m	28'7"
With Ripper & Pushplate	10.1 m	33'1"	10.1 m	33'1"	10.1 m	33'1"	10.1 m	33'1"
Wheelbase	6.17 m	20'3"	6.17 m	20'3"	6.17 m	20'3"	6.17 m	20'3"
Blade Base	2.57 m	8'5"	2.57 m	8'5"	2.52 m	8'3"	2.52 m	8'3"
Overall Width (at top of front tires)	2.46 m	8'1"	2.55 m	8'5"	2.48 m	8'2"	2.55 m	8'5"
Standard Blade: Length	3.66 m	12'0"	3.66 m	12'0"	4.27 m	14'0"	4.27 m	14'0"
Height	610 mm	2'0"	610 mm	2'0"	686 mm	2'3"	686 mm	2'3"
Thickness	22 mm	0.87"	22 mm	0.87"	25 mm	1"	25 mm	1"
Lift Above Ground	480 mm	18.9"	480 mm	18.9"	452 mm	17.8"	452 mm	17.8"
Max. Shoulder Reach:◀								
Frame Straight	1.97 m	6'6"	1.97 m	6'6"	1.96 m	6'5"	1.96 m	6'5"
Articulated Position	2.91 m	9'7"	2.91 m	9'7"	2.90 m	9'6"	2.90 m	9'6"
Fuel Tank Capacity	397 L	105 U.S. gal	397 L	105 U.S. gal	397 L	105 U.S. gal	397 L	105 U.S. gal

*Operating Weight — based on standard machine configuration with full fuel tank, coolant, lubricants and operator.

**Minimum Turning Radius — combining the use of articulated frame steering, front wheel steer and unlocked differential.

***Height (stripped top) — without ROPS, exhaust, seat back or other easily removed encumbrances.

◀ Applicable for the standard blade with hydraulic sideshift and tip control. Maximum shoulder reach is obtainable to the right.



MODEL	14H		16H		24H	
Net Flywheel Power	164 kW	220 hp	198 kW	265 hp	373 kW	500 hp
Variable Horsepower: Gears 4-8	179 kW	240 hp	213 kW	285 hp	—	
Operating Weight*	18 600 kg	41,010 lb	24 740 kg	54,350 lb	61 950 kg	136,610 lb
Engine Model	3176C		3196		3412E HEUI	
Rated Engine RPM	2000		2000		2000	
No. of Cylinders	6		6		12	
Displacement	10.3 L	628 in ³	11.9 L	726 in ³	27 L	1647 in ³
Max. Torque Rise	50%		50%		30%	
No. of Speeds Forward/Reverse	8/8		8/8		6/3	
Top Speed: Forward	46.1 km/h	28.7 mph	48.1 km/h	29.9 mph	37.7 km/h	23.4 mph
Reverse	51.1 km/h	31.8 mph	43.2 km/h	26.9 mph	36.1 km/h	22.4 mph
Std. Tires — Front & Rear	16.00-24 (12 PR) (G-2)		18.00-25 (12 PR) (E-2)		29.5-29	
Front Axle/Steering:						
Oscillation Angle	32°		32°		32°	
Wheel Lean Angle	18°		18°		18°	
Steering Angle	50°		50°		50°	
Articulation Angle	20°		20°		25°	
Minimum Turning Radius**	8 m	26'3"	8.2 m	27'0"	12 m	39'11"
Front Frame Section Modulus:						
Min.	2649 cm ³	162 in ³	3746 cm ³	228 in ³	9655 cm ³	589 in ³
Max.	5091 cm ³	310 in ³	8057 cm ³	491 in ³	22 490 cm ³	1372 in ³
No. Circle Support Shoes	6		6		8	
Hydraulics: Pump Type	Axial Piston		Axial Piston		Axial Piston	
Max. Pump Flow	243 L/min	64.1 gpm	243 L/min	64.1 gpm	508 L/min	134 gpm
System Capacity	125 L	32.5 U.S. gal	130 L	33.8 U.S. gal	250 L	65 U.S. gal
Implement Pressure: Max.	24 150 kPa	3500 psi	24 150 kPa	3500 psi	24 150 kPa	3500 psi
Min.	3100 kPa	450 psi	3100 kPa	450 psi	3100 kPa	450 psi
Interior Sound Level/SAE J919	80 dBA		80 dBA		75 dBA	
Electrical:						
System Size	24V		24V		24V	
Std. Battery CCA @ 0° F	1100		1300		1300	
Std. Alternator	75 amp		75 amp		100 amp	
GENERAL DIMENSIONS:						
Height (to top of ROPS)	3.34 m	10'11"	3.52 m	11'7"	4.35 m	14'3"
Height (stripped top)**	2.85 m	9'4"	3.11 m	10'2"	—	
Overall Length	9.34 m	30'8"	9.99 m	32'9"	14.16 m	46'6"
With Ripper & Pushplate	10.77 m	35'4"	11.62 m	38'2"	15.80 m	51'10"
Wheelbase	6.55 m	21'6"	6.96 m	22'10"	10.23 m	33'7"
Blade Base	2.86 m	9'5"	3.07 m	10'1"	4.08 m	13'4"
Overall Width (at top of front tires)	2.82 m	9'3"	3.08 m	10'1"	4.23 m	13'8"▲
Standard Blade: Length	4.27 m	14'0"	4.88 m	16'0"	7.32 m	24'0"
Height	686 mm	2'3"	787 mm	2'7"	1067 mm	3'6"
Thickness	25 mm	1"	25 mm	1"	51 mm	2"
Lift Above Ground	419 mm	16.5"	419 mm	16.5"	634 mm	25"
Max. Shoulder Reach:◀						
Frame Straight	2.08 m	6'10"	2.31 m	7'7"	3.22 m	10'7"
Articulated Position	3.07 m	10'1"	3.37 m	11'1"	5.05 m	16'7"
Fuel Tank Capacity	416 L	110 U.S. gal	492 L	130 U.S. gal	1207 L	319 U.S. gal

*Operating Weight — based on standard machine configuration with full fuel tank, coolant, lubricants and operator. 24H includes ripper.

**Minimum Turning Radius — combining the use of articulated frame steering, front wheel steer and unlocked differential.

***Height (stripped top) — without ROPS, exhaust, seat back or other easily removed encumbrances.

◀ Applicable for the standard blade with hydraulic sideshift and tip control. Maximum shoulder reach is obtainable to the right on 14H, both sides on 16H.

▲ Overall width with optional rear fenders 4.22 m (13'10").

- Travel Speeds (All Versions)
 - All Wheel Drive
 - M10 Scarifiers

Motor Graders

TRAVEL SPEEDS @ RATED RPM WITH STD. TIRES (ALL VERSIONS)

Gear		1		2		3		4		5		6		7		8	
		km/h	mph	km/h	mph	km/h	mph	km/h	mph	km/h	mph	km/h	mph	km/h	mph	km/h	mph
120H	Forward	3.6	2.3	5.0	3.1	7.2	4.5	9.9	6.2	15.7	9.7	21.3	13.2	29.3	18.2	42.6	26.5
	Reverse	2.9	1.8	5.4	3.3	7.8	4.9	12.3	7.7	23.1	14.4	33.7	20.9	—	—	—	—
135H	Forward	3.6	2.3	4.9	3.1	7.2	4.5	9.9	6.2	15.4	9.6	20.9	13.0	28.8	17.9	41.9	26.1
	Reverse	2.9	1.8	5.4	3.3	7.8	4.9	12.1	7.5	23.0	14.3	33.1	20.6	—	—	—	—
12H*	Forward	3.8	2.3	5.1	3.2	7.4	4.6	10.3	6.4	16.2	10.0	22.0	13.7	30.3	18.8	44.0	27.4
	Reverse	3.0	1.8	5.6	3.5	8.1	5.0	12.8	7.9	23.9	14.8	34.7	21.6	—	—	—	—
140H	Forward	3.8	2.3	5.1	3.2	7.4	4.6	10.3	6.4	16.2	10.0	22.0	13.7	30.3	18.8	44.0	27.4
	Reverse	3.0	1.8	5.6	3.5	8.1	5.0	12.8	7.9	23.9	14.8	34.7	21.6	—	—	—	—
143H	Forward	3.8	2.3	5.1	3.2	7.4	4.6	10.3	6.4	16.2	10.0	22.0	13.7	30.3	18.8	44.0	27.4
	Reverse	3.0	1.8	5.6	3.5	8.1	5.0	12.8	7.9	23.9	14.8	34.7	21.6	—	—	—	—
160H	Forward	3.8	2.4	5.1	3.2	7.5	4.7	10.3	6.4	16.0	9.9	21.8	13.5	30.0	18.6	43.6	27.1
	Reverse	3.0	1.9	5.6	3.5	8.1	5.1	12.6	7.9	23.7	14.7	34.4	21.4	—	—	—	—
163H	Forward	3.8	2.4	5.1	3.2	7.5	4.7	10.3	6.4	16.0	9.9	21.8	13.5	30.0	18.6	43.6	27.1
	Reverse	3.0	1.9	5.6	3.5	8.1	5.1	12.6	7.9	23.7	14.7	34.4	21.4	—	—	—	—
14H	Forward	4.0	2.5	5.7	3.5	7.7	4.8	11.1	6.9	16.8	10.4	23.5	14.6	31.9	19.8	46.1	28.7
	Reverse	4.5	2.8	6.3	3.9	8.5	5.3	12.3	7.6	18.6	11.5	26.1	16.2	35.3	21.9	51.1	31.8
16H	Forward	4.2	2.6	5.9	3.7	8.0	5.0	11.6	7.2	17.5	10.9	24.6	15.3	33.2	20.7	48.1	29.9
	Reverse	3.8	2.3	5.3	3.3	7.2	4.5	10.4	6.5	15.7	9.8	22.1	13.7	29.9	18.6	43.2	26.9
24H Wide-based tires	Forward	3.2	2.0	4.9	3.1	8.5	5.3	13.1	8.1	24.3	15.1	37.7	23.4	—	—	—	—
	Reverse	4.7	2.9	12.6	7.8	36.1	22.4	—	—	—	—	—	—	—	—	—	—

*For 12H Standard Version travel speeds, multiply by 0.95.

ALL WHEEL DRIVE (AWD)

	143H	163H
Power with AWD engaged: VHP	149 kW	200 hp
VHP Plus	164 kW	220 hp
Working Range:		
Forward Gears	1-7	1-7
Reverse Gears	1-5	1-5
Pump Type	Axial Piston	Axial Piston
System Capacity	175 L/min	46.2 gpm
Operating Pressure: Max.	35 000 kPa	5080 psi
Min.	5500 kPa	800 psi

M10 — MOUNTED SCARIFIERS

	120H, 135H, 12H, 140H, 143H, 160H, 163H
Type	V
Working Width	1184 mm
Depth (Max.)	292 mm
Number of Shank Holders	11
Spacing	116 mm

*Available on Global Versions only.

MOTOR GRADER/ RIPPER	120H/135H		12H/140H/143H/ 160H/163H		14H		16H		24H	
Parallelogram — Rear Mounted	Ripper		Ripper/Scarifier		Ripper		Ripper		Ripper	
Tire Size (std.) Front & Rear	13.00-24		14.00-24***		16.00-24		18.00-25		29.5-29	
Dimensions:										
Scarifier										
Maximum digging depth	—		411 mm	16.2"	—		—		—	
Number of pockets	—		9		—		—		—	
Spacing	—		267 mm	10.5"	—		—		—	
Ripper Shank										
Maximum digging depth	262 mm	10.3"	462 mm	18.2"	401 mm	15.8"	452 mm	17.8"	490 mm	17.3"
Maximum reach at ground line*	1034 mm	3'4.7"	1168 mm	3'10"	1380 mm	4'6.3"	1500 mm	4'11"	1165 mm	3'9.9"
Maximum ground clearance under tip (shank pinned in bottom hole)	652 mm	2'1.6"	521 mm	1'8.5"	663 mm	2'2.1"	673 mm	2'2.5"	739 mm	2'5.1"
Maximum ramp angle, ripper up (shank pinned in bottom hole)	23°		23°		21°		21°		20°	
Shank Section	36 × 76 mm 1.4" × 3"		61 × 140 mm 2.4" × 5.5"		61 × 140 mm 2.4" × 5.5"		76 × 178 mm 3" × 7"		78 × 178 mm 3" × 7"	
Ripper Beam										
Overall Width	2.30 m	7'7"	2.30 m	7'7"	2.60 m	8'6"	2.98 m	9'9"	3.91 m	12'10"
Height	152 mm	6"	152 mm	6"	165 mm	6.5"	214 mm	8.4"	216 mm	8.5"
Length	182 mm	7.2"	229 mm	9"	211 mm	8.3"	254 mm	10"	254 mm	10"
Number of Pockets	5		5		7		7		7	
Pocket Spacing:										
Inside	533 mm	1'9"	533 mm	1'9"	472 mm	1'7"	500 mm	1'8"	593 mm	1'11.4"
Middle	533 mm	1'9"	533 mm	1'9"	373 mm	15"	445 mm	17.5"	604 mm	1'11.8"
Outside	533 mm	1'9"	533 mm	1'9"	373 mm	15"	445 mm	17.5"	604 mm	1'11.8"
Shank Gauge	2.13 m	7'0"	2.13 m	7'0"	2.44 m	8'0"	—		—	
Installed weights:										
Ripper with standard shank	613 kg	1350 lb	1060.5 kg	2336 lb	1542 kg	3399 lb	2177 kg	4799 lb	2812 kg	6186 lb
Each additional shank	11 kg	24 lb	31 kg	68 lb	31 kg	68 lb	68 kg	150 lb	68 kg	150 lb
Ripper Forces ◀										
Penetration Force ◀	4343 kg	9566 lb	8047 kg**	17,740 lb**	10 676 kg	23,541 lb	10 163 kg	22,410 lb	117 720 N	39,987 lb
Pryout Force	2279 kg	5020 lb	9281 kg	20,460 lb	11 804 kg	26,028 lb	15 323 kg	33,788 lb	263 880 N	59,373 lb

*Measured from mounting face on frame.
 **Applies to 12H, 140H and 143H. Penetration force for 160H and 163H is 8518 kg (18,780 lb).
 ***12H std. tire is 13.00-24.

NOTE: See Section 1 for Ripper Tips.
 ◀This value may vary slightly with various vehicle configurations.

PRODUCTION

The motor grader is used in a variety of applications in a variety of industries. Therefore, there are many ways to measure its operating capacity, or production. One method expresses a motor grader's production in relation to the area covered by the moldboard.

Formula:

$$A = S \times (L_e - L_o) \times 1000 \times E \quad (\text{Metric})$$

$$A = S \times (L_e - L_o) \times 5280 \times E \quad (\text{English})$$

where A: Hourly operating area (m²/h or ft²/h)
 S: Operating speed (km/h or mph)
 L_e: Effective blade length (m or ft)
 L_o: Width of overlap (m or ft)
 E: Job efficiency

Operating Speeds:

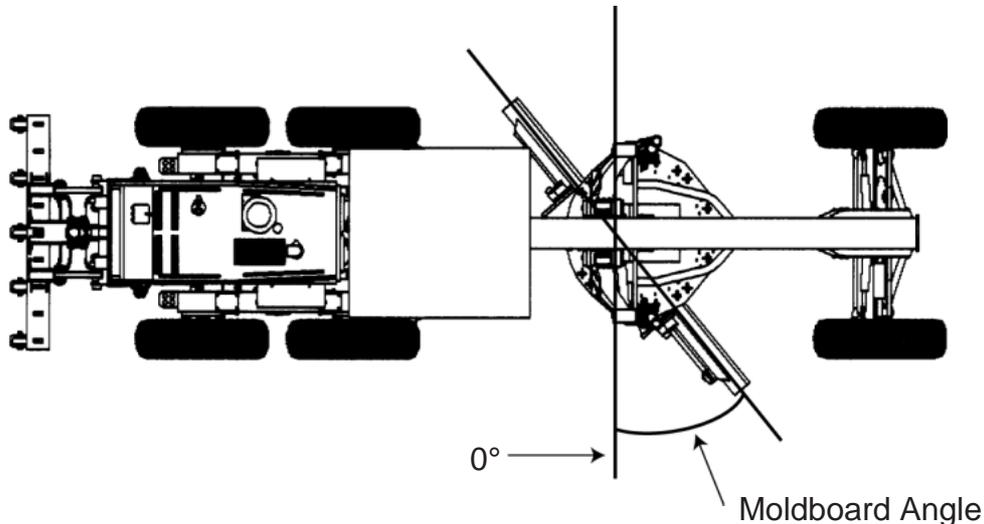
Typical operating speeds by application

Finish Grading:	0-4 km/h	(0-2.5 mph)
Heavy Blading:	0-9 km/h	(0-6 mph)
Ditch Repair:	0-5 km/h	(0-3 mph)
Ripping:	0-5 km/h	(0-3 mph)
Road Maintenance:	5-16 km/h	(3-9.5 mph)
Haul Road Maintenance:	5-16 km/h	(3-9.5 mph)
Snow Plowing:	7-21 km/h	(4-13 mph)
Snow Winging:	15-28 km/h	(9-17 mph)

Effective Blade Length:

Since the moldboard is usually angled when moving material, an effective blade length must be computed to account for this angle. This is the actual width of material swept by the moldboard.

NOTE: Angles are measured as shown below. The effective length becomes shorter as the angle increases.



Moldboard Length, m (ft)	Effective Length, m (ft) 30 degree blade angle	Effective Length, m (ft) 45 degree blade angle
3.658 (12)	3.17 (10.4)	2.59 (8.5)
3.962 (13)	3.43 (11.3)	2.80 (9.2)
4.267 (14)	3.70 (12.1)	3.02 (9.9)
4.877 (16)	4.22 (13.9)	3.45 (11.3)
7.315 (24)	6.33 (20.8)	5.17 (17.0)

For other blade lengths and carry angles:
 Effective length = COS [Radians (Blade L)] × Blade Length

Width of Overlap:

The width of overlap is generally 0.6 m (2.0 ft). This overlap accounts for the need to keep the tires out of the windrow on the return pass.

Job Efficiency:

Job efficiencies vary based on job conditions, operator skill, etc.

A good estimation for efficiency is approximately 0.70 to 0.85, but actual operating conditions should be used to determine the best value.

Example problem:

A 140H motor grader with a 3.66 m (12 ft) moldboard is performing road maintenance on a township road. The machine is working at an average speed of 13 km/h (8 mph) with a moldboard carry angle of 60 degrees. What is the motor grader’s production based on coverage area?

Note: Due to the long passes involved in road maintenance — fewer turnarounds — a higher job efficiency of 0.90 is chosen.

Solution:

From the table, the effective blade length is 3.17 m (10.4 ft).

Metric

$$\begin{aligned} \text{Production, A} &= 13 \text{ km/h} \times (3.17 \text{ m} - 0.6 \text{ m}) \times \\ & \quad 1000 \times 0.90 \\ &= \mathbf{30\ 069 \text{ m}^2/\text{hr} (3.07 \text{ hectares/hr})} \end{aligned}$$

English

$$\begin{aligned} \text{Production, A} &= 8 \text{ mph} \times (10.4 \text{ ft} - 2.0 \text{ ft}) \times \\ & \quad 5280 \times 0.90 \\ &= \mathbf{319,334 \text{ ft}^2/\text{hr} (7.33 \text{ acres/hr})} \end{aligned}$$

Figure 2

MOTOR GRADER COMPARISON in HAUL ROAD MAINTENANCE		Worksheet Variables		
	Moderate	Application Variables		
	Cat 16H	Pass Overlap Width (m)	Moldboard Angle	Road Width (m)
Motor Grader Model				
Haul Road Length Maintained (meters)	1000			
Haul Road Width (meters)	= \$M\$8	2	36	35
Motor Grader Blade Width (meters)	4.88			
Blade Carry Angle	= \$L\$8			
1st Pass Blade Coverage (meters)	= COS(RADIANS(B10))*B9			
Remaining Passes Blade Coverage (meters)	= B11 – \$J\$8			
Grader Passes Required/Road Width	= ROUND((B8 – B11)/B12,0)			
Maintenance Transmission Gear	3			
Maintenance Speed (kph)	9			
Time Analysis:				
Time/Pass (minutes)	= (+ B7/1000)*(60/B15)			
Maneuver Time/Pass (minutes)	0.5			
Total Time/Pass (minutes)	= SUM(B18:B19)			
Total Time to Grade Haul Road (hours)	= B13*B20/60			
Total Time to Grade 1 km (50-min. hour)	= 1000/B7*B22/0.833			
		Road Coverage Requirements		
		Frequency of Maintenance	Percentage	
Coverage Requirement:				
Total km of Haul Roads	= \$M\$28	Total km of Haul Roads	30	
% Graded One Time Per 14 Shifts (1 week)	= \$M\$29	Weekly	0.1	
% Graded One Time Per 4 Shifts (2 days)	= \$M\$30	Every other day	0.3	
% Graded One Time Per 2 Shifts (1 day)	= \$M\$31	Daily	0.15	
% Graded One Time Per Shift	= \$M\$32	Once per shift	0.25	
% Graded Two Times Per Shift	= \$M\$33	Twice per shift	0.2	
% Graded Three Times Per Shift	= \$M\$34	Three times per shift	0	
Total km of Haul Roads/Shift	= (B28*B29*0.0714) + (B28*B30*0.25) + (B28*B31*0.5) + (B28*B32*1) + (B28*B33*2) + (B28*B34*3)	Total — must equal 100%	= SUM(M29:M34)	
Working Hours Per Shift	11			
km of Road/Grader/Shift	= B37/B24			
Fleet Requirement:				
“Working” Motor Graders Required/Shift	= B35/B38			
Motor Grader Mechanical Availability	0.9			
Motor Grader Fleet Required (units)	= B41/B42			

NOTE: The formulas in the “Moderate — Cat 16H” column are the same formulas needed for the “Difficult — Cat 16H,” “Moderate — Cat 24H” and “Difficult — Cat 24H” columns.

Input the data from this spreadsheet exactly how you see it here. This will allow you to generate figure 1. If you have any questions or difficulties please contact the Motor Grader Marketing Group at 217-475-4638. If you can receive e-mails Motor Grader Marketing will e-mail you the file containing the spreadsheet.

BLADE PULL

This specification is also known as drawbar pull. This spec can be calculated as follows:

Variables:

Rear weight of machine = Wr

Tire traction coefficient = T (Section 26, look up the table entitled “Coefficient of Traction Factors”)

$$Wr \times T = \text{Blade Pull}$$

Example problem:

Calculate the blade pull for a 140H NA version machine operating in a quarry pit...

Metric

RW = 10 501 kg

T = 0.65

$$10\,501 \times 0.65 = 6825.65$$

English

RW = 23,151 lb

T = 0.65

$$23,151 \times 0.65 = 15,048.15$$

BLADE DOWN PRESSURE

This spec can be calculated as follows:

Variables:

Blade to front axle length = BA

Wheel base length = WB

Weight on front wheels = FW

Blade down pressure = BD

$$\frac{WB}{(WB - BA)} \times FW = BD$$

Example problem:

Calculate the blade down pressure for a 140H NA version machine...

Metric

BA = 2565 mm FW = 4223 kg

WB = 6086 mm BD = ?

$$\frac{6086}{(6086 - 2565)} \times 4223 = 7299 \text{ kg}$$

English

BA = 101 in

FW = 9310 lb

WB = 240 in

BD = ?

$$\frac{240}{(240 - 101)} \times 9310 = 16,075 \text{ lb}$$

This specification is only a minor indicator of a motor grader’s productivity. It alone gives no measure of overall machine productivity. When considering motor grader production you need an optimum balance between the machine’s front and rear weights. If a machine has too much weight on the front axle it might have a high blade down pressure spec, however it will lack the essential rear weight and traction needed to push through the load. Too much weight in the rear and it will not have the necessary weight in the front during heavy cuts to maintain proper steering control.

Caterpillar machines are built with this optimum balance in mind. A Cat motor grader is engineered with the proper weight distribution necessary for maximum productivity.

Effective Blade Length*

		Moldboard							
		3.66 m (12')		4.27 m (14')		4.88 m (16')		7.32 m (24')	
Angle°		m	ft	m	ft	m	ft	m	ft
	0°	3.66	12.00	4.27	14.00	4.88	16.00	7.32	24.00
	5°	3.64	11.95	4.25	13.95	4.86	15.94	7.29	23.91
	10°	3.60	11.82	4.20	13.79	4.80	15.76	7.21	23.64
	15°	3.53	11.59	4.12	13.52	4.71	15.45	7.07	23.18
	20°	3.44	11.28	4.01	13.16	4.58	15.04	6.87	22.55
	25°	3.32	10.88	3.87	12.69	4.42	14.50	6.63	21.75
	30°	3.17	10.39	3.69	12.12	4.22	13.86	6.33	20.78
	35°	3.00	9.83	3.50	11.47	4.00	13.11	5.99	19.66
	40°	2.80	9.19	3.27	10.72	3.74	12.26	5.61	18.39
45°	2.59	8.49	3.02	9.90	3.45	11.31	5.17	16.97	

*Effective blade length is the amount of blade coverage the machine is capable of when the blade is at a given angle.

EXTREME SLOPE OPERATION

There are two ways of defining slope work. The slope perpendicular to the machines direction of travel is commonly referred to as “Side Sloping.” The slope parallel to the machines direction of travel — the machines ability to travel up or down terrain, is commonly referred to as “Gradeability.”

Side Sloping capability for our H-Series graders is somewhat subjective but general agreement among professional operators is that working on a slope ratio of 2.5:1 (21.8 degrees) is the safe limit ... an experienced operator may be able to operate on a 2:1 (28 degrees) slope. There are many factors, which influence this limit, such as operator experience, machine configuration, tires, soil conditions, but a 2.5:1 is achievable. Further, a 3:1 slope is the approximate maximum side slope a grader can work on in straight frame configuration. The steeper side slopes all require the machine to be articulated to safely negotiate the slope.

Gradeability is approximately 22 degrees. This is established by the graders ability to stop without skidding the tires while moving downhill. The motor grader can, however, *climb* grades steeper than 22 degrees. The traction coefficient is the critical factor in determining whether a grader can safely negotiate the slope. Caterpillar recommends that you never climb a slope steeper than you can safely descend.

Maximum lubrication angle: We have measured the graders on a tilt table and pump cavitation occurs around 45 degrees (100% or 1:1). This is beyond the grade or slope a motor grader can operate on.

When working side hills and slopes, consideration should be given to the following important points.

- **Speed of Travel** — At higher speeds, inertia forces tend to make the grader less stable.
- **Roughness of Terrain or Surface** — Ample allowance should be made where the terrain or surface is uneven.
- **Mounted Equipment** — Mounted attachments such as front plows, snow wings, rippers and other mounted equipment cause the tractor to balance differently.
- **Nature of Surface** — New earthen fills may give way with the weight of the grader. Rocky surfaces may promote side slipping of grader.
- **Wheel Slippage Due to Excessive Loads or Side Draft** — This may cause downhill tire to “dig in,” increasing the angle of grader.
- **Tire Selection and Maintenance** — Consideration should be given to proper tire selection and air pressure. Consult with Caterpillar publication AEDG0480 — Motor Grader Tire Selection Guide and Operation and Maintenance manual for more information.
- **Drawbar, Circle and Blade Position** — The position of the blade can affect the stability of the machine.
- **Articulation Angle** — Articulation angle can affect the stability of the machine.
- **Wheel Lean Angle** — Wheel lean angle can affect the stability of the machine.

NOTE: Safe operation on steep slopes may require special machine maintenance as well as excellent operator skill and proper equipment setup for the specific application. Consult Operation & Maintenance Manual, Caterpillar publication AEGQ0945 — Motor Grader Application Guide, and the Grade Comparison Chart in the Tables section of this Performance Handbook, for further operating tips.

Work Tool	120H	135H	12H	140H	143H	160H	163H	14H	16H
Lift Group	X	X	X	X	X	X	X	X	X
V-Plow	X	X	X	X	X	X	X	X	
One Way Plow	X	X	X	X	X	X	X	X	
Manual Reversible Plow	X	X	X	X	X	X	X	X	
Hydraulic Reversible Plow	X	X	X	X	X	X	X	X	
Snow Wing	X	X	X	X	X	X	X	X	
Scarifier	X	X	X	X	X	X	X	X	X
Manual Angle Blade	X	X	X	X	X	X	X	X	
Hydraulic Angle Blade	X	X	X	X	X	X	X	X	
Straight Blade	X	X	X	X	X	X	X	X	X

This list is not all inclusive. Contact your Caterpillar Dealer for special attachment needs.

NOTE: Attachments for Cat H-Series Motor Graders require additional hydraulics. All front-mounted attachments require a Quick Attach-Detach Parallel Lift Group. Contact your Caterpillar Dealer for details.

SKID STEER LOADERS

Multi Terrain Loaders

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Features:

- **Caterpillar engines** provide high horsepower and torque. Closed circuit breather, glow-plug starting aid, ecology drain and SOS oil sampling ports standard.
- **Ergonomically designed cab** provides maximum operator comfort & visibility.
- **Low-effort**, pilot hydraulic joystick controls, arm-rest & retractable seat belt for easy operation.
- **Deep skid resistant steps** and two tilt cylinders makes egress/ingress easy.
- **Hand and foot throttle** for continuous or variable engine speed.
- **Exclusive anti-stall feature** provides maximum rimpull and hydraulic power while lugging the engine.
- **High hydraulic horsepower** gets work done quickly.
- **Direct drive hystat pumps** eliminate universal joints and belts.
- **Tilt-up cooling package** provides access to engine compartment.
- **Long life coolant** and extended hour service intervals for low operating costs.
- **Single engine belt** drives alternator and water pump.
- **Deutsch connectors** are color coded, numbered and protected with nylon braiding.
- **Electro-depositioned** or “E” coat corrosion protection for long life.
- **High flow XPS hydraulics** standard on 248B and 268B.
- **High flow hydraulics** optional on 226B and 242B.



MODEL	216B		226B		232B	
Flywheel Power: Net	36 kW	48 hp	42.5 kW	57 hp	36 kW	48 hp
Gross	38 kW	51 hp	46 kW	62 hp	38 kW	51 hp
Engine Model	3024C		3024C T		3024C	
Rated Engine RPM	3000		3000		3000	
Bore	84 mm	3.3"	84 mm	3.3"	84 mm	3.3"
Stroke	100 mm	3.9"	100 mm	3.9"	100 mm	3.9"
Displacement	2.2 L	134 in ³	2.2 L	134 in ³	2.2 L	134 in ³
No. Cylinders	4		4		4	
Speeds Forward						
Infinite	0-11.3 kph	0-7.0 mph	0-12.6 kph	0-7.8 mph	0-9.9 kph	0-6.15 mph
Speeds Reverse						
Infinite	0-11.3 kph	0-7.0 mph	0-12.6 kph	0-7.8 mph	0-9.9 kph	0-6.15 mph
Hydraulic Cycle Time, Empty Bucket:	Seconds		Seconds		Seconds	
Raise	2.7		2.7		3.0	
Dump	2.2		2.2		2.2	
Lower (Empty, Float Down)	2.8		2.8		3.0	
Total	7.7		7.7		8.2	
Tread Width	1244 mm	4'1"	1244 mm	4'1"	1244 mm	4'1"
Width Over Tires	1511 mm	5'0"	1511 mm	5'0"	1511 mm	5'0"
Ground Clearance	195 mm	7.6"	195 mm	7.6"	145 mm	5.7"
Fuel Tank Capacity	65 L	17 U.S. gal	65 L	17 U.S. gal	69 L	18.2 U.S. gal
Hydraulic Tank Capacity	35 L	9.2 U.S. gal	35 L	9.2 U.S. gal	35 L	9.2 U.S. gal
Hydraulic System Capacity (includes tank)	55 L	14.5 U.S. gal	55 L	14.5 U.S. gal	55 L	14.5 U.S. gal
Hydraulic Pump Capacity	60 L/min	15.6 gpm	60 L/min	15.6 gpm	60 L/min	15.6 gpm



MODEL	236B		242B		246B	
Flywheel Power: Net	51 kW	68 hp	42.5 kW	57 hp	57 kW	76 hp
Gross	53 kW	71 hp	46 kW	62 hp	60 kW	80 hp
Engine Model	3044C DIT		3024C T		3044C DIT	
Rated Engine RPM	2600		3000		2600	
Bore	94 mm	3.7"	84 mm	3.3"	94 mm	3.7"
Stroke	120 mm	4.7"	100 mm	3.9"	120 mm	4.7"
Displacement	3.3 L	201 in³	2.2 L	134 in³	3.3 L	201 in³
No. Cylinders	4		4		4	
Speeds Forward						
Infinite	0-12.1 kph	0-7.5 mph	0-11.0 kph	0-6.8 mph	0-12.1 kph	0-7.5 mph
Speeds Reverse						
Infinite	0-12.1 kph	0-7.5 mph	0-11.0 kph	0-6.8 mph	0-12.1 kph	0-7.5 mph
Hydraulic Cycle Time, Empty Bucket:	Seconds		Seconds		Seconds	
Raise	2.7		3.0		2.7	
Dump	2.2		2.2		2.2	
Lower (Empty, Float Down)	2.8		3.0		2.8	
Total	7.7		8.2		7.7	
Tread Width	1514 mm	5'0"	1362 mm	4'6"	1514 mm	5'0"
Width Over Tires	1829 mm	6'0"	1672 mm	5'6"	1829 mm	6'0"
Ground Clearance	235 mm	9"	185 mm	7.3"	235 mm	9"
Fuel Tank Capacity	90 L	23.8 U.S. gal	69 L	18.2 U.S. gal	90 L	23.8 U.S. gal
Hydraulic Tank Capacity	35 L	9.2 U.S. gal	35 L	9.2 U.S. gal	35 L	9.2 U.S. gal
Hydraulic System Capacity (includes tank)	52 L	13.7 U.S. gal	55 L	14.5 U.S. gal	52 L	13.7 U.S. gal
Hydraulic Pump Capacity	83 L/min	22 gpm	60 L/min	15.6 gpm	83 L/min	22 gpm



MODEL	248B		252B		262B		268B	
Flywheel Power: Net	56 kW	75 hp	51 kW	68 hp	57 kW	76 hp	56 kW	75 hp
Gross	60 kW	80 hp	53 kW	71 hp	60 kW	80 hp	60 kW	80 hp
Engine Model	3044C DIT		3044C DIT		3044C DIT		3044C DIT	
Rated Engine RPM	2600		2600		2600		2600	
Bore	94 mm	3.7"	94 mm	3.7"	94 mm	3.7"	94 mm	3.7"
Stroke	120 mm	4.7"	120 mm	4.7"	120 mm	4.7"	120 mm	4.7"
Displacement	3.3 L	201 in^{3}	3.3 L	201 in^{3}	3.3 L	201 in^{3}	3.3 L	201 in³
No. Cylinders	4		4		4		4	
Speeds Forward	0-12.1 kph 0-7.5 mph		0-11.3 kph 0-7.0 mph		0-11.6 kph 0-7.2 mph		0-11.6 kph 0-7.2 mph	
Infinite								
Speeds Reverse	0-12.1 kph 0-7.5 mph		0-11.3 kph 0-7.0 mph		0-11.6 kph 0-7.2 mph		0-11.6 kph 0-7.2 mph	
Infinite								
Hydraulic Cycle Time, Empty Bucket:	Seconds		Seconds		Seconds		Seconds	
Raise	2.7		4.8		4.8		3.8	
Dump	2.1		2.2		2.2		2.1	
Lower (Empty, Float Down)	2.8		3.6		3.6		3.6	
Total	7.6		10.6		10.6		9.5	
Tread Width	1514 mm	5'0"	1514 mm	5'0"	1514 mm	5'0"	1514 mm	5'0"
Width Over Tires	1829 mm	6'0"	1824 mm	6'0"	1824 mm	6'0"	1824 mm	6'0"
Ground Clearance	235 mm	9"	196 mm	8"	196 mm	8"	196 mm	8"
Fuel Tank Capacity	90 L	23.8 U.S. gal	90 L	23.8 U.S. gal	90 L	23.8 U.S. gal	90 L	23.8 U.S. gal
Hydraulic Tank Capacity	35 L	9.2 U.S. gal	35 L	9.2 U.S. gal	35 L	9.2 U.S. gal	35 L	9.2 U.S. gal
Hydraulic System Capacity (includes tank)	53 L	14 U.S. gal	53 L	14 U.S. gal	53 L	14 U.S. gal	53 L	14 U.S. gal
Hydraulic Pump Capacity	125 L/min	32.5 gpm	83 L/min	22 gpm	83 L/min	22 gpm	125 L/min	32.5 gpm

Bucket Type		General Purpose						Multi-Purpose	
		1520 mm (60") 10 x 16.5			1680 mm (66") 10 x 16.5			1520 mm (60") 10 x 16.5	
Bucket Width Tire Size		Holes Only	Bolt-on Edge	Bolt-on Teeth	Holes Only	Bolt-on Edge	Bolt-on Teeth	Holes Only	Bolt-on Edge
Ground Engaging Type									
Rated bucket capacity	m ³ yd ³	0.36 0.47	0.37 0.48	0.36 0.47	0.40 0.52	0.40 0.52	0.41 0.53	0.30 0.39	0.31 0.41
Struck capacity	m ³ yd ³	0.26 0.34	0.27 0.35	0.26 0.34	0.29 0.38	0.29 0.38	0.29 0.38	0.22 0.29	0.22 0.29
Width	mm in	1576 62	1586 62	1576 62	1730 68	1740 68	1730 68	1595 63	1595 63
Dump clearance at maximum lift/dump	mm in	2133 84	2103 83	2069 81	2130 84	2100 83	2066 81	2122 84	2092 82
Reach at maximum lift/dump	mm in	546 21	557 22	620 24	549 22	560 22	623 25	560 22	571 22
Floor angle at maximum lift/dump	degrees	39.9°	39.9°	39.9°	40°	40°	40°	40.2°	40.2°
Floor angle at maximum lift/rack back	degrees	96.7°	96.7°	96.7°	96.5°	96.5°	96.5°	96.4°	96.4°
Clearance at maximum lift/level bucket	mm in	2658 105	2642 104	2657 105	2656 105	2640 104	2655 105	2655 105	2683 106
Hinge pin height at maximum lift	mm in	2849 112	2849 112	2849 112	2849 112	2849 112	2849 112	2849 112	2849 112
Maximum overall height	mm in	3762 148	3790 149	3860 152	3759 148	3787 149	3857 152	3746 147	3774 149
Reach at level lift arm/bucket	mm in	1333 52	1361 54	1431 56	1335 53	1363 54	1433 56	1346 53	1374 54
Maximum floor angle at minimum lift	degrees	26.1°	26.1°	26.1°	26°	26°	26°	25.8°	25.8°
Dig depth with level bucket	mm in	0 0.0	16 0.6	1 0.0	0 0.0	16 0.6	1 0.0	0 0.0	15 0.6
Overall length with bucket on ground	mm in	3286 129	3314 130	3384 133	3286 129	3314 130	3384 133	3290 130	3318 131
Front clearance circle radius (w/bucket)	mm in	1989 78	2016 79	2079 82	2021 80	2048 81	2110 83	1992 78	2020 80
Tipping load	216B kg lb	1183 2609	1129 2489	1157 2551	1164 2567	1110 2448	1142 2518	1044 2302	1002 2209
	226B kg lb	1258 2774	1203 2653	1232 2717	1239 2732	1185 2613	1217 2683	1118 2465	1075 2370
Breakout force — lift	216B kg lb	1336 2945	1291 2847	1320 2911	1324 2919	1277 2817	1309 2886	1236 2725	1195 2635
	226B kg lb	1438 3170	1390 3064	1421 3133	1425 3141	1375 3031	1409 3106	1330 2933	1286 2836
Breakout force — tilt	216B kg lb	1580 3484	1484 3271	1563 3445	1575 3473	1479 3260	1559 3438	1517 3344	1431 3155
	226B kg lb	1699 3746	1595 3518	1680 3705	1694 3734	1590 3506	1676 3696	1631 3596	1539 3393
Operating weight	216B kg lb	2648 5839	2677 5903	2664 5874	2664 5874	2697 5947	2681 5912	2779 6128	2809 6194
	226B kg lb	2704 5962	2734 6028	2720 5998	2721 6000	2754 6073	2737 6035	2835 6251	2865 6317

Bucket Type		Multi-Purpose				Dirt				
Bucket Width		1520 mm (60")	1680 mm (66")			1520 mm (60")		1680 mm (66")		
Tire Size		10 x 16.5	10 x 16.5			10 x 16.5		10 x 16.5		
Ground Engaging Type		Bolt-on Teeth	Holes Only	Bolt-on Edge	Bolt-on Teeth	Holes Only	Bolt-on Edge	Holes Only	Bolt-on Edge	
Rated bucket capacity	m ³	0.30	0.33	0.33	0.34	0.34	0.35	0.37	0.38	
	yd ³	0.39	0.43	0.43	0.44	0.44	0.46	0.48	0.49	
Struck capacity	m ³	0.22	0.24	0.25	0.24	0.25	0.25	0.27	0.27	
	yd ³	0.29	0.31	0.33	0.31	0.33	0.33	0.35	0.35	
Width	mm	1595	1749	1749	1749	1576	1586	1730	1740	
	in	63	69	69	69	62	62	68	69	
Dump clearance at maximum lift/dump	mm	2058	2122	2092	2058	2169	2140	2169	2140	
	in	81	84	82	81	85	84	85	84	
Reach at maximum lift/dump	mm	634	560	571	634	505	520	505	520	
	in	25	22	22	25	20	20	20	20	
Floor angle at maximum lift/dump	degrees	40.2°	40.2°	40.2°	40.2°	39.9°	39.9°	39.9°	39.9°	
Floor angle at maximum lift/rack back	degrees	96.4°	96.4°	96.4°	96.4°	96.7°	96.7°	96.7°	96.7°	
Clearance at maximum lift/level bucket	mm	2654	2655	2683	2654	2661	2648	2661	2648	
	in	104	105	106	104	105	104	105	104	
Hinge pin height at maximum lift	mm	2849	2849	2849	2849	2849	2849	2849	2849	
	in	112	112	112	112	112	112	112	112	
Maximum overall height	mm	3844	3746	3774	3844	3709	3739	3709	3739	
	in	151	147	149	151	146	147	146	147	
Reach at level lift arm/bucket	mm	1444	1346	1374	1444	1280	1310	1280	1310	
	in	57	53	54	57	50	52	50	52	
Maximum floor angle at minimum lift	degrees	25.8°	25.8°	25.8°	25.8°	26.1°	26.1°	26.1°	26.1°	
Dig depth with level bucket	mm	1	0	16	1	0	16	0	16	
	in	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.6	
Overall length with bucket on ground	mm	3388	3290	3318	3388	3233	3263	3233	3263	
	in	133	130	131	133	127	128	127	128	
Front clearance circle radius (w/bucket)	mm	2083	1992	2020	2113	1940	1970	1970	2000	
	in	82	78	80	83	76	78	78	79	
Tipping load	216B	kg	1029	1024	972	1003	1274	1221	1250	1193
		lb	2269	2258	2143	2212	2809	2692	2756	2631
	226B	kg	1103	1097	1045	1077	1360	1297	1327	1269
		lb	2432	2419	2304	2375	2999	2860	2926	2798
Breakout force — lift	216B	kg	1223	1221	1176	1206	1408	1363	1389	1342
		lb	2696	2692	2593	2659	3104	3004	3063	2958
	226B	kg	1316	1314	1266	1298	1515	1467	1495	1444
		lb	2902	2898	2791	2862	3341	3234	3297	3184
Breakout force — tilt	216B	kg	1506	1504	1411	1488	1722	1617	1713	1605
		lb	3320	3317	3111	3281	3798	3566	3776	3540
	226B	kg	1619	1618	1517	1600	1852	1739	1842	1726
		lb	3570	3567	3345	3528	4084	3834	4061	3806
Operating weight	216B	kg	2795	2797	2830	2813	2589	2619	2614	2647
		lb	6163	6167	6240	6203	5709	5775	5764	5837
	226B	kg	2852	2854	2887	2870	2646	2676	2671	2703
		lb	6289	6293	6366	6328	5834	5901	5890	5960

Work Tool		Pallet Fork			
		910 mm (36")	1070 mm (42")	1220 mm (48")	
Tine Length					
Tire Size		10 x 16.5	10 x 16.5	10 x 16.5	
Carriage overall width without step	mm	1157	1157	1157	
	in	45	45	45	
Carriage step additional width	mm	108	108	108	
	in	4.25	4.25	4.25	
Carriage height above blade top	mm	923.5	923.5	923.5	
	in	36.4	36.4	36.4	
Blade surface height at maximum height	mm	2741	2741	2741	
	in	107.9	107.9	107.9	
Shank front face reach at maximum height	mm	290	290	290	
	in	11.4	11.4	11.4	
Blade surface height at level lift arms	mm	1383	1383	1383	
	in	54.4	54.4	54.4	
Shank front face reach at level lift arms	mm	743	743	743	
	in	29.3	29.3	29.3	
Blade surface height at minimum lift	mm	91	91	91	
	in	3.6	3.6	3.6	
Shank front face reach at minimum lift	mm	345	345	345	
	in	13.6	13.6	13.6	
Overall length at minimum lift, level tine	mm	3602	3762	3912	
	in	141.8	148.1	154.0	
Tipping load	216B	kg	926	872	825
		lb	2042	1922	1819
	226B	kg	985	928	878
		lb	2172	2046	1936
Operating weight	216B	kg	2630	2640	2650
		lb	5799	5821	5843
	226B	kg	2687	2697	2707
		lb	5925	5947	5969

Bucket Type	General Purpose									
	Bucket Width Tire Size	1520 mm (60") 10 x 16.5			1680 mm (66") 10 x 16.5			1830 mm (72") 10 x 16.5		
Ground Engaging Type		Holes Only	Bolt-on Edge	Bolt-on Teeth	Holes Only	Bolt-on Edge	Bolt-on Teeth	Holes Only	Bolt-on Edge	Bolt-on Teeth
Rated bucket capacity	m ³ yd ³	0.36 0.47	0.37 0.48	0.36 0.47	0.40 0.52	0.40 0.52	0.41 0.53	0.44 0.57	0.44 0.57	0.45 0.59
Struck capacity	m ³ yd ³	0.26 0.34	0.27 0.35	0.26 0.34	0.29 0.38	0.29 0.38	0.29 0.38	0.32 0.42	0.32 0.42	0.32 0.42
Width	mm in	1576 62	1586 62	1576 62	1730 68	1740 68	1730 68	1883 74	1893 75	1883 74
Dump clearance at maximum lift/dump	mm in	2220 87	2189 86	2148 85	2220 87	2189 86	2148 85	2220 87	2189 86	2148 85
Reach at maximum lift/dump	mm in	759 30	766 30	822 32	759 30	766 30	822 32	759 30	766 30	822 32
Floor angle at maximum lift/dump	degrees	49.5°	49.5°	49.5°	49.5°	49.5°	49.5°	49.5°	49.5°	49.5°
Floor angle at maximum lift/rack back	degrees	86.9°	86.9°	86.9°	86.9°	86.9°	86.9°	86.9°	86.9°	86.9°
Clearance at maximum lift/level bucket	mm in	2831 111	2815 111	2830 111	2831 111	2815 111	2830 111	2831 111	2815 111	2830 111
Hinge pin height at maximum lift	mm in	3026 119	3026 119	3026 119	3026 119	3026 119	3026 119	3026 119	3026 119	3026 119
Maximum overall height	mm in	3907 154	3934 155	4004 158	3907 154	3934 155	4004 158	3907 154	3934 155	4004 158
Reach at level lift arm/bucket	mm in	1356 53	1384 54	1453 57	1356 53	1384 54	1453 57	1356 53	1384 54	1453 57
Maximum floor angle at minimum lift	degrees	25.4°	25.4°	25.4°	25.4°	25.4°	25.4°	25.4°	25.4°	25.4°
Dig depth with level bucket	mm in	4 0.2	21 0.8	5 0.2	4 0.2	21 0.8	5 0.2	4 0.2	21 0.8	5 0.2
Overall length with bucket on ground	mm in	3490 137	3518 139	3588 141	3490 137	3518 139	3588 141	3490 137	3518 139	3588 141
Front clearance circle radius (w/bucket)	mm in	2192 86	2224 88	2259 89	2221 87	2253 89	2286 90	2252 89	2283 90	2313 91
Tipping load	kg lb	1676 3696	1617 3565	1649 3636	1656 3651	1599 3526	1634 3603	1648 3634	1587 3499	1625 3583
Breakout force — lift	kg lb	1565 3452	1520 3353	1550 3418	1553 3425	1506 3321	1538 3392	1547 3411	1498 3303	1532 3379
Breakout force — tilt	kg lb	1579 3483	1483 3270	1562 3444	1574 3471	1478 3258	1558 3436	1570 3462	1472 3246	1555 3428
Operating weight	kg lb	3055 6736	3085 6802	3071 6772	3071 6772	3104 6844	3088 6809	3079 6789	3115 6869	3095 6824

Bucket Type	Multi-Purpose									
	Bucket Width Tire Size	1520 mm (60") 10 x 16.5			1680 mm (66") 10 x 16.5			1830 mm (72") 10 x 16.5		
Ground Engaging Type		Holes Only	Bolt-on Edge	Bolt-on Teeth	Holes Only	Bolt-on Edge	Bolt-on Teeth	Holes Only	Bolt-on Edge	Bolt-on Teeth
Rated bucket capacity	m ³ yd ³	0.30 0.39	0.31 0.41	0.30 0.39	0.33 0.43	0.33 0.43	0.34 0.44	0.37 0.48	0.37 0.48	0.37 0.48
Struck capacity	m ³ yd ³	0.22 0.29	0.22 0.29	0.22 0.29	0.24 0.31	0.25 0.33	0.24 0.31	0.27 0.35	0.28 0.36	0.27 0.35
Width	mm in	1595 63	1595 63	1595 63	1749 69	1749 69	1749 69	1902 75	1902 75	1902 75
Dump clearance at maximum lift/dump	mm in	2218 87	2287 90	2143 84	2218 87	2287 90	2143 84	2218 87	2287 90	2143 84
Reach at maximum lift/dump	mm in	762 30	769 30	825 32	762 30	769 30	825 32	762 30	769 30	825 32
Floor angle at maximum lift/dump	degrees	49.6°	49.6°	49.6°	49.6°	49.6°	49.6°	49.6°	49.6°	49.6°
Floor angle at maximum lift/rack back	degrees	86.8°	86.8°	86.8°	86.8°	86.8°	86.8°	86.8°	86.8°	86.8°
Clearance at maximum lift/level bucket	mm in	2834 112	2818 111	2833 112	2834 112	2818 111	2833 112	2834 112	2818 111	2833 112
Hinge pin height at maximum lift	mm in	3026 119	3026 119	3026 119	3026 119	3026 119	3026 119	3026 119	3026 119	3026 119
Maximum overall height	mm in	3911 154	3938 155	4008 158	3911 154	3938 155	4008 158	3911 154	3938 155	4008 158
Reach at level lift arm/bucket	mm in	1360 54	1387 55	1457 57	1360 54	1387 55	1457 57	1360 54	1387 55	1457 57
Maximum floor angle at minimum lift	degrees	25.3°	25.3°	25.3°	25.3°	25.3°	25.3°	25.3°	25.3°	25.3°
Dig depth with level bucket	mm in	3 0.1	19 0.7	4 0.2	3 0.1	19 0.7	4 0.2	3 0.1	19 0.7	4 0.2
Overall length with bucket on ground	mm in	3494 138	3522 139	3591 141	3494 138	3522 139	3591 141	3494 138	3522 139	3591 141
Front clearance circle radius (w/bucket)	mm in	2182 86	2214 87	2249 89	2211 87	2243 88	2276 90	2242 88	2273 89	2303 91
Tipping load	kg lb	1530 3374	1484 3272	1515 3341	1509 3327	1454 3206	1489 3283	1491 3288	1433 3160	1471 3244
Breakout force — lift	kg lb	1463 3226	1422 3135	1450 3197	1448 3193	1402 3092	1433 3160	1434 3162	1386 3056	1419 3130
Breakout force — tilt	kg lb	1516 3342	1430 3154	1505 3319	1504 3316	1410 3110	1487 3280	1496 3298	1402 3092	1482 3267
Operating weight	kg lb	3186 7025	3216 7091	3202 7060	3204 7065	3237 7138	3221 7102	3223 7107	3259 7186	3239 7142

Bucket Type	Dirt						
	1520 mm (60") 10 x 16.5		1680 mm (66") 10 x 16.5		1830 mm (72") 10 x 16.5		
Bucket Width Tire Size		Holes Only	Bolt-on Edge	Holes Only	Bolt-on Edge	Holes Only	Bolt-on Edge
Ground Engaging Type							
Rated bucket capacity	m ³ yd ³	0.34 0.44	0.35 0.46	0.37 0.48	0.38 0.49	0.41 0.54	0.42 0.55
Struck capacity	m ³ yd ³	0.25 0.33	0.25 0.33	0.27 0.35	0.27 0.35	0.29 0.38	0.31 0.41
Width	mm in	1576 62	1586 62	1730 68	1740 69	1883 74	1893 75
Dump clearance at maximum lift/dump	mm in	2261 89	2229 88	2261 89	2229 88	2261 89	2229 88
Reach at maximum lift/dump	mm in	724 29	732 29	724 29	732 29	724 29	732 29
Floor angle at maximum lift/dump	degrees	49.5°	49.5°	49.5°	49.5°	49.5°	49.5°
Floor angle at maximum lift/rack back	degrees	86.9°	86.9°	86.9°	86.9°	86.9°	86.9°
Clearance at maximum lift/level bucket	mm in	2831 111	2815 111	2831 111	2815 111	2831 111	2815 111
Hinge pin height at maximum lift	mm in	3026 119	3026 119	3026 119	3026 119	3026 119	3026 119
Maximum overall height	mm in	3854 152	3881 153	3854 152	3881 153	3854 152	3881 153
Reach at level lift arm/bucket	mm in	1302 51	1330 52	1302 51	1330 52	1302 51	1330 52
Maximum floor angle at minimum lift	degrees	25.4°	25.4°	25.4°	25.4°	25.4°	25.4°
Dig depth with level bucket	mm in	4 0.2	20 0.8	4 0.2	20 0.8	4 0.2	20 0.8
Overall length with bucket on ground	mm in	3437 135	3465 136	3437 135	3465 136	3437 135	3465 136
Front clearance circle radius (w/bucket)	mm in	2137 84	2169 85	2154 85	2185 86	2198 87	2229 88
Tipping load	kg lb	1778 3920	1720 3793	1755 3870	1692 3731	1742 3841	1675 3693
Breakout force — lift	kg lb	1639 3614	1594 3514	1620 3572	1572 3467	1610 3550	1559 3439
Breakout force — tilt	kg lb	1722 3796	1617 3564	1712 3775	1605 3539	1706 3761	1595 3517
Operating weight	kg lb	2996 6606	3026 6672	3021 6661	3054 6734	3054 6734	3070 6769

Work Tool		Pallet Fork		
		910 mm (36")	1070 mm (42")	1220 mm (48")
Tine Length		910 mm (36")	1070 mm (42")	1220 mm (48")
Tire Size		10 x 16.5	10 x 16.5	10 x 16.5
Carriage overall width without step	mm	1157	1157	1157
	in	45	45	45
Carriage step additional width	mm	108	108	108
	in	4.25	4.25	4.25
Carriage height above blade top	mm	924	924	924
	in	36.4	36.4	36.4
Blade surface height at maximum height	mm	2911	2911	2911
	in	114.6	114.6	114.6
Shank front face reach at maximum height	mm	624	624	624
	in	24.6	24.6	24.6
Blade surface height at level lift arms	mm	1506	1506	1506
	in	59.3	59.3	59.3
Shank front face reach at level lift arms	mm	762	762	762
	in	30.0	30.0	30.0
Blade surface height at minimum lift	mm	56	56	56
	in	2.2	2.2	2.2
Shank front face reach at minimum lift	mm	468	468	468
	in	18.4	18.4	18.4
Overall length at minimum lift, level tine	mm	3806	3966	4116
	in	149.8	156.1	162.0
Tipping load	kg	1308	1236	1173
	lb	2884	2725	2586
Operating weight	kg	3037	3047	3057
	lb	6697	6719	6741

Bucket Type	General Purpose									
	Bucket Width Tire Size	1520 mm (60") 12 x 16.5			1680 mm (66") 12 x 16.5			1830 mm (72") 12 x 16.5		
Ground Engaging Type		Holes Only	Bolt-on Edge	Bolt-on Teeth	Holes Only	Bolt-on Edge	Bolt-on Teeth	Holes Only	Bolt-on Edge	Bolt-on Teeth
Rated bucket capacity	m ³ yd ³	0.36 0.47	0.37 0.48	0.36 0.47	0.40 0.52	0.40 0.52	0.41 0.53	0.44 0.57	0.44 0.57	0.45 0.59
Struck capacity	m ³ yd ³	0.26 0.34	0.27 0.35	0.26 0.34	0.29 0.38	0.29 0.38	0.29 0.38	0.32 0.42	0.32 0.42	0.32 0.42
Width	mm in	1576 62	1586 62	1576 62	1730 68	1740 68	1730 68	1883 74	1893 75	1883 74
Dump clearance at maximum lift/dump	mm in	2240 88	2209 87	2168 85	2240 88	2209 87	2166 85	2240 88	2209 87	2166 85
Reach at maximum lift/dump	mm in	759 30	766 30	822 32	759 30	766 30	822 32	759 30	766 30	822 32
Floor angle at maximum lift/dump	degrees	49.5°	49.5°	49.5°	49.5°	49.5°	49.5°	49.5°	49.5°	49.5°
Floor angle at maximum lift/rack back	degrees	86.9°	86.9°	86.9°	86.9°	86.9°	86.9°	86.9°	86.9°	86.9°
Clearance at maximum lift/level bucket	mm in	2851 112	2835 112	2850 112	2851 112	2835 112	2850 112	2851 112	2835 112	2850 112
Hinge pin height at maximum lift	mm in	3046 120	3046 120	3046 120	3046 120	3046 120	3046 120	3046 120	3046 120	3046 120
Maximum overall height	mm in	3927 155	3954 156	4024 158	3927 155	3954 156	4024 158	3927 155	3954 156	4024 158
Reach at level lift arm/bucket	mm in	1356 53	1384 54	1453 57	1356 53	1384 54	1453 57	1356 53	1384 54	1453 57
Maximum floor angle at minimum lift	degrees	25.4°	25.4°	25.4°	25.4°	25.4°	25.4°	25.4°	25.4°	25.4°
Dig depth with level bucket	mm in	4 0.2	21 0.8	5 0.2	4 0.2	21 0.8	5 0.2	4 0.2	21 0.8	5 0.2
Overall length with bucket on ground	mm in	3490 137	3518 139	3588 141	3490 137	3518 139	3588 141	3490 137	3518 139	3588 141
Front clearance circle radius (w/bucket)	mm in	2192 86	2224 88	2259 89	2221 87	2253 89	2286 90	2252 89	2283 90	2313 91
Tipping load	kg lb	1753 3865	1693 3733	1726 3806	1733 3821	1675 3693	1711 3773	1725 3804	1664 3669	1703 3755
Breakout force — lift	kg lb	1683 3711	1635 3605	1667 3675	1670 3682	1620 3571	1654 3647	1663 3668	1611 3552	1648 3633
Breakout force — tilt	kg lb	1698 3745	1594 3516	1679 3703	1693 3733	1589 3504	1676 3695	1688 3723	1583 3490	1672 3686
Operating weight	kg lb	3118 6875	3148 6941	3134 6910	3135 6913	3168 6985	3151 6948	3143 6930	3178 7007	3159 6966

Bucket Type Bucket Width Tire Size	Multi-Purpose									
	1520 mm (60") 12 x 16.5			1680 mm (66") 12 x 16.5			1830 mm (72") 12 x 16.5			
Ground Engaging Type		Holes Only	Bolt-on Edge	Bolt-on Teeth	Holes Only	Bolt-on Edge	Bolt-on Teeth	Holes Only	Bolt-on Edge	Bolt-on Teeth
Rated bucket capacity	m ³ yd ³	0.30 0.39	0.31 0.41	0.30 0.39	0.33 0.43	0.33 0.43	0.34 0.44	0.37 0.48	0.37 0.48	0.37 0.48
Struck capacity	m ³ yd ³	0.22 0.29	0.22 0.29	0.22 0.29	0.24 0.31	0.25 0.33	0.24 0.31	0.27 0.35	0.28 0.36	0.27 0.35
Width	mm in	1595 63	1595 63	1595 63	1749 69	1749 69	1749 69	1902 75	1902 75	1902 75
Dump clearance at maximum lift/dump	mm in	2238 88	2207 87	2163 85	2238 88	2207 87	2163 85	2238 88	2207 87	2163 85
Reach at maximum lift/dump	mm in	762 30	769 30	825 32	762 30	769 30	825 32	762 30	769 30	825 32
Floor angle at maximum lift/dump	degrees	49.6°	49.6°	49.6°	49.6°	49.6°	49.6°	49.6°	49.6°	49.6°
Floor angle at maximum lift/rack back	degrees	86.8°	86.8°	86.8°	86.8°	86.8°	86.8°	86.8°	86.8°	86.8°
Clearance at maximum lift/level bucket	mm in	2854 112	2838 112	2853 112	2854 112	2838 112	2853 112	2854 112	2838 112	2853 112
Hinge pin height at maximum lift	mm in	3046 120	3046 120	3046 120	3046 120	3046 120	3046 120	3046 120	3046 120	3046 120
Maximum overall height	mm in	3931 155	3958 156	4028 159	3931 155	3958 156	4028 159	3931 155	3958 156	4028 159
Reach at level lift arm/bucket	mm in	1360 54	1387 55	1457 57	1360 54	1387 55	1457 57	1360 54	1387 55	1457 57
Maximum floor angle at minimum lift	degrees	25.3°	25.3°	25.3°	25.3°	25.3°	25.3°	25.3°	25.3°	25.3°
Dig depth with level bucket	mm in	3 0.1	19 0.7	4 0.2	3 0.1	19 0.7	4 0.2	3 0.1	19 0.7	4 0.2
Overall length with bucket on ground	mm in	3494 138	3522 139	3591 141	3494 138	3522 139	3591 141	3494 138	3522 139	3591 141
Front clearance circle radius (w/bucket)	mm in	2182 86	2214 87	2249 89	2211 87	2243 88	2276 90	2242 88	2273 89	2303 91
Tipping load	kg lb	1607 3543	1560 3440	1592 3510	1586 3497	1530 3374	1566 3453	1568 3457	1509 3327	1548 3413
Breakout force — lift	kg lb	1573 3469	1529 3370	1559 3438	1557 3433	1508 3325	1541 3398	1542 3400	1490 3286	1526 3365
Breakout force — tilt	kg lb	1630 3594	1538 3391	1618 3569	1617 3566	1516 3344	1599 3527	1608 3546	1508 3324	1593 3513
Operating weight	kg lb	3250 7166	3280 7232	3266 7202	3268 7206	3301 7279	3284 7241	3286 7246	3323 7327	3303 7283

Bucket Type		Dirt					
		1520 mm (60") 12 x 16.5		1680 mm (66") 12 x 16.5		1830 mm (72") 12 x 16.5	
Bucket Width Tire Size		Holes Only	Bolt-on Edge	Holes Only	Bolt-on Edge	Holes Only	Bolt-on Edge
Ground Engaging Type							
Rated bucket capacity	m ³ yd ³	0.34 0.44	0.35 0.46	0.37 0.48	0.38 0.49	0.41 0.54	0.42 0.55
Struck capacity	m ³ yd ³	0.25 0.33	0.25 0.33	0.27 0.35	0.27 0.35	0.29 0.38	0.31 0.41
Width	mm in	1576 62	1586 62	1730 68	1740 69	1883 74	1893 75
Dump clearance at maximum lift/dump	mm in	2281 90	2249 89	2281 90	2249 89	2281 90	2249 89
Reach at maximum lift/dump	mm in	724 29	732 29	724 29	732 29	724 29	732 29
Floor angle at maximum lift/dump	degrees	49.5°	49.5°	49.5°	49.5°	49.5°	49.5°
Floor angle at maximum lift/rack back	degrees	86.9°	86.9°	86.9°	86.9°	86.9°	86.9°
Clearance at maximum lift/level bucket	mm in	2851 112	2835 112	2851 112	2835 112	2851 112	2835 112
Hinge pin height at maximum lift	mm in	3046 120	3046 120	3046 120	3046 120	3046 120	3046 120
Maximum overall height	mm in	3874 153	3901 154	3874 153	3901 154	3874 153	3901 154
Reach at level lift arm/bucket	mm in	1302 51	1330 52	1302 51	1330 52	1302 51	1330 52
Maximum floor angle at minimum lift	degrees	25.4°	25.4°	25.4°	25.4°	25.4°	25.4°
Dig depth with level bucket	mm in	4 0.2	20 0.8	4 0.2	20 0.8	4 0.2	20 0.8
Overall length with bucket on ground	mm in	3437 135	3465 136	3437 135	3465 136	3437 135	3465 136
Front clearance circle radius (w/bucket)	mm in	2137 84	2169 85	2154 85	2185 86	2198 87	2229 88
Tipping load	kg lb	1858 4097	1799 3967	1835 4046	1771 3905	1822 4018	1755 3870
Breakout force — lift	kg lb	1763 3887	1714 3778	1742 3841	1691 3728	1731 3817	1677 3697
Breakout force — tilt	kg lb	1851 4082	1738 3833	1841 4059	1726 3805	1834 4045	1715 3782
Operating weight	kg lb	3060 6747	3090 6813	3085 6802	3118 6875	3098 6831	3134 6910

Work Tool		Pallet Fork		
		910 mm (36")	1070 mm (42")	1220 mm (48")
Tine Length		910 mm (36")	1070 mm (42")	1220 mm (48")
Tire Size		12 x 16.5	12 x 16.5	12 x 16.5
Carriage overall width without step	mm	1157	1157	1157
	in	45	45	45
Carriage step additional width	mm	108	108	108
	in	4.25	4.25	4.25
Carriage height above blade top	mm	924	924	924
	in	36.4	36.4	36.4
Blade surface height at maximum height	mm	2931	2931	2931
	in	115.4	115.4	115.4
Shank front face reach at maximum height	mm	624	624	624
	in	24.6	24.6	24.6
Blade surface height at level lift arms	mm	1526	1526	1526
	in	60.1	60.1	60.1
Shank front face reach at level lift arms	mm	762	762	762
	in	30.0	30.0	30.0
Blade surface height at minimum lift	mm	76	76	76
	in	3.0	3.0	3.0
Shank front face reach at minimum lift	mm	468	468	468
	in	18.4	18.4	18.4
Overall length at minimum lift, level tine	mm	3346	3506	3656
	in	131.7	138.0	143.9
Tipping load	kg	1362	1287	1221
	lb	3003	2838	2692
Operating weight	kg	3101	3111	3121
	lb	6838	6860	6882

Bucket Type		General Purpose						Multi-Purpose	
		1680 mm (66") 12 x 16.5			1830 mm (72") 12 x 16.5			1680 mm (66") 12 x 16.5	
Bucket Width Tire Size		Holes Only	Bolt-on Edge	Bolt-on Teeth	Holes Only	Bolt-on Edge	Bolt-on Teeth	Holes Only	Bolt-on Edge
Ground Engaging Type									
Rated bucket capacity	m ³ yd ³	0.40 0.52	0.40 0.52	0.41 0.53	0.44 0.57	0.44 0.57	0.45 0.59	0.33 0.43	0.33 0.43
Struck capacity	m ³ yd ³	0.29 0.38	0.29 0.38	0.29 0.38	0.32 0.42	0.32 0.42	0.32 0.42	0.24 0.31	0.25 0.33
Width	mm in	1730 68	1740 68	1730 68	1883 74	1893 75	1883 74	1749 69	1749 69
Dump clearance at maximum lift/dump	mm in	2360 92.9	2331 91.8	2299 90.5	2360 92.9	2331 91.8	2299 90.5	2356 92.8	2326 91.6
Reach at maximum lift/dump	mm in	587 23.1	593 23.3	655 25.8	581 22.9	594 23.4	656 25.8	591 23.3	605 23.8
Floor angle at maximum lift/dump	degrees	39.9°	39.9°	39.9°	39.9°	39.9°	39.9°	40.1°	40.1°
Floor angle at maximum lift/rack back	degrees	97.3°	97.3°	97.3°	97.3°	97.3°	97.3°	97.2°	97.2°
Clearance at maximum lift/level bucket	mm in	2904 114.3	2887 113.7	2902 114.3	2904 114.3	2887 113.7	2902 114.3	2905 114.4	2889 113.7
Hinge pin height at maximum lift	mm in	3098 122.0	3227 127.0	3227 127.0	3227 127.0	3227 127.0	3227 127.0	3227 127.0	3227 127.0
Maximum overall height	mm in	4014 158.0	4042 159.1	4112 161.9	4014 158.0	4042 159.1	4111 161.9	4019 158.2	4046 159.3
Reach at level lift arm/bucket	mm in	1409 55.5	1438 56.6	1507 59.3	1409 55.5	1439 56.7	1508 59.4	1419 55.9	1449 57.0
Maximum floor angle at minimum lift	degrees	27.9°	27.9°	27.9°	27.9°	27.9°	27.9°	27.3°	27.3°
Dig depth with level bucket	mm in	0 0	16 0.63	1 0.04	0 0	16 0.63	1 0.04	0 0	16 0.63
Overall length with bucket on ground	mm in	3568 140.5	3596 141.6	3666 144.3	3568 140.5	3596 141.6	3666 144.3	3572 140.6	3600 141.7
Front clearance circle radius (w/bucket)	mm in	2134 84.0	2165 85.2	2198 86.5	2166 85.3	2197 86.5	2226 87.6	2136 84.1	2168 85.4
Tipping load	236B kg lb	1690 3726	1634 3603	1668 3678	1682 3709	1622 3577	1660 3660	1544 3405	1490 3285
	246B kg lb	1767 3896	1710 3771	1745 3848	1758 3876	1698 3744	1737 3830	1620 3572	1565 3451
	248B kg lb	1772 3907	1715 3782	1750 3859	1764 3890	1703 3755	1742 3841	1625 3583	1570 3462
Breakout force — lift	236B kg lb	2032 4481	1976 4357	2016 4445	2025 4465	1968 4339	2009 4430	1919 4231	1864 4110
	246B kg lb	2032 4481	1976 4357	2016 4445	2025 4465	1968 4339	2009 4430	1919 4231	1864 4110
	248B kg lb	2004 4419	1949 4298	1988 4384	1998 4406	1940 4278	1982 4370	1891 4170	1837 4051
Breakout force — tilt	236B kg lb	2303 5078	2178 4802	2286 5041	2299 5069	2173 4791	2284 5036	2226 4908	2105 4642
	246B kg lb	2303 5078	2178 4802	2286 5041	2299 5069	2173 4791	2284 5036	2226 4908	2105 4642
	248B kg lb	2303 5078	2178 4802	2286 5041	2299 5069	2173 4791	2284 5036	2226 4908	2105 4642
Operating weight	236B kg lb	3228 7118	3261 7191	3244 7153	3236 7135	3271 7213	3252 7171	3361 7411	3394 7484
	246B kg lb	3289 7252	3322 7325	3305 7288	3297 7270	3332 7347	3313 7305	3422 7546	3455 7618
	248B kg lb	3370 7431	3403 7504	3387 7468	3378 7448	3414 7528	3394 7484	3503 7724	3536 7797

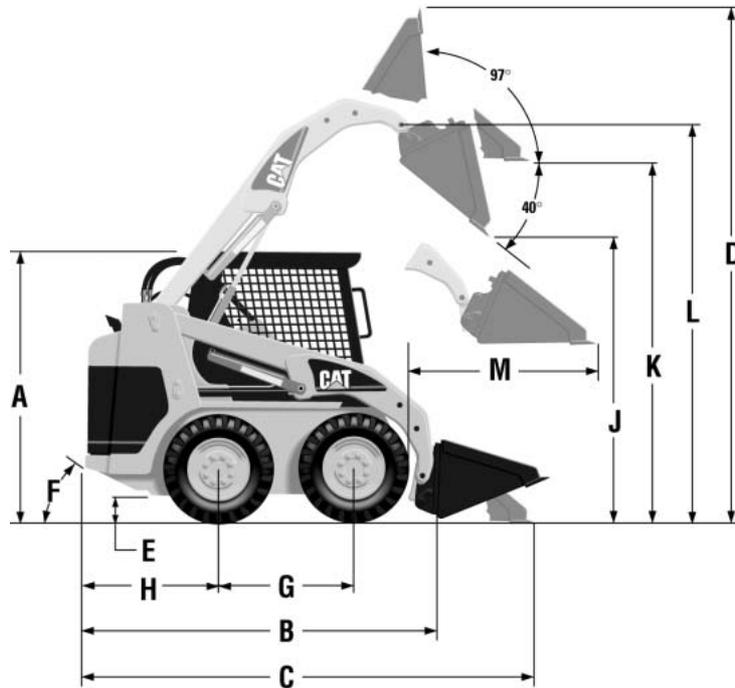
Bucket Type		Multi-Purpose				Dirt			
Bucket Width		1680 mm (66")	1830 mm (72")			1520 mm (60")		1680 mm (66")	
Tire Size		12 x 16.5	12 x 16.5			12 x 16.5		12 x 16.5	
Ground Engaging Type		Bolt-on Teeth	Holes Only	Bolt-on Edge	Bolt-on Teeth	Holes Only	Bolt-on Edge	Holes Only	Bolt-on Edge
Rated bucket capacity	m ³ yd ³	0.34 0.44	0.37 0.48	0.37 0.48	0.37 0.48	0.34 0.44	0.35 0.46	0.37 0.48	0.38 0.49
Struck capacity	m ³ yd ³	0.24 0.31	0.27 0.35	0.28 0.36	0.27 0.35	0.25 0.33	0.25 0.33	0.27 0.35	0.27 0.35
Width	mm in	1749 69	1902 75	1902 75	1902 75	1576 62	1586 62	1730 68	1740 69
Dump clearance at maximum lift/dump	mm in	2292 90.2	2356 92.8	2326 91.6	2292 90.2	2398 94.4	2369 93.3	2398 94.4	2369 93.3
Reach at maximum lift/dump	mm in	665 26.2	591 23.3	605 23.8	665 26.2	540 21.3	554 21.8	541 21.3	555 21.9
Floor angle at maximum lift/dump	degrees	40.1°	40.1°	40.1°	40.1°	39.9°	39.9°	39.9°	39.9°
Floor angle at maximum lift/rack back	degrees	97.2°	97.2°	97.2°	97.2°	97.4°	97.4°	97.4°	97.4°
Clearance at maximum lift/level bucket	mm in	2902 114.3	2904 114.3	2889 113.7	2902 114.3	2908 114.5	2893 113.9	2908 114.5	2892 113.9
Hinge pin height at maximum lift	mm in	3227 127.0	3227 127.0	3227 127.0	3227 127.0	3227 127.0	3227 127.0	3227 127.0	3227 127.0
Maximum overall height	mm in	4116 162.0	4018 158.2	4046 159.3	4116 162.0	3965 156.1	3992 157.2	3965 156.1	3992 157.2
Reach at level lift arm/bucket	mm in	1518 59.8	1420 55.9	1449 57.0	1518 59.8	1356 53.4	1385 54.5	1357 53.4	1386 54.6
Maximum floor angle at minimum lift	degrees	27.3°	27.3°	27.3°	27.3°	28°	28°	28°	28°
Dig depth with level bucket	mm in	1 0.04	0 0	16 0.63	1 0.04	0 0	16 0.63	0 0	16 0.63
Overall length with bucket on ground	mm in	3670 144.5	3572 140.6	3600 141.7	3670 144.5	3515 138.4	3543 139.5	3515 138.4	3543 139.5
Front clearance circle radius (w/bucket)	mm in	2200 86.6	2168 85.4	2200 86.6	2229 87.8	2067 81.4	2094 82.4	2097 82.6	2125 83.7
Tipping load	236B kg lb	1525 3363	1526 3365	1470 3241	1506 3321	1811 3993	1754 3868	1787 3940	1727 3808
	246B kg lb	1600 3528	1602 3532	1544 3405	1582 3488	1889 4165	1832 4040	1866 4115	1804 3978
	248B kg lb	1605 3539	1607 3543	1549 3416	1587 3499	1894 4176	1837 4051	1871 4126	1809 3989
Breakout force — lift	236B kg lb	1902 4194	1903 4196	1847 4073	1888 4163	2132 4701	2078 4582	2112 4657	2055 4531
	246B kg lb	1902 4194	1903 4196	1847 4073	1888 4163	2132 4701	2078 4582	2112 4657	2055 4531
	248B kg lb	1875 4134	1876 4137	1820 4013	1860 4101	2104 4639	2050 4520	2083 4593	2027 4470
Breakout force — tilt	236B kg lb	2210 4873	2217 4888	2097 4624	2204 4860	2497 5506	2361 5206	2487 5484	2349 5180
	246B kg lb	2210 4873	2217 4888	2097 4624	2204 4860	2497 5506	2361 5206	2487 5484	2349 5180
	248B kg lb	2210 4873	2217 4888	2097 4624	2204 4860	2497 5506	2361 5206	2487 5484	2349 5180
Operating weight	236B kg lb	3377 7446	3379 7451	3415 7530	3396 7488	3153 6952	3183 7019	3178 7007	3211 7080
	246B kg lb	3438 7581	3440 7585	3476 7665	3457 7623	3214 7087	3244 7153	3239 7142	3272 7215
	248B kg lb	3520 7762	3522 7766	3558 7845	3538 7801	3295 7265	3325 7332	3320 7321	3353 7393

Work Tool		Pallet Fork			
		910 mm (36")	1070 mm (42")	1220 mm (48")	
Tine Length					
Tire Size		12 x 16.5	12 x 16.5	12 x 16.5	
Carriage overall width without step	mm	1157	1157	1157	
	in	45	45	45	
Carriage step additional width	mm	108	108	108	
	in	4.25	4.25	4.25	
Carriage height above blade top	mm	923.5	923.5	923.5	
	in	36.4	36.4	36.4	
Blade surface height at maximum height	mm	2969	2969	2969	
	in	116	116	116	
Shank front face reach at maximum height	mm	271	271	271	
	in	10.7	10.7	10.7	
Blade surface height at level lift arms	mm	1494	1494	1494	
	in	58	58	58	
Shank front face reach at level lift arms	mm	762	762	762	
	in	30	30	30	
Blade surface height at minimum lift	mm	71	71	71	
	in	2.8	2.8	2.8	
Shank front face reach at minimum lift	mm	339	339	339	
	in	13	13	13	
Overall length at minimum lift, level tine	mm	3884	4044	4194	
	in	152.9	159.2	165.1	
Tipping load	236B	kg	1343	1272	1211
		lb	2961	2805	2670
	246B	kg	1403	1330	1267
		lb	3094	2933	2794
	248B	kg	1408	1334	1270
		lb	3105	2941	2800
Operating weight	236B	kg	3194	3204	3214
		lb	7043	7065	7087
	246B	kg	3255	3265	3275
		lb	7177	7199	7221
	248B	kg	3336	3346	3356
		lb	7356	7378	7400

Bucket Type		General Purpose						Multi-Purpose		
		1680 mm (66") 12 x 16.5			1830 mm (72") 12 x 16.5			1680 mm (66") 12 x 16.5		
Bucket Width	Tire Size	Holes Only	Bolt-on Edge	Bolt-on Teeth	Holes Only	Bolt-on Edge	Bolt-on Teeth	Holes Only	Bolt-on Edge	
Ground Engaging Type										
Rated bucket capacity	m ³ yd ³	0.40 0.52	0.40 0.52	0.41 0.53	0.44 0.57	0.44 0.57	0.45 0.59	0.33 0.43	0.33 0.43	
Struck capacity	m ³ yd ³	0.29 0.38	0.29 0.38	0.29 0.38	0.32 0.42	0.32 0.42	0.32 0.42	0.24 0.31	0.25 0.33	
Width	mm in	1730 68	1740 68	1730 68	1883 74	1893 75	1883 74	1749 69	1749 69	
Dump clearance at maximum lift/dump	mm in	2439 96.0	2394 94.3	2318 91.3	2439 96.0	2394 94.3	2318 91.3	2435 95.9	2392 94.2	
Reach at maximum lift/dump	mm in	769 30.3	780 30.7	841 33.1	769 30.3	780 30.7	841 33.1	773 30.4	784 30.9	
Floor angle at maximum lift/dump	degrees	51°	51°	51°	51°	51°	51°	51°	51°	
Floor angle at maximum lift/rack back	degrees	87°	87°	87°	87°	87°	87°	87°	87°	
Clearance at maximum lift/level bucket	mm in	3039 119.6	3032 119.4	3031 119.3	3039 119.6	3032 119.4	3031 119.3	3039 119.6	3032 119.4	
Hinge pin height at maximum lift	mm in	3227 127	3227 127	3227 127	3227 127	3227 127	3227 127	3227 127	3227 127	
Maximum overall height	mm in	4091 161.1	4131 162.6	4229 166.5	4091 161.1	4131 162.6	4229 166.5	4096 161.3	4135 162.8	
Reach at level lift arm/bucket	mm in	1290 50.8	1331 52.4	1429 56.3	1290 50.8	1331 52.4	1429 56.3	1295 51	1335 52.3	
Maximum floor angle at minimum lift	degrees	27°	27°	27°	27°	27°	27°	27°	27°	
Dig depth with level bucket	mm in	0 0	16 0.63	1 0.04	0 0	16 0.63	1 0.04	0 0	16 0.63	
Overall length with bucket on ground	mm in	3628 142.8	3669 144.4	3767 148.3	3628 142.8	3669 144.4	3767 148.3	3633 143	3673 144.6	
Front clearance circle radius (w/bucket)	mm in	2187 86.1	2234 88	2298 90.5	2217 87.3	2264 89.1	2325 91.5	2191 86.3	2236 88	
Tipping load	252B	kg lb	2370 5226	2305 5083	2350 5182	2364 5213	2299 5069	2342 5164	2217 4888	2158 4758
	262B	kg lb	2370 5226	2305 5083	2350 5182	2364 5213	2299 5069	2342 5164	2217 4888	2158 4758
	268B	kg lb	2385 5259	2323 5122	2363 5210	2377 5241	2311 5096	2354 5191	2229 4915	2170 4785
Breakout force — lift	252B	kg lb	2303 5078	2247 4955	2287 5043	2296 5063	2238 4935	2280 5027	2187 4822	2133 4703
	262B	kg lb	2303 5078	2247 4955	2287 5043	2296 5063	2238 4935	2280 5027	2187 4822	2133 4703
	268B	kg lb	2285 5038	2229 4915	2269 5003	2278 5023	2220 4895	2263 4990	2170 4785	2115 4664
Breakout force — tilt	252B	kg lb	2317 5109	2189 4827	2299 5069	2312 5098	2183 4814	2296 5063	2233 4924	2110 4653
	262B	kg lb	2317 5109	2189 4827	2299 5069	2312 5098	2183 4814	2296 5063	2233 4924	2110 4653
	268B	kg lb	2317 5109	2189 4827	2299 5069	2312 5098	2183 4814	2296 5063	2233 4924	2110 4653
Operating weight	252B	kg lb	3603 7945	3635 8015	3619 7980	3610 7960	3646 8039	3627 7998	3735 8236	3768 8308
	262B	kg lb	3603 7945	3635 8015	3619 7980	3610 7960	3646 8039	3627 7998	3735 8236	3768 8308
	268B	kg lb	3662 8075	3695 8147	3679 8112	3670 8092	3706 8172	3686 8128	3795 8368	3828 8441

Bucket Type		Multi-Purpose				Dirt			
Bucket Width		1680 mm (66")	1830 mm (72")			1520 mm (60")		1680 mm (66")	
Tire Size		12 x 16.5	12 x 16.5			12 x 16.5		12 x 16.5	
Ground Engaging Type		Bolt-on Teeth	Holes Only	Bolt-on Edge	Bolt-on Teeth	Holes Only	Bolt-on Edge	Holes Only	Bolt-on Edge
Rated bucket capacity	m ³ yd ³	0.34 0.44	0.37 0.48	0.37 0.48	0.37 0.48	0.34 0.44	0.35 0.46	0.37 0.48	0.38 0.49
Struck capacity	m ³ yd ³	0.24 0.31	0.27 0.35	0.28 0.36	0.27 0.35	0.25 0.33	0.25 0.33	0.27 0.35	0.27 0.35
Width	mm in	1749 69	1902 75	1902 75	1902 75	1576 62	1586 62	1730 68	1740 69
Dump clearance at maximum lift/dump	mm in	2316 91.2	2435 95.9	2392 94.2	2316 91.2	2435 95.9	2403 94.6	2435 95.9	2403 94.6
Reach at maximum lift/dump	mm in	845 33.3	773 30.4	784 30.9	845 33.3	746 29.4	752 29.6	746 29.4	752 29.6
Floor angle at maximum lift/dump	degrees	51°	51°	51°	51°	51°	51°	51°	51°
Floor angle at maximum lift/rack back	degrees	87°	87°	87°	87°	87°	87°	87°	87°
Clearance at maximum lift/level bucket	mm in	3031 119.3	3039 119.6	3032 119.4	3031 119.3	3039 119.6	3032 119.4	3039 119.6	3032 119.4
Hinge pin height at maximum lift	mm in	3227 127	3227 127	3227 127	3227 127	3227 127	3227 127	3227 127	3227 127
Maximum overall height	mm in	4232 166.6	4096 161.3	4136 162.8	4232 166.6	4078 160.6	4105 161.6	4078 160.6	4105 161.6
Reach at level lift arm/bucket	mm in	1433 56.4	1295 51	1335 52.3	1433 56.4	1630 64.2	1587 65.5	1603 64.2	1587 65.5
Maximum floor angle at minimum lift	degrees	27°	27°	27°	27°	27°	27°	27°	27°
Dig depth with level bucket	mm in	1 0.04	0 0	16 0.63	1 0.04	0 0	16 0.63	0 0	16 0.63
Overall length with bucket on ground	mm in	3771 148.5	3633 143	3673 144.6	3771 148.5	3616 142.4	3644 143.5	3616 142.4	3644 143.5
Front clearance circle radius (w/bucket)	mm in	2301 90.6	2222 87.5	2267 89.3	2328 91.7	2161 85.1	2193 86.3	2190 86.2	2222 87.5
Tipping load	252B kg lb	2198 4847	2199 4849	2137 4712	2179 4805	2510 5535	2446 5393	2487 5484	2419 5334
	262B kg lb	2198 4847	2199 4849	2137 4712	2179 4805	2510 5535	2446 5393	2487 5484	2419 5334
	268B kg lb	2210 4873	2211 4875	2149 4739	2192 4833	2524 5565	2460 5424	2501 5515	2432 5363
Breakout force — lift	252B kg lb	2171 4787	2172 4789	2115 4664	2156 4754	2404 5301	2349 5180	2383 5255	2326 5129
	262B kg lb	2171 4787	2172 4789	2115 4664	2156 4754	2404 5301	2349 5180	2383 5255	2326 5129
	268B kg lb	2154 4750	2155 4752	2098 4626	2139 4716	2386 5261	2332 5142	2366 5217	2309 5091
Breakout force — tilt	252B kg lb	2216 4886	2225 4906	2101 4633	2209 4871	2515 5546	2375 5237	2504 5521	2362 5208
	262B kg lb	2216 4886	2225 4906	2101 4633	2209 4871	2515 5546	2375 5237	2504 5521	2362 5208
	268B kg lb	2216 4886	2225 4906	2101 4633	2209 4871	2515 5546	2375 5237	2504 5521	2362 5208
Operating weight	252B kg lb	3751 8271	3753 8275	3790 8357	3770 8313	3527 7777	3557 7843	3552 7832	3585 7905
	262B kg lb	3751 8271	3753 8275	3790 8357	3770 8313	3527 7777	3557 7843	3552 7832	3585 7905
	268B kg lb	3811 8403	3814 8410	3850 8489	3830 8445	3587 7909	3617 7975	3612 7964	3645 8037

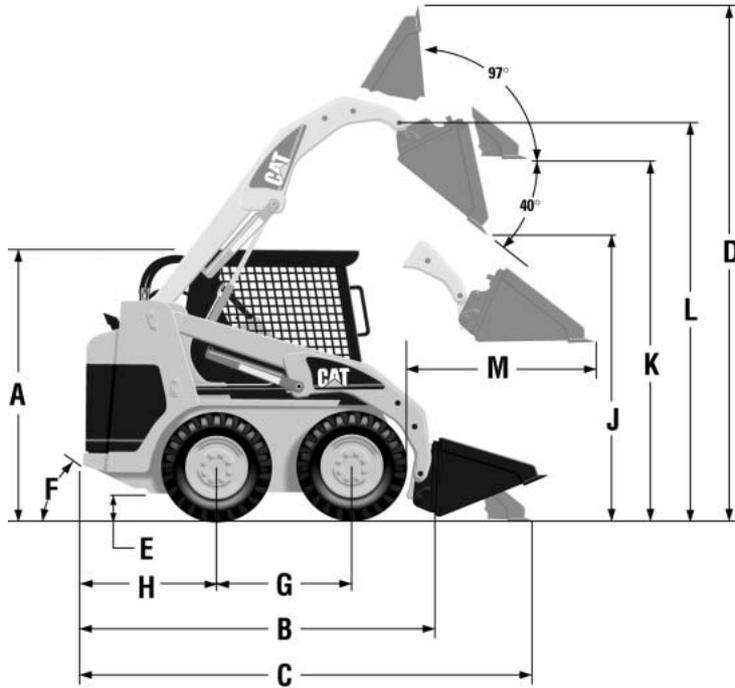
Work Tool		Pallet Fork			
		910 mm (36")	1070 mm (42")	1220 mm (48")	
Tine Length					
Tire Size		12 x 16.5	12 x 16.5	12 x 16.5	
Carriage overall width without step	mm	1157	1157	1157	
	in	45	45	45	
Carriage step additional width	mm	108	108	108	
	in	4.25	4.25	4.25	
Carriage height above blade top	mm	923.5	923.5	923.5	
	in	36.4	36.4	36.4	
Blade surface height at maximum height	mm	3124	3124	3124	
	in	123	123	123	
Shank front face reach at maximum height	mm	671	671	671	
	in	26.4	26.4	26.4	
Blade surface height at level lift arms	mm	1695	1695	1695	
	in	66.7	66.7	66.7	
Shank front face reach at level lift arms	mm	737	737	737	
	in	29	29	29	
Blade surface height at minimum lift	mm	79	79	79	
	in	3.1	3.1	3.1	
Shank front face reach at minimum lift	mm	387	387	387	
	in	15.2	15.2	15.2	
Overall length at minimum lift, level tine	mm	3985	4145	4295	
	in	156.9	163.2	169.1	
Tipping load	252B	kg	1885	1787	1703
		lb	4156	3940	3755
	262B	kg	1885	1787	1703
		lb	4156	3940	3755
	268B	kg	1888	1790	1706
		lb	4163	3947	3762
Operating weight	252B	kg	3568	3578	3588
		lb	7867	7889	7912
	262B	kg	3568	3578	3588
		lb	7867	7889	7912
	268B	kg	3628	3638	3648
		lb	8000	8022	8044



MODEL	216B		226B		232B	
Rated operating capacity*	635 kg	1400 lb	680 kg	1500 lb	793 kg	1750 lb
A Height to top of ROPS	1950 mm	6'5"	1950 mm	6'5"	1950 mm	6'5"
B Length to coupler	2519 mm	8'3"	2519 mm	8'3"	2760 mm	9'1"
C Length with bucket on ground	3233 mm	10'7"	3233 mm	10'7"	3437 mm	11'3"
D Maximum overall height	3709 mm	12'2"	3709 mm	12'2"	3894 mm	12'9"
E Ground clearance	195 mm	8"	195 mm	8"	145 mm	5.7"
F Departure angle		26°		26°		28°
G Wheelbase	986 mm	3'3"	986 mm	3'3"	1094 mm	3'7"
H Bumper overhang from axle	967 mm	3'2"	967 mm	3'2"	989 mm	3'3"
Bucket overall width	1524 mm	5'2"	1524 mm	5'2"	1524 mm	5'2"
J Clearance at maximum lift/dump	2169 mm	7'1"	2169 mm	7'1"	2281 mm	7'6"
Floor angle at maximum lift/dump		39.9°		39.9°		49.5°
Floor angle at maximum lift/rack		96.7°		96.7°		96.7°
K Clearance at maximum lift/level	2661 mm	8'9"	2661 mm	8'9"	2851 mm	9'4"
L Hinge pin height at maximum lift	2854 mm	9'4"	2854 mm	9'4"	3013 mm	9'11"
M Reach at level lift arm/bucket	1280 mm	4'2"	1280 mm	4'2"	1356 mm	4'5"
Hinge pin height at carry position	236 mm	8"	236 mm	8"	247 mm	9.7"
Maximum floor angle at carry position		27.7°		27.7°		28.1°

*SAE J818 MAY87, ISO 5998:1986.

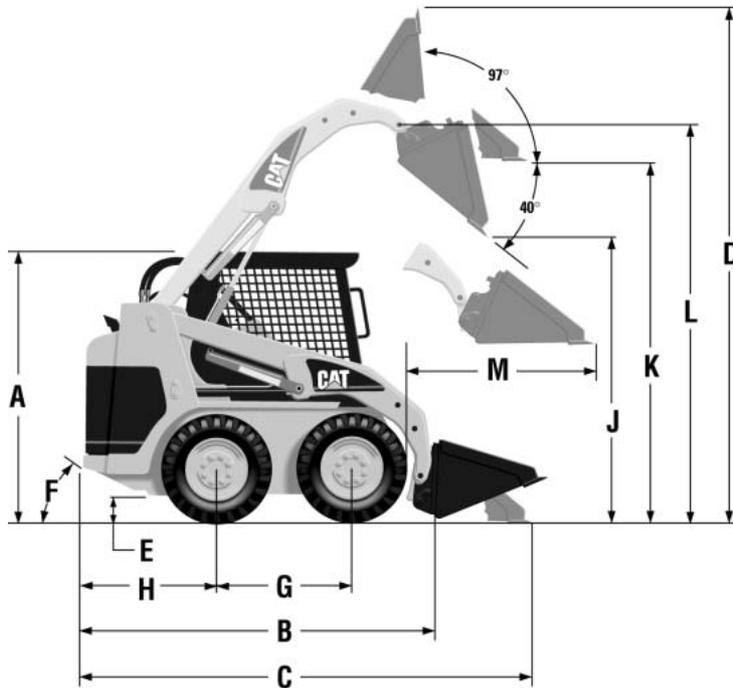
NOTE: 216B/226B machine dimensions shown with standard machine equipped with optional 10 x 16.5 10 PR tires and 1520 mm (60") dirt bucket.
232B machine dimensions shown with standard machine equipped with optional 12 x 16.5 10 PR tires and 1730 mm (66") dirt bucket.



MODEL	236B		242B		246B	
Rated operating capacity*	793 kg	1750 lb	907 kg	2000 lb	907 kg	2000 lb
A Height to top of ROPS	2092 mm	6'10"	1986 mm	6'6"	2092 mm	6'10"
B Length to coupler	2800 mm	9'2"	2760 mm	9'1"	2800 mm	9'2"
C Length with bucket on ground	3515 mm	11'6"	3437 mm	11'3"	3515 mm	11'6"
D Maximum overall height	3965 mm	13'0"	3927 mm	12'11"	3965 mm	13'0"
E Ground clearance	235 mm	9"	185 mm	7.3"	235 mm	9"
F Departure angle		28°		28°		28°
G Wheelbase	1134 mm	3'9"	1094 mm	3'7"	1134 mm	3'9"
H Bumper overhang from axle	1038 mm	3'5"	989 mm	3'3"	1038 mm	3'5"
Bucket overall width	1730 mm	5'8"	1524 mm	5'2"	1730 mm	5'8"
J Clearance at maximum lift/dump	2398 mm	7'10"	2281 mm	7'6"	2398 mm	7'10"
Floor angle at maximum lift/dump		39.9°		49.5°		39.9°
Floor angle at maximum lift/rack		97.4°		96.7°		97.4°
K Clearance at maximum lift/level	2908 mm	9'6"	2851 mm	9'4"	2908 mm	9'6"
L Hinge pin height at maximum lift	3099 mm	10'2"	3046 mm	10'0"	3099 mm	10'2"
M Reach at level lift arm/bucket	1357 mm	4'5"	1356 mm	4'5"	1357 mm	4'5"
Hinge pin height at carry position	257 mm	10"	300 mm	11.8"	257 mm	10"
Maximum floor angle at carry position		29.4°		28.1°		29.4°

*SAE J818 MAY87, ISO 5998:1986.

NOTE: 236B/242B/246B machine dimensions shown with standard machine equipped with optional 12 x 16.5 10 PR tires and 1730 mm (66") dirt bucket.



MODEL	248B		252B		262B		268B	
Rated operating capacity*	907 kg	2000 lb	1134 kg	2500 lb	1225 kg	2700 lb	1225 kg	2700 lb
A Height to top of ROPS	2092 mm	6'10"	2080 mm	6'8"	2080 mm	6'8"	2080 mm	6'8"
B Length to coupler	2800 mm	9'2"	2910 mm	9'5"	2910 mm	9'5"	2910 mm	9'5"
C Length with bucket on ground	3515 mm	11'6"	3616 mm	11'9"	3616 mm	11'9"	3616 mm	11'9"
D Maximum overall height	3965 mm	13'0"	4078 mm	13'4"	4078 mm	13'4"	4078 mm	13'4"
E Ground clearance	235 mm	9"	196 mm	8"	196 mm	8"	196 mm	8"
F Departure angle	28°		27°		27°		27°	
G Wheelbase	1134 mm	3'9"	1228 mm	4'0"	1228 mm	4'0"	1228 mm	4'0"
H Bumper overhang from axle	1038 mm	3'5"	1043 mm	3'4"	1043 mm	3'4"	1043 mm	3'4"
Bucket overall width	1730 mm	5'8"	1730 mm	5'8"	1730 mm	5'8"	1730 mm	5'8"
J Clearance at maximum lift/dump	2398 mm	7'10"	2435 mm	8'0"	2435 mm	8'0"	2435 mm	8'0"
Floor angle at maximum lift/dump	39.9°		51°		51°		51°	
Floor angle at maximum lift/rack	97.4°		87°		87°		87°	
K Clearance at maximum lift/level	2908 mm	9'6"	3039 mm	10'0"	3039 mm	10'0"	3039 mm	10'0"
L Hinge pin height at maximum lift	3099 mm	10'2"	3227 mm	10'6"	3227 mm	10'6"	3227 mm	10'6"
M Reach at level lift arm/bucket	1357 mm	4'5"	1603 mm	5'4"	1603 mm	5'4"	1603 mm	5'4"
Hinge pin height at carry position	257 mm	10"	213 mm	8"	213 mm	8"	213 mm	8"
Maximum floor angle at carry position	29.4°		27°		27°		27°	

*SAE J818 MAY87, ISO 5998:1986.

NOTE: 248B/252B/262B/268B machine dimensions shown with standard machine equipped with optional 12 x 16.5 10 PR tires and 1730 mm (66") dirt bucket.

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Features:

- **Caterpillar engines** provide high horsepower and torque. Closed circuit breather, glow plug starting aid, ecology drain and S•O•S oil sampling ports standard.
- **Ergonomically designed cab** provides maximum operator comfort and visibility.
- **Low effort**, pilot hydraulic joystick controls, arm-rest and retractable seat belt for easy operation.
- **Deep skid resistant steps** and two tilt cylinders makes egress/ingress easy.
- **Hand and foot throttle** for continuous or variable engine speed.
- **Exclusive anti-stall feature** provides maximum rimpull and hydraulic power while lugging the engine.
- **High hydraulic horsepower** gets work done quickly.
- **Direct drive hystat pumps** eliminate universal joints and belts.
- **Tilt-up cooling package** provides access to engine compartment.
- **Long life coolant** and extended hour service intervals for low operating costs.
- **Single engine belt** drives alternator and water pump.
- **Deutsch connectors** are color coded, numbered and protected with nylon braiding.
- **Electro-depositioned** or “E” coat corrosion protection for long life.
- **High flow hydraulics** optional on 257B.

Skid Steer Loaders Multi Terrain

Specifications ● 247B/257B/267B



MODEL	247B		257B		267B	
Flywheel Power: Net	42.5 kW	57 hp	42.5 kW	57 hp	51 kW	68 hp
Gross	46 kW	62 hp	46 kW	62 hp	53 kW	71 hp
Engine Model	3024C T		3024C T		3044C DIT	
Rated Engine RPM	3000		3000		2600	
Bore	84 mm	3.3"	84 mm	3.3"	94 mm	3.7"
Stroke	100 mm	3.9"	100 mm	3.9"	120 mm	4.7"
Displacement	2.2 L	134 in ³	2.2 L	134 in ³	3.3 L	201 in ³
No. Cylinders	4		4		4	
Speeds Forward						
Infinite	0-12.0 kph	0-7.4 mph	0-11.2 kph	0-6.9 mph	0-9.7 kph	0-6.0 mph
Speeds Reverse						
Infinite	0-12.0 kph	0-7.4 mph	0-11.2 kph	0-6.9 mph	0-9.7 kph	0-6.0 mph
Hydraulic Cycle Time, Empty Bucket:	Seconds		Seconds		Seconds	
Raise	2.7		3.0		2.7	
Dump	2.2		2.2		2.2	
Lower (Empty, Float Down)	2.8		3.0		2.8	
Total	7.7		8.2		7.7	
Tread Width (per side)	381 mm	15"	381 mm	15"	457 mm	18"
Width Over Tracks	1676 mm	5'6"	1676 mm	5'6"	1898 mm	6'3"
Ground Clearance	267 mm	10"	257 mm	10"	353 mm	14"
Fuel Tank Capacity	62 L	17 U.S. gal	90 L	23.8 U.S. gal	82 L	21.7 U.S. gal
Hydraulic Tank Capacity	35 L	9.2 U.S. gal	35 L	9.2 U.S. gal	35 L	9.2 U.S. gal
Hydraulic System Capacity (includes tank)	55 L	14.5 U.S. gal	55 L	14.5 U.S. gal	52 L	13.7 U.S. gal
Hydraulic Pump Capacity	60 L/min	15.6 gpm	60 L/min	15.6 gpm	82 L/min	22 gpm

Specifications
● 277B/287B

Skid Steer Loaders
Multi Terrain



MODEL

277B

287B

Flywheel Power: Net	57 kW	76 hp	57 kW	76 hp
Gross	60 kW	80 hp	60 kW	80 hp
Engine Model	3044C DIT		3044C DIT	
Rated Engine RPM	2600		2600	
Bore	94 mm	3.7"	94 mm	3.7"
Stroke	120 mm	4.7"	120 mm	4.7"
Displacement	3.3 L	201 in ³	3.3 L	201 in ³
No. Cylinders	4		4	
Speeds Forward				
Infinite	0-9.7 kph	0-6.0 mph	0-11.0 kph	0-7.0 mph
Speeds Reverse				
Infinite	0-9.7 kph	0-6.0 mph	0-11.0 kph	0-7.0 mph
Hydraulic Cycle Time, Empty Bucket:	Seconds		Seconds	
Raise	2.7		4.8	
Dump	2.2		2.2	
Lower (Empty, Float Down)	2.8		3.6	
Total	7.7		10.6	
Tread Width (per side)	457 mm	18"	457 mm	18"
Width Over Tracks	1898 mm	6'3"	1982 mm	6'6"
Ground Clearance	353 mm	14"	283 mm	11"
Fuel Tank Capacity	82 L	21.7 U.S. gal	110 L	29 U.S. gal
Hydraulic Tank Capacity	35 L	9.2 U.S. gal	35 L	9.2 U.S. gal
Hydraulic System Capacity (includes tank)	52 L	13.7 U.S. gal	51 L	13.5 U.S. gal
Hydraulic Pump Capacity	82 L/min	22 gpm	82 L/min	22 gpm

Bucket Type		General Purpose						Multi-Purpose	
		1680 mm (66")			1829 mm (72")			1680 mm (66")	
Bucket Width		Holes Only	Bolt-on Edge	Bolt-on Teeth	Holes Only	Bolt-on Edge	Bolt-on Teeth	Holes Only	Bolt-on Edge
Ground Engaging Type									
Rated bucket capacity	m ³ yd ³	0.40 0.52	0.40 0.52	0.41 0.53	0.44 0.57	0.44 0.57	0.45 0.59	0.33 0.43	0.33 0.43
Struck capacity	m ³ yd ³	0.29 0.38	0.29 0.38	0.29 0.38	0.32 0.42	0.32 0.42	0.32 0.42	0.24 0.31	0.25 0.33
Width	mm in	1730 68	1740 68	1730 68	1883 74	1893 75	1883 74	1749 69	1749 69
Dump clearance at maximum lift/dump	mm in	2134 84.0	2101 82.7	2067 81.4	2134 84.0	2101 82.7	2067 81.4	2133 84.0	2103 82.8
Reach at maximum lift/dump	mm in	625 24.6	637 25.1	696 27.4	625 24.6	637 25.1	696 27.4	628 24.7	640 25.2
Floor angle at maximum lift/dump	degrees	40.8°	40.8°	40.8°	40.8°	40.8°	40.8°	40.8°	40.8°
Floor angle at maximum lift/rack back	degrees	95.7°	95.7°	95.7°	95.7°	95.7°	95.7°	95.6°	95.6°
Clearance at maximum lift/level bucket	mm in	2667 105.0	2651 104.4	2666 105.0	2667 105.0	2651 104.4	2666 105.0	2673 105.2	2653 104.4
Hinge pin height at maximum lift	mm in	2862 112.7	2862 112.7	2862 112.7	2862 112.7	2862 112.7	2862 112.7	2862 112.7	2862 112.7
Maximum overall height	mm in	3770 148.4	3799 149.6	3867 152.2	3770 148.4	3799 149.6	3867 152.2	3774 148.6	3804 149.8
Reach at level lift arm/bucket	mm in	1395 54.9	1423 56.0	1493 58.8	1395 54.9	1423 56.0	1493 58.8	1399 55.1	1427 56.2
Maximum floor angle at minimum lift	degrees	25.4°	25.4°	25.4°	25.4°	25.4°	25.4°	25.3°	25.3°
Dig depth with level bucket	mm in	0 0.0	16 0.6	1 0.0	0 0.0	16 0.6	1 0.0	0 0.0	16 0.6
Overall length with bucket on ground	mm in	3285 129.3	3313 130.4	3382 133.1	3285 129.3	3313 130.4	3382 133.1	3289 129.5	3317 130.6
Front clearance circle radius (w/bucket)	mm in	2157 84.9	2189 86.2	2223 87.5	2189 86.2	2221 87.4	2251 88.6	2142 84.3	2174 85.6
Tipping load	kg lb	1772 3907	1715 3782	1750 3859	1764 3890	1703 3755	1742 3841	1624 3581	1569 3460
Breakout force — lift	kg lb	1418 3127	1368 3017	1402 3091	1412 3112	1360 2998	1396 3078	1308 2883	1259 2776
Breakout force — tilt	kg lb	1694 3734	1590 3506	1676 3696	1689 3724	1583 3491	1673 3688	1618 3567	1517 3345
Operating weight	kg lb	3024 6668	3056 6738	3040 6703	3031 6683	3067 6763	3048 6721	3156 6959	3189 7032

Bucket Type	Multi-Purpose				Dirt				
	1680 mm (66")	1829 mm (72")			1680 mm (66")		1829 mm (72")		
Bucket Width									
Ground Engaging Type		Bolt-on Teeth	Holes Only	Bolt-on Edge	Bolt-on Teeth	Holes Only	Bolt-on Edge	Holes Only	Bolt-on Edge
Rated bucket capacity	m ³ yd ³	0.34 0.44	0.37 0.48	0.37 0.48	0.37 0.48	0.37 0.48	0.38 0.49	0.41 0.54	0.42 0.55
Struck capacity	m ³ yd ³	0.24 0.31	0.27 0.35	0.28 0.36	0.27 0.35	0.27 0.35	0.27 0.35	0.29 0.38	0.31 0.41
Width	mm in	1749 69	1902 75	1902 75	1902 75	1730 68	1740 69	1883 74	1893 75
Dump clearance at maximum lift/dump	mm in	2066 81.3	2133 84.0	2103 82.8	2066 81.3	2167 85.3	2138 84.2	2167 85.3	2138 84.2
Reach at maximum lift/dump	mm in	702 27.6	628 24.7	640 25.2	702 27.6	584 23.0	596 23.5	584 23.0	596 23.5
Floor angle at maximum lift/dump	degrees	40.8°	40.8°	40.8°	40.8°	40.8°	40.8°	40.8°	40.8°
Floor angle at maximum lift/rack back	degrees	95.6°	95.6°	95.6°	95.6°	95.7°	95.7°	95.7°	95.7°
Clearance at maximum lift/level bucket	mm in	2668 105.0	2673 105.2	2653 104.4	2668 105.0	2667 105.0	2651 104.4	2667 105.0	2651 104.4
Hinge pin height at maximum lift	mm in	2862 112.7	2862 112.7	2862 112.7	2862 112.7	2862 112.7	2862 112.7	2862 112.7	2862 112.7
Maximum overall height	mm in	3872 152.4	3774 148.6	3804 149.8	3872 152.4	3717 146.3	3746 147.5	3717 146.3	3746 147.5
Reach at level lift arm/bucket	mm in	1497 58.9	1399 55.1	1427 56.2	1497 58.9	1342 52.8	1370 53.9	1342 52.8	1370 53.9
Maximum floor angle at minimum lift	degrees	25.3°	25.3°	25.3°	25.3°	25.4°	25.4°	25.4°	25.4°
Dig depth with level bucket	mm in	1 0.0	0 0.0	16 0.6	1 0.0	0 0.0	13 0.5	0 0.0	13 0.5
Overall length with bucket on ground	mm in	3386 133.3	3289 129.5	3317 130.6	3386 133.3	3232 127.2	3260 128.3	3233 127.3	3261 128.4
Front clearance circle radius (w/bucket)	mm in	2208 86.9	2152 84.7	2183 85.9	2213 87.1	2097 82.6	2128 83.8	2110 83.1	2141 84.3
Tipping load	kg lb	1604 3537	1606 3541	1548 3413	1586 3497	1895 4178	1837 4051	1871 4126	1818 4009
Breakout force — lift	kg lb	1291 2848	1293 2850	1242 2739	1277 2816	1488 3282	1437 3169	1478 3258	1424 3140
Breakout force — tilt	kg lb	1600 3528	1609 3548	1508 3326	1594 3514	1842 4061	1726 3806	1835 4046	1717 3786
Operating weight	kg lb	3173 6996	3175 7001	3211 7080	3192 7038	2948 6500	2978 6566	2973 6555	3006 6628

Work Tool		Pallet Fork		
		910 mm (36")	1070 mm (42")	1220 mm (48")
Tine Length				
Carriage overall width without step	mm	1159	1159	1159
	in	45.6	45.6	45.6
Carriage step additional width	mm	108	108	108
	in	4.3	4.3	4.3
Carriage height above blade top	mm	923.5	923.5	923.5
	in	36.4	36.4	36.4
Blade surface height at maximum height	mm	2754	2754	2754
	in	108.4	108.4	108.4
Shank front face reach at maximum height	mm	373	373	373
	in	14.7	14.7	14.7
Blade surface height at level lift arms	mm	1419	1419	1419
	in	55.9	55.9	55.9
Shank front face reach at level lift arms	mm	802	802	802
	in	31.6	31.6	31.6
Blade surface height at minimum lift	mm	106	106	106
	in	4.2	4.2	4.2
Shank front face reach at minimum lift	mm	392	392	392
	in	15.4	15.4	15.4
Overall length at minimum lift, level tine	mm	3601	3761	3911
	ft/in	11'10"	12'4"	12'10"
Tipping load	kg	1405	1327	1260
	lb	3098	2926	2778
Operating weight	kg	2989	3000	3009
	lb	6591	6615	6635

Bucket Type		General Purpose						Multi-Purpose		
		1680 mm (66")			1829 mm (72")			1680 mm (66")		
Bucket Width		Holes Only	Bolt-on Edge	Bolt-on Teeth	Holes Only	Bolt-on Edge	Bolt-on Teeth	Holes Only	Bolt-on Edge	
Ground Engaging Type	Rated bucket capacity	m ³ yd ³	0.40 0.52	0.40 0.52	0.41 0.53	0.44 0.57	0.44 0.57	0.45 0.59	0.33 0.43	0.33 0.43
	Struck capacity	m ³ yd ³	0.29 0.38	0.29 0.38	0.29 0.38	0.32 0.42	0.32 0.42	0.32 0.42	0.24 0.31	0.25 0.33
Width		mm in	1730 68	1740 68	1730 68	1883 74	1893 75	1883 74	1749 69	1749 69
	Dump clearance at maximum lift/dump	mm in	2278 89.7	2275 89.6	2201 86.7	2275 89.6	2244 88.3	2205 86.8	2274 89.5	2242 88.3
Reach at maximum lift/dump		mm in	790 31.1	797 31.4	853 33.6	790 31.1	798 31.4	854 33.6	793 31.2	801 31.5
	Floor angle at maximum lift/dump	degrees	40.5°	40.5°	40.5°	40.5°	40.5°	40.5°	40.5°	40.5°
Floor angle at maximum lift/rack back		degrees	86.9°	86.9°	86.9°	86.9°	86.9°	86.9°	86.9°	86.9°
	Clearance at maximum lift/level bucket	mm in	2889 113.7	2870 113.0	2885 113.6	2885 113.6	2870 113.0	2885 113.6	2887 113.7	2871 113.0
Hinge pin height at maximum lift		mm in	3081 121.3	3081 121.3	3081 121.3	3081 121.3	3081 121.3	3081 121.3	3081 121.3	3081 121.3
	Maximum overall height	mm in	3963 156.0	3990 157.1	4060 159.8	3963 156.0	3990 157.1	4060 159.8	3966 156.1	3994 157.2
Reach at level lift arm/bucket		mm in	1387 54.6	1415 55.7	1484 58.4	1388 54.6	1416 55.7	1486 58.5	1391 54.8	1419 55.9
	Maximum floor angle at minimum lift	degrees	25.4°	25.4°	25.4°	25.4°	25.4°	25.4°	25.3°	25.3°
Dig depth with level bucket		mm in	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0
	Overall length with bucket on ground	mm in	3490 137.4	3518 138.5	3588 141.3	3491 137.4	3519 138.5	3588 141.3	3494 137.6	3522 138.7
Front clearance circle radius (w/bucket)		mm in	2261 89.0	2293 90.3	2327 91.6	2292 90.2	2323 91.5	2354 92.7	2250 88.6	2282 89.8
	Tipping load	kg lb	2096 4622	2038 4494	2074 4573	2088 4604	2026 4467	2066 4556	1943 4284	1887 4161
Breakout force — lift		kg lb	1670 3683	1620 3572	1654 3648	1664 3668	1611 3552	1648 3634	1557 3434	1508 3325
	Breakout force — tilt	kg lb	1693 3732	1589 3504	1675 3694	1688 3722	1583 3490	1672 3686	1617 3565	1516 3343
Operating weight		kg lb	3428 7559	3461 7632	3444 7594	3436 7576	3471 7654	3452 7612	3561 7852	3594 7925

Bucket Type		Multi-Purpose				Dirt			
		1680 mm (66")	1829 mm (72")			1680 mm (66")		1829 mm (72")	
Bucket Width		Bolt-on Teeth	Holes Only	Bolt-on Edge	Bolt-on Teeth	Holes Only	Bolt-on Edge	Holes Only	Bolt-on Edge
Rated bucket capacity	m ³ yd ³	0.34 0.44	0.37 0.48	0.37 0.48	0.37 0.48	0.37 0.48	0.38 0.49	0.41 0.54	0.42 0.55
Struck capacity	m ³ yd ³	0.24 0.31	0.27 0.35	0.28 0.36	0.27 0.35	0.27 0.35	0.27 0.35	0.29 0.38	0.31 0.41
Width	mm in	1749 69	1902 75	1902 75	1902 75	1730 68	1740 69	1883 74	1893 75
Dump clearance at maximum lift/dump	mm in	2199 86.6	2274 89.5	2242 88.3	2199 86.6	2318 91.3	2288 90.1	2316 91.2	2285 90.0
Reach at maximum lift/dump	mm in	856 33.7	793 31.2	801 31.5	856 33.7	756 29.8	763 30.0	756 29.8	763 30.0
Floor angle at maximum lift/dump	degrees	40.5°	40.5°	40.5°	40.5°	40.5°	40.5°	40.5°	40.5°
Floor angle at maximum lift/rack back	degrees	86.9°	86.9°	86.9°	86.9°	86.9°	86.9°	86.9°	86.9°
Clearance at maximum lift/level bucket	mm in	2886 113.6	2887 113.7	2871 113.0	2886 113.6	2885 113.6	2869 113.0	2885 113.6	2869 113.0
Hinge pin height at maximum lift	mm in	3081 121.3	3081 121.3	3081 121.3	3081 121.3	3081 121.3	3081 121.3	3081 121.3	3081 121.3
Maximum overall height	mm in	4064 160.0	3966 156.1	3994 157.2	4064 160.0	3910 153.9	3937 155.0	3910 153.9	3937 155.0
Reach at level lift arm/bucket	mm in	1489 58.6	1391 54.8	1419 55.9	1489 58.6	1334 52.5	1362 53.6	1334 52.5	1362 53.6
Maximum floor angle at minimum lift	degrees	25.3°	25.3°	25.3°	25.3°	25.4°	25.4°	25.4°	25.4°
Dig depth with level bucket	mm in	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0
Overall length with bucket on ground	mm in	3591 141.4	3494 137.6	3522 138.7	3591 141.4	3437 135.3	3465 136.4	3437 135.3	3465 136.4
Front clearance circle radius (w/bucket)	mm in	2317 91.2	2281 89.8	2312 91.0	2344 92.3	2205 86.8	2237 88.1	2236 88.0	2268 89.3
Tipping load	kg lb	1924 4242	1926 4247	1866 4115	1905 4201	2201 4853	2136 4710	2188 4825	2119 4672
Breakout force — lift	kg lb	1541 3399	1542 3400	1491 3287	1527 3366	1742 3842	1691 3728	1731 3818	1677 3698
Breakout force — tilt	kg lb	1599 3526	1608 3546	1507 3324	1593 3512	1841 4059	1725 3805	1834 4044	1716 3784
Operating weight	kg lb	3577 7887	3579 7892	3615 7971	3596 7929	3378 7448	3411 7521	3391 7477	3427 7557

Work Tool		Pallet Fork		
		910 mm (36")	1070 mm (42")	1220 mm (48")
Tine Length				
Carriage overall width without step	mm in	1159 45.6	1159 45.6	1159 45.6
Carriage step additional width	mm in	108 4.3	108 4.3	108 4.3
Carriage height above blade top	mm in	923.5 36.4	923.5 36.4	923.5 36.4
Blade surface height at maximum height	mm in	2968 116.9	2968 116.9	2988 117.6
Shank front face reach at maximum height	mm in	655 25.8	655 25.8	655 25.8
Blade surface height at level lift arms	mm in	1554 61.2	1554 61.2	1554 61.2
Shank front face reach at level lift arms	mm in	793 31.2	793 31.2	793 31.2
Blade surface height at minimum lift	mm in	112 4.4	112 4.4	112 4.4
Shank front face reach at minimum lift	mm in	500 19.7	500 19.7	500 19.7
Overall length at minimum lift, level tine	mm ft/in	3806 12'6"	3966 13'0"	4116 13'6"
Tipping load	kg lb	1700 3748	1686 3717	1674 3691
Operating weight	kg lb	3394 7484	3404 7506	3414 7528

Bucket Type		General Purpose					
		1829 mm (72")			1981 mm (78")		
Bucket Width		Holes Only	Bolt-on Edge	Bolt-on Teeth	Holes Only	Bolt-on Edge	Bolt-on Teeth
Ground Engaging Type	Rated bucket capacity	m ³ 0.44	0.44	0.45	0.48	0.48	0.48
		yd ³ 0.57	0.57	0.59	0.62	0.62	0.62
Struck capacity		m ³ 0.32	0.32	0.32	0.34	0.34	0.34
		yd ³ 0.42	0.42	0.42	0.44	0.44	0.44
Width		mm 1883	1893	1883	2035	2045	2035
		in 74.1	74.5	74.1	80.1	80.5	80.1
Dump clearance at maximum lift/dump		mm 2345	2315	2282	2346	2313	2284
		in 92.3	91.1	89.8	92.4	91.1	89.9
Reach at maximum lift/dump		mm 676	676	716	676	676	716
		in 26.6	26.6	28.2	26.6	26.6	28.2
Floor angle at maximum lift/dump	degrees	40.6°	40.6°	40.6°	40.6°	40.6°	40.6°
Floor angle at maximum lift/rack back	degrees	96.6°	96.6°	96.6°	96.6°	96.6°	96.6°
Clearance at maximum lift/level bucket		mm 2896	2880	2895	2896	2877	2895
		in 114	113.4	114	114	113.2	114
Hinge pin height at maximum lift		mm 3091	3091	3091	3091	3091	3091
		in 121.7	121.7	121.7	121.7	121.7	121.7
Maximum overall height		mm 4025	4054	4121	4025	4055	4121
		in 158.5	159.6	162.2	158.5	159.6	162.2
Reach at level lift arm/bucket		mm 1455	1483	1553	1455	1483	1553
		in 57.3	58.4	61.1	57.3	58.4	61.1
Maximum floor angle at minimum lift	degrees	27.4°	27.4°	27.4°	27.4°	27.4°	27.4°
Dig depth with level bucket		mm 0	16	1	0	16	1
		in 0	0.63	0.04	0	0.63	0.04
Overall length with bucket on ground		mm 3684	3712	3782	3684	3712	3782
		in 145	146.1	148.9	145	146.1	148.9
Front clearance circle radius (w/bucket)		mm 2482	2514	2546	2512	2544	2574
		in 97.7	99	100	98.9	100.2	101.3
Tipping load	267B	kg 2918	2850	2896	2903	2835	2880
		lb 6434	6284	6385	6401	6251	6350
	277B	kg 2918	2850	2896	2903	2835	2880
		lb 6434	6284	6385	6401	6251	6350
Breakout force — lift	267B	kg 2026	1968	2010	2014	1955	1997
		lb 4467	4339	4432	4440	4310	4403
	277B	kg 2026	1968	2010	2014	1955	1997
		lb 4467	4339	4432	4440	4310	4403
Breakout force — tilt	267B	kg 2527	2389	2510	2520	2381	2501
		lb 5572	5267	5534	5556	5250	5514
	277B	kg 2527	2389	2510	2520	2381	2501
		lb 5572	5267	5534	5556	5250	5514
Operating weight	267B	kg 4265	4301	4282	4279	4316	4297
		lb 9404	9483	9441	9435	9516	9474
	277B	kg 4265	4301	4282	4279	4316	4297
		lb 9404	9483	9441	9435	9516	9474

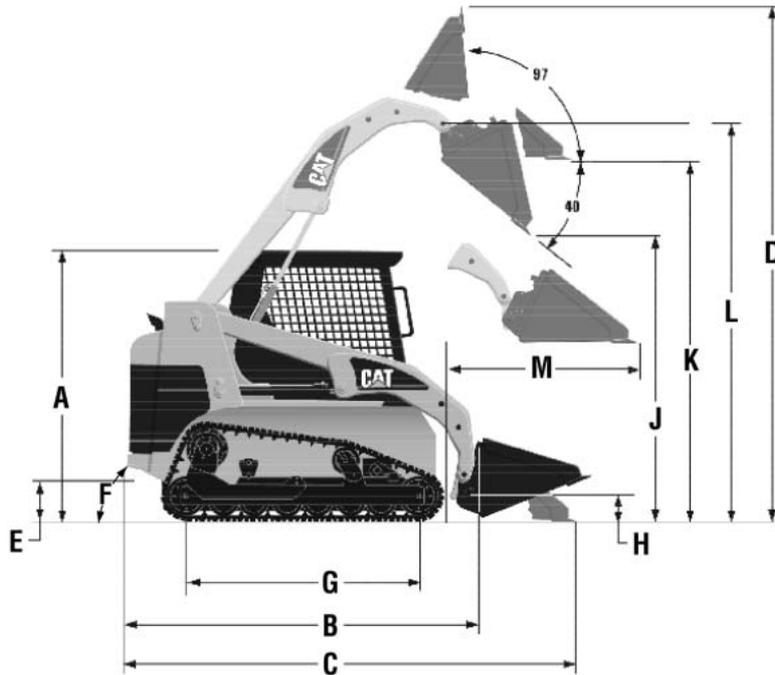
Bucket Type		Multi-Purpose						
		1829 mm (72")			1981 mm (78")			
Bucket Width		Holes Only	Bolt-on Edge	Bolt-on Teeth	Holes Only	Bolt-on Edge	Bolt-on Teeth	
Ground Engaging Type	Rated bucket capacity	m ³ 0.37 yd ³ 0.48	0.37 0.48	0.37 0.48	0.37 0.48	0.41 0.53	0.41 0.53	0.41 0.53
	Struck capacity	m ³ 0.27 yd ³ 0.35	0.27 0.35	0.28 0.36	0.27 0.35	0.30 0.39	0.31 0.39	0.30 0.39
Width		mm 1902 in 74.9	1902 74.9	1902 74.9	1902 74.9	2055 80.9	2055 80.9	2055 80.9
	Dump clearance at maximum lift/dump	mm 2347 in 92.4	2347 92.4	2314 91.1	2280 89.8	2344 92.3	2312 91	2280 89.8
Reach at maximum lift/dump		mm 679 in 26.7	679 26.7	679 26.7	719 28.3	679 26.7	679 26.7	719 28.3
	Floor angle at maximum lift/dump	degrees 40.7°	40.7°	40.7°	40.7°	40.7°	40.7°	40.7°
Floor angle at maximum lift/rack back		degrees 96.5°	96.5°	96.5°	96.5°	96.5°	96.5°	96.5°
	Clearance at maximum lift/level bucket	mm 2898 in 114.1	2898 114.1	2881 113.4	2896 114	2897 114.1	2878 113.3	2896 114
Hinge pin height at maximum lift		mm 3091 in 121.7	3091 121.7	3091 121.7	3091 121.7	3091 121.7	3091 121.7	3091 121.7
	Maximum overall height	mm 4028 in 158.6	4028 158.6	4057 159.7	4125 162.4	4028 158.6	4058 159.8	4125 162.4
Reach at level lift arm/bucket		mm 1460 in 57.5	1460 57.5	1488 58.6	1558 61.3	1460 57.5	1487 58.5	1558 61.3
	Maximum floor angle at minimum lift	degrees 27.3°	27.3°	27.3°	27.3°	27.3°	27.3°	27.3°
Dig depth with level bucket		mm 0 in 0	0 0	16 0.63	1 0.04	0 0	16 0.63	1 0.04
	Overall length with bucket on ground	mm 3688 in 145.2	3688 145.2	3716 146.3	3786 149.1	3688 145.2	3716 146.3	3786 149.1
Front clearance circle radius (w/bucket)		mm 2464 in 97	2464 97	2496 98.3	2529 99.6	2494 98.2	2527 99.5	2557 100.7
	Tipping load	267B	kg 2746 lb 6054	2681 5911	2726 6010	2739 6039	2671 5889	2716 5988
277B		kg 2746 lb 6054	2681 5911	2726 6010	2739 6039	2671 5889	2716 5988	
Breakout force — lift	267B	kg 1904 lb 4198	1848 4074	1888 4163	1888 4163	1830 4035	1870 4123	
	277B	kg 1904 lb 4198	1848 4074	1888 4163	1888 4163	1830 4035	1870 4123	
Breakout force — tilt	267B	kg 2437 lb 5373	2305 5082	2422 5340	2429 5355	2293 5056	2409 5300	
	277B	kg 2437 lb 5373	2305 5082	2422 5340	2429 5355	2293 5056	2409 5300	
Operating weight	267B	kg 4409 lb 9721	4445 9801	4425 9757	4429 9765	4466 9847	4447 9805	
	277B	kg 4409 lb 9721	4445 9801	4425 9757	4429 9765	4466 9847	4447 9805	

Work Tool		Pallet Fork		
		910 mm (36")	1070 mm (42")	1220 mm (48")
Tine Length				
Carriage overall width without step	mm in	1159 45.6	1159 45.6	1159 45.6
Carriage step additional width	mm in	108 4.3	108 4.3	108 4.3
Carriage height above blade top	mm in	923.5 36.4	923.5 36.4	923.5 36.4
Blade surface height at maximum height	mm in	2988 117.6	2988 117.6	2988 117.6
Shank front face reach at maximum height	mm in	379 14.9	379 14.9	379 14.9
Blade surface height at level lift arms	mm in	1619 63.7	1619 63.7	1619 63.7
Shank front face reach at level lift arms	mm in	846 33.3	846 33.3	846 33.3
Blade surface height at minimum lift	mm in	92 3.6	92 3.6	92 3.6
Shank front face reach at minimum lift	mm in	415 16.3	415 16.3	415 16.3
Overall length at minimum lift, level tine	mm ft/in	4001 13'1"	4161 13'7"	4311 14'1"
Tipping load	267B kg lb	2419 5333	2301 5073	2198 4846
	277B kg lb	2419 5333	2301 5073	2198 4846
Operating weight	267B kg lb	4223 9311	4234 9335	4243 9355
	277B kg lb	4223 9311	4234 9335	4243 9355

Bucket Type		General Purpose					
		1829 mm (72")			1981 mm (78")		
Bucket Width		Holes Only	Bolt-on Edge	Bolt-on Teeth	Holes Only	Bolt-on Edge	Bolt-on Teeth
Ground Engaging Type	Rated bucket capacity	m ³ 0.44	0.44 0.57	0.45 0.59	0.48 0.62	0.48 0.62	0.48 0.62
		yd ³					
Struck capacity		m ³ 0.32	0.32 0.42	0.32 0.42	0.34 0.44	0.34 0.44	0.34 0.44
		yd ³					
Width		mm 1883	1893 74.5	1883 74.1	2035 80.1	2045 80.5	2035 80.1
		in					
Dump clearance at maximum lift/dump		mm 2418	2386 93.9	2342 92.2	2418 95.2	2386 93.9	2342 92.2
		in					
Reach at maximum lift/dump		mm 830	837 33.0	892 35.1	830 32.7	837 33.0	892 35.1
		in					
Floor angle at maximum lift/dump	degrees	50.6°	50.6°	50.6°	50.6°	50.6°	50.6°
Floor angle at maximum lift/rack back	degrees	86.6°	86.6°	86.6°	86.6°	86.6°	86.6°
Clearance at maximum lift/level bucket		mm 3056	3039 119.6	3055 120.3	3056 120.3	3039 119.6	3055 120.3
		in					
Hinge pin height at maximum lift		mm 3250	3250 128.0	3250 128.0	3250 128.0	3250 128.0	3250 128.0
		in					
Maximum overall height		mm 4155	4182 164.6	4252 167.4	4155 163.6	4182 164.6	4252 167.4
		in					
Reach at level lift arm/bucket		mm 1378	1406 55.4	1476 58.1	1378 54.3	1406 55.4	1476 58.1
		in					
Maximum floor angle at minimum lift	degrees	27.4°	27.4°	27.4°	27.4°	27.4°	27.4°
Dig depth with level bucket		mm 0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0
		in					
Overall length with bucket on ground		mm 3669	3697 145.6	3767 148.3	3669 144.4	3697 145.6	3767 148.3
		in					
Front clearance circle radius (w/bucket)		mm 2371	2402 94.6	2433 95.8	2401 94.5	2433 95.8	2462 96.9
		in					
Tipping load	kg 3482	3406 7510	3459 7627	3465 7640	3390 7474	3442 7589	
	lb						
Breakout force — lift	kg 2296	2238 4934	2280 5027	2285 5038	2225 4906	2267 4998	
	lb						
Breakout force — tilt	kg 2312	2183 4813	2296 5062	2306 5084	2175 4795	2287 5042	
	lb						
Operating weight	kg 4644	4679 10,317	4660 10,275	4658 10,270	4695 10,352	4676 10,310	
	lb						

Bucket Type		Multi-Purpose					
		1829 mm (72")			1981 mm (78")		
Bucket Width		Holes Only	Bolt-on Edge	Bolt-on Teeth	Holes Only	Bolt-on Edge	Bolt-on Teeth
Ground Engaging Type	Rated bucket capacity	m ³ 0.37	0.37 0.48	0.37 0.48	0.41 0.53	0.41 0.53	0.41 0.53
		yd ³					
Struck capacity		m ³ 0.27	0.28 0.36	0.27 0.35	0.30 0.39	0.31 0.39	0.30 0.39
		yd ³					
Width		mm 1902	1902 74.9	1902 74.9	2055 80.9	2055 80.9	2055 80.9
		in					
Dump clearance at maximum lift/dump		mm 2416	2384 93.9	2339 92.1	2416 95.1	2384 93.9	2339 92.1
		in					
Reach at maximum lift/dump		mm 840	832 32.8	895 35.2	840 33.1	832 32.8	895 35.2
		in					
Floor angle at maximum lift/dump	degrees	50.7°	50.7°	50.7°	50.7°	50.7°	50.7°
Floor angle at maximum lift/rack back	degrees	86.5°	86.5°	86.5°	86.5°	86.5°	86.5°
Clearance at maximum lift/level bucket		mm 3057	3044 120.4	3056 120.3	3057 120.4	3044 119.8	3056 120.3
		in					
Hinge pin height at maximum lift		mm 3250	3250 128.0	3250 128.0	3250 128.0	3250 128.0	3250 128.0
		in					
Maximum overall height		mm 4159	4186 163.7	4256 167.6	4159 163.7	4186 164.8	4256 167.6
		in					
Reach at level lift arm/bucket		mm 1386	1414 54.6	1483 58.4	1386 54.6	1414 55.7	1483 58.4
		in					
Maximum floor angle at minimum lift	degrees	27.3°	27.3°	27.3°	27.3°	27.3°	27.3°
Dig depth with level bucket		mm 0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0
		in					
Overall length with bucket on ground		mm 3673	3701 144.6	3771 148.5	3673 144.6	3701 145.7	3771 148.5
		in					
Front clearance circle radius (w/bucket)		mm 2362	2394 93.0	2423 95.4	2394 94.3	2424 95.4	2454 96.6
		in					
Tipping load		kg 3298	3226 7272	3278 7227	3295 7265	3221 7102	3271 7212
		lb					
Breakout force — lift		kg 2172	2115 4789	2156 4753	2156 4753	2097 4623	2138 4714
		lb					
Breakout force — tilt		kg 2225	2101 4906	2210 4873	2216 4886	2089 4606	2197 4844
		lb					
Operating weight		kg 4787	4824 10,555	4804 10,592	4808 10,601	4845 10,683	4826 10,641
		lb					

Work Tool		Pallet Fork		
		910 mm (36")	1070 mm (42")	1220 mm (48")
Tine Length				
Carriage overall width without step	mm	1159	1159	1159
	in	45.6	45.6	45.6
Carriage step additional width	mm	108	108	108
	in	4.3	4.3	4.3
Carriage height above blade top	mm	923.5	923.5	923.5
	in	36.4	36.4	36.4
Blade surface height at maximum height	mm	3141	3141	3141
	in	123.7	123.7	123.7
Shank front face reach at maximum height	mm	723	723	723
	in	28.5	28.5	28.5
Blade surface height at level lift arms	mm	1799	1799	1799
	in	70.8	70.8	70.8
Shank front face reach at level lift arms	mm	789	789	789
	in	31.1	31.1	31.1
Blade surface height at minimum lift	mm	109	109	109
	in	4.3	4.3	4.3
Shank front face reach at minimum lift	mm	441	441	441
	in	17.4	17.4	17.4
Overall length at minimum lift, level tine	mm	3990	4150	4300
	ft/in	13'1"	13'7"	14'1"
Tipping load	kg	2800	2659	2538
	lb	6174	5863	5596
Operating weight	kg	4602	4612	4622
	lb	10,147	10,169	10,191



MODEL	247B		257B		267B/277B		287B	
Rated operating capacity*	885 kg	1950 lb	1047 kg	2310 lb	1316 kg	2900 lb	1632 kg	3600 lb
					1338 kg	2950 lb		
A Height to top of ROPS	1990 mm	6'6"	2022 mm	6'7"	2074 mm	6'8"	2123 mm	6'11"
B Length to coupler	2518 mm	8'3"	2701 mm	8'10"	2923 mm	9'7"	2901 mm	9'6"
C Length with bucket on ground	3285 mm	10'8"	3490 mm	11'5"	3684 mm	12'1"	3697 mm	12'1"
D Maximum overall height	3770 mm	12'4"	3963 mm	13'0"	4025 mm	13'2"	4182 mm	13'9"
E Ground clearance	267 mm	10.5"	257 mm	10"	353 mm	14"	283 mm	11"
F Departure angle	41.5°		37.3°		62.4°		47°	
G Wheelbase	1499 mm	4'11"	1499 mm	4'11"	2045 mm	6'9"	1842 mm	6'0"
H Hinge pin height at carry position	234 mm	8"	284 mm	11"	251 mm	10"	218 mm	8.5"
Bucket overall width w/edge	1730 mm	6'6"	1730 mm	6'6"	2035 mm	6'8"	2045 mm	6'8"
J Clearance at maximum lift/dump	2113 mm	7'0"	2278 mm	7'5"	2349 mm	7'8"	2386 mm	7'10"
Floor angle at maximum lift/dump	40.8°		40.5°		41°		50°	
Floor angle at maximum lift/rack	95.7°		86.9°		97°		87°	
K Clearance at maximum lift/level	2667 mm	8'8"	2889 mm	9'5"	2896 mm	9'5"	3039 mm	10'0"
L Hinge pin height at maximum lift	2862 mm	9'4"	3081 mm	10'1"	3091 mm	10'2"	3250 mm	10'8"
M Reach at level lift arm/bucket	1395 mm	4'7"	1387 mm	4'6"	1455 mm	4'9"	1406 mm	4'7"
Bumper overhang from axle	576 mm	1'10"	672 mm	2'2"	391 mm	1'3"	391 mm	1'3"
Maximum floor angle at carry position	26.4°		26.8°		28.9°		27.4°	

*SAE J818 MAY87, ISO 5998:1986.

NOTE: 247B/257B machine dimensions shown with standard machine equipped with 1676 mm (66") general purpose bucket.

267B/277B/287B machine dimensions shown with standard machine equipped with 1981 mm (78") general purpose bucket.

CAT WORK TOOL COMPATIBILITY

Buckets	247B	257B	267B	277B	287B
General Purpose Buckets					
1524 mm (60")	A	A	NR	NR	NR
1676 mm (66")	O	O	NR	NR	NR
1829 mm (72")	O	O	A	A	A
1981 mm (78")	A	A	O	O	O
Dirt Buckets					
1372 mm (54")	NR	NR	NR	NR	NR
1524 mm (60")	A	A	NR	NR	NR
1676 mm (66")	O	O	NR	NR	NR
1829 mm (72")	O	O	A	A	A
Utility Buckets					
1524 mm (60")	A	A	NR	NR	NR
1676 mm (66")	O	O	NR	NR	NR
1829 mm (72")	O	O	O	O	O
Light Material Buckets					
1829 mm (72")	O	O	A	A	A
1981 mm (78")	A	A	O	O	O
2134 mm (84")	A	O	O	O	O
Multi-Purpose Buckets					
1524 mm (60")	A	A	NR	NR	NR
1676 mm (66")	O	O	NR	NR	NR
1829 mm (72")	O	O	A	A	A
1981 mm (78")	A	A	O	O	O
Industrial Grapple Buckets					
1524 mm (60")	A	A	NR	NR	NR
1676 mm (66")	O	O	NR	NR	NR
1829 mm (72")	O	O	A	A	A
1981 mm (78")	A	A	O	O	O
Industrial Grapple Forks					
1676 mm (66")	O	O	NR	NR	NR
1829 mm (72")	O	O	A	A	A
Utility Grapple Buckets					
1676 mm (66")	O	O	NR	NR	NR
1829 mm (72")	O	O	A	A	A

O – Provides Optimum Performance.
A – Provides Acceptable Performance.
NR – Not Recommended.

	247B	257B	267B	277B	287B
Pallet Forks					
910 mm (36") Tines	O	O	O	O	
1070 mm (42") Tines	O	O	O	O	
1220 mm (48") Tines	O	O	O	O	
Carriage	O	O	O	O	
Utility Grapple Forks					
1676 mm (66")	O	O	NR	NR	NR
1829 mm (72")	O	O	A	A	A
Utility Forks					
1676 mm (66")	O	O	NR	NR	NR
1829 mm (72")	O	O	A	A	A
Angle Blades					
1829 mm (72")	A	A	NR	NR	NR
2134 mm (84")	O	O	A	A	A
A14B Auger	O	O	O	O	O
A19B Auger	A	A	O	O	O
A26B Auger	X	X	X	X	X
BP15B Pickup Broom	O	O	A	A	A
BP18B Pickup Broom	X	O	O	O	O
BA18 Angle Broom	O	O	O	O	O
PC3 Cold Planer	O	O	O	O	O
PC204 Cold Planer	X	A	O	O	O
PC205 Cold Planer	X	X	X	X	X
PC206 Cold Planer	X	X	X	X	X
H50/H50s Hammer	O	O	X	X	X
H63/H63s Hammer	A	A	O	O	O
LR15B Landscape Rake	O!	O!	NR	NR	NR
LR18B Landscape Rake	O!	O!	O!	O!	O
LT13B Landscape Tiller	O	O	NR	NR	NR
LT18B Landscape Tiller	O	O	O	O	O
Material Handling Arm	O	O	O	O	O
SG16B Stump Grinder	O	O	O	O	O
SG18B Stump Grinder	X	X	X	X	X
T9B Trencher	A	O	O	O	O
T15 Trencher	X	X	X	X	X
CV16B Vibratory Compactor	O	O	O	O	O
CV18B Vibratory Compactor	X	X	O	O	O
SW45 Wheel Saw	X	X	X	X	X

O – Provides Optimum Performance.
A – Provides Acceptable Performance.
NR – Not Recommended.
X – Not Approved, Do Not Use.
! – Lift Restriction.

Features:

- **Cat XT hose and O-ring face seals** are used throughout for superior leak-free performance.
- **Both standard and tree bits are available in a variety of sizes** for a wide range of projects.
- **Standard bit teeth and pilot points** are produced from hardened steel. Optional hardfaced and carbide inserted versions are also available.
- **Optional bit extension is available** in 305 mm (12") length.
- **Hex-to-round shaft adapter is available** to accommodate existing round auger bit mountings.
- **A14B and A19B** are compatible with both mini hydraulic excavators and skid steer loaders.

A14B Auger

- **Chain reduction drive system** transfers power from the drive motor to the drive shaft, reducing motor speed and increasing torque.
- **Drive and driven sprockets are keyed** to both shafts for overload protection and easy servicing.
- **Durable continuous roller drive chain** transmits power from the drive sprocket to the driven sprocket.
- **Chain tension** is controlled with an adjustment cam.

A19B Auger

- **Planetary reduction drive system** transfers power from the drive motor to the drive shaft, reducing motor speed and increasing torque.
- **Drive motor shaft** is splined and couples directly to the planetary gearbox.

A26B Auger

- **Double reduction planetary drive system** transfers power from the drive motor to the drive shaft, reducing motor speed and increasing torque.
- **Drive motor shaft** is splined and couples directly to the planetary gearbox.

Market Opportunities

- **Agriculture** — Augers are an effective work tool around the farm to drill holes for fence posts, pole barn supports and footers for outbuildings.

- **Building/General Construction** — Augers are an essential work tool on many construction sites to drill holes for deck posts and footings, signs and fencing.
- **Landscaping/Landscape Maintenance** — Augers with special tree bits are ideal for preparing holes for tree planting. They are also ideal for school, park, golf course and recreational maintenance departments to drill holes for playground supports, trees and shrubs, fence posts, and signs.
- **Governmental/Municipalities** — Augers with multiple bit sizes are popular work tools to do a wide spectrum of jobs, including digging holes for traffic signs, poles, posts and trees.
- **Rental** — Augers are one of the highest opportunity rental work tool after buckets.
- **Specialty Trades/Utility** — Augers are ideal for electrical, fencing and plumbing contractors when installing lighting, fence posts and gas/water mains.

Augers are typically not a full time work tool, however they are a highly utilized option for specialized applications. They are often used in conjunction with a bucket, set of pallet forks and/or a trencher.

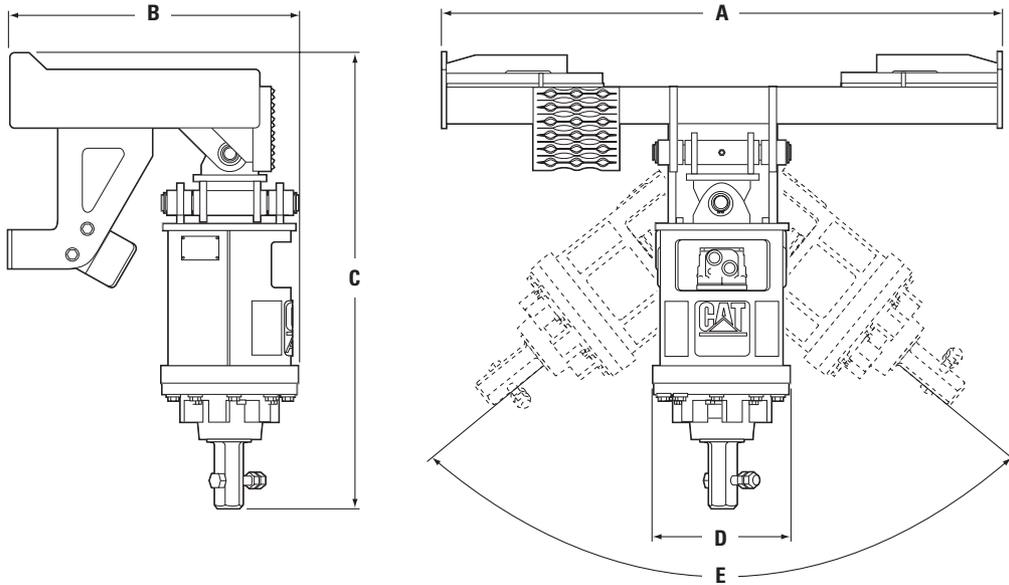
Auger Bits

Auger bits are available in both standard and tree bit configurations with standard hardened, reversible teeth and cast/hardened pilot point. Optional hardfaced and carbide inserted teeth and pilot points are available for aggressive boring conditions. Standard bits are available diameters ranging from 6"–36"; tree bits are available in 24" and 36" diameters. Typical digging depth is 48", however for deeper holes, optional 12" extensions are available. A special HEX to round adapter is also available for customers who use existing round shaft auger bits.

Machine Compatibility

The following are the recommended and approved Caterpillar machine/Auger combinations for maximum system performance.

Auger Model	Machine Model(s)
A14B	302.5, 303.5, 216B, 226B, 232B, 236B, 242B, 246B, 248B, 252B, 262B, 247B, 257B, 267B, 277B
A19B	303.5, 304.5, 216B, 226B, 236B, 246B, 248B, 252B, 262B
A26B	248B



MODEL	A14B		A19B		A26B	
A Overall width w/bracket	1152 mm	45"	1152 mm	45"	1152 mm	45"
B Overall length w/bracket	593 mm	23"	593 mm	23"	593 mm	23"
C Overall drive unit height	1020 mm	40"	940 mm	37"	978 mm	39"
D Housing diameter	252 mm	10"	252 mm	10"	252 mm	10"
E Swing range	102°		102°		102°	
Drive unit weight w/ hydraulic lines w/o bit	84 kg	185 lb	79 kg	174 lb	102 kg	225 lb
Mounting frame weight w/clevis	87 kg	192 lb	87 kg	192 lb	87 kg	192 lb
Total weight w/o bit	171 kg	377 lb	166 kg	366 lb	189 kg	417 lb
Drive method	Gerotor Motor — Direct		Gerotor Motor — Single Planetary Reduction		Gear Motor — Double Planetary Reduction	
Required hydraulic flow range	42-80 L/min	11-21 gpm	42-80 L/min	11-21 gpm	95-130 L/min	25-34 gpm
Optimal hydraulic pressure range	145-230 bar	2103-3336 psi	145-230 bar	2103-3336 psi	207-290 bar	3002-4206 psi
Effective displacement	629.1 cm ³	38.39 in ³	250 cm ³	15.26 in ³	43.77 cm ³	2.685 in ³
Drive shaft torque @ maximum pressure*	2304 N•m	1700 lb-ft	4122 N•m	3040 lb-ft	6826 N•m	5034 lb-ft
Bit speed (drive shaft) @ maximum flow	127 rpm		71 rpm		84 rpm	
HEX output shaft size	51 mm	2"	51 mm	2"	51 mm	2"
Auger bit retention method	Cross bolts/nuts		Cross bolts/nuts		Cross bolts/nuts	
Hydraulic hose	Cat XT-3 ES		Cat XT-3 ES		Cat XT-6 ES	

*Theoretical values calculated at 100% efficiency.

A14B Auger

Theoretical Bit Speed			Theoretical Digging Torque			
L/min	gpm	rpm	bar	psi	N•m	lb-ft
42	11	54	145	2100	1764	1300
45	12	59	152	2200	1848	1362
49	13	64	159	2300	1932	1424
53	14	69	166	2400	2016	1486
57	15	74	172	2500	2100	1548
61	16	79	179	2600	2184	1610
64	17	84	186	2700	2268	1672
68	18	89	193	2800	2352	1734
72	19	94	200	2900	2436	1795
76	20	99	207	3000	2520	1857
80	21	104	214	3100	2604	1919
83	22	109	221	3200	2688	1981
87	23	114	228	3300	2772	2043

A19B Auger

Theoretical Bit Speed			Theoretical Digging Torque			
L/min	gpm	rpm	bar	psi	N•m	lb-ft
42	11	38	145	2100	2535	1868
45	12	41	152	2200	2655	1956
49	13	45	159	2300	2776	2045
53	14	48	166	2400	2897	2134
57	15	52	172	2500	3017	2223
61	16	55	179	2600	3138	2312
64	17	59	186	2700	3259	2401
68	18	62	193	2800	3379	2490
72	19	65	200	2900	3500	2579
76	20	69	207	3000	3621	2668
80	21	72	214	3100	3741	2757
83	22	76	221	3200	3862	2846
87	23	79	228	3300	3983	2935

A26B Auger

Theoretical Bit Speed			Theoretical Digging Torque			
L/min	gpm	rpm	bar	psi	N•m	lb-ft
95	25	61	207	3000	4719	3492
99	26	64	214	3100	4880	3611
102	27	66	220	3200	5034	3725
106	28	69	227	3300	5191	3841
110	29	71	234	3400	5348	3958
114	30	74	241	3500	5506	4074
118	31	76	248	3600	5663	4191
121	32	79	255	3700	5820	4307
125	33	81	262	3800	5977	4423
129	34	84	269	3900	6135	4540
133	35	86	276	4000	6292	4656
136	36	88	282	4100	6449	4772
140	37	91	289	4200	6607	4889
144	38	93	296	4300	6764	5005
148	39	96	303	4400	6921	5122
152	40	98	310	4500	7079	5238

Features:

- **Two standard flow sizes available:** the 305 mm (12") maximum drum width PC3 and the 406 mm (16") maximum drum width PC4. Both units efficiently utilize the standard flow auxiliary hydraulic horsepower capabilities of Cat Skid Steer Loaders.
- **Direct drive system on the PC3 and PC4** transmits power directly from the drive motor shaft to the planing drum.
- **Two high flow cold planers are available:** the 610 mm (24") drum width PC6 and the 812 mm (32") drum width PC9. Both units efficiently utilize the high flow auxiliary hydraulic horsepower capabilities of Cat Skid Steer Loaders.
- **Planetary drive system on the PC6 and PC9** transmits power directly from the drive motor to the planing drum, maintaining optimum cutting bit speed and providing maximum torque.
- **Four pivoting skids** on the planer housing provide a stable platform when planing.
- **Optimal drum bit pattern and standard all purpose conical bits** provide maximum cutting performance and efficiency.
- **Hydraulic side shift** is standard allowing planing as close as 76 mm (3") to curbs, walls and other obstructions.
- **Tilt and depth functions** help ensure precision beveling and pavement removal.
- **Cat XT hose and O-ring face seals** are used throughout for superior leak-free performance.
- **Optional drum widths** are available for the PC3 and PC4 for specialty planing jobs.
- **Optional water sprinkler kit** is available for dust suppression.

Conical Bits: Cold planer drums are designed with an optimal bit pattern to provide maximum cutting performance and efficiency, while ensuring superior surface texture. Standard all-purpose tungsten carbide inserted conical bits provide all-purpose planing in most applications.

Market Opportunities

- **Infrastructure/Heavy Construction** — Skid steer mounted cold planers are frequently used on bridges to remove pavement where large dedicated planers are restricted due to weight.
- **Concrete/Masonry (Including Asphalt/Paving)** — Cold planers are used extensively by paving contractors in urban and rural settings to remove damaged pavement prior to overlay, remove excess pavement, proved specific surface texture (skid resistance), remove traffic lane stripes and re-establish proper draining characteristics of pavement.
- **Governmental/Municipalities (Street and Road Maintenance)** — Cold planers are ideal for urban road and parking lot maintenance departments to remove cracked or deteriorated pavement, milling bumps or imperfections in expanded pavement.

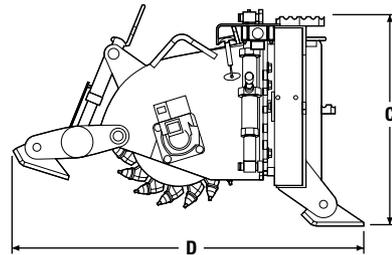
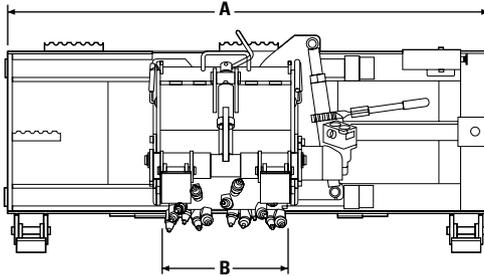
Cold planers are highly utilized work tools for specialized applications. They are often used in conjunction with a bucket and broom.

Machine Compatibility

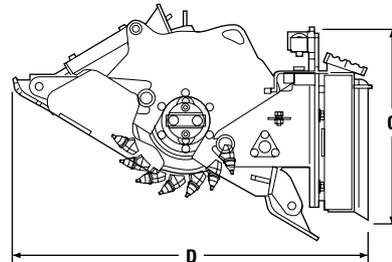
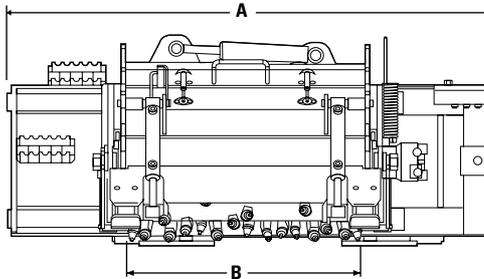
The following are the recommended and approved Caterpillar machine/Cold Planer combinations for maximum system performance.

Cold Planer Model	Machine Model(s)
PC3	216B, 226B, 232B, 236B, 242B, 246B, 248B, 252B, 262B, 247B, 257B, 267B, 277B
PC4	226B, 236B, 246B, 248B, 252B, 262B
PC6	248B
PC9	248B

PC3/PC4



PC6/PC9



MODEL	PC3		PC4		PC6		PC9	
A Overall width	1676 mm	66"	1676 mm	66"	1676 mm	66"	1676 mm	66"
B Maximum drum width	305 mm	12"	406 mm	16"	610 mm	24"	812 mm	32"
Optional drum widths	64 mm 102 mm 152 mm	2.5" 4" 6"	64 mm 102 mm 152 mm	2.5" 4" 6"	Not currently available		Not currently available	
C Overall height	762 mm	30"	762 mm	30"	810 mm	32"	810 mm	32"
D Length	1168 mm	46"	1168 mm	46"	1320 mm	52"	1320 mm	52"
Weight	481 kg	1060 lb	522 kg	1150 lb	900 kg	1984 lb	915 kg	2017 lb
Drive method	Direct drive		Direct drive		Planetary drive		Planetary drive	
Required hydraulic flow range	53- 83 L/min	14- 22 gpm	53- 83 L/min	14- 22 gpm	95- 125 L/min	25- 33 gpm	95- 125 L/min	25- 33 gpm
Optimal hydraulic pressure range	172- 227 bar	2500- 3300 psi	172- 227 bar	2500- 3300 psi	193- 345 bar	2800- 5000 psi	193- 345 bar	2800- 5000 psi
Drum torque @ max. pressure	1131 N•m	832 lb-ft	1429 N•m	1051 lb-ft	4015 N•m	2952 lb-ft	4015 N•m	2952 lb-ft
Drum speed @ max. flow	267 rpm		212 rpm		171 rpm		171 rpm	
Bit speed @ max. flow	395 mpm		313 mpm		296 mpm		296 mpm	
Number of conical bits	28 per 305 mm (12") drum		50 per 406 mm (16") drum		70 per 610 mm (24") drum		85 per 812 mm (32") drum	
Standard bit type	All purpose		All purpose		All purpose		All purpose	
Optional bit type	Concrete		Concrete		Concrete		Concrete	
Maximum depth of cut	127 mm	5"	127 mm	5"	152 mm	6"	152 mm	6"
Cut diameter	470 mm	18.5"	470 mm	18.5"	549 mm	21.6"	549 mm	21.6"
Tilt angle range	±19°		±19°		±15°		±15°	
Side shift travel	559 mm	22"	559 mm	22"	600 mm	23.6"	600 mm	23.6"

Features:

- **Two sizes available:** the 1321 mm (52") working width LT13B and the 1854 mm (73") working width LT18B. Both units efficiently utilize the standard flow auxiliary hydraulic horsepower capabilities of Cat Skid Steer Loaders.
- **Direct drive system** features two in-line motors that transmit power directly from the drive motor shaft to the tiller shaft. Power to both ends of the shaft eliminates torque twist and increased system performance.
- **Adjustable skid shoes** provide a working depth range of 25-152 mm (1"-6").
- **High strength medium carbon alloy steel tines** are hardened for maximum strength, durability and wear life in the toughest soil conditions.
- **Cat XT hose and O-ring face seals** are used throughout for superior leak-free performance.

Market Opportunities

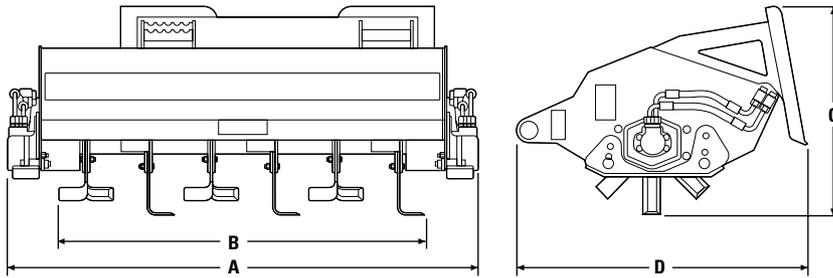
- **Agriculture** — Landscape tillers provide an effective work tool around the farm or orchard to breakup and condition soil prior to planting.
- **Building/General Construction** — Landscape tillers can be used on construction sites to level soil and remove ruts.
- **Landscaping/Landscape Maintenance** — Landscape tillers are ideal for mixing and composting soils for improved seedbeds, soil stabilization and soil preparation prior to landscaping and laying sod.
- **Governmental/Municipalities** — Landscape tillers are ideal for city maintenance departments and parks to recondition, level and stabilize soil after utility work or prior to yearly landscaping.

Landscape tillers are productive work tools for specialized applications. They are often used in conjunction with a bucket, landscape rake and auger.

Machine Compatibility

The following are the recommended and approved Caterpillar machine/Landscape Tiller combinations for maximum system performance.

Landscape Tiller Model	Machine Model(s)
LT13B	216B, 226B, 232B, 236B, 242B, 246B, 248B, 252B, 262B, 247B, 257B
LT18B	232B, 236B, 242B, 246B, 248B, 252B, 262B, 247B, 257B



	LT13B		LT18B	
A Overall width	1788 mm	70.5"	2271 mm	89.5"
B Working width	1321 mm	52"	1854 mm	73"
C Height	755 mm	30"	755 mm	30"
D Length	956 mm	38"	956 mm	38"
Working depth range	25-152 mm	1"-6"	25-152 mm	1"-6"
Weight	340 kg	750 lb	476 kg	1050 lb
Drive method	Direct drive		Direct drive	
Number of motors	Two in-line		Two in-line	
Hydraulic flow range	42-83 L/min	11-22 gpm	95-114 L/min	25-30 gpm
Hydraulic pressure range	145-227 bar	2100-3300 psi	207-310 bar	3000-4500 psi
Motor size	305 cm ³	18.6 in ³	305 cm ³	18.6 in ³
Effective displacement	629.1 cm ³	38.4 in ³	629.1 cm ³	38.4 in ³
Drum speed @ maximum flow	127 rpm @ 80 L/min	127 rpm @ 21 gpm	127 rpm @ 80 L/min	127 rpm @ 21 gpm
Fasteners	Cat		Cat	
Hydraulic hose	Cat XT-3 ES		Cat XT-3 ES	
Number of tines	24		36	

Features:

- **Two sizes available:** the 1321 mm (62") working width LR15B and the 1880 mm (74") working width LR18B. Both units efficiently utilize the standard flow auxiliary hydraulic horsepower capabilities of Cat Skid Steer Loaders.
- **Chain reduction drive system** features #80H roller chain for strength and durability, a variable speed unidirectional gerotor motor for maximum performance and cartridge relief valve for system protection.
- **Durable #2060H conveyor chain** provides strength, durability and long life in a variety of soil conditions.
- **High strength medium carbon alloy steel teeth** are hardened for maximum strength, durability and wear life in the toughest soil conditions.
- **Quick dumping capability** is accomplished with a poppet check valve. Once the hopper bucket is full, simply reverse flow to actuate the rake head and dump the bucket.
- **Cat XT hose and O-ring face seals** are used throughout for superior leak-free performance.

Market Opportunities

- **Agriculture** — Landscape rakes provide an effective work tool around the farm or nursery to condition, level and remove rock and foreign material from soil prior to planting.
- **Building/General Construction** — Landscape rakes can be used on construction sites to level and remove debris from soil prior to landscaping and seeding.
- **Demolition** — Landscape rakes provide an excellent means to clean up loose material after the demolition work is complete.
- **Landscaping/Landscape Maintenance** — Landscape rakes are ideal for aerating, conditioning, leveling and removing rocks from soil prior to seeding or laying sod. They also are ideal for conditioning and cleaning baseball fields.

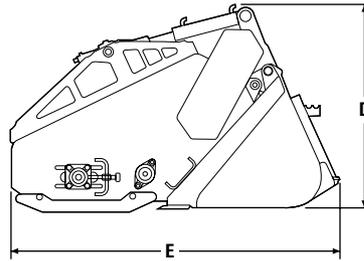
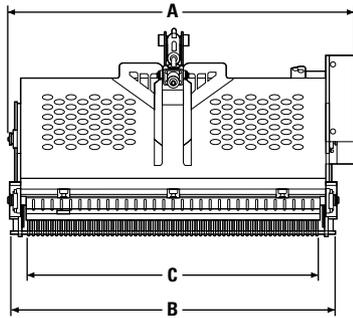
Landscape rakes are productive work tools for specialized applications. They are often used in conjunction with a bucket, landscape tiller and auger.

Machine Compatibility

The following are the recommended and approved Caterpillar machine/Landscape Rake combinations for maximum system performance.

Landscape Rake Model	Machine Model(s)*
LR15B	216B, 226B, 232B, 242B, 248B, 252B, 262B, 247B, 257B
LR18B	232B, 236B, 242B, 246B, 248B, 252B, 262B, 247B, 257B

*Lift restriction! Do not raise lift arm — work tool hinge higher than 1 m (3 ft) above the ground. Tipping can result.



LR15B

LR18B

A Overall width	1683 mm	66"	1990 mm	78"
B Working width	1576 mm	62"	1883 mm	74"
C Raking width	1384 mm	55"	1655 mm	65"
D Height	989 mm	39"	989 mm	39"
E Length	1620 mm	64"	1620 mm	64"
Weight	595 kg	1312 lb	615 kg	1355 lb
Drive method	Chain reduction		Chain reduction	
Drive chain	#80H		#80H	
Conveyor chain	#2060H		#2060H	
Hydraulic flow range	42-83 L/min	11-22 gpm	42-83 L/min	11-22 gpm
Hydraulic pressure range	145-227 bar	2100-3000 psi	145-227 bar	2100-3000 psi
Bucket capacity (struck)*	0.31 m ³	0.4 yd ³	0.34 m ³	0.44 yd ³
Motor size	305 cm ³	18.6 in ³	305 cm ³	18.6 in ³
Effective displacement	484.5 cm ³	29.5 in ³	484.5 cm ³	29.5 in ³
Driven shaft speed	165 rpm @ 80 L/min	165 rpm @ 21 gpm	165 rpm @ 80 L/min	165 rpm @ 21 gpm
Torque @ 230 bar (3336 psi)	1774 N•m	1310 lb-ft	1774 N•m	1310 lb-ft
Fasteners	Cat		Cat	
Hydraulic hose	Cat XT-3 ES		Cat XT-3 ES	
Number of teeth	372		444	
Rock size	19-52 mm	0.75"-6"	19-52 mm	0.75"-6"

*Rated struck capacities shown as per ISO 7546: 1983 and SAE J742 FEB85.

Features:

- **Two direct drive models, the standard flow T9 and the high flow T15** provide maximum performance and durability. A variable speed, bi-directional motor is matched to the Cat Skid Steer Loader's auxiliary hydraulic circuit for excellent torque output.
- **Durable double standard anti-backflex chain** is standard for strength, durability and long life in all soil types.
- **Standard boom length is 1219 mm (48") on the T9 and 1524 mm (60") on the T15. 152 mm (6") cutting width** is standard for all-purpose performance.
- **Hard faced, medium carbon alloy steel teeth** deliver long life in the toughest soil conditions.
- **Hydraulic sideshift is standard for the T15. Hydraulic or manual sideshift options** are available for the T9 for close trenching flexibility near foundations and other structures.
- **Optional cutting widths and crumber bar** are available for wider trenching requirements and loose material removal.
- **Cat XT hose and O-ring face seals** are used throughout for superior leak-free performance.

Market Opportunities

- **Agriculture** — Trenchers provide an effective work tool around the farm or nursery to cut trenches for water lines, electrical cables and other utilities.
- **Building/General Construction** — Trenchers are often used on construction sites to cut trenches for plumbing, electrical, telephone and cable television lines.
- **Landscaping/Landscape Maintenance** — Trenchers are popular landscaping work tools when installing irrigation and water sprinkler systems. They can also be used to remove roots that grow too close to buildings or cart paths. Landscapers, golf course maintenance departments and irrigation contractors are prime users.
- **Specialty Trades/Utilities** — Trenchers are excellent work tools for specialty trades and utility contractors that need to bury water and gas pipe, conduit, electrical, telephone and cable television lines.

Trenchers are productive work tools for specialized applications. They are often used in conjunction with a bucket and auger.

Machine Compatibility

The following are the recommended and approved Caterpillar machine/Trencher combinations for maximum system performance.

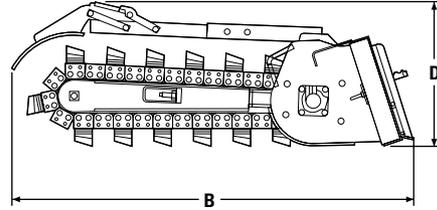
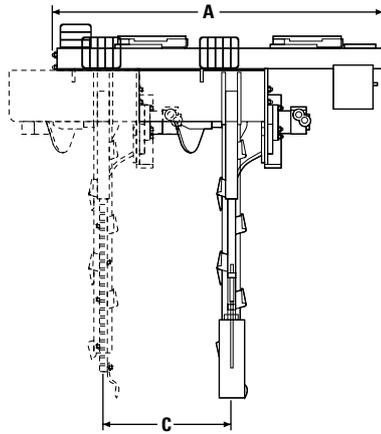
Trencher Model	Machine Model(s)
T9	216B, 226B, 232B, 236B, 242B, 246B, 248B, 252B, 262B
T15	248B

T9 Trencher

Theoretical Drive Shaft Torque			
Pressure		Torque	
bar	psi	N•m	lb-ft
145	2100	911	670
152	2200	956	703
159	2300	1000	735
166	2400	1043	767
172	2500	1088	800
179	2600	1130	831
183	2650	1156	850
186	2700	1174	863
193	2800	1217	895
200	2900	1261	927
207	3000	1304	959
214	3100	1348	991
221	3200	1391	1023
228	3300	1435	1055

T15 Trencher

Theoretical Drive Shaft Torque			
Pressure		Torque	
bar	psi	N•m	lb-ft
207	3000	2058	1513
214	3100	2126	1563
220	3200	2195	1614
227	3300	2263	1664
235	3400	2331	1714
242	3500	2400	1765
248	3600	2468	1815
255	3700	2538	1866
262	3800	2606	1916
269	3900	2675	1967
276	4000	2743	2017
283	4100	2811	2067
290	4200	2880	2118
297	4300	2948	2168
304	4400	3018	2219
311	4500	3086	2269



	T9		T15	
A Overall width	1701 mm	67"	1701 mm	67"
B Overall length	2066 mm	81"	2066 mm	81"
C Side shift travel (center to right)	660 mm	26"	660 mm	26"
D Height	739 mm	29"	739 mm	29"
Standard boom length	1219 mm	48"	1524 mm	60"
Optional boom length	—	—	1219 mm	48"
Weight	537 kg*	1185 lb*	634 kg**	1398 lb**
Required hydraulic flow range	42-83 L/min	11-22 gpm	95-152 L/min	25-40 gpm
Optimal hydraulic pressure range	145-227 bar	2100-3300 psi	207-310 bar	3000-4500 psi
Drive shaft torque @ max. pressure	1435 N•m	1055 lb-ft	3086 N•m	2269 lb-ft
Chain pull @ max. pressure	1619 kg	3567 lb	2570 kg	5661 lb
Chain speed @ max. flow	162 mpm	531 fpm	187 mpm	612 fpm
Drive shaft speed @ max. flow	211 rpm		243 rpm	
Standard teeth type	Hardfaced cupped		Hardfaced cupped	
Optional teeth type	Rock teeth		Rock teeth	
Standard cutting width	152 and 203 mm	6" and 8"	152 mm	6"
Optional cutting widths	254 and 305 mm	10" and 12"	203 and 254 mm	8" and 10"
Maximum recommended cutting width with 1219 mm (48") boom	254 mm	10"	305 mm	12"
Maximum recommended cutting width with 1524 mm (60") boom	—	—	254 mm	10"
Number of teeth (every other station)	15		21	

*T9 Maximum Saleable Weight — Equipped with 1219 mm (**48"**) boom, hydraulic sideshift control, double standard anti-backflex chain, 254 mm (**10"**) cutting width and standard hardfaced cupped teeth.

T15 Maximum Saleable Weight — Equipped with 1524 mm (60"**) boom, double standard anti-backflex chain, 254 mm (**10"**) cutting width and standard hardfaced cupped teeth.

Features:

- **Two sizes available:** the 1676 mm (66") drum width CV16 and the 1854 mm (73") drum width CV18. Both units efficiently utilize the standard flow auxiliary hydraulic horsepower capabilities of Cat Skid Steer Loaders.
- **Direct drive system** uses a variable speed bi-directional gear motor that drives an eccentric weighted shaft, resulting in drum vibration.
- **Durable high strength steel drums** are roll formed and butt welded for long life.
- **A spring-loaded scraper bar** is standard to prevent material buildup on the drum.
- **Oscillating tilt** is capable from a pivoting interface that allows + 15 degrees of oscillation to follow ground contour.
- **Cat XT hose and O-ring face seals** are used throughout for superior leak-free performance.

Market Opportunities

- **Building/General Construction** — Vibratory compactors can be used on construction sites to level and compact soil around building foundations after backfilling.
- **Governmental/Municipalities (Street and Road Maintenance)** — Vibratory compactors are useful work tools for compacting soil and crushed rock prior to paving or pouring concrete. They are also useful for compacting small areas of asphalt (pot-hole repair).
- **Landscaping/Landscape Maintenance** — Vibratory compactors are used by landscaping contractors after installing irrigation and water sprinkler systems. Golf course maintenance departments will often use this product to compact greens and fairways.
- **Paving** — Vibratory compactors are used by paving contractors for smaller paving jobs (compacting soil and crushed stone), compacting hot patch (pot hole repair) or compacting material in tight areas where a dedicated roller can't maneuver.
- **Specialty Trades/Utilities** — Vibratory compactors are ideal for compacting back-filled soil after trenching and backhoe work.

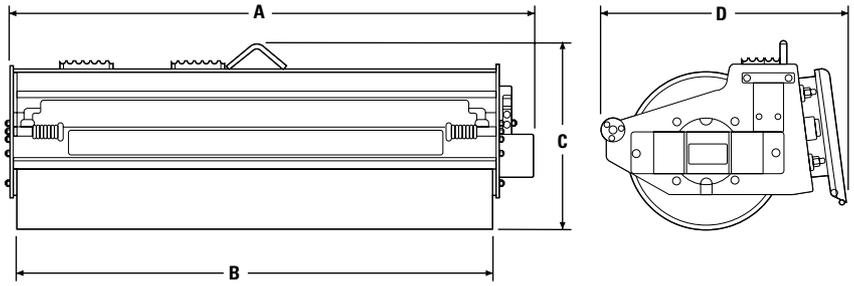
Vibratory compactors are productive work tools for specialized applications. They are often used in conjunction with a bucket, cold planer and trencher.

Machine Compatibility

The following are the recommended and approved Caterpillar machine/Vibratory Compactor combinations for maximum system performance.

Vibratory Compactor Model	Machine Model(s)*
CV16	216B*, 226B, 232B, 236B, 242B, 246B, 248B, 252B, 262B, 247B, 257B
CV18	232B, 236B, 242B, 246B, 248B, 252B, 262B, 247B, 257B, 267B, 277B

*Lift restriction! Do not raise lift arm — work tool hinge higher than 1 m (3 ft) above the ground. Tipping can result.



	CV16		CV18	
A Overall width	1901 mm	75"	2080 mm	82"
B Drum width	1676 mm	66"	1854 mm	73"
C Overall height	737 mm	29"	737 mm	29"
D Overall length	965 mm	38"	965 mm	38"
Drum diameter	610 mm	24"	610 mm	24"
Weight	749 kg	1650 lb	780 kg	1720 lb
Drive method	Direct drive		Direct drive	
Number of motors	One		One	
Motor size	31.5 cm ³	1.9 in ³	31.5 cm ³	1.9 in ³
Hydraulic flow range	42-83 L/min	11-22 gpm	42-83 L/min	11-22 gpm
Hydraulic pressure range	145-227 bar	2100-3300 psi	145-227 bar	2100-3300 psi
Drum oscillation range	±15°		±15°	
Drum frequency @ maximum flow	2933 vpm		2933 vpm	
Dynamic force	3972 kg	8740 lb	4654 kg	10,240 lb
Total applied force	4737 kg	10,440 lb	5530 kg	12,189 lb
Fasteners	Cat		Cat	
Hydraulic hose	Cat XT-3 ES		Cat XT-3 ES	

Features:

- **Sweeping Widths:** Choose the 1524 mm (60") BP15B, the 1829 mm (72") BP18B pickup brooms or the 2134 mm (84") BA18 angle broom. All units efficiently utilize the standard flow auxiliary hydraulic horsepower capabilities of Cat Skid Steer Loaders.
- **Direct drive system** provides maximum performance and durability. The BP15B and BA18 use a single variable speed unidirectional motor that drives the brush core; the BP18B uses two inline motors.
- **Durable polypropylene/steel wire brush sections** are standard and provide tough cleaning action on most paved surfaces.
- **Manual or hydraulic angling** is available on BA18 for quick angle changes up to 30° right or left of center.
- **A large integrated hopper bucket on BP15B and BP18B** provides ample capacity for collected dirt and debris. Caterpillar bolt on cutting edges are standard for long wear life.
- **Optional gutter brush for BP15B and BP18B** are available to assist in removing material from gutters.
- **Optional water sprinkler kit** available for dust suppression.
- **Optional brush types** are available for various surface types.
- **Cat XT hose and O-ring face seals** are used throughout for superior leak-free performance.

Market Opportunities

- **Building/General Construction** — Brooms are often found on construction sites once the construction is complete to remove and collect dirt, rock and other construction debris from driveways, sidewalks and streets.
- **Demolition** — Brooms are ideal for collecting loose dirt and debris from demolition sites.

- **Governmental/Municipalities (Street and Road Maintenance)** — Brooms are useful work tools for cleaning city streets, sidewalks and parking areas. Airport maintenance is another popular application.
- **Industrial/Recycling** — Pickup brooms are excellent for cleaning factory floors or industrial pavements.
- **Landscaping/Landscape Maintenance** — Brooms are used by landscaping contractors to clean paved surfaces after the landscaping is complete. Golf course maintenance departments will often use this product to clean cart paths, parking lots and even turf.
- **Paving** — Pickup brooms are often used by paving contractors to sweep and collect milled asphalt and concrete. Angle brooms are used to clean milled surfaces.
- **Specialty Trades/Utilities** — Brooms are often utilized by specialty trades and utility contractors to clean up after trenching and backhoe work.

Pickup brooms are productive work tools for specialized applications. They are often used in conjunction with a bucket, cold planer and trencher.

Machine Compatibility

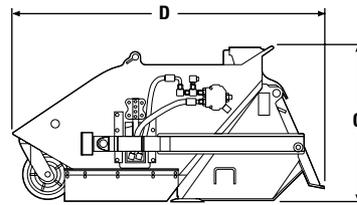
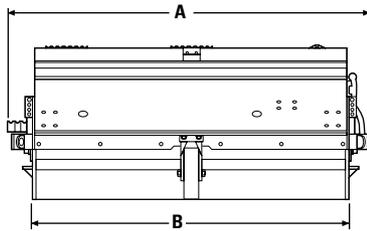
Following are the recommended and approved Cat Skid Steer Loader/Broom combinations for maximum system performance.

Model	BP15B Broom	BP18B Broom	BA18 Broom
216B Skid Steer Loader	●*	!	●
226B Skid Steer Loader	●	!	●
232B Skid Steer Loader	●	●	●
236B Skid Steer Loader	●	●	●
242B Skid Steer Loader	●	●	●
246B Skid Steer Loader	●	●	●
248B Skid Steer Loader	●	●	●
252B Skid Steer Loader	●	●	●
262B Skid Steer Loader	●	●	●
268B Skid Steer Loader			
247B Multi Terrain Loader	●	●	●
257B Multi Terrain Loader	●	●	●
267B Multi Terrain Loader	!	●	●
277B Multi Terrain Loader	!	●	●
287B Multi Terrain Loader			

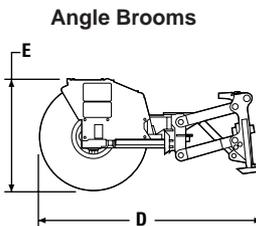
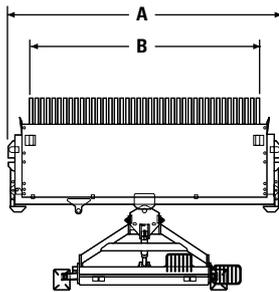
● Provides optimum system performance.

! Not approved. Do not use.

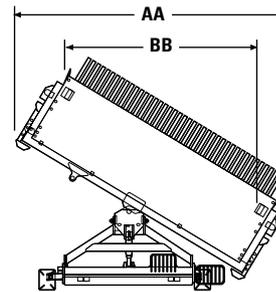
* Lift restriction! Do not raise lift arm — work tool hinge pin higher than 1 m (3 ft) above the ground. Tipping can result.



Pickup Brooms



Angle Brooms



	BP15B Pickup Broom		BP18B Pickup Broom		BA18 Angle Broom	
A Overall width	1828 mm	72"	2108 mm	83"	2388 mm	94"
AA Overall width angled*	—	—	—	—	2362 mm	93"
B Sweeping width	1524 mm	60"	1829 mm	72"	2134 mm	84"
BB Sweeping width angled*	—	—	—	—	1702 mm	67"
C Height	787 mm	31"	787 mm	31"	864 mm	34"
D Length	1575 mm	62"	1575 mm	62"	1676 mm	66"
Weight**	395 kg	870 lb	472 kg	1040 lb	404 kg	890 lb
Drive method	Direct drive		Direct drive		Direct drive	
Number of motors	One		Two in-line		One	
Motor size	250 cm ³	15.3 in ³	200 cm ³ each	12.2 in ³ each	410 cm ³	24.9 in ³
Effective displacement	250 cm ³	15.3 in ³	400 cm ³	24.4 in ³	410 cm ³	24.9 in ³
Hydraulic flow range	30-83 L/min	8-22 gpm	57-95 L/min	15-25 gpm	42-83 L/min	11-22 gpm
Hydraulic pressure range	145-227 bar	2100-3300 psi	145-227 bar	2100-3300 psi	145-227 bar	2100-3300 psi
Rated brush speed @ maximum flow	150 rpm		237 rpm		204 rpm	
Hopper capacity***	0.42 m ³	0.55 yd ³	0.45 m ³	0.59 yd ³	—	—
Fasteners	Cat		Cat		Cat	
Hydraulic hose	Cat XT-3 ES		Cat XT-3 ES		Cat XT-3 ES	
Brush diameter	660 mm	26"	660 mm	26"	813 mm	32"
Brush head retention	Dual chain/loader arm bracket		Dual chain/loader arm bracket		—	
Brush material (standard)	Replaceable polypropylene/steel wire sections		Replaceable polypropylene/steel wire sections		Replaceable polypropylene/steel wire sections	

*31° right or left.

**With gutter brush.

***Rated struck capacities shown as per ISO 7546: 1983 and SAE J742 FEB85.

Features:

- **Two direct drive models, the standard flow SG16B and the high flow SG18B** feature a variable speed, unidirectional motor that is matched to the Cat Skid Steer Loader's auxiliary hydraulic horsepower capabilities. Provides high torque for efficient grinding performance.
- **Heavy-duty 550 mm (22") cutting wheel and 32 bolt-on carbide teeth** provide maximum durability and cutting efficiency.
- **Heavy-duty, dual height, pivoting stand feet** provide a stable platform when grinding.
- **Standard hydraulic cutting wheel swing** (full 70 degrees) and extension [279 mm (11 in) max.].
- **Hydraulic depth control on SG18B, depth control on SG16B** is manually adjustable using a 3-position depth control bar.
- **Extension slider rods** are chrome plated for long life.
- **Cat XT and medium pressure hose, couplings and O-Rings.**

Market Opportunities

- **Landscaping/Landscaping Maintenance** — Stump grinders are ideal for economically removing tree stumps in residential, commercial and agricultural settings.
- **Rental** — Stump grinders are a high opportunity rental work tool for lawn care and for clean up after natural disasters such as tornadoes and hurricanes where many trees are damaged.

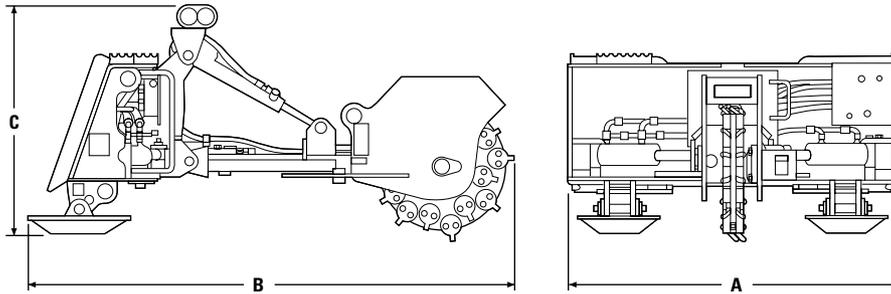
Stump grinders are productive work tools for specialized applications. Maneuverability and compact size compared to tow behind stump grinders lend it be to very popular in lawn care and golf course maintenance.

Machine Compatibility

The following are the recommended and approved Caterpillar Skid Steer Loader — Stump Grinder combinations for maximum system performance.

Model	SG16B Stump Grinder	SG18B Stump Grinder
216B Skid Steer Loader	■	!
226B Skid Steer Loader	●	!
232B Skid Steer Loader	●	!
236B Skid Steer Loader	●	!
242B Skid Steer Loader	●	!
246B Skid Steer Loader	●	!
248B Skid Steer Loader	●	●
252B Skid Steer Loader	●	!
262B Skid Steer Loader	●	!
268B Skid Steer Loader		
247B Multi Terrain Loader	●	!
257B Multi Terrain Loader	●	!
267B Multi Terrain Loader	●	!
277B Multi Terrain Loader	●	!
287B Multi Terrain Loader		

- Provides acceptable system performance.
- Provides optimum system performance.
- ! Not approved. Do not use. Requires high flow hydraulics.



SG16B

SG18B

A Overall width	1175 mm	46"	1175 mm	46"
B Overall length	1737 mm	69"	1737 mm	69"
C Overall height	730 mm	30"	813 mm	32"
Unit weight	379 kg	775 lb	400 kg	840 lb
Drive method	Gerotor Motor — Direct		Gerotor Motor — Direct	
Required hydraulic flow	42-83 L/min	11-22 gpm	95-114 L/min	25-30 gpm
Optimal hydraulic pressure	145-227 bar	2100-3300 psi	207-310 bar	3000-4500 psi
Effective displacement	80 cm ³	4.9 in ³	100 cm ³	6.2 in ³
Drive shaft torque @ maximum pressure	295 N•m @ 230 bar	218 lb-ft @ 3336 psi	469 N•m @ 290 bar	346 lb-ft @ 4206 psi
Cutting head speed (drive shaft) @ maximum flow	993 rpm @ 80 L/min	993 rpm @ 21 gpm	1280 rpm @ 130 L/min	1280 rpm @ 34 gpm
Cutting wheel width (w/teeth)	83 mm	3.3"	83 mm	3.3"
Cutting wheel diameter (w/teeth)	550 mm	22"	550 mm	22"
Cutting width (full swing range)	1524 mm	60"	1524 mm	60"
Cutting head swing range		70°		70°
Cutting height (above ground)	470 mm	18.5"	470 mm	18.5"
Cutting height (below ground)	547 mm	21.5"	547 mm	21.5"
Cutting head extension	280 mm	11"	280 mm	11"
Fasteners	Cat		Cat	
Hydraulic hose	XT-3 ES, medium pressure		XT-6 ES, medium pressure	
Ground Engaging Tools (GET)	12.7 mm (½") square bolt-on carbide teeth		12.7 mm (½") square bolt-on carbide teeth	
Number of carbide teeth per cutting wheel	32		32	

SG16B Stump Grinder

Theoretical Drive Shaft Torque			
Pressure		Torque	
bar	psi	N•m	lb-ft
145	2100	186	137
152	2200	194	143
158	2300	204	150
166	2400	212	156
172	2500	222	163
179	2600	230	169
186	2700	239	176
193	2800	248	182
200	2900	257	189
207	3000	265	195
214	3100	275	202
220	3200	283	208
227	3300	292	215

SG18B Stump Grinder

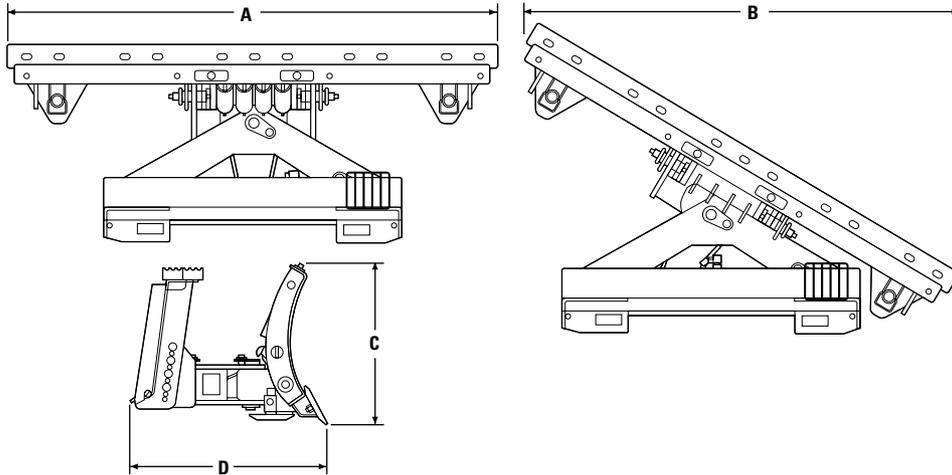
Theoretical Drive Shaft Torque			
Pressure		Torque	
bar	psi	N•m	lb-ft
207	3000	336	247
214	3100	347	255
221	3200	358	263
227	3300	370	272
234	3400	381	280
241	3500	392	288
248	3600	403	296
255	3700	413	304
262	3800	426	313
269	3900	437	321
276	4000	447	329
282	4100	458	337
289	4200	471	346
296	4300	481	354
303	4400	492	362
310	4500	503	370

SG16B Stump Grinder

Theoretical Cutting Head Speed (Drive Shaft)		
Flow		Cutting Head Speed
L/min	gpm	rpm
42	11	519
45	12	566
49	13	613
53	14	660
57	15	707
61	16	754
64	17	801
68	18	849
72	19	896
76	20	943
80	21	990
83	22	1037

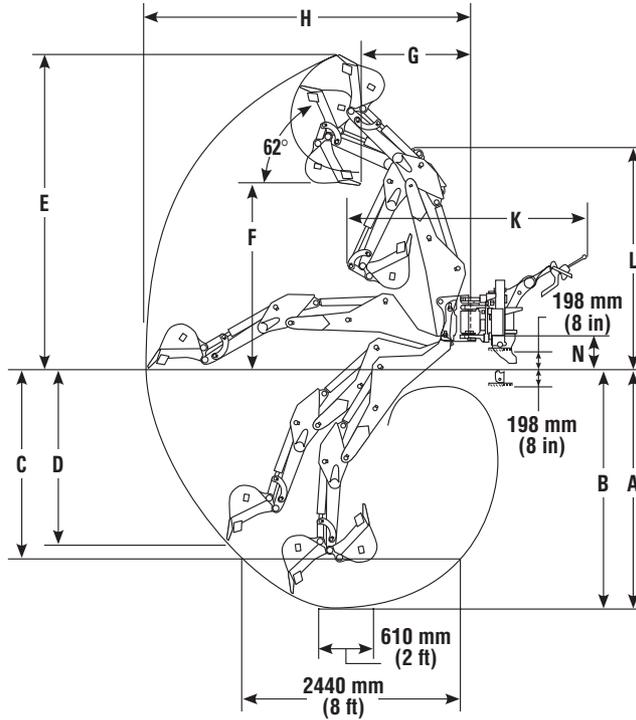
SG18B Stump Grinder

Theoretical Cutting Head Speed (Drive Shaft)		
Flow		Cutting Head Speed
L/min	gpm	rpm
95	25	931
99	26	969
102	27	1006
106	28	1043
110	29	1080
114	30	1118
118	31	1155
122	32	1192
125	33	1230



A Overall width (straight)*	1829 mm	72"	2134 mm	84"
B Overall width (angled 30° — right or left of center)*	1685 mm	66"	1949 mm	78"
C Height	610 mm	24"	610 mm	24"
D Length	753 mm	30"	753 mm	30"
Weight	313 kg	690 lb	331 kg	730 lb
Adjustable cutting depth (three positions — 25.4 mm (1") increments)	0, 25 and 51 mm	0", 1" and 2"	0, 25 and 51 mm	0", 1" and 2"
Maximum blade angle — (right or left of center)		30°		30°
Maximum blade trip angle		60°		60°

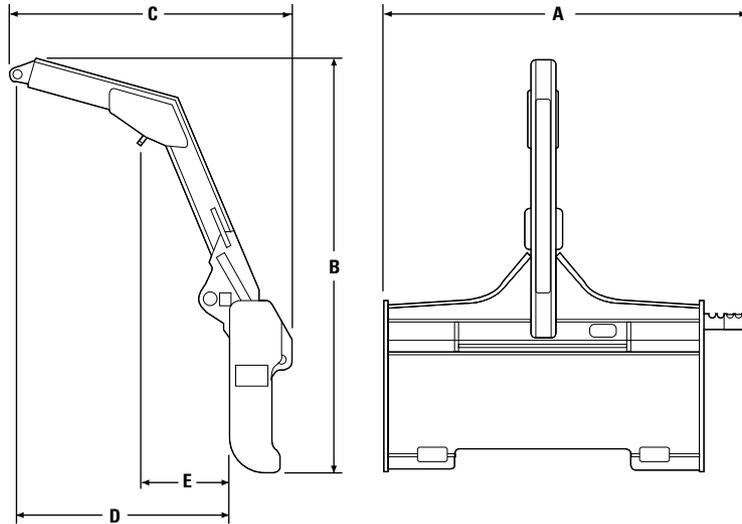
*Measured from moldboard edges; overall width is approximately 50 mm (2") wider with bolt-on edge.



BH30

BH30W

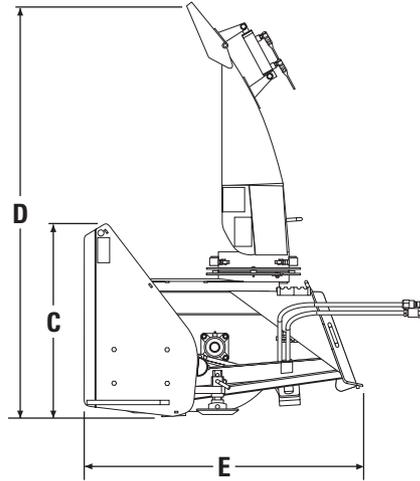
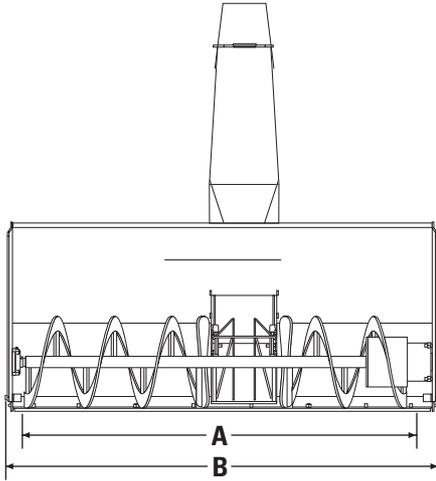
	BH30		BH30W	
Operational Specifications				
A Digging depth maximum	2896 mm	114"	2896 mm	114"
B Digging depth 0.61 m (2') flat bottom	2870 mm	113"	2870 mm	113"
C Digging depth 2.44 m (8') flat bottom	2413 mm	95"	2413 mm	95"
D Straight wall digging depth	1981 mm	78"	1981 mm	78"
E Overall operating height	3556 mm	140"	3582 mm	141"
F Loading height	2134 mm	84"	2159 mm	85"
G Loading reach	1321 mm	52"	1321 mm	52"
H Reach from swing pivot	3734 mm	147"	3734 mm	147"
K Overall length	2692 mm	106"	2743 mm	108"
Side shift length	838 mm	33"	1067 mm	42"
Swing arc		180°		180°
Bucket rotation		185°		185°
Bucket breakout force	1488 kg	3280 lb	1882 kg	4148 lb
Stick breakout force	1596 kg	3518 lb	1596 kg	3518 lb
Transport Dimensions				
L Transport height	2489 mm	98"	2515 mm	99"
N Boom pivot height	381 mm	15"	406 mm	16"
Ground clearance	167.6 mm	6.6"	134.6 mm	5.3"
Operating weight	790 kg	1741 lb	800 kg	1764 lb



A Width w/side step	1309 mm	52"
B Height	1473 mm	58"
C Length	1016 mm	40"
D Load length (end point)	768 mm	30"
E Load length (mid point)	311 mm	12"
Rated structural capacity*	907 kg	2000 lb
Maximum reach (horizontal)**	2134 mm	84"
Weight	127 kg	280 lb

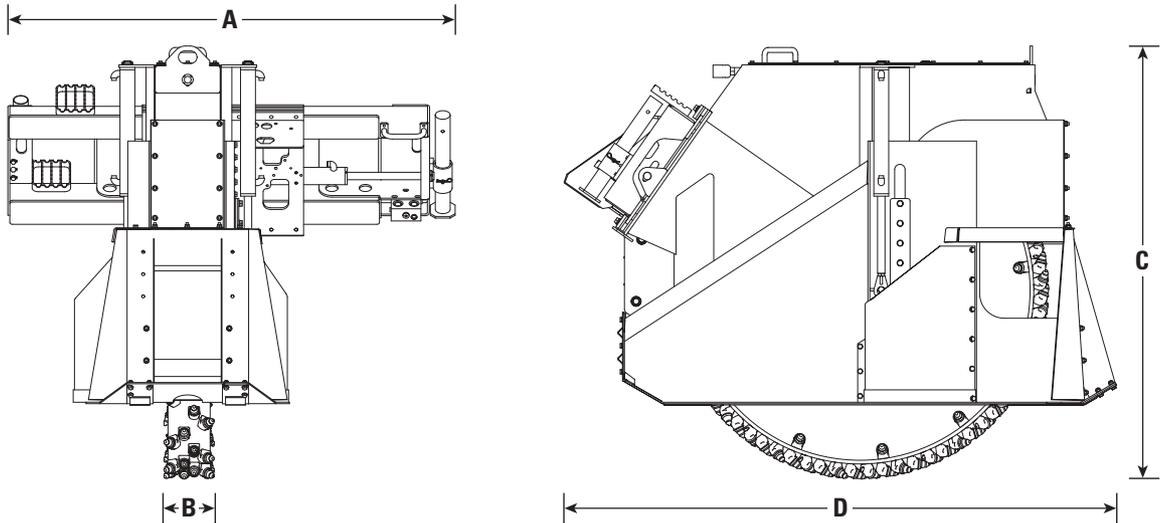
*Rated structural capacity is the maximum load that can be carried by the work tool and does not imply that the specific host machine has the tipping capacity to lift the load. Refer to the Caterpillar Skid Steer Loader and Multi Terrain Loader Operation and Maintenance Manual (OMM) for Caterpillar Skid Steer Loader and Multi Terrain Loader rated operating capacity with Material Handling Arm.

**Maximum horizontal reach is measured from the front tire with the loader arms approximately 1.5 m (5') off the ground and work tool tilted forward approximately 68 degrees at the end point.



	SR17		SR18		SR21	
A Intake width	1702 mm	67"	1854 mm	73"	2159 mm	85"
B Overall width	1765 mm	69.5"	1918 mm	75.5"	2223 mm	87.5"
C Cutting height	609.6 mm	24"	812.8 mm	32"	914.4 mm	36"
D Overall height	1582 mm	62.3"	1582 mm	62.3"	1735 mm	68.3"
E Overall length	1148 mm	45.2"	1209 mm	47.6"	1440 mm	56.7"
Weight	404.5 kg	890 lb	450 kg	990 lb	555 kg	1220 lb
Maximum throw distance*	9.1 m	30'0"	12.2 m	40'0"	12.2 m	40'0"
Auger diameter	304.8 mm	12"	406.4 mm	16"	457.2 mm	18"
Impeller/fan diameter	518.2 mm	20.4"	518.2 mm	20.4"	679.5 mm	26.75"
Chute rotation		180°		180°		180°
Required hydraulic flow	53-76 L/min	14-20 gpm	68-91 L/min	18-24 gpm	98-129 L/min	26-34 gpm

*Theoretical values calculated at 100% efficiency.



	SW45 80 mm (3")		SW45 160 mm (6")		SW45 200 mm (8")		SW60 160 mm (6")		SW60 200 mm (8")	
A Overall width	1803 mm	71"	1803 mm	71"	1803 mm	71"	1866 mm	74"	1866 mm	74"
B Maximum wheel width	80 mm	3"	160 mm	6"	200 mm	8"	160 mm	6"	200 mm	8"
C Overall height	1440 mm	57"	1435 mm	56"	1435 mm	56"	1746 mm	69"	1746 mm	69"
D Length	1992 mm	78"	1992 mm	78"	1992 mm	78"	2230 mm	88"	2230 mm	88"
Weight	1004 kg	2213 lb	932 kg	2054 lb	961 kg	2118 lb	1169 kg	2577 lb	1192 kg	2628 lb
Trench cleaning device	No		Yes		Yes		Yes		Yes	
Drive method	Piston motor/ Planetary									
Required hydraulic flow range	90- 160 L/min	24- 42 gpm	90- 160 L/min	24- 42 gpm	90- 160 L/min	24- 42 gpm	100- 160 L/min	26- 42 gpm	100- 160 L/min	26- 42 gpm
Optimal hydraulic pressure range	180- 300 bar	2611- 4351 psi								
Wheel torque @ maximum pressure	1131 N•m	832 lb-ft	1429 N•m	1051 lb-ft	1429 N•m	1051 lb-ft	1429 N•m	1051 lb-ft	1429 N•m	1051 lb-ft
Wheel speed @ maximum flow	267 rpm		212 rpm		212 rpm		212 rpm		212 rpm	
Bit speed @ maximum flow	395 mpm	1295 fpm	313 mpm	1026 fpm	313 mpm	1026 fpm	313 mpm	1026 fpm	313 mpm	1026 fpm
Conical bits	64 per wheel		56 per wheel		62 per wheel		96 per wheel		96 per wheel	
Standard bit type	Concrete		Concrete		Concrete		Concrete		Concrete	
Optional bit type	All purpose									
Maximum depth of cut	450 mm	18"	450 mm	18"	450 mm	18"	600 mm	24"	600 mm	24"
Sideshift travel	650 mm	26"								

EXCAVATORS

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MODEL	301.5		301.5 CR		301.6		301.8	
Sourcing	U.K.		Japan		U.K.		U.K.	
Flywheel Power	13 kW	17.4 hp	11.3 kW	15 hp	13 kW	17.4 hp	13 kW	17.4 hp
Operating Weight*	1650 kg	3640 lb	1575 kg	3470 lb	1690 kg	3726 lb	1725 kg	3803 lb
Bucket Capacity	0.018-	0.023-	0.03-	0.039-	0.018-	0.023-	0.018-	0.023-
Range (heaped)	0.056 m ³	0.073 yd³	0.04 m ³	0.052 yd³	0.056 m ³	0.073 yd³	0.056 m ³	0.073 yd³
Engine Model	3003		L3E		3003		3003	
Rated Engine RPM	2300		2100		2300		2300	
No. of Cylinders	3		3		3		3	
Bore	75 mm	2.95"	76 mm	3"	75 mm	2.95"	75 mm	2.95"
Stroke	72 mm	2.83"	70 mm	3"	72 mm	2.83"	72 mm	2.83"
Displacement	0.95 L	58.2 in³	0.953 L	58.1 in³	0.95 L	58.2 in³	0.95 L	58.2 in³
Max. Implement								
Hydraulic Pump	2 × 17/	2 × 4.5/	2 × 18.3/	2 × 4.8/	2 × 17/	2 × 4.5/	2 × 17/	2 × 4.5/
Output at Rated	1 × 18	1 × 4.8	1 × 12.2	1 × 3.2	1 × 18	1 × 4.8	1 × 18	1 × 4.8
RPM	L/min	gpm	L/min	gpm	L/min	gpm	L/min	gpm
Relief Valve Settings:								
Implement Circuits	18 600 kPa	2700 psi	20 600 kPa	2990 psi	18 600 kPa	2700 psi	18 600 kPa	2700 psi
Travel Circuits	18 600 kPa	2700 psi	20 600 kPa	2990 psi	18 600 kPa	2700 psi	18 600 kPa	2700 psi
Swing Circuits	17 200 kPa	2500 psi	10 800 kPa	1570 psi	17 200 kPa	2500 psi	17 200 kPa	2500 psi
Pilot Circuits	—		3430 kPa	500 psi	—		—	
Maximum Drawbar								
Pull	13.6 kN	3060 lb	15.2 kN	3420 lb	13.6 kN	3060 lb	13.6 kN	3060 lb
Maximum Travel	Two Speed Travel		Two Speed Travel		Two Speed Travel		Two Speed Travel	
Speed at	Lo: 2.2 km/h	1.4 mph	Lo: 2.3 km/h	1.4 mph	Lo: 2.2 km/h	1.4 mph	Lo: 2.2 km/h	1.4 mph
Rated RPM	Hi: 4.4 km/h	2.7 mph	Hi: 4.0 km/h	2.5 mph	Hi: 4.4 km/h	2.7 mph	Hi: 4.4 km/h	2.7 mph
Width of Standard								
Track Shoe	230 mm	9"	230 mm	9"	230 mm	9"	230 mm	9"
Overall Track Length	1390 mm	4'7"	1580 mm	5'2"	1486 mm	4'8"	1486 mm	4'8"
Ground Contact Area								
with Std. Shoe	0.52 m ²	806 in²	0.61 m ²	950 in²	0.57 m ²	883 in²	0.57 m ²	883 in²
Track Gauge								
Standard								
Undercarriage	750 mm	2'6"	750 mm	2'6"	750 mm	2'6"	750 mm	2'6"
Variable Width								
Undercarriage	—		1110 mm	3'8"	—		1110 mm	3'8"
Fuel Tank Refill								
Capacity	20 L	5.3 U.S. gal	22 L	6 U.S. gal	20 L	5.3 U.S. gal	20 L	5.3 U.S. gal
Hydraulic System								
(includes tank)	37 L	9.8 U.S. gal	24 L	6.3 U.S. gal	37 L	9.8 U.S. gal	37 L	9.8 U.S. gal

*Operating weight for 301.5, 301.6, and 301.8 includes coolant, lubricants, full fuel tank, cab, standard shoes, bucket, medium stick, and operator 75 kg (165 lb).
 Operating weight for 301.5 CR includes coolant, lubricants, full fuel tank, canopy, rubber track, rubber shoes, bucket, medium stick, and operator 75 kg (165 lb).

NOTE: Certain models may not be available in all Sales areas.
 Specifications may also vary by Sales area.
 Contact your Caterpillar Dealer for details.



MODEL	302.5		303 SR		303 CR	
Sourcing	U.K.		Japan		Japan	
Flywheel Power	16.8 kW	22.5 hp	19.1 kW	26 hp	19.1 kW	26 hp
Operating Weight*						
with Additional Counterweight	2730 kg	6020 lb	3025 kg	6670 lb	3210 kg	7077 lb
Bucket Capacity Range (heaped)	0.035- 0.092 m ³	0.046- 0.12 yd³	0.036- 0.09 m ³	0.047- 0.12 yd³	0.049- 0.159 m ³	0.065- 0.208 yd³
Engine Model	3013		S3L2		S3L2	
Rated Engine RPM	2300		2300		2400	
No. of Cylinders	3		3		3	
Bore	84 mm	3.31"	78 mm	3"	78 mm	3"
Stroke	90 mm	3.54"	92 mm	4"	92 mm	4"
Displacement	1.5 L	91.7 in³	1.319 L	80 in³	1.3 L	79 in³
Max. Implement Hydraulic Pump Output at Rated RPM	2 × 32/ 1 × 19 L/min	2 × 8.5/ 1 × 4.9 gpm	2 × 33.5/ 1 × 27.7 L/min	2 × 8.8/ 1 × 7.3 gpm	2 × 33.5/ 1 × 23.4 L/min	2 × 8.8/ 1 × 6.2 gpm
Relief Valve Settings:						
Implement Circuits	20 600 kPa	2987 psi	24 500 kPa	3550 psi	24 500 kPa	3550 psi
Travel Circuits	20 600 kPa	2987 psi	24 500 kPa	3550 psi	24 500 kPa	3550 psi
Swing Circuits	17 200 kPa	2500 psi	20 600 kPa	2990 psi	20 600 kPa	2990 psi
Pilot Circuits	—		3430 kPa	500 psi	3430 kPa	500 psi
Maximum Drawbar Pull	22 kN	4950 lb	30 kN	6740 lb	30 kN	6740 lb
	Two Speed Travel		Two Speed Travel		Two Speed Travel	
Maximum Travel Speed at Rated RPM	Lo: 2.5 km/h Hi: 4.5 km/h	1.55 mph 2.8 mph	Lo: 2.6 km/h Hi: 4.6 km/h	1.6 mph 2.9 mph	Lo: 2.6 km/h Hi: 4.6 km/h	1.6 mph 2.9 mph
Width of Standard Track Shoe	300 mm	12"	300 mm	12"	300 mm	12"
Overall Track Length	1910 mm	6'3"	2070 mm	6'9"	2070 mm	6'9"
Ground Contact Area with Std. Shoe	0.97 m ²	1503 in²	1.1 m ²	1710 in²	1.1 m ²	1705 in²
Track Gauge Standard Undercarriage	1150 mm	3'9"	1250 mm	4'1"	1250 mm	4'1"
Fuel Tank Refill Capacity	41.5 L	10.8 U.S. gal	42 L	11 U.S. gal	42 L	11 U.S. gal
Hydraulic System (includes tank)	50 L	13 U.S. gal	30 L	7.9 U.S. gal	30 L	7.9 U.S. gal

*Operating weight for 302.5 and 303 CR includes coolant, lubricants, full fuel tank, cab, standard shoes, bucket, medium stick, and operator 75 kg (165 lb).

Operating weight for 303 SR includes coolant, lubricants, full fuel tank, canopy, rubber track, rubber shoes, bucket, medium stick, and operator 75 kg (165 lb).

NOTE: Certain models may not be available in all Sales areas.

Specifications may also vary by Sales area.
Contact your Caterpillar Dealer for details.



MODEL	304 CR		305 SR		305 CR	
Sourcing	Japan		Japan		Japan	
Flywheel Power	26.5 kW	36 hp	30 kW	40 hp	31.3 kW	42 hp
Operating Weight*	4300 kg		5385 kg		4800 kg	
with Additional Counterweight	9480 lb		11 870 lb		10,582 lb	
Bucket Capacity Range (heaped)	0.058-0.23 m ³		0.051-0.22 m ³		0.058-0.23 m ³	
Engine Model	S4L2		K4N		K4N	
Rated Engine RPM	2500		2200		2400	
No. of Cylinders	4		4		4	
Bore	78 mm	3"	90 mm	4"	90 mm	4"
Stroke	92 mm	4"	90 mm	4"	90 mm	4"
Displacement	1.758 L		2.290 L		2.3 L	
Max. Implement Hydraulic Pump Output at Rated RPM	2 × 43.4/1 × 40.7 L/min		2 × 53.4/1 × 38.6 L/min		2 × 52.1/1 × 42.1 L/min	
Relief Valve Settings:	1 × 10.8 gpm		1 × 10.2 gpm		1 × 11.1 gpm	
Implement Circuits	24 500 kPa	3550 psi	21 600 kPa	3130 psi	24 500 kPa	3550 psi
Travel Circuits	24 500 kPa	3550 psi	21 600 kPa	3130 psi	24 500 kPa	3550 psi
Swing Circuits	24 500 kPa	3550 psi	23 000 kPa	3340 psi	2450 kPa	360 psi
Pilot Circuits	3430 kPa	500 psi	3430 kPa	500 psi	3430 kPa	500 psi
Maximum Drawbar Pull	41.2 kN	9260 lb	40.7 kN	9150 lb	44.6 kN	10 020 lb
Maximum Travel Speed at Rated RPM	Two Speed Travel		Two Speed Travel		Two Speed Travel	
Width of Standard Track Shoe	Lo: 2.6 km/h	1.6 mph	Lo: 2.6 km/h	1.6 mph	Lo: 2.7 km/h	1.7 mph
Overall Track Length	Hi: 4.6 km/h	2.9 mph	Hi: 4.3 km/h	2.7 mph	Hi: 4.6 km/h	2.9 mph
Ground Contact Area with Std. Shoe	400 mm	16"	400 mm	16"	400 mm	16"
Track Gauge Standard Undercarriage	2450 mm	8'0"	2450 mm	8'0"	2450 mm	8'0"
Fuel Tank Refill Capacity	1.7 m ²	2640 in²	1.7 m ²	2640 in²	1.7 m ²	2635 in²
Hydraulic System (includes tank)	1580 mm	5'2"	1600 mm	5'3"	1580 mm	5'2"
	62 L	16 U.S. gal	69 L	18 U.S. gal	68 L	18 U.S. gal
	85 L	22.5 U.S. gal	80 L	21.1 U.S. gal	57 L	15.1 U.S. gal

*Operating weight for 304.5 and 305 CR includes coolant, lubricants, full fuel tank, cab, standard shoes, bucket, medium stick, and operator 75 kg (165 lb).

Operating weight for 304 CR and 305 SR includes coolant, lubricants, full fuel tank, cab, rubber track, rubber shoes, bucket, medium stick, and operator 75 kg (165 lb).

NOTE: Certain models may not be available in all Sales areas.

Specifications may also vary by Sales area.

Contact your Caterpillar Dealer for details.



MODEL	307C		307C SB		308C SR	
Sourcing	Japan		Japan		Japan	
Flywheel Power	41 kW	54 hp	41 kW	54 hp	40.5 kW	54 hp
Operating Weight*	7210 kg	15,900 lb	8390 kg	18,500 lb	8430 kg	18,580 lb
Bucket Capacity Range (heaped)	0.15-0.34 m ³	0.2-0.45 yd³	0.15-0.34 m ³	0.2-0.45 yd³	0.14-0.28 m ³	0.076-0.30 yd³
Engine Model	4M40E1		4M40E1		K4N	
Rated Engine RPM	2100		2100		2100	
No. of Cylinders	4		4		4	
Bore	95 mm	3.7"	95 mm	3.7"	95 mm	4"
Stroke	100 mm	3.9"	100 mm	3.9"	100 mm	4"
Displacement	2.84 L	173 in³	2.84 L	173 in³	2.835 L	173 in³
Max. Implement Hydraulic Pump Output at Rated RPM	2 × 64 L/min	2 × 17 gpm	2 × 64 L/min	2 × 17 gpm	2 × 64/ 1 × 34 L/min	2 × 16.9/ 1 × 19 gpm
Relief Valve Settings:						
Implement Circuits	27 460 kPa	3980 psi	27 460 kPa	3980 psi	27 460 kPa	3980 psi
Travel Circuits	31 380 kPa	4550 psi	31 380 kPa	4550 psi	31 380 kPa	4550 psi
Swing Circuits	19 610 kPa	2840 psi	24 030 kPa	3480 psi	24 030 kPa	3480 psi
Pilot Circuits	4120 kPa	600 psi	4120 kPa	600 psi	4120 kPa	600 psi
Maximum Drawbar Pull	57 kN	12,810 lb	57 kN	12,810 lb	57 kN	12,810 lb
	Two Speed Travel		Two Speed Travel		Two Speed Travel	
Maximum Travel Speed at Rated RPM	Lo: 3.5 km/h	2.2 mph	Lo: 3.5 km/h	2.2 mph	Lo: 3.5 km/h	2.2 mph
	Hi: 5.3 km/h	3.3 mph	Hi: 5.3 km/h	3.3 mph	Hi: 5.3 km/h	3.3 mph
Width of Standard Track Shoe	600 mm	24"	600 mm	24"	450 mm	18"
Overall Track Length	2760 mm	9'1"	2760 mm	9'1"	2910 mm	9'7"
Ground Contact Area with Std. Shoe	2.81 m ²	4360 in²	2.81 m ²	4360 in²	3 m ²	4650 in²
Track Gauge Standard Undercarriage	1750 mm	5'9"	1750 mm	5'9"	1870 mm	6'2"
Fuel Tank Refill Capacity	135 L	36 U.S. gal	135 L	35.7 U.S. gal	115 L	30 U.S. gal
Hydraulic System (includes tank)	94 L	24.8 U.S. gal	94 L	24.8 U.S. gal	92 L	24.3 U.S. gal

*Operating weight for 307C, 307C SB, and 307B SB includes coolant, lubricants, full fuel tank, cab, standard shoes, bucket, medium stick, and operator 75 kg (165 lb). Operating weight for 308C SR includes coolant, lubricants, full fuel tank, canopy, rubber shoes, bucket, medium stick, and operator 75 kg (165 lb).

NOTE: Certain models may not be available in all Sales areas.

Specifications may also vary by Sales area.

Contact your Caterpillar Dealer for details.



MODEL	308C CR		311C U		312C		312C	
Sourcing	Japan		Japan		Japan		France	
Flywheel Power	41 kW	55 hp	59 kW	79 hp	67 kW	90 hp	71 kW	96 hp
Operating Weight*	8040 kg	17,730 lb	11 980 kg	26,410 lb	12 860 kg	28,350 lb	13 140 kg	28,970 lb
Bucket Capacity	0.15-	0.2-	0.3-	0.39-	0.3-	0.39-	0.24-	0.31-
Range (heaped)	0.34 m ³	0.44 yd³	0.74 m ³	0.97 yd³	0.7 m ³	0.92 yd³	0.75 m ³	0.98 yd³
Engine Model	4M40E1		3064 T		3064 T		3064 T	
Rated Engine RPM	2100		1800		1950		1950	
No. of Cylinders	4		4		4		4	
Bore	95 mm	3.7"	102 mm	4"	102 mm	4"	100 mm	3.9"
Stroke	100 mm	4"	130 mm	5.1"	130 mm	5.1"	127 mm	5"
Displacement	2.84 L	173 in³	4.25 L	259 in³	4.25 L	259 in³	4 L	244 in³
Max. Implement Hydraulic Pump Output at Rated RPM	2 × 64 L/min	2 × 17 gpm	2 × 108 L/min	2 × 28 gpm	2 × 127 L/min	2 × 33.5 gpm	2 × 129 L/min	2 × 34 gpm
Relief Valve Settings:								
Implement Circuits	27 460 kPa	3980 psi	29 900 kPa	4340 psi	29 900 kPa	4340 psi	29 900 kPa	4332 psi
Travel Circuits	31 380 kPa	4550 psi	34 300 kPa	4980 psi	34 300 kPa	4980 psi	34 300 kPa	4970 psi
Swing Circuits	24 030 kPa	3480 psi	23 500 kPa	3410 psi	24 500 kPa	3560 psi	23 050 kPa	3343 psi
Pilot Circuits	4120 kPa	600 psi	4120 kPa	600 psi	4120 kPa	600 psi	4120 kPa	600 psi
Maximum Drawbar Pull	57 kN	12,810 lb	92.0 kN	20,680 lb	110 kN	24,720 lb	108 kN	24,279 lb
Maximum Travel Speed at Rated RPM	Two Speed Travel							
Lo:	3.5 km/h	2.2 mph	3.4 km/h	2.1 mph	3.8 km/h	2.4 mph	3.6 km/h	2.2 mph
Hi:	5.3 km/h	3.3 mph	5.5 km/h	3.4 mph	5.5 km/h	3.4 mph	5.5 km/h	3.4 mph
Width of Standard Track Shoe	600 mm	24"	500 mm	20"	600 mm	24"	500 mm	20"
Overall Track Length	2910 mm	9'7"	3320 mm	10'11"	3490 mm	11'5"	3490 mm	11'5"
Ground Contact Area with Std. Shoe	3 m ²	4650 in²	2.86 m ²	4430 in²	3.63 m ²	5630 in²	3.03 m ²	4700 in²
Track Gauge Standard Undercarriage	1870 mm	6'2"	1990 mm	6'6"	1990 mm	6'6"	1990 mm	6'6"
Fuel Tank Refill Capacity	115 L	30 U.S. gal	195 L	52 U.S. gal	250 L	66 U.S. gal	250 L	66 U.S. gal
Hydraulic System (includes tank)	92 L	24.3 U.S. gal	160 L	42.3 U.S. gal	162 L	42.8 U.S. gal	164 L	43.5 U.S. gal

*Operating weight includes coolant, lubricants, full fuel tank, cab, standard shoes, bucket, medium stick, and operator 75 kg (165 lb).

NOTE: Certain models may not be available in all Sales areas.

Specifications may also vary by Sales area.
Contact your Caterpillar Dealer for details.



MODEL	312C L		312C L		313C SR		313C CR	
Sourcing	Japan		France		Japan		Japan	
Flywheel Power	67 kW	90 hp	71 kW	96 hp	59 kW	79 hp	59 kW	79 hp
Operating Weight*	13 140 kg	28,970 lb	15 150 kg	33,407 lb	14 000 kg	30,860 lb	13 400 kg	29,540 lb
Bucket Capacity	0.3-	0.39-	0.24-	0.31-	0.32-	0.42-	0.32-	0.42-
Range (heaped)	0.7 m ³	0.92 yd³	0.75 m ³	0.98 yd³	0.45 m ³	0.59 yd³	0.5 m ³	0.75 yd³
Engine Model	3064 T		3064 T		3064 T		3064 T	
Rated Engine RPM	1950		1950		1800		1800	
No. of Cylinders	4		4		4		4	
Bore	102 mm	4"	100 mm	3.9"	102 mm	4"	102 mm	4"
Stroke	130 mm	5.1"	127 mm	5"	130 mm	5"	130 mm	5"
Displacement	4.25 L	259 in³	4 L	244 in³	4.25 L	259 in³	4.25 L	259 in³
Max. Implement Hydraulic Pump Output at Rated RPM	2 × 127 L/min	2 × 33.5 gpm	2 × 129 L/min	2 × 34 gpm	2 × 117 L/min	2 × 30.9 gpm	2 × 117 L/min	2 × 30.9 gpm
Relief Valve Settings:								
Implement Circuits	29 900 kPa	4340 psi	29 900 kPa	4340 psi	29 900 kPa	4340 psi	29 900 kPa	4340 psi
Travel Circuits	34 300 kPa	4970 psi	34 300 kPa	4970 psi	34 300 kPa	4970 psi	34 300 kPa	4970 psi
Swing Circuits	24 500 kPa	3550 psi	23 050 kPa	3340 psi	24 500 kPa	3550 psi	24 500 kPa	3550 psi
Pilot Circuits	4120 kPa	600 psi	4120 kPa	600 psi	4100 kPa	590 psi	4100 kPa	590 psi
Maximum Drawbar Pull: Standard	110 kN	24,720 lb	—	—	110 kN	24,720 lb	110 kN	24,720 lb
Heavy	—	—	126 kN	28,326 lb	—	—	—	—
Maximum Travel Speed at Rated RPM	Two Speed Travel Lo: 3.8 km/h 2.4 mph Hi: 5.5 km/h 3.4 mph		Two Speed Travel Lo: 3.2 km/h 1.9 mph Hi: 5.1 km/h 3.1 mph		Two Speed Travel Lo: 3.6 km/h 2.2 mph Hi: 5.2 km/h 3.2 mph		Two Speed Travel Lo: 3.6 km/h 2.2 mph Hi: 5.2 km/h 3.2 mph	
Width of Standard Track Shoe	600 mm	24"	600 mm	24"	500 mm	20"	500 mm	20"
Overall Track Length	3750 mm	12'4"	3750 mm	12'4"	2780 mm	9'1"	2780 mm	9'1"
Ground Contact Area with Std. Shoe	3.95 m ²	6120 in²	3.95 m ²	6120 in²	3.03 m ²	4700 in²	3.03 m ²	4700 in²
Track Gauge	1990 mm	6'6"	1990 mm	6'6"	1990 mm	6'6"	1990 mm	6'6"
Fuel Tank Refill Capacity	250 L	66 U.S. gal	250 L	66 U.S. gal	200 L	53 U.S. gal	200 L	53 U.S. gal
Hydraulic System (includes tank)	162 L	42.8 U.S. gal	164 L	43.5 U.S. gal	150 L	39.6 U.S. gal	150 L	39.6 U.S. gal

*Operating weight for 312C L includes coolant, lubricants, full fuel tank, standard shoes, bucket, medium stick, and operator 75 kg (165 lb).

Operating weight for 313C CR and 313C SR includes coolant, lubricants, full fuel tank, standard shoes, bucket, blade, medium stick, and operator 75 kg (165 lb).

NOTE: Certain models may not be available in all Sales areas.

Specifications may also vary by Sales area.

Contact your Caterpillar Dealer for details.



MODEL	314C CR		314C LCR		315C		315C L	
Sourcing	Japan		Japan		Japan		Japan	
Flywheel Power	67 kW	90 hp	67 kW	90 hp	82 kW	110 hp	82 kW	110 hp
Operating Weight*	14 610 kg	32,190 lb	14 810 kg	32,590 lb	16 400 kg	36,160 lb	16 750 kg	36,930 lb
Bucket Capacity	0.3-	0.39-	0.3-	0.39-	0.33-	0.43-	0.33-	0.43-
Range (heaped)	0.74 m ³	0.97 yd³	0.74 m ³	0.97 yd³	0.86 m ³	1.13 yd³	0.86 m ³	1.13 yd³
Engine Model	3064 T		3064 T		3046 T		3046 T	
Rated Engine RPM	1950		1950		2150		2150	
No. of Cylinders	4		4		6		6	
Bore	102 mm	4"	102 mm	4"	94 mm	3.7"	94 mm	3.7"
Stroke	130 mm	5.1"	130 mm	5.1"	120 mm	4.7"	120 mm	4.7"
Displacement	4.3 L	259 in³	4.3 L	259 in³	5 L	305 in³	5 L	305 in³
Max. Implement Hydraulic Pump Output at Rated RPM	2 × 127 L/min	2 × 33.5 gpm	2 × 127 L/min	2 × 33.5 gpm	2 × 150 L/min	2 × 39.6 gpm	2 × 150 L/min	2 × 39.6 gpm
Relief Valve Settings:								
Implement Circuits	29 900 kPa	4340 psi	29 900 kPa	4340 psi	34 300 kPa	4980 psi	34 300 kPa	4980 psi
Travel Circuits	34 300 kPa	4980 psi	34 300 kPa	4980 psi	34 300 kPa	4980 psi	34 300 kPa	4980 psi
Swing Circuits	23 050 kPa	3340 psi	23 050 kPa	3340 psi	22 540 kPa	3270 psi	22 550 kPa	3270 psi
Pilot Circuits	4120 kPa	600 psi	4120 kPa	600 psi	4120 kPa	600 psi	4120 kPa	600 psi
Maximum Drawbar Pull	110 kN	24,720 lb	110 kN	24,720 lb	150 kN	33,710 lb	150 kN	33,710 lb
Maximum Travel Speed at Rated RPM	Two Speed Travel Lo: 3.8 km/h 2.4 mph Hi: 5.5 km/h 3.4 mph		Two Speed Travel Lo: 3.8 km/h 2.4 mph Hi: 5.5 km/h 3.4 mph		Two Speed Travel Lo: 3.4 km/h 2.1 mph Hi: 5.5 km/h 3.4 mph		Two Speed Travel Lo: 3.4 km/h 2.1 mph Hi: 5.5 km/h 3.4 mph	
Width of Standard Track Shoe	500 mm	20"	500 mm	20"	500 mm	20"	600 mm	24"
Overall Track Length	3490 mm	11'5"	3750 mm	12'4"	3690 mm	12'1"	3970 mm	13'0"
Ground Contact Area with Std. Shoe	3.63 m ²	5630 in²	3.95 m ²	6120 in²	3.8 m ²	5890 in²	4.14 m ²	6420 in²
Track Gauge	1990 mm	6'6"	1990 mm	6'6"	1990 mm	6'6"	1990 mm	6'6"
Fuel Tank Refill Capacity	200 L	53 U.S. gal	200 L	53 U.S. gal	285 L	75 U.S. gal	285 L	75 U.S. gal
Hydraulic System (includes tank)	150 L	39.6 U.S. gal	150 L	39.6 U.S. gal	190 L	50.2 U.S. gal	190 L	50.2 U.S. gal

*Operating weight for 314C CR and 314C LCR includes coolant, lubricants, full fuel tank, standard shoes, bucket, blade, medium stick, and operator 75 kg (165 lb). Operating weight for 315C and 315C L includes coolant, lubricants, full fuel tank, standard shoes, bucket, medium stick, and operator 75 kg (165 lb).

NOTE: Certain models may not be available in all Sales areas. Specifications may also vary by Sales area. Contact your Caterpillar Dealer for details.



MODEL	315C L		318C		318C L	
Sourcing	France		France		Japan	
Flywheel Power	83 kW	111 hp	93 kW	125 hp	93 kW	125 hp
Operating Weight*	16 734 kg	36,890 lb	19 600 kg	43,211 lb	19 650 kg	43,320 lb
Bucket Capacity Range (heaped)	0.41-1.35 m ³	0.54-1.77 yd³	0.41-1.35 m ³	0.54-1.77 yd³	0.4-1.2 m ³	0.52-1.33 yd³
Engine Model	3054E ATAAC		3066 T		3066 T	
Rated Engine RPM	1800		1800		1800	
No. of Cylinders	4		6		6	
Bore	105 mm	4.13"	102 mm	4"	102 mm	4"
Stroke	127 mm	5"	130 mm	5.11"	130 mm	5"
Displacement	4.4 L	269 in³	6.4 L	390.5 in³	6.4 L	390 in³
Max. Implement Hydraulic Pump Output at Rated RPM	2 × 150 L/min	2 × 39.6 gpm	2 × 190 L/min	2 × 50.2 gpm	2 × 190 L/min	2 × 50.2 gpm
Relief Valve Settings:						
Implement Circuits	34 300 kPa	4970 psi	34 300 kPa	4970 psi	34 320 kPa	4980 psi
Travel Circuits	34 300 kPa	4970 psi	34 300 kPa	4970 psi	34 320 kPa	4980 psi
Swing Circuits	22 540 kPa	3270 psi	23 050 kPa	3343 psi	20 100 kPa	2910 psi
Pilot Circuits	4120 kPa	600 psi	4100 kPa	595 psi	3930 kPa	570 psi
Maximum Drawbar Pull	152 kN	34,170 lb	195 kN	43,838 lb	202 kN	45,500 lb
	Two Speed Travel		Two Speed Travel		Two Speed Travel	
Maximum Travel Speed at Rated RPM	Lo: 3.2 km/h	1.9 mph	Lo: 3.0 km/h	1.86 mph	Lo: 3.3 km/h	2.0 mph
	Hi: 5.5 km/h	3.4 mph	Hi: 5.0 km/h	3.1 mph	Hi: 5.3 km/h	3.3 mph
Width of Standard Track Shoe	500 mm	20"	600 mm	24"	600 mm	24"
Overall Track Length	3960 mm	12'6"	4075 mm	13'4"	4250 mm	13'11"
Ground Contact Area with Std. Shoe	3.16 m ²	4907 in²	3.9 m ²	6045 in²	4.48 m ²	6940 in²
Track Gauge	1990 mm	6'6"	2200 mm	7'3"	2400 mm	7'10"
Fuel Tank Refill Capacity	285 L	75 U.S. gal	320 L	84.5 U.S. gal	320 L	85 U.S. gal
Hydraulic System (includes tank)	188 L	49.7 U.S. gal	188 L	49.7 U.S. gal	255 L	67.4 U.S. gal

*Operating weight for 315C L includes coolant, lubricants, full fuel tank, standard shoes, bucket, medium stick, and operator 75 kg (165 lb).
 Operating weight for 318C and 318C L includes coolant, lubricants, full fuel tank, standard shoes, bucket, long stick, and operator 75 kg (165 lb).
NOTE: Certain models may not be available in all Sales areas.
 Specifications may also vary by Sales area.
 Contact your Caterpillar Dealer for details.



MODEL	318C L		318C LN		318C N	
Sourcing	France		Japan		France	
Flywheel Power	93 kW	125 hp	93 kW	125 hp	93 kW	125 hp
Operating Weight*	20 160 kg	44,450 lb	19 350 kg	42,660 lb	19 280 kg	42,505 lb
Bucket Capacity Range (heaped)	0.41-1.35 m ³	0.53-1.75 yd³	0.4-1.2 m ³	0.52-1.33 yd³	0.41-1.35 m ³	0.54-1.77 yd³
Engine Model	3066 T		3066 T		3066 T	
Rated Engine RPM	1800		1800		1800	
No. of Cylinders	6		6		6	
Bore	102 mm	4"	102 mm	4"	102 mm	4"
Stroke	130 mm	5"	130 mm	5"	130 mm	5"
Displacement	6.4 L	390 in³	6.4 L	390 in³	6.4 L	390 in³
Max. Implement Hydraulic Pump Output at Rated RPM	2 × 190 L/min	2 × 50.2 gpm	2 × 190 L/min	2 × 50.2 gpm	2 × 190 L/min	2 × 50.2 gpm
Relief Valve Settings:						
Implement Circuits	34 300 kPa	4970 psi	34 320 kPa	4980 psi	34 300 kPa	4970 psi
Travel Circuits	34 300 kPa	4970 psi	34 320 kPa	4980 psi	34 300 kPa	4970 psi
Swing Circuits	23 050 kPa	3343 psi	20 100 kPa	2910 psi	23 050 kPa	3343 psi
Pilot Circuits	4100 kPa	590 psi	3930 kPa	570 psi	4100 kPa	595 psi
Maximum Drawbar Pull	195 kN	43,840 lb	202 kN	45,500 lb	195 kN	43,838 lb
	Two Speed Travel		Two Speed Travel		Two Speed Travel	
Maximum Travel Speed at Rated RPM	Lo: 3.0 km/h	1.86 mph	Lo: 3.3 km/h	2.0 mph	Lo: 3.0 km/h	1.86 mph
	Hi: 5.0 km/h	3.1 mph	Hi: 5.3 km/h	3.3 mph	Hi: 5.0 km/h	3.1 mph
Width of Standard Track Shoe	600 mm	24"	500 mm	20"	500 mm	20"
Overall Track Length	4450 mm	13'3"	4250 mm	13'11"	4075 mm	13'4"
Ground Contact Area with Std. Shoe	4.3 m ²	6665 in²	3.73 m ²	5780 in²	3.26 m ²	5053 in²
Track Gauge	2800 mm	9'3"	1990 mm	6'6"	1990 mm	6'6"
Fuel Tank Refill Capacity	320 L	85 U.S. gal	320 L	85 U.S. gal	320 L	84.5 U.S. gal
Hydraulic System (includes tank)	188 L	49.7 U.S. gal	255 L	67.4 U.S. gal	188 L	49.7 U.S. gal

*Operating weight for 318C L includes coolant, lubricants, full fuel tank, standard shoes, bucket, long stick, and operator 75 kg (165 lb).

Operating weight for 318C LN and 318C N includes coolant, lubricants, full fuel tank, standard shoes, bucket, medium stick, and operator 75 kg (165 lb).

NOTE: Certain models may not be available in all Sales areas.

Specifications may also vary by Sales area.

Contact your Caterpillar Dealer for details.

**M313C****M315C****M316C**

MODEL	M313C		M315C		M316C	
Flywheel Power	86 kW	115 hp	96 kW	129 hp	103 kW	138 hp
Operating Weight*	14 400 kg	30,860 lb	16 150 kg	35,610 lb	17 700 kg	39,028 lb
Bucket Capacity Range (heaped)	0.28-0.72 m ³	0.37-0.94 yd³	0.35-0.91 m ³	0.45-1.19 yd³	0.35-0.91 m ³	0.45-1.19 yd³
Engine Model	3054E ATAAC		3054E ATAAC		3056E ATAAC	
Rated Engine RPM	2000		2000		2000	
No. of Cylinders	4		4		6	
Bore	105 mm	4.1"	105 mm	4.1"	100 mm	3.9"
Stroke	127 mm	5"	127 mm	5"	127 mm	5"
Displacement	4.4 L	269 in³	4.4 L	269 in³	5.98 L	365 in³
Max. Implement Hydraulic Pump Output at Rated RPM	190+80 L/min	50+21 gpm	215+80 L/min	57+21.2 gpm	245+80 L/min	65+21.1 gpm
Tires — standard	10.00-20 dual pneumatic		10.00-20 dual pneumatic		10.00-20 dual pneumatic	
— optional	10.00-20 dual solid rubber		10.00-20 dual solid rubber		10.00-20 dual solid rubber	
	18-R 19.5 XF single		18-R 19.5 XF single		18-R 19.5 XF single	
	600/40-22.5 single		600/40-22.5 single		600/40-22.5 single	
Maximum Travel Speed	34 km/h	21 mph	34 km/h	21 mph	34 km/h	21 mph
Wheel Base	2500 mm	8'2"	2500 mm	8'2"	2600 mm	8'6"
Width Over Tires**	2550 mm	8'4"	2550 mm	8'4"	2550 mm	8'4"
Ground Clearance**	370 mm	14.7"	370 mm	14.7"	370 mm	14.7"
Fuel Tank Refill Capacity	235 L	62 U.S. gal	235 L	62 U.S. gal	310 L	61 U.S. gal
Hydraulic System (includes tank)	165 L	44 U.S. gal	230 L	60.8 U.S. gal	230 L	81.9 U.S. gal

*Operating weight includes full fuel tank, operator 75 kg (165 lb), one-piece boom, mid-size stick and bucket, and two sets of outriggers.

**With standard tires.

NOTE: Standard cold inflation pressure for all tires is 650 kPa (94 psi).

Certain models may not be available in all Sales areas.

Specifications may also vary by Sales area.

Contact your Caterpillar Dealer for details.

**M318C****M322C**

MODEL	M318C		M322C	
Flywheel Power	113 kW	151 hp	122 kW	164 hp
Operating Weight*	19 150 kg	42,220 lb	22 200 kg	48,940 lb
Bucket Capacity Range (heaped)	0.35-1.09 m ³	0.45-1.43 yd³	0.54-1.26 m ³	0.71-1.65 yd³
Engine Model	3056E ATAAC		3056E ATAAC	
Rated Engine RPM	2000		2000	
No. of Cylinders	6		6	
Bore	100 mm	3.9"	100 mm	3.9"
Stroke	127 mm	5"	127 mm	5"
Displacement	6 L	366 in³	6 L	366 in³
Max. Implement Hydraulic Pump Output at Rated RPM	280+112 L/min	73.9+29.6 gpm	340+112 L/min	89.8+29.6 gpm
Tires — standard	10.00-20 dual pneumatic		11.00-20 dual pneumatic	
— optional	10.00-20 dual solid rubber		10.00-20 dual solid rubber	
	18-R 19.5 XF single		18-R 19.5 XF single	
	600/40-22.5 single		600/40-22.5 single	
Maximum Travel Speed	34 km/h	21 mph	25 km/h	15 mph
Wheel Base	2600 mm	8'6"	2750 mm	9'0"
Width Over Tires**	2550 mm	8'4"	2750 mm	9'0"
Ground Clearance**	375 mm	15"	360 mm	14.1"
Fuel Tank Refill Capacity	385 L	102 U.S. gal	385 L	102 U.S. gal
Hydraulic System (includes tank)	255 L	67.4 U.S. gal	350 L	92.5 U.S. gal

*Operating weight includes full fuel tank, operator 75 kg (**165 lb**), one-piece boom, mid-size stick and bucket, and two sets of outriggers.

**With standard tires.

NOTE: Standard cold inflation pressure for all tires is 650 kPa (**94 psi**).

Certain models may not be available in all Sales areas.

Specifications may also vary by Sales area.

Contact your Caterpillar Dealer for details.



MODEL	320C		320C		320C U		320C L	
Sourcing	Japan, Brazil		Belgium		Japan		Japan, Brazil	
Flywheel Power	103 kW	138 hp	103 kW	138 hp	103 kW	138 hp	103 kW	138 hp
Operating Weight*	19 700 kg	43,430 lb	21 310 kg	47,000 lb	22 300 kg	49,160 lb	21 000 kg	46,300 lb
Bucket Capacity	0.45-	0.59-	0.41-	0.54-	0.8-	1.05-	0.45-	0.59-
Range (heaped)	1.5 m ³	1.96 yd³	1.7 m ³	2.2 yd³	1.5 m ³	1.96 yd³	1.5 m ³	1.96 yd³
Engine Model	3066 ATAAC		3066 ATAAC		3066 ATAAC		3066 ATAAC	
Rated Engine RPM	1800		1800		1800		1800	
No. of Cylinders	6		6		6		6	
Bore	102 mm	4"	102 mm	4"	102 mm	4"	102 mm	4"
Stroke	130 mm	5"	130 mm	5"	130 mm	5.1"	130 mm	5"
Displacement	6.4 L	391 in³	6.4 L	391 in^{3}	6.4 L	391 in^{3}	6.4 L	391 in^{3}
Max. Implement Hydraulic Pump Output at Rated RPM	2 × 205 L/min	2 × 54 gpm	2 × 205 L/min	2 × 54 gpm	2 × 205 L/min	2 × 54.2 gpm	2 × 205 L/min	2 × 54 gpm
Relief Valve Settings:								
Implement Circuits	34 300 kPa	4970 psi						
Travel Circuits	34 300 kPa	4970 psi	34 300 kPa	4970 psi	34 300 kPa	4970 psi	34 300 kPa	4970 psi
Swing Circuits	25 000 kPa	3630 psi	26 000 kPa	3770 psi	25 000 kPa	3630 psi	25 000 kPa	3630 psi
Pilot Circuits	4140 kPa	600 psi	4120 kPa	600 psi	4120 kPa	600 psi	4140 kPa	600 psi
Maximum Drawbar Pull	196 kN	44,040 lb	196 kN	44,040 lb	196 kN	44,040 lb	196 kN	44,040 lb
Maximum Travel Speed at Rated RPM	Two Speed Travel		Two Speed Travel		Two Speed Travel		Two Speed Travel	
Lo:	3.5 km/h	2.2 mph	3.5 km/h	2.2 mph	3.5 km/h	2.2 mph	3.5 km/h	2.2 mph
Hi:	5.5 km/h	3.4 mph						
Width of Standard Track Shoe	600 mm	2'0"	600 mm	2'0"	600 mm	2'0"	800 mm	2'7"
Overall Track Length	4075 mm	13'4"	4075 mm	13'4.4"	4075 mm	13'4"	4455 mm	14'7"
Ground Contact Area with Std. Shoe	4.26 m ²	6600 in²	4.26 m ²	6600 in²	4.26 m ²	6600 in²	6.29 m ²	9750 in²
Track Gauge	2200 mm	7'3"	2200 mm	7'2.6"	2200 mm	7'3"	2380 mm	7'10"
Fuel Tank Refill Capacity	400 L	106 U.S. gal	320 L	84.5 U.S. gal	284 L	75 U.S. gal	400 L	106 U.S. gal
Hydraulic System (includes tank)	200 L	52.8 U.S. gal	200 L	52.8 U.S. gal	240 L	63.4 U.S. gal	200 L	52.8 U.S. gal

*Operating weight includes coolant, lubricants, full fuel tank, standard shoes, bucket and operator 75 kg (165 lb).

NOTE: Certain models may not be available in all Sales areas.

Specifications may also vary by Sales area.
Contact your Caterpillar Dealer for details.



MODEL	320C L		320C LU		320C LN		320C S	
Sourcing	Belgium		Japan		Belgium		Belgium	
Flywheel Power	103 kW	138 hp	103 kW	138 hp	103 kW	138 hp	103 kW	138 hp
Operating Weight*	21 850 kg	48,180 lb	23 000 kg	50,715 lb	21 730 kg	47,910 lb	23 160 kg	51,070 lb
Bucket Capacity	0.41-	0.54-	0.8-	1.05-	0.41-	0.54-	0.41-	0.54-
Range (heaped)	1.7 m ³	2.2 yd³	1.5 m ³	1.96 yd³	1.7 m ³	2.2 yd³	1.7 m ³	2.2 yd³
Engine Model	3066 ATAAC		3066 ATAAC		3066 ATAAC		3066 ATAAC	
Rated Engine RPM	1800		1800		1800		1800	
No. of Cylinders	6		6		6		6	
Bore	102 mm	4"	102 mm	4"	102 mm	4"	102 mm	4"
Stroke	130 mm	5"	130 mm	5.1"	130 mm	5"	130 mm	5"
Displacement	6.4 L	391 in³	6.4 L	391 in^{3}	6.4 L	391 in^{3}	6.4 L	391 in^{3}
Max. Implement Hydraulic Pump Output at Rated RPM	2 × 205 L/min	2 × 54 gpm	2 × 205 L/min	2 × 54.2 gpm	2 × 205 L/min	2 × 54 gpm	2 × 205 L/min	2 × 54 gpm
Relief Valve Settings:								
Implement Circuits	34 300 kPa	4970 psi						
Travel Circuits	34 300 kPa	4970 psi						
Swing Circuits	26 000 kPa	3770 psi	25 000 kPa	3630 psi	26 000 kPa	3770 psi	26 000 kPa	3770 psi
Pilot Circuits	4120 kPa	600 psi	4120 kPa	600 psi	4120 kPa	600 psi	4120 kPa	600 psi
Maximum Drawbar Pull	196 kN	44,040 lb	196 kN	44,040 lb	196 kN	44,040 lb	236 kN	53,100 lb
Maximum Travel Speed at Rated RPM	Two Speed Travel Lo: 3.5 km/h 2.2 mph Hi: 5.5 km/h 3.4 mph		Two Speed Travel Lo: 3.5 km/h 2.2 mph Hi: 5.5 km/h 3.4 mph		Two Speed Travel Lo: 3.5 km/h 2.2 mph Hi: 5.5 km/h 3.4 mph		Two Speed Travel Lo: 2.9 km/h 1.8 mph Hi: 4.5 km/h 2.8 mph	
Width of Standard Track Shoe	600 mm	2'0"	800 mm **	2'7"	500 mm	1'8"	550 mm	1'9"
Overall Track Length	4455 mm	14'7"	4455 mm	14'7"	4455 mm	14'7"	4358 mm	14'4"
Ground Contact Area with Std. Shoe	4.72 m ²	7320 in²	6.29 m ² **	9750 in²	3.93 m ²	6090 in²	4.15 m ²	6433 in²
Track Gauge	2380 mm	7'10"	2380 mm	7'10"	1990 mm	6'6"	1895 mm	6'3"
Fuel Tank Refill Capacity	320 L	84.5 U.S. gal	284 L	75 U.S. gal	320 L	84.5 U.S. gal	320 L	84.5 U.S. gal
Hydraulic System (includes tank)	200 L	52.8 U.S. gal	240 L	63.4 U.S. gal	200 L	52.8 U.S. gal	200 L	52.8 U.S. gal

*Operating weight includes coolant, lubricants, full fuel tank, standard shoes, bucket and operator 75 kg (165 lb).

**Europe, Africa, Middle East — standard track shoe 600 mm (24"). Ground contact 4.72 m² (7316 in²).

NOTE: Certain models may not be available in all Sales areas.

Specifications may also vary by Sales area.
Contact your Caterpillar Dealer for details.



MODEL	321C LCR		322C		322C L		322C L	
Sourcing	Japan		Japan		Japan, U.S.		Belgium	
Flywheel Power	103 kW	138 hp	121 kW	162 hp	123 kW	165 hp	123 kW	165 hp
Operating Weight*	24 000 kg	52,910 lb	23 000 kg	50,710 lb	24 200 kg	53,350 lb	25 325 kg	55,840 lb
Bucket Capacity Range (heaped)	0.8-1.0 m ³	1.0-1.3 yd³	0.8-1.3 m ³	1.05-1.7 yd³	0.8-1.3 m ³	1.05-1.7 yd³	0.63-2.2 m ³	0.82-2.9 yd³
Engine Model	3066 ATAAC		3126 TA		3126B ATAAC		3126B ATAAC	
Rated Engine RPM	1800		1800		1800		1800	
No. of Cylinders	6		6		6		6	
Bore	102 mm	4"	110 mm	4.3"	110 mm	4.3"	110 mm	4.3"
Stroke	130 mm	5.1"	127 mm	5"	127 mm	5"	127 mm	5"
Displacement	6.4 L	391 in³	7.2 L	439 in³	7.2 L	439 in³	7.2 L	439 in³
Max. Implement Hydraulic Pump Output at Rated RPM	2 × 205 L/min	2 × 54 gpm	2 × 220 L/min	2 × 58.1 gpm	2 × 200 L/min	2 × 58.1 gpm	2 × 220 L/min	2 × 58.1 gpm
Relief Valve Settings:								
Implement Circuits	34 300 kPa	4970 psi	34 300 kPa	4970 psi	34 300 kPa	4970 psi	34 300 kPa	4980 psi
Travel Circuits	34 300 kPa	4970 psi	34 300 kPa	4970 psi	34 300 kPa	4970 psi	34 300 kPa	4980 psi
Swing Circuits	25 000 kPa	3630 psi	24 500 kPa	3550 psi	24 500 kPa	3550 psi	24 500 kPa	3550 psi
Pilot Circuits	3900 kPa	570 psi	3920 kPa	570 psi	3920 kPa	570 psi	4100 kPa	595 psi
Maximum Drawbar Pull	196 kN	44,040 lb	223 kN	50,110 lb	223 kN	50,110 lb	223 kN	50,110 lb
Maximum Travel Speed at Rated RPM	Two Speed Travel Lo: 3.5 km/h 2.2 mph Hi: 5.5 km/h 3.4 mph		Two Speed Travel Lo: 3.4 km/h 2.1 mph Hi: 5.5 km/h 3.4 mph		Two Speed Travel Lo: 3.4 km/h 2.1 mph Hi: 5.5 km/h 3.4 mph		Two Speed Travel Lo: 3.4 km/h 2.1 mph Hi: 5.5 km/h 3.4 mph	
Width of Standard Track Shoe	800 mm	2'7"	600 mm	2'0"	800 mm	2'8"	800 mm	2'8"
Overall Track Length	4455 mm	14'7"	4260 mm	14'0"	4640 mm	15'3"	4640 mm	15'3"
Ground Contact Area with Std. Shoe	6.29 m ²	** 9750 in²	4.48 m ²	6940 in²	6.58 m ²	10,200 in²	6.58 m ²	10,200 in²
Track Gauge	2380 mm	7'10"	2390 mm	7'10"	2590 mm	8'6"	2590 mm	8'6"
Fuel Tank Refill Capacity	330 L	87 U.S. gal	400 L	106 U.S. gal	500 L	132 U.S. gal	500 L	132 U.S. gal
Hydraulic System (includes tank)	260 L	68.7 U.S. gal	245 L	64.7 U.S. gal	245 L	64.7 U.S. gal	250 L	66 U.S. gal

*Operating weight includes coolant, lubricants, full fuel tank, standard shoes, bucket and operator 75 kg (165 lb).

**Europe, Africa, Middle East — standard track shoe 600 mm (24"). Ground contact 4.72 m² (7316 in²).

NOTE: Certain models may not be available in all Sales areas.

Specifications may also vary by Sales area.
Contact your Caterpillar Dealer for details.



MODEL	322C LN		325C		325C L		325C L	
Sourcing	Belgium		Japan		Japan, U.S.		Belgium	
Flywheel Power	123 kW	165 hp	140 kW	188 hp	140 kW	188 hp	128 kW	172 hp
Operating Weight*	24 680 kg	54,420 lb	26 900 kg	59,300 lb	28 600 kg	63,050 lb	29 140 kg	64,250 lb
Bucket Capacity	0.63-	0.82-	1.1-	1.4-	1.1-	1.4-	0.63-	0.82-
Range (heaped)	2.2 m ³	2.9 yd³	1.6 m ³	2.1 yd³	1.6 m ³	2.1 yd³	1.9 m ³	2.5 yd³
Engine Model	3126 ATAAC		3126B ATAAC		3126B ATAAC		3126B ATAAC	
Rated Engine RPM	1800		1800		1800		1800	
No. of Cylinders	6		6		6		6	
Bore	110 mm	4.3"	110 mm	4.3"	110 mm	4.3"	110 mm	4.3"
Stroke	127 mm	5"	127 mm	5"	127 mm	5"	127 mm	5"
Displacement	7.2 L	439 in^{3}	7.2 L	439 in^{3}	7.2 L	439 in^{3}	7.2 L	439 in³
Max. Implement Hydraulic Pump Output at Rated RPM	2 × 220 L/min	2 × 58.1 gpm	2 × 235 L/min	2 × 62 gpm	2 × 235 L/min	2 × 62 gpm	2 × 235 L/min	2 × 62 gpm
Relief Valve Settings:								
Implement Circuits	34 300 kPa	4980 psi	34 300 kPa	4980 psi	34 300 kPa	4980 psi	34 300 kPa	4980 psi
Travel Circuits	34 300 kPa	4980 psi	34 300 kPa	4980 psi	34 300 kPa	4980 psi	34 300 kPa	4980 psi
Swing Circuits	24 500 kPa	3550 psi	27 500 kPa	3980 psi	27 500 kPa	3980 psi	25 000 kPa	3625 psi
Pilot Circuits	4100 kPa	595 psi	4120 kPa	600 psi	4120 kPa	600 psi	4100 kPa	595 psi
Maximum Drawbar Pull	223 kN	50,110 lb	244 kN	54,830 lb	244 kN	54,830 lb	236 kN	53,100 lb
Maximum Travel Speed at Rated RPM	Two Speed Travel							
Lo:	3.4 km/h	2.1 mph	3.3 km/h	2.0 mph	3.3 km/h	2.0 mph	3.1 km/h	1.9 mph
Hi:	5.5 km/h	3.4 mph	5.3 km/h	3.3 mph	5.3 km/h	3.3 mph	5.0 km/h	3.1 mph
Width of Standard Track Shoe	600 mm	2'0"	600 mm	2'0"	800 mm	2'8"	800 mm	2'8"
Overall Track Length	4640 mm	15'3"	4360 mm	14'4"	4660 mm	15'3"	4660 mm	15'3"
Ground Contact Area with Std. Shoe	4.94 m ²	7650 in²	4.19 m ²	6490 in²	6.08 m ²	9420 in²	6.56 m ²	10,200 in²
Track Gauge	2390 mm	7'10"	2390 mm	7'10"	2590 mm	8'6"	2590 mm	8'6"
Fuel Tank Refill Capacity	500 L	132 U.S. gal	500 L	132 U.S. gal	500 L	132 U.S. gal	500 L	132 U.S. gal
Hydraulic System (includes tank)	250 L	66 U.S. gal	310 L	81.9 U.S. gal	310 L	81.9 U.S. gal	310 L	81.9 U.S. gal

*Operating weight includes coolant, lubricants, full fuel tank, standard shoes, bucket and operator 75 kg (165 lb).

NOTE: Certain models may not be available in all Sales areas.

Specifications may also vary by Sales area.
Contact your Caterpillar Dealer for details.



MODEL	325C LN		330C		330C L		330C L	
Sourcing	Belgium		Japan		Japan, U.S.		Belgium	
Flywheel Power	128 kW	172 hp	184 kW	247 hp	184 kW	247 hp	181 kW	243 hp
Operating Weight*	28 010 kg	61,760 lb	33 200 kg	73,190 lb	35 100 kg	77,400 lb	35 280 kg	77,790 lb
Bucket Capacity	0.63-	0.82-	0.7-	0.9-	0.7-	0.9-	0.68-	1.2-
Range (heaped)	1.9 m ³	2.5 yd³	2.1 m ³	2.7 yd³	2.2 m ³	3 yd³	2.3 m ³	3.9 yd³
Engine Model	3126B ATAAC		C9 ATAAC		C9 ATAAC		C9 ATAAC	
Rated Engine RPM	1800		1800		1800		1800	
No. of Cylinders	6		6		6		6	
Bore	110 mm	4.3"	112 mm	4.4"	112 mm	4.4"	112 mm	4.4"
Stroke	127 mm	5"	149 mm	5.9"	149 mm	5.9"	149 mm	5.9"
Displacement	7.2 L	439 in³	8.8 L	537 in³	8.8 L	537 in³	8.8 L	537 in³
Max. Implement Hydraulic Pump Output at Rated RPM	2 × 235 L/min	2 × 62 gpm	2 × 280 L/min	2 × 74 gpm	2 × 280 L/min	2 × 74 gpm	2 × 280 L/min	2 × 74 gpm
Relief Valve Settings:								
Implement Circuits	34 300 kPa	4980 psi	34 300 kPa	4980 psi	34 300 kPa	4980 psi	34 300 kPa	4980 psi
Travel Circuits	34 300 kPa	4980 psi	34 300 kPa	4980 psi	34 300 kPa	4980 psi	34 300 kPa	4980 psi
Swing Circuits	25 000 kPa	3625 psi	27 900 kPa	4050 psi	27 900 kPa	4050 psi	27 900 kPa	4050 psi
Pilot Circuits	4100 kPa	595 psi	4120 kPa	600 psi	4120 kPa	600 psi	4120 kPa	600 psi
Maximum Drawbar Pull	236 kN	53,100 lb	294 kN	66,070 lb	294 kN	66,090 lb	294 kN	66,070 lb
Maximum Travel Speed at Rated RPM	Two Speed Travel		Two Speed Travel		Two Speed Travel		Two Speed Travel	
Lo:	3.1 km/h	1.9 mph	3.3 km/h	2.0 mph	3.3 km/h	2.0 mph	3.3 km/h	2.0 mph
Hi:	5.0 km/h	3.1 mph	5.0 km/h	3.3 mph	5.0 km/h	3.3 mph	5.0 km/h	3.3 mph
Track Shoe Width	600 mm	2'0"	600 mm	2'0"	750 mm	2'6"	750 mm	2'5.5"
Overall Track Length	4.66 m	15'3"	4.58 m	15'0"	5.02 m	16'6"	5.02 m	16'6"
Ground Contact Area with Std. Shoe	4.92 m ²	7630 in²	4.74 m ²	7350 in²	6.58 m ²	10,200 in²	6.58 m ²	10,200 in²
Track Gauge	2.39 m	7'10"	2.59 m	8'6"	2.59 m	8'6"	2.59 m	8'6"
Fuel Tank Refill Capacity	500 L	132 U.S. gal	618 L	163 U.S. gal	618 L	163 U.S. gal	618 L	163 U.S. gal
Hydraulic System (includes tank)	310 L	81.9 U.S. gal	410 L	108 U.S. gal	410 L	108 U.S. gal	410 L	108 U.S. gal

*Operating weight includes coolant, lubricants, full fuel tank, standard shoes, bucket and operator 75 kg (165 lb).

NOTE: Certain models may not be available in all Sales areas.

Specifications may also vary by Sales area.

Contact your Caterpillar Dealer for details.



MODEL	330C LN		345B Series II		345B L – FIX Series II		345B L – VG Series II	
Sourcing	Belgium		Japan		Japan, U.S.		U.S.	
Flywheel Power	181 kW	243 hp	239 kW	321 hp	239 kW	321 hp	239 kW	321 hp
Operating Weight*	34 600 kg	76,290 lb	44 500 kg	98,100 lb	44 460 kg	97,940 lb	46 700 kg	102,700 lb
Bucket Capacity	0.68-	1.2-	1.6-	1.91-	1.6-	1.91-	1.6-	1.91-
Range (heaped)	2.3 m ³	3.9 yd³	2.4 m ³	2.87 yd³	2.4 m ³	2.87 yd³	3 m ³	4 yd³
Engine Model	C9 ATAAC		3176C ATAAC		3176C ATAAC		3176C ATAAC	
Rated Engine RPM	1800		2000		2000		2000	
No. of Cylinders	6		6		6		6	
Bore	112 mm	4.4"	125 mm	4.92"	125 mm	4.92"	125 mm	4.92"
Stroke	149 mm	5.9"	140 mm	5.51"	140 mm	5.51"	140 mm	5.51"
Displacement	8.8 L	537 in³	10.3 L	629 in³	10.3 L	629 in³	10.3 L	629 in³
Max. Implement Hydraulic Pump Output at Rated RPM	2 × 280 L/min	2 × 74 gpm	2 × 360 L/min	2 × 95 gpm	2 × 360 L/min	2 × 95 gpm	2 × 360 L/min	2 × 95 gpm
Relief Valve Settings:								
Implement Circuits	34 300 kPa	4980 psi	34 300 kPa	4970 psi	34 300 kPa	4970 psi	34 300 kPa	4970 psi
Travel Circuits	34 300 kPa	4980 psi	34 300 kPa	4970 psi	34 300 kPa	4970 psi	34 300 kPa	4970 psi
Swing Circuits	27 900 kPa	4050 psi	27 500 kPa	3990 psi	28 440 kPa	4130 psi	28 440 kPa	4130 psi
Pilot Circuits	4120 kPa	600 psi	4650 kPa	670 psi	4650 kPa	670 psi	4650 kPa	670 psi
Maximum Drawbar Pull	294 kN	66,070 lb	331 kN	74,380 lb	331 kN	74,380 lb	331 kN	74,380 lb
Maximum Travel Speed at Rated RPM	Two Speed Travel		Two Speed Travel		Two Speed Travel		Two Speed Travel	
Lo:	3.3 km/h	2.0 mph	3.5 km/h	2.2 mph	3.5 km/h	2.2 mph	3.5 km/h	2.2 mph
Hi:	5.0 km/h	3.3 mph	4.4 km/h	2.7 mph	4.4 km/h	2.7 mph	4.4 km/h	2.7 mph
Track Shoe Width	600 mm	2'0"	750 mm	2'6"	750 mm	2'6"	750 mm	2'6"
Overall Track Length	5.02 m	16'6"	5.03 m	16'6"	5.36 m	17'7"	5.34 m	17'6"
Ground Contact Area with Std. Shoe	5.26 m ²	8150 in²	6.57 m ²	10,180 in²	7.07 m ²	10,960 in²	5.63 m ²	8730 in²
Track Gauge	2.39 m	7'10"	2.74 m	9'0"	2.74 m	9'0"	2.4 m	7'10"
Extended	—		—		—		2.89 m	9'6"
Fuel Tank Refill Capacity	618 L	163 U.S. gal	720 L	190 U.S. gal	720 L	190 U.S. gal	720 L	190 U.S. gal
Hydraulic System (includes tank)	410 L	108 U.S. gal	530 L	140 U.S. gal	520 L	137 U.S. gal	520 L	137 U.S. gal

*Operating weight includes coolant, lubricants, full fuel tank, standard shoes, bucket and operator 75 kg (165 lb).

NOTE: Certain models may not be available in all Sales areas.

Specifications may also vary by Sales area.

Contact your Caterpillar Dealer for details.



**345B L – WVG
Series II**



**345B L – VG
Series II**



**365B L
Series II**



**365B L
Series II**

MODEL	U.S.		Belgium		Japan		Belgium	
Sourcing								
Flywheel Power	239 kW	321 hp	239 kW	321 hp	301 kW	404 hp	301 kW	404 hp
Operating Weight*	47 730 kg	105,000 lb	48 960 kg	107,960 lb	66 100 kg	145,730 lb	70 250 kg	154,900 lb
Bucket Capacity	1.6-	1.91-	1.8-	2.3-	2.5-	3.27-	2.5-	3.27-
Range (heaped)	3 m ³	4 yd³	3.5 m ³	4.6 yd³	3.5 m ³	4.58 yd³	5.3 m ³	6.9 yd³
Engine Model	3176C ATAAC		3176C ATAAC		3196 ATAAC		3196 ATAAC	
Rated Engine RPM	2000		2000		2000		2000	
No. of Cylinders	6		6		6		6	
Bore	125 mm	4.92"	125 mm	4.92"	130 mm	5"	130 mm	5"
Stroke	140 mm	5.51"	140 mm	5.51"	150 mm	6"	150 mm	6"
Displacement	10.3 L	629 in³	10.3 L	629 in³	12 L	732 in³	12 L	732 in³
Max. Implement Hydraulic Pump Output at Rated RPM	2 × 360 L/min	2 × 95 gpm	2 × 360 L/min	2 × 95 gpm	2 × 400 L/min	2 × 105 gpm	2 × 400 L/min	2 × 105 gpm
Relief Valve Settings:								
Implement Circuits	34 300 kPa	4970 psi	34 300 kPa	4970 psi	32 000 kPa	4640 psi	32 000 kPa	4640 psi
Travel Circuits	34 300 kPa	4970 psi	34 300 kPa	4970 psi	35 000 kPa	5080 psi	35 000 kPa	5080 psi
Swing Circuits	28 440 kPa	4130 psi	27 500 kPa	3990 psi	28 000 kPa	4060 psi	28 050 kPa	4070 psi
Pilot Circuits	4650 kPa	670 psi	4650 kPa	670 psi	4100 kPa	590 psi	4120 kPa	600 psi
Maximum Drawbar Pull	331 kN	74,380 lb	331 kN	74,380 lb	461 kN	103,600 lb	462 kN	103,860 lb
Maximum Travel Speed at Rated RPM	Two Speed Travel		Two Speed Travel		Two Speed Travel		Two Speed Travel	
Lo:	3.5 km/h	2.2 mph	3.5 km/h	2.1 mph	2.8 km/h	1.7 mph	2.8 km/h	1.7 mph
Hi:	4.4 km/h	2.7 mph	4.4 km/h	2.7 mph	4.1 km/h	2.5 mph	4.1 km/h	2.5 mph
Track Shoe Width	750 mm	2'6"	600 mm	2'0"	750 mm	2'6"	750 mm	2'6"
Overall Track Length	5.34 m	17'6"	5.37 m	17'7"	5.86 m	19'3"	5.85 m	19'2"
Ground Contact Area with Std. Shoe	5.63 m ²	8730 in²	5.64 m ²	8742 in²	7.06 m ²	10,940 in²	7.66 m ²	11,870 in²
Track Gauge	2.76 m	9'1"	2.39 m	7'10"	2.75 m	9'0"	2.75 m	9'0"
Extended	3.2 m	10'8"	2.89 m	9'6"	3.25 m	10'8"	3.25 m	10'8"
Fuel Tank Refill Capacity	720 L	190 U.S. gal	720 L	190 U.S. gal	800 L	211 U.S. gal	800 L	211 U.S. gal
Hydraulic System (includes tank)	520 L	137 U.S. gal	520 L	137 U.S. gal	670 L	177 U.S. gal	670 L	177 U.S. gal
Hydraulic System	—		210 L	55 U.S. gal	310 L	82 U.S. gal	310 L	82 U.S. gal

*Operating weight for 345B L – WVG Series II includes coolant, lubricants, full fuel tank, standard shoes, bucket and operator 75 kg (165 lb).

Operating weight for 345B L – VG and 365B L Series II includes coolant, lubricants, full fuel tank, one-piece boom, long stick, small profile bucket, operator 75 kg (165 lb) and wide shoes (standard shoes on 345B L – VG Series II).

NOTE: Certain models may not be available in all Sales areas.

Specifications may also vary by Sales area.
Contact your Caterpillar Dealer for details.



MODEL	385B		385B		385B L		385B L	
Sourcing	Japan		Belgium		Japan		Belgium	
Flywheel Power	382 kW	513 hp	382 kW	513 hp	382 kW	513 hp	382 kW	513 hp
Operating Weight*	82 900 kg	182,800 lb	87 780 kg**	193,555 lb**	83 510 kg	183,490 lb	89 130 kg**	196,530 lb**
Bucket Capacity	1.9-	2.49-	3.5-	4.6-	1.9-	2.49-	3.5-	4.6-
Range (heaped)	5.8 m ³	7.59 yd³	6.0 m ³	7.8 yd³	5.8 m ³	7.59 yd³	6.0 m ³	7.8 yd³
Engine Model	3456 ATAAC		3456 ATAAC		3456 ATTAC		3456 ATAAC	
Rated Engine RPM	1800		1800		1800		1800	
No. of Cylinders	6		6		6		6	
Bore	140 mm	5.51"	140 mm	5.51"	140 mm	5.51"	140 mm	5.51"
Stroke	171 mm	6.73"	171 mm	6.73"	171 mm	6.73"	171 mm	6.73"
Displacement	15.8 L	964 in³						
Max. Implement Hydraulic Pump Output at Rated RPM	2 × 490 L/min	2 × 129 gpm	2 × 490 L/min	2 × 129 gpm	2 × 490 L/min	2 × 129 gpm	2 × 490 L/min	2 × 129 gpm
Relief Valve Settings:								
Implement Circuits	32 000 kPa	4640 psi	35 000 kPa	5080 psi	32 000 kPa	4640 psi	35 000 kPa	5080 psi
Travel Circuits	35 000 kPa	5080 psi	35 000 kPa	5080 psi	35 000 kPa	5080 psi	35 000 kPa	5080 psi
Swing Circuits	26 000 kPa	3770 psi	26 000 kPa	3770 psi	26 000 kPa	3770 psi	26 000 kPa	3770 psi
Pilot Circuits	4100 kPa	590 psi	4100 kPa	590 psi	4100 kPa	590 psi	4100 kPa	590 psi
Maximum Drawbar Pull	592 kN	133,200 lb	592 kN	133,200 lb	591 kN	132,810 lb	591 kN	132,810 lb
Maximum Travel Speed at Rated RPM	Two Speed Travel Lo: 2.8 km/h Hi: 4.5 km/h		Two Speed Travel Lo: 2.8 km/h Hi: 4.5 km/h		Two Speed Travel Lo: 2.8 km/h Hi: 4.5 km/h		Two Speed Travel Lo: 2.8 km/h Hi: 4.5 km/h	
		1.7 mph 2.8 mph		1.7 mph 2.8 mph		1.7 mph 2.8 mph		1.7 mph 2.8 mph
Track Shoe Width	750 mm	2'6"	650 mm	2'1"	750 mm	2'6"	650 mm	2'2"
Overall Track Length	5.84 m	19'2"	5.84 m	19'2"	6.36 m	20'10"	6.36 m	20'10"
Ground Contact Area with Std. Shoe	6.9 m ²	10,695 in²	6.54 m ²	10,137 in²	7.68 m ²	11,900 in²	7.22 m ²	11,191 in²
Track Gauge	2.75 m	9'0"	2.75 m	9'0"	2.94 m	9'8"	2.94 m	9'8"
Extended	3.51 m	11'6"	3.51 m	11'6"	3.51 m	11'6"	3.51 m	11'6"
Fuel Tank Refill Capacity	1240 L	328 U.S. gal	1240 L	328 U.S. gal	1240 L	328 U.S. gal	1240 L	328 U.S. gal
Hydraulic System (includes tank)	995 L	263 U.S. gal	995 L	263 U.S. gal	995 L	263 U.S. gal	995 L	263 U.S. gal
Hydraulic tank	780 L	206 U.S. gal	810 L	214 U.S. gal	—		810 L	214 U.S. gal

*Operating weight includes coolant, lubricants, full fuel tank, one-piece boom, long stick, small profile bucket, operator 75 kg (165 lb) and wide shoes.

**Operating weight includes coolant, lubricants, full fuel tank, reach boom, medium stick configuration, bucket and operator 75 kg (165 lb) and 1500 kg (3300 lb) for attachments.

NOTE: Certain models may not be available in all Sales areas.

Specifications may also vary by Sales area.
Contact your Caterpillar Dealer for details.

SHIPPING DIMENSIONS KEYS**301.5 through 385**

- A Cab height
 - B House width, without mirrors
 - C Track width, standard shoe
 - D Ground clearance, frame
 - E Ground clearance, counterweight
 - F Tail swing radius
 - G Overall track length
(grouser bar to grouser bar)
 - H Overall transport length
 - J Shipping height
 - K Length of track on ground
 - L Track gauge
-

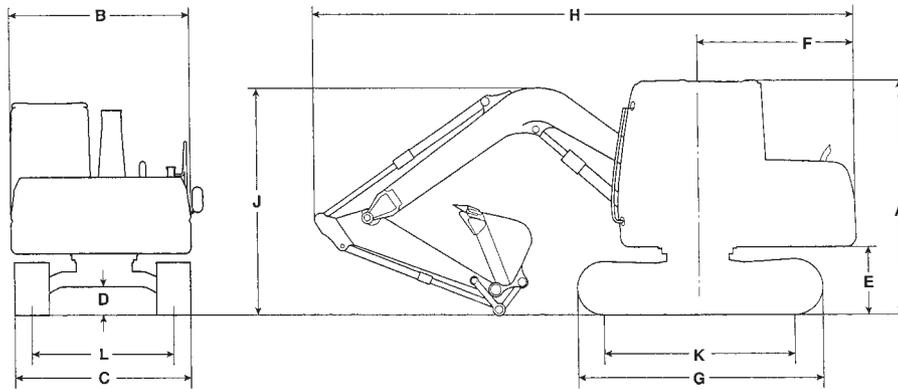
M313C through M322C

- A Cab height
 - B Transport width
 - C Overall tire width
 - D Ground clearance, frame
 - E House height
 - F Exhaust stack height
 - G Overall length
(outrigger to outrigger)
 - H Overall transport length
 - J Transport height
 - K Ground clearance, counterweight
 - L Transport length without boom
 - M Cab swing radius
 - N Tail swing radius
 - O Wheelbase length
 - P Overall width
(outrigger to outrigger)
-

Excavators

Shipping Dimensions

- 301.5 ● 301.5 CR ● 301.6 ● 301.8
- 302.5 ● 303 SR ● 303 CR ● 304 CR
- 305 SR ● 305 CR ● 307C ● 307C SB



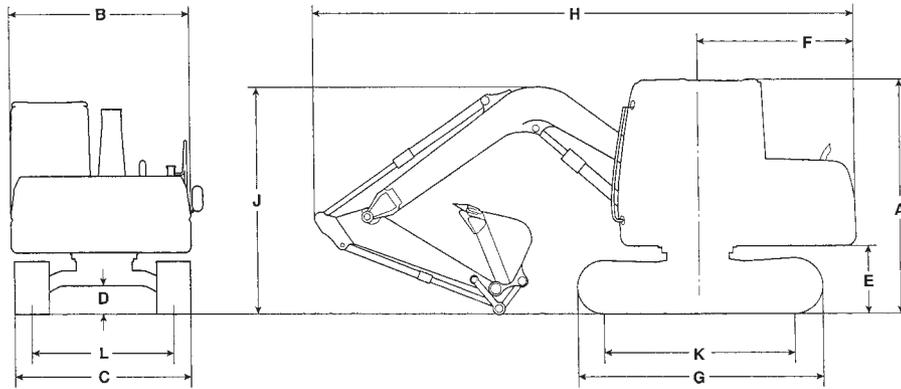
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	U.K.	Japan	U.K.	Japan	U.K.	Japan	U.K.	Japan	U.K.	Japan	U.K.	Japan	U.K.	Japan
A	2190	7'2"	2320	7'7"	2190	7'2"	2190	7'2"	2300	7'7"	2480	8'2"	2480	8'2"
B	980	3'3"	980	3'3"	980	3'3"	980	3'3"	1380	4'6"	1550	5'1"	1510	4'11"
C	980	3'3"	980	3'3"	980	3'3"	980	3'3"	1450	4'8"	1550	5'1"	1550	5'1"
D	220	8.7"	175	7"	220	8.7"	180	7"	310	12"	310	12"	310	12"
E	460	1'6"	450	1'6"	460	1'5"	460	1'5"	560	1'10"	570	1'10"	570	1'10"
F	1070	3'6"	625	2'1"	1070	3'6"	1070	3'6"	1280	4'2"	775	2'7"	775	2'7"
G	1390	4'7"	1580	5'2"	1486	4'9"	1486	4'9"	1910	6'3"	2070	6'9"	2070	6'9"
H*	3690	12'1"	3470	11'5"	3690	12'1"	3690	12'1"	4520	14'10"	3950	13'0"	4680	15'4"
J*	—	—	2320	7'7"	—	—	—	—	—	—	2480	8'2"	1420	4'8"
K	1020	3'4"	1210	4'0"	1116	3'7"	1116	3'7"	1470	4'10"	1640	5'5"	1640	5'5"
L	750	2'6"	750	2'6"	750	2'6"	750	2'6"	1150	3'9"	1250	4'1"	1250	4'1"

Sourcing	304 CR		305 SR		305 CR		307C		307C SB	
	Japan	Japan	Japan	Japan	Japan	Japan	Japan	Japan	Japan	
A	2595	8'6"	2530	8'4"	2595	8'0"	2630	8'8"	2630	8'8"
B	1920	6'4"	2000	6'7"	1920	6'4"	2230	7'4"	2230	7'4"
C	1980	6'6"	2000	6'7"	1980	6'6"	2290	7'6"	2290	7'6"
D	335	13"	330	13"	335	13"	380	15"	380	15"
E	625	2'1"	615	2'0"	625	2'1"	760	2'6"	760	2'6"
F	990	3'3"	1000	3'3"	990	3'3"	1750	5'9"	1750	5'9"
G	2450	8'0"	2450	8'0"	2450	8'0"	2760	9'1"	2760	9'1"
H*	5190	17'0"	5200	17'1"	5365	17'7"	6100	20'0"	6790	22'3"
J*	2595	8'6"	2530	8'4"	1750	5'9"	2780	9'1"	2630	8'8"
K	1920	6'4"	1920	6'4"	1920	6'4"	2120	6'11"	2120	6'11"
L	1580	5'2"	1580	5'2"	1580	5'2"	1750	5'9"	1750	5'9"

*Varies with stick length.

Shipping Dimensions

- 308C SR ● 308C CR ● 311C U
- 312C ● 312C L ● 313C SR ● 313C CR
- 314C CR ● 314C LCR ● 315C ● 315C L



4

Sourcing	308C SR		308C CR		311C U		312C		312C		312C L		312C L	
	Japan		Japan		Japan		Japan		France		Japan		France	
	mm	ft	mm	ft	mm	ft	mm	ft	mm	ft	mm	ft	mm	ft
A	2590	8'6"	2590	8'6"	2770	9'1"	2760	9'1"	2760	9'1"	2760	9'1"	2760	9'1"
B	2320	7'7"	2320	7'7"	2490	8'2"	2490	8'2"	2490	8'2"	2490	8'2"	2490	8'2"
C	2320	7'7"	2320	7'7"	2490	8'2"	2490	8'2"	2490	8'2"	2590	8'6"	2590	8'6"
D	384	15"	384	15"	445	18"	440	17"	440	17"	440	17"	440	17"
E	735	2'5"	755	2'6"	915	3'0"	910	3'0"	910	3'0"	910	3'0"	910	3'0"
F	1290	4'3"	1290	4'3"	1750	5'9"	2130	7'0"	2130	7'0"	2130	7'0"	2130	7'0"
G	2910	9'7"	2910	9'7"	3320	10'11"	3490	11'5"	3490	11'5"	3750	12'4"	3750	12'4"
H*	5830	19'2"	5830	19'2"	6910	22'8"	7570	24'10"	7570	24'10"	7570	24'10"	7570	24'10"
J*	2590	8'6"	2610	8'7"	2770	9'1"	2760	9'1"	2760	9'1"	2760	9'1"	2760	9'1"
K	2280	7'6"	2280	7'6"	2610	8'7"	2780	9'1"	2780	9'1"	3040	10'0"	3040	10'0"
L	1870	6'2"	1870	6'2"	1990	6'6"	1990	6'6"	1990	6'6"	1990	6'6"	1990	6'6"

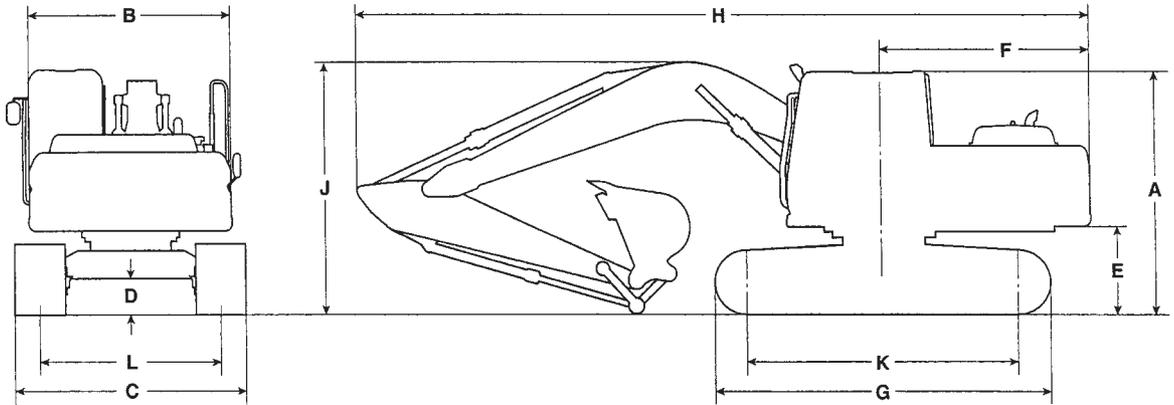
Sourcing	313C SR		313C CR		314C CR		314C LCR		315C		315C L	
	Japan		Japan		Japan		Japan		Japan		Japan	
	mm	ft	mm	ft	mm	ft	mm	ft	mm	ft	mm	ft
A	2730	8'11"	2730	8'11"	2730	8'11"	2730	8'11"	2880	9'5"	2880	9'5"
B	2490	8'2"	2490	8'2"	2490	8'2"	2490	8'2"	2490	8'2"	2490	8'2"
C	2490	8'2"	2490	8'2"	2490	8'2"	2490	8'2"	2490	8'2"	2590	8'6"
D	455	18"	455	18"	455	18"	455	18"	460	18"	460	18"
E	915	3'0"	915	3'0"	915	3'0"	915	3'0"	1010	3'4"	1010	3'4"
F	1420	4'8"	1420	4'8"	1480	4'10"	1480	4'10"	2450	8'0"	2450	8'0"
G	3490	11'5"	3490	11'5"	3490	11'5"	3750	12'4"	3690	12'1"	3970	13'0"
H*	7480	24'6"	7280	23'11"	7280	23'11"	7410	24'4"	8500	27'11"	8500	27'11"
J*	2730	8'11"	2810	9'3"	2810	9'3"	2810	9'3"	2990	9'10"	2990	9'10"
K	2780	9'1"	2780	9'1"	2780	9'1"	3040	10'0"	2880	9'5"	3170	10'5"
L	1990	6'6"	1990	6'6"	1990	6'6"	1990	6'6"	1990	6'6"	1990	6'6"

*Varies with stick length.

Excavators

Shipping Dimensions

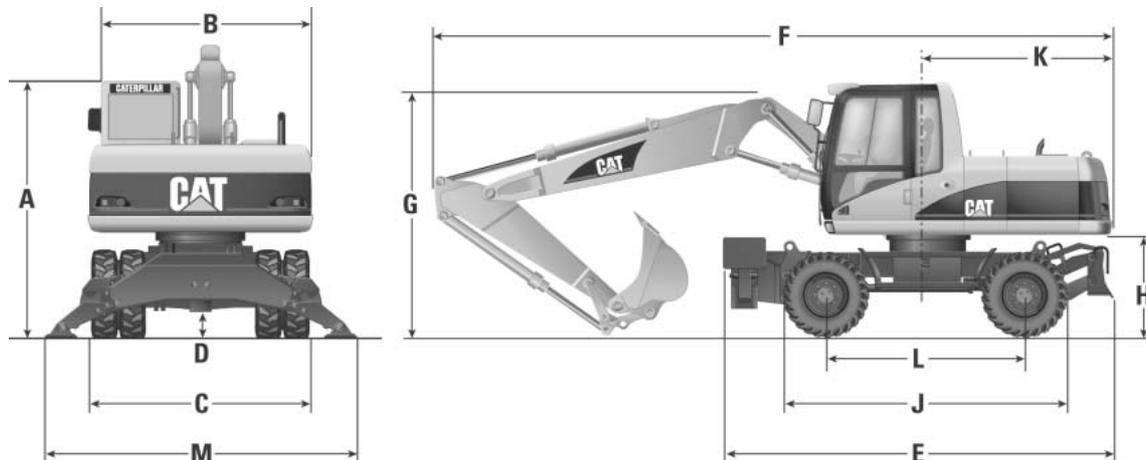
- 315C L ● 318C ● 318C L
- 318C LN ● 318B LN ● 318C N



Sourcing	315C L		318C		318C L		318C L	
	France		France		Japan		France	
	mm	ft	mm	ft	mm	ft	mm	ft
A	3000	9'10"	2950	9'8"	2940	9'8"	2950	9'8"
B	2550	8'4"	2520	8'3"	2520	8'3"	2520	8'3"
C	2490	8'2"	2800	9'2"	2800	9'2"	2800	9'2"
D	460	18"	465	18"	460	18"	465	18"
E	1010	3'4"	1077	3'6"	1030	3'5"	1072	3'6"
F	2345	7'8"	2520	8'3"	2540	8'4"	2520	8'3"
G	3960	13'0"	4075	13'4"	4250	13'11"	4450	14'7"
H*	8454	27'8"	8820	28'11"	8870	29'1"	8820	28'11"
J*	2966	9'9"	3210	10'6"	3480	11'6"	3210	10'6"
K	3170	10'5"	3255	10'8"	3450	11'4"	3636	11'11"
L	1990	6'6"	2200	7'3"	2200	7'3"	2200	7'3"

Sourcing	318C LN		318B LN		318C N	
	Japan		France		France	
	mm	ft	mm	ft	mm	ft
A	2940	9'8"	3040	9'9"	2950	9'8"
B	2520	8'3"	2490	8'2"	2520	8'3"
C	2490	8'2"	2495	8'2"	2490	8'2"
D	460	18"	470	18"	465	18"
E	1030	3'5"	1030	3'4"	1069	3'6"
F	2540	8'4"	2450	8'0"	2520	8'3"
G	4250	13'11"	4075	13'4"	4075	13'4"
H*	8870	29'1"	8690	28'6"	8820	28'11"
J*	3480	11'6"	2830	9'3"	3210	10'6"
K	3450	11'4"	3265	10'8"	3255	10'8"
L	1990	6'6"	1995	6'7"	1990	6'6"

*Varies with stick length.



4

	M313C		M315C		M316C		M318C		M322C	
	mm	ft	mm	ft	mm	ft	mm	ft	mm	ft
A	3120	10'3"	3150	10'4"	3170	10'5"	3170	10'5"	3200	10'6"
B	2540	8'4"	2540	8'4"	2540	8'4"	2540	8'4"	2540	8'4"
C*	2550	8'4"	2550	8'4"	2550	8'4"	2550	8'4"	2550	8'4"
Dozer width	2550	8'4"	2550	8'4"	2550	8'4"	2540	8'4"	2540	8'4"
D	370	1'3"	370	1'3"	370	1'3"	375	1'3"	375	1'3"
E¹	4875	17'0"	4925	16'2"	5025	16'6"	5025	16'6"	5025	16'6"
E²	4935	16'2"	4960	16'3"	5060	17'7"	5060	17'7"	5060	17'7"
E³	4160	14'8"	3610	12'10"	4330	14'2"	4330	14'2"	4330	14'2"
F	8080	27'6"	8320	27'4"	8400	28'7"	8960	29'5"	8960	29'5"
G	2990	10'10"	3150	10'4"	3170	10'5"	3210	11'6"	3210	11'6"
H	1232	4'1"	1262	4'2"	1280	4'2"	1275	4'2"	1275	4'2"
J	4160	14'8"	4160	14'8"	4330	14'2"	4330	14'2"	4504	15'9"
K	2049	7'9"	2197	7'2"	2290	8'6"	2500	8'2"	2500	8'2"
L	1912	6'3"	1912	6'3"	1912	6'3"	1942	6'4"	1942	6'4"
M	3665	12'0"	3665	12'0"	3675	12'1"	3676	12'1"	3960	14'0"

E¹ 2 Sets Outriggers.

E² Outriggers/Dozer.

E³ Dozer only.

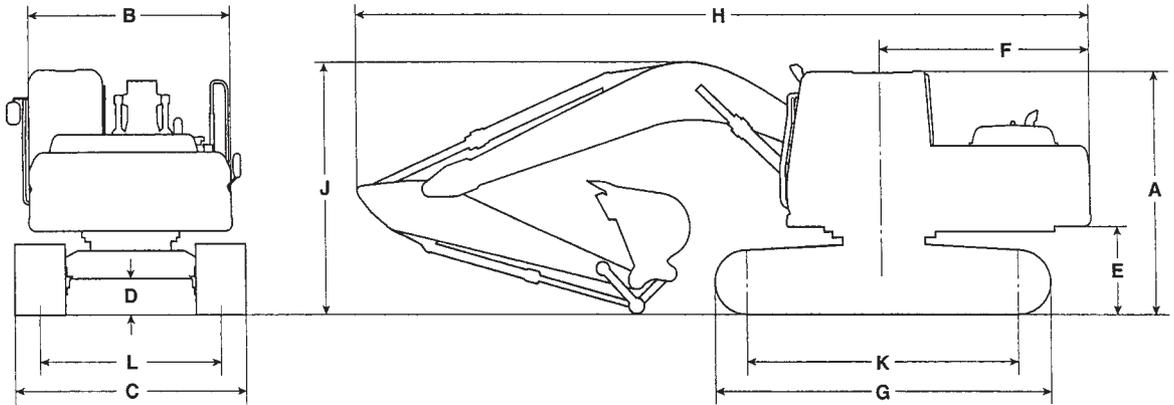
*10 × 20 Dual Tires.

NOTE: Shipping dimensions above are for standard machine equipped with one-piece boom and medium stick.

Excavators

Shipping Dimensions

- 320C, 320C U, 320C L, 320C LU, 321C LCR
- Japan Sourced



	320C Reach		320C Mass		320C U Reach		320C L Reach	
	mm	ft	mm	ft	mm	ft	mm	ft
A	2948	9'8"	2948	9'8"	2950	9'8"	2948	9'8"
B	2740	9'0"	2740	9'0"	2800	9'2"	2740	9'0"
C	2800	9'2"	2800	9'2"	2800	9'2"	3180	10'5"
D	475	1'7"	475	1'7"	475	1'7"	463	1'6"
E	1047	3'5"	1047	3'5"	1003	3'3"	1047	3'5"
F	2750	9'0"	2750	9'0"	2000	6'7"	2750	9'0"
G	4075	13'4"	4075	13'4"	4075	13'4"	4455	14'6"
H	9440	31'0"	9000	29'6"	8730	28'8"	9400	30'10"
J*	3010	9'11"	3050	10'0"	3010	9'11"	2930	9'7"
K	3270	10'9"	3270	10'9"	3265	10'9"	3650	12'0"
L	2200	7'3"	2200	7'3"	2200	7'3"	2380	7'10"

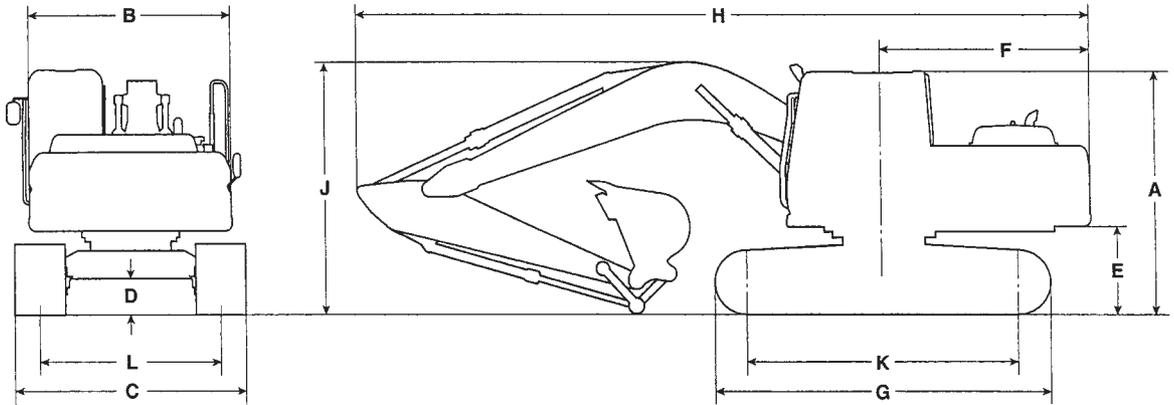
	320C L Mass		320C LU Reach		321C LCR	
	mm	ft	mm	ft	mm	ft
A	2948	9'8"	2950	9'8"	2960	9'9"
B	2740	9'0"	2800	9'2"	2980	9'9"
C	2980	9'9"	3180	** 10'5"	3180	** 10'5"
D	463	1'6"	475	1'7"	1003	3'3"
E	1047	3'5"	1003	3'3"	963	3'2"
F	2750	9'0"	2000	6'7"	1680	5'6"
G	4455	14'6"	4075	13'4"	4455	14'7"
H	9000	29'6"	8920	29'3"	8830	29'0"
J*	3050	10'0"	3010	9'11"	3170	10'5"
K	3650	12'0"	3650	12'0"	3650	12'0"
L	2380	7'10"	2380	7'10"	2380	7'10"

*Varies with stick length.

**Europe, Africa, Middle East — 2980 mm (9'9").

- Shipping Dimensions
- 320C, 320C L, 320C LN, 320C S
 - Belgium Sourced

Excavators



	320C Reach		320C Mass		320C VA		320C L Reach		320C L Mass		320C L VA	
	mm	ft	mm	ft	mm	ft	mm	ft	mm	ft	mm	ft
A	2950	9'8"	2950	9'8"	2950	9'8"	2950	9'8"	2950	9'8"	2950	9'8"
B	2500	8'2"	2500	8'2"	2500	8'2"	2500	8'2"	2500	8'2"	2500	8'2"
C	2800	9'2"	2800	9'2"	2800	9'2"	2980	9'9"	2980	9'9"	2980	9'9"
D	460	18"	460	18"	460	18"	460	18"	460	18"	460	18"
E	1000	3'3"	1000	3'3"	1000	3'3"	1000	3'3"	1000	3'3"	1000	3'3"
F	2770	9'1"	2770	9'1"	2770	9'1"	2770	9'1"	2770	9'1"	2770	9'1"
G	4075	13'4"	4075	13'4"	4075	13'4"	4455	14'7"	4455	14'7"	4455	14'7"
H	9650	31'8"	9200	30'2"	9520	31'3"	9650	31'8"	9200	30'2"	9520	31'3"
J*	3120	10'3"	3250	10'8"	3010	9'11"	3120	10'3"	3250	10'8"	3010	9'11"
K	3265	10'8"	3265	10'8"	3265	10'8"	3650	12'0"	3650	12'0"	3650	12'0"
L	2200	7'3"	2200	7'3"	2200	7'3"	2380	7'10"	2380	7'10"	2380	7'10"

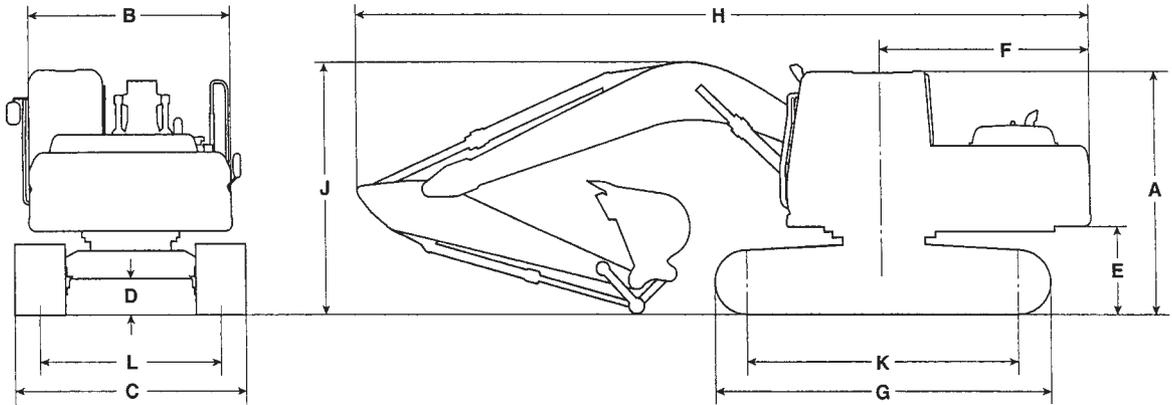
	320C LN Reach		320C LN Mass		320C LN VA		320C S Reach		320C S Mass		320C S VA	
	mm	ft	mm	ft	mm	ft	mm	ft	mm	ft	mm	ft
A	2950	9'8"	2950	9'8"	2950	9'8"	3030	9'11"	3030	9'11"	3030	9'11"
B	2500	8'2"	2500	8'2"	2500	8'2"	2500	8'2"	2500	8'2"	2500	8'2"
C	2490	8'6"	2490	8'6"	2490	8'6"	2500	8'2"	2500	8'2"	2500	8'2"
D	460	18"	460	18"	460	18"	480	19"	480	19"	480	19"
E	1000	3'3"	1000	3'3"	1000	3'3"	1080	3'7"	1080	3'7"	1080	3'7"
F	2770	9'1"	2770	9'1"	2770	9'1"	2770	9'1"	2770	9'1"	2770	9'1"
G	4455	14'7"	4455	14'7"	4455	14'7"	4360	14'4"	4360	14'4"	4360	14'4"
H	9650	31'8"	9200	30'2"	9250	31'4"	9730	31'11"	9190	30'2"	9510	31'2"
J*	3120	10'3"	3250	10'8"	3010	9'11"	3160	10'4"	3275	10'9"	3090	10'2"
K	3650	12'0"	3650	12'0"	3650	12'0"	3490	11'5"	3490	11'5"	3490	11'5"
L	1995	6'7"	1995	6'7"	1995	6'7"	1895	6'3"	1895	6'3"	1895	6'3"

*Varies with stick length.

Excavators

Shipping Dimensions

- 322C, 322C L — Japan/U.S. Sourced
- 322C L, 322C LN — Belgium Sourced



Japan/U.S. Sourced

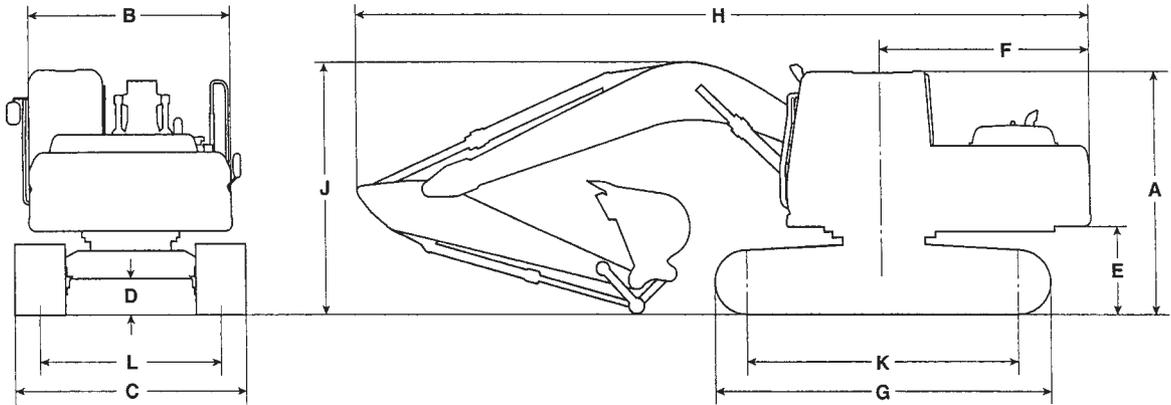
	322C Reach		322C Mass		322C L Reach		322C L Mass	
	mm	ft	mm	ft	mm	ft	mm	ft
A	2990	9'10"	2990	9'10"	2990	9'10"	2990	9'10"
B	2855	9'4"	2855	9'4"	2855	9'4"	2855	9'4"
C	2990	9'10"	2990	9'10"	3390	11'1"	3390	11'1"
D	470	19"	470	19"	470	19"	470	19"
E	1080	3'7"	1080	3'7"	1080	3'7"	1080	3'7"
F	2900	9'6"	2900	9'6"	2970	9'9"	2970	9'9"
G	4260	14'0"	4260	14'0"	4640	15'3"	4640	15'3"
H	9960	32'8"	9400	30'10"	9960	32'8"	9400	30'10"
J*	3120	10'3"	3450	11'4"	3120	10'3"	3450	11'4"
K	3450	11'4"	3450	11'4"	3830	12'7"	3830	12'7"
L	2390	7'10"	2390	7'10"	2590	8'6"	2590	8'6"

Belgium Sourced

	322C L Reach		322C L Mass		322C L VA		322C LN Reach		322C LN Mass		322C LN VA	
	mm	ft	mm	ft	mm	ft	mm	ft	mm	ft	mm	ft
A	2990	9'10"	2990	9'10"	2990	9'10"	2990	9'10"	2990	9'10"	2990	9'10"
B	2900	9'6"	2900	9'6"	2900	9'6"	2900	9'6"	2900	9'6"	2900	9'6"
C	3390	11'2"	3390	11'2"	3390	11'2"	2990	9'10"	2990	9'10"	2990	9'10"
D	470	1'7"	470	1'7"	470	1'7"	470	1'7"	470	1'7"	470	1'7"
E	1030	3'5"	1030	3'5"	1030	3'5"	1030	3'5"	1030	3'5"	1030	3'5"
F	2970	9'9"	2970	9'9"	2970	9'9"	2970	9'9"	2970	9'9"	2970	9'9"
G	4640	15'3"	4640	15'3"	4640	15'3"	4640	15'3"	4640	15'3"	4640	15'3"
H	10 170	33'4"	9582	31'5"	9700	31'10"	10 170	33'4"	9582	31'5"	9700	31'10"
J*	3290	10'10"	3468	11'5"	3322	10'11"	3290	10'10"	3468	11'5"	3322	10'11"
K	3830	12'7"	3830	12'7"	3830	12'7"	3830	12'7"	3830	12'7"	3830	12'7"
L	2590	8'6"	2590	8'6"	2590	8'6"	2390	7'10"	2390	7'10"	2390	7'10"

*Varies with stick length.

- 325C, 325C L — Japan/U.S. Sourced
- 325C L, 325C LN — Belgium Sourced



Japan/U.S. Sourced

	325C Reach		325C Mass		325C L Reach		325C L Mass	
	mm	ft	mm	ft	mm	ft	mm	ft
A	3040	10'0"	3040	10'0"	3040	10'0"	3040	10'0"
B	2900	9'6"	2900	9'6"	2900	9'6"	2900	9'6"
C	2990	9'10"	2990	9'10"	3190	10'6"	3190	10'6"
D	480	1'7"	480	1'7"	480	1'7"	480	1'7"
E	1110	3'8"	1110	3'8"	1110	3'8"	1110	3'8"
F	3050	10'0"	3050	10'0"	3050	10'0"	3050	10'0"
G	4360	14'4"	4360	14'4"	4660	15'3"	4660	15'3"
H	10 340	33'11"	9710	31'10"	10 340	33'11"	9710	31'10"
J*	3260	10'8"	3460	11'4"	3260	10'8"	3460	11'4"
K	3490	11'5"	3490	11'5"	3800	12'6"	3800	12'6"
L	2390	7'10"	2390	7'10"	2590	8'6"	2590	8'6"

Belgium Sourced

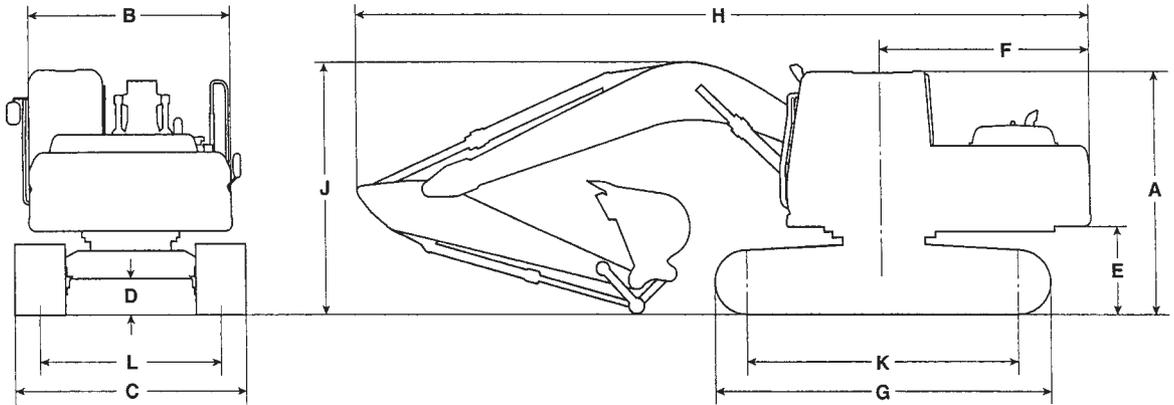
	325C L Reach		325C L Mass		325C L VA		325C LN Reach		325C LN Mass		325C LN VA	
	mm	ft	mm	ft	mm	ft	mm	ft	mm	ft	mm	ft
A	3040	10'0"	3040	10'0"	3040	10'0"	3040	10'0"	3040	10'0"	3040	10'0"
B	2900	9'6"	2900	9'6"	2900	9'6"	2900	9'6"	2900	9'6"	2900	9'6"
C	3390	11'2"	3390	11'2"	3390	11'2"	2990	9'10"	2990	9'10"	2990	9'10"
D	480	1'7"	480	1'7"	480	1'7"	480	1'7"	480	1'7"	480	1'7"
E	1085	3'7"	1085	3'7"	1085	3'7"	1085	3'7"	1085	3'7"	1085	3'7"
F	3050	10'0"	3050	10'0"	3050	10'0"	3050	10'0"	3050	10'0"	3050	10'0"
G	4660	15'4"	4660	15'4"	4660	15'4"	4660	15'3"	4660	15'3"	4660	15'3"
H	10 460	34'4"	9850	32'4"	10 230	33'7"	10 460	34'4"	9850	32'4"	10 230	33'7"
J*	3330	10'11"	3380	11'1"	3100	10'2"	3330	10'11"	3380	11'1"	3100	10'2"
K	3800	12'6"	3800	12'6"	3800	12'6"	3800	12'6"	3800	12'6"	3800	12'6"
L	2590	8'6"	2590	8'6"	2590	8'6"	2390	7'10"	2390	7'10"	2390	7'10"

*Varies with stick length.

Excavators

Shipping Dimensions

- 330C, 330C L — Japan/U.S. Sourced
- 330C L, 330C LN — Belgium Sourced



Japan/U.S. Sourced

	330C Reach*		330C Mass*		330C L Reach**		330C L Mass**	
	mm	ft	mm	ft	mm	ft	mm	ft
A	3140	10'4"	3150	10'4"	3150	10'4"	3150	10'4"
B	2960	9'9"	2990	9'10"	2990	9'10"	2990	9'10"
C	3190	10'6"	3190	10'6"	3340	10'11"	3340	10'11"
D	510	1'8"	510	1'8"	510	1'8"	510	1'8"
E	1250	4'1"	1250	4'1"	1250	4'1"	1250	4'1"
F	3500	11'6"	3500	11'6"	3500	11'6"	3500	11'6"
G	4580	15'0"	4580	15'0"	5020	16'6"	5020	16'6"
H	11 140	36'7"	10 760	35'4"	11 140	36'7"	10 760	35'4"
J*	3350	11'0"	3560	11'8"	3350	11'0"	3560	11'8"
K	3610	11'10"	3610	11'10"	4040	13'3"	4040	13'3"
L	2590	8'6"	2590	8'6"	2590	8'6"	2590	8'6"

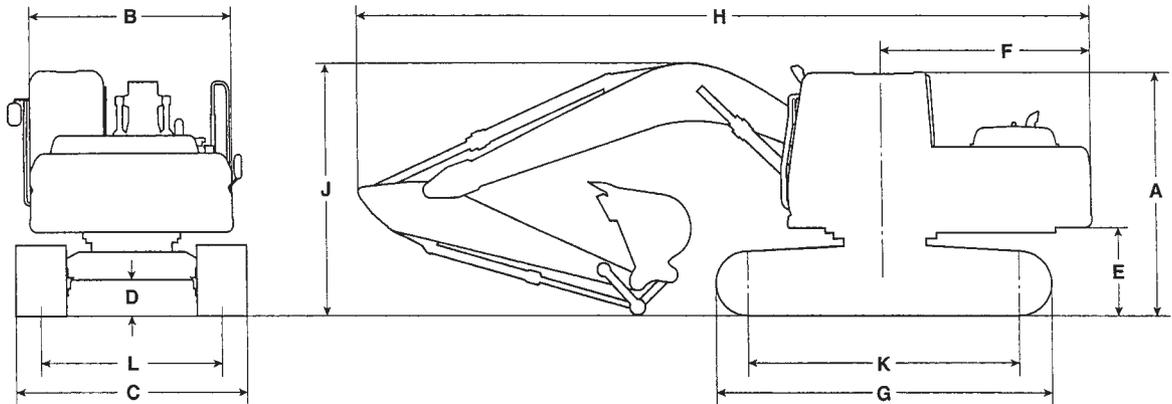
*600 mm (24") shoes.

**750 mm (30") shoes.

Belgium Sourced

	330C L Reach		330C L Mass		330C LN Reach		330C LN Mass	
	mm	ft	mm	ft	mm	ft	mm	ft
A	3150	10'4"	3150	10'4"	3150	10'4"	3150	10'4"
B	3000	9'10"	3000	9'10"	3000	9'10"	3000	9'10"
C	3340	11'0"	3340	11'0"	2990	9'10"	2990	9'10"
D	510	1'8"	510	1'8"	510	1'8"	510	1'8"
E	1195	3'11"	1195	3'11"	1195	3'11"	1195	3'11"
F	3500	11'6"	3500	11'6"	3500	11'6"	3500	11'6"
G	5020	16'6"	5020	16'6"	5020	16'6"	5020	16'6"
H	11 450	37'7"	11 450	37'7"	11 450	37'7"	11 140	36'7"
J*	3670	12'0"	3590	11'9"	3670	12'0"	3590	11'9"
K	4040	13'3"	4040	13'3"	4040	13'3"	4040	13'3"
L	2590	8'6"	2590	8'6"	2390	7'10"	2390	7'10"

*Varies with stick length.



	345B Series II Reach		345B Series II Mass		345B L Series II – FIX Reach		345B L Series II – FIX Mass		345B L Series II – VG Reach		345B L Series II – VG Mass	
	mm	ft	mm	ft	mm	ft	mm	ft	mm	ft	mm	ft
A	3250	10'8"	3250	10'8"	3245	10'8"	3245	10'8"	3470	11'5"	3470	11'5"
B	3000	9'10"	3000	9'10"	2995	9'10"	2995	9'10"	2995**	9'10"***	2995**	9'10"***
C**	3490	11'5"	3490	11'5"	3490	11'5"	3490	11'5"	3140	10'4"	3140	10'4"
D	510	1'8"	510	1'8"	510	1'8"	510	1'8"	710	2'4"	710	2'4"
E	1290	4'3"	1290	4'3"	1290	4'3"	1290	4'3"	1473	4'10"	1473	4'10"
F	3650	12'0"	3650	12'0"	3610	11'10"	3610	11'10"	3650	12'0"	3650	12'0"
G	5030	16'6"	5030	16'6"	5360	17'7"	5360	17'7"	5360	17'7"	5360	17'7"
H*	11 380	37'4"	11 380	37'4"	11 770	38'7"	11 380	37'4"	11 720	38'5"	11 400	37'5"
J*	3680	12'1"	3680	12'1"	3660	12'0"	3690	12'1"	3660	12'0"	3870	12'8"
K	5030	16'6"	4030	13'3"	4360	14'4"	4360	14'4"	4340	14'3"	4340	14'3"
L	2740	9'0"	2740	9'0"	2740	9'0"	2740	9'0"	2390**	7'10"***	2390**	7'10"***

*Varies with stick length.

**Transport position — 750 mm (30") track shoes.

NOTE: 600 mm shoes are available for 345B Series II in some areas.

600, 750 and 900 mm shoes are available for 345B L Series II.

Medium stick is available all models.

Undercarriage is retracted.

	345B L Series II – W-VG Reach		365B L Series II Reach		365B L Series II Mass		365B L Series II Reach		365B L Series II Mass 6.6 m (21'8") Boom		365B L Series II Mass 7.0 m (23') Boom	
Sourcing	mm	ft	mm	ft	mm	ft	mm	ft	mm	ft	mm	ft
A	3429	11'3"	3560	11'8"	3560	11'8"	3640	11'11"	3640	11'11"	3640	11'11"
B	2995	9'10"	3420	11'3"	3420	11'3"	3420	11'3"	3420	11'3"	3420	11'3"
C**	3505	11'6"	3500	11'6"	3500	11'6"	3500	11'6"	3500	11'6"	3500	11'6"
D	740	2'5"	840	2'9"	840	2'9"	840	2'9"	840	2'9"	840	2'2"
E	1473	4'10"	1540	5'1"	1540	5'1"	1540	5'1"	1540	5'1"	1540	5'1"
F	3610	11'10"	3920	12'10"	3920	12'10"	3995	13'1"	3995	13'1"	3995	13'1"
G	5360	17'7"	5860	19'3"	5860	19'3"	5850	19'2"	5850	19'2"	5850	19'2"
H*	11 740	38'6"	13 210	43'4"	12 030	39'6"	13 290	43'7"	12 165	39'11"	12 580	41'3"
J*	3740	12'3"	4390	14'5"	4550	14'11"	4370	14'4"	4600	15'1"	4610	15'1"
K	4360	14'4"	4710	15'5"	4710	15'5"	4705	15'5"	4705	15'5"	4705	15'5"
L	2760	9'1"	2750	9'0"	2750	9'0"	2750	9'0"	2750	9'0"	2750	9'0"

*Varies with stick length.

**Transport position — 750 mm (30") track shoes.

NOTE: 600, 750 and 900 mm shoes are available for 365B L Series II.

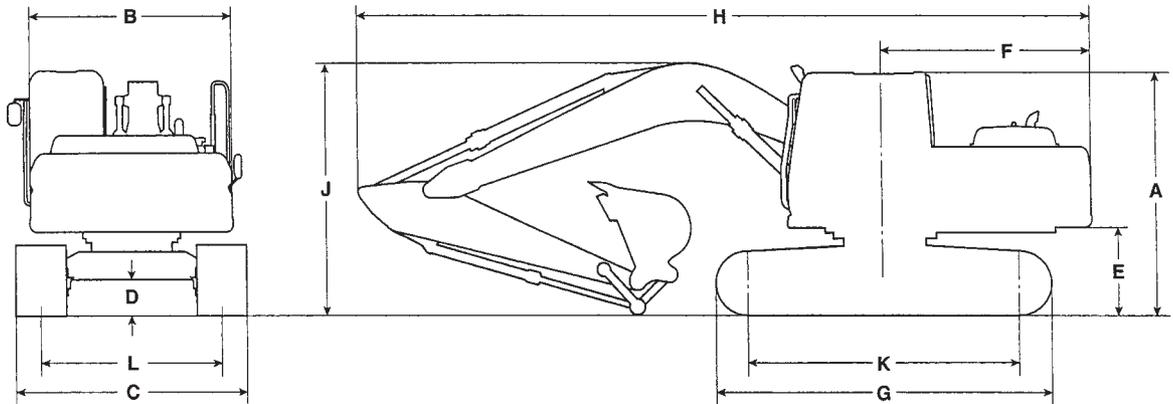
Medium stick is available all models.

Undercarriage is retracted.

Excavators

Shipping Dimensions

- 385B, 385B L
- Japan/U.S. Sourced ● Belgium Sourced



Japan/U.S. Sourced

	385B Reach		385B GP		385B Mass		385B L Reach		385B L GP		385B L Mass	
	mm	ft	mm	ft	mm	ft	mm	ft	mm	ft	mm	ft
A	3800	12'6"	3800	12'6"	3800	12'6"	3800	12'6"	3800	12'6"	3800	12'6"
B	3470	11'5"	3470	11'5"	3470	11'5"	3470	11'5"	3470	11'5"	3470	11'5"
C	3500	11'6"	3500	11'6"	3500	11'6"	3840	12'7"	3840	12'7"	3840	12'7"
D	850	2'9"	850	2'9"	850	2'9"	850	2'9"	850	2'9"	850	2'9"
E	1630	5'4"	1630	5'4"	1630	5'4"	1630	5'4"	1630	5'4"	1630	5'4"
F	4590	15'1"	4590	15'1"	4590	15'1"	4590	15'1"	4590	15'1"	4590	15'1"
G	5840	19'2"	5840	19'2"	5840	19'2"	6360	20'10"	6360	20'10"	6360	20'10"
H	14 620	48'0"	14 620	48'0"	14 620	48'0"	14 620	48'0"	14 620	48'0"	14 620	48'0"
J	4950	16'3"	5240	17'2"	4890	16'1"	4950	16'3"	5240	17'2"	4890	16'1"
K	4600	15'1"	4600	15'1"	4600	15'1"	5120	16'10"	5120	16'10"	5120	16'10"
L	2750	9'0"	2750	9'0"	2750	9'0"	2940	9'8"	2940	9'8"	2940	9'8"

NOTE: 610 mm (24") shoes are available for 385B.
 750 mm (30") shoes are available for 385B L.
 Medium stick is available all Reach & Mass.
 3.4 m (11'2") short stick is available for GP.
 Undercarriage is retracted.

Belgium Sourced

	385B Reach		385B GP		385B Mass		385B L Reach		385B L GP		385B L Mass	
	mm	ft	mm	ft	mm	ft	mm	ft	mm	ft	mm	ft
A	3730	12'3"	3730	12'3"	3730	12'3"	3730	12'3"	3730	12'3"	3730	12'3"
B	—	—	—	—	—	—	—	—	—	—	—	—
C	3400	11'2"	3400	11'2"	3400	11'2"	3400	11'2"	3400	11'2"	3400	11'2"
D	890	2'11"	890	2'11"	890	2'11"	890	2'11"	890	2'11"	890	2'11"
E	1630	5'4"	1630	5'4"	1630	5'4"	1630	5'4"	1630	5'4"	1630	5'4"
F	4590	15'1"	4590	15'1"	4590	15'1"	4590	15'1"	4590	15'1"	4590	15'1"
G	5840	19'2"	5840	19'2"	5840	19'2"	6360	20'10"	6360	20'10"	6360	20'10"
H	14 620	48'0"	14 370	47'2"	13 460	44'2"	14 620	48'0"	14 370	47'2"	13 460	44'2"
J	4950	16'3"	5780	19'0"	4770	15'8"	4950	16'3"	5780	19'0"	4770	15'8"
K	4600	15'1"	4600	15'1"	4600	15'1"	5120	16'10"	5120	16'10"	5120	16'10"
L	2750	9'0"	2750	9'0"	2750	9'0"	2750	9'0"	2750	9'0"	2750	9'0"

Major Component Weights

● 301.5 ● 301.5 CR ● 301.6 ● 301.8 ● 302.5
● 303 SR ● 303 CR ● 304 CR ● 305 SR ● 305 CR

Excavators

	301.5		301.5 CR		301.6		301.8		302.5	
Buckets: (see data in bucket section)	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb
Sticks:*										
Medium Stick	54	119	48	110	—	—	54	119	90	198
Long Stick	59	130	55	120	59	130	59	130	102	225
Booms:**										
One-piece	105	231	91	200	105	231	105	231	179	395
Other:										
Upperstructure (complete w/o ctwt)	802 †	1768	663	1460	802	1768	805	1775	1160 †	2557
Standard undercarriage (std shoe)	436	961	587	1290	443	977	549	1210	900	1984
Counterweight	100	220	90	200	125	276	100	220	118	260
Extra Counterweight	—	—	59	130	—	—	—	—	—	—

*Stick weights include stick, stick lines, bucket cylinder, bucket cylinder pins and bucket linkage.

**Boom weights include boom, boom lines, boom cylinders and rod end pins, stick cylinder, head end pin and stick lines.

†Includes canopy, does not include boom, stick, counterweight or work tool. Undercarriage includes blade, blade cylinder and lines, track motors, swivel joint and lines, swinger sprocket, idlers, rollers and rubber track.

	303 SR		303 CR		304 CR		305 SR		305 CR	
Buckets: (see data in bucket section)	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb
Sticks:*										
Medium Stick	58	130	95	210	142	310	190	420	145	320
Long Stick	77	170	127	280	187	410	218	480	189	420
Booms:**										
One-piece	285	630	195	430	279	610	648	1430	280	620
Other:										
Upperstructure (complete w/o ctwt)	1057	2330	1342	2970	1743	3840	1758	3880	1867	4120
Standard undercarriage (std shoe)	1046	2310	1059	2330	1565	3450	1903	4200	1704	3760
Counterweight	360	790	360	790	379	840	681	1500	603	1330
Extra Counterweight	210	460	220	490	190	420	190	420	190	420

*Stick weights include stick, stick lines, bucket cylinder, bucket cylinder pins and bucket linkage.

**Boom weights include boom, boom lines, boom cylinders and rod end pins, stick cylinder, head end pin and stick lines.

Excavators

Major Component Weights

- 307C ● 307C SB ● 307B SB ● 308C SR ● 308C CR
- 311C U ● 312C ● 312C L ● 313C CR ● 313C SR

	307C		307C SB		307B SB		308C SR		308C CR	
Buckets: (see data in bucket section)	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb
Sticks:**										
Medium Stick	142	310	142	310	142	310	159	350	150	330
Long Stick	217	480	217	480	217	480	—		220	490
Booms:**										
One-piece	387	850	380	840	590	1300	836	1840	385	850
Parallel-Offset	775	1710	—		—		—		—	
VA (France sourced only)	—		—		—		—		—	
Other:										
Upperstructure (complete w/o ctwt)	2490	5490	3030	6680	3150	6940	3120	6880	3020	6660
Standard undercarriage (std shoe)	2110	4650	2110	4650	2120	4670	2610	5750	2180	4810
Counterweight	750	1650	1250	2760	1150	2540	1170	2580	1170	2580

*Stick weights include stick, stick lines, bucket cylinder, bucket cylinder pins and bucket linkage.

**Boom weights include boom, boom lines, boom cylinders and rod end pins, stick cylinder, head end pin and stick lines.

	311C U		312C		312C L		312C/312C L		313C CR		313C SR	
Source	Japan		Japan		Japan		France		Japan		Japan	
Buckets: (see data in bucket section)	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb
Sticks:**												
Short Stick	—		—		—		314	690	—		—	
Medium Stick	322	710	360	790	360	790	384	850	380	840	340	750
Long Stick	394	870	433	950	433	950	462	1020	460	1010	—	
Heavy Duty Medium Stick	—		—		—		—		440	970	—	
Booms:**												
One-piece Reach	708	1560	767	1690	767	1690	1198	2640	870	1920	—	
Parallel-Offset	—		—		—		—		—		1590	3510
VA (France sourced only)	—		—		—		1720	3790	—		—	
Other:												
Upperstructure (complete w/o ctwt)	3200	7050	4075	8980	4075	8980	4027	8880	3950	8710	4020	8860
Standard undercarriage (std shoe)	2040	4500	3890	8580	—		3890	8580	3900	8600	4680	10,320
Long undercarriage (std shoe)	—		—		4410	9720	4410	9720	—		—	
Counterweight	1170	2580	2450	5400	2450	5400	2450	5400	2500	5510	2500	5510

*Stick weights include stick, stick lines, bucket cylinder, bucket cylinder pins, bucket linkage and stick nose pin.

**Boom weights include boom, boom lines, boom cylinders and rod end pins, stick cylinder and head end pin.

Major Component Weights

● 314C CR ● 314C LCR ● 315C ● 315C L
● 318C ● 318C L ● 318C LN ● 318C N

Excavators

	314C CR		314C LCR		315C		315C L		315C L	
Source	Japan		Japan		Japan		Japan		France	
Buckets: (see data in bucket section)	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb
Sticks:*										
Short Stick		—		—	490	1080	490	1080	488	1076
Medium Stick	353	780	353	780	450	990	450	990	470	1036
Long Stick	432	950	432	950	480	1060	480	1060	500	1102
Extra Long Stick		—		—	570	1260	570	1260	595	1312
Booms:**										
One-piece	768	1690	768	1690	950	2090	950	2090	1323	2917
VA (France sourced only)		—		—		—		—	1700	3748
Other:										
Upperstructure (complete w/o ctwt)	4380	9660	4380	9660	4720	10,410	4720	10,410	5350	11,795
Standard undercarriage (std shoe)	3890	8580		—	5420	11,950		—	5900	13,007
Long undercarriage (std shoe)		—	4180	9220		—	6000	13,230	5900	13,007
Counterweight	3000	6610	3000	6610	3010	6640	3010	6640	3000	6614

*Stick weights include stick, stick lines, bucket cylinder, bucket cylinder pins, bucket linkage and stick nose pin.

**Boom weights include boom, boom lines, boom cylinders and rod end pins, stick cylinder and head end pin.

	318C		318C L		318C L		318C LN		318C N	
Source	France		Japan		France		Japan		France	
Buckets: (see data in bucket section)	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb
Sticks:*										
Short Stick	567	1250	562	1240	567	1250	562	1240	567	1250
Medium Stick	545	1202	538	1190	545	1202	538	1190	545	1202
Long Stick	625	1378	566	1250	625	1378	566	1250	625	1378
Extra Long Stick	675	1488	700	1540	675	1488	700	1540	675	1488
Booms:**										
One-piece Reach	1900	4190	1300	2870	1900	4190	1300	2870	1900	4190
VA (France sourced only)	2400	5290		—	2400	5290		—	2400	5290
Other:										
Upperstructure (complete w/o ctwt)	5500	12,125	5560	12,260	5100	11,245	5560	12,260	5500	12,125
Standard undercarriage (std shoe)	6200	13,669		—		—		—		—
Long undercarriage (std shoe)		—	6850	15,100	6470	14,260		—		—
Narrow undercarriage (std shoe)		—		—		—		—	6190	13,650
Long narrow undercarriage (std shoe)		—		—		—	6560	14,460		—
Counterweight	3350	7385	3610	7960	3350	7385	3610	7960	3350	7385

*Stick weights include stick, stick lines, bucket cylinder, bucket cylinder pins, bucket linkage and stick nose pin.

**Boom weights include boom, boom lines, boom cylinders and rod end pins, stick cylinder and head end pin.

	M313C		M315C		M316C		M318C		M322C	
Buckets: (see data in bucket section)	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb
Sticks:*										
Short Stick	606	1336	681	1501	681	1501	841	1854	961	2119
Medium Stick	636	1402	721	1590	721	1590	856	1887	981	2163
Long Stick	676	1490	731	1612	731	1612	896	1975	1051	2317
Booms:**										
VH Boom	1650	3638	1970	4343	2090	4608	2450	5401	2980	6570
One-piece Boom	1230	2712	1530	3373	1560	3439	1890	4167	2300	5071
Other:										
Upperstructure (with swing bearing, no boom)	3600	7937	4100	9039	4710	10,384	5480	12,081	5610	12,368
Undercarriage (with standard tires)	3505	7727	3805	8389	4110	9061	4150	9149	1770	3902
Outriggers (each set, with cylinders and linkage)	890	1962	890	1962	1020	2249	1020	2249	1310	2888
Dozer Blade (with cylinders and linkage)	645	1422	645	1422	760	1676	760	1676	910	2006

*Stick weight includes stick, stick lines, bucket cylinder, bucket cylinder pins, bucket linkage and bucket linkage pins.

**Boom weight includes boom, boom lines, boom cylinders, boom cylinder rod end pin, stick cylinder, stick cylinder head end pin and boom nose pin.

● 320C ● 320C U ● 321C LCR ● 322C
● Japan/Brazil/U.S. Sourced

Excavators

4

	320C		320C U		321C LCR		322C	
Source	Japan/Brazil		Japan/U.S.		Japan		Japan/U.S.	
Buckets: (see data in bucket section)	kg	lb	kg	lb	kg	lb	kg	lb
Booms:**								
One-piece Reach	1400	3090	1400	3090	2106	4640	2460	5420
Heavy Duty One-piece Reach	2194	4840	—	—	—	—	—	—
Sticks:* (for Reach Boom)								
Short Stick	730	1610	—	—	—	—	—	—
Medium Stick	640	1410	640	1410	—	—	1160	2560
Long Stick	660	1460	660	1460	926	2040	1180	2600
Extra Long Stick	910	2010	910	2010	—	—	1300	2870
Heavy Duty Long Stick	1100	2430	—	—	—	—	1290	2840
Heavy Duty Medium Stick	1040	2290	—	—	—	—	—	—
Booms:**								
One-piece Mass	1410	3110	—	—	—	—	2560	5640
Sticks:* (for Mass Boom)								
Short Stick	720	1590	—	—	—	—	1420	3130
Medium Stick	750	1650	—	—	—	—	1480	3260
Upperstructure (complete w/o ctwt)	5780	12,740	5500	12,130	2373	5230	6340	13,980
Undercarriage — Standard	(600) 6650	14,660	(600) 6650	14,660	(600) 6649	14,660	(600) 7920	17,460
	(700) 7000	15,430	(700) 7000	15,430	—	—	(700) 8180	18,030
	(800) 7250	15,980	(800) 7250	15,980	—	—	(800) 8440	18,610
() Shoe width — Long (FIX)	(600) 7200	15,870	(600) 7200	15,870	(600) 7847	17,300	(600) 8540	18,830
	(700) 7580	16,710	(700) 7580	16,710	—	—	(700) 8820	19,440
	(800) 7850	17,310	(800) 7850	17,310	—	—	(800) 9110	20,080
	(900) 8120	17,900	(900) 8120	17,900	—	—	(900) 9380	20,680
Counterweight — Standard	3850	8490	6500	14,330	6100	13,450	4090	9016

*Stick weights include stick and stick lines.

**Boom weights include boom, boom lines, boom cylinders and rod end pins, stick cylinder and head end pin.

Excavators

Major Component Weights

- 325C ● 325C L ● 330C ● 330C L ● 345B Series II
- Japan/U.S. Sourced

Source	325C/325C L		330C/330C L		345B Series II	
	Japan/U.S.		Japan/U.S.		Japan/U.S.	
Buckets: (see data in bucket section)	kg	lb	kg	lb	kg	lb
Booms:**						
One-piece Reach	2840	6260	3880	8550	—	—
One-piece Reach	—	—	4070	8970	3351	7390
Sticks:* (for Reach Boom)						
Short	—	—	1890	4170	—	—
•	890	1960	1720	3790	1746	3850
•	820	1810	1820	4010	1751	3860
•	890	1960	1950	4300	1771	3900
•	930	2050	2090	4610	—	—
•	—	—	2040	4500	—	—
Booms:**						
One-piece Mass	2770	6110	3950	8710	3870	8530
Sticks:* (for Mass Boom & VA Boom)						
Short	—	—	1890	4170	1800	3970
•	970	2140	1960	4320	1826	4030
Extra Long	930	2050	—	—	—	—
Upperstructure (complete w/o ctwt)	6279	13,840	8480	18,700	11 671	25,730
Undercarriage — Standard	(600) 9372	20,660	(600) 11 850	26,120	(600) 13 980	30,820
	—	—	—	—	(750) 15 202	33,510
	—	—	—	—	(900) 15 740	34,700
() Shoe width — Long (FIX)	—	—	—	—	(600) 15 010	33,090
	—	—	(750) 13 290	29,300	(750) 15 911	35,080
	(800) 11 087	24,440	—	—	(900) 16 870	37,190
— Long (VG)	—	—	—	—	(600) 16 680	36,770
	—	—	—	—	(750) 17 780	39,200
	—	—	—	—	(900) 18 640	41,095
— Narrow	—	—	(600) 11 560	25,490	—	—
— Long Narrow	(600) 9215	20,320	(750) 12 100	26,680	—	—
Counterweight — Standard	5611	12,370	6020	13,300	8500 †	18,740

*Stick weights include stick and stick lines.

**Boom weights include boom, boom lines, boom cylinders and rod end pins, stick cylinder and head end pin.

†8000 kg (17,600 lb) without counterweight attachment for U.S. sourced machine.

	320C		322C		325C		330C		345B Series II	
Buckets: (see data in bucket section)	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb
Booms:**										
One-piece Reach	1260	2780	1525	3360	1770	3900	2445	5390	3125	6890
Sticks:* (for Reach Boom)										
Short	680	1500	795	1750	900	1980	1100	2425	1670	3680
Medium	660	1455	690	1520	840	1850	1040	2290	1655	3650
Long	790	1740	720	1590	945	2080	1210	2670	—	—
Long HD	—	—	865	1910	1040	2290	1335	2940	—	—
Booms:**										
One-piece Mass	1270	2800	1625	3580	1830	4035	2445	5390	3645	8040
VA Boom	1600	3530	2040	4500	2285	5040	—	—	—	—
Sticks:* (for Mass Boom)										
Short	680	1500	795	1750	900	1980	1100	2425	1700	3750
Medium	715	1580	860	1900	980	2160	1125	2480	1675	3690
Long	900	1980	—	—	—	—	—	—	—	—
Upperstructure (complete w/o cwt)	5575	12,290	6860	15,126	6660	14,685	8570	18,900	10,495	23,140
Upperstructure with Eco-Mate	—	—	—	—	—	—	—	—	10,695	23,575
Undercarriage — Standard	7090	15,630	—	—	—	—	—	—	—	—
— L	7640	16,850	8830	19,470	10,685	23,560	13,225	29,160	18,780	41,410
— LN	7310	16,120	8210	18,100	9625	21,220	12,590	27,760	—	—
— S	8380	18,480	—	—	—	—	—	—	—	—
— ES	—	—	—	—	—	—	—	—	26,320	58,085
Counterweight — Standard	4120	9080	—	—	—	—	—	—	—	—
— L	4120	9080	4369	9634	5620	12,390	6250	13,780	9300	20,510
— LN	4420	9750	4369	9634	5620	12,390	6250	13,780	—	—
— S	4420	9750	—	—	—	—	—	—	—	—

*Stick weights include stick and stick lines.

**Boom weights include boom, boom lines, boom cylinders and rod end pins, stick cylinder and head end pin.

NOTE: Heavy duty track shoes available.

	365B L Series II		365B L Series II		385B/385B L		385B	
Buckets: (see data in bucket section)	kg	lb	kg	lb	kg	lb	kg	lb
Source	Japan		Belgium		Japan/U.S.		Belgium	
Booms:*								
One-piece Reach	7751	17,090	6270	13,820	9520	21,000	8624	19,000
Sticks:** (for Reach Boom)								
Short	3274	7220	3190	7030	—	—	—	—
•	3485	7680	3390	7475	—	—	—	—
•	—	—	3620	7980	—	—	4505	9930
Long	3842	8470	3780	8335	4495	9910	4500	9920
Extra Long	—	—	—	—	4819	10,620	4820	10,630
Booms:*								
One-piece General Purpose	—	—	—	—	8200	18,100	8200	18,100
Sticks:** (for General Purpose Boom)								
Short	—	—	—	—	4146	9140	4920	10,850
•	—	—	—	—	4300	9480	4505	9930
Long	—	—	—	—	4975	10,970	4500	9920
Extra Long	—	—	—	—	5299	11,680	4820	10,630
Booms:*								
One-piece Mass	7871	17,350	6400 †	14,110	10 029	22,210	4830	10,650
•	—	—	6700 ‡	14,770	—	—	—	—
Sticks:** (for Mass Boom)								
Short	3927	8660	3860	8510	4827	10,640	4820	10,630
•	4121	9090	4030	8890	4922	10,850	4920	10,850
Upperstructure (complete w/o ctwt)	15 440	34,040	14 590	32,170	21 014	46,330	19 970	44,030
Undercarriage — Standard	—	—	—	—	31 335	69,080	(650)	30 650
() Shoe width — Long	(750)	—	(750)	—	33 082	72,930	(650)	32 340
() Shoe width — ES	26 452	58,320	27 320	60,240	—	—	—	71,310
	—	—	(650)	32 340	—	—	—	—
Counterweight — Standard	—	—	—	—	11 650	25,680	11 650	25,690
— Long	9700	21,380	9800	21,610	—	—	—	—
— Removal C/W	—	—	9200	20,300	—	—	—	—

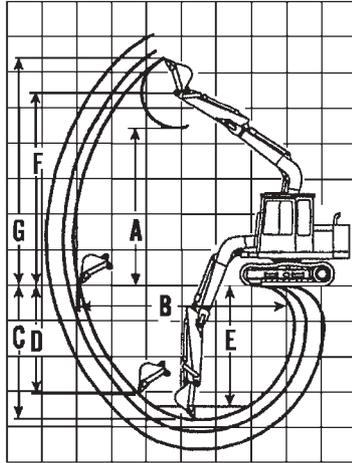
*Boom weights include: boom, boom lines, cylinders, rod end pins, stick cylinder and head end pin.

**Stick weights include stick and stick lines.

†6.6 m (21'8").

‡7.0 m (23'0").

NOTE: Heavy duty track shoes available.



One-Piece Boom Digging Envelope

- Standard shoes and undercarriage
- Lug height not included

KEY:

- A** Maximum loading height of bucket with teeth
- B** Maximum reach at ground level
- C** Maximum digging depth
- D** Maximum vertical wall
- E** Maximum depth of cut for 2.44 m (8'0") level bottom (straight clean up)
- F** Maximum bucket hinge pin height
- G** Maximum height, to bucket teeth at highest arc

Stick	301.5		301.5 CR		301.6		301.6		301.6	
	890 mm	2'11"	1.09 m	3'6"	925 mm	3'0"	1.125 m	3'8"	1.09 m	3'6"
	m	ft	m	ft	m	ft	m	ft	m	ft
A	2.36	7'9"	2.47	8'1"	2.58	8'6"	2.72	8'11"	2.47	8'1"
B	3.61	11'8"	3.80	12'5"	3.71	12'2"	3.90	12'10"	3.80	12'5"
C	2.13	7'0"	2.33	7'6"	2.17	7'1"	2.37	7'9"	2.33	7'6"
D	1.62	5'4"	1.81	5'9"	1.72	5'8"	1.91	6'3"	1.81	5'9"
E	—	—	—	—	1.47	4'10"	1.76	5'9"	—	—
F	2.86	9'5"	2.97	9'7"	3.08	10'1"	3.22	10'7"	2.97	9'7"
G	3.32	10'11"	3.42	11'2"	3.57	11'9"	3.71	12'2"	3.42	11'2"

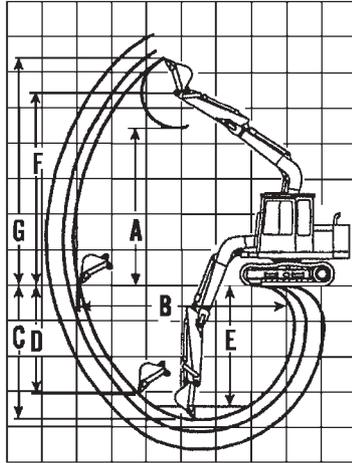
Stick	301.8		301.8		302.5		302.5		303 SR*		303 SR*	
	890 mm	2'11"	1.09 m	3'6"	1.11 m	3'8"	1.41 m	4'8"	1.2 m	3'11"	1.6 m	5'3"
	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft
A	2.36	7'9"	2.47	8'1"	3.10	10'2"	3.25	10'8"	3.84	12'7"	3.44	11'3"
B	3.61	11'8"	3.80	12'5"	4.56	15'0"	4.93	16'2"	4.11	13'6"	4.67	15'4"
C	2.13	7'0"	2.33	7'6"	2.65	8'8"	2.95	9'8"	2.90	9'6"	3.30	10'10"
D	1.62	5'4"	1.81	5'9"	2.12	6'11"	2.38	7'10"	2.27	7'5"	2.70	8'10"
E	—	—	—	—	—	—	—	—	2.32	7'7"	2.81	9'3"
F	2.86	9'5"	2.97	9'7"	3.75	12'4"	3.89	12'9"	4.50	14'9"	4.79	15'9"
G	3.32	10'11"	3.42	11'2"	4.38	14'4"	4.52	14'10"	5.06	16'7"	5.34	17'6"

*Power Offset Boom.

Excavators

Range Dimensions

- 303 CR ● 304 CR
- 305 SR ● 305 CR



One-Piece Boom Digging Envelope

- Standard shoes and undercarriage
- Lug height not included

KEY:

- A** Maximum loading height of bucket with teeth
- B** Maximum reach at ground level
- C** Maximum digging depth
- D** Maximum vertical wall
- E** Maximum depth of cut for 2.44 m (8'0") level bottom (straight clean up)
- F** Maximum bucket hinge pin height
- G** Maximum height, to bucket teeth at highest arc

303 CR

Stick	1.26 m		4'2"		1.56 m		5'1"		1.38 m		4'6"		1.78 m		5'10"	
	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft
A	3.15	10'4"	3.24	10'8"	3.58	11'9"	3.81	12'6"	3.35	11'0"	3.75	12'4"	2.78	9'1"	3.36	11'0"
B	5.13	16'10"	5.39	17'8"	5.56	18'3"	5.95	19'6"	3.35	11'0"	3.75	12'4"	2.78	9'1"	3.36	11'0"
C	3.03	9'11"	3.33	10'11"	3.35	11'0"	3.75	12'4"	2.38	7'10"	2.78	9'1"	2.90	9'6"	4.41	14'6"
D	2.54	8'4"	2.72	8'11"	2.38	7'10"	2.78	9'1"	2.90	9'6"	3.36	11'0"	4.41	14'6"	5.44	17'10"
E	1.97	6'6"	2.42	7'11"	2.90	9'6"	3.36	11'0"	4.41	14'6"	5.44	17'10"				
F	3.91	12'10"	4.00	13'1"	4.41	14'6"	5.44	17'10"								
G	4.64	15'3"	4.71	15'5"	5.22	17'2"										

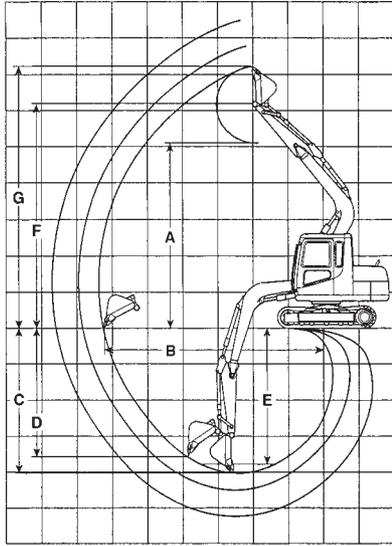
304 CR

305 SR*

Stick	1.62 m		5'4"		2.02 m		6'8"		1.43 m		4'7"		1.83 m		6'0"	
	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft
A	4.64	15'3"	5.01	16'5"	3.73	12'3"	3.96	13'0"	5.75	18'10"	6.14	20'2"	3.93	12'11"	4.79	15'9"
B	5.66	18'7"	6.05	19'10"	5.75	18'10"	6.14	20'2"	3.53	11'7"	3.93	12'11"	3.37	11'1"	4.79	15'9"
C	4.00	13'1"	4.38	14'4"	3.53	11'7"	3.93	12'11"	2.75	9'0"	3.37	11'1"	2.66	8'9"	4.57	15'0"
D	2.72	8'11"	3.20	10'6"	2.75	9'0"	3.37	11'1"	2.66	8'9"	3.21	10'6"	4.57	15'0"	5.37	17'7"
E	3.50	11'6"	3.98	13'1"	2.66	8'9"	3.21	10'6"	4.57	15'0"	5.37	17'7"				
F	5.56	18'3"	5.90	19'4"	4.57	15'0"	5.37	17'7"								
G	6.39	21'0"	6.76	22'2"	5.37	17'7"	5.60	18'4"								

305 CR

*Power Offset Boom.



One-Piece Boom Digging Envelope

- Standard shoes and undercarriage
- Lug height not included

KEY:

- A** Maximum loading height of bucket with teeth
- B** Maximum reach at ground level
- C** Maximum digging depth
- D** Maximum vertical wall
- E** Maximum depth of cut for 2.44 m (8'0") level bottom (straight clean up)
- F** Maximum bucket hinge pin height
- G** Maximum height, to bucket teeth at highest arc

307C

307C SB

Stick	1.67 m		2.21 m		1.67 m		2.21 m	
	m	ft	m	ft	m	ft	m	ft
A	5.15	16'11"	5.56	18'3"	4.16	13'8"	4.45	14'7"
B	6.20	20'4"	6.72	22'1"	6.97	22'10"	7.50	24'7"
C	4.11	13'6"	4.65	15'3"	4.16	13'8"	4.71	15'5"
D	3.67	12'0"	4.19	13'9"	3.00	9'10"	3.58	11'9"
E	3.77	12'4"	4.35	14'3"	3.76	12'4"	4.37	14'4"
F	6.24	20'6"	6.65	21'10"	5.25	17'3"	5.57	18'3"
G	7.29	23'11"	7.69	25'3"	6.18	20'3"	6.49	21'4"

308C SR*

308C CR

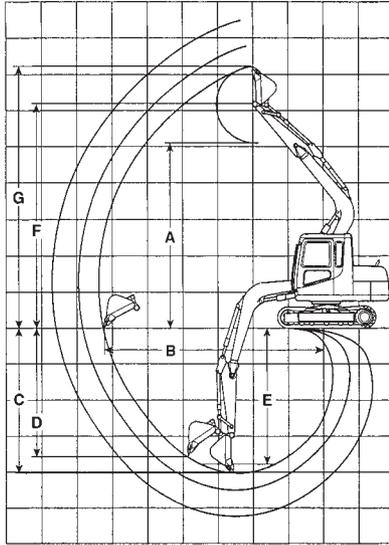
Stick	1.75 m		1.67 m		2.21 m	
	m	ft	m	ft	m	ft
A	5.09	16'8"	5.25	17'3"	5.67	18'7"
B	6.22	20'5"	6.25	20'6"	6.77	22'3"
C	4.37	14'4"	4.14	13'7"	4.69	15'5"
D	3.37	11'1"	3.60	11'10"	4.12	13'6"
E	3.96	13'0"	3.80	12'6"	4.38	14'4"
F	6.18	20'3"	6.34	20'10"	6.76	22'2"
G	7.21	23'8"	7.39	24'3"	7.81	25'7"

*Power Offset Boom.

Excavators

Range Dimensions

- 311C U ● 312C ● 312C L ● 313C SR
- 313C CR ● 314C CR ● 314C LCR
- Japan Sourced ● France Sourced



One-Piece Boom Digging Envelope

- Standard shoes and undercarriage
- Lug height not included

KEY:

- A** Maximum loading height of bucket with teeth
- B** Maximum reach at ground level
- C** Maximum digging depth
- D** Maximum vertical wall
- E** Maximum depth of cut for 2.44 m (8'0") level bottom (straight clean up)
- F** Maximum bucket hinge pin height
- G** Maximum height, to bucket teeth at highest arc

Japan Sourced

311C U

312C, 312C L

Stick	2.25 m 7'5"		2.8 m 9'2"		2.1 m 6'11"		2.5 m 8'2"		3 m 9'10"	
	m	ft	m	ft	m	ft	m	ft	m	ft
A	5.45	17'11"	5.77	18'11"	5.85	19'2"	6.10	20'0"	6.33	20'9"
B	7.57	24'10"	8.10	26'7"	7.79	25'7"	8.17	26'10"	8.62	28'3"
C	5.04	16'6"	5.59	18'4"	5.14	16'10"	5.55	18'3"	6.05	19'10"
D	4.43	14'6"	4.94	16'2"	4.49	14'9"	4.97	16'4"	5.34	17'6"
E	4.82	15'10"	5.44	17'10"	4.83	15'10"	5.34	17'6"	5.86	19'3"
F	6.69	21'11"	7.01	23'0"	7.06	23'2"	7.32	24'0"	7.56	24'10"
G	7.81	25'7"	8.12	26'8"	8.22	27'0"	8.48	27'10"	8.70	28'7"

France Sourced

312C, 312C L

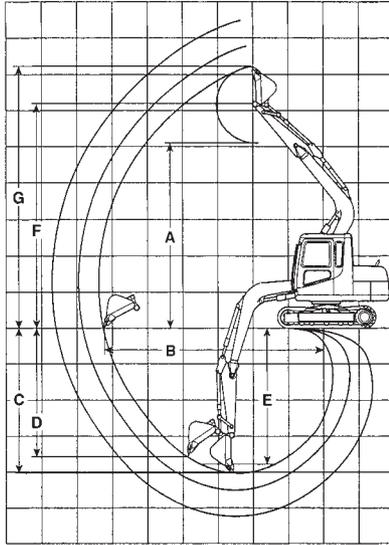
Japan Sourced

313C SR*

313C CR, 314C CR, 314C LCR

Stick	2.1 m 6'11"		2.5 m 8'2"		3 m 9'10"		2.13 m 7'0"		2.5 m 8'2"		3 m 9'10"	
	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft
A	5.85	19'2"	6.10	20'0"	6.34	20'10"	6.06	19'11"	6.86	22'6"	7.19	23'7"
B	7.79	25'7"	8.17	26'10"	8.62	28'3"	7.23	23'9"	8.18	26'10"	8.63	28'4"
C	5.14	16'10"	5.54	18'2"	6.04	19'10"	4.84	15'11"	5.45	17'11"	5.95	19'6"
D	4.49	14'9"	4.95	16'3"	5.32	17'5"	3.60	11'10"	4.91	16'1"	5.33	17'6"
E	4.83	15'10"	5.24	17'2"	5.75	18'10"	4.47	14'8"	5.24	17'2"	5.77	18'11"
F	7.06	23'2"	7.32	24'0"	7.56	24'10"	7.47	24'6"	8.10	26'7"	8.43	27'8"
G	8.22	27'0"	8.48	27'10"	8.70	28'7"	8.47	27'9"	9.30	30'6"	9.62	31'7"

*Parallel-offset.



One-Piece Boom Digging Envelope

- Standard shoes and undercarriage
- Lug height not included

KEY:

- A** Maximum loading height of bucket with teeth
- B** Maximum reach at ground level
- C** Maximum digging depth
- D** Maximum vertical wall
- E** Maximum depth of cut for 2.44 m (8'0") level bottom (straight clean up)
- F** Maximum bucket hinge pin height
- G** Maximum height, to bucket teeth at highest arc

Japan Sourced

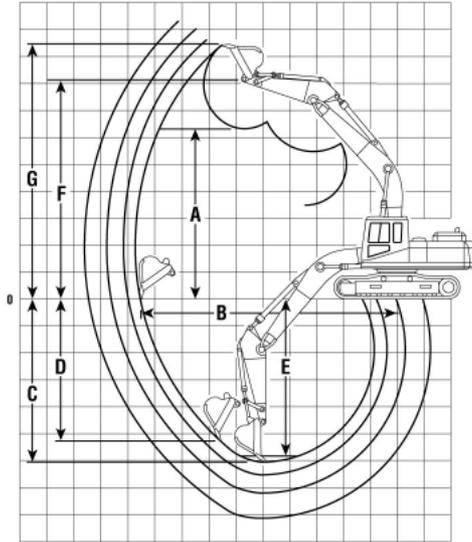
315C, 315C L

Stick	1.85 m		2.25 m		2.6 m		3.1 m	
	m	ft	m	ft	m	ft	m	ft
A	5.93	19'5"	6.15	20'2"	6.32	20'9"	6.41	21'0"
B	8.04	26'5"	8.42	27'7"	8.74	28'8"	9.14	30'0"
C	5.30	17'5"	5.70	18'8"	6.05	19'10"	6.55	21'6"
D	4.36	14'4"	5.45	17'11"	5.82	19'1"	6.33	20'9"
E	5.02	16'6"	4.93	16'2"	5.33	17'6"	5.57	18'3"
F	7.27	23'10"	7.49	24'7"	7.66	25'2"	7.75	25'5"
G	8.50	27'10"	8.70	28'7"	8.91	29'3"	8.97	29'5"

Excavators

Range Dimensions

- 315C L
- France Sourced



One-Piece Boom Digging Envelope

- Standard shoes and undercarriage

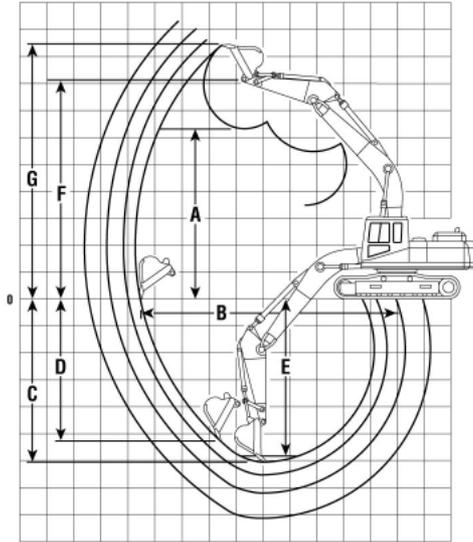
KEY:

- A** Maximum loading height of bucket with teeth
- B** Maximum reach at ground level
- C** Maximum digging depth
- D** Maximum vertical wall
- E** Maximum depth of cut for 2.44 m (8'0") level bottom (straight clean up)
- F** Maximum bucket hinge pin height
- G** Maximum height, to bucket teeth at highest arc

France Sourced

315C L

Stick	1.85 m		2.25 m		2.6 m		3.1 m	
	m	ft	m	ft	m	ft	m	ft
A	5.96	19'6"	6.18	20'3"	6.35	20'9"	6.44	21'1"
B	8.01	26'3"	8.39	27'6"	8.71	28'6"	9.11	29'1"
C	5.27	17'3"	5.67	18'7"	6.02	19'9"	6.25	20'6"
D	4.03	13'2"	4.56	14'11"	5.00	16'4"	5.19	17'0"
E	4.98	16'3"	5.42	17'9"	5.79	18'11"	5.29	17'4"
F	3.12	10'2"	2.72	8'11"	2.37	7'9"	1.87	6'1"
G	8.53	27'11"	8.76	28'8"	8.94	29'3"	9.00	29'6"



One-Piece Boom Digging Envelope

- Standard shoes and undercarriage

KEY:

- A** Maximum loading height of bucket with teeth
- B** Maximum reach at ground level
- C** Maximum digging depth
- D** Maximum vertical wall
- E** Maximum depth of cut for 2.44 m (8'0") level bottom (straight clean up)
- F** Maximum bucket hinge pin height
- G** Maximum height, to bucket teeth at highest arc

Japan Sourced

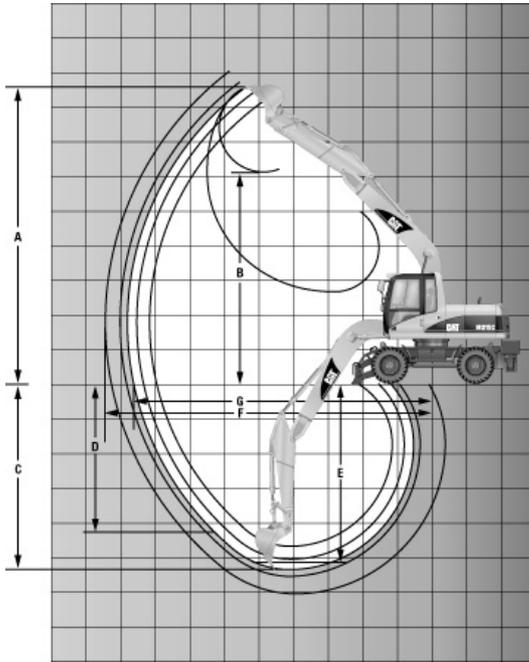
318C L, 318C LN

Stick	1.8 m		2.25 m		2.7 m		3.2 m	
	m	ft	m	ft	m	ft	m	ft
A	5.90	19'4"	6.16	20'3"	6.46	21'3"	6.86	22'6"
B	8.26	27'1"	8.70	28'5"	9.15	29'11"	9.63	31'7"
C	5.46	17'11"	5.92	19'5"	6.37	20'10"	6.87	22'6"
D	3.06	10'0"	4.83	15'10"	5.40	17'8"	6.01	19'9"
E	5.14	16'10"	5.60	18'4"	6.07	19'11"	6.59	21'7"
F	7.32	24'0"	7.60	24'11"	7.89	25'11"	8.29	27'2"
G	8.49	27'10"	8.92	29'3"	9.24	30'4"	9.65	31'8"

France Sourced

318C, 318C L, 318C N

Stick	1.8 m		2.25 m		2.7 m		3.2 m	
	m	ft	m	ft	m	ft	m	ft
A	5.93	19'5"	6.20	20'4"	5.50	18'0"	6.90	22'7"
B	8.24	27'0"	8.68	28'5"	9.13	29'11"	9.66	31'8"
C	5.49	17'1"	5.89	19'3"	6.34	20'9"	6.84	22'5"
D	5.12	16'9"	5.62	18'5"	6.12	20'0"	6.55	21'5"
E	3.74	12'3"	4.75	15'6"	5.32	17'5"	5.93	19'5"
F	3.29	10'9"	2.85	9'4"	2.39	7'9"	1.90	6'2"
G	8.64	28'4"	8.97	29'4"	9.28	30'4"	9.68	31'9"



One-Piece Boom Digging Envelope

- Standard 10 × 20 tires and undercarriage
- General purpose bucket

KEY:

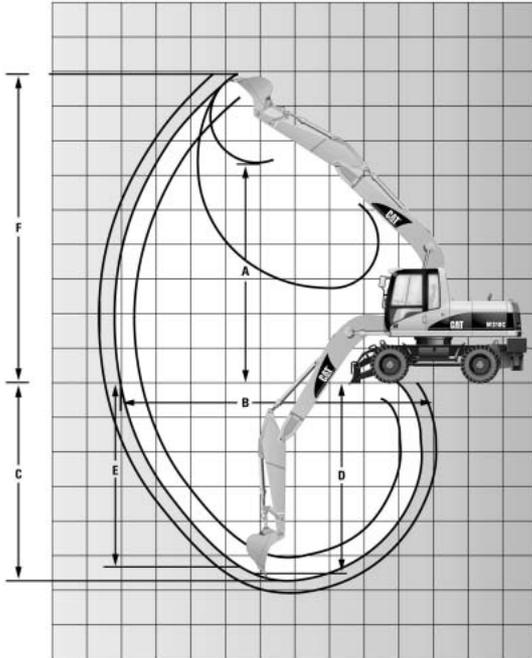
- A** Maximum loading height of bucket with teeth
- B** Maximum reach at ground level
- C** Maximum digging depth
- D** Maximum vertical wall
- E** Maximum depth of cut for 2.5 m (8'2") level bottom (straight clean up)
- F** Maximum height, to bucket teeth at highest arc

M313C

Stick	2 m	6'7"	2.3 m	7'7"	2.6 m	8'6"
Bucket	0.715 m ³	0.94 yd ³	0.64 m ³	0.84 yd ³	0.64 m ³	0.84 yd ³
	m	ft	m	ft	m	ft
A	6.06	19'11"	6.12	20'1"	6.30	20'8"
B	8.08	26'6"	8.32	27'4"	8.61	28'3"
C	4.84	15'11"	5.14	16'10"	5.44	17'10"
D	3.75	12'4"	3.74	12'3"	4.04	13'3"
E	4.59	15'1"	4.91	16'1"	5.23	17'2"
F	8.48	27'10"	8.51	27'11"	8.69	28'6"

M315C

Stick	2.1 m	6'11"	2.4 m	7'10"	2.6 m	8'6"
Bucket	0.815 m ³	1.07 yd ³	0.7 m ³	0.92 yd ³	0.7 m ³	0.92 yd ³
	m	ft	m	ft	m	ft
A	6.15	20'2"	6.26	20'6"	6.37	20'11"
B	8.56	28'1"	8.83	29'0"	9.02	29'7"
C	5.24	17'2"	5.54	18'2"	5.74	18'10"
D	4.08	13'5"	4.24	13'11"	4.41	14'6"
E	5.01	16'5"	5.33	17'6"	5.54	18'2"
F	8.88	29'2"	8.97	29'5"	9.09	29'10"



One-Piece Boom Digging Envelope

- Standard 10 × 20 tires and undercarriage
- General purpose bucket

KEY:

- A** Maximum loading height of bucket with teeth
- B** Maximum reach at ground level
- C** Maximum digging depth
- D** Maximum vertical wall
- E** Maximum depth of cut for 2.5 m (8'2") level bottom (straight clean up)
- F** Maximum height, to bucket teeth at highest arc

M316C

M318C

Stick	2.1 m	6'11"	2.4 m	7'10"	2.6 m	8'6"	2.2 m	7'3"	2.5 m	8'2"	2.8 m	9'2"
Bucket	0.815 m ³	1.07 yd ³	0.815 m ³	1.07 yd ³	0.7 m ³	0.92 yd ³	0.91 m ³	1.19 yd ³	0.91 m ³	1.19 yd ³	0.7 m ³	0.92 yd ³
	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft
A	6.17	20'3"	6.27	20'7"	6.39	21'0"	6.05	19'10"	6.27	20'7"	6.42	21'1"
B	8.56	28'1"	8.82	28'11"	9.02	29'7"	8.85	29'0"	9.16	30'1"	9.45	31'0"
C	5.23	17'2"	5.53	18'2"	5.73	18'10"	5.55	18'3"	5.85	19'2"	6.15	20'2"
D	4.06	13'4"	4.22	13'10"	4.40	14'5"	3.66	12'0"	4.12	13'6"	4.42	14'6"
E	5.00	16'5"	5.32	17'5"	5.53	18'2"	5.34	17'6"	5.65	18'6"	5.96	19'7"
F	8.90	29'2"	8.99	29'6"	9.11	29'11"	8.66	28'5"	8.91	29'3"	9.06	29'9"

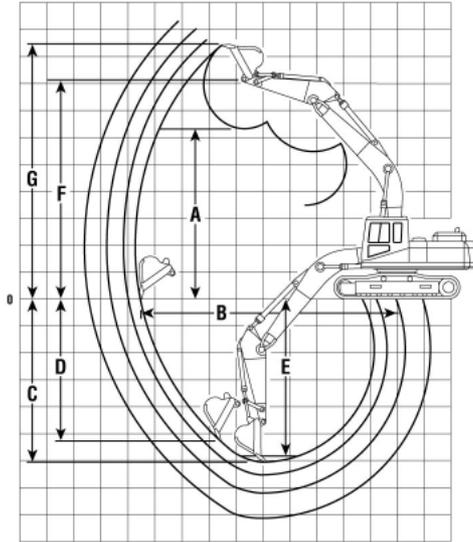
M322C

Stick	2.2 m	7'3"	2.5 m	8'2"	2.9 m	9'6"
Bucket	1.04 m ³	1.36 yd ³	0.805 m ³	1.05 yd ³	0.805 m ³	1.05 yd ³
	m	ft	m	ft	m	ft
A	6.50	21'4"	6.43	21'1"	6.65	21'10"
B	9.51	31'2"	9.73	31'11"	10.12	33'2"
C	5.57	18'3"	5.87	19'3"	6.27	20'7"
D	4.46	14'8"	4.66	15'3"	5.04	16'6"
E	5.35	17'7"	5.67	18'7"	6.09	20'0"
F	9.45	31'0"	9.31	30'7"	9.54	31'4"

Excavators

Range Dimensions

- 320C ● 320C L ● 320C U
- Japan Sourced



One-Piece Boom Digging Envelope

- Standard shoes and undercarriage

KEY:

- A** Maximum loading height of bucket with teeth
- B** Maximum reach at ground level
- C** Maximum digging depth
- D** Maximum vertical wall
- E** Maximum depth of cut for 2.44 m (8'0") level bottom (straight clean up)
- F** Maximum bucket hinge pin height
- G** Maximum height, to bucket teeth at highest arc

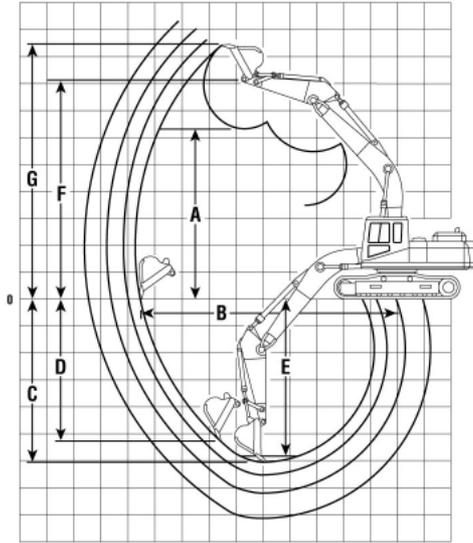
320C, 320C L with Reach Boom

Stick	1.9 m	6'3"	2.5 m	8'2"	2.9 m	9'6"	3.9 m	12'10"
	m	ft	m	ft	m	ft	m	ft
A	5.96	19'7"	6.46	21'2"	6.65	21'10"	6.93	22'9"
B	8.76	28'9"	9.31	30'7"	9.70	31'10"	10.63	34'11"
C	5.63	18'6"	6.15	20'2"	6.57	21'7"	7.58	24'10"
D	4.68	15'4"	5.33	17'6"	5.96	19'7"	6.80	22'4"
E	5.31	17'5"	5.85	19'2"	6.38	20'11"	7.25	23'9"
F	7.45	24'5"	7.87	25'9"	8.06	26'5"	8.41	27'7"
G	8.78	28'10"	9.16	30'1"	9.35	30'8"	9.73	31'11"

320C, 320C L with Mass Boom

320C U with Reach Boom

Stick	2.4 m	7'10"	2.5 m	8'2"	2.9 m	9'6"	3.9 m	12'10"
	m	ft	m	ft	m	ft	m	ft
A	5.92	19'5"	6.46	21'2"	6.65	21'10"	6.93	22'9"
B	8.76	28'9"	9.31	30'7"	9.70	31'10"	10.63	34'11"
C	5.70	18'8"	6.15	20'2"	6.57	21'7"	7.58	24'10"
D	4.94	16'2"	5.62	18'5"	5.96	19'7"	6.80	22'4"
E	4.93	16'2"	5.87	19'3"	6.38	20'11"	7.25	23'9"
F	7.43	24'5"	7.87	25'10"	8.06	26'5"	8.41	27'7"
G	8.77	28'9"	9.16	30'1"	9.35	30'8"	9.73	31'11"



One-Piece and VA Booms Digging Envelope

- Standard shoes and undercarriage

KEY:

- A** Maximum loading height of bucket with teeth
- B** Maximum reach at ground level
- C** Maximum digging depth
- D** Maximum vertical wall
- E** Maximum depth of cut for 2.44 m (8'0") level bottom (straight clean up)
- F** Maximum bucket hinge pin height
- G** Maximum height, to bucket teeth at highest arc

320C, 320C L, 320C LN with Reach Boom

320C, 320C L, 320C LN with Mass Boom

Stick	1.9 m 6'3"		2.5 m 8'2"		2.92 m 9'7"		1.9 m 6'3"		2.4 m 7'10"		2.9 m 9'6"	
	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft
A	5.90	19'4"	6.49	21'4"	6.67	21'11"	5.63	18'6"	5.86	19'3"	6.25	20'6"
B	8.85	29'0"	9.30	30'6"	9.71	31'10"	8.39	27'6"	8.85	29'0"	9.19	30'2"
C	5.69	18'8"	6.11	20'1"	6.55	21'6"	5.25	17'3"	5.75	18'10"	6.14	20'3"
D	3.68	12'1"	5.01	16'5"	5.44	17'10"	3.52	11'7"	3.97	13'0"	4.98	16'4"
E	5.43	17'10"	5.90	19'4"	6.37	20'11"	5.01	16'5"	5.55	29'0"	5.96	19'7"
F	—	—	—	—	—	—	—	—	—	—	—	—
G	8.81	28'11"	9.24	30'4"	9.44	31'0"	8.58	28'2"	8.80	28'10"	9.01	29'7"

320C, 320C L, 320C LN with VA Boom

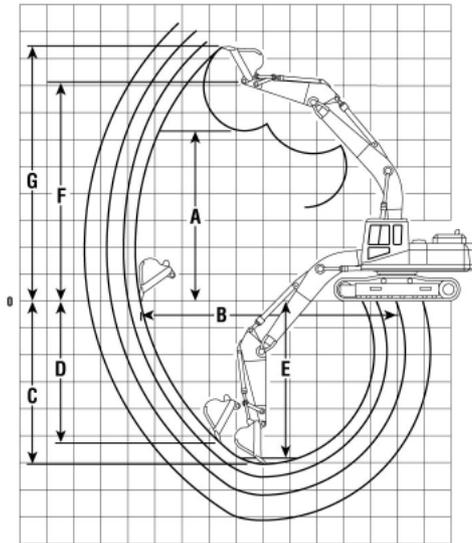
320C S with Reach Boom

Stick	1.9 m 6'3"		2.4 m 7'10"		2.9 m 9'6"		1.9 m 6'3"		2.5 m 8'2"		2.9 m 9'6"	
	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft
A	7.10	23'4"	7.50	24'7"	8.11	26'7"	5.97	19'7"	6.57	21'7"	6.74	22'1"
B	8.74	28'8"	9.22	30'3"	9.57	31'5"	8.84	29'0"	9.28	30'5"	9.70	31'10"
C	5.20	17'1"	5.69	18'8"	6.03	19'9"	5.61	18'5"	6.03	19'9"	6.48	21'3"
D	3.55	11'8"	4.00	13'1"	4.68	15'4"	3.60	11'10"	4.94	16'2"	5.38	17'8"
E	5.07	16'8"	5.57	18'3"	5.93	19'5"	5.35	17'7"	5.83	19'2"	6.29	20'8"
F	—	—	—	—	—	—	—	—	—	—	—	—
G	10.26	38'8"	10.66	35'0"	10.93	35'10"	8.88	29'2"	9.31	30'7"	9.51	31'2"

Excavators

Range Dimensions

- 320C S ● 321C LCR ● 322C ● 322C L
- Belgium Sourced ● Japan/U.S. Sourced



One-Piece Boom Digging Envelope

- Standard shoes and undercarriage

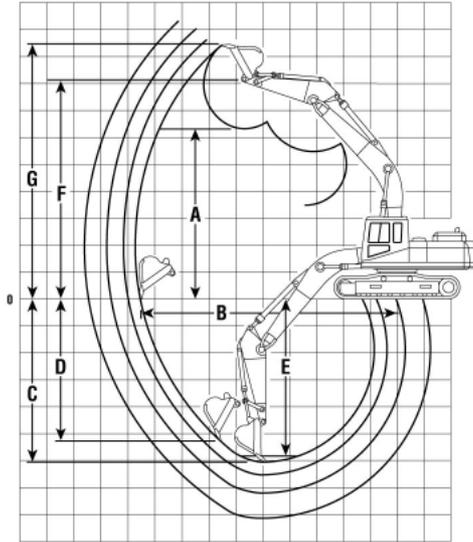
KEY:

- A** Maximum loading height of bucket with teeth
- B** Maximum reach at ground level
- C** Maximum digging depth
- D** Maximum vertical wall
- E** Maximum depth of cut for 2.44 m (8'0") level bottom (straight clean up)
- F** Maximum bucket hinge pin height
- G** Maximum height, to bucket teeth at highest arc

Stick	320C S* with Mass Boom				320C S with VA Boom							
	1.9 m		6'3"		2.4 m		7'10"		2.9 m		9'6"	
	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft
A	5.70	18'8"	5.93	19'5"	7.17	23'6"	7.57	24'10"	8.18	26'10"		
B	8.37	27'4"	8.83	29'0"	8.72	28'7"	9.20	30'2"	9.55	31'4"		
C	5.18	17'0"	5.68	18'8"	5.12	16'10"	5.60	18'4"	5.96	19'7"		
D	3.44	11'3"	3.89	12'9"	3.47	11'5"	3.92	12'10"	4.60	15'1"		
E	4.93	16'2"	5.47	17'11"	4.99	16'4"	5.49	18'0"	5.85	19'2"		
F	—	—	—	—	—	—	—	—	—	—		
G	8.65	28'5"	8.87	29'1"	10.33	33'11"	10.72	35'2"	11.00	36'1"		

*Preliminary information.

Stick	321C LCR Reach Boom				322C, 322C L with Reach Boom				322C, 322C L with Mass Boom																
	2.9 m		9'6"		2.5 m		8'2"		2.95 m		9'8"		3.6 m		11'10"		2 m		6'7"		2.5 m		8'2"		
	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft	
A	7.98	26'2"	6.54	21'5"	6.73	22'1"	7.15	23'5"	5.75	18'10"	5.98	19'7"													
B	9.69	31'9"	9.59	31'6"	10.01	32'10"	10.47	34'4"	8.65	28'5"	9.12	29'11"													
C	6.62	21'9"	6.26	20'6"	6.71	22'0"	7.22	23'8"	5.41	17'9"	5.91	19'5"													
D	5.93	19'5"	5.26	17'3"	5.70	18'8"	6.45	21'2"	4.70	15'5"	5.18	17'0"													
E	6.44	21'2"	5.94	19'6"	6.40	21'0"	6.91	22'8"	5.06	16'7"	5.56	18'3"													
F	9.49	31'2"	8.08	26'6"	8.28	27'2"	8.56	28'1"	7.41	24'4"	7.63	25'0"													
G	10.92	35'10"	9.48	31'1"	9.68	31'9"	9.83	32'3"	8.93	29'4"	9.16	30'1"													



One-Piece Boom Digging Envelope

- Standard shoes and undercarriage

KEY:

- A** Maximum loading height of bucket with teeth
- B** Maximum reach at ground level
- C** Maximum digging depth
- D** Maximum vertical wall
- E** Maximum depth of cut for 2.44 m (8'0") level bottom (straight clean up)
- F** Maximum bucket hinge pin height
- G** Maximum height, to bucket teeth at highest arc

Stick	322C L, 322C LN with 5.9 m (19'4") Reach Boom						322C L, 322C LN with 5.3 m (17'5") Mass Boom			
	2.0 m		2.5 m		2.95 m		2 m		2.5 m	
	m	ft	m	ft	m	ft	m	ft	m	ft
A	6.24	20'6"	6.55	21'6"	6.75	22'2"	5.78	19'0"	6.00	19'8"
B	9.25	30'4"	9.60	31'6"	10.00	32'10"	8.65	28'5"	9.11	29'11"
C	5.84	19'2"	6.24	20'6"	6.69	21'11"	5.38	17'8"	5.88	19'3"
D	3.65	11'11"	4.00	13'1"	4.61	14'6"	3.41	11'2"	3.86	12'8"
E	5.60	18'4"	6.03	19'9"	6.50	21'4"	5.15	16'11"	5.69	18'8"
F	—	—	—	—	—	—	—	—	—	—
G	9.32	30'7"	9.44	31'0"	9.63	31'7"	8.88	29'2"	9.11	29'11"

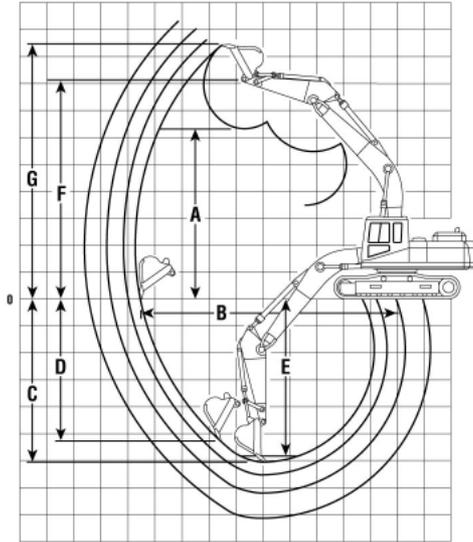
Belgium Sourced

Stick	322C L, 322C LN with 5.6 m (18'4") VA Boom			
	2.0 m		2.5 m	
	m	ft	m	ft
A	7.41	24'4"	7.82	25'8"
B	9.13	29'11"	9.61	31'6"
C	5.37	17'7"	5.86	19'3"
D	3.58	11'9"	4.04	13'3"
E	5.26	17'3"	5.75	18'10"
F	—	—	—	—
G	10.73	35'2"	11.14	36'7"

Excavators

Range Dimensions

- 325C ● 325C L
- Japan/U.S. Sourced



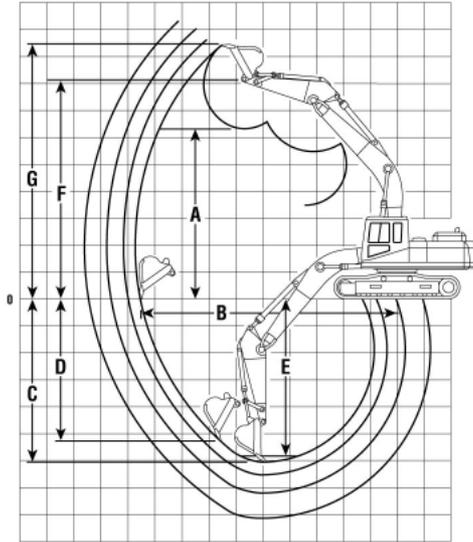
One-Piece Boom Digging Envelope

- Standard shoes and undercarriage

KEY:

- A** Maximum loading height of bucket with teeth
- B** Maximum reach at ground level
- C** Maximum digging depth
- D** Maximum vertical wall
- E** Maximum depth of cut for 2.44 m (8'0") level bottom (straight clean up)
- F** Maximum bucket hinge pin height
- G** Maximum height, to bucket teeth at highest arc

Stick	325C, 325C L with Reach Boom						325C, 325C L with Mass Boom					
	2 m 6'7"		2.65 m 8'8"		3 m 9'10"		3.2 m 10'6"		2.5 m 8'2"		3.2 m 10'6"	
	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft
A	6.31	20'8"	6.89	22'7"	7.01	23'0"	7.11	23'4"	6.10	20'0"	2.03	6'8"
B	9.52	31'3"	10.01	32'10"	10.32	33'10"	10.51	34'6"	9.35	30'8"	9.88	32'5"
C	6.06	19'11"	6.54	21'5"	6.89	22'7"	7.09	23'3"	6.01	19'9"	6.54	21'5"
D	5.26	17'3"	5.84	19'2"	6.13	20'1"	6.40	21'0"	5.21	17'1"	5.12	16'10"
E	5.83	19'2"	6.35	20'10"	6.72	22'1"	6.92	22'8"	5.81	19'1"	6.38	20'11"
F	7.97	26'2"	8.38	27'6"	8.50	27'11"	8.59	28'2"	7.76	25'6"	8.17	26'10"
G	9.46	31'0"	9.74	31'11"	9.85	32'4"	9.95	32'8"	9.24	30'4"	9.43	30'11"



One-Piece and VA Booms Digging Envelope

- Standard shoes and undercarriage

KEY:

- A** Maximum loading height of bucket with teeth
- B** Maximum reach at ground level
- C** Maximum digging depth
- D** Maximum vertical wall
- E** Maximum depth of cut for 2.44 m (8'0") level bottom (straight clean up)
- F** Maximum bucket hinge pin height
- G** Maximum height, to bucket teeth at highest arc

325C L, 325C LN with 6.15 m (20'2") Reach Boom

325C L, 325C LN with 5.55 m (18'3") Mass Boom

Stick	2 m		6'7"		2.7 m		8'8"		3.2 m		10'6"		2 m		6'7"		2.5 m		8'2"	
	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft
A	6.34	20'10"	6.87	22'6"	7.07	23'2"	5.91	19'5"	6.12	20'1"										
B	9.52	31'3"	10.08	33'1"	10.58	34'9"	8.88	29'1"	9.34	30'8"										
C	6.03	19'9"	6.57	21'7"	7.12	23'4"	5.48	18'0"	5.98	19'7"										
D	4.13	13'7"	4.61	15'1"	5.15	16'11"	3.42	11'3"	3.86	12'6"										
E	5.79	19'0"	6.39	21'0"	6.96	22'10"	5.25	17'3"	5.78	19'0"										
F	—	—	—	—	—	—	—	—	—	—										
G	9.41	30'10"	9.76	32'0"	9.94	32'7"	8.98	29'6"	9.18	30'1"										

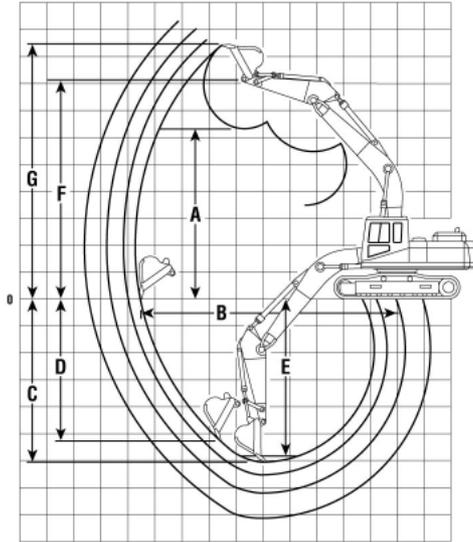
325C L, 325C LN with 5.66 m (18'7") VA Boom

Stick	2 m		6'7"		2.5 m		8'2"	
	m	ft	m	ft	m	ft	m	ft
A	7.59	24'11"	7.96	26'1"				
B	9.33	30'7"	9.80	32'2"				
C	5.41	17'9"	5.89	19'4"				
D	3.55	11'8"	4.00	13'1"				
E	5.29	17'4"	5.78	19'0"				
F	—	—	—	—				
G	10.89	35'9"	11.27	37'0"				

Excavators

Range Dimensions

- 330C ● 330C L ● 330C LN
- Japan/U.S. Sourced ● Belgium Sourced



One-Piece Boom Digging Envelope

- Standard shoes and undercarriage

KEY:

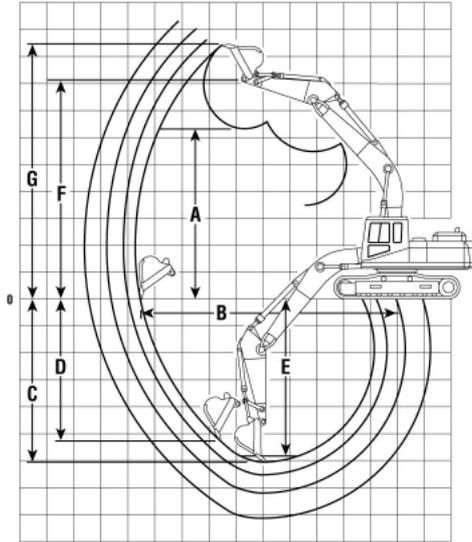
- A** Maximum loading height of bucket with teeth
- B** Maximum reach at ground level
- C** Maximum digging depth
- D** Maximum vertical wall
- E** Maximum depth of cut for 2.44 m (8'0") level bottom (straight clean up)
- F** Maximum bucket hinge pin height
- G** Maximum height, to bucket teeth at highest arc

Japan/U.S. Sourced				330C, 330C L with Reach Boom				330C, 330C L with Mass Boom				
Stick	2.15 m * 7'1"		2.8 m * 9'2"		3.2 m 10'6"		3.9 m 12'10"		2.15 m * 7'1"		2.55 m 8'4"	
	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft
A	6.50	21'4"	7.20	23'7"	7.20	23'7"	7.64	25'1"	6.39	27'0"	6.67	21'11"
B	10.09	33'1"	10.62	34'10"	10.92	35'10"	11.64	38'2"	9.79	31'11"	10.21	33'6"
C	6.53	21'5"	6.99	22'11"	7.39	24'3"	8.09	26'7"	6.20	20'4"	6.60	21'8"
D	5.35	17'7"	6.04	19'10"	6.21	20'4"	7.35	24'1"	5.23	17'2"	5.85	19'2"
E	6.31	20'8"	6.82	22'5"	7.23	23'9"	7.96	26'1"	5.99	19'8"	6.43	21'1"
F	8.35	27'5"	8.86	29'1"	8.87	29'1"	9.30	30'6"	8.23	27'0"	8.51	27'11"
G	9.92	32'7"	10.34	33'11"	10.31	33'10"	10.81	35'6"	9.84	32'2"	10.17	33'4"

Belgium Sourced				330C L, 330C LN with Reach Boom				330C L, 330C LN with Mass Boom				
Stick	2.15 m * 7'1"		2.8 m * 9'2"		3.2 m 10'6"		3.9 m 12'10"		2.15 m * 7'1"		2.55 m 8'4"	
	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft
A	6.58	21'7"	7.24	23'9"	7.24	23'9"	7.67	25'2"	6.46	21'2"	6.74	22'1"
B	10.04	32'11"	10.61	34'10"	10.96	35'11"	11.64	38'2"	9.74	31'11"	10.16	33'4"
C	6.45	21'2"	6.96	22'10"	7.35	24'1"	8.06	25'7"	6.18	20'3"	6.58	21'7"
D	4.16	13'8"	4.66	15'3"	4.37	14'4"	5.85	19'2"	4.66	15'3"	5.30	17'5"
E	6.22	20'5"	6.78	22'3"	7.25	23'9"	7.91	25'11"	5.91	19'5"	6.34	20'10"
F	—	—	—	—	—	—	—	—	—	—	—	—
G	9.93	32'7"	10.31	33'10"	10.30	33'10"	10.77	35'4"	9.84	32'2"	10.17	33'4"

*Not available on U.S. sourced machines.

- 345B Series II — Japan Sourced
- 345B L Series II – FIX — Japan/U.S. Sourced



One-Piece Boom Digging Envelope

- Standard shoes and undercarriage

KEY:

- A** Maximum loading height of bucket with teeth
- B** Maximum reach at ground level
- C** Maximum digging depth
- D** Maximum vertical wall
- E** Maximum depth of cut for 2.44 m (8'0") level bottom (straight clean up)
- F** Maximum bucket hinge pin height
- G** Maximum height, to bucket teeth at highest arc

Stick	Japan Sourced				345B Series II with Reach Boom				345B Series II with Mass Boom			
	2.9 m	9'6"	3.35 m	11'0"	3.9 m	12'10"	2.5 m	8'2"	3 m	9'11"		
	m	ft	m	ft	m	ft	m	ft	m	ft		
A	7.20	23'7"	7.41	24'4"	7.32	24'0"	6.66	21'10"	6.94	22'9"		
B	11.29	37'0"	11.67	38'3"	12.23	40'1"	10.66	35'0"	11.03	36'2"		
C	7.23	23'9"	7.64	25'1"	8.31	27'3"	6.68	21'11"	7.09	23'3"		
D	5.73	18'10"	6.48	21'3"	6.73	22'1"	5.18	17'0"	5.45	17'11"		
E	6.83	22'5"	7.25	23'9"	7.90	25'11"	6.22	20'5"	6.67	21'11"		
F	9.07	29'9"	9.24	30'4"	9.28	30'5"	8.62	28'3"	8.80	28'10"		
G	10.60	34'9"	10.79	35'5"	10.86	35'8"	10.16	33'4"	10.28	33'9"		

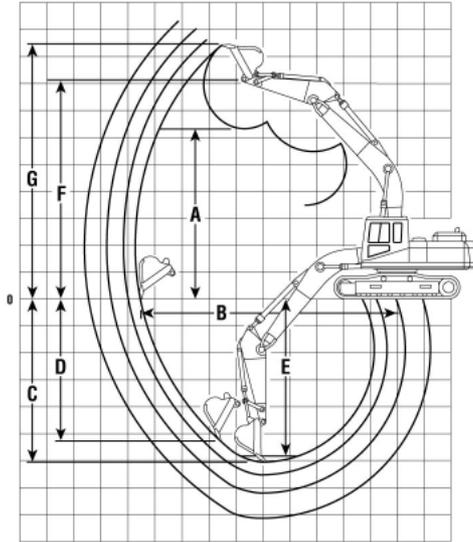
Stick	Japan/U.S. Sourced				345B L Series II – FIX with Reach Boom				345B L Series II – FIX with Mass Boom			
	2.9 m	9'6"	3.35 m	11'0"	3.9 m	12'10"	4.8 m ** 15'9"	2.5 m * 8'2"	3 m	9'11"		
	m	ft	m	ft	m	ft	m	ft	m	ft		
A	7.20	23'7"	7.37	24'2"	7.32	24'0"	7.54	24'9"	6.66	21'10"		
B	11.29	37'0"	11.71	38'5"	12.23	40'1"	13.00	42'8"	10.66	35'0"		
C	7.23	23'9"	7.68	25'2"	8.31	27'3"	9.27	30'5"	6.68	21'11"		
D	5.67	18'7"	6.19	20'4"	6.73	22'1"	7.28	23'11"	5.18	17'0"		
E	6.84	22'5"	7.28	23'11"	7.90	25'11"	9.16	30'1"	6.22	20'5"		
F	9.07	29'9"	9.24	30'4"	9.28	30'5"	—	—	8.62	28'3"		
G	10.60	34'9"	10.78	35'4"	10.86	35'8"	—	—	10.16	33'4"		

*Not available on U.S. sourced machines.
 **Available only for U.S. sourced machines.

Excavators

Range Dimensions

- 345B L Series II – VG
- U.S. Sourced ● Belgium Sourced



One-Piece Boom Digging Envelope

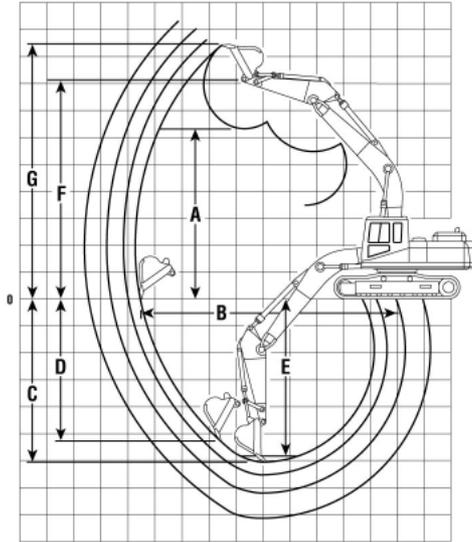
- Standard shoes and undercarriage

KEY:

- A** Maximum loading height of bucket with teeth
- B** Maximum reach at ground level
- C** Maximum digging depth
- D** Maximum vertical wall
- E** Maximum depth of cut for 2.44 m (8'0") level bottom (straight clean up)
- F** Maximum bucket hinge pin height
- G** Maximum height, to bucket teeth at highest arc

U.S. Sourced	345B L Series II – VG with Reach Boom				345B L Series II – VG with Mass Boom				
	Stick	3.35 m	11'0"	3.9 m	12'10"	4.8 m	15'9"	3 m	9'11"
		m	ft	m	ft	m	ft	m	ft
A		7.54	24'9"	7.51	24'8"	7.70	25'3"	7.01	23'0"
B		11.68	38'4"	12.17	39'11"	12.97	42'7"	11.09	36'5"
C		7.51	24'8"	8.12	26'8"	9.11	29'11"	7.02	23'0"
D		6.02	19'9"	6.36	20'10"	7.12	23'4"	5.29	17'4"
E		7.12	23'4"	7.72	25'4"	9.00	29'6"	6.59	21'7"
F		9.41	30'10"	9.44	31'0"	—	—	8.97	29'5"
G		10.94	35'11"	10.98	36'0"	—	—	10.51	34'6"

Belgium Sourced	345B L Series II – VG with Reach Boom				345B L Series II – VG with Mass Boom				
	Stick	2.9 m	9'6"	3.35 m	11'0"	2.5 m	8'2"	3 m	9'11"
		m	ft	m	ft	m	ft	m	ft
A		7.39	24'3"	7.56	24'10"	6.73	22'1"	6.92	22'8"
B		11.27	37'0"	11.69	38'4"	10.76	35'4"	11.12	36'6"
C		7.05	23'2"	7.50	24'7"	6.61	21'8"	7.11	23'4"
D		5.50	18'1"	5.94	19'6"	4.48	14'8"	4.83	15'10"
E		6.87	22'6"	7.34	24'1"	6.44	21'1"	7.03	23'1"
F		—	—	—	—	—	—	—	—
G		10.91	35'10"	11.09	36'5"	10.55	34'7"	10.73	35'2"



One-Piece Boom Digging Envelope

- Standard shoes and undercarriage
- Lug height not included

KEY:

- A** Maximum loading height of bucket with teeth
- B** Maximum reach at ground level
- C** Maximum digging depth
- D** Maximum vertical wall
- E** Maximum depth of cut for 2.44 m (8'0") level bottom (straight clean up)
- F** Maximum bucket hinge pin height
- G** Maximum height, to bucket teeth at highest arc

365B L Series II ES with Reach Boom

Stick	2.84 m		9'4"		3.6 m		11'10"		4.15 m		13'7"		4.67 m		15'4"	
	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft		
A	8.48	27'10"	8.65	28'7"	8.89	29'2"	9.23	30'3"								
B	12.37	40'7"	13.01	42'8"	13.52	44'4"	14.07	46'2"								
C	7.59	24'11"	8.35	27'5"	8.90	29'2"	9.42	30'11"								
D	6.14	20'2"	6.46	21'2"	6.97	22'10"	7.66	25'2"								
E	7.43	24'5"	8.21	26'11"	8.77	28'9"	9.30	30'6"								
F	—	—	—	—	—	—	—	—								
G	12.47	40'11"	12.57	41'3"	12.80	42'0"	13.19	43'3"								

365B L Series II ES with 6.6 m (21'8") Mass Boom

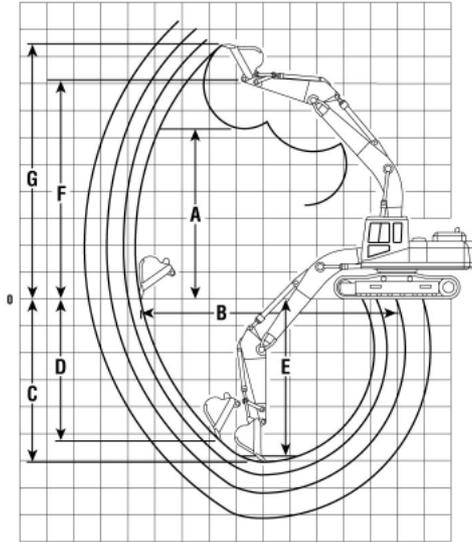
365B L Series II ES with 7 m (23'0") Mass Boom

Stick	2.57 m		8'5"		3 m		9'10"		2.57 m		8'5"		3 m		9'10"	
	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft		
A	6.88	22'7"	7.04	23'1"	7.22	23'8"	7.39	24'3"								
B	10.96	35'11"	11.36	37'3"	11.38	37'4"	11.78	38'8"								
C	6.80	22'4"	7.22	23'8"	7.08	23'3"	7.50	24'7"								
D	4.41	14'6"	4.80	15'10"	4.62	15'2"	5.01	16'5"								
E	6.63	21'9"	7.07	23'2"	6.92	22'8"	7.36	24'2"								
F	—	—	—	—	—	—	—	—								
G	10.90	35'9"	11.07	36'4"	11.24	36'11"	11.41	37'5"								

Excavators

Range Dimensions

- 385B ● 385B L
- Japan Sourced



One-Piece Boom Digging Envelope

- Standard shoes and undercarriage
- Lug height not included

KEY:

- A** Maximum loading height of bucket with teeth
- B** Maximum reach at ground level
- C** Maximum digging depth
- D** Maximum vertical wall
- E** Maximum depth of cut for 2.44 m (8'0") level bottom (straight clean up)
- F** Maximum bucket hinge pin height
- G** Maximum height, to bucket teeth at highest arc

385B, 385B L with Reach Boom

385B, 385B L with GP Boom

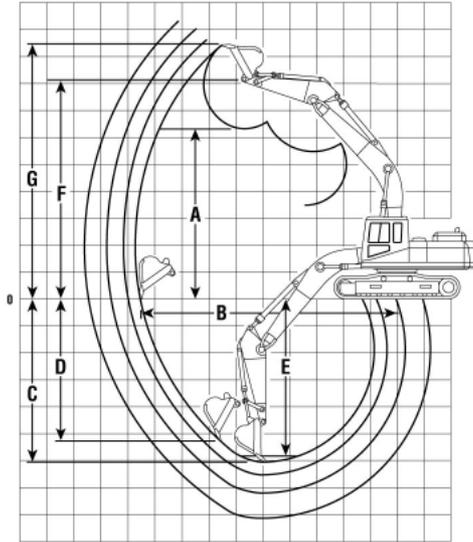
Stick	4.4 m		5.5 m		2.92 m		3.7 m	
	m	ft	m	ft	m	ft	m	ft
A	10.81	35'6"	11.23	36'10"	9.13	29'11"	9.25	30'4"
B	15.94	52'4"	16.96	55'8"	13.25	43'6"	13.75	45'1"
C	10.42	34'2"	11.52	37'10"	8.00	26'3"	8.68	28'6"
D	9.43	30'11"	10.53	34'7"	7.09	23'3"	6.48	21'3"
E	10.31	33'10"	11.42	37'6"	7.85	25'9"	8.55	28'1"
F	9.51	31'2"	10.34	33'11"	7.14	23'5"	8.00	26'3"
G	14.75	48'5"	15.19	49'10"	13.36	43'10"	13.12	43'1"

385B, 385B L with GP Boom

385B, 385B L with Mass Boom

Stick	4.4 m		5.5 m		2.92 m		3.4 m	
	m	ft	m	ft	m	ft	m	ft
A	9.55	31'4"	10.01	32'10"	8.43	27'8"	8.47	27'9"
B	14.40	47'3"	15.44	50'8"	12.45	40'10"	12.41	40'9"
C	9.37	30'9"	10.47	34'4"	7.42	24'4"	7.38	24'3"
D	8.50	27'11"	9.57	31'5"	5.85	19'2"	6.45	21'2"
E	9.26	30'5"	10.37	34'0"	7.28	23'11"	7.25	23'9"
F	8.64	28'4"	9.43	30'11"	6.21	20'4"	6.65	21'10"
G	13.53	44'5"	13.99	45'11"	12.53	41'1"	12.65	41'6"

- 385B L
- Belgium Sourced



One-Piece Boom Digging Envelope

- Standard shoes and undercarriage
- Lug height not included

KEY:

- A** Maximum loading height of bucket with teeth
- B** Maximum reach at ground level
- C** Maximum digging depth
- D** Maximum vertical wall
- E** Maximum depth of cut for 2.44 m (8'0") level bottom (straight clean up)
- F** Maximum bucket hinge pin height
- G** Maximum height, to bucket teeth at highest arc

385B L with 10 m (32'10") Reach Boom

385B L with 8.4 m (27'7") General Purpose Boom

Stick	4.4 m		5.5 m		3.4 m		3.7 m *		12'2"	
	m	ft	m	ft	m	ft	m	ft	m	ft
A	10.75	35'3"	11.57	38'0"	9.24	30'4"	9.29	30'6"		
B	16.05	52'8"	17.23	56'6"	13.81	45'4"	13.76	45'2"		
C	10.48	34'5"	11.58	38'0"	8.55	28'1"	8.64	28'4"		
D	7.05	23'2"	8.74	28'8"	6.42	21'1"	5.67	18'7"		
E	10.36	34'0"	11.47	37'8"	8.41	27'7"	8.50	27'11"		
F	—	—	—	—	—	—	—	—		
G	14.73	48'4"	15.66	51'5"	13.64	44'9"	13.14	43'1"		

*Not in EAME PAN.

385B L with 8.4 m (27'7") General Purpose Boom

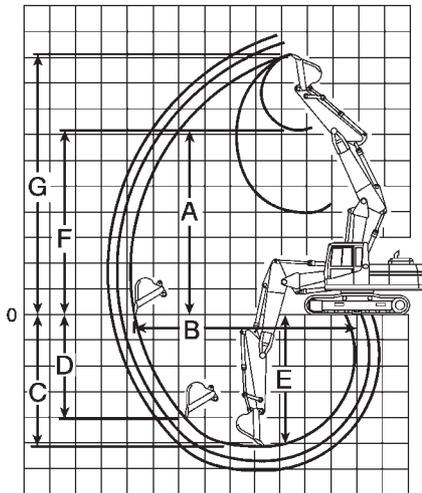
385B L with 7.25 m (23'9") Mass Boom

Stick	4.4 m		5.5 m		2.92 m		3.4 m		11'2"	
	m	ft	m	ft	m	ft	m	ft	m	ft
A	9.58	31'5"	10.45	34'3"	8.22	27'0"	8.39	29'2"		
B	14.42	47'4"	15.61	51'3"	12.12	39'9"	12.54	41'2"		
C	9.34	30'8"	10.44	34'3"	6.98	22'11"	7.46	24'6"		
D	6.57	21'7"	8.17	26'10"	4.95	16'3"	5.24	17'2"		
E	9.21	30'3"	10.34	33'11"	6.83	22'5"	7.32	24'0"		
F	—	—	—	—	—	—	—	—		
G	13.47	44'2"	13.54	44'5"	12.62	41'5"	12.76	41'10"		

Excavators

Range Dimensions

- 312C ● 312C L ● 315B L
- France Sourced



Variable Adjustable Boom Digging Envelope

KEY:

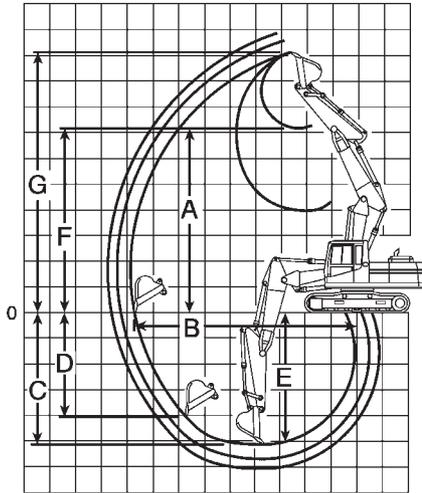
- A** Maximum loading height of bucket with teeth
- B** Maximum reach at ground level
- C** Maximum digging depth
- D** Maximum vertical wall
- E** Maximum depth of cut for 2.44 m (8'0") level bottom (straight clean up)
- F** Maximum bucket hinge pin height
- G** Maximum height, to bucket teeth at highest arc

312C, 312C L

Stick	2.1 m		2.5 m		3 m	
	m	ft	m	ft	m	ft
A	6.82	22'5"	7.18	23'7"	7.57	24'10"
B	7.96	26'1"	8.34	27'4"	8.80	28'10"
C	4.84	15'11"	5.24	17'2"	5.73	18'10"
D	2.88	9'5"	3.18	10'5"	3.63	11'11"
E	4.71	15'5"	5.12	16'9"	5.61	18'5"
F	8.05	26'5"	8.41	27'7"	8.81	28'11"
G	9.28	30'5"	9.64	31'7"	10.04	32'11"

315B L

Stick	1.85 m		2.25 m		2.6 m		3.1 m	
	m	ft	m	ft	m	ft	m	ft
A	7.11	23'4"	7.24	23'9"	7.71	25'3"	7.75	25'5"
B	7.90	25'11"	8.20	26'11"	8.61	28'3"	8.92	29'3"
C	2.14	7'0"	2.72	8'11"	2.23	7'4"	3.15	10'4"
D	2.97	9'9"	3.35	11'0"	3.71	12'2"	4.18	13'8"
E	4.51	14'9"	4.87	16'0"	5.26	17'3"	5.68	18'7"
F	8.21	26'11"	8.41	27'7"	8.82	28'11"	8.95	29'4"
G	9.38	30'9"	9.62	31'7"	9.99	32'9"	10.16	33'4"



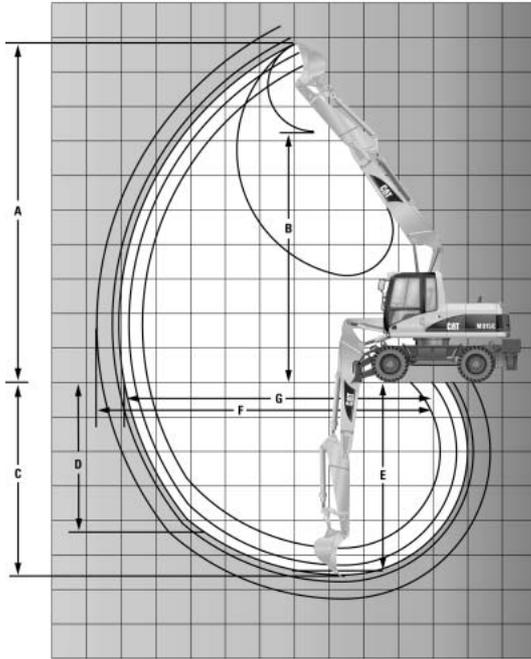
Variable Adjustable Boom Digging Envelope

KEY:

- A** Maximum loading height of bucket with teeth
- B** Maximum reach at ground level
- C** Maximum digging depth
- D** Maximum vertical wall
- E** Maximum depth of cut for 2.44 m (8'0") level bottom (straight clean up)
- F** Maximum bucket hinge pin height
- G** Maximum height, to bucket teeth at highest arc

318B L, 318B LN

Stick	1.8 m		2.25 m		2.7 m		3.2 m	
	m	ft	m	ft	m	ft	m	ft
A	6.61	21'8"	6.99	22'11"	7.40	24'3"	7.78	25'6"
B	8.24	27'0"	8.68	28'6"	9.14	30'0"	9.60	31'6"
C	5.02	16'6"	5.48	18'0"	5.93	19'5"	6.33	20'9"
D	3.66	11'10"	4.36	14'4"	4.90	16'1"	4.26	14'0"
E	4.90	16'1"	5.36	17'7"	5.82	19'1"	6.24	20'6"
F	3.47	11'5"	3.92	12'10"	4.38	14'5"	—	—
G	9.68	31'9"	10.08	33'1"	10.49	34'5"	10.85	35'7"



Hydraulic Adjustable Boom Digging Envelope

- Standard 10 × 20 tires and undercarriage
- General purpose bucket

KEY:

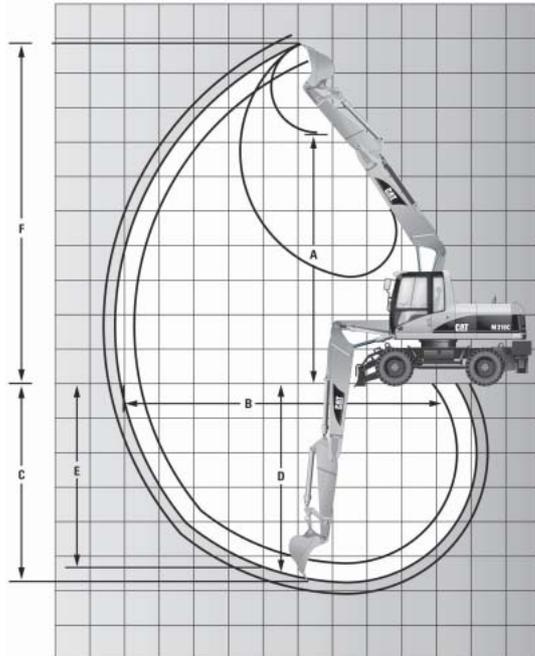
- A** Maximum loading height of bucket with teeth
- B** Maximum reach at ground level
- C** Maximum digging depth
- D** Maximum vertical wall
- E** Maximum depth of cut for 2.5 m (8'2") level bottom
- F** Maximum height, to bucket teeth at highest arc

M313C

Stick	2 m	6'7"	2.3 m	7'7"	2.6 m	8'6"
Bucket	0.64 m ³	0.84 yd ³	0.64 m ³	0.84 yd ³	0.56 m ³	0.73 yd ³
	m	ft	m	ft	m	ft
A	7.06	23'2"	7.21	23'8"	7.44	24'5"
B	8.33	27'4"	8.58	28'2"	8.88	29'2"
C	5.01	16'5"	5.30	17'5"	5.60	18'4"
D	3.68	12'1"	3.81	12'6"	4.10	13'5"
E	4.76	15'7"	5.07	16'8"	5.39	17'8"
F	9.52	31'3"	9.67	31'9"	9.91	32'6"

M315C

Stick	2.1 m	6'11"	2.4 m	7'10"	2.6 m	8'6"
Bucket	0.815 m ³	1.07 yd ³	0.7 m ³	0.92 yd ³	0.7 m ³	0.92 yd ³
	m	ft	m	ft	m	ft
A	7.10	23'4"	7.28	23'11"	7.44	24'5"
B	8.77	28'9"	9.04	29'8"	9.24	30'4"
C	5.24	17'2"	5.54	18'2"	5.74	18'10"
D	4.07	13'4"	4.28	14'1"	4.46	14'8"
E	5.22	17'2"	5.53	18'2"	5.74	18'10"
F	9.91	32'6"	10.09	33'1"	10.25	33'8"



Hydraulic Adjustable Boom Digging Envelope

- Standard 10 × 20 tires and undercarriage
- General purpose bucket

KEY:

- A** Maximum loading height of bucket with teeth
- B** Maximum reach at ground level
- C** Maximum digging depth
- D** Maximum vertical wall
- E** Maximum depth of cut for 2.5 m (8'2") level bottom
- F** Maximum height, to bucket teeth at highest arc

M316C

M318C

Stick	2.1 m	6'11"	2.4 m	7'10"	2.6 m	8'6"	2.2 m	7'3"	2.5 m	8'2"	2.8 m	9'2"
Bucket	0.815 m ³	1.07 yd ³	0.815 m ³	1.07 yd ³	0.7 m ³	0.92 yd ³	0.91 m ³	1.19 yd ³	0.91 m ³	1.19 yd ³	0.7 m ³	0.92 yd ³
	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft
A	7.11	23'4"	7.30	23'11"	7.46	24'6"	6.85	22'6"	7.12	23'4"	7.33	24'1"
B	8.76	28'9"	9.04	29'8"	9.24	30'4"	8.82	28'11"	9.14	30'0"	9.43	30'11"
C	5.43	17'10"	5.72	18'9"	5.92	19'5"	5.60	18'4"	5.90	19'4"	6.20	20'4"
D	4.05	13'3"	4.27	14'0"	4.44	14'7"	3.92	12'10"	4.29	14'1"	4.58	15'0"
E	5.20	17'1"	5.51	18'1"	5.72	18'9"	5.39	17'8"	5.70	18'8"	6.01	19'9"
F	9.92	32'7"	10.10	33'2"	10.27	33'8"	9.58	31'5"	9.87	32'5"	10.08	33'1"

M322C

Stick	2.2 m	7'3"	2.5 m	8'2"	2.9 m	9'6"
Bucket	1.04 m ³	1.36 yd ³	0.805 m ³	1.05 yd ³	0.805 m ³	1.05 yd ³
	m	ft	m	ft	m	ft
A	7.16	23'6"	7.21	23'8"	7.51	24'8"
B	9.32	30'7"	9.56	31'4"	9.95	32'8"
C	5.78	19'0"	6.08	19'11"	6.47	21'3"
D	4.36	14'4"	4.38	14'4"	4.75	15'7"
E	5.56	18'3"	5.88	19'3"	6.29	20'8"
F	10.18	33'5"	10.19	33'5"	10.49	34'5"

EXCAVATOR LIFTING CAPACITY

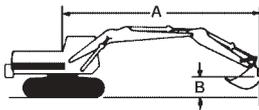
On many sewer jobs an excavator must lift and swing heavy pipe and manboxes in and out of the trench, place manholes and unload material from trucks. In some situations the excavator’s lift requirements may be so critical that they determine the size excavator selected.

An excavator’s lift capacity depends on its weight, center of gravity, the lift point position (see sketches) and its hydraulic capability. An excavator’s lifting capability for any given lift position is limited by its tipping stability or hydraulic capacity.

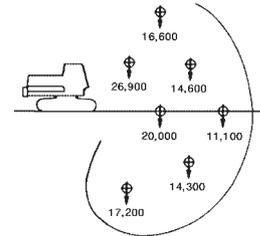
Changes in boom, stick and bucket position affect attachment geometry and can drastically change a machine’s hydraulic lifting capacity. Caterpillar defines excavator lifting capabilities using the following SAE guidelines.

Tipping Conditions — An excavator is considered to be at the tipping point when the weight in the bucket acting at the center of gravity causes the rear rollers to lift clear of the track rails. Suspended loads are considered to be hung from the back of the excavator’s bucket or bucket linkage by a sling or chain. Weights of attachments, slings or auxiliary lifting devices are considered part of the suspended load.

Thus, the tipping load is defined as the load producing a tipping condition at a specified radius. The load radius shall be measured as the horizontal distance from the axis of upper structure rotation (before loading) to the center of vertical load line with load applied (dimension A, below). The rating height is based on the vertical distance of the bucket lift point to the ground (dimension B).



- A. Radius from swing centerline
- B. Bucket lift point height



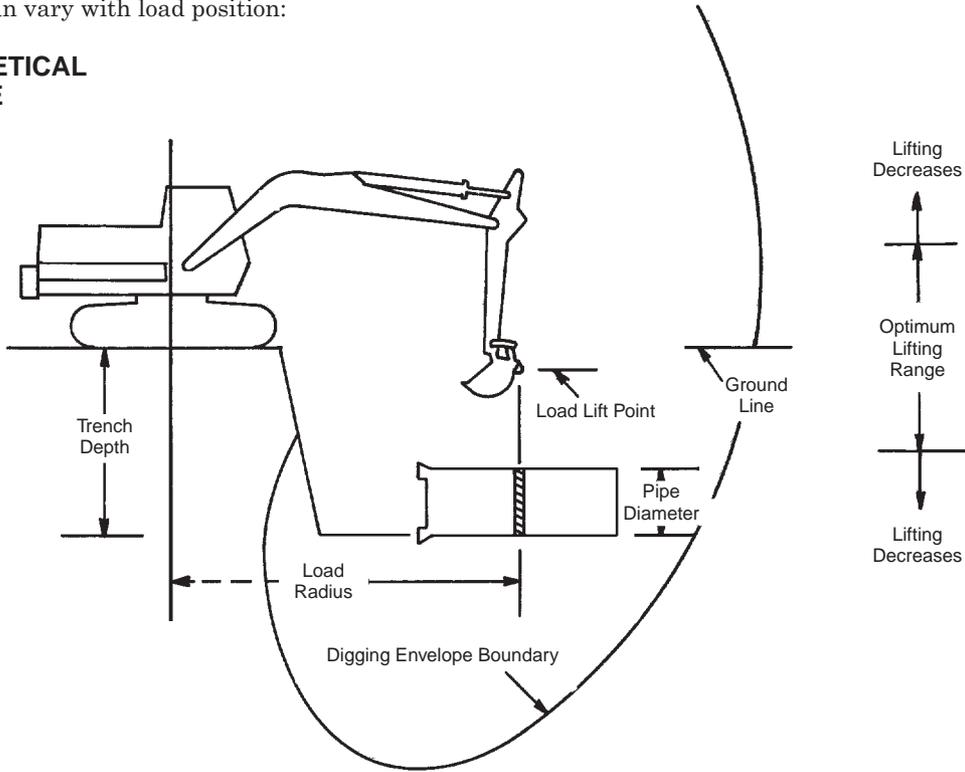
HYPOTHETICAL MACHINE

Rated Hoist Load — The rated load is established using the vertical distance of the lifting point to the ground and the radius of load. Ratings for the ability of a specific machine attachment to lift a load slung from the designated bucket are defined as follows:

- a. The rated load will not exceed 75% of the tipping load.
- b. The rated load will not exceed 87% of the excavator’s hydraulic capacity. This means the machine should be able to lift 115% of the rated load.
- c. The rated load will not exceed the machine’s structural capability.

This drawing shows how an excavator's lifting capacity can vary with load position:

HYPOTHETICAL MACHINE



Tips for Lifting Above Ground:

Get the load as close to the excavator as possible.
Use a cable short enough and position the excavator so as to put the load lift point in the “optimum lifting range” (see sketch).

Problem: Long reach cable — Can't lift.
Solution: Shorten reach and cable — Can lift.

Tips for Lifting Below Grade:

Use a cable for sufficient length to position the load lift point in the “optimum lifting range”.
Problem: Short cable, deep trench — Can't lift.
Solution: Lengthen cable to locate bucket hinge pin in optimum lifting area — Can lift.

GROUND LEVEL LIFTING CAPACITIES

The lifting capacities that are shown on the following pages are with the lifting point at ground level. These capacities are rated according to SAE Std. No. J1097.

(For lifting capacities at other heights or with other tools, refer to current Specification Sheets.)

301.5 ● Rubber Track ● Canopy ● Blade Raised

Stick	Bucket	1 m 3'3"		1.5 m 5'0"		2 m 6'7"		2.5 m 8'2"		3 m 10'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	
890 mm 2'11"	400 mm 16"	kg lb	—	—	620 1360	420 920	410 900	280 610	300 660	210 460	230 500	160 350	190 410	140 300
1090 mm 3'6"	400 mm 16"	kg lb	350 770	350 770	590 1300	390 860	380 830	270 590	280 610	200 440	220 480	150 330	160 350	120 260

301.5 ● Rubber Track ● Canopy ● Blade Lowered

Stick	Bucket	1 m 3'3"		1.5 m 5'0"		2 m 6'7"		2.5 m 8'2"		3 m 10'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	
890 mm 2'11"	400 mm 16"	kg lb	—	—	680 1490	490 1080	690 1520	330 720	490 1080	240 520	390 860	190 410	310 680	150 330
1090 mm 3'6"	400 mm 16"	kg lb	350 770	350 770	690 1520	460 1010	680 1490	310 680	480 1050	230 500	380 830	170 370	290 630	130 280

301.5 CR ● Reach Boom ● Standard Gauge ● Blade Raised

Stick	Bucket	1 m 3'3"		1.5 m 5'0"		2 m 6'7"		2.5 m 8'2"		3 m 10'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
925 mm 3'0"	kg lb	—	—	560 1200	290 620	350 740	190 390	250 530	130 280	190 400	100 210	140 310	70 160
1125 mm 3'8"	kg lb	—	—	550 1180	280 600	340 740	180 390	240 520	130 270	180 390	100 200	130 270	60 130

301.5 CR ● Reach Boom ● Standard Gauge ● Blade Lowered

Stick	Bucket	1 m 3'3"		1.5 m 5'0"		2 m 6'7"		2.5 m 8'2"		3 m 10'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
925 mm 3'0"	kg lb	—	—	690* 1550*	330 720	890* 1900*	220 460	630* 1350*	150 330	480* 1040*	120 240	310* 690*	90 190
1125 mm 3'8"	kg lb	—	—	730* 1680*	330 700	870* 1870*	210 450	610* 1310*	150 320	470* 1020*	110 240	270* 590*	80 160

301.5 CR ● Reach Boom ● Expanded Gauge ● Blade Raised

Stick	Bucket	1 m 3'3"		1.5 m 5'0"		2 m 6'7"		2.5 m 8'2"		3 m 10'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
925 mm 3'0"	kg lb	—	—	560 1200	580 1240	350 740	360 770	250 530	260 550	190 400	190 410	140 310	150 320
1125 mm 3'8"	kg lb	—	—	550 1180	570 1220	340 740	360 760	240 520	250 540	180 390	190 410	130 270	130 290

301.5 CR ● Reach Boom ● Expanded Gauge ● Blade Lowered

Stick	Bucket	1 m 3'3"		1.5 m 5'0"		2 m 6'7"		2.5 m 8'2"		3 m 10'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
925 mm 3'0"	kg lb	—	—	690* 1550*	640 1370	890* 1900*	400 850	630* 1350*	280 600	480* 1040*	210 450	310* 690*	160 350
1125 mm 3'8"	kg lb	—	—	730* 1680*	630 1350	870* 1870*	390 840	610* 1310*	280 590	470* 1020*	210 450	270* 590*	150 320

*Load limited by hydraulic capacity rather than tipping.

301.6 ● Rubber Track ● Canopy ● Blade Raised

Stick	Bucket	1 m 3'3"		1.5 m 5'0"		2 m 6'7"		2.5 m 8'2"		3 m 10'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	
1090 mm 3'6"	400 mm 16"	kg lb	350 770	350 770	690 1520	440 970	490 1080	300 660	350 770	220 480	270 590	170 370	210 460	130 280

301.6 ● Rubber Track ● Canopy ● Blade Lowered

Stick	Bucket	1 m 3'3"		1.5 m 5'0"		2 m 6'7"		2.5 m 8'2"		3 m 10'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	
1090 mm 3'6"	400 mm 16"	kg lb	350 770	350 770	690 1520	510 1120	670 1470	340 750	470 1030	250 550	370 810	190 410	280 610	150 330

301.8 ● Rubber Track ● Canopy ● Blade Lowered

Stick	Bucket	1 m 3'3"		1.5 m 5'0"		2 m 6'7"		2.5 m 8'2"		3 m 10'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	
890 mm 2'11"	400 mm 16"	kg lb	—	—	680 1490	680 1490	680 1490	530 1160	490 1080	380 830	380 830	300 660	300 660	250 550
1090 mm 3'6"	400 mm 16"	kg lb	350 770	350 770	690 1520	690 1520	670 1470	530 1160	470 1030	380 830	370 810	290 630	280 610	220 480

301.8 ● Rubber Track ● Canopy ● Blade Raised

Stick	Bucket	1 m 3'3"		1.5 m 5'0"		2 m 6'7"		2.5 m 8'2"		3 m 10'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	
890 mm 2'11"	400 mm 16"	kg lb	—	—	680 1490	680 1490	480 1050	480 1050	350 770	350 770	270 590	270 590	220 480	220 480
1090 mm 3'6"	400 mm 16"	kg lb	350 770	350 770	690 1520	690 1520	470 1030	480 1050	340 750	350 770	270 590	270 590	200 480	200 480

302.5 ● Rubber Track ● Canopy ● Blade Raised

Stick	Bucket	1.5 m 5'0"		2 m 6'7"		2.5 m 8'2"		3 m 10'0"		3.5 m 11'6"		4 m 13'1"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	
1100 mm 3'6"	400 mm 16"	kg lb	740* 1630*	740* 1630*	1020 2240	750 1650	710 1560	540 1190	540 1190	420 920	430 940	340 740	—	—	360 600	280 310
1400 mm 4'6"	400 mm 16"	kg lb	770 1690	770 1690	1010 2220	750 1650	710 1560	540 1190	540 1190	410 900	430 940	330 720	350 770	270 590	320 700	250 550

302.5 ● Rubber Track ● Canopy ● Blade Lowered

Stick	Bucket	1.5 m 5'0"		2 m 6'7"		2.5 m 8'2"		3 m 10'0"		3.5 m 11'6"		4 m 13'1"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	
1100 mm 3'6"	400 mm 16"	kg lb	740* 1630*	740* 1630*	1470 3240	830 1830	1150 2535	600 1323	890 1962	460 1014	710 1565	370 816	—	—	600 1323	310 683
1400 mm 4'6"	400 mm 16"	kg lb	770 1690	770 1690	1530 3370	830 1830	1140 2510	590 1300	870 1910	460 1010	700 1540	360 790	590 1300	300 660	540 1190	270 590

*Load limited by hydraulic capacity rather than tipping.

303 SR ● Reach Boom ● Blade Raised

Stick		1 m 3'3"		1.5 m 5'0"		2 m 6'7"		2.5 m 8'2"		3 m 10'0"		3.5 m 11'6"		4 m 13'1"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
1200 mm 3'11"	kg lb	898*	898*	1405*	1023	1020	657	702	453	523	341	407	264	—	—	382	247
1600 mm 5'3"	kg lb	827*	827*	1445*	1051	1033	646	708	457	524	341	404	261	319	202	317	200

303 SR ● Reach Boom ● Blade Lowered

Stick		1 m 3'3"		1.5 m 5'0"		2 m 6'7"		2.5 m 8'2"		3 m 10'0"		3.5 m 11'6"		4 m 13'1"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
1200 mm 3'11"	kg lb	898*	898*	1403*	1256	1656*	765	1369*	541	1114*	407	926*	317	—	—	880	297
1600 mm 5'3"	kg lb	827*	827*	1443*	1265	1730*	775	1543*	545	1093*	407	920*	314	689*	246	639*	244

303 CR ● Blade Raised

Stick		2 m 6'7"		2.5 m 8'2"		3 m 10'0"		3.5 m 11'6"		4 m 13'1"		4.5 m 15'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	
1260 mm 4'2"	kg lb	1050	750	750	550	550	450	450	350	350	300	300	250	250	300	250
	lb	2315	1653	1654	1213	1213	992	992	772	772	661	661	551	551	661	551
1560 mm 5'1"	kg lb	1000	750	700	550	550	400	400	350	350	250	250	200	200	250	200
	lb	2205	1653	1543	1213	1213	882	882	772	772	551	551	441	441	551	441

303 CR ● Blade Lowered

Stick		2 m 6'7"		2.5 m 8'2"		3 m 10'0"		3.5 m 11'6"		4 m 13'1"		4.5 m 15'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
1260 mm 4'2"	kg lb	1250*	750	1700*	550	1250*	450	1000*	350	850*	300	700*	250	650*	250
	lb	2756*	1653	3748*	1213	2756*	992	2205*	772	1874*	661	1543*	551	1433*	551
1560 mm 5'1"	kg lb	1350*	750	1650*	550	1200*	400	950*	350	800*	250	700*	200	600*	200
	lb	2976*	1653	3638*	1213	2646*	882	2094*	772	1764*	551	1543*	441	1323*	441

*Load limited by hydraulic capacity rather than tipping.

304 CR ● Reach Boom ● Blade Raised

Stick		1.5 m 5'0"		2 m 6'7"		2.5 m 8'2"		3 m 10'0"		3.5 m 11'6"		4 m 13'1"	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
1260 mm 4'2"	kg lb	—	—	1450* 3350*	1450 3100*	1250 2700	1000 2150	950 2000	750 1600	750 1600	600 1300	600 1300	500 1050
1560 mm 5'1"	kg lb	900* 2050*	900* 2050*	1400* 3200*	1400 3000	1250 2650	950 2050	900 1950	750 1550	700 1550	600 1250	600 1250	450 1000

Stick		4.5 m 15'0"		5 m 16'5"		At Max. Reach	
		Front	Side	Front	Side	Front	Side
1260 mm 4'2"	kg lb	500 1100	400 900	—	—	400 850	350 700
1560 mm 5'1"	kg lb	500 1000	400 800	400 850	350 700	350 700	250 550

304 CR ● Reach Boom ● Blade Lowered

Stick		1.5 m 5'0"		2 m 6'7"		2.5 m 8'2"		3 m 10'0"		3.5 m 11'6"		4 m 13'1"	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
1260 mm 4'2"	kg lb	—	—	1450* 3350*	1450* 3350*	2150* 4700*	1150 2500	2350* 5200*	850 1850	2000* 4250*	700 1500	1650* 3550*	550 1200
1560 mm 5'1"	kg lb	900* 2050*	900* 2050*	1400* 3200*	1400* 3200*	2000* 4450*	1150 2400	2250* 5000*	850 1800	1900* 4000*	650 1450	1500* 3350*	550 1150

Stick		4.5 m 15'0"		5 m 16'5"		At Max. Reach	
		Front	Side	Front	Side	Front	Side
1260 mm 4'2"	kg lb	1400* 3000*	500 1000	—	—	900* 1900*	400 800
1560 mm 5'1"	kg lb	1350* 2900*	450 950	1200* 2550*	400 800	750* 1550*	300 650

*Load limited by hydraulic capacity rather than tipping.

305 SR ● Reach Boom ● Blade Raised

Stick		1 m 3'3"		1.5 m 5'0"		2 m 6'7"		2.5 m 8'2"		3 m 10'0"		3.5 m 11'6"	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
1430 mm 4'8"	kg lb	—	—	1350* 3000*	1350* 3000*	2150* 4900*	1750 3700	1650 3500	1200 2600	1250 2600	950 1950	950 2050	750 1550
1830 mm 6'0"	kg lb	950* 2100*	950* 2100*	1350* 2950*	1350* 2950*	2200* 5050*	1750 3750	1650 3550	1250 2650	1250 2650	950 2000	1000 2100	750 1600

Stick		4 m 13'1"		4.5 m 15'0"		5 m 16'5"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side
1430 mm 4'8"	kg lb	800 1650	600 1250	650 1400	500 1050	—	—	500 1050	400 800
1830 mm 6'0"	kg lb	800 1700	600 1300	650 1400	500 1050	550 1150	400 850	450 900	300 700

305 SR ● Reach Boom ● Blade Lowered

Stick		1 m 3'3"		1.5 m 5'0"		2 m 6'7"		2.5 m 8'2"		3 m 10'0"		3.5 m 11'6"	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
1430 mm 4'8"	kg lb	—	—	1350* 3000*	1350* 3000*	2150* 4900*	1750 3700	2200* 4800*	1200 2600*	1800* 3900*	950 2000	1550* 3300*	750 1550
1830 mm 6'0"	kg lb	950* 2100*	950* 2100*	1350* 2950*	1350* 2950*	2200* 5050*	1750 3750	2200* 4750*	1250 2650*	1800* 3850*	950 2000	1500* 3200*	750 1600

Stick		4 m 13'1"		4.5 m 15'0"		5 m 16'5"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side
1430 mm 4'8"	kg lb	1300* 2800*	600 1300	1150* 2450*	500 1050	—	—	900* 1950*	400 800
1830 mm 6'0"	kg lb	1300* 2750*	600 1300	1150* 2400*	500 1050	1000* 2150*	400 850	800* 1800*	300 700

305 CR ● Blade Raised

Stick		1.5 m 5'0"		2 m 6'7"		2.5 m 8'2"		3 m 10'0"		3.5 m 11'6"		4 m 13'1"		4.5 m 15'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
1430 mm 4'8"	kg lb	—	—	1800* 3968*	1800* 3968*	1550 3417	1300 2866	1150 2535	1000 2205	900 1984	800 1764	750 1653	650 1433	650 1433	550 1213	550 1213	450 992
1830 mm 6'0"	kg lb	1250* 2756*	1250* 2756*	1800* 3968*	1800* 3968*	1550 3417	1300 2866	1150 2535	1000 2205	900 1984	800 1764	750 1653	650 1433	650 1433	550 1213	500 1102	400 882

305 CR ● Blade Lowered

Stick		1.5 m 5'0"		2 m 6'7"		2.5 m 8'2"		3 m 10'0"		3.5 m 11'6"		4 m 13'1"		4.5 m 15'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
1430 mm 4'8"	kg lb	—	—	1800* 3968*	1800* 3968*	2500* 5512*	1300 2866	2550* 5622*	1000 2205	2100* 4630*	800 1764	1750* 3858*	650 1433	1500* 3307*	550 1213	1300* 2866*	450 992
1830 mm 6'0"	kg lb	1250* 2756*	1250* 2756*	1800* 3968*	1800* 3968*	2450* 5401*	1300 2866	2550* 5622*	1000 2205	2050* 4519*	800 1764	1700* 3748*	650 1433	1450* 3197*	550 1213	1150* 2535*	400 882

*Load limited by hydraulic capacity rather than tipping.

307C ● Reach Boom

Stick			3 m 10'0"		4.5 m 15'0"		6 m 20'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side
1665 mm 5'6"	750 mm 2'6"	kg lb	2550 5450	2050 4350	1350 2900	2200 2350	—	—	700* 1500*	700* 1500*
2210 mm 7'3"	600 mm 2'0"	kg lb	2550 5450	2050 4350	1350 2900	1100 2350	—	—	750* 1650*	650 1350

307C SB ● Reach Boom ● Blade Raised

Stick			3 m 10'0"		4.5 m 15'0"		6 m 20'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side
1665 mm 5'6"	750 mm 2'6"	kg lb	2650 5700	2100 4500	1450 3100	1100 2350	950 2050	750 1650	850 1800	650 1450
2210 mm 7'3"	600 mm 2'0"	kg lb	2650 5700	2100 4450	1450 3050	1150 2450	950 1950	750 1550	700 1550	550 1250

307C SB ● Reach Boom ● Blade Lowered

Stick			3 m 10'0"		4.5 m 15'0"		6 m 20'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side
1665 mm 5'6"	750 mm 2'6"	kg lb	2800* 6450*	2250 4850	2750* 5850*	1250 2700	1650* 3550*	800 1800	1050* 2250*	700 1550
2210 mm 7'3"	600 mm 2'0"	kg lb	2800* 6550*	2250 4800	2550* 5350*	1250 2650	1750* 3800*	800 1700	950* 2100*	600 1350

*Load limited by hydraulic capacity rather than tipping.

Excavators

Lifting Capacity At Ground Level

● 308C SR ● 308C CR ● 311C U ● 312C

308C SR ● Reach Boom ● Blade Raised

Stick	Bucket		1.5 m 5'0"		3 m 10'0"		4.5 m 15'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side
1750 mm 5'9"	1070 mm 3'6"	kg lb	1600* 3527*	1600* 3527*	2700 5952	2200 4850	1400 3086	1200 2646	900 1984	750 1653

308C SR ● Reach Boom ● Blade Lowered

Stick	Bucket		1.5 m 5'0"		3 m 10'0"		4.5 m 15'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side
1750 mm 5'9"	1070 mm 3'6"	kg lb	1600* 3527*	1600* 3527*	4100* 9039*	2200 4850	2650* 5842	1200 2646	1450* 3197*	750 1653

308C CR ● Reach Boom

Stick	Bucket		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side
1665 mm 5'6"	750 mm 2'6"	kg lb	2900 6200	2250 4800	1550 3250	1200 2600	—	—	750* 1600*	750* 1600*
2210 mm 7'3"	600 mm 2'0"	kg lb	2900 6200	2250 4800	1500 3250	1200 2550	—	—	800* 1750*	700 1500

311C U ● Reach Boom

Stick	Bucket		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2250 mm 7'5"	760 mm 2'6"	kg lb	6550 13,950	4500 9600	3300 7100	2400 5100	2100 4450	1500 3200	—	—	1200* 2600*	1150 2500
2800 mm 9'2"	610 mm 2'0"	kg lb	6600 14,100	4550 9750	3350 7100	2400 5150	2100 4450	1500 3200	—	—	950* 2050*	950* 2050

312C ● Reach Boom

Stick	Bucket		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2100 mm 6'11"	914 mm 3'0"	kg lb	6200* 14,400*	5050 10,850	4100 8800	2750 5900	2600 5600	1800 3800	—	—	1850* 4000*	1300 2850
2500 mm 8'2"	914 mm 3'0"	kg lb	6750* 15,650*	5200 11,100	4150 8900	2800 6000	2650 5650	1800 3850	—	—	1500* 3300*	1200 2600
3000 mm 9'10"	914 mm 3'0"	kg lb	7800* 17,800	5200 11,150	4150 9800	2800 6000	2650 5600	1800 3800	1800 4000	1200 2650	1400* 3050*	1050 2300

France Sourced

312C ● 500 mm (20") Track Shoes ● 1100 mm (43") Bucket

Stick			3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2100 mm 6'11"		kg lb	7050* 15,560	5480 12,090	4390 9690	3010 6640	2920 6440	2060 4540	—	—	2330* 5140	1810 3990
2500 mm 8'2"		kg lb	7130* 15,740	5580 12,310	4500 9930	3110 6860	2960 6530	2100 4630	—	—	1730* 3810	1470 3240
3000 mm 9'10"		kg lb	8010* 17,680	5580 12,310	4490 9910	3100 6840	2940 6490	2070 4560	2130 4700	1510 3330	1620* 3570	1330 2930

*Load limited by hydraulic capacity rather than tipping.

France Sourced

312C • 500 mm (20") Track Shoes • 0.68 m³ (0.89 yd³) Bucket • VA Boom

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2100 mm 6'11"	kg lb	8540*	6070	4790	3340	3010	2110	—	—	1750*	1510
		18,827	13,882	10,560	7363	6636	4652			3858	3329
2500 mm 8'2"	kg lb	8100*	6220	4870	3400	3040	2140	—	—	1510*	1420
		17,857	13,713	10,736	7496	6702	4718			3329	3131
3000 mm 9'10"	kg lb	8800*	6350	4670	3440	3030	2130	2130	1480	1440*	1280
		19,400	13,999	10,296	7584	6680	4696	4696	3263	3175	2822

312C L • Reach Boom

Stick	Bucket		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2100 mm 6'11"	1067 mm 3'6"	kg lb	6150*	5250	4850	2800	3050	1800	—	—	1800*	1300
			14,400*	11,300	10,450	6100	6600	3950			3950	2950
2500 mm 8'2"	1067 mm 3'6"	kg lb	6700*	5350	4900	2850	3100	1850	—	—	1500*	1200
			15,600*	11,500	10,550	6200	6650	4000			3300*	2700
3000 mm 9'10"	914 mm 3'0"	kg lb	7800*	5450	4950	2900	3100	1850	2100	1250	1400*	1100
			18,100*	11,650	10,600	6250	6650	3950	4650	2800	3050*	2400

France Sourced

312C L • 600 mm (24") Track Shoes • 1100 mm (43") Bucket

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2100 mm 6'11"	kg lb	6550*	5960	5200	3330	3400	2260	—	—	2000*	1710
		14,450	13,150	11,470	7350	7500	4980			4410	3770
2500 mm 8'2"	kg lb	7130*	6040	5250	3370	3420	2280	—	—	1730*	1600
		15,730	13,330	11,580	7430	7540	5030			3810	3530
3000 mm 9'10"	kg lb	8010*	6050	5250	3360	3400	2260	2390*	1650	1620*	1450
		17,680	13,350	11,580	7410	7500	4980	5270	3640	3570	3200

312C L • 600 mm (24") Track Shoes • 0.68 m³ (0.89 yd³) Bucket • VA Boom

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2100 mm 6'11"	kg lb	8540*	6220	5440*	3420	3470	2170	—	—	1750*	1560
		18,827	13,713	11,993	7540	7650	4784			—	—
2500 mm 8'2"	kg lb	8100*	6380	5420	3490	3510	2200	—	—	1510*	1460
		17,857	14,065	11,949	7694	7738	4850			—	—
3000 mm 9'10"	kg lb	8800*	6510	5440	3530	3500	2190	2460	1530	1440*	1320
		19,400	14,352	11,993	7782	7716	4828	5423	3373	3175	2910

*Load limited by hydraulic capacity rather than tipping.

313C SR ● Reach Boom ● Blade Raised

Stick			3 m 10'0"		4.5 m 15'0"		6 m 20'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side
2130 mm 7'0"	895 mm 2'11"	kg lb	5450* 9950*	4150 8850	3400 7250	2250 4750	2150 4550	1400 3000	1750 3800	1150 2500

313C SR ● Reach Boom ● Blade Lowered

Stick			3 m 10'0"		4.5 m 15'0"		6 m 20'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side
2130 mm 7'0"	895 mm 2'11"	kg lb	5450* 9950*	4750 9950*	4950* 10,700*	2500 5400	3550* 7650*	1600 3400	2200* 4800*	1300 2800

313C CR ● Reach Boom

Stick			3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2500 mm 8'2"	895 mm 3'0"	kg lb	4400* 9900*	4300 9200	3600 7700	2250 4850	2300 4850	1450 3100	1600 3450	1000 2150	1500 3300	950 2000
3000 mm 9'10"	700 mm 2'4"	kg lb	5000* 11,000*	4300 9150	3600 7750	2300 4950	2300 4900	1450 3100	1600 3400	1000 2100	1350 3000	850 1800

314C CR ● Reach Boom

Stick			3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2500 mm 8'2"	910 mm 3'0"	kg lb	6600* 15,300*	5150 11,000	4250 9050	2750 5900	2700 5750	1800 3800	—	—	1550* 3350*	1200 2600
3000 mm 9'10"	760 mm 2'6"	kg lb	7550* 17,550*	5200 11,100	4250 9650	3000 6450	2700 5800	1800 3800	1900 4150	1200 2650	1400* 3100*	1050 2300

314C LCR ● Reach Boom

Stick			3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2500 mm 8'2"	910 mm 3'0"	kg lb	6600* 15,300*	5200 11,100	4900 10,550	2800 6000	3100 6650	1800 3850	—	—	1500* 3300*	1200 2600
3000 mm 9'10"	760 mm 2'6"	kg lb	7550* 17,450*	5200 11,200	4950 10,550	2800 6000	3100 6650	1800 3800	2150 4700	1200 2650	1400* 3050*	1050 2300

315C ● Reach Boom

Stick			3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
1850 mm 6'1"	1220 mm 4'0"	kg lb	11,050* 24,500*	11,050* 24,500*	5500 11,750	3500 7550	3500 7500	2300 4900	—	—	2500 5450	1600 3500
2250 mm 7'5"	1070 mm 3'6"	kg lb	5450* 12,550*	5450* 12,550*	5600 12,000	3650 7800	3550 7600	2350 5000	—	—	2550* 4900*	1500 3300
2600 mm 8'6"	1070 mm 3'6"	kg lb	5950* 13,700*	5950* 13,700*	5650 12,100	3650 7850	3600 7700	2400 5100	2500 5500	1650 3600	1950* 4300*	1400 3100
3100 mm 10'2"	770 mm 2'6"	kg lb	6950* 15,900*	6800 14,650	5650 12,100	3650 7850	3550 7650	2350 5000	2500 5300	1600 3400	1750 3800*	1250 2750

*Load limited by hydraulic capacity rather than tipping.

315C L ● Reach Boom

Stick	Bucket	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	
1850 mm 6'1"	1220 mm 4'0"	kg lb	11,050* 11,050*	6550 14,100	3650 7850	4150 8900	2400 5100	—	—	2700* 5950*	1700 3700	
2250 mm 7'5"	1070 mm 3'6"	kg lb	5450* 12,550*	5450* 12,550*	6700 14,350	3750 8100	4200 9050	2450 5200	—	—	2250* 4900*	1550 3450
2600 mm 8'6"	1070 mm 3'6"	kg lb	5880* 13,500*	5880* 13,500*	6700 14,400	3800 8100	4200 9050	2450 5200	2950 6450	1700 3650	1900* 4200*	1450 3150
3100 mm 10'2"	770 mm 2'6"	kg lb	6950* 15,900*	6950* 15,150	6750 14,450	3800 8150	4250 9050	2450 5250	2950 6300	1700 3600	1750* 3800*	1300 2900

France Sourced

315C L ● 500 mm (20") Track Shoes ● 0.93 m³ (1.22 yd³) Bucket ● One Piece Boom

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
1850 mm 6'1"	kg lb	—	—	6440 14,198	3580 7893	4050 8929	2300 5071	—	—	2480* 5490	1570 3460
2250 mm 7'5"	kg lb	5320* 11,729	5320* 11,729	6540 14,418	3670 8091	4090 9017	2350 5181	—	—	2040* 4490	1440 3175
2600 mm 8'6"	kg lb	5750* 12,677	5750* 12,677	6570 14,484	3690 8135	4090 9017	2340 5159	2820 6217	1580 3480	1740 3830	1320 2910
3100 mm 10'2"	kg lb	6750* 14,880	6750* 14,880	6570 14,480	3680 8110	4070 8970	2320 5110	2790 6150	1540 3390	1520* 3350	1160 2550

315C L ● 500 mm (20") Track Shoes ● 0.93 m³ (1.22 yd³) Bucket ● VA Boom

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
1850 mm 6'1"	kg lb	11 450* 25,243	7480 16,491	6940 15,300	3960 8730	4130 9105	2350 5181	—	—	2530* 5578	1550 3417
2250 mm 7'5"	kg lb	10 800* 23,809	7710 16,998	6740* 14,859	4050 8929	4180 9215	2390 5269	—	—	2090* 4608	1430 3153
2600 mm 8'6"	kg lb	10 620* 23,413	7840 17,284	6770 14,925	4100 9039	4190 9237	2400 5291	2810 6195	1540 3395	1780* 3924	1300 2866
3100 mm 10'2"	kg lb	9710* 21,407	8010 17,659	6810 15,013	4150 9149	4180 9215	2540 5600	2780 6129	1510 3329	1550* 3417	1130 2491

*Load limited by hydraulic capacity rather than tipping.

France Sourced

318C ● 600 mm (24") Track Shoes ● 0.8 m³ (1.05 yd³) Bucket

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
1800 mm 5'10"	kg lb	—	—	7670 16,909	4540 10,009	4830 10,648	2940 6482	—	—	3190 7033	1940 4277
2250 mm 7'5"	kg lb	—	—	7770 17,130	4620 10,185	4870 10,737	2980 6570	—	—	2920 6437	1770 3902
2700 mm 8'10"	kg lb	5080* 11,199	5080* 11,199	7790 17,174	4640 10,229	4850 10,692	2950 6504	3350 7385	2950 6504	2170* 4784	1550 3417
3200 mm 10'6"	kg lb	5140* 11,332	5140* 11,332	7850 17,306	4680 10,318	4680 10,318	2960 6564	3350 7385	2010 4431	1800* 3968	1370 3020

318C ● 600 mm (24") Track Shoes ● 0.8 m³ (1.05 yd³) Bucket ● VA Boom

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
1800 mm 5'10"	kg lb	13 650* 30,093	9820* 21,649	8440 18,607	5140 11,332	4970 10,957	3020 6658	—	—	3300 7270	1970 4340
2250 mm 7'5"	kg lb	13 000* 28,660	10 100 22,267	8040 17,725	5250 11,574	5010 11,045	3060 6746	—	—	3010 6630	1790 3940
2700 mm 8'10"	kg lb	12 030* 26,522	10 340 22,796	8090 17,835	5310 11,707	5010 11,045	3050 6724	3350 7385	1980 4360	2200* 4850	1570 3460
3200 mm 10'6"	kg lb	12 940* 28,520	10 620* 23,410	8210 18,100	5440 11,990	5060 11,150	3330 7340	3350 7385	2060 4540	1820* 4010	1380 3040

Japan Sourced

318C L ● Reach Boom

Stick	Bucket		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
1800 mm 5'11"	1230 mm 4'0"	kg lb	—	—	8770 18,810	4680 10,070	5440 11,680	3000 6440	—	—	3590 7920	1950 4300
2250 mm 7'5"	1070 mm 3'6"	kg lb	—	—	8900* 19,140	4830 10,380	5530 11,880	3090 6840	—	—	3100* 6820*	1830 4030
2700 mm 8'10"	930 mm 3'1"	kg lb	5100* 11,780*	5100* 11,780*	8770* 18,960*	4910 10,560	5580 11,990	3140 6740	3870 8300	2150 4610	2170* 4780*	1670 3680
3200 mm 10'6"	770 mm 2'6"	kg lb	5150* 11,910*	5150* 11,910*	8480* 18,330*	4970 10,690	5620 12,060	3170 6800	3890 8340	2170 4640	1810* 4000*	1500 3300

*Load limited by hydraulic capacity rather than tipping.

France Sourced

318C L ● 600 mm (24") Track Shoes ● 0.8 m³ (1.05 yd³) Bucket

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
1800 mm	kg	13 680*	10 140	9020*	5280	6050	3110			3830*	2010
5'10"	lb	30,159	22,355	19,886	11,640	13,338	6856	—	—	8444	4431
2250 mm	kg	13 020*	10 420	8980*	5390	6090	3150			3080*	1380
7'5"	lb	28,704	22,972	19,797	11,883	13,404	6945	—	—	6790	3042
2700 mm	kg	12 050*	10 660	8910*	5460	6090	3150	4080	2040	2140*	1610
8'10"	lb	26,567	23,501	19,643	12,037	13,404	6945	8995	4497	4718	3549
3200 mm	kg	12 850*	10 640*	8950*	5580	6140*	3420	4090	2120	1780*	1420
10'6"	lb	28,329	23,457	19,731	12,302	13,536	7540	9017	4674	3924	3132

318C L ● 600 mm (24") Track Shoes ● 0.8 m³ (1.05 yd³) Bucket ● VA Boom

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
1800 mm	kg	13 700*	9920	8460	5150	4970	3020			3290	1960
5'10"	lb	30,203	21,870	18,651	11,354	10,957	6658	—	—	7253	4321
2250 mm	kg	13 040*	10 200	8080	5260	5020	3060			3000	1780
7'5"	lb	28,748	22,487	17,813	11,596	11,067	6746	—	—	6614	3924
2700 mm	kg	12 030*	10 340	8090	5310	5010	3050	3350	1980	2200*	1570
8'10"	lb	26,522	22,796	17,835	11,707	11,045	6724	7385	4365	4850	3461
3200 mm	kg	12 940*	10 620*	8210	5440	5060	3330	3350	2060	1820*	1380
10'6"	lb	28,528	23,413	18,100	11,993	11,155	7341	7385	4542	4012	3042

Japan Sourced

318C LN ● Reach Boom

Stick	Bucket		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
1800 mm	1080 mm	kg	—	—	8680	4070	5400	2630			3600	1720
5'11"	3'7"	lb			18,620	8760	11,610	5650	—	—	7930	3780
2250 mm	930 mm	kg	—	—	8810	4180	5460	2680			3120*	1570
7'5"	3'1"	lb			18,890	8990	11,730	5760	—	—	6870*	3470
2700 mm	770 mm	kg	5160*	5160*	8830*	4290	5540	2760	3850	1890	2230*	1470
8'10"	2'6"	lb	11,930*	11,930*	19,090*	9230	11,900	5930	8270	4050	4910*	3230
3200 mm	770 mm	kg	5150*	5150*	8480*	4300	5530	2740	3820	1860	1810*	1260
10'6"	2'6"	lb	11,910*	11,910*	18,330*	9250	11,870	5880	8200	3970	4000*	2770

*Load limited by hydraulic capacity rather than tipping.

France Sourced

318C N ● 500 mm (20") Track Shoes ● 0.8 m³ (1.05 yd³) Bucket

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
1800 mm 5'10"	kg lb	—	—	7550 16,645	3920 8642	4750 10,472	2540 5600	—	—	3140 6933	1660 3660
2250 mm 7'5"	kg lb	—	—	7650 16,865	4000 8818	4790 10,560	2570 5666	—	—	2870 6327	1510 3329
2700 mm 8'10"	kg lb	5080* 11,199	5080* 11,199	7680 16,931	4010 8841	4770 10,516	2550 5622	3290 7253	1720 3792	2170* 4784	1310 2288
3200 mm 10'6"	kg lb	5140* 11,332	5140* 11,332	7730 17,042	4050 8929	4790 10,560	2560 5644	3290 7253	1720 3792	1800* 3968	1150 2535

318C N ● 500 mm (20") Track Shoes ● 0.8 m³ (1.05 yd³) Bucket ● VA Boom

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
1800 mm 5'10"	kg lb	13 650* 30,093	8400 18,519	8330 18,364	4480 9877	4890 10,781	2610 5754	—	—	3240 7143	1680 3704
2250 mm 7'5"	kg lb	13 000* 28,660	8670 19,114	7920 17,461	4590 10,119	4940 10,891	2650 5842	—	—	2960 6525	1520 3351
2700 mm 8'10"	kg lb	12 030* 26,522	8890 19,599	7980 17,793	4640 10,229	4930 10,869	2640 5820	3290 7253	1670 3682	2200* 4850	1310 2888
3200 mm 10'6"	kg lb	12 940* 28,528	9210 20,305	8090 17,835	4770 10,516	4980 10,979	2910 6415	3300 7275	1760 3880	1820* 4012	1140 2513

*Load limited by hydraulic capacity rather than tipping.

M313C ● Rear Dozer Up

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2000 mm 6'7"	kg lb	—	—	4600 10,143	2600 5733	3000 6615	1800 3969	—	—	2100 4631	1300 2867
2300 mm 7'7"	kg lb	4000 8820	4000 8820	4600 10,143	2600 5733	3000 6615	1700 3749	—	—	1900 4190	1200 2646
2600 mm 8'6"	kg lb	4200 9261	4200 9261	4500 9923	2600 5733	2900 6395	1700 3749	2100 4631	1200 2646	1700 3749	1100 2426

M313C ● Rear Dozer Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2000 mm 6'7"	kg lb	—	—	—	3100 6836	—	2100 4631	—	—	—	1500 3308
2300 mm 7'7"	kg lb	—	—	—	4000 8820	—	3100 6836	—	2100 4631	—	1400 3087
2600 mm 8'6"	kg lb	—	4200 9261	—	3100 6836	—	2000 4410	—	1400 3087	—	1300 2867

M313C ● Rear Stabilizer Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2000 mm 6'7"	kg lb	—	—	—	3900 8600	—	2600 5733	—	—	—	1900 4190
2300 mm 7'7"	kg lb	—	4000 8820	—	3900 8600	—	2500 5513	—	—	—	1800 3969
2600 mm 8'6"	kg lb	—	4200 9261	—	3900 8600	—	2500 5513	—	1800 3969	—	1700 3749

M313C ● 4-Point Stabilizers Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2000 mm 6'7"	kg lb	—	—	6100 13,451	6100 13,451	4400 9702	3900 8600	—	—	2100 4631	2100 4631
2300 mm 7'7"	kg lb	4000 8820	4000 8820	6200 13,671	5000 11,025	4000 9702	3200 7056	—	—	1900 4190	1900 4190
2600 mm 8'6"	kg lb	4200 9261	4200 9261	6100 13,451	5000 11,025	4400 9702	3200 7056	2400 5292	2300 5072	1700 3749	1700 3749

M313C ● Dozer and Stabilizer Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2000 mm 6'7"	kg lb	—	—	6100 13,451	5000 11,025	4400 9702	3200 7056	—	—	2100 4631	2100 4631
2300 mm 7'7"	kg lb	4000 8820	4000 8820	6200 13,671	5000 11,025	4000 8820	3200 7056	—	—	1900 4190	1900 4190
2600 mm 8'6"	kg lb	4200 9261	4200 9261	6100 13,451	5000 11,025	4400 9702	3200 7056	2400 5292	2300 5072	1700 3749	1700 3749

M313C ● Rear Dozer Up

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2000 mm 6'7"	kg lb	9400 20,727	5500 12,128	5000 11,025	3000 6615	3100 6836	1900 4190	—	—	2000 4410	1200 2646
2300 mm 7'7"	kg lb	9300 20,507	5600 12,348	5000 11,025	3000 6615	3100 6836	1900 4190	2100 4631	1200 2646	1900 4190	1100 2426
2600 mm 8'6"	kg lb	8900 19,625	5600 12,348	4900 10,805	3100 6836	3200 7056	1900 4190	2100 4631	1200 2646	1800 3969	1000 2205

M313C ● Rear Dozer Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2000 mm 6'7"	kg lb	—	6600 14,553	—	3500 7718	—	2200 4851	—	—	—	1400 3087
2300 mm 7'7"	kg lb	—	6600 14,553	—	3600 7938	—	2200 4851	—	1400 3087	—	1300 2867
2600 mm 8'6"	kg lb	—	6600 14,553	—	3600 7938	—	2200 4851	—	1400 3087	—	1200 2646

M313C ● Rear Stabilizer Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2000 mm 6'7"	kg lb	—	8200 18,081	—	4300 9482	—	2700 5954	—	—	—	1400 3087
2300 mm 7'7"	kg lb	—	8200 18,081	—	4400 9702	—	2700 5954	—	1800 3969	—	1700 3749
2600 mm 8'6"	kg lb	—	8100 17,861	—	4300 9482	—	2700 5954	—	1800 3969	—	1500 3308

M313C ● 4-Point Stabilizers Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2000 mm 6'7"	kg lb	9400 20,727	9400 20,727	6100 13,451	5300 11,687	4400 9702	3400 7497	—	—	2300 5072	2200 4851
2300 mm 7'7"	kg lb	9300 20,507	9300 20,507	6100 13,451	6100 13,451	4400 9702	4100 9041	2800 6174	2800 6174	2000 4410	2000 4410
2600 mm 8'6"	kg lb	8900 19,625	8900 19,625	6000 13,230	6000 13,230	4300 9482	4100 9041	3200 7056	2800 6174	1800 3969	1800 3969

M313C ● Dozer and Stabilizer Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2000 mm 6'7"	kg lb	9400 20,727	9400 20,727	6100 13,451	5300 11,687	4400 9702	3400 7497	—	—	2300 5072	2200 4851
2300 mm 7'7"	kg lb	9300 20,507	9300 20,507	6100 13,451	5300 11,687	4400 9702	3400 7497	2800 6174	2300 5072	2000 4410	2000 4410
2600 mm 8'6"	kg lb	8900 19,625	8900 19,625	6000 13,230	5300 11,687	4300 9482	3400 7497	3200 7056	2300 5072	1800 3969	1800 3969

M315C ● Rear Dozer Up

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2100 mm 6'11"	kg lb	—	—	5300 11,687	3100 6836	3400 7497	2100 4631	—	—	2400 5292	1400 3087
2400 mm 7'10"	kg lb	3700 8159	3700 8159	6200 13,671	3100 6836	3400 7497	2100 4631	2500 5513	1500 3308	2200 4851	1300 2867
2600 mm 8'6"	kg lb	3900 8600	3900 8600	5300 11,687	3100 6836	3400 7497	2100 4631	2500 5513	1500 3308	2200 4851	1300 2867

M315C ● Rear Dozer Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2100 mm 6'11"	kg lb	—	—	—	3600 7938	—	2400 5292	—	—	—	1700 3749
2400 mm 7'10"	kg lb	—	3700 8159	—	3600 7938	—	2400 5292	—	1700 3749	—	1500 3308
2600 mm 8'6"	kg lb	—	3900 8600	—	3600 7938	—	2400 5292	—	1700 3749	—	1500 3308

M315C ● Rear Stabilizer Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2100 mm 6'11"	kg lb	—	—	—	4500 9923	—	3000 6615	—	—	—	2100 4631
2400 mm 7'10"	kg lb	—	3700 8159	—	4500 9923	—	3000 6615	—	2100 4631	—	1900 4190
2600 mm 8'6"	kg lb	—	3900 8600	—	4500 9923	—	3000 6615	—	2100 4631	—	1900 4190

M315C ● 4-Point Stabilizers Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2100 mm 6'11"	kg lb	—	—	7300 16,097	7100 15,656	5300 11,687	4500 9923	—	—	2700 5954	2700 5954
2400 mm 7'10"	kg lb	3700 8159	3700 8159	8100 17,861	7100 15,656	5300 11,687	4500 9923	3900 8600	3200 7056	2400 5292	2400 5292
2600 mm 8'6"	kg lb	3900 8600	3900 8600	7300 16,097	5800 12,789	5000 11,025	4500 9923	4000 8820	3200 7056	2200 4851	2200 4851

M315C ● Dozer and Stabilizer Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2100 mm 6'11"	kg lb	—	—	7300 16,097	5700 12,569	5300 11,687	3700 8159	—	—	2700 5954	2600 5733
2400 mm 7'10"	kg lb	3700 8159	3700 8159	8100 17,861	5700 12,569	5300 11,687	3700 8159	3900 8600	2700 5954	2400 5292	2400 5292
2600 mm 8'6"	kg lb	3900 8600	3900 8600	7300 16,097	5800 12,789	5000 11,025	3700 8159	4000 8820	2700 5954	2200 4851	2200 4851

M315C ● Rear Dozer Up

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2100 mm	kg	10 900	6500	5900	3600	3700	2300	2500	1400	2300	1300
6'11"	lb	24,035	14,333	13,010	7938	8159	5072	5513	3087	5072	2867
2400 mm	kg	10 600	6600	5800	3600	3700	2300	2500	1400	2100	1200
7'10"	lb	23,373	14,553	12,789	7938	8159	5072	5513	3087	4631	2646
2600 mm	kg	10 300	6600	5800	3700	3800	2400	2500	1500	2100	1200
8'6"	lb	22,712	14,553	12,789	8159	8379	5292	5513	3308	4631	2646

M315C ● Rear Dozer Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2100 mm	kg	—	7700	—	4200	—	2600	—	1700	—	1600
6'11"	lb	—	16,979	—	9261	—	5733	—	3749	—	3528
2400 mm	kg	—	7800	—	4200	—	2700	—	1700	—	1500
7'10"	lb	—	—	—	9261	—	5954	—	3749	—	3308
2600 mm	kg	—	7900	—	4200	—	2700	—	1700	—	1400
8'6"	lb	—	17,420	—	9261	—	5954	—	3749	—	3087

M315C ● Rear Stabilizer Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2100 mm	kg	—	9600	—	5100	—	3200	—	2100	—	2000
6'11"	lb	—	21,168	—	11,246	—	7056	—	4631	—	4410
2400 mm	kg	—	9500	—	5100	—	3300	—	2100	—	1800
7'10"	lb	—	20,948	—	11,246	—	7277	—	—	—	3969
2600 mm	kg	—	9500	—	5100	—	3300	—	2200	—	1800
8'6"	lb	—	20,948	—	11,246	—	7277	—	4851	—	3969

M315C ● 4-Point Stabilizers Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2100 mm	kg	10 900	10 900	7200	7200	5200	4800	3700	3200	2600	2600
6'11"	lb	24,035	24,035	15,876	15,876	11,466	10,584	8159	7056	5733	5733
2400 mm	kg	10 600	10 600	7200	7200	5200	4800	3900	3200	2300	2300
7'10"	lb	23,373	23,373	15,876	15,876	11,466	10,584	8600	7056	5072	5072
2600 mm	kg	10 300	10 300	7200	6100	5200	4100	4000	2700	2200	2200
8'6"	lb	22,712	22,712	15,876	13,451	11,466	9041	8820	5954	4851	4851

M315C ● Dozer and Stabilizer Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2100 mm	kg	10 900	10 900	7200	6200	5200	4000	3700	2700	2600	2500
6'11"	lb	24,035	24,035	15,876	13,671	11,466	8820	8159	5954	5733	5513
2400 mm	kg	10 600	10 600	7200	6200	5200	4000	3900	2700	2300	2300
7'10"	lb	23,373	23,373	15,876	13,671	11,466	8820	8600	5954	5072	5072
2600 mm	kg	10 300	10 300	7200	6100	5200	4100	4000	2700	2200	2200
8'6"	lb	22,712	22,712	15,876	13,451	11,466	9041	8820	5954	4851	4851

M316C ● Rear Dozer Up

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2100 mm 6'11"	kg lb	—	—	6200 1350	3500 7700	4000 8800	2400 5250	—	—	—	—	2700* 5950*	1700 3700
2400 mm 7'10"	kg lb	3800* 8350*	3800* 8350*	6200 1350	3500 7700	4000 8800	2400 5250	2900 6350	1700 3700	—	—	2400* 5250*	1600 3500
2600 mm 8'6"	kg lb	4000* 8800*	4000* 8800	6200 1350	3500 7700	4000 8800	2400 5250	2900 6350	1700 3700	—	—	2200* 4850*	1500 3300

M316C ● Rear Dozer Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Rear	Side	Rear	Side	Rear	Side	Rear	Side	Rear	Side	Rear	Side
2100 mm 6'11"	kg lb	—	—	8100* 17,850*	4100 9000	5900* 13,000*	2800 6150	—	—	—	—	2700* 5950*	1700 3700
2400 mm 7'10"	kg lb	3800* 8350*	3800* 8350*	8100* 17,850*	4100 9000	5800* 12,750*	2700 5950	3900* 8550*	2000 4400	—	—	2400* 5250*	1800 3950
2600 mm 8'6"	kg lb	4000* 8800*	4000* 8800*	8100* 17,850*	4100 9000	5800* 12,750*	2700 5950	4500* 9900	2000 4400	—	—	2200* 4850*	1500 3300

M316C ● Rear Stabilizer Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Rear	Side	Rear	Side	Rear	Side	Rear	Side	Rear	Side	Front	Side
2100 mm 6'11"	kg lb	—	—	8100* 17,850*	5100 11,200	5800 12,750	3400 7450	—	—	—	—	2700* 5950*	2400 5250
2400 mm 7'10"	kg lb	3800* 8350*	3800* 8350*	8100* 17,850*	5100 11,200	5800 12,750	2700 5950	3900 8550	2500 5500	—	—	2400* 5250*	2200 4850
2600 mm 8'6"	kg lb	4000* 8800*	4000* 8800*	8100* 17,850*	5100 11,200	5800 12,750	3400 7450	4100 9000	2500 5500	—	—	2200* 4850*	2200 4850

M316C ● 4-Point Stabilizers Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2100 mm 6'11"	kg lb	—	—	8100* 17,850*	8000 17,640	5900* 13,000*	5100 11,200	—	—	—	—	2700* 5950*	2700* 5950*
2400 mm 7'10"	kg lb	3800* 8350*	3800* 8350*	8100* 17,850*	8000 17,640	5800* 12,750*	5100 11,200	3900* 8550*	3700 8150	—	—	2400* 5250*	2400* 5250*
2600 mm 8'6"	kg lb	4000* 8800*	4000* 8800*	8100* 17,850*	8000 17,640	5800* 12,750*	5100 11,200	4500* 9900*	3700 8150	—	—	2200* 4850*	2200* 4850*

M316C ● Dozer and Stabilizer Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2100 mm 6'11"	kg lb	—	—	8100* 17,850*	6500 14,300	5900* 13,000*	4200 9250	—	—	—	—	2700* 5950*	2700* 5950*
2400 mm 7'10"	kg lb	3800* 8350*	3800* 8350*	8100* 17,850*	6400 14,100	5800* 12,750*	4200 9250	3900* 8550*	3000 6600	—	—	2400* 5250*	2400* 5250*
2600 mm 8'6"	kg lb	4000* 8800*	4000* 8800*	8100* 17,850*	6500 14,300	5800* 12,750*	4200 9250	4500* 9900*	3000 6600	—	—	2200* 4850*	2200* 4850*

*Load limited by hydraulic capacity rather than tipping.

M316C ● Rear Dozer Up

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2100 mm 6'11"	kg lb	11 800* 26,000*	7300 16,050	6700 14,750	4000 8800	4300 9450	2600 5700	2900 6350	1700 3700	—	—	2600* 5700*	1500 3300
2400 mm 7'10"	kg lb	11 500* 25,350*	7300 16,050	6700 14,750	4100 9000	4300 9450	2600 5700	2900 6350	1700 3700	—	—	2300* 5050*	1400 3050
2600 mm 8'6"	kg lb	11 400* 25,100*	7400 16,300	6700 14,750	4100 9000	4300 9450	2700 5950	2900 6350	1700 3700	—	—	2200* 4850*	1400 3050

M316C ● Rear Dozer Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Rear	Side	Rear	Side	Rear	Side	Rear	Side	Rear	Side	Rear	Side
2100 mm 6'11"	kg lb	11 800* 26,000*	8600 18,950	8000* 17,600*	4700 10,350	5800* 12,750*	3000 6600	3900* 8550*	2000 4400	—	—	2600* 5700*	1800 3950
2400 mm 7'10"	kg lb	11 500* 25,350*	8700 19,150	8000* 17,600*	4700 10,350	5800* 12,750*	3000 6600	4300* 9450*	2000 4400	—	—	2300* 5050*	1700 3700
2600 mm 8'6"	kg lb	11 400* 25,100*	8700 19,150	8000* 17,600*	4700 10,350	5700* 12,550*	3000 6600	4400* 9700*	2000 4400	—	—	2200* 4850*	1600 3500

M316C ● Rear Stabilizer Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Rear	Side	Rear	Side	Rear	Side	Rear	Side	Rear	Side	Rear	Side
2100 mm 6'11"	kg lb	11 800* 26,000*	10 800* 23,800	8000* 17,600*	5700 12,550	5800* 12,750*	3600 7900	3900* 8550*	2400 5250	—	—	2600* 5700*	2300 5050
2400 mm 7'10"	kg lb	11 500* 25,350*	10 700* 23,550*	8000* 17,600*	5800 12,750	5800* 12,750*	3700 8150	4100 9000	2400 5250	—	—	2300* 5050*	2100 4600
2600 mm 8'6"	kg lb	11 400* 25,100*	10 700 23,550	8000* 17,600*	5700 12,550	5700* 12,550*	3700 8150	4100 9000	2500 5500	—	—	2200* 4850*	2000 4400

M316C ● 4-Point Stabilizers Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2100 mm 6'11"	kg lb	11 800* 26,000*	11 800* 26,000*	8000* 17,600*	8000* 17,600*	5800* 12,750*	5400 11,900	3900* 8550*	3700 8150	—	—	2600* 5700*	2600* 5700*
2400 mm 7'10"	kg lb	11 500* 25,350*	11 500* 25,350*	8000* 17,600*	8000* 17,600*	5800* 12,750*	5400* 11,900*	4300* 9450*	3700 8150	—	—	2300* 5050*	2300* 5050*
2600 mm 8'6"	kg lb	11 400* 25,100*	11 400* 25,100*	8000* 17,600*	8000* 17,600*	5700* 12,550*	5300 11,650	4400* 9700*	3700 8150	—	—	2200* 4850*	2200* 4850*

M316C ● Dozer and Stabilizer Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2100 mm 6'11"	kg lb	11 800* 26,000*	11 800* 26,000*	8000* 17,600*	6900 15,200	5800* 12,750*	4500 9900	3900* 8550*	3000 6600	—	—	2600* 5700*	2600* 5700*
2400 mm 7'10"	kg lb	11 500* 25,350*	11 500* 25,350*	8000* 17,600*	6900 15,200	5800* 12,750*	4500 9900	4300* 9450*	3000 6600	—	—	2300* 5050*	2300* 5050*
2600 mm 8'6"	kg lb	11 400* 25,100*	11 400* 25,100*	8000* 17,600*	6800 14,950	5700* 12,550*	4500 9900	4400* 9700*	3100 6600	—	—	2200* 4850*	2200* 4850*

*Load limited by hydraulic capacity rather than tipping.

M318C ● Rear Dozer Up

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2200 mm 7'3"	kg lb	—	—	6800 14,950	4000 8800	4400 9700	2700 21,350	3200 7050	1900 4150	—	—	2800 6150	1700 3700
2500 mm 8'2"	kg lb	—	—	9400* 20,700*	4400 9700	6800* 14,950*	2900 6350	4900 10,800	2100 4600	—	—	2700* 5950*	1800 3950
2800 mm 9'2"	kg lb	4700* 10,350*	4700* 10,350*	6600 14,550	3800 8350	4300 9450	2500 5500	3100 6800	1800 3950	—	—	2400* 5250*	1500 3300

M318C ● Rear Dozer Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Rear	Side	Rear	Side	Rear	Side	Rear	Side	Rear	Side	Rear	Side
2200 mm 7'3"	kg lb	—	—	9400* 20,700*	4400 9700	6800* 14,950*	3000 6600	4900 10,800	2200 4850	—	—	3500* 7700*	1900 4150
2500 mm 8'2"	kg lb	—	—	9400* 20,700*	4400 9700	6800* 14,950*	2900 6350	4900 10,800	2100 4600	—	—	2700* 5950*	1800 3950
2800 mm 9'2"	kg lb	4700* 10,350*	4700* 10,350*	9400* 20,700*	4400 9700	6700* 14,750*	2900 6350	4900 10,800	2100 4600	—	—	2400* 5250*	1700 3700

M318C ● Rear Stabilizer Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Rear	Side	Rear	Side	Rear	Side	Rear	Side	Rear	Side	Rear	Side
2200 mm 7'3"	kg lb	—	—	9400* 20,700*	5500 12,100	6200 13,650	3600 7900	4400 9700	2600 5700	—	—	3500* 7700*	2400 5250
2500 mm 8'2"	kg lb	—	—	9400* 20,700*	5500 12,100	6200 13,650	3600 7900	4400 9700	2600 5700	—	—	2700* 5950*	2200 4850
2800 mm 9'2"	kg lb	4700* 10,350*	4700* 10,350*	9400* 20,700*	5500 12,100	6200 13,650	3600 7900	4400 9700	2600 5700	—	—	2400* 5250*	2100 4600

M318C ● 4-Point Stabilizers Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2200 mm 7'3"	kg lb	—	—	9400* 20,700*	8500 18,700	6800* 14,950*	5400 11,900	5200* 11,450*	3900 8550	—	—	3500* 7700*	3500* 7700*
2500 mm 8'2"	kg lb	—	—	9400* 20,700*	8500 18,700	6800 14,950*	5400 11,900	5300* 11,650*	3900 8550	—	—	2700* 5950*	2700* 5950*
2800 mm 9'2"	kg lb	4700* 10,350*	4700* 10,350*	9400* 20,700*	8500 18,700	6700* 14,750*	5400 11,900	5200* 11,450*	3900 8550	—	—	2400* 5250*	2400* 5250*

M318C ● Dozer and Stabilizer Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2200 mm 7'3"	kg lb	—	—	9400* 20,700*	6800 14,950	6800* 14,950*	4500 9900	5200* 11,450*	3200 7050	—	—	3500* 7700*	2900 6350
2500 mm 8'2"	kg lb	—	—	9400* 20,700*	6800 14,950	6800* 14,950*	4400 9700	5300* 11,650*	3200 7050	—	—	2700* 5950*	2700* 5950*
2800 mm 9'2"	kg lb	4700* 10,350*	4700* 10,350*	9400* 20,700*	6800 14,950	6700* 14,750*	4400 9700	5200* 11,450*	3200 7050	—	—	2400* 5250*	2400* 5250*

*Load limited by hydraulic capacity rather than tipping.

M318C ● Rear Dozer Up

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2200 mm 7'3"	kg lb	13 900* 30,600*	8100 17,850	7300* 16,050*	4500 9900	4700 10,350	2900 6350	3100 6800	1900 4150	—	—	2800 6150	1700 3700
2500 mm 8'2"	kg lb	13 300* 29,300*	8200 18 050	7300 16,050*	4500 9900	4700 10,350	2900 6350	3100 6800	1900 4150	—	—	2400* 5250*	1500 3300
2800 mm 9'2"	kg lb	13 200* 29,100*	8300 18,300	7200 15,850	4600 10,100	4800* 10,550	3000 6600	3200 7050	1900 4150	—	—	2200* 4850*	1400 3050

M318C ● Rear Dozer Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Rear	Side	Rear	Side	Rear	Side	Rear	Side	Rear	Side	Rear	Side
2200 mm 7'3"	kg lb	13 900* 30,600*	8100 17,850	7300* 16,050*	4500 9900	6700 14,750	2900 6350	3100 6800	1900 4150	—	—	2800 6150	1700 3700
2500 mm 8'2"	kg lb	13 300* 29,300*	9600 21,150	9300* 20,500*	5200 11,450	6700* 14,750*	3300 7250	4900 10,800	2200 4850	—	—	2400* 5250*	1800 3950
2800 mm 9'2"	kg lb	13 200* 29,100*	9500 20,900	9300* 20,500*	5200 11,450	6700* 14,750*	3400 3050	5000 11,000	2200 4850	—	—	2200* 4850*	1700 3700

M318C ● Rear Stabilizer Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Rear	Side	Rear	Side	Rear	Side	Rear	Side	Rear	Side	Rear	Side
2200 mm 7'3"	kg lb	13 900* 30,600*	11 900 26,200	9400* 20,700*	6300 13,850	6500 14,300	4000 8800	4400 9700	2700 5950	—	—	3200* 7050*	2400 5250
2500 mm 8'2"	kg lb	13 300* 29,300*	11 800 26,000	9300* 20,500*	6300 13,850	6400 14,100	4100 9000	4400 9700	2700 5950	—	—	2400* 5250*	2200 4850
2800 mm 9'2"	kg lb	13 200* 29,100*	11 700 25,750	9300* 20,500*	6300 13,850	6400* 14,100	4100 9000	4500 9900	2700 5950	—	—	2200* 4850*	2100 4600

M318C ● 4-Point Stabilizers Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2200 mm 7'3"	kg lb	13 900* 30,600*	13 900* 30,600*	9400* 20,700*	8900* 19,600*	6800* 14,950*	5800 12,750	5100* 11,200*	3900 8550	—	—	3200* 7050*	3200* 7050*
2500 mm 8'2"	kg lb	13 300* 29,300*	13 300* 29,300*	9300* 20,500*	8800* 19,400*	6700* 14,750*	5800 12,750	5200* 11,450*	3900 8550	—	—	2400* 5250*	2400* 5250*
2800 mm 9'2"	kg lb	13 200* 29,100	13 200* 29,100*	9300* 20,500*	8800* 19,400*	6700* 14,750*	5800 12,750	5200* 11,450*	4000 8800	—	—	2200* 4850*	2200* 4850*

M318C ● Dozer and Stabilizer Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2200 mm 7'3"	kg lb	13 900* 30,600*	13 900* 30,600*	9400* 20,700*	7600 16,750	6800* 14,950*	4800 10,550	5100* 11,200*	3300 7250	—	—	3200* 7050*	2900 7250
2500 mm 8'2"	kg lb	13 300* 29,300*	13 300* 29,300*	9300* 20,500*	7500 16,500	6700* 14 750*	4900 10,800	5200* 11,450*	3300 7250	—	—	2400* 5250*	2400* 5250*
2800 mm 9'2"	kg lb	13 200* 29,100	13 200* 29,100*	9300* 20,500*	7500 16,500	6700* 14,750*	4900 10,800	5200* 11,450*	3300 7250	—	—	2200* 4850*	2200* 4850*

*Load limited by hydraulic capacity rather than tipping.

M322C ● Rear Dozer Up

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2200 mm 7'3"	kg lb	—	—	7400 16,300	4600 10,100	4800 10,550	3100 6800	3500 7700	2300 5050	—	—	2600* 5700*	1900 4150
2500 mm 8'2"	kg lb	—	—	7400 16,300	4600 10,100	4800 10,550	3100 6800	3500 7700	2200 4850	—	—	2400* 5250*	1800 3950
2900 mm 9'6"	kg lb	—	—	7300 16,050	4600 10,100	4800 10,550	3100 6800	3400 7450	2200 4850	—	—	2000* 4400*	1600 3500

M322C ● Rear Dozer Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Rear	Side	Rear	Side	Rear	Side	Rear	Side	Rear	Side	Rear	Side
2200 mm 7'3"	kg lb	—	—	10 900* 24,000*	5300 11,650	7900* 17,400*	3600 7900	6100* 13,450*	2600 5700	—	—	2600* 5700*	2100 4600
2500 mm 8'2"	kg lb	—	—	10 900* 24,000*	5300 11,650	7900* 17,400*	3500 7700	6100 13,450	2600 5700	—	—	2400* 5250*	2000 4400
2900 mm 9'6"	kg lb	—	—	10 800* 23,800*	5300 11,650	7800* 17,000*	3500 7700	6000* 13,200*	2500 5500	—	—	2000* 4400*	1900 4150

M322C ● Rear Stabilizer Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Rear	Side	Rear	Side	Rear	Side	Rear	Side	Rear	Side	Rear	Side
2200 mm 7'3"	kg lb	—	—	10 900* 24,000*	6700 14,750	7700 16,950	4400 9700	5400 11,900	3200 7050	—	—	2600* 5700*	2600 5700
2500 mm 8'2"	kg lb	—	—	10 900* 24,000*	6700 14,750	7600 16,750	4400 9700	5400 11,900	3200 7050	—	—	2400* 5250*	2400* 5250*
2900 mm 9'6"	kg lb	—	—	10 800* 23,800*	6700 14,750	7600 16,750	4400 9700	5300 11,650	3200 7050	—	—	2000* 4400*	2000* 4400*

M322C ● 4-Point Stabilizers Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2200 mm 7'3"	kg lb	—	—	10 900* 24,000*	10 700 23,550	7900* 17,400*	6800 14,950	6100* 13,450*	4900 10,800	—	—	2600* 5700*	2600* 5700*
2500 mm 8'2"	kg lb	—	—	10 900* 24,000*	10 700 23,550	7900* 17,400*	6800 14,950	6100* 13,450*	4800 10,550	—	—	2400* 5250*	2400* 5250*
2900 mm 9'6"	kg lb	—	—	10 800* 23,800*	10 700 23,550	7800* 17,150*	6700 14,750	6000* 13,200*	4800 10,550	—	—	2000* 4400*	2000* 4400*

M322C ● Dozer and Stabilizer Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2200 mm 7'3"	kg lb	—	—	10 900* 24,000*	8500 18,700	7900* 17,400*	5500 12,100	6100* 13,450*	4000 8800	—	—	2600* 5700*	2600* 5700*
2500 mm 8'2"	kg lb	—	—	10 900* 24,000*	8500 18,700	7900* 17,400*	5500 12,100	6100* 13,450*	4000 8800	—	—	2400* 5250*	2400* 5250*
2900 mm 9'6"	kg lb	—	—	10 800* 23,800*	8500 18,700	7800* 17,150*	5500 12,100	6000* 13,200*	4000 8800	—	—	2000* 4400*	2000* 4400*

*Load limited by hydraulic capacity rather than tipping.

Excavators

Lifting Capacity At Ground Level

- M322C
- VA Boom
- Quick Coupler

M322C ● Rear Dozer Up

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2200 mm 7'3"	kg lb	15 100* 33,250*	10 000 22,050	8300 18,300	5500 12,100	5500 12,100	3600 7900	3600 7900	2400 5250	—	—	2500* 5500*	1900 4150
2500 mm 8'2"	kg lb	15 400* 33,950*	10 100 22,250	8200 18,050	5600 12,300	5500 12,100	3700 8150	3600 7900	2400 5250	—	—	2300* 5050*	1800 3950
2900 mm 9'6"	kg lb	14 200* 31,300*	10 300 22,700	8200 18,050	5600 12,300	5400 11,900	3700 8150	3700 8150	2400 5250	—	—	2000* 4400*	1600 3500

M322C ● Rear Dozer Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Rear	Side	Rear	Side	Rear	Side	Rear	Side	Rear	Side	Rear	Side
2200 mm 7'3"	kg lb	15 100* 33,250*	11 700 25,750	10 900* 24,000*	6300 13,850	7800* 17,150*	4100 9000	6100* 13,450*	2700 5950	—	—	2500* 5500*	2200 4850
2500 mm 8'2"	kg lb	15 400* 33,950*	11 800 26,000	10 800* 23,800*	6300 13,850	7800* 17,150*	4100 9000	6100* 13,450*	2700 5950	—	—	2300* 5050*	2100 4600
2900 mm 9'6"	kg lb	14 200* 31,300*	11 600 25,550	10 800* 23,800*	6400 14,100	7700* 16,950*	4100 9000	6000* 13,200*	2700 5950	—	—	2000* 4400*	1900 4150

M322C ● Rear Stabilizer Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Rear	Side	Rear	Side	Rear	Side	Rear	Side	Rear	Side	Rear	Side
2200 mm 7'3"	kg lb	15 100* 33,250*	14 800 32,600	10 900* 24,000*	7700 16,950	7800 17,150	5000 11,000	5500 12,100	3300 7250	—	—	2500* 5500*	2500* 5500*
2500 mm 8'2"	kg lb	15 400* 33,950*	14 600 32,150	10 800* 23,800*	7600 16,750	7800* 17,150*	5000 11,000	5500* 12,100*	3300 7250	—	—	2300* 5050*	2300* 5050*
2900 mm 9'6"	kg lb	14 200* 31,300*	14 200* 31,300*	10 800* 23,800*	7500 16,500	7700* 16,950*	5000 11,000	5600 12,300	3400 7450	—	—	2000* 4400*	2000* 4400*

M322C ● 4-Point Stabilizers Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2200 mm 7'3"	kg lb	15 100* 33,250*	15 100* 33,250*	10 900* 24,000*	10 900* 24,000*	7800* 17,150*	7200* 15,850*	6100* 13,450*	5000 11,000	—	—	2500* 5500*	2500* 5500*
2500 mm 8'2"	kg lb	15 400* 33,950*	15 400* 33,950*	10 800* 23,800*	10 800* 23,800*	7800* 17,150*	7200 15,850*	6100* 13,450*	5000 11,000	—	—	2300* 5050*	2300* 5050*
2900 mm 9'6"	kg lb	14 200* 31,300*	14 200* 31,300*	10 800* 23,800*	10 800* 23,800*	7700* 16,950*	7100* 15,650*	6000* 13,200*	5000 11,000	—	—	2000* 4400*	2000* 4400*

M322C ● Dozer and Stabilizer Down

Stick		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2200 mm 7'3"	kg lb	15 100* 33,250*	15 100* 33,250*	10 900* 24,000*	9300 20,500	7800* 17,150*	6200 13,650	6100* 13,450*	4100 9000	—	—	2500* 5500*	2500* 5500*
2500 mm 8'2"	kg lb	15 400* 33,950*	15 400* 33,950*	10 800* 23,800*	9300 20,500	7800* 17,150*	6100 13,450	6100* 13,450*	4100 9000	—	—	2300* 5050*	2300* 5050*
2900 mm 9'6"	kg lb	14 200* 31,300*	14 200* 31,300*	10 800* 23,800*	9200 20,250	7700* 16,950*	6000 13,200	6000* 13,200*	4200 9250	—	—	2000* 4400*	2000* 4400*

*Load limited by hydraulic capacity rather than tipping.

Japan Sourced

320C ● Reach Boom ● 600 mm (24") Track Shoes

Stick	Bucket		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
1900 mm 6'3"	C1370X 4'6"	kg lb	8050 17,250	4650 10,050	5050 10,850	3050 6500	—	—	—	—	—	—	3100 6800	1800 3950
2500 mm 8'2"	B1220X 4'0"	kg lb	8550 18,300	5150 11,050	5400 11,650	3350 7250	3850 8200	2400 5100	—	—	—	—	3000 6550	1850 4050
2900 mm 9'6"	B1100X 3'7"	kg lb	5450* 12,500*	5450* 12,500*	8650 18,500	5200 11,200	5450 11,700	3400 7300	3850 8250	2400 5150	—	—	2400* 5300*	1700 3750
3900 mm 12'10"	B1100X 3'7"	kg lb	6750* 15,500*	6750* 15,500*	8600 18,450	5200 11,100	5400 11,550	3350 7150	3750 8050	2300 4950	2750 5900	1650 3500	1950* 4250*	1350 2950

320C ● Mass Boom ● 600 mm (24") Track Shoes

Stick	Bucket		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2400 mm 7'10"	C1370X 4'6"	kg lb	7700* 17,800*	7700* 17,800*	8450 18,100	5000 10,750	5250 11,250	3200 6800	—	—	—	—	3150 6900	1850 4100

320C U ● Reach Boom

Stick	Bucket		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2500 mm 8'2"	B1220X 4'0"	kg lb	—	—	9350 20,050	5600 12,050	5950 12,750	3700 7900	4250 9050	2600 5600	—	—	3150* 6900*	2050 4450
2900 mm 9'6"	B1100X 3'7"	kg lb	5450* 12,500*	5450* 12,500*	9450 20,250	5650 12,200	6000 12,850	3700 8000	4250 9100	2650 5650	—	—	2400* 5300*	1900 4150
3900 mm 12'10"	B1100X 3'7"	kg lb	6750* 15,500*	6750* 15,500*	9000* 19,400*	5650 12,100	5950 12,700	3650 7800	4150 8900	2550 5450	3100 6600	1850 3900	1950* 4250*	1500 3300

320C L ● Reach Boom ● 800 mm (32") Track Shoes

Stick	Bucket		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
1900 mm 6'3"	C1470X 4'10"	kg lb	—	—	9500* 20,550*	5550 11,950	6400 13,700	3600 7700	—	—	—	—	3900 8550	2150 4750
2500 mm 8'2"	B1280X 4'2"	kg lb	—	—	9900* 21,400*	6050 12,950*	6750 14,450	3950 8450	4750 10,150	2800 6000	—	—	3100* 6850*	2150 4750
2900 mm 9'6"	B1220X 4'0"	kg lb	5400* 12,450*	5400* 12,450*	9750* 21,100*	6100 13,100	6800 14,550	4000 8550	4750 10,200	2800 6000	—	—	2400* 5250*	2000 4450
3900 mm 12'10"	B1100X 3'7"	kg lb	6750* 15,500*	6750* 15,500*	9000* 19,400*	6100 13,100	6450* 13,900*	3950 8400	4700 10,050	2750 5850	3500 7300*	2000 4250	1950* 4250*	1650 3600

320C L ● Mass Boom ● 800 mm (32") Track Shoes

Stick	Bucket		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2400 mm 7'10"	C1470X 4'10"	kg lb	7650* 17,700*	7650* 17,700*	9650* 20,850*	5900 12,650	6600 14,100	3750 8050	—	—	—	—	3950 8700	2250 4900

321C LCR ● Reach Boom

Stick	Bucket		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2900 mm 9'6"	B1082HD 3'7"	kg lb	6000* 13,750*	6000* 13,750*	11 000* 23,800*	6250 13,450	7200 15,400	4100 8750	5050 10,850	2900 6200	—	—	2450* 5400*	2150 4700

*Load limited by hydraulic capacity rather than tipping.

Excavators

Lifting Capacity At Ground Level

- 320C LU
- 320C Belgium Sourced

320C LU ● Reach Boom

Stick	Bucket	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2500 mm 8'2"	B1280X 4'2"	kg 21,400*	6550 14,100	kg 15,350*	4300 9200	kg 11,200	3050 6550	—	—	—	—	kg 3100*	2400 5250
2900 mm 9'6"	B1220X 4'0"	kg 12,450*	5400* 12,450*	kg 21,100*	6650 14,250	kg 15,150*	4350 9300	5250 11,200	3100 6600	—	—	kg 2400*	2250 4900
3900 mm 12'10"	B1100X 3'7"	kg 15,500*	6750* 15,500*	kg 19,400*	6600 14,200	kg 13,900*	4300 9200	5100* 11,050*	3000 6450	3850 7300*	2200 4700	kg 1950*	1850 4000

Belgium Sourced

320C ● Reach Boom ● 600 mm (24") Track Shoes

Stick	Bucket	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
1.9 m 6'3"	0.95 m ³ 1.24 yd ³	kg —	—	kg 18,900	5080 11,200	kg 11,900	3290 7200	—	—	—	—	kg 3240*	1950 4250
2.5 m 8'2"	1.05 m ³ 1.37 yd ³	kg —	—	kg 19,650	5390 11,850	kg 12,350	3490 7650	3930 8650	2430 5350	—	—	kg 2920*	1840 4050
2.9 m 9'6"	0.8 m ³ 1.04 yd ³	kg 11,550*	5260* 11,550*	kg 19,800	5440 11,950	kg 12,400	3520 7750	3960 8700	2460 5400	—	—	kg 2240*	1720 3750

320C ● Mass Boom ● 600 mm (24") Track Shoes

Stick	Bucket	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
1.9 m 6'3"	0.95 m ³ 1.24 yd ³	kg —	—	kg 19,500	5310 11,700	kg 12,250	3430 7550	—	—	—	—	kg 3670	2250 4950
2.4 m 7'10"	0.95 m ³ 1.24 yd ³	kg 7700*	7700* 16,950*	kg 19,600	5350 11,750	kg 12,250	3430 7550	—	—	—	—	kg 3300	2000 4400
2.9 m 9'6"	0.8 m ³ 1.05 yd ³	kg 19,300	8760 19,300	kg 20,050	5540 12,200	kg 12,500	3550 7800	3960 8700	2450 5400	—	—	kg 2880	1910 4200

320C ● VA Boom ● 600 mm (24") Track Shoes

Stick	Bucket	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
1.9 m 6'3"	0.95 m ³ 1.24 yd ³	kg —	—	kg 19,000	5030 11,050	kg 11,950	3250 7150	—	—	—	—	kg 3300*	1980 4350
2.4 m 7'10"	0.95 m ³ 1.24 yd ³	kg —	—	kg 19,050	5070 11,150	kg 11,950	3250 7150	3780 8300	2240 4900	—	—	kg 3000	1750 3850
2.9 m 9'6"	0.8 m ³ 1.05 yd ³	kg 12,600*	5720* 12,600*	kg 19,400	5220 11,500	kg 12,150	3340 7350	3840 8450	2300 5050	—	—	kg 2720*	1650 3600

*Load limited by hydraulic capacity rather than tipping.

Belgium Sourced

320C L ● Reach Boom ● 600 mm (24") Track Shoes

Stick	Bucket	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	
1.9 m 6'3"	0.95 m ³ 1.24 yd ³	kg lb	—	—	9500* 20,900*	5820 12,800	6570 14,450	3770 8300	—	—	—	—	3920 8600	2250 4950
2.5 m 8'2"	1.05 m ³ 1.37 yd ³	kg lb	—	—	9700* 21,350*	6140 13,500	6770 14,900	3960 8700	4720 10,400	2770 6100	—	—	2920* 6400*	2110 4650
2.9 m 9'6"	0.8 m ³ 1.04 yd ³	kg lb	5260* 11,550*	5260* 11,550*	9550* 21,050*	6190 13,600	6800* 14,950*	4000 8800	4750 10,450	2800 6150	—	—	2240* 4900*	1970 4300

320C L ● Mass Boom ● 600 mm (24") Track Shoes

Stick	Bucket	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	
1.9 m 6'3"	0.95 m ³ 1.24 yd ³	kg lb	—	—	9690* 21,350*	6060 13,350	6730 14,800	3900 8550	—	—	—	—	4420 9700	2580 5650
2.4 m 7'10"	0.95 m ³ 1.24 yd ³	kg lb	7700*	7700*	9580* 21,100*	6100 13,450	6730 14,800	3910 8600	—	—	—	—	3840* 8450*	2300 5050
2.9 m 9'6"	0.8 m ³ 1.05 yd ³	kg lb	8760 19,300	8760 19,300	9490 20,900	6300 13,850	6820 15,000	4030 8850	4760 10,450	2800 6150	—	—	2880 6350	2190 4800

320C L ● VA Boom ● 600 mm (24") Track Shoes

Stick	Bucket	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	
1.9 m 6'3"	0.95 m ³ 1.24 yd ³	kg lb	—	—	8620* 19,000*	5790 12,750	6360* 14,000*	3730 8200	—	—	—	—	3300* 7250*	2290 5000
2.4 m 7'10"	0.95 m ³ 1.24 yd ³	kg lb	—	—	9040* 19,900*	5830 12,850	6570* 14,450*	3730 8200	4590 10,100	2590 5700	—	—	3230* 7100*	2040 4450
2.9 m 9'6"	0.8 m ³ 1.04 yd ³	kg lb	5720* 12,600*	5720* 12,600*	9410* 20,700*	5980 13,150	6700 14,750	3830 8400	4660 10,250	2650 5800	—	—	2720* 5950*	1920 4200

320C LN ● Reach Boom ● 500 mm (20") Track Shoes

Stick	Bucket	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	
1.9 m 6'3"	0.95 m ³ 1.24 yd ³	kg lb	—	—	9500* 20,900*	4730 10,400	6700 14,750	3090 6800	—	—	—	—	4000 8900	1830 4000
2.5 m 8'2"	1.05 m ³ 1.37 yd ³	kg lb	—	—	9700* 21,350*	5040 11,100	6900 15,200	3280 7200	4820 10,600	2290 5000	—	—	2920* 6400	1730 3800
2.9 m 9'6"	0.8 m ³ 1.04 yd ³	kg lb	5260* 11,550*	5260* 11,550*	9550* 21,050*	5090 11,200	6800* 14,950*	3310 7250	4850 10,650	2310 5050	—	—	2240* 4900*	1620 3550

320C LN ● Mass Boom ● 500 mm (20") Track Shoes

Stick	Bucket	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	
1.9 m 6'3"	0.95 m ³ 1.24 yd ³	kg lb	—	—	9690* 21,350*	4950 10,900	6860 15,100	3220 7100	—	—	—	—	4510 9900	2110 4650
2.4 m 7'10"	0.95 m ³ 1.24 yd ³	kg lb	7700* 16,950*	7700* 16,950*	9580* 21,100*	4990 11,000	6860 15,100	3220 7100	—	—	—	—	3840* 8450*	1880 4100
2.9 m 9'6"	0.8 m ³ 1.05 yd ³	kg lb	8760 19,300	8760 19,300	9490 20,900	5180 11,400	6820 15,000	3340 7350	4850 10,650	2310 5050	—	—	2880 6350	1790 3900

*Load limited by hydraulic capacity rather than tipping.

Belgium Sourced

320C LN ● VA Boom ● 500 mm (20") Track Shoes

Stick	Bucket	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	
1.9 m 6'3"	0.95 m ³ 1.24 yd ³	kg lb	—	—	8620* 19,000*	4670 10,250	6360* 14,000*	3030 6650	—	—	—	—	3300* 7250*	1850 4050
2.4 m 7'10"	0.95 m ³ 1.24 yd ³	kg lb	—	—	9040* 19,900*	4700 10,350	6570* 14,450*	3030 6650	4690 10,300	2090 4600	—	—	3230* 7100*	1630 3550
2.92 m** 9'6"	0.8 m ³ 1.04 yd ³	kg lb	5720* 12,600*	5720* 12,600*	9410* 20,700*	4620 10,150	6610 14,550	2970 6500	4580 10,050	2030 4450	—	—	2720* 5950*	1440 3150

320C S ● Reach Boom ● 550 mm (22") Track Shoes

Stick	Bucket	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	
1.9 m 6'3"	0.95 m ³ 1.24 yd ³	kg lb	—	—	9500* 20,900*	4820 10,600	6690 14,750	3160 6950	—	—	—	—	4050 8900	1900 4150
2.5 m 8'2"	1.05 m ³ 1.37 yd ³	kg lb	—	—	9710* 21,400*	5120 11,250	6880 15,150	3350 7350	4840 10,650	2350 5150	—	—	2940* 6450*	1790 3900
2.9 m 9'6"	0.8 m ³ 1.05 yd ³	kg lb	5410* 11,900*	5410* 11,900*	9580* 21,100*	5170 11,350	6830* 15,050*	3380 7450	4870 10,700	2380 5200	—	—	2260* 4950*	1680 3700

320C S ● Mass Boom ● 550 mm (22") Track Shoes

Stick	Bucket	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	
1.9 m 6'3"	0.95 m ³ 1.24 yd ³	kg lb	—	—	9690* 21,350*	5040 11,100	6840 15,050	3290 7250	—	—	—	—	4560 10,050	2190 4800
2.4 m 7'10"	0.95 m ³ 1.24 yd ³	kg lb	7940* 17,500*	7940* 17,500*	9600* 21,150*	5070 11,150	6840 15,050	3290 7250	—	—	—	—	3870* 8500*	1950 4250

320C S ● VA Boom ● 550 mm (22") Track Shoes

Stick	Bucket	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	
1.9 m 6'3"	0.95 m ³ 1.24 yd ³	kg lb	—	—	8550* 18,850*	4750 10,450	6310* 13,900*	3100 6800	—	—	—	—	3260* 7150*	1910 4200
2.4 m 7'10"	0.95 m ³ 1.24 yd ³	kg lb	—	—	8990* 19,800*	4780 10,500	6540* 14,400*	3100 6800	4660* 10,250*	2150 4700	—	—	3190* 7000*	1700 3700
2.92 m 9'6"	0.8 m ³ 1.05 yd ³	kg lb	5880* 12,950*	5880* 12,950*	9390* 20,700*	4930 10,850	6770* 14,900*	3200 7050	4770 10,500	2220 4850	—	—	2740 6000	1600 3500

*Load limited by hydraulic capacity rather than tipping.

Japan/U.S. Sourced

322C ● Reach Boom ● 600 mm (24") Track Shoes

Stick	Bucket	kg lb	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2500 mm 8'2"	S1355X 4'5"	kg lb	—	—	10 650 22,800	6550 14,100	6650 14,300	4250 9150	4700 10,050	3000 6400	—	—	3500 7700	2200 4850
2950 mm 9'8"	S1225X 4'1"	kg lb	5150*	5150*	10 750 23,050	6650 14,300	6700 14,400	4300 9250	4700 10,100	3050 6450	—	—	3250 7150	2050 4500
3600 mm 11'10"	B1220X 4'0"	kg lb	6000*	6000*	10 900 23,300	6750 14,550	6800 14,600	4400 9400	4800 10,250	3100 6600	3550 7600	2250 4850	3000 6650	1900 4200

322C ● Mass Boom ● 600 mm (24") Track Shoes

Stick	Bucket	kg lb	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2500 mm 8'2"	D1345X 4'5"	kg lb	—	—	10 500 22,500	6400 13,700	6450 13,800	4000 8550	4400 9400	2700 5750	—	—	3600 7950	2200 4800

322C L ● Reach Boom ● 800 mm (32") Track Shoes

Stick	Bucket	kg lb	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2500 mm 8'2"	S1315X 4'4"	kg lb	—	—	12 100* 26,150*	7700 16,550	8200 17,600	5000 10,700	5750 12,300	3500 7550	—	—	4300 9450	2600 5750
2950 mm 9'8"	S1355X 4'5"	kg lb	5150*	5150*	11 950* 25,850*	7800 16,750	8250 17,700	5000 10,800	5750 12,350	3550 7600	—	—	3700* 8150*	2400 5300
3600 mm 11'10"	B1220X 4'0"	kg lb	6000*	6000*	11 650* 25,200*	7950 17,050	8350* 17,950	5150 11,000	5850 12,550	3650 7750	4350 9350	2700 5750	3150* 6950*	2300 5000

322C L ● Mass Boom ● 800 mm (32") Track Shoes

Stick	Bucket	kg lb	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2500 mm 8'2"	D1430X 4'8"	kg lb	—	—	11 700* 25,250*	7550 16,150	8000 17,100	4750 10,150	5450 11,700	3250 6900	—	—	4300* 9500*	2650 5750

Belgium Sourced

322C L ● Reach Boom ● 800 mm (32") Track Shoes

Stick	Bucket	kg lb	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2000 mm 6'6"	1.5 m ³ 1.37 yd ³	kg lb	—	—	11 390* 25,100*	7430 16,250	8010 17,600	4740 10,350	5550 12,150	3290 7150	—	—	4340 9500	2550 5550
2500 mm 8'2"	1.25 m ³ 1.63 yd ³	kg lb	—	—	11 920 26,250*	7990 17,450	8420 18,450	5140 11,200	5870 12,850	3620 7900	—	—	4310 9400	2640 5750
2950 mm 9'8"	1.25 m ³ 1.63 yd ³	kg lb	4990*	4990*	11 780* 25,950*	8070 17,650	8360* 18,400	5170 11,300	5880 12,850	3630 7900	—	—	3510* 7650*	2420 5250
2950 mm 9'8" HD	1.25 m ³ 1.63 yd ³	kg lb	4950*	4950*	11 620* 25,600*	7910 17,300	8230* 18,100	5060 11,000	5780 12,700	3530 7650	—	—	3470* 7650*	2350 5050

*Load limited by hydraulic capacity rather than tipping.

Belgium Sourced

322C L ● Mass Boom ● 800 mm (32") Track Shoes

Stick	Bucket	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2000 mm 6'7"	1.5 m ³ 1.96 yd ³ kg lb	—	—	11 630* 25,600*	7760 16,950	8230 18,050	4920 10,750	—	—	—	—	5030 11,050	3010 6550
2500 mm 8'2"	1.5 m ³ 1.96 yd ³ kg lb	—	—	11 510* 25,350*	7810 17,050	8190* 18,050	4910 10,700	5620 12,300	3350 7300	—	—	4120* 9050*	2670 5800

322C L ● VA Boom ● 800 mm (32") Track Shoes

Stick	Bucket	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2000 mm 6'7"	1.5 m ³ 1.96 yd ³ kg lb	—	—	10 150*	7420	7580*	4720	5260*	3270	—	—	3570*	2610
2500 mm 8'2"	1.5 m ³ 1.96 yd ³ kg lb	—	—	10 740*	7470	7820*	4710	5400*	3220	—	—	3460*	2300

322C LN ● Reach Boom ● 600 mm (24") Track Shoes

Stick	Bucket	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2000 mm 6'7"	1.5 m ³ 1.96 yd ³ kg lb	—	—	11 390* 25,100*	6420 14,000	7790 17,100	4110 8950	5390 11,800	2840 6150	—	—	4210 9200	2180 4750
2500 mm 8'2"	1.25 m ³ 1.63 yd ³ kg lb	—	—	11 920* 26,250*	6980 15,250	8200 18,000	4510 9850	5710 12,500	3170 6900	—	—	4180 9150	2290 5000
2950 mm 9'8"	0.95 m ³ 1.24 yd ³ kg lb	5070* 11,150*	5070* 11,150*	11 840* 26,100*	7110 15,500	8290 18,150	4600 10,000	5770 12,650	3230 7030	—	—	3570* 7800*	2160 4650
2950 mm 9'8" HD	0.95 m ³ 1.24 yd ³ kg lb	5030* 11,050*	5030* 11,050*	11 680* 25,750	6960 15,200	8170 17,900	4480 9750	5680 12,450	3130 6800	—	—	3540* 7750*	2080 4500

322C LN ● Mass Boom ● 600 mm (24") Track Shoes

Stick	Bucket	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2000 mm 6'7"	1.5 m ³ 1.96 yd ³ kg lb	—	—	11 630* 25,600*	6740 14,700	8010 17,550	4290 9350	—	—	—	—	4880 10,700	2600 5650
2500 mm 8'2"	1.5 m ³ 1.96 yd ³ kg lb	—	—	11 510* 25,350*	6790 14,800	8000 17,550	4270 9300	5460 11,950	2890 6300	—	—	4120* 9050*	2290 4950

322C LN ● VA Boom ● 600 mm (24") Track Shoes

Stick	Bucket	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2000 mm 6'7"	1.5 m ³ 1.96 yd ³ kg lb	—	—	10 150*	6400	7580*	4080	5260*	2800	—	—	3570*	2230
2500 mm 8'2"	1.5 m ³ 1.96 yd ³ kg lb	—	—	10 740*	6440	7820*	4070	5370	2760	—	—	3460*	1940

*Load limited by hydraulic capacity rather than tipping.

Japan/U.S. Sourced

325C ● Reach Boom ● 600 mm (24") Track Shoes

Stick	Bucket	kg lb	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2000 mm 6'7"	D1430X 4'8"	kg lb	—	—	12 500 26,800	7700 16,500	7800 16,800	5000 10,700	5500 11,800	3550 7550	—	—	4200 9250	2650 5850
2650 mm 8'8"	C1470X 4'10"	kg lb	—	—	13 000 27,850	8150 17,500	8150 17,500	5300 11,400	5750 12,350	3800 8100	—	—	4000 8850	2600 5750
3000 mm 9'10"	C1370X 4'6"	kg lb	—	—	13 050 27,900	8150 17,550	8150 17,550	5350 11,450	5750 12,350	3800 8100	4300 9450	2800 6150	3700 8200	2450 5400
3200 mm 10'6"	C1370X 4'6"	kg lb	4600 10,650	4600 10,650	13 050 27,950	8200 17,600	8150 17,550	5350 11,450	5750 12,350	3800 8100	4300 9200	2800 5950	3450 7600	2350 5150

325C ● Mass Boom ● 600 mm (24") Track Shoes

Stick	Bucket	kg lb	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2500 mm 8'2"	D1500X 4'11"	kg lb	—	—	13 000 27,850	8100 17,350	8050 17,250	5200 11,100	5600 12,000	3600 7700	—	—	4400 9650	2800 6150

*Load limited by hydraulic capacity rather than tipping.

Belgium Sourced

325C L ● Reach Boom ● 800 mm (32") Track Shoes

Stick	Bucket	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	
2000 mm 6'7"	1.7 m ³ 2.22 yd ³	kg lb	—	—	14 700* 32,400*	8780 19,350	9190 20,250	5620 12,350	6390 14,050	3930 8650	—	—	4760 10,450	2900 6350
2650 mm 8'8"	1.35 m ³ 1.77 yd ³	kg lb	—	—	15 450* 34,050*	9390 20,700	9650 21,250	6080 13,400	6770 14,900	4310 9500	—	—	4110* 9050*	2920 6400
3200 mm 10'6"	1.35 m ³ 1.77 yd ³	kg lb	4440* 9750*	4440* 9750*	15 160* 33,400*	9430 20,750	9660 21,300	6070 13,350	6740 14,850	4280 9400	5010 11,000	3150 6900	3240* 7100*	2610 5750
3200 mm 10'6" HD	1.35 m ³ 1.77 yd ³	kg lb	4410* 9700*	4410* 9700*	15 060* 33,200*	9340 20,550	9580 21,100	6000 13,200	6680 14,700	4220 9300	4950 10,900	3090 6800	3210* 7050*	2570 5650

325C L ● Mass Boom ● 800 mm (32") Track Shoes

Stick	Bucket	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	
2000 mm 6'7"	1.7 m ³ 2.22 yd ³	kg lb	—	—	15 200* 33,500*	9210 20,300	9480 20,900	5880 12,950	—	—	—	—	5560 12,250	3460 7600
2500 mm 8'2"	1.7 m ³ 2.22 yd ³	kg lb	—	—	15 140* 33,350*	9250 20,350	9470 20,850	5860 12,900	6510 14,350	4040 8900	—	—	4680* 10,300*	3080 6750

325C L ● VA Boom ● 800 mm (32") Track Shoes

Stick	Bucket	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	
2000 mm 6'7"	1.7 m ³ 2.22 yd ³	kg lb	—	—	12 780* 28,150*	8650 19,050	9160 20,150	5520 12,150	6360 14,000	3840 8450	—	—	4670* 10,250*	2960 6500
2500 mm 8'2"	1.7 m ³ 2.22 yd ³	kg lb	—	—	13 650* 30,050*	8680 19,100	9150 20,150	5500 12,100	6310 13,900	3790 8350	—	—	4390* 9650*	2620 5750

Japan/U.S. Sourced

325C L ● Reach Boom ● 800 mm (32") Track Shoes

Stick	Bucket	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	
2000 mm 6'7"	D1520MX 5'0"	kg lb	—	—	14 900 32,800	9100 19,550	9400 20,200	5850 12,600	6600 14,100	4150 8850	—	—	5050 11,050	3150 6900
2650 mm 8'8"	C1440MX 4'9"	kg lb	—	—	15 700 33,900	9600 20,600	9750 21,000	6250 13,400	6900 14,750	4450 9550	—	—	4350 9550	3100 6800
3000 mm 9'10"	C1470X 4'10"	kg lb	—	—	15 600 33,700	9600 20,650	9800 21,000	6250 13,400	6850 14,750	4450 9500	5150 11,300	3300 7250	3700 8150	2900 6400
3200 mm 10'6"	C1470X 4'10"	kg lb	4600 10,600	4600 10,600	15 450 33,400	9650 20,700	9800 21,000	6250 13,400	6850 14,750	4450 9500	5150 11,000	3300 7050	3450 7550	2800 6150

325C L ● Mass Boom ● 800 mm (32") Track Shoes

Stick	Bucket	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	
2500 mm 8'2"	D1520MX 5'0"	kg lb	—	—	15 500 33,550	9550 20,500	9650 20,750	6100 13,050	6700 14,350	4250 9100	—	—	4950 10,900	3350 7300

*Load limited by hydraulic capacity rather than tipping.

Belgium Sourced

325C LN ● Reach Boom ● 600 mm (24") Track Shoes

Stick	Bucket	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	
2000 mm 6'7"	1.7 m ³ 2.22 yd ³	kg lb	—	—	14 400 31,750	7490 16,500	8800 19,400	4810 10,600	6100 13,450	3340 7350	—	—	4530 9950	2430 5350
2650 mm 8'8"	1.35 m ³ 1.77 yd ³	kg lb	—	—	15 050 33,150	8100 17,850	9260 20,400	5260 11,550	6480 14,250	3720 8200	—	—	4110* 9050*	2500 5500
3200 mm 10'6"	1.35 m ³ 1.77 yd ³	kg lb	4440* 9790*	4440* 9790*	15 110 33,300	8130 17,900	9260 20,400	5260 11,550	6450 14,200	3690 8100	4780 10,500	2690 5900	3240* 7100*	2220 4850
3200 mm 10'6" HD	1.35 m ³ 1.77 yd ³	kg lb	4410* 9700*	4410* 9700*	15 010 33,050	8040 17,700	9190 20,250	5190 11,400	6390 14,050	3630 8000	4730 10,400	2630 5750	3210* 7050*	2170 4750

325C LN ● Mass Boom ● 600 mm (24") Track Shoes

Stick	Bucket	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	
2000 mm 6'7"	1.7 m ³ 2.22 yd ³	kg lb	—	—	14 930* 32,900*	7910 17,400	9090 20,000	5060 11,150	—	—	—	—	5310 11,700	2940 6450
2500 mm 8'2"	1.7 m ³ 2.22 yd ³	kg lb	—	—	14 990 33,050	7940 17,500	9070 19,950	5040 11,100	6230 13,700	3440 7550	—	—	4680* 10,300*	2600 5700

325C LN ● VA Boom ● 600 mm (24") Track Shoes

Stick	Bucket	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	
2000 mm 6'7"	1.7 m ³ 2.22 yd ³	kg lb	—	—	12 780* 28,150*	7210 15,850	8650 19,050	4600 10,100	5980 13,150	3170 6950	—	—	4630 10,200	2420 5300
2500 mm 8'2"	1.7 m ³ 2.22 yd ³	kg lb	—	—	13 650* 30,050*	7370 16,250	8760 19,300	4670 10,250	6020 13,250	3190 7000	—	—	4230 9300	2170 4750

Japan/U.S. Sourced

330C ● Reach Boom ● 600 mm (24") Track Shoes

Stick	Bucket	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	
2150 mm 7'1"	E1470X 4'10"	kg lb	—	—	16 250 34,800	10 450 22,450	10 100 21,700	6750 14,500	7100 15,250	4750 10,200	—	—	5000 11,000	3300 7300
2800 mm 9'2"	D1500X 4'11"	kg lb	—	—	16 850 36,150	11 050 23,700	10 500 22,550	7150 15,300	7400 15,850	5050 10,850	5500 11,800	3750 8000	4700 10,300	3150 6950
3200 mm 10'6"	D1430X 4'8"	kg lb	13,850	13,850	16 850 36,100	11 000 23,650	10 500 22,550	7100 15,300	7400 15,850	5050 10,800	5500 11,800	3750 8000	4450 9750	3000 6650
3900 mm 12'10"	D1345X 4'5"	kg lb	6750 15,400	6750 15,400	16 900 36,550	11 200 24,050	10 600 22,750	7200 15,500	7400 15,900	5100 10,900	5500 11,800	3750 7950	3600 7850	2600 5700

330C ● Mass Boom ● 600 mm (24") Track Shoes

Stick	Bucket	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	
2550 mm 8'4"	E1470X 4'10"	kg lb	—	—	16 750 35,900	10 900 23,450	10 350 22,250	7000 15,000	7250 15,500	4900 10,500	—	—	4950 10,900	3300 7250

*Load limited by hydraulic capacity rather than tipping.

Japan/U.S. Sourced

330C L ● Reach Boom ● 750 mm (30") Track Shoes

Stick	Bucket		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2150 mm 7'1"	E1470X 4'10"	kg lb	—	—	16 800 36,450	10 950 23,500	12 300 26,600	7050 15,200	8800 18,900	5000 10,750	—	—	6200 13,650	3500 7700
2800 mm 9'2"	D1520WX 5'0"	kg lb	—	—	17 500 37,850	11 500 24,700	12 550 27,100	7450 15,950	9050 19,400	5250 11,300	6750 14,450	3900 8350	5550 12,200	3300 7250
3200 mm 10'6"	D1500X 4'11"	kg lb	13,750	13,750	17 300 37,400	11 450 24,600	12 300 26,650	7400 15,900	9050 19,400	5250 11,250	6750 14,450	3900 8300	4650 10,250	3100 6850
3900 mm 12'10"	D1345X 4'5"	kg lb	6750 15,400	6750 15,400	16 900 36,550	11 650 25,100	11 950 25,850	7550 16,200	9100 19,550	5300 11,400	6800 14,550	3900 8400	3600 7850	2750 6050

330C L ● Mass Boom ● 750 mm (30") Track Shoes

Stick	Bucket		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2550 mm 8'4"	E1560X 5'1"	kg lb	—	—	17 300 37,450	11 350 24,350	12 400 26,850	7250 15,600	8900 19,050	5100 10,900	—	—	4900 10,800	3450 7550

Belgium Sourced

330C L ● Reach Boom ● 750 mm (30") Track Shoes

Stick	Bucket		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2150 mm 7'1"	1.9 m ³ 2.4 yd ³	kg lb	—	—	16 430* 36,200*	11 020 24,250	11 990* 26,400*	7090 15,600	8770 19,300	5000 11,000	—	—	6090 13,400	3430 7550
2800 mm 9'2"	1.5 m ³ 1.96 yd ³	kg lb	—	—	17 330* 38,200*	11 650 25,650	12 370* 27,250*	7560 16,650	9150 20,150	5380 11,850	6850 15,100	4010 8800	5420* 11,950*	3340 7350
3200 mm 10'5"	1.45 m ³ 1.89 yd ³	kg lb	—	—	17 130* 37,750*	11 710 25,800	12 200* 26,900*	7590 16,700	9160 20,150	5390 11,850	6840 15,050	4000 8820	4540* 10,000*	3160 6950
3900 mm 12'10"	1.3 m ³ 1.7 yd ³	kg lb	6720* 14,800*	6720* 14,800*	16 690* 36,800*	11 870 26,150	11 790* 25,950*	7660 16,850	9130* 20,100*	5410 11,900	6830 15,050	3990 8750	3450* 7600*	2760 6050

330C L ● Mass Boom ● 750 mm (30") Track Shoes

Stick	Bucket		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2150 mm 7'1"	1.9 m ³ 2.4 yd ³	kg lb	—	—	16 770* 36,950*	11 340 25,000	12 180* 26,850*	7290 16,050	8910 19,600	5120 11,250	—	—	6550 14,400	3740 8200
2550 mm 8'4"	1.9 m ³ 2.4 yd ³	kg lb	—	—	16 910* 37,250*	11 440 25,200	12 120* 26,700*	7320 16,100	8910 19,600	5120 11,250	—	—	4820* 10,600*	3410 7500

*Load limited by hydraulic capacity rather than tipping.

Belgium Sourced

330C LN ● Reach Boom ● 600 mm (24") Track Shoes

Stick	Bucket	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	
2150 mm 7'1"	1.9 m ³ 2.4 yd ³	kg lb	—	—	16 430* 36,200*	9650 21,250	11 990* 26,400*	6240 13,750	8590 18,900	4390 9650	—	—	5960 13,100	2980 6550
2800 mm 9'2"	1.5 m ³ 1.96 yd ³	kg lb	—	—	17 230* 37,950*	10 280 22,650	12 370* 27,250*	6710 14,750	8970 19,750	4780 10,500	6700 14,750	3540 7600	5420* 11,950*	2940 6450
3200 mm 10'5"	1.45 m ³ 1.89 yd ³	kg lb	—	—	17 130* 37,750*	10 330 22,750	12 200* 26,900*	6740 14,850	8980 19,800	4780 10,500	6690 14,750	3530 7750	4540* 10,000*	2770 6100
3900 mm 12'10"	1.3 m ³ 1.7 yd ³	kg lb	6720* 14,800*	6720* 14,800*	16 690* 36,800*	10 480 23,100	11 790* 25,950*	6810 15,000	9010 19,850	4800 10,550	6690 14,750	3520 7750	3450* 7600*	2400 5250

330C LN ● Mass Boom ● 600 mm (24") Track Shoes

Stick	Bucket	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	
2150 mm 7'1"	1.9 m ³ 2.4 yd ³	kg lb	—	—	16 770* 36,950*	9960 21,950	12 180* 26,850*	6430 14,150	8730 19,200	4510 9900	—	—	6410 14,100	3270 7200
2550 mm 8'4"	1.9 m ³ 2.4 yd ³	kg lb	—	—	16 910* 37,250*	10 060 22,150	12 120* 26,700*	6470 14,250	8720 19,200	4510 9900	—	—	4820* 10,600*	2970 6500

Japan Sourced

345B Series II ● Reach Boom ● 600 mm (24") Track Shoes

Stick	Bucket	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		
		Front	Side	Front	Side	Front	Side	Front	Side	
2900 mm 9'6"	F1555X 5'1"	kg lb	—	—	18 050* 42,100*	15 550 33,350	15 650* 33,800*	9950 21,450	11 350 24,350	7050 15,200
3400 mm 11'2"	T1545X 5'1"	kg lb	—	—	19 200* 44,600*	15 750 33,850	15 600* 33,700*	10 100 21,700	11 400 24,500	7150 15,300
3900 mm 12'10"	F1218T 4'0"	kg lb	7750* 17,600*	7750* 17,600*	21 600* 47,600*	16 200 34,850	15 550* 33,600*	10 450 22,450	11 700 25,100	7400 15,850

Stick	Bucket	9 m 30'0"		10.5 m 35'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	
2900 mm 9'6"	F1555X 5'1"	kg lb	8450 18,150	5250 11,250	—	—	5600* 12,350*	4000 8750
3400 mm 11'2"	T1545X 5'1"	kg lb	8500 18,200	5300 11,300	—	—	4850* 10,650*	3750 8250
3900 mm 12'10"	F1218T 4'0"	kg lb	8700 18,650	5450 11,700	6700 14,750	4150 9100	4750* 10,450*	3550 7800

345B Series II ● Mass Boom ● 600 mm (24") Track Shoes

Stick	Bucket	3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		
		Front	Side	Front	Side	Front	Side	Front	Side	
2500 mm 8'2"	G1730X 5'8"	kg lb	—	—	20 800* 45,150*	15 150 32,550	15 150* 32,700*	9650 20,650	11 050 23,700	6700 14,400
3000 mm 9'10"	U1605X 5'3"	kg lb	—	—	21 200* 45,900*	15 350 32,950	15 100* 32,700*	9750 20,900	11 100 23,850	6800 14,550

Stick	Bucket	9 m 30'0"		10.5 m 35'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	
2500 mm 8'2"	G1730X 5'8"	kg lb	—	—	—	—	7000 15,350	4150 9100
3000 mm 9'10"	U1605X 5'3"	kg lb	8150 17,500	4900 10,500	—	—	5650* 12,400*	3800 8400

*Load limited by hydraulic capacity rather than tipping.

Japan/U.S. Sourced

345B L Series II – FIX ● Reach Boom ● 750 mm (30") Track Shoes

Stick	Bucket		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"	
			Front	Side	Front	Side	Front	Side	Front	Side
2900 mm 9'6"	F1735X 5'8"	kg lb	—	—	17 950* 41,850*	15 750 33,750	15 550* 33,600*	10 100 21,700	11 900* 25,700*	7150 15,350
3400 mm 11'2"	F1555X 5'1"	kg lb	—	—	19 100* 44,450*	16 000 34,400*	15 550* 33,650*	10 250 22,100	11 900* 25,700*	7250 15,600
3900 mm 12'10"	F1218T 4'0"	kg lb	7750* 17,600*	7750* 17,600*	21 600* 47,600*	16 450 35,400	15 550* 33,600*	10 600 22,800*	11 950* 25,800*	7500 16,150

Stick	Bucket		9 m 30'0"		10.5 m 35'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side
2900 mm 9'6"	F1735X 5'8"	kg lb	9500* 20,500	5300 11,300	—	—	5500* 12,150*	4000 8800
3400 mm 11'2"	F1555X 5'1"	kg lb	9550* 20,650*	5350 11,500	—	—	4750* 10,450*	3750 8300
3900 mm 12'10"	F1218T 4'0"	kg lb	9650* 20,850*	5600 11,950	7050* 15,450*	4250 9300	4750* 10,450*	3650 8000

345B L Series II – FIX ● Mass Boom ● 750 mm (30") Track Shoes

Stick	Bucket		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"	
			Front	Side	Front	Side	Front	Side	Front	Side
2500 mm 8'2"	G1730X 5'8"	kg lb	—	—	20 800* 45,150*	15 400 33,100	15 150* 32,700*	9800 21,050	11 550* 24,900*	6850 14,650
3000 mm 9'10"	G1615X 5'4"	kg lb	—	—	21 300* 46,050*	15 650 33,650	15 200* 32,800*	9950 21,400	11 550* 25,000*	6950 14,900

Stick	Bucket		9 m 30'0"		10.5 m 35'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side
2500 mm 8'2"	G1730X 5'8"	kg lb	—	—	—	—	7150* 15,750*	4200 9300
3000 mm 9'10"	G1615X 5'4"	kg lb	9150* 19,700*	5050 10,800	—	—	5600* 12,300*	3900 8600

*Load limited by hydraulic capacity rather than tipping.

Lifting Capacity At Ground Level

- 345B L Series II – VG
- 345B L Series II – W-VG

Excavators

4

U.S. Sourced

345B L Series II – VG ● Reach Boom ● 600 mm (24") Track Shoes

Stick	Bucket		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"	
			Front	Side	Front	Side	Front	Side	Front	Side
3350 mm 11'0"	F1590X 5'3"	kg lb	—	—	19 550* 45,350*	19 150 41,100	15 650* 33,800*	12 250 26,350	12 000* 25,900*	8700 18,700
3900 mm 12'10"	F1410T 4'8"	kg lb	8050* 18,300*	8050* 18,300*	21 500* 47,450*	19 450 41,800	15 500* 33,550*	12 450 26,750	11 850* 25,650*	8850 18,950
4800 mm 15'9"	F1220GP 4'0"	kg lb	9150* 20,750*	9150* 20,750*	21 000* 45,350*	18 700 40,150	14 750* 31,650*	11 950 25,650	11 300* 24,450*	8450 18,150

Stick	Bucket		9 m 30'0"		10.5 m 35'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side
3350 mm 11'0"	F1590X 5'3"	kg lb	9600* 20,750*	6500 13,950	—	—	4850* 10,650*	4700 10,400
3900 mm 12'10"	F1410T 4'8"	kg lb	9550* 20,650*	6600 14,100	6650* 14,650*	5050 11,100	4700* 10,350*	4400 9650
4800 mm 15'9"	F1220GP 4'0"	kg lb	9200* 19,650*	6300 13,450	7750* 16,700*	4800 10,250	4150* 9150*	3650 8000

345B L Series II – W-VG ● Reach Boom ● 900 mm (36") Track Shoes

Stick	Bucket		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		10.5 m 35'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
3350 mm 11'0"	1226 mm 4'0"	kg lb	13 260* 31,300*	13 260* 31,300*	16 280* 35,140*	14 490 31,080	12 380* 26,710*	10 150 21,770	9830* 21,160*	7510 16,080	—	—	6860* 15,909*	6230 13,700
3900 mm 12'10"	1227 mm 4'0"	kg lb	16 160* 37,810*	16 160* 37,810*	16 120* 34,770*	14 580 31,270	12 240* 26,400*	10 210 21,890	9780* 21,090*	7550 16,170	—	—	6540* 14,380*	5800 12,760
4800 mm 15'9"	1228 mm 4'0"	kg lb	19 590* 45,830*	19 590* 45,830*	15 250* 32,890*	14 480 31,060	11 560* 24,940*	10 080 21,600	9270* 20,010*	7410 15,850	7670* 16,520*	5600 11,950	5310* 11,670*	4910 10,810

345B L Series II – VG ● Mass Boom ● 600 mm (24") Track Shoes

Stick	Bucket		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		10.5 m 35'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
3000 mm 9'10"	G1895M 6'0"	kg lb	20 600* 44,700*	18 400 39,450	15 000* 32,400*	11 650 25,000	11 400* 24,600*	8150 17,500	—	—	—	—	7150* 15,750*	5200 11,400

Belgium Sourced

345B L Series II – VG ● Reach Boom ● 600 mm (24") Track Shoes

Stick	Bucket		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2900 mm 9'6"	2.2 m ³ 3.0 yd ³	kg lb	18 340 40,300	18 230 40,150	15 300 33,700	11 600 25,550	11 690 25,750	8210 18,100	9280 20,450	6090 13,400	5340 11,770	4610 10,150
3350 mm 11'0"	2.0 m ³ 2.7 yd ³	kg lb	19 250 42,400	18 560 40,900	15 380 33,900	11 810 26,000	11 730 25,850	8340 18,350	9360 20,600	6180 13,600	4550 10,000	4340 9550

345B L Series II – VG ● Mass Boom ● 600 mm (24") Track Shoes

Stick	Bucket		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
2500 mm 9'2"	2.6 m ³ 3.5 yd ³	kg lb	20 170 44,450	17 680 38,950	14 680 32,350	11 160 24,600	11 140 24,550	7790 17,150	—	—	6380 14,050	4640 10,200
3000 mm 9'10"	2.6 m ³ 3.5 yd ³	kg lb	20 620 45,450	17 860 39,350	14 700 32,400	11 280 24,850	11 150 24,550	7860 17,300	8730 19,200	5710 12,550	4950 10,900	4250 9350

*Load limited by hydraulic capacity rather than tipping.

● 365B L Series II

Japan Sourced

365B L Series II ● Heavy Lift ● Reach Boom
● 750 mm (30") Double Grousers

Stick	Bucket	4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		
		Front	Side	Front	Side	Front	Side	Front	Side	
2840 mm 9'4"	VB2.9EX 6'9"	kg lb	—	—	25 350* 54,950*	17 350 37,300	19 800* 42,550	12 300 26,400	14 750 31,700	9200 19,750
3600 mm 11'10"	VB2.5EX 6'9"	kg lb	12 000* 28,050*	12 000* 28,050*	25 650* 55,550*	17 600 37,800	19 800* 42,850*	12 450 26,750	14 900 31,950	9300 20,000
4670 mm 15'4"	VB2.5EX 6'9"	kg lb	13 300* 30,950*	13 300* 30,950*	25 050* 54,150*	17 750 38,150	19 150* 41,350*	12 500 26,800	14 850 31,850	9250 19,850

Stick	Bucket	10.5 m 35'0"		12 m 40'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	
2840 mm 9'4"	VB2.9EX 6'9"	kg lb	11 500 25,300	7100 15,650	—	—	8550* 18,850*	6100 13,400
3600 mm 11'10"	VB2.5EX 6'9"	kg lb	11 550 24,800	7200 15,400	—	—	8050* 17,700*	5500 12,250
4670 mm 15'4"	VB2.5EX 6'9"	kg lb	11 450 24,550	7050 15,100	9050 18,200*	5450 11,600	5600* 12,350*	4550 10,000

365B L Series II ● Heavy Lift ● Mass Boom
● 750 mm (30") Double Grousers

Stick	Bucket	4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		
		Front	Side	Front	Side	Front	Side	Front	Side	
2750 mm 8'5"	WB3.5VX 6'11"	kg lb	29 750* 69,400*	28 300 60,650	25 000* 54,100*	17 350 37,250	19 100* 41,200*	11 950 25,600	14 100* 31,050*	8600 19,000
3000 mm 9'10"	WB3.5VX 6'11"	kg lb	30 250* 70,450*	28 350 60,750	24 900* 53,750*	17 350 37,200	18 950* 40,850*	11 900 25,450	14 150 30,300	8500 18,200

Stick	Bucket	10.5 m 35'0"		12 m 40'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	
2750 mm 8'5"	WB3.5VX 6'11"	kg lb	—	—	—	—	7500* 16,550*	7250 15,950
3000 mm 8'10"	WB3.5VX 6'11"	kg lb	—	—	—	—	6250* 13,700*	6250* 13,700*

*Load limited by hydraulic capacity rather than tipping.

Belgium Sourced

**365B L Series II ● Heavy Lift ● Reach Boom
● 750 mm (30") Double Grousers**

Stick	Bucket	4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		
		Front	Side	Front	Side	Front	Side	Front	Side	
2840 mm 9'4"	3.5 m ³ 4.6 yd ³	kg lb	—	—	23 980* 52,870*	16 840 37,130	18 610* 41,030*	11 830 26,080	14 310 31,550	8750 19,290
3600 mm 11'10"	3.2 m ³ 4.2 yd ³	kg lb	11 180* 24,650*	11 180* 24,650*	24 220* 53,400*	17 020 37,520	18 560* 40,920*	11 920 26,280	14 360 31,660	8790 19,380
4150 mm 13'7"	2.5 m ³ 3.3 yd ³	kg lb	12 810* 28,240*	12 810* 28,240*	24 270* 53,510*	17 290 38,120	18 520* 40,830*	12 130 26,740	14 530 32,030	8960 19,750
4670 mm 15'4"	2.5 m ³ 3.3 yd ³	kg lb	13 040* 28,750*	13 040* 28,750*	23 900* 52,690*	17 400 38,360	18 150* 40,020*	12 160 26,810	14 520 32,010	8940 19,710

Stick	Bucket	10.5 m 35'0"		12 m 40'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	
2840 mm 9'4"	3.5 m ³ 4.6 yd ³	kg lb	11 000 24,250	6620 14,590	—	—	7610* 16,780*	5480 12,080
3600 mm 11'10"	3.2 m ³ 4.2 yd ³	kg lb	11 020 24,290	6640 14,640	—	—	7080* 15,610*	4890 10,780
4150 mm 13'7"	2.5 m ³ 3.3 yd ³	kg lb	11 180 24,650	6790 14,970	—	—	6130* 13,510*	4630 10,200
4670 mm 15'4"	2.5 m ³ 3.3 yd ³	kg lb	11 130 24,540	6740 14,860	8740 19,270	5130 11,310	5040* 11,110*	4140 9120

**365B L Series II ● Heavy Lift ● 6.6 m (21'8") Mass Boom
● 750 mm (30") Double Grousers**

Stick	Bucket	4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	
2570 mm 8'5"	4.8 m ³ 6.3 yd ³	kg lb	29 140* 64,250*	27 630 60,920	23 690* 52,230*	16 900 37,260	17 950* 39,570*	11 520 25,400	13 720* 30,250*	8150 17,970	6320* 13,930*	6320* 13,930*
3000 mm 9'10"	4.4 m ³ 5.8 yd ³	kg lb	29 880* 65,880	27 880 61,470	23 720* 52,300*	17 020 37,520	17 950* 39,570*	11 570 25,510	13 840 30,510	8200 18,080	5310* 11,700*	5310* 11,700*

**365B L Series II ● 7 m (23'0") Mass Boom
● 750 mm (30") Double Grousers**

Stick	Bucket	4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	
2570 mm 8'5"	4.6 m ³ 6.0 yd ³	kg lb	20 850* 45,970*	20 850* 45,970*	23 390* 51,570*	16 570 36,530	17 830* 39,310*	11 390 25,110	13 790 30,400	8150 17,970	6430* 14,170*	5920 13,050
3000 mm 9'10"	4.2 m ³ 5.5 yd ³	kg lb	21 980* 48,460*	21 980* 48,460*	23 460* 51,720*	16 690 36,800	17 800* 39,240*	11 430 25,200	13 810 30,450	8170 18,010	5410* 11,920*	5410* 11,920*

*Load limited by hydraulic capacity rather than tipping.

Japan Sourced

385B ● Heavy Lift ● Reach Boom ● 750 mm (30") Double Grousers

Stick	Bucket		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"	
			Front	Side	Front	Side	Front	Side	Front	Side
4400 mm 14'5"	HB2.1X 7'0"	kg lb	—	—	11 350* 27,000*	11 350* 27,000*	22 100 47,500	15 600 33,550	16 650 35,800	11 850 25,450
5500 mm 18'1"	HB1.6X 7'0"	kg lb	—	—	14 750* 34,500*	14 750* 34,500*	22 650 48,650	16 100 34,600	17 050 36,700	12 250 26,250

Stick	Bucket		10.5 m 35'0"		12 m 40'0"		13.5 m 45'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side
4400 mm 14'5"	HB2.1X 7'0"	kg lb	13 050 28,050	9250 19,850	10 500 22,450	7350 15,700	8500 18,200	5850 12,450	6950 15,350	4700 10,300
5500 mm 18'1"	HB1.6X 7'0"	kg lb	13 400 28,750	9550 20,500	10 750 23,050	7600 16,250	8750 18,700	6100 12,950	6300 13,900	4200 9250

385B ● Heavy Lift ● GP Boom ● 750 mm (30") Double Grousers

Stick	Bucket		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"	
			Front	Side	Front	Side	Front	Side	Front	Side
2920 mm 9'7"	JB3.5EX 7'4"	kg lb	—	—	26 950* 64,300*	23 650 50,800	23 200 49,850	16 600 35,700	17 250 37,050	12 400 26,600
3700 mm 12'2"	HB3.5EX 7'0"	kg lb	—	—	33 600* 75,150	24 950 53,600	24 250 52,100	17 650 37,950	18 150 38,950	13 300 28,500
4400 mm 14'5"	HB3.1X 7'0"	kg lb	31,100*	31,100*	35 150* 75,750	25 200 54,100	24 400 52,400	17 800 38,200	18 200 39,050	13 300 28,600
5500 mm 18'1"	HB2.5X 7'0"	kg lb	16 000* 36,850*	16 000* 36,850*	34 650* 74,850*	25 900 55,650	24 950 53,550	18 250 39,250	18 550 39,850	13 700 29,350

Stick	Bucket		10.5 m 35'0"		12 m 40'0"		13.5 m 45'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side
2920 mm 9'7"	JB3.5EX 7'4"	kg lb	13 350 28,600	9500 20,350	—	—	—	—	8900* 19,600*	7100 15,600
3700 mm 12'2"	HB3.5EX 7'0"	kg lb	14 150 30,350	10 300 22,100	—	—	—	—	8850* 19,500*	7150 15,750
4400 mm 14'5"	HB3.1X 7'0"	kg lb	14 150 30,300	10 300 22,050	11 250 24,050	8100 17,250	—	—	7200* 15,900*	6450 14,250
5500 mm 18'1"	HB2.5X 7'0"	kg lb	14 400 30,900	10 550 22,650	11 450 24,550	8300 17,750	8300* 18,300*	6600 14,500	5400* 11,850*	5400* 11,850*

385B ● Heavy Lift ● Mass Boom ● 750 mm (30") Double Grousers

Stick	Bucket		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"	
			Front	Side	Front	Side	Front	Side	Front	Side
2920 mm 9'7"	JB4.7EMX 7'4"	kg lb	22 100* 51,400*	22 100* 51,400*	34 500* 74,750*	25 150 54,000	24 200 52,000	17 550 37,650	17 850 38,300	12 950 27,750
3400 mm 11'2"	JB4.3EX 7'4"	kg lb	23 850* 55,250*	23 850* 55,250*	35 100* 75,950*	25 450 54,600	24 450 52,400	17 750 38,050	18 000 38,650	13 100 28,100

Stick	Bucket		10.5 m 35'0"		12 m 40'0"		13.5 m 45'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side
2920 mm 9'7"	JB4.7EMX 7'4"	kg lb	—	—	—	—	—	—	10 500* 21,350*	9100 20,000
3400 mm 11'2"	JB4.3EX 7'4"	kg lb	13 850 30,500	10 000 21,950	—	—	—	—	9850* 21,650*	8550 18,850

*Load limited by hydraulic capacity rather than tipping.

Belgium Sourced

385B ● Reach Boom 10 m (32'10") ● 650 mm (26") Track Shoes

Stick	Bucket	4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		
		Front	Side	Front	Side	Front	Side	Front	Side	
4.4 m 14'5"	4.0 m ³ 5.2 yd ³	kg lb	—	—	10 760* 23,720*	10 760* 23,720*	20 810 45,880	14 430 31,810	15 490 34,150	10 760 23,720
5.5 m 18'1"	3.5 m ³ 4.6 yd ³	kg lb	—	—	12 090* 26,650*	12 090* 26,650*	21 380 47,130	14 950 32,960	15 860 34,970	11 100 24,470

Stick	Bucket	10.5 m 35'0"		12 m 40'0"		13.5 m 45'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	
4.4 m 14'5"	4.0 m ³ 5.2 yd ³	kg lb	11 960 26,370	8220 18,120	9410 20,750	6330 13,960	7460 16,450	4850 10,690	5830 12,850	3160 6970
5.5 m 18'1"	3.5 m ³ 4.6 yd ³	kg lb	12 200 26,900	8440 18,610	9570 21,100	6470 14,260	7570 16,690	4940 10,890	4860* 10,710*	3710 8180

385B ● Reach Boom 8.4 m (27'2") ● 650 mm (26") Track Shoes

Stick	Bucket	4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		
		Front	Side	Front	Side	Front	Side	Front	Side	
3.4 m 11'2"	4.4 m ³ 5.8 yd ³	kg lb	—	—	29 500* 65,000*	23 180 51,100	22 570 49,750	16 100 35,500	16 640 36,650	11 870 26,150
3.7 m 12'2"	4.6 m ³ 6.0 yd ³	kg lb	—	—	33 620 74,120	23 730 52,320	23 090 50,900	16 610 36,620	17 080 37,650	12 310 27,140
4.4 m 14'5"	4.0 m ³ 5.2 yd ³	kg lb	13 280* 29,250*	13 280* 29,250*	34 190 75,350	24 250 53,450	23 480 51,750	16 970 37,400	17 350 38,250	12 570 27,700
5.5 m 18'1"	3.5 m ³ 4.6 yd ³	kg lb	13 810* 30,450*	13 810* 30,450*	33 810* 74,550*	25 040 55,200	23 990 52,850	17 450 38,450	17 670 38,950	12 870 28,350

Stick	Bucket	10.5 m 35'0"		12 m 40'0"		13.5 m 45'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	
3.4 m 11'2"	4.4 m ³ 5.8 yd ³	kg lb	12 760 28,100	9010 19,850	—	—	—	—	7600* 16,750*	6030 13,250
3.7 m 12'2"	4.6 m ³ 6.0 yd ³	kg lb	13 130 28,950	9370 20,660	—	—	—	—	8020* 17,680*	6180 13,620
4.4 m 14'5"	4.0 m ³ 5.2 yd ³	kg lb	13 330 29,350	9570 21,100	10 460 23,050	7380 16,250	—	—	6530* 14,350*	5680 12,500
5.5 m 18'1"	3.5 m ³ 4.6 yd ³	kg lb	13 530 29,800	9760 21,500	10 590 23,350	7500 16,500	8310* 18,300*	5770 12,700	3660* 8050*	3660* 8050*

385B ● Mass Boom ● 650 mm (26") Track Shoes

Stick	Bucket	4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		
		Front	Side	Front	Side	Front	Side	Front	Side	
2.9 m 9'6"	6.0 m ³ 7.8 yd ³	kg lb	22 010* 48,500*	22 010* 48,500*	34 010* 74,950	24 490 54,000	23 520 51,850	16 940 37,350	17 190 37,900	12 360 27,250
3.4 m 11'2"	5.6 m ³ 7.3 yd ³	kg lb	23 630* 52,100*	23 630* 52,100*	34 370* 75,750	24 630 54,300	23 570 51,950	16 990 37,450	17 200 37,900	12 370 27,250

Stick	Bucket	10.5 m 35'0"		12 m 40'0"		13.5 m 45'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	
2.9 m 9'6"	6.0 m ³ 7.8 yd ³	kg lb	—	—	—	—	—	—	9350* 20,600*	8180 18,000
3.4 m 11'2"	5.6 m ³ 7.3 yd ³	kg lb	13 010 28,650	9220 20,300	—	—	—	—	8670* 19,100*	7550 16,600

*Load limited by hydraulic capacity rather than tipping.

Japan Sourced

385B L ● Heavy Lift ● Reach Boom ● 750 mm (30") Double Grousers

Stick	Bucket		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"	
			Front	Side	Front	Side	Front	Side	Front	Side
4400 mm 14'5"	HB2.1X 7'0"	kg lb	—	—	11 350* 27,000*	11 350* 27,000*	25 250* 54,650*	16 050 34,500	20 350* 43,800	12 200 26,200
5500 mm 18'1"	HB1.6X 7'0"	kg lb	—	—	12 800* 30,100*	12 800* 30,100*	25 300* 54,600*	16 600 35,750	20 200* 43,700*	12 600 27,050

Stick	Bucket		10.5 m 35'0"		12 m 40'0"		13.5 m 45'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side
4400 mm 14'5"	HB2.1X 7'0"	kg lb	15 950 34,300	9550 20,450	12 850 27,600	7600 16,200	10 500 22,550	6050 12,900	8700 19,100	4850 10,700
5500 mm 18'1"	HB1.6X 7'0"	kg lb	16 300 35,000	9850 21,100	13 100 28,100	7800 16,700	10 700 22,900	6250 13,300	5950* 13,100*	4250 9300

385B L ● Heavy Lift ● GP Boom ● 750 mm (30") Double Grousers

Stick	Bucket		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"	
			Front	Side	Front	Side	Front	Side	Front	Side
2920 mm 9'7"	JB3.5EX 7'4"	kg lb	—	—	27 400* 65,250*	24 600 52,900	26 500* 57,300*	17 350 37,300	21 300 45,750	13 050 28,000
3700 mm 12'2"	HB3.5EX 7'0"	kg lb	—	—	33 600* 75,900*	25 550 54,900	27 250* 58,950*	18 100 38,900	21 900 47,050	13 650 29,250
4400 mm 14'5"	HB3.1X 7'0"	kg lb	31,100*	31,100*	35 150* 76,100*	25 800 55,400	27 050* 58,450*	18 200 39,150	21 750* 47,000*	13 650 29,350
5500 mm 18'1"	HB2.5X 7'0"	kg lb	12 900* 29,850*	12 900* 29,850*	30 700* 66,300*	26 600 57,100	23 300* 50,350*	18 750 40,250	18 650* 40,300*	14 000 30,050

Stick	Bucket		10.5 m 35'0"		12 m 40'0"		13.5 m 45'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side
2920 mm 9'7"	JB3.5EX 7'4"	kg lb	16 550 35,550	10 100 21,650	—	—	—	—	9250* 20,350*	7650 16,900
3700 mm 12'2"	HB3.5EX 7'0"	kg lb	17 050 36,600	10 600 22,700	—	—	—	—	8850* 19,500*	7400 16,250
4400 mm 14'5"	HB3.1X 7'0"	kg lb	17 050 36,600	10 600 22,650	13 600 29,150	8350 17,800	—	—	7200* 15,900*	6700 14,700
5500 mm 18'1"	HB2.5X 7'0"	kg lb	15 450* 33,400*	10 800 23,150	13 100* 28,300*	8500 18,150	7550* 12,150*	6700 12,150*	3600* 7900*	3600* 7900*

385B L ● Heavy Lift ● Mass Boom ● 750 mm (30") Double Grousers

Stick	Bucket		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"	
			Front	Side	Front	Side	Front	Side	Front	Side
2920 mm 9'7"	JB4.7EMX 7'4"	kg lb	22 100* 51,400*	22 100* 51,400*	34 500* 74,750*	25 750 55,300	26 800* 57,900*	17 950 38,600	21 200* 45,700*	13 300 28,500
3400 mm 11'2"	JB4.3EX 7'4"	kg lb	23 850* 55,250*	23 850* 55,250*	35 100* 75,950*	26 050 55,900	27 100* 58,550*	18 150 39,000	21 600* 46,600*	13 450* 28,850

Stick	Bucket		10.5 m 35'0"		12 m 40'0"		13.5 m 45'0"		At Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side
2920 mm 9'7"	JB4.7EMX 7'4"	kg lb	—	—	—	—	—	—	10 500* 23,150*	9350 20,600
3400 mm 11'2"	JB4.3EX 7'4"	kg lb	15 300* 33,700*	10 250 22,600	—	—	—	—	9850* 21,650*	8800 19,400

*Load limited by hydraulic capacity rather than tipping.

Belgium Sourced

385B L ● Reach Boom 10 m (32'10") ● 650 mm (26") Track Shoes

Stick	Bucket	4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		
		Front	Side	Front	Side	Front	Side	Front	Side	
4.4 m 14'5"	4.0 m ³ 5.2 yd ³	kg lb	—	—	10 760* 23,720*	10 760* 23,720*	24 060* 53,040*	14 770 32,560	19 040 41,960	11 030 24,320
5.5 m 18'1"	3.5 m ³ 4.6 yd ³	kg lb	—	—	12 090* 26,650*	12 090* 26,650*	24 000* 52,910*	15 290 33,710	18 990 41,870	11 370 25,070

Stick	Bucket	10.5 m 35'0"		12 m 40'0"		13.5 m 45'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	
4.4 m 14'5"	4.0 m ³ 5.2 yd ³	kg lb	14 720 32,450	8440 18,610	11 660 25,710	6520 14,370	9360 20,640	5010 11,050	7420 16,360	3760 8290
5.5 m 18'1"	3.5 m ³ 4.6 yd ³	kg lb	14 970 33,000	8670 19,110	11 820 26,060	6660 26,060	9460 20,860	5110 11,270	4860* 10,710*	3070 6770

385B L ● Reach Boom 8.4 m (27'2") ● 650 mm (26") Track Shoes

Stick	Bucket	4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		
		Front	Side	Front	Side	Front	Side	Front	Side	
3.4 m 11'2"	4.4 m ³ 5.8 yd ³	kg lb	—	—	29 500* 65,000*	23 650 52,100	25 720* 56,700*	16 440 36,250	20 200 44,500	12 140 26,750
3.7 m 12'2"	4.6 m ³ 6.0 yd ³	kg lb	—	—	33 720* 74,340*	24 200 53,350	26 210* 57,780*	16 950 37,370	20 650 45,530	12 580 27,730
4.4 m 14'5"	4.0 m ³ 5.2 yd ³	kg lb	13 280* 29,250*	13 280* 29,250*	34 310* 75,650*	24 720 54,500	26 250* 57,850*	17 310 38,150	20 930 46,150	12 840 28,300
5.5 m 18'1"	3.5 m ³ 4.6 yd ³	kg lb	13 810* 30,450*	13 810* 30,450*	33 810* 74,550	25 500 56,200	25 620* 56,450*	17 790 39,200	20 450* 45,050*	13 140 28,950

Stick	Bucket	10.5 m 35'0"		12 m 40'0"		13.5 m 45'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	
3.4 m 11'2"	4.4 m ³ 5.8 yd ³	kg lb	15 530 34,200	9230 20,350	—	—	—	—	7600* 16,750*	6200 13,650
3.7 m 12'2"	4.6 m ³ 6.0 yd ³	kg lb	15 890 35,030	9600 21,160	—	—	—	—	8020* 17,680*	6350 14,000
4.4 m 14'5"	4.0 m ³ 5.2 yd ³	kg lb	16 100 35,500	9800 21,600	12 710 28,000	7570 16,650	—	—	6530* 14,350*	5840 12,850
5.5 m 18'1"	3.5 m ³ 4.6 yd ³	kg lb	16 310 35,950	9980 22,000	12 850 28,300	7690 16,950	8310* 18,300*	5930 13,050	3660* 8050*	3660* 8050*

385B L ● Mass Boom ● 650 mm (26") Track Shoes

Stick	Bucket	4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		
		Front	Side	Front	Side	Front	Side	Front	Side	
2.9 m 9'6"	6.0 m ³ 7.8 yd ³	kg lb	22 010* 48,500*	22 010* 48,500*	34 010* 74,950*	24 960 55,000	26 270* 57,900*	17 280 38,100	20 690* 45,600*	12 630 27,800
3.4 m 11'2"	5.6 m ³ 7.3 yd ³	kg lb	23 630* 52,100*	23 630* 52,100*	34 370* 75,750*	25 090 55,300	26 380* 58,150*	17 330 38,200	20 810 45,850	12 640 27,850

Stick	Bucket	10.5 m 35'0"		12 m 40'0"		13.5 m 45'0"		At Max. Reach		
		Front	Side	Front	Side	Front	Side	Front	Side	
2.9 m 9'6"	6.0 m ³ 7.8 yd ³	kg lb	—	—	—	—	—	—	9350* 20,600*	8390 18,450
3.4 m 11'2"	5.6 m ³ 7.3 yd ³	kg lb	15 800 34,800	9450 20,800	—	—	—	—	8670* 19,100*	7750 17,050

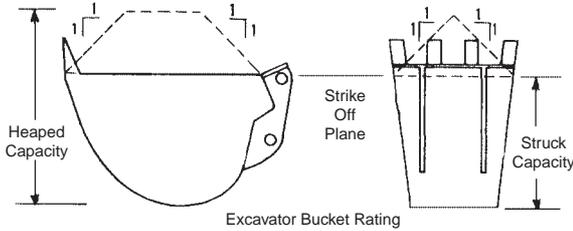
*Load limited by hydraulic capacity rather than tipping.

EXCAVATOR BUCKET CAPACITIES

Caterpillar rates excavator buckets to conform with both PCSA standard No. 3 and SAE standard J-296. Buckets are rated on both their struck and heaped capacities as follows:

Struck Capacity

Volume actually enclosed inside the outline of the sideplates and rear and front bucket enclosures without any consideration for any material supported or carried by the spillplate or bucket teeth.



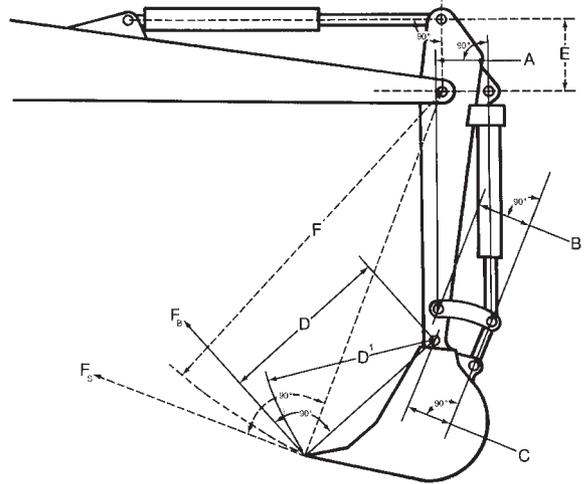
Heaped Capacity

Volume in the bucket under the strike off plane plus the volume of the heaped material above the strike off plane, having an angle of repose of 1:1 without any consideration for any material supported or carried by the spillplate or bucket teeth.

The Committee on European Construction Equipment (CECE) rates heaped bucket pay loads on a 2:1 angle of repose for material above the strike off plane.

CURL AND CROWD FORCES

Bucket penetration into a material is achieved by the bucket curling force (F_B) and stick crowd force (F_S). Rated digging forces are the digging forces that can be exerted at the outermost cutting point. These forces can be calculated by applying working relief hydraulic pressure to the cylinder(s) providing the digging force. The digging forces listed on next page conform with SAE Standard J1179 and PCSA Standard No. 3. The values may not be directly comparable to forces for machines rated by other methods than those described below.



$$F_B = \text{Radial tooth force due to bucket cylinder} \\ = \frac{\text{Bucket cylinder force}}{\text{Arm D length}} \left(\frac{\text{Arm A} \times \text{Arm C}}{\text{Arm B}} \right)$$

$$\text{Cylinder force} = (\text{Pressure}) \times (\text{End area of cylinder head}) \\ \text{Arm D} = \text{Bucket tip radius}$$

Maximum radial tooth force due to bucket cylinder (bucket curling force) is the digging force generated by the bucket cylinder(s) and tangent to the arc of radius D^1 . The bucket shall be positioned to obtain maximum output moment from the bucket cylinder(s) and connecting linkages. When calculating, maximum F_B occurs when the factor — Arm A times Arm C divided by Arm B — becomes the maximum.

$$F_S = \text{Radial tooth force due to stick cylinder} \\ = \frac{(\text{Stick cylinder force}) \times (\text{Arm E length})}{(\text{Arm F length})}$$

$$\text{Arm F} = \text{Bucket tip radius} + \text{stick length}$$

Maximum radial tooth force due to stick cylinder (stick crowd force) is the digging force generated by the stick cylinder(s) and tangent to the arc of radius F. The stick shall be positioned to obtain the maximum output moment from the arm cylinder and the bucket positioned as described in the bucket force rating. When calculating, maximum F_S occurs when the axis in the stick cylinder working direction is at a right angle to the line connecting the stick cylinder pin and the boom nose pin.

Bucket Selection Considering Bucket Curl and Stick Crowd Forces

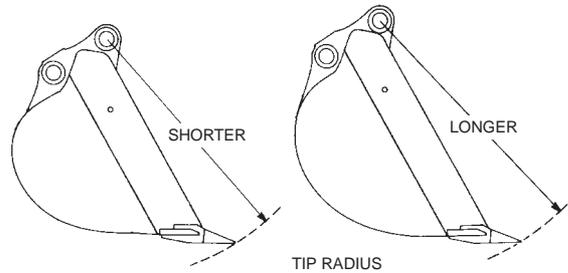
The combination of the excavator's stick crowd force and bucket curling force give this machine configuration more effective bucket penetration force per mm (inch) of bucket cutting edge than is available with other machine types such as wheel and track loaders.

As a result of high penetration force, an excavator bucket is comparatively easy to load. Also, the higher unit breakout forces allow the excavator's economic application range to be extended farther into the tougher soils (coral, caliche, shale, limestone) before blasting or ripping is required.

To take full advantage of an excavator's high penetration forces, buckets should be selected so they are well matched to soil conditions that are encountered. The two important things to consider are bucket width and bucket tip radius.

As a general rule, wide buckets are used in easily dug soil and narrow buckets in harder material. In hard rocky soils, tip radius also has to be considered in bucket selection. Because the shorter tip radius buckets provide more total bucket curling force than the long tip radius buckets, they are generally the easiest to load. A good rule of thumb when selecting a Caterpillar bucket for hard material is to choose the narrowest bucket that has a short tip radius.

Other factors such as trench bottom width specifications, manbox size, or the desire to conserve bedding material may also influence excavator bucket selection.



NOTE: See the following pages for listing of Caterpillar buckets by tip radius and cutting edge width.

Model	Source	Bucket Tip Radius		Bucket Curling Forces		Stick Crowd Forces							
						Short		Medium		Long		Extra Long	
		mm	ft	kN	lb	kN	lb	kN	lb	kN	lb	kN	lb
301.5	U.K.	500	1'8"	12.6	2830	—	—	8.9	2000	8	1790	—	—
301.5 CR	Japan	500	1'8"	14.4	3240	—	—	10.1	2270	8.8	1980	—	—
301.6	U.K.	500	1'8"	12.6	2830	—	—	—	—	8	1790	—	—
301.8	U.K.	500	1'8"	12.6	2830	—	—	8.9	2000	8	1790	—	—
302.5	U.K.	650	2'2"	22	4940	—	—	14	3140	12.1	2720	—	—
303 SR	Japan	695	2'3"	29.5	6630	—	—	16.2	3640	13.3	2990	—	—
303 CR	Japan	765	2'6"	26.2	5890	—	—	17	3820	15.5	3480	—	—
304 CR	Japan	833	2'9"	36.6	8220	—	—	23.9	5370	20.9	4700	—	—
305 SR	Japan	890	2'11"	40.1	9010	—	—	24.1	5420	21.7	4880	—	—
305 CR	Japan	833	2'9"	42	9440	—	—	27.6	6200	23.3	5240	—	—
307C	Japan	1070	3'6"	44	9830	—	—	35	7850	31	6900	—	—
307C SB	Japan	1070	3'6"	44	9830	—	—	35	7850	31	6900	—	—
308C SR	Japan	1070	3'6"	47.8	10,740	—	—	37.6	8450	—	—	—	—
308C CR	Japan	1070	3'6"	44	9820	—	—	35	7850	31	6980	—	—
311C U	Japan	1220	4'0"	80	18,000	—	—	58	13,000	50	11,000	—	—
312C, 312C L	Japan	1220	4'0"	84	18,880	70	15,730	63	14,160	57	12,810	—	—
312C, 312C L	France	1220	4'0"	84	18,880	71	15,970	63	14,160	57	12,810	—	—
313C SR	Japan	1220	4'0"	88	19,780	—	—	63	14,160	—	—	—	—
313C CR	Japan	1220	4'0"	94	21,120	—	—	64	14,380	57	12,810	—	—
314C CR, 314C LCR	Japan	1220	4'0"	80	18,800	—	—	63	14,100	56	12,600	—	—

*Information unavailable at time of printing.

Curl and Crowd Forces
 ● 315C, 315C L ● 315C L
 ● 318C, 318C L, 318C N ● 318C L, 318C LN

315C, 315C L Japan Sourced

Boom		1-Piece Boom			
Stick		Short	Medium	Long	Extra Long
Bucket Tip Radius	mm ft	1340 4'5"	1340 4'5"	1340 4'5"	1340 4'5"
Bucket Curling Forces	kN lb	120 26,970	99 22,250	99 22,250	99 22,250
Stick Crowd Forces	kN lb	95 21,350	84 18,880	76 17,080	68 15,280

315C L France Sourced

Boom		1-Piece Boom			
Stick		Short	Medium	Long	Extra Long
Bucket Tip Radius	mm ft	1117 3'7"	1117 3'7"	1117 3'7"	1117 3'7"
Bucket Curling Forces	kN lb	102 22,930	90 20,230	82 18,430	74 16,630
Stick Crowd Forces	kN lb	98 22,030	80 17,980	69 15,510	62 13,930

318C, 318C L, 318C N France Sourced

Boom		1-Piece Boom			
Stick		Short	Medium	Long	Extra Long
Bucket Tip Radius	mm ft	1310 4'3"	1310 4'3"	1310 4'3"	1310 4'3"
Bucket Curling Forces	kN lb	133 29,890	130 29,220	111 24,950	112 25,170
Stick Crowd Forces	kN lb	124 27,870	106 23,830	91 20,450	81 18,210

318C L, 318C LN Japan Sourced

Boom		1-Piece Boom			
Stick		Short	Medium	Long	Extra Long
Bucket Tip Radius	mm ft	1420 4'8"	1420 4'8"	1420 4'8"	1420 4'8"
Bucket Curling Forces	kN lb	148 33,260	130 29,200	111 25,000	112 25,200
Stick Crowd Forces	kN lb	124 27,870	103 23,200	88 19,800	79 17,800

M313C

Boom		1-Piece/VA Boom			
Stick		2300 mm	7'5"	2600 mm	8'6"
Bucket Tip Radius	mm ft	1250 4'1"		1250 4'1"	
Bucket Curling Forces	kN lb	87 19,560		87 19,560	
Stick Crowd Forces	kN lb	62 13,940		57 12,810	

M315C, M316C

Boom		1-Piece/VA Boom			
Stick		2400 mm	7'10"	2600 mm	8'6"
Bucket Tip Radius	mm ft	1405 4'7"		1405 4'7"	
Bucket Curling Forces	kN lb	93 20,900		93 20,900	
Stick Crowd Forces	kN lb	69 15,500		66 14,830	

M318C

Boom		1-Piece/VA Boom			
Stick		2500 mm	8'2"	2800 mm	9'2"
Bucket Tip Radius	mm ft	1405 4'7"		1405 4'7"	
Bucket Curling Forces	kN lb	118 26,530		118 26,530	
Stick Crowd Forces	kN lb	85 19,100		79 17,750	

M322C

Boom		1-Piece/VA Boom			
Stick		2500 mm	8'2"	2900 mm	9'6"
Bucket Tip Radius	mm ft	1511 4'11"		1511 4'11"	
Bucket Curling Forces	kN lb	131 29,450		131 29,450	
Stick Crowd Forces	kN lb	106 23,830		97 21,810	

320C, 320C L for Asia, Pacific and Australia

Boom		Reach Boom			Mass Boom
Stick		Medium (R2.5B)	Long (R2.9B)	Extra Long (R3.9B)	Medium
Bucket Tip Radius	mm ft	1477 4'10"	1477 4'10"	1477 4'10"	1477 4'11"
Bucket Curling Forces	kN lb	131 29,400	131 29,400	125 28,000	160 35,900
Stick Crowd Forces	kN lb	113 25,300	100 22,400	83 18,600	125 28,000

320C, 320C L for North and South America

Boom		Reach Boom			Mass Boom
Stick		Medium (R2.5B)	Long (R2.9B)	Extra Long (R3.9B)	Medium
Bucket Tip Radius	mm ft	1564 5'2"	1564 5'2"	1564 5'2"	1564 5'2"
Bucket Curling Forces	kN lb	128 28,700	128 28,700	128 28,700	128 28,760
Stick Crowd Forces	kN lb	110 24,700	97 21,800	82 18,400	82 18,400

320C U, 320C LU for Asia, Pacific and Australia

Boom		Reach Boom		
Stick		Medium	Long	Extra Long
Bucket Tip Radius	mm ft	1477 4'10"	1477 4'10"	1477 4'10"
Bucket Curling Forces	kN lb	125 28,090	131 29,400	131 29,400
Stick Crowd Forces	kN lb	113 25,300	100 22,400	83 18,600

320C U, 320C LU for North and South America

Boom		Reach Boom		
Stick		Medium	Long	Extra Long
Bucket Tip Radius	mm ft	1564 5'2"	1564 5'2"	1564 5'2"
Bucket Curling Forces	kN lb	128 28,700	128 28,700	128 28,700
Stick Crowd Forces	kN lb	110 24,700	97 21,800	82 18,400

320C LU for Europe, Africa and Middle East

Boom		Reach Boom	
Stick		Medium	Long
Bucket Tip Radius	mm ft	1420 4'8"	1420 4'8"
Bucket Curling Forces	kN lb	132 29,700	132 29,700
Stick Crowd Forces	kN lb	113 25,400	99 22,200

**Belgium Sourced
320C, 320C L**

Boom		Reach Boom		
Stick		R1.9C	R2.5B	R2.9B
Bucket Tip Radius	mm ft	1550 5'1"	1420 4'8"	1420 4'8"
Bucket Curling Forces	kN lb	153 34,400	132 29,700	132 29,700
Stick Crowd Forces	kN lb	144 32,400	113 25,400	99 22,200
Boom		Mass Boom		
Stick		M1.9C	M2.4C	M2.9B
Bucket Tip Radius	mm ft	1550 5'1"	1550 5'1"	1420 4'8"
Bucket Curling Forces	kN lb	153 34,400	153 34,400	132 29,700
Stick Crowd Forces	kN lb	144 32,400	125 28,100	99 22,200
Boom		VA Boom		
Stick		M1.9C	M2.4C	M2.9B
Bucket Tip Radius	mm ft	1550 5'1"	1550 5'1"	1550 5'1"
Bucket Curling Forces	kN lb	153 34,400	153 34,400	132 29,700
Stick Crowd Forces	kN lb	144 32,400	125 28,100	99 22,200

**Japan Sourced
321C LCR**

Boom		Reach Boom		Reach Boom	
Stick		Long		Long	
Bucket Tip Radius	mm ft	1490 4'11"		1420 4'8"	
Bucket Curling Forces	kN lb	125 28,000		132 29,700	
Stick Crowd Forces	kN lb	98 22,000		99 22,200	

**Europe, Africa and Middle East
321C LCR**

**Japan/U.S. Sourced
 322C, 322C L**

Boom		Reach Boom		
Stick		Medium	Long	Extra Long
Bucket Tip Radius	mm ft	1551 5'1"	1551 5'1"	1477 4'10"
Bucket Curling Forces	kN lb	151 33,930	151 33,930	131 29,440
Stick Crowd Forces	kN lb	136 30,560	116 26,070	104 23,370
Boom		Mass Boom		
Stick		Short	Medium	
Bucket Tip Radius	mm ft	1663 5'5"	1663 5'5"	
Bucket Curling Forces	kN lb	189 42,470	189 42,470	
Stick Crowd Forces	kN lb	151 33,930	133 29,890	

**Belgium Sourced
 322C**

Boom		Reach Boom		
Stick		R2.0D	R2.5S	R2.95S
Bucket Tip Radius	mm ft	1530 5'0"	1430 5'6"	1430 5'6"
Bucket Curling Forces	kN lb	189 42,500	160 36,000	150 33,700
Stick Crowd Forces	kN lb	171 38,400	147 33,000	180 40,500
Boom		Mass Boom		
Stick		M2.0D	M2.5D	
Bucket Tip Radius	mm ft	1530 5'0"	1530 5'0"	
Bucket Curling Forces	kN lb	189 42,500	180 40,500	
Stick Crowd Forces	kN lb	171 38,400	153 34,400	
Boom		VA Boom		
Stick		M2.0D	M2.5D	
Bucket Tip Radius	mm ft	1530 5'0"	1530 5'0"	
Bucket Curling Forces	kN lb	188 42,300	179 40,200	
Stick Crowd Forces	kN lb	167 37,500	150 33,700	

**Belgium Sourced
325C**

Boom		Reach Boom			
Stick		R2.0D	R2.7C	R3.2C	R3.2C HD
Bucket Tip Radius	mm ft	1658 5'5"	1556 5'1"	1556 5'1"	1556 5'1"
Bucket Curling Forces	kN lb	192 43,200	156 35,100	150 33,700	150 33,700
Stick Crowd Forces	kN lb	182 40,900	147 33,000	133 29,900	133 29,900
Boom		Mass Boom			
Stick		M2.0D		M2.5D	
Bucket Tip Radius	mm ft	1658 5'5"		1658 5'5"	
Bucket Curling Forces	kN lb	192 43,200		184 41,400	
Stick Crowd Forces	kN lb	182 40,900		163 36,600	
Boom		VA Boom			
Stick		M2.0D		M2.5D	
Bucket Tip Radius	mm ft	1658 5'5"		1658 5'5"	
Bucket Curling Forces	kN lb	192 43,200		184 41,400	
Stick Crowd Forces	kN lb	182 40,900		163 36,600	

**Japan/U.S. Sourced
325C**

Boom		Reach Boom			
Stick		Short	Medium	Long	Extra Long
Bucket Tip Radius	mm ft	1660 5'5"	1487 4'11"	1487 4'11"	1488 4'11"
Bucket Curling Forces	kN lb	198 44,500	166 37,300	160 36,000	160 36,000
Stick Crowd Forces	kN lb	170 38,200	143 32,100	130 29,200	124 27,900
Boom		Mass Boom			
Stick		Medium			
Bucket Tip Radius	mm ft	1660 5'5"			
Bucket Curling Forces	kN lb	199 44,700			
Stick Crowd Forces	kN lb	147 33,000			

**Japan/U.S. Sourced
330C**

Boom		Reach Boom			
Stick		Short	Medium	Long	Extra Long
Bucket Tip Radius	mm ft	1845 6'0"	1660 5'5"	1660 5'5"	1660 5'5"
Bucket Curling Forces	kN lb	228 51,300	190 42,700	190 42,700	191 42,900
Stick Crowd Forces	kN lb	209 47,000	180 40,500	161 36,200	140 31,500
Boom		Mass Boom			
Stick		M2.6E			
Bucket Tip Radius	mm ft	1845 6'1"			
Bucket Curling Forces	kN lb	228 51,300			
Stick Crowd Forces	kN lb	180 40,500			

**Belgium Sourced
330C**

Boom		Reach Boom			
Stick		R2.2E	R2.8D	R3.3D	R3.9D
Bucket Tip Radius	mm ft	1800 5'9"	1660 5'5.3"	1660 5'5.3"	1660 5'5.3"
Bucket Curling Forces	kN lb	239 53,700	194 43,600	192 43,200	184 41,400
Stick Crowd Forces	kN lb	219 49,200	186 41,800	169 38,000	152 34,200
Boom		Mass Boom			
Stick		M2.15E		M2.6E	
Bucket Tip Radius	mm ft	1800 5'9"		1800 5'9"	
Bucket Curling Forces	kN lb	239 53,700		227 51,000	
Stick Crowd Forces	kN lb	219 49,200		196 44,100	

**Japan/U.S. Sourced
 345B Series II**

Boom		Reach Boom		
Stick		Short	Medium	Long
Bucket Tip Radius	mm ft	1870 6'2"	1830 6'0"	1960 6'5"
Bucket Curling Forces	kN lb	231 51,910	227 51,010	221 49,660
Stick Crowd Forces	kN lb	209 46,970	193 43,370	174 39,100
Boom		Mass Boom		
Stick		Short	Medium	
Bucket Tip Radius	mm ft	1960 6'5"	1870 6'2"	
Bucket Curling Forces	kN lb	252 56,630	259 58,200	
Stick Crowd Forces	kN lb	230 51,690	208 46,740	

**Japan Sourced
 345B Series II**

Boom		Reach Boom		
Stick		Short	Medium	Long
Bucket Tip Radius	mm ft	1870 6'2"	1870 6'2"	1960 6'5"
Bucket Curling Forces	kN lb	231 51,910	231 51,910	221 49,660
Stick Crowd Forces	kN lb	209 46,970	191 42,920	174 39,100
Boom		Mass Boom		
Stick		Short	Medium	
Bucket Tip Radius	mm ft	1960 6'5"	1960 6'5"	
Bucket Curling Forces	kN lb	252 56,630	252 56,630	
Stick Crowd Forces	kN lb	230 51,690	203 45,620	

**Belgium Sourced
345B L Series II per ISO**

Boom		Reach Boom		Mass Boom	
Stick		R2.9T*	R3.35T	M2.5U*	M3.0U
Bucket Tip Radius	mm ft	1890 6'2"	1890 6'2"	2096 6'11"	2096 6'11"
Bucket Curling Forces	kN lb	226 50,800	220 49,500	239 53,700	229 51,500
Stick Crowd Forces	kN lb	218 49,000	204 45,900	235 52,800	215 48,300

**Japan Sourced
365B L Series II per SAE**

Boom		Reach Boom		
Stick		Short	Medium	Long
Bucket Tip Radius	mm ft	2060 6'9"	2060 6'9"	2060 6'9"
Bucket Curling Forces	kN lb	277 62,200	264 59,300	265 59,500
Stick Crowd Forces	kN lb	257 57,800	230 51,600	193 43,300
Boom		Mass Boom		
Stick		Short	Medium	
Bucket Tip Radius	mm ft	2100 6'11"	2100 6'11"	
Bucket Curling Forces	kN lb	330 74,100	330 74,100	
Stick Crowd Forces	kN lb	277 62,300	254 57,100	

**Japan Sourced
365B L Series II per ISO**

Boom		Reach Boom		
Stick		Short	Medium Short	Long
Bucket Tip Radius	mm ft	2060 6'9"	2060 6'9"	2060 6'9"
Bucket Curling Forces	kN lb	316 71,000	301 67,600	302 67,800
Stick Crowd Forces	kN lb	268 60,200	239 53,700	199 44,700
Boom		Mass Boom		
Stick		Short	Medium	
Bucket Tip Radius	mm ft	2100 6'11"	2100 6'11"	
Bucket Curling Forces	kN lb	383 86,000	384 86,200	
Stick Crowd Forces	kN lb	290 65,100	265 59,500	

*Available from Japan only.

Excavators

Curl and Crowd Forces

- 365B L Series II
- 385B
- SAE, Teeth Force

Belgium Sourced SAE, Teeth Force 365B L Series II

Boom		Reach Boom			
Stick		Short	Medium	Intermediate	Long
Bucket Tip Radius	mm ft	2107 6'11"	2107 6'11"	2107 6'11"	2107 6'11"
Bucket Curling Forces	kN lb	257 57,800	253 56,900	245 55,100	239 53,700
Stick Crowd Forces	kN lb	271 60,900	231 51,900	215 48,300	199 44,700
Boom		6.6 m (21'8") Mass Boom		7 m (23'0") Mass Boom	
Stick		Short	Medium	Short	Medium
Bucket Tip Radius	mm ft	2239 7'4"	2239 7'4"	2239 7'4"	2239 7'4"
Bucket Curling Forces	kN lb	300 67,500	292 65,700	300 67,500	292 65,700
Stick Crowd Forces	kN lb	279 62,700	261 58,700	279 62,700	261 58,700

Japan Sourced 385B per SAE

Boom		Reach Boom			
Stick		Long		Extra Long	
Bucket Tip Radius	mm ft	2137 7'0"		2137 7'0"	
Bucket Curling Forces	kN lb	305 68,600		305 68,600	
Stick Crowd Forces	kN lb	256 57,600		218 49,000	
Boom		General Purpose Boom			
Stick		Short	Medium Long	Long	Extra Long
Bucket Tip Radius	mm ft	2236 7'4"	2145 7'0"	2137 7'0"	2137 7'0"
Bucket Curling Forces	kN lb	389 87,500	317 71,300	305 68,600	305 68,600
Stick Crowd Forces	kN lb	321 72,200	287 64,500	256 57,600	218 49,000
Boom		Mass Boom			
Stick		Short		Medium	
Bucket Tip Radius	mm ft	2236 7'4"		2236 7'4"	
Bucket Curling Forces	kN lb	402 90,400		389 87,500	
Stick Crowd Forces	kN lb	321 72,200		298 67,000	

Japan Sourced 385B per ISO

Boom		Reach Boom			
Stick		Long		Extra Long	
Bucket Tip Radius	mm ft	2137 7'0"		2137 7'0"	
Bucket Curling Forces	kN lb	348 78,200		349 78,400	
Stick Crowd Forces	kN lb	264 59,300		224 50,300	
Boom		General Purpose Boom			
Stick		Short	Medium Long	Long	Extra Long
Bucket Tip Radius	mm ft	2236 7'4"	2145 7'0"	2137 7'0"	2137 7'0"
Bucket Curling Forces	kN lb	442 99,300	366 82,200	348 78,200	349 78,400
Stick Crowd Forces	kN lb	332 74,600	298 66,900	264 59,300	224 50,300
Boom		Mass Boom			
Stick		Short		Medium	
Bucket Tip Radius	mm ft	2235 7'4"		2236 7'4"	
Bucket Curling Forces	kN lb	456 102,400		442 99,300	
Stick Crowd Forces	kN lb	333 74,800		308 69,200	

- 385B/385B L
- ISO

**Belgium Sourced
385B/385B L per ISO**

Boom		Reach Boom 10 m (32'10")			
Stick		R4.4HB		R5.5HB	
Tip Radius @ Cutting Edge	mm ft	2008 6'7"		2008 6'7"	
Bucket Digging Force ISO	kN lb	320 71,900		301 67,700	
Stick Digging Force ISO	kN lb	288 64,700		251 56,400	
Boom		General Purpose Boom 8.4 m (27'2")			
Stick		G3.4JB	G3.7HB*	G4.4HB	G5.5HB
Tip Radius @ Cutting Edge	mm ft	2162 7'1"	1956 6'5"	1956 6'5"	1956 6'5"
Bucket Digging Force ISO	kN lb	384 86,300	347 78,000	330 74,200	311 69,900
Stick Digging Force ISO	kN lb	340 76,400	322 72,400	292 65,600	254 57,100
Boom		Mass Boom 7.25 m (23'9")			
Stick		M2.92JB		M3.4JB	
Tip Radius @ Cutting Edge	mm ft	2162 7'1"		2162 7'1"	
Bucket Digging Force ISO	kN lb	396 89,000		386 86,800	
Stick Digging Force ISO	kN lb	362 81,400		343 77,100	

*Not available in all market areas.

Caterpillar offers a very comprehensive list of high strength steel buckets. High strength steel allows thinner components which helps keep the weight down, maintains durability and improves loadability. The wrong bucket can reduce production 30-40% or more. Caterpillar's in-depth knowledge of machine design, bucket design and application experience

allows offering **machine matched** packages that optimize performance.

Additional buckets may be available and the listed buckets may not be available in all sales areas. Contact your Caterpillar Dealer for your specific bucket needs.

Model	Bucket Type	Teeth	Bucket Bite Width		Bucket Tip Radius		Heaped Capacity		Bucket Weight With Teeth		
			mm	in	mm	in	L	yd ³	kg	lb	
301.5, 301.6, 301.8	Digging	0	230	9.0	440	17.0	18	0.023	25	55	
		3	230	9.0	500	20.0	18	0.023	29	64	
		0	300	12.0	440	17.0	22	0.029	27	60	
		3	300	12.0	500	20.0	22	0.029	31	68	
		0	400	16.0	440	17.0	33	0.043	31	68	
		3	400	16.0	500	20.0	33	0.043	35	77	
		0	457	18.0	440	17.0	40	0.052	34	75	
		3	457	18.0	500	20.0	40	0.052	38	84	
		0	500	20.0	440	17.0	45	0.059	36	79	
		4	500	20.0	500	20.0	45	0.059	41	90	
		0	600	24.0	440	17.0	56	0.073	40	88	
		4	600	24.0	500	20.0	56	0.073	45	99	
		Ditching	0	800	32.0	353	14.0	44	0.057	41	90
			0	1000	40.0	353	14.0	56	0.073	43	95
301.5 CR	Digging	2	300	12.0	501	20.0	30	0.040	28	62	
		3	400	16.0	501	20.0	40	0.050	34	75	
		3	450	18.0	501	20.0	44	0.060	36	79	
302.5	Digging	0	260	10.0	568	22.0	35	0.046	43	96	
		3	260	10.0	640	26.0	35	0.046	48	105	
		0	300	12.0	568	22.0	41	0.053	44	97	
		3	300	12.0	640	26.0	41	0.053	51	112	
		0	400	16.0	568	22.0	54	0.070	49	107	
		3	400	16.0	640	26.0	54	0.070	55	121	
		0	457	18.0	568	22.0	65	0.085	53	116	
		3	457	18.0	650	26.0	65	0.085	59	130	
		0	500	20.0	568	22.0	73	0.095	55	122	
		4	500	20.0	640	26.0	73	0.095	64	140	
		0	600	24.0	568	22.0	92	0.120	62	136	
		4	600	24.0	640	26.0	92	0.120	70	155	
		0	700	28.0	568	22.0	111	0.145	69	152	
		4	700	28.0	640	26.0	111	0.145	77	170	
		Ditching	0	800	32.0	482	19.0	80	0.105	82	178
0	1000		40.0	482	19.0	102	0.133	78	172		
0	1200		48.0	482	19.0	116	0.217	88	193		

Model	Bucket Type	Teeth	Bucket Bite Width		Bucket Tip Radius		Heaped Capacity		Bucket Weight With Teeth		
			mm	in	mm	in	L	yd ³	kg	lb	
303 SR	Digging	3	320	13.0	695	27.0	36	0.050	59	130	
		3	400	16.0	695	27.0	65	0.090	64	141	
		4	500	20.0	695	27.0	90	0.120	74	163	
303 CR	Digging	0	300	12.0	682	29.0	49	0.0645	54	119	
		3	300	12.0	765	30.0	49	0.0645	60	133	
		0	400	16.0	682	29.0	65	0.0849	58	129	
		3	400	16.0	765	30.0	65	0.0849	65	142	
		0	500	20.0	682	29.0	89	0.1160	65	142	
		4	500	20.0	765	30.0	89	0.1160	74	162	
		0	600	24.0	682	29.0	113	0.1482	72	159	
		4	600	24.0	765	30.0	113	0.1482	81	178	
		0	650	26.0	682	29.0	126	0.1645	76	167	
	4	650	26.0	765	30.0	126	0.1645	84	185		
	Ditching	0	1000	40.0	510	20.0	111	0.1452	107	236	
		0	1200	48.0	510	20.0	135	0.1766	101	222	
		0	1400	55.0	510	20.0	159	0.2080	113	249	
	304 CR, 305 CR	Digging	0	300	12.0	742	29.0	58	0.076	62	136
			3	300	12.0	833	33.0	58	0.076	73	162
0			400	16.0	742	29.0	76	0.099	67	147	
3			400	16.0	833	33.0	76	0.099	78	173	
0			500	20.0	742	29.0	104	0.136	75	165	
4			500	20.0	833	33.0	104	0.136	90	199	
0			600	24.0	742	29.0	133	0.174	83	184	
4			600	24.0	833	33.0	133	0.174	99	217	
0			700	28.0	742	29.0	162	0.212	100	220	
4		700	28.0	833	33.0	162	0.212	115	253		
Ditching		0	1000	40.0	530	21.0	139	0.182	117	258	
		0	1300	51.0	530	21.0	184	0.240	114	251	
		0	1600	63.0	530	21.0	229	0.300	135	298	
305 SR		Digging	2	360	14.0	890	35.0	51	0.070	81	179
			2	480	19.0	890	35.0	120	0.160	99	218
	4		680	27.0	890	35.0	220	0.290	112	247	

Model	Bucket Type	Available in:	Bucket Family	Bite Width Using Long Tips		Heaped Capacity		Tip Radius		G.E.T. Size	Tips	Bucket Weight w/o tips	
				mm	in	m ³	yd ³	mm	in			kg	lb
M313C	Extreme Excavation	EAME, NACD	N/A	1200	47	0.72	0.94	1245	49	J250	6	478	1054
	Excavation	EAME, NACD	N/A	600	24	0.28	0.37	1245	49	J250	3	350	772
		EAME, NACD	N/A	750	30	0.38	0.50	1245	49	J250	4	349	769
		EAME, NACD	N/A	900	35	0.49	0.64	1245	49	J250	5	388	855
		EAME, NACD	N/A	1000	39	0.56	0.73	1245	49	J250	5	412	908
		EAME, NACD	N/A	1100	43	0.64	0.84	1245	49	J250	6	445	981
		EAME, NACD	N/A	1200	47	0.72	0.94	1245	49	J250	6	468	1032
M315C, M316C	Extreme Excavation	EAME, NACD	N/A	1200	47	0.94	1.23	1440	57	K080	5	676	1490
	Excavation	EAME, NACD	N/A	1300	51	1.03	1.35	1440	57	K080	5	709	1563
		EAME, NACD	N/A	600	24	0.38	0.50	1440	57	K080	3	443	977
		EAME, NACD	N/A	750	30	0.52	0.68	1440	57	K080	3	479	1056
		EAME, NACD	N/A	900	35	0.65	0.85	1440	57	K080	4	536	1182
		EAME, NACD	N/A	1000	39	0.75	0.98	1440	57	K080	4	570	1257
		EAME, NACD	N/A	1100	43	0.84	1.10	1440	57	K080	4	601	1325
		EAME, NACD	N/A	1200	47	0.94	1.23	1440	57	K080	5	642	1415
		EAME, NACD	N/A	1300	51	1.03	1.35	1440	57	K080	5	673	1484
		EAME, NACD	N/A	1400	55	1.13	1.48	1440	57	K080	5	705	1554
M318C	Extreme Excavation	EAME, NACD	B	1200	47	0.94	1.23	1445	57	K080	5	691	1523
	Excavation	EAME, NACD	B	1300	51	1.03	1.35	1445	57	K080	5	724	1596
		EAME, NACD	B	600	24	0.38	0.50	1445	57	K080	3	465	1025
		EAME, NACD	B	750	30	0.52	0.68	1445	57	K080	3	494	1089
		EAME, NACD	B	900	35	0.65	0.85	1445	57	K080	4	551	1215
		EAME, NACD	B	1000	39	0.75	0.98	1445	57	K080	4	585	1290
		EAME, NACD	B	1100	43	0.84	1.10	1445	57	K080	4	617	1360
		EAME, NACD	B	1200	47	0.94	1.23	1445	57	K080	5	657	1448
		EAME, NACD	B	1300	51	1.03	1.35	1445	57	K080	5	689	1519
		EAME, NACD	B	1400	55	1.13	1.48	1445	57	K080	5	723	1594
M322C	Extreme Excavation	EAME, NACD	B	750	30	0.59	0.77	1540	61	K090	3	600	1323
	Excavation	EAME, NACD	B	1250	49	1.13	1.48	1540	61	K090	4	801	1766
		EAME, NACD	B	1300	51	1.18	1.54	1540	61	K090	5	831	1832
		EAME, NACD	B	1400	55	1.30	1.70	1540	61	K090	5	868	1914
		EAME, NACD	B	600	24	0.44	0.58	1540	61	K080	3	585	1290
	Excavation	EAME, NACD	B	750	30	0.59	0.77	1540	61	K080	3	577	1272
		EAME, NACD	B	1000	39	0.86	1.12	1540	61	K080	4	677	1493
		EAME, NACD	B	1200	47	1.08	1.41	1540	61	K080	5	757	1669
		EAME, NACD	B	1250	49	1.13	1.48	1540	61	K080	5	774	1706
		EAME, NACD	B	1300	51	1.19	1.56	1540	61	K080	5	792	1746
		EAME, NACD	B	1400	55	1.30	1.70	1540	61	K080	5	827	1823
		EAME, NACD	B	1500	59	1.41	1.84	1540	61	K080	5	862	1900

EAME — Europe, Africa and Middle East
 NACD — North American Commercial Division

Model	Bucket Type	Available in:	Bucket Family	Bite Width Using Long Tips		Heaped Capacity		Tip Radius		G.E.T. Size	Tips	Bucket Weight w/o tips	
				mm	in	m ³	yd ³	mm	in			kg	lb
307C, 308C CR	General Purpose	NACD	N/A	330	13	0.12	0.16	1070	42	J225	3	142	313
		NACD	N/A	457	18	0.20	0.26	1070	42	J225	3	154	339
		NACD	N/A	609	24	0.30	0.39	1070	42	J225	4	181	398
		NACD	N/A	762	30	0.40	0.52	1070	42	J225	5	208	458
		NACD	N/A	914	36	0.48	0.63	1070	42	J225	6	230	508
	Heavy Duty	NACD	N/A	609	24	0.30	0.39	1070	42	J250	4	232	511
		NACD	N/A	762	30	0.40	0.52	1070	42	J250	5	268	590
	Excavation	EAME	N/A	336	13	0.09	0.12	1055	42	J225	3	160	353
		SCM/APD	307	380	14	0.14	0.18	1070	42	J225	3	Call Dealer	
		SCM/APD	307	480	18	0.18	0.24	1070	42	J225	3	Call Dealer	
		EAME	N/A	450	18	0.16	0.21	1055	42	J225	3	165	364
		SCM/APD	307	580	22	0.23	0.30	1070	42	J225	4	Call Dealer	
		SCM/APD	307	600	23	0.24	0.31	1070	42	J225	4	Call Dealer	
		EAME	N/A	600	24	0.23	0.30	1055	42	J225	4	195	430
		SCM/APD	307	696	27	0.28	0.37	1070	42	J225	4	Call Dealer	
EAME		N/A	750	30	0.30	0.39	1055	42	J225	5	222	489	
313C SR	Excavation	—	—	600	24	0.32	0.42	1220	48	J250	—	309	680
		—	—	700	28	0.38	0.50	1220	48	J250	—	327	720
		—	—	825	32	0.45	0.59	1220	48	J250	—	352	780
313C CR	Excavation	—	—	600	24	0.32	0.42	1220	48	J250	—	309	680
		—	—	700	28	0.38	0.50	1220	48	J250	—	327	720
		—	—	825	32	0.45	0.59	1220	48	J250	—	352	780
		—	—	920	36	0.52	0.68	1220	48	J250	—	375	830
		—	—	1000	39	0.57	0.75	1220	48	J250	—	392	860
311C U, 312C, 314C CR	General Purpose	NACD	N/A	457	18	0.29	0.38	1220	48	J250	3	260	574
		NACD	N/A	609	24	0.39	0.51	1220	48	J250	4	306	675
		NACD	N/A	762	30	0.52	0.68	1220	48	J250	5	344	758
		NACD	N/A	914	36	0.68	0.89	1220	48	J250	6	386	851
		NACD	N/A	1066	42	0.82	1.10	1220	48	J250	6	428	943
		NACD	N/A	1219	48	0.97	1.27	1220	48	J250	7	465	1025
	Heavy Duty	NACD	N/A	609	24	0.39	0.51	1220	48	J300	3	346	763
		NACD	N/A	762	30	0.52	0.68	1220	48	J300	4	396	872
		NACD	N/A	914	36	0.68	0.89	1220	48	J300	5	448	987
		NACD	N/A	1066	42	0.82	1.10	1220	48	J300	5	489	1078
	Extreme Excavation	EAME	N/A	1200	47	0.72	0.94	1240	49	J250	6	463	1021

EAME — Europe, Africa and Middle East
 NACD — North American Commercial Division
 SCM — Shin Caterpillar Mitsubishi
 APD — Asia Pacific Division

Model	Bucket Type	Available in:	Bucket Family	Bite Width Using Long Tips		Heaped Capacity		Tip Radius		G.E.T. Size	Tips	Bucket Weight w/o tips		
				mm	in	m ³	yd ³	mm	in			kg	lb	
311C U, 312C, 314C CR (cont'd)	Excavation	SCM/APD	312	564	22	0.32	0.42	1220	48	J250	3	308	681	
		EAME	N/A	600	24	0.28	0.37	1240	49	J250	3	316	697	
		SCM/APD	312	664	26	0.38	0.50	1220	48	J250	4	326	720	
		SCM/APD	312	785	30	0.45	0.59	1220	48	J250	5	352	776	
		EAME	N/A	750	30	0.38	0.50	1240	49	J250	4	336	741	
		SCM/APD	312	880	34	0.52	0.68	1220	48	J250	5	374	825	
		EAME	N/A	900	35	0.49	0.64	1240	49	J250	5	375	827	
		SCM/APD	312	964	37	0.57	0.75	1220	48	J250	5	392	864	
		EAME	N/A	1000	39	0.56	0.73	1240	49	J250	5	397	875	
		SCM/APD	312	1056	41	0.63	0.82	1220	48	J250	5	415	916	
		EAME	N/A	1100	43	0.64	0.84	1240	49	J250	6	430	948	
		EAME	N/A	1200	47	0.72	0.94	1240	49	J250	6	453	999	
		Excavation for Demolition	SCM/APD	312	880	34	0.52	0.68	1220	48	J250	5	399	879
			SCM/APD	312	785	30	0.45	0.59	1220	48	J250	5	376	830
315C	General Purpose	NACD	N/A	609	24	0.43	0.56	1340	53	K80	3	383	845	
		NACD	N/A	762	30	0.60	0.78	1340	53	K80	4	434	956	
		NACD	N/A	914	36	0.77	1.00	1340	53	K80	5	489	1077	
		NACD	N/A	1066	42	0.95	1.24	1340	53	K80	5	534	1177	
		NACD	N/A	1219	48	1.12	1.46	1340	53	K80	6	586	1293	
	Heavy Duty	SCM/APD	315	508	20	0.32	0.42	1352	53	J300	3	364	803	
		NACD	N/A	609	24	0.43	0.56	1340	53	K90	3	463	1021	
		NACD	N/A	762	30	0.60	0.78	1340	53	K90	4	418	1143	
		NACD	N/A	914	36	0.78	1.02	1340	53	K90	5	596	1315	
		NACD	N/A	1066	42	0.95	1.24	1340	53	K90	5	653	1440	
		NACD	N/A	1219	48	1.13	1.48	1340	53	K90	6	719	1585	
	Excavation	EAME	N/A	600	24	0.38	0.50	1415	56	K080	3	450	992	
		EAME	N/A	750	30	0.52	0.68	1415	56	K080	3	489	1078	
		EAME	N/A	900	35	0.65	0.85	1415	56	K080	4	546	1204	
		EAME	N/A	1000	39	0.75	0.98	1415	56	K080	4	580	1279	
		EAME	N/A	1100	43	0.84	1.10	1415	56	K080	4	612	1349	
		EAME	N/A	1200	47	0.94	1.23	1415	56	K080	5	652	1437	
		EAME	N/A	1300	51	1.03	1.35	1415	56	K080	5	684	1508	
		EAME	N/A	1400	55	1.13	1.48	1415	56	K080	5	715	1576	
		SCM/APD	315	960	37	0.65	0.85	1352	53	J300	5	485	1069	
		SCM/APD	315	1115	43	0.80	1.00	1352	53	J300	6	543	1197	
Extreme Excavation	EAME	N/A	1200	47	0.94	1.23	1415	56	K080	5	686	1512		
	EAME	N/A	1300	51	1.03	1.35	1415	56	K080	5	719	1585		

EAME — Europe, Africa and Middle East
 NACD — North American Commercial Division
 SCM — Shin Caterpillar Mitsubishi
 APD — Asia Pacific Division

Model	Bucket Type	Available in:	Bucket Family	Bite Width Using Long Tips		Heaped Capacity		Tip Radius		G.E.T. Size	Tips	Bucket Weight w/o tips		
				mm	in	m ³	yd ³	mm	in			kg	lb	
318C	Heavy Duty	NACD	B	609	24	0.52	0.68	1420	56	K90	3	598	1319	
		NACD	B	762	30	0.71	0.93	1420	56	K90	4	663	1462	
		NACD	B	914	36	0.92	1.20	1420	56	K90	5	721	1590	
		NACD	B	1066	42	1.12	1.46	1421	56	K90	5	767	1690	
		EAME	B	1200	47	0.94	1.23	1431	56	K080	5	691	1523	
		NACD	B	1219	48	1.33	1.74	1422	56	K90	6	835	1840	
		EAME	B	1300	51	1.03	1.35	1432	56	K080	5	724	1596	
	Excavation	EAME	B	600	24	0.38	0.50	1423	56	K080	3	465	1025	
		EAME	B	750	30	0.52	0.68	1424	56	K080	3	494	1089	
		EAME	B	900	35	0.65	0.85	1425	56	K080	4	551	1215	
		EAME	B	1000	39	0.75	0.98	1426	56	K080	4	585	1290	
		EAME	B	1100	43	0.84	1.10	1427	56	K080	4	617	1360	
		EAME	B	1200	47	0.94	1.23	1428	56	K080	5	657	1448	
		EAME	B	1300	51	1.03	1.35	1429	56	K080	5	689	1519	
		EAME	B	1400	55	1.13	1.48	1430	56	K080	5	723	1594	
	320C, 320C U, 321C CR	General Purpose	NACD	B	610	24	0.57	0.74	1433	56	K80	3	611	1347
			NACD	B	762	30	0.77	1.01	1436	56	K80	4	667	1471
NACD			C	762	30	0.90	1.20	Call Dealer		K90	3	772	1698	
NACD			B	914	36	0.95	1.24	1439	56	K80	5	757	1669	
NACD			C	914	36	1.20	1.50	Call Dealer		K90	5	878	1932	
NACD			B	1067	42	1.17	1.53	1443	56	K80	5	812	1791	
NACD			C	1067	42	1.40	1.80	Call Dealer		K90	5	944	2076	
NACD			B	1219	48	1.39	1.82	1447	56	K80	6	895	1974	
NACD			C	1219	48	1.60	2.10	Call Dealer		K90	6	1039	2286	
NACD			B	1372	54	1.57	2.05	1451	56	K80	6	959	2114	
NACD		C	1372	54	1.80	2.40	Call Dealer		K90	7	1112	2448		
Heavy Duty		NACD	B	610	24	0.50	0.70	1434	56	K90	3	657	1444	
		NACD	B	762	30	0.70	0.90	1437	56	K90	4	737	1622	
		NACD	C	762	30	0.75	0.98	1640	65	K100	3	823	1812	
		NACD	B	914	36	0.90	1.10	1440	56	K90	5	805	1779	
		NACD	C	914	36	0.98	1.28	1640	65	K100	4	918	2020	
		NACD	B	1067	42	1.00	1.40	1444	56	K90	5	866	1903	
		NACD	C	1067	42	1.18	1.55	1640	65	K100	5	995	2189	
		NACD	B	1219	48	1.20	1.60	1448	56	K90	6	963	2119	
		NACD	B	1219	48	1.20	1.60	1449	56	K90	6	936	2058	
	NACD	C	1219	48	1.39	1.81	1640	65	K100	5	1065	2342		
NACD	B	1372	54	1.40	1.80	1452	56	K90	7	1025	2255			
NACD	B	1372	54	1.40	1.80	1453	56	K90	7	995	2189			
NACD	C	1372	54	1.59	2.08	1640	65	K100	6	1148	2527			
NACD	C	1524	60	1.80	2.35	1640	65	K100	7	1234	2715			
NACD	C	1676	66	2.01	2.63	1640	65	K100	7	1307	2876			

EAME — Europe, Africa and Middle East
 NACD — North American Commercial Division

Model	Bucket Type	Available in:	Bucket Family	Bite Width Using Long Tips		Heaped Capacity		Tip Radius		G.E.T. Size	Tips	Bucket Weight w/o tips	
				mm	in	m ³	yd ³	mm	in			kg	lb
320C, 320C U, 321C CR (cont'd)	Heavy Duty Rock	NACD	B	610	24	0.50	0.70	1435	56	K90	3	708	1557
		NACD	B	762	30	0.70	0.90	1438	56	K90	4	793	1744
		NACD	C	762	30	0.75	0.98	1640	65	K100	3	895	1969
		NACD	B	914	36	0.90	1.10	1442	56	K90	5	875	1925
		NACD	C	914	36	0.98	1.26	1640	65	K100	4	1000	2200
		NACD	B	1067	42	1.00	1.40	1446	56	K90	5	945	2080
		NACD	C	1067	42	1.18	1.55	1640	65	K100	5	1087	2391
		NACD	C	1219	48	1.39	1.81	1640	65	K100	5	1167	2567
		NACD	C	1372	54	1.60	2.10	1549	61	K100	6	1155	2545
	Heavy Duty Power	NACD	B	914	36	0.80	1.10	1441	56	K90	5	796	1751
		NACD	B	1067	42	1.00	1.30	1445	56	K90	5	855	1881
		NACD	C	1067	42	1.20	1.50	1549	61	K100	5	991	2184
		NACD	B	1219	48	1.20	1.50	1450	56	K90	6	944	2077
		NACD	C	1219	48	1.40	1.80	1549	61	K100	5	1065	2348
	Extreme Excavation	EAME	B	750	30	0.59	0.77	1540	61	K090	3	600	1323
		EAME	C	750	30	0.67	0.88	1610	63	K100	3	695	1532
		EAME	C	1150	45	1.16	1.52	1610	63	K100	4	888	1958
		EAME	B	1250	49	1.13	1.48	1540	61	K090	4	801	1766
		EAME	B	1300	51	1.18	1.54	1540	61	K090	5	831	1832
		EAME	C	1350	53	1.42	1.86	1610	63	K100	4	976	2152
		EAME	B	1400	55	1.30	1.70	1540	61	K090	5	868	1914
		EAME	C	1450	57	1.55	2.03	1610	63	K100	5	1035	2282
		EAME	C	1500	59	1.61	2.11	1610	63	K100	5	1056	2328
		EAME	C	1600	63	1.74	2.28	1610	63	K100	5	1100	2425
	Excavation	EAME	B	600	24	0.44	0.58	Call Dealer		K080	3	585	1290
		EAME	C	600	24	0.49	0.64	1610	63	K090	3	626	1380
		EAME	B	750	30	0.59	0.77	1540	61	K080	3	577	1272
		EAME	C	750	30	0.67	0.88	1610	63	K090	3	668	1473
		SCM/APD	B	972	38	0.80	1.00	1490	59	J300	5	589	1299
		EAME	B	1000	39	0.86	1.12	1540	61	K080	4	677	1493
		SCM/APD	B	1092	42	0.90	1.20	1490	59	J300	5	625	1379
		SCM/APD	B	1152	45	1.00	1.30	1490	59	J300	6	651	1436
		EAME	B	1200	47	1.08	1.41	1540	61	K080	5	757	1669
EAME		B	1250	49	1.13	1.48	1540	61	K080	5	774	1706	
EAME		C	1250	49	1.29	1.69	1610	63	K090	4	893	1969	
EAME		B	1300	51	1.19	1.56	1540	61	K080	5	792	1746	
EAME		C	1300	51	1.35	1.77	1610	63	K090	5	925	2039	
EAME		C	1350	53	1.42	1.86	1610	63	K090	5	946	2086	
SCM/APD		C	1375	54	1.10	1.40	1488	59	J350	6	824	1818	
EAME		B	1400	55	1.30	1.70	1540	61	K080	5	827	1823	
EAME		C	1400	55	1.48	1.94	1610	63	K090	5	967	2132	
SCM/APD		C	1470	57	1.20	1.60	1488	59	J350	6	860	1896	
EAME		B	1500	59	1.41	1.84	1540	61	K080	5	862	1900	
EAME		C	1500	59	1.61	2.11	1610	63	K090	5	1010	2227	
EAME	C	1600	63	1.74	2.28	1610	63	K090	5	1051	2317		

EAME — Europe, Africa and Middle East
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 APD — Asia Pacific Division

Model	Bucket Type	Available in:	Bucket Family	Bite Width Using Long Tips		Heaped Capacity		Tip Radius		G.E.T. Size	Tips	Bucket Weight w/o tips	
				mm	in	m ³	yd ³	mm	in			kg	lb
320C, 320C U 321C CR (cont'd)	Excavation	SCM/APD	B	1252	49	0.90	1.20	1423	56	J300	6	675	1488
		SCM/APD	B	1362	53	1.00	1.30	1423	56	J300	6	700	1544
	Ditch Cleaning	NACD	B	1524	60	0.99	1.30	Call Dealer		B.O.E.	Call Dealer	703	1550
		NACD	B	1829	72	1.24	1.63	Call Dealer		B.O.E.	Call Dealer	816	1800
	Excavation for Demolition	SCM/APD	B	986	38	0.80	1.00	1494	59	J350	5	706	1557
SCM/APD		B	1106	43	0.90	1.20	1544	61	J350	5	761	1678	
322C	General Purpose	NACD	S	610	24	0.50	0.60	Call Dealer		K90	3	707	1559
		NACD	S	610	24	0.50	0.60	Call Dealer		K90	3	707	1559
		NACD	S	762	30	0.60	0.80	Call Dealer		K90	3	750	1653
		NACD	D	762	30	0.85	1.12	1886	74	J460	3	942	2080
		NACD	S	914	36	0.80	1.10	Call Dealer		K90	5	879	1939
		NACD	D	914	36	1.14	1.50	1886	74	J460	3	1020	2250
		NACD	S	1067	42	1.00	1.30	Call Dealer		K90	5	954	2085
		NACD	D	1067	42	1.43	1.88	1886	74	J460	4	1115	2460
		NACD	S	1219	48	1.20	1.50	Call Dealer		K90	6	1042	2298
		NACD	D	1219	48	1.72	2.25	1886	74	J460	5	1143	2520
		NACD	S	1372	54	1.30	1.70	1640	65	K90	7	1117	2462
		NACD	D	1397	55	2.00	2.62	1886	74	J460	5	1188	2620
		NACD	D	1524	60	2.29	3.00	1886	74	J460	6	1397	3080
	NACD	D	1829	72	2.82	3.70	1886	74	J400	7	1655	3650	
	Heavy Duty	NACD	S	610	24	0.57	0.75	1640	65	K100	3	753	1661
		NACD	S	762	30	0.75	0.98	1640	65	K100	3	823	1814
		NACD	D	762	30	0.76	1.00	1764	69	J460	3	981	2163
		NACD	S	914	36	0.98	1.28	1640	65	K100	4	918	2024
		NACD	D	914	36	0.95	1.25	1764	69	J460	3	1084	2390
		NACD	D	914	36	0.95	1.25	1660	65	J460	3	1025	2260
		NACD	S	1067	42	1.18	1.55	1640	65	K100	5	995	2193
		NACD	D	1067	42	1.14	1.50	1764	69	J460	4	1197	2640
		NACD	S	1219	48	1.39	1.81	1640	65	K100	5	1065	2348
NACD		D	1219	48	1.43	1.88	1764	69	J460	5	1321	2913	
NACD	S	1372	54	1.59	2.08	1640	65	K100	6	1148	2531		
NACD	D	1397	55	1.62	2.12	1764	69	J460	5	1421	3134		
NACD	S	1524	60	1.80	2.35	1640	65	K100	7	1234	2721		
NACD	D	1524	60	1.91	2.50	1764	69	J460	6	1522	3356		
NACD	D	1676	66	2.10	2.75	1764	69	J460	6	1609	3548		
NACD	D	1829	72	2.29	3.00	1764	69	J460	7	1645	3628		

NACD — North American Commercial Division
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 APD — Asia Pacific Division

Model	Bucket Type	Available in:	Bucket Family	Bite Width Using Long Tips		Heaped Capacity		Tip Radius		G.E.T. Size	Tips	Bucket Weight w/o tips	
				mm	in	m ³	yd ³	mm	in			kg	lb
322C (cont'd)	Heavy Duty Rock	NACD	S	762	30	0.75	0.98	1640	65	K100	3	894	1971
		NACD	D	762	30	0.76	1.00	1764	69	J460	3	1101	2429
		NACD	S	914	36	0.98	1.28	1640	65	K100	4	999	2202
		NACD	D	914	36	0.95	1.25	1764	69	J460	3	1207	2663
		NACD	S	1067	42	1.18	1.55	1640	65	K100	5	1086	2393
		NACD	D	1067	42	1.14	1.50	1764	69	J460	4	1338	2950
		NACD	D	1219	48	1.43	1.88	1764	69	J460	5	1480	3264
		NACD	D	1397	55	1.62	2.12	1764	69	J460	5	1583	3490
	Heavy Duty Power	NACD	S	1067	42	1.20	1.50	1549	61	K100	5	991	2184
		NACD	S	1219	48	1.40	1.80	1549	61	K100	5	1065	2348
		NACD	D	1219	48	1.43	1.88	1660	65	J460	5	1254	2765
		NACD	S	1372	54	1.60	2.10	1549	61	K100	6	1155	2545
		NACD	D	1372	54	1.62	2.12	1660	65	J460	5	1339	2954
		NACD	D	1524	60	1.91	2.50	1660	65	J460	6	1447	3192
	Extreme Excavation	EAME	D	1350	53	1.50	1.96	1660	65	J460	4	1296	2857
		EAME	S	1450	57	1.55	2.03	1610	63	K100	5	1035	2282
		EAME	D	1500	59	1.70	2.22	1660	65	J460	5	1403	3093
		EAME	D	1650	65	1.90	2.49	1660	65	J460	5	1571	3463
	Excavation	EAME	S	750	30	0.67	0.88	1610	63	K090	3	668	1473
		SCM/APD	S	1062	41	1.00	1.30	1551	61	J350	5	758	1672
		SCM/APD	B	1092	42	0.90	1.20	1490	59	J300	5	625	1379
		SCM/APD	S	1162	45	1.10	1.40	1551	61	J350	5	787	1735
		SCM/APD	S	1318	51	1.20	1.60	1551	61	J350	5	808	1782
		SCM/APD	D	1347	53	1.30	1.70	1661	65	J400	5	1022	2253
		EAME	S	1350	53	1.42	1.86	1610	63	K090	4	946	2086
		EAME	D	1350	53	1.50	1.96	1660	65	J400	4	1214	2676
		SCM/APD	D	1432	56	1.40	1.80	1661	65	J400	5	1071	2361
		EAME	D	1500	59	1.70	2.22	1660	65	J400	5	1324	2919
		SCM/APD	D	1502	59	1.50	2.00	1661	65	J400	5	1130	2491
		EAME	D	1650	65	1.90	2.49	1660	65	J400	5	1411	3111
		EAME	D	1800	71	2.20	2.88	1660	65	J400	6	1540	3395
	Rock	EAME	D	1000	39	1.00	1.31	1660	65	J460	3	1160	2557
EAME		D	1650	65	2.03	2.66	1660	65	J460	5	1632	3598	
Ditch Cleaning	NACD	S	1524	60	0.99	1.30	Call Dealer		B.O.E.	Call Dealer	703	1550	
	NACD	S	1829	72	1.24	1.63	Call Dealer		B.O.E.	Call Dealer	816	1800	
Excavation for Demolition	SCM/APD	S	1253	49	1.10	1.40	1577	62	J400	5	920	2029	

EAME — Europe, Africa and Middle East
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Model	Bucket Type	Available in:	Bucket Family	Bite Width Using Long Tips		Heaped Capacity		Tip Radius		G.E.T. Size	Tips	Bucket Weight w/o tips	
				mm	in	m ³	yd ³	mm	in			kg	lb
325C	General Purpose	NACD	C	762	30	0.90	1.20	Call Dealer	K90	3	772	1698	
		NACD	D	762	30	0.85	1.12	1886	74	J460	3	942	2080
		NACD	C	914	36	1.20	1.50	Call Dealer	K90	5	878	1932	
		NACD	D	914	36	1.14	1.50	1886	74	J460	3	1020	2250
		NACD	C	1067	42	1.40	1.80	Call Dealer	K90	5	944	2076	
		NACD	D	1067	42	1.43	1.88	1886	74	J460	4	1115	2460
		NACD	C	1219	48	1.60	2.10	Call Dealer	K90	6	1039	2286	
		NACD	D	1219	48	1.72	2.25	1886	74	J460	5	1143	2520
		NACD	C	1372	54	1.80	2.40	Call Dealer	K90	7	1112	2448	
		NACD	D	1397	55	2.00	2.62	1886	74	J460	5	1188	2620
		NACD	D	1524	60	2.29	3.00	1886	74	J460	6	1397	3080
		NACD	D	1829	72	2.82	3.70	1886	74	J400	7	1655	3650
	Heavy Duty	NACD	C	762	30	0.75	0.98	1640	65	K100	3	823	1812
		NACD	D	762	30	0.76	1.00	1764	69	J460	3	981	2163
		NACD	C	914	36	0.98	1.28	1640	65	K100	4	918	2020
		NACD	D	914	36	0.95	1.25	1764	69	J460	3	1084	2390
		NACD	C	1067	42	1.18	1.55	1640	65	K100	5	995	2189
		NACD	D	1067	42	1.14	1.50	1764	69	J460	4	1197	2640
		NACD	C	1219	48	1.39	1.81	1640	65	K100	5	1065	2342
		NACD	D	1219	48	1.43	1.88	1764	69	J460	5	1321	2913
		NACD	C	1372	54	1.59	2.08	1640	65	K100	6	1148	2527
		NACD	D	1397	55	1.62	2.12	1764	69	J460	5	1421	3134
		NACD	C	1524	60	1.80	2.35	1640	65	K100	7	1234	2715
		NACD	D	1524	60	1.91	2.50	1764	69	J460	6	1522	3356
		NACD	C	1676	66	2.01	2.63	1640	65	K100	7	1307	2876
		NACD	D	1676	66	2.10	2.75	1764	69	J460	6	1609	3548
	NACD	D	1829	72	2.29	3.00	1764	69	J460	7	1645	3628	
	Heavy Duty Rock	NACD	C	762	30	0.75	0.98	1640	65	K100	3	895	1969
		NACD	D	762	30	0.76	1.00	1764	69	J460	3	1101	2429
		NACD	C	914	36	0.98	1.258	1640	65	K100	4	1000	2200
		NACD	D	914	36	0.95	1.25	1764	69	J460	3	1207	2663
		NACD	C	1067	42	1.18	1.55	1640	65	K100	5	1087	2391
		NACD	D	1067	42	1.14	1.50	1764	69	J460	4	1338	2950
		NACD	C	1219	48	1.39	1.81	1640	65	K100	5	1167	2567
		NACD	D	1219	48	1.43	1.88	1764	69	J460	5	1480	3264
		NACD	D	1397	55	1.62	2.12	1764	69	J460	5	1583	3490
Heavy Duty Power	NACD	D	914	36	0.95	1.25	1660	65	J460	3	1025	2260	
	NACD	C	1067	42	1.20	1.50	1549	61	K100	5	991	2184	
	NACD	C	1219	48	1.40	1.80	1549	61	K100	5	1065	2348	
	NACD	D	1219	48	1.43	1.88	1660	65	J460	5	1254	2765	
	NACD	C	1372	54	1.60	2.10	1549	61	K100	6	1155	2545	
	NACD	D	1372	54	1.62	2.12	1660	65	J460	5	1339	2954	
	NACD	D	1524	60	1.91	2.50	1660	65	J460	6	1447	3192	

NACD — North American Commercial Division

Model	Bucket Type	Available in:	Bucket Family	Bite Width Using Long Tips		Heaped Capacity		Tip Radius		G.E.T. Size	Tips	Bucket Weight w/o tips		
				mm	in	m ³	yd ³	mm	in			kg	lb	
325C (cont'd)	Extreme Excavation	EAME	C	750	30	0.67	0.88	1610	63	K100	3	695	1532	
		EAME	C	1150	45	1.16	1.52	1610	63	K100	4	888	1958	
		EAME	C	1350	53	1.42	1.86	1610	63	K100	4	976	2152	
		EAME	D	1350	53	1.50	1.96	1660	65	J460	4	1296	2857	
		EAME	C	1450	57	1.55	2.03	1610	63	K100	5	1035	2282	
		EAME	C	1500	59	1.61	2.11	1610	63	K100	5	1056	2328	
		EAME	D	1500	59	1.70	2.22	1660	65	J460	5	1403	3093	
		EAME	C	1600	63	1.74	2.28	1610	63	K100	5	1100	2425	
		EAME	D	1650	65	1.90	2.49	1660	65	J460	5	1571	3463	
		Excavation	EAME	C	600	24	0.49	0.64	1610	63	K090	3	626	1380
			EAME	C	750	30	0.67	0.88	1610	63	K090	3	668	1473
			SCM/APD	C	1080	42	0.80	1.00	1488	59	J350	5	745	1643
			EAME	C	1250	49	1.29	1.69	1610	63	K090	4	893	1969
			EAME	C	1300	51	1.35	1.77	1610	63	K090	5	925	2039
			EAME	D	1350	53	1.50	1.96	1660	65	J400	4	1214	2676
			EAME	C	1350	53	1.42	1.86	1610	63	K090	5	946	2086
			SCM/APD	C	1375	54	1.10	1.40	1488	59	J350	6	824	1818
			EAME	C	1400	55	1.48	1.94	1610	63	K090	5	967	2132
			SCM/APD	D	1432	56	1.40	1.80	1660	65	J400	5	1071	2361
			SCM/APD	C	1470	57	1.20	1.60	1488	59	J350	6	860	1896
			EAME	D	1500	59	1.70	2.22	1660	65	J400	5	1324	2919
			EAME	C	1500	59	1.61	2.11	1610	63	K090	5	1010	2227
			SCM/APD	D	1502	59	1.50	2.00	1660	65	J400	5	1130	2491
			EAME	C	1600	63	1.74	2.28	1610	63	K090	5	1051	2317
			EAME	D	1650	65	1.90	2.49	1660	65	J400	5	1411	3111
		EAME	D	1800	71	2.20	2.88	1660	65	J400	6	1540	3395	
		Mass Excavation	SCM/APD	C	1443	56	1.30	1.70	1488	59	J350	6	892	1967
			SCM/APD	D	1522	59	1.60	2.10	1660	65	J400	6	1182	2606
	SCM/APD		C	1593	62	1.50	2.00	1488	59	J350	6	963	2124	
	Ditch Cleaning	NACD	C	1676	66	1.14	1.50	Call Dealer		BOCE	Call Dealer	811	1790	
		NACD	C	1829	72	1.23	1.62	Call Dealer		BOCE	Call Dealer	857	1890	
	Rock	EAME	D	1000	39	1.00	1.31	1660	65	J460	3	1160	2557	
		EAME	D	1650	65	2.03	2.66	1660	65	J460	5	1632	3598	
	Excavation for Demolition	SCM/APD	C	1465	57	1.30	1.70	1514	60	J400	6	993	2189	

EAME — Europe, Africa and Middle East
 SCM — Shin Caterpillar Mitsubishi
 APD — Asia Pacific Division

Model	Bucket Type	Available in:	Bucket Family	Bite Width Using Long Tips		Heaped Capacity		Tip Radius		G.E.T. Size	Tips	Bucket Weight w/o tips	
				mm	in	m ³	yd ³	mm	in			kg	lb
330C	General Purpose	NACD	D	762	30	0.85	1.12	1886	74	J460	3	942	2080
		NACD	D	914	36	1.14	1.50	1886	74	J460	3	1020	2250
		NACD	D	1067	42	1.43	1.88	1886	74	J460	4	1115	2460
		NACD	D	1219	48	1.72	2.25	1886	74	J460	5	1143	2520
		NACD	D	1397	55	2.00	2.62	1886	74	J460	5	1188	2620
		NACD	D	1524	60	2.29	3.00	1886	74	J460	6	1397	3080
		NACD	D	1829	72	2.82	3.70	1886	74	J400	7	1655	3650
	Heavy Duty	NACD	D	762	30	0.76	1.00	1764	69	J460	3	981	2163
		NACD	D	914	36	0.95	1.25	1764	69	J460	3	1084	2390
		NACD	D	1067	42	1.14	1.50	1764	69	J460	4	1197	2640
		NACD	D	1219	48	1.43	1.88	1764	69	J460	5	1321	2913
		NACD	D	1397	55	1.62	2.12	1764	69	J460	5	1421	3134
		NACD	D	1524	60	1.91	2.50	1764	69	J460	6	1522	3356
		NACD	D	1676	66	2.10	2.75	1764	69	J460	6	1609	3548
		NACD	E	1676	66	2.29	3.00	1870	74	J460	6	2140	4720
	Heavy Duty Rock	NACD	D	1829	72	2.29	3.00	1764	69	J460	7	1645	3628
		NACD	E	1829	72	2.67	3.50	1870	74	J460	7	2263	4990
		NACD	D	762	30	0.76	1.00	1764	69	J460	3	1101	2429
		NACD	D	914	36	0.95	1.25	1764	69	J460	3	1207	2663
		NACD	D	1067	42	1.14	1.50	1764	69	J460	4	1338	2950
	Heavy Duty Power	NACD	D	1219	48	1.43	1.88	1764	69	J460	5	1480	3264
		NACD	D	1397	55	1.62	2.12	1764	69	J460	5	1583	3490
		NACD	D	1524	60	1.91	2.50	1660	65	J460	3	1025	2260
		NACD	D	1219	48	1.43	1.88	1660	65	J460	5	1254	2765
	Extreme Excavation	NACD	D	1372	54	1.62	2.12	1660	65	J460	5	1339	2954
		NACD	D	1524	60	1.91	2.50	1660	65	J460	6	1447	3192
		EAME	E	750	30	0.68	0.89	1780	70	J460	3	1040	2293
		EAME	D	1350	53	1.50	1.96	1660	65	J460	4	1296	2857
	Excavation	EAME	D	1500	59	1.70	2.22	1660	65	J460	5	1403	3093
		EAME	D	1650	65	1.90	2.49	1660	65	J460	5	1571	3463
		EAME	E	1700	67	2.20	2.88	1780	70	J460	5	1803	3975
		SCM/APD	D	1347	53	1.30	1.70	1660	65	J400	5	1022	2253
		EAME	D	1350	53	1.50	1.96	1660	65	J400	4	1214	2676
	Excavation	SCM/APD	D	1432	56	1.40	1.80	1660	65	J400	5	1071	2361
		SCM/APD	E	1479	58	1.70	2.20	1845	73	J460	5	1442	3179
		EAME	D	1500	59	1.70	2.22	1660	65	J400	5	1324	2919
EAME		E	1500	59	1.90	2.49	1780	70	J460	4	1590	3505	
SCM/APD		D	1502	59	1.50	2.00	1660	65	J400	5	1130	2491	
SCM/APD		E	1608	63	1.90	2.50	1845	73	J460	5	1523	3357	
EAME		D	1650	65	1.90	2.49	1660	65	J400	5	1411	3111	
EAME		E	1700	67	2.20	2.88	1780	70	J460	6	1764	3889	
EAME		D	1800	71	2.20	2.88	1660	65	J400	6	1540	3395	

EAME — Europe, Africa and Middle East
 NACD — North American Commercial Division
 SCM — Shin Caterpillar Mitsubishi
 APD — Asia Pacific Division

Model	Bucket Type	Available in:	Bucket Family	Bite Width Using Long Tips		Heaped Capacity		Tip Radius		G.E.T. Size	Tips	Bucket Weight w/o tips		
				mm	in	m ³	yd ³	mm	in			kg	lb	
330C (cont'd)	Excavation for Demolition	SCM/APD	D	1463	57	1.40	1.8	1703	67	J460	5	1317	2904	
		SCM/APD	D	1533	60	1.50	2.00	1703	67	J460	5	1384	3051	
	Mass Excavation	SCM/APD	D	1522	59	1.60	2.10	1660	65	J400	6	1182	2606	
		SCM/APD	D	1522	59	1.60	2.10	1660	65	J400	6	1182	2606	
		SCM/APD	D	1702	67	1.90	2.50	1660	65	J400	6	1262	2782	
		SCM/APD	E	1744	68	2.10	2.70	1845	73	J460	6	1608	3545	
	Rock	EAME	D	1000	39	1.00	1.31	1660	65	J460	3	1160	2557	
		EAME	E	1500	59	1.90	2.49	1780	70	J550	4	1690	3726	
		EAME	D	1650	65	2.03	2.66	1660	65	J460	5	1632	3598	
		EAME	E	1800	71	2.30	3.01	1870	74	J550	4	2315	5104	
	345B II	General Purpose	NACD	F	762	30	0.95	1.25	2030	80	J460	3	1317	2905
			NACD	F	914	36	1.33	1.75	2030	80	J460	3	1478	3260
NACD			F	1067	42	1.62	2.12	2030	80	J460	4	1637	3610	
NACD			F	1219	48	1.81	2.38	2030	80	J400	5	1539	3395	
NACD			F	1219	48	1.91	2.50	2030	80	J460	5	1764	3890	
NACD			F	1372	54	2.29	3.00	2030	80	J460	5	1791	3950	
NACD			F	1575	62	2.67	3.50	2030	80	J460	6	2027	4470	
NACD			F	1727	68	3.05	4.00	2030	80	J460	7	2140	4720	
Heavy Duty		NACD	F	1905	75	3.82	5.00	2030	80	J550	6	2834	6250	
		NACD	F	914	36	1.05	1.38	1870	74	J460	3	1499	3305	
		NACD	F	1067	42	1.33	1.75	1870	74	J460	4	1655	3650	
		NACD	F	1219	48	1.62	2.12	1870	74	J460	5	1755	3870	
		NACD	F	1372	54	1.91	2.50	1870	74	J460	5	1896	4180	
		NACD	F	1524	60	2.10	2.75	1870	74	J460	6	2027	4470	
		NACD	F	1676	66	2.29	3.00	1870	74	J460	6	2018	4750	
Heavy Duty Rock		NACD	F	1829	72	2.67	3.50	1870	74	J460	7	2277	5020	
		NACD	F	762	30	0.76	1.00	1870	74	J460	3	1382	3047	
		NACD	F	914	36	1.05	1.38	1870	74	J460	4	1587	3499	
		NACD	F	1067	42	1.33	1.75	1870	74	J460	4	1764	3890	
		NACD	F	1219	48	1.62	2.12	1870	74	J460	5	1896	4180	
		NACD	F	1372	54	1.91	2.50	1870	74	J460	5	2032	4480	
		NACD	F	1524	60	2.10	2.75	1870	74	J460	6	2170	4785	
		EAME	T	1570	62	2.20	2.88	1870	74	J550	4	2470	5445	
		NACD	F	1676	66	2.29	3.00	1870	74	J460	6	2307	5087	
Heavy Duty Power		NACD	F	1829	72	2.67	3.50	1870	74	J460	7	2458	5419	
		NACD	F	1905	75	3.24	4.25	1870	74	J550	6	3080	6791	
		NACD	F	914	36	1.12	1.45	1700	67	J550	3	1435	3165	
		NACD	F	1219	48	1.59	2.08	1700	67	J550	4	1685	3791	
		NACD	F	1372	54	1.85	2.43	1700	67	J550	4	1857	4096	
		NACD	F	1524	60	2.10	2.75	1700	67	J550	5	2010	4433	

EAME — Europe, Africa and Middle East
 NACD — North American Commercial Division
 SCM — Shin Caterpillar Mitsubishi
 APD — Asia Pacific Division

Model	Bucket Type	Available in:	Bucket Family	Bite Width Using Long Tips		Heaped Capacity		Tip Radius		G.E.T. Size	Tips	Bucket Weight w/o tips	
				mm	in	m ³	yd ³	mm	in			kg	lb
345B II (cont'd)	Extreme Excavation	EAME	T	1350	53	1.8	2.35	1870	74	J460	4	2056	4533
		EAME	T	1450	57	2.0	2.62	1870	74	J460	4	2145	4729
		EAME	U	1450	57	2.0	2.62	1990	78	J550	4	2385	5258
		EAME	T	1570	62	2.2	2.88	1870	74	J460	4	2252	4965
		EAME	U	1570	62	2.6	3.40	1990	78	J550	4	2624	5785
		SCM/APD	T	1581	62	1.9	2.50	1862	73	J550	5	1800	3968
		SCM/APD	T	1646	64	2.0	2.60	1862	73	J550	5	1862	4105
		EAME	U	1670	66	2.8	3.66	1990	78	J550	4	2725	6008
		EAME	T	1700	67	2.8	3.66	1870	74	J460	5	2628	5794
		SCM/APD	T	1708	67	2.1	2.70	1862	73	J550	5	1891	4168
	EAME	U	1820	72	3.1	4.05	1990	78	J550	5	2911	6418	
	Extreme Service Excavation*	SCM/APD	T	1532	60	1.9	2.50	1862	73	J550	5	1855	4089
		SCM/APD	T	1597	62	2.0	2.60	1862	73	J550	5	1920	4232
		SCM/APD	T	1659	65	2.1	2.70	1862	73	J550	5	1952	4303
	Excavation	EAME	U	910	36	1.3	1.70	1990	78	J550	3	1904	4198
		EAME	T	1350	53	1.8	2.35	1870	74	J460	4	1909	4209
		EAME	T	1450	57	2.0	2.62	1870	74	J460	4	1993	4394
		EAME	T	1570	62	2.2	2.88	1870	74	J460	4	2094	4616
		SCM/APD	G	1616	63	2.2	2.90	1958	77	J550	5	2063	4550
		SCM/APD	U	1659	65	2.1	2.70	1866	73	J550	5	2020	4455
		SCM/APD	G	1731	68	2.4	3.10	1958	77	J550	5	2193	4836
		EAME	U	1750	69	3.5	4.58	1990	78	J550	4	2690	5930
	Excavation*	SCM/APD	T	1544	60	1.9	2.50	1832	72	J460	5	1659	3657
		SCM/APD	F	1554	61	2.0	2.60	1871	74	J460	6	1720	3791
		SCM/APD	U	1610	63	2.1	2.70	1866	73	J550	5	2089	4607
		SCM/APD	F	1699	66	2.2	2.90	1871	74	J460	6	1825	4023
	Mass Excavation	SCM/APD	G	1856	73	2.6	3.40	1958	77	J550	5	2325	5127
	Rock	EAME	T	1350	53	1.8	2.35	1870	74	J550	4	2318	5110
		EAME	U	1400	55	2.2	2.88	2020	80	J550	4	2606	5745
		EAME	T	1450	57	2.0	2.62	1870	74	J550	4	2413	5320
		EAME	T	1570	62	2.2	2.88	1870	74	J550	4	2543	5606
		EAME	U	1570	62	2.6	3.40	2020	80	J550	4	2780	6129
		EAME	U	1670	66	2.8	3.66	2020	80	J550	4	2914	6424
EAME		U	1820	72	3.1	4.05	2020	80	J550	4	3078	6786	
Trenching	SCM/APD	F	1225	48	1.6	2.10	1925	76	J460	4	2535	5589	
V-Type Excavation	SCM/APD	U	1725	67	2.1	2.70	1860	73	J550	6	2223	4902	
	SCM/APD	G	1740	68	2.2	2.90	1958	77	J550	6	2365	5215	
	SCM/APD	G	1870	74	2.4	3.10	2007	79	J550	6	2399	5289	
V-Type Excavation*	SCM/APD	U	1725	67	2.1	2.70	1862	73	J550	6	2225	4907	
	SCM/APD	G	1870	73	2.4	3.10	1972	78	J550	6	2470	5447	

*Denotes the use of the new, HEDC designed adapters, J460N/J550N/J600N.
 EAME — Europe, Africa and Middle East
 SCM — Shin Caterpillar Mitsubishi
 APD — Asia Pacific Division

Model	Bucket Type	Available in:	Bucket Family	Bite Width Using Long Tips		Heaped Capacity		Tip Radius		G.E.T. Size	Tips	Bucket Weight w/o tips	
				mm	in	m ³	yd ³	mm	in			kg	lb
365B II	General Purpose	NACD	VB	1016	40	1.62	2.12	2150	85	J550	3	1909	4210
		NACD	VB	1524	60	2.77	3.63	2150	85	J550	5	2444	5390
		NACD	VB	1905	75	3.82	5.00	2195	86	J550	6	2848	6280
		NACD	WB	2261	89	4.58	6.00	2279	90	J600	5	4127	9100
	Heavy Duty	NACD	VB	1219	48	1.85	2.42	2060	81	J550	4	2086	4600
		NACD	VB	1676	66	2.77	3.63	2060	81	J550	5	2590	5710
		NACD	VB	1905	75	3.24	4.25	2060	81	J550	6	2862	6310
		NACD	WB	2007	79	4.01	5.25	2279	90	J600	4	3928	8660
	Heavy Duty Rock	NACD	VB	1016	40	1.43	1.88	2060	81	J550	3	1964	4330
		NACD	VB	1524	60	2.48	3.25	2060	81	J550	5	2599	5730
		NACD	VB	1905	75	3.24	4.25	2060	81	J550	6	3039	6700
		EAME	WB	2000	79	4.00	5.23	2350	93	J600	4	4654	10,260
	Extreme Excavation	EAME	VB	1500	59	2.50	3.27	2120	83	J600	3	2767	6100
		EAME	WB	1500	59	2.70	3.53	2210	87	J600	3	3310	7297
		SCM/APD	VB	1679	66	2.50	3.20	2057	81	J550	5	2346	5174
		EAME	VB	1800	71	3.20	4.19	2120	83	J600	4	3129	6898
		EAME	WB	1850	73	3.60	4.71	2210	87	J600	4	3743	8252
		SCM/APD	VB	1887	74	2.90	3.70	2057	81	J550	5	2577	5683
		EAME	VB	1900	75	3.50	4.58	2120	83	J600	4	3260	7187
		EAME	WB	2000	79	4.00	5.23	2210	87	J600	4	3930	8664
		EAME	WB	2200	87	4.40	5.75	2210	87	J600	5	4186	9229
		EAME	WB	2320	91	4.80	6.28	2210	87	J600	5	4377	9650
	Extreme Service Excavation*	SCM/APD	VB	1530	60	2.30	3.00	2057	81	J550N	5	2290	5050
		SCM/APD	VB	1630	64	2.50	3.20	2057	81	J550N	5	2365	5215
		SCM/APD	VB	1734	68	2.70	3.50	2057	81	J550N	5	2459	5423
		SCM/APD	VB	1744	68	2.70	3.50	2057	81	J550N	5	2731	6022
		SCM/APD	VB	1838	72	2.90	3.70	2057	81	J550N	5	2596	5725
		SCM/APD	VB	1848	72	2.90	3.70	2057	81	J550N	5	2884	6360
		SCM/APD	WB	1930	75	3.20	4.10	2098	83	J600N	5	3030	6681
		SCM/APD	WB	2090	82	3.50	4.60	2098	83	J600N	5	3245	7155
	Excavation	EAME	VB	1500	59	2.50	3.27	2120	83	J550	4	2535	5589
		EAME	WB	1500	59	2.70	3.53	2210	87	J600	3	3244	7152
		EAME	VB	1800	71	3.20	4.19	2120	83	J550	4	2712	5979
		EAME	WB	1850	73	3.60	4.71	2210	87	J600	4	3660	8069
		EAME	VB	1900	75	3.50	4.58	2120	83	J550	4	2940	6482
		EAME	WB	2140	84	4.20	5.49	2210	87	J600	4	4003	8825
EAME		WB	2250	89	4.60	6.02	2210	87	J600	5	4130	9105	
EAME		WB	2300	91	5.00	6.54	2210	87	J550	6	4102	9043	
EAME		WB	2450	96	5.30	6.93	2210	87	J550	6	4293	9464	

*Denotes the use of the new, HEDC designed adapters, J460N/J550N/J600N.

EAME — Europe, Africa and Middle East

NACD — North American Commercial Division

SCM — Shin Caterpillar Mitsubishi

APD — Asia Pacific Division

Model	Bucket Type	Available in:	Bucket Family	Bite Width Using Long Tips		Heaped Capacity		Tip Radius		G.E.T. Size	Tips	Bucket Weight w/o tips	
				mm	in	m ³	yd ³	mm	in			kg	lb
365B II (cont'd)	Mass Excavation	SCM/APD	WB	1955	76	4.00	5.20	2242	88	J600	5	3312	7303
	Rock	EAME	VB	1500	59	2.50	3.27	2120	83	J600	3	2974	6557
		EAME	VB	1800	71	3.20	4.19	2120	83	J600	4	3032	6684
		EAME	WB	1850	73	3.60	4.71	2350	93	J600	4	4080	8995
		EAME	WB	2000	79	4.00	5.23	2350	93	J600	4	4288	9453
		EAME	WB	2200	87	4.40	5.75	2350	93	J600	5	4602	10,146
		EAME	WB	2380	94	4.80	6.28	2350	93	J600	5	4860	10,714
	Spade Heavy Duty Rock	NACD	WB	2007	79	4.01	5.25	2372	93	J600	4	4281	9440
V-Type Excavation	SCM/APD	WB	2280	89	3.50	4.60	2098	83	J600	6	3760	8290	
VXN	SCM/APD	WB	2045	80	3.20	4.10	2101	83	J600N	4	3513	7746	
	SCM/APD	WB	2280	89	3.50	4.60	2098	83	J600N	6	3777	8328	
385B	General Purpose	NACD	HB	1067	42	2.10	2.75	2372	93	J600	3	2359	5201
		NACD	HB	1372	54	2.86	3.75	2372	93	J600	4	2758	6081
		NACD	HB	1676	66	3.74	4.90	2372	93	J600	4	3163	6975
		NACD	HB	1981	78	4.58	6.00	2372	93	J600	5	3496	7709
		NACD	JB	2261	89	5.54	7.25	2350	93	J700	6	5748	12,674
		NACD	JB	2388	94	5.92	7.75	2350	93	J700	6	5887	12,980
	Heavy Duty Rock	NACD	HB	1067	42	1.91	2.50	2288	90	J600	3	2548	5619
		NACD	HB	1372	54	2.67	3.50	2288	90	J600	4	3072	6773
		NACD	HB	1676	66	3.44	4.50	2288	90	J600	4	3362	7412
		NACD	HB	1981	78	4.20	5.50	2288	90	J600	5	3883	8562
		NACD	JB	2261	89	4.58	6.00	2240	88	J800	5	5453	12,022
		EAME	JB	2300	91	5.20	6.80	2550	100	J700	4	5410	11,927
	Extreme Service Mass Excavation	SCM/APD	JB	2209	86	4.70	6.10	2235	88	J600	6	3955	8720
	Extreme Excavation	EAME	JB	2580	102	6.00	7.85	2350	93	J600	6	5120	11,288
		SCM/APD	JB	1940	76	3.50	4.50	2235	88	J600	5	3701	8160
		SCM/APD	HB	2132	83	3.50	4.50	2145	84	J600	5	3046	6716
		EAME	JB	2230	88	5.00	6.54	2350	93	J600	5	4577	10,091
		EAME	JB	2290	90	5.20	6.80	2350	93	J600	5	4663	10,280
		SCM/APD	JB	2342	92	4.30	5.60	2235	88	J600	5	3662	8074
		EAME	HB	2380	94	4.60	6.02	2160	85	J600	5	4260	9392
		EAME	JB	2440	96	5.60	7.32	2350	93	J600	5	4846	10,684

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Model	Bucket Type	Available in:	Bucket Family	Bite Width Using Long Tips		Heaped Capacity		Tip Radius		G.E.T. Size	Tips	Bucket Weight w/o tips	
				mm	in	m ³	yd ³	mm	in			kg	lb
385B (cont'd)	Extreme Service Excavation*	SCM/APD	HB	2075	81	3.50	4.50	2145	84	J600N	5	3154	6954
		SCM/APD	HB	2090	82	3.50	4.50	2145	84	J600N	5	3548	7823
	Excavation	EAME	JB	2580	102	6.00	7.85	2350	93	J600	6	4568	10,071
		SCM/APD	HB	1192	46	1.60	2.10	2145	84	J600	3	1973	4351
		SCM/APD	HB	1462	57	2.10	2.70	2145	84	J600	4	2279	5025
		SCM/APD	HB	1662	65	2.50	3.20	2145	84	J600	4	2469	5444
		EAME	HB	1900	75	3.50	4.58	2160	85	J600	4	3424	7549
		SCM/APD	HB	1942	76	3.10	4.00	2145	84	J600	5	2784	6139
		EAME	HB	2140	84	4.00	5.23	2160	85	J600	4	3696	8148
		EAME	JB	2160	85	4.80	6.28	2350	93	J600	4	4205	9270
	EAME	JB	2440	96	5.60	7.32	2350	93	J600	5	4490	9899	
	Mass Excavation	SCM/APD	JB	2591	102	5.80	7.50	2235	88	J600	7	5002	11,028
	Rock	EAME	JB	2160	85	4.80	6.28	2500	98	J700	5	5026	11,080
		EAME	JB	2440	96	5.60	7.32	2550	100	J700	6	5588	12,319
		EAME	JB	2480	98	5.80	7.59	2550	100	J700	6	5650	12,456
	Spade Heavy Duty Rock	NACD	JB	2261	89	4.77	6.25	2377	94	J800	5	5645	12,447
	V-Type Excavation	SCM/APD	JB	2180	85	3.90	5.10	2271	89	J600	6	4107	9055
		SCM/APD	JB	2420	95	4.30	5.60	2271	89	J600	6	4371	9637
	V-Type Excavation*	SCM/APD	JB	2180	85	3.90	5.10	2271	89	J600N	6	4058	8947
		SCM/APD	JB	2420	95	4.30	5.60	2271	89	J600N	6	4430	9767

*Denotes the use of the new, HEDC designed adapters, J460N/J550N/J600N.

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Excavators

Working Weights

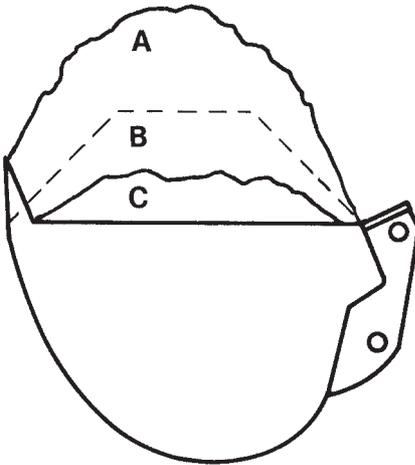
- Bucket Fill Factors
- Bucket & Payload

BUCKET PAYLOAD

An excavator's bucket payload (actual amount of material in the bucket on each digging cycle) is dependent on bucket size, shape, curl force, and certain soil characteristics, i.e., the fill factor for that soil. Fill factors for several types of material are listed below.

$$\text{Average Bucket Payload} = (\text{Heaped Bucket Capacity}) \times (\text{Bucket Fill Factor})$$

Material	Fill Factor Range (Percent of heaped bucket capacity)
Moist Loam or Sandy Clay	A — 100-110%
Sand and Gravel	B — 95-110%
Hard, Tough Clay	C — 80-90%
Rock — Well Blasted	60-75%
Rock — Poorly Blasted	40-50%



Working Weights — Bucket & Payload

The following tables give maximum “bucket plus payload” weights to assist in selecting the correct bucket for a specific application. These weights are based on actual job conditions. In better than average conditions the excavator may be able to achieve rated lift capacities listed in this section.

NOTE: Bucket sizes are suitable for a maximum material density of 1800 kg/m³ (3035 lb/yd³). Payloads shown are calculated at 1500 kg/m³ (2530 lb/yd³).

Model	Boom	Stick Length		Working Weights† Buckets & Payload	
		m	ft	kg	lb
301.5 CR	Swing	0.93	3'0"	234	516
		1.13	3'8"	210	463
303 SR	Offset	1.20	3'11"	274	604
		1.60	5'3"	225	496
303 CR	Reach	1.26	4'2"	238	520
		1.56	5'1"	192	420
	Swing	—	—	249	550
		—	—	203	450
304 CR	Swing	1.38	4'6"	402	886
		1.78	5'10"	321	707
305 SR	Swing	1.62	5'4"	465	1024
		2.02	6'8"	399	879
305 CR	Reach	1.43	4'8"	453	1000
		1.83	6'0"	394	870
	Swing	—	—	513	1130
		—	—	464	1020
307C	Reach	1.67	5'6"	1153	2540
		2.21	7'3"	946	2090
308C SR	Offset	1.75	5'9"	1021	2251
308C CR	Reach	1.67	5'6"	1100	2430
		2.21	7'3"	899	1980
311C U	Reach	2.25	7'5"	1537	3390
		2.80	9'2"	1295	2850
312C	Reach	2.10	6'11"	1720	3790
		2.50	8'2"	1592	3510
		3.00	9'10"	1402	3090
312C L	Reach	2.10	6'11"	1764	3890
		2.50	8'2"	1633	3600
		3.00	9'10"	1439	3170
313C SR	Parallel Offset	2.13	7'0"	2060	4540
		2.13	7'0"	1537	3390
313C CR	Reach	2.50	8'2"	1240	2730
		3.00	9'10"	1075	2370
314C CR		2.50	8'2"	1538	3390
		3.00	9'10"	1351	2980
314C LCR	Reach	2.50	8'2"	1560	3440
		3.00	9'10"	1372	3020
315C	Reach	1.85	6'1"	2089	4610
		2.25	7'5"	1970	4340
		2.60	8'6"	1864	4110
		3.10	10'2"	1675	3690
315C L	Reach	1.85	6'1"	2141	4720
		2.25	7'5"	2018	4450
		2.60	8'6"	1862	4110
		3.10	10'2"	1719	3790

†Working weights may vary depending on machine configuration and geographic location. Contact your Caterpillar Dealer for specific information.

Model	Boom	Stick Length		Working Weights† Buckets & Payload	
		m	ft	kg	lb
315C L*		1.85	6'1"	2160	4760
		2.25	7'5"	2060	4540
		2.60	8'6"	1890	4170
		3.10	10'2"	1700	3750
318C L		1.80	5'11"	2872	6330
		2.25	7'5"	2638	5820
		2.70	8'10"	2416	5330
		3.20	10'6"	2095	4620
318C LN		1.80	5'11"	2510	5530
		2.25	7'5"	2291	5050
		2.70	8'10"	2098	4630
		3.20	10'6"	1807	3980
318C*, 318C L*, 318C N*		1.80	5'11"	2510	5530
		2.25	7'5"	2291	5050
		2.70	8'10"	2098	4630
		3.20	10'6"	1807	3980
320C	Reach	1.90	6'3"	2550	5620
		2.50	8'2"	2430	5360
		2.90	9'6"	2240	4940
		3.90	12'10"	1770	3900
	Mass	2.40	7'10"	2640	5820
VA	2.40	7'10"	2620	5780	
	2.92	9'7"	2460	5420	
320C L	Reach	1.90	6'3"	3030	6680
		2.50	8'2"	2860	6310
		2.90	9'6"	2640	5820
		3.90	12'10"	2120	4670
	Mass	2.40	7'10"	3120	6880
VA	2.40	7'10"	2990	6590	
	2.92	9'7"	2790	6150	
320C N	Reach	1.90	6'3"	2300	5070
		2.50	8'2"	2270	5000
		2.92	9'7"	2090	4610
		3.86	12'8"	1800	3970
	Mass	2.40	7'10"	2350	5180
VA	2.40	7'10"	2410	5310	
	2.92	9'7"	2280	5030	
320C U	Reach	2.50	8'2"	2660	5860
		2.90	9'6"	2460	5420
		3.90	12'10"	1970	4340
320C LU	Reach	2.50	8'2"	3110	6860
		2.90	9'6"	2890	6370
		3.90	12'10"	2340	5160

*France sourced.

†Working weights may vary depending on machine configuration and geographic location. Contact your Caterpillar Dealer for specific information.

Model	Boom	Stick Length		Working Weights† Buckets & Payload	
		m	ft	kg	lb
321C LCR	Reach	2.90	9'6"	2730	6020
322C	Reach	2.50	8'2"	2960	6530
		2.95	9'8"	2730	6020
		3.60	11'10"	2420	5340
	Mass	2.50	8'2"	3150	6940
322C Belgium	Reach	2.50	8'2"	2910	6420
		2.95	9'8"	2690	5930
		3.60	11'10"	2320	5120
	Mass	2.00	6'7"	3390	7480
		2.50	8'2"	3030	6680
322C L	Reach	2.50	8'2"	3460	7630
		2.95	9'8"	3200	7050
		3.60	11'10"	2850	6280
	Mass	2.50	8'2"	3770	8310
322C L Belgium	Reach	2.50	8'2"	3410	7520
		2.95	9'8"	3160	6970
		3.60	11'10"	2760	6090
	Mass	2.00	6'7"	4010	8840
		2.50	8'2"	3630	8010
	VA	2.00	6'7"	3750	8270
		2.50	8'2"	3390	7470
322C N Belgium	Reach	2.50	8'2"	2610	5760
		2.95	9'8"	2410	5320
		3.60	11'10"	2070	4570
	Mass	2.00	6'7"	3010	6640
		2.50	8'2"	2690	5930
	VA	2.00	6'7"	2830	6240
		2.50	8'2"	2540	5600
322C LN Belgium	Reach	2.00	6'7"	3240	7140
		2.50	8'2"	3150	6940
		2.95	9'8"	2910	6420
		3.60	11'10"	2710	5970
	Mass	2.00	6'7"	3850	8490
		2.50	8'2"	3430	7560
	VA	2.00	6'7"	3260	7190
		2.50	8'2"	2950	6500
325C Japan	Reach	2.00	6'7"	3440	7580
		2.65	8'8"	3160	6970
		3.00	9'10"	2950	6500
		3.20	10'6"	2850	6290
	Mass	2.50	8'2"	3660	8060

†Working weights may vary depending on machine configuration and geographic location. Contact your Caterpillar Dealer for specific information.

Model	Boom	Stick Length		Working Weights† Buckets & Payload	
		m	ft	kg	lb
325C Belgium	Reach	2.00	6'7"	3450	7610
		2.65	8'8"	3140	6930
		3.20	10'6"	2840	6270
	Mass	2.00	6'7"	4090	9020
		2.50	8'2"	3650	8050
	VA	2.00	6'7"	3430	7560
		2.50	8'2"	3130	6900
		3.20	10'6"	2820	6220
325C L Japan	Reach	2.00	6'7"	4320	9530
		2.70	8'8"	3950	8700
		3.00	9'10"	3720	8200
		3.20	10'6"	3570	7870
	Mass	2.50	8'2"	4590	10,130
325C L Belgium	Reach	2.00	6'7"	4060	8950
		2.65	8'8"	3680	8120
		3.20	10'6"	3360	7410
	Mass	2.00	6'7"	4810	10,610
		2.50	8'2"	4290	9460
	VA	2.00	6'7"	4090	9020
		2.50	8'2"	3740	8250
		3.20	10'6"	3360	7410
325C LN Belgium	Reach	2.00	6'7"	3530	7790
		2.65	8'8"	3210	7080
		3.20	10'6"	2910	6420
	Mass	2.00	6'7"	4180	9220
		2.50	8'2"	3730	8230
	VA	2.00	6'7"	3490	7690
		2.50	8'2"	3190	7030
		3.20	10'6"	2870	6330
330C Japan	Reach	2.15	7'1"	4562	10,060
		2.80	9'2"	4150	9150
		3.20	10'6"	3886	8570
		3.90	12'10"	3335	7350
	Mass	2.55	8'4"	4506	9930
330C Belgium	Reach	2.15	7'1"	4500	9920
		2.80	9'2"	4000	8820
		3.30	10'10"	3690	8140
		3.90	12'10"	3250	7170
	Mass	2.15	7'1"	5030	11,090
		2.55	8'4"	4440	9790
330C L Japan	Reach	2.15	7'1"	4790	10,560
		2.80	9'2"	4327	9540
		3.20	10'6"	4075	8980
		3.90	12'10"	3512	7740
	Mass	2.55	8'4"	4752	10,480

†Working weights may vary depending on machine configuration and geographic location. Contact your Caterpillar Dealer for specific information.

Model	Boom	Stick Length		Working Weights† Buckets & Payload	
		m	ft	kg	lb
330C L Belgium	Reach	2.15	7'1"	4700	10,360
		2.80	9'2"	4160	9170
		3.30	10'10"	3830	8440
		3.90	12'10"	3240	7540
	Mass	2.15	7'1"	5210	11,490
		2.55	8'4"	4640	10,230
330C LN Belgium	Reach	2.15	7'1"	4150	9150
		2.80	9'2"	3700	8160
		3.30	10'10"	3410	7520
		3.90	12'10"	3000	6610
	Mass	2.15	7'1"	4660	10,270
		2.55	8'4"	4100	9040
		3.50	11'6"	3530	7780
345B Series II	Reach	2.90	9'6"	5440	11,990
		3.40	11'2"	5080	11,200
		3.90	12'10"	4760	10,490
	Mass	2.50	8'2"	6140	13,540
		3.00	9'10"	5700	12,570
345B L Series II – FIX	Reach	2.90	9'6"	5550	12,240
		3.40	11'2"	5180	11,420
		3.90	12'10"	4850	10,690
	Mass	2.50	8'2"	6260	13,800
		3.00	9'10"	5790	12,760
345B Series II – ES	Reach	2.90	9'6"	8417	18,560
		3.40	11'2"	7886	17,390
	Mass	2.50	8'2"	9636	21,240
		3.00	9'10"	8986	19,810
	345B L Series II – VG	Reach	2.90	9'6"	6830	15,060
3.35			11'0"	6930	15,280
3.90			12'10"	6000	13,230
4.80			15'9"	5440	12,000
Mass		2.50	8'2"	7550	16,640
		3.00	9'10"	6980	15,390
365B L Series II Japan	Reach	2.84	9'4"	8310	18,320
		3.60	11'10"	7560	16,670
		4.67	15'4"	6230	13,730
	Mass	2.57	8'5"	10 750	23,700
		3.00	9'10"	9910	21,850
365B L Series II Belgium	Reach	2.84	9'4"	9410	20,750
		3.60	11'10"	8545	18,840
		4.67	15'4"	7120	15,700
	Mass 6.6 m (21'9")	2.57	8'5"	12 110	26,700
		3.00	9'10"	11 195	24,680
	Mass 7 m (23'0")	2.57	8'5"	11 090	24,450
		3.00	9'10"	10 270	22,640

†Working weights may vary depending on machine configuration and geographic location. Contact your Caterpillar Dealer for specific information.

Model	Boom	Stick Length		Working Weights† Buckets & Payload	
		m	ft	kg	lb
365B – ESUC	Reach	2.84	9'4"	11 313	24,940
		3.60	11'10"	10 290	22,690
		4.15	13'7"	9435	20,800
		4.67	15'4"	8642	19,050
	Mass	2.57	8'5"	14 538	32,050
		3.00	9'10"	13 458	29,670
365B Japan	Reach	4.40	14'5"	6110	13,470
		5.50	18'1"	5230	11,530
	General Purpose	2.92	9'7"	10 100	22,270
		3.40	11'2"	—	—
		3.70	12'2"	9700	21,380
Mass	4.40	14'5"	8840	19,490	
	5.50	18'1"	7610	16,780	
385B Belgium	Reach	2.92	9'7"	12 920	28,480
		3.40	11'2"	12 110	26,700
	General Purpose	4.40	14'5"	6654	14,670
		5.50	18'1"	5483	12,090
		3.40	11'2"	10 120	22,310
Mass	3.70	12'2"	10 701	23,590	
	4.40	14'5"	9696	21,380	
	5.50	18'1"	8080	17,810	
385B L Japan	Reach	4.40	14'5"	6320	13,930
		5.50	18'1"	5430	11,970
	General Purpose	2.92	9'7"	10 380	22,880
		3.40	11'2"	—	—
		3.70	12'2"	9960	21,960
Mass	4.40	14'5"	9080	20,020	
	5.50	18'1"	7830	17,260	
385B L Belgium	Reach	2.92	9'7"	13 250	29,210
		3.40	11'2"	12 420	27,380
	General Purpose	4.40	14'5"	6831	15,060
		5.50	18'1"	5642	12,440
		3.40	11'2"	10 340	22,800
Mass	3.70	12'2"	10 918	24,070	
	4.40	14'5"	9899	21,820	
	5.50	18'1"	8260	18,210	
Mass	2.92	9'7"	14 309	31,550	
	3.40	11'2"	13 380	29,500	

†Working weights may vary depending on machine configuration and geographic location. Contact your Caterpillar Dealer for specific information.

Excavators

Long Reach — Japan, U.S. Sourced

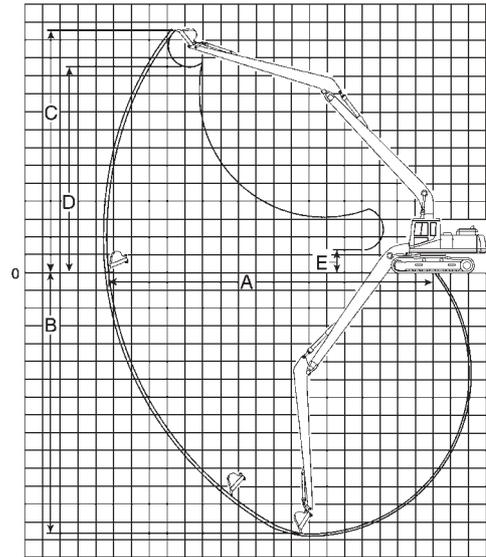
- Introduction
- Range Dimensions
- Bucket Information

INTRODUCTION

Long reach excavators are designed purposely for light duty digging that requires reach capability well above that of normal digging machines. To be able to have high enough digging forces together with an acceptable size bucket, the long reach excavators have a smaller digging envelope than the ditch cleaning machines. Long reach excavators are ideally suited for deep digging in gravel or sand pits then feeding directly into a hopper.

Caterpillar's long reach hydraulic excavators use purpose-built booms and sticks designed by Caterpillar for maximum performance and durability in light duty applications.

Long Reach Excavation Fronts include: boom, stick, linkage cylinders (boom, stick, and bucket), hydraulic lines, additional counterweight for stability over the side and heavy duty wide undercarriage. Dimensions include light excavation bucket.



Long Reach, Range Dimensions	312C L*		320C L	
	m	ft	m	ft
A Maximum Reach at Ground Level	12.54	41'2"	15.73	51'7"
B Maximum Digging Depth	9.80	32'2"	11.88	39'0"
C Maximum Cutting Height	11.00	36'1"	13.29	43'7"
D Maximum Dumping Height	9.01	29'7"	11.01	36'1"
E Minimum Loading Height	2.15	7'1"	1.97	6'6"

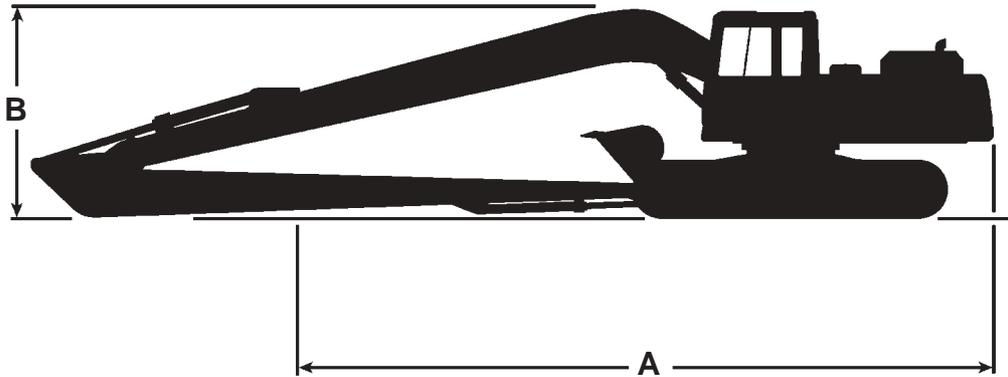
	322C L		325C L*		330C L*	
	m	ft	m	ft	m	ft
A Maximum Reach at Ground Level	18.43	60'6"	18.42	60'5"	20.94	68'8"
B Maximum Digging Depth	14.72	48'4"	14.75	48'5"	16.19	53'2"
C Maximum Cutting Height	14.23	46'8"	13.61	44'8"	16.52	54'2"
D Maximum Dumping Height	12.00	39'4"	11.42	37'6"	14.33	47'0"
E Minimum Loading Height	1.36	4'6"	1.16	3'10"	2.28	7'6"

Long Reach, Bucket Information

Model	Bucket Type	Bucket Width		SAE Heaped Cap.		Bucket Weight		No. of Teeth	Bucket Curl Force		Stick Crowd Force	
		mm	ft	L	yd ³	kg	lb		kN	lb	kN	lb
312C*	General Purpose	610	2'0"	230	0.30	200	440	4	44	9900	37	8300
320C L	Excavation	810	2'8"	450	0.59	340	750	5	54	12,100	47	10,600
322C L	Excavation	810	2'8"	450	0.59	340	750	5	54	12,100	50	11,200
325C L*	Excavation	810	2'8"	450	0.59	340	750	5	54	12,100	50	11,200
330C L*	Excavation	810	2'8"	450	0.59	340	750	5	54	12,100	43	9700

*Custom product.

- Shipping Dimensions
- Major Component Weights



**Long Reach,
Shipping Dimensions**

	312C*		320C L	
	m	ft	m	ft
A Overall Length (Front Folded)	10.22	33'6"	12.66	41'6"
B Overall Height	2.80	9'2"	3.21	10'6"
C Overall Width	2.76	9'1"	3.01	9'11"

	322C L		325C L*		330C L*	
	m	ft	m	ft	m	ft
A Overall Length (Front Folded)	14.24	46'9"	14.38	47'2"	16.62	54'6"
B Overall Height	3.17	10'5"	3.25	10'8"	3.59	11'9"
C Overall Width	3.19	10'6"	3.19	10'6"	3.19	10'6"

**Long Reach,
Component Weights**

	312C*		320C L	
	kg	lb	kg	lb
Total Component Weight				
Includes additional over standard	2450	5400	4810	10,600
Long Reach Boom	1140	2510	2185	4820
Long Reach Stick	640	1410	1260	2780

	322C L*		325C L*		330C L*	
	kg	lb	kg	lb	kg	lb
Total Component Weight						
Includes additional over standard	6950	15,320	6500	14,330	7500	16,530
Long Reach Boom	3130	6900	3200	7055	4190	9240
Long Reach Stick	1570	3460	1570	3460	2130	4700

*Custom product.

Excavators

Long Reach Excavation — Belgium Sourced

- Introduction
- Range Dimensions
- Bucket Information

INTRODUCTION

Long Reach Excavation machines are designed specifically for those jobs requiring longer reach than standard excavators, combined with digging capabilities.

The boom and the stick are purposely designed to perform digging operations with an acceptable bucket size.

The performances of the machine are attained through the use of bigger boom cylinders, heavy-duty wide undercarriage and significant additional counterweight. A heavy-duty upper-frame is also used in order to guarantee durability and resistance to the extra stresses generated by that demanding application.

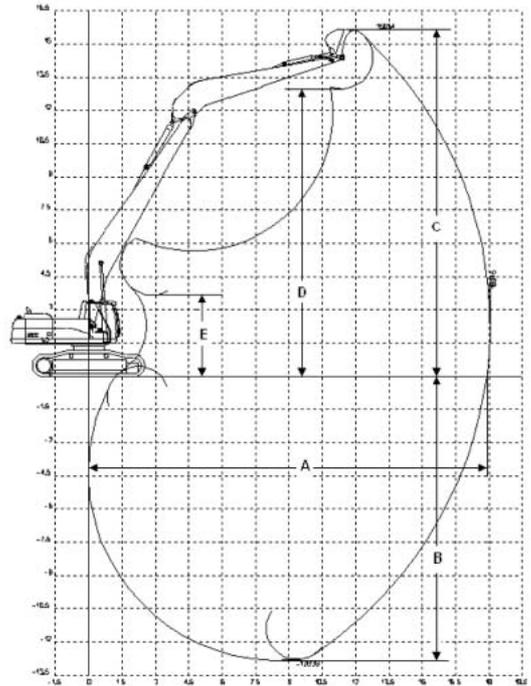
Long Reach Excavation machines are ideally suited for deep or long distance digging in sand or gravel pits, slope forming, cleaning of settling banks, river conservation and other work formerly reserved for draglines.

These excavators can of course feed directly into a hopper or load a truck that would stand by their side.

The boom and the stick are designed following Caterpillar's standards, in order to provide the maximum performance and durability in digging applications.

Long Reach Excavation Fronts include: boom, stick, linkage (boom, stick, and bucket cylinders), hydraulic lines and additional counterweight.

Dimensions include the bucket.



Long Reach Excavation, Range Dimensions

325C L* LRE

330C L* LRE

	325C L* LRE	330C L* LRE
Undercarriage	Heavy Duty High Wide	Heavy Duty High Wide
Boom Length	9500 mm	10 660 mm
Stick Length	6000 mm	7100 mm
A Maximum Reach at Ground Level	15 890 mm	18 050 mm
B Maximum Digging Depth	11 350 mm	12 840 mm
C Maximum Cutting Height	13 560 mm	15 650 mm
D Maximum Loading Height	10 930 mm	12 980 mm
E Minimum Loading Height	3400 mm	3680 mm

Long Reach Excavation, Range Dimensions

345B L II* LRE Short

345B L II* LRE Long

365B L II* LRE

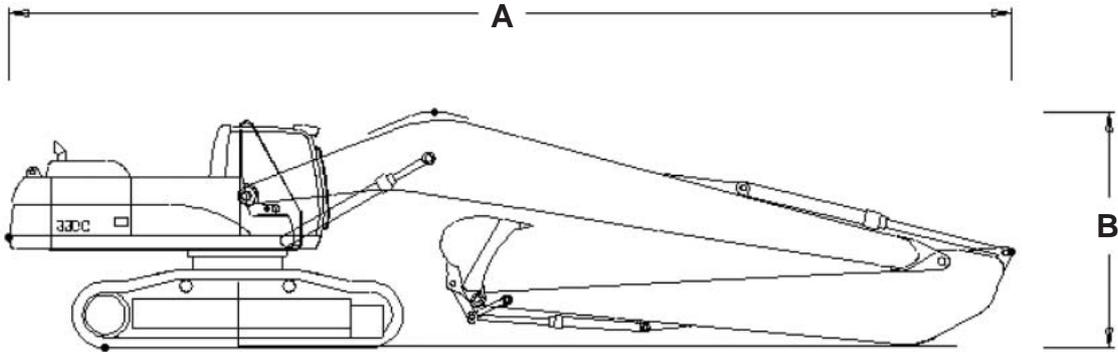
385B L* LRE

	345B L II* LRE Short	345B L II* LRE Long	365B L II* LRE	385B L* LRE
Undercarriage	Heavy Duty Wide	Heavy Duty Wide	Long	Long
Boom Length	10 500 mm	11 500 mm	10 000 mm	12 500 mm
Stick Length	6000 mm	8250 mm	5500 mm	9500 mm
A Maximum Reach	17 600 mm	19 530 mm	17 200 mm	21 490 mm
B Maximum Digging Depth	12 240 mm	13 350 mm	11 590 mm	15 860 mm
C Maximum Cutting Height	14 430 mm	16 470 mm	15 610 mm	16 500 mm
D Maximum Loading Height	11 630 mm	13 810 mm	—	—
E Minimum Loading Height	3340 mm	3390 mm	—	—

*Custom Products, other shorter or longer versions can be made available on customer demand.

Long Reach Excavation — Belgium Sourced
 ● Shipping Dimensions
 ● Major Component Dimensions and Weights

Excavators



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**Long Reach Excavation,
Shipping Dimensions and Weight**

	325C L* LRE	330C L* LRE
Undercarriage	Heavy Duty High Wide	Heavy Duty High Wide
Shoes	800 mm	750 mm
Boom Length	9500 mm	10 660 mm
Stick Length	6000 mm	7100 mm
A Overall Length (Front Folded)	13 650 mm	15 350 mm
B Overall Height (Front Folded)	3570 mm	3620 mm
Overall Width	3720 mm	3670 mm
Operating Weight	32 300 kg	38 700 kg

**Long Reach Excavation,
Shipping Dimensions and Weight**

	345B L II* LRE Short	345B L II* LRE Long	365B L II* LRE	385B L* LRE
Undercarriage	Heavy Duty Wide	Heavy Duty Wide	Long	Long
Shoes	600 mm	600 mm	750 mm	650 mm
Boom Length	10 500 mm	11 500 mm	10 000 mm	12 500 mm
Stick Length	6000 mm	8250 mm	5500 mm	9500 mm
A Overall Length (Front Folded) Without Boom and Stick	14 940 mm 6340 mm	16 230 mm 6340 mm	13 960 mm** —	18 645 mm —
B Overall Height (Front Folded)	5600 mm 3870 mm**	3690 mm	3896 mm**	4335 mm
Overall Width				
Retracted	3820 mm	3820 mm	3500 mm	3400 mm
Extended	4320 mm	4320 mm	4000 mm	4160 mm
Operating Weight	50 630 kg	51 340 kg	71 780 kg	88 500 kg

*Custom Products, other shorter or longer versions can be made available on customer demand.

**Without stick.

Long Reach Excavation Lift Capacities at Ground Level:

Lift Capacities at Ground Level	3 m		4.5 m		6 m		7.5 m		9 m		Maximum Reach Radius
	Front Load	Side Load									
325C L HDHW LRE kg	—	—	4290*	4290*	9080*	7340	6820*	5320	5410*	4040	15.45 m
330C L HDHW LRE kg	2040*	2040*	4510*	4510*	9590*	8600	7420*	6320	5870*	4870	17.61 m
345B L II LRE Short kg	—	—	—	—	—	—	11 070*	10 860	8740*	8320	17.08 m
345B L II LRE Long kg	3180*	3180*	5920*	5920*	11 590*	11 590*	10 670*	10 640	8510*	8190	19.25 m
365B L II LRE kg	—	—	—	—	8170*	8170*	14 470*	13 010	11 430*	9910	16.47 m
385B L LRE kg	4630*	4630*	8160*	8160*	15 130*	15 130*	18 750*	18 130	14 890*	14 050	20.93 m

Lift Capacities at Ground Level	10.5 m		12 m		13.5 m		15 m		16.5 m		Maximum Reach Radius
	Front Load	Side Load									
325C L HDHW LRE kg	4330	3150	3470	2490	2820	1970	—	—	—	—	15.45 m
330C L HDHW LRE kg	4830*	3840	4080*	3080	3510*	2480	3060*	2000	2640	1600	17.61 m
345B L II LRE Short kg	7180*	6580	6080*	5300	5270*	4320	4390	3540	—	—	17.08 m
345B L II LRE Long kg	7020*	6490	5930*	5240	5090*	4280	4350	3510	3630	2880	19.25 m
365B L II LRE kg	9340*	7760	7830*	6160	6660*	4930	5650*	3950	—	—	16.47 m
385B L LRE kg	12 230*	11 210	10 290*	9100	8830*	7460	7670*	6150	6730*	5070	20.93 m

Lift Capacities at Ground Level	18 m		19.5 m		Max. Reach		Maximum Reach Radius
	Front Load	Side Load	Front Load	Side Load	Front Load	Side Load	
325C L HDHW LRE kg	—	—	—	—	1720*	1520	15.45 m
330C L HDHW LRE kg	—	—	—	—	1890*	1420	17.61 m
345B L II LRE Short kg	—	—	—	—	2970*	2800	17.08 m
345B L II LRE Long kg	2390*	2360	—	—	1440*	1440*	19.25 m
365B L II LRE kg	—	—	—	—	4000*	3340	16.47 m
385B L LRE kg	5940*	4170	4370*	3420	2870*	2870*	20.93 m

*Load limited by hydraulic capacity rather than tipping.

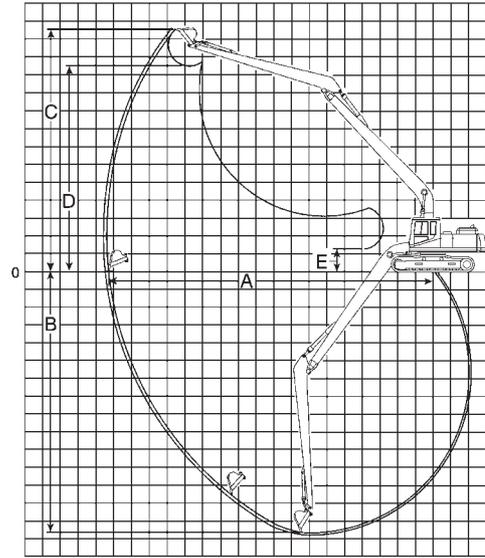
- Introduction
- Range Dimensions
- Bucket Information

INTRODUCTION

Super long reach excavators are designed specifically for those jobs requiring maximum reach well beyond the range of normal excavators. Those machines are designed to drag a small bucket at about 90 degrees over the side of the tracks towards the excavator; they are not suited for digging work. Caterpillar offers the Long Reach excavators for light digging applications with a much larger digging envelope than normal excavators. Super long reach excavators are suited for ditch cleaning, slope finishing, river conservation and other work formerly reserved to draglines.

Caterpillar’s super long reach hydraulic excavators use purpose-built booms and sticks designed by Caterpillar for maximum performance and durability in dragging applications.

Super long reach fronts include: boom, stick, linkage cylinders (boom, stick, and bucket), hydraulic lines and additional counterweight for stability while working over the side. Dimensions include bucket.



Super Long Reach, Range Dimensions	312C L		315C L, 317B L*		320C L	
	m	ft	m	ft	m	ft
A Maximum Reach at Ground Level	12.54	41'2"	13.00	42'8"	15.60	51'2"
B Maximum Digging Depth	9.80	32'2"	10.10	33'2"	11.75	38'7"
C Maximum Cutting Height	10.96	35'11"	11.64	38'2"	13.24	43'5"
D Maximum Dumping Height	9.01	29'9"	9.58	31'5"	11.14	36'7"
E Minimum Loading Height	2.15	7'1"	2.55	8'4"	2.10	6'10"

	322C L		325C L*		330C L*	
	m	ft	m	ft	m	ft
A Maximum Reach at Ground Level	18.30	60'0"	18.29	60'0"	20.81	68'3"
B Maximum Digging Depth	14.59	47'11"	14.63	48'0"	16.07	52'9"
C Maximum Cutting Height	14.19	46'7"	13.58	44'7"	16.49	54'1"
D Maximum Dumping Height	12.13	39'10"	11.55	37'11"	14.46	47'5"
E Minimum Loading Height	1.49	4'11"	1.29	4'3"	2.41	8'0"

Super Long Reach, Bucket Information

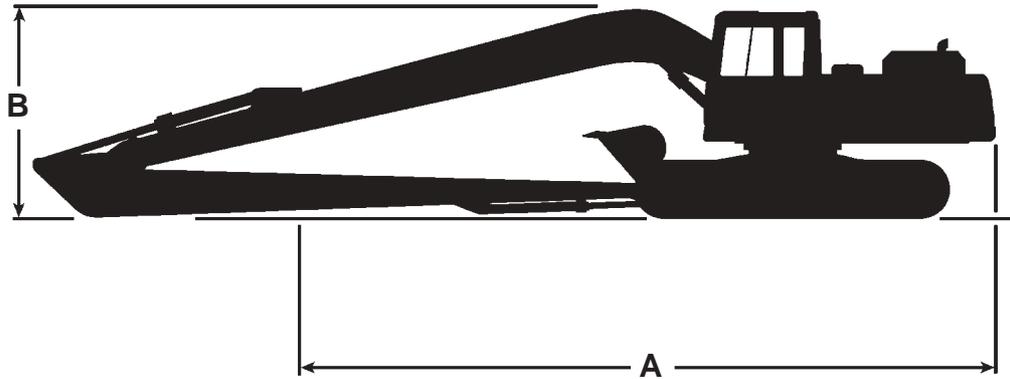
Model	Bucket Type	Bucket Width		SAE Heaped Cap.		Bucket Weight		No. of Teeth	Bucket Curl Force		Stick Crowd Force	
		mm	ft	L	yd ³	kg	lb		kN	lb	kN	lb
312C*	Ditch Cleaning	920	3'0"	480	0.63	230	510	4	44	9900	37	8300
320C L	Ditch Cleaning	1140	3'9"	600	0.78	290	640	0	60	13,500	46	10,300
322C L	Ditch Cleaning	1140	3'9"	600	0.78	290	640	0	61	13,700	51	11,500
325C L*	Ditch Cleaning	1140	3'9"	600	0.78	290	640	5	61	13,700	51	11,500
330C L*	Ditch Cleaning	1140	3'9"	600	0.78	290	640	5	61	13,700	43	9700

*Custom product.

Excavators

Super Long Reach — Japan, U.S. Sourced

- Shipping Dimensions
- Major Component Weights



Super Long Reach, Shipping Dimensions	312C*		315C L, 317B L*		320C L	
	m	ft	m	ft	m	ft
A Overall Length (Front Folded)	10.22	33'6"	11.23	36'10"	12.66	41'6"
B Overall Height	2.80	9'2"	2.92	9'7"	3.21	10'6"
C Overall Width	2.76	9'1"	2.75	9'0"	3.01	9'11"

	322C L		325C L*		330C L*	
	m	ft	m	ft	m	ft
A Overall Length (Front Folded)	14.24	46'9"	14.38	47'2"	16.62	54'6"
B Overall Height	3.17	10'5"	3.25	10'8"	3.59	11'9"
C Overall Width	3.19	10'6"	3.19	10'6"	3.19	10'6"

Super Long Reach, Component Weights	312C*		315C L, 317B L		320C L	
	kg	lb	kg	lb	kg	lb
Total Component Weight Includes additional over standard	2450	5400	3050	6725	4840	10,670
Long Reach Boom	1140	2510	1210	2670	2185	4820
Long Reach Stick	640	1410	780	1720	1260	2780

	322C L		325C L*		330C L*	
	kg	lb	kg	lb	kg	lb
Total Component Weight Includes additional over standard	6950	15,320	6500	14,330	7500	16,530
Long Reach Boom	3130	6900	3200	7055	4190	9240
Long Reach Stick	1570	3460	1570	3460	2130	4700

*Custom product.

- Introduction
- Range Dimensions
- Bucket Information

INTRODUCTION

Super long reach excavators are designed specifically for those jobs requiring maximum reach well beyond the range of normal excavators. Those machines are designed to drag a small bucket at about 90 degrees over the side of the tracks towards the excavator; they are not suited for digging work.

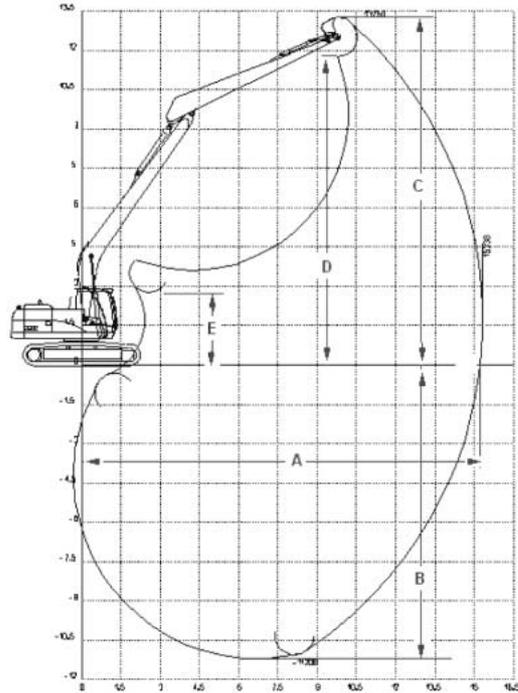
For long reach digging applications Caterpillar offers the **Long Reach Excavation** configuration, with a much larger digging envelope than normal excavators. Super long reach excavators are suited for ditch cleaning, slope finishing, river conservation and other cleaning and maintenance work.

Caterpillar’s super long reach hydraulic excavators use purpose-built booms and sticks designed by Caterpillar for maximum performance and durability in dragging applications.

Super long reach fronts include: boom, stick, linkage (boom, stick, and bucket cylinders), hydraulic lines and additional counterweight for improved stability.

Dimensions include ditch cleaning bucket.

As the super long reach excavators are not designed for digging, no bucket curl force or stick crowd force are provided.



Super Long Reach, Range Dimensions

	320C L*	325C L*
A Maximum Reach at Ground Level	15 245 mm	17 950 mm
B Maximum Digging Depth	11 210 mm	14 240 mm
C Maximum Cutting Height	13 250 mm	13 400 mm
D Maximum Dumping Height	11 745 mm	11 890 mm
E Minimum Loading Height	2560 mm	1636 mm

Super Long Reach, Bucket Information

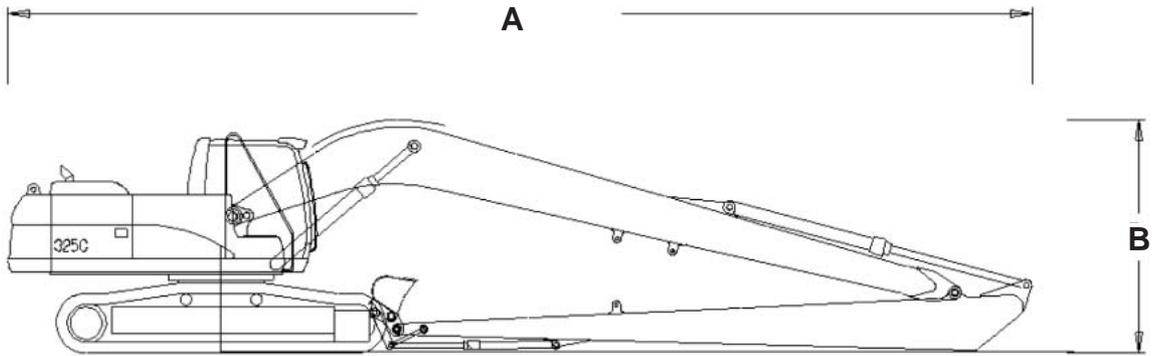
Model	Bucket Type	Bucket Width	Heaped Capacity	Bucket Weight	No. of Teeth
320C L*	Ditch Cleaning	1800 mm	600 L	460 kg	0
325C L*	Ditch Cleaning	1800 mm	600 L	460 kg	0

*Custom product.

Excavators

Super Long Reach — Belgium Sourced

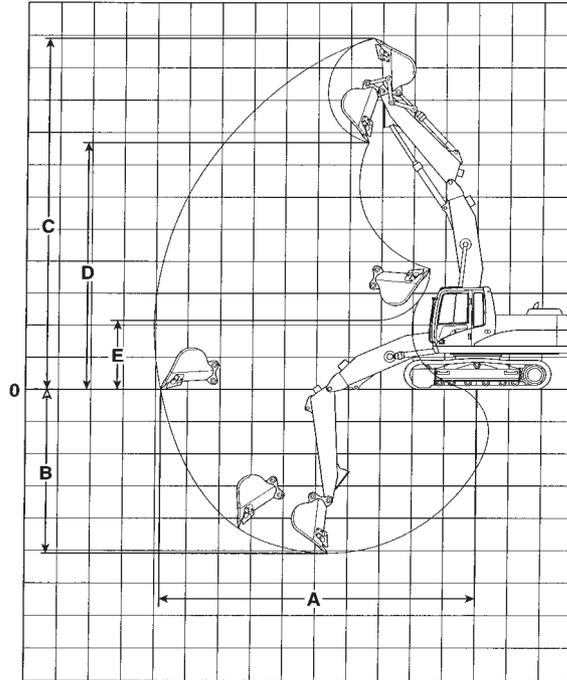
- Shipping Dimensions
- Major Component Dimensions and Weights



Super Long Reach, Shipping Dimensions	320C L* with 600 mm track shoes	325C L* with 800 mm track shoes
A Overall Length (Front Folded)	12.7 m	14.4 m
B Overall Height (Front Folded)	3.05 m	3.3 m
C Overall Width	2.98 m	3.39 m

Super Long Reach, Component Dimensions, Weights	320C L*	325C L*
Approximate Operating Weight with Boom, Stick, Linkage, Standard Shoes, Heavy Duty Counterweight, Operator, Full Fuel and without Bucket or any Optional Attachment	22 400 kg	29 700 kg
Super Long Reach Boom Length	8.85 m	10.2 m
Super Long Reach Boom Weight	2050 kg	2950 kg
Super Long Reach Stick Length	6.28 m	7.86 m
Super Long Reach Stick Weight	1150 kg	1530 kg

*Custom product.



**Short Reach,
Range Dimensions**

	314C CR*		320C L*		330C L*	
	m	ft	m	ft	m	ft
A Maximum Reach at Ground Level	6.54	21'5"	8.68	28'6"	8.88	29'2"
B Maximum Digging Depth	8.15	26'9"	9.96	32'8"	9.95	32'8"
C Maximum Cutting Height	2.22	7'3"	4.65	15'3"	3.76	12'4"
D Maximum Dumping Height	5.56	18'3"	7.05	23'2"	6.64	21'9"
E Minimum Loading Height	1.91	6'3"	1.95	6'5"	1.80	5'11"

Short Reach, Front Attachment Information

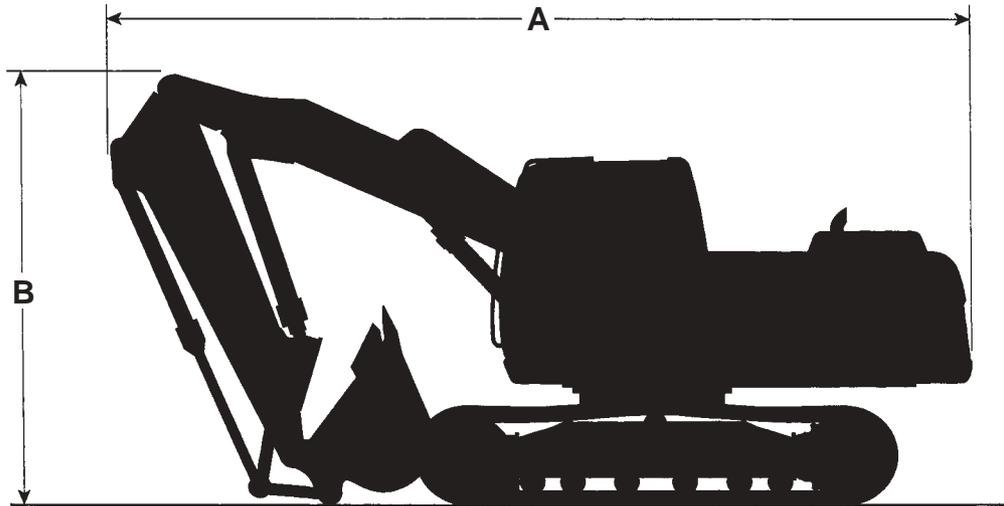
Model	Boom Length		Stick Length		Heaped Capacity	
	mm	ft	mm	ft	L	yd ³
314C CR*	3200	10'6"	2400	7'10"	500	0.7
320C L*	4250	13'11"	3200	10'6"	1100	1.4
330C L*	4350	14'3"	3200	10'6"	1400	1.83

*Custom product.

Excavators

Short Reach

- Shipping Dimensions
- Major Component Weights



Short Reach, Shipping Dimensions

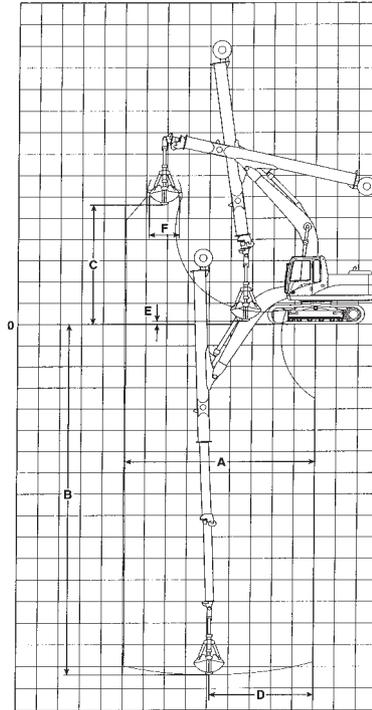
	314C CR*		320C L*		330C L*	
	m	ft	m	ft	m	ft
A Overall Length (Front Folded)	5.35	17'7"	6.56	21'6"	8.27	27'2"
B Overall Height	2.73	8'11"	3.74	12'3"	3.87	12'8"
C Overall Width	2.49	8'2"	3.15	10'4"	3.35	11'0"

Short Reach, Component Weights

	314C CR*		320C L*		330C L*	
	kg	lb	kg	lb	kg	lb
Total Component Weight Includes additional over standard	3350	7390	6500	14,300	6000	13,230
Short Reach Boom	1140	2510	2360	5200	2170	4780
Short Reach Stick	600	1320	1430	3150	1300	2870

*Custom product.

Telescopic Stick
 ● Range Dimensions
 ● Front Attachment Information
 (Japan Sourced)



Telescopic Stick, Range Dimensions	320C L*		322C L*		325C L*		330C L*	
	m	ft	m	ft	m	ft	m	ft
A Maximum Operating Radius	9.50	31'2"	9.50	31'2"	9.50	31'2"	9.50	31'2"
B Maximum Digging Depth	20.89	68'6"	20.55	67'5"	20.89	68'6"	25.69	84'3"
C Maximum Dumping Height	5.29	17'4"	5.20	17'1"	5.29	17'4"	5.66	18'7"
D Reach at Maximum Digging Depth	4.57	15'0"	4.51	14'10"	4.57	15'0"	4.76	15'7"
E Reach at Maximum Dumping Height	7.09	23'3"	6.43	21'1"	7.09	23'3"	7.24	23'9"
F Bucket Width	5.70	18'8"	5.90	19'4"	6.15	20'2"	6.50	21'4"

Telescopic Stick, Front Attachment Information

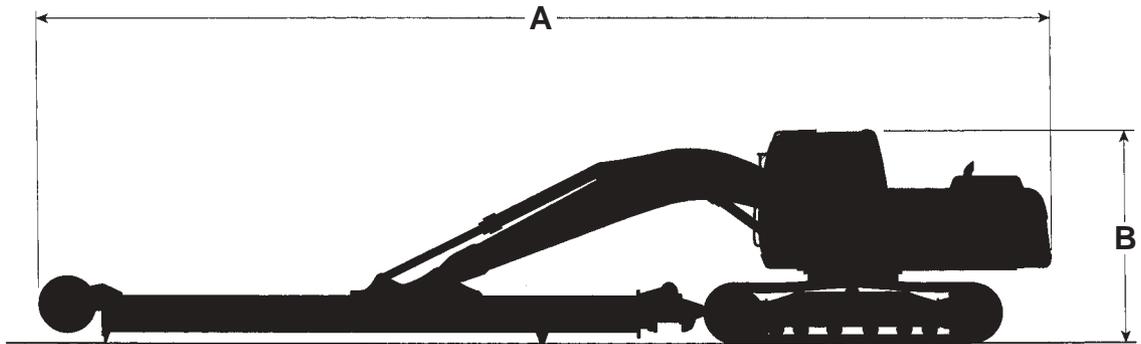
Model	Boom Length		Heaped Capacity	
	mm	ft	L	yd ³
320C L*	5700	18'8"	430	0.6
322C L*	5900	19'4"	520	0.7
325C L*	6150	20'2"	700	0.9
330C L*	6500	21'4"	1000	1.3

*Custom product.

Excavators

Telescopic Stick

- Shipping Dimensions
- Major Component Weights



Telescopic Stick, Shipping Dimensions	320C L*		322C L*		325C L*		330C L*	
	m	ft	m	ft	m	ft	m	ft
A Overall Length (Front Folded)	13.96	45'10"	14.39	47'3"	14.58	47'10"	10.13	33'3"
B Overall Height	2.93	9'7"	2.98	9'9"	3.09	10'2"	3.35	11'0"
C Overall Width	3.18	10'5"	3.39	11'1"	3.39	11'1"	3.34	10'11"

Telescopic Stick, Component Weights	320C L*		322C L*		325C L*		330C L*	
	kg	lb	kg	lb	kg	lb	kg	lb
Total Component Weight Includes additional over standard	1040	2290	1180	2600	6500	14,330	6000	13,230
Rated Boom	2050	4520	2480	5470	2750	6060	3830	8440
Telescopic Stick	3100	6830	3170	6990	3110	6860	5540	12,210
Telescopic Bucket	940	2070	1120	2470	1360	3000	1620	3570

*Custom product.

Features

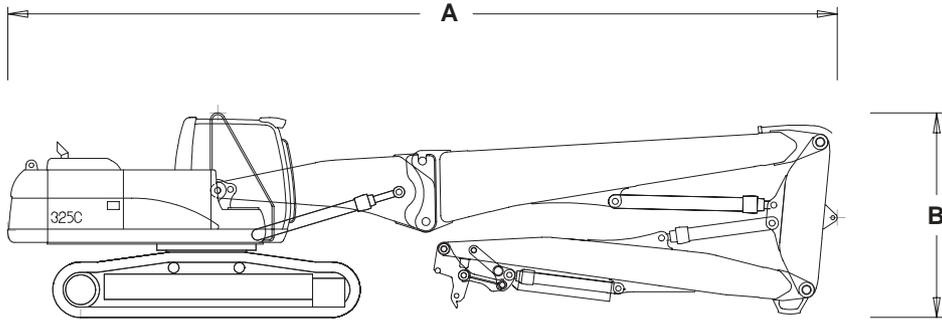
The Ultra-high demolition machines, 325C L, 330C L UHD, 345B L II UHD, 365B L II UHD and 385B L UHD, are equipped with several features that are:

- **Integrated Tiltable Cab.** The C-Series or B-Series tilt cabs are integrated into the upper-frame. The tilting mechanism of the cab is completely protected against debris, scrap, etc. The main advantage of this is that it does not increase the shipping height compared to the standard cab.
- **Boom Hook System.** The front parts are equipped with a reliable and safe hook system between the boom foot and boom nose. Compared to the traditional pin-mounted joint, the hook system significantly reduces the time needed to change between the Ultra-High front parts and the short retrofit configuration, or the long-reach excavation configuration. In principle, the boom hook system consists of a hook system to pick up the front parts and a mechanical expander pin to secure these front parts onto the boom foot. The absence of any hydraulic parts, as well as a full-length heavy-duty one-piece securing pin, ensures a safe and reliable operation.
- **Hydraulic Quick Disconnects.** The hydraulic lines between boom foot and boom nose are fitted with hydraulic quick disconnects to even further reduce the time needed to change the front parts. Oil spillage and contamination is reduced through the quick disconnects flat-face design.
- **Dedicated Ultra-High Demolition Linkage.** Because Ultra-High Demolition applications require a different working envelope than standard applications, a purpose-designed linkage is standard on the Ultra-High Demolition front parts.
Besides providing an optimized working envelope, this linkage also greatly improves controllability in nearly every position.

Excavators

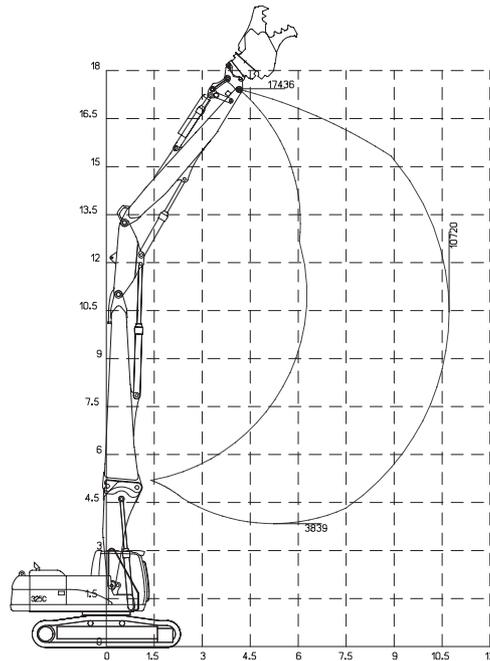
Ultra-High Demolition Arrangements — Belgium Sourced

- 325C L UHD Shipping Dimensions
- 325C L UHD Range Dimensions



325C L with UHD Front Parts

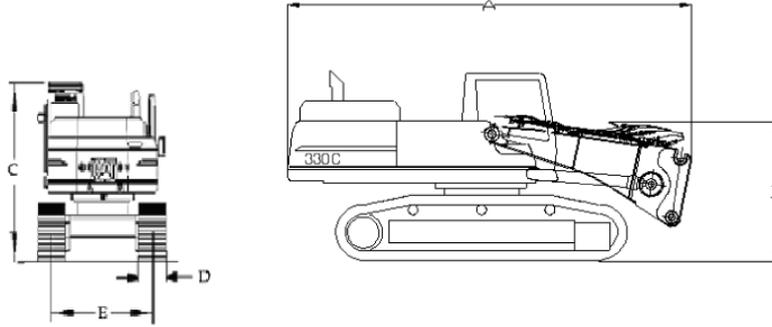
A Shipping Length	12 500 mm
B Shipping Height	2320 mm
Operating Weight	35.5 t



325C L with UHD Front Parts — Reaches

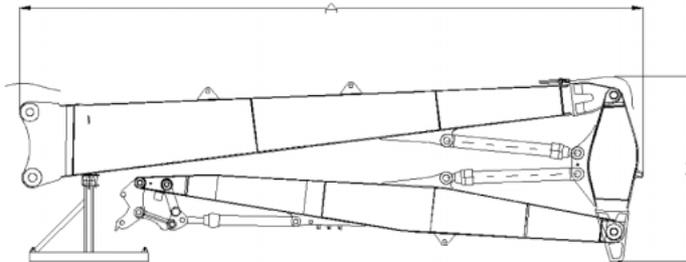
Maximum Allowable Angle from Vertical	20°
Maximum Pin Height	17 435 mm
Maximum Horizontal Reach	10 720 mm
Maximum Tool Weight Over the Front*	3000 kg
Operating Weight	35 500 kg

*Tool weight includes mounting bracket and quick coupler.



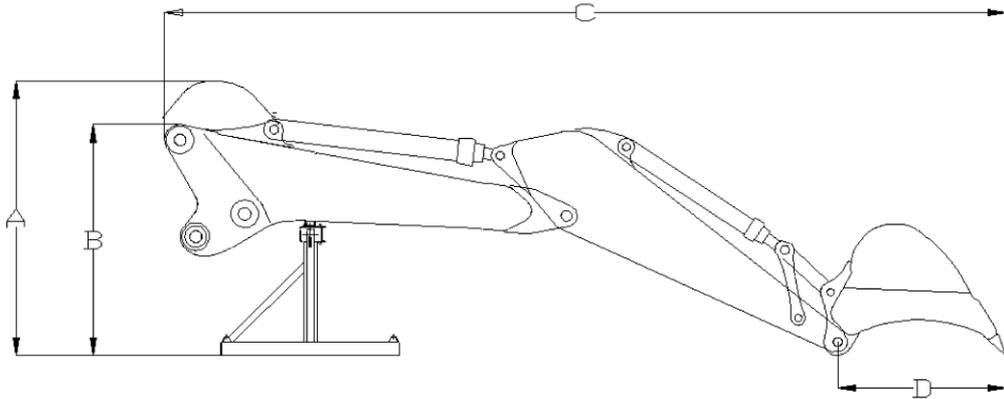
330C with Boom Foot	Undercarriages				
	L	LN	Hydraulic Variable Gauge	Heavy Duty High Wide	345B L II
Shoes	600 mm	600 mm	600 mm	750 mm	750 mm
Length	6997 mm	6997 mm	6997 mm	6997 mm	6997 mm
Boom Height*	2093 mm	2093 mm	2100 mm	2358 mm	2300 mm
Height with Overhead Guard	3150 mm	3150 mm	3160 mm	3410 mm	3360 mm
Height without Overhead Guard	3280 mm	3280 mm	3290 mm	3540 mm	3490 mm
Shipping Width	3190 mm	2990 mm	2990 mm	3670 mm	3140 mm
Operating Weight	33 630 kg	33 000 kg	40 640 kg	35 070 kg	38 790 kg

*Hydraulic lines are included and boom cylinders are fully retracted.

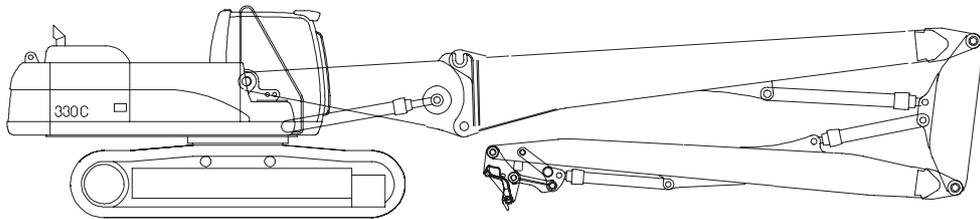


330C UHD Front Parts

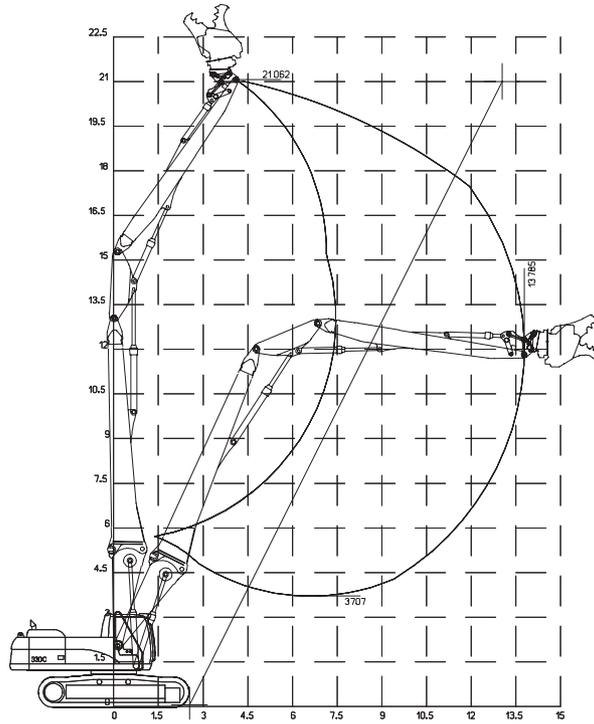
Length	8177 mm
Height	2689 mm
Support Width	2400 mm
Support Weight	400 kg
Boom Nose Width	723 mm
Boom Nose Weight	3502 kg
Fore Boom Weight	904 kg
Stick Weight	1967 kg
Total Weight	8250 kg



330C Retrofit Front Parts	Stick Length					
	2150 mm	2800 mm	3200 mm	3900 mm	4800 mm	7100 mm LRE retrofit
Height	2929 mm	2882 mm	2855 mm	2825 mm	2794 mm	3722 mm
Length	7908 mm	8472 mm	9212 mm	9647 mm	10 484 mm	8640 mm
Tip Radius	1800 mm	1660 mm	1660 mm	1660 mm	1555 mm	1402 mm
Boom Weight	2667 kg	2667 kg	2667 kg	2667 kg	2667 kg	3490 kg
Stick Weight	1126 kg	11 190 kg	1235 kg	1358 kg	1605 kg	1785 kg
Total Weight	7100 kg	6520 kg	6570 kg	6670 kg	6660 kg	7720 kg

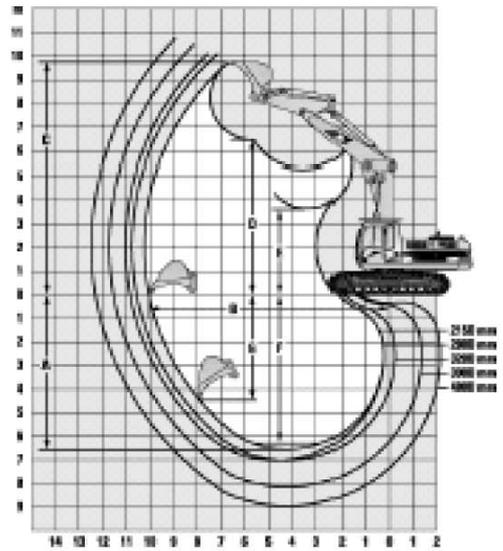
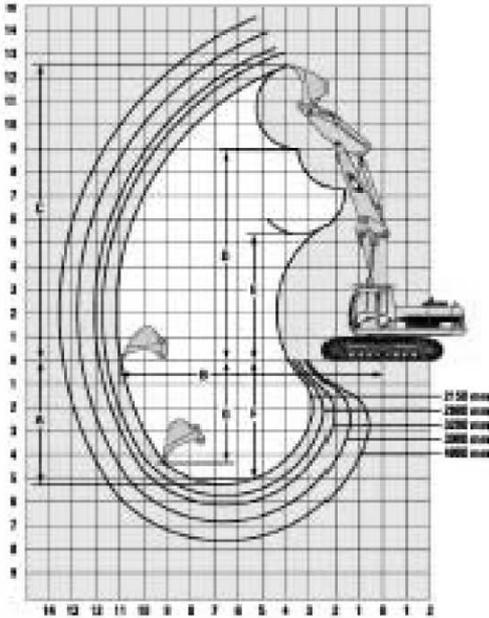


330C with UHD Front Parts	Undercarriages				
	L	LN	Hydraulic Variable Gauge	Heavy Duty High Wide	345B L II
Shoes	600 mm	600 mm	600 mm	750 mm	750 mm
Shipping Length	14 830 mm	14 830 mm	14 830 mm	14 830 mm	14 830 mm
Shipping Height	3100 mm	3100 mm	3100 mm	3100 mm	3100 mm
Shipping Width	3190 mm	2990 mm	2990 mm	3670 mm	3140 mm
Operating Weight	41 480 kg	40 850 kg	48 490 kg	42 920 kg	46 640 kg



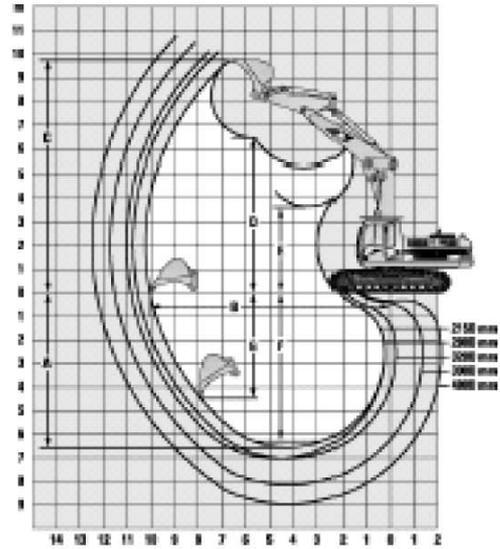
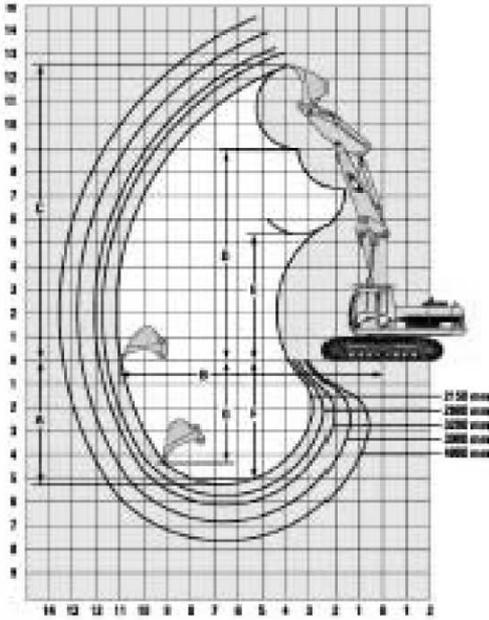
330C with UHD Front Parts — Reaches	330C L UHD	330C LN UHD	330C L HVG UHD	330C L HDHW UHD	330C UHD with 345B L chassis
Maximum Allowable Angle from Vertical	25°	25°	25°	25°	25°
Maximum Horizontal Reach	13 800 mm	13 800 mm	13 800 mm	13 800 mm	13 800 mm
Maximum Vertical Pin Height	21 100 mm	21 100 mm	21 100 mm	21 300 mm	21 300 mm
Maximum Tool Weight Over the Front*	3000 kg	3000 kg	3000 kg	3000 kg	3000 kg
Maximum Tool Weight Over the Side*	1900 kg	—	3000 kg	2400 kg	2700 kg

*Tool weight includes mounting bracket and quick coupler.



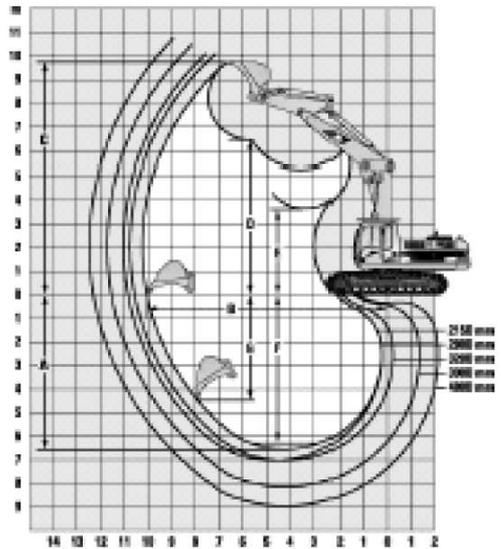
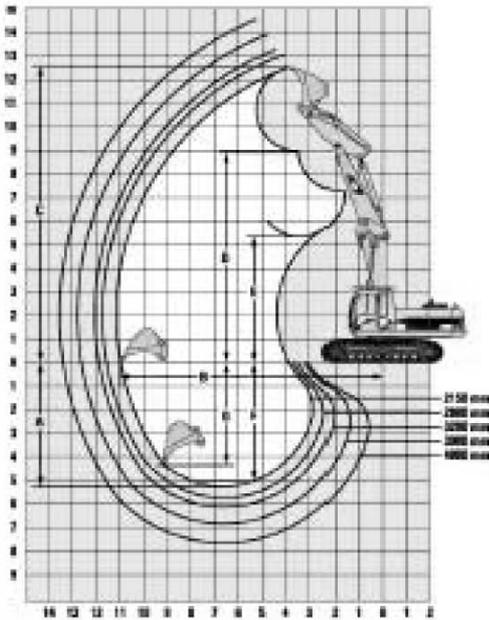
330C L UHD Retrofit — Straight Position	Stick Length				
	2150 mm	2800 mm	3200 mm	3900 mm	4800 mm
A Maximum Digging Depth	5230 mm	5730 mm	6130 mm	6830 mm	7630 mm
B Maximum Reach at Ground Level	10 990 mm	11 560 mm	11 890 mm	12 620 mm	13 400 mm
C Maximum Cutting Height	12 540 mm	13 070 mm	13 280 mm	13 930 mm	14 560 mm
D Maximum Loading Height	8940 mm	9760 mm	9970 mm	10 620 mm	11 450 mm
E Minimum Loading Height	5380 mm	4920 mm	4410 mm	3780 mm	3030 mm

330C L UHD Retrofit — Bent Position	Stick Length				
	2150 mm	2800 mm	3200 mm	3900 mm	4800 mm
A Maximum Digging Depth	6550 mm	7050 mm	7450 mm	8150 mm	8950 mm
B Maximum Reach at Ground Level	10 000 mm	10 560 mm	10 850 mm	11 560 mm	12 310 mm
C Maximum Cutting Height	9720 mm	10 080 mm	10 040 mm	10 480 mm	10 740 mm
D Maximum Loading Height	6440 mm	7060 mm	7040 mm	7430 mm	7880 mm
E Minimum Loading Height	3630 mm	3120 mm	2720 mm	2020 mm	1220 mm



330C LN UHD Retrofit — Straight Position	Stick Length				
	2150 mm	2800 mm	3200 mm	3900 mm	4800 mm
A Maximum Digging Depth	5230 mm	5730 mm	6130 mm	6900 mm	7660 mm
B Maximum Reach at Ground Level	10 990 mm	11 560 mm	11 890 mm	12 680 mm	13 420 mm
C Maximum Cutting Height	12 540 mm	13 070 mm	13 280 mm	14 000 mm	14 580 mm
D Maximum Loading Height	8940 mm	9760 mm	9970 mm	10 550 mm	11 420 mm
E Minimum Loading Height	5380 mm	4920 mm	4410 mm	3710 mm	3000 mm

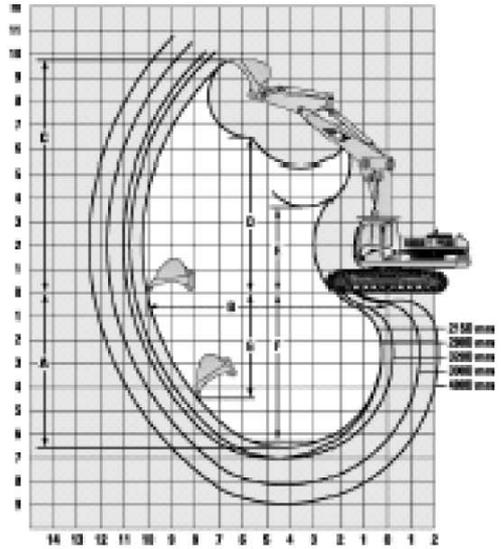
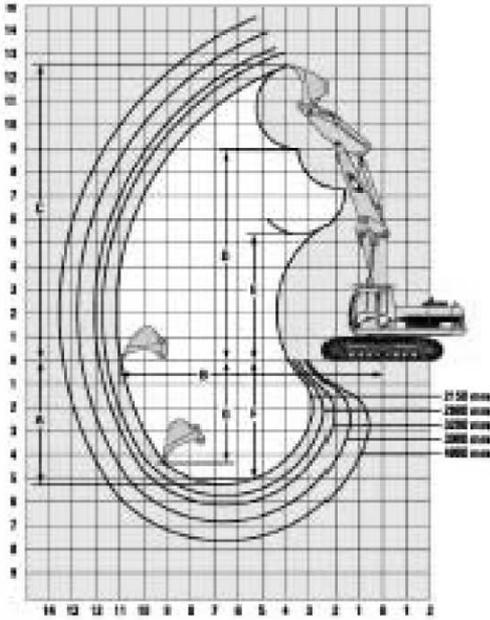
330C LN UHD Retrofit — Bent Position	Stick Length				
	2150 mm	2800 mm	3200 mm	3900 mm	4800 mm
A Maximum Digging Depth	6550 mm	7050 mm	7450 mm	8150 mm	8950 mm
B Maximum Reach at Ground Level	10 000 mm	10 560 mm	10 850 mm	11 560 mm	12 310 mm
C Maximum Cutting Height	9720 mm	10 080 mm	10 040 mm	10 480 mm	10 740 mm
D Maximum Loading Height	6440 mm	7060 mm	7040 mm	7430 mm	7880 mm
E Minimum Loading Height	3630 mm	3120 mm	2720 mm	2020 mm	1220 mm



330C L HVG UHD Retrofit — Straight Position	Stick Length				
	2150 mm	2800 mm	3200 mm	3900 mm	4800 mm
A Maximum Digging Depth	5220 mm	5730 mm	6130 mm	6830 mm	7620 mm
B Maximum Reach at Ground Level	10 990 mm	11 550 mm	11 890 mm	12 610 mm	13 390 mm
C Maximum Cutting Height	12 550 mm	13 080 mm	13 290 mm	13 940 mm	14 570 mm
D Maximum Loading Height	8950 mm	9770 mm	9980 mm	10 630 mm	11 460 mm
E Minimum Loading Height	5390 mm	4930 mm	4420 mm	3780 mm	3040 mm

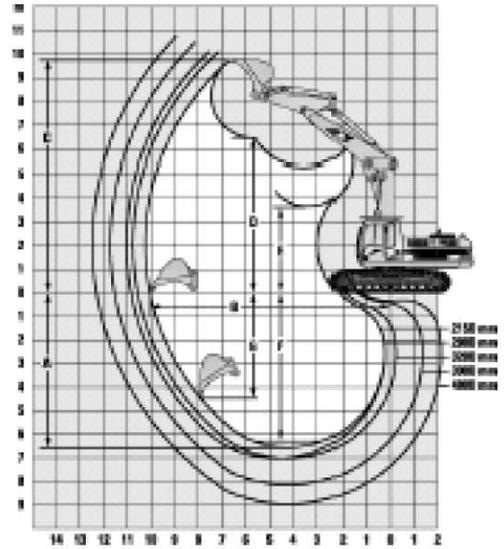
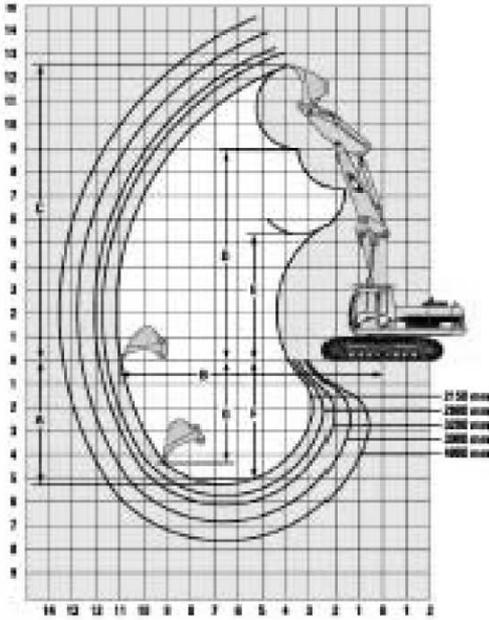
330C L HVG UHD Retrofit — Bent Position	Stick Length				
	2150 mm	2800 mm	3200 mm	3900 mm	4800 mm
A Maximum Digging Depth	6540 mm	7050 mm	7450 mm	8150 mm	8940 mm
B Maximum Reach at Ground Level	9990 mm	10 560 mm	10 850 mm	11 560 mm	12 310 mm
C Maximum Cutting Height	9730 mm	10 090 mm	10 040 mm	10 490 mm	10 750 mm
D Maximum Loading Height	6440 mm	7070 mm	7040 mm	7440 mm	7880 mm
E Minimum Loading Height	3640 mm	3130 mm	2730 mm	2030 mm	1230 mm

330C L HVG LRE Retrofit	Stick Length
	7100 mm
A Maximum Digging Depth	12 090 mm
B Maximum Reach at Ground Level	17 330 mm
C Maximum Cutting Height	15 770 mm
D Maximum Loading Height	13 040 mm
E Minimum Loading Height	2970 mm



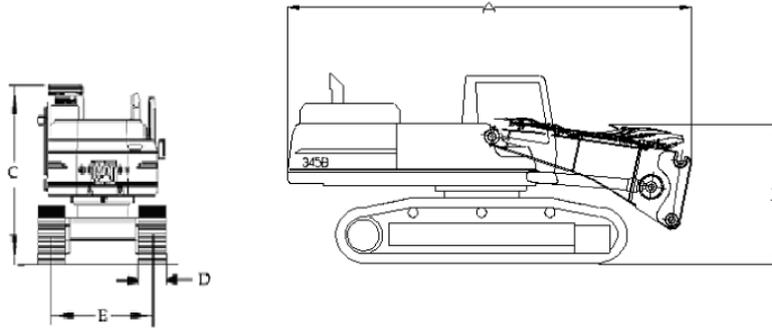
330C L HDHW UHD Retrofit — Straight Position	Stick Length				
	2150 mm	2800 mm	3200 mm	3900 mm	4800 mm
A Maximum Digging Depth	4970 mm	5480 mm	5880 mm	6590 mm	7370 mm
B Maximum Reach at Ground Level	10 940 mm	11 510 mm	11 840 mm	12 490 mm	13 350 mm
C Maximum Cutting Height	12 800 mm	13 300 mm	13 540 mm	14 210 mm	14 820 mm
D Maximum Loading Height	9200 mm	10 020 mm	10 230 mm	10 850 mm	11 710 mm
E Minimum Loading Height	5640 mm	5180 mm	4660 mm	4010 mm	3280 mm

330C L HDHW UHD Retrofit — Bent Position	Stick Length				
	2150 mm	2800 mm	3200 mm	3900 mm	4800 mm
A Maximum Digging Depth	6290 mm	6820 mm	7220 mm	7920 mm	8690 mm
B Maximum Reach at Ground Level	9940 mm	10 530 mm	10 820 mm	11 540 mm	12 260 mm
C Maximum Cutting Height	9980 mm	10 350 mm	10 300 mm	10 740 mm	11 000 mm
D Maximum Loading Height	6690 mm	7300 mm	7270 mm	7670 mm	8140 mm
E Minimum Loading Height	3890 mm	3360 mm	3960 mm	2260 mm	1490 mm



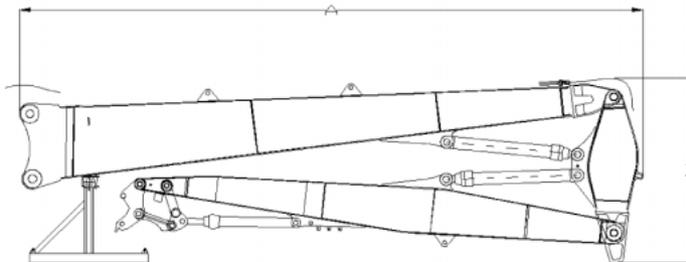
330C UHD Retrofit — Straight Position with 345B L Chassis	Stick Length				
	2150 mm	2800 mm	3200 mm	3900 mm	4800 mm
A Maximum Digging Depth	5020 mm	5530 mm	5930 mm	6630 mm	7430 mm
B Maximum Reach at Ground Level	10 950 mm	11 520 mm	11 850 mm	12 580 mm	13 360 mm
C Maximum Cutting Height	12 740 mm	13 280 mm	13 480 mm	14 140 mm	14 760 mm
D Maximum Loading Height	9150 mm	9970 mm	10 170 mm	10 820 mm	11 650 mm
E Minimum Loading Height	5590 mm	5130 mm	4610 mm	3980 mm	3230 mm

330C UHD Retrofit — Bent Position with 345B L Chassis	Stick Length				
	2150 mm	2800 mm	3200 mm	3900 mm	4800 mm
A Maximum Digging Depth	6340 mm	6850 mm	7250 mm	7950 mm	8750 mm
B Maximum Reach at Ground Level	9950 mm	10 520 mm	10 810 mm	11 530 mm	12 270 mm
C Maximum Cutting Height	9930 mm	10 290 mm	10 240 mm	10 680 mm	10 950 mm
D Maximum Loading Height	6640 mm	7260 mm	7240 mm	7640 mm	8090 mm
E Minimum Loading Height	3830 mm	3330 mm	2930 mm	2230 mm	1430 mm



345B II UHD Base Machine	Undercarriages	
	L	Hydraulic Variable Gauge
Shoes	600 mm	600 mm
Length	7423 mm	7423 mm
Boom Height*	2571 mm	2545 mm
Height with Overhead Guard	3685 mm	3659 mm
Height without Overhead Guard	3491 mm	3465 mm
Working Width	3490 mm	3611 mm
Shipping Width	2990 mm	3000 mm
Operating Weight	43 900 kg	50 700 kg

*Hydraulic lines are included and boom cylinders are fully retracted.



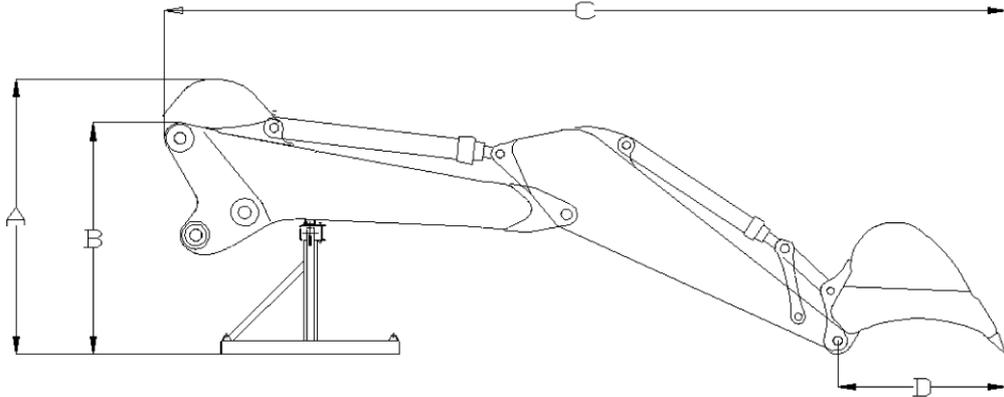
345B II UHD Front Parts

A Length	10 469 mm
B Height*	3118 mm
Support Width	2400 mm
Support Weight	396 kg
Boom Nose Width	725 mm
Approximate Boom Nose Weight*	5767 kg
Approximate Fore Boom Weight*	1582 kg
Approximate Stick Weight*	2106 kg
Total Weight**	11 600 kg

*Hydraulic lines are included.

**Support, cylinders, hydraulic lines and quick coupler are included.

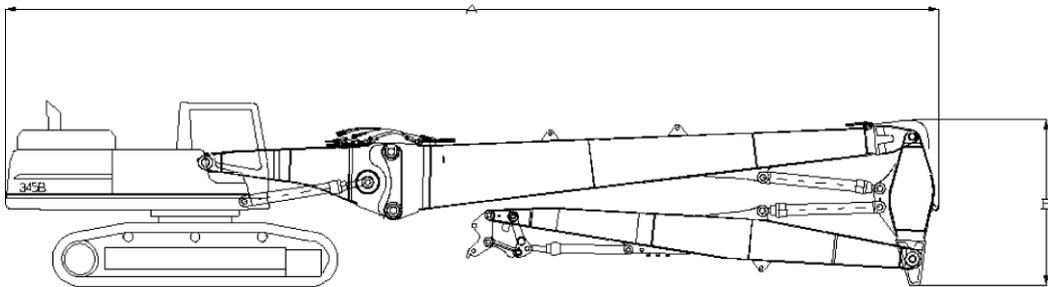
● 345B L II UHD Shipping Dimensions



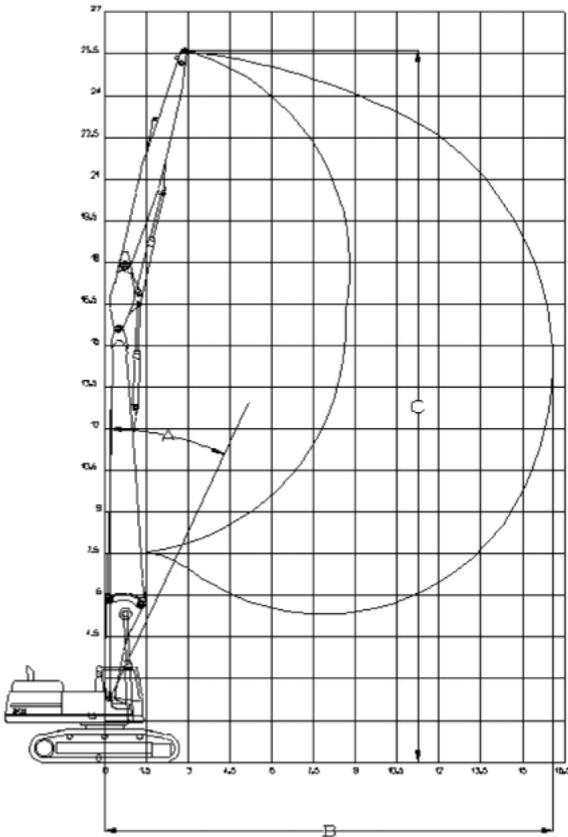
345B II UHD Retrofit Configuration	Stick Length			
	R2.9T	R3.4T	R4.0T	R4.8T
A Height*	3126 mm	3090 mm	3038 mm	2947 mm
B Height	2648 mm	2598 mm	2531 mm	2412 mm
C Length	8928 mm	9416 mm	10 104 mm	10 920 mm
D Tip Radius	1890 mm	1890 mm	1890 mm	1890 mm
Approximate Boom Weight*	3269 kg	3269 kg	3269 kg	3269 kg
Approximate Stick Weight*	1673 kg	1655 kg	1991 kg	2169 kg
Approximate Bucket Weight	1930 kg	1930 kg	1930 kg	1930 kg
Approximate Total Weight**	8740 kg	8720 kg	9050 kg	9230 kg

*Hydraulic lines are included.

**Support, cylinders and hydraulic lines are included.

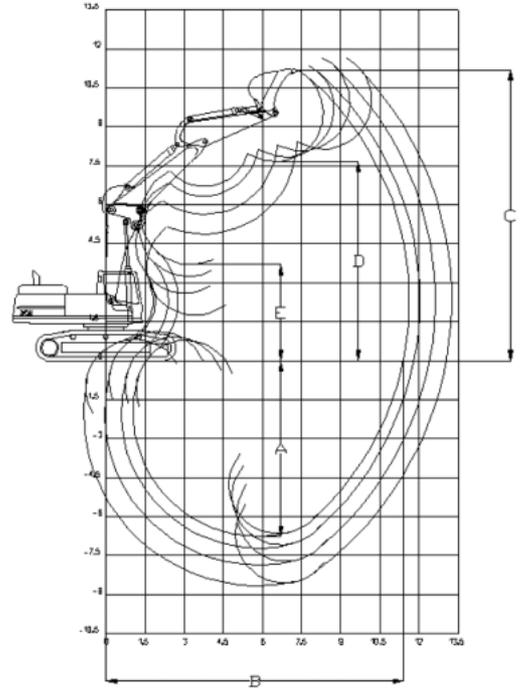
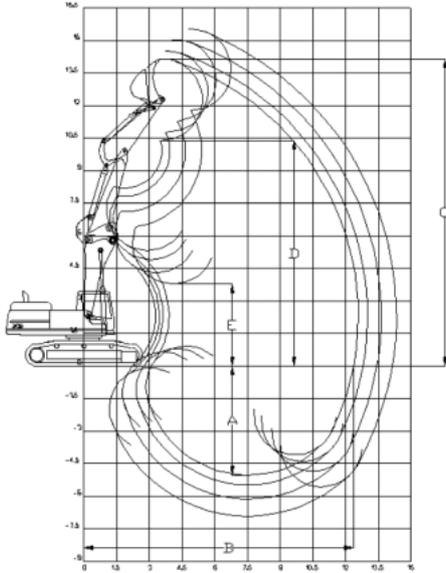


345B II with UHD Front Parts	Undercarriages	
	L	Hydraulic Variable Gauge
Shoes	600 mm	600 mm
Shipping Length	17 730 mm	17 730 mm
Shipping Height	3410 mm	3410 mm
Shipping Width	2990 mm	3000 mm
Operating Weight	54 700 kg	61 500 kg



345B L II with UHD Front Parts — Reaches	345B L II UHD	345B L II HVG UHD
Maximum Allowable Angle from Vertical	25°	25°
Maximum Horizontal Reach	16 100 mm	16 100 mm
Maximum Vertical Pin Height	25 600 mm	25 600 mm
Maximum Tool Weight Over the Front*	3000 kg	3000 kg
Maximum Tool Weight Over the Side*	2000 kg	2700 kg

*Tool weight includes mounting bracket and quick coupler.



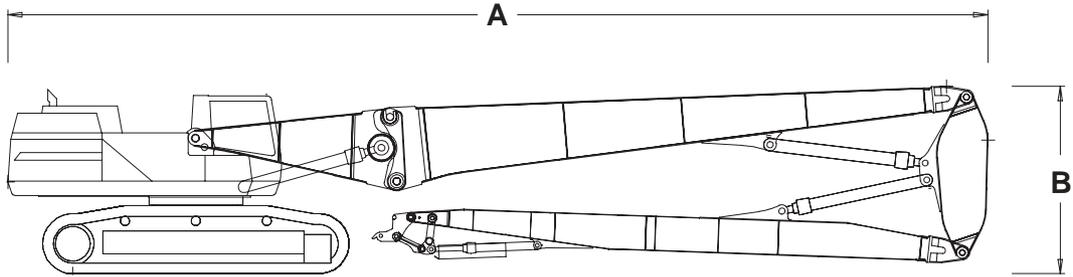
345B II UHD Retrofit — Straight Position	Stick Length			
	R2.9T	R3.4T	R4.0T	R4.8T
A Maximum Digging Depth	5056 mm	5506 mm	6156 mm	6956 mm
B Maximum Reach at Ground Level	12 363 mm	12 801 mm	13 436 mm	14 146 mm
C Maximum Cutting Height	14 134 mm	14 500 mm	15 023 mm	15 514 mm
D Maximum Loading Height	10 358 mm	10 725 mm	11 254 mm	11 739 mm
E Minimum Loading Height	5300 mm	4881 mm	4276 mm	3762 mm

345B II UHD Retrofit — Bent Position	Stick Length			
	R2.9T	R3.4T	R4.0T	R4.8T
A Maximum Digging Depth	6779 mm	7229 mm	7879 mm	8679 mm
B Maximum Reach at Ground Level	11 401 mm	11 814 mm	12 415 mm	13 054 mm
C Maximum Cutting Height	11 153 mm	11 329 mm	11 621 mm	11 628 mm
D Maximum Loading Height	7632 mm	7805 mm	8055 mm	8106 mm
E Minimum Loading Height	3620 mm	3170 mm	2520 mm	1720 mm

Ultra-High Demolition Arrangements — Belgium Sourced

Excavators

- 365B L II UHD Shipping Dimensions
- 365B L II UHD Range Dimensions

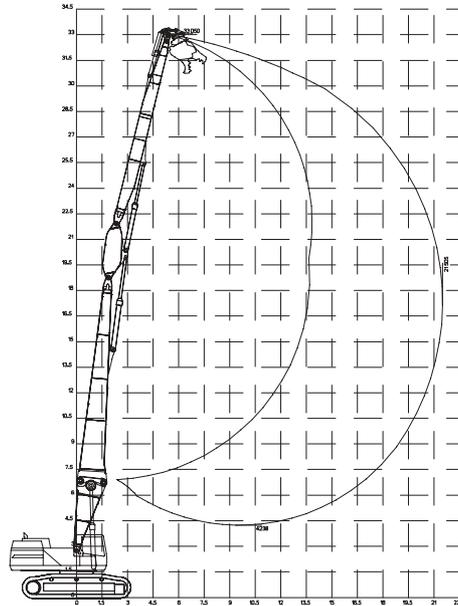


365B L II with UHD Front Parts*

With 385B L Undercarriage

A Shipping Length	20 400 mm
B Shipping Height	3910 mm
Operating Weight	83.1 t

*Preliminary specifications, can be changed without notice.



365B L II with UHD Front Parts — Reaches

With 385B L Undercarriage

Maximum Allowable Angle from Vertical	25°
Maximum Pin Height	33 050 mm
Maximum Horizontal Reach	21 505 mm
Maximum Tool Weight Over the Front*	3000 kg
Operating Weight	83 100 kg

*Tool weight includes mounting bracket and quick coupler.

- 385B L UHD Features
- 385B L UHD Shipping Dimensions

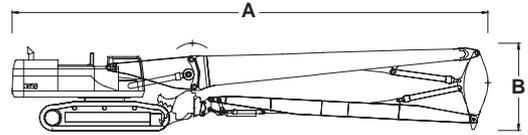
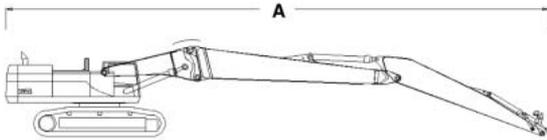
Features

The 385B UHD is available in three different versions:

- **Long Reach Demolition:** A 22-meter version that can work with a 5-ton work tool (including quick coupler and mounting bracket – center of gravity at maximum 1.5 m horizontally measured from stick nose). Unlike the other two versions, the 22-meter arrangement is a two-pieced front part (no fore boom). Excavation work is not allowed with this configuration.

- **Ultra-High Demolition:** A 36-meter version that can work with a 3-ton work tool (including quick coupler and mounting bracket – center of gravity at maximum 1.5 m horizontally measured from stick nose).
- **Ultra-High Demolition:** A 40-meter version, which works with a 2-ton work tool (including quick coupler and mounting bracket – center of gravity at maximum 1.5 m horizontally measured from stick nose).

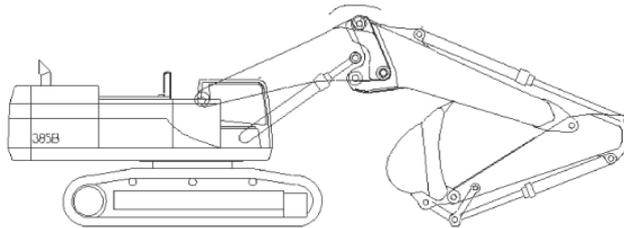
It is possible to convert a 36 m version to a 40 m version or vice-versa by swapping the fore boom.



385B L with UHD Front Parts

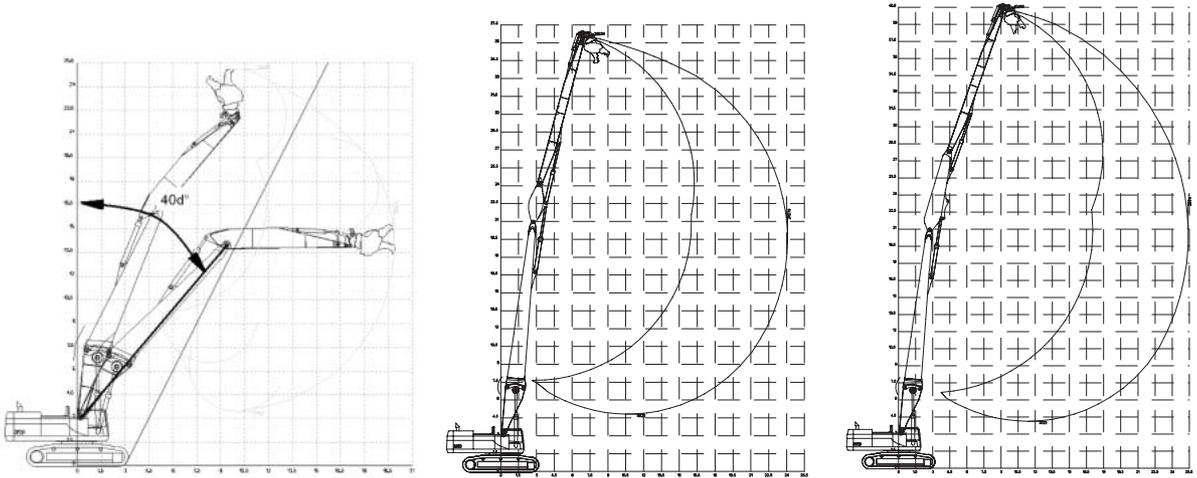
	22 m version	36 m version	40 m version
A Shipping Length	26 280 mm*	23 375 mm	23 325 mm
B Shipping Height	4690 mm	4290 mm	7760 mm
Operating Weight	94 t	97 t	100 t

*With front parts extended (boom foot + LRD boom nose + stick).



385B L with Retrofit Front Parts — Bent Position

	R3.4JB	R3.7HB	R4.4HB	R5.5HB
Shipping Length	16 160 mm	16 085 mm	16 010 mm	15 735 mm
Shipping Height	5470 mm	5370 mm	5588 mm	6065 mm
Operating Weight	91 235 kg	90 210 kg	90 410 kg	90 710 kg



385B L with UHD Front Parts — Reaches

	22 m version	36 m version	44 m version
Maximum Allowable Angle from Vertical	40°	25°	15°
Maximum Pin Height	22.2 m	36.6 m	40.4 m
Maximum Horizontal Reach	17.2 m	24.1 m	25.4 m
Maximum Tool Weight Over the Front*	MP30	MP20	MP15
Operating Weight	94 t	97 t	100 t

*Maximum authorized tool weight over the front only; includes a dedicated quick coupler.

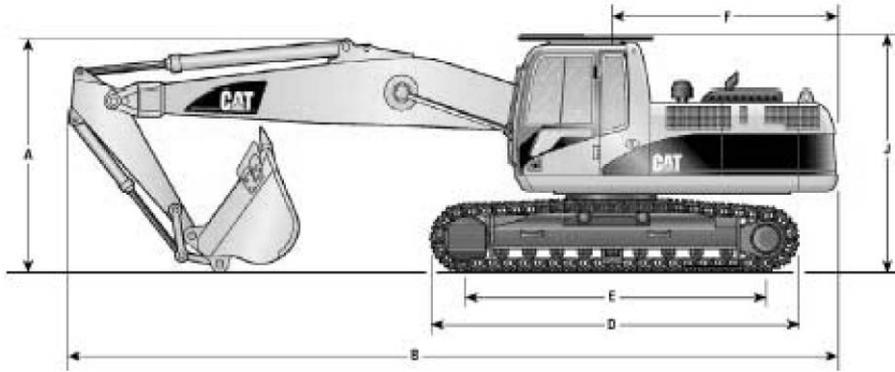
385B L UHD Retrofit — Straight Position	Stick Length			
	R3.4JB	R3.7HB	R4.4HB	R5.5HB
Maximum Digging Depth	4475 mm	4570 mm	5270 mm	6375 mm
Maximum Reach	15 810 mm	15 820 mm	16 490 mm	17 670 mm
Maximum Cutting Height	17 720 mm	17 530 mm	18 080 mm	19 240 mm

385B L UHD Retrofit — Bent Position	Stick Length			
	R3.4JB	R3.7HB	R4.4HB	R5.5HB
Maximum Digging Depth	6945 mm	7040 mm	7740 mm	8840 mm
Maximum Reach at Ground Level	13 700 mm	13 670 mm	14 350 mm	15 600 mm
Maximum Cutting Height	14 010 mm	13 480 mm	13 770 mm	14 700 mm

Excavators

Demolition Arrangements — Belgium Sourced

- Straight Boom
- Shipping Dimensions

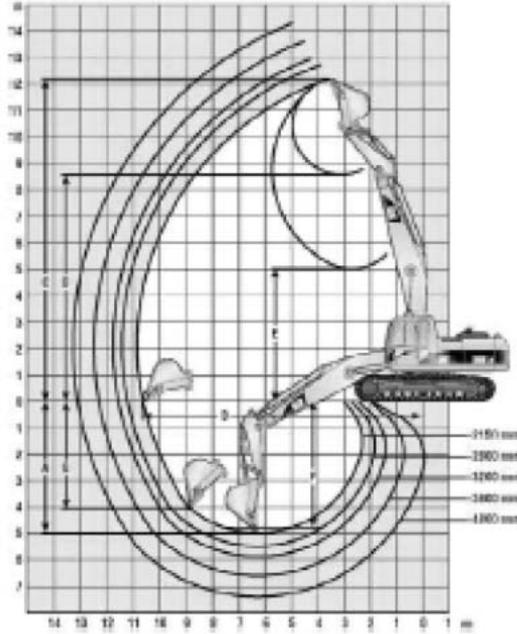


Model	320C L/LN		320C S		322C L/LN		325C L/LN	
	stick	mm	stick	mm	stick	mm	stick	mm
A Shipping Height*	R1.9C	3011	R1.9C	3087	R2.0D	3049	R2.0D	3100
	R2.5B	3011	R2.5B	3087	R2.5S	3049	R2.65C	3100
	R2.9B	3011	R2.9B	3087	R2.95S	3049	R3.2C	3163
	R3.9B	4057	R3.9B	4000	R3.9B	3871		
B Shipping Length*	R1.9C	10 042	R1.9C	10 087	R2.0D	10 379	R2.0D	10 838
	R2.5B	9710	R2.5B	9719	R2.5S	10 153	R2.65C	10 645
	R2.9B	9692	R2.9B	9706	R2.95S	10 140	R3.2C	10 611
	R3.9B	9371	R3.9B	9410	R3.9B	9911		
C Shipping Width L LN S		2800						
		2980				3190		3390
		2490				2990		2990
				2500				

Model	330C L/LN		345B II L		365B II L	
	stick	mm	stick	mm	stick	mm
A Shipping Height*	R2.15E	3213	R2.9T	3514	R2.8V	3896
	R2.8D	3213	R3.4T	3514	R3.6V	4055
	R3.2D	3213	R4.0T	3691	R4.7V	5122
	R3.9D	3739	R4.8T	5401		
	R4.8C	4963				
B Shipping Length*	R2.15E	11 885	R2.9T	12 104	R2.8V	13 785
	R2.8D	11 513	R3.4T	12 013	R3.6V	13 612
	R3.2D	11 513	R4.0T	11 954	R4.7V	13 404
	R3.9D	11 373	R4.8T	11 600		
	R4.8C	11 023				
C Shipping Width L LN		3340		2990		3400
		2990				

*With stick cylinder fully extended. For some configurations, retracting the stick cylinder will result in a lower shipping height but increased shipping length.

- Straight Booms
- Range Dimensions



		320C L*				322C L*				
Stick		R1.9C	R2.5B	R2.9B	R3.9B	R2.0D	R2.5S	R2.95S	R3.9B	
A	Maximum Digging Depth	mm	4160	4600	5020	5960	4240	4640	5090	5890
	Maximum Reach at Ground Level	mm	9350	9820	10 240	11 140	9670	10 050	10 490	11 260
	Maximum Cutting Height	mm	10 850	11 250	11 620	12 390	11 230	11 550	11 930	12 540
	Maximum Loading Height	mm	7690	8480	8900	9640	7900	8440	8810	9840
	Minimum Loading Height	mm	4690	4110	3620	2890	4620	4320	3730	3040
	Operating Weight	kg	22 015	21 150	21 760	21 760	25 300	24 880	24 830	24 900

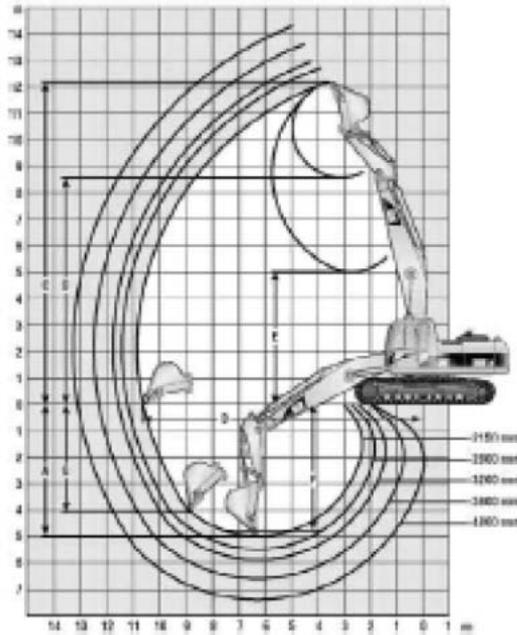
		325C L*			330C L*					
Stick		R2.0D	R2.65C	R3.2C	R2.15E	R2.8D	R3.2D	R3.9D	R4.8C	
A	Maximum Digging Depth	mm	4610	5160	5710	4970	5480	5880	6580	7400
	Maximum Reach at Ground Level	mm	9990	10 550	11 080	10 610	11 170	11 520	12 250	13 060
	Maximum Cutting Height	mm	11 440	11 950	12 370	12 220	12 760	12 990	13 660	14 340
	Maximum Loading Height	mm	8130	8840	9260	8600	9440	9680	10 340	11 160
	Minimum Loading Height	mm	4830	4230	3660	5040	4590	4060	3450	2700
	Operating Weight	kg	28 900	28 540	28 650	35 730	35 145	35 200	35 290	35 155

*For other configurations, please refer to specalogs (C, C LN and C S undercarriages, and heavy duty counterweight).

Excavators

Demolition Arrangements — Belgium Sourced

- Straight Booms
- Range Dimensions



345B L II

365B L II

Stick		R2.9T	R3.4T	R4.0T	R4.8T	R2.6WB	R2.8VB	R3.6VB	R4.15VB	R4.6VB
A Maximum Digging Depth	mm	5220	5670	6320	7120	5730	5890	6650	7195	7720
Maximum Reach at Ground Level	mm	11 820	12 260	12 900	13 610	13 000	12 960	13 650	13 540	14 740
Maximum Cutting Height	mm	13 580	13 940	14 470	14 960	14 680	14 910	15 410	15 850	16 360
Maximum Loading Height	mm	9800	10 170	10 690	11 190		10 730	11 200		12120
Minimum Loading Height	mm	4740	4320	3720	3210		5730	5140		4270
Operating Weight	kg	47 800	47 785	48 035	48 215	67 520	66 370	66 575	66 800	66 965

*For other configurations, please refer to specalogs (C, C LN and C S undercarriages, and heavy duty counterweight).

- Tracks vs. Wheels
- Stick/Bucket Combinations

MACHINE SELECTION: TRACKS VERSUS WHEELS

Features:

Tracks

- Flotation
- Traction
- Maneuverability
- Severe underfoot
- Faster machine repositioning

Wheels

- Mobility and speed
- No pavement damage
- Better stability with outriggers or dozers
- Leveling machine with outriggers
- Dozing capability

307–385

Unless the application calls for a lot of travel to, from, and around the job sites, a track-type excavator could be the better choice. Track-type excavators provide good traction and flotation in almost all kinds of underfoot conditions. Consistently good drawbar power provides excellent maneuverability. The tracked undercarriage also provides good overall stability. If the job calls for frequent machine repositioning, a track-type excavator will provide better operating efficiency — where raising and lowering outriggers would take extra time.

Wheels (M313C–M322C)

Looking for a highly versatile machine? A machine that can do more than mass excavation and trenching. Consider a Wheel Excavator.

A Wheel Excavator combines traditional excavator features such as 360° swing, long reach, deep digging depth, high loading height, high digging forces and high lift capacities, with the mobility of

a wheeled undercarriage. The rubber tires allow the excavator to travel paved roads, work in shopping malls, squares, parking lots and other paved areas without damaging the pavement. It's mobility allows fast independent travel between jobsites as well as on the jobsite giving you more job planning flexibility. The Wheel Excavator is the ideal tool for truck loading in tight quarters, undercutting concrete or asphalt, patching, shoulder work, curb and gutter repair, landscaping, spreading top soil, fine grading, laying pipe, placing manholes or ditch cleaning.

A Wheel Excavator is also an ideal machine in material handling. It can load or unload trucks and carry loads around the job site. Stabilizers and a dozer blade can be pinned to the undercarriage increasing the machines stability during lifting.

Equip the Wheel Excavator with dedicated special attachments such as cab riser, material handling stick and boom. Add the additional hydraulic circuit option and your ready for a complete range of special tools. Ditch cleaning bucket, clamshell, grapples, hammers to name a few.

Caterpillar Wheel Excavators offer a load independent, load-sensing, flow distribution hydraulic system that gives the operator absolute precision and control no matter what the application.

Machine weight is the key to selecting a Wheel Excavator. Following are some additional factors that need to be considered.

Choose the proper boom and stick for your reach, digging depth and lifting requirements. Stability can be greatly enhanced by adding outriggers and/or a dozer blade. Additional hydraulic circuits can be added depending on your application and stick end attachments.

Acceptable Bucket/Stick Combinations

The following charts identify the acceptable bucket and stick combinations for Caterpillar Wheel Excavators and are based on stability. Minimum stability occurs with the linkage oriented over the side and positioned as shown in the visual. Dozer and/or stabilizers (if equipped) are raised and the bucket contains a full load. The longest stick is shown that has acceptable stability for each bucket. That stability is 1.1 moment ratio or better. Once this stability factor is established, all shorter sticks are then acceptable with the listed bucket.



EXCAVATOR SHOE SELECTION

Undercarriage life can be extended by equipping the machine properly for the application.

Many excavators work on pavement or flat, soft ground and experience few undercarriage problems. But if those same machines (usually equipped with wide track pads) were placed in severe underfoot conditions, undercarriage destruction could occur very rapidly.

The rule, used for other track-type machines — *“Whenever possible use the narrowest shoes available”* — is even more valid for excavators.

The best general purpose track shoe is the triple grouser. It has a good section modulus and offers the best compromise between traction and minimum disturbance to paved surface.

The double grouser shoe has a better section modulus and is more aggressive than the triple grouser section. Single grouser shoes are offered for maximum traction. Some users like single grousers for added mobility in hilly terrain.

The following table lists ground pressures for various width shoes (reach boom, medium stick and bucket):

Model	Shoe Type	Shoe Width		Pressure	
		mm	in	kPa	psi
301.5	Rubber Belt	230	9	28.7	4.16
301.5 CR	Steel Double Grouser	230	9	27.0	3.90
	Rubber Belt	230	9	25.0	3.60
301.6	Steel Double Grouser	230	9	28.2	4.09
	Rubber Belt	230	9	27.2	3.94
301.8	Steel Double Grouser	230	9	28.8	4.17
	Rubber Belt	230	9	27.7	4.01
302.5	Steel Double Grouser	300	12	26.6	3.85
	Rubber Belt	300	12	25.6	3.71
303 SR	Steel Double Grouser	300	12	28.6	4.10
	Rubber Belt	300	12	27.6	4.00
303 CR	Steel Double Grouser	300	12	30.9	4.48
	Rubber Belt	300	12	29.9	4.33
304 CR	Steel Double Grouser	400	15	28.5	4.13
	Rubber Belt	400	15	25.0	3.63
305 CR	Steel Double Grouser	400	16	28.5	4.10
	Rubber	400	16	27.9	4.05
307C	Triple	450	18	30.0	4.35
	Triple	600	24	23.0	3.34
	Segment Rubber	450	18	31.0	4.50
307C SB	Triple	450	18	36.0	5.22
	Triple	600	24	27.0	3.92
	Segment Rubber	450	18	36.0	5.22

Model	Shoe Type	Shoe Width		Pressure	
		mm	in	kPa	psi
308 CR	Triple	450	18	32.4	4.70
	Triple	600	24	24.9	3.61
	Segment	450	18	32.6	4.73
311C U	Triple	500	20	41.0	5.95
	Triple	600	24	34.8	5.05
	Triple	700	28	30.4	4.41
	Triple	770	30	27.9	4.05
	Segment Rubber	500	20	41.4	6.00
312C	Triple	500	20	39.0	5.66
	Triple	600	24	33.0	4.97
	Triple	700	28	29.0	4.21
	Triple	770	30	27.8	4.00
	Segment Rubber	500	20	41.1	6.00
312C L	Triple	500	20	38.5	5.60
	Triple	600	24	31.0	4.50
	Triple	700	35	27.0	3.92
	Triple	770	30	25.0	3.63
313C SR	Triple	500	20	45.6	6.60
	Triple	600	24	38.7	5.60
	Triple	700	28	33.7	4.90
	Segment Rubber	500	20	45.5	6.60
313C CR	Triple	500	20	40.9	5.90
	Triple	600	24	34.7	5.00
	Triple	700	28	30.3	4.40
	Segment Rubber	500	20	41.0	5.90
314C CR	Triple	500	20	44.0	6.40
	Triple	600	24	37.0	5.40
	Triple	700	28	32.0	4.70
	Segment Rubber	500	20	44.0	6.40
314C LCR	Triple	500	20	41.0	5.90
	Triple	600	24	35.0	5.00
	Triple	700	28	30.0	4.40
315C	Triple	500	20	50.0	7.25
	Triple	600	24	42.0	6.10
	Triple	700	28	36.0	5.22
315C L	Triple	500	20	47.0	6.82
	Triple	600	24	42.0	5.66
	Triple	700	28	36.0	4.93
315C L*	Triple	500	20	52.0	7.54
	Triple	600	24	44.0	6.39
	Triple	700	28	38.0	5.51

*France sourced.

Model	Shoe Type	Shoe Width		Pressure	
		mm	in	kPa	psi
318C*	Triple	600	24	45.0	6.53
	Triple	700	28	43.0	6.23
	Triple	800	32	38.0	5.51
318C L	Triple*	500	20	53.0	7.69
	Triple*	600	24	45.0	6.53
	Triple	600	24	43.1	6.20
	Triple*	700	28	39.0	5.66
	Triple	700	28	37.6	5.50
	Triple*	800	32	35.0	5.08
	Triple	800	32	33.3	4.80
	Triple*	900	35	31.0	4.50
318C LN	Triple	500	20	50.9	7.40
	Triple	600	24	42.9	6.20
318C N*	Triple*	500	20	58.0	8.41
	Triple*	600	24	49.0	7.10
320C	Triple	600	24	46.1	6.70
	Triple	700	28	40.3	5.80
	Triple	800	32	35.6	5.20
320C L	Triple	600	24	47.5	6.90
	Triple	700	28	37.7	5.50
	Triple	800	32	33.1	4.80
	Triple	900	35	31.7	4.60
320C LN	Triple	500	20	57.0	8.26
	Triple	600	24	47.5	6.89
320C U	Triple	600	24	51.5	7.50
	Triple	700	28	44.6	6.50
	Triple	800	32	39.6	5.70
	Triple	900	35	31.7	4.60
320C LU	Triple	600	24	47.7	6.90
	Triple	700	28	41.5	6.00
	Triple	800	32	36.8	5.30
321C LCR	Triple	600	24	48.6	7.00
	Triple	700	28	42.4	6.10
	Triple	800	32	37.5	5.40
322C	Triple	600	24	50.6	7.30
	Triple	700	28	43.8	6.40
	Triple	800	32	38.8	5.60
322C L	Triple	600	24	47.2	6.80
	Triple	700	28	40.9	5.90
	Triple	800	32	36.2	5.20

*France sourced.

NOTE: Belgium sourced excavators have different ground pressures. See Technical Data Sheets.

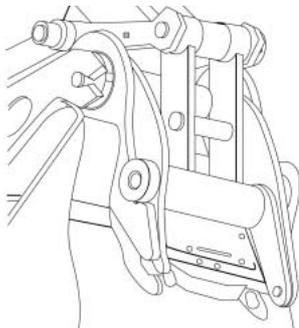
Model	Shoe Type	Shoe Width		Pressure	
		mm	in	kPa	psi
322C LN	Triple	600	24	46.3	6.72
	Triple	700	28	43.3	6.28
	Triple	800	32	37.9	5.50
325C	Triple	600	24	56.7	8.20
	Triple	700	28	49.2	7.10
	Triple	800	32	44.0	6.40
325C L	Triple	600	24	52.9	7.67
	Triple	700	28	45.9	6.66
	Triple	800	32	41.1	5.96
	Triple	900	35	38.3	5.60
325C LN	Triple	600	24	52.7	7.64
	Triple	700	28	50.4	7.31
	Triple	800	32	44.1	6.39
330C	Triple	600	24	68.8	10.00
	Triple	750	30	55.8	8.10
	Triple	850	33	50.3	7.30
330C L	Triple	600	24	63.9	9.30
	Triple	750	30	51.9	7.50
	Triple	850	33	46.8	6.80
330C LN	Triple	600	24	62.0	9.00
330C – ES	Triple	600	24	71.0	10.30
345B Series II	Triple	750	30	62.8	9.10
	Triple	900	35	53.2	7.70
	Triple	600	24	76.6	11.10
	Double	600	24	77.1	11.20
	Double	750	30	62.8	9.10
345B Series II LC – FIX	Triple	750	30	66.3	9.60
	Triple	900	35	56.1	8.10
	Triple	600	24	81.0	11.70
	Double	600	24	81.4	11.80
	Double	750	30	66.3	9.60
345B L Series II – HVG	Triple	600	24	81.8	11.90
	Triple	750	30	67.0	9.70
	Triple	900	35	56.7	8.20
345B Series II – ES	Double	650	26	85.8	12.44
365B L Series II	Double	650	26	96.6	14.00
	Double	750	30	84.5	12.30
	Double	900	35	71.5	10.40
365B Series II – ES	Double	650	26	100.0	14.50
385B	Double	650	26	121.2	17.60
	Double	750	30	106.0	15.40
385B L	Double	650	26	113.1	16.40
	Double	750	30	98.9	14.30
	Double	900	35	83.6	12.10

NOTE: Belgium sourced excavators have different ground pressures. See Technical Data Sheets.

QUICK COUPLER SYSTEMS

Quick couplers can greatly increase a machine's versatility and productivity. They make it much easier to switch attachments which can increase utilization. Quick couplers also encourage changing buckets when the application changes, rather than continue to use a less efficient bucket. Example: An application that is predominately dirt with occasional pockets or seams of rock. Without a quick coupler the owner may choose to live with a rock bucket but, rock buckets are normally smaller and heavier which reduces performance in a dirt application. A quick coupler allows the use of the rock bucket in the rock and a GP bucket in the dirt.

There are two types of quick couplers. The first is a dedicated type. A typical system substitutes hooks on the bucket for the pin-on hinges used with conventional buckets. The mating portion is pinned on the stick and bucket linkage. It slips into the hooks to secure the bucket or other attachment.



Dedicated
Hook-type

Advantages:

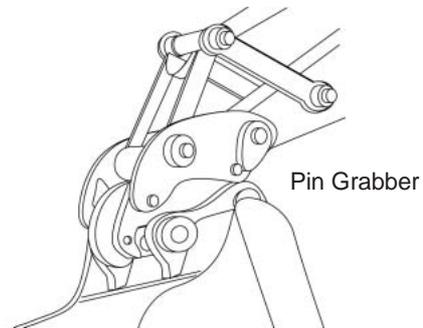
Bucket tip radius (distance from the bucket pivot point to the bucket tip) does not increase. Increased tip radius reduces curl and stick forces which can reduce the loadability of the bucket. The hook type coupler also does not add appreciable weight at the end of the stick. Keeping the tip radius and weight the same ensure no compromise in performance. The machine portion of the hook type coupler can be designed to allow more than one machine to use the same buckets.

Disadvantages:

The hook type system requires special buckets. Conventional pin-on buckets cannot be used. The ability to use buckets on more than one machine

requires careful application analysis. Larger machines generate forces that can destroy the wrong buckets. Smaller machines with the wrong bucket may develop loads in excess of the machine's capability. Even if the machine can handle the loads, the tip radius may be too large to allow the bucket to load properly. With the flexibility of a quick coupler comes the responsibility to make sure the bucket or other attachments are properly sized for each application.

The second type of quick coupler is the pin grabber type. This device pins on the stick and bucket linkage and grabs the bucket pins on standard pin-on buckets.



Advantages:

The advantage of the pin grabber is that it will pick up standard pin-on buckets. No need to purchase new attachments that will fit the system.

Disadvantages:

The pin grabber is mounted between the stick and the bucket which increases the tip radius. The amount of increase depends on the pin grabber's manufacturer. Increasing tip radius can compromise performance by decreasing bucket forces. The coupler also adds weight and reduces the payload capability.

Pin grabbers are required to mate up with existing bucket pins. Because different machines require different pin spreads and diameters, they offer very limited ability to match with buckets from other machines.

Both types of quick couplers offer two types of actuation. Mechanical ... which requires manual activity to release and engage the attachment. This process can take from one to five minutes depending on the coupler design. The other type is cab actuated ... this type can usually allow an attachment change in 30 seconds or less.

The Cat CW-series is available in a spindle and hydraulic version. A spindle version can easily be modified into a hydraulic version and vice versa.

Additional Benefit:

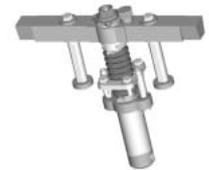
Hoisting hooks — To make the CW-series more versatile, hoisting hooks are available from 2 metric tons (2.2 tons) up to 20 metric tons (22 tons) capacity for maximum lifting capacity.



Hydraulic Version



Spindle Version



Specifications

		CW-05	CW-10	CW-20	CW-20S	CW-30	CW-30s				
Weight	kg	25	75	190	180	230	220				
	lb	55	165	419	397	507	485				
Dimensions	Width	mm	175	310	550	420	550	420			
		in	6.9	12.2	21.7	16.5	21.7	16.5			
Length	mm	200	300	475	475	475	475				
	in	7.9	11.8	18.7	18.7	18.7	18.7				
Hoisting-hook	metric ton	2	4	5/10	5/10	5/10	5/10				
	ton	2.2	4.4	5.5/11.0	5.5/11.0	5.5/11.0	5.5/11.0				
Excavator-class	metric ton	<3.5	3.5-10.5	7.5-15	7.5-15	15-25	15-25				
	ton	<3.9	3.9-11.6	8.3-16.5	8.3-16.5	16.5-27.6	16.5-27.6				
Spindle Version		X	X	X	X	X	X				
Hydraulic Version		X	X	X	X	X	X				
		CW-40	CW-40S	CW-45	CW-45S	CW-55	CW-55S	CW-70			
Weight	kg	240	230	440	400	760	580	1300			
	lb	529	507	970	882	1676	1279	2866			
Dimensions	Width	mm	550	420	690	550	830	560	840		
		in	21.7	16.5	27.2	21.7	32.7	22.0	33.1		
Length	mm	475	475	570	570	650	650	875			
	in	18.7	18.7	22.4	22.4	25.6	25.6	34.4			
Hoisting-hook	metric ton	5/10	5/10	14	14	20	20	20			
	ton	5.5/11.0	5.5/11.0	15.4	15.4	22.0	22.0	22.0			
Excavator-class	metric ton	20-30	20-30	25-40	25-40	35-65	35-65	65-90			
	ton	22.0-33.1	22.0-33.1	27.6-44.1	27.6-44.1	38.6-71.7	38.6-71.7	71.7-99.2			
Spindle Version		X	X	X	X	X	X	N/A			
Hydraulic Version		X	X	X	X	X	X	X			

CW-40 and CW-40S are not suitable for machine exceeding 27 metric tons (29.8 ton), which are used under heavy working conditions like rocky soils and demolition work, we highly recommend the usage of quick coupler CW-45(S).

Matching Guide

Machine	Linkage Family	Quick Coupler Model	
		Standard	Narrow
301.5		CW-05	N/A
301.6		CW-05	N/A
301.8		CW-05	N/A
302.5		CW-05	N/A
303CR		CW-05	N/A
303.5		CW-05	N/A
304CR		CW-10	N/A
304.5		CW-10	N/A
305CR		CW-10	N/A
307C		CW-10	N/A
312C		CW-20	CW-20S
315C		CW-30	CW-30S
318C		CW-30	CW-30S
320C	B, C	CW-40	CW-40S
322C	S	CW-40	CW-40S
322C**	D	CW-40	CW-40S
325C**	C	CW-40	CW-40S
325C	D	CW-45	CW-45S

Machine	Linkage Family	Quick Coupler Model	
		Standard	Narrow
330C	D	CW-45	CW-45S
330C	E	CW-45	CW-45S
345B II	T, U	CW-55	CW-55S
365B II	VB, WB	CW-70	N/A
385B	HJ, JB	CW-70	N/A
M313C		CW-20	CW-20S
M315C		CW-20	CW-20S
M316C		CW-20	CW-20S
M318C		CW-30	CW-30S
M322C		CW-40	CW-40S
330C UHD*	UHD linkage	CW-40	CW-40S
345B II UHD*	UHD linkage	CW-40	CW-40S
365B II UHD*	UHD linkage	CW-40	CW-40S
385B UHD*	UHD linkage	CW-40	CW-40S

*Take note that UHD quick couplers have a special shape for optimal working range with Cat demolition work tools. Please contact your Caterpillar dealer for UHD couplers for non-current Cat machines.

**For operation under heavy working conditions, like rocky soils and demolition work, we highly recommend the usage of quick coupler CW-45(S).

Machine Linkage

		307	312	315	B	S	C	D	F/T	U/V/G
Pin diameters										
Front (stick)	mm	45	65	70	80	80	80	90	100	110
	in	1.8	2.6	2.8	3.1	3.1	3.1	3.5	3.9	4.3
Rear (link)	mm	45	65	70	80	80	80	90*	100**	90**
	in	1.8	2.6	2.8	3.1	3.1	3.1	3.5*	3.9**	3.5**
Pin spread range										
Minimum	mm	290	360	390	441	441	470	470	550	580
	in	11.4	14.2	15.4	17.4	17.4	18.5	18.5	21.7	22.8
Maximum	mm	312	420	463	516	516	520	520	600	640
	in	12.3	16.5	18.2	20.3	20.3	20.5	20.5	23.6	25.2
Face spread range										
Minimum	mm	178	220	277	306	306	347	380	420	495
	in	7.0	8.7	10.9	12.0	12.0	13.7	15.0	16.5	19.5
Maximum	mm	186	226	281	312	312	353	386	441	511
without shims	in	7.3	8.9	11.1	12.3	12.3	13.9	15.2	17.4	20.1
Maximum	mm	216	258	315	344	344	385	418	458	557
with shims	in	8.5	10.2	12.4	13.5	13.5	15.2	16.5	18.0	21.9
Other specifications										
Weight	kg	122	286	326	443	443	594	640	1035	1130
with pins	lb	269	631	719	977	977	1310	1411	2282	2491
Weight	kg	113	265	295	400	400	549	579	949	1025
without pins	lb	249	584	650	882	882	1210	1276	2092	2260
Pressure rating	bar	400	400	400	400	400	400	400	400	400
	psi	5802	5802	5802	5802	5802	5802	5802	5802	5802

*Requires (2) sleeves.

**Requires (3) sleeves.

RIPPING & LOADING IN QUARRIES

The “Rip & Load” concept includes a large mass excavator equipped with a hydraulic quick coupler, a rock bucket and a ripper tine. The ripper tine is used to disrupt the in-situ rock formation, after which same excavator switches to the bucket to load the rock. This system is used where economical, environmental or legal issues prevent or restrict the use of explosives. In these situations, depending on geology, ripping either reduces the amount of explosives necessary, or replaces explosives all together.

Advantages:

- Reduction or elimination of blasting costs.
- Reduced safety risks.
- Smaller environmental impact (less noise and vibrations).
- Less exposure to precipitation, resulting in less water damage.
- Less waste (up to 35% reduction).
- Less internal cracks, resulting in higher quality product.
- Work areas can be closer to existing infrastructures.
- Fewer machines and personnel.
- Increased versatility with quick coupler (different buckets, hammers).
- Lower Cost per Ton.

Rip and Load Hourly Production

(With Hydraulic Quick Coupler)

Model	Metric Tons/Hour	Short Tons/Hour
345B Series II	150 - 300	165 - 330
365B Series II	200 - 400	220 - 440
385B	300 - 500	330 - 550
5110B	400 - 600	440 - 660
5130B	600 - 800	660 - 880

4

Rippability

Refer to “Tip Selection”, “Estimating Ripping Production” and “Use of Seismic Velocity Charts” in the Track-type Tractors section. This information generally applies to usage of a ripper tine on the mass excavator.

Rippability Comparison between LHEX and LTTT

The excavator ripping technique is different from production ripping with a track-type tractor. The track-type tractor pulls the ripper(s) through the rock mass at a constant rate, whereas the excavator uses its stick- and curl forces to break material away from a horizontal or vertical face. Forward visibility in the excavator allows the operator to position the ripper tooth and attack geological discontinuities to assist the ripping process.

In ripping and loading, the ripper is typically used between 15% and 20% of the hour preparing the material. Tool change time, when using the hydraulic quick coupler, is insignificant with 2% to 6%. The remainder of the time is used for loading.

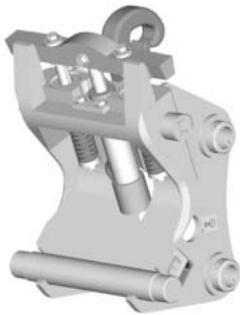
The ripping process improves bucket penetration which will increase service life of the bucket.

Caterpillar Hydraulic Quick Couplers for Mass Excavators

Source: Caterpillar Work Tools and Product Solutions — May not be available in all areas

(S) indicates narrow width version

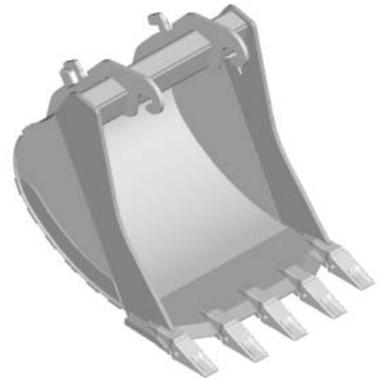
		CW-30 (S)	CW-40 (S)	CW-45 (S)	CW-55 (S)	CW-70
Width	mm	550 (420)	550 (420)	690 (550)	830 (560)	840
	in	21.7 (16.5)	21.7 (16.5)	27.2 (21.7)	32.7 (22.0)	33.1
Length	mm	475	475	570	650	875
	in	18.7	18.7	22.4	25.6	34.4
Models Available						
M – Mechanical		M	M	M	M	
S – Spindle		S	S	S	S	H
H – Hydraulic		H	H	H	H	
M318C						
320C		B linkage	C linkage			
322C			S linkage	D linkage		
M322C						
325C			C linkage	D linkage		
330C						
345B Series II						
365B Series II						
385B						



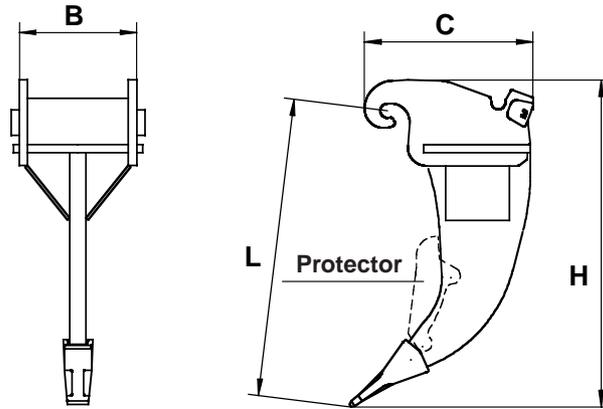
Cat CW-70 Quick Coupler



Cat TR-70 Ripper with QC



Cat Bucket with Quick Coupler Brackets



Specifications

		TR-20-N		TR-30-N		TR-40-N		TR-45-N		TR-55-N		TR-70-N
Hinge Plate		CA-20	CA-20S	CA-30	CA-30S	CA-40	CA-40S	CA-45	CA-45S	CA-55	CA-55S	CA-70
Weight*	kg	300	270	400	370	460	420	820	770	1200	1140	1760
	lb	661	595	882	816	1014	926	1808	1698	2646	2513	3880
Dimensions*												
B	mm	630	500	630	500	630	500	800	660	965	695	1000
	in	24.8	19.7	24.8	19.7	24.8	19.7	31.5	26.0	38.0	27.4	39.4
L	mm	940		1105		1270		1435		1600		1700
	in	37.0		43.5		50.0		56.5		63.0		66.9
C	mm	725		725		725		900		1050		1325
	in	28.5		28.5		28.5		35.4		41.3		52.2
H	mm	1150		1250		1400		1650		1800		1980
	in	45.3		49.2		55.1		65.0		70.9		78.0
Wear parts												
Tip size (family)		R300		R350		R450		R500		R500		R550
Shank-protector**		N/A		N/A		X		X		X		X
Excavator-class	metric ton	7.5-15		15-25		20-30		25-40		35-65		65-90
	ton	8.3-16.5		16.5-27.6		22.0-33.1		27.6-44.1		38.6-71.7		71.7-99.2

*Weight and dimensions include standard Quick-Coupler hinge plates and exclude shank-protector.

**Shank-protector is optional.

Caterpillar Ripper Tine for CW Hydraulic Quick Couplers

Source: Caterpillar Work Tools and Product Solutions — May not be available in all areas

	TR-30	TR-40	TR-45	TR-55	TR-70
318C					
320C					
322C					
325C					
330C					
345B Series II					
365B Series II					
385B					

EQUIPMENT FOR ...	301.5	301.5 CR	301.6	301.8	302.5
Undercarriage:					
Standard	●	—	●	—	●
Variable Width	—	●	—	●	—
Booms:					
Swing	●	●	●	●	●
Sticks:		mm	ft		
Medium	●	1260	4'2"	—	●
Long	●	—	—	●	●
Long HD	—	1560	5'1"	—	—
Buckets (No. of)	14	3	14	14	17
Teeth:					
Long	●	●	●	●	●
Side Cutters:					
One-Piece Blade	●	●	●	●	●
Augers	●	—	●	●	●
Hydraulic Hammers	●	—	●	●	●
Shears	—	—	—	—	●
Crushers	—	—	—	—	●
Track Shoes:	Steel Double Grouser 230 mm (9") Rubber Belt 230 mm (9")	Double Grouser 230 mm (9") Rubber Belt 230 mm (9")	Steel Double Grouser 230 mm (9") Rubber Belt 230 mm (9")	Steel Double Grouser 230 mm (9") Rubber Belt 230 mm (9")	Steel Double Grouser 300 mm (12") Rubber Belt 300 mm (12")

NOTE: Number of buckets includes General Purpose, Trenching and Rock. Other types of buckets have not been included.
All attachments may not be available in all sales areas.

EQUIPMENT FOR ...	303 SR		303 CR	304 CR	
Undercarriage:					
Standard		●	●		●
Booms:					
Swing		—	●		●
Parallel Offset		●	●		—
Sticks:	mm	ft		mm	ft
Medium	1260	4'2"	●	1380	4'6"
Long		—	●		—
Long HD	1560	5'1"	—	1780	5'10"
Buckets (No. of)		3	13		13
Teeth:					
Long		●	●		●
Side Cutters:					
One-Piece Blade		●	●		●
Track Shoes:					
		Double Grouser 300 mm (12") Rubber Belt 300 mm (12")	Steel Double Grouser 300 mm (12") Rubber 300 mm (12")		Triple Grouser 400 mm (16") Rubber Belt 400 mm (16")

NOTE: Number of buckets includes General Purpose, Trenching and Rock. Other types of buckets have not been included.
 All attachments may not be available in all sales areas.

EQUIPMENT FOR ...	305 SR		305 CR	307C		307B		307C SB		
Undercarriage:										
Standard	●		●	●		●		●		
Booms:										
One-Piece Reach	—		—	●		●		—		
Swing	—		●	—		—		●		
Parallel Offset	●		—	●		●		—		
Variable Adjustable	—		—	—		●		—		
Sticks:	mm	ft		mm	ft	mm	ft	mm	ft	
Short	—		—	—		1670	5'6"	—		
Medium	1620	5'4"	●	1670	5'6"	—		1670	5'6"	
Long	—		●	2210	7'3"	2210	7'3"	2210	7'3"	
Long HD	2020	6'8"	—	—		—		—		
Buckets (No. of)	3		13	4		3		4		
Teeth:										
Abrasion	—		—	—		—		●		
Abrasion — HD	—		—	—		—		●		
Long (G.P.)	●		●	●		●		●		
Long — HD	—		—	—		—		●		
Short	—		—	●		●		—		
Short (Rock)	—		—	—		—		●		
Penetration	—		—	—		—		●		
Wide (Spade)	—		—	—		—		●		
Sharp — Center	—		—	—		—		●		
Sharp — Corner	—		—	—		—		●		
Side Cutters:										
One-Piece Blade	●		●	●		●		●		
Hydraulic Hammers	—		—	—		●		—		
Track Shoes:										
	Triple Grouser 400 mm (16")		Triple Grouser 400 mm (16")		Triple Grouser 450, 600 mm (18", 24") Rubber Segments 450 mm (18")		Triple Grouser 450, 600 mm (18", 24") Rubber Segments 450 mm (18") Rubber Belt 450 mm (18")		Triple Grouser 450, 600 mm (18", 24") Rubber Segments 450 mm (18")	
	Rubber Belt 400 mm (16")		Rubber Belt 400 mm (16")							

NOTE: Number of buckets includes General Purpose, Trenching and Rock. Other types of buckets have not been included.
All attachments may not be available in all sales areas.

EQUIPMENT FOR ...	308C SR		308C CR		311C U		312C	
Undercarriage:								
Standard	●		●		●		●	
Booms:								
One-Piece Reach	—		●		●		●	
Parallel Offset	●		—		—		—	
Sticks:	mm	ft	mm	ft	mm	ft	mm	ft
Short	—	—	—	—	—	—	2100	6'11"
Medium	1750	5'9"	1670	5'6"	2250	7'5"	2500	8'2"
Long	—	—	2210	7'3"	2800	9'2"	3000	9'10"
Buckets (No. of)	5		5		5		5	
Teeth (J – GET):								
Abrasion — HD	—		—		●		●	
Long (G.P.)	●		●		●		●	
Long — HD	—		—		●		●	
Short	—		●		—		—	
Short (Rock)	—		—		●		●	
Penetration	—		—		●		●	
Wide (Spade)	—		—		●		●	
Sharp — Center	—		—		●		●	
Sharp — Corner	—		—		●		●	
Side Cutters:								
One-Piece Blade	●		●		●		●	
Hydraulic Hammers	—		—		—		—	
Track Shoes:	Triple Grouser 450 mm (18") Rubber Segments 450 mm (18")		Triple Grouser 450, 600 mm (18", 24") Rubber Segments 450 mm (18")		Triple Grouser 500, 600, 700, 770 mm (20", 24", 28", 30") Rubber Segments 500 mm (20")		Triple Grouser 500, 600, 700, 770 mm (20", 24", 28", 30") Rubber Segments 500 mm (20")	
Blade	—		—		●		●	

NOTE: Number of buckets includes General Purpose, Trenching and Rock. Other types of buckets have not been included.
All attachments may not be available in all sales areas.

Excavators

Summary of Major Attachments

- 312C ● 312C L ● 313C CR
- 313C SR ● 314C CR ● 314C LCR

EQUIPMENT FOR ...	312C L		312C* 312C L*		313C SR		313C CR		314C CR 314C LCR	
Undercarriage:										
Standard	—		●		●		●		●	
Long (L) — FIX	●		●		—		—		—	
Booms:										
One-Piece Reach	●		●		—		●		●	
Parallel Offset	—		—		●		—		—	
Sticks:	mm ft		mm ft		mm ft		mm ft		mm ft	
Short	2100	6'11"	2100	6'11"	—		—		—	
●	—		2500 8'2"		—		—		—	
●	—		3000 9'10"		—		—		—	
Medium	2500	8'2"	—		2130	7'0"	2500	8'2"	2500	8'2"
Long	3000	9'10"	—		—		3000	9'10"	3000	9'10"
Medium HD	—		—		—		2500	8'2"	—	
Booms:										
Two-Piece VA	—		●		—		—		—	
Sticks:										
Short	—		2100	6'11"	—		—		—	
●	—		2500	8'2"	—		—		—	
●	—		3000	9'10"	—		—		—	
Buckets (No. of)	5		5		3		5		5	
Teeth:										
Abrasion — HD	●		●		●		●		●	
Long (G.P.)	●		●		●		●		●	
Long — HD	●		—		●		●		●	
Short (Rock)	●		●		●		●		●	
Penetration	●		●		●		●		●	
Wide (Spade)	●		●		●		●		●	
Sharp — Center	●		●		●		●		●	
Sharp — Corner	●		—		●		●		●	
Side Cutters:										
One-Piece Blade	●		●		●		●		●	
Track Shoes:	Triple Grouser 600, 700, 770 mm (24", 28", 30") Rubber Segments 500 mm (20")		Triple Grouser 500, 600, 700, 770, 850, 900, 1400 mm (20", 24", 28", 30", 34", 36", 56") Rubber Pads 500 mm (20")		Triple Grouser 600, 700 mm (24", 28") Rubber Segments 500 mm (20")		Triple Grouser 600, 700 mm (24", 28") Rubber Segments 500 mm (20")		Triple Grouser 500, 600, 700 mm (20", 24", 28") Rubber Segments 500 mm (20")	
Blade	●		—		●		●		●	

*France sourced.

NOTE: Number of buckets includes General Purpose, Trenching and Rock. Other types of buckets have not been included.
All attachments may not be available in all sales areas.

Summary of Major Attachments
 ● 315C ● 315C L ● 318C
 ● 318C L ● 318C LN ● 318C N

Excavators

EQUIPMENT FOR ...	315C		315C L		315C* 315C L*		318C*, 318C L 318C LN, 318C N*	
Undercarriage:								
Standard	●		●		—		—	
Long (L) — FIX	—		—		●		●	
Narrow (N)	—		—		—		●*	
Long Narrow (LN)	—		—		—		●	
Extra Long (EL)	—		—		—		●	
Booms:								
One-Piece Reach	●		●		●		●	
Sticks:	mm	ft	mm	ft	mm	ft	mm	ft
Short	1850	6'0"	1850	6'0"	1850	6'1"	1800	5'11"
●	2250	7'5"	2250	7'5"	2250	7'5"	2250	7'5"
●	—		—		2600	8'6"	—	
Medium	2600	8'6"	2600	8'6"	—		2700	8'10"
Long	3100	10'2"	3100	10'2"	3100	10'2"	3200	10'6"
Booms:								
One-Piece Mass	—		—		●		—	
Two-Piece VA	—		—		—		●*	
Sticks:					mm	ft		
Short	—		—		1850	6'1"	—	
●	—		—		2250	7'5"	—	
●	—		—		2600	8'6"	—	
Long	—		—		3100	10'2"	—	
Buckets (No. of)	5		5		5		5	
Teeth (J – GET):								
Abrasion	—		—		—		●*	
Abrasion — HD	●		●		●		●	
Long (G.P.)	●		●		●		●	
Long — HD	●		●		—		●	
Short (Rock)	●		●		—		●	
Penetration	●		●		●		●	
Wide (Spade)	●		●		●		●	
Sharp	—		—		●		●*	
Sharp — Center	●		●		●		●	
Sharp — Corner	●		●		●*		●	
Teeth (K – GET):								
General Duty	●		●		—		●**	
Penetration	●		●		—		●**	
Penetration Plus	●		●		—		●**	
Wide	●		●		—		●**	
Extra Duty	●		●		—		●**	
Spike	●		●		—		●**	
Double Spike	●		●		—		●**	
Side Cutters:								
One-Piece Blade	●		●		—		●	
Track Shoes:	Triple Grouser 600, 700 mm (24", 28")		Triple Grouser 500, 700 mm (20", 28")		Triple Grouser 500, 600, 700 mm (20", 24", 28") Rubber Pads 500, 600 mm (20", 24")		Triple Grouser 500, 600*, 700, 800, 900* mm (20", 24"*, 28", 32", 36"*)	

*France sourced.

**318C L, 318C LN.

NOTE: Number of buckets includes General Purpose, Trenching and Rock. Other types of buckets have not been included.

All attachments may not be available in all sales areas.

Excavators

Summary of Major Attachments

- 320C ● 320C L/LN ● 320C U/LU ● 321C LCR
- 322C ● 322C L/LN ● 325C ● 325C L/LN

EQUIPMENT FOR ...	320C 320C L 320C LN		320C U 320C LU		321C LCR	322C 322C L 322C LN		325C 325C L 325C LN		
Undercarriage:										
Standard	●		●*		—	●		●		
Long (L) — FIX	●		●		●	●		●		
Long Narrow (LN)	●		—		—	●		●		
Booms:										
One-Piece Reach	●		●		●	●		●		
One-Piece Reach — HD	●		●*		—	—		—		
Sticks:	mm	ft	mm	ft	mm	ft	mm	ft	mm ft	
Short	1900	6'3"	—	—	—	—	—	—	2000 6'7"	
●	2500	8'2"	—	—	—	—	—	—	2650 & HD 8'8"	
●	2900	9'6"	—	—	2900	9'6"	—	—	3000 9'10"	
●	—	—	—	—	—	—	2000	6'7"	3200 & HD 10'6"	
Medium	—	—	2500	8'2"	—	—	2500	8'2"	—	
Long	3900	12'10"	2900	9'6"	—	—	2950 & HD 9'8"	—	—	
Extra Long	—	—	3900	* 12'0"	—	—	3600	11'10"	—	
Short — HD	2500	8'2"	—	—	—	—	—	—	—	
● — HD	2900	9'6"	—	—	—	—	—	—	—	
Medium — HD	—	—	2500	* 8'2"	—	—	—	—	—	
Long — HD	—	—	2900	* 9'6"	—	—	—	—	—	
Booms:										
One-Piece Mass	●		—		—	●		●		
Two-Piece VA	●		—		—	●		●		
Sticks:	mm	ft				mm	ft	mm	ft	
Short	1900	6'3"	—	—	—	2000	6'7"	—	—	
●	2400	7'10"	—	—	—	—	—	2500	8'2"	
●	2900	9'6"	—	—	—	—	—	3200	10'6"	
Medium	—	—	—	—	—	2500	8'2"	—	—	
Bucket Family	B, C		B		B	S, D		C, D		
Buckets (No. of)	18		4		4	7		8		
Teeth:										
Abrasion — HD	●		●		●	●		●		
Long (G.P.)	●		●		●	●		●		
Long — HD	●		●		●	●		●		
Short (Rock)	●		●		●	●		●		
Penetration	●		●		●	●		●		
Wide (Spade)	●		●		●	●		●		
Sharp — Center	●		●		●	●		●		
Sharp — Corner	●		●		●	●		●		
Side Cutters:										
One-Piece Blade	●		●		●	●		●		
Side Bar Protector	—		●		●	●		—		
Track Shoes:	Triple Grouser 600, 700, 800, 900 mm (24", 28", 31", 35") Double Grouser 600, 700 mm (24", 28")		Triple Grouser 600, 700*, 800, 900* mm (24", 28", 31", 35") Double Grouser* 600, 700 mm (24", 28")		Triple Grouser 600, 700*, 800 mm (24", 28", 32")		Triple Grouser 600, 700, 800, 900 mm (24", 28", 32", 35")		Triple Grouser 600, 700, 800 mm (24", 28", 32")	
Quick Couplers	●		●		●	●		●		
Grapples	●		●		●	●		●		
Multi-Processors	●		●		●	●		●		
Hammers	●		●		●	●		●		

*Not available in Europe, Africa or Middle East.

NOTE: Number of buckets includes General Purpose, Trenching and Rock. Other types of buckets have not been included.
All attachments may not be available in all sales areas.

Summary of Major Attachments

Excavators

- 330C
- 330C L/LN
- 345B Series II
- 345B L Series II
- 365B L Series II
- 385B
- 385B L

EQUIPMENT FOR ...	330C		345B Series II		365B L Series II		385B	
	330C L 330C LN		345B L Series II		365B L Series II		385B L	
Undercarriage:								
Standard	●		—		—		●	
Long (L)	—		●		●		●	
Long (L) — FIX	●		●		—		—	
Long Narrow (LN)	●		—		—		—	
Extreme Service (ES)	—		●		●		—	
Long — HVG	—		●		—		—	
Booms:								
One-Piece Reach	●		●		●		●	
One-Piece Reach — HD	—		●		—		—	
One-Piece GP	—		—		—		●	
Sticks:	mm	ft	mm	ft	mm	ft	mm	ft
Short	2150	7'1"	—		2840	9'4"	2920	9'7"
●	2800	& HD 9'2"	—		3600	11'10"	3400	11'2"
●	3200	10'10"	—		4150	13'7"	3700	12'2"
●	3900	& HD 12'10"	—		4670	15'4"	4400	14'5"
Short — HD	—		2900	9'6"	—		5500	18'0"
● — HD	—		3400	11'2"	—		—	
Booms:								
One-Piece Mass	●		—		●		●	
One-Piece Mass — HD	—		●		—		—	
Sticks:	mm	ft	mm	ft	mm	ft	mm	ft
Short	2150	7'1"	2500	8'2"	2570	8'5"	2920	9'7"
●	2550	8'4"	3000	9'10"	3000	9'10"	3400	11'2"
Bucket Family	D, E		T, U		VB, WB		HB, JB	
Buckets (No. of)	18		16		24		14	
Teeth:								
Abrasion — HD	●		●		—		—	
Long (G.P.)	●		●		●		●	
Long — HD	●		●		●		●	
Short (Rock)	●		●		●		●	
Penetration	●		●		●		●	
Penetration Plus	—		●		●		●	
Wide (Spade)	●		—		—		—	
Sharp — Center	●		—		—		—	
Sharp — Corner	●		—		—		—	
Side Cutters:								
One-Piece Blade	●		●		●		●	
Side Bar Protector	—		●		●		●	
Track Shoes:	Triple Grouser 600, 750, 850 mm (24", 28", 32")		Triple Grouser 600, 750, 900 mm (24", 30", 35")		Double Grouser 650, 750, 900 mm (26", 30", 35")		Double Grouser 650, 750, 900 mm (26", 30", 36")	
Quick Couplers	●		—		—		—	
Grapples	●		—		—		—	
Multi-Processors	●		—		—		—	
Hammers	●		—		—		—	

NOTE: Number of buckets includes General Purpose, Trenching and Rock. Other types of buckets have not been included.
All attachments may not be available in all sales areas.

Excavators

Summary of Major Attachments

● M313C ● M315C ● M316C ● M318C ● M322C

EQUIPMENT FOR ...	M313C		M315C		M316C		M318C		M322C	
Undercarriage:										
Wheeled	●		●		●		●		●	
Booms:										
One-piece	●		●		●		●		●	
VA	●		●		●		●		●	
Backhoe Sticks:	mm	ft	mm	ft	mm	ft	mm	ft	mm	ft
Short	2000	6'7"	2100	6'11"	2100	6'11"	2200	7'3"	2200	7'3"
Medium	2300	7'7"	2400	7'10"	2400	7'10"	2500	8'2"	2500	8'2"
Long	2600	8'6"	2600	8'6"	2600	8'6"	2800	9'2"	2900	9'6"
Buckets (No. of)	12		12		11		12		7	
Teeth:										
Abrasion	●		●		●		●		●	
Long (G.P.)	●		●		●		●		●	
Short (Rock)	●		●		●		●		●	
Penetration	●		●		●		●		●	
Wide	●		●		●		●		●	
Sharp	●		●		●		●		●	
Cab Riser:										
Fixed	●		●		●		●		●	
Hydraulic	—		—		—		—		—	
Tires:	10.00-20 16 PR 18R 19.5 XF 10.00-20 SR 600/40-22.5		10.00-20 16 PR 18R 19.5 XF 10.00-20 SR 600/40-22.5		10.00-20 16 PR 18R 19.5 XF 10.00-20 SR 600/40-22.5		10.00-20 16 PR 18R 19.5 XF 10.00-20 SR 600/40-22.5		10.00-20 16 PR 10.00-20 SR	

Work Tools	M313C	M315C	M316C	M318C	M322C
Clamshell	●	●	●	●	●
Ditch Cleaning Bucket	●	●	●	●	●
Grapples	●	●	●	●	●
Hammer Installation Kit	●	●	●	●	●

Work Tools	301.5, 301.6, 301.8	302.5	307C, 307C SB	311C U, 312C L	315C, 315C L	318C, 318C L, 318C LN, 318C N	M313C, M315C	M316C, M318C, M322C	320C	322C	325C	330C	345B Series II	365B Series II	385B
Augers	X	X													
Brooms															
Quick Coupler	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Ditch Cleaning Bucket	X	X	X	X	X	X	X	X	X	X	X	X	X		
General Purpose Bucket	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Rock Bucket*			X	X	X	X		X	X	X	X	X	X	X	X
Tilt Bucket			X	X	X	X	X	X	X	X	X	X			
Thumb			X	X	X	X		X	X	X	X	X	X	X	X
Construction Grapple				X	X	X	X	X	X	X	X	X	X		
Contractor's Grapple					X	X	X	X	X	X	X	X	X		
Sorting & Demolition Grapple				X	X	X	X	X	X	X	X	X	X		
Mechanical Pulverizer					X	X		X	X	X	X	X	X	X	
Mechanical Shear				X	X		X	X	X	X	X	X	X		
Medium Grapple				X	X	X	X	X	X	X	X	X	X		
Trash Grapple				X	X	X	X	X	X	X	X	X	X		
Orange Peel Grapple				X	X	X	X	X	X	X	X	X	X		
Hydraulic Hammer	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Vibratory Plate Compactor		X	X	X	X	X	X	X	X	X	X	X			
Shear			X	X	X	X	X	X	X	X	X	X	X	X	X
Crusher					X	X	X	X	X	X	X	X	X	X	X
Pulverizer					X	X	X	X	X	X	X	X	X	X	X
Rock Drill									X						
Multi-Processor					X	X	X	X	X	X	X	X	X	X	X

*Europe, Africa and Middle East offers rock buckets for 322C and larger.
NOTE: Other attachments available upon request. Contact your Caterpillar Dealer.

CYCLE TIME ESTIMATING CHARTS

The digging cycle of the excavator is composed of four segments:

1. Load Bucket
2. Swing Loaded
3. Dump Bucket
4. Swing Empty

Total excavator cycle time is dependent on machine size (small machines can cycle faster than large machines) and job conditions. With excellent job conditions the excavator can cycle fast. As job conditions become more severe (tougher digging, deeper trench, more obstacles, etc.), the excavator slows down accordingly. As the soil gets harder to dig, it takes longer to fill the bucket. As the trench gets deeper and the spoil pile larger, the bucket has to travel farther and the upper structure has to swing farther on each digging cycle.

Spoil pile or truck location also affects cycle time. If a truck is located on the floor of the excavation beside material being moved, 10 to 17 second cycles are practical. The other extreme would be a truck or spoil pile located above the excavator 180° from the excavation.

In sewer construction work the operator may not be able to work at full speed because he has to dig around existing utilities, load the bucket inside a trench shield, or avoid people working in the area.

The **Cycle Time Estimating Chart** outlines the range of total cycle time that can be expected as job conditions range from excellent to severe. Many variables affect how fast the excavator is able to work. The chart defines the range of cycle times frequently experienced with a machine and provides a guide to what is an “easy” or a “hard” job. The estimator can then evaluate the conditions of his job and use the Cycle Time Estimating Chart to select the appropriate working range. A practical method of further calibrating the Cycle Time Estimating Chart is to observe excavators working in the field and correlate measured cycle times to job conditions, operator ability, etc.

The following table breaks down what experience has shown to be typical Caterpillar excavator cycle times with

- no obstruction in the right of way
- above average job conditions
- an operator of average ability and
- 60°-90° swing angle.

These times would decrease as job conditions or operator ability improved and would get slower as conditions become less favorable.

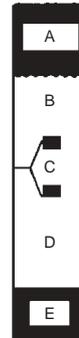
CYCLE TIME -vs- JOB CONDITION DESCRIPTION

Fastest Possible

Fastest Practical

Typical Range

Slow



KEY

- A — Excellent
- B — Above Average
- C — Average
- D — Below Average
- E — Severe

- Easy digging (unpacked earth, sand gravel, ditch cleaning, etc.). Digging to less than 40% of machine’s maximum depth capability. Swing angle less than 30°. Dump onto spoil pile or truck in excavation. No obstructions. Good operator.
- Medium digging (packed earth, tough dry clay, soil with less than 25% rock content). Depth to 50% of machine’s maximum capability. Swing angle to 60°. Large dump target. Few obstructions.
- Medium to hard digging (hard packed soil with up to 50% rock content). Depth to 70% of machine’s maximum capability. Swing angle to 90°. Loading trucks with truck spotted close to excavator.
- Hard digging (shot rock or tough soil with up to 75% rock content). Depth to 90% of machine’s maximum capability. Swing angle to 120°. Shored trench. Small dump target. Working over pipe crew.
- Toughest digging (sandstone, caliche, shale, certain limestones, hard frost). Over 90% of machine’s maximum depth capability. Swing over 120°. Loading bucket in man box. Dump into small target requiring maximum excavator reach. People and obstructions in the work area.

Cycle Time Estimating Chart

Model	307C	311C	312C, 312C L	315C, 315C L	318C, 318C L, 318C LN, 318C N	M312, M313C, M315C	M315 M316C	M318C	M322C
Bucket Size L (yd ³)	280 0.37	450 0.59	520 0.68	520 0.68	800 1.05	610 0.80	750 0.98	900 1.18	1050 1.37
Soil Type	← Packed Earth				Sand/Gravel →				
Digging Depth (m) (ft)	1.5 5	1.5 5	1.8 6	3.0 10	3.0 10	3.0 10	3.0 10	3.0 10	3.0 10
Load Bucket (min)	0.08	0.07	0.07	0.07	0.09	0.05	0.06	0.06	0.08
Swing Loaded (min)	0.05	0.06	0.06	0.08	0.09	0.05	0.05	0.06	0.06
Dump Bucket (min)	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04
Swing Empty (min)	0.06	0.05	0.05	0.06	0.07	0.04	0.04	0.05	0.05
Total Cycle Time (min)	0.22	0.21	0.21	0.24	0.28	0.17	0.18	0.20	0.23

Cycle Time Estimating Chart

Model	320C	322C	325C	330C	345B Series II	365B Series II	385B
Bucket Size L (yd ³)	800 1.05	1000 1.31	1100 1.44	1400 1.83	2400 3.0	1900 2.5	3760 5.0
Soil Type	← Hard Clay				→		
Digging Depth (m) (ft)	2.3 8	3.2 10	3.2 10	3.4 11	4.0 13	4.2 14	5.6 18
Load Bucket (min)	0.09	0.09	0.09	0.09	0.13	0.10	0.19
Swing Loaded (min)	0.06	0.06	0.06	0.07	0.07	0.09	0.06
Dump Bucket (min)	0.03	0.04	0.04	0.04	0.02	0.04	0.03
Swing Empty (min)	0.05	0.06	0.06	0.07	0.06	0.07	0.07
Total Cycle Time (min)	0.23	0.25	0.25	0.27	0.28	0.30	0.35

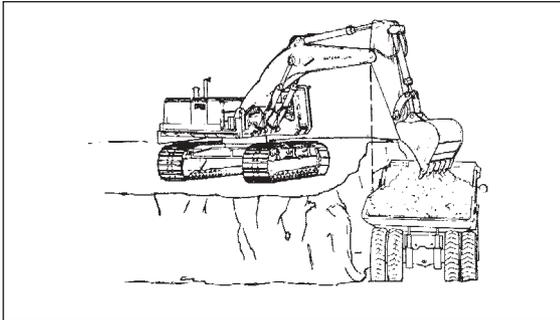
CYCLE TIME ESTIMATING CHART														
CYCLE TIME	MACHINE SIZE CLASS												CYCLE TIME	
	307C	311C	M313C 312C	M315C M316C 315C L	M318C 318C L	M322C 320C	322C	325C	330C	345B Series II	365B L Series II	385B		
10 SEC.														0.17 min.
15														0.25 min.
20 SEC.														0.33 min.
25														0.42 min.
30 SEC.														0.50 min.
35														0.58 min.
40 SEC.														0.67 min.
45														0.75 min.
50 SEC.														0.83 min.
55														0.92 min.
60 SEC.														1.0 min.

- Maximizing Production with a Mass Excavator

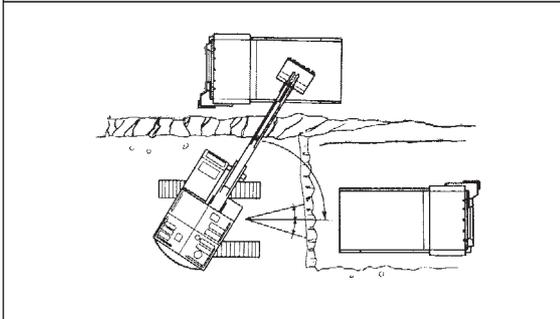
Caterpillar 300 Series Mass Excavation booms and buckets coupled with the proper stick will help you move material faster and more efficiently in production excavation and loading applications. With the largest bucket, shortest stick and long undercarriage your excavator can often do the work of a larger machine. A longer stick and standard undercarriage make it ideal for loading on-highway trucks and general construction jobs.

4

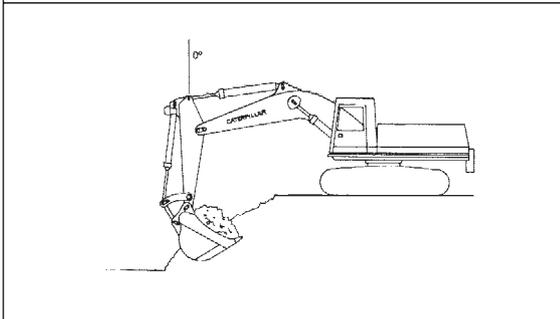
MAXIMIZING PRODUCTION WITH A MASS EXCAVATOR



Ideal Bench Height and Truck Distance — For stable or consolidated materials, bench height should be about equal to stick length. For unstable materials it should be less. The most useful truck position is when the inside truck body rail is below the boomstick hinge pin.



Optimum Work Zone and Swing Angle — For maximum production, the work zone should be limited to 15° either side of machine center or about equal to undercarriage width. Trucks should be positioned as close as possible to machine centerline. Two alternatives shown here.



Best Distance from the Edge — The machine should be positioned so that the stick is vertical when the bucket reaches full load. If the unit is farther back, breakout force is reduced. If it is closer to the edge, undercutting may occur and time is wasted bringing the stick back out. Also, the operator should begin boom-up when the bucket is 75% of the way through the curl cycle. This should be as the stick nears the vertical position.

This example reflects the ideal situation. Not all points are usable on each job, but incorporation of as many of these points as possible will positively affect production.

SELECTING A MASS EXCAVATOR

Selecting a mass excavator model for optimum production requires matching the machine and bucket to the customer’s production requirements, material, and haulers. The following 6-Step selection process will help you to consider the key factors which will impact machine selection. Failure to consider these key elements in the selection process may result in choosing a machine that is too small to efficiently handle the desired bucket size or to meet the production requirement. Selecting a mass excavator which is too large may lead to excessive loader wait time, creating excessive “load shocks” into the hauler, and/or overloading the hauler capacity.

Step 1

Determine the material type and bucket fill factor

Refer to the bucket fill factors table.

Example:

Average Blasted Rock = 75 to 90%

Step 2

Estimate the Cycle Time

Refer to the cycle time estimating chart.

Example:

$\frac{365\text{B in Hard Rock Digging}}{\text{Shot Rock}} = .43 \text{ to } .52 \text{ minute}$

Step 3

Calculate the Effective Cycles per Hour

Divide the 60 minute hour by cycle time and adjust for availability and efficiencies.

Example:

<i>Cycle Time</i>	0.48 minute
$\frac{60 \text{ minute hour}}{\text{Cycle Time}}$	$\frac{60}{0.48} = 125$
<i>Operator Skill/Efficiency</i>	0.9 (90%)
<i>Machine Availability</i>	0.95 (95%)
<i>Gen Operational Efficiency</i>	0.83 (50 min/hr)
<i>Effective Cycles per Hour</i>	$125 \times .9 \times .95 \times .83 = 89$

Step 4

Calculate the Required Bucket Capacity

Divide hourly production requirement by effective cycles per hour, adjust for material density and fill factor.

Example (Metric):

Hourly Production Required 500 Tons/hour

Effective cycles/hour 89

$$\frac{\text{Hourly Production Required}}{\text{Effective cycles/hour}} = \frac{\text{Required Payload}}{\text{Volume}} = \frac{500}{89} = 5.6$$

Material Density/Loose 1.6 Ton/m³

$$\frac{\text{Required Payload}}{\text{Material Density/Loose}} = \frac{\text{Bucket Payload}}{\text{Volume}} = \frac{5.6}{1.6} = 3.5 \text{ m}^3$$

Fill Factor 0.85 (85%)

$$\frac{\text{Bucket Payload}}{\text{Fill Factor}} = \frac{\text{Nominal Bucket Size}}{\text{Volume}} = \frac{3.5}{.85} = 4.1 \text{ m}^3$$

Example (English):

Hourly Production Required 550 tons/hour

Effective cycles/hour 89

$$\frac{\text{Hourly Production Required}}{\text{Effective cycles/hour}} = \frac{\text{Required Payload}}{\text{Volume}} = \frac{550 \times 2000}{89} = 12,360 \text{ lb}$$

Material Density/Loose 2700 lb/yd³

$$\frac{\text{Required Payload}}{\text{Material Density/Loose}} = \frac{\text{Bucket Payload}}{\text{Volume}} = \frac{12,360}{2700} = 4.6 \text{ yd}^3$$

Fill Factor 0.85 (85%)

$$\frac{\text{Bucket Payload}}{\text{Fill Factor}} = \frac{\text{Nominal Bucket Size}}{\text{Volume}} = \frac{4.6}{.85} = 5.4 \text{ yd}^3$$

Step 5

Select Mass Excavator for required bucket size

Refer to Performance Handbook to compare machine models and bucket ranges. Confirm bucket type, size, and maximum material density in Specalog for desired model.

Example:

Required bucket capacity approximately
 4.1 m³ (5.4 yd³)

345B L Series II ME bucket capacity
 to 3.5 m³ (4.6 yd³)

365B L Series II ME bucket capacity
 to 5.3 m³ (6.9 yd³)

385B L ME bucket capacity to 5.6 m³ (7.3 yd³)

Best Choice 365B Series II with 4.0 m³ (5.2 yd³)
 Rock Bucket rated to 1.8 Ton/m³ (3000 lb/yd³)
 material density in Specalog

Important: Re-calculate Steps 2 - 5 based on cycle times of model selected.

Step 6

Select Haulers

General rule for matching trucks is based on number of cycles to fill the truck.

ME: 4 to 6 passes

Front Shovels: 3 to 5 passes

Example (Metric):

Bucket Selected 4 m³
Volume in 5 passes 5 × 4 × .85 = 17 m³
Payload 17 × 1.6 = 27.2 Tons
Consider weight of Liners 27.2 + 2 = 29.2 Tons

Suitable Truck Match Options:

735 with capacity 19.2 m³/31.8 t
769D with capacity 24.2 m³/37.9 t

Example (English):

Bucket Selected 5.2 yd³
Volume in 5 passes 5 × 5.2 × .85
 = 22.1 yd³
Payload 22.1 × 2700
 = 59,670 lb
Consider weight of Liners 59,670 + 4400 lb
 = 64,070 lb

Suitable Truck Match Options:

735 with capacity 25.1 yd³/70,000 lb
769D with capacity 31.7 yd³/83,570 lb

EARTHMOVING PRODUCTION

As with any other piece of material handling equipment, excavator earthmoving production is dependent on average bucket payload, average cycle time and job efficiency. If an estimator can accurately predict excavator cycle time and bucket payload, a machine's earthmoving production can be derived from the following formula.

$$\text{m}^3 (\text{yd}^3)/60 \text{ min hr} = \text{Cycles}/60 \text{ min hr} \times \text{Avg. Bucket Payload in m}^3 (\text{yd}^3)$$

$$\frac{\text{m}^3 (\text{yd}^3)/60 \text{ min hr}}{60 \text{ min/hr}} = \frac{\text{Cycles}}{\text{Cycle Time} - \text{min}} \times \text{Avg. Bucket Payload in m}^3 (\text{yd}^3)$$

$$\text{Avg. Bucket Payload} = \frac{\text{Heaped Bucket Capacity} \times \text{Bucket Fill Factor}}{\text{Job Efficiency Factor}}$$

$$\text{Actual m}^3 (\text{yd}^3)/\text{hr} = \text{m}^3 (\text{yd}^3)/60 \text{ min hr} \times \text{Job Efficiency Factor}$$

The Production Estimating Tables (next page) will provide theoretical earthmoving production in cubic meters (yards) per hour if bucket size and cycle time can be estimated. The use of an average cycle time allows adjusting the estimated production for specific job sites and applications. For instance, estimating truck loading applications should include truck exchange times which extends the average cycle time and reduces production potential. The values in the table are based on a 60 minute work hour or 100% efficiency (a condition that is never achieved in reality). The estimator should apply a job efficiency factor to the figures in the table based on his judgment or knowledge of actual job conditions.

Areas outlined on the Production Estimating Table define the work ranges of excavators in the size classes of Caterpillar 307 through 5230 ME Excavators. The upper limit on each area corresponds to the "fastest practical" cycle time for the machines. The width of each area corresponds to the range of bucket payload sizes the machine can handle. An unshaded box has been provided in each machine area to provide a guide indicating that the upper limit of earthmoving production is being approached. When working beyond the values in the white area, the estimator should be certain that excellent job conditions will be encountered (easy digging, shallow trench, good operator, etc.).

The Production Estimating Table can also serve as a guide when selecting the proper size machine to do a job, as is shown in the following example.

Example problem (Metric)

Contractor has a job to move 15 300 Bm³ (19 100 Lm³ considering 25% swell factor) of wet sandy loam material in rear dump on-highway trucks which will be loaded by an excavator. Average face depth will be 2.4 m with 60-90 degree average swing angle. Ten days are available to do the work. Contractor plans to work 10 hrs/day and estimates a 50 min. work hour (83% job efficiency). He has two excavators that could be made available to do the work — a 320 with 1.0 m³ bucket or a 330 with 1.9 m³ bucket. Experience has shown that either machine can get its rated capacity in the sandy loam soil. Could this job be done with either machine or will the 330 have to be used?

Solution: The excavator must produce 1900 Lm³/Day (19 100 Lm³ ÷ 10 Days) which means the required average hourly rate will be 190 Lm³/60 Min. Hr. (1900 Lm³/Day ÷ 10 hrs/day). Further considering the 83% job efficiency, the excavator's capability will have to be 230 Lm³/50 min hr.

The production estimating table shows that the 320 with a 1.0 m³ bucket would have to achieve a 17.1 sec. average cycle time to produce the required 190 Lm³/60 min. hr. With job efficiency applied a 15.0 second average cycle time is required to produce the 230 Lm³/50 min. hr. The 330 with a 1.9 m³ bucket could obtain the same 60 min. hr. production level with a 35 second average cycle, or 30 second cycles to meet the 50 min. hr. production requirement. The cycle times estimating chart shows that the 320 would be working near its maximum capability to meet the production requirement, whereas, the 330 could handle the job easily. This information can then be weighed against what else is known about the job (reach requirements, job conditions, operator ability, etc.) to decide whether or not the larger machine is needed.

Example problem (English)

Substitute these English values in the preceding problem:

Job — 20,000 BCY (25,000 LCY considering 25% swell).

Average face depth — 8-12 ft

320 L with 1.25 yd³ bucket or 330 with 2.5 yd³ bucket.

Solution: The excavator must produce 2500 LCY/Day, which means the required average hourly rate will be 250 LCY/60 min hr. Further considering the 83% job efficiency the excavator's capability will have to be 300 LCY/50 min hr.

The same concluding comments regarding the Production Estimating Table apply here as in the Metric example.

Cubic Meters per 60 Minute Hour*

ESTIMATED CYCLE TIMES		ESTIMATED BUCKET PAYLOAD** — LOOSE CUBIC METERS																		ESTIMATED CYCLE TIMES		
Cycle Time		0.2	0.3	0.5	0.7	0.9	1.1	1.3	1.5	1.7	1.9	2.1	2.3	2.5	2.7	2.9	3.1	3.3	3.5	4.0	Cycles Per Min.	Cycles Per Hr.
Seconds	Min.																					
10.0	0.17																				6.0	360
11.0	0.18																				5.5	330
12.0	0.20	60	90	150	210	270															5.0	300
13.3	0.22	54	81	135	189	243	297	351	405	459	513	567	621	675	729	783	837	891	945	1080	4.5	270
15.0	0.25	48	72	120	168	216	264	312	360	408	456	504	552	600	648	696	744	792	840	960	4.0	240
17.1	0.29	42	63	105	147	189	231	273	315	357	399	441	483	525	567	609	651	693	735	840	3.5	210
20.0	0.33	36	54	90	126	162	198	234	270	306	342	378	414	450	486	522	558	544	630	720	3.0	180
24.0	0.40	30	45	75	105	135	165	195	225	255	285	315	345	375	405	435	465	495	525	600	2.5	150
30.0	0.50	24	36	60	84	108	132	156	180	204	228	252	276	300	324	348	372	396	420	480	2.0	120
35.0	0.58	20	31	51	71	92	112	133	153	173	194	214	235	255	275	296	316	337	357	408	1.7	102
40.0	0.67					81	99	177	135	153	171	189	207	225	243	261	279	297	315	360	1.5	90
45.0	0.75									133	148	164	179	195	211	226	242	257	273	312	1.3	78
50.0	0.83																				1.2	72

Cubic Yards per 60 Minute Hour*

ESTIMATED CYCLE TIMES		ESTIMATED BUCKET PAYLOAD** — LOOSE CUBIC YARDS																		ESTIMATED CYCLE TIMES		
Cycle Time		0.25	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00	3.25	3.50	3.75	4.00	4.50	5.00	5.25	Cycles Per Min.	Cycles Per Hr.
Seconds	Min.																					
10.0	0.17																				6.0	360
11.0	0.18																				5.5	330
12.0	0.20	75	150	225	300	375															5.0	300
13.3	0.22	67	135	202	270	337	404	472	540	607	675	742	810	877	945	1012	1080	1215	1350	1417	4.5	270
15.0	0.25	60	120	180	240	300	360	420	480	540	600	660	720	780	840	900	960	1080	1200	1260	4.0	240
17.1	0.29	52	105	157	210	262	315	367	420	472	525	577	630	682	735	787	840	945	1050	1102	3.5	210
20.0	0.33	45	90	135	180	225	270	315	360	405	450	495	540	585	630	675	720	810	900	945	3.0	180
24.0	0.40	37	75	112	150	187	225	262	300	337	375	412	450	487	525	562	600	675	750	787	2.5	150
30.0	0.50	30	60	90	120	150	180	210	240	270	300	330	360	390	420	450	480	510	600	630	2.0	120
35.0	0.58	36	51	77	102	128	154	180	205	231	256	282	308	333	360	385	410	462	513	535	1.7	102
40.0	0.67					112	135	157	180	202	225	247	270	292	315	337	360	405	450	472	1.5	90
45.0	0.75									180	200	220	240	260	280	300	320	360	400	409	1.3	78
50.0	0.83																				1.2	72

Job Efficiency Estimator

Work Time/Hour	Efficiency
60 Min	100%
55	91%
50	83%
45	75%
40	67%

*Actual hourly production = (60 min. hr. production) × (Job Efficiency Factor)
 **Estimated Bucket Payload = (Amount of Material in the Bucket)
 = (Heaped Bucket Capacity) × (Bucket Fill Factor)
 Unshaded area indicates average production.

Cubic Meters/Yards per 60 Minute Hour*

ESTIMATED CYCLE TIMES		ESTIMATED BUCKET PAYLOAD** — LOOSE CUBIC METERS/YARDS											ESTIMATED CYCLE TIMES	
Cycle Time		5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	Cycles Per Min.	Cycles Per Hr.
Seconds	Min.													
15.0	0.25	1200	1440	1680	1920	2160	2400	2640	2880	3120	3360	3600	4.0	240
17.1	0.29	1050	1260	1470	1680	1890	2100	2310	2520	2730	2940	3150	3.5	210
20.0	0.33	900	1080	1260	1440	1620	1800	1980	2160	2340	2520	2700	3.0	180
24.0	0.40	750	900	1050	1200	1350	1500	1650	1800	1950	2100	2250	2.5	150
30.0	0.50	600	720	840	960	1080	1200	1320	1440	1560	1680	1800	2.0	120
35.0	0.58	510	612	714	816	918	1020	1122	1224	1326	1428	1530	1.7	102
40.0	0.67	450	540	630	720	810	900	990	1080	1170	1260	1350	1.5	90
45.0	0.75	390	468	546	624	702	780	858	936	1014	1092	1170	1.3	78
50.0	0.83	360	432	504	576	648	720	792	864	936	1008	1080	1.2	72
55.0	0.92	330	396	462	528	594	660	726	792	858	924	990	1.1	66
60.0	1.00	300	360	420	480	540	600	660	720	780	840	900	1.0	60

Cubic Meters/Yards per 60 Minute Hour*

ESTIMATED CYCLE TIMES		ESTIMATED BUCKET PAYLOAD** — LOOSE CUBIC METERS/YARDS										ESTIMATED CYCLE TIMES	
Cycle Time		16.0	17.0	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	Cycles Per Min.	Cycles Per Hr.
Seconds	Min.												
15.0	0.25	3840	4080	4320	4560	4800	5040	5280	5520	5760	6000	4.0	240
17.1	0.29	3360	3570	3780	3990	4200	4410	4620	4830	5040	5250	3.5	210
20.0	0.33	2880	3060	3240	3420	3600	3780	3960	4140	4320	4500	3.0	180
24.0	0.40	2400	2550	2700	2850	3000	3150	3300	3450	3600	3750	2.5	150
30.0	0.50	1920	2040	2160	2280	2400	2520	2640	2760	2880	3000	2.0	120
35.0	0.58	1632	1734	1836	1938	2040	2142	2244	2346	2448	2550	1.7	102
40.0	0.67	1440	1530	1620	1710	1800	1890	1980	2070	2160	2250	1.5	90
45.0	0.75	1248	1326	1404	1482	1560	1638	1716	1794	1872	1950	1.3	78
50.0	0.83	1152	1224	1296	1368	1440	1512	1584	1656	1728	1800	1.2	72
55.0	0.92	1056	1122	1188	1254	1320	1386	1452	1518	1584	1650	1.1	66
60.0	1.00	960	1020	1080	1140	1200	1260	1320	1380	1440	1500	1.0	60

Job Efficiency Estimator

Work Time/Hour	Efficiency
60 Min	100%
55	91%
50	83%
45	75%
40	67%

*Actual hourly production = (60 min. hr. production) × (Job Efficiency Factor)

**Estimated Bucket Payload = (Amount of Material in the Bucket)

= (Heaped Bucket Capacity) × (Bucket Fill Factor)

NOTE: For estimating truck loading production include approximately 0.7 minutes for truck exchange time.

EXCAVATOR TRENCHING PRODUCTION

When an excavator is used for trenching applications, a meaningful expression of work produced is the machine's trenching rate expressed in meters or lineal feet per hour or per day. Trenching rate depends on the earthmoving production of the excavator being used and the size of the trench being excavated. Earthmoving production converts to trenching production as follows:

$$\text{Lineal Meters of Trench per Hour} = \frac{\text{Cubic Meters Excavated per Hour}}{\text{Cubic Meters per Lineal Meter of Trench}}$$

$$\text{Lineal Meters of Trench per day} = (\text{Lineal Meters per Hour}) \times (\text{Trenching Hours per Day})$$

$$\text{Lineal Feet of Trench per Hour} = \frac{\text{Yd}^3 \text{ Excavated Per Hour}}{\text{Yd}^3 \text{ Per Lineal Foot of Trench}}$$

$$\text{Lineal Feet of Trench Per Day} = (\text{Lineal Ft Per Hour}) \times (\text{Trenching Hours Per Day})$$

For machines that work in trenching applications where they dig all of the time, the *Trenching Conversion Chart* provides easy conversion from m^3 (yd^3) per hour to m (lineal feet) per hour, if the excavating rate m^3/hr (yd^3/hr) and trench volume m^3/m (yd^3/ft) are known. The following examples demonstrate how the Trenching Conversion Chart can be used.

Example problem (Metric)

Contractor estimates that the 325 Excavator will produce 200 Lm^3/hour . Trench survey shows that the trench contains 2.5 Lm^3/meter . What trenching rate will the 325 produce?

Solution: Enter the horizontal axis of the Trenching Conversion Chart at 200 m^3/Hour and move up to the 2.5 m^3/m diagonal line. Then move left to the vertical axis of chart and read answer of 80 m/hour .

Example problem 2 (Metric)

Contractor knows he must produce 1000 meters of trench in every 10 hour work day. Survey shows that trench contains 1.5 Bm^3 per lineal meter and soil swell factor is estimated at 30%. How much earthmoving production will the excavator have to provide in order to get the job done on time assuming a 50 min work hour? What Caterpillar excavator will provide needed production at 6 meter maximum depth in sandy loam soil?

Solution: Determine trenching requirement 1000 meters in 10 hrs = 100 m/h . Convert Bm^3 to Lm^3 (excavator handles Lm^3) $1.5 \text{ Bm}^3/\text{m} \times 1.30 = 2.0 \text{ Lm}^3/\text{m}$. Enter vertical axis of trenching conversion chart at m/h and travel horizontally to diagonal line representing 2.0 m^3/m . Next move down to horizontal axis and read answer to 200 $\text{Lm}^3/50 \text{ min hr}$. Convert 200 $\text{Lm}^3/50 \text{ min hr}$ to $\text{Lm}^3/60 \text{ min hr} = 240 = 241 \text{ Lm}^3/60 \text{ min hr}$.

Production estimating tables in this section show that 241 $\text{Lm}^3/60 \text{ min hr}$ is within the capability of a 325 Excavator. Job should then be checked for reach and lifting requirements to make sure that the 325 could handle these aspects of the work.

Example problem (English)

Contractor estimates that a 325 Excavator will produce 250 LCY/Hour . Trench survey shows that the trench contains 2.5 LCY/Foot . What trenching rate will the 325 produce?

Solution: Enter the horizontal axis of the Trenching Conversion Chart at 250 yd^3/hr . Then move to the vertical axis of chart and read answer of 100 ft/hr .

The Trenching Conversion Chart can also be used to determine the required excavating rate if the contractor can define his trenching production requirement and the trench volume per lineal foot.



Example problem 2 (English)

Contractor knows he must produce 1000 ft of trench in every 10 hr work day. Survey shows that trench contains 1.6 BCY per lineal ft and soil swell factor is estimated at 25%. How much earthmoving production will excavator have to provide in order to get the job done on time assuming 50 min work hour? What Caterpillar model will provide needed production at 8 ft depth in sandy loam soil?

Solution: Determine trenching requirement —
1000 ft in 10 Hrs. = 100 ft/hr
Convert BCY to LCY — 1.6 BCY/ft × 1.25 =
2.0 LCY/ft

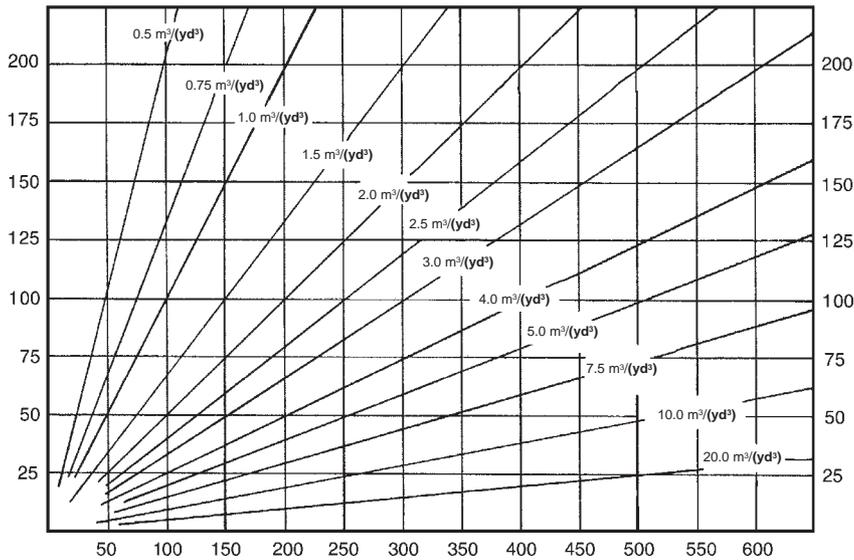
Enter vertical axis of trenching conversion chart at 100 ft/hr and travel over to diagonal line representing 2.0 yd³/ft. Next move down to horizontal axis and read answer of 200 LCY/50 min hr.

Convert 200 LCY/50 min hr to LCY/60 min hr =
$$\frac{200}{0.83} = 241 \text{ LCY/60 min hr}$$

Production estimating tables in this section show that 241 LCY/60 min. hr. is within capability of a 325 Excavator. Job should then be checked for reach and lifting requirements to make sure that the 325 could handle these aspects of the work.



TRENCHING CONVERSION CHART — CUBIC METERS (yd³) PER HOUR TO METER (ft) PER HOUR



m (ft.) = m³(yd³) Hr.
Hr. = m³(yd³) m (ft.)

Values in m³/m or yd³/ft

- If excavating rate has been calculated in Bm³/h use Bm³/m for Trench Volume/m.
- " " " " " " " " Lm³/h use Lm³/m for Trench Volume/m.
- " " " " " " " " BCY/Hr use BCY/ft for Trench Volume/ft.
- " " " " " " " " LCY/Hr use LCY/ft for Trench Volume/ft.

Estimating Bucket Size

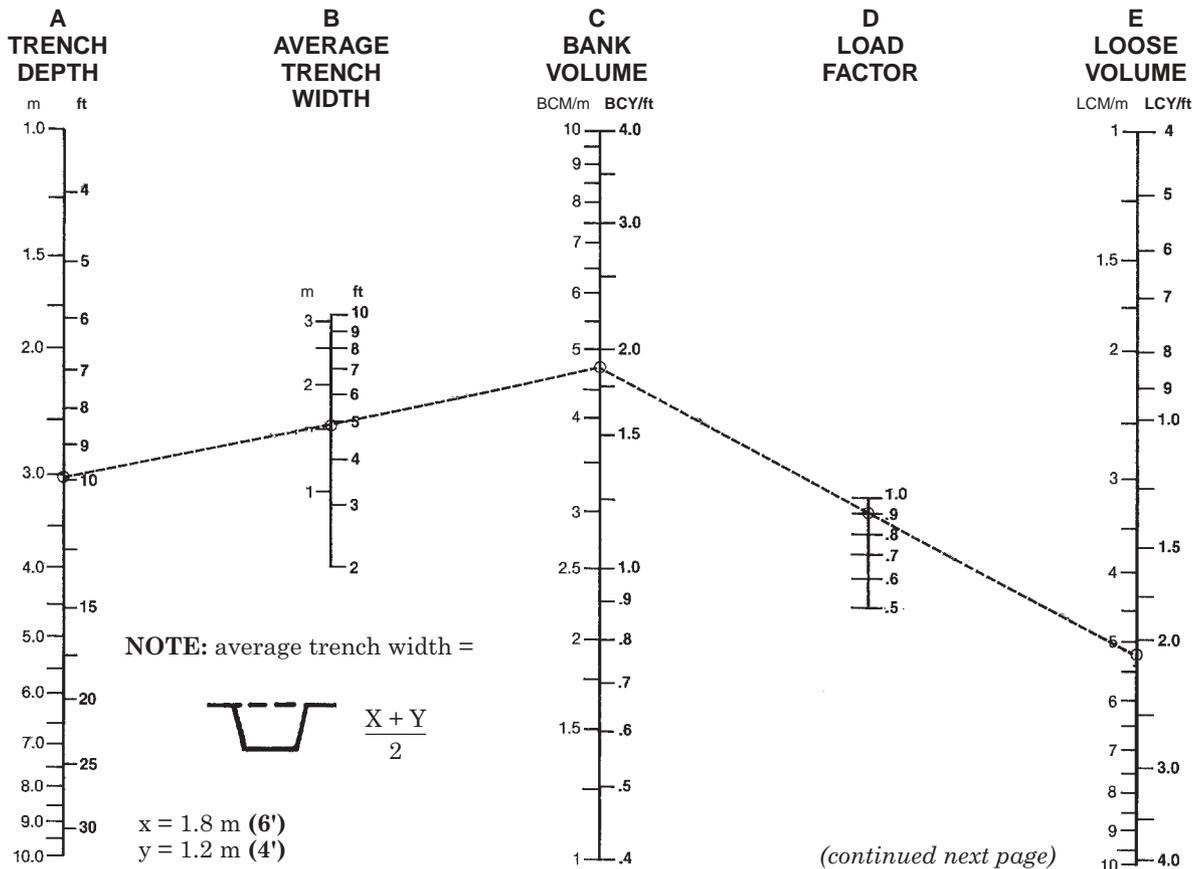
In addition to the trenching calculations on the previous pages, an alternative method of figuring trenching production is the nomograph. Shown on the following pages, this particular nomograph can be used for estimating bucket size when given trench dimensions and linear production rate. The nomograph is quicker and easier than the preceding example because it does not require as many calculations, yet the accuracy is about the same within the normal limits of input data.

Be careful when entering and reading data from the nomographs because some scales increase from bottom to top, while others are the reverse. Do not be overly concerned with the precision as affected by pencil line width or reading to the hundredth of a m³ (yd³). Remember that bucket fill factor, material density and cycle time are at best close estimates.

Example problem:

A sewer contractor owns a 325 with 2 piece boom and short stick. He wants to bid a contract for a 3.1 m (10') deep trench which measures 1.8 m (6') at the top and 1.2 m (4') at the bottom. He must dig 9 m/hr (30 ft/hr) to finish on time. The material is sand and gravel with a load factor of 0.90 and 100% bucket fill factor. He works 54 minutes per hour, half the time digging and half setting pipe. Cycle time is estimated at 23 seconds which includes a 90° swing angle.

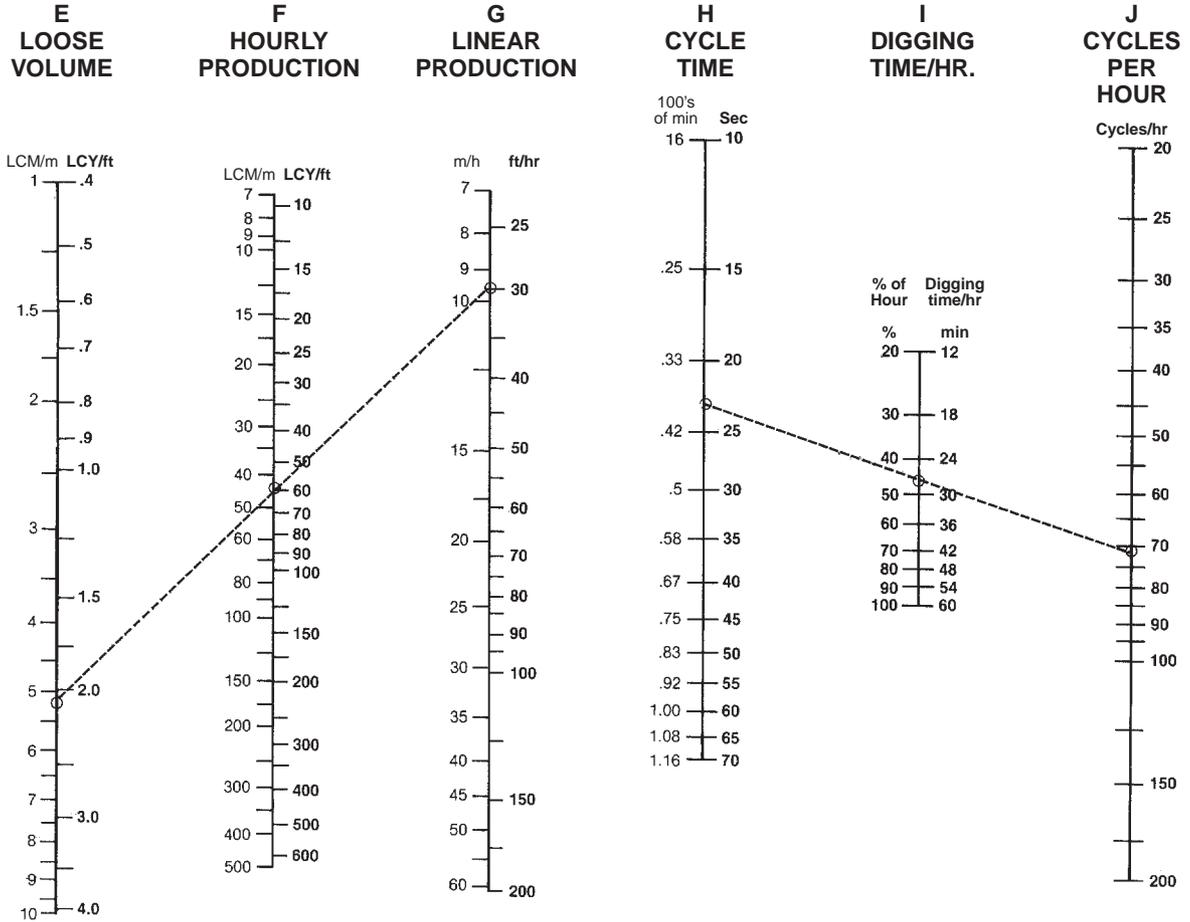
- 1) Enter trench depth 3.1 m (10') on scale A and average trench width 1.5 m (5') on scale B.
- 2) Connect A and B and extend to scale C for bank volume per m (ft).
- 3) Enter estimated load factor (0.90) on scale D.
- 4) Connect C & D and extend to scale E for loose volume per m (ft).



(get loose volume from scale E and enter on this page scale E)

- 5) Enter required linear production rate 9 m/h (30 t/hr) on scale G.
- 6) Connect E and G. Transfer hourly production rate from scale F to scale K (next page).

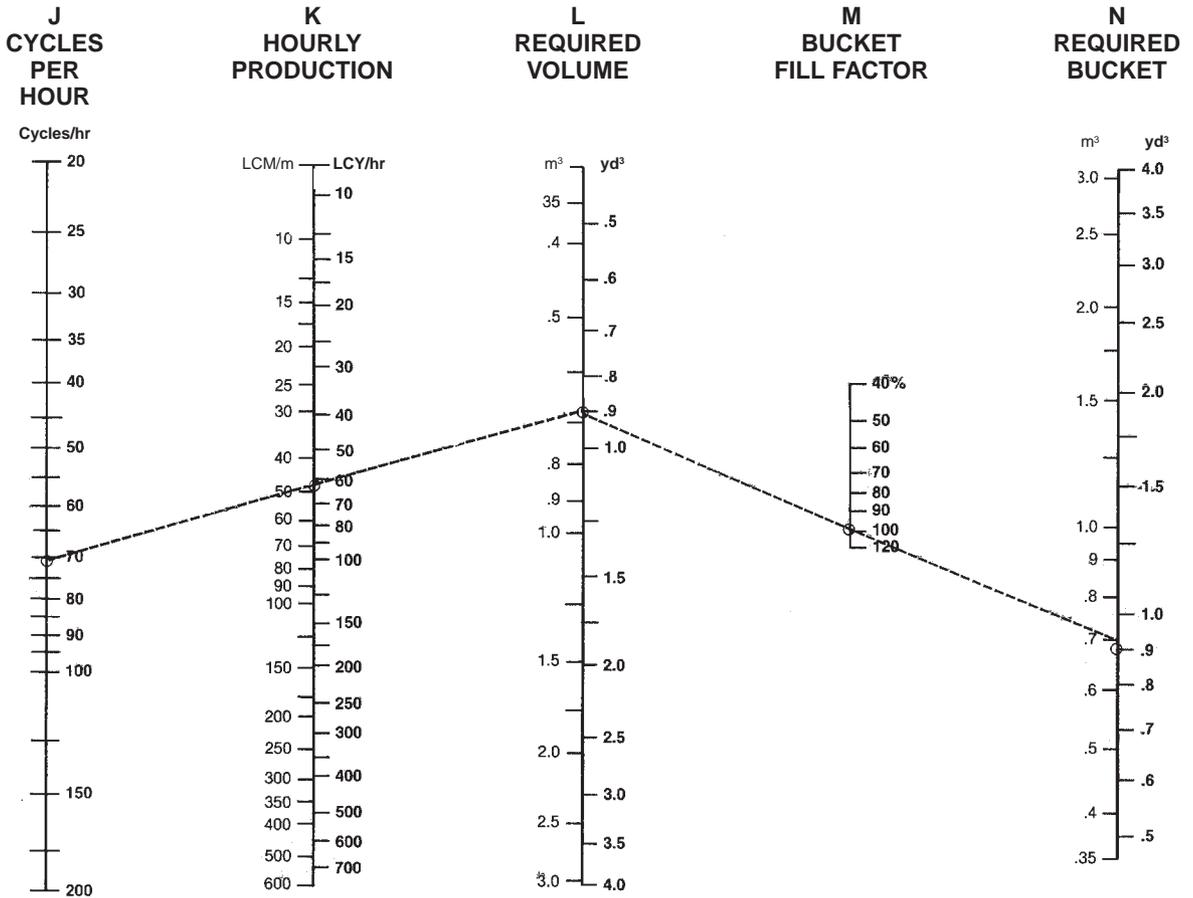
- 7) Estimate cycle time (23 sec) based on anticipated conditions and enter on scale H.
- 8) Estimate hourly digging time (27 min) and enter on scale I.
- 9) Connect H through I to scale J for cycles per hour.

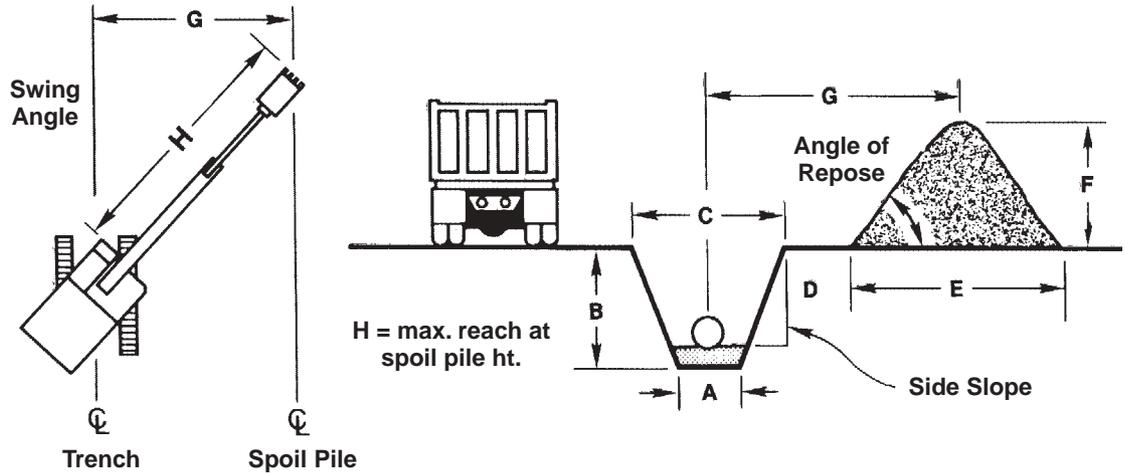


(get cycles per hour from scale J and enter on this page scale J)

- 10) Connect J through K to scale L for required volume per cycle.
- 11) Enter estimated bucket fill factor (100%) on scale M.
- 12) Connect L through M to scale N for required bucket size.

NOTE: Ensure bucket width does not exceed minimum trench width and also that weight of bucket and payload does not exceed machine working weight capacity (see lift capacity charts in this section).





Excavation Volumes Per Meter or Foot of Trench Length

Metric version

Bank $m^3/meter = (\text{Trench end area } m^2) \times (\text{one } m)$
 Trench volume $(Bm^3/m) = \frac{1}{2} (A + C) \times B$
 Spoil pile volume $(Lm^3/m) = (Bm^3/m) \times (1.00 + \% \text{ Swell})$

English version

Bank $yd^3/foot = \frac{(\text{Trench end area } ft^2) \times (\text{one } ft)}{27}$

Trench volume $(BCY/ft) = \frac{\frac{1}{2} (A + C) \times B}{27}$

Spoil pile volume $(LCY/ft) = (BCY/ft) \times (1.00 + \% \text{ Swell})$

The following table provides a general guide to trench bottom width for various outside diameters of pipe.

Pipe Diameter		Trench Width		Pipe Diameter		Trench Width	
mm	ft/in	m	ft/in	mm	ft/in	m	ft/in
102	4"	0.49	1'7"	1524	5'0"	2.59	8'6"
152	6"	0.55	1'10"	1676	5'6"	2.80	9'2"
203	8"	0.61	2'0"	1829	6'0"	3.05	10'0"
254	10"	0.70	2'4"	1981	6'6"	3.26	10'8"
305	12"	0.76	2'6"	2134	7'0"	3.47	11'5"
381	15"	0.91	3'0"	2286	7'6"	3.69	12'1"
457	18"	1.03	3'5"	2438	8'0"	3.93	12'11"
533	1'9"	1.16	3'10"	2591	8'6"	4.15	13'7"
610	2'0"	1.25	4'1"	2743	9'0"	4.36	14'4"
686	2'3"	1.37	4'6"	2896	9'6"	4.54	14'11"
838	2'9"	1.58	5'2"	3048	10'0"	4.75	15'7"
914	3'0"	1.70	5'7"	3200	10'6"	4.99	16'5"
1067	3'6"	1.92	6'4"	3353	11'0"	5.21	17'1"
1219	4'0"	2.13	7'0"	3505	11'6"	5.43	17'10"
1372	4'6"	2.38	7'10"	3658	12'2"	5.64	18'6"

NOTE: Trench widths based on $1.25 B_c + 1.0$ where B_c is the outside diameter of the pipe in feet.
 Table courtesy of American Concrete Pipe Association

- Trenching Rate With Pipesetting
- Pipesetting Example Problem

Trenching Production with Pipesetting

On many sewer construction jobs the excavator does more than just dig the trench. Other tasks include handling the shoring system, placing bedding material, and lowering the pipe. The normal work procedure is to open a section of trench and then stop and make a pipe installation before going on to dig the next section of trench. At that point the key to trenching production is the total amount of time required to install each section of pipe. Pipe installation time can be broken down as follows: Digging time + other time = Total pipe installation time

Total Pipe Installation Time	Pipe Installed Per Hour
60 min	1 Pipe/hr
30 min	2 Pipe/hr
15 min	4 Pipe/hr
10 min	6 Pipe/hr

Digging Time can be calculated once the trenching rate has been calculated using the methods described earlier in this section. Once Digging Time has been calculated, it can be added to an estimate of “Other Time” to determine Total Pipe Installation Time. “Other Time” can be estimated based on a contractor’s judgment, experience, or actual measurement on a job. The following formula and table relate the trenching rate of the excavator to the time required to open a section of trench for pipe of various lengths.

$$\text{Digging Time (Min.)} = \frac{\text{Pipe Length (ft)}}{\text{Trenching Rate (ft/hr)}} \times 60 \text{ (Min/hr)}$$

Trenching Rate Ft. Per Hour	Time Required to Dig for Pipe of Various Lengths							
	8 ft Pipe		12 ft Pipe		16 ft Pipe		20 ft Pipe	
	Hours	Min.	Hours	Min.	Hours	Min.	Hours	Min.
20 ft/hr	0.400	24.00	0.600	36.00	0.800	48.00	1.000	60.00
40	0.200	12.00	0.300	18.00	0.400	24.00	0.500	30.00
60	0.130	8.00	0.200	12.00	0.260	16.00	0.333	20.00
80	0.100	6.00	0.150	9.00	0.200	12.00	0.250	15.00
100	0.080	4.80	0.120	7.20	0.160	9.60	0.200	12.00
120	0.060	4.00	0.100	6.00	0.120	7.20	0.167	10.00
140	0.057	3.43	0.086	5.14	0.114	6.86	0.143	8.57
160	0.050	3.00	0.075	4.50	0.100	6.00	0.125	7.50
180	0.044	2.66	0.067	4.00	0.089	5.33	0.111	6.67
200	0.040	2.40	0.060	3.60	0.080	4.80	0.100	6.00

This table can be used to show how an excavator that is capable of more trenching production will provide significant advantages even on jobs where the

machine does not dig all of the time. Consider 12,000' job with 12' sections of pipe (1000 pipe to be installed). Excavator “A” can work at 60 ft/hr while Excavator “B” is capable of producing 120 ft/hr. Table shows that Excavator “B” will only take 0.10 hr to do the same work. This means that over the course of installing the 1000 pipe the more productive machine will save 0.10 hr/pipe or 100 hours of working time.

Example problem (English)

The following example shows how trenching production can be calculated on a job where the excavator is also required to set pipe. This example is based on the assumption that the excavator’s earthmoving rate and the pipe installation time have already been estimated by the contractor.

Problem: Contractor estimates that the 350 Excavator will be able to produce 500 LCY/60 min. hr. Survey shows that an average cross section trench contains 3.2 BCY/ft and swell factor for sandy clay soil is estimated at 25%. How much trenching production can a contractor expect; assuming it takes 10.0 min. to install each 20 ft length of pipe after trench has been opened. Also assume 83% job efficiency — 50 min. work hour and 8 work hours out of a 9 hour shift. (0.5 hours for lunch and two 15 minute breaks.)

Solution:

Convert trench volume to LCY/ft:

$$1.25 (3.2 \text{ BCY/ft}) = 4.0 \text{ LCY/ft}$$

Convert Earthmoving rate to Trenching rate:

$$\frac{500 \text{ LCY/hr}}{4.0 \text{ LCY/ft}} = 125 \text{ ft/hr}$$

Calculate digging time for each pipe:

$$\frac{20 \text{ ft/pipe}}{125 \text{ ft/hr}} = 0.16 \text{ hr/pipe} = 9.6 \text{ min}$$

Calculate pipe installation time:

$$\begin{aligned} \text{Digging time} &= 9.6 \text{ min} \\ \text{Other time} &= 10.0 \text{ min} \\ \text{Pipe Installation time} &= 19.6 \text{ min} \end{aligned}$$

Calculate pipe installations/hour:

$$\frac{60 \text{ min/hr}}{19.6 \text{ min/pipe}} = 3.06 \text{ pipe/hr}$$

Calculate max. pipe installations/day:

$$8 \text{ hrs} (3.06 \text{ pipe/hr}) = 24.48 \text{ pipe/day}$$

Actual pipe/day:

$$0.83 (24.48 \text{ pipe/day}) = 20.3 - 20 \text{ pipe/day}$$

Actual feet/day:

$$(20 \text{ pipe/day}) \times (20 \text{ ft/pipe}) = 400 \text{ ft/day}$$

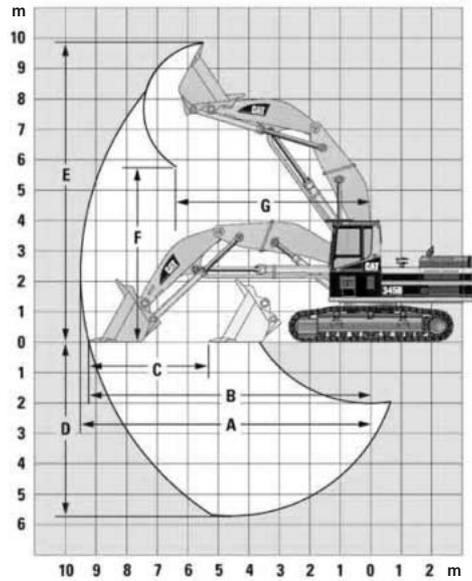


MODEL	345B L Series II		365B L Series II	
Sourcing	Belgium		Belgium	
Flywheel Horsepower	239 kW	320 hp	301 kW	404 hp
Operating Weight*	55 600 kg	122,600 lb	73 340 kg	161,700 lb
Bucket Capacity Range (heaped)	2.5 m ³	3.3 yd³	4 m ³	5.2 yd³
Engine Model	3176C ATAAC		3196 ATAAC	
Rated Engine RPM	2000		2000	
No. of Cylinders	6		6	
Bore	125 mm	4.9"	130 mm	5.1"
Stroke	140 mm	5.5"	150 mm	5.9"
Displacement	10.3 L	629 in³	12 L	732 in³
Max. Hydraulic Pump Output at Rated RPM:				
Implement	2 × 360 L/min	2 × 95 gpm	2 × 400 L/min	2 × 106 gpm
Swing	—		360 L/min	95 gpm
Relief Valve Settings:				
Implement Circuits	34 320 kPa	4976 psi	32 000 kPa	4640 psi
Travel Circuits	34 320 kPa	4976 psi	35 000 kPa	5075 psi
Pilot Circuits	4650 kPa	674 psi	4120 kPa	597 psi
Maximum Drawbar Pull	331 kN	74,475 lb	462 kN	103,950 lb
Maximum Travel Speed at Rated RPM	4.4 km/h	2.7 mph	4.1 km/h	2.5 mph
Overall Track Length**	5.37 m	17'7"	5.85 m	19'2"
Track Gauge	2.89 m	9'6"	3.25 m	10'10"
Grouser Height	44 mm	1.7"	48 mm	1.9"
Track Shoe Widths	600 mm	24"	650 mm	26"
Ground Contact Areas	5.46 m ²	58.8 ft²	6.04 m ²	65 ft²
Ground Pressures	99 kPa	14.4 psi	109 kPa	15.8 psi
Fuel Tank Refill Capacity	720 L	190 U.S. gal	800 L	211 U.S. gal

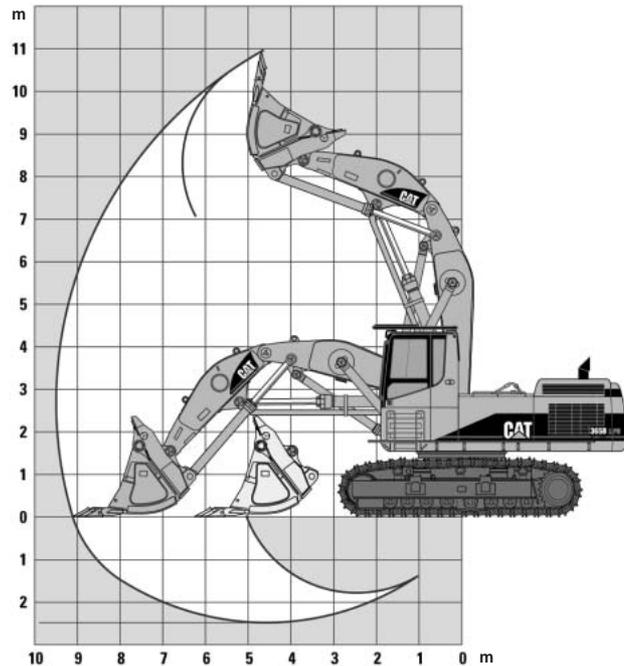
*Operating weights include coolant, lubricants, full fuel tank, standard shoes, bucket, and operator.

**Track length measured from center of idler to center of sprocket.

345B L Series II



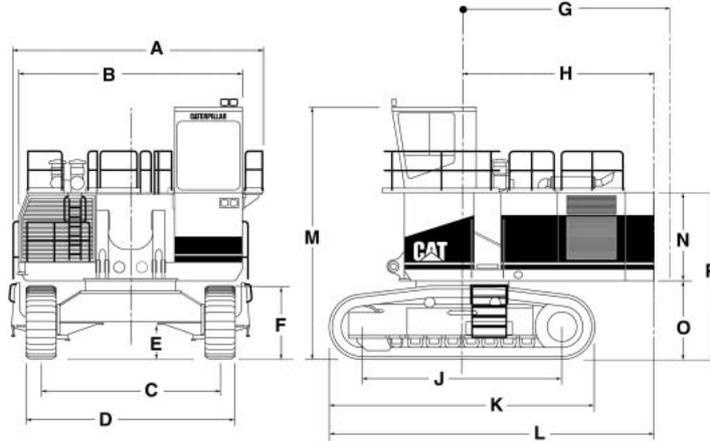
365B L Series II



General Dimensions
Curl and Crowd Forces

Front Shovels
Belgium Sourced

- 345B L Series II
- 365B L Series II



4

Dimensions	345B L Series II		365B L Series II	
A	—	—	—	—
B	2990 mm	9'10"	3420 mm	11'3"
C	2890 mm	9'6"	3250 mm	10'8"
D	3490 mm	11'5"	3900 mm	12'10"
E	710 mm	28"	840 mm	33"
F	—	—	—	—
G Swing radius	3650 mm	12'0"	4000 mm	13'1"
H	3650 mm	12'0"	4000 mm	13'1"
J	4340 mm	14'3"	4710 mm	15'5"
K	5370 mm	17'7"	5850 mm	19'2"
L	—	—	6840 mm	22'5"
M	3650 mm	12'0"	4530 mm	14'10"
N	—	—	—	—
O	—	—	—	—
P	—	—	—	—

Curl and Crowd Forces

Model	Bucket	Bucket Capacity		Crowd Force (SAE)		Bucket Tangential Force (SAE)	
345B L Series II	Bottom Dump	2.5 m ³	3.3 yd ³	412 kN	92,700 lb	339 kN	76,200 lb
365B L Series II	Bottom Dump	4.0 m ³	5.2 yd ³	370 kN	83,250 lb	519 kN	116,700 lb

5000 SERIES EXCAVATORS AND SHOVELS

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Features:

- **Cat Diesel Engines** provide the power, reliability and performance you can depend on.
- **Hydraulic Electronic Unit Injection (HEUI)** on the 5110B, and **Electronic Unit Injection (EUI)** on the 5130B and 5230B electronically maintains fuel settings, provides automatic altitude and air filter restriction compensation, automatic variable timing, improved diagnostics and increased fuel efficiency.
- **Advanced Modular Cooling System (AMOCS)** this patented cooling system used on the 5000 Series promotes more efficient engine cooling, and is easy to service.
- **Proportional Priority Pressure Compensation hydraulic system** delivers excellent controllability with full-powered response under all operating conditions.

- **Dedicated Swing Pumps** on the 5000 series ensures fast cycles, and consistent multi-function implement response.
- **Automatic Lubrication System** eliminates a daily lubrication chore, automatically lubricates the swing bearing, linkage, and undercarriage on regular intervals.
- **Vital Information Management System (VIMS)** on the 5130B and 5230B monitors all vital machine functions, and keeps the operator advised on current machine conditions. VIMS reduces downtime and allows service personnel easy access to data for fast accurate diagnosis.
- **Electronic Monitoring System III (EMS III)** on the 5110B monitors machine functions. The EMS III ensures that the engine and hydraulic system are perfectly matched to the operator's demand for the most efficient power transfer possible, it also keeps the operator advised on current machine conditions.
- **Durable Structures** are a key component in the 5000 Series. Large castings eliminate welds in high stress areas. Boom and sticks are thermally stress relieved to increase life. Boom and stick castings provide improved visibility over competitive designs. Penetrating, deep, beveled welds and rugged box section construction add to the machine's durability.
- **Service Access** is a priority on all 5000 Series machines. Platforms, walkways and hinged doors provide standing access to both sides of engine and pumps.

NOTE: Listed features may be standard on some models. Optional on others. Contact your Caterpillar Dealer for specific information.



MODEL	5090B		5130B		5230B	
Sourcing	Belgium		U.S.		U.S.	
Flywheel Horsepower	382 kW	512 hp	597 kW	800 hp	1156 kW	1550 hp
Operating Weight*	87 500 kg	192,900 lb	181 000 kg	399,000 lb	327 000 kg	721,000 lb
Bucket Capacity Range (heaped)	5.2-5.7 m ³	6.8-7.5 yd³	9-11 m ³	14.5 yd³	12.5-17 m ³	22.2 yd³
Engine Model	3456 ATAAC		3508B EUI		3516B EUI	
Rated Engine RPM	1800		1750		1750	
No. of Cylinders	6		8		16	
Bore	140 mm	5.5"	170 mm	6.7"	170 mm	6.7"
Stroke	171 mm	6.7"	190 mm	7.5"	190 mm	7.5"
Displacement	15.8 L	964 in³	34.5 L	2105 in³	69.1 L	4211 in³
Max. Hydraulic Pump Output at Rated RPM: Implement	L/min	gpm	L/min	gpm	L/min	gpm
Swing	2 × 490	2 × 129	4 × 372	4 × 99	6 × 412	6 × 110
	1 × 450	1 × 119	1 × 464	1 × 123	2 × 464	2 × 123
Relief Valve Settings:						
Implement Circuits	32 000 kPa	4640 psi	31 000 kPa	4500 psi	31 000 kPa	4500 psi
Travel Circuits	35 000 kPa	5075 psi	35 000 kPa	5080 psi	35 000 kPa	5080 psi
Pilot Circuits	4100 kPa	595 psi	4000 kPa	580 psi	4000 kPa	580 psi
Maximum Drawbar Pull	590 kN	132,750 lb	872 kN	196,000 lb	1545 kN	340,875 lb
Maximum Travel Speed at Rated RPM	Low: High:	2.8 km/h 1.7 mph 4.4 km/h 2.7 mph	— 3.3 km/h 2.1 mph	— 5.55 m 18'3"	— 2.5 km/h 1.6 mph	— 6.26 m 20'6"
Overall Track Length**	4.6 m 15'1"		5.55 m 18'3"		6.26 m 20'6"	
Track Gauge	3.51 m 11'6"		4.72 m 15'6"		5.12 m 17'0"	
Grouser Height	48 mm 2"		29, 71 mm 1.1", 2.8"		15 mm 0.6"	
Track Shoe Widths	650, 750, 900 mm 26", 30", 36"		650, 800, 1000 mm 26", 32", 39"		1100, 1300, 1500 mm 43", 51", 59"	
Ground Contact Areas	6.13, 7.55 m ² 66, 81.3 ft²		8.0, 9.8, 12.3 m ² 86.1, 105.4 ft²		15.2, 18.0, 20.8 m ² 163.6, 193.7, 223.8 ft²	
Ground Pressures	132, 107 kPa 19.2, 16 psi		217, 178, 144 kPa 31.4, 25.8, 20.9 psi		208, 177, 153 kPa 30.2, 25.7, 22.2 psi	
Fuel Tank Refill Capacity	1240 L 328 U.S. gal		2600 L 687 U.S. gal		5330 L 1386 U.S. gal	

*Operating weights include coolant, lubricants, full fuel tank, standard shoes, bucket, and operator.

**Track length measured from center of idler to center of sprocket.



MODEL	5110B ME		5110B L		5130B ME		5230B ME	
Sourcing	U.S.		U.S.		U.S.		U.S.	
Flywheel Power	519 kW	696 hp	519 kW	696 hp	597 kW	800 hp	1156 kW	1550 hp
Operating Weight*	127 000 kg	280,000 lb	129 000 kg	284,000 lb	182 000 kg	401,000 lb	328 000 kg	723,400 lb
Bucket Capacity Range (heaped)	6.2- 10.4 m ³	8.1- 13.6 yd³	4.2- 6.0 m ³	5.5- 7.8 yd³	8.5- 18.3 m ³	11- 24 yd³	13- 27.5 m ³	17- 36 yd³
Engine Model	3412E HEUI		3412E HEUI		3508B EU1		3516B EU1	
Rated Engine RPM	1800		1800		1750		1750	
No. of Cylinders	12		12		8		16	
Bore	137 mm	5.4"	137 mm	5.4"	170 mm	6.7"	170 mm	6.7"
Stroke	152 mm	6.0"	152 mm	6.0"	190 mm	7.5"	190 mm	7.5"
Displacement	27 L	1648 in³	27 L	1648 in³	34.5 L	2105 in³	69 L	4210 in³
Max. Hydraulic Pump Output at Rated RPM: Implement	L/min	gpm	L/min	gpm	L/min	gpm	L/min	gpm
Swing	3 × 446	3 × 118	3 × 446	3 × 118	4 × 372	4 × 99	6 × 412	6 × 110
	1 × 463	1 × 122	1 × 463	1 × 122	1 × 464	1 × 123	2 × 464	2 × 123
Relief Valve Settings:								
Implement Circuits	32 000 kPa	4640 psi	32 000 kPa	4640 psi	31 000 kPa	4550 psi	31 000 kPa	4550 psi
Travel Circuits	35 000 kPa	5075 psi	35 000 kPa	5075 psi	35 000 kPa	5075 psi	35 000 kPa	5075 psi
Swing Circuits: Accelerate	35 000 kPa	5075 psi	35 000 kPa	5075 psi	35 000 kPa	5075 psi	35 000 kPa	5075 psi
Decelerate	25 000 kPa	3625 psi	25 000 kPa	3625 psi	25 000 kPa	3620 psi	25 000 kPa	3620 psi
Pilot Circuits	4500 kPa	650 psi	4500 kPa	650 psi	4000 kPa	580 psi	4000 kPa	580 psi
Maximum Drawbar Pull	846 kN	190,350 lb	846 kN	190,350 lb	872 kN	196,000 lb	1545 kN	340,875 lb
Maximum Travel Speed at Rated RPM	3.3 km/h	2.0 mph	3.3 km/h	2.0 mph	3.3 km/h	2.1 mph	2.5 km/h	1.6 mph
Overall Track Length**	5.5 m	18'0"	5.85 m	19'2"	5.55 m	18'3"	6.26 m	20'6"
Width of Standard Track Shoe	700 mm	2'4"	700 mm	2'4"	800 mm	2'8"	1300 mm	4'4"
Ground Contact Area with Std. Shoe	8.3 m ²	12,900 in²	8.3 m ²	12,900 in²	9.8 m ²	15,200 in²	18 m ²	27,900 in²
Track Gauge	4.1 m	13'5"	4.1 m	13'5"	4.72 m	15'6"	5.2 m	17'0"
Fuel Tank Refill Capacity	1700 L	450 U.S. gal	1700 L	450 U.S. gal	2600 L	687 U.S. gal	5330 L	1386 U.S. gal

*Operating weight includes coolant, lubricants, full fuel tank, one-piece boom, medium stick, bucket, standard counterweight and operator 75 kg (165 lb).

**Measured from center of driver to center of idler.

NOTE: Certain models may not be available in all Sales areas.

Specifications may also vary by Sales area.

Contact your Caterpillar Dealer for details.

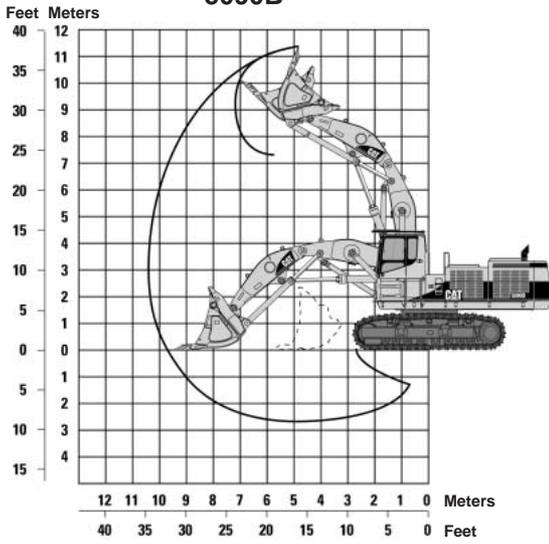
Adjustments to Standard Operating Weight — FS

Track	5090B	650 mm (26") 750 mm (30")	0 kg (0 lb) +780 kg (+1720 lb)
	5130B	650 mm (26") 800 mm (32") 1000 mm (39")	0 kg (0 lb) +2050 kg (+4520 lb) +4320 kg (+9520 lb)
	5230B	1100 mm (43") 1300 mm (51") 1500 mm (59")	0 kg (0 lb) +2320 kg (+5120 lb) +5370 kg (+11,840 lb)
Buckets	5090B	G.P. Rock Bucket – 5.2 m ³ (6.8 yd ³) Heavy Duty Rock – 5.2 m ³ (6.8 yd ³) Heavy Duty Rock – 5.7 m ³ (7.5 yd ³)	0 kg (0 lb) +1000 kg (+2200 lb) +1140 kg (+2510 lb)
	5130B	Rock Bucket – 11.0 m ³ (14.4 yd ³) High Density – 9.0 m ³ (12.0 yd ³)	0 kg (0 lb) –225 kg (–500 lb)
	5230B	Rock Bucket – 17.0 m ³ (22.2 yd ³) High Density – 14.5 m ³ (19.0 yd ³) High Density – 12.5 m ³ (16.3 yd ³)	0 kg (0 lb) –3050 kg (–6700 lb) –3750 kg (–8300 lb)

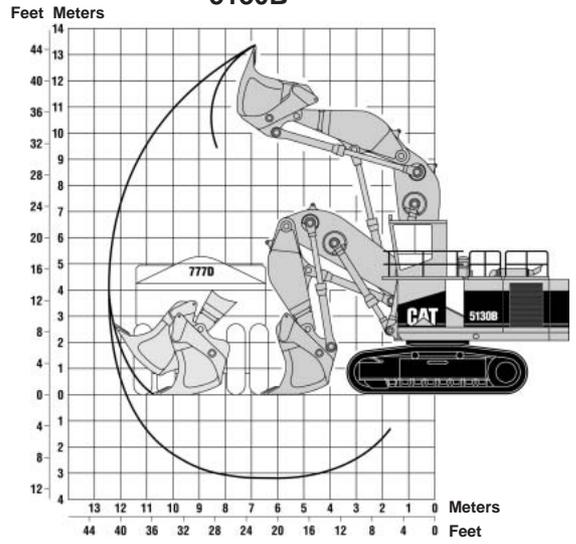
Adjustments to Standard Operating Weight — ME

Track	5110B	700 mm (28") 900 mm (36") 1000 mm (39")	0 kg (0 lb) +1777 kg (+3920 lb) +2664 kg (+5875 lb)
	5130B	650 mm (26") 800 mm (32") 1000 mm (39")	–2050 kg (–4520 lb) 0 kg (0 lb) +2270 kg (+5000 lb)
	5230B	1100 mm (43") 1300 mm (51") 1500 mm (59")	–2320 kg (–5120 lb) 0 kg (0 lb) +5370 kg (+6720 lb)
Buckets	5110B	Rock – 7.6 m ³ (9.9 yd ³) Rock – 6.2 m ³ (8.1 yd ³) Coal – 10.4 m ³ (13.6 yd ³)	0 kg (0 lb) –840 kg (–1900 lb) –300 kg (–661 lb)
	5130B	Rock – 10.5 m ³ (13.7 yd ³) High Density – 8.5 m ³ (11.0 yd ³) Excavation – 10.5 m ³ (13.7 yd ³) Coal – 13.6 m ³ (17.8 yd ³) Coal – 18.3 m ³ (24.6 yd ³)	0 kg (0 lb) –1079 kg (–2380 lb) –500 kg (–2080 lb) –800 kg (–2760 lb) –130 kg (–280 lb)
	5230B	Rock – 16.0 m ³ (21.0 yd ³) High Density – 13.0 m ³ (17.0 yd ³) Rock – 18.0 m ³ (24.2 yd ³) Coal – 27.5 m ³ (36.0 yd ³)	0 kg (0 lb) –2000 kg (–4400 lb) +1800 kg (+4000 lb) –1140 kg (–2500 lb)

5090B

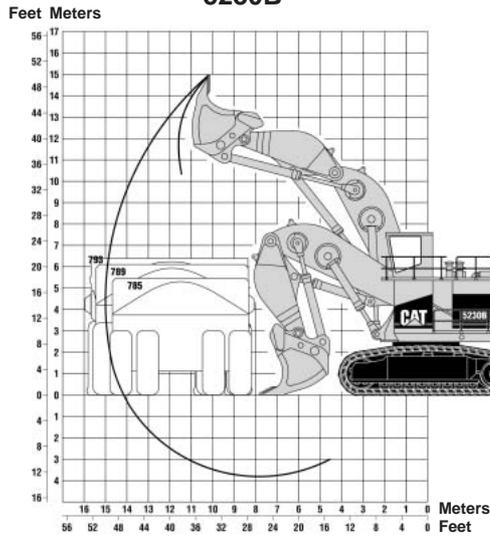


5130B



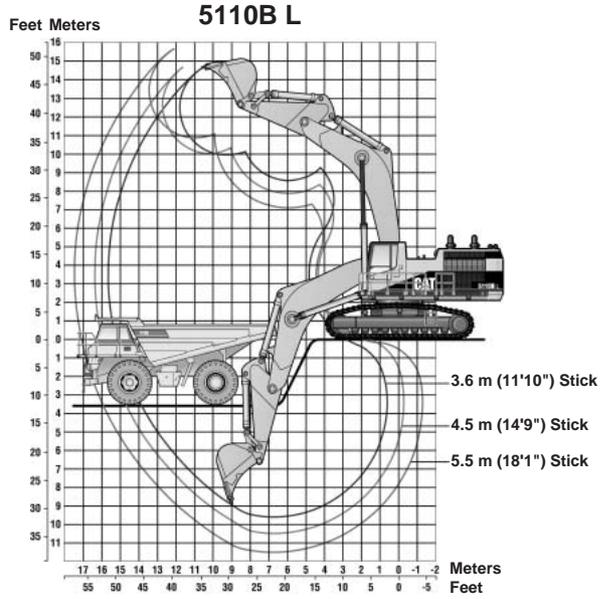
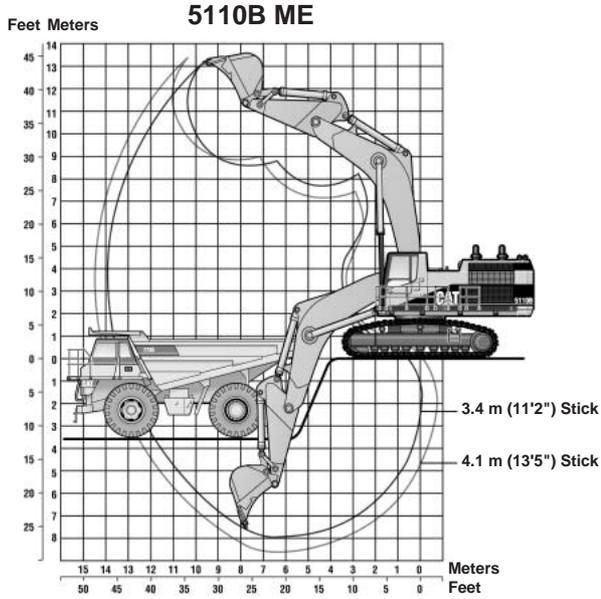
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5230B

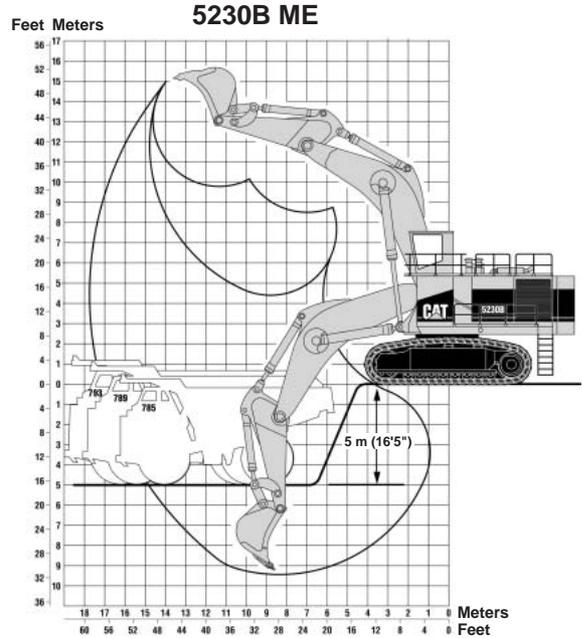
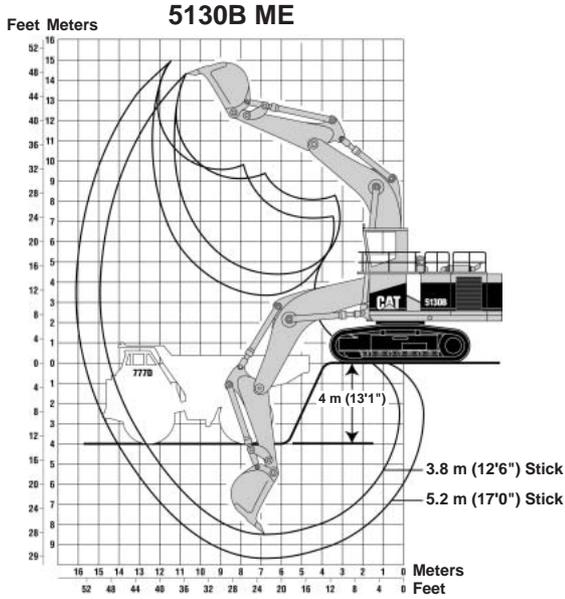


**5000 Series —
Excavators**

Digging Envelopes
● 5110B ME ● 5110B L



MODEL	5110B ME				5110B L					
	m	ft	m	ft	m	ft	m	ft	m	ft
Boom	7.6	25'11"	7.6	25'11"	9.2	30'2"	9.2	30'2"	9.2	30'2"
Stick	3.4	11'1"	4.1	13'5"	3.6	11'10"	4.5	14'9"	5.5	18'1"
Max. Loading Height	8.6	28'0"	8.8	28'11"	9.9	32'6"	10.1	33'2"	10.9	35'9"
Max. Reach	13.9	45'8"	14.6	47'9"	15.7	51'6"	16.4	53'10"	17.5	57'5"
Max. Digging Depth	7.9	25'11"	8.6	28'2"	9.6	31'6"	10.5	34'6"	11.5	37'9"



MODEL	5130B ME				5230B ME	
	m	ft	m	ft	m	ft
Boom	8.0	26'3"	8.0	26'3"	9.5	31'2"
Stick	3.8	12'5"	5.2	17'1"	4.5	14'9"
Max. Loading Height	9.1	29'8"	9.7	31'8"	9.8	32'2"
Max. Reach	14.9	48'11"	16.1	52'8"	17.7	58'0"
Max. Digging Depth	8.4	27'7"	9.7	31'8"	9.4	30'11"

● **5110B ME**

	Weight		Length		Width		Height	
	kg	lb	mm	ft	mm	ft	mm	ft
Chassis, Carbody and Cab	42 700	94,200	7070	23'2"	3500	11'6"	3560	11'8"
Counterweight	16 800	37,000	900	2'11"	3770	12'5"	2630	8'7"
Track Roller Frame (each)								
700 mm (28") Shoes	15 900	35,100	6710	22'0"	1250	4'1"	1800	5'11"
900 mm (36") Shoes	18 200	40,130	6710	22'0"	1803	5'11"	1245	4'1"
1000 mm (39") Shoes	19 100	42,100	6710	22'0"	1803	5'11"	1245	4'1"
Front Structures								
7.6 m (24'11") Boom Assembly	16 500	36,300	8020	26'4"	1480	4'10"	3080	10'1"
3.4 m (11'2") Stick Assembly	8200	18,000	5060	16'7"	1000	3'3"	2140	7'0"
7.6 m ³ (9.9 yd ³) Bucket	7600	16,800	3000	9'10"	2620	8'7"	2460	8'1"
Stick & Bucket	15 200	33,600	7650	25'1"	2620	8'7"	2160	7'1"
Handrail Skid	1340	3000	3990	13'1"	1120	3'8"	2920	7'6"
Parts Box	1550	3400	2240	7'4"	990	3'3"	1090	3'7"

● **5110B L**

	Weight		Length		Width		Height	
	kg	lb	mm	ft	mm	ft	mm	ft
Chassis, Carbody and Cab*	43 300	95,390	7070	23'2"	3500	11'6"	3560	11'8"
Counterweight	16 800	37,000	900	2'11"	3770	12'5"	2630	8'7"
Track Roller Frames								
Long (R)**	22 724	50,061	7110	23'4"	1450	4'9"	1800	5'11"
Long (L)**	22 724	50,061	7110	23'4"	1450	4'9"	1800	5'11"
Boom Assembly — 9.2 m (30'2")	16 565	36,493	9626	31'7"	1540	5'1"	3500	11'6"
Handrail Skid	1340	3000	3990	13'1"	1120	3'8"	2290	7'6"
Parts Box	1550	3400	2240	7'4"	990	3'3"	1090	3'7"
Stick and Bucket Assembly***	12 866	28,344	7688	25'3"	2612	8'7"	1977	6'6"
3.6 m (11'10") Stick	7550	16,633	4278	14'0"	1014	3'4"	1977	6'6"
6.0 m ³ (7.85 yd ³) Bucket	5316	11,711	2790	9'2"	2612	8'7"	1905	6'3"
Stick and Bucket Assembly***	13 105	28,870	8500	27'11"	2286	7'6"	2054	6'9"
4.5 m (14'9") Stick	8318	18,325	6240	20'6"	1014	3'4"	2054	6'9"
5.0 m ³ (6.5 yd ³) Bucket	4787	10,546	2630	8'8"	2286	7'6"	1900	6'3"
Stick and Bucket Assembly***	16 483	36,312	9585	31'5"	1980	6'6"	1900	6'3"
5.5 m (18'1") Stick	9113	20,076	7175	23'6"	1014	3'4"	1875	6'2"
4.2 m ³ (5.5 yd ³) Bucket	7370	16,236	2850	9'4"	1980	6'6"	1900	6'3"

*Includes tall cab riser and heavy-lift with anti-drift.

**Includes 900 mm (35") shoes with center and end guides.

***Includes stick assembly, bucket assembly, tips (penetration).

● 5130B ME

	Weight		Length		Width		Height	
	kg	lb	mm	ft	mm	ft	mm	ft
Carbody	15 800	34,820	3560	11'8"	4110	13'6"	1520	5'0"
Swing Frame	22 830	50,340	7060	23'2"	2460	8'1"	2440	8'0"
Track Roller Frame (each)								
650 mm (2'2") Shoes	23 610	52,060	7140	23'5"	1500	4'11"	1910	6'3"
800 mm (2'7") Shoes	24 640	54,320	7140	23'5"	1500	4'11"	1910	6'3"
1000 mm (3'3") Shoes	25 770	56,820	7140	23'5"	1500	4'11"	1910	6'3"
Left Module	8090	17,830	5770	18'11"	2340	7'8"	2620	8'7"
Boom Cylinders	3000	6620	3840	12'7"	910	3'0"	690	2'3"
Stick Cylinders	1100	2430	3840	12'7"	910	3'0"	690	2'3"
Bucket Cylinders	1100	2430	3840	12'7"	910	3'0"	690	2'3"
Ladders	2070	4570	2240	7'4"	1090	3'7"	1190	3'11"
Parts Box	2100	4620	2240	7'4"	1090	3'7"	990	3'3"
Handrails	1150	2540	3990	13'1"	2290	7'6"	1120	3'8"
Right Module	13 810	30,440	5660	18'7"	2440	8'0"	3050	10'0"
Cab	2050	4510	2360	7'9"	2060	6'9"	3100	10'2"
Boom	20 530	45,260	8560	28'1"	1980	6'6"	3400	11'2"
Counterweight	20 970	46,220	6250	20'6"	1170	3'10"	2510	8'3"
Stick	6220	13,710	5260	17'3"	1020	3'4"	2290	7'6"
Brackets	1550	3420	1520	5'0"	1450	4'9"	790	2'7"
Bucket	9700	21,380	2900	9'6"	3200	10'6"	2820	9'3"

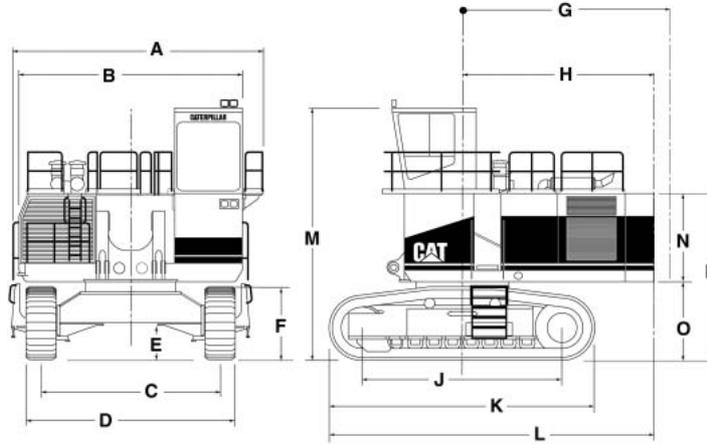
● 5230B ME

	Weight		Length		Width		Height	
	kg	lb	mm	ft	mm	ft	mm	ft
Carbody	27 650	60,970	4470	14'8"	3840	12'7"	1980	6'6"
Swing Frame	42 400	93,500	8890	29'2"	3330	10'11"	3480	11'5"
Track Roller Frame (each)								
1100 mm (3'7") Shoes	45 400	100,080	8030	26'4"	1830	6'0"	2360	7'9"
1300 mm (4'3") Shoes	46 560	102,640	8030	26'4"	1830	6'0"	2360	7'9"
1500 mm (4'11") Shoes	48 080	106,000	8030	26'4"	1830	6'0"	2360	7'9"
Left Module	12 310	27,140	7190	23'7"	2510	8'3"	3230	10'7"
Cylinder Skid	3130	6900	4170	13'8"	610	2'0"	810	2'8"
Cylinder Skid	3130	6900	4170	13'8"	610	2'0"	810	2'8"
Cylinder Skid	4350	9580	4880	16'0"	910	3'0"	740	2'5"
Cylinder Skid	3290	7260	4170	13'8"	910	3'0"	740	2'5"
Parts Box	2220	4890	2240	7'4"	1090	3'7"	990	3'3"
Parts Box	2170	4780	2240	7'4"	1090	3'7"	990	3'3"
Parts Box	2220	4900	2240	7'4"	1090	3'7"	990	3'3"
Handrails	1350	2980	3990	13'1"	2290	7'6"	1120	3'8"
Right Module	20 880	46,040	7570	24'10"	2510	8'3"	3580	11'9"
Cab	2380	5240	2360	7'9"	2060	6'9"	3050	10'0"
Boom	28 340	62,480	10 030	32'11"	3960	13'0"	2490	8'2"
Counterweight	41 390	91,240	7320	24'0"	1220	4'0"	3050	10'0"
Stick	13 610	30,000	6250	20'6"	1350	4'5"	2570	8'5"
Brackets	2590	5720	1780	5'10"	1680	5'6"	890	2'11"
Guards	940	2080	2080	6'10"	1700	5'7"	840	2'9"
Bucket	16 380	36,110	4010	13'2"	3250	10'8"	3100	10'2"

**5000 Series —
Excavators**

General Dimensions

● 5090B ● 5110B ME ● 5110B L ● 5130B ME ● 5230B ME



	5090B		5110B ME		5110B L		5130B ME		5230B ME	
A	4410 mm	14'5"	5460 mm	17'11"	5460 mm	17'11"	6620 mm	21'9"	7510 mm	24'7"
B	3470 mm	11'5"	3500 mm	11'6"	3500 mm	11'6"	5900 mm	19'4"	6960 mm	22'11"
C	3510 mm	11'6"	4100 mm	13'5"	4100 mm	13'5"	4720 mm	15'6"	5196 mm	17'0"
D	4160 mm	13'6"	4800 mm	15'9"	4800 mm	15'9"	5370 mm	17'7"	6296 mm	20'8"
E	890 mm	2'11"	1052 mm	3'5"	1052 mm	3'5"	960 mm	3'2"	1108 mm	3'8"
F	—	—	—	—	—	—	1890 mm	6'3"	2260 mm	7'5"
G Swing radius	4590 mm	15'1"	5120 mm	16'10"	5120 mm	16'10"	5250 mm	17'3"	6450 mm	21'2"
H	4590 mm	15'1"	5120 mm	16'10"	5120 mm	16'10"	5140 mm	16'11"	6280 mm	20'7"
J	4600 mm	15'1"	5452 mm	17'11"	5850 mm	19'2"	5552 mm	18'3"	6260 mm	20'6"
K	5840 mm	19'2"	6864 mm	22'6"	7264 mm	23'10"	7270 mm	23'10"	8174 mm	26'10"
L	7120 mm	23'4"	8552 mm	28'1"	8812 mm	28'11"	8775 mm	28'9"	10 325 mm	33'10"
M	4820 mm*	15'10"	4615 mm	15'1"	4615 mm	15'1"	6550 mm	21'5"	7621 mm	25'0"
N	—	—	2410 mm	7'10"	2410 mm	7'10"	2350 mm	7'9"	2850 mm	9'4"
O	1635 mm	5'4"	1890 mm	6'3"	1890 mm	6'3"	2045 mm	6'9"	2616 mm	8'7"
P	—	—	4300 mm	14'1"	4300 mm	14'1"	4395 mm	14'5"	5465 mm	18'0"

*Euro cab with FOPS.

CHOOSING A TRACK SHOE

In severe underfoot conditions, narrow shoes impose lower forces on other undercarriage components, and normally result in improved overall track life. Machines working in rock should be equipped with the narrowest available shoe. Wider shoes will improve flotation, but shoes wider than those shown here should not be used. Track shoe width has little effect on stability.

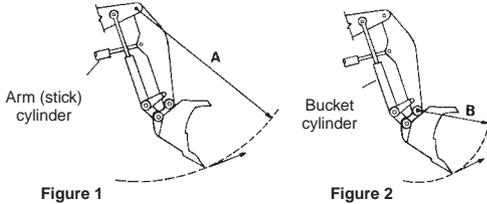
Double grouser shoes will provide adequate traction in most underfoot conditions, and are less damaging to floor and road surfaces. For additional traction in deep mud, or in rock applications which allow some grouser penetration, single grouser shoes are recommended. Hard, smooth quarry floors that allow little or no grouser penetration are best handled by the narrowest double grouser shoes.

Track Shoe Widths and Ground Pressures

Model	Shoe Type	Shoe Width		Ground Pressure	
		mm	in	kPa	psi
5110B ME	Double	700	28	147	21.4
	Double	900	36	116	16.8
	Double	1000	39	105	15.2
5110B L	Double	700	28	140	20.3
	Double	900	36	111	16.0
	Double	1000	39	100	14.5
5130B ME	Double	650	26	218	31.6
	Double	800	32	179	26.0
	Double	1000	39	145	21.0
5230B ME	Double	1100	43	199	28.9
	Double	1300	51	170	24.7
	Double	1500	59	149	21.6
5090B FS Bottom Dump	Double	650	26	144	20.9
	Double	750	30	125	18.1
	Double	900	36	104	15.1
5130B FS Bottom Dump		650	26	215	31.2
		800	32	174	25.3
		1000	39	144	20.9
5230B FS Bottom Dump		1100	43	202	29.3
		1300	51	172	25.0
		1500	59	148	21.5

CURL AND CROWD FORCES

Rated digging forces are the forces that can be exerted at the outermost cutting point. They are calculated by applying working relief hydraulic pressure to the cylinder(s) providing the digging force. Weight of components and friction are excluded from the calculations.



Rated Arm (Stick) Force — is generated by the arm (stick) cylinder and is tangent to the arc of radius “A”. The arm is positioned to obtain the maximum output moment from the arm cylinder with the bucket positioned as in figure 1.

Rated Bucket Tangential Force — is generated by the bucket cylinders and is tangent to the arc of radius “B”. The bucket is positioned to obtain the maximum output moment from the bucket cylinders and connecting linkage as in figure 2.

Model	Bucket	Bucket Capacity		A — Crowd Force (SAE)		B — Bucket Tangential Force (SAE)	
		m ³	yd ³	kN	lb	kN	lb
5090B FS	Bottom Dump	5.2	6.8	440	99,000	447	100,500
5130B FS	Bottom Dump	11.0	14.5	770	173,000	715	161,000
5230B FS	Bottom Dump	17.0	22.2	1145	257,300	1162	261,100

		5110B ME		5130B ME		5230B ME
Boom	m	7.6		8.0		9.5
	ft	24'11"		26'3"		31'2"
Stick	m	3.4	4.1	3.8	5.2	4.5
	ft	11'1"	13'5"	12'6"	17'1"	14'9"
Bucket Tip Radius	mm	2851	2774	3038	3038	3254
	ft	9'4"	9'1"	10'0"	10'0"	10'8"
Bucket Curling Force (SAE)	kN	501	501	672	672	855
	lb	112,725	112,725	151,100	151,100	192,000
Rated Arm Force (SAE)	kN	439	395	624	537	885
	lb	98,775	88,875	140,300	120,700	199,100

Working Weights Bucket & Payload

Model	Boom		Stick Length		Working Weights Buckets & Payload	
	m	ft"	m	ft"	kg	lb
5110B ME	7.6 m	24'11"	3.4 m	11'1"	21 940 kg	48,350 lb
			4.1 m	13'5"	19 920 kg	43,900 lb
5110B L	9.2 m	30'2"	3.6 m	11'10"	17 995 kg	39,660 lb
			4.5 m	14'9"	16 030 kg	35,320 lb
			5.5 m	18'1"	13 710 kg	30,220 lb
5130B ME	8.0 m	26'3"	3.8 m	12'6"	30 540 kg	67,310 lb
			5.2 m	17'1"	25 850 kg	56,970 lb
5230B ME	9.5 m	31'2"	4.5 m	14'9"	51 000 kg	112,450 lb

Bucket Selection — ME

Model	Bucket Type	Bucket Bite Width		Bucket Tip Radius		Heaped Capacity		Bucket Weight With Teeth	
		mm	in	mm	in	m ³	yd ³	kg	lb
5110B ME	Rock	2682	105.0"	2812	110.0"	7.6	9.9	7450	16,420
	Rock	2356	93.0"	2797	110.0"	6.2	8.1	6680	14,730
	Coal	3128	123.0"	2803	110.0"	10.4	13.6	7010	15,450
5110B L	Rock	2356	93.0"	2474	98.0"	4.6	6.0	5730	12,630
	Medium Duty	2540	100.0"	2550	100.0"	6.0	7.8	5280	11,640
	Medium Duty	2210	87.0"	2550	100.0"	5.0	6.5	4750	10,470
	Medium Duty	1905	75.0"	2550	100.0"	4.2	5.5	4350	9590
5130B ME	High Density	2840	111.8"	3065	120.0"	8.6	11.2	9750	21,500
	Rock	2840	111.8"	3053	120.0"	10.6	13.9	10 630	23,440
	Excavation	3290	129.4"	3074	121.0"	10.2	13.3	8740	19,260
	Coal	3500	138.0"	3244	127.0"	13.8	18.0	8920	19,670
	Coal	3680	145.0"	3225	127.0"	18.6	24.0	9360	20,630
5230B ME	Rock	3940	156.0"	3350	132.0"	16.0	20.9	17 085	37,665
	Light Material	3940	156.0"	3250	128.0"	18.0	23.5	18 810	41,465
	Coal	4350	171.0"	3664	144.0"	27.6	36.1	16 700	36,815

**MAJOR BOTTOM DUMP BUCKET
APPLICATION FEATURES:**

- Controlled dumping action permits more accurate loading of narrow trucks with less chance of spillage. Closer bucket positioning over the truck, and metering the material flow on the first pass, lessens impact on truck bodies increasing their life.

- The bottom-dump clamping action is ideal for sorting in rock applications. Oversized material can be segregated for secondary breakage. In some cases, the operator can screen material as he dumps by limiting the bucket opening.
- Sticky material is easier to dislodge, thus avoiding material build-up which robs production. The bottom-dump bucket bulldozer assembly is nearly vertical when the bucket is fully open.

Bucket Selection

Model	Heaped Capacity		Struck Capacity		Weight		Width	
	m ³	yd ³	m ³	yd ³	kg	lb	m	ft
5090B FS								
General Purpose	5.2	6.8	4.10	5.4	9470	20,880	2.63	8'8"
	5.7	7.5	4.25	5.6	9520	20,990	2.63	8'8"
5130B FS								
General Purpose	10.0	13.1	N/A	N/A	16 410	36,180	3.64	11'11"
Rock	11.0	14.4	N/A	N/A	19 190	42,300	3.64	11'11"
Hi-density Rock	8.5	11.1	N/A	N/A	17 450	38,480	3.06	10'0"
High Abrasion	11.0	14.4	N/A	N/A	20 360	44,880	3.64	11'11"
5230B FS								
Rock	17.0	22.2	N/A	N/A	32 030	70,615	4.36	14'4"
Hi-density Rock	15.0	19.6	N/A	N/A	30 590	67,440	3.67	12'0"
High Abrasion	17.0	22.2	N/A	N/A	33 650	74,185	4.36	14'4"

**VITAL INFORMATION MANAGEMENT
SYSTEM (VIMS): (5090B, 5130B & 5230B)**

VIMS is a Caterpillar exclusive advanced diagnostic and equipment management tool designed to lower operating costs. Equipment utilization can be improved through higher mechanical availability, optimized component life, reduced risk of catastrophic failures, faster diagnostics and improved serviceability. VIMS includes both on-board hardware and an off-board software package — VIMS-PC.

The VIMS system “coaches” the operator to improve vehicle performance and productivity. On-board, VIMS is designed to work with the operator and not interfere with equipment operation. In-cab modules provide meaningful messages, indicators, gauges and warnings from sensors located throughout the machine. VIMS provides the operator immediate access to current machine information. VIMS data can also be transmitted for in-office/remote machine monitoring and analysis.

The CAT DATA LINK is the on-board network allowing communication between VIMS and the many machine mounted electronic control modules.

VIMS is like having a first rate mechanic riding in the cab with all of his diagnostic tools connected to the machine. Listening, watching, monitoring the entire vehicle by converting data signals from various sensors into meaningful information. VIMS displays information in “real-time” and records and stores information similar to a Flight Data Recorder on an airplane.

VIMS works with four types of information: 1. Internal (e.g.: service meter hours); 2. Sensed (e.g.: Exhaust Temperature); 3. Communicated (e.g.: Tach from ECM); 4. Calculated (e.g.: fuel consumption).

VIMS organizes and stores information into six categories: 1. Event List; 2. Event Recorder; 3. Data Logger; 4. Trends; 5. Cumulatives; 6. Histograms.

VIMS provides value to more than the operator. Whether you're in operations, maintenance, engineering, planning or management — Caterpillar's VIMS is your best choice for maximizing availability, productivity and reducing the risk of catastrophic failure while lowering overall cost.

ESTIMATING FRONT SHOVEL CYCLE TIME

The loading cycle of the front shovel is composed of four segments:

- 1. Load bucket
- 2. Swing loaded
- 3. Dump bucket
- 4. Swing empty

Total shovel cycle time is dependent on machine size and job conditions. As conditions become more severe (tougher loading, more obstacles, etc.), the shovel slows down accordingly.

The following table breaks down what experience has shown to be typical Caterpillar Front Shovel cycle times with above average job conditions and an operator of average ability.

These times would decrease as job conditions or operator ability improved and would become slower as conditions become less favorable. For example:

Tough material Longer bucket fill and dump time.

Greater swing angle Longer swing times.

Operator ability Affects total cycle time.

Loading from the top down May improve swing time.

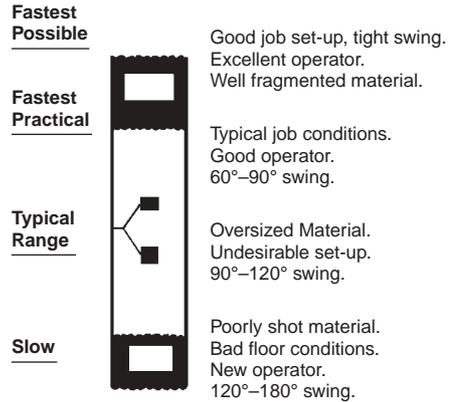
Cycle Time Estimating

MODEL		5110B ME	5130B ME	5230B ME
Bucket Size	(m ³) (yd ³)	7.6 9.9	10.6 13.9	16.0 20.9
Soil Type		← Hard Clay →		
Digging Depth	(m) (ft)	—	4.0 13	5.0 16
Load Bucket	(min)	0.11	0.12	0.12
Swing Loaded	(min)	0.10	0.13	0.14
Dump Bucket	(min)	0.04	0.04	0.04
Swing Empty	(min)	0.10	0.13	0.14
Total Cycle Time	(min)	0.35	0.42	0.44

MODEL		5090B FS	5130B FS	5230B FS
Bucket Size	(m ³) (yd ³)	5.2 6.8	11.0 14.4	17.0 22.2
Soil Type		← Shot Rock →		
Swing Angle		← 90° →		
Load Area		← No Obstructions →		
Operator Ability		← Average →		
Load Bucket	(min)	0.18	0.18	0.20
Swing Loaded	(min)	0.08	0.13	0.14
Dump Bucket	(min)	0.05	0.04	0.05
Swing Empty	(min)	0.10	0.10	0.10
Total Cycle Time	(min)	0.41	0.45	0.49

CYCLE TIME ESTIMATING CHART				
CYCLE TIME (Min)	MACHINE AND BUCKET			CYCLE TIME (Sec)
	5090B FS	5130B FS	5230B FS	
				10
0.25				15
0.30	■			20
0.35	■	■		25
0.40	■	■	■	30
0.45	■	■	■	35
0.50	■	■	■	40
0.60	■	■	■	45
0.75				50
				55
1.00				60

**CYCLE TIME vs
JOB CONDITION DESCRIPTION**



**BOTTOM DUMP BUCKET
FILL FACTORS**

Material	Fill Factor*
Bank Clay; Earth	100%-105%
Rock-Earth Mixture	100%-105%
Rock — Poorly Blasted	85%-95%
Rock — Well Blasted	95%-105%
Shale, Sandstone — Standing Bank	85%-100%

*Percent of heaped bucket capacity.

CYCLE TIME ESTIMATING CHART				
CYCLE TIME (Min)	MACHINE SIZE CLASS			CYCLE TIME (Sec)
	5110B ME	5130B ME	5230B ME	
0.17				10
0.25				15
0.33	■	■	■	20
0.42	■	■	■	25
0.50	■	■	■	30
0.58		■	■	35
0.67			■	40
0.75				45
0.83				50
0.92				55
1.00				60

ESTIMATING PRODUCTION TABLES

- 5110B ME Loading 773D, 1.8 metric tons/loose cubic meter material, 0.50 min truck exchange

Bucket 7.6 m ³	PRODUCTION IN BANK CUBIC METERS PER 60 MIN.					
	Bucket Fill Factor					
	90%	95%	100%	105%	110%	115%
Cycle (min.)						
0.3	770	813	856	899	941	984
0.35	699	738	777	815	854	893
0.4	640	675	711	746	782	817
0.45	590	622	655	688	721	753

- 5130B ME Loading 777D, 1.8 metric tons/loose cubic meter material, 0.50 min truck exchange

Bucket 10.6 m ³	PRODUCTION IN BANK CUBIC METERS PER 60 MIN.					
	Bucket Fill Factor					
	90%	95%	100%	105%	110%	115%
Cycle (min.)						
0.35	992	1048	1103	1158	1213	1268
0.4	901	951	1001	1051	1101	1151
0.45	825	871	917	962	1008	1054
0.5	761	803	845	888	930	972

- 5230B ME Loading 785C, 1.8 metric tons/loose cubic meter material, 0.50 min truck exchange

Bucket 16 m ³	PRODUCTION IN BANK CUBIC METERS PER 60 MIN.					
	Bucket Fill Factor					
	90%	95%	100%	105%	110%	115%
Cycle (min.)						
0.35	1512	1596	1680	1764	1848	1932
0.4	1373	1449	1526	1602	1678	1754
0.45	1257	1327	1397	1467	1536	1606
0.5	1159	1224	1288	1352	1417	1481

- 5130B FS Loading 777D, 1.8 metric tons/loose cubic meter material, 0.50 min truck exchange

Bucket 11 m ³	PRODUCTION IN BANK CUBIC METERS PER 60 MIN.					
	Bucket Fill Factor					
	80%	85%	90%	95%	100%	105%
Cycle (min.)						
0.4	839	891	944	996	1049	1101
0.45	768	816	864	912	960	1008
0.5	708	753	797	841	886	930
0.55	657	698	739	781	822	863

- 5230B FS Loading 785C, 1.8 metric tons/loose cubic meter material, 0.50 min truck exchange

Bucket 17 m ³	PRODUCTION IN BANK CUBIC METERS PER 60 MIN.					
	Bucket Fill Factor					
	80%	85%	90%	95%	100%	105%
Cycle (min.)						
0.4	1297	1378	1459	1540	1621	1702
0.45	1187	1261	1336	1410	1484	1558
0.5	1095	1163	1232	1300	1369	1437
0.55	1016	1079	1143	1206	1270	1333

ESTIMATING PRODUCTION TABLES

● **5110B ME Loading 773D, 3000 lbs/loose cubic yard material, 0.50 min truck exchange**

Bucket 9.9 yd ³	PRODUCTION IN BANK CUBIC YARDS PER 60 MIN.					
	Bucket Fill Factor					
Cycle (min.)	90%	95%	100%	105%	110%	115%
0.3	992	1047	1102	1157	1212	1267
0.35	900	950	1000	1050	1100	1150
0.4	824	869	915	961	1007	1053
0.45	759	802	844	886	928	970

● **5130B ME Loading 777D, 3000 lbs/loose cubic yard material, 0.50 min truck exchange**

Bucket 13.9 yd ³	PRODUCTION IN BANK CUBIC YARDS PER 60 MIN.					
	Bucket Fill Factor					
Cycle (min.)	90%	95%	100%	105%	110%	115%
0.35	1280	1351	1422	1494	1565	1636
0.4	1162	1227	1291	1356	1421	1485
0.45	1064	1123	1182	1242	1301	1360
0.5	981	1036	1090	1145	1199	1254

● **5230B ME Loading 785C, 3000 lbs/loose cubic yard material, 0.50 min truck exchange**

Bucket 20.9 yd ³	PRODUCTION IN BANK CUBIC YARDS PER 60 MIN.					
	Bucket Fill Factor					
Cycle (min.)	90%	95%	100%	105%	110%	115%
0.35	1962	2071	2180	2289	2398	2507
0.4	1782	1880	1979	2078	2177	2276
0.45	1631	1722	1812	1903	1994	2084
0.5	1504	1588	1671	1755	1839	1922

● **5130B FS Loading 777D, 3000 lbs/loose cubic yard material, 0.50 min truck exchange**

Bucket 14.4 yd ³	PRODUCTION IN BANK CUBIC YARDS PER 60 MIN.					
	Bucket Fill Factor					
Cycle (min.)	80%	85%	90%	95%	100%	105%
0.4	1086	1154	1222	1289	1357	1425
0.45	994	1056	1119	1181	1243	1305
0.5	917	974	1031	1089	1146	1203
0.55	851	904	957	1010	1063	1117

● **5230B FS Loading 785C, 3000 lbs/loose cubic yard material, 0.50 min truck exchange**

Bucket 22.2 yd ³	PRODUCTION IN BANK CUBIC YARDS PER 60 MIN.					
	Bucket Fill Factor					
Cycle (min.)	80%	85%	90%	95%	100%	105%
0.4	1674	1779	1883	1988	2093	2197
0.45	1533	1629	1724	1820	1916	2012
0.5	1414	1502	1590	1679	1767	1855
0.55	1311	1393	1475	1557	1639	1721

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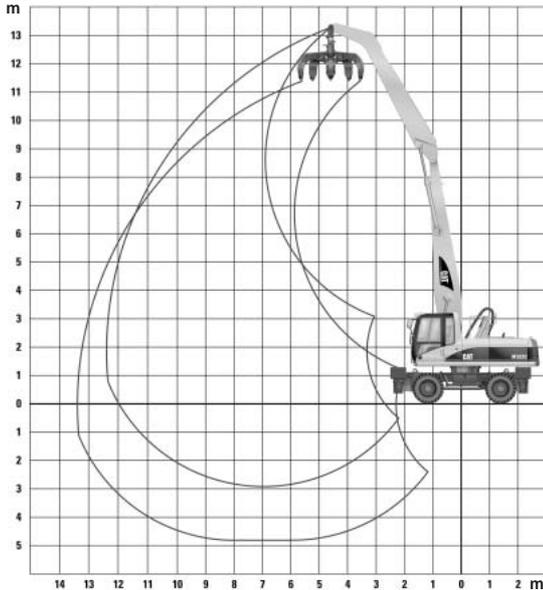
(Scrap specifications and classifications can be found in the Institute of Scrap Iron and Steel Inc.'s "Handbook". The common unit measure for the scrap industry is the gross ton which is 2240 pounds. However, short tons, net tons and metric tons may also be used.)

The versatility of Caterpillar Excavators, plus their ability to be equipped in any number of ways, make them an effective, low cost way to handle scrap and other materials.

NOTE: Contact your Caterpillar Dealer for additional information on equipping Caterpillar Excavators for material handling.

M318C MH/M322C MH Range Diagram

- Caterpillar Material Handling Boom and Stick



Model	M318C MH		M322C MH		M322C MH	
	m	ft	m	ft	m	ft
Boom	6.2	20'3"	6.8	22'3"	6.8	22'3"
Stick	4.9	16'1"	4.9	16'1"	5.9	19'4"
Maximum Horizontal Reach	11.0	36'1"	11.5	37'7"	12.5	41'0"
Maximum Vertical Pin Height	12.1	39'7"	12.5	41'0"	13.3	43'6"

Lifting Capacities

Equipped with Caterpillar material handling arrangement.

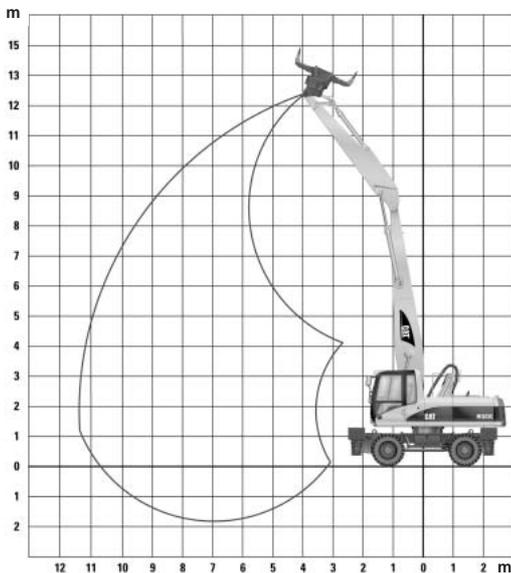
Capacities are measured at the bare stick tip.

Capacities are based on level machine equipped as follows:

- Total machine weight including base machine, material handling front, cab riser, heavy duty axles, two sets of outriggers, lubricants, full fuel tank and operator.
M318C MH — 21 460-21 850 kg (47,310-48,170 lb)
M322C MH — 24 430-24 690 kg (53,860-54,440 lb)

M318C MH/M322C MH Range Diagram

- Caterpillar Material Handling Boom and Straight Stick



Model	M318C MH		M322C MH	
	m	ft	m	ft
Boom	6.2	20'3"	6.8	22'3"
Stick	4.2	13'8"	4.8	15'7"
Maximum Horizontal Reach	10.3	33'8"	11.4	37'4"
Maximum Vertical Pin Height	11.5	37'7"	12.4	40'7"

M318C MH

- 6.2 m (20'3") Straight MH Boom ● 4.9 m (16'1") MH Stick
- Front and Rear Stabilizers and Standard Tires ● All weights are in metric tons

Height**	Undercarriage configuration	3.0 m		4.5 m		6.0 m		7.5 m		9.0 m		10.5 m				m	
																	
10.5 m	All stabilizers up All stabilizers down					5.7 6.0*	4.3 6.0*										
9.0 m	All stabilizers up All stabilizers down					5.8 7.3*	4.4 7.3*	4.0 5.9*	3.1 5.9*								
7.5 m	All stabilizers up All stabilizers down					5.8 7.6*	4.4 7.6*	4.0 6.6*	3.1 6.2	3.0 5.1*	2.2 4.6				2.7 4.1*	2.1 4.1*	9.42
6.0 m	All stabilizers up All stabilizers down					5.7 7.8*	4.3 7.8*	4.0 6.7*	3.0 6.2	3.0 5.7	2.2 4.6				2.4 4.0*	1.8 3.8	10.18
4.5 m	All stabilizers up All stabilizers down			8.6 10.4*	6.4 10.4*	5.5 8.3*	4.1 8.3*	3.9 6.8*	2.9 6.1	2.9 5.6	2.2 4.5	2.3 4.4	1.7 3.6	2.2 4.0*	1.6 3.5	1.6 3.5	10.68
3.0 m	All stabilizers up All stabilizers down	16.0 17.3*	10.9 17.3*	8.0 11.5*	5.8 11.5*	5.2 8.7*	3.8 8.4	3.7 7.0*	2.8 5.9	2.8 5.5	2.1 4.5	2.2 4.3	1.6 3.5	2.1 4.1	1.5 3.3	1.5 3.3	10.95
1.5 m	All stabilizers up All stabilizers down			7.4 12.1*	5.3 12.1*	4.9 8.9*	3.6 8.9*	3.6 7.0*	2.6 5.7	2.7 5.4	2.0 4.4	2.2 4.3	1.6 3.5				
0 m	All stabilizers up All stabilizers down	3.2* 3.2*	3.2* 3.2*	7.0 11.4*	4.9 11.4*	4.6 8.5*	3.3 7.8	3.4 6.6*	2.5 5.6	2.7 5.2*	1.9 4.3	2.1 3.7*	1.6 3.4				
-1.5 m	All stabilizers up All stabilizers down			6.8 8.9*	4.7 8.9*	4.5 7.4*	3.2 7.4*	3.3 5.8*	2.4 5.5	2.6 4.3*	1.9 4.2						

M318C MH Heavy Lift

- 6.2 m (20'3") Straight MH Boom ● 4.2 m (13'8") Straight MH Stick
- Front and Rear Stabilizers and Standard Tires ● All weights are in metric tons

Height**	Undercarriage configuration	3.0 m		4.5 m		6.0 m		7.5 m		9.0 m				m			
																	
10.5 m	All stabilizers up All stabilizers down			7.6* 7.6*	6.3 7.6*												
9.0 m	All stabilizers up All stabilizers down					5.4 7.5*	4.0 7.5*										
7.5 m	All stabilizers up All stabilizers down					5.4 7.7*	4.0 7.7*	3.7 6.5*	2.7 5.9					2.8 4.6*	2.1 4.6	8.64	
6.0 m	All stabilizers up All stabilizers down			8.5 9.9*	6.3 9.9*	5.3 7.9*	3.9 7.9*	3.6 6.6*	2.7 5.8	2.6 5.3	1.9 4.3	2.4 4.5*	1.7 3.9	2.4 4.5*	1.7 3.9	9.46	
4.5 m	All stabilizers up All stabilizers down	13.5* 13.5*	11.4 13.5*	8.1 10.7*	5.9 10.7*	5.0 8.2*	3.7 8.2*	3.5 6.7*	2.6 5.7	2.6 5.3	1.8 4.2	2.1 4.4	1.5 3.5	2.1 4.4	1.5 3.5	10.00	
3.0 m	All stabilizers up All stabilizers down			7.4 11.6*	5.3 11.6*	4.8 8.5*	3.4 7.9	3.4 6.7*	2.4 5.5	2.4 5.2	2.5 4.1	1.8 4.2	2.0 4.2	1.4 3.3	1.4 3.3	10.28	
1.5 m	All stabilizers up All stabilizers down			6.8 11.6*	4.7 11.6*	4.5 8.5*	3.2 7.6	3.2 6.5*	2.3 5.4	2.4 5.1*	1.7 4.0						
0 m	All stabilizers up All stabilizers down			6.5 8.8*	4.4 8.8*	4.3 7.8*	3.0 7.4	3.1 6.0*	2.2 5.2	2.4 4.4*	1.6 4.0						

*Limited by hydraulic rather than tipping load.
**Height of stick pin.



Load Radius Over Front



Load Radius Over Side



Load at Maximum Reach

The above loads are in compliance with hydraulic excavator lift capacity ratings standard ISO 10567. They do not exceed 87% of hydraulic lifting capacity or 75% of tipping capacity.

Weight of all lifting accessories must be deducted from the above lifting capacities.

M322C MH

- 6.8 m (22'3") Straight MH Boom
- 5.9 m (19'4") MH Stick
- 600 kg (1320 lb) Counterweight
- All weights are in metric tons

Height**	Undercarriage configuration	3.0 m		4.5 m		6.0 m		7.5 m		9.0 m		10.5 m		12.0 m				m	
																			
12.0 m	All stabilizers up All stabilizers down					6.9 6.9*	5.4 6.9*												
10.5 m	All stabilizers up All stabilizers down							5.0 6.8*	3.9 6.8*										
9.0 m	All stabilizers up All stabilizers down							5.0 7.0*	3.9 7.0*	3.7 6.2*	2.9 5.6								
7.5 m	All stabilizers up All stabilizers down							5.0 7.0*	3.9 7.0*	3.7 6.2*	2.9 5.6	2.8 5.2	2.2 4.3			2.5 4.1*	1.9 3.9		11.11
6.0 m	All stabilizers up All stabilizers down							4.9 7.2*	3.8 7.2*	3.7 6.3*	2.8 5.5	2.8 5.2	2.1 4.3			2.3 4.0*	1.7 3.5		11.76
4.5 m	All stabilizers up All stabilizers down					6.7 8.9*	5.2 8.9*	4.7 7.5*	3.7 7.2	3.5 6.4*	2.7 5.4	2.8 5.1	2.1 4.2	2.2 4.1	1.6 3.4	2.1 4.0*	1.6 3.3		12.20
3.0 m	All stabilizers up All stabilizers down			9.9 12.5*	7.4 12.5*	6.3 9.6*	4.8 9.6*	4.5 7.8*	3.4 7.0*	3.4 6.4	2.6 5.2	2.7 5.0	2.0 4.1	2.2 4.1	1.6 3.4	2.0 3.9	1.5 3.2		12.43
1.5 m	All stabilizers up All stabilizers down			9.0 13.6*	6.6 13.6*	5.9 10.0*	4.4 9.5	4.3 7.9*	3.2 6.7	3.3 6.3	2.5 5.1	2.6 5.0	1.9 4.0	2.1 4.1	1.6 3.3				
0 m	All stabilizers up All stabilizers down	3.8* 3.8*	3.8* 3.8*	8.3 13.6*	5.9 13.6*	5.5 10.0*	4.1 9.1	4.1 7.8*	3.0 6.5*	3.1 6.1	2.3 5.0	2.5 4.9	1.9 4.0	2.1 3.7*	1.5 3.3				
-1.5 m	All stabilizers up All stabilizers down			7.9 9.7*	5.6 9.7*	5.3 9.2*	3.8 8.8	3.9 7.2*	2.9 6.3	3.0 5.7*	2.2 4.8	2.5 4.4*	1.8 3.9						

M322C MH Heavy Lift

- 6.8 m (22'3") Straight MH Boom
- 4.8 m (15'7") Straight MH Stick
- 600 kg (1320 lb) Counterweight
- All weights are in metric tons

Height**	Undercarriage configuration	4.5 m		6.0 m		7.5 m		9.0 m		10.5 m				m					
																			
10.5 m	All stabilizers up All stabilizers down			6.6 8.3*	5.0 8.3*														
9.0 m	All stabilizers up All stabilizers down			6.7 8.4*	5.2 8.4*	4.6 7.2*	3.5 7.1												
7.5 m	All stabilizers up All stabilizers down			6.7 8.5*	5.1 8.5*	4.6 7.2*	3.5 7.1	3.3 6.2*	2.5 5.2						2.8 4.9*	2.1 4.4			9.91
6.0 m	All stabilizers up All stabilizers down			6.5 8.8*	5.0 8.8*	4.5 7.4*	3.4 7.0	3.3 6.3*	2.5 5.1	2.5 4.8	1.8 3.9	2.4 4.7	1.8 3.8						10.64
4.5 m	All stabilizers up All stabilizers down	9.9 12.0*	7.3 12.0*	6.2 9.3*	4.7 9.3*	4.3 7.6*	3.3 6.8	3.2 6.2	2.4 5.0	2.5 4.8	1.8 3.9	2.2 4.4	2.2 3.5	1.6 3.5					11.12
3.0 m	All stabilizers up All stabilizers down	9.0 13.2*	6.6 13.2*	5.8 9.8*	4.3 9.4	4.1 7.7*	3.1 6.6	3.1 6.1	2.3 4.9	2.4 4.8	1.7 3.8	2.1 4.2	1.5 3.4						11.38
1.5 m	All stabilizers up All stabilizers down	8.2 13.5*	5.9 13.5*	5.4 9.9*	4.0 9.0	3.9 7.7*	2.9 6.3	3.0 6.0	2.2 4.8	2.3 4.7	1.7 3.8								
0 m	All stabilizers up All stabilizers down	7.7 9.0*	5.4 9.0*	5.1 9.3*	3.7 8.6	3.7 7.2*	2.7 6.1	2.7 5.6*	2.9 4.7	2.1 4.2*	2.3 3.7	1.6							
-1.5 m	All stabilizers up All stabilizers down			5.0 7.9*	3.5 7.9*	3.6 6.2*	2.6												

*Limited by hydraulic rather than tipping load.

**Height of stick pin.



Load Radius Over Front



Load Radius Over Side



Load at Maximum Reach

The above loads are in compliance with hydraulic excavator lift capacity ratings standard ISO 10567. They do not exceed 87% of hydraulic lifting capacity or 75% of tipping capacity.

Weight of all lifting accessories must be deducted from the above lifting capacities.

Dimensions and Weights
Range Dimensions
● M325C MH ● M325C L MH
(Belgium Sourced)

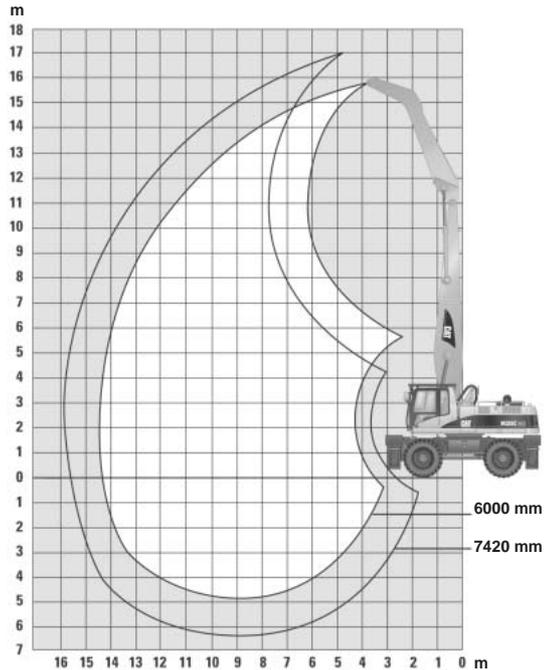
**Excavators —
Material Handling**

Model	M325C MH		M325C L MH	
Undercarriage	Wheeled		Wheeled	
No. of Tires	4 dual		4 single	
Tire type	12.00-20		16.00-25	
Maximum Travel Speed	20 km/h		18 km/h	
Hydraulic Cab Riser — Raising	2.4 m		2.4 m	
Boom Length	8.85 m	8.85 m	8.85 m	8.85 m
Stick Length	6.00 m	7.42 m	6.00 m	7.42 m
Overall Weight	29.80 t	30.00 t	34.54 t	34.80 t
Maximum Horizontal Reach	14.33 m	15.65 m	14.33 m	15.65 m
Maximum Vertical Pin Height	15.98 m	17.14 m	16.60 m	17.80 m
Maximum Vertical Pin Depth	5.00 m	6.40 m	4.10 m	5.50 m
Transport Length with Boom and Stick	12.12 m	11.78 m	12.15 m	11.97 m
Transport Length with Boom	12.16 m	12.16 m	12.16 m	12.16 m
Transport Height with Boom and Stick	3.55 m	5.10 m	3.79 m	4.58 m
Transport Height with Boom*	3.55 m		3.78 m	
Transport Width	2.95 m		3.02 m	

*Maximum height is at the hydraulic cab riser system.

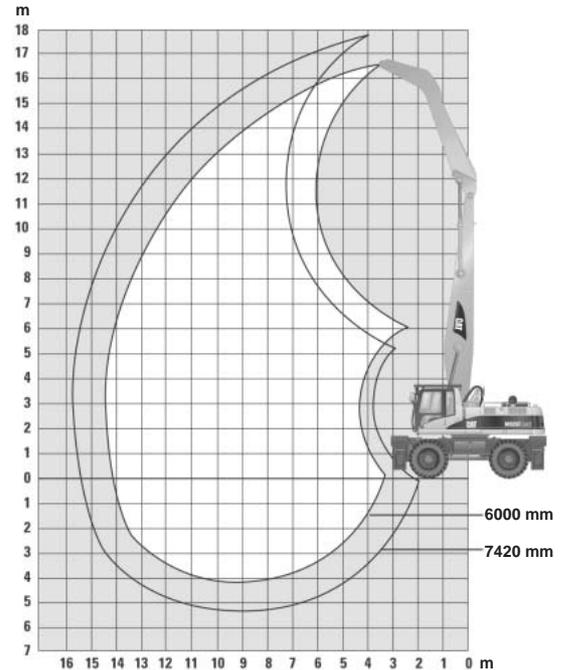
M325C MH Working Range

- Maximum Reach 14.3 m (46'11") or 15.6 m (51'2")



M325C L MH Working Range

- Maximum Reach 14.3 m (46'11") or 15.6 m (51'2")



Excavators — Material Handling

Lifting Capacities

- M325C MH
- 8.85 m (29'0") Boom
(Belgium Sourced)

M325C MH with 6.0 m (19'8") Stick — Stabilizers Down

Stabilizers Lowered	4.5 m		6.0 m		7.5 m		9.0 m		10.5 m		12.0 m		13.5 m	
	front	side	front	side	front	side	front	side	front	side	front	side	front	side
16.5 m														
15.0 m			5.90	5.90										
13.5 m			7.13	7.13	6.10	6.10	4.33	4.33						
12.0 m					7.11	7.11	6.06	6.06	4.18	4.18				
10.5 m					7.43	7.43	6.64	6.64	5.79	5.79				
9.0 m			8.73	8.73	7.57	7.57	6.71	6.71	6.03	6.03	5.08	4.97		
7.5 m			9.24	9.24	7.87	7.87	6.88	6.88	6.11	6.11	5.47	4.93		
6.0 m	12.71	12.71	9.99	9.99	8.29	8.29	7.10	7.10	6.22	6.01	5.50	4.86	4.65	4.00
4.5 m	14.43	14.43	10.82	10.82	8.72	8.72	7.33	7.33	6.32	5.84	5.51	4.76	4.79	3.95
3.0 m	7.81	7.81	11.45	11.45	9.05	9.05	7.49	7.13	6.36	5.67	5.48	4.65	4.69	3.89
1.5 m	3.92	3.92	11.56	11.56	9.12	8.97	7.49	6.88	6.30	5.51	5.36	4.54	4.49	3.83
0 m	3.74	3.74	8.82	8.82	8.84	8.67	7.27	6.68	6.08	5.38	5.10	4.46	4.15	3.79
-1.5 m	4.29	4.29	7.95	7.95	8.18	8.18	6.78	6.55	5.64	5.29	4.65	4.41	3.59	3.59
-3.0 m			8.12	8.12	7.13	7.13	5.97	5.97	4.94	4.94	3.93	3.93		
-4.5 m					5.69	5.69	4.82	4.82	3.90	3.90				

M325C MH with 7.42 m (24'4") Stick — Stabilizers Down

Stabilizers Lowered	3.0 m		4.5 m		6.0 m		7.5 m		9.0 m		10.5 m		12.0 m		13.5 m		15.0 m	
	front	side	front	side	front	side	front	side	front	side	front	side	front	side	front	side	front	side
16.5 m					4.93	4.93												
15.0 m							5.05	5.05	3.83	3.83								
13.5 m							5.72	5.72	4.98	4.98	3.82	3.82						
12.0 m									5.63	5.63	4.83	4.83	3.49	3.49				
10.5 m									6.03	6.03	5.52	5.52	4.51	4.51				
9.0 m							6.77	6.77	6.12	6.12	5.57	5.57	5.10	5.10	3.85	3.85		
7.5 m							7.08	7.08	6.31	6.31	5.68	5.68	5.15	5.06	4.64	4.12		
6.0 m					8.32	8.32	7.52	7.52	6.57	6.57	5.83	5.83	5.23	4.95	4.70	4.06	3.29	3.29
4.5 m			10.62	10.62	9.74	9.74	8.05	8.05	6.87	6.87	6.00	5.98	5.30	4.83	4.71	3.98	3.88	3.33
3.0 m			14.31	14.31	10.66	10.66	8.54	8.54	7.15	7.15	6.14	5.76	5.35	4.69	4.69	3.89	4.02	3.28
1.5 m			8.57	8.57	11.25	11.25	8.87	8.87	7.31	6.99	6.20	5.55	5.34	4.55	4.61	3.80	3.89	3.23
0 m	2.04	2.04	4.96	4.96	11.31	11.31	8.91	8.77	7.30	6.71	6.13	5.37	5.22	4.42	4.43	3.72	3.63	3.19
-1.5 m	2.57	2.57	4.56	4.56	9.32	9.32	8.60	8.46	7.06	6.50	5.90	5.23	4.96	4.33	4.12	3.66	3.19	3.16
-3.0 m	3.19	3.19	4.79	4.79	8.27	8.27	7.92	7.92	6.54	6.37	5.45	5.13	4.51	4.27	3.62	3.62		
-4.5 m			5.23	5.23	8.23	8.23	6.87	6.87	5.72	5.72	4.73	4.73	3.81	3.81	2.81	2.81		
-6.0 m							5.41	5.41	4.54	4.54	3.68	3.68						

Lifting Capacities
 ● M325C L MH
 ● 8.85 m (29'0") Boom
 (Belgium Sourced)

Excavators —
 Material Handling

M325C L MH with 6.0 m (19'8") Stick — Stabilizers Down

Stabilizers Lowered	3.0 m		4.5 m		6.0 m		7.5 m		9.0 m		10.5 m		12.0 m		13.5 m	
	front	side	front	side	front	side	front	side	front	side	front	side	front	side	front	side
15.0 m					7.45	7.45										
13.5 m					8.60	8.60	7.54	7.54	5.79	5.79						
12.0 m					9.26	9.26	8.57	8.57	7.47	7.47	5.52	5.52				
10.5 m					9.80	9.80	8.59	8.59	7.69	7.69	6.98	6.98	4.58	4.58		
9.0 m					10.17	10.17	8.81	8.81	7.81	7.81	7.01	7.01	6.34	6.34		
7.5 m			11.72	11.72	10.85	10.85	9.21	9.21	8.03	8.03	7.12	7.12	6.37	6.37	4.42	4.42
6.0 m	15.30	15.30	15.14	15.14	11.78	11.78	9.72	9.72	8.31	8.31	7.26	7.26	6.41	6.41	5.63	5.48
4.5 m			17.17	17.17	12.76	12.76	10.23	10.23	8.57	8.57	7.37	7.37	6.42	6.42	5.57	5.42
3.0 m			7.28	7.28	13.40	13.40	10.57	10.57	8.73	8.73	7.41	7.41	6.37	6.36	5.43	5.35
1.5 m			4.63	4.63	13.37	13.37	10.58	10.58	8.69	8.69	7.31	7.31	6.20	6.20	5.18	5.18
0 m			4.76	4.76	10.38	10.38	10.17	10.17	8.37	8.37	7.00	7.00	5.86	5.86	4.74	4.74
-1.5 m			5.53	5.53	9.76	9.76	9.30	9.30	7.73	7.73	6.43	6.43	5.28	5.28	4.00	4.00
-3.0 m					9.34	9.34	7.99	7.99	6.71	6.71	5.54	5.54	4.36	4.36		

M325C L MH with 7.42 m (24'4") Stick — Stabilizers Down

Stabilizers Lowered	3.0 m		4.5 m		6.0 m		7.5 m		9.0 m		10.5 m		12.0 m		13.5 m		15.0 m	
	front	side	front	side	front	side	front	side	front	side	front	side	front	side	front	side	front	side
16.5 m					6.20	6.20												
15.0 m							6.19	6.19	4.97	4.97								
13.5 m							6.87	6.87	6.09	6.09	4.86	4.86						
12.0 m							7.31	7.31	6.78	6.78	5.91	5.91	4.47	4.47				
10.5 m							7.64	7.64	6.97	6.97	6.40	6.40	5.55	5.55	3.61	3.61		
9.0 m							7.86	7.86	7.11	7.11	6.48	6.48	5.93	5.93	4.79	4.79		
7.5 m					8.69	8.69	8.27	8.27	7.36	7.36	6.62	6.62	6.00	6.00	5.45	5.45		
6.0 m					10.38	10.38	8.83	8.83	7.69	7.69	6.81	6.81	6.10	6.10	5.47	5.47	4.08	4.08
4.5 m			14.91	14.91	11.53	11.53	9.46	9.46	8.05	8.05	7.01	7.01	6.19	6.19	5.48	5.44	4.60	4.56
3.0 m			17.01	17.01	12.57	12.57	10.03	10.03	8.36	8.36	7.16	7.16	6.23	6.23	5.45	5.34	4.54	4.54
1.5 m			8.47	8.47	13.15	13.15	10.35	10.35	8.52	8.52	7.21	7.21	6.20	6.20	5.34	5.24	4.48	4.48
0 m	2.68	2.68	5.86	5.86	13.08	13.08	10.32	10.32	8.46	8.46	7.10	7.10	6.04	6.04	5.11	5.11	4.15	4.15
-1.5 m	3.38	3.38	5.66	5.66	10.95	10.95	9.88	9.88	8.12	8.12	6.78	6.78	5.70	5.70	4.71	4.71	3.58	3.58
-3.0 m			6.04	6.04	10.09	10.09	9.00	9.00	7.45	7.45	6.20	6.20	5.12	5.12	4.06	4.06		
-4.5 m					9.15	9.15	7.68	7.68	6.41	6.41	5.29	5.29	4.22	4.22				

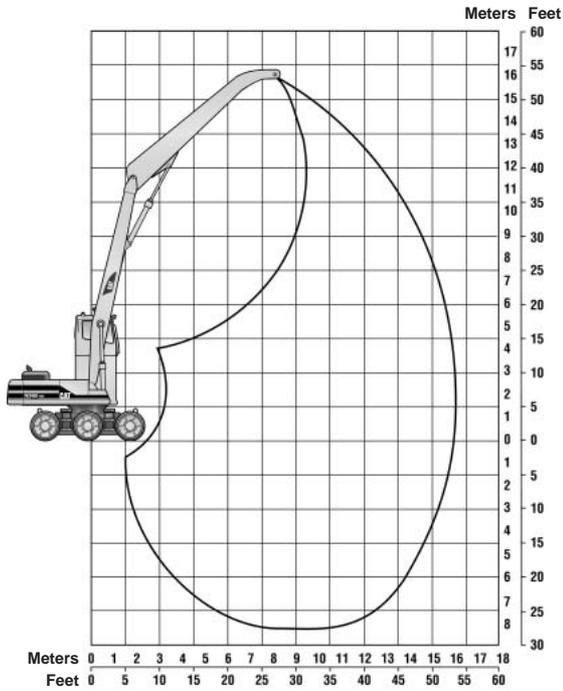
Excavators — Material Handling

Range Dimensions

- W345B Series II MH
- 16.5 m (54'0") Two-piece Front (U.S. Sourced)

Model	W345B Series II MH	
	m	ft
Maximum Horizontal Reach	16.5	54'0"
Maximum Height @ 9.75 m (32'0")	16.7	54'8"

W345B Series II MH Range Diagram

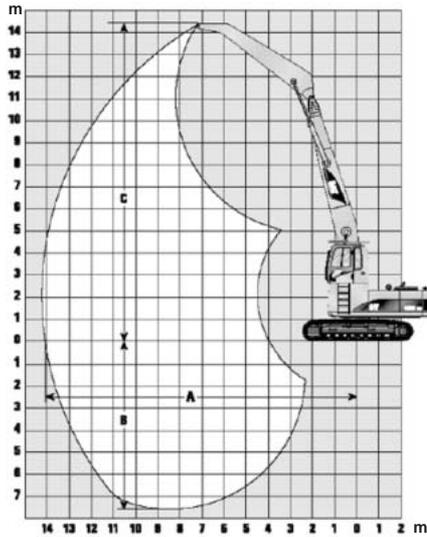


Excavators — Material Handling

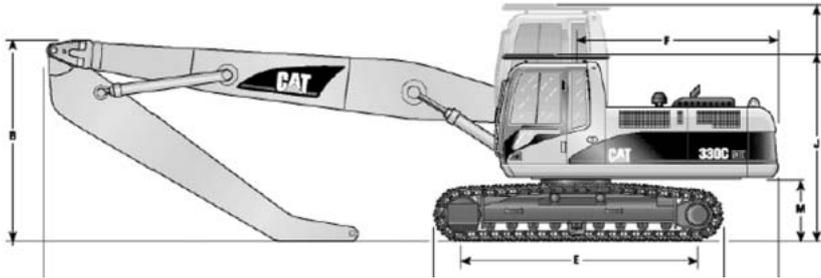
Range and Shipping Dimensions

- 320C MH (Japan Sourced)
- 325C MH ● 330C MH ● 345B Series II MH
- 365B Series II MH (Belgium Sourced)

320C MH, 325C MH, 330C MH, 345B Series II MH, 365B Series II MH Range Diagram



320C MH, 325C MH Shipping Dimensions



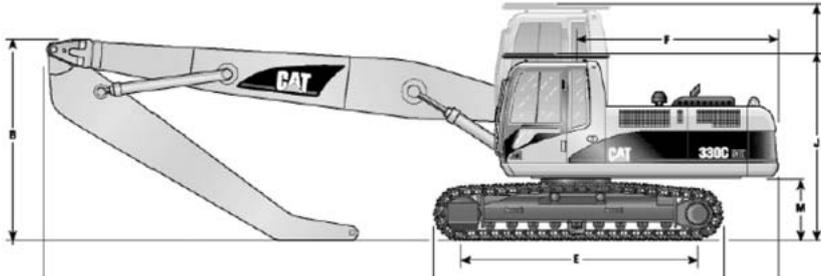
Model	320C MH		325C MH			
	Heavy Duty High Wide	Heavy Duty High Square	Heavy Duty High Wide	Heavy Duty High Square		
Boom	6.65 m	6.65 m	8.35 m	8.35 m	8.35 m	8.85 m
Stick	5.45 m	5.45 m	5.45 m	5.45 m	6.00 m	7.42 m
Weight	24.70 t	25.03 t	32.40 t	32.67 t	32.93 t	33.45 t
Transport Height*	3.47 m	3.45 m	3.55 m	3.52 m	3.44 m	6.72 m
Transport Length*	9.76 m	9.48 m	11.56 m	11.57 m	11.58 m	11.29 m
Transport Width	3.20 m	3.75 m	3.72 m	4.19 m	4.19 m	4.19 m
Maximum Reach	11.25 m	11.25 m	13.04 m	13.04 m	13.41 m	15.50 m
Maximum Pin Height	11.51 m	11.54 m	13.73 m	13.79 m	13.90 m	16.39 m
Maximum Pin Depth	6.22 m	6.19 m	6.40 m	6.35 m	6.89 m	7.05 m

*Stick can/must be removed for transport.

Shipping Dimensions
 • 330C MH • 345B Series II MH
 • 365B Series II MH (Belgium Sourced)

Excavators —
 Material Handling

330C MH, 345B Series II MH, 365B Series II MH Shipping Dimensions



Model	330C MH						345B Series II MH	365B Series II MH
	Heavy Duty High Wide	Heavy Duty High Square	345B L Series II	345B Series II HDHW	Heavy Duty High Square	345B Series II HDHW	Heavy Duty Wide	Square
Lower								
Boom	9.10 m	9.10 m	9.10 m	9.10 m	9.20 m	9.20 m	9.77 m	10.90 m
Stick	6.00 m	6.00 m	6.00 m	6.00 m	7.6 m	7.6 m	7.80 m	8.60 m
Weight	38.77 t	38.02 t	42.48 t	44.00 t	39.00 t	39.00 t	51.35 t	74.14 t
Transport Height*	3.40 m	3.40 m	3.40 m	3.40 m	4.78 m	4.90 m	4.33 m	3.98 m
Transport Length*	3.39 m	3.45 m	3.34 m	3.35 m	12.67 m	12.61 m	3.48 m	14.89 m
Transport Width	3.67 m	4.35 m	2.99 m	3.82 m	4.35 m	3.82 m	3.82 m	4.75 m
Max Reach	14.09 m	14.09 m	14.09 m	14.09 m	15.89 m	15.89 m	16.45 m	18.90 m
Max Pin Height	14.43 m	14.16 m	14.36 m	14.37 m	16.90 m	16.90 m	16.36 m	19.23 m
Max Pin Depth	7.59 m	7.85 m	7.65 m	7.64 m	8.00 m	8.00 m	8.42 m	6.74 m

*Stick can/must be removed for transport.

Excavators — Material Handling

Lifting Capacities at Ground Level

- 320C MH (Japan Sourced)
- 325C MH ● 330C MH ● 345B Series II MH
- 365B Series II MH (Belgium Sourced)

Lifting Capacities

Equipped with Caterpillar material handling arrangement.

Includes purpose built material handling boom and stick, wiring and connecting hydraulics, hydraulic cylinders. Capacities are measured at the bare stick tip, and are expressed in kg.

Capacities are based on level machine equipped as follows:

Total machine weight including base machine, material handling front, heavier counterweight, cab riser, wide gauge undercarriage, lubricants, standard track shoes, full fuel tank and operator.

Lifting Capacities at Ground Level

		3 m		4.5 m		6 m		7.5 m		Maximum Reach Radius
		Front Load	Side Load							
320C HDHW MH 11.25 m	kg	8000*	8000*	9180*	8430	6680*	5600	5240*	4080	11.08 m
320C Square MH 11.25 m	kg			7980*	7980*	9180*	9180*	6690*	6690*	11.08 m
325C HDWH MH 13.04 m	kg			6780*	6780*	10 890*	8590	8350	6360	12.87 m
325C Square MH 13.04 m	kg			6780*	6780*	10 880*	10 520	8410	7690	12.86 m
325C Square MH 13.41 m	kg			7600*	7600*	10 670*	10 380	8290	7560	13.23 m
325C Square MH 15.50 m	kg			7480*	7480*	11 470	10 380	8300	7570	15.35 m
330C HDWH MH 14.09 m	kg			5470*	5470*	10 970*	10 400	10 910	7740	13.90 m
330C Square MH 14.09 m	kg			5460*	5460*	11 460*	11 460*	10 950	9940	13.94 m
330C + 345B chassis MH 14.09 m	kg			5460*	5460*	11 070*	11 070*	11 500*	8380	13.91 m
330C + 345B HDW chassis MH 14.09 m	kg			5460*	5460*	11 050*	11 050*	11 500*	11 500*	13.91 m
330C Square MH 15.89 m	kg	3190*	3190*	7050*	7050*	13 720*	13 480*	10 780*	9770	15.72 m
330C + 345B HDW chassis MH 15.89 m	kg	3160*	3160*	7160*	7160*	13 730*	13 730*	10 780*	10 780*	15.73 m
345B Series II HDW MH 16.45 m	kg	4720*	4720*	9100*	9100*	17 120*	17 120*	13 450*	12 690	16.29 m
365B Series II Square MH 18.90 m	kg			6930*	6930*	15 080*	15 080*	20 850*	20 850*	18.66 m
		9 m		10.5 m		12 m		13.5 m		Maximum Reach Radius
		Front Load	Side Load							
320C HDHW MH 11.25 m	kg	4290*	3140	3550*	2490					11.08 m
320C Square MH 11.25 m	kg	5240*	5210	4290*	4000	3550*	3190			11.08 m
325C HDWH MH 13.04 m	kg	6480	4980	5240	4040	4360	3360			12.87 m
325C Square MH 13.04 m	kg	6530	5990	5280	4730	4390	4030			12.86 m
325C Square MH 13.41 m	kg	6410	5990	5160	4730	4270	3910			13.23 m
325C Square MH 15.50 m	kg	6410	5860	5140	4700	4230	3870	3480	3240	15.35 m
330C HDWH MH 14.09 m	kg	8470	6090	6850	4950	5700	4120	4840	3490	13.90 m
330C Square MH 14.09 m	kg	8490	7740	6870	6260	5700	5210	4840	4410	13.94 m
330C + 345B chassis MH 14.09 m	kg	9460*	6610	7990*	5380	6860*	4490	5880*	3820	13.91 m
330C + 345B HDW chassis MH 14.09 m	kg	9460*	9170	7990*	7440	6860*	6200	5880*	5280	13.91 m
330C Square MH 15.89 m	kg	8330	7550	6680	6050	5490	4970	4610	4160	15.72 m
330C + 345B HDW chassis MH 15.89 m	kg	8830*	8830*	7440*	7110	6370*	5860	5490*	4930	15.73 m
345B Series II HDW MH 16.45 m	kg	11 000*	9820	9260*	7890	7640	6500	6420	5450	16.29 m
365B Series II Square MH 18.90 m	kg	17 160*	17 160*	14 350	14 350	11 840	11 820	9970	9950	18.66 m

Lifting Capacities at Ground Level

- 320C MH (Japan Sourced)
- 325C MH
- 330C MH
- 345B Series II MH
- 365B Series II MH (Belgium Sourced)

Excavators — Material Handling

Lifting Capacities at Ground Level

		15 m		16.5 m		18 m		Max. Reach		Maximum Reach Radius
		Front Load	Side Load							
320C HDHW MH 11.25 m	kg							3270*	2290	11.08 m
320C Square MH 11.25 m	kg							3270*	2950	11.08 m
325C HDWH MH 13.04 m	kg							3960	3050	12.87 m
325C Square MH 13.04 m	kg							4000	3570	12.86 m
325C Square MH 13.41 m	kg							3710	3400	13.23 m
325C Square MH 15.50 m	kg	3030	2760					2930	2660	15.35 m
330C HDWH MH 14.09 m	kg							4640	3350	13.90 m
330C Square MH 14.09 m	kg							4620	4220	13.94 m
330C + 345B chassis MH 14.09 m	kg							4700*	3660	13.91 m
330C + 345B HDW chassis MH 14.09 m	kg							4700*	4700*	13.91 m
330C Square MH 15.89 m	kg	3920	3540					3650	3290	15.72 m
330C + 345B HDW chassis MH 15.89 m	kg	4660*	4210					4210*	3920	15.73 m
345B Series II HDW MH 16.45 m	kg	5480	4630					4830	4070	16.29 m
365B Series II Square MH 18.90 m	kg	8520	8500	7370	7350	6450	6420	6110	6090	18.66 m

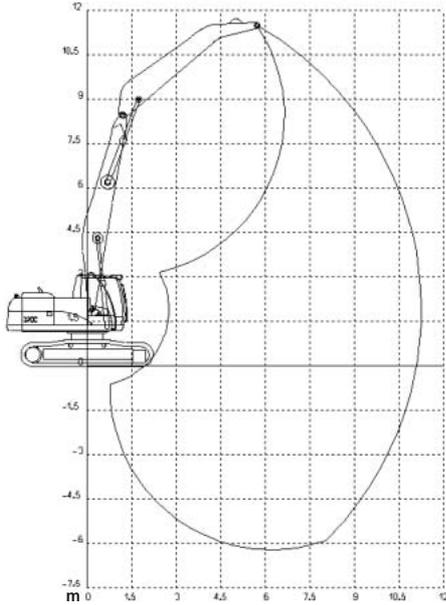
Excavators — Material Handling

Range Dimensions

- 320C MH (Japan Sourced)
- 325C MH ● 330C MH

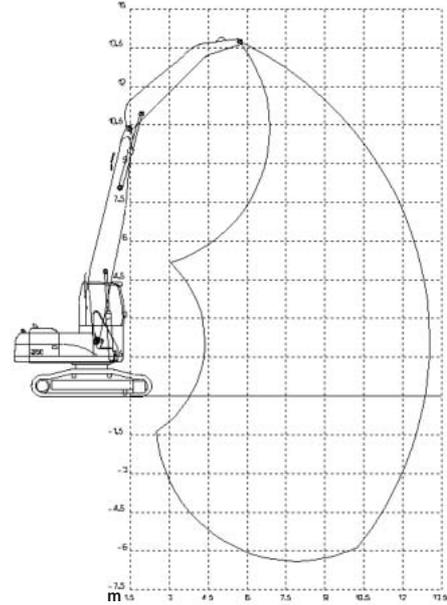
320C MH Range Diagram — Japan Sourced

- Caterpillar Material Handling Boom and Stick



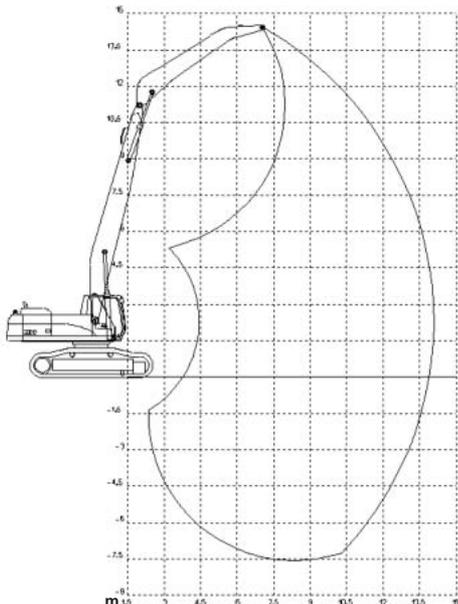
325C MH Range Diagram — U.S. Sourced

- Caterpillar Material Handling Boom and Stick



330C MH Range Diagram — U.S. Sourced

- Caterpillar Material Handling Boom and Stick



Model	320C MH*		325C MH	
	m	ft	m	ft
Maximum Horizontal Reach	11.25	36'11"	13.04	42'9"
Maximum Vertical Pin Height	11.51	37'9"	13.73	45'1"
Maximum Vertical Pin Depth	-6.22	-20'5"	-6.40	-21'0"

Model	330C MH	
	m	ft
Maximum Horizontal Reach	14.09	46'3"
Maximum Vertical Pin Height	14.43	47'4"
Maximum Vertical Pin Depth	-7.59	-24'11"

*Custom product.

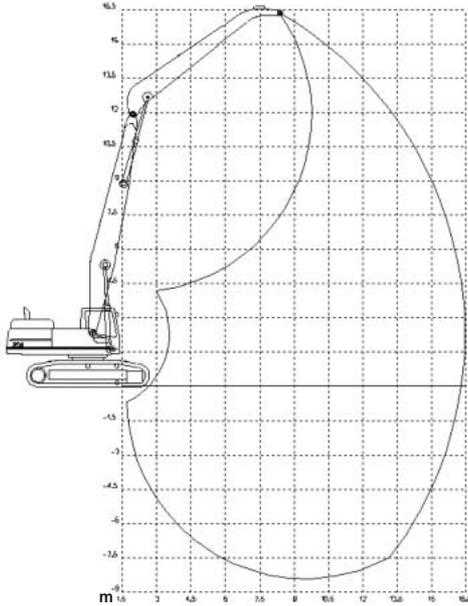
NOTE: All Material Handling Arrangements require extra wide gage, reinforced upper frame and additional counter weight.

Range Dimensions

- 345B Series II MH
- 365B L MH Long
- 365B L MH Short

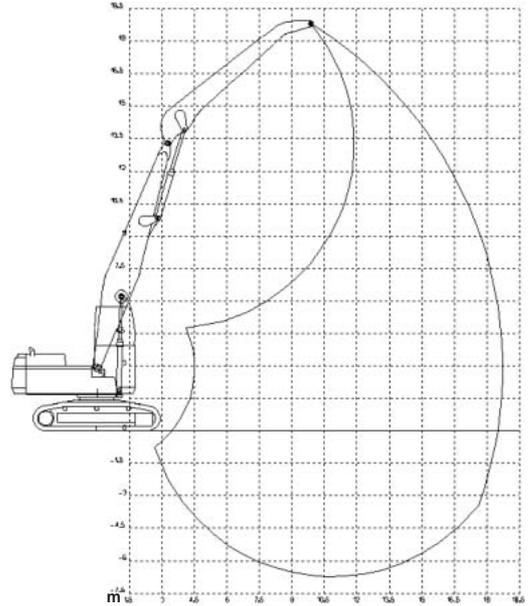
345B Series II MH Range Diagram — U.S. Sourced

- Caterpillar Material Handling Boom and Stick



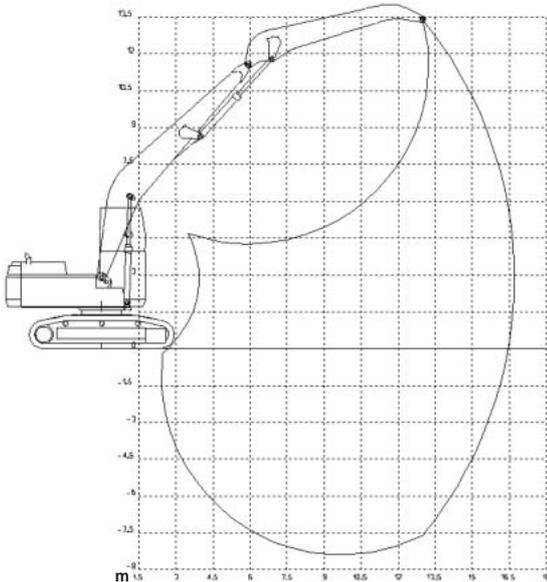
365B L MH Long Range Diagram

- Caterpillar Material Handling Boom and Stick



365B L MH Short Range Diagram

- Caterpillar Material Handling Boom and Stick



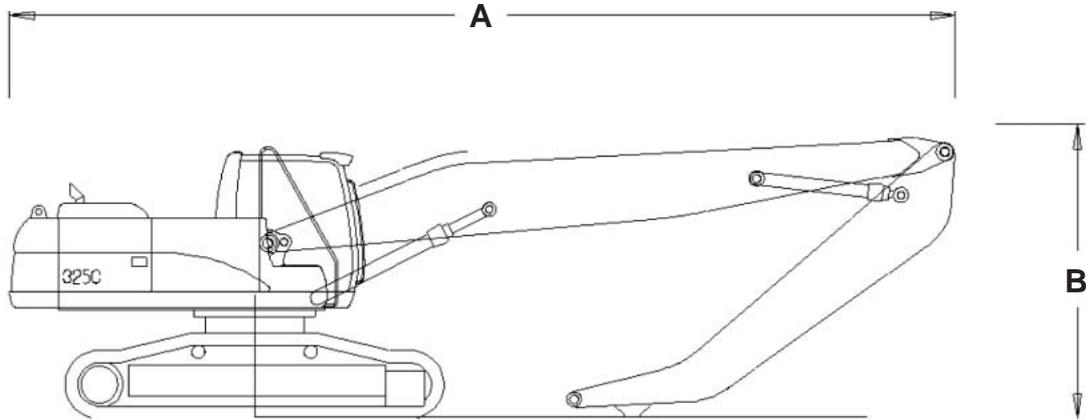
Model	345B Series II MH		365B L* Long	
	m	ft	m	ft
Maximum Horizontal Reach	16.45	54'0"	18.72	61'5"
Maximum Vertical Pin Height	16.36	53'8"	18.81	61'9"
Maximum Vertical Pin Depth	-8.42	-27'7"	-6.74	-22'1"

Model	365B L* Short	
	m	ft
Maximum Horizontal Reach	16.70	54'9"
Maximum Vertical Pin Height	13.41	44'0"
Maximum Vertical Pin Depth	-8.39	-27'6"

*Custom product.

Excavators — Material Handling

- Shipping Dimensions
- Major Component Weights



Material Handling, Shipping Dimensions	320C L* with 600 mm (24") track shoes	325C L with 800 mm (31") track shoes	330C L with 750 mm (30") track shoes
A Overall Length (Front Folded)	9.50 m 31'2"	11.60 m 38'1"	12.85 m 42'2"
B Overall Height (Front Folded)	3.55 m 11'8"	3.60 m 11'10"	3.60 m 11'10"
C Overall Width	3.19 m 10'6"	3.73 m 12'3"	3.67 m 12'0"
	345B Series II* with 600 mm (24") track shoes	365B L Long* with 750 mm (30") track shoes	365B L Short* with 750 mm (30") track shoes
A Overall Length (Front Folded)	13.50 m ** 44'3"	14.90 m ** 48'11"	14.20 m ** 46'7"
B Overall Height (Front Folded)	3.47 m **† 11'5" 3.65 m **†† 12'0"	4.00 m *** 13'1"	4.00 m *** 13'1"
C Overall Width (Retracted) (Extended)	3.82 m 12'6" 4.32 m 14'2"	4.75 m 15'7" 5.25 m 17'3"	4.75 m 15'7" 5.25 m 17'3"
Material Handling, Component Dimensions, Weights	320C L*	325C L	330C L
Approximate Operating Weight with Standard Shoes, Counterweight, Operator, Full Fuel and without any Tool or Operating Attachment	25 000 kg 55,116 lb	32 400 kg 71,430 lb	38 300 kg 84,437 lb
Material Handling Boom Length	6650 mm 21'9"	8350 mm 27'5"	9100 mm 29'10"
Material Handling Boom Weight	1970 kg 4340 lb	2710 kg 5960 lb	3610 kg 7960 lb
Material Handling Stick Length	5450 mm 17'11"	5450 mm 17'11"	6000 mm 19'8"
Material Handling Stick Weight	1340 kg 2950 lb	1340 kg 2950 lb	1600 kg 3530 lb
	345B Series II	365B L Long*	365B L Short*
Approximate Operating Weight with Standard Shoes, Counterweight, Operator, Full Fuel and without any Tool or Operating Attachment	50 900 kg 112,215 lb	74 000 kg 163,142 lb	73 200 kg 161,378 lb
Material Handling Boom Length	9770 mm 32'1"	10 900 mm 35'9"	10 500 mm 34'5"
Material Handling Boom Weight	4315 kg 9510 lb	7595 kg 16,750 lb	7200 kg 15,880 lb
Material Handling Stick Length	7800 mm 25'7"	8600 mm 28'3"	7300 mm 23'11"
Material Handling Stick Weight	2430 kg 5360 lb	4060 kg 8950 lb	3600 kg 7940 lb

*Custom product.
**Stick must be removed for transport.
***With cab tilted over the front.

†Without FOGS.
††With FOGS.

Lifting Capacities at Ground Level
 ● 320C MH (Japan Sourced)
 ● 325C MH

Excavators —
 Material Handling

Capacities are based on level machine equipped as follows:

Equipped with Caterpillar material handling arrangement.

Includes purpose built material handling boom and stick, wiring and connecting hydraulics, hydraulic

cylinders, heavier counterweight, cab riser, wide gauge undercarriage, lubricants, standard track shoes, full fuel tank and operator.

Capacities are measured at the bare stick tip.

320C MH ● HW Undercarriage ● 6.65 m (21'10") Boom
● 5800 kg (12,790 lb) CWT ● 600 mm (24") Track Shoes

Stick	Max. Reach Radius		3 m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		10.5 m 35'0"		Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
5.45 m 17'11"	11.08 m 36'4"	kg lb	8000* 17,600*	8000* 17,600*	9180* 20,200	8430 18,500	6680* 14,700*	5600 12,300	5240* 11,500*	4080 8900	4290* 9400*	3140 6900	3550* 7800*	2490 5400	3270* 7200*	2290 5000

325C MH ● HW Undercarriage ● 8.35 m (27'5") Boom
● 7700 kg (16,975 lb) CWT ● 800 mm (31") Triple Grouser Track Shoes

Stick	Max. Reach Radius		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		10.5 m 35'0"		12 m 40'0"		Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
5.45 m 17'11"	12.87 m 42'3"	kg lb	6780* 14,900*	6780* 14,900*	10 890* 24,000*	8590 18,900	8350 18,400	6360 14,000	6480 14,200	4980 10,900	5240 11,500	4040 8900	4630 10,200	3360 7400	3960 8700	3050 6700

● 8.85 m (29'0") Boom ● 2000 kg (4410 lb) Magnet ● 2 Piece Front

Stick	Max. Reach Radius		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		10.5 m 35'0"	
			Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
6 m 19'8"	13.98 m 45'10"	kg lb	5650* 12,900*	5650* 12,900*	11 290 24,300	10 290 22,100	8220 17,700	7540 16,200	6390 13,700	5880 12,600	5160 11,100	4750 10,200

Stick	Max. Reach Radius		12 m 40'0"		13.5 m 45'0"		Max. Reach	
			Front	Side	Front	Side	Front	Side
6 m 19'8"	13.98 m 45'10"	kg lb	4280 9200	3940 8500	3620 7800	3330 7100	3450 7600	3170 7000

⁽¹⁾ «ISO 10567» «SAE J1097»

* Capacity is limited by hydraulics rather than by a tipping load. The loads do not exceed 87% of hydraulic lifting capacity or 75% of tipping capacity. Weight of all lifting accessories must be subtracted from the lifting capacities.

330C MH ● HW Undercarriage ● 9.1 m (29'10") Boom
● 8450 kg (18,630 lb) CWT ● 750 mm (30") Triple Grouser Track Shoes

Stick	Max. Reach Radius		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		10.5 m 35'0"	
			Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
6 m 19'8"	13.9 m 45'7"	kg lb	5470* 12,000*	5470* 12,000*	10 970* 24,100*	10 400 22,900	10 910 24,000	7740 17,000	8470 18,600	6090 13,400	6850 15,100	4950 10,800

Stick	Max. Reach Radius		12 m 40'0"		13.5 m 45'0"		Max. Reach	
			Front	Side	Front	Side	Front	Side
6 m 19'8"	13.9 m 45'7"	kg lb	5700 12,500	4120 9000	4840 10,600	3490 7600	4640 10,200	3350 7300

345B Series II MH ● HW Undercarriage ● 9.77 m (32'1") Boom
● 11 000 kg (24,250 lb) CWT ● 600 mm (24") Triple Grouser Track Shoes

Stick	Max. Reach Radius		3m 10'0"		4.5 m 15'0"		6 m 20'0"		7.5 m 25'0"		9 m 30'0"		10.5 m 35'0"	
			Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
7.8 m 25'7"	16.29 m 53'5"	kg lb	4720* 10,400*	4720* 10,400*	9100* 20,000*	9100* 20,000*	17 120* 37,700*	17 120* 37,700*	13 450* 29,600*	12 690 27,900	11 000* 24,200*	9820 21,600	9260* 20,400*	7890 17,300

Stick	Max. Reach Radius		12 m 40'0"		13.5 m 45'0"		15 m 50'0"		Max. Reach	
			Front	Side	Front	Side	Front	Side	Front	Side
7.8 m 25'7"	16.29 m 53'5"	kg lb	7640 16,800	6500 14,300	6420 14,100	5450 12,000	5480 12,000	4630 10,200	4830 10,600	4070 8900

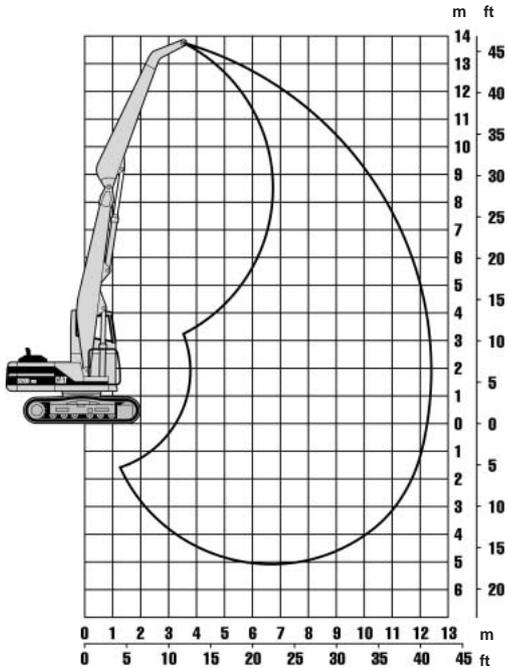
⁽¹⁾ «ISO 10567» «SAE J1097»

*Capacity is limited by hydraulics rather than by a tipping load. The loads do not exceed 87% of hydraulic lifting capacity or 75% of tipping capacity. Weight of all lifting accessories must be subtracted from the lifting capacities.

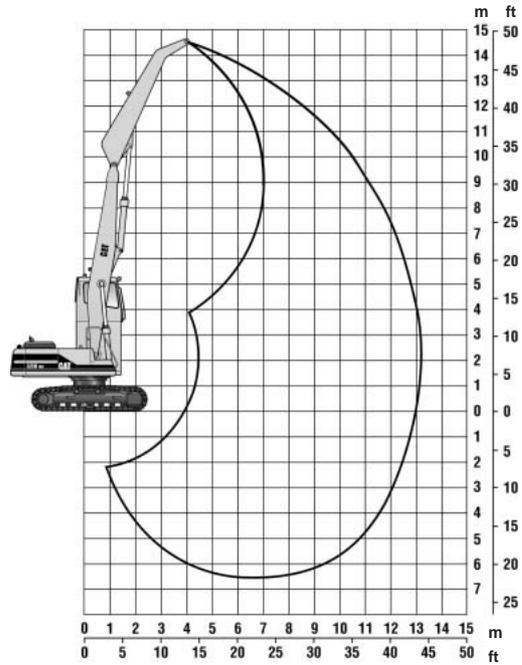
Model	320C MH		325C MH		330C MH		345B Series II MH		375 MH			
	m	ft	m	ft	m	ft	m	ft	m	ft		
MH Two-Piece Front	12.40	40'8"	13.40	43'11"	14.40	47'3"	16.50	54'0"	16.76	55'0"	20.73	68'0"
Max. Reach @ 1.5 m (5'0")	12.40	40'8"	13.40	43'11"	14.40	47'3"	16.50	54'0"	16.76	55'0"	20.73	68'0"
Max. Height	13.70	44'11"	14.80	48'7"	15.65	51'4"	16.20	53'2"	*		*	
Reach @ Max. Height	3.50	11'6"	3.90	12'11"	5.09	16'8"	8.40	27'6"	*		*	
Track Shoe	600 mm	24"	800 mm	31.5"	850 mm	33.5"	750 mm	30"	700 mm	30"	700 mm	30"

*Information unavailable at time of printing.

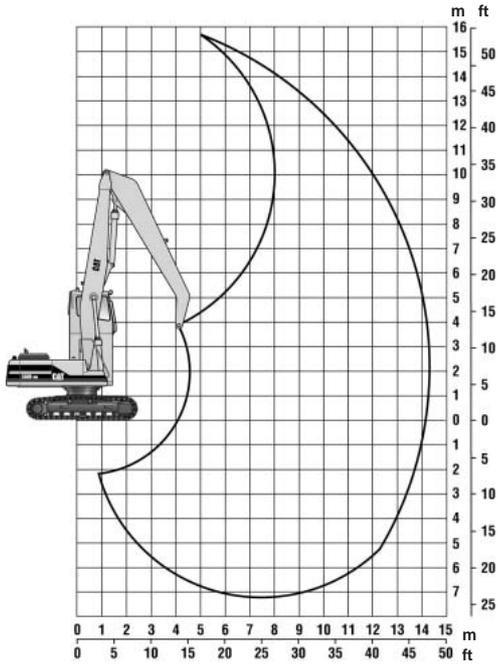
320C MH Range Diagram



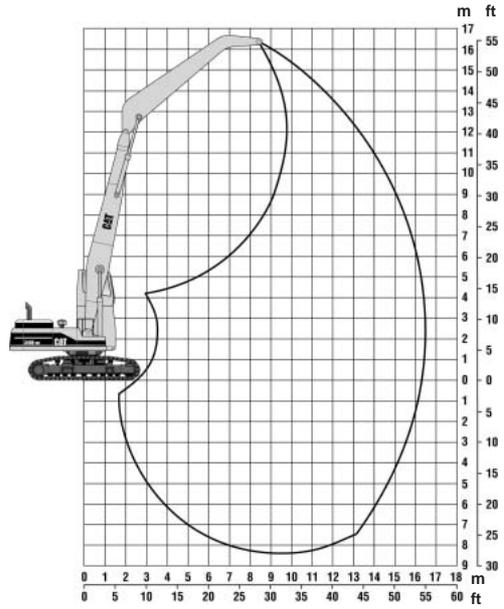
325C MH Range Diagram



330C MH Range Diagram



345B MH Range Diagram



320C MH

		1.5 m/5.0 ft		3.0 m/10.0 ft		4.5 m/15.0 ft		6.0 m/20.0 ft		7.5 m/25.0 ft		9.0 m/30.0 ft		10.5 m/35.0 ft		12.0 m/40.0 ft				m ft		
																						
10.5 m	kg									*6000	5500									*3900	*3900	8.96
35.0 ft	lb									*13,250	11,700									*8650	*8650	28.84
9.0 m	kg									*5800	5550	*5350	4100							*3500	3250	10.20
30.0 ft	lb									*12,700	11,900	*11,750	8800							*7750	7300	33.14
7.5 m	kg									*5800	5550	*5300	4150	4400	3150					*3300	2850	11.11
25.0 ft	lb									*12,650	11,900	*11,600	8850	9400	6750					*7250	6300	36.23
6.0 m	kg							*6700	*6700	*6000	5450	*5400	4050	4400	3150					*3200	2600	11.75
20.0 ft	lb							*14,550	*14,550	*13,000	11,700	*11,750	8750	9400	6750					*7000	5700	38.43
4.5 m	kg							*7300	*7300	*6300	5250	5500	3950	4350	3100	3500	2500			*3150	2400	12.17
15.0 ft	lb							*15,850	*15,850	*13,700	11,350	11,850	8500	9300	6650	7700	5450			*6900	5300	39.88
3.0 m	kg					*10 250	*10 250	*8050	7050	*6700	5050	5400	3850	4250	3050	3450	2450			*3150	2300	12.40
10.0 ft	lb					*22,200	*22,200	*17,450	15,150	*14,500	10,850	11,550	8250	9150	6500	7450	5250			*6900	5100	40.66
1.5 m	kg					*11 700	10 100	*8750	6650	6850	4800	5250	3700	4200	2950	3450	2400			*3200	2300	12.44
5.0 ft	lb					*25,300	21,750	*18,900	14,250	14,700	10,350	11,250	7950	8950	6350	7350	5150			*7050	5000	40.81
Ground Line	kg					*12 250	9400	*9000	6250	6600	4600	5100	3600	4100	2900	3400	2400			*3200	2300	12.30
	lb					*26,550	20,250	*19,500	13,500	14,200	9900	10,950	7700	8800	6200	7300	5100			*7000	5050	40.34
-1.5 m	kg	*1850	*1850	*3750	*3750	*9600	9050	*8750	6000	6450	4450	5000	3500	4050	2850					*2800	2400	11.96
-5.0 ft	lb	*4100	*4100	*8550	*8550	*22,300	19,400	*18,900	12,950	13,850	9600	10,750	7500	8700	6100					*6100	5250	39.22
-3.0 m	kg			*4900	*4900	*9400	8900	*7800	5900	*6150	4350	*4800	3450	*3500	2800					*2900	2650	11.03
-10.0 ft	lb			*11,000	*11,000	*21,600	19,100	*16,850	12,700	*13,200	9400	*10,250	7400	*7250	6050					*6400	5850	36.05
-4.5 m	kg					*6200	5900	*4850	4350											*3700	3550	8.84
-15.0 ft	lb					*13,250	12,700	*10,300	9400											*8400	8000	28.37

*Indicates that the load is limited by hydraulic capacity rather than tipping capacity. Lift capacity ratings are based on standard SAE J/ISO 10567. Rated loads do not exceed 87% of hydraulic lifting capacity or 75% of tipping capacity.



Load Point Height



Load Radius Over Front



Load Radius Over Side



Load at Maximum Reach

Excavators — Material Handling

Lifting Capacities ● 345B Series II MH (U.S. Sourced)

345B Series II MH

Equipped with Cat Two-piece, 16.5 m (54'0") Front, 750 mm (30") triple grouser shoes.

		3.0 m (10.0 ft)		4.5 m (15.0 ft)		6.0 m (20.0 ft)		7.5 m (25.0 ft)		9.0 m (30.0 ft)		10.5 m (35.0 ft)		12.0 m (40.0 ft)		13.5 m (45.0 ft)		15.0 m (50.0 ft)				m ft		
																								
15.0 m 50.0 ft	kg lb									*15,100	*15,100											*5700 *12,700	*5700 *12,700	10.6 32.30
13.5 m 45.0 ft	kg lb											*7400 *15,300	*7400 *15,300									*5300 *11,700	*5300 *11,700	11.84 38.15
12.0 m 40.0 ft	kg lb											*8300 *18,200	*8300 *18,200	*7100 *14,500	*7100 *14,500							*5000 *11,200	*5000 *11,200	13.13 42.60
10.5 m 35.0 ft	kg lb											*8300 *18,100	*8300 *18,100	*7700 *16,900	*7700 *16,900	*6300 *12,500	*6300 *12,500					*4900 *10,900	*4900 *10,900	14.15 46.08
9.0 m 30.0 ft	kg lb											*8400 *18,400	*8400 *18,400	*7700 *17,000	*7700 *17,000	*7200 *15,700	*7200 *15,600					*4900 *10,800	*4900 *10,800	14.94 48.80
7.5 m 25.0 ft	kg lb									*9600 *20,900	*9600 *20,900	*8600 *18,900	*8600 *18,900	*7900 *17,300	*7900 *17,300	*7200 *15,900	7200 15,400	*6300 *12,400	6000 12,400	6000 12,400		*4900 *10,800	*4900 *10,800	15.55 50.88
6.0 m 20.0 ft	kg lb							*11 500 *25,100	*11 500 *25,100	*10 100 *22,000	*10 100 *22,000	*9000 *19,600	*9000 *19,600	*8100 *17,700	*8100 *17,700	*7300 *16,100	7000 15,100	*6700 *14,600	5900 12,700	5900 12,700		*4900 *10,900	*4900 *10,900	15.99 52.39
4.5 m 15.0 ft	kg lb					*15 200 *32,900	*15 200 *32,900	*12 500 *27,200	*12 500 *27,200	*10 700 *23,200	*10 700 *23,200	*9300 *20,300	*9300 *20,300	*8300 *18,100	8300 17,800	*7500 *16,300	6900 14,800	6700 14,400	5800 12,500	5800 12,500		*5100 *11,200	*5100 *11,200	16.28 53.39
3.0 m 10.0 ft	kg lb			*22 900 *49,600	*22 900 *49,600	*16 800 *36,600	*16 800 *36,600	*13 400 *29,200	*13 400 *29,200	*11 200 *24,400	*11 200 *24,400	*9700 *21,100	*9700 *21,100	*8500 *18,500	8000 17,300	*7500 *16,400	6700 14,400	6600 14,100	5700 12,200	5700 12,200		*5300 *11,600	*5300 *11,600	16.43 53.90
1.5 m 5.0 ft	kg lb			*14 100 *33,300	*14 100 *33,300	*18 000 *39,200	*18 000 *39,200	*14 100 *30,800	*14 100 *30,800	*11 600 *25,400	*11 600 *25,300	*9900 *21,600	9400 20,300	*8600 *18,700	7800 16,700	7500 16,200	6500 14,100	6500 13,900	5600 12,000	5600 12,000		*5500 *12,200	*5500 *12,200	16.44 53.94
0.0 m 0.0 ft	kg lb			*9300 *21,300	*9300 *21,300	*18 400 *40,100	*18 400 *40,100	*14 400 *31,500	*14 400 *31,300	*11 800 *25,800	11 300 24,200	*10 000 *21,800	9100 19,600	*8600 *18,700	7500 16,200	7400 15,900	6400 13,700	6300 13,700	5500 11,800	5500 12,400		*5600 *12,400	*5600 *12,400	16.31 53.51
-1.5 m -5.0 ft	kg lb	*5500 *12,400	*5500 *12,400	*8500 *19,400	*8500 *19,400	*14 900 *34,200	*14 900 *34,200	*14 300 *31,100	14 000 30,200	*11 700 *25,500	10 900 23,500	*9900 *21,500	8800 19,000	*8400 *18,300	7300 15,800	7200 15,600	6200 13,400	6200 13,400	5400 11,600	5400 11,600		*5400 *12,000	*5400 *12,000	16.04 52.60
-3.0 m -10.0 ft	kg lb	*14,300	*14,300	*8700	*8700	*13 300	*13 300	*13 600	*13 600	*11 200	10 600	*9500	8600	*8100	7200	*6800	6200	5700	5300	5200	5100			
-4.5 m -15.0 ft	kg lb	*7100	*7100	*9200	*9200	*13 000	*13 000	*12 400	*12 400	*10 400	*10 400	*8800	8500	*7400	7100	*6200	6100	*4900						
-6.0 m -20.0 ft	kg lb			*9700	*9700	*12 600	*12 600	*10 700	*10 700	*9100	*9100	*7700	*7700	*6400	*6400	*5100	*5100							
-7.5 m -25.0 ft	kg lb					*9700	*9700	*8500	*8500	*7300	*7300	*6100	*6100	*4900	*4900									

*Indicates that the load is limited by hydraulic capacity rather than tipping capacity. Lift capacity ratings are based on standard SAE J/ISO 10567. Rated loads do not exceed 87% of hydraulic lifting capacity or 75% of tipping capacity.



Load Point
Height



Load Radius
Over Front



Load Radius
Over Side



Load at
Maximum Reach

MAGNET SELECTION GUIDE

Caterpillar MH Model	Recommended Magnet Size (Diameter)					
	1219 mm (48")	1448 mm (57")	1676 mm (66")	1829 mm (72")	1981 mm (78")	2210 mm (87")
M318 MH	X					
320C MH	X					
M320 MH	X	X				
325B MH 13.4 m (43'11") Front		X				
M325B MH 15.2 m (50'10") Front		X				
M325B MH 13.4 m (43'11") Front		X	X			
300B MH			X			
W330B MH			X			
345B Series II MH				X		
W345B Series II MH				X		
365B MH 18.9 m (62'0") Front					X	
365B MH 16.9 m (55'6") Front					X	
375 MH 20.7 m (68'0") Front				X		
375 MH 16.8 m (55'0") Front						X

**INSTITUTE OF SCRAP RECYCLING
INDUSTRIES INC.**

**Scrap Specifications
Guidelines for Ferrous Scrap**

ISRI

Code Definition

- 200 **No. 1 heavy melting steel.** Wrought iron and/or steel scrap 6.35 mm (¼ in) and over in thickness. Individual pieces not over 1524 × 610 mm (60 × 24 in) (charging box size) prepared in a manner to insure compact charging.
- 203 **No. 2 heavy melting steel.** Wrought iron and steel scrap, black and galvanized, 3.18 mm (⅛ in) and over in thickness, charging box size to include material not suitable as No. 1 heavy melting steel. Prepared in a manner to insure compact charging.
- 207 **No. 1 busheling.** Clean steel scrap, not exceeding 305 mm (12 in) in any dimensions, including new factory busheling (for example, sheet clippings, stampings, etc.). May not include old auto body and fender stock. Free of metal coated, limed, vitreous enameled, and electrical sheet containing over 0.5 percent silicon.
- 208 **No. 1 bundles.** New black steel sheet scrap, clippings or skeleton scrap, compressed or hand banded, to charging box size, and weighing not less than 34 kg (75 lb) per cubic foot. (Hand bundles are tightly secured for handling with a magnet.) May include Stanley balls or mandrel wound bundles or skeleton reels, tightly secured. May include chemically detinned material. May not include old auto body or fender stock. Free of metal coated, limed, vitreous enameled, and electrical sheet containing over 0.5 percent silicon.

- 209 **No. 2 bundles.** Old black and galvanized steel sheet scrap, hydraulically compressed to charging box size and weighing not less than 34 kg (75 lb) per cubic foot. May not include tin or lead-coated material of vitreous enameled material.
- 210 **Shredded Scrap.** Homogeneous iron and steel scrap magnetically separated, originating from automobiles, unprepared No. 1 and No. 2 steel, miscellaneous baling and sheet scrap. Average density 23 kg (50 lb) per cubic foot.
- 211 **Shredded Scrap.** Homogeneous iron and steel scrap magnetically separated, originating from automobiles, unprepared No. 1 and No. 2 steel, miscellaneous baling and sheet scrap. Average density 34 kg (70 lb) per cubic foot.
- 219 **Machine shop turnings.** Clean steel or wrought iron turnings, free of iron borings, nonferrous metals in a free state, scale, or excessive oil. May not include badly rusted or corroded stock.
- 231 **Plate and structural steel, 1.5 m (5 ft) and under.** Cut structural and plate scrap, 1.5 m (5 ft) and under. Clean open hearth steel plates, structural shapes, crop ends, shearings, or broken steel tires. Dimensions not less than 6.35 mm (¼ in) thickness, not over 1.5 m (5 ft) in length and 457 mm (18 in) in width. Phosphorous or sulphur not over 0.05 percent.
- 234 **Punchings and plate scrap.** Punchings or stampings, plate scrap, and bar crops containing not over 0.05 percent phosphorous or sulphur and not over 0.5 percent silicon, free from alloys. All materials cut 305 mm (12 in) and under, and with the exception of punchings or stampings, at least 3.18 mm (⅛ in) in thickness. Punchings or stampings under 152 mm (6 in) in diameter may be any gauge.

BACKHOE LOADERS

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Features:

- **Center pivot backhoe** — 416D, 420D, 430D, 446D.
- **Side shift backhoe** — 424D, 428D, 432D, 442D.
- **Single-tilt loader** features divergent loader arms, a narrow loader tower and single bucket tilt cylinder for improved visibility.
- **Integrated toolcarrier (parallel lift) loader** offers maximum lift and breakout forces, divergent loader arms, and parallel lift for efficient loading and material handling.
 - **Hydraulic Quick Coupler** provides versatility and allows quick connection to selected work tools for the Cat family of integrated toolcarriers.
- **Excavator-style backhoe** provides enhanced visibility even with narrow buckets, ability to reach over obstacles, and faster, easier truck loading.
 - **Backhoe Quick Coupler** offerings include a convenient “pin grabber” and versatile “pin puller” for use with D-Series and competitive work tools.
- **Load-sensing hydraulic system** provides full hydraulic power to implements at all engine speeds, low fuel consumption, smooth control and low lever efforts. A dual-setting torque limiter automatically optimizes hydraulics.

Backhoe Loader Website for Dealers on Infocast offers latest, updated information. This comprehensive site contains all published and unpublished supporting materials for backhoe loaders in the North American Commercial Division.

<https://nacd.cat.com/infocast/frames/products/bcp/bhlit/>

- **Pilot operated backhoe controls** provide smooth, efficient operation and operator comfort. Not available on 416D, 424D, 428D.
- **Pilot operated stabilizer controls** standard on all models. Auto-up stabilizers are standard with the deluxe cab.
- **Cat 3054C engine** meets all U.S. Tier 2/EU Stage II emissions requirements. It delivers reliable power with low emissions while providing excellent fuel economy with an efficient fuel system. It has durable, gear-driven water pump, thermal starting aid, parts commonality and low cost per hour.
- **XT-ES hoses** combined with Caterpillar couplings and O-ring face seal fittings provide a dry, reliable machine.
- **Operator station features:** Air-suspension seat is standard on all models except 416D and 424D. Adjustable tilt steering is standard except on 416D and 424D. Rear, door and side windows can be fully opened for enhanced ventilation and cab roof is extended to help keep operator dry. Four-post Rollover Protective Structure (ROPS) for increased protection. Rear mounted hand throttle, transmission disconnect switch on loader lift lever and low effort levers all add up to more precise control with a less fatigued operator.
- **High performance backhoe linkage** offers 205° of bucket rotation with one pin position and breakout forces increased up to 25% from previous models.
- **Diagonal Retention System (DRS)** standard on all factory installed buckets. Bucket teeth are attached with diagonal pins rather than horizontal pins for easy exchange of bucket teeth.
- **Integrated lift eye** on backhoe linkage.
- **Cat Cushion Swing™** system smooths the swing function, improving the return-to-trench controllability.
- **E-Stick wear pads** are field replaceable and can be shimmed independently for reduced maintenance cost.
- **Anti-Drift valves** minimize drift of the boom, stick and E-stick cylinders during overnight storage and provide excellent controllability while lifting and placing objects. Not available on the 416D.
- **Ride Control** available as an option on all D-Series machines. The Ride-Control system smooths the ride under all job-site conditions.
- **4F/4R fully synchronized gear box** provides on-the-go shifting in all gears and on-the-go engagement of optional all wheel drive.
- **Auto-Shift transmission** is available as an option on D-Series and is standard on 446D for operator comfort and efficiency.
- **Brakes** are oil immersed, multi-disc, self adjusting, and wear surface is made of Kevlar for long service life. Hydraulic assist allows low pedal effort.
- **All Wheel Drive** is available as an option on all D-series machines. It improves mobility and loader performance in poor traction conditions. Includes 4-wheel braking effect feature.
- **Sloping, flip-open hood** allows excellent visibility to the loader working area and tilts up for single location access to all daily service points.
- **Stackable counterweights** allow easy adjustment of machine weight distribution. Lockable tool and battery boxes.
- **Dry-type, axial seal air cleaner** with automatic, integrated dust ejector system provides efficient pre-separation. The two-stage air filter incorporates both air cleaner and pre-cleaner functions into a single unit mounted under the hood.
- **Finish Protected Components (FPC):** All D-Series are assembled with components already topcoat painted or plated. This process improves the appearance of the machine while enhancing the overall quality of every component by providing 100% protective coverage.



416D



420D/420D IT



424D

MODEL

Gross Flywheel Power						
SAE J1995	58 kW	78 hp	69 kW	93 hp	58 kW	78 hp
ISO 14396	57 kW	76 hp	69 kW	92 hp	57 kW	76 hp
Net Flywheel Power						
SAE J1349	55 kW*	74 hp*	66 kW	89 hp	55 kW	74 hp
ISO 9249	56 kW	75 hp	67 kW	90 hp	56 kW*	75 hp*
EEC 80/1269	56 kW	75 hp	67 kW	90 hp	56 kW*	75 hp*
Operating Weight	6900 kg	15,257 lb	7150 kg	15,772 lb	7502 kg	16,540 lb
Engine Model	3054C DINA		3054C DIT		3054C DINA	
Rated Engine RPM	2200		2200		2200	
No. of Cylinders	4		4		4	
Bore	105 mm	4.13 in	105 mm	4.13 in	105 mm	4.13 in
Stroke	127 mm	5 in	127 mm	5 in	127 mm	5 in
Displacement	4.4 L	268 in³	4.4 L	268 in³	4.4 L	268 in³
Speeds Forward (Power Shuttle)	km/h	mph	km/h	mph	km/h	mph
1st	5.8	3.6	5.8	3.6	5.7	3.5
2nd	9.3	5.8	9.3	5.8	9.1	5.6
3rd	19.2	12.0	19.2	12.0	18.7	11.6
4th	32.8	20.4	32.8	20.4	31.8	19.7
Speeds Reverse (Power Shuttle)						
1st	5.8	3.6	5.8	3.6	5.7	3.5
2nd	9.3	5.8	9.3	5.8	9.1	5.6
3rd	19.2	12.0	19.2	12.0	18.7	11.6
4th	32.8	20.4	32.8	20.4	31.8	19.7
Speeds Forward (Auto-Shift)						
1st	—		5.7	3.5	—	
2nd	—		9.2	5.7	—	
3rd	—		12.3	7.6	—	
4th	—		19.0	11.9	—	
5th	—		32.0	20.0	—	
Speeds Reverse (Auto-Shift)						
1st	—		5.7	3.5	—	
2nd	—		12.3	7.6	—	
3rd	—		23.0	14.5	—	
Turning Circle Wall to Wall	10.7 m	35'0"	10.7 m	35'0"	10.7 m	35'0"
Tires						
2WD Bias Front	11L x 16, 12 PR		11L x 16, 12 PR		12.5/80 x 18, 10 PR	
2WD Bias Rear	19.5 x 24, 10 PR		19.5 x 24, 10 PR		16.9 x 28, 10 PR	
Tires						
AWD Bias Front	12.5/80 x 18, 10 PR		12.5/80 x 18, 10 PR		12.5/80 x 18, 10 PR	
AWD Bias Rear	19.5L x 24, 10 PR		19.5 x 24, 10 PR		16.9 x 28, 10 PR	
Tires						
AWD Bias Front	—		12.5/80 x 18, 10 PR		—	
AWD Bias Rear	—		21L x 24, 12 PR, R4		—	
Tires						
AWD Radial Front	340/80 x R18		340/80 x R18		340/80 x R18	
AWD Radial Rear	19.5 x 24		19.5 x 24		16.9 x R28	
Tires						
AWD Combination Front	340/80 x R18, Radial		340/80 x R18, Radial		—	
AWD Combination Rear	19.5 x 24, 10 PR, Bias		19.5 x 24, 10 PR, Bias		—	
Hydraulic System, closed center	LSPC		LSPC		LSPC	
Pump capacity	139 L/min @ 2200 rpm @ 20 700 kPa (37 gpm @ 2200 rpm @ 3000 psi)		163 L/min @ 2200 rpm @ 22 754 kPa (43 gpm @ 2200 rpm @ 3300 psi)		139 L/min @ 2200 rpm @ 207 bar (37 gpm @ 2200 rpm @ 3000 psi)	
Fuel Tank Capacity	128 L	34 U.S. gal	128 L	34 U.S. gal	128 L	34 U.S. gal

*With optional turbocharger: 416D — SAE J1995 — 60 kW (80 hp).
424D — ISO 9249, EEC 80/1269 — 61 kW (81 hp).



428D



430D/430D IT



432D

MODEL	428D		430D/430D IT		432D	
Gross Flywheel Power						
SAE J1995	63 kW	85 hp	75 kW	101 hp	69 kW	93 hp
ISO 14396	62 kW	83 hp	75 kW	100 hp	69 kW	92 hp
Net Flywheel Power						
SAE J1349	60 kW	80 hp	72 kW	97 hp	66 kW	89 hp
ISO 9249	61 kW*	81 hp*	73 kW	98 hp	67 kW	90 hp
EEC 80/1269	61 kW*	81 hp*	73 kW	98 hp	67 kW	90 hp
Operating Weight	7738 kg	17,060 lb	7355 kg	16,217 lb	7809 kg	17,220 lb
Engine Model	3054C DIT		3054C DIT		3054C DIT	
Rated Engine RPM	2200		2200		2200	
No. of Cylinders	4		4		4	
Bore	105 mm	4.13 in	105 mm	4.13 in	105 mm	4.13 in
Stroke	127 mm	5 in	127 mm	5 in	127 mm	5 in
Displacement	4.4 L	268 in³	4.4 L	268 in³	4.4 L	268 in³
Speeds Forward (Power Shuttle)	km/h	mph	km/h	mph	km/h	mph
1st	5.7	3.5	6.0	3.7	5.7	3.5
2nd	9.1	5.6	9.6	6.0	9.1	5.6
3rd	18.7	11.6	19.9	12.4	18.7	11.6
4th	31.8	19.7	33.7	20.9	31.8	19.7
Speeds Reverse (Power Shuttle)						
1st	5.7	3.5	6.0	3.7	5.7	3.5
2nd	9.1	5.6	9.6	6.0	9.1	5.6
3rd	18.7	11.6	19.9	12.4	18.7	11.6
4th	31.8	19.7	33.7	20.9	31.8	19.7
Speeds Forward (Auto-Shift)						
1st	5.3	3.3	5.8	3.6	5.3	3.3
2nd	8.4	5.2	9.3	5.8	8.4	5.2
3rd	11.0	6.8	12.3	7.6	11.0	6.8
4th	17.5	10.8	19.0	11.9	17.5	10.8
5th	29.4	18.2	32.0	20.0	29.4	18.2
Speeds Reverse (Auto-Shift)						
1st	5.3	3.3	5.8	3.6	5.3	3.3
2nd	11.0	6.8	12.3	7.6	11.0	6.8
3rd	21.4	13.3	23.0	14.5	21.4	13.3
Turning Circle Wall to Wall	10.7 m	35'0"	10.8 m	35'5"	10.7 m	35'0"
Tires						
2WD Bias Front	—		11L x 16, 12 PR		—	
2WD Bias Rear	—		12.5/80 x 18, 10 PR		—	
Tires						
AWD Bias Front	12.5/80 x 18, 10 PR		12.5/80 x 18, 10 PR		12.5/80 x 18, 10 PR	
AWD Bias Rear	16.9 x 28, 10 PR		19.5 x 24, 10 PR		16.9 x 28, 10 PR	
Tires						
AWD Bias Front	—		12.5/80 x 18, 10 PR		—	
AWD Bias Rear	—		21L x 24, 12 PR, R4		—	
Tires						
AWD Radial Front	340/80 x R18		340/80 x R18		340/80 x R18	
AWD Radial Rear	16.9 x R28		19.5 x 24		16.9 x R28	
Tires						
AWD Combination Front	—		340/80 x R18, Radial		—	
AWD Combination Rear	—		19.5 x 24, 10 PR, Bias		—	
Hydraulic System, closed center	LSPC		LSPC		LSPC	
Pump capacity	163 L/min @ 2200 rpm @ 228 bar (43 gpm @ 2200 rpm @ 3300 psi)		163 L/min @ 2200 rpm @ 22 754 kPa (43 gpm @ 2200 rpm @ 3300 psi)		163 L/min @ 2200 rpm @ 228 bar (43 gpm @ 2200 rpm @ 3300 psi)	
Fuel Tank Capacity	128 L	34 U.S. gal	128 L	34 U.S. gal	128 L	34 U.S. gal

*With optional engine: 428D — ISO 9249, EEC 80/1269 — 73 kW (98 hp).



442D

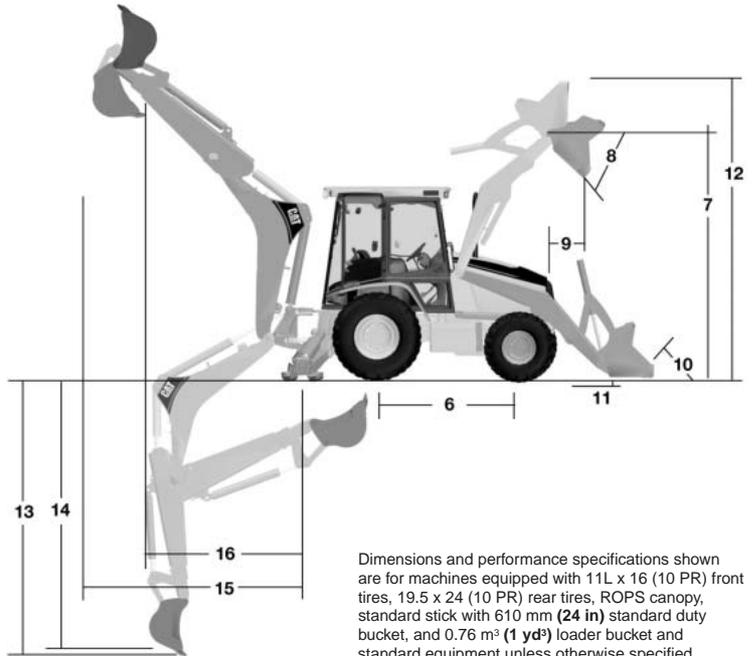
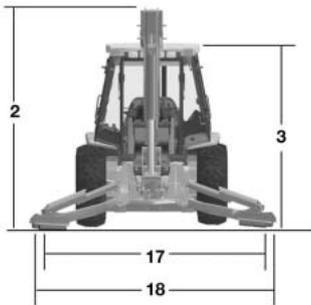
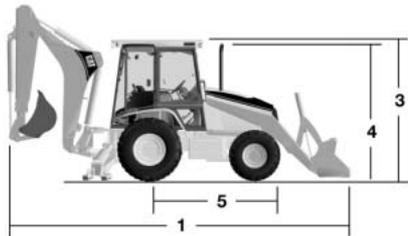


446D

MODEL

Gross Flywheel Power	—		82 kW	110 hp
Caterpillar	—		81 kW	109 hp
SAE J1349	75 kW	101 hp	—	—
ISO 14396	75 kW	100 hp	—	—
Net Flywheel Power	—		75 kW	101 hp
SAE J1349	72 kW	97 hp	76 kW	102 hp
ISO 9249	73 kW	98 hp	76 kW	102 hp
EEC 80/1269	73 kW	98 hp	—	—
Operating Weight	7809 kg	17,215 lb	8939 kg	19,666 lb
Engine Model	3054C DIT		3114 DIT	
Rated Engine RPM	2200		2200	
No. of Cylinders	4		4	
Bore	105 mm	4.13 in	105 mm	4.13 in
Stroke	127 mm	5 in	127 mm	5 in
Displacement	4.4 L	268 in ³	4.4 L	268 in ³
Speeds Forward (Power Shuttle)	km/h	mph	km/h	mph
1st	5.7	3.5	—	—
2nd	9.1	5.7	—	—
3rd	18.7	11.6	—	—
4th	31.8	19.8	—	—
Speeds Reverse (Power Shuttle)	—		—	
1st	5.7	3.5	—	—
2nd	9.1	5.7	—	—
3rd	18.7	11.6	—	—
4th	31.8	19.8	—	—
Speeds Forward (Auto-Shift)	—		5.6	3.5
1st	5.3	3.3	8.9	5.5
2nd	8.4	5.2	11.6	7.2
3rd	11.0	6.8	18.8	11.7
4th	17.5	10.9	31.5	19.6
5th	29.4	18.3	—	—
Speeds Reverse (Auto-Shift)	—		5.6	3.5
1st	5.3	3.3	11.6	7.2
2nd	11.0	6.8	20.6	12.8
3rd	21.4	13.3	—	—
Turning Circle Wall to Wall	10.7 m	35'0"	11.4 m	37'3"
All Wheel Steer Wall to Wall	—		—	
Two Wheel Steer	10.8 m	35'5"	—	—
Circle Steer	10.4 m	34'1"	—	—
Independent Rear	9.5 m	31'2"	—	—
Tires, Single-Tilt, Front	—		14.5/75 x 16.1, 10 PR, F3	
Standard, 2WD	—		12.5 x 20, 10 PR, R4	
Standard, AWD	—		—	
Tires, Single-Tilt, Rear	—		21L x 24, 12 PR, R4	
Standard, 2WD/AWD	—		—	
Tire, Parallel Lift, Front	—		—	
Standard, AWD	12.5/80 x 18, 10 PR		—	
Standard, AWD	12.5/80 x 18, 10 PR		—	
Tires, Parallel Lift, Rear	—		—	
Standard, AWD/AWS	16.9 x 28, 12 PR		—	
Hydraulic System, closed center	LSPC		LSPC	
Pump capacity	163 L/min @ 2200 rpm @ 228 bar (43 gpm @ 2200 rpm @ 3300 psi)		178 L/min @ 2200 rpm @ 22 400 kPa (47 gpm @ 2200 rpm @ 3250 psi)	
Fuel Tank Capacity	128 L	34 U.S. gal	125 L	33 U.S. gal

Single-Tilt Loader



Dimensions and performance specifications shown are for machines equipped with 11L x 16 (10 PR) front tires, 19.5 x 24 (10 PR) rear tires, ROPS canopy, standard stick with 610 mm (24 in) standard duty bucket, and 0.76 m³ (1 yd³) loader bucket and standard equipment unless otherwise specified.

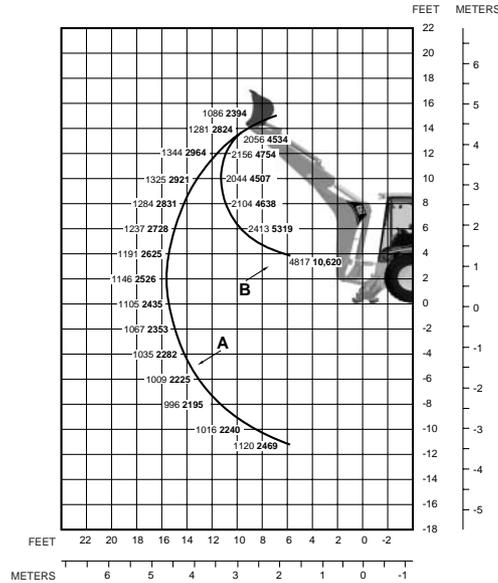
MACHINE DIMENSIONS	Single-Tilt Loader					
	General Purpose 0.76 m ³ (1 yd ³)		General Purpose 0.96 m ³ (1.25 yd ³)		Multi Purpose 0.96 m ³ (1.25 yd ³)	
1) Overall transport length	6949 mm	22'10"	7019 mm	23'0"	6974 mm	22'11"
Overall length	6929 mm	22'9"	6999 mm	23'0"	6954 mm	22'10"
2) Overall transport height	3585 mm	11'9"	3585 mm	11'9"	3585 mm	11'9"
Overall width	2352 mm	7'9"	2352 mm	7'9"	2352 mm	7'9"
3) Height to top of cab/canopy	2770 mm	9'1"	2770 mm	9'1"	2770 mm	9'1"
4) Height to top of exhaust stack	2670 mm	8'9"	2670 mm	8'9"	2670 mm	8'9"
Ground clearance (minimum)	297 mm	12"	297 mm	12"	297 mm	12"
5) Rear axle centerline to front grill	2660 mm	8'9"	2660 mm	8'9"	2660 mm	8'9"
Front wheel tread gauge	1871 mm	6'2"	1871 mm	6'2"	1871 mm	6'2"
Rear wheel tread gauge	1714 mm	5'8"	1714 mm	5'8"	1714 mm	5'8"
6) Wheelbase (2WD/AWD)	2100 mm	6'11"	2100 mm	6'11"	2100 mm	6'11"

LOADER BUCKET DIMENSIONS AND PERFORMANCE	Single-Tilt Loader					
	General Purpose 0.76 m ³ (1 yd ³)		General Purpose 0.96 m ³ (1.25 yd ³)		Multi Purpose 0.96 m ³ (1.25 yd ³)	
Capacity (SAE) rated	0.76 m ³	1 yd³	0.96 m ³	1.25 yd³	0.96 m ³	1.25 yd³
Width	2262 mm	7'5"	2262 mm	7'5"	2262 mm	7'5"
Lift capacity at maximum height	2473 kg	5453 lb	2400 kg	5292 lb	2240 kg	4938 lb
Breakout force	40 kN	8980 lb	37.9 kN	8524 lb	37.5 kN	8429 lb
7) Maximum hinge pin height (2WD)	3266 mm	10'9"	3266 mm	10'9"	3266 mm	10'9"
(4WD)	3338 mm	10'11"	3338 mm	10'11"	3338 mm	10'11"
8) Dump angle at full height		43°		43°		43°
Dump height at maximum angle	2621 mm	8'7"	2544 mm	8'4"	2609 mm	8'7"
9) Dump reach at maximum angle	753 mm	2'6"	835 mm	2'9"	721 mm	2'4"
10) Maximum bucket rollback at ground level		40°		40°		40°
11) Digging depth	135 mm	5"	135 mm	5"	166 mm	6"
Maximum grading angle		110°		106°		110°
Width of dozer cutting edge		N/A		N/A	2406 mm	7'11"
12) Maximum operating height	3996 mm	13'1"	4146 mm	13'7"	4174 mm	13'8"
Jaw opening maximum		N/A		N/A	790 mm	2'7"
Weight (does not include teeth or forks)	308 kg	838 lb	428 kg	944 lb	659 kg	1453 lb

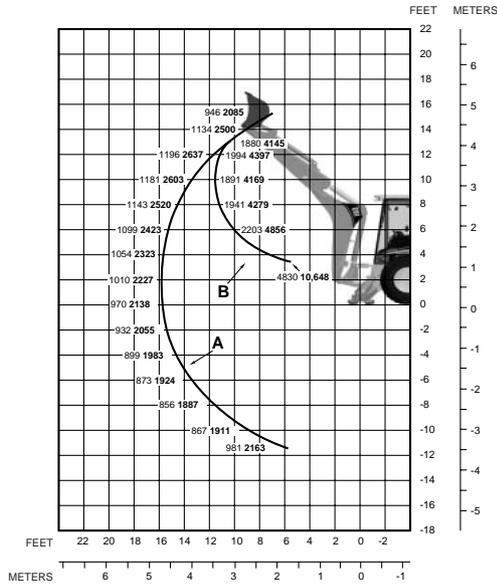
BACKHOE DIMENSIONS AND PERFORMANCE	Standard Stick		Extendible Stick Retracted		Extendible Stick Extended	
	13) Digging depth, SAE (maximum)	4390 mm	14'5"	4465 mm	14'8"	5510 mm	18'1"
14) Digging depth, 610 mm (2'0") flat bottom	4362 mm	14'4"	4432 mm	14'7"	5474 mm	18'0"
Reach from rear axle centerline at ground line	6740 mm	22'1"	6795 mm	22'4"	7765 mm	25'6"
15) Reach from swing pivot at ground line	5650 mm	18'6"	5705 mm	18'9"	6675 mm	21'11"
Maximum operating height	5450 mm	17'11"	5470 mm	17'11"	6140 mm	20'2"
Loading height	3613 mm	11'10"	3630 mm	11'11"	4175 mm	13'8"
16) Loading reach	1732 mm	5'8"	1819 mm	6'0"	2736 mm	9'0"
Swing arc		180°		180°		180°
Bucket rotation		205°		205°		205°
17) Stabilizer spread, operating position (center of pad)	3219 mm	10'7"	3219 mm	10'7"	3219 mm	10'7"
18) Stabilizer spread, operating position (outside edge of pad)	3689 mm	12'1"	3689 mm	12'1"	3689 mm	12'1"
Stabilizer spread, transport position	2352 mm	7'9"	2352 mm	7'9"	2352 mm	7'9"
Bucket dig force	52 kN	11,702 lb	51.6 kN	11,599 lb	51.6 kN	11,599 lb
Stick dig force	34.9 kN	7841 lb	34.2 kN	7693 lb	25.2 kN	5661 lb

KEY

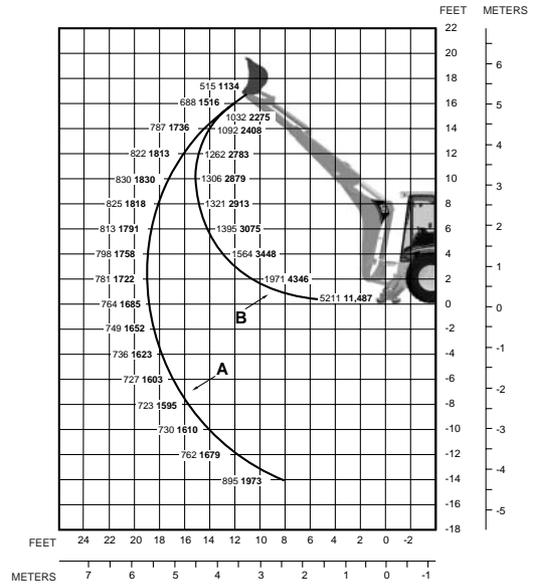
- A — Boom lift kg lb
- B — Stick lift kg lb



Standard Stick

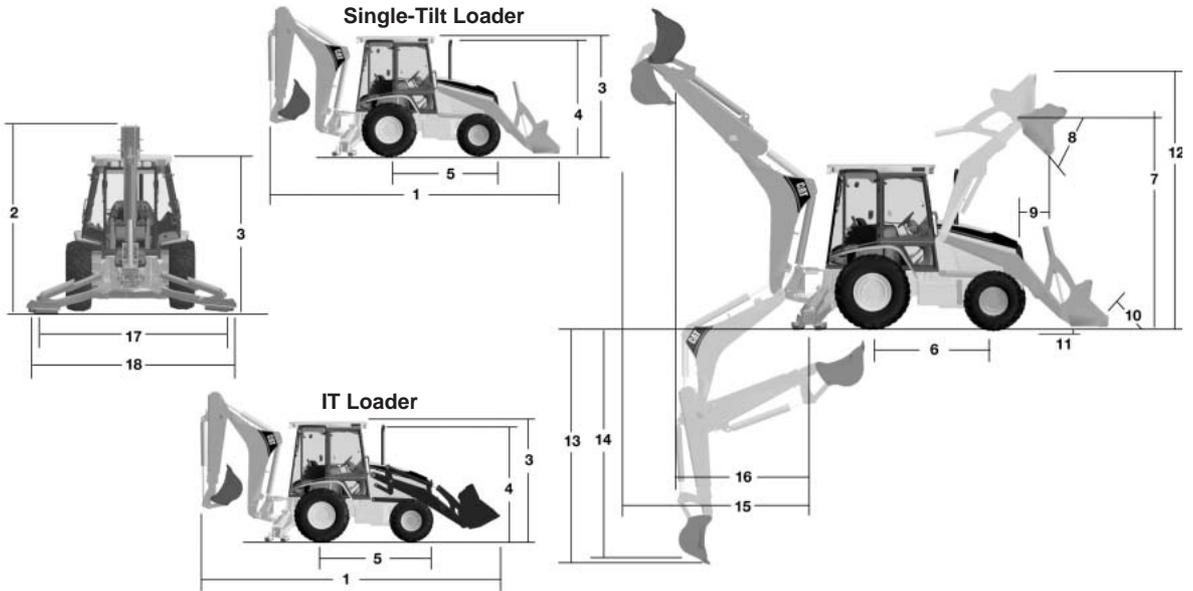


Extensible Stick —
Retracted



Extensible Stick —
Extended

Lift capacities are over-end values. Machine equipped with 2WD, OROPS, 0.76 m³ (1 yd³) general-purpose loader bucket, 610 mm (24 in) standard duty backhoe bucket and 355 kg (780 lb) counterweight. Extensible stick includes 567 kg (1250 lb) counterweight.



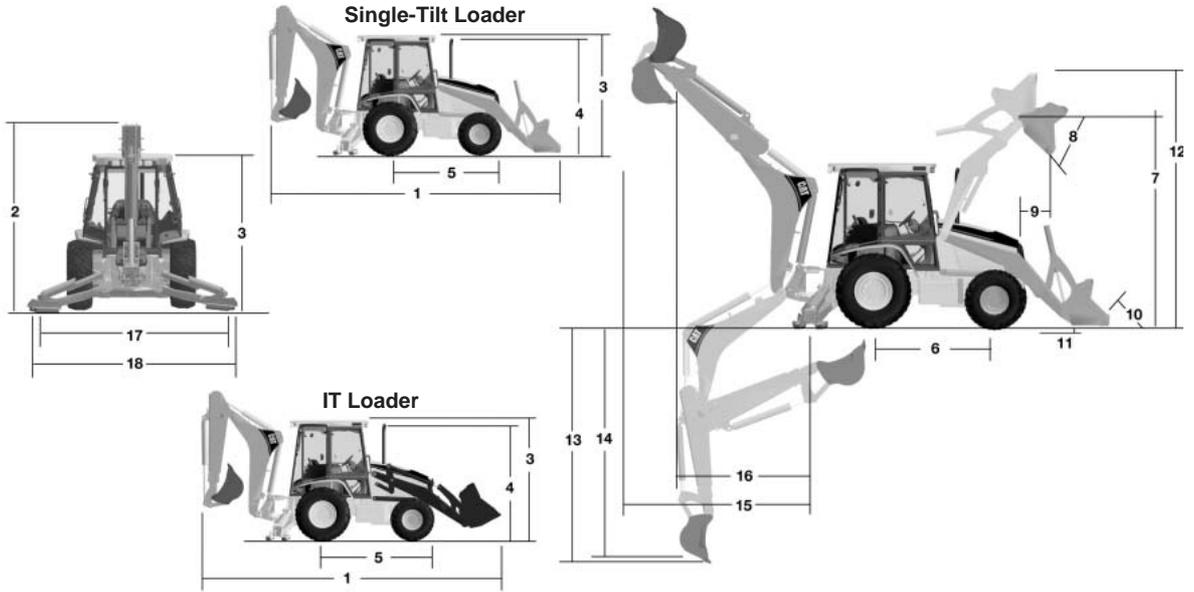
MACHINE DIMENSIONS	Single-Tilt Loader					
	General Purpose 0.96 m ³ (1.25 yd ³)		General Purpose 1 m ³ (1.31 yd ³)		General Purpose 1.07 m ³ (1.4 yd ³)	
1) Overall transport length	7019 mm	23'0"	6989 mm	22'11"	7052 mm	23'2"
Overall length	6999 mm	23'0"	6954 mm	22'10"	7015 mm	23'0"
2) Overall transport height	3585 mm	11'9"	3585 mm	11'9"	3585 mm	11'9"
Overall width	2352 mm	7'9"	2352 mm	7'9"	2352 mm	7'9"
3) Height to top of cab/canopy	2770 mm	9'1"	2770 mm	9'1"	2770 mm	9'1"
4) Height to top of exhaust stack	2670 mm	8'9"	2670 mm	8'9"	2670 mm	8'9"
Ground clearance (minimum)	297 mm	12"	297 mm	12"	297 mm	12"
5) Rear axle centerline to front grill	2660 mm	8'9"	2660 mm	8'9"	2660 mm	8'9"
Front wheel tread gauge	1871 mm	6'2"	1871 mm	6'2"	1871 mm	6'2"
Rear wheel tread gauge	1714 mm	5'8"	1714 mm	5'8"	1714 mm	5'8"
6) Wheelbase (2WD/4WD)	2100 mm	6'11"	2100 mm	6'11"	2100 mm	6'11"

MACHINE DIMENSIONS	Single-Tilt Loader			
	Multi Purpose 0.96 m ³ (1.25 yd ³)		Multi Purpose 1.03 m ³ (1.35 yd ³)	
1) Overall transport length	6974 mm	22'11"	6974 mm	22'11"
Overall length	6954 mm	22'10"	6954 mm	22'10"
2) Overall transport height	3585 mm	11'9"	3585 mm	11'9"
Overall width	2352 mm	7'9"	2352 mm	7'9"
3) Height to top of cab/canopy	2770 mm	9'1"	2770 mm	9'1"
4) Height to top of exhaust stack	2670 mm	8'9"	2670 mm	8'9"
Ground clearance (minimum)	297 mm	12"	297 mm	12"
5) Rear axle centerline to front grill	2660 mm	8'9"	2660 mm	8'9"
Front wheel tread gauge	1871 mm	6'2"	1871 mm	6'2"
Rear wheel tread gauge	1714 mm	5'8"	1714 mm	5'8"
6) Wheelbase (2WD/4WD)	2100 mm	6'11"	2100 mm	6'11"

Backhoe Loaders

Performance Data

- 420D/420D IT



MACHINE DIMENSIONS	IT Loader with Quick Coupler							
	General Purpose 0.96 m ³ (1.25 yd ³)		General Purpose 1 m ³ (1.31 yd ³)		Multi Purpose 0.96 m ³ (1.25 yd ³)		Multi Purpose 1.03 m ³ (1.35 yd ³)	
1) Overall transport length	7064 mm	23'2"	7034 mm	23'1"	7014 mm	23'0"	7014 mm	23'0"
Overall length	7044 mm	23'1"	6998 mm	23'0"	6994 mm	22'11"	6994 mm	22'11"
2) Overall transport height	3585 mm	11'9"	3585 mm	11'9"	3585 mm	11'9"	3585 mm	11'9"
Overall width	2352 mm	7'9"	2352 mm	7'9"	2352 mm	7'9"	2352 mm	7'9"
3) Height to top of cab/canopy	2770 mm	9'1"	2770 mm	9'1"	2770 mm	9'1"	2770 mm	9'1"
4) Height to top of exhaust stack	2670 mm	8'9"	2670 mm	8'9"	2670 mm	8'9"	2670 mm	8'9"
Ground clearance (minimum)	297 mm	12"	297 mm	12"	297 mm	12"	297 mm	12"
5) Rear axle centerline to front grill	2660 mm	8'9"	2660 mm	8'9"	2660 mm	8'9"	2660 mm	8'9"
Front wheel tread gauge	1871 mm	6'2"	1871 mm	6'2"	1871 mm	6'2"	1871 mm	6'2"
Rear wheel tread gauge	1714 mm	5'8"	1714 mm	5'8"	1714 mm	5'8"	1714 mm	5'8"
6) Wheelbase (2WD/AWD)	2100 mm	6'11"	2100 mm	6'11"	2100 mm	6'11"	2100 mm	6'11"

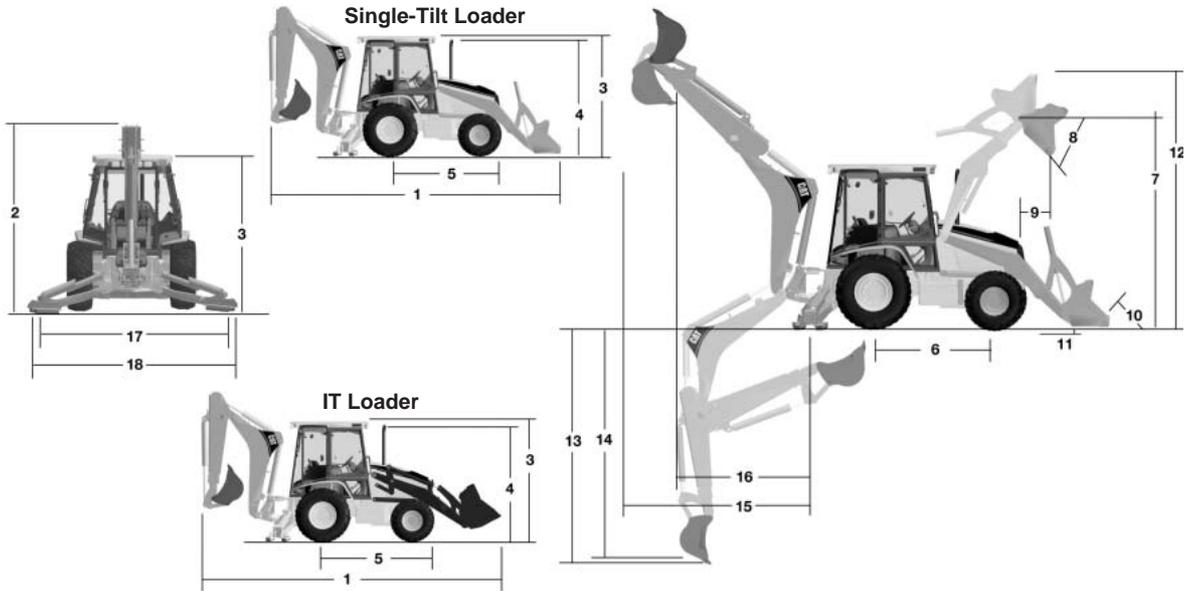
LOADER BUCKET DIMENSIONS AND PERFORMANCE	Single-Tilt Loader					
	General Purpose 0.96 m ³ (1.25 yd ³)		General Purpose 1 m ³ (1.31 yd ³)		General Purpose 1.07 m ³ (1.4 yd ³)	
Capacity (SAE) rated	0.96 m ³	1.25 yd³	1 m ³	1.31 yd³	1.07 m ³	1.4 yd³
Width	2262 mm	7'5"	2406 mm	7'11"	2262 mm	7'5"
Lift capacity at maximum height	2896 kg	6385 lb	2898 kg	6391 lb	2387 kg	6254 lb
Breakout force	45.1 kN	10,131 lb	45.7 kN	10,269 lb	44.6 kN	10,026 lb
7) Maximum hinge pin height (2WD)	3266 mm	10'9"	3266 mm	10'9"	3266 mm	10'9"
(4WD)	3338 mm	10'11"	3338 mm	10'11"	3338 mm	10'11"
8) Dump angle at full height	43°		43°		43°	
Dump height at maximum angle	2544 mm	8'4"	2575 mm	8'5"	2521 mm	8'3"
9) Dump reach at maximum angle	835 mm	2'9"	802 mm	2'8"	801 mm	2'8"
10) Maximum bucket rollback at ground level	40°		40°		40°	
11) Digging depth	135 mm	5"	135 mm	5"	174 mm	7"
Maximum grading angle	106°		107°		107°	
Width of dozer cutting edge	N/A		N/A		N/A	
12) Maximum operating height	4146 mm	13'7"	4146 mm	13'7"	4188 mm	13'9"
Jaw opening maximum	N/A		N/A		N/A	
Weight (does not include teeth or forks)	431 kg	950 lb	445 kg	980 lb	438 kg	965 lb

LOADER BUCKET DIMENSIONS AND PERFORMANCE	Single-Tilt Loader			
	Multi Purpose 0.96 m ³ (1.25 yd ³)		Multi Purpose 1.03 m ³ (1.35 yd ³)	
Capacity (SAE) rated	0.96 m ³	1.25 yd³	1.03 m ³	1.35 yd³
Width	2262 mm	7'5"	2406 mm	7'11"
Lift capacity at maximum height	2747 kg	6056 lb	2707 kg	5968 lb
Breakout force	44.9 kN	10,099 lb	44.6 kN	10,018 lb
7) Maximum hinge pin height (2WD)	3266 mm	10'9"	3266 mm	10'9"
(4WD)	3338 mm	10'11"	3338 mm	10'11"
8) Dump angle at full height	43°		43°	
Dump height at maximum angle	2609 mm	8'7"	2609 mm	8'7"
9) Dump reach at maximum angle	721 mm	2'4"	721 mm	2'4"
10) Maximum bucket rollback at ground level	40°		40°	
11) Digging depth	165 mm	6.5"	165 mm	6.5"
Maximum grading angle	110°		110°	
Width of dozer cutting edge	2260 mm	7'5"	2260 mm	7'5"
12) Maximum operating height	4174 mm	13'8"	4174 mm	13'8"
Jaw opening maximum	790 mm	2'7"	790 mm	2'7"
Weight (does not include teeth or forks)	662 kg	1460 lb	685 kg	1510 lb

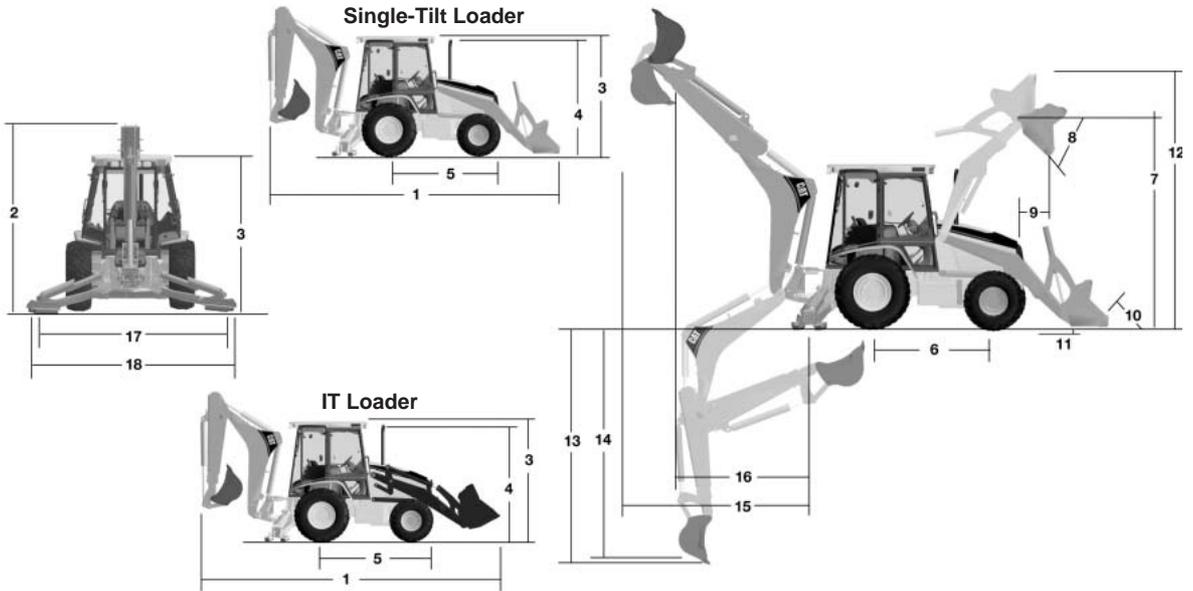
Backhoe Loaders

Performance Data

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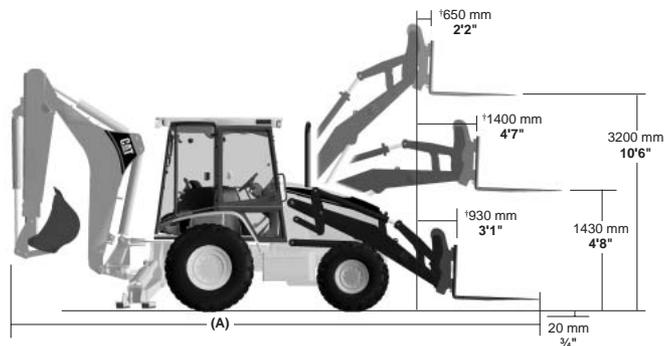


LOADER BUCKET DIMENSIONS AND PERFORMANCE	IT Loader with Quick Coupler							
	General Purpose 0.96 m ³ (1.25 yd ³)		General Purpose 1 m ³ (1.31 yd ³)		Multi Purpose 0.96 m ³ (1.25 yd ³)		Multi Purpose 1.03 m ³ (1.35 yd ³)	
Capacity (SAE) rated	0.96 m ³	1.25 yd³	1 m ³	1.31 yd³	0.96 m ³	1.25 yd³	1.03 m ³	1.35 yd³
Width	2262 mm	7'5"	2406 mm	7'11"	2262 mm	7'5"	2406 mm	7'11"
Lift capacity at maximum height	3162 kg	6970 lb	3152 kg	6949 lb	2958 kg	6521 lb	2916 kg	6428 lb
Breakout force	47 kN	10,564 lb	47.3 kN	10,628 lb	48.5 kN	10,897 lb	48.3 kN	10,853 lb
7) Maximum hinge pin height (2WD)	3266 mm	10'9"	3266 mm	10'9"	3266 mm	10'9"	3266 mm	10'9"
(4WD)	3338 mm	10'11"	3338 mm	10'11"	3338 mm	10'11"	3338 mm	10'11"
8) Dump angle at full height	43°		43°		43°		43°	
Dump height at maximum angle	2462 mm	8'1"	2494 mm	8'2"	2531 mm	8'4"	2531 mm	8'4"
9) Dump reach at maximum angle	862 mm	2'10"	830 mm	2'9"	751 mm	2'6"	751 mm	2'6"
10) Maximum bucket rollback at ground level	40°		40°		40°		40°	
11) Digging depth	135 mm	5"	135 mm	5"	165 mm	6.5"	165 mm	6.5"
Maximum grading angle	107°		108°		111°		111°	
Width of dozer cutting edge	N/A		N/A		2406 mm	7'11"	2406 mm	7'11"
12) Maximum operating height	4204 mm	13'10"	4204 mm	13'10"	4223 mm	13'10"	4223 mm	13'10"
Jaw opening maximum	N/A		N/A		790 mm	2'7"	790 mm	2'7"
Weight (does not include teeth or forks)	431 kg	950 lb	445 kg	980 lb	662 kg	1460 lb	685 kg	1510 lb



BACKHOE DIMENSIONS AND PERFORMANCE	Standard Stick		Extendible Stick Retracted		Extendible Stick Extended	
	13) Digging depth, SAE (maximum)	4390 mm	14'5"	4465 mm	14'8"	5510 mm	18'1"
14) Digging depth, 610 mm (2'0") flat bottom	4362 mm	14'4"	4432 mm	14'7"	5474 mm	18'0"
Reach from rear axle centerline at ground line	6740 mm	22'1"	6795 mm	22'4"	7765 mm	25'6"
15) Reach from swing pivot at ground line	5650 mm	18'6"	5705 mm	18'9"	6675 mm	21'11"
Maximum operating height	5450 mm	17'11"	5470 mm	17'11"	6140 mm	20'2"
Loading height	3613 mm	11'10"	3630 mm	11'11"	4175 mm	13'8"
16) Loading reach	1732 mm	5'8"	1819 mm	6'0"	2736 mm	9'0"
Swing arc	180°		180°		180°	
Bucket rotation	205°		205°		205°	
17) Stabilizer spread, operating position (center of pad)	3219 mm	10'7"	3219 mm	10'7"	3219 mm	10'7"
18) Stabilizer spread, operating position (outside edge of pad)	3689 mm	12'1"	3689 mm	12'1"	3689 mm	12'1"
Stabilizer spread, transport position	2352 mm	7'9"	2352 mm	7'9"	2352 mm	7'9"
Bucket dig force	65.4 kN	14,712 lb	64.8 kN	14,586 lb	64.8 kN	14,586 lb
Stick dig force	38.2 kN	8593 lb	37.5 kN	8421 lb	27.5 kN	6188 lb

DIMENSIONS WITH FORKS/ MATERIAL-HANDLING ARM	Cat 420D IT Operating Specifications with Forks					
	1050 mm (3'5")		1200 mm (3'11")		1350 mm (4'5")	
Fork Tine Length						
Operating load (SAE J1197)	1885 kg*	4155 lb*	1808 kg*	3985 lb*	1737 kg*	3829 lb*
Operating load (CEN474-4)	2290 kg*	5049 lb*	2279 kg*	5025 lb*	2270 kg*	5003 lb*
Overall length (A)	7464 mm	24'6"	7614 mm	25'0"	7764 mm	25'6"
Load center	525 mm	1'9"	600 mm	2'0"	675 mm	2'3"



*Tip limited.

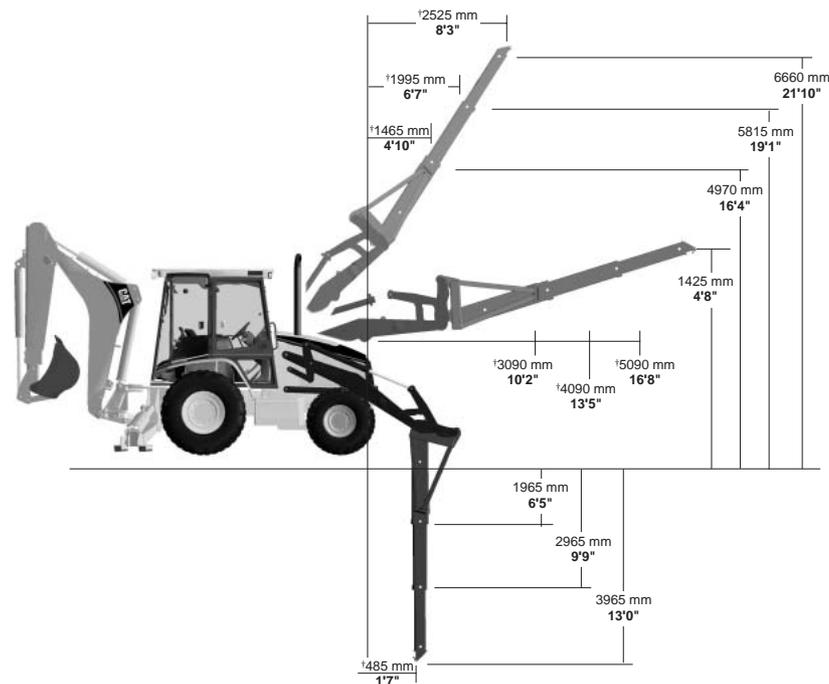
Specifications include lubricants, full fuel tank, ROPS cab, 80 kg (176 lb) operator, 355 kg (780 lb) counterweight, standard tires, standard stick, 610 mm (24 in) standard-duty bucket, 2WD.

Machine stability is affected by machine options and backhoe attachments.

All dimensions are approximate.

†Measured from nose of machine.

DIMENSIONS WITH FORKS/ MATERIAL-HANDLING ARM	Cat 420D IT Operating Specifications with Material-Handling Arm					
	Retracted		Mid-Position		Extended	
Material-Handling Arm Position						
Operating load (SAE J1197 and CEN474-4)	967 kg*	2131 lb*	612 kg*	1349 lb*	448 kg*	988 lb*
Overall length, maximum	8574 mm	28'2"	9574 mm	31'5"	10 574 mm	34'8"



*Hydraulic limited.

Specifications include lubricants, full fuel tank, ROPS cab, 80 kg (176 lb) operator, 355 kg (780 lb) counterweight, standard tires, standard stick, 610 mm (24 in) standard-duty bucket, 2WD.

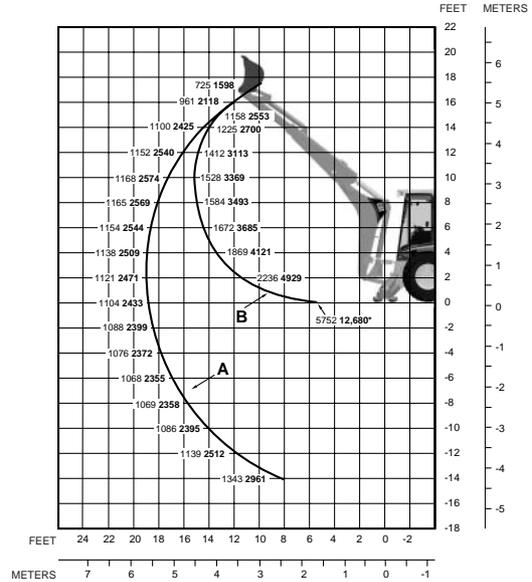
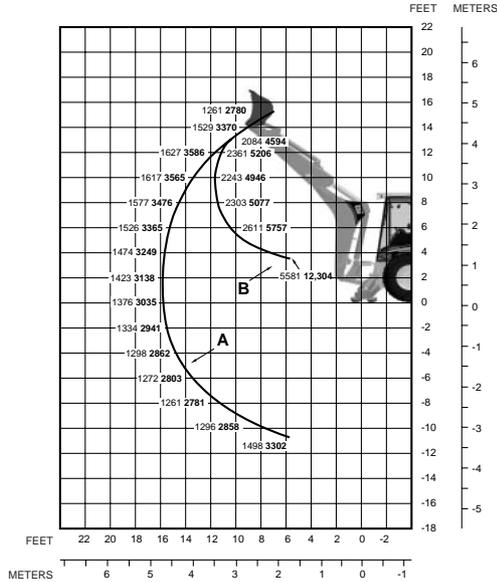
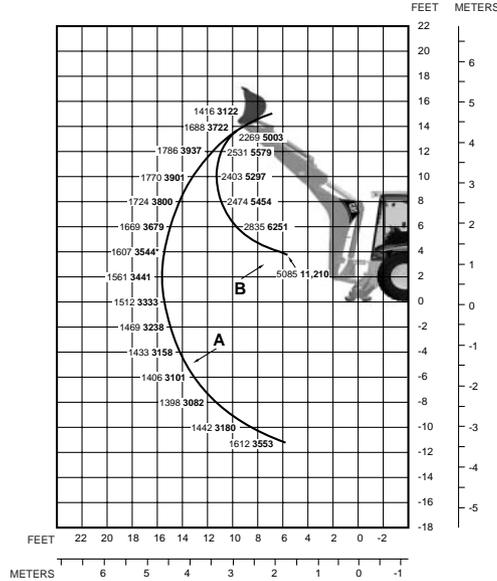
Machine stability is affected by machine options and backhoe attachments.

All dimensions are approximate.

†Measured from nose of machine.

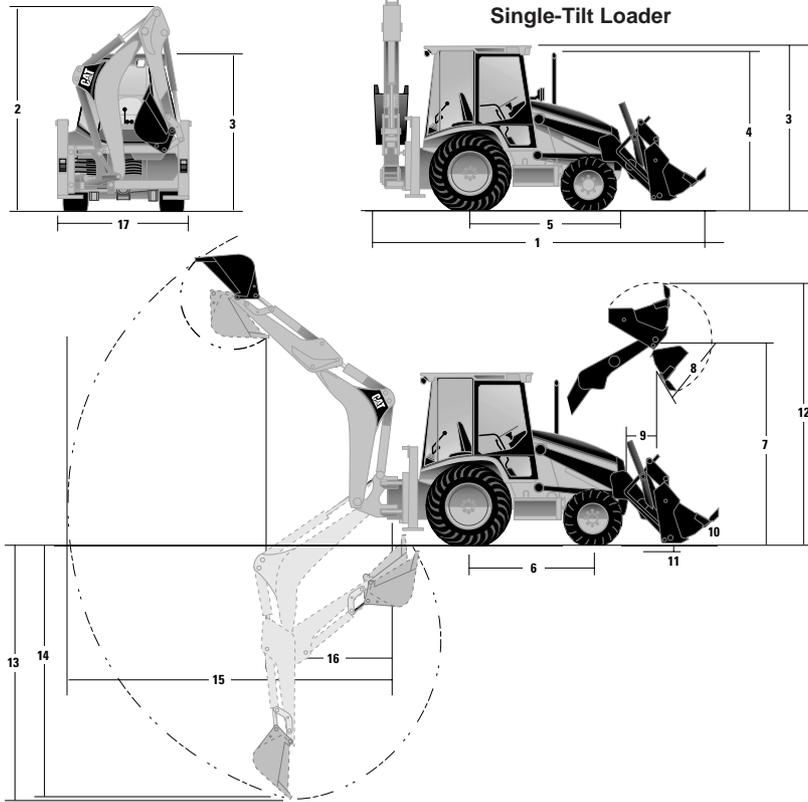
KEY

- A — Boom lift kg lb
- B — Stick lift kg lb



Lift capacities are over-end values. Machine equipped with 2WD, OROPS, 0.96 m³ (1.25 yd³) general-purpose bucket and 355 kg (780 lb) counterweight. Extensible stick includes 567 kg (1250 lb) counterweight.

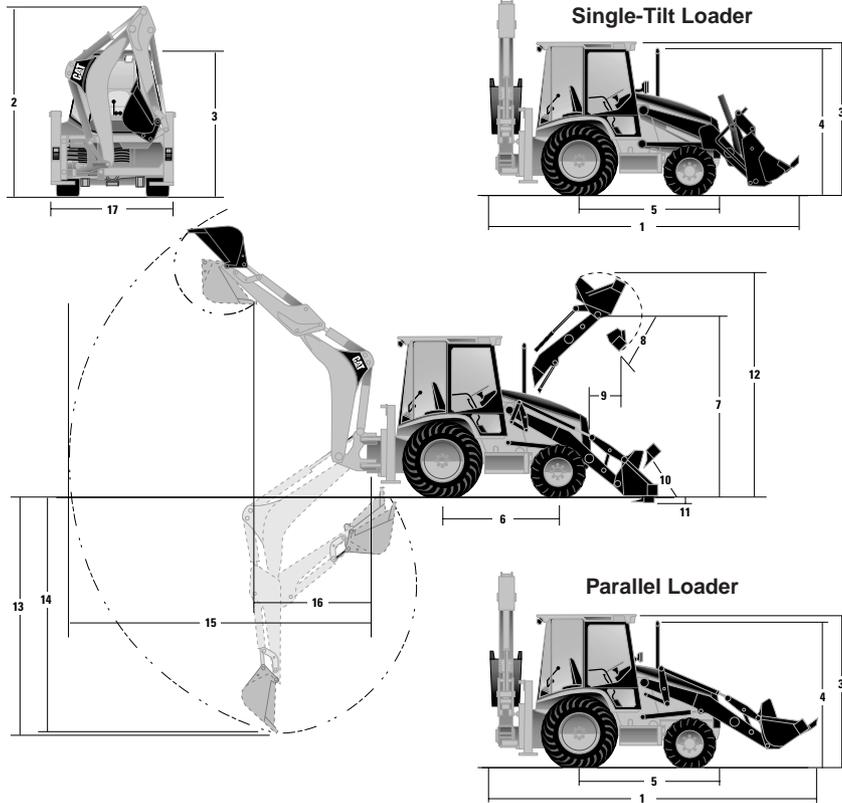
*Indicates lift capacity is stability limited.



MACHINE DIMENSIONS	Single-Tilt Loader			
	General Purpose		Multi Purpose	
1) Overall transport length	5760 mm	18'11"	5685 mm	18'8"
Overall length	5710 mm	18'9"	5650 mm	18'6"
2) Overall transport height	3740 mm	12'3"	3740 mm	12'3"
Overall width (Standard frame)	2396 mm	7'10"	2406 mm	7'11"
Overall width (Narrow frame)	2262 mm	7'5"	2262 mm	7'5"
3) Height to top of cab/canopy	2900 mm	9'6"	2900 mm	9'6"
4) Height to top of exhaust stack	2700 mm	8'10"	2700 mm	8'10"
Ground clearance (minimum)	320 mm	13"	320 mm	13"
5) Rear axle centerline to front grill	2613 mm	8'7"	2613 mm	8'7"
Front wheel tread gauge	1780 mm	5'10"	1780 mm	5'10"
Rear wheel tread gauge	1714 mm	5'8"	1714 mm	5'8"
6) Wheelbase (AWD)	2100 mm	6'11"	2100 mm	6'11"

LOADER BUCKET DIMENSIONS AND PERFORMANCE	Single-Tilt Loader (Narrow Bucket)				Single-Tilt Loader (Standard Bucket)			
	General Purpose		Multi Purpose		General Purpose		Multi Purpose	
Capacity (SAE) rated	0.96 m ³	1.25 yd³	0.96 m ³	1.25 yd³	1 m ³	1.31 yd³	0.96 m ³	1.25 yd³
Width	2262 mm	7'5"	2262 mm	7'5"	2396 mm	7'10"	2396 mm	7'10"
Lift capacity at maximum height	2454 kg	5410 lb	2292 kg	5050 lb	2416 kg	5320 lb	2256 kg	4970 lb
Breakout force	39.5 kN	8880 lb	38.6 kN	8680 lb	38.9 kN	8750 lb	38 kN	8550 lb
7) Maximum hinge pin height	3321 mm	10'11"	3321 mm	10'11"	3321 mm	10'11"	3321 mm	10'11"
8) Dump angle at full height	43°		43°		43°		43°	
Dump height at maximum angle	2633 mm	8'8"	2666 mm	8'9"	2633 mm	8'8"	2666 mm	8'9"
9) Dump reach at maximum angle	794 mm	2'7"	714 mm	2'4"	794 mm	2'7"	714 mm	2'4"
10) Maximum bucket rollback at ground level	39°		40°		39°		40°	
11) Digging depth	78 mm	3"	109 mm	4"	78 mm	3"	109 mm	4"
Maximum grading angle	109°		111°		109°		111°	
Width of dozer cutting edge	N/A		2396 mm	7'10"	N/A		2396 mm	7'10"
12) Maximum operating height	4201 mm	13'9"	4229 mm	13'10"	4201 mm	13'9"	4229 mm	13'10"
Jaw opening maximum	N/A		927 mm	3'0"	N/A		927 mm	3'0"
Weight (does not include teeth or forks)	432 kg	953 lb	611 kg	1347 lb	445 kg	981 lb	700 kg	1544 lb

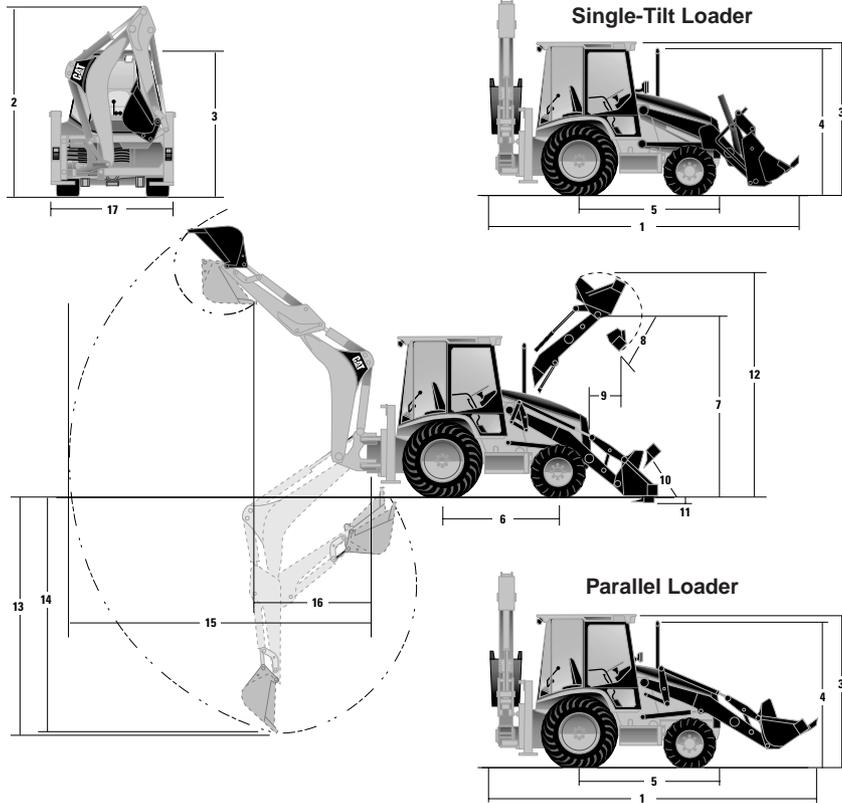
BACKHOE DIMENSIONS AND PERFORMANCE	Standard Stick		Extendible Stick Retracted		Extendible Stick Extended	
	13) Digging depth, manufacturers maximum	4854 mm	15'11"	4916 mm	16'2"	5894 mm	19'4"
14) Digging depth, 610 mm (2'0") flat bottom	4850 mm	15'11"	4855 mm	15'11"	5865 mm	19'3"
15) Reach from swing pivot at ground line	5637 mm	18'6"	5692 mm	18'8"	6664 mm	21'10"
Loading height	3712 mm	12'2"	3730 mm	12'3"	4274 mm	14'0"
16) Loading reach	1742 mm	5'9"	1829 mm	6'0"	2747 mm	9'0"
Swing arc	180°		180°		180°	
Bucket rotation	205°		205°		205°	
17) Stabilizer width (Standard frame)	2360 mm	7'9"	2360 mm	7'9"	2360 mm	7'9"
Stabilizer width (Narrow frame)	2196 mm	7'2"	2196 mm	7'2"	2196 mm	7'2"
Bucket dig force	52.1 kN	11,720 lb	51.6 kN	11,610 lb	51.6 kN	11,610 lb
Stick dig force	34.9 kN	7850 lb	34.2 kN	7690 lb	25.2 kN	5670 lb
Total side shift travel (Standard frame)	1260 mm	4'2"	1260 mm	4'2"	1260 mm	4'2"
Total side shift travel (Narrow frame)	1096 mm	3'7"	1096 mm	3'7"	1096 mm	3'7"



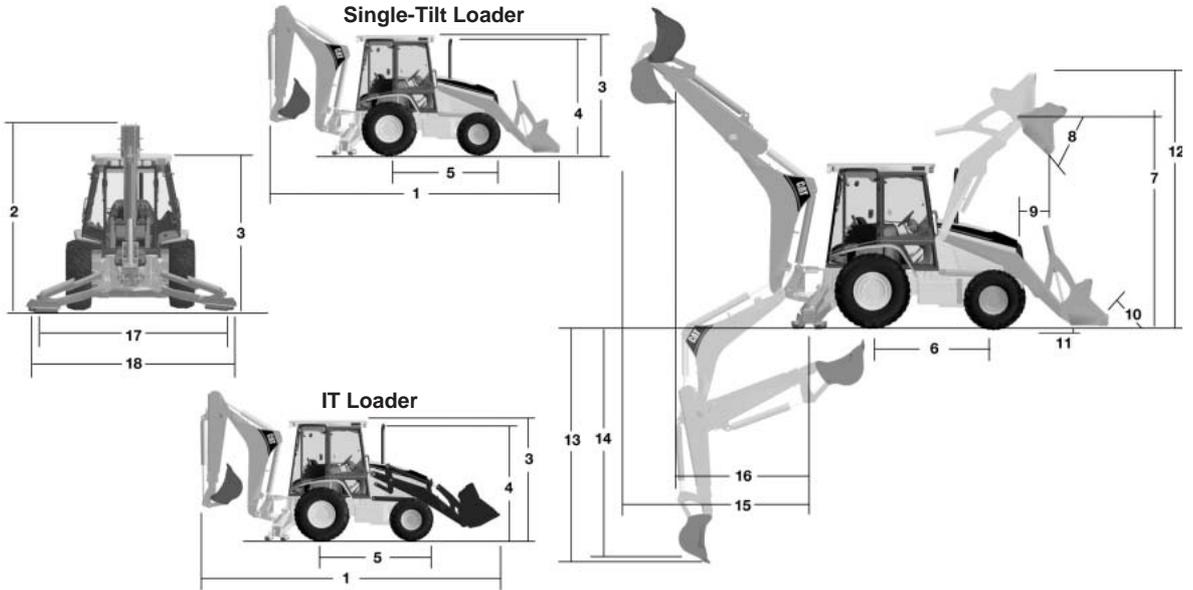
MACHINE DIMENSIONS	Parallel Loader				Single-Tilt Loader			
	General Purpose		Multi Purpose		General Purpose		Multi Purpose	
1) Overall transport length	5760 mm	18'11"	5685 mm	18'8"	5760 mm	18'11"	5685 mm	18'8"
Overall length	5710 mm	18'9"	5650 mm	18'6"	5710 mm	18'9"	5650 mm	18'6"
2) Overall transport height	3740 mm	12'3"	3740 mm	12'3"	3740 mm	12'3"	3740 mm	12'3"
Overall width (Standard frame)	2396 mm	7'10"	2406 mm	7'11"	2396 mm	7'10"	2406 mm	7'11"
Overall width (Narrow frame)	2262 mm	7'5"	2262 mm	7'5"	2262 mm	7'5"	2262 mm	7'5"
3) Height to top of cab/canopy	2900 mm	9'6"	2900 mm	9'6"	2900 mm	9'6"	2900 mm	9'6"
4) Height to top of exhaust stack	2700 mm	8'10"	2700 mm	8'10"	2700 mm	8'10"	2700 mm	8'10"
Ground clearance (minimum)	320 mm	13"	320 mm	13"	320 mm	13"	320 mm	13"
5) Rear axle centerline to front grill	2613 mm	8'7"	2613 mm	8'7"	2613 mm	8'7"	2613 mm	8'7"
Front wheel tread gauge	1780 mm	5'10"	1780 mm	5'10"	1780 mm	5'10"	1780 mm	5'10"
Rear wheel tread gauge	1714 mm	5'8"	1714 mm	5'8"	1714 mm	5'8"	1714 mm	5'8"
6) Wheelbase (AWD)	2100 mm	6'11"	2100 mm	6'11"	2100 mm	6'11"	2100 mm	6'11"

LOADER BUCKET DIMENSIONS AND PERFORMANCE	Parallel Loader (Narrow Bucket)				Single-Tilt Loader (Narrow Bucket)			
	General Purpose		Multi Purpose		General Purpose		Multi Purpose	
Capacity (SAE) rated	0.96 m ³	1.25 yd³	0.96 m ³	1.25 yd³	0.96 m ³	1.25 yd³	0.96 m ³	1.25 yd³
Width	2262 mm	7'5"	2262 mm	7'5"	2262 mm	7'5"	2262 mm	7'5"
Lift capacity at maximum height	3468 kg	7646 lb	3232 kg	7125 lb	2997 kg	6607 lb	2806 kg	6186 lb
Breakout force	51 kN	11,465 lb	56.6 kN	12,725 lb	47 kN	10,570 lb	45.9 kN	10,320 lb
7) Maximum hinge pin height	3321 mm	10'11"	3321 mm	10'11"	3321 mm	10'11"	3321 mm	10'11"
8) Dump angle at full height	47°		47°		43°		43°	
Dump height at maximum angle	2613 mm	8'7"	2650 mm	8'8"	2633 mm	8'8"	2666 mm	8'9"
9) Dump reach at maximum angle	764 mm	2'6"	685 mm	2'3"	794 mm	2'7"	714 mm	2'4"
10) Maximum bucket rollback at ground level	40°		40°		39°		40°	
11) Digging depth	77 mm	3"	108 mm	4"	78 mm	3"	109 mm	4"
Maximum grading angle	111°		114°		109°		111°	
Width of dozer cutting edge	N/A		2406 mm	7'11"	N/A		2406 mm	7'11"
12) Maximum operating height	4201 mm	13'9"	4229 mm	13'10"	4201 mm	13'9"	4229 mm	13'10"
Jaw opening maximum	N/A		927 mm	3'0"	N/A		927 mm	3'0"
Weight (does not include teeth or forks)	426 kg	939 lb	547 kg	1206 lb	432 kg	952 lb	611 kg	1347 lb

LOADER BUCKET DIMENSIONS AND PERFORMANCE	Parallel Loader (Standard Bucket)				Single-Tilt Loader (Standard Bucket)			
	General Purpose		Multi Purpose		General Purpose		Multi Purpose	
Capacity (SAE) rated	1 m ³	1.31 yd³	1.03 m ³	1.35 yd³	1 m ³	1.31 yd³	1.03 m ³	1.35 yd³
Width	2396 mm	7'10"	2406 mm	7'11"	2396 mm	7'10"	2406 mm	7'11"
Lift capacity at maximum height	3388 kg	7470 lb	3152 kg	6950 lb	2917 kg	6432 lb	2726 kg	6010 lb
Breakout force	50.2 kN	11,290 lb	55.7 kN	12,530 lb	46.3 kN	10,418 lb	45.2 kN	10,170 lb
7) Maximum hinge pin height	3321 mm	10'11"	3321 mm	10'11"	3321 mm	10'11"	3321 mm	10'11"
8) Dump angle at full height	47°		47°		43°		43°	
Dump height at maximum angle	2613 mm	8'7"	2650 mm	8'8"	2633 mm	8'8"	2666 mm	8'9"
9) Dump reach at maximum angle	764 mm	2'6"	685 mm	2'3"	794 mm	2'7"	714 mm	2'4"
10) Maximum bucket rollback at ground level	40°		40°		39°		40°	
11) Digging depth	77 mm	3"	108 mm	4"	78 mm	3"	109 mm	4"
Maximum grading angle	111°		114°		109°		111°	
Width of dozer cutting edge	N/A		2406 mm	7'11"	N/A		2406 mm	7'11"
12) Maximum operating height	4201 mm	13'9"	4229 mm	13'10"	4201 mm	13'9"	4229 mm	13'10"
Jaw opening maximum	N/A		927 mm	3'0"	N/A		927 mm	3'0"
Weight (does not include teeth or forks)	445 kg	981 lb	685 kg	1510 lb	445 kg	981 lb	700 kg	1544 lb



BACKHOE DIMENSIONS AND PERFORMANCE	Standard Stick		Extendible Stick Retracted		Extendible Stick Extended	
	13) Digging depth, manufacturers maximum	4854 mm	15'11"	4916 mm	16'2"	5894 mm	19'4"
14) Digging depth, 610 mm (2'0") flat bottom	4850 mm	15'11"	4855 mm	15'11"	5865 mm	19'3"
15) Reach from swing pivot at ground line	5637 mm	18'6"	5692 mm	18'8"	6664 mm	21'10"
Loading height	3712 mm	12'2"	3730 mm	12'3"	4274 mm	14'0"
16) Loading reach	1742 mm	5'9"	1829 mm	6'0"	2747 mm	9'0"
Swing arc	180°		180°		180°	
Bucket rotation	205°		205°		205°	
17) Stabilizer width (Standard frame)	2360 mm	7'9"	2360 mm	7'9"	2360 mm	7'9"
Stabilizer width (Narrow frame)	2196 mm	7'2"	2196 mm	7'2"	2196 mm	7'2"
Bucket dig force	57.1 kN	12,840 lb	56.6 kN	12,730 lb	56.6 kN	12,730 lb
Stick dig force	38.2 kN	8590 lb	37.5 kN	8430 lb	27 kN	6070 lb
Total side shift travel (Standard frame)	1260 mm	4'2"	1260 mm	4'2"	1260 mm	4'2"
Total side shift travel (Narrow frame)	1096 mm	3'7"	1096 mm	3'7"	1096 mm	3'7"



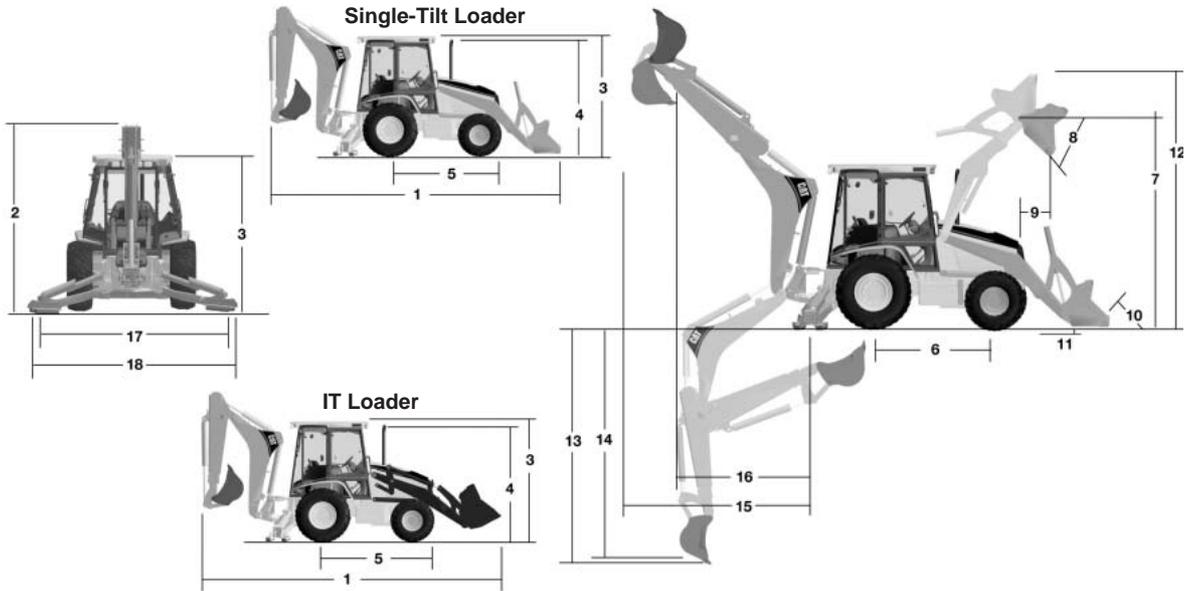
MACHINE DIMENSIONS	Single-Tilt Loader					
	General Purpose 1 m ³ (1.31 yd ³)		General Purpose 1.07 m ³ (1.4 yd ³)		General Purpose 1.15 m ³ (1.5 yd ³)	
1) Overall transport length	7289 mm	23'11"	7354 mm	24'2"	7354 mm	24'2"
Overall length	7279 mm	23'11"	7344 mm	24'1"	7344 mm	24'1"
2) Overall transport height	3770 mm	12'4"	3770 mm	12'4"	3770 mm	12'4"
Overall width	2406 mm	7'11"	2352 mm	7'9"	2406 mm	7'11"
3) Height to top of cab/canopy	2770 mm	9'1"	2770 mm	9'1"	2770 mm	9'1"
4) Height to top of exhaust stack	2670 mm	8'9"	2670 mm	8'9"	2670 mm	8'9"
Ground clearance (minimum)	297 mm	12"	297 mm	12"	297 mm	12"
5) Rear axle centerline to front grill	2660 mm	8'9"	2660 mm	8'9"	2660 mm	8'9"
Front wheel tread gauge	1871 mm	6'2"	1871 mm	6'2"	1871 mm	6'2"
Rear wheel tread gauge	1714 mm	5'8"	1714 mm	5'8"	1714 mm	5'8"
6) Wheelbase (2WD/AWD)	2100 mm	6'11"	2100 mm	6'11"	2100 mm	6'11"

MACHINE DIMENSIONS	Single-Tilt Loader			
	Multi Purpose 0.96 m ³ (1.25 yd ³)		Multi Purpose 1.03 m ³ (1.35 yd ³)	
1) Overall transport length	7274 mm	23'10"	7274 mm	23'10"
Overall length	7264 mm	23'10"	7264 mm	23'10"
2) Overall transport height	3770 mm	12'4"	3770 mm	12'4"
Overall width	2352 mm	7'9"	2406 mm	7'11"
3) Height to top of cab/canopy	2770 mm	9'1"	2770 mm	9'1"
4) Height to top of exhaust stack	2670 mm	8'9"	2670 mm	8'9"
Ground clearance (minimum)	297 mm	12"	297 mm	12"
5) Rear axle centerline to front grill	2660 mm	8'9"	2660 mm	8'9"
Front wheel tread gauge	1871 mm	6'2"	1871 mm	6'2"
Rear wheel tread gauge	1714 mm	5'8"	1714 mm	5'8"
6) Wheelbase (2WD/AWD)	2100 mm	6'11"	2100 mm	6'11"

Backhoe Loaders

Performance Data

- 430D/430D IT



MACHINE DIMENSIONS	IT Loader with Quick Coupler							
	General Purpose 1 m ³ (1.31 yd ³)		General Purpose 1.15 m ³ (1.5 yd ³)		Multi Purpose 0.96 m ³ (1.25 yd ³)		Multi Purpose 1.03 m ³ (1.35 yd ³)	
1) Overall transport length	7334 mm	24'1"	7399 mm	24'3"	7314 mm	24'0"	7314 mm	24'0"
Overall length	7324 mm	24'0"	7389 mm	24'3"	7304 mm	23'11"	7304 mm	23'11"
2) Overall transport height	3770 mm	12'4"	3770 mm	12'4"	3770 mm	12'4"	3770 mm	12'4"
Overall width	2352 mm	7'9"	2352 mm	7'9"	2352 mm	7'9"	2352 mm	7'9"
3) Height to top of cab/canopy	2770 mm	9'1"	2770 mm	9'1"	2770 mm	9'1"	2770 mm	9'1"
4) Height to top of exhaust stack	2670 mm	8'9"	2670 mm	8'9"	2670 mm	8'9"	2670 mm	8'9"
Ground clearance (minimum)	297 mm	12"	297 mm	12"	297 mm	12"	297 mm	12"
5) Rear axle centerline to front grill	2660 mm	8'9"	2660 mm	8'9"	2660 mm	8'9"	2660 mm	8'9"
Front wheel tread gauge	1871 mm	6'2"	1871 mm	6'2"	1871 mm	6'2"	1871 mm	6'2"
Rear wheel tread gauge	1714 mm	5'8"	1714 mm	5'8"	1714 mm	5'8"	1714 mm	5'8"
6) Wheelbase (2WD/AWD)	2100 mm	6'11"	2100 mm	6'11"	2100 mm	6'11"	2100 mm	6'11"

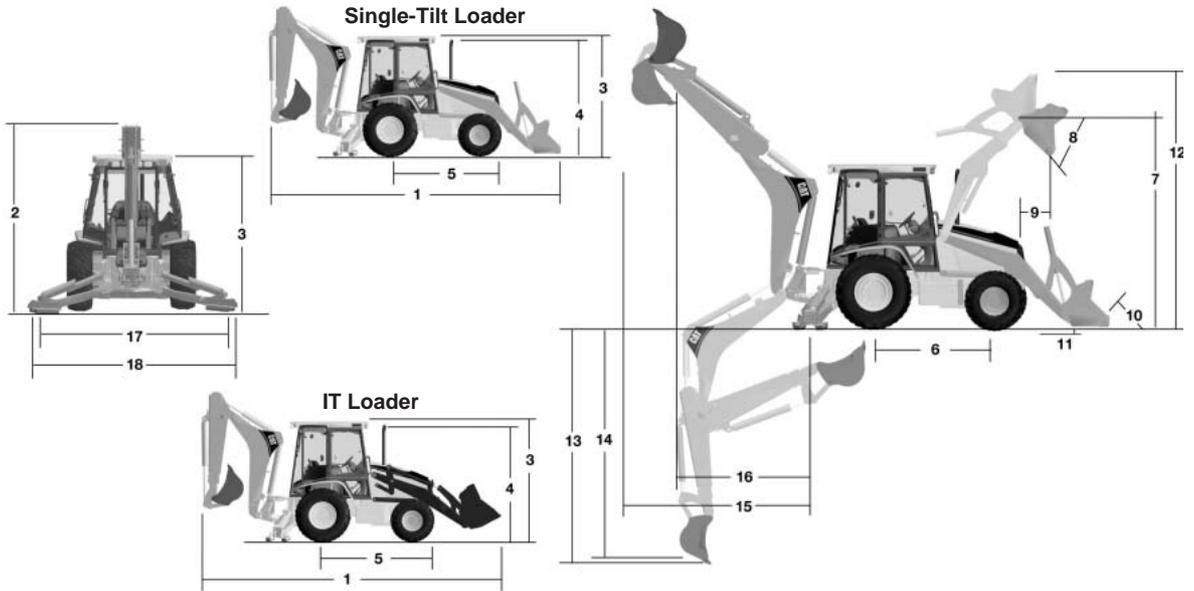
LOADER BUCKET DIMENSIONS AND PERFORMANCE	Single-Tilt Loader					
	General Purpose 1 m ³ (1.31 yd ³)		General Purpose 1.07 m ³ (1.4 yd ³)		General Purpose 1.15 m ³ (1.5 yd ³)	
Capacity (SAE) rated	1 m ³	1.31 yd³	1.07 m ³	1.4 yd³	1.15 m ³	1.5 yd³
Width	2406 mm	7'11"	2262 mm	7'5"	2406 mm	7'11"
Lift capacity at maximum height	2898 kg	6391 lb	2837 kg	6254 lb	2826 kg	6230 lb
Breakout force	45.7 kN	10,269 lb	44.6 kN	10,026 lb	44.5 kN	10,005 lb
7) Maximum hinge pin height (2WD)	3266 mm	10'9"	3266 mm	10'9"	3266 mm	10'9"
(4WD)	3338 mm	10'11"	3338 mm	10'11"	3338 mm	10'11"
8) Dump angle at full height	43°		43°		43°	
Dump height at maximum angle	2575 mm	8'5"	2521 mm	8'3"	2521 mm	8'3"
9) Dump reach at maximum angle	802 mm	2'8"	801 mm	2'8"	801 mm	2'8"
10) Maximum bucket rollback at ground level	40°		40°		40°	
11) Digging depth	135 mm	5"	174 mm	7"	174 mm	7"
Maximum grading angle	107°		107°		107°	
Width of dozer cutting edge	N/A		N/A		N/A	
12) Maximum operating height	4146 mm	13'7"	4188 mm	13'9"	4188 mm	13'9"
Jaw opening maximum	N/A		N/A		N/A	
Weight (does not include teeth or forks)	445 kg	980 lb	438 kg	965 lb	458 kg	1010 lb

LOADER BUCKET DIMENSIONS AND PERFORMANCE	Single-Tilt Loader			
	Multi Purpose 0.96 m ³ (1.25 yd ³)		Multi Purpose 1.03 m ³ (1.35 yd ³)	
Capacity (SAE) rated	0.96 m ³	1.25 yd³	1.03 m ³	1.35 yd³
Width	2262 mm	7'5"	2406 mm	7'11"
Lift capacity at maximum height	2747 kg	6056 lb	2707 kg	5968 lb
Breakout force	44.9 kN	10,099 lb	44.6 kN	10,018 lb
7) Maximum hinge pin height (2WD)	3266 mm	10'9"	3266 mm	10'9"
(4WD)	3338 mm	10'11"	3338 mm	10'11"
8) Dump angle at full height	43°		43°	
Dump height at maximum angle	2609 mm	8'7"	2609 mm	8'7"
9) Dump reach at maximum angle	721 mm	2'4"	721 mm	2'4"
10) Maximum bucket rollback at ground level	40°		40°	
11) Digging depth	165 mm	6.5"	165 mm	6.5"
Maximum grading angle	110°		110°	
Width of dozer cutting edge	2260 mm	7'5"	2260 mm	7'5"
12) Maximum operating height	4174 mm	13'8"	4174 mm	13'8"
Jaw opening maximum	790 mm	2'7"	790 mm	2'7"
Weight (does not include teeth or forks)	662 kg	1460 lb	685 kg	1510 lb

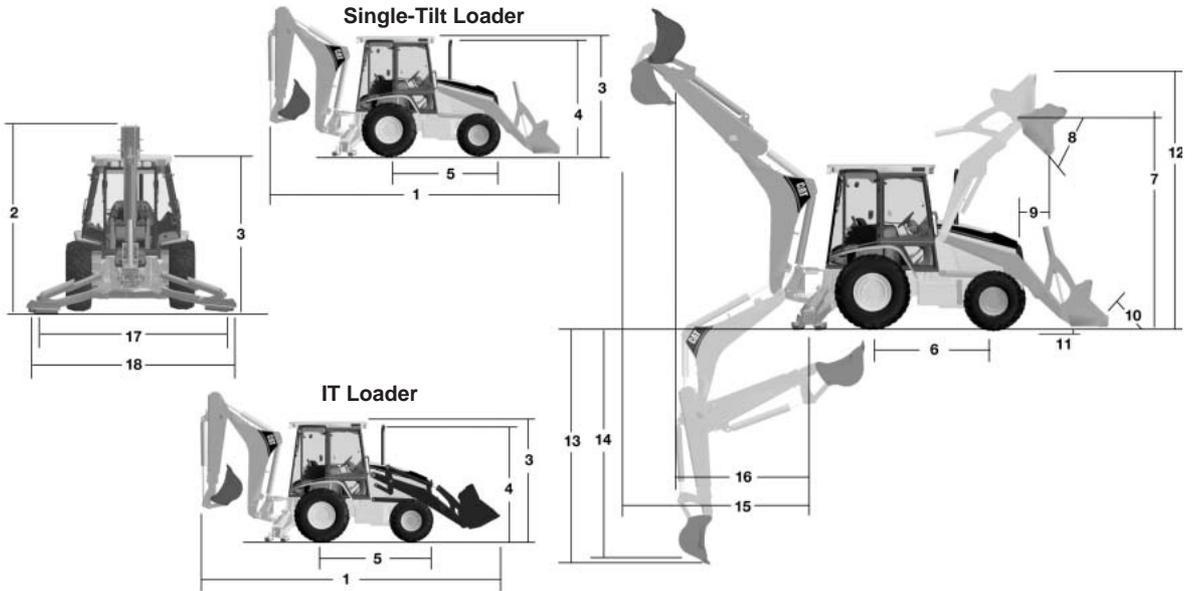
Backhoe Loaders

Performance Data

- 430D/430D IT

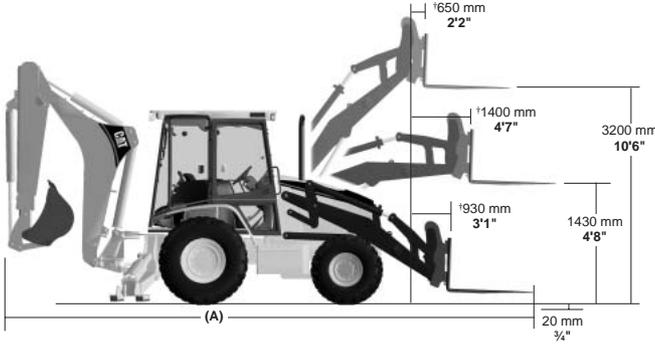


LOADER BUCKET DIMENSIONS AND PERFORMANCE	IT Loader with Quick Coupler							
	General Purpose 1 m ³ (1.31 yd ³)		General Purpose 1.15 m ³ (1.5 yd ³)		Multi Purpose 0.96 m ³ (1.25 yd ³)		Multi Purpose 1.03 m ³ (1.35 yd ³)	
Capacity (SAE) rated	1 m ³	1.31 yd³	1.15 m ³	1.5 yd³	0.96 m ³	1.25 yd³	1.03 m ³	1.35 yd³
Width	2406 mm	7'11"	2406 mm	7'11"	2262 mm	7'5"	2406 mm	7'11"
Lift capacity at maximum height	3152 kg	6949 lb	3098 kg	6829 lb	2958 kg	6521 lb	2916 kg	6428 lb
Breakout force	47.3 kN	10,628 lb	46.3 kN	10,410 lb	48.5 kN	10,897 lb	48.3 kN	10,853 lb
7) Maximum hinge pin height (2WD)	3266 mm	10'9"	3266 mm	10'9"	3266 mm	10'9"	3266 mm	10'9"
(4WD)	3338 mm	10'11"	3338 mm	10'11"	3338 mm	10'11"	3338 mm	10'11"
8) Dump angle at full height	43°		43°		43°		43°	
Dump height at maximum angle	2494 mm	8'2"	2440 mm	8'0"	2531 mm	8'4"	2531 mm	8'4"
9) Dump reach at maximum angle	830 mm	2'9"	827 mm	2'9"	751 mm	2'6"	751 mm	2'6"
10) Maximum bucket rollback at ground level	40°		40°		40°		40°	
11) Digging depth	135 mm	5"	174 mm	7"	165 mm	6.5"	165 mm	6.5"
Maximum grading angle	108°		108°		111°		111°	
Width of dozer cutting edge	N/A		N/A		2406 mm	7'11"	2406 mm	7'11"
12) Maximum operating height	4204 mm	13'10"	4250 mm	13'11"	4223 mm	13'10"	4223 mm	13'10"
Jaw opening maximum	N/A		N/A		790 mm	2'7"	790 mm	2'7"
Weight (does not include teeth or forks)	445 kg	980 lb	458 kg	1010 lb	662 kg	1460 lb	685 kg	1510 lb



BACKHOE DIMENSIONS AND PERFORMANCE	Standard Stick		Extendible Stick Retracted		Extendible Stick Extended	
	13) Digging depth, SAE (maximum)	4639 mm	15'3"	4870 mm	16'0"	6079 mm	19'11"
14) Digging depth, 610 mm (2'0") flat bottom	4624 mm	15'2"	4847 mm	15'11"	6051 mm	19'10"
Reach from rear axle centerline at ground line	7062 mm	23'2"	7263 mm	23'10"	8393 mm	27'6"
15) Reach from swing pivot at ground line	5972 mm	19'7"	6173 mm	20'3"	7303 mm	24'0"
Maximum operating height	5745 mm	18'10"	5884 mm	19'4"	6715 mm	22'0"
Loading height	3841 mm	12'7"	3940 mm	12'11"	4581 mm	15'0"
16) Loading reach	1823 mm	6'0"	2040 mm	6'8"	3076 mm	10'1"
Swing arc		180°		180°		180°
Bucket rotation		205°		205°		205°
17) Stabilizer spread, operating position (center of pad)	3219 mm	10'7"	3219 mm	10'7"	3219 mm	10'7"
18) Stabilizer spread, operating position (outside edge of pad)	3689 mm	12'1"	3689 mm	12'1"	3689 mm	12'1"
Stabilizer spread, transport position	2352 mm	7'9"	2352 mm	7'9"	2352 mm	7'9"
Bucket dig force	65.6 kN	14,732 lb	65 kN	14,602 lb	65 kN	14,602 lb
Stick dig force	42 kN	9448 lb	39.4 kN	8865 lb	28.6 kN	6430 lb

DIMENSIONS WITH FORKS/ MATERIAL-HANDLING ARM	Cat 430D IT Operating Specifications with Forks					
	1050 mm (3'5")		1200 mm (3'11")		1350 mm (4'5")	
Fork Tine Length						
Operating load (SAE J1197)	1961 kg*	4322 lb*	1890 kg*	4166 lb*	1816 kg*	4004 lb*
Operating load (CEN474-4)	2394 kg*	5277 lb*	2383 kg*	5254 lb*	2373 kg*	5232 lb*
Overall length (A)	7869 mm	25'10"	8019 mm	26'4"	8169 mm	26'10"
Load center	525 mm	1'9"	600 mm	2'0"	675 mm	2'3"



*Tip limited.

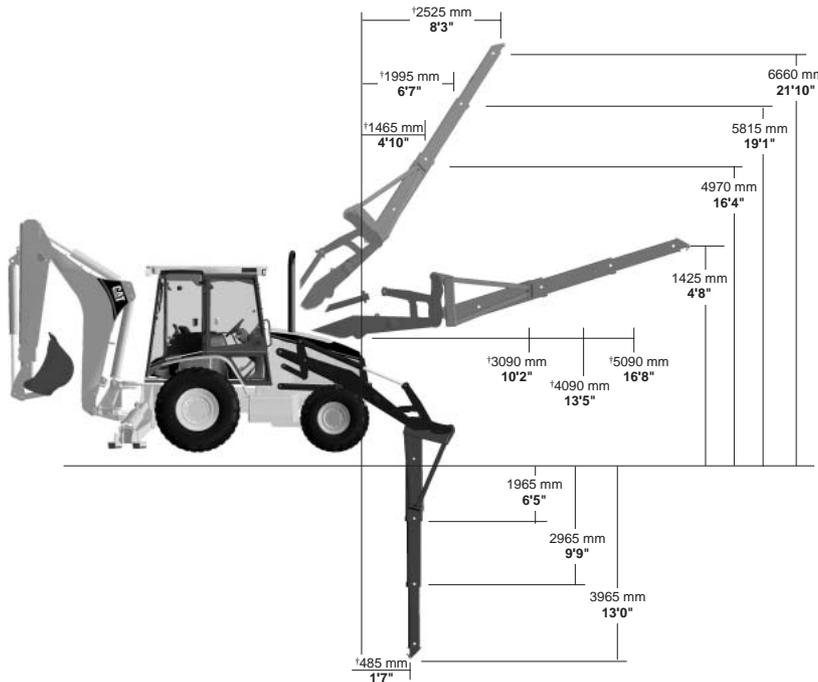
Specifications include lubricants, full fuel tank, ROPS cab, 80 kg (176 lb) operator, 460 kg (1010 lb) counterweight, standard tires, standard stick, 610 mm (24 in) heavy-duty bucket, 2WD.

Machine stability is affected by machine options and backhoe attachments.

All dimensions are approximate.

†Measured from nose of machine.

DIMENSIONS WITH FORKS/ MATERIAL-HANDLING ARM	Cat 430D IT Operating Specifications with Material-Handling Arm					
	Retracted		Mid-Position		Extended	
Material-Handling Arm Position						
Operating load (SAE J1197 and CEN474-4)	967 kg*	2131 lb*	612 kg*	1349 lb*	448 kg*	988 lb*
Overall length, maximum	8815 mm	28'11"	9815 mm	32'2"	10 815 mm	35'6"



*Hydraulic limited.

Specifications include lubricants, full fuel tank, ROPS cab, 80 kg (176 lb) operator, 358 kg (790 lb) counterweight, standard tires, standard stick, 610 mm (24 in) standard-duty bucket, 2WD.

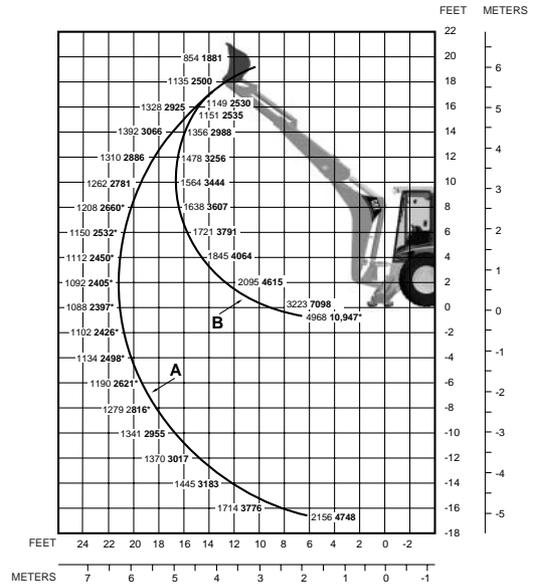
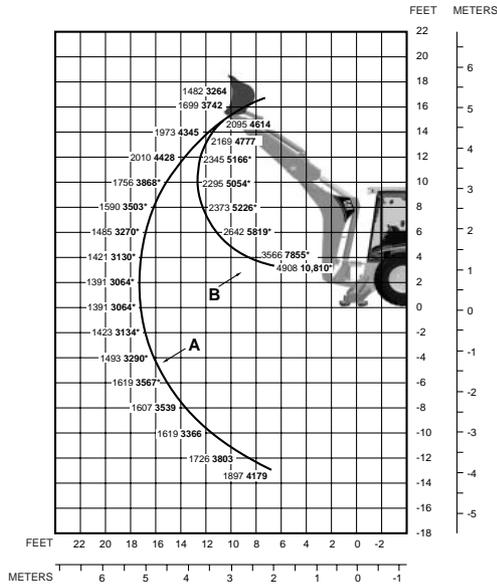
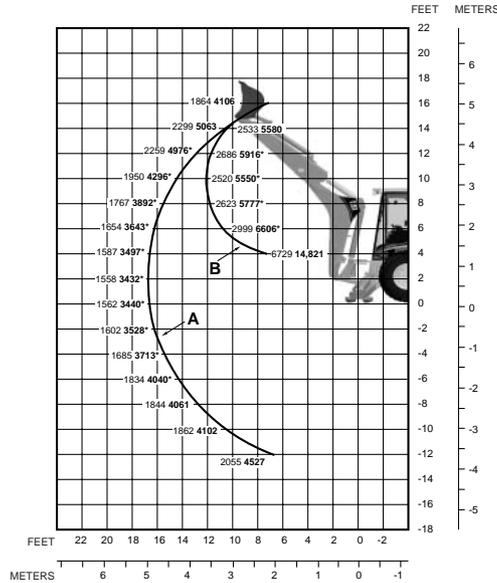
Machine stability is affected by machine options and backhoe attachments.

All dimensions are approximate.

†Measured from nose of machine.

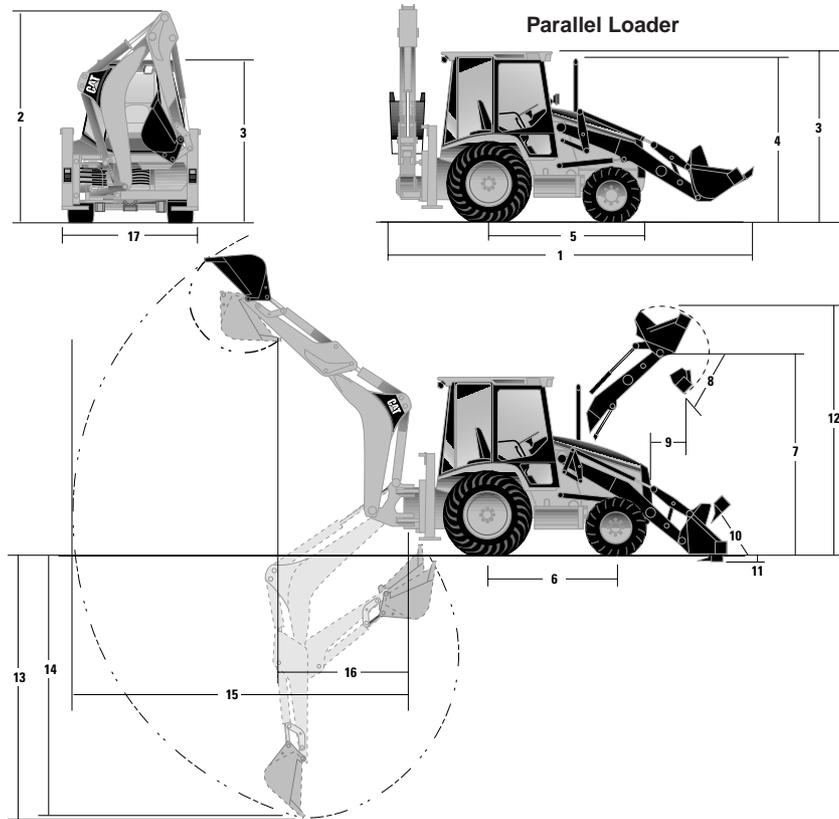
KEY

- A — Boom lift kg lb
- B — Stick lift kg lb



Lift capacities are over-end values. Machine equipped with 2WD, OROPS, 1 m³ (1.31 yd³) general-purpose loader bucket, 610 mm (24 in) heavy duty backhoe bucket and 460 kg (1010 lb) counterweight. Extensible stick includes 567 kg (1250 lb) counterweight.

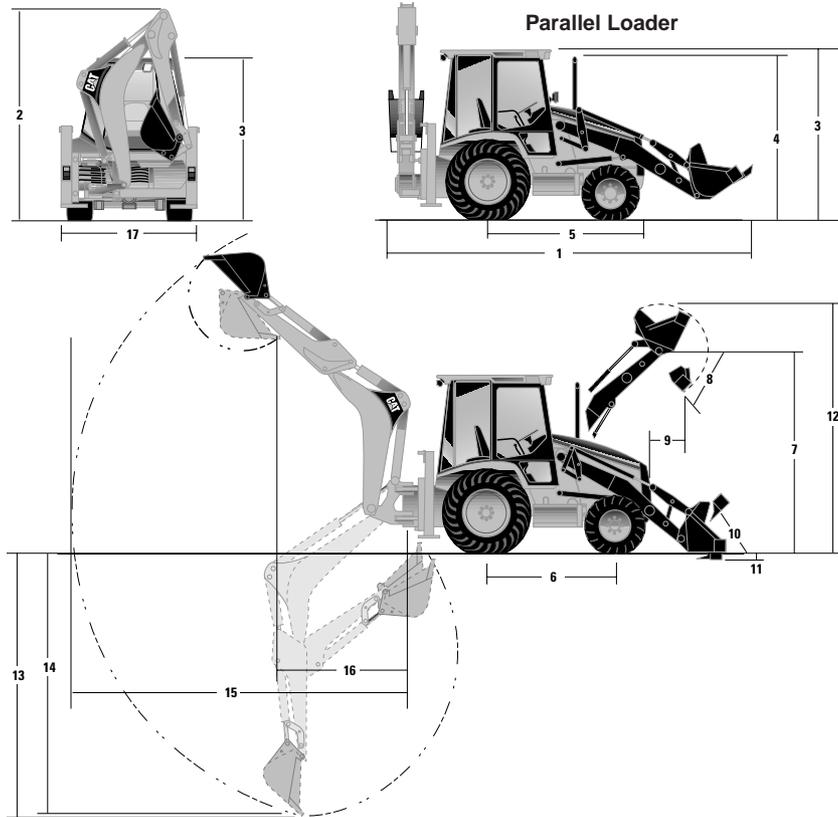
*Indicates lift capacity is stability limited.



MACHINE DIMENSIONS	Parallel Loader			
	General Purpose		Multi Purpose	
1) Overall transport length	5760 mm	18'11"	5685 mm	18'8"
Overall length	5710 mm	18'9"	5650 mm	18'6"
2) Overall transport height	3740 mm	12'3"	3740 mm	12'3"
Overall width	2396 mm	7'10"	2406 mm	7'11"
3) Height to top of cab/canopy	2900 mm	9'6"	2900 mm	9'6"
4) Height to top of exhaust stack	2700 mm	8'10"	2700 mm	8'10"
Ground clearance (minimum)	320 mm	13"	320 mm	13"
5) Rear axle centerline to front grill	2613 mm	8'7"	2613 mm	8'7"
Front wheel tread gauge	1780 mm	5'10"	1780 mm	5'10"
Rear wheel tread gauge	1714 mm	5'8"	1714 mm	5'8"
6) Wheelbase (AWD)	2100 mm	6'11"	2100 mm	6'11"

LOADER BUCKET DIMENSIONS AND PERFORMANCE	Parallel Loader			
	General Purpose		Multi Purpose	
Capacity (SAE) rated	1 m ³	1.31 yd ³	1.03 m ³	1.35 yd ³
Width	2396 mm	7'10"	2406 mm	7'11"
Lift capacity at maximum height	3388 kg	7470 lb	3152 kg	6950 lb
Breakout force	50.2 kN	11,290 lb	55.7 kN	12,530 lb
7) Maximum hinge pin height	3321 mm	10'11"	3321 mm	10'11"
8) Dump angle at full height		47°		47°
Dump height at maximum angle	2613 mm	8'7"	2650 mm	8'8"
9) Dump reach at maximum angle	764 mm	2'6"	685 mm	2'3"
10) Maximum bucket rollback at ground level		40°		40°
11) Digging depth	77 mm	3"	108 mm	4"
Maximum grading angle		111°		114°
Width of dozer cutting edge		N/A	2406 mm	7'11"
12) Maximum operating height	4201 mm	13'9"	4229 mm	13'10"
Jaw opening maximum		N/A	927 mm	3'0"
Weight (does not include teeth or forks)	445 kg	981 lb	685 kg	1510 lb

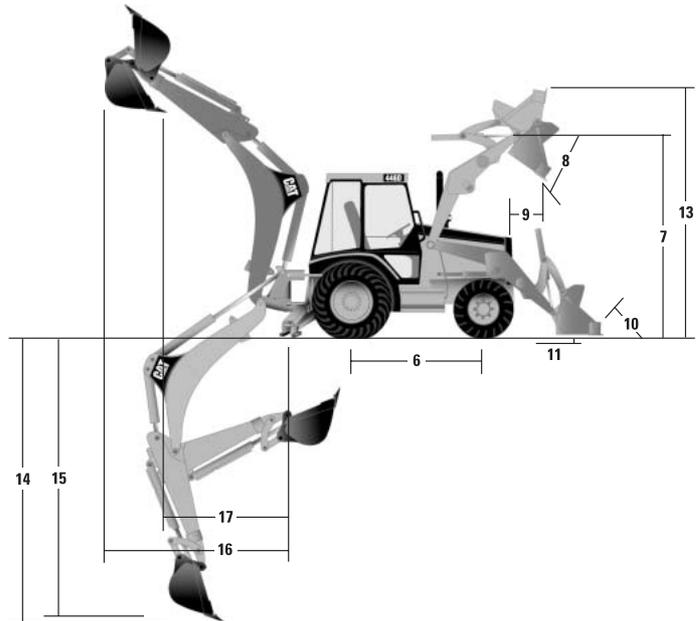
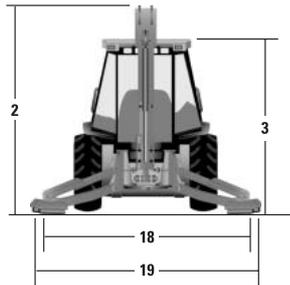
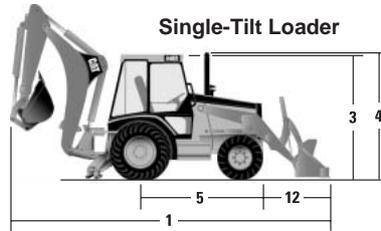
BACKHOE DIMENSIONS AND PERFORMANCE	Standard Stick		Extendible Stick Retracted		Extendible Stick Extended	
	13) Digging depth, manufacturers maximum	4854 mm	15'11"	4916 mm	16'2"	5894 mm	19'4"
14) Digging depth, 610 mm (2'0") flat bottom	4850 mm	15'11"	4855 mm	15'11"	5865 mm	19'3"
15) Reach from swing pivot at ground line	5637 mm	18'6"	5692 mm	18'8"	6664 mm	21'10"
Loading height	3712 mm	12'2"	3730 mm	12'3"	4274 mm	14'0"
16) Loading reach	1742 mm	5'9"	1829 mm	6'0"	2747 mm	9'0"
Swing arc		180°		180°		180°
Bucket rotation		205°		205°		205°
17) Stabilizer width	2360 mm	7'9"	2360 mm	7'9"	2360 mm	7'9"
Bucket dig force	65.4 kN	14,710 lb	64.8 kN	14,580 lb	64.8 kN	14,580 lb
Stick dig force	38.2 kN	8590 lb	37.5 kN	8430 lb	27 kN	6070 lb
Total side shift travel	1260 mm	4'2"	1260 mm	4'2"	1260 mm	4'2"



MACHINE DIMENSIONS	Parallel Loader			
	General Purpose		Multi Purpose	
1) Overall transport length	5760 mm	18'11"	5685 mm	18'8"
Overall length	5710 mm	18'9"	5650 mm	18'6"
2) Overall transport height	3740 mm	12'3"	3740 mm	12'3"
Overall width	2396 mm	7'10"	2406 mm	7'11"
3) Height to top of cab/canopy	2900 mm	9'6"	2900 mm	9'6"
4) Height to top of exhaust stack	2700 mm	8'10"	2700 mm	8'10"
Ground clearance (minimum)	320 mm	13"	320 mm	13"
5) Rear axle centerline to front grill	2613 mm	8'7"	2613 mm	8'7"
Front wheel tread gauge	1780 mm	5'10"	1780 mm	5'10"
Rear wheel tread gauge	1714 mm	5'8"	1714 mm	5'8"
Rear wheel tread gauge (AWS)	1890 mm	6'2"	1890 mm	6'2"
6) Wheelbase (AWD)	2100 mm	6'11"	2100 mm	6'11"

LOADER BUCKET DIMENSIONS AND PERFORMANCE	Parallel Loader			
	General Purpose		Multi Purpose	
Capacity (SAE) rated	1 m ³	1.31 yd ³	1.03 m ³	1.35 yd ³
Width	2396 mm	7'10"	2406 mm	7'11"
Lift capacity at maximum height	3388 kg	7470 lb	3152 kg	6950 lb
Breakout force	50.2 kN	11,290 lb	55.7 kN	12,530 lb
7) Maximum hinge pin height	3321 mm	10'11"	3321 mm	10'11"
8) Dump angle at full height		47°		47°
Dump height at maximum angle	2613 mm	8'7"	2650 mm	8'8"
9) Dump reach at maximum angle	764 mm	2'6"	685 mm	2'3"
10) Maximum bucket rollback at ground level		40°		40°
11) Digging depth	77 mm	3"	108 mm	4"
Maximum grading angle		111°		114°
Width of dozer cutting edge		N/A	2406 mm	7'11"
12) Maximum operating height	4201 mm	13'9"	4229 mm	13'10"
Jaw opening maximum		N/A	927 mm	3'0"
Weight (does not include teeth or forks)	445 kg	981 lb	685 kg	1510 lb

BACKHOE DIMENSIONS AND PERFORMANCE	Standard Stick		Extendible Stick Retracted		Extendible Stick Extended	
	13) Digging depth, manufacturers maximum	4854 mm	15'11"	4916 mm	16'2"	5894 mm	19'4"
14) Digging depth, 610 mm (2'0") flat bottom	4850 mm	15'11"	4855 mm	15'11"	5865 mm	19'3"
15) Reach from swing pivot at ground line	5637 mm	18'6"	5692 mm	18'8"	6664 mm	21'10"
Loading height	3712 mm	12'2"	3730 mm	12'3"	4274 mm	14'0"
16) Loading reach	1742 mm	5'9"	1829 mm	6'0"	2747 mm	9'0"
Swing arc		180°		180°		180°
Bucket rotation		205°		205°		205°
17) Stabilizer width	2360 mm	7'9"	2360 mm	7'9"	2360 mm	7'9"
Bucket dig force	65.4 kN	14,710 lb	64.8 kN	14,580 lb	64.8 kN	14,580 lb
Stick dig force	38.2 kN	8590 lb	37.5 kN	8430 lb	27.5 kN	6070 lb
Total side shift travel	1260 mm	4'2"	1260 mm	4'2"	1260 mm	4'2"



Dimensions and performance specifications shown are for machines equipped with 14.5/75-16.1 (10 PR) front tires, 21L-24 (12 PR) rear tires, ROPS canopy, standard stick with 610 mm (24 in) heavy-duty bucket, and 1.1 m³ (1.5 yd³) loader bucket and standard equipment unless otherwise specified.

MACHINE DIMENSIONS	Single-Tilt Loader					
	General Purpose 1.1 m ³ (1.5 yd ³)		General Purpose 1.3 m ³ (1.75 yd ³)		Multi Purpose 1.25 m ³ (1.63 yd ³)	
1) Overall transport length	7952 mm	26'1"	7990 mm	26'3"	7948 mm	26'1"
Overall length	7895 mm	25'11"	7955 mm	26'1"	7878 mm	25'10"
2) Overall transport height	4182 mm	13'9"	4182 mm	13'9"	4182 mm	13'9"
Overall width	2477 mm	8'2"	2477 mm	8'2"	2477 mm	8'2"
3) Height to top of cab/canopy	2899 mm	9'6"	2899 mm	9'6"	2899 mm	9'6"
4) Height to top of exhaust stack	2960 mm	9'9"	2960 mm	9'9"	2960 mm	9'9"
Ground clearance (minimum)	332 mm	13"	332 mm	13"	332 mm	13"
5) Rear axle centerline to front grill	2752 mm	9'0"	2752 mm	9'0"	2752 mm	9'0"
Front wheel tread gauge	1970 mm	6'6"	1970 mm	6'6"	1970 mm	6'6"
Rear wheel tread gauge	1800 mm	5'11"	1800 mm	5'11"	1800 mm	5'11"
6) Wheelbase (2WD/AWD)	2233 mm	7'4"	2233 mm	7'4"	2233 mm	7'4"

LOADER BUCKET DIMENSIONS AND PERFORMANCE	Single-Tilt Loader					
	General Purpose 1.1 m ³ (1.5 yd ³)		General Purpose 1.3 m ³ (1.75 yd ³)		Multi Purpose with Cutting Edge	
Capacity (SAE) rated	1.1 m ³	1.5 yd³	1.3 m ³	1.75 yd³	1.2 m ³	1.63 yd³
Width	2434 mm	8'0"	2434 mm	8'0"	2534 mm	8'4"
Lift capacity	4351 kg	9592 lb	4217 kg	9296 lb	4039 kg	8905 lb
Breakout	61.7 kN	13,868 lb	56.7 kN	12,744 lb	62.8 kN	14,105 lb
7) Maximum hinge pin height	3479 mm	11'5"	3479 mm	11'5"	3479 mm	11'5"
8) Dump angle at full height		45°		45°		45°
Dump height at maximum angle	2720 mm	8'11"	2678 mm	8'11"	2727 mm	8'11"
9) Dump reach at full height	855 mm	2'10"	897 mm	2'11"	820 mm	2'8"
10) Maximum bucket rollback at ground level		41°		41°		41°
11) Digging depth	153 mm	6"	153 mm	6"	172 mm	7"
Maximum grading angle		104°		104°		101°
Width of dozer cutting edge		N/A		N/A	2441 mm	8'0"
12) Grill to bucket cutting edge, carry position	1684 mm	6'6"	1723 mm	6'8"	1680 mm	6'6"
13) Maximum operating height	4405 mm	14'5"	4502 mm	14'9"	4406 mm	14'5"
Jaw opening maximum		N/A		N/A	1055 mm	3'5"
Weight	533 kg	1176 lb	579 kg	1278 lb	907 kg	2000 lb

BACKHOE DIMENSIONS AND PERFORMANCE	Standard Stick		Extendible Stick Retracted		Extendible Stick Extended	
14) Digging depth SAE (max)	5142 mm	16'10"	5207 mm	17'1"	6457 mm	21'2"
15) Digging depth 610 mm (2'0") flat bottom	5097 mm	16'8"	5175 mm	17'0"	6424 mm	21'1"
Reach from rear axle centerline at ground line	7867 mm	25'10"	7930 mm	26'0"	9121 mm	29'11"
16) Reach from swing pivot at ground line	6636 mm	21'9"	6697 mm	22'0"	7890 mm	25'11"
Maximum operating height	6524 mm	21'5"	6653 mm	21'10"	7536 mm	24'9"
Loading height	4392 mm	14'5"	4395 mm	14'5"	5068 mm	16'7"
17) Loading reach	2092 mm	6'10"	2004 mm	6'7"	3187 mm	10'5"
Swing arc		180°		180°		180°
Bucket rotation		190°		187°		187°
18) Stabilizer spread, operating position (center of pad)	3614 mm	11'10"	3614 mm	11'10"	3614 mm	11'10"
19) Stabilizer spread, operating position (outside edge of pad)	4084 mm	13'5"	4084 mm	13'5"	4084 mm	13'5"
Stabilizer spread, transport position	2477 mm	8'2"	2477 mm	8'2"	2477 mm	8'2"
Bucket dig force	75.4 kN	16,950 lb	72.95 kN	16,400 lb	72.95 kN	16,400 lb
Stick dig force	50.8 kN	11,430 lb	50.08 kN	11,260 lb	36.8 kN	8275 lb
Leveling angle (maximum slope on which machine will make a vertical cut)		13°		13°		13°

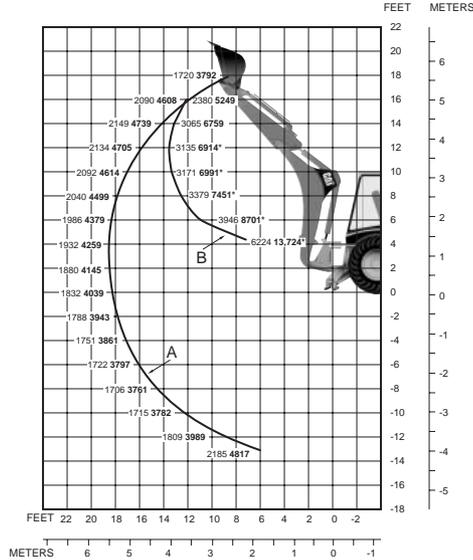
Backhoe Loaders

Lift Capacities

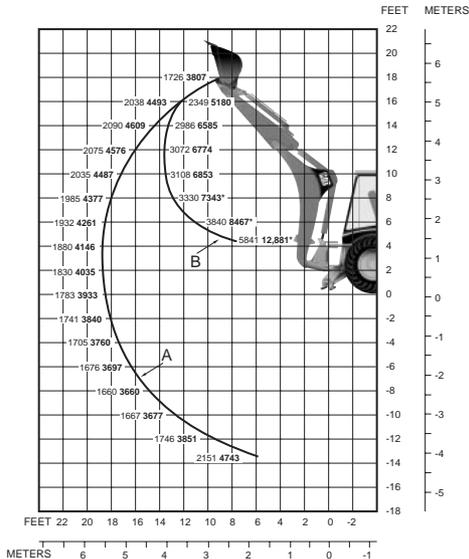
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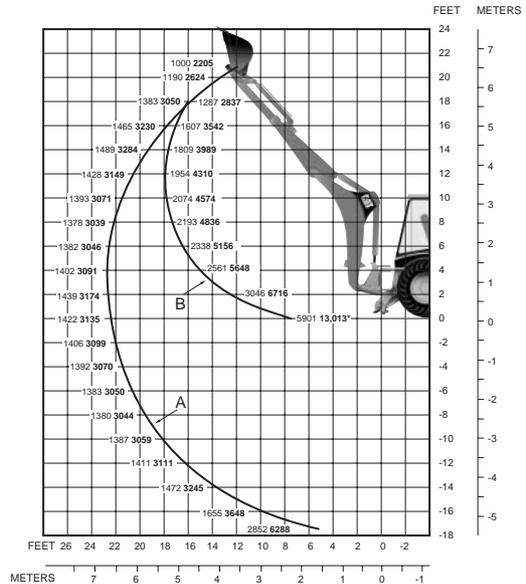
- A — Boom lift kg lb
- B — Stick lift kg lb



Standard Stick



Extendible Stick —
Retracted



Extendible Stick —
Extended

Lift capacities are over-end values per SAE J31; machine equipped with 2WD, OROPS, 1.15 m³ (1.5 yd³) general-purpose loader bucket, 610 mm (24 in) heavy duty backhoe bucket and 454 kg (1000 lb) counterweight. Extendible stick lift capacities include 682 kg (1500 lb) counterweight.

*Indicates lift capacity is stability limited.

Standard Duty Buckets (SD)

416D, 420D, 424D, 428D, 430D, 432D, 442D

Width		SAE Capacity		Weight		No. of Teeth
mm	in	L	ft ³	kg	lb	
305	12	78	2.8	97	213	3
457	18	118	4.2	115	253	4
610	24	175	6.2	132	290	5
762	30	233	8.2	147	323	5
914	36	292	10.3	165	363	6

Extreme Service Buckets (ES)

424D, 428D, 432D, 442D

Width		SAE Capacity		Weight		No. of Teeth
mm	in	L	ft ³	kg	lb	
305	12	64	2.2	106	233	3
457	18	96	3.4	132	291	4
610	24	142	5.2	152	335	4
762	30	189	6.2	177	390	6

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Heavy Duty Buckets (HD)

416D, 420D, 424D, 428D, 430D, 432D, 442D

Width		SAE Capacity		Weight		No. of Teeth
mm	in	L	ft ³	kg	lb	
305	12	78	2.8	105	231	3
406	16	105	3.7	127	279	3
457	18	118	4.2	129	284	4
610	24	175	6.2	151	332	5
762	30	233	8.2	167	367	5
914	36	292	10.3	189	416	6

*Bolt-on teeth available.

Heavy Duty Buckets (HD)

446D

Width		SAE Capacity		Weight		No. of Teeth
mm	in	L	ft ³	kg	lb	
457	18	190	6.5	178	392	3
610	24	280	10.0	216	476	4
762	30	380	13.0	237	523	5
914	36	480	17.0	267	589	6

Extreme Service Buckets (ES)

446D

Width		SAE Capacity		Weight		No. of Teeth
mm	in	L	ft ³	kg	lb	
600	24	270	9.0	227	501	4
760	30	370	13.0	249	549	5

High Capacity Buckets (HC)

416D, 420D, 424D, 428D, 430D, 432D, 442D

Width		SAE Capacity		Weight		No. of Teeth
mm	in	L	ft ³	kg	lb	
457	18	180	6.4	146	321	4
610	24	240	8.5	171	376	5
762	30	320	11.3	195	429	5
914	36	380	13.4	214	471	6

Heavy Duty Rock Buckets

416D, 420D, 430D

Width		SAE Capacity		Weight		No. of Teeth
mm	in	L	ft ³	kg	lb	
305	12	70	2.5	120	265	3
457	18	127	4.5	150	331	4
610	24	198	7.0	175	386	5
762	30	255	9.5	195	430	5
914	36	311	11.5	210	463	6

Teeth Options: Diagonal retention system (DRS)

Single sharp

Twin sharp

Wide

Chisel

Impact

Long

Coral Buckets

Width		SAE Capacity		Weight		No. of Teeth
mm	in	L	ft ³	kg	lb	
305	12	65	2.3	122	270	4
457	18	96	3.4	146	322	6
610	24	142	5.0	173	382	8
762	30	190	6.7	199	439	10

**Ditch Cleaning Buckets
(North America)**

Width		SAE Capacity		Weight		No. of Teeth
mm	in	L	ft ³	kg	lb	
1219	48	368	13.0	231	510	N/A
1372	54	425	15.0	252	555	N/A
1524	60	481	17.0	272	600	N/A

**Pin Lock Buckets, Heavy Duty
(North America)**

Width		SAE Capacity		Weight		No. of Teeth
mm	in	L	ft ³	kg	lb	
305	12	91	3.3	117	258	3
400	16	116	4.2	144	317	3
457	18	133	4.8	148	325	4
610	24	197	7.1	177	390	5
762	30	264	9.6	202	443	5
914	36	333	12.0	231	508	6

**Ditch Cleaning Buckets
(Europe, Africa, Middle East)**

Width		SAE Capacity		Weight		No. of Teeth
mm	in	L	ft ³	kg	lb	
1200	48	200	7.8	123	271	N/A
1400	54	260	9.2	137	302	N/A
1500	60	290	10.2	145	320	N/A
1600	63	310	10.9	152	335	N/A
1800	70	350	12.4	166	366	N/A

**Pin Lock Buckets, High Capacity
(North America)**

Width		SAE Capacity		Weight		No. of Teeth
mm	in	L	ft ³	kg	lb	
305	12	118	4.3	131	288	3
400	16	156	5.7	166	365	3
457	18	178	6.4	172	378	4
610	24	266	9.6	203	447	5
762	30	359	13.0	229	503	5
914	36	454	16.4	260	572	6

Work tools for Caterpillar backhoe loaders are divided into two groups. For technical questions relating to all work tools inside the U.S.: (800) 282-5384. Europe, Africa, Middle East: 31 73 63 996 00.

- **Caterpillar Factory Work Tools:** Cat work tools installed on machines or shipped separately from Cat Distribution Services. Includes the most popular work tools such as buckets, forks and material-handling arms. *Order from Machine Orders Division.*
- **Caterpillar Work Tools America Asia Pacific (AAP):** Cat work tools specifically designed for the Cat backhoe loader by the Caterpillar Work Tool division. *Orders inside U.S.: (800) 255-2372. Outside U.S.: 00 1 (785) 456-2224.*

Loader Work Tools	Auxiliary Hydraulics required
1. IT Hydraulic Quick Coupler	—
2. General Purpose Bucket	—
3. Multi-Purpose Bucket	3rd valve
4. Loader Forks	—
5. Material Handling Arm	—
6. Broom: Angle and Pick-up	3rd valve
7. Side-Dump Bucket	3rd valve
8. Light Material Bucket	—
9. Penetration Bucket	—
10. Bale Spear	—
11. Rake	—
12. Angle Blade	3rd valve
13. Asphalt Cutter	—
14. Single Tilt Hydraulic Quick Coupler for IT Tools	3rd valve
15. Single Tilt General Purpose Bucket	3rd valve
16. Single Tilt Multi-Purpose Bucket with Fold-over Forks	3rd valve

Backhoe Work Tools	Auxiliary Hydraulics required
1. Standard Duty Bucket	—
2. Heavy Duty Bucket	—
3. Heavy Duty Rock Bucket	—
4. Coral Bucket	—
5. High Capacity Bucket	—
6. Extreme Service Bucket	—
7. Ditch Cleaning Bucket	—
8. Mechanical Quick Coupler – Pin Grabber	—
9. Pin Lock Coupler	—
10. Coupler for Cat or Case Buckets – Pin Puller	—
11. Coupler for Cat or Deere Buckets – Pin Puller	—
12. Vibratory Plate Compactor	1 way flow
13. Ripper	—
14. H70/H90C/H100 Hydraulic Hammer	1 way flow
15. Ditch Cleaning Bucket	—
16. Swinger/Tilting Quick Coupler	2 way flow
17. Cemetery Bucket	—

FOREST PRODUCTS

Current specifications and performance data of Forest Machines
are located at www.forestpro.com

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525B/535B/545 Features:

- **Direct injection turbocharged and aftercooled proven Cat 3126 diesel engine** provides power, outstanding durability and reliability (**525B and 535B Models only**).
- **Direct injection turbocharged and aftercooled proven Cat 3306 diesel engine** provides power, outstanding durability and reliability (**545 Model only**).
- **Lock-up torque converter clutch**, an industry exclusive on Caterpillar Wheel Skidders, provides operating speed increases with improved power and fuel efficiencies.
- **5 speed forward powershift transmission** provides better match of engine power to skidding requirements with ease of operation.
- **Long wheelbases** on all of the Wheel Skidders provide stability with large grapple loads and uphill skidding.
- **Front axle cradle oscillation** helps improve machine stability with grapples and provides excellent ride for the operator.
- **Enclosed oil disk brakes**, sealed, adjustment free, and fade resistant.
- **Locking differentials** — selectable from the cab to improve traction and control wheel slippage.
- **Dual wheel** capable axles available.
- **Load sensing hydraulic system** — variable displacement pressure compensating hydraulic system provides reduced power requirements when there is not hydraulic demand, significantly reduced heat generation, and improving fuel efficiency.
- **Outstanding operator environment** — superior visibility, logical control placement, and significantly reduced hydraulic, steering, and transmission control efforts. **ROPS** structures meet OSHA regulations for rollover and falling objects.
- **Single lever** grapple control.
- **Easy servicing** — minimal daily requirements, grouped and accessible grease fittings, accessible hydraulic oil sight gauges, engine oil dipstick and fuel cap; access to components have been improved.
- **Single function arch and cable skidder options** available to meet various logging requirements (**525 models only**).
- **Dual function arch and cable skidder options** available to meet various logging requirements.

Specifications

Forest Products Wheel Skidders

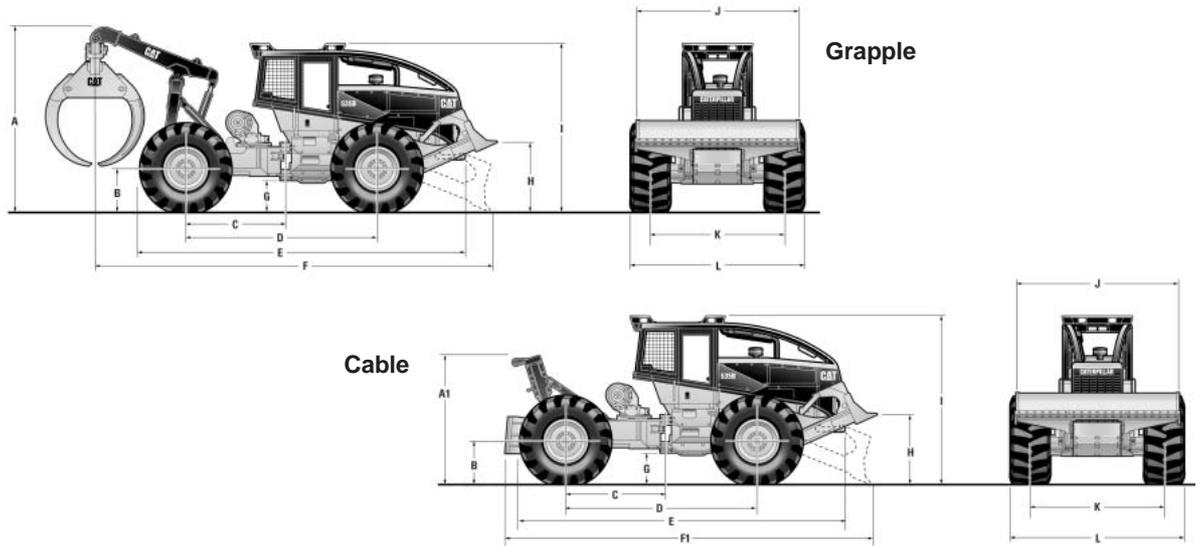


MODEL	525B		535B		545	
Net Flywheel Power	119 kW	160 hp	134 kW	180 hp	149 kW	200 hp
Operating Weight	18 325 kg	40,400 lb	19 006 kg	41,900 lb	20 230 kg	44,600 lb
Engine Model	3126 DITA		3126 DITA		3306 DITA	
Rated Engine RPM	2200		2200		2200	
Bore	110 mm	4.33"	110 mm	4.33"	120.7 mm	4.75"
Stroke	127 mm	5"	127 mm	5"	152.4 mm	6"
Displacement	7.24 L	442 in³	7.24 L	442 in³	10.5 L	638 in³
No. of Cylinders	6		6		6	
Speeds Forward:						
1st	6.36 km/h	3.95 mph	6.36 km/h	3.95 mph	6.4 km/h	4.0 mph
2nd	8.94 km/h	5.55 mph	8.94 km/h	5.55 mph	9.0 km/h	4.6 mph
3rd	10.87 km/h	6.75 mph	10.87 km/h	6.75 mph	10.9 km/h	6.8 mph
4th	15.28 km/h	9.49 mph	15.28 km/h	9.49 mph	15.3 km/h	9.5 mph
5th	27.53 km/h	17.10 mph	27.53 km/h	17.10 mph	27.5 km/h	17.1 mph
Speeds Reverse:						
1st	6.18 km/h	3.84 mph	6.18 km/h	3.84 mph	6.2 km/h	3.9 mph
2nd	10.46 km/h	6.50 mph	10.46 km/h	6.50 mph	10.5 km/h	6.5 mph
3rd	18.6 km/h	11.55 mph	18.6 km/h	11.55 mph	18.6 km/h	11.6 mph
Maximum Drawbar Pull	172 kN	38,730 lb	184 kN	41,350 lb	194.5 kN	43,763 lb
Oscillation, type	Front axle cradle		Front axle cradle		Front axle cradle	
Oscillation, degrees	±15°		±15°		±15°	
Tires, Standard Axle	24.5-32		30.5-32 (includes dual)		30.5-32 (includes dual)	
Wide Axle	30.5-32 (includes dual)		35.5-32		35.5/32	
Turning Diameter (outside rear wheel)*	12 m	39'4"	12 m	39'4"	11.4 m	37'5"
Capacity:						
Fuel Tank	315 L	83.2 U.S. gal	315 L	83.2 U.S. gal	378 L	99.8 U.S. gal
Cooling System	50 L	13.2 U.S. gal	50 L	13.2 U.S. gal	56 L	14.8 U.S. gal
Hydraulic System — Tank	62.5 L	16.5 U.S. gal	62.5 L	16.5 U.S. gal	65 L	17 U.S. gal
Hydraulic System — Total	123 L	32.47 U.S. gal	123 L	32.47 U.S. gal	123 L	32.47 U.S. gal
General Dimensions:						
Length with Dozer at Ground	6.93 m	22'9"	6.93 m	22'9"	7.95 m	26'1"
Wheelbase	3.53 m	11'7"	3.53 m	11'7"	3.84 m	12'7"
Width over Tires*	3.39 m	11'1"	3.39 m	11'1"	3.39 m	11'1"
Height to Top of ROPS	3.23 m	10'7"	3.23 m	10'7"	3.37 m	11'1"
Height to Exhaust	2.38 m	7'10"	2.38 m	7'10"	2.38 m	7'10"
Ground Clearance*	582 mm	22.9"	582 mm	22.9"	605 mm	23.8"
Tread Width*	2.61 m	8'7"	2.61 m	8'7"	2.61 m	8'7"
Dozer Width*	2.68 m	8'9"	2.68 m	8'9"	3.14 m	10'4"

*With standard tires.

WINCH MODEL

	525B — Grapple		525B — Cable		535B		545	
Maximum Line Pull — Bare Drum	221 kN	49,650 lb	179.3 kN	40,300 lb	208.6 kN	43,900 lb	201 kN	45,200 lb
Maximum Line Speed	74.7 m/min	245 fpm	92 m/min	302 fpm	98.7 m/min	324 fpm	110 m/min	360 fpm
Drum Capacity:								
19.0 mm (¾")	45 m	148'0"	45 m	148'0"	45 m	148'0"	45 m	148'0"
22.2 mm (7/8")	32 m	106'0"	32 m	106'0"	32 m	106'0"	32 m	106'0"
25.4 mm (1")	25 m	82'0"	25 m	82'0"	25 m	82'0"	25 m	82'0"
Drum Diameter	203 mm	8"	254 mm	10"	254 mm	10"	254 mm	10"



MODEL	525B	535B	545
A Ground Level to Center Line of Top Roller (Grapple): Dual Function Single Function	3419 mm * 134.6" 2893 mm * 113.9"	3419 mm * 134.6" —	2988 mm 117.6" —
A1 Ground Level to Center Line of Top Roller (Cable)	2694 mm * 106.1"	2694 mm * 106.1"	2930 mm 115.3"
B Ground Level to Axle Center Line	724 mm * 28.5"	724 mm * 28.5"	866 mm * 34.1"
C Rear Axle Center Line to Pin	1798 mm 70.8"	1798 mm 70.8"	2003 mm 78.9"
D Wheelbase	3533 mm 139.1"	3533 mm 139.1"	3838 mm 151.1"
E Length without Dozer Arch	6195 mm 243.9"	6195 mm 243.9"	6626 mm 260.9"
F Overall Length (Grapple) Dual Function (Non-Continuous Rotation) Single Function (Non-Continuous Rotation) Dual Function (Continuous Rotation) Dual Function, Extended Length (Continuous Rotation) Single Function (Continuous Rotation)	6708 mm 264.1" 7137 mm 281.0" 6995 mm 275.4" X 7097 mm 279.4"	6924 mm 272.6" X 6995 mm 275.4" 7021 mm 276.4" X	7308 mm 287.7" X 7376 mm 290.4" X X
F1 Overall Length (Cable) Non-Continuous Rotation	6945 mm 273.4"	6945 mm 273.4"	7075 mm 278.5"
G Ground Clearance Grapple and Cable	463 mm * 18.2" X	463 mm * 18.2" X	606 mm 23.9" Grapple 606 mm 23.8"
G1 Ground Clearance (Cable)	X	X	606 mm 23.8"
H Decking Blade Lift Height	1226 mm * 48.3"	1226 mm * 48.3"	2088 mm 82.2"
I Height to Top of Cab	3233 mm * 127.3"	3233 mm * 127.3"	3366 mm 132.5"
J Decking Blade Width	2678 mm 105.4"	2678 mm 105.4"	3138 mm 123.5"
K Tread Width	2260 mm 88.0"	2269 mm 88.0"	2610 mm 102.8"
L Overall Width	3385 mm 133.3"	3385 mm 133.3"	3442 mm 135.1"

*With 30.5 × 32 tires.

GRAPPLES

Grapples for Caterpillar Skidders are designed and built to Caterpillar specifications. All arches and grapples are factory installed and fully supported by Caterpillar. The following pages contain information on the available models, which are presented here to suggest a range of grapple possibilities. The specifications were supplied by the manufacturer and follow the SAE definitions listed below.

SAE specification definition

Reach (A, B, C, D) — The horizontal distance from the vertical center of the rear axle to the vertical center of the grapple fore and aft pivot.

- A) With the grapple in its highest farthest position
- B) With the grapple in its lowest farthest position
- C) With the grapple in its highest fully retracted position
- D) With the grapple in its lowest fully retracted position

Lift (E, F, G, H) — The vertical distance from the horizontal center of the rear axle to the horizontal center of the grapple fore and aft pivot.

- E) With the grapple in its highest farthest position
- F) With the grapple in its lowest farthest position
- G) With the grapple in its highest fully retracted position
- H) With the grapple in its lowest fully retracted position

Loaded Tire Radius (J) — Vertical distance from horizontal center of axle to horizontal reference plane.

Maximum Grapple Opening (K) — The horizontal distance between the tips of the grapple arms when grapple is fully open.

Area of Opening (L) — The available area with grapple in tips together position.

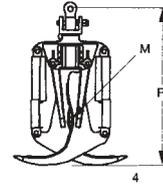
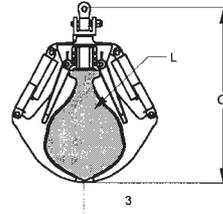
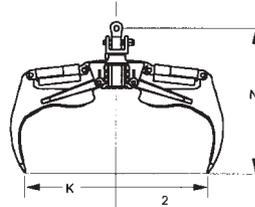
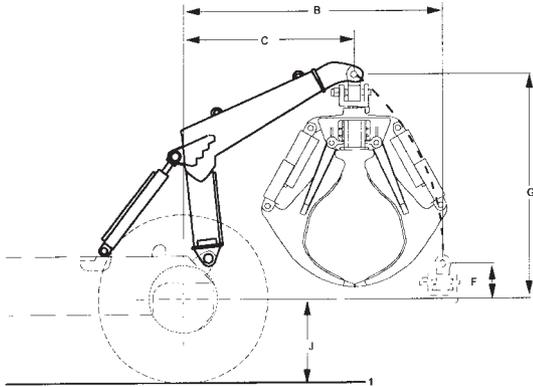
Minimum Log Size (M) — The smallest diameter which the grapple can close on.

Grapple Length (N, O, P) — The distance from the grapple fore and aft pivot to tips of grapple arms.

- N) With grapple fully open
- O) With grapple in tips together position
- P) With grapple fully closed

Single-function arch

- Versatile attachment suitable for selection or clear cut applications. Reach consists of one vertical arc and typical application is short cycles and/or larger diameter timber.



Sorting grapple is designed to pick up individual or several stems for quick cycles of 305 mm (12") or larger diameter trees.

KEY

- 1 — Horizontal Reference Plane
- 2 — Fully Open
- 3 — Tip to Tip
- 4 — Fully Closed

**270° Grapple
for 525B**

	A	B	C	D	E	F	G	H	J	K	M	N	O	P	L
2.54 m (100") Sorting	mm in	2517.1 99.1	1662.2 65.4			342.9 13.5	2169.2 85.4		737 29	2540 100	76.2 3	1562.1 61.5	2197.1 86.5	1828.8 72	0.84 m ² 9 ft ²

Standard Grapple

- Normal skidding
- Multipurpose applications
- Includes final harvest
- Heavier Wood
 - larger diameter stems
 - tall timber
 - high density wood

Thinning Special Grapple*

- Special skidding
- Thinning or lighter stems
- Does not include final harvest
- Lighter individual stems
 - smaller diameter stems
 - shorter timber
 - lower density wood
- For large number of smaller stems/load

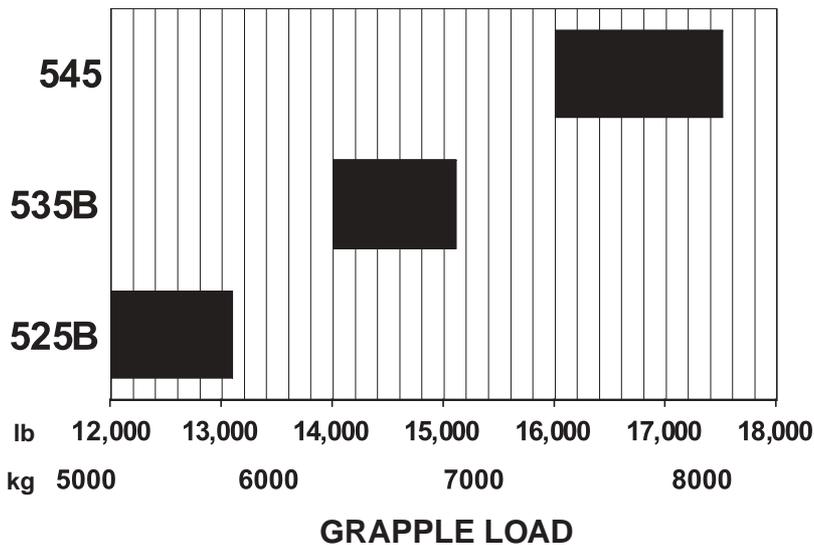
*Large stems can be skidded, but the grapple will not appear full and must not be filled to area capacity. See recommended load ranges for wheel skidders.

Determine proper grapple selection based on:

Log Size: Diameter, Length, Density, Load Weight

Site Conditions: Slope, Ground Conditions, Traction

RECOMMENDED LOAD RANGES FOR WHEEL SKIDDERS



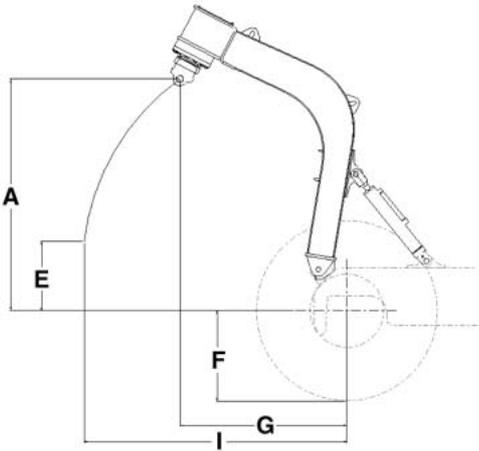
Performance on steeper grades limits recommended capacity capability for good performance, so select the next larger machine for tougher site conditions or skid less load per drag to keep speed up and maximize productivity.

Cat Continuous Rotate (CCR) Grapple

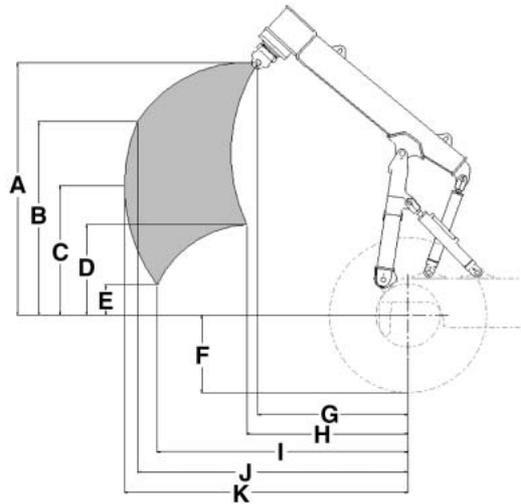
CCR Grapples for Cat 545, 535B and 525B Wheel Skidders are sourced out of LaGrange, GA for factory installation.

The CCR Grapple has an indexer rotator SR21 with high bearing capacity and improved motor torque. Caterpillar pins are used in the snubber, head and grapples frame. The following contains information on the available models, which are presented here to suggest a range of grapple possibilities.

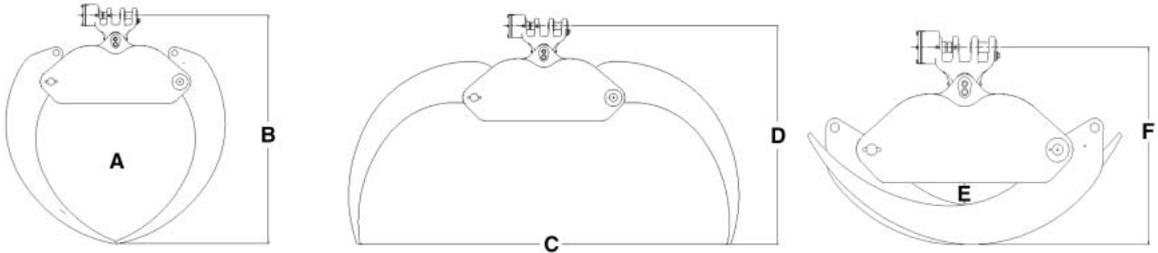
Single Function Frame Group



Dual Function Frame Group



MODEL	525B		535B	545				
	DF	SF						
A Lift highest, retracted	2623 mm	103"	2212 mm	87"	2847 mm	112"	2817 mm	111"
B Lift highest, farthest	1946 mm	77"	—	—	2193 mm	86"	2163 mm	85"
C Lift maximum reach	1336 mm	53"	—	—	1336 mm	53"	1443 mm	57"
D Lift lowest, retracted	752 mm	30"	—	—	764 mm	30"	1014 mm	40"
E Lift lowest, farthest	261 mm	10"	602 mm	24"	286 mm	11"	335 mm	13"
F Loaded tire radius (rolling radius of standard 30.5)	724 mm	28.5"	724 mm	28.5"	724 mm	28.5"	866 mm	34.1"
G Reach highest, retracted	1513 mm	60"	1630 mm	64"	1546 mm	61"	1653 mm	65"
H Reach lowest, retracted	1778 mm	70"	—	—	1666 mm	66"	1775 mm	70"
I Reach highest, farthest	2488 mm	98"	2521 mm	99"	2706 mm	107"	2762 mm	109"
J Reach lowest, farthest	2765 mm	109"	—	—	2824 mm	111"	2978 mm	117"
K Reach maximum	2880 mm	113"	—	—	3037 mm	120"	3121 mm	123"



**Continuous Rotate
 Grapples for 525B**

	A	B	C	D	E	F
1.16 m ² (12.5 ft ²) Bunching	1.16 m ² 12.5 ft ²	1982.6 mm 78"	3052.2 mm 120"	1716.2 mm 67.5"	137.1 mm 5.4"	1215.4 mm 47.8"
1.34 m ² (14.4 ft ²) Thinning	1.34 m ² 14.4 ft ²	2145.5 mm 84.4"	3124 mm 123"	1814.6 mm 71.4"	163.7 mm 6.4"	1282.9 mm 50.5"

**Continuous Rotate
 Grapples for 535B**

	A	B	C	D	E	F
1.34 m ² (14.4 ft ²) Bunching	1.34 m ² 14.4 ft ²	2145.5 mm 84.4"	3124 mm 123"	1814.6 mm 71.4"	163.7 mm 6.4"	1282.9 mm 50.5"
1.54 m ² (16.6 ft ²) Thinning	1.54 m ² 16.6 ft ²	2171 mm 85.48"	3251 mm 127"	1927.7 mm 75.89"	136 mm 5.35"	1217.8 mm 47.9"

**Continuous Rotate
 Grapples for 545**

	A	B	C	D	E	F
1.54 m ² (16.6 ft ²) Bunching	1.54 m ² 16.6 ft ²	2171 mm 85.48"	3251 mm 127"	1927.7 mm 75.89"	136 mm 5.35"	1217.8 mm 47.9"
1.78 m ² (19 ft ²) Thinning	1.78 m ² 19 ft ²	2277.5 mm 89.66"	3327 mm 131"	1902 mm 74.88"	232.7 mm 9.16"	1386 mm 54.56"

KEY

- A** — Grapple capacity
- B** — Tip to tip height
- C** — Tong opening
- D** — Maximum stem diameter
- E** — Minimum stem diameter
- F** — Fully closed height

Features 517 and 527:

- **Field proven Cat 3304 diesel engine** sets the industry standard for reliability and durability, delivering high horsepower for more drawbar pull, improved skidding performance and ease of operation.
- **Large, heavy duty torque converter**, reduces the tendency for track-to-ground slip, reduces the need for up and downshifting and protects power train components contributing to longer component life.
- **3 speed planetary powershift transmission** works best in high-pull applications and is well suited for large load and steep terrain skidding.
- **Heavy-duty track roller frame** extended to the rear significantly improves traction capability under heavy loads and uphill skidding applications.
- **Wide gauge and long track roller frames** provide outstanding sidehill stability.
- **Improved flotation** — More track on the ground distributes tractor weight and propulsion forces over a much larger area than conventional track skidders. This improves flotation capabilities, gradeability and significantly reduces soil impact.
- **Expanded track options** are available.
- **Load sensing hydraulic system** — Variable displacement pressure compensating hydraulic system provides reduced power requirements when there is not hydraulic demand, significantly reduced heat generation, and improving fuel efficiency.
- **Auto-grab feature** — provides constant grapple tong pressure without continuous hydraulic pump demand.
- **Superior component durability** — Final drives are raised above the work area, isolating the power train from ground impact shock and abrasive materials.
- **Excellent ground clearance** — no diagonal braces allow the skidder to pass over stumps and debris, reduces maneuvering for reduced cycle times and minimizes soil impact.
- **Smooth belly pans** — Less likely to hang up in mud and debris in soft ground or swamp logging applications.
- **Easy and comfortable operating environment** — ROPS/FOPS cab allows excellent front and rear viewing, and is pressurized for sound level reduction. The seat is angled and controls are easily reached to reduce operator fatigue and increase productivity.
- **Single lever** grapple control and blade control.
- **Less service time** — Major components are made as modules and most can be removed without removing others, and ground-level access provides convenient servicing to most filters and lube points.
- **Single-Function Arch and Swing Boom** configurations provide the versatility needed to match the skidder to a wide variety of skidding applications.



MODEL	517 Cable		517 Grapple		527 Cable		527 Grapple	
Net Flywheel Power	89.5 kW	120 hp	89.5 kW	120 hp	112 kW	150 hp	112 kW	150 hp
Operating Weight*	17 330 kg	38,200 lb	18 364 kg	40,450 lb	17 236 kg	38,000 lb	21 380 kg	47,140 lb
Engine Model	3304 DITA		3304 DITA		3304 DITA		3304 DITA	
Rated Engine RPM	2200		2200		2200		2200	
Bore	120.65 mm	4.75"	120.65 mm	4.75"	120.65 mm	4.75"	120.65 mm	4.75"
Stroke	152.4 mm	6"	152.4 mm	6"	152.4 mm	6"	152.4 mm	6"
Displacement	7 L	425 in³	7 L	425 in^{3}	7 L	425 in^{3}	7 L	425 in^{3}
No. of Cylinders	4		4		4		4	
Speeds Forward:								
1st	3.7 km/h	2.3 mph	3.7 km/h	2.3 mph	3.7 km/h	2.3 mph	3.7 km/h	2.3 mph
2nd	6.6 km/h	4.1 mph	6.6 km/h	4.1 mph	6.6 km/h	4.1 mph	6.6 km/h	4.1 mph
3rd	11.5 km/h	7.1 mph	11.5 km/h	7.1 mph	11.5 km/h	7.1 mph	11.5 km/h	7.1 mph
Speeds Reverse:								
1st	4.6 km/h	2.8 mph	4.6 km/h	2.8 mph	4.6 km/h	2.8 mph	4.6 km/h	2.8 mph
2nd	8.0 km/h	5.0 mph	8.0 km/h	5.0 mph	8.3 km/h	5.1 mph	8.3 km/h	5.1 mph
3rd	14.2 km/h	8.8 mph	14.2 km/h	8.8 mph	14.6 km/h	9.0 mph	14.6 km/h	9.0 mph
Track Roller Frame	7 or 8		7 or 8		7 or 8		7 or 8	
Width of Standard Track Shoe	660 mm	2'2"	660 mm	2'2"	560 mm	1'10"	560 mm	1'10"
Length of Track on Ground	2.91 m	9'7"	2.91 m	9'7"	2.85 m	9'4"	2.85 m	9'4"
Ground Contact Area (with Standard Shoe)	3.52 m ²	5458 in²	3.52 m ²	5458 in²	3.19 m ²	4940 in²	3.19 m ²	4940 in²
Track Gauge	2 m	6'7"	2 m	6'7"	2.16 m	7'1"	2.16 m	7'1"
Oscillation:								
Front Idlers at Gauge Line	143.2 mm	5.64"	143.2 mm	5.64"		X		X
At Pivot Shaft		±2.8°		±2.8°		X		X
Winch:								
Line Pull, Maximum at Stall Bare Drum**	31 260 kg	68,780 lb	31 260 kg	68,780 lb	31 389 kg	69,200 lb	31 389 kg	69,200 lb
Line Speed at Rated Engine RPM, Bare Drum**	40.5 m/min	133 fpm	40.5 m/min	133 fpm	44 m/min	143 fpm	44 m/min	143 fpm
Winch Weight	1500 kg	3300 lb						
Recommended Drum Capacity	122 m	400'0"	122 m	400'0"	122 m	400'0"	122 m	400'0"
Optional Drum Capacity	88 m	290'0"	88 m	290'0"	88 m	290'0"	88 m	290'0"
Recommended Cable Size	19 mm	0.75"	19 mm	0.75"	19 mm	0.75"	19 mm	0.75"
Optional Cable Size	22 mm	0.88"	22 mm	0.88"	22 mm	0.88"	22 mm	0.88"
Drum Diameter	254 mm	10"	254 mm	10"	254 mm	10"	254 mm	10"
General Dimensions:								
Height (To Top of ROPS)	2.48 m	8'1"	2.48 m	8'1"	3.30 m	10'10"	3.30 m	10'10"
Overall Length (with Blade)	4.97 m	16'4"	5.75 m	18'10"	4.94 m	16'3"	6.07 m	19'11"
(without Blade)	4.10 m	13'5"	4.87 m	16'0"	4.35 m	14'3"	5.6 m	18'5"
Width (without Trunnion)	2.91 m	9'7"	2.91 m	9'7"	2.72 m	8'11"	2.72 m	8'11"
Ground Clearance	635 mm	2'1"	635 mm	2'1"	531.8 mm	20.9"	531.8 mm	20.9"
Capacity:								
Fuel Tank	260 L	69 U.S. gal	260 L	69 U.S. gal	256 L	67 U.S. gal	256 L	67 U.S. gal
Cooling System	38 L	10 U.S. gal	38 L	10 U.S. gal		X		X
Hydraulic Tank	29.5 L	7.8 U.S. gal	29.5 L	7.8 U.S. gal		X		X
PAT Blade Widths:								
Straight	2.74 m	9'0"	2.74 m	9'0"	3.35 m	11'0"	3.17 m	10'5"
Angle (25°)	2.48 m	8'1"	2.48 m	8'1"	3.10 m	10'2"	2.92 m	9'7"

*All models include coolant, lubricants, full fuel tank, and operator.

517 Cable includes enclosed cab and 4PAT blade.

517 Grapple includes enclosed cab, 4PAT blade, swing boom, and 0.74 m² (8 ft²) grapple.

527 Cable includes lubricants, coolant, ROPS canopy, 100% fuel, operator, 5A blade, open cab, and towing winch.

527 Grapple includes lubricants, coolant, ROPS canopy, 100% fuel, operator, 5P blade, track roller guard, 660 mm (2'2") tri-link track, swing grapple, 2.54 m (100") sorting head, and enclosed cab.

**With 22 mm (0.88") cable.

MODEL	517 (7-roller track frame)		517 (8-roller track frame)		527 (7-roller track frame)		527 (8-roller track frame)	
Number of Shoes (each side)	42		44		41		X	
Width of Shoes	560 mm	22"	X		560 mm	22"	X	
	610 mm	24"	X		610 mm	24"	X	
	660 mm	26"	660 mm	26"	660 mm	26"	660 mm	26"
	760 mm	30"	760 mm	30"	760 mm	30"	760 mm	30"
Length of Track on Ground	2710 mm	106.7"	2910 mm	114.6"	2846 mm	112"	3061 mm	121"
Track Gauge	2000 mm	78.7"	2000 mm	78.7"	2160 mm	85"	2160 mm	85"
Ground Contact Area with:								
560 mm (22") Shoes	3.03 m ²	4695 in²	X		3.19 m ²	4945 in²	3.43 m ²	5317 in²
610 mm (24") Shoes	3.30 m ²	5122 in²	X		3.47 m ²	5379 in²	3.73 m ²	5782 in²
660 mm (26") Tri-link	3.58 m ²	5548 in²	3.84 m ²	5959 in²	3.76 m ²	5828 in²	4.04 m ²	6262 in²
760 mm (30") Tri-link	4.13 m ²	6402 in²	4.44 m ²	6876 in²	4.33 m ²	6712 in²	4.65 m ²	7208 in²
Ground Pressure (Grapple):								
560 mm (22") Shoes	0.55 kg/cm ² *	7.83 psi	X		0.60 kg/cm ²	8.53 psi	X	
610 mm (24") Shoes	0.50 kg/cm ² *	7.22 psi	X		0.55 kg/cm ²	7.82 psi	X	
660 mm (26") Tri-link	0.50 kg/cm ² *	7.16 psi	0.48 kg/cm ²	6.79 psi	0.51 kg/cm ²	7.25 psi	X	
760 mm (30") Tri-link	0.44 kg/cm ² *	6.29 psi	0.42 kg/cm ²	5.96 psi	0.44 kg/cm ²	6.26 psi	X	
Ground Pressure (Cable):								
560 mm (22") Shoes	0.52 kg/cm ² **	7.35 psi	X		0.56 kg/cm ²	7.97 psi	X	
610 mm (24") Shoes	0.47 kg/cm ² **	6.64 psi	X		0.52 kg/cm ²	7.40 psi	X	
660 mm (26") Tri-link	0.47 kg/cm ² **	6.75 psi	0.45 kg/cm ²	6.41 psi	0.48 kg/cm ²	6.83 psi	X	
760 mm (30") Tri-link	0.42 kg/cm ² **	5.94 psi	0.40 kg/cm ²	5.64 psi	0.41 kg/cm ²	5.83 psi	X	

*Machine configured with enclosed cab, PAT blade, swing boom and 0.74 m² (8 ft²) sorting grapple.

**Machine configured with enclosed cab, PAT blade and winch.

**517
Grapple**
(Mechanical Retrieval
Device) — *Optional
attachment with
single function arch*

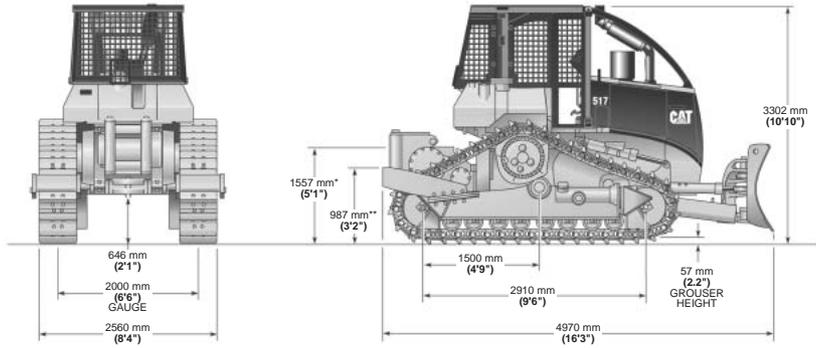
MODEL	517 Cable		527 Grapple		527 Cable	
Maximum Line Pull	18 660 kg * 41,050 lb	31 264 kg ** 68,782 lb	19 504 kg 43,000 lb	31 389 kg 69,200 lb		
Maximum Line Speed	77 m/min * 253 fpm	40.5 m/min** 133 fpm	71.6 m/min 235 fpm	43.6 m/min 143 fpm		
Drum Capacity:						
Recommended	46 m 151'0"	122 m 400'0"	91 m @ 16 mm 298'0" @ 0.62"	122 m 400'0"		
Optional	32 m 105'0"	88 m 290'0"	64 m @ 19 mm 210'0" @ 0.75"	X		
Cable Size:						
Recommended	16 mm 0.62"	19 mm 0.75"	16 mm 0.62"	19 mm 0.75"		
Optional	19 mm 0.75"	22 mm 0.88"	19 mm 0.75"	X		
Drum Diameter	178 mm 7.0"	254 mm 10.0"	191 mm 7.5"	254 mm 10.0"		
Drum Width	241 mm 9.5"	330 mm 13.0"	241 mm 9.5"	330 mm 13.0"		
Drive	Mechanical	X	Mechanical	X		
Weight	312 kg 686 lb	1500 kg 3300 lb	469 kg 1034 lb	1497 kg 3300 kg		

*With 16 mm (0.62") cable.

**With 22 mm (0.88") cable.

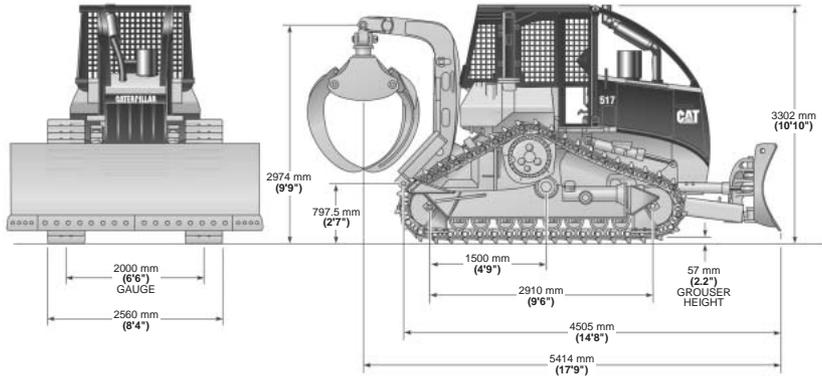
MACHINE DIMENSIONS (All dimensions are approximate.)

Cable:

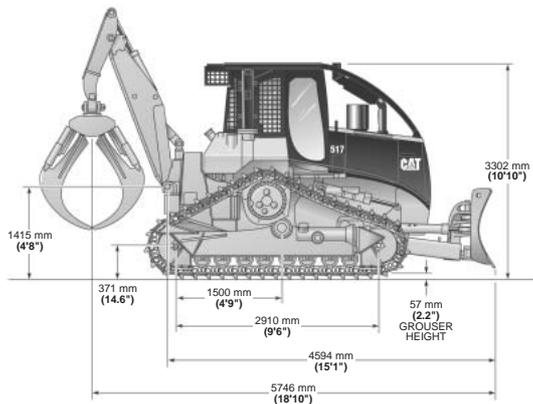


*Top of drum.
**Top of guard.

Fixed Grapple:

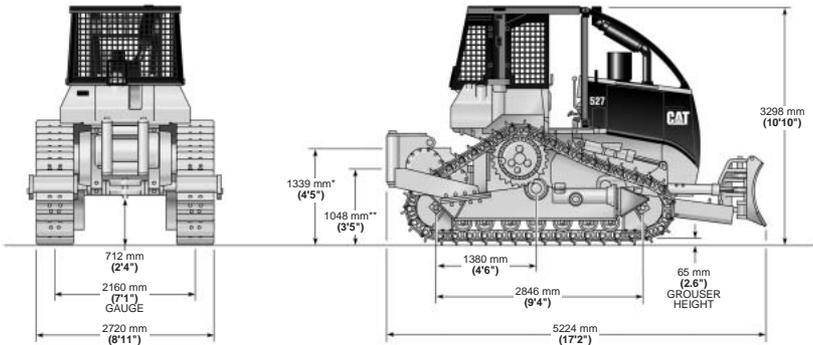


Swing Boom:



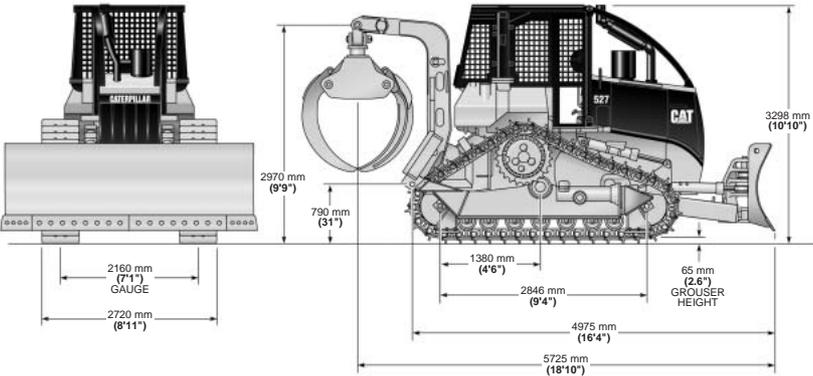
MACHINE DIMENSIONS (All dimensions are approximate.)

Cable:

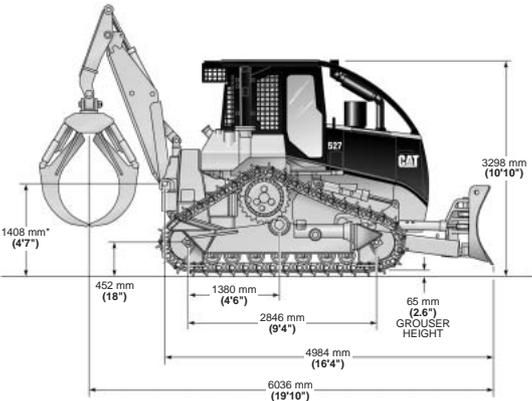


*Top of drum.
**Top of guard.

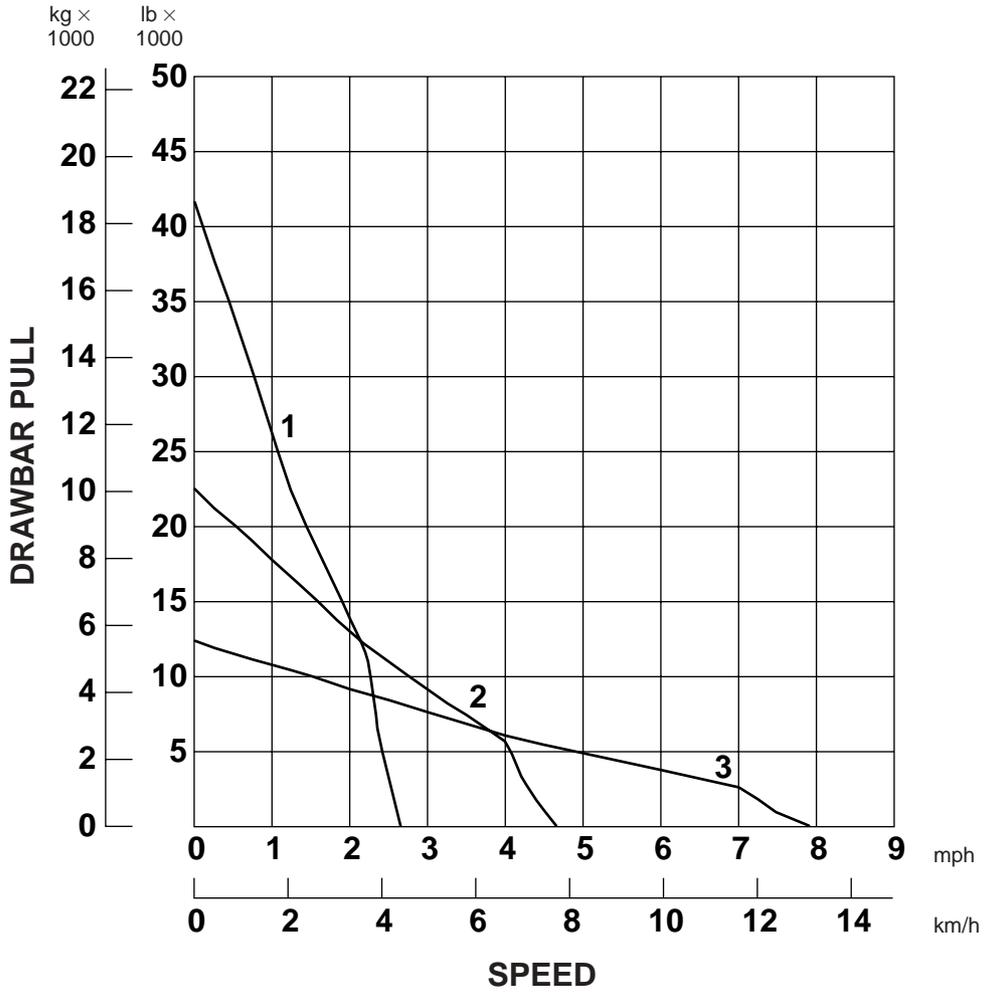
Fixed Grapple:



Swing Boom:



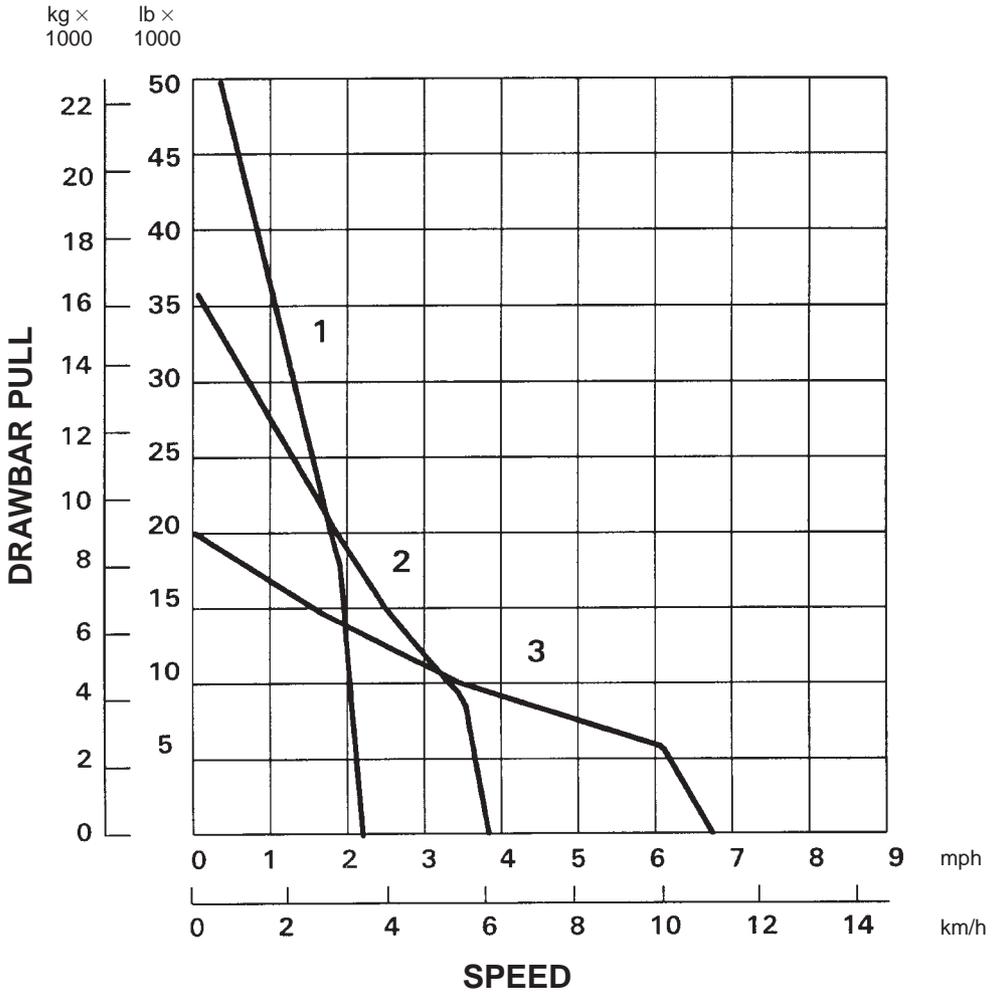
517 SKIDDER



- KEY
- 1 — 1st Gear
 - 2 — 2nd Gear
 - 3 — 3rd Gear

NOTE: Usable pull will depend upon weight and traction of equipped tractor.

527 SKIDDER



- KEY
- 1 — 1st Gear
 - 2 — 2nd Gear
 - 3 — 3rd Gear

NOTE: Usable pull will depend upon weight and traction of equipped tractor.

GRAPPLES

Fixed boom Grapples for Cat 517 and 527 Skidders are built and supplied by Caterpillar. Swing boom grapples are built to Caterpillar specifications. The following contains information on some of the available models, which are presented here to suggest a range of grapple possibilities.

Reach (A, B) — The horizontal distance from the vertical center of the rear idler to the vertical center of the grapple fore and aft pivot.

- A) With the grapple in its lowest fully extended position.
- B) With the grapple in its highest fully retracted position.

Lift (C, E) — The vertical distance from the ground to the center of the grapple fore and aft pivot.

- C) With the grapple in its lowest fully extended position.
- E) With the grapple in its highest fully retracted position.

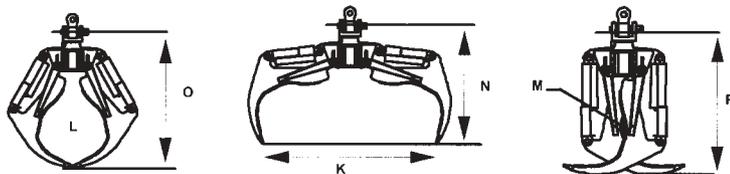
Maximum Grapple Opening (K) — The horizontal distance between the tips of the grapple arms when grapple is fully open.

Area of Opening (L) — The available area with grapple in tips together position.

Minimum Log Size (M) — The smallest diameter which the grapple can close.

Grapple Length (N, O, P) — The distance from the grapple fore and aft pivot to tips of grapple arms.

- N) With grapple fully open.
- O) With grapple in tips together position.
- P) With grapple fully closed.

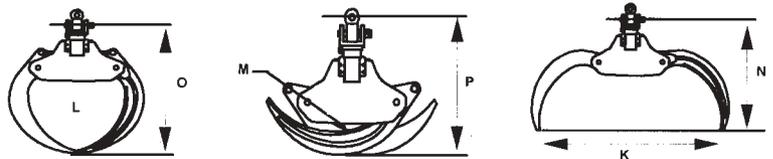


Sorting Grapple

- Used for 305 mm (12") or larger diameter trees.
- Designed to pick up individual or several stems for quick cycles.

Bunching Grapple

- Used for 305 mm (12") or smaller diameter trees.
- Designed to gather bundle of stems and maximize grapple loads.

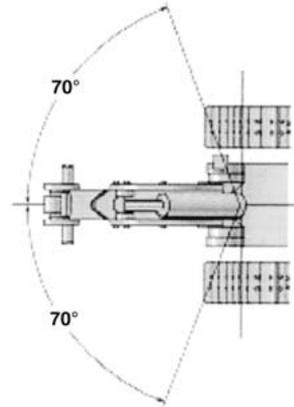
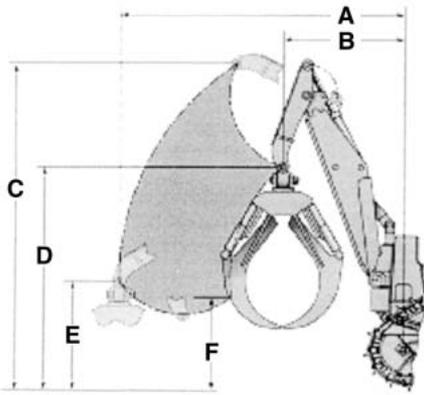


Grapples for 517		K	M	N	O	P	L
2.13 m (84") Sorting	mm	2130	76	1680	1980	1740	0.74 m ²
	in	84	3	66	78	68.5	8 ft ²
2.29 m (90") Bunching	mm	2290	102	1640	1920	1310	0.74 m ²
	in	90	4	64	75	51	8 ft ²
Grapples for 527		K	M	N	O	P	L
2.54 m (100") Sorting	mm	2540	76	1560	2040	1830	0.84 m ²
	in	100	3	61.5	80.5	72	9 ft ²
2.79 m (110") Bunching	mm	2794	76	1780	2020	1360	0.93 m ²
	in	110	3	70	79.5	53.5	10 ft ²

Swing-boom

- Ability to reach and lift over the side to collect scattered logs.
- Has decking and loading capability.
- Excellent reach to the rear and side for maximum skidder versatility.

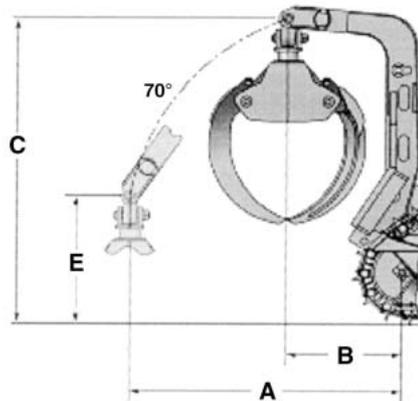
- Suitable for hard to reach timber on steep slopes, soft ground, or selection harvest and thinning.
- Reduces cycle times by reducing the amount of maneuvering of the skidder to reach logs.



Swing-boom		A	B	C	D	E	F
517	mm	3269	1241	4092	2800	1366	1166
	in	129	49	161	110	54	46
527	mm	3544	1515	4048	2792	1358	1158
	in	139	60	160	110	53	46

Single-function arch

- Versatile attachment suitable for selection and clear cut applications.
- Reach consists of one vertical arc.
- Typical application includes short cycles and/or larger diameter timber.



Single-function		A	B	C	D	E	F
517	mm	2465	909	2974	—	1000	—
	in	96	36	117	—	39	—
527	mm	2619	1105	2970	—	1231	—
	in	103	44	117	—	49	—

Introduction

Caterpillar forestry machines are specifically designed for tough forest work. Each model uses purpose built booms, sticks and grapples designed by Caterpillar for maximum performance and durability.

The following information provides features, specifications, dimensions, working ranges and major component weights for the 320C FM, 322C FM, 325C FM and 330C FM.

Features

320C FM

- **Six-cylinder turbocharged Cat 3066 T engine with automatic engine speed control and proven hydraulics** provides power, low emissions, outstanding reliability, and maximizes fuel economy.
- **Various configurations** for demanding applications.
- **Rugged undercarriage design and proven structural components** provide outstanding durability.
- **Track roller frames** are robot-welded and pressed formed, pentagonal units to deliver exceptional strength and service life.
- **Undercarriage** — Two forestry options, standard gauge heavy-duty and high-wide/high drawbar, allow you to choose the right machine for your application. Both options absorb stresses and provide excellent stability.
- **Operator station** — Redesigned interior layout maximizes operator space, provides exceptional comfort and reduces operator fatigue.
- **Serviceability** — Longer service intervals and easier maintenance result in better machine availability and lower costs.

322C FM/325C FM

- **Six-cylinder turbocharged Cat 3126B ATAAC engine and hydraulics** provide exceptional power, efficiency and controllability unmatched in the industry for consistently high performance in all applications. Meets Tier 2 worldwide emissions requirements.

- **Attachments** — Heel-Boom Grapples and Cab Risers help increase operator effectiveness and increase production and reliability.
- **Rugged main frame design** is purpose-built for forest applications with reinforced carbody, rugged swing bearing, heavy doors and extra guarding.
- **Operator station** — Redesigned interior layout maximizes operator space and provides exceptional comfort. Roomy, quiet, automatically climate controlled cab has excellent sightlines to the work area.
- **Serviceability** — Simplified service and maintenance, and electronic diagnostics help save time, money and increase productivity.

330C FM

- **Cat C9 engine and hydraulics** provide exceptional power, efficiency and controllability unmatched in the industry for consistently high performance in all applications.
- **Attachments** — Factory installed Log Loader fronts and Cat Grapples; Road Builder excavator and Butt-n-Top fronts; AEM delimeter carrier options help meet diverse forest applications.
- **Reinforced carbody design** stands up to the most demanding forest applications, assuring outstanding durability and service life.
- **Undercarriage** — Heavy-duty link assemblies provide toughness and durability, maximizing undercarriage life and minimizing operating costs.
- **Guarding** — Purpose designed guarding helps extend service life, reduces downtime and helps protect your forestry machine investment.
- **Operator station** — Spacious, quiet, automatically climate controlled cab has excellent sightlines to the work area.
- **Serviceability** — Simplified service and maintenance, and electronic diagnostics help save time, money and increase productivity.

MODEL	320C FM		320C FM	
	SA Reach Boom and Stick		LL Heel Boom Under/Under	
Flywheel Power	103 kW	138 hp	103 kW	138 hp
Standard	HH 700 Processing Head		11.0 m (36'0") Reach	
Operating Weight	28 000 kg	61,600 lb	29 239 kg	64,300 lb
Swing Mechanism:				
Torque	61.8 kN-m	45,611 lb-ft	61.8 kN-m	45,611 lb-ft
Speed	11.5 RPM		11.5 RPM	
Engine Model	Cat 3066 T Diesel Engine		Cat 3066 T Diesel Engine	
Rated Engine RPM	1800		1800	
No. of Cylinders	6		6	
Bore	102 mm	4.02"	102 mm	4.02"
Stroke	130 mm	5.12"	130 mm	5.12"
Displacement	6.37 L	389 in ³	6.37 L	389 in ³
Hydraulic System:				
Main Implement System — Maximum Flow (2X)	205 L/min	54.2 gal/min	—	—
Relief Valve Settings:				
Implement Circuits	34 300 kPa	4980 psi	34 300 kPa	4980 psi
Travel Circuits	34 300 kPa	4980 psi	34 300 kPa	4980 psi
Swing Circuits	25 000 kPa	3635 psi	25 000 kPa	3635 psi
Pilot Circuits	4120 kPa	600 psi	4120 kPa	600 psi
Drive:				
Standard Gauge Drawbar Pull	196 kN	44,040 lb	196 kN	44,040 lb
Maximum Travel Speed	5.5 km/h	3.4 mph	5.5 km/h	3.4 mph
High — Wide/High Drawbar Pull	236 kN	53,100 lb	236 kN	53,100 lb
Track:				
Standard (double grouser)	700 mm	28"	700 mm	28"
Optional (double grouser)	600 mm	24"	600 mm	24"
Optional (triple grouser)		X	700 mm	28"
Optional (triple grouser)	800 mm	32"		X
Overall Track Length	4480 mm	14'8"	4480 mm	14'8"
Ground Contact Area with Standard Shoe		X		X
Ground Clearance	475 mm	18.7"	650 mm	25.6"
Track Gauge	2380 mm	7'10"	2590 mm	8'6"
Capacity:				
Fuel Tank	400 L	106 U.S. gal	400 L	106 U.S. gal
Cooling System	30 L	7.9 U.S. gal	30 L	7.9 U.S. gal
Hydraulic System — Tank	120 L	32 U.S. gal	120 L	32 U.S. gal
Hydraulic System — Total	240 L	63 U.S. gal	240 L	63 U.S. gal
Swing Drive	8 L	2.1 U.S. gal	8 L	2.1 U.S. gal

MODEL	322C FM General Forestry (HDLC)		322C FM General Forestry (HW)		322C FM Log Loader (U/U)		322C FM Log Loader (O/U)	
Flywheel Power	125 kW	168 hp	125 kW	168 hp	125 kW	168 hp	125 kW	168 hp
Operating Weight*	27 176 kg	59,923 lb	29 656 kg	65,391 lb	32 616 kg	71,918 lb	32 905 kg	72,555 lb
Operating Weight**	28 229 kg	62,245 lb	30 710 kg	67,716 lb	33 607 kg	74,103 lb	33 896 kg	74,741 lb
Swing Mechanism:								
Torque	73.4 kN-m	54,137 lb-ft	73.4 kN-m	54,137 lb-ft	73.4 kN-m	54,137 lb-ft	73.4 kN-m	54,137 lb-ft
Speed	10 RPM		10 RPM		10 RPM		10 RPM	
Engine Model	Cat 3126B ATAAC		Cat 3126B ATAAC		Cat 3126B ATAAC		Cat 3126B ATAAC	
Rated Engine RPM	1800		1800		1800		1800	
No. of Cylinders	6		6		6		6	
Bore	110 mm	4.3"	110 mm	4.3"	110 mm	4.3"	110 mm	4.3"
Stroke	127 mm	5"	127 mm	5"	127 mm	5"	127 mm	5"
Displacement	7.2 L	439.4 in³	7.2 L	439.4 in³	7.2 L	439.4 in³	7.2 L	439.4 in³
Hydraulic System:								
Main Implement System — Maximum Flow (2X)	220 L/min	58.1 gal/min	220 L/min	58.1 gal/min	220 L/min	58.1 gal/min	220 L/min	58.1 gal/min
Relief Valve Settings:								
Implement Circuits	34 300 kPa	4980 psi	34 300 kPa	4980 psi	34 300 kPa	4980 psi	34 300 kPa	4980 psi
Travel Circuits	34 300 kPa	4980 psi	34 300 kPa	4980 psi	34 300 kPa	4980 psi	34 300 kPa	4980 psi
Swing Circuits	24 500 kPa	3553 psi	24 500 kPa	3553 psi	24 500 kPa	3553 psi	24 500 kPa	3553 psi
Pilot Circuits	3920 kPa	568.4 psi	3920 kPa	568.4 psi	3920 kPa	568.4 psi	3920 kPa	568.4 psi
Drive:								
Maximum Drawbar Pull	223 kN	50,112 lb	247 kN	55,508 lb	247 kN	55,508 lb	247 kN	55,508 lb
Maximum Travel Speed	5.5 km/h	3.4 mph	5.7 km/h	3.5 mph	5.7 km/h	3.5 mph	5.7 km/h	3.5 mph
Track:								
Standard (double grouser)	700 mm	27.5"	700 mm	27.5"	700 mm	27.5"	700 mm	27.5"
Optional (double grouser)	600 mm	23.6"	600 mm	23.6"	600 mm	23.6"	600 mm	23.6"
Optional (HD triple grouser)	800 mm	31.5"	800 mm	31.5"	800 mm	31.5"	800 mm	31.5"
Overall Track Length	4661 mm	15'4"	4695 mm	15'5"	4695 mm	15'5"	4695 mm	15'5"
Ground Contact Area with Standard Shoe	5.68 m ²	8808 in²	5.63 m ²	8720 in²	5.68 m ²	8720 in²	5.68 m ²	8720 in²
Ground Clearance	460 mm	18.1"	705 mm	27.8"	705 mm	27.8"	705 mm	27.8"
Track Gauge	2590 mm	8'6"	2921 mm	9'7"	2921 mm	9'7"	2921 mm	9'7"
Capacity:								
Fuel Tank	500 L	132 U.S. gal	500 L	132 U.S. gal	500 L	132 U.S. gal	500 L	132 U.S. gal
Cooling System	30 L	7.9 U.S. gal	30 L	7.9 U.S. gal	30 L	7.9 U.S. gal	30 L	7.9 U.S. gal
Hydraulic System — Tank	145 L	38 U.S. gal	145 L	38 U.S. gal	145 L	38 U.S. gal	145 L	38 U.S. gal
Hydraulic System — Total	245 L	64.7 U.S. gal	245 L	64.7 U.S. gal	245 L	64.7 U.S. gal	245 L	64.7 U.S. gal
Swing Drive	8 L	2.1 U.S. gal	8 L	2.1 U.S. gal	8 L	2.1 U.S. gal	8 L	2.1 U.S. gal

*Original FM Cab/Riser with external guarding.

**New FM Cab/Riser with integrated guarding (Available in July 2004).

MODEL	325C FM General Forestry (HDLC)		325C FM General Forestry (HW)		325C FM Log Loader (U/U)		325C FM Log Loader (O/U)	
	Flywheel Power	140 kW	188 hp	140 kW	188 hp	140 kW	188 hp	140 kW	188 hp
Operating Weight*								
without Bucket or Grapple	31 449 kg	69,333 lb	32 495 kg	71,639 lb	37 096 kg	81,783 lb	37 671 kg	83,050 lb
Operating Weight**								
without Bucket or Grapple	31 942 kg	70,432 lb	33 078 kg	72,937 lb	37 644 kg	83,005 lb	38 219 kg	84,273 lb
Swing Mechanism:								
Torque	82.2 kN-m	60,628 lb-ft	82.2 kN-m	60,628 lb-ft	82.2 kN-m	60,628 lb-ft	82.2 kN-m	60,628 lb-ft
Speed		10.2 RPM		10.2 RPM		10.2 RPM		10.2 RPM
Engine Model	Cat 3126B ATAAC		Cat 3126B ATAAC		Cat 3126B ATAAC		Cat 3126B ATAAC	
Rated Engine RPM	1800		1800		1800		1800	
No. of cylinders	6		6		6		6	
Bore	110 mm	4.3"	110 mm	4.3"	110 mm	4.3"	110 mm	4.3"
Stroke	127 mm	5"	127 mm	5"	127 mm	5"	127 mm	5"
Displacement	7.2 L	439.4 in³	7.2 L	439.4 in³	7.2 L	439.4 in³	7.2 L	439.4 in³
Hydraulic System:								
Main Implement System — Maximum Flow (2X)	235 L/min	62 gal/min	235 L/min	62 gal/min	235 L/min	62 gal/min	235 L/min	62 gal/min
Relief Valve Settings:								
Implement Circuits	34 300 kPa	4975 psi	34 300 kPa	4975 psi	34 300 kPa	4975 psi	34 300 kPa	4975 psi
Travel Circuits	34 300 kPa	4975 psi	34 300 kPa	4975 psi	34 300 kPa	4975 psi	34 300 kPa	4975 psi
Swing Circuits	27 500 kPa	3988 psi	27 500 kPa	3988 psi	27 500 kPa	3988 psi	27 500 kPa	3988 psi
Pilot Circuits	4120 kPa	598 psi	4120 kPa	598 psi	4120 kPa	598 psi	4120 kPa	598 psi
Drive:								
Maximum Drawbar Pull	244 kN	54,853 lb	244 kN	54,853 lb	244 kN	54,853 lb	244 kN	54,853 lb
Maximum Travel Speed	5.3 km/h	3.3 mph	5.3 km/h	3.3 mph	5.3 km/h	3.3 mph	5.3 km/h	3.3 mph
Track:								
Standard (double grouser)	700 mm	27.5"	700 mm	27.5"	700 mm	27.5"	700 mm	27.5"
Optional (double grouser)		none		none		none		none
Optional (triple grouser)		none	700 mm	27.5"	700 mm	27.5"	700 mm	27.5"
Optional (HD triple grouser)	800 mm	31.5"		none		none		none
Overall Track Length	4700 mm	15'5"	4770 mm	15'7"	4770 mm	15'7"	4770 mm	15'7"
Ground Contact Area with Standard Shoe	5.63 m ²	8720 in²	5.72 m ²	8863 in²	5.72 m ²	8863 in²	5.72 m ²	8863 in²
Ground Clearance	510 mm	20.1"	722 mm	28.5"	722 mm	28.5"	722 mm	28.5"
Track Gauge	2590 mm	8'6"	2921 mm	9'7"	2921 mm	9'7"	2921 mm	9'7"
Capacity:								
Fuel Tank	500 L	132 U.S. gal	500 L	132 U.S. gal	500 L	132 U.S. gal	500 L	132 U.S. gal
Fuel Tank — Optional Auxiliary Right Front	410 L	108 U.S. gal	410 L	108 U.S. gal	410 L	108 U.S. gal	410 L	108 U.S. gal
Cooling System	30 L	7.9 U.S. gal	30 L	7.9 U.S. gal	30 L	7.9 U.S. gal	30 L	7.9 U.S. gal
Hydraulic System — Tank	145 L	38 U.S. gal	145 L	38 U.S. gal	145 L	38 U.S. gal	145 L	38 U.S. gal
Hydraulic System — Total	310 L	82 U.S. gal	310 L	82 U.S. gal	310 L	82 U.S. gal	310 L	82 U.S. gal
Swing Drive	10 L	2.6 U.S. gal	10 L	2.6 U.S. gal	10 L	2.6 U.S. gal	10 L	2.6 U.S. gal

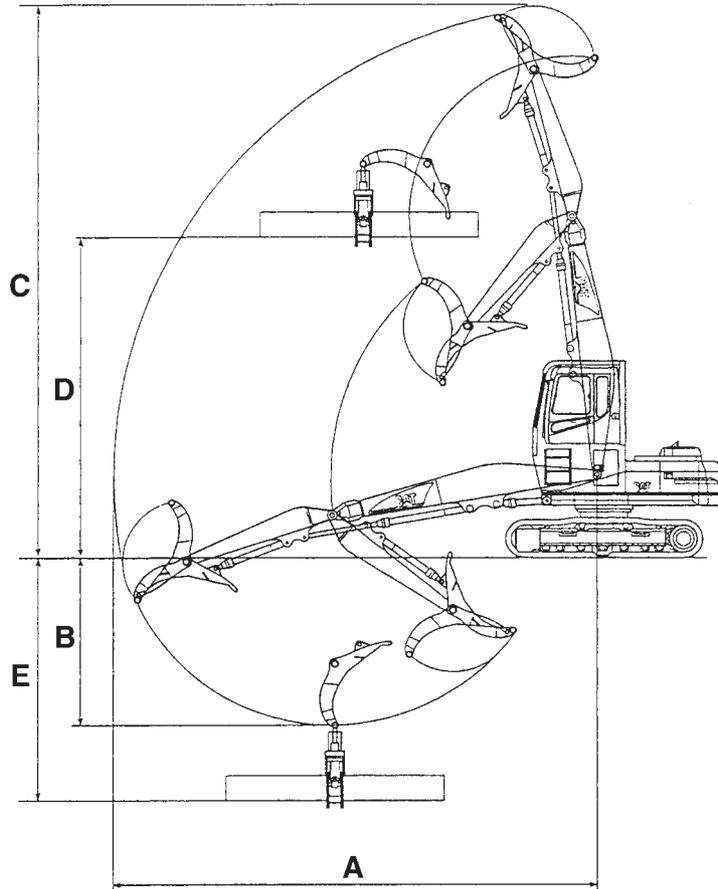
*Original FM Cab/Riser with external guarding.

**New FM Cab/Riser with integrated guarding (Available in July 2004).

MODEL	330C FM General Forestry (HDLC)		330C FM General Forestry (HW)		330C FM Log Loader (U/U)		330C FM Log Loader (O/U)	
Flywheel Power	184 kW	247 hp	184 kW	247 hp	184 kW	247 hp	184 kW	247 hp
Operating Weight*								
without Bucket or Grapple	38 790 kg	85,517 lb	40 220 kg	88,669 lb	43 900 kg	96,782 lb	44 440 kg	97,973 lb
Operating Weight**								
without Bucket or Grapple	39 347 kg	86,760 lb	40 778 kg	89,915 lb	44 430 kg	97,968 lb	44 965 kg	99,148 lb
Swing Mechanism:								
Torque	108 kN-m	79,657 lb-ft	108 kN-m	79,657 lb-ft	108 kN-m	79,657 lb-ft	108 kN-m	79,657 lb-ft
Speed	10 RPM		10 RPM		10 RPM		10 RPM	
Engine Model	Cat C9		Cat C9		Cat C9		Cat C9	
Rated Engine RPM	1800		1800		1800		1800	
No. of Cylinders	6		6		6		6	
Bore	112 mm	4.41"	112 mm	4.41"	112 mm	4.41"	112 mm	4.41"
Stroke	149 mm	5.87"	149 mm	5.87"	149 mm	5.87"	149 mm	5.87"
Displacement	8.8 L	537 in³	8.8 L	537 in³	8.8 L	537 in³	8.8 L	537 in³
Hydraulic System:								
Main Implement System — Maximum Flow (2X)	280 L/min	74 gal/min	280 L/min	74 gal/min	280 L/min	74 gal/min	280 L/min	74 gal/min
Relief Valve Settings:								
Implement Circuits	34 300 kPa	4975 psi	34 300 kPa	4975 psi	34 300 kPa	4975 psi	34 300 kPa	4975 psi
Travel Circuits	34 300 kPa	4975 psi	34 300 kPa	4975 psi	34 300 kPa	4975 psi	34 300 kPa	4975 psi
Swing Circuits	27 900 kPa	4046 psi	27 900 kPa	4046 psi	27 900 kPa	4046 psi	27 900 kPa	4046 psi
Pilot Circuits	4120 kPa	598 psi	4120 kPa	598 psi	4120 kPa	598 psi	4120 kPa	598 psi
Drive:								
Maximum Drawbar Pull	294 kN	66,094 lb	336 kN	75,536 lb	336 kN	75,536 lb	336 kN	75,536 lb
Maximum Travel Speed	5 km/h	3.1 mph	4.5 km/h	2.8 mph	4.5 km/h	2.8 mph	4.5 km/h	2.8 mph
Track:								
Standard (double grouser)	700 mm	27.5"	700 mm	27.5"	700 mm	27.5"	700 mm	27.5"
Optional (double grouser)	none		none		none		none	
Optional (triple grouser)	none		850 mm	33.5"	850 mm	33.5"	850 mm	33.5"
Optional (HD triple grouser)	850 mm	33.5"	none		none		none	
Overall Track Length	5080 mm	16'8"	5070 mm	16'7"	5070 mm	16'7"	5070 mm	16'7"
Ground Contact Area with Standard Shoe	6.05 m ²	9370 in²	6.04 m ²	9352 in²	6.04 m ²	9352 in²	6.04 m ²	9352 in²
Ground Clearance	515 mm	20 in	744 mm	29 in	744 mm	29 in	744 mm	29 in
Track Gauge	2590 mm	8'6"	2920 mm	9'7"	2920 mm	9'7"	2920 mm	9'7"
Capacity:								
Fuel Tank	618 L	163 U.S. gal	618 L	163 U.S. gal	618 L	163 U.S. gal	618 L	163 U.S. gal
Fuel Tank — Optional Auxiliary Right Front	410 L	108 U.S. gal	410 L	108 U.S. gal	410 L	108 U.S. gal	410 L	108 U.S. gal
Cooling System	38 L	10 U.S. gal	38 L	10 U.S. gal	38 L	10 U.S. gal	38 L	10 U.S. gal
Hydraulic System — Tank	175 L	46 U.S. gal	175 L	46 U.S. gal	175 L	46 U.S. gal	175 L	46 U.S. gal
Hydraulic System — Total	410 L	108 U.S. gal	410 L	108 U.S. gal	410 L	108 U.S. gal	410 L	108 U.S. gal
Swing Drive	19 L	5 U.S. gal	19 L	5 U.S. gal	19 L	5 U.S. gal	19 L	5 U.S. gal

*Original FM Cab/Riser with external guarding.

**New FM Cab/Riser with integrated guarding (Available in July 2004).



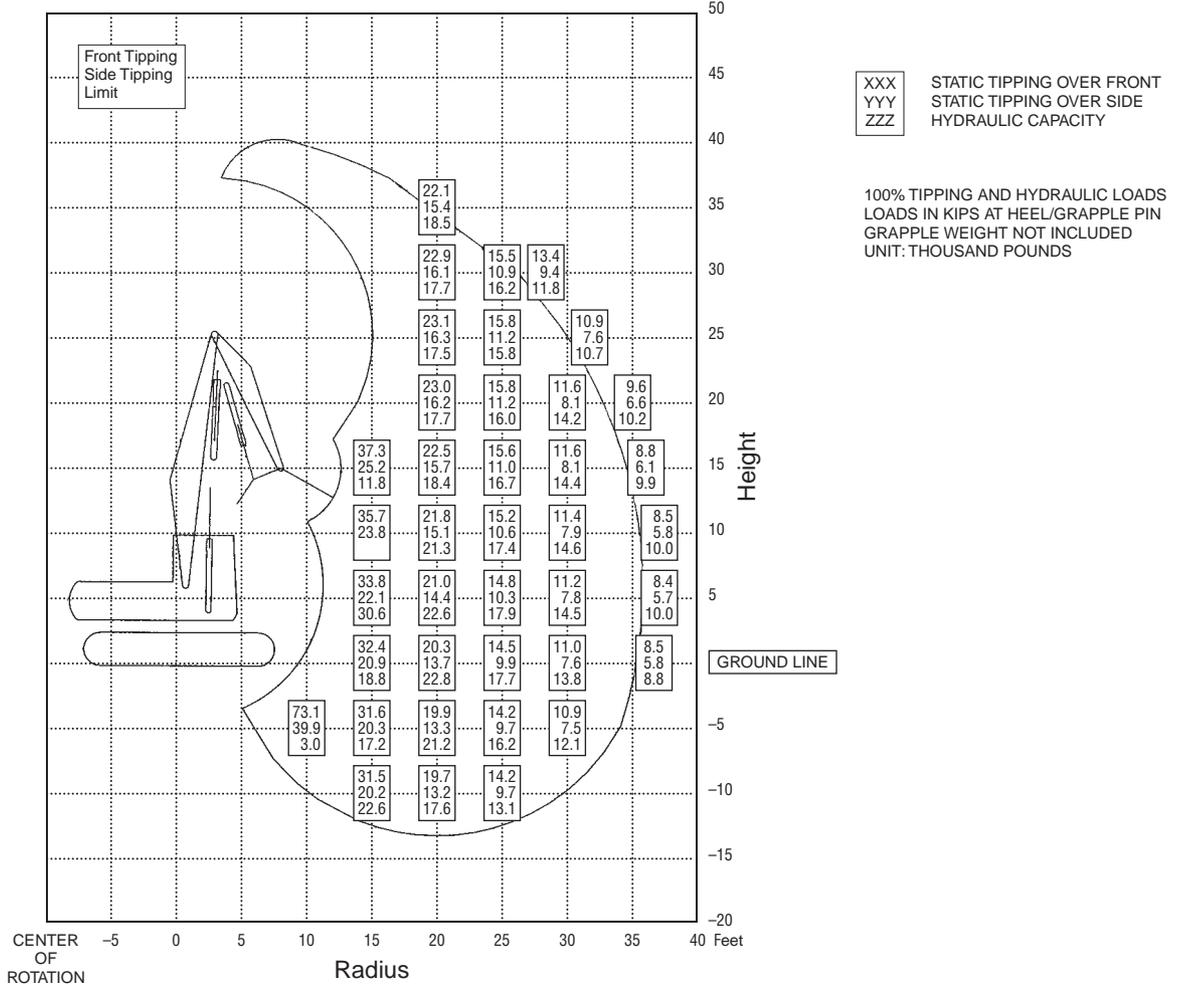
Working Envelope

	320C FM with High Wide Carbody		320C FM with Reinforced Carbody		322C FM Under/Under Log Loader		325C FM Under/Under Log Loader		330C FM Under/Under Log Loader	
	m	ft	m	ft	m	ft	m	ft	m	ft
A Max. Reach	10.98	36'0"	10.98	36'0"	11.66	38'4"	12.19	40'0"	13.3	43'1"
B Max. Depth	4	13'1"	4.17	13'8"	4.08	13'3"	4.39	14'3"	5.03	16'6"
C Max. Height	12.63	41'5"	12.46	40'10"	13.30	43'7"	14.18	46'6"	15.05	49'3"
D Max. Deck Height	7.37	24'2"	7.20	23'7"	*		*		*	
E Max. Deck Depth	5.68	18'8"	5.85	19'2"	*		*		*	

*Information unavailable at time of printing.

LIFT AND RANGE DIAGRAM

320C FM Log Loader

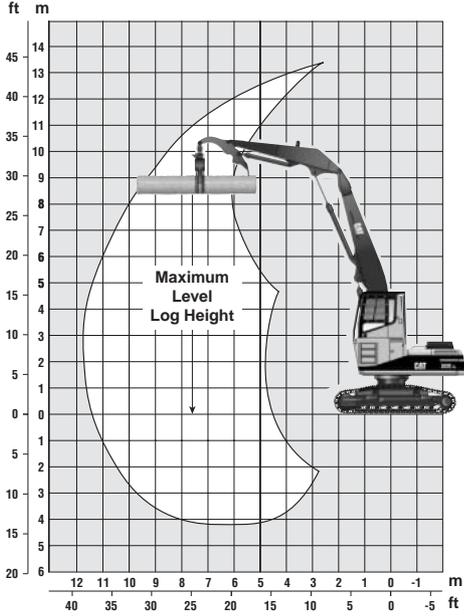


- Undercarriage — long
- Logging Front — Caterpillar 320C FM LL HB-36, 10.97 m (36'0") maximum reach
- Capacity, lbs., (thousands)
 - Top Number: Tipping over front
 - Middle Number: Tipping over side
 - Bottom Number: Hydraulic capacity

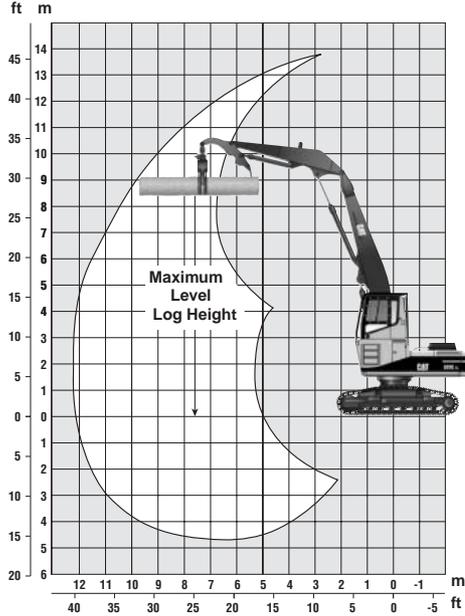
- All capacities are 100% stability and 100% hydraulic with no deration for friction (100% efficiency)
- Grapple weight is not included

Calculations, weights and machine specifications are subject to change at any time without notice.

**Heel Boom
 Under/Under**

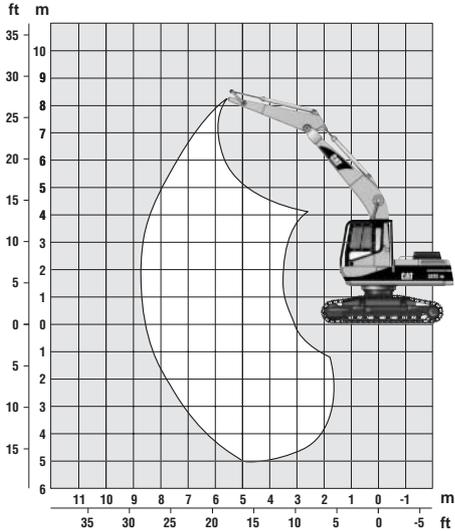


**Heel Boom
 Over/Under**

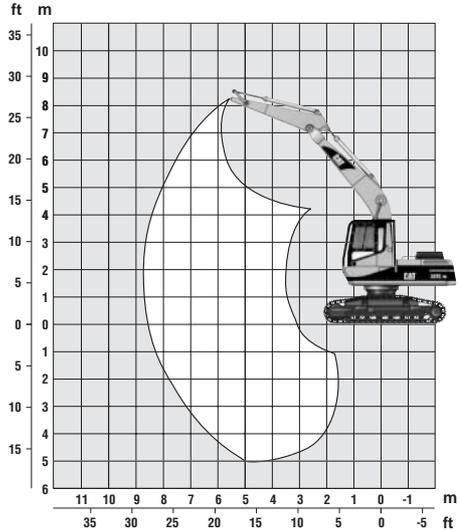


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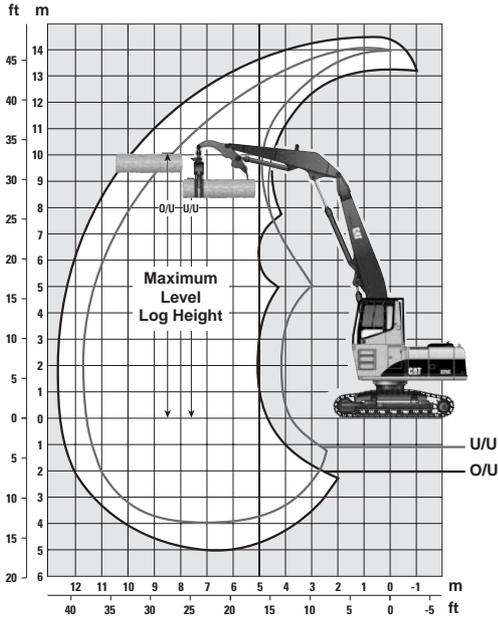
**General Forestry
 HD LC U/C, 5.9 m (19'4") Boom
 with 2.95S Stick**



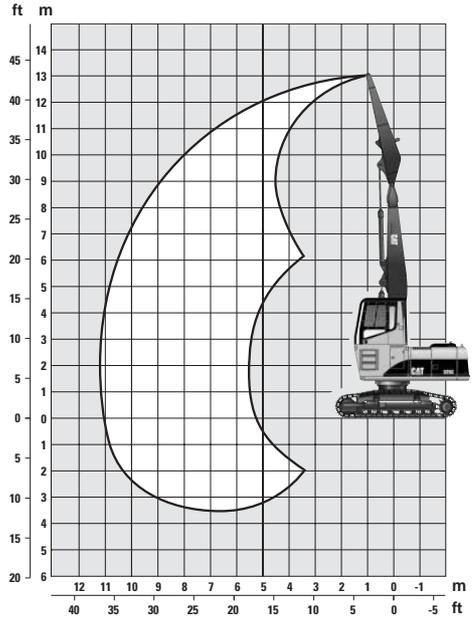
**General Forestry
 HW U/C, 5.9 m (19'4") Boom
 with 2.95S Stick**



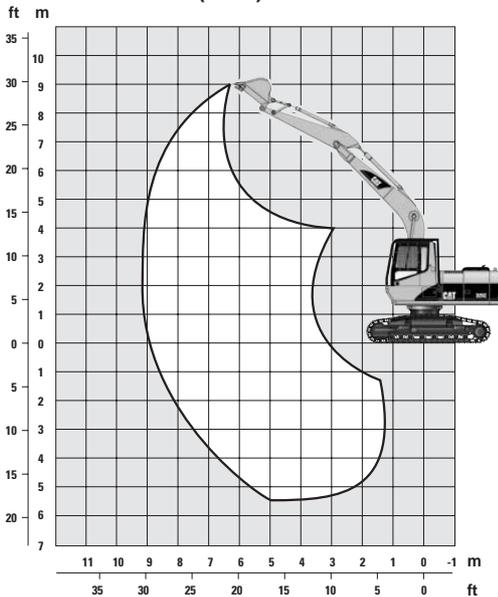
Heel Boom
Over/Under and Under/Under



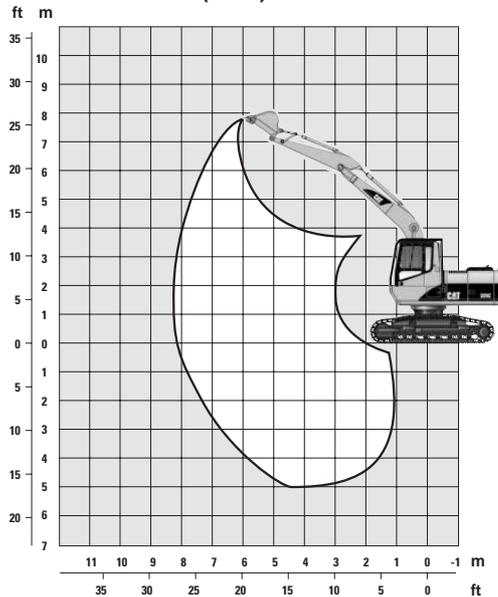
Butt-N-Top



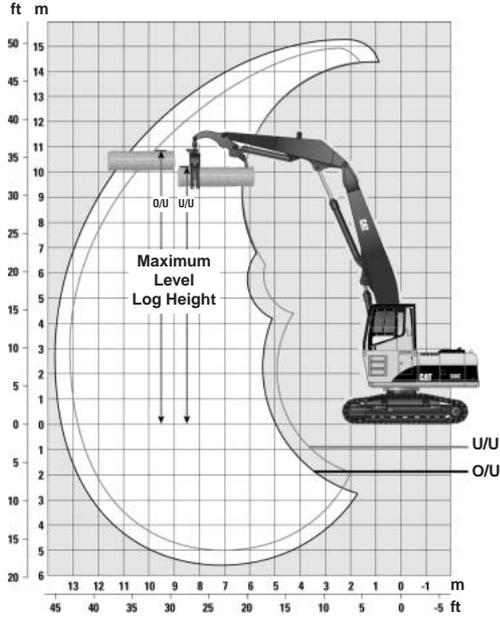
General Forestry
HD LC U/C, 6.5 m (20'2") Reach Boom
with 3.2 m (10'6") Reach Stick



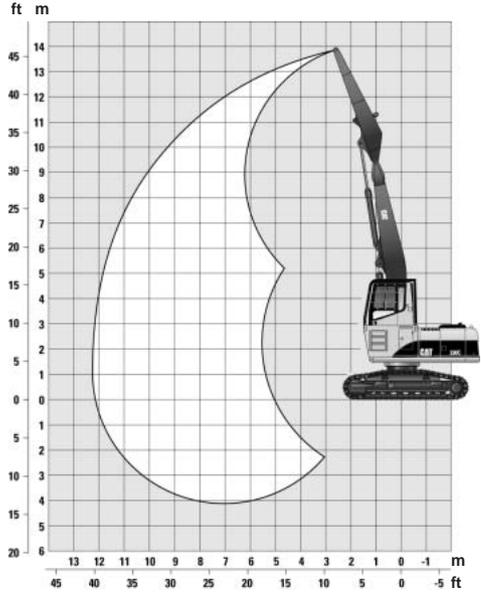
General Forestry
HD LC U/C, 5.5 m (18'2") Mass Boom
with 3.2 m (10'6") Reach Stick



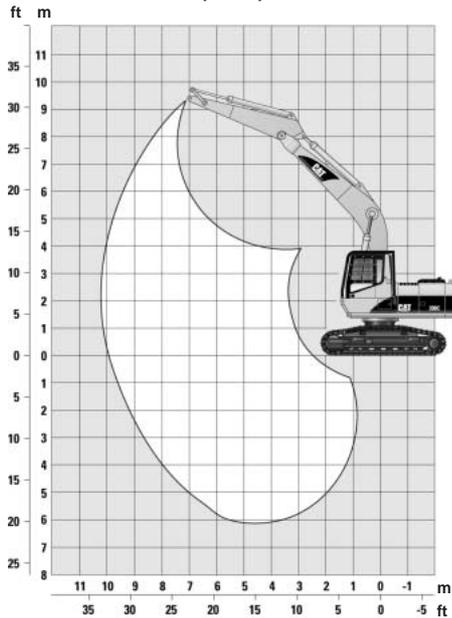
Heel Boom



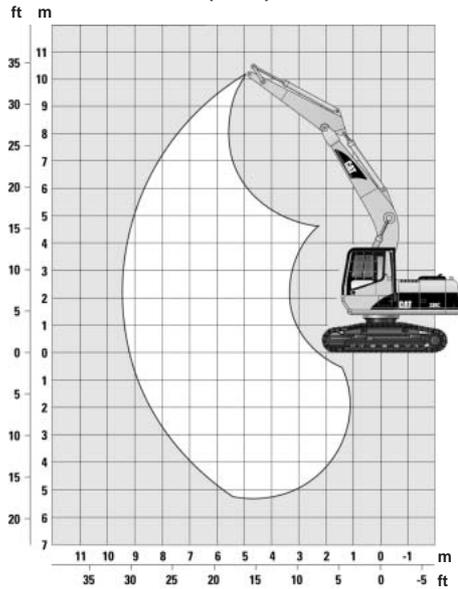
Butt-N-Top



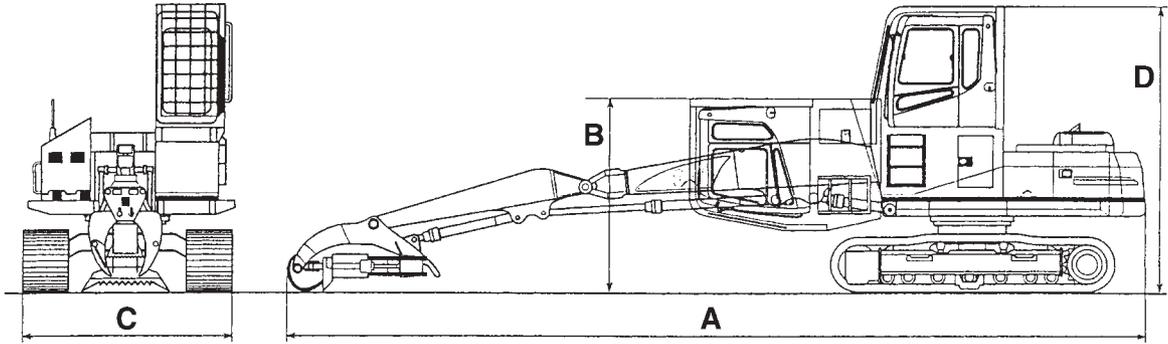
**6.5 m (21'2") Reach Boom
 with 3.9 m (12'9") Reach Stick**



**6.18 m (20'2") Mass Boom
 with 3.52 m (11'6") Reach Stick**



———— with adapter m-boom r-stick
 ———— without adapter m-boom r-stick



Shipping Dimensions

	320C FM w/high wide carbody 1.22 m (4'0") cab riser		320C FM w/high wide carbody 457 mm (18") cab riser		320C FM w/reinforced carbody 1.22 m (4'0") cab riser		320C FM w/reinforced carbody 457 mm (18") cab riser	
	m	ft	m	ft	m	ft	m	ft
A Overall Length	13.62	44'8"	13.62	44'8"	13.62	44'8"	13.62	44'8"
B Overall Height	3.11	10'3"	3.66	12'0"	2.94	9'8"	3.49	11'5"
C Overall Width	3.31	10'10"	3.31	10'10"	3.26	10'8"	3.26	10'8"
D Cab Height	4.55	14'11"	3.79	12'5"	4.38	14'5"	3.62	11'11"

	322C FM HD LC General Forestry		322C FM HW General Forestry		322C FM LL Under/Under		322C FM LL Over/Under	
	m	ft	m	ft	m	ft	m	ft
A Overall Length	9.96	32'8"	9.91	32'6"	14.10	46'3"	15.00	49'3"
B Overall Height	3.30	10'10"	3.57	11'8"	3.24	10'8"	3.24	10'8"
C Overall Width	3.29	10'10"	3.62	11'11"	3.62	11'11"	3.62	11'11"
D Cab Height	3.68	12'1"	3.96	13'0"	3.96	13'0"	3.96	13'0"

	325C FM HD LC General Forestry 457 mm (18") riser		325C FM HW General Forestry 457 mm (18") riser		325C FM LL Under/Under 1219 mm (4'0") riser		325C FM LL Over/Under 1219 mm (4'0") riser	
	m	ft	m	ft	m	ft	m	ft
A Overall Length	10.34	33'11"	10.29	33'9"	14.87	48'9"	15.75	51'8"
B Overall Height	3.35	11'0"	3.29	10'9"	3.26	10'8"	3.26	10'8"
C Overall Width	3.44	11'3"	3.62	11'11"	3.62	11'11"	3.62	11'11"
D Cab Height	3.74	12'3"	3.98	13'1"	4.74	15'7"	4.74	15'7"

	330C FM HD LC General Forestry 457 mm (18") riser		330C FM HW General Forestry 457 mm (18") riser		330C FM LL Under/Under 1219 mm (4'0") riser		330C FM LL Over/Under 1219 mm (4'0") riser	
	m	ft	m	ft	m	ft	m	ft
A Overall Length	11.19	36'9"	11.19	36'9"	16.67	54'8"	17.36	57'0"
B Overall Height	3.48	11'5"	3.38	11'1"	3.38	11'1"	3.38	11'1"
C Overall Width	3.52	11'6"	3.62	11'11"	3.62	11'11"	3.62	11'11"
D Cab Height	3.88	12'9"	4.10	13'6"	4.87	16'0"	4.87	16'0"

HD = Heavy Duty; LC = Long Undercarriage; HW = High Wide Undercarriage; LL = Log Loader

Forest Machine	320C FM		322C FM		325C FM		330C FM	
	kg	lb	kg	lb	kg	lb	kg	lb
Booms*								
Special Application (excavator reach boom)	2190	4840	2463	5430	2940	6482	3884	8563
Log Loader Boom	2610	5750	3566	7862	3684	8122	4639	10,227
Sticks** Special Application (excavator sticks)								
Special Application (excavator stick)	750	1650	1185	2612	1482	3267	1952	4303
Sticks for Log Loader Boom								
Log Loader Stick (Under/Under)	905	2000	1293	2851	1526	3364	1477	3256
Log Loader Stick (Over/Under)	N/A	N/A	1472	3245	1622	3576	1990	4387
Upperstructure (complete w/o counterweight)								
— 1.22 m (4'0") cab riser	7400	16,310	9556	21,067	9808	21,623	11 168	24,621
— 457 mm (18") cab riser	7180	15,830	9171	20,219	9415	20,757	10 817	23,847
Undercarriage (long carriage — LC)								
— 600 mm (2'0") double grouser shoe	N/A	N/A	10 040	22,134	11 652	25,688	N/A	N/A
— 700 mm (2'4") double grouser shoe	N/A	N/A	10 375	22,873	12 030	26,522	16 061	35,408
— 800 mm (2'7") triple grouser shoe	N/A	N/A	10 735	23,667	12 575	27,723	N/A	N/A
— 850 mm (2'10") triple grouser shoe	N/A	N/A	N/A	N/A	N/A	N/A	16 566	36,522
Undercarriage (high wide carbody — HW)								
— 600 mm (2'0") double grouser shoe	8850	19,510	12 470	27,492	N/A	N/A	N/A	N/A
— 700 mm (2'4") double grouser shoe	9175	20,230	12 848	28,325	13 070	28,814	17 486	38,550
— 800 mm (2'7") triple grouser shoe	9165	20,210	13 392	29,524	N/A	N/A	N/A	N/A
— 850 mm (2'10") triple grouser shoe	N/A	N/A	N/A	N/A	N/A	N/A	18 073	39,844
Undercarriage (reinforced carbody)								
— 600 mm (2'0") shoe	8390	18,500	N/A	N/A	N/A	N/A	N/A	N/A
— 700 mm (2'4") shoe	8710	19,200	N/A	N/A	N/A	N/A	N/A	N/A
— 800 mm (2'7") shoe	8700	19,180	N/A	N/A	N/A	N/A	N/A	N/A
Counterweight								
Standard	3865	8520	4369	9632	5619	12,388	6019	13,270
Heavy	5830	12,850	5149	11,352	7719	17,017	8319	18,340
GLL (log loading grapple)								
— GLL 52	2120	962	2120	962	2120	962	2120	962
— GLL 55	2127	965	2127	965	2127	965	2127	965
— GLL 60	2264	1027	2264	1027	2264	1027	2264	1027
GLS (shovel logging grapple)								
— GLS 55	1315	2800	1315	2800	1315	2800	N/A	N/A
— GLS 60	1406	3400	1406	3400	1406	3400	1406	3400
— GLS 63	N/A	N/A	1497	3500	1497	3500	1497	3500
— GLS 66	N/A	N/A	N/A	N/A	N/A	N/A	1676	3600

*Boom weights include boom, boom lines, boom cylinders and rod end pins, guard, lights, stick cylinder and head end pins.

**Stick weights include stick and stick lines.

322C FM HD LC

5.9 m (19'4") Reach Boom, R2.95S Stick, 700 mm (28") Track Shoes

Load Point Height		3.0 m/10.0 ft		4.5 m/15.0 ft		6.0 m/20.0 ft		7.5 m/25.0 ft		Load at Maximum Reach		
		Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	m ft
7.5 m	kg					6800*	6800*			6200*	6200*	6.40
25.0 ft	lb					15,100*	15,100*			13,700*	13,700*	20.63
6.0 m	kg					6900*	6900*			5800*	5800*	7.49
20.0 ft	lb					15,000*	15,000*			12,900*	12,900*	24.41
4.5 m	kg			8900*	8900*	7600*	7600*	7000*	6800	5800*	5800*	8.17
15.0 ft	lb			19,200*	19,200*	16,500*	16,500*	15,300*	14,500	12,800*	12,800*	26.73
3.0 m	kg			11 400*	11 400*	8700*	8700*	7500*	6600	6000*	5400	8.53
10.0 ft	lb			24,400*	24,400*	18,900*	18,900*	16,300*	14,100	13,200*	12,000	27.96
1.5 m	kg			13 500*	13 100	9900*	8700	8100*	6400	6500*	5200	8.61
5.0 ft	lb			29,200*	28,100	21,300*	18,700	17,500*	13,700	14,200*	11,500	28.26
†0.0 m	kg			14 600*	12 600	10 600*	8400	8400*	6200	7200*	5300	8.42
†0.0 ft	lb			31,500*	27,200	22,900*	18,100	18,300*	13,400	15,900*	11,700	27.64
-1.5 m	kg	11 700*	11 700*	14 500*	12 500	10 800*	8300	8400*	6200	7800*	5700	7.95
-5.0 ft	lb	26,600*	26,600*	31,400*	26,900	23,300*	17,900	18,100*	13,300	17,200*	12,600	26.05
-3.0 m	kg	18 800*	18 800*	13 500*	12 600	10 100*	8300			8100*	6700	7.13
-10.0 ft	lb	40,600*	40,600*	29,100*	27,100	21,700*	18,000			17,800*	14,800	23.28
-4.5 m	kg	15 000*	15 000*	11 000*	11 000*					8200*	8200*	5.81
-15.0 ft	lb									18,000*	18,000*	18.80

322C FM HW Undercarriage

5.9 m (19'4") Reach Boom, R2.95S Stick, 700 mm (28") Track Shoes

Load Point Height		3.0 m/10.0 ft		4.5 m/15.0 ft		6.0 m/20.0 ft		7.5 m/25.0 ft		Load at Maximum Reach		
		Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	m ft
7.5 m	kg					6700*	6700*			6100*	6100*	6.64
25.0 ft	lb					14,900*	14,900*			13,500*	13,500*	21.44
6.0 m	kg					6900*	6900*	6500*	6500*	5800*	5800*	7.64
20.0 ft	lb					15,200*	15,200*	14,500*	14,500*	12,800*	12,800*	24.91
4.5 m	kg			9300*	9300*	7800*	7800*	7100*	7100*	5800*	5800*	8.26
15.0 ft	lb			20,000*	20,000*	16,900*	16,900*	15,400*	15,400*	12,800*	12,800*	27.02
3.0 m	kg			11 800*	11 800*	9000*	9000*	7600*	7600*	6100*	6100*	8.56
10.0 ft	lb			25,400*	25,400*	19,400*	19,400*	16,500*	16,500*	13,400*	13,400*	28.08
1.5 m	kg			13 800*	13 800*	10 000*	10 000*	8100*	7900	6600*	6600	8.60
5.0 ft	lb			29,800*	29,800*	21,700*	21,700*	17,700*	17,100	14,400*	14,400*	28.21
†0.0 m	kg	6900*	6900*	14 600*	14 600*	10 700*	10 600	8500*	7800	7400*	6700	8.36
†0.0 ft	lb			31,700*	31,700*	23,100*	22,800	18,400*	16,800	16,400*	14,800	27.43
-1.5 m	kg	12 900*	12 900*	14 400*	14 400*	10 700*	10 500	8300*	7800	7900*	7300	7.83
-5.0 ft	lb	29,200*	29,200*	31,200*	31,200*	23,100*	22,600	17,900*	16,700	17,300*	16,200	25.65
-3.0 m	kg	18 200*	18 200*	13 200*	13 200*	9900*	9900*			8100*	8100*	6.93
-10.0 ft	lb	39,500*	39,500*	28,400*	28,400*	21,200*	21,200*			17,900*	17,900*	22.63
-4.5 m	kg			10 300*	10 300*					8100*	8100*	5.49
-15.0 ft	lb									17,800*	17,800*	17.73

*Indicates that the load is limited by hydraulic capacity rather than tipping capacity. Lift capacity ratings are based on SAE standard J1097. Rated loads are at 100% of hydraulic lifting capacity or 100% of tipping capacity.

†Ground line.

322C FM Under/Under Heel Boom

11.6 m (38'0") Under/Under Heel Boom, HW Undercarriage, 700 mm (28") Track Shoes

Load Point Height		4.5 m/15.0 ft		6.0 m/20.0 ft		7.5 m/25.0 ft		9.0 m/30.0 ft		10.5 m/35.0 ft		Load at Maximum Reach		
		Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	m ft
12.0 m 40.0 ft	kg lb	29,000*	29,000*											
10.5 m 35.0 ft	kg lb			10 000* 21,900*	10 000* 21,900*	8800* 19,400*	8700 18,300							
9.0 m 30.0 ft	kg lb			21,000*	21,000*	8500* 18,500*	8500* 18,500*	7500* 16,400*	6400 13,500					
7.5 m 25.0 ft	kg lb			9700* 21,200*	9700* 21,200*	8500* 18,400*	8500* 18,400*	7400* 16,100*	6600 14,000					
6.0 m 20.0 ft	kg lb			10 200* 22,100*	10 200* 22,100*	8700* 18,800*	8700* 18,800*	7500* 16,200*	6500 14,000	6300* 13,600*	4900 10,400	5800* 12,800*	4400 9800	10.96 35.85
4.5 m 15.0 ft	kg lb	11 300* 25,300*	11 300* 25,300*	11 000* 23,700*	11 000* 23,700*	9000* 19,500*	8700 18,600	7600* 16,400*	6400 13,700	6300* 13,600*	4900 10,400	5200* 11,500*	4100 9100	11.40 37.34
3.0 m 10.0 ft	kg lb			11 700* 25,300*	11 700* 25,300*	9300* 20,200*	8300 17,800	7600* 16,500*	6200 13,300	6200* 13,300*	4800 10,200	4600* 10,100*	4000 8700	11.62 38.11
1.5 m 5.0 ft	kg lb			12 100* 26,100*	11 100 23,900	9400* 20,300*	7900 17,100	7500* 16,200*	6000 12,900	5900* 12,600*	4700 10,100	3900* 8700*	3900* 8700*	11.64 38.20
†0.0 m †0.0 ft	kg lb	25,200*	25,200*	11 700* 25,300*	10 600 22,700	9000* 19,500*	7600 16,400	7100* 15,200*	5800 12,500	5300* 11,100*	4600 9900			
-1.5 m -5.0 ft	kg lb	11 700* 27,400*	11 700* 27,400*	10 400* 22,500*	10 300 22,100	8100* 17,400*	7500 16,000	6100* 13,000*	5700 12,300*	4000* 8000*	4000* 8000*			
-3.0 m -10.0 ft	kg lb	10 200* 21,900*	10 200* 21,900*	8200* 17,600*	8200* 17,600*	6300* 13,500*	6300* 13,500*	4400* 9200*	4400* 9200*					

322C FM Over/Under Heel Boom

12.2 m (40'0") Over/Under Heel Boom, HW Undercarriage, 700 mm (28") Track Shoes

Load Point Height		4.5 m/15.0 ft		6.0 m/20.0 ft		7.5 m/25.0 ft		9.0 m/30.0 ft		10.5 m/35.0 ft		Load at Maximum Reach		
		Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	m ft
12.0 m 40.0 ft	kg lb			10 200* 22,400*	10 200* 27,100									
10.5 m 35.0 ft	kg lb					8300* 18,100*	8300* 19,100							
9.0 m 30.0 ft	kg lb					8000* 17,400*	8000* 19,700	7100* 15,500*	6600 13,900					
7.5 m 25.0 ft	kg lb					8000* 17,300*	8000* 19,700	7100* 15,400*	6600 14,100	6200* 13,400*	4900 10,300			
6.0 m 20.0 ft	kg lb					8200* 17,800*	8200* 19,300	7100* 15,500*	6500 13,900	6200* 13,400*	4900 10,400	5200* 11,500*	3900 8600	11.60 37.94
4.5 m 15.0 ft	kg lb			10 200* 22,200*	10 200* 27,100	8500* 18,500*	8500* 18,600	7200* 15,700*	6300 13,600	6200* 13,300*	4800 10,200	4600* 10,300*	3600 8000	12.01 39.35
3.0 m 10.0 ft	kg lb	14 500* 32,000*	14 500* 32,000*	11 000* 23,900*	11 000* 25,400	8900* 19,300*	8200 17,700	7300* 15,900*	6000 13,100	6100* 13,200*	4600 10,000	4100* 9100*	3500 7700	12.22 40.08
1.5 m 5.0 ft	kg lb	15 800* 34,800*	15 800* 34,800*	11 600* 25,100*	10 900 23,600	9000* 19,700*	7700* 16,700	7300* 15,900*	5800 12,500	5900* 12,700*	4500 9700	3500* 7700*	3500 7700	12.24 40.17
†0.0 m †0.0 ft	kg lb	15 700* 34,400*	15 700* 34,400*	11 500* 25,000*	10 200 22,200	8800* 19,200*	7300 15,900	7000* 15,200*	5600 12,000	5400* 11,600*	4400 9500			
-1.5 m -5.0 ft	kg lb	14 000* 31,000*	14 000* 32,900	10 500* 22,900*	9800 21,200	8100* 17,600*	7100 15,300	6300* 13,500*	5400 11,700	4500* 9500*	4300 9300			
-3.0 m -10.0 ft	kg lb	11 100* 24,300*	11 100* 24,300*	8700* 18,900*	8700* 20,900	6700* 14,500*	6700* 15,100	4900* 10,500*	4900* 11,600	2800* 6000*	2800* 6000*			

*Indicates that the load is limited by hydraulic capacity rather than tipping capacity. Lift capacity ratings are based on SAE standard J1097. Rated loads are at 100% of hydraulic lifting capacity or 100% of tipping capacity.

†Ground line.

325C FM HD LC

5.55 m (18'1") Mass Boom, 3.2 m (10'5") Stick, Heavy Counterweight, 700 mm (28") Double Grouser Track Shoes

Load Point Height		1.5 m/5.0 ft		3.0 m/10.0 ft		4.5 m/15.0 ft		6.0 m/20.0 ft		7.5 m/25.0 ft		Load at Maximum Reach				
		Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	m ft								
7.5 m 25.0 ft	kg lb													7200* 16,000*	7200* 16,000*	6.16 19.84
6.0 m 20.0 ft	kg lb													6900* 15,200*	6900* 15,200*	7.26 23.64
4.5 m 15.0 ft	kg lb													9800* 21,200*	9800* 21,200*	7.39 25.94
3.0 m 10.0 ft	kg lb			22 100* 47,100*	22 100* 47,100*	14 200* 30,500*	14 200* 30,500*	11 200* 24,200*	11 200* 24,200*	9700* 21,200*	9400 20,200	7300* 16,100*	7300* 16,100*	8.27 27.12		
1.5 m 5.0 ft	kg lb			8100* 19,300*	8100* 19,300*	17 100* 36,800*	17 100* 36,800*	12 600* 27,300*	12 400 26,800	10 400* 22,600*	9100 19,600	8000* 17,600*	7900 17,300	8.33 27.33		
†0.0 m †0.0 ft	kg lb			10 600* 24,100*	10 600* 24,100*	18 600* 40,200*	18 100 39,000	13 600* 29,500*	12 100 26,000	10 900* 23,500*	8900 19,200	9300* 20,400*	8100 17,700	8.11 26.59		
-1.5 m -5.0 ft	kg lb	9800* 21,900*	9800* 21,900*	16 200* 36,700*	16 200* 36,700*	18 700* 40,400*	17 900 38,500	13 800* 29,800*	11 900 25,700	10 700* 23,500*	8922 19,200	10 500* 23,200*	8700 19,300	7.58 24.83		
-3.0 m -10.0 ft	kg lb	16 100* 36,100*	16 100* 36,100*	24 400* 52,800*	24 400* 52,800*	17 200* 37,100*	17 200* 37,100*	12 700* 27,300*	11 900 25,700			11 100* 24,400*	10 400 23,000	6.68 21.79		
-4.5 m -15.0 ft	kg lb			18 700* 39,800*	18 700* 39,800*	13 400* 28,400*	13 400* 28,400*					11 300* 24,900*	11 300* 24,900*	5.20 16.75		

325C FM HD LC

6.15 m (20'0") Reach Boom, 3.2 m (10'5") Stick, Heavy Counterweight, 700 mm (28") Double Grouser Track Shoes

Load Point Height		1.5 m/5.0 ft		3.0 m/10.0 ft		4.5 m/15.0 ft		6.0 m/20.0 ft		7.5 m/25.0 ft		9.0 m/30.0 ft		Load at Maximum Reach		
		Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	m ft
7.5 m 25.0 ft	kg lb													5800* 12,900*	5800* 12,900*	7.29 23.59
6.0 m 20.0 ft	kg lb													5500* 12,200*	5500* 12,200*	8.23 26.86
4.5 m 15.0 ft	kg lb													5500* 12,100*	5500* 12,100*	8.83 28.89
3.0 m 10.0 ft	kg lb					14 500* 31,100*	14 500* 31,100*	11 000* 23,700*	10 600 22,900	9300* 20,200*	7700 16,500	6700* 14,400*	5800 12,400*	5600* 12,400*	9.14 29.95	
1.5 m 5.0 ft	kg lb					17 200* 37,100*	15 200 32,600	12 400* 26,900*	10 100 21,800	10 100* 21,800*	7400 16,000	7700* 14,100*	5700 12,300	6000* 13,100*	5600 12,200	9.19 30.14
†0.0 m †0.0 ft	kg lb					18 500* 39,900*	14 700 31,500	13 400* 29,000*	9800 21,000	10 600* 23,000*	7200 15,500			6600* 14,500*	5700 12,400	8.99 29.48
-1.5 m -5.0 ft	kg lb	7200* 16,200*	7200* 16,200*	11 400* 25,800*	11 400* 25,800*	18 400* 39,800*	14 500 31,200	13 600* 29,500*	9600 20,700	10 700 23,000	7100 15,300			7600* 16,800*	6000 13,300	8.52 27.91
-3.0 m -10.0 ft	kg lb	13 000* 29,100*	13 000* 29,100*	18 400* 41,700*	18 400* 41,700*	17 200* 37,300*	14 600 31,400	13 000* 28,000*	9600 20,700	9900* 21,100*	7200 15,500			9400* 20,800*	6900 15,300	7.73 25.24
-4.5 m -15.0 ft	kg lb			19 800* 42,600*	19 800* 42,600*	14 600* 31,300*	14 600* 31,300*	10 800* 22,800*	9900 21,300					9500* 20,900*	8900 19,900	6.50 21.07

*Indicates that the load is limited by hydraulic capacity rather than tipping capacity. Lift capacity ratings are based on ISO 10567. Rated loads are at 100% of hydraulic lifting capacity or 100% of tipping capacity over front and side.

†Ground line.

Lift Point is at the stick end pin.

325C FM HW

5.55 m (18'1") Mass Boom, 3.2 m (10'5") Stick, Standard Counterweight, 700 mm (28") Double Grouser Track Shoes

Load Point Height		1.5 m/5.0 ft		3.0 m/10.0 ft		4.5 m/15.0 ft		6.0 m/20.0 ft		7.5 m/25.0 ft		Load at Maximum Reach		
		Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	m ft
7.5 m 25.0 ft	kg lb							16,700*	16,700*			7100*	7100*	6.37 20.56
6.0 m 20.0 ft	kg lb							8900* 19,500*	8900* 19,500*			6900* 15,100*	6900* 15,100*	7.39 24.09
4.5 m 15.0 ft	kg lb							9900* 21,600*	9900* 21,600*	8800* 18,500*	8800* 18,500*	7000* 15,400*	7000* 15,400*	8.00 26.19
3.0 m 10.0 ft	kg lb			18 100* 47,500*	18 100* 47,500*	14 700* 31,500*	14 700* 31,500*	11 400* 24,700*	11 400* 24,700*	9800* 21,300*	9300 20,000	7400* 16,200*	7400* 16,200*	8.30 27.21
1.5 m 5.0 ft	kg lb			8100* 19,000*	8100* 19,000*	17 400* 37,500*	17 400* 37,500*	12 800* 27,700*	12 500 26,800	10 500* 22,800*	9000 19,500	8200* 17,900*	7800 17,200	8.31 27.28
†0.0 m †0.0 ft	kg lb	10,100*	10,100*	11 300* 25,600*	11 300* 25,600*	18 700* 40,400*	18 500 39,800	13 700* 29,600*	12 100 26,000	10 900* 23,500*	8900 19,100	9500* 20,900*	8100 17,700	8.04 26.39
-1.5 m -5.0 ft	kg lb			17 300* 39,100*	17 300* 39,100*	18 500* 40,100*	18 300 39,400	13 700* 29,600*	12 000 25,700			10 600* 23,300*	8900 19,600	7.46 24.45
-3.0 m -10.0 ft	kg lb	17 300* 38,700*	17 300* 38,700*	23 700* 51,200*	23 700* 51,200*	16 800* 36,200*	16 800* 36,200*	12 400* 26,500*	12 000 25,900			11 100* 24,500*	10 800 24,000	6.49 21.16
-4.5 m -15.0 ft	kg lb			17 300* 38,700*	17 300* 38,700*	12 400* 26,100*	12 400* 26,100*					11 300* 24,700*	11 300* 24,700*	4.88 15.66

325C FM HW

5.55 m (18'1") Mass Boom, 3.2 m (10'5") Stick, Heavy Counterweight, 700 mm (28") Double Grouser Track Shoes

Load Point Height		1.5 m/5.0 ft		3.0 m/10.0 ft		4.5 m/15.0 ft		6.0 m/20.0 ft		7.5 m/25.0 ft		Load at Maximum Reach		
		Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	m ft
7.5 m 25.0 ft	kg lb							16,700*	16,700*			7100*	7100*	6.37 20.56
6.0 m 20.0 ft	kg lb							8900* 19,500*	8900* 19,500*			6900* 15,100*	6900* 15,100*	7.39 24.09
4.5 m 15.0 ft	kg lb							9900* 21,600*	9900* 21,600*	8800* 18,500*	8800* 18,500*	7000* 15,400*	7000* 15,400*	8.00 26.19
3.0 m 10.0 ft	kg lb			18 100* 47,500*	18 100* 47,500*	14 700* 31,500*	14 700* 31,500*	11 400* 24,700*	11 400* 24,700*	9800* 21,300*	9800* 21,300*	7400* 16,200*	7400* 16,200*	8.30 27.21
1.5 m 5.0 ft	kg lb			8100* 19,000*	8100* 19,000*	17 400* 37,500*	17 400* 37,500*	12 800* 27,700*	12 800* 27,700*	10 500* 22,800*	10 500* 22,700*	8200* 17,900*	8200* 17,900*	8.31 27.28
†0.0 m †0.0 ft	kg lb	10,100*	10,100*	11 300* 25,600*	11 300* 25,600*	18 700* 40,400*	18 700* 40,400*	13 700* 29,600*	13 700* 29,600*	10 900* 23,500*	10 400 22,300	9500* 20,900*	9400 20,800	8.04 26.39
-1.5 m -5.0 ft	kg lb			17 300* 39,100*	17 300* 39,100*	18 500* 40,100*	18 500* 40,100*	13 700* 29,600*	13 700* 29,600*			10 600* 23,300*	10 400 22,900	7.46 24.45
-3.0 m -10.0 ft	kg lb	17 300* 38,700*	17 300* 38,700*	23 700* 51,200*	23 700* 51,200*	16 800* 36,200*	16 800* 36,200*	12 400* 26,500*	12 400* 26,500*			11 100* 24,500*	11 100* 24,500*	6.49 21.16
-4.5 m -15.0 ft	kg lb			17 300* 38,700*	17 300* 38,700*	12 400* 26,100*	12 400* 26,100*					11 300* 24,700*	11 300* 24,700*	4.88 15.66

*Indicates that the load is limited by hydraulic capacity rather than tipping capacity. Lift capacity ratings are based on ISO 10567. Rated loads are at 100% of hydraulic lifting capacity or 100% of tipping capacity over front and side.

†Ground line.

Lift Point is at the stick end pin.

325C FM HW

6.15 m (20'0") Reach Boom, 3.2 m (10'5") Stick, Standard Counterweight, 700 mm (28") Double Grouser Track Shoes

Load Point Height	1.5 m/5.0 ft		3.0 m/10.0 ft		4.5 m/15.0 ft		6.0 m/20.0 ft		7.5 m/25.0 ft		9.0 m/30.0 ft		Load at Maximum Reach				
	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	m ft		
7.5 m 25.0 ft	kg lb														5800* 12,800*	5800* 12,800*	7.47 24.20
6.0 m 20.0 ft	kg lb								8100* 17,700*	8100* 17,700*					5500* 12,200*	5500* 12,200*	8.35 27.25
4.5 m 15.0 ft	kg lb							9700* 20,900*	9700* 20,900*	8600* 18,800*	8600* 18,800*				5500* 12,100*	5500* 12,100*	8.90 29.12
3.0 m 10.0 ft	kg lb					15 000* 32,200*	15 000* 32,200*	11 200* 24,200*	11 200* 24,200*	9400* 20,400*	9200* 19,700*	7000* 12,700*	7000* 12,700*		5700* 12,500*	5700* 12,500*	9.16 30.04
1.5 m 5.0 ft	kg lb					17 500* 37,700*	17 500* 37,700*	12 600* 27,300*	12 200* 26,200*	10 200* 22,100*	8900* 19,200*	7700* 14,000*	6900* 14,000*		6100* 13,300*	6100* 13,300*	9.17 30.10
†0.0 m †0.0 ft	kg lb			6600* 15,200*	6600* 15,200*	18 500* 40,100*	18 100* 38,800*	13 500* 29,200*	11 900* 25,500*	10 700* 23,100*	8700* 18,700*				6700* 14,800*	6700* 14,800*	8.93 29.30
-1.5 m -5.0 ft	kg lb	8200* 18,200*	8200* 18,200*	12 400* 28,000*	12 400* 28,000*	18 300* 39,600*	18 000* 38,600*	13 600* 29,400*	11 700* 25,200*	10 700* 23,000*	8600* 18,600*				7800* 17,300*	7400* 16,400*	8.41 27.57
-3.0 m -10.0 ft	kg lb	14 000* 31,300*	14 000* 31,300*	19 800* 44,800*	19 800* 44,800*	16 900* 36,600*	16 900* 36,600*	12 800* 27,500*	11 800* 25,300*	9600* 21,200*	8700* 19,100*				9500* 20,800*	8600* 19,100*	7.56 24.71
-4.5 m -15.0 ft	kg lb			18 900* 40,500*	18 900* 40,500*	14 000* 29,800*	14 000* 29,800*	10 100* 21,200*	10 100* 21,200*						9400* 20,700*	9400* 20,700*	6.24 20.22

325C FM HW

6.15 m (20'0") Reach Boom, 3.2 m (10'5") Stick, Heavy Counterweight, 700 mm (28") Double Grouser Track Shoes

Load Point Height	1.5 m/5.0 ft		3.0 m/10.0 ft		4.5 m/15.0 ft		6.0 m/20.0 ft		7.5 m/25.0 ft		9.0 m/30.0 ft		Load at Maximum Reach				
	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	m ft		
7.5 m 25.0 ft	kg lb														5800* 12,800*	5800* 12,800*	7.47 24.20
6.0 m 20.0 ft	kg lb								8100* 17,700*	8100* 17,700*					5500* 12,200*	5500* 12,200*	8.35 27.25
4.5 m 15.0 ft	kg lb							9700* 20,900*	9700* 20,900*	8600* 18,800*	8600* 18,800*				5500* 12,100*	5500* 12,100*	8.90 29.12
3.0 m 10.0 ft	kg lb					15 000* 32,200*	15 000* 32,200*	11 200* 24,200*	11 200* 24,200*	9400* 20,400*	9400* 20,400*	7000* 12,700*	7000* 12,700*		5700* 12,500*	5700* 12,500*	9.16 30.04
1.5 m 5.0 ft	kg lb					17 500* 37,700*	17 500* 37,700*	12 600* 27,300*	12 600* 27,300*	10 200* 22,100*	10 200* 22,100*	7700* 14,000*	7700* 14,000*		6100* 13,300*	6100* 13,300*	9.17 30.10
†0.0 m †0.0 ft	kg lb			6600* 15,200*	6600* 15,200*	18 500* 40,100*	18 500* 40,100*	13 500* 29,200*	13 500* 29,200*	10 700* 23,100*	10 200* 22,000*				6700* 14,800*	6700* 14,800*	8.93 29.30
-1.5 m -5.0 ft	kg lb	8200* 18,200*	8200* 18,200*	12 400* 28,000*	12 400* 28,000*	18 300* 39,600*	18 300* 39,600*	13 600* 29,400*	13 600* 29,400*	10 700* 23,000*	10 100* 21,800*				7800* 17,300*	7800* 17,300*	8.41 27.57
-3.0 m -10.0 ft	kg lb	14 000* 31,300*	14 000* 31,300*	19 800* 44,800*	19 800* 44,800*	16 900* 36,600*	16 900* 36,600*	12 800* 27,500*	12 800* 27,500*	9600* 21,200*	9600* 21,200*				9500* 20,800*	9500* 20,800*	7.56 24.71
-4.5 m -15.0 ft	kg lb			18 900* 40,500*	18 900* 40,500*	14 000* 29,800*	14 000* 29,800*	10 100* 21,200*	10 100* 21,200*						9400* 20,700*	9400* 20,700*	6.24 20.22

*Indicates that the load is limited by hydraulic capacity rather than tipping capacity. Lift capacity ratings are based on ISO 10567. Rated loads are at 100% of hydraulic lifting capacity or 100% of tipping capacity over front and side.

†Ground line.

Lift Point is at the stick end pin.

- Lift Capacities
- 325C FM Log Loader
- HW Undercarriage

Forest Products Track Forest Machines

325C FM LL

12.27 m (40'0") Under/Under Heel Boom, 700 mm (28") Double Grouser Track Shoes

Load Point Height		3.0 m/10.0 ft		4.5 m/15.0 ft		6.0 m/20.0 ft		7.5 m/25.0 ft		9.0 m/30.0 ft		10.5 m/35.0 ft		12.0 m/40.0 ft		Load at Maximum Reach		
		Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	m ft
13.5 m 45.0 ft	kg lb	21 000* 47,100*	21 000* 47,100*													17 000* 42,900*	17 000* 42,900*	4.24 11.74
12.0 m 40.0 ft	kg lb			15 100* 33,400*	15 100* 33,400*	12 700* 28,200*	12 700* 28,200*									10 800* 24,700*	10 800* 24,700*	7.11 22.42
10.5 m 35.0 ft	kg lb					11 900* 26,000*	11 900* 26,000*	10 500* 23,100*	10 500* 23,100*							8900* 19,900*	7900 18,000	8.85 28.51
9.0 m 30.0 ft	kg lb					11 600* 25,400*	11 600* 25,400*	10 300* 22,400*	10 300* 22,400*	9200* 20,000*	8100 17,300					7900* 17,500*	6400 14,300	10.07 32.72
7.5 m 25.0 ft	kg lb					11 900* 25,800*	11 900* 25,800*	10 400* 22,500*	10 400* 22,500*	9200* 19,900*	8200 17,500	8000* 17,300*	6100 12,900			7300* 16,200*	5500 12,200	10.95 35.74
6.0 m 20.0 ft	kg lb			11 200* 25,200*	11 200* 25,200*	12 600* 27,200*	12 600* 27,200*	10 700* 23,200*	10 700* 23,200*	9300* 20,100*	8100 17,300	8000* 17,300*	6100 13,000			6800* 15,100*	5000 11,000	11.57 37.86
4.5 m 15.0 ft	kg lb					13 600* 29,400*	13 600* 29,400*	11 200* 24,300*	10 600* 22,800	9500* 20,500*	7900 16,900	8000* 17,300*	6000 12,900			6200* 13,600*	4700 10,300	11.97 39.22
3.0 m 10.0 ft	kg lb					14 600* 31,500*	14 400 30,900	11 600* 25,200*	10 200 21,800	9600* 20,800*	7600 16,300	8000* 17,100*	5900 12,600	6000* 4600		5500* 12,200*	4500 10,000	12.17 39.90
1.5 m 5.0 ft	kg lb					15 100* 32,700*	13 500 29,100	11 800* 25,500*	9700 20,800	9500* 20,600*	7300 15,800	7700* 16,500*	5800 12,300	5400* 4600		4800* 10,600*	4500 9900	12.17 39.95
†0.0 m †0.0 ft	kg lb					14 800* 31,900*	12 800 27,600	11 400* 24,700*	9300 20,000	9100* 19,500*	7100 15,300	7100* 15,000*	5600 12,100			4000* 8700*	4000* 8700*	11.99 39.35
-1.5 m -5.0 ft	kg lb			9100* 21,200*	9100* 21,200*	13 300* 28,800*	12 500 26,800	10 400* 22,300*	9100 19,500	8100* 17,300*	7000 15,000	5900* 12,200*	5600 12,000					
-3.0 m -10.0 ft	kg lb			12 000* 27,700*	12 000* 27,700*	10 800* 23,200	10 800* 23,200	8500* 18,100*	8500* 18,100*	6300* 13,200*	6300* 13,200*							

*Indicates that the load is limited by hydraulic capacity rather than tipping capacity. Lift capacity ratings are based on SAE standard 2417. Rated loads are at 100% of hydraulic lifting capacity or 100% of tipping capacity over front and side.

†Ground line.

Lift Point is at the heel to grapple pin.

Forest Products Track Forest Machines

- ## Lift Capacities
- 325C FM Log Loader
 - HW Undercarriage

325C FM LL

12.88 m (42'0") Over/Under Heel Boom, 3.2 m (10'5") Stick, Heavy Counterweight, 700 mm (28") Double Grouser Track Shoes

Load Point Height		3.0 m/10.0 ft		4.5 m/15.0 ft		6.0 m/20.0 ft		7.5 m/25.0 ft		9.0 m/30.0 ft		10.5 m/35.0 ft		12.0 m/40.0 ft		Load at Maximum Reach		
		Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	m ft
13.5 m 45.0 ft	kg lb			15 200* 36,000*	15 200* 36,000*											12 800* 30,300*	12 800* 30,300*	5.77 17.44
12.0 m 40.0 ft	kg lb					12 000* 26,300*	12 000* 26,300*	10 700* 23,600*	10 700* 23,600*							9200* 20,900*	9200* 20,900*	8.11 25.82
10.5 m 35.0 ft	kg lb					11 200* 24,400*	11 200* 24,400*	10 000* 21,800*	10 000* 21,800*	9100* 19,900	8100 17,200					7800* 17,400*	6900 15,600	9.67 31.24
9.0 m 30.0 ft	kg lb					10 900* 23,800*	10 900* 23,800*	9800* 21,300*	9800* 21,300*	8800* 19,200*	8300 17,800	7900* 16,500*	6100 12,800			7000* 15,500*	5700 12,700	10.80 35.12
7.5 m 25.0 ft	kg lb					11 100* 24,100*	11 100* 24,100*	9800* 21,400*	9800* 21,400*	8800* 19,100*	8300 17,800	7800* 17,000*	6200 13,300			6500* 14,300*	5000 11,000	11.62 37.95
6.0 m 20.0 ft	kg lb					11 700* 25,500*	11 700* 25,500*	10 200* 22,100*	10 200* 22,100*	8900* 19,400*	8100 17,500	7800* 17,000*	6100 13,200	6500	4700	6200* 13,700*	4500 10,000	12.21 39.95
4.5 m 15.0 ft	kg lb					12 700* 27,700*	12 700* 27,700*	10 700* 23,200*	10 700* 23,100	9100* 19,900*	7900 17,000	7900* 17,100*	6000 12,900	6500 13,900	4700 10,000	5600* 12,500*	4200 9400	12.58 41.24
3.0 m 10.0 ft	kg lb					13 900* 30,100*	13 900* 30,100*	11 200* 24,300*	10 100 21,900	9300* 20,300*	7500 16,300	7900* 17,000*	5800 12,600	6400* 13,600*	4600 9900	5000* 11,100*	4100 9100	12.77 41.89
1.5 m 5.0 ft	kg lb					14 600* 31,800*	13 400 29,100	11 500* 25,000*	9500 20,700	9400* 20,300*	7200 15,600	7700* 16,600*	5600 12,200	6000* 12,700*	4500 9700	4400* 9600*	4100 9000	12.78 41.93
†0.0 m †0.0 ft	kg lb					14 600* 31,800*	12 600 27,400	11 300* 24,700*	9100 19,700	9100* 19,700*	6900 15,000	7200* 15,600*	5500 11,800	5200* 10,900*	4400 9600	3600* 7900*	3600* 7900*	12.61 41.37
-1.5 m -5.0 ft	kg lb			11 200* 20,900*	11 200* 20,900*	13 600* 29,600*	12 100 26,300	10 500* 22,900*	8800 19,000	8300* 17,900*	6700 14,600	6300* 13,500*	5400 11,600	3700* 6600*	3700* 6600*			
-3.0 m -10.0 ft	kg lb	6300* 11,500*	6300* 11,500*	12 800* 25,800*	12 800* 25,800*	11 500* 25,000*	11 500* 25,000*	9000* 19,400*	8600 18,700	6800* 14,700*	6600 14,400	4700* 9800*	4700* 9800*					
-4.5 m -15.0 ft	kg lb					8300* 17,900*	8300* 17,900*	6400* 13,800*	6400* 13,800*	4500* 9800*	4500* 9800*							

*Indicates that the load is limited by hydraulic capacity rather than tipping capacity. Lift capacity ratings are based on SAE standard 2417. Rated loads are at 100% of hydraulic lifting capacity or 100% of tipping capacity over front and side.

†Ground line.

Lift Point is at the heel to grapple pin.

- Lift Capacities
- 325C FM Log Loader
 - HW Undercarriage

**Forest Products
Track Forest Machines**

325C FM LL

11.34 m (37'0") Butt-N-Top, 700 mm (28") Double Grouser Track Shoes

Load Point Height		4.5 m/15.0 ft		6.0 m/20.0 ft		7.5 m/25.0 ft		9.0 m/30.0 ft		10.5 m/35.0 ft		Load at Maximum Reach		
		Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	m ft
12.0 m 40.0 ft	kg lb	17 800* 39,800*	17 800* 39,800*									16 400* 38,400*	16 400* 38,400*	5.34 16.28
10.5 m 35.0 ft	kg lb	16 100* 35,300*	16 100* 35,300*	13 600* 29,900*	13 600* 29,900*	12 200* 27,000*	11 200* 24,500*					12 200* 27,400*	11 100* 25,400*	7.51 24.02
9.0 m 30.0 ft	kg lb	15 600* 34,100*	15 600* 34,100*	13 200* 28,900*	13 200* 28,900*	11 600* 25,300*	11 600* 24,800*					10 400* 23,100*	8500 19,200	8.92 28.91
7.5 m 25.0 ft	kg lb	16 100* 34,900*	16 100* 34,900*	13 400* 29,200*	13 400* 29,200*	11 600* 25,200*	11 600* 24,900	10 200* 22,100*	8600 18,500			9200* 20,500*	7200 16,100	9.91 32.29
6.0 m 20.0 ft	kg lb	16 900* 37,600*	16 900* 37,600*	14 100* 30,500*	14 100* 30,500*	11 900* 25,700*	11 400* 24,500	10 200* 22,100*	8600 18,400	8500* 6600		8400* 18,500*	6500 14,400	10.59 34.62
4.5 m 15.0 ft	kg lb			15 000* 32,400*	15 000* 32,400*	12 200* 26,500*	11 100* 23,800	10 300* 22,300*	8400 18,100	8500* 18,300*	6600 14,200	7600* 16,800*	6100 13,500	11.02 36.11
3.0 m 10.0 ft	kg lb			15 700* 34,000*	14 800* 31,800	12 500* 27,100*	10 700* 23,000	10 300* 22,200*	8200 17,700	8300* 17,800*	6500 14,100	6800* 15,000*	5900 13,000	11.24 36.85
1.5 m 5.0 ft	kg lb			15 800* 34,200*	14 100* 30,300	12 400* 26,800*	10 300* 22,200	10 000* 21,500*	8000 17,300	7800* 16,500*	6500 13,900	6000* 13,100*	5900 12,900	11.24 36.90
†0.0 m †0.0 ft	kg lb			14 800* 32,100*	13 700* 29,400	11 600* 25,100*	10 100* 21,700	9200* 19,700*	7900 17,000	6700* 13,900*	6400 13,800	4900* 10,900*	4900* 10,900*	11.05 36.25
-1.5 m -5.0 ft	kg lb	10 100* 23,600*	10 100* 23,600*	12 700* 27,500*	12 700* 27,500*	10 100* 21,700*	10 000* 21,400	7700* 16,400*	7700* 16,400*					
-3.0 m -10.0 ft	kg lb			9500* 20,300*	9500* 20,300*	7500* 16,000*	7500* 16,000*							

*Indicates that the load is limited by hydraulic capacity rather than tipping capacity. Lift capacity ratings are based on SAE standard 2417. Rated loads are at 100% of hydraulic lifting capacity or 100% of tipping capacity over front and side.

†Ground line.

Lift Point is at the stick end.

Forest Products Track Forest Machines

- ## Lift Capacities
- 330C FM Log Loader
 - HW Undercarriage

330C FM LL

13.19 m (43'0") Under/Under Heel Boom, 700 mm (28") Double Grouser Track Shoes

Load Point Height		3.0 m/10.0 ft		4.5 m/15.0 ft		6.0 m/20.0 ft		7.5 m/25.0 ft		9.0 m/30.0 ft		10.5 m/35.0 ft		12.0 m/40.0 ft		Load at Maximum Reach			
		Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	m ft									
15.0 m 45.0 ft	kg lb	22 100*	22 100*														22 000*	22 000*	3.03
13.5 m 45.0 ft	kg lb					13 800*	13 800*										11 100*	11 100*	6.78 21.00
12.0 m 40.0 ft	kg lb							12 700*	12 700*								8700*	8700*	8.82 28.21
10.5 m 35.0 ft	kg lb							13 200*	13 200*	11 900*	10 800						7600*	7600*	10.24 33.15
9.0 m 30.0 ft	kg lb							13 100*	13 100*	11 900*	10 900	10 700*	8300				6900*	6900*	11.29 36.75
7.5 m 25.0 ft	kg lb							13 200*	13 200*	12 000*	10 900	10 800*	8300	7200*	6400		6500*	6300	12.06 39.39
6.0 m 20.0 ft	kg lb					11 400*	11 400*	13 800*	13 800*	12 400*	10 700	10 900*	8300	8900	6500		6300*	5800	12.60 41.25
4.5 m 15.0 ft	kg lb					12 600*	12 600*	14 900*	13 900	12 800*	10 400	11 000	8100	8900	6500		6200*	5600	12.95 42.44
3.0 m 10.0 ft	kg lb					18 700*	18 700*	15 700*	13 400	13 100*	10 100	10 800	7900	8800	6400		6200*	5400	13.11 43.02
1.5 m 5.0 ft	kg lb					20 500*	17 800	16 100*	12 800	13 200*	9800	10 600	7700	8700	6300		6200*	5400	13.10 43.00
†0.0 m †0.0 ft	kg lb					20 400*	16 900	16 000*	12 300	12 900*	9500	10 500	7600	8000*	6200		5300*	5300*	12.92 42.39
-1.5 m -5.0 ft	kg lb			6800*	6800*	19 000*	16 400	15 000*	12 000	11 900*	9300	9400*	7400	6400*	6200				
-3.0 m -10.0 ft	kg lb	4200*	4200*	9300*	9300*	16 300*	16 200	12 900*	11 800	10 100*	9200	7400*	7400						
-4.5 m -15.0 ft	kg lb					12 100*	12 100*	9700*	9700*	7200*	7200*								

*Indicates that the load is limited by hydraulic capacity rather than tipping capacity. Lift capacity ratings are based on SAE standard 2417. Rated loads are at 100% of hydraulic lifting capacity or 100% of tipping capacity over front and side.

†Ground line.

Lift Point is at the heel to grapple pin.

- Lift Capacities
- 330C FM Log Loader
- HW Undercarriage

Forest Products Track Forest Machines

330C FM LL

13.8 m (45'0") Over/Under Heel Boom, 700 mm (28") Double Grouser Track Shoes

Load Point Height		3.0 m/10.0 ft		4.5 m/15.0 ft		6.0 m/20.0 ft		7.5 m/25.0 ft		9.0 m/30.0 ft		10.5 m/35.0 ft		12.0 m/40.0 ft		13.5 m/45.0 ft		Load at Maximum Reach			
		Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	m ft									
		kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb
15.0 m 50.0 ft	kg lb			15 600*	15 600*														13 900*	13 900*	5.06 14.42
13.5 m 45.0 ft	kg lb					29,000*	29,000*	10 900*	10 900*										9200*	9200*	7.88 24.81
12.0 m 40.0 ft	kg lb							12 100*	12 100*	10 300*	10 300*								7500*	7500*	9.69 31.14
10.5 m 35.0 ft	kg lb							12 000*	12 000*	11 400*	11 000	9100*	8100						6600*	6600*	11.00 35.67
9.0 m 30.0 ft	kg lb							25,800*	25,800*	24,600*	23,700	22,500*	17,800						6100*	6100*	11.98 39.04
7.5 m 25.0 ft	kg lb							11 400*	11 400*	11 400*	11 000	10 300*	8400	8900	6400				5800*	5600	12.71 41.53
6.0 m 20.0 ft	kg lb							11 600*	11 600*	11 800*	10 800	10 500*	8200	8900	6400				5600*	5200	13.23 43.30
4.5 m 15.0 ft	kg lb					9400*	9400*	12 700*	12 700*	12 200*	10 400	10 600*	8000	8800	6300	6200*	5000		5500*	4900	13.56 44.44
3.0 m 10.0 ft	kg lb					28,100*	28,100*	15 000*	13 400	12 600*	10 000	10 700	7800	8600	6200	7000	5000		5400*	4800	13.71 44.98
1.5 m 5.0 ft	kg lb					19 700*	17 700	15 600*	12 600	12 800*	9600	10 400	7500	8500	6000	6500*	4900		5500*	4800	13.70 44.97
†0.0 m †0.0 ft	kg lb					20 000*	16 600	15 600*	12 000	12 700*	9200	10 200	7300	8300*	5900	4900*	4900		4700*	4700*	13.53 44.39
-1.5 m -5.0 ft	kg lb					19 100*	15 800	14 900*	11 500	12 000*	8900	9600*	7100	7200*	5800						
-3.0 m -10.0 ft	kg lb	3700*	3700*	8700*	8700*	16 800*	15 500	13 300*	11 200	10 500*	8700	8000*	7000	5100*	5100*						
	kg lb	8500*	8500*	20,300*	20,300*	36,300*	33,200	28,500*	24,200	22,500*	18,700	16,900*	15,100	9900*	9900*						
-4.5 m -15.0 ft	kg lb			11 500*	11 500*	13 200*	13 200*	10 500*	10 500*	8100*	8100*	5500*	5500*								
	kg lb			26,500*	26,500*	28,300*	28,300*	22,400*	22,400*	16,900*	16,900*										

*Indicates that the load is limited by hydraulic capacity rather than tipping capacity. Lift capacity ratings are based on SAE standard 2417. Rated loads are at 100% of hydraulic lifting capacity or 100% of tipping capacity over front and side.

†Ground line.

Lift Point is at the heel to grapple pin.

Forest Products Track Forest Machines

- ## Lift Capacities
- 330C FM Log Loader
 - HW Undercarriage

330C FM LL

12.27 m (40'0") Butt-N-Top, 700 mm (28") Double Grouser Track Shoes

Load Point Height	4.5 m/15.0 ft		6.0 m/20.0 ft		7.5 m/25.0 ft		9.0 m/30.0 ft		10.5 m/35.0 ft		12.0 m/40.0 ft		Load at Maximum Reach				
	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	m ft		
13.5 m 45.0 ft	kg lb	18 300*	18 300*												17 500* 42,600*	17 500* 42,600*	4.69 13.51
12.0 m 40.0 ft	kg lb			16 400* 35,400*	16 400* 35,400*										12 000* 27,300*	12 000* 27,300*	7.35 23.23
10.5 m 35.0 ft	kg lb			16 600* 36,400*	16 600* 36,400*	14 800* 32,500*	14 800* 31,900	10 200*	10 200*						10 100* 22,600*	10 100* 22,600*	9.01 29.04
9.0 m 30.0 ft	kg lb			35,800*	35,800*	14 600* 31,800*	14 600* 31,800*	13 100* 28,600*	11 200 24,000						9100* 20,200*	8900 19,900	10.19 33.10
7.5 m 25.0 ft	kg lb			15 900* 35,300*	15 900* 35,300*	14 800* 32,200*	14 800* 32,100	13 100* 28,500*	11 200 24,000	11 600* 24,900*	8700 18,500				8500* 18,800*	7900 17,500	11.03 36.01
6.0 m 20.0 ft	kg lb			16 600* 36,700*	16 600* 36,700*	15 300* 33,200*	14 600 31,500	13 300* 28,800*	11 000 23,700	11 600* 24,900	8600 18,500				8200* 18,100*	7200 16,000	11.63 38.04
4.5 m 15.0 ft	kg lb			19 400* 41,900*	19 400* 41,900*	16 000* 34,600*	14 200 30,500	13 500* 29,300*	10 800 23,200	11 500 24,700	8500 18,300	8100*	6900		8100* 17,700*	6900 15,100	12.00 39.33
3.0 m 10.0 ft	kg lb			20 600* 44,500*	18 800 40,500	16 500* 35,700*	13 600 29,300	13 700* 29,600*	10 500 22,600	11 300 24,300	8400 18,000	8900*	6800		8000* 17,700*	6700 14,700	12.18 39.95
1.5 m 5.0 ft	kg lb			21 000* 45,500*	17 900 38,500	16 600* 35,800*	13 100 28,200	13 500* 29,200*	10 200 21,900	11 000* 23,700*	8200 17,700	8100*	6800		7300* 16,100*	6700 14,700	12.17 39.93
†0.0 m †0.0 ft	kg lb			20 100* 43,600*	17 200 37,100	15 900* 34,300*	12 700 27,400	12 800* 27,500*	9900 21,400	10 100* 21,600*	8100 17,400				6200* 13,600*	6200* 13,600*	11.97 39.28
-1.5 m -5.0 ft	kg lb	8100* 18,900*	8100* 18,900*	17 900* 38,600*	16 900 36,400	14 300* 30,800*	12 500 26,900	11 300* 24,200*	9800 21,100	8400* 17,700*	8000 17,300						
-3.0 m -10.0 ft	kg lb	11 500* 26,500*	11 500* 26,500*	14 200* 30,600*	14 200* 30,600*	11 500* 24,600*	11 500* 24,600*	8800* 18,500*	8800* 18,500*								

*Indicates that the load is limited by hydraulic capacity rather than tipping capacity. Lift capacity ratings are based on SAE standard 2417. Rated loads are at 100% of hydraulic lifting capacity or 100% of tipping capacity over front and side.

†Ground line.

Lift Point is at the stick end.

LOAD CAPACITY CURVES FOR WHEEL LOADERS AND INTEGRATED TOOLCARRIERS EQUIPPED WITH FORKS

Definitions:

Hydraulic Capacity: Weight that the hydraulic system will lift with the rear of the loader anchored and the load center of gravity midway on the fork tines. Hydraulic capacity is not increased by counterweighting.

Tipping Load: The loaded weight positioned as described above, which will lift the rear wheels off the ground with the machine in a static condition. Static tipping load curves for wheel loaders equipped with log or lumber forks are based on full machine articulation.

Tipping load capacities are affected by counterweight and distance of the load center of gravity from the front axle and degree of articulation. Fork center of gravity and fork weight can also affect tipping load.

Maximum Operating Load: Maximum operating load should be based on static tipping load ratings (tines level) and requires a firm, smooth, well-maintained operating area. Maximum operating loads can be affected by:

- Underfoot conditions.
- Position or height the load is carried.
- Fork position or attitude.
- Degree machine is articulated during maneuvering.



Example problem:

Wheel Loader Selection 966G vs 950G

Optimum millyard performance depends on efficient and proper use of wheel loaders performing unloading, sorting and decking applications. The following steps will aid in the proper wheel loader selection.

Step 1: Determine the basic mill requirements (job description).

EXAMPLE:

Logs arrive at the mill on trucks equipped with double bunk trailers. Logs are a variety of hardwoods, but white oak makes up the majority of wood received. The trucks must be off-loaded by a wheel loader equipped with log forks.

In addition to the off-loading, a primary loader requirement is to supply the mill with raw material in a load-and-carry operation. The loader must also sort logs by species, grade and size, and transport the excess logs from the unloading area to the storage decks.

- Maximum sawmill requirements — 544 metric tons/8 hr. day (600 U.S. tons).
 - Maximum wood received — 30 truckloads/8 hr. day.
 - Average number of logs per truckload — 20.
 - Average log specifications:
 - length 4.9 m (16').
 - butt diameter 660 mm (26").
 - top diameter 430 mm (17").
 - Maximum truck stake height — 3.98 m (13'1").
 - Maximum haul distance (one way) from log storage deck to the mill — 153 m (500').
 - Haul and return to mill in 2nd forward — 10% effective grade.
 - Fixed times — load forks 0.7 min.
 - maneuver and dump 0.5 min.
 - truck unloading 1.0 min.
 - Average log weight = 1180 kg/log (2600 lb/log)
- Refer to Weights and Measure section of this handbook to obtain appropriate log volume and density information.

Step 2: Determine the basic machine options and capacities.

Refer to Capacity curves in the Performance Handbook under Logging and Forest Products section. For other fork configurations not listed contact the Forest Machinery Unit for performance curves. Also refer to attachment adaptability section for information needed for performance curves.

EXAMPLE:

Consider a 950G vs. 966G. Both are equipped with logging fork.

950G

Static Tipping Load	10 000 kg (22,000 lb)
Hydraulic Lift Capacity	11 600 kg (25,520 lb)
Maximum Operating Load	10 000 kg (22,000 lb)

966G

Static Tipping Load	13 500 kg (29,700 lb)
Hydraulic Lift Capacity	14 500 kg (31,900 lb)
Maximum Operating Load	13 500 kg (29,700 lb)

Step 3: Determine cycle times.

Refer to Production Travel Time Charts in the Wheel Loader section of the Performance Handbook.

EXAMPLE:
(Supplying the mill)

Description	Time (950G)	Time (966G)
Haul and return	1.16 min	1.14 min
Load Forks*	0.7 min	0.7 min
Maneuver and dump*	0.5 min	0.5 min
TOTAL	2.36 min	2.34 min
Cycles/45-min hr =	19.06	19.23

(Off-loading trucks)

Description	Time (950G)	Time (966G)
Truck unloading*	1.0 min	1.0 min
Load Forks*	0.7 min	0.7 min
Maneuver and dump*	0.5 min	0.5 min
TOTAL	2.2 min	2.2 min
Cycles/45-min hr =	20.45	20.45

*Fixed times which should be based on local experience.

Step 4: Calculate Production

EXAMPLE:

Mill requirements:

— 950G

$$\frac{544\,320\text{ kg (1,200,000 lb)/8 hr/day}}{10\,000\text{ kg (22,000 lb)/loader cycle}} =$$

$$\frac{55\text{ loader cycles}}{8\text{ hr/day}}$$

$$\frac{55\text{ loader cycles/8 hr/day}}{19.06\text{ cycles/45-min hr}} = \frac{2.88\text{ hr/day}}{\text{required to supply mill}}$$

— 966G

$$\frac{544\,320\text{ kg (1,200,000 lb)/8 hr/day}}{13\,500\text{ kg (29,700 lb)/loader cycle}} =$$

$$\frac{41\text{ loader cycles}}{8\text{ hr/day}}$$

$$\frac{41\text{ loader cycles/8 hr/day}}{19.23\text{ cycles/45-min hr}} = \frac{2.13\text{ hr/day}}{\text{required to supply mill}}$$

Off-Load Requirements:

— 950G

$$20\text{ logs/truck} \times 30\text{ truckloads/day} = 600\text{ logs/day}$$

$$600\text{ logs/day} \times 1180\text{ kg (2600 lb)/log} = 707\,616\text{ kg/day}$$

or
1,560,000 lbs/day
Incoming Wood

$$\frac{707\,616\text{ kg (1,560,000 lb)/8 hr/day}}{10\,000\text{ kg (22,000 lb)/loader cycle}} =$$

$$\frac{71\text{ loader cycles}}{8\text{ hr/day}}$$

$$\frac{71\text{ loader cycles/8 hr/day}}{29.45\text{ cycles/hr}} = \frac{3.47\text{ hr/day}}{\text{required to off-load wood}}$$

— 966G

$$20\text{ logs/truck} \times 30\text{ truckloads/day} = 600\text{ logs/day}$$

$$600\text{ logs/day} \times 1180\text{ kg (2600 lb)/log} = 707\,616\text{ kg/day}$$

or
1,560,000 lbs/day
Incoming Wood

$$\frac{707\,616\text{ kg (1,560,000 lb)/8 hr/day}}{13\,500\text{ kg (29,700 lb)/loader cycle}} =$$

$$\frac{53\text{ loader cycles}}{8\text{ hr/day}}$$

$$\frac{53\text{ loader cycles/8 hr/day}}{20.45\text{ cycles/hr}} = \frac{2.59\text{ hr/day}}{\text{required to off-load wood}}$$

Total Production Required:

— 950G = 2.88 hr/day to supply mill
3.47 hr/day to off-load
6.35 hr/day total time

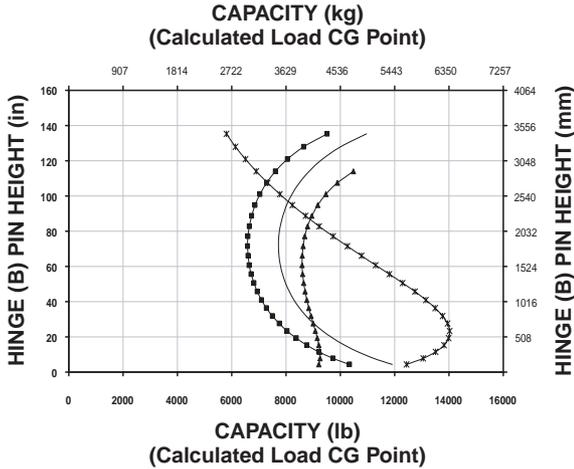
— 966G = 2.13 hr/day to supply mill
2.59 hr/day to off-load wood
4.72 hr/day total time

Step 5: Determine Wheel Loader selection.

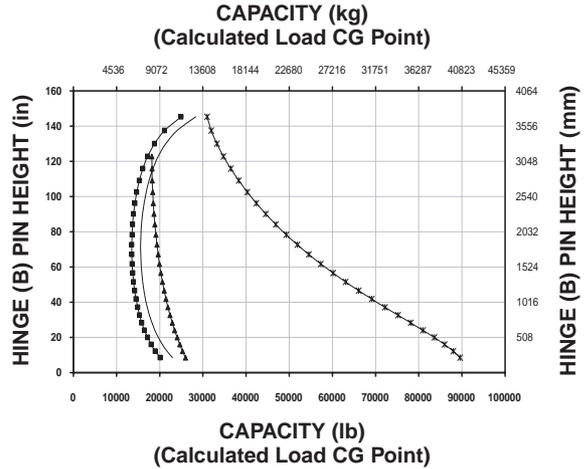
EXAMPLE:

From the production study completed and assuming 100% efficiency it appears both machines are capable of handling the maximum daily production. The 950G and 966G will have 1.65 hrs/day and 3.28 hrs/day respectively to handle unscheduled activities such as sorting, storage and yard clean-up. However, after comparing the maximum hinge pin height for the two machines, the 950G is not capable of clearing the stakes with a load. This leaves the 966G as the machine to recommend, since it can handle all restrictions and production requirements.

**914G with Pin-On
Caterpillar Lumber and Log Fork**



**924Gz with Pin-On
Caterpillar Lumber and Log Fork**



KEY

- Tipping Capacity with Machine Straight Fork Level
- Tipping Capacity with Machine Articulated Fork Level
- ▲ Hydraulic Lift Capacity with Fork Level
- * Hydraulic Tilt Capacity with Fork Level

Curves based on machine with full fuel tank, operator, 17.5R25 tires and 125-9289 lumber/log fork without top clamp. Fork weight is 616 kg (1358 lb). Total operating weight, 7464 kg (16,444 lb). Forks of other dimensions or weight may affect machine capacity. Consult your Caterpillar Dealer for additional fork data.

Curves based on machine with full fuel tank, operator, 17.5R25 tires and 141-6271 lumber/log fork without top clamp. Fork weight 760 kg (1676 lb). Total operating weight, 9650 kg (21,280 lb). Forks of other dimensions or weight may affect machine capacity. Consult your Caterpillar Dealer for additional fork data.

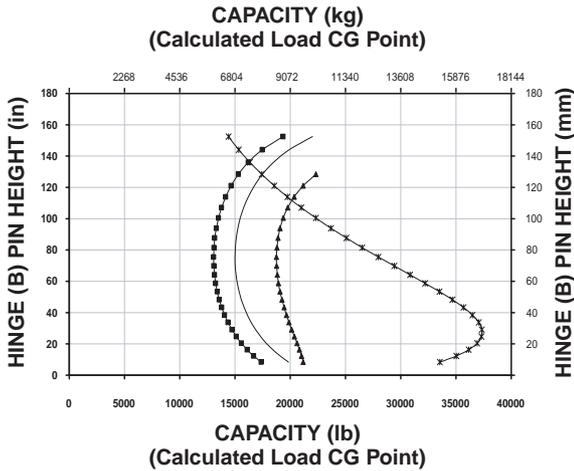
NOTE: Static tipping load and operating weight are based on machine configuration with standard tires, full fuel tank, coolant, lubricants, and operator.

Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader ratings.

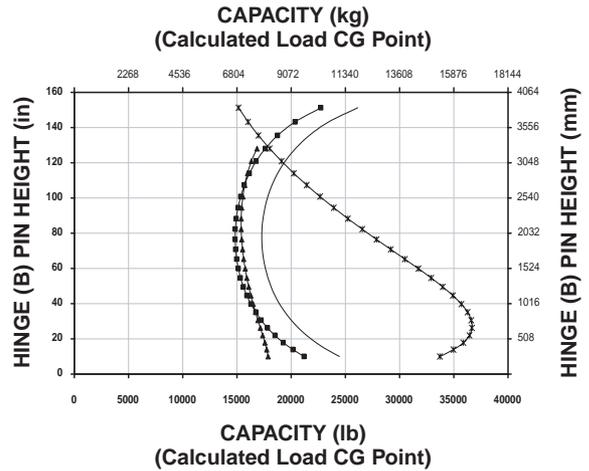
The rated operating load for a machine with fork is: SAE J1197; 50% of full turn static tipping load, or hydraulic/structural limit. CEN 474-3: 60% of full turn tipping load on rough terrain: 80% of full turn tipping load on firm and level ground, or hydraulic structural limit.

- 928G
- 938G Series II

**928G with Pin-On
Caterpillar Lumber and Log Fork**



**938G Series II with Pin-On
Caterpillar Millyard Fork**



KEY

- Tipping Capacity with Machine Straight Fork Level
- Tipping Capacity with Machine Articulated Fork Level
- ▲ Hydraulic Lift Capacity with Fork Level
- * Hydraulic Tilt Capacity with Fork Level

Curves based on machine with full fuel tank, operator, ROPS cab, 20.5-25 tires, 250 kg (550 lb) counterweight, 141-6265 lumber/log fork. Total operating weight, 11 603 kg (25,561 lb). Forks of other dimensions or weight may affect machine capacity. Consult your Caterpillar Dealer for additional fork data.

Curves based on machine with full fuel tank, operator, ROPS cab, 20.5-25, 16 PR (L-2) tires, with 810 kg (1785 lb) rear tire ballast, 562 kg (1240 lb) counterweight, 119-8243 millyard fork with 1345 mm (4'5") tines, 1635 kg (3600 lb) combined weight. Total operating weight, 14 297 kg (31,520 lb).

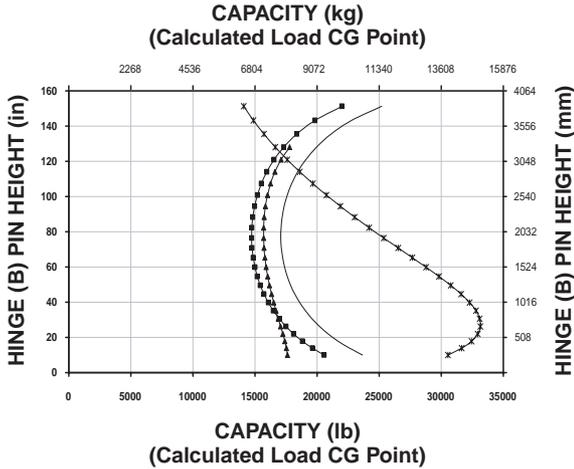
NOTE: Static tipping load and operating weight are based on machine configuration with standard tires, full fuel tank, coolant, lubricants, and operator.

Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader ratings.

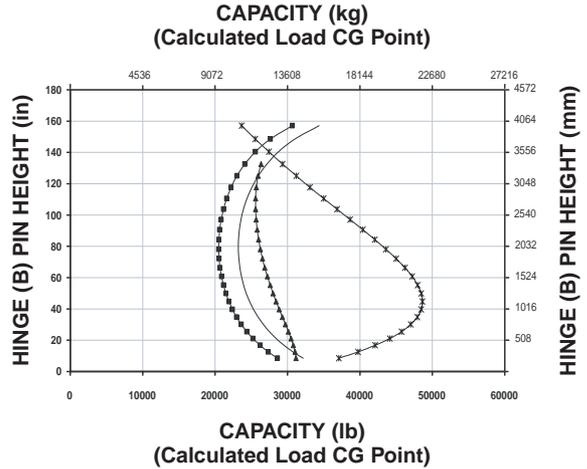
The rated operating load for a machine with fork is: SAE J1197; 50% of full turn static tipping load, or hydraulic/structural limit. CEN 474-3: 60% of full turn tipping load on rough terrain: 80% of full turn tipping load on firm and level ground, or hydraulic structural limit.

- 938G Series II
- 962G Series II

**938G Series II with Pin-On
Caterpillar Log and Lumber Fork**



**962G Series II with Pin-On
Caterpillar Logging Fork**



KEY

- Tipping Capacity with Machine Straight Fork Level
- Tipping Capacity with Machine Articulated Fork Level
- ▲ Hydraulic Lift Capacity with Fork Level
- * Hydraulic Tilt Capacity with Fork Level

Curves based on machine with full fuel tank, operator, ROPS cab, 20.5-25, 16 PR (L-2) tires, and 562 kg (1240 lb) counterweight, with 810 kg (1785 lb) rear tire ballast, log and lumber fork with 1225 mm (4'0") tines, 1660 kg (3660 lb) total weight. Total operating weight, 14 332 kg (31,595 lb).

Curves and operating weight on chart are based on machine equipped with 23.5-25 XHA tires, 1747 kg (3852 lb) counterweight, full fuel tank, operator, 2159 kg (4760 lb) 157-3467 logging fork. Total operating weight, 18 840 kg (41,540 lb). Forks of other dimensions or weight may affect machine capacity. Consult your Caterpillar dealer for additional information.

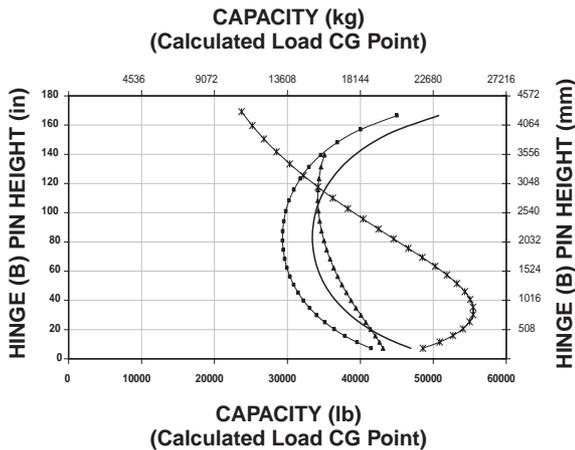
NOTE: Static tipping load and operating weight are based on machine configuration with standard tires, full fuel tank, coolant, lubricants, and operator.

Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader ratings.

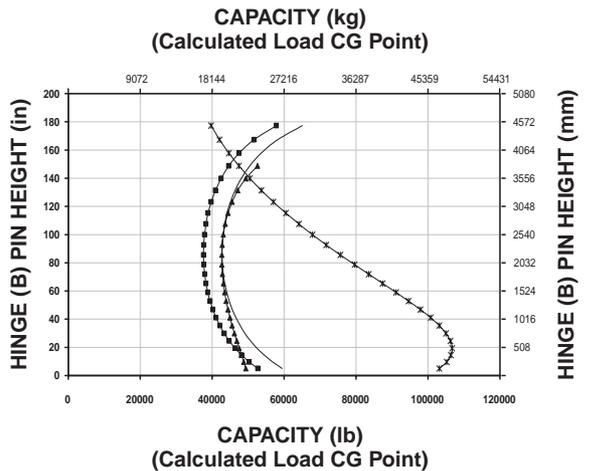
The rated operating load for a machine with fork is: SAE J1197; 50% of full turn static tipping load, or hydraulic/structural limit. CEN 474-3: 60% of full turn tipping load on rough terrain: 80% of full turn tipping load on firm and level ground, or hydraulic structural limit.

- 966G Series II
- 980G Series II

**966G Series II with Pin-On
Caterpillar Millyard Fork**



**980G Series II with Pin-On
Caterpillar Millyard Fork**



KEY

- Tipping Capacity with Machine Straight Fork Level
- Tipping Capacity with Machine Articulated Fork Level
- ▲- Hydraulic Lift Capacity with Fork Level
- *- Hydraulic Tilt Capacity with Fork Level

Curves and operating weight on chart are based on machine equipped with 26.5R25 XHA tires, 1747 kg (3852 lb) counterweight, full fuel tank, operator, logging fork 143-7211. Total operating weight, 24 265 kg (53,500 lb).

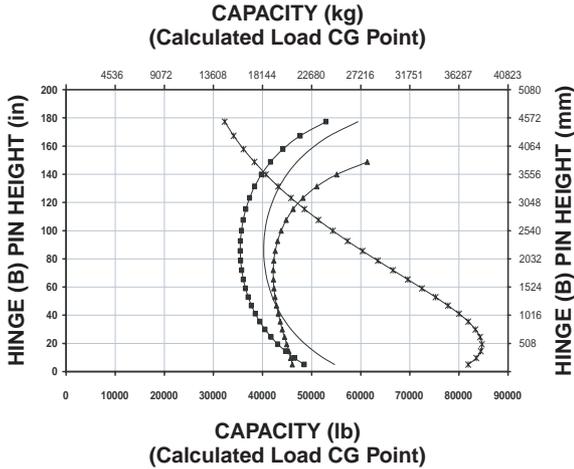
Curves based on logging machine with full fuel tank, ROPS cab, 29.5-25, 22 PR (L-3) tires, with 1945 kg (4290 lb) ballast in rear tires, 3810 kg (8400 lb) counterweight, millyard fork weight of 1850 kg (4075 lb). Total operating weight, 32 680 kg (72,050 lb).

NOTE: Static tipping load and operating weight are based on machine configuration with standard tires, full fuel tank, coolant, lubricants, and operator.

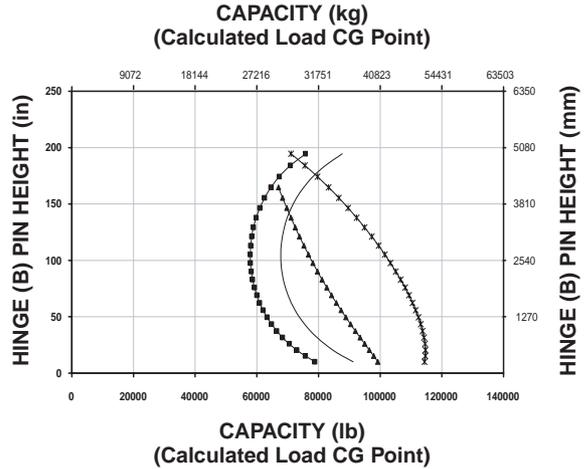
Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader ratings.

The rated operating load for a machine with fork is: SAE J1197; 50% of full turn static tipping load, or hydraulic/structural limit. CEN 474-3: 60% of full turn tipping load on rough terrain: 80% of full turn tipping load on firm and level ground, or hydraulic structural limit.

**980G Series II with Pin-On
 Caterpillar Logging Fork**



**988G with Quick Coupler and
 Caterpillar Millyard Fork**



KEY

- Tipping Capacity with Machine Straight Fork Level
- Tipping Capacity with Machine Articulated Fork Level
- ▲ Hydraulic Lift Capacity with Fork Level
- * Hydraulic Tilt Capacity with Fork Level

Curves based on machine with full fuel tank, operator, ROPS cab, 29.5-25, 22 PR (L-3) tires, with 2060 kg (4535 lb) ballast in rear tires, 3200 kg (7050 lb) counterweight, logging fork with 1830 mm (6'0") tines and top clamp with a combined weight of 3175 kg (7000 lb). Total operating weight, 34 010 kg (74,975 lb).

Curves based on machine with full fuel tank, operator, ROPS cab, 35/65-33 30 PR (L-4) tires. Standard 4455 kg (9825 lb) counterweight, 2690 kg (5930 lb) ballast in rear tires, 5196C2 millyard fork at 5480 kg (12,080 lb). Total operating weight, 52 765 kg (116,325 lb). Forks or other dimensions or weight will affect machine capacity.

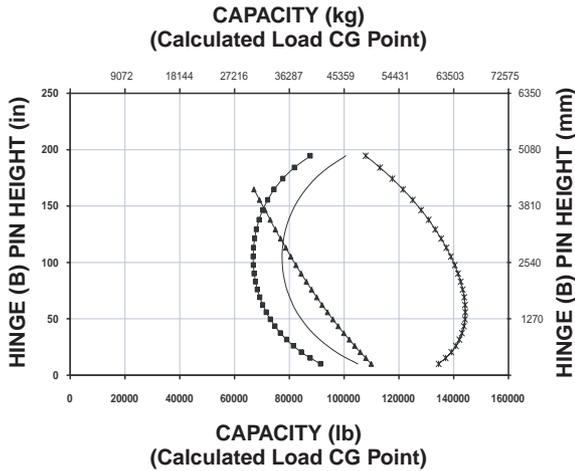
NOTE: Static tipping load and operating weight are based on machine configuration with standard tires, full fuel tank, coolant, lubricants, and operator.

Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader ratings.

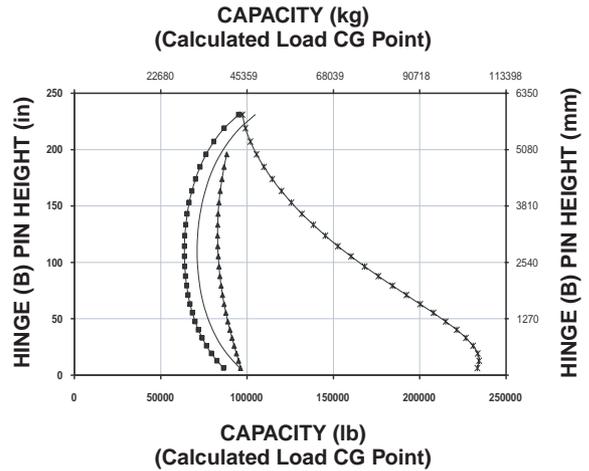
The rated operating load for a machine with fork is: SAE J1197; 50% of full turn static tipping load, or hydraulic/structural limit. CEN 474-3: 60% of full turn tipping load on rough terrain: 80% of full turn tipping load on firm and level ground, or hydraulic structural limit.

- 988G
- 990 Series II

**988G with Pin-On
Caterpillar Logging Fork**



**990 Series II with Pin-On
Caterpillar Logging Fork**



KEY

- Tipping Capacity with Machine Straight Fork Level
- Tipping Capacity with Machine Articulated Fork Level
- ▲ Hydraulic Lift Capacity with Fork Level
- * Hydraulic Tilt Capacity with Fork Level

Curves based on machine with full fuel tank, operator, ROPS cab, 35/65-33 30 PR (L-4) tires. Standard log 4455 kg (9825 lb) counterweight, 2690 kg (5930 lb) ballast in rear tires, 8965C DTC log fork at 4490 kg (9900 lb). Total operating weight 51 775 kg (114,160 lb).

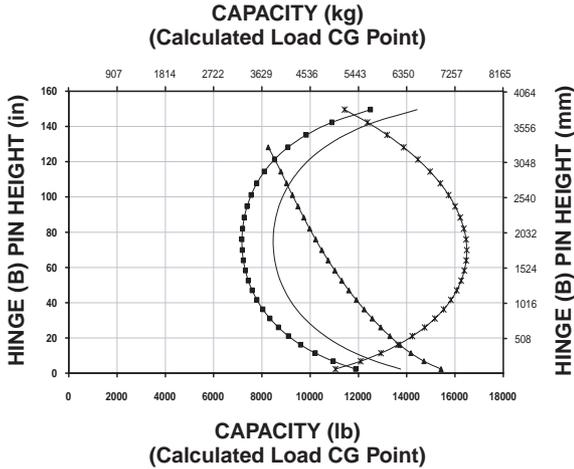
Curves based on machine with full fuel tank, operator, ROPS cab, 45/65x39 X-MINE D2 radial tires 4788 kg (10,555 lb) ballast in rear tires, 7845 kg (17,295 lb) logger counterweight, 114-3557.02 log fork with 2438 mm (8'0") tines and top clamp at 5896 kg (13,000 lb), 1292.1 mm (4'3") link. Total operating weight 87 705 kg (193,360 lb).

NOTE: Static tipping load and operating weight are based on machine configuration with standard tires, full fuel tank, coolant, lubricants, and operator.

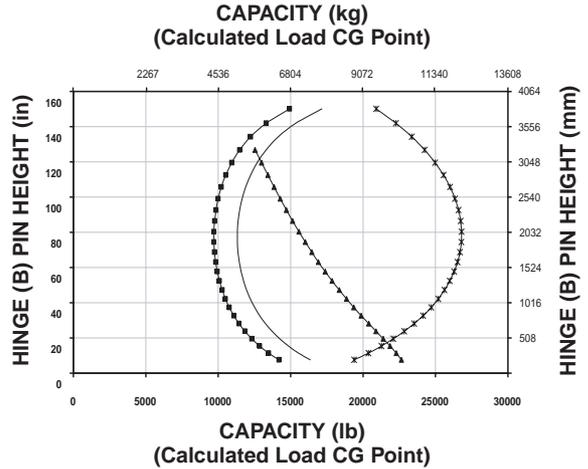
Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader ratings.

The rated operating load for a machine with fork is: SAE J1197; 50% of full turn static tipping load, or hydraulic/structural limit. CEN 474-3: 60% of full turn tipping load on rough terrain: 80% of full turn tipping load on firm and level ground, or hydraulic structural limit.

**IT14G with Pin-On
Caterpillar Lumber and Log Fork**



**924G with Quick Coupler and
Caterpillar Lumber and Log Fork**



KEY

- Tipping Capacity with Machine Straight Fork Level
- Tipping Capacity with Machine Articulated Fork Level
- ▲ Hydraulic Lift Capacity with Fork Level
- * Hydraulic Tilt Capacity with Fork Level

Curves and operating weight are based on machine equipped with 17.5R25 tires, full fuel tank, 9816C2 lumber and log fork without top clamp. Fork weight is 803 kg (1770 lb). Total operating weight 8020 kg (17,668 lb). Forks of other dimensions or weight may affect machine capacity. Consult your Caterpillar Dealer for additional fork data.

Curves and operating weight are based on machine equipped with 17.5R25 tires, full fuel tank, 180-8355 lumber and log fork without top clamp. Fork weight is 1160 kg (2558 lb). Total operating weight 10 424 kg (22,985 lb). Forks of other dimensions or weight may affect machine capacity. Consult your Caterpillar Dealer for additional fork data.

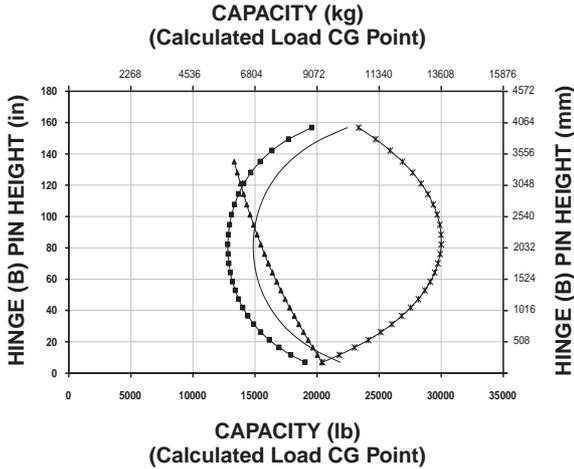
NOTE: Static tipping load and operating weight are based on machine configuration with standard tires, full fuel tank, coolant, lubricants, and operator.

Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader ratings.

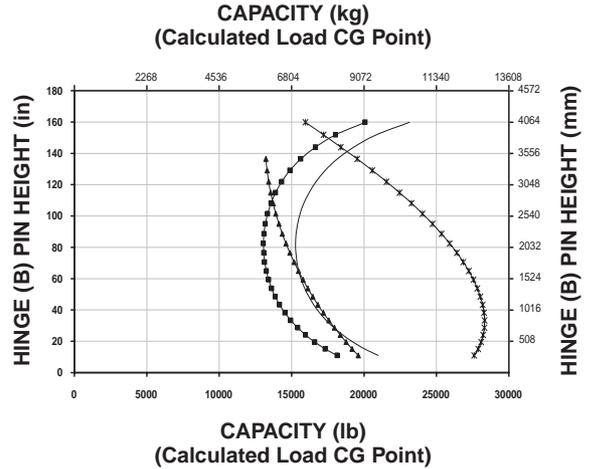
The rated operating load for a machine with fork is: SAE J1197; 50% of full turn static tipping load, or hydraulic/structural limit. CEN 474-3: 60% of full turn tipping load on rough terrain: 80% of full turn tipping load on firm and level ground, or hydraulic structural limit.

- IT28G
- IT38G Series II

**IT28G with Pin-On
Caterpillar Lumber and Log Fork**



**IT38G Series II with Pin-On
Caterpillar Millyard Fork**



KEY

- Tipping Capacity with Machine Straight Fork Level
- Tipping Capacity with Machine Articulated Fork Level
- ▲ Hydraulic Lift Capacity with Fork Level
- * Hydraulic Tilt Capacity with Fork Level

Curves and operating weight are based on machine equipped with 20.5-25 tires, 250 kg (550 lb) counterweight, full fuel tank, 80 kg (176 lb) operator, lumber and log fork. Fork weight 1325 kg (2919 lb). Total operating weight 11 908 kg (26,233 lb). Forks of other dimensions or weight may affect machine capacity. Consult your Caterpillar Dealer for additional fork data.

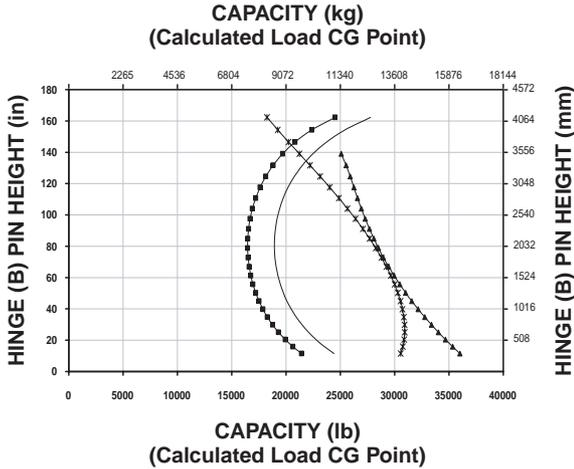
Curves based on machine with full fuel tank, operator, ROPS cab, 20.5-25, 16 PR (L-2) tires, with 810 kg (1785 lb) rear tire ballast, 760 kg (1675 lb) counterweight, millyard fork 103-8617 with 9753C2 coupler 1345 mm (4'5") tines, 1815 kg (4000 lb) combined weight. Total operating weight, 14 097 kg (31,080 lb). Forks of other dimensions or weight may affect machine capacity. Consult your Caterpillar Dealer for additional information.

NOTE: Static tipping load and operating weight are based on machine configuration with standard tires, full fuel tank, coolant, lubricants, and operator.

Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader ratings.

The rated operating load for a machine with fork is: SAE J1197; 50% of full turn static tipping load, or hydraulic/structural limit. CEN 474-3: 60% of full turn tipping load on rough terrain: 80% of full turn tipping load on firm and level ground, or hydraulic structural limit.

**IT62G Series II with Pin-On
 Caterpillar Logger Grapple**



KEY

- Tipping Capacity with Machine Straight Fork Level
- Tipping Capacity with Machine Articulated Fork Level
- ▲- Hydraulic Lift Capacity with Fork Level
- *-* Hydraulic Tilt Capacity with Fork Level

Curves and operating weight are based on machine equipped with 23.5R25 XHA tires, full fuel tank, operator, 119-2302 logger grapple. Total operating weight 19 750 kg (43,530 lb).

NOTE: Static tipping load and operating weight are based on machine configuration with standard tires, full fuel tank, coolant, lubricants, and operator.

Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader ratings.

The rated operating load for a machine with fork is: SAE J1197; 50% of full turn static tipping load, or hydraulic/structural limit. CEN 474-3: 60% of full turn tipping load on rough terrain: 80% of full turn tipping load on firm and level ground, or hydraulic structural limit.

WORK TOOLS

Grapples for heel boom log loaders
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Logging forks
 Features6-57
 Specifications6-57

Couplers
 Features6-60

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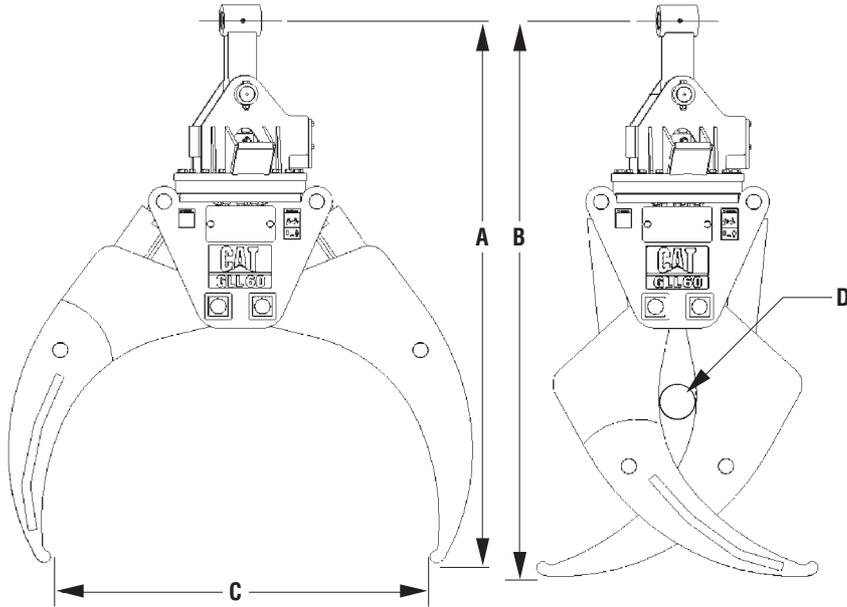
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Features:

- **Full 360° continuous rotation.**
- **Paddle style tines** are made of abrasion resistant material.
- **Induction hardened** pins and bushings.

Dimensions for Log Loading Grapples

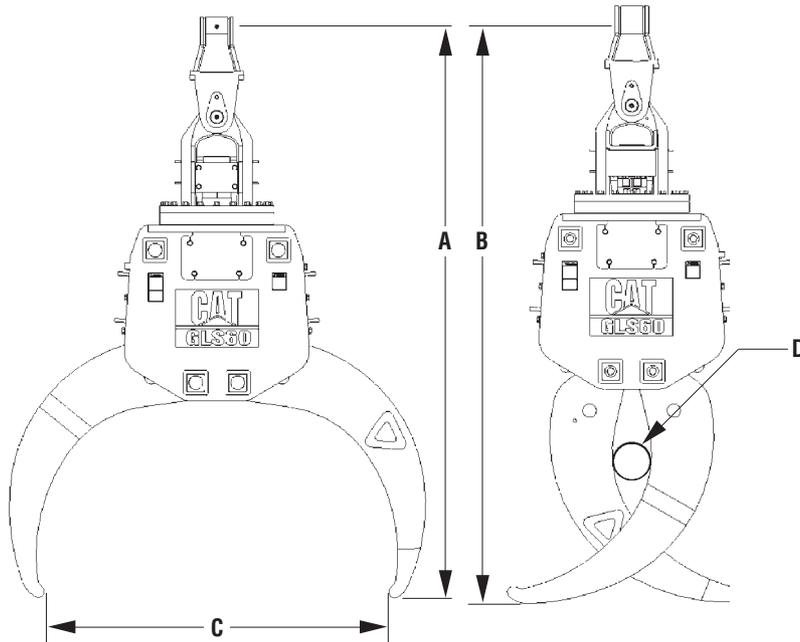


6

	GLL52 219-2366		GLL55 219-2364		GLL60 219-2365		GLL60 230-5592	
	Bunching		Bunching		Bunching		Sorting*	
Profile, Leg								
Weight	962 kg	2120 lb	965 kg	2127 lb	1027 kg	2264 lb	960 kg	2117 lb
Width	610 mm	24"	610 mm	24"	610 mm	24"	610 mm	24"
A Height, Open	1956 mm	77"	2007 mm	79"	2108 mm	83"	2108 mm	83"
B Height, Closed	2007 mm	79"	2057 mm	81"	2159 mm	85"	2159 mm	85"
C Maximum Opening	1321 mm	52"	1397 mm	55"	1524 mm	60"	1524 mm	60"
D Minimum Opening	133 mm	5.25"	127 mm	5"	152 mm	6"	133 mm	5.25"
Rotation, Continuous	360°		360°		360°		360°	
Rotation Torque @ 11 031 kPa (1600 psi)	1461 N-m	1077 ft-lb	1461 N-m	1077 ft-lb	1461 N-m	1077 ft-lb	1461 N-m	1077 ft-lb

*A sorting configuration is offered for applications utilizing large amounts of single stem sorting.

Dimensions for Shovel Loading Grapples



	GLS55 243-5481	GLS60 243-5482	GLS63 243-5483	GLS66 243-5484
Profile, Leg	Bunching		Bunching	
Weight	1315 kg 2800 lb	1406 kg 3400 lb	1497 kg 3500 lb	1542 kg 3600 lb
Width	552 mm 21.73"	552 mm 21.73"	552 mm 21.73"	552 mm 21.73"
A Height, Open	2512 mm 98.9"	2612 mm 102.8"	2712 mm 106.7"	2842 mm 111.8"
B Height, Closed	2619 mm 103.1"	2719 mm 107"	2819 mm 111"	2919 mm 115"
C Maximum Opening	1397 mm 55"	1524 mm 60"	1600 mm 63"	1676 mm 66"
D Minimum Opening	127 mm 5"	152 mm 6"	152 mm 6"	178 mm 7"
Rotation, Continuous	360°		360°	
Rotation Torque @ 11 031 kPa (1600 psi)	2494 N-m 1840 ft-lb	2494 N-m 1840 ft-lb	2494 N-m 1840 ft-lb	2494 N-m 1840 ft-lb

Features:

Loader Fork

- Few work tool lines can match the range and utility of Cat Forks. Forks transform loaders into high performance material handling platforms capable of sorting, stacking and working wherever product, palletized material or lumber is at hand.

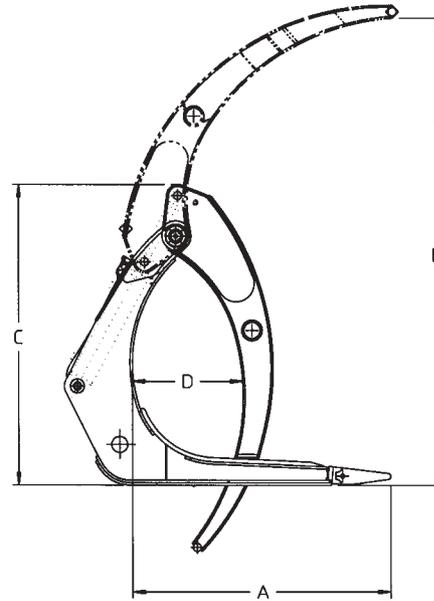
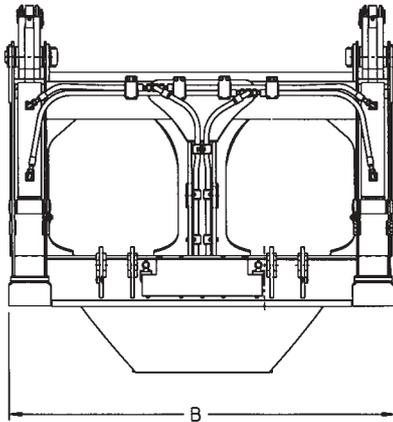
Millyard and Logging Forks

- Caterpillar Millyard and Logging forks are performance-matched to 966G Wheel Loaders for unmatched on-the-job performance. The design features of fork and loader complement each other to make the ideal total system solution for log handling applications. Both forks are ideally suited for heavy-duty applications: loading and unloading trucks, sorting, decking, and feeding the mill.

Log and Lumber Forks

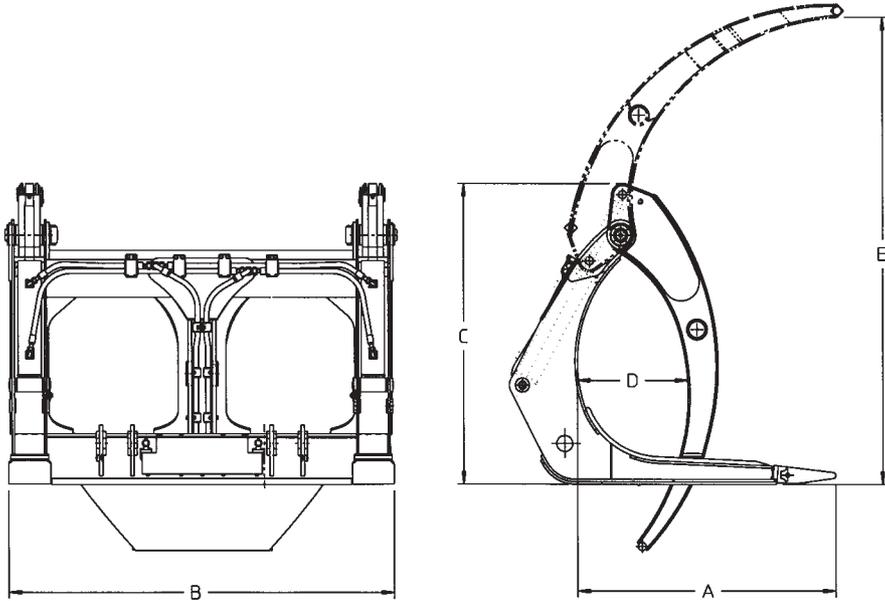
- Handle logs or finished lumber with equal ease. The top clamp holds loose loads securely, and the pallet-style forks make short palletized material. This versatility makes them suitable for a wide range of jobs including loading trucks, decking and sorting lumber or logs.

See www.forestpro.com for additional information on Fork Products.



MODEL	950G/962G	950G/962G	950G	IT28G	IT28G
Model	Logging Fork	Millyard Fork	Millyard Fork	Millyard Fork	Millyard Fork
Group Number					
Logging Arrangement	157-3467	157-3466	159-3816	141-6275	141-6266
Linkage Arrangement		(Pin-On)	(Coupler)	(Pin-On)	(Coupler)
A — Tine Length	1626 mm 5'4"	1620 mm 5'3"	1620 mm 5'4"	1219 mm 4'0"	1219 mm 4'0"
B — Overall Width	2261 mm 7'5"	2300 mm 7'7"	2300 mm 7'7"	1779 mm 5'10"	1778 mm 5'10"
C — Back Height	1895 mm 6'2.59"	1894 mm 6'3"	1894 mm 6'3"	1886 mm 6'2"	1886 mm 6'2"
D — Minimum Opening	1535 mm 5'0"	448 mm 17.64"	—	—	—
E — Maximum Clamp Opening	2520 mm 8'4"	2838 mm 9'4"	2838 mm 9'4"	2705 mm 8'10"	2705 mm 8'10"
Weight, Approximate	2200 kg 4860 lb	2310 kg 5100 lb	—	—	—

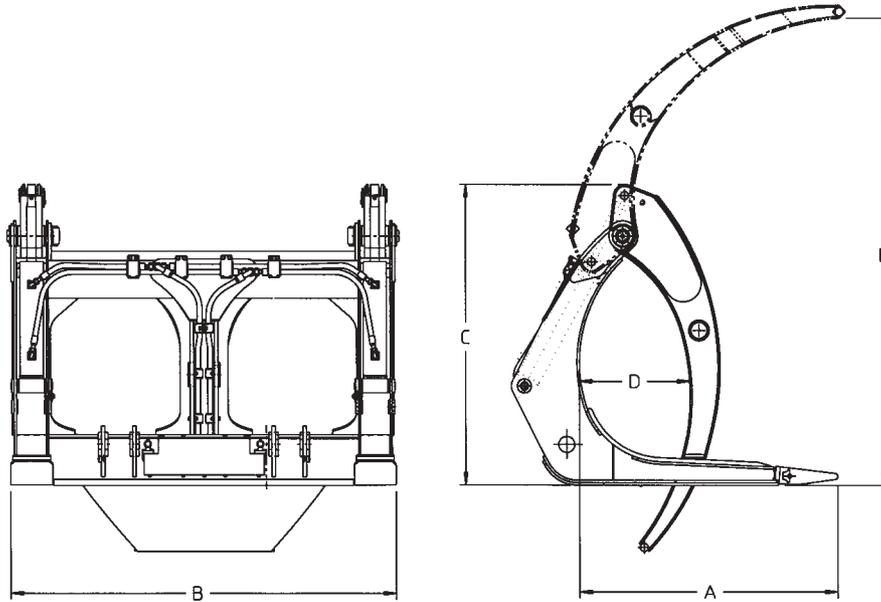
NOTE: Third valve required. Counterweight recommended.
 Logging forks with millyard style clamps are available where logging application requires clamp to close between tines.
 Contact your Caterpillar Dealer for more information.



MODEL	938G	IT38G	IT38G	IT62G	IT62G
Model	Millyard Fork	Grapple Fork	Millyard Fork	Millyard	Logging
Group Number	119-8243	119-2301	125-2607	163-0193	163-0194
Logging Arrangement	(Pin-On)	(Pin-On)	(Pin-On)	(Coupler)	(Coupler)
Linkage Arrangement					
A — Tine Length	1372 mm 4'6"	1177 mm 3'10"	1372 mm 4'6"	1626 mm 5'4"	1620 mm 5'4"
B — Overall Width	2288 mm 7'6"	1810 mm 5'11"	2286 mm 7'6"	2261 mm 7'5"	2261 mm 7'5"
C — Back Height	1842 mm 6'1"	1905 mm 6'3"	1902 mm 6'3"	1872 mm 6'2"	1895 mm 6'3"
D — Minimum Opening	165 mm 6.5"	1057 mm 3'5"	165 mm 6.5"	448 mm 17.64"	1537 mm 5'1"
E — Maximum Clamp Opening	2794 mm 9'2"	2797 mm 9'2"	2845 mm 9'4"	2914 mm 9'7"	2565 mm 8'5"
Weight, Approximate	1633 kg 3600 lb	2085 kg 4600 lb	1555 kg 3430 lb	2179 kg 4800 lb	2221 kg 4892 lb

MODEL	IT62G	962G Series II	962G Series II	962G Series II
Model	Log and Lumber W/TC	Millyard Fork	Millyard Fork	Millyard Fork
Group Number	114-3532	166-8578	198-7845	207-8505
Logging Arrangement	(Coupler)	(Pin-On)	(Pin-On)	(Coupler)
Linkage Arrangement				
A — Tine Length	1219 mm 4'0"	1626 mm 5'4"	1626 mm 5'4"	1626 mm 5'4"
B — Overall Width	2248 mm 7'5"	2456 mm 8'1"	2421 mm 7'11"	2421 mm 7'11"
C — Back Height	1726 mm 5'8"	—	—	—
D — Minimum Opening	1217 mm 4'0"	641 mm 25"	638 mm 25"	638 mm 25"
E — Maximum Clamp Opening	2798 mm 9'2"	2959 mm 9'8"	2948 mm 9'8"	2951 mm 9'8"
Weight, Approximate	863 kg 1900 lb	2615 kg 5765 lb	2600 kg 5800 lb	2585 kg 5700 lb

NOTE: Third valve required. Counterweight recommended.
 Logging forks with millyard style clamps are available where logging application requires clamp to close between tines.
 Contact your Caterpillar Dealer for more information.



MODEL	990 Series II		988G		988G		980G	
Model Group Number	Logging Fork		Double Top Clamp		Millyard Top Clamp		Double Top Clamp	
Logging Arrangement	114-3557		210-9208		222-7753		125-4135	
Bucket Arrangement	(Pin-On)		(Pin-On)		(Coupler)			
A — Tine Length	2438 mm	8'0"	2509 mm	8'3"	2509 mm	8'3"	1829 mm	6'0"
B — Overall Width	2762 mm	9'1"	2774 mm	9'1"	2774 mm	9'1"	2756 mm	9'2"
C — Back Height	3670 mm	12'0"	2783 mm	9'2"	—	—	1556 mm	5'1"
D — Minimum Opening	2498 mm	8'2"	—	—	982 mm	3'3"	1828 mm	5'11.95"
E — Maximum Clamp Opening	4529 mm	14'10"	3997 mm	13'1"	4036 mm	13'3"	2990 mm	9'9"
Weight, Approximate	4930 kg	10,870 lb	6696 kg	14,760 lb	6526 kg	14,390 lb	3175 kg	7000 lb

MODEL	980G		966G		966G		966G	
Model Group Number	Millyard Fork		Millyard		Logging		Log and Lumber W/TC	
Logging Arrangement	192-7656		166-8578		143-7211		143-7209	
Bucket Arrangement								
A — Tine Length	1830 mm	6'0"	1618 mm	5'4"	1618 mm	5'4"	1524 mm	5'0"
B — Overall Width	2800 mm	9'2"	2416 mm	7'11"	2416 mm	7'11"	2502 mm	8'3"
C — Back Height	—	—	1905 mm	6'3"	1897 mm	6'3"	1726 mm	5'8"
D — Minimum Opening	694 mm	2'3"	697 mm	2'3"	1603 mm	5'3"	1506 mm	4'11"
E — Maximum Clamp Opening	3073 mm	10'1"	2927 mm	9'7"	2563 mm	8'5"	2794 mm	9'2"
Weight, Approximate	2742 kg	5450 lb	2740 kg	6036 lb	2300 kg	5065 lb	1585 kg	3491 lb

NOTE: Third valve required. Counterweight recommended.
Logging forks with millyard style clamps are available where logging application requires clamp to close between tines.
Contact your Caterpillar Dealer for more information.

Features — Couplers

Horizontal Pin Lock Couplers

- Quick Couplers provide unmatched versatility to any loader. Hydraulic couplers allow the operator to change tools in seconds without leaving the cab. Any work tool backed by coupler hooks can be picked up; allowing the loader to fit whatever application is at hand.

Dedicated Wedge Lock Couplers

- The Caterpillar Dedicated Wedge Lock Coupler system quickly and positively engages a wide variety of work tools. Exchanging work tools is fast and easy, improving overall production and increasing machine versatility. Machine operators can change tools as the job demands in seconds.
- The Dedicated Coupler offers the flexibility of rapid work tool mounting without the loss of breakout force found in other coupler systems. The coupler duplicates the original machine linkage geometry and performance, for maximum breakout force with any bucket. Equipped with an integrated 50 mm (2") lifting-eye, the coupler can handle material without a bucket attached, maximizing available lifting power.

Pin Grabber Couplers

- The Caterpillar Hydraulic Pin Grabber Plus Coupler allows buckets and other standard work tools to be used without any modification. Exchanging work tools in seconds improves overall production and increases machine versatility. The Coupler is pinned on in place of the bucket with standard pins, and can be easily removed should the need arise to mount a tool directly to the stick.
- The Pin Grabber Plus Coupler offers new possibilities. Buckets can be turned around and used in front shovel mode for final trench clean up. An integral lift eye on the coupler body allows lifting without the weight of the bucket, increasing both machine capacity and visibility from the cab.

See www.forestpro.com for additional Coupler information.

Features — Buckets and Thumbs

Cat Bucket Thumbs for Hydraulic Excavators

- Multiply the performance of a Cat Excavator by adding a Cat Bucket Thumb. This highly versatile work tool acts in conjunction with the bucket to allow the excavator to grab irregularly shaped items and load loose materials and debris.

Mini Bucket Thumbs

- Caterpillar Bucket Thumbs are matched to Hydraulic Excavator Buckets for increased on-the-job performance. A thumb works with the bucket to grab, pick and sort debris, brush, trash and rock, opening up new production opportunities for your Cat Mini Excavator. Thumbs are an ideal complement to excavators working in demolition, land clearing, landscaping, material handling and construction jobs.

Clamshell Buckets

- Clamshell Buckets from Cat are the premier tools for cleanup, demolition, ground clearing and forestry work. Built of heavy T1 steel, these buckets are tough and durable for long service life in the most difficult applications. Clamshell buckets feature continuous 360° rotation, powered by a high-torque hydraulic motor.

See www.forestpro.com for additional Bucket and Thumb information.

Features:

Buckets, U-blades, Bowldozers, Chip scoops

- The high-capacity, high-efficiency design of these tools makes them high-production workhorses. They are matched to specific machines and material densities for optimum performance. The extra capacity and load retention capabilities ensure maximum usage and productivity.

See www.forestpro.com for additional information on Woodchip dozers and scoops.

WHEEL TRACTOR MODEL	814F		824G		834B	
Blade:						
Capacity	16.74 m ³	21.9 yd³	24 m ³	31.4 yd³	29.8 m ³	39 yd³
Length (cutting width)	4.3 m	14'4"	4.78 m	15'7"	6.09 m	20'0"
Height	1.88 m	6'2"	2.24 m	7'4"	2.24 m	7'4"
Wing angle		25°		30°		30°
Weight, Installed (without hydraulics)						
BD (S) Dozer	1973 kg	4350 lb	3630 kg	8000 lb	4627 kg	9470 lb

WHEEL TRACTOR MODEL	814F		824G		834B	
Chip Scoop:						
Lift and Carrying Capacity	15.3 m ³	20 yd³	20.6 m ³	27 yd³	34.4 m ³	39.5 yd³
Dozing Capacity	30.4 m ³	40 yd³	41.3 m ³	54 yd³	49.4 m ³	65 yd³
Width	3.73 m	12'3"	4.03 m	13'3"	4.83 m	15'10"
Height	2.29 m	7'6"	2.79 m	9'2"	2.25 m	7'4"
Depth	2.46 m	8'1"	2.95 m	9'8"	3.02 m	9'11"
Weight	5390 kg	11,880 lb	11 420 kg	19,125 lb	11 105 kg	24,480 lb

NOTE: For specifications of Woodchip Dozers used on track-type tractors, see the Bulldozer section in this handbook.

Forest Products Work Tools

- Rakes
 - Features
- Slashers
 - Features
 - Specifications

Features — Rakes

Loader, Clearing and Clamp and Blade Rakes

- Rakes are durable, high-capacity tools that will increase production for land clearing, site cleanup and site preparation. Available in quick coupler and pin-on models, rakes pile brush, stack and carry debris and load trucks. Features include thick, fabricated teeth, a heavy-duty push bar and serrated tree pusher. A high brush rack retains the load, prevents back spillage and increases carrying capacity.

See www.forestpro.com and the Bulldozer section of the Performance Handbook for additional Rake information.

Features — Slashers

SB42 Slasher

- This is a flat chassis V-bunk slasher designed for used in a variety of applications. This unit has 4 cross-bucks designed to measure logs in lengths of 3.8 m (12'6"), 4.4 m (14'6"), 5.0 m (16'6"), and 5.5 m (18'0"). This unit also has a pickup bar specifically designed to ease the loading and unloading process. Custom variations of the slasher are available.

Performance

- Fast cutting cycle and high torque.
- V-bunk design cradles wood for maximum capacity.
- V-bunk design reduces pinching of wood during operation of saw.
- V-bunk design allows high grapple capacity for increase production.

Specifications

Weight	1300 kg	2867 lb
Frame Dimensions	2146 mm × 5791 mm	84.5" × 228"
Throat Size	1067 mm	42"
Part Number	207-9940	
Chain Oiler	Automatic with 26.5 L (7 U.S. gal) reservoir	
Saw Bar	1473 mm (58") reversible bar	
Bar Chain	19 mm (3/4") pitch, 11H Oregon with 96 drive links	

See www.forestpro.com for additional Slasher information.

USE OF LOG VOLUME TABLES

The tabulated volumes on these pages were calculated with no taper in log diameter from base to top. Therefore each value listed in the table represents the volume of a true cylinder. In practice this may occur only in short sections of large diameter trees. To obtain the volume of solid wood logs, excluding bark:

1. Establish the base diameter of the log inside the bark and above the butt flare (extreme end taper).
2. Repeat the procedure for the top (small end) of log.
3. Enter log volume table at each of the two established diameters. Move horizontally to the vertical column closest to the length of the log being measured.
4. Establish the volume figures for each end of the log, add the two together and divide by two to obtain average log volume.

METRIC LOG VOLUMES (in Cubic Meters)

Log Diameter (cm)	LOG LENGTH (METERS)														
	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30
10	0.016	0.031	0.047	0.063	0.078	0.094	0.12	0.13	0.14	0.16	0.17	0.19	0.20	0.22	0.24
15	0.035	0.071	0.11	0.14	0.18	0.21	0.25	0.28	0.32	0.35	0.39	0.42	0.46	0.49	0.53
20	0.06	0.13	0.19	0.25	0.31	0.38	0.44	0.50	0.57	0.63	0.69	0.75	0.82	0.86	0.94
25	0.10	0.20	0.30	0.39	0.49	0.59	0.69	0.79	0.88	0.98	1.08	1.18	1.28	1.37	1.47
30	0.14	0.28	0.42	0.57	0.71	0.85	0.99	1.13	1.27	1.42	1.56	1.70	1.84	1.98	2.12
35	0.19	0.38	0.58	0.7	0.96	1.15	1.35	1.54	1.73	1.93	2.12	2.31	2.50	2.69	2.89
40	0.25	0.50	0.75	1.01	1.26	1.51	1.77	2.02	2.27	2.52	2.78	3.02	3.27	3.51	3.77
45	0.32	0.64	0.95	1.27	1.59	1.91	2.22	2.54	2.86	3.18	3.50	3.82	4.13	4.45	4.77
50	0.39	0.79	1.18	1.57	1.96	2.36	2.76	3.16	3.54	3.94	4.34	4.71	5.10	5.49	5.89
55	0.48	0.95	1.43	1.90	2.38	2.85	3.33	3.80	4.28	4.75	5.23	5.70	6.18	6.65	7.12
60	0.57	1.13	1.70	2.26	2.83	3.39	3.96	4.52	5.09	5.65	6.22	6.78	7.35	7.92	8.48
65	0.66	1.33	1.99	2.65	3.32	3.98	4.65	5.31	5.98	6.64	7.30	7.96	8.62	9.29	9.95
70	0.77	1.54	2.31	3.08	3.85	4.62	5.40	6.15	6.93	7.70	8.48	9.23	10.0	10.77	11.54
75	0.88	1.77	2.65	3.53	4.42	5.30	6.19	7.06	7.95	8.84	9.72	10.60	11.49	12.37	13.25
80	1.01	2.01	3.02	4.02	5.03	6.03	7.05	8.06	9.07	10.08	11.09	12.10	13.10	14.10	15.10
85	1.13	2.27	3.40	4.54	5.67	6.81	7.94	9.08	10.20	11.32	12.47	13.62	14.75	15.89	17.02
90	1.27	2.54	3.82	5.09	6.36	7.63	8.90	10.17	11.43	12.71	13.99	15.27	16.54	17.81	19.10
95	1.42	2.84	4.75	5.67	7.09	8.51	9.92	11.33	12.76	14.18	15.60	17.01	18.43	19.85	21.26
100	1.57	3.14	4.71	6.28	7.85	9.42	11.0	12.58	14.16	15.72	17.30	18.85	20.42	22.0	23.56
125	2.45	4.90	7.36	9.82	12.27	14.73	17.18	19.6	22.1	24.5	27.0	29.5	32.0	34.4	36.8
150	3.53	7.1	10.6	14.1	17.7	21.2	24.7	28.3	31.8	35.3	38.8	42.4	45.9	49.5	53.0
175	4.8	9.6	14.5	19.2	24.0	28.9	33.7	38.5	43.3	48.1	53.0	57.7	62.6	67.3	72.2
200	6.3	12.6	18.8	25.1	31.4	37.7	44.0	50.3	56.5	62.8	69.1	75.4	81.7	88.0	94.2

ENGLISH MEASURE LOG VOLUMES (in Cubic Feet)

Log Diameter (inches)	LOG LENGTH (FEET)																	
	8	12	16	20	24	28	32	36	40	44	48	52	56	60	70	80	90	100
4	0.7	1	1.4	1.7	2.1	2.4	2.8	3.1	3.5	3.8	4.2	4.5	4.9	5.2	6.1	7	7.8	8.7
6	1.6	2.4	3.1	3.9	4.7	5.5	6.3	7.1	7.8	8.6	9.4	10	11	12	13	16	18	20
8	2.8	4.2	5.6	7	8.4	9.8	11	13	14	15	17	18	19	21	24	28	31	35
10	4.4	6.5	8.7	11	13	15	17	20	22	24	26	28	31	33	38	44	49	55
12	6.3	9.4	13	16	19	22	25	28	31	35	38	41	44	47	55	63	71	79
14	8.5	13	17	21	26	30	34	39	43	47	51	56	60	64	74	86	96	101
16	11	17	22	28	34	39	45	50	56	61	67	73	78	84	98	112	126	140
18	14	21	28	35	42	49	57	64	71	78	85	92	99	106	124	141	159	177
20	17	26	35	44	52	61	70	79	87	96	105	113	122	131	153	175	196	218
22	21	32	42	53	63	74	85	95	106	116	127	137	148	158	185	211	238	264
24	25	38	50	63	75	88	101	113	126	138	151	163	176	189	220	251	283	314
26	29	44	59	74	89	103	118	113	147	162	177	192	207	221	258	295	332	369
28	34	51	68	86	103	120	137	154	171	188	205	222	240	256	299	342	385	428
30	39	59	79	98	118	137	157	177	196	216	236	255	275	295	344	393	442	491
32	45	67	89	118	134	156	179	201	223	246	268	290	313	335	391	447	503	559
34	50	76	101	126	151	177	202	227	252	277	303	328	353	378	441	504	567	631
36	57	85	113	141	170	198	226	255	282	311	339	368	396	424	495	566	637	707
38	63	95	126	158	189	220	252	284	315	347	378	410	441	473	551	630	709	788
40	70	105	140	175	210	244	279	314	349	384	419	454	489	524	611	698	785	873
50	109	164	218	273	327	382	436	491	545	600	645	709	764	818	955	1091	1227	1364
60	157	234	314	393	471	550	628	707	785	864	943	1021	1100	1178	1374	1571	1767	1964
70	214	321	428	535	642	748	855	962	1069	1176	1283	1389	1497	1604	1871	2138	2405	2673
80	279	420	559	698	838	977	1117	1257	1396	1536	1676	1815	1955	2095	2441	2293	3142	3491

WEIGHTS OF COMMERCIALLY IMPORTANT WOODS

Species	kg/m ³ (Green)	lb/ft ³ (Green)
A. Temperate Zone*		
Alder, Red	737	46
Ash, White	769	48
Aspen	689	43
Baldcypress	817	51
Basswood	673	42
Beech	865	54
Birch, Paper	801	50
Yellow	929	58
Cedar, Alaska	577	36
Incense	721	45
Northern, White	449	28
Port-Orford	897	56
Western Red	433	27
Cherry, Black	721	45
Cottonwood, Eastern	785	49
Douglas Fir, (Coast)	881	55
(Inland Empire)	577	36
Elm, American	865	54
Fir, Alpine	449	28
Balsam	721	45
Nobel	481	30
Red	769	48
Silver	577	36
White	753	47
Gum, Black	721	45
Blue	1121	70
Red	801	50
Tupelo	897	56
Hemlock, Eastern	801	50
Western	961	60
Hickory, Pecan	993	62
True	1009	62
Larch, Western	769	48
Locust, Black	929	58
Magnolia, Cucumber	785	49

Species	kg/m ³ (Green)	lb/ft ³ (Green)
Maple, Big Leaf	753	47
Black	865	54
Red	801	50
Silver	721	45
Sugar	897	56
Oak, Black	1009	63
Chestnut	977	61
Red	1009	63
Red, Swamp	1073	67
Swamp Chestnut	1041	65
White	993	62
White, Swamp	1105	69
Pine, Jack	801	50
Loblolly	993	62
Lodgepole	625	39
Long Leaf	993	62
Norway (Red)	673	42
Short Leaf	993	62
Slash	993	62
Sugar	817	51
Western Yellow, (Ponderosa)	721	45
White (Western)	561	35
White (Eastern)	577	36
Poplar, Yellow	609	38
Redwood	801	50
Spruce, Black	513	32
Engleman	625	39
Red	545	34
Sitka	529	33
White	545	34
Sweetgum	801	50
Sycamore	833	52
Tamarack	753	47
Walnut, Black	929	58
Willow, Black	801	50

*NOTE: Weights taken from U.S. Dept. of Agriculture handbook No. 72, Wood Handbook.

**Forest Products
Tables**

Weights of Commercially Important Woods

- Southeast Asia
- West Africa

Species	kg/m ³ (Green)	lb/ft ³ (Green)
B. Southeast Asia		
Apitong	961	60
Bintangor	865	54
Chumprak	929	58
Ebony	1746	109
Geronggang	721	45
Jelutong	641	40
Kapur (Borneo Camphorwood)	1073	67
Keruing	1121	70
Krabak	817	51
Kruen	1121	70
Lumbayau	929	58
Mahogany, Philippine		
(Red Luan)	753	47
(White Luan)	769	48
(Yellow Luan)	769	48
Mahoni	913	57
Alayan Kauri (Damar Minyak)	817	51
Melantai	705	44
Melapi	849	53
Mangkulang	929	58
Meranti Bakau	849	53
Meranti, Dark Red	753	47
White	769	48
Yellow	769	48
Mersawa	817	51
Nyatoh	897	56
Palosapis	817	51
Pulai	545	34
Ramin	1073	67
Rosewood (Sonokelina)	1314	82
Seraya, Dark Red	753	47
Yellow	769	48
White	769	48
Teak	1073	67

Species	kg/m ³ (Green)	lb/ft ³ (Green)
C. West Africa		
Abura	850	53.06
Ako	800	49.94
Azobe	1300	81.16
Aniegre (Mukali)	950	59.31
Bete	900	56.19
Bosse	900	56.19
Bubinga	1000	62.43
Dibetau	750	46.82
Douka (Makore)	950	59.31
Doussie	1200	74.91
Framire	850	53.06
Fromager	550	34.34
Ilomba	750	46.82
Iroko	1200	74.91
Kokrodua (Afromosia)	1000	62.43
Kosipo	900	56.19
Limba	750	46.82
Mahogany	750	46.82
Moabi	1100	68.67
Niangon	900	56.19
Okoume	650	40.57
Ozigo	900	56.19
Padouk	1000	62.43
Samba (Obeche)	650	40.58
Sapelli	900	56.19
Sipo	800	49.94
Tchitola	850	53.06
Tiaba	900	56.19
Tola	850	53.06

Weights of Commercially Important Woods
 • Australia
 • New Zealand
 • Papua New Guinea

Forest Products
 Tables

Species	kg/m ³ (Green)	lb/ft ³ (Green)
D. Australia		
Ash Alpine	1041	65
Mountain	1009	63
Silvertop	1330	83
Black Butt	1121	70
Box Long Leaf	993	62
Yellow	1105	69
Black	1105	69
Brownbarrel	1073	67
Candle Bark	657	41
Gum Grey	1217	76
Manna	1121	70
Mountain	1169	73
Mountain Grey	1057	66
River Red	1137	71
Forest Red	1201	75
Southern Blue	1217	76
Spotted	1201	75
Sydney Blue	1153	72
Iron Bark Gray	1330	83
Narrowleaved	1330	83
Red	1330	83
Jarra	1169	73
Karri	1169	73
Mahogany Red	1153	72
White	1282	80
Myrtle	1169	73
Peppermint	1120	70
Pine Radiata	865	54
Monerey	865	54
Celerytop	1057	66
Stringy Bark Brown	1233	77
Messmate	1169	73
Yellow	1217	76
White	1121	70
Tallowood	1201	75
Wandoo	1282	80

Species	kg/m ³ (Green)	lb/ft ³ (Green)
E. New Zealand		
Exotic Softwoods		
Radiata Pine	1000	62
Douglas Fir	734	45
Corsican Pine	985	61
Redwood	1016	63
Larch	960	60
Indigenous Softwoods		
Mati	1120	70
Rimu	1130	70
Exotic Hardwoods		
Eucalyptus Botryoides	893	56
Eucalyptus Saligna	1200	75
Indigenous Hardwoods		
Beech — Silver	920	57
Beech — Red	1200	75
Tawa	1022	64

Species	kg/m ³ (Green)	lb/ft ³ (Green)
F. Papua New Guinea		
Pine, Hoop	520	32
Kauri	480	30
Klinki	510	31
Kwila	800	50
Erima	390	24
Taun	680	42
Walnut, PNG	560	35
Cedar, Pencil	720	50
Mersawa	650	40
Celtis, Hard	780	48
Rosewood, PNG	600	37
Beech, PNG	830	51
Oak, PNG	650	40
Ebony, PNG Black	1115	69
PNG White	720	50
Hardwood, Yellow	780	48
Hopea, Heavy	960	60
Light	710	44
Podocarp, Black	410	25
Terminalia, Brown	450	28

ESTIMATING NUMBER OF TREES PER HECTARE

Spacing (Meters)	Spacing (Meters)							
	1	2	3	4	5	6	7	8
1	10 000	5000	3333	2500	2000	1667	1428	1250
2	5000	2500	1667	1250	1000	834	714	625
3	3333	1667	1111	834	667	556	477	417
4	2500	1250	834	625	500	417	357	313
5	2000	1000	667	500	400	330	286	250
6	1667	834	556	417	333	278	238	208
7	1428	714	477	357	286	238	204	179
8	1250	625	417	313	250	208	179	156

ESTIMATING NUMBER OF TREES PER ACRE

Spacing (Feet)	Spacing (Feet)							
	5	6	7	8	9	10	11	12
5	1742	1452	1244	1089	968	871	792	726
6	1452	1210	1037	907	806	726	660	605
7	1244	1037	888	777	691	622	565	518
8	1089	907	777	680	605	544	495	453
9	968	806	691	605	537	484	440	403
10	871	726	622	544	484	435	396	363
11	792	660	565	495	440	396	360	330
12	726	605	518	453	403	363	330	302
13	671	558	478	418	372	335	304	279
14	622	518	444	390	346	311	283	259
15	580	484	415	363	323	290	264	242

COMPARISON OF LOG RULES • Board Foot Values for 16-Foot Logs

Diameter at Small End, Inside Bark, Inches	International 1/4 Inch	Scribner	Scribner Decimal	Spaulding	Doyle
4	5	10	10	—	—
6	20	18	20	—	4
8	40	32	30	—	16
10	65	54	60	50	36
12	95	79	80	77	64
14	135	114	110	114	100
16	180	159	160	161	144
18	230	213	210	216	196
20	290	280	280	276	256
22	355	334	330	341	324
24	425	404	400	412	400
26	500	500	500	488	484
28	585	582	580	569	576
30	675	657	660	656	676
32	770	736	740	748	784
34	875	800	800	845	900
36	980	923	920	950	1024
38	1095	1068	1070	1064	1156
40	1220	1204	1200	1185	1296

UNIT OF MEASUREMENT DEFINITIONS

1 board foot	= 1/12 ft ³ of solid wood (1' × 1' × 1")
1000 board feet	= 83.33 ft ³ of solid wood
1 c. unit of wood	= 100 solid ft ³ = 1200 board feet = 2.83 ³
1 cord of wood	= 128 ft ³ of stacked logs = 3.62 m ³
1 unit of wood	= 200 ft ³ of loose chips = 5.66 m ³
1 cord of wood	= 0.85 units
1 Hoppus Ton	= 50 ft ³ (assumed) = 63.65 ft ³ (actual) = 600 board feet = 763.8 BF Brereton = 1.8 m ³ actual = 1.4 m ³ assumed
1 cubic meter	= 35.32 ft ³ = 424 board feet = 333 board feet Hoppus tons = 0.555 Hoppus Tons
1 MBF Brereton	= 2.36 m ³ = 785.4 board feet Hoppus
1 MBF Hoppus MBF	= 1273 board feet-Brereton = Thousand board feet
1 Super Foot	= 1 board foot
100 Super Feet	= 1000 board foot = 0.236 m ³
600 Super Feet	= 50 ft ³
1 lb/ft ³	= 16.0185 kg/m ³

CUBIC FEET OF SOLID WOOD PER CORD

Length of Sticks-Ft.	Diameter at Small End		
	1"-2.5"	2.5"-5.5"	Over 5.5"
2	65	84	91
4	64	82	89
8	59	77	84
12	54	71	78

RULE OF THUMB CONVERSIONS

1 c. unit of wood = 1.117 cords = 1.25 units of chips = 250 ft ³ of chips = 7.08 m ³
1 cord of wood = 85 ft ³ of solid wood = 1.06 units of chips = 2.41 m ³
1 unit of chips = 80 ft ³ of solid wood = 2.27 m ³
1 cord of wood = 500 board feet = 1.18 m ³
2000 pounds of chips = 500 pounds of pulp
1 cord = 212 ft ³ of chips = 6 m ³

PIPELAYERS

CONTENTS

Features	.7-1
Specifications	.7-2
Lifting capacities	.7-3
Drawbar Pull Charts	.7-5
Travel and hook speeds	.7-6
Application	.7-7
Extreme slope operation	.1-20

Features:

- **Planetary power shift** transmission on all models.
- **Kick-out helps prevent boom bending** as boom approaches near-vertical.
- **Sealed and Lubricated Track.**
- **Simplified Controls**, two levers control all functions including raise, lower, quick-drop and power down, high and low range and speed adjustments.
- **Modular design of major components and accessory drive system** for simplified repair.
- **Separate, self-energizing brakes** for boom and hook winches.
- **Positive** track pin retention (583R and 589).
- **Hydraulic Drawworks** with two independently driven hydraulic motors for boom and hook winches.
- **Suspended Undercarriage** for improved ride and greater operator comfort (589).

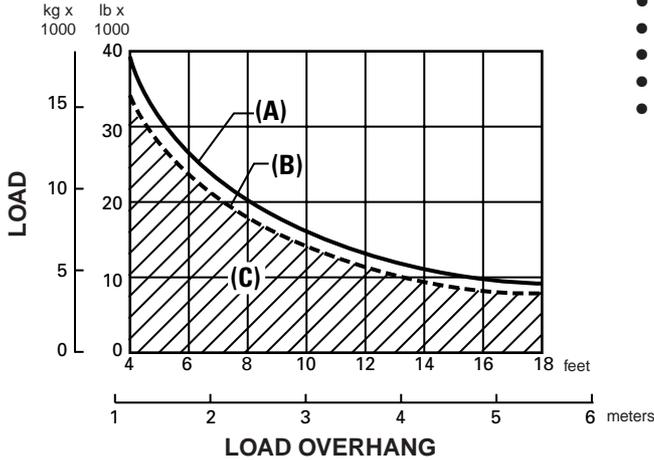


MODEL	561N		572R Series II		583R		589		
Flywheel Power	92 kW	123 hp	179 kW	240 hp	228 kW	305 hp	313 kW	420 hp	
Operating Weight (with full fuel tank and operator)	16 851 kg	37,150 lb	31 845 kg	70,206 lb	44 750 kg	98,650 lb	65 366 kg	151,212 lb	
Engine Model	3126B		3176C		3406C TA		3408 TA		
Rated Engine RPM	2100		2100		2100		1900		
No. of Cylinders	6		6		6		8		
Displacement	7.2 L	439 in³	10.3 L	629 in³	14.6 L	893 in³	18 L	1099 in³	
Lift Capacity at 1.22 m (4'0") Overhang	18 145 kg	40,000 lb	40 800 kg	90,000 lb	63 500 kg	140,000 lb	104 330 kg	230,000 lb	
Standard Boom Length	5.49 m	18'0"	6.1 m	20'0"	6.1 m	20'0"	8.8 m	28'10"	
Width of Standard Shoe	560 mm	22"	660 mm	26"	710 mm	28"	914 mm	36"	
Length of Track on Ground	2.604 m	8'7"	3.176 m	10'5"	3.586 m	11'9"	4.29 m	14'1"	
Ground Contact Area (with standard shoes)	2.93 m ²	4542 in²	4.19 m ²	6500 in²	5.1 m ²	7896 in²	6.96 m ²	12,148 in²	
Track Gauge	2 m	6'7"	2.235 m	7'4"	2.34 m	7'8"	2.9 m	9'6"	
Fuel Tank Refill Capacity	235 L	62 U.S. gal	479 L	127 U.S. gal	416 L	110 U.S. gal	776 L	205 U.S. gal	
GENERAL DIMENSIONS:									
Height to Top of Stack	3.04 m	10'0"	3.55 m	10'5"	3.51 m	11'6"	3.92 m	12'10"	
Height to Top of Counterweight	1.88 m	6'2"	2.9 m	9'6"	3.41 m	11'2"	2.92 m	9'6"	
Width, Weights Retracted	2.98 m	9'9"	3.66 m	12'0"	3.63 m	11'11"	4.63 m	15'2"	
Minimum Shipping Width (both side frames removed)	2.56 m	8'5"	2.895 m	9'6"	3.48 m	11'5"	3.81 m	12'6"	
Shipping Width (left frame removed)	2.89 m	9'6"	3.66 m	12'0"	3.51 m*	11'6"*	—		
Overall Length	3.71 m	12'2"	4.74 m	15'6"	5.48 m	18'0"	5.94 m	19'6"	
Ground Clearance	422 mm	16.6"	416 mm	16.4"	537 mm	1'9.1"	625 mm	20.6"	
DRUMS and CABLES:									
Drum Capacity	Load	73 m	239'	80 m	263'	126 m	415'	152 m	500'
	Boom	49.4 m	162'	52 m	170'	126 m	415'	93 m	305'
Cable Diameter	Load	16 mm	0.62"	19 mm	0.75"	19 mm	0.75"	22 mm	0.88"
	Boom	16 mm	0.62"	19 mm	0.75"	19 mm	0.75"	22 mm	0.88"
Drum Diameter	Load	216 mm	8.5"	254 mm	10"	343 mm	13.5"	343 mm	13.5"
	Boom	245 mm	9.63"	224 mm	8.5"	343 mm	13.5"	343 mm	13.5"
Adjustable Counterweights	14 @		2 @		2 @		7 @		
	177 kg ea	390 lb ea	370 kg ea	815 lb ea	299 kg ea	660 lb ea	1315 kg ea	2900 lb ea	
			7 @	1055 lb ea	6 @	1180 lb ea			
			479 kg ea		535 kg ea				
					5 @	950 lb ea			
					432 kg ea				
					9016 kg	19,880 lb			
Total Weight Extendable	3270 kg	7210 lb	5073 kg	11,184 lb	9016 kg	19,880 lb	11 854 kg	26,130 lb	
	LGP Option								
Operating Weight 610 mm (24")	17 029 kg	37,550 lb							
Shipping Width:									
Boom Removed	3.18 m	10'5"							
Counterweight Removed	3.09 m	10'2"							
Frame, Brackets, Winches Removed	2.76 m	9'1"							
Track Shoe Width	610 mm	24"							
	760 mm	30"							
Ground Contact Area:									
610 mm (24") Shoes	3.18 m ²	4929 in²							
760 mm (30") Shoes	3.96 m ²	6138 in²							

*Boom and counterweight only removed.

561N

LIFTING CAPACITY* 5.49 m (18'0") BOOM



***Specified Equipment:**

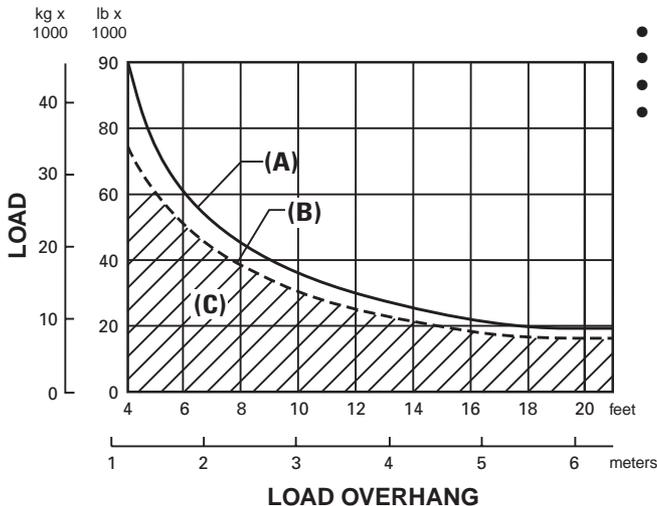
- 16 mm (5/8") diameter wire rope.
- 18 688 kph (41,200 lb) minimum breaking strength.
- 3 part load line.
- 3 part boom line.
- 3270 kg (7208 lb) counterweight extended.
- Total operating weight 16 850 kg (37,150 lb).

KEY

- A — Max lift capacity per ISO 8813
- B — Rated load per ANSI/ASME B30.14
- C — Working range per ANSI/ASME B30.14

572R Series II

LIFTING CAPACITY* 6.1 m or 7.3 m (20'0" or 24'0") BOOMS



***Specified Equipment:**

- 19 mm (3/4") dia. wire rope 261.66 kN (58,800 lb) minimum breaking strength.
- 4 part load line.
- 4 part boom line.
- 5073 kg (11,184 lb) of counterweights extended.
- Standard 6.1 m (20'0") Boom.

KEY

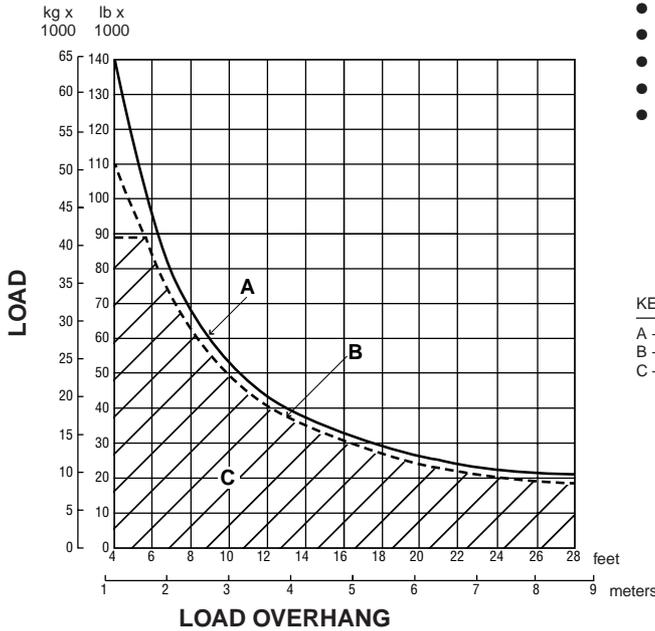
- A — Max lift capacity per ISO 8813
- B — Rated load per ANSI/ASME B30.14
- C — Working range per ANSI/ASME B30.14

NOTE: ISO stands for the International Standards Organization. ANSI stands for American National Standard Institute.

583R

LIFTING CAPACITY*

6.1 m, 7.3 m, 8.5 m (20'0", 24'0", 28'0") BOOMS



***Specified Equipment:**

- 19 mm (3/4") diameter wire rope.
- 26 672 kg (58,800 lb) minimum breaking strength.
- 6 part load line.
- 5 part boom line.
- 9036 kg (19,920 lb) counterweight extended.
- boom 6.1 m (20 ft) standard.
- total operating weight 44 748 kg (98,650 lb).

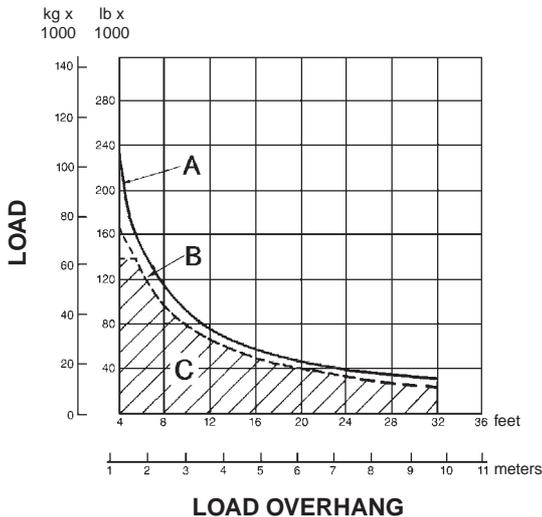
KEY

- A — Max lift capacity per ISO 8813
- B — Rated load per ANSI/ASME B30.14
- C — Working range per ANSI/ASME B30.14

589

LIFTING CAPACITY*

8.53 m and 9.75 m (28'0" and 32'0") BOOMS



***Specified Equipment:**

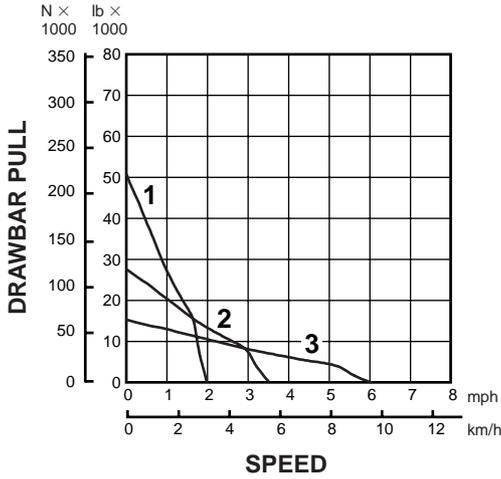
- Load: 22 mm (7/8") dia. wire rope 31 389 kg (69,200 lb) minimum breaking strength.
- Boom: 22 mm (7/8") dia. wire rope 31 389 kg (69,200 lb) minimum breaking strength.
- 8 part load line.
- 8 part boom line.
- 14 633 kg (32,260 lb) of counterweights extended.
- 8.53 m (28'0") Boom.

KEY

- A — Max lift capacity per ISO 8813
- B — Rated load per ANSI/ASME B30.14
- C — Working range per ANSI/ASME B30.14

NOTE: ISO stands for the International Standards Organization. ANSI stands for American National Standard Institute.

561N

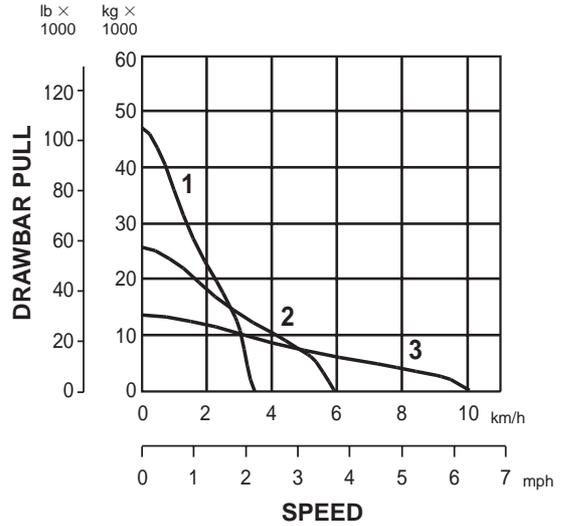


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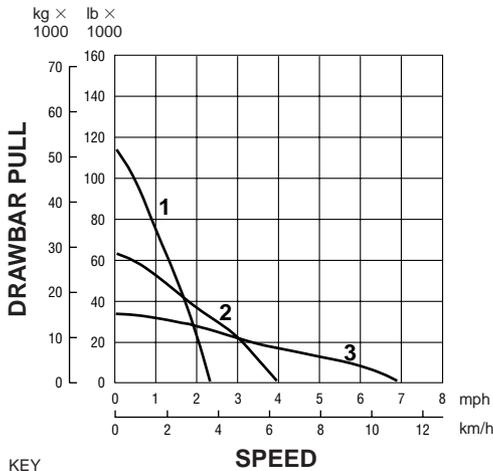
- 1 — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear

NOTE: Usable pull will depend upon weight and traction of equipped tractor.

572R Series II



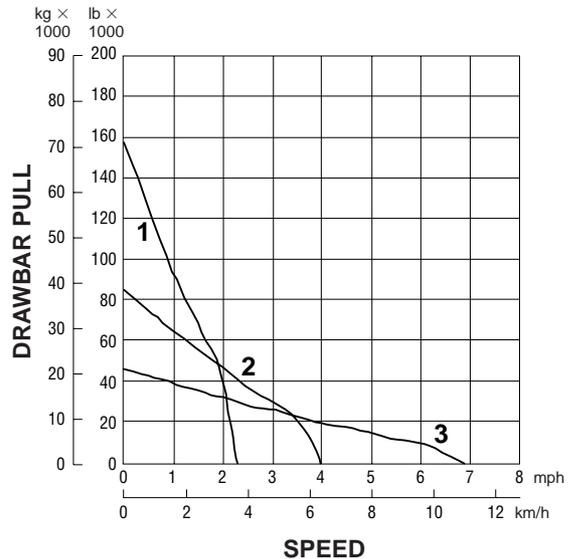
583R



KEY

- 1 — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear

589



MODEL	561N				572R Series II			
Travel	Forward		Reverse		Forward		Reverse	
Speeds (at rated RPM)	km/h	mph	km/h	mph	km/h	mph	km/h	mph
1st Gear	3.1	1.9	3.8	2.3	3.5	2.3	4.8	3.0
2nd Gear	5.4	3.3	6.7	4.1	6.9	4.3	8.3	5.2
3rd Gear	9.1	5.6	11.3	6.9	11.1	6.9	14.2	8.8

MODEL	583R				589			
Travel	Forward		Reverse		Forward		Reverse	
Speeds (at rated RPM)	km/h	mph	km/h	mph	km/h	mph	km/h	mph
1st Gear	3.5	2.3	4.7	2.9	3.5	2.2	4.3	2.7
2nd Gear	6.4	4.0	8.1	5.0	6.3	3.9	7.9	4.9
3rd Gear	10.8	6.8	13.8	8.6	10.9	6.8	13.7	8.5

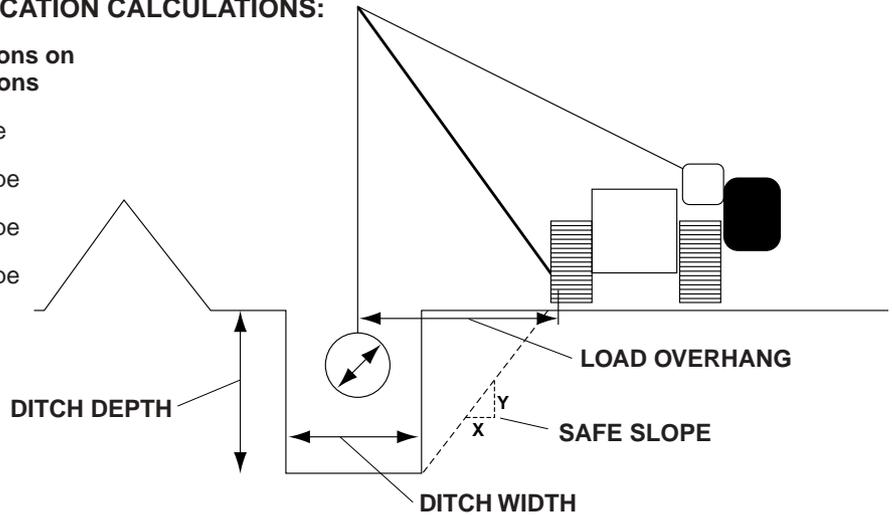
MODEL	561N		572R Series II	
Pipelayer Hook Speeds per minute, Bare drum at rated engine RPM	m/min	ft/min	m/min	ft/min
Low Raise & Lower	33.0	108	11.0	37
Hi Raise & Lower	69.5	228	22.0	72

MODEL	583R		589	
Pipelayer Hook Speeds per minute, Bare drum at rated engine RPM	m/min	ft/min	m/min	ft/min
Low Raise	7.5	24	5.8	19
High Raise	22.0	73	17.4	57
Lower (Powered)	30.0	98	23.5	77

PIPELAYER APPLICATION CALCULATIONS:

Typical pipelayer applications on flat, firm underfoot conditions

561N	laying 8" to 16" pipe
572R II	laying 16" to 24" pipe
583R	laying 24" to 36" pipe
589	laying 36" to 56" pipe



The chart above provides general information representing typical pipelayer applications. While the following scenario explores many of the variables involved in pipelaying it does not cover all the possible variables that must be considered by pipelaying contractors.

When sizing pipelayers for an application there are many considerations other than the machine's SAE rated lift capacity. These include but are not limited to:

- pipe diameter and weight per linear foot
- ditch width and depth
 - ditch width is typically $2 \times$ pipe diameter
 - ditch depth is typically $>2.5 \times$ pipe diameter
- distance from the ditch (safe slope) required by soil stability conditions
 - typically 2:1 (meaning the pipelayer must be $2 \times$ ditch depth from the ditch edge)

- acceptable distance between pipe lifting points while suspended (to prevent bending)
 - determined by the pipe's bending characteristics. If the lifting points are too far apart a pipe can sag enough due to its own weight that it will damage itself.
- the operating safety factor desired by the contractor
- the length of pipe that will need to be suspended while laying-in
 - determined by pipe bending characteristics, terrain, etc.
- ground conditions, road bed preparation

An important consideration is the necessary load overhang. This is the distance from the center of the pipe to the tractor's left track rail. The load overhang required for an application can be estimated by:

- load overhang = safe slope × ditch depth + (0.5 × ditch width)

The pipelayer's rated load capacity at a specific load overhang (per ANSI/ASME B30.14) can be found in the load capacity graphs in this section of the performance handbook. Once the load capacity is determined the maximum lift point spacing can be estimated by:

- max lift point spacing = $\frac{\text{load capacity at load overhang}}{\text{safety factor} \times \text{pipe weight per linear foot}}$

The maximum distance between pipe lift points (based on pipe bending characteristics) may be a shorter distance than the maximum spacing between lift points as calculated based on pipelayer load capacity. If this is the case, then in order to avoid damaging the pipe, the shorter distance should be considered to be the maximum distance between pipelayers.

As an example, consider a project involving 0.5" wall 24" diameter pipe which has a weight per linear foot of 125.5 lb and the soil has a safe slope of 2. Using the above formulas:

- the ditch depth would be 3 × 2 ft = 6 ft deep
- the ditch width would be 2 × 2 ft = 4 ft
- the load overhang would be 2 × 6 ft + (0.5 × 4 ft) = 14 ft

Using the 572R Series II's lift capacity chart we find that the 572R Series II has an ANSI rated load capacity of approximately 21,250 lb at a 14 ft load overhang.

When using rated load numbers it is important to understand that the lift capacity charts are based on SAE and ANSI test procedures that rate pipelayers on level, concrete surfaces. Working on softer underfoot conditions, working on slopes, (and other) can greatly reduce the pipelayer's load capacity.

If the contractor employs a safety factor of 2 then the maximum spacing between pipe lift points is:

$$\frac{21,250 \text{ lb}}{2 \times 125.5 \text{ lb/ft}} = 84.7 \text{ ft}$$

It is important to remember that this is the distance between the lift points, not the distance nose-to-tail between pipelayers. For this example, assume that 500 ft of pipe must be suspended during the laying-in process.

$$\frac{500 \text{ ft}}{84.7 \text{ ft per pipelayer}} = 5.9 \text{ which means that six pipelayers are needed}$$

The number of pipelayers required could also be determined by a second method:

$$\frac{\text{ft of pipe suspended} \times \text{pipe weight per ft}}{\text{rated load at overhang} \times \text{safety factor}}$$

In this case:

$$\frac{500 \text{ ft} \times 125.5 \text{ lb/ft} \times 2}{21,250 \text{ lb}} = 6.9 \text{ which again implies six pipelayers}$$

If, in this same example, soil conditions required a safe slope of 2.33 then the load overhang would have been 16 ft. At this load overhang the 572R Series II's rated load capacity is approximately 18,125 lb. Using the equations above, this results in 72.2 ft between lift points which means that seven 572R Series II pipelayers are now necessary. Using the second method:

$$\frac{500 \text{ ft} \times 125.5 \text{ lb/ft} \times 2}{18,125 \text{ lb}} = 6.9 \text{ again implying that seven 572R II pipelayers are needed}$$

Rather than adding another pipelayer, 583R's could be used. At a 16 ft load overhang the 583R has a rated load capacity of 29,400 lb. This translates to 117.1 ft between lift points. If the pipe's bending characteristics will allow this space between lift points, the job could be done with only five 583R's.

WHEEL TRACTOR-SCRAPERS

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Features:

- **VHP engines** that deliver 10% more horsepower in gears 3 through 8 in the 620, 630 and 650 series.
- **Controlled throttle shifting** improves power train life by reducing fuel injection rate just prior to shifting in the 620, 630 and 650 series.
- **(HEUI) Hydraulic Electronic Unit Injection and (EUI) Electronic Unit Injection** electronically maintains fuel settings as well as automatically derate for altitude and air filter restrictions.
- **Hydraulic retarder** protects engine from over speeding and extends brake life on grades in the 620, 630 and 650 series.
- **G Series implement valve** has been relocated to scraper for improved serviceability.

- **Electro-hydraulic implement controls** replaces cab pilot valve and associated lines in the G Series.
- **Single lever implement control** — bowl, apron, ejector, elevator, transmission hold, cushion hitch, and optional bail/auger are controlled by one lever in the G Series.
- **Simplified transmission control** on the G Series. Gear selection choices are 1, 2, and D. Operator can override transmission by manually selecting top gear.
- **G Series rear engines** can be started from the cab. Tachometer can monitor either front or rear engine.
- **G Series Scrapers EMS information** can be viewed in the cab by pressing a tractor/scraper switch. If EMS senses a fault in the scraper, it will automatically switch from tractor to scraper.
- **Eight speed semi-automatic power shift transmissions** used in the 620, 630, and 650 series.
- **Six speed power shift transmissions** used in the 610 series.
- **Differential lock** connects both tractor drive wheels in poor underfoot conditions for positive traction.
- **Cushion Hitch** on 620, 630, and 650 series (axle suspension on 615C Series II) absorbs haul road shocks, prevents loping as well as promotes operator comfort.

Tandem Powered:

- **Push-Pull arrangement** allows tandem engine scrapers to assist one another in loading. Recommended for high production applications.

Elevating:

- **Infinitely variable elevator speed** on 623G while the 613 and 615 have a two speed elevator.

Auger:

- **Factory installed attachment** provides self loading capability. Wide material appetite and conditions material which promotes compaction in the fill. Controls adjust while loading.

Wheel Tractor-Scrapers

Specifications ● Standard Scrapers



MODEL	621G		631G		651E	
Flywheel Power	246/272 kW	330/365 hp	335/365 kW	450/485 hp	410/452 kW	550/605 hp
Approx. Operating Weight (Empty)◀	32 563 kg	71,790 lb	46 475 kg	102,460 lb	61 126 kg	134,760 lb
Scraper Capacity: Struck	12 m ³	15.7 yd³	18.3 m ³	24 yd³	24.5 m ³	32 yd³
Heaped	17 m ³	22 yd³	26 m ³	34 yd³	33.6 m ³	44 yd³
Rated Load	23 950 kg	52,800 lb	37 285 kg	82,200 lb	47 175 kg	104,000 lb
Weight Distribution — Empty:						
Drive		68%		67%		66%
Rear		32%		33%		34%
Weight Distribution — Loaded:						
Drive		53%		53%		53%
Rear		47%		47%		47%
Engine Model	3406E EUI		3408E HEUI		3412E HEUI	
Rated Engine RPM	1800		2000		1900	
Displacement	14.6 L	893 in³	18 L	1099 in³	27 L	1649 in³
Top Speed (Loaded)	51 km/h	32 mph	53 km/h	33 mph	53 km/h	33 mph
180° Curb-to-Curb Turning Width	11.7 m	38'5"	12.2 m	40'1"	13.6 m	44'7"
With ROPS Restriction	—		—		14.5 m	47'7"
Tires — Tractor Drive	33.25R29**E2/E3		37.25R35**E2/E3		40.5/75R39	
Scraper	33.25R29**E2/E3		37.25R35**E2/E3		40.5/75R39	
Width of Cut	3.02 m	9'11"	3.51 m	11'6"	3.85 m	12'8"
Maximum Depth of Cut	333 mm	13.1"	437 mm	17.2"	440 mm	17.3"
Maximum Depth of Spread	522 mm	20.6"	480 mm	18.9"	660 mm	26"
Fuel Tank Refill Capacity	606 L	160 U.S. gal	814 L	215 U.S. gal	954 L	252 U.S. gal
GENERAL DIMENSIONS:						
Height to Top of Scraper	3.71 m	12'2"	4.29 m	14'1"	4.71 m	15'5"
Wheelbase	7.72 m	25'4"	8.77 m	28'9"	9.97 m	32'9"
Overall Length	12.93 m	42'5"	14.56 m	47'9"	16.18 m	53'1"
Overall Width	3.47 m	11'4"	3.94 m	12'11"	4.35 m	14'4"
Shipping Width (Draft Arm on Inside of Bowl)	—		3.64 m	11'11"	3.91 m	12'10"
Scraper Tread	2.18 m	7'2"	2.46 m	8'1"	2.81 m	9'3"
Tractor Tread	2.20 m	7'3"	2.46 m	8'1"	2.64 m	8'8"

◀ Operating weight includes standard machine, coolant, lubricants, full fuel tank, and operator.

- Specifications
- Tandem Powered
- Push-Pull

Wheel Tractor-Scrapers



MODEL	627G		637G		657E	
Flywheel Power: Tractor	246/272 kW	330/365 hp	335/365 kW	450/490 hp	410/452 kW	550/605 hp
Scraper	168/185 kW	225/249 hp	186/204 kW	249/274 hp	298/328 kW	400/440 hp
Approx. Operating Weight (Empty)◀	38 149 kg	84,105 lb	52 047 kg	114,744 lb	69 078 kg	152,290 lb
Scraper Capacity: Struck	12 m ³	15.7 yd³	18.3 m ³	24 yd³	24.5 m ³	32 yd³
Heaped	17 m ³	22 yd³	26 m ³	34 yd³	33.6 m ³	44 yd³
Rated Load	23 950 kg	52,800 lb	37 285 kg	82,200 lb	47 175 kg	104,000 lb
Weight Distribution — Empty: Front		59%		59%		60%
Rear		41%		41%		40%
Weight Distribution — Loaded: Front		48%		49%		51%
Rear		52%		51%		49%
Engine Model: Tractor	3406E EUI		3408E HEUI		3412E HEUI	
Scraper	C9		C9		3408E HEUI	
Rated Engine RPM: Tractor	1800		2000		1900	
Scraper	2200		2200		1900	
Displacement: Tractor	14.6 L	893 in³	18 L	1099 in³	27 L	1649 in³
Scraper	8.8 L	538 in³	10.5 L	638 in³	18 L	1099 in³
Top Speed (Loaded)	51.3 km/h	32 mph	53 km/h	33 mph	53 km/h	33 mph
180° Curb-to-Curb Turning Width	11.7 m	38'5"	12.2 m	40'1"	14.2 m	46'7"
With ROPS Restriction	—		—		15.1 m	49'8"
Tires — Tractor Drive	33.25R29**E2/E3		37.25R35**E2/E3		40.5/75R39	
Scraper	33.25R29**E2/E3		37.25R35**E2/E3		40.5/75R39	
Width of Cut	3.02 m	9'11"	3.51 m	11'6"	3.85 m	12'8"
Maximum Depth of Cut	333 mm	13.1"	437 mm	17"	440 mm	17.3"
Maximum Depth of Spread	522 mm	20.6"	480 mm	18.9"	660 mm	26"
Fuel Tank Refill Capacity: Tractor	—		—		—	
Scraper	1105 L	292 U.S. gal	1268 L	335 U.S. gal	1597 L	424 U.S. gal
GENERAL DIMENSIONS:						
Height to Top of Scraper	3.71 m	12'2"	4.29 m	14'1"	4.71 m	15'5"
Wheelbase	7.72 m	25'4"	8.77 m	28'9"	9.92 m	32'7"
Overall Length	12.93 m	42'5"	14.56 m	47'9"	16.2 m	53'1"
Overall Width	3.47 m	11'4"	3.94 m	12'11"	4.35 m	14'4"
Shipping Width (Draft Arm on Inside of Bowl)	—		3.64 m	11'11"	3.91 m	12'10"
Scraper Tread	2.18 m	7'2"	2.46 m	8'1"	2.81 m	9'3"
Tractor Tread	2.21 m	7'3"	2.46 m	8'1"	2.64 m	8'8"
PUSH-PULL GENERAL DIMENSIONS:						
Operating Weight (Empty)◀	39 186 kg	86,390 lb	53 562 kg	118,084 lb	72 857 kg	160,623 lb
Overall Length	15.2 m	49'7"	16.49 m	54'1"	18.01 m	59'1"
Weight Distribution — Empty: Front		60%		61%		60%
Rear		40%		39%		40%
Weight Distribution — Loaded: Front		49%		50%		51%
Rear		51%		50%		49%

◀ Operating weight includes standard machine, coolant, lubricants, full fuel tank, and operator.

Wheel Tractor-Scrapers

Specifications ● Elevating Scrapers



MODEL	613C Series II		615C Series II		623G	
Flywheel Power	131 kW	175 hp	197.5 kW	265 hp	246/272 kW	330/365 hp
Approx. Operating Weight (Empty)◀	15 264 kg	33,650 lb	25 605 kg	56,450 lb	37 120 kg	81,840 lb
Scraper Capacity: Struck	6.8 m ³	8.9 yd³	11 m ³	14 yd³	13.8 m ³	18 yd³
Heaped	8.4 m ³	11 yd³	13 m ³	17 yd³	17.6 m ³	23 yd³
Rated Load	11 975 kg	26,400 lb	18 506 kg	40,800 lb	24 950 kg	55,000 lb
Weight Distribution — Empty:						
Drive		63%		66%		64%
Rear		37%		34%		36%
Weight Distribution — Loaded:						
Drive		49%		51%		50%
Rear		51%		49%		50%
Engine Model	3116 DITA		3306 TA		3406E EUI	
Rated Engine RPM	2300		2200		1800	
Displacement	6.6 L	403 in³	10.5 L	638 in³	14.6 L	893 in³
Top Speed (Loaded)	35.1 km/h	21.8 mph	44.4 km/h	27.6 mph	51.5 km/h	32 mph
180° Curb-to-Curb Turning Width	10.9 m	29'6"	10.8 m	35'6"	10.9 m	35'8"
Tires — Standard:						
Tractor	23.5R25★		29.5R25★		33.25R29★★E2	
Scraper	23.5R25★		29.5R25★		33.25R29★★E2	
Width of Cut	2.35 m	7'8.5"	2.89 m	9'6"	3.5 m	11'6"
Maximum Depth of Cut	160 mm	6.3"	413 mm	16"	330 mm	13"
Elevator Flight Spacing	406 mm	16"	413 mm	16"	520 mm	20"
Number of Flights		15		18		15
Maximum Floor Opening	1.14 m	3'9"	1.18 m	3'10"	1.53 m	5'0"
Maximum Depth of Spread	370 mm	14.6"	439 mm	17.3"	380 mm	15"
Fuel Tank Refill Capacity	250 L	66 U.S. gal	399 L	105 U.S. gal	606 L	160 U.S. gal
GENERAL DIMENSIONS:						
Height to Top of Scraper	3.01 m	9'10"	3.5 m	11'0"	3.68 m	12'1"
Wheelbase	6.26 m	20'6.5"	6.98 m	22'11"	7.98 m	26'2"
Overall Length	10.14 m	33'3"	11.6 m	38'1"	13.21 m	43'4"
Overall Width	2.44 m	8'0"	3.05 m	10'0"	3.55 m	11'8"
Scraper Tread	1.80 m	5'11"	2.1 m	6'9"	2.18 m	7'2"
Tractor Tread	1.80 m	5'11"	2.1 m	6'9"	2.20 m	7'3"

◀ Operating weight includes coolants, lubricants, ROPS canopy, full fuel tank and operator.

Specifications
 ● Standard Auger

Wheel Tractor-Scrapers



MODEL	621G		631G		651E	
Flywheel Power: Tractor	246/272 kW	330/365 hp	335/365 kW	450/490 hp	410/452 kW	550/605 hp
Approx. Operating Weight (Empty)◀	36 780 kg	81,090 lb	50 100 kg	110,460 lb	66 575 kg	146,770 lb
Scraper Capacity (Heaped)	15.96 m ³	21 yd³	23.7 m ³	31 yd³	33.6 m ³	44 yd³
Rated Load	21 775 kg	48,000 lb	34 020 kg	75,000 lb	47 175 kg	104,000 lb
Approx. Operating Weight (Loaded)	58 550 kg	129,090 lb	84 120 kg	185,460 lb	113 750 kg	250,770 lb
AUGER ATTACHMENT:						
Auger Diameter	1320 mm	4'4"	1524 mm	5'0"	1676 mm	5'6"
Auger RPM	Variable 55 to 35 RPM		Variable 55 to 35 RPM		Variable 55 to 35 RPM	
Auger Power	149 kW	200 hp	201 kW	270 hp	354 kW	475 hp
Hydraulic Flow	273 L/min	72 gpm	378 L/min	100 gpm	549 L/min	145 gpm
Cooling Flow	—	—	—	—	132 L/min	35 gpm
System Pressure	41 370 kPa	6000 psi	37 895 kPa	5500 psi	41 370 kPa	5700 psi
Auger Control	electronic		electronic		electronic	

◀ Operating weight includes standard machine, coolant, lubricants, full fuel tank and operator.

The auger scraper is a self-loading system that offers an alternative to conventional, push-pull or elevating scrapers. An independent hydrostatic system powers the auger which is located near the center of the bowl. The rotating auger lifts and evenly distributes over 50% of the material that flows over the scraper cutting edge. This action reduces the cutting edge resistance allowing the wheel tractor-scraper to continue moving through the cut and quickly obtain full rated loads.

Advantages:

- Self-load in equal or less time
- Requires shorter cut distance
- Complete material ejection (angled ejector pushes material)
- Significantly reduces dust problems in dry material
- Increased tire life
- Broader material appetite
- Better material retention on haul road (closed apron instead of open elevator)

Wheel Tractor-Scrapers

Specifications

● Tandem Powered Auger



MODEL	627G		637G		657E	
Flywheel Power: Tractor	246/272 kW	330/365 hp	335/365 kW	450/490 hp	410/452 kW	550/605 hp
Scraper	168 kW	225 hp	187 kW	250 hp	298 kW	400 hp
Approx. Operating Weight (Empty)◀	41 635 kg	91,790 lb	55 675 kg	122,745 lb	75 875 kg	167,270 lb
Scraper Capacity (Heaped)	15.96 m ³	21 yd³	23.7 m ³	31 yd³	33.6 m ³	44 yd³
Rated Load	21 775 kg	48,000 lb	34 020 kg	75,000 lb	47 175 kg	104,000 lb
Approx. Operating Weight (Loaded)	63 408 kg	139,790 lb	89 695 kg	197,745 lb	123 050 kg	271,270 lb
AUGER ATTACHMENT:						
Auger Diameter	1320 mm	4'4"	1524 mm	5'0"	1676 mm	5'6"
Auger RPM	Variable 55 to 35 RPM		Variable 55 to 35 RPM		Variable 55 to 35 RPM	
Auger Power	149 kW	200 hp	201 kW	270 hp	354 kW	475 hp
Hydraulic Flow	273 L/min	72 gpm	378 L/min	100 gpm	549 L/min	145 gpm
Cooling Flow	—	—	—	—	132 L/min	35 gpm
System Pressure	41 370 kPa	6000 psi	37 923 kPa	5500 psi	41 340 kPa	5700 psi
Auger Control	electronic		electronic		electronic	

◀Operating weight includes standard machine, coolant, lubricants, full fuel tank and operator.

The auger scraper is a self-loading system that offers an alternative to conventional, push-pull or elevating scrapers. An independent hydrostatic system powers the auger which is located near the center of the bowl. The rotating auger lifts and evenly distributes over 50% of the material that flows over the scraper cutting edge. This action reduces the cutting edge resistance allowing the wheel tractor-scraper to continue moving through the cut and quickly obtain full rated loads.

Advantages:

- Self-load in equal or less time
- Requires shorter cut distance
- Complete material ejection (angled ejector pushes material)
- Significantly reduces dust problems in dry material
- Increased tire life
- Broader material appetite
- Better material retention on haul road (closed apron instead of open elevator)

MODEL TIRE SIZE	PLY RATING/ STAR RATING*	TYPE
613C Series II		
23.5R25◀	★	L-3
23.5-25	20	E-3
615C Series II		
29.5R25◀	★	L-3
29.5-25	28	E-3
26.5R25	★	L-3
26.5R25	★★	E-3
621G		
623G		
627G		
33.25R29◀	★★	E-3
33.25-29	32	E-3
29.5R29	★★	E-2
29.5-29	34	E-2

MODEL TIRE SIZE	PLY RATING/ STAR RATING*	TYPE
631G		
637G		
37.25R35◀	★★	E-3
37.25-35	42	E-3
651E		
657E		
40.5/75R39◀	★★	E-3

*Manufacturer uses star (★) rating system instead of ply rating.

◀No charge tire.

USE OF RIMPULL-SPEED-GRADEABILITY CURVES

The following explanation applies to Rimpull-Speed-Gradeability curves for Wheel Tractor-Scrapers, Construction & Mining Trucks/Tractors and Articulated Trucks.

Maximum speed attainable, gear range and available rimpull can be determined from curves on the following pages when machine weight and total effective grade (or total resistance) are known.

Rimpull is the force (in kg, lb or kN) available between the tire and the ground to propel the machine (limited by traction).

Weight is defined as Gross Machine Weight (kg or lb) = Machine + Payload.

Total Effective Grade (or Total Resistance) is grade resistance plus rolling resistance expressed as percent grade.

Grade is measured or estimated.

Rolling resistance is estimated (see Tables section for typical values.)

10 kg/metric ton (20 lb/U.S. ton) = 1% adverse grade.

Example

With a 6% grade and a rolling resistance of 40 kg/metric ton (80 lb/U.S. ton), find total resistance.

Rolling resistance = $40 \text{ kg/t} \div 10 = 4\%$ Effective Grade

(English: $80 \text{ lb} \div 20 = 4\%$)

Total resistance = 4% rolling + 6% grade = 10%

Altitude Derating

Rimpull force and speed must be derated for altitude similar to flywheel horsepower. The percentage loss in rimpull force approximately corresponds to the percentage loss in flywheel horsepower. See Tables Section for altitude derations.

Rimpull-Speed-Gradeability

To determine gradeability performance: Read from gross weight down to the % of total resistance. (Total resistance equals actual % grade *plus* 1% for each 10 kg/metric ton (20 lb./U.S. ton) of rolling resistance.) From this weight-resistance point, read horizontally to the curve with the highest obtainable speed range, then down to the maximum speed. Usable rimpull depends upon traction and weight on drive wheels.

Example problem:

A 631G with an estimated payload of 37 285 kg (82,200 lb) is operating on a total effective grade of 10%. Find the available rimpull and maximum attainable speed.

$$\begin{aligned} \text{Empty weight payload} &= \text{Gross Weight} \\ 45\,362 \text{ kg} + 37\,285 \text{ kg} &= 82\,647 \text{ kg} \\ (100,006 \text{ lb} + 82,200 \text{ lb}) &= 182,206 \text{ lb} \end{aligned}$$

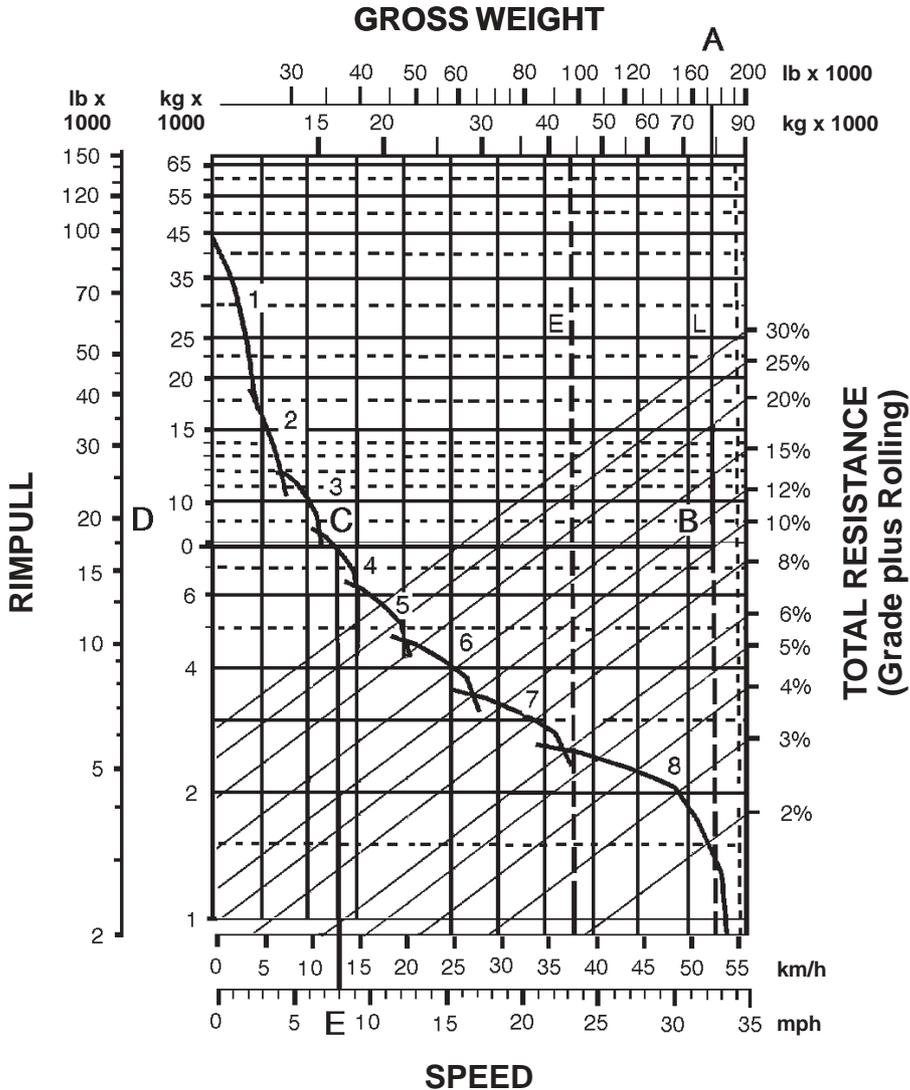
Solution: Using graph on the next page, read from 80 495 kg (177,460 lb) (point A) on top of gross weight scale down the line to the intersection of the 10% total resistance line (point B).

Go across horizontally from B to the Rimpull Scale on the left (point D). This gives the required rimpull: 7756 kg (17,100 lb).

Where the line cuts the speed curve (point C), read down vertically (point E) to obtain the maximum speed attainable for the 10% effective grade: 12.9 km/h (8 mph).

ANSWER: The machine will climb the 10% effective grade at a maximum speed of 12.9 km/h (8 mph) in 4th gear. Available rimpull is 7756 kg (17,100 lb).





8

KEY

- 1 — 1st Gear Torque Converter Drive
- 2 — 2nd Gear Torque Converter Drive
- 3 — 3rd Gear Direct Drive
- 4 — 4th Gear Direct Drive
- 5 — 5th Gear Direct Drive
- 6 — 6th Gear Direct Drive
- 7 — 7th Gear Direct Drive
- 8 — 8th Gear Direct Drive

KEY

- A — Loaded 82 647 kg (182,206 lb)
- B — Intersection with 10% total resistance line
- C — Intersection with rimpull curve (4th gear)
- D — Required rimpull 7756 kg (17,100 lb)
- E — Speed 12.9 km/h (8 mph)

USE OF TRAVEL TIME CHARTS

The following explanation applies to travel time charts for Wheel Tractor-Scrapers, Construction & Mining Trucks and Articulated Trucks.

One-way travel time can be determined from graphs on the following pages when one-way travel distance and total resistance (expressed in percent) are known. 10 kg/metric ton (20 lb/U.S. ton) equals 1% equivalent grade.

If total resistance is negative (grade assistance greater than rolling resistance) machine may accelerate downhill requiring the use of retarder or brakes. Travel time charts cannot be used in these cases. Consult respective machine retarder curve to establish maximum safe downhill speed.

Two graphs are given for each hauling unit: one for the machine carrying its rated payload and one for the empty machine.

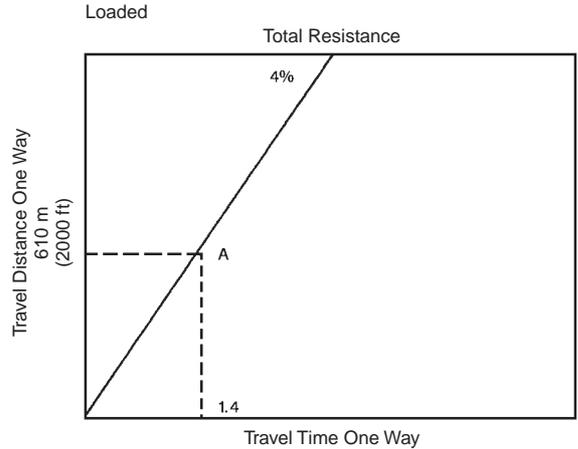
Travel times were derived using Caterpillar Machine Simulation Program and standard tire inputs. Travel times for machines equipped with (larger) optional tires vary slightly.

Example problem:

631G hauls its rated payload 37 285 kg — 22 bank cubic meters (82,200 lb — 29 bank cubic yards) on a 4% road for 610 m (2000 feet) and returns on a 0% road for 760 m (2500 feet). Find the cycle time.

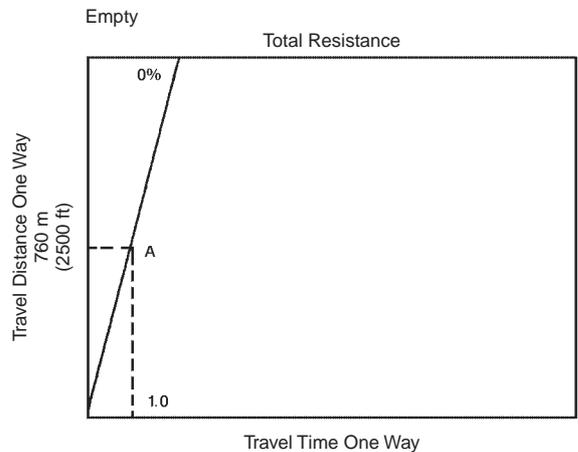
Haul —

Using the graph for the Loaded machine, read from the Travel Distance (one way) scale at 610 m (2000 feet) across to the 4% total resistance line (point A). From (point A) read down to the Travel Time (one way) scale to determine haul time = 1.4 minutes.



Return —

Using the graph for the Empty machine, read from the Travel Distance (one way) scale at 760 m (2500 feet) across to the 0% total resistance line (point A). From (point A) read down to the Travel Time (one way) scale to determine return time = 1 min.



Cycle Time —

$$\begin{aligned}
 &= \text{load}^* + \text{haul} + \text{maneuver \& spread}^* + \text{return} \\
 &= 0.6 + 1.4 + 0.7 + 1.0 \\
 &= 3.7 \text{ min.}
 \end{aligned}$$

*For fixed time (load, maneuver and spread) see the table below.

When cycle time and payload are known, productivity can be calculated. For a more complex example see the Earthmoving Section.



TYPICAL FIXED TIMES FOR SCRAPERS
(Times may vary depending on job conditions)

Model	Loaded By	Load Time (Min.)	Maneuver and Spread or Maneuver and Dump (Min.)
613C Series II	Self	0.9	0.7
615C Series II	Self	0.9	0.7
623G	Self	0.9	0.7
621G	One D8R	0.5	0.7
627G	One D8R	0.5	0.6
621G	One D9R	0.4	0.7
627G	One D9R	0.4	0.6
627G/PP	Self	0.9*	0.6
631G	One D9R	0.6	0.7
637G	One D9R	0.6	0.6
631G	One D10R	0.5	0.7
637G	One D10R	0.5	0.6
637G/PP	Self	1.0*	0.6
651E	One D11R	0.6	0.7
657E	One D11R	0.6	0.6
657E	Push Pull	1.1*	0.6
	Self		
621G	Auger	0.9	0.7
627G	Auger	0.7	0.7
631G	Auger	0.9	0.7
637G	Auger	0.8	0.7
651E	Auger	1.3	0.7
657E	Auger	1.0	0.7

*Load time per pair, including transfer time.

NOTE: Empty Weights shown on the Wheel Tractor-Scraper charts includes ROPS Canopy. The travel times will remain within acceptable limits when applied to a non-ROPS equipped machine. When calculating TMPH loadings any additional weight must be considered in establishing mean tire loads.

USE OF RETARDER CURVES

The following explanation applies to retarder curves for Wheel Tractor-Scrapers and Articulated Trucks.

The speed that can be maintained (without use of service brake) when the machine is descending a grade with retarder fully on can be determined from the retarder curves in this section if gross machine weight and total effective grade are known.

Total Effective Grade (or Total Resistance) is grade assistance *minus* rolling resistance.

10 kg/metric ton (20 lb/U.S. ton) = 1% adverse grade.

Example

15% favorable grade with 5% rolling resistance. Find Total Effective Grade.

$$\text{Total Effective Grade} = 15\% \text{ Grade Assistance} - 5\%$$

$$\text{Rolling Resistance} = 10\% \text{ Total Effective Grade Assistance.}$$

Example problem:

A 651E with an estimated payload of 47 175 kg (104,000 lb) descends a 10% total effective grade. Find constant speed and gear range with maximum retarder effort. Find travel time if the slope is 610 m (2000 ft) long.

$$\begin{aligned}
 \text{Empty Weight} + \text{Payload} &= \text{Gross Weight} \\
 &= 60\,950 \text{ kg} + 47\,175 \text{ kg} = 108\,125 \text{ kg} \\
 &= 134,370 \text{ lb} + 104,000 \text{ lb} = 238,370 \text{ lb}
 \end{aligned}$$

Solution: Using the retarder curve below, read from 108 125 kg (238,370 lb) (point A) on top of gross weight scale down the line to the intersection of the 10% effective grade line (point B).

Go across horizontally from point B to the intersection of the retarder curve (point C). Point C intersects at the 5 (5th gear) range.

Where point C intersects the retarder curve, read down vertically to point D on the bottom scale to obtain the constant speed: 21.7 km/h (13.5 mph).

ANSWER: The 651E will descend the slope at 21.7 km/h (13.5 mph) in 5th gear. Travel time is 1.68 minutes.

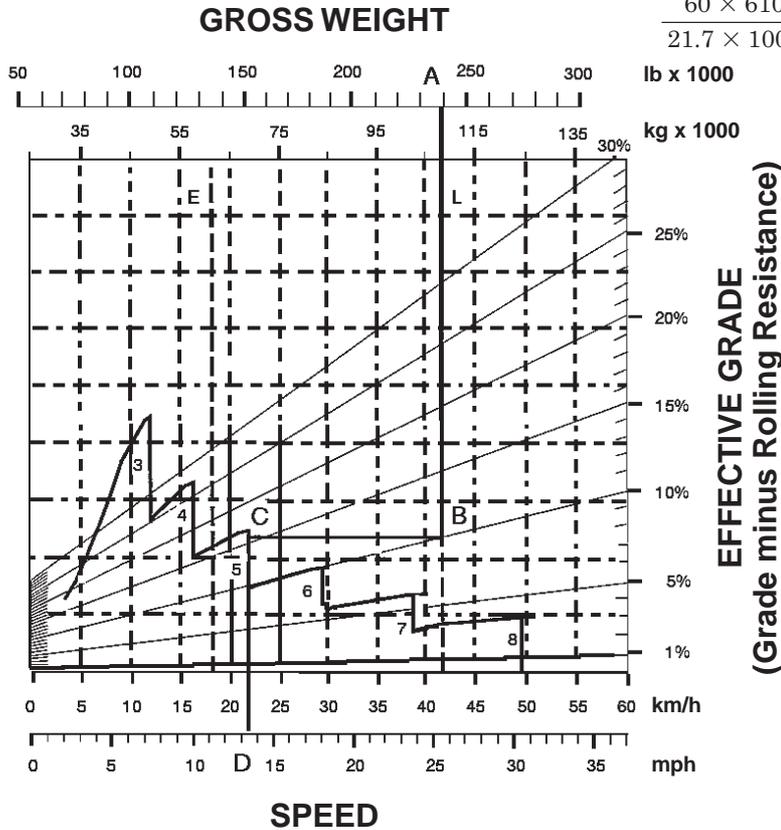
$$\frac{610 \text{ m}}{363 \text{ m/min}} = 1.68 \text{ min}$$

*(mph × 88 = F.P.M.)

$$\frac{2000 \text{ ft}}{13.5 \text{ mph} \times 88^*} = 1.68 \text{ min}$$

NOTE: The basic Distance-Speed-Time formula is $60 D \div S = T$ (or "60 D Street"), where 60 is minutes, D is distance, S is speed and T is time. In the above problem, $60 \times 610 \text{ m} \div 21.7 \text{ km/h} \times 1000 = T$.

$$\frac{60 \times 610}{21.7 \times 1000} = T = (1.68)$$

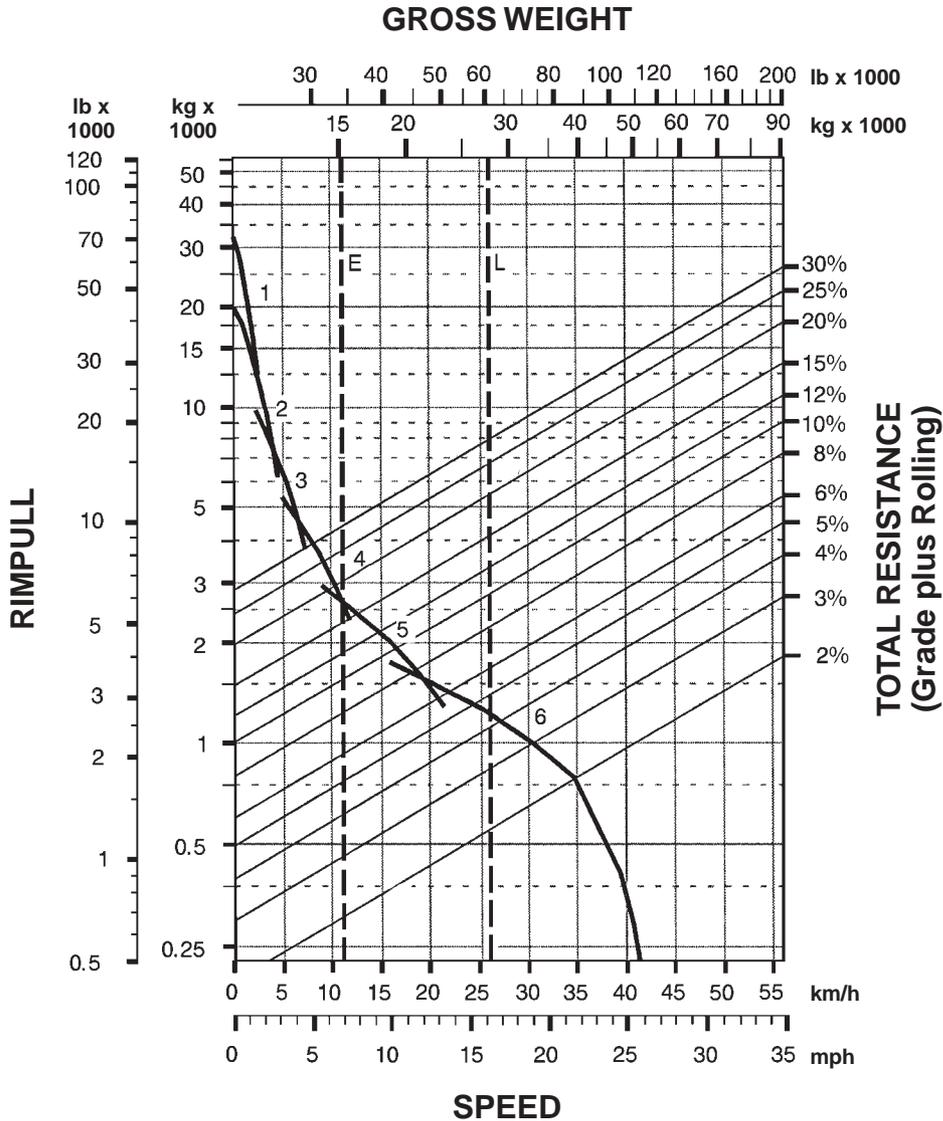


KEY

- 3 — 3rd Gear Direct Drive
- 4 — 4th Gear Direct Drive
- 5 — 5th Gear Direct Drive
- 6 — 6th Gear Direct Drive
- 7 — 7th Gear Direct Drive
- 8 — 8th Gear Direct Drive

KEY

- A — Loaded 108 125 kg (238,370 lb)
- B — Intersection with 10% effective grade line
- C — Intersection with retarder curve (5th gear)
- D — Constant speed 21.7 km/h (13.5 mph)



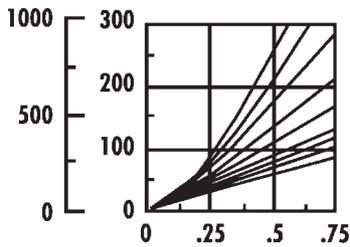
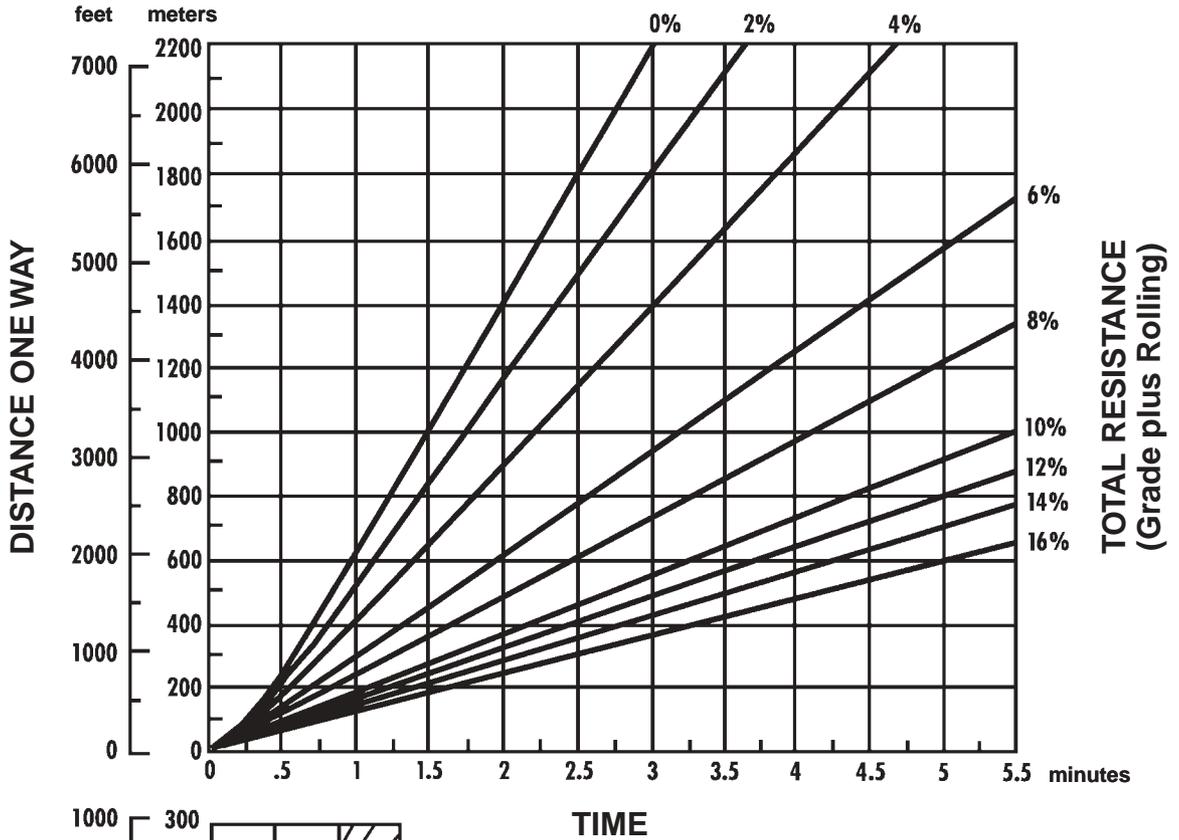
KEY

- 1 — 1st Gear Torque Converter Drive
- 2 — 2nd Gear Torque Converter Drive
- 3 — 3rd Gear Torque Converter Drive
- 4 — 4th Gear Torque Converter Drive
- 5 — 5th Gear Torque Converter Drive
- 6 — 6th Gear Torque Converter Drive

KEY

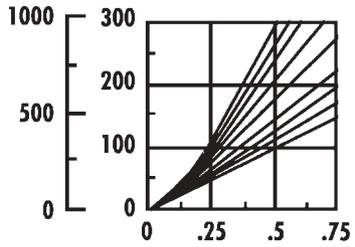
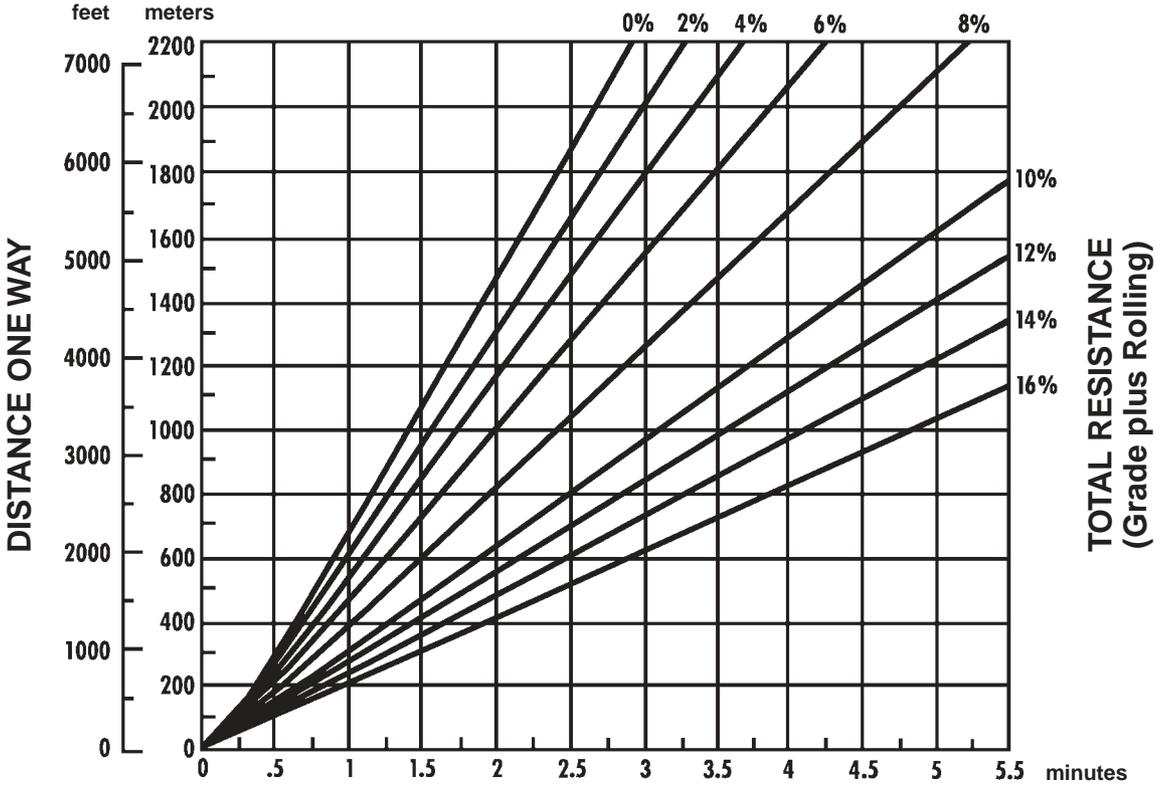
- E — Empty 14 970 kg (33,000 lb)
- L — Loaded 26 945 kg (59,400 lb)

LOADED

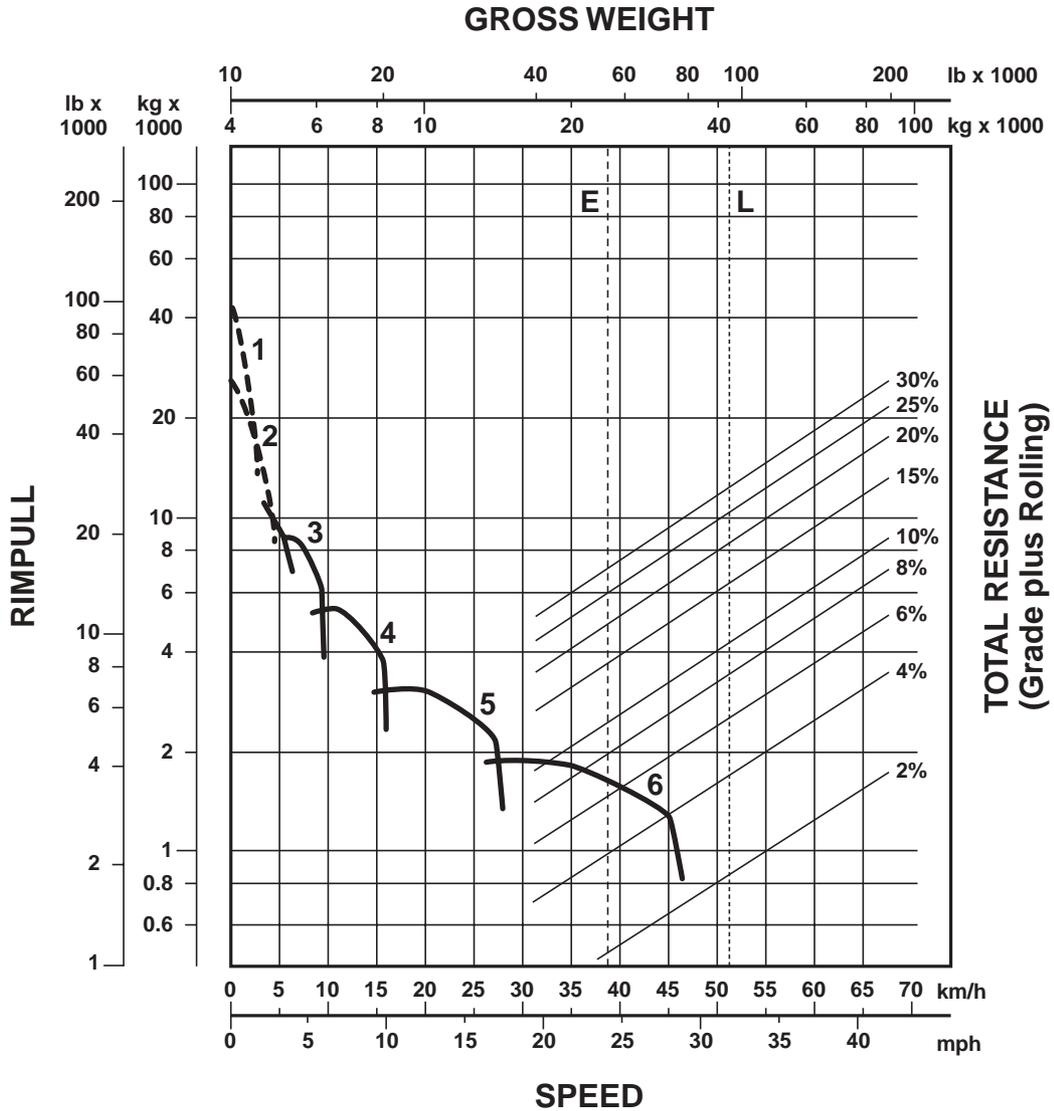


Empty weight: 14 970 kg (33,000 lb)
 Payload: 11 975 kg (26,400 lb)

EMPTY



Empty weight: 14 970 kg (33,000 lb)



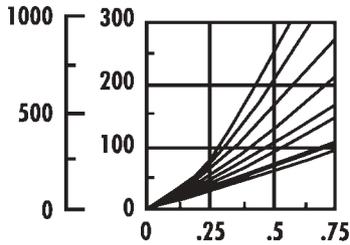
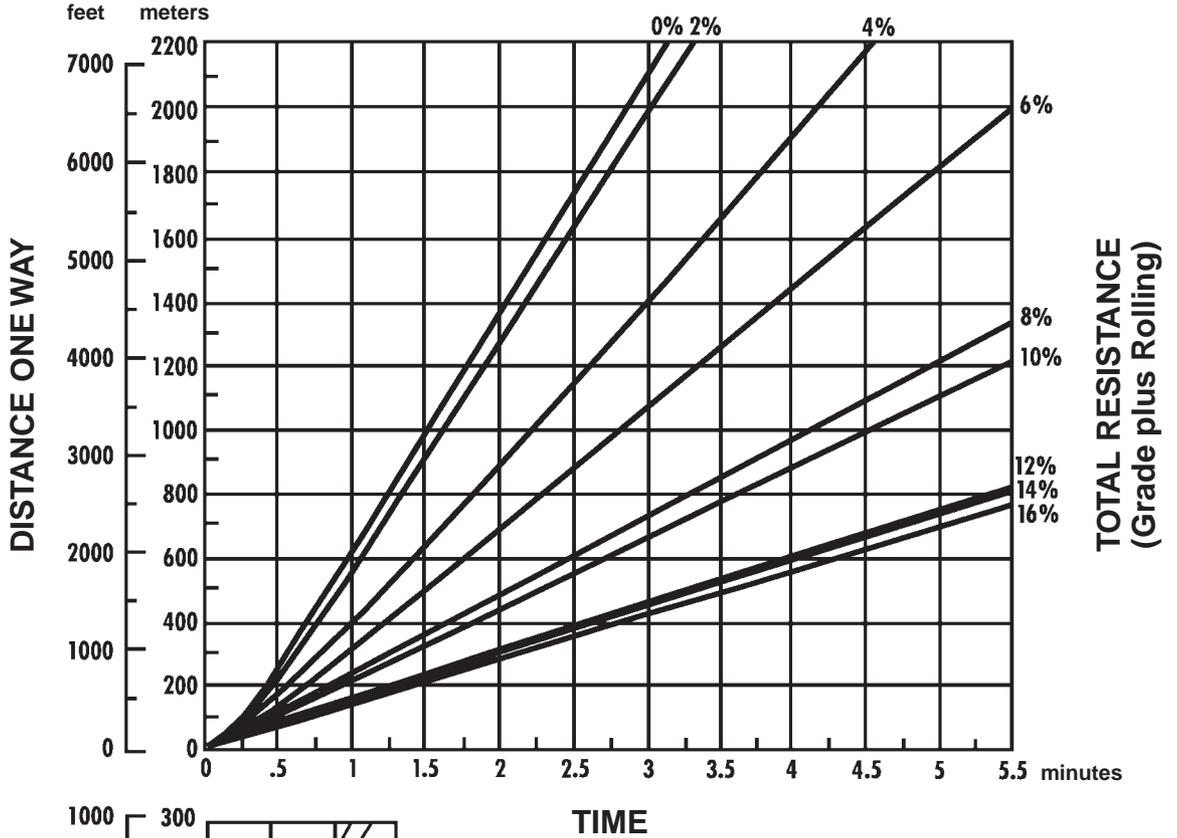
KEY

- 1 — 1st Gear Torque Converter Drive
- 2 — 2nd Gear Torque Converter Drive
- 3 — 3rd Gear Direct Drive
- 4 — 4th Gear Direct Drive
- 5 — 5th Gear Direct Drive
- 6 — 6th Gear Direct Drive

KEY

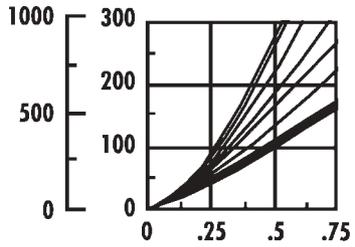
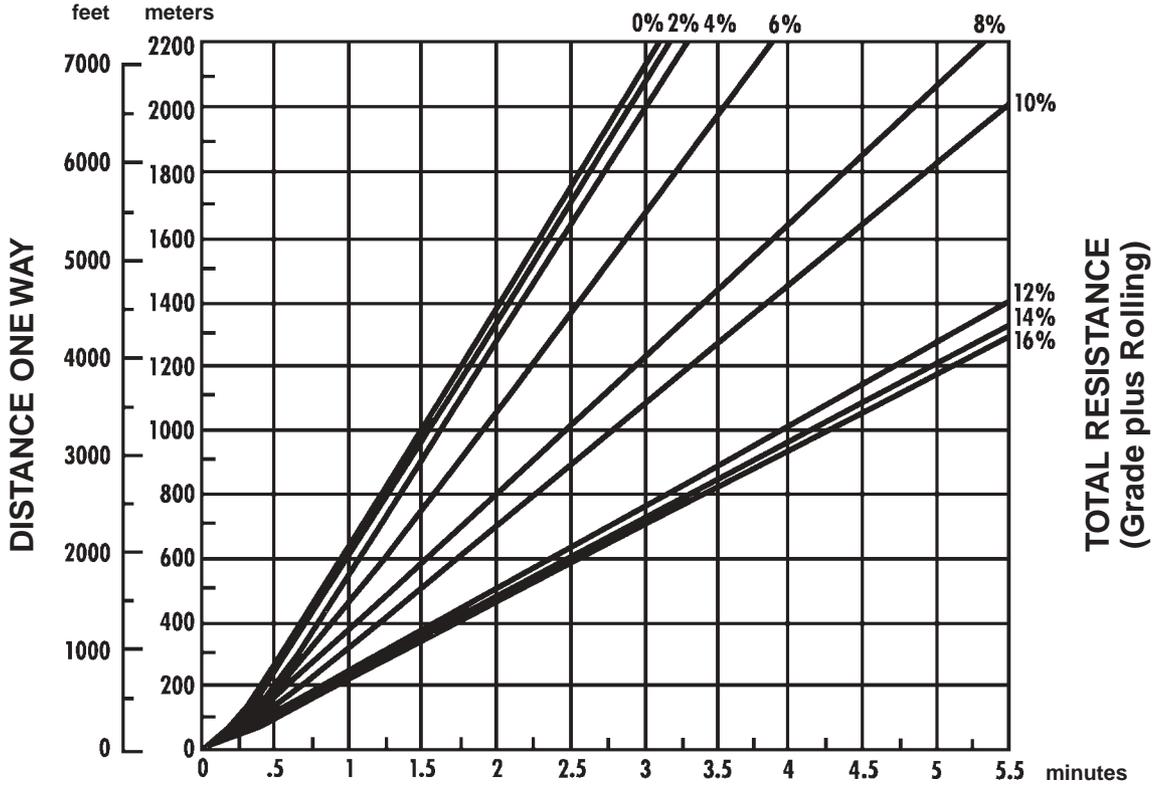
- E — Empty 25 605 kg (56,450 lb)
- L — Loaded 44 110 kg (97,250 lb)

LOADED

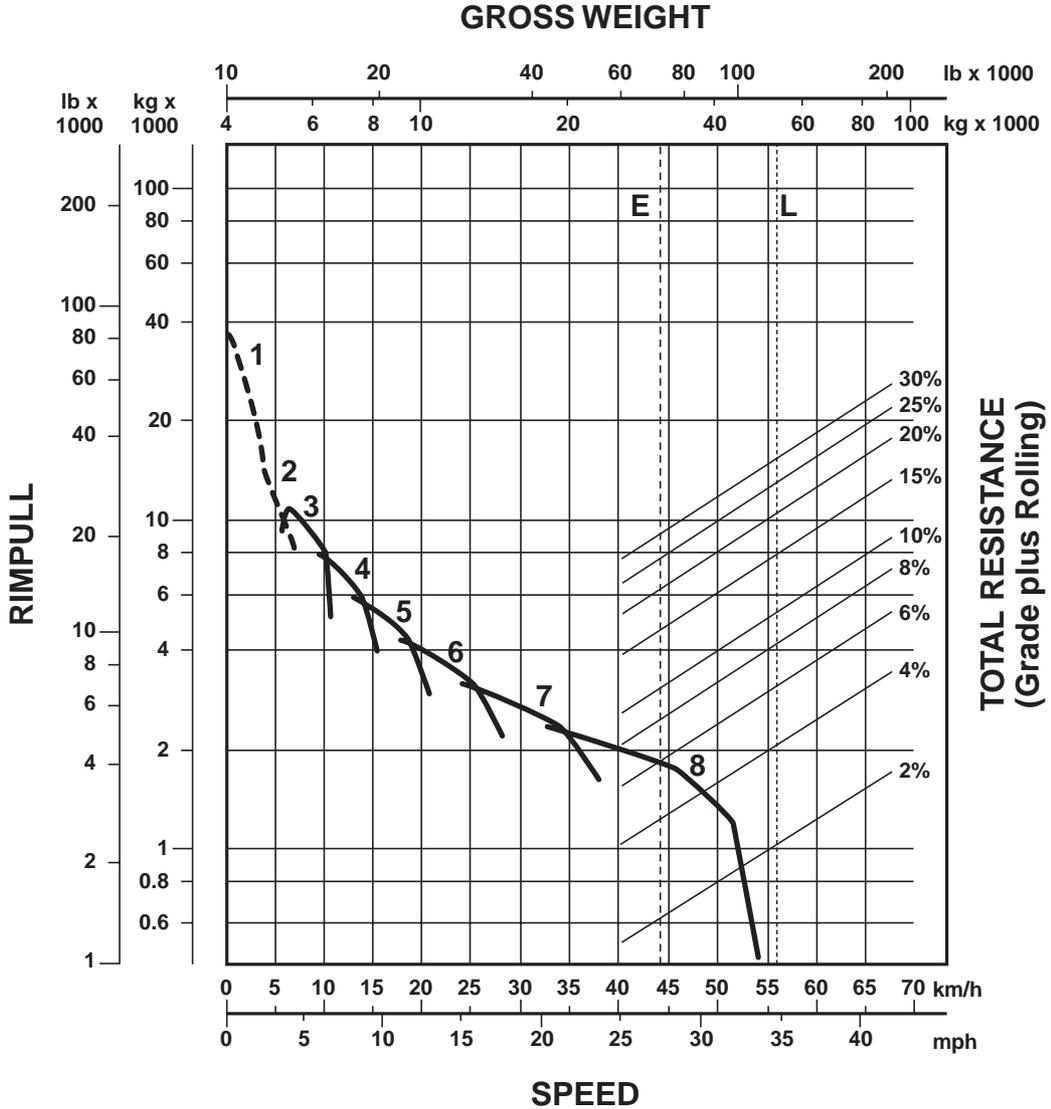


Empty weight: 25 605 kg (56,450 lb)
 Payload: 18 506 kg (40,800 lb)

EMPTY



Empty weight: 25 605 kg (56,450 lb)

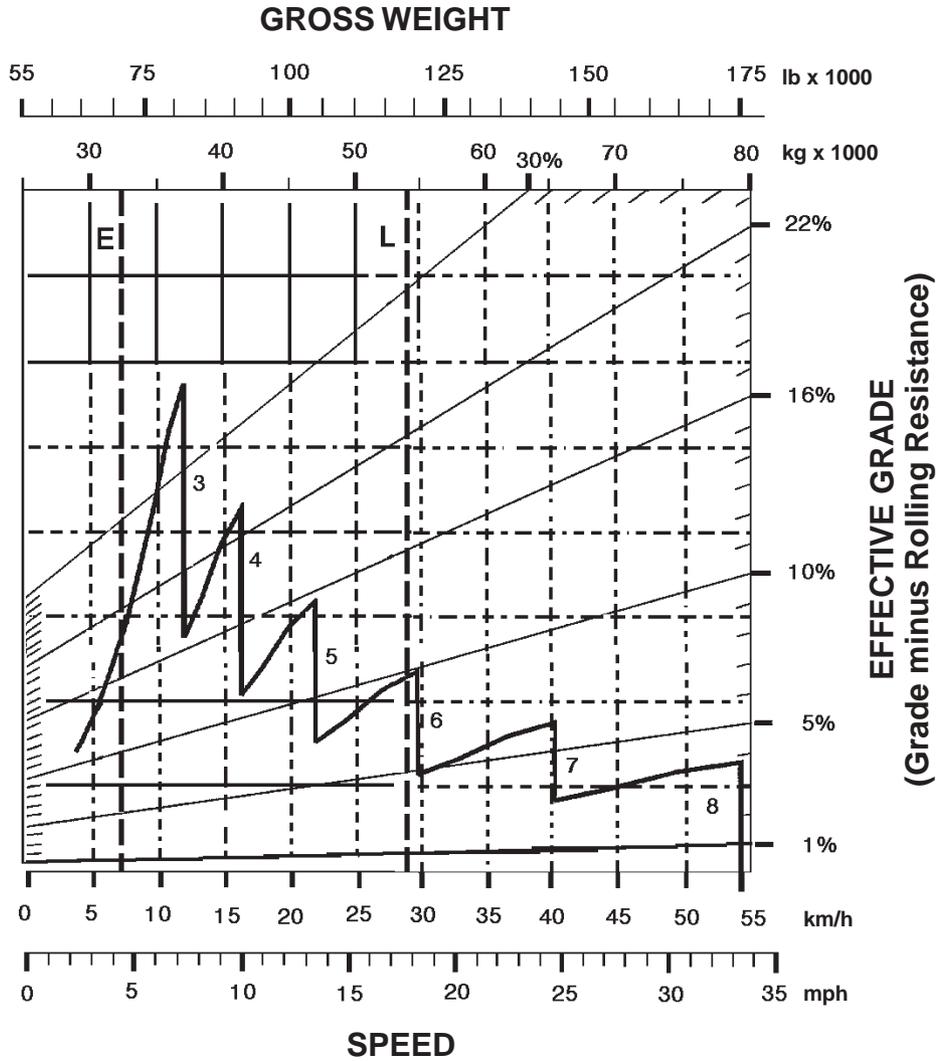


KEY

- 1 — 1st Gear Torque Converter Drive
- 2 — 2nd Gear Torque Converter Drive
- 3 — 3rd Gear Direct Drive
- 4 — 4th Gear Direct Drive
- 5 — 5th Gear Direct Drive
- 6 — 6th Gear Direct Drive
- 7 — 7th Gear Direct Drive
- 8 — 8th Gear Direct Drive

KEY

- E — Empty 32 563 kg (71,790 lb)
- L — Loaded 54 018 kg (119,090 lb)



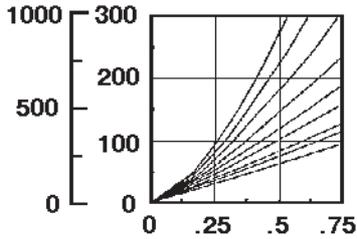
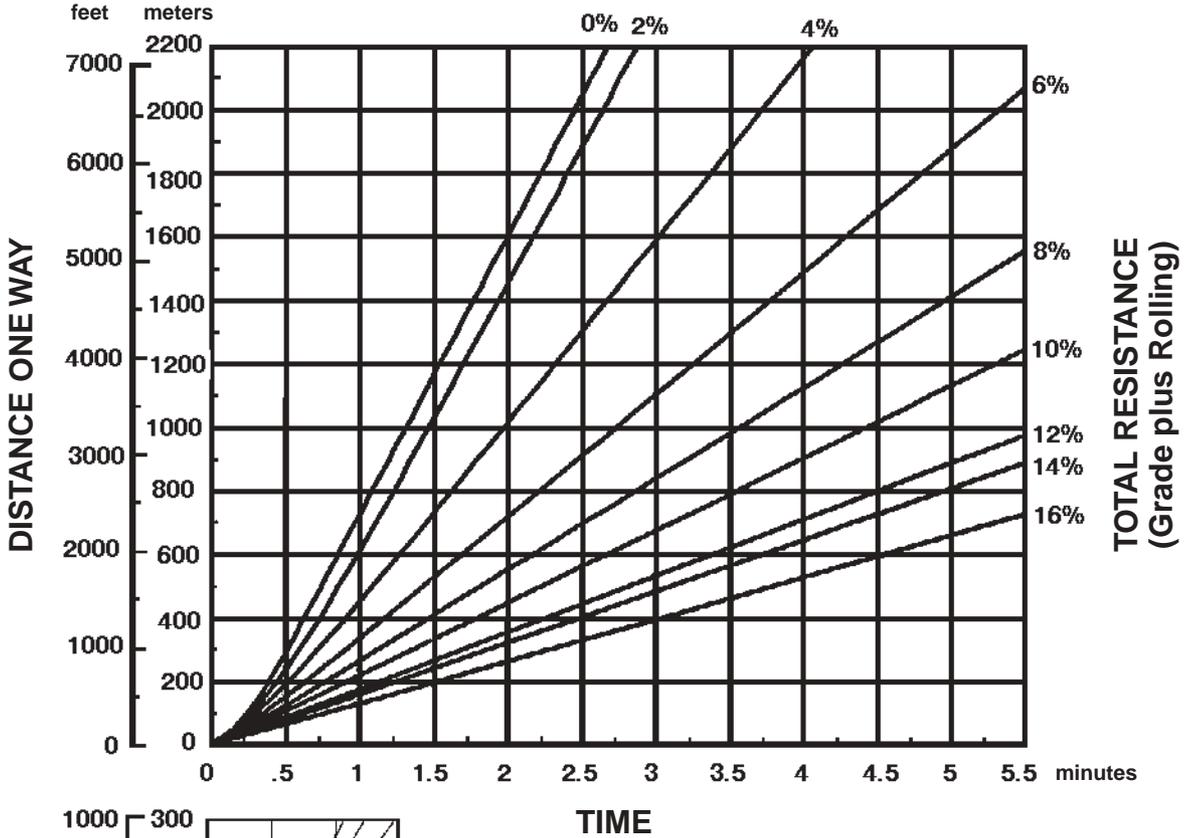
KEY

- 3 — 3rd Gear Direct Drive
- 4 — 4th Gear Direct Drive
- 5 — 5th Gear Direct Drive
- 6 — 6th Gear Direct Drive
- 7 — 7th Gear Direct Drive
- 8 — 8th Gear Direct Drive

KEY

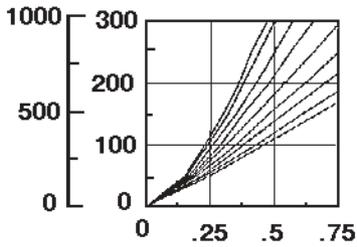
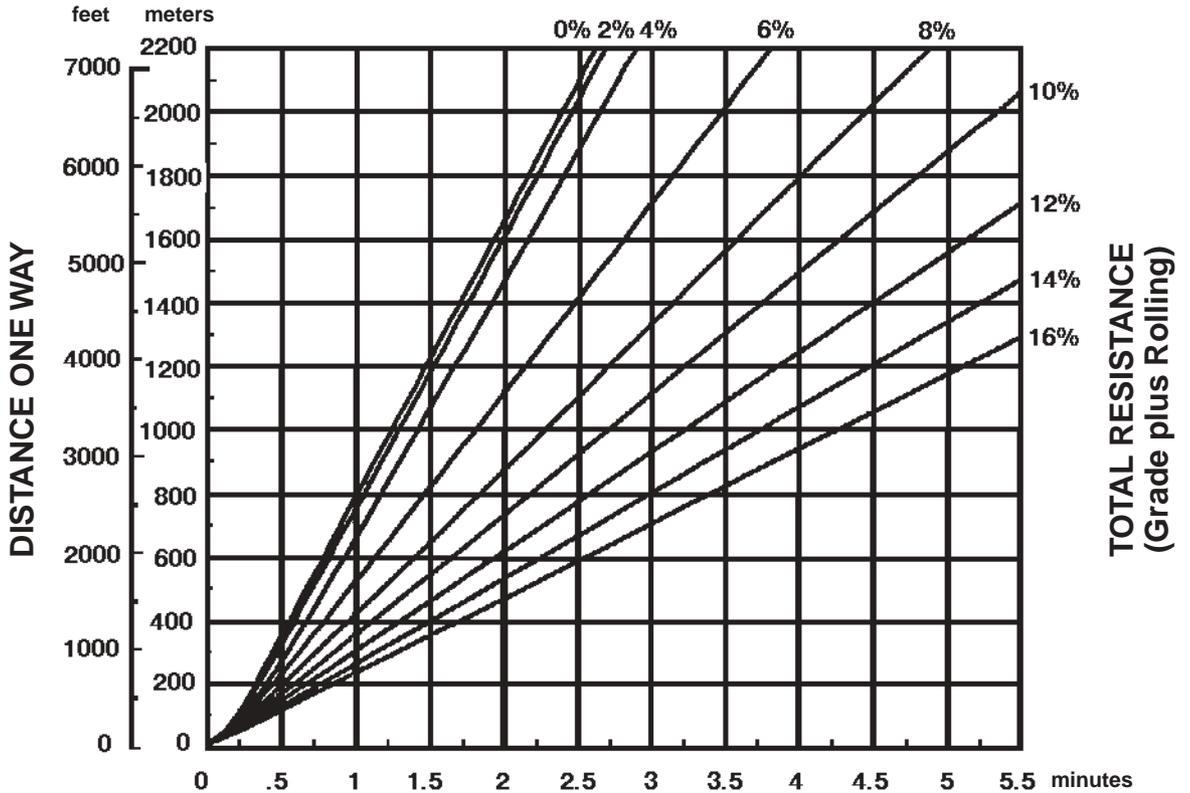
- E — Empty 32 563 kg (71,790 lb)
- L — Loaded 56 513 kg (124,590 lb)

LOADED



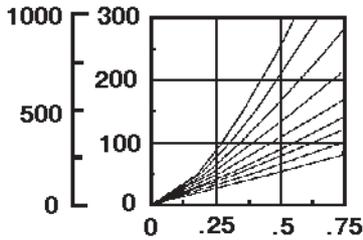
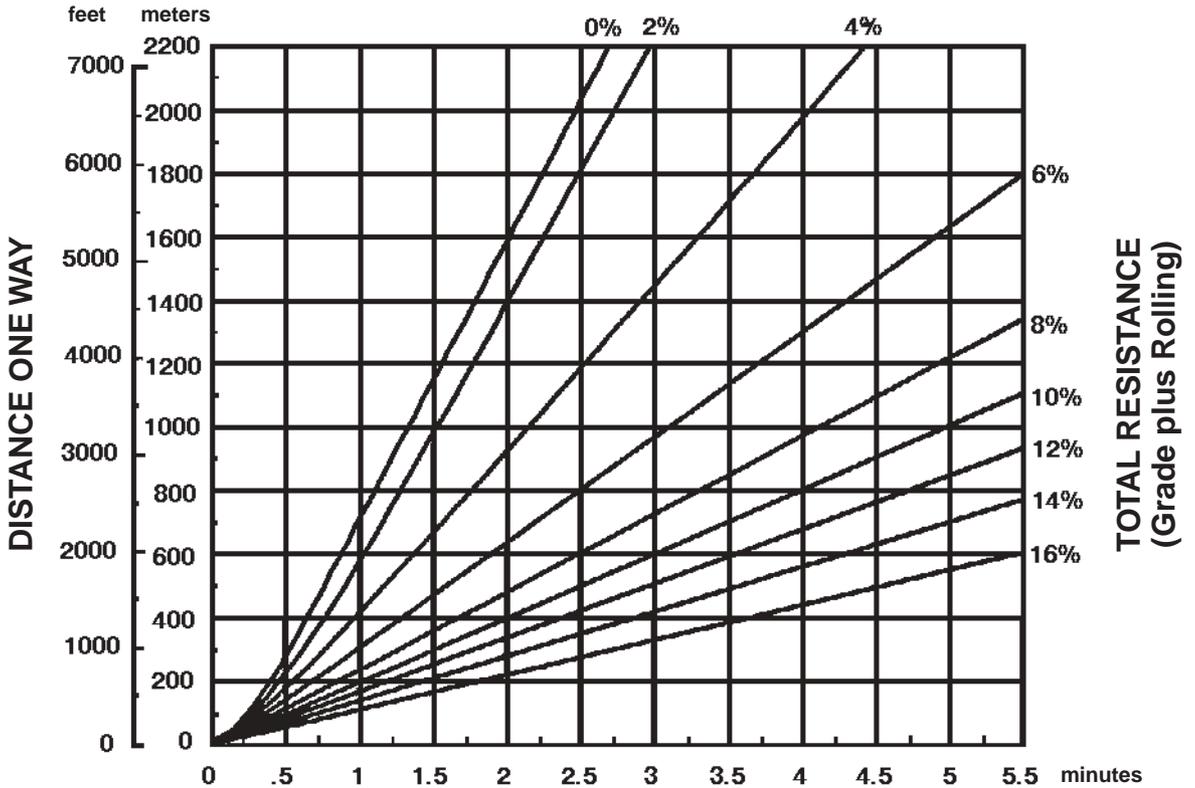
Empty weight: 32 563 kg (71,790 lb)
Payload: 23 950 kg (52,800 lb)

EMPTY



Empty weight: 32 563 kg (71,790 lb)

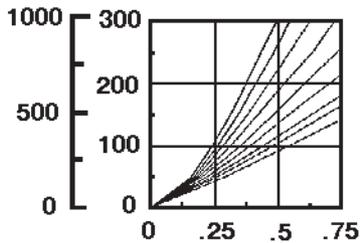
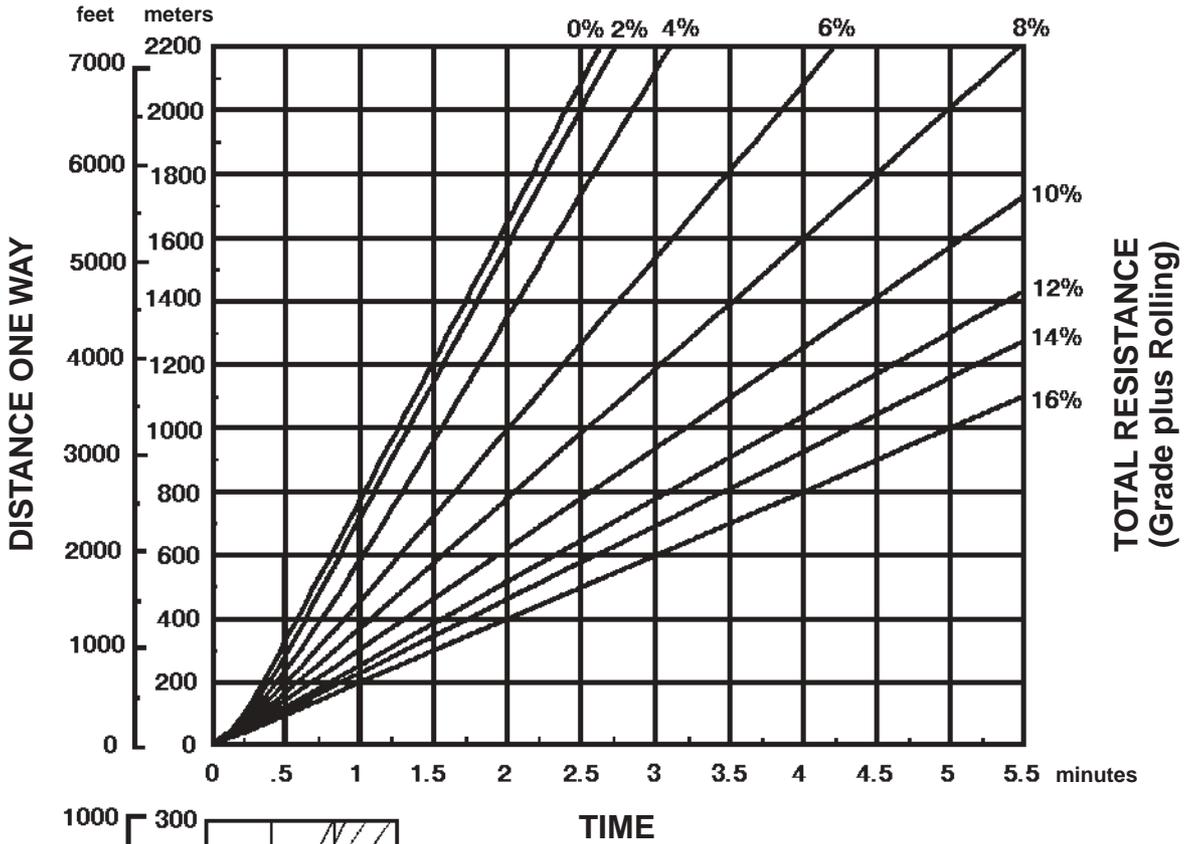
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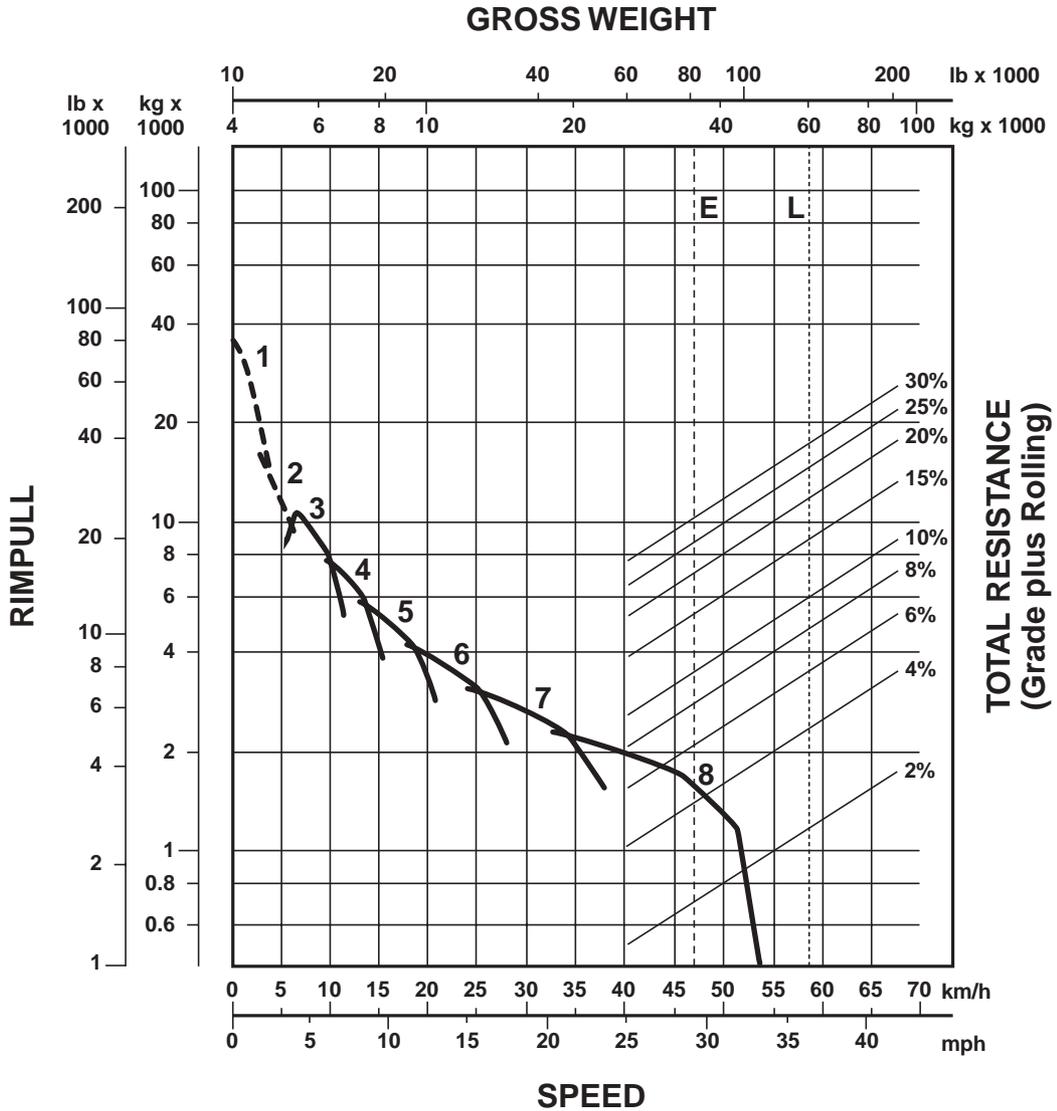
TIME

Empty weight: 36 780 kg (81,090 lb)
 Payload: 21 775 kg (48,000 lb)

EMPTY



Empty weight: 36 780 kg (81,090 lb)

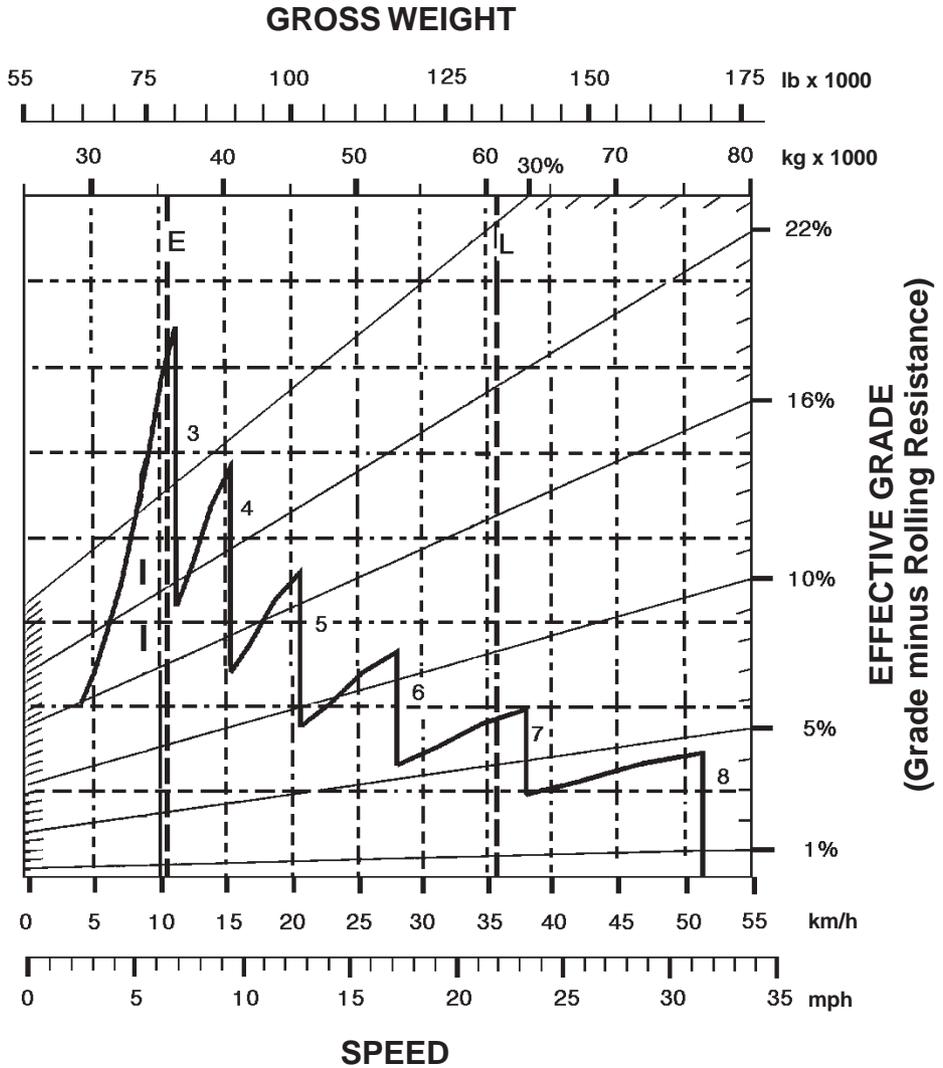


KEY

- 1 — 1st Gear Torque Converter Drive
- 2 — 2nd Gear Torque Converter Drive
- 3 — 3rd Gear Direct Drive
- 4 — 4th Gear Direct Drive
- 5 — 5th Gear Direct Drive
- 6 — 6th Gear Direct Drive
- 7 — 7th Gear Direct Drive
- 8 — 8th Gear Direct Drive

KEY

- E — Empty 37 122 kg (81,840 lb)
- L — Loaded 62 070 kg (136,840 lb)



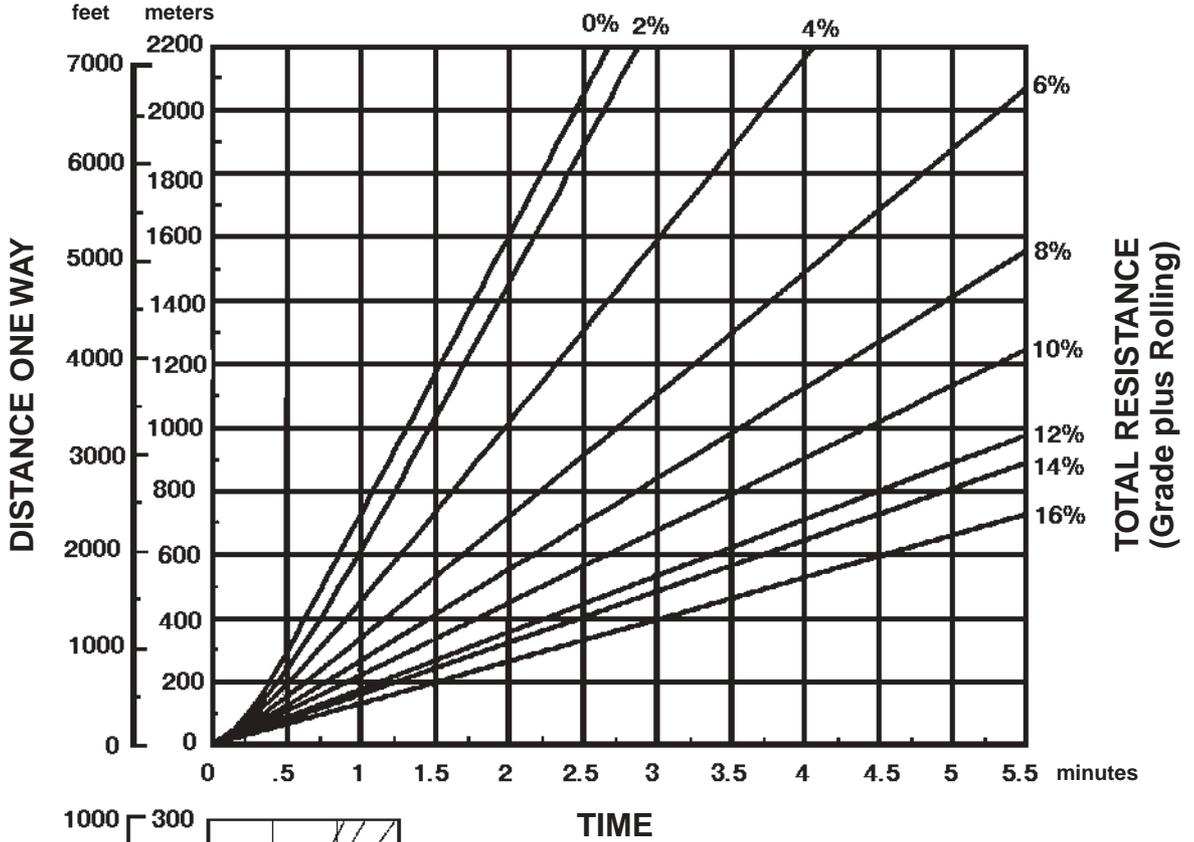
KEY

- 3 — 3rd Gear Direct Drive
- 4 — 4th Gear Direct Drive
- 5 — 5th Gear Direct Drive
- 6 — 6th Gear Direct Drive
- 7 — 7th Gear Direct Drive
- 8 — 8th Gear Direct Drive

KEY

- E — Empty 37 122 kg (81,840 lb)
- L — Loaded 62 070 kg (136,840 lb)

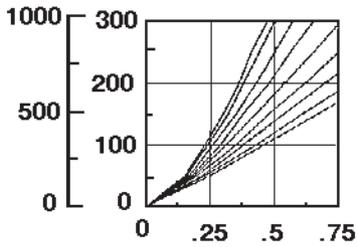
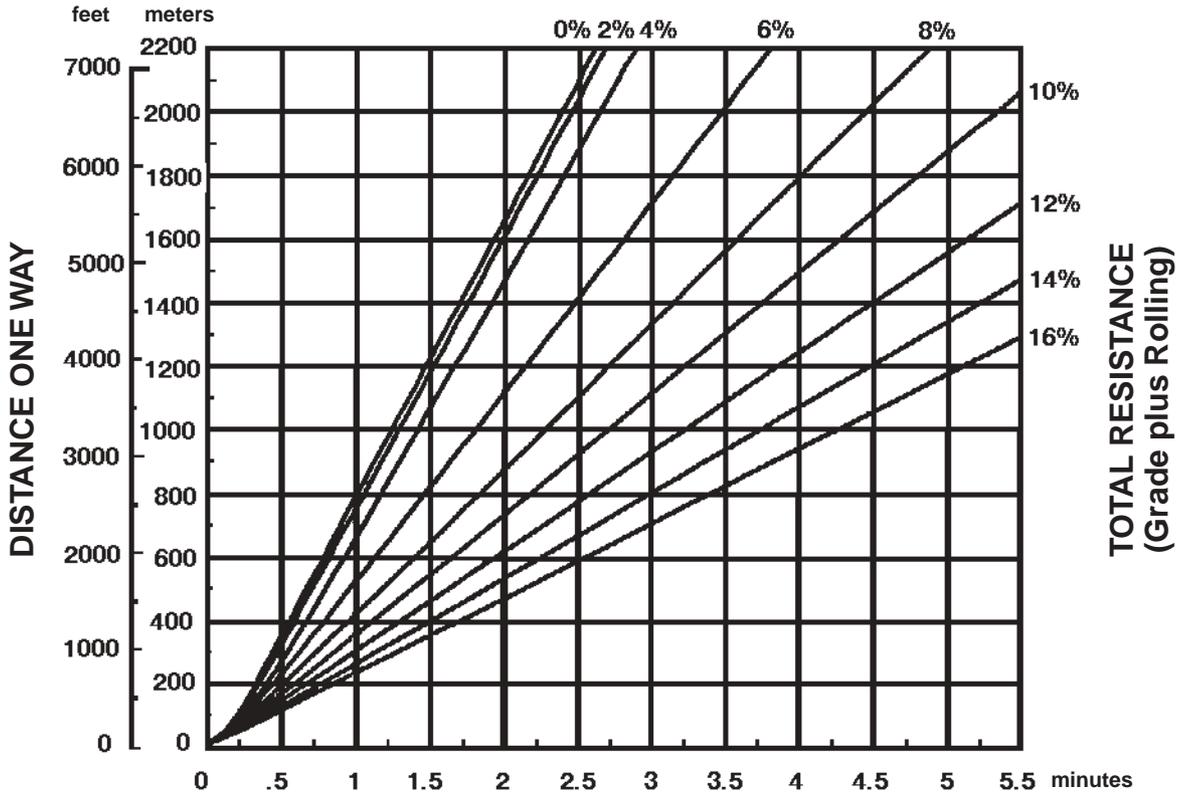
LOADED



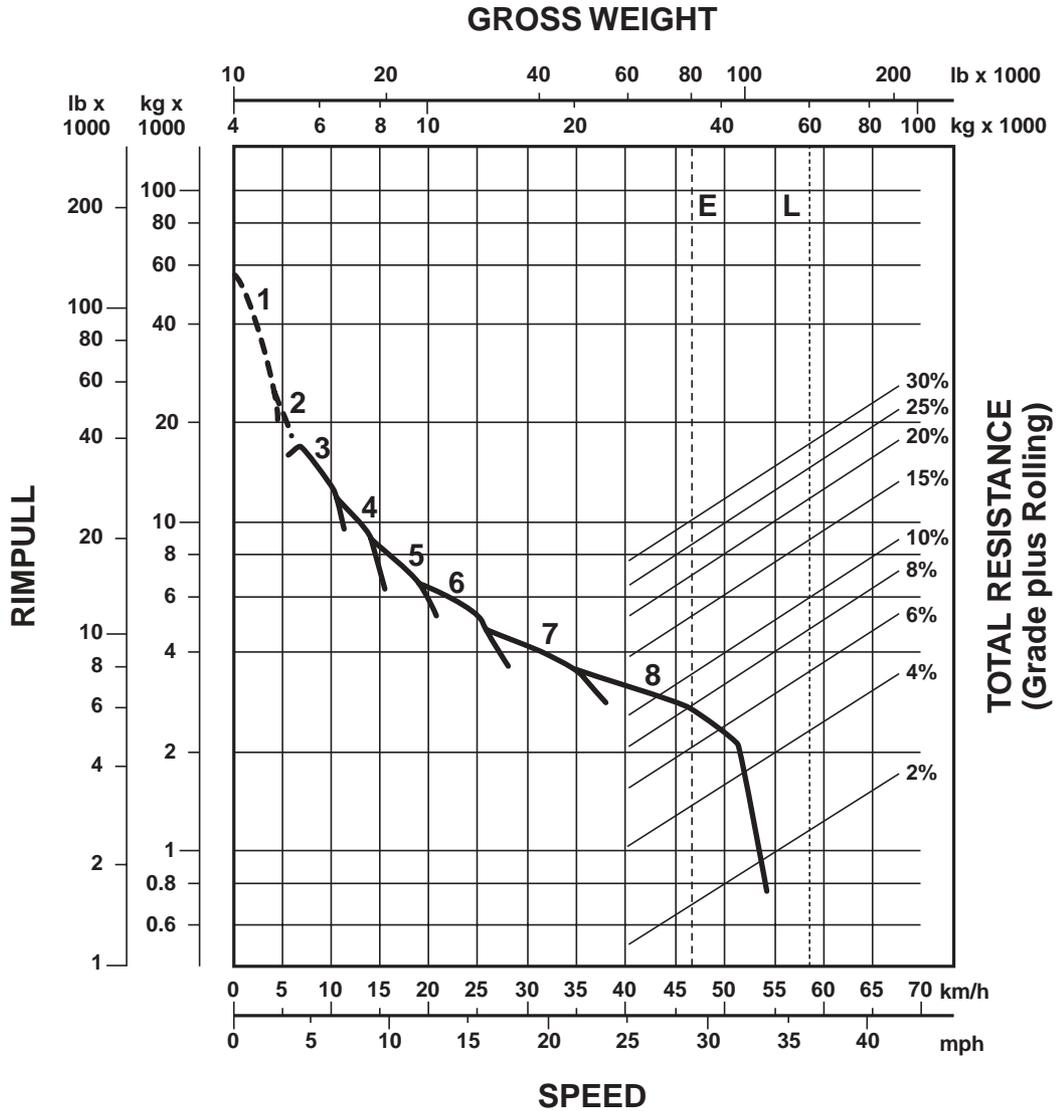
8

Empty weight: 37 122 kg (81,840 lb)
 Payload: 24 950 kg (55,000 lb)

EMPTY



Empty weight: 37 122 kg (81,840 lb)

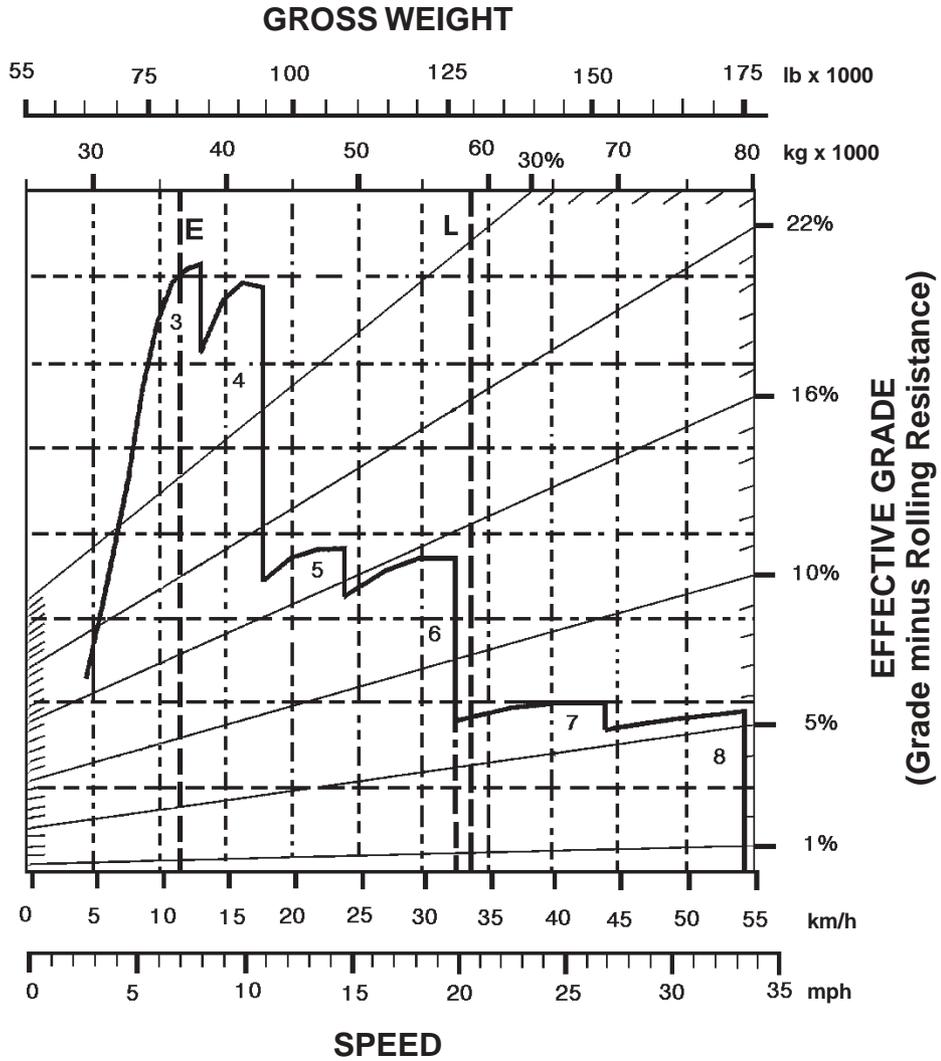


KEY

- 1 — 1st Gear Torque Converter Drive
- 2 — 2nd Gear Torque Converter Drive
- 3 — 3rd Gear Direct Drive
- 4 — 4th Gear Direct Drive
- 5 — 5th Gear Direct Drive
- 6 — 6th Gear Direct Drive
- 7 — 7th Gear Direct Drive
- 8 — 8th Gear Direct Drive

KEY

- E — Empty 37 545 kg (82,773 lb)
- L — Loaded 61 495 kg (135,573 lb)



KEY

- 3 — 3rd Gear Direct Drive
- 4 — 4th Gear Direct Drive
- 5 — 5th Gear Direct Drive
- 6 — 6th Gear Direct Drive
- 7 — 7th Gear Direct Drive
- 8 — 8th Gear Direct Drive

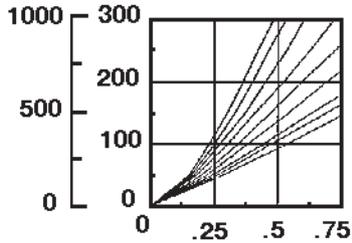
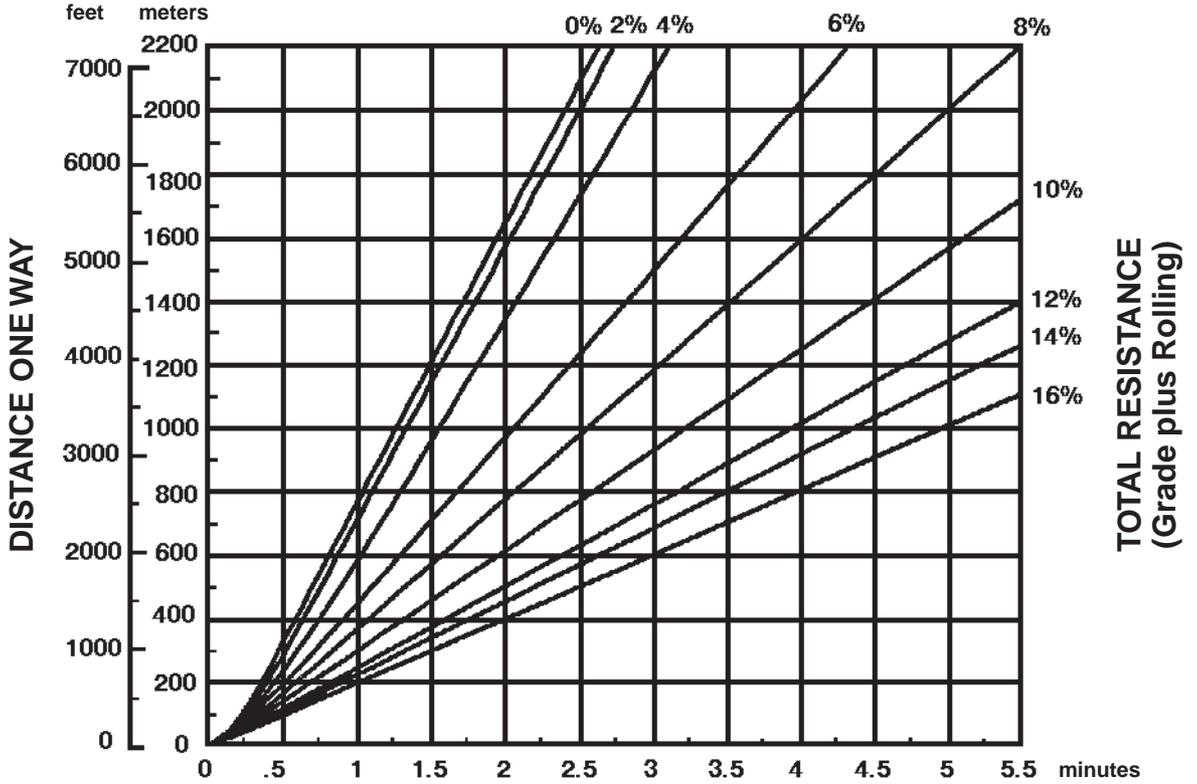
KEY

- E — Empty 37 545 kg (82,773 lb)
- L — Loaded 61 495 kg (135,573 lb)

627G Travel Time — Loaded
 • 33.25R29 Tires
 • Standard and Push-Pull

Wheel Tractor-Scrapers

LOADED



TIME

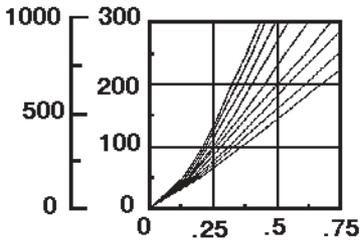
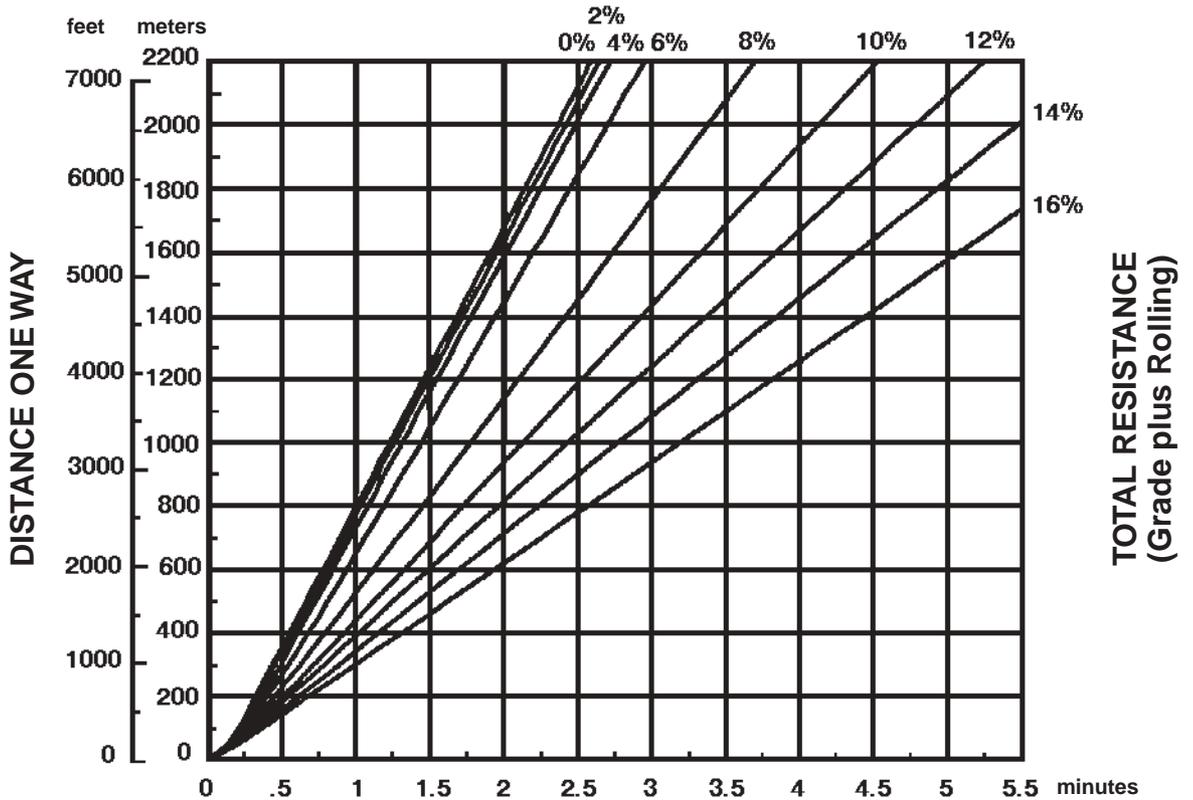
Empty weight: 37 545 kg (82,773 lb)
 Payload: 23 950 kg (52,800 lb)

Wheel Tractor-Scrapers

627G Travel Time — Empty

- 33.25R29 Tires
- Standard and Push-Pull

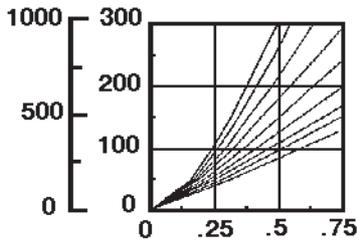
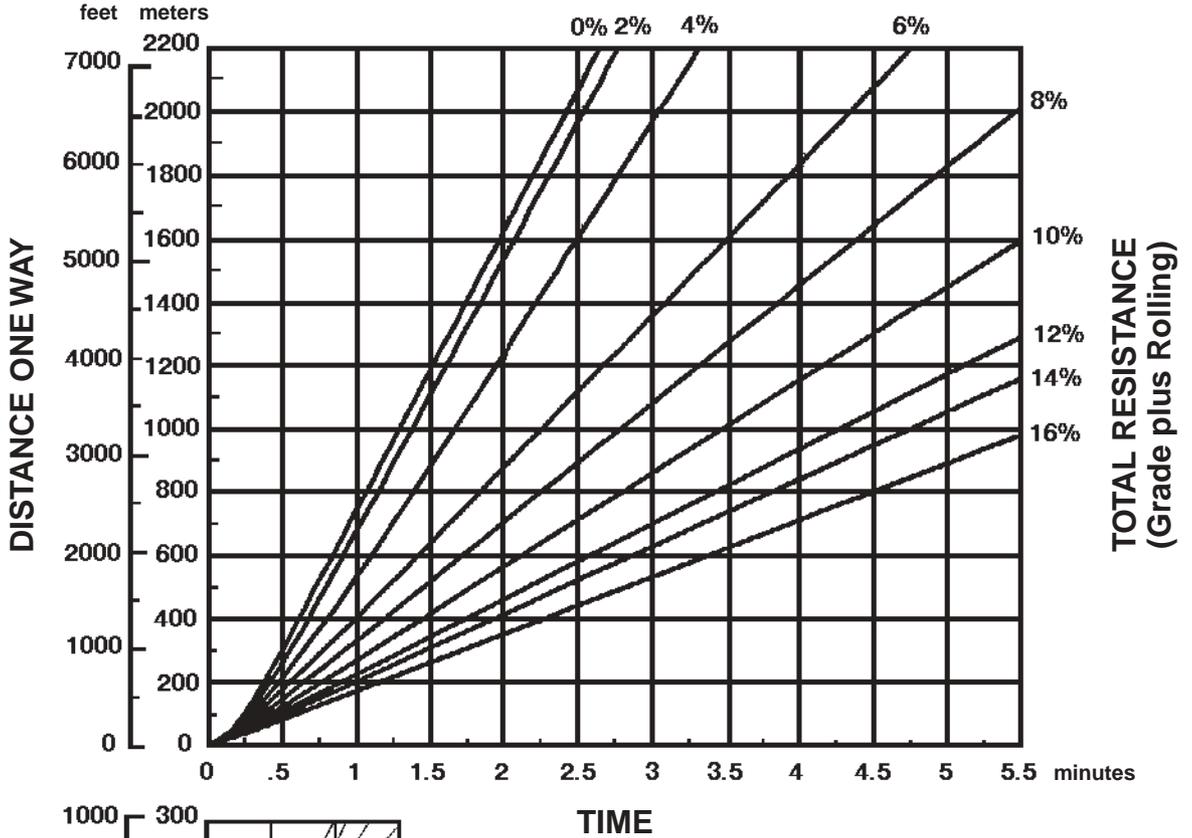
EMPTY



TIME

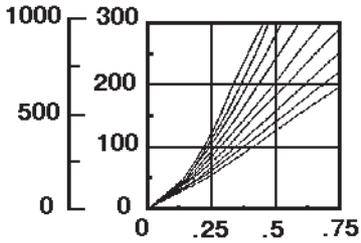
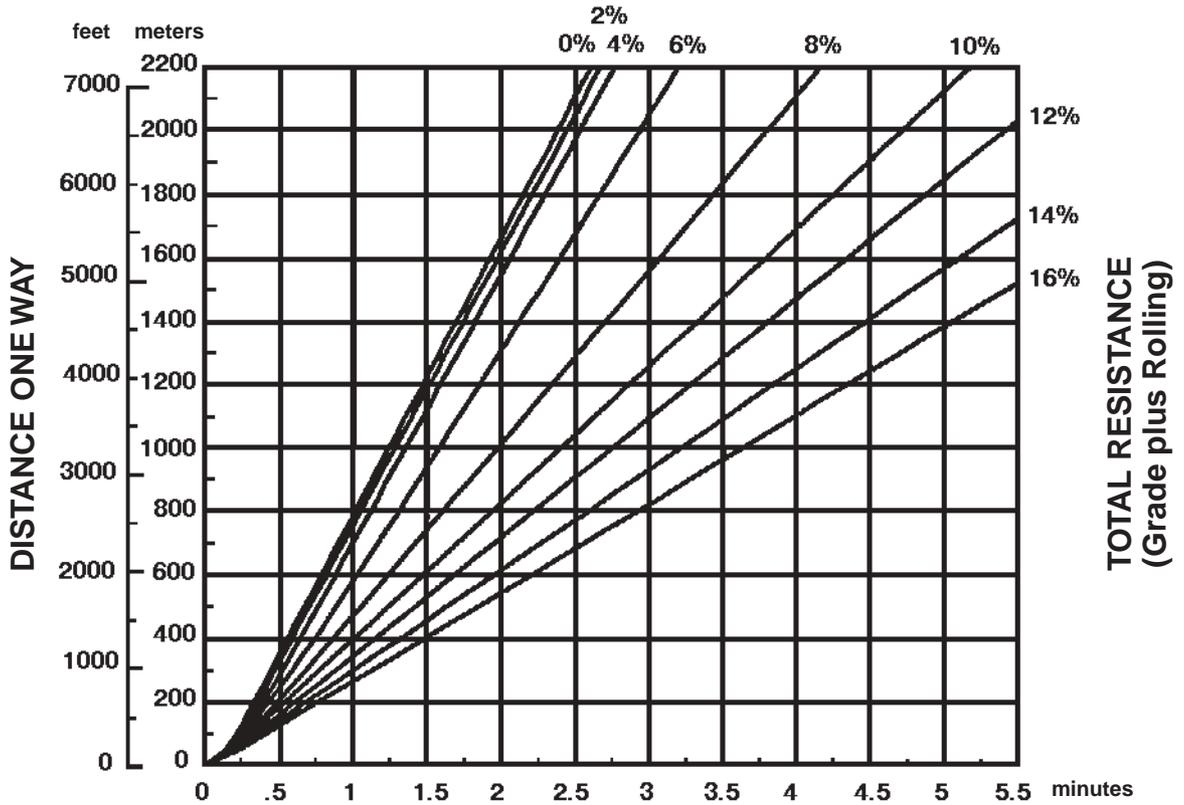
Empty weight: 37 545 kg (82,773 lb)

LOADED

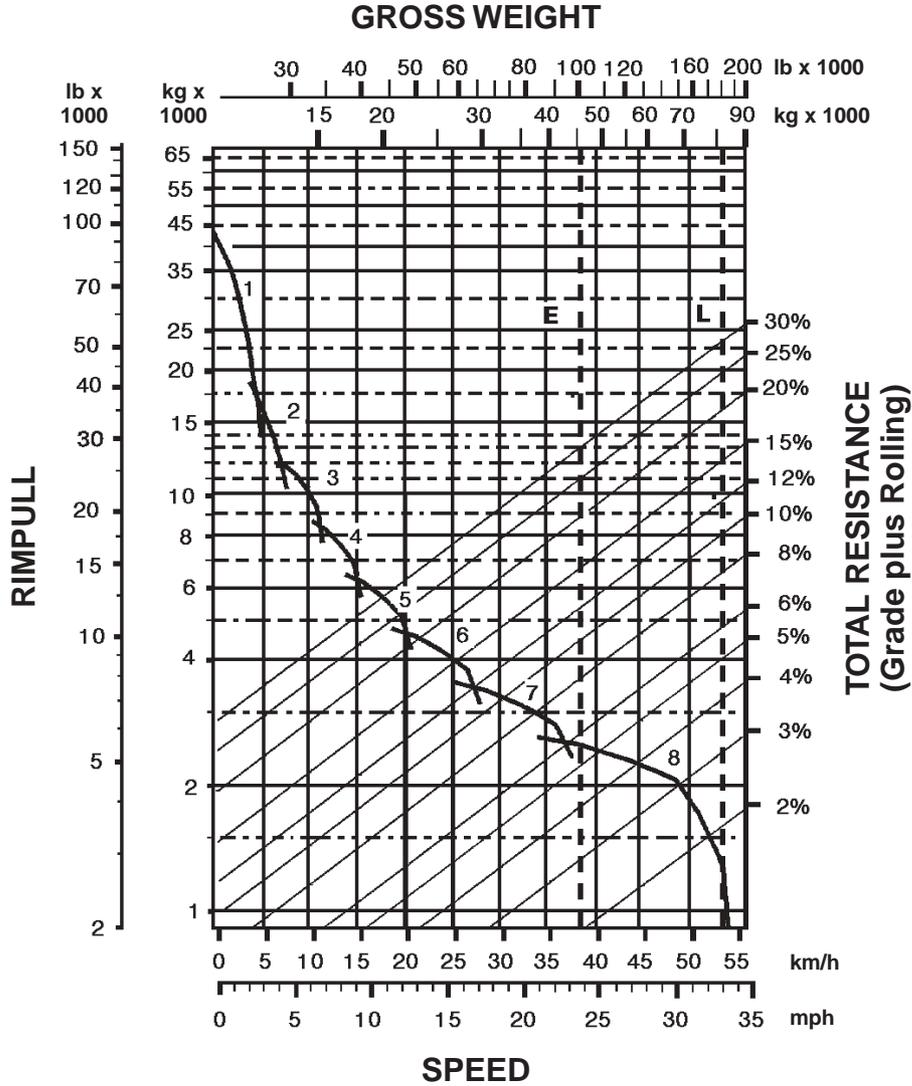


Empty weight: 41 635 kg (91,790 lb)
 Payload: 21 775 kg (48,000 lb)

EMPTY



Empty weight: 41 635 kg (91,790 lb)

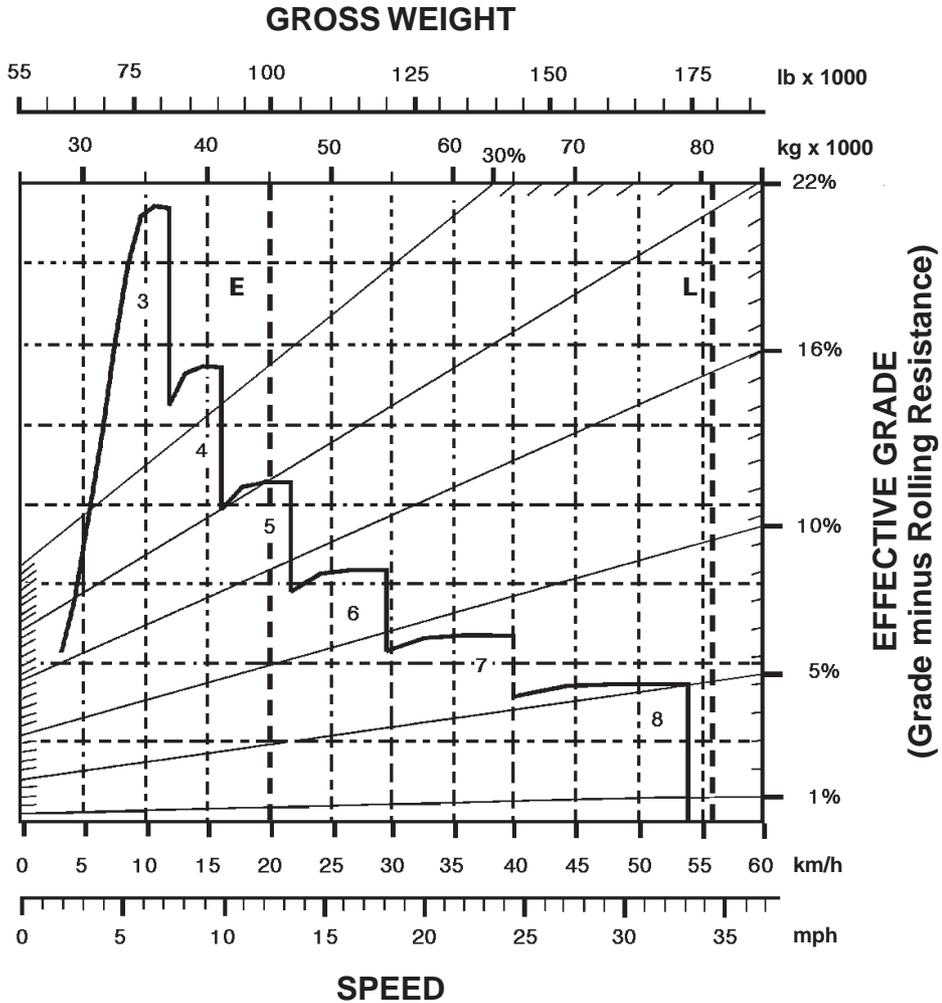


KEY

- 1 — 1st Gear Torque Converter Drive
- 2 — 2nd Gear Torque Converter Drive
- 3 — 3rd Gear Direct Drive
- 4 — 4th Gear Direct Drive
- 5 — 5th Gear Direct Drive
- 6 — 6th Gear Direct Drive
- 7 — 7th Gear Direct Drive
- 8 — 8th Gear Direct Drive

KEY

- E — Empty 45 362 kg (100,006 lb)
- L — Loaded 82 647 kg (182,206 lb)



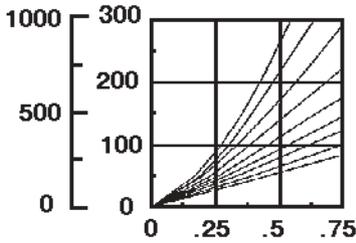
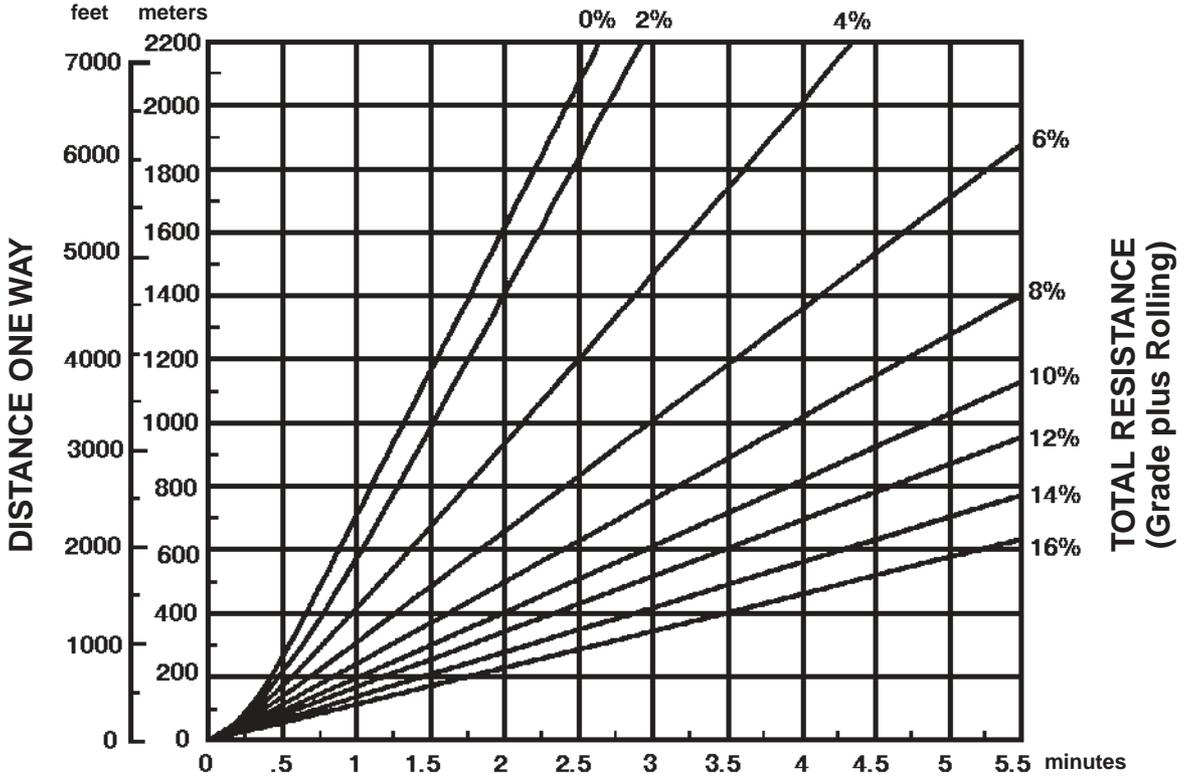
KEY

- 3 — 3rd Gear Direct Drive
- 4 — 4th Gear Direct Drive
- 5 — 5th Gear Direct Drive
- 6 — 6th Gear Direct Drive
- 7 — 7th Gear Direct Drive
- 8 — 8th Gear Direct Drive

KEY

- E — Empty 45 362 kg (100,006 lb)
- L — Loaded 82 647 kg (182,206 lb)

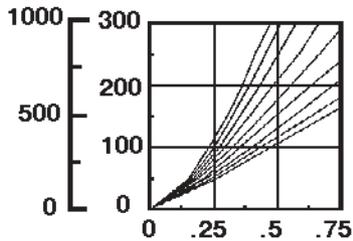
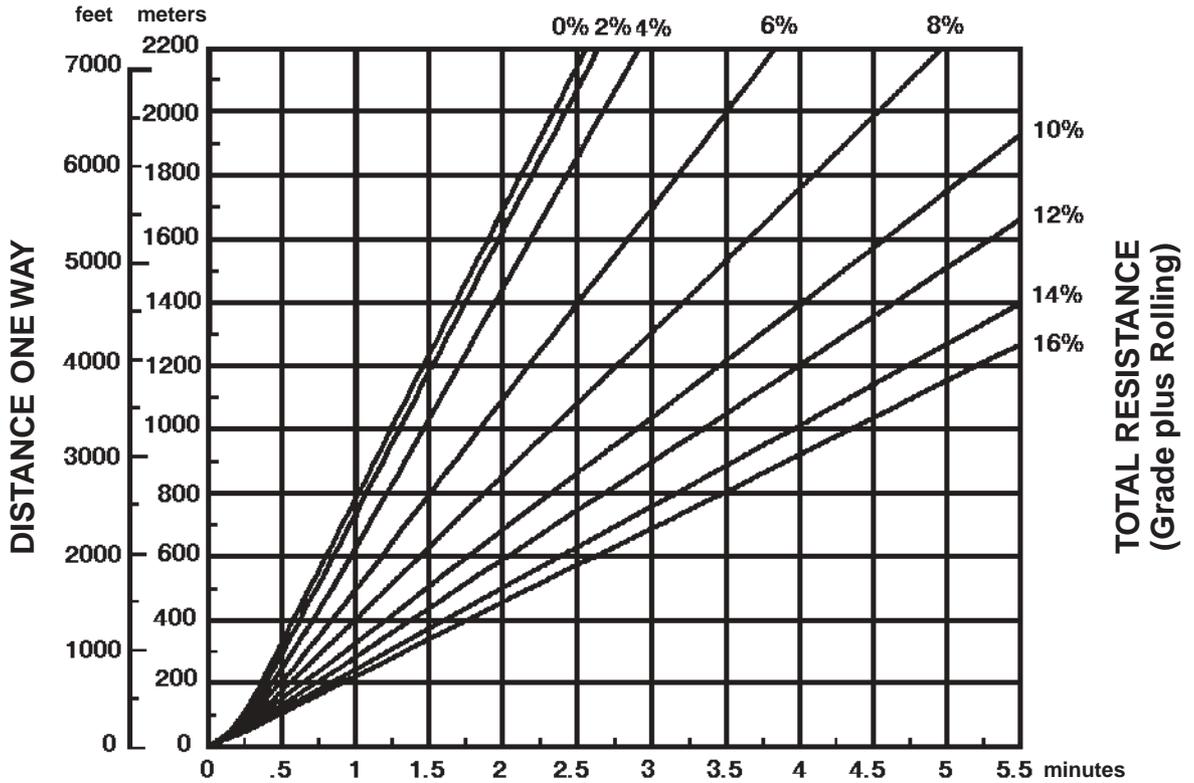
LOADED



TIME

Empty weight: 45 362 kg (100,006 lb)
 Payload: 37 285 kg (82,200 lb)

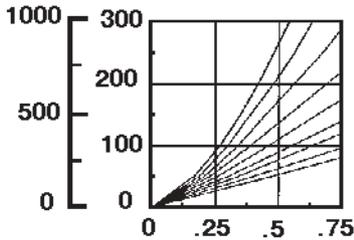
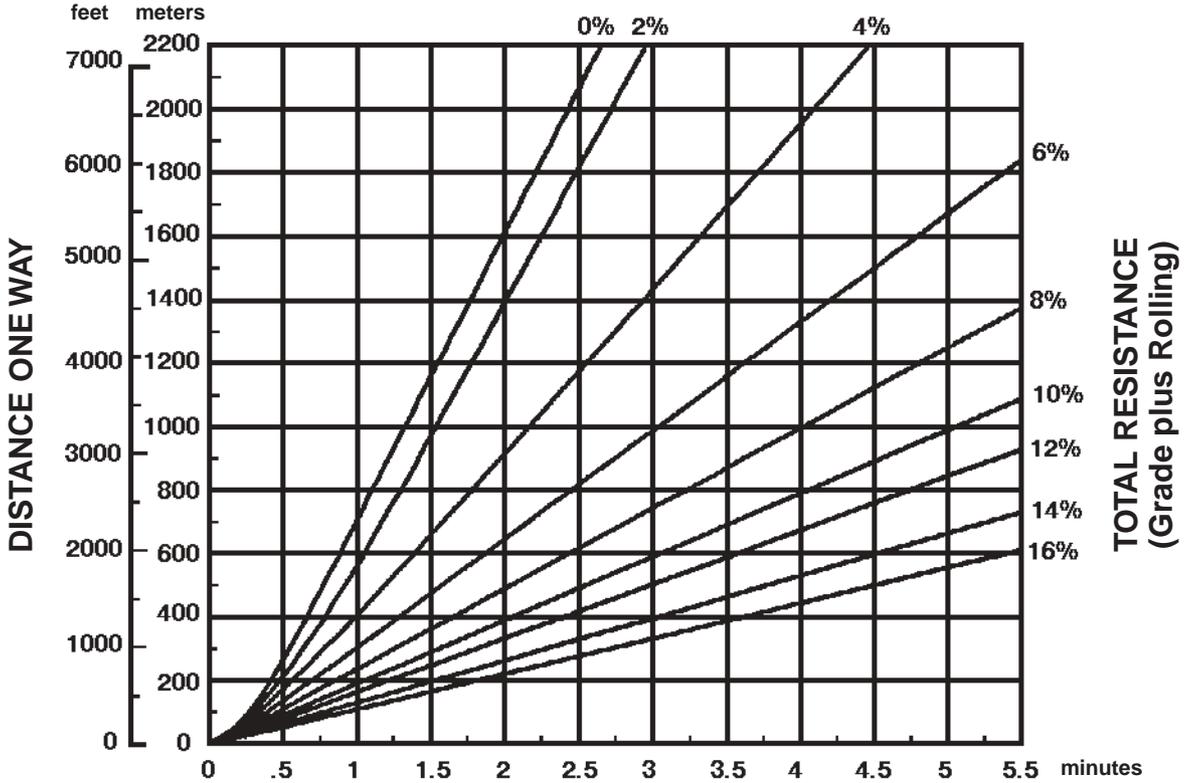
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TIME

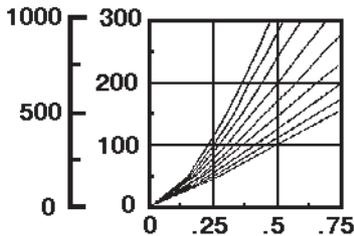
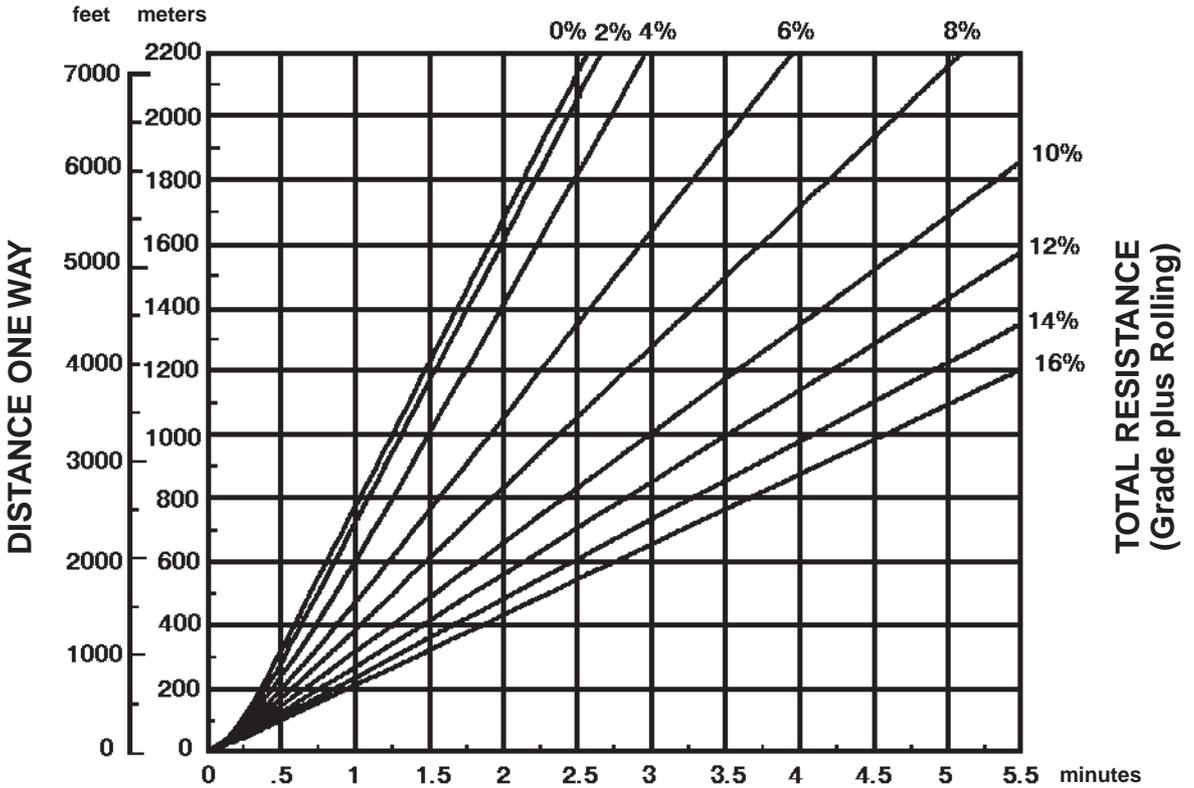
Empty weight: 45 362 kg (100,006 lb)

LOADED

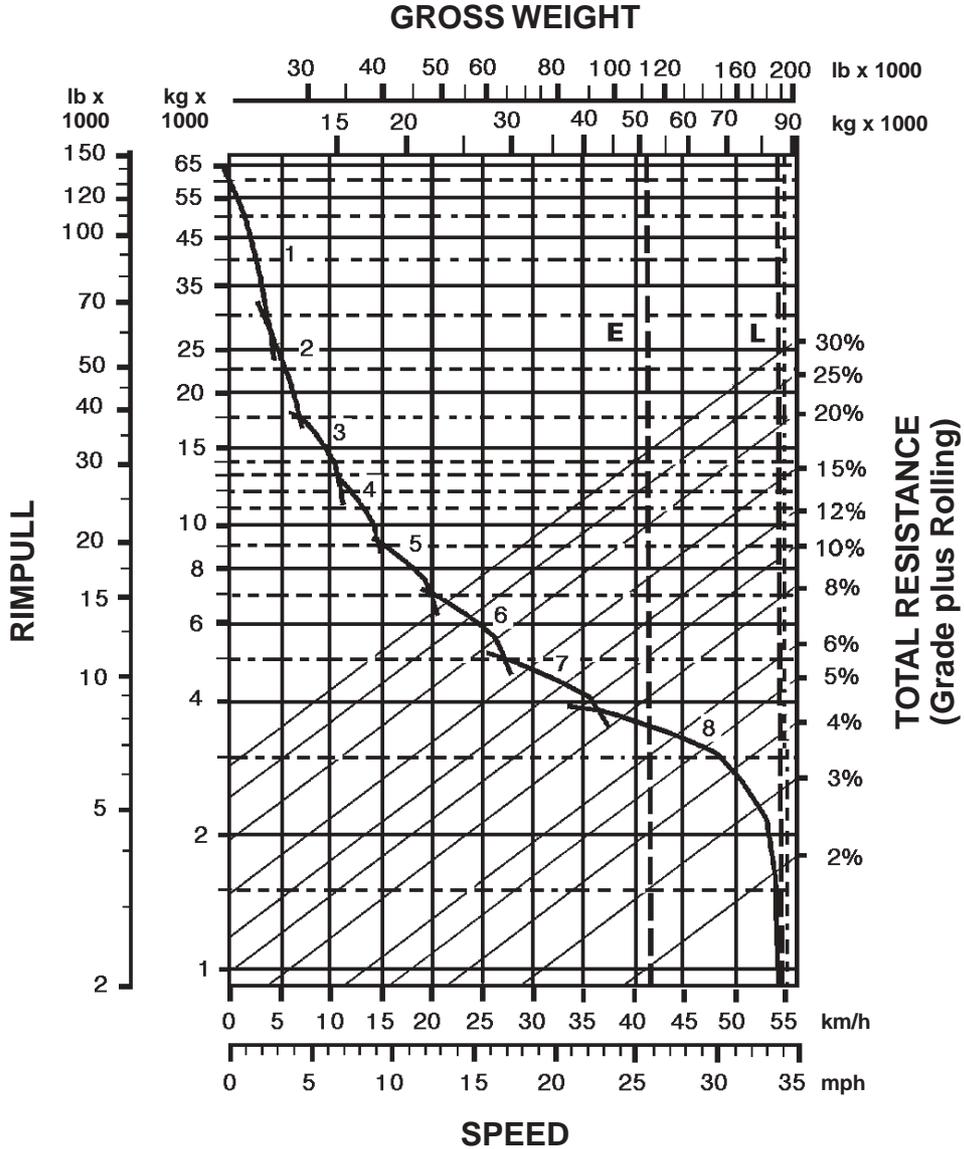


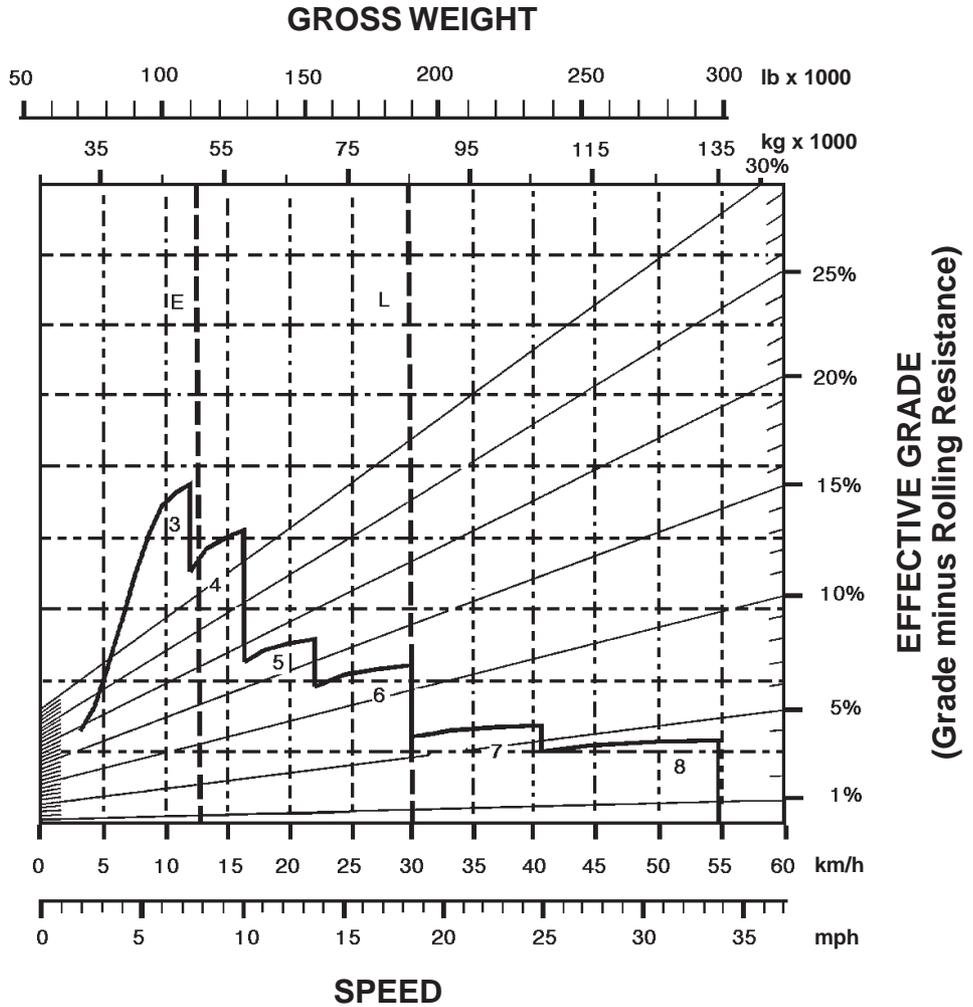
Empty weight: 50 100 kg (110,460 lb)
 Payload: 34 020 kg (75,000 lb)

EMPTY



Empty weight: 50 100 kg (110,460 lb)





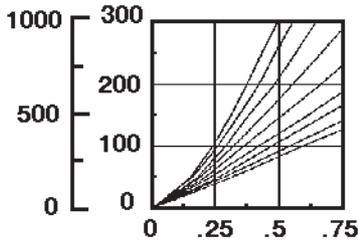
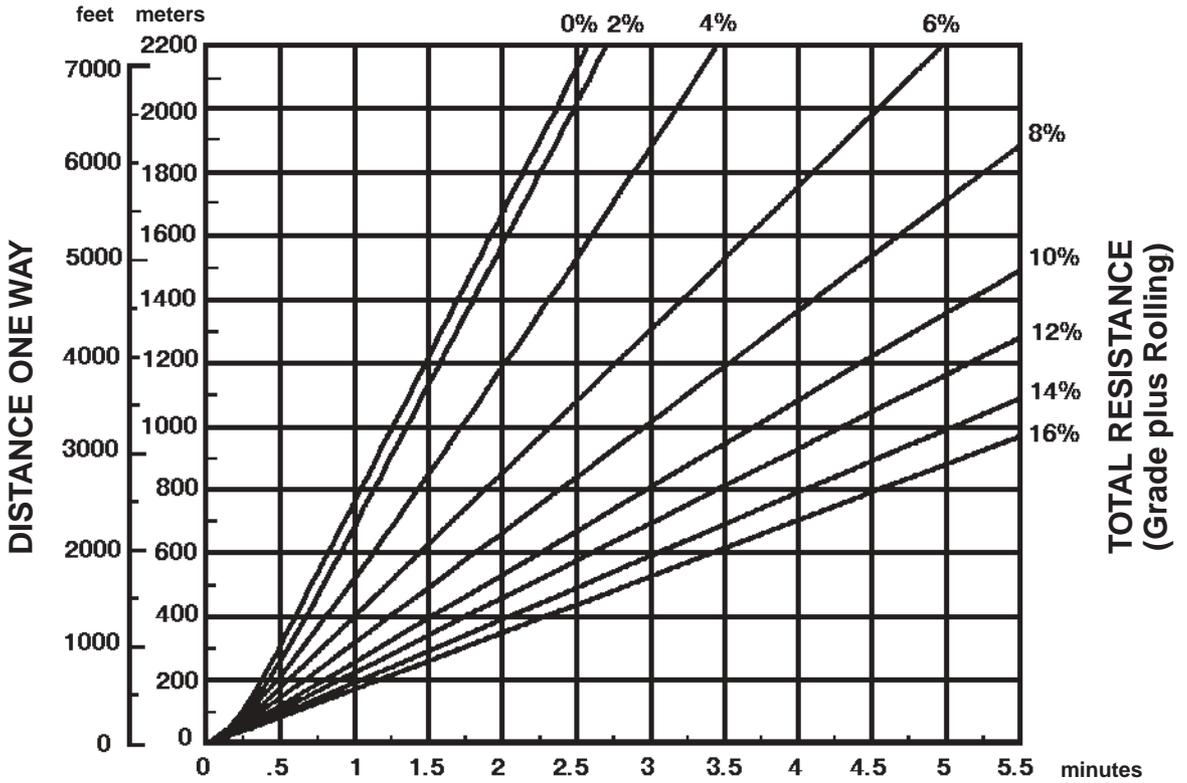
KEY

- 3 — 3rd Gear Direct Drive
- 4 — 4th Gear Direct Drive
- 5 — 5th Gear Direct Drive
- 6 — 6th Gear Direct Drive
- 7 — 7th Gear Direct Drive
- 8 — 8th Gear Direct Drive

KEY

- E — Empty 51 147 kg (112,760 lb)
- L — Loaded 88 432 kg (194,960 lb)

LOADED



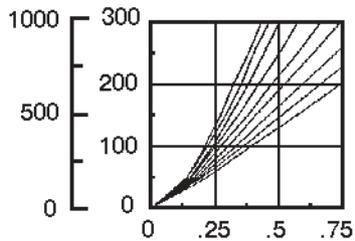
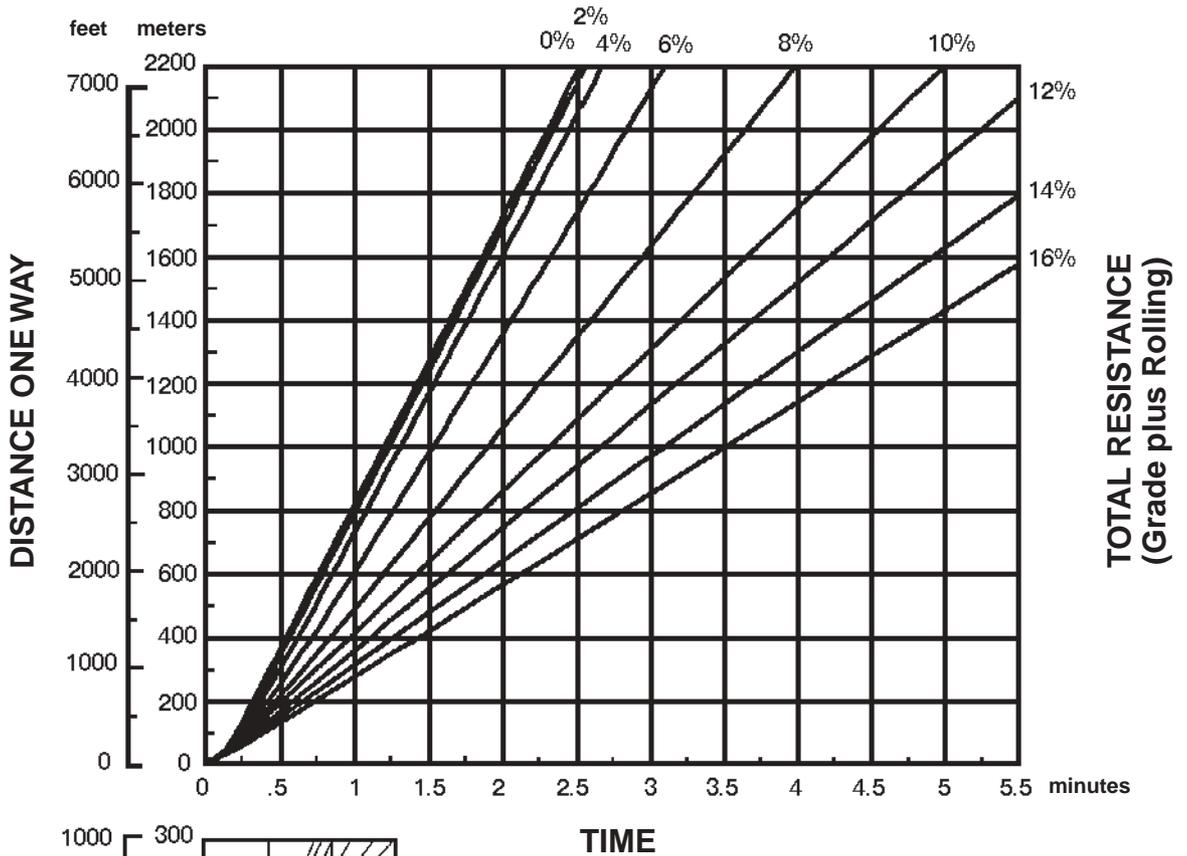
Empty weight: 51 147 kg (112,760 lb)
 Payload: 37 285 kg (82,200 lb)

Wheel Tractor-Scrapers

637G Travel Time — Empty

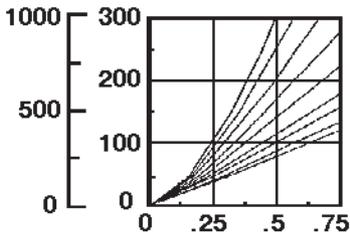
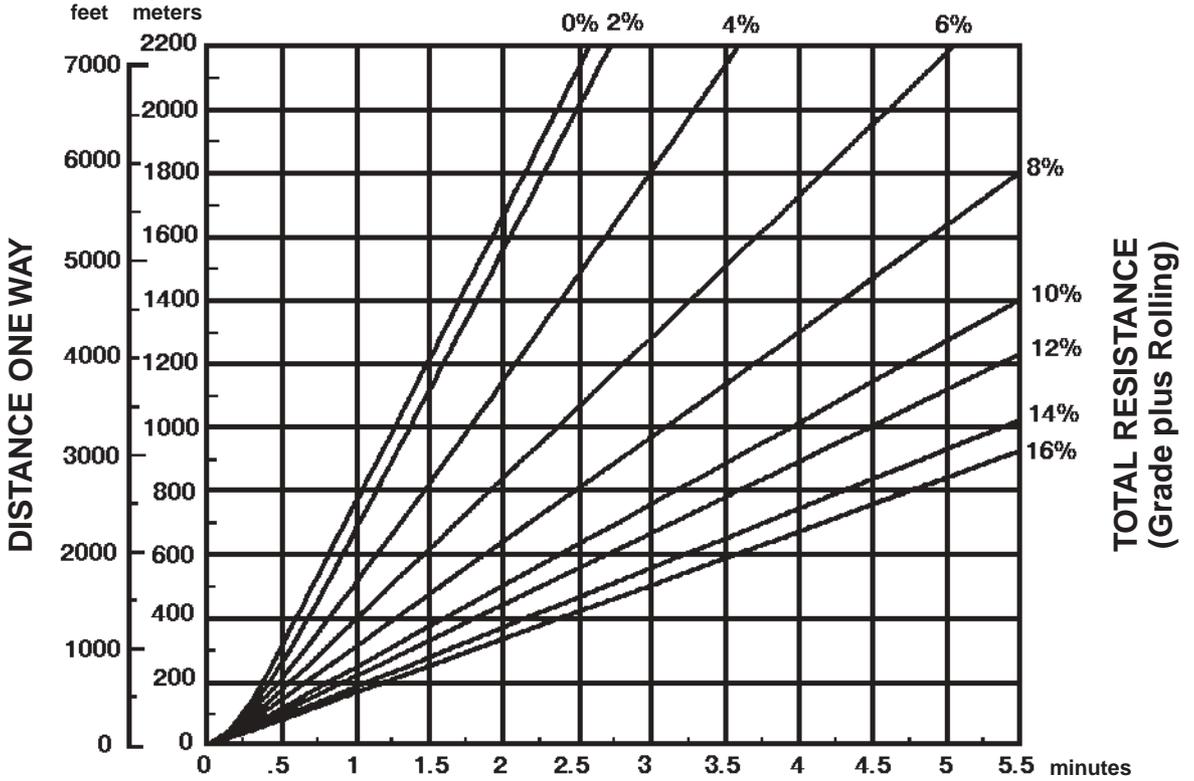
- 37.25R35 Tires
- Standard and Push-Pull

EMPTY



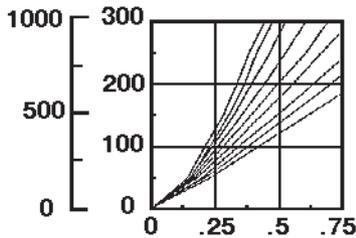
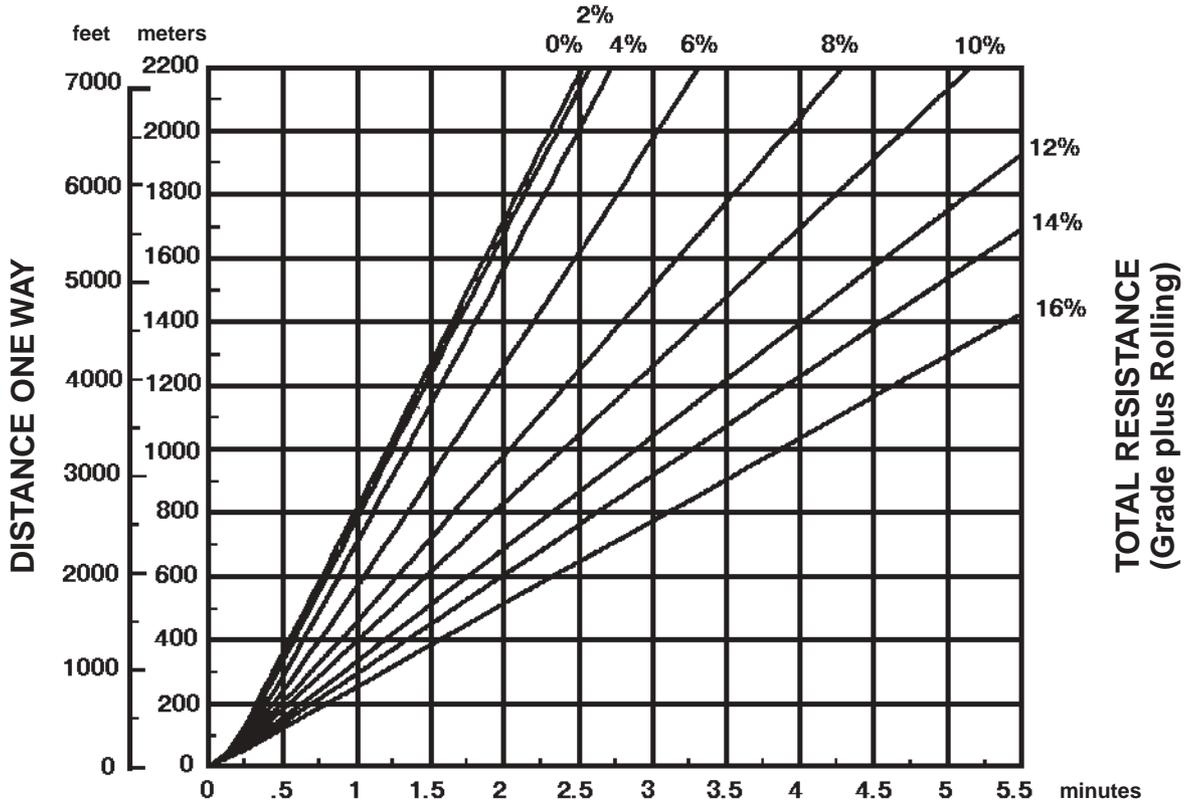
Empty weight: 51 147 kg (112,760 lb)

LOADED



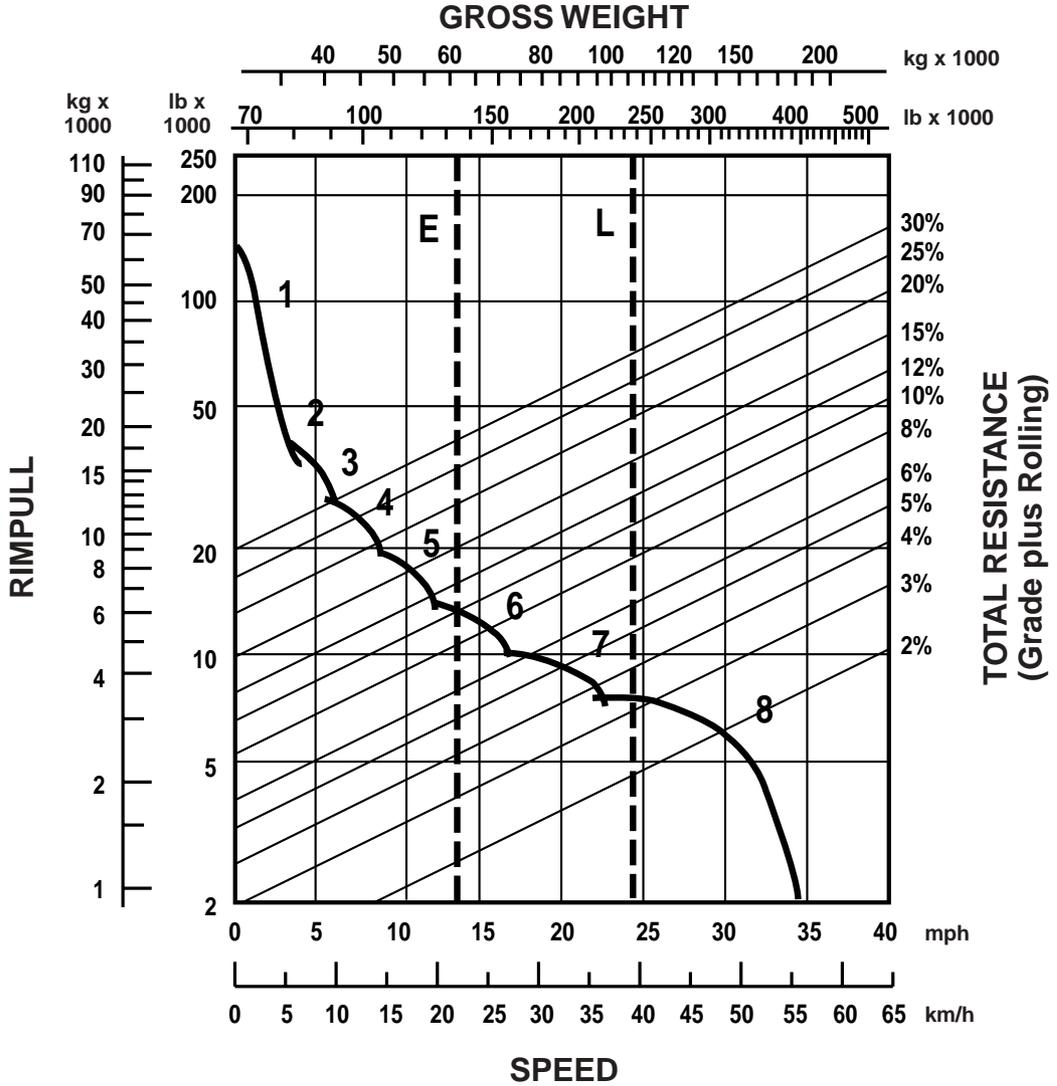
Empty weight: 55 675 kg (122,745 lb)
 Payload: 34 020 kg (75,000 lb)

EMPTY



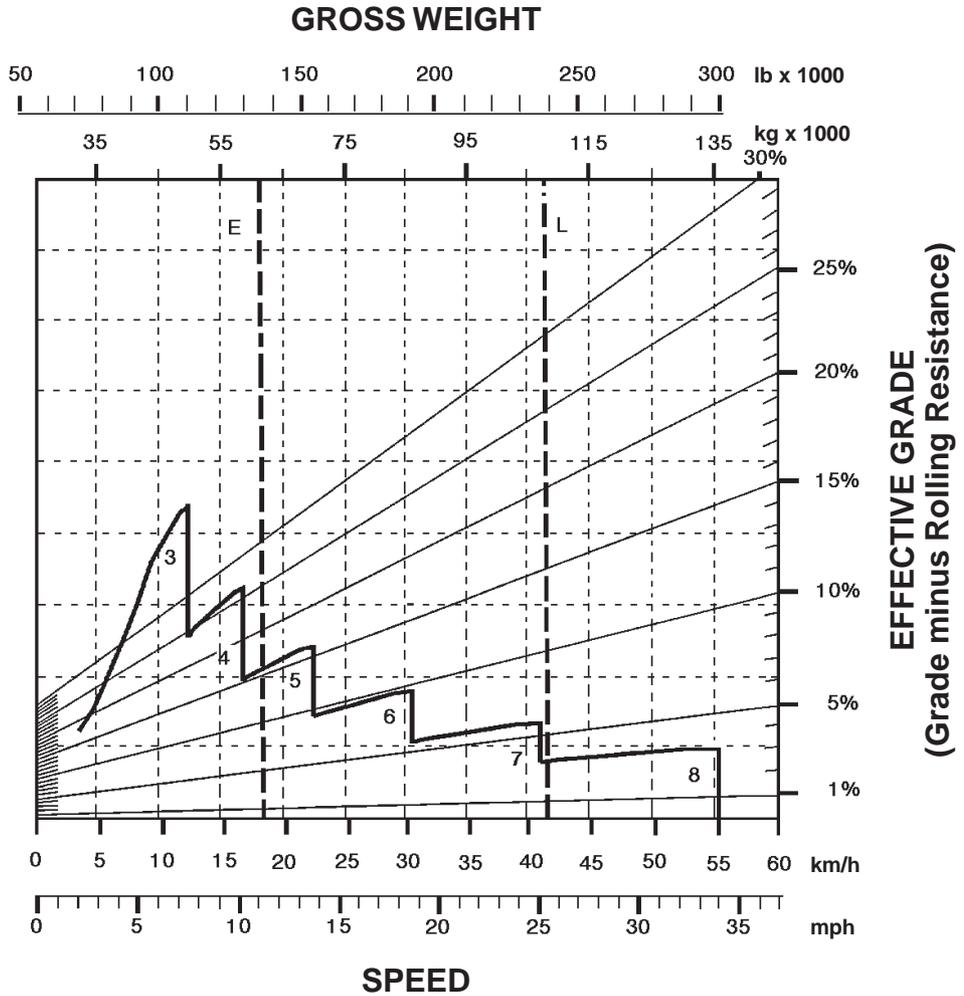
TIME

Empty weight: 55 675 kg (122,745 lb)



- KEY**
- 1 — 1st Gear Torque Converter Drive
 - 2 — 2nd Gear Torque Converter Drive
 - 3 — 3rd Gear Direct Drive
 - 4 — 4th Gear Direct Drive
 - 5 — 5th Gear Direct Drive
 - 6 — 6th Gear Direct Drive
 - 7 — 7th Gear Direct Drive
 - 8 — 8th Gear Direct Drive

- KEY**
- E — Empty 61 130 kg (134,760 lb)
 - L — Loaded 108 300 kg (238,760 lb)



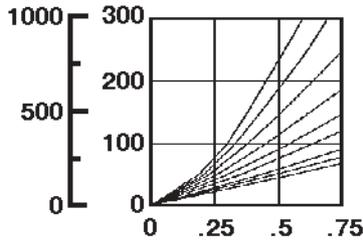
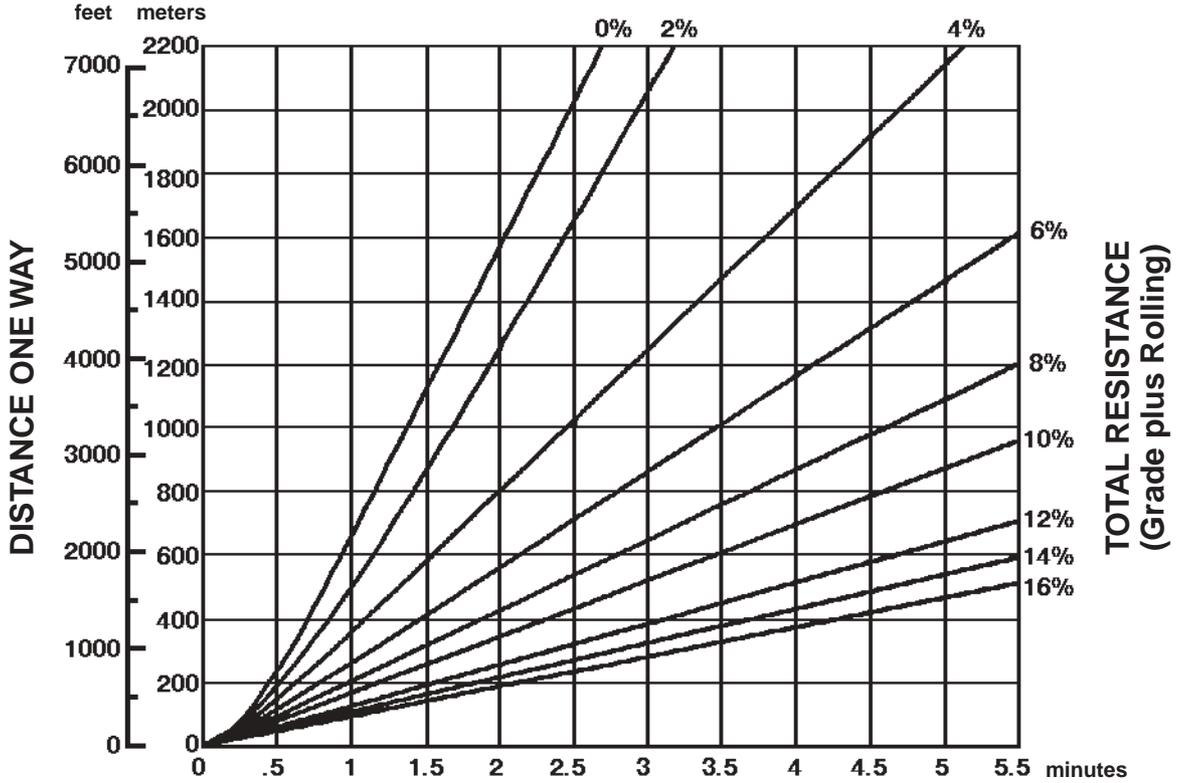
KEY

- 3 — 3rd Gear Direct Drive
- 4 — 4th Gear Direct Drive
- 5 — 5th Gear Direct Drive
- 6 — 6th Gear Direct Drive
- 7 — 7th Gear Direct Drive
- 8 — 8th Gear Direct Drive

KEY

- E — Empty 61 130 kg (134,760 lb)
- L — Loaded 108 300 kg (238,760 lb)

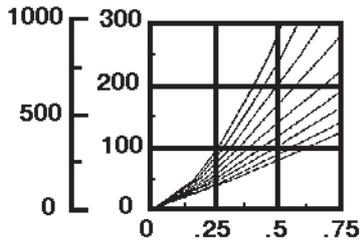
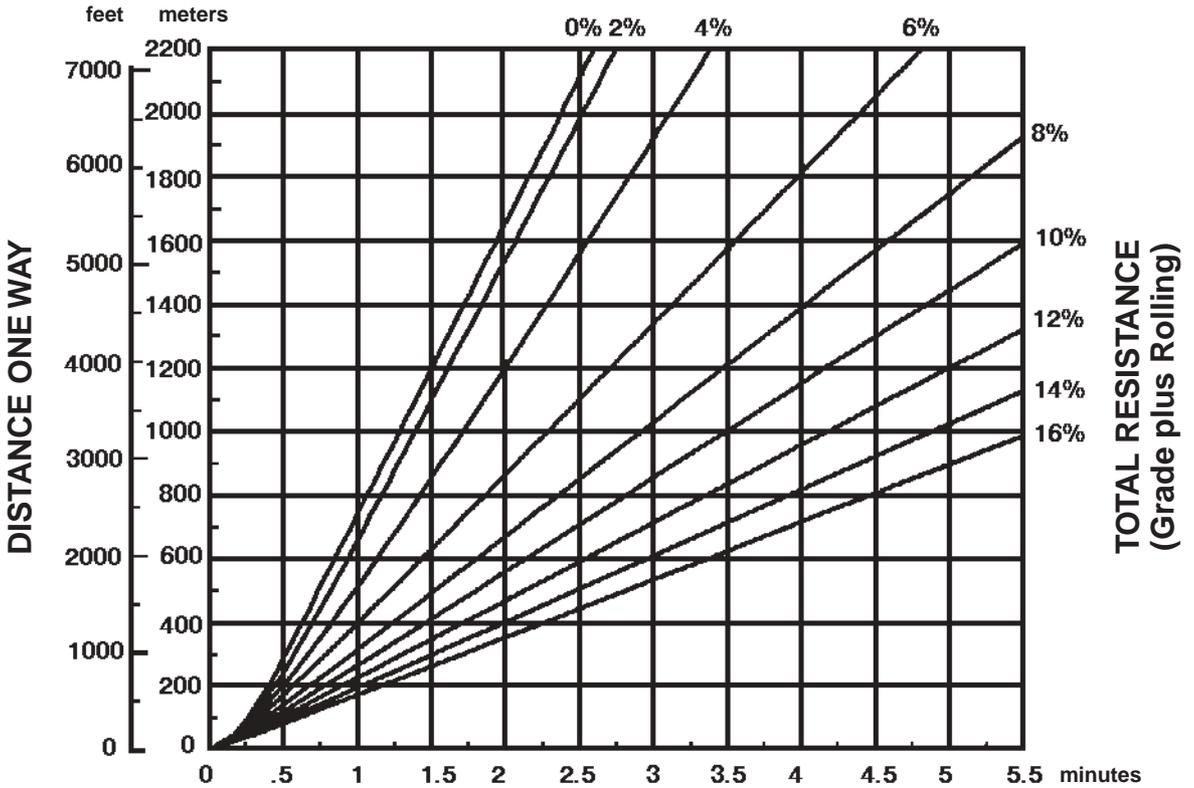
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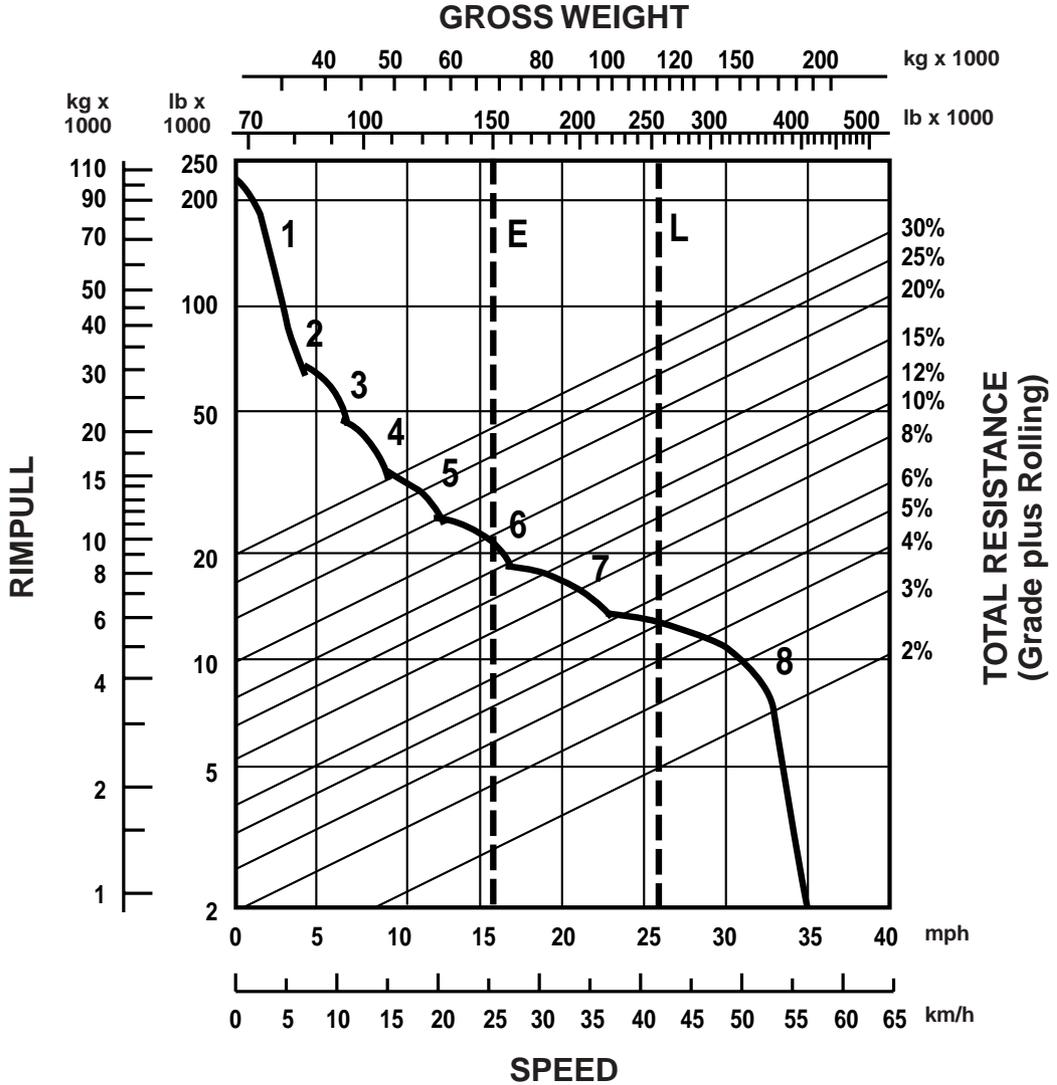
TIME

Empty weight: 66 575 kg (146,770 lb)
 Payload: 47 175 kg (104,000 lb)

EMPTY



Empty weight: 66 575 kg (146,770 lb)

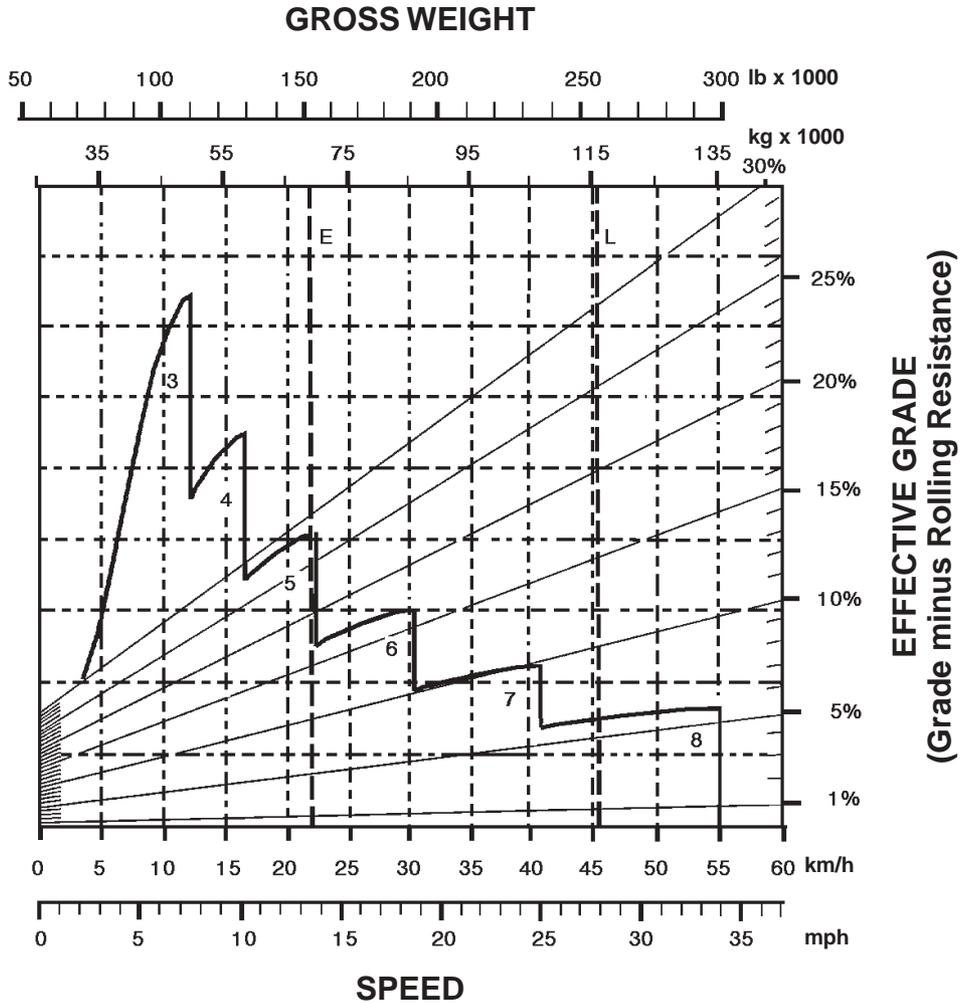


KEY

- 1 — 1st Gear Torque Converter Drive
- 2 — 2nd Gear Torque Converter Drive
- 3 — 3rd Gear Direct Drive
- 4 — 4th Gear Direct Drive
- 5 — 5th Gear Direct Drive
- 6 — 6th Gear Direct Drive
- 7 — 7th Gear Direct Drive
- 8 — 8th Gear Direct Drive

KEY

- E — Empty 69 080 kg (152,290 lb)
- L — Loaded 116 255 kg (256,290 lb)



KEY

- 3 — 3rd Gear Direct Drive
- 4 — 4th Gear Direct Drive
- 5 — 5th Gear Direct Drive
- 6 — 6th Gear Direct Drive
- 7 — 7th Gear Direct Drive
- 8 — 8th Gear Direct Drive

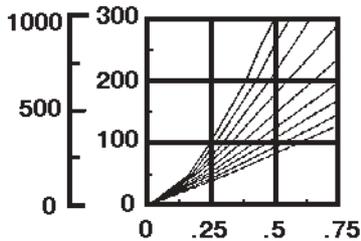
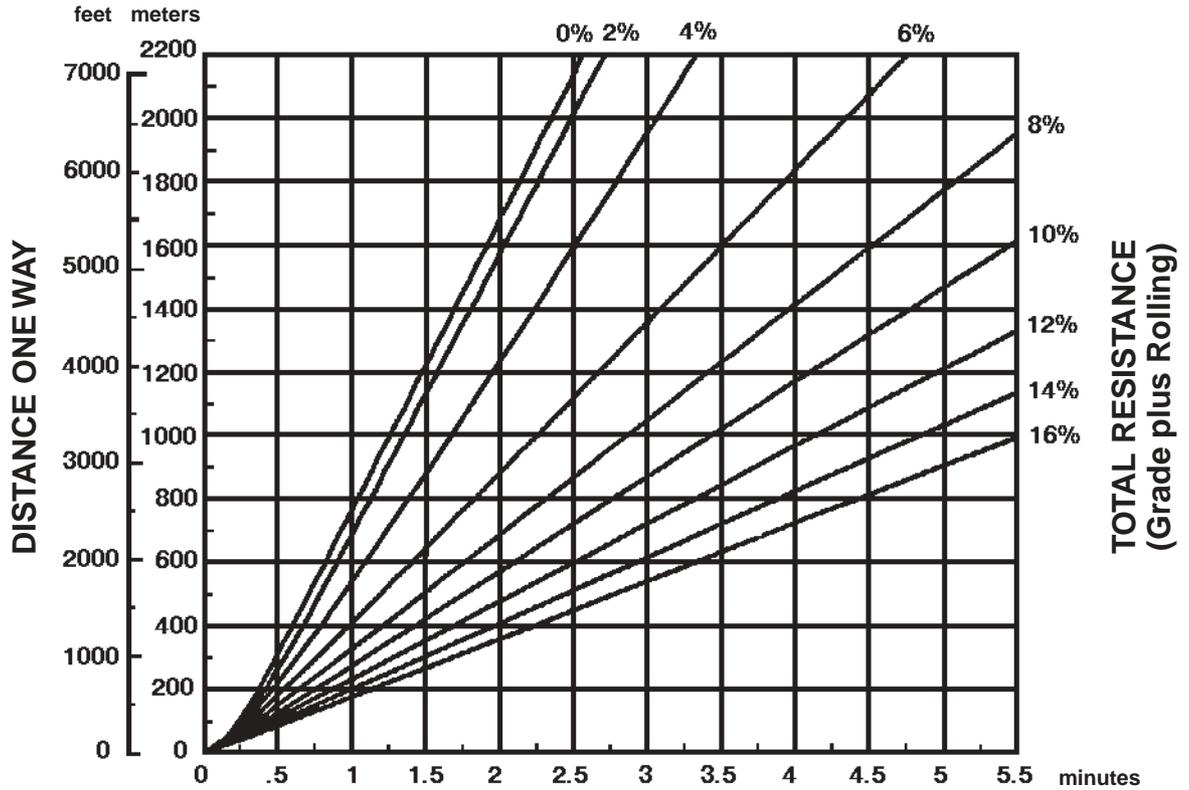
KEY

- E — Empty 69 080 kg (152,290 lb)
- L — Loaded 116 255 kg (256,290 lb)

657E Travel Time — Loaded
 • 40.5/75R39 Tires
 • Standard and Push-Pull

Wheel Tractor-Scrapers

LOADED



TIME

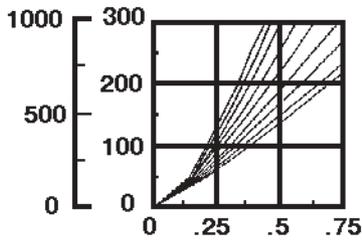
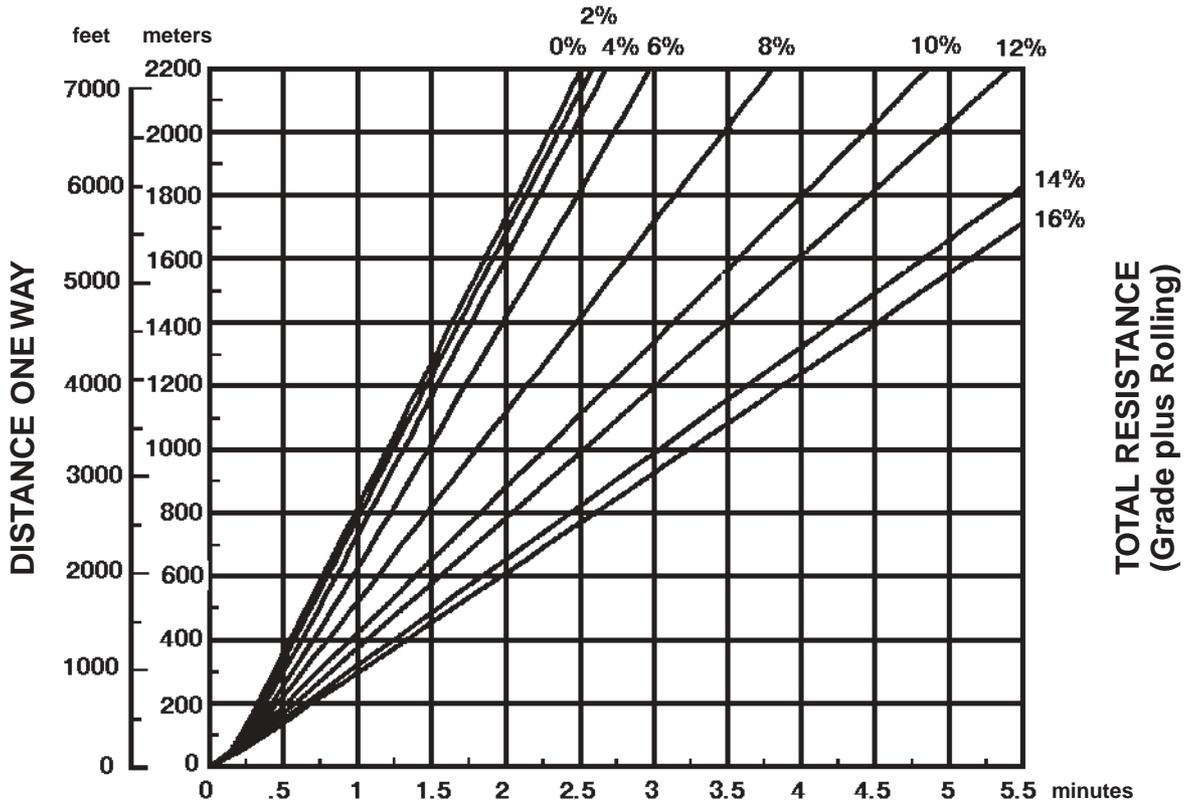
Empty weight: 69 080 kg (152,290 lb)
 Payload: 47 175 kg (104,000 lb)

Wheel Tractor-Scrapers

657E Travel Time — Empty

- 40.5/75R39 Tires
- Standard and Push-Pull

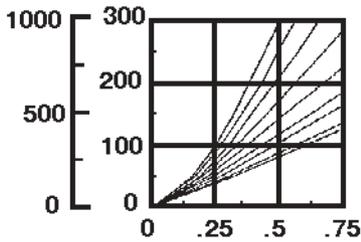
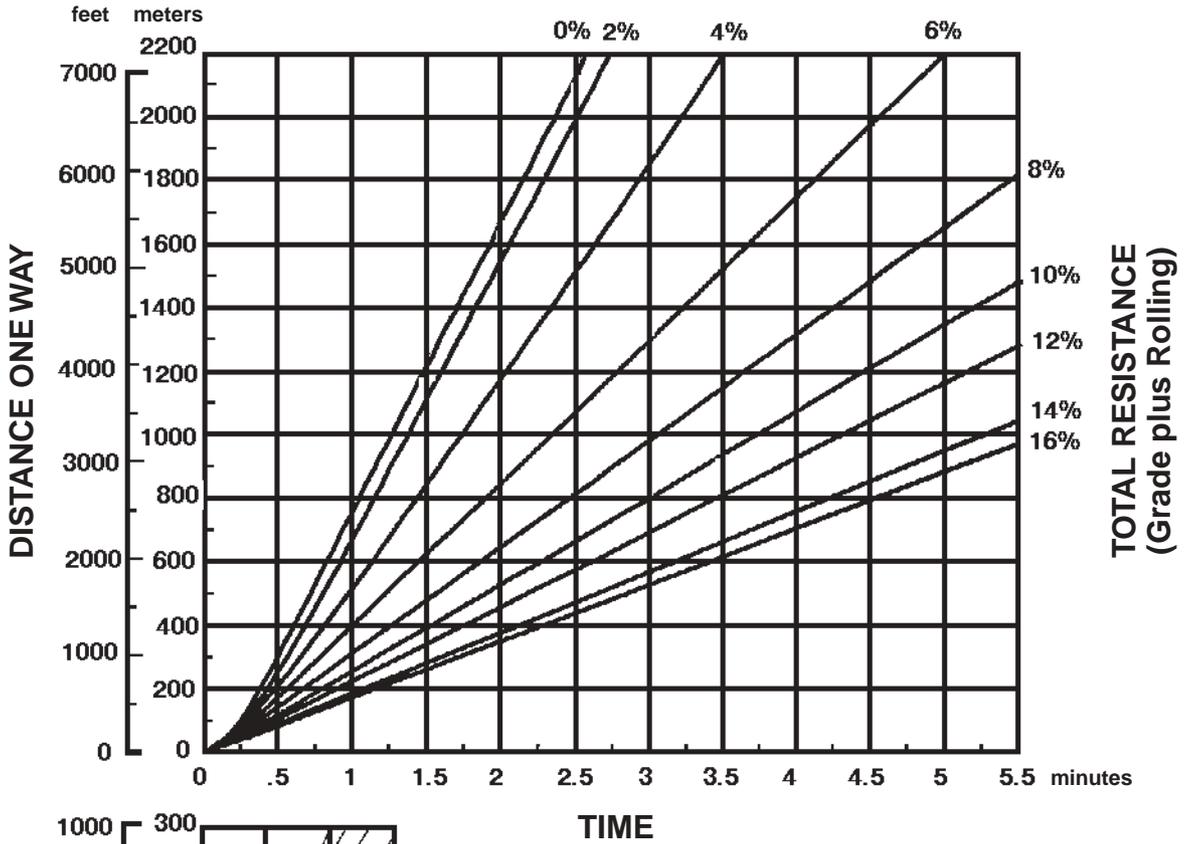
EMPTY



TIME

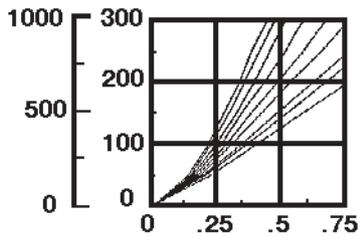
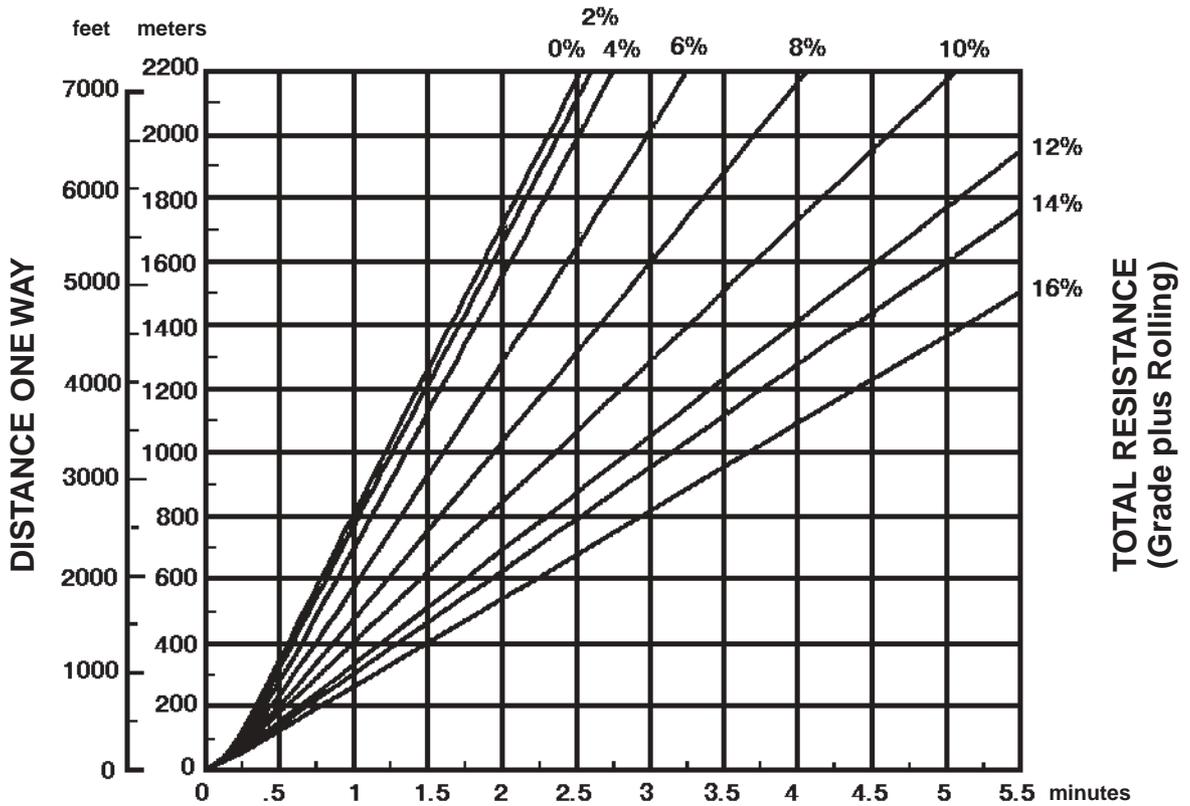
Empty weight: 69 080 kg (152,290 lb)

LOADED



Empty weight: 75 875 kg (167,270 lb)
 Payload: 47 175 kg (104,000 lb)

EMPTY



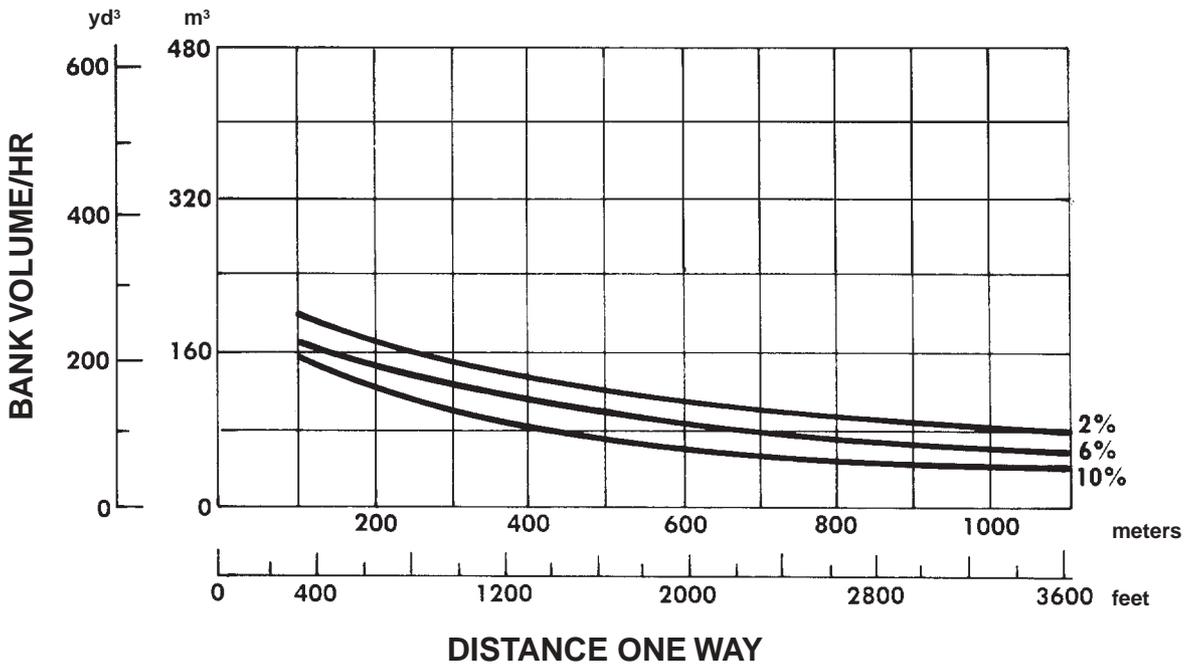
TIME

Empty weight: 75 875 kg (167,270 lb)

DISTANCE vs. PRODUCTION

CONDITIONS: Flat haul. Percentages shown are rolling resistance only. 100% efficiency (60 min hour).

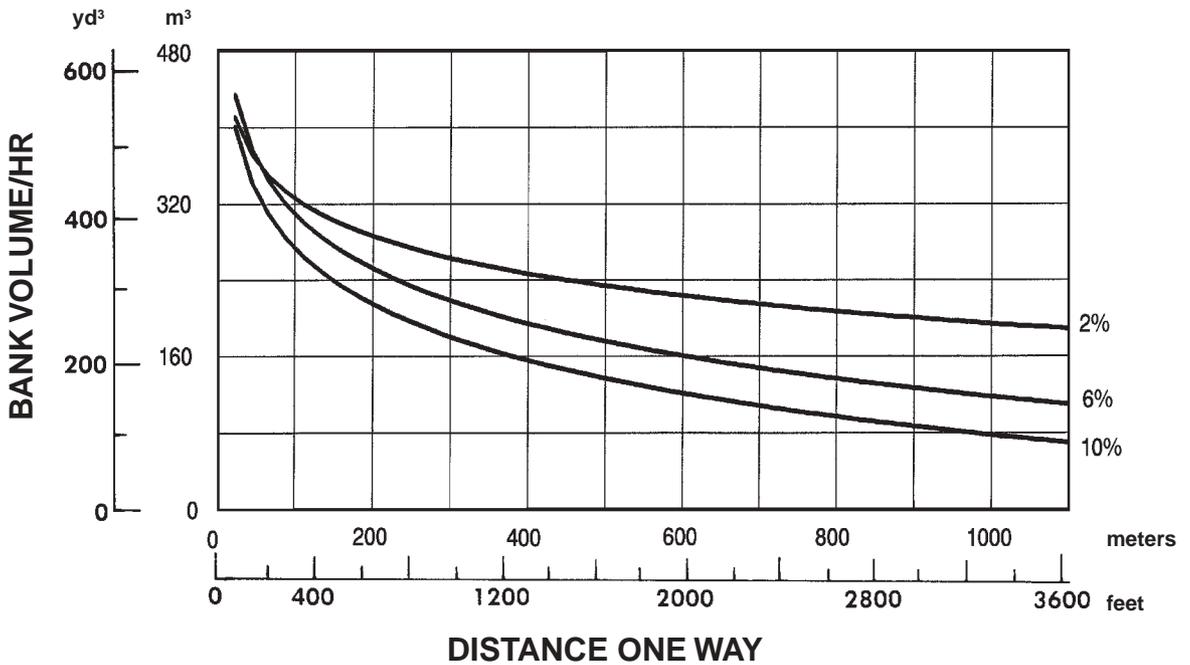
- Material: 1780 kg/m³ (3000 lb/yd³).
- Payload: 11 975 kg, 6.7 Bm³ (26,400 lb, 8.8 BCY).
- Empty weight: 14 970 kg (33,000 lb).
- Fixed time: 1.6 min.



DISTANCE vs. PRODUCTION

CONDITIONS: Flat haul. Percentages shown are rolling resistance only. 100% efficiency (60 min hour).

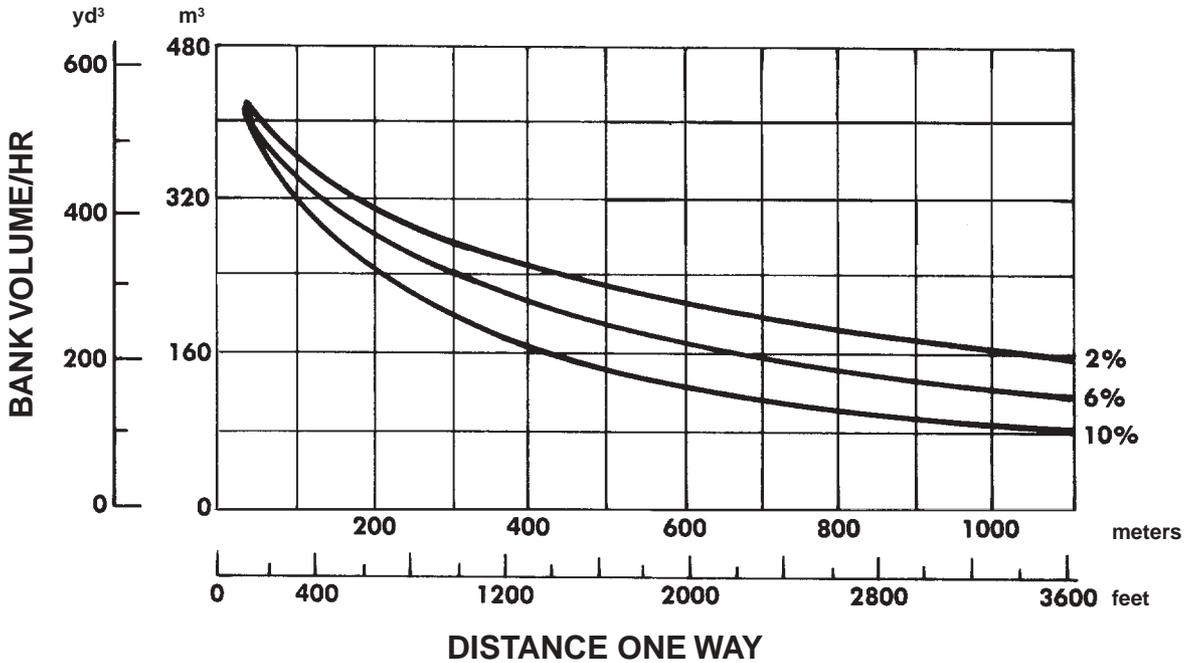
- Material: 1780 kg/m³ (3000 lb/yd³).
- Payload: 18 506 kg, 10.4 Bm³ (40,800 lb, 13.6 BCY).
- Empty weight: 25 600 kg (56,450 lb).
- Fixed time: 1.6 min.



DISTANCE vs. PRODUCTION

CONDITIONS: Flat haul. Percentages shown are rolling resistance only. 100% efficiency (60 min hour).

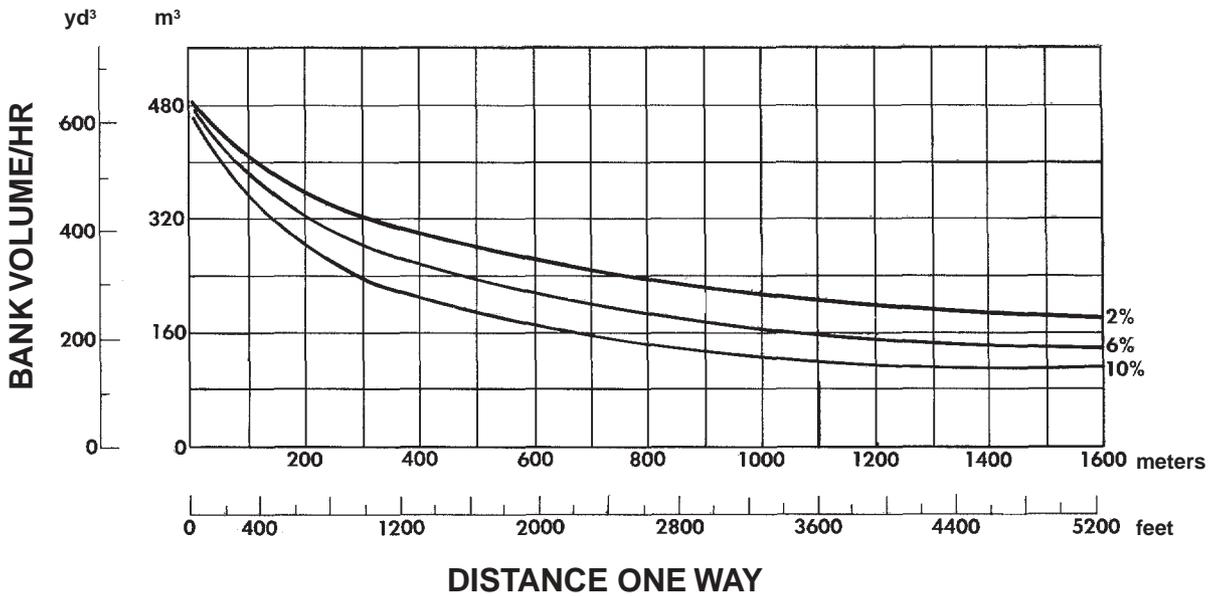
- Material: 1780 kg/m³ (3000 lb/yd³).
- Payload: 23 950 kg, 13.5 Bm³ (52,800 lb, 17.6 BCY).
- Empty weight: 32 563 kg (71,790 lb).
- Fixed time: 1.2 min.



DISTANCE vs. PRODUCTION

CONDITIONS: Flat haul. Percentages shown are rolling resistance only. 100% efficiency (60 min hour).

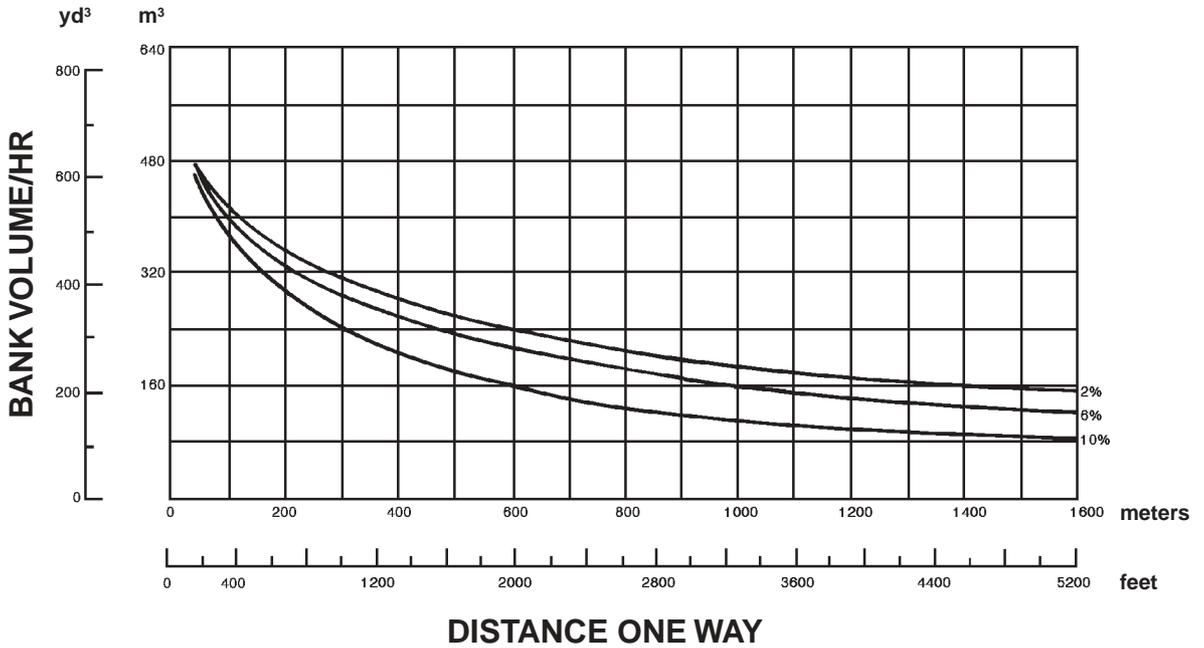
- Material: 1780 kg/m³ (3000 lb/yd³).
- Payload: 24 950 kg, 14 Bm³ (55,000 lb, 18.3 BCY).
- Empty weight: 37 120 kg (81,840 lb).
- Fixed time: 1.6 min.



DISTANCE vs. PRODUCTION

CONDITIONS: Flat haul. Percentages shown are rolling resistance only. 100% efficiency (60 min hour).

- Material: 1780 kg/m³ (3000 lb/yd³).
- Payload: 23 950 kg, 13.5 Bm³ (52,800 lb, 17.6 BCY).
- Empty weight: 37 545 kg (82,773 lb).
- Fixed time: 1.2 min.

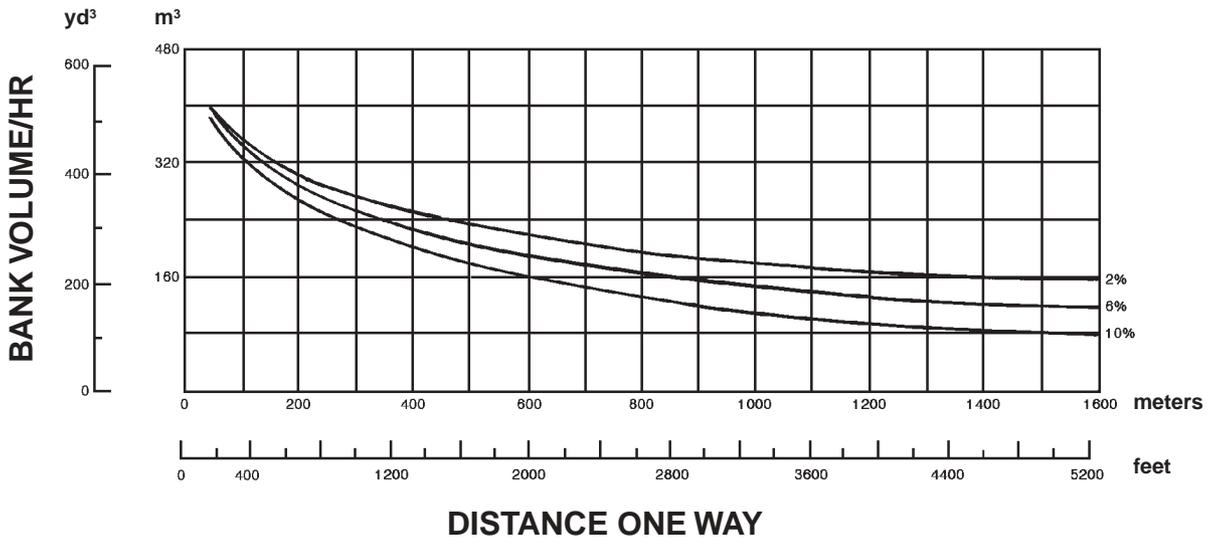


DISTANCE vs. PRODUCTION

CONDITIONS: Flat haul. Percentages shown are rolling resistance only. 100% efficiency (60 min hour).

- Material: 1780 kg/m³ (3000 lb/yd³).
- Payload: 23 950 kg, 13.5 Bm³ (52,800 lb, 17.6 BCY).
- Empty weight: 38 581 kg (85,058 lb).
- Fixed time: 1.5 min. (includes loading both units and transfer time).

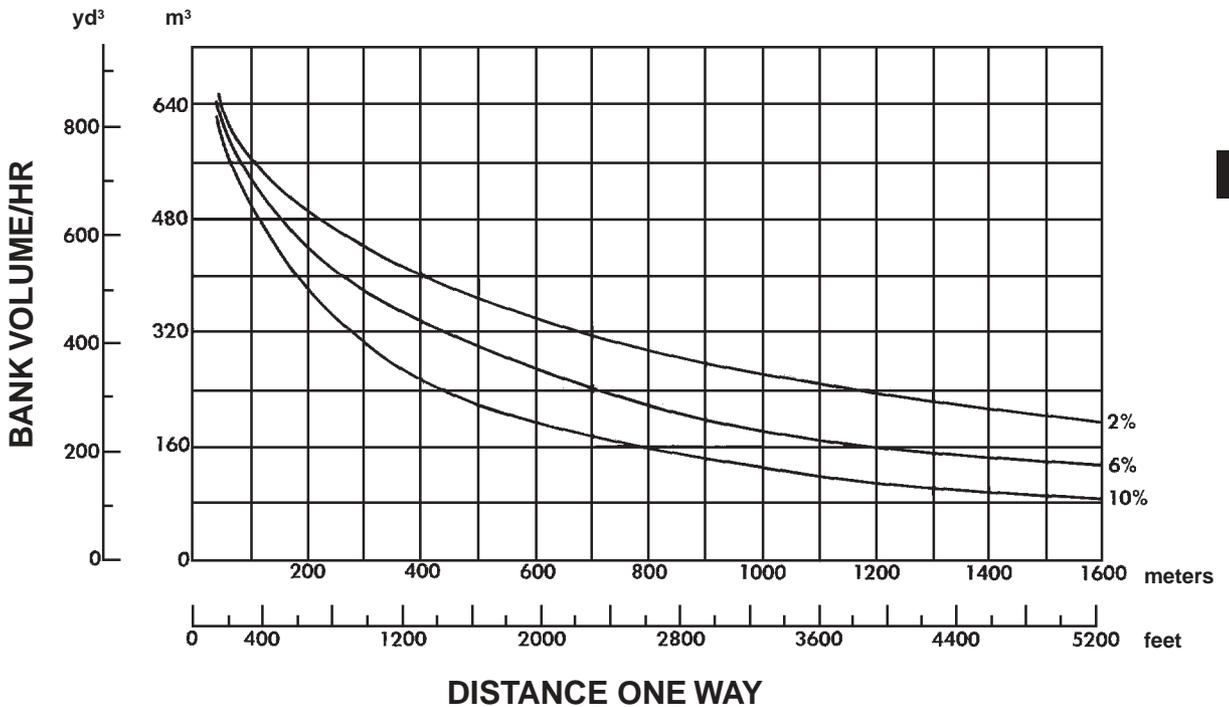
NOTE: Production estimates apply to one unit. Double these figures for a push-pull pair.



DISTANCE vs. PRODUCTION

CONDITIONS: Flat haul. Percentages shown are rolling resistance only. 100% efficiency (60 min hour).

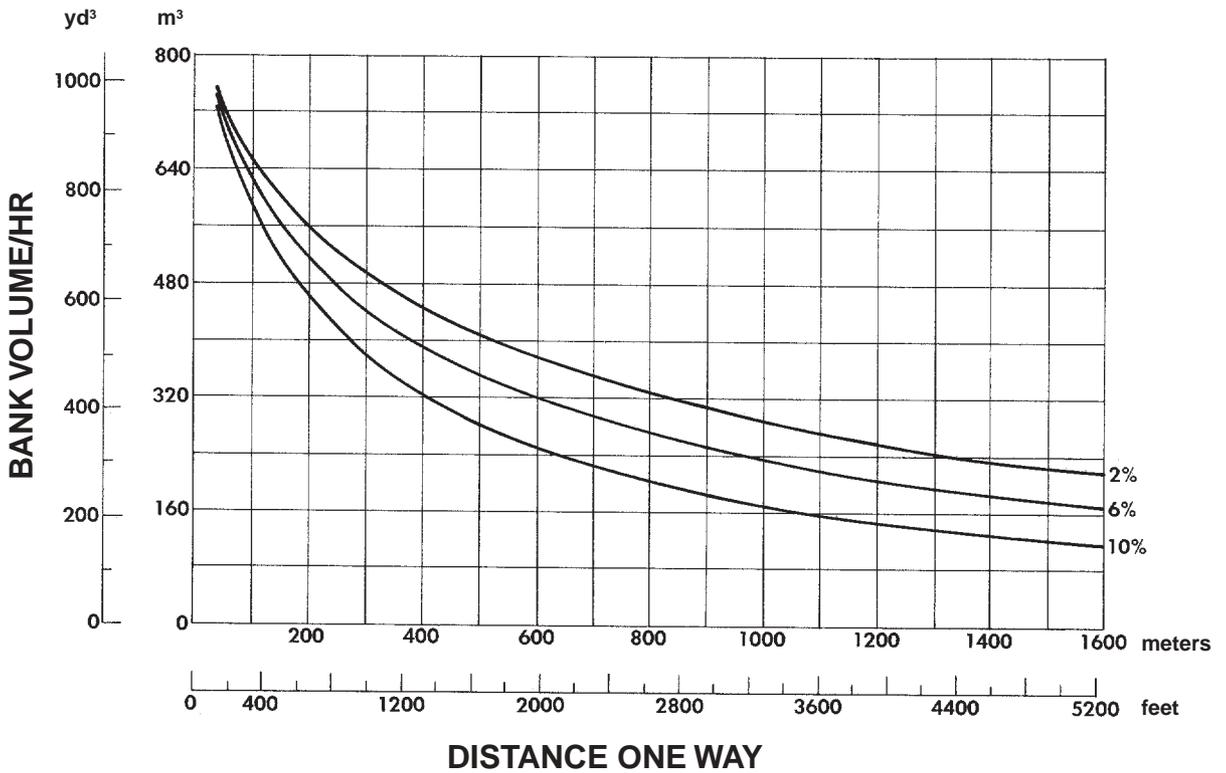
- Material: 1780 kg/m³ (3000 lb/yd³).
- Payload: 37 285 kg, 20.9 Bm³ (82,200 lb, 27.4 BCY).
- Empty weight: 45 362 kg (100,006 lb).
- Fixed time: 1.3 min.



DISTANCE vs. PRODUCTION

CONDITIONS: Flat haul. Percentages shown are rolling resistance only. 100% efficiency (60 min hour).

- Material: 1780 kg/m³ (3000 lb/yd³).
- Payload: 37 285 kg, 20.9 Bm³ (82,200 lb, 27.4 BCY).
- Empty weight: 51 147 kg (112,760 lb).
- Fixed time: 1.1 min.

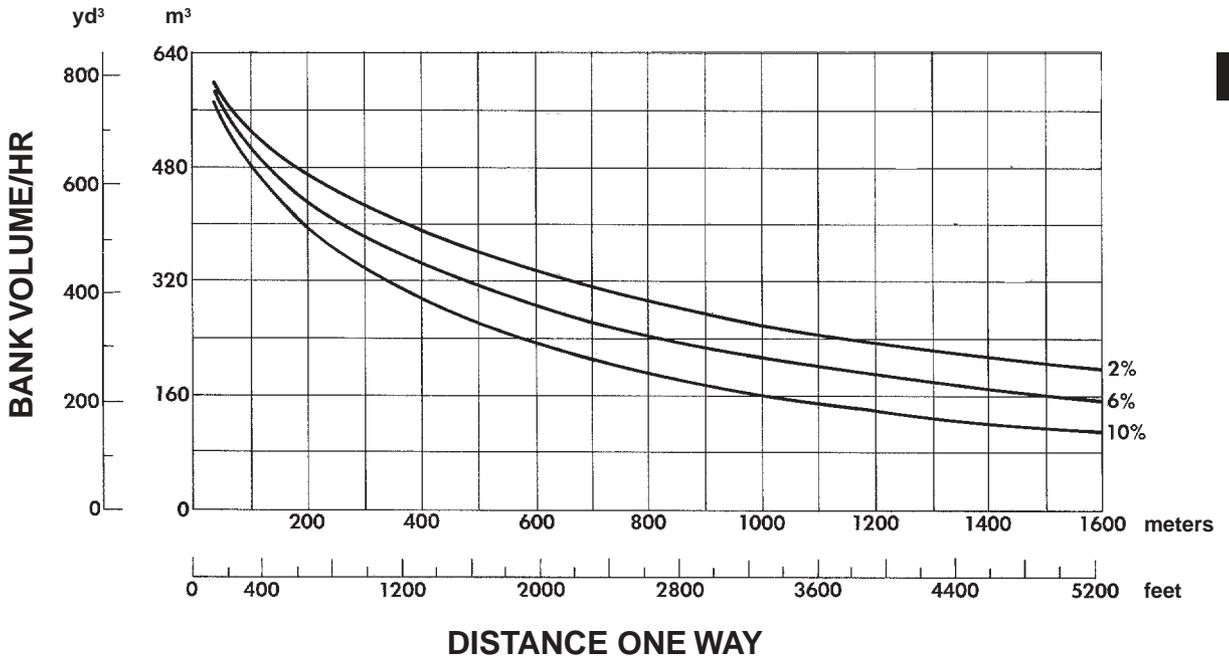


DISTANCE vs. PRODUCTION

CONDITIONS: Flat haul. Percentages shown are rolling resistance only. 100% efficiency (60 min hour).

- Material: 1780 kg/m³ (3000 lb/yd³).
- Payload: 37 285 kg, 20.9 Bm³ (82,200 lb, 27.4 BCY).
- Empty weight: 52 662 kg (116,100 lb).
- Fixed time: 1.6 min. (includes loading both units and transfer time).

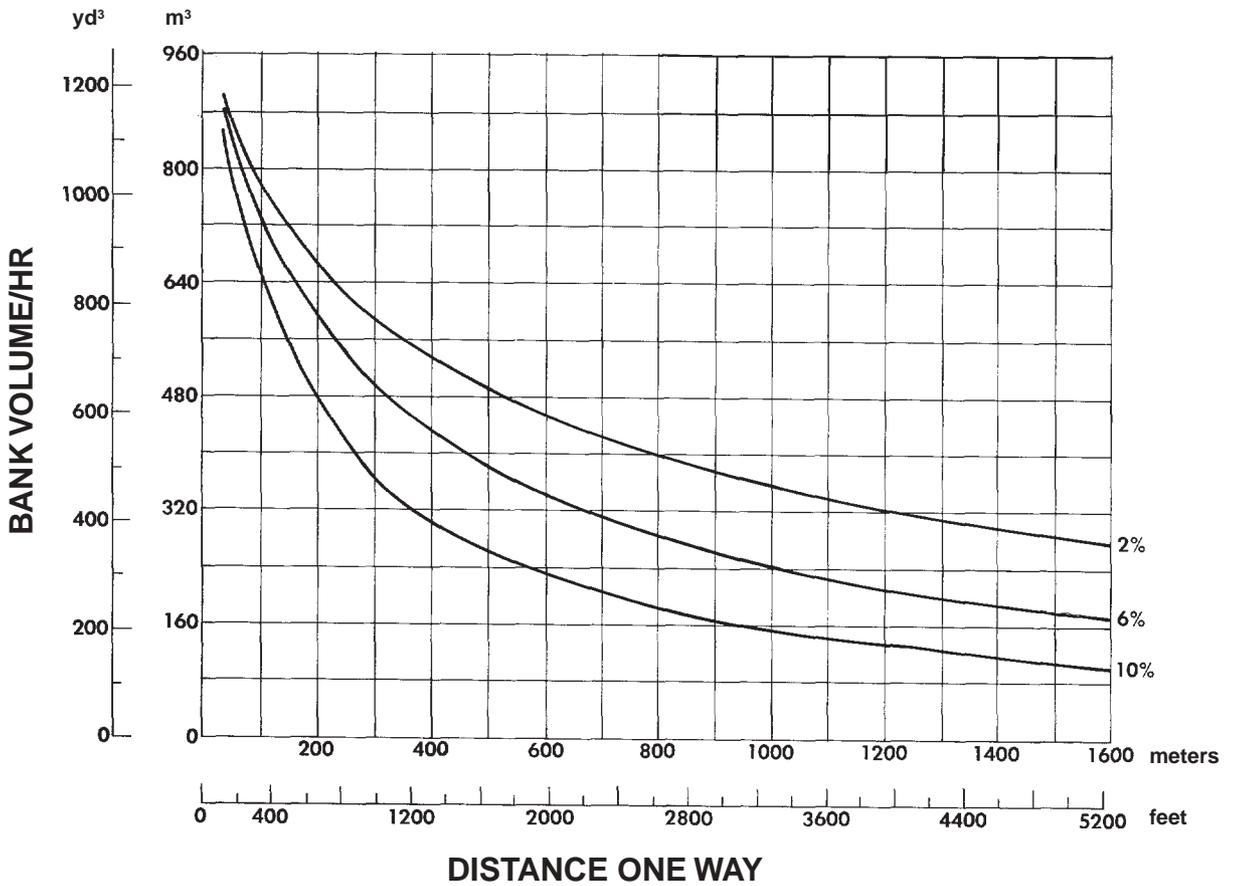
NOTE: Production estimates apply to one unit. Double these figures for a push-pull pair.



DISTANCE vs. PRODUCTION

CONDITIONS: Flat haul. Percentages shown are rolling resistance only. 100% efficiency (60 min hour).

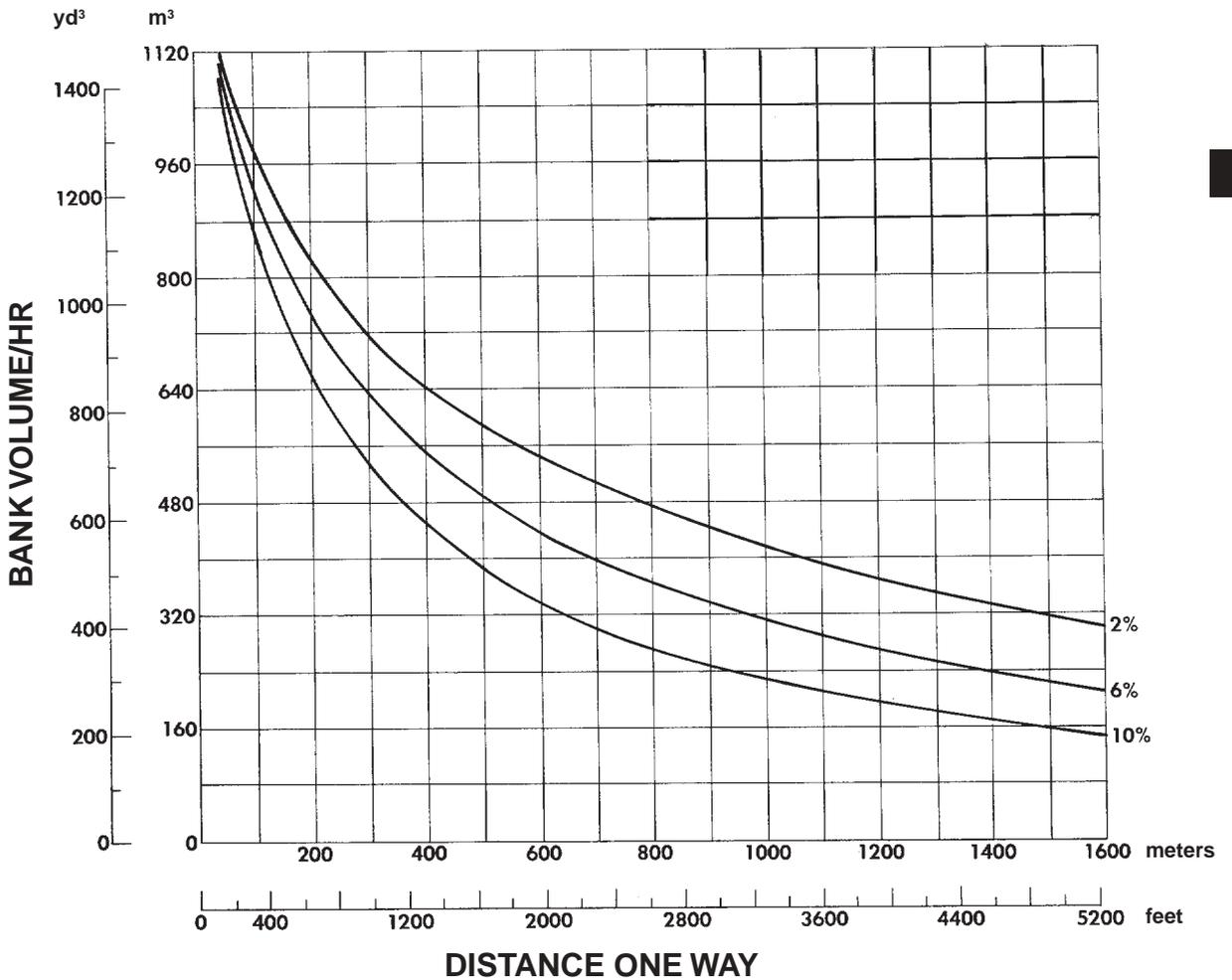
- Material: 1780 kg/m³ (3000 lb/yd³).
- Payload: 47 175 kg, 26.5 Bm³ (104,000 lb, 34.6 BCY).
- Empty weight: 61 130 kg (134,760 lb).
- Fixed time: 1.3 min.



DISTANCE vs. PRODUCTION

CONDITIONS: Flat haul. Percentages shown are rolling resistance only. 100% efficiency (60 min hour).

- Material: 1780 kg/m³ (3000 lb/yd³).
- Payload: 47 175 kg, 26.5 Bm³ (104,000 lb, 34.6 BCY).
- Empty weight: 69 080 kg (152,290 lb).
- Fixed time: 1 min.

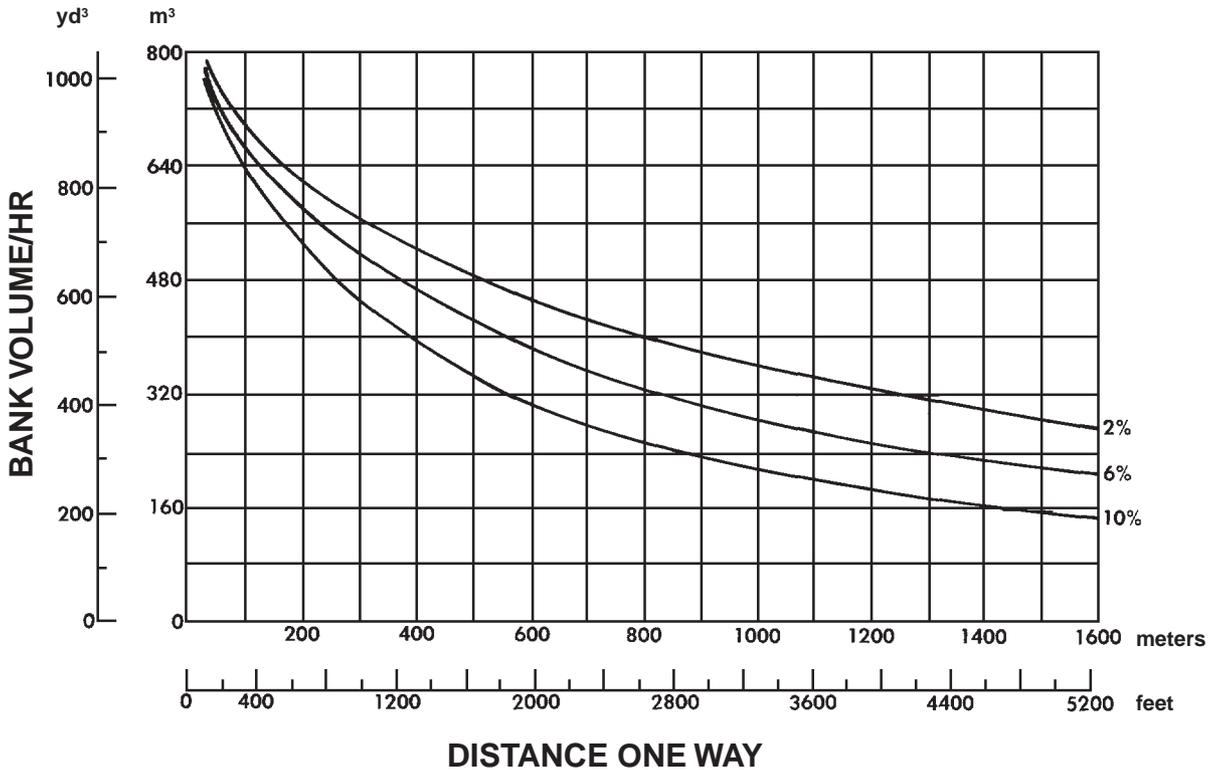


DISTANCE vs. PRODUCTION

CONDITIONS: Flat haul. Percentages shown are rolling resistance only. 100% efficiency (60 min hour).

- Material: 1780 kg/m³ (3000 lb/yd³).
- Payload: 47 175 kg, 26.5 Bm³ (104,000 lb, 34.6 BCY).
- Empty weight: 72 860 kg (160,620 lb).
- Fixed time: 1.7 min. (includes loading both units and transfer time).

NOTE: Production estimates apply to one unit. Double these figures for a push-pull pair.

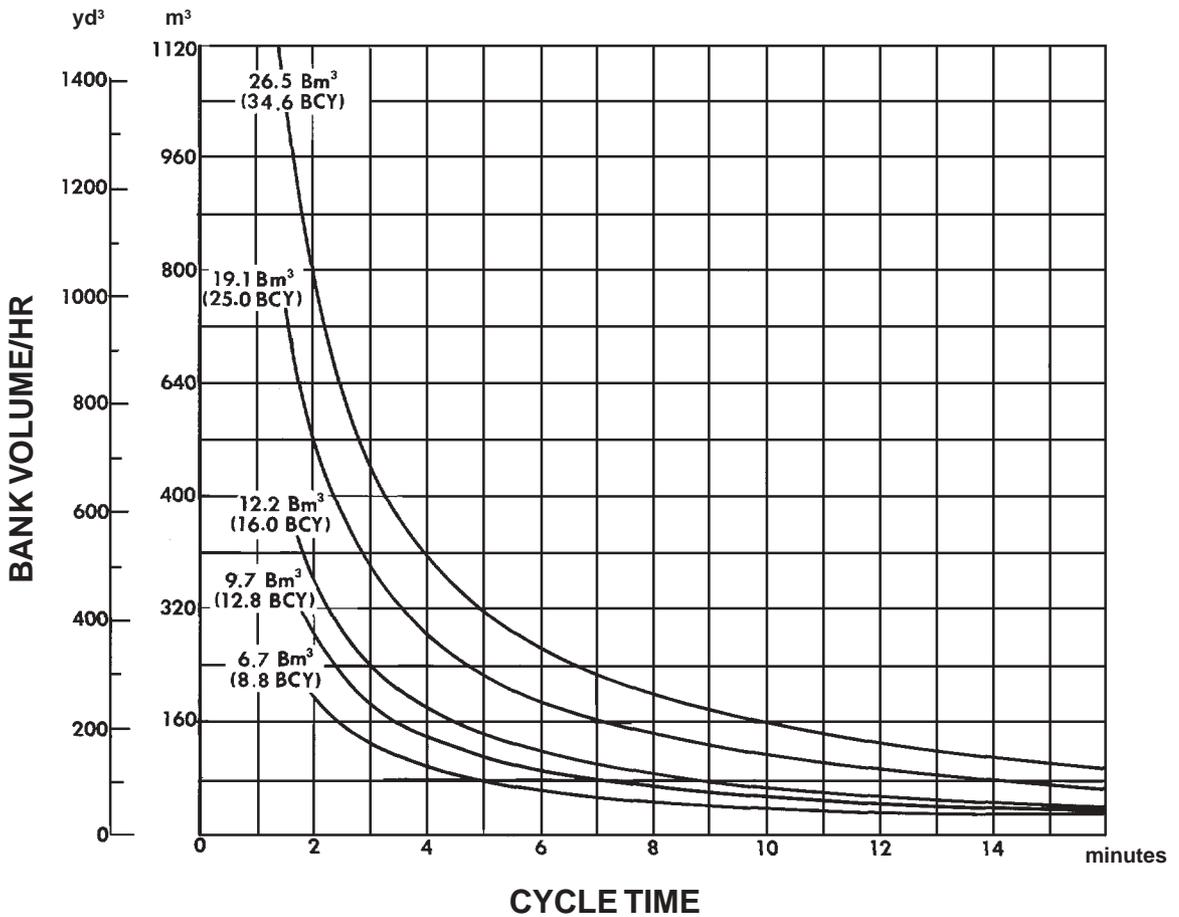


- Bm³ (BCY)/hr
- All Models
- 100% Efficiency

HOURLY PRODUCTION vs. CYCLE TIME

VEHICLE CAPACITY:

- 613C Series II @ 6.7 Bm³/trip (8.8 BCY)
- 615C Series II @ 9.7 Bm³/trip (12.8 BCY)
- 621G, 623G, 627G @ 12.2 Bm³/trip (16 BCY)
- 631G, 637G @ 19.1 Bm³/trip (25 BCY)
- 651E, 657E @ 26.5 Bm³/trip (34.6 BCY)



CONSTRUCTION & MINING TRUCKS CONSTRUCTION & MINING TRACTORS

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Features:

- **Caterpillar four-stroke-cycle diesels** ... turbocharged, aftercooled, adjustment-free fuel system (direct injection).
- **Electronically-controlled automatic transmission** ... speed sensing device automatically shifts transmission between 1st and gear selected by operator.
- **Truck Production Management System (TPMS)** utilizes strut pressure sensors and an on-board microprocessor to determine payload weight, cycle segment times, delay times, actual clock time and date of each cycle.
- **Vital Information Management System (VIMS)** Monitors all vital machine functions. Keeps operator informed of current machine operating conditions, helps reduce downtime and allows service personnel easy access to data for fast accurate diagnosis. VIMS includes Production Management System.

- **Electronic Unit Injection (EUI)** in the 776D-793C and **Hydraulic Electronic Unit Injection (HEUI)** on 769D-775E electronically maintains fuel settings, provides automatic altitude and air filter restriction compensation, automatic variable timing, improved diagnostics and increased fuel efficiency.
- **Oil cooled disc brakes** provide retarding, service, parking, and secondary braking in one sealed, fade-resistant, maintenance-free unit. 769D-777D front brakes are caliper disc, can be switched out of the service system when not needed but activate as part of the secondary system. (Front oil-cooled brakes optional on 777D.) 784C-793C front brakes are oil-cooled disc.
- **Automatic Retarder Control (ARC)** electronically controls braking on grade to maintain faster downhill speeds.
- **Full hydraulic steering**, with front suspension cylinders serving as kingpins.
- **Four independent**, self-contained, oil-pneumatic suspension cylinders absorb loading and road shocks. Wide spacing for stability.
- **A variety of truck bodies** is available to meet your specific needs. Dual slope, flat floor and Mine Specific Design (MSD) for selected models.
- **Integral Roll Over Protective Structure (ROPS)** cab standard on all models.
- **Separate hydraulic systems** prevents cross contamination.

Tractor Features:

- **Yoke type hitch** oscillates four ways to reduce frame stresses. Rugged turn stops prevent excessive wagon rotation either direction.
- **Rear platform** functions as a power train guard and provides safe, stable work area. Fenders and mud flaps protect from material thrown by tires.

NOTE: Listed features may be standard on some models. Optional on others. Contact your Caterpillar Dealer for specific information.



MODEL	769D		769D		771D	
	Flat Floor		Dual Slope		Quarry Flat Floor	
Body Type						
Gross Machine Weight	71 400 kg	157,000 lb	71 400 kg	157,000 lb	75 700 kg	166,500 lb
Chassis Weight*	24 320 kg	53,506 lb	24 320 kg	53,506 lb	24 320 kg	53,506 lb
Body Weight	7800 kg	17,200 lb	7870 kg	17,350 lb	10 350 kg	23,000 lb
Payload without Liner	39 280 kg	86,294 lb	39 210 kg	86,144 lb	41 030 kg	89,994 lb
Standard Liner Weight	3300 kg	7280 lb	3200 kg	7000 lb	—	
Target Payload**	35 980 kg	79,094 lb	36 010 kg	79,144 lb	41 030 kg	89,994 lb
Capacity:						
Struck (SAE)	16.5 m ³	21.6 yd³	17 m ³	22.2 yd³	20.2 m ³	26.4 yd³
Heaped (2:1) (SAE)	24.2 m ³	31.7 yd³	24.2 m ³	31.7 yd³	27.5 m ³	36 yd³
Distribution Empty:						
Front		49.7%		49.8%		46.3%
Rear		50.3%		50.2%		53.7%
Distribution Loaded:						
Front		33.3%		33.3%		32.9%
Rear		66.7%		66.7%		67.1%
Engine Model	3408E TA		3408E TA		3408E TA	
Number of Cylinders	8		8		8	
Bore	137 mm	5.4"	137 mm	5.4"	137 mm	5.4"
Stroke	152 mm	6"	152 mm	6"	152 mm	6"
Displacement	18 L	1099 in³	18 L	1099 in³	18 L	1099 in³
Flywheel Power	363 kW	487 hp	363 kW	487 hp	363 kW	487 hp
Gross Power	386 kW	518 hp	386 kW	518 hp	386 kW	518 hp
Standard Tires	18.00R33 (E-4)		18.00R33 (E-4)		18.00R33 (E-4)	
Machine Clearance Turning Circle	20.3 m	66'7"	20.3 m	66'7"	20.3 m	66'7"
Fuel Tank Refill Capacity	530 L	140 U.S. gal	530 L	140 U.S. gal	680 L	180 U.S. gal
Top Speed (Loaded)	77 km/h	48 mph	77 km/h	48 mph	57.3 km/h	35.6 mph
GENERAL DIMENSIONS (Empty):						
Height to Canopy Rock Guard Rail	4.08 m	13'4"	4.05 m	13'3"	4.45 m	14'6"
Wheelbase	3.70 m	12'2"	3.70 m	12'2"	3.71 m	12'2"
Overall Length (Operating)	8.26 m	27'1"	8.26 m	27'1"	8.44 m	27'7"
Overall Length (Shipping)	8.00 m	26'5"	8.00 m	26'5"	8.20 m	26'11"
Loading Height (Empty)	3.20 m	10'6"	3.10 m	10'4"	3.40 m	11'1"
Height at Full Dump	7.80 m	25'5"	7.70 m	25'4"	7.74 m	25'5"
Body Length (Target Length)	5.43 m	17'10"	5.28 m	17'4"	5.52 m	18'1"
Width (Operating)	5.01 m	16'8"	5.01 m	16'8"	5.01 m	16'8"
Width (Shipping)***	3.99 m	13'1"	3.91 m	12'10"	3.99 m	13'1"
Front Tire Tread	3.10 m	10'2"	3.10 m	10'2"	3.10 m	10'2"

*Weights include lubricants, coolants, 100% fuel and a debris allowance (4% of chassis).

**Refer to Caterpillar's 10/10/20 Payload Policy for Quarry & Construction Trucks.

***Disassembled.



MODEL	773E		773E		775E		775E	
	Flat Floor		Dual Slope		Quarry Flat Floor		Flat Floor Lined	
Body Type								
Gross Machine Weight	99 300 kg	219,000 lb	99 300 kg	219,000 lb	108 400 kg	239,000 lb	108 400 kg	239,000 lb
Chassis Weight*	31 930 kg	70,330 lb	31 930 kg	70,330 lb	32 140 kg	70,850 lb	32 140 kg	70,850 lb
Body Weight	9550 kg	21,050 lb	9210 kg	20,300 lb	13 070 kg	28,810 lb	9809 kg	31,640 lb
Payload without Liner	57 820 kg	127,620 lb	58 160 kg	128,370 lb	63 190 kg	139,340 lb	61 920 kg	136,510 lb
Standard Liner Weight	4000 kg	8800 lb	3900 kg	8600 lb	—		—	
Target Payload**	53 820 kg	118,820 lb	54 260 kg	119,770 lb	63 190 kg	139,340 lb	61 920 kg	136,510 lb
Capacity:								
Struck (SAE)	26.6 m ³	34.8 yd³	26.6 m ³	34.8 yd³	31.4 m ³	41.1 yd³	31.2 m ³	40.8 yd³
Heaped (2:1) (SAE)	35.5 m ³	46.4 yd³	35.2 m ³	46 yd³	41.5 m ³	54.3 yd³	41.2 m ³	53.9 yd³
Distribution Empty:								
Front	47.3%		47.3%		44.3%		44.3%	
Rear	52.7%		52.7%		55.7%		55.7%	
Distribution Loaded:								
Front	33.3%		33.3%		31.2%		31.2%	
Rear	66.7%		66.7%		68.8%		68.8%	
Engine Model	3412E TA		3412E TA		3412E TA		3412E TA	
Number of Cylinders	12		12		12		12	
Bore	137 mm	5.4"	137 mm	5.4"	137 mm	5.4"	137 mm	5.4"
Stroke	152 mm	6"	152 mm	6"	152 mm	6"	152 mm	6"
Displacement	27 L	1649 in^{3}	27 L	1649 in^{3}	27 L	1649 in^{3}	27 L	1649 in³
Flywheel Power	501 kW	671 hp	501 kW	671 hp	544 kW	730 hp	544 kW	730 hp
Gross Power	530 kW	710 hp	530 kW	710 hp	567 kW	760 hp	567 kW	760 hp
Standard Tires	24.00R35 (E-4)		24.00R35 (E-4)		24.00R35 (E-4)		24.00R35 (E-4)	
Machine Clearance								
Turning Circle	23.8 m	78'9"	23.8 m	78'9"	23.8 m	78'9"	23.8 m	78'9"
Fuel Tank Refill Capacity	680 L	180 U.S. gal	700 L	185 U.S. gal	700 L	185 U.S. gal	700 L	185 U.S. gal
Top Speed (Loaded)	65.8 km/h	41.1 mph	65.8 km/h	41.1 mph	65.8 km/h	41.1 mph	65.8 km/h	41.1 mph
GENERAL DIMENSIONS (Empty):								
Height to Canopy Rock Guard Rail	4.45 m	14'6"	4.35 m	14'4"	4.34 m	14'2"	4.40 m	14'2"
Wheelbase	4.19 m	13'9"						
Overall Length (Operating)	9.72 m	31'9"	9.72 m	31'9"	9.48 m	30'10"	9.48 m	30'10"
Overall Length (Shipping)	9.20 m	30'2"	9.20 m	30'2"	9.21 m	30'3"	9.21 m	30'3"
Loading Height (Empty)	3.79 m	12'5"	3.77 m	12'5"	3.91 m	12'10"	3.91 m	12'10"
Height at Full Dump	8.82 m	28'11"	8.79 m	28'10"	8.80 m	28'11"	8.80 m	28'11"
Body Length (Target Length)	5.52 m	18'1"	5.52 m	18'1"	6.53 m	21'4"	6.51 m	21'5"
Width (Operating)	5.08 m	16'8"						
Width (Shipping)***	3.99 m	13'1"	3.99 m	13'1"	3.97 m	13'0"	3.97 m	13'0"
Front Tire Tread	3.28 m	10'9"						

*Weights include lubricants, coolants, 100% fuel and a debris allowance (4% of chassis).

**Refer to Caterpillar's 10/10/20 Payload Policy for Quarry & Construction Trucks.

***Disassembled.



MODEL	775E		777D		777D	
Body Type	Dual Slope		Flat Floor		Dual Slope	
Gross Machine Weight	108 400 kg	239,000 lb	163 293 kg	360,000 lb	163 293 kg	360,000 lb
Chassis Weight*	32 140 kg	70,850 lb	50 610 kg	111,575 lb	51 329 kg	113,160 lb
Body Weight	9710 kg	21,400 lb	16 687 kg	36,788 lb	15 778 kg	34,785 lb
Payload without Liner	66 550 kg	146,750 lb	95 996 kg	211,637 lb	96 186 kg	212,055 lb
Standard Liner Weight	4450 kg	9810 lb	5460 kg	12,040 lb	5461 kg	12,040 lb
Target Payload**	62 100 kg	136,940 lb	90 536 kg	199,597 lb	90 725 kg	200,015 lb
Capacity:						
Struck (SAE)	32.7 m ³	42.8 yd³	42 m ³	54.6 yd³	42.1 m ³	55 yd³
Heaped (2:1) (SAE)	41.2 m ³	53.9 yd³	60.2 m ³	78.6 yd³	60.1 m ³	78.6 yd³
Distribution Empty:						
Front		45.9%		41.75%		47%
Rear		54.1%		58.25%		53%
Distribution Loaded:						
Front		31.6%		33%		33%
Rear		68.4%		67%		67%
Engine Model	3412E		3508B EUI		3508B EUI	
Number of Cylinders	12		8		8	
Bore	137 mm	5.4"	170 mm	6.7"	170 mm	6.7"
Stroke	152 mm	6"	190 mm	7.5"	190 mm	7.5"
Displacement	27 L	1649 in³	34.5 L	2105 in³	34.5 L	2105 in³
Flywheel Power	544 kW	730 hp	699 kW	938 hp	699 kW	938 hp
Gross Power	567 kW	760 hp	746 kW	1000 hp	746 kW	1000 hp
Standard Tires	24.00-R35 (E4)		27.00R49		27.00R49	
Machine Clearance Turning Circle	23.8 m	78'9"	28.4 m	83'0"	28.4 m	83'0"
Fuel Tank Refill Capacity	700 L	185 U.S. gal	1137 L	300 U.S. gal	1137 L	300 U.S. gal
Top Speed (Loaded)	65.8 km/h	41.1 mph	60.4 km/h	39.9 mph	60.4 km/h	39.9 mph
GENERAL DIMENSIONS (Empty):						
Height to Canopy Rock Guard Rail	4.40 m	14'2"	5.18 m	17'0"	4.91 m	16'1"
Wheelbase	4.19 m	13'9"	4.60 m	15'0"	4.60 m	15'0"
Overall Length (Operating)	9.48 m	30'10"	10.3 m	33'8"	10.3 m	33'8"
Overall Length (Shipping)	9.21 m	30'3"	9.78 m	32'1"	9.78 m	32'1"
Loading Height (Empty)	3.93 m	12'11"	4.57 m	15'0"	4.39 m	14'5"
Height at Full Dump	8.74 m	28'8"	10.0 m	33'1"	10.05 m	33'0"
Body Length (Target Length)	6.40 m	21'0"	6.79 m	22'3"	7.28 m	23'11"
Width (Operating)	5.08 m	16'8"	6.10 m	20'0"	6.10 m	20'0"
Width (Shipping)***	3.97 m	13'0"	3.51 m	11'5"	3.51 m	11'5"
Front Tire Tread	3.28 m	10'9"	4.17 m	13'8"	4.17 m	13'8"

*Weights include lubricants, coolants, 100% fuel and a debris allowance (4% of chassis).

**Refer to Caterpillar's 10/10/20 Payload Policy for Quarry & Construction Trucks.

***Disassembled.



MODEL	785C		789C	
Body Type	Dual Slope†		Dual Slope†	
Gross Machine Operating Weight**	249 475 kg	550,000 lb	317 513 kg	700,000 lb
Chassis Weight*	77 111 kg	170,000 lb	97 069 kg	214,000 lb
Debris (4% of Chassis Weight)	3084 kg	6800 lb	3937 kg	8560 lb
Body Weight without Liners	21 471 kg	47,335 lb	26 282 kg	57,940 lb
Full Liner	7641 kg	16,846 lb	9430 kg	20,790 lb
Target Payload**	140+ m tons	155+ tons	180+ m tons	198+ tons
Capacity:				
Heaped (2:1) (SAE)	78 m ³	102 yd³	105 m ³	137 yd³
Distribution Empty:				
Front		47%		46.9%
Rear		53%		53.1%
Distribution Loaded:				
Front		33%		33.6%
Rear		67%		66.4%
Engine Model	3512B EU1		3516B	
Number of Cylinders	12		16	
Bore	170 mm	6.7"	170 mm	6.7"
Stroke	190 mm	7.5"	190/215 mm	7.5/8.5"
Displacement	51.8 L	3158 in³	69/78 L	4211/4763 in³
Flywheel Power	1005 kW	1348 hp	1335 kW	1791 hp
Gross Power	1082 kW	1450 hp	1417 kW	1900 hp
Standard Tires	33.00-R51		37.00R57	
Machine Clearance Turning Circle	30.5 m	92'2"	30.2 m	99'2"
Fuel Tank Refill Capacity	1893 L	500 U.S. gal	3218 L	850 U.S. gal
Top Speed (Loaded)	54.8 km/h	34 mph	54.4 km/h	33.8 mph
GENERAL DIMENSIONS (Empty):				
Height to Canopy Rock Guard Rail	5.77 m	18'11"	6.15 m	20'2"
Wheelbase	5.18 m	17'0"	5.70 m	18'8"
Overall Length	11.02 m	36'2"	12.18 m	39'11"
Loading Height	4.97 m	16'4"	5.21 m	17'1"
Height at Full Dump	11.21 m	36'9"	11.90 m	39'1"
Body Length (Target Length)	7.65 m	25'1"	8.15 m	26'9"
Width (Operating)	6.64 m	21'4"	7.67 m	25'2"
Width (Shipping)***	3.91 m	12'10"	3.84 m	12'7"
Front Tire Tread	4.85 m	15'11"	5.43 m	17'10"

*Chassis Weight includes lubricants, coolants, and 100% fuel.

**Reference Caterpillar's 10/10/20 Payload Policy Revision #4 for information on gross machine operating weight and target payload.

***Disassembled.

†Data provided is for a representative body and liner package. Several dual slope, flat floor, and mine specific design (MSD) bodies and liner packages are available. All weights, capacities, and dimensions are dependent on the machine configuration (body type, attachments, tires, and optional equipment selected).



MODEL	793C		793C		797B	
	Flat Floor†		Dual Slope†		Flat Floor†	
Body Type						
Gross Machine Operating Weight**	383 740 kg	846,000 lb	383 727 kg	846,000 lb	623 690 kg	1,375,000 lb
Chassis Weight*	117 707 kg	259,500 lb	117 707 kg	259,500 lb	214 820 kg	473,600 lb
Debris (4% of Chassis Weight)	4708 kg	10,380 lb	4708 kg	10,380 lb	8593 kg	18,944 lb
Body Weight without Liners	35 906 kg	79,160 lb	32 108 kg	70,785 lb	47 264 kg	104,200 lb
Full Liner	2513 kg	5540 lb	11 076 kg	24,418 lb	3992 kg	8800 lb
Target Payload**	223+ m tons	246+ tons	218+ m tons	240+ tons	345+ m tons	380+ tons
Capacity:						
Struck (SAE)	110 m ³	143.9 yd³	96 m ³	126 yd³	173 m ³	228 yd³
Heaped (2:1) (SAE)	147.6 m ³	193 yd³	129 m ³	169 yd³	220 m ³	290 yd³
Distribution Empty:						
Front		43.5%		46.9%		43.5%
Rear		56.5%		53.1%		56.5%
Distribution Loaded:						
Front		33.3%		33.3%		33.3%
Rear		66.7%		66.7%		66.7%
Engine Model	3516B/3516B HD		3516B/3516B HD		3524B EUI	
Number of Cylinders	16		16		24	
Bore	170 mm	6.7"	170 mm	6.7"	170 mm	6.7"
Stroke	190/215 mm	7.5/8.5"	190/215 mm	7.5/8.5"	215 mm	8.5"
Displacement	69/78 L	4211/4763 in³	69/78 L	4211/4763 in³	117.1 L	7143 in³
Flywheel Power	1615 kW	2166 hp	1615 kW	2166 hp	2513 kW	3370 hp
Gross Power	1715 kW	2300 hp	1715 kW	2300 hp	2648 kW	3550 hp
Standard Tires	40.00R57		40.00R57		59/80R63	
Machine Clearance Turning Circle	32.4 m	106'4"	32.4 m	106'4"	42.1 m	138'3"
Fuel Tank Refill Capacity	4467 L	1180 U.S. gal	4467 L	1180 U.S. gal	6814 L	1800 U.S. gal
Top Speed (Loaded)	54.3 km/h	33.7 mph	54.3 km/h	33.7 mph	67.6 km/h	42 mph
GENERAL DIMENSIONS (Empty):						
Height to Canopy Rock Guard Rail	6.43 m	21'1"	6.43 m	21'1"	7.58 m	24'11"
Wheelbase	5.90 m	19'4"	5.90 m	19'4"	7.20 m	23'7"
Overall Length	12.87 m	42'3"	12.87 m	42'3"	14.53 m	47'8"
Loading Height	5.86 m	19'3"	5.86 m	19'3"	7.08 m	23'2"
Height at Full Dump	13.21 m	43'4"	13.21 m	43'4"	15.29 m	50'2"
Body Length (Target Length)	8.94 m	29'4"	8.94 m	29'4"	9.84 m	32'3"
Width (Operating)	7.41 m	24'4"	7.41 m	24'4"	9.76 m	32'0"
Width (Shipping)***	3.91 m	12'10"	3.91 m	12'10"	4.02 m	13'2"
Front Tire Tread	5.61 m	18'5"	5.61 m	18'5"	6.51 m	21'4"

*Chassis Weight includes lubricants, coolants, and 100% fuel.

**Reference Caterpillar's 10/10/20 Payload Policy Revision #4 for information on gross machine operating weight and target payload.

***Disassembled.

†Data provided is for a representative body and liner package. Several dual slope, flat floor, and mine specific design (MSD) bodies and liner packages are available. All weights, capacities, and dimensions are dependent on the machine configuration (body type, attachments, tires, and optional equipment selected).



MODEL	776D		784C	
Flywheel Power	699 kW	938 hp	1005 kW	1348 hp
Gross Power	746 kW	1000 hp	1082 kW	1450 hp
Operating Weight*	55 480 kg	122,311 lb	89 280 kg	196,825 lb
Engine Model	3508B (EUI)		3512B/3512B HD	
No. Cylinders	8		12	
Bore	170 mm	6.7"	170 mm	6.7"
Stroke	190 mm	7.5"	190/215 mm	7.5/8.5"
Displacement	34.5 L	2105 in³	51.8/58.5 L	3158/3572 in³
Standard Tires, Front & Dual Rear	27.00R49 (E-4)		36.00R51 (E-3)	
Machine Clearance Turning Circle	26.1 m	85'6"	33.5 m	109'10"
Fuel Tank Refill Capacity	1137 L	300 U.S. gal	3222 L	851 U.S. gal
GENERAL DIMENSIONS (Empty):				
Height to Top of Cab	4.57 m	15'0"	5468 mm	17'1"
Wheelbase	4.57 m	15'0"	5180 mm	17'0"
Overall Length	8.06 m	26'5.5"	9343 mm	30'8"
Ground Clearance	710 mm	2'4"	1027 mm	3'4"
Width, shipping (Disassembled)	3.51 m	11'6"	3810 mm	12'6"
Height to Yoke Seat	3.40 m	11'2"	4048 mm	13'4"
Rear axle to Hitch Pin	762 mm	2'6"	850 mm	2'9"
Front Tire Tread	4.17 m	13'8"	4935 mm	16'2"

*Operating weights include coolant, lubricants, hitch, full fuel tank and operator.

MODEL TIRE SIZE	PLY RATING/ STAR RATING*	TYPE	MODEL TIRE SIZE	PLY RATING/ STAR RATING*	TYPE
769D			789C		
18.00-33	32	E-4	37.00R57	★★	E-4
18.00R33	★★	E-3	793C		
18.00R33◀	★★	E-4	40.00R57◀	★★	E-4
21/90R33	★★	E-4	44/80R57	★★	E-4
771D			44/95R57	★★	E-4
18.00R33◀	★★	E-4	46/90R57	★★	E-4
21/90R33	★★	E-4	797B		
773E			59/80R63	★★	E-4
24.00-35	36	E-4	776D		
24.00-35	42	E-4	27.00R49	★★	E-3
24.00R35	★★	E-3	27.00R49◀	★★	E-4
24.00R35◀	★★	E-4	784C		
775E			36.00R51	★★	E-3
24.00R35◀	★★	E-4			
24.00R35	★★	E-3			
24.00-35	42	E-4			
777D					
27.00R49	★★	E-3			
27.00R49◀	★★	E-4			
785C					
33.00R51	★★	E-3			
33.00R51	★★	E-4			

*Manufacturer uses star (★) rating system instead of ply rating.

◀No charge tire.

USE OF BRAKE PERFORMANCE CURVES

The speed that can be maintained when the machine is descending a grade with retarder applied can be determined from the retarder curves in this section when gross machine weight and total effective grade are known.

Select appropriate grade distance chart that covers total downhill haul; don't break haul into individual segments.

To determine brake performance: Read from gross weight down to the percent effective grade. (Effective grade equals actual % grade *minus* 1% for each 10 kg/metric ton (20 lb./U.S. ton) of rolling resistance.) From this weight-effective grade point, read horizontally to the curve with the highest obtainable speed range, then down to maximum descent speed brakes can safely handle without exceeding cooling capacity. When braking, engine RPM should be maintained at the highest possible level without overspeeding. If cooling oil overheats, reduce ground speed to allow transmission to shift to next lower speed range.

USE OF RIMPULL-SPEED-GRADEABILITY CURVES

(See Wheel Tractor Scraper Section)

Total Effective Grade (or Total Resistance) is grade assistance *minus* rolling resistance.

10 kg/metric ton (20 lb/U.S. ton) = 1% adverse grade.

Example —

With a favorable grade of 20% and rolling resistance of 50 kg/metric ton (100 lb/U.S. ton), find Total Effective Grade.

$$\begin{aligned} (50 \text{ kg/metric ton}) &= 50 \div 10 = 5\% \text{ Effective Grade} \\ &\text{(from Rolling Resistance)} \\ 100 \text{ lb/ton} &= 100 \div 20 = 5\% \text{ Effective Grade} \\ 20\% \text{ (grade)} - 5\% \text{ (resistance)} &= \\ 15\% \text{ Total Effective Grade} \end{aligned}$$

TYPICAL FIXED TIMES FOR HAULING UNITS

Wait time, delays and operator efficiency all impact cycle time. Minimizing truck exchange time can have a significant effect on productivity.

Fixed time for hauling units include:

1. Truck load time (various with loading tool)
2. Truck maneuver in load area (Truck exchange) (Typically 0.6-0.8 min.)
3. Maneuver and dump time at dump point (Typically 1.0-1.2 min.)

Total cycle time is the combination of:

1. The above fixed time
2. Hauling time (Loaded)
3. Return time (Empty)

Example — assume load tool spots hauler with full bucket

	988F	5130B
cycle times	.60	.45
First pass (dump time)	.10 min.	.05 min.
2 passes (full cycle)	.70	.50
3 passes "	1.30	.95
4 passes "	1.90	1.40
5 passes "	2.50	1.85
6 passes "	3.10	2.30
7 passes "	3.70	2.75
8 passes "	4.30	3.20
9 passes "	4.90	3.65
10 passes "	5.40	4.10

NOTE: Other sizes of loading tools will have different cycle times. See Wheel Loader section for **average** cycle times for truck loading.

MECHANICAL POWER TRAIN EFFICIENCIES

In selling against electric drive trucks, power train efficiency is an important consideration. To better illustrate the advantages of mechanical drive performance, grade horsepower, power train efficiency, and retarding horsepower should be compared to electric drive trucks.

Grade horsepower can be calculated by the following formula:

Metric

$$\text{grade HP} = \frac{\text{GMW (kg)} \times \text{TR} \times \text{Speed (km/h)}}{273.75}$$

English

$$= \frac{\text{GMW (lb)} \times \text{TR} \times \text{Speed (mph)}}{375}$$

where TR (total resistance) = Rolling resistance + Grade resistance (expressed as a decimal)

English example

700,000 lb GMW, 2% rolling resistance, +8% actual grade at 8.2 mph would require 1530 HP

$$\frac{700,000 \times (.02 + .08) \times 8.2}{375} = 1530 \text{ HP}$$

Metric example

317 520 kg GMW, 2% rolling resistance, +8% actual grade at 13.2 km/h would require 1530 HP

$$\frac{317\ 520 \times (.02 + .08) \times 13.2}{273.75} = 1530 \text{ HP}$$

We then calculate power train efficiency by dividing grade horsepower by the gross horsepower produced by the engine. Most electric drive trucks run at constant maximum horsepower while under load. Mechanical drive trucks, however, lug the engine and may produce somewhat less than maximum horsepower. Engine power curves must be utilized to determine exact horsepower produced.

Example

$$\frac{1530 \text{ grade horsepower}}{1800 \text{ gross engine HP}} \times 100 = 85\% \text{ power train efficiency}$$

This exercise illustrates the effect of an efficient mechanical drive power train and should yield results in the 80-85% efficiency range. The same calculation for electric drive trucks would be lower (70-78% range) with a maximum efficiency of about 78% for the most common systems.

Likewise, retarding horsepower being consumed by the retarding system can be calculated by the following formula:

Metric

$$\text{retarding HP} = \frac{\text{GMW (kg)} \times \text{TR} \times \text{Speed (km/h)}}{273.75}$$

English

$$= \frac{\text{GMW (lb)} \times \text{TR} \times \text{Speed (mph)}}{375}$$

where TR (total resistance) = Rolling resistance + Grade resistance (expressed as a decimal)

English example

700,000 lb GMW, 2% rolling resistance, -8% actual grade at 14.7 mph would equate to -1646 HP

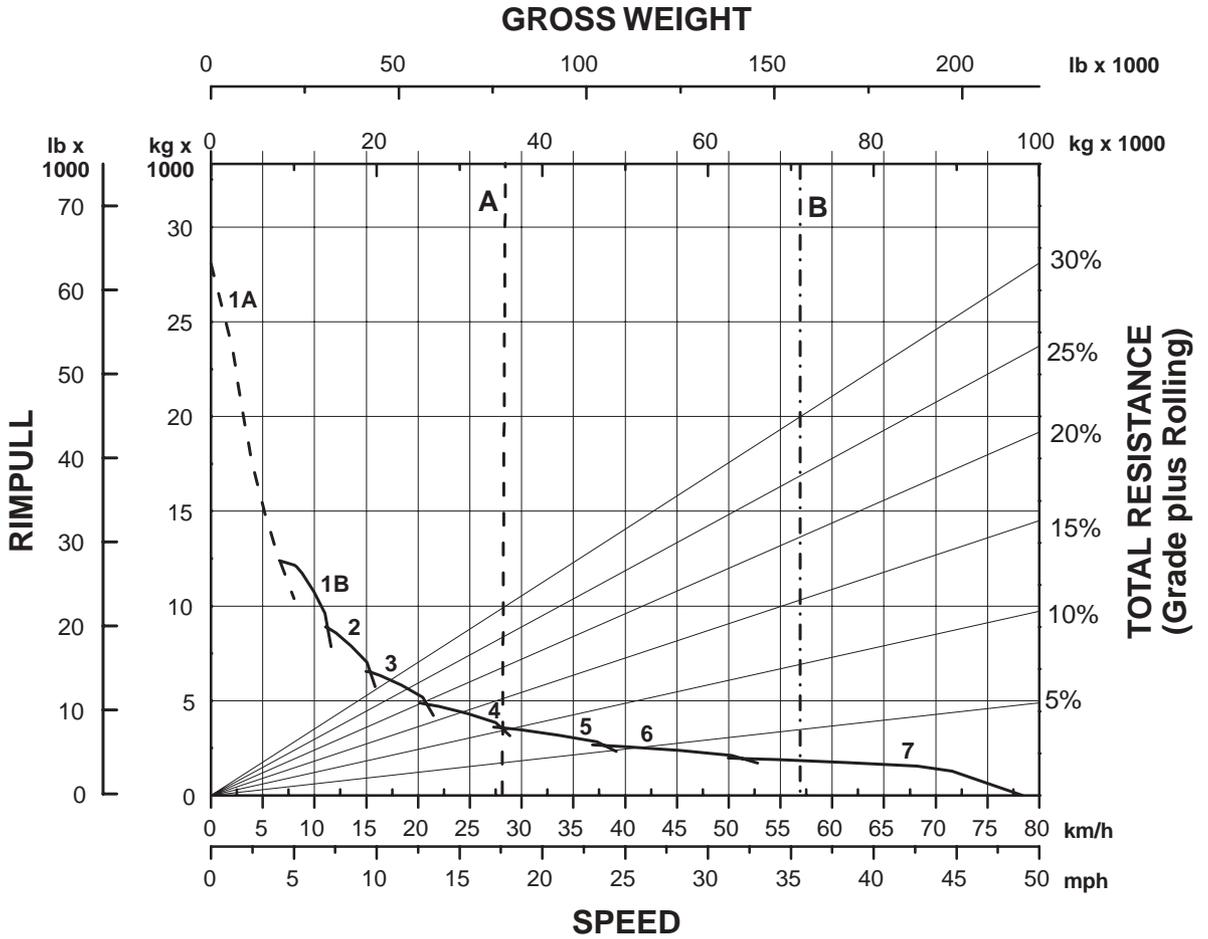
$$\frac{700,000 \times (.02 - .08) \times 14.7}{375} = 1646 \text{ HP}$$

Metric example

317 520 kg GMW, 2% rolling resistance, -8% actual grade at 23.6 km/h would equate to -1646 HP

$$\frac{317\ 520 \times (.02 - .08) \times 23.6}{273.75} = 1646 \text{ HP}$$

This formula is intended for use in determining horsepower being consumed in the field based on field measurements. It is not intended to indicate how fast trucks should be operated on grade. Only job conditions, proper operating procedure, and good judgement should determine safe operating speeds during retarder use.

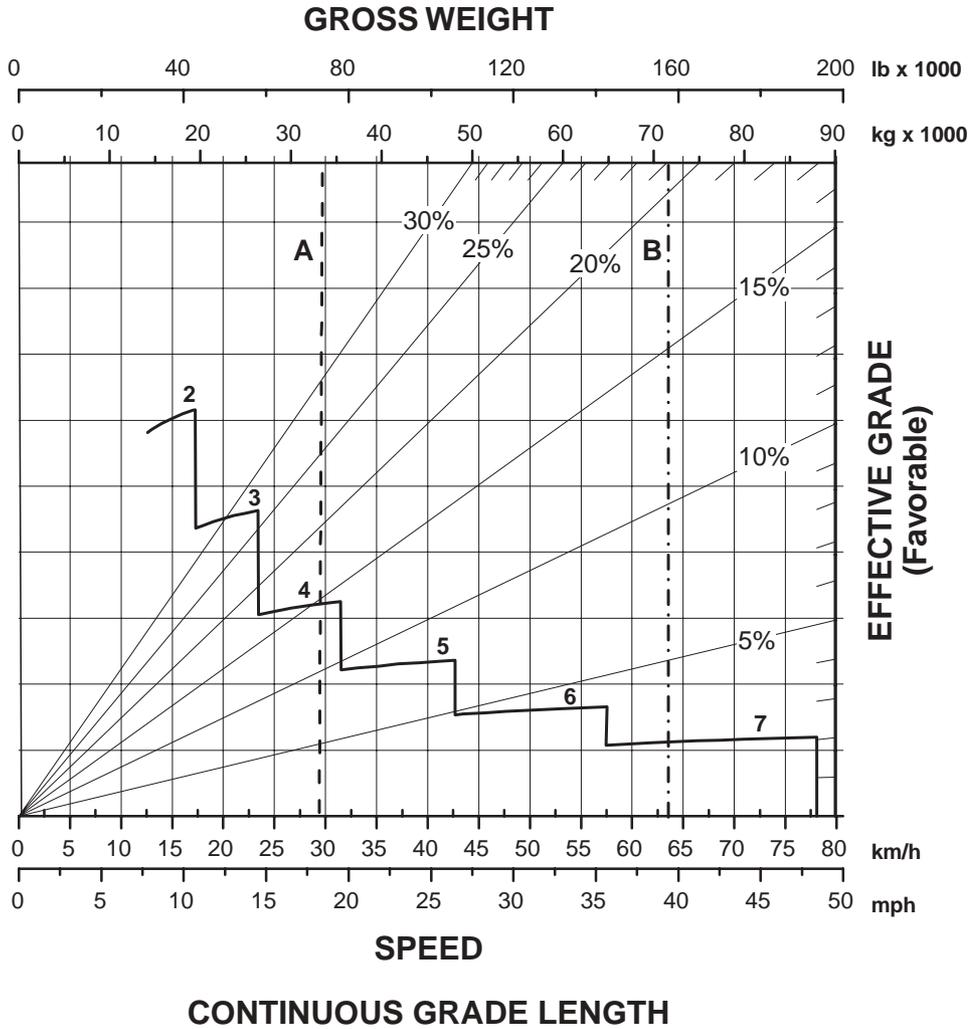


KEY

- 1A — 1st Gear (Torque Converter)
- 1B — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear
- 4 — 4th Gear
- 5 — 5th Gear
- 6 — 6th Gear
- 7 — 7th Gear

KEY

- A — Empty 33 545 kg (73,800 lb)
- B — Max GMW 71 400 kg (157,000 lb)



KEY

2 — 2nd Gear
 3 — 3rd Gear
 4 — 4th Gear
 5 — 5th Gear
 6 — 6th Gear
 7 — 7th Gear

KEY

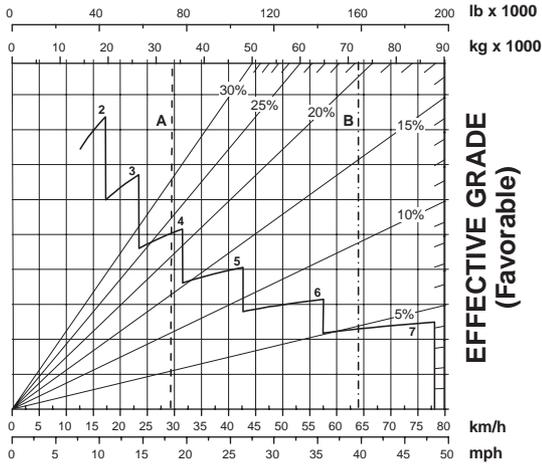
A — Empty 30 800 kg (67,800 lb)
 B — Max GMW 71 400 kg (157,000 lb)

769D Brake Performance

- 450 m (1500 ft) ● 600 m (2000 ft)
- 900 m (3000 ft) ● 1500 m (5000 ft)

Construction & Mining Trucks

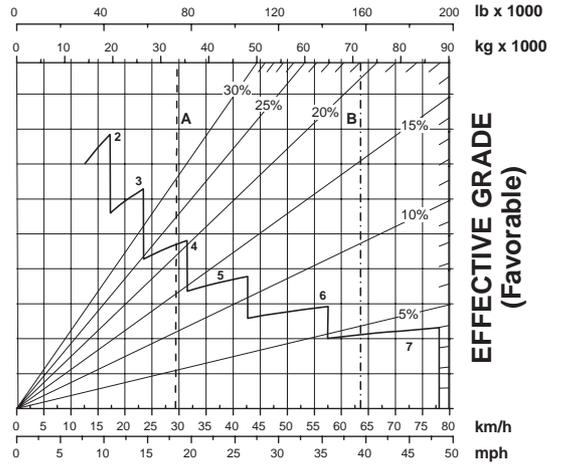
GROSS WEIGHT



SPEED

GRADE DISTANCE — 450 m (1500 ft)

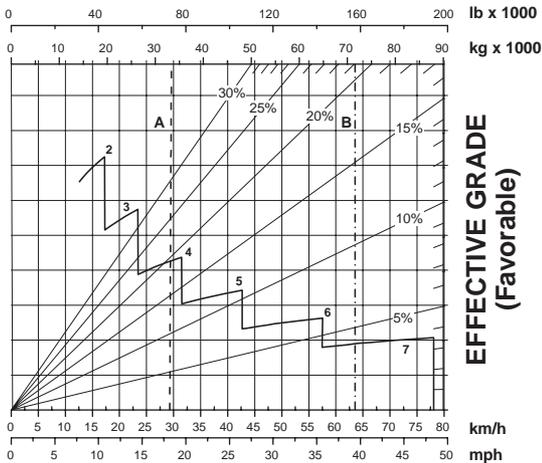
GROSS WEIGHT



SPEED

GRADE DISTANCE — 600 m (2000 ft)

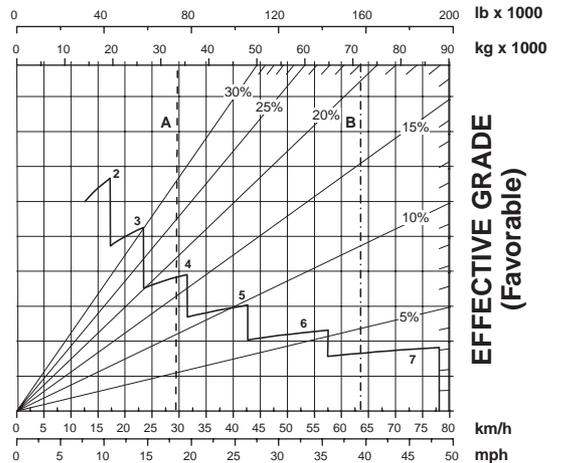
GROSS WEIGHT



SPEED

GRADE DISTANCE — 900 m (3000 ft)

GROSS WEIGHT



SPEED

GRADE DISTANCE — 1500 m (5000 ft)

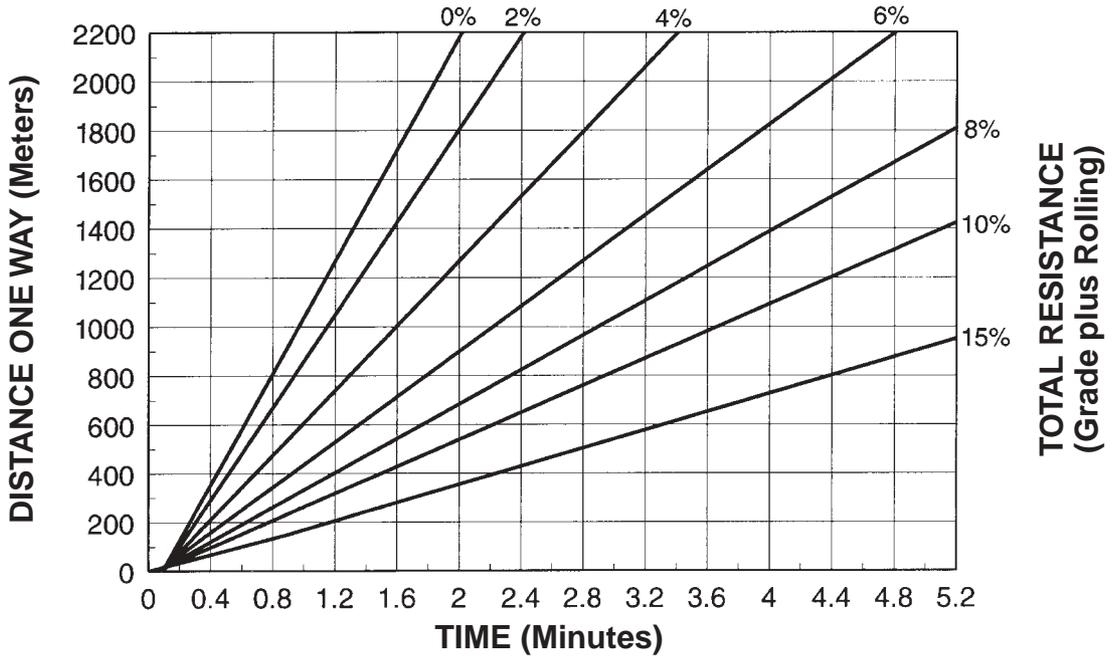
KEY

- 2 — 2nd Gear
- 3 — 3rd Gear
- 4 — 4th Gear
- 5 — 5th Gear
- 6 — 6th Gear
- 7 — 7th Gear

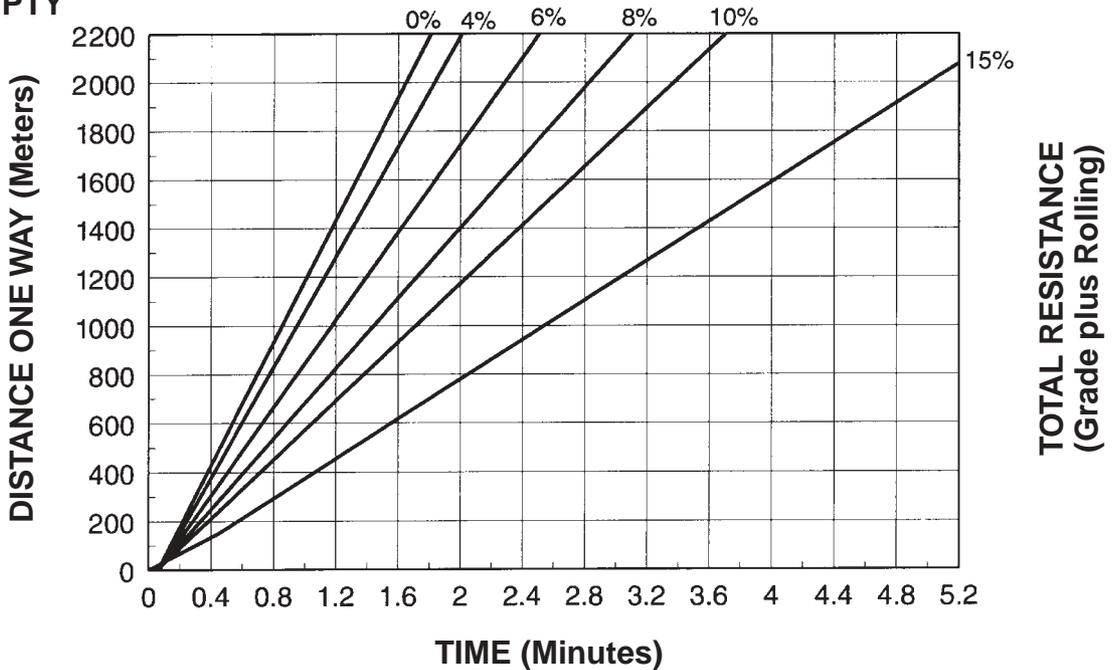
KEY

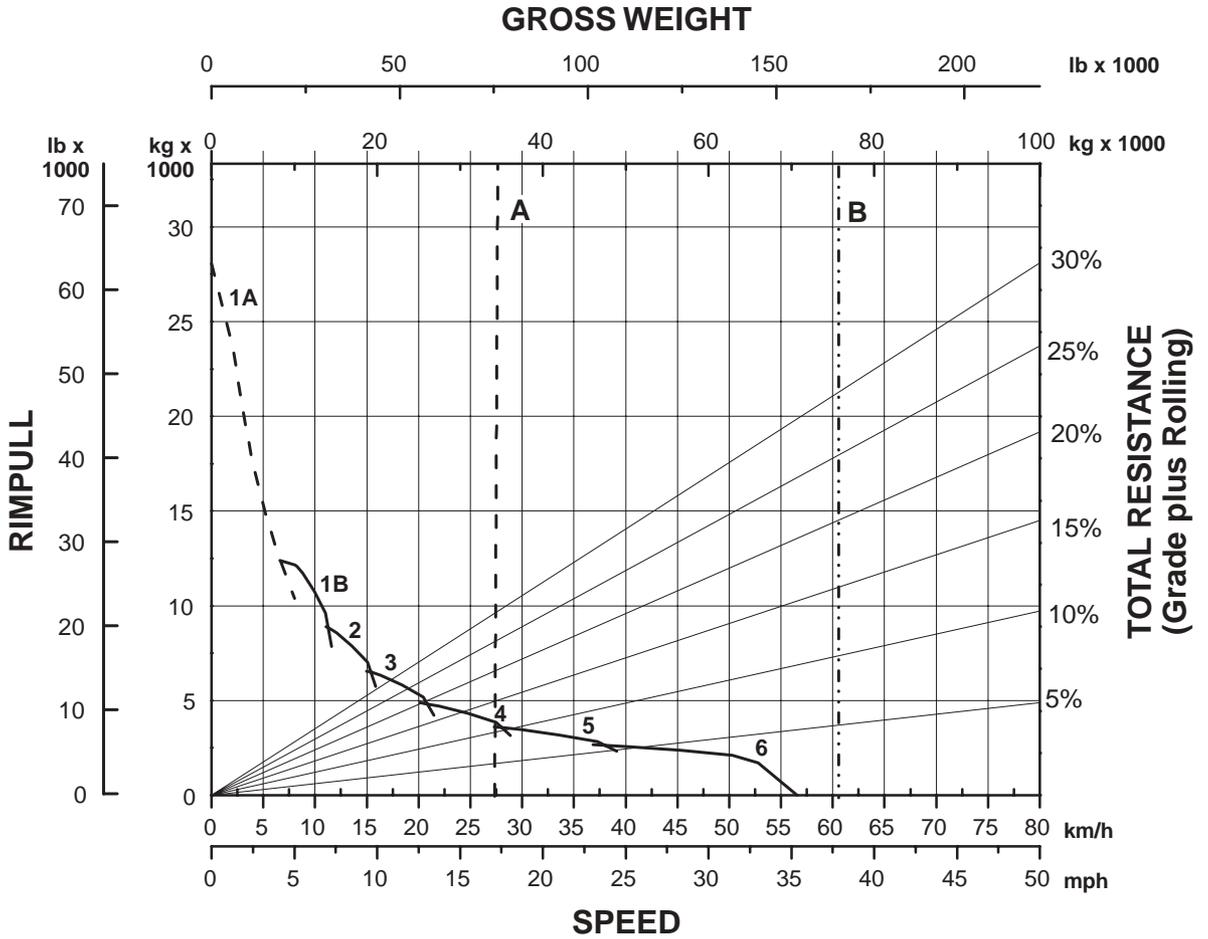
- A — Empty 30 800 kg (67,800 lb)
- B — Max GMW 71 400 kg (157,000 lb)

LOADED



EMPTY



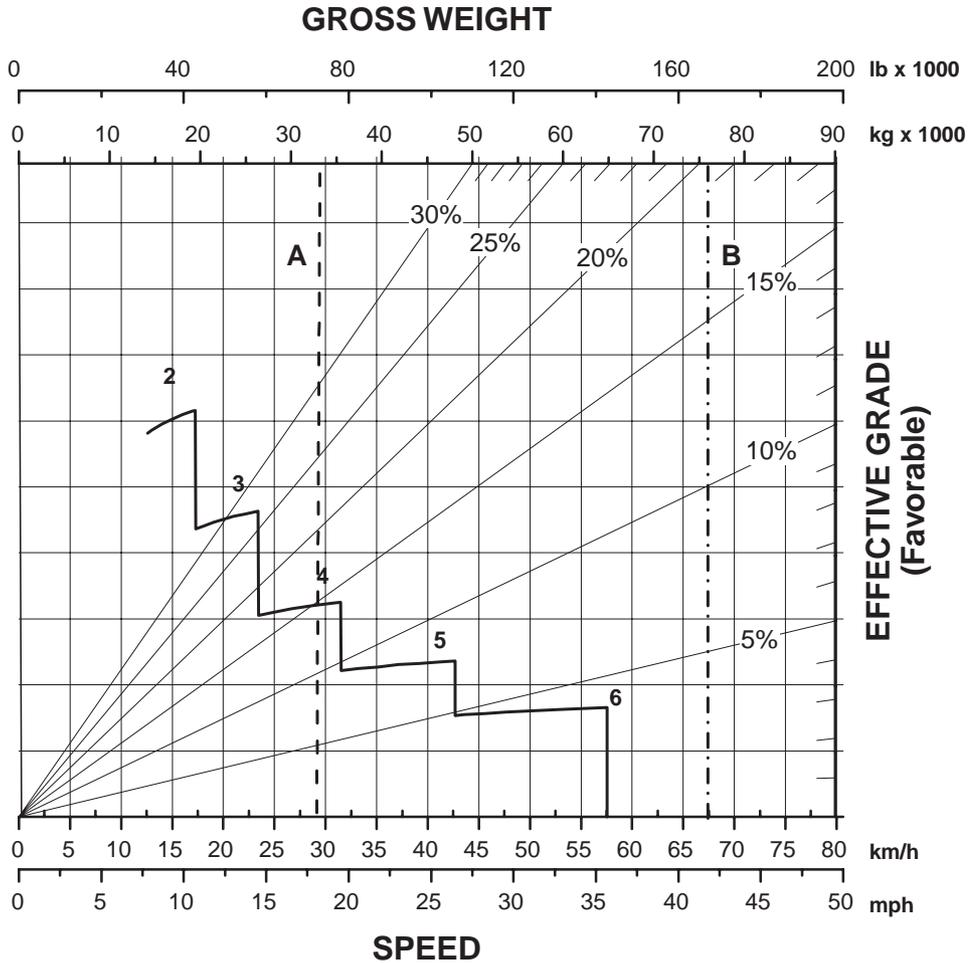


KEY

- 1A — 1st Gear (Torque Converter)
- 1B — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear
- 4 — 4th Gear
- 5 — 5th Gear
- 6 — 6th Gear

KEY

- A — Empty 33 454 kg (73,600 lb)
- B — Max GMW 75 700 kg (166,500 lb)



CONTINUOUS GRADE LENGTH

KEY

- 2 — 2nd Gear
- 3 — 3rd Gear
- 4 — 4th Gear
- 5 — 5th Gear
- 6 — 6th Gear

KEY

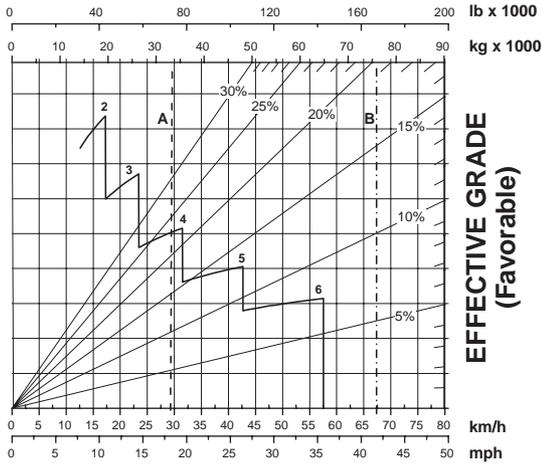
- A — Empty 33 454 kg (73,600 lb)
- B — Max GMW 75 700 kg (166,500 lb)

771D Brake Performance

- 450 m (1500 ft) ● 600 m (2000 ft)
- 900 m (3000 ft) ● 1500 m (5000 ft)

Construction & Mining Trucks

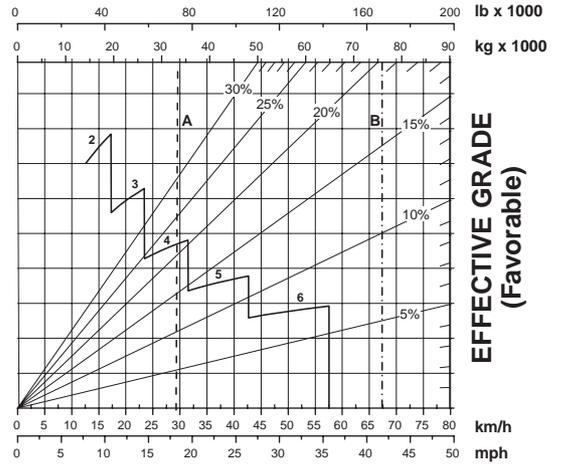
GROSS WEIGHT



SPEED

GRADE DISTANCE — 450 m (1500 ft)

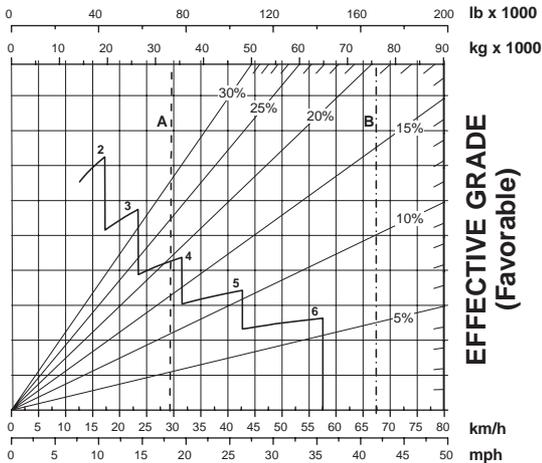
GROSS WEIGHT



SPEED

GRADE DISTANCE — 600 m (2000 ft)

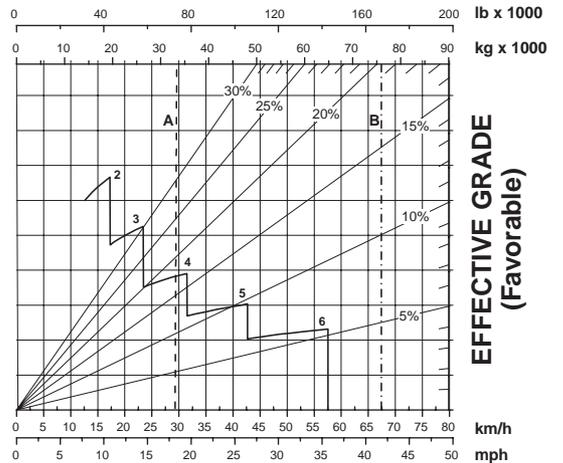
GROSS WEIGHT



SPEED

GRADE DISTANCE — 900 m (3000 ft)

GROSS WEIGHT



SPEED

GRADE DISTANCE — 1500 m (5000 ft)

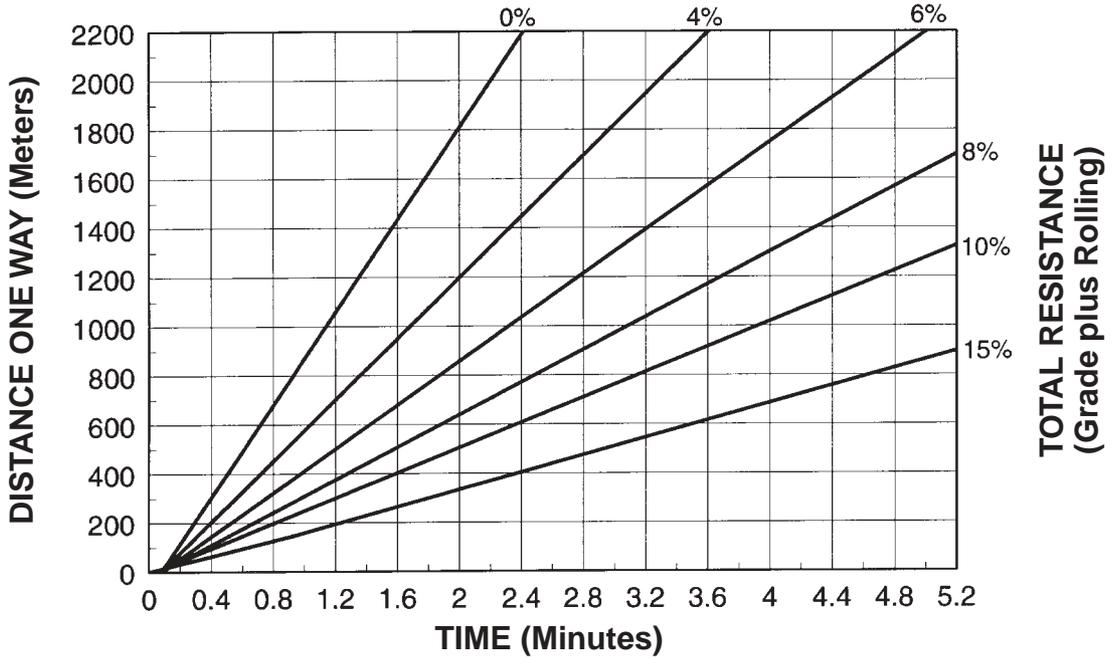
KEY

- 2 — 2nd Gear
- 3 — 3rd Gear
- 4 — 4th Gear
- 5 — 5th Gear
- 6 — 6th Gear

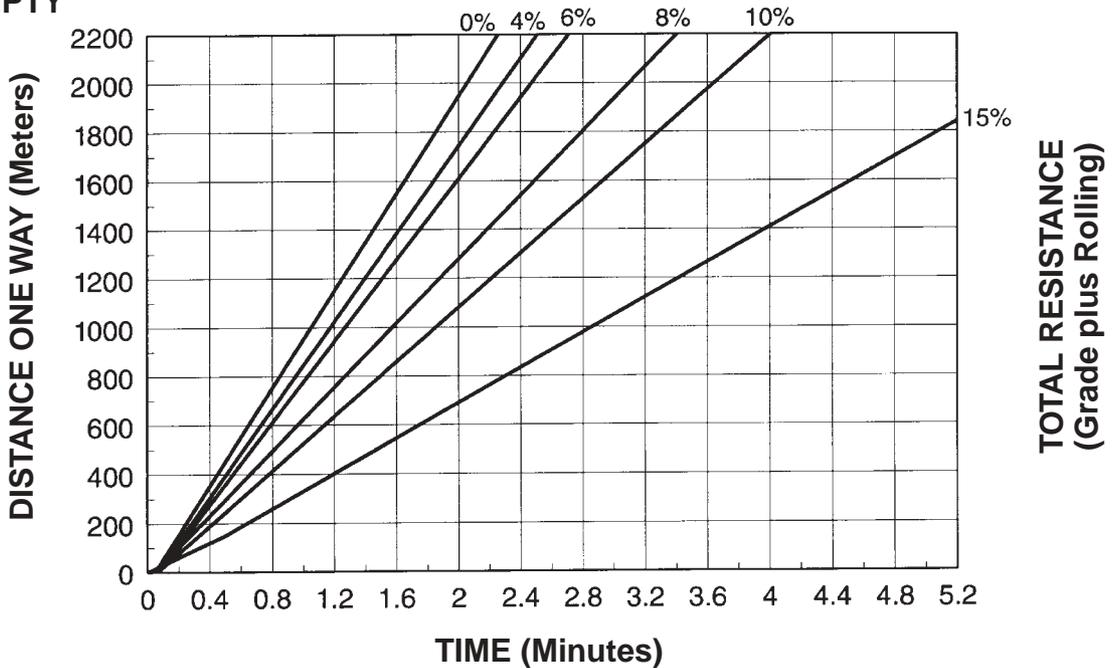
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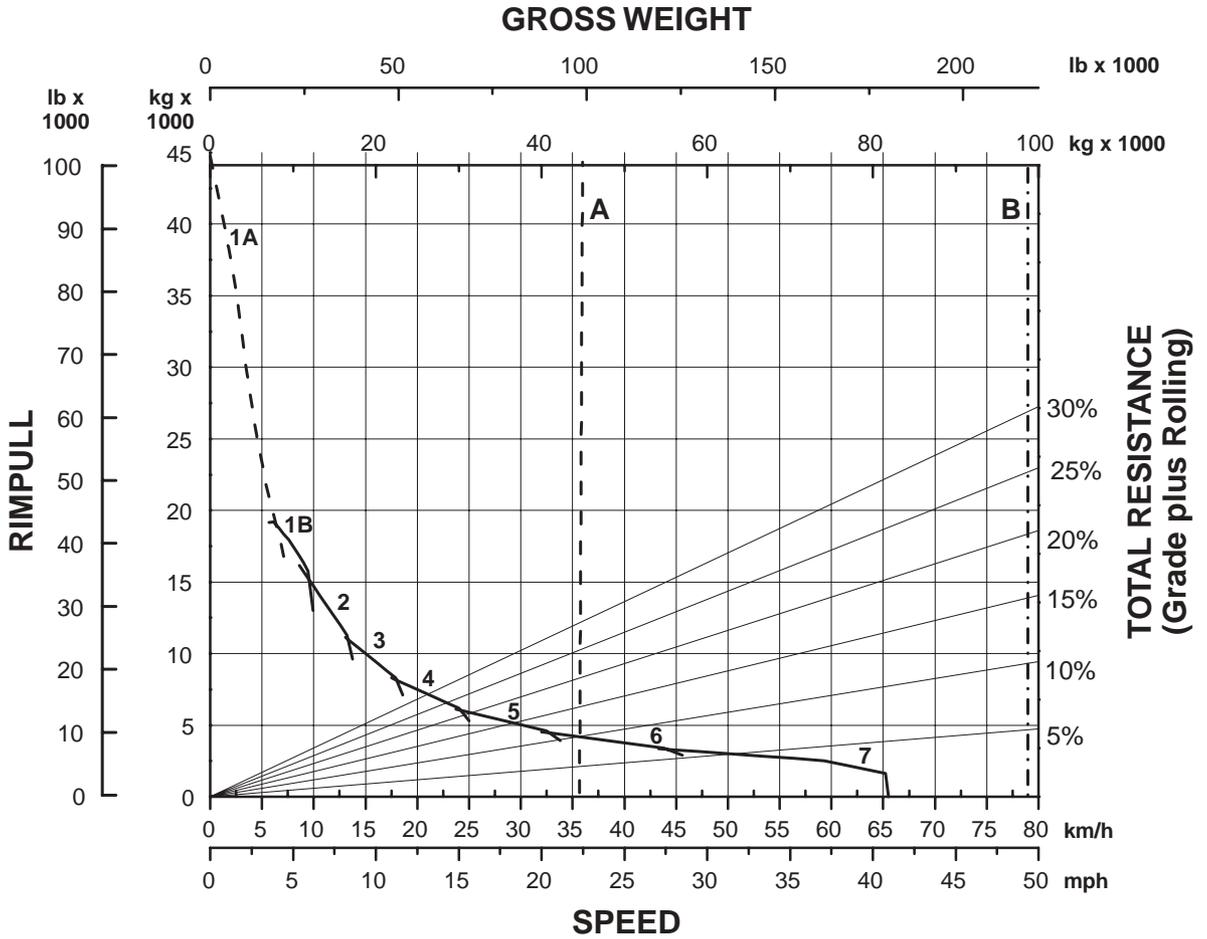
- A — Empty 33 454 kg (73,600 lb)
- B — Max GMW 75 700 kg (166,500 lb)

LOADED



EMPTY



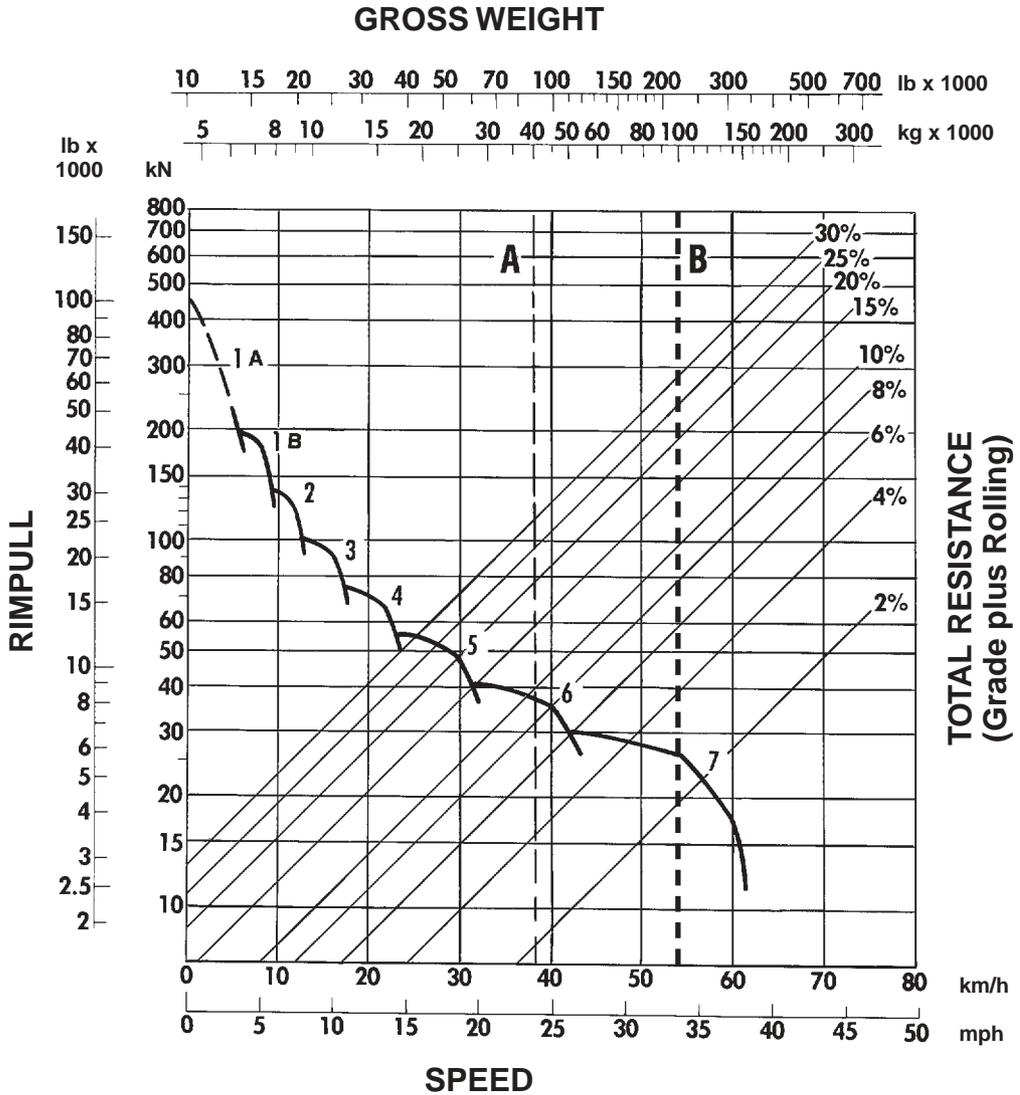


KEY

- 1A — 1st Gear (Torque Converter)
- 1B — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear
- 4 — 4th Gear
- 5 — 5th Gear
- 6 — 6th Gear
- 7 — 7th Gear

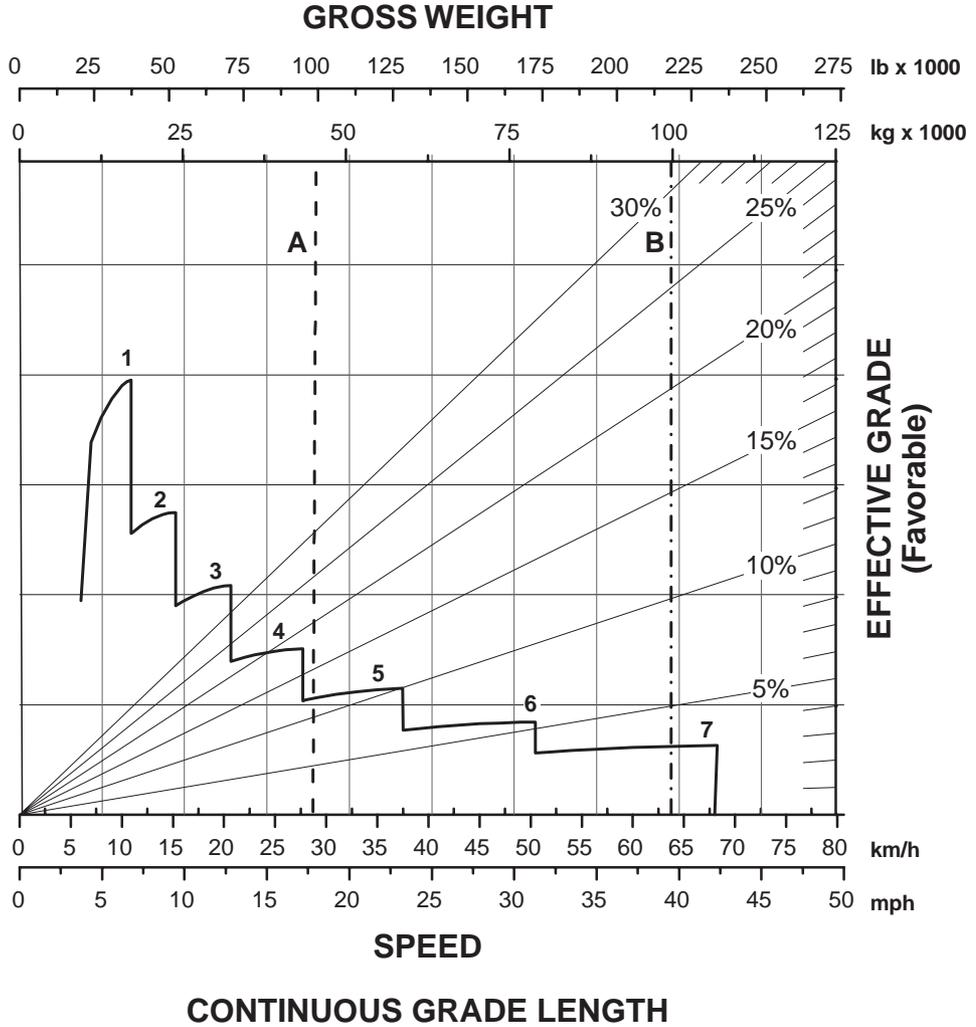
KEY

- A — Empty 40 188 kg (88,600 lb)
- B — Max GMW 99 300 kg (219,000 lb)



- KEY**
- 1A — 1st Gear (Torque Converter)
 - 1B — 1st Gear
 - 2 — 2nd Gear
 - 3 — 3rd Gear
 - 4 — 4th Gear
 - 5 — 5th Gear
 - 6 — 6th Gear
 - 7 — 7th Gear

- KEY**
- A — Empty 40 188 kg (88,600 lb)
 - B — Max GMW 99 300 kg (219,000 lb)



KEY

- 1 — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear
- 4 — 4th Gear
- 5 — 5th Gear
- 6 — 6th Gear
- 7 — 7th Gear

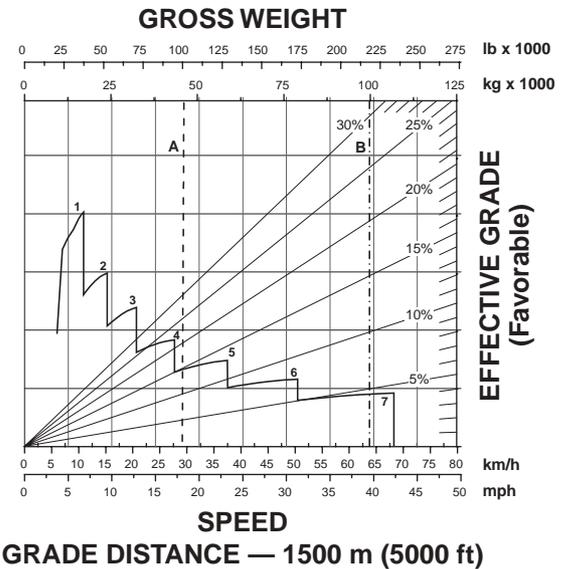
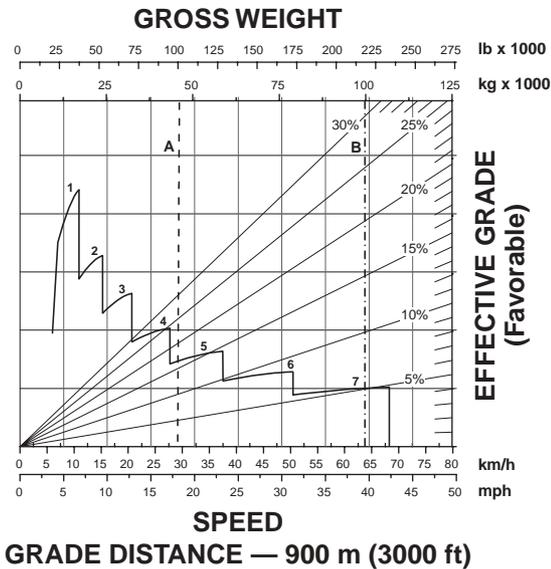
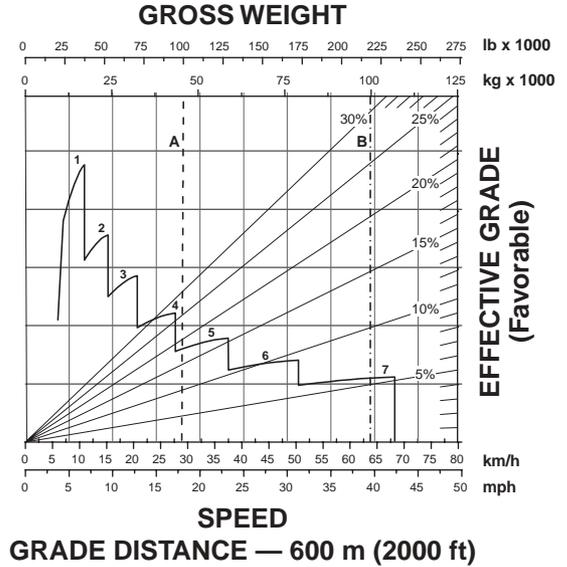
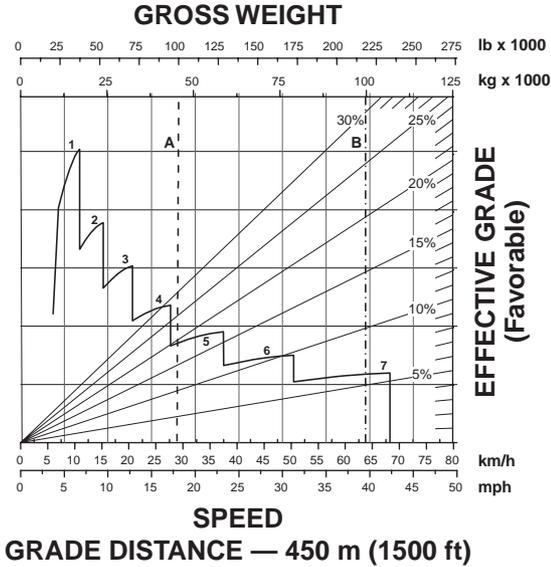
KEY

- A — Empty 40 188 kg (88,600 lb)
- B — Max GMW 99 300 kg (219,000 lb)

Construction & Mining Trucks

773E Brake Performance

- 450 m (1500 ft)
- 600 m (2000 ft)
- 900 m (3000 ft)
- 1500 m (5000 ft)



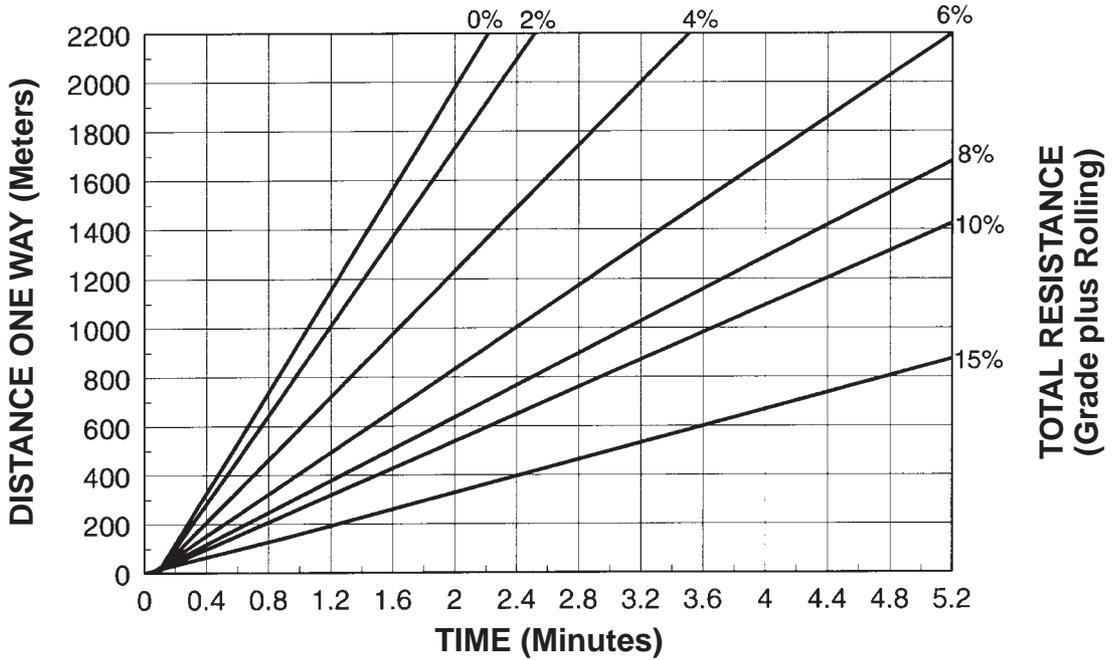
KEY

- 1 — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear
- 4 — 4th Gear
- 5 — 5th Gear
- 6 — 6th Gear
- 7 — 7th Gear

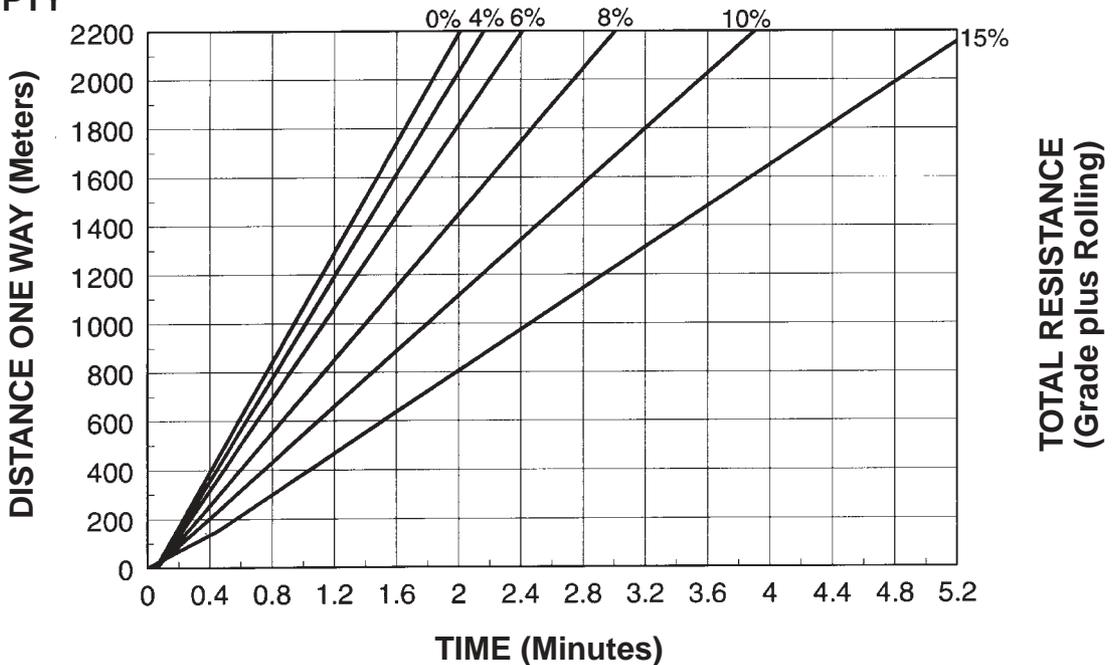
KEY

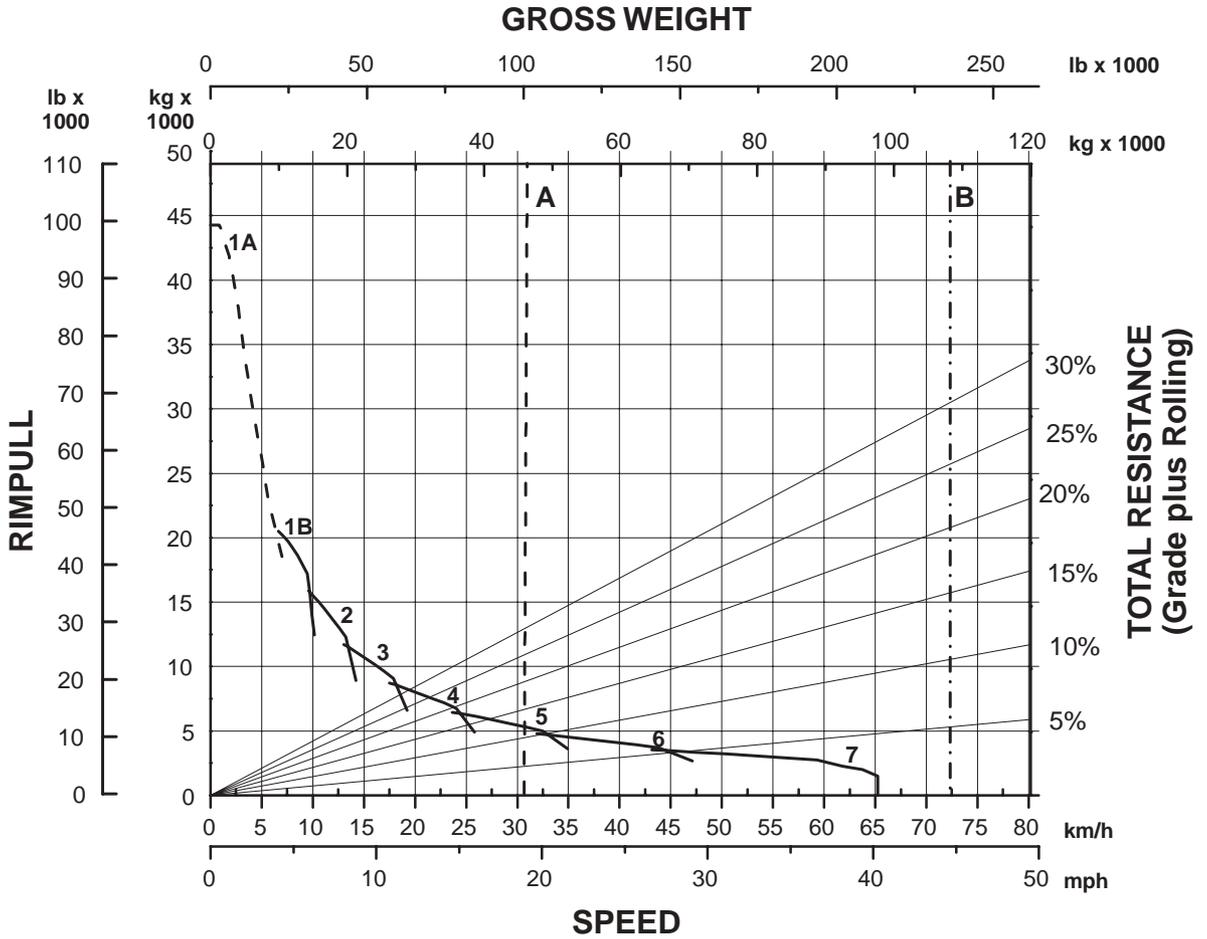
- A — Empty 40 188 kg (88,600 lb)
- B — Max GMW 99 300 kg (219,000 lb)

LOADED



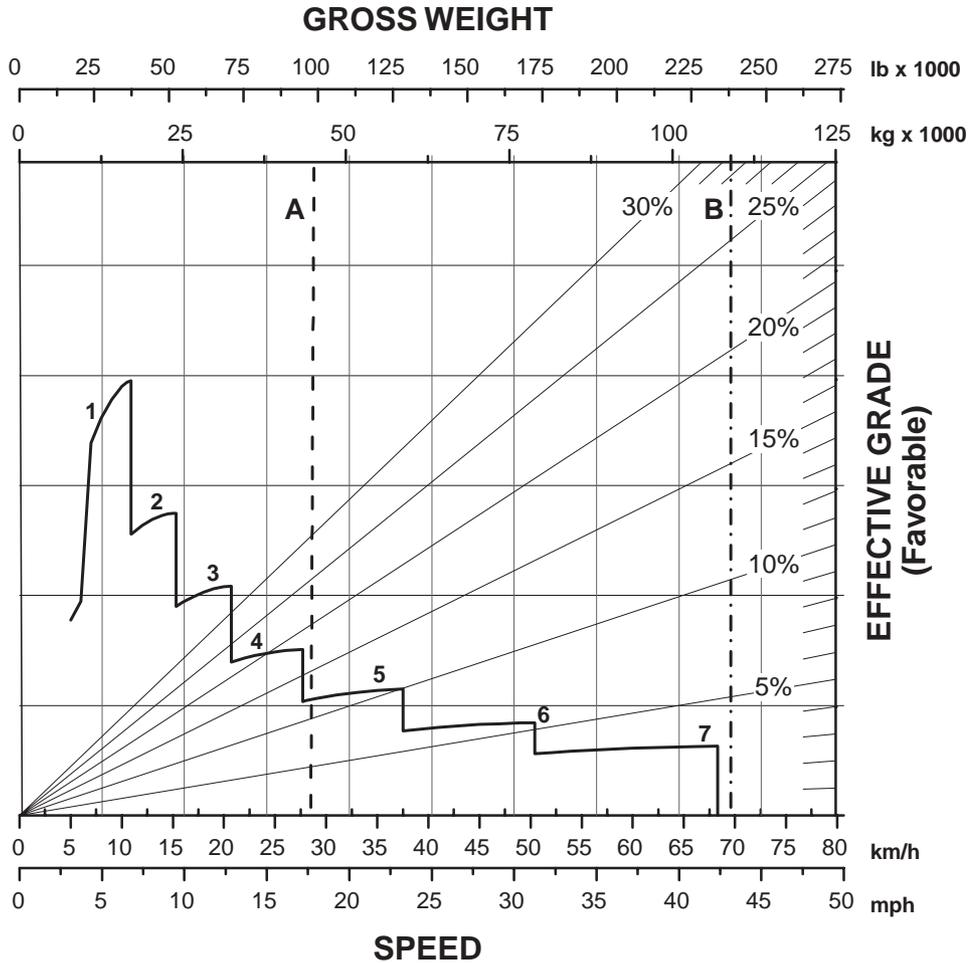
EMPTY





- KEY**
- 1A — 1st Gear (Torque Converter)
 - 1B — 1st Gear
 - 2 — 2nd Gear
 - 3 — 3rd Gear
 - 4 — 4th Gear
 - 5 — 5th Gear
 - 6 — 6th Gear
 - 7 — 7th Gear

- KEY**
- A — Empty 43 953 kg (96,900 lb)
 - B — Max GMW 108 400 kg (239,000 lb)



KEY

- 1 — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear
- 4 — 4th Gear
- 5 — 5th Gear
- 6 — 6th Gear
- 7 — 7th Gear

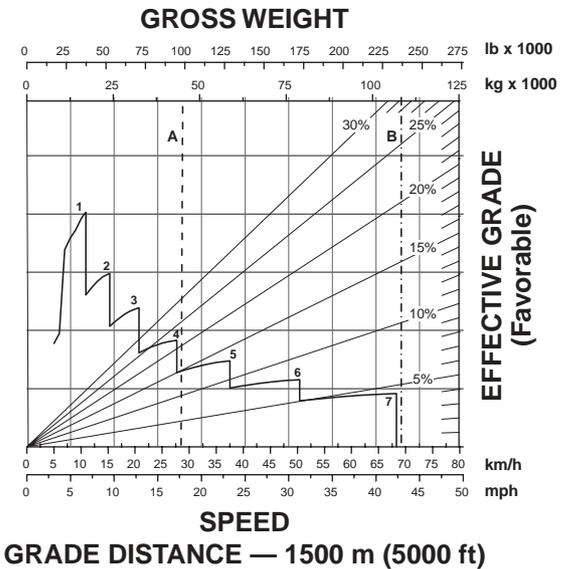
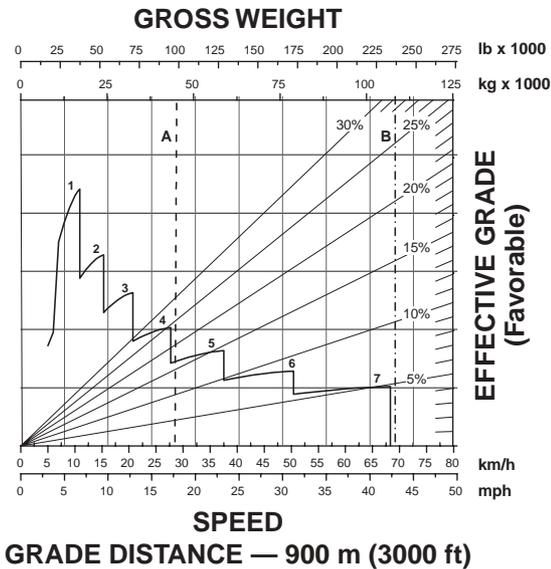
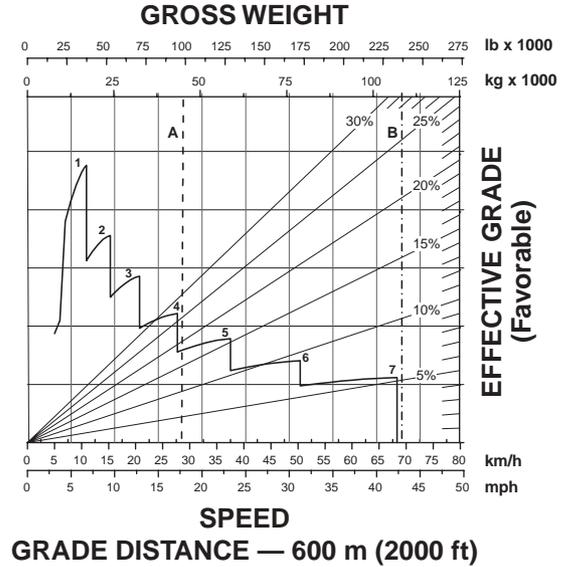
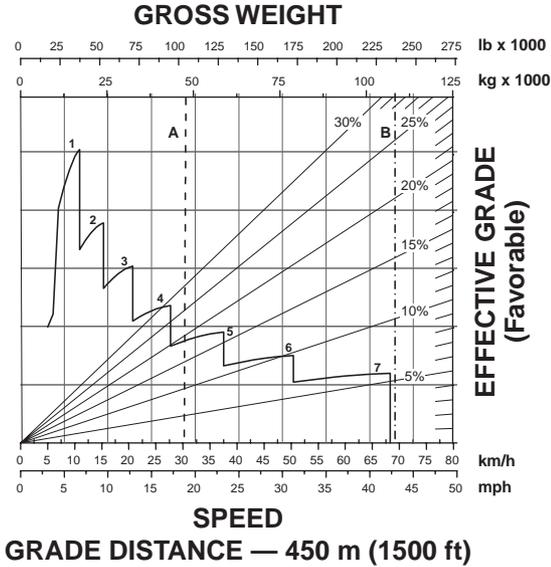
KEY

- A — Empty 43 953 kg (96,900 lb)
- B — Max GMW 108 400 kg (239,000 lb)

Construction & Mining Trucks

775E Brake Performance

- 450 m (1500 ft)
- 600 m (2000 ft)
- 900 m (3000 ft)
- 1500 m (5000 ft)



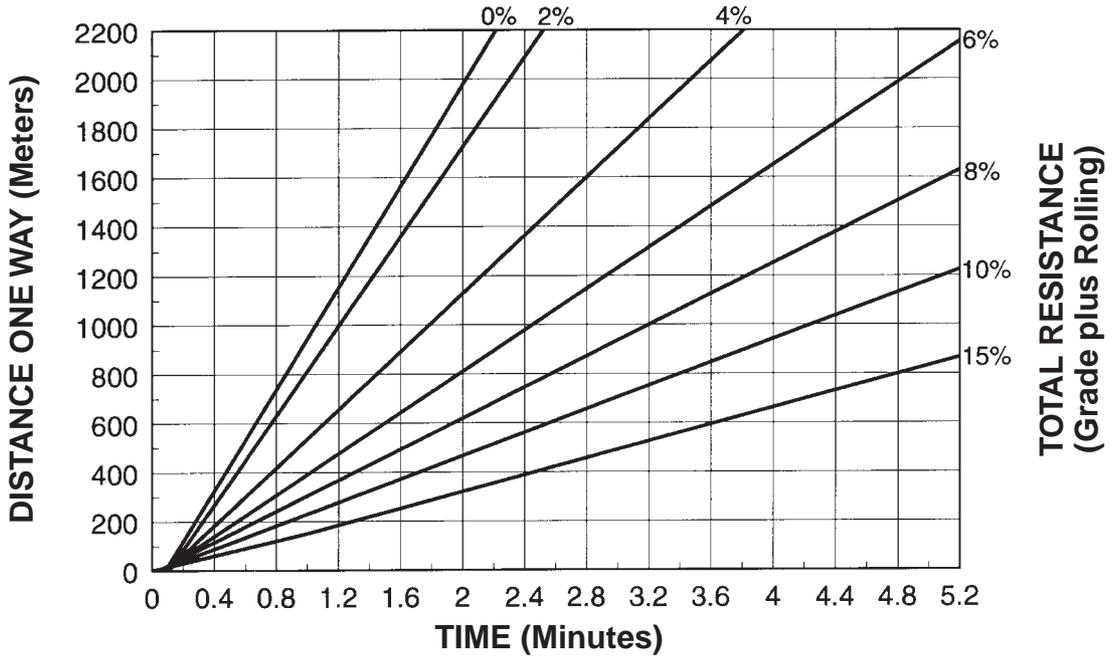
KEY

- 1 — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear
- 4 — 4th Gear
- 5 — 5th Gear
- 6 — 6th Gear
- 7 — 7th Gear

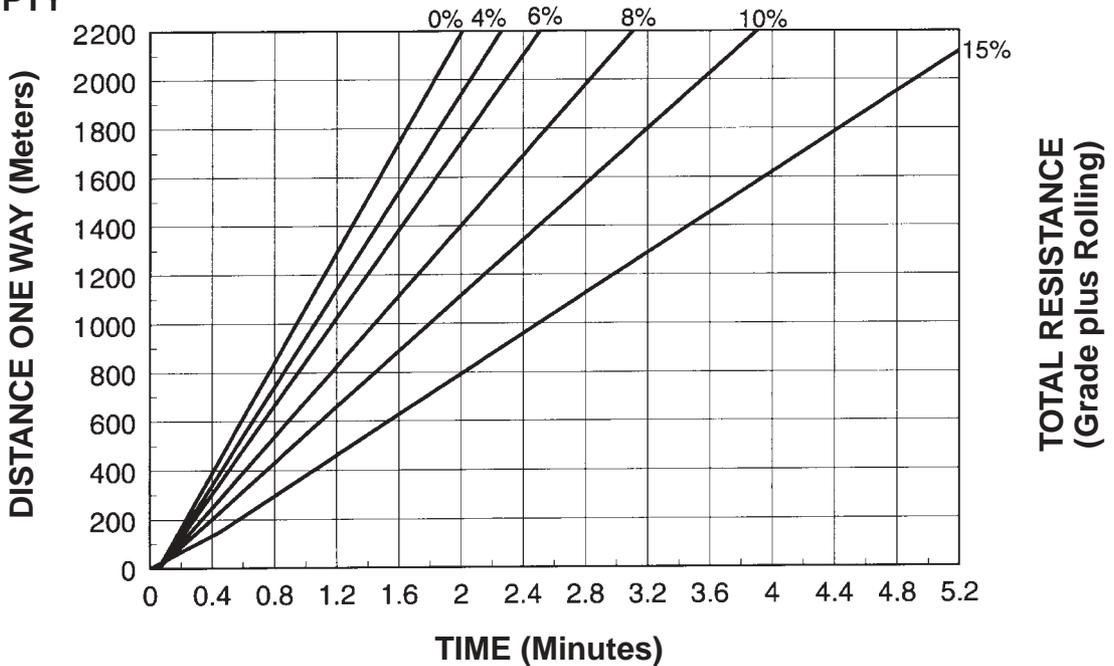
KEY

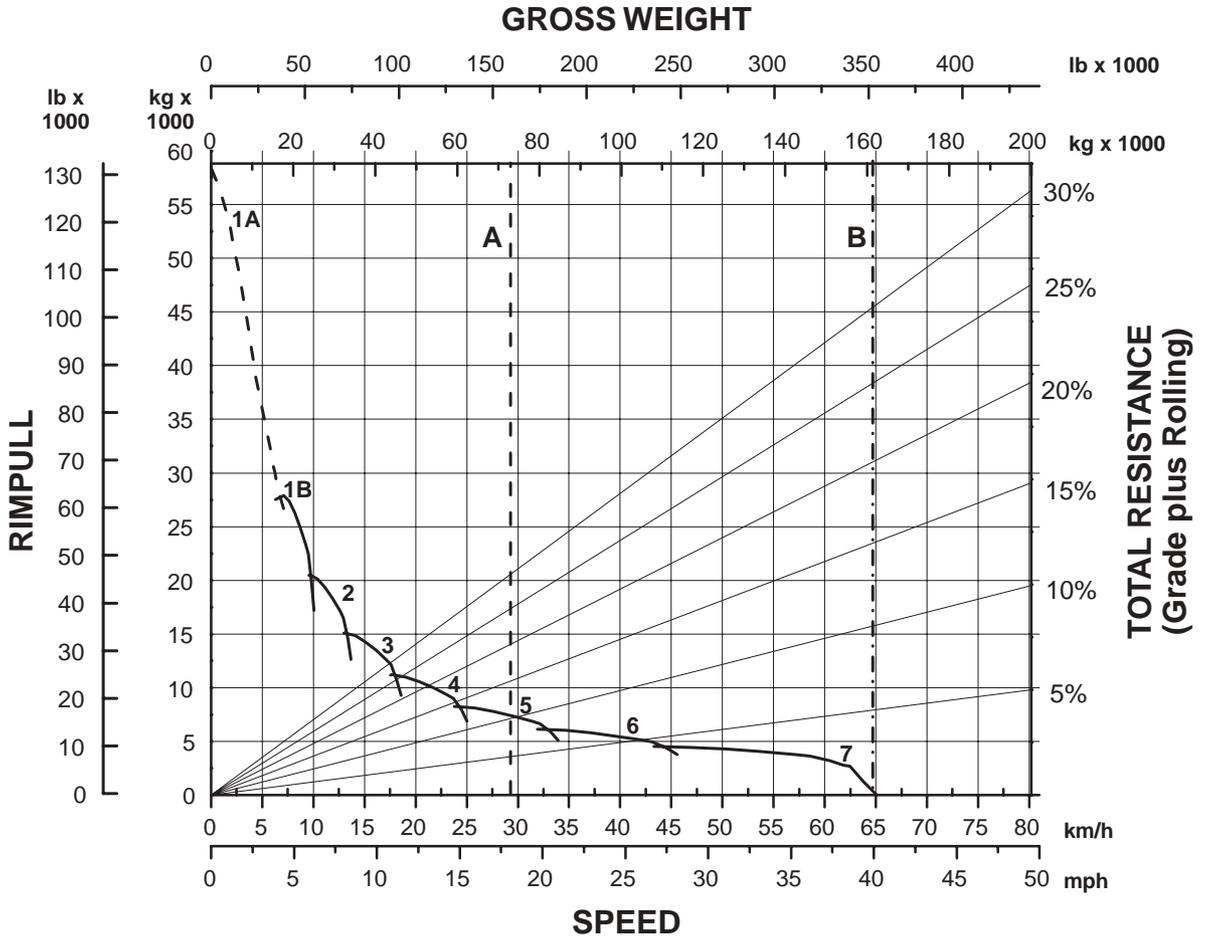
- A — Empty 43 953 kg (96,900 lb)
- B — Max GMW 108 400 kg (239,000 lb)

LOADED



EMPTY





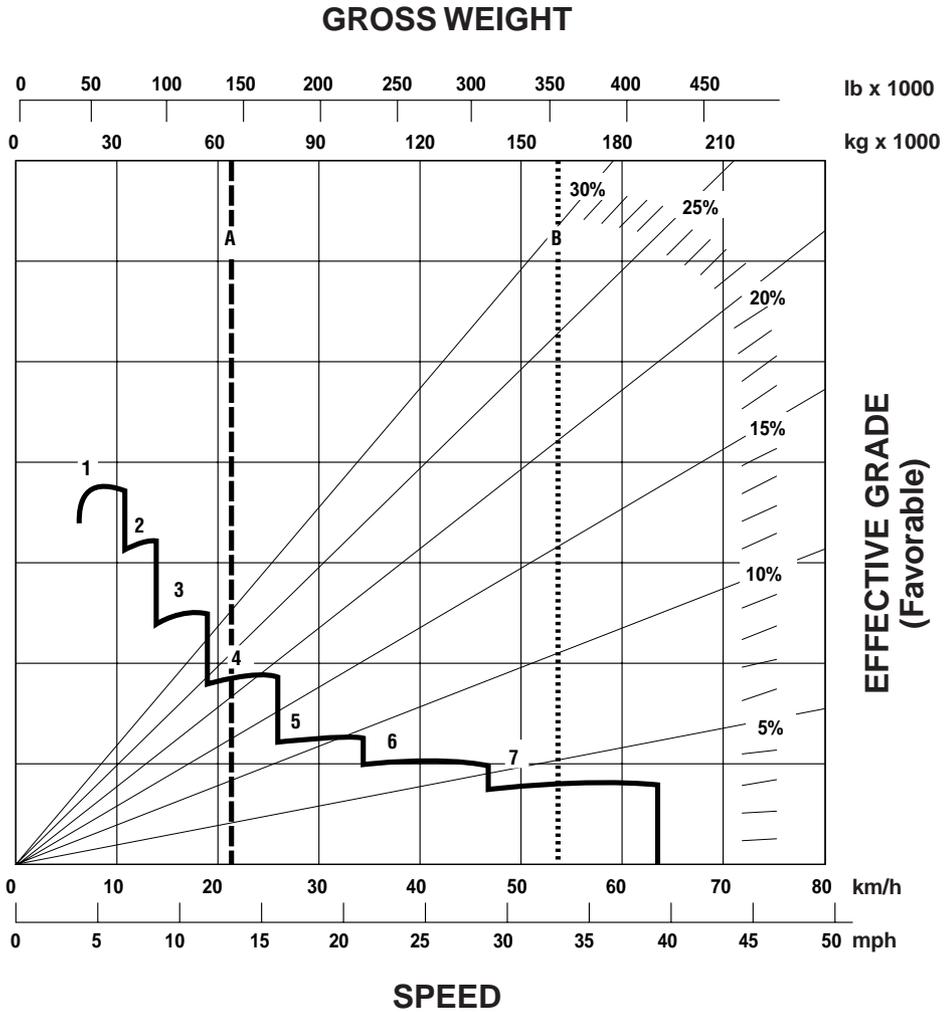
KEY

- 1A — 1st Gear (Torque Converter)
- 1B — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear
- 4 — 4th Gear
- 5 — 5th Gear
- 6 — 6th Gear
- 7 — 7th Gear

KEY

- A* — Empty 64 359 kg (141,889 lb)
- B* — Max GMW 163 293 kg (360,000 lb)

*These two reference lines (A and B) apply only to 777D.



CONTINUOUS GRADE LENGTH

KEY

- 1 — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear
- 4 — 4th Gear
- 5 — 5th Gear
- 6 — 6th Gear
- 7 — 7th Gear

KEY

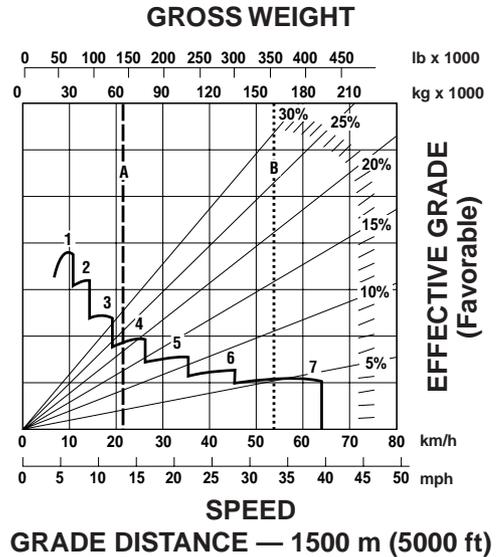
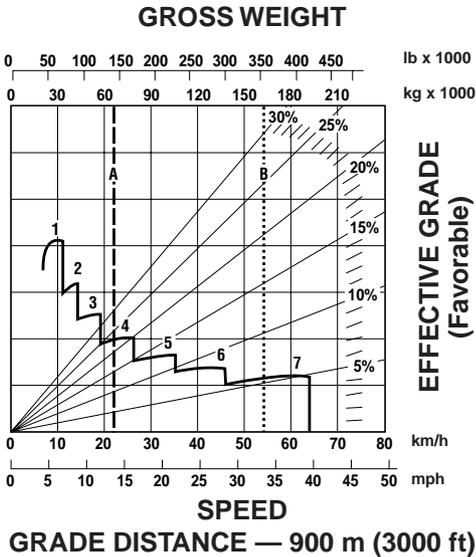
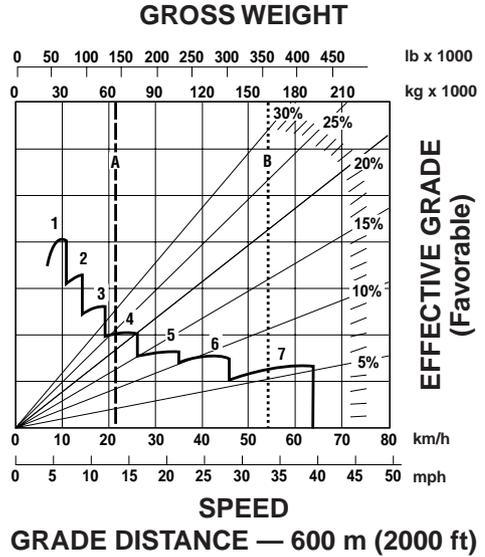
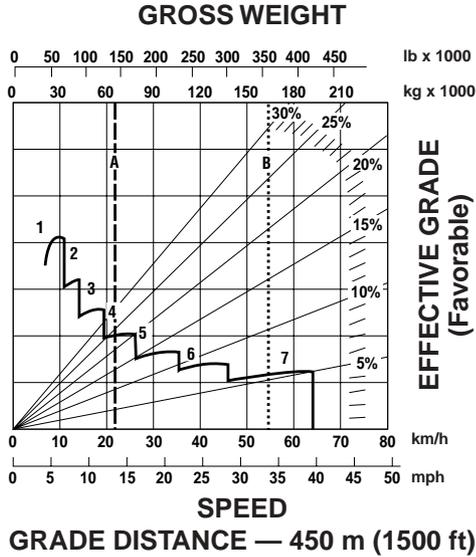
- A* — Empty 64 359 kg (141,889 lb)
- B* — Max GMW 161 028 kg (355,000 lb)

*These two reference lines (A and B) apply only to 777D. Brake performance for the 776D will vary depending on trailer brake capability.

**Construction & Mining Trucks
Construction & Mining Tractors**

776D, 777D Brake Performance

- 450 m (1500 ft) ● 600 m (2000 ft)
- 900 m (3000 ft) ● 1500 m (5000 ft)



KEY

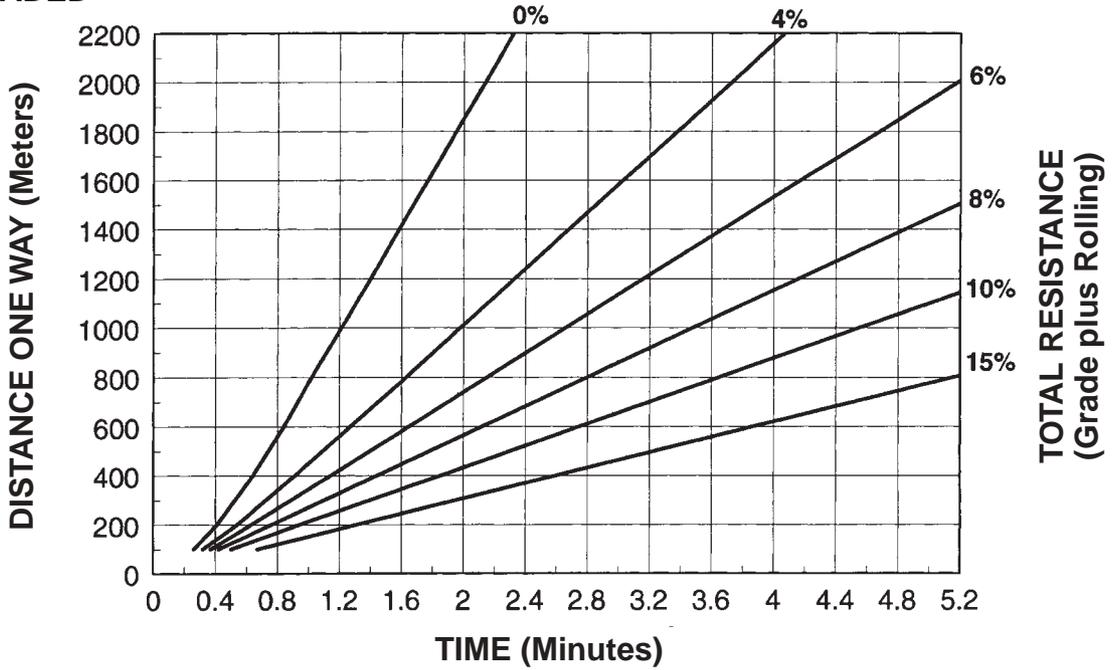
- 1 — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear
- 4 — 4th Gear
- 5 — 5th Gear
- 6 — 6th Gear
- 7 — 7th Gear

KEY

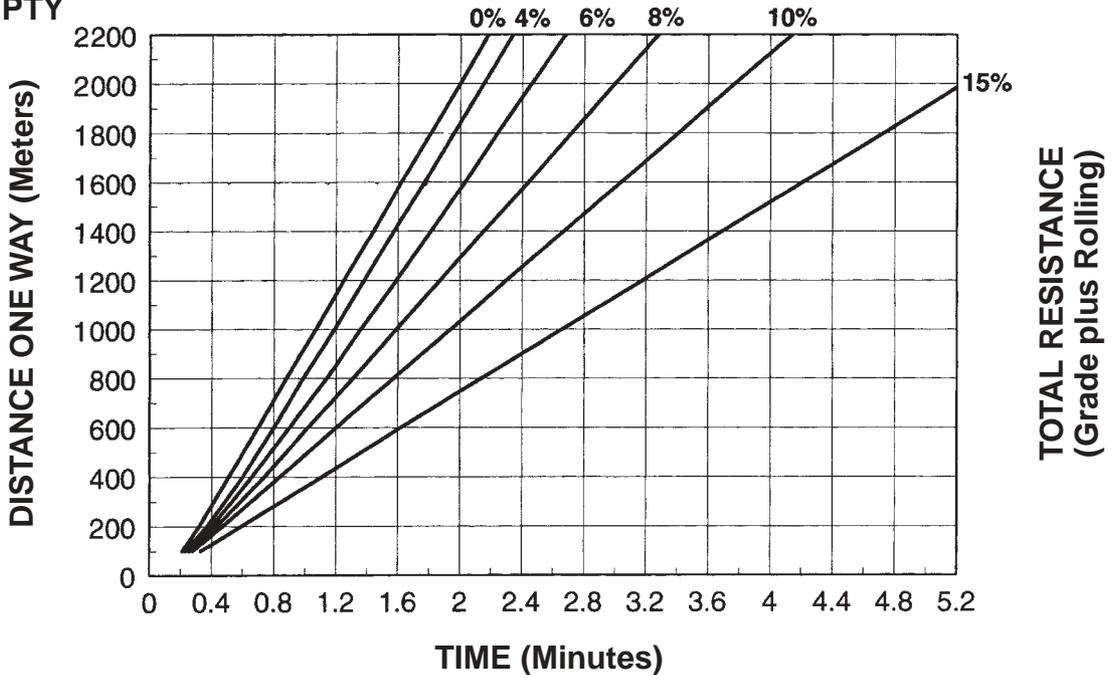
- A* — Empty 64 359 kg (141,889 lb)
- B* — Max GMW 161 028 kg (355,000 lb)

*These two reference lines (A and B) apply only to 777D. Brake performance for the 776D will vary depending on trailer brake capability.

LOADED



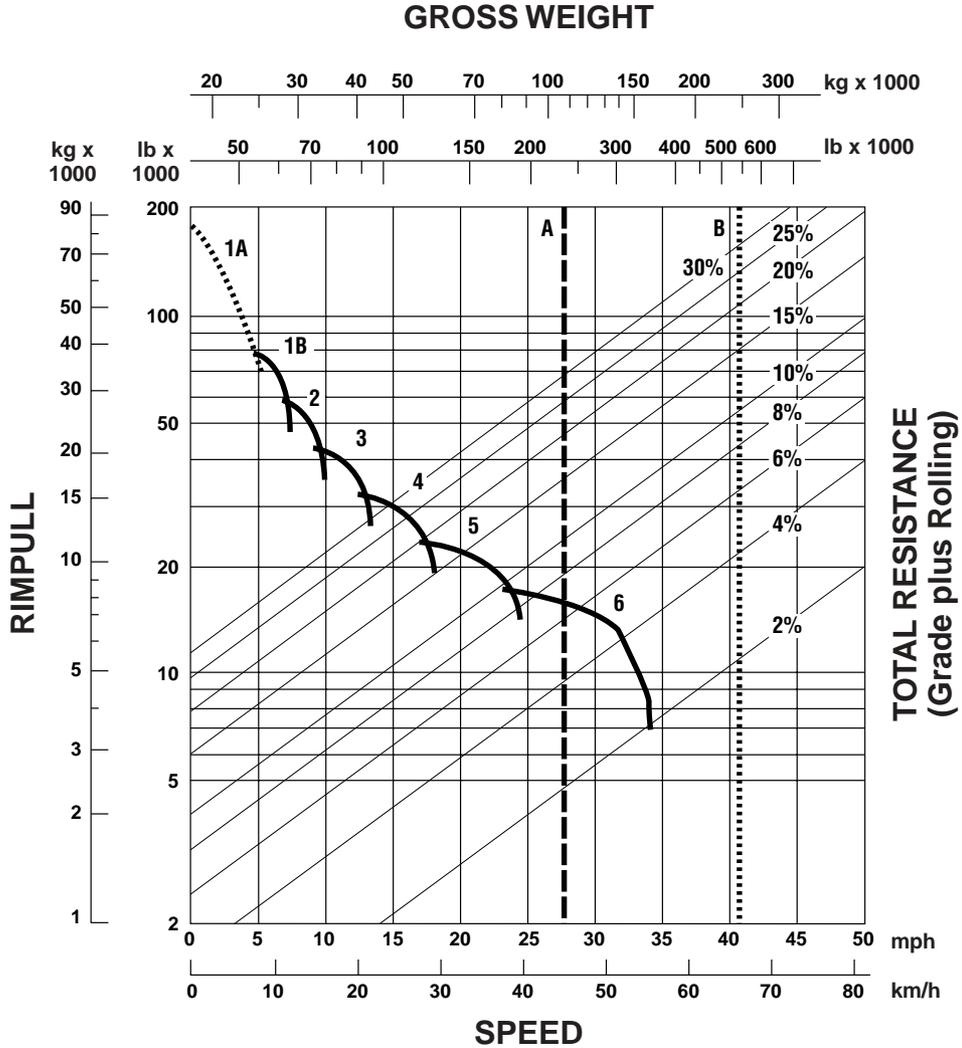
EMPTY



**Construction & Mining Trucks
Construction & Mining Tractors**

784C, 785C Rimpull-Speed-Gradeability

- 33.00R51 Tires
- 1433 mm (4'8.4") Tire Radius



KEY

- 1A — 1st Gear (Torque Converter)
- 1B — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear
- 4 — 4th Gear
- 5 — 5th Gear
- 6 — 6th Gear

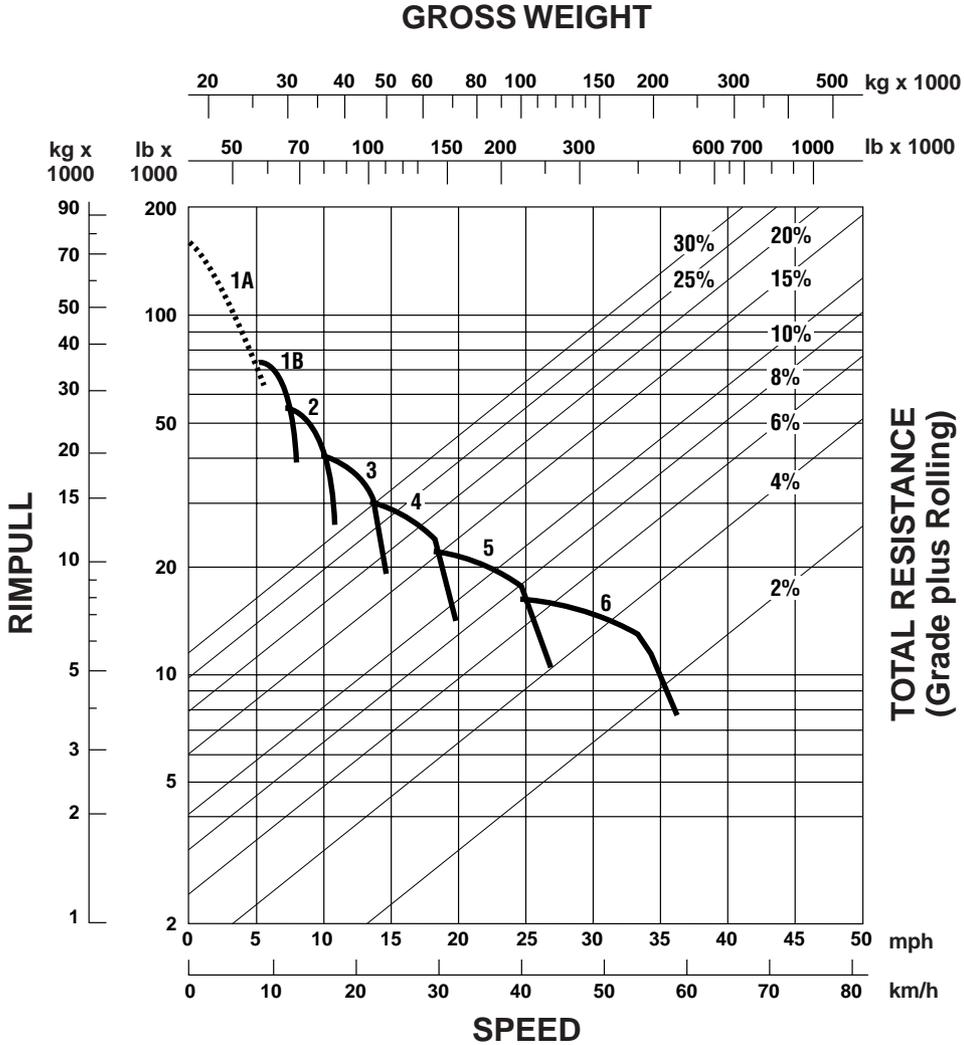
Maximum travel speeds

1900 rpm	Gear	km/h	MPH
Forward	1	12.1	7.5
	2	16.3	10.2
	3	22.2	13.8
	4	29.9	18.6
	5	40.6	25.2
	6	54.8	34.0
Reverse		11.0	6.8

KEY

- A* — Est. Max Field Empty Weight 105 127 kg (231,767 lb)**
- B* — Max GMW 249 475 kg (550,000 lb)

*These two reference lines (A and B) apply only to 785C.
**Truck equipped with sideboards and liners.

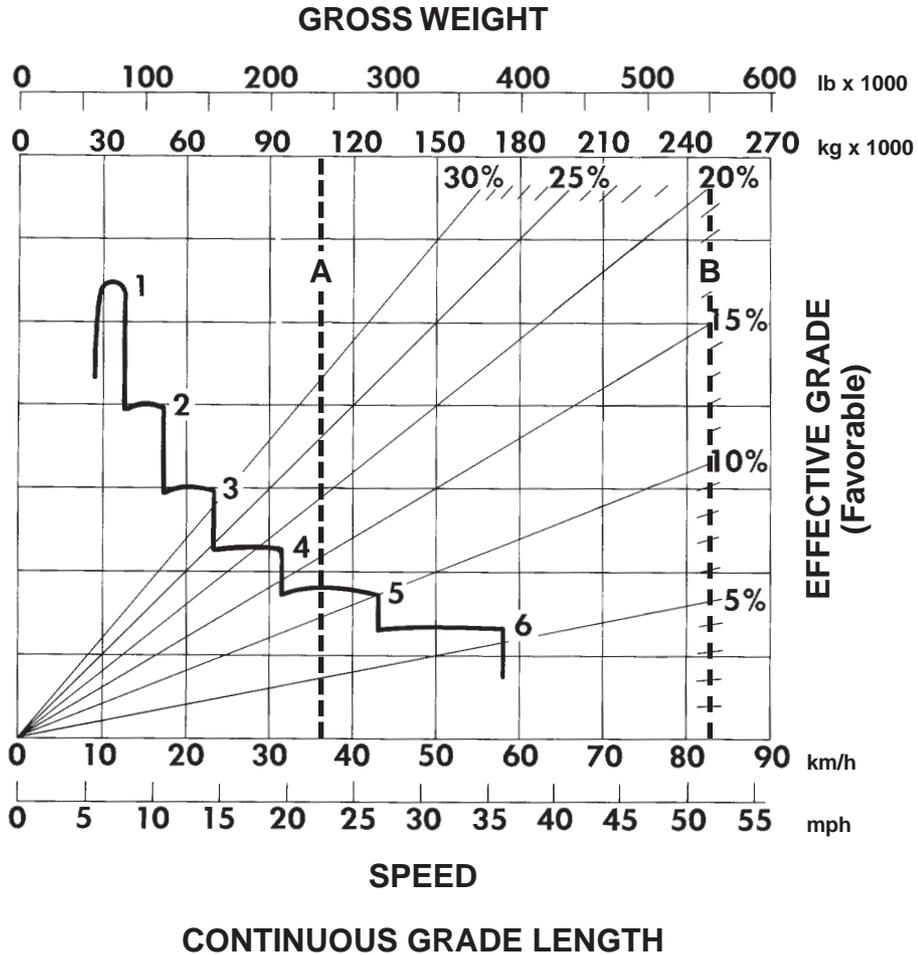


KEY

- 1A— 1st Gear (Torque Converter)
- 1B— 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear
- 4 — 4th Gear
- 5 — 5th Gear
- 6 — 6th Gear

Maximum travel speeds

1900 rpm	Gear	km/h	MPH
Forward	1	12.9	8.0
	2	17.4	10.8
	3	23.5	14.6
	4	31.9	19.8
	5	43.3	26.8
	6	58.4	36.2
Reverse		11.7	7.2



KEY

- 1 — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear
- 4 — 4th Gear
- 5 — 5th Gear
- 6 — 6th Gear

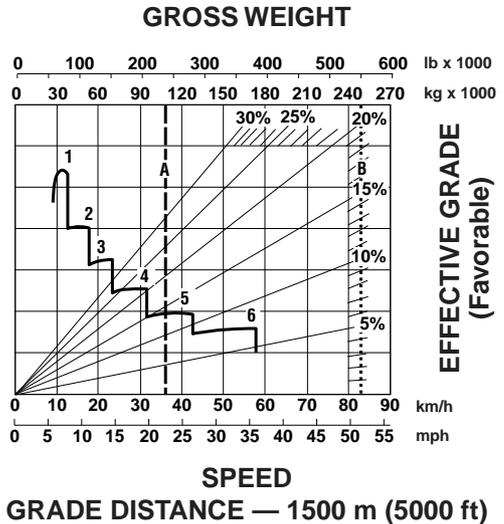
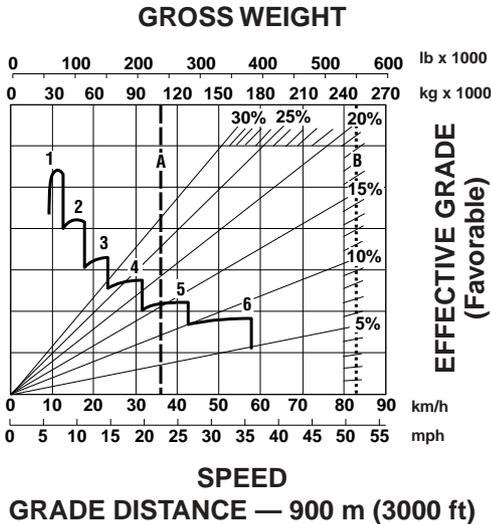
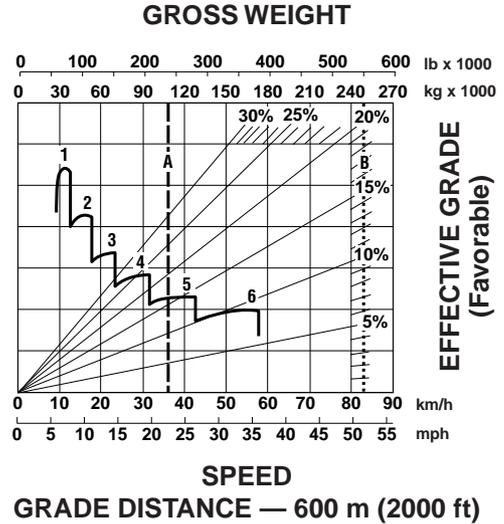
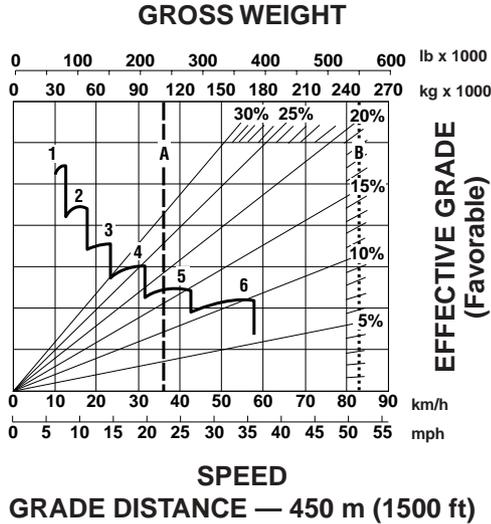
KEY

- A* — Est. Field Empty Weight 105 127 kg (231,767 lb)**
- B* — Max GMW 249 433 kg (550,000 lb)

*These two reference lines (A and B) apply only to 785C. Brake performance for 784C will vary depending on trailer brake capability.
**Truck equipped with sideboards and liners.

- 784C, 785C Brake Performance
- 450 m (1500 ft)
 - 600 m (2000 ft)
 - 900 m (3000 ft)
 - 1500 m (5000 ft)

**Construction & Mining Trucks
Construction & Mining Tractors**



KEY

- 1 — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear
- 4 — 4th Gear
- 5 — 5th Gear
- 6 — 6th Gear

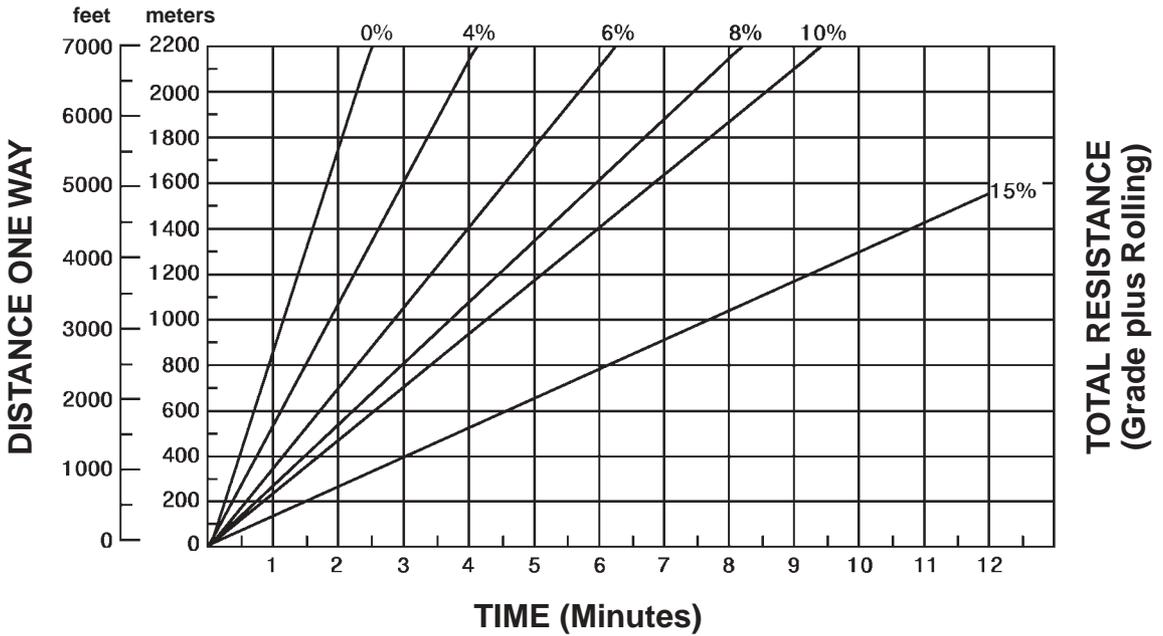
KEY

- A* — Est. Field Empty Weight 105 127 kg (231,767 lb)**
- B* — Max GMW 249 433 kg (550,000 lb)

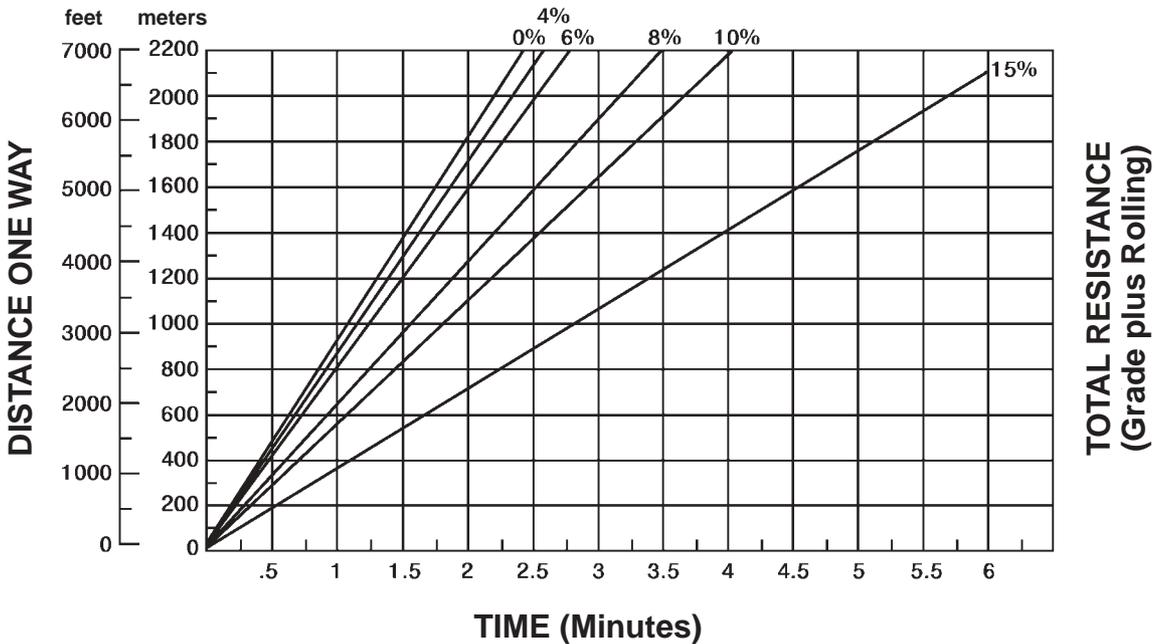
*These two reference lines (A and B) apply only to 785C. Brake performance for 784C will vary depending on trailer brake capability.

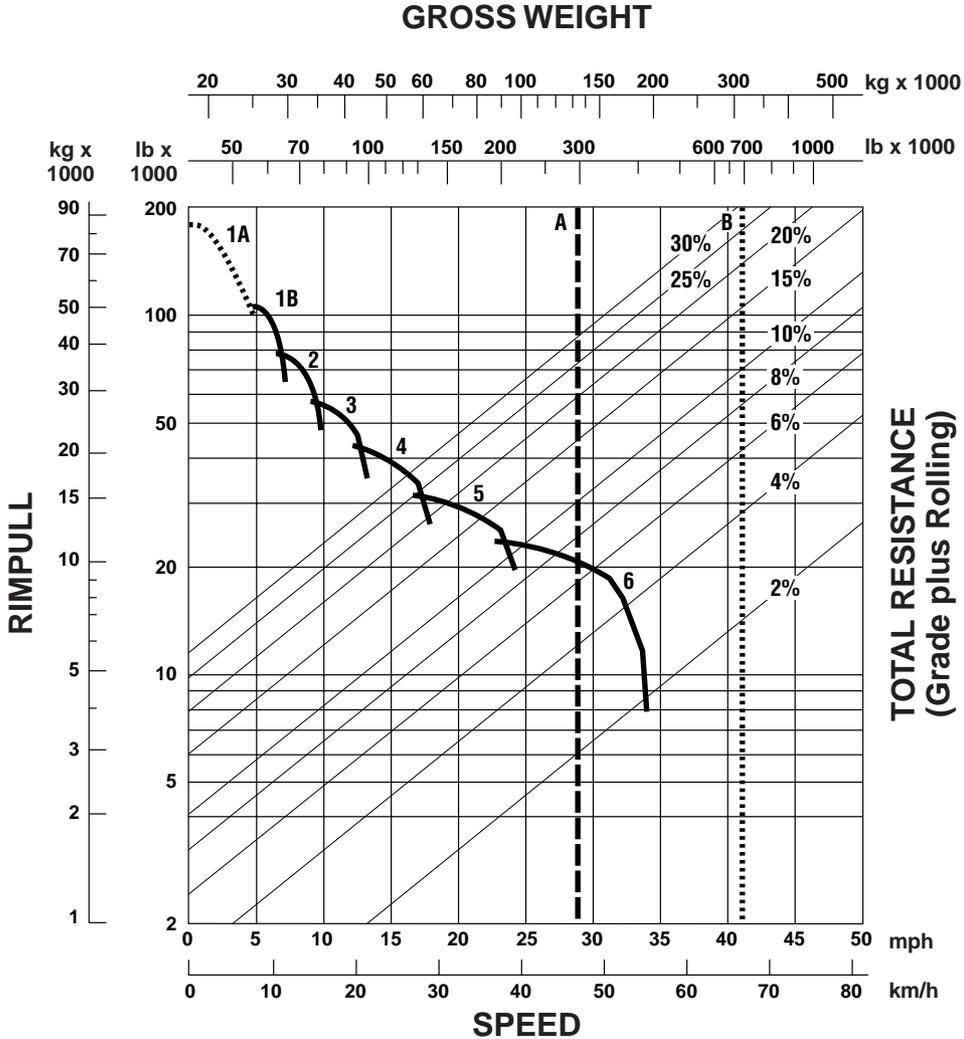
**Truck equipped with sideboards and liners.

LOADED



EMPTY





KEY

- 1A — 1st Gear (Torque Converter)
- 1B — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear
- 4 — 4th Gear
- 5 — 5th Gear
- 6 — 6th Gear

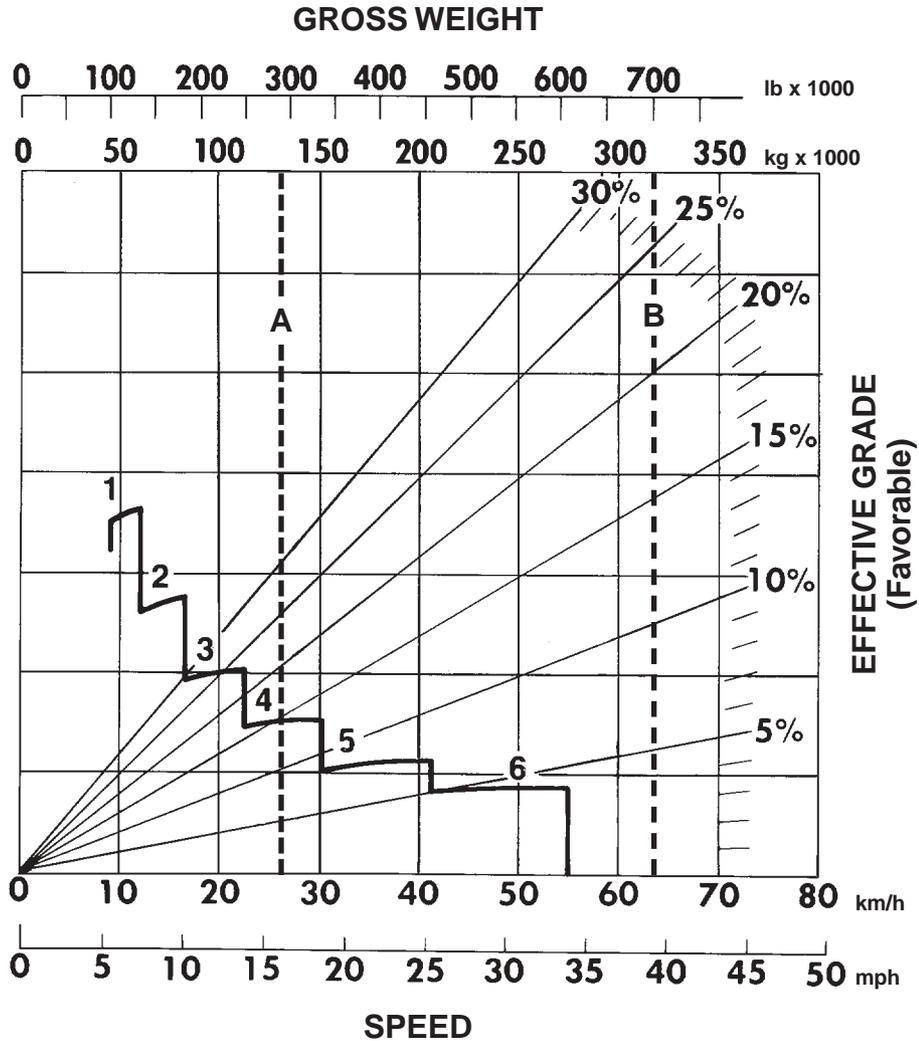
Maximum travel speeds

1900 rpm	Gear	km/h	MPH
Forward	1	12.0	7.5
	2	16.3	10.1
	3	22.0	13.7
	4	29.8	18.5
	5	40.4	25.0
	6	54.5	33.8
Reverse		10.9	6.8

KEY

- A — Est. Max Field Empty Weight 132 651 kg (292,447 lb)*
- B — Max GMW 317 460 kg (700,000 lb)

*Truck equipped with sideboards and liners.



CONTINUOUS GRADE LENGTH

KEY

- 1 — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear
- 4 — 4th Gear
- 5 — 5th Gear
- 6 — 6th Gear

KEY

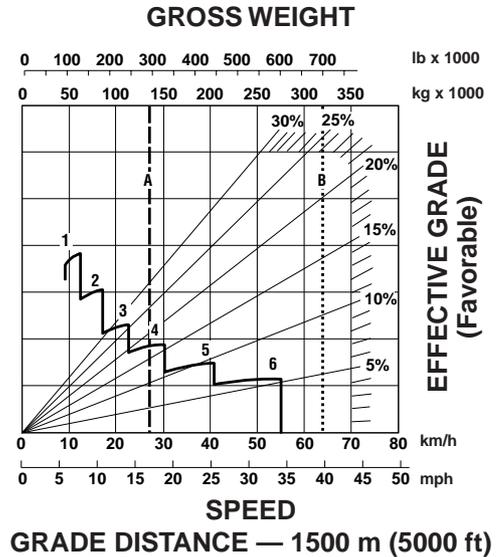
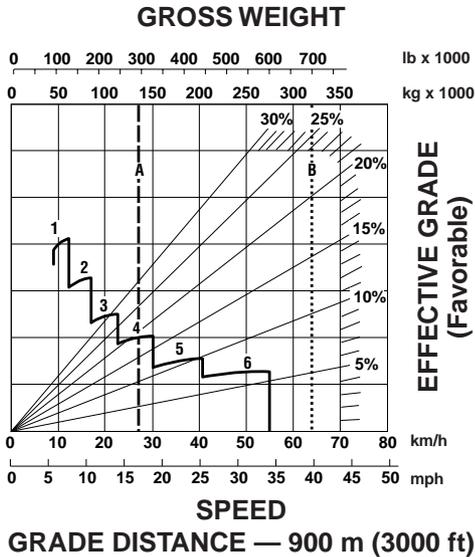
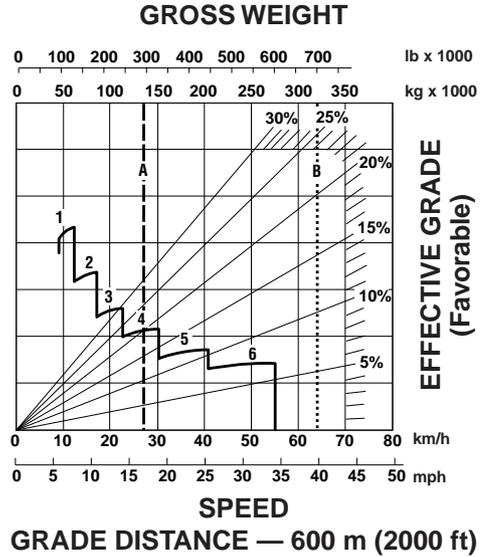
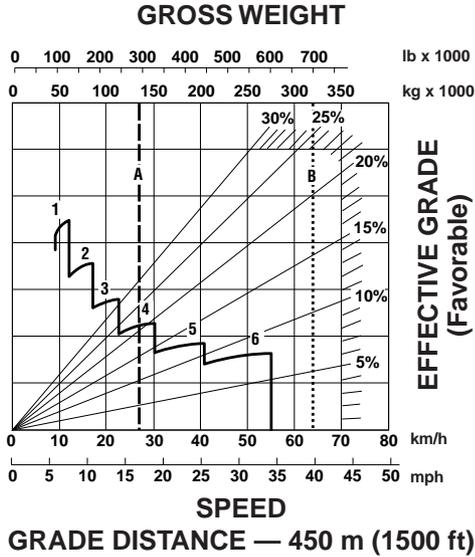
- A — Est. Field Empty Weight 132 651 kg (292,447 lb)*
- B — Max GMW 317 460 kg (700,000 lb)

*Truck equipped with sideboards and liners.

789C Brake Performance

- 450 m (1500 ft) ● 600 m (2000 ft)
- 900 m (3000 ft) ● 1500 m (5000 ft)

Construction & Mining Trucks



KEY

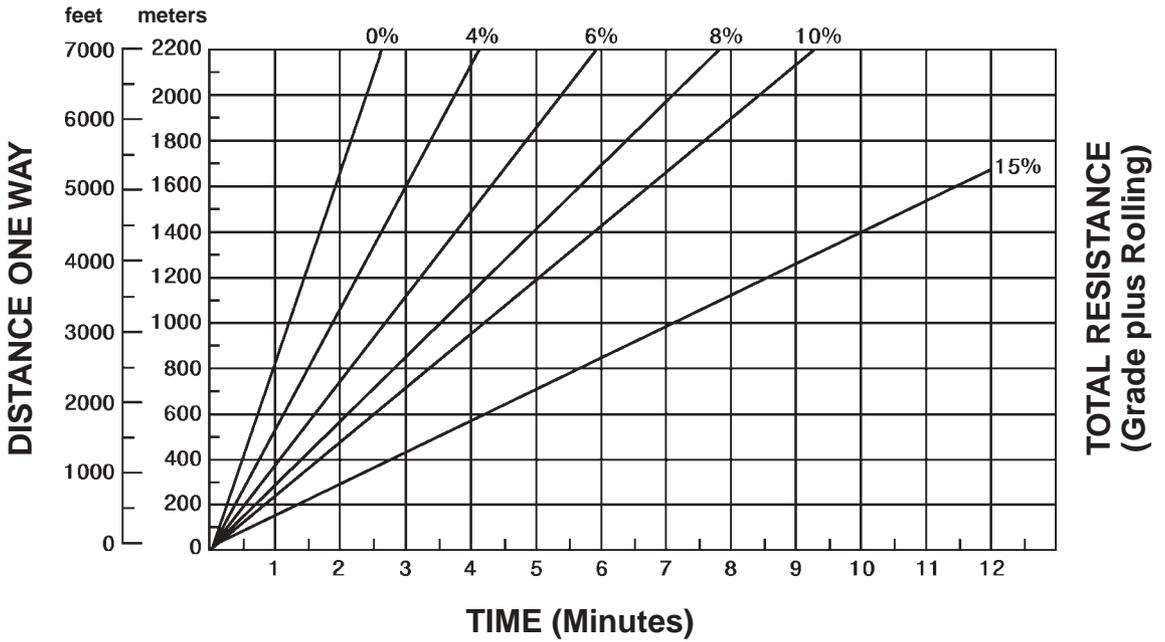
- 1 — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear
- 4 — 4th Gear
- 5 — 5th Gear
- 6 — 6th Gear

KEY

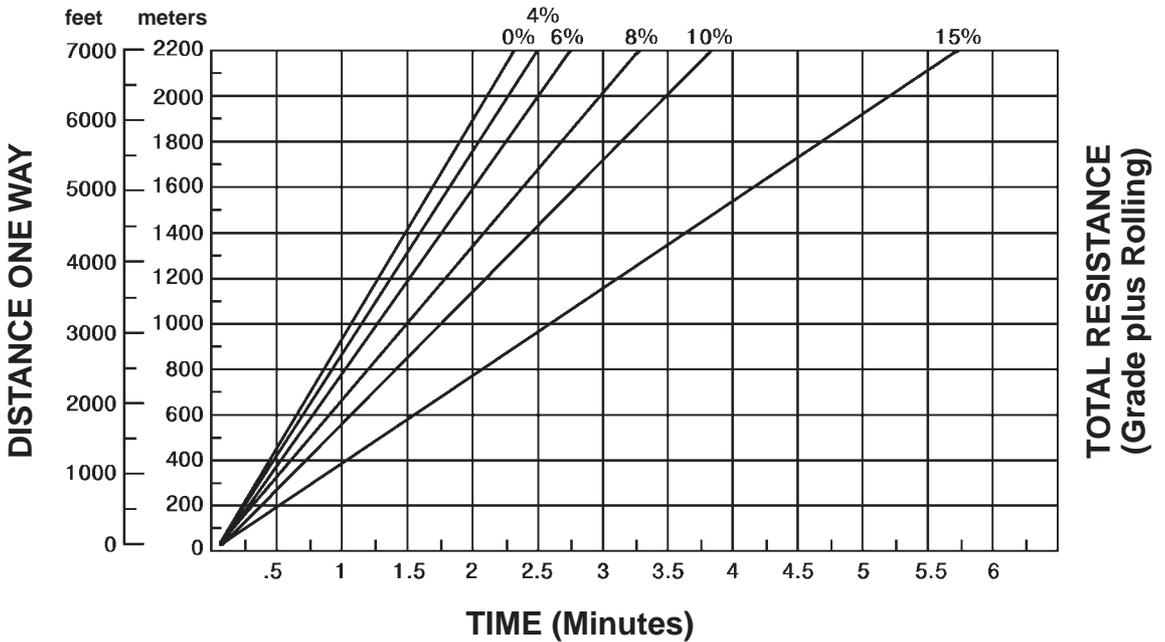
- A — Est. Field Empty Weight 132 651 kg (292,447 lb)*
- B — Max GMW 317 460 kg (700,000 lb)

*Truck equipped with sideboards and liners.

LOADED

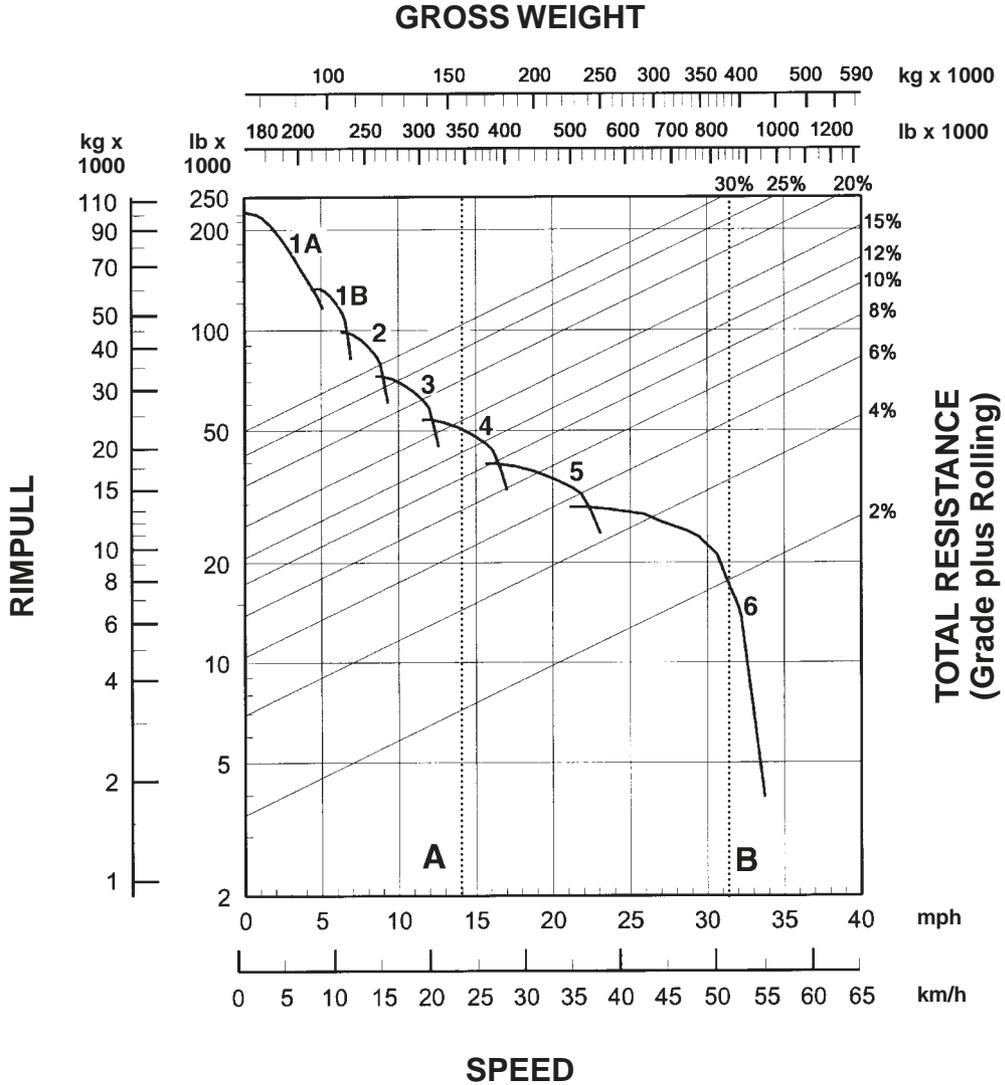


EMPTY



793C Rimpull-Speed-Gradeability
 • 40.00R57 Tires
 • 1778 mm (5'10") Tire Radius

Construction & Mining Trucks



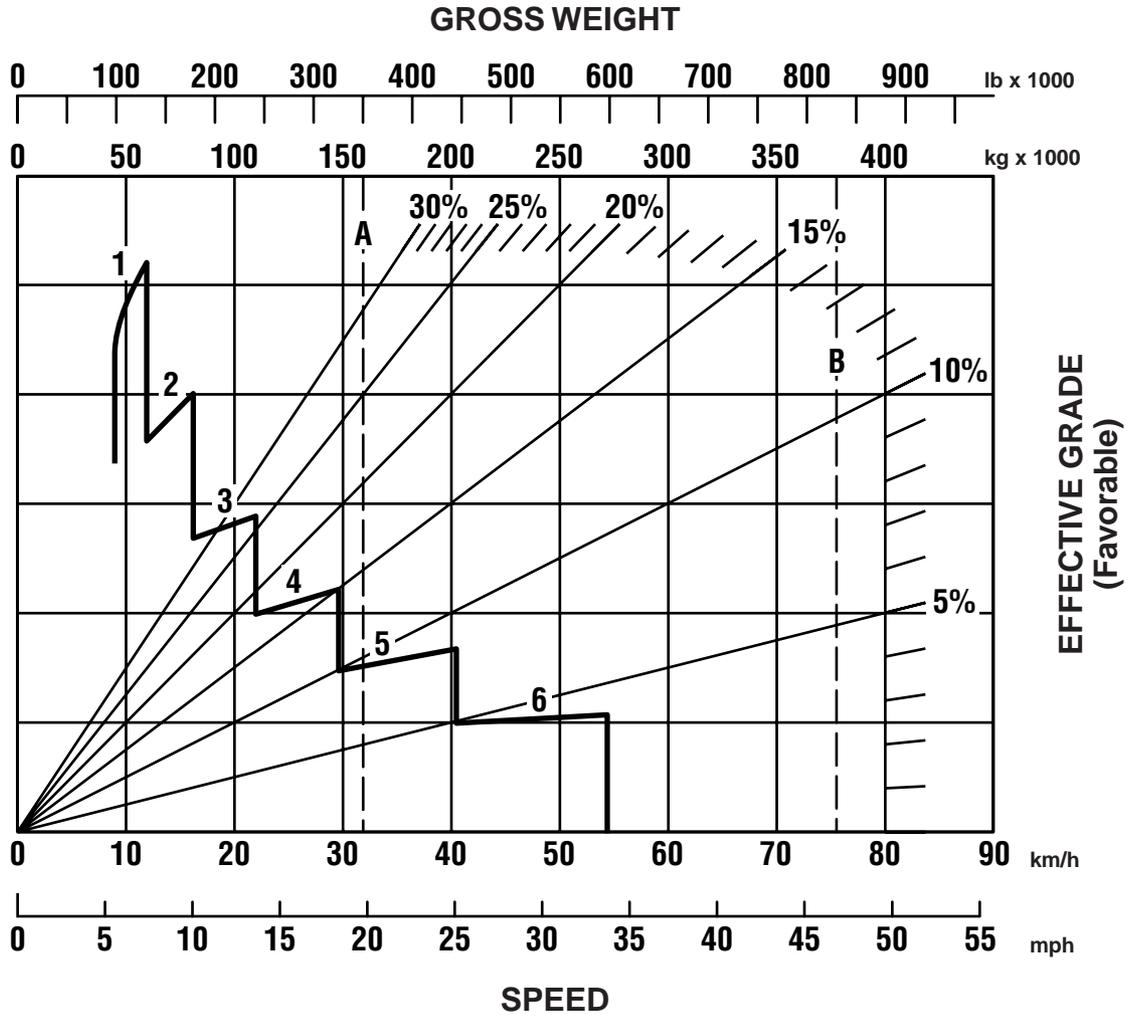
KEY

- 1A — 1st Gear (Torque Converter)
- 1B — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear
- 4 — 4th Gear
- 5 — 5th Gear
- 6 — 6th Gear

KEY

- A — Est. Max Field Empty Weight 156 470 kg (344,960 lb)*
- B — Max GMW 383 740 kg (846,000 lb)

*Truck equipped with sideboards and liners.



CONTINUOUS GRADE LENGTH

KEY

- 1 — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear
- 4 — 4th Gear
- 5 — 5th Gear
- 6 — 6th Gear

KEY

- A — Est. Field Empty Weight 156 470 kg (344,960 lb)*
- B — Max GMW 383 740 kg (846,000 lb)

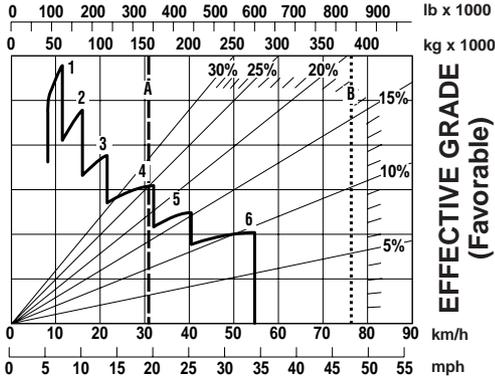
*Truck equipped with sideboards and liners.

793C Brake Performance

- 450 m (1500 ft) ● 600 m (2000 ft)
- 900 m (3000 ft) ● 1500 m (5000 ft)

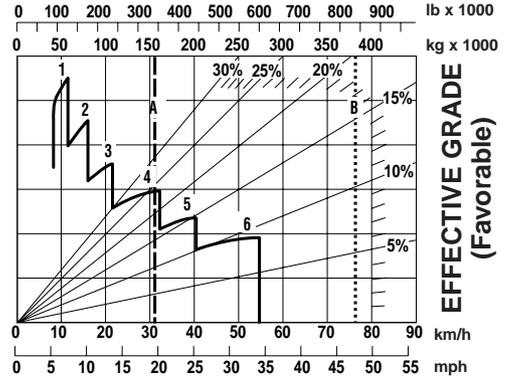
Construction & Mining Trucks

GROSS WEIGHT



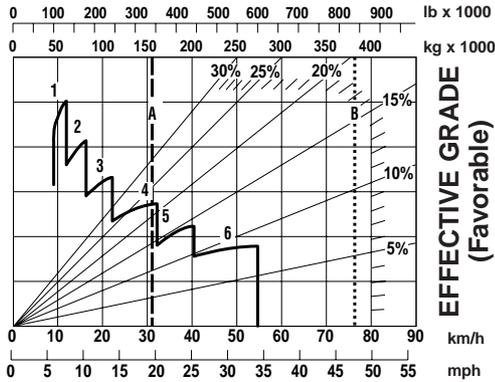
SPEED
GRADE DISTANCE — 450 m (1500 ft)

GROSS WEIGHT



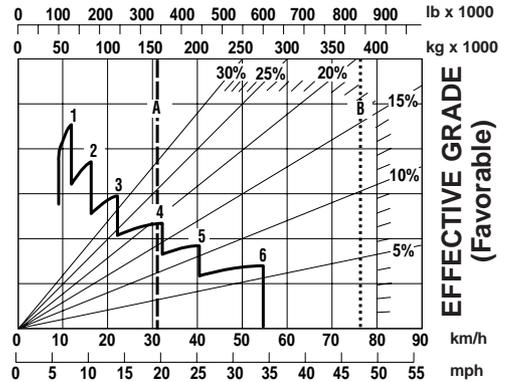
SPEED
GRADE DISTANCE — 600 m (2000 ft)

GROSS WEIGHT



SPEED
GRADE DISTANCE — 900 m (3000 ft)

GROSS WEIGHT



SPEED
GRADE DISTANCE — 1500 m (5000 ft)

KEY

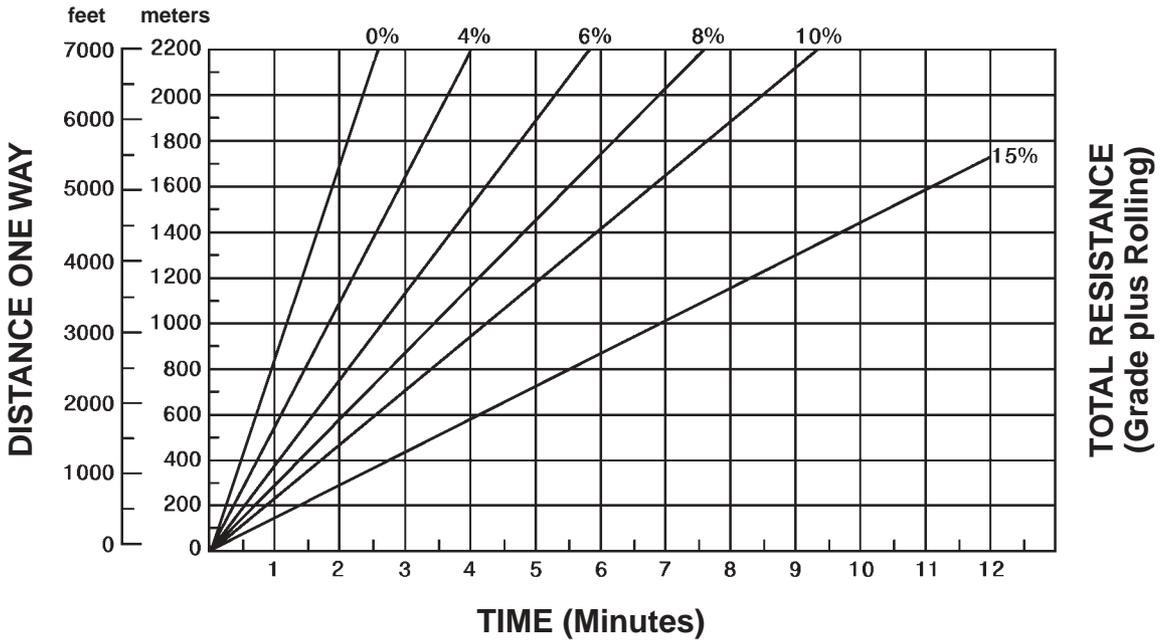
- 1 — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear
- 4 — 4th Gear
- 5 — 5th Gear
- 6 — 6th Gear

KEY

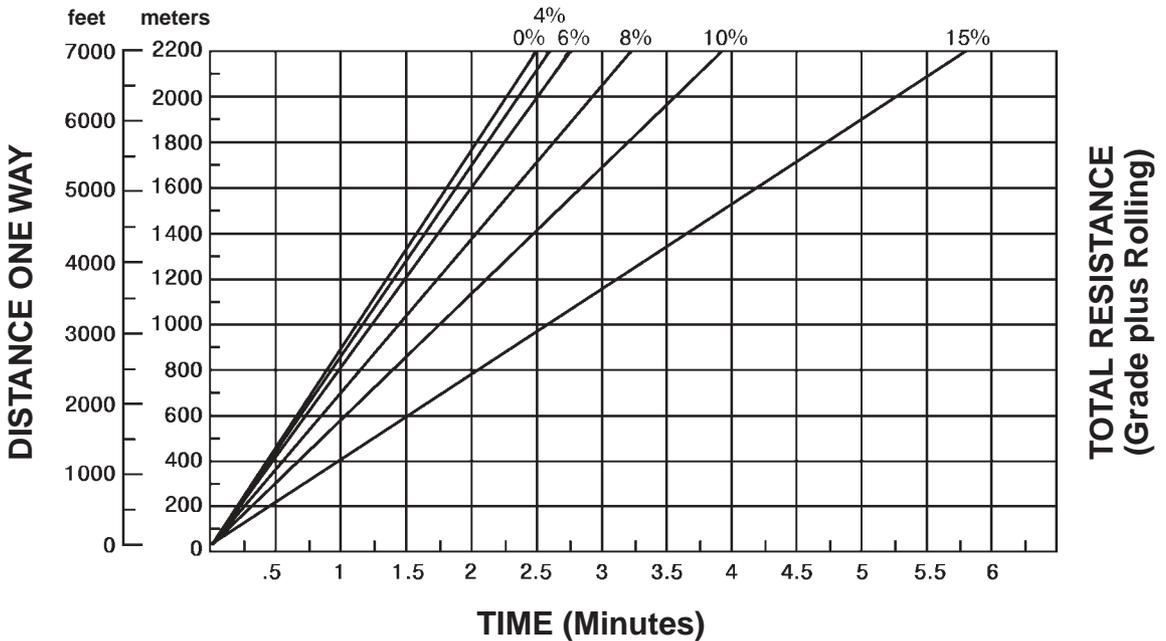
- A — Est. Field Empty Weight 156 470 kg (344,960 lb)*
- B — Max GMW 383 740 kg (846,000 lb)

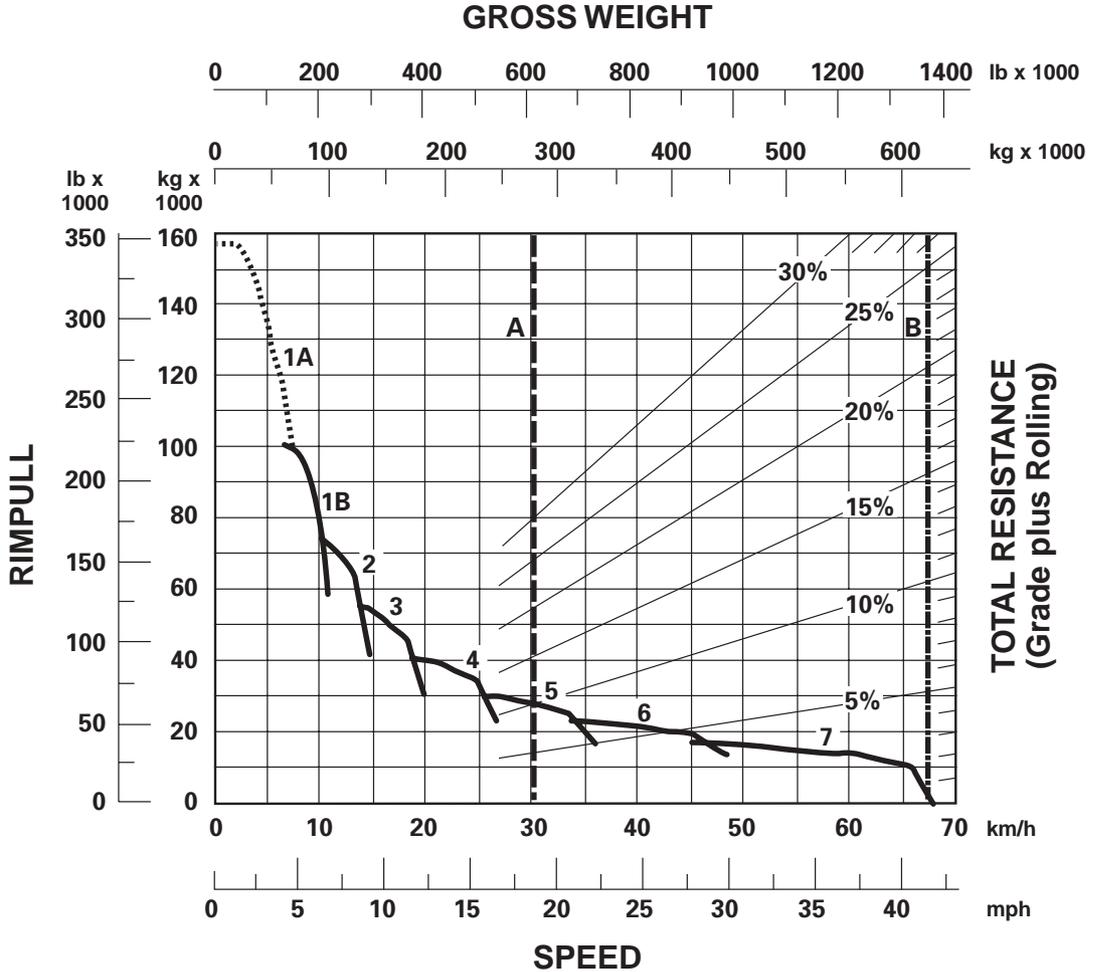
*Truck equipped with sideboards and liners.

LOADED



EMPTY





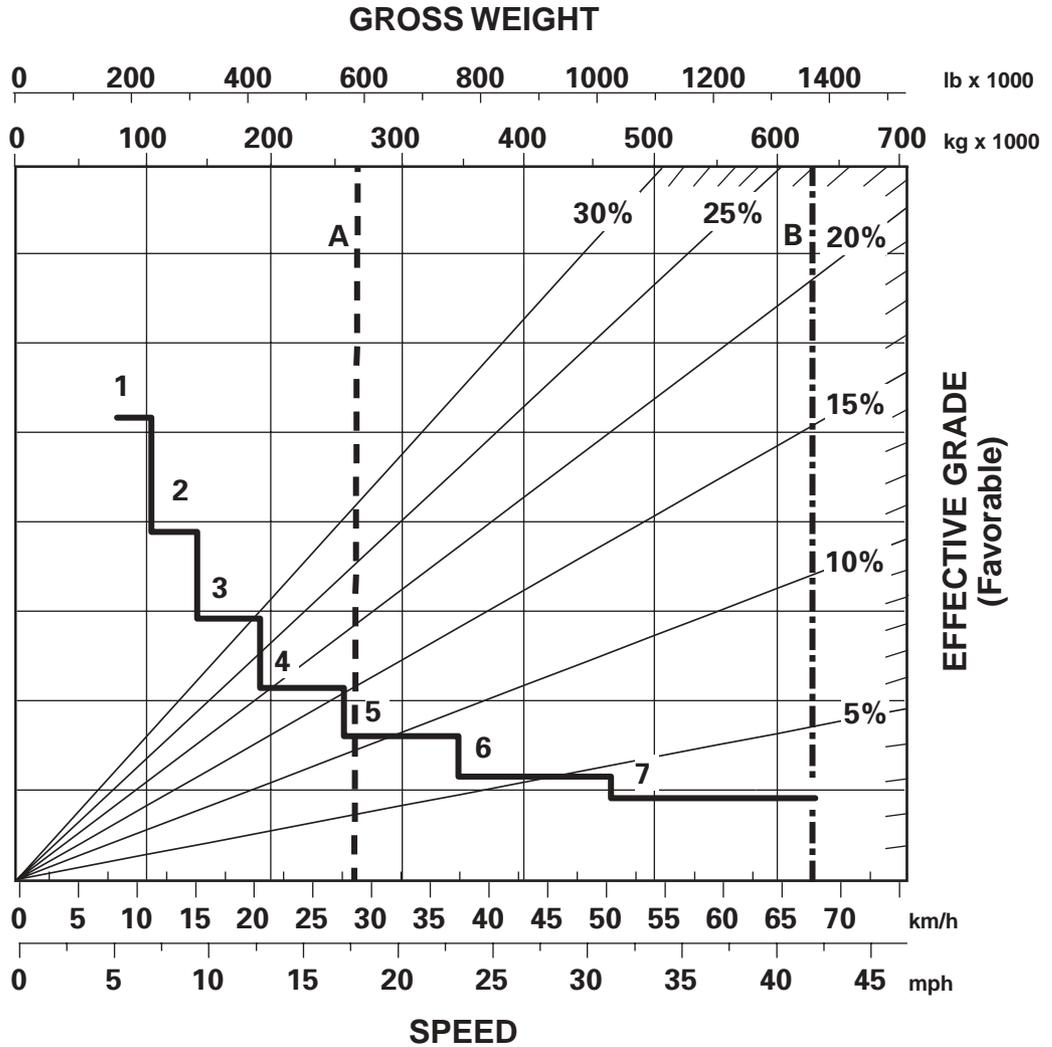
KEY

- 1 — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear
- 4 — 4th Gear
- 5 — 5th Gear
- 6 — 6th Gear
- 7 — 7th Gear

KEY

- A — Est. Field Empty Weight 274 494 kg (605,159 lb)
- B — Max GMW 623 690 kg (1,375,000 lb)

*At Sea Level.



CONTINUOUS GRADE LENGTH

KEY

- 1 — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear
- 4 — 4th Gear
- 5 — 5th Gear
- 6 — 6th Gear
- 7 — 7th Gear

KEY

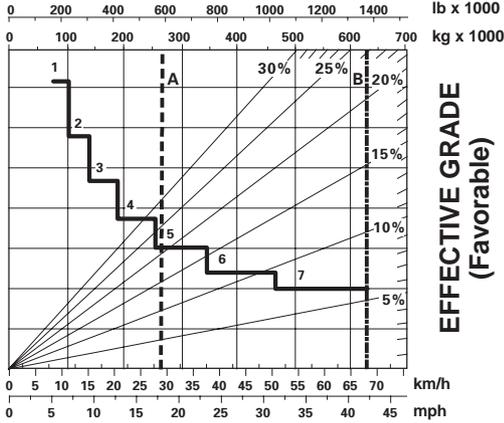
- A — Est. Field Empty Weight 274 494 kg (605,159 lb)
- B — Max GMW 623 690 kg (1,375,000 lb)

797B Brake Performance

- 450 m (1500 ft)
- 600 m (2000 ft)
- 900 m (3000 ft)
- 1500 m (5000 ft)

Construction & Mining Trucks

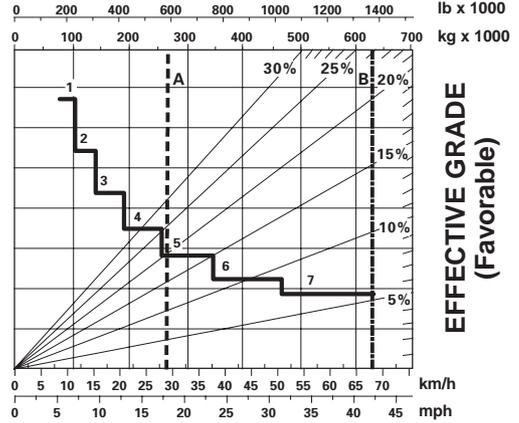
GROSS WEIGHT



SPEED

GRADE DISTANCE — 450 m (1500 ft)

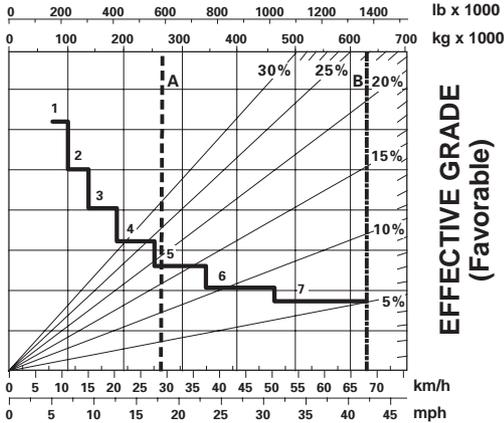
GROSS WEIGHT



SPEED

GRADE DISTANCE — 600 m (2000 ft)

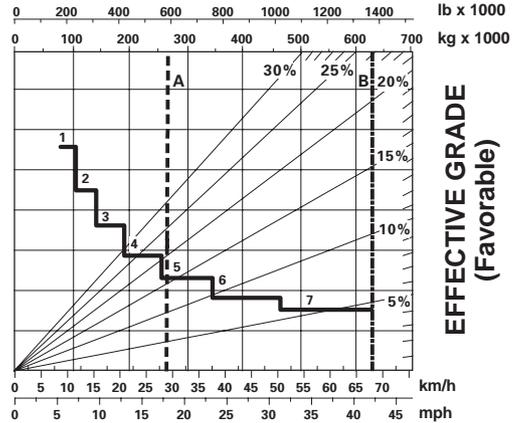
GROSS WEIGHT



SPEED

GRADE DISTANCE — 900 m (3000 ft)

GROSS WEIGHT



SPEED

GRADE DISTANCE — 1500 m (5000 ft)

KEY

- 1 — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear
- 4 — 4th Gear
- 5 — 5th Gear
- 6 — 6th Gear
- 7 — 7th Gear

KEY

- A — Est. Field Empty Weight 274 494 kg (605,159 lb)
- B — Max GMW 623 690 kg (1,375,000 lb)

ARTICULATED TRUCKS

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730 Rimpull-Speed-Gradeability, Brake/Retarder Performance Curve, Travel Time (Loaded/Empty)	10-10
735 Rimpull-Speed-Gradeability, Brake/Retarder Performance Curve, Travel Time (Loaded/Empty)	10-13
740 Rimpull-Speed-Gradeability, Brake/Retarder Performance Curve, Travel Time (Loaded/Empty)	10-16

Features:

- **Caterpillar electronically controlled engines** ... Turbocharged and air to air aftercooled, variable timing, parallel porting, direct injection, adjustment free fuel system with electronic unit injectors. Meet all environmental regulations effective January 1, 2001.
- **Caterpillar electronically controlled transmissions** ... Transmissions purpose built and designed for articulated trucks and their applications. Electronic controls provide complete integration with the engines for smooth shifting and efficient power delivery as well as offering advanced diagnostics and trouble shooting capabilities.
- **Articulating and fully oscillating hitch** ... Links front and rear frames for exceptional maneuverability and traction on uneven terrain while eliminating damaging twisting of the frames. Bolted hitch design allows optimum material choices for the cast hitch head and the hard-wearing tube. Bolted design allows easier rebuild and repair.
- **Three-point front suspension** ... Three-point front suspension with long-stroke, low-pressure suspension cylinders provide unparalleled ride quality for operator comfort and higher average haul speeds. Front and rear suspension together with the hitch provide for excellent traction in all conditions.
- **Wide, long and low dump body design** ... For excellent loadability and high fill factors, excellent machine stability and load retention as well as a good match for other Caterpillar loading systems. Diverging flow design also gives excellent material ejection.
- **Standard ROPS/FOPS, low sound level cab** ... Two man cab common across the range. Large cab with excellent all around visibility, ergonomic control layout and plentiful storage.
- **High capacity low pressure tires in single formation** ... For superior traction and flotation in poor underfoot conditions.



MODEL	725		730	
Flywheel Power	209 kW	280 hp	228 kW	305 hp
Operating Weight (Empty)*	22 730 kg	50,120 lb	23 230 kg	51,220 lb
Top Speed (Loaded)	51 km/h	32 mph	51 km/h	32 mph
GMW — Gross Machine Weight	46 320 kg	102,140 lb	51 350 kg	113,230 lb
Distribution Empty:				
Front		56.8%		55.9%
Center		22.9%		22.5%
Rear		20.3%		21.6%
Distribution Loaded:				
Front		31%		30.3%
Center		34.5%		35.1%
Rear		34.5%		34.6%
Max. Capacity**	23.6 t	26 T	27.2 t	30 T
Struck (SAE)	11.1 m ³	14.5 yd³	13.1 m ³	17.1 yd³
Heaped (2:1) (SAE)	14.4 m ³	18.8 yd³	16.9 m ³	22.1 yd³
Engine Model	3176C ATAAC		3196C ATAAC	
No. Cylinders	6		6	
Bore	125 mm	4.9"	130 mm	5.1"
Stroke	140 mm	5.5"	150 mm	5.9"
Displacement	10.3 L	629 in³	12.0 L	732 in³
Tires, Front, Center, Rear	23.5R25 Radials		23.5R25 Radials	
Circular Clearance Diameter	15.2 m	49'10"	15.2 m	49'10"
Fuel Tank Refill Capacity	310 L	82 U.S. gal	310 L	95 U.S. gal
GENERAL DIMENSIONS (Empty):				
Height to Cab Top	3.44 m	11'3"	3.44 m	11'3"
Wheel Base (Front-Center of Bogie)	4.67 m	15'4"	4.67 m	15'4"
Overall Length	9.92 m	32'7"	9.92 m	32'7"
Loading Height (Empty)	2.75 m	9'0"	2.88 m	9'5"
Height at Full Dump	6.43 m	21'1"	6.51 m	21'5"
Body Length	5.79 m	19'0"	5.86 m	19'2"
Width (Operating)	2.82 m	9'3"	2.90 m	9'6"
Front Tire Tread	2.28 m	7'6"	2.28 m	7'6"

*Includes coolant, lubricant and full fuel tank.

**Rating dependent on optional equipment. Maximum gross weight (empty weight plus payload) should not be exceeded.



MODEL	735		740		740 Ejector	
Flywheel Power	272 kW	365 hp	310 kW	415 hp	310 kW	415 hp
Operating Weight (Empty)*	29 860 kg	65,830 lb	32 690 kg	72,070 lb	35 270 kg	77,770 lb
Top Speed (Loaded)	55.9 km/h	34.7 mph	55.7 km/h	34.6 mph	55.7 km/h	34.6 mph
GMW — Gross Machine Weight	62 560 kg	137,920 lb	70 690 kg	155,850 lb	73 270 kg	161,560 lb
Distribution Empty:						
Front		59.1%		58.4%		56.4%
Center		21.6%		21.8%		22.8%
Rear		19.3%		19.8%		20.9%
Distribution Loaded:						
Front		34.6%		34%		29.4%
Center		33.3%		33.5%		35.8%
Rear		32.1%		32.5%		34.8%
Max. Capacity**	32.7 t	36 T	38.1 t	42 T	38.1 t	42 T
Struck (SAE)	14.7 m ³	19.3 yd³	17.4 m ³	22.8 yd³	17.8 m ³	23.3 yd³
Heaped (2:1) (SAE)	24.3 m ³	31.8 yd³	22.9 m ³	30 yd³	23.1 m ³	30.2 yd³
Engine Model	3406E ATAAC		3406E ATAAC		3406E ATAAC	
No. Cylinders	6		6		6	
Bore	137 mm	5.4"	137 mm	5.4"	137 mm	5.4"
Stroke	165 mm	6.5"	165 mm	6.5"	165 mm	6.5"
Displacement	14.6 L	893 in³	14.6 L	893 in³	14.6 L	893 in³
Tires, Front, Center, Rear	26.5R25 Radials		29.5R25 Radials		29.5R25 Radials	
Circular Clearance Diameter	17.2 m	56'5"	17.2 m	56'5"	18.8 m	59'8"
Fuel Tank Refill Capacity	560 L	148 U.S. gal	560 L	148 U.S. gal	560 L	148 U.S. gal
GENERAL DIMENSIONS (Empty):						
Height to Cab Top	3.7 m	12'1"	3.75 m	12'4"	3.75 m	12'4"
Wheel Base (Front-Center of Bogie)	5.23 m	17'2"	5.23 m	17'2"	5.58 m	18'4"
Overall Length	10.89 m	35'9"	10.89 m	35'9"	11.59 m	38'0"
Loading Height (Empty)	2.97 m	9'10"	3.18 m	10'5"	3.07 m	10'1"
Height at Full Dump	6.96 m	22'10"	7.07 m	23'2"	—	
Body Length	6.25 m	20'6"	6.28 m	20'7"	6.72 m	22'0"
Width (Operating)	3.3 m	10'10"	3.43 m	11'2"	3.5 m	11'6"
Front Tire Tread	2.64 m	8'7"	2.69 m	8'10"	2.69 m	8'10"

*Includes coolant, lubricant and full fuel tank.

**Rating dependent on optional equipment. Maximum gross weight (empty weight plus payload) should not be exceeded.

Use of Ground Pressure Charts

Articulated trucks are normally equipped with wide base radial tires, for improved flotation in poor underfoot conditions. Ground pressure is a function of tire deflection and is also affected by tire penetration. The charts in this section provide a means to estimate ground pressure for 0 and 76 mm (3") tire penetration, when gross vehicle weight, axle load distribution and tire inflation pressure are known. The ground pressure charts on the following pages are based on Michelin XADN tire characteristics. Results may differ for other tread patterns.

Tire load can be calculated by the following formula:

$$\text{Tire load} = \frac{\text{Heaviest Axle Load}}{2}$$

Example

Find the ground pressure generated by a 725 fully loaded with zero and 76 mm (3") tire penetration. The machine is equipped with standard Michelin 23.5R25 tires, inflated to the recommended pressure.

$$725 \text{ Tire Load} = \frac{43\,680 \text{ kg} \times 0.34}{2} = 7426 \text{ kg}$$

$$725 \text{ Tire Load} = \frac{96,300 \text{ lb} \times 0.34}{2} = 16,371 \text{ lb}$$

From the tire section in this book, inflation pressure for the 725 is 325 kPa = 3.25 bar (47 psi).

From the ground pressure chart for 23.5R25 tires, Ground pressure = 3.1 kg/cm² (44 psi) with zero tire penetration.

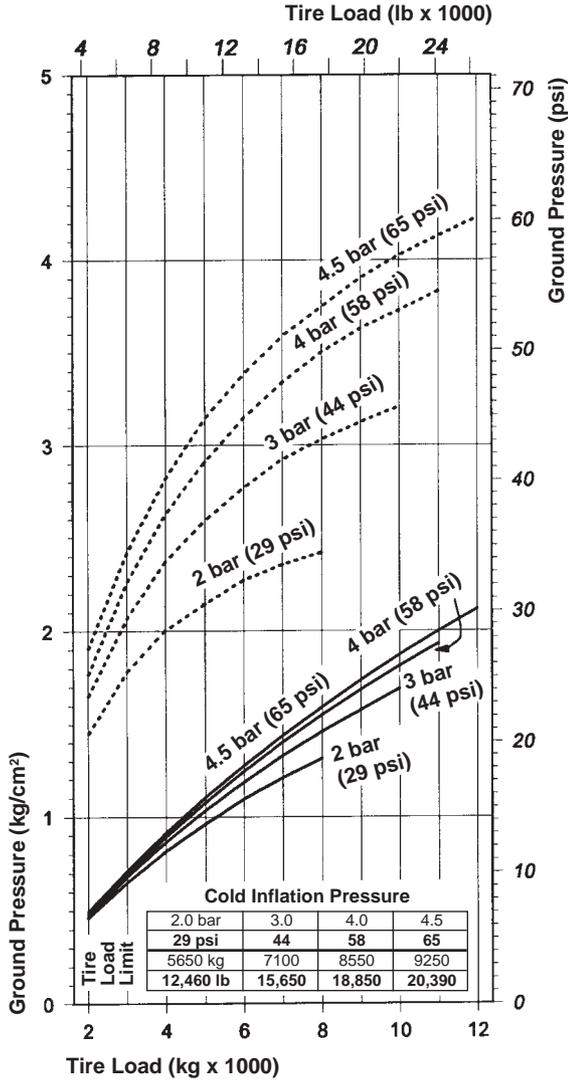
Ground pressure = 1.4 kg/cm² (21 psi) with 76 mm (3") tire penetration.

See the Wheel Tractor Scraper section for explanation on using:

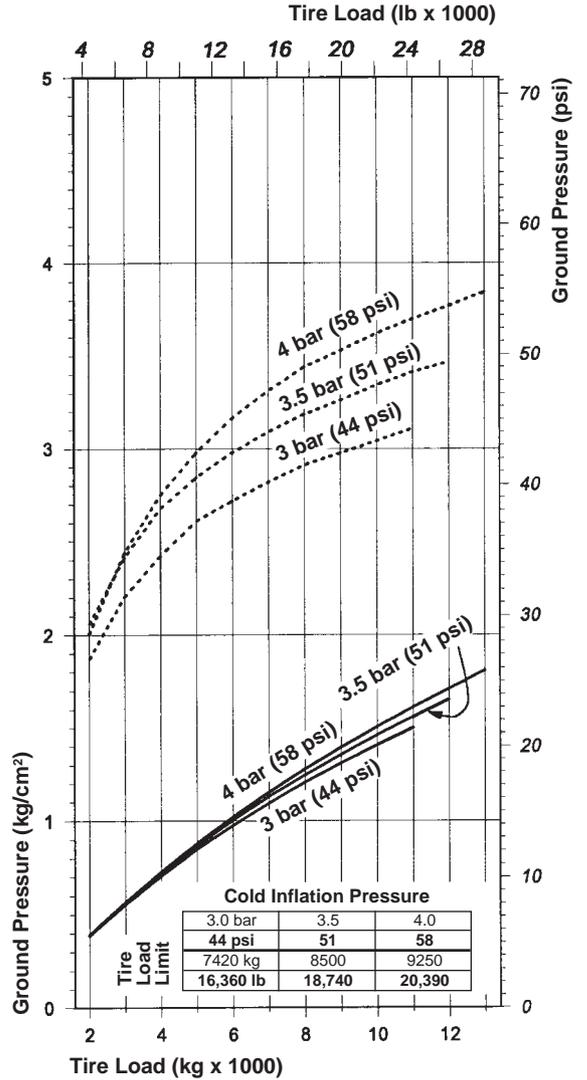
- Rimpull-Speed-Gradeability Curves
- Retarder Curves
- Travel Time Charts

See the Construction and Mining Trucks section for Hauling Unit Fixed Times.

23.5R25 Tires*



30/65R25 Tires*

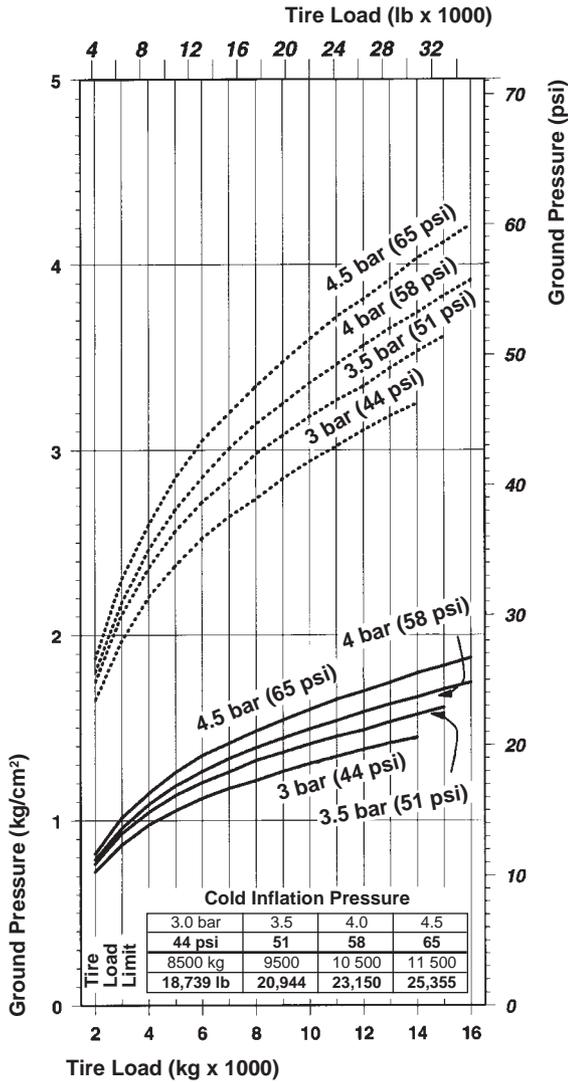


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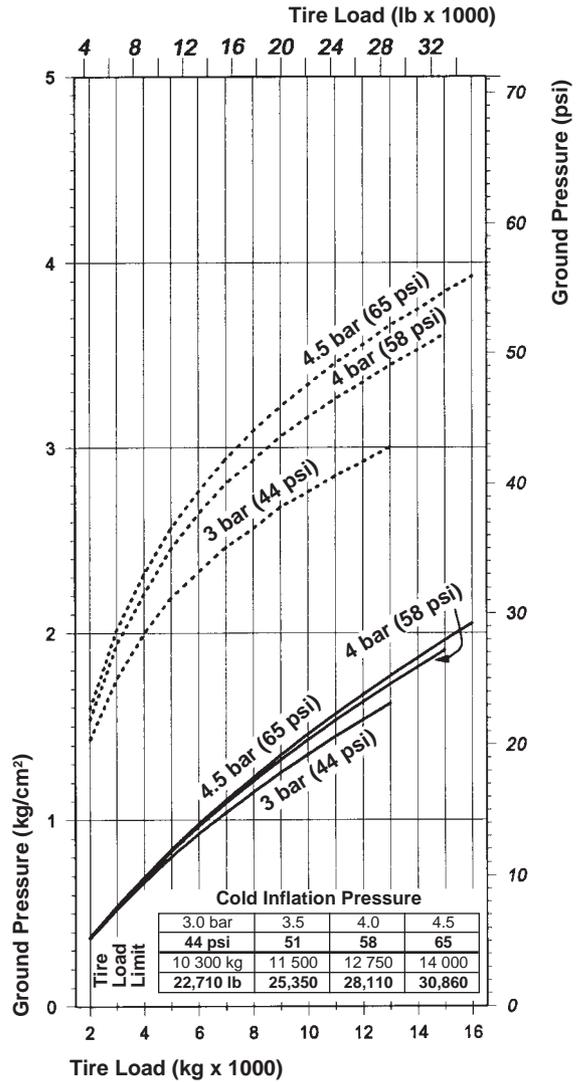
- Zero Penetration (Flat Plate)
- 76 mm (3") Penetration

*Charts based on Michelin XADN tire characteristics. Results may differ for other tread patterns and/or brands. Charts are to be used to calculate ground pressure. To determine the inflation as a function of load and conditions or when loads exceed tire load limit, contact your tire manufacturer representative.

26.5R25 Tires*



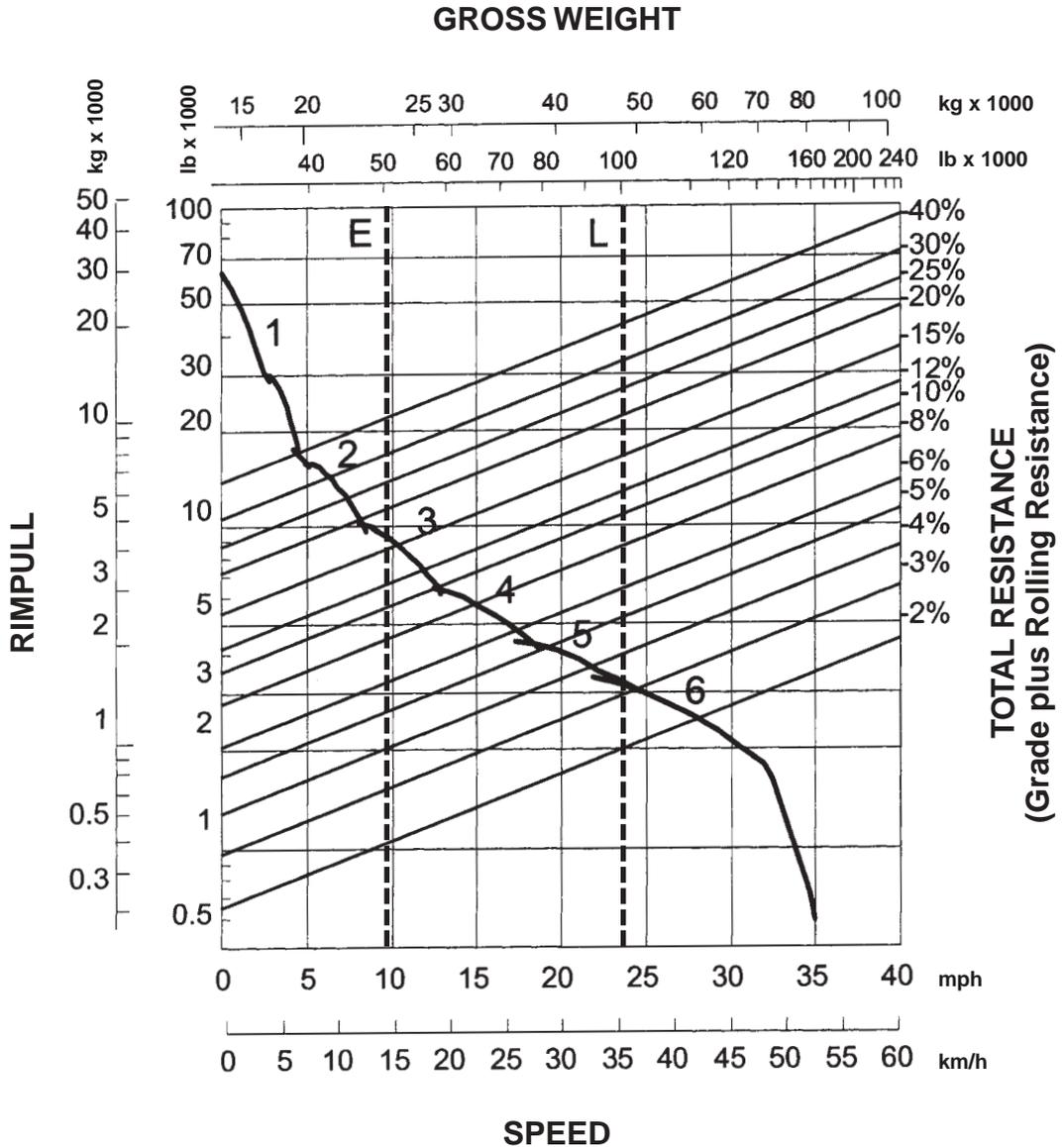
29.5R25 Tires*



KEY

- Zero Penetration (Flat Plate)
- 76 mm (3") Penetration

*Charts based on Michelin XADN tire characteristics. Results may differ for other tread patterns and/or brands. Charts are to be used to calculate ground pressure. To determine the inflation as a function of load and conditions or when loads exceed tire load limit, contact your tire manufacturer representative.

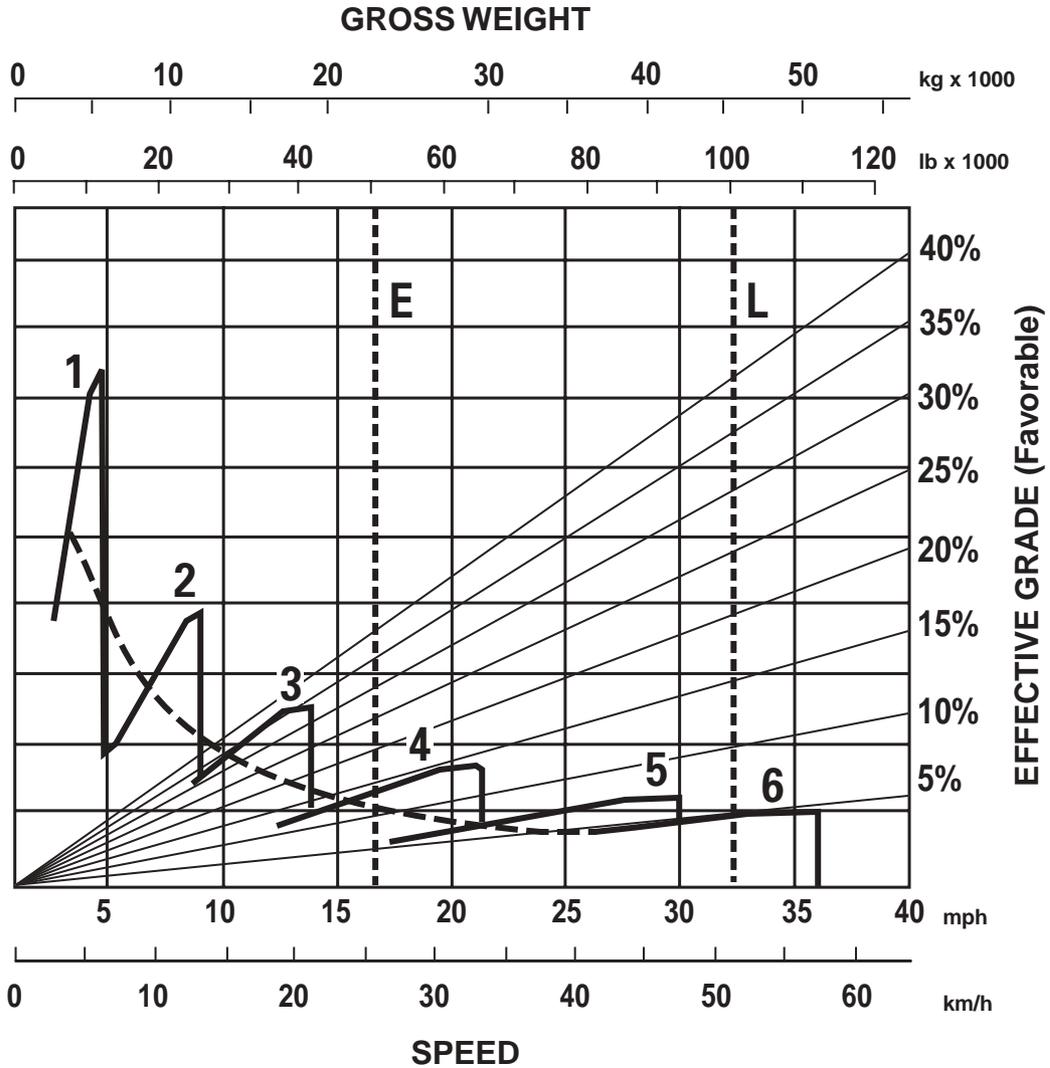


KEY

- 1 — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear
- 4 — 4th Gear
- 5 — 5th Gear
- 6 — 6th Gear

KEY

- E — Empty 22 730 kg (50,120 lb)
- L — Loaded 46 320 kg (102,140 lb)



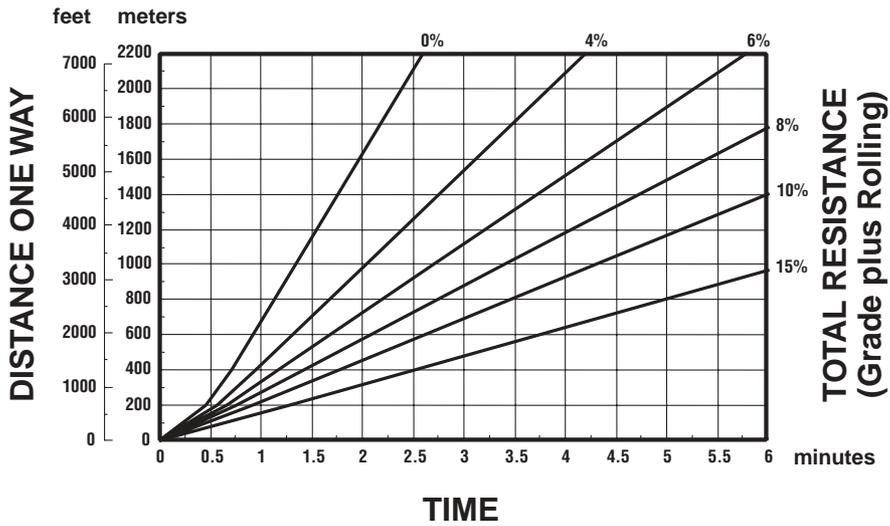
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- 6 — 6th Gear

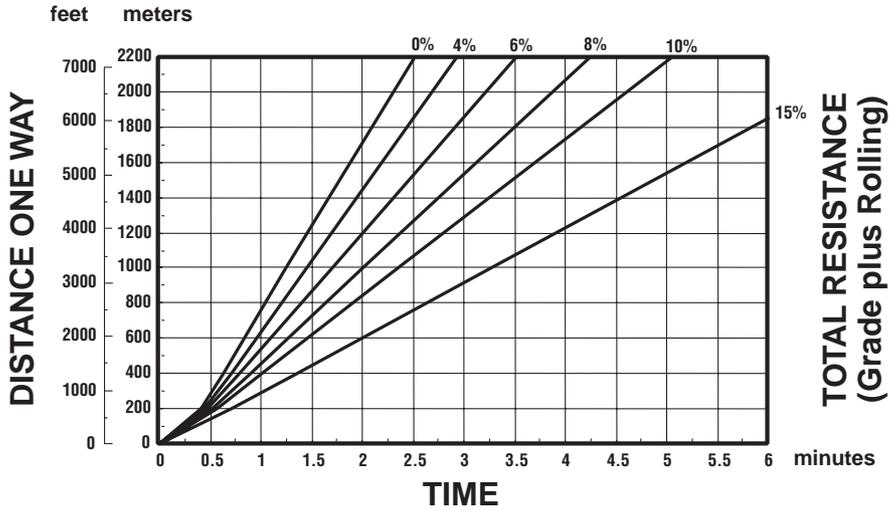
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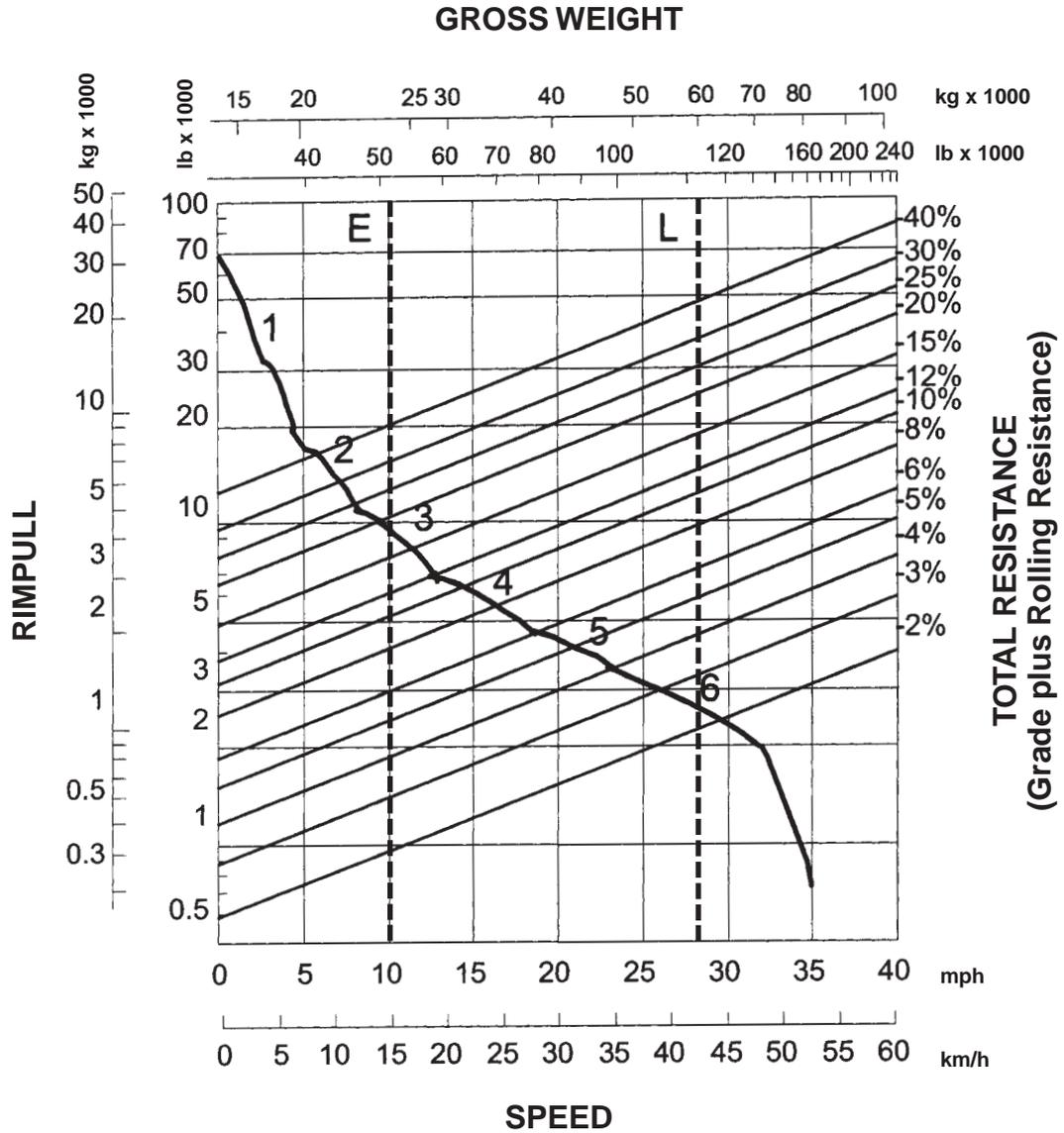
- E — Empty 22 730 kg (50,120 lb)
- L — Loaded 46 320 kg (102,140 lb)

LOADED



EMPTY



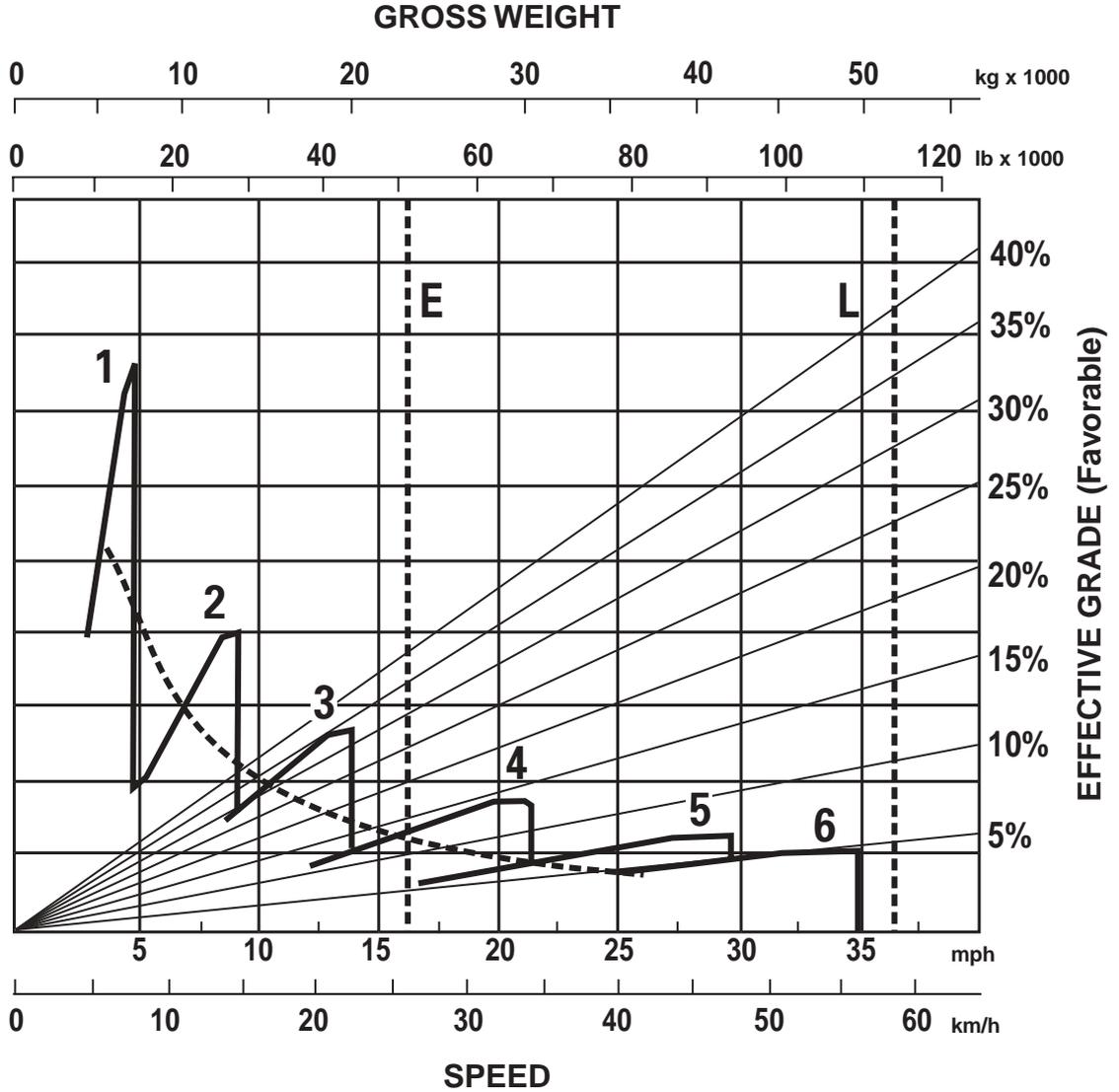


KEY

- 1 — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear
- 4 — 4th Gear
- 5 — 5th Gear
- 6 — 6th Gear

KEY

- E — Empty 23 230 kg (51,220 lb)
- L — Loaded 51 810 kg (114,220 lb)



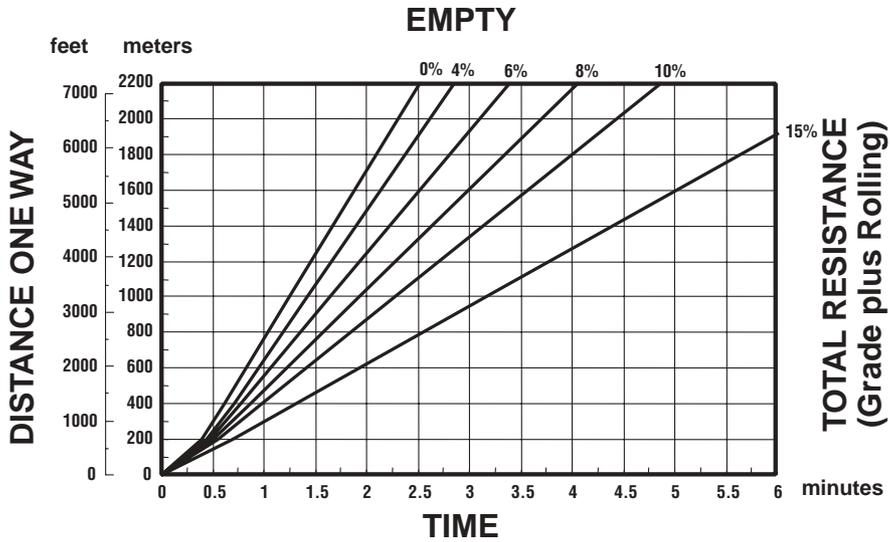
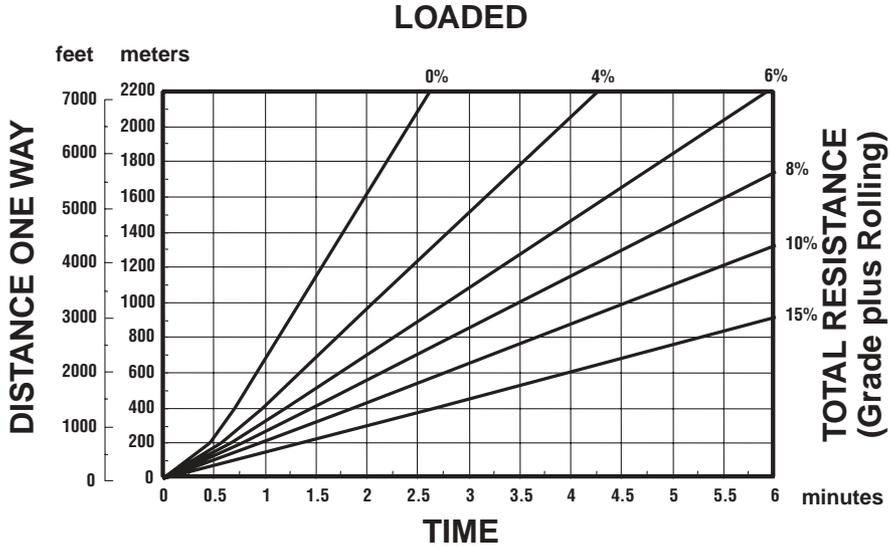
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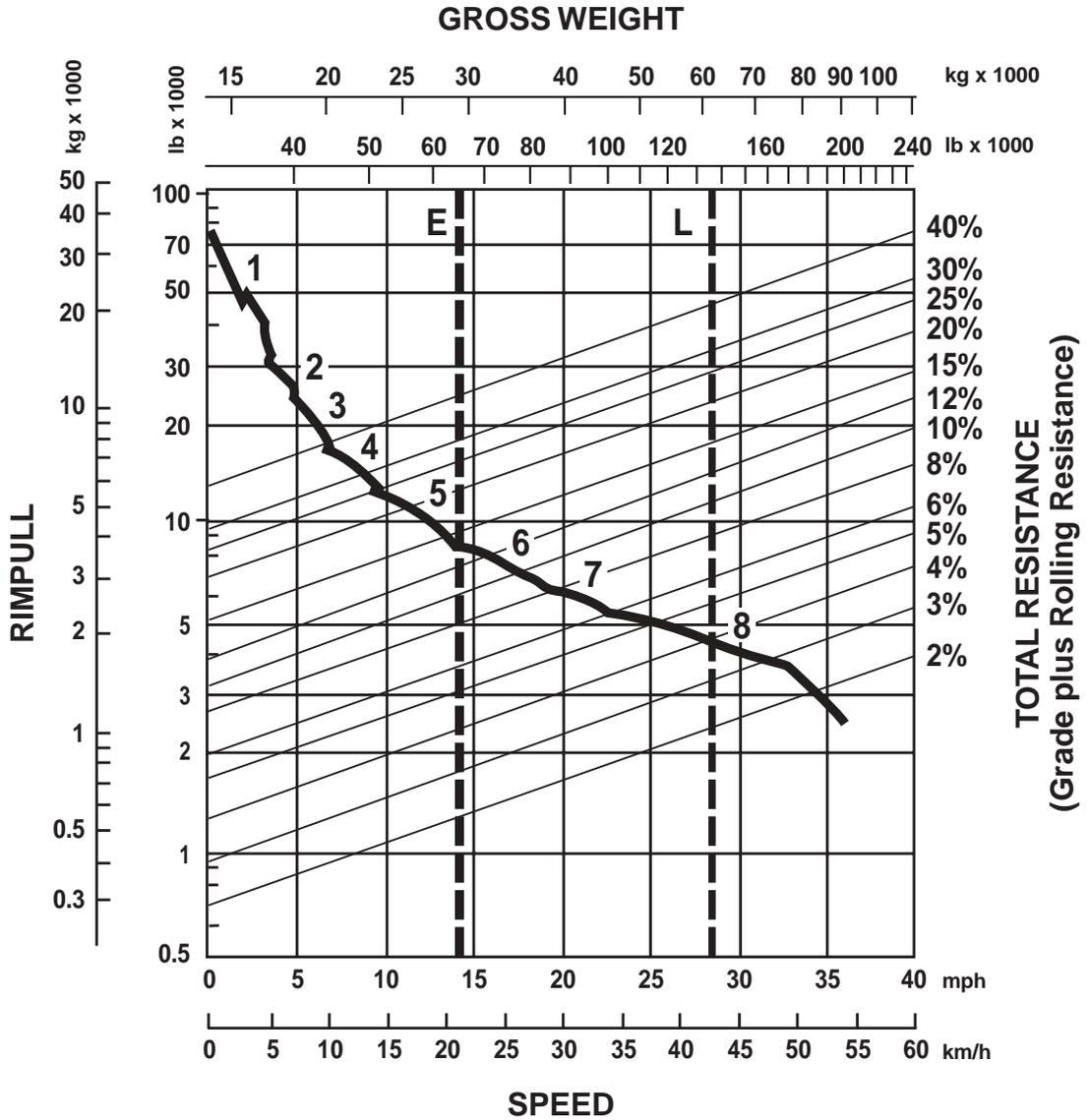
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- 5 — 5th Gear
- 6 — 6th Gear

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- E — Empty 23 230 kg (51,220 lb)
- L — Loaded 51 810 kg (114,220 lb)



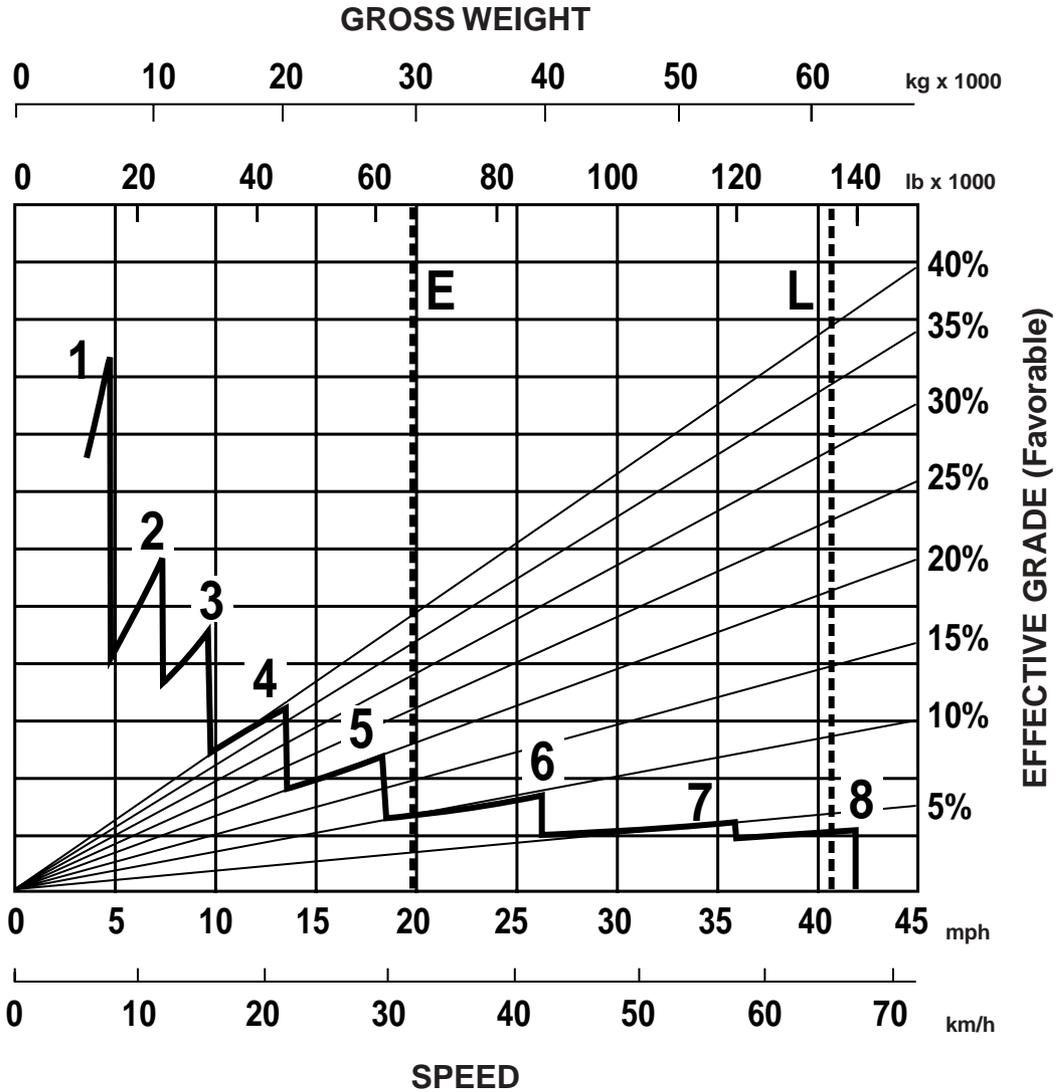


KEY

- 1 — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear
- 4 — 4th Gear
- 5 — 5th Gear
- 6 — 6th Gear
- 7 — 7th Gear
- 8 — 8th Gear

KEY

- E — Empty 29 860 kg (65,830 lb)
- L — Loaded 62 560 kg (137,920 lb)



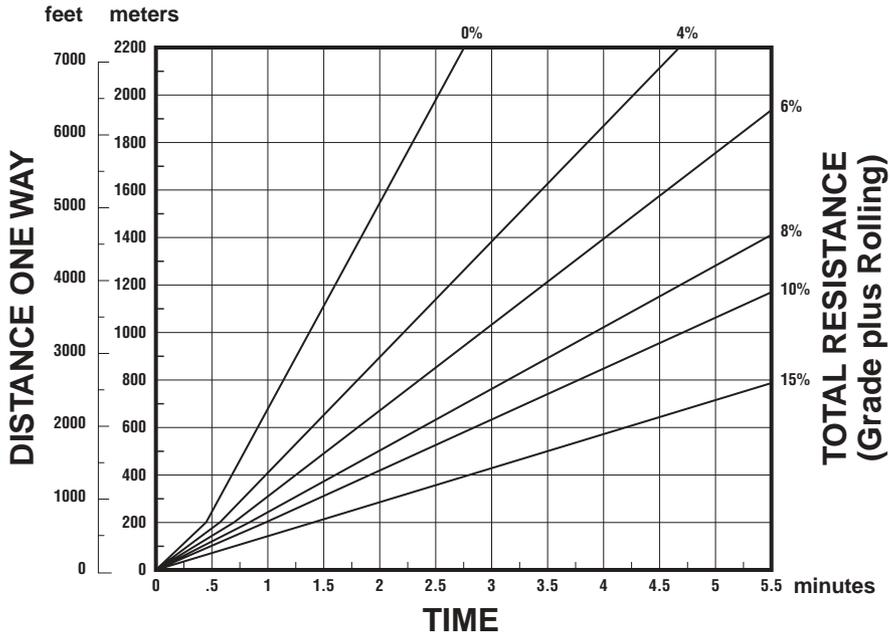
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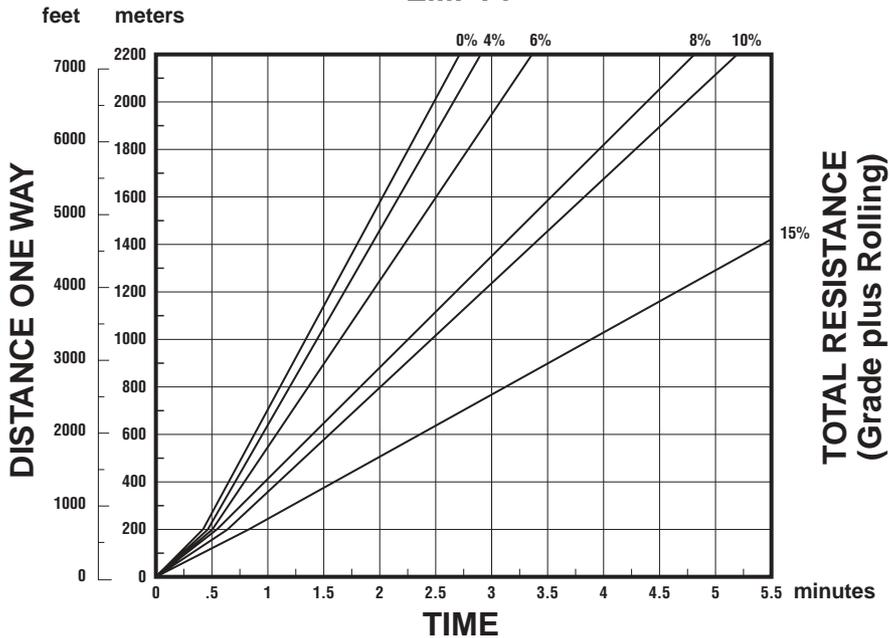
KEY

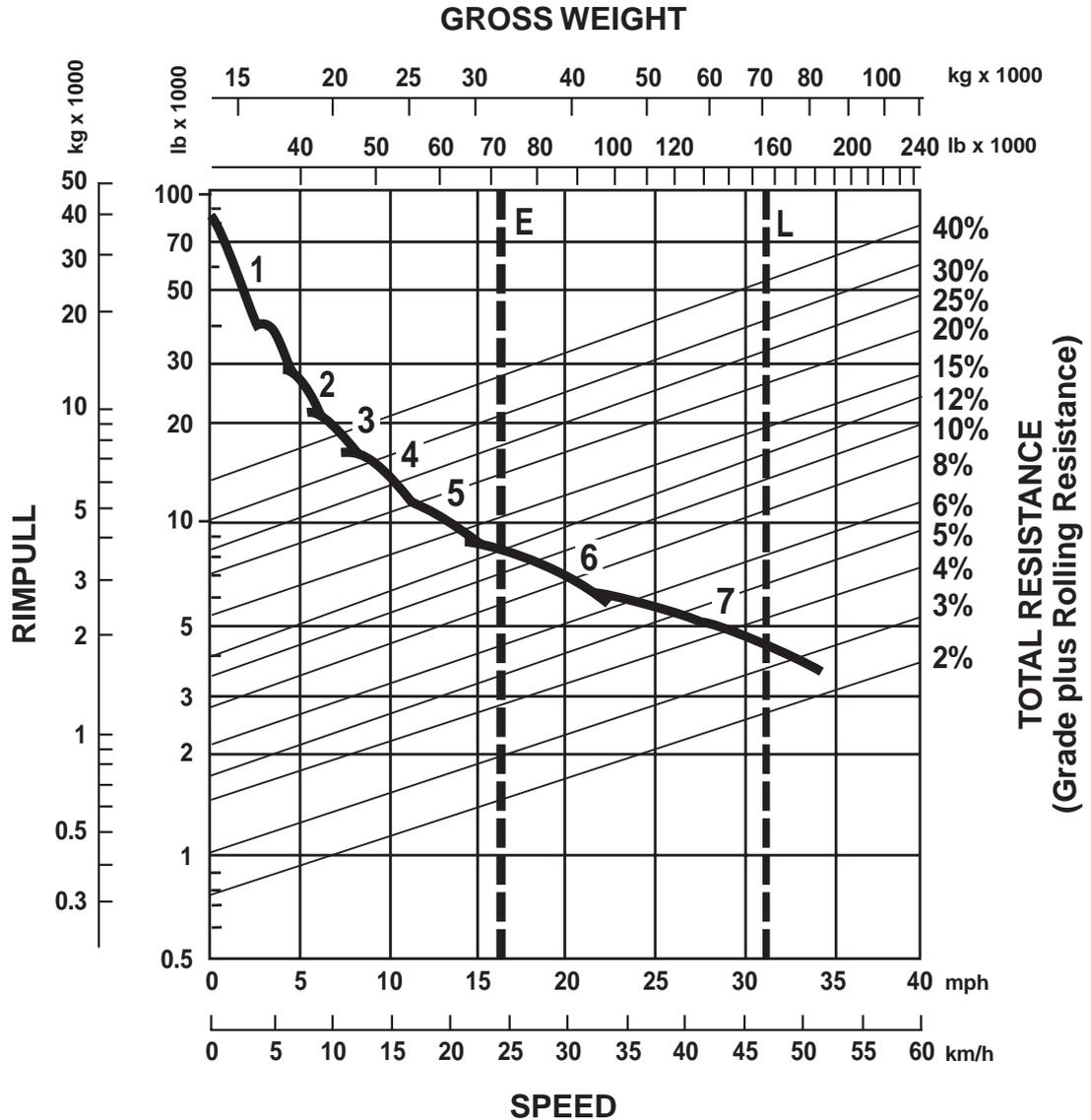
- E — Empty 29 860 kg (65,830 lb)
- L — Loaded 62 560 kg (137,920 lb)

LOADED



EMPTY



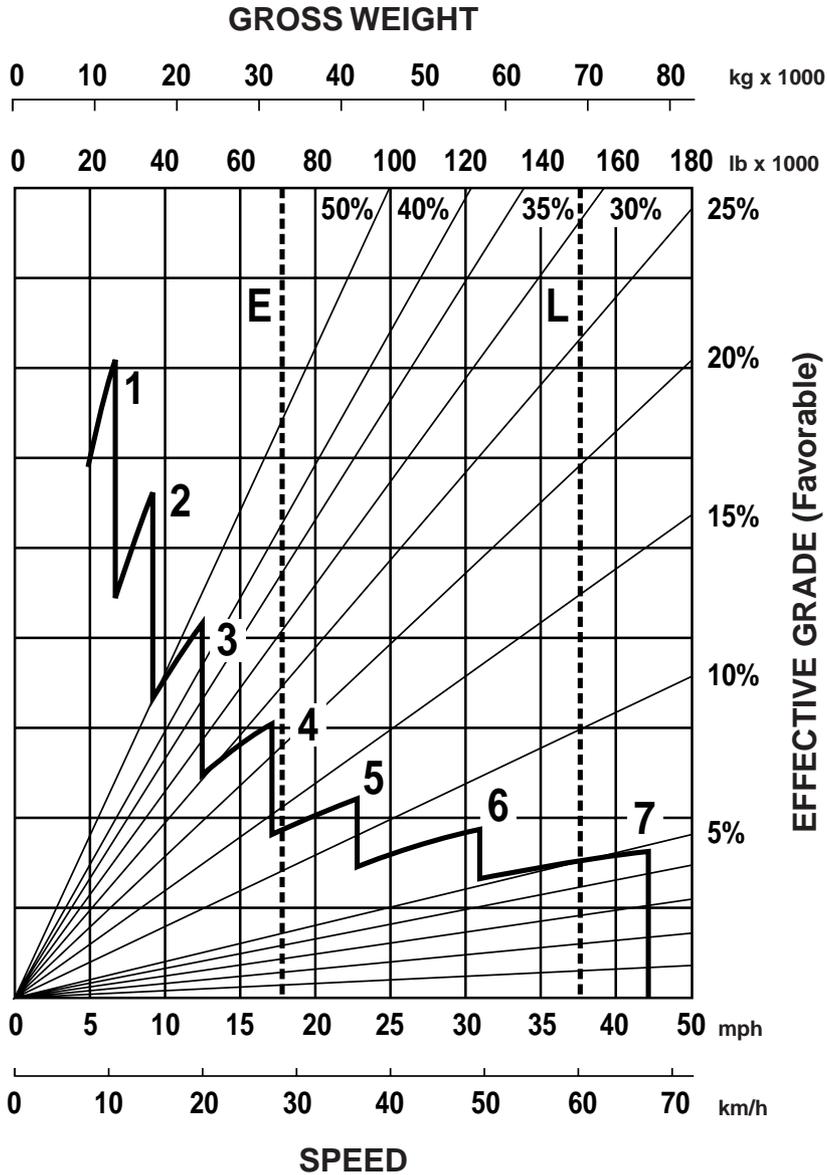


KEY

- 1 — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear
- 4 — 4th Gear
- 5 — 5th Gear
- 6 — 6th Gear
- 7 — 7th Gear

KEY

- E — Empty 32 960 kg (72,070 lb)
- L — Loaded 70 690 kg (155,850 lb)

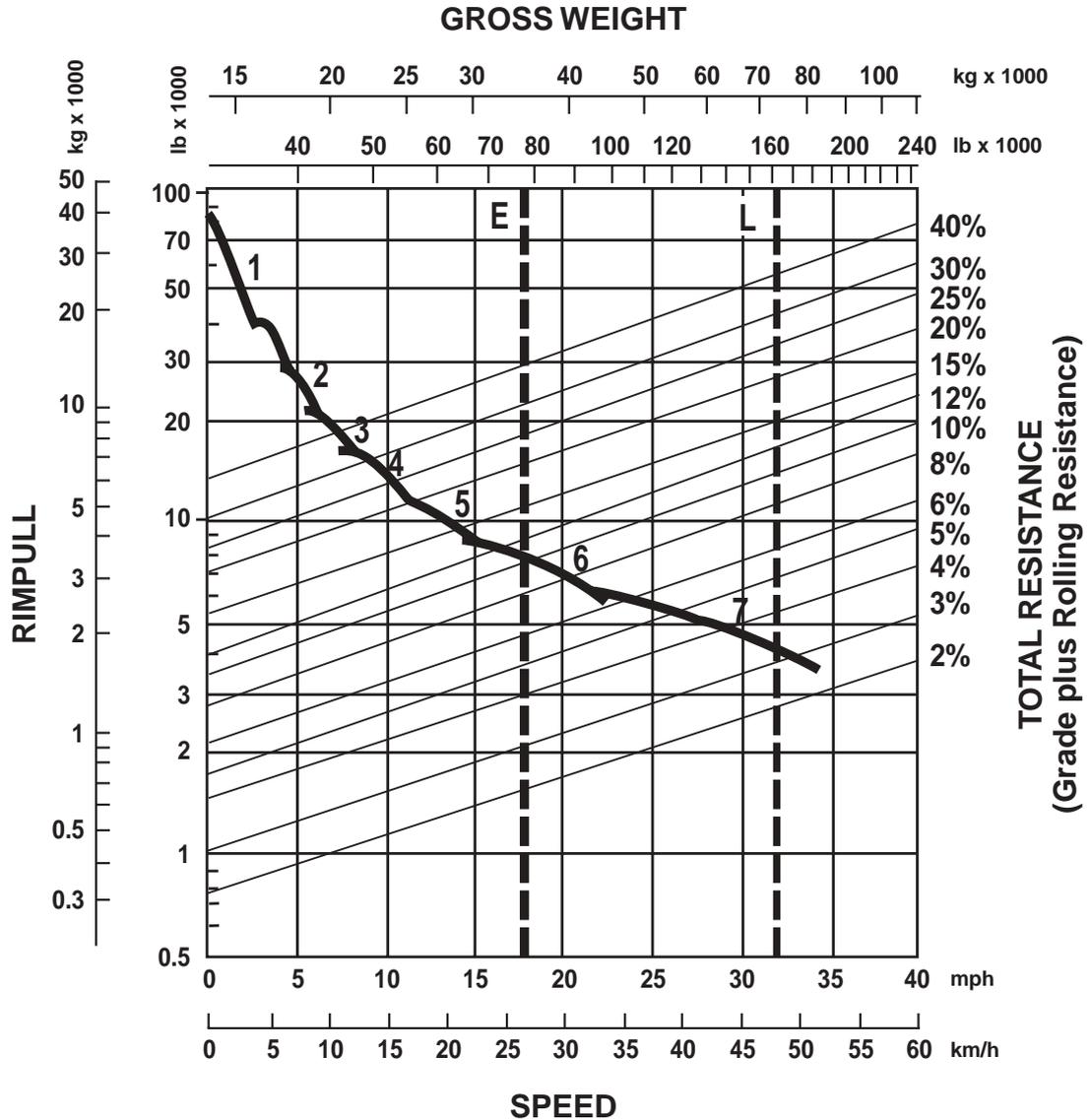


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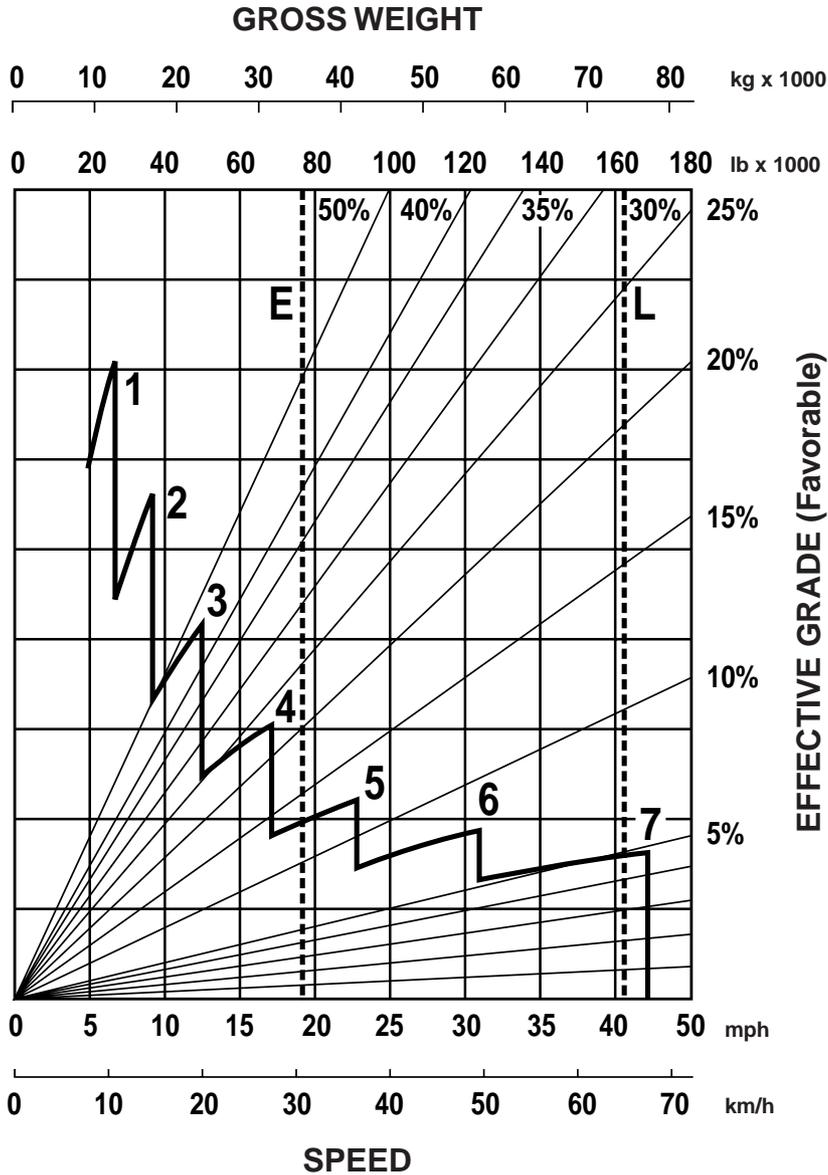


KEY

- 1 — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear
- 4 — 4th Gear
- 5 — 5th Gear
- 6 — 6th Gear
- 7 — 7th Gear

KEY

- E — Empty 35 270 kg (77,770 lb)
- L — Loaded 73 270 kg (161,560 lb)



KEY

- 1 — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear
- 4 — 4th Gear
- 5 — 5th Gear
- 6 — 6th Gear
- 7 — 7th Gear

KEY

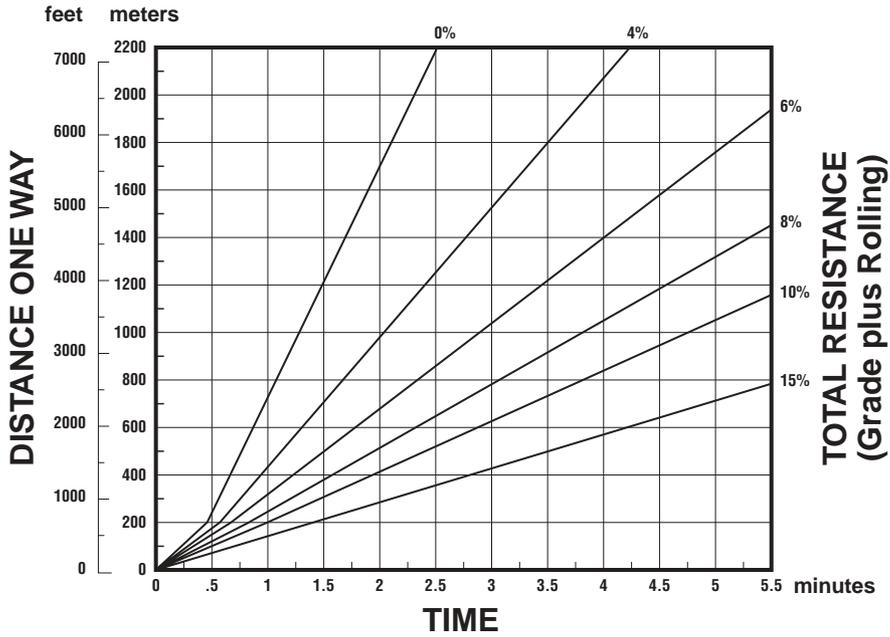
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Articulated Trucks

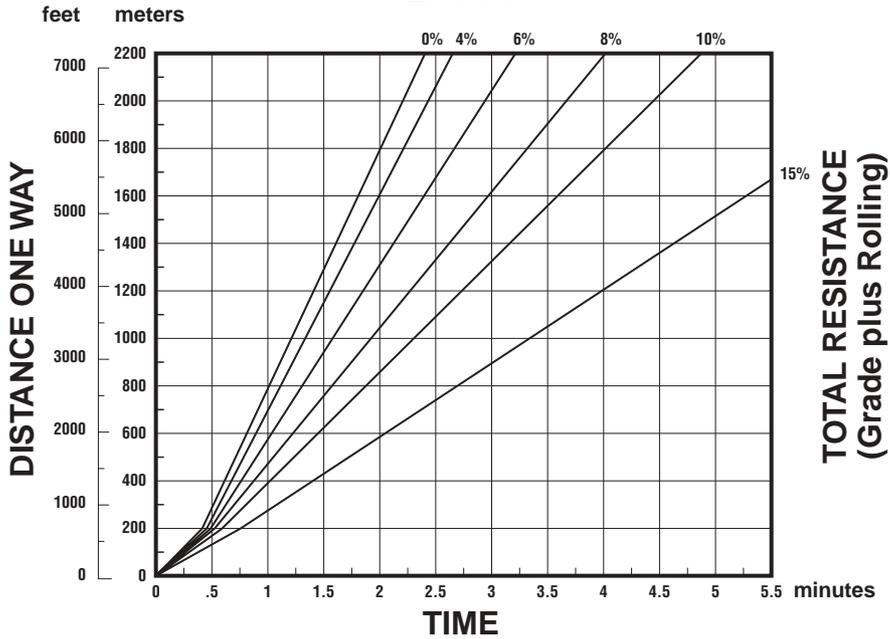
740 Travel Time — Loaded/Empty

- 29.5R25 Tires
- Preliminary Information

LOADED



EMPTY



Notes —

WHEEL DOZERS SOIL COMPACTORS

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SOIL COMPACTORS

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LANDFILL COMPACTORS (See Section 25)

WHEEL DOZERS

Features:

- **Reliable Cat power train:** four-stroke-cycle diesel with adjustment-free fuel system ... full power shift with single lever on-the-go shifting.
- **Articulated frame steering** with hinge point midway between front and rear axles ... short turning radius, long wheelbase ... rear and front wheels track at all times.
- **Machine balance** ... equal weight distribution on axles when blading.
- **All dozer functions**, including tip and tilt, hydraulically controlled from operator's seat.



MODEL	814F		824G Series II		834G	
Flywheel Power	179 kW	240 hp	253 kW	339 hp	358 kW	480 hp
Operating Weight*	21 713 kg	47,877 lb	28 724 kg	63,325 lb	47 106 kg	103,849 lb
Engine Model	3176C ATAAC		3406E ATAAC		3456 DITA	
Rated Engine RPM	2100		2000		1900	
No. Cylinders	6		6		6	
Displacement	10.3 L	629 in³	14.6 L	893 in³	15.8 L	964 in³
Speeds:						
Forward	4		4		4	
Reverse	4		4		3	
Top Speed Forward	30.9 km/h	19 mph	32.1 km/h	20 mph	35.8 km/h	22.3 mph
Turning Circle with Blade	16.5 m	54'0"	14.6 m	48'0"	17.6 m	57'9"
Standard Tire Size	23.5-25, 12 PR (L-2)		29.5R25 (L-3)		35/65-R33, 24 PR (L-4)	
Fuel Tank Refill Capacity	446 L	117.8 U.S. gal	608 L	161 U.S. gal	803 L	213 U.S. gal
GENERAL DIMENSIONS:						
Height (to top of ROPS)	3.3 m	10'8"	3.7 m	12'1"	4.09 m	13'5"
Height (stripped top)**	2.4 m	7'9"	2.6 m	8'5"	3.15 m	10'4"
Wheel Base	3.35 m	11'0"	3.7 m	12'1"	4.55 m	14'11"
Overall Length with Dozer	6.9 m	22'8"	8.2 m	26'9"	10.42 m	34'2"
Width (over standard tires)	2.8 m	9'2"	3.28 m	10'9"	3.47 m	11'5"
Ground Clearance	366 mm	14.4"	400 mm	15.7"	540 mm	21"
STRAIGHT BULLDOZER:						
Width	3.6 m	11'8"	4.51 m	14'8"	5.07 m	16'8"
Height	1.1 m	3'6"	1.23 m	4'0"	1.46 m	4'9"
Capacity	2.73 LCM	3.6 LCY	4.67 LCM	6.11 LCY	7.87 LCM***	10.3 LCY***
Ground Clearance Below Skid Shoe	718 mm	2'4"	955 mm	3'1.6"	1390 mm	4'7"
Depth of Cut	528 mm	20.8"	430 mm	16.9"	455 mm	17.9"
Tilt Adjustment	795 mm	2'6"	1.18 m	3'9"	1.48 m	4'10"
Tip Adjustment	15°		22.4°		21°	
Lift Speed	0.4 m/sec	1.3 ft/sec	0.46 m/sec	1.46 ft/sec	0.81 m/sec	2.66 ft/sec

*Operating Weight includes straight dozer, (U-blade on 834G) lubricants, coolant, ROPS cab, full fuel tank and operator. 75% CaCl₂ in all tires adds the following weight to each model: 814F — 2342 kg (**5164 lb**), 824G Series II — 4296 kg (**9472 lb**), 834G — 5719 kg (**12,608 lb**).

**Height (stripped top) — without ROPS, exhaust, seat back or easily removed encumbrances.

***Capacity of 834G U-Blade is 11.16 LCM (**14.6 LCY**).



MODEL	844		854G	
Flywheel Power	463 kW	620 hp	597 kW	800 hp
Operating Weight*	70 360 kg	155,120 lb	96 470 kg	212,230 lb
Engine Model	3412E DITA ATAAC		3508B DITA	
Rated Engine RPM	2000		1750	
No. Cylinders	12		8	
Displacement	27 L	1649 in ³	34.5 L	2105 in ³
Speeds:				
Forward	3		3	
Reverse	3		3	
Top Speed Forward	21 km/h	13 mph	21.1 km/h	13.1 mph
Turning Circle with Blade	21.73 m	71'4"	23.4 m	76'9"
Standard Tire Size	45/65-R39, PR (L-4)		45/65-R45 (L-4)	
Fuel Tank Refill Capacity	1035 L	273 U.S. gal	1610 L	425 U.S. gal
GENERAL DIMENSIONS:				
Height (to top of ROPS)	5.023 m	16'6"	5.44 m	17'10"
Height (stripped top)**	3.8 m	12'6"	4.1 m	13'5"
Wheel Base	4.6 m	15'1"	5.89 m	19'4"
Overall Length with Dozer	10.94 m	35'9"	13.405 m	44'0"
Width (over standard tires)	4.37 m	14'4"	4.52 m	14'10"
Ground Clearance	431 mm	1'5"	475 mm	1'7"
SEMI-U DOZER:				
Width	5.278 m	17'4"	6.604 m	21'8"
Height	1.877 m	6'2"	2.124 m	6'11"
Capacity	16.1 m ³	21.1 yd ³	25.4 m ³	33.1 yd ³
Ground Clearance Below Skid Shoe	1372 mm	4'6"	1539 mm	5'1"
Depth of Cut	466 mm	18"	398 mm	16"
Tilt Adjustment	830 mm	2'9"	1165 mm	3'10"
Tip Adjustment		13°		15°
Lift Speed	0.353 m/sec	1.2 ft/sec	0.385 m/sec	1.3 ft/sec

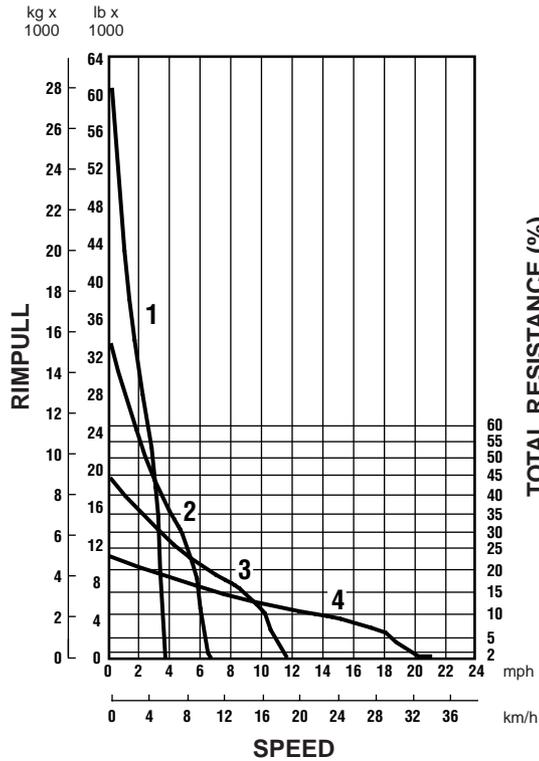
*Operating Weight includes Semi-U, coolant, ROPS cab, full fuel tank and operator. If 75% CaCl₂ is added to all four tires, the weight increases by 11 112 kg (24,500 lb) on the 844 and 12 144 kg (26,770 lb) on the 854.

**Height (stripped top) — without ROPS, exhaust, seat back or easily removed encumbrances.

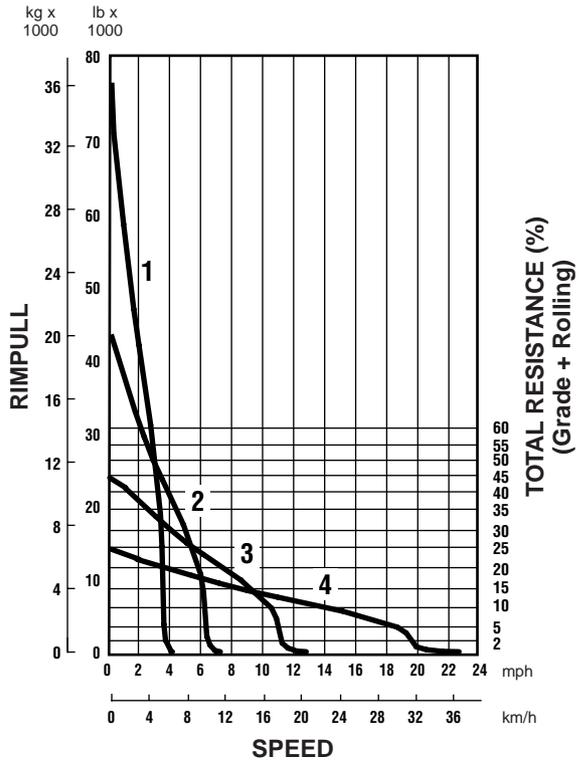
MODEL	814F		824G Series II		834G*		844*		854G*	
FORWARD										
GEAR	km/h	mph	km/h	mph	km/h	mph	km/h	mph	km/h	mph
1	5.8	3.6	6.1	3.8	6.7	4.2	7.0	4.4	6.8	4.3
2	10.2	6.3	10.5	6.5	11.8	7.3	12.2	7.6	12.1	7.5
3	17.7	11.0	18.3	11.4	20.6	12.8	21.0	13.0	21.1	13.1
4	30.9	19.2	32.1	20.0	35.8	22.3	—	—	—	—
REVERSE										
GEAR										
1	6.6	4.1	6.9	4.3	7.0	4.4	7.7	4.6	7.6	4.7
2	11.5	7.1	12.0	7.5	12.3	7.7	13.4	8.4	13.4	8.3
3	20.2	12.5	20.8	13.0	21.6	13.4	23.0	14.3	23.2	14.4
4	35.1	21.8	36.6	22.7	—	—	—	—	—	—

*2% rolling resistance.

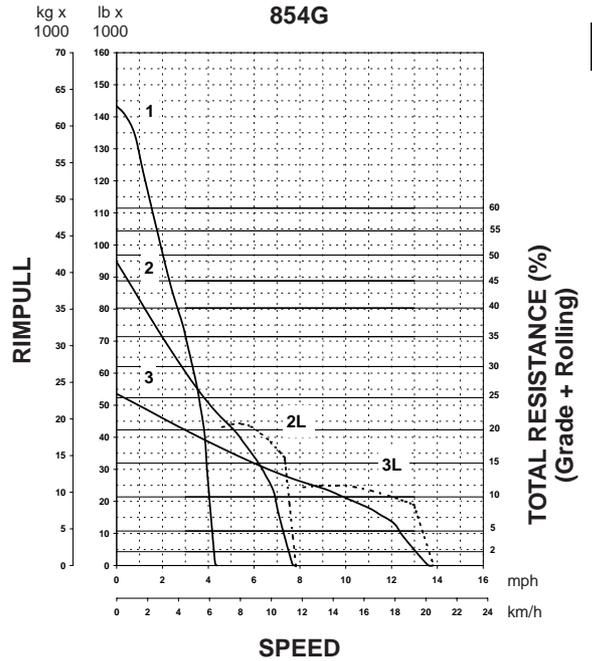
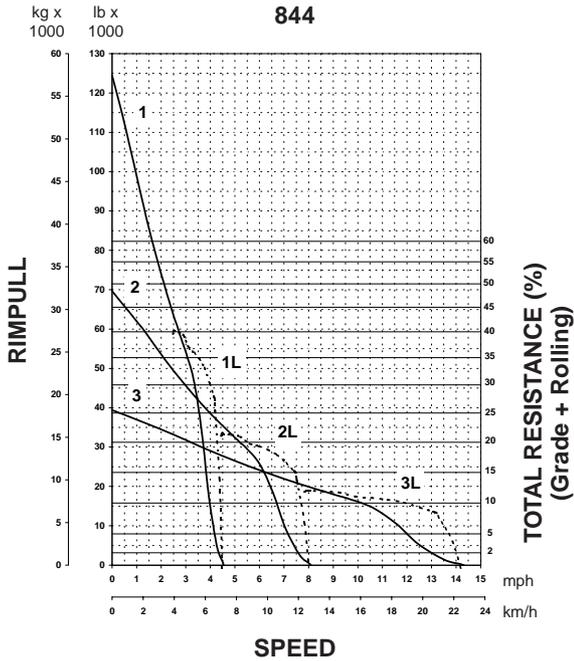
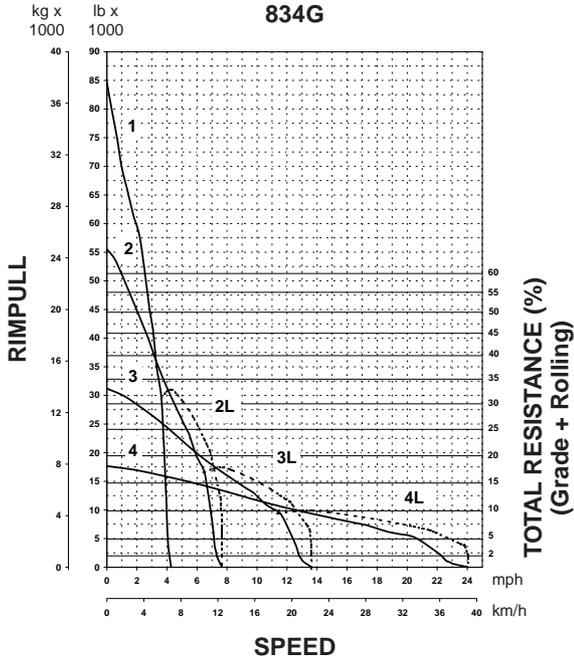
814F



824G Series II



KEY
 1 - 1st Gear
 2 - 2nd Gear
 3 - 3rd Gear
 4 - 4th Gear



CONSIDERATIONS IN MACHINE SELECTION

The following factors should be considered when comparing wheels vs. tracks:

Traction

You can figure coefficient of traction, depending on underfoot conditions, from the Table Section in this book.

Wheels — up to 0.65 (in quarry pit with good floor)

Track — up to 0.90 (in soils permitting grouser penetration)

Usable Rimpull = Machine Weight × Coefficient of Traction

Speed

Wheels — travel speeds up to three times higher than track.

Maneuverability

Articulated steering and good visibility give wheel tractors high maneuverability.

Cost

See Owning and Operating Costs section. Tire vs. undercarriage costs can often be the deciding factor in selecting wheels or tracks.

Compaction

Ground Pressure:

Wheels — from 241 kPa (35 psi) to 310 kPa (45 psi)

Tracks — from 82 kPa (12 psi) to 97 kPa (14 psi)

Application

Utility ... mobility, maneuverability and good speed suit wheel tractors for yard and stockpile work and for clean-up around shovels. Lower maintenance costs may be realized in certain soils that can be highly abrasive to track-type undercarriages.

Coal pile ... recommend wheel tractors in this application when following conditions are present:

— Long push distances

— Need for good material spread

— High degree of compaction desired

Production Dozing ... a wheel tractor should be considered in the following conditions:

— Long push distances

— Loose soils, little or no rock

— Level or downhill work

— Good underfoot conditions

Pushloading Scrapers ... a wheel tractor should be considered in the following conditions:

— Thin scraper cut

— Good underfoot conditions — no rock

— Higher push speeds

Chip and Coal Scoops ... may adversely affect performance and/or reliability, particularly when adverse grades are encountered.

COUNTERWEIGHTS AND BALLAST

For each specific application, there is a correct machine weight for proper balancing of traction, flotation, mobility and response.

- Low machine weight may increase tire slipping and wear, but improves flotation, mobility and machine response.
- High machine weight increases traction, but decreases mobility and response.

The machine weight is optimum for the operating conditions when wheel slipping barely occurs in the gear being used. Weight distribution under operating conditions should then be approximately equal between the wheels to balance power to each axle.

Application

Lower machine weight is usually required for typical second gear applications, such as fill spreading, stockpiling, road maintenance, towing compactors and shovel cleanup.

Higher machine weight is usually required for such typical first gear applications as heavy dozing and pushloading.

Tire Ballast

A solution of calcium chloride and water is recommended for tire ballast. It has the advantage of low cost with simple quick adjustment to suit working conditions.

TIRE SELECTION & MAINTENANCE

Requirements of traction, flotation and tire life are met by a choice of tire size, tread design and inflation pressure.

Tire Width

For good conditions with little rolling resistance on surfaces where flotation is no problem, a narrower tire may be most economical. It may also be considered in muddy conditions in which the mud can be penetrated to reach firm earth underneath.

Where flotation problems and increased rolling resistance are encountered, wider tires are recommended. The greater contact area and shallower penetration increases flotation.

Tire Size

Larger optional tires will also improve flotation in soft conditions. With larger diameter, rimpull will be reduced which may be desirable to help control wheel spin.

Traction Tread (L-2) tire's penetration ability provides improved traction under some soil conditions.

Rock Tread (L-3) offers improved traction and a more cut resistant rubber compound than the L-2. It provides more rubber at the ground with the same footprint and reduces tire penetration under abrasive conditions. Recommended on any hard smooth surface such as rock, concrete or compacted earth.

Rock — Deep Tread (L-4) provides 50% more tread depth, thicker undertread and sidewall with increased tire life when compared to the L-3 tire. Recommended in rock conditions where sharp fragments cause high tire wear or sudden failures.

Rock — Extra Deep Tread (L-5) provides 150% more tread depth when compared to the L-3 tire. Intended for severe rock conditions with extreme penetration hazards.

Chains should be considered in severe applications where extra tread tires still give unsatisfactory life. Operating costs vary greatly depending on application, underfoot conditions, wheel spin and chain maintenance. Under normal rock operating conditions (short cycle, low average speed and minimum wheel spin) the maximum estimated chain life is about 2000 hours. Before installing chains, carefully weigh their overall economics against known tire costs. Chains are not recommended with new rock extra tread tires but can extend the life of a used tire. Always check clearance around tires before using chains.

Major applications where chains can be considered include:

- stripping rock or rocky soils
- clean-up work around rock loading shovels
- any application where underfoot conditions cause excessive tire wear.

Inflation Pressure

In average operating conditions the recommended inflation pressure prevents excessive deflection and minimizes tire rollover on side slopes.

Over-inflation

Reduces amount of tread contact with ground and provides less flotation. Over-inflation causes center of tread to wear faster and increases the chance of cuts and impact breaks.

Under-inflation

Can cause permanent tire damage in the form of flex breaks, radial cracks, and tread or ply separation. On jobs where wrinkling and bead rollover *are not* apparent, inflation pressure may be reduced to a minimum of:

Bias Ply — 170 kPa (25 psi) on 35/65-33
 170 kPa (25 psi) on 29.5-25
 170 kPa (25 psi) on 26.5-25
 170 kPa (25 psi) on 23.5-25

Radial — 310 kPa (45 psi) on 35/65-R33
 310 kPa (45 psi) on 29.5-R25
 205 kPa (30 psi) on 26.5-R25
 240 kPa (35 psi) on 23.5-R25

Reduced pressure will:

- Increase flotation and traction in sand.
- Improve envelopment characteristics to reduce sudden death failure on rock jobs.
- Provide better tread wear by reducing contact pressure between tire and ground.

Consult your tire manufacturer before changing tire pressures.

MODEL	814F		824G Series II		834G	
Type	Straight		Straight		Straight	
Capacity**	2.66 m ³	3.5 yd ³	4.67 m ³	6.11 yd ³	8.04 m ³	10.51 yd ³
Weight, Dozer*	3740 kg	8245 lb	5136 kg	11,323 lb	6880 kg	15,170 lb
General Dimensions (Tractor & Dozer)						
Length	6.9 m	22'6"	8.2 m	26'9"	10.42 m	34'2"
Width	3.6 m	11'8"	4.51 m	14'8"	5.07 m	16'7"
Blade:						
Width (including std. end bits)	3.6 m	11'8"	4.51 m	14'8"	5.07 m	16'7"
Height	1100 mm	3'6"	1229 mm	4'0"	1466 mm	4'9"
Max. Digging Depth	528 mm	20.8"	430 mm	16.9"	455 mm	17.9"
Ground Clearance @ Full Lift Under Skid Plate	718 mm	2'4"	955 mm	3'1.6"	1390 mm	4'7"
Tilt Adjust. from Horizontal	795 mm	2'6"	1180 mm	3'9"	1278 mm	4'2"
Total Tip Adjustment		15°		22.4°		20.5°

MODEL	834G		844		854G	
Type	U-Blade		Semi-U		Semi-U	
Capacity**	11.2 m ³	14.6 yd ³	15.9 m ³	20.7 yd ³	25.5 m ³	33.4 yd ³
Weight, Dozer*	8470 kg	18,670 lb	15 670 kg	34,520 lb	21 910 kg	48,270 lb
General Dimensions (Tractor & Dozer)						
Length	10.42 m	34'2"	10.94 m	35'9"	13.405 m	44'0"
Width	5.15 m	16'11"	5.42 m	17'8"	6.321 m	20'7"
Blade:						
Width (including std. end bits)	5.15 m	16'11"	5.42 m	17'8"	6.321 m	20'7"
Height	1437 mm	4'9"	1834 mm	5'9"	2179 mm	7'1"
Max. Digging Depth	442 mm	17.4"	466 mm	18.3"	398 mm	15.7"
Ground Clearance @ Full Lift Under Skid Plate	1118 mm	3'8"	1372 mm	4'6"	1539 mm	5'0.6"
Tilt Adjust. from Horizontal	1340 mm	4'5"	830 mm	2'8.7"	1165 mm	3'9.9"
Total Tip Adjustment		22°		13°		15°

*Total Bulldozer Arrangement.

**Blade capacities determined by SAE J1265.

COAL U-BLADE	814F		824G Series II		834G	
Model: Replaces "S" Blade	184-4962		152-7046		168-8799	
Blade:						
Capacity	11 m ³	14 yd³	16.1 m ³	21 yd³	22.3 m ³	29 yd³
Length (Cutting Width)	4318 mm	14'2"	4801 mm	15'9"	5680 mm	18'7"
Height, wing section (tapered down)	1473 mm	4'10"	1803 mm	5'11"	1960 mm	6'5"
Wing Angle	25°		30°		30°	
Weight, Installed (Without Hydraulics)	1950 kg	4300 lb	3193 kg	7040 lb	5020 kg	11,300 lb

WOODCHIP U-BLADE	824G Series II		834G	
Model: Replaces "S" Blade	153-6486		168-880	
Blade:				
Capacity	24 m ³	31 yd³	30.1 m ³	40 yd³
Length (Cutting Width)	4775 mm	15'8"	5700 mm	18'8"
Height, wing section	2261 mm	7'5"	2350 mm	7'8"
Wing Angle	30°		30°	
Weight	3515 kg	7750 lb	5155 kg	11,600 lb

COAL SCOOP WITH TILT	814F		834G	
Model:	123-8236		213-4480	
Scoop:				
Lift and Carrying Capacity	11.5 m ³	15 yd³	22.9 m ³	30 yd³
Dozing Capacity	19.1 m ³	25 yd³	45.8 m ³	60 yd³
Width	3734 mm	12'3"	4880 mm	15'11"
Height	1626 mm	5'4"	2382 mm	7'10"
Overall Length	7.3 m	24'0"	—	
Weight	5216 kg	11,500 lb	9501 kg	20,949 lb
Dump Clearance	1041 mm	3'5"	1524 mm	5'0"

CHIP SCOOP WITH TILT	814F		824G Series II		834G	
Model:	230-5890		147-6154		220-3648	
Scoop:						
Capacity/Lift & Carry	15.3 m ³	20 yd³	20.6 m ³	27 yd³	26.7 m ³	35 yd³
Capacity/Dozing	30.6 m ³	40 yd³	41.3 m ³	54 yd³	53.5 m ³	70 yd³
Width	3734 mm	12'3"	4039 mm	13'3"	4876 mm	16'0"
Height	2286 mm	7'6"	2489 mm	8'2"	2692 mm	8'10"
Weight	5390 kg	11,880 lb	11 420 kg	19,125 lb	9711 kg	21,410 lb

SOIL COMPACTORS

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Features:

- **Dozing, filling and compacting versatility.**
- **High speed operation** with responsive Caterpillar diesel Engine, single-lever planetary power shift transmission, and all-wheel drive.
- **Articulated frame** makes maneuvering quick and easy. Long wheel base for stability.
- **Wheels with tamping foot design and chevron pattern** give traction, penetration and compaction needed for high production. Foot pattern reversed on trailing drums to prevent overprinting lead drums.
- **Rear drums track front** for double compactive effort. Drum spacing covers mid-axle strip on return pass.
- **Rear axle oscillation** keeps all drums on ground for traction and stability.
- **Cleaner bars** keep drums free of carry over earth regardless of rolling direction. Adjustable, replaceable.
- **Optional fill spreading dozer** has single lever control for raise, lower, hold and float. (Blade tilt optional.)

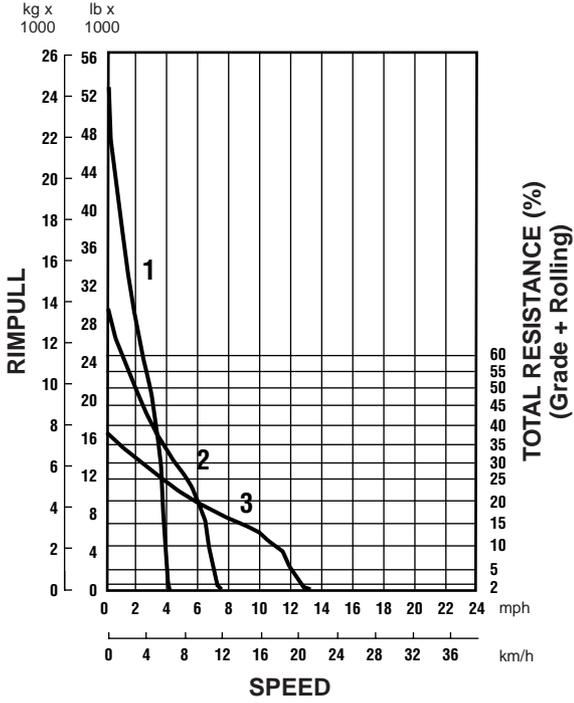


MODEL	815F		825G Series II	
Flywheel Power	179 kW	240 hp	253 kW	339 hp
Operating Weight*	20 755 kg	45,765 lb	32 734 kg	72,164 lb
Engine Model	3176C ATAAC		3406E ATAAC	
Rated Engine RPM	2100		2000	
No. Cylinders	6		6	
Displacement	10.3 L	629 in ³	14.6 L	893 in ³
Speeds:				
Forward	3		3	
Reverse	3		3	
Turning Radius — outside Corner of Blade	7.2 m	23'7"	7.4 m	24'0"
Fuel Tank Refill Capacity	446 L	117.8 U.S. gal	608 L	161 U.S. gal
TAMPING FOOT WHEELS:				
Each Drum Width	991 mm	3'3"	1125 mm	3'8"
Diameters, over feet	1.42 m	4'8"	1.68 m	5'5"
over drum	1.03 m	3'5"	1.29 m	4'3"
Feet per Wheel	60		65	
Feet per Row	12		13	
Rows of Feet	5		5	
Foot Length	191 mm	7.5"	188 mm	7.4"
End Area Per Foot	134 cm ²	20.8 in ²	192 cm ²	29.75 in ²
Width of Two Pass Coverage	4.2 m	13'9"	5.3 m	17'4"
GENERAL DIMENSIONS:				
Height (top of ROPS)	3.34 m	11'0"	3.74 m	12'3"
Height (stripped top)**	2.39 m	7'10"	2.65 m	8'8"
Wheel Base	3.35 m	11'0"	3.7 m	12'1"
Overall Length with Dozer	6.80 m	23'6"	8.24 m	27'5"
Width over Drums	3.24 m	10'8"	3.65 m	12'0"
Ground Clearance	390 mm	15.4"	596 mm	23"
STRAIGHT BULLDOZER:				
Width over End Bits	3.76 m	12'4"	4.62 m	15'1"
Height with Cutting Edge	860 mm	2'10"	1.03 m	3'4"

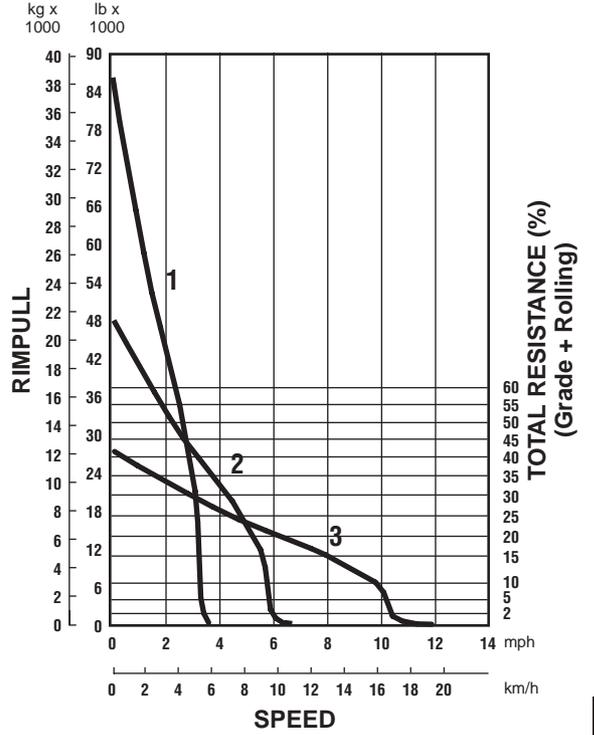
*Operating Weight includes coolant, lubricants, bulldozer, hydraulics, ROPS canopy, full fuel tank and operator.

**Height (stripped top) — without ROPS, exhaust, seat back or other easily removed encumbrances.

815F



825G Series II



KEY
 1 - 1st Gear
 2 - 2nd Gear
 3 - 3rd Gear

COMPACTION FUNDAMENTALS

The following discussion applies to soil compaction only. For information on refuse compaction, see Waste Disposal section of this book.

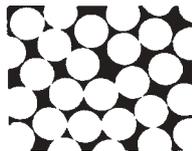
Definition

Compaction is the process of physically densifying or packing the soil ... resulting in increased weight per unit volume. It is generally accepted that the strength of a soil can be increased by densification. Three important factors affect compaction.

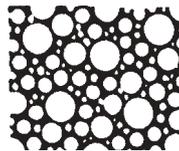
- Material gradation
- Moisture content
- Compactive effort

Material Gradation — refers to the distribution (% by weight) of the different particle sizes within a given soil sample. A sample is *well-graded* if it contains a good, even distribution of particle sizes. A sample composed of predominantly one size particle, is said to be *poorly-graded*. In terms of compaction, a well-graded soil will compact more easily than one that is poorly-graded. In well-graded material the smaller particles tend to fill the empty spaces between the larger particles, leaving fewer voids after compaction.

MATERIAL GRADATION



Poorly-graded



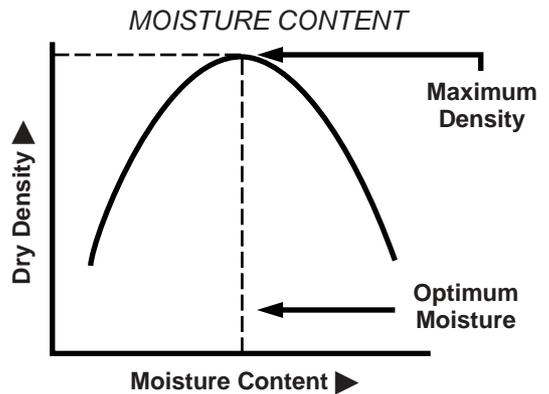
Well-graded

Moisture Content — or the amount of water present in a soil, is very important to compaction. Water lubricates soil particles thus helping them slide into the most dense position. Water also creates clay particle bonding, giving cohesive materials their sticky qualities.

OPTIMUM MOISTURE

Heavy clay	17.5%
Silty clay	15.0%
Sandy clay	13.0%
Sand	10.0%
Gravel, sand, clay mix (pit run)	7.0%

Experience has shown that it is very difficult, if not impossible, to achieve proper compaction in materials that are too dry or too wet. Soil experts have determined that in practically every soil there is an amount of water, called optimum moisture content, at which it is possible to obtain maximum density with a given amount of compactive effort. The curve below shows this relationship between dry density and moisture content. It is called a compaction curve, moisture-density curve or Proctor curve.



Compactive Effort — refers to the method employed by a compactor to impart energy into the soil to achieve compaction. Compactors are designed to use one or a combination of the following types of compactive effort.

- Static weight (or pressure)
- Kneading action (or manipulation)
- Impact (or sharp blow)
- Vibration (or shaking)

COMPACTOR TYPES

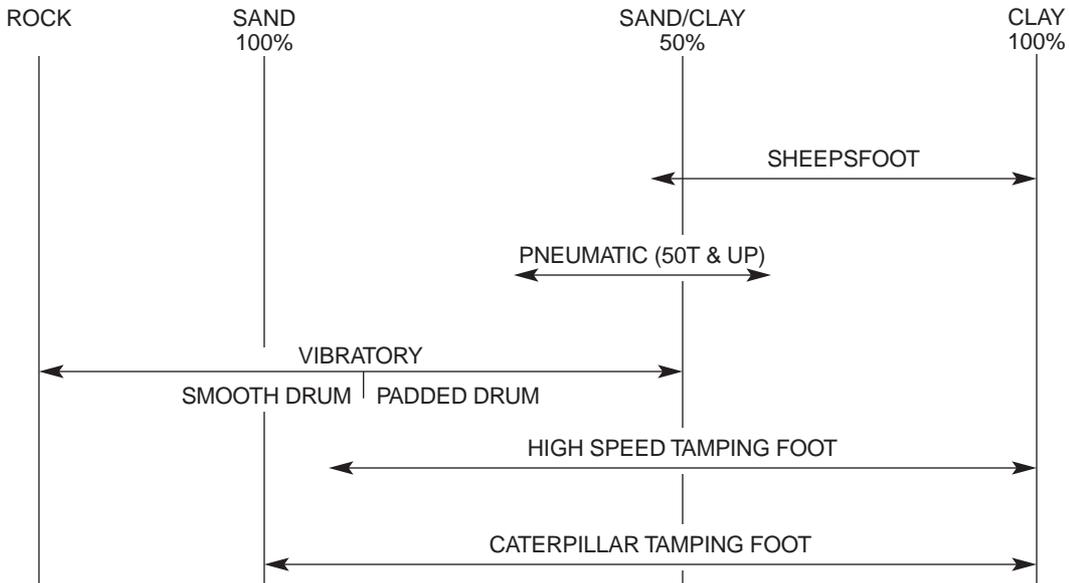
Compaction equipment can be grouped generally into the following classifications:

- sheepsfoot
- vibratory
- pneumatic
- high speed tamping foot
- chopper wheels (see Landfill Compactor section)

Combinations of these types are also available, such as a vibrating smooth steel drum.

For ease of comparison, the compactors have been placed on the Zones of Application Chart shown below. This chart contains a range of material moistures from 100% clay to 100% sand, plus a rock zone. Each type has been positioned in what is considered to be its most effective and economical zone of application. However, it is not uncommon to find them working out of their zones. Exact positioning of the zones can vary with differing material conditions.

RANGES OF SOIL TYPES FOR SOIL COMPACTION EQUIPMENT



COMPACTOR PRODUCTION

Compactor production is expressed in compacted cubic meters (Cm³) or compacted cubic yards (CCY) per hour. Material in its natural or bank state is measured in bank cubic meters or yards (Bm³ or BCY). When it is removed or placed in a fill, it is measured in loose cubic meters or yards (Lm³ or LCY).

When the loose material is worked into a compacted state, the relationship of *compacted material to bank material* is shown as the shrinkage factor (SF).

$$SF = \frac{\text{Compacted cubic meters (Cm}^3\text{)}}{\text{Bank cubic meters (Bm}^3\text{)}}$$

$$SF = \frac{\text{Compacted cubic yards (CCY)}}{\text{Bank cubic yards (BCY)}}$$

The construction industry has developed the following formula for use in estimating compactor production. This formula gives the material volume a given machine can compact in a 60-minute hour.

Metric Method

$$\text{Cm}^3 = \frac{W \times S \times L}{P}$$

W = Compacted width per pass, in meters. (For Caterpillar Compactors it is recommended that W = Twice the width of one wheel.)

S = Average speed, in kilometers per hour.

L = Compacted thickness of lift, in millimeters.

P = Number of machine passes to achieve compaction (**can only be determined by testing the compacted material density on-the-job**).

English Method

$$\text{CCY/hr} = \frac{W \times S \times L \times 16.3}{P}$$

W = Compacted width per pass, in feet. (For Caterpillar Compactors it is recommended that W = Twice the width of one wheel.)

S = Average speed, in miles per hour.

L = Compacted thickness of lift, in inches.

16.3 = Conversion constant, equals 5280 feet ÷ 12 inches ÷ 27 cubic feet

P = Number of machine passes to achieve compaction (**can only be determined by testing the compacted material density on-the-job**).

Example problem (Metric)

Determine production for an 815F operating under the following conditions:

$$P = 5, S = 10 \text{ km/h}, L = 100 \text{ mm}$$

Refer to 815F in the production table on the next page. Read down the first column until reaching section for 5 passes. Within this section in the second column, find the speed closest to 10 km/h. Read across this line to the 100 mm compacted lift. Read the production figure given.

Answer: 377 Cm³/h. (Since the machine's speed of 10 km/h is slightly faster than the 9.5 of the table, production may be interpolated slightly higher — say 395 Cm³/h.)

Example problem (English)

Determine production for an 825G Series II operating under the following conditions:

$$P = 4, S = 8 \text{ mph}, L = 6 \text{ inches}$$

Refer to the production estimating table on the next page. This table contains estimates for the 815F and 825G Series II Compactors using various speeds, lift thicknesses and number of passes. These figures were calculated using the formula discussed on this page. The figures represent 100% efficiency. W = Twice the width of one wheel.

In the 825 portion of this table, read down the first column until reaching the section for four passes. Within this section in the second column, find the line for 8 mph. Read across this line to the lift thickness column for 6 inches. Read the production figure given.

Answer: 1444 CCY/hr.



PRODUCTION TABLE

MODEL AND MACHINE PASSES*	AVERAGE SPEED km/h mph		COMPACTED LIFT THICKNESS								
			100 mm m³/h	4 in yd³/hr	150 mm m³/h	6 in yd³/hr	200 mm m³/h	8 in yd³/hr	250 mm m³/h	10 in yd³/hr	
815F	3	6.5	4	419	548	628	822	837	1095	—	—
		9.5	6	628	822	942	1232	1256	1643	—	—
		13.0	8	837	1095	1256	1643	1675	2191	—	—
	4	6.5	4	314	411	471	616	628	822	—	—
		9.5	6	471	616	706	924	942	1232	—	—
		13.0	8	628	822	942	1232	1256	1643	—	—
	5	6.5	4	251	329	377	493	502	657	—	—
		9.5	6	377	493	565	739	754	986	—	—
		13.0	8	502	657	754	986	1005	1314	—	—
	6	6.5	4	286	274	314	411	419	548	—	—
		9.5	6	314	411	471	616	628	822	—	—
		13.0	8	419	548	628	822	837	1095	—	—
825G Series II	3	6.5	4	488	642	731	962	975	1283	1219	1604
		9.5	6	713	962	1069	1444	1425	1925	1781	2406
		13.0	8	975	1283	1463	1925	1950	2566	2438	3208
	4	6.5	4	366	481	534	722	731	962	914	1203
		9.5	6	534	722	802	1083	1069	1444	1336	1804
		13.0	8	731	962	1097	1444	1463	1925	1828	2406
	5	6.5	4	293	385	439	577	585	770	731	962
		9.5	6	428	577	641	866	855	1155	1069	1444
		13.0	8	585	770	878	1155	1170	1540	1463	1925
	6	6.5	4	244	321	366	481	488	642	609	802
		9.5	6	356	481	534	722	713	962	891	1203
		13.0	8	488	642	731	962	975	1283	1219	1604

*The number of machine passes required is dependent on soil type, moisture content, desired compaction and machine weight.

MODEL	815F		825G Series II	
Type	Fill Spreading		Fill Spreading	
Capacity**				
Earth	2.16 m³	2.82 yd³	3.79 m³	4.95 yd³
Refuse	—	—	—	—
Weight, Dozer*	1460 kg	3220 lb	2831 kg	6241 lb
General Dimensions: (Tractor & Dozer)				
Length	6.82 m	22'5"	8.24 m	27'5"
Width	3.76 m	12'4"	4.6 m	15'1"
Blade Dimensions:				
Width, End Bits	3.76 m	12'4"	4.6 m	15'1"
Height, Moldboard	860 mm	2'10"	1.03 m	3'4"
Height, Trash Rack	—	—	—	—
Max. Digging Depth	215 mm	8.5"	312 mm	12.3"
Ground Clearance @ Full Lift	814 mm	2'8"	932 mm	3'0.7"
Tilt Adjust. from Horizontal	328 mm	12.9"	797 mm	31.4"

*Total Bulldozer Arrangement.

**Blade capacities determined by SAE recommended practice J1265.

**815F and 825G Series II
Ground Contact Pressure/Soil Compactors**

815F Tip	Weight Front Axle 11 483.5 kg (20,670.3 lb) Ground Contact Pressure		Weight Rear Axle 9395.5 kg (25,263.7 lb) Ground Contact Pressure		Contact Area Four Wheels	
	kPa	psi	kPa	psi	cm²	in²
Tip Penetration						
25 mm (1.0 in)	4727.05	685.6	6989.35	706.7	425.81	66
50 mm (2.0 in)	1347.92	195.5	1827.94	215.7	1445.16	224
75 mm (3.0 in)	902.52	130.9	1094.20	156.8	2077.42	322
100 mm (4.0 in)	658.45	95.5	872.95	97.7	3064.51	475

825G Series II Standard Tip	Weight Front Axle 14 919.98 kg (32,892.93 lb) Ground Contact Pressure		Weight Rear Axle 16 819.98 kg (37,081.71 lb) Ground Contact Pressure		Contact Area Four Wheels	
	kPa	psi	kPa	psi	cm²	in²
Tip Penetration						
12.7 mm (0.5 in)	7178.41	1041.14	8092.55	1173.73	407.65	63.19
25 mm (1.0 in)	2609.39	378.46	2941.72	426.66	1121.55	173.84
38 mm (1.5 in)	1411.35	204.70	1591.10	230.77	2073.54	321.40
50 mm (2.0 in)	704.99	102.25	794.76	115.27	4150.96	643.40
75 mm (3.0 in)	610.19	88.50	687.89	99.77	4795.60	743.32
100 mm (4.0 in)	421.68	61.16	475.39	68.95	6939.86	1075.68
125 mm (5.0 in)	382.52	55.48	431.27	62.55	1912.51	296.44
150 mm (6.0 in)	324.33	47.04	365.63	53.03	9022.18	1398.44
175 mm (7.0 in)	311.09	45.12	350.74	50.87	9405.66	1457.88
200 mm (8.0 in)	139.55	20.24	157.34	22.82	20 965.89	3249.72

825G Series II Heavy Duty Tip	Weight Front Axle 14 919.98 kg (32,892.93 lb) Ground Contact Pressure		Weight Rear Axle 16 819.98 kg (37,081.71 lb) Ground Contact Pressure		Contact Area Four Wheels	
	kPa	psi	kPa	psi	cm²	in²
Tip Penetration						
12.7 mm (0.5 in)	7615.41	1104.52	8585.20	1245.18	96.07	14.89
25 mm (1.0 in)	6199.83	899.21	6989.35	1013.72	472.00	73.16
38 mm (1.5 in)	3614.20	524.19	1915.27	277.79	430.61	66.74
50 mm (2.0 in)	1621.44	235.17	1827.94	265.12	1804.64	279.72
75 mm (3.0 in)	970.64	140.78	1094.20	158.70	3014.96	467.32
100 mm (4.0 in)	774.28	112.30	872.95	126.61	3779.35	585.80
125 mm (5.0 in)	570.89	82.80	643.56	93.34	5126.18	794.56
150 mm (6.0 in)	443.13	64.27	499.59	72.46	6603.60	1023.56
175 mm (7.0 in)	417.06	60.49	470.22	68.20	7016.24	1087.52
200 mm (8.0 in)	389.07	56.43	438.64	63.62	7520.76	1165.72
225 mm (9.0 in)	381.07	55.27	429.61	62.31	7678.95	1190.24
250 mm (10.0 in)	128.59	18.65	145.00	21.03	22 753.76	3526.84

WHEEL LOADERS INTEGRATED TOOLCARRIERS

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WHEEL LOADERS

Features:

- **Caterpillar heavy duty diesel engine.**
- **Productive operator environment. Excellent visibility.**
- **Automatic lift and bucket controls.**
- **Adjustable suspension seat and steering column.**
- **Four wheel enclosed wet disc brakes.**
- **Automatic power shift transmissions.** Allows operator to select automatic or manual mode.
- **Hydrostatic drive on 902, 906, 908 and 914G.**
- **Transmission neutralizer switch (938G Series II-980G Series II).**
- **Computerized machine function monitoring.**
- **Command control steering** with integrated transmission controls and electro-hydraulic controls ... 950G-980G Series II.
- **Lock up clutch on 990 and 994D (optional on 988G).**
- **Impeller clutch on 988G, 990, 992G and 994D.**
- **Tilting hood ... 938G Series II-980G Series II.**
- **Brake wear indicator.**
- **Limited slip differentials.**
- **Traction control system ... 938G Series II.**
- **Automatic Ride Control suspension system.** Operator select "on", "off" or "automatic".
- **Payload control system.**

Listed features may be standard on some models, optional or unavailable on others. Contact your Caterpillar Dealer for specific information.

INTEGRATED TOOLCARRIERS

Features:

- **Integral quick coupler** for fast tool changes.
- **Wide range of tools** available to meet many jobs.
- **Increased lift height and reach** over conventional loaders.
- **Parallel lift** from ground level to maximum height.
- **High tilt force** throughout lift cycle provides exceptional load control.
- **Pressure compensating valves** provide precise hydraulic “feel” on the IT28G.
- **Transmission neutralizer lockout switch** for low speed maneuverability is standard. (IT14G-IT62G)
- **Positive carry position** for load stability and retention.
- **Third and fourth valves available** for multiple tool functions.
- **Work tool interchangeability.** IT14G thru IT28G share the same tools. IT38G Series II and IT62G can share the same tools.
- **Excellent center visibility** to quick coupler and work tool.
- **Two position return** to work kickouts.
- **Several quick-coupler work tools** for IT38G Series II and IT62G are available from the factory and ship with the machine. Contact your Caterpillar Dealer for details.



MODEL	902		906		908		914G/IT14G	
Flywheel Power: Net	34 kW	45 hp	45 kW	60 hp	61 kW	81 hp	67 kW	90 hp
Gross	36 kW	48 hp	47 kW	63 hp	64 kW	86 hp	73 kW	98 hp
Engine Model	3024		3034		3054 T		3054 T	
Rated Engine RPM	2600		2600		2200		2200	
Bore	84 mm	3.31"	97 mm	3.82"	100 mm	3.94"	100 mm	3.94"
Stroke	100 mm	3.94"	100 mm	3.94"	127 mm	5"	127 mm	5"
No. Cylinders	4		4		4		4	
Displacement	2.2 L	135 in ³	2.95 L	180 in ³	4 L	243 in ³	4 L	243 in ³
Speeds Forward	km/h mph		km/h mph		km/h mph		km/h mph	
1st	7	Lo 4	8	Lo 5	7	Lo 4	9	Hi 5.6
2nd	20	Hi 12	20	Hi 12	20	Hi 12	32	Hi 19.9
3rd	—		—		—		—	
4th	—		—		—		—	
Speeds Reverse	—		—		—		—	
1st	7	Lo 4	8	Lo 5	7	Lo 4	9	Hi 5.6
2nd	20	Hi 12	20	Hi 12	20	Hi 12	35	Hi 21.7
3rd	—		—		—		—	
4th	—		—		—		—	
Hydraulic Cycle Time, Rated Load in Bucket:	Seconds		Seconds		Seconds		Seconds	
Raise	4.5		4.5		5.4		914G	IT14G
Dump	1.5		1.5		1.6		5.6	6.9
Lower (Empty, Float Down)	3.0		3.0		3.6		2.1	2.5
Total	8.9		8.9		10.6		3.2	3.1
Tread Width	1.39 m	4'5"	1.50 m	4'9"	1.57 m	5'1"	1.80 m	5'11"
Width Over Tires	1.73 m	5'7"	1.84 m	6'0"	1.97 m	6'4"	2.26 m	7'5"
Ground Clearance	385 mm	15"	420 mm	17"	490 mm	19.2"	456 mm	18"
Fuel Tank Capacity	74 L	19.6 U.S. gal	74 L	19.6 U.S. gal	80 L	21.1 U.S. gal	150 L	39.6 U.S. gal
Hydraulic Tank Capacity	49 L	13 U.S. gal	49 L	13 U.S. gal	49 L	13 U.S. gal	70 L	18.5 U.S. gal
Hydraulic System Capacity (includes tank)	66 L	17.5 U.S. gal	66 L	17.5 U.S. gal	66 L	17.5 U.S. gal	100 L	26.4 U.S. gal

Wheel Loaders Integrated Toolcarriers

Specifications



MODEL	924Gz		924G Standard VersaLink Pin On/Hook On		924G High Lift VersaLink Pin On/Hook On	
Flywheel Power: Net	96 kW	129 hp	96 kW	129 hp	96 kW	129 hp
Max.	102 kW	137 hp	102 kW	137 hp	102 kW	137 hp
Engine Model	3056 DI ATAAC		3056 DI ATAAC		3056 DI ATAAC	
Rated Engine RPM	2300		2300		2300	
Bore	100 mm	3.94"	100 mm	3.94"	100 mm	3.94"
Stroke	127 mm	5"	127 mm	5"	127 mm	5"
No. Cylinders	6		6		6	
Displacement	6 L	366 in³	6 L	366 in³	6 L	366 in³
Speeds Forward	km/h	mph	km/h	mph	km/h	mph
1st	6.6	4.1	6.6	4.1	6.6	4.1
2nd	12.0	7.5	12.0	7.5	12.0	7.5
3rd	21.3	13.2	21.3	13.2	21.3	13.2
4th	38.0	23.6	38.0	23.6	38.0	23.6
Speeds Reverse						
1st	6.6	4.1	6.6	4.1	6.6	4.1
2nd	12.0	7.5	12.0	7.5	12.0	7.5
3rd	21.3	13.2	21.3	13.2	21.3	13.2
Hydraulic Cycle Time, Rated Load in Bucket:	Seconds		Seconds		Seconds	
Raise	5.2		5.1		5.1	
Dump	1.1		1.4		1.4	
Lower (Empty, Float Down)	2.7		2.4		2.4	
Total	9.0		8.9		8.9	
Tread Width	1.88 m	6'2"	1.88 m	6'2"	1.88 m	6'2"
Width Over Tires	2.36 m	7'9"	2.36 m	7'9"	2.36 m	7'9"
Ground Clearance	370 mm	15"	370 mm	15"	370 mm	15"
Fuel Tank Capacity	225 L	59.4 U.S. gal	225 L	59.4 U.S. gal	225 L	59.4 U.S. gal
Hydraulic Tank Capacity	70 L	18.5 U.S. gal	70 L	18.5 U.S. gal	70 L	18.5 U.S. gal
Hydraulic System Capacity (includes tank)	148 L	39 U.S. gal	125 L	33 U.S. gal	125 L	33 U.S. gal



MODEL	928G/IT28G		938G Series II IT38G Series II		950G Series II	
Flywheel Power: Net	107 kW	143 hp	119 kW	160 hp	136 kW	183 hp
Max.	115 kW	155 hp	134 kW	180 hp	146 kW	196 hp
Engine Model	3056 DI ATAAC		3126B ATAAC		3126B ATAAC	
Rated Engine RPM	2300		2200		2200	
Bore	100 mm	3.94"	110 mm	4.3"	110 mm	4.3"
Stroke	127 mm	5"	127 mm	5"	127 mm	5"
No. Cylinders	6		—		6	
Displacement	6 L	366 in ³	7.2 L	439 in ³	7.2 L	439 in ³
Speeds Forward	km/h	mph	km/h	mph	km/h	mph
1st	7.9	4.9	7.6	4.7	6.9	4.3
2nd	12.6	7.8	13.4	8.3	12.7	7.9
3rd	25.8	16.0	23.3	14.5	22.3	13.9
4th	37.7	23.4	38.8	24.1	37.0	23.0
Speeds Reverse						
1st	7.9	4.9	7.6	4.7	7.6	4.7
2nd	12.6	7.8	13.4	8.3	13.9	8.6
3rd	25.8	16.0	23.3	14.5	24.5	15.2
4th	—	—	—	—	40.0	24.9
Hydraulic Cycle Time,	Seconds		Seconds		Seconds	
Rated Load in Bucket:	928G	IT28G	938G II	IT38G II		
Raise	6.1	6.1	6.0	5.8	6.5	
Dump	1.2	1.4	1.4	2.0	1.8	
Lower (Empty, Float Down)	2.8	2.8	2.8	2.9	2.7	
Total	10.1	10.3	10.2	10.7	11.0	
Tread Width	1.95 m	6'5"	2.02 m	6'8"	2.14 m	7'0"
Width Over Tires	2.44 m	8'0"	2.6 m	8'6"	2.89 m	9'6"
Ground Clearance	408 mm	16"	400 mm	16"	412 mm	16"
Fuel Tank Capacity	225 L	59.4 U.S. gal	257 L	67.9 U.S. gal	285 L	75.3 U.S. gal
Hydraulic Tank Capacity	70 L	18.5 U.S. gal	76 L	20.1 U.S. gal	88 L	23.2 U.S. gal
Hydraulic System Capacity (includes tank)	125 L	33 U.S. gal	90 L	23.8 U.S. gal	153 L	40.4 U.S. gal

Wheel Loaders Integrated Toolcarriers

Specifications



962G Series II IT62G Series II

966G Series II

972G Series II

MODEL	962G Series II IT62G Series II		966G Series II		972G Series II	
Flywheel Power: Net	152 kW	204 hp	184 kW	246 hp	209 kW	280 hp
Max.	157 kW	210 hp	194 kW	260 hp	213 kW	285 hp
Engine Model	3126B ATAAC		3176C ATAAC		3196 ATAAC	
Rated Engine RPM	2200		2100		2100	
Bore	110 mm	4.3"	125 mm	4.9"	130 mm	5.1"
Stroke	127 mm	5"	140 mm	5.5"	150 mm	5.9"
No. Cylinders	6		6		6	
Displacement	7.2 L	439 in ³	10.3 L	629 in ³	12 L	732 in ³
Speeds Forward	km/h	mph	km/h	mph	km/h	mph
1st	6.9	4.3	7.2	4.5	7.2	4.5
2nd	12.7	7.9	12.6	7.8	12.5	7.8
3rd	22.3	13.9	21.7	13.5	21.5	13.3
4th	37.0	23.0	37.3	23.1	37.0	22.9
Speeds Reverse						
1st	7.6	4.7	8.2	5.1	8.2	5.1
2nd	13.9	8.7	14.3	8.9	14.2	8.8
3rd	24.5	15.2	24.6	15.3	24.4	15.1
4th	40.0	24.9	38.5	23.9	38.8	24.0
Hydraulic Cycle Time,	Seconds		Seconds		Seconds	
Rated Load in Bucket:	962G II	IT62G II				
Raise	6.3	6.1	6.9		6.9	
Dump	2.1	2.1	1.4		1.7	
Lower (Empty, Float Down)	3.0	2.8	1.8		1.8	
Total	11.4	11.0	10.1		10.4	
Tread Width	2.14 m	7'0"	2.23 m	7'4"	2.23 m	7'4"
Width Over Tires	2.89 m	9'6"	2.96 m	9'9"	2.96 m	9'9"
Ground Clearance	412 mm	16"	565 mm	22"	565 mm	22"
Fuel Tank Capacity	285 L	75.3 U.S. gal	410 L	108 U.S. gal	410 L	108 U.S. gal
Hydraulic Tank Capacity	88 L	23.2 U.S. gal	140 L	37 U.S. gal	140 L	37 U.S. gal
Hydraulic System Capacity (includes tank)	153 L	40.4 U.S. gal	207 L	54.7 U.S. gal	207 L	54.7 U.S. gal



MODEL	980G Series II		988G		990 Series II	
Flywheel Power: Net	232 kW	311 hp	354 kW	475 hp	466 kW	625 hp
Max.	238 kW	319 hp	388 kW	520 hp	503 kW	675 hp
Rated Payload*	—		11.4 t	12.5 T	15 t	16.5 T
Gross Rated Bucket Payload*	—		16 300 kg	36,000 lb	23 100 kg	51,000 lb
Engine Model	3406E ATAAC		3456 DITA ATAAC		3412E DITA ATAAC	
Rated Engine RPM	2000		1900		2000	
Bore	137 mm	5.4"	140 mm	5.5"	137 mm	5.4"
Stroke	165 mm	6.5"	171 mm	6.75"	152 mm	6"
No. Cylinders	6		6		12	
Displacement	14.6 L	893 in ³	15.8 L	964 in ³	27 L	1649 in ³
Speeds Forward	km/h	mph	km/h	mph	km/h	mph
1st	7.1	4.4	6.8	4.2	7.0	4.3
2nd	12.6	7.8	11.9	7.4	12.1	7.5
3rd	21.9	13.6	20.7	12.8	20.8	13.0
4th	37.4	23.2	35.4	22.0		—
Speeds Reverse						
1st	7.5	4.6	7.7	4.8	7.7	4.8
2nd	13.1	8.2	13.5	8.4	13.4	8.3
3rd	23.0	14.3	23.5	14.6	22.9	14.2
4th	42.8	24.8		—		—
Hydraulic Cycle Time, Rated Load in Bucket:	Seconds		Seconds		Seconds	
Raise	6.0		9.4		9.2	
Dump	2.0		2.4		2.9	
Lower (Empty, Float Down)	3.4		3.8		3.8	
Total	11.4		15.6		15.9	
Tread Width	2.44 m	8'0"	2.59 m	8'6"	3.1 m	10'2"
Width Over Tires	3.25 m	10'8"	3.54 m	11'7"	4.1 m	13'5"
Ground Clearance	467 mm	18.4"	549 mm	22"	478 mm	18.8"
Fuel Tank Capacity	470 L	124 U.S. gal	725 L	191 U.S. gal	1125 L	297 U.S. gal
Hydraulic Tank Capacity	125 L	33 U.S. gal	267 L	70 U.S. gal	174 L†	46 U.S. gal
Hydraulic System Capacity (includes tank)	250 L	66 U.S. gal	470 L	124 U.S. gal	435 L†	115 U.S. gal

*Changes in bucket weight, including field installed wear iron, can impact rated payload. Consult your Caterpillar dealer for assistance in selecting and configuring the proper bucket for the application. Caterpillar's Large Wheel Loader Payload Policy is a guideline intended to maximize wheel loader structural and component life. Caterpillar's Payload Policy is that the "Gross Bucket plus Payload Capacity" is the MAXIMUM weight that should be carried on the end of the Lift Arm/Boom.

†990 Series II has a separate hydraulic system for steering and engine cooling fan. System (including tank) 194 L (51 U.S. gal), tank only 132 L (35 U.S. gal).

Wheel Loaders Integrated Toolcarriers

Specifications



MODEL	992G		994D	
Flywheel Power	597 kW	800 hp	933 kW	1250 hp
Rated Payload*	21.7 t	24 T	34.5 t STD 31.8 t H.L.	38 T 35 T
Gross Rated Bucket Payload*	33 100 kg	73,000 lb	55 800 kg STD 53 100 kg H.L.	123,000 lb 117,000 lb
Engine Model	3508B DITA		3516B DITA	
Rated Engine RPM	1750		1600	
Bore	170 mm	6.7"	170 mm	6.7"
Stroke	190 mm	7.5"	190 mm	7.5"
No. Cylinders	8		16	
Displacement	34.5 L	2105 in³	69 L	4210 in³
Speeds Forward	km/h	mph	km/h	mph
1st	6.6	4.1	7.3	4.6
2nd	11.5	7.1	12.9	8.0
3rd	19.9	12.4	22.6	14.1
Speeds Reverse				
1st	7.3	4.5	8.1	5.0
2nd	12.6	7.8	14.3	8.9
3rd	22.0	13.6	24.9	15.5
Hydraulic Cycle Time, Rated Load in Bucket:	Seconds		Seconds	
Raise	9.12		12.5	
Dump	3.26		3.4	
Lower (Empty, Float Down)	3.47		4.0	
Total	15.85		19.9	
Tread Width	3.3 m	10'10"	4.1 m	13'5"
Width Over Tires	4.5 m	14'9"	5.45 m	17'11"
Ground Clearance	691 mm	27"	825 mm	32"
Fuel Tank Capacity	1610 L	425 U.S. gal	4641 L	1226 U.S. gal
Hydraulic Systems:				
Lift, Tilt, Fan	646 L	171 U.S. gal	723 L	191 U.S. gal
Tank Only	326 L	86 U.S. gal	656 L	173 U.S. gal
Steering and Brakes	231 L	61 U.S. gal	267 L	71 U.S. gal
Tank Only	159 L	42 U.S. gal	208 L	55 U.S. gal
Brake Cooling		—	42 L	11 U.S. gal
Tank Only		—	36 L	9.5 U.S. gal

*Changes in bucket weight, including field installed wear iron, can impact rated payload. Consult your Caterpillar dealer for assistance in selecting and configuring the proper bucket for the application. Caterpillar's Large Wheel Loader Payload Policy is a guideline intended to maximize wheel loader structural and component life. Caterpillar's Payload Policy is that the "Gross Bucket plus Payload Capacity" is the MAXIMUM weight that should be carried on the end of the Lift Arm/Boom.

Bucket Type		General Purpose					Multi-Purpose			
		Bare	Bolt-on Edges	Bolt-on Teeth	Weld-on Edges	Pin-on Tips	Bare	Bolt-on Edges	Bolt-on Teeth	Weld-on Edges
Ground Engaging Type										
Rated bucket capacity (\$)	m ³ yd ³	0.6 0.78	0.6 0.78	0.6 0.78	0.7 0.78	0.6 0.78	0.6 0.78	0.6 0.78	0.6 0.78	0.7 0.78
Struck capacity (\$)	m ³ yd ³	0.5 0.65	0.5 0.65	0.5 0.65	0.5 0.65	0.5 0.65	0.5 0.65	0.5 0.65	0.5 0.65	0.5 0.65
Bucket width	mm ft/in	1780 5'10"	1790 5'10"	1780 5'10"	1790 5'10"	1780 5'10"	1790 5'10"	1790 5'10"	1790 5'10"	1790 5'10"
Dump clearance at full lift and 43° discharge (\$)	mm ft/in	2341 7'8"	2307 7'7"	2341 7'8"	2273 7'5"	2341 7'8"	2341 7'8"	2307 7'7"	2341 7'8"	2273 7'5"
Reach at full lift and 43° discharge (\$)	mm ft/in	751 2'6"	764 2'6"	751 2'6"	801 2'7"	751 2'6"	751 2'6"	764 2'6"	751 2'6"	801 2'7"
Reach at 45° discharge and 2130 mm (7'0") clearance (\$)	mm ft/in	920 3'0"	902 3'0"	856 2'10"	905 3'0"	839 2'9"	920 3'0"	902 3'0"	856 2'10"	905 3'0"
Reach with lift arms horizontal and bucket level	mm ft/in	1779 5'10"	1811 5'11"	1779 5'10"	1862 6'1"	1779 5'10"	1779 5'10"	1811 5'11"	1779 5'10"	1882 6'2"
Digging depth (\$)	mm in	52 2.0	68 2.7	52 2.0	68 2.7	52 2.0	52 2.0	68 2.7	52 2.0	68 2.7
Overall length	mm ft/in	5155 16'11"	5200 17'1"	5155 16'11"	5251 17'3"	5155 16'11"	5155 16'11"	5200 17'1"	5155 16'11"	5251 17'3"
Overall height with bucket at full raise (\$)	mm ft/in	3967 13'0"	3967 13'0"	3967 13'0"	3967 13'0"	3967 13'0"	3944 12'11"	3944 12'11"	3944 12'11"	3944 12'11"
Loader clearance circle with bucket in carry position	m ft/in	7.72 25'4"	7.76 25'6"	7.72 25'4"	7.79 25'7"	7.72 25'4"	7.73 25'4"	7.79 25'7"	7.73 25'4"	7.80 25'7"
Static tipping load, straight* (\$)	kg lb	3040 6700	2983 6570	3022 6660	2955 6510	3012 6640	2788 6140	2732 6020	2771 6110	2706 5960
Static tipping load, full 43° turn* (\$)	kg lb	2551 5620	2496 5500	2533 5580	2472 5450	2523 5560	2308 5080	2254 4970	2289 5040	2231 4910
Breakout force (\$)	kN lb	36.4 8190	34.7 7800	36.3 8160	32.1 7220	36.2 8140	35.6 8010	33.6 7560	35.4 7960	31.4 7060
Operating weight*	kg lb	4452 9820	4487 9890	4467 9850	4492 9900	4475 9870	4685 10,330	4720 10,410	4700 10,360	4721 10,410

*Static tipping load and operating weights shown are with implements, ROPS cab, 12.5-18 tires, full fuel tank and operator.

NOTE: Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader rating, denoted in the text by (\$).

	Change in Operating Weight		Change in Articulated Static Tipping Load	
	kg	lb	kg	lb
Limited slip rear axle	0	0	0	0
Enclosed ROPS (Comfort)	+ 2	+ 4	+ 1	+ 2
Enclosed ROPS (Deluxe)	+ 5	+ 11	+ 4	+ 9
Boom with load check valves	+ 12	+ 26	+ 2	+ 4
Third valve hydraulics	+ 11	+ 24	- 1	- 2
Counterweight	+110	+243	+113	+249
Wheel chock	+ 5	+ 11	+ 2	+ 4
Tool roll	+ 4	+ 9	+ 4	+ 9

Bucket Type	Multi-Purpose	High Dump			Light Material		Stone Sieve			
		Pin-on Tips	Bare	Bolt-on Edges	Bolt-on Teeth	Bare	Bolt-on Edges	Bare	Bolt-on Edges	Bolt-on Teeth
Ground Engaging Type										
Rated bucket capacity (\$)	m ³ yd ³	0.6 0.78	0.6 0.78	0.6 0.78	0.6 0.78	1.0 1.3	1.0 1.3	0.6 0.78	0.6 0.78	0.6 0.78
Struck capacity (\$)	m ³ yd ³	0.5 0.65	0.5 0.65	0.5 0.65	0.5 0.65	0.8 1.05	0.8 1.05	0.5 0.65	0.5 0.65	0.5 0.65
Bucket width	mm ft/in	1790 5'10"	1887 6'2"	1787 5'10"	1787 5'10"	1880 6'2"	1890 6'2"	1780 5'10"	1780 5'10"	1780 5'10"
Dump clearance at full lift and 43° discharge (\$)	mm ft/in	2341 7'8"	2341 7'8"	2307 7'7"	2341 7'8"	2204 7'3"	2170 7'1"	2341 7'8"	2307 7'7"	2341 7'8"
Reach at full lift and 43° discharge (\$)	mm ft/in	844 2'9"	717 2'4"	728 2'5"	788 2'7"	856 2'10"	867 2'10"	717 2'4"	728 2'5"	788 2'7"
Reach at 43° discharge and 2130 mm (7'0") clearance (\$)	mm ft/in	929 3'1"	920 3'0"	902 3'0"	928 3'1"	929 3'1"	904 3'0"	920 3'0"	902 3'0"	928 3'1"
Reach with lift arms horizontal and bucket level	mm ft/in	1906 6'3"	1779 5'10"	1811 5'11"	1881 5'11"	1979 6'6"	2011 6'7"	1779 5'10"	1811 5'11"	1881 6'2"
Digging depth (\$)	mm in	52 2.0	52 2.0	68 2.7	52 2.0	52 2.0	69 2.7	52 2.0	68 2.7	52 2.0
Overall length	mm ft/in	5282 17'4"	5155 16'11"	5200 17'1"	5257 17'3"	5355 17'7"	5400 17'9"	5155 16'11"	5200 17'1"	5257 17'3"
Overall height with bucket at full raise (\$)	mm ft/in	3944 12'11"	3967 13'0"	3967 13'0"	3967 13'0"	3944 12'11"	3944 12'11"	3816 12'6"	3816 12'6"	3816 12'6"
Loader clearance circle with bucket in carry position	m ft/in	7.75 25'5"	7.72 25'4"	7.76 25'6"	7.72 25'4"	7.93 26'0"	7.97 26'2"	7.72 25'4"	7.76 25'6"	7.72 25'4"
Static tipping load, straight* (\$)	kg lb	2763 6090	2788 6140	2818 6210	2859 6300	2962 6530	2900 6390	2985 6580	2924 6440	2940 6480
Static tipping load, full turn* (\$)	kg lb	2282 5030	2386 5260	2329 5130	2368 5220	2473 5450	2414 5320	2498 5500	2439 5370	2452 5400
Breakout force (\$)	kN lb	35.3 7940	35.3 7940	33.3 7490	35.1 7890	27.5 6180	23.6 5310	36.3 8160	34.3 7710	35.8 8050
Operating weight*	kg lb	4704 10,370	4639 10,230	4674 10,310	4654 10,260	4531 9990	4568 10,070	4509 9940	4544 10,020	4552 10,040

*Static tipping load and operating weights shown are with implements, ROPS cab, 12.5-18 tires, full fuel tank and operator.

NOTE: Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader rating, denoted in the text by (\$).

	Change in Operating Weight		Change in Articulated Static Tipping Load	
	kg	lb	kg	lb
Limited slip rear axle	0	0	0	0
Enclosed ROPS (Comfort)	+ 2	+ 4	+ 1	+ 2
Enclosed ROPS (Deluxe)	+ 5	+ 11	+ 4	+ 9
Boom with load check valves	+ 12	+ 26	+ 2	+ 4
Third valve hydraulics	+ 11	+ 24	- 1	- 2
Counterweight	+110	+243	+113	+ 249
Wheel chock	+ 5	+ 11	+ 2	+ 4
Tool roll	+ 4	+ 9	+ 4	+ 9

Bucket Type	General Purpose					Multi-Purpose			
		Bare	Bolt-on Edges	Bolt-on Teeth	Weld-on Edges	Pin-on Tips	Bare	Bolt-on Edges	Bolt-on Teeth
Ground Engaging Type									
Rated bucket capacity (\$)	m ³ yd ³	0.8 1.05	0.8 1.05	0.8 1.05	0.9 1.18	0.8 1.05	0.8 1.05	0.8 1.05	0.8 1.05
Struck capacity (\$)	m ³ yd ³	0.6 0.78	0.7 0.92	0.6 0.78	0.7 0.92	0.6 0.78	0.6 0.78	0.6 0.78	0.6 0.78
Bucket width	mm ft/in	1880 6'2"	1890 6'2"	1880 6'2"	1890 6'2"	1880 6'2"	1890 6'2"	1890 6'2"	1890 6'2"
Dump clearance at full lift and 43° discharge (\$)	mm ft/in	2425 7'11"	2391 7'11"	2425 7'11"	2356 7'9"	2425 7'11"	2425 7'11"	2391 7'10"	2425 7'11"
Reach at full lift and 43° discharge (\$)	mm ft/in	829 2'9"	842 2'9"	901 2'11"	879 2'11"	922 3'0"	829 2'9"	842 2'9"	904 3'0"
Reach at 43° discharge and 2130 mm (7'0") clearance (\$)	mm ft/in	1070 3'6"	982 3'3"	1142 3'9"	1118 3'8"	1160 3'10"	1071 3'7"	1045 3'5"	1143 3'9"
Reach with lift arms horizontal and bucket level	mm ft/in	1912 6'3"	1945 6'5"	2014 6'7"	1995 6'6"	2040 6'8"	1912 6'3"	1945 6'5"	2014 6'7"
Digging depth (\$)	mm in	84 3.31	100 3.94	84 3.31	100 3.94	84 3.31	84 3.31	99 3.90	84 3.31
Overall length	mm ft/in	5310 17'5"	5355 17'7"	5412 17'9"	5405 17'9"	5437 17'10"	5309 17'5"	5354 17'7"	5411 17'9"
Overall height with bucket at full raise (\$)	mm ft/in	4170 13'8"	4170 13'8"	4170 13'8"	4170 13'8"	4170 13'8"	4205 13'10"	4205 13'10"	4205 13'10"
Loader clearance circle with bucket in carry position	m ft/in	8.33 27'4"	8.37 27'5"	8.33 27'4"	8.39 27'6"	8.33 27'4"	8.33 27'4"	8.36 27'5"	8.33 27'4"
Static tipping load, straight* (\$)	kg lb	3427 7550	3382 7450	3410 7510	3374 7430	3399 7490	3234 7130	3169 6980	3215 7080
Static tipping load, full turn* (\$)	kg lb	2962 6530	2917 6430	2944 6490	2909 6410	2934 6460	2765 6090	2702 5950	2746 6050
Breakout force (\$)	kN lb	45.4 10,210	43.2 9720	45.3 10,190	40.4 9090	45.2 10,170	44.5 10,010	42.3 9510	44.3 9960
Operating weight*	kg lb	5096 11,240	5131 11,310	5110 11,270	5138 11,330	5118 11,290	5343 11,780	5379 11,860	5357 11,810

*Static tipping load and operating weights shown are with implements, ROPS cab, 12.5-20 tires, full fuel tank, operator and 80 kg (176 lb) counterweight.

NOTE: Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader rating, denoted in the text by (\$).

	Change in Operating Weight		Change in Articulated Static Tipping Load	
	kg	lb	kg	lb
Limited slip rear axle	0	0	0	0
Enclosed ROPS (Comfort)	+ 2	+ 4	+ 1	+ 2
Enclosed ROPS (Deluxe)	+ 5	+ 11	+ 4	+ 9
Boom with load check valves	+ 12	+ 26	+ 2	+ 4
Third valve hydraulics	+ 11	+ 24	- 1	- 2
Counterweight (standard) removed	- 80	-176	-112	-247
Counterweight 150 kg (330 lb)	+150	+331	+151	+333
Wheel chock	+ 5	+ 11	+ 2	+ 4
Tool roll	+ 4	+ 9	+ 4	+ 9

Bucket Type	Ground Engaging Type	Multi-Purpose		High Dump			Side Dump		
		Weld-on Edges	Pin-on Tips	Bare	Bolt-on Edges	Bolt-on Teeth	Bare	Bolt-on Edges	Bolt-on Teeth
Rated bucket capacity (\$)	m ³ yd ³	0.8 1.05	0.8 1.05	0.7 0.92	0.7 0.92	0.7 0.92	0.7 0.92	0.7 0.92	0.7 0.92
Struck capacity (\$)	m ³ yd ³	0.7 0.92	0.6 0.78	0.6 0.78	0.6 0.78	0.6 0.78	0.5 0.65	0.6 0.78	0.5 0.65
Bucket width	mm ft/in	1890 6'2"	1890 6'2"	1887 6'2"	1887 6'2"	1887 6'2"	1880 6'2"	1880 6'2"	1880 6'2"
Dump clearance at full lift and 43° discharge (\$)	mm ft/in	2357 7'9"	2425 7'11"	2425 7'11"	2391 7'11"	2425 7'11"	2322 7'7"	2288 7'6"	2322 7'7"
Reach at full lift and 43° discharge (\$)	mm ft/in	879 2'11"	923 3'0"	829 2'9"	842 2'9"	904 3'0"	938 3'1"	951 3'1"	1013 3'4"
Reach at 43° discharge and 2130 mm (7'0") clearance (\$)	mm ft/in	1061 3'6"	1161 3'10"	1070 3'6"	1039 3'5"	1082 3'7"	1087 3'7"	1067 3'6"	1091 3'7"
Reach with lift arms horizontal and bucket level	mm ft/in	1995 6'7"	2040 6'8"	1912 6'3"	1945 6'4"	2015 6'7"	2062 6'9"	2095 6'10"	2165 7'1"
Digging depth (\$)	mm in	99 3.90	84 3.31	84 3.31	100 3.94	84 3.31	84 3.31	100 3.94	84 3.31
Overall length	mm ft/in	5405 17'9"	5437 17'10"	5310 17'5"	5355 17'7"	5412 17'9"	5461 17'11"	5505 18'1"	5562 18'3"
Overall height with bucket at full raise (\$)	mm ft/in	4205 13'10"	4205 13'10"	4212 13'10"	4212 13'10"	4212 13'10"	4211 13'10"	4211 13'10"	4211 13'10"
Loader clearance circle with bucket in carry position	m ft/in	8.39 27'6"	8.33 27'4"	8.37 27'5"	8.40 27'7"	8.37 27'5"	8.41 27'7"	8.44 27'8"	8.41 27'7"
Static tipping load, straight* (\$)	kg lb	3147 6930	3205 7060	3252 7170	3188 7020	3234 7130	3038 6690	2979 6560	3020 6650
Static tipping load, full turn* (\$)	kg lb	2684 5910	2736 6030	2787 6140	2725 6000	2768 6100	2598 5720	2540 5600	2580 5680
Breakout force (\$)	kN lb	39.5 8880	44.2 9940	44.3 9960	42 9450	44.1 9920	36.3 8160	34.6 7780	36.1 8120
Operating weight*	kg lb	5380 11,860	5365 11,830	5279 11,640	5316 11,720	5294 11,670	5318 11,730	5355 11,810	5332 11,760

*Static tipping load and operating weights shown are with implements, ROPS cab, 12.5-20 tires, full fuel tank, operator and 80 kg (176 lb) counterweight.

NOTE: Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader rating, denoted in the text by (\$).

	Change in Operating Weight		Change in Articulated Static Tipping Load	
	kg	lb	kg	lb
Limited slip rear axle	0	0	0	0
Enclosed ROPS (Comfort)	+ 2	+ 4	+ 1	+ 2
Enclosed ROPS (Deluxe)	+ 5	+ 11	+ 4	+ 9
Boom with load check valves	+ 12	+ 26	+ 2	+ 4
Third valve hydraulics	+ 11	+ 24	- 1	- 2
Counterweight (standard) removed	- 80	-176	-112	-247
Counterweight 150 kg (330 lb)	+ 150	+331	+151	+333
Wheel chock	+ 5	+ 11	+ 2	+ 4
Tool roll	+ 4	+ 9	+ 4	+ 9

Bucket Type	Light Material		Stone Sieve		
		Bare	Bolt-on Edges	Bare	Bolt-on Edges	Bolt-on Teeth
Ground Engaging Type					
	Rated bucket capacity (\$)	m ³ yd ³	1.2 1.57	1.2 1.57	0.7 0.92	0.7 0.92
Struck capacity (\$)					
		m ³ yd ³	1.0 1.31	1.0 1.31	0.5 0.65	0.5 0.65
Bucket width					
		mm ft/in	1950 6'5"	1970 6'6"	1880 6'2"	1880 6'2"
Dump clearance at full lift and 43° discharge (\$)					
		mm ft/in	2281 7'6"	2247 7'4"	2425 7'11"	2391 7'10"
Reach at full lift and 43° discharge (\$)					
		mm ft/in	982 3'3"	995 3'3"	829 2'9"	842 2'9"
Reach at 43° discharge and 2130 mm (7'0") clearance (\$)					
		mm ft/in	1090 3'7"	1068 3'6"	1070 3'6"	1054 3'5"
Reach with lift arms horizontal and bucket level					
		mm ft/in	2122 7'0"	2155 7'1"	1912 6'3"	1945 6'5"
Digging depth (\$)					
		mm in	84 3.31	100 3.94	84 3.31	100 3.94
Overall length					
		mm ft/in	5520 18'1"	5565 18'3"	5310 17'5"	5355 17'7"
Overall height with bucket at full raise (\$)					
		mm ft/in	4314 14'2"	4314 14'2"	4037 13'3"	4037 13'3"
Loader clearance circle with bucket in carry position					
		m ft/in	8.51 27'11"	8.56 28'11"	8.33 27'4"	8.36 27'5"
Static tipping load, straight* (\$)					
		kg lb	3327 7330	3263 7190	3353 7390	3286 7240
Static tipping load, full turn* (\$)					
		kg lb	2864 6310	2802 6170	2892 6370	2828 6230
Breakout force (\$)					
		kN lb	34.5 7760	33 7420	45.3 10,190	43 9670
Operating weight*					
		kg lb	5178 11,420	5216 11,500	5149 11,350	5188 11,440

*Static tipping load and operating weights shown are with implements, ROPS cab, 12.5-20 tires, full fuel tank, operator and 80 kg (176 lb) counterweight.

NOTE: Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader rating, denoted in the text by (\$).

	Change in Operating Weight		Change in Articulated Static Tipping Load	
	kg	lb	kg	lb
Limited slip rear axle	0	0	0	0
Enclosed ROPS (Comfort)	+ 2	+ 4	+ 1	+ 2
Enclosed ROPS (Deluxe)	+ 5	+ 11	+ 4	+ 9
Boom with load check valves	+ 12	+ 26	+ 2	+ 4
Third valve hydraulics	+ 11	+ 24	- 1	- 2
Counterweight (standard) removed	- 80	-176	-112	-247
Counterweight 150 kg (330 lb)	+150	+331	+151	+333
Wheel chock	+ 5	+ 11	+ 2	+ 4
Tool roll	+ 4	+ 9	+ 4	+ 9

Bucket Type	General Purpose					Multi-Purpose			
		Bare	Bolt-on Edges	Bolt-on Teeth	Weld-on Edges	Pin-on Tips	Bare	Bolt-on Edges	Bolt-on Teeth
Ground Engaging Type									
Rated bucket capacity (\$)	m ³ yd ³	1.0 1.3	1.0 1.3	1.0 1.3	1.0 1.3	1.0 1.3	0.9 1.2	0.9 1.2	0.9 1.2
Struck capacity (\$)	m ³ yd ³	0.805 1.04	0.833 1.083	0.805 1.047	0.877 1.14	0.805 1.047	0.717 0.932	0.741 0.963	0.717 0.932
Heaped capacity	m ³ yd ³	0.998 1.297	1.034 1.344	0.998 1.297	1.083 1.408	0.998 1.297	0.908 1.18	0.940 1.222	0.908 1.18
Bucket width	mm ft/in	2060 6'9"	2060 6'9"	2060 6'9"	2070 6'9"	2060 6'9"	2060 6'9"	2060 6'9"	2060 6'9"
Dump clearance at full lift and 43° discharge (\$)	mm ft/in	2645 8'8"	2611 8'7"	2645 8'8"	2577 8'5"	2645 8'8"	2655 8'9"	2621 8'7"	2655 8'9"
Reach at full lift and 43° discharge (\$)	mm ft/in	902 3'0"	915 3'0"	902 3'0"	952 3'1"	902 3'0"	916 3'0"	929 3'1"	916 3'0"
Reach at 43° discharge and 2130 mm (7'0") clearance (\$)	mm ft/in	1332 4'4"	1324 4'4"	1288 4'3"	1338 4'5"	1276 4'2"	1354 4'5"	1346 4'5"	1310 4'4"
Reach with lift arms horizontal and bucket level	mm ft/in	2047 6'9"	2080 6'10"	2047 6'9"	2130 7'0"	2047 6'9"	2051 6'9"	2083 6'10"	2051 6'9"
Digging depth (\$)	mm in	88 3.5	104 4.0	88 3.5	104 4.0	88 3.5	70 2.8	86 3.4	70 2.8
Overall length	mm ft/in	6012 19'9"	6057 19'10"	6012 19'9"	6108 20'0"	6012 19'9"	6001 19'8"	6047 19'10"	6001 19'8"
Overall height with bucket at full raise (\$)	mm ft/in	4506 14'9"	4506 14'9"	4506 14'9"	4506 14'9"	4506 14'9"	4473 14'8"	4473 14'8"	4473 14'8"
Loader clearance circle with bucket in carry position	m ft/in	8.98 29'6"	9.02 29'7"	8.98 29'6"	9.04 29'8"	8.98 29'6"	8.98 29'5"	9.01 29'7"	8.98 29'5"
Static tipping load, straight* (\$)	kg lb	4376 9627	4307 9475	4357 9585	4278 9412	4348 9567	4226 9297	4158 9148	4207 9255
Static tipping load, full turn* (\$)	kg lb	3759 8270	3692 8122	3740 8228	3666 8065	3730 8206	3603 7927	3538 7784	3584 7885
Breakout force (\$)	kN lb	57.9 13,028	55.2 12,420	57.7 12,983	51.8 11,655	57.6 12,960	56.9 12,803	54.2 12,195	56.7 12,758
Operating weight*	kg lb	6040 13,290	6081 13,380	6056 13,320	6087 13,390	6063 13,050	6255 13,760	6295 13,850	6270 13,790

*Static tipping load and operating weights shown are with implements, ROPS cab, 14.5-20 tires, full fuel tank, operator and 75 kg (165 lb) counterweight.

NOTE: Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader rating, denoted in the text by (\$).

	Change in Operating Weight		Change in Articulated Static Tipping Load	
	kg	lb	kg	lb
Limited slip rear axle	0	0	0	0
Enclosed ROPS (Comfort)	+ 2	+ 4	+ 1	+ 2
Enclosed ROPS (Deluxe)	+ 5	+ 11	+ 4	+ 9
Boom with load check valves	+ 12	+ 26	+ 2	+ 4
Third valve hydraulics	+ 11	+ 24	- 1	- 2
Counterweight (standard) removed	- 80	-176	-112	-247
Counterweight 200 kg (440 lb)	+200	+441	+210	+463
Wheel chock	+ 5	+ 11	+ 2	+ 4
Tool roll	+ 4	+ 9	+ 4	+ 9

Bucket Type	Ground Engaging Type	Multi-Purpose		High Dump			Side Dump		
		Weld-on Edges	Pin-on Tips	Bare	Bolt-on Edges	Bolt-on Teeth	Bare	Bolt-on Edges	Bolt-on Teeth
Rated bucket capacity (\$)	m ³ yd ³	0.9 1.2	0.9 1.2	0.9 1.2	0.9 1.2	0.9 1.2	0.9 1.2	0.9 1.2	0.9 1.2
Struck capacity (\$)	m ³ yd ³	0.787 1.023	0.717 0.932	0.747 0.971	0.775 1.008	0.747 0.971	0.731 0.95	0.756 0.983	0.731 0.95
Heaped capacity	m ³ yd ³	0.993 1.206	0.908 1.18	0.938 1.219	0.974 1.266	0.938 1.219	0.925 1.203	0.958 1.245	0.925 1.203
Bucket width	mm ft/in	2070 6'9.5"	2060 6'9"	2060 6'9"	2060 6'9"	2060 6'9"	2060 6'9"	2060 6'9"	2060 6'9"
Dump clearance at full lift and 43° discharge (\$)	mm ft/in	2586 8'6"	2655 8'9"	2603 8'6"	2569 8'5"	2603 8'6"	2506 8'3"	2472 8'1"	2506 8'3"
Reach at full lift and 43° discharge (\$)	mm ft/in	969 3'2"	916 3'0"	948 3'1"	961 3'2"	948 3'1"	1053 3'5"	1066 3'6"	1053 3'5"
Reach at 43° discharge and 2130 mm (7'0") clearance (\$)	mm ft/in	1363 4'6"	1310 4'4"	1353 4'5"	1344 4'5"	1307 4'3"	1355 4'5"	1381 4'6"	1341 4'5"
Reach with lift arms horizontal and bucket level	mm ft/in	2137 7'0"	2051 6'9"	2110 6'11"	2142 7'0"	2110 6'11"	2253 7'5"	2286 7'6"	2253 7'5"
Digging depth (\$)	mm in	85 3.3	70 2.8	86 3.4	102 4.0	86 3.4	85 3.3	101 4.0	85 3.3
Overall length	mm ft/in	6099 20'0"	6001 19'8"	6073 19'11"	6119 20'1"	6073 19'11"	6216 20'5"	6262 20'7"	6216 20'5"
Overall height with bucket at full raise (\$)	mm ft/in	4473 14'8"	4473 14'8"	4872 16'0"	4872 16'0"	4547 14'11"	4547 14'11"	4547 14'11"	4547 14'11"
Loader clearance circle with bucket in carry position	m ft/in	9.04 29'8"	8.98 29'5"	9.01 29'7"	9.05 29'8"	9.01 29'6"	9.08 29'9"	9.12 29'11"	9.08 29'9"
Static tipping load, straight* (\$)	kg lb	4127 9079	4197 9233	4132 9090	4064 8941	4114 9051	3971 8736	3870 8514	3917 8617
Static tipping load, full turn* (\$)	kg lb	3510 7722	3575 7865	3523 7751	3457 7605	3436 7559	3385 7447	3288 7234	3331 7328
Breakout force (\$)	kN lb	50.7 11,408	56.6 12,735	52.4 11,790	50.1 11,270	52.2 11,745	52.0 11,700	42.3 9517	43.9 9877
Operating weight*	kg lb	6301 13,860	6278 13,810	6231 13,710	6272 13,800	5227 11,500	6232 13,710	6310 13,880	6285 13,830

*Static tipping load and operating weights shown are with implements, ROPS cab, 14.5-20 tires, full fuel tank, operator and 75 kg (165 lb) counterweight.

NOTE: Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader rating, denoted in the text by (\$).

	Change in Operating Weight		Change in Articulated Static Tipping Load	
	kg	lb	kg	lb
Limited slip rear axle	0	0	0	0
Enclosed ROPS (Comfort)	+ 2	+ 4	+ 1	+ 2
Enclosed ROPS (Deluxe)	+ 5	+ 11	+ 4	+ 9
Boom with load check valves	+ 12	+ 26	+ 2	+ 4
Third valve hydraulics	+ 11	+ 24	- 1	- 2
Counterweight (standard) removed	- 80	-176	-112	-247
Counterweight 200 kg (440 lb)	+200	+441	+210	+463
Wheel chock	+ 5	+ 11	+ 2	+ 4
Tool roll	+ 4	+ 9	+ 4	+ 9

Bucket Type	Light Material		Stone Sieve			
		Bare	Bolt-on Edges	Bare	Bolt-on Edges	Bolt-on Teeth
Ground Engaging Type						
Rated bucket capacity (§)	m ³ yd ³	1.5 1.95	1.5 1.95	0.9 1.2	0.9 1.2	0.9 1.2
Struck capacity (§)	m ³ yd ³	1.235 1.606	1.261 1.639	0.718 0.933	0.749 0.974	0.718 0.933
Heaped capacity	m ³ yd ³	1.498 1.947	1.535 1.996	0.906 1.178	0.946 1.23	0.906 1.178
Bucket width	mm ft/in	2060 6'9"	2060 6'9"	2060 6'9"	2060 6'9"	2060 6'9"
Dump clearance at full lift and 43° discharge (§)	mm ft/in	2440 8'0"	2406 7'11"	2645 8'8"	2611 8'7"	2645 8'8"
Reach at full lift and 43° discharge (§)	mm ft/in	1120 3'8"	1133 3'9"	901 2'11"	914 3'0"	901 2'11"
Reach at 43° discharge and 2130 mm (7'0") clearance (§)	mm ft/in	1410 4'8"	1397 4'7"	1332 4'4"	1324 4'4"	1288 4'3"
Reach with lift arms horizontal and bucket level	mm ft/in	2347 7'8"	2379 7'10"	2047 6'9"	2080 6'10"	2047 6'9"
Digging depth (§)	mm in	88 3.5	104 4.0	88 3.5	104 4.0	88 3.5
Overall length	mm ft/in	6312 20'9"	6357 20'10"	6012 19'9"	6057 19'0"	6012 19'9"
Overall height with bucket at full raise (§)	mm ft/in	4644 15'3"	4644 15'3"	4383 14'5"	4383 14'5"	4383 14'5"
Loader clearance circle with bucket in carry position	m ft/in	9.13 29'11"	9.17 30'1"	8.98 29'6"	9.02 29'7"	8.98 29'6"
Static tipping load, straight* (§)	kg lb	4197 9233	4129 9084	4303 9467	4232 9310	4285 9427
Static tipping load, full turn* (§)	kg lb	3588 7894	3523 7751	3688 8114	3620 7964	3670 8074
Breakout force (§)	kN lb	40.6 9135	39.1 8798	57.7 12,983	55.0 12,375	57.5 12,938
Operating weight*	kg lb	6144 13,520	6184 13,600	6109 13,440	6148 13,530	6123 13,470

*Static tipping load and operating weights shown are with implements, ROPS cab, 14.5-20 tires, full fuel tank, operator and 75 kg (165 lb) counterweight.

NOTE: Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader rating, denoted in the text by (§).

	Change in Operating Weight		Change in Articulated Static Tipping Load	
	kg	lb	kg	lb
Limited slip rear axle	0	0	0	0
Enclosed ROPS (Comfort)	+ 2	+ 4	+ 1	+ 2
Enclosed ROPS (Deluxe)	+ 5	+ 11	+ 4	+ 9
Boom with load check valves	+ 12	+ 26	+ 2	+ 4
Third valve hydraulics	+ 11	+ 24	- 1	- 2
Counterweight (standard) removed	- 80	-176	-112	-247
Counterweight 200 kg (440 lb)	+200	+441	+210	+463
Wheel chock	+ 5	+ 11	+ 2	+ 4
Tool roll	+ 4	+ 9	+ 4	+ 9

Bucket Type		General Purpose						Penetration	
		Bolt-on Cutting Edges		Bolt-on Teeth & Segments		Bolt-on Teeth		Flush Mounted Teeth	
Rated bucket capacity (\$)	m ³	1.3	1.4	1.3	1.4	1.2	1.3	1.3	1.4
	yd ³	1.7	1.8	1.7	1.8	1.6	1.7	1.7	1.8
Struck capacity (\$)	m ³	1.1	1.2	1.1	1.2	1.0	1.1	1.1	1.2
	yd ³	1.4	1.5	1.4	1.5	1.3	1.5	1.5	1.5
Bucket width	mm	2401	2401	2424	2424	2424	2424	2434	2434
	ft/in	7'10.5"	7'10.5"	7'11.4"	7'11.4"	7'11.4"	7'11.4"	7'11.8"	7'11.8"
Dump clearance at full lift and 45° discharge (\$)	mm	2658	2623	2658	2630	2714	2679	2679	2679
	ft/in	8'9"	8'7"	8'9"	8'7"	8'11"	8'10"	8'10"	8'10"
Reach at full lift and 45° discharge (\$)	mm	973	1008	966	1001	943	979	979	979
	ft/in	3'2"	3'4"	3'2"	3'3"	3'1"	3'3"	3'3"	3'3"
Reach at 45° discharge and 2130 mm (7'0") clearance (\$)	mm	1330	1348	1282	1297	1259	1275	1287	1249
	ft/in	4'4"	4'5"	4'2"	4'3"	4'2"	4'2"	4'3"	4'1"
Reach with lift arms horizontal and bucket level	mm	1980	2030	1970	2020	1920	1970	1970	1970
	ft/in	6'6"	6'8"	6'6"	6'8"	6'4"	6'6"	6'6"	6'6"
Digging depth (\$)	mm	89	89	89	89	70	70	70	70
	in	3.5	3.5	3.5	3.5	2.8	2.8	2.8	2.8
Overall length	mm	6229	6279	6328	6378	6310	6360	6358	6438
	ft/in	20'5"	20'7"	20'9"	20'11"	20'8"	20'10"	20'10"	21'1"
Overall height with bucket at full raise (\$)	mm	4390	4442	4390	4442	4390	4442	4442	4442
	ft/in	14'5"	14'7"	14'5"	14'7"	14'5"	14'7"	14'7"	14'7"
Loader clearance circle with bucket in carry position	m	10.34	10.37	10.42	10.45	10.42	10.45	10.44	10.49
	ft/in	33'11"	34'0"	34'2"	34'4"	34'2"	34'4"	34'3"	34'5"
Static tipping load, straight* (\$)	kg	6098	6069	6059	6029	6169	6166	6183	6011
	lb	13,446	13,382	13,360	13,294	13,603	13,602	13,634	13,254
Static tipping load, full 40° turn* (\$)	kg	5323	5295	5284	5256	5415	5387	5404	5232
	lb	11,737	11,675	11,651	11,589	11,940	11,878	11,916	11,537
Breakout force (\$)	kg	6367	5971	6415	6010	6930	6469	6484	6374
	lb	14,007	13,136	14,113	13,222	15,246	14,232	14,265	14,055
Operating weight*	kg	7378	7391	7409	7422	7336	7349	7336	7500
	lb	16,262	16,297	16,337	16,366	16,176	16,205	16,176	16,538

*Static tipping load and operating weights shown include lubricants, full fuel tank, ROPS cab, 80 kg (176 lb) operator and 17.5-R25 (L2 equivalent) tires.

NOTE: Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader rating, denoted in the text by (\$).

	Change in Operating Weight		Change in Articulated Static Tipping Load	
	kg	lb	kg	lb
Air conditioner	+ 55	+ 121	+ 71	+ 156
Canopy, ROPS (less cab)	- 199	- 438	- 174	- 383
Counterweight, 150 kg (330 lb)	+ 152	+ 334	+ 287	+ 631
Ride control	+ 32	+ 70	+ 6	+ 13
Supplemental steering	+ 30	+ 66	+ 44	+ 97
Tires & rims, 15.5-25, 12 PR (L-2)	- 159	- 351	- 99	- 218
Tires & rims, 15.5-25, 12 PR (L-3)	- 78	- 172	- 48	- 106
Tires & rims, 15.5-R25, radial (L-2 equivalent)	- 84	- 185	- 52	- 114
Tires & rims, 15.5-R25, radial (L-3 equivalent)	- 36	- 79	- 23	- 51
Tires & rims, 17.5-25, 12 PR (L-2)	- 126	- 277	- 78	- 172
Tires & rims, 17.5-25, 12 PR (L-3)	+ 12	+ 26	+ 7	+ 15
Tires & rims, 17.5-R25, radial (L-3 equivalent)	+ 156	+ 343	+ 96	+ 211
Tires & rims, 17.5-R25, radial (L-2/L-3 equivalent)	+ 95	+ 209	+ 58	+ 128

Wheel Loaders Integrated Toolcarriers

Performance Data

- IT14G
- General Purpose Buckets

Bucket Type	General Purpose		
		Bolt-on Teeth	Corner Guard or Bolt-on Edge
Heaped capacity	m ³	1.2	1.3
	yd ³	1.6	1.7
Struck capacity	m ³	1.0	1.1
	yd ³	1.3	1.4
Bucket width	mm	2424	2401
	ft/in	7'11.4"	7'10.5"
Dump clearance at full lift and 45° discharge	mm	2975	2920
	ft/in	9'9"	9'7"
Reach at 45° discharge and 2130 mm (7'0") clearance	mm	1351	1425
	ft/in	4'5"	4'8"
Reach at full lift and 45° discharge	mm	757	787
	ft/in	2'6"	2'7"
Reach with lift arms horizontal and bucket level	mm	2090	2150
	ft/in	6'10"	7'1"
Digging depth	mm	156	175
	in	6.1	6.9
Overall length	mm	6506	6424
	ft/in	21'4"	21'1"
Overall height with bucket at full raise	mm	4801	4801
	ft/in	15'9"	15'9"
Loader clearance circle with bucket in carry position	m	10.47	10.4
	ft/in	34'4"	34'1"
Static tipping load, straight**	kg	5637	5541
	lb	12,400	12,210
Static tipping load, full turn**	kg	4882	4792
	lb	10,760	10,560
Breakout force*	kN	82.9	77
	lb	18,640	17,340
Operating weight**	kg	7990	8032
	lb	17,620	17,770

*Breakout force is measured 102 mm (4") behind tip of cutting edge with bucket hinge pin as pivot in accordance with SAE J732 JUN92.

**Operating weight and static tipping load include lubricants, full fuel tank, ROPS cab and 80 kg (176 lb) operator.

— IT14G includes high speed version, standard counterweight and 17.5-R25 tires.

Machine stability is affected by the tire size, tire ballast and attachments.

		Pallet Forks		
Fork tine length	mm ft/in	1050 3'5"	1200 3'11"	1350 4'5"
Ground to top of tine clearance	mm ft/in	3708 12'2"	3708 12'2"	3708 12'2"
Reach with lift arms horizontal and forks level	mm ft/in	1490 4'11"	1490 4'11"	1490 4'11"
Overall length	mm ft/in	6723 22'1"	6873 22'7"	7023 23'1"
Static tipping load, straight*	kg lb	4447 9800	4309 9500	4179 9200
Static tipping load, full turn*	kg lb	3853 8490	3734 8230	3620 7980
Operating weight* 4 forward, 3 reverse	kg lb	7898 17,400	7915 17,450	7928 17,480

*Static tipping load and operating weight include lubricants, full fuel tank, ROPS cab and 80 kg (176 lb) operator.

— IT14G includes high speed version, standard counterweight and 17.5R25 tires.

Machine stability and operating weight are affected by tire size, tire ballast and other attachments.

NOTE: The rated operating load for a machine with pallet fork is: SAE J1197 FEB91; 50% of full turn static tipping load, or hydraulic/structural limit. CEN 474-3: 60% of full turn static tipping load on rough terrain: 80% of full turn static tipping load on firm and level ground, or the hydraulic/structural limit.

Handling Arm Position		Material Handling Arm		
		Retracted	Mid-position	Extended
Operating load — full articulation	kg lb	1370 3021	1076 2373	888 1958
Static tipping load, straight*	kg lb	3158 6963	2484 5477	2051 4522
Static tipping load, full turn*	kg lb	2740 6042	2153 4747	1777 3918
Operating weight* 4 forward, 3 reverse	kg lb	7770 17,130	7770 17,130	7770 17,130

*Static tipping load and operating weight include lubricants, full fuel tank, ROPS cab and 80 kg (176 lb) operator.

— IT14G includes high speed version, standard counterweight and 17.5-R25 tires.

Machine stability and operating weight are affected by tire size, tire ballast and other attachments.

NOTE: The rated operating load for a machine with material handling arm is 50% of full turn static tipping load, or the hydraulic/structural limit.

Bucket Type		General Purpose						
		Bolt-on Cutting Edges		Bolt-on Teeth & Segments		Bolt-on Teeth		
Ground Engaging Type	Rated bucket capacity	m ³	1.8	2.1	1.8	2.1	1.7	2.0
		yd ³	2.3	2.7	2.3	2.7	2.2	2.6
Struck capacity		m ³	1.5	1.7	1.5	1.7	1.4	1.6
		yd ³	2.0	2.2	2.0	2.2	1.8	2.1
Bucket width		mm	2550	2550	2585	2585	2585	2585
		ft/in	8'4"	8'4"	8'6"	8'6"	8'6"	8'6"
Dump clearance at full lift and 45° discharge (\$)		mm	2828	2759	2724	2655	2724	2655
		ft/in	9'4"	9'1"	9'0"	8'9"	9'0"	8'9"
Reach at full tilt and 45° discharge (\$)		mm	790	859	894	962	894	962
		ft/in	2'8"	2'10"	2'11"	3'2"	2'11"	3'2"
Reach at 45° discharge and 2130 mm (7'0") clearance (\$)		mm	1318	1347	1360	1385	1360	1385
		ft/in	4'4"	4'6"	4'6"	4'7"	4'6"	4'7"
Reach with lift arms horizontal and bucket level		mm	2058	2155	2204	2301	2204	2301
		ft/in	6'10"	7'1"	7'3"	7'7"	7'3"	7'7"
Digging depth (\$)		mm	42	50	42	50	17	25
		in	1.7	2.0	1.7	2.0	0.7	1.0
Overall length		mm	6890	6993	7036	7138	7017	7120
		ft/in	22'7"	22'11"	23'1"	23'5"	23'0"	23'4"
Overall height with bucket at full raise (\$)		mm	4811	4938	4811	4938	4811	4938
		ft/in	15'9"	16'3"	15'10"	16'3"	15'10"	16'3"
Loader clearance radius with bucket in carry position (\$)		mm	5609	5638	5670	5700	5670	5700
		ft/in	18'5"	18'6"	18'8"	18'9"	18'8"	18'9"
Static tipping load straight (\$)		kg	8702	8619	8534	8448	8696	8636
		lb	19,184	19,001	18,814	18,624	19,171	19,039
Static tipping load with 40° turn (\$)		kg	7642	7562	7473	7391	7628	7568
		lb	16,847	16,671	16,475	16,294	16,816	16,684
Breakout force (\$)		kg	9876	8902	9756	8782	10 660	9535
		lb	21,772	19,625	21,508	19,361	23,501	21,021
Operating weight		kg	10 846	10 899	10 981	10 944	10 896	10 949
		lb	23,912	24,029	24,210	24,128	24,022	24,139

NOTE: Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader rating, denoted in the text by (\$).

	Change in Operating Weight		Change in Articulated Static Tipping Load	
	kg	lb	kg	lb
Without Air conditioner	- 32	- 70	- 29	- 64
Canopy, ROPS (less cab)	-199	- 439	-182	- 402
Counterweight, 175 kg (385 lb) (removal)	-175	- 386	-300	- 662
Without Guard, crankcase	- 15	- 33	- 21	- 47
Without Guard, driveshaft	- 43	- 95	- 5	- 12
Without Guard, power train	- 52	- 114	- 51	-113
Without Ride Control System	- 40	- 88	- 29	- 64
Without Secondary steering	- 37	- 81	- 33	- 73
Tires, 1-piece rims				
17.5-25, 12PR (L-2)	-652	-1437	-408	- 900
17.5-25, 12PR (L-3)	-580	-1279	-363	- 801
17.5-25, Radial (L-2)	-612	-1349	-383	- 845
17.5-25, Radial (L-3)	-512	-1129	-320	- 706
Tires, 3-piece rims				
17.5-25, 12PR (L-2)	-528	-1164	-330	- 728
17.5-25, 12PR (L-3)	-456	-1005	-285	- 629
17.5-25, Radial (L-2)	-488	-1076	-305	- 673
17.5-25, Radial (L-3)	-388	- 855	-243	- 536
550/65 R25, Radial (L-2)	-196	- 432	-123	- 272
550/65 R25, Radial (L-3)	-136	- 300	- 85	- 188
20.5-25, 12PR (L-2)	-240	- 529	-150	- 331
20.5-25, 12PR (L-3)	- 36	- 79	- 22	- 49
20.5 R25, Radial (L-2)	-172	- 379	-108	- 239
20.5 R25, Radial (L-3)	0	0	0	0

Bucket Type		General Purpose						Waste/Ag	Woodchip
		Bolt-on Cutting Edges		Bolt-on Teeth & Segments		Bolt-on Teeth		Bolt-On Cutting Edge	Bolt-On Cutting Edge
Rated bucket capacity	m ³ yd ³	1.8 2.3	2.1 2.7	1.8 2.3	2.1 2.7	1.7 2.2	2.0 2.6	2.8 3.6	5.0 6.5
Struck capacity	m ³ yd ³	1.5 2.0	1.7 2.2	1.5 2.0	1.7 2.2	1.4 1.8	1.6 2.1	2.3 3.0	4.1 5.4
Bucket width	mm ft/in	2550 8'4"	2550 8'4"	2585 8'6"	2585 8'6"	2585 8'6"	2585 8'6"	2550 8'4"	3392 11'2"
Dump clearance at full lift and 45° discharge (\$)	mm ft/in	2918 9'7"	2849 9'5"	2814 9'3"	2745 9'1"	2814 9'3"	2745 9'1"	2713 8'11"	2586 8'6"
Reach at full tilt and 45° discharge (\$)	mm ft/in	885 2'11"	953 3'2"	988 3'3"	1056 3'6"	988 3'3"	1056 3'6"	1091 3'7"	1048 3'6"
Reach at 45° discharge and 2130 mm (7'0") clearance (\$)	mm ft/in	1451 4'10"	1484 4'11"	1500 5'0"	1529 5'1"	1500 5'0"	1529 5'1"	1544 5'1"	1417 4'8"
Reach with lift arms horizontal and bucket level	mm ft/in	2155 7'1"	2252 7'5"	2301 7'7"	2398 7'11"	2301 7'7"	2398 7'11"	2441 8'1"	2529 8'4"
Digging depth (\$)	mm in	64 2.5	72 2.8	64 2.5	72 2.8	39 1.5	47 1.9	89 3.5	89 3.5
Overall length	mm ft/in	7028 23'1"	7132 23'5"	7094 23'4"	7278 23'11"	7154 23'6"	7257 23'10"	7339 24'1"	7423 24'5"
Overall height with bucket at full raise (\$)	mm ft/in	5088 16'9"	5200 17'1"	5088 16'9"	5200 17'1"	5088 16'9"	5200 17'1"	5322 17'6"	5569 18'4"
Loader clearance radius with bucket in carry position (\$)	mm ft/in	5568 18'3"	5595 18'4"	5625 18'5"	5653 18'7"	5625 18'5"	5653 18'7"	5651 18'6"	6056 19'10"
Static tipping load straight (\$)	kg lb	8720 19,224	8647 19,063	8554 18,858	8419 18,561	8740 19,269	8585 18,927	8382 18,479	8045 17,736
Static tipping load with 40° turn (\$)	kg lb	7626 16,813	7557 16,660	7459 16,444	7330 16,160	7635 16,832	7495 16,524	7309 16,114	6974 15,375
Breakout force (\$)	kg lb	11 452 25,247	10 405 22,939	11 330 24,978	10 243 22,582	12 251 27,008	11 052 24,365	8757 19,305	8050 17,747
Operating weight	kg lb	11 213 24,721	11 241 24,783	11 349 25,021	11 423 25,184	11 263 24,831	11 291 24,893	11 357 25,039	11 695 25,784

NOTE: Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader rating, denoted in the text by (\$).

	Change in Operating Weight		Change in Articulated Static Tipping Load	
	kg	lb	kg	lb
Without Air conditioner	- 32	- 70	- 27	- 60
Canopy, ROPS (less cab)	-199	- 439	-166	-366
Counterweight, 175 kg (385 lb) (removal)	-175	- 386	-273	-602
Without Guard, crankcase	- 15	- 33	- 19	- 42
Without Guard, driveshaft	- 17	- 37	- 5	- 12
Without Guard, power train	- 52	- 114	- 47	-104
Without Ride Control System	- 40	- 88	- 27	- 60
Without Secondary steering	- 37	- 81	- 31	- 69
Tires, 1-piece rims				
17.5-25, 12PR (L-2)	-652	-1437	-371	-818
17.5-25, 12PR (L-3)	-580	-1279	-330	-728
17.5-25, Radial (L-2)	-612	-1349	-348	-768
17.5-25, Radial (L-3)	-512	-1129	-292	-644
Tires, 3-piece rims				
17.5-25, 12PR (L-2)	-528	-1164	-301	-664
17.5-25, 12PR (L-3)	-456	-1005	-260	-574
17.5-25, Radial (L-2)	-488	-1076	-278	-613
17.5-25, Radial (L-3)	-388	- 855	-221	-488
550/65 R25, Radial (L-2)	-196	- 432	-112	-247
550/65 R25, Radial (L-3)	-136	- 300	- 78	-172
20.5-25, 12PR (L-2)	-240	- 529	-137	-303
20.5-25, 12PR (L-3)	- 36	- 79	- 21	- 47
20.5 R25, Radial (L-2)	-172	- 379	- 98	-217
20.5 R25, Radial (L-3)	0	0	0	0

Bucket Type		General Purpose						Waste/Ag	Woodchip
		Bolt-on Cutting Edges		Bolt-on Teeth & Segments		Bolt-on Teeth		Bolt-On Cutting Edge	Bolt-On Cutting Edge
Rated bucket capacity	m ³ yd ³	1.8 2.3	2.1 2.7	1.8 2.3	2.1 2.7	1.7 2.2	2.0 2.6	2.8 3.6	5.0 6.5
Struck capacity	m ³ yd ³	1.5 2.0	1.7 2.2	1.5 2.0	1.7 2.2	1.4 1.8	1.6 2.1	2.3 3.0	4.1 5.4
Bucket width	mm ft/in	2550 8'4"	2550 8'4"	2585 8'6"	2585 8'6"	2585 8'6"	2585 8'6"	2550 8'4"	3392 11'2"
Dump clearance at full lift and 45° discharge (S)	mm ft/in	3426 11'3"	3358 11'1"	3322 10'11"	3253 10'9"	3322 10'11"	3253 10'9"	3221 10'7"	3093 10'2"
Reach at full tilt and 45° discharge (S)	mm ft/in	886 2'11"	954 3'2"	989 3'3"	1057 3'6"	989 3'3"	1057 3'6"	1093 3'7"	1049 3'5"
Reach at 45° discharge and 2130 mm (7'0") clearance (S)	mm ft/in	1876 6'2"	1914 6'3"	1933 6'4"	1968 6'5"	1933 6'4"	1968 6'5"	1987 6'6"	1875 6'2"
Reach with lift arms horizontal and bucket level	mm ft/in	2546 8'4"	2643 8'8"	2692 8'10"	2789 9'2"	2692 8'10"	2789 9'2"	2836 9'4"	2920 9'7"
Digging depth (S)	mm in	74 2.9	82 3.2	74 2.9	82 3.2	49 1.9	57 2.2	99 3.9	99 3.9
Overall length	mm ft/in	7518 24'8"	7620 25'0"	7664 25'2"	7766 25'6"	7649 25'1"	7749 25'5"	7965 26'2"	7909 25'11"
Overall height with bucket at full raise (S)	mm ft/in	5595 18'4"	5707 18'9"	5595 18'4"	5707 18'9"	5595 18'4"	5707 18'9"	5830 19'2"	6076 19'11"
Loader clearance radius with bucket in carry position (S)	mm ft/in	5801 19'0"	5831 19'2"	5862 19'3"	5892 19'4"	5862 19'3"	5892 19'4"	5892 19'4"	6285 20'7"
Static tipping load straight (S)	kg lb	7107 15,668	7048 15,538	6946 15,313	6884 15,177	7103 15,660	6988 15,406	6827 15,051	6494 14,317
Static tipping load with 40° turn (S)	kg lb	6188 13,642	6131 13,517	6026 13,285	5968 13,157	6176 13,616	6071 13,384	5923 13,058	5591 12,326
Breakout force (S)	kg lb	11 445 25,232	10 396 22,919	11 332 24,982	10 282 22,668	12 268 27,046	11 064 24,392	8747 19,283	8050 17,747
Operating weight	kg lb	11 300 24,913	11 328 24,975	11 435 25,210	11 463 25,272	11 349 25,021	11 377 25,083	11 446 25,235	11 781 25,973

NOTE: Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader rating, denoted in the text by (S).

	Change in Operating Weight		Change in Articulated Static Tipping Load	
	kg	lb	kg	lb
Without Air conditioner	- 32	- 70	- 27	- 60
Canopy, ROPS (less cab)	- 199	- 439	- 166	- 366
Counterweight, 175 kg (385 lb) (removal)	- 175	- 386	- 273	- 602
Without Guard, crankcase	- 15	- 33	- 19	- 42
Without Guard, driveshaft	- 17	- 37	- 5	- 12
Without Guard, power train	- 52	- 114	- 47	- 104
Without Ride Control System	- 40	- 88	- 27	- 60
Without Secondary steering	- 37	- 81	- 31	- 69
Tires, 1-piece rims				
17.5-25, 12PR (L-2)	- 652	- 1437	- 371	- 818
17.5-25, 12PR (L-3)	- 580	- 1279	- 330	- 728
17.5-25, Radial (L-2)	- 612	- 1349	- 348	- 768
17.5-25, Radial (L-3)	- 512	- 1129	- 292	- 644
Tires, 3-piece rims				
17.5-25, 12PR (L-2)	- 528	- 1164	- 301	- 664
17.5-25, 12PR (L-3)	- 456	- 1005	- 260	- 574
17.5-25, Radial (L-2)	- 488	- 1076	- 278	- 613
17.5-25, Radial (L-3)	- 388	- 855	- 221	- 488
550/65 R25, Radial (L-2)	- 196	- 432	- 112	- 247
550/65 R25, Radial (L-3)	- 136	- 300	- 78	- 172
20.5-25, 12PR (L-2)	- 240	- 529	- 137	- 303
20.5-25, 12PR (L-3)	- 36	- 79	- 21	- 47
20.5 R25, Radial (L-2)	- 172	- 379	- 98	- 217
20.5 R25, Radial (L-3)	0	0	0	0

Bucket Type		General Purpose						Waste/Ag	Woodchip	
		Bolt-on Cutting Edges		Bolt-on Teeth & Segments		Bolt-on Teeth		Bolt-On Cutting Edge	Bolt-On Cutting Edge	
Ground Engaging Type	Rated bucket capacity	m ³	1.8	2.1	1.8	2.1	1.7	2.0	2.8	5.0
		yd ³	2.3	2.7	2.3	2.7	2.2	2.6	3.6	6.5
Struck capacity		m ³	1.5	1.7	1.5	1.7	1.4	1.6	2.3	4.1
		yd ³	2.0	2.2	2.0	2.2	1.8	2.1	3.0	5.4
Bucket width		mm	2550	2550	2585	2585	2585	2585	2550	3392
		ft/in	8'4"	8'4"	8'6"	8'6"	8'6"	8'6"	8'4"	11'2"
Dump clearance at full lift and 45° discharge (\$)		mm	2828	2759	2724	2655	2724	2655	2623	2512
		ft/in	9'4"	9'1"	9'0"	8'9"	9'0"	8'9"	8'8"	8'3"
Reach at full tilt and 45° discharge (\$)		mm	992	1060	1095	1163	1095	1163	1198	1158
		ft/in	3'4"	3'6"	3'8"	3'10"	3'8"	3'10"	4'0"	3'10"
Reach at 45° discharge and 2130 mm (7'0") clearance (\$)		mm	1515	1545	1558	1583	1558	1583	1596	1477
		ft/in	5'0"	5'1"	5'2"	5'3"	5'2"	5'3"	5'3"	4'11"
Reach with lift arms horizontal and bucket level		mm	2295	2392	2441	2538	2441	2538	2585	2659
		ft/in	7'7"	7'11"	8'1"	8'4"	8'1"	8'4"	8'6"	8'9"
Digging depth (\$)		mm	64	72	64	72	39	47	89	64
		in	2.5	2.8	2.5	2.8	1.5	1.9	3.5	2.5
Overall length		mm	7168	7272	7168	7418	7291	7397	7479	7531
		ft/in	23'7"	23'11"	23'7"	24'5"	24'0"	24'4"	24'7"	24'9"
Overall height with bucket at full raise (\$)		mm	5178	5288	5178	5288	5178	5288	5410	5671
		ft/in	16'11"	17'5"	17'0"	17'5"	17'0"	17'5"	17'9"	18'8"
Loader clearance radius with bucket in carry position (\$)		mm	5603	5631	5662	5690	5662	5690	5689	6081
		ft/in	18'5"	18'6"	18'7"	18'8"	18'7"	18'8"	18'8"	19'11"
Static tipping load straight (\$)		kg	8286	8195	8120	7969	8299	8134	7946	7682
		lb	18,268	18,067	17,902	17,569	18,296	17,932	17,518	16,936
Static tipping load with 40° turn (\$)		kg	7232	7144	7065	6919	7234	7083	6910	6708
		lb	15,944	15,750	15,576	15,254	15,948	15,615	15,234	14,789
Breakout force (\$)		kg	9956	9130	9835	8970	10 545	9617	7806	7222
		lb	21,949	20,128	21,682	19,775	23,247	21,201	17,209	15,921
Operating weight		kg	11 335	11 383	11 470	11 567	11 384	11 433	11 497	11 861
		lb	24,990	25,096	25,288	25,502	25,098	25,206	25,347	26,150

NOTE: Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader rating, denoted in the text by (\$).

	Change in Operating Weight		Change in Articulated Static Tipping Load	
	kg	lb	kg	lb
Without Air conditioner	- 32	- 70	- 27	- 60
Canopy, ROPS (less cab)	- 199	- 439	- 166	- 366
Counterweight, 175 kg (385 lb) (removal)	- 175	- 386	- 273	- 602
Without Guard, crankcase	- 15	- 33	- 19	- 42
Without Guard, driveshaft	- 17	- 37	- 5	- 12
Without Guard, power train	- 52	- 114	- 47	- 104
Without Ride Control System	- 40	- 88	- 27	- 60
Without Secondary steering	- 37	- 81	- 31	- 69
Tires, 1-piece rims				
17.5-25, 12PR (L-2)	- 652	- 1437	- 371	- 818
17.5-25, 12PR (L-3)	- 580	- 1279	- 330	- 728
17.5-25, Radial (L-2)	- 612	- 1349	- 348	- 768
17.5-25, Radial (L-3)	- 512	- 1129	- 292	- 644
Tires, 3-piece rims				
17.5-25, 12PR (L-2)	- 528	- 1164	- 301	- 664
17.5-25, 12PR (L-3)	- 456	- 1005	- 260	- 574
17.5-25, Radial (L-2)	- 488	- 1076	- 278	- 613
17.5-25, Radial (L-3)	- 388	- 855	- 221	- 488
550/65 R25, Radial (L-2)	- 196	- 432	- 112	- 247
550/65 R25, Radial (L-3)	- 136	- 300	- 78	- 172
20.5-25, 12PR (L-2)	- 240	- 529	- 137	- 303
20.5-25, 12PR (L-3)	- 36	- 79	- 21	- 47
20.5 R25, Radial (L-2)	- 172	- 379	- 98	- 217
20.5 R25, Radial (L-3)	0	0	0	0

Bucket Type		General Purpose						Waste/Ag	Woodchip
		Bolt-on Cutting Edges		Bolt-on Teeth & Segments		Bolt-on Teeth		Bolt-On Cutting Edge	Bolt-On Cutting Edge
Rated bucket capacity	m ³ yd ³	1.8 2.3	2.1 2.7	1.8 2.3	2.1 2.7	1.7 2.2	2.0 2.6	2.8 3.6	5.0 6.5
Struck capacity	m ³ yd ³	1.5 2.0	1.7 2.2	1.5 2.0	1.7 2.2	1.4 1.8	1.6 2.1	2.3 3.0	4.1 5.4
Bucket width	mm ft/in	2550 8'4"	2550 8'4"	2585 8'6"	2585 8'6"	2585 8'6"	2585 8'6"	2550 8'4"	3392 11'2"
Dump clearance at full lift and 45° discharge (S)	mm ft/in	3335 11'0"	3266 10'9"	3231 10'8"	3162 10'5"	3231 10'8"	3162 10'5"	3130 10'4"	3019 9'11"
Reach at full tilt and 45° discharge (S)	mm ft/in	993 3'3"	1061 3'6"	1096 3'7"	1165 3'10"	1096 3'7"	1165 3'10"	1199 3'11"	1158 3'10"
Reach at 45° discharge and 2130 mm (7'0") clearance (S)	mm ft/in	1946 6'5"	1981 6'6"	1999 6'7"	2031 6'8"	1999 6'7"	2031 6'8"	2048 6'9"	1944 6'5"
Reach with lift arms horizontal and bucket level	mm ft/in	2686 8'10"	2783 9'2"	2832 9'3"	2929 9'7"	2832 9'3"	2929 9'7"	2976 9'9"	3049 10'0"
Digging depth (S)	mm in	75 3.0	83 3.3	75 3.0	83 3.3	50 2.0	58 2.3	100 3.9	75 3.0
Overall length	mm ft/in	7659 25'2"	7761 25'6"	7805 25'7"	7907 25'11"	7787 25'7"	7890 25'11"	7965 26'2"	8022 26'4"
Overall height with bucket at full raise (S)	mm ft/in	5684 18'8"	5794 19'0"	5684 18'8"	5794 19'0"	5684 18'8"	5794 19'0"	5917 19'5"	6178 20'3"
Loader clearance radius with bucket in carry position (S)	mm ft/in	5840 19'2"	5870 19'3"	5902 19'4"	5933 19'6"	5902 19'4"	5933 19'6"	5934 19'6"	6311 20'8"
Static tipping load straight (S)	kg lb	6717 14,809	6638 14,634	6556 14,454	6475 14,275	6708 14,789	6578 14,502	6428 14,171	6139 13,534
Static tipping load with 40° turn (S)	kg lb	5880 12,963	5803 12,793	5718 12,606	5640 12,434	5863 12,926	5743 12,661	5605 12,357	5309 11,704
Breakout force (S)	kg lb	9956 21,949	9130 20,128	9842 21,698	9014 19,872	10,565 23,291	9635 21,241	7802 17,200	7241 15,963
Operating weight	kg lb	11,421 25,180	11,470 25,288	11,556 25,477	11,602 25,579	11,471 25,290	11,520 25,398	11,583 25,537	11,947 26,339

NOTE: Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader rating, denoted in the text by (S).

	Change in Operating Weight		Change in Articulated Static Tipping Load	
	kg	lb	kg	lb
Without Air conditioner	- 32	- 70	- 27	- 60
Canopy, ROPS (less cab)	- 199	- 439	- 166	- 366
Counterweight, 175 kg (385 lb) (removal)	- 175	- 386	- 273	- 602
Without Guard, crankcase	- 15	- 33	- 19	- 42
Without Guard, driveshaft	- 17	- 37	- 5	- 12
Without Guard, power train	- 52	- 114	- 47	- 104
Without Ride Control System	- 40	- 88	- 27	- 60
Without Secondary steering	- 37	- 81	- 31	- 69
Tires, 1-piece rims				
17.5-25, 12PR (L-2)	- 652	- 1437	- 371	- 818
17.5-25, 12PR (L-3)	- 580	- 1279	- 330	- 728
17.5-25, Radial (L-2)	- 612	- 1349	- 348	- 768
17.5-25, Radial (L-3)	- 512	- 1129	- 292	- 644
Tires, 3-piece rims				
17.5-25, 12PR (L-2)	- 528	- 1164	- 301	- 664
17.5-25, 12PR (L-3)	- 456	- 1005	- 260	- 574
17.5-25, Radial (L-2)	- 488	- 1076	- 278	- 613
17.5-25, Radial (L-3)	- 388	- 855	- 221	- 488
550/65 R25, Radial (L-2)	- 196	- 432	- 112	- 247
550/65 R25, Radial (L-3)	- 136	- 300	- 78	- 172
20.5-25, 12PR (L-2)	- 240	- 529	- 137	- 303
20.5-25, 12PR (L-3)	- 36	- 79	- 21	- 47
20.5 R25, Radial (L-2)	- 172	- 379	- 98	- 217
20.5 R25, Radial (L-3)	0	0	0	0

- 924G Standard VersaLink Hook On
- Pallet Forks
- Material Handling Arm

Wheel Loaders Integrated Toolcarriers

		Pallet Forks	
Fork tine length	mm ft/in	1200 3'11"	1350 4'5"
Ground to top of tine clearance	mm ft/in	3637 11'11"	3652 13'0"
Reach with lift arms horizontal and forks level	mm ft/in	1561 5'1"	1576 5'2"
Overall length	mm ft/in	7607 25'0"	7772 25'6"
Static tipping load with level arms and forks, straight*	kg lb	6209 13,689	5960 13,140
Static tipping load with level arms and forks, full 40° turn*	kg lb	5438 11,989	5213 11,493
Operating weight	kg lb	11 042 24,344	11 102 24,476

*Static tipping load includes lubricants, full fuel tank, ROPS cab and 80 kg (176 lb) operator.

— 924G includes 17.5-25, 12 PR (L-2) tires.

Machine stability and operating weight are affected by tire size, tire ballast and other attachments.

NOTE: The rated operating load for a machine with pallet fork is: SAE J1197 FEB91; 50% of full turn static tipping load, or hydraulic/structural limit. CEN 474-3: 60% of full turn static tipping load on rough terrain; 80% of full turn static tipping load on firm and level ground, or the hydraulic/structural limit.

Handling Arm Position		Material Handling Arm		
		Retracted	Mid-position	Extended
Operating load	kg lb	1965 4332	1558 3434	1278 2816
Static tipping load, straight*	kg lb	4505 9932	3571 7873	2948 6499
Static tipping load, full 40° turn*	kg lb	3930 8664	3115 6867	2555 5633
Operating weight*	kg lb	11 000 24,251	11 000 24,251	11 000 24,251

*Static tipping load and operating weight include lubricants, full fuel tank, ROPS cab and 80 kg (176 lb) operator.

— 924G includes 17.5-25, 12 PR (L-2) tires.

Machine stability and operating weight are affected by tire size, tire ballast and other attachments.

NOTE: The rated operating load for a machine with material handling arm is 50% of full turn static tipping load, or the hydraulic/structural limit.

Wheel Loaders Integrated Toolcarriers

Performance Data

- 924G High Lift VersaLink Hook On
- Pallet Forks ● Material Handling Arm

		Pallet Forks	
Fork tine length	mm ft/in	1200 3'11"	1350 4'5"
Ground to top of tine clearance	mm ft/in	4144 13'7"	4155 13'8"
Reach with lift arms horizontal and forks level	mm ft/in	1952 6'5"	1967 6'6"
Overall length	mm ft/in	8104 26'7"	8269 27'2"
Static tipping load with level arms and forks, straight*	kg lb	6209 13,689	5960 13,140
Static tipping load with level arms and forks, full 40° turn*	kg lb	5438 11,989	5213 11,493
Operating weight	kg lb	11 042 24,344	11 102 24,476

*Static tipping load includes lubricants, full fuel tank, ROPS cab and 80 kg (176 lb) operator.

— 924G includes 17.5-25, 12 PR (L-2) tires.

Machine stability and operating weight are affected by tire size, tire ballast and other attachments.

NOTE: The rated operating load for a machine with pallet fork is: SAE J1197 FEB91; 50% of full turn static tipping load, or hydraulic/structural limit. CEN 474-3: 60% of full turn static tipping load on rough terrain; 80% of full turn static tipping load on firm and level ground, or the hydraulic/structural limit.

Handling Arm Position		Material Handling Arm		
		Retracted	Mid-position	Extended
Operating load	kg lb	1718 3786	1387 3057	1164 2566
Static tipping load, straight*	kg lb	3967 8746	3205 7066	2692 5935
Static tipping load, full 40° turn*	kg lb	3435 7573	2773 6113	2328 5132
Operating weight*	kg lb	11 086 24,441	11 086 24,441	11 086 24,441

*Static tipping load and operating weight include lubricants, full fuel tank, ROPS cab and 80 kg (176 lb) operator.

— 924G includes 17.5-25, 12 PR (L-2) tires.

Machine stability and operating weight are affected by tire size, tire ballast and other attachments.

NOTE: The rated operating load for a machine with material handling arm is 50% of full turn static tipping load, or the hydraulic/structural limit.

Bucket Type		General Purpose						Penetration	
		Bolt-on Cutting Edges		Bolt-on Teeth & Segments*		Bolt-on Teeth*		Flush Mounted Teeth*	
Ground Engaging Type	Rated bucket capacity (\$)	m ³	2.0	2.3	2.0	2.3	1.9	2.2	2.1
		yd ³	2.6	3.0	2.6	3.0	2.5	2.9	2.75
Struck capacity (\$)		m ³	1.7	1.9	1.7	1.9	1.6	1.8	1.8
		yd ³	2.25	2.5	2.25	2.5	2.1	2.3	2.3
Bucket width		mm	2549	2549	2549	2549	2549	2549	2594
		ft/in	8'4"	8'4"	8'4"	8'4"	8'4"	8'4"	8'6"
Dump clearance at full lift and 45° discharge*** (\$)		mm	2879	2842	2766	2730	2766	2729	2748
		ft/in	9'5"	9'4"	9'1"	8'11"	9'1"	8'11"	9'0"
Reach at full lift and 45° discharge (\$)		mm	927	964	1021	1058	1021	1058	1074
		ft/in	3'0"	3'2"	3'4"	3'6"	3'4"	3'6"	3'6"
Reach at 45° discharge and 2130 mm (7'0") clearance (\$)		mm	1455	1474	1492	1509	1492	1509	1535
		ft/in	4'9"	4'10"	4'11"	4'11"	4'11"	4'11"	5'0"
Reach with arms horizontal and bucket level		mm	2253	2305	2399	2451	2399	2451	2449
		ft/in	7'5"	7'7"	7'10"	8'0"	7'10"	8'0"	8'0"
Digging depth (\$)		mm	86	86	99	99	99	99	74
		in	3.4	3.4	3.9	3.9	3.9	3.9	2.9
Overall length		mm	7252	7304	7398	7450	7378	7430	7429
		ft/in	23'10"	24'0"	24'3"	24'5"	24'2"	24'5"	24'5"
Overall height with bucket at full raise (\$)		mm	4971	5070	4971	5070	4971	5070	5057
		ft/in	16'4"	16'8"	16'4"	16'8"	16'4"	16'8"	16'7"
Loader clearance circle with bucket in carry position		m	11.56	11.59	11.69	11.72	11.69	11.72	11.70
		ft/in	38'0"	38'0"	38'4"	38'6"	38'4"	38'6"	38'4"
Static tipping load, straight* (\$)		kg	9400	9243	9231	9078	9319	9252	9243
		lb	20,723	20,377	20,351	20,014	20,545	20,397	20,377
Static tipping load, full 40° turn* (\$)		kg	8173	8030	8003	7862	8094	8030	8021
		lb	18,018	17,703	17,644	17,333	17,844	17,703	17,683
Breakout force** (\$)		kg	11 723	11 095	11 590	10 961	12 604	11 880	11 947
		lb	25,849	24,464	25,556	24,169	27,792	26,195	26,343
Operating weight*		kg	11 786	11 836	11 920	11 970	11 835	11 885	11 907
		lb	25,984	26,094	26,279	26,389	26,092	26,202	26,250
Shipping weight		kg	11 540	11 590	11 674	11 724	11 589	11 639	11 661
		lb	25,441	25,552	25,737	25,847	25,549	25,660	25,708

*Static tipping load and operating weight are based on standard machine configuration with 20.5-25, 12 PR (L-2) tires, full fuel tank, coolant, lubricants, operator and optional counterweight.

**Measured 102 mm (4") behind tip of cutting edge with bucket hinge pin as pivot point in accordance with SAE J732 JUN92.

***Dump clearance, reach and overall length dimensions for bucket equipped with teeth reflect actual dimensions. SAE J732 JUN92 allows dimensions for buckets with teeth to reflect the dimension using the cutting edge. Caterpillar Inc. uses actual equipped bucket dimensions.

NOTE: Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader ratings, denoted in the text by (\$).

	Change in Operating Weight		Change in Articulated Static Tipping Load	
	kg	lb	kg	lb
Air conditioner	+ 48	+106	+ 56	+ 123
Canopy, ROPS (less cab)	-198	-437	-182	- 401
Counterweight, 290 kg (639 lb) (removal)	-290	-639	-483	-1065
Crankcase guard	+ 17	+ 37	+ 24	+ 53
Power train guard	+ 58	+128	+ 56	+ 123
Ride Control System	+ 41	+ 90	+ 20	+ 44
Secondary steering	+ 42	+ 93	+ 57	+126
Tires & 1-piece rims, 17.5-25, 12PR (L-2)	-421	-928	-262	- 578
Tires & 1-piece rims, 17.5-25, 12PR (L-3)	-342	-354	-213	- 470
Tires & 1-piece rims, 17.5-25, 12PR (L-2/L-3)	-279	-615	-174	- 384
Tires & 1-piece rims, 17.5-R25, radial (L-2)	-374	-825	-232	- 512
Tires & 1-piece rims, 17.5-R25, radial (L-3)	-218	-481	-136	- 300
Tires & 3-piece rims, 17.5-25, 12PR (L-2)	-289	-367	-180	- 370
Tires & 3-piece rims, 17.5-25, 12PR (L-3)	-217	-478	-147	- 324
Tires & 3-piece rims, 17.5-25, 12PR (L-2/L-3)	-173	-381	-108	- 238
Tires & 3-piece rims, 17.5-R25, radial (L-2)	-249	-549	-155	- 342
Tires & 3-piece rims, 17.5-R25, radial (L-3)	-149	-329	- 93	- 205
Tires & 3-piece rims, 20.5-25, 12PR (L-3)	+144	+318	+ 90	+ 198
Tires & 3-piece rims, 20.5-25, 12PR (L-2/L-3)	+188	+415	+122	+ 269
Tires & 3-piece rims, 20.5-R25, radial (L-2)	+ 68	+150	+ 42	+ 93
Tires & 3-piece rims, 20.5-R25, radial (L-3)	+240	+529	+148	+ 326
Tires & 3-piece rims, 550/65-R25, radial (L-2)	+ 44	+ 97	+ 28	+ 62
Tires & 3-piece rims, 550/65-R25, radial (L-3)	+104	+229	+ 65	+ 143

Bucket Type		General Purpose									Waste/Ag
		Bolt-on Cutting Edges			Bolt-on Teeth & Segments			Bolt-on Teeth			Bolt-on Cutting Edge
Rated bucket capacity	m ³ yd ³	1.8 2.3	2.0 2.6	2.3 3.0	1.8 2.3	2.0 2.6	2.3 3.0	1.7 2.2	1.9 2.5	2.2 2.9	2.8 3.6
Struck capacity	m ³ yd ³	1.5 2.0	1.7 2.2	1.9 2.5	1.5 2.0	1.7 2.2	1.9 2.5	1.5 2.0	1.6 2.1	1.8 2.4	2.3 3.0
Bucket width	mm ft/in	2549 8'4"	2549 8'4"	2549 8'4"	2549 8'4"	2549 8'4"	2549 8'4"	2532 8'4"	2532 8'4"	2532 8'4"	2550 8'4"
Dump clearance at full lift and 45° discharge (§)	mm ft/in	2967 9'9"	2911 9'7"	2849 9'4"	2855 9'4"	2799 9'2"	2737 9'0"	2855 9'4"	2799 9'2"	2737 9'0"	2860 9'5"
Reach at full tilt and 45° discharge (§)	mm ft/in	958 3'2"	1014 3'4"	1021 3'4"	1052 3'5"	1109 3'8"	1116 3'8"	1052 3'5"	1109 3'8"	1116 3'8"	1222 4'0"
Reach at 45° discharge and 2130 mm (7'0") clearance (§)	mm ft/in	1537 5'1"	1567 5'2"	1546 5'1"	1578 5'2"	1605 5'3"	1580 5'2"	1578 5'2"	1605 5'3"	1580 5'2"	1754 5'9"
Reach with lift arms horizontal and bucket level	mm ft/in	2303 7'7"	2383 7'10"	2431 8'0"	2449 8'0"	2529 8'4"	2577 8'5"	2449 8'0"	2529 8'4"	2577 8'5"	2546 8'4"
Digging depth (§)	mm in	108 4.3	108 4.3	143 5.6	122 4.8	122 4.8	156 6.1	122 4.8	122 4.8	156 6.1	112 4.4
Overall length	mm ft/in	7256 23'10"	7336 24'1"	7435 24'5"	7402 24'3"	7482 24'7"	7496 24'7"	7380 24'3"	7460 24'6"	7496 24'7"	7504 24'7"
Overall height with bucket at full raise (§)	mm ft/in	5045 16'7"	5080 16'8"	5238 17'2"	5045 16'7"	5080 16'8"	5238 17'2"	5045 16'7"	5080 16'8"	5238 17'2"	5352 17'7"
Loader clearance radius with bucket in carry position (§)	mm ft/in	5662 18'7"	5680 18'8"	5770 18'11"	5712 18'9"	5731 18'10"	5831 19'2"	5712 18'9"	5731 18'10"	5831 19'2"	5845 19'2"
Static tipping load straight (§)	kg lb	9034 19,917	8945 19,720	8508 18,757	8947 19,725	8871 19,557	8429 18,583	9125 20,117	9043 19,937	8611 18,984	8766 19,326
Static tipping load with 40° turn (§)	kg lb	7843 17,291	7762 17,112	7347 16,197	7755 17,097	7687 16,947	7268 16,023	7924 17,470	7850 17,306	7439 16,400	7588 16,729
Breakout force (§)	kg lb	11 492 25,336	10 631 23,437	9640 21,253	11 419 25,175	10 567 23,296	9565 21,087	12 306 27,130	11 340 25,001	10 246 22,589	8889 19,597
Operating weight	kg lb	12 635 27,856	12 653 27,895	12 831 28,288	12 704 28,008	12 713 28,028	12 893 28,424	12 619 27,820	12 628 27,840	12 807 28,235	12 697 27,992

NOTE: Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader rating, denoted in the text by (§).

	Change in Operating Weight		Change in Articulated Static Tipping Load	
	kg	lb	kg	lb
Without Air conditioner	- 48	-106	- 40	- 88
Canopy, ROPS (less cab)	-198	-437	-163	-359
Counterweight, 175 kg (385 lb) (removal)	-290	-639	-436	-961
Without Guard, crankcase	- 17	- 37	- 20	- 44
Without Guard, power train	- 58	-128	- 50	-110
Without Ride Control System	- 41	- 90	- 22	- 49
Without Secondary steering	- 42	- 93	- 47	-104
Tires, 1-piece rims				
17.5-25, 12PR (L-2)	-661	-1457	-370	-816
17.5-25, 12PR (L-3)	-582	-1283	-262	-578
17.5-25, Radial (L-2/L-3)	-519	-1144	-290	-639
17.5-25, Radial (L-2)	-614	-1354	-343	-756
17.5-25, Radial (L-3)	-458	-1010	-256	-564
Tires, 3-piece rims				
17.5-25, 12PR (L-2)	-529	-1166	-296	-653
17.5-25, 12PR (L-3)	-457	-1008	-256	-564
17.5-25, Radial (L-2/L-3)	-413	-911	-231	-509
17.5-R25, Radial (L-2)	-489	-1078	-273	-602
17.5-R25, Radial (L-3)	-389	-858	-218	-481
20.5-25, 12PR (L-3)	- 96	-212	- 54	-119
20.5-25, Radial (L-2/L-3)	- 52	-115	- 29	- 64
20.5-R25, Radial (L-2)	-172	-379	- 96	-212
20.5-R25, Radial (L-3)	0	0	0	0
550/65 R25, Radial (L-2)	-196	-432	-110	-243
550/65 R25, Radial (L-3)	-136	-300	- 76	-168
20.5-25, 12PR (L-2)	-240	-529	-134	-295

		Pallet Forks	
Fork tine length	mm ft/in	1200 3'11"	1350 4'5"
Ground to top of tine clearance	mm ft/in	3843 12'7"	3843 12'7"
Reach with lift arms horizontal and forks level	mm ft/in	1513 5'0"	1513 5'0"
Overall length	mm ft/in	7575 24'10"	7725 25'4"
Static tipping load with level arms and forks, straight*	kg lb	7317 16,131	7115 15,686
Static tipping load with level arms and forks, full 40° turn*	kg lb	6389 14,085	6210 13,691
Operating weight	kg lb	12 242 26,989	12 256 27,020

*Static tipping load includes lubricants, full fuel tank, ROPS cab and 80 kg (176 lb) operator.

— IT28G includes 20.5-25, 12 PR tires and optional counterweight.

Machine stability and operating weight are affected by tire size, tire ballast and other attachments.

NOTE: The rated operating load for a machine with pallet fork is: SAE J1197 FEB91; 50% of full turn static tipping load, or hydraulic/structural limit. CEN 474-3: 60% of full turn static tipping load on rough terrain; 80% of full turn static tipping load on firm and level ground, or the hydraulic/structural limit.

Handling Arm Position		Material Handling Arm		
		Retracted	Mid-position	Extended
Operating load	kg lb	2095 4619	1660 3660	1377 3036
Static tipping load, straight*	kg lb	5355 11,806	4261 9394	3542 7809
Static tipping load, full 40° turn*	kg lb	4677 10,311	3711 8181	3085 6801
Operating weight*	kg lb	12 103 26,683	12 103 26,683	12 103 26,683

*Static tipping load and operating weight include lubricants, full fuel tank, ROPS cab and 80 kg (176 lb) operator.

— IT28G includes 20.5-25, 12 PR tires and optional counterweight.

Machine stability and operating weight are affected by tire size, tire ballast and other attachments.

NOTE: The rated operating load for a machine with material handling arm is 50% of full turn static tipping load, or the hydraulic/structural limit.

Bucket Type		General Purpose									High Lift Arrangement***
		Bolt-on Edges	Bolt-on Adapters & Segments	Bolt-on Adapters	Bolt-on Edges	Bolt-on Adapters & Segments	Bolt-on Adapters	Bolt-on Edges	Bolt-on Adapters & Segments	Bolt-on Adapters	
Ground Engaging Type	m ³	2.8	2.8	2.7	2.5	2.5	2.3	2.3	2.3	2.1	—
	yd ³	3.65	3.65	3.5	3.25	3.25	3.0	3.0	3.0	2.75	—
Struck capacity	m ³	2.41	2.41	2.04	2.11	2.11	2.01	1.97	1.97	1.87	—
	yd ³	3.15	3.15	2.67	2.76	2.76	2.63	2.58	2.58	2.45	—
Bucket width	mm	2706	2777	2777	2706	2777	2777	2706	2777	2777	—
	ft/in	8'11"	9'1"	9'1"	8'11"	9'1"	9'1"	8'11"	9'1"	9'1"	—
Dump clearance at full lift and 45° discharge**	mm	2771	2664	2664	2849	2743	2743	2890	2786	2786	+423
	ft/in	9'1"	8'9"	8'9"	9'4"	9'0"	9'0"	9'6"	9'2"	9'2"	+17"
Reach at full lift and 45° discharge**	mm	1068	1170	1170	1010	1114	1114	984	1089	1089	+121
	ft/in	3'6"	3'10"	3'10"	3'4"	3'8"	3'8"	3'3"	3'7"	3'7"	+5"
Reach with lift arms horizontal and bucket level	mm	2330	2447	2447	2230	2377	2377	2180	2327	2327	+390
	ft/in	7'8"	8'0"	8'0"	7'4"	7'10"	7'10"	7'2"	7'8"	7'8"	+15"
Digging depth	mm	50	50	25	50	50	25	50	50	25	+58
	in	1.9	1.9	0.9	1.9	1.9	0.9	1.9	1.9	0.9	+2
Overall length**	mm	7331	7489	7489	7231	7389	7389	7181	7339	7339	+490
	ft/in	24'0"	24'6"	24'6"	23'9"	24'3"	24'3"	23'7"	24'0"	24'0"	+19"
Overall height with bucket at full raise	mm	5284	5284	5284	5188	5188	5188	5140	5140	5140	+423
	ft/in	17'4"	17'4"	17'4"	17'0"	17'0"	17'0"	16'10"	16'10"	16'10"	+17"
Loader clearance circle with bucket in carry position	m	12.00	12.16	12.16	11.95	12.10	12.10	11.93	12.08	12.08	+520
	ft/in	39'5"	39'11"	39'11"	39'3"	39'9"	39'9"	39'2"	39'8"	39'8"	+20"
Static tipping load, straight*	kg	10 657	10 527	10 727	10 809	10 679	10 884	10 883	10 753	10 782	-2916
	lb	23,494	23,208	23,648	23,829	23,543	23,995	23,992	23,706	23,770	-6429
Static tipping load, full 40° turn*	kg	9470	9340	9530	9613	9483	9678	9683	9552	9591	-2643
	lb	20,877	20,591	21,010	21,193	20,906	21,336	21,347	21,058	21,144	-5829
Breakout force***	kN	109.4	108.6	116.3	119.9	119.0	128.2	125.9	124.9	134.4	-5.3
	lb	24,594	24,414	26,145	26,955	26,752	28,821	28,303	28,079	30,214	-1191
Operating weight*	kg	13 452	13 560	13 467	13 381	13 489	13 396	13 348	13 456	13 363	+347
	lb	29,656	29,894	29,689	29,500	29,738	29,533	29,427	29,665	29,460	+765

*Static tipping load and operating weight shown are based on standard machine configuration with sound-suppression cab and ROPS, 20.5-R25 XTLA 1★(L-2) tires, full fuel tank, coolant, lubricants and operator.

**Dump clearance, reach and overall length dimensions for bucket equipped with teeth reflect actual dimensions. SAE J732C JUN92 allows dimensions for bucket with teeth to reflect the dimension using the cutting edge. Caterpillar Inc. uses actual equipped bucket dimensions.

***Measured 102 mm (4") behind tip of cutting edge with bucket hinge pin as pivot point in accordance with SAE J732 JUN92.

****All buckets shown can be used on the high lift arrangement. High lift column shows changes in specifications from standard lift to high lift. Add or subtract as indicated to or from specifications given for appropriate bucket to calculate high lift specifications.

	Change in Operating Weight		Change in Articulated Static Tipping Load	
	kg	lb	kg	lb
20.5-25, 12 PR (L-2)	- 60	-132	- 44	- 97
20.5-25, 12 PR (L-3)	- 86	-190	+ 64	+141
20.5-R25, XTLA (L-2)	—	—	—	—
20.5-R25, GP-2B (L-2/L-3)	+127	+280	+ 98	+216
20.5-R25, XHA (L-3)	-170	-375	+129	+284

Bucket Type	Ground Engaging Type	Material Handling						High Lift Arrangement****
		Bolt-on Edges	Bolt-on Adapters & Segments	Bolt-on Adapters	Bolt-on Edges	Bolt-on Adapters & Segments	Bolt-on Adapters	
Rated bucket capacity	m ³ yd ³	2.8 3.65	2.8 3.65	2.7 3.5	2.5 3.2	2.5 3.25	2.3 3.0	— —
Struck capacity	m ³ yd ³	2.42 3.17	2.42 3.17	2.32 3.04	2.13 2.79	2.13 2.79	2.03 2.66	— —
Bucket width	mm ft/in	2706 8'11"	2777 9'1"	2777 9'1"	2706 8'11"	2777 9'1"	2777 9'1"	— —
Dump clearance at full lift and 45° discharge**	mm ft/in	2721 8'11"	2607 8'7"	2607 8'7"	2791 9'2"	2678 8'9"	2678 8'9"	+423 +17"
Reach at full lift and 45° discharge**	mm ft/in	992 3'3"	1086 3'7"	1086 3'7"	922 3'0"	1016 3'4"	1016 3'4"	+121 +5"
Reach with lift arms horizontal and bucket level	mm ft/in	2330 7'8"	2477 8'2"	2477 8'2"	2230 7'4"	2377 7'10"	2377 7'10"	+390 +15"
Digging depth	mm in	50 1.9	50 1.9	25 0.9	50 1.9	50 1.9	25 0.9	+58 +2
Overall length**	mm ft/in	7331 24'0"	7489 24'6"	7489 24'6"	7231 24'0"	7389 24'6"	7389 24'6"	+490 +19"
Overall height with bucket at full raise	mm ft/in	5272 17'4"	5272 17'4"	5272 17'4"	5176 17'0"	5176 17'0"	5176 17'0"	+423 +17"
Loader clearance circle with bucket in carry position	m ft/in	12.00 39'5"	12.16 39'11"	12.16 39'11"	11.95 39'3"	12.10 39'9"	12.10 39'9"	+520 +20"
Static tipping load, straight*	kg lb	10 586 23,338	10 456 23,051	10 653 23,485	10 757 23,715	10 629 23,432	10 827 23,869	-2916 -6429
Static tipping load, full 40° turn*	kg lb	9408 20,741	9278 20,454	9464 20,864	9569 21,096	9441 20,813	9629 21,228	-2643 -5829
Breakout force***	kN lb	109.5 24,617	108.7 24,437	116.4 26,168	119.9 26,955	119.1 26,775	128.3 28,843	-5.3 -1191
Operating weight*	kg lb	13 437 29,623	13 545 29,861	13 452 29,656	13 370 29,475	13 478 29,713	13 385 29,508	+347 +765

*Static tipping load and operating weight shown are based on standard machine configuration with sound-suppression cab and ROPS, 20.5-R25 XTLA 1★(L-2) tires, full fuel tank, coolant, lubricants and operator.

**Dump clearance, reach and overall length dimensions for bucket equipped with teeth reflect actual dimensions. SAE J732C JUN92 allows dimensions for bucket with teeth to reflect the dimension using the cutting edge. Caterpillar Inc. uses actual equipped bucket dimensions.

***Measured 102 mm (4") behind tip of cutting edge with bucket hinge pin as pivot point in accordance with SAE J732 JUN92.

****All buckets shown can be used on the high lift arrangement. High lift column shows changes in specifications from standard lift to high lift. Add or subtract as indicated to or from specifications given for appropriate bucket to calculate high lift specifications.

	Change in Operating Weight		Change in Articulated Static Tipping Load	
	kg	lb	kg	lb
20.5-25, 12 PR (L-2)	- 60	-132	- 44	- 97
20.5-25, 12 PR (L-3)	- 86	-190	+ 64	+141
20.5-R25, XTLA (L-2)	—	—	—	—
20.5-R25, GP-2B (L-2/L-3)	+127	+280	+ 98	+216
20.5-R25, XHA (L-3)	-170	-375	+129	+284

Wheel Loaders Integrated Toolcarriers

Performance Data

- IT38G Series II
- Material Handling

Bucket Type	Material Handling		
		Bolt-on Teeth	Corner Guard or Bolt-on Edge
Cutting Edge			
Heaped capacity	m ³	2.5	2.3
	yd ³	3.3	3.0
Struck capacity	m ³	2.0	1.89
	yd ³	2.7	2.5
Bucket width	mm	2708	2708
	ft/in	8'11"	8'11"
Dump clearance at full lift and 45° discharge	mm	2933	2933
	ft/in	9'7"	9'7"
Reach at full lift and 45° discharge	mm	1065	1065
	ft/in	3'6"	3'6"
Reach with lift arms horizontal and bucket level	mm	2515	2515
	ft/in	8'3"	8'3"
Digging depth	mm	27	27
	in	1.0	1.0
Overall length	mm	7486	7486
	ft/in	24'7"	24'7"
Overall height with bucket at full raise	mm	5369	5256
	ft/in	17'7"	17'3"
Loader clearance circle with bucket in carry position	m	12.18	12.18
	ft/in	39'11"	39'11"
Static tipping load, straight**	kg	8629	8783
	lb	19,024	19,363
Static tipping load, full turn**	kg	7218	7376
	lb	15,913	16,261
Breakout force*	kN	118.9	120.1
	lb	26,730	27,000
Operating weight** 4 forward, 3 reverse	kg	13 691	13 555
	lb	30,183	29,884

*Breakout force is measured 102 mm (4") behind tip of cutting edge with bucket hinge pin as pivot in accordance with SAE J732 JUN92.

**Operating weight and static tipping load include lubricants, full fuel tank, ROPS cab and 80 kg (176 lb) operator.

— IT38G Series II includes 20.5-R25, XTLA (L-2) tires.

Machine stability is affected by the tire size, tire ballast and attachments.

		Pallet Forks	
Fork tine length	mm ft/in	1220 4'0"	
Ground to top of tine clearance	mm ft/in	3719 12'2"	
Reach with lift arms horizontal and forks level	mm ft/in	2881 9'6"	
Overall length	mm ft/in	7940 26'1"	
Static tipping load, straight*	kg lb	7385 16,281	
Static tipping load, full turn*	kg lb	6262 13,805	
Operating weight* 4 forward, 3 reverse	kg lb	13 242 29,194	

*Static tipping load and operating weight include lubricants, full fuel tank, ROPS cab and 80 kg (176 lb) operator.

— IT38G Series II includes 20.5-R25, XTLA (L-2) tires.

Machine stability and operating weight are affected by tire size, tire ballast and other attachments.

NOTE: The rated operating load for a machine with pallet fork is: SAE J1197 FEB91; 50% of full turn static tipping load, or hydraulic/structural limit. CEN 474-3: 60% of full turn static tipping load on rough terrain; 80% of full turn static tipping load on firm and level ground, or the hydraulic/structural limit.

Handling Arm Position		Material Handling Arm		
		Retracted	Mid-position	Extended
Static tipping load, straight*	kg lb	5036 11,102	4281 9438	3719 8199
Static tipping load, full turn*	kg lb	4295 9469	3651 8049	3171 6991
Operating weight* 4 forward, 4 reverse	kg lb	13 061 28,795	13 061 28,795	13 061 28,795

*Static tipping load and operating weight include lubricants, full fuel tank, ROPS cab and 80 kg (176 lb) operator.

— IT38G Series II includes 20.5-R25, XTLA (L-2) tires.

Machine stability and operating weight are affected by tire size, tire ballast and other attachments.

NOTE: The rated operating load for a machine with material handling arm is 50% of full turn static tipping load, or the hydraulic/structural limit.

Bucket Type	Ground Engaging Type	General Purpose								High Lift Arrangement****	
		Bolt-on Edges	Teeth & Segments*	Teeth*	Bolt-on Edges	Teeth & Segments*	Teeth*	Bolt-on Edges	Teeth & Segments*		Teeth*
Rated bucket capacity (\$)	m ³ yd ³	3.1 4.0	3.1 4.0	2.9 3.80	2.9 3.80	2.9 3.80	2.7 3.5	2.7 3.5	2.7 3.5	2.5 3.27	— —
Struck capacity (\$)	m ³ yd ³	2.65 3.46	2.65 3.46	2.5 3.25	2.45 3.2	2.45 3.2	2.3 3.01	2.26 2.95	2.26 2.95	2.11 2.76	— —
Bucket width (\$)	mm ft/in	2927 9'7"	2995 9'10"	2995 9'10"	2927 9'7"	2994 9'10"	2994 9'10"	2927 9'7"	2994 9'10"	2994 9'10"	— —
Dump clearance at full lift and 45° discharge (\$)	mm ft/in	2922 9'7"	2819 9'2"	2819 9'2"	2926 9'7"	2824 9'4"	2824 9'4"	2974 9'10"	2873 9'5"	2873 9'5"	+498 +19.6"
Reach at full lift and 45° discharge (\$)	mm ft/in	1202 3'11"	1300 4'4"	1300 4'4"	1215 4'0"	1315 4'4"	1315 4'4"	1182 3'11"	1282 4'2"	1282 4'2"	+3 +0.1"
Reach with lift arms horizontal and bucket level	mm ft/in	2488 8'2"	2630 8'8"	2630 8'8"	2493 8'2"	2635 8'8"	2635 8'8"	2433 8'0"	2575 8'5"	2575 8'5"	+366 +14.4"
Digging depth (\$)	mm in	92 3.6	92 3.6	62 2.4	92 3.6	92 3.6	62 2.4	92 3.6	92 3.6	62 2.4	-10 -0.4"
Overall length (\$)	mm ft/in	7968 26'2"	8121 26'8"	8121 26'8"	7973 26'2"	8126 26'7"	8126 26'7"	7913 25'11"	8066 26'5"	8065 26'5"	+476 +18.7"
Overall height with bucket at full raise (\$)	mm ft/in	5443 17'11"	5443 17'11"	5443 17'11"	5386 17'8"	5386 17'8"	5386 17'8"	5329 17'6"	5329 17'6"	5329 17'6"	+498 +19.6"
Loader clearance circle with bucket in carry position (\$)	m ft/in	14.03 46'0"	14.18 46'6"	14.18 46'6"	14.03 46'0"	14.18 43'6"	14.18 43'6"	14.04 46'0"	14.15 46'6"	14.15 46'6"	+418 +16.4"
Static tipping load, straight** (\$)	kg lb	12 064 26,596	11 963 26,373	12 256 27,019	12 180 26,852	12 079 26,850	12 375 27,282	12 298 27,112	12 198 26,891	12 498 27,553	-1059 -2335
Static tipping load, full 40° turn** (\$)	kg lb	10 619 23,410	10 560 23,280	10 795 23,798	10 728 23,651	10 628 23,430	10 908 24,047	10 840 23,898	10 740 23,667	11 023 24,301	-851 -1876
Breakout force*** (\$)	kN lb	154.2 34,666	153.5 34,508	168.7 37,925	154.2 34,666	153.6 34,531	168.7 37,925	163.2 36,689	162.6 36,554	179.4 40,331	-6.0 -1349
Operating weight** (\$)	kg lb	17 780 39,198	17 875 39,407	17 710 39,043	17 728 39,083	17 823 39,292	17 658 38,929	17 674 38,964	17 769 39,173	17 604 38,810	+857 +1889

*Dimensions are measured to the tip of the bucket teeth to provide accurate clearance data. SAE Standards specifies the cutting edge.

**Static tipping load and operating weight shown are based on standard machine configuration with 23.5-R25, XHA (L-3) tires, air conditioning, crankcase guard, power train guard, full fuel tank, lubricants and operator.

***Measured 102 mm (4") behind tip of cutting edge with bucket hinge pin as pivot point in accordance with SAE J732 JUN92.

****All buckets shown can be used on the high lift arrangement. High lift column shows changes in specifications from standard lift to high lift. Add or subtract as indicated to or from specifications given for appropriate bucket to calculate high lift specifications.

NOTE: Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader rating, denoted in the text by (\$).

	Change in Operating Weight		Change in Static Tipping Load — Straight	
	kg	lb	kg	lb
23.5-25, 12 PR (L-2)	-408	-899	-300	-661
23.5-25, 16 PR (L-3)	-236	-520	-174	-384
23.5-R25, XHA (L-2) standard	—	—	—	—
23.5-R25, XTLA (L-2) steel radial	-100	-220	-63	-139
23.5-R25, GP-2B (L-2/3) steel radial	-76	-168	-60	-132

Bucket Type	Ground Engaging Type	Material Handling			Quick Coupler			Rock		High Lift Arrangement****
		Bolt-on Edges	Teeth & Segments*	Teeth*	Bolt-on Edges	Teeth & Segments*	Teeth*	Bolt-on Edges	Bottom Strap Teeth	
Rated bucket capacity (\$)	m ³ yd ³	3.5 4.5	3.5 4.5	3.3 4.32	3.1 4.05	3.1 4.05	2.9 3.8	2.9 3.75	2.9 3.75	— —
Struck capacity (\$)	m ³ yd ³	3.0 3.9	3.0 3.9	2.84 3.71	2.7 3.53	2.7 3.53	2.5 3.27	2.45 3.18	2.44 3.16	— —
Bucket width (\$)	mm ft/in	2927 9'7"	2995 9'10"	2995 9'10"	2896 9'6"	2896 9'6"	2896 9'6"	2984 9'10"	2969 9'9"	— —
Dump clearance at full lift and 45° discharge (\$)	mm ft/in	2800 9'1"	2690 8'10"	2690 8'10"	2784 9'1"	2680 8'10"	2680 8'10"	2871 9'5"	2712 8'11"	+498 +19.6"
Reach at full lift and 45° discharge (\$)	mm ft/in	1194 3'11"	1284 4'2"	1284 4'2"	1357 4'6"	1456 4'10"	1456 4'10"	1297 4'2"	1425 4'8"	+3 +0.1"
Reach with lift arms horizontal and bucket level	mm ft/in	2588 8'6"	2730 8'11"	2730 8'11"	2697 8'10"	2839 9'4"	2839 9'4"	2588 8'6"	2789 9'2"	+366 +14.4"
Digging depth (\$)	mm in	92 3.6	92 3.6	62 2.4	92 3.6	92 3.6	62 2.4	92 3.6	62 2.4	-10 -0.4"
Overall length (\$)	mm ft/in	8068 26'5"	8221 26'11"	8221 26'11"	8176 26'9"	8330 27'4"	8330 27'4"	8068 26'5"	8300 27'2"	+476 +18.7"
Overall height with bucket at full raise (\$)	mm ft/in	5482 18'0"	5482 18'0"	5482 18'0"	5398 17'8"	5398 17'8"	5398 17'8"	5391 17'8"	5391 17'8"	+498 +19.6"
Loader clearance circle with bucket in carry position (\$)	m ft/in	14.08 46'2"	14.23 46'8"	14.23 46'8"	14.11 46'4"	14.20 46'8"	14.20 46'8"	14.14 46'4"	14.26 46'10"	+418 +16.4"
Static tipping load, straight** (\$)	kg lb	12 186 26,865	12 083 26,638	12 380 27,293	11 658 25,701	11 553 25,469	11 716 25,829	12 064 26,596	12 201 26,898	-1059 -2335
Static tipping load, full 40° turn** (\$)	kg lb	10 728 23,651	10 625 23,424	10 906 24,043	10 260 22,619	10 155 22,387	10 318 22,747	10 593 23,353	10 726 23,646	-851 -1876
Breakout force*** (\$)	kN lb	141.4 31,788	140.7 31,631	153.6 34,531	131.7 29,607	131.8 29,630	141.4 31,788	141.2 31,743	148.9 33,474	-6.0 -1349
Operating weight** (\$)	kg lb	17 751 39,134	17 846 39,343	17 681 38,979	17 900 39,462	17 995 39,672	17 830 39,308	17 982 39,643	17 899 39,460	+857 +1889

*Dimensions are measured to the tip of the bucket teeth to provide accurate clearance data. SAE Standards specifies the cutting edge.

**Static tipping load and operating weight shown are based on standard machine configuration with 23.5-R25, XHA (L-3) tires, air conditioning, crankcase guard, power train guard, full fuel tank, lubricants and operator.

***Measured 102 mm (4") behind tip of cutting edge with bucket hinge pin as pivot point in accordance with SAE J732 JUN92.

****All buckets shown can be used on the high lift arrangement. High lift column shows changes in specifications from standard lift to high lift. Add or subtract as indicated to or from specifications given for appropriate bucket to calculate high lift specifications.

NOTE: Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader rating, denoted in the text by (\$).

	Change in Operating Weight		Change in Static Tipping Load — Straight	
	kg	lb	kg	lb
23.5-25, 12 PR (L-2)	-408	-899	-300	-661
23.5-25, 16 PR (L-3)	-236	-520	-174	-384
23.5-R25, XHA (L-2) standard	—	—	—	—
23.5-R25, XTLA (L-2) steel radial	-100	-220	-63	-139
23.5-R25, GP-2B (L-2/3) steel radial	-76	-168	-60	-132

Bucket Type	General Purpose									
		Bolt-on Edges	Teeth & Segments*	Teeth*	Bolt-on Edges	Teeth & Segments*	Teeth*	Bolt-on Edges	Teeth & Segments*	Teeth*
Ground Engaging Type										
Rated bucket capacity (\$)	m ³ yd ³	3.3 4.32	3.3 4.32	3.1 4.0	3.1 4.0	3.1 4.0	2.9 3.80	2.9 3.80	2.9 3.80	2.7 3.5
Struck capacity (\$)	m ³ yd ³	2.82 3.69	2.82 3.69	2.66 3.48	2.66 3.46	2.66 3.46	2.5 3.25	2.45 3.2	2.45 3.2	2.30 3.01
Bucket width (\$)	mm ft/in	2927 9'7"	2994 9'10"	2994 9'10"	2927 9'7"	2994 9'10"	2994 9'10"	2927 9'7"	2994 9'10"	2994 9'10"
Dump clearance at full lift and 45° discharge (\$)	mm ft/in	2917 9'7"	2814 9'2"	2814 9'2"	2922 9'7"	2819 9'2"	2819 9'2"	2926 9'7"	2824 9'4"	2824 9'4"
Reach at full lift and 45° discharge (\$)	mm ft/in	1195 3'11"	1292 4'2"	1292 4'2"	1202 3'11"	1300 4'4"	1300 4'4"	1215 3'11"	1315 4'4"	1315 4'4"
Reach with lift arms horizontal and bucket level	mm ft/in	2488 8'2"	2630 8'8"	2630 8'8"	2488 8'2"	2630 8'8"	2630 8'8"	2493 8'2"	2635 8'8"	2635 8'8"
Digging depth (\$)	mm in	92 3.6	92 3.6	62 2.4	92 3.6	92 3.6	62 2.4	92 3.6	92 3.6	62 2.4
Overall length (\$)	mm ft/in	7990 26'2"	8143 26'8"	8143 26'8"	7990 26'2"	8143 26'8"	8143 26'8"	7995 26'2"	8148 26'8"	8148 26'8"
Overall height with bucket at full raise (\$)	mm ft/in	5491 18'0"	5491 18'0"	5491 18'0"	5443 17'11"	5443 17'11"	5443 17'11"	5386 17'7"	5386 17'7"	5386 17'7"
Loader clearance circle with bucket in carry position (\$)	m ft/in	14.03 46'0"	14.18 46'6"	14.18 46'6"	14.03 46'0"	14.18 46'6"	14.18 46'6"	14.03 46'0"	14.18 46'6"	14.18 46'6"
Static tipping load, straight** (\$)	kg lb	13 559 29,892	13 458 29,669	13 750 30,313	13 630 30,048	13 529 29,826	13 826 30,481	13 748 30,309	13 647 30,086	13 948 30,750
Static tipping load, full 40° turn** (\$)	kg lb	11 883 26,197	11 782 25,974	12 058 26,583	11 949 26,343	11 848 26,120	12 128 26,737	12 060 26,587	11 959 26,365	12 242 26,998
Breakout force*** (\$)	kN lb	153.4 34,486	152.6 34,306	167.8 37,723	154.2 34,666	153.5 34,508	168.7 37,784	154.2 34,666	153.6 34,531	168.7 37,925
Operating weight** (\$)	kg lb	18 601 41,008	18 696 41,217	18 531 40,853	18 577 40,955	18 672 41,164	18 507 40,800	18 525 40,840	18 620 41,050	18 455 40,686

*Dimensions are measured to the tip of the bucket teeth to provide accurate clearance data. SAE Standards specifies the cutting edge.

**Static tipping load and operating weight shown are based on standard machine configuration with 23.5-R25, XHA (L-3) tires, air conditioning, crankcase guard, power train guard, full fuel tank, lubricants and operator.

***Measured 102 mm (4") behind tip of cutting edge with bucket hinge pin as pivot point in accordance with SAE J732 JUN92.

NOTE: Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader rating, denoted in the text by (\$).

	Change in Operating Weight		Change in Static Tipping Load — Straight	
	kg	lb	kg	lb
23.5-25, 16 PR (L-2)	-408	-899	-300	-661
23.5-25, 16 PR (L-3)	-236	-520	-174	-384
23.5-R25, XHA (L-3) standard	—	—	—	—
23.5-R25, XTLA (L-2) steel radial	-100	-220	-63	-139
23.5-R25, GP-2B (L-2/3) steel radial	-76	-160	-60	-132

Bucket Type	Material Handling						
		Bolt-on Edges	Teeth & Segments*	Teeth*	Bolt-on Edges	Teeth & Segments*	Teeth*
Ground Engaging Type							
Rated bucket capacity (\$)	m ³ yd ³	3.8 4.97	3.8 4.97	3.6 4.71	3.5 4.5	3.5 4.5	3.3 4.25
Struck capacity (\$)	m ³ yd ³	3.27 4.28	3.27 4.28	3.1 4.0	3.0 3.92	3.0 3.92	2.84 3.71
Bucket width (\$)	mm ft/in	2927 9'7"	2994 9'10"	2994 9'10"	2927 9'7"	2994 9'10"	2994 9'10"
Dump clearance at full lift and 45° discharge (\$)	mm ft/in	2747 9'0"	2637 8'8"	2637 8'8"	2800 9'1"	2690 8'10"	2690 8'10"
Reach at full lift and 45° discharge (\$)	mm ft/in	1247 4'0"	1337 4'5"	1337 4'5"	1194 3'11"	1284 4'2"	1284 4'2"
Reach with lift arms horizontal and bucket level	mm ft/in	2663 8'9"	2805 9'2"	2805 9'2"	2588 8'6"	2730 8'11"	2730 8'11"
Digging depth (\$)	mm in	92 3.6	92 3.6	62 2.4	92 3.6	92 3.6	62 2.4
Overall length (\$)	mm ft/in	8165 26'9"	8318 27'3"	8318 27'3"	8090 26'6"	8243 27'0"	8243 27'0"
Overall height with bucket at full raise (\$)	mm ft/in	5551 18'2"	5551 18'2"	5551 18'2"	5482 18'0"	5482 18'0"	5482 18'0"
Loader clearance circle with bucket in carry position (\$)	m ft/in	14.12 46'4"	14.27 46'10"	14.27 46'10"	14.08 46'2"	14.23 46'8"	14.23 46'8"
Static tipping load, straight** (\$)	kg lb	13 598 29,978	13 495 29,751	13 787 30,395	13 753 30,320	13 651 30,095	13 952 30,758
Static tipping load, full 40° turn** (\$)	kg lb	11 913 26,263	11 811 26,038	12 086 26,645	12 059 26,585	11 956 26,358	12 240 26,984
Breakout force*** (\$)	kN lb	132.8 29,855	132.1 29,697	143.6 32,283	141.4 31,788	140.7 31,631	153.6 34,531
Operating weight** (\$)	kg lb	18 613 41,034	18 708 41,244	18 543 40,880	18 548 40,891	18 643 41,100	18 478 40,736

*Dimensions are measured to the tip of the bucket teeth to provide accurate clearance data. SAE Standards specifies the cutting edge.

**Static tipping load and operating weight shown are based on standard machine configuration with 23.5-R25, XHA (L-3) tires, air conditioning, crankcase guard, power train guard, full fuel tank, lubricants and operator.

***Measured 102 mm (4") behind tip of cutting edge with bucket hinge pin as pivot point in accordance with SAE J732 JUN92.

NOTE: Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader rating, denoted in the text by (\$).

	Change in Operating Weight		Change in Static Tipping Load — Straight	
	kg	lb	kg	lb
23.5-25, 16 PR (L-2)	-408	-899	-300	-661
23.5-25, 16 PR (L-3)	-236	-520	-174	-384
23.5-R25, XHA (L-3) standard	—	—	—	—
23.5-R25, XTLA (L-2) steel radial	-100	-220	- 63	-139
23.5-R25, GP-2B (L-2/3) steel radial	- 76	-168	- 60	-132

Bucket Type		Material Handling			Mid-Lift Delta	Rock		High-Lift Delta
		Bolt-on Edges	Teeth & Seg- ments*	Teeth*		Bolt-on Edges	Bottom Strap Teeth	
Ground Engaging Type								
Rated bucket capacity (\$)	m ³ yd ³	3.3 4.32	3.3 4.32	3.1 4.05	— —	3.1 4.05	3.1 4.05	— —
Struck capacity (\$)	m ³ yd ³	2.83 3.70	2.83 3.70	2.67 3.49	— —	2.72 3.56	2.71 3.54	— —
Bucket width (\$)	mm ft/in	2927 9'7"	2994 9'10"	2994 9'10"	— —	2984 9'10"	2969 9'8"	— —
Dump clearance at full lift and 45° discharge (\$)	mm ft/in	2835 9'4"	2725 8'11"	2725 8'11"	190 7.5"	2806 9'2"	2645 8'8"	498 19.6"
Reach at full lift and 45° discharge (\$)	mm ft/in	1158 3'10"	1249 4'0"	1249 4'0"	-50 -2"	1340 4'5"	1466 4'10"	3 0.1"
Reach with lift arms horizontal and bucket level	mm ft/in	2538 8'4"	2680 8'10"	2680 8'10"	100 4"	2668 8'9"	2869 9'5"	366 14.4"
Digging depth (\$)	mm in	92 3.6	92 3.6	62 2.4	— —	92 3.6	62 2.4	-10 -0.4"
Overall length (\$)	mm ft/in	8040 26'5"	8193 26'11"	8193 26'11"	127 5"	8170 26'10"	8402 27'7"	453 17.8"
Overall height with bucket at full raise (\$)	mm ft/in	5436 17'10"	5436 17'10"	5436 17'10"	190 7.5"	5472 18'0"	5472 18'5"	498 19.6"
Loader clearance circle with bucket in carry position (\$)	m ft/in	14.06 46'0"	14.20 46'8"	14.20 46'8"	57 2.25"	14.18 46'6"	14.30 46'11"	209 8"
Static tipping load, straight** (\$)	kg lb	13 859 30,553	13 757 30,328	14 061 30,999	-748 -1649	13 186 29,070	13 337 29,405	-2401 -5293
Static tipping load, full 40° turn** (\$)	kg lb	12 158 26,803	12 056 26,578	12 342 27,209	-675 -1488	11 487 25,324	11 635 25,650	-1984 -4374
Breakout force*** (\$)	kN lb	147.8 33,227	147.1 33,069	161.2 33,239	0.9 202	130.8 29,405	137.4 30,889	-6 -1349
Operating weight** (\$)	kg lb	18 506 40,798	18 601 41,008	18 436 40,644	113 249	19 135 42,185	19 052 42,002	248 547

*Dimensions are measured to the tip of the bucket teeth to provide accurate clearance data. SAE Standards specifies the cutting edge.
 **Static tipping load and operating weight shown are based on standard machine configuration with 23.5-R25, XHA (L-3) tires, air conditioning, crankcase guard, power train guard, full fuel tank, lubricants and operator.
 ***Measured 102 mm (4") behind tip of cutting edge with bucket hinge pin as pivot point in accordance with SAE J732 JUN92.

NOTE: Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader rating, denoted in the text by (\$).

	Change in Operating Weight		Change in Static Tipping Load — Straight	
	kg	lb	kg	lb
23.5-25, 16 PR (L-2)	-408	-899	-300	-661
23.5-25, 16 PR (L-3)	-236	-520	-174	-384
23.5-R25, XHA (L-3) standard	—	—	—	—
23.5-R25, XTLA (L-2) steel radial	-100	-220	- 63	-139
23.5-R25, GP-2B (L-2/3) steel radial	- 76	-168	- 60	-132

Performance Data
 ● IT62G Series II
 ● Material Handling Buckets

Wheel Loaders
 Integrated Toolcarriers

Bucket Type	Material Handling		
		Bolt-on Teeth	Corner Guard or Bolt-on Edge
Cutting Edge			
Heaped capacity	m ³	3.3	3.3
	yd ³	4.25	4.25
Struck capacity	m ³	2.6	2.6
	yd ³	3.4	3.4
Bucket width	mm	2885	2925
	ft/in	9'6"	9'7"
Dump clearance at full lift and 45° discharge	mm	2840	2810
	ft/in	9'4"	9'3"
Reach at 45° discharge and 2130 mm (7'0") clearance	mm	1750	1780
	ft/in	5'9"	5'10"
Reach at full lift and 45° discharge	mm	1227	1275
	ft/in	4'0"	4'2"
Reach with lift arms horizontal and bucket level	mm	2767	2820
	ft/in	9'1"	9'3"
Digging depth	mm	71	90
	in	3.0	3.5
Overall length	mm	8498	8310
	ft/in	27'11"	27'3"
Overall height with bucket at full raise	mm	5579	5485
	ft/in	18'4"	18'0"
Loader clearance circle with bucket in carry position	m	14.17	13.41
	ft/in	46'6"	44'0"
Static tipping load, straight**	kg	12 592	12 960
	lb	27,761	28,580
Static tipping load, full turn**	kg	10 204	11 220
	lb	22,496	24,750
Breakout force*	kN	148.9	125.5
	lb	33,474	28,210
Operating weight** 4 forward, 4 reverse	kg	18 556	18 310
	lb	40,909	40,380

*Breakout force is measured 102 mm (4") behind tip of cutting edge with bucket hinge pin as pivot in accordance with SAE J732 JUN92.

**Operating weight and static tipping load include lubricants, full fuel tank, ROPS cab and 80 kg (176 lb) operator.

— IT62G Series II includes 23.5-R25, XHA (L-3) tires, air conditioning, crankcase guard, power train guard and material handling bucket. Machine stability is affected by the tire size, tire ballast and attachments.

Wheel Loaders Integrated Toolcarriers

Performance Data

- IT62G Series II
- Pallet Forks ● Material Handling Arm

		Pallet Forks
Fork tine length	mm ft/in	1524 5'0"
Ground to top of tine clearance	mm ft/in	3817 12'6"
Reach with lift arms horizontal and forks level	mm ft/in	3472 11'5"
Overall length	mm ft/in	9212 29'11"
Static tipping load, straight*	kg lb	9293 20,488
Static tipping load, full turn*	kg lb	7749 17,084
Operating weight* 4 forward, 4 reverse	kg lb	18 312 40,371

*Static tipping load and operating weight include lubricants, full fuel tank, ROPS cab and 80 kg (176 lb) operator.

— IT62G Series II includes 23.5-R25, XHA (L-3) tires, air conditioning, crankcase and power train guards.

Machine stability and operating weight are affected by tire size, tire ballast and other attachments.

NOTE: The rated operating load for a machine with pallet fork is: SAE J1197 FEB91; 50% of full turn static tipping load, or hydraulic/structural limit. CEN 474-3: 60% of full turn static tipping load on rough terrain; 80% of full turn static tipping load on firm and level ground, or the hydraulic/structural limit.

Handling Arm Position		Material Handling Arm		
		Retracted	Mid-position	Extended
Static tipping load, straight*	kg lb	7266 16,019	6236 13,748	5457 12,031
Static tipping load, full turn*	kg lb	6198 13,664	5331 11,753	4672 10,300
Operating weight* 4 forward, 4 reverse	kg lb	17 777 39,192	17 777 39,192	17 777 39,192

*Static tipping load and operating weight include lubricants, full fuel tank, ROPS cab and 80 kg (176 lb) operator.

— IT62G Series II includes 23.5-R25, XHA (L-3) tires, air conditioning, crankcase and power train guards.

Machine stability and operating weight are affected by tire size, tire ballast and other attachments.

NOTE: The rated operating load for a machine with material handling arm is 50% of full turn static tipping load, or the hydraulic/structural limit.

Bucket Type		General Purpose								High Lift Arrangement****		
		Bolt-on Edges	Teeth & Seg-ments*	Teeth*	Bolt-on Edges	Teeth & Seg-ments*	Teeth*	Bolt-on Edges	Teeth & Seg-ments*		Teeth*	
Ground Engaging Type	Rated bucket capacity (\$)	m ³ yd ³	4.0 5.25	4.0 5.25	3.8 5.0	3.8 5.0	3.8 5.0	3.65 4.75	3.65 4.75	3.65 4.75	3.5 4.5	— —
	Struck capacity (\$)	m ³ yd ³	3.43 4.46	3.43 4.46	3.28 4.27	3.27 4.25	3.27 4.25	3.12 4.06	3.1 4.04	3.1 4.04	2.96 3.85	— —
Bucket width (\$)	mm ft/in	3059 10'0"	3150 10'4"	3150 10'4"	3059 10'0"	3150 10'4"	3150 10'4"	3059 10'0"	3150 10'4"	3150 10'4"	— —	
Dump clearance at full lift and 45° discharge (\$)	mm ft/in	3066 10'0"	2929 9'7"	2929 9'7"	3100 10'2"	2963 9'8"	2963 9'8"	3135 10'3"	2999 9'10"	2999 9'10"	558 +1'10"	
Reach at full lift and 45° discharge (\$)	mm ft/in	1328 4'4"	1449 4'9"	1449 4'9"	1304 4'3"	1426 4'8"	1426 4'8"	1281 4'2"	1404 4'7"	1404 4'7"	-25 -1"	
Reach with lift arms horizontal and bucket level	mm ft/in	2736 8'11"	2917 9'6"	2917 9'6"	2694 8'10"	2875 9'5"	2875 9'5"	2651 8'8"	2832 9'3"	2832 9'3"	+404 +1'3"	
Digging depth (\$)	mm in	129 5.0	129 5.0	99 3.8	129 5.0	129 5.0	99 3.8	129 5.0	129 5.0	99 3.8	-25 -1"	
Overall length (\$)	mm ft/in	8870 29'1"	9073 29'9"	9073 29'9"	8828 28'11"	9031 29'7"	9031 29'7"	8785 28'10"	8988 29'5"	8988 29'5"	+544 +1'9"	
Overall height with bucket at full raise (\$)	mm ft/in	5832 19'1"	5832 19'1"	5832 19'1"	5794 19'0"	5794 19'0"	5794 19'0"	5754 18'10"	5754 18'10"	5754 18'10"	+558 +1'9"	
Loader clearance circle with bucket in carry position (\$)	m ft/in	14.58 47'9"	14.78 48'5"	14.78 48'5"	14.56 47'9"	14.75 48'4"	14.75 48'4"	14.54 47'8"	14.73 48'3"	14.73 48'3"	+432 +1'5"	
Static tipping load, straight** (\$)	kg lb	16 350 36,035	16 180 35,661	16 470 36,300	16 310 35,947	16 140 35,573	16 440 36,234	16 440 36,234	16 270 35,859	16 570 36,520	+810 +1785	
Static tipping load, full 37° turn** (\$)	kg lb	14 540 32,046	14 380 31,694	14 650 32,289	14 500 31,958	14 330 31,583	14 610 32,200	14 620 32,222	14 450 31,848	14 730 32,465	-550 -1212	
Breakout force*** (\$)	kN lb	189.4 42,562	188.3 42,306	201.5 45,260	196.7 44,189	195.6 43,940	209.6 47,092	203.4 45,704	202.3 45,442	217.3 48,819	-15.6 -3505	
Operating weight*** (\$)	kg lb	22 794 50,238	22 967 50,619	22 813 50,280	22 748 50,137	22 921 50,518	22 767 50,178	22 705 50,042	22 878 50,423	22 724 50,084	+1900 +4188	

*Dimensions are measured to the tip of the bucket teeth to provide accurate clearance data. SAE Standards specifies the cutting edge.

**Static tipping load and operating weight shown are based on standard machine configuration with 26.5-R25, XHA (L-3) tires, full fuel tank, coolant, lubricants, air conditioning, ride control and operator.

***Measured 102 mm (4") behind tip of cutting edge with bucket hinge pin as pivot point in accordance with SAE J732 JUN92.

****All buckets shown can be used on the high lift arrangement. High lift column shows changes in specifications from standard lift to high lift. Add or subtract as indicated to or from specifications given for appropriate bucket to calculate high lift specifications.

NOTE: Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader rating, denoted in the text by (\$).

	Change in Operating Weight		Change in Static Tipping Load — Straight	
	kg	lb	kg	lb
26.5-25, 20 PR (L-2)	-469	-1030	-349	-770
26.5-25, 20 PR (L-3)	-224	-490	-168	-370
26.5-R25, XHA 1★(L-3) standard	—	—	—	—
26.5-R25, GP-2B 1★(L-3) steel radial	-49	-100	-36	-80

NOTE: Tire options include tires and rims.

Bucket Type		Material Handling						Rock			Heavy Duty Rock	High Lift Arrangement****
		Bolt-on Edges	Teeth & Segments*	Teeth*	Bolt-on Edges	Teeth & Segments*	Teeth*	Bolt-on Edges	Teeth & Segments	Teeth & Segments		
Ground Engaging Type												
Rated bucket capacity (\$)	m ³ yd ³	4.0 5.25	4.0 5.25	3.8 5.0	3.8 5.0	3.8 5.0	3.6 4.75	3.5 4.5	3.5 4.5	3.5 4.5	3.5 4.5	— —
Struck capacity (\$)	m ³ yd ³	3.46 4.5	3.46 4.5	3.31 4.3	3.22 4.18	3.22 4.18	3.08 4.0	3.0 3.9	3.0 3.9	3.0 3.9	3.0 3.9	— —
Bucket width (\$)	mm ft/in	3220 10'6"	3311 10'10"	3311 10'10"	3220 10'6"	3311 10'10"	3311 10'10"	3306 10'10"	3252 10'8"	3252 10'8"	3252 10'8"	— —
Dump clearance at full lift and 45° discharge (\$)	mm ft/in	3021 9'10"	2874 9'5"	2874 9'5"	3063 10'0"	2916 9'6"	2916 9'6"	2952 9'8"	2756 9'0"	2756 9'0"	2756 9'0"	+558 +1'10"
Reach at full lift and 45° discharge (\$)	mm ft/in	1204 3'11"	1313 4'4"	1313 4'4"	1162 3'9"	1270 4'2"	1270 4'2"	1273 4'2"	1381 4'6"	1381 4'6"	1381 4'6"	-25 -1"
Reach with lift arms horizontal and bucket level	mm ft/in	2701 8'10"	2882 9'5"	2882 9'5"	2641 8'7"	2822 9'3"	2822 9'3"	2799 9'2"	3013 9'10"	3013 9'10"	3013 9'10"	+404 +1'3"
Digging depth (\$)	mm in	129 5.0	129 5.0	99 3.8	129 5.0	129 5.0	99 3.8	129 5.0	129 5.0	129 5.0	129 5.0	-25 -1"
Overall length (\$)	mm ft/in	8835 28'11"	9038 29'7"	9038 29'7"	8775 28'9"	8978 29'5"	8978 29'5"	8933 29'3"	9196 30'2"	9196 30'2"	9196 30'2"	+544 +1'9"
Overall height with bucket at full raise (\$)	mm ft/in	5783 18'11"	5783 18'11"	5783 18'11"	5727 18'9"	5727 18'9"	5727 18'9"	5716 18'9"	5716 18'9"	6042 19'9"	6042 19'9"	+558 +1'9"
Loader clearance circle with bucket in carry position (\$)	m ft/in	14.71 48'3"	14.91 48'10"	14.91 48'10"	14.68 48'1"	14.87 48'9"	14.87 48'9"	14.84 48'8"	14.95 49'0"	14.95 49'0"	14.95 49'0"	+432 +1'5"
Static tipping load, straight** (\$)	kg lb	16 080 35,440	15 910 35,066	16 210 35,727	16 180 35,661	16 020 35,308	16 320 35,969	16 350 36,035	16 260 35,837	16 100 35,484	16 100 35,484	+810 +1785
Static tipping load, full 37° turn** (\$)	kg lb	14 290 31,495	14 120 31,120	14 400 31,738	14 380 31,694	14 210 31,319	14 500 31,958	14 510 31,980	14 420 31,782	14 260 31,429	14 260 31,429	-550 -1212
Breakout force*** (\$)	kN lb	196.0 44,029	194.9 43,797	208.8 46,920	206.1 46,313	205.1 46,075	220.4 49,515	180.0 40,441	178.9 40,195	178.1 40,018	178.1 40,018	-15.6 -3505
Operating weight** (\$)	kg lb	22 863 50,390	23 036 50,771	22 870 50,405	22 793 50,236	22 966 50,617	22 800 50,251	22 919 50,513	23 011 50,716	23 168 51,062	23 168 51,062	+1900 +4188

*Dimensions are measured to the tip of the bucket teeth to provide accurate clearance data. SAE Standards specifies the cutting edge.

**Static tipping load and operating weight shown are based on standard machine configuration with 26.5-R25, XHA (L-3) tires, full fuel tank, coolant, lubricants, air conditioning, ride control and operator.

***Measured 102 mm (4") behind tip of cutting edge with bucket hinge pin as pivot point in accordance with SAE J732 JUN92.

****All buckets shown can be used on the high lift arrangement. High lift column shows changes in specifications from standard lift to high lift. Add or subtract as indicated to or from specifications given for appropriate bucket to calculate high lift specifications.

NOTE: Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader rating, denoted in the text by (\$).

	Change in Operating Weight		Change in Static Tipping Load — Straight	
	kg	lb	kg	lb
26.5-25, 20 PR (L-2)	-469	-1030	-349	-770
26.5-25, 20 PR (L-3)	-224	-490	-168	-370
26.5-R25, XHA 1★(L-3) standard	—	—	—	—
26.5-R25, GP-2B 1★(L-3) steel radial	- 49	- 100	- 36	- 80

NOTE: Tire options include tires and rims.

Bucket Type		General Purpose					
		Bolt-on Edges	Teeth & Segments*	Teeth*	Bolt-on Edges	Teeth & Segments*	Teeth*
Ground Engaging Type							
Rated bucket capacity (\$)	m ³ yd ³	4.7 6.0	4.7 6.0	4.5 5.75	4.25 5.5	4.25 5.5	4.0 5.25
Struck capacity (\$)	m ³ yd ³	3.95 5.14	3.95 5.14	3.8 4.94	3.62 4.7	3.62 4.7	3.43 4.46
Bucket width (\$)	mm ft/in	3218 10'6"	3193 10'5"	3193 10'5"	3220 10'6"	3311 10'10"	3311 10'10"
Dump clearance at full lift and 45° discharge (\$)	mm ft/in	3232 10'7"	3070 10'0"	3070 10'0"	3289 10'9"	3151 10'4"	3151 10'4"
Reach at full lift and 45° discharge (\$)	mm ft/in	1325 4'4"	1457 4'9"	1457 4'9"	1281 4'2"	1401 4'7"	1401 4'7"
Reach with lift arms horizontal and bucket level	mm ft/in	2938 9'7"	3144 10'3"	3144 10'3"	2866 9'4"	3047 9'11"	3047 9'11"
Digging depth (\$)	mm in	118 4.6	118 4.6	88 3.4	108 4.2	108 4.2	78 3.0
Overall length (\$)	mm ft/in	9159 30'0"	9392 30'9"	9392 30'9"	9079 29'9"	9280 30'5"	9280 30'5"
Overall height with bucket at full raise (\$)	mm ft/in	5990 19'7"	5990 19'7"	5990 19'7"	6054 19'10"	6054 19'10"	6054 19'10"
Loader clearance circle with bucket in carry position (\$)	m ft/in	14.92 48'11"	15.04 49'4"	15.04 49'4"	14.88 48'9"	15.08 49'5"	15.08 49'5"
Static tipping load, straight** (\$)	kg lb	18 975 41,821	18 800 41,435	19 150 42,207	18 520 40,818	18 350 40,443	18 670 41,153
Static tipping load, full 37° turn** (\$)	kg lb	16 670 36,741	16 490 36,344	16 830 37,093	16 340 36,013	16 180 35,661	16 480 36,318
Breakout force*** (\$)	kN lb	216.1 48,554	212.9 47,286	227.2 51,034	228.1 51,242	227.2 51,052	243.0 54,592
Operating weight** (\$)	kg lb	25 490 56,180	25 610 56,444	25 455 56,103	24 981 55,058	25 154 55,439	24 988 55,074

*Dimensions are measured to the tip of the bucket teeth to provide accurate clearance data. SAE Standards specifies the cutting edge.
 **Static tipping load and operating weight shown are based on standard machine configuration with 26.5-R25, XHA (L-3) tires, full fuel tank, coolant, lubricants, air conditioning, ride control and operator.
 ***Measured 102 mm (4") behind tip of cutting edge with bucket hinge pin as pivot point in accordance with SAE J732 JUN92.

NOTE: Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader rating, denoted in the text by (\$).

	Change in Operating Weight		Change in Static Tipping Load — Straight	
	kg	lb	kg	lb
26.5-25, 20 PR (L-2)	-469	-1030	-349	-770
26.5-25, 20 PR (L-3)	-224	-490	-168	-370
26.5-R25, XHA 1★(L-3) standard	—	—	—	—
26.5-R25, GP-2B 1★(L-3) steel radial	-49	-100	-36	-80

NOTE: Tire options include tires and rims.

Bucket Type		Material Handling					Rock		Heavy Duty Rock	
		Bolt-on Edges	Teeth & Segments*	Teeth*	Bolt-on Edges	Teeth & Segments*	Teeth*	Bolt-on Edges	Teeth & Segments	Bolt-on Edges	Teeth & Segments
Ground Engaging Type										
Rated bucket capacity (\$)	m ³ yd ³	4.7 6.0	4.7 6.0	4.5 5.75	4.25 5.5	4.25 5.5	4.0 5.25	4.0 5.25	4.0 5.25	4.0 5.25
Struck capacity (\$)	m ³ yd ³	4.03 5.24	4.03 5.24	3.88 5.04	3.66 4.76	3.66 4.76	3.51 4.56	3.45 4.49	3.45 4.49	3.45 4.49
Bucket width (\$)	mm ft/in	3220 10'6"	3311 10'10"	3311 10'10"	3220 10'6"	3311 10'10"	3311 10'10"	3306 10'10"	3252 10'8"	3306 10'10"
Dump clearance at full lift and 45° discharge (\$)	mm ft/in	3144 10'3"	2997 9'10"	2997 9'10"	3208 10'6"	3061 10'0"	3061 10'0"	3215 10'6"	3034 9'11"	3215 10'6"
Reach at full lift and 45° discharge (\$)	mm ft/in	1255 4'1"	1364 4'5"	1364 4'5"	1192 3'10"	1301 4'3"	1301 4'3"	1458 4'9"	15987 5'2"	1458 4'9"
Reach with lift arms horizontal and bucket level	mm ft/in	2971 9'8"	3152 10'4"	3152 10'4"	2881 9'5"	3062 10'0"	3062 10'0"	3039 10'0"	3253 10'8"	3039 9'11"
Digging depth (\$)	mm in	108 4.0	108 4.0	78 3.5	108 4.2	108 4.2	78 3.0	108 4.2	78 3.0	108 4.2
Overall length (\$)	mm ft/in	9184 30'1"	9385 30'9"	9385 30'9"	9094 29'10"	9295 30'5"	9295 30'5"	9252 30'4"	9512 31'2"	9252 30'4"
Overall height with bucket at full raise (\$)	mm ft/in	6135 20'1"	6135 20'1"	6135 20'1"	6051 19'10"	6051 19'10"	6051 19'10"	6047 19'10"	6047 19'10"	6207 20'4"
Loader clearance circle with bucket in carry position (\$)	m ft/in	14.93 48'11"	15.14 49'7"	15.14 49'7"	14.89 48'10"	15.09 49'5"	15.09 49'5"	15.05 49'4"	15.17 49'9"	15.05 49'4"
Static tipping load, straight** (\$)	kg lb	18 040 39,760	17 880 39,408	18 180 40,069	18 240 40,201	18 080 39,848	18 390 40,532	18 800 41,435	18 720 41,259	18 660 41,127
Static tipping load, full 37° turn** (\$)	kg lb	15 900 35,044	15 740 34,691	16 020 35,308	16 090 35,462	15 920 35,088	16 220 35,749	16 610 36,600	16 530 36,430	16 460 36,278
Breakout force*** (\$)	kN lb	211.9 47,598	211.2 47,439	224.6 50,470	226.8 50,949	226.0 50,785	241.4 54,242	203.9 45,813	212.8 46,333	203.3 45,680
Operating weight*** (\$)	kg lb	25 135 55,396	25 308 55,779	25 142 55,413	25 027 55,160	25 200 55,541	25 034 55,175	25 148 55,426	25 241 55,631	25 320 55,805

*Dimensions are measured to the tip of the bucket teeth to provide accurate clearance data. SAE Standards specifies the cutting edge.

**Static tipping load and operating weight shown are based on standard machine configuration with 26.5-R25, XHA (L-3) tires, full fuel tank, coolant, lubricants, air conditioning, ride control and operator.

***Measured 102 mm (4") behind tip of cutting edge with bucket hinge pin as pivot point in accordance with SAE J732 JUN92.

NOTE: Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader rating, denoted in the text by (\$).

	Change in Operating Weight		Change in Static Tipping Load — Straight	
	kg	lb	kg	lb
26.5-25, 20 PR (L-2)	-469	-1030	-349	-770
26.5-25, 20 PR (L-3)	-224	-490	-168	-370
26.5-R25, XHA 1★(L-3) standard	—	—	—	—
26.5-R25, GP-2B 1★(L-3) steel radial	- 49	- 100	- 36	- 80

NOTE: Tire options include tires and rims.

Bucket Type	General Purpose				MH Preliminary	MH Preliminary	High Lift Arrangement****	
	Bolt-on Edges	Teeth & Segments*	Teeth*	Bolt-on Edges				
Ground Engaging Type								
Rated bucket capacity (\$)	m ³ yd ³	5.7 7.5	5.6 7.25	5.4 7.0	5.4 7.0	6.1 8.0	5.7 7.5	— —
Struck capacity (\$)	m ³ yd ³	4.92 6.44	4.85 6.34	4.68 6.12	4.61 6.03	5.40 7.06	4.92 6.44	— —
Bucket width (\$)	mm ft/in	3447 11'4"	3533 11'7"	3533 11'7"	3447 11'4"	3447 11'4"	3447 11'4"	— —
Dump clearance at full lift and 45° discharge (\$)	mm ft/in	3271 10'9"	3160 10'4"	3160 10'4"	3311 10'10"	3226 10'6"	3271 10'9"	+221 +9"
Reach at full lift and 45° discharge (\$)	mm ft/in	1545 5'1"	1656 5'5"	1656 5'5"	1516 5'0"	1594 5'2"	1545 5'1"	— —
Reach with lift arms horizontal and bucket level	mm ft/in	3021 9'11"	3177 10'5"	3177 10'5"	2971 9'9"	3083 10'1"	3021 9'11"	+160 +6"
Digging depth (\$)	mm in	138 5.0	133 5.0	103 4.0	138 5.0	138 5.0	138 5.0	+26 +1
Overall length (\$)	mm ft/in	9465 31'1"	9632 31'7"	9632 31'7"	9415 30'11"	9540 31'3"	9465 31'1"	+199 +8"
Overall height with bucket at full raise (\$)	mm ft/in	6205 20'4"	6205 20'4"	6205 20'4"	6135 20'2"	6388 21'1"	6205 20'4"	+221 +9"
Loader clearance circle with bucket in carry position (\$)	m ft/in	15.78 51'9"	15.94 52'3"	15.94 52'3"	15.75 51'8"	15.87 52'0"	15.78 51'9"	+225 +9"
Static tipping load, straight** (\$)	kg lb	20 217 44,558	20 288 44,715	20 688 45,596	20 705 45,634	22 005 48,499	22 176 48,876	-1830 -4034
Static tipping load at full 37° turn** (\$)	kg lb	18 032 39,743	18 100 39,890	18 481 40,732	18 513 40,803	19 648 43,304	19 826 43,697	-1680 -3704
Breakout force*** (\$)	kN lb	210 47,277	213 47,836	225 50,736	219 49,255	199 44,784	210 47,277	— —
Operating weight** (\$)	kg lb	30 207 66,576	30 280 66,737	30 102 66,345	29 952 66,014	30,755 67,784	30,674 67,605	+727 +1602

*Dimensions are measured to the tip of the bucket teeth to provide accurate clearance data. SAE Standards specifies the cutting edge.

**Static tipping load and operating weight shown are based on standard machine configuration with 29.5-R25 1-Star (L-3) tires, full fuel tank, coolant, lubricants and operator.

***Measured 102 mm (4") behind tip of cutting edge with bucket hinge pin as pivot point in accordance with SAE J732 JUN92.

****All buckets shown can be used on the high lift arrangement. High lift column shows changes in specifications from standard lift to high lift. Add or subtract as indicated to or from specifications given for appropriate bucket to calculate high lift specifications.

NOTE: Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader ratings, denoted in the text by (\$).

	Change in Operating Weight Standard		Change in Articulated Static Tipping Load			
	kg	lb	Standard		High Lift	
	kg	lb	kg	lb	kg	lb
29.5-25, 22 PR (L-3)	-366	- 806	-255	- 562	-235	- 517
29.5-25, 22 PR (L-4)	+298	+ 657	+266	+ 586	+245	+ 540
29.5-25, 22 PR (L-5)	+906	+1997	+751	+1655	+691	+1523
29.5-R25, 1-Star (L-2/L-3)	-124	- 273	- 65	- 143	- 60	- 131
29.5-R25, 1-Star (L-5)	+822	+1812	+685	+1510	+631	+1390

Bucket Type	General Purpose					MH Preliminary	MH Preliminary	High Lift Arrangement****
	Teeth & Segments*	Teeth*	Bolt-on Edges	Teeth & Segments*				
Ground Engaging Type								
Rated bucket capacity (\$)	m ³ yd ³	5.3 6.75	5.0 6.5	5.0 6.5	4.9 6.25	6.1 8.0	5.7 7.5	— —
Struck capacity (\$)	m ³ yd ³	4.55 5.95	4.38 5.73	4.25 5.56	4.19 5.48	5.40 7.06	4.92 6.44	— —
Bucket width (\$)	mm ft/in	3533 11'7"	3533 11'7"	3447 11'4"	3533 11'7"	3447 11'4"	3447 11'4"	— —
Dump clearance at full lift and 45° discharge (\$)	mm ft/in	3201 10'6"	3201 10'6"	3374 11'1"	3265 10'9"	3226 10'6"	3271 10'9"	+221 +9"
Reach at full lift and 45° discharge (\$)	mm ft/in	1627 5'4"	1627 5'4"	1469 4'10"	1581 5'2"	1594 5'2"	1545 5'1"	— —
Reach with lift arms horizontal and bucket level	mm ft/in	3127 10'3"	3127 10'3"	2891 9'6"	3047 10'0"	3083 10'1"	3021 9'11"	+160 +6"
Digging depth (\$)	mm in	133 5.0	103 4.0	138 5.0	133 5.0	138 5.0	138 5.0	+26 +1
Overall length (\$)	mm ft/in	9582 31'5"	9582 31'5"	9335 30'8"	9502 31'2"	9540 31'3"	9465 31'1"	+199 +8"
Overall height with bucket at full raise (\$)	mm ft/in	6135 20'2"	6135 20'2"	6067 19'11"	6067 19'11"	6388 21'1"	6205 20'4"	+221 +9"
Loader clearance circle with bucket in carry position (\$)	m ft/in	15.91 52'2"	15.91 52'2"	15.71 51'7"	15.86 52'1"	15.87 52'0"	15.78 51'9"	+225 +9"
Static tipping load, straight** (\$)	kg lb	20 642 45,495	21 049 46,492	20 923 46,114	20 861 45,978	22 005 48,499	22 176 48,876	-1830 -4034
Static tipping load at full 37° turn** (\$)	kg lb	18 446 40,655	18 836 41,515	18 720 41,259	18 650 41,116	19 648 43,304	19 826 43,697	-1680 -3704
Breakout force*** (\$)	kN lb	222 49,868	235 52,978	233 52,391	236 53,104	199 44,784	210 47,277	— —
Operating weight** (\$)	kg lb	30 025 66,175	29 847 65,783	29 860 65,811	29 933 65,972	30 755 67,784	30 674 67,605	+727 +1602

*Dimensions are measured to the tip of the bucket teeth to provide accurate clearance data. SAE Standards specifies the cutting edge.

**Static tipping load and operating weight shown are based on standard machine configuration with 29.5-R25 1-Star (L-3) tires, full fuel tank, coolant, lubricants and operator.

***Measured 102 mm (4") behind tip of cutting edge with bucket hinge pin as pivot point in accordance with SAE J732 JUN92.

****All buckets shown can be used on the high lift arrangement. High lift column shows changes in specifications from standard lift to high lift. Add or subtract as indicated to or from specifications given for appropriate bucket to calculate high lift specifications.

NOTE: Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader ratings, denoted in the text by (\$).

	Change in Operating Weight Standard		Change in Articulated Static Tipping Load			
	kg	lb	Standard		High Lift	
			kg	lb	kg	lb
29.5-25, 22 PR (L-3)	-366	- 806	-255	- 562	-235	- 517
29.5-25, 22 PR (L-4)	+298	+ 657	+266	+ 586	+245	+ 540
29.5-25, 22 PR (L-5)	+906	+1997	+751	+1655	+691	+1523
29.5-R25, 1-Star (L-2/L-3)	-124	- 273	- 65	- 143	- 60	- 131
29.5-R25, 1-Star (L-5)	+822	+1812	+685	+1510	+631	+1390

Bucket Type	General Purpose				Rock — Spade Nose				High Lift Arrangement****
	Teeth*	Bolt-on Edges	Teeth & Segments*	Teeth*	Teeth & Segments*	Teeth*	No Teeth		
Ground Engaging Tools									
Rated bucket capacity (\$)	m ³ yd ³	4.7 6.0	4.7 6.0	4.5 5.75	4.2 5.5	4.5 5.75	4.2 5.5	4.2 5.5	— —
Struck capacity (\$)	m ³ yd ³	4.03 5.27	3.87 5.06	3.81 4.98	3.66 4.79	3.73 4.88	3.53 4.62	3.53 4.62	— —
Bucket width (\$)	mm ft/in	3533 11'7"	3447 11'4"	3533 11'7"	3533 11'7"	3492 11'5"	3492 11'5"	3492 11'5"	— —
Dump clearance at full lift and 45° discharge (\$)	mm ft/in	3265 10'9"	3448 11'4"	3342 11'0"	3342 11'0"	3206 10'6"	3206 10'6"	3415 11'2"	+221 +9"
Reach at full lift and 45° discharge (\$)	mm ft/in	1581 5'2"	1419 4'8"	1534 5'0"	1534 5'0"	1798 5'11"	1798 5'11"	1580 5'2"	+26 +1"
Reach with lift arms horizontal and bucket level	mm ft/in	3047 10'0"	2801 9'2"	2957 9'8"	2957 9'8"	3243 10'8"	3243 10'8"	2940 9'8"	+160 +6"
Digging depth (\$)	mm in	103 4.0	138 5.0	133 5.0	103 4.0	133 5.0	103 4.0	103 4.0	— —
Overall length (\$)	mm ft/in	9502 31'2"	9245 30'4"	9412 30'11"	9412 30'11"	9687 31'9"	9687 31'9"	9357 30'8"	+199 +8"
Overall height with bucket at full raise (\$)	mm ft/in	6067 19'11"	5994 19'8"	5994 19'8"	5994 19'8"	6360 20'10"	6360 20'10"	6360 20'10"	+221 +9"
Loader clearance circle with bucket in carry position (\$)	m ft/in	15.86 52'1"	15.66 51'5"	15.82 51'11"	15.82 51'11"	15.76 51'8"	15.76 51'8"	15.56 51'1"	+225 +9"
Static tipping load, straight** (\$)	kg lb	21 269 46,877	21 175 46,670	21 054 46,403	21 528 47,448	20 508 45,200	20 026 46,341	21 334 47,020	-1830 -4034
Static tipping load, full 37° turn** (\$)	kg lb	19 044 41,973	18 959 41,786	18 833 41,508	19 289 42,513	18 311 40,357	18 811 41,459	19 119 42,138	-1680 -3704
Breakout force*** (\$)	kN lb	251 56,583	251 56,386	254 57,216	272 61,214	207 46,485	224 50,473	228 51,228	— —
Operating weight** (\$)	kg lb	29 755 65,580	29 759 65,589	29 832 65,750	29 654 65,357	30 169 66,492	29 910 65,922	29 686 65,428	+727 +1602

*Dimensions are measured to the tip of the bucket teeth to provide accurate clearance data. SAE Standards specifies the cutting edge.

**Static tipping load and operating weight shown are based on standard machine configuration with 29.5-R25 1-Star (L-3) tires, full fuel tank, coolant, lubricants and operator.

***Measured 102 mm (4") behind tip of cutting edge with bucket hinge pin as pivot point in accordance with SAE J732 JUN92.

****All buckets shown can be used on the high lift arrangement. High lift column shows changes in specifications from standard lift to high lift. Add or subtract as indicated to or from specifications given for appropriate bucket to calculate high lift specifications.

NOTE: Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader ratings, denoted in the text by (\$).

	Change in Operating Weight Standard		Change in Articulated Static Tipping Load			
	kg	lb	Standard		High Lift	
			kg	lb	kg	lb
29.5-25, 22 PR (L-3)	-366	- 806	-255	- 562	-235	- 517
29.5-25, 22 PR (L-4)	+298	+ 657	+266	+ 586	+245	+ 540
29.5-25, 22 PR (L-5)	+951	+1997	+751	+1655	+691	+1523
29.5-R25, 1-Star (L-2/L-3)	-124	- 273	- 65	- 143	- 60	- 131
29.5-R25, 1-Star (L-5)	+822	+1812	+685	+1510	+631	+1390

		Straight Rock Teeth & Segments	Spade Rock Teeth & Segments	Spade Rock Teeth & Segments	Wide Spade Rock Teeth & Segments	General Purpose BOCE	HD Quarry Teeth & Segments	HD Abrasion Teeth & Segments
Heaped capacity	m ³ yd ³	6.3 8.2	6.4 8.33	6.6 8.7	6.9 9.0	7.0 9.2	6.4 8.33	6.4 8.33
Struck capacity (\$)	m ³ yd ³	5.2 6.8	5.3 6.9	5.5 7.2	5.7 7.5	5.9 7.7	5.3 6.9	5.3 6.9
Operating load at rated capacity	kg lb	11 340 25,000	11 340 25,000	11 340 25,000	11 340 25,000	11 340 25,000	11 340 25,000	11 340 25,000
Bucket width (\$)	mm ft/in	3800 12'6"	3800 12'6"	3900 12'10"	3980 13'1"	3729 12'3"	3800 12'6"	3926 12'11"
Dump clearance at full lift and 45° discharge (\$)	With teeth	mm ft/in	4198 13'9"	3971 13'0"	3971 13'0"	3971 13'0"	N/A N/A	3949 12'11"
	Bare	mm ft/in	4451 14'7"	4246 13'11"	4249 13'11"	4249 13'11"	4304 14'1"	4253 13'11"
Reach at full lift and 45° discharge (\$)	With teeth	mm ft/in	1886 6'2"	2113 6'11"	2113 6'11"	2113 6'11"	N/A N/A	2136 7'0"
	Bare	mm ft/in	1698 5'7"	1622 5'4"	1662 5'5"	1656 5'5"	1846 6'1"	1626 5'4"
Reach with lift arms horizontal and bucket level	With teeth	mm ft/in	4173 13'8"	4494 14'9"	4494 14'9"	4494 14'9"	N/A N/A	4526 14'10"
	Bare	mm ft/in	3861 12'8"	3752 12'4"	3810 12'6"	3801 12'6"	4070 13'4"	3759 12'4"
Digging depth (\$)	mm in	171 6.7"	171 6.7"	171 6.7"	171 6.7"	171 6.7"	191 7.5"	171 6.7"
Overall length (\$)	With teeth	mm ft/in	12 240 40'2"	12 527 41'1"	12 530 41'1"	12 530 41'1"	N/A N/A	12 594 41'4"
	Bare	mm ft/in	11 895 39'0"	12 185 40'0"	12 182 40'0"	12 182 40'0"	12 105 39'9"	12 173 39'11"
Overall height with bucket at full raise (\$)	mm ft/in	8131 26'8"	8131 26'8"	8131 26'8"	8131 26'8"	7909 25'11"	8131 26'8"	8131 26'8"
Loader clearance circle with bucket in carry position (\$)	With teeth	mm ft/in	17 556 57'7"	17 531 57'6"	17 602 57'9"	17 684 58'0"	N/A N/A	17 599 57'9"
	Bare	mm ft/in	17 392 57'1"	17 335 56'10"	17 454 57'3"	17 520 57'6"	17 406 57'1"	17 393 57'1"
Static tipping load, straight† (\$)	kg lb	33 458 73,762	32 810 72,334	32 831 72,380	32 666 72,016	33 109 72,993	31 305 69,016	31 258 68,912
Static tipping load, 35° turn† (\$)	kg lb	29 074 64,097	28 710 63,294	28 669 63,204	28 695 63,261	29 029 63,997	27 396 60,397	27 346 60,287
Static tipping load, 40° turn† (\$)	kg lb	28 022 61,777	27 661 60,981	27 621 60,893	27 646 60,948	27 989 61,705	26 348 58,087	26 298 57,977
Static tipping load, full 43° turn† (\$)	kg lb	28 060 61,862	27 473 60,568	27 484 60,592	27 319 60,228	27 810 61,310	25 968 57,250	25 911 57,124
Breakout force†† (\$)	kN lb	515.4 115,867	436.4 98,107	437.2 98,286	436.4 98,107	463.3 104,154	415.2 93,341	400.0 89,924
Operating weight†	kg lb	49 671 109,506	49 886 109,980	49 921 110,557	50 079 110,405	49 418 108,948	51 245 112,976	51 333 113,170
Rack angle at maximum lift	degrees	65	65	65	65	65	65	65

†Static tipping load and operating weight are based on standard machine configuration with 35/65-33, 36 PR (L-4) tires, full fuel tank, coolant, lubricants and operator.
††Measured 102 mm (4") behind tip of cutting edge with bucket hinge pin as pivot point in accordance with SAE J732 JUN92.

NOTE: Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader ratings, denoted in the text by (\$).

	Change in Operating Weight		Change in Articulated Static Tipping Load	
	Standard	Standard	Standard	Standard
	kg	lb	kg	lb
Remove cab only	-1327	-2926	- 476	-1049
35/65-33, 42 PR (L-5) tires	+ 847	+1867	+ 491	+1082
35/65 R33, (L-5) equivalent tires	+ 824	+1817	+ 478	+1054

Bucket Type			Standard					
			Spade HDLT	Spade BOCE	Spade HDLT & BOS	Spade HDLT & BOS	High Abrasion	HD Quarry
Bucket Part Number			8R5596	8R5599	155-4601	155-4603	202-7399	210-0247
Rated capacity	m ³		8.4	8.6	8.6	9.2	8.6	8.6
		yd ³	11.0	11.25	11.25	12.0	11.25	11.25
Operating load at rated capacity	kg		15 000	15 000	15 000	15 000	15 000	15 000
		lb	33,069	33,069	33,069	33,069	33,069	33,069
Heaped capacity	m ³		8.4	8.6	8.6	9.2	8.6	8.6
		yd ³	11.0	11.25	11.25	12.0	11.25	11.25
Struck capacity	m ³		6.9	7.3	7.3	7.8	7.3	7.3
		yd ³	9.0	9.5	9.5	10.2	9.5	9.5
Bucket width	mm		4450	4450	4450	4610	4574	4450
		ft/in	14'7"	14'7"	14'7"	15'2"	15'0"	14'7"
Clearance at full lift, 45° dump	SAE	mm	4333	4192	4221	4165	4168	4170
		ft/in	14'3"	13'9"	13'10"	13'8"	13'8"	13'8"
	Tooth tip	mm	4027	N/A	4024	3968	4018	4023
		ft/in	13'3"	N/A	13'2"	13'0"	13'2"	13'2"
Reach at full lift, 45° dump	SAE	mm	1698	1740	1756	1799	1790	1746
		ft/in	5'7"	5'9"	5'9"	5'11"	5'10"	5'9"
	Tooth tip	mm	2223	N/A	2218	2274	2221	2220
		ft/in	7'4"	N/A	7'3"	7'6"	7'3"	7'3"
Reach at 45° dump and 2130 mm (7'0") height	SAE	mm	2672	2750	2729	2759	2762	2718
		ft/in	8'9"	9'9"	8'11"	9'1"	9'1"	8'11"
	Tooth tip	mm	3196	N/A	3192	3234	3192	3193
		ft/in	10'6"	N/A	10'6"	10'7"	10'6"	10'6"
Reach at level arm and level bucket	SAE	mm	3416	3516	3538	3599	3586	3544
		ft/in	11'2"	11'6"	11'7"	11'10"	11'9"	11'8"
	Tooth tip	mm	4202	N/A	4202	4280	4208	4204
		ft/in	13'9"	N/A	13'9"	14'1"	13'10"	13'10"
Digging depth — bucket level	mm		107	148	148	148	148	168
		in	4.0	6.0	6.0	6.0	6.0	7.0
Overall length	Edge	mm	12 341	12 534	12 492	12 572	12 568	12 560
		ft/in	40'6"	41'1"	41'0"	41'3"	41'3"	41'2"
	Tooth tip	mm	12 730	N/A	12 761	12 839	12 767	12 778
		ft/in	41'9"	N/A	41'10"	42'1"	41'11"	41'11"
Overall height	mm		8091	8091	8091	8091	8091	8091
		ft/in	26'7"	26'7"	26'7"	26'7"	26'7"	26'7"
Clearance circle at carry	Edge	mm	20 224	20 527	20 224	20 290	20 258	20 227
		ft/in	66'4"	67'4"	66'4"	66'7"	66'6"	66'4"
	Tooth tip	mm	20 674	N/A	20 674	20 740	20 708	20 677
		ft/in	67'10"	N/A	67'10"	68'1"	67'11"	67'10"
Full dump at maximum lift	degrees	45	45	45	45	45	45	
Tipping load (at operating weight)	Straight	kg	43 997	43 242	42 873	42 392	41 347	43 516
		lb	96,996	95,331	94,518	93,457	91,154	95,935
	35° Articulated	kg	39 785	39 085	38 709	38 243	37 203	39 364
		lb	87,710	86,167	85,338	84,311	82,018	86,782
Breakout force	kN		655	602	610	584	581	598
		kg	66 760	61 430	62 210	59 509	59 271	61 006
		lb	147,179	135,429	137,148	131,194	130,669	134,494
Operating weight	kg		76 484	76 628	76 965	77 236	78 160	76 144
		lb	168,617	168,934	169,677	170,274	172,312	167,867
Weight distribution	Front	kg	42 881	43 136	43 764	44 245	45 785	42 466
		lb	94,535	95,098	96,482	97,543	100,938	93,621
	Rear	kg	33 603	33 492	33 201	32 991	32 375	33 678
		lb	74,081	73,836	73,195	72,732	71,374	74,247
Shipping weight	kg		75 462	75 606	75 943	76 214	77 138	75 122
		lb	166,364	166,681	167,424	168,021	170,058	165,614

HDLT = Heavy Duty Lug Teeth
BOCE = Bolt-on Cutting Edge
HDLT & BOS = Heavy Duty Lug Teeth and Bolt-on Segments
HD = Heavy Duty

			High Lift				
			Spade HDLT	Spade BOCE	Spade HDLT & BOS	High Abrasion	HD Quarry
Bucket Type			8R5596	8R5599	155-4601	202-7399	210-0247
Bucket Part Number			8R5596	8R5599	155-4601	202-7399	210-0247
Rated capacity		m ³	8.4	8.6	8.6	8.6	8.6
		yd ³	11.0	11.25	11.25	11.25	11.25
Operating load at rated capacity		kg	15 000	15 000	15 000	15 000	15 000
		lb	33,069	33,069	33,069	33,069	33,069
Heaped capacity		m ³	8.4	8.6	8.6	8.6	8.6
		yd ³	11.0	11.25	11.25	11.25	11.25
Struck capacity		m ³	6.9	7.3	7.3	7.3	7.3
		yd ³	9.0	9.5	9.5	9.5	9.5
Bucket width		mm	4450	4450	4450	4574	4450
		ft/in	14'7"	14'7"	14'7"	15'0"	14'7"
Clearance at full lift, 45° dump	SAE	mm	4899	4758	4787	4734	4736
		ft/in	16'1"	15'7"	15'8"	15'6"	15'6"
	Tooth tip	mm	4593	N/A	4590	4584	4589
		ft/in	15'1"	N/A	15'1"	15'0"	15'1"
Reach at full lift, 45° dump	SAE	mm	1991	2033	2049	2083	2039
		ft/in	6'6"	6'8"	6'9"	6'10"	6'8"
	Tooth tip	mm	2516	N/A	2511	2514	2513
		ft/in	8'3"	N/A	8'3"	8'3"	8'3"
Reach at 45° dump and 2130 mm (7'0") height	SAE	mm	3286	3359	3343	3376	3333
		ft/in	10'9"	11'0"	11'0"	11'1"	10'11"
	Tooth tip	mm	3810	N/A	3806	3806	3807
		ft/in	12'6"	N/A	12'6"	12'6"	12'6"
Reach at level arm and level bucket	SAE	mm	4016	4116	4138	4186	4144
		ft/in	13'2"	13'6"	13'7"	13'9"	13'7"
	Tooth tip	mm	4802	N/A	4802	4808	4804
		ft/in	15'9"	N/A	15'9"	15'9"	15'9"
Digging depth — bucket level		mm	150	191	191	191	211
		in	6.0	8.0	8.0	8.0	8.0
Overall length	Edge	mm	13 080	13 273	13 231	13 307	13 299
		ft/in	42'11"	43'7"	43'5"	43'8"	43'8"
	Tooth tip	mm	13 469	N/A	13 500	13 506	13 517
		ft/in	41'11"	N/A	44'3"	44'4"	44'4"
Overall height		mm	8658	8658	8658	8658	8658
		ft/in	28'5"	28'5"	28'5"	28'5"	28'5"
Clearance circle at carry	Edge	mm	20 893	21 171	20 893	20 929	20 897
		ft/in	68'7"	69'6"	69'7"	68'8"	68'7"
	Tooth tip	mm	21 343	N/A	21 343	21 379	21 347
		ft/in	70'0"	N/A	70'0"	70'2"	70'0"
Full dump at maximum lift	degrees	50	50	50	50	50	
Tipping load (at operating weight)	Straight	kg	40 533	39 902	39 530	38 076	40 212
		lb	89,359	87,968	87,148	83,942	88,651
	35° Articulated	kg	36 227	35 644	35 267	33 831	35 959
		lb	79,866	78,581	77,750	74,584	79,275
Breakout force		kN	617	569	576	548	565
		kg	62 947	57 977	58 694	55 891	57 611
		lb	138,773	127,816	129,397	123,217	127,009
Operating weight		kg	80 671	80 814	81 152	82 347	80 331
		lb	177,847	178,163	178,908	181,542	177,098
Weight distribution	Front	kg	44 177	44 456	45 141	47 366	43 705
		lb	97,393	98,008	99,518	104,423	96,352
	Rear	kg	36 494	36 358	36 011	34 981	36 626
		lb	80,455	80,155	79,390	77,119	80,746
Shipping weight		kg	79 649	79 792	80 130	81 325	79 309
		lb	175,594	175,909	176,655	179,289	174,845

HDLT = Heavy Duty Lug Teeth
BOCE = Bolt-on Cutting Edge
HDLT & BOS = Heavy Duty Lug Teeth and Bolt-on Segments
HD = Heavy Duty

		Standard Spade Edge		Large Standard Spade Edge		Heavy Duty Quarry		High Abrasion		
		Teeth & Segments		Teeth & Segments		Teeth & Segments		Teeth		
		Std.	Hi-Lift	Std.	Hi-Lift	Std.	Hi-Lift	Std.	Hi-Lift	
Rock Buckets										
Rated bucket capacity (\$)	m ³ yd ³	11.5 15.0	11.5 15.0	12.2 16.0	12.2 16.0	11.5 15.0	11.5 15.0	11.5 15.0	11.5 15.0	
Struck capacity (\$)	m ³ yd ³	9.45 12.36	9.45 12.36	10.1 13.2	10.1 13.2	9.45 12.4	9.45 12.4	9.45 12.36	9.45 12.36	
Bucket width (\$)	mm ft/in	4824 15'10"	4824 15'10"	4824 15'10"	4824 15'10"	4824 15'10"	4824 15'10"	4840 15'11"	4840 15'11"	
Dump clearance at full lift and 45° discharge (\$)	With teeth	mm ft/in	4626 15'2"	5250 17'3"	4626 15'2"	5250 17'3"	4557 14'11"	5182 17'0"	4602 15'1"	5227 17'2"
	Bare	mm ft/in	4993 16'5"	5607 18'5"	4993 16'5"	5607 18'5"	4993 16'5"	5607 18'5"	4993 16'5"	5607 18'5"
Reach at full lift and 45° discharge (\$)	With teeth	mm ft/in	2315 7'7"	2304 7'7"	2315 7'7"	2304 7'7"	2364 7'9"	2354 7'9"	2391 7'10"	2381 7'10"
	Bare	mm ft/in	1732 5'8"	1720 5'8"	1732 5'8"	1720 5'8"	1732 5'8"	1720 5'8"	1732 5'8"	1720 5'8"
Reach with boom – horizontal and bucket level	With teeth	mm ft/in	5110 16'9"	5590 18'4"	5110 16'9"	5590 18'4"	5192 17'0"	5673 18'7"	5181 17'0"	5661 18'7"
	Bare	mm ft/in	4177 13'8"	4657 15'3"	4177 13'8"	4657 15'3"	4177 13'8"	4657 15'3"	4177 13'8"	4657 15'3"
Digging depth (\$)	mm in	165 6	161 6	165 6	161 6	180 7	177 7	155 6	152 6	
Overall length (\$)	With teeth	mm ft/in	15 585 51'2"	16 175 53'1"	15 585 51'2"	16 175 53'1"	15 604 51'2"	16 194 53'2"	15 636 51'4"	16 226 53'3"
	Bare	mm ft/in	15 143 49'8"	15 733 51'7"	15 143 49'8"	15 733 51'7"	15 143 49'8"	15 733 51'7"	15 143 49'8"	15 733 51'7"
Overall height with bucket at full raise (\$)	mm ft/in	9415 30'11"	10 035 32'11"	9415 30'11"	10 035 32'11"	9415 30'11"	10 035 32'11"	9415 30'11"	10 035 32'11"	
Loader clearance circle with bucket in carry position (\$)	With teeth	m ft/in	22.27 73'1"	22.88 75'1"	22.27 73'1"	22.88 75'1"	22.27 73'1"	22.88 75'1"	22.31 73'2"	22.92 75'2"
	Bare	m ft/in	21.88 71'9"	22.46 73'8"	21.88 71'9"	22.46 73'8"	21.88 71'9"	22.46 73'8"	21.94 72'	22.51 73'10"
Static tipping load, straight†	kg lb	60 292 132,921	58 693 129,396	60 091 132,478	58 488 128,944	59 226 130,571	57 552 126,880	58 164 128,230	56 620 124,826	
	kg lb	52 541 115,833	50 720 111,818	52 303 115,308	50 477 111,283	51 424 113,370	49 534 109,204	50 442 111,205	48 673 107,306	
Static tipping load, full 40° turn†	kg lb	51 392 113,300	49 538 109,213	51 149 112,764	49 289 108,664	50 267 110,820	48 346 106,585	49 297 108,681	47 494 104,706	
	kg lb	615 138,360	602 135,421	612 137,692	599 134,753	595 133,783	583 130,957	591 132,804	578 129,921	
Operating weight† (\$)	kg lb	94 927 209,278	98 596 217,367	95 447 210,424	99 116 218,513	96 304 212,314	99 973 220,403	96 607 212,982	100 277 221,073	

†Static tipping load and operating weight shown are based on standard machine configuration with 45/65-45, 46 PR (L-5) tires, full fuel tank, coolant, lubricants and operator.

††Measured 102 mm (4") behind tip of cutting edge with bucket hinge pin as pivot point in accordance with SAE J732 JUN92.

NOTE: Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader ratings, denoted in the text by (\$). Dimensions are also measured to the tip of the bucket teeth to provide accurate clearance data. SAE Standards specifies the cutting edge.

	Change in Operating Weight				Change in Articulated Static Tipping Load			
	Standard (for four tires)		Standard		High Lift		High Lift	
	kg	lb	kg	lb	kg	lb	kg	lb
45/65-45, 46 ply L-5 Firestone	0	0	0	0	0	0	0	0
45/65-45, 46 ply L-5 General	+ 427	+ 940	+ 284	+ 625	+256	+ 564		
45/65-45, 46 ply L-5 Goodyear	- 162	- 356	- 108	- 238	- 97	- 214		
45/65 R45 1-Star L-4 (XLDD1) Michelin	-1942	-4272	-1290	-2838	-882	-1942		
45/65 R45 1-Star L-5 (XLDD2) Michelin	- 681	-1500	- 452	- 994	-409	- 900		
45/65 R45 1-Star L-5 (XMINED2) Michelin	+ 752	+1656	+ 523	+1151	+451	+ 994		
45/65-45, 50PR L-5 Firestone	- 278	- 612	- 167	- 367	-167	- 367		
45/65-45, 50PR L-5 Firestone	+ 441	+ 972	+ 265	+ 583	+265	+ 583		

Wheel Loaders Integrated Toolcarriers

Performance Data ● 994D with 5650 mm (18'6") Bucket

		Spade Edge Rock Buckets With Teeth and Segment			Spade Edge Rock Buckets With MAA		High Lift	50/80-57 Tires
Rated bucket capacity (\$)	m ³ yd ³	15.0 19.5	17.0 22.5	19.0 24.5	17.0 22.5	19.0 24.5	Same Same	Same Same
Struck capacity (\$)	m ³ yd ³	12.8 15.5	14.0 18.0	15.0 20.0	14.0 18.0	15.0 20.0	Same Same	Same Same
Bucket width (\$)	mm ft/in	5650 18'6"	5650 18'6"	5650 18'6"	5740 18'10"	5740 18'10"	Same Same	Same Same
Dump clearance at full lift and 45° discharge (\$)	mm ft/in	5799 19'0"	5698 18'8"	5592 18'4"	5607 18'5"	5502 18'1"	+339 +1'1"	-180 -7"
Reach at full lift and 45° discharge (\$)	mm ft/in	2055 6'9"	2157 7'1"	2263 7'5"	2246 7'4"	2351 7'9"	+562 +1'10"	+180 +7"
Reach with lift arms horizontal and bucket level	mm ft/in	4912 16'1"	5056 16'7"	5206 17'1"	5183 17'0"	5333 17'6"	+640 +2'2"	+180 +7"
Digging depth (\$)	mm in	68 3.0	68 3.0	68 3.0	68 3.0	68 3.0	+14 +0.5	+180 +7"
Overall length (\$)	mm ft/in	16 621 54'6"	16 659 54'8"	16 809 55'2"	16 892 55'5"	17 042 55'11"	+780 +2'3"	+120 +5"
Overall height with bucket at full raise (\$)	mm ft/in	10 786 35'5"	10 916 35'10"	10 996 36'1"	11 036 36'2"	11 174 36'8"	+340 +1'1"	-180 -7"
Loader clearance circle with bucket in carry position (\$)	m ft/in	25.14 82'6"	25.36 83'2"	25.44 83'6"	25.56 83'10"	25.78 84'8"	+299 +1'0"	+64 +3"
Static tipping load, straight** (\$)	kg lb	126 758 279,453	125 829 277,405	124 764 275,057	125 278 276,190	124 495 274,464	†0.82 †0.82	†1.02 †1.02
Static tipping load, full 40° turn** (\$)	kg lb	107 095 236,104	106 166 234,056	105 101 231,708	105 615 232,841	104 832 231,115	†0.80 †0.80	†1.02 †1.02
Breakout force*** (\$)	kN lb	1057 237,825	950 213,750	886 199,350	961 216,225	923 207,675	†0.96 †0.96	†1.00 †1.00
Operating weight** (\$)	kg lb	189 343 417,429	190 229 419,383	191 244 421,620	190 754 420,580	191 500 422,185	+2553 +5630	-4681 -10,320

*Dimensions are measured to the tip of the bucket teeth to provide accurate clearance data. SAE Standards specifies the cutting edge.

**Static tipping load and operating weight shown are based on standard machine configuration with 53.5/85-57 tires, full fuel tank, coolant and lubricants.

***Measured 102 mm (4") behind tip of cutting edge with bucket hinge pin as pivot point in accordance with SAE J732 JUN92.

†Factor multiplied by standard arrangement data to get high lift arrangement value.

NOTE: Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader ratings, denoted in the text by (\$).

		Spade Edge Rock Buckets With Teeth and Segment		Straight Edge Coal Bucket	Spade Edge Rock Buckets With MAA		High Lift	50/80-57 Tires
Rated bucket capacity (\$)	m ³ yd ³	18.0 23.5	19.0 25.0	31.0 41.0	18.0 23.5	19.0 25.0	Same Same	Same Same
Struck capacity (\$)	m ³ yd ³	14.0 18.0	15.0 19.5	26.0 34.0	14.0 18.0	15.0 19.5	Same Same	Same Same
Bucket width (\$)	mm ft/in	6220 20'5"	6220 20'5"	6220 20'5"	6300 20'8"	6300 20'8"	Same Same	Same Same
Dump clearance at full lift and 45° discharge (\$)	mm ft/in	5698 18'8"	5592 18'4"	5610 18'5"	5608 18'5"	5502 18'1"	+339 +1'1"	-180 -7"
Reach at full lift and 45° discharge (\$)	mm ft/in	2157 7'1"	2263 7'5"	2243 7'4"	2246 7'4"	2352 7'9"	+562 +1'10"	+180 +7"
Reach with lift arms horizontal and bucket level	mm ft/in	5056 16'7"	5206 17'1"	5177 17'0"	5183 17'0"	5333 17'6"	+640 +2'2"	+180 +7"
Digging depth (\$)	mm in	68 3.0	68 3.0	68 3.0	68 3.0	68 3.0	+14 +0.5	+180 +7"
Overall length (\$)	mm ft/in	16 659 54'8"	16 809 55'2"	16 888 55'5"	16 892 55'5"	17 042 55'11"	+780 +2'3"	+120 +5"
Overall height with bucket at full raise (\$)	mm ft/in	10 919 35'10"	11 011 36'2"	11 032 36'2"	11 036 36'2"	11 174 36'8"	+340 +1'1"	-180 -7"
Loader clearance circle with bucket in carry position (\$)	m ft/in	25.36 83'2"	25.44 83'6"	26.36 86'6"	25.56 83'10"	25.78 84'8"	+299 +1'0"	+64 +3"
Static tipping load, straight** (\$)	kg lb	124 561 274,610	123 877 273,162	123 448 272,156	123 753 272,828	123 298 271,825	†0.82 †0.82	†1.02 †1.02
Static tipping load, full 40° turn** (\$)	kg lb	104 898 231,260	104 214 229,752	103 785 228,807	104 090 229,479	103 635 228,876	†0.80 †0.80	†1.02 †1.02
Breakout force*** (\$)	kN lb	944 212,400	877 197,325	959 215,775	958 215,550	913 205,425	†0.96 †0.96	†1.00 †1.00
Operating weight** (\$)	kg lb	191 437 422,046	192 089 423,483	192 498 424,385	192 207 423,743	192 641 424,700	+2553 +5630	-4681 -10,320

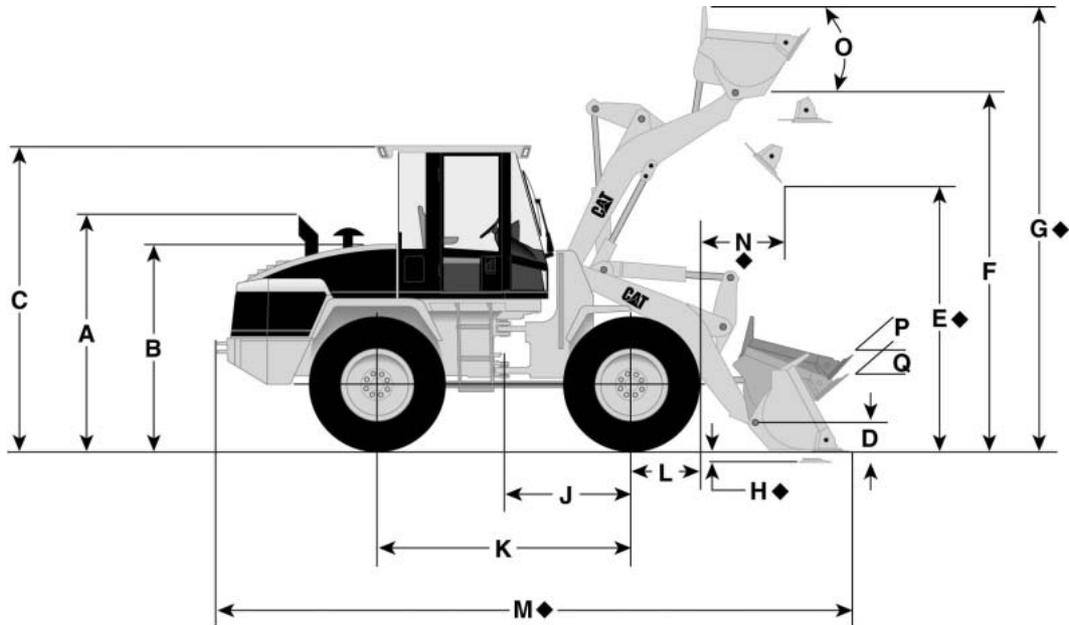
*Dimensions are measured to the tip of the bucket teeth to provide accurate clearance data. SAE Standards specifies the cutting edge.

**Static tipping load and operating weight shown are based on standard machine configuration with 53.5/85-57 tires, full fuel tank, coolant and lubricants.

***Measured 102 mm (4") behind tip of cutting edge with bucket hinge pin as pivot point in accordance with SAE J732 JUN92.

†Factor multiplied by standard arrangement data to get high lift arrangement value.

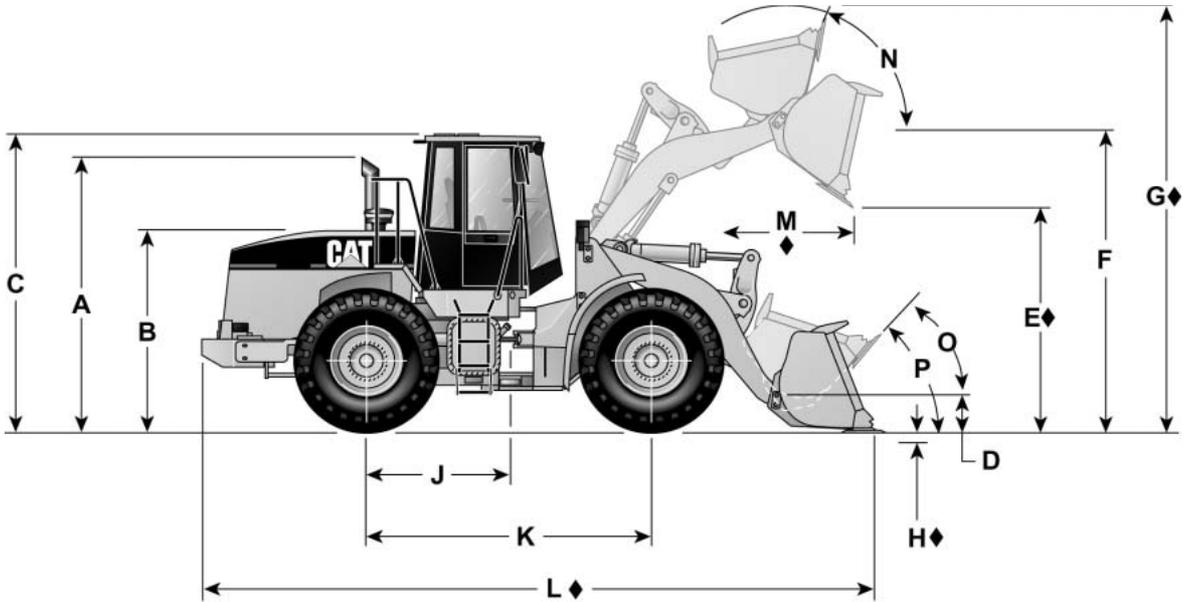
NOTE: Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE). SAE Standards J732 JUN92 and J742 FEB85 govern loader ratings, denoted in the text by (\$).



Dimensions shown represent standard machine with General Purpose bucket (bolt-on cutting edge) and standard tires.

◆ Varies with Bucket Size and/or Bucket Configuration — Refer to Performance Data

MODEL	902 General Purpose Bolt-on Edges		906 General Purpose Bolt-on Edges		908 General Purpose Bolt-on Edges		914G General Purpose Bolt-on Edges	
	0.6 m ³	0.78 yd ³	0.8 m ³	1.05 yd ³	1 m ³	1.3 yd ³	1.3 m ³	1.7 yd ³
A Height to top of stack	2.69 m	8'10"	2.72 m	8'11"	2.71 m	8'7"	2.26 m	7'5"
B Height to top of engine compartment	1.78 m	5'10"	1.82 m	6'0"	1.95 m	6'5"	2.08 m	6'10"
C Height to top of ROPS	2.65 m	8'8"	2.68 m	8'10"	2.77 m	9'1"	3.1 m	10'2"
D Hinge pin height at carry position	330 mm	13"	416 mm	16"	297 mm	12"	374 mm	15"
◆E Dump clearance at full lift and 45° discharge angle	2.31 m	7'7"	2.38 m	7'10"	2.60 m	8'5"	2.66 m	8'9"
F Hinge pin height at full lift	3.02 m	9'11"	3.13 m	10'3"	3.39 m	11'1"	3.44 m	11'3"
◆G Maximum overall height	3.97 m	13'0"	4.17 m	13'8"	4.50 m	14'10"	4.39 m	14'5"
◆H Maximum digging depth	68 mm	2.7"	100 mm	3.9"	104 mm	4"	89 mm	3.5"
J Machine center point to axle	1 m	3'3"	1 m	3'3"	1.1 m	3'7"	1.3 m	4'3"
K Wheel base	2 m	6'7"	2 m	6'7"	2.2 m	7'3"	2.6 m	8'6"
L Free radius of tire	495 mm	19"	508 mm	18.7"	543 mm	21"	670 mm	26"
◆M Maximum overall length	5.2 m	17'1"	5.34 m	17'5"	6.06 m	19'11"	6.23 m	20'5"
◆N Reach at full lift	764 mm	2'6"	824 mm	2'8"	915 mm	3'0"	973 mm	3'2"
O Maximum rollback at maximum lift	63°		63°		63°		60°	
P Maximum rollback at carry height	50°		53°		56°		46°	
Q Maximum rollback at ground	44°		43°		47°		41°	
Ground clearance (std. tires)	282 mm	11.1"	317 mm	12.5"	334 mm	13.1"	456 mm	18"
Tread width (std. tires)	1.39 m	4'5"	1.5 m	4'9"	1.58 m	5'2"	1.8 m	5'10.9"
Width over tires (std. tires)	1.74 m	5'7"	1.84 m	6'0"	1.97 m	6'6"	2.26 m	7'4.9"
Tires used for measurements	12.5-18		12.5-20		14.5-20		17.5-R25 (L-2)	

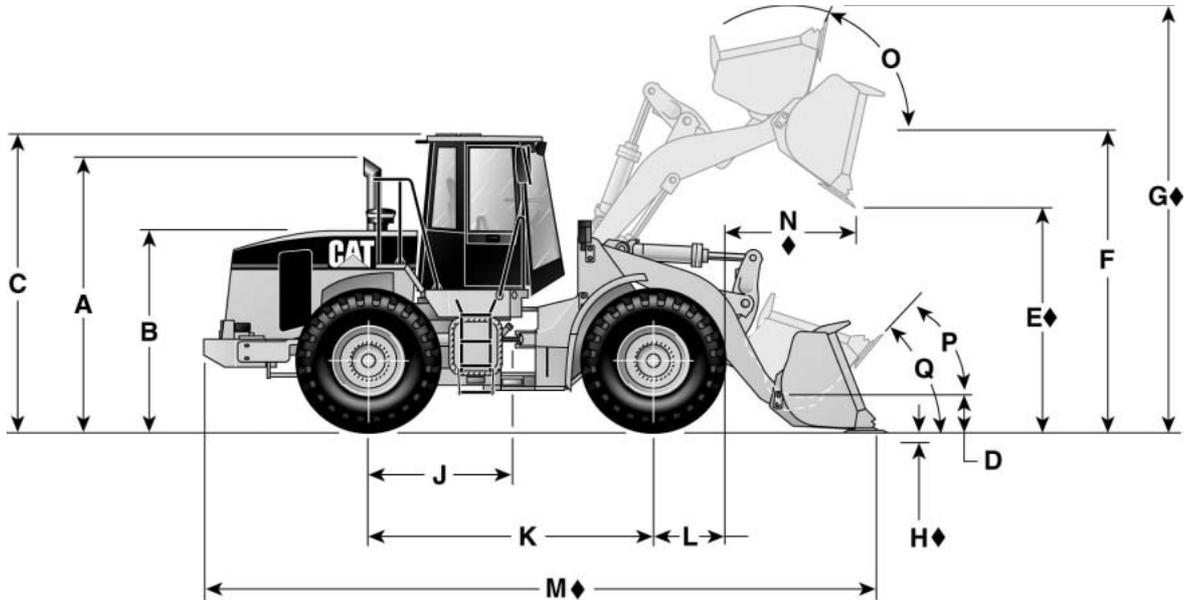


Dimensions shown represent standard machine with bucket, bolt-on cutting edge, and standard tires.

◆ Varies with Bucket Size and/or Bucket Configuration — Refer to Performance Data.

MODEL	924Gz*		924G* Standard VersaLink Pin On		924G* High Lift VersaLink Pin On	
	1.8 m ³	2.3 yd ³	2.1 m ³	2.7 yd ³	2.1 m ³	2.7 yd ³
A Height to top of exhaust stack	3211 mm	10'7"	3211 mm	10'7"	3210 mm	10'7"
B Height to top of hood	2219 mm	7'4"	2219 mm	7'4"	2218 mm	7'4"
C Height to top of ROPS/FOPS	3228 mm	10'8"	3227 mm	10'8"	3226 mm	10'8"
D Carry height	435 mm	17"	435 mm	17"	592 mm	23"
◆E Dump clearance at maximum lift and 45° dump	2828 mm	9'4"	2828 mm	9'4"	3335 mm	10'11"
F Bucket pin height at maximum lift	3759 mm	12'3"	3881 mm	12'8"	4387 mm	14'5"
◆G Overall height — bucket raised	4811 mm	15'10"	5178 mm	16'11"	5684 mm	18'8"
◆H Digging depth	42 mm	1.7"	64 mm	2.5"	75 mm	3"
J Center line of front axle to hitch	1400 mm	4'7"	1400 mm	4'7"	1400 mm	4'7"
K Wheel base length	2800 mm	9'2"	2800 mm	9'2"	2800 mm	9'2"
L Maximum overall length	7030 mm	23'1"	7168 mm	23'6"	7659 mm	25'2"
◆M Reach at maximum lift and 45° dump	790 mm	2'7"	992 mm	3'3"	993 mm	3'4"
N Rack back angle at maximum lift		58°		58°		62°
O Rack back angle at carry		48°		51°		54°
P Rack back angle at ground		44°		50°		50°
Height to center of axle	692 mm	2'4"	692 mm	2'4"	692 mm	2'4"
Ground clearance	438 mm	17"	436 mm	17"	435 mm	17"
Length — rear axle to bumper	1918 mm	6'4"	1923 mm	6'4"	1923 mm	6'4"
Bucket clearance at maximum lift and level	3434 mm	11'4"	3556 mm	11'8"	4063 mm	13'4"
Dump angle at maximum lift		45°		45°		45°
Tires used for measurements		20.5R25 (L-3)		20.5R25 (L-3)		20.5R25 (L-3)

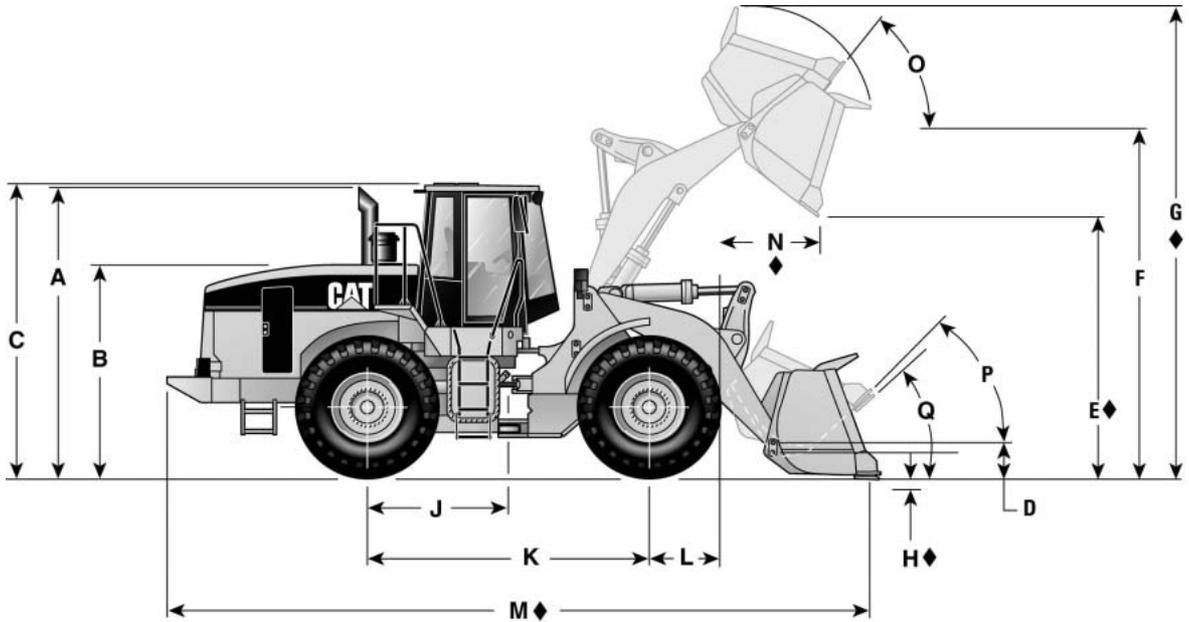
*Loose Material buckets with bolt-on edges.



Dimensions shown represent standard machine with bucket, bolt-on cutting edge, and standard tires.

◆ Varies with Bucket Size and/or Bucket Configuration — Refer to Performance Data.

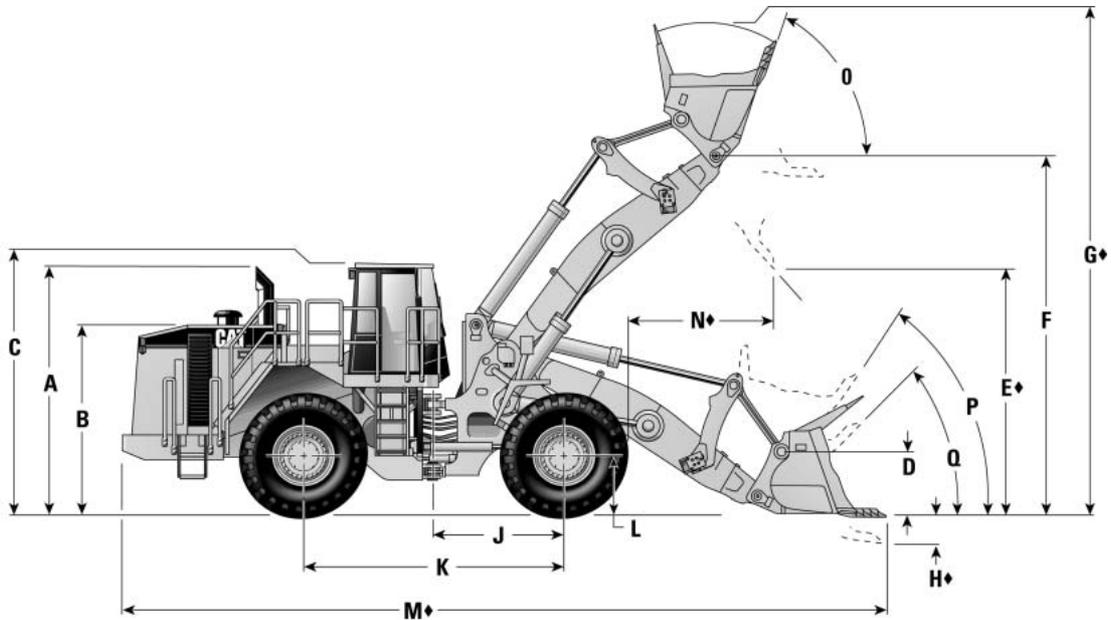
MODEL	928G General Purpose Bolt-on Edges		938G Series II General Purpose Bolt-on Edges	
	2.3 m ³	3.0 yd ³	2.5 m ³	3.25 yd ³
A Height to top of stack	3.19 m	10'6"	3.23 m	10'7"
B Height to top of engine compartment	2.20 m	7'3"	2.36 m	7'9"
C Height to top of ROPS	3.27 m	10'8"	3.3 m	10'10"
D Hinge pin height at carry position	449 mm	18"	539 mm	21"
◆ E Dump clearance at full lift and 45° discharge angle	2.84 m	9'4"	2.85 m	9'4"
F Hinge pin height at full lift	3.87 m	12'8"	3.84 m	12'7"
◆ G Maximum overall height	5.07 m	16'8"	5.19 m	17'0"
◆ H Maximum digging depth	86 mm	3.4"	50 mm	1.9"
J Machine center point to axle	1.45 m	4'9"	1.51 m	4'11"
K Wheel base	2.90 m	9'6"	3.02 m	9'11"
L Radius of wheel	685 mm	27"	750 mm	30"
◆ M Maximum overall length	7.30 m	24'0"	7.23 m	23'8"
◆ N Reach at full lift	964 mm	3'2"	1010 mm	3'4"
O Maximum rollback at maximum lift		58°		65°
P Maximum rollback at carry height		48°		50°
Q Maximum rollback at ground		44°		44°
Ground clearance (std. tires)	408 mm	16"	399 mm	16"
Tread width (std. tires)	1.95 m	6'5"	2.02 m	6'8"
Width over tires (std. tires)	2.56 m	8'5"	2.60 m	8'6"
Tires used for measurements	20.5-25 (L-2)		20.5-R25 (L-2)	



Dimensions shown represent standard machine with bucket, bolt-on cutting edge, and standard tires.

◆ Varies with Bucket Size and/or Bucket Configuration — Refer to Performance Data.

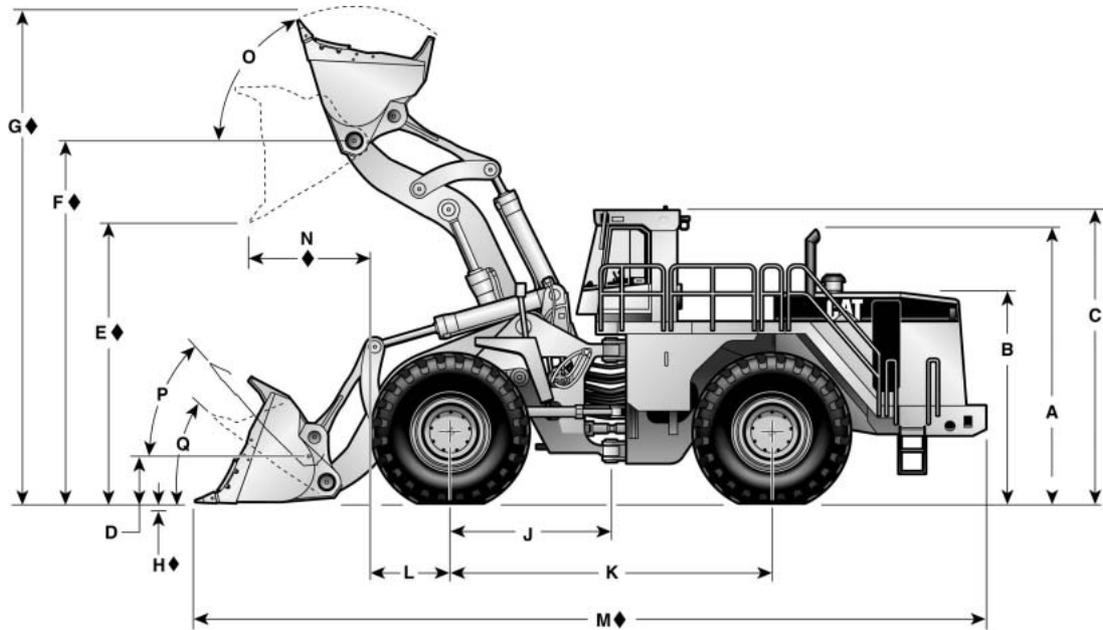
MODEL	950G Series II General Purpose Bolt-on Edges 3.1 m ³ 4 yd ³		962G Series II General Purpose Bolt-on Edges 3.5 m ³ 4.5 yd ³		966G Series II General Purpose Bolt-on Edges 3.8 m ³ 5 yd ³		972G Series II General Purpose Bolt-on Edges 4.3 m ³ 5.5 yd ³	
	A Height to top of exhaust pipe	3.15 m	10'4"	3.15 m	10'4"	3.54 m	11'7"	3.54 m	11'7"
B Height to top of engine compartment	2.28 m	7'6"	2.28 m	7'6"	2.56 m	8'5"	2.56 m	8'5"
C Height to top of ROPS	3.40 m	11'2"	3.4 m	11'2"	3.58 m	11'9"	3.58 m	11'9"
D Hinge pin height at carry position	455 mm	18"	455 mm	18"	485 mm	19"	485 mm	19"
◆E Dump clearance at full lift and 45° discharge angle	2.92 m	9'7"	2.81 m	9'2"	3.10 m	10'2"	3.29 m	10'9"
F Hinge pin height at full lift	3.99 m	13'1"	3.99 m	13'1"	4.22 m	13'10"	4.45 m	14'7"
◆G Maximum overall height	5.44 m	17'11"	5.38 m	17'8"	5.71 m	18'9"	6.05 m	19'10"
◆H Maximum digging depth	92 mm	3.6"	92 mm	3.6"	130 mm	5"	108 mm	4"
J Machine center point to axle	1.68 m	5'6"	1.68 m	5'6"	1.72 m	5'8"	1.73 m	5'8"
K Wheel base	3.35 m	11'0"	3.35 m	11'0"	3.45 m	11'4"	3.45 m	11'4"
L Radius of wheel	835 mm	33"	835 mm	33"	868 mm	34"	868 mm	34"
◆M Maximum overall length	7.97 m	26'2"	8.14 m	26'9"	8.83 m	28'11"	9.08 m	29'9"
◆N Reach at full lift	1202 mm	3'11"	1308 mm	4'2"	1304 mm	4'3"	1281 mm	4'2"
O Maximum rollback at maximum lift		59°		61°		61°		55°
P Maximum rollback at carry height		45°		45°		47°		47°
Q Maximum rollback at ground		39°		39°		42°		42°
Ground clearance (std. tires)	412 mm	16"	412 mm	16"	476 mm	19"	476 mm	19"
Tread width (std. tires)	2.14 m	7'0"	2.14 m	7'0"	2.23 m	7'4"	2.23 m	7'4"
Width over tires (std. tires)	2.89 m	9'6"	2.89 m	9'6"	2.97 m	9'9"	2.97 m	9'9"
Tires used for measurements	23.5-R25, XHA (L-2)		23.5-R25, XHA (L-2)		26.5-R25, XHA (L-3)		26.5-R25, XHA (L-3)	



Dimensions shown represent standard machine with spade edge rock bucket and standard tires.

◆ Varies with Bucket Size and/or Bucket Configuration — Refer to Performance Data.

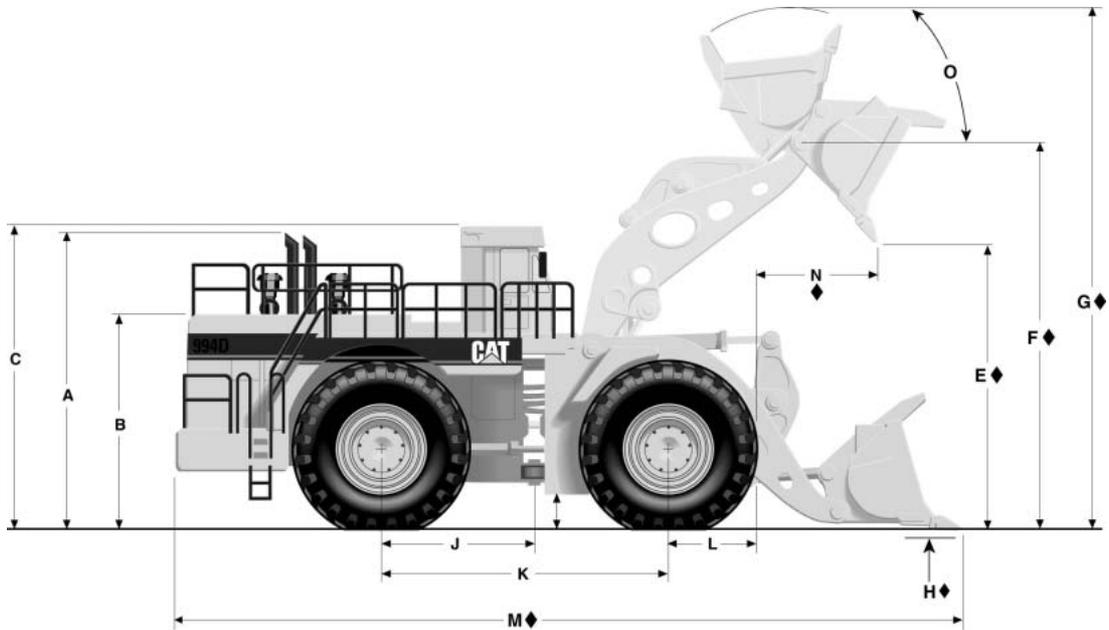
MODEL	980G Series II General Purpose Bolt-on Edges		980G Series II General Purpose High Lift Bolt-on Edges		988G Spade Edge Rock With Teeth & Segments		988G Spade Edge Rock With Teeth & Segments	
	5.7 m ³	7.5 yd ³	5.7 m ³	7.5 yd ³	6.4 m ³	8.33 yd ³	6.9 m ³	9.0 yd ³
A Height to top of stack	3.39 m	11'1"	3.39 m	11'1"	4.11 m	13'6"	4.11 m	13'6"
B Height to top of engine compartment	2.33 m	7'8"	2.33 m	7'8"	3.16 m	10'4"	3.16 m	10'4"
C Height to top of ROPS	3.75 m	12'4"	3.75 m	12'4"	4.13 m	13'7"	4.13 m	13'7"
D Hinge pin height at carry position	453 mm	18"	453 mm	18"	926 mm	3'0"	926 mm	3'0"
◆E Dump clearance at full lift and 45° discharge angle	3.27 m	10'9"	3.49 m	11'6"	3.96 m	13'0"	3.96 m	13'0"
F Hinge pin height at full lift	4.50 m	14'9"	4.73 m	15'6"	5.85 m	19'2"	5.85 m	19'2"
◆G Maximum overall height	6.21 m	20'4"	6.43 m	21'1"	8.31 m	27'3"	8.31 m	27'3"
◆H Maximum digging depth	138 mm	5"	138 mm	5"	131 mm	5"	131 mm	5"
J Machine center point to axle	1.85 m	6'1"	1.85 m	6'1"	2.28 m	7'6"	2.28 m	7'6"
K Wheel base	3.70 m	12'2"	3.70 m	12'2"	4.55 m	14'11"	4.55 m	14'11"
L Radius of wheel	928 mm	3'1"	928 mm	3'1"	978 mm	3'3"	978 mm	3'3"
◆M Maximum overall length	9.46 m	31'1"	9.68 m	31'9"	12.52 m	41'1"	12.52 m	41'1"
◆N Reach at full lift	1.54 m	5'1"	1.54 m	5'1"	2.11 m	6'11"	2.11 m	6'11"
Full dump at maximum lift	—		—		49°		49°	
O Maximum rollback at maximum lift	61°		61°		65°		65°	
P Maximum rollback at carry height	46°		46°		55.5°		55.5°	
Q Maximum rollback at ground	36°		36°		45.7°		45.7°	
Ground clearance (std. tires)	467 mm	18"	467 mm	18"	549 mm	20"	549 mm	20"
Tread width (std. tires)	2.44 m	8'0"	2.44 m	8'0"	2.59 m	8'6"	2.59 m	8'6"
Width over tires (std. tires)	3.25 m	10'8"	3.25 m	10'8"	3.47 m	11'5"	3.47 m	11'5"
Tires used for measurements	29.5-R25 (L-3)		29.5-R25 (L-3)		35/65-33 (L-4)		35/65-33 (L-4)	



Dimensions shown represent standard machine with spade edge rock bucket and standard tires.

◆ Varies with Bucket Size and/or Bucket Configuration — Refer to Performance Data

MODEL	990 Series II Spade Edge Rock With Teeth		990 Series II High Lift Spade Edge Rock With Teeth		992G Spade Edge Rock With Teeth		992G High Lift Spade Edge Rock With Teeth	
	8.6 m ³	11.2 yd ³	8.6 m ³	11.2 yd ³	11.5 m ³	15 yd ³	11.5 m ³	15 yd ³
A Height to top of stack	4.76 m	15'7"	4.76 m	15'7"	5.23 m	17'2"	5.23 m	17'2"
B Height to top of engine compartment	3.55 m	11'8"	3.55 m	11'8"	4.0 m	13'1"	4.0 m	13'1"
C Height to top of ROPS	5.11 m	16'9"	5.11 m	16'9"	5.61 m	18'5"	5.61 m	18'5"
D Hinge pin height at carry position	816 mm	2'8"	862 mm	2'10"	1054 mm	3'5"	1218 mm	4'0"
◆ E Dump clearance at full lift and 45° discharge angle	4.22 m	13'10"	4.59 m	15'1"	4.63 m	15'3"	5.25 m	17'3"
◆ F Hinge pin height at full lift	5.87 m	19'3"	6.43 m	21'1"	6.94 m	22'9"	7.55 m	24'10"
◆ G Maximum overall height	8.09 m	26'7"	8.66 m	28'5"	9.41 m	30'11"	10.03 m	32'11"
◆ H Maximum digging depth	148 mm	6"	191 mm	8"	140 mm	5.5"	144 mm	5.7"
J Machine center point to axle	2.3 m	7'7"	2.3 m	7'7"	2.94 m	9'8"	2.94 m	9'8"
K Wheel base	4.6 m	15'1"	4.6 m	15'1"	5.89 m	19'4"	5.89 m	19'4"
L Radius of wheel	1.18 m	3'11"	1.18 m	3'11"	1.37 m	4'6"	1.37 m	4'6"
◆ M Maximum overall length	12.8 m	42'0"	13.5 m	44'3"	15.58 m	49'8"	16.17 m	53'1"
◆ N Reach at full lift	2.22 m	7'3"	2.51 m	8'3"	2.3 m	7'7"	2.29 m	7'7"
O Maximum rollback at maximum lift	63.8°		60.6°		65°		65°	
P Maximum rollback at carry height	48.4°		47.4°		50.7°		50°	
Q Maximum rollback at ground	39.1°		38.9°		41.6°		40.7°	
Ground clearance (std. tires)	478 mm	18.8"	478 mm	18.8"	691 mm	27.2"	691 mm	27.2"
Tread width (std. tires)	3.05 m	10'0"	3.05 m	10'0"	3.30 m	10'10"	3.30 m	10'10"
Width over tires (std. tires)	4.16 m	13'3"	4.16 m	13'3"	4.50 m	14'9"	4.49 m	14'9"
Tires used for measurements	41.25/70-39 (L-5)		41.25/70-39 (L-5)		45/65-45 (L-5)		45/65-45 (L-5)	



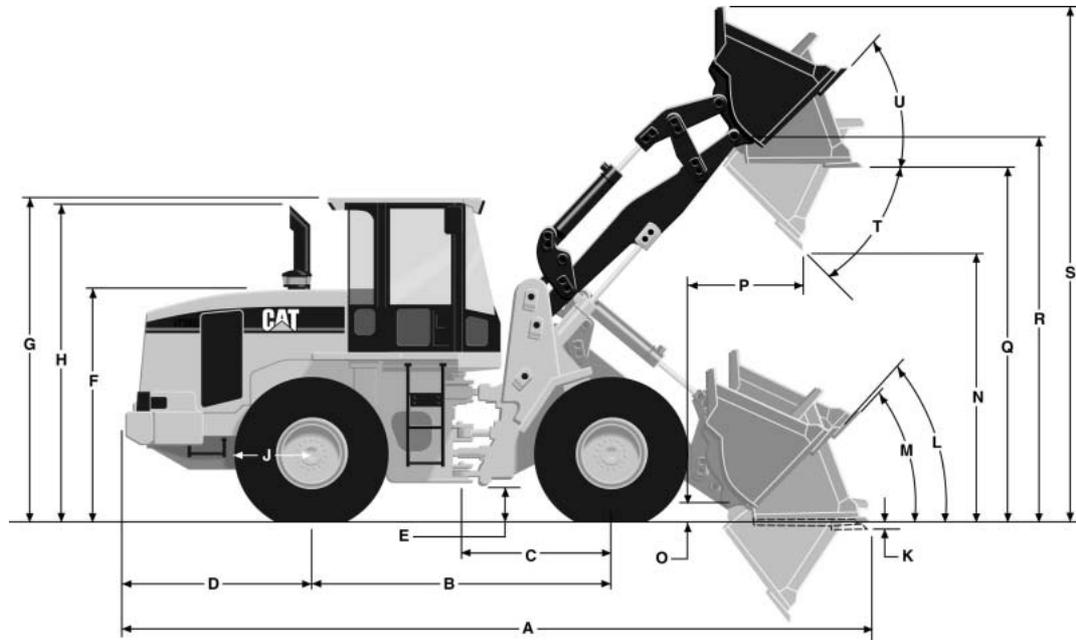
Dimensions shown represent standard machine with spade edge rock bucket and standard tires.

◆ Varies with Bucket Size and/or Bucket Configuration — Refer to Performance Data

MODEL	994D 5650 mm (18'6") Spade Edge Bucket With Teeth And Segments 17 m ³ 22.5 yd ³		994D High Lift 5650 mm (18'6") Spade Edge Bucket With Teeth And Segments 17 m ³ 22.5 yd ³		994D 5650 mm (18'6") Spade Edge Bucket With Teeth And Segments 19 m ³ 24.5 yd ³		994D High Lift 5650 mm (18'6") Spade Edge Bucket With Teeth And Segments 19 m ³ 24.5 yd ³	
	A Height to top of stack	6.76 m	22'2"	6.76 m	22'2"	6.91 m	22'8"	6.91 m	22'8"
B Height to top of engine compartment	4.61 m	15'1"	4.61 m	15'1"	4.76 m	15'7"	4.76 m	15'7"
C Height to top of ROPS	6.56 m	21'6"	6.56 m	21'6"	6.71 m	22'0"	6.71 m	22'0"
D Hinge pin height at carry position	1030 mm	3'5"	1258 mm	4'2"	1030 mm	3'5"	1258 mm	4'2"
◆ E Dump clearance at full lift and 45° discharge angle	5.51 m	18'1"	5.85 m	19'2"	5.58 m	18'4"	5.92 m	19'5"
◆ F Hinge pin height at full lift	7.98 m	26'2"	8.32 m	27'3"	8.16 m	26'9"	8.50 m	27'11"
◆ G Maximum overall height	10.75 m	35'3"	11.09 m	36'5"	11.02 m	36'2"	11.36 m	37'3"
◆ H Maximum digging depth	248 mm	9"	262 mm	10"	68 mm	3"	82 mm	3"
J Machine center point to axle	3.20 m	10'6"	3.20 m	10'6"	3.20 m	10'6"	3.20 m	10'6"
K Wheel base	6.40 m	21'0"	6.40 m	21'0"	6.40 m	21'0"	6.40 m	21'0"
L Radius of wheel	1.80 m	5'11"	1.80 m	5'11"	2.00 m	6'7"	2.00 m	6'7"
◆ M Maximum overall length	16.84 m	55'3"	17.61 m	57'9"	16.86 m	55'4"	17.64 m	57'11"
◆ N Reach at full lift	2.31 m	7'7"	2.87 m	9'5"	2.26 m	7'5"	2.82 m	9'2"
O Maximum rollback at maximum lift	64°		64°		64°		64°	
P Maximum rollback at carry height	53°		58°		53°		58°	
Q Maximum rollback at ground	40°		40°		40°		40°	
Ground clearance (std. tires)	650 mm	2'2"	650 mm	2'2"	830 mm	2'9"	830 mm	2'9"
Tread width (std. tires)	4.0 m	13'1"	4.0 m	13'1"	4.1 m	13'5"	4.1 m	13'5"
Width over tires (std. tires)	5.3 m	17'5"	5.3 m	17'5"	5.5 m	18'1"	5.5 m	18'1"
Tires used for measurements	50/80-57 (L-4)		50/80-57 (L-4)		53.5/85-57 (L-5)		53.5/85-57 (L-5)	

- with General Purpose Buckets and Bolt-on Cutting Edge

Wheel Loaders Integrated Toolcarriers



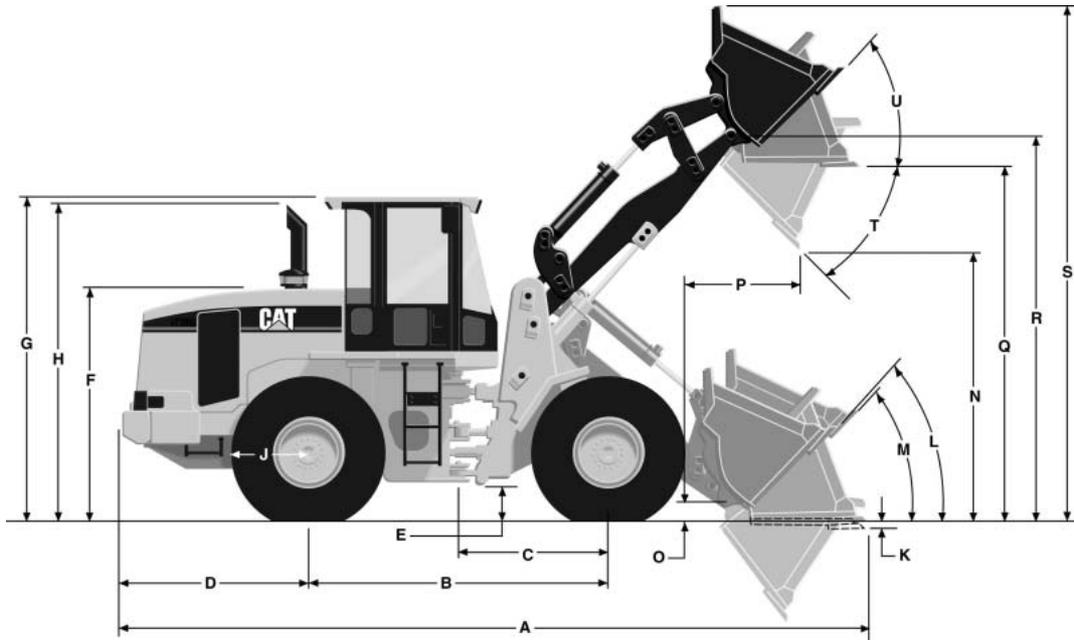
MODEL	IT14G		924G* Standard		924G* High Lift	
Bucket	1.3 m ³	1.7 yd ³	1.8 m ³	2.3 yd ³	1.8 m ³	2.3 yd ³
A Maximum overall length	6424 mm	21'1"	7168 mm	23'6"	7659 mm	25'2"
B Wheel base	2600 mm	8'6"	2800 mm	9'2"	2800 mm	9'3"
C Machine center point to front axle	1300 mm	4'3"	1400 mm	4'7"	1400 mm	4'8"
D Rear axle to counterweight	1658 mm	5'5"	1923 mm	6'4"	1923 mm	6'4"
E Ground clearance	456 mm	18"	436 mm	17"	435 mm	17"
F Height to top of engine compartment	2080 mm	6'10"	2219 mm	7'4"	2218 mm	7'4"
G Height to top of ROPS	3100 mm	10'2"	3227 mm	10'8"	3226 mm	10'8"
H Height to top of stack	2255 mm	7'5"	3211 mm	10'7"	3210 mm	10'7"
J Tire radius (empty machine)	620 mm	2'0"	—	—	—	—
K Maximum digging depth (bucket level)	175 mm	6.9"	64 mm	2.5"	75 mm	3"
L Maximum rollback at carry height		54°		51°		54°
M Maximum rollback at ground		49°		50°		50°
N Dump clearance at full lift and 45° discharge angle	2920 mm	9'7"	2828 mm	9'4"	3335 mm	10'11"
O Hinge pin height at carry position	374 mm	15"	435 mm	17"	592 mm	23"
P Reach at full lift and 45° dump	787 mm	2'7"	992 mm	3'3"	993 mm	3'4"
Q Clearance level bucket at full height	3565 mm	11'8"	3556 mm	11'8"	4063 mm	13'4"
R Maximum hinge pin height	3798 mm	12'6"	3881 mm	12'8"	4387 mm	14'5"
S Maximum overall height	4801 mm	15'9"	5178 mm	16'11"	5684 mm	18'8"
T Full dump at maximum lift		48°		45°		45°
U Maximum roll back at maximum lift Height to center of axle		57°		58°		62°
Tires		17.5R25		20.5R25 (L-3)		20.5R25 (L-3)

*VersaLink/Hook On.

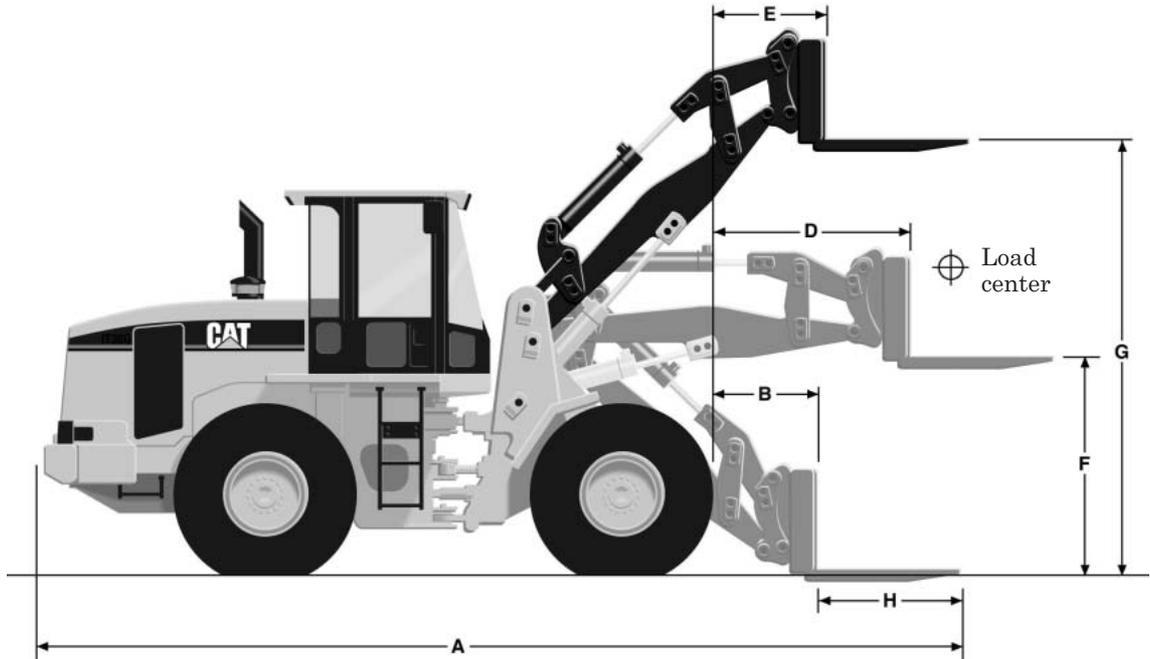
Wheel Loaders Integrated Toolcarriers

Machine Dimensions

- with General Purpose Buckets and Bolt-on Cutting Edge



MODEL	IT28G		IT38G Series II		IT62G Series II	
Bucket	2 m ³	2.6 yd ³	2.5 m ³	3.25 yd ³	3.25 m ³	4.25 yd ³
A Maximum overall length	7256 mm	23'10"	7487 mm	24'7"	8498 mm	27'11"
B Wheel base	2900 mm	9'6"	3020 mm	9'11"	3350 mm	11'0"
C Machine center point to front axle	1450 mm	4'9"	1510 mm	4'11"	1675 mm	5'6"
D Rear axle to counterweight	1973 mm	6'6"	1857 mm	6'1"	2094 mm	6'10"
E Ground clearance	407 mm	16"	399 mm	16"	412 mm	16"
F Height to top of engine compartment	2197 mm	7'2"	2359 mm	7'9"	2282 mm	7'6"
G Height to top of ROPS	3268 mm	10'9"	3300 mm	10'10"	3401 mm	11'2"
H Height to top of stack	3184 mm	10'5"	3227 mm	10'7"	3149 mm	10'4"
J Tire radius (empty machine)	—	—	750 mm	2'6"	835 mm	2'9"
K Maximum digging depth (bucket level)	108 mm	4.3"	27 mm	1"	71 mm	3"
L Maximum rollback at carry height	56°	—	46°	—	52°	—
M Maximum rollback at ground	53°	—	48°	—	44°	—
N Dump clearance at full lift and 45° discharge angle	2967 mm	9'9"	2933 mm	9'7"	2840 mm	9'4"
O Hinge pin height at carry position	382 mm	15"	304 mm	12"	314 mm	12"
P Reach at full lift and 45° dump	958 mm	3'2"	1065 mm	3'6"	1227 mm	4'0"
Q Clearance level bucket at full height	3694 mm	12'1"	3757 mm	12'4"	3759 mm	12'4"
R Maximum hinge pin height	3980 mm	13'1"	4061 mm	13'4"	4123 mm	13'6"
S Maximum overall height	5045 mm	16'7"	5369 mm	17'7"	5579 mm	18'4"
T Full dump at maximum lift	45°	—	42°	—	49°	—
U Maximum roll back at maximum lift	55°	—	45°	—	58°	—
V Height to center axle	684 mm	2'3"	—	—	—	—
Tires	20.5R25 (L-3)		20.5R25		23.5R25	

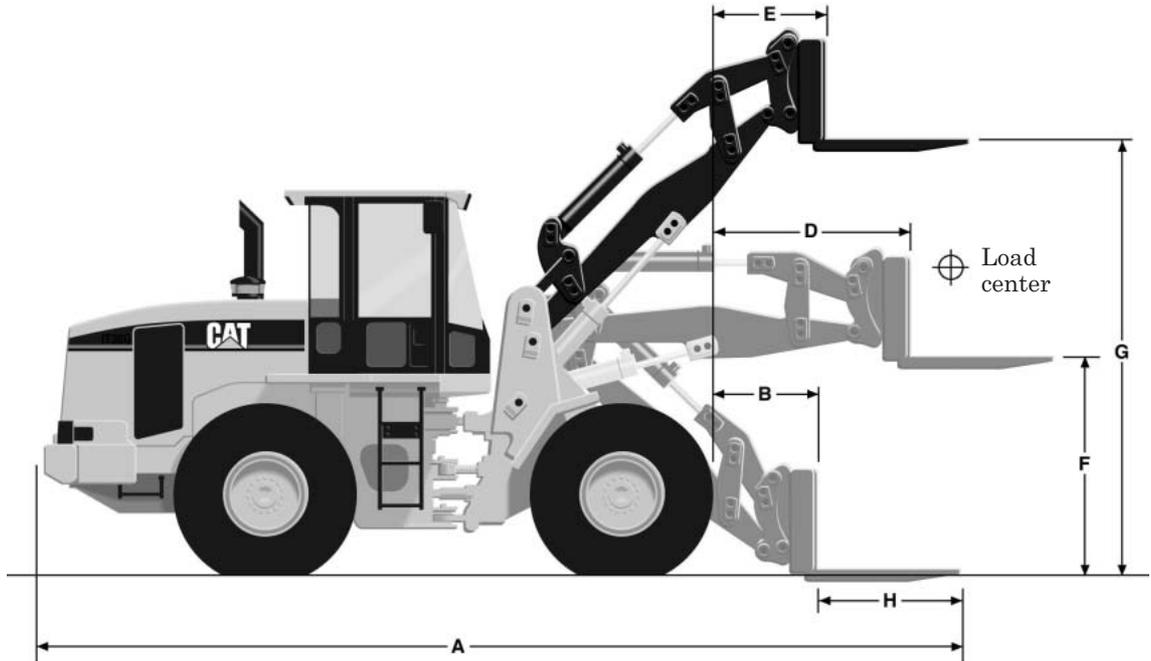


MODEL	IT14G		924G* Standard		924G* High Lift	
Rated operating load						
Per SAE J1197	1870 kg	4123 lb	2719 kg	5994 lb	2325 kg	5125 lb
Per CEN 474-3 rough terrain	2244 kg	4948 lb	3263 kg	7193 lb	2789 kg	6150 lb
Per CEN 474-3 firm level ground	2992 kg	6597 lb	4350 kg	9591 lb	3719 kg	8199 lb
A Maximum overall length	6873 mm	22'7"	7606 mm	25'0"	8104 mm	26'7"
B Reach with forks at ground level	745 mm	2'5"	1007 mm	3'4"	1503 mm	4'11"
C Load center	600 mm	24"	600 mm	24"	600 mm	24"
D Reach with arms horizontal and forks level	1490 mm	4'11"	1636 mm	5'4"	2027 mm	6'8"
E Reach with fork at maximum height	586 mm	1'11"	762 mm	2'6"	763 mm	2'6"
F Arms horizontal and forks level	1808 mm	5'11"	1790 mm	5'10"	1790 mm	5'10"
G Ground to top of tine at maximum height	3708 mm	12'2"	3637 mm	11'11"	4144 mm	13'7"
H Fork tine length	1200 mm	3'11"	1200 mm	3'11"	1201 mm	3'11"
Tires	17.5R25		20.5R25 (L-3)		20.5R25 (L-3)	

*VersaLink/Hook On

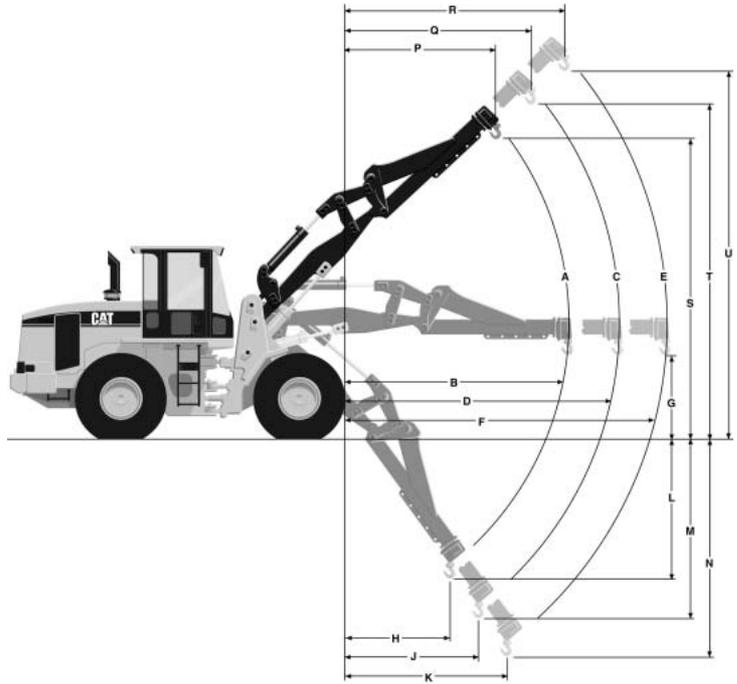
Wheel Loaders Integrated Toolcarriers

Machine Dimensions ● with Pallet Forks



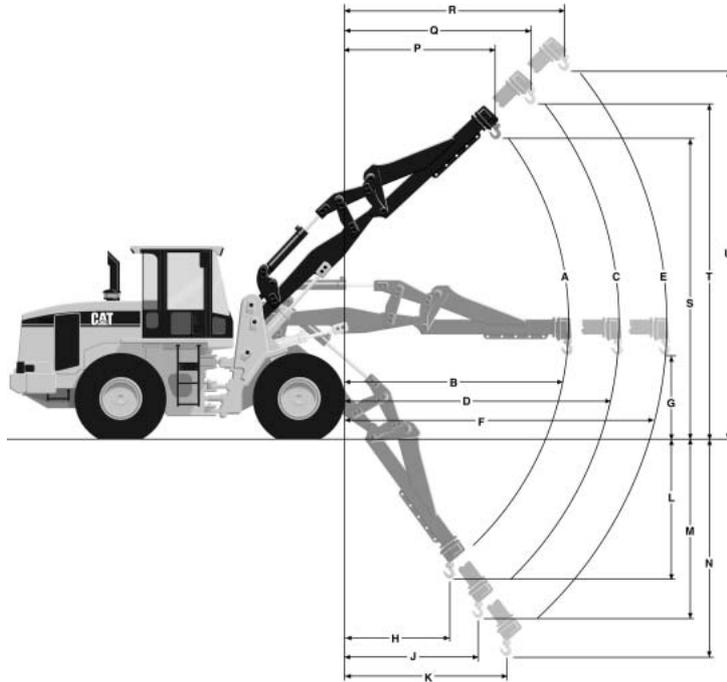
MODEL	IT28G		IT38G Series II		IT62G Series II	
Static tipping load with arms horizontal and forks level						
Straight	—		7385 kg	16,281 lb	9293 kg	20,488 lb
Articulated	—		6262 kg	13,805 lb	7748 kg	17,081 lb
Rated operating load						
Per SAE J1197	3042 kg	6707 lb	—		—	
Per CEN 474-3 rough terrain	3651 kg	8049 lb	—		—	
Per CEN 474-3 firm level ground	4868 kg	10,732 lb	—		—	
A Maximum overall length	7557 mm	24'10"	7940 mm	26'1"	9212 mm	29'11"
B Reach with forks at ground level	750 mm	2'6"	1093 mm	3'7"	1407 mm	4'7"
C Load center	600 mm	24"	610 mm	24"	762 mm	30"
D Reach with arms horizontal and forks level	1513 mm	5'0"	1662 mm	5'6"	1948 mm	6'5"
E Reach with fork at maximum height	703 mm	2'4"	805 mm	2'8"	1090 mm	3'7"
F Reach at end of forks with arms horizontal and forks level	1923 mm	6'4"	2881 mm	9'6"	3472 mm	11'5"
G Ground to top of tine at maximum height	3843 mm	12'7"	3719 mm	12'2"	3817 mm	12'6"
H Fork tine length	1200 mm	3'11"	1220 mm	4'0"	1524 mm	5'0"
Tires	20.5-25		20.5R25		23.5R25	

For IT14G, 924G and IT28G machines equipped with 15.5-25 L-2 tires subtract 39 mm (1.5") from lift height — add 39 mm (1.5") for below ground measurements — add 42 mm (1.7") for all reach measurements.



MODEL	IT14G		924G* Standard		924G* High Lift	
A Operating load (retracted) @ full articulation	1370 kg	3021 lb	1965 kg	4332 lb	1718 kg	3786 lb
B Reach horizontal (retracted)	3179 mm	10'5"	3221 mm	10'7"	3612 mm	11'11"
C Operating load (mid-position) @ full articulation	1076 kg	2373 lb	1558 kg	3434 lb	1387 kg	3057 lb
D Reach horizontal (mid-position)	4178 mm	13'8"	4220 mm	13'10"	4610 mm	15'1"
E Operating load (extended) @ full articulation	888 kg	1958 lb	1278 kg	2816 lb	1164 kg	2566 lb
F Reach horizontal (extended)	5178 mm	17'0"	5220 mm	17'1"	5611 mm	18'4"
G Clearance horizontal	1585 mm	5'2"	1602 mm	5'3"	1603 mm	5'3"
H Reach full down (retracted)	1514 mm	4'11"	858 mm	2'9"	1631 mm	5'4"
J Reach at maximum height (mid-position)	2116 mm	6'11"	1166 mm	3'9"	2058 mm	6'9"
K Reach full down (extended)	2719 mm	8'11"	1475 mm	4'10"	2485 mm	8'1"
L Clearance full down (retracted)	1874 mm	6'2"	2138 mm	7'0"	2063 mm	6'9"
M Clearance full down (mid-position)	2670 mm	8'9"	3088 mm	10'1"	2967 mm	9'8"
N Clearance full down (extended)	3468 mm	11'5"	4039 mm	13'3"	3871 mm	12'8"
P Reach at maximum height (retracted)	1402 mm	4'7"	2355 mm	7'9"	2077 mm	6'10"
Q Reach at maximum height (mid-position)	1962 mm	6'5"	1881 mm	6'3"	1670 mm	5'6"
R Reach at maximum height (extended)	2522 mm	8'2"	1407 mm	4'8"	1264 mm	4'2"
S Clearance at maximum height (retracted)	5185 mm	17'0"	7197 mm	23'8"	7853 mm	25'10"
T Clearance at maximum height (mid-position)	6012 mm	19'9"	6317 mm	20'8"	6940 mm	22'9"
U Clearance at maximum height (extended)	6840 mm	22'5"	5438 mm	17'10"	6027 mm	19'9"
Tires	17.5R25		20.5R25 (L-3)		20.5R25 (L-3)	

*VersaLink/Hook On.



MODEL	IT28G		IT38G Series II		IT62G Series II*	
A Rated operating load (retracted) @ full articulation	2225 kg	4905 lb	4295 kg	9469 lb	6198 kg	13,664 lb
B Reach horizontal (retracted)	3187 mm	10'5"	3809 mm	12'6"	3961 mm	13'0"
C Rated operating load (mid-position) @ full articulation	1767 kg	3896 lb	3651 kg	8049 lb	5331 kg	11,753 lb
D Reach horizontal (mid-position)	4186 mm	13'9"	4609 mm	15'1"	4761 mm	15'7"
E Rated operating load (extended) @ full articulation	1470 kg	3241 lb	3171 kg	6991 lb	4672 kg	10,300 lb
F Reach horizontal (extended)	5186 mm	17'0"	5409 mm	17'9"	5561 mm	18'3"
G Clearance horizontal	1983 mm	6'6"	1409 mm	4'7"	1828 mm	6'0"
H Reach full down (retracted)	1529 mm	5'0"	1885 mm	6'2"	2187 mm	7'2"
J Reach full down (mid-position)	2122 mm	7'0"	2356 mm	7'9"	2688 mm	8'10"
K Reach full down (extended)	2715 mm	8'11"	2826 mm	9'3"	3190 mm	10'6"
L Clearance full down (retracted)	1502 mm	4'11"	2391 mm	7'10"	1915 mm	6'3"
M Clearance full down (mid-position)	2306 mm	7'8"	3038 mm	10'0"	2539 mm	8'4"
N Clearance full down (extended)	3111 mm	10'2"	3686 mm	12'0"	3163 mm	10'5"
P Reach at maximum height (retracted)	1608 mm	5'3"	2354 mm	7'9"	2068 mm	6'9"
Q Reach at maximum height (mid-position)	2199 mm	7'3"	2920 mm	9'7"	2495 mm	8'2"
R Reach at maximum height (extended)	2791 mm	9'2"	3487 mm	11'5"	2921 mm	9'7"
S Clearance at maximum height (retracted)	5574 mm	18'3"	5282 mm	17'4"	6234 mm	20'5"
T Clearance at maximum height (mid-position)	6379 mm	20'11"	5847 mm	19'2"	6910 mm	22'8"
U Clearance at maximum height (extended)	7185 mm	23'7"	6412 mm	21'0"	7587 mm	24'11"
Tires	20.5-25		20.5R25		23.5R25	

*All dimensions are to lift eye.

SPECIFICATION DEFINITIONS FOR FRONT END LOADERS

Caterpillar wheel and track loader specifications conform to Society of Automotive Engineers (SAE) definitions as expressed in standards J732 (JUN92), as follows:

Description of Specification Machine

On wheel loaders the tire inflation pressure at which specifications are taken must be described in addition to the current written basic machine description. On track loaders the type of grouser must be specified.

Hydraulic Cycle Times

- “Raise Time” — Time in seconds required to raise the bucket from level position on the ground.
- “Lower Time” — Time in seconds required to lower the empty bucket from the full height to a level position on the ground.
- “Dump Time” — Time in seconds required to move the bucket at maximum height from the maximum rollback position to full dump position while dumping the SAE loose material operating load.

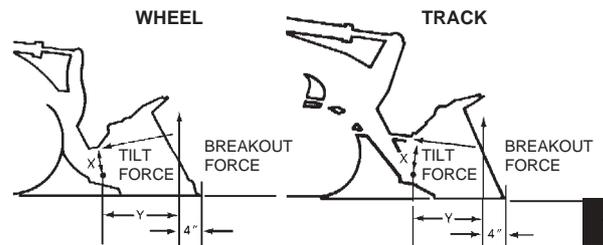
Breakout Force

“Breakout force,” pounds (and kilonewtons or kilograms) — the maximum sustained vertical upward force exerted 100 mm (4") behind the tip of the bucket cutting edge and achieved through the ability to lift and/or rollback about the specified pivot point under the following conditions:

- Loader on a hard level surface with transmission in neutral.
- All brakes released.
- Unit at standard operating weight — rear of loader not tied down.
- Bottom of cutting edge parallel to and not more than 20 mm (0.75") above or below the ground line.

- When bucket circuit is used the pivot point must be specified as the bucket hinge pin, and the unit blocked under the bucket hinge pin pivot point in order to minimize linkage movement.
- When the lift circuit is used, the pivot point must be specified as the lift arm hinge pin. Wheel loaders shall have front axle blocked to eliminate change in position of pivot pins due to tire deflection.
- If both circuits are used simultaneously, the dominating pivot point listed in (e) or (f) must be specified.
- If the circuit used causes the rear of the vehicle to leave the ground, then the vertical force value required to raise the rear of the vehicle is the breakout force.
- For irregular shaped buckets, the tip of the bucket cutting edge referred to above shall mean the farther forward point of the cutting edge.

The following are illustrations used (according to provisions of SAE J732 JUN92) to measure Caterpillar Loader breakout forces.

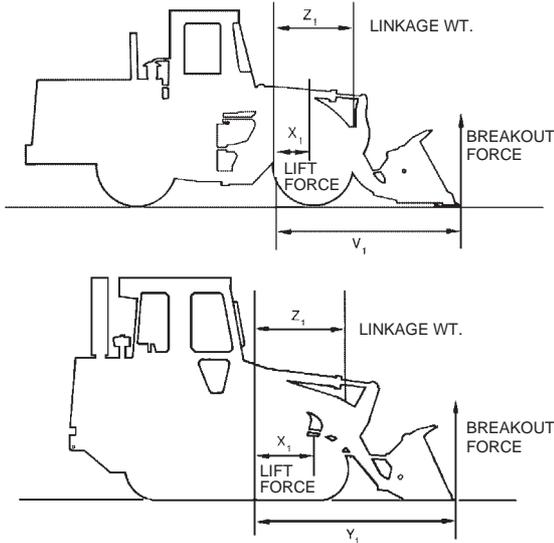


- Breakout force resulting from rollback:

$$(\text{Tilt Force}) \times (\text{Dist. "X"}) = (\text{"Y" Dist.}) \times (\text{Breakout Force})$$

$$\frac{(\text{Tilt Force}) \times (\text{Dist. "X"})}{\text{"Y" Dist.}} = \text{Breakout Force}$$

b. Breakout force resulting from bucket lift:



$$\begin{aligned} (\text{Lift Force}) \times (\text{Dist. "X}_1\text{")} &= (\text{"Y}_1\text{ Dist.}) \times (\text{Breakout Force}) \\ &+ (\text{Linkage Wt.}) \times (\text{Dist. "Z}_1\text{")} \\ &+ (\text{Breakout Force}) \\ &\times (\text{Linkage Mechanical Advantage}) \text{"V}_1\text{"} \end{aligned}$$

$$\begin{aligned} \text{Breakout Force} &= \frac{(\text{Lift Force}) \times (\text{Dist. "X}_1\text{")} - (\text{Linkage Wt.}) \times (\text{Dist. "Z}_1\text{")}}{(\text{Dist. "Y}_1\text{") + (\text{Dist. "V}_1\text{")} \times (\text{Linkage Mech. Advantage})} \end{aligned}$$

Static Tipping Load

The minimum weight at center of gravity of “SAE Rated” load in bucket which will rotate rear of machine to a point where, on track loaders, front rollers are clear of the track and on wheel loaders, rear wheels are clear of the ground under the following conditions:

- Loader on hard level surface and stationary.
- Unit at standard operating weight.
- Bucket at maximum rollback position.
- Load at maximum forward position during raising cycle.
- For articulated wheel loaders, the test will be run both with frame straight (straight static tipping load) and fully turned to a specific angle (full turn static tipping load).
- Unit with standard equipment as described in specifications unless otherwise noted under the heading.

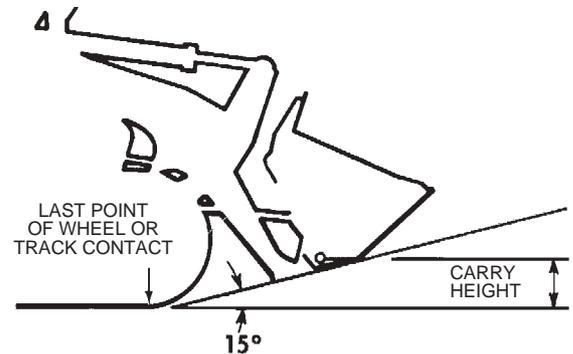
Operating Load

In order to comply with SAE standard J818 MAY87, the operating load of Wheel Loaders should not exceed 50% of the full turn Static Tipping load of the machine when equipped with attachments needed for the job. (For track loaders, operating load should not exceed 35% of the Static Tipping load rating.) See “Performance Data” of each machine in this handbook for increases to static tipping load by adding cab, counterweights, ripper-scarifier, etc.

The SAE operating load is not an indication of a wheel loader’s rated payload. It takes into consideration only hydraulic lift and tipping capacity. There is no regard to structural and/or component lives, and for wheel loaders is measured on hard, moderately smooth and level operating surfaces.

Carry Position

SAE defines carry positions as: “The vertical distance from the ground to the center line of the bucket hinge pin, with the angle of approach at 15°.” The sketch below illustrates this definition:



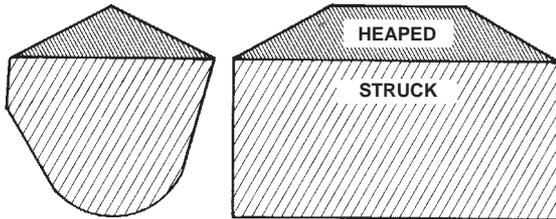
Loader Clearance Circle

SAE J732 JUN92 states that “minimum turning radius (over tire)” and “loader clearance circle” should be given for wheel loaders. Both are given on Caterpillar specification sheets, including loader clearance circles for all available buckets for each machine.

Digging Depth

J732 JUN92 specifies digging depth as “the vertical distance in mm (inches) from the ground line to the bottom of the bucket cutting edge at the lowest position with the bucket cutting edge horizontal.”

SAE BUCKET RATING



SAE Bucket Capacities

Struck capacity is that volume contained in a bucket after a load is leveled by drawing a straight edge resting on the cutting edge and the back of the bucket.

Heaped capacity is a struck capacity plus that additional material that would heap on the struck load at a 2:1 angle of repose with the struck line parallel to the ground.

SAE J742 (FEB85) specifies that the addition of any auxiliary spill guard to protect against spillage which might injure the operator will not be included in bucket capacity ratings. Buckets with irregular shaped cutting edges (vee edge) the strike plane should be drawn at one-third the distance of the protruding portion of the cutting edge. Caterpillar rock buckets are built with integral see-through rock guards. Caterpillar light material buckets come standard with bolt-on edges. These features which add to actual bucket capacity are included in published ratings.

Dump Height

SAE J732 JUN92 specifies that dump height is the vertical distance from the ground to the lowest point of the cutting edge with the bucket hinge pin at maximum height and the bucket at a 45° dump angle. Dump angle is the angle in degrees that the longest flat section of the inside bottom of the bucket will rotate below horizontal.

SELECTING A MACHINE

Steps in selecting the proper size loader:

1. Determine production required or desired.
2. Determine loader cycle time and cycles per hour.
A machine size must be assumed to select a basic cycle time.

3. Determine required payload per cycle in loose cubic yards and pounds (meters and kilograms).
4. Determine bucket size needed.
5. Make machine selection using bucket size and payload as criteria to meet production requirements.
6. Compare the loader cycle time used in calculations to the cycle time of the machine selected. If there is a difference, rework the process beginning at step 2.

1. Production Required

The production required of a wheel or track loader should be slightly greater than the production capability of the other critical units in the earth or material moving system. For example, if a hopper can handle 300 tons per hour, a loader capable of slightly more than 300 tons should be used. Required production should be carefully calculated so the proper machine and bucket selections are made.

2. Loader Cycle Times

When hauling loose granular material on a hard smooth operating surface, a .45-.55 minute basic cycle time is considered reasonable for Caterpillar articulated loaders with a competent operator. This includes load, dump, four reversals of direction, full cycle of hydraulics and minimum travel.

Material type, pile height, and other factors may improve or reduce production, and should be added to or subtracted from the basic cycle time when applicable.

When hauls are involved, obtain the haul and return portion of the cycle from the estimated travel chart (this section). Add the haul and return times to the estimated basic cycle time to obtain total cycle time.

CYCLE TIME FACTORS

A basic cycle time (Load, Dump, Maneuver) of .45-.55 minutes is average for an articulated loader [the basic cycle for large loaders, 3 m³ (4 yd³) and up, can be slightly longer], but variations can be anticipated in the field. The following values for many variable elements are based on normal operations. Adding or subtracting any of the variable times will give the total basic cycle time.

*Minutes added (+)
or Subtracted (-)
From Basic Cycle*

<i>Machine</i>	
— Material handler	-.05
<i>Materials</i>	
— Mixed	+.02
— Up to 3 mm (1/8 in)	+.02
— 3 mm (1/8 in) to 20 mm (3/4 in)	-.02
— 20 mm (3/4 in) to 150 mm (6 in) . . . . .	.00
— 150 mm (6 in) and over	+.03 and Up
— Bank or broken	+.04 and Up
<i>Pile</i>	
— Conveyor or Dozer piled 3 m (10 ft) and up . . . . .	.00
— Conveyor or Dozer piled 3 m (10 ft) or less	+.01
— Dumped by truck	+.02
<i>Miscellaneous</i>	
— Common ownership of trucks and loaders	Up to -.04
— Independently owned trucks	Up to +.04
— Constant operation	Up to -.04
— Inconsistent operation	Up to +.04
— Small target	Up to +.04
— Fragile target	Up to +.05

Using actual job conditions and the above factors, total cycle time can be estimated. Convert total cycle time to cycles per hour.

$$\text{Cycles per hour at 100\% Efficiency} = \frac{60 \text{ min}}{\text{Total Cycle Time in Minutes}}$$

Job efficiency is an important factor in machine selection. Efficiency is the actual number of minutes worked during an hour. Job efficiency accounts for bathroom breaks and other work interruptions.

$$\begin{array}{l} \text{Cycles per hour} \\ \text{at 50 minutes} \\ \text{per hour} \\ \text{(83\% efficiency)} \end{array} = \begin{array}{l} \text{Cycles per hour} \\ \text{at 100\%} \\ \text{efficiency} \end{array} \times \begin{array}{l} 50 \text{ min} \\ \text{actual work} \\ \text{time} \\ \hline 60 \text{ min hour} \end{array}$$

TRUCK LOADING

Average loader cycle times

914G-962G	0.45-0.50 min
966G-980G	0.50-0.55 min
988G-990	0.55-0.60 min
992G-994D	0.60-0.70 min

3. Required Payload Per Cycle

Required payload per cycle is determined by dividing required hourly production by the number of cycles per hour.

4. Bucket Selection

After required payload per cycle has been calculated, the payload should be divided by the loose cubic yard (meter) material weight to determine number of loose cubic yards (meters) required per cycle.

The bulk of material handled does not weigh 1800 kg/m³ (3000 lb/yd³), so a reasonable knowledge of material weight is necessary for accurate production estimates. The Tables Section has average weight for certain materials when actual weights are not known.

The percentage of rated capacity a bucket carries in various materials is estimated below. The bucket size required to handle the required volume per cycle is found with the aid of the percentage of rated bucket capacity called "Bucket Fill Factor."

The bucket size needed is determined by dividing loose cubic meters (or yards) required per cycle by the bucket fill factor.

$$\text{Bucket size} = \frac{\text{Volume Required / Cycle}}{\text{Bucket Fill Factor}}$$

BUCKET FILL FACTORS

The following indicates the approximate amounts of material as a percent of rated bucket capacity which will actually be delivered per bucket per cycle. This is known as "Bucket Fill Factor."

Loose Material	Fill factor
Mixed moist aggregates	95-100%
Uniform aggregates up to 3 mm (1/8 in)	95-100
3 mm (1/8 in) to 9 mm (3/8 in)	90-95
12 mm (1/2 in) to 20 mm (3/4 in)	85-90
24 mm (1.0 in) and over	85-90

Blasted Rock

Well blasted	80-95%
Average.	75-90
Poor.	60-75

Other

Rock dirt mixtures	100-120%
Moist loam	100-110
Soil, boulders, roots	80-100
Cemented materials.	85-95

NOTE: Fill factors on wheel loaders are affected by bucket penetration, breakout force, rackback angle, bucket profile and ground engaging tools such as bucket teeth or bolt-on replaceable cutting edges.

Example:

12 mm (1/2 in) material and 3 m³ (4 yd³) bucket.
 .90 × 3 m³ = 2.75 Loose m³ delivered per cycle.
 .90 × 4 yd³ = 3.6 Loose yd³ delivered per cycle.

NOTE: Check the static tipping load on the specific machine to determine if bucket load is in fact a safe operating load.

Bucket Selection

$$\text{Tons Required/Cycle} = \frac{\text{Tons Required/Hour}}{\text{CyclesHour}}$$

$$\text{Kg (Pounds) Required/Cycle} = \frac{\text{Tons Required/Cycle}}{\times 907 \text{ kg (2000 lb)}}$$

$$\text{Volume Required/Cycle} = \frac{\text{kg (Pounds) Cycle}}{\text{Material Weight kg/m}^3 \text{ (lb/yd}^3\text{)}}$$

Always select a machine with a greater capacity than the calculated required operating capacity. For most applications, payload above recommended and excessive counterweight can hinder machine performance and reduce dynamic stability and machine life.

For optimum performance in fast cycling situations such as truck loading, operating loads should not exceed the recommended capacity. To provide extra stability, calcium chloride (CaCl₂) ballast may be desired when operating at recommended operating load, see SAE Loader rating pages in this section. For specific stability data and optional tire sizes, see the "Performance Data" pages in this section.

When selecting special application buckets, such as multi-purpose and side dump the additional bucket weight must be deducted from recommended capacity.

Specific circumstances may involve other conditions which would also affect loader capacity. Because of the greatly varied applications and conditions, your Caterpillar dealer should be contacted for guidance.

Example problem:

JOB CONDITIONS

Application	Truck loading
Production Required	450 metric ton (496 Tons) per hour
Material	9 mm (3/8") gravel in 6 m (20 ft) high stockpile
Density	1660 kg/m ³ (2800 lb/yd ³)

Trucks are 6-9 m³ (8-12 yd³) capacity and are owned by three contractors. Loading is constant. Hard level surface for loader maneuvering.

1. **PRODUCTION REQUIRED:** Given
2. **CYCLE TIME:** Assume loader size between 914G and 962G for initial choice of basic cycle.
 (Refer to Cycle Time Factors in this section)

Independent trucks	.04 min
Basic Cycle	.50 min
Material	-.02 min
Independent trucks	+.04 min
Constant operation	-.02 min
Total Cycle	.50 min

NOTE: Load and carry times not required in total cycle.

$$\begin{aligned} \text{Cycles/hr at 83\% efficiency} &= 120 \text{ cycles/hr} \times \frac{50 \text{ min actual work time}}{60 \text{ min per hr}} \\ &= 100 \text{ cycles/hr} \end{aligned}$$

3. **VOLUME REQUIRED PER CYCLE** (Density in tons)
 Density in this example was given. When not given, refer to Tables Section to obtain an estimated density for the material being handled.

$$\text{Metric: } \frac{1660 \text{ kg/m}^3}{1000 \text{ kg/ton}} = 1.66 \text{ ton/m}^3$$

$$\text{English: } \frac{2800 \text{ lb/yd}^3}{2000 \text{ lb/ton}} = 1.4 \text{ tons/yd}^3$$

Production Rate Required

$$\text{Metric: } \frac{450 \text{ tons/hr}}{1.66 \text{ tons/m}^3} = 271 \text{ m}^3/\text{hr}$$

$$\text{English: } \frac{496 \text{ tons/hr}}{1.4 \text{ tons/yd}^3} = 354 \text{ yd}^3/\text{hr}$$

Volume Required per Cycle

$$\text{Metric: } \frac{271 \text{ m}^3/\text{hr}}{100 \text{ cycles/hr}} = 2.71 \text{ m}^3/\text{cycle}$$

$$\text{English: } \frac{354 \text{ yd}^3/\text{hr}}{100 \text{ cycles/hr}} = 3.54 \text{ yd}^3/\text{cycle}$$

4. **DETERMINE BUCKET SIZE**

BUCKET FILL FACTOR

The volume of material required per cycle has been determined. Because of varying material fill factors, buckets do not always carry their rated load, a larger capacity bucket may be needed to carry the volume required. For fill factors, refer to Bucket Fill Factor Chart in this section.

Rated Bucket Capacity Required (Heaped)

$$\frac{2.71 \text{ m}^3/\text{cycle}}{.95 \text{ fill factor}} = 2.85 \text{ m}^3$$

$$\frac{3.54 \text{ yd}^3/\text{cycle}}{.95 \text{ fill factor}} = 3.73 \text{ yd}^3$$

A 2.9 m³ (3.75 yd³) bucket would provide the required capacity.

5. **MACHINE SELECTION**

The bucket size required and material density lead to the choice of a 950G with a 2.9 m³ (3.75 yd³) General Purpose Bucket (see bucket selection guide pages which follow.)

Finally, SAE payload criteria must be satisfied as follows:

The required operating capacity must not exceed one-half of the full turn static tipping load of the loader as equipped with a specific bucket.

The required operating capacity of the machine is determined by the volume the machine will carry per load times the density.

$$2.9 \text{ m}^3 \times 1660 \text{ kg/m}^3 = 4814 \text{ kg}$$

$$(3.75 \text{ yd}^3 \times 2800 \text{ lb/yd}^3 = 10,500 \text{ lb})$$

One half of full turn static tipping load for the 950G with a 2.9 m³ (3.75 yd³) General Purpose Bucket is 5410 kg (11,925 lb). SAE criteria is satisfied.



An Alternative Method of Machine Selection

Another method of selecting the right Wheel Loader and bucket to meet production requirements is by use of the nomographs on the following pages. The method is quicker and easier than the preceding example because it does not require as many calculations, yet the accuracy is about the same within the normal limits of input data.

Be careful when entering and reading data from the nomographs because some scales increase from bottom to top, while others are the reverse. Do not be overly concerned with the precision as affected by pencil line width or reading to the hundredth of a m³ (yd³). Remember that bucket fill factor, material density and cycle time are at best close estimates.

Example problem:

A Wheel Loader must produce 230 m³ (300 yd³) per hour in a truck loading application. Estimated cycle time is .6 minutes, working 45 minutes per hour. Bucket fill factor is 95% and material density is 1780 kg/m³ (3000 lb/yd³).

Determine bucket size and machine model.

Solution:

At full efficiency, the Wheel Loader will cycle 100 times per hour. Since only an average of 45 minutes are available, only 75 cycles will be completed.

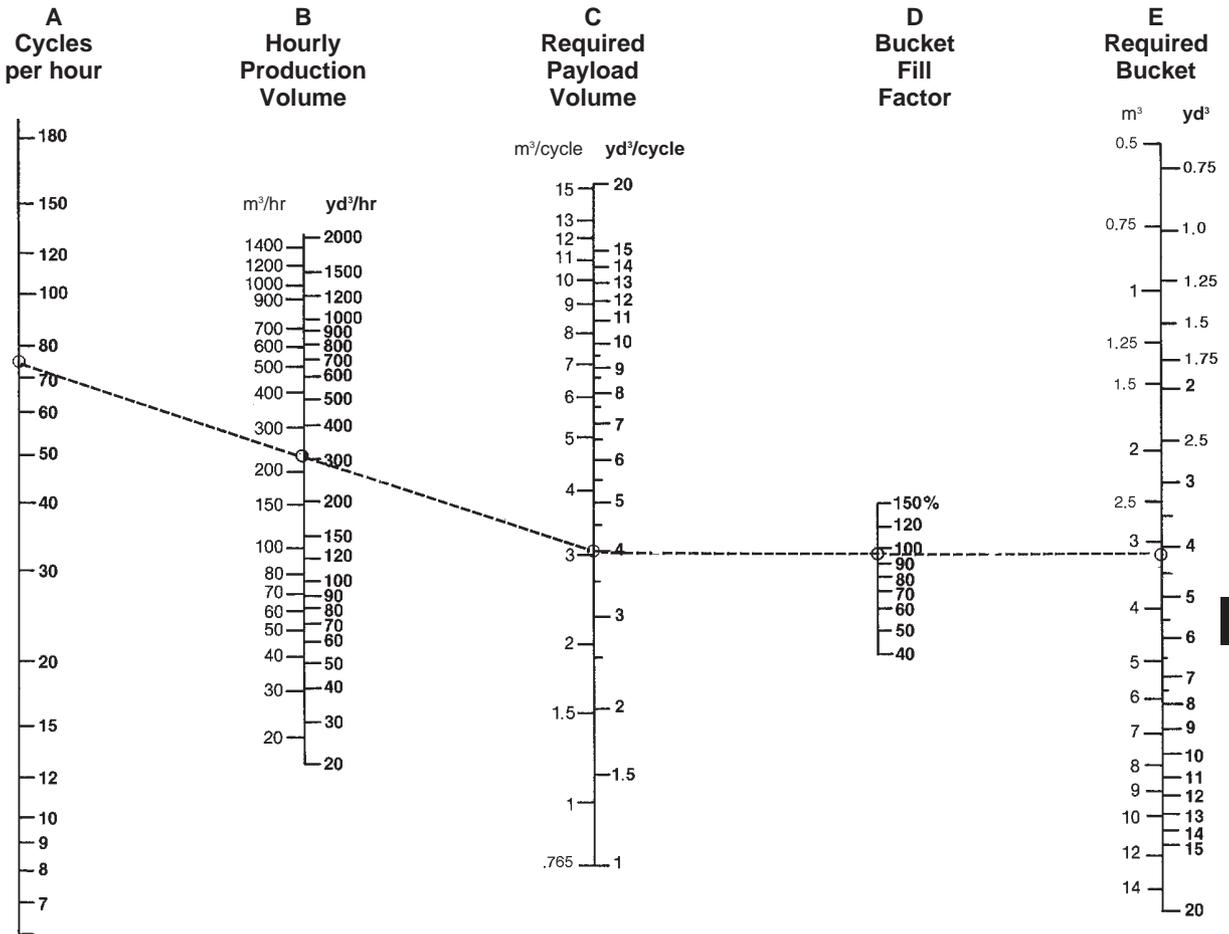
Starting on Scale A at 75 cycles per hour draw a straight line intersecting 230 m³/hr (300 yd³/hr) on Scale B and extending it on to Scale C giving 3 m³/cycle (4 yd³/cycle) required payload. Follow solution steps 1-10.

Production and Machine Selection Nomograph

- To find payload weight and tons per hour

Wheel Loaders Integrated Toolcarriers

1. Enter required hourly production on Scale B (230 m³/hr (300 yd³/hr)).
2. Enter cycles per hour on Scale A (60 ÷ .6 = 100 × .75 = 75 cycles/hr).
3. Connect A thru B to C. This shows a required payload of 3 m³ (4 yd³) per cycle.
4. Enter estimated bucket fill factor on Scale D (0.95).
5. Connect C thru Scale D to E for required bucket size 3 m³ (4 yd³).
6. Transfer cycles per hour Scale A and required payload Scale C to the following page.



Wheel Loaders Integrated Toolcarriers

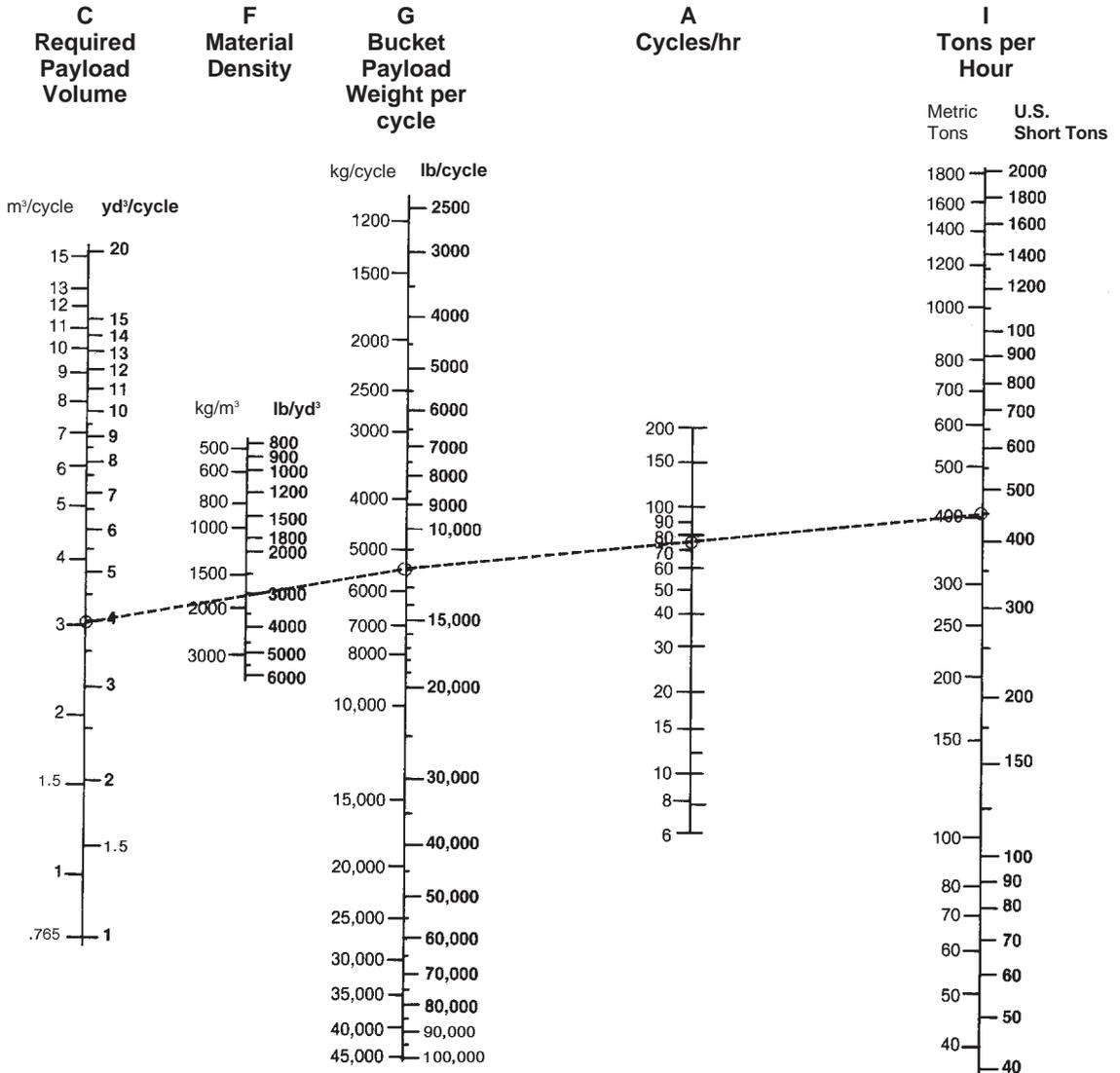
Production and Machine Selection Nomograph

- To find required bucket payload and bucket size

- Enter material density on Scale F 1780 kg/m³ (3000 lb/yd³).
- Connect C thru Scale F to Scale G to give payload weight per cycle 5300 kg (11,500 lb).
- Compare Scale G quantity 5300 kg (11,500 lb) with recommended machine working range listed on the following bucket selection pages.

Operating capacity for the 950G with 3.1 m³ (4 yd³) bucket is dependent on material density and bucket capacity (see bucket selection pages that follow).

- For hourly tonnage, draw a straight line from Scale G thru Scale A to Scale I 400 metric tons (450 U.S. tons).

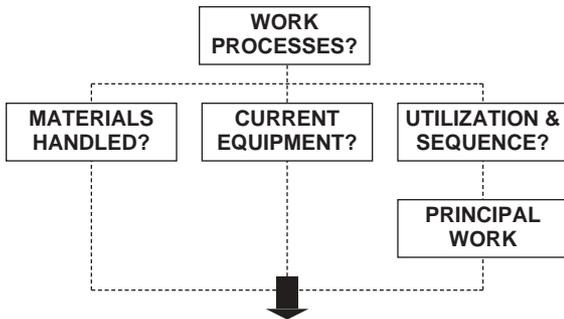


MACHINE/ATTACHMENT SELECTION

The Integrated Toolcarrier's versatility and the wide range of attachments makes the "single machine fleet" concept highly attractive to an increasing number of users.

A Job Analysis helps identify applications, work requirements, material handling parameters and the current working method. Thoroughly research each element in the following chart, the gathered information will help select the proper Integrated Toolcarrier System.

JOB ANALYSIS METHOD



- **APPROPRIATE INTEGRATED TOOLCARRIER MODEL SIZE**
- **NECESSARY ATTACHMENTS**

Work Processes:

The first step in the job analysis is to identify all work processes from start to finish. Key questions outlined below will begin to indicate the required attachments and potential Integrated Toolcarrier applications.

- What kinds of work are performed: (e.g., dozing, loading, stacking, digging, sweeping, handling special materials, etc.)
 - ... in site preparation?
 - ... below ground level?
 - ... at ground level?
 - ... above ground level?
 - ... in landscaping?
 - ... in maintenance equipment yard?
 - etc.
- What work is done manually that could be done with an Integrated Toolcarrier?
- What are the work conditions?:
 - ... underfoot?
 - ... grades?
 - ... tight quarters?
 - ... time restraints?
 - ... climate?
 - etc.

Materials Handled:

Examining the materials handled will assist in determining necessary attachments. Sizes and weights of material(s) handled will indicate the appropriate Integrated Toolcarrier model by defining lift and reach requirements. Concentrate on the material flow at the job site — the point of origin as well as the final destination for the various materials will undoubtedly have material handling requirements.

- What kinds of materials are handled (e.g. snow, earth, bricks, chemicals, pipe, logs, etc.)
- What form are the materials handled in: bulk? palletized?
- How much does each weigh?
- What are the dimensions of each?
- What are the... movement parameters:
 - ... dozed what distance?
 - ... load and carried what distance?
 - ... lifted how high?
 - ... placed below ground level?
 - ... placed what distance from machine?

Current Equipment:

If determining material weight is not possible, much information can be determined from looking at the current equipment fleet. This will suggest required performance capabilities such as lifting capacity.

- Machines currently doing the work (e.g. wheel loaders, lift trucks, sweepers, light capacity cranes, snow plows, etc.)?
- What special (maximum) capabilities does each machine have (production, lift height, load capacity, width/height dimensions, reach, turning radius, travel speed, etc.)?
- To what extent are each machine's maximum capabilities used?
- What are owning/operating costs of each?

Utilization & Sequence:

Utilization implies how often the current machines are used and what will be the utilization factors for the Integrated Toolcarrier with each individual attachment. Sequence implies what order these tasks are accomplished in and if two or more machines operate at the same time. This portion of the job analysis should assist in comparing economies of various systems. Other important considerations may be the number of operators needed, storage space, reduced maintenance requirements, etc.

- How often (what percent) is each machine used?
- How often and when does it sit idle?
- How often and when do two or more machines work at the same time?
- Can the operation be changed to permit single machine operation?

Principal Work:

Utilization and sequence will indicate the principal work the Integrated Toolcarrier will do, further assisting in attachment and model sizing and selection. The basic machine/tool package should be able to handle the toughest, most frequently performed jobs for the primary application. Secondary tools can have a little more "give and take" in their performance capabilities than the primary tool.

- What work can be accomplished by an Integrated Toolcarrier?
- What work will take up the majority of Integrated Toolcarrier time?
- What work will use the maximum static tipping capabilities of the Integrated Toolcarrier?
- What high cost (owning and operating) and/or low utilization machines can be replaced by an Integrated Toolcarrier?

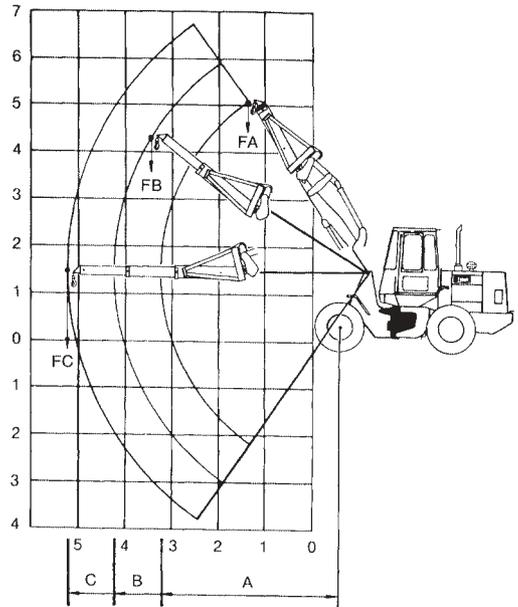
Additional Tips for Tool Sizing and Selection

Tool selection will principally concern hydraulic power requirements and static tipping load considerations. The standard tools offered by Caterpillar can be used on any Integrated Toolcarrier machine with little difficulty. However, tools such as the hydraulic broom, claws, blades and asphalt cutter will require additional consideration before proposing a system to the customer.

Rated Loads

The Caterpillar tools have recommended load limits for each machine in standard configuration. These rated loads are determined by structural limitations on the tool and/or hydraulic and stability criteria established for each machine. The IT14G thru IT28G share common attachment points and can share attachments. The IT38G Series II and IT62G can share the same attachments.

Shown below are examples of the ratings for each Caterpillar tool. Refer to the Operation and Maintenance Manual for the rated operating load for that tool on a specific machine model.



Material Handling Arm

Part No. 9V1795

Table indicates rated load at standard vehicle configuration. See operator's manual to determine rated load for vehicle configuration being used.

Model	Load Radius						Rated Load					
	A		FA		B		FB		C		FC	
	m	ft	kg	lb	m	ft	kg	lb	m	ft	kg	lb
IT14G	3.85	12.6	1292	2842	4.85	15.9	1015	2233	5.85	19.2	837	1841
924G Standard	3.97	13.0	1790	3938	4.97	16.3	1419	3122	5.97	19.6	1178	2592
924G High Lift	4.36	14.3	1576	3474	5.36	17.6	1272	2804	6.36	20.9	1068	2355
IT28G	3.93	12.9	2225	4905	4.97	16.3	1767	3896	5.94	19.5	1470	3241
IT38G Series II	4.57	15.0	4098	9016	5.37	17.7	3457	7605	6.17	20.3	2983	6563
IT62G Series II	4.81	15.8	6170	13,590	5.61	18.4	5251	11,565	6.41	21.0	4576	10,080

Fork Rating

Table indicates rated pallet fork load at standard machine configuration, 600 mm (24") load center, 1200 mm (3'11") fork on IT14G-IT28G and 1220 mm (4'0") fork on IT38G Series II-IT62G, see operator manual to determine rated load for vehicle configuration being used.

Model	kg	lb	Model	kg	lb
IT14G	1870	4123	IT28G	3042	6707
924G Standard	2462	5416	IT38G II	3109	6855
924G High Lift	2098	4616	IT62G	3877	8548

Bucket Rating

Bucket capacity, SAE J742 FEB85 (nominally heaped)

Table indicates rated load at vehicle configuration noted by the asterisks. See operator manual to determine rated load for vehicle configuration being used.

1.4 m³ (1.75 yd³) w/Bolt-On Cutting Edge

IT14G*	2273 kg	5000 lb
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1.8 m³ (2.35 yd³) w/Bolt-On Cutting Edge

924G** Standard	3253 kg	7156 lb
924G High Lift	2629 kg	5795 lb
IT28G***	3708 kg	8176 lb

2.0 m³ (2.6 yd³) w/Bolt-On Cutting Edge

924G** Standard	3204 kg	7063 lb
924G** High Lift	2591 kg	5712 lb
IT28G***	3667 kg	8087 lb

2.3 m³ (3.0 yd³) w/Bolt-On Cutting Edge

IT38G Series II†	3815 kg	8410 lb
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2.5 m³ (3.25 yd³) w/Bolt-On Cutting Edge

IT38G Series II†	3810 kg	8400 lb
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3.1 m³ (4.0 yd³) w/Bolt-On Cutting Edge

IT62G Series II††	5644 kg	12,440 lb
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3.3 m³ (4.25 yd³) w/Bolt-On Cutting Edge

IT62G Series II††	5613 kg	12,370 lb
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*Specifications shown are for high-speed version IT14G and include lubricants, full fuel tank, ROPS cab, 80 kg (176 lb) operator, standard 250 kg (550 lb) counterweight and 17.5-R25 (L-2 equivalent) tires.

**Specifications shown include lubricants, full fuel tank, ROPS cab, 80 kg (176 lb) operator and 17.5 x 25, 12 PR (L-2) tires.

***Specifications shown include optional counterweight, standard lubricants, full fuel tank, ROPS cab, 80 kg (176 lb) operator and 20.5-25, 12 PR (L-2) tires.

†Std. machine with sound suppressed cab, ROPS, 20.5-R25, XTLA (L-2) tires, full fuel tank, coolant, lubricants and operator.

††Std. machine with 23.5-R25, XHA (L-3) tires, air conditioning, crank case and power train guards, full fuel tank, coolant, lubricants and operator.

The charts explain each machine's maximum payload. The maximum material density would be determined by dividing the payload by the bucket capacity. If the actual material density exceeds the recommended material density, the process should be repeated to select the properly sized bucket.

A similar procedure would be used with the forks and material handling arm to determine maximum recommended lifting capacity and/or required IT model size.

Pallet Fork

The pallet fork will fulfill many material handling needs. A modified Class 3 fork carriage provides visibility to the tines for precision pallet work. This carriage with non-standard spacing accepts many Class 3 lift truck attachments.

Pallet fork rated operating loads are based on the following:

SAE J1197 FEB91: 50% of the full turn static tipping load or the hydraulic/structural limitations.

CEN 474-3 (European standard): 60% of the full static tipping load on rough terrain or the hydraulic/structural limitations. 80% of the full turn static tipping load on firm, level ground or the structural/hydraulic limitation. Other local, regional or international guidelines may also apply.

If operation is on rough ground these criteria may need modification. In this instance, the size and rating of existing equipment should be considered.

Sizing for pallet work generally consists of answering the following questions.

1. What are the average loaded pallet dimensions?
2. Lift Capacity — what capacity is required to lift and move the average pallet load? The maximum pallet load?
3. Lift Height — can the machine reach the top level of the standard pallet stack? What are the maximum reach, lift and height requirements?
4. Maneuverability — can the machine work around the current aisle configuration? In the stacking aisles? Main aisles? Intersecting aisles? Are 90° turns required in any aisle for material placement?
5. Length — what tine length is required to fit the commonly used pallets? (1219 mm [4'0"] tines are standard length for most palletized material.)
6. Any machine height restrictions?
7. Any special fork configurations required?

Lift capacity, lift height, aisle configuration and tine length are the most important considerations in recommending a pallet handling machine.

Example problem:

The following example applies the job analysis method to a work situation.

Sewer & Water Contractor

Sets water lines (152 mm-610 mm [6 in-24 in] iron pipe), sanitary sewer lines (152 mm-457 mm [6 in-18 in] PVC) and storm sewer lines (610 mm-1067 mm [24 in-42 in] concrete pipe) primarily in urban areas ... often-times across or down existing streets.

Materials

- Loam/Clay: 1600 kg/m³ (2700 lb/yd³) loose density Bedding (Gravel): 1900 kg/m³ (3200 lb/yd³) loose density
- Water Pipe: 610 mm (24 in) push-on joint ductile iron, 6.1 m (20 ft) sections, 1309 kg (2885 lb) 215 kg/m (144.3 lb/ft) × 6.1 m (20 ft) See trenching pages in the Excavator backhoe section.
- Storm Sewer: 1067 mm (42 in), Wall B, concrete pipe, 1.5 m (5 ft) sections, 1556 kg (3430 lb) 1021 kg/m (686 lb/ft × 5 ft) See trenching pages in the Excavator backhoe section.
- Manhole Boxes: 1361 kg (3000 lb)

WHAT INTEGRATED TOOLCARRIER MODEL SHOULD BE RECOMMENDED?
WHICH ATTACHMENTS?

Work Processes

- Bundled PVC and individual concrete/iron pipe-loaded/unloaded (yardsite) and strung along trench
- Unload, handle, set manhole boxes
- Excess excavated material truck loaded
- Bedding material handled/placed
- Trench backfilled
- Trench compaction
- Rough and finish grading
- Street cleanup
- Pavement removal

Integrated Toolcarrier Attachment Possibilities

- Forks/Material Handling Arm
- Material Handling Arm
- Bucket
- Bucket
- Bucket/Blade
- Compactor Wheel
- Bucket/Blade
- Bucket/Broom
- Rebar Snips/Asphalt Cutter

Current Equipment

	Utilization
Cat 225 .....	.90%
Champ CB607 lift truck, 3175 kg (7000 lb) capacity .....	.15%
Deere 444 with 1.1 m ³ (1.5 yd ³) G.P. bucket .....	.60%
Rosco D-50 sweeper	one half hour/day
Rammax 1361 kg (3000 lb) self-propelled trench compactor .....	.25%

Machine sizing

1350 mm (53 in) Forks

Operating Load at Full Turn*

Model	kg	lb
IT14G	1810	5991
924G	2361	5194
IT28G	2931	6463
Water pipes: 1309 kg (2885 lb)		IT14G ... 1 pipe — no problem 924G ... 1 pipe — no problem IT28G ... 1 pipe — no problem
Storm sewer pipes: 1556 kg (3430 lb)		IT14G ... 1 pipe — no problem 924G ... 1 pipe — no problem IT28G ... 1 pipe — no problem

*Note that the most conservative operating load (SAE J1197 FEB91) is used here. The rated operating load for some competitive machines with pallet forks will be based upon European standard CEN 474-3, **assuming operation on firm and level ground** (i.e. using 80% of full turn static tipping load).

Material Handling Arm (MHA)

The rated load for the MHA is 50% of the full turn static tipping load in each position or hydraulic or structural limitations. Manually extendable telescopic sections enable maximum lifting capacity at the full retracted position, and maximum lift height and reach in the fully extended position.

Operating Load at Full Turn

Model	Retracted	Mid	Extended
IT14G	1370 kg 3021 lb	1076 kg 2373 lb	888 kg 1958 lb
924G Standard Hook On	1790 kg 3938 lb	1419 kg 3122 lb	1178 kg 2592 lb
924G High Lift Hook On	1576 kg 3467 lb	1272 kg 2798 lb	1068 kg 2350 lb
IT28G	2555 kg 5633 lb	1767 kg 3896 lb	1470 kg 3241 lb

Storm sewer pipes:
1556 kg (3430 lb)

IT14G ... no
924G ... yes in
retracted
IT28G ... yes in
retracted and mid

Manhole boxes:
1361 kg (3000 lb)

IT14G ... no
924G ... yes in
retracted and mid
IT28G ... yes in
retracted, mid and
extended

Buckets

All general purpose buckets are interchangeable on 924G-IT28G due to common attachment points on the quick couplers. Bucket selection will depend on the material density in your application. Offering multiple sized buckets allows the user the flexibility to closely match material density and bucket size with machine capability. Equipping a machine with too large a bucket will result in unacceptable stability — too small a bucket may provide inadequate tire coverage.

Bucket 1900 kg/m³ (3200 lb/yd³) ... 100% fill factor

Model	Bucket	Payload	50% Full Turn Static Tipping
924G* Hook On	1.8 m ³	3420 kg	3253 kg
	2.3 yd³	7524 lb	7156 lb
	2.1 m ³	3990 kg	3210 kg
IT28G	2.7 yd³	8778 lb	7062 lb
	1.8 m ³	3420 kg	3708 kg
	2.3 yd³	7524 lb	8176 lb
IT38G Series II	2.0 m ³	3800 kg	3668 kg
	2.6 yd³	8360 lb	8087 lb
	2.3 m ³	3856 kg	3850 kg
IT38G Series II	3.0 yd³	8500 lb	8488 lb

NOTE: Metric numbers are a product of conversion.
*924G and IT28G equipped with 17.5 × 25 tires.

Machine/Attachment Recommendation

IT28G — The greater static tipping load capabilities allow it to do a greater portion of the contractor's total work processes. With the following attachments, the IT28G could replace part or all of the specialty units, such as the wheel loader, rough terrain lift truck, street sweeper, and/or the trench compactor.

- 1.8 m³ (2.3 yd³), or 2.0 m³ (2.6 yd³) General Purpose Bucket
- 1350 mm (53 in) forks (handles all pipes)
- Material Handling Arm — (handles pipe sizes under 1067 mm (42 in) concrete and manhole boxes ... 225 would have to set 1219 mm (48 in) and larger concrete pipe
- Broom

Optional Attachments to Consider:

- 24-LH compactor wheel
- Rebar snips
- Asphalt cutter

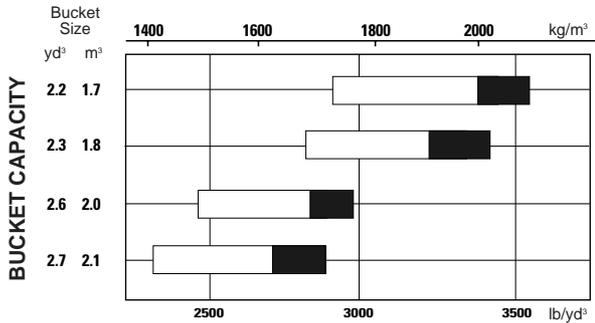
902

Bucket Type	Rated Capacity		Maximum Material Density	
	m ³	yd ³	kg/m ³	lb/yd ³
General Purpose	0.6	0.78	2100	3540
Light Material	1.0	1.31	1230	2070
Stone Sieve	0.6	0.78	2050	3460
Multi-Purpose	0.6	0.78	1900	3200
High Dump	0.6	0.78	2000	3370

908

Bucket Type	Rated Capacity		Maximum Material Density	
	m ³	yd ³	kg/m ³	lb/yd ³
General Purpose	1.0	1.30	1830	3100
Light Material	1.5	1.95	1170	1990
Stone Sieve	0.9	1.20	2010	3320
Multi-Purpose	0.9	1.20	1950	3220
Side Dump	0.9	1.20	1820	3010
High Dump	0.9	1.20	1900	3170

924Gz Pin On



MATERIAL DENSITY

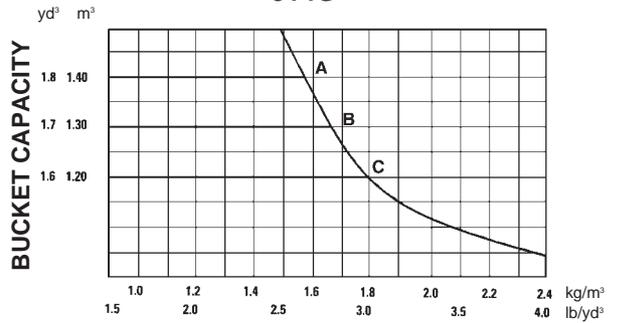


KEY
A — Standard VersaLink
B — High Lift

906

Bucket Type	Rated Capacity		Maximum Material Density	
	m ³	yd ³	kg/m ³	lb/yd ³
General Purpose	0.8	1.05	1850	3120
Light Material	1.2	1.57	1200	2020
Stone Sieve	0.7	0.92	2000	3370
Multi-Purpose	0.7	0.92	1730	2920
Side Dump	0.7	0.92	1850	3120
High Dump	0.7	0.92	2000	3370

914G

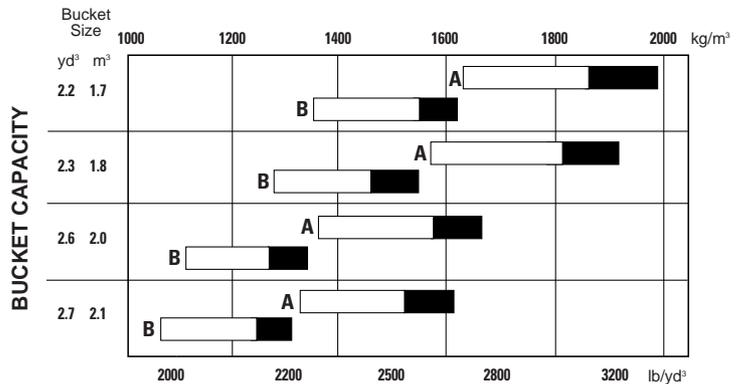


MATERIAL DENSITY (THOUSANDS)

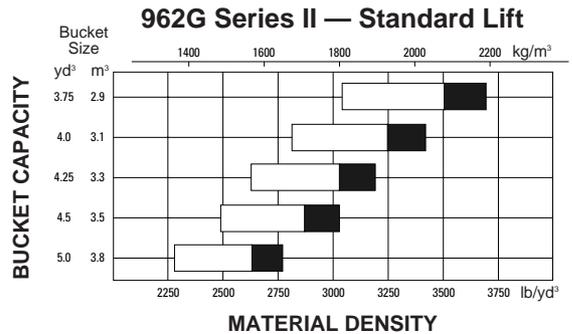
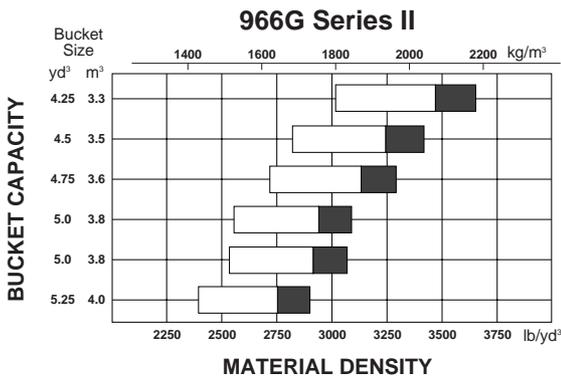
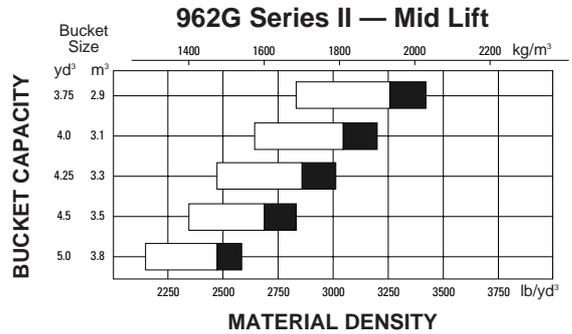
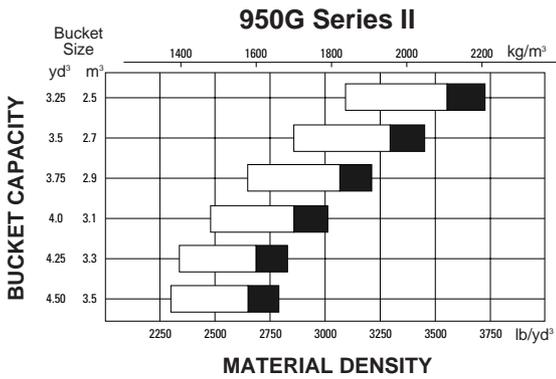
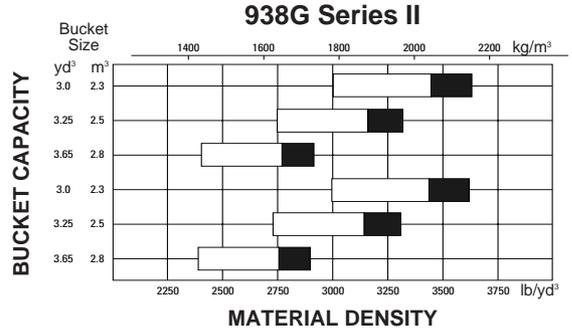
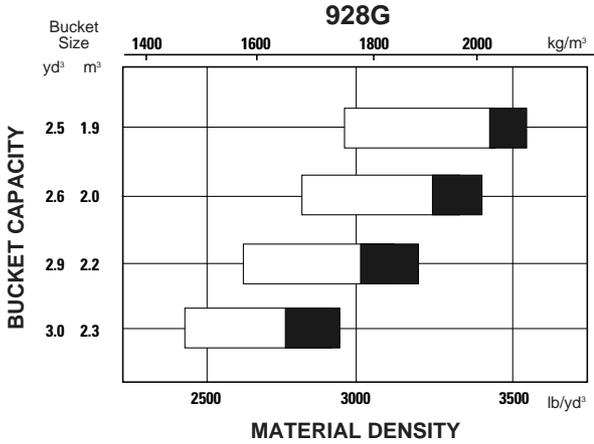
KEY

- A — 1.4 m³ (1.8 yd³) General Purpose Bucket, bolt-on edge
- 1.4 m³ (1.8 yd³) General Purpose Bucket, bolt-on teeth and segments
- B — 1.3 m³ (1.7 yd³) General Purpose Bucket, bolt-on edge
- 1.3 m³ (1.7 yd³) General Purpose Bucket, bolt-on teeth and segments
- 1.3 m³ (1.7 yd³) General Bucket, bolt-on teeth
- 1.3 m³ (1.7 yd³) General Purpose Bucket, flush mounted teeth
- C — 1.2 m³ (1.6 yd³) General Purpose Bucket, bolt-on teeth

924G Hook On

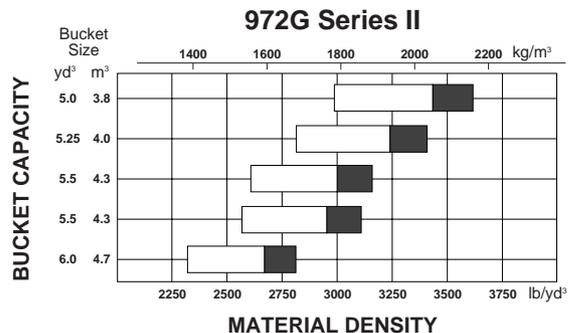


MATERIAL DENSITY

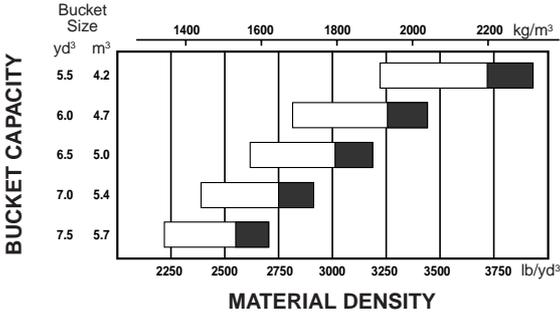


115% 100% 95%

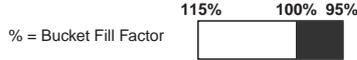
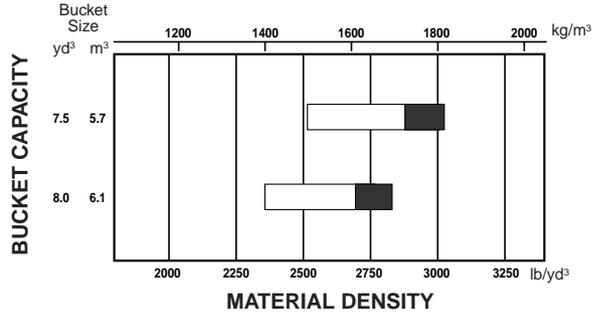
% = Bucket Fill Factor



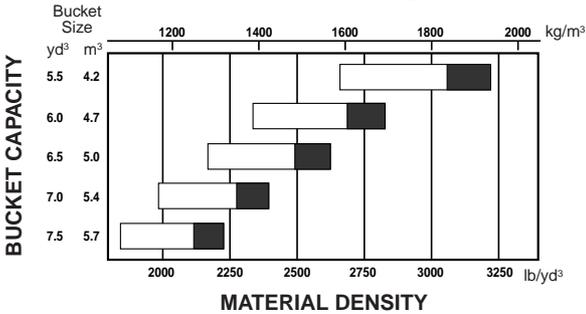
980G Series II



980G Series II — Mid Lift

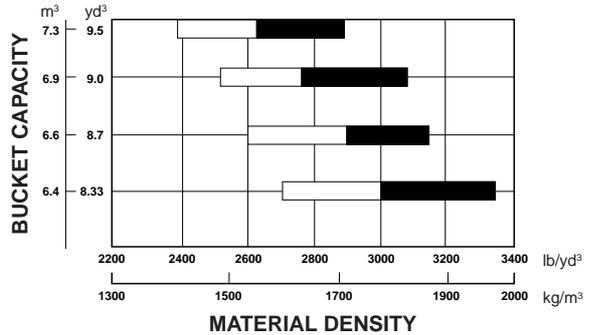


980G Series II — High Lift



988G

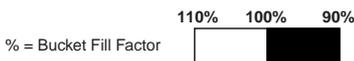
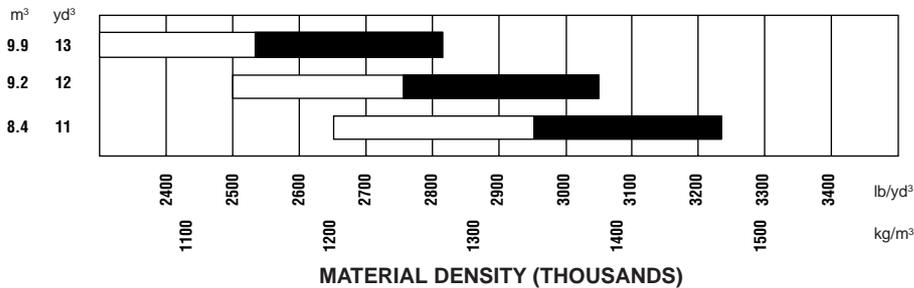
Rated Payload 11 340 kg (25,000 lb)

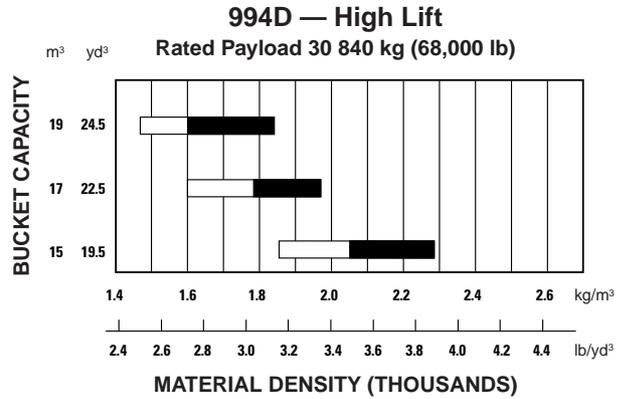
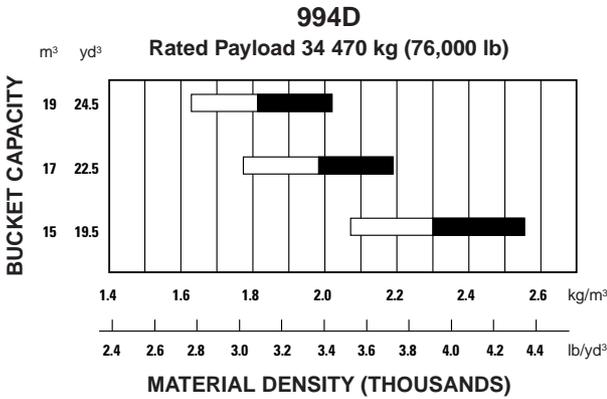
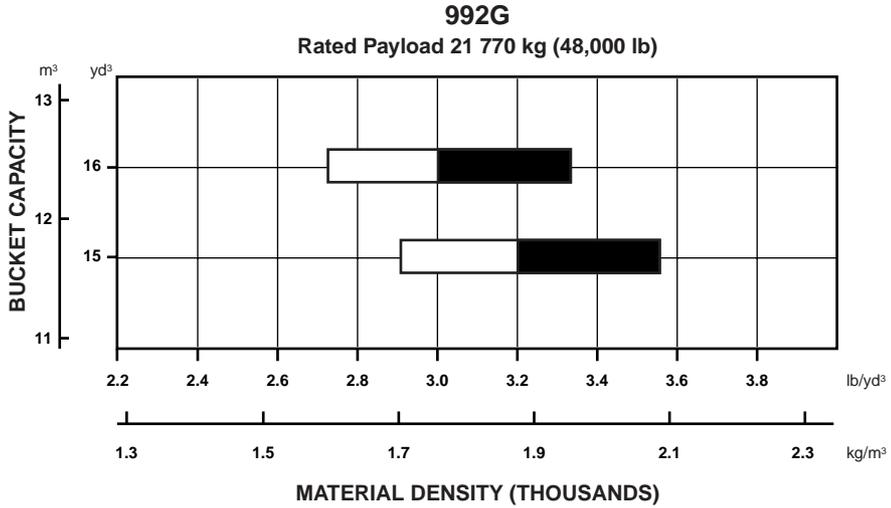


NOTE: Percentages represent bucket fill factors.

990 Series II

Rated Payload 14 970 kg (33,000 lb)

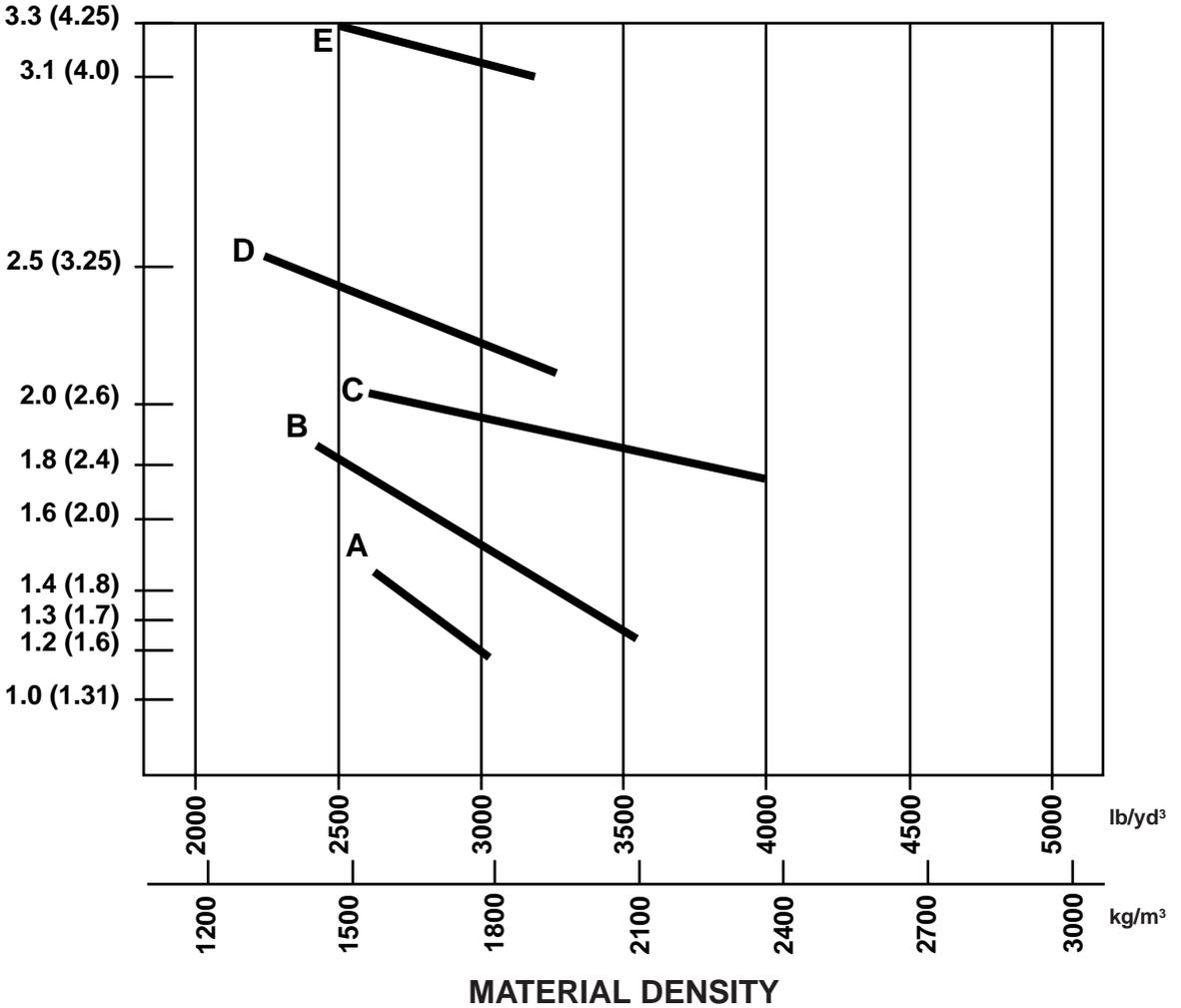




% = Bucket Fill Factor 110% 100% 95% Standard

BUCKET
 CAPACITY
 m³ (yd)³

BUCKET SELECTION BASED ON MATERIAL DENSITY

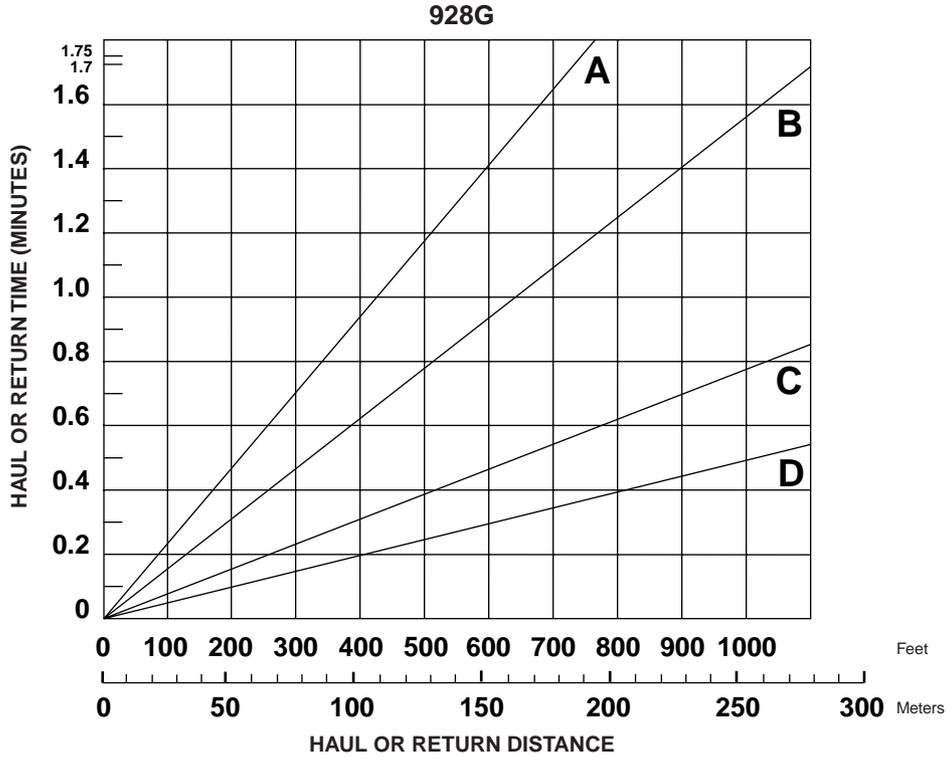


NOTE: Machines equipped same as those on Performance Data pages.

KEY

- A — IT14G
- B — 924G
- C — IT28G
- D — IT38G Series II
- E — IT62G

- 928G
- 20.5-25 Tires

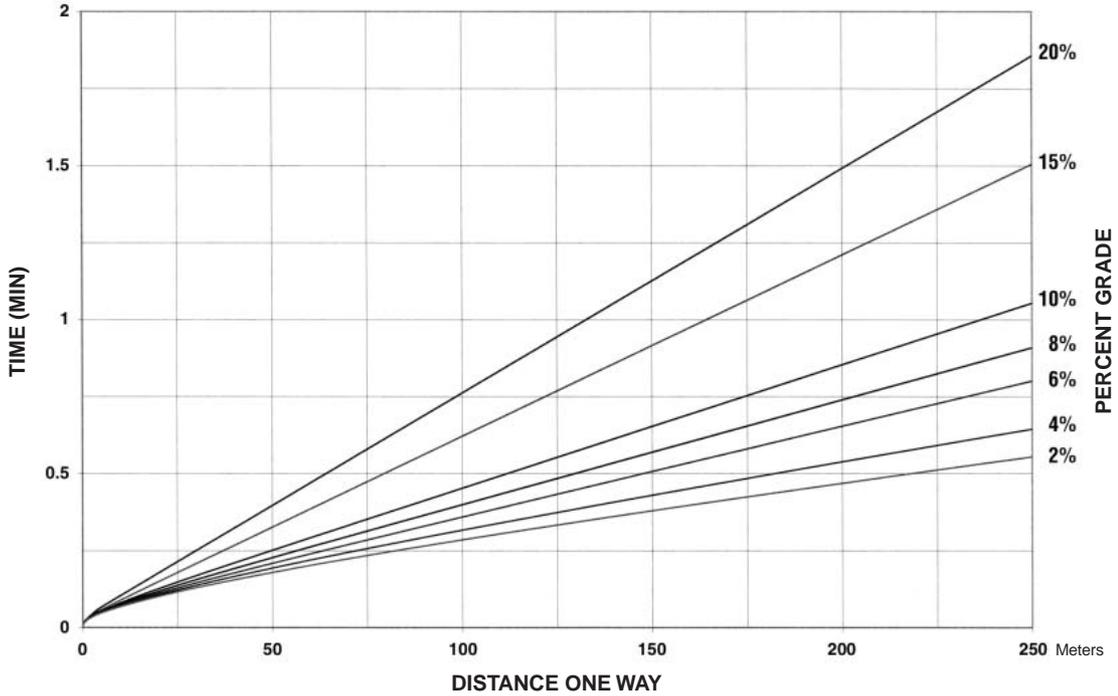


KEY

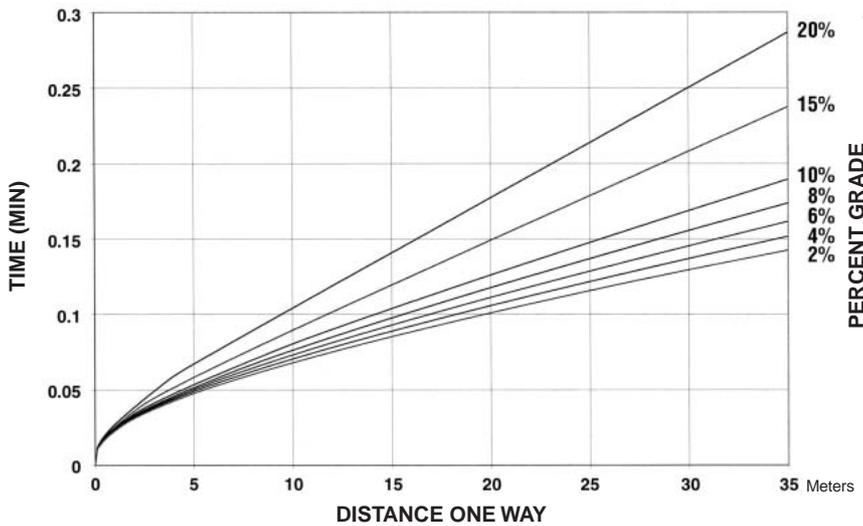
- A — 1st Forward and Reverse Speed
- B — 2nd Forward and Reverse Speed
- C — 3rd Forward and Reverse Speed
- D — 4th Forward Speed

NOTE: Loader maneuver, load and dump time must be added to travel time. 4th gear curve not indicated; primarily used for transporting machine.

938G SERIES II TRAVEL TIME — LOADED

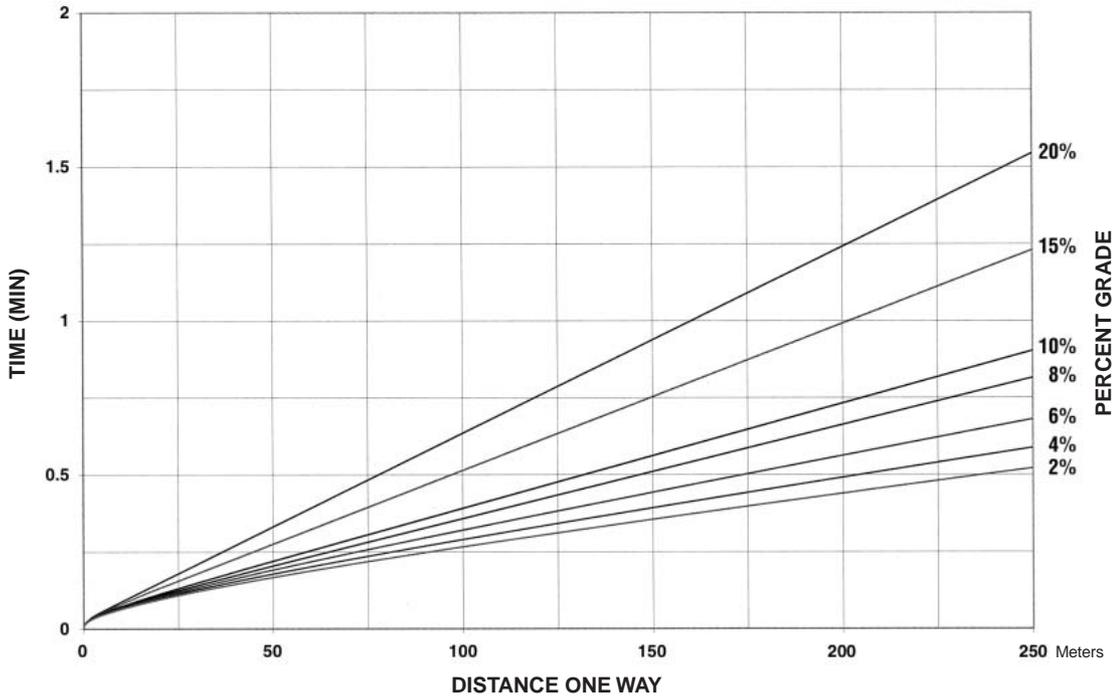


Travel times assume maximum governor pedal depression and automatic shifting for any VSC setting.



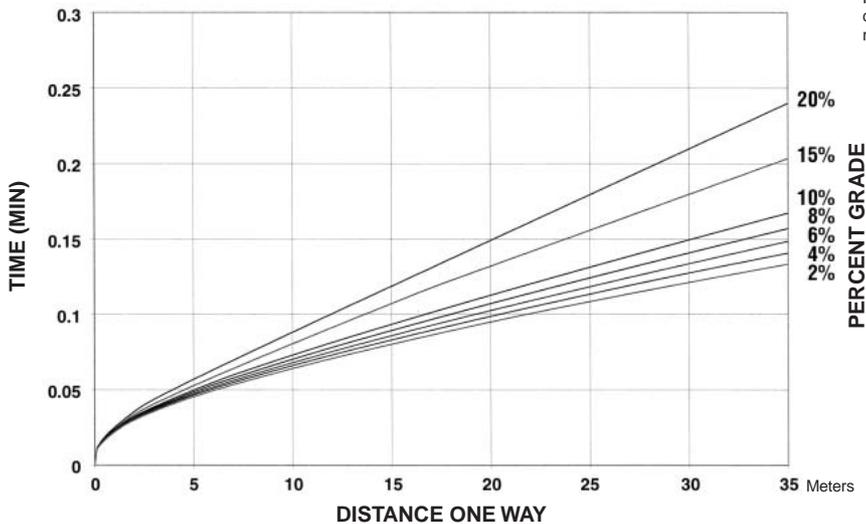
In load and carry applications it is important to consult the tire manufacturer on Ton-MPH ratings and pressure recommendations.

938G SERIES II TRAVEL TIME — EMPTY



Travel times assume maximum governor pedal depression and automatic shifting for any VSC setting.

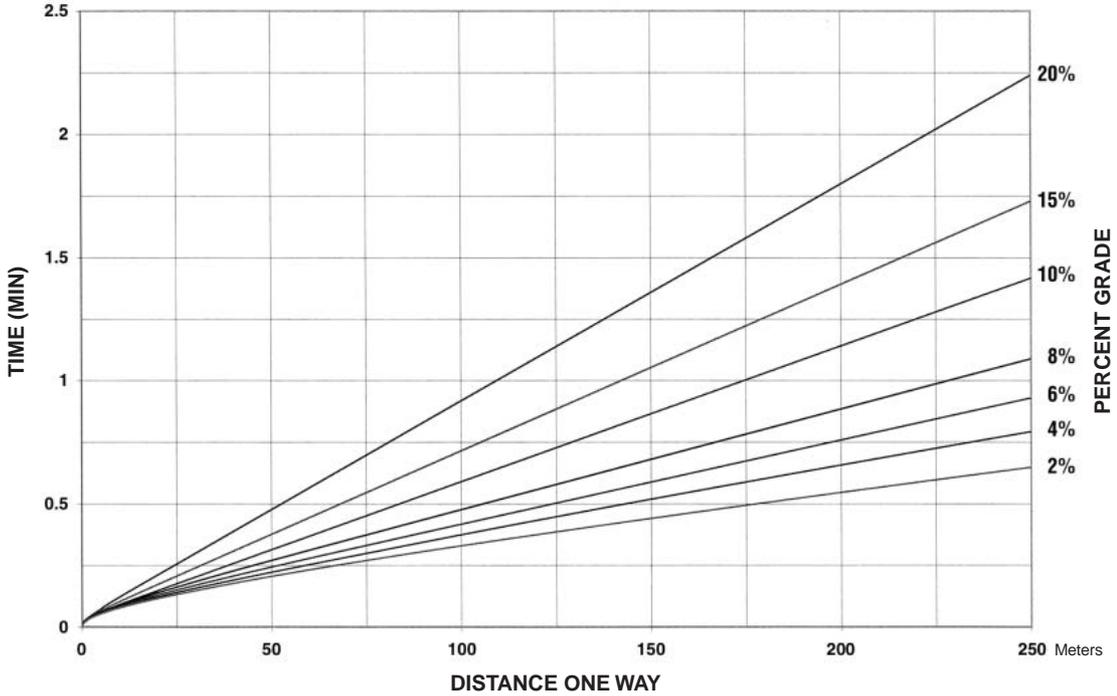
In load and carry applications it is important to consult the tire manufacturer on Ton-MPH ratings and pressure recommendations.



Travel Time — Loaded
 ● 950G Series II
 ● 23.50-R25 Tires

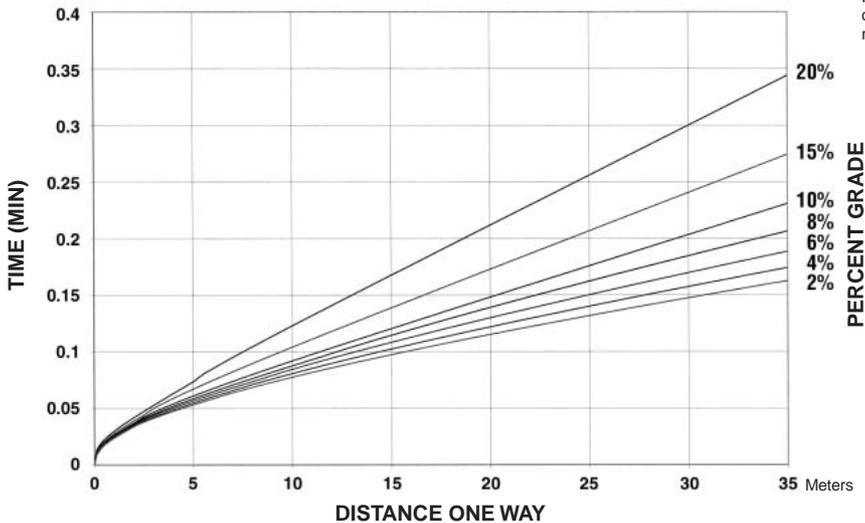
**Wheel Loaders
 Integrated Toolcarriers**

950G SERIES II TRAVEL TIME — LOADED

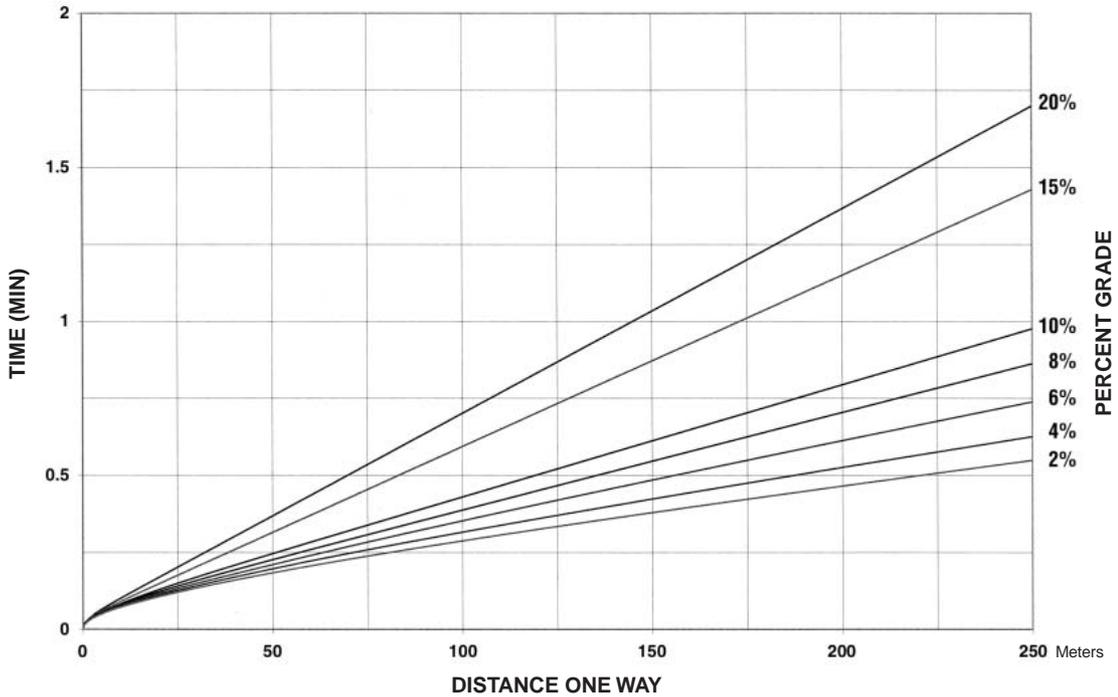


Travel times assume maximum governor pedal depression and automatic shifting for any VSC setting.

In load and carry applications it is important to consult the tire manufacturer on Ton-MPH ratings and pressure recommendations.

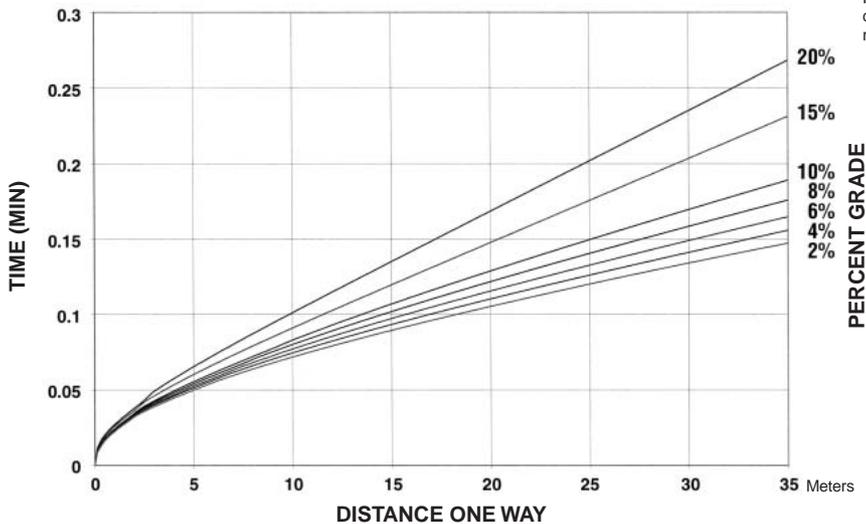


950G SERIES II TRAVEL TIME — EMPTY

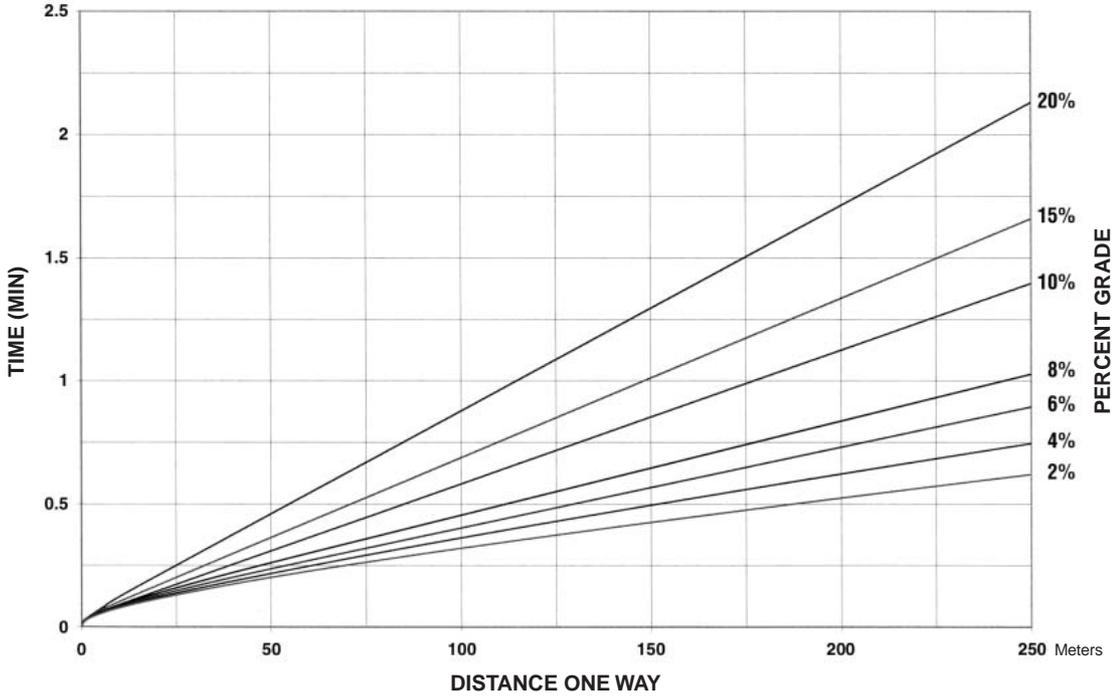


Travel times assume maximum governor pedal depression and automatic shifting for any VSC setting.

In load and carry applications it is important to consult the tire manufacturer on Ton-MPH ratings and pressure recommendations.

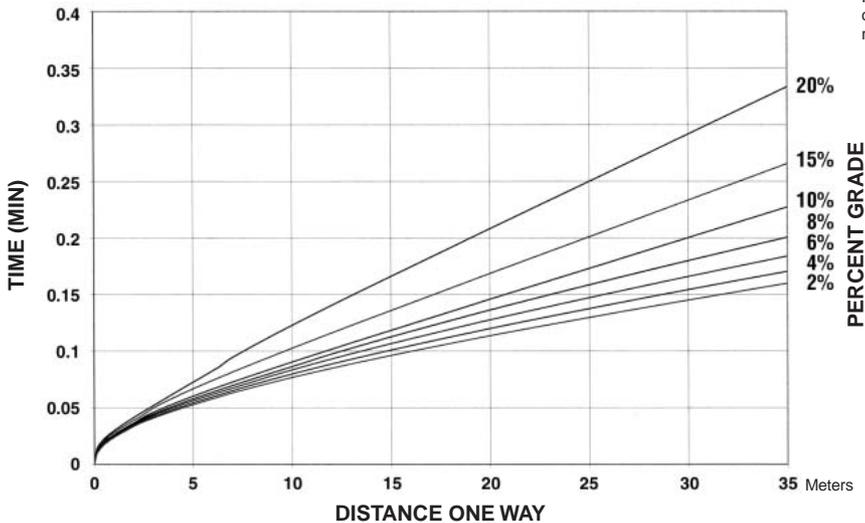


962G SERIES II TRAVEL TIME — LOADED

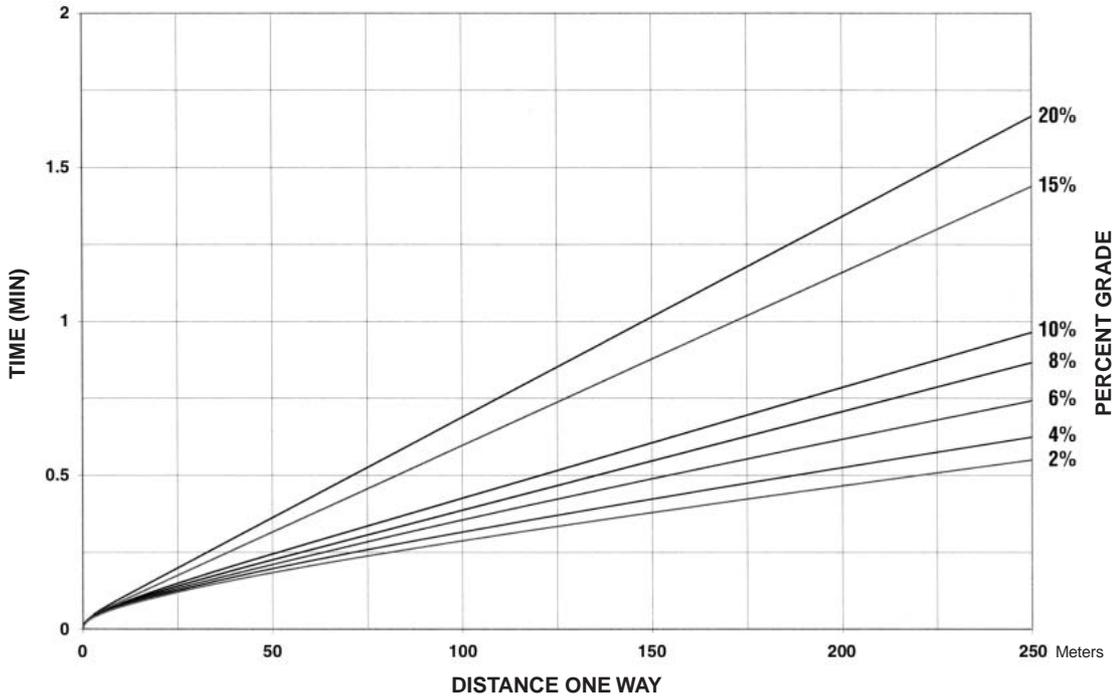


Travel times assume maximum governor pedal depression and automatic shifting for any VSC setting.

In load and carry applications it is important to consult the tire manufacturer on Ton-MPH ratings and pressure recommendations.

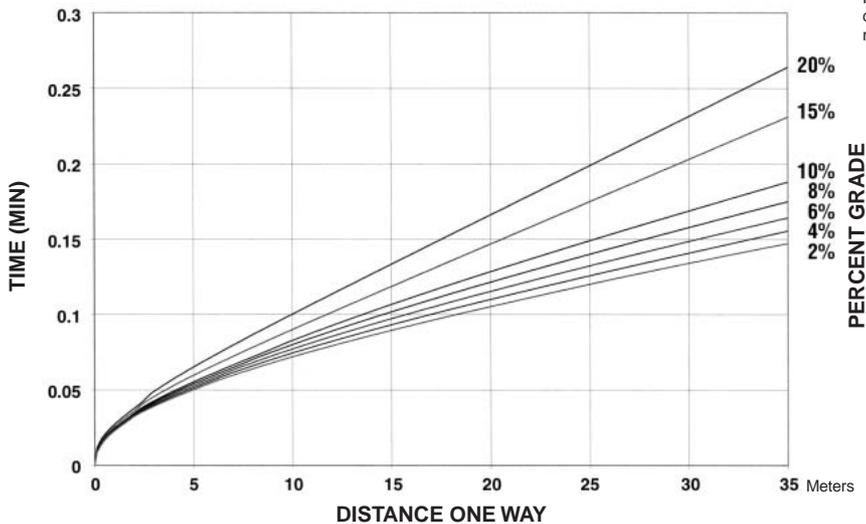


962G SERIES II TRAVEL TIME — EMPTY

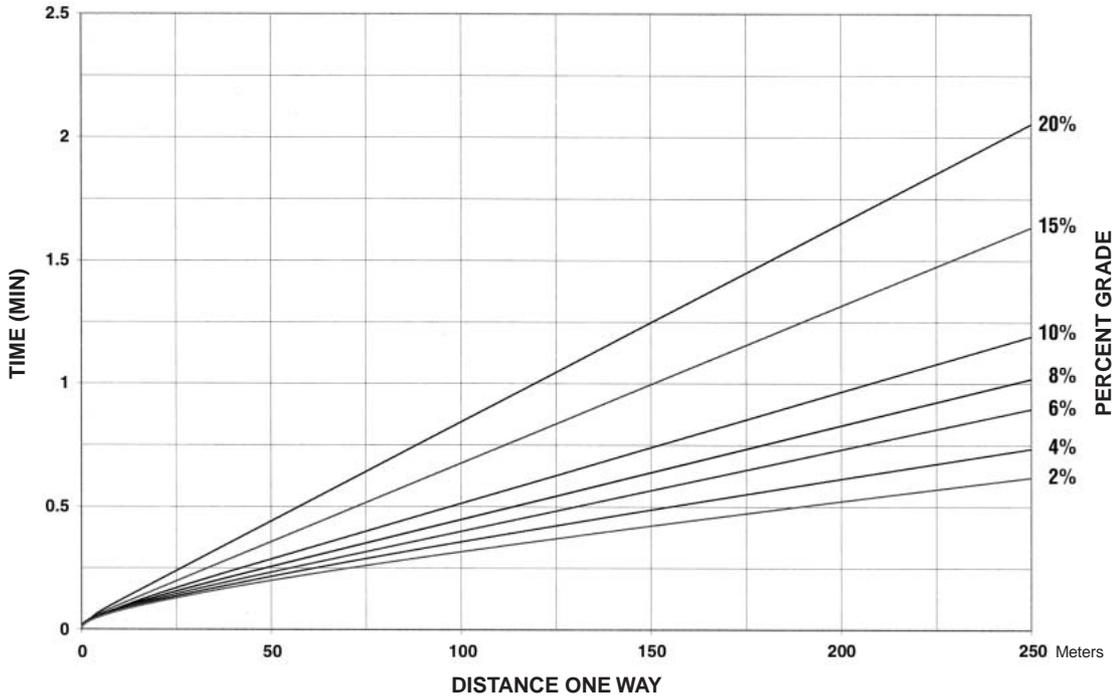


Travel times assume maximum governor pedal depression and automatic shifting for any VSC setting.

In load and carry applications it is important to consult the tire manufacturer on Ton-MPH ratings and pressure recommendations.

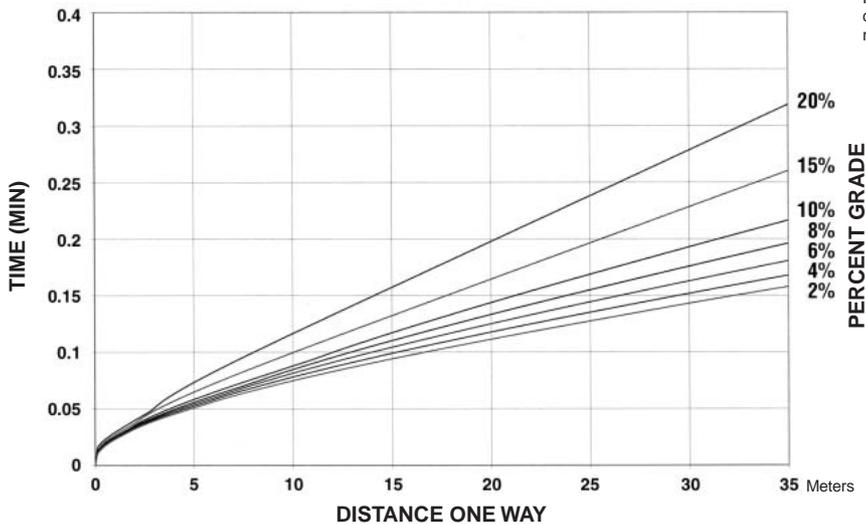


966G SERIES II TRAVEL TIME — LOADED

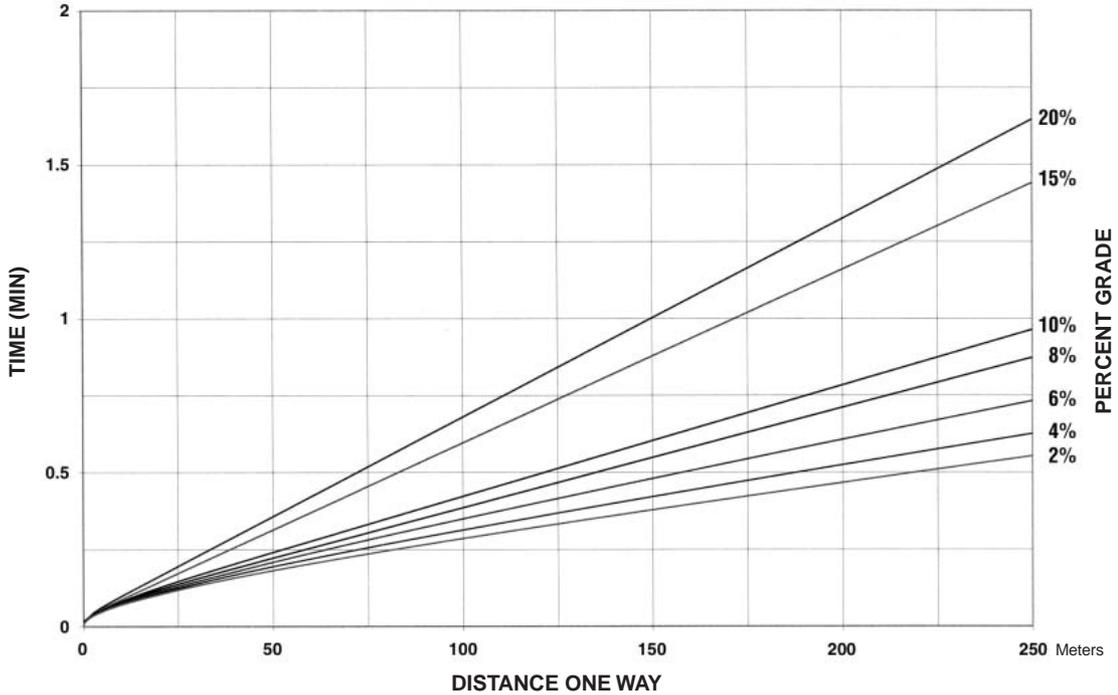


Travel times assume maximum governor pedal depression and automatic shifting for any VSC setting.

In load and carry applications it is important to consult the tire manufacturer on Ton-MPH ratings and pressure recommendations.

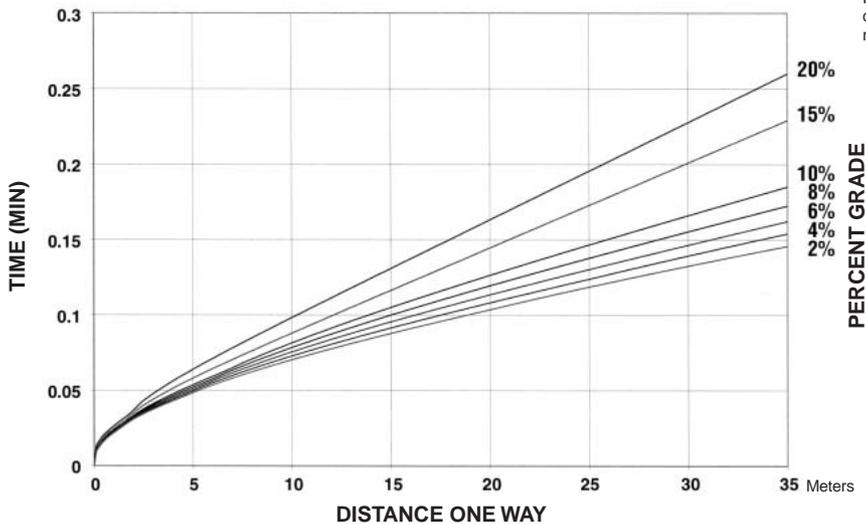


966G SERIES II TRAVEL TIME — EMPTY

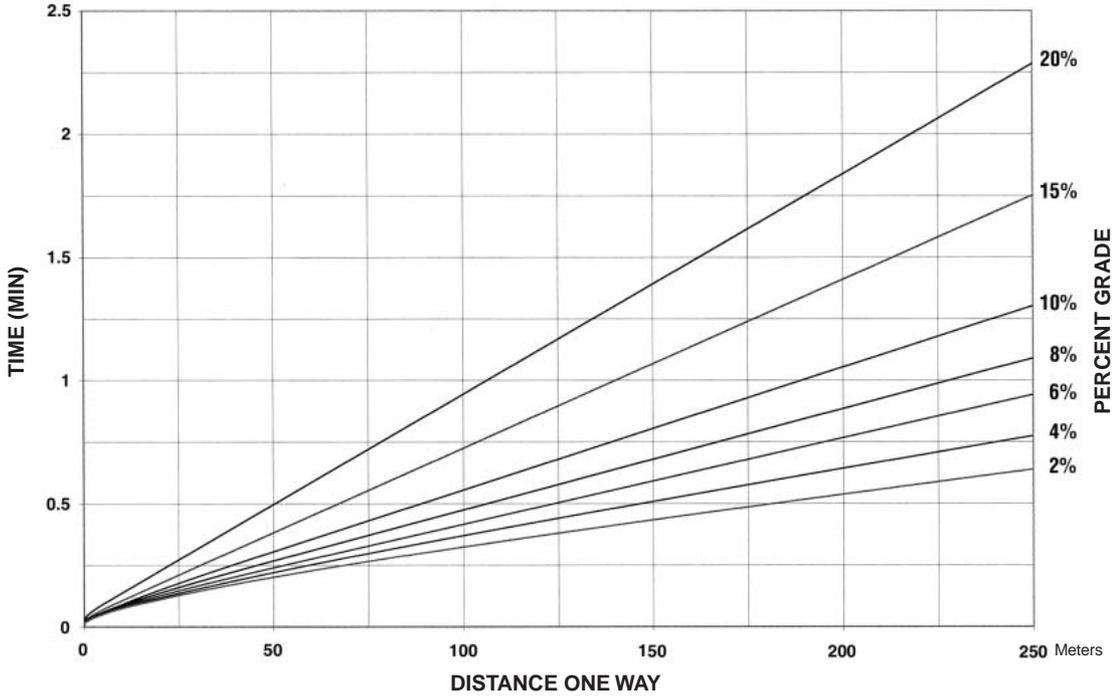


Travel times assume maximum governor pedal depression and automatic shifting for any VSC setting.

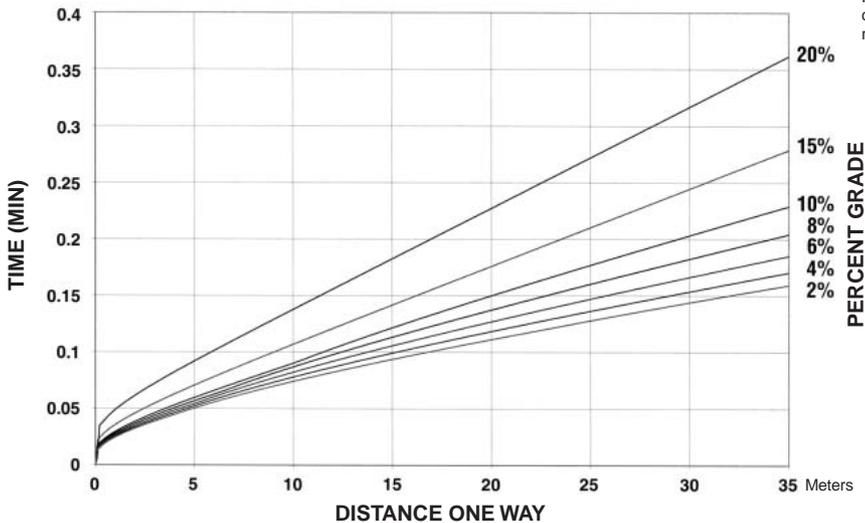
In load and carry applications it is important to consult the tire manufacturer on Ton-MPH ratings and pressure recommendations.



972G SERIES II TRAVEL TIME — LOADED

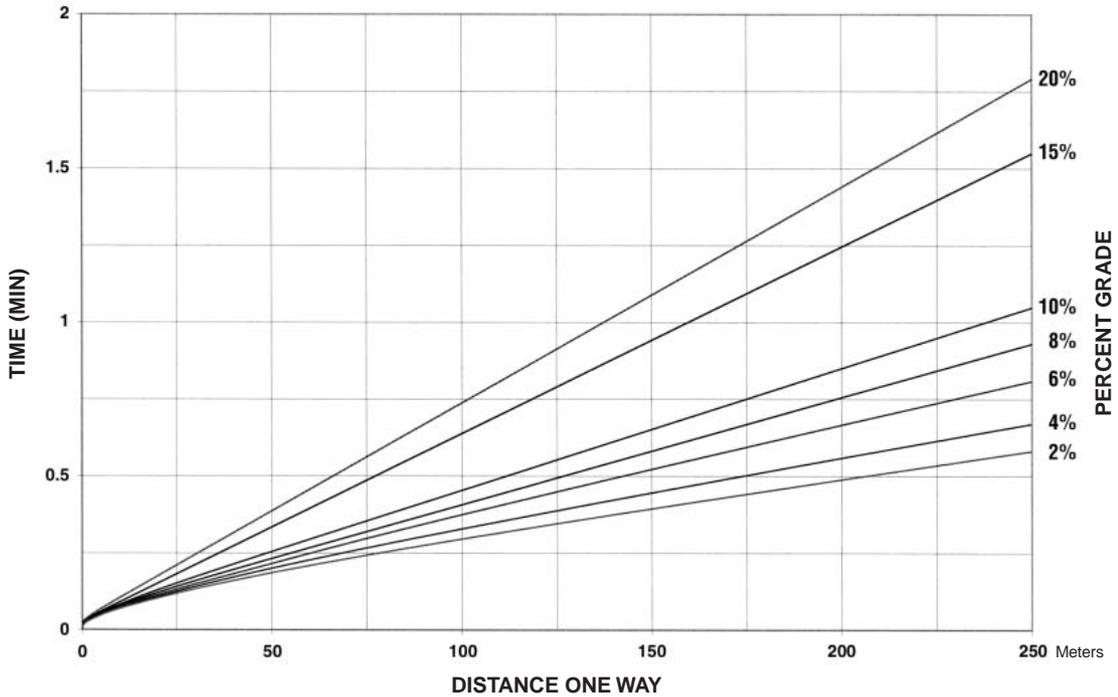


Travel times assume maximum governor pedal depression and automatic shifting for any VSC setting.



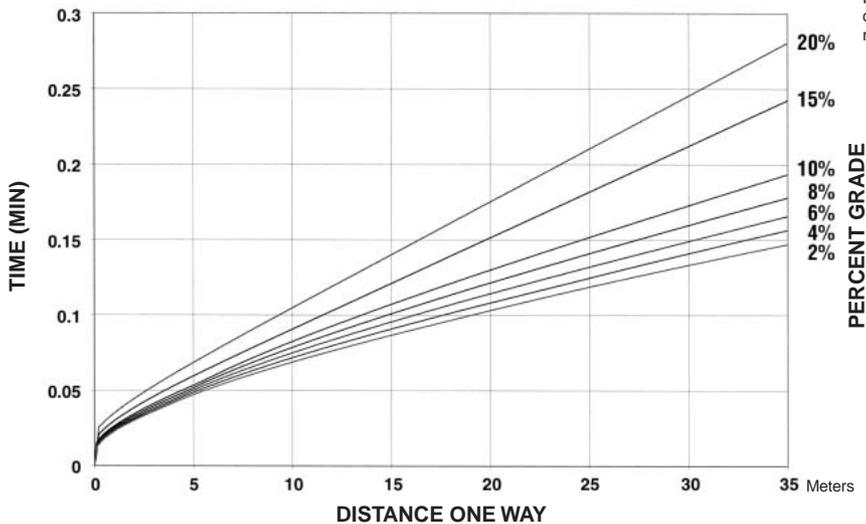
In load and carry applications it is important to consult the tire manufacturer on Ton-MPH ratings and pressure recommendations.

972G SERIES II TRAVEL TIME — EMPTY

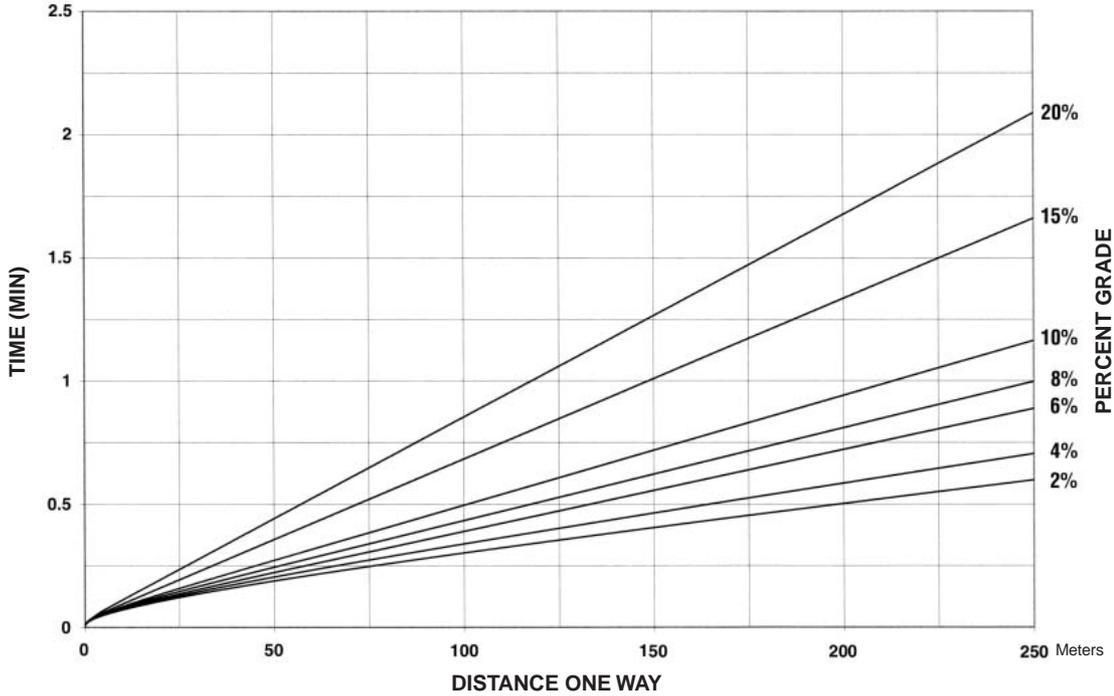


Travel times assume maximum governor pedal depression and automatic shifting for any VSC setting.

In load and carry applications it is important to consult the tire manufacturer on Ton-MPH ratings and pressure recommendations.

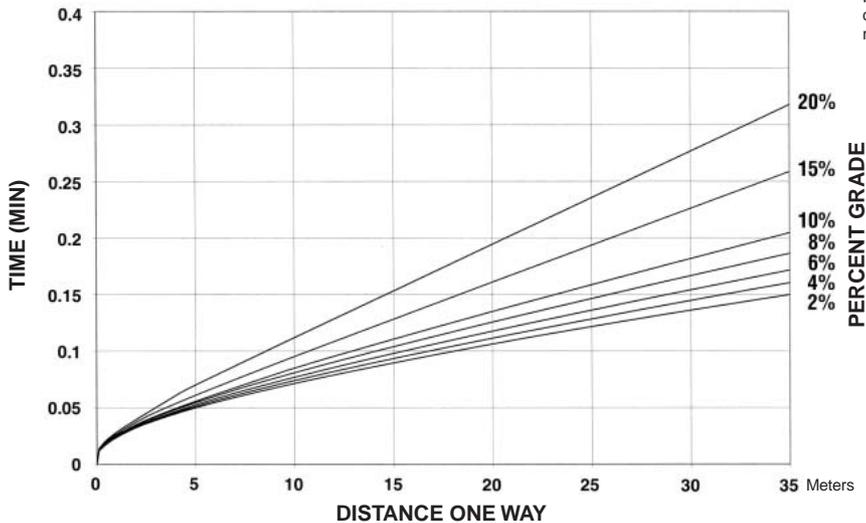


980G SERIES II TRAVEL TIME — LOADED

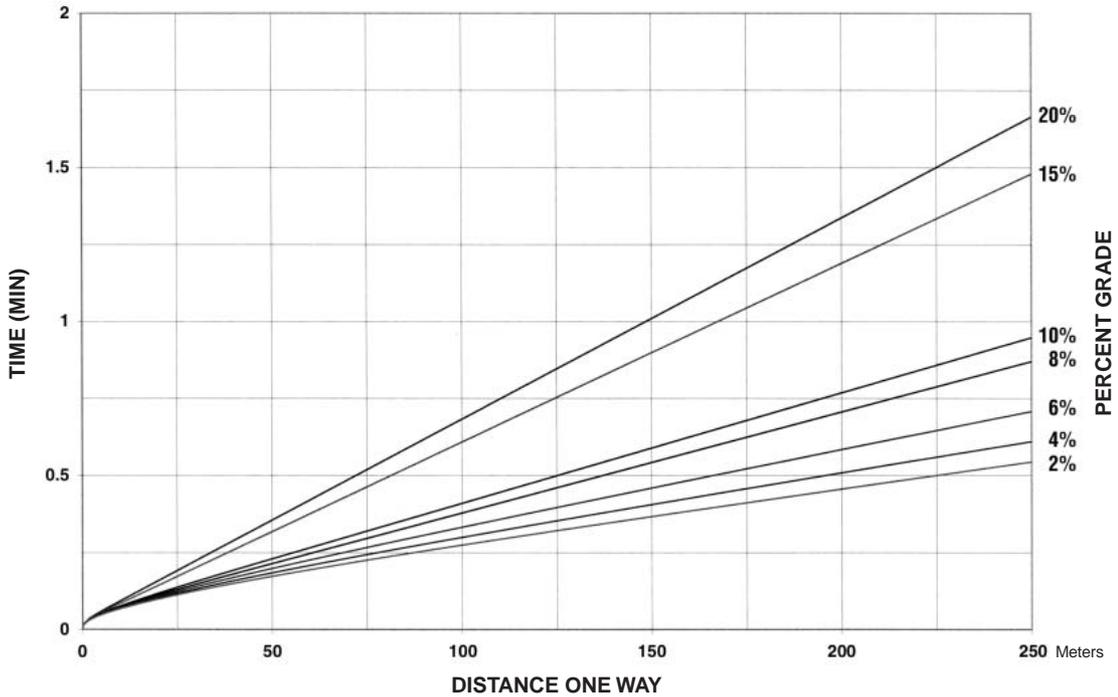


Travel times assume maximum governor pedal depression and automatic shifting for any VSC setting.

In load and carry applications it is important to consult the tire manufacturer on Ton-MPH ratings and pressure recommendations.

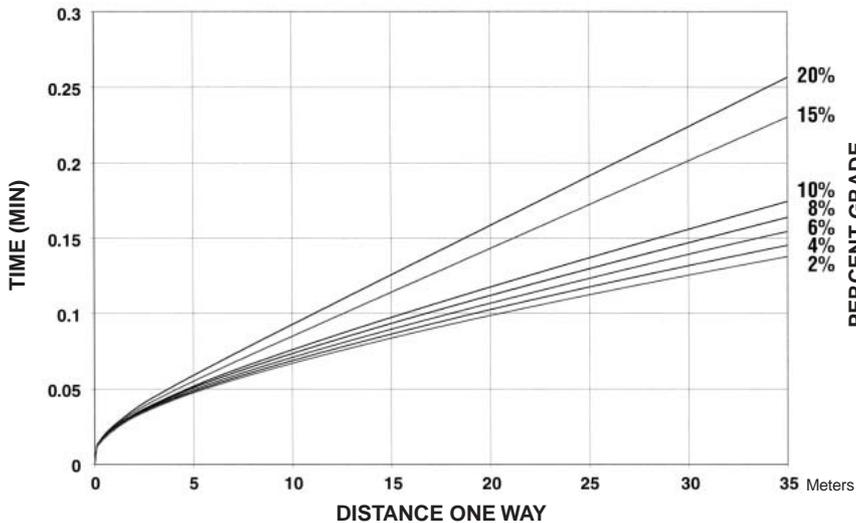


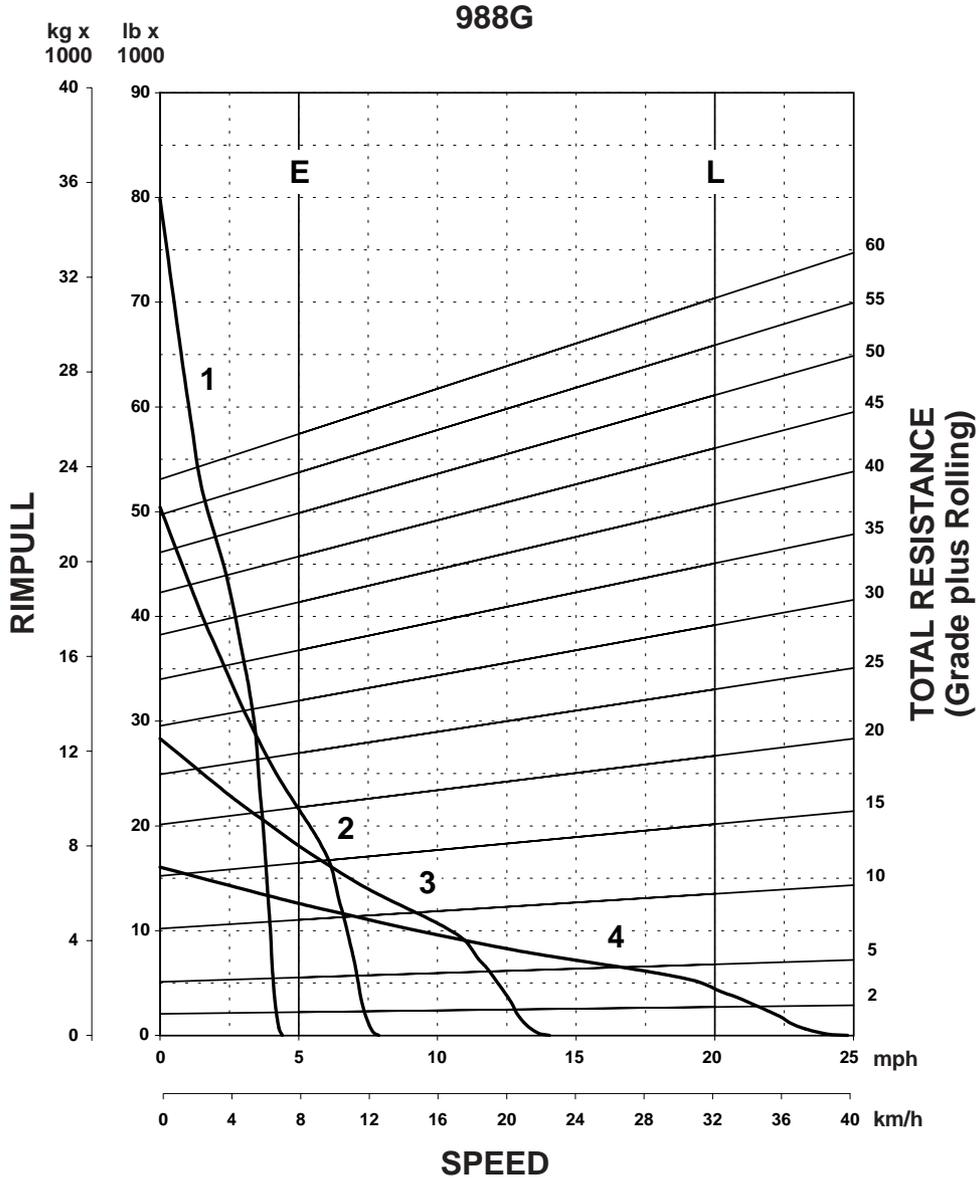
980G SERIES II TRAVEL TIME — EMPTY



Travel times assume maximum governor pedal depression and automatic shifting for any VSC setting.

In load and carry applications it is important to consult the tire manufacturer on Ton-MPH ratings and pressure recommendations.





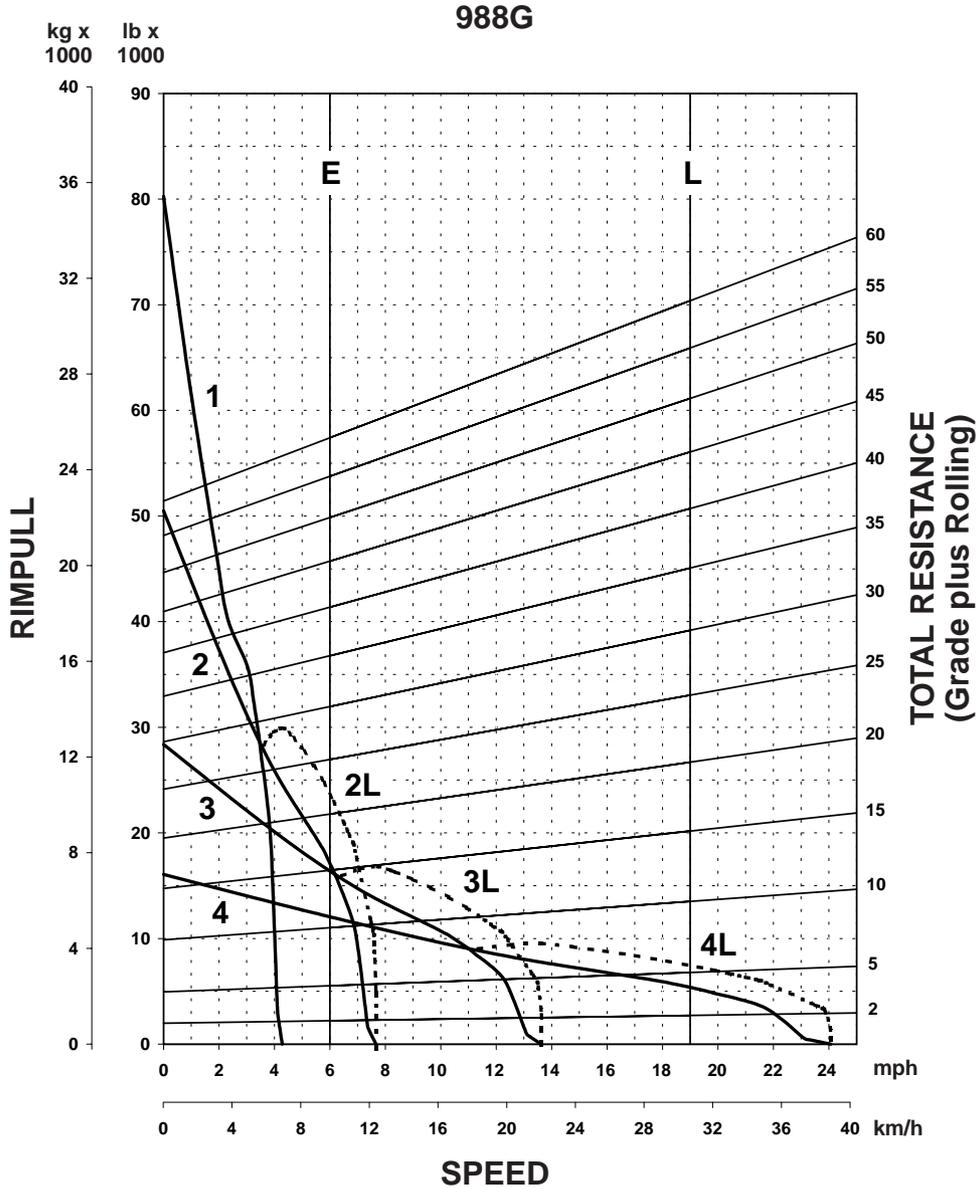
KEY

- 1 — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear
- 4 — 4th Gear

KEY

- E — Empty 50 183 kg (110,634 lb)
- L — Loaded 61 523 kg (135,634 lb)

Calculated Pull: Idle Hydraulics
 Curves Assume NO SLIP Conditions



KEY

- 1 — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear
- 4 — 4th Gear

KEY

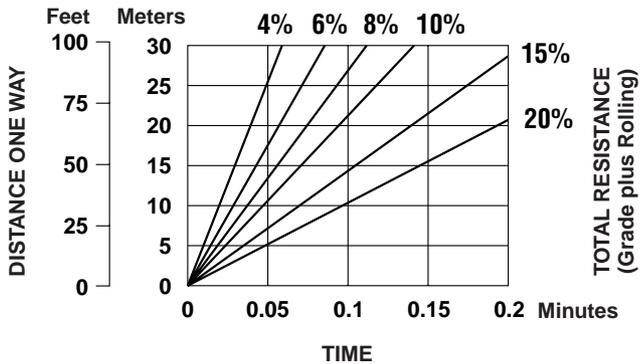
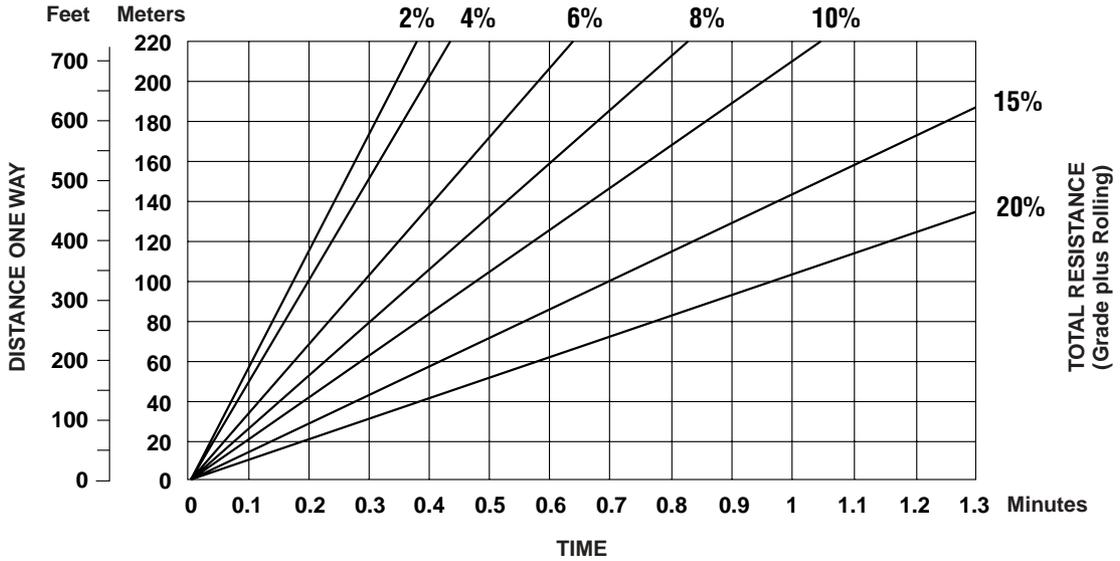
- E — Empty 50 183 kg (110,634 lb)
- L — Loaded 61 523 kg (135,634 lb)

Calculated Pull: Idle Hydraulics
Curves Assume NO SLIP Conditions

Travel Time — Loaded
 ● 988G — No Lock-Up
 ● 35/65-33 Tires

**Wheel Loaders
 Integrated Toolcarriers**

988G TRAVEL TIME — LOADED

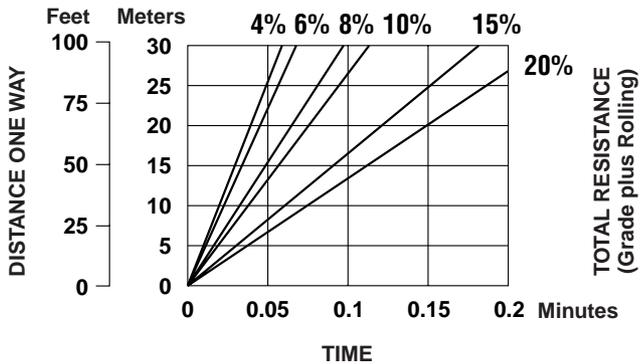
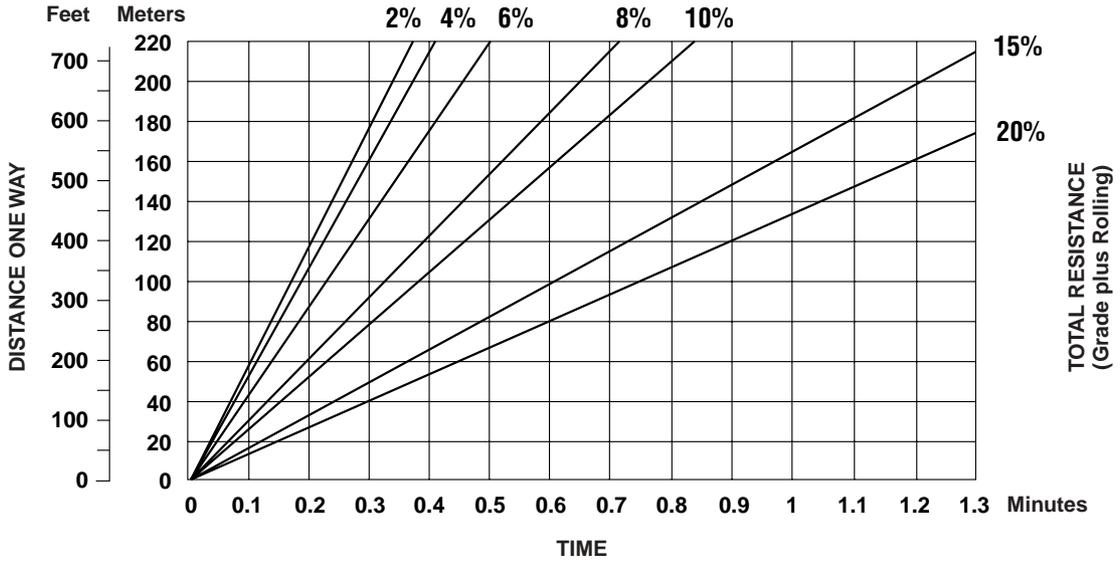


NOTE: Curves assume use of highest operating speed attainable: 4th gear for 2%-6% TR, 3rd gear for 8%-10% TR, 2nd gear for 15% and 20% TR.

In load-and-carry applications it is important to consult the tire manufacturer on Ton-MPH ratings and pressure recommendations.

Lock-Up Clutch torque converter is available as an attachment. Contact your Caterpillar Dealer for additional information.

988G TRAVEL TIME — EMPTY



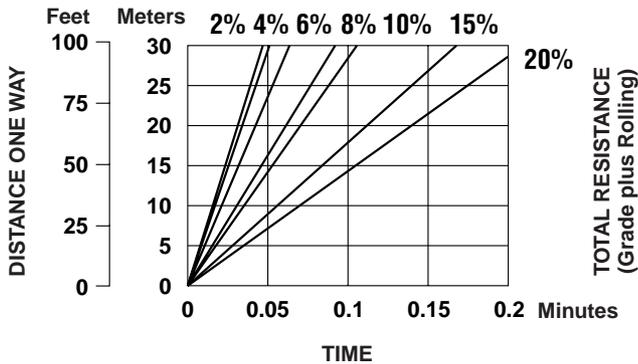
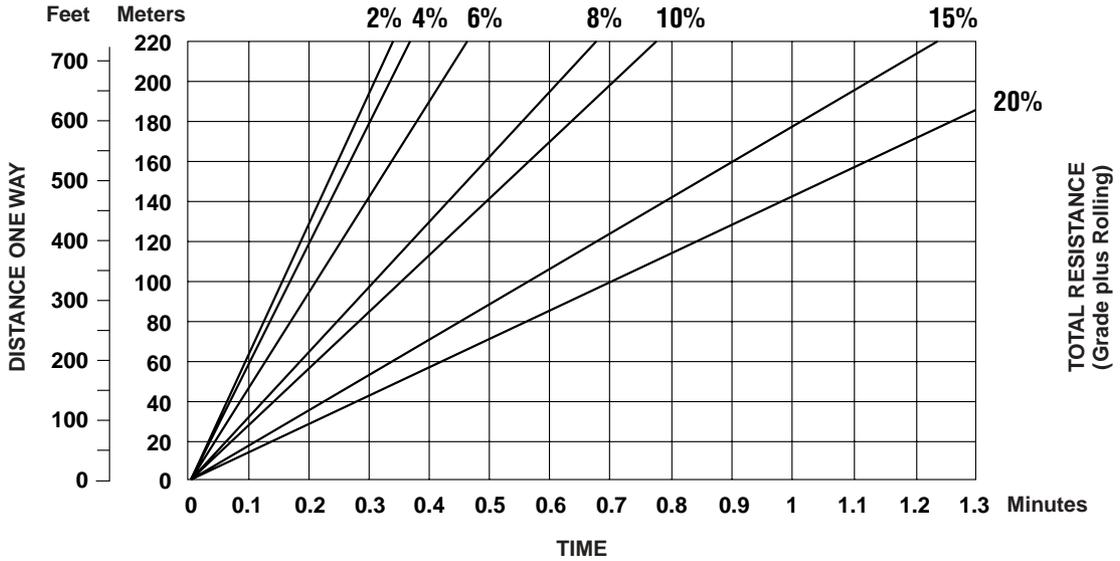
NOTE: Curves assume use of highest operating speed attainable: 4th gear for 2%-8% TR, 3rd gear for 10% TR, 2nd gear for 15% and 20% TR.

In load-and-carry applications it is important to consult the tire manufacturer on Ton-MPH ratings and pressure recommendations.

Lock-Up Clutch torque converter is available as an attachment. Contact your Caterpillar Dealer for additional information.

- Travel Time — Loaded
- 988G — Lock-Up Clutch
- 35/65-33 Tires

988G TRAVEL TIME — LOADED



NOTE: Curves assume use of highest operating speed attainable: 4th gear for 2%-6% TR, 3rd gear for 8%-10% TR, 2nd gear for 15% and 20% TR.

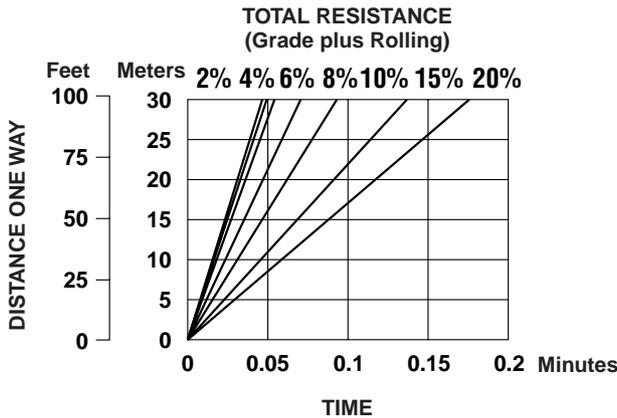
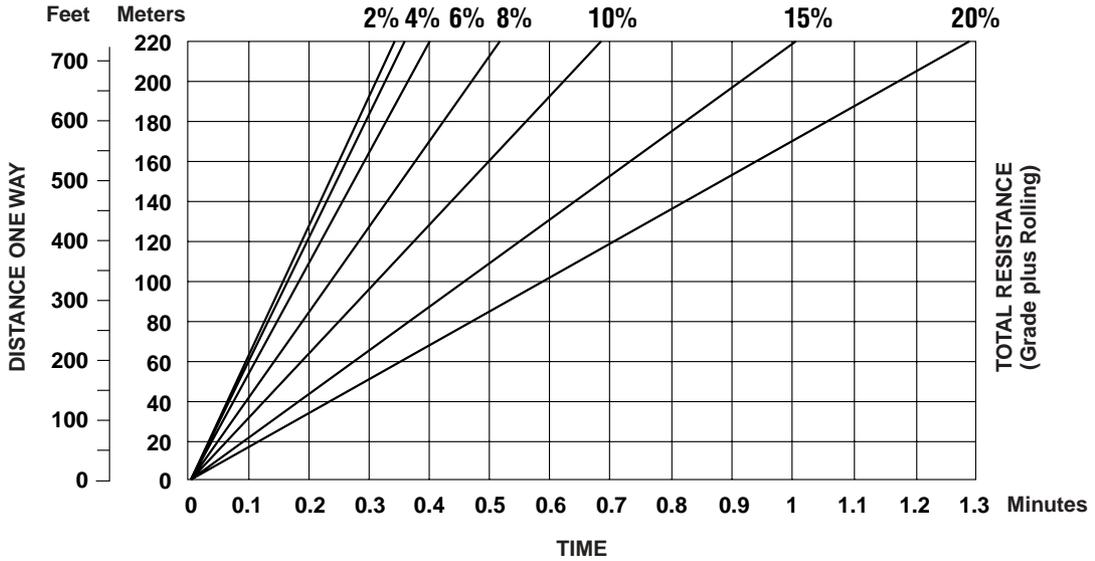
In load-and-carry applications it is important to consult the tire manufacturer on Ton-MPH ratings and pressure recommendations.

Lock-Up Clutch torque converter is available as an attachment. Contact your Caterpillar Dealer for additional information.

**Wheel Loaders
Integrated Toolcarriers**

- Travel Time — Empty
- 988G — Lock-Up Clutch
 - 35/65-33 Tires

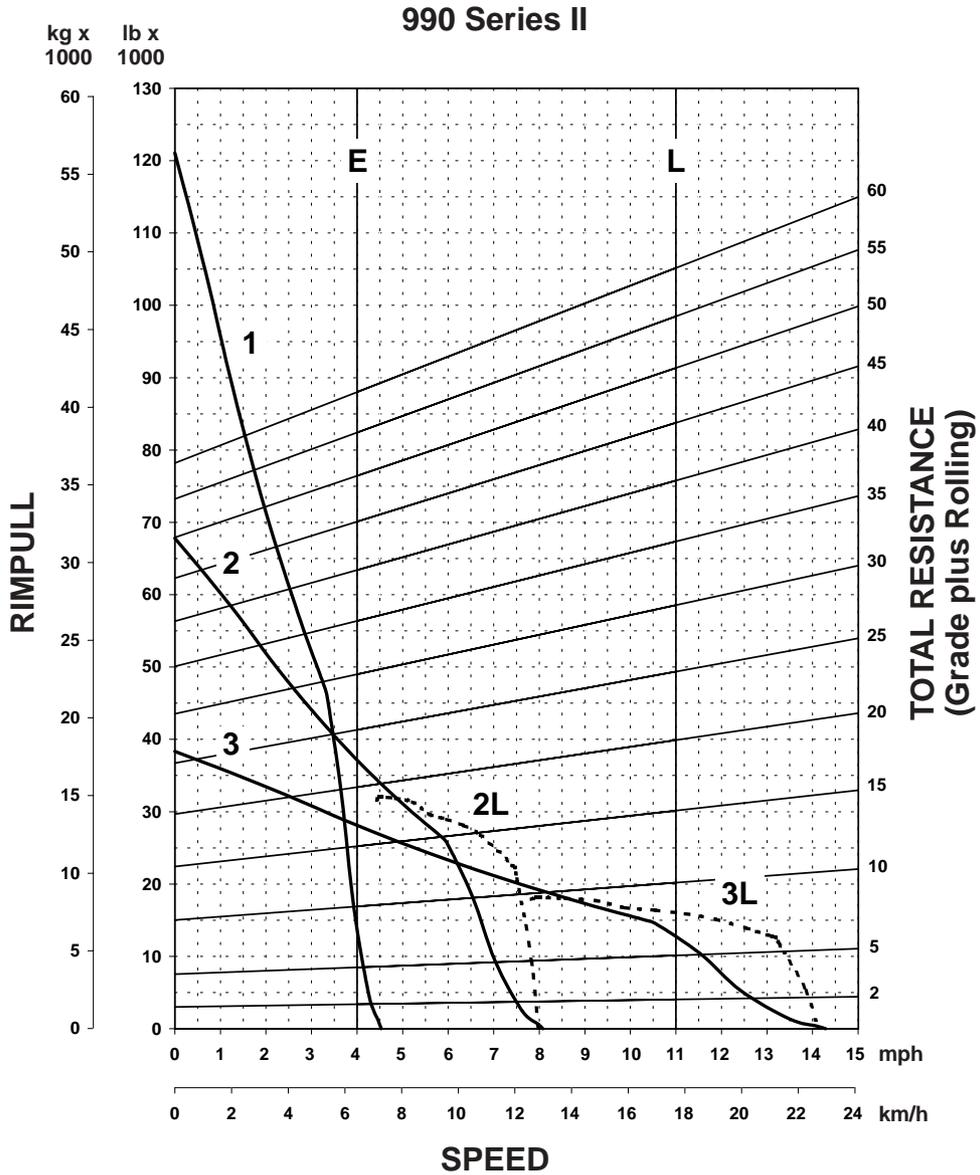
988G TRAVEL TIME — EMPTY



NOTE: Curves assume use of highest operating speed attainable: 4th gear for 2%-8% TR, 3rd gear for 10%-15% TR, 2nd gear for 20% TR.

In load-and-carry applications it is important to consult the tire manufacturer on Ton-MPH ratings and pressure recommendations.

Lock-Up Clutch torque converter is available as an attachment. Contact your Caterpillar Dealer for additional information.



KEY

- 1 — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear

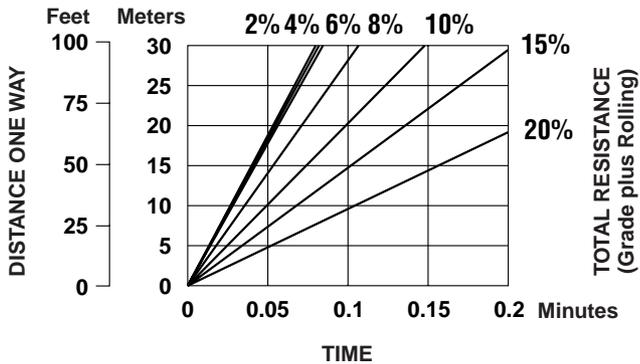
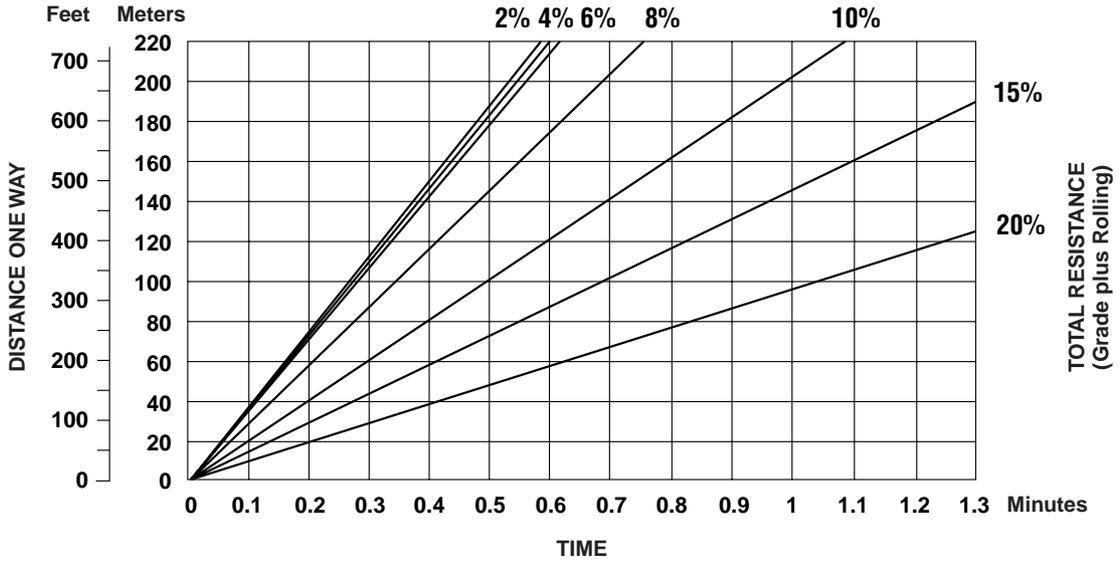
KEY

- E — Empty 76 965 kg (169,677 lb)
- L — Loaded 91 934 kg (202,677 lb)

Calculated Pull: Idle Hydraulics
Curves Assume NO SLIP Conditions

- 990 Series II
- 41.25/70-39 Tires

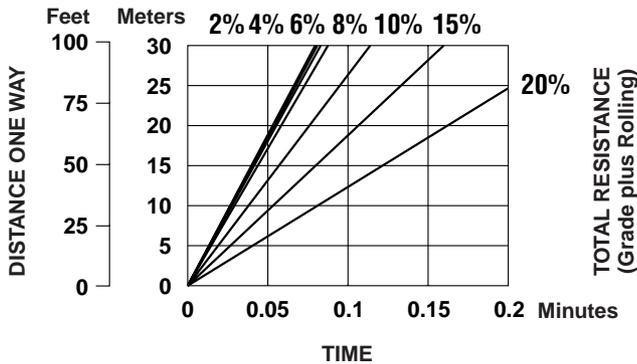
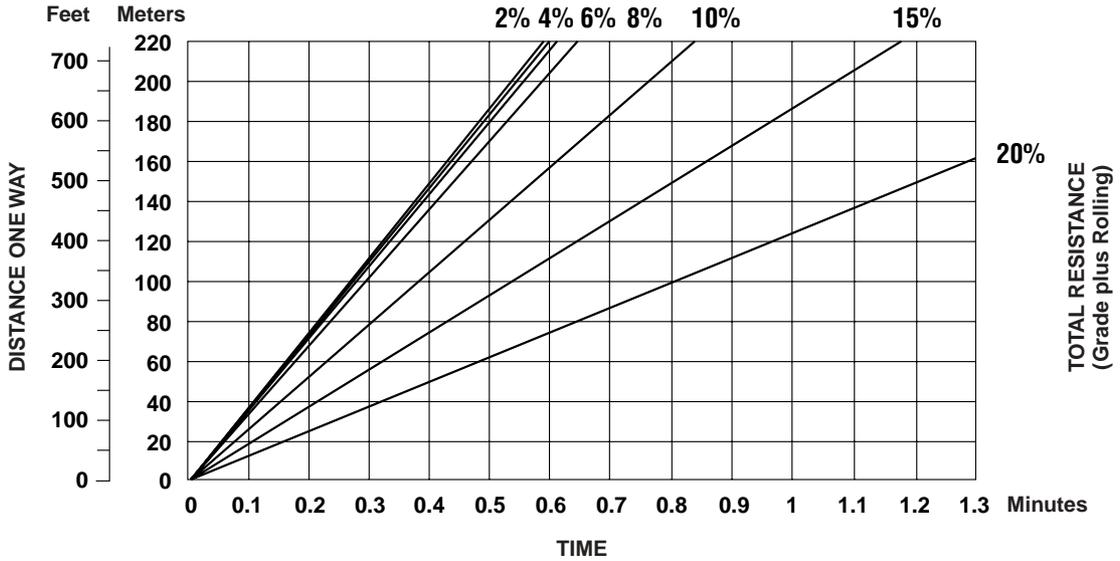
990 SERIES II TRAVEL TIME — LOADED



NOTE: Curves assume use of highest operating speed attainable: 3rd gear for 2%-8% TR, 2nd gear for 10%-20% TR.

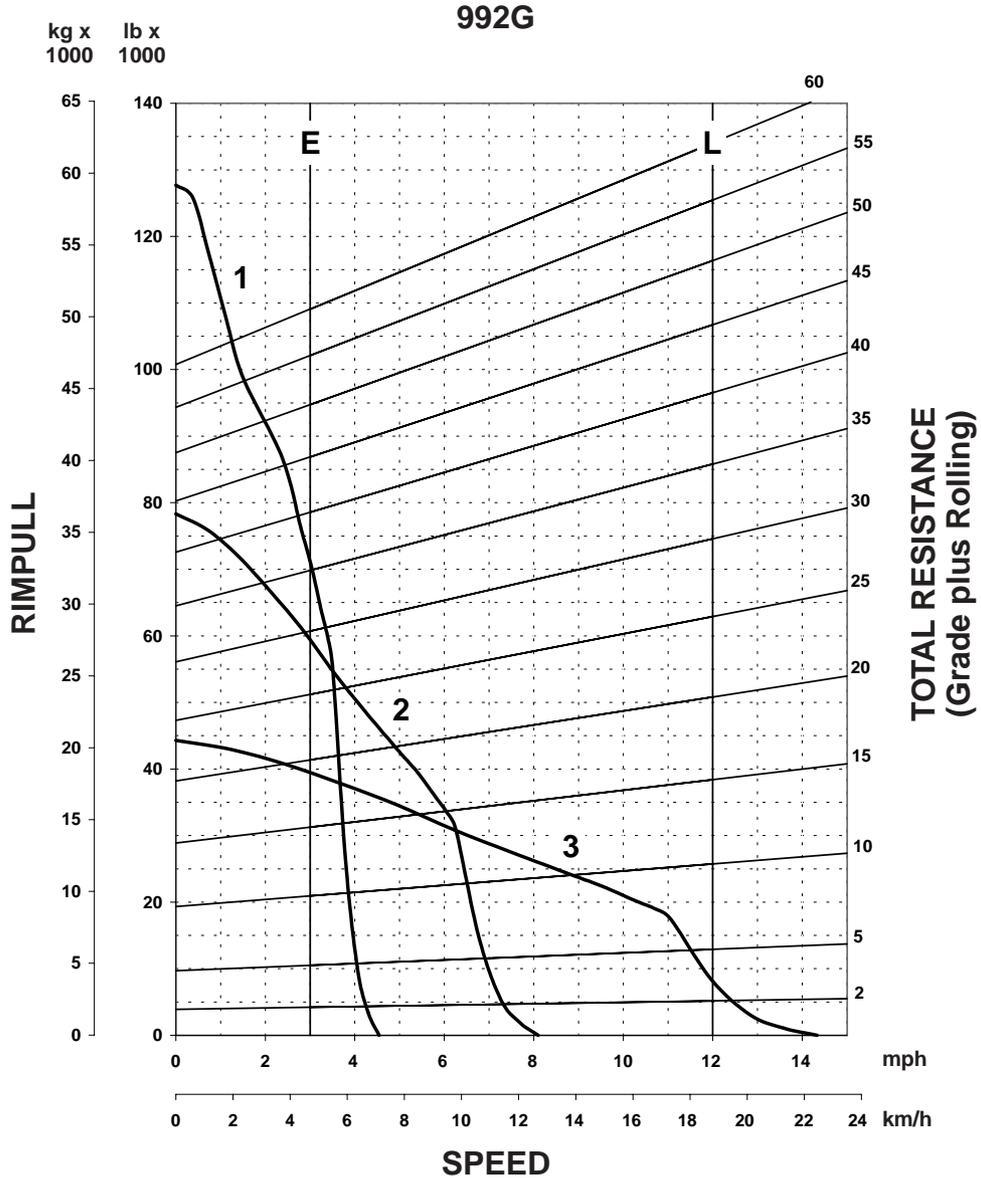
In load-and-carry applications it is important to consult the tire manufacturer on Ton-MPH ratings and pressure recommendations.

990 SERIES II TRAVEL TIME — EMPTY



NOTE: Curves assume use of highest operating speed attainable: 3rd gear for 2%-10% TR, 2nd gear for 15% and 20% TR.

In load-and-carry applications it is important to consult the tire manufacturer on Ton-MPH ratings and pressure recommendations.



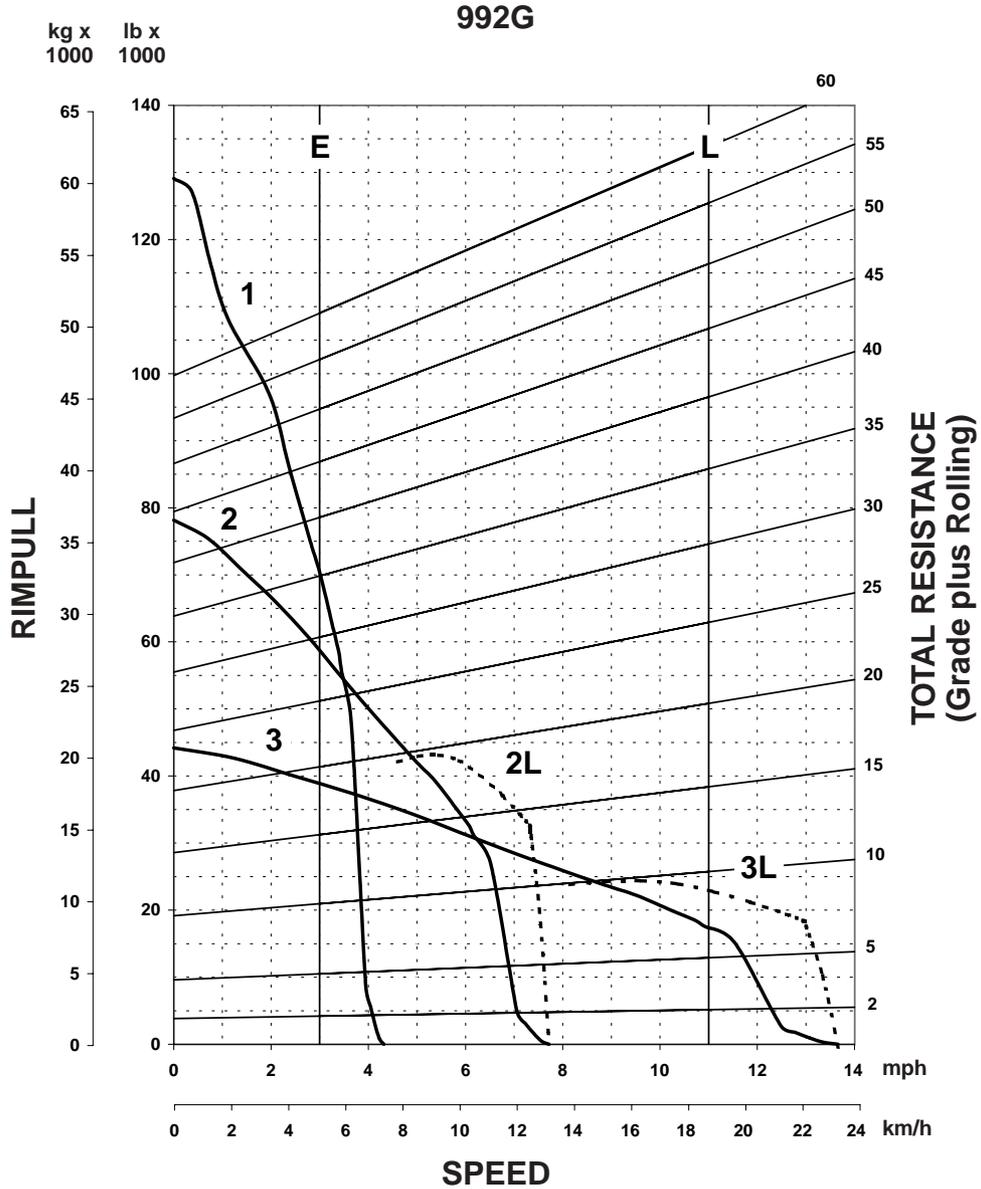
KEY

- 1 — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear

KEY

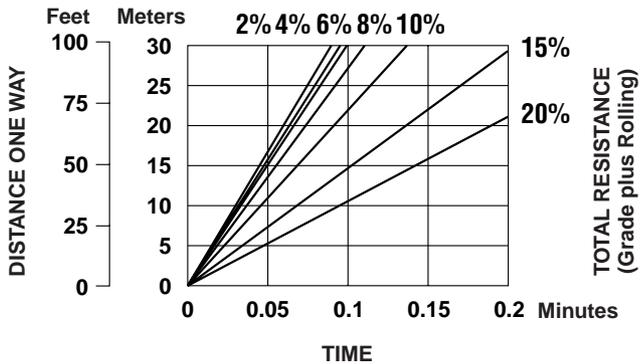
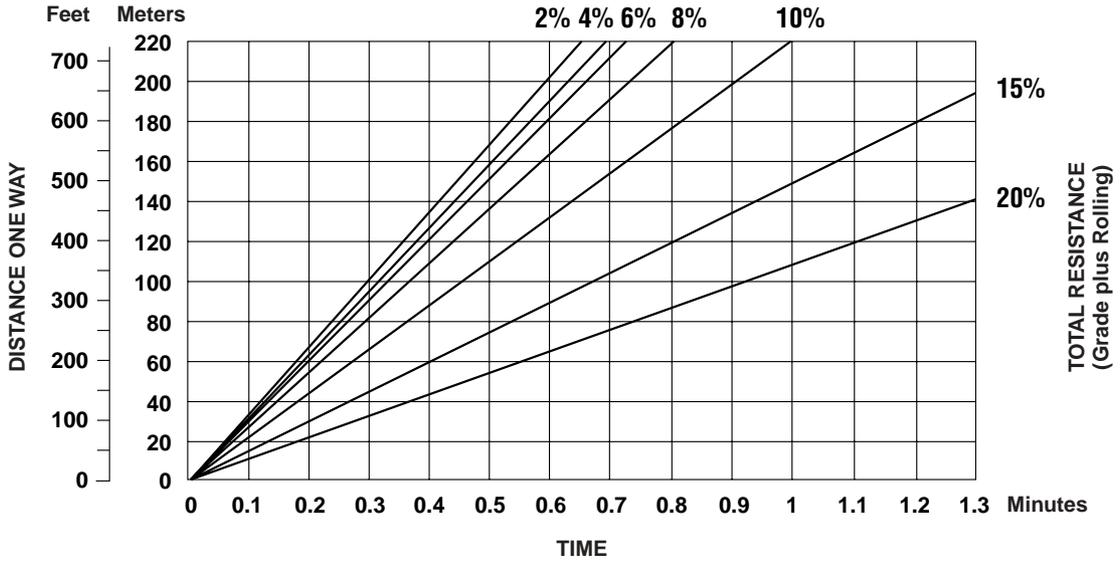
- E — Empty 92 797 kg (204,580 lb)
- L — Loaded 114 570 kg (252,580 lb)

Calculated Pull: Idle Hydraulics
Curves Assume NO SLIP Conditions



- 992G
- 45/65-45 Tires

992G TRAVEL TIME — LOADED



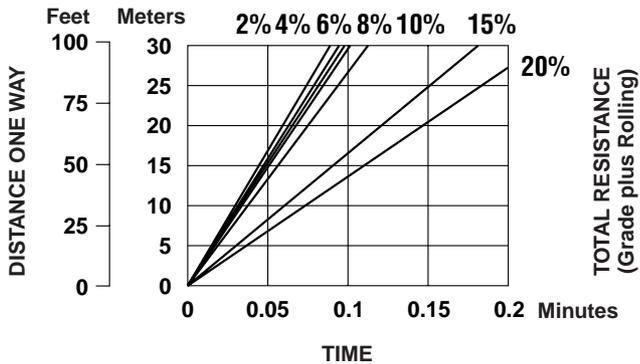
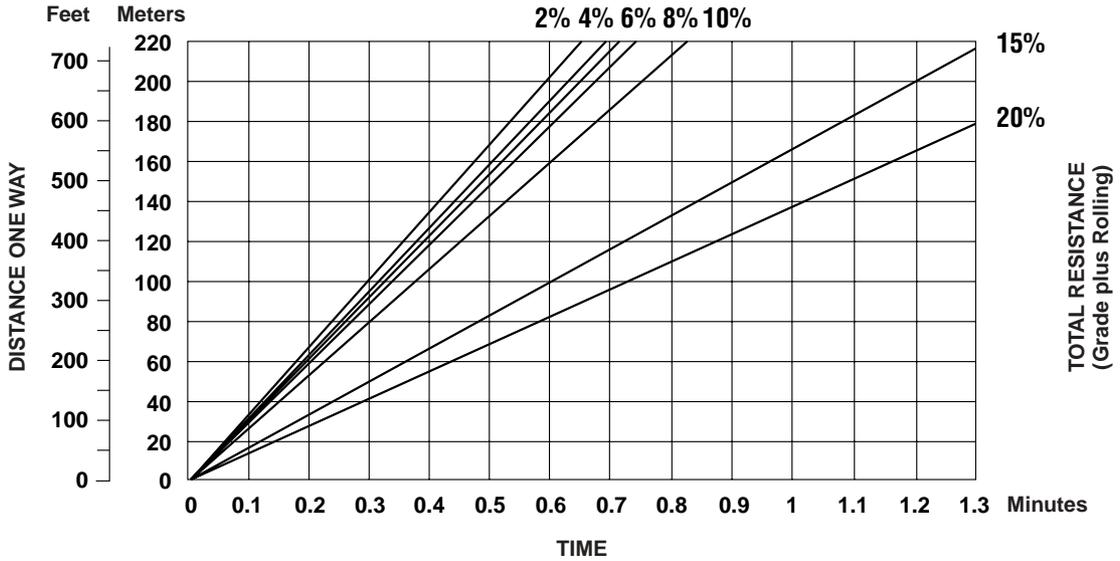
NOTE: Curves assume use of highest operating speed attainable: 3rd gear for 2%-10% TR, 2nd gear for 15% and 20% TR.

In load-and-carry applications it is important to consult the tire manufacturer on Ton-MPH ratings and pressure recommendations.

Travel Time — Empty
 ● 992G
 ● 45/65-45 Tires

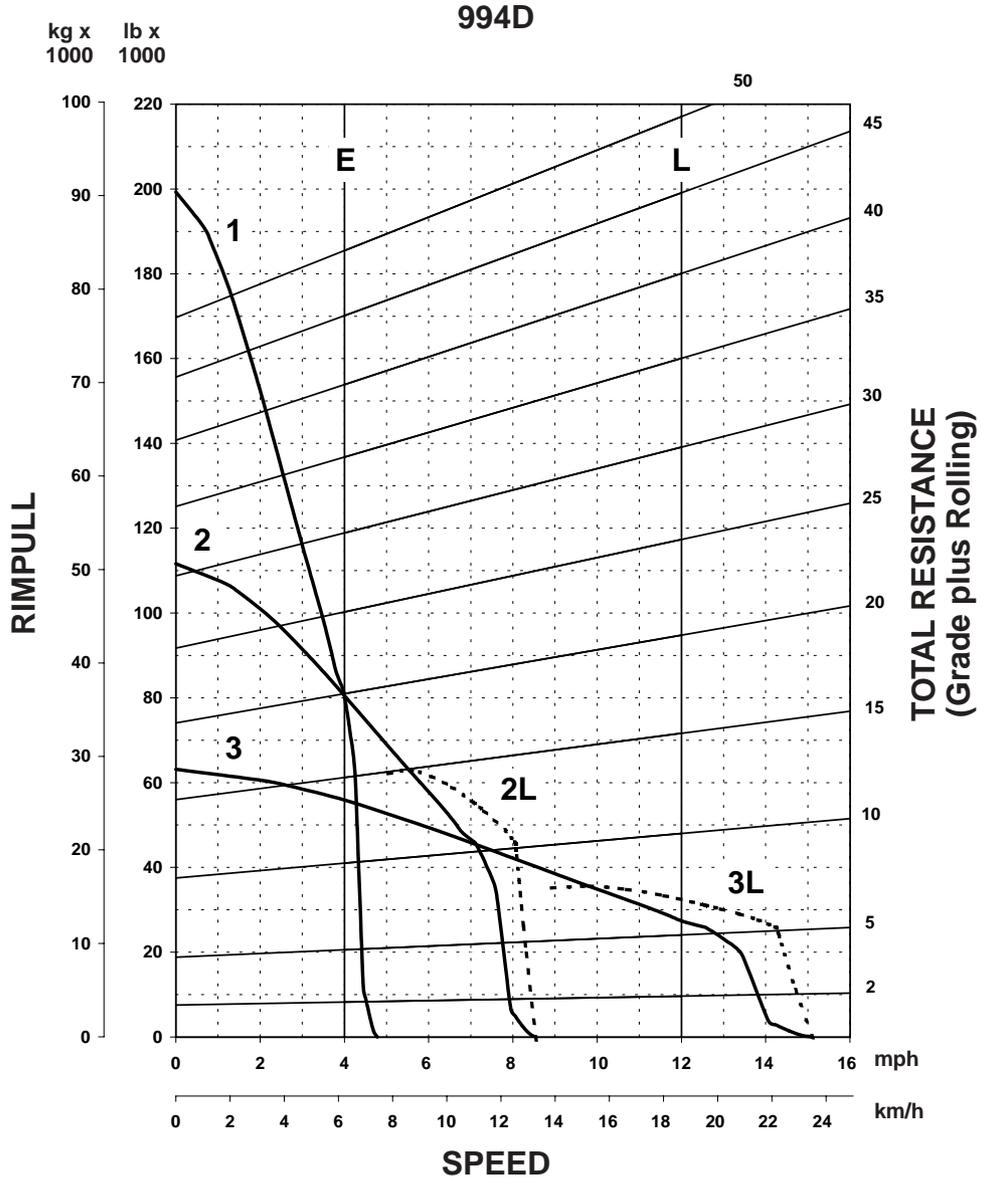
**Wheel Loaders
 Integrated Toolcarriers**

992G TRAVEL TIME — EMPTY



NOTE: Curves assume use of highest operating speed attainable: 3rd gear for 2%-10% TR, 2nd gear for 15% and 20% TR.

In load-and-carry applications it is important to consult the tire manufacturer on Ton-MPH ratings and pressure recommendations.



KEY

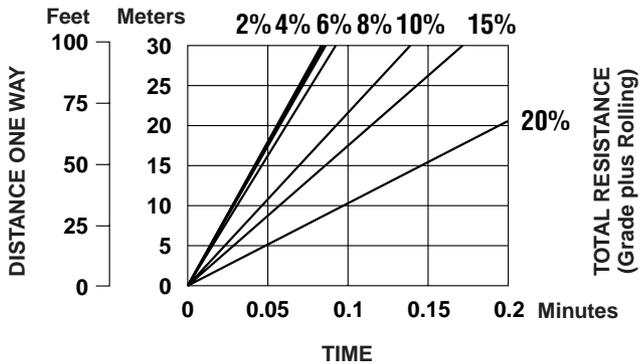
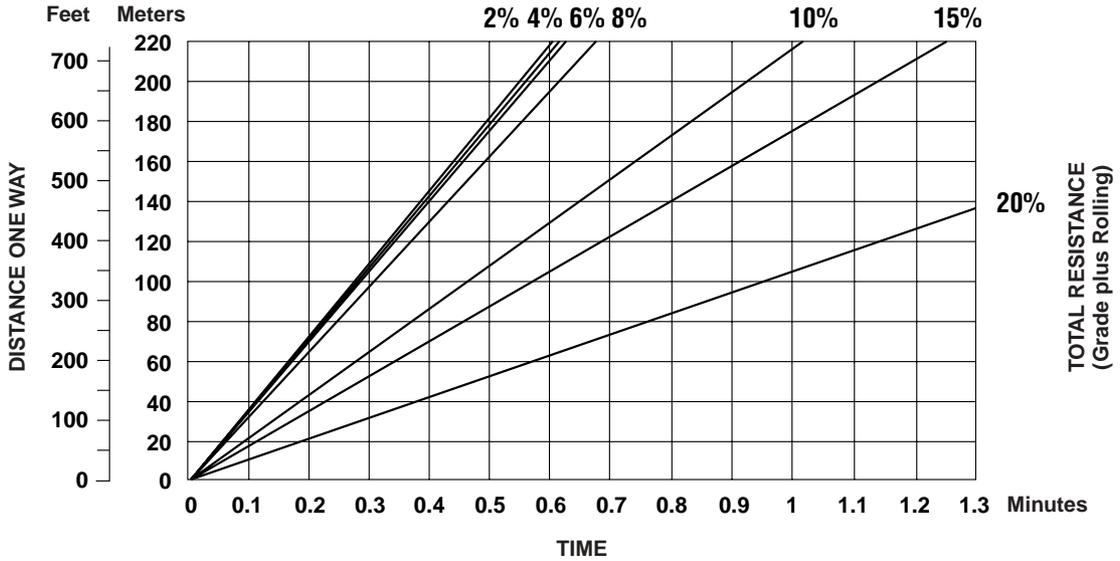
- 1 — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear

KEY

- E — Empty 189 345 kg (417,429 lb)
- L — Loaded 223 819 kg (493,429 lb)

Calculated Pull: Idle Hydraulics
Curves Assume NO SLIP Conditions

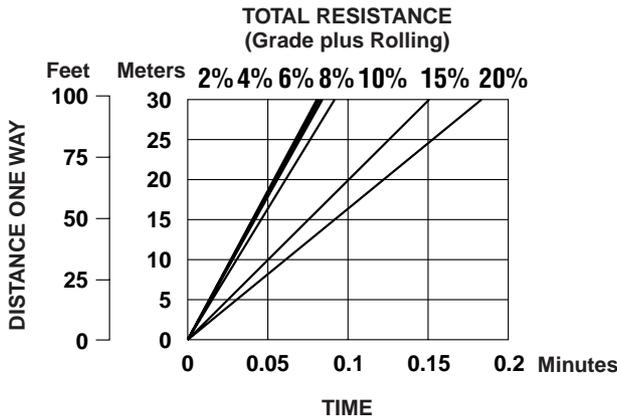
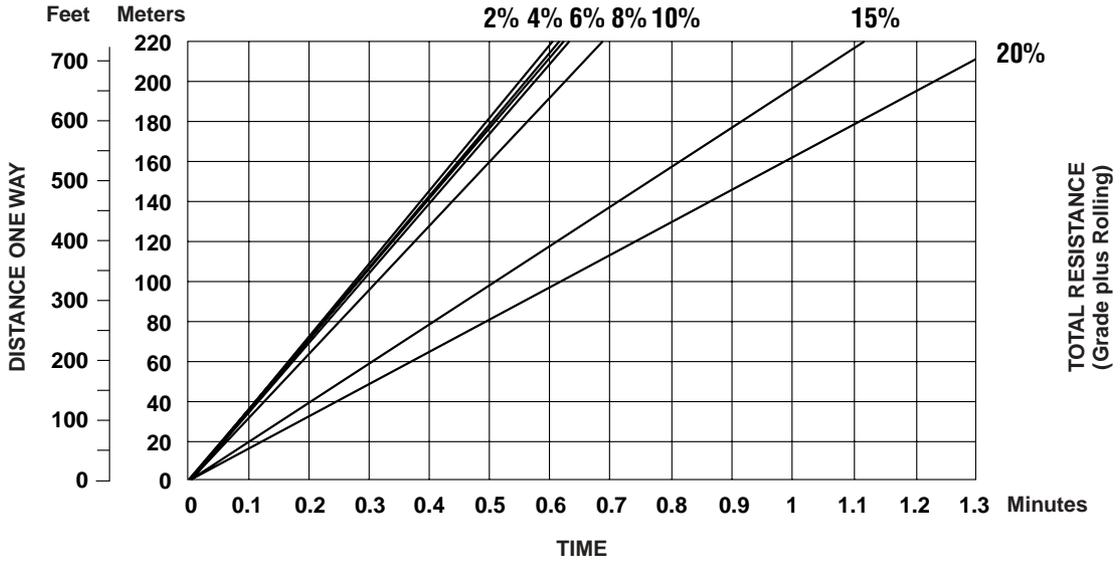
994D TRAVEL TIME — LOADED



NOTE: Curves assume use of highest operating speed attainable: 3rd gear for 2%-10% TR, 2nd gear for 15% and 20% TR.

In load-and-carry applications it is important to consult the tire manufacturer on Ton-MPH ratings and pressure recommendations.

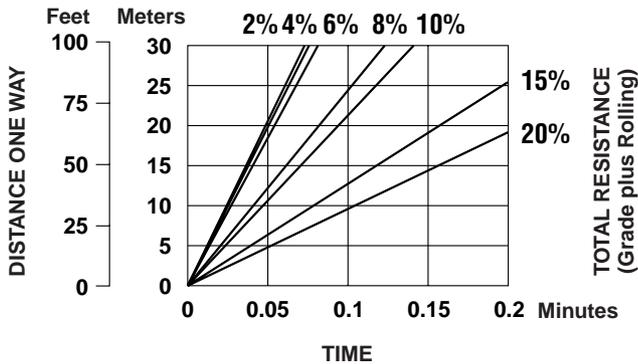
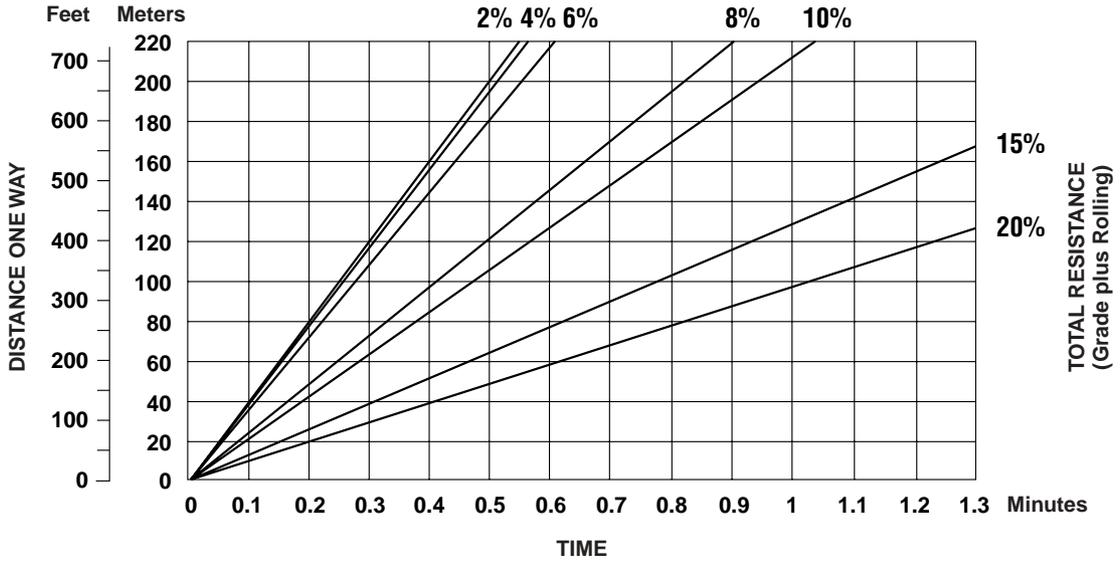
994D TRAVEL TIME — EMPTY



NOTE: Curves assume use of highest operating speed attainable: 3rd gear for 2%-10% TR, 2nd gear for 15% and 20% TR.

In load-and-carry applications it is important to consult the tire manufacturer on Ton-MPH ratings and pressure recommendations.

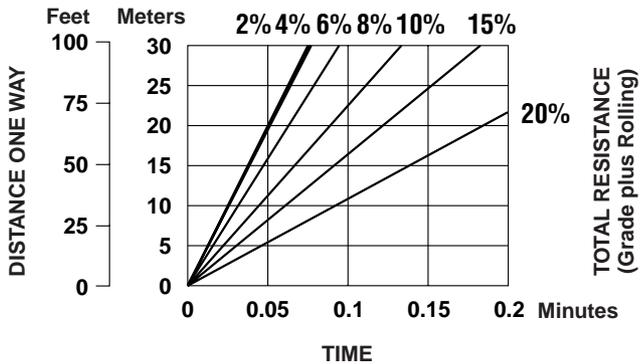
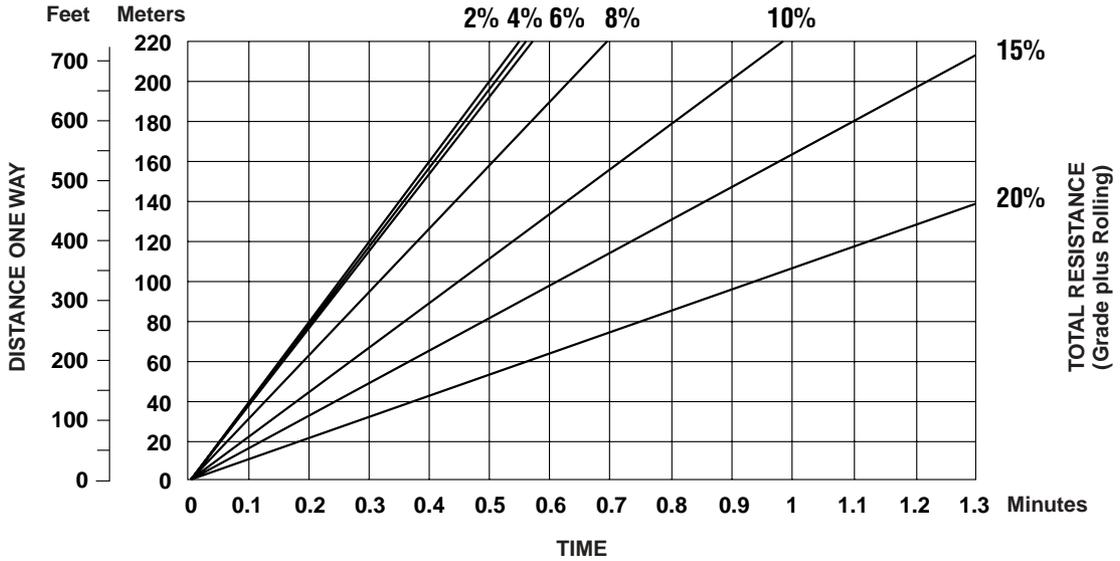
994D TRAVEL TIME — LOADED



NOTE: Curves assume use of highest operating speed attainable: 3rd gear for 2%-8% TR, 2nd gear for 10% and 15% TR, 1st gear for 20% TR.

In load-and-carry applications it is important to consult the tire manufacturer on Ton-MPH ratings and pressure recommendations.

994D TRAVEL TIME — EMPTY



NOTE: Curves assume use of highest operating speed attainable: 3rd gear for 2%-10% TR, 2nd gear for 15% TR, 1st gear for 20% TR.

In load-and-carry applications it is important to consult the tire manufacturer on Ton-MPH ratings and pressure recommendations.

Bucket Size (m ³ or yd ³)		1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0		
Cycle Time	Cycles Per Hr	Unshaded area indicates average production.																				
0.35	171																					
0.40	150	150	225	330	375	450	525															
0.45	133	135	200	268	332	400	466	530	600	665	730	800	865									
0.50	120	120	180	240	300	360	420	480	540	600	660	720	780	840	900	960	1003	1080	1140	1200		
0.55	109	109	164	218	272	328	382	436	490	545	600	655	705	765	820	870	925	980	1008	1090		
0.60	100	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000		
0.65	92	92	138	184	230	276	322	368	416	460	505	555	600	645	690	735	780	830	875	920		
0.70	86							342	386	430	474	515	560	600	645	690	730	775	815	860		
0.75	80												560	600	640	680	720	760	800			

Bucket Size (m ³ or yd ³)		11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
Cycle Time	Cycles Per Hr	Unshaded area indicates average production.															
0.35	171																
0.40	150																
0.45	133																
0.50	120	1320	1440														
0.55	109	1200	1310	1420	1520	1635	1740	1850	1960	2070	2180	2285	2395	2505	2615	2725	2830
0.60	100	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600
0.65	92	1010	1105	1195	1285	1380	1470	1560	1655	1745	1840	1930	2020	2115	2205	2300	2390
0.70	86	945	1030	1120	1200	1290	1375	1460	1545	1630	1720	1805	1890	1975	2060	2150	2235
0.75	80	880	960	1040	1120	1200	1280	1360	1440	1520	1600	1680	1760	1840	1920	2000	2080
0.80	75			975	1050	1125	1200	1275	1350	1425	1500	1575	1650	1725	1800	1875	1950

Job Efficiency	Efficiency	Bucket Load Factor
Worktime/Hr	Factor	Bucket Size × 1.00
60 Min Hr	100%	
55	91%	.95
50	83%	.90
45	75%	.85
40	69%	.80
—	—	.75

Wheel Loaders Integrated Toolcarriers

Production Estimating Table

- 60 min hour
- Shot Rock
- Metric Tons

Metric Tons ● 1600 kg Lm³ (1.6 t) density

Bucket Size m ³		1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5
Cycle Time	Cycles Per Hr	Unshaded area indicates average production.																	
0.40	150	240	360	480	600	720													
0.45	133	213	319	426	532	638	745	851	958	1064	1170								
0.50	120	192	288	384	480	576	672	768	864	960	1056	1152	1248	1344	1440	1536	1632	1730	1825
0.55	109	174	262	349	436	523	610	698	785	872	959	1046	1134	1221	1308	1395	1482	1570	1655
0.60	100	160	240	320	400	480	560	640	720	800	880	960	1040	1120	1200	1280	1360	1440	1520
0.65	92	147	221	294	368	442	515	589	662	736	810	883	957	1030	1104	1178	1251	1325	1400
0.70	86						482	550	619	688	757	826	894	963	1032	1101	1170	1238	1310
0.75	80											768	832	896	960	1024	1088	1150	1215
Bucket Payload Metric (Tons)		1.6	2.4	3.2	4.0	4.8	5.6	6.4	7.2	8.0	8.8	9.6	10.4	11.2	12.0	12.8	13.6	14.4	15.2

Bucket Size m ³		10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20.0
Cycle Time	Cycles Per Hr	Unshaded area indicates average production.										
0.40	150											
0.45	133											
0.50	120											
0.55	109	1744	1918	2092	2267	2441	2616	2790	2964	3139	3313	3488
0.60	100	1600	1760	1920	2080	2240	2400	2560	2720	2880	3040	3200
0.65	92	1472	1619	1766	1913	2060	2208	2355	2502	2649	2796	2944
0.70	86	1376	1513	1651	1788	1926	2064	2201	2339	2476	2614	2752
0.75	80	1280	1408	1536	1664	1792	1920	2048	2176	2304	2432	2560
0.80	75	1200	1320	1440	1560	1680	1800	1920	2040	2160	2280	2400
Bucket Payload Metric (Tons)		16.0	17.6	19.2	20.8	22.4	24.0	25.6	27.2	28.8	30.4	32.0

U.S. Tons ● 2700 lb/LCY (1.35 T) density

Bucket Size yd ³		1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0
Cycle Time	Cycles Per Hr	Unshaded area indicates average production.																		
0.40	150	203	330	420	510	615	705	810												
0.45	133	180	293	360	454	545	625	720	810	905	985	1080	1170							
0.50	120	162	254	324	408	492	565	650	730	815	890	970	1060	1140	1200	1300	1380	1470	1540	1620
0.55	109	147	240	294	370	448	515	590	665	740	805	885	960	1030	1090	1180	1250	1330	1400	1740
0.60	100	135	220	270	340	410	470	540	610	680	740	810	880	950	1000	1080	1150	1220	1280	1350
0.65	92	124	200	250	314	380	435	500	560	625	680	750	810	875	920	985	1060	1120	1180	1250
0.70	86								525	585	635	695	755	815	860	930	990	1050	1100	1160
0.75	80													760	800	865	920	975	1030	1080
Bucket Payload (Tons)		1.35	2.2	2.7	3.4	4.1	4.7	5.4	6.1	6.8	7.4	8.1	8.8	9.5	10.0	10.8	11.5	12.2	12.8	13.5

Bucket Size yd ³		11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
Cycle Time	Cycles Per Hr	Unshaded area indicates average production.															
0.40	150																
0.45	133																
0.50	120	1782	1945														
0.55	109	1620	1765	1905	2060	2200	2350	2495	2645	2790	2940	3080	3235	3375	3530	3670	3825
0.60	100	1485	1620	1750	1890	2020	2160	2290	2430	2560	2700	2830	2970	3100	3240	3370	3510
0.65	92	1365	1490	1610	1735	1855	1985	2105	2235	2355	2480	2600	2730	2850	2980	3100	3225
0.70	86	1275	1390	1505	1625	1735	1855	1965	2085	2200	2320	2430	2550	2665	2785	2895	3015
0.75	80	1190	1295	1400	1510	1615	1725	1830	1940	2045	2160	2260	2375	2480	2590	2695	2805
0.80	75			1310	1415	1515	1620	1715	1820	1920	2025	2120	2225	2325	2430	2525	2630
Bucket Payload (Tons)		14.9	16.4	17.5	18.9	20.2	21.6	22.9	24.3	25.6	27.0	28.3	29.7	31.0	32.4	33.7	35.1

Wheel Loaders Integrated Toolcarriers

Work Tools ● Wheel Loaders

Work Tools	994D	992G	990 Series II	988G	980G Series II	972G Series II	966G Series II	962G Series II	950G Series II	938G Series II	928G	924GZ	914G	908	906	902
Quick coupler		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
General purpose bucket		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Coal bucket	X	X	X	X	X	X	X	X	X	X	X	X	X			
Woodchip bucket				X	X	X	X	X	X	X	X	X	X			
Refuse bucket					X	X	X	X	X	X	X	X				
Material handling bucket			X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sand & gravel bucket					X	X	X	X	X							
Rock bucket	X	X	X	X	X											
Slag bucket		X		X	X											
Bonus bucket				X	X											
Multi-purpose bucket						X	X	X	X	X	X	X	X	X		
Side dump bucket						X	X	X	X	X	X	X	X	X	X	X
Bucket with top clamp						X	X	X	X	X	X	X	X			
Material handling arm					X	X	X	X	X	X	X	X	X			
Pallet fork		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Millyard fork					X	X	X	X	X	X	X	X				
Log/lumber fork						X	X	X	X	X	X	X	X			
Logging fork			X	X	X	X	X	X	X	X						
Core fork						X	X	X	X		X					
V-plow								X	X	X	X	X	X			
Manual reverse plow						X	X	X	X	X	X	X	X			
Hydraulic reverse plow						X	X	X	X	X	X	X	X			
Loader rake						X	X	X	X	X	X	X	X			
Hydraulic angle broom								X	X	X	X*	X*	X	X	X	X
Block handling bucket				X	X											
Block handling fork				X	X											
Breaker tine				X	X											
Boom clearing rake				X	X											
Stone sieve bucket										X				X	X	X
High dump bucket						X	X	X	X	X	X	X	X	X	X	X
Pickup sweeper												X*	X*	X	X	X

*Requires IT compatible quick coupler.

NOTE: List is not all-inclusive. Contact your Caterpillar Dealer for special attachment needs.

BUCKETS

General Purpose — for most material types with choice of cutting edges and teeth.

Loose Material — designed for snow, woodchips, hay, coal, etc. Add independently controlled top clamp for materials like hay, brush, silage or compost.

Multi-purpose — versatile ... loads, strips top-soil, bulldozes, clamps pipe, cleans up debris, plus many other tasks.

High dump or “roll-out” — for extended dump height of light materials.

Side dump — dump forward or to the left ... ideal in close quarters or to reduce turning time.

Grading — long, flat floor and straight edge for finish work in housing developments, concrete pours, landscaping and light dozing.

FORKS

Log or lumber forks — with optional clamps, single, double or full-width.

Wide frame forks — adjustable for control of long pipes, culverts, etc.

Stinger fork — with long single shaft to penetrate salvage autos or round hay bales.

Utility pallet forks — for a variety of tasks, with three different tine sizes.

Pulpwood — choice of single or double top clamp for positive control of material.

Sorting — designed for durability and efficiency in stacking operations.

BLADES

Angling dozer — choice of manual or hydraulic angling 25° left or right.

Straight blade — for spreading, leveling and other utility dozing.

One-way snow blade — economical snow clearing with minimal machine effort.

V-plow — excellent for breaking up large drifts or high speed clearing operations.

Material Handling arm — carries and places pipe, prefabricated building panels and handles bulky, nonpalletized material ... two telescopic sections extend for three position operation.

AND MORE ...

Rotary broom — for street cleanup, snow removal, jobsite clean-up, clearing runways ... angles left or right 30°.

Asphalt cutter — aids repair work on roads, pavements, water and sewer mains ... cuts clean to 125 mm (5").

Hooks — for attachment to dumpsters, bins, troughs, etc., to permit quick, easy, instant movement from place to place.

These products are available through your Caterpillar dealer.

Work Tools

Work Tools	IT62G II	IT38G II	IT28G	924G	IT14G
Bucket With Top Clamp	X	X	X	X	X
Multi-Purpose Bucket	X	X	X	X	X
Side Dump Bucket	X	X	X	X	X
High Dump Bucket	X	X	X	X	X
MH Bucket	X	X	X	X	X
Clean-up Bucket	X				
Pallet Fork	X	X	X	X	X
Log/Lumber Fork	X	X	X	X	X
Core Fork			X	X	X
Straight Blade			X	X	X
Manual Angle Blade	X	X	X	X	X
Hydraulic Angle Blade			X	X	X
Manual Reversible Plow	X	X	X	X	X
Hydr. Reversible Plow	X	X	X	X	X
V-Plow	X	X	X	X	X
One Way Plow	X	X	X	X	X
Asphalt Cutter			X	X	X
Hydraulic Angle Broom	X	X	X	X	X
Pick-up Broom			X	X	X
Hydraulic Hammers			X	X	X
Loader Rake	X	X	X	X	X
Woodchip	X	X	X	X	X
Refuse	X	X	X	X	X
Millyard Fork	X	X			
Logging Fork	X	X			
Grapple	X	X			

This list not all inclusive. Contact your Caterpillar dealer for special attachment needs.

TRACK LOADERS

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Features of 939C:

- **Hydrostatic drive train** offers infinitely variable speeds, fast acceleration, dynamic hydrostatic braking, superior maneuverability and excellent controllability.

Features of 953C-973C:

- **Rear engine location** provides natural stability as a “working” counterweight, excellent visibility and good weight to horsepower ratio.
- **Electronic hydrostatic drive train with pedal steering** offers independent control of each track. Power turns, counterrotation infinitely variable speeds, and fast acceleration for increased maneuverability and production.
- **Variable displacement pump and motors** provide excellent efficiency and controlability.
- **Z-bar linkage** provides increased breakout force, fewer grease points and fast dump speed.
- **Special arrangements** including S-LGP, Waste Handling and Steel Mill (973C) are available to tailor the machine to specific applications.

- **C-Series cab and controls** offer a high level of operator comfort. Low sound levels, large interior volume, two large storage compartments, fully adjustable arm rests, ergonomic controls, Cat contour seat and excellent visibility.
- **Computerized Monitoring System (CMS)** provides operator with gauges and other information, alerts of occurring or impending problems, registers fault codes and acts as an extended diagnostic system.
- **Pilot operated hydraulic controls** offer low lever forces for precise, consistent bucket control and reduces operator fatigue.
- **Implement power requirements** have priority over track requirements automatically ... full implement power available for maximum breakout force and simultaneous lift and dump capability results in fast loading and cycle times.
- **Oscillating track roller frames** decrease ground shock, increase machine stability and improve traction.

Features common to all models:

- **Unmatched versatility** — excavates, loads, dozes, grades, clears, strips, backfills in all underfoot conditions including those that could damage tires.
- **Sound-suppressed, air-pressurized, resiliently mounted ROPS cab** for superior working environment.
- **Sealed and Lubricated Track** reduces wear and maintenance expense. Various track shoes and chains are available including Rotating Bushing Track on some models.
- **Sealed loader linkage** extends lubrication intervals and reduces maintenance time.
- **Automatic bucket controls** let bucket rise to pre-set dumping height and return to pre-set digging angle for fast cycle time.
- **General Purpose and Multi-Purpose** buckets, quick couplers and many other work tools are available to increase versatility.
- **Radial rippers** are Multishank with wide beam coverage for utility ripping close to walls, footings and embankments. Five shanks available for 939C. Three shanks for 953C, 963C and 973C.



MODEL	939C		953C		963C		973C	
Flywheel Power	67.1 kW	90 hp	95 kW	127 hp	118 kW	158 hp	172 kW	225 hp
Operating Weight*	9480 kg	20,900 lb	15 145 kg	33,395 lb	19 589 kg	43,194 lb	26 731 kg	58,941 lb
Engine Model	3046 T		3126B		3126B		C9	
Rated Engine RPM	2400		2000		2000		2200	
Bore	94 mm	3.7"	110 mm	4.33"	110 mm	4.33"	112 mm	4.41"
Stroke	120 mm	4.7"	127 mm	5"	127 mm	5"	149 mm	5.87"
No. Cylinders	6		6		6		6	
Displacement	5 L	305 in³	7.2 L	439 in³	7.2 L	439 in³	8.8 L	537 in³
Speeds Forward/Reverse	0-9 km/h	0-5.6 mph	km/h	mph	km/h	mph	km/h	mph
1st	—		0-9.2	0-5.7	0-9.5	0-5.9	0-9.0	0-5.6
2nd	—		Infinitely		Infinitely		Infinitely	
3rd	—		Variable		Variable		Variable	
Hydraulic Cycle Time, Bucket Empty, in Seconds:								
Raise		5.6		6.9		6.6		6.7
Dump		2.4		1.3		1.3		5.1
Lower (Empty, Float Down)		2.9		2.6		2.1		2.9
Total**		10.9		9.5		8.7		9.6
Track Rollers (Each Side)	6		6		6		7	
Width of Standard Track Shoe	406 mm	16"	500 mm	20"	550 mm	22"	500 mm	20"
Length of Track on Ground	2.14 m	7'0.4"	2.345 m	7'8"	2.458 m	8'1"	2.93 m	9'7"
Ground Contact Area (With Std. Shoe)	1.74 m ²	2700 in²	2.3 m ²	3565 in²	2.7 m ²	4185 in²	2.93 m ²	4522 in²
Ground Pressure	53.7 kPa	7.8 psi	65.8 kPa	9.5 psi	72.6 kPa	10.5 psi	91.2 kPa	13.2 psi
Ground Clearance	369 mm	14.5"	400 mm	15.7"	396 mm	15.6"	457 mm	17.9"
Track Gauge	1.55 m	5'1"	1.8 m	5'11"	1.85 m	6'1"	2.08 m	6'10"
Width Without Bucket	1.96 m	6'5"	2.3 m	7'6"	2.4 m	7'10"	2.58 m	8'6"
Fuel Tank Refill Capacity	157 L	41.4 U.S. gal	241 L	63.8 U.S. gal	315 L	83.2 U.S. gal	430 L	113 U.S. gal
Hydraulic System Refill Capacity	56.8 L	15 U.S. gal	67 L	17.7 U.S. gal	68 L	18 U.S. gal	169 L	44.6 U.S. gal

*939C weights include basic machine (General Arrangement Number), lubricants, coolants, full fuel tank, operator, general purpose bucket and bucket teeth and OROPS. 953C, 963C and 973C include GP bucket with bolt-on adapters, long tips and segments.

**With simultaneous raise and dump, dump time is included in raise time for 953C, 963C and 973C.

See Wheel Loader section of this book for summary of S.A.E. Guidelines for Loader Specifications, to which Caterpillar adheres.

BUCKET	General Purpose		Multi-Purpose	
Capacity, Rated (Nominal Heaped)	1.15 m ³	1.5 yd ³	1.15 m ³	1.5 yd ³
Struck	0.95 m ³	1.25 yd ³	0.95 m ³	1.25 yd ³
Bucket Width*	2160 mm	7'1"	2160 mm	7'1"
Dump Clearance at Full Lift and 45° Discharge	2667 mm	8'9"	2604 mm	8'6.5"
Maximum Reach at Full Lift and 45° Discharge	866 mm	2'10.1"	877 mm	2'10.5"
Digging Depth	127 mm	5"	165 mm	6.5"
Overall Length	4359 mm	14'3.6"	4359 mm	14'4"
Overall Height	4384 mm	14'4.6"	4384 mm	14'4.6"
Static Tipping Load	6607 kg	14,560 lb	6396 kg	14,100 lb
Breakout Force**	89.9 kN	20,200 lb	92 kN	20,690 lb
Operating Weight***	9484 kg	20,910 lb	10 030 kg	22,110 lb

*Bolt-on teeth increase bucket width by 42 mm (1.65"). Bolt-on cutting edge increases bucket width by 10 mm (0.39").

**Breakout force is measured 102 mm (4") behind tip of cutting edge with bucket hinge pin as pivot point.

***Operating weight includes coolant, lubricants, full fuel tank, bottom guards (STD), bucket teeth, ROPS canopy and operator. 454 kg (1000 lb) rear counterweight is also removed while using Multi-Purpose bucket.

Machine stability can be affected by the addition of other attachments. Add or subtract the following to/from machine operating weight and static tipping load:

	Change in Operating Weight		Change in Static Tipping Load	
	kg	lb	kg	lb
Cab, ROPS	+204	+450	+266	+586
Bucket teeth (long) & segments	+118	+260	-150	-330
Air Conditioner	+ 77	+170	+ 88	+194
Ripper with 3 teeth (includes removal of 295 kg (650 lb) rear counterweight)	+ 17	+ 37	+ 49	+108
Rear counterweight (per plate)	+115	+255	+203	+448

BUCKET	1.75 m ³ /2.25 yd ³ General Purpose Bare		1.75 m ³ /2.25 yd ³ General Purpose Bolt-on Adapters, Long Tips & Segments		1.75 m ³ /2.25 yd ³ General Purpose Bolt-on Cutting Edge		1.75 m ³ /2.25 yd ³ General Purpose Flush Weld-on Adapters & Long Tips	
Capacity, Rated (Nominal Heaped) Struck	1.72 m ³ 1.48 m ³	2.25 yd³ 1.94 yd³	1.82 m ³ 1.57 m ³	2.38 yd³ 2.05 yd³	1.82 m ³ 1.57 m ³	2.38 yd³ 2.05 yd³	1.82 m ³ 1.48 m ³	2.38 yd³ 1.94 yd³
Cutting Edge, Type	Straight		Straight		Straight		—	
Bucket Width ◀	2380 mm	7'10"	2432 mm	8'0"	2397 mm	7'10"	2438 mm	8'0"
Teeth	None		8, bolt-on with replaceable tips		None		8, bolt-on with replaceable tips	
Dump Clearance @ Full Lift and 45° Discharge	2903 mm	9'6"	2749 mm	9'0"	2857 mm	9'4"	2748 mm	9'0"
Reach at 45° Discharge Angle 2133 mm (7'0") Clearance	1518 mm	5'0"	1607 mm	5'3"	1526 mm	5'0"	1633 mm	5'4"
Reach @ Full Lift and 45° Discharge	974 mm	3'2"	1162 mm	3'10"	1030 mm	3'5"	1165 mm	3'10"
Digging Depth	96 mm	3.8"	131 mm	5.2"	121 mm	4.8"	96 mm	3.8"
Overall Length	5879 mm	19'3"	6122 mm	20'1"	5951 mm	19'6"	6125 mm	20'1"
Overall Height	4871 mm	16'0"	4871 mm	16'0"	4871 mm	16'0"	4871 mm	16'0"
Static Tipping Load	10 689 kg	23,569 lb	10 395 kg	22,920 lb	10 492 kg	23,135 lb	10 556 kg	23 298 lb
Breakout Force*	136.3 kN	30,668 lb	122.7 kN	27,608 lb	123.5 kN	27,788 lb	138.1 kN	31,073 lb
Operating Weight**	14 921 kg	32,900 lb	15 145 kg	33,395 lb	15 071 kg	33,232 lb	15 022 kg	33,124 lb

* Breakout force is measured 100 mm (3.94") behind tip of cutting edge with bucket hinge pin as pivot point.

** Operating weight includes coolant, lubricants, full fuel tank, ROPS cab, bucket, and 75 kg (165 lb) operator.

◀ Bolt-on teeth increase bucket width by 52 mm (2"). Bolt-on cutting edge increases bucket width by 17 mm (0.67").

Machine stability can be affected by the addition of other attachments. Add or subtract the following to/from machine operating weight and static tipping load:

	Change in Operating Weight		Change in Static Tipping Load for General Purpose Bucket	
	kg	lb	kg	lb
ROPS canopy only (cab removed)	-350	-772	-332	- 732
Ripper (includes ripper, rear lines, and third valve)	+376	+829	+655	+1444
Air conditioner	Standard		Standard	
Wide track shoes, 500 mm (20") double grouser	-290	-639	-183	- 403
Rear bumper (removed)	-207	-456	-423	- 933

BUCKET	Multi-Purpose Bare		Multi-Purpose Bolt-on Adapters, Long Tips & Segments		Multi-Purpose Bolt-on Cutting Edge	
Capacity, Rated (Nominal Heaped)	1.5 m ³	2 yd ³	1.6 m ³	2.1 yd ³	1.6 m ³	2.1 yd ³
Struck	1.27 m ³	1.66 yd ³	1.35 m ³	1.75 yd ³	1.35 m ³	1.75 yd ³
Cutting Edge, Type	Straight		Straight		Straight	
Bucket Width◀	2378 mm	7'10"	2430 mm	8'0"	2395 mm	7'10"
Teeth	None		8, bolt-on with replaceable tips		None	
Dump Clearance @ Full Lift and 45° Discharge	2728 mm	8'11"	2556 mm	8'5"	2677 mm	8'9"
Reach at 45° Discharge Angle 2133 mm (7'0") Clearance	1404 mm	4'7"	—		—	
Reach @ Full Lift and 45° Discharge	949 mm	3'1"	1121 mm	3'8"	1000 mm	3'3"
Digging Depth	147 mm	5.8"	181 mm	7.1"	171 mm	6.7"
Overall Length	6036 mm	19'9"	6279 mm	20'7"	6108 mm	20'0"
Overall Height	4862 mm	15'11"	4862 mm	15'11"	4862 mm	15'11"
Static Tipping Load	10 265 kg	22,634 lb	9956 kg	21,953 lb	10 097 kg	22,264 lb
Breakout Force*	107.1 kN	24,098 lb	97.4 kN	21,915 lb	97.9 kN	21,825 lb
Operating Weight**	15 463 kg	34,096 lb	15 687 kg	34,590 lb	15 613 kg	34,427 lb

* Breakout force is measured 100 mm (3.94") behind tip of cutting edge with bucket hinge pin as pivot point.

** Operating weight includes coolant, lubricants, full fuel tank, ROPS cab, General Purpose bucket, and 80 kg (176 lb) operator.

◀ Bolt-on teeth increase bucket width by 52 mm (2"). Bolt-on cutting edge increases bucket width by 17 mm (0.67").

Machine stability can be affected by the addition of other attachments.

	Change in Operating Weight		Change in Static Tipping Load for General Purpose Bucket	
	kg	lb	kg	lb
ROPS canopy only (cab removed)	-350	-772	-332	- 732
Ripper (includes ripper, rear lines, and third valve)	+376	+829	+655	+1444
Air conditioner	Standard		Standard	
Wide track shoes, 500 mm (20") double grouser	-290	-639	-183	- 403
Rear bumper (removed)	-207	-456	-423	- 933

BUCKET	General Purpose Bare		General Purpose Bolt-on Cutting Edge		General Purpose Flush Weld-on Adapters & Long Tips		General Purpose Bolt-on Adapters, Long Tips & Segments	
	m ³	yd ³	m ³	yd ³	m ³	yd ³	m ³	yd ³
Capacity, Rated (Nominal Heaped)	2.3 m ³	3 yd³	2.45 m ³	3.2 yd³	2.45 m ³	3.2 yd³	2.45 m ³	3.2 yd³
Struck	2 m ³	2.6 yd³	2.14 m ³	2.78 yd³	2 m ³	2.6 yd³	2.14 m ³	2.78 yd³
Cutting Edge, Type	Straight		Straight		—		Straight	
Bucket Width*	2498 mm	8'2"	2539 mm	8'4"	2583 mm	8'6"	2550 mm	8'4"
Teeth	None		None		8, weld-on with replaceable tips		8, weld-on with replaceable tips	
Dump Clearance @ Full Lift and 45° Discharge	3148 mm	10'4"	3060 mm	10'0"	2948 mm	9'8"	2936 mm	9'8"
Reach at 45° Discharge Angle 2133 mm (7'0") Clearance	1789 mm	5'10"	1840 mm	6'0"	2010 mm	6'7"	1966 mm	6'5"
Reach @ Full Lift and 45° Discharge	1161 mm	3'9"	1215 mm	4'0"	1385 mm	4'7"	1341 mm	4'4"
Digging Depth	87.2 mm	3"	117.2/ 122.2 mm	5"	87.2 mm	3"	142 mm	6"
Overall Length	6350 mm	20'10"	6448 mm	21'2"	6657 mm	21'10"	6625 mm	21'9"
Overall Height	5319 mm	17'5"	5319 mm	17'5"	5319 mm	17'5"	5319 mm	17'5"
Static Tipping Load	14 080 kg	30,976 lb	13 774 kg	30,303 lb	13 982 kg	30,760 lb	13 596 kg	29,911 lb
Breakout Force**	191.7 kN	43,133 lb	173.4 kN	39,015 lb	186.7 kN	42,008 lb	172.6 kN	38,835 lb
Operating Weight***	19 253 kg	42,327 lb	19 473 kg	42,841 lb	19 354 kg	42,579 lb	19 589 kg	43,096 lb

*With bolt-on cutting edge add 17 mm (0.67"), with bolt-on teeth add 52 mm (2"), for flush weld-on teeth add 75 mm (3").

**Breakout force is measured 100 mm (3.94") behind tip of cutting edge with bucket hinge pin as pivot point.

***Operating weight includes coolant, lubricants, full fuel tank, ROPS cab, bucket, and 75 kg (165 lb) operator.

Machine stability can be affected by the addition of other attachments. Add or subtract the following to/from machine operating weight and static tipping load:

	Change in Operating Weight		Change in Static Tipping Load for General Purpose Bucket	
	kg	lb	kg	lb
ROPS canopy only (cab removed)	-350	- 772	- 418	- 922
Ripper (includes rear hydraulic arrangement and three shanks, bumper removed)	+215	+ 474	+ 339	+ 747
Air conditioner	Standard		Standard	
Wide track shoes, 450 mm (18")	-149	- 328	- 204	- 450
Rear bumper (removal)	-582	-1283	-1291	-2847

BUCKET	Multi-Purpose Bare		Multi-Purpose Bolt-on Segments & Long Teeth		Multi-Purpose Bolt-on Cutting Edge	
Capacity, Rated (Nominal Heaped)	1.87 m ³	2.43 yd³	1.97 m ³	2.56 yd³	2 m ³	2.6 yd³
Struck	1.58 m ³	2.05 yd³	1.66 m ³	2.16 yd³	1.72 m ³	2.24 yd³
Cutting Edge, Type	Straight		Straight		Straight	
Bucket Width*	2482 mm	8'2"	2534 mm	8'4"	2515 mm	8'3"
Teeth	None		8, bolt-on with replaceable tips		None	
Dump Clearance @ Full Lift and 45° Discharge	2977 mm	9'9"	2780 mm	9'1"	2881 mm	9'5"
Reach at 45° Discharge Angle 2133 mm (7'0") Clearance	1592 mm	5'3"	1725 mm	5'8"	1638 mm	5'4"
Reach @ Full Lift and 45° Discharge	1045 mm	3'5"	1178 mm	3'10"	1091 mm	3'7"
Digging Depth	165 mm	7"	204 mm	8"	195 mm	8"
Overall Length	6450 mm	22'0"	6551 mm	21'6"	6685 mm	21'11"
Overall Height	5973 mm	19'7"	6161 mm	20'3"	6065 mm	21'11"
Static Tipping Load	13 388 kg	29,453 lb	13 047 kg	28,703 lb	13 096 kg	28,811 lb
Breakout Force**	178.6 kN	40,185 lb	167.6 kN	37,710 lb	176.5 kN	39,713 lb
Operating Weight***	19 843 kg	43,655 lb	20 072 kg	44,159 lb	20 043 kg	44,095 lb

*With bolt-on cutting edge add 17 mm (**0.67"**), for bolt-on teeth add 52 mm (**2"**).

Breakout force is measured 100 mm (3.94"**) behind tip of cutting edge with bucket hinge pin as pivot point.

***Operating weight includes coolant, lubricants, full fuel tank, ROPS cab, bucket, and 75 kg (**165 lb**) operator.

Machine stability can be affected by the addition of other attachments.

BUCKET	General Purpose Bare		General Purpose Bolt-on Adapters, Long Tips & Segments		General Purpose Bolt-on Cutting Edge		Rock Weld-on Flush Adapters & Tips	
Capacity, Rated (Nominal Heaped) Struck	2.8 m ³	3.66 yd³	3.2 m ³	4.19 yd³	3.2 m ³	4.19 yd³	2.8 m ³	3.66 yd³
Cutting Edge, Type	2.41 m ³	3.15 yd³	2.77 m ³	3.62 yd³	2.77 m ³	3.62 yd³	2.46 m ³	3.22 yd³
Bucket Width◀	Straight		Straight		Straight		Spade	
Teeth	2845 mm	9'4"	2845 mm	9'4"	2845 mm	9'4"	2705 mm	8'11"
	None		8, bolt-on with replacement tips		None		8, weld-on with replacement tips	
Dump Clearance @ Full Lift and 45° Discharge	3358 mm	11'0"	3154 mm	10'4"	3281 mm	10'9"	3032 mm	9'11"
Reach @ 45° Discharge Angle, 2133 mm (7'0") Clearance	1992 mm	6'6"	2096 mm	6'10"	2031 mm	6'8"	2009 mm	6'7"
Reach @ Full Lift and 45° Discharge	1313 mm	4'3"	1482 mm	4'10"	1357 mm	4'5"	1451 mm	4'9"
Digging Depth	92 mm	3.6"	143 mm	5.6"	122 mm	4.8"	92 mm	3.6"
Overall Length	7092 mm	23'3"	7362 mm	24'2"	7175 mm	23'6"	7541 mm	24'9"
Overall Height	5692 mm	18'8"	5692 mm	18'8"	5692 mm	18'8"	5742 mm	18'10"
Static Tipping Load	20 249 kg	44,649 lb	19 747 kg	43,542 lb	19 908 kg	43,897 lb	20 010 kg	44,122 lb
Breakout Force*	213.3 kN	47,992 lb	194.5 kN	43,762 lb	195.7 kN	44,032 lb	181.3 kN	40,792 lb
Operating Weight**	26 373 kg	58,153 lb	26 731 kg	58,941 lb	26 616 kg	58,688 lb	26 602 kg	58,657 lb

* Breakout force is measured 100 mm (3.94") behind tip of cutting edge with bucket hinge pin as pivot point.
 ** Operating weight includes lubricants, full fuel tank, ROPS cab, General Purpose bucket, and 80 kg (176 lb) operator.
 ◀ Bolt-on teeth increase bucket width by 63.8 mm (2.5"). Bolt-on cutting edge increases bucket width by 19 mm (0.74").

Machine stability can be affected by the addition of other attachments. Add or subtract the following to/from machine operating weight and static tipping load:

	Change in Operating Weight		Change in Static Tipping Load	
	kg	lb	kg	lb
Ripper (includes 3 shanks and rear hydraulic arrangement)	+971	+2141	+2257	+4977
Wide track shoes 675 mm (27")	+632	+1394	+ 476	+1050

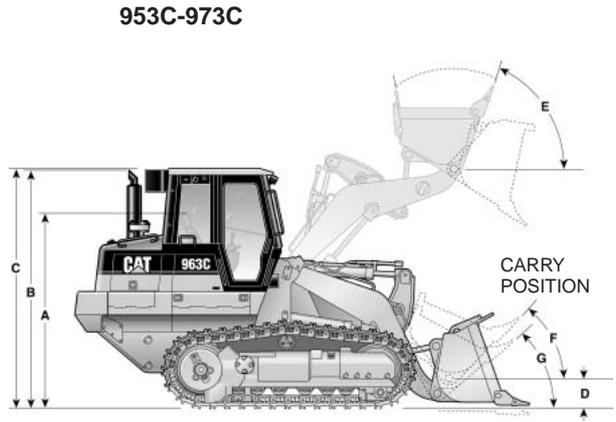
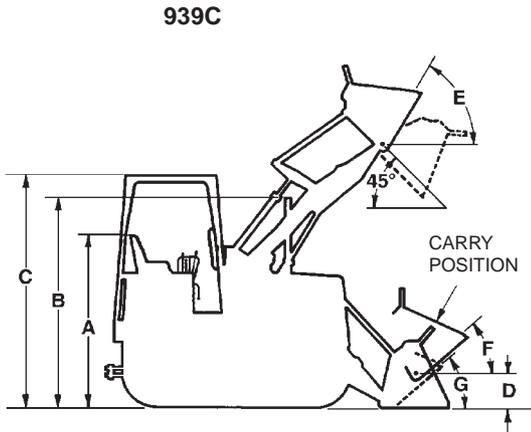
BUCKET	Multi-Purpose Bare		Multi-Purpose Bolt-on Segments & Long Teeth		Multi-Purpose Bolt-on Cutting Edge		Steel Mill Arrangement Slag Bucket	
Capacity, Rated (Nominal Heaped)	2.6 m ³	3.4 yd³	2.9 m ³	3.79 yd³	2.9 m ³	3.79 yd³	2.5 m ³	3.25 yd³
Struck	2.19 m ³	2.86 yd³	2.56 m ³	3.35 yd³	2.56 m ³	3.35 yd³	2.03 m ³	2.65 yd³
Cutting Edge, Type	Straight		Straight		Straight		Straight	
Bucket Width◀	2710 mm	8'11"	2710 mm	8'11"	2710 mm	8'11"	2714 mm	8'11"
Teeth	None		8, bolt-on with replacement tips		None		8, weld-on with replacement tips	
Dump Clearance @ Full Lift and 45° Discharge	3049 mm	10'0"	2828 mm	9'3"	2966 mm	9'8"	2986 mm	9'9"
Reach @ 45° Discharge Angle, 2133 mm (7'0") Clearance	1832 mm	6'0"	1936 mm	6'4"	1871 mm	6'1"	1784 mm	5'10"
Reach @ Full Lift and 45° Discharge	1261 mm	4'1"	1403 mm	4'7"	1293 mm	4'2"	1237 mm	4'1"
Digging Depth	200 mm	7.9"	254 mm	9.1"	230 mm	9"	118 mm	5"
Overall Length	7333 mm	24'1"	7591 mm	24'11"	7415 mm	24'4"	7600 mm	24'11"
Overall Height, Bucket @ Full Lift	5801 mm	19'0"	5801 mm	19'0"	5801 mm	19'0"	5825 mm	19'1"
Static Tipping Load	19 095 kg	42,104 lb	18 615 kg	41,046 lb	18 756 kg	41,357 lb	18 470 kg	40,720 lb
Breakout Force*	173.9 kN	39,127 lb	159.7 kN	35,932 lb	161.1 kN	36,247 lb	203 kN	45,760 lb
Operating Weight**	27 532 kg	60,708 lb	27 875 kg	61,464 lb	27 775 kg	61,243 lb	29 560 kg	65,180 lb

* Breakout force is measured 100 mm (3.94") behind tip of cutting edge with bucket hinge pin as pivot point.

** Operating weight includes lubricants, full fuel tank, ROPS cab, General Purpose bucket, and 80 kg (176 lb) operator.

◀ Bolt-on teeth increase bucket width by 63.8 mm (2.5"). Bolt-on cutting edge increases bucket width by 19 mm (0.74").

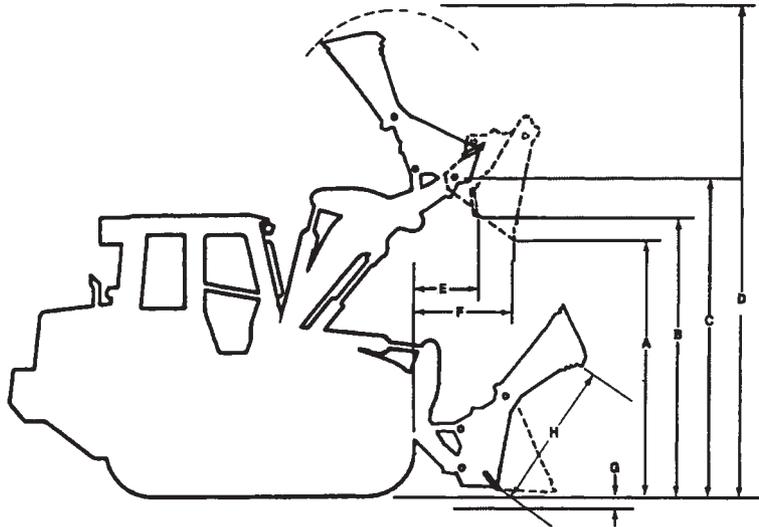
Machine stability can be affected by the addition of other attachments.



	939C		953C	
A Height to Top of Seat	2 m	6'7"	2.614 m	8'7"
B Height to Top of Stack	2.81 m	9'2"	2.654 m	8'8"
C Height to Top of ROPS	2.76 m	9'0"	3.15 m	10'4"
D Hinge Pin Height at Carry Position	414 mm	16.3"	422 mm	16.6"
E Rollback at Maximum Lift		67.7°		56°
F Rollback at Carry Height		51.2°		48°
G Rollback at Ground Level		42.6°		41°
Grading Angle (Bare Edge)		—		74°
Width Without Bucket (std. track)	1.96 m	6'5"	2.3 m	7'7"
(optional track)	2.01 m	6'7"	2.06 m	6'9"
Weight of General Purpose Bucket w/Teeth & Segments		—	1175 kg	2591 lb
	963C		973C	
A Height to Top of Seat	2.843 m	9'4"	2.97 m	9'9"
B Height to Top of Stack	2.768 m	9'1"	2.989 m	9'10"
C Height to Top of ROPS	3.39 m	11'1"	3.5 m	11'6"
D Hinge Pin Height at Carry Position	474 mm	18.7"	505 mm	20"
E Rollback at Maximum Lift		59°		59°
F Rollback at Carry Height		51°		50°
G Rollback at Ground Level		43°		42°
Grading Angle (Bare Edge)		68°		69°
Width Without Bucket (std. track)	2.4 m	7'11"	2.58 m	8'6"
(optional track)	2.3 m	7'7"	2.93 m	9'8"
Weight of General Purpose Bucket w/Teeth & Segments	1610 kg	3550 lb	2103 kg	4638 lb

Machine Dimensions
 ● With Multi-Purpose Bucket

Track Loaders

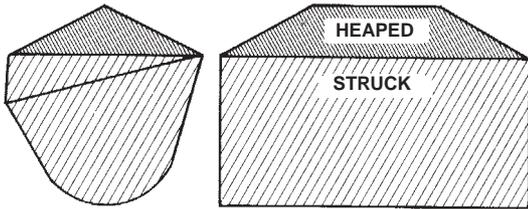


	939C		953C	
A Forward Dump Clearance*	2.68 m	8'10"	2.556 m	8'5"
B Bottom Dump Clearance*	3.05 m	10'0"	3.066 m	10'1"
C Hinge Pin Height*	3.32 m	10'11"	3.585 m	11'9"
D Overall Height	4.68 m	15'4"	3.15 m	10'4"
E Bottom Dump Reach	453 mm	18"	579 mm	22.7"
F Forward Dump Reach*	776 mm	2'7"	1121 mm	3'8"
G Digging Depth	127 mm	5"	181 mm	7.1"
H Bucket Opening	930 mm	3'0"	1140 mm	3'9"
Reach at 2133 mm (7'0") Height*	1200 mm	3'11"	1440 mm	4'9"
Tilt Back at Ground Level		43°		42°
Closure Force, Clamp to Cutting Edge	56.8 kN	12,780 lb	71.8 kN	16,134 lb
Weight of Bucket with Teeth, Segments and Additional Hydraulics	1005 kg	2216 lb	1640 kg	3616 lb
	963C		973C	
A Forward Dump Clearance*	2.78 m	9'1"	2.83 m	9'3"
B Bottom Dump Clearance*	3.437 m	11'3"	3.66 m	12'0"
C Hinge Pin Height*	3.93 m	12'11"	4.24 m	13'11"
D Overall Height	3.39 m	10'3"	5.8 m	19'0"
E Bottom Dump Reach	604 mm	24"	693 mm	27.3"
F Forward Dump Reach*	1178 mm	3'10"	1403 mm	4'7"
G Digging Depth	204 mm	8"	254 mm	9.1"
H Bucket Opening	1260 mm	4'1"	1380 mm	4'6"
Reach at 2133 mm (7'0") Height*	1725 mm	5'8"	1936 mm	6'4"
Tilt Back at Ground Level		46°		45°
Closure Force, Clamp to Cutting Edge	72.3 kN	16,250 lb	89 kN	20,000 lb
Weight of Bucket with Teeth, Segments and Additional Hydraulics	2128 kg	4690 lb	3198 kg	7052 lb

*45° Discharge and full lift.
 Operator may prefer to tip bucket forward when bottom dumping.

TRACK LOADER	939C		953C		963C		973C	
Ripper-Scarifier Type	Radial		Radial		Radial		Radial	
Dimensions:								
Ripper Shank								
Maximum penetration depth	205 mm	8.1"	271 mm	10.7"	295 mm	11.6"	428 mm	16.8"
Maximum reach at ground line	627 mm	2'0.7"	1092 mm	3'7"	1160 mm	3'9.7"	1295 mm	4'3"
Maximum ground clearance under tip (shank pinned in bottom hole)	593 mm	23.3"	507 mm	20"	595 mm	23"	670 mm	26"
Maximum ramp angle, ripper up (shank pinned in bottom hole)	33.5°		18°		17°		20°	
Shank section	36 × 76 mm 1.4" × 3"		50 × 109 mm 2" × 4.3" (Curved)		58 × 139 mm 2.3" × 5.5" (Curved)		74 × 175 mm 2.9" × 6.9" (Curved)	
Ripper Beam								
Overall width	1.58 m	5'2"	1.95 m	6'5"	1.95 m	6'5"	2.2 m	7'3"
Height	130 mm	5.1"	165 mm	6.5"	165 mm	6.5"	216 mm	8.5"
Length	140 mm	5.5"	211 mm	8.3"	211 mm	8.3"	254 mm	10"
Number of Pockets	5		3		3		3	
Pocket Spacing	356 mm	14"	900 mm	2'11.4"	895 mm	2'11"	1000 mm	3'3.4"
Shank Gauge	1.42 m	4'8"	1.8 m	5'11"	1.79 m	5'11"	2 m	6'7"
Track clearance with standard shoe	139 mm	5.5"	N/A		N/A		N/A	
Installed weights:								
Ripper with standard shanks	250 kg	550 lb	519 kg	1144 lb	712 kg	1570 lb	1196 kg	2637 lb
Each additional shank	11 kg	24 lb	3 shanks std.		3 shanks std.		3 shanks std.	
Ripper Forces*								
Penetration Force	2687 kg	5924 lb	4707 kg	10,380 lb	6385 kg	14,080 lb	8820 kg	19,450 lb
Pryout Force	5265 kg	11,610 lb	10 388 kg	22,905 lb	13 897 kg	30,640 lb	17 450 kg	38,480 lb

*These values may vary slightly with different vehicle configurations.

SAE BUCKET RATING**SAE Bucket Capacities**

Struck capacity is that volume contained in a bucket after a load is leveled by drawing a straight edge resting on the cutting edge and the back of the bucket.

Heaped capacity is a struck capacity *plus* that additional material that would heap on the struck load at a 2:1 angle of repose with the struck line parallel to the ground.

SAE J742 (Oct. 79) specifies that the addition of any auxiliary spill guard to protect against spillage of material which might injure the operator will not be included in bucket capacity ratings. Buckets with irregular shaped cutting edges (vee edge) the strike plane should be drawn at one-third the distance of the protruding portion of the cutting edge. Caterpillar rock buckets are built with integral see-through rock guards. Caterpillar light material buckets come standard with bolt-on edges. These features which add to actual bucket capacity are included in published ratings.

Dump Height

SAE J732 JUN92 specifies that dump height is the vertical distance from the ground to the lowest point of the cutting edge with the bucket hinge pin at maximum height and the bucket at a 45° dump angle. Dump angle is the angle in degrees that the longest flat section of the inside bottom of the bucket will rotate below horizontal.

Static Tipping Load

The minimum weight at center of gravity of “SAE Rated” load in bucket which will rotate rear of machine to a point where, on track loaders, front rollers are clear of the track under the following conditions:

- Loader on hard level surface and stationary.
- Unit at standard operating weight.
- Bucket at maximum rollback position.

- Load at maximum forward position during raising cycle.
- Unit with standard equipment as described in specifications unless otherwise noted under the heading.

Operating Load

In order to comply with SAE standard J818 MAY87, the operating load for track loaders should not exceed 35% of the Static Tipping load rating. See “Performance Data” of each machine in this handbook for increases to static tipping load by adding cab, counterweights, ripper-scarifier, etc.

SELECTING A MACHINE**Steps in selecting the proper size loader:**

- Determine production required or desired.
- Determine loader cycle time and cycles per hour. A machine size must be assumed to select a basic cycle time.
- Determine required payload per cycle in loose cubic yards and pounds (meters and kilograms).
- Determine bucket size needed.
- Make machine selection using bucket size and payload as criteria to meet production requirements.
- Compare the loader cycle time used in calculations to the cycle time of the machine selected. If there is a difference, rework the process beginning at step 2.

1. Production Required

The production required of a track loader should be slightly greater than the production capability of the other critical units in the earth or material moving system. For example, if a hopper can handle 300 tons per hour, a loader capable of slightly more than 300 tons should be used. Required production should be carefully calculated so the proper machine and bucket selections are made.

2. Loader Cycle Times

Material type, pile height, and other factors may improve or reduce production, and should be added to or subtracted from the basic cycle time when applicable.

When hauls are involved, obtain haul and return portions of the cycle from the estimated travel chart (this section). Add the haul and return times to the estimated basic cycle time to obtain total cycle time.

CYCLE TIME FACTORS

A basic cycle time (Load, Dump, Maneuver) of 0.25-0.35 minutes is average for a track loader [the basic cycle for large track loaders, 2 m³ (2.6 yd³) and up, can be slightly longer], but variations can be authenticated in the field. The following values for many variable elements are based on normal operations. Adding or subtracting any of the variable times will give the total basic cycle time.

Estimating Cycle Time

Cycle time of a track loader needs to be determined to find loads per hour. Total cycle time includes the following segments:

Load Time + Maneuver Time + Travel Time + Dump Time

Load Time —

Material	Minutes
Uniform aggregates	0.03-0.05
Moist mixed aggregates	0.03-0.06
Moist loam	0.03-0.07
Soil, boulders, roots	0.04-0.20
Cemented materials	0.05-0.20

Maneuver Time — includes basic travel, four changes of direction and turning time, and will be about 0.20 minutes with a competent operator.

Travel Time — in a load and carry operation is comprised of haul and return times which can be determined by the travel charts in this section.

Dump Time — is dictated by the size and strength of the dump target and varies from 0.00 to 0.10 minutes. Typical dump times into highway trucks are from 0.04 to 0.07 minutes.

NOTE: When comparing hydrostatic track loaders with former power shift models (using the production estimating method) two factors must be considered: (1) The hydrostatic track loaders on the average outcycle power shift models by up to 10 percent due to faster machine speed and easier operation. (2) Larger, rear engine hydrostatic track loaders incorporate Z-bar linkage, which provides substantially better bucket fill factors. The degree to which each factor affects estimated production should be left to the user's judgment depending on the particular job application and conditions.

Example: Moist loam is being excavated from a bank and loaded into trucks.

	Minutes
Load — moist loam	0.05
Maneuver Time	0.20
Travel — none required	0.00
Dump	<u>0.05</u>
Total Cycle	0.30 min. or 200 cycles per 60 min. hour

*Minutes added (+)
or Subtracted (-)
From Basic Cycle*

Materials

— Mixed	+0.02
— Up to 3 mm (1/8 in)	+0.02
— 3 mm (1/8 in) to 20 mm (3/4 in)	-0.02
— 20 mm (3/4 in) to 150 mm (6 in)	0.00
— 150 mm (6 in) and over	+0.03 and Up
— Bank or broken	+0.04 and Up

Pile

— Conveyor or Dozer piled 3 m (10 ft) and up	0.00
— Conveyor or Dozer piled 3 m (10 ft) or less	+0.01
— Dumped by truck	+0.02

Miscellaneous

— Common ownership of trucks and loaders	Up to -0.04
— Independently owned trucks	Up to +0.04
— Constant operation	Up to -0.04
— Inconsistent operation	Up to +0.04
— Small target	Up to +0.04
— Fragile target	Up to +0.05

Using actual job conditions and the above factors, total cycle time can be estimated. Convert total cycle time to cycles per hour.

$$\frac{\text{Cycles per hour at 100\% Efficiency}}{100\% \text{ Efficiency}} = \frac{60 \text{ Min}}{\text{Total Cycle Time in Minutes}}$$

Job efficiency is an important factor in machine selection. Efficiency is the actual number of minutes worked during an hour. Job efficiency accounts for operator breaks, and other work interruptions. See "Efficiency Considerations" page 13-16.

Bucket Fill Factors

The following indicates the approximate amounts of material as a percent of rated bucket capacity which will actually be delivered per bucket per cycle. This is known as “Bucket Fill Factor.”

Loose Material	Fill Factor
Mixed Moist Aggregates	95-110%
Uniform Aggregates	
up to 3 mm (1/8 in)	95-110
3 mm-9 mm (1/8 in-3/8 in)	90-110
12 mm-20 mm (1/2 in-3/4 in)	90-110
24 mm and over (1 in)	90-110
Blasted Rock	
Well	80-95%
Average	75-90
Poor	60-75
Other	
Rock Dirt Mixtures	100-120%
Moist Loam	100-120
Soil, Boulders, Roots	80-100
Cemented Materials	85-100

Fill factors on track loaders are affected by bucket penetration, breakout force, rackback angle, bucket profile and ground engaging tools such as bucket teeth and segments or bolt-on replaceable cutting edges.

GENERAL PURPOSE BUCKET W/TEETH & SEGMENTS MAXIMUM OPERATING CAPACITIES

MODEL	GENERAL PURPOSE BUCKET SIZE		MAXIMUM OPERATING CAPACITY	
	m ³	yd ³	kg	lb
939C	1.15	1.5	2040	4500
953C	1.85	2.4	3340	7370
963C	2.45	3.2	4550	10,030
973C	3.2	4.2	6750	14,870

LOADER PRODUCTION

Loader production equals quantity of material the bucket carries per load × number of bucket loads per hour.

Estimating Bucket Load

The quantity of material in a loader bucket is estimated by two methods, depending on whether the material being loaded is in a loose or bank state.

1. When the material is loose, as in stockpile loading, the bucket load is estimated in loose meters (or cubic yards) by a Bucket Fill Factor (see Tables Section or chart following this discussion). The quantity of material is determined as follows:

$$\text{Rated Bucket Capacity} \times \text{Bucket Fill Factor} = \text{Bucket Payload in Loose m}^3 \text{ (yd}^3\text{)}$$

For example, a 973 with a 3.2 m³ (4.2 yd³) General Purpose bucket loading moist loam material will carry:

$$3.2 \text{ m}^3 \times 1.15 = 3.68 \text{ loose cubic meters}$$

$$(4.2 \text{ yd}^3 \times 1.15 = 4.83 \text{ loose cubic yards})$$

Once the potential bucket load has been determined, check the static tipping load ratings on the specific machine to determine if bucket load is in fact a safe operating load. (*Safe operating load as defined by SAE for track loaders should not exceed 35% of static tipping load.*)

Productivity in many applications is measured in tons. See Tables Section for material densities if conversion to tons is desired.

2. When material is in the bank state, as in excavation, productivity is measured in bank meters (cubic yards). Bucket load in Bm³ (BCY) is estimated by applying one of the load factors from the Tables section to convert the excavated material in the bucket from Bm³ (BCY) to Lm³ (LCY) to allow for the digging and carrying characteristics of the material. The quantity of excavated material a bucket carries is then determined as follows:

$$\text{Rated Bucket Capacity} \times \text{Load Factor} \times \text{Bucket Fill Factor} = \text{Bucket Payload in Bm}^3 \text{ (BCY)}$$

Example: a 953C with a 1.85 m³ (2.4 yd³) General Purpose bucket loading wet loam earth from bank:

$$1.85 \text{ m}^3 \times 0.79 \times 1.15 = 1.68 \text{ Bm}^3$$

$$(2.4 \text{ yd}^3 \times 0.79 \times 1.15 = 2.18 \text{ BCY})$$

- Estimating Production
- Alternative Machine Selection Method

Estimating Production

Machine and job considerations include:

- Machine model and bucket size
- Material type, particle size, density and load factor (see Tables Section)
- Bucket fill factor
- Haul distance
- Underfoot conditions
- Altitude
- Dump target size, height, and type

Example:

Conditions —

Machine	953C
Bucket size	1.85 m ³ (2.4 yd ³)
Material	Moist Loam
Bucket fill factor	1.15
Haul length	30 m (100 ft)
Dump target	Pile
Travel in forward speed	

Cycle Time

Minutes

Load time	0.15
Maneuver time	0.20
Travel time (from curves)	0.40
Dump time	0.05
Total	0.80

Loads Per Hour —

$$\frac{60 \text{ min/hr}}{0.90 \text{ min/cycle}} = 75 \text{ cycles per hour @ 100\% efficiency}$$

Load Per Cycle —

$$1.85 \text{ m}^3 \times 1.15 \text{ BFF} = 2.13 \text{ Lm}^3 \times 0.81 \text{ LF} = 1.72 \text{ Bm}^3$$

$$(2.4 \text{ yd}^3 \times 1.15 \text{ BFF} = 2.76 \text{ LCY} \times 0.81 \text{ LF} = 2.24 \text{ BCY})$$

Hourly Production —

$$1.72 \text{ Bm}^3 \times 75 \text{ cycles/h} = 129 \text{ Bm}^3/\text{h}$$

$$(2.24 \text{ BCY} \times 75 \text{ cycles/hr} = 168 \text{ BCY/hr})$$

More accurate production estimates can be made by recording actual machine cycle times in the same or similar application. Then visually verify the approximate bucket fill factor.

Efficiency Considerations

Loader capacity should always be matched to peak production requirements of the job. Actual “on-the-job” loader productivity will be influenced by factors such as operator skill, personal delays, job layout and other delays. Experience and knowledge of local conditions will be the best indicators of actual job efficiency.

<u>Operation</u>	<u>Working Hour</u>	<u>Efficiency Factor</u>
Day	50 min/Hr	0.83

An Alternative Machine Selection Method

Another method of selecting the right Track Loader and bucket to meet production requirements is by use of the nomographs on the following pages. The method is quicker and easier than the preceding example because it does not require as many calculations, yet the accuracy is about the same within the normal limits of input data.

Be careful when entering and reading data from the nomographs because some scales increase from bottom to top, while others are the reverse. Do not be overly concerned with the precision as affected by pencil line width or reading to the hundredth of a m³ (yd³). Remember that bucket fill factor, material density, and cycle time are at best close estimates.

Example problem

A track loader must produce 200 Lm³ (262 LCY) per hour. Estimated cycle time is 0.5 minutes, working 50 minutes per hour. Bucket fill factor is 110% and the material density is 1600 kg/Lm³ (2700 lb/LCY).

Determine bucket size, machine model and hourly production in tons and yards.

Solution

At full efficiency, it will cycle 120 times per hour. Since only an average 50 minutes are available, only 100 cycles will be completed per hour.

Starting on Scale A at 100 cycles per hour draw a straight line intersecting 200 m³/hr (262 yd³/hr) on Scale B and continuing the line on to Scale C giving 2.0 m³ (2.62 yd³) required payload.

Follow steps 1 through 7 on the next two pages.

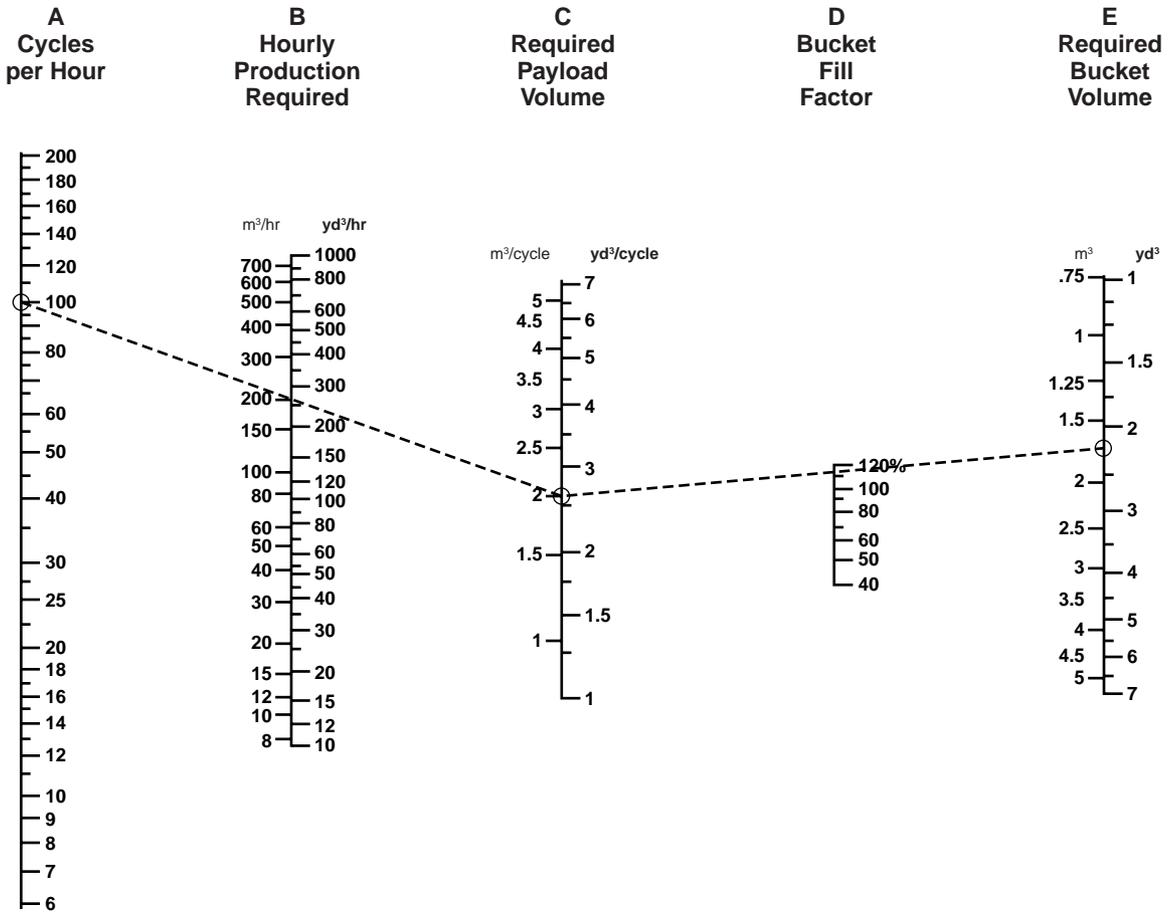


Production and Machine Selection Nomograph

- To find required bucket payload and bucket size

Track Loaders

- 1) Enter Scale A cycles per hour (100) and B hourly production 200 m³/hr (262 yd³/hr).
- 2) Connect A and B and extend to C to find required payload 2.0 m³ (2.62 yd³).
- 3) Connect C to bucket fill factor on Scale D (110%) and extend to E to find required bucket size 1.8 m³ (2.35 yd³).
- 4) Transfer Scale A and C readings to nomograph on following page.



Track Loaders

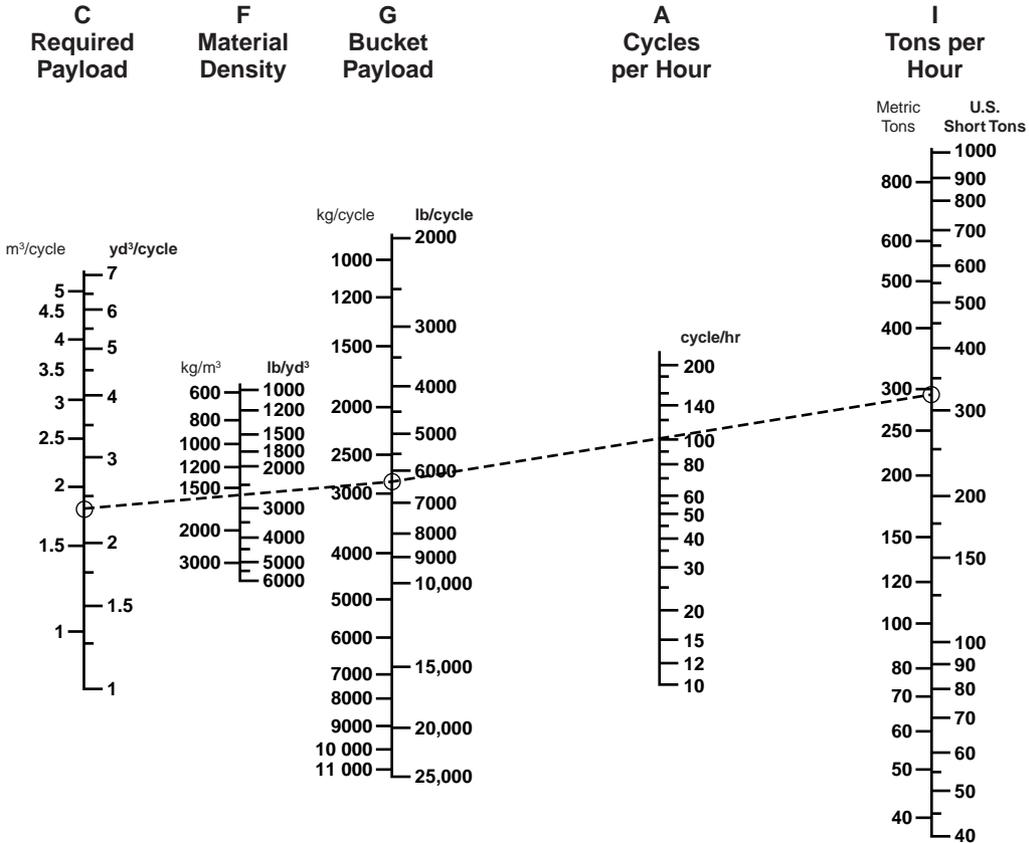
Production and Machine Selection Nomograph

- To find payload weight for stability and output in tons per hour

- 5) Connect C 1.8 m³ (2.35 yd³) to F 1600 kg/m³ (2700 lb/yd³) and extend to G to find payload weight 2880 kg (6345 lb).
- 6) Compare G bucket payload weight 2880 kg (6345 lb) with maximum operating capacities table in this section to see if the 1.85 m³ (2.4 yd³) bucket can handle the desired payload. Table indicates the

953C with a 1.85 m³ (2.4 yd³) bucket equipped with bolt-on cutting edge or teeth and segments has a greater operating capacity of 3343 kg (7370 lb), therefore stability is okay.

- 7) Extend Scale G reading 2880 kg (6345 lb) through Scale A (100) to Scale I to find tons per hour 288 metric ton/hr (317 U.S. ton/hr).



TRAVEL TIME CHARTS

Conditions:

- No grades.
- Speeds loaded and empty essentially the same.
- Bucket position constant during travel.
- Travel encountered in maneuver time portion of cycle not included.
- Acceleration time accounted for in maneuver time.

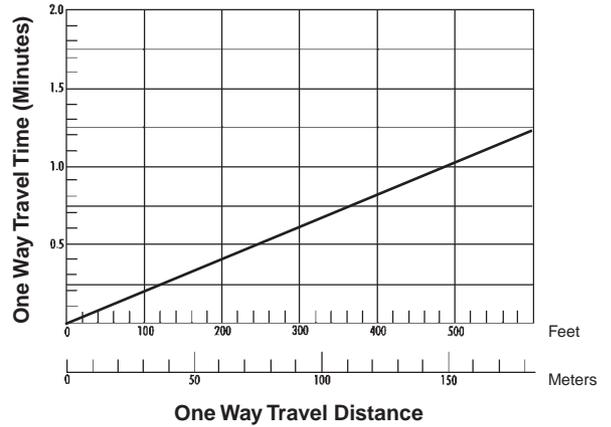
Travel Time (in minutes) =

$$\text{Metric} - \frac{\text{number of meters traveled}}{\text{speed (in km/h)} \times 16.67}$$

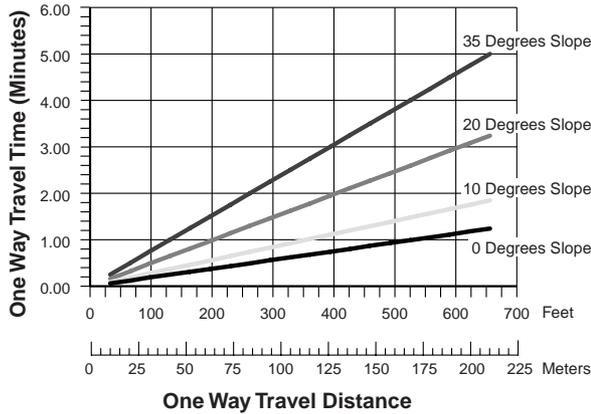
$$\text{English} - \frac{\text{number of feet traveled}}{\text{speed (in mph)} \times 88}$$

Hydrostatic top speed both forward and reverse 9 km/h (5.6 mph).

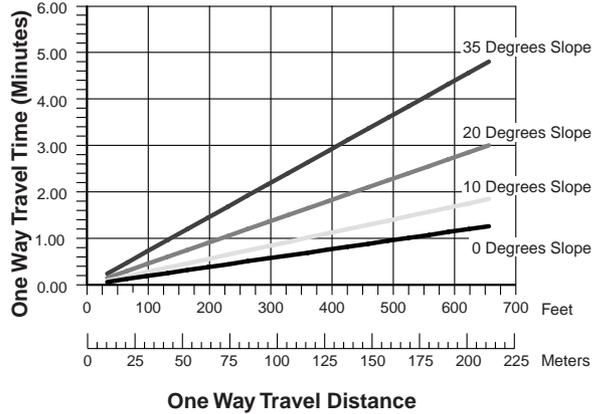
939C



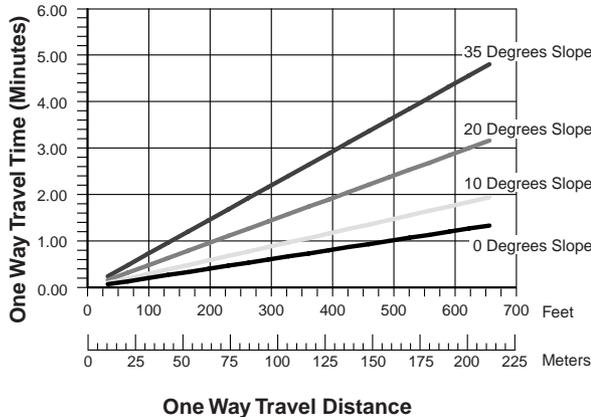
953C



963C



973C



TRAVEL TIME CHARTS

Conditions:

- No grades.
- Speeds loaded and empty essentially the same.
- Bucket position constant during travel.
- Travel encountered in maneuver portion of cycle not included.
- Acceleration time accounted for in maneuver time.

Travel Time (in minutes) =

$$Metric - \frac{\text{number of meters traveled}}{\text{speed (in km/h)} \times 16.67}$$

$$English - \frac{\text{number of feet traveled}}{\text{speed (in mph)} \times 88}$$

KEY

953C — Hydrostatic top speed both forward and reverse 9.7 km/h (6.0 mph)

963C — Hydrostatic top speed both forward and reverse 9.5 km/h (5.9 mph)

973C — Hydrostatic top speed both forward and reverse 9.0 km/h (5.6 mph)

Production Estimating Table
 ● m³ or yd³/60 min. hour
 ● Estimated bucket payload in bank m³ or yd³

Track Loaders

Bucket Size (m ³ or yd ³)		1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0
Cycle Time Hundredths of a minute	Cycles Per Hr	Unshaded area indicates average work range								
		0.25	240	240	360	480	600	720	840	960
0.30	200	200	300	400	500	600	700	800		
0.35	171	171	257	342	428	513	599	684	769	
0.40	150	150	225	300	375	450	525	600	675	750
0.45	133	133	200	268	332	400	466	530	600	665
0.50	120	120	180	240	300	360	420	480	540	600
0.55	109	109	164	218	272	328	382	436	490	545
0.60	100	100	150	200	250	300	350	400	450	600
0.65	92	92	138	184	230	276	322	368	416	460

Work Tools	973C	963C	953C	939C*
Quick coupler	X	X	X	X
General purpose (GP) bucket	X	X	X	X
GP bucket with trash rack	X	X	X	
MP bucket with trash rack	X	X	X	
Landfill bucket	X	X	X	
Landfill Multi-purpose	X	X	X	
Multi-purpose (MP) bucket	X	X	X	X
Side dump bucket	X	X	X	X
Rock bucket	X			
Trim blade	X	X	X	
Slag bucket	X	X		
Forks (for QC or bucket)	X	X	X	
Material handling arm	X	X	X	
Loader rake	X	X	X	X

*This list is not all-inclusive. Contact your Caterpillar Dealer for specific attachment needs.

SHOE OPTIONS



① **Double Grouser Shoes**



② **Trapezoidal Center Hole Shoes**



③ **Single Grouser Shoes**



④ **Chopper Shoes**

- **Extreme service shoes** are available which have more hardened wear material for longer wear life and higher impact applications.

- **Wider shoes** are also available to reduce ground pressure in soft underfoot conditions.

Other shoe options are available. Consult a Caterpillar Dealer for more information.

TELESCOPIC HANDLERS

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Features	14-1
Specifications	14-3
Performance Data	14-6
Shipping Dimensions	14-19
Tire Selection	14-20
Work Tools	14-22
Compatibility	14-25

Features:

- **Intuitive control layout** enables efficient and comfortable operation.
- **Electronic machine information display** communicates essential technical data (fuel gauge, temperature gauge, hydraulic oil and water temperature gauge, service hour meter, LCD speedometer, gear indicator and transmission temperature gauge).
- **Joystick configuration** supports the use of work tools requiring more than one hydraulic service.
- **Hydraulic system** enables the use of work tools requiring both intermittent and continuous auxiliary hydraulic flows.
- **Caterpillar's Integrated Management System** ensures the engine, transmission and hydraulic systems operate with maximum efficiency, control and productivity.
- **Load sensing variable displacement pumps** allow full hydraulic power at low revs, with three simultaneous hydraulic functions being achieved by a flow sharing hydraulic valve.
- **Range of lift heights and load capacities** from 2200 kg (4800 lb) to 5000 kg (11,000 lb) capacity and 5.2 m (17'0") to 17 m (55'7") lift height.
- **B-Series Telehandlers offer extended reach** to easily enable material to be placed over onsite obstacles.

- **Three steering modes and tight turning circles** offered by B-Series Telehandlers allow simplified movement onsite and therefore increased productivity.
- **High torque rise engines**, including electronic Tier 2 compliant engines, offer a range of power (74.5 kW/99 hp to 92 kW/123 hp) options, allowing the machine to be configured to a wide variety of applications while maintaining a high level of efficiency and excellent performance. Engines are integrated into the electronic system, providing simple diagnostic data through Electronic Technician and Product Link.
- **Transmission reaches across the machine**, reducing componentry, maintenance and operating costs. A variety of options are available, depending on which engine option has been selected.
- **25% increased braking area** is provided on the front axle with no disconnect between the front and rear axles, therefore providing four wheel braking.
- **IT Quick Couplers** (both mechanical and hydraulic) provide excellent work tool compatibility, including the use of IT tools compatible with other products (for example Backhoe Loaders and Small Wheel Loaders).
- **Three auxiliary hydraulic options** are available: one auxiliary hydraulic service, two auxiliary hydraulic services and continuous hydraulic flow. These options allow maximum work tool utilization.
- **Common interface** on both the mechanical and hydraulic quick couplers result in one range of work tools and carriages for all machines.
- **Daily maintenance** consists of only a walk-around inspection, all major components and service points are located at ground level, providing excellent ease of service.
- **Sealed bearings** require no daily or weekly greasing on engine oil, filter changes and routine lubrication are only required every 500 hours.
- **Reduced filters and extended service intervals** provide the lowest owning and operating costs in the industry (approximately \$0.55/hour vs. \$1.00/hr for our competitors).
- **Machine Security System (MSS)** offers protection of machine against theft by disabling machine through the ECM. Keys still compatible with machines not fitted with MSS.



MODEL	TH210		TH215		TH220B	
Flywheel Power (Gross)	60 kW	80 hp	60 kW	80 hp	74.5 kW	99.9 hp
Operating Weight	5000 kg	11,023 lb	5500 kg	12,100 lb	6700 kg	14,800 lb
Engine Model	CAT 3054B DI		CAT 3054B DI		CAT 3054E	
Rated Engine RPM	2300		2300		2200	
No. of Cylinders	4		4		4	
Bore	103 mm	4.05 in	103 mm	4.05 in	105 mm	4 in
Stroke	127 mm	5 in	127 mm	5 in	127 mm	5 in
Displacement	4.23 L	258 in³	4.23 L	258 in³	4.4 L	269 in³
Speeds Forward:	km/h	mph	km/h	mph	km/h	mph
1st	32	20	32	20	6	4
2nd	—	—	—	—	12	7.5
3rd	—	—	—	—	20	12.5
4th	—	—	—	—	32	20
5th	—	—	—	—	40	25
Speeds Reverse:						
1st	32	20	32	20	6	4
2nd	—	—	—	—	12	7.5
3rd	—	—	—	—	20	12.5
Turning Circle Radius						
Over Tires	2.90 m	9'10"	3.15 m	10'4"	3.34 m	10'11"
Over Forks	3.85 m	12'7"	4.37 m	14'4"	4.44 m	14'7"
Over Bucket	3.67 m	12'1"	4.36 m	14'4"	—	—
Track	3.07 m	10'1"	3.40 m	11'2"	—	—
Aisle Width						
Over Forks	7.28 m	23'10"	7.98 m	26'2"	7.96 m	26'1"
Over Bucket @ carry	7.34 m	24'1"	7.87 m	25'9"	—	—
Tires	10.5-20 MPT		12.5-20 MPT		15.5-25 SGL-2A	
Service Refill Cap:						
Fuel Tank @ 90% fill	77.4 L	20.4 U.S. gal	77.4 L	20.4 U.S. gal	90 L	23.8 U.S. gal
Hydraulic Tank	55 L	14.5 U.S. gal	55 L	14.5 U.S. gal	59 L	15.6 U.S. gal
Hydraulic System	80 L	21.1 U.S. gal	80 L	21.1 U.S. gal	100 L	26.4 U.S. gal
Additional Fuel Tank	—	—	—	—	50 L	13 U.S. gal



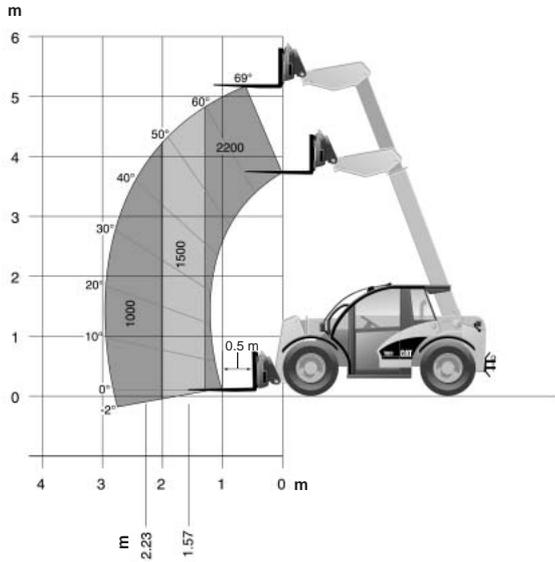
MODEL	TH330B		TH340B		TH350B	
Flywheel Power (Gross)	74.5 kW	99.9 hp	74.5 kW	99.9 hp	74.5 kW	99.9 hp
Operating Weight	7200 kg	15,900 lb	7700 kg	17,000 lb	8480 kg	18,100 lb
Engine Model	CAT 3054E		CAT 3054E		CAT 3054E	
Rated Engine RPM	2200		2200		2200	
No. of Cylinders	4		4		4	
Bore	105 mm	4 in	105 mm	4 in	105 mm	4 in
Stroke	127 mm	5 in	127 mm	5 in	127 mm	5 in
Displacement	4.4 L	269 in ³	4.4 L	269 in ³	4.4 L	269 in ³
Speeds Forward:	km/h	mph	km/h	mph	km/h	mph
1st	6	4	6	4	6	4
2nd	12	7.5	12	7.5	12	7.5
3rd	20	12.5	20	12.5	20	12.5
4th	32	20	32	20	32	20
5th	40	25	—	—	—	—
Speeds Reverse:						
1st	6	4	6	4	6	4
2nd	12	7.5	12	7.5	12	7.5
3rd	20	12.5	20	12.5	20	12.5
Turning Circle Radius						
Over Tires	3.60 m	11'10"	3.42 m	11'2"	3.70 m	12'2"
Over Forks	4.53 m	14'10"	4.70 m	15'5"	5.00 m	16'5"
Aisle Width						
Over Forks	8.27 m	27'2"	8.45 m	27'9"	8.55 m	28'1"
Tires	13-24		13-24		13-24	
Service Refill Cap:						
Fuel Tank @ 90% fill	90 L	23.8 U.S. gal	90 L	23.8 U.S. gal	90 L	23.8 U.S. gal
Hydraulic Tank	59 L	15.6 U.S. gal	65 L	17.2 U.S. gal	65 L	17.2 U.S. gal
Hydraulic System	103 L	27.2 U.S. gal	117 L	30.9 U.S. gal	124 L	32.8 U.S. gal
Additional Fuel Tank	50 L	13 U.S. gal	—	—	—	—



MODEL	TH360B		TH460B		TH560B		TH580B	
Flywheel Power (Gross)	74.5 kW	99.9 hp	74.5 kW	99.9 hp	74.5 kW	99.9 hp	74.5 kW	99.9 hp
Operating Weight	10 010 kg	21,600 lb	10 500 kg	21,600 lb	12 000 kg	26,500 lb	13 670 kg	30,100 lb
Engine Model	CAT 3054E		CAT 3054E		CAT 3054E		CAT 3054E	
Rated Engine RPM	2200		2200		2200		2200	
No. of Cylinders	4		4		4		4	
Bore	105 mm	4 in	105 mm	4 in	105 mm	4 in	105 mm	4 in
Stroke	127 mm	5 in	127 mm	5 in	127 mm	5 in	127 mm	5 in
Displacement	4.4 L	269 in³	4.4 L	269 in³	4.4 L	269 in³	4.4 L	269 in³
Speeds Forward:	km/h	mph	km/h	mph	km/h	mph	km/h	mph
1st	6	4	6	4	6	4	6	4
2nd	12	7.5	12	7.5	12	7.5	12	7.5
3rd	20	12.5	20	12.5	20	12.5	20	12.5
4th	32	20	32	20	32	20	32	20
Speeds Reverse:								
1st	6	4	6	4	6	4	6	4
2nd	12	7.5	12	7.5	12	7.5	12	7.5
3rd	20	12.5	20	12.5	20	12.5	20	12.5
Turning Circle Radius								
Over Tires	3.81 m	12'6"	3.50 m	11'6"	3.80 m	12'6"	4.02 m	13'2"
Over Forks	5.40 m	17'9"	5.45 m	17'11"	5.45 m	17'11"	5.45 m	17'11"
Aisle Width								
Over Forks	9.30 m	30'6"	9.25 m	30'4"	9.32 m	30'7"	9.47 m	31'0"
Tires	13-24		14-24 12 PR		14-24 12 PR		14-24 16 PR	
Service Refill Cap:								
Fuel Tank @ 90% fill	90 L	23.8 U.S. gal	90 L	23.8 U.S. gal	90 L	23.8 U.S. gal	90 L	23.8 U.S. gal
Hydraulic Tank	65 L	17.2 U.S. gal	90 L	23.8 U.S. gal	90 L	23.8 U.S. gal	90 L	23.8 U.S. gal
Hydraulic System	140 L	37 U.S. gal	175 L	46.2 U.S. gal	175 L	46.2 U.S. gal	175 L	46.2 U.S. gal

TH210

Non-U.S. Version



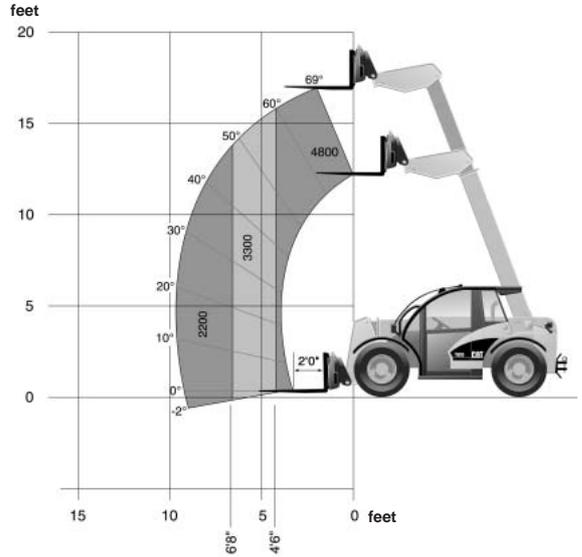
Numbers in chart measured in kilograms.

Maximum lift capacity	2200 kg	4840 lb
Maximum lift height	5.18 m	17'0"
Load at maximum height	2200 kg	4840 lb
Maximum forward reach	2.8 m	9'2"
Load at maximum reach	1000 kg	2200 lb

Load Chart generated with load center of 500 mm from fork face.

TH210

North American Version

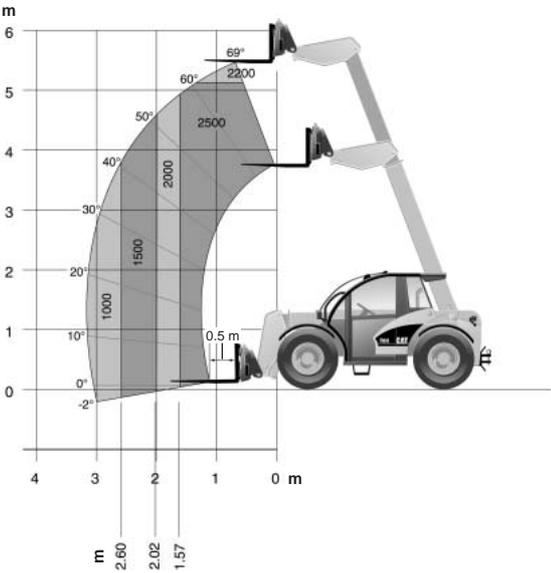


Numbers in chart measured in pounds.

Maximum lift capacity	2180 kg	4800 lb
Maximum lift height	5.18 m	17'0"
Load at maximum height	2180 kg	4800 lb
Maximum forward reach	2.8 m	9'2"
Load at maximum reach	1000 kg	2200 lb

Load Chart generated with load center of 24" from fork face.

TH215
Non-U.S. Version

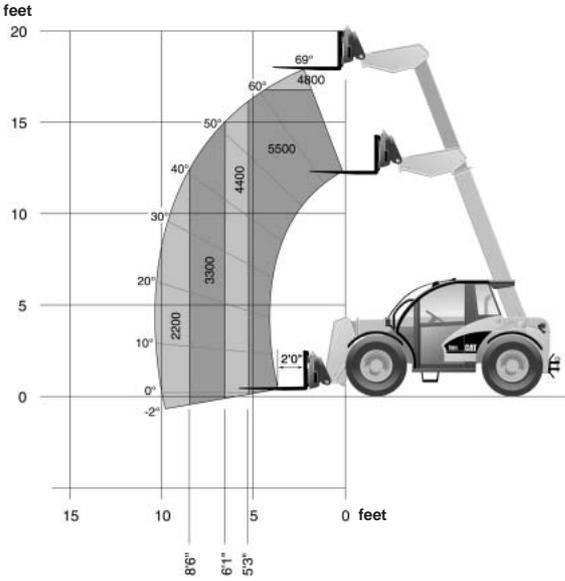


Numbers in chart measured in kilograms.

Maximum lift capacity	2500 kg	5500 lb
Maximum lift height	5.54 m	18'2"
Load at maximum height	2200 kg	4840 lb
Maximum forward reach	3.1 m	10'2"
Load at maximum reach	1000 kg	2200 lb

Load Chart generated with load center of 500 mm from fork face.

TH215
North American Version



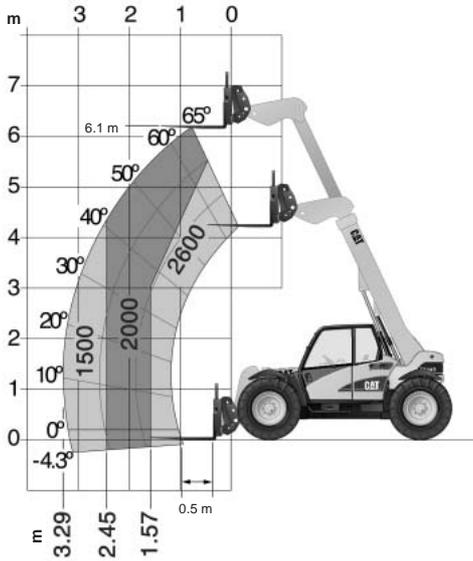
Numbers in chart measured in pounds.

Maximum lift capacity	2500 kg	5500 lb
Maximum lift height	5.54 m	18'2"
Load at maximum height	2180 kg	4800 lb
Maximum forward reach	3.1 m	10'2"
Load at maximum reach	1000 kg	2200 lb

Load Chart generated with load center of 24" from fork face.

TH220B

Non-U.S. Version

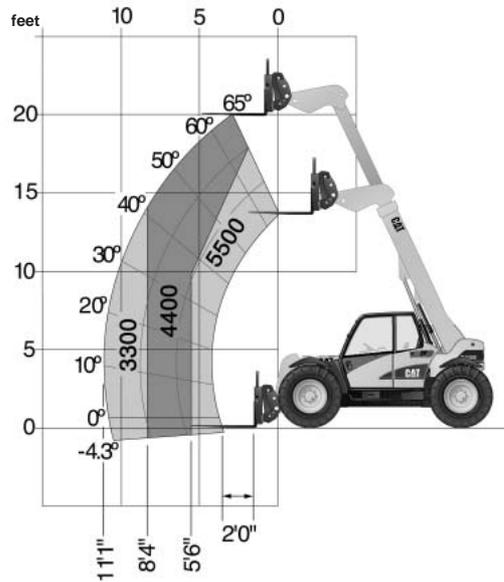


Numbers in chart measured in kilograms.

Maximum lift capacity	2600 kg	5730 lb
Maximum lift height	6.1 m	20'0"
Load at maximum height	2000 kg	4400 lb
Maximum forward reach	3.3 m	10'7"
Load at maximum reach	1500 kg	3300 lb

TH220B

North American Version

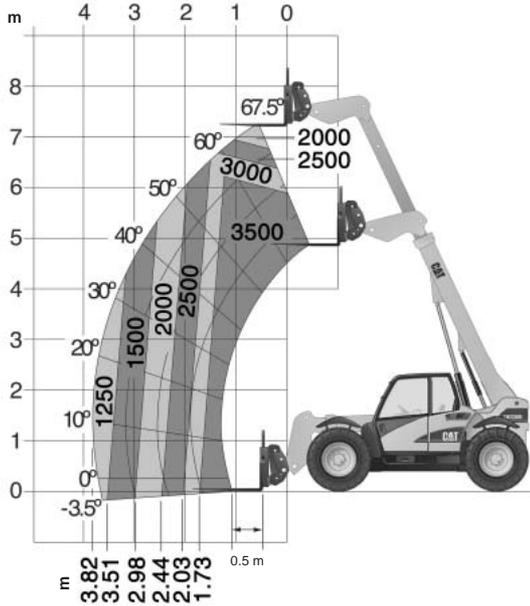


Numbers in chart measured in pounds.

Maximum lift capacity	2500 kg	5500 lb
Maximum lift height	6.1 m	20'0"
Load at maximum height	2000 kg	4400 lb
Maximum forward reach	3.2 m	10'6"
Load at maximum reach	1500 kg	3300 lb

TH330B

Non-U.S. Version

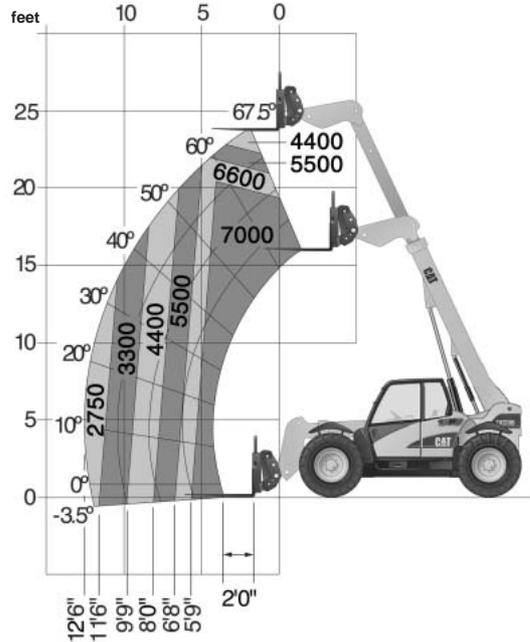


Numbers in chart measured in kilograms.

Maximum lift capacity	3500 kg	7700 lb
Maximum lift height	7.2 m	24'0"
Load at maximum height	2000 kg	4400 lb
Maximum forward reach	3.8 m	12'6"
Load at maximum reach	1250 kg	2750 lb

TH330B

North American Version

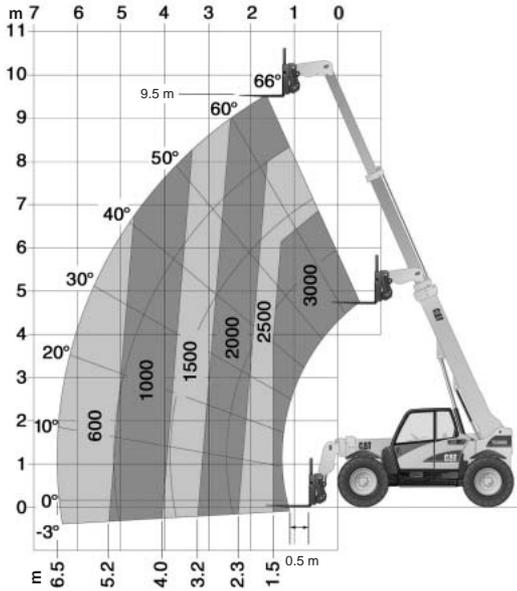


Numbers in chart measured in pounds.

Maximum lift capacity	3200 kg	7000 lb
Maximum lift height	7.2 m	24'0"
Load at maximum height	2000 kg	4400 lb
Maximum forward reach	3.8 m	12'6"
Load at maximum reach	1250 kg	2750 lb

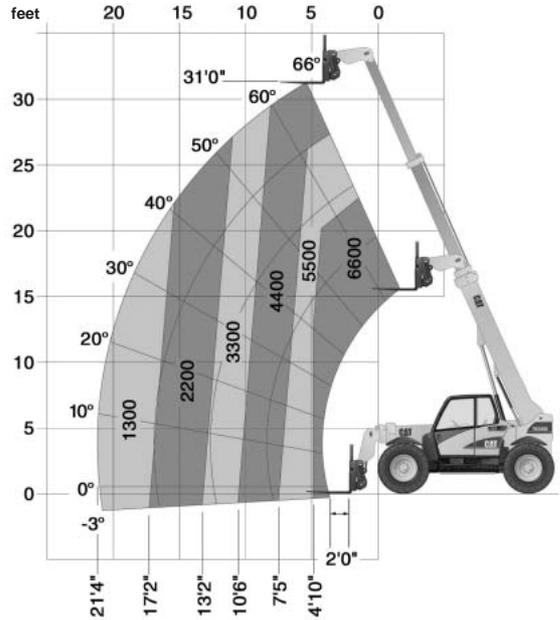
TH340B

Non-U.S. Version



TH340B

North American Version



Numbers in chart measured in kilograms.

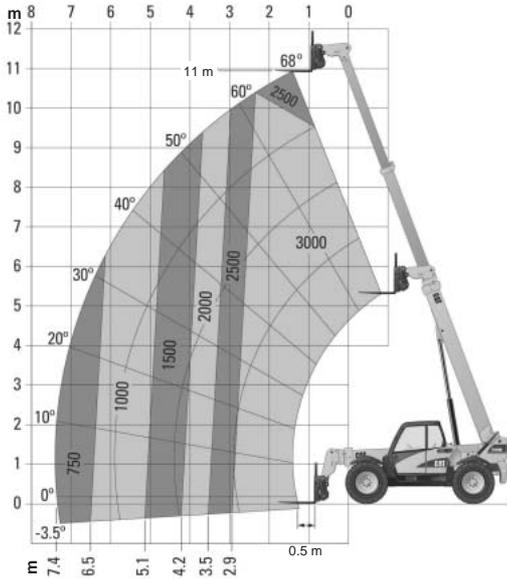
Numbers in chart measured in pounds.

Maximum lift capacity	3000 kg	6600 lb
Maximum lift height	9 m	29'6"
Load at maximum height	1500 kg	3300 lb
Maximum forward reach	6.5 m	21'4"
Load at maximum reach	600 kg	1320 lb

Maximum lift capacity	3000 kg	6600 lb
Maximum lift height	9 m	29'6"
Load at maximum height	1500 kg	3300 lb
Maximum forward reach	6.5 m	21'4"
Load at maximum reach	600 kg	1320 lb

TH350B

Non-U.S. Version

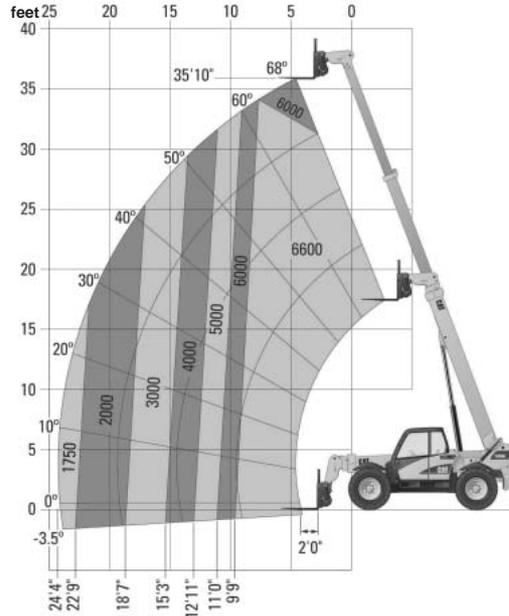


Numbers in chart measured in kilograms.

Maximum lift capacity	3000 kg	6600 lb
Maximum lift height	11 m	36'0"
Load at maximum height	2500 kg	6000 lb
Maximum forward reach	7.4 m	24'0"
Load at maximum reach	795 kg	1750 lb

TH350B

North American Version



Numbers in chart measured in pounds.

Maximum lift capacity	3000 kg	6600 lb
Maximum lift height	11 m	36'0"
Load at maximum height	2500 kg	6000 lb
Maximum forward reach	7.4 m	24'0"
Load at maximum reach	795 kg	1750 lb

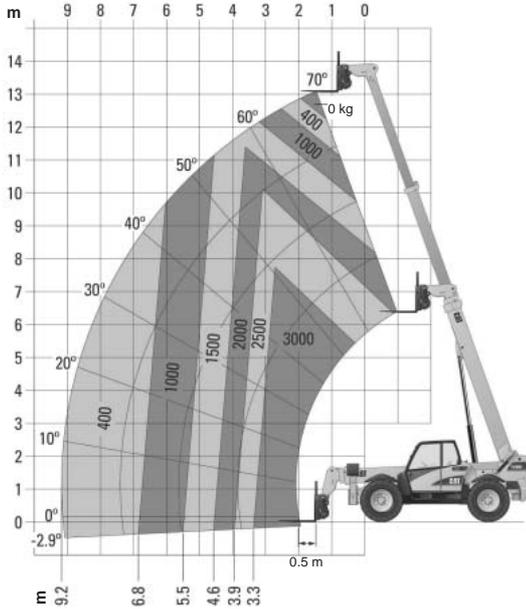
Telescopic Handlers

Performance Data

- Standard Forks and Carriage
- Non-U.S. Version

TH360B

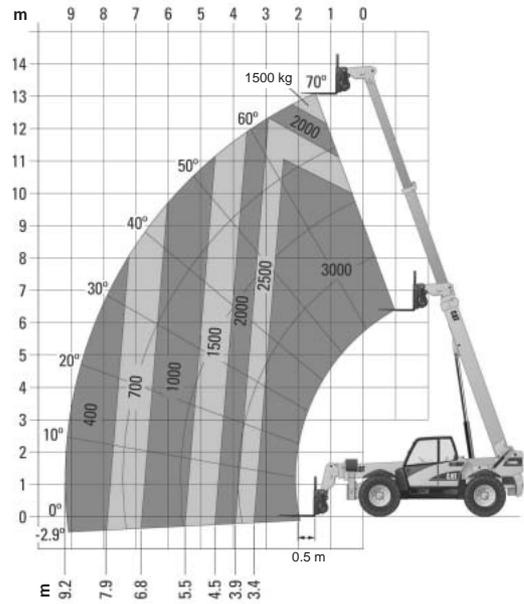
Stabilizers Up Fixed Frame



Numbers in chart measured in kilograms.

TH360B

Stabilizers Up Frame Leveler



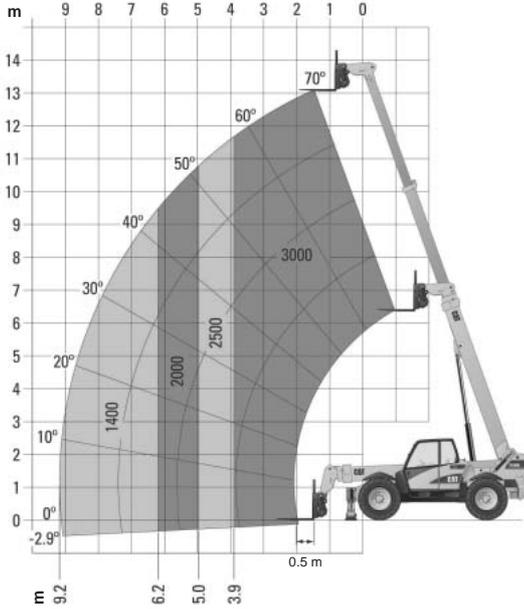
Numbers in chart measured in kilograms.

Maximum lift capacity	3000 kg	6600 lb
Maximum lift height	13.5 m	44'4"
Load at maximum height	2000 kg	4400 lb
Maximum forward reach	9.2 m	30'0"
Load at maximum reach	400 kg	880 lb

Maximum lift capacity	3000 kg	6600 lb
Maximum lift height	13.5 m	44'4"
Load at maximum height	2000 kg	4400 lb
Maximum forward reach	9.2 m	30'0"
Load at maximum reach	400 kg	880 lb

TH360B

**Stabilizers Down
 Non-U.S. Version**

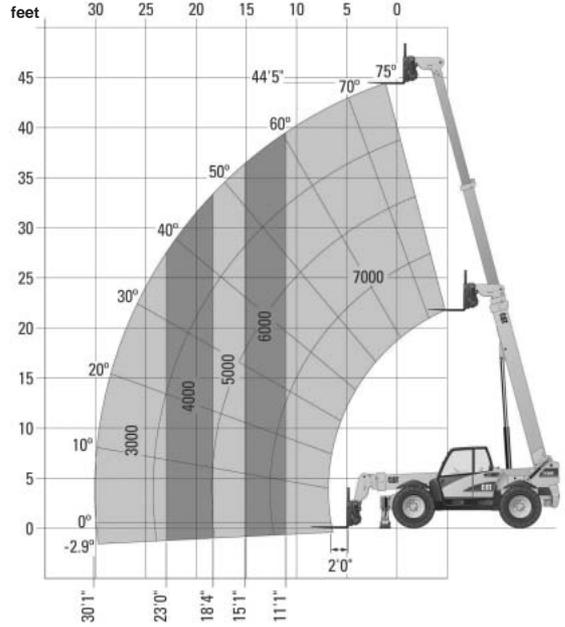


Numbers in chart measured in kilograms.

Maximum lift capacity	3000 kg	6600 lb
Maximum lift height	13.5 m	44'4"
Load at maximum height	3000 kg	6600 lb
Maximum forward reach	9.2 m	30'0"
Load at maximum reach	1400 kg	3100 lb

TH360B

**Stabilizers Down
 North American Version**



Numbers in chart measured in pounds.

Maximum lift capacity	3100 kg	7000 lb
Maximum lift height	13.5 m	44'4"
Load at maximum height	3100 kg	7000 lb
Maximum forward reach	9.2 m	30'0"
Load at maximum reach	1400 kg	3000 lb

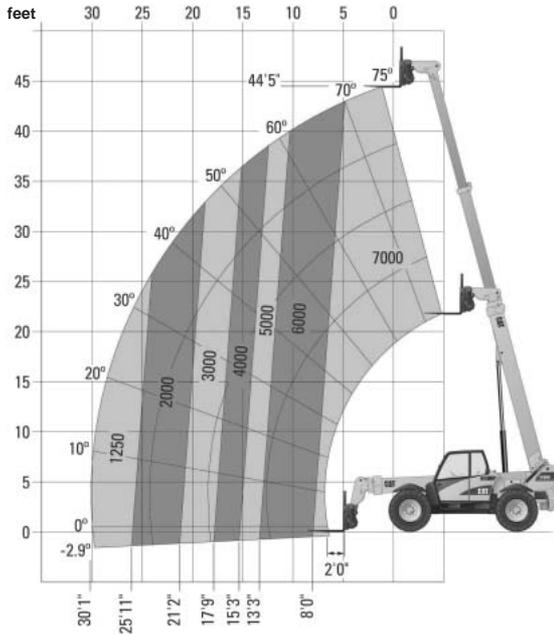
Telescopic Handlers

Performance Data

- Standard Forks and Carriage
- North American Version

TH360B

No Stabilizers

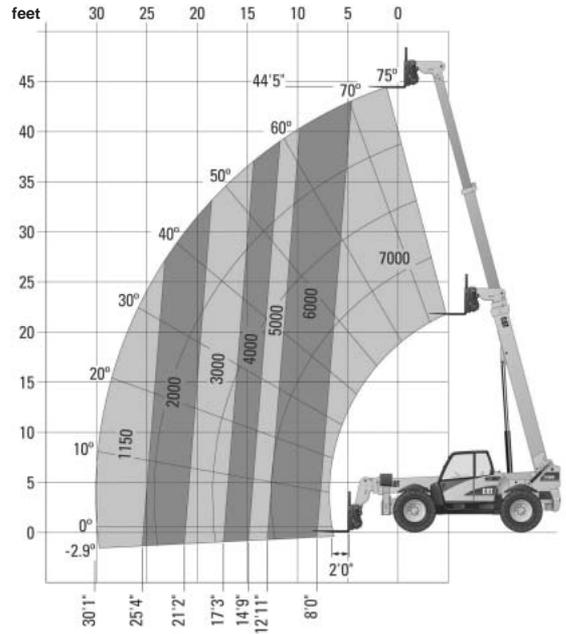


Numbers in chart measured in pounds.

Maximum lift capacity	3100 kg	7000 lb
Maximum lift height	13.5 m	44'4"
Load at maximum height	3100 kg	7000 lb
Maximum forward reach	9.2 m	30'0"
Load at maximum reach	550 kg	1250 lb

TH360B

Stabilizers Up

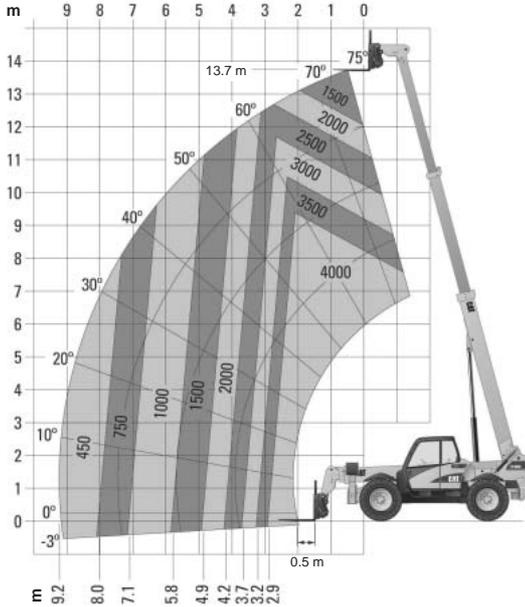


Numbers in chart measured in pounds.

Maximum lift capacity	3100 kg	7000 lb
Maximum lift height	13.5 m	44'4"
Load at maximum height	3100 kg	7000 lb
Maximum forward reach	9.2 m	30'0"
Load at maximum reach	500 kg	1150 lb

- Performance Data
- Standard Forks and Carriage
- Non-U.S. Version

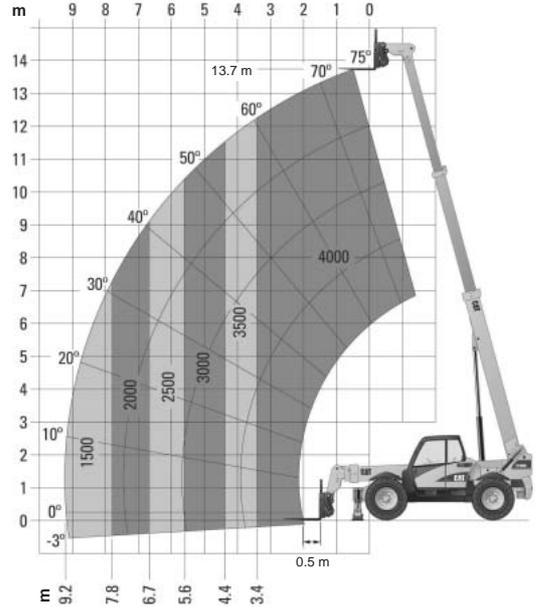
TH460B
Stabilizers Up



Numbers in chart measured in kilograms.

Maximum lift capacity	4000 kg	8800 lb
Maximum lift height	13.5 m	44'4"
Load at maximum height	1500 kg	3300 lb
Maximum forward reach	9.2 m	30'0"
Load at maximum reach	450 kg	1000 lb

TH460B
Stabilizers Down



Numbers in chart measured in kilograms.

Maximum lift capacity	4000 kg	8800 lb
Maximum lift height	13.5 m	44'4"
Load at maximum height	4000 kg	8800 lb
Maximum forward reach	9.2 m	30'0"
Load at maximum reach	1500 kg	3300 lb

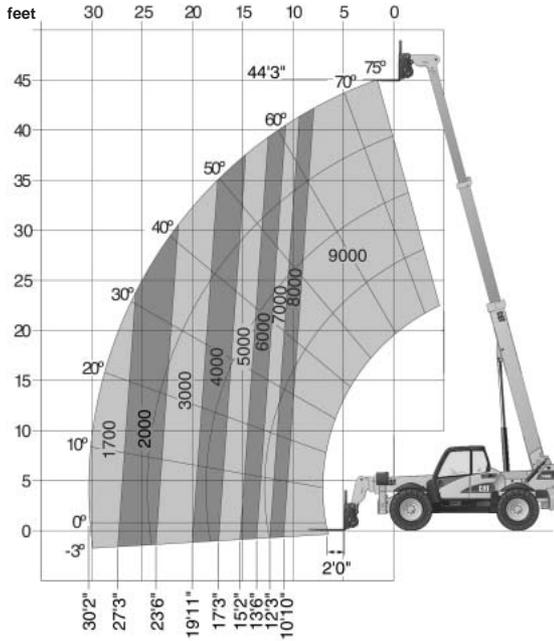
Telescopic Handlers

Performance Data

- Standard Forks and Carriage
- North American Version

TH460B

Stabilizers Up

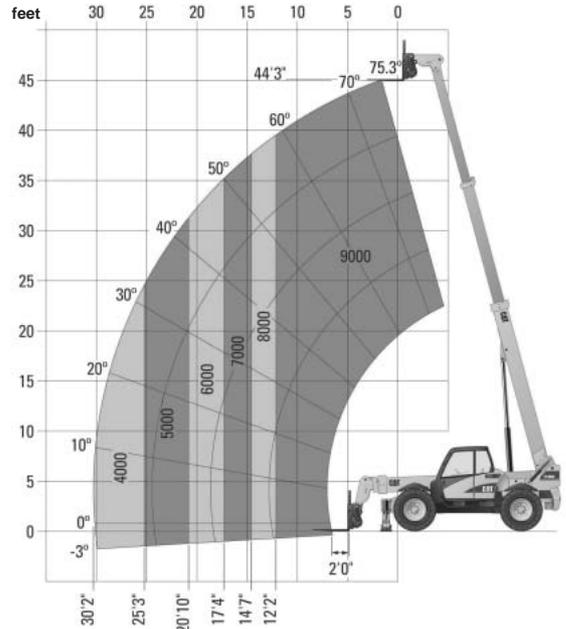


Numbers in chart measured in pounds.

Maximum lift capacity	4000 kg	8800 lb
Maximum lift height	13.5 m	44'4"
Load at maximum height	4086 kg	8800 lb
Maximum forward reach	9.2 m	30'0"
Load at maximum reach	771 kg	1700 lb

TH460B

Stabilizers Down

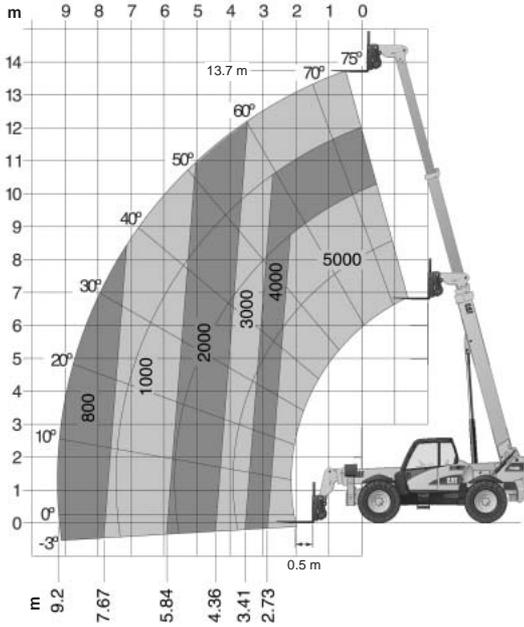


Numbers in chart measured in pounds.

Maximum lift capacity	4000 kg	8800 lb
Maximum lift height	13.5 m	44'4"
Load at maximum height	4086 kg	8800 lb
Maximum forward reach	9.2 m	30'0"
Load at maximum reach	1816 kg	4000 lb

- Performance Data
- Standard Forks and Carriage
- Non-U.S. Version

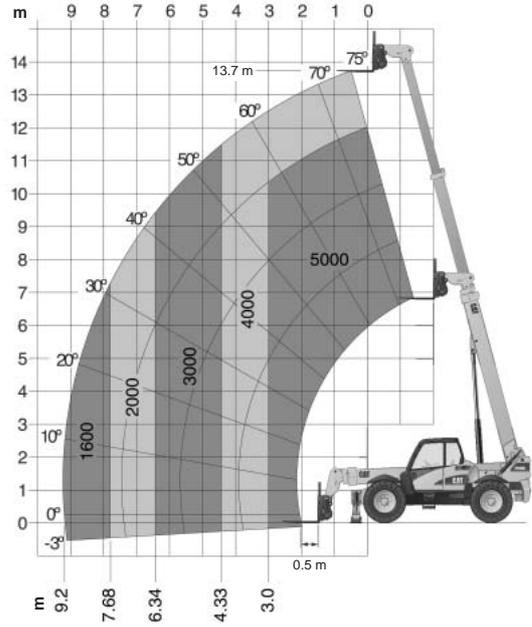
TH560B
Stabilizers Up



Numbers in chart measured in kilograms.

Maximum lift capacity	5000 kg	11,000 lb
Maximum lift height	13.5 m	44'4"
Load at maximum height	3000 kg	6600 lb
Maximum forward reach	9.2 m	30'0"
Load at maximum reach	800 kg	1760 lb

TH560B
Stabilizers Down



Numbers in chart measured in kilograms.

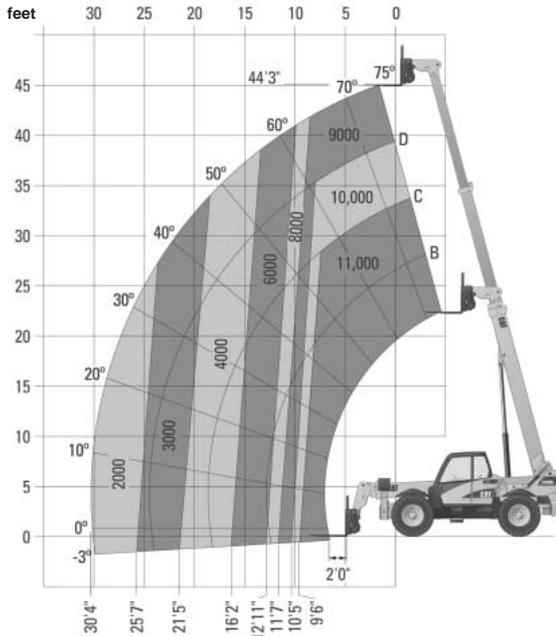
Maximum lift capacity	5000 kg	11,000 lb
Maximum lift height	13.5 m	44'4"
Load at maximum height	4000 kg	8800 lb
Maximum forward reach	9.2 m	30'0"
Load at maximum reach	1600 kg	3500 lb

Telescopic Handlers

Performance Data

- Standard Forks and Carriage
- North American Version

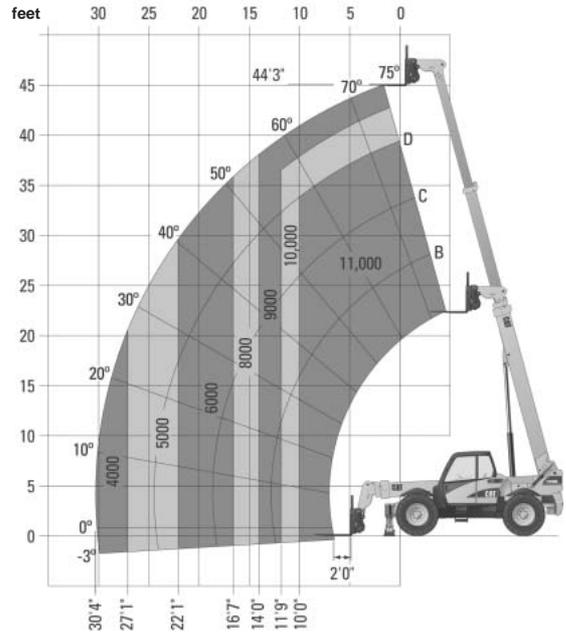
TH560B
Stabilizers Up



Numbers in chart measured in pounds.

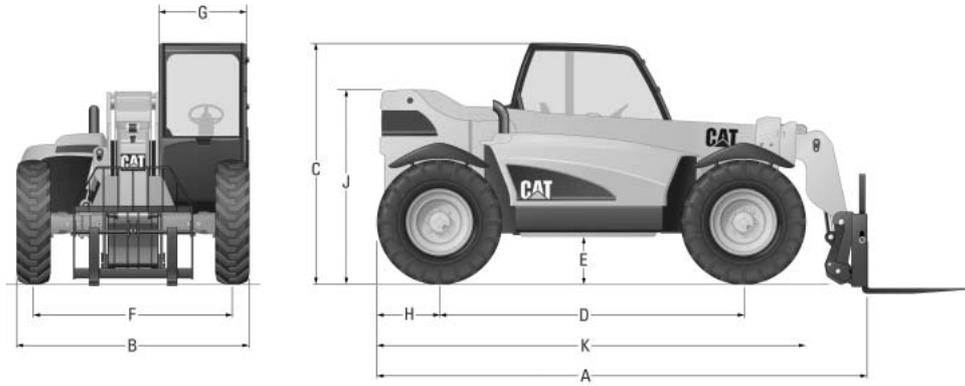
Maximum lift capacity	5000 kg	11,000 lb
Maximum lift height	13.5 m	44'4"
Load at maximum height	2724 kg	6000 lb
Maximum forward reach	9.2 m	30'0"
Load at maximum reach	900 kg	2000 lb

TH560B
Stabilizers Down



Numbers in chart measured in pounds.

Maximum lift capacity	5000 kg	11,000 lb
Maximum lift height	13.5 m	44'4"
Load at maximum height	3630 kg	8000 lb
Maximum forward reach	9.2 m	30'0"
Load at maximum reach	1800 kg	4000 lb

**Dimensions (approx.)**

Model	TH210		TH215		TH220B		TH330B		TH340B	
	mm	ft	mm	ft	mm	ft	mm	ft	mm	ft
A) Length to fork face	4000	13'2"	4200	13'9"	4740	15'7"	4960	16'3"	4950	16'3"
B) Width	1800	5'11"	1900	6'3"	2350	7'9"	2390	7'11"	2433	8'0"
C) Height	1960	6'5"	2130	7'0"	2250	7'5"	2270	7'5"	2583	8'5"
D) Wheel base	2300	7'6"	2300	7'6"	2950	9'8"	3050	10'0"	3050	10'0"
E) Ground clearance	320	12"	400	16"	425	17"	425	17"	498	20"
F) Wheel track	1464	4'10"	1564	5'2"	1897	6'3"	1897	6'3"	2088	6'10"
G) Cab width (inside)	845	2'9"	845	2'9"	900	2'11"	900	2'11"	900	2'11"
H)	800	2'7"	800	2'7"	630	2'1"	630	2'1"	635	2'1"
J)	1290	4'3"	1365	4'6"	1735	5'8"	1800	5'11"	1938	6'4"
K)	3700	12'2"	3700	12'2"	4210	13'10"	4310	14'2"	4320	14'2"

Model	TH350B		TH360B		TH460B		TH560B		TH580B	
	mm	ft	mm	ft	mm	ft	mm	ft	mm	ft
A) Length to fork face	5300	17'5"	6485	21'3"	6550	21'6"	6550	21'6"	6622	21'9"
B) Width	2433	8'0"	2433	8'0"	2515	8'3"	2550	8'4"	2545	8'4"
C) Height	2594	8'6"	2594	8'6"	2530	8'4"	2590	8'6"	2715	8'11"
D) Wheel base	3050	10'0"	3200	10'6"	3250	10'8"	3250	10'8"	3250	10'8"
E) Ground clearance	510	20"	505	20"	505	20"	505	20"	521	20"
F) Wheel track	2090	6'10"	2090	6'10"	2150	7'1"	2184	7'2"	2150	7'0"
G) Cab width (inside)	900	2'11"	900	2'11"	900	2'11"	900	2'11"	900	2'11"
H)	1010	3'4"	1170	3'10"	1200	3'11"	1200	3'11"	1328	4'4"
J)	1950	6'5"	1950	6'5"	2070	6'9"	2070	6'9"	2182	7'2"
K)	4700	15'5"	5010	16'5"	5135	16'10"	5135	16'10"	5246	17'3"

Tire Selection

Non-U.S. Models		
Model	Tire Size	Tire Type
TH210	Goodyear 10.5/20* Goodyear 12.5/20 Michelin 10.5/80 R20 Michelin 12.5/80 R20	
TH215	Goodyear 12.5/20 — Rear Hydrofill* Michelin 335/80 R20 — Rear Hydrofill Michelin 375/75 R20 — Rear Hydrofill	
TH220B	Goodyear SGL 15.5-25 SGL-2A* Goodyear SGL 15.5-25 SGL-2A (T&S) Michelin XM27 (17.5LR24) Goodyear 460/70R IND IT520 Goodyear 13.00-22 SGG2A TL (T&S) Michelin 15.5R24 XTLA (T&S) Michelin 500/70R24 XM37	Construction Construction Agricultural Agricultural Construction Construction Agricultural
TH330B	Mitas 13.00-24 12 PR* Mitas 15.00-25 12 PR Goodyear 13.00-24 SGG Goodyear 15.5/80-24 12 PR Goodyear SGL 15.5/25 SGL Michelin 15.5 25 XTLA Goodyear 460/70R IND IT520 Michelin 15.5 25 XHA Michelin 440/70 R24 XM27 19.5LR24	Construction Construction Construction Construction Construction Agricultural Construction Agricultural
TH340B	Mitas 13.00-24 12 PR* Goodyear 13.00-24 SGG Goodyear 15.5/80-24 12 PR Mitas 15.5-25 12 PR Goodyear 13.00-24 SGG 2A TL (T&S) Goodyear 15.5-25 SGL Michelin 15.5 25 XTLA Goodyear 460/70R IND IT520 Michelin 17.5LR 24 XM27 Michelin 15.5 25 XTLA (T&S) 15.5 R25 XHA	Construction Construction Construction Construction Construction Construction Agricultural Agricultural Construction Construction

Non-U.S. Models		
Model	Tire Size	Tire Type
TH350B	Mitas 13.00-24 12 PR* Goodyear 15.5/80-24 12 PR Goodyear 13.00-24 SGG Goodyear 13.00-24 SGG 2A (T&S) Goodyear 15.5 SGL Michelin 15.5 25 XTLA Michelin 15.5 25 XTLA (T&S) Michelin 15.5 R25 XHA	Construction Construction Construction Construction Construction Construction Construction
TH360B	Mitas 13.00-24 12 PR* Goodyear 15.5/80-24 12 PR Goodyear 13.00-24 SGG Mitas 15.5-25 12 PR Goodyear 13.00-24 SGG-2A TL (T&S) Goodyear 15.5 SGL Michelin 15.5 XTLA Michelin 15.5 25 XTLA (T&S) Michelin 15.5 R25 XHA	Construction Construction Construction Construction Construction Construction Construction Construction
TH460B	Mitas 14.00-24 12 PR* Goodyear 14.00-24 SGG 2A TL Goodyear 14.00-24 SGG 12 PR (T&S) Goodyear 400/70 R24	Construction Construction Construction Construction
TH560B	Mitas 14.00-24 16 PR* Goodyear SGG-2A 16 PR Goodyear SGG-2A 16 PR (T&S)	Construction Construction Construction
TH580B	Mitas 14.00-24 16 PR* Goodyear 14.00-24 SGG-2A Michelin 17.5R25 XHA Michelin 17.5R25 XTLA	Construction Construction Construction Construction

*Standard tire.

Tire Selection

North American Models		
Model	Tire Size	Tire Type
TH210	Goodyear 10.5/20 MPT*	Construction
	Goodyear 12.5/20 MPT	Construction
	Michelin 10.5/80 R20	Agricultural
	Michelin 12.5/80 R20	Agricultural
TH215	Goodyear 12.5/20*	Agricultural
	Michelin 335/80 R20	Construction
	Michelin 375/75R20	Construction
TH220B	Goodyear SGL 15.5-25 SGL-2A*	Construction
	Goodyear SGL 15.5-25 SGL-2A (T&S)	Construction
	Michelin XM27 (17.5LR24)	Agricultural
	Goodyear 460/70R IND IT520	Agricultural
TH330B	Cat 13.00-24 12 PR*	Construction
	Goodyear 13.00-24 SGG	Construction
	Goodyear 15.5/80-2412 PR	
	Cat 15.5-25	Construction
	Cat 13-24 (T&S)	Construction
	Goodyear 15.5-25 SGL	Construction
	Michelin 15.5-25 XTLA	Construction
	Goodyear 460/70R IND IT520	Agricultural
	Cat 15.5-25 (T&S)	Construction
	Michelin 15.5R25 XHA	Construction
	Michelin 495/70R24 XM27 (19.5LR24)	Agricultural
TH340B	Cat 13.00-24*	Construction
	Goodyear 13.00-24 SGG	Construction
	Goodyear 15.5/80-2412 PR	
	Cat 15.5-25	Construction
	Cat 13-24 (T&S)	Construction
	Goodyear 13.00-24 SGG-2A TL (T&S)	Construction
	Cat 15.5-25 (T&S)	Construction
	Goodyear 15.5-25 SGL	Construction
	Michelin 15.5-25 XTLA	Construction
	Goodyear 460/70R IND IT520	Agricultural
	Michelin 17.5LR 24 XM27	Agricultural
Michelin 15.5 25 XTLA (T&S)	Construction	
Michelin 15.5 R25 XHA	Construction	

North American Models		
Model	Tire Size	Tire Type
TH350B	Cat 13.00-24*	Construction
	Goodyear 15.5/80-24 12 PR	Construction
	Goodyear 13.00-24 SGG	Construction
	Goodyear 13.00-24 SGG 2A (T&S)	Construction
	Goodyear 15.5 SGL	Construction
	Michelin 15.5 25 XTLA	Construction
	Michelin 15.5 25 XTLA (T&S)	Construction
	Michelin 15.5 R25 XHA	Construction
Cat 13-24 Foam		Construction
	Goodyear 13-24 SGG-2A TL Foam	Construction
TH360B	Cat 13.00-24*	Construction
	Goodyear 15.5/80-24 12 PR	
	Goodyear 13.00-24 SGG	Construction
	Cat 15.5-25	Construction
	Cat 13.00-24 (T&S)	Construction
	Goodyear 13.00-24 SGG-2A TL (T&S)	Construction
	Goodyear 15.5 SGL	Construction
	Michelin 15.5 25 XHA	Construction
	Michelin 15.5 XTLA	Construction
	Cat 15.5-25 (T&S)	Construction
	Michelin 15.5 25 XTLA (T&S)	Construction
Cat 13.00-24 Foam	Construction	
Goodyear 13.00-24 SGG 2A TL Foam	Construction	
Cat 15.5-25 Foam	Construction	
TH460B	Cat 14.00-24*	Construction
	Goodyear 14.00-24 SGG 2A TL	Construction
	Cat 14.00-24 (T&S)	Construction
	Goodyear 14.00-24 SGG 2A 12 PR (T&S)	Construction
	Cat 14.00-24 Foam	Construction
	Goodyear 14.00-24 SGG 2A Foam	Construction
TH560B	Cat 14.00-24 16 16 PR*	Construction
	Goodyear SGG-2A 16 PR	Construction
	Cat 14.00-24 16 (Foam)	Construction
	Goodyear SGG-2A 16 PR (T&S)	Construction
TH580B	Cat 14-24 16 PR*	Construction
	Cat 14-24 16 PR (T&S)	Construction
	Cat 14-24 16 PR (Foam)	Construction
	Goodyear 14.00-24 SGG2A	Construction
	Goodyear 14.00-24 SGG2A (Foam)	Construction

*Standard tire.

All carriages are bar type with load backrest to support bulky loads.
Widespread carriages provide added stability for lifting larger loads.
Standard and widespread carriages are also available in rotating mode.

Carriage Type

Model	Standard	Standard — Framers	Rotate	Rotate — Framers	Side Shift
TH210					
Capacity	2220 kg 4850 lb				
Weight w/1070 mm (42") fork	195 kg 430 lb				
Width	1400 mm 4'7"				
Height	535 mm 1'9"				
Max. fork spread	1330 mm 4'4"				
Floating fork movement	—				
Rotation	—				
TH215					
Capacity	2500 kg 5510 lb				
Weight w/1070 mm (42") fork	195 kg 430 lb				
Width	1400 mm 4'7"				
Height	535 mm 1'9"				
Max. fork spread	1330 mm 4'4"				
Floating fork movement	—				
Rotation	—				
TH220B through TH460B					
Weight w/1220 mm (48") fork	272 kg 600 lb	336 kg 740 lb	408 kg 900 lb	492 kg 1084 lb	422 kg 930 lb
Width	1224 mm 4'0"	1880 mm 6'2"	1224 mm 4'0"	1880 mm 6'2"	1230 mm 4'0"
Height	1039 mm 3'5"	1039 mm 3'5"	1216 mm 4'0"	1216 mm 4'0"	1135 mm 3'8"
Max. fork spread	1200 mm 3'11"	1856 mm 6'1"	1200 mm 3'11"	1856 mm 6'1"	1200 mm 3'11"
Floating fork movement	70 mm 3"				
Rotation	—	—	11.5°	11.5°	—
TH560B					
Weight w/1220 mm (48") fork	303 kg 600 lb	336 kg 740 lb	408 kg 900 lb	492 kg 1084 lb	422 kg 930 lb
Width	1224 mm 4'0"	1880 mm 6'2"	1224 mm 4'0"	1880 mm 6'2"	1230 mm 4'0"
Height	1039 mm 3'5"	1039 mm 3'5"	1216 mm 4'0"	1216 mm 4'0"	1135 mm 3'8"
Max. fork spread	1200 mm 3'11"	1856 mm 6'1"	1200 mm 3'11"	1856 mm 6'1"	1200 mm 3'11"
Floating fork movement	70 mm 3"				
Rotation	—	—	11.5°	11.5°	—
Capacities:					
TH220B	2600 kg 5700 lb	2450 kg 5400 lb	2400 kg 5290 lb	2300 kg 5070 lb	2300 kg 5070 lb
TH330B	3500 kg 7700 lb	3400 kg 7450 lb	3350 kg 7380 lb	3250 kg 7160 lb	3250 kg 7160 lb
TH340B	3000 kg 6600 lb	2930 kg 6400 lb	2880 kg 6350 lb	2800 kg 6170 lb	2800 kg 6170 lb
TH350B	3000 kg 6600 lb	2830 kg 6240 lb	2780 kg 6120 lb	2700 kg 5950 lb	2700 kg 5950 lb
TH360B	3000 kg 6600 lb	2830 kg 6240 lb	2780 kg 6120 lb	2780 kg 6120 lb	2690 kg 5930 lb
TH460B	4000 kg 8800 lb	3930 kg 8650 lb	3860 kg 8110 lb	3780 kg 8330 lb	3780 kg 8330 lb
TH560B	5000 kg 11,000 lb	4850 kg 10,690 lb	4800 kg 10,580 lb	4700 kg 10,360 lb	4700 kg 10,360 lb
TH580B	*	*	*	*	*

*Unavailable at time of printing.

All carriages are bar type with load backrest to support bulky loads.
Widespread carriages provide added stability for lifting larger loads.
Standard and widespread carriages are also available in rotating mode.

Fork Type		Pallet		Block			
Model	Forks/Set	Size		Model	Forks/Set	Size	
TH210	2	50 x 100 x 1097 mm	2" x 4" x 43"	TH210	4	50 x 50 x 1220 mm	2" x 2" x 48"
	2	50 x 100 x 1220 mm	2" x 4" x 48"		6	50 x 50 x 1220 mm	2" x 2" x 48"
TH215	2	50 x 100 x 1220 mm	2" x 4" x 48"	TH215	4	50 x 50 x 1220 mm	2" x 2" x 48"
TH220B	2	50 x 125 x 1220 mm	2" x 5" x 48"	TH220B	6	50 x 50 x 1220 mm	2" x 2" x 48"

Work Tools

Truss Boom			HD Manure Fork		
Length	4000 mm	13'0"	Capacity	1.9 m ³	2.5 yd³
Weight	200 kg	441 lb	Width	2290 mm	7'6"
Capacity	500 kg	1100 lb	Weight	560 kg	1234 lb
Lifting Hook			Tine length	1060 mm	3'6"
Weight	98 kg	216 lb	No. of tines	9	
Capacity	5000 kg	11,020 lb	HD Manure Fork + Grab		
Self Tipping Hopper			Capacity	1.9 m ³	2.5 yd³
Weight	360 kg	793 lb	Width	2290 mm	7'6"
Capacity	1.2 m ³	1.56 yd³	Weight	750 kg	1653 lb
Width	1118 mm	3'8"	Tine length	1060 mm	3'6"
1.0 m³ (1.3 yd³) GP Bucket			No. of tines	9	
Capacity	1.0 m ³	1.3 yd³	HD Manure Fork, Grab + Pusher		
Width	2406 mm	7'11"	Capacity	1.7 m ³	2.26 yd³
Weight	544 kg	1200 lb	Width	2290 mm	7'6"
1.0 m³ (1.3 yd³) MP Bucket			Weight	978 kg	2155 lb
Capacity	1.0 m ³	1.3 yd³	Tine length	1060 mm	3'6"
Width	2406 mm	7'11"	No. of tines	9	
Weight	740 kg	1631 lb	Std. Duty Manure Fork + Grab		
1.5 m³ (2 yd³) Rehandling Bucket			Capacity	1.8 m ³	2.34 yd³
Capacity	1.5 m ³	2 yd³	Width	2290 mm	7'6"
Width	2406 mm	7'11"	Weight	560 kg	1234 lb
Weight	548 kg	1208 lb	Tine length	1060 mm	3'6"
LM Bucket			No. of tines	9	
2.0 m³ (2.6 yd³)			Grapple Multi Bucket		
Capacity	2.0 m ³	2.6 yd³	Capacity	0.85 m ³	1.1 yd³
Width	2500 mm	8'2"	Width	2330 mm	7'8"
Weight	566 kg	1248 lb	Weight	765 kg	1686 lb
2.5 m³ (3.25 yd³)			Bale Handler		
Capacity	2.5 m ³	3.25 yd³	Width	1220 mm	4'0"
Width	2500 mm	8'2"	Weight	411 kg	906 lb
Weight	628 kg	1384 lb	Tine length	600 mm	2'0"
3.0 m³ (3.9 yd³)			No. of tines	10	
Capacity	3.0 m ³	3.9 yd³			
Width	2700 mm	8'10"			
Weight	705 kg	1553 lb			

TH220B TH330B TH340B TH350B TH360B TH460B TH560B TH580B

	TH220B	TH330B	TH340B	TH350B	TH360B	TH460B	TH560B	TH580B
Truss Jib	Yes							
Lifting Hook	Yes							
Self Tipping Hopper	Yes							
1.0 m ³ (1.3 yd ³) GP Bucket	Yes							
1.0 m ³ (1.3 yd ³) MP Bucket	Yes	Yes	Yes	Yes	Yes	Yes	N/A	Yes
Rehandling Bucket 1.5 m ³ (2 yd ³)	Yes	N/A						
Light Material Bucket:								
2.0 m ³ (2.6 yd ³)	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A
2.5 m ³ (3.25 yd ³)	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A
3.0 m ³ (3.9 yd ³)	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A
HD Manure Fork	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A
HD Manure Fork + Grab	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A
HD Manure Fork + Grab + Pusher	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A
LD Manure Fork + Grab	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A
Grapple Multi Bucket	Yes	Yes	Yes	Yes	Yes	Yes	N/A	N/A
Bale Handler	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A
Standard Carriage	Yes							
Standard Carriage — (Framers)	Yes							
Rotate Carriage	Yes							
Rotate Carriage — (Framers)	Yes							
Sideshift Carriage	Yes							
Pick-up Broom	Yes							
Material Handling Arm	Yes							
Pallet Fork — 60 mm (2.4") diameter:								
1070 mm (42") long	Yes	Yes	Yes	Yes	Yes	N/A	N/A	N/A
1220 mm (48") long	Yes							
1525 mm (60") long	Yes							
Extended shank	Yes							
Block Fork — 60 mm (2.4") diameter	Yes							

PAVING PRODUCTS

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Cold Planer Features:

- **Cat Diesel Engines** with large piston displacement and individual adjustment-free fuel pumps and valves.
- **Up-cutting mandrels** provide cutting efficiency and improved bit life.
- **Grade and slope system** produces ± 3 mm (0.125 in) tolerance.
- **Non-contact sensors** speed set-up on PM-565B.
- **Short turning radii** for productivity and jobsite flexibility.
- **Front-discharge conveyor on PM-565B** facilitates haul unit movement in congested urban applications.
- **Optimum weight-to-horsepower balance** for delivering maximum available horsepower to the cutter.
- **Computerized Monitoring System (CMS)** provides three warning levels for abnormal operating conditions on PM-565B.
- **Load control system** on PM-565B keeps machine operating at peak efficiency.
- **Variable width cutter** available for PM-565B.
- **Water spray system** for dust control and bit cooling.

**PM-565B**

MODEL	PM-565B	
Gross Power	466 kW	625 hp
Operating Weight	38 595 kg	85,100 lb
Engine Model	3408E TA (HEUI)	
Rated Engine RPM	2100	
No. of Cylinders	8	
Bore	137 mm	5.4"
Stroke	152 mm	6"
Displacement	18 L	1099 in ³
Drive Systems: Rotor	Mechanical	
Ground	Hydrostatic with 4 track design	
Discharge Conveyor Width	914 mm	3'0"
Width of Standard Track Shoe	348 mm	13.7"
Track Length on Ground	2045 mm	6'8.5"
Ground Contact Area (w/std. shoe)	0.43 m ²	672 in ²
Operating Dimensions:		
Height	5040 mm	16'6"
Width	2790 mm	9'2"
Length	15.1 m	49'5"
Standard Mandrel (Width of Cut)	2100 mm	6'11"
No. of Teeth	170	
Depth of Cut (max.)	305 mm	12"
Speeds: Operating (max.)	0-40 m/min	0-132 fpm
Speeds: Travel (max.)	0-6 km/h	0-3.7 mph
Inside Turning Radius: Right	4674 mm	15'4"
Grade Control	Standard Non Contact Electric Over Hydraulic	
Slope Control	Standard	
Fuel Capacity	946 L	250 U.S. gal
Water Capacity	3787 L	1000 U.S. gal

Speed		Cutter/Drum Width — m ² /min (yd ² /min)															
		1220 mm 4'0"		1900 mm 6'3"		2010 mm 6'7"		2100 mm 6'11"		2210 mm 7'3"		3050 mm 10'0"		3500 mm 11'6"		3810 mm 12'6"	
		m ²	yd ²	m ²	yd ²	m ²	yd ²	m ²	yd ²	m ²	yd ²	m ²	yd ²	m ²	yd ²	m ²	yd ²
3.0	10	3.7	4.4	5.8	6.9	6.1	7.3	6.4	7.7	6.7	8.0	9.3	11.1	10.7	12.8	11.6	13.9
4.6	15	5.6	6.6	8.7	10.4	9.3	11.0	9.7	11.5	10.0	12.1	13.9	16.7	16.1	19.2	17.4	20.8
6.1	20	7.5	8.8	11.6	13.9	12.3	14.6	12.8	15.4	13.4	16.1	18.6	22.2	21.4	25.5	23.3	27.8
7.6	25	9.3	11.1	14.5	17.4	15.4	18.3	16.1	19.2	16.7	20.1	23.2	27.8	26.8	31.9	29.1	34.7
9.1	30	11.1	13.3	17.4	20.8	18.4	22.0	19.2	23.1	20.1	24.2	27.9	33.3	32.1	38.3	34.9	41.7
10.7	35	13.1	15.5	20.3	24.3	21.6	25.6	22.6	26.9	23.4	28.2	32.5	38.9	37.5	44.7	40.7	48.6
12.2	40	15.0	17.8	23.2	27.8	24.6	29.3	25.7	30.7	26.8	32.2	37.1	44.4	42.8	51.1	46.5	55.5
13.7	45	16.8	20.0	26.1	31.2	27.7	33.0	28.9	34.6	30.1	36.2	41.8	50.0	48.2	57.5	52.3	62.5
15.2	50	18.7	22.2	29.0	34.7	30.7	36.6	32.1	38.4	33.5	40.3	46.4	55.5	53.5	63.9	58.1	69.4
16.8	55	20.6	24.4	31.9	38.2	33.9	40.2	35.4	42.3	36.8	44.3	51.1	61.1	58.9	70.3	63.9	76.4
18.3	60	22.5	26.7	34.9	41.7	37.0	43.9	38.7	46.1	40.1	48.3	55.7	66.7	64.2	76.7	69.8	83.3

Speed		Cutter/Drum Width — metric tons/min (U.S. tons/min)															
		1220 mm 4'0"		1900 mm 6'3"		2010 mm 6'7"		2100 mm 6'11"		2210 mm 7'3"		3050 mm 10'0"		3500 mm 11'6"		3810 mm 12'6"	
		Metric tons	U.S. tons	Metric tons	U.S. tons	Metric tons	U.S. tons	Metric tons	U.S. tons	Metric tons	U.S. tons	Metric tons	U.S. tons	Metric tons	U.S. tons	Metric tons	U.S. tons
3.0	10	0.23	0.26	0.36	0.40	0.38	0.42	0.41	0.44	0.44	0.46	0.58	0.64	0.67	0.74	0.73	0.80
4.6	15	0.35	0.38	0.54	0.60	0.57	0.63	0.61	0.66	0.66	0.69	0.87	0.96	1.00	1.10	1.09	1.20
6.1	20	0.46	0.51	0.72	0.80	0.76	0.84	0.82	0.88	0.88	0.92	1.16	1.28	1.34	1.47	1.46	1.79
7.6	25	0.58	0.64	0.91	1.00	0.94	1.04	1.02	1.10	1.10	1.15	1.45	1.60	1.67	1.83	1.82	1.99
9.1	30	0.69	0.77	1.09	1.20	1.14	1.26	1.23	1.33	1.32	1.39	1.74	1.91	2.01	2.20	2.19	2.40
10.7	35	0.81	0.89	1.27	1.40	1.34	1.47	1.44	1.55	1.54	1.62	2.03	2.24	2.34	2.57	2.56	2.79
12.2	40	0.92	1.02	1.45	1.60	1.53	1.68	1.65	1.76	1.76	1.85	2.32	2.55	2.68	2.94	2.92	3.19
13.7	45	1.04	1.15	1.63	1.80	1.71	1.88	1.84	1.99	1.98	2.08	2.61	2.87	3.01	3.31	3.28	3.59
15.2	50	1.16	1.28	1.81	2.00	1.91	2.10	2.05	2.21	2.20	2.32	2.90	3.19	3.35	3.67	3.65	3.99
16.8	55	1.27	1.41	1.99	2.20	2.09	2.31	2.25	2.43	2.42	2.55	3.19	3.51	3.68	4.04	4.01	4.39
18.3	60	1.39	1.53	2.18	2.40	2.28	2.51	2.46	2.65	2.64	2.78	3.48	3.83	4.02	4.41	4.38	4.79

NOTE: Above figures are based on a one-inch depth of cut. For greater depths of cut, multiply the production rate by cutting depth. Based on asphalt density of 68 kg/m³ (115 lb/yd³), one inch thick.

MACHINE SELECTION

Prime considerations in selecting the proper cold planer model are:

- specifics of work to be done
- type of projects generally done by the contractor
 - City/Urban or Highway/Airport
- desired production capacities

Cold Planer Characteristics (Highway/Airport)

Highway/Airport work requires high-volume cold planers. The PM-565B and other high horsepower half-lane cold planers are being used more on Highway/Airport projects. Users like to have one machine that can work successfully on high production jobs then switch to city/urban applications. The PM-565B has proven to be a true cross-over cold planer.

Cold Planer Characteristics (City/Urban)

The PM-565B is a four-track, front discharge model. Front discharge cold planers make traffic control easier in congested quarters. The trucks travel forward in the same direction as the cold planer. The trucks move in and out of traffic faster increasing production.

COLD PLANING FUNDAMENTALS**Definition**

Cold planing is automatically controlled cold milling to restore the pavement surface to a specified grade and slope; remove bumps, ruts, and other imperfections; and leave a textured surface which can be opened immediately to traffic or overlaid with new pavement materials.

Production and Tooth Wear

Because pavement materials vary, so do production and tooth wear. While predicting the exact production rate and tooth wear on a particular job is difficult, general guidelines are available.

Production depends on the milling rate (the speed at which the cold planer moves forward). The machine's forward speed is determined, primarily, by aggregate type, asphalt bond strength and depth of cut. When milling asphalt pavement, the cold planer's teeth essentially are breaking the bond between asphalt-coated aggregate, not actually fracturing the aggregate itself. A pavement made with a mix containing a high percentage of fine aggregate and a high asphalt content is more difficult to mill than a pavement with a high percentage of coarse aggregate.

A dense or fine mix usually requires more power at the cutting drum, limiting the cold planer's forward speed. Decreased speed lowers production, and the tough bond between the small aggregate particles causes increased cutting-tooth wear. Lower production and higher tooth wear result in increased unit costs.

Cutting depth affects power demand at the drum and helps determine the cold planer's forward speed. However, production increases, to a point, as the depth of cut increases. For example, changing from a 25 mm (1 in) cut to a 51 mm (2 in) cut slows the machine only slightly but doubles the amount of material produced.

As the cut increases beyond the machine's peak-production depth, the reduced forward speed begins to offset the production gains of the deeper cut. For example, production at a 152 mm (6 in) cutting depth and slow speed may be no greater than cutting at a 76 mm (3 in) depth and a much faster speed.

Low Density Asphalt

Depth		PM-565B	
mm	in	mpm	fpm
51	2	40	130
101	4	32	105
127	5	21	70
178	7	12	40
254	10	6	20
305	12	5	15

High Density Asphalt

Depth		PM-565B	
mm	in	mpm	fpm
51	2	32	105
101	4	26	85
127	5	18	60
178	7	9	30
254	10	5	15
305	12	4	12

As long as the cold planer maintains a productive forward speed, deeper cuts will yield greater production and tend to lower tooth cost. Tooth wear does not increase in direct proportion to production when the machine is working in an efficient range.

Tooth wear at various depths for a given material is affected by how long the tooth remains in the cut. Because the teeth are mounted on a circular drum, each tooth cuts through the pavement in an arc. The tooth arc at a 102 mm (4 in) cutting depth, however, is not four times longer than at a 25 mm (1 in) cutting depth, even though production may be four times greater. The cutting arc at 102 mm (4 in) is approximately twice as long as that at 25 mm (1 in).

The peak cutting depth for a particular cold planer on a specific job is best determined by examining production, and subsequent costs, of a single deep cut versus multiple passes at a shallow depth.

TYPES OF CUTTING ROTORS

Weld on Holders

The holders that retain the cutting bits are welded to the rotor flight. Best used in applications that have little or no obstacles imbedded in the pavement.

Bolt on Holders

The holders are bolted to a spacer block that is welded to the rotor flight. No welding is required to replace holders that are broken by obstacles embedded in the pavement.

APPLICATIONS

Although new applications for cold planers are being discovered, most work can be classified in seven general categories:

Leveling and Bonding

This application removes a layer of pavement to eliminate potholes, ruts, bumps and other surface imperfections. The cold planer leaves a level, textured surface ideal for bonding to a new, thin overlay of asphalt or concrete. The surface has an interlocking texture with double the bonding area of a conventional smooth pavement. The textured surface and overlay form a monolithic bond, eliminating the shear plane that causes pavement layers to move and separate. Thinner overlays can be used, making the technique more economical than traditional overlay methods.

Surface Refinishing

Rough pavement can also be cold planed to specified grade and slope, providing a new riding surface without adding new paving materials. This application is particularly useful when base and sub-base are in good shape, or when several layers have been added to the roadway over the years. Roads can be cold planed during cold, wet months and reopened immediately. New overlays can be added whenever weather permits. This lengthens the practical working season for many contractors. The cold planer can also be used to correct expansion joint faults and pavement cracks.

Surface Repair

This category generally requires deeper cutting than leveling. It consists of removing isolated distressed pavement sections down to subbase, if necessary, prior to adding new overlay materials. Since the cutter mandrel on Caterpillar cold planers cuts forward and upward, there's no damaging impact to the underlying base.

Pavement Removal

Pavement buildup is a problem that plagues most older streets, roads and highways. As overlays are added, curbs and drains are buried — creating drainage problems. Overhead clearances are dangerously reduced ... and additional weight is added to overpasses and bridges. Cold planing is an economical method of curing all these problems.

Surface Texturing

Serious accidents increase when pavement becomes slick from wear. The textured surface produced by cold planing is highly skid-resistant and has dramatically reduced hydroplaning characteristics.

Pavement Mining

Cold milling has made it practical to actually "mine" deteriorated pavement materials from existing roads and streets. The cold planer produces an ideally-sized asphalt or concrete material which can be recycled in a variety of ways. Depending on type, age and condition of pavement, the largest cold planer can reclaim up to 900 tons of material per hour.

COLD PLANER USE BY PROJECT TYPE

Applications	Highway/Airport	City/Urban
Planing (Milling)	<ul style="list-style-type: none"> ● To establish grade and slope. ● Remove excess pavement. 	<ul style="list-style-type: none"> ● To establish proper grade and slope. ● To establish new grade and slope.
Partial Removal	<ul style="list-style-type: none"> ● For use with hot mix recycle. ● Remove pavement irregularities. ● Texture for skid resistance. 	<ul style="list-style-type: none"> ● To correct drainage and curb reveal. ● To lower elevation at overpass. ● For use with hot recycle. ● Eliminate leveling course.
Full Depth Removal	<ul style="list-style-type: none"> ● Total rebuild. RAP used for base or hot recycle. ● Cold recycle. This requires additional surface treatment. 	<ul style="list-style-type: none"> ● Total rebuild. RAP used for base or hot recycle. ● Cold recycle. Requires additional surface treatment.
Texturing	<ul style="list-style-type: none"> ● For skid resistance and improved bond when overlay is applied. 	<ul style="list-style-type: none"> ● For skid resistance and improved bond when overlay is applied.
Leveling		<ul style="list-style-type: none"> ● At intersections to remove bumps, shoving and improve drainage.
Special	<ul style="list-style-type: none"> ● Joint and crack repair. ● Cut rumble grooves on shoulders of bridge approaches. 	<ul style="list-style-type: none"> ● Intersection defect repair. ● Pothole repair. ● Railroad crossing repair. ● Tight radius profiling around manhole covers, etc. ● Pavement adjustments (transitions from existing pavements to new overlays).

RM-250C:

The RM-250C is a medium duty reclaimer/mixer that can perform either full depth reclamation or soil stabilization. It uses a cutting mandrel to pulverize and mix asphaltic pavement and base materials. The machine is utilized to mechanically stabilize deteriorated asphalt structures and complete reclamation with the addition of asphaltic emulsions or other binding agents. The RM-250C can be equipped with attachments that accurately inject liquid additives directly into the mixing hood. Optional rotors can be installed to convert the RM-250C into a soil stabilizer. The internally mounted breaker bar aids in material sizing.

RM-350B:

The RM-350B is a heavy-duty reclaimer/mixer, that can perform either full depth reclamation, or soil stabilization. Rotor options allow the RM-350B to perform the pulverization of asphalt pavement, or the mixing of stabilizing agents with soils to produce a strong base material.

The RM-350B features microprocessor control of major machine systems, including propel speed, rotor depth, and steering modes.

RM-250C Features:

- **Maximum Production** ... rotor driven by Cat turbocharged Diesel Engine through mechanical drive system.
- **Highly Efficient** ... load-sensing propel system helps prevent overloading while allowing continuous work near rated horsepower.
- **Extremely Versatile** ... interchangeable rotors provide both reclamation and stabilization capabilities.
- **Consistent Blending** ... automatic depth control, mid-mounted mixing chamber and multi-speed rotor drive combine for optimum blending and increased production.

RM-350B Features:

- **Maximum Production** ... mechanical rotor drive, with deep cutting and mixing capability, via Cat turbocharged Diesel Engine and Cat three-speed transmission.
- **Efficient Operation** ... Cat Electronic Control Module provides microprocessor control of major machine systems.
- **Highly Maneuverable** ... four steering modes with automatic rear wheel alignment simplify work in congested areas.
- **Versatility** ... choice of three rotors for full depth reclamation or soil stabilization.
- **Reliability** ... field proven Cat components maximize machine availability.



MODEL	RM-250C			RM-350B		
Gross Power	250 kW	335 hp		373 kW	500 hp	
Operating Weight	16 780 kg	37,000 lb		24 040 kg	53,000 lb	
Engine Model	3406C DITA			3406C DITA		
Rated Engine RPM	2100			2100		
No. Cylinders	6			6		
Bore	137 mm	5.4"		137 mm	5.4"	
Stroke	165 mm	6.5"		165 mm	6.5"	
Displacement	14.6 L	893 in ³		14.6 L	893 in ³	
Drive Systems: Rotor	3 speed Mechanical			3 speed Mechanical		
Ground	4 speed Hydrostatic			4 speed Hydrostatic		
Operating Dimensions: Height	3220 mm	10'7"		3404 mm	11'2"	
Width	2921 mm	9'7"		2997 mm	9'10"	
Length	8780 mm	28'10"		9980 mm	32'9"	
Width of Cut	2438 mm	8'0"		2438 mm	8'0"	
Depth of Cut (Max.)	381 mm	15"		508 mm	20"	
Rotor Speed	Trans	Drive	Speed	Trans	Drive	Speed
	Low	Low	124 rpm	Low	Low	115 rpm
	Low	High	168 rpm	Low	High	160 rpm
	High	Low	284 rpm	High	Low	215 rpm
Minimum Turning Radius:						
Standard	5.5 m	18'0"		6.1 m	20'0"	
Travel Speed (Max.)	20 km/h	12 mph		16.8 km/h	10.5 mph	
Standard Tires: Front	23.5 × 25–16 ply Lug Type L-2			23.5 × 25–16 ply Lug Type SSG L-2		
Rear	15.5 × 25–8 ply Lug Type L-2			23.1 × 26–12 ply Traction Type R1		
Fuel Capacity	416 L	110 U.S. gal		779 L	206 U.S. gal	
Cooling System	61 L	16 U.S. gal		61 L	16 U.S. gal	
Crankcase	34 L	9 U.S. gal		34 L	9 U.S. gal	

OPTIONAL EQUIPMENT — RM-250C

- Roll Over Protective Structure (ROPS).
- Foot per minute indicator (available in metric).
- Working light package.
- Cab with heater, defroster and air conditioner.
- Liquid additive system (English or Metric).
- Water spray system with in-line flow meter.
- Rear wheel power.
- Sound suppression package.
- Torque limiter.
- Mirror package.
- Various rotor options.
- Road light package.
- Counterweight system.
- Front tires — 23.5 × 25–16 ply.
- Rear tires — 28 × 26 × 10 ply.

OPTIONAL EQUIPMENT — RM-350B

- Roll Over Protective Structure (ROPS).
- Working light package.
- Rooding light package.
- Deluxe cab.
- Liquid additive system.
- Water spray system.
- Mirror package.
- Various rotor options.
- Friction torque limiter.
- High flotation front tires.
- Hydraulically operated front door.
- Warning beacon.

Rotor Options for RM-250C

Rotor	Maximum Depth of Work		No. of Bits/Tools	Direction of Cut	Stabilization	Reclamation
Breakaway Holder Rotor	330 mm	13"	188	Up		X
Quick Change	381 mm	15"	58	Up	X	
Combination	381 mm	15"	108	Up	X	X

Rotor Options for RM-350B

Rotor	Maximum Depth of Work		No. of Bits/Tools	Direction of Cut	Stabilization	Reclamation
Breakaway Reclamation	381 mm	15"	188	Up		X
Quick Change	508 mm	20"	58	Up	X	
Universal	406 mm	16"	200	Up	X	X

Other rotors available by custom order.

Rotor Options:

- **Breakaway Rotors** are designed to pulverize asphalt layers. They can also be used in stabilization in sandy type material. Holders are bolt on for easy replacement.
- **Quick Change Rotors** are designed for soil stabilization only and work well in cohesive type soils.
- **Universal Rotor** can be used for either reclamation or stabilization by changing rotor bits from bullet to spade type.

PRODUCTION ESTIMATING

The maximum cutting depth is 381 mm (15 in) for the RM-250C and 457 mm (18 in) for the RM-350B. The RM-250C can mix up to 457 mm (18 in). In addition, the cutting width of their rotors is 2.4 m (8 ft). The following formulas allow you to determine the production in square yards (yd²)/minute or cubic yards (yd³)/minute.

Production in square yards (yd²) per minute

$$\text{yd}^2/\text{min} = \frac{\text{FPM of travel speed}}{1.125}$$

$$\frac{9 \text{ ft}^2/\text{yd}^2}{8 \text{ ft Cutting width}} = 1.125 \text{ (This is a constant value for an eight foot wide rotor)}$$

Gallons of additive (for units with pump and metering additive system)

$$\frac{\text{GPM}}{\text{yd}^2/\text{min}} = \text{gal}/\text{yd}^2$$

Or, if required additive amounts are known, you can determine necessary travel speed as shown:

$$\frac{\text{GPM}}{\text{gal}/\text{yd}^2} = \text{yd}^2/\text{min}; \text{yd}^2/\text{min} \times 1.125 = \text{ft}/\text{min}$$

Production in Cubic Yards (yd³) per minute

$$\frac{\text{FPM of travel speed}}{1.125} \times \frac{\text{Cutting or mixing depth in inches}}{36} = \frac{\text{yd}^3}{\text{min}}$$

Production in Tons per Minute

$$\text{yd}^3/\text{min} \times \frac{\text{Wt. of Material per yd in lbs}}{2000 \text{ lb}/\text{ton}} = \text{tons}/\text{min}$$

Abbreviations

FPM = Feet Per Minute

GPM = Gallons Per Minute

WEIGHT OF MATERIALS

Material	LOOSE		IN-PLACE		
	kg/m ³	lbs/yd ³	kg/m ³	lbs/yd ³	
Clay	— Dry	1480	2500	1840	3100
	— Wet	1660	2800	2080	3500
Clay and Gravel	— Dry	1420	2400	1660	2800
	— Wet	1540	2600	1840	3100
Sand and Gravel	— Dry	1720	2900	1930	3250
	— Wet	2020	3400	2220	3750
Sand	— Dry	1420	2400	1600	2700
	— Damp	1690	2850	1900	3200
	— Wet	1840	3100	2080	3500
Earth	— Dry Packed	1510	2550	1900	3200
	— Wet Excavated	1600	2700	2020	3400
	— Top Soil	950	1600	1360	2300
	— Loam	1250	2100	1540	2600
Bituminous Concrete	— Windrowed Chunks (25% Voids)	1740	2925		
	— Compacted			2310	3900

STABILIZATION/RECLAMATION PRODUCTION

The following charts list production in square meters per minute, square yards per minute, cubic meters per minute, and cubic yards per minute. The information is based on various travel speeds and cutting depths for the Caterpillar RM-350B, RM-250C and SS-250B equipped with a 2438 mm (8 ft) cutting rotor.

PRODUCTION RATES

Travel Speed m/min	m ² / min	m ³ /Minute																
		Cutting Depth — mm																
		100	125	150	175	200	225	250	275	300	325	350	375	400	425	450	475	500
3	7.3	0.73	0.9	1.1	1.3	1.5	1.6	1.8	2.0	2.2	2.4	2.6	2.7	2.9	3.1	3.3	3.5	3.7
6	14.6	1.46	1.8	2.2	2.6	2.9	3.3	3.7	4.0	4.4	4.8	5.1	5.5	5.9	6.2	6.6	6.9	7.3
9	21.9	2.2	2.7	3.3	3.8	4.4	4.9	5.5	6.0	6.6	7.1	7.7	8.2	8.8	9.3	9.9	10.4	11.0
12	29.3	2.9	3.7	4.4	5.1	5.9	6.6	7.3	8.0	8.8	9.5	10.2	11.0	11.7	12.4	13.2	13.9	14.6
15	36.6	3.6	4.6	5.5	6.4	7.3	8.2	9.1	10.0	11.0	11.9	12.8	13.7	14.6	15.5	16.5	17.4	18.3
18	43.9	4.4	5.5	6.6	7.7	8.8	9.9	11.0	12.1	13.2	14.3	15.4	16.5	17.6	18.7	19.7	20.8	21.9
21	51.2	5.1	6.4	7.7	9.0	10.2	11.5	12.8	14.1	15.4	16.6	17.9	19.2	20.5	21.8	23.0	24.3	25.6
24	58.5	5.9	7.3	8.8	10.2	11.7	13.2	14.6	16.1	17.6	19.0	20.5	21.9	23.4	24.9	26.3	27.8	29.3
27	65.8	6.6	8.2	9.9	11.5	13.2	14.8	16.4	18.1	19.7	21.4	23.0	24.7	26.3	28.0	29.6	31.3	32.9

PRODUCTION RATES

Travel Speed ft/min	yd ² / min	yd ³ /Minute																	
		Cutting Depth — inches																	
		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
10	8.9	0.98	1.2	1.5	1.7	2.0	2.2	2.5	2.7	3.0	3.2	3.5	3.7	4.0	4.2	4.5	4.7	4.9	
20	17.8	1.96	2.5	3.0	3.4	4.0	4.4	4.9	5.5	5.9	6.4	6.9	7.4	7.9	8.4	8.9	9.4	9.9	
30	26.7	2.9	3.7	4.5	5.2	5.9	6.7	7.4	8.2	8.9	9.6	10.4	11.1	11.9	12.6	13.4	14.0	14.8	
40	35.6	3.9	4.9	5.9	6.9	7.9	8.9	9.9	10.9	11.9	12.8	13.9	14.8	15.8	16.8	17.8	18.7	19.8	
50	44.5	4.9	6.2	7.4	8.6	9.9	11.1	12.4	13.6	14.8	16.0	17.3	18.5	19.8	21.0	22.3	23.4	24.7	
60	53.4	5.9	7.4	8.9	10.3	11.9	13.3	14.8	16.4	17.8	19.2	20.8	22.2	23.7	25.2	26.7	28.1	29.7	
70	62.3	6.8	8.6	10.4	12.0	13.8	15.6	17.3	19.1	20.8	22.4	24.3	25.9	27.7	29.5	31.2	32.8	34.6	
80	71.2	7.8	9.9	11.9	13.7	15.8	17.8	19.8	21.8	23.7	25.6	27.7	29.6	31.6	33.7	35.6	37.5	39.6	
90	80.1	8.8	11.1	13.4	15.5	17.8	20.0	22.4	24.5	26.7	28.8	31.2	33.3	35.6	37.9	40.1	42.1	44.5	

Features:

- **Variable width screeds or fixed width screeds** available for AP-650B, AP-655C, AP-800C, AP-900B, AP-1000B, AP-1050B and AP-1055B.
- **Single sliding operator's station** can be positioned on either side of paver for excellent visibility.
- **Hydrostatic pumps** provide infinitely variable speed ranges.
- **Direct hydrostatic drives** eliminate gear boxes, differentials, final drive chains etc.
- **Self-dumping hydraulic hoppers** are heavy-duty and high capacity.
- **Soldered and molded** electrical connections.
- **Feeder system** designed to eliminate power segregation and manual hand work.
- **Self diagnostics** on propel and feeder systems.



MODEL	AP-800C		AP-900B		AP-1000B	
Gross Power	80 kW	107 hp	114 kW	153 hp	130 kW	174 hp
Rated Engine RPM	2200		2200		2200	
No. Cylinders	4		6		6	
Displacement	4 L	243 in ³	6.6 L	403 in ³	6.6 L	403 in ³
Engine Model	3054 DIT		3116 T		3116 TA	
Operating Weight:						
Tractor	12 115 kg	26,700 lb	14 445 kg	31,850 lb	15 490 kg	34,150 lb
Pavemaster B Screed	1460 kg	3230 lb	—	—	—	—
Extend-A-Mat B Screed	1745 kg	3850 lb	1745 kg	3850 lb	1745 kg	3850 lb
Extend-A-Mat B (wide plates)	3085 kg	6800 lb	—	—	—	—
AS2251 Screed	3355 kg	7400 lb	3355 kg	7400 lb	3355 kg	7400 lb
AS2301 Screed	—	—	—	—	3855 kg	8500 lb
Speeds: Paving	0-76 m/min	0-250 ft/min	0-122 m/min	0-400 ft/min	0-114 m/min	0-374 ft/min
Travel	0-19 km/h	0-12 mph	0-16 km/h	0-10 mph	0-23.5 km/h	0-14.5 mph
Maximum theoretical capacity	1747 (t)/hr	1925 TPH	1929 (t)/hr	1750 TPH	2177 (t)/hr	2400 TPH
Tires:						
Front (4)	13 × 22 Solid Rubber		16 × 22 Solid Rubber		16 × 22 Solid Rubber	
Rear (2)	16.00 × 24		18.00 × 25-16 PR sand rib		18.00 × 25-16 PR sand rib	
Dimensions:						
Operating Width	2.4 m (8') Screed	3269 mm	10'9"	—	—	—
	3.0 m (10') Screed	3327 mm	10'11"	3327 mm	10'11"	3327 mm
Shipping Width*	2.4 m (8') Screed	2438 mm	8'0"	—	—	—
	3.0 m (10') Screed	3048 mm	10'0"	3048 mm	10'0"	3048 mm
Height (less exhaust)		2620 mm	8'7"	2769 mm	9'1"	2769 mm
Length (Extend-A-Mat B, push roller)		6477 mm	21'3"	6783 mm	22'3"	6783 mm
Turning Radius		2896 mm	9'6"	2896 mm	9'6"	2900 mm
Wheelbase		2336 mm	7'8"	2540 mm	8'4"	2540 mm
Hopper Capacity	5.5 m ³	195 ft ³	6.1 m ³	215 ft ³	6.1 m ³	215 ft ³
Auger Diameter	406 mm	16"	406 mm	16"	406 mm	16"
Paving Widths:						
2.4 m (8') Pavemaster B Screed						
Minimum w/cutoff shoes	1828 mm	6'0"	—	—	—	—
Maximum w/extensions	6096 mm	20'0"	—	—	—	—
3.0 m (10') Pavemaster B Screed						
Minimum w/cutoff shoes	2438 mm	8'0"	2438 mm	8'0"	2438 mm	8'0"
Maximum w/extensions	9140 mm	30'0"	9140 mm	30'0"	9147 mm	30'0"
2.4 m (8') Extend-A-Mat B Screed						
Minimum w/cutoff shoes	1828 mm	6'0"	—	—	—	—
Maximum w/extensions	6100 mm	20'2"	—	—	—	—
3.0 m (10') Extend-A-Mat B Screed						
Minimum w/cutoff shoes	2438 mm	8'0"	2438 mm	8'0"	2438 mm	8'0"
Maximum w/extensions	7290 mm	24'2"	7290 mm	24'2"	7290 mm	24'2"
2.5 m (8'2") AS2251 Screed						
Minimum w/cutoff shoes	1900 mm	6'2"	—	—	—	—
Maximum w/extensions	6100 mm	20'5"	—	—	—	—
3.05 m (10') AS2301 Screed						
Minimum w/cutoff shoes	—	—	2440 mm	8'0"	2440 mm	8'0"
Maximum w/extensions	—	—	7320 mm	24'0"	7320 mm	24'0"
Service Refill Capacities:						
Cooling system	19 L	5 U.S. gal	37 L	9.8 U.S. gal	37 L	9.78 U.S. gal
Fuel tank	189 L	50 U.S. gal	265 L	70 U.S. gal	265 L	70 U.S. gal
Hydraulic oil tank	189 L	50 U.S. gal	189 L	50 U.S. gal	189 L	50 U.S. gal

*Transport width — hoppers raised without end gates.



MODEL	AP-650B		AP-655C		AP-1050B		AP-1055B	
Gross Power	90 kW	121 hp	130 kW	174 hp	130 kW	174 hp	130 kW	174 hp
Rated Engine RPM	2200		2200		2200		2200	
No. Cylinders	4		6		6		6	
Displacement	4 L	243 in ³	5.98 L	365 in ³	6.6 L	403 in ³	6.6 L	403 in ³
Engine Model	3054 TA		3056E ATAAC		3116 TA		3116 TA	
Operating Weight:								
Tractor	13 200 kg	29,150 lb	15 420 kg	34,000 lb	16 015 kg	35,300 lb	16 556 kg	36,500 lb
Pavemaster B Screed	1460 kg	3230 lb	1460 kg	3230 lb	—	—	1655 kg	3650 lb
Extend-A-Mat B Screed	3085 kg	6800 lb	3085 kg	6800 lb	1745 kg	3850 lb	—	—
Extend-A-Mat B (wide plates)	—	—	—	—	3355 kg	7400 lb	3355 kg	7400 lb
AS2251 Screed	3214 kg	7070 lb	3214 kg	7070 lb	3855 kg	8500 lb	3855 kg	8500 lb
AS2301 Screed	—	—	—	—	3555 kg	7840 lb	3555 kg	7840 lb
Speeds: Paving: 1st	0-67 m/min	0-220 ft/min	2-75 m/min	6.6-246 ft/min	0-60.1 m/min	0-200 ft/min	0-61 m/min	0-200 ft/min
Travel: 2nd	8 km/h	5 mph	0-13.6 km/h	0-8.5 mph	8 km/h	5 mph	16 km/h	10 mph
Maximum theoretical capacity	1300 (t)/hr	1435 TPH	—	—	2177 (t)/hr	2400 TPH	2177 (t)/hr	2400 TPH
Tracks Assemblies:								
Width	356 mm	14"	406 mm	16"	356 mm	14"	457 mm	18"
Length on Ground	2249 mm	7'5"	3020 mm	9'11"	3048 mm	10'0"	3020 mm	9'11"
Total Number of Track Pads	92 Total – 46/side		—		100 Total – 50/side		Belt	
Dimensions:								
Operating Width 2.4 m (8') Screed	3269 mm	10'9"	3400 mm †	10'11"	—	—	—	—
3.0 m (10') Screed**	—	—	—	—	3327 mm	10'11"	3327 mm	10'11"
Shipping Width* 2.4 m (8') Screed	2494 mm	8'2"	2440 mm †	8'0"	—	—	—	—
3.0 m (10') Screed	—	—	—	—	3048 mm	10'0"	3048 mm	10'0"
Height (less exhaust)	2623 mm	8'7"	2960 mm	9'9"	2769 mm	9'1"	2769 mm	9'1"
Length (Screed**, Osc. pushroller)	5613 mm	18'5"	6800 mm	22'4"	6096 mm	20'0"	6579 mm	21'7"
Turning Radius***	914 mm	3'0"	304 mm	1'0"	914 mm	3'0"	914 mm	3'0"
Hopper Capacity	5 m ³	177 ft ³	6.1 m ³	215 ft ³	6.1 m ³	215 ft ³	6.1 m ³	215 ft ³
Auger Diameter	406 mm	16"	406 mm	16"	406 mm	16"	406 mm	16"
Paving Widths:								
2.4 m (8') Pavemaster B Screed								
Minimum w/cutoff shoes	1828 mm	6'0"	1828 mm	6'0"	—	—	—	—
Maximum w/extensions	6096 mm	20'0"	6096 mm	20'0"	—	—	—	—
3.0 m (10') Pavemaster B Screed								
Minimum w/cutoff shoes	—	—	—	—	2438 mm	8'0"	2438 mm	8'0"
Maximum w/extensions	—	—	—	—	9144 mm	30'0"	9144 mm	30'0"
2.4 m (8') Extend-A-Mat B Screed								
Minimum w/cutoff shoes	1828 mm	6'0"	1828 mm	6'0"	—	—	—	—
Maximum w/extensions	6100 mm	20'2"	6100 mm	20'2"	—	—	—	—
3.0 m (10') Extend-A-Mat B Screed								
Minimum w/cutoff shoes	—	—	—	—	2438 mm	8'0"	2438 mm	8'0"
Maximum w/extensions	—	—	—	—	7366 mm	24'2"	7366 mm	24'2"
2.5 m (8'2") AS2251 Screed								
Minimum w/cutoff shoes	1900 mm	6'2"	1900 mm	6'2"	—	—	—	—
Maximum w/extensions	6100 mm	20'5"	6100 mm	20'5"	—	—	—	—
3.05 m (10') AS2301 Screed								
Minimum w/cutoff shoes	—	—	—	—	2440 mm	8'0"	2440 mm	8'0"
Maximum w/extensions	—	—	—	—	7320 mm	24'0"	7320 mm	24'0"
Service Refill Capacities:								
Cooling system	31.5 L	8.3 U.S. gal	30.3 L	8 U.S. gal	31.5 L	8.3 U.S. gal	31.5 L	8.3 U.S. gal
Fuel tank	227 L	60 U.S. gal	416 L	110 U.S. gal	284 L	75 U.S. gal	284 L	75 U.S. gal
Hydraulic oil tank	189 L	50 U.S. gal	151.4 L	40 U.S. gal	151.4 L	40 U.S. gal	151.4 L	40 U.S. gal

*Transport width hopper folded, no end gates.

**Pavemaster B on AP-1050B, Extend-A-Mat B on AP-1055B.

***Counter-rotates within own track length.

†With 8-16 Extend-A-Mat B Screed.

Features:

- **Variable width screeds** or Pavemaster B fixed screeds available for all Barber-Greene paver models.
- **Designed With the Crew In Mind ...** for simplified, more efficient operation and unmatched access to operational controls and service areas.
- **Simplified Drive System ...** variable pump/motor propel system that covers all machine speed ranges required to increase paver productivity.
- **Material Handling System ...** fully hydrostatic drive provides smooth efficient operation with the capability to handle today's varied paving requirements.
- **Complete Range of Models ...** both rubber tired and crawler mounted pavers to meet any paving requirement.
- **Dependable Operation ...** job proven Barber-Greene design and engineering for mile after mile performance.
- **Service Accessibility ...** swing-out panels and decks provide generous access.
- **Complete Customer Support ...** unmatched in the paving industry.

Specifications
 ● Barber-Greene
 ● Rubber Tired Models

Asphalt Pavers



MODEL	BG-230		BG-240C	
Gross Power	80 kW	107 hp	114 kW	153 hp
Rated Engine RPM	2200		2200	
No. Cylinders	4		6	
Displacement	4 L	243 in ³	6.6 L	403 in ³
Engine Model	3054 DIT		3116 T	
Operating Weight:				
Tractor	12 111 kg	26,700 lb	14 445 kg	31,850 lb
Pavemaster B Screed	2.4 m (8')	1460 kg 3230 lb	—	—
	3.0 m (10')	1745 kg 3850 lb	1792 kg	3950 lb
Extend-A-Mat B	2.4 m (8')	3085 kg 6800 lb	—	—
	3.0 m (10')	—	3402 kg	7500 lb
Extend-A-Mat B (wide plates)	3.0 m (10')	—	—	—
AS2251 Screed	2.5 m (8'2")	3214 kg 7070 lb	—	—
AS2301 Screed	3.05 m (10')	—	3555 kg	7840 lb
Speeds: Paving	0-76 m/min	0-250 fpm	0-122 m/min	0-400 fpm
Travel	0-19 km/h	0-12 mph	0-16 km/h	0-10 mph
Maximum theoretical capacity	1801 (t)/hr	1773 TPH	2134 (t)/hr	2100 TPH
Tires:				
Front (4) (Solid Rubber)	13 × 22		16 × 22 Solid Rubber	
Rear (2)	16.00 × 24 sand rib		18.00 × 25-16 PR sand rib	
Dimensions:				
Operating Width	2.4 m (8') Screed	3269 mm 10'9"	—	—
	3.0 m (10') Screed	3327 mm 10'11"	3327 mm	10'11"
Shipping Width*	2.4 m (8') Screed	2438 mm 8'0"	—	—
	3.0 m (10') Screed	3048 mm 10'0"	3048 mm	10'0"
Height (less exhaust)		2600 mm 8'6.5"	2769 mm	9'1"
Length (Extend-A-Mat B, pushroller)		6508 mm 21'3.25"	6783 mm	22'3"
Turning Radius		2896 mm 9'6"	2900 mm	9'6"
Wheelbase		2336 mm 7'8"	2540 mm	8'4"
Hopper Capacity		5.5 m ³ 195 ft ³	6.1 m ³	215 ft ³
Auger Diameter		406 mm 16"	406 mm	16"
Paving Widths:				
2.4 m (8') Pavemaster B Screed				
Minimum w/cutoff shoes	1828 mm	6'0"	—	—
Maximum w/extensions	6096 mm	20'0"	—	—
3.0 m (10') Pavemaster B Screed				
Minimum w/cutoff shoes	2438 mm	8'0"	2438 mm	8'0"
Maximum w/extensions	7315 mm	24'0"	7315 mm	24'0"
2.4 m (8') Extend-A-Mat B Screed				
Minimum w/cutoff shoes	1828 mm	6'0"	—	—
Maximum w/extensions	4724 mm	15'6"	—	—
3.0 m (10') Extend-A-Mat B Screed				
Minimum w/cutoff shoes	2438 mm	8'0"	2438 mm	8'0"
Maximum w/extensions	6147 mm	20'2"	7290 mm	24'2"
2.5 m (8'2") AS2251 Screed				
Minimum w/cutoff shoes	1900 mm	6'2"	—	—
Maximum w/extensions	6100 mm	20'5"	—	—
3.05 m (10') AS2301 Screed				
Minimum w/cutoff shoes	—	—	2440 mm	8'0"
Maximum w/extensions	—	—	7320 mm	24'0"
Service Refill Capacities:				
Cooling system	19 L	5 U.S. gal	37 L	9.78 U.S. gal
Fuel tank	189 L	50 U.S. gal	265 L	70 U.S. gal
Hydraulic oil tank	189 L	50 U.S. gal	189 L	50 U.S. gal

*Shipping width with hoppers raised and without end gates.

Asphalt Pavers

Specifications

- Barber-Greene
- Rubber Tired Models



BG-260C

MODEL	BG-260C	
Gross Power	130 kW	174 hp
Rated Engine RPM	2200	
No. Cylinders	6	
Displacement	6.6 L	403 in ³
Engine Model	3116 TA	
Operating Weight:		
Tractor	15 490 kg	34,150 lb
Pavemaster B Screed 3.0 m (10')	1656 kg	3650 lb
Extend-A-Mat B 3.0 m (10')	3448 kg	7600 lb
Extend-A-Mat B (wide plates) 3.0 m (10')	4209 kg	9270 lb
AS2301 Screed 3.05 m (10')	3556 kg	7840 lb
Speeds: Paving	0-114 m/min	0-374 fpm
Travel	0-23.5 km/h	0-14.5 mph
Maximum theoretical capacity	2177 (t)/hr	2400 TPH
Tires:		
Front (4) (Solid Rubber)	16 × 22 Solid Rubber	
Rear (2)	18.00 × 25-16 ply sand rib	
Dimensions:		
Operating Width 2.4 m (8') Screed	—	—
3.0 m (10') Screed	3327 mm	10'11"
Shipping Width* 2.4 m (8') Screed	—	—
3.0 m (10') Screed	3048 mm	10'0"
Height (less exhaust)	2769 mm	9'1"
Length (Extend-A-Mat B, pushroller)	6783 mm	22'3"
Turning Radius	2900 mm	9'6"
Wheelbase	2540 mm	8'4"
Hopper Capacity	6.1 m ³	215 ft³
Auger Diameter	406 mm	16"
Paving Widths:		
3.0 m (10') Pavemaster B Screed		
Minimum w/cutoff shoes	2438 mm	8'0"
Maximum w/extensions	9144 mm	30'0"
3.0 m (10') Extend-A-Mat B Screed		
Minimum w/cutoff shoes	2438 mm	8'0"
Maximum w/extensions	7290 mm	24'2"
3.05 m (10') AS2301 Screed		
Minimum w/cutoff shoes	2440 mm	8'0"
Maximum w/extensions	7320 mm	24'0"
Service Refill Capacities:		
Cooling system	37 L	9.78 U.S. gal
Fuel tank	265 L	70 U.S. gal
Hydraulic oil tank	189 L	50 U.S. gal

*Shipping width with hoppers raised and without end gates.

Specifications
 ● Barber-Greene
 ● Track Models

Asphalt Pavers



MODEL	BG-225C		BG-245C		BG-2455C	
Gross Power	90 kW	121 hp	130 kW	174 hp	130 kW	174 hp
Rated Engine RPM	2200		2200		2200	
No. Cylinders	4		6		6	
Displacement	4 L	243 in ³	6.6 L	403 in ³	6.6 L	403 in ³
Engine Model	3054 TA		3116 TA		3116 TA	
Operating Weight:						
Tractor	13 222 kg	29,150 lb	16 015 kg	35,300 lb	16 555 kg	36,500 lb
Pavemaster B Screed	2.4 m (8')	1639 kg	—	—	—	—
	3.0 m (10')	—	1633 kg	3600 lb	1656 kg	3650 lb
Extend-A-Mat B	2.4 m (8')	3085 kg	—	—	—	—
	3.0 m (10')	—	3266 kg	7200 lb	3448 kg	7600 lb
Extend-A-Mat B (wide plates)	3.0 m (10')	—	—	—	—	—
AS2251 Screed	2.5 m (8'2")	3214 kg	3855 kg	8500 lb	3855 kg	8500 lb
AS2301 Screed	3.05 m (10')	—	—	—	—	—
AS2301 Screed	3.05 m (10')	—	3555 kg	7840 lb	3555 kg	7840 lb
Speeds: Paving	0-67 m/min	0-220 fpm	0-60.1 m/min	0-200 fpm	0-61 m/min	0-200 fpm
Travel	0-8 km/h	0-5 mph	0-8 km/h	0-5 mph	0-16 km/h	0-10 mph
Maximum theoretical capacity	1300 (t)/hr	1435 TPH	2177 (t)/hr	2400 TPH	2177 (t)/hr	2400 TPH
Track Assemblies:						
Width	356 mm	14"	356 mm	14"	457 mm	18"
Length on Ground	2244 mm	7'5"	3048 mm	10'0"	3020 mm	9'11"
Total Number of Track Pads	92		100		—	
Dimensions:						
Operating Width***	2.4 m (8') Screed	3269 mm	10'9"	—	—	—
	3.0 m (10') Screed	—	—	3327 mm	10'11"	3327 mm
Shipping Width*	2.4 m (8') Screed	2494 mm	8'2"	—	—	—
	3.0 m (10') Screed	—	—	3048 mm	10'0"	3048 mm
Height (less exhaust)	2623 mm	8'7"	2769 mm	9'1"	2769 mm	9'1"
Length (Extend-A-Mat B Screed, pushroller)	6095 mm	20'0"	6579 mm	21'7"	6579 mm	21'7"
Turning Radius**	914 mm	3'0"	914 mm	3'0"	914 mm	3'0"
Hopper Capacity	5 m ³	177 ft ³	6.1 m ³	215 ft ³	6.1 m ³	215 ft ³
Auger Diameter	406 mm	16"	446 mm	16"	406 mm	16"
Paving Widths:						
2.4 m (8') Pavemaster B Screed						
Minimum w/cutoff shoes	1828 mm	6'0"	—	—	—	—
Maximum w/extensions	6096 mm	20'0"	—	—	—	—
3.0 m (10') Pavemaster B Screed						
Minimum w/cutoff shoes	—	—	2438 mm	8'0"	2438 mm	8'0"
Maximum w/extensions	—	—	9144 mm	30'0"	9144 mm	30'0"
2.4 m (8') Extend-A-Mat B Screed						
Minimum w/cutoff shoes	1828 mm	6'0"	—	—	—	—
Maximum w/extensions	6100 mm	20'2"	—	—	—	—
3.0 m (10') Extend-A-Mat B Screed						
Minimum w/cutoff shoes	—	—	2438 mm	8'0"	2438 mm	8'0"
Maximum w/extensions	—	—	7366 mm	24'2"	7366 mm	24'2"
2.5 m (8'2") AS2251 Screed						
Minimum w/cutoff shoes	1900 mm	6'2"	—	—	—	—
Maximum w/extensions	6100 mm	20'5"	—	—	—	—
3.05 m (10') AS2301 Screed						
Minimum w/cutoff shoes	—	—	2440 mm	8'0"	2440 mm	8'0"
Maximum w/extensions	—	—	7320 mm	24'0"	7320 mm	24'0"
Service Refill Capacities:						
Cooling system	31.5 L	8.3 U.S. gal	31.5 L	8.3 U.S. gal	31.5 L	8.3 U.S. gal
Fuel tank	227 L	60 U.S. gal	284 L	75 U.S. gal	284 L	75 U.S. gal
Hydraulic oil tank	189 L	50 U.S. gal	151.4 L	40 U.S. gal	151.4 L	40 U.S. gal

*Shipping width with hoppers raised and without end gates.

**Counter rotates within own track length.

***Extend-a-mat Screed.

ASPHALT PAVING CHARTS

These charts will assist you when trying to match plant output with paving speeds. Keep in mind when using these charts, it will be at 100% efficiency. If you know efficiency, multiply T.P. hour \times efficiency. (Example: 75% efficiency at 300 T.P.H. – $300 \times 0.75 = 225$ T.P.H.)

Production in tons/hr with 1" compacted mat

Speed	Paving Widths						
fpm	6'0"	7'0"	8'0"	9'0"	10'0"	11'0"	12'0"
10	22	26	29	33	37	40	44
20	44	51	58	66	73	80	88
30	66	77	87	99	110	120	131
40	88	102	116	131	146	161	175
50	110	129	145	164	183	201	219

Production in tons/hr with 2" compacted mat

Speed	Paving Widths						
fpm	6'0"	7'0"	8'0"	9'0"	10'0"	11'0"	12'0"
10	44	52	58	66	74	80	88
20	88	176	116	132	146	160	176
30	132	154	174	198	220	240	262
40	176	204	232	262	292	322	350
50	220	258	290	328	366	402	438

Production in tons/hr with 3" compacted mat

Speed	Paving Widths						
fpm	6'0"	7'0"	8'0"	9'0"	10'0"	11'0"	12'0"
10	66	78	87	99	111	120	132
20	132	153	174	198	219	240	284
30	198	231	261	297	330	360	393
40	264	306	348	393	438	483	525
50	330	387	435	492	549	603	657

Production in tons/hr with 4" compacted mat

Speed	Paving Widths						
fpm	6'0"	7'0"	8'0"	9'0"	10'0"	11'0"	12'0"
10	88	104	116	132	148	160	176
20	176	204	232	264	292	320	352
30	264	308	348	396	440	480	524
40	352	408	464	524	584	644	700
50	440	516	580	656	732	804	876

Slope Conversion Table

Percent	Inches per foot	Inches per 12 foot	Percent	Inches per foot	Inches per 12 foot
0.17%		¼	5.21%	⅝	7½
0.35%		½	5.38%		7¾
0.52%	⅙	¾	5.56%		8
0.70%		1	5.73%	1⅙	8¼
0.87%		1¼	5.90%		8½
1.04%	⅛	1½	6.08%		8¾
1.22%		1¾	6.25%	¾	9
1.39%		2	6.42%		9¼
1.56%	⅓	2¼	6.60%		9½
1.74%		2½	6.77%	1⅓	9¾
1.91%		2¾	6.94%		10
2.08%	¼	3	7.12%		10¼
2.26%		3¼	7.29%	⅞	10½
2.43%		3½	7.47%		10¾
2.60%	⅕	3¾	7.64%		11
2.78%		4	7.81%	1⅕	11¼
2.95%		4¼	7.99%		11½
3.13%	⅜	4½	8.16%		11¾
3.30%		4¾	8.33%	1	12
3.47%		5	8.51%		12¼
3.65%	⅗	5¼	8.68%		12½
3.82%		5½	8.85%	1⅙	12¾
3.99%		5¾	9.03%		13
4.17%	½	6	9.20%		13¼
4.34%		6¼	9.38%	1⅛	13½
4.51%		6½	9.55%		13¾
4.69%	⅙	6¾	9.72%		14
4.86%		7	9.90%	1⅓	14¼
5.04%		7¼	10.07%		14½

Formula:

$$\text{Percent} = \frac{\text{Inches per foot} \times 100}{12}$$

Inches in decimals of a foot

⅙ = .0052	1 = .0833
⅓ = .0078	2 = .1667
⅙ = .0104	3 = .2500
⅓ = .0156	4 = .3333
¼ = .0208	5 = .4167
⅙ = .0260	6 = .5000
⅓ = .0313	7 = .5833
½ = .0417	8 = .6667
⅙ = .0521	9 = .7500
¾ = .0625	10 = .8333
⅞ = .0729	11 = .9167

- Barber-Greene

Features:

- **Attaches easily to most pavers.**
- **Allows for continuous paving operations.**
- **High capacity conveyor** with 1905 mm (75") discharge height provides full power hopper loading.
- **Foot shaft combining augers** provide a wide throat for pick up off-center and extra wide windrows.
- **Wide throat** allows machine to pickup windrows from bottom dump trailers, end dump trailers or trucks.
- **Height adjustable scraper** mounted behind combining augers maintains a clean path for paver.
- **Three point suspension** allows machine to closely follow road contours.



MODEL	BG-650		
Flywheel Power	80 kW		107 hp
Engine RPM		2200	
Operating Weight	7984 kg		17,600 lb
Engine		3054 DIT	
Displacement	4 L		243 in ³
General Dimensions:			
Operating height	2946 mm		9'8"
Shipping height	2946 mm		9'8"
Length	4267 mm		14'0"
Conveyor:			
Maximum theoretical capacity	1829 (t)/hr		1800 TPH
Discharge height	1905 mm		6'2"
Width (Throat)	2997 mm		9'10"
Width (Slat)	1473 mm		4'10"
Lift	203 mm		8"
Tires:			
Front (2)		7 × 22 Solid Rubber	
Rear (2)		8.25 × 15	
Service Refill Capacities:			
Fuel	151.4 L		40 U.S. gal

General Compactor Features:

- **Routine maintenance** simplified by grouped service points and easy access to service areas.
- **Operator stations** designed for maximum comfort, easy control, and optimal visibility.
- **Direct hydrostatic drive to front (drums or wheels) and rear (drums or wheels)** provides dependable, responsive, propulsion effort and maximum gradeability. (Does not include pneumatic tire compactors.)

Vibratory Compactor Features:**Single Drum**

- **Hydraulic flow divider valve (CS/CP-323C) or dual pump system** delivers positive tractive effort to both drum and rear wheels, regardless of underfooting. This increases the machine's ability to maneuver in a wide variety of soil types and conditions and improves gross gradeability.
- **Limited slip high traction differential** is standard on all units (except CS/CP-533E) for best traction of rear tires.
- **Optional heavy-duty front-mounted blade** with reversible cutting edge is available to allow backfilling and leveling during compaction.
- **ROPS (Roll Over Protective Structure)** standard on all units. Enclosed cabs with EROPS rating available as an option (except for CS/CP-323C).
- **Adjustable jaw-type cleaner bar** keeps drums clean between pads during forward and reverse movement.

Double Drum and Combi

- **Vibration automatically ceases before machine comes to a stop (CB-434D and larger)** to help produce a smooth, flawless mat surface.
- **Close side clearances** allow compactors to work close to curbs, walls and other obstructions.

- **Large, rust-proof water tanks and pressure spray system** provide hours of reliable operation between fill-ups.
- **Emulsion system** available for combi compactor rear tires to prevent materials sticking to tires.
- **ROPS (Roll Over Protective Structure)** available on all models. Enclosed cabs with EROPS rating available on some models.

Pneumatic Tire Compactor Features:

- **All wheel oscillation.** Front and rear tires provide even wheel loads regardless of evenness underfoot. PF models have front oscillation only.
- **High drive propel system (PS-150C, PS-360B).** Completely hydrostatic with drive motors and brakes located in mainframe away from contamination and damage.
- **Ballast compartments** are easily accessible for quick loading and are located to provide balanced wheel/weight ratio.
- **Single-lever hand control** of forward and reverse movement makes smooth rolling easy.
- **Adjustable wheel suspension (PF/PS-300B)** adjusts ride to terrain and helps minimize bridging over gaps in base. PF models have rear suspension only.
- **Heavy-duty 3-speed powershift transmission (PF/PS-300B)** provides forward or reverse propelling.
- **Steer wheels swivel individually (PF/PS-300B)** preventing scuffing of material during turns, similar to automotive style steering.
- **Optional on-the-run tire inflation device** allows changing tire pressure during compaction.

NOTE: All models and options are not available in all markets.

Vibratory Compactors

Specifications

- Single Drum, Smooth



MODEL	CS-323C ¹		CS-423E ^{2,3}		CS-433E ^{1,2,3}	
Gross Power	62 kW	83 hp	62 kW	83 hp	75 kW	100 hp
Rated Engine RPM	2200		2200		2200	
No. Cylinders	4		4		4	
Displacement	4.4 L	269 in ³	4.4 L	269 in ³	4.4 L	269 in ³
Engine Model	3054C		3054C		3054C	
Speeds	1 forward/1 reverse		2 forward/2 reverse		2 forward/2 reverse	
Max. Speed (For./Rev.)	8.9 km/h	5.5 mph	11.5 km/h	7.1 mph	11.5 km/h	7.1 mph
Working Speed	8.9 km/h	5.5 mph	5.5 km/h	3.4 mph	5.5 km/h	3.4 mph
Operating Weight ⁴	4390 kg	9680 lb	6745 kg	14,875 lb	6745 kg	14,875 lb
Shipping Weight	4311 kg	9505 lb	6515 kg	14,370 lb	6515 kg	14,370 lb
Drive	Drum/Rear Wheel		Drum/Rear Wheel		Drum/Rear Wheel	
Steering:						
Inside radius	2625 mm	8'7"	3050 mm	10'0"	3050 mm	10'0"
Outside radius	3895 mm	12'9"	4730 mm	15'6"	4730 mm	15'6"
Steering angle	±38°		±37°		±37°	
Vibratory System:						
Ecc. Weight Drive	Hydraulic		Hydraulic		Hydraulic	
Frequency	35 Hz	2100 vpm	31.9 Hz	1915 vpm	31.9 Hz	1915 vpm
Amplitude	1		2		2	
High amplitude	1.30 mm	0.05"	1.67 mm	0.066"	1.67 mm	0.066"
Low amplitude	—	—	0.84 mm	0.033"	0.84 mm	0.033"
Centrifugal Force						
Maximum	66.8 kN	15,000 lb	133.5 kN	30,000 lb	133.5 kN	30,000 lb
Minimum	—	—	66.8 kN	15,000 lb	66.8 kN	15,000 lb
General Dimensions:						
Overall width w/blade	1575 mm	5'2"	—	—	2100 mm	6'11"
Overall width w/o blade	1393 mm	4'6"	1800 mm	5'11"	1800 mm	5'11"
Drum width	1270 mm	4'2"	1680 mm	5'6"	1680 mm	5'6"
Drum diameter	1016 mm	3'4"	1220 mm	4'0"	1220 mm	4'0"
Tires	11.2 × 24–6 ply		14.9 × 24–6 ply		14.9 × 24–6 ply	
Overall height	2514 mm	8'2"	2930 mm	9'7"	2930 mm	9'7"
Wheel to drum	2240 mm	7'4"	2600 mm	8'6"	2600 mm	8'6"
Overall length	4095 mm	13'5"	4960 mm	16'3"	4960 mm	16'3"
Curb clearance	335 mm	13.2"	375 mm	14.8"	375 mm	14.8"
Service Refill Capacities:						
Fuel tank	144 L	38 U.S. gal	153 L	40.4 U.S. gal	153 L	40.4 U.S. gal
Crankcase	7.6 L	2 U.S. gal	6.8 L	1.8 U.S. gal	6.8 L	1.8 U.S. gal
Hydraulic fluid	49.2 L	13 U.S. gal	60 L	16 U.S. gal	60 L	16 U.S. gal

¹Leveling blade available.

²Padded shell kit available.

³Variable frequency vibration available, 23.3-31.9 Hz (1400-1915 vpm).

⁴With ROPS/FOPS canopy.

Specifications
● Single Drum, Smooth

Vibratory Compactors



MODEL	CS-533E ²		CS-563E ^{1,2,3}		CS-573E ^{1,2,3}	
Gross Power	97 kW	103 hp	112 kW	150 hp	112 kW	150 hp
Rated Engine RPM	2200		2200		2200	
No. Cylinders	4		6		6	
Displacement	4.4 L	269 in ³	5.98 L	365 in ³	5.98 L	365 in ³
Engine Model	3054C		3056E		3056E	
Speeds	2 forward/2 reverse		2 forward/2 reverse		2 forward/2 reverse	
Max. Speed (For./Rev.)	12 km/h	7.5 mph	11.4 km/h	7 mph	11.4 km/h	7 mph
Working Speed	8 km/h	4.9 mph	—	—	—	—
Operating Weight	10 840 kg	23,900 lb	11 120 kg	24,520 lb	13 570 kg	29,922 lb
Shipping Weight	10 265 kg	22,635 lb	—	—	—	—
Drive	Drum/Rear Wheel		Drum/Rear Wheel		Drum/Rear Wheel	
Steering:						
Inside radius	3680 mm	12'1"	3680 mm	12'1"	3680 mm	12'1"
Outside radius	5810 mm	19'1"	5810 mm	19'1"	5810 mm	19'1"
Steering angle	±34°		±34°		±34°	
Vibratory System:						
Ecc. Weight Drive	Hydraulic		Hydraulic		Hydraulic	
Frequency	31 Hz	1860 vpm	31.9 Hz	1914 vpm	31.9 Hz	1914 vpm
Amplitude	2		2		2	
High amplitude	1.80 mm	0.071"	1.70 mm	0.067"	1.70 mm	0.067"
Low amplitude	0.85 mm	0.033"	0.85 mm	0.033"	0.85 mm	0.033"
Centrifugal Force						
Maximum	234 kN	52,600 lb	266 kN	60,000 lb	266 kN	60,000 lb
Minimum	133 kN	30,000 lb	133 kN	30,000 lb	133 kN	30,000 lb
General Dimensions:						
Overall width w/blade	2430 mm	8'0"	2500 mm	8'2"	2500 mm	8'2"
Overall width w/o blade	2286 mm	7'6"	2290 mm	7'6"	2370 mm	7'9"
Drum width	2130 mm	7'0"	2130 mm	7'0"	2130 mm	7'0"
Drum diameter	1534 mm	5'0"	1524 mm	5'0"	1524 mm	5'0"
Tires	23.1 × 26-8 ply		23.1 × 26-8 ply		23.1 × 26-8 ply	
Overall height	3060 mm	10'1"	3060 mm	10'1"	3060 mm	10'1"
Wheel to drum	2900 mm	9'6"	2900 mm	9'6"	2900 mm	9'6"
Overall length	5510 mm	18'1"	5760 mm	18'11"	5830 mm	19'2"
Curb clearance	521 mm	20.5"	497 mm	19.6"	497 mm	19.6"
Service Refill Capacities:						
Fuel tank	180 L	47 U.S. gal	330 L	87 U.S. gal	330 L	87 U.S. gal
Crankcase	9 L	2.4 U.S. gal	12.1 L	3.2 U.S. gal	12.1 L	3.2 U.S. gal
Hydraulic fluid	60 L	16 U.S. gal	64 L	16.9 U.S. gal	64 L	16.9 U.S. gal

¹Leveling blade available.

²Padded shell kit available.

³Variable frequency vibration available, 23.3-31.9 Hz (1400-1915 vpm) for CS-563E.

Vibratory Compactors

Specifications

- Single Drum, Smooth



MODEL	CS-583E ¹		CS-663E ¹		CS-683E ¹	
Gross Power	112 kW	150 hp	129 kW	173 hp	129 kW	173 hp
Rated Engine RPM	2200		2200		2200	
No. Cylinders	6		6		6	
Displacement	5.98 L	365 in ³	5.98 L	365 in ³	5.98 L	365 in ³
Engine Model	3056E		3056E		3056E	
Speeds	2 forward/2 reverse		2 forward/2 reverse		2 forward/2 reverse	
Max. Speed (For./Rev.)	11.4 km/h	7 mph	11.3 km/h	7 mph	11.3 km/h	7 mph
Working Speed	—	—	5.7 km/h	3.5 mph	6 km/h	3.7 mph
Operating Weight ²	15 100 kg	33,296 lb	16 700 kg	36,820 lb	18 500 kg	40,785 lb
Shipping Weight	—	—	16 400 kg	36,200 lb	18 200 kg	40,170 lb
Drive	Drum/Rear Wheel		Drum/Rear Wheel		Drum/Rear Wheel	
Steering:						
Inside radius	3680 mm	12'1"	3680 mm	12'1"	3680 mm	12'1"
Outside radius	5810 mm	19'1"	5810 mm	19'1"	5810 mm	19'1"
Steering angle	±34°		±34°		±34°	
Vibratory System:						
Ecc. Weight Drive	Hydraulic		Hydraulic		Hydraulic	
Frequency	30 Hz	1800 vpm	30 Hz	1800 vpm	30 Hz	1800 vpm
Amplitude	2		2		2	
High amplitude	1.8 mm	0.071"	1.8 mm	0.070"	1.8 mm	0.070"
Low amplitude	0.9 mm	0.035"	0.9 mm	0.035"	0.9 mm	0.035"
Centrifugal Force						
Maximum	332 kN	74,600 lb	332 kN	74,600 lb	332 kN	74,600 lb
Minimum	166 kN	37,300 lb	166 kN	37,300 lb	166 kN	37,300 lb
General Dimensions:						
Overall width w/blade	—	—	—	—	—	—
Overall width w/o blade	2370 mm	7'9"	2370 mm	7'9"	2460 mm	8'1"
Drum width	2130 mm	7'0"	2130 mm	7'0"	2130 mm	7'0"
Drum diameter	1524 mm	5'0"	1520 mm	5'0"	1520 mm	5'0"
Tires	23.1 × 26–8 ply		23.1 × 26–12 ply		23.1 × 26–12 ply	
Overall height	3060 mm	10'1"	3020 mm	9'11"	3020 mm	9'11"
Wheel to drum	2900 mm	9'6"	2900 mm	9'6"	2900 mm	9'6"
Overall length	5830 mm	19'2"	6000 mm	19'8"	6000 mm	19'8"
Curb clearance	497 mm	19.6"	495 mm	19.5"	495 mm	19.5"
Service Refill Capacities:						
Fuel tank	330 L	87 U.S. gal	330 L	87 U.S. gal	330 L	87 U.S. gal
Crankcase	12.1 L	3.2 U.S. gal	12.1 L	3.2 U.S. gal	12.1 L	3.2 U.S. gal
Hydraulic fluid	64 L	16.9 U.S. gal	64 L	16.9 U.S. gal	64 L	16.9 U.S. gal

¹Variable frequency vibration available, 23.3-30 Hz (1400-1800 vpm).

²With ROPS/FOPS canopy.

Specifications
● Single Drum, Padded

Vibratory Compactors



MODEL	CP-323C ¹		CP-433E ^{1,2}		CP-533E	
Gross Power	62 kW	83 hp	75 kW	100 hp	97 kW	130 hp
Rated Engine RPM	2200		2200		2200	
No. Cylinders	4		4		4	
Displacement	4.4 L	269 in ³	4.4 L	269 in ³	4.4 L	269 in ³
Engine Model	3054C		3054C		3054C	
Speeds	1 forward/1 reverse		2 forward/2 reverse		2 forward/2 reverse	
Max. Speed (For./Rev.)	8.9 km/h	5.5 mph	11.5 km/h	7.1 mph	12 km/h	7.5 mph
Working Speed	8.9 km/h	5.5 mph	5.5 km/h	3.4 mph	8 km/h	4.9 mph
Operating Weight ³	4620 kg	10,190 lb	7145 kg	15,750 lb	11 320 kg	24,960 lb
Shipping Weight	4600 kg	10,125 lb	6915 kg	15,245 lb	11 100 kg	24,475 lb
Drive	Drum/Rear Wheel		Drum/Rear Wheel		Drum/Rear Wheel	
Steering:						
Inside radius	2625 mm	8'7"	3050 mm	10'0"	3680 mm	12'1"
Outside radius	3895 mm	12'2"	4730 mm	15'6"	5810 mm	19'1"
Steering angle	±38°		±37°		±34°	
Vibratory System:						
Ecc. Weight Drive	Hydraulic		Hydraulic		Hydraulic	
Frequency	35 Hz	2100 vpm	31.9 Hz	1914 vpm	31.9 Hz	1914 vpm
Amplitude	1		2		2	
High amplitude	1.30 mm	0.05"	1.55 mm	0.061"	1.70 mm	0.067"
Low amplitude	—	—	0.78 mm	0.031"	0.85 mm	0.033"
Centrifugal Force						
Maximum	66.8 kN	15,000 lb	133.5 kN	30,000 lb	266 kN	60,000 lb
Minimum	—	—	66.8 kN	15,000 lb	133 kN	30,000 lb
General Dimensions:						
Overall width w/blade	1575 mm	5'2"	2100 mm	6'11"	—	—
Overall width w/o blade	1393 mm	4'6"	1800 mm	5'11"	2286 mm	7'6"
Drum width	1270 mm	4'2"	1680 mm	5'6"	2130 mm	7'0"
Drum diameter over pads	1016 mm	3'4"	1227 mm	4'0"	1549 mm	5'1"
Tires	11.2 × 24–8 ply		14.9 × 24–8 ply		23.1 × 26–8 ply	
Overall height	2514 mm	8'2"	2930 mm	9'7"	3070 mm	10'1"
Wheel to drum	2240 mm	7'4"	2600 mm	8'6"	2900 mm	9'6"
Overall length	4095 mm	13'5"	4960 mm	16'3"	5510 mm	18'1"
Curb clearance	347 mm	13"	375 mm	15"	521 mm	20.5"
Service Refill Capacities:						
Fuel tank	144 L	38 U.S. gal	153 L	40.4 U.S. gal	200 L	53 U.S. gal
Crankcase	6.8 L	1.8 U.S. gal	6.8 L	1.8 U.S. gal	9 L	2.4 U.S. gal
Hydraulic fluid	49.2 L	13 U.S. gal	60 L	16 U.S. gal	60 L	16 U.S. gal

¹Leveling blade available.

²Variable frequency vibration available, 23.3-31.9 Hz (1400-1915 vpm).

³With ROPS/FOPS canopy.

Vibratory Compactors

Specifications

● Single Drum, Padded



MODEL	CP-563E ^{1,2}		CP-573E ^{1,2}		CP-583E ²		CP-663E ²	
Gross Power	112 kW	150 hp	112 kW	150 hp	112 kW	150 hp	129 kW	173 hp
Rated Engine RPM	2200		2200		2200		2200	
No. Cylinders	6		6		6		6	
Displacement	5.98 L	365 in ³	5.98 L	365 in ³	5.98 L	365 in ³	5.98 L	365 in ³
Engine Model	3056E		3056E		3056E		3056E	
Speeds	2 forward/2 reverse		2 forward/2 reverse		2 forward/2 reverse		2 forward/2 reverse	
Max. Speed (For./Rev.)	11.4 km/h	7 mph	11.6 km/h	7.2 mph	11.6 km/h	7.2 mph	11.4 km/h	7.1 mph
Working Speed	—	—	—	—	—	—	5.7 km/h	3.5 mph
Operating Weight	11 555 kg	25,479 lb	13 750 kg	30,319 lb	15 235 kg	33,593 lb	16 500 kg	36,375 lb
Shipping Weight	—	—	—	—	—	—	16 200 kg	35,760 lb
Drive	Drum/Rear Wheel		Drum/Rear Wheel		Drum/Rear Wheel		Drum/Rear Wheel	
Gradeability	—		—		—		>50%	
Steering:								
Inside radius	3680 mm	12'1"	3680 mm	12'1"	3680 mm	12'1"	3680 mm	12'1"
Outside radius	5810 mm	19'1"	5810 mm	19'1"	5810 mm	19'1"	5810 mm	19'1"
Steering angle	±34°		±34°		±34°		±34°	
Vibratory System:								
Ecc. Weight Drive	Hydraulic		Hydraulic		Hydraulic		Hydraulic	
Frequency	31.9 Hz	1914 vpm	31.9 Hz	1914 vpm	30 Hz	1800 vpm	30 Hz	1800 vpm
Amplitude	2		2		2		2	
High amplitude	1.70 mm	0.067"	1.70 mm	0.067"	1.8 mm	0.071"	1.8 mm	0.070"
Low amplitude	0.85 mm	0.033"	0.85 mm	0.033"	0.9 mm	0.035"	0.9 mm	0.035"
Centrifugal Force								
Maximum	266 kN	60,000 lb	266 kN	60,000 lb	332 kN	74,600 lb	332 kN	74,600 lb
Minimum	133 kN	30,000 lb	133 kN	30,000 lb	166 kN	37,300 lb	166 kN	37,300 lb
General Dimensions:								
Overall width w/blade	2500 mm	8'2"	2500 mm	8'2"	—	—	—	—
Overall width w/o blade	2290 mm	7'6"	2370 mm	7'9"	2370 mm	7'9"	2370 mm	7'9"
Drum width	2130 mm	7'0"	2130 mm	7'0"	2130 mm	7'0"	2130 mm	7'0"
Drum diameter over pads	1549 mm	5'1"	1549 mm	5'1"	1549 mm	5'1"	1549 mm	5'1"
Tires	23.1 × 26-8 ply		23.1 × 26-8 ply		23.1 × 26-8 ply		23.1 × 26-12 ply	
Overall height	3070 mm	10'1"	3070 mm	10'1"	3070 mm	10'1"	3100 mm	10'2"
Wheel to drum	2900 mm	9'6"	2900 mm	9'6"	2900 mm	9'6"	2900 mm	9'6"
Overall length	5760 mm	18'11"	5830 mm	19'2"	5830 mm	19'2"	6000 mm	19'8"
Curb clearance	505 mm	19.9"	505 mm	19.9"	505 mm	19.9"	503 mm	19.8"
Service Refill Capacities:								
Fuel tank	330 L	87 U.S. gal	330 L	87 U.S. gal	330 L	87 U.S. gal	330 L	87 U.S. gal
Crankcase	12.1 L	3.2 U.S. gal	12.1 L	3.2 U.S. gal	12.1 L	3.2 U.S. gal	12.1 L	3.2 U.S. gal
Hydraulic fluid	64 L	16.9 U.S. gal	64 L	16.9 U.S. gal	64 L	16.9 U.S. gal	64 L	16.9 U.S. gal

¹Leveling blade available.

²Variable frequency vibration available, 23.3-31.9 Hz (1400-1915 vpm) for CP-563E and CP-573E, 23.3-30 Hz (1400-1800 vpm) for CP-663E and CP-583E.

Specifications

• Double Drum and Combi

Vibratory Compactors



MODEL	CB-214E		CB-224E		CB-225E	
Gross Power	24.4 kW	32.7 hp	24.4 kW	32.7 hp	24.4 kW	32.7 hp
Rated Engine RPM	2800		2800		2800	
No. Cylinders	3		3		3	
Displacement	1496 cm ³	91 in³	1496 cm ³	91 in³	1496 cm ³	91 in³
Engine Model	3013C		3013C		3013C	
Speeds	Single		Single		Single	
Max. Speed (For./Rev.)	10 km/h	6 mph	10 km/h	6 mph	10 km/h	6 mph
Working Speed	6.5 km/h	4 mph	6.5 km/h	4 mph	6.5 km/h	4 mph
Operating Weight	2450 kg	5400 lb	2630 kg	5800 lb	2300 kg	5070 lb
Shipping Weight	2297 kg	5060 lb	2477 kg	5456 lb	2147 kg	4729 lb
Drive	Hydraulic		Hydraulic		Hydraulic	
Steering:						
Inside radius	2510 mm	8'3"	2410 mm	7'11"	2410 mm	7'11"
Outside radius	3510 mm	11'6"	3610 mm	11'10"	3610 mm	11'10"
Steering angle	±32°		±32°		±32°	
Vibratory System:						
Ecc. Weight Drive	Hydraulic		Hydraulic		Hydraulic	
Frequency (Max.)	63 Hz	3780 vpm	63 Hz	3780 vpm	63 Hz	3780 vpm
Amplitude	1		1		1	
High Amplitude	0.5 mm	0.02"	0.5 mm	0.02"	0.5 mm	0.02"
Centrifugal Force						
High Amplitude	27.6 kN	6075 lb	31.4 kN	6975 lb	31.4 kN	6975 lb
General Dimensions:						
Overall width	1100 mm	3'7"	1300 mm	4'3"	1300 mm	4'3"
Drum width	1000 mm	3'3"	1200 mm	3'11"	1200 mm	3'11"
Drum diameter	700 mm	2'3.6"	700 mm	2'3.6"	700 mm	2'3.6"
Tires	—		—		8.5/190-15k (6 ply)	
Overall height (ROPS)	2585 mm	8'6"	2585 mm	8'6"	2585 mm	8'6"
Wheelbase	1730 mm	5'8"	1730 mm	5'8"	1730 mm	5'8"
Overall length	2430 mm	8'0"	2430 mm	8'0"	2430 mm	8'0"
Curb clearance	530 mm	21"	530 mm	21"	530 mm	21"
Ground clearance	250 mm	10"	250 mm	10"	250 mm	10"
Service Refill Capacities:						
Fuel tank	46.5 L	12.3 U.S. gal	46.5 L	12.3 U.S. gal	46.5 L	12.3 U.S. gal
Crankcase	6 L	1.6 U.S. gal	6 L	1.6 U.S. gal	6 L	1.6 U.S. gal
Hydraulic tank	26 L	6.9 U.S. gal	26 L	6.9 U.S. gal	26 L	6.9 U.S. gal
Sprinkler water	150 L	39 U.S. gal	150 L	39 U.S. gal	150 L	39 U.S. gal

Vibratory Compactors

Specifications

● Double Drum and Combi



MODEL	CB-334E		CB-335E		CB-434D	
Gross Power	37.3 kW	50 hp	37.3 kW	50 hp	62 kW	83 hp
Rated Engine RPM	2800		2800		2200	
No. Cylinders	4		4		4	
Displacement	2.2 L	135 in ³	2.2 L	135 in ³	4.4 L	269 in ³
Engine Model	3024C		3024C		3054C	
Speeds	1 forward/1 reverse		1 forward/1 reverse		1 forward/1 reverse	
Max. Speed (For./Rev.)	11.5 km/h	7.1 mph	11.5 km/h	7.1 mph	11.3 km/h	7 mph
Working Speed	0-11.5 km/h	0-7.1 mph	0-11.5 km/h	0-7.1 mph	0-11.3 km/h	0-7 mph
Operating Weight	3960 kg	8730 lb	3670 kg	8091 lb	7400 kg	16,280 lb
Shipping Weight	3963 kg	8732 lb	3673 kg	8092 lb	6840 kg	15,050 lb
Drive	Hydraulic		Hydraulic		Hydraulic	
Steering:						
Inside radius	3000 mm	9'10"	3000 mm	9'10"	3500 mm	11'6"
Outside radius	4300 mm	14'1"	4300 mm	14'1"	5000 mm	16'5"
Steering angle	±35°		±35°		±35°	
Vibratory System:						
Ecc. Weight Drive	Hydraulic		Hydraulic		Hydraulic	
Frequency (Max.)	69 Hz	4140 vpm	69 Hz	4140 vpm	53 Hz	3200 vpm
Amplitude	1		1		5	
High Amplitude	0.37 mm	0.01"	0.37 mm	0.01"	0.68 mm	0.027"
Low Amplitude	—	—	—	—	0.25 mm	0.010"
Centrifugal Force						
High Amplitude	32.3 kN	7267 lb	32.3 kN	7267 lb	78 kN	17,551 lb
Low Amplitude	—	—	—	—	29 kN	6525 lb
General Dimensions:						
Overall width	1390 mm	4'7"	1390 mm	4'7"	1670 mm	5'6"
Drum width	1300 mm	4'3"	1300 mm	4'3"	1500 mm	4'11"
Drum diameter	800 mm	31"	800 mm	31"	1100 mm	3'7.5"
Tires	—		7.5 × 16 (6 ply)		—	
Overall height (ROPS)	2550 mm	8'4"	2550 mm	8'4"	3010 mm	9'11"
Wheelbase	2321 mm	7'7"	2321 mm	7'7"	3100 mm	10'2"
Overall length	3120 mm	10'3"	3120 mm	10'3"	4200 mm	13'9"
Curb clearance	599 mm	23.5"	599 mm	23.5"	720 mm	28"
Ground clearance	280 mm	11"	280 mm	11"	255 mm	10"
Service Refill Capacities:						
Fuel tank	48 L	12.7 U.S. gal	48 L	12.7 U.S. gal	132 L	35 U.S. gal
Crankcase	7.1 L	1.9 U.S. gal	7.1 L	1.9 U.S. gal	9 L	2.4 U.S. gal
Hydraulic tank	35 L	9.3 U.S. gal	35 L	9.3 U.S. gal	50 L	13.2 U.S. gal
Sprinkler water	300 L	79 U.S. gal	300 L	79 U.S. gal	800 L	211 U.S. gal

Specifications
• Double Drum and Combi

Vibratory Compactors



MODEL	CB-534D ^{1,2,3}		CB-534D XW ¹		CB-634D ¹	
Gross Power	97 kW	130 hp	97 kW	130 hp	108 kW	145 hp
Rated Engine RPM	2200		2200		2200	
No. Cylinders	4		4		6	
Displacement	4.4 L	269 in ³	4.4 L	269 in ³	6.6 L	403 in ³
Engine Model	3054C		3054C		3116 T	
Speeds	—		—		2 forward/2 reverse	
Max. Speed (For./Rev.)	0-13 km/h	0-8 mph	0-13 km/h	0-8 mph	12.2 km/h	7.6 mph
Working Speed	0-13 km/h	0-8 mph	0-13 km/h	0-8 mph	12.2 km/h	7.6 mph
Operating Weight	10 000 kg	22,050 lb	11 300 kg	24,917 lb	12 800 kg	28,160 lb
Shipping Weight	9370 kg	20,660 lb	10 670 kg	23,527 lb	11 911 kg	26,260 lb
Drive	Hydraulic		Hydraulic		Hydraulic	
Steering:						
Inside radius	4150 mm	13'7"	4000 mm	13'1"	4318 mm	14'2"
Outside radius	5850 mm	19'2"	6000 mm	19'8"	6655 mm	21'10"
Steering angle	±40°		±40°		±32°	
Vibratory System:						
Ecc. Weight Drive	Hydraulic direct, auto reversing		Hydraulic direct, auto reversing		Hydraulic	
Frequency (Max.)	42 Hz	2520 vpm	42 Hz	2520 vpm	44 Hz	2640 vpm
Amplitude	5		5		5	
High Amplitude	1.05 mm	0.041"	0.86 mm	0.034"	1.04 mm	0.041"
Low Amplitude	0.33 mm	0.013"	0.26 mm	0.010"	0.36 mm	0.015"
Centrifugal Force						
High Amplitude	112 kN	25,208 lb	112 kN	25,208 lb	159 kN	35,745 lb
Low Amplitude	35 kN	7922 lb	35 kN	7922 lb	58 kN	13,039 lb
General Dimensions:						
Overall width	1883 mm	6'2"	2183 mm	7'2"	2311 mm	7'7"
Drum width	1700 mm	5'7"	2000 mm	6'7"	2130 mm	7'0"
Drum diameter	1300 mm	4'3"	1300 mm	4'3"	1300 mm	4'3"
Overall height (ROPS)	3050 mm	10'0"	3050 mm	10'0"	3113 mm	10'3"
Wheelbase	3640 mm	11'11"	3640 mm	11'11"	3150 mm	10'4"
Overall length	4940 mm	16'2"	4940 mm	16'2"	4953 mm	16'3"
Curb clearance	870 mm	34.5"	870 mm	34.5"	394 mm	15.15"
Ground clearance	306 mm	12"	306 mm	12"	416 mm	16"
Service Refill Capacities:						
Fuel tank	219 L	58 U.S. gal	219 L	58 U.S. gal	250 L	66 U.S. gal
Crankcase	9 L	2.4 U.S. gal	9 L	2.4 U.S. gal	17 L	4.5 U.S. gal
Hydraulic tank	60 L	15.8 U.S. gal	60 L	15.8 U.S. gal	60 L	15 U.S. gal
Sprinkler water	1100 L	290 U.S. gal	1100 L	290 U.S. gal	1200 L	317 U.S. gal

¹2-amplitude vibratory system configuration available: for the CB-534D and CB-534D XW, 0.56 mm (0.022 in) in low and 1.09 mm (0.043 in) in high setting; for the CB-634D, 0.46 mm (0.018 in) in low and 0.91 mm (0.036 in) in high setting.

²High frequency vibratory system configuration available with 53 Hz (3200 vpm).

³Split drum configuration available.



MODEL	PS-150C ¹		PS-360B ²		PF-300B/PS-300B ²	
Gross Power	75 kW	100 hp	78 kW	105 hp	74 kW	99 hp
Rated Engine RPM	2200		2200		2200	
No. Cylinders	4		4		4	
Displacement	4.4 L	269 in ³	4 L	243 in ³	4 L	243 in ³
Engine Model	3054C		3054 T		3054 T	
Speeds	2 forward/2 reverse		2 forward/2 reverse		3 forward/3 reverse	
Max. Speed (For./Rev.)	25.6 km/h	15.9 mph	18 km/h	11 mph	19 km/h	11.8 mph
Working Speed	11 km/h	6.8 mph	8 km/h	5 mph	12.7 km/h	7.9 mph
Wheel Configuration	5 front/4 rear		3 front/4 rear		3 front/4 rear	
Tires	8.50/90 × 15–6 ply		14/70 × 20–12 ply		13/80 × 20 × 20	
Operating Weight Empty (no ballast)	4885 kg	10,775 lb	8500 kg	18,740 lb	14 000 kg	30,860 lb
Operating Weight Full (max. ballast)	12 940 kg	28,535 lb	25 000 kg	55,115 lb	23 050 kg	50,820 lb
Maximum Weight per Wheel	1440 kg	3180 lb	3570 kg	7870 lb	3300 kg	7260 lb
Shipping Weight	4885 kg	10,775 lb	8320 kg	18,345 lb	14 000 kg	30,860 lb
Drive	Hydraulic		Hydraulic		Mechanical	
Steering:						
Inside radius	4648 mm	15'3"	3470 mm	11'5"	5800 mm	19'0"
Outside radius	6453 mm	21'2"	6700 mm	22'0"	7700 mm	25'3"
General Dimensions:						
Overall width	1740 mm	5'8"	2150 mm	7'1"	1960 mm	6'5"
Rolling width	1740 mm	5'8"	2275 mm	7'6"	1920 mm	6'5"
Tire width	191 mm	7.5"	368 mm	14.5"	300 mm	11.8"
Tire overlap	13 mm	0.5"	58 mm	2.25"	30 mm	1.2"
Overall height (ROPS)	3000 mm	9'10"	3200 mm	10'6"	3000 mm	9'10"
Wheelbase	3340 mm	10'11"	3650 mm	12'0"	4030 mm	13'3"
Overall length	4290 mm	14'1"	4930 mm	16'2"	5300 mm	17'5"
Ground clearance	267 mm	10.5"	252 mm	10"	250 mm	10"
Service Refill Capacities:						
Fuel tank	173 L	45.6 U.S. gal	200 L	52.8 U.S. gal	215 L	56.8 U.S. gal
Crankcase	7.3 L	1.9 U.S. gal	7.3 L	1.9 U.S. gal	7 L	1.8 U.S. gal
Hydraulic fluid	54.9 L	14.5 U.S. gal	90 L	23.7 U.S. gal	10 L	2.6 U.S. gal
Sprinkler water	394 L	104 U.S. gal	394 L	104 U.S. gal	460 L	121 U.S. gal

¹11-wheel configuration available.

²Steel ballast available.

Pneumatic Tires — Bias Ply and Radial

Model	Tire Size	Ply Rating	Tire Inflation Pressure			
			Minimum Pressure		Maximum Pressure	
			kPa	psi	kPa	psi
PS-150C	8.5 × 15	6	275	40	350	50
	7.5 × 15	12	345	50	760	110
	7.5 × 15	14	345	50	860	125
	7.5R15	Radial	296	43	480	70
PF-300B & PS-300B	13/80R20(E20)	Radial	300	44	1000	145
	14/80R20(F20)	Radial	250	36	1000	145
PS-360B	14/70 - 20	12	240	35	450	65
		20	345	50	460	110

Ballast Configurations

Model	Load	Ballast Configuration					
		Empty	Water Only	Steel Only	Wet Sand Only	Steel & Water	Steel & Wet Sand
PS-150C	Wheel Load	539 kg 1197 lb	968 kg 2134 lb	*	1438 kg 3171 lb	*	*
	Machine Weight	4885 kg 10,775 lb	8710 kg 19,205 lb	*	12 940 kg 28,535 lb	*	*
PS-150C (11-wheel)	Wheel Load	450 kg 993 lb	798 kg 1760 lb	*	1183 kg 2608 lb	*	*
	Machine Weight	4955 kg 10,925 lb	8780 kg 19,355 lb	*	13 010 kg 28,685 lb	*	*
PF-300B & PS-300B	Wheel Load	2000 kg 4409 lb	*	3300 kg 7275 lb	*	*	*
	Machine Weight	14 000 kg 30,860 lb	*	23 100 kg 50,900 lb	*	*	*
PS-360B	Wheel Load	1215 kg 2675 lb	1930 kg 4250 lb	2285 kg 15,090 lb	2645 kg 5830 lb	2855 kg 6300 lb	3570 kg 7870 lb
	Machine Weight	8500 kg 18,740 lb	13 500 kg 29,760 lb	15 995 kg 35,265 lb	18 500 kg 40,785 lb	20 000 kg 44,090 lb	25 000 kg 55,115 lb

*Configuration not available.

Maximum Ground Pressures

Model	Ply Rating	Empty	Water Only	Steel Only	Wet Sand Only	Steel & Water	Steel & Wet Sand
PS-150C	6	469 kPa 68 psi	689 kPa 100 psi	*	655 kPa 95 psi	*	*
	12	469 kPa 68 psi	724 kPa 105 psi	*	758 kPa 110 psi	*	*
	14	469 kPa 68 psi	1041 kPa 151 psi	*	972 kPa 141 psi	*	*
PS-300B	Radial (Smooth)	689 kPa 100 psi	*	951 kPa 138 psi	*	*	*
	Radial (Threaded)	745 kPa 108 psi	*	**	*	*	*
PS-360B	12	655 kPa 95 psi	620 kPa 90 psi	676 kPa 98 psi	662 kPa 96 psi	710 kPa 103 psi	703 kPa 102 psi
	20	896 kPa 130 psi	862 kPa 125 psi	965 kPa 140 psi	917 kPa 133 psi	979 kPa 142 psi	931 kPa 135 psi

*Configuration not available.

**Data not available.

Notes:

1. Each tire type has a unique pressure distribution which varies with both tire inflation pressure and wheel load. The distribution of pressure along both transverse and longitudinal profiles is rarely uniform.
2. The measurements in this table represent the peak pressures measured in a transverse profile at each of the ballast conditions at maximum tire inflation pressure.
3. For most applications, it can be assumed that normal operation of the pneumatic compactor will result in the ground being subjected to pressures near the maximum during at least one machine pass.

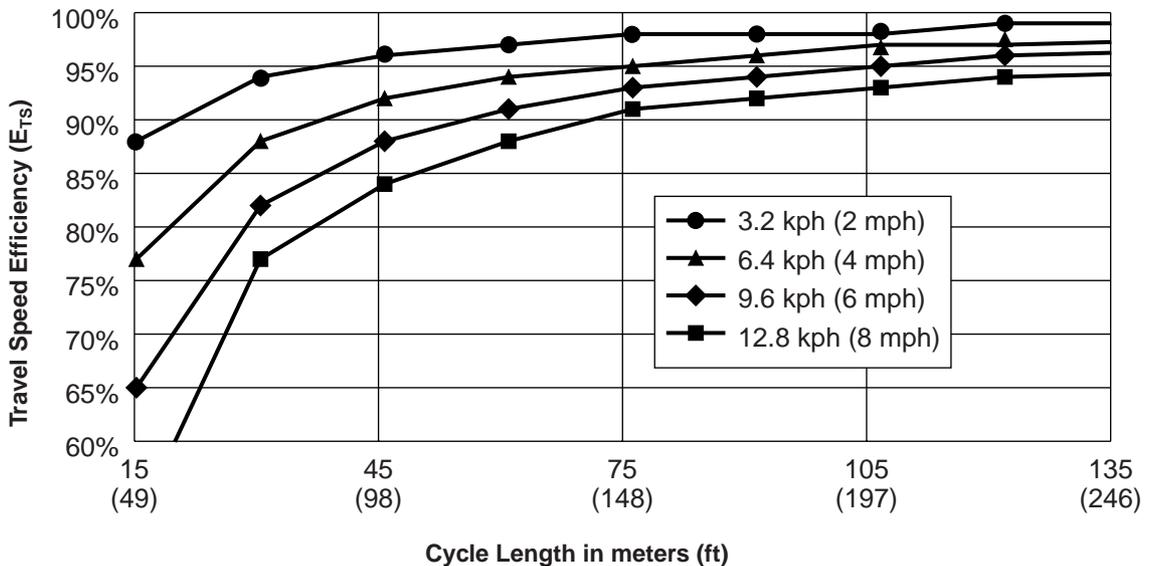
The tables in this section give production estimates for the following assumed conditions:

Nominal machine travel speed: 6.4 kph (4.0 mph)
Overlap of rolling width: 15.2 cm (6.0 inches)

Table values give **representative** production rates for three common construction conditions: trenches, roads, and wide areas (> 15 m, or 50 ft).

Model	Drum Width		Lift Thickness		Passes Required	Production Estimates			
	cm	in	cm	in			3.7 m (12 ft) Trench	9.15 m (30 ft) Road Base	Wide Areas
CS-323C	127	50	10.2	4	6	m ³ /hr yds ³ /hr	80 104	111 145	122 159
CS-423E, CS-433E	167.6	66	10.2	4	4	m ³ /hr yds ³ /hr	159 209	249 326	249 326
CS-533E, CS-563E	213.4	84	15.2	6	6	m ³ /hr yds ³ /hr	239 313	299 391	324 424
CS-573E	213.4	84	15.2	6	5	m ³ /hr yds ³ /hr	— —	373 489	405 530
CS-583E	213.4	84	15.2	6	4	m ³ /hr yds ³ /hr	— —	448 587	486 636
CS-663E	213.4	84	15.2	12	6	m ³ /hr yds ³ /hr	— —	598 782	648 848
CS-683E	213.4	84	15.2	12	4	m ³ /hr yds ³ /hr	— —	896 1174	972 1272
CP-323C	127	50	15.2	6	6	m ³ /hr yds ³ /hr	120 156	133 174	183 239
CP-433E	167.6	66	15.2	6	6	m ³ /hr yds ³ /hr	159 209	199 261	249 326
CP-533E, CP-563E	213.4	84	30.5	12	6	m ³ /hr yds ³ /hr	478 626	478 626	647 847
CP-663E	213.4	84	30.5	12	6	m ³ /hr yds ³ /hr	— —	598 782	648 848

Travel Speed Efficiency



Adjusting the Production Estimate

If the assumed conditions are not close to the actual construction conditions, the production estimates should be corrected. The production estimate from the table can be adjusted for 'actual' construction conditions by applying adjustment factors:

$$Q \text{ (actual)} = Q \text{ (assumed)} \times F_s \times F_t \times F_p$$

Where: Q (actual) = adjusted productivity
 Q (assumed) = productivity from table based on assumed conditions

F_s = adjustment for machine speed
 F_t = adjustment for layer thickness
 F_p = adjustment for no. of passes

The adjustment factors are determined by comparing the 'actual' conditions to the 'assumed' ones:

F_s = actual speed/assumed speed
 F_t = actual thickness/assumed thickness
 F_p = assumed passes/actual passes

Metric example

Actual Conditions — An 9.15-meter (full road width) base aggregate job is being completed with a compacted thickness of 15 cm. A CS-433E is being used, operating at 4.0 kph, and making 6 passes to achieve the desired compaction. The roller is overlapping its passes 6 inches.

For a 9.15-meter road base the table gives a CS-433E productivity of 249 m³/hr. Since the speed, thickness, and passes are *different* from the assumed conditions, we should adjust this estimate:

	Assumed	Actual
Speed	6.4 kph	4.0 kph
Thickness	10.2 cm	15 cm
Passes	4 passes	6 passes

F_s = 4.0 kph/6.4 kph = 0.6
 F_t = 15 cm/10.2 cm = 1.5
 F_p = 4 passes/6 passes = 0.7

The estimated production is adjusted using these factors:

$$Q \text{ (actual)} = 249 \text{ m}^3/\text{hr} \times 0.6 \times 1.7 \times 0.7 = 178 \text{ m}^3/\text{hr} \text{ (233 yds}^3/\text{hr)}$$

English example

Actual Conditions — An wide area commercial site development job is being compacted in lifts of 8 inches. A CP-563E is being used, operating at 4.0 mph, and making 4 passes to achieve the target density.

First, the table gives a CP-563E productivity of 847 yds³/hr. Since lift thickness and passes required are *different* from the assumed conditions, we should adjust this estimate:

	Assumed	Actual
Speed	4.0 mph	4.0 mph
Thickness	12 inches	8 inches
Passes	6 passes	4 passes

F_s = no correction necessary
 F_t = 8 inches/12 inches = 0.7
 F_p = 6 passes/4 passes = 1.5

The estimated production is adjusted using these factors:

$$Q \text{ (actual)} = 847 \text{ yds}^3/\text{hr} \times 0.7 \times 1.5 = 890 \text{ yds}^3/\text{hr} \text{ (680 m}^3/\text{hr)}$$

Notes on Productivity:

- For jobs that are relatively narrow, especially road construction jobs, it is important to understand that certain widths of construction will be more productive than others for a given compactor. A productive construction width will make the most use of each side by side pass required by the compactor in order to cover the width.
- Production estimates should be adjusted further if the length of the compaction cycles are shorter than 75 m (250 ft). Refer to the Travel Speed Efficiency chart to determine efficiency E_{TS}. For example, a compactor traveling at 6.4 kph (4 mph) operating at cycle lengths of 150 ft has an E_{TS} of 0.91. Multiply Q (actual) by E_{TS}.

The table in this section gives production estimates for the following assumed conditions:

Compacted Layer Thickness	51 mm	2 in
Max. Propelling Speed	5.6 kph	2.8 mph
Passes per Machine Width	2	
Compacted Material Density	2486 kg/cm ³	155 pcf
Overlap of Rolling Width	152 mm	6 in
Overhang at Lane Edge	76 mm	3 in
Cycle Time (2 passes)	120 seconds	

Table values give **representative** production rates for common construction widths. If the actual width falls between two assumed widths, use the higher number to estimate production. Minor adjustments can normally be made in the rolling method to reach this higher production: reduce overlap or overhang, increase speed, or increase the cycle time.

Model	Units	PAVING WIDTH						
		1.8 m 6 ft	2.4 m 8 ft	3.0 m 10 ft	3.7 m 12 ft	4.3 m 14 ft	4.9 m 16 ft	5.5 m 18 ft
CB-214E	Tonnes/hr tons/hr	138.4 152.5	184.5 203.4	179.4 197.7	176.1 194.1	173.9 191.6	198.7 219.0	193.7 213.6
CB-224E & CB-225E	Tonnes/hr tons/hr	193.7 213.6	184.5 203.4	230.6 254.2	215.3 237.3	205.5 226.5	234.8 258.9	223.5 246.4
CB-334E & CB-335E	Tonnes/hr tons/hr	193.7 213.6	184.5 203.4	230.6 254.2	215.3 237.3	251.1 276.8	234.8 258.9	264.2 291.2
CB-434D	Tonnes/hr tons/hr	193.7 213.6	258.3 284.7	230.6 254.2	276.8 305.1	251.1 276.8	287.0 316.4	264.2 291.2
CB-534D	Tonnes/hr tons/hr	193.7 213.6	258.3 284.7	322.9 355.9	276.8 305.1	322.9 355.9	287.0 316.4	322.9 355.9
CB-634D	Tonnes/hr tons/hr	322.9 355.9	258.3 284.7	322.9 355.9	387.5 427.1	322.9 355.9	369.0 406.8	415.1 457.6

Example

Actual Conditions — A 3.7 m (12 ft) lane is being paved with a compacted asphalt thickness of 10 cm (4 in). A CB-534D is being used, operating at 5.5 kph (3.4 mph), and making 4 passes to achieve the target density. The roller is overlapping its passes 15 cm (6 in) and is overhanging the edges by 7.5 cm (3 in).

First, the table gives a CB-534D productivity of 276.8 Tonnes/hr (305.1 tons/hr) for a 3.7 m (12 ft) paving width. Since the actual speed, thickness, and passes are *different* from the assumed conditions, the estimate should be adjusted:

	Assumed		Actual	
Speed	4.5 kph	2.8 mph	5.5 kph	3.4 mph
Thickness	5 cm	2 in	10 cm	4 in
Passes	2 passes		4 passes	

$$F_s = 5.5 \text{ kph (3.4 mph)} / 4.5 \text{ kph (2.8 mph)} = 1.2$$

$$F_t = 10 \text{ cm (4 in)} / 5 \text{ cm (2 in)} = 2.0$$

$$F_p = 2 \text{ passes} / 4 \text{ passes} = 0.5$$

The actual, or adjusted, production estimate can then be determined from the following:

$$Q \text{ (actual)} = 276.8 \text{ Tonnes/hr (305.1 tons/hr)} \times 1.2 \times 2.0 \times 0.5 = 332.1 \text{ Tonnes/hr (366.1 tons/hr)}$$

Notes on Productivity:

- Higher speed usually results in lower density achieved per pass.
- Productivity on uphill slopes may be reduced.
- Tabulated production estimates assume that 1 pass is used for re-positioning the machine at the beginning of the next run.

The tables in this section give production estimates for the following assumed conditions:

	Hot Mix Asphalt		Soil and Aggregate		Cold In-Place Recycled Asphalt	
Compacted Layer Thickness	51 mm	2 in	152 mm	6 in	203 mm	8 in
Max. Propelling Speed	8 kph	5 mph	8 kph	5 mph	4.8 kph	3 mph
Passes per Machine Width	4		4		6	
Compacted Material Density	2486 kg/cm ²	155 lb/ft²	2085 kg/cm ²	130 lb/ft²	2246 kg/cm ²	140 lb/ft²
Overlap of Rolling Width	152 mm	6 in	152 mm	6 in	152 mm	6 in
Overhang at Lane Edge	76 mm	3 in	76 mm	3 in	76 mm	3 in
Cycle Time (2 passes)	120 seconds		120 seconds		120 seconds	

Table values give **representative** production rates for common construction widths. If the actual width falls between two assumed widths, use the higher number to estimate production. Minor adjustments can normally be made in the rolling method to reach this higher production: reduce overlap or overhang, increase speed, or increase the cycle time.

Hot Mix Asphalt		PAVING WIDTH						
Model	Units	1.8 m 6 ft	2.4 m 8 ft	3.0 m 10 ft	3.7 m 12 ft	4.3 m 14 ft	4.9 m 16 ft	5.5 m 18 ft
PS-150C	Tonnes/hr tons/hr	195.2 215.1	260.2 286.8	325.3 358.6	270.2 297.9	315.3 347.5	275.5 303.7	310.0 341.7
PF-300B & PS-300B	Tonnes/hr tons/hr	195.2 215.1	260.2 286.8	325.3 358.6	270.2 297.9	315.3 347.5	360.3 397.2	310.0 341.7
PS-360B	Tonnes/hr tons/hr	351.3 387.2	260.2 286.8	325.3 358.6	390.3 430.3	455.4 502.0	360.3 397.2	405.3 446.8

Soil and Aggregate		1.8 m	2.4 m	3.0 m	3.7 m	4.3 m	4.9 m	5.5 m
PS-150C	Tonnes/hr tons/hr	490.1 540.2	653.4 720.3	816.8 900.4	678.6 748.0	791.7 872.7	691.9 762.7	778.4 858.0
PF-300B & PS-300B	Tonnes/hr tons/hr	490.1 540.2	653.4 720.3	816.8 900.4	678.6 748.0	791.7 872.7	904.8 997.3	778.4 858.0
PS-360B	Tonnes/hr tons/hr	882.2 972.4	653.4 720.3	816.8 900.4	980.2 1080.4	1143.5 1260.5	904.8 997.3	1017.9 1122.0

Cold In-Place Recycled Asphalt		1.8 m	2.4 m	3.0 m	3.7 m	4.3 m	4.9 m	5.5 m
PS-150C	Tonnes/hr tons/hr	288.0 317.5	384.0 423.3	480.0 529.2	394.1 434.5	459.8 506.9	399.4 440.3	449.3 495.3
PF-300B & PS-300B	Tonnes/hr tons/hr	288.0 317.5	384.0 423.3	480.0 529.2	394.1 434.5	459.8 506.9	525.5 579.3	449.3 495.3
PS-360B	Tonnes/hr tons/hr	534.9 589.6	384.0 423.3	480.0 529.2	576.1 635.0	672.1 740.8	525.5 579.3	591.2 651.7

Example

Actual Conditions — An 7.3 m (23'11") (full road width) base aggregate job is being completed with a compacted thickness of 200 mm (8 in). A PS-150C is being used, operating at 6.5 kph (4 mph), and making 6 passes achieve the desired compaction. The roller is overlapping its passes 152 mm (6 in).

First, the table does not show production for 7.3 m (23'11") so use the greatest width on the table: 5.5 m (18'1"). The table gives a PS-150C productivity of 778.4 Tonnes/hr (858.0 tons/hr) for this paving width. We can expect that the actual productivity for 7.3 m (23'11") will be slightly higher than that. Since the speed, thickness, and passes are *different* from the assumed conditions, we should adjust this estimate:

	Assumed		Actual	
Speed	8 kph	5 mph	6.5 kph	4 mph
Thickness	152 mm	6 in	200 mm	8 in
Passes	4 passes		6 passes	

$$F_s = 6.5 \text{ kph} / 8 \text{ kph} \text{ (4 mph / 5 mph)} = 0.8$$

$$F_t = 200 \text{ mm} / 152 \text{ mm} \text{ (8 in / 6 in)} = 1.3$$

$$F_p = 4 \text{ passes} / 6 \text{ passes} = 0.7$$

The estimated production is adjusted using these factors:

$$Q \text{ (actual)} = 778.4 \text{ Tonnes/hr (858.0 tons/hr)} \times 0.8 \times 1.3 \times 0.7 = 567 \text{ Tonnes/hr (625 ton/hr)}$$

Notes on Productivity:

- Ballast weight and tire pressure can significantly affect performance of a pneumatic tire compactor. Refer to machine specifications to choose the best configuration.
- Productivity on uphill grades and very thick layers (>127 mm, or 5 in) may be reduced due to a necessary reduction in speed.
- The 11-tire configuration for the PS-150C is designed only for chip-and-seal applications. It is not recommended in other applications.

UNDERGROUND MINING EQUIPMENT

Loaders and Haulers for Hard Rock Mining

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Features, all models:

- Rugged design for underground application.
- Engineered for productivity, reliability, safety and machine rebuildability.
- Extensive use of steel castings and forgings.
- Caterpillar heavy duty diesel engines and power trains.
- Computerised machine function monitoring.
- Four wheel enclosed wet disc brakes.
- Remote control options on loaders.
- Payload control system option on loaders.
- Ride control system optional on loaders.
- Fully enclosed air conditioned operator stations available.
- Operator Stations are ROPS/FOPS certified.

Product Line:

- Five models of Load-Haul-Dump (LHD) machines, with rated bucket payloads ranging from 6800 kg (14,991 lb) to 20 000 kg (44,100 lb).
- Three models of articulated dump trucks, with payload capacities of 30 000 kg (66,140 lb) to 55 000 kg (121,247 lb).
- Three models of articulated ejector trucks, with payload capacities of 27 000 kg (59,500 lb) to 47 000 kg (103,700 lb).



MODEL	R1300G		R1600G	
Bucket Size Minimum	2.4 m ³	3.1 yd³	4.2 m ³	5.5 yd³
Bucket Size Maximum	3.4 m ³	4.4 yd³	5.9 m ³	7.7 yd³
Tramming Capacity	6800 kg	14,991 lb	10 200 kg	22,490 lb
Length	8700 mm	28'7"	9710 mm	31'10"
Width Bucket	2200 mm	7'2"	2600 mm	8'6"
Width over Tires	1900 mm	6'2"	2400 mm	7'10"
Height	2100 mm	6'11"	2400 mm	7'10"
Operating Weight	20 950 kg	46,187 lb	29 800 kg	65,710 lb
Engine Power	123 kW	165 hp	201 kW	270 hp
Engine Model	3306 DITA (SWIRL)		3176C EUI ATAAC	
Tire Size	17.5x25 20 Ply L5 STMS		18x25 28 Ply STMS	
Outer Turning Radius	5658 mm	18'6"	6450 mm	21'2"
Inner Turning Radius	2943 mm	9'7"	3291 mm	10'7"
Articulation Angle	±42.5°		±42.5°	
Oscillation Angle	±10°		±10°	
Bucket Raise Time	5 Sec.		7.6 Sec.	
Bucket Lower Time	2.3 Sec.		1.6 Sec.	
Bucket Tip Time	2 Sec.		2 Sec.	
Bucket Total Time	9.3 Sec.		11.2 Sec.	
Travel Speeds	km/h	mph	km/h	mph
Forward 1	4.9	3.1	5.2	3.2
2	8.8	5.5	9.2	5.7
3	15.3	9.5	16.4	10.2
4	26.1	16.2	28.6	17.8
Reverse 1	4.5	2.8	5.8	3.6
2	8.0	5.0	10.5	6.5
3	14.0	8.7	18.5	11.5
4	23.8	14.8	31.8	19.8
Maximum Bucket Pin Height	2916 mm	9'6"	3752 mm	12'4"
Maximum Bucket Dump Angle	43°		45°	
Break Out Force SAE	12 020 kg	26,505 lb	19 500 kg	43,000 lb
Static Tipping (Load)	20 575 kg	45,360 lb	33 350 kg	73,537 lb
Service Brake	Spring Applied Fluid Released (SAFR™) fully enclosed wet disc brakes at all wheels. Front and rear circuits.		Spring Applied Fluid Released (SAFR™) fully enclosed wet disc brakes at all wheels. Front and rear circuits.	
Park Brake	Spring Applied Fluid Released (SAFR™) fully enclosed wet disc brakes at all wheels. Front and rear circuits.		Spring Applied Fluid Released (SAFR™) fully enclosed wet disc brakes at all wheels. Front and rear circuits.	
Fuel Capacity	295 L	78 U.S. gal	400 L	106 U.S. gal



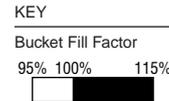
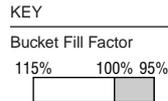
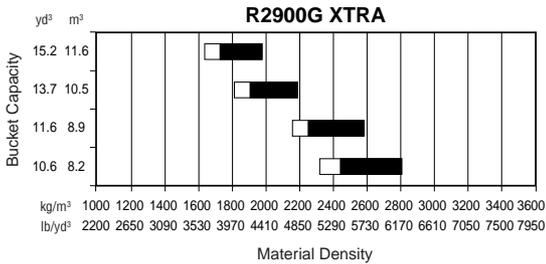
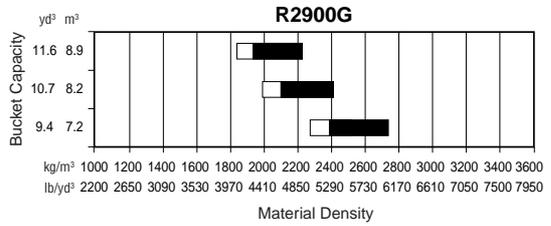
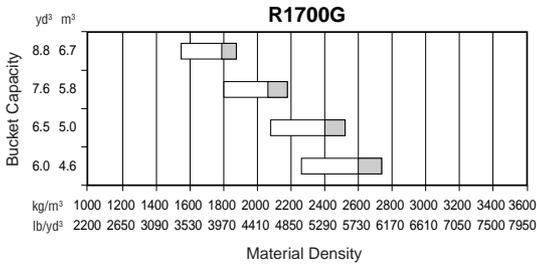
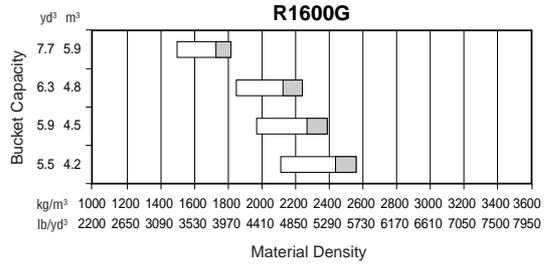
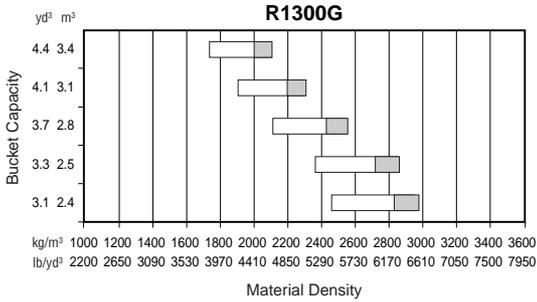
MODEL	R1700G		R2900G		R2900G XTRA	
Bucket Size Minimum	4.6 m ³	6 yd ³	6.4 m ³	8.4 yd ³	8.2 m ³	10.6 yd ³
Bucket Size Maximum	8.8 m ³	11.4 yd ³	8.9 m ³	11.6 yd ³	11.6 m ³	15.2 yd ³
Tramming Capacity	14 000 kg	30,870 lb	17 200 kg	37,926 lb	20 000 kg	44,092 lb
Length	10 600 mm	34'9"	10 946 mm	35'9"	11 080 mm	36'4"
Width Bucket	2872 mm	9'7"	3154 mm	10'4"	3454 mm	11'3"
Width over Tires	2650 mm	8'8"	2898 mm	9'5"	3142 mm	10'3"
Height	2557 mm	8'5"	2886 mm	9'5"	2988 mm	9'8"
Operating Weight	38 500 kg	84,880 lb	50 100 kg	110,452 lb	56 000 kg	123,459 lb
Engine Power	231 kW	310 hp	282/306 kW	378/410 hp	306 kW	410 hp
Engine Model	3176C EUI ATAAC		3406E EUI ATAAC		3406E EUI ATAAC	
Tire Size	26.5x25 32 Ply L5 STMS		29.5x29 34 Ply STMS		35/65 R33	
Outer Turning Radius	6828 mm	22'4"	7269 mm	23'6"	7483 mm	24'7"
Inner Turning Radius	3229 mm	10'7"	3383 mm	11'1"	3410 mm	11'2"
Articulation Angle	±44°		±42.5°		±42.5°	
Oscillation Angle	±8°		±8°		±8°	
Bucket Raise Time	6.8 Sec.		6.7 Sec.		6.7 Sec.	
Bucket Lower Time	2.4 Sec.		2.4 Sec.		2.4 Sec.	
Bucket Tip Time	2.9 Sec.		2.8 Sec.		2.8 Sec.	
Bucket Total Time	12.1 Sec.		11.9 Sec.		11.9 Sec.	
Travel Speeds	km/h	mph	km/h	mph	km/h	mph
Forward 1	5.1	3.2	5.1	3.2	5.3	3.3
2	9.0	5.6	9.2	5.7	9.3	5.8
3	15.8	9.8	15.7	9.8	16.4	10.2
4	27.1	16.8	26.7	16.6	24.2	15.0
Reverse 1	5.9	3.6	6.4	4.0	6.6	4.1
2	10.3	6.4	11.2	7.0	11.6	7.2
3	17.9	11.1	19.9	12.4	19.2	11.9
4	30.7	19.1	32.5	20.2	27.0	16.8
Maximum Bucket Pin Height	4098 mm	13'5"	4539 mm	14'9"	4547 mm	14'9"
Maximum Bucket Dump Angle	46°		46°		46°	
Break Out Force SAE	22 531 kg	49,672 lb	27 800 kg	61,288 lb	25 100 kg	55,340 lb
Static Tipping (Load)	37 338 kg	82,316 lb	32 630 kg	71,937 lb	45 782 kg	100,940 lb
Service Brake	Spring Applied Fluid Released (SAFR™) fully enclosed wet disc brakes at all wheels. Front and rear circuits.		Spring Applied Fluid Released (SAFR™) fully enclosed wet disc brakes at all wheels. Front and rear circuits.		Spring Applied Fluid Released (SAFR™) fully enclosed wet disc brakes at all wheels. Front and rear circuits.	
Park Brake	SAFR™ Inboard spring applied fluid released, enclosed wet disc @ all wheels. Front and rear circuits.		Spring applied fluid released, wet discs all wheel ends.		Spring applied fluid released, wet discs all wheel ends.	
Fuel Capacity	570 L	151 U.S. gal	900 L	238 U.S. gal	900 L	238 U.S. gal
Dump Clearance	2484 mm	8'1"	2871 mm	9'4"	2729 mm	8'9"

NOTE: R1700G and R2900G XTRA: For Load, Haul, Carry only @ rated load. Not truck loading @ rated load.

Model	R1300G		R1600G		R1700G	
Rated payload	6800 kg	14,991 lb	10 200 kg	22,490 lb	14 000 kg	30,870 lb
Bucket capacity	3.4 m ³	4.4 yd³	5.9 m ³	7.7 yd³	6.7 m ³	8.8 yd³
Overall width	2221 mm	7'3"	2600 mm	8'7"	2818 mm	9'3"
Overall height	2100 mm	6'9"	2400 mm	7'10"	2557 mm	8'5"
Length (tramming)	8700 mm	28'5"	9710 mm	31'10"	10 595 mm	34'9"
Operating weight	20 950 kg	46,187 lb	29 800 kg	65,710 lb	38 500 kg	84,890 lb
Loaded weight	27 750 kg	61,178 lb	40 000 kg	88,200 lb	51 000 kg	112,460 lb
Ground clearance	335 mm	13.2"	342 mm	13.5"	400 mm	15.7"
Axle oscillation	±10°		±10°		±8°	

Model	R2900G		R2900G XTRA	
Rated payload	17 200 kg	37,930 lb	20 000 kg	44,092 lb
Bucket capacity	8.8 m ³	11.5 yd³	8.9 m ³	11.7 yd³
Overall width	3100 mm	10'2"	3545 mm	11'3"
Overall height	2888 mm	9'6"	2988 mm	9'8"
Length (tramming)	10 970 mm	36'0"	11 080 mm	36'4"
Operating weight	48 850 kg	107,710 lb	56 000 kg	123,459 lb
Loaded weight	66 050 kg	145,640 lb	76 000 kg	167,551 lb
Ground clearance	500 mm	19.7"	467 mm	18.4"
Axle oscillation	±8°		±8°	

Model	Bucket Type	SAE Capacity	
		m³	yd³
R1300G	Standard	2.4	3.1
	Standard	2.8	3.7
	Standard	3.1	4.1
	Standard	3.4	4.4
	Ejector	2.5	3.3
R1600G	Standard	4.2	5.5
	Standard	4.8	6.3
	Standard	5.9	7.7
	High Penetration	4.2	5.5
	High Penetration	4.8	6.3
	High Penetration	5.9	7.7
R1700G	Ejector	4.5	5.9
	Standard	4.6	6.0
	Standard	5.0	6.5
	Standard	5.7	7.5
	Standard	6.6	8.6
	Standard	7.4	9.7
	High Penetration	5.0	6.5
	High Penetration	5.7	7.5
	High Penetration	6.6	8.6
	High Penetration	7.3	9.6
Light Material	8.8	11.4	
R2900G and R2900G XTRA	Standard	6.4	8.4
	Standard	7.1	9.3
	Standard	8.1	10.6
	Standard	8.8	11.5
	Standard	11.5	15.0
	High Penetration	6.4	8.4
	High Penetration	7.2	9.4
	High Penetration	8.2	10.7
	High Penetration	8.9	11.6
	Light Material	10.5	13.7
	Light Material	11.6	15.2



Turning Dimensions

Model	R1300G	R1600G	R1700G	R2900G	R2900G XTRA
Turn radius (outside)	5658 mm 18'6"	6587 mm 21'7"	6828 mm 22'4"	7269 mm 23'9"	7465 mm 24'5"
Turn radius (inside)	2943 mm 9'7"	3305 mm 10'10"	3229 mm 10'7"	3383 mm 11'1"	3289 mm 10'8"
Articulation angle	±42.5°	±42.5°	±44°	±42.5°	±42.5°



MODEL	AD30		AD45		AD55	
Engine Power	298 kW	400 hp	380 kW	510 hp	485 kW	650 hp
Engine Model	3406 EUI ATAAC		3408E HEUI		C18	
Tare Weight	30 000 kg	66,150 lb	40 500 kg	89,287 lb	47 000 kg	103,617 lb
Max. Capacity (Dump)	60 000 kg	132,300 lb	45 000 kg	99,208 lb	55 000 kg	121,254 lb
Capacity M3 (SAE) 2:1 Heaped	14.4 m ³	18.8 yd³	22.2 m ³	29 yd³	26.9 m ³	35.2 yd³
Distribution Loaded Front	46%		45%		48%	
Distribution Loaded Rear	54%		55%		52%	
Turning Radius (Standard Dump Body)	8571 mm	28'1"	9228 mm	30'3"	9171 mm	32'1"
Height	2600 mm	8'6"	2700 mm	8'10"	3000 mm	9'10"
Length	10 160 mm	33'4"	10 660 mm	35'0"	11 547 mm	37'11"
Loading Height	2385 mm	7'10"	2900 mm	9'6"	3045 mm	10'0"
Width	2690 mm	8'10"	3000 mm	9'10"	3346 mm	11'0"
Oscillation Angle	±10°		±12°		±10°	
Articulation Angle	±42.5°		±42.5°		±42.5°	
Tray Height Raised (Dump)	5602 mm	18'5"	6215 mm	20'5"	7001 mm	23'0"
Dump Time	10 Sec.		10 Sec.		11.5 Sec.	
Travel Speeds	km/h	mph	km/h	mph	km/h	mph
Forward 1	5.5	3.4	7.7	4.8	8.1	5.0
2	9.9	6.1	10.5	6.5	11.2	6.9
3	17.6	10.9	14.2	8.8	15.1	9.4
4	31.0	19.3	18.9	11.7	20.3	12.6
5	—	—	25.2	15.7	27.6	17.1
6	—	—	32.7	20.3	37.2	23.1
7	—	—	41.7	25.9	50.4	31.3
8	—	—	—	—	—	—
Reverse 1	6.8	4.3	7.3	4.5	7.9	4.9
2	—	—	9.6	6.0	10.7	6.6
Tire Size	26.5-R25		29.5x29 2 ★★ Radials		5/65-R33 ★★ Radials	
Service Brake	Caterpillar oil cooled hyd. applied wet disc all wheels.		Caterpillar oil cooled hyd. applied wet disc all wheels.		Caterpillar oil cooled hyd. applied wet disc all wheels.	
Park Brake	Spring applied hyd. released all wheels.		Spring applied hyd. released all wheels.		Spring applied hyd. released all wheels.	
Fuel Capacity	500 L	132.1 U.S. gal	600 L	159 U.S. gal	960 L	253 U.S. gal

Articulated Trucks

Model	AD30		AD45		AD55	
Heaped capacity*	14.4 m ³	18.8 yd ³	22.2 m ³	29 yd ³	26.9 m ³	35.2 yd ³
Overall width	2650 mm	8'6"	3000 mm	9'10"	3346 mm	10'9"
Overall height	2600 mm	8'5"	2960 mm	9'9"	3045 mm	9'9"
Overall length	10 160 mm	33'4"	10 660 mm	35'0"	11 547 mm	37'8"
Empty weight	30 000 kg	66,140 lb	40 500 kg	89,303 lb	47 000 kg	103,617 lb
Loaded weight	60 000 kg	132,280 lb	85 500 kg	188,528 lb	102 000 kg	226,871 lb
Ground clearance	400 mm	15.7"	452 mm	17.8"	391 mm	15.4"
Frame oscillation	±10°		±12°		±10°	

*2:1 per SAE.

Body Selection

Model	SAE Body Capacity	
AD30 Dump	17.5 m ³	22.8 yd ³
	14.4 m ³	18.8 yd ³
AD30 Ejector	15.2 m ³	19.8 yd ³
AD45 Dump	19.7 m ³	25.8 yd ³
	21.3 m ³	27.9 yd ³
	22.2 m ³	29.0 yd ³
	25.1 m ³	32.8 yd ³
	27.7 m ³	36.2 yd ³
AD45 Ejector	17.7 m ³	23.1 yd ³
	18.4 m ³	24.0 yd ³
	20.8 m ³	27.2 yd ³
	22.9 m ³	30.0 yd ³
AD55	26.9 m ³	35.2 yd ³
	33.8 m ³	44.2 yd ³
	36.6 m ³	47.9 yd ³

Turning Dimensions

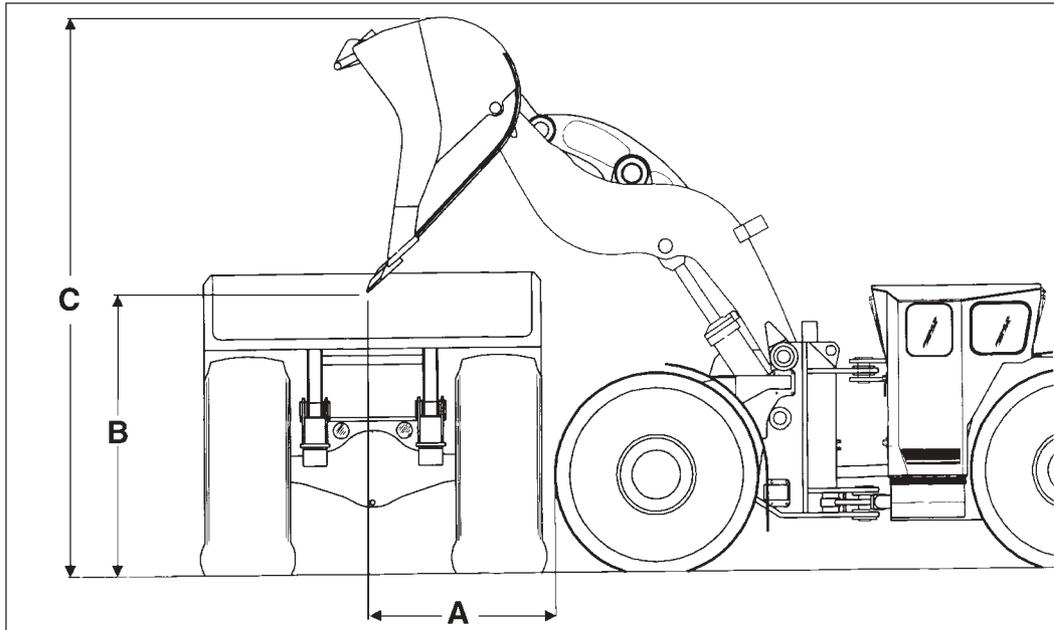
Articulated Trucks

Model	AD30		AD45		AD55*	
Turn radius (outside)	8571 mm	28'1"	9228 mm	30'3"	9171 mm	32'1"
Turn radius (inside)	5030 mm	16'5"	5296 mm	17'5"	5540 mm	18'2"
Articulation angle	±42.5°		±42.5°		±42.5°	

*Standard dump body.

Ejector

Model	AD30		AD45		AD55	
Turn radius (outside)	8571 mm	28'1"	9589 mm	31'4"	9171 mm	32'1"
Turn radius (inside)	4935 mm	16'2"	5448 mm	17'10"	5540 mm	18'2"
Articulation angle	±42.5°		±42.5°		±42.5°	



Loader	Target	A		B		C	
R1300G		1667 mm	5'6"	1621 mm	5'4"	3529 mm	11'8"
R1600G	AD30	1408 mm	4'6"	2207 mm	7'3"	4497 mm	14'9"
R1700G	AE40 Series II	1652 mm	5'5"	2490 mm	8'2"	4903 mm	16'1"
R1700G	AD55	1665 mm	5'6"	2470 mm	8'1"	4900 mm	16'1"
R1700G	69D	1652 mm	5'5"	2490 mm	8'2"	4903 mm	16'1"
R2900G	AD45	1652 mm	5'5"	2871 mm	9'5"	5427 mm	17'10"
R2900G	AD55	1652 mm	5'5"	2871 mm	9'5"	5427 mm	17'10"
R2900G	69D	1787 mm	5'10"	2874 mm	9'5"	5429 mm	17'10"

NOTE: 12.5 t (14 T) and 17.9 t (20 T) ratings for the R1700G and R2900G XTRA (respectfully) are for load and carry applications. Maximum capacity for truck loading application should be R1700G @ 11.2 t (12.5 T) and R2900G @ 15.4 t (17.2 T).

HYDROMECHANICAL WORK TOOLS

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HYDRAULIC HAMMERS

H45-H100 Hammer Features:

- **Low Pressure Accumulator** provides the energy for the piston power stroke.
- **Custom Side Plates** designed for Caterpillar carrier geometry. Protects power cell. Allows for complete folding of the boom on side-shift backhoes.
- **High Pressure Accumulator** dampens pressure peaks and pulsation, thus protecting carrier hydraulic system. Recovers rebound energy in hard material for greater impact power.
- **Distributor** has high oil volume for ultra high blow frequency.
- **Pressure Adjusting Valve** assures that all blows are delivered at a constant blow energy.
- **Long Heavy Piston** delivers maximum impact energy and minimizes recoil forces to carrier.
- **Long Front End** ensures proper piston — tool alignment.
- **Slip Fit Thrust Ring** dissipates harmful shock loads in abusive applications and is rotatable for additional life.
- **Slip Fit Upper Tool Bushing** is rotatable for additional life and provides positive tool alignment.
- **Slip Fit Lower Tool Bushing** provides positive tool alignment, is field replaceable and rotatable. Grease retention grooves provide extended lubrication and wear indication.
- **Sound suppressed** versions available for all models.

H115 s-H180 s Hammer Features:

- **Shock Mount** isolates forces to protect the carrier.
- **Integrally Mounted Accumulator** dampens pressure peaks inside the hammer to protect the carrier hydraulic system, assist the piston in the power stroke, and allows checking/replacing nitrogen without removing the hammer.
- **Pressure Control Valve** allows hammer to strike with maximum fixed energy per blow.
- **Main Valve** directs the firing cycle and blocks the return port to protect the carrier hydraulics from pressure peaks.
- **Check Valve** maintains oil pressure in the accumulator when hammer is repositioned. This helps improve breaking efficiency (reduced waiting time).
- **Tie Rods** are heat torqued for easier tightening without torsion stresses.
- **Long Heavy Piston** minimizes recoil forces to protect hammer components and carrier structures.
- **Slip Fit Thrust Ring** dissipates shock loads in abusive applications and is rotatable for longer life.
- **Plastic Wear Plates** on all four sides guide the power cell within the housing.
- **Blank Fire Protection** aided by auto-shutoff stops operation when no material is present to be broken. It increases hammer reliability and durability by eliminating high stress resulting from blank firing. (Available on H140D s and H160D s.)
- **Slip Fit Upper Tool Bushing** is rotatable for longer life and is replaceable. Guides the tool to optimize in-line piston/tool contact.
- **Slip Fit Sealed Lower Tool Bushing** provides positive tool alignment, is field replaceable and rotatable. It has grease retention grooves for extended lubrication and wear indication.
- **Sound Suppression** consists of housing dampening material, plugs and covers.
- **Autolube** available for all hammers.

Hammer Applications

- **Sewer and Water** — The hammer can be used on pockets of rock that slow down production. Also good for breaking up old concrete pipes, manholes, etc.
- **Road Construction** — An essential tool during improvements and upgrading. The hammer works well on removing existing curbs, traffic islands, ramps, or sections of concrete. With correct tool, it can cut asphalt.
- **Bridge Renewal** — Hammers are used to remove old bridge surfaces, railing supports, abutments, retaining walls, etc.
- **Demolition** — The hammer-equipped excavator is often a key helper in industrial demolition. It can break up fallen wall and floor sections as well as foundations, or other brick and concrete structures.
- **Mining and Aggregate** — Hammers can break oversized material to avoid secondary blasting, and size riprap. Hammers can be installed near crushers to prepare material for crushing.
- **Trenching/Primary Excavation** — In soft or layered materials, the hydraulic hammer with amoil or chisel point is an effective tool in excavation.
- **Direct Quarrying** — In many types of limestone, direct quarrying with hydraulic hammers can prove cost effective, especially where blasting is prohibited or restricted.

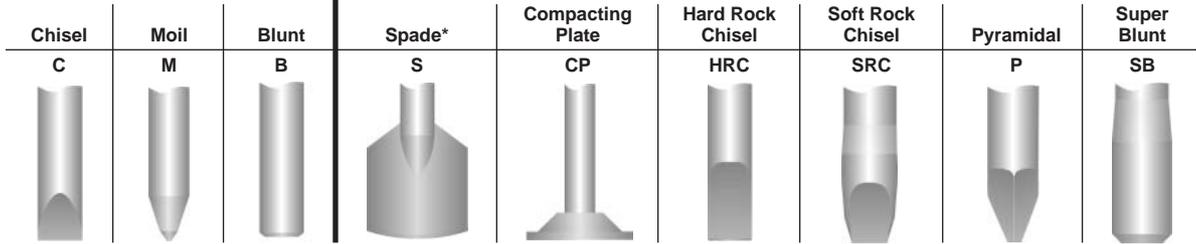
A hammer need not be full time attachment for these applications. It can be replaced by a bucket in a short time, allowing the machine to be used for digging, loading, lifting, or other tasks.

Consult your Caterpillar dealer for advice on correct sizing, installation and tool selection.

NOTE: Internal components of hammers are machined to close tolerances and require clean oil with full lubricating properties. When operating in high ambient temperatures or extreme temperature applications (e.g. foundries), higher viscosities are recommended to extend hammer life and improve performance. Hammers tend to shear multigrade mineral oil so that oil viscosity decreases. Contamination, water in oil, and decreased viscosity lead to earlier oil deterioration and the need for more frequent oil changes than normally recommended for the excavator. Extra care should be taken to avoid the entry of dust or dirt when installing or removing a hammer in the field.

Standard Tools

Special Tools



	H45 H45 s	H50 H50 s	H63 H63 s	H70 H70 s	H90C H90C s	H100 H100 s	H115 s	H120C s	H130 s	H140D s	H160D s	H180 s
1. Roadbuilding/Construction												
Breaking of road surface	S	S	S	S	C	C	C	C	SRC,C	SRC,C	SRC,C	SRC,C
Breaking uneven bedrock to lay a road						M,C	M,C	M,C	C,SRC, HRC	C,SRC, HRC	C,SRC, HRC	C,SRC, HRC
Primary Breaking to prepare road bed										C,SOC, HRC	C,SOC, HRC	C,SOC, HRC
Asphalt cutting to shape or area	S	S	S	S	S	S,C						
Trench excavation for drainage				C	C	M,C						
Demolition of bridges						M,C	M,C	M,C	C,SRC, HRC	C,M,B	C,M,B	C,M,B
Heavily reinforced bridge pillars										B,SB	B,SB	B,SB
Compacting soils	CP	CP	CP	CP								
Making holes (for traffic signs, lamp posts)					M	M						
Breaking of frozen ground		C,S	C,S	C,S	C,S	C,M	P,C	P,C	P,SRC, C	P,SRC, C	P,SRC, C	P,SRC, C
2. Demolition/housing development												
Demolition of concrete walls, roofs, floors	C,M	C,M	C,M	C,M	C,M	C,M	C,M,P	C,M,P	C,M,P SRC	C,M,P SRC	C,SRC, P	C,SRC, P
Demolition of light, reinforced concrete foundation [<0.5 m (19.7")]	C,M	C,M	C,M	C,M	C,M	C,M	P	P	P,SRC			
Brick walls	C,M	C,M	C,M	C,M	C,M	C,M	C,M	C,M	C,SRC, HRC	C,SRC, HRC		
Rock trenches for mains/water supply/utilities					C,M	C,M	C,M	C,M	C,SRC, HRC			
Rock excavation for foundation						C,M	C,M	C,M	C,SRC, HRC	C,SRC, HRC	C,SRC, HRC	C,SRC, HRC
Mass excavation of rock for industrial building bases									C,SRC, HRC	C,SRC, HRC	C,SRC, HRC	C,SRC, HRC
Massive reinforced concrete foundations										P,SRC	P,SRC	P,SRC
Breaking of hard ground (not rock)					C,M	C,M	C,M	C,M	C,SRC	C,SRC		
Separating rebar from concrete (for recycling)				C,M	C,M	C,M	C,M	C,M	C,SRC	C,SRC	C,SRC	C,SRC

*Available as parallel or transverse.

Standard Tools

Special Tools

Chisel	Moil	Blunt	Spade*	Compacting Plate	Hard Rock Chisel	Soft Rock Chisel	Pyramidal	Super Blunt						
C	M	B	S	CP	HRC	SRC	P	SB						
														
			H45 H45 s	H50 H50 s	H63 H63 s	H70 H70 s	H90C H90C s	H100 H100 s	H115 s	H120C s	H130 s	H140D s	H160D s	H180 s
3. Quarrying/open cast mining														
Secondary breaking of blasted rock														
									B	B	B,SB	B,SB	B,SB	B
Primary breaking of rock														
									C,M	C,M	C,SRC, HRC	C,SRC, HRC	C,SRC, HRC	C,SRC, HRC
Breaking oversizes on a crusher/feeder														
					M	M	B	B	B	B	B,SB	B,SB		
Breaking of oversizes on grizzly or feed chute														
						M	B	B	B	B	B,SB	B,SB		
Breaking of oversizes after blasting														
						M	B	B	B	B	B,SB	B,SB	B,SB	B,SB
4. Underground applications														
Trenching in tunnels														
										C,M	C,SRC, HRC	C,SRC, HRC	C,SRC, HRC	C,SRC, HRC
Scaling in tunnel roofs and walls														
					C	C	C							
5. Metallurgical applications														
Breaking of slag in casting ladles														
				C,M	C,M	C,M	C,M	C,M	M,C					
Breaking of slag in converter openings														
								C,M	M,C	M,C	M,C			
Cleaning of castings														
									M,C					
Breaking of massive steel slag														
													B,SB, HRC	B,SB, HRC
Breaking of aluminum electrolyze slag														
													B,HRC	B,HRC
Breaking of refractory linings in furnaces														
						C,M	C,M							
6. Other applications														
Rock breaking where blasting is restricted														
												C,SRC, HRC	C,SRC, HRC	C,SRC, HRC
Demolition under water														
	C,M	C,M	C,M	C,M	C,M	C,M	C,M	C,M,P	C,M,P	C,M,P	C,M,P	C,M,P, SRC	C,SRC, P	C,SRC, P
Rock breaking under water														
												C,SRC, HRC	C,SRC, HRC	C,SRC, HRC

*Available as parallel or transverse.

Model	H45/H45 s		H50/H50 s		H63/H63 s	
Working weight ¹	130/140 kg	286/308 lb	200/220 kg	440/484 lb	300/315 kg	660/693 lb
Impact frequency ²	830-2500 bpm		460-2000 bpm		420-2000 bpm	
Hammer operating pressure ³	14 000 kPa	2031 psi	12 000 kPa	1740 psi	14 000 kPa	2031 psi
Carrier relief pressure ⁴	21 000 kPa	3045 psi	21 000 kPa	3045 psi	21 000 kPa	3045 psi
Acceptable oil flow	20-50 L/min	5-13 gpm	20-70 L/min	5-18 gpm	30-100 L/min	8-26 gpm
Maximum back pressure	3000 kPa	435 psi	3000 kPa	435 psi	3000 kPa	435 psi
Line size (minimum)						
ID pressure	12 mm	0.5"	15 mm	0.62"	19 mm	0.75"
ID return	12 mm	0.5"	15 mm	0.62"	19 mm	0.75"
Certified CIMA tool energy*	137 J	101 ft-lb	198 J	146 ft-lb	372 J	274 ft-lb
Energy class	271 J	200 ft-lb	542 J	400 ft-lb	678 J	500 ft-lb
Carrier weight class	1.3-3.2 t	2860-7840 lb	2.5-4.5 t	5500-9900 lb	3-6.5 t	6600-14,300 lb

Model	H70/H70 s		H90C/H90C s		H100/H100 s	
Working weight ¹	425/430 kg	935/946 lb	590/600 kg	1298/1320 lb	820/830 kg	1804/1826 lb
Impact frequency ²	600-1850 bpm		500-1450 bpm		430-1300 bpm	
Hammer operating pressure ³	14 000 kPa	2031 psi	13 500 kPa	1960 psi	14 500 kPa	2100 psi
Carrier relief pressure ⁴	21 000 kPa	3045 psi	21 000 kPa	3045 psi	21 000 kPa	3045 psi
Acceptable oil flow	50-150 L/min	13-39 gpm	60-150 L/min	16-39 gpm	60-120 L/min	16-31 gpm
Maximum back pressure	3000 kPa	435 psi	2000 kPa	290 psi	2000 kPa	290 psi
Line size (minimum)						
ID pressure	25 mm	1"	25 mm	1"	25 mm	1"
ID return	25 mm	1"	25 mm	1"	25 mm	1"
Certified CIMA tool energy*	622 J	459 ft-lb	735 J	542 ft-lb	1152 J	850 ft-lb
Energy class	1017 J	750 ft-lb	1356 J	1000 ft-lb	2034 J	1500 ft-lb
Carrier weight class	5-8 t	11,000-17,600 lb	6-12 t	13,200-26,400 lb	8-14 t	17,600-30,800 lb

¹ Includes power cell, side plates/housing, average mounting bracket, where required, and standard tool.

² Approximate value, actual impact frequency depends on oil flow, oil viscosity, temperature, and hardness of material to be broken.

³ Approximate value, operating pressure depends on oil flow, oil viscosity, temperature, material to be broken, and back pressure. Operating pressure is the result of correct low pressure adjustment.

⁴ Approximate value, exact value depends on installation parameters.

*Measured in accordance with the CIMA measuring guide for tool energy rating for hydraulic breakers developed by the Mounted Breaker Manufacturers Bureau of the Construction Industry Manufacturers Association (CIMA-MBMB).

Oil temperature working range for all models: -20° C to +80° C (-4° F to +176° F).

Oil viscosity at operating oil temperature: 15 to 1000 cSt.

Model	H115 s		H120C s		H130 s	
Working weight ¹	1000 kg	2200 lb	1300 kg	2870 lb	1700 kg	3740 lb
Impact frequency ²	370-800 bpm		350-620 bpm		320-600 bpm	
Hammer operating pressure ³	14 000 kPa	2031 psi	14 000 kPa	2031 psi	14 000 kPa	2031 psi
Carrier relief pressure ⁴	21 000 kPa	3045 psi	21 000 kPa	3045 psi	21 000 kPa	3045 psi
Acceptable oil flow	70-130 L/min	18-34 gpm	100-170 L/min	26-45 gpm	120-220 L/min	31-57 gpm
Maximum back pressure	1000 kPa	145 psi	1000 kPa	145 psi	1000 kPa	145 psi
Line size (minimum)						
ID pressure	25 mm	1"	25 mm	1"	25 mm	1"
ID return	25 mm	1"	25 mm	1"	25 mm	1"
Certified CIMA tool energy*	1481 J	1092 ft-lb	2884 J	2127 ft-lb	3739 J	2758 ft-lb
Energy class	3390 J	2500 ft-lb	4067 J	3000 ft-lb	4745 J	3500 ft-lb
Carrier weight class	12-20 t	26,400-44,000 lb	17-26 t	37,400-57,200 lb	19-32 t	41,800-70,400 lb

Model	H140D s		H160D s		H180 s	
Working weight ¹	2350 kg	5170 lb	3150 kg	6946 lb	3800 kg	8360 lb
Impact frequency ²	350-600 bpm		430-560 bpm		370-520 bpm	
Hammer operating pressure ³	16 000 kPa	2321 psi	16 000 kPa	2321 psi	16 000 kPa	2321 psi
Carrier relief pressure ⁴	22 000 kPa	3190 psi	22 000 kPa	3190 psi	21 000 kPa	3045 psi
Acceptable oil flow	160-230 L/min	42-60 gpm	240-310 L/min	63-82 gpm	220-300 L/min	57-78 gpm
Maximum back pressure	1000 kPa	145 psi	1000 kPa	145 psi	1000 kPa	145 psi
Line size (minimum)						
ID pressure	32 mm	1.25"	32 mm	1.25"	32 mm	1.25"
ID return	32 mm	1.25"	32 mm	1.25"	36 mm	1.42"
Certified CIMA tool energy*	4275 J	3153 ft-lb	5364 J	3956 ft-lb	5906 J	4357 ft-lb
Energy class	7457 J	5500 ft-lb	10 168 J	7500 ft-lb	14 913 J	11,000 ft-lb
Carrier weight class	25-40 t	55,000-88,000 lb	32-55 t	70,400-121,000 lb	40-75 t	132,000-166,000 lb

¹ Includes power cell, side plates/housing, average mounting bracket, where required, and standard tool.

² Approximate value, actual impact frequency depends on oil flow, oil viscosity, temperature, and hardness of material to be broken.

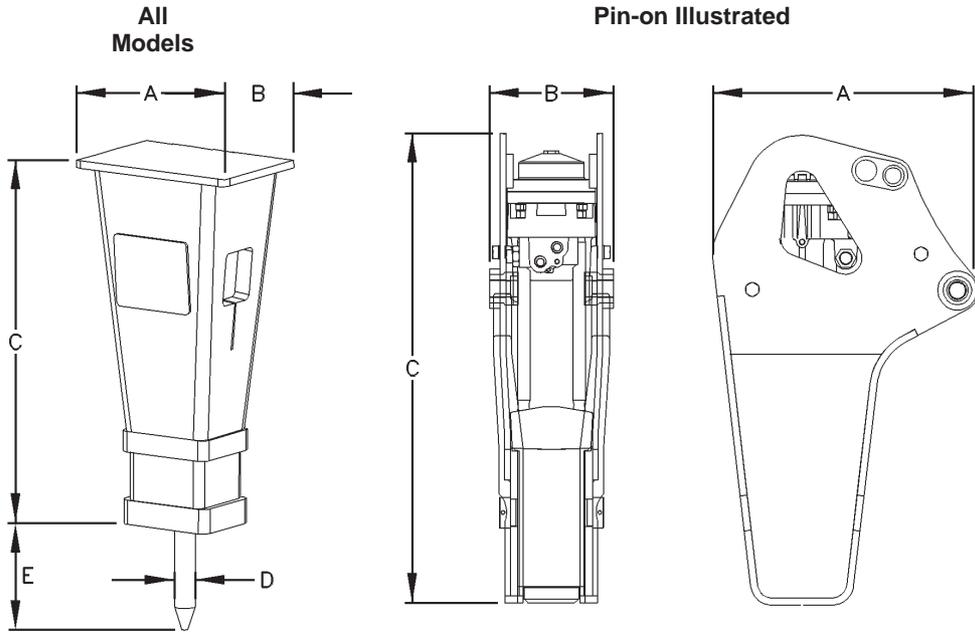
³ Approximate value, operating pressure depends on oil flow, oil viscosity, temperature, material to be broken, and back pressure. Operating pressure is the result of correct low pressure adjustment.

⁴ Approximate value, exact value depends on installation parameters.

*Measured in accordance with the CIMA measuring guide for tool energy rating for hydraulic breakers developed by the Mounted Breaker Manufacturers Bureau of the Construction Industry Manufacturers Association (CIMA-MBMB).

Oil temperature working range for all models: -20° C to +80° C (-4° F to +176° F).

Oil viscosity at operating oil temperature: 15 to 1000 cSt.



Model	A		B		C		D		E	
	mm	in	mm	in	mm	in	mm	in	mm	in
H180 s	730	28.7	730	28.7	2478	97.4	170	6.7	532	20.9
H160D s	730	28.7	730	28.7	2369	93.3	160	6.3	589	23.2
H140D s	585	23.0	540	21.3	2167	85.3	140	5.5	454	17.9
H130 s	585	23.0	540	21.3	1885	74.1	130	5.1	397	15.6
H120C s	585	23.0	540	21.3	1783	70.1	115	4.5	357	14.1
H115 s	585	23.0	540	21.3	1625	63.9	106	4.2	390	15.4
H100	585	23.0	540	21.3	1397	54.9	95	3.7	459	18.1
H100 s	585	23.0	540	21.3	1394	54.8	95	3.7	459	18.1
H100 (pin-on)	633	24.9	426	16.7	1526	60.0	95	3.7	459	18.1
H90C	510	20.1	380	15.0	1286	50.6	84	3.3	417	16.4
H90C s	520	20.5	400	15.7	1294	50.9	84	3.3	417	16.4
H90C (pin-on)	749	29.4	348	13.7	1325	52.1	84	3.3	417	16.4
H70	470	18.5	380	15.0	1134	44.6	70	2.8	402	15.8
H70 s	520	20.5	400	15.7	1150	45.3	70	2.8	390	15.3
H70 (pin-on)	690	27.1	348	13.7	1228	48.3	70	2.8	355	14.0
H70 s (pin-on)	797	31.3	348	13.7	1201	47.2	70	2.8	355	14.0
H63	470	18.5	380	15.0	1025	40.4	63	2.5	364	14.3
H63 s	440	17.3	380	15.0	1025	40.4	63	2.5	364	14.3
H50	340	13.4	280	11.0	925	36.4	50	2.0	261	10.3
H50 s	440	17.3	316	12.4	918	36.1	50	2.0	262	10.3
H45	340	13.4	280	11.0	775	30.5	45	1.8	262	10.3
H45 s	440	17.3	280	11.0	775	30.5	45	1.8	249	9.8

Principles of Selection

Key to the successful sale of a hammer is proper hammer selection.

Background Information

Collection of background information is the first step. The following information will assist in being sure the customer receives the correct hammer and that he has a positive hammer experience. The following issues should be examined.....

1. If any, what brand and model hammer was previously used and how did the hammer perform?
2. What % of time will the hammer be used on the machine?
3. Will the hammer be used in primary breaking or secondary breaking? (mainly an issue for large hammers)
4. What machine will the hammer be used on and what are the hydraulic flow and pressures of this machine?
5. What is the type of material to be broken and production required from the hammer? (best to obtain this from the end user but a table is available at the end of this section)

Hammer Selection Process

1. Using Cat carrier matching matrix on next page identify 2 or 3 possible hammers for your application (for competitive carriers use carrier weight class as reference).
2. Compare machine/carrier flow and pressures to those of the hammer candidates to validate compatibility. Eliminate hammers outside carrier specs.

3. Compare previous hammer energy rating and weight to candidate hammers..... if contractor had problems or marginal production with previous hammer consider a slightly larger hammer (note: only use CIMA energy rating and not a generic size class).
4. If hammer is to be used in primary breaking consider larger of hammer candidates.
5. Check productivity guidance tables at the back of this section. Identify hammer most compatible with requirements.
6. Determine if the application requires special hammer modifications, i.e. steel mill, underwater, tunneling, etc.

Other Issues

Once the hammer has been chosen, other elements need to be considered to have a successful hammer experience.

1. Select the correct hammer tool for the application (see tool application chart in this section).
2. Check to be sure the correct hammer bracket and hoses are specified. Be sure correct carrier oil is specified for hammer use (particularly important in high ambient areas).
3. Consider supplemental carrier cooling in areas of high ambient temperature.

Actual operating pressure and back pressure **MUST** be checked when the hammer is fitted to the carrier (just as important if the hammer goes on a competitive carrier or is installed by the contractor at his shop).

Model		H45/H45 s	H50/H50 s	H63/H63 s	H70/H70 s	H90C/H90C s	H100/H100 s	H115 s	H120C s	H130 s	H140D s	H160D s	H180 s
Min. Carrier	kg lb	1300 2860	2500 5500	3000 6600	5000 11,000	6000 13,200	8000 17,600	12 000 26,400	17 000 37,400	19 000 41,800	25 000 55,000	32 000 70,400	40 000 88,200
Max. Carrier	kg lb	3200 7040	4500 9900	6500 14,300	8000 17,600	12 000 26,400	14 000 30,800	20 000 44,000	26 000 57,200	32 000 70,400	40 000 88,000	55 000 121,000	75 000 166,000
Mini Excavator													
301.5/301.6/301.8		●											
302.5		●	●										
303.5/303 CR			●	●*									
304.5/305 CR				●									
Skid Steer/Multi Terrain													
216			●	●									
226			●	●									
228			●	●									
232/236				●									
242/246/248				●									
252/262/267/277				●									
Backhoe Loader													
416D				●	●	●							
420D					●	●							
424D					●	●							
428D					●	●							
430D					●	●							
432D					●	●							
436D					●	●							
438D					●	●							
442D						●							
300 HEX													
307C/308 CR					●	●							
311C						●	●						
312C						●	●	●					
315C							●	●	●				
317B								●	●				
318B								●	●				
M312/M313C							●	●					
M315C							●	●	●				
M316C							●	●	●				
M318C								●	●				
M320C								●	●	●			
320C/321B CR								●	●	●			
322C/M322C									●	●			
325C									●	●	●		
330C									●	●	●	●	
345B											●	●	●
350											●	●	●
365B												●	●
375													●

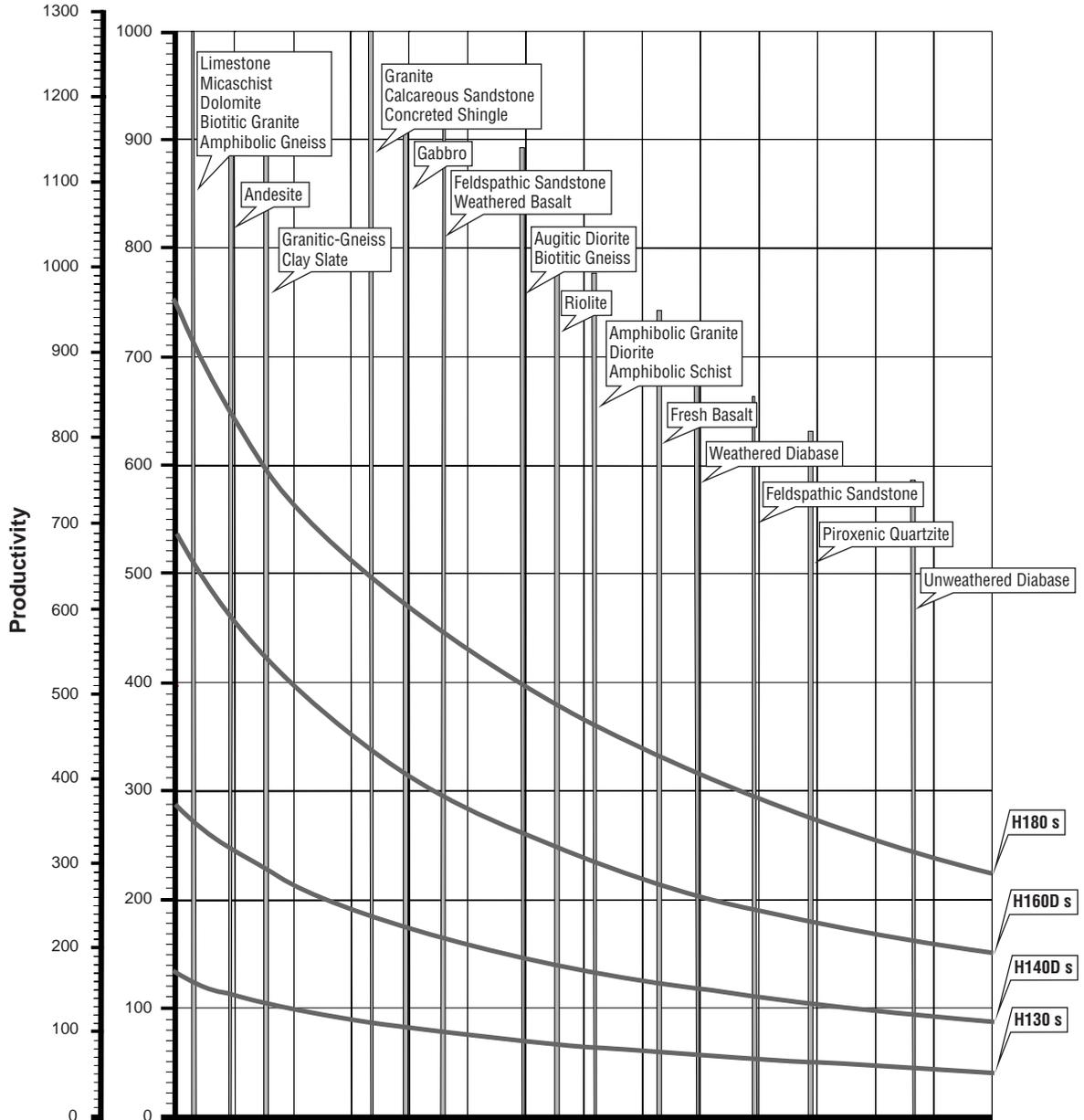
*Installation at add-on optional, counterweight is required.
 These matches are for general reference purposes for Cat machines only. When special boom and quick coupler arrangements are in use, these matches may not apply.
 When matching hammers to competitive carriers, selection should be made by carrier weight. Refer to the carrier weight range at the top of the table in order to determine the correct match.

Hammer Models	Non-Reinforced Concrete		Reinforced Concrete		Sedimentary Rock		Volcanic Rock	
H45/H45 s	8-18 m ³	10-23 yd³	—		—		—	
H50/H50 s	12-20 m ³	16-26 yd³	—		—		—	
H63/H63 s	34-69 m ³	45-90 yd³	—		—		—	
H70/H70 s	65-107 m ³	85-140 yd³	19-46 m ³	25-60 yd³	—		—	
H90C/H90C s	69-122 m ³	90-160 yd³	38-61 m ³	50-80 yd³	—		—	
H100/H100 s	96-214 m ³	125-280 yd³	99-134 m ³	130-175 yd³	84-191 m ³	110-250 yd³	42-99 m ³	55-130 yd³
H115 s	115-287 m ³	150-375 yd³	107-184 m ³	140-240 yd³	126-229 m ³	165-300 yd³	57-115 m ³	75-150 yd³
H120C s	153-344 m ³	200-450 yd³	122-229 m ³	160-300 yd³	153-260 m ³	200-340 yd³	84-153 m ³	110-200 yd³
H130 s	210-375 m ³	275-490 yd³	153-268 m ³	200-350 yd³	191-306 m ³	250-400 yd³	103-210 m ³	135-275 yd³
H140D s	—	—	191-497 m ³	250-650 yd³	229-535 m ³	300-700 yd³	115-268 m ³	150-350 yd³
H160D s	—	—	229-650 m ³	300-850 yd³	268-688 m ³	350-900 yd³	153-459 m ³	200-600 yd³
H180 s	—	—	268-1183 m ³	350-1550 yd³	306-1223 m ³	400-1600 yd³	191-688 m ³	250-900 yd³

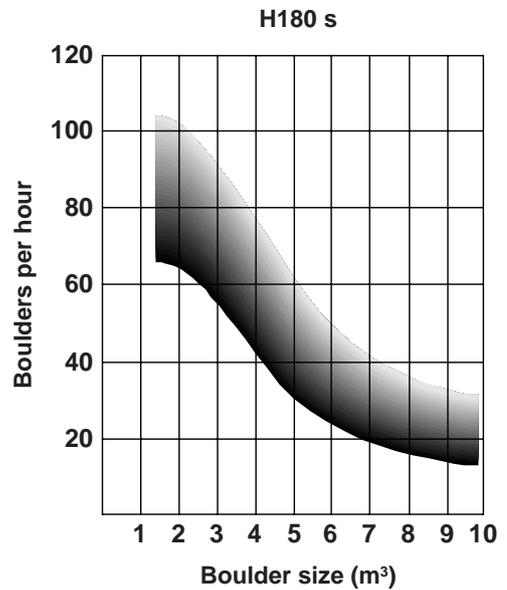
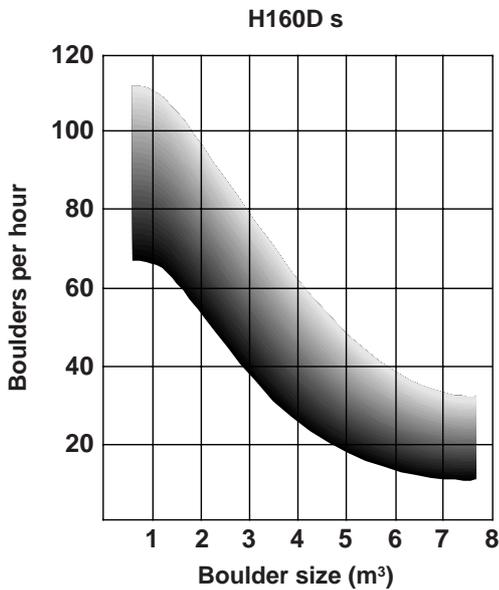
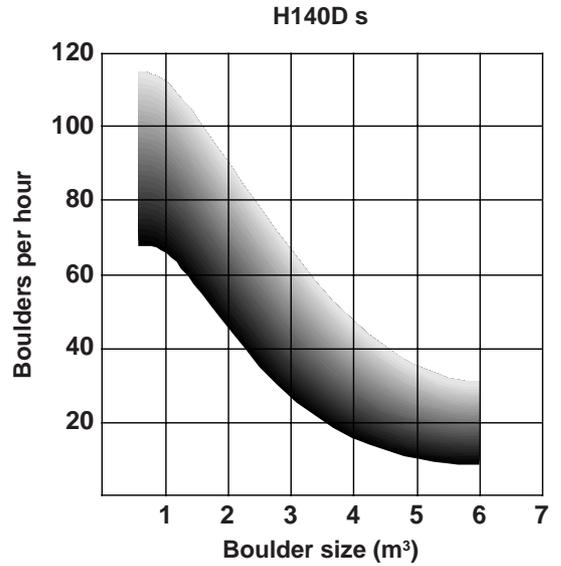
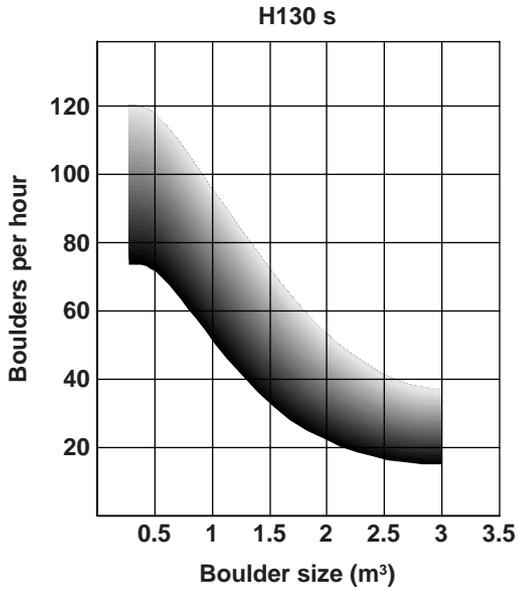
Production rates listed are based on 8-hr shift

The above figures are for general estimation purposes only and must not be used to guarantee any production figure to the customer. The actual working results may vary according to the quality and structure of the material to be broken, required degree of material size reduction, installation, condition of the carrier, conditions at the worksite, haulage of the broken material, skills of the operator etc.

The figures are for comparison and evaluation purposes only. Results will vary depending on operator, carrier and job conditions.



Bedding thickness 100-200 cm (40-80") or closely spaced vertical fractures



SOFT ROCK

HARD ROCK



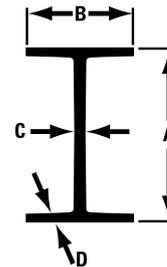
**MOBILE SCRAP
AND DEMOLITION SHEARS**

Features:

- 360 degree left and right rotation.
- High force to weight ratio.
- Long wearing alloy steel blades.
- Cutting edges mounted on the side of the shear jaws and are visible to the operator.
- Shears can be mounted on boom or stick.
- Robust rotation system with up to two hydraulic motors on largest shears.

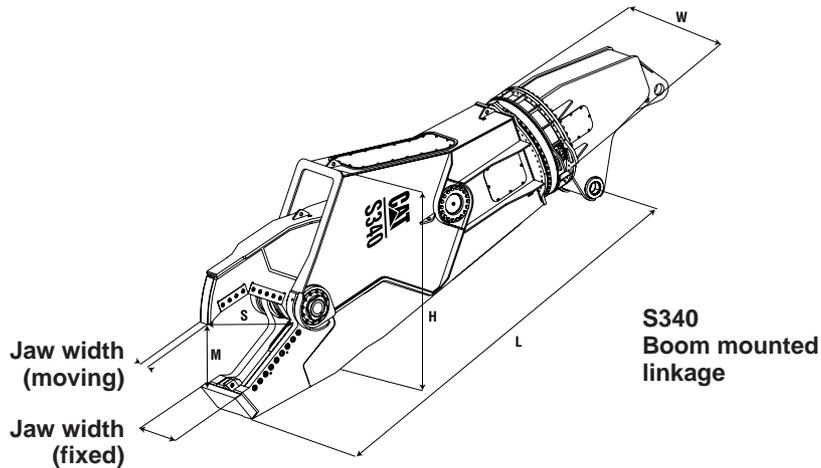
Applications:

The Cat Mobile Scrap and Demolition Shears are widely used for demolishing steel structures, cutting up cars, trucks, farm machinery, railroad cars, large rubber tires, reinforced concrete structures, cables and scrap in general.



Model	S305		S320		S325		S340		S365		S390	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
Narrow I-beams (IPE)												
A Height	200	7.87	330	13.0	450	17.71	550	21.65	600	23.62	600	23.62
B Flange width	100	3.94	160	6.30	190	7.48	210	8.27	220	8.66	220	8.66
C Web thickness	5.6	0.22	7.5	0.30	9.4	0.37	11.2	0.44	12	0.47	12	0.47
D Flange thickness	8.5	0.33	11.5	0.45	14.6	0.57	17.2	0.68	19	0.75	19	0.75
Wide I-beams (HE-A)												
A Height	114	4.49	210	8.27	270	10.63	330	12.99	440	17.32	490	19.29
B Flange width	120	4.72	220	8.66	280	11.02	300	11.81	300	11.81	300	11.81
C Web thickness	5	0.20	7	0.28	8	0.31	9.5	0.37	11.5	0.45	12	0.47
D Flange thickness	8	0.31	11	0.43	13	0.51	16.5	0.65	21	0.83	23	0.91
Bar — round	45	1.77	75	2.95	90	3.54	100	3.94	110	4.33	130	5.12
Bar — square	40	1.57	70	2.76	80	3.15	90	3.54	100	3.94	100	3.94

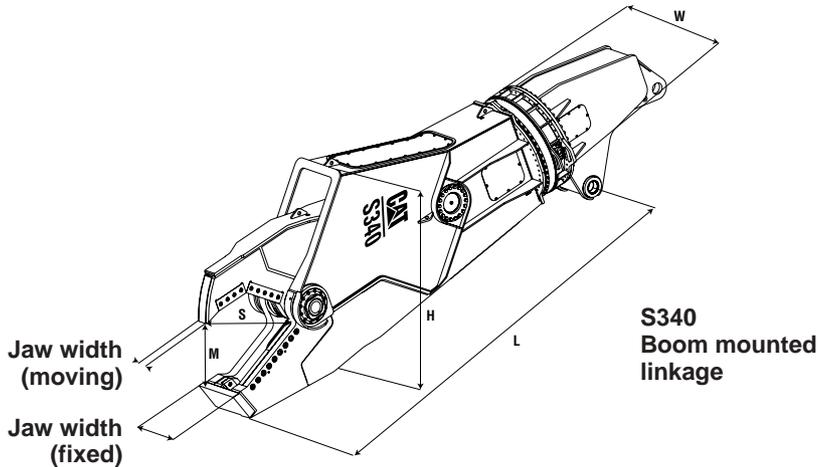
The above profiles provide an approximation of shear cutting capabilities. The exact cutting dimensions depend on excavator operation pressure, the conditions of the shear knives and jaws and the steel's tensile strength (370 MPa).



Specifications (All dimensions and weights are approximate.)

Model	S305		S320		S325	
Weight* total	580 kg	1280 lb	2150 kg	4740 lb	3000 kg	6615 lb
Dimensions:						
L Length	1886 mm	6'2"	3044 mm	10'0"	3453 mm	11'4"
H Height	660 mm	26"	1183 mm	47"	1374 mm	54"
W Width	390 mm	15"	800 mm	31"	800 mm	31"
Jaw width (fixed)	230 mm	9"	335 mm	13"	375 mm	15"
Jaw width (moving)	60 mm	2.4"	90 mm	3.5"	100 mm	3.9"
M Jaw opening	240 mm	9.4"	390 mm	15.3"	490 mm	19"
S Jaw depth	290 mm	11.4"	440 mm	17"	570 mm	22"
Shear forces:						
Tip	400 kN	90,000 lb	900 kN	202,500 lb	1250 kN	281,250 lb
Primary blade center	900 kN	202,500 lb	2200 kN	495,000 lb	3200 kN	720,000 lb
At throat	1750 kN	393,750 lb	3800 kN	855,000 lb	5900 kN	1,327,500 lb
Hydraulic for cutting:						
Maximum operating pressure	25 000 kPa	3625 psi	35 000 kPa	5075 psi	35 000 kPa	5075 psi
Recommended flow	60 L/min	15.9 gpm	150 L/min	39.6 gpm	200 L/min	52.8 gpm
Return flow (during opening)	100 L/min	26.4 gpm	240 L/min	63.4 gpm	300 L/min	79.3 gpm
Time open		3.5 sec		4 sec		5 sec
Time close		2.5 sec		3 sec		3 sec
Connector — size		1³/₁₆ ORFS		1³/₁₆ ORFS		1³/₁₆ ORFS
Hydraulic for rotating:						
Maximum operating pressure	10 000 kPa	1450 psi	14 000 kPa	2030 psi	14 000 kPa	2030 psi
Recommended flow	20 L/min	5.3 gpm	40 L/min	10.6 gpm	40 L/min	10.6 gpm
Connector — size		1³/₁₆ ORFS		1³/₁₆ ORFS		1³/₁₆ ORFS
Excavator size; Stick mounted:						
Minimum	5000 kg	11,025 lb	15 000 kg	33,075 lb	20 000 kg	44,100 lb
Maximum	7500 kg	16,538 lb	25 000 kg	55,125 lb	35 000 kg	77,175 lb
Excavator size; Boom mounted:						
Minimum	3000 kg	6615 lb	10 000 kg	22,050 lb	15 000 kg	33,075 lb
Maximum	6000 kg	13,230 lb	15 000 kg	33,075 lb	25 000 kg	55,125 lb

*Weight includes mounting bracket (stick).



Specifications (All dimensions and weights are approximate.)

Model	S340		S365		S390	
Weight* total	4250 kg	9370 lb	6500 kg	14,330 lb	9700 kg	21,390 lb
Dimensions:						
L Length	3900 mm	12'10"	4617 mm	15'2"	5348 mm	17'7"
H Height	1506 mm	59"	1810 mm	71"	2117 mm	83"
W Width	1010 mm	40"	1180 mm	46"	1400 mm	55"
Jaw width (fixed)	440 mm	17"	510 mm	20"	620 mm	24"
Jaw width (moving)	120 mm	4.7"	150 mm	5.9"	180 mm	7.1"
M Jaw opening	580 mm	23"	740 mm	29"	860 mm	34"
S Jaw depth	680 mm	27"	830 mm	33"	1020 mm	40"
Shear forces:						
Tip	1550 kN	348,750 lb	1950 kN	438,750 lb	2500 kN	562,500 lb
Primary blade center	3800 kN	855,000 lb	4800 kN	1,080,000 lb	6050 kN	1,361,250 lb
At throat	7300 kN	1,642,500 lb	9850 kN	2,216,250 lb	12 600 kN	2,835,000 lb
Hydraulic for cutting:						
Maximum operating pressure	35 000 kPa	5075 psi	35 000 kPa	5075 psi	35 000 kPa	5075 psi
Recommended flow	300 L/min	79.3 gpm	400 L/min	105.7 gpm	800 L/min	211 gpm
Return flow (during opening)	510 L/min	134.7 gpm	680 L/min	180 gpm	1520 L/min	402 gpm
Time open		4.5 sec		5.5 sec		4 sec
Time close		3.5 sec		4 sec		3 sec
Connector — size		1¹/₁₆ ORFS		1¹/₄ SAE		1¹/₂ SAE
Hydraulic for rotating:						
Maximum operating pressure	14 000 kPa	2030 psi	14 000 kPa	2030 psi	14 000 kPa	2030 psi
Recommended flow	40 L/min	10.6 gpm	80 L/min	21.1 gpm	80 L/min	21.1 gpm
Connector — size		1¹/₁₆ ORFS		1¹/₁₆ ORFS		1¹/₁₆ ORFS
Excavator size; Stick mounted:						
Minimum	30 000 kg	66,150 lb	40 000 kg	88,200 lb	65 000 kg	143,325 lb
Maximum	45 000 kg	99,225 lb	65 000 kg	143,325 lb	90 000 kg	198,450 lb
Excavator size; Boom mounted:						
Minimum	20 000 kg	44,100 lb	30 000 kg	66,150 lb	40 000 kg	88,200 lb
Maximum	35 000 kg	77,175 lb	45 000 kg	99,225 lb	65 000 kg	143,325 lb

*Weight includes mounting bracket (stick).

Matching Guide

Mobile Scrap and Demolition Shears

Model	Skid Steer Loader
S305	236
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Stick Mounted/Reach Boom

Mobile Scrap and Demolition Shears

Model	Cat Excavator	Stick Range	
		m	ft
S305	307C, 308C	1.67-2.21	5'6"-7'3"
S320	318C L	1.8-2.7	5'11"-8'10"
	320B L		
	320C L	1.9-2.5	6'3"-8'2"
	320C L*	2.92	9'7"
	322C L	2.5-2.95	8'2"-9'8"
	325C L	3.2	10'6"
	M318**	1.8	5'11"
	M320**	1.9	6'3"
S325	322C L*	2.5-2.95	8'2"-9'8"
	325C L	2.0-2.65	6'7"-8'8"
	325C L*	3.3	10'10"
	330C L	2.15-3.9	7'1"-12'10"
S340	330C L*	2.15	7'1"
	345B II L	2.9-3.35	9'6"-11'0"
S365	365B II L	2.8-3.6	9'2"-11'10"
	385B	3.3-5.5	10'10"-18'1"

*Working only over front.

**Two sets stabilizer down, four points stabilizers down or one set stabilizers down, dozer down.

Reach Boom Mounted

Mobile Scrap and Demolition Shears

Model	Cat Excavator
S320	311C
	312C L
	314C
	M312C**
	M315C**
	M316C**
	M318C**
S325	315C
	318C
	320C
	322C
	M313C**
	M315C**
	M316C**
S340	322C L
	325C L
	330C L
S365	330C L*
	345B II L
S390	365B II L
	385B

*Working only over front.

**Two sets stabilizer down, four points stabilizers down or one set stabilizers down, dozer down.

CONCRETE CRUSHERS

Features:

- Two powerful hydraulic cylinders protected from damage by the unique static rod design.
- Each crushing arm has two cutters and two crushing teeth.
- Replaceable cutters and teeth are bolted and tack welded to the jaw.
- Rebar cutters have four cutting edges.
- Large diameter slewing ring powered by a hydraulic motor constitutes a rugged and fast 360 degree rotation system.

Applications:

Primary demolition where productivity is crucial, reinforced concrete structures with thick walls and large diameter columns. Also used on bridge decks, parking garages, support columns and abutments with a thickness of up to five feet.

Matching Guide

Stick Mounted/Reach Boom

Crusher Model	Cat Excavator	Stick Range	
		m	ft
CR20	320B	1.9-3.9	6'3"-12'10"
	322B	2.0-3.6	6'7"-11'10"
CR28	325B	2.0-3.2	6'7"-10'6"
	330B	2.15-3.9	7'1"-12'10"
	345B	4.8	15'9"
	350	4.8	15'9"
CR35	345B	2.9-3.9	9'6"-12'10"
	350	3.1-4.05	10'2"-13'3"
CR50	375	2.9-5.5	9'6"-18'1"
	375*	2.9-5.5	9'6"-18'1"

*GP Boom.

Specifications (All dimensions are approximate.)

Model	CR20		CR28		CR35		CR50	
Approximate service weight excluding mounting bracket	2300 kg	5080 lb	3100 kg	6850 lb	4200 kg	9300 lb	7000 kg	15,450 lb
Length excluding mounting bracket	2110 mm	83"	2320 mm	91.3"	2510 mm	98.8"	3440 mm	135.4"
Jaw opening (maximum)	720 mm	28.3"	915 mm	36"	1190 mm	46.8"	1600 mm	63"
Jaw depth	630 mm	24.8"	750 mm	29.5"	830 mm	32.6"	880 mm	34.6"
Maximum crushing force:								
Tip	719 kN	81 st	784 kN	88 st	833 kN	93.6 st	1628 kN	183 st
Middle tooth	882 kN	99 st	1088 kN	122 st	1128 kN	127 st	2100 kN	236 st
Maximum shearing force cutting center	2795 kN	314 st	3080 kN	346 st	4787 kN	538 st	6857 kN	770 st
Maximum oil flow:								
Hydraulic cylinder	180 L/min	48 gpm	350 L/min	93 gpm	350 L/min	93 gpm	579 L/min	153 gpm
Cycle time*		7.3 sec		4.8 sec		6.2 sec		10.8 sec
Rotation	20 L/min	5 gpm	20 L/min	5 gpm	20 L/min	5 gpm	20 L/min	5 gpm
Maximum working pressure:								
Hydraulic cylinder	34 300 kPa	4980 psi	34 300 kPa	4980 psi	34 300 kPa	4980 psi	34 300 kPa	4980 psi
Rotation	17 200 kPa	2465 psi	17 200 kPa	2465 psi	17 200 kPa	2465 psi	17 200 kPa	2465 psi
Hydraulic rotation continuous		360°		360°		360°		360°
Approximate base machine operating weight	20 000 kg	44,000 lb	28 000 kg	62,000 lb	35 000 kg	77,000 lb	50 000 kg	110,000 lb

*Cycle time may vary due to machine configuration and operating conditions.

MULTI-PROCESSORS

Features:

- **Wide selection** of interchangeable jaws.
- **Lifting eye placement** and adjustable stop bolts allow quick jaw changes.
- **Single, large diameter** cross mounted cylinder provides exceptional cutting and crushing force.
- **Jaws are manufactured** of high quality tool steel with outstanding tensile strength.
- **Non impact** tools that work at a relatively low noise level.

Applications:

The Cat Multi-Processors can be used to accomplish most tasks on a demolition job. One common housing with a wide selection of interchangeable jaws allows the tool to cut, crush or pulverize the toughest of materials. Highly reinforced concrete, structural steel beams, pipes, cable, steel plate and storage tanks.

Matching Guide

Stick Mounted/Reach Boom

Multi-Processors Model	Cat Excavator	Stick Range	
		m	ft
MP15	320C L	1.9-3.9	6'3"-12'10"
	322C L	2.5-3.6	8'2"-11'10"
MP20	322C L	2.5-3.6	8'2"-11'10"
	325C L	2.7-3.2	8'8"-10'6"
	330C L	2.2-3.9	7'1"-12'10"
MP30	330C L	3.3	10'10"
	345B II L – V*	3.4-3.9	11'0"-12'10"
	345B II L – F**	3.4-4.8	11'0"-15'9"
MP40	365B II L	2.8-4.7	9'4"-15'4"
	375 L	2.9-5.5	9'6"-18'1"
	375 L***	4.4-5.5	14'5"-18'1"

Boom Mounted

Multi-Processors Model	Cat Excavator
MP20	320C L
MP30	332C L
	325C L
MP40	330C L

NOTES:

Matching guide for all Multi-processor and Jaw configurations.

Tank Shear Jaws are not available for MP15 and MP40.

Primary Pulverizer Jaws are not available for MP40.

*Variable undercarriage.

**Fixed undercarriage.

***GP boom.

CATERPILLAR MULTI-PROCESSOR INTERCHANGEABLE JAWS

Concrete Cutter Jaws (CC)

- For precise demolition/cutting of heavily reinforced concrete structures.
- Cuts structural steel and pipe.
- Equipped with replaceable concrete crusher teeth and reversible steel cutting knives.

Shear Jaws (S)

- For demolition of steel structures.
- Cuts angle and channel iron, beams, pipe, rebar, cable and tires.
- Knives are reversible.

Tank Shear Jaws (TS)

- Quickly cuts steel plate on barges, railway cars, grain, water, oil, and fuel tanks. Dual knives on the moving and static jaws produce smooth, straight edges.
- All knives are reversible.
- Available for MP20 only.

Crusher Jaws (CR)

- For demolition of moderately reinforced concrete structures. Capable of crushing concrete and cutting rebar.
- Replaceable crusher teeth and reversible knives.

Primary Pulverizer Jaws (PP)

- Combines capability to demolish and recycle moderately reinforced concrete structures. Pulverizes concrete, cuts rebar and separates rebar from concrete.

- Replaceable crusher teeth and reversible knives.

Secondary Pulverizer Jaws (PS)

- Recycles demolished concrete by pulverizing concrete, separating concrete and rebar, and cutting rebar as needed.

All jaw sets can be interchanged quickly with the lifting eyes and the adjustable stop-bolts on jaws and body.

Specifications (All dimensions are approximate.)

Model	MP15		MP20		MP30		MP40	
Weight total — housing, jaw and bracket	1800 kg	3970 lb	2600 kg	5730 lb	3600 kg	7935 lb	5800 kg	12,785 lb
Weight of the jaw	650 kg	1430 lb	1000 kg	2205 lb	1300 kg	2865 lb	2200 kg	4850 lb
Dimensions:								
Length	2200 mm	86.6"	2400 mm	94.5"	2800 mm	110.2"	3500 mm	137.8"
Height	1510 mm	59.4"	1750 mm	68.8"	1980 mm	78"	2340 mm	92.1"
Width	800 mm	31.5"	800 mm	31.5"	1010 mm	39.8"	1180 mm	46.5"
Jaw width (fixed)	300 mm	11.8"	360 mm	14.2"	380 mm	15"	460 mm	18.1"
Jaw width (moving)	100 mm	3.9"	130 mm	5.1"	130 mm	5.1"	160 mm	6.3"
Jaw opening	670 mm	26.4"	820 mm	32.2"	975 mm	38.4"	1280 mm	50.4"
Jaw depth	670 mm	26.4"	790 mm	31.1"	890 mm	35"	1100 mm	43.3"
Cutter length	400 mm	15.8"	460 mm	18.1"	520 mm	20.5"	600 mm	23.6"
Maximum crushing/shear force:								
Tooth — jaw tip	700 kN	79 st	950 kN	107 st	1250 kN	140 st	1500 kN	168 st
Front cutter tip	1000 kN	112 st	1400 kN	157 st	1850 kN	208 st	2200 kN	247 st
Primary blade center	2200 kN	247 st	3000 kN	337 st	4100 kN	460 st	4400 kN	494 st
Maximum oil flow:								
Hydraulic cylinder	150 L/min	40 gpm	200 L/min	53 gpm	300 L/min	79 gpm	400 L/min	106 gpm
Cycle time (open, close, open)		5 sec		6 sec		6.5 sec		7.5 sec
Rotation	40 L/min	11 gpm	40 L/min	11 gpm	40 L/min	11 gpm	80 L/min	22 gpm
Maximum working pressure:								
Hydraulic cylinder	35 000 kPa	5075 psi	35 000 kPa	5075 psi	35 000 kPa	5075 psi	35 000 kPa	5075 psi
Rotation	14 000 kPa	2030 psi	14 000 kPa	2030 psi	14 000 kPa	2030 psi	14 000 kPa	2030 psi

Specifications (All dimensions are approximate.)

Model	MP15		MP20		MP30		MP40	
Weight total — housing, jaw and bracket	1800 kg	3970 lb	2600 kg	5730 lb	3600 kg	7935 lb	5800 kg	12,785 lb
Weight of the jaw	650 kg	1430 lb	1000 kg	2205 lb	1300 kg	2865 lb	2200 kg	4850 lb
Dimensions:								
Length	2100 mm	82.7"	2250 mm	88.6"	2700 mm	106.3"	3400 mm	133.9"
Height	1310 mm	51.6"	1510 mm	59.4"	1680 mm	66.1"	1980 mm	78"
Width	800 mm	31.5"	800 mm	31.5"	1010 mm	39.8"	1180 mm	46.5"
Jaw width (fixed)	300 mm	11.8"	320 mm	12.6"	370 mm	14.6"	460 mm	18.1"
Jaw width (moving)	80 mm	3.1"	100 mm	3.9"	120 mm	4.7"	150 mm	5.9"
Jaw opening	350 mm	13.8"	420 mm	16.5"	470 mm	18.5"	630 mm	24.8"
Jaw depth	480 mm	18.9"	580 mm	22.8"	710 mm	28"	880 mm	34.6"
Cutter length	400 mm	15.7"	520 mm	20.5"	600 mm	23.6"	760 mm	29.9"
Maximum shear force:								
At tip	900 kN	101 st	1200 kN	135 st	1600 kN	180 st	1900 kN	213 st
Primary blade center	2100 kN	236 st	2900 kN	326 st	3750 kN	421 st	4750 kN	534 st
At throat	4200 kN	472 st	5800 kN	652 st	7100 kN	798 st	8950 kN	1006 st
Maximum oil flow:								
Hydraulic cylinder	150 L/min	40 gpm	200 L/min	53 gpm	300 L/min	79 gpm	400 L/min	106 gpm
Cycle time (open, close, open)		5 sec		6 sec		6.5 sec		7.5 sec
Rotation	40 L/min	11 gpm	40 L/min	11 gpm	40 L/min	11 gpm	80 L/min	22 gpm
Maximum working pressure:								
Hydraulic cylinder	35 000 kPa	5075 psi	35 000 kPa	5075 psi	—	—	—	—
Rotation	14 000 kPa	2030 psi	14 000 kPa	2030 psi	—	—	—	—

Specifications (All dimensions are approximate.)

Model	MP20		MP30	
Weight total — housing, jaw and bracket	2600 kg	5730 lb	3700 kg	8155 lb
Weight of the jaw	1000 kg	2205 lb	1400 kg	3085 lb
Dimensions:				
Length	2400 mm	94.5"	2800 mm	110.2"
Height	1750 mm	68.9"	2100 mm	82.7"
Width	800 mm	31.5"	1180 mm	46.5"
Jaw width (fixed)	290 mm	11.4"	340 mm	13.4"
Jaw width (moving)	120 mm	4.7"	150 mm	5.9"
Jaw opening	440 mm	17.3"	510 mm	20.1"
Jaw depth	460 mm	18.1"	580 mm	22.8"
Cutter length	460 mm	18.1"	580 mm	22.8"
Maximum shear force:				
At tip	1400 kN	157 st	1900 kN	213 st
At jaw center	2200 kN	247 st	4000 kN	449 st
At throat	4400 kN	494 st	6350 kN	714 st
Cutting capacity plate steel	25 mm	1"	30 mm	1.2"
Maximum oil flow:				
Hydraulic cylinder	200 L/min	53 gpm	300 L/min	79 gpm
Cycle time (open, close, open)		6 sec		6.5 sec
Rotation	40 L/min	11 gpm	40 L/min	11 gpm
Maximum working pressure:				
Hydraulic cylinder	35 000 kPa	5075 psi	35 000 kPa	5075 psi
Rotation	14 000 kPa	2030 psi	14 000 kPa	2030 psi

Specifications (All dimensions are approximate.)

Model	MP15		MP20		MP30		MP40	
Weight total — housing, jaw and bracket	1800 kg	3970 lb	2600 kg	5730 lb	3600 kg	7935 lb	5800 kg	12,785 lb
Weight of the jaw	650 kg	1430 lb	1000 kg	2205 lb	1300 kg	2865 lb	2200 kg	4850 lb
Dimensions:								
Length	2200 mm	86.6"	2350 mm	92.5"	2770 mm	102"	3500 mm	137.8"
Height	1510 mm	59.4"	1750 mm	68.9"	1980 mm	78"	2380 mm	93.7"
Width	800 mm	31.5"	800 mm	31.5"	1010 mm	39.8"	1180 mm	46.5"
Jaw width (fixed)	300 mm	11.8"	360 mm	14.2"	380 mm	15"	460 mm	18.1"
Jaw width (moving)	100 mm	3.9"	130 mm	5.1"	130 mm	5.1"	160 mm	6.3"
Jaw opening	710 mm	28"	850 mm	33.5"	1050 mm	41.3"	1320 mm	52"
Jaw depth	700 mm	27.6"	770 mm	30.3"	920 mm	36.2"	1100 mm	43.3"
Cutter length	200 mm	7.9"	260 mm	10.2"	260 mm	10.2"	250 mm	9.8"
Maximum crushing/shear force:								
Tooth — jaw tip	700 kN	79 st	950 kN	107 st	1250 kN	140 st	1500 kN	168 st
At 2 nd tooth	950 kN	107 st	1350 kN	152 st	1750 kN	197 st	2200 kN	247 st
Primary blade center	2100 kN	236 st	2900 kN	326 st	3800 kN	427 st	4650 kN	523 st
Maximum oil flow:								
Hydraulic cylinder	150 L/min	40 gpm	200 L/min	53 gpm	300 L/min	79 gpm	400 L/min	106 gpm
Cycle time (open, close, open)		5 sec		6 sec		6.5 sec		7.5 sec
Rotation	40 L/min	11 gpm	40 L/min	11 gpm	40 L/min	11 gpm	80 L/min	22 gpm
Maximum working pressure:								
Hydraulic cylinder	35 000 kPa	5075 psi	35 000 kPa	5075 psi	35 000 kPa	5075 psi	35 000 kPa	5075 psi
Rotation	14 000 kPa	2030 psi	14 000 kPa	2030 psi	14 000 kPa	2030 psi	14 000 kPa	2030 psi

Specifications (All dimensions are approximate.)

Model	MP15		MP20		MP30	
Weight total — housing, jaw and bracket	1900 kg	4190 lb	2750 kg	6065 lb	3700 kg	8155 lb
Weight of the jaw	750 kg	1655 lb	1150 kg	2535 lb	1400 kg	3085 lb
Dimensions:						
Length	2220 mm	87.4"	2325 mm	91.5"	2800 mm	110.2"
Height	1590 mm	62.6"	1775 mm	69.9"	1980 mm	78"
Width	800 mm	31.5"	800 mm	31.5"	1010 mm	39.8"
Jaw width (fixed)	480 mm	18.9"	540 mm	21.3"	610 mm	24"
Jaw width (moving)	280 mm	11"	340 mm	13.4"	370 mm	14.6"
Jaw opening	700 mm	27.6"	800 mm	31.5"	960 mm	37.8"
Jaw depth	700 mm	27.6"	800 mm	31.5"	940 mm	37"
Cutter length	200 mm	7.9"	200 mm	7.9"	250 mm	9.8"
Maximum crushing/shear force:						
Tooth — jaw tip	650 kN	73 st	950 kN	107 st	1250 kN	140 st
At 2 nd tooth	900 kN	101 st	1300 kN	146 st	1550 kN	174 st
Primary blade center	2100 kN	236 st	2750 kN	309 st	3950 kN	444 st
Maximum oil flow:						
Hydraulic cylinder	150 L/min	40 gpm	200 L/min	53 gpm	300 L/min	79 gpm
Cycle time (open, close, open)		5 sec		6 sec		6.5 sec
Rotation	40 L/min	11 gpm	40 L/min	11 gpm	40 L/min	11 gpm
Maximum working pressure:						
Hydraulic cylinder	35 000 kPa	5075 psi	35 000 kPa	5075 psi	35 000 kPa	5075 psi
Rotation	14 000 kPa	2030 psi	14 000 kPa	2030 psi	14 000 kPa	2030 psi

Specifications (All dimensions are approximate.)

Model	MP15		MP20		MP30		MP40	
Weight total — housing, jaw and bracket	1850 kg	4080 lb	2650 kg	5840 lb	3650 kg	8045 lb	6000 kg	13,230 lb
Weight of the jaw	700 kg	1545 lb	1050 kg	2315 lb	1350 kg	2975 lb	2400 kg	5290 lb
Dimensions:								
Length	2250 mm	88.6"	2450 mm	96.5"	2950 mm	116.1"	3650 mm	143.7"
Height	1650 mm	65"	1900 mm	74.8"	2200 mm	86.6"	2550 mm	100.4"
Width	800 mm	31.5"	800 mm	31.5"	1010 mm	39.8"	1180 mm	46.5"
Jaw width (fixed)	440 mm	17.3"	500 mm	19.7"	580 mm	22.8"	700 mm	27.6"
Jaw width (moving)	310 mm	12.2"	360 mm	14.2"	420 mm	16.5"	480 mm	18.9"
Jaw opening	730 mm	28.7"	890 mm	35"	1100 mm	43.3"	1400 mm	55.1"
Jaw depth	670 mm	26.4"	800 mm	31.5"	970 mm	38.2"	1170 mm	46"
Cutter length	200 mm	7.9"	200 mm	7.9"	200 mm	7.9"	—	—
Maximum crushing/shear force:								
Tooth — jaw tip	750 kN	84 st	1000 kN	112 st	1200 kN	135 st	1500 kN	168 st
At 2 nd tooth	1000 kN	112 st	1300 kN	146 st	1550 kN	174 st	1900 kN	213 st
Primary blade center	2200 kN	247 st	3000 kN	337 st	4800 kN	539 st	5500 kN	618 st
Maximum oil flow:								
Hydraulic cylinder	150 L/min	40 gpm	200 L/min	53 gpm	300 L/min	79 gpm	400 L/min	106 gpm
Cycle time (open, close, open)		5 sec		6 sec		6.5 sec		7.5 sec
Rotation	40 L/min	11 gpm	40 L/min	11 gpm	40 L/min	11 gpm	80 L/min	22 gpm
Maximum working pressure:								
Hydraulic cylinder	35 000 kPa	5075 psi	35 000 kPa	5075 psi	35 000 kPa	5075 psi	35 000 kPa	5075 psi
Rotation	14 000 kPa	2030 psi	14 000 kPa	2030 psi	14 000 kPa	2030 psi	14 000 kPa	2030 psi

Cutting Capacity

Model	MP15		MP20		MP30		MP40	
Narrow I-beams:								
Height	300 mm	11.8"	400 mm	15.7"	500 mm	19.7"	600 mm	23.6"
Flange width	150 mm	5.9"	180 mm	7.1"	200 mm	7.9"	600 mm	8.7"
Flange thickness	10.7 mm	0.42"	13.5 mm	0.53"	16 mm	0.63"	19 mm	0.75"
Web thickness	7.1 mm	0.28"	8.6 mm	0.34"	10.2 mm	0.4"	12 mm	0.47"
Wide I-beams:								
Height	190 mm	7.5"	250 mm	9.8"	310 mm	12.2"	390 mm	15.4"
Flange width	200 mm	7.9"	260 mm	10.2"	300 mm	11.8"	300 mm	11.8"
Flange thickness	10 mm	0.39"	12.5 mm	0.49"	15.5 mm	0.61"	19 mm	0.75"
Web thickness	6.5 mm	0.26"	7.5 mm	0.3"	9 mm	0.35"	11 mm	0.43"
Solid-round	65 mm	2.6"	80 mm	3.3"	90 mm	3.5"	100 mm	3.9"
Solid-square	60 mm	2.4"	70 mm	2.8"	80 mm	3.1"	90 mm	3.5"

The above profiles provide an indication of the shear's cutting capability. The exact cutting dimensions depend on excavator size, the conditions of the cutters and jaws and the tensile strength of the steel.

Features:

- 360 degree slewing ring.
- Fully protected cylinders.
- Horizontal, weld-on steel bars reinforced vertical ribs.
- Bolt-on replaceable wear plates (optional).

Matching Guide

Stick Mounted/Reach Boom

Sorting Grapple Model	Cat Excavator	Stick Range	
		m	ft
G315	322C L	2.5-3.6	8'2"-11'10"
	325C L	2.7-3.2	8'10"-10'6"
G320	325C L	2.7-3.2	8'10"-10'6"
	330C L	3.3-3.9	10'10"-12'10"
G330	330C L	3.3-3.9	10'10"-12'10"
	345B II L – V*	3.4-3.9	11'2"-12'10"
	345B II L – F**	3.4-4.8	11'2"-15'9"
	365B II L	2.8-4.7	9'4"-15'4"

*Variable undercarriage.

**Fixed undercarriage.

Specifications (All dimensions are approximate.)

Model	G315		G320		G330	
Weight*	1840 kg	4057 lb	2060 kg	4542 lb	2680 kg	5909 lb
Capacity	800 L	1.04 yd³	900 L	1.17 yd³	1000 L	1.3 yd³
Dimensions:						
Length (grapple closed)	1505 mm	59"	1505 mm	59"	1515 mm	60"
Length (grapple open)	2265 mm	89"	2265 mm	89"	2270 mm	89"
Width	1115 mm	44"	1394 mm	55"	1480 mm	58"
Height (grapple closed)	1850 mm	72.8"	1850 mm	72.8"	1915 mm	75.4"
Height (grapple open)	1690 mm	66.5"	1690 mm	66.5"	1775 mm	69.1"
Closing force	60 kN	6.7 ton	60 kN	6.7 ton	60 kN	6.7 ton
Maximum oil flow:						
Hydraulic cylinder	100 L/min	26.4 gpm	100 L/min	26.4 gpm	100 L/min	26.4 gpm
Rotation	40 L/min	10.6 gpm	40 L/min	10.6 gpm	40 L/min	10.6 gpm
Maximum working pressure:						
Hydraulic cylinder	35 000 kPa	5075 psi	35 000 kPa	5075 psi	35 000 kPa	5075 psi
Rotation	14 000 kPa	2030 psi	14 000 kPa	2030 psi	14 000 kPa	2030 psi

*Including mounting bracket.

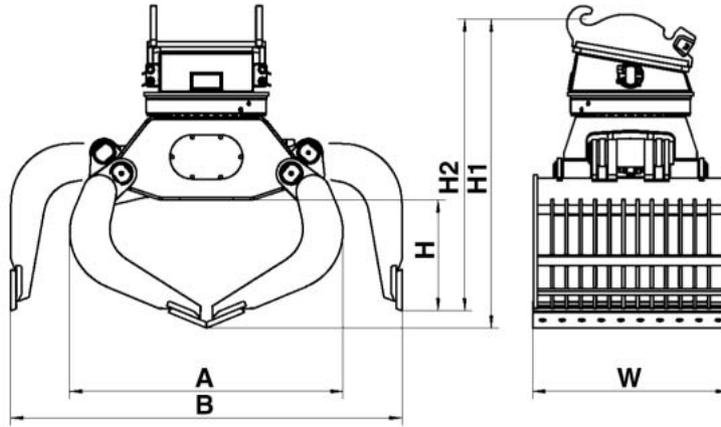
Features:

- Maintenance free rotator. 360 degrees rotation.
- One fully protected cylinder.
- Standard drill pattern for bolt-on mounting brackets.
- Hydraulic connections positioned at the sides for optimal hydraulic lines protection.
- Standard bolt-on cutting edges.
- High quality bushings with lubrication grooves, hardened pins and dust seals.
- Large inspection covers.
- Two shell types available: Demolition and Recycling.

Specifications (All dimensions and weights are approximate.)

Model	G310B-R		G310B-D		G315B-R	
Recommended carrier weight	10-16 mt	11-17.6 st	10-16 mt	11-17.6 st	15-22 mt	16.5-24.3 st
Capacity	400 L	0.52 yd³	375 L	0.49 yd³	600 L	0.78 yd³
Operating weight*	980 kg	2160 lb	990 kg	2185 lb	1320 kg	2910 lb
Closing force	37 kN	8318 lb	37 kN	8318 lb	54 kN	12,140 lb
Maximum pressure open/close	350 bar	5076 psi	350 bar	5076 psi	350 bar	5076 psi
Optimal flow open/close	60 L/min	15.9 gpm	60 L/min	15.9 gpm	90 L/min	23.8 gpm
Maximum pressure rotation	320 bar	4641 psi	320 bar	4641 psi	320 bar	4641 psi
Optimal flow rotation	25 L/min	6.6 gpm	25 L/min	6.6 gpm	25 L/min	6.6 gpm
Model	G315B-D		G320B-R		G320B-D	
Recommended carrier weight	15-22 mt	16.5-24.3 st	20-29 mt	22-32 st	20-29 mt	22-32 st
Capacity	550 L	0.72 yd³	800 L	1.05 yd³	750 L	1.11 yd³
Operating weight*	1330 kg	2930 lb	1860 kg	4100 lb	1870 kg	4125 lb
Closing force	54 kN	12,140 lb	68 kN	15,287 lb	68 kN	15,287 lb
Maximum pressure open/close	350 bar	5076 psi	350 bar	5076 psi	350 bar	5076 psi
Optimal flow open/close	90 L/min	23.8 gpm	120 L/min	31.7 gpm	120 L/min	31.7 gpm
Maximum pressure rotation	320 bar	4641 psi	320 bar	4641 psi	320 bar	4641 psi
Optimal flow rotation	25 L/min	6.6 gpm	25 L/min	6.6 gpm	25 L/min	6.6 gpm

*Including bolt-on mounting bracket.



Dimensions (All dimensions are approximate.)

Model	G310B-R		G310B-D		G315B-R	
W Width	850 mm	33"	850 mm	33"	1000 mm	39"
A Width closed	1225 mm	48"	1245 mm	49"	1360 mm	54"
B Width opened	1800 mm	71"	1800 mm	71"	2000 mm	79"
H Height	520 mm	20"	520 mm	20"	570 mm	22"
H1 Height closed*	1435 mm	56"	1435 mm	56"	1540 mm	61"
H2 Height opened*	1345 mm	53"	1345 mm	53"	1445 mm	57"
Model	G315B-D		G320B-R		G320B-D	
W Width	1000 mm	39"	1100 mm	44"	1100 mm	44"
A Width closed	1375 mm	54"	1505 mm	59"	1540 mm	61"
B Width opened	2000 mm	79"	2200 mm	87"	2200 mm	87"
H Height	570 mm	22"	625 mm	25"	625 mm	25"
H1 Height closed*	1540 mm	61"	1695 mm	67"	1695 mm	67"
H2 Height opened*	1445 mm	57"	1600 mm	63"	1600 mm	63"

*Including bolt-on mounting bracket for CW quick coupler.

Work Tools Matching Guide

Choosing the proper Multi-Grapple can increase productivity and lower your cost per ton.

	Stick		Without Quick Coupler						With Quick Coupler					
			Grapples						Grapples					
			G310B-D	G315B-D	G320B-D	G310B-R	G315B-R	G320B-R	G310B-D	G315B-D	G320B-D	G310B-R	G315B-R	G320B-R
312C 500 mm (20") shoes	2100	83	■			■			■			■		
	2500	98	■			■			■			■		
	3000	118	■			■			■			■		
312C L 600 mm (24") shoes	2100	83						■				■		
	2500	98						■				■		
	3000	118						■				■		
315C L 500 mm (20") shoes	1850	73	■	■		■	■		■	■		■	■	
	2250	89	■	■		■	■		■	■		■	■	
	2600	102	■	■		■	■		■	■		■	■	
	3100	122	■	■		■	■		■	■		■	■	
315C L 600 mm (24") shoes	1850	73	■	■		■	■		■	■		■	■	
	2250	89	■	■		■	■		■	■		■	■	
	2600	102	■	■		■	■		■	■		■	■	
	3100	122	■	■		■	■		■	■		■	■	
315C L 700 mm (28") shoes	1850	73	■	■		■	■		■	■		■	■	
	2250	89	■	■		■	■		■	■		■	■	
	2600	102	■	■		■	■		■	■		■	■	
	3100	122	■	■		■	■		■	■		■	■	
318C 600 mm (24") shoes	1800	71		■			■			■			■	
	2250	89		■			■			■			■	
	2700	106		■			■			■			■	
	3200	126		■			■			■			■	
318C 700 mm (28") shoes	1800	71		■			■			■			■	
	2250	89		■			■			■			■	
	2700	106		■			■			■			■	
	3200	126		■			■			■			■	
318C N 500 mm (20") shoes	1800	71			■	■				■			■	
	2250	89			■	■				■			■	
	2700	106			■	■				■			■	
	3200	126			■	■				■			■	
318C L 600 mm (24") shoes	1800	71		■			■			■			■	
	2250	89		■			■			■			■	
	2700	106		■			■			■			■	
	3200	126		■			■			■			■	
318C L 800 mm (32") shoes	1800	71		■			■			■			■	
	2250	89		■			■			■			■	
	2700	106		■			■			■			■	
	3200	126		■			■			■			■	

Not available
 Working Range Full 360°
 Working Range Only Front

Work Tools Matching Guide

Choosing the proper Multi-Grapple can increase productivity and lower your cost per ton.

	Stick		Without Quick Coupler						With Quick Coupler					
			Grapples						Grapples					
			G310B-D	G315B-D	G320B-D	G310B-R	G315B-R	G320B-R	G310B-D	G315B-D	G320B-D	G310B-R	G315B-R	G320B-R
320C Reach boom	1900	75												
	2500	98												
	2920	115												
320C ME boom	1900	75												
	2400	94												
	2920	115												
320C VA boom	1900	75												
	2400	94												
	2920	115												
320C L Reach boom	1900	75												
	2500	98												
	2920	115												
320C L ME boom	1900	75												
	2400	94												
	2920	115												
320C L VA boom	1900	75												
	2400	94												
	2920	115												
320C LN Reach boom	1900	75												
	2500	98												
	2920	115												
320C LN ME boom	1900	75												
	2400	94												
	2920	115												
320C LN VA boom	1900	75												
	2400	94												
	2920	115												
320C S Reach boom	1900	75												
	2400	94												
	2920	115												
320C S ME boom	1900	75												
	2400	94												
	2920	115												
320C S VA boom	1900	75												
	2400	94												
	2920	115												
320C LU Reach boom	2500	98												
	2920	115												

Not available
 Working Range Full 360°
 Working Range Only Front

Work Tools Matching Guide

Choosing the proper Multi-Grapple can increase productivity and lower your cost per ton.

			Without Quick Coupler						With Quick Coupler							
			Grapples						Grapples							
			G310B-D	G315B-D	G320B-D	G310B-R	G315B-R	G320B-R	G310B-D	G315B-D	G320B-D	G310B-R	G315B-R	G320B-R		
Stick		mm	in													
322C L Reach boom				2000	79											
		2500	98													
		2950	116													
HD		2950	116													
322C L ME boom		2000	79													
		2500	98													
322C L VA boom		2000	79													
		2500	98													
322C LN Reach boom		2000	79													
		2500	98													
		2950	116													
HD		2950	116													
322C LN ME boom		2000	79													
		2500	98													
322C LN VA boom		2000	79													
		2500	98													
325C L Reach boom		2000	79													
		2650	104													
		3200	126													
HD		3200	126													
325C L ME boom		2000	79													
		2500	98													
325C L VA boom		2000	79													
		2500	98													
325C LN Reach boom		2000	79													
		2650	104													
		3200	126													
HD		3200	126													
325C LN ME boom		2000	79													
		2500	98													
325C LN VA boom		2000	79													
		2500	98													

Not available
 Working Range Full 360°
 Working Range only Front

HD Heavy Duty

Work Tools Matching Guide

Choosing the proper Multi-Grapple can increase productivity and lower your cost per ton.

				Without Quick Coupler						With Quick Coupler					
				Grapples						Grapples					
				G310B-D	G315B-D	G320B-D	G310B-R	G315B-R	G320B-R	G310B-D	G315B-D	G320B-D	G310B-R	G315B-R	G320B-R
		Stick													
		mm	in												
M313C 1 piece boom	DL	2000	79	■											
		2300	91	■											
		2600	102	■											
M313C VA boom	DL	2000	79	■											
		2300	91	■											
		2600	102	■											
M313C 1 piece boom	SSL	2000	79	■	■			■			■		■		
		2300	91	■	■			■			■		■		
		2600	102	■	■			■			■		■		
M313C VA boom	SSL	2000	79	■	■			■			■		■		■
		2300	91	■	■			■			■		■		■
		2600	102	■	■			■			■		■		■
M313C 1 piece boom	SDL	2000	79	■	■			■			■		■		
		2300	91	■	■			■			■		■		
		2600	102	■	■			■			■		■		
M313C VA boom	SDL	2000	79	■	■			■			■		■		■
		2300	91	■	■			■			■		■		■
		2600	102	■	■			■			■		■		■
M315C 1 piece boom	DL	2100	83	■									■		
		2400	94	■									■		
		2600	102	■									■		
M315C VA boom	DL	2100	83	■									■		
		2400	94	■									■		
		2600	102	■									■		
M315C 1 piece boom	SSL	2100	83	■	■			■			■		■		■
		2400	94	■	■			■			■		■		■
		2600	102	■	■			■			■		■		■
M315C VA boom	SSL	2100	83	■	■			■			■		■		■
		2400	94	■	■			■			■		■		■
		2600	102	■	■			■			■		■		■
M315C 1 piece boom	SDL	2100	83	■	■			■			■		■		■
		2400	94	■	■			■			■		■		■
		2600	102	■	■			■			■		■		■
M315C VA boom	SDL	2100	83	■	■			■			■		■		■
		2400	94	■	■			■			■		■		■
		2600	102	■	■			■			■		■		■

Not available
 Working Range Full 360°
 Working Range only Front

DL Dozer lowered
SSL 2 sets of stabilizer lowered
SDL Dozer and stabilizer lowered

Work Tools Matching Guide

Choosing the proper Multi-Grapple can increase productivity and lower your cost per ton.

		Stick		Without Quick Coupler						With Quick Coupler											
				Grapples						Grapples											
				G310B-D	G315B-D	G320B-D	G310B-R	G315B-R	G320B-R	G310B-D	G315B-D	G320B-D	G310B-R	G315B-R	G320B-R						
M316C 1 piece boom	DL	2100	83																		
		2400	94																		
		2600	102																		
M316C VA boom	DL	2100	83																		
		2400	94																		
		2600	102																		
M316C 1 piece boom	SSL	2100	83																		
		2400	94																		
		2600	102																		
M316C VA boom	SSL	2100	83																		
		2400	94																		
		2600	102																		
M316C 1 piece boom	SDL	2100	83																		
		2400	94																		
		2600	102																		
M316C VA boom	SDL	2100	83																		
		2400	94																		
		2600	102																		
M318C 1 piece boom	DL	2200	87																		
		2500	98																		
		2800	110																		
M318C VA boom	DL	2200	87																		
		2500	98																		
		2800	110																		
M318C 1 piece boom	SSL	2200	87																		
		2500	98																		
		2800	110																		
M318C VA boom	SSL	2200	87																		
		2500	98																		
		2800	110																		
M318C 1 piece boom	SDL	2200	87																		
		2500	98																		
		2800	110																		
M318C VA boom	SDL	2200	87																		
		2500	98																		
		2800	110																		

Not available
 Working Range Full 360°
 Working Range only Front

DL Dozer lowered
SSL 2 sets of stabilizer lowered
SDL Dozer and stabilizer lowered

Work Tools Matching Guide

Choosing the proper Multi-Grapple can increase productivity and lower your cost per ton.

				Without Quick Coupler						With Quick Coupler						
				Grapples						Grapples						
				G310B-D	G315B-D	G320B-D	G310B-R	G315B-R	G320B-R	G310B-D	G315B-D	G320B-D	G310B-R	G315B-R	G320B-R	
		Stick														
		mm	in													
M322C 1 piece boom	DL	2200	87													
		2500	98													
		2900	114													
M322C VA boom	DL	2200	87													
		2500	98													
		2900	114													
M322C 1 piece boom	SSL	2200	87													
		2500	98													
		2900	114													
M322C VA boom	SSL	2200	87													
		2500	98													
		2900	114													
M322C 1 piece boom	SDL	2200	87													
		2500	98													
		2900	114													
M322C VA boom	SDL	2200	87													
		2500	98													
		2900	114													

Not available
 Working Range Full 360°
 Working Range only Front

DL Dozer lowered
SSL 2 sets of stabilizer lowered
SDL Dozer and stabilizer lowered

Special Applications — Ultra High Demolition (UHD)

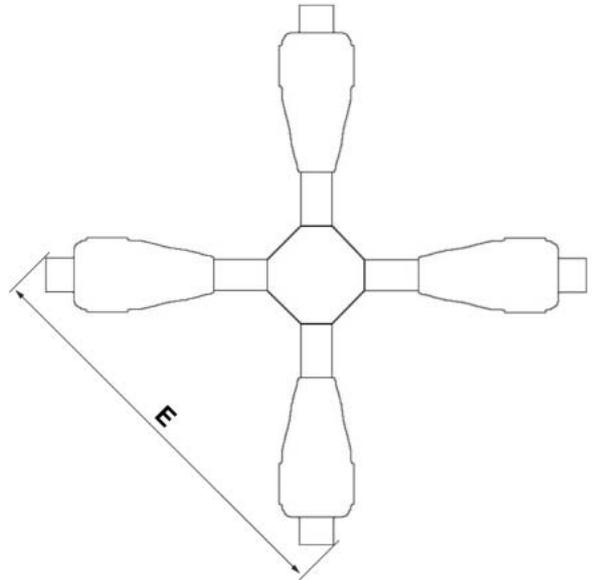
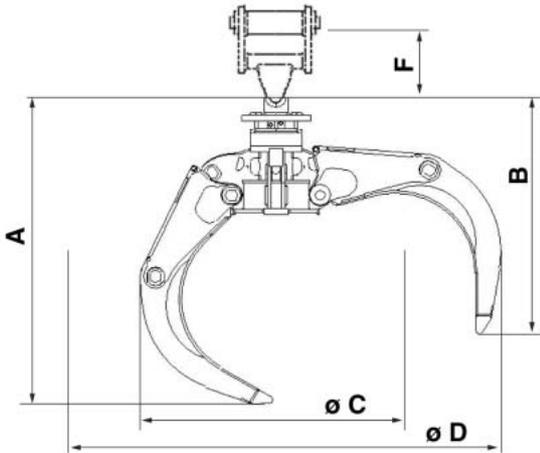
		Without Quick Coupler		With Quick Coupler	
		G320	G320B-D	G320	G320B-D
330C L	Undercarriage				
	Standard				
	VG				
	Long Narrow				
	345B II				
	HW				
345B L II	VG				
365B L II	Standard				
5090B L	Standard				

Not available
 Working Range Full 360°
 Working Range only Front

VG Variable Gauge
HW High Wide

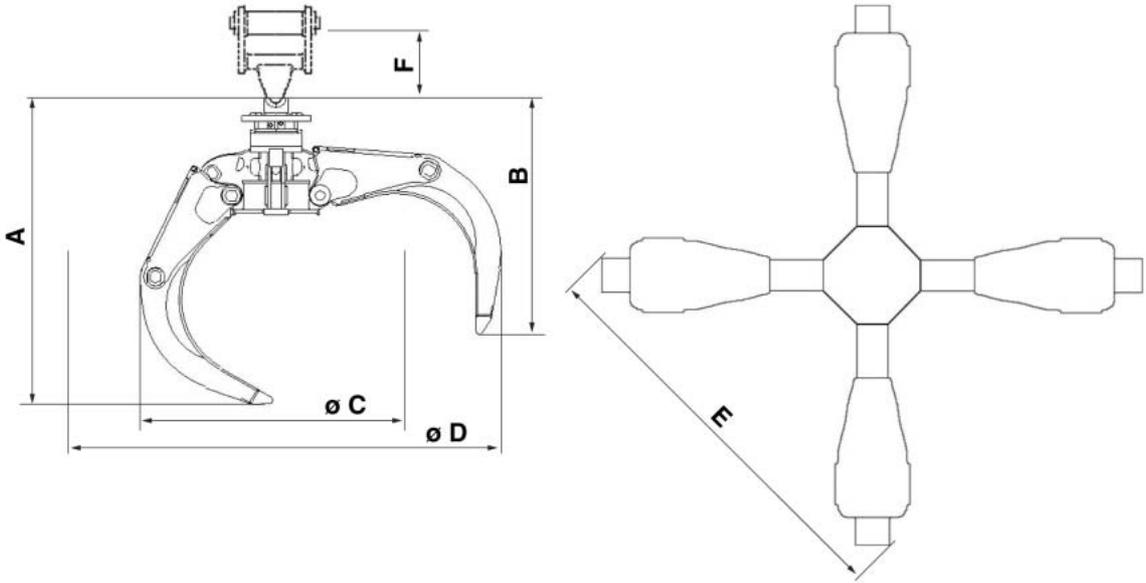
Features:

- Continuous, bi-directional 360° hydraulic rotation.
- Heavy-duty, fully protected cylinders.
- Tines constructed of high-strength wear-resistant steel.



Specifications

Model	GSH15		GSH15		GSH15	
Part number	212-3871		231-0193		231-0203	
Industry capacity class	0.6 m ³	0.75 yd ³	0.6 m ³	0.75 yd ³	0.8 m ³	1 yd ³
Weight	1220 kg	2690 lb	1326 kg	2923 lb	1367 kg	3013 lb
Maximum opening	2122 mm	83.5"	2122 mm	83.5"	2346 mm	92.4"
Rotation	360°		360°		360°	
Dimensions:						
A	1734 mm	68.3"	1816 mm	71.5"	1945 mm	76.6"
B	1378 mm	54.3"	1460 mm	57.5"	1525 mm	60.0"
C	1542 mm	60.7"	1542 mm	60.7"	1558 mm	61.3"
D	2415 mm	95.1"	2415 mm	95.1"	2640 mm	103.9"
E	1810 mm	71.3"	1810 mm	71.3"	1970 mm	77.6"
F	508 mm	20.0"	508 mm	20.0"	508 mm	20.0"
Open/close:						
Maximum pressure	350 bar	5075 psi	350 bar	5075 psi	350 bar	5075 psi
Maximum flow	113.6 L/min	30 gpm	113.6 L/min	30 gpm	113.6 L/min	30 gpm
Rotation:						
Minimum pressure	138 bar	2000 psi	138 bar	2000 psi	138 bar	2000 psi
Maximum pressure	207 bar	3000 psi	207 bar	3000 psi	207 bar	3000 psi
Maximum flow	49.2 L/min	13 gpm	49.2 L/min	13 gpm	49.2 L/min	13 gpm



Specifications

Model	GSH20		GSH22		GSH22	
Part number	231-0959		212-3869		207-2193	
Industry capacity class	1 m ³	1.25 yd ³	1.1 m ³	1.5 yd ³	1.5 m ³	2 yd ³
Weight	1490 kg	3285 lb	2280 kg	5026 lb	2300 kg	5070 lb
Maximum opening	2552 mm	100.5"	2537 mm	99.9"	2673 mm	105.2"
Rotation	360°		360°		360°	
Dimensions:						
A	1971 mm	77.6"	2201 mm	86.7"	2283 mm	89.9"
B	1548 mm	60.9"	1857 mm	73.1"	1905 mm	75.0"
C	1664 mm	65.5"	2053 mm	80.0"	2050 mm	80.7"
D	2863 mm	112.7"	2932 mm	115.4"	3049 mm	120.0"
E	2108 mm	83.0"	2225 mm	87.5"	2308 mm	90.9"
F	508 mm	20.0"	508 mm	20.0"	508 mm	20.0"
Open/close:						
Maximum pressure	350 bar	5075 psi	350 bar	5075 psi	350 bar	5075 psi
Maximum flow	113.6 L/min	30 gpm	265 L/min	70 gpm	265 L/min	70 gpm
Rotation:						
Minimum pressure	138 bar	2000 psi	138 bar	2000 psi	138 bar	2000 psi
Maximum pressure	207 bar	3000 psi	207 bar	3000 psi	207 bar	3000 psi
Maximum flow	49.2 L/min	13 gpm	49.2 L/min	13 gpm	49.2 L/min	13 gpm

Matching Guide

	GSH15*	GSH15*	GSH15*	GSH20	GSH22	GSH22
Part number	212-3871	231-0193	231-0203	231-0959	212-3869	207-2193
M318 MH with 10.7 m (35'0") front	✓					
M320B MH with 12.5 m (41'0") front	✓					
M325B MH with 15.5 m (51'0") front		✓	✓	✓		
M325B MH with 13.4 m (44'0") front		✓	✓	✓		
320C MH	✓					
325C MH with 15.5 m (51'0") front	✓					
325B MH with 13.4 m (44'0") front		✓	✓	✓		
330B MH with 14.3 m (47'0") front				✓		
330C MH with 15.8 m (52'0") front				✓		
345B II MH					✓	✓
W345B II MH					✓	✓

*GSH15 Grapple — The GSH15 grapple is available in 3 different versions: Grapple part numbers 212-3871 and 231-0193 are each 0.57 m³ (0.75 yd³) grapples. The housing on the 231-0193 is heavier and incorporates a stronger rotator for mounting on larger, more powerful Material Handlers which can handle the greater weight of the grapple. The third configuration, part number 231-0203, is identical to the 231-0193 except for the increased capacity and slightly greater weight.

Denotes preferred match by WLED, Aurora. Optimal match depends on material density.

Factory Installations Available

The following grapples are available for factory installation and include crosshead and connector lines:

Grapple	Part #	Installed on
GSH22 1.8 m (2 yd)	226-5070	345B MH/ W345B MH
GSH15 0.9 m (1 yd)	226-5075	M325B MH
GSH20 1.1 m (1.25 yd)	229-3098	M325B MH
GSH20 1.1 m (1.25 yd)	229-3099	330C MH
GSH15 0.7 m (0.75 yd)	226-5074	325C MH

Field Installation

To field-install these grapples on Material Handlers, crossheads and connector lines are required, as shown in the following table.

Machine	Crosshead	Connector Line
M318 MH	215-7013	218-2750
M320 MH	215-7013	218-2750
M325B MH/M325C MH	212-3872	215-7790
320B MH/320C MH	215-7014	215-7790
325B MH/325C MH	212-3872	215-7790
330B MH/330C MH	215-7015	215-7790
345B MH/W345B MH	207-2194	215-7790

Features:

- Suitable for a wide range of applications.
- Maximum component protection; lower operating cost.
- Low profile.
- High stability.
- Protected hydraulics.
- Connection lines protection guard.
- Tines constructed of high-strength wear resistant steel.
- Continuous, bi-directional 360° hydraulic rotator.
- Pressure limiting valve for opening and closing.
- Heavy-duty, cushioned cylinders with swing bearings on both sides.
- Maintenance covers for easy access to all maintenance points.
- Weld-on replaceable tips.
- High commonality of parts between 5 and 4 tine configurations.
- Hardened steel-alloy pins.
- High closing force.
- Excellent material penetration.
- Superior lifting capacity.

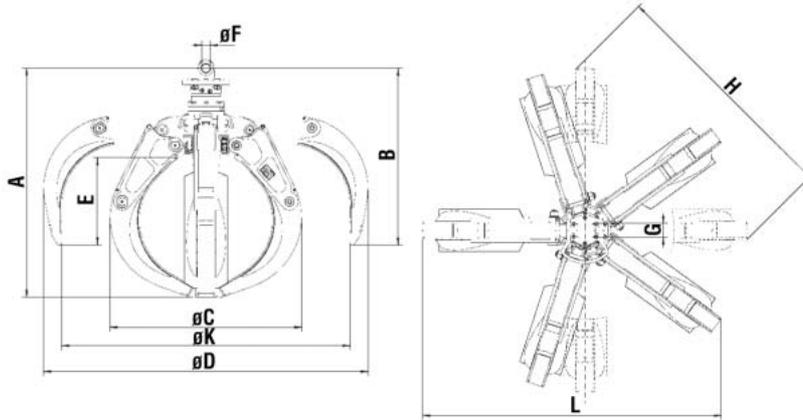
Selection by Application

Caterpillar Orange Peel Grapples give you the flexibility to match the machine to your application.

Grapple Application		4 Tines			5 Tines		
		O	S	C	O	S	C
Handling Scrap, Iron and Steel	Small-sized pieces (shredded)	■	■	■	■		
	Large-sized pieces up to 1000 x 1000 mm (steel scrap, wrought iron, white goods, motor blocks)			■			■
	Heavy/long-sized pieces (I-beams, pipes, plates)				■	■	■
	Car bodies			■	■	■	■
Handling nonferrous Scrap metals	Small-sized pieces (beverage cans, electric devices)	■	■	■	■		
	Large-sized pieces (car radiators, batteries)	■					■
	Wires and cables (copper, lead)	■			■		■
Other nonferrous materials	Waste	■			■		■
	Rocks, concrete blocks			■	■	■	■

Very good
 Good
 Not Recommended

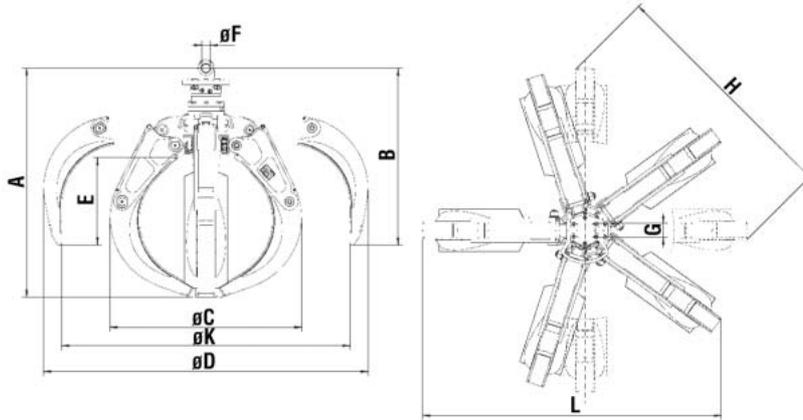
O Open
S Semi-closed
C Closed



Specifications (All dimensions and weights are approximate.)

Model	GSH9		GSH9	
Type	300		400	
Recommended carrier weight				
Excavator	9-15 mt	9.9-16.5 st	9-15 mt	9.9-16.5 st
Material Handler	9-18 mt	9.9-19.8 st	9-18 mt	9.9-19.8 st
Capacity	300 L	79.3 gal	400 L	105.7 gal
5 Tines				
Operating weight*				
open	680 kg	1499 lb	700 kg	1543 lb
semi-closed	720 kg	1587 lb	750 kg	1653 lb
closed	740 kg	1631 lb	820 kg	1808 lb
4 Tines				
Operating weight				
open	580 kg	1279 lb	600 kg	1323 lb
semi-closed	610 kg	1345 lb	640 kg	1411 lb
closed	630 kg	1389 lb	700 kg	1543 lb
Maximum lifting capacity	3 mt	3.3 st	3 mt	3.3 st
Maximum closing force	21 kN	4721 lb	20 kN	4496 lb
Dimension				
A	1375 mm	54.1"	1470 mm	57.9"
B	1110 mm	43.7"	1155 mm	45.5"
C	1320 mm	52.0"	1320 mm	52.0"
D	2000 mm	78.7"	2145 mm	84.4"
E	555 mm	21.9"	600 mm	23.6"
F	50 mm	2.0"	50 mm	2.0"
G	85 mm	3.3"	85 mm	3.3"
H	1510 mm	59.4"	1620 mm	63.8"
K	1776 mm	46.3"	1935 mm	76.2"
L	1850 mm	72.8"	1985 mm	78.1"
Hydraulic open/close				
Maximum pressure	350 bar	5076 psi	350 bar	5076 psi
Optimum flow	50-75 L/min	13.2-19.8 gpm	50-75 L/min	13.2-19.8 gpm
Hydraulic rotation				
Maximum pressure	320 bar	4641 psi	320 bar	4641 psi
Optimum flow	20-40 L/min	5.3-10.6 gpm	20-40 L/min	5.3-10.6 gpm

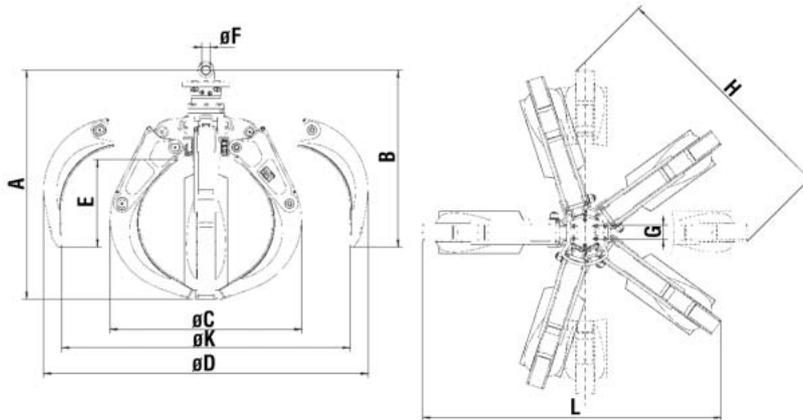
*Operating weight includes hydraulic rotator and excludes machine link.



Specifications (All dimensions and weights are approximate.)

Model	GSH15		GSH15		GSH15		GSH15	
	400		500		600		800	
Type								
Recommended carrier weight								
Excavator	15-21 mt	16.5-23.1 st	15-21 mt	16.5-23.1 st	15-21 mt	16.5-23.1 st	15-21 mt	16.5-23.1 st
Material Handler	18-25 mt	19.8-27.6 st	18-25 mt	19.8-27.6 st	18-25 mt	19.8-27.6 st	18-25 mt	19.8-27.6 st
Capacity	400 L	105.7 gal	500 L	132.1 gal	600 L	158.5 gal	800 L	211.3 gal
5 Tines								
Operating weight*								
open	1390 kg	3064 lb	1410 kg	3109 lb	1430 kg	3153 lb	1530 kg	3373 lb
semi-closed	1450 kg	3197 lb	1490 kg	3285 lb	1520 kg	3351 lb	1610 kg	3549 lb
closed	1530 kg	3373 lb	1560 kg	3439 lb	1610 kg	3549 lb	1720 kg	3792 lb
4 Tines								
Operating weight								
open	1180 kg	2601 lb	1200 kg	2646 lb	1215 kg	2679 lb	1300 kg	2866 lb
semi-closed	1230 kg	2712 lb	1270 kg	2800 lb	1290 kg	2844 lb	1370 kg	3020 lb
closed	1300 kg	2866 lb	1325 kg	2921 lb	1370 kg	3020 lb	1460 kg	3219 lb
Maximum lifting capacity	4 mt	4.4 st	4 mt	4.4 st	4 mt	4.4 st	4 mt	4.4 st
Maximum closing force	33 kN	7419 lb	27 kN	6070 lb	26 kN	5845 lb	23 kN	5171 lb
Dimension								
A	1650 mm	65.0"	1670 mm	65.7"	1740 mm	68.5"	1870 mm	73.6"
B	1335 mm	52.6"	1355 mm	53.3"	1380 mm	54.3"	1445 mm	56.9"
C	1542 mm	60.7"	1542 mm	60.7"	1542 mm	60.7"	1558 mm	61.3"
D	2259 mm	88.9"	2323 mm	91.5"	2415 mm	95.1"	2640 mm	103.9"
E	604 mm	23.8"	604 mm	23.8"	650 mm	25.6"	715 mm	28.1"
F	70 mm	2.8"	70 mm	2.8"	70 mm	2.8"	70 mm	2.8"
G	114 mm	4.5"						
H	1700 mm	66.9"	1745 mm	68.7"	1810 mm	71.3"	1970 mm	77.6"
K	1965 mm	77.4"	2033 mm	80.0"	2121 mm	83.5"	2345 mm	92.3"
L	2090 mm	82.3"	2140 mm	84.3"	2230 mm	87.8"	2430 mm	95.7"
Hydraulic open/close								
Maximum pressure	350 bar	5076 psi	350 bar	5076 psi	350 bar	5076 psi	350 bar	5076 psi
Optimum flow	75- 100 L/min	19.8- 26.4 gpm						
Hydraulic rotation								
Maximum pressure	320 bar	4641 psi	320 bar	4641 psi	320 bar	4641 psi	320 bar	4641 psi
Optimum flow	20- 40 L/min	5.3- 10.6 gpm	20- 40 L/min	5.3- 10.6 gpm	20- 40 L/min	5.3- 10.6 gpm	20- 40 L/min	5.3- 10.6 gpm

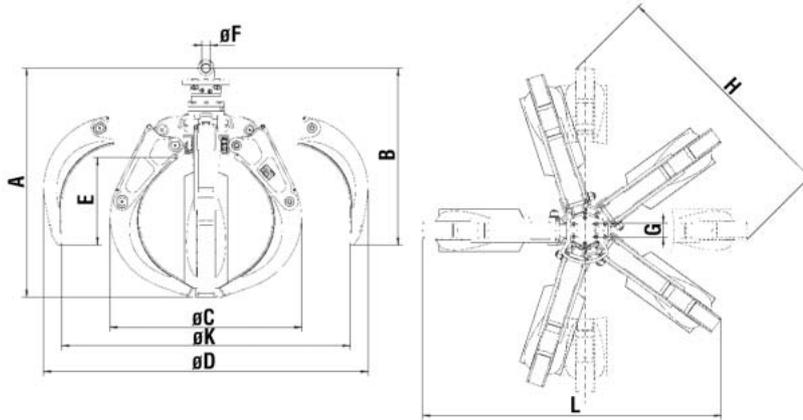
*Operating weight includes hydraulic rotator and excludes machine link.



Specifications (All dimensions and weights are approximate.)

Model	GSH20		GSH20		GSH20	
	600		800		1000	
Type						
Recommended carrier weight						
Excavator	20-30 mt	22-33.1 st	20-30 mt	22-33.1 st	20-30 mt	22-33.1 st
Material Handler	25-45 mt	27.6-49.6 st	25-45 mt	27.6-49.6 st	25-45 mt	27.6-49.6 st
Capacity	600 L	158.5 gal	800 L	211.3 gal	1000 L	264.2 gal
5 Tines						
Operating weight*						
open	1795 kg	3957 lb	1825 kg	4023 lb	1870 kg	4123 lb
semi-closed	1875 kg	4134 lb	1925 kg	4244 lb	1980 kg	4365 lb
closed	1950 kg	4299 lb	2030 kg	4475 lb	2120 kg	4674 lb
4 Tines						
Operating weight						
open	1500 kg	3307 lb	1530 kg	3373 lb	1560 kg	3439 lb
semi-closed	1560 kg	3439 lb	1615 kg	3560 lb	1655 kg	3649 lb
closed	1690 kg	3726 lb	1785 kg	3935 lb	1875 kg	4134 lb
Maximum lifting capacity	8 mt	8.8 st	8 mt	8.8 st	8 mt	8.8 st
Maximum closing force	46 kN	10,341 lb	40 kN	8992 lb	36 kN	8093 lb
Dimension						
A	1845 mm	72.6"	1945 mm	76.6"	2035 mm	80.1"
B	1515 mm	59.6"	1565 mm	61.6"	1610 mm	63.4"
C	1730 mm	68.1"	1730 mm	68.1"	1730 mm	68.1"
D	2545 mm	100.2"	2700 mm	106.3"	2885 mm	113.6"
E	688 mm	27.1"	738 mm	29.1"	783 mm	30.8"
F	70 mm	2.8"	70 mm	2.8"	70 mm	2.8"
G	114 mm	4.5"	114 mm	4.5"	114 mm	4.5"
H	1915 mm	75.4"	2025 mm	79.7"	2135 mm	84.1"
K	2065 mm	81.3"	2305 mm	90.7"	2555 mm	100.6"
L	2350 mm	92.5"	2490 mm	98.0"	2630 mm	103.5"
Hydraulic open/close						
Maximum pressure	350 bar	5076 psi	350 bar	5076 psi	350 bar	5076 psi
Optimum flow	100-150 L/min	26.4-39.6 gpm	100-150 L/min	26.4-39.6 gpm	100-150 L/min	26.4-39.6 gpm
Hydraulic rotation						
Maximum pressure	320 bar	4641 psi	320 bar	4641 psi	320 bar	4641 psi
Optimum flow	20-40 L/min	5.3-10.6 gpm	20-40 L/min	5.3-10.6 gpm	20-40 L/min	5.3-10.6 gpm

*Operating weight includes hydraulic rotator and excludes machine link.



Specifications (All dimensions and weights are approximate.)

Model	GSH22		GSH22		GSH22		GSH22	
	600		800		1000		1250	
Type								
Recommended carrier weight								
Excavator	22-50 mt	24.3-55.1 st	22-50 mt	24.3-55.1 st	22-50 mt	24.3-55.1 st	22-50 mt	24.3-55.1 st
Material Handler	35-60 mt	38.6-66.1 st	35-60 mt	38.6-66.1 st	35-60 mt	38.6-66.1 st	35-60 mt	38.6-66.1 st
Capacity	600 L	158.5 gal	800 L	211.3 gal	1000 L	264.2 gal	1250 L	330.2 gal
5 Tines								
Operating weight*								
open	2460 kg	5423 lb	2540 kg	5600 lb	2560 kg	5644 lb	2600 kg	5732 lb
semi-closed	2600 kg	5732 lb	2680 kg	5908 lb	2720 kg	5997 lb	2770 kg	6107 lb
closed	2760 kg	6085 lb	2825 kg	6228 lb	2880 kg	6349 lb	2950 kg	6504 lb
4 Tines								
Operating weight								
open	2160 kg	4762 lb	2230 kg	4916 lb	2250 kg	4960 lb	2290 kg	5049 lb
semi-closed	2210 kg	4872 lb	2280 kg	5027 lb	2310 kg	5093 lb	2360 kg	5203 lb
closed	2350 kg	5181 lb	2400 kg	5291 lb	2450 kg	5401 lb	2510 kg	5534 lb
Maximum lifting capacity	8 mt	8.8 st	8 mt	8.8 st	8 mt	8.8 st	8 mt	8.8 st
Maximum closing force	59 kN	13,264 lb	55 kN	12,364 lb	51 kN	11,465 lb	50 kN	11,240 lb
Dimension								
A	1990 mm	78.3"	2120 mm	83.5"	2200 mm	86.6"	2270 mm	89.4"
B	1735 mm	63.3"	1810 mm	71.3"	1850 mm	72.8"	1890 mm	74.4"
C	1840 mm	72.4"	1840 mm	72.4"	1840 mm	72.4"	1840 mm	72.4"
D	2640 mm	103.9"	2840 mm	111.8"	2950 mm	116.1"	3065 mm	120.7"
E	785 mm	30.9"	860 mm	33.9"	900 mm	35.4"	940 mm	37.0"
F	70 mm	2.8"	70 mm	2.8"	70 mm	2.8"	70 mm	2.8"
G	114 mm	4.5"						
H	2020 mm	79.5"	2160 mm	85.0"	2240 mm	88.2"	2320 mm	91.3"
K	2201 mm	86.7"	2412 mm	95.0"	2537 mm	99.9"	2650 mm	104.3"
L	2450 mm	96.5"	2630 mm	103.5"	2730 mm	107.5"	2835 mm	111.6"
Hydraulic open/close								
Maximum pressure	350 bar	5076 psi						
Optimum flow	150- 200 L/min	39.6- 52.8 gpm						
Hydraulic rotation								
Maximum pressure	320 bar	4641 psi	320 bar	4641 psi	320 bar	4641 psi	320 bar	4641 psi
Optimum flow	20- 40 L/min	5.3- 10.6 gpm	20- 40 L/min	5.3- 10.6 gpm	20- 40 L/min	5.3- 10.6 gpm	20- 40 L/min	5.3- 10.6 gpm

*Operating weight includes hydraulic rotator and excludes machine link.

Work Tools Matching Guide

Choosing the proper Orange Peel Grapple can increase productivity and lower your cost per ton.

	Stick		5 Tines						4 Tines						
			GSH9		GSH15				GSH9		GSH15				
			300	400	400	500	600	800	300	400	400	500	600	800	
	mm	in													
312C 500 mm (20") shoes	2100	83													
	2500	98													
	3000	118													
312C L 600 mm (24") shoes	2100	83													
	2500	98													
	3000	118													
315C L 500 mm (20") shoes	1850	73													
	2250	89													
	2600	102													
	3100	122													
315C L 600 mm (24") shoes	1850	73													
	2250	89													
	2600	102													
	3100	122													
315C L 700 mm (28") shoes	1850	73													
	2250	89													
	2600	102													
	3100	122													
318C 600 mm (24") shoes	1800	71													
	2250	89													
	2700	106													
	3200	126													
318C 700 mm (28") shoes	1800	71													
	2250	89													
	2700	106													
	3200	126													
318C N 500 mm (20") shoes	1800	71													
	2250	89													
	2700	106													
	3200	126													
318C L 600 mm (24") shoes	1800	71													
	2250	89													
	2700	106													
	3200	126													
318C L 800 mm (32") shoes	1800	71													
	2250	89													
	2700	106													
	3200	126													

Not available
 Maximum Material density 1800 kg/m³ (112 lb/ft³)
 Maximum Material density 1200 kg/m³ (75 lb/ft³)

Work Tools Matching Guide

Choosing the proper Orange Peel Grapple can increase productivity and lower your cost per ton.

	Stick		5 Tines						4 Tines											
			GSH15				GSH20		GSH15				GSH20							
			400	500	600	800	600	800	1000	400	500	600	800	600	800	1000				
	mm	in																		
320C Reach boom	1900	75																		
	2500	98																		
	2920	115																		
320C ME boom	1900	75																		
	2400	94																		
	2920	115																		
320C Straight boom	1900	75																		
	2500	98																		
	2900	114																		
	3900	154																		
320C VA boom	1900	75																		
	2400	94																		
	2920	115																		
320C L Reach boom	1900	75																		
	2500	98																		
	2920	115																		
320C L ME boom	1900	75																		
	2400	94																		
	2920	115																		
320C L Straight boom	1900	75																		
	2500	98																		
	2900	114																		
	3900	154																		
320C L VA boom	1900	75																		
	2400	94																		
	2920	115																		
320C LN Reach boom	1900	75																		
	2500	98																		
	2920	115																		
320C LN ME boom	1900	75																		
	2400	94																		
	2920	115																		
320C LN Straight boom	1900	75																		
	2500	98																		
	2900	114																		
	3900	154																		
320C LN VA boom	1900	75																		
	2400	94																		
	2920	115																		

Not available
 Maximum Material density 1800 kg/m³ (112 lb/ft³)
 Maximum Material density 1200 kg/m³ (75 lb/ft³)

Work Tools Matching Guide

Choosing the proper Orange Peel Grapple can increase productivity and lower your cost per ton.

	Stick		5 Tines						4 Tines						
			GSH15				GSH20		GSH15				GSH20		
			400	500	600	800	600	800	1000	400	500	600	800	600	800	1000
	mm	in													
320C S Reach boom	1900	75													
	2400	94													
	2920	115													
320C S ME boom	1900	75													
	2400	94													
	2920	115													
320C S Straight boom	1900	75													
	2500	98													
	2900	114													
	3900	154													
320C S VA boom	1900	75													
	2400	94													
	2920	115													
320C LU	2500	98													
	2920	115													

	Stick		5 Tines						4 Tines						
			GSH20			GSH22			GSH20			GSH22			
			600	800	1000	600	800	1000	1250	600	800	1000	600	800	1000	1250
	mm	in													
322C L Reach boom	2000	79													
	2500	98													
	2950	116													
HD	2950	116													
322C L ME boom	2000	79													
	2500	98													
322C L VA boom	2000	79													
	2500	98													
322C LN Reach boom	2000	79													
	2500	98													
	2950	116													
HD	2950	116													
322C LN ME boom	2000	79													
	2500	98													
322C LN VA boom	2000	79													
	2500	98													

Not available
 Maximum Material density 1800 kg/m³ (112 lb/ft³)
 Maximum Material density 1200 kg/m³ (75 lb/ft³)

HD Heavy Duty

Work Tools Matching Guide

Choosing the proper Orange Peel Grapple can increase productivity and lower your cost per ton.

	Stick		5 Tines						4 Tines						
			GSH20			GSH22			GSH20			GSH22			
			600	800	1000	600	800	1000	1250	600	800	1000	600	800	1000	1250
325C L Reach boom	2000	79													
	2650	104													
	3200	126													
HD	3200	126													
	2000	79													
325C L ME boom	2500	98													
	2000	79													
325C L Straight boom	2650	104													
	3200	126													
	2000	79													
325C L Straight boom HDCWT	2650	104													
	3200	126													
	2000	79													
325C L VA boom	2500	98													
	2000	79													
325C LN Reach boom	2650	104													
	3200	126													
	3200	126													
HD	2000	79													
	2500	98													
325C LN Straight boom	2650	104													
	3200	126													
	2000	79													
325C LN Straight boom HDCWT	2650	104													
	3200	126													
	2000	79													
325C LN VA boom	2500	98													

Not available
 Maximum Material density 1800 kg/m³ (112 lb/ft³)
 Maximum Material density 1200 kg/m³ (75 lb/ft³)

HD Heavy Duty

Work Tools Matching Guide

Choosing the proper Orange Peel Grapple can increase productivity and lower your cost per ton.

	Stick		5 Tines				4 Tines				
			GSH22				GSH22				
			600	800	1000	1250	600	800	1000	1250	
	mm	in									
330C L Reach boom	2150	85									
	2800	110									
	3200	126									
	3900	154									
330C L ME boom	2150	85									
	2550	100									
330C L Straight boom	2150	85									
	2800	110									
	3200	126									
	3900	154									
330C L Straight boom HDCWT	4800	189									
	2150	85									
	2800	110									
	3200	126									
330C LN Reach boom	3900	154									
	2150	85									
	2800	110									
	3200	126									
330C LN ME boom	3900	154									
	2150	85									
	2800	110									
	3200	126									
330C LN Straight boom	3900	154									
	4800	189									
	2150	85									
	2800	110									
330C LN Straight boom HDCWT	3200	126									
	3900	154									
	4800	189									
	2150	85									
330C LN Reach boom 345B II undercarriage	2800	110									
	3200	126									
	3900	154									
	4800	189									
330C LN ME boom 345B II undercarriage	2150	85									
	2550	100									
	3500	138									
	2150	85									
330C LN Straight boom 345B II undercarriage	2800	110									
	3200	126									
	3900	154									
	4800	189									

Not available
 Maximum Material density 1800 kg/m³ (112 lb/ft³)
 Maximum Material density 1200 kg/m³ (75 lb/ft³)

Special Applications — Material Handler

		Boom				Stick				5 Tines									
										GSH15				GSH20			GSH22		
										400	500	600	800	600	800	1000	600	800	1000	1250
Undercarriage	mm	in	mm	in															
	320C MH	HDHW	6650	262	5450	215													
Square		6650	262	5450	215														
325C MH	HDHW	8350	329	5450	215														
	Square	8350	329	5450	215														
330C MH	HDHW	9100	358	6000	236														
	Square	9100	358	6000	236														
	345B II Standard	9100	358	6000	236														
	345B II HDW	9100	358	6000	236														
345B II MH	HDW	9770	385	7800	307														
M318C MH	MH	6400	252	4900	193														
	Standard	6400	252	4900	193														
M322C MH	MH	6800	268	4900	193														
	MH	6800	268	5900	232														
	Standard	6800	268	4900	193														
	Standard	6800	268	5900	232														

		Boom				Stick				4 Tines									
										GSH15				GSH20			GSH22		
										400	500	600	800	600	800	1000	600	800	1000	1250
Undercarriage	mm	in	mm	in															
	320C MH	HDHW	6650	262	5450	215													
Square		6650	262	5450	215														
325C MH	HDHW	8350	329	5450	215														
	Square	8350	329	5450	215														
330C MH	HDHW	9100	358	6000	236														
	Square	9100	358	6000	236														
	345B II Standard	9100	358	6000	236														
	345B II HDW	9100	358	6000	236														
345B II MH	HDW	9770	385	7800	307														
M318C MH	MH	6400	252	4900	193														
	Standard	6400	252	4900	193														
M322C MH	MH	6800	268	4900	193														
	MH	6800	268	5900	232														
	Standard	6800	268	4900	193														
	Standard	6800	268	5900	232														

Not available
 Maximum Material density 1800 kg/m³ (112 lb/ft³)
 Maximum Material density 1200 kg/m³ (75 lb/ft³)

Work Tools Matching Guide

Choosing the proper Orange Peel Grapple can increase productivity and lower your cost per ton.

		Stick		5 Tines						4 Tines					
				GSH9		GSH15				GSH9		GSH15			
				300	400	400	500	600	800	300	400	400	500	600	800
		mm	in												
M313C 1 piece boom	DL	2000	79	■	■					■	■				
		2300	91	■	■					■	■				
		2600	102	■	■					■	■				
M313C VA boom	DL	2000	79	■	■					■	■				
		2300	91	■	■					■	■				
		2600	102	■	■					■	■				
M313C 1 piece boom	SSL	2000	79	■	■					■	■				
		2300	91	■	■					■	■				
		2600	102	■	■					■	■				
M313C VA boom	SSL	2000	79	■	■					■	■				
		2300	91	■	■					■	■				
		2600	102	■	■					■	■				
M313C 1 piece boom	SDL	2000	79	■	■					■	■				
		2300	91	■	■					■	■				
		2600	102	■	■					■	■				
M313C VA boom	SDL	2000	79	■	■					■	■				
		2300	91	■	■					■	■				
		2600	102	■	■					■	■				
M315C 1 piece boom	DL	2100	83									■			
		2400	94									■			
		2600	102									■			
M315C VA boom	DL	2100	83									■			
		2400	94									■			
		2600	102									■			
M315C 1 piece boom	SSL	2100	83			■	■	■	■			■	■	■	■
		2400	94			■	■	■	■			■	■	■	■
		2600	102			■	■	■	■			■	■	■	■
M315C VA boom	SSL	2100	83			■	■	■	■			■	■	■	■
		2400	94			■	■	■	■			■	■	■	■
		2600	102			■	■	■	■			■	■	■	■
M315C 1 piece boom	SDL	2100	83			■	■	■	■			■	■	■	■
		2400	94			■	■	■	■			■	■	■	■
		2600	102			■	■	■	■			■	■	■	■
M315C VA boom	SDL	2100	83			■	■	■	■			■	■	■	■
		2400	94			■	■	■	■			■	■	■	■
		2600	102			■	■	■	■			■	■	■	■

□ Not available ■ Maximum Material density 1800 kg/m³ (112 lb/ft³) □ Maximum Material density 1200 kg/m³ (75 lb/ft³)

DL Dozer lowered
SSL 2 sets of stabilizer lowered
SDL Dozer and stabilizer lowered

Work Tools Matching Guide

Choosing the proper Orange Peel Grapple can increase productivity and lower your cost per ton.

			5 Tines						4 Tines						
			GSH9		GSH15				GSH9		GSH15				
			300	400	400	500	600	800	300	400	400	500	600	800	
Stick															
		mm	in												
M316C 1 piece boom	DL	2100	83												
		2400	94												
		2600	102												
M316C VA boom	DL	2100	83												
		2400	94												
		2600	102												
M316C 1 piece boom	SSL	2100	83												
		2400	94												
		2600	102												
M316C VA boom	SSL	2100	83												
		2400	94												
		2600	102												
M316C 1 piece boom	SDL	2100	83												
		2400	94												
		2600	102												
M316C VA boom	SDL	2100	83												
		2400	94												
		2600	102												

Not available
 Maximum Material density 1800 kg/m³ (112 lb/ft³)
 Maximum Material density 1200 kg/m³ (75 lb/ft³)

- DL** Dozer lowered
- SSL** 2 sets of stabilizer lowered
- SDL** Dozer and stabilizer lowered

Work Tools Matching Guide

Choosing the proper Orange Peel Grapple can increase productivity and lower your cost per ton.

			5 Tines						4 Tines											
			GSH15				GSH20		GSH15				GSH20							
			400	500	600	800	600	800	1000	400	500	600	800	600	800	1000				
Stick																				
		mm	in																	
M318C 1 piece boom	DL	2200	87																	
		2500	98																	
		2800	110																	
M318C VA boom	DL	2200	87																	
		2500	98																	
		2800	110																	
M318C 1 piece boom	SSL	2200	87																	
		2500	98																	
		2800	110																	
M318C VA boom	SSL	2200	87																	
		2500	98																	
		2800	110																	
M318C 1 piece boom	SDL	2200	87																	
		2500	98																	
		2800	110																	
M318C VA boom	SDL	2200	87																	
		2500	98																	
		2800	110																	
M322C 1 piece boom	DL	2200	87																	
		2500	98																	
		2900	114																	
M322C VA boom	DL	2200	87																	
		2500	98																	
		2900	114																	
M322C 1 piece boom	SSL	2200	87																	
		2500	98																	
		2900	114																	
M322C VA boom	SSL	2200	87																	
		2500	98																	
		2900	114																	
M322C 1 piece boom	SDL	2200	87																	
		2500	98																	
		2900	114																	
M322C VA boom	SDL	2200	87																	
		2500	98																	
		2900	114																	

Not available
 Maximum Material density 1800 kg/m³ (112 lb/ft³)
 Maximum Material density 1200 kg/m³ (75 lb/ft³)

DL Dozer lowered
SSL 2 sets of stabilizer lowered
SDL Dozer and stabilizer lowered

ENGINES

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 Peoria, Illinois, U.S.A.
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 Fax: 309-578-2559

E Mail:
 Cat_Power@ Cat.com

Web Site/Dealer Locator
 www.Cat-engines.com

For more information contact your local Caterpillar Dealer, or visit the Caterpillar engine and generator set website on www.cat-engines.com.

	TYPE	NO. OF MODELS	RANGE
	Diesel	30	15 to 4920 kW 20 to 6600 hp EPA Certified
	Gaseous Fueled	12	71 to 3509 kW 95 to 4705 hp EPA Certified
GENERATOR SETS			50 HZ-kV•A w/fan Prime-205 to 2275 Standby-225 to 2500
	Diesel High Speed	15	60 HZ-ekW w/fan Prime-210 to 1825 Standby-230 to 2250 +17 Models CM Product Medium Speed
	Diesel Medium Speed		50 HZ-kV•A w/o fan 1360 to 17 460 60 HZ-kW w/o fan 980 to 13 970
	Gaseous Fueled	15	50 HZ-kV•A w/o fan Continuous-106 to 7400 60 HZ-kW w/o fan Continuous-100 to 5900
	OLYMPIAN GENERATOR SETS*			50 HZ-kV•A Prime-6 to 200 Standby-8 to 220 60 HZ-kW Prime-6 to 180 Standby-8 to 200
	Gaseous Fueled		50 HZ-kV•A Prime-6 to 90 Standby-12 to 100 60 HZ-kW Prime-6 to 90 Standby-12 to 100
	MARINE		
	Propulsion	17	63 to 7200 kW 85 to 9655 hp
	Generator Sets	12	50 HZ kV•A 63 to 6500 Prime 60 HZ-kW 65 to 4840 Prime
TRUCK			
	Diesel	5	142 to 410 kW 190 to 550 hp EPA certified and compliant

*Olympian Generator Sets are manufactured exclusively for Caterpillar dealers.

DESIGN DATA**Diesel Engines**

Bearings — Precision-type steel-backed aluminum alloy with lead-tin overlay copper bonded to bearing surface. High load carrying ability and exceptional fatigue strength.

Block — Cast from high tensile strength grey iron. Internal ribbing provides added strength.

Cooling — Built-in, gear driven centrifugal pump (belt driven for 3116 and 3208) circulates jacket water through engine at all times. Water temperature is thermostatically controlled. Heat exchangers and radiators are available.

Crankshaft — Forged steel, dynamically balanced, heat treated and superfinished.

Cylinder Liners — Internal surface induction hardened (1.7 L, 3300, 3400, 3500 and 3600 Families) for excellent wear life. Full-length watercooled for efficient heat transfer.

Fuel System — Adjustment free for reduced engine maintenance, individual fuel injection pumps have built-in calibration — no adjustment required after fuel nozzle replacement (1.7 L, 1.9 L, 3406E, 3456, 3500 and 3600 families have unit injectors). 3126, 3408E and 3412E use the Caterpillar Hydraulic Electronic Fuel Injection (HEUI) system.

Governor — Hydra-mechanical (Woodward 3161 on 3500 and 3600 Families) for reliability, good response and smooth, stable load changes. Electronically controlled engines use Caterpillar proprietary software and hardware.

Lubrication — Positive displacement gear pump maintains continuous flow of lubricant under pressure to all moving parts. Full-flow filtration is provided by replaceable cellulose filters. Watercooled oil cooler maintains proper oil temperature.

Pistons — Three-ring design (two-ring on 3208) reduces friction, provides excellent oil control, and increases engine efficiency.

Starting — Electric and air starting systems are offered for most models.

Valves — Hardened steel alloy. Valves rotate 3° each time they lift to seat in a new position and allow even heat distribution (except for 3116).

Gaseous Fueled Engines

Combustion System — The piston design and compression ratios available provide the ability to utilize a wide variety of gaseous fuels as well as provide low emission output (below 2.0 grams/bhp-hr NO_x).

Fuel System — Heavy-duty, industrial-type carburetors designed to maintain optimum air-fuel ratio at all loads and speeds.

Ignition System — Caterpillar Gaseous Fueled Engines employ a low tension magneto, together with an ignition transformer (one at each cylinder), to provide up to 34 kV to spark plugs. The Cat Electronic Ignition system is also available on certain engines.

RATING EXPLANATIONS

All engine ratings listed include such standard accessories as air cleaner and fuel, lube, and jacket water pumps. Power required for auxiliaries such as cooling fans, air compressors, charging alternators, special pumps, etc., must be deducted to arrive at the net power available to drive the load (except as noted). Other ratings are available for specific application and customer requirements, i.e., locomotive, oil field, fire pump, irrigation, etc. Consult your Caterpillar Dealer.

Rating Conditions

Performance is based on SAE J1995 standard conditions of 100 kPa (29.61 in Hg) and 25° C (77° F). Performance also applies at ISO 3046/1 (except for Spark Ignited Engines), DIN 6271 and BS 5514 standard conditions of 100 kPa (29.61 in Hg), 27° C (81° F) and 60% relative humidity.

Fuel consumption is based on fuel oil having an LHV of 42 780 kJ/kg (18,390 Btu/lb) and weighing 838.9 g/liter (7.001 lb/U.S. gal). All ratings are based on distillate fuel.

Altitude and Temperature Capabilities

Industrial Diesel Engines — Most intermittent and continuous ratings are applicable to at least 1320 m (5000 ft) elevation without derating. Consult factory for specific applications.

Gaseous Fueled Engines — Ratings for turbo-charged and aftercooled engines are generally applicable to 1500 m (5000 ft). Naturally aspirated engines are applicable to 150 m (500 ft).

Diesel Truck Engines — Refer to specification sheets for altitude capability of individual truck engine ratings.

Basic Specifications

Model	Displacement		Config	Bore x Stroke		Fuel System	Power Range								
	L	Cu in		mm	in		Marine		Diesel Industrial		On-Highway Truck*		Elec. Power Gen.	Oil/ Gas	Rail Power
							kW	hp	kW	hp	kW	hp			
3003	1	61	I3	75x72	2.95x2.83	PC			15.1-17.5	20.3-23.5					
3011C	1.1	69	I3	77x81	3.0x3.2	PC			18.4-19.5	24.7-26.1					
3013	1.5	92	I3	84x90	3.31x3.54	PC			23.5	31.5					
3013C	1.5	92	I3	84x90	3.31x3.54	PC			20.7-25.1	27.8-33.7					
C16	1.5	91	I4	77x81	3.0x3.2	PC			26.5	35.5					
3024C	2.2	134	I4	84x100	3.31x3.94	PC			31-44.7	41.6-60					
3034	3	183	I4	97x100	3.82x3.94		47-60	63-80							
3044C	3.3	201	I4	94x120	3.7x4.74	Mech			47-60	63.3-80.5					
3054	4	243	I4	100x127	3.937x5.0	Mech	80	108	50-91	67-122					
3054B	4.2	258	I4	103x127	4.06x5.0	Mech	64	86	57-64	76.5-86					
3054C	4.4	269	I4	105x127	4.1x5.0	Mech			50-95	67-127					
3054E	4.4	269	I4	105x127	4.1x5.0	Elect			80-104	107-140					
3056	6	365	I6	100x127	3.9x5.0	Mech	93-153	125-205	76-134.5	120-180					
3056E	6	366	I6	100x127	3.9x5.0	Elect			85-129.5	114-180					
3126	7.2	439	I6	110x127	4.33x5.0	MUI	261-313	350-420	160-194	215-260					
3126B	7.24	442	I6	110x127	4.33x5.0	HEUI	186-336	250-450	131-224	175-300					
C7	7.2	442	I4	110x127	4.33x5.0		339	455							
C9	8.8	537	I6	112x149	4.41x5.87	HEUI	375	503	205-261	275-350					
C10	10.3	629	I6	125x140	4.9x5.5	EUI			231-317	310-425	227-250	305-335			
3196	12	732	I6	130x150	5.1x5.9		254-402	340-660							
C12	12	732	I6	130x150	5.1x5.9	EUI	254-522	340-700	276-373	370-500	265-377	355-505			
3406	14.6	893	I6	137x165	5.4x6.5				199-392	267-525					
3406C	14.6	893	I6	137x165	5.4x6.5		186-433	250-580							
3406E	14.6	893	I6	137x165	5.4x6.5		336-597	450-800							
C15	14.6	893	I6	137x165	5.4x6.5	EUI			317-429	425-575	324-384	435-515			
C16	15.8	964	I6	140x171	5.5x6.75	EUI			373-492	500-660					
3408	18	1099	V8	137x152	5.4x6.0				238-399	319-535					
3408C	18	1099	V6	137x152	5.4x6.0		300-403	402-540							
C18	18.1	1106	I6	145x183	5.7x7.2		338-746	453-1000							
3412	27	1649	V12	137x152	5.4x6.0				317-716	425-960					
3412C	27	1649	V12	137x152	5.4x6.0		375-746	503-1000							
3412E	27	1649	V12	137x152	5.4x6.0	HEUI	317-1044	425-1400	317-783	425-1050					
C30	30	1831	V12	145x152	5.7x6.0		1119-1156	1500-1550							
3412D	32.1	1959	V12	145x162	5.7x6.4		404-651	542-872							
C32	32.1	1959	V12	145x162	5.7x6.4		1044-1232	1400-1652							
3508	34.5	2105	V8	170x190	6.7x7.5	MUI	526-858	705-1150	507-746	680-1000					
3508B	34.5	2105	V8	170x190	6.7x7.5	EUI	578-1119	775-1500	746-820	1000-1100					
3512	51.8	3158	V12	170x190	6.7x7.5	MUI	900-1305	1207-1750	761-1119	1020-1500					
3512B	51.8	3158	V12	170x190	6.7x7.5	EUI	820-1678	1100-2250	1119-1231	1500-1650					
3512 HD	58.6	3576	V12	170x215	6.7x8.5	MUI	1118-1500	1500-2012							
3516	69	4210	V16	170x190	6.7x7.5	MUI	1195-1641	1603-2200	1011-1492	1355-2000					
3516B	69	4210	V16	170x190	6.7x7.5	EUI	1231-2238	1650-3000	1492-1641	2000-2200					
3516 HD	78	4766	V16	170x215	6.7x8.5	EUI	1398-2000	1875-2682							
3606	111	6773	I6	280x300	11x11.8	MUI	1730-2030	2320-2722	1350-1850	1680-2481					
3608	148	9031	I8	280x300	11x11.8	MUI	2300-2710	3084-3634	1800-2460	2414-3300					
3612	222	13,546	I12	280x300	11x11.8	MUI	3460-4060	4640-5444	2700-3700	3621-4962					
3616	296	18,062	V16	280x300	11x11.8	MUI	4600-5420	6169-7268	3600-4920	4828-5310					
3616/3618 (fcvr)	296/333	18,062/20,286	V16/V18	280x300	11x11.8		5650/7200	7577/9652							

Mech — Mechanical pump and line
MUI — Mechanical Unit Injection
EUI — Electronic Unit Injection
*See Truck Listing for EUR02 Ratings.

HEUI — Hydraulic Electronic Unit Injection
PC — Precombustion Chamber
Elect — Electronic
fcvr — fast commercial vessel rating

See our listings for Generator Sets and Power Modules for complete information.

See our listings for Oil and Gas Engines for complete information.

See our listings for Railway Power for complete information.

Basic Specifications

Model	Displacement		Config	Bore x Stroke		Fuel System	Electrical Power Generation	
	L	Cu in		mm	in		60 Hz	50 Hz
6M 20	57	3478	I6	200x300	7.9x11.8	UP	980 ekW	1363 kVA
8M 20	75	4577	I8	200x300	7.9x11.8	UP	1300 ekW	1825 kVA
9M 20	85	5187	I9	200x300	7.9x11.8	UP	1470 ekW	2050 kVA
6M 25	123	7506	I6	255x400	10x15.75	UP	1730 ekW	2225 kVA
8M 25	163	9947	I8	255x400	10x15.75	UP	2230 ekW	2875 kVA
9M 25	184	11,228	I9	255x400	10x15.75	UP	2500 ekW	3238 kVA
6M 32C	232	14,158	I6	320x480	12.6x18.9	UP	2765 ekW	3456 kVA
8M 32C	309	18,856	I8	320x480	12.6x18.9	UP	3725 ekW	4656 kVA
9M 32C	347	21,175	I9	320x480	12.6x18.9	UP	4190 ekW	5238 kVA
12M 32C	405	24,715	V12	320x420	12.6x16.5	UP	5590 ekW	6988 kVA
16M 32C	541	33,014	V16	320x420	12.6x16.5	UP	7450 ekW	9313 kVA
6M 43	531	32,404	I6	430x610	16.93x24	UP	5240 ekW	6550 kVA
7M 43	620	37,835	I7	430x610	16.93x24	UP	6110 ekW	7638 kVA
8M 43	709	43,266	I8	430x610	16.93x24	UP	6980 ekW	8725 kVA
9M 43	797	48,636	I9	430x610	16.93x24	UP	7860 ekW	9825 kVA
12M 43	1063	64,868	V12	430x610	16.93x24	UP	10 475 ekW	13 094 kVA
16M 43*	1417	86,471	V16	430x610	16.93x24	UP	13 970 ekW	17 463 kVA

All ratings at 0.8 pf.
*Contact for availability.
UP — Unit Pump

On-Highway Engine Ratings

- 3126 ● C10
- C12 ● C15

Engines

On-Highway Engine Ratings

3126E Ratings

Advertised hp	Maximum hp	Peak Torque	Advertised Speed
190	207	520	2500
210 AT	216	520	2500
210	210	520	2500
210	210	605	2500
230	230	660	2400
250	250	660	2400
250	250	800	2400
275	275	800	2400
275	275	860	2400
300	300	800	2400
300	300	860	2400
330*	330	860	2400

*Firetruck and RV Rating.

C10 Ratings

Advertised hp	Maximum hp	Peak Torque	Advertised Speed
305	315	1050	2100
335	350	1250	2100

C12 Ratings

Advertised hp	Maximum hp	Peak Torque	Advertised Speed
335	420	1550	2100
355	370	1350	2100
380	395	1450	2100
410	425	1450	2100
410	425	1550	2100
430	445	1550	2100
430	445	1650	2100
355/410	415	1350/1450	2100
380/430	445	1450/1550	2100
380/430	445	1450/1650	2100
425*	425	1550	2100
455*	455	1550	2100
505**	505	1550	2100

*Firetruck and RV.

**RV Only.

C15 Ratings

Advertised hp	Maximum hp	Peak Torque	Advertised Speed
435	450	1500	2100
435	450	1550	2100†
435	450	1650	2100†
475	490	1650	2100†
500	515	1650	2100***
435/500	515	1550/1650	2100
435/500	515	1550/1650	2100*
475	490	1750	2100†
500	515	1850	2100†
525	525	1850	2100†
515	515	1650	2100**

*Oil Well Service.

**RV Only.

***Field Rerate Only.

†Brakesaver Available.

Engines

On-Highway Engine with ACERT® Technology Ratings

- C7 ● C9 ● C11
- C13 ● C15

On-Highway Engine with ACERT® Technology Ratings

C7 Ratings

Advertised hp	Maximum hp	Peak Torque	Governed Speed	Torque Rise %
190	207	520	2500	27
210	210	520	2500	45
210	210	605	2500	23
230	230	540	2500	12
230	230	660	2400	37
250	250	660	2400	26
250	250	800	2400	52
275*	275	800	2400	39
275*	275	860	2400	49
300*	300	800	2400	27
300*	300	860	2400	37
330	330	860	2400	19
350**	350	860	2400	12

*Specialty rating also available.
 **RV Rating.

C13 Ratings

Advertised hp	Maximum hp	Peak Torque	Governed Speed	Torque Rise %
335	420	1550	2100	85
380	395	1450	2100	52
410	425	1450	2100	41
410*	425	1550	2100	51
410	425	1450/1650	2100	41/61
430	445	1550	2100	31
430*	445	1650	2100	53
430	445	1550/1750	2100	44/63
470**	485	1550	2100	32
525**	525	1650	2100	25
410***	425	1450/1550	2100	41/51

*Air inlet shutoff options available.
 **Firetruck and RV Only.
 ***Oil Well Service (OWS).

C9 Ratings

Advertised hp	Maximum hp	Peak Torque	Governed Speed	Torque Rise %
285*	285	900	2100	26
330*	330	1150	2100	39
335	350	1050	2100	25
350	350	1100	2100	26
400**	400	1100	2100	10

*Transit Bus.
 **RV Only.

C15 Ratings

Advertised hp	Maximum hp	Peak Torque	Governed Speed	Torque Rise %
435	450	1550	2100	18
435	450	1650	2100	26
435	450	1550/1750	2100	42/61
475*	490	1650	2100	15
475*	490	1850	2100	56
475	490	1650/1850	2100	39/56
500*	515	1850	2100	23
550*	550	1850	2100	34
435/500**	515	1550/1650	2100	18/24
500***	515	1850	2100	23
500***	550	1850	2100	34

*BrakeSaver will be an option.
 **Oil Well Service (OWS).
 ***PSO Field uprate to 2300 rpm.

C11 Ratings

Advertised hp	Maximum hp	Peak Torque	Governed Speed	Torque Rise %
305	315	1050	2100	37
335*	350	1250	2100	49
350	365	1350	2100	54
370	385	1350	2100	46

*Air inlet shutoff options available.

Off-Highway Engine Ratings

C7 Ratings

Advertised hp	Maximum hp	Peak Torque	Advertised Speed
190	207	520	2500
210 AT	216	520	2500
210	210	520	2500
210	210	605	2500
230	230	540	2400
230	230	660	2400
250	250	660	2400
250	250	800	2400
275	275	800	2400
275	275	860	2400
300	300	800	2400
300	300	860	2400
330	330	860	2400

C9 Ratings

Advertised hp	Maximum hp	Peak Torque	Advertised Speed
275	275	860	2100
330	330	1150	2100
335	350	1050	2100
350	350	1100	2100
400	400	1100	2100

C11 Ratings

Advertised hp	Maximum hp	Peak Torque	Advertised Speed
305	315	1050	2100
335	350	1250	2100
350	365	1350	2100

C13 Ratings

Advertised hp	Maximum hp	Peak Torque	Advertised Speed
335	420	1550	2100
410	425	1450	2100
410	425	1550	2100
430	445	1550	2100
430	445	1650	2100
470	485	1550	2100
525	525	1650	2100
410	425	1450/1550	2100

C15 Ratings

Advertised hp	Maximum hp	Peak Torque	Advertised Speed
435	450	1550	2100
435	450	1650	2100
475	490	1650	2100
475	490	1850	2100
500	515	1850	2100
550	550	1850	2100
435/500	515	1550/1650	2100
500	515	1650	2100
500	515	1850	2100
550	550	1850	2100

Olympian Generator Sets
Outside North America

Model	rpm	Standby	Prime	rpm	Standby	Prime
		60 Hz (ekW)			50 Hz (kVA)	
3-Phase Output*						
GEK8-1	1500	8	7	—	—	—
GEKH8-1	3000	8	6.4	—	—	—
GEK10-1	1500	10	9	—	—	—
GEKH12-1	3000	12	9.6	—	—	—
GEP13.5-2	1800	13	12	1500	13.8	12.5
GEP18-2	1800	17	15.5	1500	18	16.5
GEP22-2	1800	20	18	1500	22	20
GEPH22-2	3000	—	—	—	22	—
GEP30	1800	27.2	24	1500	30	27
GEPH30-2	3000	—	—	—	30	—
GEPH35-2	3000	—	—	—	35	—
GEP44-3	1800	40	36	1500	44	40
GEP50-3	1800	46.4	40	1500	50	45
GEP65-3	1800	60	55	1500	65	60
GEP83-3	1800	75	68	1500	82.5	75
GEP100	1800	96	88	1500	100	90
GEP110	1800	100	90.4	1500	110	100
GEP150	1800	132	120	1500	150	135
GEH175	1800	148	135.2	1500	175	160
GEH188	1800	150.4	—	—	—	—
GEH220	1800	200	180	1500	220	200
GEH250	—	—	—	1500	250	230
GEH275	—	—	—	1500	275	250

*All ratings at 0.8 pf.

Rating Definitions:

Standby — (for GEL 3000/3600 rpm models and GEP models with suffix "E"): These ratings are applicable for supplying continuous power (at variable load) in the event of a utility power failure. No overload is permitted on these ratings. The alternators on these models are peak continuous rated (as defined in ISO 8523-3) at 25° C (77° F).

Prime — (for GEL 1500/1800 rpm models and all other GEP models): These ratings are applicable for supplying continuous electrical power (at variable load) in lieu of commercially purchased power. There is no limitation to the annual hours of operation and GEP models can supply 10% overload power for 1 hour in 12 hours.

Olympian Generator Sets
Outside North America

Model	rpm	Standby	Prime	rpm	Standby	Prime
		60 Hz (ekW)			50 Hz (kVA)	
Single Phase Output*						
GEK6SP-1	1800	—	—	1500	6	5.5
GEKH6SP-1	3000	—	—	3000	6	—
GEK8SP-1	1800	—	—	1500	8	7
GEKH9SP-1	1800	—	—	3000	9	—
GEP11SP-2	1800	13	12	1500	11	10
GEP14SP-2	1800	17	15.5	1500	14	13
GEP16SP-2	1800	20	18	1500	16.5	15
GEPH17SP	3600	—	—	3000	17.5	—
GEP20SP-1	1800	25	22.5	1500	20	18
GEP23SP-1	1800	27	24.5	1500	23	21
GEPH24SP	3600	—	—	3000	24	—
GEPH28SP	3600	—	—	3000	28	—
GEP30SP-3	1800	35	31.5	1500	30	27
GEP35SP-3	1800	40	36	1500	35	32
GEP40SP-3	1800	44	40	1500	40	36
GEP50SP-3	1800	55	50	1500	49.5	45
GEP62SP-3	1800	70	64	1500	62	56
GEP80SP-1	1800	94	85	1500	80	72
GEP88SP-1	1800	100	90	1500	88	80
GEP105SP-1	1800	113	100	1500	105	96

*All ratings at 1.0 pf.

Rating Definitions:

Standby — (for GEL 3000/3600 rpm models and GEP models with suffix “E”): These ratings are applicable for supplying continuous power (at variable load) in the event of a utility power failure. No overload is permitted on these ratings. The alternators on these models are peak continuous rated (as defined in ISO 8523-3) at 25° C (77° F).

Prime — (for GEL 1500/1800 rpm models and all other GEP models): These ratings are applicable for supplying continuous electrical power (at variable load) in lieu of commercially purchased power. There is no limitation to the annual hours of operation and GEP models can supply 10% overload power for 1 hour in 12 hours.

Engines

- Olympian Generator Sets
 - North America
 - Diesel Power Module Rating

Olympian Generator Sets

North America

Model	rpm	Standby	Prime
		60 Hz (ekW)	60 Hz (ekW)
3-Phase Output*			
D13P2	1800	13	12
D18P2	1800	18	16.4
D20P1	1800	20	18.2
D20P2	1800	20	18.2
D20P4	1800	20	18
D25P1	1800	25	22.8
D25P2	1800	25	22.8
D30P3	1800	30	27
D30P4	1800	28	25.4
D40P3	1800	40	36
D40P2	1800	40	36
D50P3	1800	50	45
D50P2	1800	50	45
D60P3	1800	60	54.5
D60P2	1800	60	54.5
D75P3	1800	75	68
D80P4	1800	80	72
D90P1	1800	90	82.4
D100P1	1800	100	90
D100P4	1800	100	90
D125P1	1800	125	114
D125P2	1800	125	114
D150P1	1800	150	—
D150P6	1800	150	135
D200P4	1800	200	180

*Ratings at 277/480 volts, 0.8 pf and 30° C (86° F).

Rating Definitions:

Standby — Applicable for supplying continuous electrical power (at variable load) in the event of a utility power failure. No overload is permitted on these ratings. The generators on models D20L2, D20L2S, D20P1-D200P4 and D20P1S-D100P2S are peak rated (as defined in ISO 8528-3).

Prime — These ratings are applicable for supplying continuous electrical power (at variable load) in lieu of commercially purchased power. There is no limitation to the annual hours of operation and this model can supply 10 percent overload power for 1 hour in 12 hours.

Model	rpm	Standby	Prime
		60 Hz (ekW)	60 Hz (ekW)
Single Phase Output*			
D13P2S	1800	13	11.8
D17P2S	1800	17	16
D20P1S	1800	20	18
D20P2S	1800	20	18
D20P4S	1800	20	18
D25P1S	1800	25	22.5
D25P2S	1800	25	22.5
D30P3S	1800	30	27
D30P2S	1800	30	27
D40P3S	1800	40	36
D40P2S	1800	40	36
D50P3S	1800	50	45
D50P2S	1800	50	45
D60P3S	1800	60	54
D60P4S	1800	60	54
D75P1S	1800	75	67.5
D75P4S	1800	75	67.5
D90P1S	1800	90	82.4
D90P4S	1800	90	82
D100P1S	1800	100	90
D100P4S	1800	100	90

*Ratings at 120/240 volts, 1.0 pf and 30° C (86° F).

Diesel Power Module Rating

Power Module Model	60 Hz	
	1800 rpm	
	Standby ekW	Prime ekW
XQ20	20	18
XQ30	28	25.4
XQ60	60	54
XQ80	80	70
XQ100	100	90
XQ200	200	180

- Gas Ratings
- Outside North America Gas Ratings

Olympian Generator Sets

Gas Ratings

Model	rpm	Standby* 60 Hz — ekW		Prime** 60 Hz — ekW	
		LP	Natural	LP	Natural
3-Phase Output					
G12U3	1800	12	12	11	11
G15U3	1800	15	15	13.5	13.2
G20UH3	3600	20	20	—	—
G20F3	1800	20	20	18.2	18
G25UH3	3600	25	25	—	—
G25F3	1800	25	22.6	23	19.2
G30F3	1800	30	30	27	27
G40F3	1800	40	40	36	36
G50F3	1800	50	45	42.5	37.5
G60F3	1800	60	60	55	55
G80F3	1800	80	75	68	63.5
G100F3	1800	—	100	—	85
G125G1	1800	—	125	—	114

*Ratings at 0.8 pf and 43° C (110° F).

**Ratings at 1.0 pf and 32° C (90° F).

Model	rpm	Standby* 60 Hz — ekW		Prime** 60 Hz — ekW	
		LP	Natural	LP	Natural
Single Phase Output					
G10U3S	1800	10	10	9	9
G15U3S	1800	15	15	13.5	13
G17.5UH3S	3600	17.5	17.5	—	—
G20F3S	1800	20	20	18	18
G25UH3S	3600	25	25	—	—
G25F3S	1800	25	21	22.5	18
G30F3S	1800	30	30	27	27
G35F3S	1800	35	35	31.5	31.5
G45F3S	1800	45	42.5	40	36
G55F3S	1800	55	55	50	50
G75F3S	1800	75	70	64	60
G100F3S	1800	—	100	—	85

*Ratings at 0.8 pf and 43° C (110° F).

**Ratings at 1.0 pf and 32° C (90° F).

Outside North America Gas Ratings

Model	rpm	Standby		Prime		rpm	Standby		Prime	
		60 Hz — ekW					50 Hz — kVA			
		LP	Natural	LP	Natural		LP	Natural	LP	Natural
3-Phase Output										
GEUG16-1	1800	16	15	13.5	13.5	1500	16.5	15	14	12.5
GEFG25-1	1800	25	25	22.5	21.2	1500	25	22	22	19
GEUHG30-1	3600	25	25	—	—	3000	30	30	—	—
Single Phase Output										
GEUG13S-1	1800	16	15	13.5	13	1500	13	11.8	11	10
GEFG20S-1	1800	25	23	22	20	1500	20	17.5	17	14.8
GEUHG24S-1	3600	25	25	—	—	3000	24	24	—	—

Rating Definitions:

Standby — These ratings are applicable for supplying continuous electrical power (at variable load) in the event of a utility power failure. No overload is permitted on these ratings. Natural gas ratings have been established on natural gas with net calorific value of approximately 36.8 MJ/m³ (988 Btu/ft³).

Prime — These ratings are applicable for supplying continuous electrical power (at variable load) in lieu of commercially purchased power. There is no limitation to the annual hours of operation and this model can supply 10 percent overload power for 1 hour in 12 hours.

Engines

Cat Generator Sets

- Gas Ratings
- Gas Power Module Rating

Cat Generator Sets

Gas Ratings

		60 Hz	
		1800 rpm	
Gen Set Model		Standby kW	Continuous kW
G3306	NA	—	100
G3306	TA ³	—	135
G3306	TA ¹	—	150
G3406	NA	150	150
G3406	TA ^{3,4}	245	190
G3406	TA ³	260	210
G3406	TA	275	225
G3412	NA	—	250
G3408	TA ³	310	255
G3408	TA ¹	340	280
G3412	TA ^{3,4}	350	350
G3412	TA ^{3,4}	375	375
G3412	TA ³	450	—
G3412C	LE ^{3,4}	450	375
G3412	TA ³	480	395
G3412	TA ¹	—	425
G3516	LE ³	1040	—
G3516	LE ³	1040	—
G3516B	LE ³	—	1300
G3516B	LE ¹	—	1400
G3520C	LE ^{1,3}	—	2055
		1200 rpm	
G3512	NA	—	365
G3508	LE ³	—	375
G3508	LE ¹	—	400
G3512	TA ³	—	555
G3512	LE ³	—	570
G3512	TA ¹	—	570
G3512	LE ¹	—	600
G3516	TA ³	—	750
G3516	LE ³	—	770
G3516	TA ¹	—	770
G3516	LE ¹	—	820
G3520C	LE ^{1,3}	—	1600
		900 rpm	
G3606	LE ^{3,5}	—	1145
G3606	LE ^{1,5}	—	1220
G3608	LE ^{3,5}	—	1525
G3608	LE ^{1,5}	—	1625
G3612	LE ^{3,5}	—	2335
G3612	LE ^{1,5}	—	2615
G3616	LE ^{3,5}	—	3105
G3616	LE ^{1,5}	—	3480
		720 rpm	
G16CM34	TA	—	5900

Gas Power Module Rating

		60 Hz
		1800 rpm
Power Module Model		Continuous kW
XQ1250G ³		1250

LE — Low Emission
 NA — Naturally Aspirated
 TA — Turbocharged-Aftercooled
 kW — Electrical Kilowatts = kVA × 0.8 pf
 kVA — Generator output

Gas Ratings

		50 Hz	
		1500 rpm	
		Continuous	
Gen Set Model		kVA	(kW)
G3306	NA	106	(85)
G3306	TA ³	138	(110)
G3306	TA ¹	156	(125)
G3406	NA	156	(125)
G3408	NA	194	(155)
G3406	TA ^{3,4}	200	(160)
G3406	TA ³	219	(175)
G3406	TA ¹	231	(185)
G3412	NA	281	(225)
G3408	TA ¹	288	(230)
G3412	TA ^{3,4}	350	(280)
G3412	TA ³	406	(325)
G3412	TA ¹	444	(355)
G3412	TA ^{3,4}	450	(360)
G3412C	LE ^{3,4}	450	(360)
G3508	LE ³	600	(480)
G3508	LE ¹	638	(510)
G3512	LE ³	906	(725)
G3512	LE ¹	963	(770)
G3516	LE ³	1219	(975)
G3516	LE ¹	1288	(1030)
G3516B	LE ³	1356	(1055)
G3516B	LE ^{3,5}	1380	(1105)
G3516B	LE ^{1,5}	1431	(1141)
G3516B	LE ^{1,3}	1456	(1165)
G3520C	LE ^{1,3}	2438	(1950)
G3520C	LE ^{1,3,5}	2500	(2000)
		1000 rpm	
G3606	LE ^{3,5}	1588	(1270)
G3606	LE ^{1,5}	1694	(1355)
G3608	LE ^{3,5}	2119	(1695)
G3608	LE ^{1,5}	2256	(1805)
G3612	LE ^{3,5}	3219	(2575)
G3612	LE ^{2,5}	3406	(2725)
G3612	LE ^{1,5}	3625	(2900)
G3616	LE ^{3,5}	4281	(3425)
G3616	LE ^{2,5}	4538	(3630)
G3616	LE ^{1,5}	4825	(3860)
		750 rpm	
G16CM34	TA	7375	(5900)

All ratings at 0.8 pf and without fan (G3406 NA includes fan and radiator).
¹32° C (90° F). ⁴Ratings at 0.8 pf with fan.
²45° C (113° F). ⁵Rating excluding engine-driven auxiliary water pump.
³54° C (130° F).

Rating Definitions:

Standby — These ratings are applicable for supplying continuous electrical power (at variable load) in the event of a utility power failure. No overload is permitted on these ratings. Natural gas ratings have been established on natural gas with net calorific Low Heat Value (LHV) of approximately 36.2 MJ/m³ (**920 Btu/ft³**).

Continuous — Output available without varying load for an unlimited time. Continuous power in accordance with ISO 8528, ISO 3046/1, AS2789, DIN6271, and BS5514. Natural gas ratings have been established on natural gas with net calorific Low Heat Value (LHV) of approximately 36.2 MJ/m³ (**920 Btu/ft³**).

Cat Generator Sets
Medium Speed Ratings

Model	514 rpm	600 rpm	720 rpm	900 rpm	500 rpm	600 rpm	750 rpm	1000 rpm
	60 Hz (ekW)	60 Hz (ekW)	60 Hz (ekW)	60 Hz (ekW)	50 Hz (ekW)	50 Hz (ekW)	50 Hz (ekW)	50 Hz (ekW)
6CM20	—	—	—	980	—	—	—	1094
8CM20	—	—	—	1300	—	—	—	1460
9CM20	—	—	—	1470	—	—	—	1640
6CM25	—	—	1730	—	—	—	1780	—
8CM25	—	—	2230	—	—	—	2300	—
9CM25	—	—	2500	—	—	—	2590	—
6CM32	—	2765	—	—	—	2765	—	—
8CM32	—	3725	—	—	—	3725	—	—
9CM32	—	4190	—	—	—	4190	—	—
12CM32C	—	—	5590	—	—	—	5590	—
16CM32C	—	—	7450	—	—	—	7450	—
6CM43	5240	—	—	—	5240	—	—	—
7CM43	6110	—	—	—	6110	—	—	—
8CM43	6980	—	—	—	6980	—	—	—
9CM43	7860	—	—	—	7860	—	—	—
12CM43	10 475	—	—	—	10 475	—	—	—
16CM43*	13 970	—	—	—	13 970	—	—	—
G16CM34	—	—	5900	—	—	—	5900	—

*Contact for availability.
 ekW — Electrical Kilowatts = kVA × 0.8 pf

Cat Generator Sets

Diesel and Power Module Ratings

60 Hz			
Gen Set Model	1800 rpm		
	Standby kW	Prime kW	Continuous kW
3306 TA	230	210	—
3306 ATAAC	250	225	—
3406 TA	300	275	—
3406 TA	350	320	—
3406 TA	400	365	—
3456 ATAAC	300	275	—
3456 ATAAC	350	320	—
3456 ATAAC	400	365	—
3456 ATAAC	450	410	—
3456 ATAAC	500	455	—
3412 TTA	550	500	—
3412 TTA	600	545	—
3412 TTA	650	591	—
3412 TTA	700	635	—
3412 STA	750	680	—
3412 STA	800	725	—
3508 TA	900	820	660
3508B TA	1000	910	832
3512 TA	1100	1000	890
3512 TA	1250	1135	1010
3512B TA	1250	1135	1030
3512B TA	1400	1275	1230
3512B TA	1500	1360	—
3516 TA	1750	1600	1450
3516B TA	1750	1600	1450
3516B TA	2000	1825	1640
3516B TA	2250	—	—
1200 rpm			
3508 TA	—	425	400
3508B TA	—	600	520
3512 TA	—	1000	870
3512B TA	—	1015	890
3516 TA	—	1250	1100
3516B TA	—	1285	1145
3516B HD	—	1450	1325
900 rpm			
6CM20 TA	—	—	980
8CM20 TA	—	—	1300
9CM20 TA	—	—	1470
3606 TA	2000	1820	1650
3608 TA	2660	2420	2200
3612 TA	4000	3640	3300
3616 TA	5320	4840	4400

60 Hz				
Gen Set Model	720 rpm			
	Standby kW	Prime kW	Continuous kW	
3606 TA	1680	1525	1375	
6CM25 TA	—	—	1730	
3608 TA	2220	2020	1830	
8CM25 TA	—	—	2230	
9CM25 TA	—	—	2500	
3612 TA	3360	3050	2750	
3616 TA	4440	4040	3660	
12CM32 TA	—	—	5590	
16CM32 TA	—	—	7450	
600 rpm				
6CM32	—	—	2765	
8CM32	—	—	3725	
9CM32	—	—	4190	
514 rpm				
6CM43 TA	—	—	5420	
7CM43 TA	—	—	6110	
8CM43 TA	—	—	6980	
9CM43 TA	—	—	7860	
12CM43 TA	—	—	10 475	
16CM43* TA	—	—	13 970	

*Contact for availability.

T — Turbocharged

TA — Turbocharged-Aftercooled

TTA — Twin Turbocharged-Aftercooled

STA — Series-Turbo Aftercooled

ATAAC — Air-To-Air Aftercooled

HD — High Displacement

kW — Generator output at 0.8 pf

Rating Definitions:

Standby — Output available with varying load for the duration of the interruption of the normal source power. Standby power in accordance with ISO 8528. Fuel stop power in accordance with ISO 3046/1, AS2789, DIN6271, and BS5514.

Prime — Output available with varying load for an unlimited time. Prime power in accordance with ISO 8528. 10% overload power in accordance with ISO 3046/1, AS2789, DIN6271, and BS5514 available on request.

Continuous — Output available without varying load for an unlimited time. Continuous power in accordance with ISO 8528, ISO 3046/1, AS2789, DIN6271, and BS5514.

Ratings are based on SAE J1995 standard conditions. These ratings also apply at ISO 3046/1, DIN6271, and BS5514 standard conditions.

Fuel Rates are based on fuel oil of 35° API (16° C or 60° F) gravity having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 29° C (85° F) and weighing 838.9 g/liter (7.001 lb/U.S. gal).

Cat Generator Sets

Diesel and Power Module Ratings

50 Hz			
Gen Set Model	1500 rpm		
	Standby kVA	Prime kVA	Continuous kVA
3306 ATAAC	275	250	—
3306 ATAAC	300	275	—
3406 T	300	275	—
3406 TA	350	320	—
3406 TA	400	365	—
3456 ATAAC	300	275	—
3456 ATAAC	350	320	—
3456 ATAAC	400	365	—
3456 ATAAC	450	410	—
3456 ATAAC	500	455	—
3412 TT	550	500	—
3412 TTA	650	600	—
3412 TTA	700	635	—
3412 STA	750	680	—
3412 STA	800	725	—
3412 STA	900	810	—
3508 TA	1000	910	812
3508B TA	1100	1000	906
3512 TA	1250	1150	1000
3512 TA	1400	1275	1206
3512B TA	1500	1360	1320
3512B TA	1600	1500	—
3512B HD	1750	1600	1500
3512B HD TA	1875	1700	—
3516 TA	2000	1825	1600
3516B TA	2250	2000	1750
3516B HD TA	2500	2275	2000
1000 rpm			
6CM20	—	—	1363
8CM20	—	—	1825
9CM20	—	—	2025
3508 TA	—	500	488
3508B TA	—	738	638
3512 TA	—	1050	969
3512B TA	—	1100	1013
3516 TA	—	1400	1225
3516B TA	—	1475	1288
3606 TA	2688	2425	2200
3608 TA	3575	3250	2938
3612 TA	5375	4850	4400
3616 TA	7150	6500	5875

50 Hz			
Gen Set Model	750 rpm		
	Standby kVA	Prime kVA	Continuous kVA
3606 TA	2163	1963	1775
6CM25	—	—	2225
8CM25	—	—	2875
3608 TA	2863	2600	2363
9CM25	—	—	3238
3612 TA	4325	3925	3550
3616 TA	5725	5200	4725
12CM32	—	—	6988
16CM32	—	—	9313
600 rpm			
6CM32	—	—	3456
8CM32	—	—	4656
9CM32	—	—	5238
500 rpm			
6CM43	—	—	6550
7CM43	—	—	7638
8CM43	—	—	8725
9CM43	—	—	9825
12CM43	—	—	13 094
16CM43*	—	—	17 463

*Contact for availability.

T — Turbocharged

TA — Turbocharged-Aftercooled

TTA — Twin Turbocharged-Aftercooled

STA — Series-Turbo Aftercooled

ATAAC — Air-To-Air Aftercooled

HD — High Displacement

kVA — Generator output

ekW — Generator output at 0.8 pf

Rating Definitions:

Standby — Output available with varying load for the duration of the interruption of the normal source power. Standby power in accordance with ISO 8528. Fuel stop power in accordance with ISO 3046/1, AS2789, DIN6271, and BS5514.

Prime — Output available with varying load for an unlimited time. Prime power in accordance with ISO 8528. 10% overload power in accordance with ISO 3046/1, AS2789, DIN6271, and BS5514 available on request.

Continuous — Output available without varying load for an unlimited time. Continuous power in accordance with ISO 8528, ISO 3046/1, AS2789, DIN6271, and BS5514.

Ratings are based on SAE J1995 standard conditions. These ratings also apply at ISO 3046/1, DIN6271, and BS5514 standard conditions.

Fuel Rates are based on fuel oil of 35° API (16° C or 60° F) gravity having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 29° C (85° F) and weighing 838.9 g/liter (7.001 lb/U.S. gal).

Engines

Cat Marine Engines

- Propulsion Ratings
- Generator Ratings

Cat Marine Engines

Propulsion Ratings

Engine Model	bkW Rating Range	bhp Rating Range
3618 DITA	7200	9655
3616 fcvr	5650	7577
3616 DITA	4600-5420	6169-7268
3612 DITA	3460-4060	4640-5444
3608 DITA	2300-2710	3084-3634
3606 DITA	1730-2030	2320-2722
3516B HP DITA SW	1790-2238	2400-3000
3516B HD DITA SC	1398-2000	1875-2682
3516B DITA SC	1231-1641	1650-2200
3512B HP DITA SW	1342-1678	1800-2250
3512B HD DITA SC	1119-1500	1500-2012
3512B DITA SC	820-1231	1100-1650
3508B HP DITA SW	895-1119	1200-1500
3508B DITA SC	578-820	775-1100
3508 DITA JW**	526-858	705-1150
3512 DITA JW**	900-1305	1207-1750
3516 DITA JW**	1195-1641	1603-2200
C32 DITTA	1119-1156	1500-1550
C30 DITTA	1119-1156	1500-1550
3412E DITTA	559-1044	750-1400
3412E DITTA (fast craft)	559-895	750-1200
3412E DITA	317-537	425-720
3412D DITTA	404-486	542-872
3412C DITTA	615-746	825-1000
3412C DITA	375-570	503-764
3408C DITA	300-403	402-540
C18 DITTA	653-746	875-1000
C18 DITA	338-532	453-714
3406E DITA	336-597	450-800
3406C DITA	186-433	250-580
C12 DITA	253-522	340-700
3196 DITA	253-492	340-660
C9 DITA	375	503
C7 DITA	339	455
3126 DITA	261-313	350-420
3126B DITA	186-336	250-450
3056 DITA	138-153	185-205
3056 DINA*	93	125
3054 DIT	80	108
3054B DINA	64	86
3034 DIT	60	80
3034 DINA	47	63

*Approval not required under 130 kW (174 bhp).

**Non IMO compliant.

fcvr — fast commercial vessel rating

Generator Ratings

Engine Model	50 Hz kW @ rpm	60 Hz kW @ rpm
3616 DITA	4700/5200 @ 1000	4400/4840 @ 900
3612 DITA	3520/3880 @ 1000	3300/3640 @ 900
3608 DITA	2350/2600 @ 1000	2200/2420 @ 900
3606 DITA	1760/1940 @ 1000	1650/1820 @ 900
3516B DITA	1460/1600 @ 1500	1825 @ 1800
3516B DITA	1180 @ 1000	1285 @ 1200
3512B DITA	965/1200 @ 1500	1070/1360 @ 1800
3512B DITA	880 @ 1000	1030 @ 1200
3508B DITA	630/800 @ 1500	715/910 @ 1800
3508B DITA	590 @ 1000	600 @ 1200
3412C DITA	350-500 @ 1500	400-590 @ 1800
3408C DITA	280 @ 1500	370 @ 1800
C18 DITA	275-450 @ 1500	340-425 @ 1800
C18 DITTA	—	625-688 @ 1800
3406C DITA	200-245 @ 1500	250-320 @ 1800
C9 DITA	150-200 @ 1500	175-250 @ 1800
3056 DIT	84 @ 1500	99 @ 1800
3054 DIT	60 @ 1500	72 @ 1800
3054 DINA	32-34 @ 1500	37-40 @ 1800
C2.2 DINA	17.5/18 @ 1500	21/21.5 @ 1800
C1.5 DINA	12/11 @ 1500	14.5/13.5 @ 1800

*Approval not required under 130 kW (174 bhp).

For more information on IMO regulations and compliance contact:

- IMO headquarters for “Annex VI of MARPOL 73/78...”
London, phone: 011-44 (0) 171-735-7611
- EPA paper “Frequently Asked Questions about MARPOL 73/78...” download from web site: epa.gov/oms/marine.htm or call Michigan: (734) 214-4822
- ABS guide “Notes on Prevention of Air Pollution from Ships,” Texas, phone: (281) 877-6306, fax: (281) 877-5801, e-mail: jpatterson@eagle.org

For additional information on Cat Marine Power, see our new marine site: www.cat-marine.com

Cat Marine Engines

Auxiliary Ratings

Engine Model		bkW/bhp			
3616	DITA	4600-5420/ 6169-7268			
3612	DITA	3460-4060/ 4640-5444			
3608	DITA	2300-2710/ 3084-3634			
3606	DITA	1730-2030/ 2320-2722			
Engine Model	50 Hz 1500 rpm bkW/bhp	50 Hz 1000 rpm bkW/bhp	60 Hz 1800 rpm bkW/bhp	60 Hz 1200 rpm bkW/bhp	
3516B DITA	1566-1717/ 2100-2303	1287/ 1726	1901/ 2549	1383/ 1855	
3512B DITA	1020-1257/ 1386-1686	933/ 1251	1125-1424/ 1509-1910	1102/ 1478	
3508B DITA	673-856/ 903-1148	649/ 870	760-968/ 1019-1298	682/ 915	
3516 DITA	1355/ 1817	1100/ 1475	1511/ 2026	1230/ 1650	
3512 DITA	1020/ 1368	860/ 1153	1125/ 1509	955/ 1281	
3508 DITA	673/ 903	446/ 598	760/ 1019	599/ 804	
3412C DITA	431-534/ 578-716	—	450-620/ 603-831	—	
3408C DITA	340/ 456	—	410/ 550	—	
3406C DITA	229-260/ 307-349	—	277-345/ 371-462	—	
C18 DITTA	—	—	547-601/ 733-806	—	
C18 DITA	301-492/ 404-660	—	372-465/ 499-624	—	
C9 DITA	162-215/ 217-288	—	189-269/ 253-361	—	

*Approval not required under 130 bkW (174 bhp).

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- IMO headquarters for "Annex VI of MARPOL 73/78..."
London, phone: 011-44 (0) 171-735-7611
- EPA paper "Frequently Asked Questions about MARPOL
73/78..." download from web site: epa.gov/oms/marine.htm
or call Michigan: (734) 214-4822
- ABS guide "Notes on Prevention of Air Pollution from Ships,"
Texas, phone: (281) 877-6306, fax: (281) 877-5801,
e-mail: jpatterson@eagle.org

For additional information on Cat Marine Power,
see our new marine site: www.cat-marine.com

Cat Industrial Diesel Applications

Model	Type	"IND A"			"IND B"			"IND C"			"IND D"			"IND E"		
		bkW	bhp	rpm	bkW	bhp	rpm	bkW	bhp	rpm	bkW	bhp	rpm	bkW	bhp	rpm
3003	NA	—	—	—	—	—	—	15.1	20.3	2800	—	—	—	—	—	—
		—	—	—	—	—	—	17.5	23.5	3600	—	—	—	—	—	—
3011C	NA	—	—	—	—	—	—	18.4	24.7	2800	—	—	—	—	—	—
		—	—	—	—	—	—	19.5	26.1	3000	—	—	—	—	—	—
3013	NA	—	—	—	—	—	—	23.5	31.5	2800	—	—	—	—	—	—
3013C	NA	—	—	—	—	—	—	20.7	27.8	2200	—	—	—	—	—	—
		—	—	—	—	—	—	22.3	29.9	2400	—	—	—	—	—	—
		—	—	—	—	—	—	23.4	31.4	2600	—	—	—	—	—	—
		—	—	—	—	—	—	24.4	32.7	2800	—	—	—	—	—	—
		—	—	—	—	—	—	25.1	33.7	3000	—	—	—	—	—	—
C1.6		—	—	—	—	—	—	26.5	35.5	3000	—	—	—	—	—	—
3024C	NA	—	—	—	—	—	—	31	41.6	2200	—	—	—	—	—	—
		—	—	—	—	—	—	34.1	45.7	2400	—	—	—	—	—	—
		—	—	—	—	—	—	35.7	47.9	2600	—	—	—	—	—	—
		—	—	—	—	—	—	37.3	50	2800	—	—	—	—	—	—
		—	—	—	—	—	—	38	51	3000	—	—	—	—	—	—

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Rating Definitions:

NOTE: Application examples are for reference only. For an exact determination of the appropriate rating, contact the factory or your local Caterpillar Dealer.

Rating Conditions:

All ratings are based on SAE J1349 standard ambient conditions of 100 kPa (**29.6 in Hg**), 30% relative humidity and 25° C (**77° F**). Ratings also apply at AS1501, BS5514, DIN6271 and ISO 3046/1 standard conditions.

Power is based on API gravity of 35 at 15° C (**60° F**), fuel having an LHV of 42 780 kJ/kg (**18,390 Btu/lb**) used at 29° C (**84° F**) with a density of 838.9 g/L (**7.001 lb/U.S. gal**). Ratings are the total output capability of the engine equipped with standard accessories: lube oil, fuel oil and jacket water pumps.

A Rating (Continuous):

- For heavy-duty services when engine is operated at rated load and speed up to 100% of the time without interruption or load cycling.
- Time at full load up to 100% of the duty cycle.
- Typical application examples include pipeline pumping.

B Rating:

- For service where power and/or speed are cyclic.
- Time at full load not to exceed 80% of the duty cycle.
- Typical application examples include irrigation where normal pump demand is 85% of engine rating, oil field mechanical pumping/drilling, stationary/plant air compressors.

C Rating (Intermittent):

- For service where power and/or speed are cyclic. Horsepower and speed capability of the engine can be utilized for one uninterrupted hour followed by one hour of operation at or below the A rating.
- Time at full load not to exceed 50% of the duty cycle.
- Typical application examples include agriculture tractors, off-highway truck, fire pumps, blast hole drills, rock crushers, kill pumps, oil field hoisting, and workover rigs.

D Rating:

- For service where rated power is required for periodic overloads. The maximum horsepower and speed capability of the engine can be utilized for a maximum of 30 uninterrupted minutes followed by one hour at the C rating.

- Time at full load not to exceed 10% of the duty cycle.
- Typical application examples include offshore cranes, runway snow blowers, water well drills, portable air compressors, cementers and fire pump certification power.

E Rating:

- For service where rated power is required for a short time for initial starting or sudden overload. For emergency service where standard power is unavailable. Horsepower and speed capability of the engine can be utilized for a maximum of 15 uninterrupted minutes followed by one hour at the C rating or duration of emergency.
- Time at full load not to exceed 5% of the duty cycle.
- Typical application examples include standby centrifugal water pumps, oil field well servicing crash trucks and gas turbine starters.

NA — Naturally Aspirated

T — Turbocharged

TA — Turbocharged-Aftercooled

ATAAC — Air-to-Air Aftercooled

DI — Direct Injection

PC — Precombustion Chamber
(Indirect Injection)

hp — Horsepower

kW — Metric equivalent of horsepower

Cat Industrial Diesel Applications

Model	Type	"IND A"			"IND B"			"IND C"			"IND D"			"IND E"		
		bkW	bhp	rpm	bkW	bhp	rpm	bkW	bhp	rpm	bkW	bhp	rpm	bkW	bhp	rpm
3024C	T	—	—	—	—	—	—	44.7	60	2800	—	—	—	—	—	—
3044C	NA	—	—	—	—	—	—	47	63.3	2600	—	—	—	—	—	—
3044C	T	—	—	—	—	—	—	60	80.5	2600	—	—	—	—	—	—
3054	NA	—	—	—	—	—	—	50	67	2000	—	—	—	—	—	—
		—	—	—	—	—	—	52	70	2200	—	—	—	—	—	—
3054	T	—	—	—	—	—	—	68.5	92	2200	—	—	—	—	—	—
		—	—	—	—	—	—	69	92.5	2100	—	—	—	—	—	—
		—	—	—	—	—	—	74.5	100	2200	—	—	—	—	—	—
		—	—	—	—	—	—	78	104	2100	—	—	—	—	—	—
		—	—	—	—	—	—	79.5	106	2200	—	—	—	—	—	—
3054	TA	—	—	—	—	—	—	84.5	113	2100	—	—	—	—	—	—
		—	—	—	—	—	—	85.5	114.5	2200	—	—	—	—	—	—
3054B	NA	—	—	—	—	—	—	57	76.5	2000	—	—	—	—	—	—
		—	—	—	—	—	—	58.5	78.5	2100	—	—	—	—	—	—
		—	—	—	—	—	—	60	80.5	2200	—	—	—	—	—	—
		—	—	—	—	—	—	63	84.5	2300	—	—	—	—	—	—
3054C	NA	—	—	—	—	—	—	50	67	2200	—	—	—	—	—	—
		—	—	—	—	—	—	54	72	2200	—	—	—	—	—	—
		—	—	—	—	—	—	62	83	2400	—	—	—	—	—	—
		—	—	—	—	—	—	60	80	2200	—	—	—	—	—	—
3054C	T	—	—	—	—	—	—	60	80	2200	—	—	—	—	—	—
		—	—	—	—	—	—	64.5	86	2200	—	—	—	—	—	—
		—	—	—	—	—	—	72.5	97	2200	—	—	—	—	—	—
		—	—	—	—	—	—	72.5	97	2400	—	—	—	—	—	—
3054C	TA	—	—	—	—	—	—	78.5	105	2400	—	—	—	—	—	—
		—	—	—	—	—	—	83.5	112	2200	—	—	—	—	—	—
		—	—	—	—	—	—	87	117	2200	—	—	—	—	—	—
		—	—	—	—	—	—	95	127	2200	—	—	—	—	—	—
3054E	TA	—	—	—	—	—	—	80	107	2200	—	—	—	—	—	—
		—	—	—	—	—	—	87	116	2200	—	—	—	—	—	—
		—	—	—	—	—	—	95	127	2200	—	—	—	—	—	—
		—	—	—	—	—	—	104	140	2200	—	—	—	—	—	—
3056	NA	—	—	—	—	—	—	76	102	2000	—	—	—	—	—	—
		—	—	—	—	—	—	76.5	103	2000	—	—	—	—	—	—
		—	—	—	—	—	—	78	105	2100	—	—	—	—	—	—
		—	—	—	—	—	—	79	106	2200	—	—	—	—	—	—
		—	—	—	—	—	—	80.5	108	2200	—	—	—	—	—	—
		—	—	—	—	—	—	84.5	113	2400	—	—	—	—	—	—
—	—	—	—	—	—	85.5	114.5	2500	—	—	—	—	—	—		

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Cat Industrial Diesel Applications

Model	Type	"IND A"			"IND B"			"IND C"			"IND D"			"IND E"		
		bkW	bhp	rpm	bkW	bhp	rpm	bkW	bhp	rpm	bkW	bhp	rpm	bkW	bhp	rpm
3056	T	—	—	—	—	—	—	85	114	2300	—	—	—	—	—	—
		—	—	—	—	—	—	86.5	116	2200	—	—	—	—	—	—
		—	—	—	—	—	—	87	117	2000	—	—	—	—	—	—
		—	—	—	—	—	—	87.5	118	2100	—	—	—	—	—	—
		—	—	—	—	—	—	103.5	139	2200	—	—	—	—	—	—
		—	—	—	—	—	—	107	143.5	2300	—	—	—	—	—	—
		—	—	—	—	—	—	110.5	148	2400	—	—	—	—	—	—
		—	—	—	—	—	—	112	150	2500	—	—	—	—	—	—
		—	—	—	—	—	—	113	151.5	2200	—	—	—	—	—	—
		—	—	—	—	—	—	113.5	152	2300	—	—	—	—	—	—
3056	TA	—	—	—	—	—	—	119.5	160	2200	—	—	—	—	—	—
		—	—	—	—	—	—	123	165	2000	—	—	—	—	—	—
		—	—	—	—	—	—	123	165	2100	—	—	—	—	—	—
		—	—	—	—	—	—	128	172	2200	—	—	—	—	—	—
		—	—	—	—	—	—	131	176	2300	—	—	—	—	—	—
		—	—	—	—	—	—	133.5	179	2400	—	—	—	—	—	—
3056C/E	TA	—	—	—	—	—	—	85	114	2200	—	—	—	—	—	—
		—	—	—	—	—	—	95	127	2200	—	—	—	—	—	—
		—	—	—	—	—	—	97	130	2200	—	—	—	—	—	—
		—	—	—	—	—	—	98.5	132	2000	—	—	—	—	—	—
		—	—	—	—	—	—	98.5	132	2500	—	—	—	—	—	—
		—	—	—	—	—	—	106	142	2200	—	—	—	—	—	—
		—	—	—	—	—	—	106	142	2300	—	—	—	—	—	—
		—	—	—	—	—	—	108	145	2000	—	—	—	—	—	—
		—	—	—	—	—	—	112	150	2200	—	—	—	—	—	—
		—	—	—	—	—	—	112	150	2500	—	—	—	—	—	—
		—	—	—	—	—	—	118.5	159	2200	—	—	—	—	—	—
		—	—	—	—	—	—	120	168	2200	—	—	—	—	—	—
		—	—	—	—	—	—	127	170	2000	—	—	—	—	—	—
		—	—	—	—	—	—	129	173	2000	—	—	—	—	—	—
		—	—	—	—	—	—	129	173	2200	—	—	—	—	—	—
—	—	—	—	—	—	129.5	174	2300	—	—	—	—	—	—		
—	—	—	—	—	—	129.5	174	2500	—	—	—	—	—	—		
—	—	—	—	—	—	129.5	180	2200	—	—	—	—	—	—		

EPA Certified

Cat Industrial Diesel Applications

Model Type	"IND A"			"IND B"			"IND C"			"IND D"			"IND E"		
	bkW	bhp	rpm	bkW	bhp	rpm	bkW	bhp	rpm	bkW	bhp	rpm	bkW	bhp	rpm
3126 TA	160	215	2200	172	230	2200	179	240	2200	186	250	2200	190	255	2200
	164	220	2400	172	230	2400	179	240	2400	190	255	2400	194	260	2400
	—	—	—	—	—	—	186	250	2500	186	250	2500	186	250	2500
	—	—	—	—	—	—	194	260	2600	194	260	2600	194	260	2600
3126B ATAAC*	131	175	2200-2500	149	200	1800-2100	187	250	1800-2100	—	—	—	—	—	—
	149	200	2200-2500	168	225	2200-2500	187	250	2200-2500	—	—	—	—	—	—
	—	—	—	—	—	—	205	275	2100-2400	—	—	—	—	—	—
	—	—	—	—	—	—	224	300	2100-2400	—	—	—	—	—	—
C9 ATAAC*	205	275	1800-2200	224	300	1800-2200	250	335	1800-2200	—	—	—	—	—	—
	—	—	—	—	—	—	261	350	1800-2200	—	—	—	—	—	—
C9 AG ATAAC*	—	—	—	—	—	—	205	275	2200	—	—	—	—	—	—
	—	—	—	—	—	—	224	300	2200	—	—	—	—	—	—
	—	—	—	—	—	—	242	325	2200	—	—	—	—	—	—
C10 ATAAC*	231	310	1800-2100	250	335	1800-2100	272	365	1800-2100	291	390	1800-2100	317	425	1800-2100
	—	—	—	—	—	—	242	325	1800-2100	—	—	—	—	—	—
	—	—	—	—	—	—	727	365	1800-2100	—	—	—	—	—	—
C10 AG ATAAC*	—	—	—	—	—	—	272	365	2100	—	—	—	—	—	—
	—	—	—	—	—	—	298	400	2100	—	—	—	—	—	—
C12 ATAAC*	276	370	1800-2100	298	400	1800-2100	317	425	1800-2100	339	455	1800-2100	373	500	1800-2100
C12 AG ATAAC*	—	—	—	—	—	—	317	425	2100	—	—	—	—	—	—
3406 T	201	270	1800	224	300	2000	242	325	2100	—	—	—	—	—	—
3406 TA	199	267	1300	—	—	—	199	267	1300	283	380	2100	291	390	2100
	205	275	1800	242	325	2000	269	360	2100	—	—	—	—	—	—
	242	325	1800	242	325	2000	242	325	1800	313	420	2100	336	450	2100
	—	—	—	—	—	—	242	325	2100	—	—	—	—	—	—
	242	325	1800	276	370	2000	298	400	2100	—	—	—	—	—	—
	257	345	1800	254	340	2000	250	335	2100	358	480	2100	373	500	2100
	—	—	—	—	—	—	257	345	1800	—	—	—	—	—	—
—	—	—	—	—	—	269	360	1800	—	—	—	—	—	—	

EPA Certified

*3126B, C9, C10, C12, C15 and C16 ratings meet Tier 2, Stage II emissions requirements. Tier 2 refers to EPA (U.S.) standards. Stage II refers to European standards.

Cat Industrial Diesel Applications

Model Type	"IND A"			"IND B"			"IND C"			"IND D"			"IND E"		
	bkW	bhp	rpm	bkW	bhp	rpm	bkW	bhp	rpm	bkW	bhp	rpm	bkW	bhp	rpm
3406 TA (cont.)	268	360	1800	268	360	2000	269	360	2100	283	380	2100	291	390	2100
	—	—	—	—	—	—	280	375	2000	298	400	2100	324	435	2100
	—	—	—	—	—	—	280	375	2100	—	—	—	—	—	—
	—	—	—	—	—	—	298	400	1800	—	—	—	—	—	—
	—	—	—	—	—	—	298	400	2000	—	—	—	—	—	—
	280	375	1800	291	390	2000	298	400	2100	—	—	—	—	—	—
	—	—	—	—	—	—	321	430	2100	324	435	2100	362	485	2100
	—	—	—	—	—	—	328	440	1800	—	—	—	—	—	—
	—	—	—	—	—	—	328	440	1900	—	—	—	—	—	—
	—	—	—	—	—	—	328	440	2000	366	490	2100	—	—	—
	287	385	1800	328	440	2000	343	460	2100	—	—	—	—	—	—
313	420	1800	328	440	2000	343	460	2100	373	500	2100	384	515	2100	
C15 ATAAC*	317	425	1800-2100	336	450	1800-2100	354	475	1800-2100	384	515	2100	392	525	2100
	—	—	—	—	—	—	392	525	1800-2100	354	475	1800-2100	354	475	1800-2100
	—	—	—	—	—	—	373	500	1800-2100	421	565	1800-2100	429	575	1800-2100
	—	—	—	—	—	—	373	500	1800-2100	—	—	—	—	—	—
C15 AG ATAAC*	—	—	—	—	—	391	525	2100	—	—	—	—	—	—	
C16 ATAAC*	373	500	1800-2100	410	550	1800-2100	447	600	1800-2100	469	630	1800-2100	492	660	1800-2100
C16 AG ATAAC*	—	—	—	—	—	—	448	600	2100	—	—	—	—	—	—
3408 T	242	325	1800	272	365	2000	317	425	2100	339	455	2100	358	480	2100
3408 TA	238	319	1200	—	—	—	261	350	1200	—	—	—	—	—	—
	347	465	1800	366	490	2000	377	505	2100	392	525	2100	399	535	2100
	347	465	1800	366	490	2000	377	505	2100	392	525	2100	399	535	2100
3412 T	354	475	1800	384	515	2000	429	575	2100	522	700	2100	552	740	2100
	373	500	1800	410	550	2000	485	650	2100	503	675	2100	522	700	2100
3412 TA	317	425	1200	—	—	—	399	535	1300	—	—	—	—	—	—
	533	715	1800	552	740	2000	559	750	2100	656	880	2100	716	960	2100
	418	560	1800	—	—	—	559	750	2100	656	880	2100	716	960	2100
3412 TTA	533	715	1800	541	725	2000	559	750	2100	—	—	—	—	—	—
3412E TA	—	—	—	317	425	1200	—	—	—	—	—	—	—	—	—
	—	—	—	373	500	1200	429	575	1300	—	—	—	—	—	—
	373	500	1800	447	600	2000	485	650	2100	—	—	—	—	—	—
	433	580	1800	507	680	2000	522	700	2100	—	—	—	—	—	—
—	—	—	466	625	1400	—	—	—	—	—	—	—	—	—	—
3412E TTA	548	735	1800	560	750	2000	560	750	2100	—	—	—	—	—	—
	—	—	—	—	—	—	567	760	2100	—	—	—	—	—	—
	—	—	—	—	—	—	626	860	2100	739	990	2100	783	1050	2100
	—	—	—	—	—	—	642	840	1800	—	—	—	—	—	—
3412E ATAAC*	485	650	2100	—	—	—	485	650	2100	—	—	—	—	—	—
	522	700	2100	—	—	—	522	700	2100	—	—	—	—	—	—

EPA Certified

*3126B, C9, C10, C12, C15 and C16 ratings meet Tier 2, Stage II emissions requirements. Tier 2 refers to EPA (U.S.) standards. Stage II refers to European standards.

Cat Industrial Diesel Applications

Model	Type	"IND A"			"IND B"			"IND C"			"IND D"			"IND E"		
		bkW	bhp	rpm	bkW	bhp	rpm	bkW	bhp	rpm	bkW	bhp	rpm	bkW	bhp	rpm
3508	TA	507	680	1200	—	—	—	612	820	1300	—	—	—	—	—	—
		578	775	1800	—	—	—	634	850	1800	—	—	—	—	—	—
		638	855	1800	697	935	1800	746	1000	1800	—	—	—	—	—	—
3508B	TA	746	1000	1800	783	1050	1800	820	1100	1800	—	—	—	—	—	
3512	TA	761	1020	1200	—	—	—	858	1150	1300	—	—	—	—	—	
		877	1175	1800	—	—	—	1007	1350	1800	—	—	—	—	—	
		955	1280	1800	1048	1405	1800	1119	1500	1800	—	—	—	—	—	
3512B	TA	1119	1500	1800	1175	1575	1800	1231	1650	1800	—	—	—	—	—	
3516	TA	1011	1355	1200	—	—	—	1242	1665	1300	—	—	—	—	—	
		1156	1550	1800	—	—	—	1268	1700	1800	—	—	—	—	—	
		1275	1710	1800	1391	1865	1800	1492	2000	1800	—	—	—	—	—	
3516B	TA	1492	2000	1800	1566	2100	1800	1641	2200	1800	—	—	—	—	—	
3606	TA	1490	1998	750	—	—	—	—	—	—	—	—	—	—	—	
		1560	2092	800	—	—	—	—	—	—	—	—	—	—	—	
		1730	2319	900	—	—	—	—	—	—	—	—	—	—	—	
		1850	2481	1000	—	—	—	—	—	—	—	—	—	—	—	
		1350	1810	750	—	—	—	—	—	—	—	—	—	—	—	
		1355	1817	825	—	—	—	—	—	—	—	—	—	—	—	
		1570	2105	900	—	—	—	—	—	—	—	—	—	—	—	
		1680	2253	1000	—	—	—	—	—	—	—	—	—	—	—	
3608	TA	1980	2655	750	—	—	—	—	—	—	—	—	—	—		
		2080	2787	800	—	—	—	—	—	—	—	—	—	—		
		2300	3080	900	—	—	—	—	—	—	—	—	—	—		
		2460	3300	1000	—	—	—	—	—	—	—	—	—	—		
		1800	2414	750	—	—	—	—	—	—	—	—	—	—		
		1800	2414	825	—	—	—	—	—	—	—	—	—	—		
		2090	2803	900	—	—	—	—	—	—	—	—	—	—		
		2240	3004	1000	—	—	—	—	—	—	—	—	—	—		
3612	TA	2980	3996	750	—	—	—	—	—	—	—	—	—	—		
		3120	4184	800	—	—	—	—	—	—	—	—	—	—		
		3460	4640	900	—	—	—	—	—	—	—	—	—	—		
		3700	4962	1000	—	—	—	—	—	—	—	—	—	—		
		2700	3621	750	—	—	—	—	—	—	—	—	—	—		
		2710	3634	825	—	—	—	—	—	—	—	—	—	—		
		3140	4211	900	—	—	—	—	—	—	—	—	—	—		
		3360	4506	1000	—	—	—	—	—	—	—	—	—	—		
3616	TA	3960	5310	750	—	—	—	—	—	—	—	—	—	—		
		4160	5579	800	—	—	—	—	—	—	—	—	—	—		
		4600	6169	900	—	—	—	—	—	—	—	—	—	—		
		4920	6598	1000	—	—	—	—	—	—	—	—	—	—		
		3600	4828	750	—	—	—	—	—	—	—	—	—	—		
		3600	4828	825	—	—	—	—	—	—	—	—	—	—		
		4180	5605	900	—	—	—	—	—	—	—	—	—	—		
		4480	6008	1000	—	—	—	—	—	—	—	—	—	—		

EPA Certified

Engines

Cat Industrial Diesel Applications

- Cat Diesel Engines for Fire Pump Packages
- Cat Underground Mining MSHA Certification List

Cat Industrial Diesel Applications

Cat Diesel Engines for Fire Pump Packages

Model	No. of Cyl	1460 rpm		1750 rpm		1900 rpm		2100 rpm		2200 rpm		2300 rpm	
		bkW	bhp	bkW	bhp	bkW	bhp	bkW	bhp	bkW	bhp	bkW	bhp
3406 T	I6	183	247	218	292	233	312	246	330	—	—	261	350
3406 T	I6	242	325	276	370	280	375	280	375	—	—	—	—
3406 TA	I6	224	300	313	420	317	425	321	430	—	—	339	455
3406 TA	I6	—	—	343	460	343	460	360	483	—	—	—	—
3508 TA	V8	709	950	794	1065	—	—	—	—	—	—	—	—
3512 TA	V12	1067	1430	1193	1600	—	—	—	—	—	—	—	—
3516 TA	V16	1417	1900	1480	1985	—	—	—	—	—	—	—	—

Model	No. of Cyl	1750 rpm		2100 rpm		2300 rpm		2400 rpm		2800 rpm		3000 rpm	
		bkW	bhp	bkW	bhp	bkW	bhp	bkW	bhp	bkW	bhp	bkW	bhp
3126 TA	I6	145	195	175	235	186	250	190	255	201	270	149	200

T — Turbocharged

TA — Turbocharged-Aftercooled

Rating Definition:

Standby: Fire pump engine ratings represent the output which may be utilized to drive stationary fire pumps where the pumping equipment has been sized according to ULI and FM procedures.

Cat Underground Mining MSHA Certification List

**Engines for Underground Non-Gassy Mines and Tunnels and in Areas of Underground Coal Mines
Where "Non-Permissible" Equipment is Allowed
(MSHA, Part 7, Category B)**

Model	Type	bkW	bhp	rpm	Vent Rate		Particulate Index		MSHA Cert. No.
					cfm	cfm/hp	cfm	cfm/hp	
3176C	ATAAC ^{1,3}	201	270	2100	11,500	42.6	7,500	27.8	7E-B012-0
		231	310	2100	13,500	43.5	7,500	24.2	7E-B012-0
		250	335	2100	15,000	44.8	8,000	23.9	7E-B012-0
3406E	ATAAC ¹	269	360	2100	17,000	47.2	14,000	36.9	7E-B018-0
		298	400	2100	18,500	46.3	13,000	32.5	7E-B018-0
		317	425	2100	20,000	47.1	12,000	28.2	7E-B018-0
		336	450	2100	21,000	46.7	12,000	26.7	7E-B018-0
		354	476	2100	22,000	46.3	13,000	27.4	7E-B018-0
		366	490	2100	22,000	44.9	10,500	21.4	7E-B012-0
		373	500	2100	24,000	48.0	12,500	25.0	7E-B012-0

¹ Electronically controlled/governed.

² Mechanically governed.

³ Also approved to CANMET/SCA (Cert. No. 1099).

ATAAC — Air-to-Air Aftercooled

Cat Oil and Gas Engines

Gas Industrial Ratings

Model	720 rpm		750 rpm		900 rpm		1000 rpm		1200 rpm		1400 rpm		1800 rpm		
	bkW	bhp	bkW	bhp	bkW	bhp	bkW	bhp	bkW	bhp	bkW	bhp	bkW	bhp	
G3304 NA	—	—	—	—	35	47	—	—	41	55	48	65	56	75	95
G3306 NA	—	—	—	—	—	—	—	60	81	72	97	84	113	108	145
G3306 TA	—	—	—	—	—	—	—	—	—	105	141	164	170	157	211
G3306 TA ²	—	—	—	—	—	—	—	82	110	97	130	118	158	151	203
G3306 TA ¹	—	—	—	—	—	—	—	—	—	110	147	127	171	164	220
G3406 NA	—	—	—	—	—	—	—	93	125	112	150	130	175	—	—
G3406 TA ¹	—	—	—	—	—	—	—	—	—	—	—	212	284	272	365
G3406 TA ²	—	—	—	—	—	—	—	—	—	162	217	189	253	242	325
G3406 TA ¹	—	—	—	—	—	—	—	149	200	179	240	169	227	218	292
G3408 NA	—	—	—	—	—	—	—	106	142	127	170	148	198	190	255
G3408 TA ²	—	—	—	—	—	—	—	165	221	198	266	232	311	298	400
G3408 TA ¹	—	—	—	—	—	—	—	176	236	211	283	235	315	302	405
G3408 TA ^{1,3}	—	—	—	—	—	—	—	—	—	—	—	261	350	336	450
G3408 TA ^{2,3}	—	—	—	—	—	—	—	—	—	—	—	246	331	317	425
G3412 TA ²	—	—	—	—	—	—	—	—	—	—	—	348	467	447	600
G3412 TA ¹	—	—	—	—	—	—	—	—	—	—	—	377	506	452	607
G3412 TA ^{2,3}	—	—	—	—	—	—	—	—	—	—	—	369	495	475	637
G3508 TA ^{2,3}	—	—	—	—	—	—	—	—	—	402	540	469	630	—	—
G3512 NA	—	—	—	—	—	—	—	326	438	391	525	—	—	—	—
G3512 TA ²	—	—	—	—	—	—	—	491	658	589	790	—	—	—	—
G3512 TA ^{2,3}	—	—	—	—	—	—	—	503	675	604	810	704	945	—	—
G3512 TA ^{2,3}	—	—	—	—	481	645	534	717	642	860	—	—	—	—	—
G3516 TA ²	—	—	—	—	587	788	652	875	782	1050	—	—	—	—	—
G3516 TA ^{2,3}	—	—	—	—	—	—	—	673	904	808	1084	943	1265	—	—
G3516 TA ^{2,3}	—	—	—	—	—	—	—	713	957	856	1149	1000	1340	—	—
G3520B ^{2,3}	—	—	—	—	—	—	—	—	—	—	—	1249	1675	—	—
G3606 TA ^{2,3}	—	—	—	—	1193	1600	1324	1775	—	—	—	—	—	—	—
G3606 TA ^{1,3}	—	—	—	—	1271	1705	1413	1895	—	—	—	—	—	—	—
G3608 TA ^{2,3}	—	—	—	—	1591	2133	1767	2370	—	—	—	—	—	—	—
G3608 TA ^{1,3}	—	—	—	—	1693	2270	1879	2520	—	—	—	—	—	—	—
G3612 TA ^{2,3}	—	—	—	—	2383	3195	2647	3550	—	—	—	—	—	—	—
G3612 TA ^{1,3}	—	—	—	—	2539	3405	2822	3785	—	—	—	—	—	—	—
G3616 TA ^{2,3}	—	—	—	—	3178	4261	3551	4735	—	—	—	—	—	—	—
G3616 TA ^{1,3}	—	—	—	—	3389	4545	3762	5045	—	—	—	—	—	—	—
G16CM34 TA	6100	8180	6100	8180	—	—	—	—	—	—	—	—	—	—	—

¹ 32° C (90° F) water to aftercooler.

² 54° C (130° F) water to aftercooler.

³ Low Emissions.

NA — Naturally Aspirated

T — Turbocharged

TA — Turbocharged-Aftercooled

bhp — Brake horsepower

bkW — Metric equivalent of brake horsepower

Rating Definition:

Continuous: Output available without varying load for an unlimited time. Continuous power in accordance with ISO 8528, ISO 3046/1, AS2789, DIN6271, and BS5514.

Engines

Cat Oil and Gas Engines

- Offshore Power Module Ratings
- Land Rig Power Module Ratings

Cat Oil and Gas Engines

Offshore Power Module Ratings

Model	L with Base		W of Base		H with Base		Approximate Weight with Base	
	m	ft	mm	in	mm	in	kg	lb
3512B	5.44	17'10"	1790	71	2225	90	13 970	30,800
3512B HD	5.44	17'10"	1790	71	2225	90	14 515	32,000
3516B	6.10	20'0"	1790	71	2225	90	16 740	36,900
3516B HD	6.40	21'0"	1790	71	2225	90	17 236	38,000
3606	7.39	24'3"	1905	75	3250	128	37 194	82,000
3608	9.91	32'6"	1905	75	3250	128	44 452	98,000
3612	9.45	31'0"	2085	82	3300	130	55 340	122,000
3616	10.06	33'0"	2085	82	3300	130	65 317	144,000
12CM32	11.05	36'2"	2800	110	5357	211	121 000	266,200
16CM32	12.40	40'8"	2800	110	5357	211	148 000	325,600

Land Rig Power Module Ratings

Model	L Bases Available*	W of Base		Radiator Height with Base		Approximate Weight with Base	
	7.85 m (25'9")	mm	in	mm	in	kg	lb
3508	X	2390	94	2896	114	13 155	29,000
3508B	X	2390	94	2896	114	13 155	29,000
3512	X	2390	94	2896	114	15 875	35,000
3512B	X	2390	94	2896	114	15 875	35,000
3512B HD	X	2390	94	2896	114	16 798	37,000
3516	X	2390	94	2896	114	18 600	41,000
3516B	X	2390	94	2896	114	18 600	41,000

*9.37 m (30'9") and 12.4 m (40'9") bases also available.

Cat Oil and Gas Engines

Electric Drive Engine Ratings for SCR and DC Powered Rigs

Model	No. Cyl.	60 Hz								50 Hz					
		720 rpm		900 rpm		1200 rpm		1800 rpm		750 rpm		1000 rpm		1500 rpm	
		bkW	bhp	bkW	bhp	bkW	bhp	bkW	bhp	bkW	bhp	bkW	bhp	bkW	bhp
C16	I-6	—	—	—	—	—	—	410	550¹	—	—	—	—	—	—
3412E	V-12	—	—	—	—	—	—	577	760¹	—	—	—	—	—	
3412E	V-12	—	—	—	—	354	475¹	—	—	—	—	—	—	—	
3508	V-8	—	—	—	—	641	860¹	—	—	—	—	—	—	—	
3508B	V-8	—	—	—	—	682	915¹	—	—	—	—	—	—	880	1180
3512	V-12	—	—	—	—	709	950¹	—	—	—	—	—	—	1090	1462
3512	V-12	—	—	—	—	1070	1435¹	—	—	—	—	—	—	—	—
3512B	V-12	—	—	—	—	1101	1476³	—	—	—	—	—	—	1310	1757
3516	V-16	—	—	—	—	1345	1804¹	—	—	—	—	—	—	—	—
3516B	V-16	—	—	—	—	1384	1855³	—	—	—	—	—	—	—	—
3516B HD	V-16	—	—	—	—	1604	2150³	—	—	—	—	—	—	—	—
3606	I-6	1565	2100²	1880	2520²	—	—	—	—	1645	2210²	2010	2700²	—	—
3608	I-8	2085	2800²	2533	3395²	—	—	—	—	2155	2890²	2700	3630²	—	—
3612	V-12	3130	4200²	3802	5096²	—	—	—	—	3285	4410²	4025	5400²	—	—
3616	V-16	4180	5600²	4604	6172²	—	—	—	—	4315	5790²	5415	7260²	—	—
12CM32	V-12	5760	7724	—	—	—	—	—	—	5760	7724²	—	—	—	—
16CM32	V-16	7680	10,300	—	—	—	—	—	—	7680	10,300²	—	—	—	—

¹ EPA certified.

² IMO certified.

³ EPA and IMO certified.

bhp — Brake horsepower

bkW — Metric equivalent of brake horsepower

Requires Separate Circuit Aftercooling (SCAC), without fan power, when emissions compliant.

Engines

Cat Oil and Gas Engines

- Mechanical Drill Rig Ratings
- Fracturing/Acidizing/Cementing Ratings

Cat Oil and Gas Engines

Mechanical Drill Rig Ratings

Model	Pumping and Drilling Ratings (B Level)				
	No. Cyl.	1400 rpm		1200 rpm	
		bkW	bhp	bkW	bhp
3412E***	V-12	466	625	—	—
3508**	V-8	—	—	567	760
3508B*	V-8	—	—	567	760
3508B*	V-8	—	—	671	900
3512**	V-12	—	—	764	1025
3512**	V-12	—	—	933	1250
3516**	V-16	—	—	1044	1400
3516**	V-16	—	—	1230	1649

*2002 U.S. EPA and IMO certified, Separate Circuit Aftercooling (SCAC), without fan.

**Not U.S. EPA and IMO certified, Jacket Water Aftercooling (JWAC), without fan.

***2002 U.S. EPA and IMO certified, Air to Air Aftercooled (ATAAC), without fan.

bhp — Brake horsepower

bkW — Metric equivalent of brake horsepower

Fracturing/Acidizing/Cementing Ratings

Dry Manifolds (E Level)				
Model	bkW	bhp	rpm	2002 EPA, Carb & EU 97/68/EC
C10	317	425	2100	X
C12	373	500	2100	X
C15	428	575	2100	X
C16	492	660	2100	X
3408	560	750	2100	X
3412E*	595	750	2100	X
3412E	783	—	2100	X
3412 STA	933	1250	2100	X
3508B	820	1100	1800	X
3512B*	1492	2000	1900	X
3512B	1604	2150	1900	X
3512B	1679	2250	1900	X

Water Cooled Manifolds (E Level)

Model	bkW	bhp	rpm	2002 EPA and IMO
C10*	272	365	2100	X
C15*	373	500	2100	X
3126**	172	230	2600	X
3406*	365	490	2100	X
3412E*	642	860	2100	X
3412E	746	1000	2100	X
Zone 2				2001 EPA and IMO
C15	373	500	2100	X
3412E	642	860	2100	X

*D Rating Level — cementing.

**C Rating Level.

STA — Series Turbocharged-Aftercooled

bhp — Brake horsepower

bkW — Metric equivalent of brake horsepower

E Rating Level — fracturing.

Rating Definition:

The horsepower and speed capability of the engine which can be used to power high pressure well servicing equipment.

NOTE: For a transmission match, consult your transmission supplier.

- Cat Railway Power
- Locomotive Traction Engine Ratings
 - Maintenance of Way Machinery Engine Ratings
 - Auxiliary Electric (Head End) Power Engine Ratings

Cat Railway Power

Locomotive Traction Engine Ratings

Model	Rated Speed	Low Rating		High Rating	
	rpm	kW	hp	kW	hp
C9	1800-2200	205	275	249	335
C10	1800-2100	231	310	307	425
C12	1800-2100	276	370	373	500
3406	1800-2100	201	270	410	550
C15	1800-2100	317	425	429	575
C16	1800-2100	326	500	492	660
3412	1800-2100	317	425	783	1050
3508	1200-1800	500	675	970	1300
3512	1200-1800	746	1000	1700	2280
3516	1200-1800	1200	1600	2240	3000
3606	750-1000	1640	2200	2030	2720
3608	750-1000	2180	2925	2710	3635
3612	750-1000	3280	4400	4060	5445
3616	750-1000	4360	5850	5420	7270

Auxiliary Electric (Head End) Power Engine Ratings

Model	50 Hz Prime	60 Hz Prime
3406	275 kVA	275 ekW
3406	320 kVA	320 ekW
3406	365 kVA	365 ekW
3456	275 kVA	275 ekW
3456	320 kVA	320 ekW
3456	365 kVA	365 ekW
3456	410 kVA	410 ekW
3456	455 kVA	455 ekW
3412	455 kVA	455 ekW
3412	500 kVA	500 ekW
3412	545 kVA	545 ekW
3412	600 kVA	635 ekW
3412	635 kVA	680 ekW
3412	680 kVA	725 ekW
3412	725 kVA	—

50 Hz @ 1500 rpm.
60 Hz @ 1800 rpm.

Maintenance of Way Machinery Engine Ratings

Model	Rated Speed	Low Rating		High Rating	
	rpm	kW	hp	kW	hp
3003/3013	2800-3600	15	20	25	34
C1.6	2800-3000	26.5	35.5	26.5	35.5
3024C	2200-3000	31	42	45	60
3044C	2600	47	63	60	80.5
3054C/E	2000-2400	50	67	91	142
3056E	2000-2500	76	102	135	180
3116/3126B	1800-2600	86	115	205	275
C9	1800-2200	205	275	261	350
C10	1800-2100	231	310	272	365
C12	1800-2100	276	370	373	500
3406	1800-2100	183	247	392	525
C15	1800-2100	317	425	429	575
C16	1800-2100	373	500	492	660
3412/3412E	1800-2100	354	475	716	960
3508	1200-1800	507	680	746	1000
3512	1200-1800	761	1020	1119	1500
3516	1200-1800	1011	1355	1492	2000

NOTE: All ratings include emission-regulated and non-regulated engines.

FORMER MODELS



TRACK-TYPE TRACTORS

Model	Product Ident. No. Prefix	Years Built	Horse-power FW/ Drawbar	Approx. Machine Weight kg (lb)	Gauge m (ft) and Width m (ft)	Length m (ft) and Height m (ft)	Transmission	Rated Drawbar Pull — kg (lb) and Forward Speed — km/h (mph)					
								1st	2nd	3rd	4th	5th	6th
D2	4U	47-58	43/38	3258 (7175)	1.02 (3'4") 1.42 (4'8")	2.74 (9'0") 1.57 (5'2")	DD	3609 (7950)	2588 (5700)	2061 (4540)	1634 (3600)	1067 (2350)	
D2	4U	47-58	42/35	3258 (7175)	1.02 (3'4") 1.57 (5'2")	2.74 (9'0") 1.57 (5'2")	DD	3609 (7950)	2588 (5700)	2061 (4540)	1634 (3600)	1067 (2350)	
D2	5U	57-58	38/32	3119 (5870)	1.27 (4'2") 1.42 (4'8")	2.74 (9'0") 1.57 (5'2")	DD	3033 (6680)	2483 (5420)	2007 (4420)	1703 (3570)	1035 (2280)	
D2	5U	57-58	43/38	3373 (7430)	1.27 (4'2") 1.67 (5'6")	2.74 (9'0") 1.57 (5'2")	DD	3609 (7950)	2588 (5700)	2061 (4540)	1634 (3600)	1067 (2250)	
D3	79U	72-79	62/—	4812 (10,610)	1.42 (4'8") 1.78 (5'10")	2.77 (9'1") 1.70 (5'7")	PS						
D3 LGP	6N	72-79	62/—	5410 (11,925)	1.65 (5'5") 2.29 (7'6")	2.97 (9'10") 1.70 (5'7")	PS						
D3B	23Y	79-87	65	6719 (14,812)	1.42 (4'8") 1.78 (5'10")	2.77 (9'1") 2.67 (8'9")	PS						
D3B	27Y	79-87	65	6877 (15,160)	1.42 (4'8") 1.78 (5'10")	2.77 (9'1") 2.67 (8'9")	PS						
D3B LGP	24Y	79-87	65	7479 (16,488)	1.65 (5'5") 2.29 (7'6")	2.99 (9'10") 2.67 (8'9")	PS						
D3B LGP	28Y	79-87	65	7637 (16,836)	1.65 (5'5") 2.29 (7'6")	2.99 (9'10") 2.67 (8'9")	PS						
D3B	3YC	85-87	65	6719 (14,812)	1.42 (4'8") 1.78 (5'10")	2.77 (9'1") 2.67 (8'9")	DD						
D3B LGP	5MC	85-87	65	7479 (16,488)	1.65 (5'5") 2.29 (7'6")	2.99 (9'10") 2.67 (8'9")	DD						

NOTE: Power Shift models show speeds only, not drawbar pull.

NOTE: Track-Type Tractor weights do not include blades until 1967.

Track-Type Tractors (cont'd)

Model	Product Ident. No. Prefix	Years Built	Horse-power FW/ Drawbar	Approx. Machine Weight kg (lb)	Gauge m (ft) and Width m (ft)	Length m (ft) and Height m (ft)	Transmission	Rated Drawbar Pull — kg (lb) and Forward Speed — km/h (mph)						
								1st	2nd	3rd	4th	5th	6th	
D3C	5KG	87-90	67	7084 (15,618)	1.42 (4'8") 1.79 (5'10.6")	2.8 (9'4") 2.66 (8'8.9")	PS	3.1 (1.9)	5.9 (3.7)	10.8 (6.7)				
D3C Series II		90-93	70	7001 (15,435)	1.42 (4'8") 1.79 (5'11")		PS	3.1 (1.9)	5.9 (3.7)	10.8 (6.7)				
D3C Series III		93-01	70	7110 (15,650)	1.45 (4'9") 1.85 (6'1")	3.98 (13'1") 2.73 (8'11")	HYS		0-9.0 (0-5.6)					
D3C XL Series II		91-93	70	7242 (15,965)	1.42 (4'8") 1.83 (6'0")		PS	3.1 (1.9)	5.9 (3.7)	10.8 (6.7)				
D3C XL Series III		93-01	70	7304 (16,100)	1.45 (4'9") 1.85 (6'1")	3.98 (13'1") 2.73 (8'11")	HYS		0-9.0 (0-5.6)					
D3C LGP	1PJ	87-90	67	7788 (17,170)	1.65 (5'4") 2.29 (7'6")	3.0 (9'10.1") 2.66 (8'8.9")	PS	3.1 (1.9)	5.9 (3.7)	10.8 (6.7)				
D3C LGP Series II		90-93	70	7788 (17,170)	1.65 (5'5") 2.29 (7'6")		PS	3.1 (1.9)	5.9 (3.7)	10.8 (6.7)				
D3C LGP Series III		93-01	70	7710 (17,000)	1.68 (5'6") 2.31 (7'7")	3.95 (13'0") 2.73 (8'11")	HYS		0-9.0 (0-5.6)					
D4	6U	47-59	48/43	4629 (10,195)	1.12 (3'8") 1.58 (5'2")	3.07 (11'0") 1.54 (5'1")	DD	4531 (9980)	3496 (7700)	2656 (5850)	2089 (4600)	1339 (2950)	8.7 (5.4)	8.7 (5.4)
D4	6U	47-59	60/48	4847 (10,675)	1.12 (3'8") 1.58 (5'2")	3.16 (10'5") 1.54 (5'1")	DD	4858 (10,700)	3496 (7700)	2724 (6000)	2093 (4610)	1326 (2920)	9.8 (6.1)	9.8 (6.1)
D4	6U	47-59	63/50	4844 (10,675)	1.12 (3'8") 1.58 (5'2")	3.18 (10'5") 1.76 (5'10")	DD	4858 (10,700)	3528 (7770)	2724 (6000)	2093 (4610)	1326 (2920)	9.8 (6.1)	9.8 (6.1)
D4	7U	47-59	63/50	5067 (10,970)	1.52 (5'0") 1.98 (6'6")	3.16 (10'5") 1.76 (5'10")	DD	4858 (10,700)	3528 (7770)	2724 (6000)	2093 (4610)	1326 (2920)	9.8 (6.1)	9.8 (6.1)
D4B	2XF	87	75	7450 (16,420)	1.42 (4'8") 1.78 (5'10")	2.78 (9'1") 2.67 (8'9")	PS	3.2 (2.0)	6.0 (3.7)	11.1 (6.9)				

NOTE: Power Shift models show speeds only, not drawbar pull.
NOTE: Track-Type Tractor weights do not include blades until 1967.

Track-Type Tractors (cont'd)

Model	Product Ident. No. Prefix	Years Built	Horse-power FW/ Drawbar	Approx. Machine Weight kg (lb)	Gauge m (ft) and Width m (ft)	Length m (ft) and Height m (ft)	Transmission	Rated Drawbar Pull — kg (lb) and Forward Speed — km/h (mph)					
								1st	2nd	3rd	4th	5th	6th
D4B LGP	1SG	87	75	7800 (17,200)	1.65 (5'5") 2.29 (7'6")	2.99 (9'10") 2.67 (8'9")	PS	3.2 (2.0)	6.0 (3.7)	11.1 (6.9)			
D4C	39A	59-63	65/52	5064 (11,155)	1.12 (3'8") 1.58 (5'2")	3.05 (10'1") 1.76 (5'10")	DD	4858 (10,700)	3528 (7770)	2724 (6000)	2093 (4610)	1321 (2910)	
D4C	40A	59-63	65/52	4881 (10,750)	1.52 (5'0") 1.98 (6'6")	3.05 (10'1") 1.76 (5'10")	DD	4858 (10,700)	3528 (7770)	2724 (6000)	2093 (4610)	1321 (2910)	
D4C	1RJ	87-90	78	7581 (16,714)	1.42 (4'7") 1.83 (6'0")	3.00 (9'10.1") 2.66 (8'8.9")	PS						
D4C Series II		90-93	80	7557 (16,660)	1.42 (4'8") 1.83 (6'5")		PS						
D4C Series III		93-01	80	7330 (16,150)	1.50 (4'11") 1.91 (6'3")	3.99 (13'1") 2.73 (8'11")	HYS		0-9.0 (0-5.6)				
D4C XL Series III		93-01	80	7520 (16,570)	1.50 (4'11") 1.96 (6'5")	3.99 (13'1") 2.73 (8'11")	HYS		0-9.0 (0-5.6)				
D4C LGP	2CJ	87-90	78	7905 (17,427)	1.65 (5'4") 2.29 (7'6")	3.00 (9'10.1") 2.66 (8'8.9")	PS						
D4C LGP Series II		90-93	80	7905 (17,427)	1.65 (5'5") 2.29 (7'6")		PS	3.2 (2.0)	5.9 (3.7)	11.1 (6.9)			
D4C LGP Series III		93-01	80	7790 (17,160)	1.68 (5'6") 2.31 (7'6")	3.99 (13'1") 2.73 (8'11")	HYS		0-9.0 (0-5.6)				
D4D	78A	63-68	65/52	5900 (13,000)	1.52 (5'0") 1.98 (6'6")	3.35 (11'0") 2.41 (7'11")	DD	5300 (11,690)	3700 (8160)	2560 (5640)	1880 (4150)	1350 (2980)	
D4D	22C	67-68	65/—	5900 (13,100)	1.52 (5'0") 1.98 (6'6")	3.38 (11'1") 2.41 (7'11")	PS	2.7 (1.7)	3.9 (2.4)	5.5 (3.4)	7.1 (4.4)	9.3 (5.8)	
D4D	82J	63	—/65	7910 (17,440)	1.52 (5'0") 1.98 (6'6")	3.38 (11'1") 2.67 (8'9")	DD	6150 (13,550)	4150 (9140)	2820 (6210)	2030 (4480)	1420 (3120)	
								2.7 (1.7)	4.0 (2.5)	5.4 (3.4)	7.2 (4.5)	9.4 (5.9)	

NOTE: Power Shift models show speeds only, not drawbar pull.

NOTE: Track-Type Tractor weights do not include blades until 1967.

Track-Type Tractors (cont'd)

Model	Product Ident. No. Prefix	Years Built	Horse-power FW/ Drawbar	Approx. Machine Weight kg (lb)	Gauge m (ft) and Width m (ft)	Length m (ft) and Height m (ft)	Transmission	Rated Drawbar Pull — kg (lb) and Forward Speed — km/h (mph)						
								1st	2nd	3rd	4th	5th	6th	
D4D	83J	67-71	—/65	8270 (18,240)	1.52 (5'0") 1.98 (6'6")	3.38 (11'1") 2.67 (8'9")	PS	3.2 (2.0)	5.7 (3.6)	9.3 (5.8)				
D4D	83J	72-77	—/75	5900 (13,100)	1.52 (5'0") 1.98 (6'6")	3.38 (11'1") 2.67 (8'9")	DD	6150 (13,550)	4150 (9140)	2820 (6210)	2030 (4480)	1420 (3120)		
D4E	27X	77-84	80/—	9013 (19,820)	1.52 (5'0") 2.44 (8'0")	3.86 (12'8") 2.72 (8'11")	DD	6495 (14,320)	4425 (9756)	3018 (6654)	2172 (4788)	1509 (3327)		
D4E	28X	77-84	80/—	9090 (20,040)	1.52 (5'0") 2.44 (8'0")	3.86 (12'8") 2.72 (8'11")	PS	3.3 (2.1)	5.9 (3.7)	9.5 (5.9)				
D4H (JPN)	8PB*	85-89	90/—	9975 (21,991)	1.67 (5'6") 2.13 (7'0")	3.422 (11'3") 2.933 (9'8")	PS	3.5 (2.2)	6.2 (3.9)	10.2 (6.3)				
D4H (JPN)	2AC*	85-89	90/—	10 111 (22,291)	1.67 (5'6") 2.13 (7'0")	3.422 (11'3") 2.933 (9'8")	DD	7618 (16,798)	5843 (12,884)	4333 (9554)	3207 (7071)	2335 (5149)	1640 (3617)	
D4H (JPN)	8PB*	89-90	95/—	10 105 (22,277)	1.67 (5'6") 2.13 (7'0")	3.422 (11'3") 2.933 (9'8")	PS	3.5 (2.2)	6.2 (3.9)	10.2 (6.3)				
D4H (JPN)	8PB	91-96	95/—	11 019 (24,242)	1.67 (5'6") 2.13 (7'0")	3.44 (11'3") 2.939 (9'8")	PS	3.5 (2.2)	6.2 (3.9)	10.2 (6.3)				
D4H (JPN)	2AC*	89-90	95/—	10 231 (22,555)	1.67 (5'6") 2.13 (7'0")	3.422 (11'3") 2.933 (9'8")	DD	7454 (16,434)	5715 (12,599)	4235 (9336)	3132 (6904)	2277 (5020)	1597 (3520)	
D4H (JPN)	2AC	91-96	95/—	11 019 (24,242)	1.67 (5'6") 2.13 (7'0")	3.44 (11'3") 2.939 (9'8")	DD	7454 (16,434)	5715 (12,599)	4235 (9336)	3132 (6904)	2227 (5020)	1597 (3520)	
D4H LGP (JPN)	9DB*	85-89	90/—	11 245 (24,790)	2.00 (6'7") 2.76 (9'1")	3.693 (10'4") 2.986 (9'10")	PS	3.5 (2.2)	6.2 (3.9)	10.2 (6.3)				
D4H LGP (JPN)	3AC*	85-89	90/—	11 381 (25,090)	2.00 (6'7") 2.76 (9'1")	3.693 (10'4") 2.986 (9'10")	DD	7618 (16,798)	5843 (12,884)	4333 (9554)	3207 (7071)	2335 (5149)	1640 (3617)	
D4H LGP (JPN)	9DB*	89-90	95/—	11 350 (25,022)	2.00 (6'7") 2.76 (9'1")	3.693 (10'4") 2.986 (9'10")	PS	3.5 (2.2)	6.2 (3.9)	10.2 (6.3)				

*D4H models prior to Series II. Product identification number prefix still in use for current product.

NOTE: Power Shift models show speeds only, not drawbar pull.

NOTE: Track-Type Tractor weights do not include blades until 1967.

Track-Type Tractors (cont'd)

Model	Product Ident. No. Prefix	Years Built	Horse-power FW/ Drawbar	Approx. Machine Weight kg (lb)	Gauge m (ft) and Width m (ft)	Length m (ft) and Height m (ft)	Transmission	Rated Drawbar Pull — kg (lb) and Forward Speed — km/h (mph)						
								1st	2nd	3rd	4th	5th	6th	
D4H LGP (JPN)	9DB	91-96	105/—	12 440 (27,368)	2.00 (6'7") 2.76 (9'1")	3.718 (12'2") 3.04 (10'0")	PS	3.4 (2.1)	6.0 (3.7)	10.2 (6.4)				
D4H LGP (JPN)	3AC*	89-90	95/—	11 476 (25,300)	2.00 (6'7") 2.76 (9'1")	3.693 (10'4") 2.986 (9'10")	DD	7454 (16,434)	5715 (12,599)	4235 (9336)	3132 (6904)	2277 (5020)	1597 (3520)	
D4H LGP (JPN)	9GJ	92-96	105/—	12 440 (27,368)	2.00 (6'7") 2.76 (9'1")	3.718 (12'2") 3.04 (10'0")	PS	3.4 (2.1)	6.0 (3.7)	10.2 (6.4)				
D4H XL (JPN)	8PS	92-96	105/—	11 786 (25,929)	1.77 (5'10") 2.28 (7'6")	3.446 (11'4") 2.99 (9'10")	PS	3.4 (2.1)	6.0 (3.7)	10.2 (6.4)				
D5	81H	67-67	93/75	8300 (18,200)	1.52 (5'0") 2.02 (6'8")	3.89 (12'9") 2.00 (8'7")	DD	7870 (17,330)	4910 (10,820)	3330 (7320)	2230 (4920)	1440 (3170)		
D5	82H	67-67	93/75	8400 (18,600)	1.88 (6'2") 2.38 (7'10")	3.89 (12'9") 2.00 (8'7")	DD	7870 (17,330)	4910 (10,820)	3330 (7320)	2230 (4920)	1440 (3170)		
D5	83H	67-67	93/—	8500 (18,800)	1.52 (5'0") 2.02 (6'8")	3.89 (12'9") 2.64 (8'8")	PS	2.7 (1.7)	4.2 (2.6)	5.8 (3.6)	8.0 (5.0)	11.1 (6.9)		
D5	84H	67-67	93/—	8700 (19,200)	1.88 (6'2") 2.38 (7'10")	3.89 (12'9") 2.64 (8'8")	PS	3.6 (2.2)	6.1 (3.8)	10.1 (6.3)				
D5	98J	67-77	105	11 290 (24,400)	1.52 (5'0") 2.02 (6'8")	3.89 (12'9") 2.74 (9'0")	DD	8770 (19,340)	5500 (12,130)	3750 (8270)	2540 (5610)	1660 (3660)		
D5	93J	67-77	105	11 290 (24,400)	1.52 (5'0") 2.02 (6'8")	3.89 (12'9") 2.74 (9'0")	DD	8770 (19,340)	5500 (12,130)	3750 (8270)	2540 (5610)	1660 (3660)		
D5	94J	66-77	105	11 390 (25,100)	1.88 (6'2") 2.38 (7'10")	3.89 (12'9") 2.74 (9'0")	DD	8770 (19,340)	5500 (12,130)	3750 (8270)	2540 (5610)	1660 (3660)		
D5	95J	66-77	105	11 290 (24,900)	1.52 (5'0") 2.02 (6'8")	3.89 (12'9") 2.74 (9'0")	PS	2.7 (1.7)	4.2 (2.6)	5.8 (3.6)	8.0 (5.0)	11.1 (6.9)		
D5	96J	66-77	105	11 600 (25,600)	1.88 (6'2") 2.38 (7'10")	3.89 (12'9") 2.74 (9'0")	PS	2.7 (1.7)	4.2 (2.6)	5.8 (3.6)	8.0 (5.0)	11.1 (6.9)		

*D4H models prior to Series II. Product identification number prefix still in use for current product.

NOTE: Power Shift models show speeds only, not drawbar pull.

NOTE: Track-Type Tractor weights do not include blades until 1967.

Track-Type Tractors (cont'd)

Model	Product Ident. No. Prefix	Years Built	Horse-power FW/ Drawbar	Approx. Machine Weight kg (lb)	Gauge m (ft) and Width m (ft)	Length m (ft) and Height m (ft)	Transmission	Rated Drawbar Pull — kg (lb) and Forward Speed — km/h (mph)						
								1st	2nd	3rd	4th	5th	6th	
D5B	25X	77-84	105/—	11 619 (25,615)	1.88 (6'2") 3.15 (10'4")	4.60 (15'1") 2.77 (9'1")	PS	3.5 (2.2)	6.1 (3.8)	10.1 (6.3)				
D5B	23X	77-82	105/—	11 283 (24,875)	1.88 (6'2") 3.15 (10'4")	4.60 (15'1") 2.77 (9'1")	DD	8060 (17,770)	5030 (11,100)	3410 (7520)	2290 (5060)	1480 (3260)		
D5C		91-93	90	8460 (18,650)	1.54 (5'1") 2.01 (6'7")		PS	3.5 (2.2)	6.3 (3.9)	10.0 (6.2)				
D5C Series III		93-01	90	8490 (18,710)	1.55 (5'1") 2.00 (6'7")	4.07 (13'4") 2.74 (9'0")	HYS		0-9.0 (0-5.6)					
D5C XL Series III		93-01	90	8820 (19,450)	1.55 (5'1") 2.06 (6'9")	4.32 (14'2") 2.74 (9'0")	HYS		0-9.0 (0-5.6)					
D5C LGP		91-93	90	8987 (19,800)	1.72 (5'8") 2.38 (7'10")		PS	3.5 (2.2)	6.3 (3.9)	10.0 (6.2)				
D5C LGP Series III		93-01	90	8970 (19,780)	1.73 (5'8") 2.39 (7'10")	4.07 (13'4") 2.74 (9'0")	HYS		0-9.0 (0-5.6)					
D5E		-99	105	11 700 (25,800)	1.52 (5'0")	3.88 (12'8")	DD	8770 (19,340)	5500 (12,130)	3750 (8270)	2450 (5600)	1660 (3660)		
D5H (FR)	8RC*	85-90	120/—	12 144 (26,772)	1.8 (5'11") 2.21 (7'3")	3.6 (11'10") 2.93 (9'7")	PS	—	—	—	3.3 (2.1)	5.9 (3.7)	10.0 (6.2)	
D5H (FR)	8RC	91-96	120/—	13 250 (29,200)	1.8 (5'11") 2.31 (7'7")	3.6 (11'10") 3.0 (9'10")	DD	3.3 (2.1)	5.9 (3.7)	10.0 (6.2)				
D5H (FR)	7NC*	85-90	120/—	12 212 (26,922)	1.8 (5'11") 2.21 (7'3")	3.6 (11'10") 2.93 (9'7")	DD	9140 (20,150)	7005 (15,440)	5190 (11,440)	3835 (8450)	2785 (6140)	1950 (4300)	
D5H (FR)	7NC	91-96	120/—	13 250 (29,200)	1.8 (5'11") 2.31 (7'7")	3.6 (11'10") 3.0 (9'10")	DD	9140 (20,150)	7005 (15,440)	5190 (11,440)	3835 (8450)	2785 (6140)	1950 (4300)	
D5H LGP (FR)	1DD*	86-90	120/—	14 685 (32,380)	2.16 (7'1") 3.02 (9'11")	4.129 (13'7") 3.069 (10'1")	PS	3.3 (2.1)	5.9 (3.7)	10.0 (6.2)				

*D5H models prior to Series II. Product identification number prefix still in use for current product.

NOTE: Power Shift models show speeds only, not drawbar pull.

NOTE: Track-Type Tractor weights do not include blades until 1967.

Track-Type Tractors (cont'd)

Model	Product Ident. No. Prefix	Years Built	Horse-power FW/ Drawbar	Approx. Machine Weight kg (lb)	Gauge m (ft) and Width m (ft)	Length m (ft) and Height m (ft)	Transmission	Rated Drawbar Pull — kg (lb) and Forward Speed — km/h (mph)						
								1st	2nd	3rd	4th	5th	6th	
D5H LGP (FR)	1DD	91-96	130—	16 200 (35,700)	2.16 (7'1") 3.02 (9'11")	4.133 (13'7") 3.135 (10'3")	PS	3.3 (2.1)	5.9 (3.7)	10.0 (6.2)				
D5H LGP (FR)	9HC*	85-90	120—	14 878 (32,800)	2.16 (7'1") 3.02 (9'11")	4.129 (13'7") 3.069 (10'1")	DD	9140 (20,150)	7005 (15,440)	5190 (11,440)	3835 (8450)	2785 (6140)	1950 (4300)	
D5H LGP (FR)	9HC	91-96	130—	16 200 (35,700)	2.16 (7'1") 3.02 (9'11")	4.133 (13'7") 3.135 (10'3")	DD	10 061 (22,181)	7725 (17,031)	5738 (12,650)	4256 (9384)	3109 (6855)	2195 (4840)	
D5H (JPN)	3MD*	86-90	120—	12 144 (26,772)	1.8 (5'11") 2.21 (7'3")	3.6 (11'10") 2.93 (9'7")	PS	3.3 (2.1)	5.9 (3.7)	10.0 (6.2)				
D5H (JPN)	3MD	91-96	120—	13 250 (29,200)	1.8 (5'11") 2.31 (7'7")	3.6 (11'10") 3.0 (9'10")	PS	3.3 (2.1)	5.9 (3.7)	10.0 (6.2)				
D5H (JPN)	1YD*	86-90	120—	12 212 (26,922)	1.8 (5'11") 2.21 (7'3")	3.6 (11'10") 2.93 (9'7")	DD	9140 (20,150)	7005 (15,440)	5190 (11,440)	3835 (8450)	2785 (6140)	1950 (4300)	
D5H (JPN)	1YD*	91-96	120—	13 250 (29,200)	1.8 (5'11") 2.31 (7'7")	3.6 (11'10") 3.0 (9'10")	DD	9140 (20,150)	7005 (15,440)	5190 (11,440)	3835 (8450)	2785 (6140)	1950 (4300)	
D5H LGP (JPN)	4KD*	86-90	120—	14 685 (32,380)	2.16 (7'1") 3.02 (9'11")	4.129 (13'7") 3.069 (10'1")	PS	3.3 (2.1)	5.9 (3.6)	10.0 (6.2)				
D5H LGP (JPN)	4KD	91-96	130—	16 200 (35,700)	2.16 (7'1") 3.02 (9'11")	4.133 (13'7") 3.135 (10'3")	PS	3.3 (2.1)	5.9 (3.7)	10.0 (6.2)				
D5H LGP (JPN)	2SD*	86-90	120—	14 878 (32,800)	2.16 (7'1") 3.02 (9'11")	4.129 (13'7") 3.069 (10'1")	DD	9140 (20,150)	7005 (15,440)	5190 (11,440)	3835 (8450)	2785 (6140)	1950 (4300)	
D5H LGP (JPN)	2SD	91-96	130—	16 200 (35,700)	2.16 (7'1") 3.02 (9'11")	4.133 (13'7") 3.135 (10'3")	DD	10 061 (22,181)	7725 (17,031)	5738 (12,650)	4256 (9384)	3109 (6855)	2195 (4840)	
D5H XL (FR)	8RJ	92-96	130—	13 900 (30,600)	1.89 (6'2") 2.49 (8'2")	3.606 (11'10") 3.08 (9'11")	PS	3.3 (2.1)	5.9 (3.7)	10.0 (6.2)				

*D5H models prior to Series II. Product identification number prefix still in use for current product.

NOTE: Power Shift models show speeds only, not drawbar pull.

NOTE: Track-Type Tractor weights do not include blades until 1967.

Track-Type Tractors (cont'd)

Model	Product Ident. No. Prefix	Years Built	Horse-power FW/ Drawbar	Approx. Machine Weight kg (lb)	Gauge m (ft) and Width m (ft)	Length m (ft) and Height m (ft)	Transmission	Rated Drawbar Pull — kg (lb) and Forward Speed — km/h (mph)					
								1st	2nd	3rd	4th	5th	6th
D5M XL (FR)	4BR	96-02	82/110	12 250 (27,006)	1.77 (5'10")	3.544 (11'8")	PS	22 347 (49,264)	12 166 (26,821)	6745 (14,870)			
					2.33* (7'8")*	3.002** (9'10")**		3.27 (2.03)	5.81 (3.61)	9.93 (6.17)			
D5M XL (FR)	6GN	96-02	82/110	12 250 (27,006)	1.77 (5'10")	3.544 (11'8")	PS	22 347 (49,264)	12 166 (26,821)	6745 (14,870)			
					2.33* (7'8")*	3.002** (9'10")**		3.27 (2.03)	5.81 (3.61)	9.93 (6.17)			
D5M LGP (FR)	3DR	96-02	82/110	13 100 (28,880)	2.00 (6'7")	3.72 (12'2")	PS	22 347 (49,264)	12 166 (26,821)	6745 (14,870)			
					2.76* (9'1")*	3.046** (10'0")**		3.27 (2.03)	5.81 (3.61)	9.93 (6.17)			
D5M LGP (FR)	3CR	96-02	82/110	13 100 (28,880)	2.00 (6'7")	3.72 (12'2")	PS	22 347 (49,264)	12 166 (26,821)	6745 (14,870)			
					2.76* (9'1")*	3.046** (10'0")**		3.27 (2.03)	5.81 (3.61)	9.93 (6.17)			
D6	4R	47-59	85	8042 (17,730)	1.88 (6'2")	3.75 (12'4")	DD	8618 (19,000)	5534 (12,200)	3837 (8460)	2617 (5770)	1842 (4060)	
					1.52 (5'0")	1.91 (6'3")		2.7 (1.7)	4.2 (2.6)	5.8 (3.6)	8.0 (5.0)	10.6 (6.6)	
D6	9U	47-59	93/75	8153 (17,975)	1.88 (6'2")	3.75 (12'4")	DD	8618 (19,000)	5534 (12,200)	3837 (8460)	2617 (5770)	1842 (4060)	
					1.52 (5'0")	1.91 (6'3")		2.7 (1.7)	4.2 (2.6)	5.8 (3.6)	8.0 (5.0)	10.6 (6.6)	
D6B	37A	59-67	93/75	8130 (17,930)	1.52 (5'0")	3.85 (12'9")	DD						
					2.02 (6'8")	1.91 (6'3")							
D6B	44A	59-67	93/75	8300 (18,300)	1.88 (6'2")	3.85 (12'9")	DD	7820 (16,240)	4940 (10,900)	3220 (7090)	2120 (4670)	1450 (3190)	
					2.38 (7'10")	1.91 (6'3")		2.7 (1.7)	4.2 (2.6)	6.0 (3.7)	8.4 (5.2)	10.9 (6.8)	
D6C	74A	63-67	120	10 400 (23,000)	1.88 (6'2")	3.95 (13'0")	DD	12 050 (26,540)	8020 (17,670)	5300 (11,690)	3360 (7400)	2030 (4470)	
					2.38 (7'9")	1.92 (6'4")		2.4 (1.5)	3.4 (2.1)	4.8 (3.0)	6.8 (4.2)	9.5 (5.9)	
D6C	76A	63-67	120	10 700 (23,500)	1.88 (6'2")	3.95 (13'0")	PS						
					2.38 (7'9")	1.92 (6'4")							
D6C	10K	67-76	140	13 880 (30,600)	1.88 (6'2")	3.73 (12'3")	PS						
					2.38 (7'9")	2.87 (9'5")		4.0 (2.5)	6.9 (4.3)	10.8 (6.7)			
D6 LGP	69U	72-77	140	17 010 (37,500)	2.11 (6'11")	3.94 (12'11")	PS						
					3.02 (9'11")	2.97 (9'9")							

*Width without blade and with standard shoes.

**Height with ROPS cab.

NOTE: Power Shift models show speeds only, not drawbar pull.

NOTE: Track-Type Tractor weights do not include blades until 1967.

Track-Type Tractors (cont'd)

Model	Product Ident. No. Prefix	Years Built	Horse-power FW/ Drawbar	Approx. Machine Weight kg (lb)	Gauge m (ft) and Width m (ft)	Length m (ft) and Height m (ft)	Transmission	Rated Drawbar Pull — kg (lb) and Forward Speed — km/h (mph)						
								1st	2nd	3rd	4th	5th	6th	
D6C	99J	67-76	140	14 243 (31,400)	1.88 (6'2") 2.38 (7'9")	3.73 (12'3") 2.87 (9'5")	DD	11 500 (25,360)	7750 (17,090)	5180 (11,420)	3350 (7380)	2090 (4610)		
D6C LGP	69U	72-77	140	13 835 (30,500)	2.11 (6'11") 3.02 (9'11")	2.97 (9'9") 3.94 (12'11")	PS		2.7 (1.7)	4.0 (2.5)	5.6 (3.5)	7.9 (4.9)	11.1 (6.9)	
D6D	3X	77-86	140	14 290 (31,500)	1.88 (6'2") 2.36 (7'9")	3.73 (12'3") 3.06 (10'0")	DD	11 500 (25,360)	7750 (17,090)	5180 (11,420)	3350 (7380)	2090 (4610)		
D6D	4X	77-86	140	14 290 (31,500)	1.88 (6'2")	3.73 (12'3")	PS	4.0 (2.5)	6.9 (4.3)	10.8 (6.7)				
D6D LGP	6X	77-86	140	17 370 (38,300)	2.1 (6'11") 3.02 (9'11")	3.94 (12'1") 3.06 (10'0")	PS	4.0 (2.5)	6.9 (4.3)	10.8 (6.7)				
D6H	4RC*	85-90	165/—	16 950 (37,367)	1.88 (6'2") 2.64 (8'8")	4.069 (13'4") 3.114 (10'3")	PS	3.8 (2.4)	6.5 (4.0)	11.3 (7.0)				
D6H	8KB	85-88	165/—	16 954 (37,377)	1.88 (6'2") 2.64 (8'8")	4.069 (13'4") 3.114 (10'3")	DD	12 500 (27,560)	9520 (20,990)	7140 (15,740)	5440 (11,990)	4010 (8840)	2820 (6220)	
D6H	3ZF*	88-90	165/—	17 055 (37,599)	1.88 (6'2") 2.64 (8'8")	4.069 (13'4") 3.114 (10'3")	PS/DS	3.8 (2.4)	6.5 (4.0)	11.3 (7.0)				
D6H LGP	6FC*	87-90	165/—	19 555 (43,111)	2.225 (7'4") 3.43 (11'3")	4.493 (14'9") 3.164 (10'5")	PS	3.8 (2.4)	6.5 (4.0)	11.3 (7.0)				
D6H LGP	3YG*	88-90	165/—	19 527 (43,049)	2.225 (7'4") 3.43 (11'3")	4.493 (14'9") 3.164 (10'5")	PS/DS	3.8 (2.4)	6.5 (4.0)	11.3 (7.0)				
D6H (JPN)	2KD*	86-90	165/—	16 950 (37,367)	1.88 (6'2") 2.64 (8'8")	4.069 (13'4") 3.114 (10'3")	PS	3.8 (2.4)	6.5 (4.0)	11.3 (7.0)				
D6H (DS)	32F (E. Peoria) 4YF (Sagami) 6CF (Grenoble)	92-96	123/165	18 111 (39,928)	1.88 (6'2") 3.36 (11'0")	4.07 (13'4") 3.12 (10'3")	PS	3.8 (2.3)	6.6 (4.1)	11.4 (7.1)				

*D6H models prior to Series II. Product identification number prefix still in use for current product.

NOTE: Power Shift models show speeds only, not drawbar pull.

NOTE: Track-Type Tractor weights do not include blades until 1967.

Track-Type Tractors (cont'd)

Model	Product Ident. No. Prefix	Years Built	Horse-power FW/ Drawbar	Approx. Machine Weight kg (lb)	Gauge m (ft) and Width m (ft)	Length m (ft) and Height m (ft)	Transmission	Rated Drawbar Pull — kg (lb) and Forward Speed — km/h (mph)						
								1st	2nd	3rd	4th	5th	6th	
D6H (CB)	4RC	92-96	123/165	17 997 (39,676)	1.88	4.07	PS	3.8 (2.3)	6.6 (4.1)	11.4 (7.1)				
	(E. Peoria) 2KD				3.36	3.12								
	(Sagami) 4LG				3.36	3.12								
	(Grenoble)				3.36	3.12								
D6H XL (DS)	9KJ	92-96	130/175	19 080 (42,063)	1.88	4.07	PS	3.8 (2.3)	6.6 (4.1)	11.4 (7.1)				
	(E. Peoria) 8SK				3.36	3.12								
	(Sagami) 9LK				3.36	3.12								
	(Grenoble)				3.36	3.12								
D6H XL (CB)	8ZJ	92-96	130/175	18 966 (41,811)	1.88	4.07	PS	3.8 (2.3)	6.6 (4.1)	11.4 (7.1)				
	(E. Peoria) 9RK				3.36	3.12								
	(Sagami) 8KK				3.36	3.12								
	(Grenoble)				3.36	3.12								
D6H XR (DS)	6CK	92-96	130/175	18 799 (41,444)	1.88	4.22	PS	3.8 (2.3)	6.6 (4.1)	11.4 (7.1)				
	(E. Peoria) 2TL				3.36	3.12								
	(Sagami) 1YL				3.36	3.12								
	(Grenoble)				3.36	3.12								
D6H XR (CB)	5KK	92-96	130/175	18 799 (41,444)	1.88	4.22	PS	3.8 (2.3)	6.6 (4.1)	11.4 (7.1)				
	(E. Peoria) 7ZK				3.36	3.12								
	(Sagami) 2BL				3.36	3.12								
	(Grenoble)				3.36	3.12								
D6H LGP (DS)	3YG	92-96	134/180	20 486 (45,163)	2.24	4.49	PS	3.8 (2.3)	6.6 (4.1)	11.4 (7.1)				
	(E. Peoria) 4GG				4.0	3.17								
	(Sagami) 5HF				4.0	3.17								
	(Grenoble)				4.0	3.17								
D6H LGP (CB)	6FC	92-96	134/180	20 486 (45,163)	2.24	4.49	PS	3.8 (2.3)	6.6 (4.1)	11.4 (7.1)				
	(E. Peoria) 1KD				4.0	3.17								
	(Sagami) 2TG				4.0	3.17								
	(Grenoble)				4.0	3.17								
D6H (JPN)	3ED*	86-92	165/—	16 954 (37,377)	1.88	4.069	DD	12 500 (27,560)	9520 (20,990)	7140 (15,740)	5440 (11,990)	4010 (8840)	2820 (6220)	
					2.64 (8'8")	3.114 (10'3")		2.7 (1.7)	3.5 (2.2)	4.6 (2.9)	5.8 (3.6)	7.6 (4.7)	10.0 (6.2)	
D6H (JPN)	4YF*	88-90	165/—	17 055 (37,599)	1.88	4.069	PS/DS	3.8 (2.4)	6.5 (4.0)	11.3 (7.0)				
					2.64 (8'8")	3.114 (10'3")								

*D6H models prior to Series II. Product identification number prefix still in use for current product.

NOTE: Power Shift models show speeds only, not drawbar pull.

NOTE: Track-Type Tractor weights do not include blades until 1967.

Track-Type Tractors (cont'd)

Model	Product Ident. No. Prefix	Years Built	Horse-power FW/ Drawbar	Approx. Machine Weight kg (lb)	Gauge m (ft) and Width m (ft)	Length m (ft) and Height m (ft)	Transmission	Rated Drawbar Pull — kg (lb) and Forward Speed — km/h (mph)						
								1st	2nd	3rd	4th	5th	6th	
D6H LGP (JPN)	1KD*	86-90	165/—	19 555 (43,111)	2.225 (7'4") 3.43 (11'3")	4.493 (14'9") 3.164 (10'5")	PS	3.8 (2.4)	6.5 (4.0)	11.3 (7.0)				
D6H LGP (JPN)	8FC*	86-90	165/—	19 676 (43,380)	2.225 (7'4") 3.43 (11'3")	4.485 (14'9") 3.164 (10'5")	DD	12 500 (27,560)	9520 (20,990)	7140 (15,740)	5440 (11,990)	4010 (8840)	2820 (6220)	
D6H LGP (JPN)	4GG*	88-90	165/—	19 527 (43,049)	2.225 (7'4") 3.43 (11'3")	4.493 (14'9") 3.164 (10'5")	PS/DS	3.8 (2.4)	6.5 (4.0)	11.3 (7.0)				
D6H (FR)	4LG*	87-90	165/—	16 950 (37,367)	1.88 (6'2") 2.64 (8'8")	4.069 (13'4") 3.114 (10'3")	PS	3.8 (2.4)	6.5 (4.0)	11.3 (7.0)				
D6H (FR)	1FJ*	88-90	165/—	16 954 (37,377)	1.88 (6'2") 2.64 (8'8")	4.069 (13'4") 3.114 (10'3")	DD	12 500 (27,560)	9520 (20,990)	7140 (15,740)	5440 (11,990)	4010 (8840)	2820 (6220)	10.0 (6.2)
D6H (FR)	6CF*	88-90	165/—	17 055 (37,599)	1.88 (6'2") 2.64 (8'8")	4.069 (13'4") 3.114 (10'3")	PS/DS	3.8 (2.4)	6.5 (4.0)	11.3 (7.0)				
D6H LGP (FR)	2TG*	87-90	165/—	19 555 (43,111)	2.225 (7'4") 3.43 (11'3")	4.493 (14'9") 3.164 (10'5")	PS	3.8 (2.4)	6.5 (4.0)	11.3 (7.0)				
D6H LGP (FR)	5HF*	88-90	165/—	19 527 (43,049)	2.225 (7'4") 3.43 (11'3")	4.493 (14'9") 3.164 (10'5")	PS/DS	3.8 (2.4)	6.5 (4.0)	11.3 (7.0)				
D6H (SCOT)	7PC	86-87	165/—	16 950 (37,367)	1.88 (6'2") 2.64 (8'8")	4.069 (13'4") 3.114 (10'3")	PS	3.8 (2.4)	6.5 (4.0)	11.3 (7.0)				
D6H LGP (SCOT)	8YC	86-87	165/—	19 555 (43,111)	2.225 (7'4") 3.43 (11'3")	4.493 (14'9") 3.164 (10'5")	PS	3.8 (2.4)	6.5 (4.0)	11.3 (7.0)				
D6R STD CB (US)	2YN	95-02	165/—	18 100 (40,000)	1.88 (6'2") 2.64 (8'8")	4.08 (13'4") 3.20 (10'6")	PS	4.0 (2.5)	7.1 (4.4)	12.4 (7.7)				
D6R STD CB (BRAZIL)	9ZS	97-02	165/—	18 100 (40,000)	1.88 (6'2") 2.64 (8'8")	4.08 (13'4") 3.20 (10'6")	PS	4.0 (2.5)	7.1 (4.4)	12.4 (7.7)				

*D6H models prior to Series II. Product identification number prefix still in use for current product.

NOTE: Power Shift models show speeds only, not drawbar pull.

NOTE: Track-Type Tractor weights do not include blades until 1967.

Track-Type Tractors (cont'd)

Model	Product Ident. No. Prefix	Years Built	Horse-power FW/ Drawbar	Approx. Machine Weight kg (lb)	Gauge m (ft) and Width m (ft)	Length m (ft) and Height m (ft)	Transmission	Rated Drawbar Pull — kg (lb) and Forward Speed — km/h (mph)					
								1st	2nd	3rd	4th	5th	6th
D6R STD CB (FRANCE)	2HM	96-01	165/—	18 100 (40,000)	1.88 (6'2") 2.64 (8'8")	4.08 (13'4") 3.20 (10'6")	PS	4.0 (2.5)	7.1 (4.4)	12.4 (7.7)			
D6R STD CB (JAPAN)	6FR	96-02	165/—	18 100 (40,000)	1.88 (6'2") 2.64 (8'8")	4.08 (13'4") 3.20 (10'6")	PS	4.0 (2.5)	7.1 (4.4)	12.4 (7.7)			
D6R STD DS (US)	3ZN	95-02	165/—	18 300 (40,400)	1.88 (6'2") 2.64 (8'8")	4.08 (13'4") 3.20 (10'6")	PS	3.9 (2.4)	6.8 (4.2)	11.9 (7.6)			
D6R STD DS (BRAZIL)	1RW	97-02	165/—	18 300 (40,400)	1.88 (6'2") 2.64 (8'8")	4.08 (13'4") 3.20 (10'6")	PS	3.9 (2.4)	6.8 (4.2)	11.9 (7.6)			
D6R STD DS (FRANCE)	4FM	96-01	165/—	18 300 (40,400)	1.88 (6'2") 2.64 (8'8")	4.08 (13'4") 3.20 (10'6")	PS	3.9 (2.4)	6.8 (4.2)	11.9 (7.6)			
D6R STD DS (JAPAN)	5PR	97-02	165/—	18 300 (40,400)	1.88 (6'2") 2.64 (8'8")	4.08 (13'4") 3.20 (10'6")	PS	3.9 (2.4)	6.8 (4.2)	11.9 (7.6)			
D6R XL CB (US)	4MN	96-02	175/—	19 000 (41,900)	1.88 (6'2") 2.64 (8'8")	4.08 (13'4") 3.20 (10'6")	PS	4.0 (2.5)	7.1 (4.4)	12.4 (7.7)			
D6R XL CB (BRAZIL)	6MR	97-02	175/—	19 000 (41,900)	1.88 (6'2") 2.64 (8'8")	4.08 (13'4") 3.20 (10'6")	PS	4.0 (2.5)	7.1 (4.4)	12.4 (7.7)			
D6R XL CB (FRANCE)	4JR	96-01	175/—	19 000 (41,900)	1.88 (6'2") 2.64 (8'8")	4.08 (13'4") 3.20 (10'6")	PS	4.0 (2.5)	7.1 (4.4)	12.4 (7.7)			
D6R XL CB (JAPAN)	4WR	97-02	175/—	19 000 (41,900)	1.88 (6'2") 2.64 (8'8")	4.08 (13'4") 3.20 (10'6")	PS	4.0 (2.5)	7.1 (4.4)	12.4 (7.7)			
D6R XL DS (US)	5LN	95-02	175/—	19 200 (42,300)	1.88 (6'2") 2.64 (8'8")	4.08 (13'4") 3.20 (10'6")	PS	3.9 (2.4)	6.8 (4.2)	11.9 (7.6)			
D6R XL DS (BRAZIL)	7GR	96-02	175/—	19 200 (42,300)	1.88 (6'2") 2.64 (8'8")	4.08 (13'4") 3.20 (10'6")	PS	3.9 (2.4)	6.8 (4.2)	11.9 (7.6)			

NOTE: Power Shift models show speeds only, not drawbar pull.

NOTE: Track-Type Tractor weights do not include blades until 1967.

Track-Type Tractors (cont'd)

Model	Product Ident. No. Prefix	Years Built	Horse-power FW/ Drawbar	Approx. Machine Weight kg (lb)	Gauge m (ft) and Width m (ft)	Length m (ft) and Height m (ft)	Transmission	Rated Drawbar Pull — kg (lb) and Forward Speed — km/h (mph)					
								1st	2nd	3rd	4th	5th	6th
D6R XL DS (FRANCE)	9BM	96-01	175/—	19 200 (42,300)	1.88 (6'2") 2.64 (8'8")	4.08 (13'4") 3.20 (10'6")	PS	3.9 (2.4)	6.8 (4.2)	11.9 (7.6)			
D6R XL DS (JAPAN)	5RR	97-02	175/—	19 200 (42,300)	1.88 (6'2") 2.64 (8'8")	4.08 (13'4") 3.20 (10'6")	PS	3.9 (2.4)	6.8 (4.2)	11.9 (7.6)			
D6R XR CB (US)	6JN	95-02	175/—	18 780 (41,400)	1.88 (6'2") 2.64 (8'8")	4.22 (13'10") 3.19 (10'5")	PS	4.0 (2.5)	7.1 (4.4)	12.4 (7.7)			
D6R XR CB (FRANCE)	8XN	97-01	175/—	18 780 (41,400)	1.88 (6'2") 2.64 (8'8")	4.22 (13'10") 3.19 (10'5")	PS	4.0 (2.5)	7.1 (4.4)	12.4 (7.7)			
D6R XR CB (JAPAN)	6HR	97-02	175/—	18 780 (41,400)	1.88 (6'2") 2.64 (8'8")	4.22 (13'10") 3.19 (10'5")	PS	4.0 (2.5)	7.1 (4.4)	12.4 (7.7)			
D6R XR DS (US)	7KN	95-02	175/—	18 910 (41,700)	1.88 (6'2") 2.64 (8'8")	4.22 (13'10") 3.19 (10'5")	PS	3.9 (2.4)	6.8 (4.2)	11.9 (7.6)			
D6R XR DS (FRANCE)	9MN	97-01	175/—	18 910 (41,700)	1.88 (6'2") 2.64 (8'8")	4.22 (13'10") 3.19 (10'5")	PS	3.9 (2.4)	6.8 (4.2)	11.9 (7.6)			
D6R XR DS (JAPAN)	7DR	97-02	175/—	18 910 (41,700)	1.88 (6'2") 2.64 (8'8")	4.22 (13'10") 3.19 (10'5")	PS	3.9 (2.4)	6.8 (4.2)	11.9 (7.6)			
D6R LGP CB (US)	8LN	95-02	185/—	20 500 (45,200)	2.23 (7'3") 3.43 (11'3")	4.24 (13'11") 3.19 (10'5")	PS	4.0 (2.5)	7.1 (4.4)	12.4 (7.7)			
D6R LGP CB (FRANCE)	4HN	97-01	185/—	20 500 (45,200)	2.23 (7'3") 3.43 (11'3")	4.24 (13'11") 3.19 (10'5")	PS	4.0 (2.5)	7.1 (4.4)	12.4 (7.7)			
D6R LGP CB (JAPAN)	7AR	97-01	185/—	20 500 (45,200)	2.23 (7'3") 3.43 (11'3")	4.24 (13'11") 3.19 (10'5")	PS	4.0 (2.5)	7.1 (4.4)	12.4 (7.7)			
D6R LGP DS (US)	9PN	95-02	185/—	20 680 (45,600)	2.23 (7'3") 3.43 (11'3")	4.24 (13'11") 3.19 (10'5")	PS	3.9 (2.4)	6.8 (4.2)	11.9 (7.6)			

NOTE: Power Shift models show speeds only, not drawbar pull.

NOTE: Track-Type Tractor weights do not include blades until 1967.

Track-Type Tractors (cont'd)

Model	Product Ident. No. Prefix	Years Built	Horse-power FW/ Drawbar	Approx. Machine Weight kg (lb)	Gauge m (ft) and Width m (ft)	Length m (ft) and Height m (ft)	Transmission	Rated Drawbar Pull — kg (lb) and Forward Speed — km/h (mph)					
								1st	2nd	3rd	4th	5th	6th
D6R LGP DS (FRANCE)	8TM	96-01	185/—	20 680 (45,600)	2.23 (7'3") 3.43 (11'3")	4.24 (13'11") 3.19 (10'5")	PS	3.9 (2.4)	6.8 (4.2)	11.9 (7.6)			
D6R LGP DS (JAPAN)	4TR	96-02	185/—	20 680 (45,600)	2.23 (7'3") 3.43 (11'3")	4.24 (13'11") 3.19 (10'5")	PS	3.9 (2.4)	6.8 (4.2)	11.9 (7.6)			
D6R LGP DD (JAPAN)	6GR	95-02	185/—	20 680 (45,600)	2.23 (7'3") 3.43 (11'3")	4.24 (13'11") 3.19 (10'5")	PS	3.4 (2.1)	5.9 (3.7)	10.4 (6.5)			
D6M XL (FR)	9ZM	96-02	104/140	15 530 (34,240)	1.89 (6'2") 2.49* (8'2")*	3.74 (12'3") 3.08** (10'1")**	PS	30 493 (67,222)	16 643 (36,689)	9211 (20,306)			
D6M XL (FR)	3WN	96-02	104/140	15 530 (34,240)	1.89 (6'2") 2.49* (8'2")*	3.74 (12'3") 3.08** (10'1")**	PS	30 493 (67,222)	16 643 (36,689)	9211 (20,306)			
D6M LGP (FR)	2RN	96-02	104/140	16 930 (37,320)	2.16 (7'1") 3.02* (9'11")*	4.146 (13'7") 3.194** (10'6")**	PS	30 493 (67,222)	16 643 (36,689)	9211 (20,306)			
D6M LGP (FR)	4JN	96-02	104/140	16 930 (37,320)	2.16 (7'1") 3.02* (9'11")*	4.146 (13'7") 3.194** (10'6")**	PS	30 493 (67,222)	16 643 (36,689)	9211 (20,306)			
D7	3T	54-55	108/90	11 770 (25,925)	1.88 (6'2") 2.64 (8'1")	4.27 (14'0") 2.06 (6'10")	DD						
D7C	17A	55-59	128/102	11 954 (26,355)	1.88 (6'2") 2.64 (8'1")	4.26 (14'0") 2.06 (6'10")	DD	11 759 (25,900)	8045 (17,720)	4521 (11,960)	3428 (7550)	2397 (5280)	
D7D	17A	59-61	140/112	12 056 (26,555)	1.88 (6'2") 2.64 (8'1")	4.26 (14'0") 2.06 (6'10")	DD	12 300 (27,100)	8600 (18,900)	5700 (12,550)	3650 (8080)	2600 (5720)	
D7E	47A	61-68	160/128	14 787 (32,590)	1.98 (6'6") 2.56 (8'5")	4.47 (14'8") 2.30 (7'7")	DD	14 741 (32,500)	10 296 (22,700)	6803 (15,000)	4259 (9390)	3070 (6770)	
D7E	48A	61-66	160/128	14 787 (32,590)	1.98 (6'6") 2.56 (8'5")	4.47 (14'8") 2.30 (7'7")	PS	3.3 (2.1)	5.7 (3.6)	9.3 (5.8)			

*Width without blade and with standard shoes.

**Height with ROPS cab.

NOTE: Power Shift models show speeds only, not drawbar pull.

NOTE: Track-Type Tractor weights do not include blades until 1967.

Track-Type Tractors (cont'd)

Model	Product Ident. No. Prefix	Years Built	Horse-power FW/ Drawbar	Approx. Machine Weight kg (lb)	Gauge m (ft) and Width m (ft)	Length m (ft) and Height m (ft)	Transmission	Rated Drawbar Pull — kg (lb) and Forward Speed — km/h (mph)						
								1st	2nd	3rd	4th	5th	6th	
D7E	47A	66-69	180/144	15 200 (33,500)	1.98 (6'6") 2.56 (8'5")	4.47 (14'8") 2.18 (7'2")	DD	17 140 (37,750)	11 350 (25,000)	7420 (16,340)	4540 (9990)	3180 (7010)		
D7E	48A	66-69	180	15 500 (34,000)	1.98 (6'6") 2.56 (8'5")	4.47 (14'8") 2.18 (7'2")	PS		3.7 (2.3)	6.4 (4.0)	10.1 (6.3)			
D7F	94N	69-74	180	14 700 (32,400)	1.98 (6'6") 2.56 (8'5")	4.15 (13'8") 2.26 (7'5")	PS		3.5 (2.2)	6.3 (3.9)	9.5 (5.9)			
D7F	93N	69-74	180	14 700 (32,400)	1.98 (6'6") 2.56 (8'5")	4.15 (13'8") 2.26 (7'5")	DD	17 100 (37,600)	11 350 (25,000)	7450 (16,400)	4580 (10,000)	3240 (7140)		
D7G	92V	77-86	200	20 090 (44,300)	1.98 (6'6") 2.62 (8'7")	4.19 (13'9") 3.35 (11'0")	PS	3.7 (2.3)	6.4 (4.0)	10.0 (6.2)				
D7G	91V	77-86	200	20 090 (44,300)	1.98 (6'6") 2.62 (8'7")	4.19 (13'9") 3.35 (11'0")	DD	17 690 (39,010)	11 730 (25,860)	7680 (16,940)	4700 (10,370)	3320 (7320)		
D7G LGP	72W	77-86	200	22 630 (52,100)	2.18 (7'2") 3.3 (10'11")	4.22 (13'9") 3.28 (10'9")	PS	3.7 (2.3)	6.4 (4.0)	10.0 (6.2)				
D7H (CB)	79Z (E. Peoria) 4AB (Sagami)	92-96	171/230	24 778 (54,635)	1.98 (6'6") 3.9 (12'10")	4.74 (15'6") 3.5 (11'6")	PS	3.5 (2.2)	6.2 (3.8)	10.6 (6.6)				
D7H (DS)	5BF (E. Peoria) 2RG (Sagami)	92-96	171/230	25 077 (55,295)	1.98 (6'6") 3.9 (12'10")	4.74 (15'6") 3.5 (11'6")	PS	3.5 (2.2)	6.2 (3.8)	10.6 (6.6)				
D7H LGP (CB)	80Z (E. Peoria) 5WB (Sagami)	92-96	171/230	27 065 (59,678)	2.24 (7'4") 4.50 (14'9")	4.74 (15'6") 3.58 (11'9")	PS	3.5 (2.2)	6.2 (3.8)	10.6 (6.6)				
D7H LGP (DS)	4FG (E. Peoria) 3XG (Sagami)	92-96	171/230	27 065 (59,678)	2.24 (7'4") 4.50 (14'9")	4.74 (15'6") 3.58 (11'9")	PS	3.5 (2.2)	6.2 (3.8)	10.6 (6.6)				
D7H XR (CB)	79Z (E. Peoria) 4AB (Sagami)	92-96	171/230	25 193 (55,551)	1.98 (6'6") 3.9 (12'10")	4.74 (15'6") 3.5 (11'6")	PS	3.5 (2.2)	6.2 (3.8)	10.6 (6.6)				

NOTE: Power Shift models show speeds only, not drawbar pull.

NOTE: Track-Type Tractor weights do not include blades until 1967.

Track-Type Tractors (cont'd)

Model	Product Ident. No. Prefix	Years Built	Horse-power FW/ Drawbar	Approx. Machine Weight kg (lb)	Gauge m (ft) and Width m (ft)	Length m (ft) and Height m (ft)	Transmission	Rated Drawbar Pull — kg (lb) and Forward Speed — km/h (mph)						
								1st	2nd	3rd	4th	5th	6th	
D7H XR (DS)	5BF (E. Peoria) 2RG (Sagami)	92-96	171/230	25 492 (56,211)	1.98 (6'6") 3.9 (12'10")	4.74 (15'6") 3.5 (11'6")	PS	3.5 (2.2)	6.2 (3.8)	10.6 (6.6)				
D7H	77Z	85-86	215	19 680 (43,380)	1.98 (6'6") 2.54 (8'5")	4.73 (15'6") 3.5 (11'6")	DD	16 834 (37,113)	12 861 (28,353)	9703 (21,390)	7436 (16,394)	5522 (12,173)	3940 (8686)	
D7H (US)	79Z*	85-90	215/—	23 647 (52,134)	1.981 (6'6") 2.869 (9'5")	4.619 (15'2") 3.421 (11'3")	PS	3.9 (2.4)	6.8 (4.2)	11.9 (7.4)				
D7H (US)	77Z	85-90	215/—	23 570 (51,960)	1.981 (6'6") 2.869 (9'5")	4.619 (15'2") 3.421 (11'3")	DD	16 834 (37,113)	12 861 (28,353)	9703 (21,390)	7436 (16,394)	5522 (12,173)	3940 (8686)	
D7H (US)	5BF*	88-90	215/—	24 351 (53,683)	1.981 (6'6") 2.871 (9'5")	4.624 (15'2") 3.429 (11'3")	PS/DS	3.7 (2.3)	6.4 (4.0)	11.1 (6.9)				
D7R STD (US)	2HR	95-01	171 (230)	27 413 (60,436)	2.0 (6'6")	6.04 (19'9")	PS/FTC	3.5 (2.3)	6.4 (4.0)	10.8 (6.8)				
D7R STD	3ZR	96-02	171 (230)	27 413 (60,436)	2.0 (6'6")	6.04 (19'9")	PS/FTC	3.5 (2.3)	6.4 (4.0)	10.8 (6.8)				
D7R XR (US)	2EN	95-01	171 (230)	27 776 (61,236)	2.0 (6'6")	6.04 (19'9")	PS/DS	3.5 (2.3)	6.4 (4.0)	10.8 (6.8)				
D7R XR	5MR	97-02	171 (230)	27 776 (61,236)	2.0 (6'6")	6.04 (19'9")	PS/DS	3.5 (2.3)	6.4 (4.0)	10.8 (6.8)				
D7H LGP (US)	80Z*	85-90	215/—	25 237 (55,638)	2.235 (7'4") 3.371 (11'1")	4.619 (15'2") 3.503 (11'6")	PS	3.9 (2.4)	6.8 (4.2)	11.9 (7.4)				
D7R LGP	4SR	96-02	179 (240)	29 500 (65,036)	2.24 (7'4")	5.8 (19'0")	PS/FTC	3.5 (2.3)	6.4 (4.0)	10.8 (6.8)				

*D7H models prior to Series II. Product identification number prefix still in use for current product.

NOTE: Power Shift models show speeds only, not drawbar pull.

NOTE: Track-Type Tractor weights do not include blades until 1967.

Track-Type Tractors (cont'd)

Model	Product Ident. No. Prefix	Years Built	Horse-power FW/ Drawbar	Approx. Machine Weight kg (lb)	Gauge m (ft) and Width m (ft)	Length m (ft) and Height m (ft)	Transmission	Rated Drawbar Pull — kg (lb) and Forward Speed — km/h (mph)						
								1st	2nd	3rd	4th	5th	6th	
D7H LGP (US)	4FG*	87-90	230/—	25 894 (57,086)	2.235 (7'4") 3.377 (11'1")	4.624 (15'2") 3.505 (11'6")	PS/DS	3.7 (2.3)	6.4 (4.0)	11.1 (6.9)				
D7R LGP (US)	3DN	95-01	179 (240)	30 605 (67,472)	2.24 (7'4")	5.8 (19'0")	PS/DS	3.5 (2.3)	6.4 (4.0)	10.8 (6.8)				
D7R LGP (US)	9HM	95-01	179 (240)	29 500 (65,036)	2.24 (7'4")	5.8 (19'0")	PS/FTC	3.5 (2.3)	6.4 (4.0)	10.8 (6.8)				
D7H (JPN)	4AB*	86-90	215/—	23 647 (52,134)	1.981 (6'6") 2.869 (9'5")	4.619 (15'2") 3.421 (11'3")	PS							
D7H (JPN)	2SB*	86-91	215/—	23 570 (51,960)	1.981 (6'6") 2.869 (9'5")	4.619 (15'2") 3.421 (11'3")	DD	16 834 (37,113)	12 861 (28,353)	9703 (21,390)	7436 (16,394)	5522 (12,173)	3940 (8686)	
D7H (JPN)	2RG*	88-90	215/—	24 351 (53,683)	1.981 (6'6") 2.871 (9'5")	4.624 (15'2") 3.429 (11'3")	PS/DS	3.7 (2.3)	6.4 (4.0)	11.1 (6.9)				
D7R LGP (JPN)	6ER	96-02	179 (240)	30 605 (67,472)	2.24 (7'4")	5.8 (19'0")	PS/DS	3.5 (2.3)	6.4 (4.0)	10.8 (6.8)				
D7H LGP (JPN)	5WB*	86-90	215/—	25 237 (55,638)	2.235 (7'4") 3.371 (11'1")	4.619 (15'2") 3.503 (11'6")	PS							
D7H LGP (JPN)	82Z*	86-91	215/—	25 445 (56,096)	2.235 (7'4") 3.371 (11'1")	4.619 (15'2") 3.503 (11'6")	DD	16 834 (37,113)	12 861 (28,353)	9703 (21,390)	7436 (16,394)	5522 (12,173)	3940 (8686)	
D7H LGP (JPN)	3XG*	88-90	230/—	25 894 (57,086)	2.235 (7'4") 3.377 (11'1")	4.624 (15'2") 3.505 (11'6")	PS/DS	3.7 (2.3)	6.4 (4.0)	11.1 (6.9)				

*D7H models prior to Series II. Product identification number prefix still in use for current product.

NOTE: Power Shift models show speeds only, not drawbar pull.

NOTE: Track-Type Tractor weights do not include blades until 1967.

Track-Type Tractors (cont'd)

Model	Product Ident. No. Prefix	Years Built	Horse-power FW/ Drawbar	Approx. Machine Weight kg (lb)	Gauge m (ft) and Width m (ft)	Length m (ft) and Height m (ft)	Transmission	Rated Drawbar Pull — kg (lb) and Forward Speed — km/h (mph)						Remarks
								1st	2nd	3rd	4th	5th	6th	
D8	1H	35-41	110/95	14 790 (32,600)	1.98 (6'6") 2.64 (8'8")	4.64 (15'3") 2.28 (7'6")	*	9680 (21,350)	6870 (15,150)	5720 (12,610)	4800 (10,590)	3860 (8520)	2740 (6050)	RD-8 with 192 cm (78") gauge
D8	8R	41-45	131/113	15 490 (34,160)	1.98 (6'6") 2.64 (8'8")	4.64 (15'3") 1.85 (6'1")	**	13 060 (28,800)	9750 (21,500)	7940 (17,500)	6800 (15,000)	5620 (12,400)	3990 (8800)		Horsepower Increase
D8	2U	45-53	148/130	16 470 (36,310)	1.98 (6'6") 2.64 (8'8")	4.85 (15'10") 2.18 (7'2")	DD	13 560 (29,900)	9840 (21,700)	7120 (15,700)	5400 (11,900)	3900 (8600)		HP increase, DD transmission
D8	13A	53-55	185/150	16 866 (37,150)	1.98 (6'6") 2.64 (8'8")	4.88 (16'1") 2.18 (7'2")	DD	20 358 (44,840)	12 939 (28,500)	8926 (19,660)	6955 (15,320)	4935 (10,870)		
D8D, G	15A	55-57	191/155	16 310 (35,925)	1.98 (6'6") 2.58 (8'6")	5.23 (17'2") 2.23 (7'8")	TC							
D8E, F	14A	55-57	191/155 Belt	17 734 (39,060)	1.98 (6'6") 2.64 (8'8")	4.88 (16'1") 2.26 (7'6")	DD	20 439 (45,020)	16 135 (35,540)	10 964 (24,150)	7373 (16,240)	4953 (10,910)		
D8H	35A	59-61	235	20 924 (46,032)	2.13 (7'0") 2.87 (9'1")	5.20 (17'1") 2.39 (7'10")	TC							
D8H	36A	58-66	235/185	21 400 (47,180)	2.13 (7'0") 2.87 (9'1")	5.20 (17'1") 2.39 (7'10")	DD	19 958 (44,400)	15 648 (34,500)	10 931 (24,100)	8051 (17,750)	5869 (13,000)	3832 (8450)	
D8H	46A	58-74	270	21 863 (48,210)	2.13 (7'0") 2.87 (9'1")	5.20 (17'1") 2.39 (7'10")	PS							
D8K	76V	74-82	300	31 980 (69,300)†	2.13 (7'0") 3.05 (10'0")	5.26 (17'3") 2.44 (8'0")	DD	25 400 (56,000)	18 930 (41,740)	12 990 (28,640)	9370 (20,650)	6610 (14,580)	4090 (9010)	Turbocharged, Sealed and Lubricated Track
D8K	77V	74-82	300	31 430 (70,500)*	2.13 (7'0") 3.05 (10'0")	5.26 (17'3") 2.44 (8'0")	PS							
D8L	53Y 7JC 7YB	82-86 84-90 85-92	335	37 305 (82,243)	2.2 (7'3") 2.84 (9'4")	4.95 (16'2") 3.79 (12'5")	PS							
D8L SA	4FB	84-87	400/325	36 650 (80,820)	2.54 (8'4") 3.11 (10'3")		DD	31 679 (69,840)	23 115 (50,960)	17 196 (37,910)	12 388 (27,310)	9154 (20,180)	6428 (14,170)	

* Power transmitted through dry tape flywheel clutch to selective type hinge speed gear set.

** Power transmitted through flexible and over center engagement, dry flywheel clutch with metallic friction surfaces. Selective type change speed gear set.

† Approximate operating weight. Includes lubricants, coolant, full fuel tank, hydraulic control, 8S Bulldozer, ROPS canopy and operator.

All other weights listed in this column are shipping weights.

NOTE: Power Shift models show speeds only, not drawbar pull.

NOTE: Track-Type Tractor weights do not include blades until 1967.

Track-Type Tractors (cont'd)

Model	Product Ident. No. Prefix	Years Built	Horse-power FW/ Drawbar	Approx. Machine Weight kg (lb)	Gauge m (ft) and Width m (ft)	Length m (ft) and Height m (ft)	Transmission	Rated Drawbar Pull — kg (lb) and Forward Speed — km/h (mph)						
								1st	2nd	3rd	4th	5th	6th	
D8N	9TC 5TJ	87-92	285	37 462	2.08	4.95	PS							
		92-95	285	(82,590)	(6'10")	(16'3")		3.05	3.43	3.5	6.2	10.8		
D8R Series II (US)	6YZ	00-04	310	37 830	(6'10")	(22'8")	PS							
					(10'0")	(11'3")		2.08	6.91	3.4	6.0	10.6		
D9D	18A	55-56	286/230	25 772	2.29	5.46	DD	27 631	21 207	15 423	10 706	7658	4958	
					(56,765)	(7'6")		(17'11")	(60,860)	(46,710)	(33,970)	(23,580)	(16,670)	(10,920)
D9D	18A	56-59	320/260	26 125	2.29	5.46	DD	28 603	23 835	16 617	12 167	9171	6106	
					(57,543)	(7'6")		(17'11")	(63,000)	(52,500)	(36,600)	(26,800)	(20,200)	(13,450)
D9D	19A	55-56	286/230	25 729	2.29	5.46	TC							
					(56,670)	(7'6")		(17'11")	3.03	2.67	6.6	9.0	12.6	
D9D	19A	56-59	320/260	26 238	2.29	5.46	TC							
					(57,990)	(7'6")		(17'11")	3.03	2.68	6.6	9.5	13.0	
D9E	50A	59-60	335	27 016	2.29	5.50	TC							
					(59,506)	(7'6")		(18'1")	3.03	2.70	6.8	9.7	13.2	
D9D	34A	59-61	335	27 167	2.29	5.50	PS							
					(59,837)	(7'6")		(18'1")	3.03	2.70	4.2	7.2	11.2	
D9E	49A	59-60	335/268	26 957	2.29	5.50	DD							
					(59,375)	(7'6")		(18'1")	3.03	2.70	2.7	3.5	4.8	6.4	8.2	11.4
D9G	66A	61-74	385	31 072	2.29	5.50	PS							
					(68,500)	(7'6")		(18'1")	3.10	2.10	3.9	6.8	10.5	
D9R (CB) (US)	ACL	00-04	410	49 147	2.25	6.84	PS							
					(108,350)	(7'5")		(22'5")	3.30	3.99	3.8	6.8	11.9	
D9R (DS) (US)	ABK	00-04	410	49 510	2.25	6.84	PS							
					(109,150)	(7'5")		(22'5")	3.30	3.99	3.8	6.8	11.9	
					(10'10")	(13'1")		(2.4)	(4.2)	(7.4)				

NOTE: Power Shift models show speeds only, not drawbar pull.

NOTE: Track-Type Tractor weights do not include blades until 1967.

Track-Type Tractors (cont'd)

Model	Product Ident. No. Prefix	Years Built	Horse-power FW/ Drawbar	Approx. Machine Weight kg (lb)	Gauge m (ft) and Width m (ft)	Length m (ft) and Height m (ft)	Transmission	Rated Drawbar Pull — kg (lb) and Forward Speed — km/h (mph)						Remarks
								1st	2nd	3rd	4th	5th	6th	
S × S D9G	29N	69-74	770	86 200* (190,000)	5.8* (19'0")	8.0◀ (25'0")	PS	3.9 (2.4)	6.8 (4.2)	10.0 (6.2)	L.H. of S × S D9G			
	30N				7.3** (24'0")	2.8◀◀ (9'2")					R.H. of S × S D9G			
Dual D9G	90J	69-74	770	79 470* (175,200)	2.3* (7'6")	12.9◀ (42'6")	PS	3.9 (2.4)	6.8 (4.2)	10.5 (6.5)	Front of Dual D9G			
	91J				3.3** (10'9")	3.1◀◀ (9'11")					Rear of Dual D9G			
S × S D9H	99V	74-77	820	83 400* (183,900)	5.8* (19'0")	9.0◀ (26'1")	PS	4.0 (2.5)	6.9 (4.3)	10.8 (6.7)	L.H. of S × S D9H			
	12U				7.3** (24'0")	2.9◀◀ (9'6")					R.H. of S × S D9H			
Dual D9H	97V	74-80	820	81 100* (178,800)	2.3* (7'6")	12.9◀ (42'6")	PS	4.0 (2.5)	6.9 (4.3)	10.8 (6.7)	Front of Dual D9H			
	98V				3.3** (10'9")	3.1◀◀ (9'11")					Rear of Dual D9H			
D9H	90V	74-81	410	32 840 (72,400)	2.3* (7'6")	5.6 (18'5")	PS	4.0 (2.5)	6.9 (4.3)	10.8 (6.7)	Standard Model			
				3.0 (9'11")	2.7◀◀ (8'10")									
D9L	14Y	80-87	460	52 055 (114,656)	2.5 (8'2")	5.32 (17'5")	PS	3.9 (2.4)	7.2 (4.5)	12.4 (7.7)				
D9N	1JD	86-94	370	42 816 (96,196)	2.55 (7'5")	5.17 (16'11.5")	PS	3.9 (2.4)	6.9 (4.3)	12.1 (7.5)				
	6XJ	93-95		2.43 (9'7")	3.91 (12'10")									
D10	84W	78-86	700	88 245 (194,140)	2.9 (9'6")	5.92 (19'8")	PS	3.9 (2.4)	6.8 (4.2)	11.6 (7.2)	Width 2.2 m (7'0") 2.9 m (9'6") gauge 1.9 x 2.7 m (6'4" × 8'10") gauge Width 3.45 m (11'4")			
	76X													3.65 (12'0")	4.63◀◀ (15'2")
D10N	2YD	87-93	520	66 400 (147,405)	2.55 (8'4")	5.89 (18'4")	PS	4.0 (2.5)	7.1 (4.4)	12.5 (7.7)				
	3SK	93-96		3.30 (10'10")	4.45 (14'7")									
D10R	AKT	01-04	580	65 400 (144,200)	2.55 (8'4")	9.16 (30'0")	PS	4.0 (2.5)	7.1 (4.4)	12.5 (7.7)				
D11N	74Z	86-93	770	95 900 (211,000)	2.90 (9'6")	6.16 (20'3")	PS	3.9 (2.4)	6.8 (4.4)	11.6 (7.2)				
	4HK	93-96		97 450 (214,850)	3.65 (12'0")	4.65 (15'3")								
D11R	8ZR	96-97	770	98 413 (216,963)	2.90 (9'6")	6.16 (20'3")	PS	3.9 (2.4)	6.8 (4.4)	11.6 (7.2)	Electronic Finger Tip Control Steering			
				3.65 (12'0")	4.65 (15'3")									

* Gauge of both tractors combined.

** Width to outside of dozer blade.

* Approximate weight of both machines plus Bulldozer, hydraulic controls, coolant and 5% fuel. (D10, D11N, D11R includes SS ripper)

NOTE: Power Shift models show speeds only, not drawbar pull.

NOTE: Track-Type Tractor weights do not include blades until 1967.

◀ Length including dozer blade.

◀◀ Overall height excluding stack and canopy.

TRACK-TYPE TRACTORS MANUFACTURED OUTSIDE U.S.A.

Source	Model	Product Ident. No. Prefix	Years Built	Horsepower Flywheel/ Drawbar	Transmission	Gauge m (ft)
U.K.	D4C	24A	60-64	63/50	DD	1.52 (5'0")
	D4D	88A	64-67	65/52	DD	1.52 (5'0")
	D6C	82A	64-68	120/93	DD	1.88 (6'2")
	D6C	83A	64-68	120/—	PS	1.88 (6'2")
	D6C	46J	71-77	140/—	DD	1.88 (6'2")
	D6C	47J	71-77	140/—	PS	1.88 (6'2")
	D8H	52A	59-61	235/—	PS	2.13 (7'0")
	D8H	22A	59-66	235/185	DD	2.13 (7'0")
	D8H	68A	60-66	235/—	PS	2.13 (7'0")
	D8K	66V	74-82	300/—	PS	2.13 (7'0")
Brazil	D4D	97F	69-78	75/—	DD	1.52 (5'0")
	D4D	74U	71-78	75/—	PS	1.52 (5'0")
	D6C	24U	71-77	120/93	PS	1.88 (6'2")
	D6C	23U	73-77	120/93	DD	1.88 (6'2")
	D6D	74W	77-92	140/—	DD	1.88 (6'2")
	D6D	75W	77-92	140/—	PS	1.88 (6'2")
	D6D	9FK	92-96	140/—	PS	1.88 (6'2")
	D6E	2MJ	92-96	155/—	PS	1.88 (6'2")
	D6D	19B	85-91	140/—	PS	1.88 (6'2")
	D6M XL	5WR	96-02	104/140	PS	1.89 (6'2")
	D6M XL	6LR	96-02	104/140	PS	1.89 (6'2")
	D8L	7JC	84-90	335/—	PS	2.2 (7'3")
	D8L	7YB	85-92	335/—	PS	2.2 (7'3")
	D8N	7TK	93-95	285/—	PS	2.08 (6'10")
	D8R	9EM	95-	305/—		
D8R Series II	AKA	00-04	310	PS	2.08 (6'10")	
D8R Series II	AKA	00-04	310	PS	3.05 (10'0")	
Australia	D4	29A	59-61	63/50	DD	1.12 (3'8")
	D4	30A	59-60	63/50	DD	1.52 (5'0")
	D4C	54A	60-62	63/52	DD	1.12 (3'8")
	D4C	55A	60-62	65/52	DD	1.52 (5'0")
	D4D	85A	63-68	65/52	DD	1.52 (5'0")
	D5	51H	68-68	93/75	DD	1.88 (6'2")
	D5	52H	68-69	93/—	PS	1.88 (6'2")
	D6	31A	58-60	93/75	DD	1.52 (5'0")
	D6	32A	58-60	93/75	DD	1.18 (6'2")
	D6B	56A	60-66	90/73	DD	1.52 (5'0")
	D6B	57A	60-68	90/73	DD	1.88 (6'2")
	D6C	71A	63-68	120/93	DD	1.88 (6'2")
	D6C	73A	63-68	120/—	PS	1.88 (6'2")
	D6C	55J	69-72	125/—	DD	1.88 (6'2")
	D6C	56J	69-72	125/—	PS	1.88 (6'2")

Former Models

Track-Type Tractors ● Made Outside U.S.A.

TRACK-TYPE TRACTORS MANUFACTURED OUTSIDE U.S.A. (cont'd)

Source	Model	Product Ident. No. Prefix	Years Built	Horsepower Flywheel/ Drawbar	Transmission	Gauge m (ft)
France	D4C	69A	61-63	63/50	DD	1.52 (5'0")
	D4D	86A	63-68	65/52	DD	1.52 (5'0")
	D4D LGP	18J	66-68	65/52	DD	1.79 (5'10")
	D4D	58J	67-68	65/—	PS	1.52 (5'0")
	D4E	68X	78-86	80/—	DD	1.52 (5'0")
	D4E	69X	78-85	80/—	PS	1.52 (5'0")
	D4E LGP	71X	78-85	80/—	DD	1.77 (5'10")
	D4E LGP	72X	78-86	80/—	PS	1.77 (5'10")
	D5	62J	69-77	105/—	DD	1.88 (6'2")
	D5	63J	69-77	105/—	PS	1.88 (6'2")
	D5 LGP	6R	70-77	105/—	PS	2.06 (6'9")
	D5 LGP	12R	70-77	105/—	DD	2.06 (6'9")
	D5B	43X	77-85	105/—	DD	1.88 (6'2")
	D5B	44X	77-86	105/—	PS	1.88 (6'2")
	D5B LGP	45X	77-86	105/—	DD	2.06 (6'9")
	D5B LGP	46X	77-86	105/—	PS	2.06 (6'9")
	D5B	8MB	84-86	105/—	PS	1.52 (5'0")
	D5H	8RC	85-96	120/—	PS	1.80 (5'11")
	D5H LGP	1DD	86-96	130/—	PS	2.16 (7'1")
	D5H XL	8RJ	86-96	130/—	PS	1.89 (6'2")
	D5H	7NC	85-96	120/—	DD	1.80 (5'11")
	D5H LGP	9HC	85-96	130/—	DD	2.16 (7'1")
	D5M XL	4BR	96-02	82/110	PS	1.77 (5'10")
	D5M XL	6GN	96-02	82/110	PS	1.77 (5'10")
	D5M LGP	3DR	96-02	82/110	PS	2.00 (6'7")
	D5M LGP	3CR	96-02	82/110	PS	2.00 (6'7")
	D6M XL	9ZM	96-02	104/140	PS	1.89 (6'2")
D6M XL	3VN	96-02	104/140	PS	1.89 (6'2")	
D6M LGP	2RN	96-02	104/140	PS	2.16 (7'1")	
D6M LGP	4JN	96-02	104/140	PS	2.16 (7'1")	
Scotland	D6D	19X	78-86	140/—	DD	1.88 (6'2")
	D6D	20X	78-86	140/—	PS	1.88 (6'2")
	D6D	0IY	79-87	125/—	PS	1.88 (6'2")
Glasgow	D6H	7PC	86-87	165/—	PS	1.88 (6'2")
	D6H LGP	8YC	86-87	165/—	PS	2.23 (7'4")
Japan	D3	79U	73-79	62/—	PS	1.42 (4'8")
	D3	82U	73-78	62/—	PS	1.42 (4'8")
	D3 LGP	6N	73-79	62/—	PS	1.65 (5'5")
	D3 LGP	83U	73-79	62/—	PS	1.65 (5'5")
	D3B	23Y	79-87	65/—	PS	1.42 (4'8")
	D3B LGP	24Y	79-87	65/—	PS	1.65 (5'5")
	D3B	27Y	79-87	65/—	PS	1.42 (4'8")
	D3B LGP	28Y	79-87	65/—	PS	1.65 (5'5")
	D3B	3YC	85-87	65/—	DD	1.42 (4'8")
	D3B LGP	5MC	85-87	65/—	DD	1.65 (5'5")
	D3C	5KG	87-90	67/—	PS	1.42 (4'7")
	D3C Series II	7JG/4HJ	90-93	70/—	PS	1.42 (4'7")
	D3C LGP	1PJ	87-90	67/—	PS	1.65 (5'4")
	D3C LGP Series II	8GD/5CJ	90-93	70/—	PS	1.65 (5'4")

TRACK-TYPE TRACTORS MANUFACTURED OUTSIDE U.S.A. (cont'd)

Source	Model	Product Ident. No. Prefix	Years Built	Horsepower Flywheel/ Drawbar	Transmission	Gauge m (ft)
Japan (cont'd)	D4D LGP	67A	65-68	65/52	DD	1.79 (5'10")
	D4D	91A	65-68	65/52	DD	1.52 (5'0")
	D4E	50X	77-86	80/—	DD	1.52 (5'0")
	D4E	51X	77-86	80/—	PS	1.52 (5'0")
	D4E LGP	52X	77-86	80/—	DD	1.77 (5'10")
	D4C	1RJ	87-90	78/—	PS	1.42 (4'7")
	D4C Series II	7KG	90-93	80/—	PS	1.42 (4'7")
	D4C LGP	2CJ	87-90	78/—	PS	1.65 (5'4")
	D4C LGP Series II	98G	90-93	80/—	PS	1.65 (5'4")
	D4H	8PB	85-96	90/95	PS	1.67 (5'5")
	D4H LGP	9DB	85-96	105/—	PS	2.0 (6'7")
	D4H	2AC	85-92	90/95	DD	1.67 (5'5")
	D4H LGP	3AC	85-90	90/95	DD	2.0 (6'7")
	D4H XL	8PJ	92-96	105/—	PS	1.77 (5'10")
	D4H LGP	9GJ	92-96	105/—	PS	2.0 (6'7")
	D4H LGP	4NK	92-93	105/—	DD	2.0 (6'7")
	D5	37J	67-68	93/75	DD	1.88 (6'2")
	D5 LGP	98A	67-68	93/75	DD	2.06 (6'9")
	D5	67J	68-77	105/—	DD	1.88 (6'2")
	D5	97J	71-76	105/—	PS	1.88 (6'2")
	D5 LGP	68J	68-77	105/—	DD	2.06 (6'9")
	D5B	47X	77-86	105/—	DD	1.88 (6'2")
	D5B	48X	77-86	105/—	PS	1.88 (6'2")
	D5B LGP	49X	77-86	105/—	DD	2.06 (6'9")
	D5C	6PJ	91-93	90/—	PS	1.54 (5'1")
	D5C LGP	3MK	91-93	90/—	PS	1.72 (5'8")
	D5H	3MD	86-96	120/—	PS	1.80 (5'11")
	D5H LGP	4KD	86-96	130/—	PS	2.16 (7'1")
	D5H	1YD	86-96	120/—	DD	1.80 (5'11")
	D5H LGP	2SD	86-96	130/—	DD	2.16 (7'1")
	D5M XL	4JS	96-	82/110	PS	1.77 (5'10")
	D5M XL	5ES	96-02	82/110	PS	1.77 (5'10")
	D5M LGP	5FS	96-	82/110	PS	2.00 (6'7")
	D5M LGP	6AS	96-02	82/110	PS	2.00 (6'7")
	D5M LGP	7LR	97-02	78/105	DDPS	2.00 (6'7")
	D6B	37H	66-67	93/75	DD	1.88 (6'2")
	D6B LGP	38H	66-67	93/75	DD	2.06 (6'9")
	D6C	41A	66-68	120/93	DD	1.88 (6'2")
	D6C	96A	66-68	120/93	PS	1.88 (6'2")
	D6C	26K	68-77	125/—	DD	1.88 (6'2")
	D6C	69C	68-77	125/—	PS	1.88 (6'2")
	D6C LGP	90B	71-77	140/—	DD	2.11 (6'11")
	D6D LGP LS	6HC	86-96	160/—	DD	1.88 (6'2")
	D6D	31X	86-98	140/—	PS	1.88 (6'2")
	D6D	30X	85-96	140/—	DD	1.88 (6'2")
	D6D PTNR	5YB	88-96	160/—	PS	1.88 (6'2")
	D6M XL	2YS	96-	104/140	PS	1.89 (6'2")
D6M XL	4HS	96-02	104/140	PS	1.89 (6'2")	
D6M LGP	4GS	96-	104/140	PS	2.16 (7'1")	
D6M LGP	5NR	96-02	104/140	PS	2.16 (7'1")	
D7H	25B	85-92	215/—	DD	1.98 (6'6")	
					2.54 (8'5")	
D7H LGP	82Z	85-92	215/—	DD	2.23 (7'4")	
					3.15 (10'4")	



AGRICULTURAL TRACTORS

Model	Product Ident. No. Prefix	Years Built	Horse-power FW/ Drawbar	Approx. Machine Weight kg (lb)	Height m (ft) Gauge	Drawbar Pull kg (lb)* and Forward Speed km/h (mph)							
						1st	2nd	3rd	4th	5th	6th	7th	8th
Challenger 35	8DN	94-98	175/150	9838 -	3.05	8604	8499	8314	7851	7161	6694	5949	5147
				12 133	(10'0")	(18,968)	(18,737)	(18,329)	(17,307)	(15,787)	(14,757)	(13,116)	(11,348)
				(21,690 - 26,750)	1.47*	2.62	3.11	3.64	4.17	4.93	5.76	6.79	8.02
Challenger 35	8RD	99-01	175/150	9838 -	3.05	8604	8499	8314	7851	7161	6694	5949	5147
				12 133	(10'0")	(18,968)	(18,737)	(18,329)	(17,307)	(15,787)	(14,757)	(13,116)	(11,348)
				(21,690 - 26,750)	1.47	2.62	3.11	3.64	4.17	4.93	5.76	6.79	8.02
Challenger 35	ADK	99-01	175/150	9838 -	3.05	8604	8499	8314	7851	7161	6694	5949	5147
				12 133	(10'0")	(18,968)	(18,737)	(18,329)	(17,307)	(15,787)	(14,757)	(13,116)	(11,348)
				(21,690 - 26,750)	2.03	2.62	3.11	3.64	4.17	4.93	5.76	6.79	8.02
Challenger MT735		01-02	235/185	10 977 -	3.37	12 680	12 680	12 680	10 890	9130	8105	7187	6388
				20 400	(11'1")	(27,900)	(27,900)	(27,900)	(23,950)	(20,090)	(17,830)	(15,810)	(14,050)
				(24,200 - 45,000)	2.7	3.4	4.3	5.4	6.5	7.3	8.2	9.3	
Challenger 45	1DR	94-98	200/170	9838 -	3.05	8675	8675	8675	8255	7710	7318	6757	5891
				12 133	(10'0")	(19,125)	(19,125)	(19,125)	(18,199)	(16,997)	(16,134)	(14,897)	(12,987)
				(21,690 - 26,750)	1.47*	2.62	3.11	3.64	4.17	4.93	5.76	6.79	8.02
Challenger 45	ABF	99-01	200/170	9838 -	3.05	8675	8675	8675	8255	7710	7318	6757	5891
				12 133	(10'0")	(19,125)	(19,125)	(19,125)	(18,199)	(16,997)	(16,134)	(14,897)	(12,987)
				(21,690 - 26,750)	1.47	2.62	3.11	3.64	4.17	4.93	5.76	6.79	8.02
Challenger 45	3BK	99-01	200/170	9838 -	3.05	8675	8675	8675	8255	7710	7318	6757	5891
				12 133	(10'0")	(19,125)	(19,125)	(19,125)	(18,199)	(16,997)	(16,134)	(14,897)	(12,987)
				(21,690 - 26,750)	2.03	2.62	3.11	3.64	4.17	4.93	5.76	6.79	8.02
Challenger MT745		01-02	255/205	10 977 -	3.37	12 680	12 680	12 680	11 828	9920	8806	7808	6941
				20 400	(11'1")	(27,900)	(27,900)	(27,900)	(26,020)	(21,820)	(19,370)	(17,180)	(15,270)
				(24,200 - 45,000)	2.7	3.4	4.3	5.4	6.5	7.3	8.2	9.3	
Challenger 55	7DM	96-98	225/191	9838 -	3.05	8675	8675	8675	8675	8255	7802	7188	6593
				12 133	(10'0")	(19,125)	(19,125)	(19,125)	(19,125)	(18,200)	(17,200)	(15,848)	(14,535)
				(21,690 - 26,750)	1.47*	2.62	3.11	3.64	4.17	4.93	5.76	6.79	8.02
Challenger 55	AEN	99-01	225/191	9838 -	3.05	8675	8675	8675	8675	8255	7802	7188	6593
				12 133	(10'0")	(19,125)	(19,125)	(19,125)	(19,125)	(18,200)	(17,200)	(15,848)	(14,535)
				(21,690 - 26,750)	2.03	2.62	3.11	3.64	4.17	4.93	5.76	6.79	8.02
Challenger 55	6NN	99-01	225/191	9838 -	3.05	8675	8675	8675	8675	8255	7802	7188	6593
				12 133	(10'0")	(19,125)	(19,125)	(19,125)	(19,125)	(18,200)	(17,200)	(15,848)	(14,535)
				(21,690 - 26,750)	1.47	2.62	3.11	3.64	4.17	4.93	5.76	6.79	8.02
Challenger MT755		01-02	290/235	10 097 -	3.37	12 682	12 682	12 682	12 682	11 302	10 032	8896	7908
				20 400	(11'1")	(27,900)	(27,900)	(27,900)	(27,900)	(24,865)	(22,070)	(19,570)	(17,397)
				(24,200 - 45,000)	2.7	3.4	4.3	5.4	6.5	7.3	8.2	9.3	
Challenger MT765		01-02	306/255	10 977 -	3.37	12 682	12 682	12 682	12 682	11 894	10 558	9362	8322
				20 411	(11'1")	(27,900)	(27,900)	(27,900)	(27,900)	(26,168)	(23,228)	(20,597)	(18,308)
				(24,200 - 45,000)	2.7	3.4	4.3	5.4	6.5	7.3	8.2	9.3	

*Base gauge (no spacers) of 1.47 m (60") available on 8DN1-849, 1DR1-1699, 7DM1-849. Base gauges (no spacers) of 1.47 m (60") and 2.03 m (80") available on 8DN850-Up, 1DR1700-Up, and 7DM850-Up.

Agricultural Tractors (cont'd)

Model	Product Ident. No. Prefix	Years Built	Horse-power FW/ Drawbar	Approx. Machine Weight kg (lb)	Height m (ft) Gauge m (ft)	Drawbar Pull kg (lb)* and Forward Speed km/h (mph)							
						9th	10th	11th	12th	13th	14th	15th	16th
						Challenger 35	8DN	94-98	175/150	9838 - 12 133 (21,690 - 26,750)	3.05 (10'0") 1.47* (60")*	4436 (9779) 9.39 (5.8)	3740 (8244) 11.11 (6.9)	3171 (6991) 12.70 (7.9)	2601 (5735) 15.04 (9.3)	2154 (4749) 17.60 (10.9)	1771 (3904) 20.70 (12.9)	1449 (3194) 24.49 (15.2)	1196 (2637) 28.64 (17.8)
Challenger 35	8RD	99-01	175/150	9838 - 12 133 (21,690 - 26,750)	3.05 (10'0") 1.47 (60")	4436 (9779) 9.39 (5.8)	3740 (8244) 11.11 (6.9)	3171 (6991) 12.70 (7.9)	2601 (5735) 15.04 (9.3)	2154 (4749) 17.60 (10.9)	1771 (3904) 20.70 (12.9)	1449 (3194) 24.49 (15.2)	1196 (2637) 28.64 (17.8)
Challenger 35	ADK	99-01	175/150	9838 - 12 133 (21,690 - 26,750)	3.05 (10'0") 2.03 (80")	4436 (9779) 9.39 (5.8)	3740 (8244) 11.11 (6.9)	3171 (6991) 12.70 (7.9)	2601 (5735) 15.04 (9.3)	2154 (4749) 17.60 (10.9)	1771 (3904) 20.70 (12.9)	1449 (3194) 24.49 (15.2)	1196 (2637) 28.64 (17.8)
Challenger MT735		01-02	235/185	10 977 - 20 400 (24,200 - 45,000)	3.37 (11'1")	5678 (12,490) 10.4 (6.5)	5047 (11,100) 11.7 (7.3)	4476 (9850) 13.2 (8.2)	3974 (8742) 14.9 (9.3)	3339 (7346) 17.7 (11.0)	2628 (5782) 22.5 (14.0)	2077 (4568) 28.5 (17.7)	1635 (3598) 39.7 (24.6)
Challenger 45	1DR	94-98	200/170	9838 - 12 133 (21,690 - 26,750)	3.05 (10'0") 1.47* (60")*	5063 (11,162) 9.39 (5.8)	4170 (9193) 11.11 (6.9)	3547 (7821) 12.70 (7.9)	2920 (6438) 15.04 (9.3)	2427 (5351) 17.60 (10.9)	2003 (4416) 20.70 (12.9)	1646 (3629) 24.49 (15.2)	1365 (3010) 28.64 (17.8)
Challenger 45	ABF	99-01	200/170	9838 - 12 133 (21,690 - 26,750)	3.05 (10'0") 1.47 (60")	5063 (11,162) 9.39 (5.8)	4170 (9193) 11.11 (6.9)	3547 (7821) 12.70 (7.9)	2920 (6438) 15.04 (9.3)	2427 (5351) 17.60 (10.9)	2003 (4416) 20.70 (12.9)	1646 (3629) 24.49 (15.2)	1365 (3010) 28.64 (17.8)
Challenger 45	3BK	99-01	200/170	9838 - 12 133 (21,690 - 26,750)	3.05 (10'0") 2.03 (80")	5063 (11,162) 9.39 (5.8)	4170 (9193) 11.11 (6.9)	3547 (7821) 12.70 (7.9)	2920 (6438) 15.04 (9.3)	2427 (5351) 17.60 (10.9)	2003 (4416) 20.70 (12.9)	1646 (3629) 24.49 (15.2)	1365 (3010) 28.64 (17.8)
Challenger MT745		01-02	255/205	10 977 - 20 400 (24,200 - 45,000)	3.37 (11'1")	6169 (13,573) 10.4 (6.5)	5484 (12,065) 11.7 (7.3)	4864 (10,700) 13.2 (8.2)	4317 (9498) 14.9 (9.3)	3628 (7981) 17.7 (11.0)	2856 (6282) 22.5 (14.0)	2256 (4963) 28.5 (17.7)	1777 (3909) 39.7 (24.6)
Challenger 55	7DM	96-98	225/191	9838 - 12 133 (21,690 - 26,750)	3.05 (10'0") 1.47* (60")*	5663 (12,484) 9.39 (5.8)	4676 (10,310) 11.11 (6.9)	3990 (8796) 12.70 (7.9)	3295 (7264) 15.04 (9.3)	2747 (6056) 17.60 (10.9)	2275 (5015) 20.70 (12.9)	1876 (4135) 24.49 (15.2)	1562 (3443) 28.64 (17.8)
Challenger 55	AEN	99-01	225/191	9838 - 12 133 (21,690 - 26,750)	3.05 (10'0") 2.03 (80")	5663 (12,484) 9.39 (5.8)	4676 (10,310) 11.11 (6.9)	3990 (8796) 12.70 (7.9)	3295 (7264) 15.04 (9.3)	2747 (6056) 17.60 (10.9)	2275 (5015) 20.70 (12.9)	1876 (4135) 24.49 (15.2)	1562 (3443) 28.64 (17.8)
Challenger 55	6NN	99-01	225/191	9838 - 12 133 (21,690 - 26,750)	3.05 (10'0") 1.47 (60")	5663 (12,484) 9.39 (5.8)	4676 (10,310) 11.11 (6.9)	3990 (8796) 12.70 (7.9)	3295 (7264) 15.04 (9.3)	2747 (6056) 17.60 (10.9)	2275 (5015) 20.70 (12.9)	1876 (4135) 24.49 (15.2)	1562 (3443) 28.64 (17.8)
Challenger MT755		01-02	290/235	10 097 - 20 400 (24,200 - 45,000)	3.37 (11'1")	7029 (15,464) 10.4 (6.5)	6248 (13,745) 11.7 (7.3)	5541 (12,190) 13.2 (8.2)	4919 (10,821) 14.9 (9.3)	4133 (9093) 17.7 (11.0)	3253 (7157) 22.5 (14.0)	2570 (5655) 28.5 (17.7)	2024 (4454) 39.7 (24.6)
Challenger MT765		01-02	306/255	10 977 - 20 411 (24,200 - 45,000)	3.37 (11'1")	7397 (16,274) 10.4 (6.5)	6575 (14,466) 11.7 (7.3)	5831 (12,829) 13.2 (8.2)	5176 (11,388) 14.9 (9.3)	4350 (9569) 17.7 (11.0)	3424 (7533) 22.5 (14.0)	2705 (5951) 28.5 (17.7)	2130 (4687) 39.7 (24.6)

*Base gauge (no spacers) of 1.47 m (60") available on 8DN1-849, 1DR1-1699, 7DM1-849. Base gauges (no spacers) of 1.47 m (60") and 2.03 m (80") available on 8DN850-Up, 1DR1700-Up, and 7DM850-Up.

Agricultural Tractors (cont'd)

Model	Product Ident. No. Prefix	Years Built	Horse-power FW/ Drawbar	Approx. Machine Weight kg (lb)	Height m (ft) Gauge m (ft)	Drawbar Pull kg (lb)* and Forward Speed km/h (mph)									
						1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
Challenger 65	7YC	86-90	270/200	14 061 (31,000)	3.24 (10'8")	14 825	10 393	8880	7701	6656	5708	4950	4245	2858	1725
						(32,684)	(22,912)	(19,577)	(16,978)	(14,674)	(12,583)	(10,912)	(9358)	(6300)	(3803)
						2.15 (7'1")	4.2 (2.6)	6.4 (4.0)	7.5 (4.7)	8.6 (5.3)	9.9 (6.1)	11.3 (7.0)	13.0 (8.1)	14.9 (9.3)	19.3 (12.0)	29.3 (18.1)
Challenger 65B	7YC	91-92	285/225	14 060 (31,000)	3.24 (10'8")	14 893	11 074	9492	8252	7138	6109	5294	4545	3057	1851
						(32,914)	(24,413)	(20,926)	(18,193)	(15,737)	(13,467)	(11,672)	(10,019)	(6740)	(4080)
						2.15 (7'1")	4.2 (2.6)	6.4 (4.0)	7.5 (4.7)	8.6 (5.3)	9.9 (6.1)	11.3 (7.0)	13.0 (8.1)	14.9 (9.3)	19.3 (12.0)	29.3 (18.1)
Challenger 65C	2ZJ	93-95	285/225	14 330 (31,530)	3.24 (10'8")	12 587	9574	8186	7156	6147	5230	4497	3855	2701	1637
						(27,750)	(21,106)	(18,046)	(15,775)	(13,551)	(11,530)	(9914)	(8498)	(5955)	(3610)
						2.29 (7'5")	4.2 (2.6)	6.4 (4.0)	7.5 (4.7)	8.6 (5.3)	9.9 (6.1)	11.3 (7.0)	13.0 (8.1)	14.9 (9.3)	19.3 (12.0)	29.1 (18.1)
Challenger 65D	2ZJ	95-97	300	14 909 (32,875)	3.24 (10'8")	12 689	10 706	9161	7934	6837	5843	5005	4256	3119	2030
						(27,975)	(23,603)	(20,197)	(17,492)	(15,072)	(12,881)	(11,034)	(9382)	(6875)	(4475)
						2.29 (7'5")	4.2 (2.6)	6.4 (4.0)	7.5 (4.7)	8.6 (5.3)	9.9 (6.1)	11.3 (7.0)	13.0 (8.1)	14.9 (9.3)	19.3 (12.0)	29.1 (18.1)
Challenger 65E	97-02	310/277	15 186 (33,480)	3.4 (11'2")	15 098	10 808	9265	8096	6964	6017	5247	4469	3396	2279	
					(33,284)	(23,827)	(20,425)	(17,849)	(15,352)	(13,265)	(11,567)	(9853)	(7488)	(5025)	
					4.3 (2.7)	6.4 (4.0)	7.6 (4.7)	8.7 (5.4)	10.0 (6.2)	11.3 (7.0)	12.9 (8.0)	14.8 (9.2)	18.3 (12.0)	29.0 (18.0)	
Challenger 70C	2YL	93-95	1st Gear 215/154 2nd & up 285/225	16 201 (35,685)	3.24 (10'8")	12 621	9574	8186	7156	6147	5230	4497	3855	2701	1637
						(27,825)	(21,106)	(18,046)	(15,775)	(13,551)	(11,530)	(9914)	(8498)	(5955)	(3610)
						2.29 (7'5")	4.2 (2.6)	6.4 (4.0)	7.5 (4.7)	8.6 (5.3)	9.9 (6.1)	11.3 (7.0)	13.0 (8.1)	14.9 (9.3)	19.3 (12.0)	21.1 (18.1)
Challenger 75	4CJ	91-92	325/256	14 060 (31,000)	3.24 (10'8")	15 391	12 371	10 753	9382	8073	6923	6017	5162	3588	2181
						(33,931)	(27,273)	(23,706)	(20,684)	(17,797)	(15,263)	(13,264)	(11,379)	(7910)	(4830)
						2.15 (7'1")	4.2 (2.6)	6.4 (4.0)	7.5 (4.7)	8.6 (5.3)	9.9 (6.1)	11.3 (7.0)	13.0 (8.1)	14.9 (9.3)	19.3 (12.0)	29.3 (18.1)
Challenger 75C	4KK	92-97	325/268	15 158 (33,419)	3.24 (10'8")	12 689	10 761	9329	8106	6932	5944	5095	4380	3075	1878
						(27,975)	(23,724)	(20,567)	(17,871)	(15,282)	(13,105)	(11,232)	(9657)	(6780)	(4140)
						2.29 (7'5")	4.2 (2.6)	6.4 (4.0)	7.5 (4.7)	8.6 (5.3)	9.9 (6.1)	11.3 (7.0)	13.0 (8.1)	14.9 (9.3)	19.3 (12.0)	29.1 (18.1)
Challenger 75D	5AR	96-97	330	14 878 (32,800)	3.24 (10'8")	12 884	12 562	10 919	9526	8197	7030	6109	5241	3643	2225
						(28,406)	(27,693)	(24,071)	(21,003)	(18,071)	(15,498)	(13,468)	(11,554)	(8031)	(4904)
						2.29 (7'5")	4.2 (2.6)	6.4 (4.0)	7.5 (4.7)	8.6 (5.3)	9.9 (6.1)	11.3 (7.0)	13.0 (8.1)	14.9 (9.3)	19.3 (12.0)	29.1 (18.1)
Challenger 75E	97-02	340/301	15 186 (33,480)	3.4 (11'2")	15 174	11 696	9402	8155	7015	6412	5543	4798	3502	2447	
					(33,452)	(25,785)	(20,728)	(17,979)	(15,466)	(14,135)	(12,221)	(10,578)	(7722)	(5395)	
					2.29 (7'6")	4.5 (2.8)	6.4 (4.0)	7.9 (4.9)	9.0 (5.6)	10.3 (6.4)	11.3 (7.0)	12.9 (8.0)	14.8 (9.2)	20.1 (12.5)	29.0 (18.0)
Challenger 85C	9TK	92-97	1-2 Gears 325/216 3-10 Gears 355/272	15 286 (33,700)	3.24 (10'8")	12 689	11 596	9544	8302	7089	6406	5490	4720	3146	2024
						(27,975)	(25,565)	(21,042)	(18,304)	(15,629)	(14,122)	(12,104)	(10,406)	(6935)	(4461)
						2.29 (7'5")	4.5 (2.8)	6.4 (4.0)	7.9 (4.9)	9.0 (5.6)	10.5 (6.5)	11.3 (7.0)	13.0 (8.1)	14.9 (9.3)	20.3 (12.6)	29.1 (18.1)
Challenger 85D	4GR	96-97	Gears 1-2 330 3-5 360 6-10 370	15 286 (33,700)	3.24 (10'8")	15 529	10 684	9599	8247	7175	6590	5705	4887	3825	2461
						(34,234)	(23,553)	(21,162)	(18,181)	(15,819)	(14,528)	(12,578)	(10,774)	(8432)	(5425)
						2.29 (7'5")	4.0 (2.5)	6.25 (3.9)	7.75 (4.8)	8.9 (5.5)	10.2 (6.4)	11.2 (7.0)	12.8 (8.0)	14.7 (9.2)	20.3 (12.6)	29.1 (18.1)
Challenger 85E	97-02	375/339	15 413 (33,980)	3.4 (11'2")	15 454	11 576	10 566	9177	7997	7268	6323	5417	3954	2763	
					(34,070)	(25,520)	(23,294)	(20,232)	(17,629)	(16,022)	(13,940)	(11,942)	(8718)	(6090)	
					2.29 (7'6")	4.5 (2.8)	6.4 (4.0)	7.9 (4.9)	9.0 (5.6)	10.3 (6.4)	11.3 (7.0)	12.9 (8.0)	14.8 (9.2)	20.1 (12.5)	29.0 (18.0)

*Drawbar pull figures for SA and SR models are max. at lug.

NOTE: Drawbar pull figures for the Challenger 65 is at max. power as found in University of Nebraska Tractor Test no. 1268.

This test was performed on concrete. Therefore, usable drawbar pull may be less depending upon soil conditions.

Agricultural Tractors (cont'd)

Model	Product Ident. No. Prefix	Years Built	Horse-power FW/ Drawbar	Approx. Machine Weight kg (lb)	Height m (ft) Gauge m (ft)	Drawbar Pull kg (lb)* and Forward Speed km/h (mph)									
						1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
Challenger 95E		97-02	410/375	15 413 (33,980)	3.4 (11'2") 2.29 (7'6")	15 968	11 506	10 505	10 085	8729	7903	6865	5901	4308	3010
						(35,202)	(25,366)	(23,159)	(22,234)	(19,244)	(17,423)	(15,134)	(13,009)	(9497)	(6635)
						4.5 (2.8)	6.4 (4.0)	7.9 (4.9)	9.0 (5.6)	10.3 (6.4)	11.3 (7.0)	12.9 (8.0)	14.8 (9.2)	20.1 (12.5)	29.0 (18.0)
D3B SA	2PC	85-87	101	6650 (14,670)	2.71 (8'11")	7634	6226	5306	4531	3888					
						(16,830)	(13,725)	(11,700)	(9990)	(8573)					
						4.1 (2.5)	5.0 (3.1)	5.7 (3.6)	6.5 (4.0)	7.6 (4.7)					
D3C SA	7JF	87-92	101	7202 (15,846)	2.71 (8'11") 1.52 (5'0")	5552	4521	3827	3235	2755					
						(12,250)	(9960)	(8450)	(7130)	(6070)					
						4.1 (2.5)	5.0 (3.1)	5.7 (3.6)	6.5 (4.0)	7.6 (4.7)					
D4D SA	20J	66-68	—/68	6750 (14,900)	2.44 (8'0") 1.52 (5'0")	4590	3928	3098	2631	2232					
						(10,120)	(8660)	(6830)	(5800)	(4920)					
						4.0 (2.5)	4.7 (2.9)	5.6 (3.5)	6.4 (4.0)	7.4 (4.6)					
D4D SA	84J	66	—/68	6470 (14,270)	2.67 (8'9") 1.52 (5'0")	4880	4170	3310	2840	2420					
						(10,750)	(9200)	(7300)	(6260)	(5330)					
						4.0 (2.5)	4.7 (2.9)	5.6 (3.5)	6.4 (4.0)	7.4 (4.6)					
D4E SA	7PB 2CB	84-89 84-91	97	7600 (16,760)	2.71 (8'11")	5901	5148	5831	5002	4433					
						(13,102)	(11,349)	(12,859)	(11,027)	(9773)					
						3.4 (2.1)	4.6 (2.8)	5.5 (3.5)	6.4 (4.0)	8.3 (5.1)					
D4E SA	29X	77-84	—/74	7585 (16,722)	2.72 (8'11") 1.52 (5'0")	5802	4986	4007	3814	2896					
						(12,791)	(10,993)	(8835)	(8408)	(6384)					
						4.1 (2.5)	4.7 (2.9)	5.8 (3.6)	6.6 (4.1)	7.5 (4.7)					
D4E SR		84-99	125/—	9400 (20,730)	1.93 (6'4") 1.52 (5'0")	5450	3744	5068	4408	3832					
						(12,010)	(8250)	(11,170)	(9715)	(8450)					
D5 SA	21J	67-67	—/90	9300 (20,400)	2.64 (8'8") 1.88 (6'2")	6620	5160	3990	3080	2290					
						(14,580)	(11,360)	(8740)	(6790)	(5030)					
D5 SA	98J	67-77	—/90	9660 (21,300)	2.95 (9'8") 1.88 (6'2")	6120	5180	4110	3640	2950	2250				
						(13,500)	(11,410)	(9950)	(7620)	(6500)	(4970)				
						3.7 (2.3)	4.6 (2.9)	5.8 (3.6)	7.1 (4.4)	8.8 (5.5)					
D5B SA	26X	77-84	—/90	11 283 (24,875)	2.77 (9'1") 1.88 (6'2")	6409	5384	4323	3688	3180	2486				
						(14,130)	(11,870)	(9530)	(8130)	(7010)	(5480)				
						4.0 (2.5)	4.7 (2.9)	5.6 (3.5)	6.6 (4.1)	7.4 (4.6)	9.0 (5.6)				
D5B SA	22X	77-82	105/—	11 283 (24,875)	2.77 (9'1") 1.52 (5'0")	8060	5030	3410	2290	1480					
						(17,770)	(11,100)	(7520)	(5060)	(3260)					
						2.7 (1.7)	4.2 (2.6)	5.8 (3.6)	8.0 (5.0)	11.1 (6.9)					
D5B SA	24X	77-84	105/—	11 619 (25,615)	2.77 (9'1") 1.52 (5'0")	3.5	6.1	10.1							
						(2.2)	(3.8)	(6.3)							

*Drawbar pull figures for SA and SR models are max. at lug.

NOTE: Drawbar pull figures for the Challenger 65 is at max. power as found in University of Nebraska Tractor Test no. 1268.

This test was performed on concrete. Therefore, usable drawbar pull may be less depending upon soil conditions.

Agricultural Tractors (cont'd)

Model	Product Ident. No. Prefix	Years Built	Horse-power FW/ Drawbar	Approx. Machine Weight kg (lb)	Height m (ft) Gauge m (ft)	Drawbar Pull kg (lb)* and Forward Speed km/h (mph)											
						1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th		
D6C SA	17R	70-76	140	13 064 (28,800)	2.67 (8'9")	850 (18,750)	6970 (15,370)	5880 (12,780)	4810 (10,610)	4080 (9000)	3190 (7030)						
						4.0 (2.5)	4.8 (3.0)	5.6 (3.5)	6.4 (4.0)	7.4 (4.6)	8.8 (5.5)						
D6D SR	7XF	89-91	140	15 200 (33,500)	2.87 (9'5")	14 358 (31,645)	12 429 (27,394)	11 721 (25,833)	7067 (15,576)	6096 (13,436)	4931 (10,868)						
						2.0 (1.2)	2.9 (1.8)	4.1 (2.5)	6.5 (4.0)	7.4 (4.6)	8.9 (5.5)						
D6D SA 123-161 kW (165-215 HP)	38C	83-91	165	14 500 (32,000)	2.87 (9'5")	10 098 (22,243)	8510 (18,744)	9210 (20,287)	7789 (17,156)	6732 (14,828)	5456 (12,017)						
						4.5 (2.8)	5.3 (3.3)	6.1 (3.8)	7.1 (4.4)	8.2 (5.1)	9.8 (6.1)						
D6D SA 123-179 kW (165-240 HP)	19B	83-91	165	14 500 (32,000)	2.87 (9'5")	10 098 (22,243)	8510 (18,744)	7181 (15,817)	8732 (19,234)	7560 (16,651)	6144 (13,532)						
						4.5 (2.8)	5.3 (3.3)	6.1 (3.8)	7.1 (4.4)	8.2 (5.1)	9.8 (6.1)						
D6E SR	8FJ	91-96	155/216 121/170	14 960 (32,987)	2.03 (6'8") 1.88 (6'2")	11 308 (24,878)	7771 (17,097)	8130 (17,887)	6866 (15,105)	5926 (13,037)	3135 (6987)						
						3.0 (1.9)	4.3 (2.7)	5.8 (2.6)	6.8 (4.3)	7.7 (4.8)	9.3 (5.8)						
Ag 6 Generation One	05X	77-86	165/240	14 787 (32,600)	3.43 (11'3")	10 034 (22,120)	8455 (18,639)	7134 (15,727)	9041 (19,931)	7830 (17,268)							
						4.5 (2.8)	5.3 (3.3)	6.1 (3.8)	7.1 (4.4)	8.2 (5.1)							
Ag 6 Generation Two	05X	77-86	200/240	14 787 (32,600)	3.48 (11'5")	12 407 (27,353)	10 482 (23,110)	10 667 (23,514)	9091 (19,931)	7830 (17,263)							
						4.5 (2.8)	5.3 (3.3)	6.1 (3.8)	7.1 (4.4)	8.2 (5.1)							
D7G SA std. trans.	35N	80-86	250	18 462 (40,700)	3.2 (10'6")	19 101 (42,110)	13 622 (30,030)	11 358 (25,040)	10 015 (22,080)	8627 (19,020)	7584 (16,720)						
						3.5 (2.2)	4.8 (3.0)	5.6 (3.5)	6.4 (4.0)	7.2 (4.5)	8.2 (5.1)						
D7G SA std. trans. 168-186 kW (225-250 HP)		77-86	250	18 462 (40,700)	3.2 (10'6")	16 990 (37,424)	12 090 (26,631)	11 358 (25,040)	10 015 (22,080)	8627 (19,020)	7584 (16,720)						
						3.5 (2.2)	4.8 (3.0)	5.6 (3.5)	6.4 (4.0)	7.2 (4.5)	8.2 (5.1)						
D8L SA		84-87	400	36 650 (80,820)	3.87 (12'8") 2.2 (7'3")	40 252 (88,740)	39 466 (64,960)	22 013 (48,530)	15 953 (35,170)	11 880 (26,190)	8446 (18,620)						
						2.9 (1.8)	3.9 (2.4)	5.0 (3.1)	6.8 (4.2)	8.9 (5.5)	11.9 (7.4)						

*Drawbar pull figures for SA and SR models are max. at lug.

NOTE: Drawbar pull figures for the Challenger 65 is at max. power as found in University of Nebraska Tractor Test no. 1268.

This test was performed on concrete. Therefore, usable drawbar pull may be less depending upon soil conditions.



MOTOR GRADERS

Model	Product Ident. No. Prefix	Years Built	Horsepower, Rated	Approx. Ship Wt. kg (lb)	Wheel-base m (ft)	Length m (ft)	Width m (ft)	Mold-board Length m (ft)	Turning Radius m (ft)	Controls	Maximum Speed km/h (mph)	
											Forward	Rev.
212TD	79C	54-57	50	6030 (13,290)	5.03 (16'6")	6.68 (21'11")	2.07 (6'10")	3.05 (10'0")	11.10 (36'5")	Mech.	18.1 (11.2)	4.2 (2.6)
112	3U	47-59	70	8770 (19,330)	5.72 (18'9")	7.59 (24'11")	2.39 (7'10")	3.66 (12'0")	10.87 (35'8")	Mech.	25.7 (16.0)	6.4 (4.0)
112	81C	55-59	75	9435 (20,805)	5.72 (18'9")	7.59 (24'11")	2.39 (7'10")	3.66 (12'0")	10.74 (35'3")	Mech.	25.7 (16.0)	6.4 (4.0)
112E	68E(U.S.) 91G(U.S.)	59-64 64-68	85	9500 (20,900)	5.72 (18'9")	7.62 (25'0")	2.36 (7'9")	3.66 (12'0")	10.74 (35'3")	Mech.	29.3 (18.2)	9.3 (5.8)
112F	82F(U.S.) 46D(U.S.) 74H(U.S.) 89J(U.S.) 80J(AUSTL)	60-64 64-68 67-68 68-74 69-84	100	9800 (21,600)	5.72 (18'9")	7.82 (25'8")	2.36 (7'9")	3.66 (12'0")	10.70 (35'3")	Mech.	29.9 (18.6)	9.7 (6.0)
120	89G(U.S.)	64-67	115	10 480 (23,100)	5.71 (18'9")	7.62 (25'0")	2.36 (7'9")	3.66 (12'0")	10.74 (35'3")	Mech.	32.2 (20.0)	10.3 (6.4)
120	14K(U.S.)	67-69	125	10 600 (23,500)	5.71 (18'9")	7.80 (25'8")	2.36 (7'9")	3.66 (12'0")	10.74 (35'3")	Mech.	32.2 (20.0)	41.5 (25.8)
120	10R(U.S.)	69-74	125	10 700 (23,700)	5.85 (19'2")	7.95 (26'1")	2.36 (7'9")	3.66 (12'0")	10.90 (35'9")	Mech.	32.2 (20.0)	6.6 (4.1)
120	13U(U.S.)	71-74	125	11 000 (24,300)	5.85 (19'2")	7.95 (26'1")	2.36 (7'9")	3.66 (12'0")	10.90 (35'9")	Mech.	32.2 (20.0)	6.6 (4.1)
120B	64U(BRAZ)	72-89	125	12 000 (26,460)	5.85 (19'2")	7.92 (26'0")	2.36 (7'9")	3.66 (12'0")	10.90 (35'9")	Mech.	35.4 (22.0)	23.8 (14.8)
120G	87V(U.S.) 4HD(BRAZ) 11W(AUSTL) 82V(CAN)	73-95 86-95 75-95 74-80	125	12 859 (28,350)	5.69 (18'8")	7.92 (26'0")	2.45 (8'0")	3.66 (12'0")	6.7 (22'0")	Hyd.	40.9 (25.4)	40.9 (25.4)
120H	4MK(U.S.) 6NM(U.S.) 9YR(BRAZ) 2AN(AUSTL) 3GR(S.AFRICA)	95-02	125/140	12 520 (27,600)	5.86 (19'3")	8.26 (27'1")	2.44 (7'11")	3.66 (12'0")	7.2 (23'8")	Hyd.	42.6 (26.5)	33.7 (20.9)
130G	74V(U.S.) 12W(AUSTL)	73-95 75-89	135	13 050 (28,770)	5.92 (19'5")	8.30 (27'3")	2.45 (8'0")	3.66 (12'0")	7.3 (24'0")	Hyd.	39.4 (24.5)	39.4 (24.5)
135H	3YK(U.S.)	95-02	135/155	12 950 (28,550)	5.86 (19'3")	8.26 (27'1")	2.44 (7'11")	3.66 (12'0")	7.2 (23'8")	Hyd.	41.9 (26.0)	33.1 (20.6)
12	6M(U.S.)	39-42	66	9440 (20,820)	5.72 (18'9")	7.62 (25'0")	2.39 (7'10")	3.66 (12'0")	10.87 (35'8")	Mech.	24.5 (15.2)	6.1 (3.8)
12	9K(U.S.)	38-45	70	9590 (21,140)	5.72 (18'9")	7.62 (25'0")	2.39 (7'10")	3.66 (12'0")	10.87 (35'8")	Mech.	24.5 (15.2)	6.1 (3.8)
12	7T(U.S.)	45-47	75	9750 (21,500)	5.72 (18'9")	7.62 (25'0")	2.39 (7'10")	3.66 (12'0")	10.87 (35'8")	Mech.	24.5 (15.2)	6.1 (3.8)
12	8T(U.S.) 94C(AUSTL)	47-55 55-58	100	10 100 (22,375)	5.72 (18'9")	7.62 (25'0")	2.39 (7'10")	3.66 (12'0")	10.87 (35'8")	Mech.	31.1 (19.3)	6.6 (4.1)
12	70D-71D(U.S.) 80C(U.S.) 38E(AUSTL)	57-59 55-67 58-60	115	10 200 (22,410)	5.72 (18'9")	7.62 (25'0")	2.37 (7'10")	3.66 (12'0")	10.87 (35'8")	Mech.	31.1 (19.3)	10.1 (6.3)
12E	99E(U.S.) 21F(AUSTL) 17K(AUSTL)	59-65 60-68 68-75	115	11 100 (24,400)	5.72 (18'9")	8.03 (26'4")	2.36 (7'9")	3.66 (12'0")	10.90 (35'9")	Mech.	32.0 (19.9)	22.2 (13.8)
12F	73G(U.S.)	65-67	115	12 973 (28,600)	6.0 (19'8")	8.20 (26'10")	2.36 (7'9")	3.66 (12'0")	11.40 (37'5")	Hyd. Mech.	32.0 (19.9)	22.2 (13.8)

Motor Graders (cont'd)

Model	Product Ident. No. Prefix	Years Built	Horse-power, Rated	Approx. Ship Wt. kg (lb)	Wheel-base m (ft)	Length m (ft)	Width m (ft)	Mold-board Length m (ft)	Turning Radius m (ft)	Controls	Maximum Speed km/h (mph)	
											Forward	Rev.
12F	89H(U.S.) 13K(U.S.)	69-73 67-73	125	12 973 (28,600)	6.00 (19'8")	8.20 (26'10")	2.36 (7'9")	3.65 (12'0")	11.40 (37'5")	Hyd. Mech.	34.3 (21.3)	41.5 (25.8)
12G	61M(U.S.) 3PL(BRAZ) 3WC(AUSTL)	73-95 93-95 85-95	135	13 554 (29,860)	5.92 (19'5")	8.30 (27'3")	2.45 (8'0")	3.66 (12'0")	7.30 (24'0")	Hyd.	39.4 (24.5)	39.4 (24.5)
12H	4XM(U.S.) 2LR(U.S.) 8MN(BRAZ) 2GS(BRAZ) 2WR(AUSTL)	95-02	140	14 247 (31,410)	6.10 (20'0")	8.57 (28'1")	2.44 (7'11")	3.66 (12'0")	7.40 (24'3")	Hyd.	39.7 (24.7)	31.3 (19.5)
140	14U(U.S.) 11R(U.S.) 55F(AUSTL) 24R(CAN)	71-74 70-74 71-75 71-74	150	13 109 (28,900)	5.84 (19'2")	7.95 (26'1")	2.44 (8'0")	3.66 (12'0")	10.97 (36'0")	Mech.	38.8 (24.1)	47.0 (29.2)
140B	61S(BRAZ)	81-87	150	13 620 (30,003)	6.14 (20'2")	8.07 (26'6")	2.39 (7'10")	3.96 (13'0")	11.60 (38'0")	Mech.	37.6 (23.4)	25.6 (15.9)
140G	72V(U.S.) 5MD(BRAZ) 13W(AUSTL) 81V(CAN)	73-95 87-95 75-95 74-80	150	14 102 (31,090)	5.92 (19'5")	8.33 (27'4")	2.45 (8'0")	3.66 (12'0")	7.30 (24'0")	Hyd.	41.0 (25.5)	41.0 (25.5)
140G AWD	72V(U.S.)	73-95	150	14 914 (32,880)	5.92 (19'5")	8.33 (27'4")	2.45 (8'0")	3.66 (12'0")	7.30 (24'0")	Hyd.	41.0 (25.5)	41.0 (25.5)
140H	2ZK(U.S.) 8KM(U.S.) 9TN(BRAZ) 3AS(BRAZ) 9ZN(AUSTL)	95-02	165/185	14 724 (32,460)	6.10 (20'0")	8.60 (28'3")	2.46 (8'1")	3.66 (12'0")	7.40 (24'3")	Hyd.	41.1 (25.5)	32.4 (20.2)
143H	1AL(U.S.)	95-02	165/185	15 023 (33,120)	6.10 (20'0")	8.60 (28'3")	2.46 (8'1")	3.66 (12'0")	7.40 (24'3")	Hyd.	41.1 (25.5)	32.4 (20.2)
14B	78E(U.S.) 64C(U.S.)	59-59 59-69	150	13 300 (29,280)	5.84 (19'2")	8.03 (26'4")	2.44 (8'0")	3.66 (12'0")	10.97 (36'0")	Mech.	34.8 (21.6)	11.3 (7.0)
14C	35F(U.S.)	59-61	150	12 973 (28,600)	5.84 (19'2")	8.03 (26'4")	2.44 (8'0")	3.66 (12'0")	10.97 (36'0")	Mech.	34.8 (21.6)	11.3 (7.0)
14D	96F(U.S.)	61-65	150	13 700 (30,300)	6.15 (20'2")	8.33 (27'4")	2.44 (8'0")	3.96 (13'0")	11.58 (38'0")	Mech.	34.1 (21.2)	23.5 (14.6)
14E	99G(U.S.)	65-68	150	13 699 (30,200)	6.15 (20'2")	8.33 (27'4")	2.44 (8'0")	3.96 (13'0")	11.58 (38'0")	Hyd. Mech.	36.4 (22.6)	24.9 (15.5)
14E	12K(U.S.) 72G(U.S.)	67-73 69-73	150	14 300 (31,600)	6.10 (20'2")	8.30 (27'4")	2.44 (8'0")	3.96 (13'0")	11.60 (38'0")	Hyd. Mech.	39.1 (24.3)	47.3 (29.4)
14G	96U(U.S.)	73-95	200	20 688 (45,610)	6.45 (21'2")	9.21 (30'3")	2.83 (9'3")	4.27 (14'0")	7.90 (25'11")	Hyd.	43.0 (26.8)	50.1 (31.1)
14H	7WJ(U.S.)	95-02	215	18 784 (41,410)	6.45 (21'2")	9.21 (30'2")	2.70 (8'10")	4.27 (14'0")	7.90 (25'11")	Hyd.	42.7 (26.5)	47.3 (29.4)
160H	9EJ(U.S.) 6WM(U.S.) 3GM(BRAZ) 2HS(BRAZ)	95-02	180/200	15 586 (34,360)	6.10 (20'0")	8.60 (28'3")	2.46 (8'1")	4.27 (14'0")	7.40 (24'3")	Hyd.	40.7 (25.3)	32.1 (20.0)
163H	5AK(U.S.)	95-02	180/200	16 538 (36,460)	6.10 (20'0")	8.60 (28'3")	2.46 (8'1")	4.27 (14'0")	7.40 (24'3")	Hyd.	40.7 (25.3)	32.1 (20.0)
16	49G(U.S.)	63-73	225	22 499 (49,600)	6.86 (22'6")	9.50 (31'2")	3.00 (9'10")	4.27 (14'0")	13.56 (44'6")	Hyd. Mech.	49.7 (30.9)	49.7 (30.9)
16G	93U(U.S.)	73-95	275	27 284 (60,150)	6.96 (22'10")	9.99 (32'8")	3.08 (10'1")	4.88 (16'0")	8.20 (27'0")	Hyd.	43.6 (27.1)	43.6 (27.1)
16H	6ZJ(U.S.)	95-02	275	24 748 (54,560)	6.96 (22'10")	9.99 (32'9")	2.99 (9'10")	4.88 (16'0")	8.20 (27'0")	Hyd.	44.5 (27.7)	42.3 (26.3)



HYDRAULIC EXCAVATORS (Track)

Model	Product Ident. No. Prefix COSA (US)	Years Built	Flywheel Horsepower	Approx. Operating Weight kg (lb)	Track Gauge m (ft)	Height* m (ft)	Length* m (ft)	Width m (ft)	Max. Reach** m (ft)	Lift Capacity*** kg (lb)
205 LC	(3HC) (4DC)	84-89	Deutz-67 Perkins-71	13 135 (28,957)	1.895 (6'2.5")	3.00 (9'10")	7.30 (23'11")	2.40 (7'10")	8.17 (26'10")	3290 (7300)
205B	5ZF	90-92	80	12 900 (28,443)	1.895 (6'2.5")	2.976 (9'9")	7.67 (25'2")	2.495 (8'2")	8.9 (29'2")	3740 (8250)
211 LC	(4EC) (5CC)	84-89	Deutz-84 Perkins-94	15 540 (34,260)	2.08 (6'9.9")	3.02 (9'11")	8.01 (26'3")	2.49 (8'2")	9.88 (32'5")	4240 (9340)
213 LC	3ZC	83-87	102	17 300 (38,140)	2.08 (6'10")	3.08 (10'1")	8.34 (27'4")	2.49 (8'2")	10.30 (33'9.5")	5127 (11,305)
215	(96L) (57Z) (14Z)	76-80 79-84	85 90	17 450 (38,480)	1.92 (6'4")	3.10 (10'1")	8.94 (29'4")	2.47 (8'0")	9.25 (30'4")	5090 (11,200)
215 SA	(57Y) (14Z)	82-84	90	19 440 (42,860)	2.18 (7'2")	3.22 (10'6")	8.94 (29'4")	2.73 (8'11")	9.23 (30'3")	5130 (11,300)
215B LC	(9YB)	84-87	105	18 510 (40,806)	1.92 (6'4")	3.10 (10'2")	8.94 (29'4")	2.44 (8'0")	9.25 (30'4")	5760 (12,700)
215C LC	(4HG)	87-89	115	19 570 (43,150)	1.92 (6'4")	3.1 (10'2")	8.94 (29'4")	2.42 (7'11")	9.29 (30'6")	7070 (15,200)
215D LC	(9TF)	89-92	125	19 900 (43,900)	1.92 (6'4")	3.2 (10'6")	9.0 (24'6")	2.44 (8'0")	9.23 (30'3")	6830 (14,700)
219	(5CF)	87-89	130	21 120 (46,550)	2.18 (7'2")	3.12 (10'3")	8.94 (29'4")	2.73 (8'11")	10.39 (34'1")	7080 (15,300)
219D	(5XG)	89-92	140	21 600 (47,500)	2.18 (7'2")	3.12 (10'3")	9.41 (30'10")	2.73 (8'11")	9.75 (32'0")	7670 (16,500)
219 LC	(5CF)	87-89	130	22 020 (48,550)	2.18 (7'2")	3.12 (10'3")	8.94 (29'4")	2.73 (8'11")	10.39 (34'1")	7080 (15,300)
219D LC	(5XG)	89-92	140	22 400 (49,300)	2.18 (7'2")	3.12 (10'3")	9.41 (30'10")	2.73 (8'11")	9.75 (32'0")	7670 (16,500)
225 LC	(51U)	72-86	135	23 900 (52,700)	2.64 (8'8")	3.17 (10'5")	9.83 (32'3")	2.99 (9'10")	9.58 (31'5")	7300 (15,600)
225 SA	(51U)	77-86	135	27 125 (59,800)	2.64 (8'8")	3.17 (10'5")	9.83 (32'3")	3.35 (11'0")	9.55 (31'4")	7340 (15,700)
225B	(2ZD) (3YD)	86-89 87-89	145	24 960 (55,030)	2.44 (8'0")	3.17 (10'5")	9.83 (32'3")	2.99 (9'10")	10.16 (33'4")	11 040 (26,100)
225D	(6RG)	89-91	150	25 400 (55,900)	2.44 (8'0")	3.23 (10'7")	9.94 (32'7")	2.99 (9'10")	10.13 (33'3")	—
225B LC	(2ZD) (3YD)	86-89 87-89	145	26 140 (58,230)	2.44 (8'0")	3.17 (10'5")	9.83 (32'3")	2.99 (9'10")	10.16 (33'4")	11 040 (26,100)
225D LC	(2SJ)	89-91	165	26 700 (58,900)	2.44 (8'0")	3.23 (10'7")	9.94 (32'7")	2.99 (9'10")	10.13 (33'3")	12 450 (26,900)
229	(1GF) (1AF)	86-89 86-89	145	29 140 (64,830)	2.64 (8'8")	3.38 (11'1")	9.83 (32'3")	3.45 (11'4")	10.11 (33'2")	—
229 LC Custom 180	(1GF)	86-89	180	33 540 (73,940)	2.64 (8'8")	3.38 (11'1")	11.02 (36'2")	3.45 (11'4")	11.35 (37'3")	7940 (17,100)
229D	(2LJ)	89-91	157	31 700 (69,900)	2.64 (8'8")	3.52 (11'7")	10.9 (35'9")	3.25 (10'8")	10.76 (35'4")	8300 (18,300)

*When shipped with medium stick and bucket curled under.

**Maximum reach at ground level, one-piece boom, longest stick.

***Lift capacity at 4.6 m (15'0") over front, one-piece boom, longest stick.

Hydraulic Excavators (cont'd)

Model	Product Ident. No. Prefix COSA (US)	Years Built	Flywheel Horsepower	Approx. Operating Weight kg (lb)	Track Gauge m (ft)	Height* m (ft)	Length* m (ft)	Width m (ft)	Max. Reach** m (ft)	Lift Capacity*** kg (lb)
231D		90-92	200	34 300 (75,600)	2.64 (8'8")	3.45 (11'4")	10.83 (35'6")	3.45 (11'4")	11.20 (36'9")	15 300 (33,000)
231D LC		90-92	200	35 500 (78,100)	2.64 (8'8")	3.45 (11'4")	10.83 (35'6")	3.45 (11'4")	11.20 (36'9")	15 300 (33,000)
235	(32K) (64R)	73-86	195	39 320 (86,700)	2.69 (8'10")	3.40 (11'2")	11.27 (37'0")	3.45 (11'4")	11.23 (36'10")	7050 (17,300)
235B	(7WC) (9PC)	86-88	215	40 960 (89,700)	2.69 (8'10")	3.40 (11'2")	11.27 (37'0")	3.45 (11'4")	11.23 (36'10")	9934 (21,900)
235C	(4DG) (5AF) (2PG) (3WG)	88-92	250	42 140 (92,800)	2.69 (8'10")	3.50 (11'4")	11.50 (37'7")	3.45 (11'4")	12.00 (39'5")	14 720 (35,000)
235D	(8KJ) (8TJ)	92-93	250	46 270 (103,780)	2.69 (8'10")	3.50 (11'5")	11.50 (37'7")	3.45 (11'4")	12.00 (39'5")	14 840 (35,200)
235D LC	(8KJ) (8TJ)	92-93	250	49 270 (108,620)	3.30 (10'10")	3.60 (11'9")	11.60 (38'1")	3.79 (12'5")	11.97 (39'3")	15 070 (35,700)
245	(82X) (84X)	74-88	325	65 745 (144,941)	3.24 (10'7")	4.62 (15'2")	13.18 (43'3")	3.71 (12'2")	14.02 (46'0")	14 930 (32,920)
245B	6MF 1SJ	88-92	360	65 200 (143,500)	3.24 (10'7")	4.78 (15'8")	13.13 (43'1")	3.61 (11'10")	14.02 (46'0")	—
245D	(4LK) (7ZJ)	92-93	385	68 420 (150,520)	3.24 (10'7")	5.46 (17'11")	12.82 (42'0")	3.61 (11'10")	13.84 (45'9")	14 640† (31,600)
E70	3BG 3CG	87-89	52	6500 (14,300)	1.65 (5'5")	2.59 (8'6")	6.02 (19'9")	2.25 (7'5")	6.67 (21'10")	1300 (2750)
E70B	7YF(JPN) 5TG(OSJ) 6AK(OSJ)	89-94 89-94 92-94	54	6760 (14,900)	1.75 (5'9")	2.56 (8'5")	6.09 (20'0")	2.32 (7'7")	6.72 (22'1")	1315 (2900)
E110	3FG 3GG	87-89 87-89	74	10 700 (23,600)	1.9 (6'3")	2.73 (8'11")	7.345 (24'0")	2.5 (8'2")	7.93 (26'0")	2700 (5750)
E110B	9HF(OSJ) 8MF(JPN) 5GK(OSJ)	90-92 90-92 90-92	79	11 600 (25,600)	1.99 (6'6")	2.70 (8'10")	7.25 (23'9")	2.495 (8'2")	8.10 (26'7")	3350 (7200)
E120	1LF(OSJ) 1MF(JPN)	87-89 87-89	84	12 200 (26,800)	1.99 (6'6")	2.775 (9'1")	7.66 (25'1")	2.490 (8'2")	8.58 (28'2")	3850 (8300)
E120B	7NF(OSJ) 6JF(JPN) 4XK(OSJ)	90-92 90-92 90-92	84	12 680 (28,200)	1.99 (6'6")	2.70 (8'10")	7.62 (25'10")	2.495 (8'2")	8.74 (28'8")	4310 (9250)
E140	1PF(JPN) 1NF(OSJ)	87-94	89	13 970 (30,800)	1.99 (6'6")	2.89 (9'6")	8.29 (27'6")	2.55 (8'4")	5.49 (18'0")	4380 (9650)
E200B	6KF(OSJ) 4SG(JPN)	87-91 87-91	118	18 800 (41,400)	2.20 (7'3")	2.97 (9'9")	9.48 (31'1")	2.83 (9'4")	10.63 (34'10")	8100 (17,350)
EL200B	7DF(OSJ) 5EG(JPN)	87-91 87-91	118	20 100 (44,300)	2.38 (7'10")	2.97 (9'9")	9.48 (31'1")	3.18 (10'5")	10.63 (34'10")	8150 (17,600)
E240	1FG(OSJ) 2HF(JPN)	87-89 87-89	148	23 000 (50,700)	2.39 (7'10")	3.02 (9'11")	9.73 (31'11")	3.19 (10'6")	10.6 (34'9")	9800 (21,600)
E240B	8SF(OSJ) 9PF(JPN)	89-92	148	23 000 (50,700)	2.39 (7'10")	3.02 (9'11")	9.73 (31'11")	3.19 (10'6")	10.6 (34'9")	9800 (21,600)
E240C	2RL(OSJ) 8MK(JPN)	92-93	148	23 000 (50,700)	2.39 (7'10")	3.02 (9'11")	9.73 (31'11")	3.19 (10'6")	10.6 (34'9")	9800 (21,600)

*When shipped with medium stick and bucket curled under.

**Maximum reach at ground level, one-piece boom, longest stick.

***Lift capacity at 4.6 m (15'0") over front, one-piece boom, longest stick.

†@ 7.5 m (25'0") over front, one-piece boom, longest stick.

Hydraulic Excavators (cont'd)

Model	Product Ident. No. Prefix COSA (US)	Years Built	Flywheel Horsepower	Approx. Operating Weight kg (lb)	Track Gauge m (ft)	Height* m (ft)	Length* m (ft)	Width m (ft)	Max. Reach** m (ft)	Lift Capacity*** kg (lb)
EL240	4JF(OSJ)	87-89	148	23 600	2.58	3.02	9.73	3.38	10.6	11 300
	4MF(JPN)	87-89		(52,000)	(8'6")	(9'11")	(31'11")	(11'1")	(34'9")	(24,300)
EL240B	5WG(OSJ)	89-92	148	23 600	2.58	3.02	9.73	3.38	10.6	10 320
	6MG(JPN)			(52,000)	(8'6")	(9'11")	(31'11")	(11'1")	(34'9")	(22,750)
EL240C	9PK(OSJ)	92-93	148	23 600	2.58	3.02	9.73	3.38	10.6	10 320
	9NK(JPN)			(52,000)	(8'6")	(9'11")	(31'11")	(11'1")	(34'9")	(22,750)
E300	2CF(OSJ)	87-89	187	30 500	2.6	3.22	10.94	3.4	11.84	12 550
	1KG(JPN)	87-89		(67,300)	(8'6")	(10'7")	(35'11")	(11'2")	(38'9")	(27,650)
E300B	1WJ(OSJ)	90-91	206	30 200	2.6	3.22	10.94	3.4	11.84	12 450
	2HJ(JPN)	90-91		(66,580)	(8'6")	(10'7")	(35'11")	(11'2")	(38'9")	(26,850)
EL300	4NF(OSJ)	87-89	187	31 600	2.6	3.22	10.94	3.4	11.84	12 550
	4SF(JPN)	87-89		(69,700)	(8'6")	(10'7")	(35'11")	(11'2")	(38'9")	(27,650)
EL300B	3FJ(OSJ)	90-91	206	31 200	2.6	3.22	10.94	3.4	11.84	12 450
	1GK(JPN)	90-91		(68,780)	(8'6")	(10'7")	(35'11")	(11'2")	(38'9")	(26,850)
E450	3HG(OSJ)	87-93	276	46 000	2.89	3.49	11.96	3.15	13.08	10 900
	3JG(JPN)	87-93		(101,430)	(9'6")	(11'5")	(39'3")	(10'4")	(42'11")	(23,500)
E650	3KG(OSJ)	87-92	375	62 600	3.25	4.84	14.0	3.49	13.33	15 850
	3LG(JPN)	87-92		(138,000)	(10'8")	(15'11")	(45'11")	(11'5")	(43'9")	(34,000)
307	2WM	94-98	54	7600	1.75	2.61	6.3	2.4	6.38	2450
				(16,760)	(5'9")	(8'7")	(20'8")	(7'11")	(20'11")	(5400)
	2PM(OSJ)	94-98	54	6740	1.75	2.63	6.08	2.28	6.72	1350
307B	9ZL(JPN)	94-97	54	6650	1.75	2.63	6.08	2.28	6.72	1350
				(14,660)	(5'9")	(8'8")	(19'11")	(7'6")	(22'1")	(3000)
307B SB	5CW(OSJ)	98-00	54	6960	1.75	2.63	6.08	2.28	6.72	1350
				(15,340)	(5'9")	(8'8")	(19'11")	(7'6")	(22'1")	(3000)
307B SB	4RW(JPN)	97-00	54	6500	1.75	2.64	6.08	2.28	6.72	1350
				(14,330)	(5'9")	(8'8")	(19'11")	(7'6")	(22'1")	(3000)
307C	6KZ(OSJ)	98-01	40/54	8040	1.75	2.64	6.73	2.28	7.42	1500
	7DZ(JPN)			(17,730)	(5'9")	(8'8")	(22'1")	(7'6")	(24'4")	(3300)
307C SB	(BCM)	00-	54	7210	1.75	2.78	6.07	2.29	6.85	947
				(15,900)	(5'9")	(9'1")	(19'11")	(7'6")	(22'6")	(2100)
307C SB	BAJ	00-	54	6450	1.75	2.63	6.07	2.29	6.34	1052
				(14,220)	(5'9")	(8'8")	(19'11")	(7'6")	(20'10")	(2300)
308B CR	(BNE)	00-	54	8390	1.75	2.63	6.79	2.29	7.55	822
				(18,500)	(5'9")	(8'8")	(22'3")	(7'6")	(24'9")	(1800)
308B CR	3YS(JPN)	99-02	54	7650	1.85	2.61	5.77	2.3	6.9	1600
				(16,870)	(6'1")	(8'7")	(18'11")	(7'7")	(22'8")	(3500)
308C CR	(KCX)	02-	54	8040	1.87	2.61	5.83	2.47	6.9	947
				(17,730)	(6'2")	(8'7")	(19'2")	(8'1")	(22'8")	(2100)
308C CR	CPE	01-	54	7390	1.87	2.61	5.83	2.32	6.39	1135
				(16,290)	(6'2")	(8'7")	(19'2")	(7'7")	(21'0")	(2500)

*When shipped with medium stick and bucket curled under.

**Maximum reach at ground level, one-piece boom, longest stick.

***Lift capacity at 4.6 m (15'0") over front, one-piece boom, longest stick.

Hydraulic Excavators (cont'd)

Model	Product Ident. No. Prefix COSA (US)	Years Built	Flywheel Horsepower	Approx. Operating Weight kg (lb)	Track Gauge m (ft)	Height* m (ft)	Length* m (ft)	Width m (ft)	Max. Reach** m (ft)	Lift Capacity*** kg (lb)
311	9LJ(OSJ)	93-96	79	11 100 (24,470)	1.99 (6'6")	2.76 (9'1")	7.25 (23'9")	2.49 (8'2")	8.1 (26'7")	3100 (6800)
	5PK(JPN)	93-96	79	11 050 (24,360)	1.99 (6'6")	2.76 (9'1")	7.25 (23'9")	2.49 (8'2")	8.10 (26'7")	3100 (6800)
311B	2LS(blade) (OSJ)	96-01	79	11 890 (26,210)	1.99 (6'6")	2.76 (9'1")	7.25 (23'9")	2.495 (8'2")	8.1 (26'7")	3080 (6800)
	2MS(blade) (JPN)	96-01	79	11 900 (26,230)	1.99 (6'6")	2.76 (9'1")	7.25 (23'9")	2.5 (8'2")	8.1 (26'7")	3100 (6800)
	8GR(OSJ)	96-01	79	11 130 (24,540)	1.99 (6'6")	2.76 (9'1")	7.25 (23'9")	2.495 (8'2")	8.1 (26'7")	3120 (6900)
	8HR(JPN)	96-01	79	11 200 (24,690)	1.99 (6'6")	2.76 (9'1")	7.25 (23'9")	2.49 (8'2")	8.1 (26'7")	3100 (6800)
311C U	(CKE)	01-	79	11 980 (26,410)	1.99 (6'6")	2.77 (9'1")	6.92 (22'8")	2.49 (8'2")	8.225 (27'0")	1295 (2900)
	CLK	01-03	79	11 500 (25,350)	1.99 (6'6")	2.765 (9'1")	6.88 (22'7")	2.49 (8'2")	7.7 (25'3")	1453 (3200)
312	6BL	93-97	84	12 600 (27,780)	1.99 (6'6")	2.76 (9'1")	7.6 (24'11")	2.49 (8'2")	8.63 (28'4")	4200 (9300)
	6GK(OSJ)	93-96	84	12 000 (26,460)	1.99 (6'6")	2.76 (9'1")	7.6 (24'11")	2.49 (8'2")	8.63 (28'4")	4050 (8900)
	7DK(JPN)	93-96	84	12 000 (26,460)	1.99 (6'6")	2.76 (9'1")	7.6 (24'11")	2.49 (8'2")	8.63 (28'4")	4050 (8900)
312B	6SW	98-01	84	13 000 (28,660)	1.99 (6'6")	2.91 (9'7")	7.59 (24'11")	2.49 (8'2")	8.3 (27'3")	4590 (10,110)
	9GR(OSJ)	98-01	84	12 440 (27,430)	1.99 (6'6")	2.76 (9'1")	7.595 (24'11")	2.495 (8'2")	8.625 (28'4")	4170 (9200)
	9HR(JPN)	98-00	84	12 150 (26,790)	1.99 (6'6")	2.76 (9'1")	7.595 (24'11")	2.49 (8'2")	8.625 (28'4")	4050 (8900)
	9NW(blade)	98-01	66/88	13 785 (30,390)	1.99 (6'6")	2.91 (9'7")	7.59 (24'11")	2.49 (8'2")	8.3 (27'3")	4940 (10,900)
	2NS(blade) (OSJ)	98-01	66/88	13 200 (29,100)	1.99 (6'6")	2.76 (9'1")	7.595 (24'11")	2.495 (8'2")	8.625 (28'4")	4230 (9300)
	3ES(blade) (JPN)	98-00	84	12 900 (28,440)	1.99 (6'6")	2.76 (9'1")	7.595 (24'11")	2.49 (8'2")	8.625 (28'4")	4200 (9300)
	9FS	97-01	84	13 270 (29,260)	1.99 (6'6")	2.91 (9'7")	7.59 (24'11")	2.59 (8'6")	8.3 (27'3")	5000 (11,000)
312B L	8JR(OSJ)	98-01	66/88	12 940 (28,530)	1.99 (6'6")	2.76 (9'1")	7.595 (24'11")	2.59 (8'6")	8.625 (28'4")	4930 (10,900)
	2KW(blade)	97-01	84	14 055 (30,990)	1.99 (6'6")	2.91 (9'7")	7.59 (24'11")	2.59 (8'6")	8.3 (27'3")	5050 (11,100)
	3FS(blade) (OSJ)	98-01	66/88	13 720 (30,250)	1.99 (6'6")	2.76 (9'1")	7.595 (24'11")	2.59 (8'6")	8.625 (28'4")	4920 (10,800)
	9FS	97-01	84	13 270 (29,260)	1.99 (6'6")	2.91 (9'7")	7.59 (24'11")	2.59 (8'6")	8.3 (27'3")	5000 (11,000)
312C	BNN(FDS)	01-02	90	12 860 (28,350)	1.99 (6'6")	2.76 (9'1")	7.57 (24'10")	2.59 (8'6")	8.74 (28'8")	1402 (3100)
	CAE	00-	90	12 200 (26,900)	1.99 (6'6")	2.75 (9'0")	7.57 (24'10")	2.49 (8'2")	8.3 (27'3")	1448 (3200)
	BNN	01-	71/96	13 000 (28,665)	1.99 (6'6")	2.91 (9'6")	7.59 (24'11")	2.49 (8'2")	8.3 (27'3")	4350 (10,120)

*When shipped with medium stick and bucket curled under.

**Maximum reach at ground level, one-piece boom, longest stick.

***Lift capacity at 4.6 m (15'0") over front, one-piece boom, longest stick.

Hydraulic Excavators (cont'd)

Model	Product Ident. No. Prefix COSA (US)	Years Built	Flywheel Horsepower	Approx. Operating Weight kg (lb)	Track Gauge m (ft)	Height* m (ft)	Length* m (ft)	Width m (ft)	Max. Reach** m (ft)	Lift Capacity*** kg (lb)
312C L	CBT(CBA)	01-02	90	13 140 (28,970)	1.99 (6'6")	2.76 (9'1")	7.57 (24'10")	2.59 (8'6")	8.74 (28'8")	1439 (3200)
	CBT	01-	71/96	13 270 (29,260)	1.99 (6'6")	2.91 (9'6")	7.59 (24'11")	2.59 (8'6")	8.3 (27'3")	5040 (11,025)
313B CR	BAS(OSJ)	00-02	89	13 225 (29,160)	1.99 (6'6")	2.82 (9'3")	7.17 (23'6")	2.49 (8'2")	8.55 (28'1")	3900 (8600)
	AEX(JPN)	99-02	89	12 750 (28,110)	1.99 (6'6")	2.82 (9'3")	7.17 (23'6")	2.49 (8'2")	8.24 (27'0")	3900 (8600)
314C CR	(KJA)	02-02	90	14 610 (32,210)	1.99 (6'6")	2.81 (9'3")	7.28 (23'11")	2.59 (8'6")	8.765 (28'9")	1351 (3000)
	KHB	01-	90	13 500 (29,760)	1.99 (6'6")	2.81 (9'3")	7.28 (23'11")	2.49 (8'2")	8.32 (27'4")	1527 (3400)
314C LCR	(PCA)	02-02	90	14 810 (32,650)	1.99 (6'6")	2.73 (9'0")	7.41 (24'4")	2.59 (8'6")	8.765 (28'9")	1372 (3000)
315	3ZM	95-98	99	15 920 (35,100)	1.99 (6'6")	2.88 (9'5")	8.5 (27'11")	2.49 (8'2")	8.21 (26'11")	5300 (11,700)
	4YM(OSJ)	94-97	99	16 330 (36,000)	1.99 (6'6")	2.88 (9'5")	8.5 (27'11")	2.49 (8'2")	9.14 (30'0")	5290 (11,700)
	6XM(JPN)	94-97	99	15 330 (33,800)	1.99 (6'6")	2.88 (9'5")	8.5 (27'11")	2.49 (8'2")	9.14 (30'0")	—
315 L	6YM(OSJ)	94-97	99	15 920 (35,100)	1.99 (6'6")	2.88 (9'5")	8.5 (27'11")	2.59 (8'6")	8.74 (28'8")	6320 (13,900)
315B	1SW(OSJ)	97-01	99	16 300 (35,940)	1.99 (6'6")	2.88 (9'5")	8.5 (27'11")	2.49 (8'2")	9.14 (30'0")	5500 (12,100)
	2DW(JPN)	97-01	99	15 850 (34,940)	1.99 (6'6")	2.88 (9'5")	8.5 (27'11")	2.49 (8'2")	9.14 (30'0")	—
315B L	5SW	98-	99	16 700 (36,820)	1.995 (6'7")	3.0 (9'10")	8.41 (27'7")	2.49 (8'2")	9.02 (29'7")	6720 (14,800)
	3AW(OSJ) 7RZ(forest) (OSJ)	97-01	80/107	16 700 (36,820)	1.99 (6'6")	2.88 (9'5")	8.47 (27'10")	2.59 (8'6")	9.14 (30'0")	6600 (14,600)
315C	(CFB)	01-02	110	16 400 (36,160)	1.99 (6'6")	2.99 (9'10")	8.52 (27'11")	2.59 (8'6")	9.29 (30'6")	1675 (3700)
	CFL	01-	110	16 000 (35,270)	1.99 (6'6")	2.95 (9'8")	8.52 (27'11")	2.49 (8'2")	8.9 (29'2")	1840 (4100)
315C L	(PCA)	01-02	110	16 750 (36,930)	1.99 (6'6")	2.99 (9'10")	8.52 (27'11")	2.59 (8'6")	9.29 (30'6")	1719 (3800)
	ANF	03	83/111	16 770 (36,970)	1.99 (6'6")	2.76 (9'0")	8.39 (27'6")	2.49 (8'2")	9.09 (29'9")	7110 (15,675)
317	4MM	95-98	99	17 260 (38,050)	2.15 (7'1")	2.88 (9'5")	8.5 (27'11")	2.75 (9'0")	8.62 (28'3")	4210 (9300)
317B L	9WW	98-	81/109	17 300 (38,146)	2.2 (7'3")	3.04 (9'10")	8.41 (27'6")	2.8 (9'2")	9.1 (29'8")	7100 (15,655)
317 N	9SR	96-98	99	17 220 (37,960)	1.99 (6'6")	2.88 (9'5")	8.5 (27'11")	2.75 (9'0")	8.62 (28'3")	6450 (14,200)
317B LN	6DZ	98-	81/110	17 300 (38,146)	1.995 (6'5")	3.04 (9'10")	8.41 (27'6")	2.49 (8'2")	9.1 (29'8")	7100 (15,655)

*When shipped with medium stick and bucket curled under.

**Maximum reach at ground level, one-piece boom, longest stick.

***Lift capacity at 4.6 m (15'0") over front, one-piece boom, longest stick.

Hydraulic Excavators (cont'd)

Model	Product Ident. No. Prefix COSA (US)	Years Built	Flywheel Horsepower	Approx. Operating Weight kg (lb)	Track Gauge m (ft)	Height* m (ft)	Length* m (ft)	Width m (ft)	Max. Reach** m (ft)	Lift Capacity*** kg (lb)
318B L	9WW	98-	86/115	17 700 (39,020)	2.2 (7'3")	3.02 (9'11")	8.67 (28'5")	2.8 (9'2")	8.94 (29'4")	8440 (18,600)
	3LR(OSJ)	99-02	86/115	18 390 (40,540)	2.2 (7'3")	3.05 (10'0")	8.72 (28'7")	2.8 (9'2")	9.77 (32'0")	7650 (16,900)
	ADC	99-	86/115	18 500 (40,792)	2.2 (7'3")	3.04 (9'10")	8.69 (28'6")	2.8 (9'2")	9.6 (31'6")	7600 (16,760)
	(3LR)	01-02	86/115	18 360 (40,480)	2.2 (7'3")	2.83 (9'3")	8.69 (28'6")	2.8 (9'2")	9.78 (32'1")	2200 (4900)
318B LN	6DZ	98-	86/115	17 160 (37,830)	1.995 (6'7")	3.02 (9'11")	8.67 (28'5")	2.495 (8'2")	8.94 (29'4")	7590 (16,700)
	7KZ(OSJ)	99-02	86/115	18 260 (40,260)	2.2 (7'3")	3.05 (10'0")	8.72 (28'7")	2.59 (8'6")	9.77 (32'1")	7600 (16,800)
	AEJ	99-	86/115	18 500 (40,792)	1.995 (6'7")	3.04 (9'10")	8.69 (28'6")	2.49 (8'2")	9.6 (31'6")	7580 (16,710)
	(7KZ)	01-02	86/115	17 990 (39,660)	1.995 (6'7")	3.05 (10'0")	8.72 (28'7")	2.49 (8'2")	9.78 (32'1")	2200 (4900)
318C	BTG	03	94/127	19 560 (43,120)	2.2 (7'2")	2.9 (9'9")	8.9 (29'2")	2.8 (9'2")	9.66 (31'8")	7850 (17,305)
318C L	DAH	03	94/127	20 160 (44,445)	2.2 (7'2")	2.9 (9'9")	8.9 (29'2")	2.8 (9'2")	9.66 (31'8")	8950 (19,730)
318C N	FAA	03	94/127	19 280 (42,505)	1.99 (6'6")	2.9 (9'9")	8.9 (29'2")	2.49 (8'2")	9.66 (31'8")	7730 (17,040)
320	7WK(OSJ)	91-96	128	19 120 (42,150)	2.2 (7'3")	2.93 (9'7")	9.37 (30'9)	2.8 (9'2")	10.63 (34'9")	6200 (17,700)
	2DL(OSJ)									
	8LG(OSJ)									
	7GJ(JPN)									
	3XM(JPN)									
4ZJ(GOS)										
320 L	1TL(OSJ)	91-96	128	20 370 (44,910)	2.38 (7'10")	2.93 (9'7")	9.37 (30'9")	3.18 (10'5")	10.63 (34'9")	8150 (17,600)
	9KK(OSJ)									
	8HJ(JPN)									
	4JM(JPN)									
320 N	1XM(OSJ)	94-96	128	20 050 (44,150)	1.90 (6'6")	2.93 (9'7")	9.37 (30'9")	2.59 (8'6")	10.63 (34'9")	8150 (17,600)
	9WG(GOS)									
320 S	6KM									
320B	3MR	96-00	128	19 400 (42,770)	2.2 (7'2.6")	3.01 (9'10.5")	9.46 (31'4")	2.8 (9'2.2")	10.77 (35'4")	8600 (19,000)
	5BR									
	1XS									
320B L	4MR	96-00	128	20 720 (45,680)	2.38 (7'9.7")	3.01 (9'10.5")	9.46 (31'4")	3.18 (10'5.2")	10.77 (35'4")	9200 (20,300)
	6CR									
	7JR									
320B N	4NR	96-00	128	19 930 (43,940)	2.2 (7'2.6")	3.01 (9'10.5")	9.46 (31'4")	2.5 (8'2.4")	10.77 (35'4")	9100 (20,100)
	2AS									
320B LN	3YZ	96-00	128							

*When shipped with medium stick and bucket curled under.

**Maximum reach at ground level, one-piece boom, longest stick.

***Lift capacity at 4.6 m (15'0") over front, one-piece boom, longest stick.

Hydraulic Excavators (cont'd)

Model	Product Ident. No. Prefix COSA (US)	Years Built	Flywheel Horsepower	Approx. Operating Weight kg (lb)	Track Gauge m (ft)	Height* m (ft)	Length* m (ft)	Width m (ft)	Max. Reach** m (ft)	Lift Capacity*** kg (lb)
321B CR	AKG(JPN)	98-01	128	19 400 (42,770)	2.2 (7'3")	3.1 (10'2")	8.6 (28'3")	2.98 (9'9")	9.68 (31'9")	8250 (18,200)
321B LCR	9CZ(JPN)	98-01	128	22 500 (49,600)	2.38 (7'10")	3.1 (10'2")	8.8 (28'11")	2.98 (9'9")	9.68 (31'9")	10 300 (22,700)
	KGA(OSJ)	02-02	128	23 100 (50,930)	2.38 (7'10")	3.1 (10'2")	8.8 (28'11")	2.98 (9'9")	9.68 (31'9")	10 300 (22,700)
322*	7WL(OSJ)	93-96	153	22 650 (50,000)	2.39 (7'10")	3.12 (10'3")	9.95 (32'8")	2.99 (9'10")	10.47 (34'4")	10 400 (22,500)
	7WL(JPN)									
322B	8MR	96-01	153	22 760 (50,180)	2.39 (7'10")	3.28 (10'9")	10.0 (32'10")	2.99 (9'10")	10.47 (34'4")	10 650 (23,500)
	3NR	96-00								
322 L*	8CL(OSJ)	93-96	153	23 950 (52,800)	2.59 (8'6")	3.12 (10'3")	9.95 (32'8")	3.39 (11'1")	10.47 (34'4")	10 400 (22,500)
	8CL(JPN)									
322B L	8NR	96-01	153	23 990 (52,890)	2.59 (8'6")	3.28 (10'9")	10.0 (32'10")	3.39 (11'1")	10.47 (34'4")	11 600 (25,600)
	5CR	96-00								
325*	5WK(OSJ)	91-95	168	25 520 (56,270)	2.39 (7'10")	3.24 (10'8")	10.27 (33'8")	2.99 (9'10")	11.50 (37'7")	11 100 (24,000)
	8NL(OSJ)									
	8JG(JPN)	91-95	168	25 520 (56,270)	2.39 (7'10")	3.24 (10'8")	10.27 (33'8")	2.99 (9'10")	11.50 (37'7")	11 000 (24,000)
325 L*	5WK(JPN)	91-95	168	27 010 (59,560)	2.59 (8'6")	3.24 (10'8")	10.27 (33'8")	3.39 (11'1")	11.50 (37'7")	11 650 (25,150)
	6KK(OSJ)									
	9KL(OSJ)	91-95	168	27 010 (59,560)	2.59 (8'6")	3.24 (10'8")	10.27 (33'8")	3.39 (11'1")	11.50 (37'7")	11 650 (25,150)
325B L	7CJ(JPN)	96-01	168	28 890 (63,690)	2.59 (8'6")	3.21 (10'6")	10.35 (33'11")	3.39 (11'1")	10.57 (34'8")	15 460 (34,080)
	6KK(JPN)									
325B LN	6DN(GOS)	96-01	168	27 670 (61,000)	2.39 (7'10")	3.21 (10'6")	10.35 (33'11")	2.99 (9'10")	10.57 (34'8")	15 030 (33,140)
330*	9PJ(OSJ)	92-95	222	32 130 (70,830)	2.59 (8'6")	3.29 (10'10")	11.01 (36'2")	3.19 (10'6")	12.37 (40'6")	15 550 (33,650)
	8RL(OSJ)									
	9NG(JPN)	92-95	222	32 130 (70,830)	2.59 (8'6")	3.29 (10'10")	11.01 (36'2")	3.19 (10'6")	12.37 (40'6")	15 550 (33,650)
330 L*	9PJ(JPN)	92-95	222	33 510 (73,880)	2.59 (8'6")	3.29 (10'10")	11.01 (36'2")	3.34 (10'11")	12.37 (40'6")	14 600 (31,500)
	6SK(OSJ)									
	9ML(OSJ)	92-95	222	33 510 (70,830)	2.59 (8'6")	3.29 (10'10")	11.01 (36'2")	3.34 (10'11")	12.37 (40'6")	14 600 (31,500)
330B L	6WJ(JPN)	96-01	222	34 020 (75,000)	2.59 (8'6")	3.56 (11'8")	11.06 (36'3")	3.34 (10'11")	11.62 (38'1")	17 070 (37,630)
	6SK(JPN)									
330B LN	3YR(GOS)	96-01	222	33 860 (74,650)	2.39 (7'10")	3.56 (11'8")	11.06 (36'3")	2.99 (9'10")	11.62 (38'1")	17 070 (37,630)
345B	4SS	97-00	290	44 050 (97,100)	2.74 (9'0")	3.76 (12'4")	11.79 (33'8")	3.49 (11'5")	13.0 (42'8")	20 850 (45,000)
345B L	7KS(GOS)	98-00	290	47 665 (105,080)	2.39 (7'10")	3.68 (12'1")	11.74 (38'6")	2.99 (9'10")	12.97 (42'6")	21 000 (46,300)
	2SW(GOS)									

*When shipped with medium stick and bucket curled under.

**Maximum reach at ground level, one-piece boom, longest stick.

***Lift capacity at 4.6 m (15'0") over front, one-piece boom, longest stick (6.1 m (20'0") over front for 375/375 L).

Hydraulic Excavators (cont'd)

Model	Product Ident. No. Prefix COSA (US)	Years Built	Flywheel Horsepower	Approx. Operating Weight kg (lb)	Track Gauge m (ft)	Height* m (ft)	Length* m (ft)	Width m (ft)	Max. Reach** m (ft)	Lift Capacity*** kg (lb)
350	7RK	93-99	286	48 040 (105,910)	2.55 (8'4.4")	3.75 (12'3.6")	12.2 (40'3")	3.2 (10'6")	13.45 (44'1.5")	17 750 (39,100)
	2ZL	93-99	286	50 094 (110,210)	2.55 (8'4.4")	3.75 (12'4")	12.2 (40'0")	3.3 (10'10")	13.49 (44'3")	17 750 (39,100)
350 L	9DK	93-99	286	49 010 (108,050)	2.55 (8'4.4")	3.75 (12'3.6")	12.2 (40'3")	3.3 (10'9.9")	13.45 (44'1.5")	17 750 (39,100)
	3ML	93-99	286	51 126 (112,450)	2.55 (8'4.4")	3.75 (12'4")	12.2 (40'0")	3.3 (10'10")	13.49 (44'3")	17 600 (40,900)
365B L	9PZ(GOS)	99-02	385	66 245 (146,050)	2.75 (9'0")	4.57 (15'0")	12.17 (39'11")	3.50 (11'6")	14.04 (46'1")	29 200 (64,370)
375	8WJ	92-01	428	81 190 (178,800)	2.75 (9'0")	5.24 (17'2")	14.3 (46'11")	3.5 (11'6")	15.96 (52'4")	30 300 (65,600)
	6NK(GOS)	92-02	428	79 807 (175,940)	2.75 (9'0")	5.24 (17'2")	13.14 (43'1")	3.48 (11'5")	15.67 (51'5")	23 620 (52,070)
375 L	1JM	93-01	428	82 380 (181,500)	2.94 (9'7")	5.24 (17'2")	14.3 (46'11")	3.84 (12'7")	15.96 (52'4")	29 550 (64,400)
	9WL(GOS)	92-02	428	80 700 (177,910)	2.75 (9'0")	5.24 (17'2")	14.29 (46'11")	3.48 (11'5")	15.67 (51'5")	23 620 (52,070)

*When shipped with medium stick and bucket curled under.
 **Maximum reach at ground level, one-piece boom, longest stick.
 ***Lift capacity at 4.6 m (15'0") over front, one-piece boom, longest stick (6.1 m (20'0") over front for 375/375 L).



HYDRAULIC EXCAVATORS (Wheel)

Model	Product Ident. No. Prefix (USA)	Years Built	Flywheel Horsepower	Approx. Operating Weight kg (lb)	Height* m (ft)	Length* m (ft)	Width m (ft)	Max. Reach** m (ft)	Lift Capacity*** kg (lb)	Standard Tire Size
206	(2RC) (3GC)	84-89	Deutz-67 Perkins-71	12 185 (26,863)	3.11 (10'2")	7.38 (24'2.5")	2.40 (7'10")	8.14 (26'9")	3360 (7400)	Dual 9.00-20 12PR
212	(3JC) (5DC)	84-89	Deutz-84 Perkins-94	13 700 (30,423)	3.15 (10'4")	8.00 (26'3")	2.49 (8'2")	9.86 (32'4")	3850 (8490)	Dual 10.00-20 12PR
212B	(3PJ)	90-95	110	14 000 (30,870)	3.04 (10'0")	8.28 (27'2")	2.49 (8'2")	9.48 (31'1")	3900 (8600)	Dual 10.00-20 12PR
214	(9MB) (1KB)	84-89	Deutz-101 Perkins-102	15 600 (34,175)	3.06 (10'0")	8.28 (27'2")	2.49 (8'2")			Dual 10.00-20 12PR
214B	4CF	87-94	110	18 700 (41,230)	3.06 (10'0")	8.28 (27'2")	2.49 (8'2")	10.41 (34'2")	4200 (9260)	Dual 10.00-20 12PR
214B FT	9NF	87-94	135	18 700 (41,230)	3.06 (10'0")	8.28 (27'2")	2.49 (8'2")	10.41 (34'2")	4200 (9260)	Dual 10.00-20 12PR
224	(2JC) (5TC)	84-89	Deutz-143 Perkins-124	19 000 (41,890)	3.42 (11'3")	8.98 (29'6")	2.49 (8'2")	10.61 (34'10")	4800 (10,600)	Dual 10.00-20 12PR

*When shipped with medium stick and bucket curled under.
 **Maximum reach at ground level, one-piece boom, longest stick.
 ***Lift capacity at 4.6 m (15'0") over front, one-piece boom, longest stick.

Hydraulic Excavators (cont'd)

Model	Product Ident. No. Prefix (USA)	Years Built	Flywheel Horsepower	Approx. Operating Weight kg (lb)	Height* m (ft)	Length* m (ft)	Width m (ft)	Max. Reach** m (ft)	Lift Capacity*** kg (lb)	Standard Tire Size
M312	6TL	96-02	114	13 425 (29,602)	3.07 (10'1")	8.62 (28'3")	2.5 (8'2")	8.9 (29'2")	4300 (9482)	10-20.00 14PR
M315	7ML	95-02	117	15 570 (34,332)	3.08 (10'1")	8.84 (29'0")	2.5 (8'2")	9.26 (30'5")	5100 (11,246)	10-20.00 14PR
M318	8AL	95-02	131	17 870 (39,403)	3.1 (10'2")	8.97 (29'5")	2.6 (8'6")	10.55 (34'7")	6400 (14,112)	10-20.00 14PR
M318 MH	6ES	98-02	133	20 300 (44,762)	3.37 (11'1")	8.89 (29'2")	2.69 (8'10")	10.5 (34'5")	4600 (10,143)	11-20.00
	8SS	98-02	133	20 300 (44,762)	3.37 (11'1")	8.89 (29'2")	2.69 (8'10")	10.5 (34'5")	4600 (10,143)	11-20.00
M320	6WL	97-02	131	20 200 (44,541)	3.21 (10'6")	9.55 (31'4")	2.75 (9'0")	11.18 (36'8")	7500 (16,538)	11-20.00 14PR
M320MH	9PS	98-02	133	22 300 (49,172)	3.35 (11'0")	9.92 (32'7")	2.69 (8'10")	11.6 (38'1")	6600 (14,553)	11-20.00

*When shipped with medium stick and bucket curled under, one-piece boom.

**Maximum reach at ground level, one-piece boom, longest stick.

***Lift capacity at 4.6 m (15'0") over front, rear dozer up, one-piece boom, longest stick.



5000 SERIES EXCAVATORS AND FRONT SHOVELS

Model	Product Ident. No. Prefix (USA)	Years Built	Flywheel Horsepower	Approx. Operating Weight kg (lb)	Track Gauge m (ft)	Height* m (ft)	Length* m (ft)	Width m (ft)	Max. Reach** m (ft)	Lift Capacity*** kg (lb)
5080	6XK(GOS)	94-02	428	83 800 (184,750)	2.75 (9'0")	4.73 (15'6")	13.76 (45'2")	3.48 (11'5")	9.76 (32'0")	—

*When shipped with medium stick and bucket curled under.

**Maximum reach at ground level, one-piece boom, longest stick.

***Lift capacity at 4.6 m (15'0") over front, one-piece boom, longest stick.

Model	Product Ident. No. Prefix (USA)	Years Built	Flywheel Horsepower	Approx. Operating Weight kg (lb)	Rated* Capacity m ³ (yd ³)	Breakout Force kg (lb)	Crowd Force kg (lb)	Track Gauge m (ft)	Max. Reach* m (ft)	Max. Load Height m (ft)	Max. Digging Depth m (ft)
5130 ME	5ZL	92-97	755	180 000 (397,000)	10.0 (13.0)	615 (138,400)	624 (140,300)	4.72 (15'6")	14.9 (48'11")	9.1 (29'10")	8.4 (27'7")
5130 FS	5ZL	92-97	755	179 000 (395,000)	10.5 (13.7)	715 (161,000)	770 (173,000)	4.72 (15'6")	12.4 (40'8")	9.1 (29'10")	—
5230 ME	7LL	94-00	1470	316 600 (698,000)	16.0 (21.0)	873 (196,260)	874 (196,480)	5.2 (17'0")	17.7 (58'0")	9.8 (32'2")	9.4 (30'10")
5230 FS	7LL	94-00	1470	318,422 (702,000)	17.0 (22.2)	1125 (253,000)	1250 (281,000)	5.2 (17'0")	14.8 (48'7")	10.3 (33'10")	—

*Standard boom and stick.



LOGGING AND FOREST PRODUCT MACHINES

Model	Product Ident. No. Prefix	Years Built	Flywheel Power kW (hp)	Overall Track Length m (ft)	Overall Length m (ft)	Overall Width m (ft)	Operating Weight kg (lb)
320B Stroke Delimber			96 (128)		11.96 (39'3")	3.66 (12'0")	30 390 (67,000)
FB221	8XD	1986	147 (197)	4.47 (14'8")	9.78 (32'1")	3.20 (10'6")	28 180 (62,000)
FB227	10W	1983-93	100/134 (135/180)	4.55 (14'11")	11.88 (39'0")	3.35 (11'0")	31 769 (69,892)
DL221	8YD	1987	98 (132)	4.47 (14'8")	—	—	22 816 (50,300)
LL216	8JD	1986	95 (128)	—	10.70 to 11.23 (35'1" to 36'10")	2.64 (8'8")	17 577 (38,750)
LL228	8MD	1986	131 (176)	—	9.7 to 11.6 (32'0" to 38'0")	2.62 (8'7")	30 391 (67,000)
LL231	8PD	1986	175 (235)	5.03 (16'6")	10.6 to 11.6 (35'0" to 38'0")	3.56 (11'8")	39 146 (86,300)



WHEEL SKIDDERS

Model	Product Ident. No. Prefix	Years Built	Flywheel Horsepower kW (hp)	Operating Weight kg (lb)	Ground Clearance mm (in)	Wheel Base m (ft/in)
508 Cable	9NC	87-89	71 (95)	7770 (17,130)	521 (20.5")	2.8 (9'2")
508 Grapple	2HD	87-89	71 (95)	8766 (19,308)	521 (20.5")	2.8 (9'2")
518 FB	8ZC	86-89	96 (130)	11 612 (25,600)	587 (23.1")	3.25 (10'8")
518 PS Cable	50S	71-83	90 (120)	7718 (17,000)	505.4 (19.8976")	2895.6 (9'6")
518 PS Grapple	55U	1-80/81-83	90/97 (120/130)	9307 (20,500)	505.4 (19.8976")	2895.6 (9'6")
518 Cable	94U	3-84/85-92	90/97 (120/130)	9988 (22,000)	470 (18.5039")	3251 (10'8.4")
518 Grapple	95U	81-90	97 (130)	11 259 (24,800)	470 (18.5039")	3251 (10'8.4")
518 Series II Cable	94U	91-92	dual 97/108 dual (130/145)	10 260 (22,600)	470 (18.5039")	3251 (10'8.4")
518 Series II Grapple	95U	91-92	dual 97/108 dual (130/145)	12 031 (26,500)	470 (18.5039")	3251 (10'8.4")
518C Cable	1CL	93-95	115 (154)	11 528 (25,391)	450.7 (17.74406")	3251 (10'8.4")
518C Grapple	9HJ	93-95	115 (154)	12 587 (27,725)	463.4 (18.24406")	3251 (10'8.4")



TRACK SKIDDERS

Model	Product Ident. No. Prefix	Years Built	Flywheel Horsepower kW (hp)	Operating Weight kg (lb)	Gauge m (ft/in)
D4 TSK Series II	8ZF	90-92	78 (105)	12 909 (28,400)	2.00 (6'6")
D4 TSK Series III	7PK	92-96	78 (105)	14 000 (30,900)	2.00 (6'6")
D5H TSK Series II	7EG	92-96	97 (130)	18 800 (41,360)	2.16 (7'11")



BACKHOE LOADERS

Model	Product Ident. No. Prefix	Years Built	Flywheel Horsepower kW (hp)	Operating Weight kg (lb)	Digging Depth mm (ft/in)	GP Bucket Capacity m ³ (yd ³)	MP Bucket Capacity m ³ (yd ³)
416	5PC	85-90	46 (62)	6156 (13,574)	4420 (14'6")	0.76 (1.0)	0.76 (1.0)
416 Series II	5PC	90-92	46 (62)	6217 (13,708)	4420 (14'6")	0.76 (1.0)	0.76 (1.0)
416B	8ZK(8SG)	92-95	59 (79)	6227 (13,700)	4420 (14'6")	0.76 (1.0)	0.96 (1.25)
416C	4ZN(5YN)	96-00	56 (75)	6330 (13,957)	4420 (14'6")	0.76 (1.0)	0.96 (1.25)
416C (IT)	1WR(1XR)	96-00	56 (75)	6666 (14,698)	4420 (14'6")	0.96 (1.25)	0.96 (1.25)
426	7BC	86-90	52 (70)	6549 (14,626)	4720 (15'6")	0.96 (1.25)	0.76 (1.0)
426 Series II	7BC	90-92	52 (70)	7315 (15,126)	4720 (15'6")	0.96 (1.25)	0.76 (1.0)
426B	6KL(5YJ)	92-95	59 (79)	6790 (14,970)	4720 (15'6")	0.96 (1.25)	1.04 (1.35)
426C	6XN(7WN)	96-98	60 (80)	7051 (15,548)	4721 (15'6")	0.96 (1.25)	0.96 (1.25)
426C	6XN3616 and up (7WN939 and up)	99-00	63 (85)	7051 (15,548)	4721 (15'6")	0.96 (1.25)	0.96 (1.25)
(AWS) 426C	1CR(1ER)	96-98	60 (80)	7051 (15,548)	4721 (15'6")	0.96 (1.25)	0.96 (1.25)
(AWS) 426C	1CR864 and up (1ER864 and up)	99-00	63 (85)	7051 (15,548)	4721 (15'6")	0.96 (1.25)	0.96 (1.25)
426C (IT)	1YR(1ZR)	96-98	60 (80)	7387 (16,289)	4721 (15'6")	0.96 (1.25)	0.96 (1.25)
426C (IT)	1YR1517 and up (1ZR926 and up)	99-00	63 (85)	7387 (16,289)	4721 (15'6")	0.96 (1.25)	0.96 (1.25)
(AWS) 426C (IT)	1MR(1NR)	96-98	60 (80)	7387 (16,289)	4721 (15'6")	0.96 (1.25)	0.96 (1.25)
(AWS) 426C (IT)	1MR956 and up (1NR954 and up)	99-00	63 (85)	7387 (16,289)	4721 (15'6")	0.96 (1.25)	0.96 (1.25)
428	6TC	86-90	52 (70)	6963 (15,350)	4790 (15'9")	1.0 (1.38)	0.92 (1.2)
428 Series II	6TC	90-92	52 (70)	7143 (15,750)	4750 (15'7")	1.0 (1.375)	0.92 (1.2)
428B	7EJ	92-95	60 (80)	7254 (15,992)	4810 (15'9")	1.0 (1.3)	0.92 (1.2)

Backhoe Loaders (cont'd)

Model	Product Ident. No. Prefix	Years Built	Flywheel Horsepower kW (hp)	Operating Weight kg (lb)	Digging Depth mm (ft/in)	GP Bucket Capacity m ³ (yd ³)	MP Bucket Capacity m ³ (yd ³)
428C	8RN	96-00	56 (75)	7279 (16,047)	4811 (15'9")	1.0 (1.31)	1.03 (1.35)
428C (IT)	2CR	96-00	56 (75)	7615 (16,788)	4811 (15'9")	1.0 (1.31)	1.03 (1.35)
436	5KF	88-90	57 (77)	6831 (15,062)	4960 (16'3")	1.0 (1.38)	0.76 (1.0)
436 Series II	5KF	90-92	57 (77)	6878 (15,166)	4950 (16'3")	1.0 (1.375)	0.76 (1.0)
436B	7FL(6MJ)	92-95	63 (84)	6857 (15,086)	4950 (16'3")	1.0 (1.38)	1.04 (1.35)
436C	8TN(9JN)	96-98	63 (85)	7118 (15,694)	4953 (16'3")	1.0 (1.31)	0.96 (1.25)
436C	8TN925 and up (9JN884 and up)	99-00	70 (93)	7118 (15,694)	4953 (16'3")	1.0 (1.31)	0.96 (1.25)
(AWS) 436C	1FR(1GR)	96-98	63 (85)	7118 (15,694)	4953 (16'3")	1.0 (1.31)	0.96 (1.25)
(AWS) 436C	1FR1416 and up (1GR916 and up)	99-00	70 (93)	7118 (15,694)	4953 (16'3")	1.0 (1.31)	0.96 (1.25)
436C (IT)	2AR(2BR)	96-98	63 (85)	7454 (16,435)	4953 (16'3")	1.0 (1.31)	0.96 (1.25)
436C (IT)	2AR1604 and up (2BR911 and up)	99-00	70 (93)	7454 (16,435)	4953 (16'3")	1.0 (1.31)	0.96 (1.25)
(AWS) 436C (IT)	1PR(1RR)	96-98	63 (85)	7454 (16,435)	4953 (16'3")	1.0 (1.31)	0.96 (1.25)
(AWS) 436C (IT)	1PR1599 and up (1RR998 and up)	99-00	70 (93)	7454 (16,435)	4953 (16'3")	1.0 (1.31)	0.96 (1.25)
438	3DJ	88-90	63 (84)	7900 (17,420)	4810 (15'9")	1.0 (1.38)	0.92 (1.2)
438 Series II	3DJ	90-92	57 (77)	7364 (16,237)	4810 (15'9")	1.0 (1.375)	0.92 (1.2)
438B	3KK	92-95	62.7 (84)	8331 (18,367)	4870 (16'0")	1.0 (1.3)	0.92 (1.2)
438C	9KN	96-98	63 (85)	7384 (16,279)	4873 (16'0")	1.0 (1.31)	1.03 (1.35)
438C	9KN1061 and up	99-00	70 (93)	7384 (16,279)	4873 (16'0")	1.0 (1.31)	1.03 (1.35)
(AWS) 438C	1JR	96-98	63 (85)	7384 (16,279)	4873 (16'0")	1.0 (1.31)	1.03 (1.35)
(AWS) 438C	1JR1107 and up	99-00	70 (93)	7384 (16,279)	4873 (16'0")	1.0 (1.31)	1.03 (1.35)
438C (IT)	2DR	96-98	63 (85)	7720 (17,020)	4873 (16'0")	1.0 (1.31)	1.03 (1.35)
438C (IT)	2DR2717 and up	99-00	70 (93)	7720 (17,020)	4873 (16'0")	1.0 (1.31)	1.03 (1.35)
(AWS) 438C (IT)	1TR	96-98	63 (85)	7720 (17,020)	4873 (16'0")	1.0 (1.31)	1.03 (1.35)
(AWS) 438C (IT)	1TR1284 and up	99-00	70 (93)	7720 (17,020)	4873 (16'0")	1.0 (1.31)	1.03 (1.35)
446	6XF	89-95	71 (95)	8892 (19,603)	5220 (17'2")	1.1 (1.5)	1.10 (1.5)
446B			76 (102)	8890 (19,600)	5220 (17'2")	1.1 (1.5)	1.05 (1.375)



PIPELAYERS

Model	Tractor Product Ident. No. Prefix	Years Built	Engine HP	Approx. Weight kg (lb)	Counterweight kg (lb)	Max. Lift Capacity 1.2 m (4'0") Overhang kg (lb)	Speed Range km/h (mph)		Ground Clearance mm (in)	Ground Contact m ² (sq. in.)
							Forward	Reverse		
MD6	9U39C	52-57	93	12 375 (27,820)	1590 (3500)	12 035 (26,530)	2.7—10.6 (1.7—6.6)	3.2—10.0 (2.0—6.2)	321 (13")	1.77 (2744)
561B	62A	59-66	90	14 560 (32,100)	2270 (5000)	17 500 (38,800)	2.7—10.6 (1.7—6.6)	1.8—9.9 (2.0—6.2)	267 (11")	2.02 (3130)
561B	62A	66-67	93	14 350 (31,637)	2270 (5000)	17 600 (38,800)	2.7—10.9 (1.7—6.8)	3.4—10.3 (2.1—6.4)	267 (11")	2.02 (3130)
561C	85H	66-67	93	14 700 (32,500)	2450 (5400)	18 000 (40,000)	2.7—11.1 (1.7—6.9)	3.4—10.1 (2.1—6.3)	395 (16")	2.02 (3130)
561C	92J	67-77	105	14 700 (32,500)	2450 (5400)	18 100 (40,000)	2.7—11.1 (1.7—6.9)	3.4—10.1 (2.1—6.3)	395 (16")	2.02 (3130)
561D	54X	78-89	105	15 800 (35,000)	2990 (6600)	18 100 (40,000)	3.5—10.1 (2.2—6.3)	4.2—12.2 (2.6—7.6)	395 (16")	2.02 (3130)
561H	6NL	93-97	105	15 700 (34,600)	2128 (4690)	18 100 (40,000)	3.4—10.2 (2.1—6.4)	4.1—12.4 (2.6—7.7)	363 (14.3")	2.67 (4120)
561M		01	110	16 240 (35,800)	3260 (7200)	18 100 (40,000)	3.3—9.9 (2.0—6.2)	4.0—12.1 (2.5—7.5)	438 (17.2")	2.67 (4120)
561M CB* (US)	1KW	97-02	110	16 240 (35,800)						
571E PS	64A	61-67	160	22 680 (50,000)	2360 (5200)	27 490 (60,600)	3.7—10.3 (2.3—6.4)	4.3—12.1 (2.7—7.5)	400 (16")	3.04 (4710)
571E PS	64A	66-72	180	23 100 (51,000)	2360 (5200)	27 500 (60,600)	3.7—10.1 (2.3—6.3)	4.3—11.9 (2.7—7.4)	400 (16")	3.04 (4710)
571F	95N	72-74	180	22 800 (50,300)	4350 (9600)	27 500 (60,600)	3.5—9.7 (2.2—6.0)	4.2—11.4 (2.6—7.1)	400 (16")	3.04 (4710)
571G	916W 52D(JPN)	75-81 87-96	200 200	23 040 (50,800)	4350 (9600)	27 500 (60,600)	3.7—10.0 (2.3—6.2)	4.5—11.9 (2.8—7.9)	399 (15.7")	3.04 (4710)
MD7	17A	51-57	140	16 200 (35,815)	3400 (7500)	24 585 (54,200)	2.4—9.5 (1.5—5.9)	2.9—8.7 (1.8—5.4)	394 (16")	3.12 (4840)
572C	21A	57-61	128	26 200 (57,820)	4720 (10,405)	39 000 (86,000)	3.2—7.7 (2.0—4.8)	3.9—6.1 (2.4—3.8)	483 (19")	3.30 (5109)
572D	21A	59	140	26 500 (58,520)	4940 (10,900)	39 000 (86,000)	4.2—9.7 (2.6—6.0)	4.8—7.7 (3.0—4.8)	483 (19")	3.30 (5109)
572E PS	65A	61-69	180	28 000 (62,000)	6000 (13,000)	40 800 (90,000)	3.7—10.1 (2.3—6.3)	4.3—11.9 (2.7—7.4)	480 (19")	3.45 (5345)
572F PS	96N	70-74	180	27 600 (61,000)	6440 (14,200)	40 800 (90,000)	3.5—9.7 (2.2—6.0)	4.2—11.4 (2.6—7.1)	480 (19")	3.45 (5345)
572G	40U	75-86	200	27 800 (61,300)	6400 (14,200)	40 800 (90,000)	3.7—10.0 (2.3—6.2)	4.5—11.9 (2.8—7.4)	480 (19")	3.45 5345
572G	8PC	84-89	200	27 800 (61,300)	6400 (14,200)	40 800 (90,000)	3.7—10.0 (2.3—6.2)	4.5—11.9 (2.8—7.4)	480 (19")	3.45 5345
572R	2HZ	98-04	230	30 110 (66,250)	5055 (11,150)	40 825 (90,000)	3.5—11.1 (2.3—6.9)	4.8—14.2 (3.0—8.8)	414 (16.3")	4.19 6500

*Gauge 2.0 m (6'7"), Width 3.19 m (10'5"), Length 3.73 m (12'3"), Height 3.12 m (10'3"), PS Transmission.
 Forward Speed: 1st gear 3.27 km/h (2.03 mph)
 2nd gear 5.81 km/h (3.61 mph)
 3rd gear 9.93 km/h (6.17 mph)

Pipelayers (cont'd)

Model	Tractor Product Ident. No. Prefix	Years Built	Engine HP	Approx. Weight kg (lb)	Counter-weight kg (lb)	Max. Lift Capacity 1.2 m (4'0") Overhang kg (lb)	Speed Range km/h (mph)		Ground Clearance mm (in)	Ground Contact m ² (sq. in.)
							Forward	Reverse		
578	8HB	89-97	300	46 580 (102,690)	11 777 (25,963)	70 307 (155,000)	3.8—10.8 (2.35—6.7)	4.7—13.8 (2.9—8.6)	452 (17.8")	5.17 (8020)
583C	16A	55-58	190	35 440 (78,132)	8470 (18,676)	58 970 (130,000)	3.9—8.7 (2.4—5.4)	3.9—8.7 (2.4—5.4)	533 (21")	4.24 (6580)
583H TC	38A	59-60	235	38 000 (83,840)	9030 (19,900)	62 140 (137,000)	4.5—10.3 (2.8—6.4)	4.5—10.3 (2.8—6.4)	537 (22")	4.66 (7220)
583H PS	61A	60-74	191	35 600 (78,500)	8470 (18,676)	58 970 (130,000)	3.9—8.7 (2.4—5.4)	3.9—8.7 (2.4—5.4)	533 (21")	4.55 (7050)
583H PS	61A	60-67	225	38 200 (84,270)	9000 (19,900)	62 140 (137,000)	4.1—11.1 (2.5—6.9)	4.6—12.8 (8.9—8.0)	537 (22")	4.66 (7220)
583H PS	61A	61	235	38 900 (85,720)	10 400 (22,880)	62 140 (137,000)	3.9—10.1 (2.4—6.3)	4.8—12.6 (3.0—7.8)	537 (22")	4.66 (7220)
583H	61A	74	270	40 600 (89,500)	10 300 (22,700)	63 500 (140,000)	3.9—10.5 (2.4—6.5)	4.8—13.0 (3.0—8.1)	533 (21")	4.65 (7220)
583K	78V	74-89	300	40 960 (90,300)	7840 (17,290)	63 500 (140,000)	4.0—10.9 (2.5—6.8)	5.0—13.5 (3.1—8.4)	530 (21")	4.65 (7220)
594	62H	74	385	55 400 (122,000)	12 600 (27,800)	90 700 (200,000)	3.9—10.5 (2.4—6.5)	4.8—12.7 (3.0—7.9)	640 (25")	5.72 (8865)
594H	96V	74-82	410	56 065 (123,600)	12 555 (27,680)	90 700 (200,000)	4.0—10.8 (2.5—6.7)	5.0—13.2 (3.1—8.2)	630 (25")	6.48 (10,050)



WHEEL TRACTOR-SCRAPERS

Model	Product Ident. No. Prefix	Years Built	Horse-power Max/ Rated	Capacity Struck/ Heaped m ³ (yd ³)	Approx. Shipping Weight kg (lb)	Dimensions m (ft)				Tire Size (Standard) & ply rating Tractor & Scraper	Approx. % Weight on Drivers Loaded/ Empty	Turning Circle m (ft)
						Length	Width	Height	Width of Tread			
DW10 Tractor	1N	41-46	100*	—	6550 (14,350)	4.57 (15'0")	2.24 (7'4")	1.93 (6'4")	1.73 (5'8")	10.0 × 20-12 18.0 × 24-16	—	—
DW10 Tractor	6V	46-47	100*	—	6850 (15,100)	4.57 (15'0")	2.24 (7'4")	1.93 (6'4")	1.73 (5'8")	10.0 × 20-12 18.0 × 24-16	—	—
DW10 Tractor	1V	47-53	115*	—	7540 (16,610)	4.70 (15'5")	2.34 (7'8")	1.93 (6'4")	1.79 (5'10")	12.0 × 20-14 21.0 × 25-20	—	—
DW10 & No. 10 Scraper	1V 3C	47-51	115*	6.7/8.4 (8.7/11)	15 980 (35,240)	11.23 (37'0")	3.02 (9'11")	2.69 (8'10")	1.88 (6'2")	12.0 × 20-14 21.0 × 25-20	39/44	7.92 (26'0")
DW10 & No. 10 Scraper	1V 19C	52-53	115*	5.3/6.9 (7'9)	15 130 (33,365)	10.72 (35'2")	2.87 (9'5")	2.36 (7'9")	1.80 (5'11")	12.0 × 20-14 21.0 × 25-20 16.0 × 21-20	42/46	11.23 (37'0")

*Maximum HP only available.

Wheel Tractor-Scrapers (cont'd)

Model	Product Ident. No. Prefix	Years Built	Horsepower Max/ Rated	Capacity Struck/ Heaped m ³ (yd ³)	Approx. Shipping Weight kg (lb)	Dimensions m (ft)				Tire Size (Standard) & ply rating Tractor & Scraper	Approx. % Weight on Drivers Loaded/ Empty	Turning Circle m (ft)
						Length	Width	Height	Width of Tread			
DW15 & No. 10 Scraper	45C 19C	54-55	/150	5.3/6.9 (7/9)	15 960 (35,180)	11.10 (36'5")	2.87 (9'5")	2.36 (7'9")	1.80 (5'11")	12.0 × 20-14 21.0 × 25-20 16.0 × 21-20	42/46	10.36 (34'0")
DW15 & No. 15 Scraper	45C 4W	54-55	/150	7.7/9.2 (10/12)	9400 (20,720)	11.84 (38'10")	3.18 (10'5")	2.69 (8'10")	1.93 (6'4")	12.0 × 20-14 21.0 × 25-20	40/42	11.23 (37'0")
DW15 Tractor	45C	54-55	/150	—	9510 (20,960)	5.08 (16'8")	2.39 (7'10")	2.69 (8'10")	1.98 (6'6")	12.0 × 20-14 21.0 × 25-20	—	—
DW15C & No. 15 Scraper	59C or 70C	55-57	186*	7.7/9.5 (10/12.5)	19 220 (42,370)	11.84 (38'10")	3.18 (10'5")	2.69 (8'10")	1.98 (6'6")	12.0 × 12-14 21.0 × 25-20	40/42	10.36 (34'0")
DW15E & No. 428 Scraper	75D or 76D	57-59	200/172	10/14 (13/18)	20 280 (44,711)	12.22 (40'1")	3.30 (10'10")	3.05 (10'0")	1.98 (6'6")	12.0 × 20-14 26.5 × 25-20	37/41	—
DW15F & No. 428 Scraper	75D or 76D	58-59	200/172	10/14 (13/18)	20 280 (44,711)	12.22 (40'1")	3.30 (10'10")	3.05 (10'0")	1.98 (6'6")	12.0 × 20-14 26.5 × 25-20	37/41	—
DW20 & No. 20 Scraper	21C 11C	51-55	225*	14/7.6 (18/23)	12 750 (28,100)	13.23 (43'5")	3.53 (11'7")	3.10 (10'2")	2.29 (7'6")	24.0 × 29-4	37/41	11.23 (37'0")
DW20 Tractor (For W20 Wagon)	6W	51-55	225*	—	11 620 (25,610)	5.39 (17'8")	2.79 (9'2")	2.41 (7'11")	2.18 (7'2")	14.0 × 24-16 24.0 × 29-24	—	—
DW20E & No. 456 Scraper	57C 67C	55-57	300*	14/19 (18/25)	26 040 (57,400)	13.36 (43'10")	3.58 (11'9")	3.45 (11'4")	2.24 (7'4")	14.0 × 24-16 29.5 × 29-22	34/42	11.58 (38'0")
DW20F & No. 456 Scraper	87E 88E	58-60	320*	14/19 (18/25)	26 870 (59,240)	13.36 (43'10")	3.58 (11'9")	3.45 (11'4")	2.24 (7'4")	14.0 × 24-16 29.5 × 29-22	38/42	11.58 (38'0")
DW20G & No. 456 Scraper	87E 88E	58-60	345*	15/21 (19.5/27)	27 200 (59,960)	13.36 (43'10")	3.58 (11'9")	3.45 (11'4")	2.24 (7'4")	14.0 × 24-16 29.5 × 29-28	38/42	11.58 (38'0")
DW20G & No. 482 Scraper	87E 88E	58-60	345*	18.5/26 (24/34)	31 070 (68,500)	14.05 (46'1")	3.91 (12'10")	3.81 (12'6")	2.39 (7'10")	14.0 × 24-16 29.5 × 29-28	37/40	11.58 (38'0")
DW21 & No. 21 Scraper	8W 8	51-55	225*	11.5/15 (15/20)	24 790 (54,650)	12.37 (40'7")	3.53 (11'7")	3.28 (10'9")	2.13 (7'0")	24.0 × 29-24	—	10.67 (35'0")
DW21C & No. 470 Scraper	58C 69C	55-58	300*	14/19 (18/25)	26 610 (58,670)	12.67 (41'7")	3.58 (11'9")	3.35 (11'0")	2.24 (7'4")	29.5 × 29-22	52/67	11.00 (36'0")
DW21D & No. 470 Scraper	85E 86E	58-58	320*	14/19 (18/25)	26 310 (58,010)	12.78 (41'11")	3.58 (11'9")	3.35 (11'0")	2.24 (7'4")	29.5 × 29-22	52/67	11.00 (36'0")
DW21G & No. 470 Scraper	85E 86E	58-60	345*	14.9/20.6 (19.5/27)	27 210 (59,980)	12.78 (41'11")	3.58 (11'9")	3.48 (11'5")	2.24 (7'4")	29.5 × 29-28	52/67	11.00 (36'0")
611	6SZ	99-03	265	11 (15)	23 900 (52,640)	12.02 (39'5")	3.27 (10'9")	3.24 (10'8")	2.06 (6'9")	29.5R25	66/51	10.2 (33'5")
613A	71M	69-76	/150	8.4 (11)	13 334 (29,395)	9.67 (31'9")	2.44 (8'0")	2.85 (9'4.5")	1.89 (6'2.5")	18.0 × 25-12	49/63	9.04 (29'8")
613B	38W	76-84	/150	8.4 (11)	14 155 (31,210)	9.78 (32'1")	2.44 (8'0")	2.85 (9'4.5")	1.89 (6'2.5")	18.0 × 25-12	49/64	8.94 (29'4")
613C		84-93	175	8.4 (11)	14 670 (32,340)	10.0 (32'9")	2.44 (8'0")	3.06 (10'0")	1.89 (6'2.5")	18.00-25, 16 PR (E-2)	49/63	8.9 (29'4")
615	46Z	81-87	/250	12.23 (16)	23 400 (51,590)	11.6 (38'1")	3.048 (10'0")	3.590 (11'8")	2.21 (7'3")	26.5-25, 26 PR (E-2)	53/65	9.63 (31'7")
615C		87-93	265	12.23 (16)	23 860 (52,600)	11.6 (38'1")	3.048 (10'0")	3.59 (11'9")	2.21 (7'3")	26.5-25, 26 PR (E-2)	53/79	9.63 (31'7")

*Maximum HP only available.

Wheel Tractor-Scrapers (cont'd)

Model	Product Ident. No. Prefix	Years Built	Horse-power Max/ Rated	Capacity Struck/ Heaped m ³ (yd ³)	Approx. Shipping Weight kg (lb)	Dimensions m (ft)				Tire Size (Standard) & ply rating Tractor & Scraper	Approx. % Weight on Drivers Loaded/ Empty	Turning Circle m (ft)
						Length	Width	Height	Width of Tread			
619B DD DD	89E 90E	59-60	/225							Turbocharged, Electric start Turbocharged, Gas start		
619C PS DD	61F 62F	60-66	280/250	10.8/14 (14/18)	21 550 (47,500)	11.05 (36'3")	3.30 (10'11")	3.76 (12'2")	2.00 (6'7")	26.5 × 29-22	55/69	9.14 (30'0")
619*	43F	64-65	/250	15.3/12.6 (20/16.5)	27 400 (60,390)	11.89 (40'0")	3.60 (11'10")	3.45 (11'4")	2.30 (7'7")	26.5 × 29-26	53/65.8	10.20 (33'6")
621	43H	65-72	/300	10.7/15.3 (14/20)	28 400 (62,600)	12.00 (39'5")	3.60 (11'10")	3.45 (11'4")	2.19 (7'3")	29.5 × 29-22	53/68	11.50 (37'8")
621	23H	65-74	/300	10.7/15.3 (14/20)	24 900 (55,000)	11.60 (38'1")	3.50 (11'7")	3.40 (11'2")	2.10 (6'10")	29.5 × 29-22	53/68	13.00 (42'6")
621B	45P	73-86	/330	10.7/15.3 (14/20)	30 205 (66,590)	12.7 (41'7")	3.45 (11'4")	3.63 (11'11")	2.21 (7'3")	29.5-29, 28 PR (E-3)	53/68	11.10 (36'6")
621E	6AB 2PD	86-93	/330	10.7/15.3 (14/20)	30 480 (67,195)	12.93 (42'5")	3.47 (11'4")	3.71 (12'2")	2.21 (7'3")	33.25-29, 26 PR (E-3)	53/68	10.9 (35'8")
621F	4SK	93-00	330	10.7/15.3 (14/20)	32 090 (70,740)	12.93 (42'5")	3.47 (11'4")	3.71 (12'2")	2.21 (7'3")	33.25-29 ★★ (E-2/E-3)	53/68	10.2 (33'5")
623	52U	72-74	/300	16.8 (22)	29 900 (66,000)	11.90 (39'0")	3.50 (11'7")	3.70 (12'1")	2.20 (7'3")	29.5 × 29-28	53/68	13.70 (44'11")
623B	46P	73-86	/330	16.8 (22)	32 546 (71,750)	12.5 (41'1")	3.55 (11'8")	3.81 (12'6")	2.18 (7'2")	29.5-29, 28 PR (E-2)	53/68	8.90 (29'4")
623E	6CB	86-89	/330	16.8 (22)	33 317 (73,450)	12.61 (41'4")	3.55 (11'8")	3.81 (12'6")	2.21 (7'3")	29.5-29, 34 PR (E-2)	52/65	10.9 (35'9")
623E	6YF	89-93	/365	13.8/17.6 (18/23)	35 290 (77,800)	12.61 (41'4")	3.55 (11'8")	3.94 (12'11")	2.18 (7'2")	29.5R25	51/66	10.9 (35'8")
623F	6BK	93-98	365	13.8/17.6 (18/23)	35 305 (77,830)	12.61 (41'4")	3.55 (11'8")	3.94 (12'11")	2.18 (7'2")	29.5-29, 34 PR (E-2)	51/66	10.9 (35'8")
623F Series II	5EW	98-00	365	13.8/17.6 (18/23)	37 122 (81,840)	13.28 (43'7")	3.55 (11'8")	3.55 (11'8")	2.21 (7'3")	33.25-R29 ★★ (E-2)	50/64	8.6 (28'5")
627	54K	68-74	T/225 S/225	10.7/15.3 (14/20)	29 900 (66,000)	12.00 (36'9")	3.50 (11'7")	3.60 (11'8")	2.20 (7'3")	29.5 × 29-28	47/56	13.30 (43'9")
627B	14S	73-86	T/225 S/225	10.7/15.3 (14/20)	34 610 (76,300)	13.3 (43'9")	3.45 (11'4")	3.63 (11'11")	2.18 (7'2")	29.5-29, 28 PR (E-3)	49/58	11.10 (36'6")
627E	6EB	86-90	T/225 S/225	10.7/15.3 (14/20)	34 670 (76,435)	12.89 (42'3")	3.47 (11'4")	3.71 (12'2")	2.21 2.18 (7'2")	33.25-29, 26 PR (E-3)	48/59	10.90 (35'9")
627E	7CG	90-93	T/330 S/225	10.7/15.3 (14/20)	35 160 (77,500)	12.93 (42'5")	3.47 (11'4")	3.71 (12'2")	2.21 (7'3")	33.25-29, 26 PR (E-3)	48/59	10.9 (35'8")
627F Series II	1DL	93-00	T/330 S/225	10.7/15.3 (14/20)	37 060 (81,640)	12.9 (42'5")	3.47 (11'4")	3.71 (12'2")	2.21 (7'3")	33.25-R29 ★★ (E-2/E-3)	49/60	10.9 (35'9")
627B/PP	15S	73-86	T/225 S/225	10.7/15.3 (14/20)	35 660 (78,620)	14.91 (48'11")	3.45 (11'4")	3.63 (11'11")	2.18 (7'2")	29.5-29, 28 PR (E-3)	51/60	11.1 (36'6")
627E/PP	6GB	86-89	T/225 S/225	10.7/15.3 (14/20)	36 130 (79,655)	12.89 (42'3")	3.47 (11'4")	3.71 (12'2")	2.21 2.18 (7'2")	33.25-29, 26 PR (E-3)	49/60	10.90 (35'9")
627E/PP	7CG	90-93	T/330 S/225	10.7/15.3 (14/20)	36 620 (80,735)	15.2 (49'7")	3.47 (11'4")	3.71 (12'2")	2.21 (7'3")	33.25-29, 26 PR (E-3)	49/60	10.9 (35'8")
627F/PP Series II	1DL	93-00	T/330 S/225	10.7/15.3 (14/20)	38 103 (84,000)	15.2 (49'7")	3.47 (11'4")	3.71 (12'2")	2.21 (7'3")	33.25-R29 ★★ (E-2/E-3)	50/60	10.9 (35'9")

*Johnson Manufacturing Company built the J619 Elevating Scraper for Caterpillar in 1964.

Wheel Tractor-Scrapers (cont'd)

Model	Product Ident. No. Prefix	Years Built	Horse-power Max/ Rated	Capacity Struck/ Heaped m ³ (yd ³)	Approx. Shipping Weight kg (lb)	Dimensions m (ft)				Tire Size (Standard) & ply rating Tractor & Scraper	Approx. % Weight on Drivers Loaded/ Empty	Turning Circle m (ft)
						Length	Width	Height	Width of Tread			
630A & 482C Scraper	52F	60-62	420/335	21/27 (27/35)	35 830 (79,000)	14.63 (48'0")	3.91 (12'10")	4.01 (13'2")	2.39 (7'10") Scraper	16.0 × 25-16 29.5 × 35-28 33.5 × 33-26	37/42	11.89 (39'0")
630A	52F	60-62	420/335	16/21.4 (21/28)	31 430 (69,300)	13.82 (45'4")	3.58 (11'9")	3.73 (12'3")	2.21 (7'3")	16.0 × 25-16 29.5 × 35-28	39/45	11.89 (39'0")
630B	14G	62-63	420/335	16/23 (21/30)	33 520 (73,900)	14.12 (46'4")	3.81 (12'6")	3.71 (12'2")	2.41 (7'11")	16.0-25, 16 29.5-35, 28	38/42	13.36 (43'10")
630B	14G	63-66	400/360	16/23 (21/30)	33 570 (74,000)	14.30 (46'11")	3.81 (12'6")	3.94 (12'11")	2.41 (7'11")	16.0-25, 16 29.5-35, 34	37/42	13.36 (43'10")
630B	10G	62-69	/400	16/23 (21/30)	35 750 (78,800)	14.35 (47'1")	3.81 (12'6")	3.94 (12'11")	2.40 (7'10")	16.0-25, 16 29.5-35, 34	38/44	13.36 (43'10")
631A	51F	60-62	420/335	16/21.4 (21/28)	30 250 (66,700)	12.88 (42'3")	3.58 (11'9")	3.56 (11'8")	2.21 (7'3")	29.5-35, 28	54/69	11.00 (36'0")
631B	13G	62-62	420/335	16/23 (21/30)	31 620 (69,700)	13.05 (42'10")	3.81 (12'6")	3.45 (11'5")	2.39 (7'10")	29.5-35, 28	51/67	11.31 (37'5")
631B	13G	62-66	420/360	16/23 (21/30)	31 840 (70,200)	13.29 (43'7")	3.81 (12'6")	3.63 (11'11")	2.41 (7'11")	29.5-35, 34	52/67	11.31 (37'5")
631C	67M	69-75	/415	16/23 (21/30)	36 350 (80,150)	13.54 (44'5")	3.45 (11'4")	3.91 (12'10")	2.39 (7'10")	29.5-35, 34	52/67	11.45 (37'7")
631D	24W	75-85	473/450	16/23.7 (21/31)	42 370 (93,410)	14.25 (46'9")	3.96 (13'0")	4.17 (13'8")	2.46 (8'1")	33.25-35, 38 PR (E-3)	52/68	12.2 (40'1")
631E	1AB	85-91	473/450	16.1/23.7 (21/31)	43 365 (95,600)	14.28 (46'10")	3.94 (12'11")	4.29 (14'1")	2.46 (8'1")	37.25-35, 30	53/67	12.2 (40'1")
631E Series II	1AB	91-01	473/450	16.1/23.7 (21/31)	44 210 (97,460)	14.56 (47'9")	3.94 (12'11")	4.29 (14'1")	2.46 (8'1")	37.25R35	53/67	12.2 (40'1")
632	14G	62-63	420/335	21.4/29 (28/38)	37 650 (83,000)	15.21 (49'11")	4.04 (13'3")	4.00 (13'1")	2.44 (8'0")	16.0-25, 16 29.5-35, 34	37/41	13.36 (43'10")
632	14G	63-66	420/360	21.4/29 (28/38)	39 420 (86,910)	15.30 (50'2")	4.04 (13'3")	4.00 (13'1")	2.44 (8'0")	16.0-25, 16 29.5-35, 34	37/41	13.36 (43'10")
633C	66M	69-75	/415	24.5 (32)	41 750 (92,050)	13.36 (43'10")	3.45 (11'4")	3.96 (13'0")	2.39 (7'10")	33.2-35, 32	52/66	11.78 (38'8")
633D	25W	75-85	450	17.7/23 (23/34)	47 570 (104,870)	14.40 (47'3")	3.96 (13'0")	4.24 (13'11")	2.46 (8'1")	33.25-35, 38 PR (E-3)	51/66	12.4 (40'7")
633E	1AB	92-96	475	17.7/23 (23/34)	50 800 (112,000)	14.40 (47'3")	3.96 (13'0")	4.24 (13'11")	2.46 (8'1")	37.25R35	51/64	13.15 (43'2")
633E Series II	2PS	96-00	490	17.7/23 (23/34)	51 100 (112,670)	14.8 (48'7")	3.96 (13'0")	4.24 (13'11")	2.46 (8'1")	37.25R35	51/64	13.15 (43'2")
637	65M	70-75	T/415 S/225	16/23 (21/30)	41 300 (91,050)	13.65 (44'9.5")	3.45 (11'4")	3.93 (12'11")	2.39 (7'10")	33.25-35, 32	49/60	11.68 (38'4")
637/PP	79P	70-75	T/415 S/225	16/23 (21/30)	43 700 (96,350)	15.82 (51'11")	3.45 (11'4")	3.93 (12'11")	2.39 (7'10")	33.25-35, 32	51/63	11.68 (38'4")
637D	26W	75-85	T/450 S/250	16/23 (21/31)	46 987 (103,590)	14.8 (48'8")	3.96 (13'0")	4.17 (13'8")	2.46 (8'1")	33.25-35, 38 PR (E-3)	50/61	12.2 (40'1")
637D/PP	27W	75-85	T/450 S/250	16/23 (21/31)	48 531 (106,990)	14.8 (48'8")	3.96 (13'0")	4.17 (13'8")	2.46 (8'1")	33.25-35, 38 PR (E-3)	50/61	12.2 (40'1")

Wheel Tractor-Scrapers (cont'd)

Model	Product Ident. No. Prefix	Years Built	Horsepower Max/ Rated	Capacity Struck/ Heaped m ³ (yd ³)	Approx. Shipping Weight kg (lb)	Dimensions m (ft)				Tire Size (Standard) & ply rating Tractor & Scraper	Approx. % Weight on Drivers Loaded/ Empty	Turning Circle m (ft)
						Length	Width	Height	Width of Tread			
637E	1FB	85-91	T/450 S/250	16/23 (21/31)	49 940 (110,100)	14.28 (46'10")	3.94 (12'11")	4.29 (14'1")	2.46 (8'1")	37.25-35, 30	49/59	12.2 (40'1")
637E Series II	1FB	91-01	T/450 S/250	16/23 (21/31)	50 990 (112,320)	14.56 (47'9")	3.94 (12'11")	4.29 (14'1")	2.46 (8'1")	37.25R35	49/59	12.2 (40'1")
637E/PP	1FB	85-91	T/450 S/250	16/23 (21/31)	51 485 (113,500)	15.88 (52'1")	3.94 (12'11")	4.29 (14'1")	2.46 (8'1")	37.25-35, 30	50/60	12.2 (40'1")
637E Series II/PP	1FB	91-01	T/450 S/250	16/23 (21/31)	52 385 (115,490)	16.49 (54'1")	3.94 (12'11")	4.29 (14'1")	2.46 (8'1")	37.25R35	50/60	12.2 (40'1")
639D	99X	79-84	T/450 S/250	26 (34)	55 030 (121,318)	14.53 (47'8")	3.96 (13'0")	4.06 (13'4")	2.46 (8'1")	37.25-35, 42 37.25-35, 42	51/59	12.4 (40'7")
641	64F	62-65	560/450	21.4/29 (28/38)	43 200 (95,300)	14.73 (48'4")	4.04 (13'3")	4.00 (13'1")	2.44 (8'0")	33.5-39, 38	52/67	12.68 (41'7")
641B	65K	69-81	/550	21.4/29 (28/38)	53 070 (117,000)	14.96 (49'1")	4.04 (13'3")	4.24 (13'11")	2.55 (8'4")	37.5-39, 36	54/69	13.00 (42'9")
650	63F	62-64	560/450	24.5/33.6 (32/44)	45 130 (99,500)	16.31 (53'6")	4.24 (13'11")	4.01 (13'2")	2.54 (8'4")S	18.0-25, 20 33.5-39, 32 37.5-39, 36	37/41	13.87 (45'6")
650B	22G	62-72	/550	24.5/33.6 (32/44)	46 100 (101,700)	17.00 (55'10")	3.80 (12'6")	4.30 (14'1")	2.65 (8'9")S	18.0-25, 20 37.5-39, 28 37.5-30, 36	40/46	14.00 (46'0")
651	33G	62-68	560/450	24.5/33.6 (32/44)	43 730 (96,400)	14.93 (49'0")	4.24 (13'11")	4.01 (13'2")	2.54 (8'4")	37.5-39, 36	51/65	13.29 (43'7")
651B	67K	69-84	/550	24.5/33.6 (32/44)	56 340 (124,200)	15.34 (51'4")	4.32 (14'2")	4.29 (14'1")	2.72 (8'11")S	37.5-39, 36 37.5-39, 36	52/67	13.5 (44'2")
657	31G	62-68	T/450 S/335	24.5/33.6 (32/44)	56 550 (124,700)	15.39 (50'6")	4.24 (13'11")	4.09 (13'5")	2.62 (8'7")	37.5-39, 44	48/55	13.29 (43'7")
657	46M	68-69	T/500 S/400	24.5/33.6 (32/44)	56 820 (125,155)	15.39 (50'6")	4.24 (13'11")	4.09 (13'5")	2.67 (8'8")	37.5-39, 44	48/55	14.57 (47'10")
657B	68K	69-84	T/550 S/400	24.5/33.6 (32/44)	63 100 (139,100)	15.7 (51'8")	4.32 (14'2")	4.21 (13'10")	2.67 (8'9")S	37.5-39, 44 37.5-39, 44	49/57	13.7 (45'1")
660	90F	62-64	560/450	30.6/41.3 (40/54)	49 130 (108,300)	17.04 (55'11")	4.24 (13'11")	4.37 (14'4")	2.59 (8'6")	18.0 × 25-20 37.5 × 39-28 37.5 × 51-36	37/40	13.87 (45'6")
660B	58K	70-78	/550	30.6/41.3 (40/54)	59 875 (132,000)	17.27 (56'8")	3.81 (14'2")	4.37 (14'4")	2.59 (8'6")	18.0 × 25-20 37.5 × 39-28	40/45	14.00 (46'0")
666	77F	63-69	T/450 S/335	30.6/41.3 (40/54)	56 700 (125,000)	17.04 (55'11")	4.24 (13'11")	4.37 (14'4")	2.59 (8'6")	18.0 × 25-20 37.5 × 39-28 37.5 × 51-36	35/34	13.87 (45'6")
666	64H	67-69	T/500 S/400	30.6/41.3 (40/54)	58 800 (129,645)	17.27 (56'8")	4.24 (13'11")	4.37 (14'4")	2.59 (8'6")	18.0 × 25-20 37.5 × 39-28 37.5 × 51-51	36/35	13.87 (45'6")
666B	66K	69-78	T/550 S/400	30.6/41.3 (40/54)	67 630 (149,500)	17.27 (56'8")	4.31 (14'4")	4.37 (14'4")	2.59 (8'9")	18.0 × 25-20 37.5 × 39-28	37/42	14.00 (46'0")



TRACTOR-TOWED SCRAPERS

Model	Product Ident. No. Prefix	Years Built	Capacity Struck/Heaped m ³ (yd ³)	Weight kg (lb)	Width m (ft)	Length m (ft)	Height m (ft)	Width of Cut m (ft)
40	1W	49-59	2.8/3.4 (3.6/4.5)	3348 (7380)	2.27 (7'6")	6.40 (21'0")	1.68 (5'6")	1.82 (6'0")
60	1D	47-53	4.6/6.1 (6.0/8.0)	5579 (12,300)	2.65 (8'9")	8.43 (27'8")	2.36 (7'9")	2.13 (7'0")
60	2W	52-72	5.4/7.0 (7.0/9.0)	6100 (13,500)	2.85 (9'5")	8.52 (28'3")	2.36 (7'9")	2.40 (7'11")
70	8C	46-53	6.7/8.4 (8.7/11.0)	8527 (18,800)	3.02 (10'0")	9.50 (31'2")	2.56 (8'5")	2.43 (8'0")
70	3W	51-57	7.8/9.9 (10.2/13.0)	9140 (20,150)	3.16 (10'5")	9.53 (31'4")	2.61 (8'7")	2.59 (8'6")
80	2D	46-52	10.3/13.8 (13.5/18.0)	11 793 (26,000)	3.38 (11'2")	10.82 (35'6")	2.92 (9'7")	2.74 (9'0")
80	5W	50-56	11.5/15.3 (15.0/20.0)	13 533 (29,836)	3.50 (11'6")	10.92 (35'0")	3.09 (10'2")	2.89 (9'6")
90	9V	51-55	16.2/20.6 (21.2/27.0)	17 208 (37,937)	3.65 (12'0")	12.19 (40'0")	3.20 (10'6")	3.04 (10'0")
435C	45D	56-61	9.9/13.8 (13.0/18.0)	10 659 (23,500)	3.28 (10'10")	10.16 (33'4")	3.01 (9'11")	2.84 (9'4")
435D	45D	59-61	11.5/14.5 (15.0/19.0)	11 521 (25,400)	3.29 (10'10")	10.16 (33'4")	3.01 (9'11")	2.84 (9'4")
435E	85F	61-72	9.2/13.0 (12.0/17.0)	10 400 (22,900)	3.29 (10'10")	10.06 (33'1")	3.07 (10'1")	2.84 (9'4")
435F	45D	62-72	10.7/13.8 (14.0/18.0)	11 300 (24,900)	3.29 (10'10")	10.06 (33'1")	3.02 (9'11")	2.84 (9'4")
435G	27G	63-73	9.2/13.0 (12.0/17.0)	10 400 (22,900)	3.27 (10'9")	10.08 (33'1")	2.97 (9'9")	2.84 (9'4")
463	62C	55-60	13.8/29.1 (18.0/25.0)	14 061 (31,000)	3.58 (11'9")	11.58 (38'0")	3.39 (11'2")	3.15 (10'4")
463C	62C	59-60	16.8/21.4 (22.0/28.0)	15 785 (34,800)	3.58 (11'9")	11.58 (38'0")	3.39 (11'2")	3.15 (10'4")
463E	86F	60-71	13.8/20.0 (18.0/26.0)	15 600 (34,400)	3.58 (11'9")	11.65 (38'3")	3.28 (10'10")	3.15 (10'4")
463F	62C	63-71	16.0/21.4 (21.0/28.0)	15 700 (34,600)	3.58 (11'9")	11.65 (38'3")	3.28 (10'10")	3.15 (10'4")
463G	28G	63-71	13.8/20.0 (18.0/26.0)	13 200 (29,200)	3.58 (11'9")	11.52 (37'10")	3.14 (10'4")	3.15 (10'4")
491	98C	56-64	20.6/26.0 (27.0/34.0)	16 964 (37,400)	3.65 (12'0")	12.13 (39'10")	3.96 (13'0")	3.16 (10'5")
491B	9A	61-63	20.6/26.8 (27.0/35.0)	20 902 (46,060)	3.91 (12'10")	12.49 (41'0")	3.96 (13'0")	3.30 (10'10")
491C	47E	63-70	20.6/26.8 (27.0/35.0)	21 600 (47,500)	3.91 (12'10")	12.64 (41'6")	3.96 (13'0")	3.30 (10'10")



CONSTRUCTION & MINING TRUCKS/TRACTORS

Model	Product Ident. No. Prefix	Years Built	Flywheel Kilowatts (Horsepower)	Capacity Metric Tons (U.S. Tons)	Approx. Weight kg (lb)	Dimensions m (ft)						Tire Size
						Width	Length	Height	Loading Height	Dumping Height (55°)	Turning Circle	
768B	79S	71-78	309 (415)	— —	22 000 (48,500)	3.61 (11'10")	6.55 (21'6")	3.48 (11'5")	— —	— —	18.0 (59'1")	18.00 × 33—24 PR
768C	02X	78-95	336 (450)	— —	24 624 (54,285)	4.70 (15'5")	8.00 (26'3")	3.56 (11'8")	— —	— —	18.5 (60'8")	18.00R33 E-4
769	99F	62-67	298 (400)	31.8 (35.0)	25 365 (55,870)	3.63 (11'11")	7.64 (25'1")	4.05 (13'4")	3.07 (10'1")	7.18 (26'7")	16.5 (54'5")	18.00 × 25—32 PR
769B	99F	67-78	309 (415)	32.0 (35.0)	28 000 (61,800)	3.64 (11'11.5")	7.85 (25'9")	3.89 (12'9")	3.15 (10'4")	7.24 (23'9")	18.0 (59'1")	18.00 × 25—32 PR E-3
769C	01X	78-95	336 (450)	36.9 (40.6)	30 675 (67,855)	4.70 (15'5")	8.00 (26'3")	3.85 (12'8")	3.24 (10'7")	7.68 (25'2")	18.5 (60'8")	18.00R33 E-4
771C	3BJ	92-95	336 (450)	40.0 (44.0)	34 170 (75,345)	4.74 (15'7")	8.20 (26'11")	4.00 (13'1")	3.30 (10'10")	7.68 (25'2")	18.5 (60'8")	18.00R33 E-4
772	80S	71-78	447 (600)	— —	32 100 (70,800)	4.06 (13'4")	7.11 (23'4")	3.68 (12'1")	— —	— —	22.1 (72'6")	24.00 × 35—36 PR
772B	64W	78-95	485 (650)	— —	32 909 (72,550)	4.86 (15'11")	9.12 (29'11")	4.52 (14'10")	— —	— —	23.5 (77'0")	24.00R35 E-4
773	63G	70-78	447 (600)	45.4 (50.0)	37 800 (83,360)	4.06 (13'4")	8.71 (28'7")	4.27 (14'0")	3.61 (11'10")	8.36 (27'5")	22.1 (72'6")	21.00 × 35—32 PR E-3
773B	63W	78-95	485 (650)	54.3 (59.8)	38 321 (84,500)	4.86 (15'11")	9.12 (29'11")	4.31 (14'2")	3.77 (12'5")	8.72 (28'7")	23.5 (77'0")	24.00R35 E-4
775B	7XJ	92-95	485 (650)	59.5 (65.5)	42 324 (93,325)	4.91 (16'2")	9.33 (30'7")	4.31 (14'2")	3.86 (12'8")	8.72 (28'8")	23.5 (77'7")	24.00R35 E-4
776	14H	75-84	649 (870)	— —	49 686 (109,540)	3.51 (11'6")	8.06 (26'5.5")	3.40 (11'2")	— —	— —	26.8 (88'0")	27.00 × 49—36 PR E-3
776B	6JC	84-92	649 (870)	— —	49 896 (110,000)	3.51 (11'6")	8.06 (26'6")	3.40 (11'2")	— —	— —	25.8 (84'6")	27.00 × 49—36 PR E-3
776C	2TK	92-96	649 (870)	— —	49 896 (110,000)	3.51 (11'6")	8.06 (26'5.5")	4.55 (14'11")	— —	— —	25.8 (84'6")	27.00R49
777	84A	74-84	649 (870)	77.1 (85.0)	58 886 (129,820)	5.463 (17'11")	9.78 (32'1")	4.90 (16'1")	4.14 (13'7")	9.29 (30'6")	26.8 (88'0")	24.00 × 49—42 PR E-3
777B	4YC	84-92	649 (870)	86.2 (95.0)	60 055 (132,422)	5.463 (17'11")	9.79 (32'1")	4.97 (16'4")	4.17 (13'8")	9.42 (30'11")	25.8 (84'6")	24.00 × 49—48 PR E-3
777C	4XJ	92-96	649 (870)	86.2 (95.0)	61 790 (136,227)	5.463 (17'11")	9.79 (32'1")	4.97 (16'4")	4.17 (13'8")	9.42 (30'11")	25.8 (84'6")	27.00R49
784B	5RK	93-98	962 (1290)	— —	89 280 (196,825)	6.74 (22'2")	9.34 (30'8")	5.47 (17'1")	— —	— —	33.5 (109'10")	36.00R51 E-3
785	8GB	85-92	962 (1290)	136.0 (150.0)	96 353 (212,458)	6.64 (21'9")	11.02 (36'2")	5.77 (18'11")	4.98 (16'4")	11.20 (36'9")	30.5 (100'4")	33.00 × 51
785B	6HK	92-98	962 (1290)	136.0 (150.0)	96 353 (212,458)	6.64 (21'9")	11.02 (36'2")	5.77 (18'11")	4.98 (16'4")	11.20 (36'9")	30.2 (99'2")	33.00R51
789	9ZC	86-92	1272 (1705)	177.0 (195.0)	121 922 (268,837)	7.67 (25'2")	12.18 (39'11")	6.15 (20'2")	5.21 (17'1")	11.91 (39'1")	30.2 (99'2")	37.00R57
789B	7EK	92-98	1272 (1705)	177.0 (195.0)	121 922 (268,837)	7.67 (25'2")	12.18 (39'11")	6.15 (20'2")	5.21 (17'1")	11.91 (39'1")	30.2 (99'2")	37.00R57
793	3SJ	90-92	1534 (2057)	218.0 (240.0)	143 564 (323,709)	7.60 (24'11")	12.86 (42'3")	6.43 (21'1")	5.86 (19'3")	13.21 (43'4")	30.2 (99'2")	40.00-57
793B	1HL	92-96	1534 (2057)	218.0 (240.0)	143 564 (323,709)	7.60 (24'11")	12.86 (42'3")	6.43 (21'1")	5.86 (19'3")	13.21 (43'4")	30.2 (99'2")	40.00R57
797	5YW	98-02	2395 (3211)	326.0 (360.0)	557 820 (1,230,000)	9.14 (30'0")	14.63 (48'0")	7.24 (27'6")	7.05 (26'10")	14.94 (49'0")	32.86 (104'10")	55/80R63



ARTICULATED TRUCKS

Model	Product Ident. No. Prefix	Years Built	Flywheel Kilowatts (Horsepower)	Capacity Metric Tons (U.S. Tons)	Approx. Weight kg (lb)	Dimensions m (ft)						Tire Size
						Width	Length	Height	Loading Height	Dumping Height (55°)	Turning Circle	
D20D	9MG	92-94	134 (180)	18.0 (20.0)	15 000 (33,070)	2.75 (9'0")	8.43 (27'8")	3.30 (10'10")	2.40 (7'11")	5.00 (16'5")	7.25 (24'0")	23.5R25
D22	*	80-82	175 (235)	20.0 (22.0)	17 700 (39,000)	3.00 (9'10")	7.85 (25'9")	3.09 (10'2")	2.44 (8'0")	5.03 (16'6")	7.87 (25'10")	26.5R25
D25	*	80	175 (235)	22.7 (25.0)	17 300 (38,000)	3.00 (9'10")	7.85 (25'9")	3.09 (10'2")	2.44 (8'0")	5.03 (16'6")	7.87 (25'10")	26.5R25
D25B	*	80-83	190 (255)	22.7 (25.0)	17 900 (39,400)	3.00 (9'10")	7.99 (26'2")	3.25 (10'8")	2.44 (8'0")	5.03 (16'6")	7.87 (25'10")	26.5R25
D25C	9YC	85-89	194 (260)	22.7 (25.0)	19 233 (42,400)	3.00 (9'10")	8.73 (28'8")	3.27 (10'9")	2.56 (8'5")	5.28 (17'4")	16.14 (52'11")	26.5R25
D25D	1HK	89-01	194 (260)	22.7 (25.0)	19 450 (42,880)	3.00 (9'10")	8.79 (28'10")	3.34 (10'11")	2.63 (8'8")	5.19 (17'0")	7.95 (26'1")	26.5R25
D30C	7ZC	85-89	194 (260)	27.2 (30.0)	21 320 (47,000)	3.30 (10'10")	8.86 (29'1")	3.33 (10'11")	2.85 (9'4")	5.46 (17'11")	16.33 (53'7")	29.5R25
D30D	3AJ	89-01	213 (285)	27.2 (30.0)	21 690 (47,320)	3.30 (10'10")	8.89 (29'2")	3.40 (11'2")	2.83 (9'3")	5.46 (17'11")	8.20 (26'11")	29.5R25
D35	*	81-83	190 (255)	31.8 (35.0)	20 000 (44,000)	3.27 (10'9")	8.44 (27'8")	3.25 (10'8")	2.91 (9'7")	5.46 (17'11")	7.87 (25'10")	26.5R25 33.25R29
D35C	2GD	85-89	194 (260)	31.8 (35.0)	23 860 (52,600)	3.50 (11'6")	9.44 (31'0")	3.34 (10'11")	2.93 (9'7")	5.32 (17'5")	16.00 (52'5")	Front 29.5R25 Rear 33.5R29
D35 HP	3FD	85-89	287 (385)	31.8 (35.0)	24 950 (55,000)	3.50 (11'6")	9.80 (32'2")	3.51 (11'6")	2.93 (9'7")	5.32 (17'5")	15.78 (51'9")	Front 29.5R25 Rear 33.5R29
D40D	2JJ	89-94	287 (385)	36.3 (40.0)	28 027 (61,800)	3.48 (11'5")	9.76 (32'0")	3.56 (11'8")	3.20 (10'7")	6.00 (19'8")	7.90 (25'11")	Front 29.5R25 Rear 33.25R29
D44	*	81-86	336 (450)	40.0 (44.0)	28 000 (61,600)	3.66 (12'0")	10.05 (33'0")	3.86 (12'8")	2.90 (9'6")	6.35 (20'10")	9.96 (32'8")	33.25R29
D44B	4LD	86-87	343 (460)	40.0 (44.0)	32 296 (71,200)	3.73 (12'3")	10.05 (33'0")	3.98 (13'1")	2.98 (9'9")	6.40 (21'0")	9.08 (29'9")	33.25R29
D250	*	75-78	175 (235)	25.0 (27.5)	18 500 (40,700)	2.66 (8'9")	8.82 (29'0")	3.04 (10'0")	2.61 (8'7")	6.22 (20'5")	7.67 (25'2")	23.5R25
D250B	5WD	85-91	163 (218)	22.7 (25.0)	17 963 (39,600)	2.50 (8'2.5")	9.60 (31'8.5")	3.18 (10'5")	2.55 (8'4.5")	6.23 (20'5")	7.65 (25'1")	20.5R25
D250D	6NG	92-94	160 (214)	22.8 (25.0)	17 300 (38,150)	2.50 (8'2")	9.60 (31'6")	3.21 (10'7")	2.59 (8'6")	6.22 (20'5")	7.61 (25'0")	20.5R25
D250E	5TN	95-98	194 (260)	22.7 (25.0)	20 135 (44,397)	2.74 (9'0")	9.94 (32'7")	3.35 (11'0")	2.7 (8'10")	6.2 (20'4")	7.44 (24'5")	23.5R25
D250E Series II	4PS	98-00	201 (270)	22.7 (25.0)	21 600 (47,628)	2.88 (9'5")	10.0 (32'10")	3.35 (11'0")	2.75 (9'0")	6.39 (20'11")	7.44 (24'5")	23.5R25
D275	*	78-80	175 (235)	25.0 (27.5)	18 700 (41,000)	2.66 (8'9")	8.82 (29'0")	3.17 (10'7")	2.61 (8'7")	6.22 (20'5")	7.75 (25'3")	23.5R25
D275B	*	80-82	190 (255)	25.0 (27.5)	19 200 (42,400)	2.66 (8'9")	8.96 (29'5")	3.21 (10'7")	2.61 (8'7")	6.22 (20'5")	7.75 (25'5")	23.5R25

*Information not available — DJB models.

Articulated Trucks (cont'd)

Model	Product Ident. No. Prefix	Years Built	Flywheel Kilowatts (Horsepower)	Capacity Metric Tons (U.S. Tons)	Approx. Weight kg (lb)	Dimensions m (ft)						Tire Size
						Width	Length	Height	Loading Height	Dumping Height (55°)	Turning Circle	
D300	*	76-78	190 (255)	30.0 (33.0)	19 500 (42,900)	2.80 (9'2")	8.82 (29'0")	3.04 (10'0")	2.68 (8'10")	6.22 (20'5")	7.67 (25'2")	23.5R25
D300B	4SD	85-91	194 (260)	27.2 (30.0)	19 800 (43,520)	2.50 (8'2.5")	9.60 (31'8.5")	3.18 (10'5")	2.55 (8'4.5")	6.23 (20'5")	7.76 (25'6")	23.5R25
D300D	5MG	92-95	213 (285)	27.2 (30.0)	20 680 (45,600)	2.88 (9'6")	9.87 (32'5")	3.28 (10'9")	2.66 (8'9")	6.42 (21'4")	7.76 (25'5")	23.5R25
D300E	7FN	95-98	212 (285)	27.2 (30.0)	21 940 (48,369)	2.89 (9'6")	9.94 (32'7")	3.35 (11'0")	2.85 (9'4")	6.26 (20'6")	7.6 (24'10")	23.5R25
D300E Series II	5KS	98-00	212 (285)	27.2 (30.0)	22 793 (50,235)	2.91 (9'7")	10.0 (32'10")	3.35 (11'0")	2.89 (9'6")	6.44 (21'2")	7.6 (24'10")	23.5R25
D330	*	78-80	190 (255)	30.0 (33.0)	20 000 (43,000)	2.80 (9'2")	8.82 (28'11")	3.17 (10'5")	2.68 (8'9")	6.22 (20'5")	7.80 (25'7")	23.5R25
D330B	*	80-83	190 (255)	30.0 (33.0)	20 200 (44,400)	2.76 (9'1")	9.08 (29'9")	3.25 (10'8")	2.68 (8'9")	6.33 (20'9")	7.92 (26'0")	23.5R25
D350	*	78-80	190 (255)	31.8 (35.0)	21 000 (46,000)	3.00 (9'10")	8.95 (29'4")	3.21 (10'7")	2.82 (9'3")	6.35 (20'10")	7.95 (26'1")	26.5R25
D350B	*	80-83	190 (255)	31.8 (35.0)	21 400 (47,200)	3.00 (9'10")	9.09 (29'10")	3.25 (10'8")	2.85 (9'4")	6.40 (21'0")	7.95 (26'1")	26.5R25
D350C	8XC	85-89	194 (260)	31.8 (35.0)	23 315 (51,400)	3.00 (9'10")	9.93 (32'7")	3.27 (10'9")	2.91 (9'6")	6.52 (21'5")	16.16 (53'0")	26.5R25
D350D	9RF	89-94	213 (285)	31.8 (35.0)	24 595 (54,221)	3.00 (9'10")	9.95 (32'7")	3.34 (11'0")	2.93 (9'7")	6.52 (21'5")	16.06 (52'8")	26.5R25
D350E	9LR	96-99	253 (340)	31.7 (35.0)	27 871 (61,455)	3.26 (10'8")	10.38 (34'1")	3.51 (11'6")	2.94 (9'8")	6.6 (21'8")	8.21 (26'11")	26.5R25
D350E Series II	2XW	99-01	265 (355)	31.8 (35.0)	30 190 (66,560)	3.26 (10'8")	10.65 (35'1")	3.51 (11'6")	2.92 (9'7")	6.83 (20'5")	8.45 (27'8")	26.5R25
D400	IMD	85-89	287 (385)	36.3 (40.0)	25 765 (56,800)	3.00 (9'10")	10.42 (34'2")	3.45 (11'4")	3.00 (9'10")	6.53 (21'5")	16.07 (52'9")	26.5R25
D400D	8TF	89-95	287 (385)	36.3 (40.0)	28 027 (61,800)	3.30 (10'8")	10.62 (34'10")	3.56 (11'8")	2.98 (9'9")	6.60 (21'8")	8.26 (27'2")	29.5R25
D400E	2YR	96-99	302 (405)	36.3 (40.0)	29 263 (64,495)	3.3 (10'10")	10.52 (34'6")	3.58 (11'9")	3.07 (10'1")	6.58 (21'7")	8.26 (27'1")	29.5R25
D400E Series II	8PS	99-01	302 (405)	36.3 (40.0)	31 650 (69,760)	3.43 (11'2")	10.65 (35'1")	3.58 (11'9")	3.10 (10'2")	6.92 (23'0")	8.45 (27'8")	29.5R25
D400E II Ejector	APF	99-01	302 (405)	36.3 (40.0)	32 840 (72,380)	3.5 (11'6")	11.0 (36'1")	3.58 (11'9")	3.07 (10'1")	N/A	8.45 (27'8")	29.5R25
D550	*	78-86	336 (450)	50.0 (55.0)	37 800 (83,400)	3.66 (12'0")	11.35 (37'3")	3.86 (12'8")	3.30 (10'10")	7.83 (25'8")	9.65 (31'8")	33.25R29
D550B	8SD	86-87	343 (460)	50.0 (55.0)	40 370 (89,000)	3.72 (12'2.5")	11.74 (38'6")	3.97 (13'0")	3.22 (10'6")	8.28 (27'2")	8.73 (28'8")	33.25R29

*Information not available — DJB models.



WHEEL DOZERS

Model	Product Ident. No. Prefix	Years Built	Flywheel Kilowatts (Horsepower)	Approx. Oper. Wt. kg (lb)	Length (Dozer on ground)		Wheelbase m (ft)	Ground Clearance mm (in)	Transmission	Maximum Speeds		
					m (ft)	Tread m (ft)				Fwd. km/h (mph)	Rev. km/h (mph)	
814B	90P	70-81	127 (170)	18 780 (41,400)	6.49 (21'3")	2.16 (7'1")	3.10 (10'2")	356 (14")	PS 4F-4R	32.7 (20.3)	39.3 (24.4)	*
814B	16Z	81-95	161 (216)	20 927 (46,137)	6.82 (22'5")			459 (18")	PS 4F-4R	29.9 (18.6)	34.1 (21.2)	*
814F	9DM	96-02	164 (220)	22 780 (50,115)		2.2 (7'3")	3.35 (11'0")	448 (18")	PS 4F-4R	29.9 (18.6)	34.1 (21.2)	
824	29G	63-65	224 (300)	31 700 (70,000)	7.04 (23'1")	2.37 (7'10")	3.35 (11'8")	470 (18.2")	PS 3F-3R	34.1 (21.2)	34.1 (21.2)	
824B	36H	65-78	224 (300)	33 330 (73,480)	7.40 (24'3.5")	2.32 (7'7.5")	3.55 (11'8")	490 (19.4")	PS 3F-3R	29.8 (18.5)	29.8 (18.5)	
824C	85X	78-95	235 (315)	30 380 (66,975)	7.69 (25'2")	2.36 (7'7.5")	3.53 (11'7")	477 (18.8")	PS 4F-4R	33.2 (20.6)	37.8 (23.5)	
824G	4SN	96-02	235 (315)	26 620 (58,697)	8.02 (26'4")	2.44 (8'0")	3.7 (12'2")	383 (15")	PS 4F-4R	33 (20.4)	37.8 (23.5)	
834	43E	63-74 96-00	298 (400)	40 300 (88,800)	7.75 (25'5")	2.54 (8'4")	3.80 (12'6")	510 (20.0")	PS 3F-3R	32.8 (20.4)	35.7 (22.2)	
834B	7BR	74-00	336 (450)	46 350 (102,200)	8.72 (28'7")		3.81 (12'6")	466 (18")	PS 4F-4R	34.1 (21.2)	41.8 (25.9)	
834G	6GZ	98-01	359 (481)	44 680 (98,500)	10.4 (34'2")	2.59 (8'6")	4.55 (14'11")	541 (21")	PS 4F-3R	38.5 (23.9)	23.0 (14.3)	**
844	2KZ	98-01	466 (625)	69 230 (152,620)	10.9 (35'9")	3.1 (10'0")	4.6 (15'1")	552 (22")	PS 3F-3R	22.5 (14.0)	25.0 (15.5)	***
854G	1JW	97-99	597 (800)	99 400 (219,125)	13.4 (44'0")	3.3 (10'10")	5.89 (19'3")	691 (27")	PS 3F-3R	20.5 (12.7)	22.7 (14.1)	****

*Turbocharged, Articulated Steering.

**Move to "G" Series.

***New model from Tiger (590).

****New model from Tiger (790).



COMPACTORS

Model	Product Ident. No. Prefix	Years Built	Flywheel Kilowatts (Horsepower)	Approx. Oper. Wt. kg (lb)	Drum Width m (ft)	Articulated Steering Angle, Maximum	Transmission	Maximum Speeds		
								Fwd. km/h (mph)	Rev. km/h (mph)	
815	91P	70-81	127 (170)	17 300 (38,200)	0.97 (3'2")	44° Either Side	Power Shift 4F-4R	30.1 (18.7)	35.7 (22.2)	*
815B	17Z	81-95	161 (216)	20 035 (44,175)	0.98 (3'2")	45° Either Side	Power Shift 4F-4R	37.5 (23.3)	42.9 (26.6)	*
815F	1GN	96-02	164 (220)	20 952 (46,096)	0.98 (3'2")	36° Either Side	Power Shift 4F-4R	37.6 (23.3)	43.0 (26.7)	
816	57U	72-81	127 (170)	18 550 (40,900)	1.02 (3'4")	44° Either Side	Power Shift 4F-4R	30.1 (18.6)	35.7 (22.4)	**
816B	15Z	81-95	161 (216)	20 628 (45,477)	1.02 (3'4")		Power Shift 4F-4R	35.3 (22.0)	40.4 (25.1)	**
816F	5FN	96-02	164 (220)	20 879 (45,934)	1.02 (3'4")	42° Either Side	Power Shift 4F-4R	36.3 (22.5)	41.4 (25.7)	
825B	43N	70-78	224 (300)	30 075 (66,300)	1.13 (3'8")	44° Either Side	Power Shift	29.8 (18.5)	29.8 (18.5)	
825C	86X	78-96	231 (310)	32 400 (71,432)	1.13 (3'8")	42° Either Side	Power Shift 4F-4R	29.8 (18.5)	33.9 (21.1)	
825G	6RN	96-02	235 (315)	31 740 (69,828)	1.13 (3'8")	42° Either Side	Power Shift 3F-3R	15.6 (9.7)	17.2 (10.7)	
826C	87X	78-95	235 (315)	34 920 (76,990)	1.20 (3'11")	42° Either Side	Power Shift 4F-4R	32.5 (20.2)	37.2 (23.1)	
826G	7LN	96-02	235 (315)	33 350 (73,537)	1.2 (3'11")	42° Either Side	Power Shift 2F-2R	11.2 (6.9)	13.5 (8.4)	
835	44N	70-74	298 (400)	35 900 (79,100)	1.22 (4'0")	44° Either Side	Power Shift 3F-3R	32.2 (20.0)	34.8 (21.6)	
836	3RL	93-95	336 (450)	45 450 (100,000)	1.4 (4'7")	35° Either Side	Power Shift 2F-2R	11.3 (7.0)	14.0 (8.7)	*
836G	7MZ	98-01	351 (471)	53 680 (118,348)	1.4 (4'7")	35° Either Side	Power Shift 2F-2R	6.0 (3.7)	10.2 (6.3)	

*Turbocharged, Articulated Steering.

**Turbocharged, ROPS Cab, Sleeve Metering Fuel System.



WHEEL LOADERS

Model	Product Ident. No. Prefix	Years Built	Flywheel Horse-power	Approx. Shipping Wt. kg (lb)	Rated Capacity m ³ (yd ³)	Breakout Force kg (lb)	Width Over Tires m (ft)	Ground Clearance mm (in)	Max. Reach at max. height mm (ft)	Dump Clearance at max. height m (ft)	Maximum Speeds km/h (mph)		Remarks
											Fwd.	Rev.	
910	80V	73-79	65	6100 (13,400)	1.0 (1.25)	4530 (10,000)	2.07 (6'10")	405 (16")	860 (2'10")	2.46 (8'1")	24.1 (15.0)	10.6 (6.6)	
910	40Y	79-89	65	6658 (14,679)	1.0 (1.25)	5838 (12,870)	2.07 (6'10")	405 (16")	930 (3'0.6")	2.40 (7'10")	23.9 (14.8)	10.6 (6.6)	
910	41Y	79-89	65	6658 (14,679)	1.0 (1.25)	5838 (12,870)	2.07 (6'10")	405 (16")	930 (3'0.6")	2.40 (7'10")	23.5 (14.6)	24.9 (15.5)	
910E	1SF	89-92	78	7298 (16,062)	1.3 (1.7)	6503 (14,339)	2.15 (7'0")	343 (13.5")	1000 (3'3.4")	2.57 (8'5")	34.0 (21.1)	22.4 (13.9)	3114 Engine Z Bar Linkage
910F	1SF	92-95	80	7009 (15,452)	1.3 (1.7)	6443 (14,207)	2.15 (7'0")	370 (14.6")	981 (3'3")	2.60 (8'6")	34.0 (21.1)	22.4 (13.9)	3114 Engine Z Bar Linkage
916	2XB	86-92	85	8554 (18,857)	1.4 (1.75)	9124 (20,115)	2.33 (7'8")	322 (12.7")	926 (3'0.5")	2.65 (8'9")	24.8 (15.4)	25.0 (15.5)	3204 Engine Z Bar Linkage
918F	3TJ	92-94	98	8973 (19,785)	1.5 (2.0)	9795 (21,598)	2.33 (9'1.6")	318 (13")	802 (2'8")	2.78 (9'1")	37.0 (23.0)	24.5 (15.2)	3114 Engine Z Bar Linkage
920	62K	69-84	80	8440 (18,600)	1.2 (1.5)	7901 (17,419)	2.16 (7'1")	335 (13")	740 (2'5")	2.77 (9'1")	43.8 (27.2)	23.2 (14.4)	
922A	59A	60-62	80	7350 (16,200)	0.93 (1.25)	6850 (15,100)	2.12 (7'0")	368 (15")	655 (2'2")	2.60 (8'7")	30.4 (18.9)	32.8 (20.4)	
922B	88J	62-68	80	7670 (16,900)	1.15 (1.50)	9000 (19,900)	2.25 (7'5")	390 (16")	680 (2'3")	2.60 (8'7")	33.6 (20.9)	42.9 (26.7)	
924F	5NN	94-99	105	9025 (19,900)	1.7 (2.25)	9553 (21,067)	2.33 (7'6")	318 (12.5")	855 (2'8")	2.70 (8'10")	38.2 (23.6)	23.6 (14.8)	
926	94Z	84-87	105	8800 (19,400)	1.21 (1.75)	5070 (11,179)	2.33 (7'8")	341 (13.5")	924 (3'0")	2.67 (8'9")	30.3 (18.8)	32.3 (20.0)	
926E	94Z	87-92	110	9432 (20,794)	1.7 (2.25)	10 044 (22,143)	2.33 (7'8")	341 (13.5")	1003 (3'3.5")	2.75 (9'0")	34.2 (21.2)	36.8 (22.9)	3204 Engine Z Bar Linkage
928F	2XL	93-96	120	10 870 (23,920)	2.1 (2.75)	10 090 (22,200)	2.43 (8'0")	318 (13")	956 (3'2")	2.74 (9'0")	36.5 (22.6)	21.1 (13.1)	3116 Engine Z Bar Linkage
930	41K	68-85	100	9660 (21,300)	1.7 (2.25)	7900 (17,410)	2.39 (7'10")	348 (13.7")	1350 (3'9")	2.79 (9'2")	44.2 (27.5)	23.3 (14.5)	3304 Engine Z Bar Linkage
936	33Z	83-87	125	11 884 (26,200)	2.1 (2.75)	12 514 (28,708)	2.56 (8'4.5")	329 (13")	1055 (3'0")	2.80 (9'2")	34.4 (21.4)	38.4 (23.9)	
936E	33Z	87-92	135	12 300 (27,000)	2.3 (3.00)	12 920 (28,483)	2.56 (8'5")	379 (14.9")	1026 (2'11")	2.87 (9'2")	40.6 (25.2)	45.3 (28.2)	
936F	8AJ	92-94	140	12 300 (27,060)	2.3 (3.00)	12 920 (28,483)	2.58 (8'5")	379 (14.9")	997 (3'3")	2.84 (9'4")	42.3 (26.3)	46.7 (29.6)	3304 Engine Box Frame

Wheel Loaders (cont'd)

Model	Product Ident. No. Prefix	Years Built	Flywheel Horse-power	Approx. Shipping Wt. kg (lb)	Rated Capacity m ³ (yd ³)	Breakout Force kg (lb)	Width Over Tires m (ft)	Ground Clearance mm (in)	Max. Reach at max. height mm (ft)	Dump Clearance at max. height m (ft)	Maximum Speeds km/h (mph)		Remarks
											Fwd.	Rev.	
938F		94-97	140	13 030 (28,730)	2.5 (3.25)	12 330 (27,180)	2.61 (8'7")	400 (16")	1004 (3'4")	2.85 (9'4")	37.9 (23.6)	22.0 (13.7)	3116 Engine Wet Disc Brakes Z Bar Linkage
938G	4YS	97-02	160	12 962 (28,578)	2.8 (3.65)	11 227 (24,770)	2.60 (8'6")	400 (16")	1055 (3'6")	2.72 (8'11")	39.4 (24.5)	23.4 (14.5)	
944	87J	59-68	100	10 100 (22,000)	1.53 (2.0)	9800 (21,700)	2.40 (7'10")	450 (18")	905 (3'0")	2.96 (9'9")	38.5 (23.9)	46.6 (28.9)	
950	81J	68-81	130	12 930 (28,500)	1.53 (2.07)	10 320 (22,760)	2.41 (7'11")	381 (15")	740 (2'5")	2.82 (9'3")	35.9 (22.3)	42.5 (26.4)	Articulated Steering, 4 Wheel Drive
950B	22Z	81-87	155	14 650 (32,300)	2.9 (3.75)	15 680 (35,895)	2.67 (5'9")	427 (16.8")	1125 (3'8")	2.95 (9'8")	36.4 (22.6)	39.4 (24.5)	Z Bar Linkage
950E	22Z	87-91	160	15 856 (34,883)	3.1 (4.0)	13 586 (29,925)	2.76 (9'0")	400 (15.7")	1160 (3'10")	2.85 (9'4")	36.2 (22.4)	39.9 (24.7)	23.5-25 Std. Tires
950F	7ZF	90-92	170	16 086 (35,463)	3.1 (4.0)	14 954 (32,974)	2.76 (9'0")	474 (18.7")	1160 (3'10")	2.85 (9'4")	39.3 (24.4)	43.0 (26.7)	3116 Engine Wet Disc Brakes
950F Series II	5SK	93-98	170	16 880 (37,220)	3.1 (4.0)	14 960 (32,980)	2.76 (9'0")	460 (18.1")	1180 (3'10")	2.83 (9'3")	38.7 (24.0)	42.7 (26.5)	Integral ROPS Electronic Shift
950G	3JW 4BS	98-02	183	16 904 (37,266)	3.5 (4.5)	14 888 (32,810)	2.89 (9'6")	400 (16")	1270 (4'2")	2.89 (9'6")	37.0 (23.0)	40.7 (25.3)	
960F	9ZJ	94-98	200	18 070 (39,840)	3.5 (4.5)	14 500 (31,970)	2.77 (9'1")	454 (17.9")	1030 (3'5")	2.92 (9'6")	39.4 (24.5)	43.2 (26.8)	Material Handler
962G	4PW 5AS	98-02	200	17 941 (39,553)	3.8 (5.0)	14 480 (31,950)	2.90 (9'8")	400 (16")	1250 (4'2")	2.77 (9'2")	37.0 (23.0)	40.7 (25.3)	
966A	33A	60-63	140	13 060 (28,800)	2.10 (2.75)	13 470 (29,700)	2.70 (8'10")	450 (18")	900 (3'0")	2.95 (9'8")	43.0 (26.7)	51.5 (32.3)	
966B	75A	63-68	150	14 300 (31,500)	2.29 (3.0)	14 000 (31,000)	2.70 (8'10")	400 (16")	900 (3'0")	2.95 (9'8")	38.5 (23.9)	46.3 (28.8)	
966C	76J	68-81	170	16 730 (36,890)	3.1 (4.0)	11 600 (25,578)	2.77 (9'1")	400 (15.7")	1420 (4'8")	2.95 (9'8")	38.0 (23.6)	45.1 (28.0)	3306 Engine
966D	99Y	80-87	200	19 730 (43,500)	3.3 (4.25)	20 972 (48,150)	2.86 (9'4.8")	451 (17.8")	1230 (4'0")	3.14 (10'3.5")	34.3 (21.3)	38.1 (23.7)	3306 Engine Z Bar Linkage
966E	99Y	87-90	216	20 324 (44,767)	3.8 (5.0)	18 939 (41,715)	2.94 (9'8")	476 (18.7")	1290 (4'3")	2.97 (9'9")	38.2 (23.7)	43.6 (27.0)	26.5-25 Std. Tires
966F	4YG	90-93	220	20 466 (45,119)	3.8 (5.0)	20 493 (45,187)	2.94 (9'8")	476 (18.7")	1280 (4'2")	2.98 (9'9")	37.6 (23.4)	42.6 (26.4)	Wet Disc Brakes
966F Series II	1SL	93-98	220	21 290 (46,950)	3.8 (5.0)	20 490 (45,180)	2.94 (9'8")	476 (18.7")	1277 (4'2")	2.98 (9'9")	38.8 (24.1)	43.9 (27.3)	Integral ROPS Electronic Shift
966G	3SW 3ZS	98-02	235	22 068 (48,651)	4.0 (5.25)	19 986 (44,120)	2.97 (9'9")	565 (22")	1295 (4'3")	3.1 (10'2")	37.1 (23.1)	42.2 (26.2)	
970F	7SK	93-98	250	23 690 (52,240)	4.7 (6.0)	16 510 (36,400)	2.94 (9'8")	482 (19")	1357 (4'5")	3.22 (10'6")	37.3 (23.2)	42.7 (26.5)	Material Handler New Model

Wheel Loaders (cont'd)

Model	Product Ident. No. Prefix	Years Built	Flywheel Horsepower	Approx. Shipping Wt. kg (lb)	Rated Capacity m ³ (yd ³)	Breakout Force kg (lb)	Width Over Tires m (ft)	Ground Clearance mm (in)	Max. Reach at max. height mm (ft)	Dump Clearance at max. height m (ft)	Maximum Speeds km/h (mph)		Remarks
											Fwd.	Rev.	
972G	4WW 7LS	98-02	265	24 468 (53,942)	4.7 (6.0)	21 618 (47,580)	2.97 (9'9")	565 (22")	1255 (4'1")	3.15 (10'4")	37.0 (22.9)	41.9 (26.0)	
980	42H	66-70	235	20 000 (44,000)	3.06 (4.0)	18 860 (41,570)	2.87 (9'5")	399 (16")	1190 (3'11")	3.07 (10'1")	42.0 (26.1)	26.7 (16.6)	
980B	89P	70-78	260	23 360 (51,500)	3.44-4.21 (4.5-5.5)	15 900 (35,100)	3.11 (10'2")	— (—)	1120 (3'8")	3.20 (10'6")	43.0 (26.7)	27.4 (17.0)	
980C	63X	79-91	270	27 559 (60,755)	5.2 (6.75)	23 188 (51,121)	3.15 (10'4")	417 (16.4")	1480 (4'10")	3.19 (10'6")	34.6 (21.5)	39.6 (24.5)	Dual Z Bar Linkage
980F	8CJ	91-92	275	27 580 (60,800)	5.3 (7.0)	23 188 (51,121)	3.15 (10'4")	469 (18.5")	1500 (4'11")	3.16 (10'5")	37.4 (23.2)	42.8 (26.6)	Electronic Shift
980F Series II	92-95												
980G	2KR	95-01	300	29 480 (65,000)	5.4 (7.0)	23 760 (52,390)	3.25 (10'8")	467 (18.4")	1540 (5'1")	3.27 (10'8")	37.4 (23.2)	42.8 (26.6)	
988	87A	63-76	325	35 800 (79,000)	4.6-5.4 (6.0-7.0)	21 380 (47,130)	3.20 (10'7")	570 (22.5")	1450 (4'9")	3.33 (10'11")	30.6 (19.0)	30.6 (19.0)	
988B	50W	76-93	375	43 365 (95,600)	5.4-6.3 (7.0-8.25)	36 330 (80,100)	3.52 (11'7")	474 (18")	2150 (7'1")	3.19 (10'5")	36.2 (22.5)	41.4 (25.7)	3408 Engine Z Bar Linkage
988F	8YG	93-95	400	43 540 (95,900)	5.4-6.1 (7.0-8.0)	37 363 (82,371)	3.52 (11'7")	496 (19")	1830 (6'0")	3.21 (10'6")	35.1 (21.8)	23.5 (14.6)	Bucket/HP increase STIC Steer
988F Series II	2ZR	95-00	475	45 678 (100,492)	6.1-6.9 (8.0-9.0)	37 400 (82,282)	3.52 (11'7")	496 (1'7")	1611 (5'3")	3.22 (10'7")	35.1 (21.8)	23.5 (14.6)	3048E HEUI Engine Axle Shaft Brakes
988G	2TW	01	475	50 040 (110,320)	6.3-7.0 (8.2-9.2)	46 950 (103,500)	3.47 (11'5")	549 (21.6")	2.1 (6'11")	4.0 (13'1")	38.7 (24.0)	22.3 (13.8)	6 Bar Linkage "G" Series
990	7HK	93-95	610	72 910 (160,600)	8.6 (11.2)	59 776 (131,784)	4.13 (13'6")	552 (21.7")	2070 (6'10")	3.99 (13'1")	22.5 (14.0)	25.0 (15.5)	ICTC & New Model
990 Series II	4FR	96-01	625	72 200 (159,170)	8.4-9.2 (11-12)	63 100 (138,800)	4.0 (13'1")	490 (19.3")	1.99 (6'6")	4.05 (13'3")	22.5 (14.0)	25.0 (15.5)	HEUI Engine
992	25K	68-73	550	47 670 (105,100)	7.65 (10.0)	36 900 (81,360)	3.93 (12'11")	530 (21")	2820 (8'3")	4.52 (14'10")	35.6 (22.1)	38.5 (23.8)	
992B	25K	73-77	550	64 320 (141,800)	7.65 (10.0)	29 330 (64,660)	— (—)	— (—)	1930 (6'4")	4.34 (14'3")	40.2 (25.0)	43.6 (27.1)	
992C	97X	77-81	690	85 640 (188,800)	9.6 (12.5)	66 240 (146,030)	4.55 (14'11")	533 (21")	2310 (7'7")	4.17 (13'8")	21.1 (13.1)	23.3 (14.5)	3412 PCT Engine Z Bar Linkage
992C	49Z	81-92	690	88 430 (194,950)	10.4 (13.5)	66 285 (146,132)	4.50 (14'9")	544 (21")	2310 (7'7")	4.17 (13'8")	21.0 (13.0)	22.9 (14.2)	3412 DIT Engine
992D	7MJ	92-97	710	88 690 (195,125)	10.7 (14.0)	62 670 (137,870)	4.50 (14'9")	544 (21")	2300 (7'7")	4.17 (13'8")	21.0 (13.0)	22.9 (14.2)	
992G	7HR	98-00	800	91 540 (201,810)	11.5-12.3 (15-16)	62 650 (137,840)	4.5 (14'9")	691 (27.2")	2.3 (7'7")	4.6 (15'3")	20.2 (12.5)	22.7 (14.1)	6 Bar Linkage "G" Series
994	9YF	90-98	1250	177 000 (390,300)	10.3 (13.4)	103 420 (228,000)	5.20 (17'1")	662 (26")	2692 (8'10")	6.20 (20'4")	24.7 (15.0)	26.6 (16.5)	



TRACK LOADERS

Model	Product Ident. No. Prefix	Years Built	Flywheel Horsepower	Approx. Operating Weight kg (lb)	Rated Capacity m ³ (yd ³)	Dimensions			Remarks
						Length** m (ft)	Width m (ft)	Height m (ft)	
931	78U	72-79	62	6940 (15,300)	0.77 (1.0)	2.74 (9'0")	1.78 (5'10")	1.96 (6'5")	
931 LGP	10N	75-79	62	7498 (16,530)	1.15 (1.5)	2.74 (9'0")	2.29 (7'6")	1.98 (6'6")	
931B	29Y	79-88	65	7362 (16,230)	0.8 (1.0)	4.13 (13'9")	1.84 (6'0.5")	2.68 (8'10")	
931B LGP	30Y	79-88	65	8089 (17,834)	0.8 (1.0)	3.84 (12'7")	2.41 (7'11")	2.68 (8'10")	
931C	2BJ1 7HF		67	7595 (16,743)	0.77 (1.0)	2.74 (9'0")	1.78 (5'10")	2.68 (8'10")	
931C LGP	6RF1 8AF		67	8170 (18,012)	0.77 (1.0)	2.74 (9'0")	1.78 (5'10")	2.68 (8'10")	
931C Series II	9AG 6AJ	90-93	70	8047 (17,742)	0.83 (1.08)	4.14 (13'1")	1.97 (6'5")	2.68 (8'10")	
933C	11A	55-58	50	7030 (15,500)	0.77 (1.0)	4.22 (13'10")	1.77 (5'10")	1.91 (6'4")	Integral loader
933E	11A	58-65	50	7640 (16,850)	0.77 (1.0)	4.22 (13'10")	1.77 (5'10")	1.40 (6'3")	Integral loader
933G	42A	65-68	60	7900 (17,500)	0.86 (1.125)	4.31 (14'2")	1.77 (5'10")	2.15 (7'1")	Patented Sealed Track
935B	30F	87-88	75	7899 (17,414)	1.0 (1.25)	4.19 (13'9")	1.96 (6'5")	2.68 (8'10")	
935C	8CF		78	8205 (18,089)	1.0 (1.3)	4.19 (13'9")	1.96 (6'5")	2.68 (8'10")	
935C Series II	SDJ	90-93	80	8759 (19,311)	1.0 (1.3)	4.37 (14'4")	1.97 (6'5")	2.68 (8'10")	
941	80H	68-72	70	8900 (19,700)	0.96 (1.25)	4.50 (14'10")	1.86 (6'1")	2.75 (9'0")*	Electric Start
941B	80H	68-81	80	11 294 (24,900)	1.15 (1.5)	4.50 (14'10")	1.98 (6'6")	2.75 (9'0")*	HP Increase, Hydraulic Track Adjusters
943	31Y	80-85	80	11 750 (25,900)	1.15 (1.5)	5.426 (17'10")	2.21 (8'7")	3.02 (9'11")	Hydrostatic drive
943	19Z	80-92	80	11 750 (25,900)	1.15 (1.5)	5.426 (17'10")	2.21 (8'7")	3.02 (9'11")	Hydrostatic drive made in France
951B	79H	67-71	85	10 025 (22,100)	1.14 (1.5)	4.70 (15'6")	1.98 (6'6")	2.75 (9'0")*	Pedal Steering
951C	86J	71-81	95	12 338 (27,200)	1.34 (1.75)	4.77 (15'8")	1.98 (6'6")	2.75 (9'0")*	HP Increase, Sealed & Lubricated Track
953	5Z	81-85	110	14 050 (31,000)	1.5 (2.0)	5.87 (19'3")	2.38 (7'10")	3.08 (10'1")	Hydrostatic drive
953	20Z	81-92	110	14 050 (31,000)	1.5 (2.0)	5.87 (19'3")	2.38 (7'10")	3.08 (10'1")	Hydrostatic drive

*Height to top of stack. Others to top of seat back.

**Overall length to tip of smallest General Purpose bucket.

Track Loaders (cont'd)

Model	Product Ident. No. Prefix	Years Built	Flywheel Horsepower	Approx. Operating Weight kg (lb)	Rated Capacity m ³ (yd ³)	Dimensions			Remarks
						Length** m (ft)	Width m (ft)	Height m (ft)	
953	76Y	81-85	110	13 800 (30,500)	1.5 (2.0)	5.87 (19'3")	2.38 (7'10")	3.08 (10'1")	Hydrostatic drive
953	77Y	81-85	110	13 800 (30,500)	1.5 (2.0)	5.87 (19'3")	2.38 (7'10")	3.08 (10'1")	Hydrostatic drive
953B	5MK	92-96	120	14 400 (31,800)	1.75 (2.25)	4.23 (13'4")	2.38 (7'10")	3.08 (10'1")	Hydrostatic drive
HT4	7U	50-55	54	2607 (5748)	0.96 (1.25)	4.32 (14'2")	2.03 (6'8")	1.83 (6'0")	Integral loader
955C	12A	55-60	70	9590 (21,145)	1.15 (1.5)	4.60 (15'2")	2.03 (6'8")	2.08 (6'11")	Improved undercarriage
955E	12A	58-60	70	10 160 (22,400)	1.15 (1.5)	4.60 (15'2")	2.03 (6'8")	2.09 (6'11")	Power shift, Turbo, oil cooled brakes
955H	60A	60-66	100	11 320 (24,950)	1.34 (1.75)	4.79 (15'9")	1.90 (6'3")	2.65 (8'8")*	Horsepower and bucket capacity increase
955K	61H	66-71	115	12 700 (28,000)	1.34 (1.75)	5.00 (16'6")	2.06 (6'9")	2.80 (9'3")*	ROPS Cab, Sealed & Lubricated Track
955L	85J	71-75	130	15 330 (33,800)	1.53 (2.0)	5.30 (16'1")	2.18 (7'2")	2.95 (9'8")*	
955L	13X	75-81	130	15 853 (34,950)	1.72 (2.25)	5.26 (17'3")	2.18 (7'2")	2.95 (9'8")	
963	6Z	81-85	150	18 250 (40,250)	2.0 (2.6)	6.35 (20'10")	2.50 (8'2")	3.30 (10'10")	Hydrostatic drive
963	11Z	81-85	150	18 370 (40,490)	2.0 (2.6)	6.35 (20'10")	2.50 (8'2")	3.30 (10'10")	Hydrostatic drive
963	18Z	82-86	150	18 250 (40,250)	2.0 (2.6)	6.35 (20'10")	2.50 (8'2")	3.30 (10'10")	Hydrostatic drive made in France
963	21Z	82-95	150	18 370 (40,490)	2.0 (2.6)	6.35 (20'10")	2.50 (8'2")	3.30 (10'10")	Hydrostatic drive made in France
963B	9BL	95-99	160	19 620 (43,270)	2.45 (3.2)	6.60 (21'8")	2.50 (8'2")	3.31 (10'10")	3116 engine
973	86G	81-00	210	25 040 (55,200)	3.2 (4.2)	7.12 (23'4")	2.85 (9'4")	3.42 (11'3")	
No. 6	10A	53-55	80	13 229 (29,165)	1.5 (2.0)	4.90 (16'1")	2.44 (8'1")	2.11 (6'11")	Improved undercarriage
977D	20A	55-60	100	14 430 (31,795)	1.72 (2.25)	5.19 (18'0")	2.44 (8'0")	2.22 (7'4")	Power shift, Turbo, oil cooled brakes
977E	20A	58-60	100	15 850 (34,910)	1.72 (2.25)	5.19 (18'0")	2.44 (8'0")	2.29 (7'7")	Walk-through compartment, longer roller frame
977H	53A	60-66	150	17 000 (37,500)	1.90 (2.5)	5.28 (17'4")	2.44 (8'0")	2.29 (7'7")	Horsepower and bucket capacity increase
977K	46H	66-78	170	19 100 (42,000)	1.90 (2.5)	5.50 (18'0")	2.38 (7'10")	3.05 (10'0")*	
977L	14X	78-82	190	21 780 (48,010)	2.10 (2.75)	5.59 (18'4")	2.38 (7'10")	3.32 (10'11")*	
983	38K	69-78	275	34 460 (75,980)	3.82 (5.0)	6.78 (22'3")	2.90 (9'6")	2.79 (11'10")*	
983B	58X	78-82	275	35 620 (78,530)	3.82 (5.0)	6.78 (22'3")	2.90 (9'6")	3.68 (12'1")*	DI engine

*Height to top of stack. Others to top of seat back.

**Overall length to tip of smallest General Purpose bucket.



INTEGRATED TOOLCARRIERS

Model	Product Ident. No. Prefix	Years Built	Flywheel Horsepower	Approx. Operating Weight kg (lb)	Rated Capacity m ³ (yd ³)	Breakout Force kg (lb)	Width Over Tires m (ft)	Ground Clearance mm (in)	Max. Reach at Max. Height mm (in)	Dump Clearance at Max. Height m (ft)	Maximum Speeds km/h (mph) Fwd. Rev.
IT12	2YC	84-89	65	7393 (16,299)	1.0 (1.25)	7193 (15,858)	2.3 (7'8")	405 (15.9")	873 (34")	2.84 (9'4")	23.6 (14.6) 24.9 (15.4)
IT12B	1KF	89-93	78	7950 (17,530)	1.2 (1.6)	6160 (13,583)	2.15 (7'1")	343 (13.5")	958 (37.7")	2.69 (8'10")	34 (21.1) 22.4 (13.9)
IT12F	1KF	93-95	80	7893 (17,401)	1.3 (1.7)	6479 (14,247)	2.15 (7'1")	365 (1'2")	917 (3'1")	2.74 (8'11.8")	34 (21.1) 22.4 (13.9)
IT14B	3NJ	89-93	85	8333 (18,374)	1.2 (1.6)	7525 (16,593)	2.15 (7'1")	344 (13.6")	958 (37.7")	2.70 (8'11")	37.3 (23.2) 24.4 (15.2)
IT14F	4EL	93-95	85	7999 (17,635)	1.3 (1.7)	7170 (15,808)	2.15 (7'1")	365 (1'2")	918 (3'1")	2.74 (9'0")	37.3 (23.2) 24.4 (15.2)
IT18	9NB	84-86	85	8660 (19,092)	1.2 (1.5)	9105 (20,108)	2.4 (7'10")	285 (11.2")	990 (39")	2.84 (9'4")	25 (15.5) 25 (15.5)
IT18B	4ZD	86-92	95	9770 (21,540)	1.3 (1.75)	10 500 (21,350)	2.28 (7'6")	324 (12.8")	993 (39")	2.89 (9'6")	26.4 (16.4) 27.7 (17.2)
IT18F	6ZF	92-94	105	9959 (21,960)	1.6 (2.0)	8880 (19,580)	2.33 (7'8")	321 (1'1")	1089 (3'7")	2.75 (9'0")	37 (23) 24.5 (15.2)
IT24F	4NN	94-99	105	9989 (20,022)	1.7 (2.5)	8782 (19,361)	2.33 (7'6")	321 (12.6")	1088 (3'6")	2.75 (9'0")	38.0 (23.6) 23.4 (14.8)
IT28	2KC	84-86	105	9560 (21,076)	1.5 (2.0)	9505 (20,955)	2.4 (7'10")	285 (11.2")	1044 (41")	2.82 (9'3")	30.8 (18.8) 32.3 (20.0)
IT28B	1HF	86-93	110	10 580 (23,325)	1.7 (2.25)	10 456 (23,050)	2.32 (7'7")	324 (12.8")	1091 (43")	2.73 (8'11")	34.4 (21.4) 37.2 (23.1)
IT28F	3CL	93-96	125	11 430 (25,200)	2.0 (2.6)	9840 (21,700)	2.43 (8'0")	317 (12")	1093 (43")	2.72 (8'11")	35.4 (21.9) 21.4 (13.5)
950F CT	5SK	94-98	170	16 600 (36,580)	3.1 (4.0)	13 590 (29,950)	2.87 (9'5")	460 (18")	1714 (68")	2.845 (9'4")	38.7 (24.0) 42.7 (26.5)



TELEHANDLERS

Model	Product Ident. No. Prefix	Years Built	Flywheel Horsepower kW (hp)	Operating Weight kg (lb)	Engine	Maximum Lift Height m (ft/in)	Maximum Reach m (ft/in)	Maximum Lift Capacity kg (lb)
TH62	4TM	00-02	72 (105)	6840 (15,080)	3054T	7.6 (25'0")	4.2 (13'9")	2725 (6000)
TH63	5WM	00-02	72 (105)	9260 (20,420)	3054T	12.5 (41'0")	8.1 (26'7")	3000 (6615)
TH82	3JN	00-02	72 (105)	7470 (16,470)	3054T	7.6 (25'0")	4.2 (13'9")	3635 (8000)
TH83	3RN	00-02	72 (105)	10 000 (22,050)	3054T	12.5 (41'0")	8.2 (27'0")	3635 (8000)
TH103	3PN	00-02	72 (105)	12 500 (27,500)	3054T	13.5 (44'0")	8.8 (28'9")	4536 (10,000)



PAVING PRODUCTS — COLD PLANERS

Model	Product Ident. No. Prefix	Years Built	kW Flywheel (Horsepower)	Approximate Operating Weight kg (lb)	General Dimensions (Shipping)		
					Height mm (ft)	Length mm (ft)	Width mm (ft)
PR-75		85-92	52 (77)	5900 (13,000)	2690 (8'10")	3050 (10'0")	2130 (7'0")
PR-105		85-92	67 (90)	7711 (17,000)	2921 (9'7")	3581 (11'9")	2515 (8'3")
PR-275	6RC	—	201 (270)	17 237 (38,000)	2896 (9'6")	5740 (18'10")	2438 (8'0")
PR-450		85-92	336 (450)	28 308 (58,000)	4270 (14'0")	13 280 (43'8")	2870 (9'5")
PR-450C		92-97	336 (450)	28 308 (58,000)	3810 (12'6")	13 200 (43'6")	2490 (8'2")
PR-750B		85-92	559 (750)	42 638 (94,000)	3734 (12'3")	16 500 (54'0")	3575 (11'9")
PR-1000			Cutter 559 (750) Track 186 (250)	46 780 (103,130)	3810 (12'6")	16 590 (54'5")	4877 (16'0")
PM-465	5ZS	97-03	353 (473)	14 333 (31,600)	2820 (9'3")	13 716 (45'0")	2489 (8'2")



PAVING PRODUCTS — RECLAIMERS & STABILIZERS

Model	Product Ident. No. Prefix	Years Built	kW Flywheel (Horsepower)	Approximate Operating Weight kg (lb)	General Dimensions (Shipping)		
					Height mm (ft)	Length mm (ft)	Width mm (ft)
SS-250	6DD	85-96	250 (335)	13 300 (29,300)	3220 (10'7")	8780 (28'10")	2900 (9'7")
SS-250B	5GR	96-01	250 (335)	14 340 (31,600)	2600 (8'6")	8560 (28'1")	2900 (9'6")
RR-250	6ED	85-96	250 (335)	17 876 (39,300)	3220 (10'7")	8780 (28'10")	2900 (9'7")
RR-250B	3RR	96-01	250 (335)	19 260 (42,470)	2600 (8'6")	8560 (28'1")	2900 (9'6")
RM-350	5FK	92-97	321 (430)	21 440 (47,200)	3404 (11'2")	9577 (31'5")	2997 (9'10")
SM-350	1RM	92-97	321 (430)	18 440 (40,600)	3404 (11'2")	9577 (31'5")	2997 (9'10")



PAVING PRODUCTS — UNITIZED VENTURI-MIXERS & UNITIZED DRUM-MIXERS

Drum Dimensions			Performance		
Model	Diameter mm (ft)	Length m (ft)	Gross Volume m ³ (ft ³)	Production Range/hr. metric tons (tons)	Air Flow m ³ /min (ft ³ /min)
UVM-500	1829/1524 (6'0"/5'0")	7.9 (26'0")	14.17 (500)	68-109 (75-120)	300-481 (10,600-17,000)
UDM-600	1829 (6'0")	6.7 (22'0")	17.00 (600)	82 (89)	354.25 (12,500)
UDM-900	2134/1829 (7'0"/6'0")	9.1 (30'0")	25.48 (900)	68-227 (75-250)	311-793 (11,000-28,000)
UVM-1000	2134 (7'0")	9.754 (32'0")	28.34 (1000)	82-272 (90-300)	425-1076 (15,000-38,000)
UVM-1400	2286 (7'6")	10.973 (36'0")	39.64 (1400)	100-358 (110-395)	481-1274 (17,000-45,000)
UVM-1700	2591 (8'6")	11.582 (38'0")	48.14 (1700)	122-480 (135-450)	651-1614 (23,000-57,000)

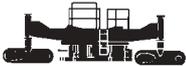


PAVING PRODUCTS — PORTABLE VENTURI-MIXERS

Drum Dimensions			Performance		
Model	Diameter mm (ft)	Length m (ft)	Gross Volume m ³ (ft ³)	Production Range/hr. metric tons (tons)	Air Flow m ³ /min (ft ³ /min)
PVM-1100	2134 (7'0")	10.97 (36'0")	31.15 (1100)	82-295 (90-325)	425-1133 (15,000-40,000)
PVM-1500	2286 (7'6")	12.19 (40'0")	42.48 (1500)	100-363 (110-400)	510-1274 (18,000-45,000)
PVM-2000	2591 (8'6")	12.80 (42'0")	56.64 (2000)	122-454 (135-500)	680-1699 (24,000-60,000)
PVM-2500	2896 (9'6")	12.80 (42'0")	70.79 (2500)	136-499 (150-550)	793-2110 (28,000-74,500)
PVM-2900	3048 (10'0")	13.41 (44'0")	82.12 (2900)	168-553 (185-610)	906-2265 (32,000-80,000)
PVM-3300	3200 (10'6")	13.41 (44'0")	93.45 (3300)	181-612 (200-675)	991-2464 (35,000-87,000)


PAVING PRODUCTS — STATIONARY VENTURI-MIXERS

Drum Dimensions			Performance		
Model	Diameter mm (ft)	Length m (ft)	Gross Volume m ³ (ft ³)	Production Range/hr. metric tons (tons)	Air Flow m ³ /min (ft ³ /min)
SVM-1100	2134 (7'0")	10.97 (36'0")	31.15 (1100)	82-295 (90-325)	425-1133 (15,000-40,000)
SVM-1500	2286 (7'6")	12.19 (40'0")	42.48 (1500)	100-363 (110-400)	510-1274 (18,000-45,000)
SVM-2000	2591 (8'6")	12.80 (42'0")	56.64 (2000)	122-454 (135-500)	680-1699 (24,000-60,000)
SVM-2500	2896 (9'6")	12.80 (42'0")	70.79 (2500)	136-499 (150-550)	793-2110 (28,000-74,500)
SVM-2900	3048 (10'0")	13.41 (44'0")	82.12 (2900)	168-553 (185-610)	906-2265 (32,000-80,000)
SVM-3600	3200 (10'6")	14.63 (48'0")	101.94 (3600)	190-623 (210-685)	1020-2565 (36,000-90,000)


PAVING PRODUCTS — SLIPFORM PAVERS

Model	Product Ident. No. Prefix	Years Built	Flywheel Horsepower	Approx. Operating Weight kg (lb)	Standard Paving Width m (ft)	Shipping Dimensions (Min.)			Remarks
						Length m (ft)	Width m (ft)	Height m (ft)	
SF-175	5ZC	—	142	9072 (20,000)	2.1 (7'0")	6.6 (21'6")	2.4 (8'0")	2.8 (9'4")	
SF-250	6XC	—	208	24 494 (54,000)	3.6 (12'0")	3.0 (10'0")	3.7 (12'0")		
SF-250B	—	—	250	27 216 (60,000)	3.7-7.3 (12'0"-24'0")	1.5 (5'0")	3.66 (12'0")	3.20 (10'6")	
SF-350	—	—	290	40 824 (90,000)	3.6-7.3 (12'0"-24'0")	1.04 (3'5")	3.0 (10'0")	2.9 (9'8")	
SF-450	7GC	73-83	400	43 546* (96,000) 53 525** (118,000)	3.66-7.62 (12'0"-25'0")	9.35 (30'8")	3.05 (10'0")	2.90 (9'6")	
SF-500	8DC	—	400	52 164 (115,000)	7.6 (25'0")	8.9 (29'2½")	3.0 (10'0")	3.0*** (10'2")	
SF-550	5PD	—	400	52 164 (115,000)	5.5-8.5 (18'0"-28'0")	7.0 (23'0")	3.7 (12'0")	2.9 (9'8")	

*Weight of 7.62 m (25'0") machine.

**Weight of 11.58 m (38'0") machine.

***Machine legs and track shipped separately.

Former Models

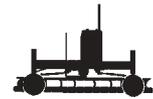
Paving Products

- Placer-Spreader-Trimmer ● Belt Placer
- Tube Finisher ● Texturing/Curing
- Trimmer-Reclaimer



PAVING PRODUCTS — PLACER-SPREADER-TRIMMER, BELT PLACER

Model	Product Ident. No. Prefix	Years Built	Flywheel Horsepower	Approximate Operating Weight kg (lb)	General Dimensions		
					Height m (ft)	Length m (ft)	Width m (ft)
PST-300	8EC	—	250	38 193 (84,200)	2.64 (8'8")	10.57 (34'8")	9.02 (29'7")
BP-100	1EF	—	102	11 340 (22,000)	3.27 (10'9")	2.49 (8'2")	2.49 (8'2")



PAVING PRODUCTS — TUBE FINISHER, TEXTURING/CURING

Model	Product Ident. No. Prefix	Years Built	Flywheel Horsepower	Approximate Operating Weight kg (lb)	General Dimensions (Shipping)		
					Height mm (ft)	Length mm (ft)	Width mm (ft)
TF-250	6YC	—	52	5897 (13,000)	2489 (8'2")	8484 (27'10")	2438 (8'0")
TC-250	7HC	—	56	5897 (13,000)	2489 (8'2")	8484 (27'10")	2438 (8'0")



PAVING PRODUCTS — TRIMMER-RECLAIMER

Model	Product Ident. No. Prefix	Years Built	Flywheel Horsepower	Approximate Operating Weight kg (lb)	General Dimensions (Shipping)		
					Height mm (ft)	Length m (ft)	Width mm (ft)
TR-225B	6WC	—	250	21 319 (47,000)	3200 (10'6")	13.9 (45'9.5")	2896 (9'6")
TR-500	8CC	—	375	46 267 (102,000)	3099 (10'2")	8.9 (29'2¾")	3048 (10'0")



PAVING PRODUCTS — ASPHALT PAVERS & WINDROW ELEVATORS

Model	Product Ident. No. Prefix	Years Built	Flywheel kW (hp)	Approx. Op. Weight kg (lb)	Drive	Screed Width mm (ft)	Hopper Capacity m ³ (ft ³)	Maximum Op. Speed m/min (ft/min)
AP-200	2NK	86-01	26 (35)	4080 (9000)	Track	2743 (9'0")	5.4 t (6 T)	53.6 (176)
AP-200	6AD	85-91	26 (35)	4080 (9000)	Track	2743 (9'0")	5.4 (6)	0-54 (0-177)
AP-800	1BF	86-89	76 (102)	11 903 (26,350)	Wheel	2438 (8'0")	5.8 (206)	95 (312)
AB-800B	1BF	89-93	76 (102)	11 903 (26,350)	Wheel	2438 (8'0")	5.8 (206)	95 (312)
AP-1050	1JG	89-96	116 (155)	14 878 (32,800)	Track	3048 (10'0")	6.2 (215)	57 (186)
AP-1200	2JD	85-89	108 (145)	13 608 (30,000)	Wheel	3048 (10'0")	6.2 (220)	21.4 (13.3)
WE601B	TEC	85-91	78 (102)	3856 (8500)	N/A	1524 (5'0")	N/A	N/A
BG-200A	N/A	89-91	35 (47)	6750 (14,900)	Wheel	1803 (5'11")	3.26 (116)	56 (180)
BG-210	N/A	90-91	79 (106)	10 192 (22,500)	Wheel	2438 (8'0")	4.76 (170)	84 (275)
BG-210B	N/A	91-01	80 (107)	11 793 (26,000)	Wheel	2438 (8'0")	4.8 (170)	0-21.7 (0-13.5)
BG-220	N/A	84-87	58 (78)	9752 (21,500)	Wheel	2438 (8'0")	3.7 (130)	88 (289)
BG-220B	4ZM	91-94	80 (108)	12 483 (27,525)	Wheel	2438 (8'0")	4.3 (155)	88 (289)
BG-225	N/A	84-87	58 (78)	11 339 (25,000)	Track	2438 (8'0")	3.7 (130)	58 (188)
BG-225B	N/A		118 (158)	16 400 (36,200)	Track	2438 (8'0")	4.3 (155)	57 (189)
BG-240	N/A	85-86	72 (96)	13 154 (29,000)	Wheel	3048 (10'0")	3.7 (130)	81 (265)
BG-240B	7RL	87-99	86 (115)	15 200 (33,500)	Wheel	3048 (10'0")	6.5 (230)	81 (265)

Former Models

Paving Products

- Asphalt Pavers
- Windrow Elevators

Paving Products — Asphalt Pavers & Windrow Elevators (cont'd)

Model	Product Ident. No. Prefix	Years Built	Flywheel kW (hp)	Approx. Op. Weight kg (lb)	Drive	Screed Width mm (ft)	Hopper Capacity m ³ (ft ³)	Maximum Op. Speed m/min (ft/min)
BG-245	N/A	85-87	72 (96)	14 514 (32,000)	Track	3048 (10'0")	5.8 (206)	58 (189)
BG-245B	3XL	87-96	116 (155)	16 080 (35,450)	Track	3048 (10'0")	5.8 (206)	55 (182)
BG-260	N/A	85-87	106 (142)	14 514 (32,000)	Wheel	3048 (10'0")	5.8 (206)	77 (253)
BG-260B	N/A		116 (155)	14 740 (32,500)	Wheel	3048 (10'0")	5.8 (206)	90 (296)
BG-265	N/A	85-87	106 (142)	16 782 (37,000)	Track	3048 (10'0")	5.8 (206)	50 (164)
BG-265B	7XK	87-98	145 (195)	18 380 (40,570)	Track	3048 (10'0")	5.8 (206)	50 (164)
BG-270B	N/A		145 (195)	15 510 (34,200)	Wheel	3048 (10'0")	6.5 (230)	90 (296)
BG-610	N/A	85	58 (78)	4394 (9700)	N/A	1524 (5'0")	N/A	N/A
BG-610A	N/A	86-90	58 (78)	4911 (10,840)	N/A	1524 (5'0")	N/A	N/A
BG-710	N/A		111 (149)	13 380 (29,500)	Wheel	3048 (10'0")	10.0 (80)	98 (320)
BG-730	N/A	87-02	114 (153)	14 061 (31,000)	Wheel	3048 (10'0")	10.0 (80)	0-24.1 (0-15.0)
BG-750	N/A	87-97	116 (155)	17 010 (37,500)	Wheel	4270 (14'0")	10.0 (80)	0-24.1 (0-15.0)
MTP-1260	N/A	86-90	58 (78)	4911 (10,840)	N/A	3048 (10'0")	7.7 (275)	58 (189)
MTP-1265	N/A	88-91	167 (224)	25 368 (56,000)	N/A	3048 (10'0")	11.2 (400)	50 (164)



PAVING PRODUCTS — SINGLE DRUM VIBRATORY COMPACTORS

Model	Product Ident. No. Prefix	Years Built	Flywheel kW (hp)	Approx. Op. Weight kg (lb)	Drive	Drum Width mm (in)	Centrifugal Force kg (lb)	Maximum Op. Speed km/h (mph)
CS-323	1TM	85-95	57 (77)	4173 (9200)	Wheel/ Drum	1219 (48")	5760 (12,700)	0-10.9 (0-6.8)
CP-323	6JD	85-95	57 (77)	4218 (9300)	Wheel/ Drum	1219 (48")	5760 (12,700)	0-10.9 (0-6.8)
CS-431	6MD	85-87	52 (70)	6110 (13,480)	Wheel	1680 (66")	7260 (16,000)	21 (13)
CS-431B	1XF	88-94	76.5 (102)	6312 (13,915)	Wheel	1680 (66")	11 235 (24,746)	12.8 (8.0)
CS-431C	9XL	94-01	78 (105)	6509 (14,349)	Wheel/ Drum	1680 (66")	13 609 (30,000)	12.8 (8.0)
CS-433	6ND	85-87	60 (80)	6720 (14,820)	Wheel/ Drum	1524 (60")	7260 (16,000)	10 (6)
CP-433	6NP	85-87	60 (80)	6750 (14,870)	Wheel/ Drum	1524 (60")	7260 (16,000)	10 (6)
CS-433B	4FK	88-94	76.5 (102)	6448 (14,215)	Wheel/ Drum	1680 (66")	11 235 (24,746)	12.8 (8.0)
CS-433C	3TM	94-01	78 (105)	6773 14,931	Wheel/ Drum	1680 (66")	13 609 (30,000)	12.8 (8.0)
CP-433B	1MG	88-94	76.5 (102)	6668 (15,225)	Wheel/ Drum	1680 (66")	11 235 (24,746)	12.8 (8.0)
CP-433C	2JM	94-01	78 (105)	7075 (15,597)	Wheel/ Drum	1680 (66")	13 609 (30,000)	12.8 (8.0)
CS-531	3WM	93-95	108 (145)	9310 (20,500)	Wheel	2134 (84")	22 680 (50,000)	12.8 (8.0)
CS-531C	5ZN	95-00	108 (145)	9300 (20,450)	Wheel	2134 (84")	24 091 (53,000)	12.8 (8.0)
CS-531D	3AZ 4MZ AGH	98-99 99-04 01-03	108 (145)	9650 (21,230)	Rear Wheel	2130 (84")	27 124 (60,000)	12.7 (7.8)
CS-533	3BL	93-95	108 (145)	10 110 (22,500)	Wheel/ Drum	2134 (84")	22 680 (50,000)	12.8 (8.0)
CS-533C	2WN	95-00	108 (145)	9500 (20,900)	Wheel/ Drum	2134 (84")	24 091 (53,000)	12.8 (8.0)
CS-533D	AET 5CZ	00-03 00-04	108 (145)	9960 (21,912)	Drum/ Rear Wheel	2130 (84")	27 124 (60,000)	12.7 (7.8)
CP-533	3ZL	93-95	108 (145)	11 470 (25,250)	Wheel/ Drum	2134 (84")	22 680 (50,000)	12.8 (8.0)
CP-533C	3XN	95-00	108 (145)	10 180 (22,400)	Wheel/ Drum	2134 (84")	24 091 (53,000)	12.8 (8.0)
CP-533D	6AZ AFC	01-04 00-03	108 (145)	10 240 (22,528)	Drum/ Rear Wheel	2130 (84")	27 124 (60,000)	13.2 (8.1)

Paving Products — Single Drum Vibratory Compactors (cont'd)

Model	Product Ident. No. Prefix	Years Built	Flywheel kW (hp)	Approx. Op. Weight kg (lb)	Drive	Drum Width mm (in)	Centrifugal Force kg (lb)	Maximum Op. Speed km/h (mph)
CS-551	6ZD 8AD	85-89	115 (155)	10 428 (22,990)	Wheel	2130 (84")	18 150 (40,000)	12.1 (7.5)
CS-553	7AD	85-89	115 (155)	10 782 (23,770)	Wheel/ Drum	2130 (84")	18 150 (40,000)	10.5 (6.5)
CP-553	7BD	85-89	115 (155)	12 247 (27,000)	Wheel/ Drum	2130 (84")	22 680 (50,000)	10.5 (6.5)
CS-563	8XF	89-95	108 (145)	11 130 (24,500)	Wheel/ Drum	2134 (84")	22 680 (50,000)	12.8 (8.0)
CS-563C	4KN	95-00	108 (145)	11 215 (24,700)	Wheel/ Drum	2134 (84")	24 091 (53,000)	12.8 (8.0)
CS-563D	9MW	98-02	108 (145)	10 875 (23,975)	Wheel/ Drum	2130 (84")	27 216 (60,000)	12.7 (7.8)
CP-563	1YJ	89-95	108 (145)	11 580 (25,800)	Wheel/ Drum	2134 (84")	22 680 (50,000)	12.8 (8.0)
CP-563C	5JN	95-00	108 (145)	11 670 (25,700)	Wheel/ Drum	2134 (84")	24 091 (53,000)	12.8 (8.0)
CP-563D	9ZW	98-02	108 (145)	11 275 (24,856)	Wheel/ Drum	2130 (84")	27 216 (60,000)	13.2 (8.1)
CS-573C	6LN	95-00	108 (145)	13 800 (30,360)	Wheel/ Drum	2134 (84")	24 091 (53,000)	12.8 (8.0)
CS-573D	CMK	00-02	108 (145)	12 180 (29,060)	Wheel/ Drum	2130 (84")	27 216 (60,000)	12.7 (7.8)
CS-583	8YJ	91-95	108 (145)	15 040 (33,090)	Wheel/ Drum	2134 (84")	22 680 (50,000)	12.8 (8.0)
CS-583C	7MN	95-00	108 (145)	15 230 (33,500)	Wheel/ Drum	2134 (84")	24 091 (53,000)	12.8 (8.0)
CS-583D	2CZ	98-02	108 (145)	14 850 (32,740)	Wheel/ Drum	2130 (84")	31 751 (70,000)	12.7 (7.8)
CS-643	7FD	85-87	100 (134)	14 900 (32,855)	Wheel/ Drum	2200 (86")	16 800 (37,044)	15.5 (9.6)
CP-643	7GD	85-87	100 (134)	16 300 (35,942)	Wheel/ Drum	2200 (86")	12 600 (27,783)	15.5 (9.6)
CS-653	7HD	85-91	100 (134)	17 100 (37,690)	Wheel/ Drum	2200 (86")	22 230 (48,995)	15.5 (9.6)
CP-653	7JD	85-91	100 (134)	18 500 (40,774)	Wheel/ Drum	2200 (86")	22 230 (48,995)	15.5 (9.6)
TSF-54	7KD	85-88	26 (35)	2131 (4700)	Towed	1370 (54")	6810 (15,000)	Towed
TSM-54	7LD	86-88	26 (35)	2160 (4760)	Towed	1370 (54")	6810 (15,000)	Towed



PAVING PRODUCTS — DOUBLE DRUM, COMBI AND PNEUMATIC TIRE COMPACTORS

Model	Product Ident. No. Prefix	Years Built	Flywheel kW (hp)	Approx. Op. Weight kg (lb)	Drive	Drum Width mm (in)	Centrifugal Force kg (lb)	Maximum Op. Speed km/h (mph)
CB-214	6FD	85-88	24 (33)	2300 (5070)	Drum (2)	1000 (39.4")	2041 (4500)	10.6 (6.6)
CB-214B	6LF	88-93	24 (33)	2300 (5072)	Drum (2)	990 (39")	2018 (4450)	10.4 (6.5)
CB-214C	6LF	93-00	25 (33)	2320 (5115)	Drum (2)	1000 (39.4")	2592 (5715)	10.5 (6.5)
CB-214D	1TZ	99-03	23.5 (31.5)	2430 (5355)	Hydraulic	1000 (39.4")	2590 (5710)	10 (6.2)
CB-224	6GD	85-88	24 (33)	2450 (5400)	Drum (2)	1200 (47.2")	2450 (5400)	10.6 (6.6)
CB-224B	6LF	88-93	24 (33)	2450 (5402)	Drum (2)	1199 (47.2")	2449 (5400)	10.4 (6.5)
CB-224C	6LF	93-00	25 (33)	2420 (5335)	Drum (2)	1200 (47.2")	2920 (6570)	10.5 (6.5)
CB-224D	8RZ	99-03	23.5 (31.5)	2610 (5750)	Hydraulic	1200 (47.2")	3039 (6700)	10 (6.2)
CB-225D	9FZ	99-03	23.5 (31.5)	2390 (5270)	Hydraulic	1200 (47.2")	3039 (6700)	10 (6.2)
CB-314	6HD	85-89	41 (55)	3357 (7400)	Drum	1120 (44")	2770 (6100)	8 (5)
CB-334D	3JZ 4CZ DCZ	98-03 98-02 02-04	32 (43)	3850 (8490)	Hydraulic	1300 (51")	3263 (7250)	11 (7)
CB-335D	5PZ BBW D4E	98-03 00-03 02-03	32 (43)	3620 (7980)	Hydraulic	1300 (51")	3263 (7250)	11 (7)
CB-414	6KD	85-89	52 (70)	5780 (12,750)	Drum	1397 (55")	6350 (14,000)	13.7 (8.5)
CB-424	6LD	85-89	54 (73.5)	6220 (13,710)	Drum (2)	1397 (55")	4485 (9885)	11.0 (6.8)
CB-434	3TF	89-94	60 (80)	6610 (14,540)	Drum (2)	1422 (56")	7620 (16,800)	11.6 (7.2)
CB-434B	6AL	94-95	60 (80)	6577 (14,500)	Drums	1422 (56")	7620 (16,800)	0-11.6 (0-7.2)
CB-434C	4DN	95-03	52 (70)	6485 (14,300)	Hydraulic	1422 (56")	7620 (16,800)	11.6 (7.2)
CB-514	6YD	85-88	68 (91)	9730 (21,450)	Drum (2)	1730 (68")	9073 (20,000)	11 (7)

Former Models

Paving Products

● Double Drum, Combi and Pneumatic Tire Compactors

Paving Products — Double Drum, Combi and Pneumatic Tire Compactors (cont'd)

Model	Product Ident. No. Prefix	Years Built	Flywheel kW (hp)	Approx. Op. Weight kg (lb)	Drive	Drum Width mm (in)	Centrifugal Force kg (lb)	Maximum Op. Speed km/h (mph)
CB-614	7CD	85-93	115 (155)	11 340 (25,000)	Drum (2)	1980 (78")	9525 (21,000)	11.2 (7)
CB-521	6RD	85-87	61 (82)	8800 (19,404)	Wheel	1700 (67")	5300 (11,687)	15 (9.3)
CB-522	6SD	85-87	45 (62)	10 100 (22,271)	Drum (2)	1700 (67")	10 350 (22,822)	8 (5)
CB-523	6TD	85-87	61 (82)	8800 (19,404)	Wheel/ Drum	1700 (67")	5300 (11,687)	13 (8)
CB-524	6WD	85-87	61 (82)	9500 (20,948)	Drum (2)	1700 (67")	10 350 (22,822)	11 (6.8)
CB-534	6EG2YF	87-93	93 (125)	9117 (20,100)	Drum (2)	1700 (67")	11 800 (26,019)	11.2 (7)
CB-534B	4JL	93-95	80 (107)	9117 (20,100)	Drums	1676 (66")	12 043 (26,550)	0-11.3 (0-7.0)
CB-534C	5HN	95-02	75 (100)	9195 (20,270)	Drums	1700 (67")	11 975 (26,400)	11.3 (7.0)
CB-544	8FM	94-01	60 (80)	10 700 (23,593)	Drums	1700 (67")	8850 (19,510)	8.9 (5.5)
CB-545	2FS	96-01	60 (80)	9410 (20,750)	Wheel/ Drum	1700 (67")	8850 (19,510)	8.9 (5.5)
CB-634	5CL	94-95	108 (145)		Drums	2134 (84")	12 043 (26,550)	0-9.2 (0-5.7)
CB-634C	3BR	95-01	108 (145)	11 680 (25,750)	Drums	2134 (84")	12 043 (26,550)	12.2 (7.6)
PF-200		85-92	49 (66)	7000 (15,430)	Wheel Pneumatic	1700 (67")	N/A	24 (14.9)
PS-110	7MD	85-96	57 (77)	12 500 (27,550)	Wheel Pneumatic	2134 (84")	N/A	38.6 (24)
PS-130	7ND	85-96	57 (77)	12 500 (27,550)	Wheel Pneumatic	1700 (67")	N/A	38.6 (24)
PS-150	7PD	85-96	57 (77)	15 050 (37,300)	Wheel Pneumatic	1700 (67")	N/A	38.6 (24)
PS-150B	3XR	95-04	52 (70)	12 940 (28,535)	Hydraulic	1743 (69")	N/A	25.6 (15.9)
PS-180	7PD	85-96	57 (77)	16 950 (37,000)	Wheel Pneumatic	1727 (68")	N/A	38.6 (24)
PS-200B	5JR	95-04	78 (105)	13 010 (28,685)	Hydraulic	1743 (69")	N/A	19.3 (12)
PS-300	7TD	85-95	77	21 000	Wheel	1900	N/A	26.5
PF-300	7WD	85-95	(102)	(46,200)	Pneumatic	(75")		(16.4)



UNDERGROUND MINING

LHD Model	Product Ident. No. Prefix (USA)	Years Built	Flywheel Power kW (hp)	Approx. Operating Weight kg (lb)	Max. Capacity kg (lb)	Length m (ft)	Height m (ft)	Bucket Width mm (ft)	Breakout Force kg (lb)	Maximum Speeds km/h (mph)	
										Forward	Reverse
R1300	6QW1-	N/A	123 (165)	20 150 (44,430)	6500 (14,330)	8.66 (28'5")	2.00 (6'7")	2000 (6'7")	12 020 (26,500)	26.1 (16.2)	23.8 (14.6)
R1500	N/A	N/A	178 (239)	25 100 (55,360)	9000 (19,850)	9.19 (30'2")	2.30 (7'7")	2480 (8'2")	18 460 (40,700)	30.4 (18.9)	33.0 (20.5)
R1600	9XP1-	N/A	201 (270)	29 800 (65,710)	10 200 (22,490)	9.71 (31'10")	2.40 (7'10")	2600 (8'6")	19 280 (42,510)	30.6 (19.0)	34.0 (21.1)
R1700 Series II	N/A	N/A	231 (310)	34 500 (76,100)	12 000 (26,460)	10.42 (34'2")	2.53 (8'4")	2820 (9'3")	23 430 (51,660)	29.3 (18.2)	33.3 (20.7)
R1700G SUPA 14	N/A	N/A	231 (310)	39 250 (86,530)	14 000 (30,870)	10.60 (34'9")	2.557 (8'5")	2818 (9'3")	22 550 (49,720)	27.1 (16.8)	30.7 (19.1)
R2800	N/A	N/A	231 (310)	42 660 (94,070)	16 200 (35,720)	10.70 (35'1")	2.68 (8'10")	3000 (9'10")	26 540 (68,530)	29.3 (18.2)	33.3 (20.7)
R2900	5TW1-	N/A	269 (361)	48 850 (107,710)	17 200 (37,930)	10.97 (36'0")	2.888 (9'6")	3100 (10'2")	28 600 (63,060)	26.7 (16.6)	32.5 (20.2)
R2900 SUPA 20	5TW1-	N/A	269 (361)	53 100 (117,090)	20 000 (44,100)	11.09 (36'4")	2.888 (9'6")	3400 (11'2")	25 100 (55 340)	26.7 (16.6)	32.5 (20.2)
Articulated Trucks											
AD40 Series II	N/A	N/A	380 (510)	38 100 (84,000)	40 000 (88,200)	10.66 (35'0")	2.70 (8'10")	3000 (9'10")		48.1 (29.9)	10.6 (6.6)
AE40 Series II	N/A	N/A	380 (510)	41 800 (92,170)	40 000 (88,200)	11.265 (37'0")	2.89 (9'6")	3200 (10'5")		41.7 (25.9)	9.6 (6.0)
Rigid Frame Trucks											
69D Dump	9XS1-	N/A	380 (510)	30 100 (66,371)	38 000 (83,790)	8.127 (26'8")	3.442 (11'4")	3665 (12'0")		76.6 (47.6)	76.6 (47.6)
69D Ejector	9XS1-	N/A	380 (510)	34 700 (78,514)	36 200 (79,821)	7.83 (25'8")	3.442 (11'4")	3665 (12'0")		13.5 (8.4)	13.5 (8.4)

ESTIMATING OWNING & OPERATING COSTS

Owning & Operating (O&O) Baseline Cost Estimate Solutions

The O&O web site provides information related to O&O baseline cost estimate development for both commercial engine products and machines. Approved O&O baseline cost estimate ranges for machines, and links related to O&O baseline cost development are also available.

For information about O&O costs, enter the appropriate link for your location.

For Asia Pacific Division (APD): <http://apd.cat.com>

Select "Product Support," "Equipment Management Solutions," "Owning and Operating Costs."

For Corporate Global Mining (CGM): <http://catminer.cat.com>

Select "Maintenance & Service," "Equipment Management Solutions," "Owning and Operating Costs."

For Europe, Africa, Middle East (EAME): (O&O link not supported).

For Latin America Commercial Division (LACD): <http://lacd.cat.com>

Select "Maintenance & Service," "Equipment Management Solutions," "Owning and Operating Costs."

For North American Commercial Division (NACD): <https://nacd.cat.com/infocast/frames/home>

Select "Product Support Fulfillment," "Equipment Management Solutions," "Owning and Operating Cost Information," "Link to O&O Baseline Cost Estimate Solutions."

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General

Machine users must balance productivity and costs to achieve optimum performance ... that is, achieve the desired production at the lowest possible cost. The approach most often used to measure machine performance is this simple equation:

$$\frac{\text{Lowest Possible Hourly Costs}}{\text{Highest Possible Hourly Productivity}} = \frac{\text{Top Machine Performance}}{\text{Performance}}$$

Most sections of this Handbook deal with the productivity of Caterpillar machines. This section considers the cost aspect of performance.

Hourly Owning and Operating Costs for a given machine can vary widely because they are influenced by many factors: the type of work the machine does, the ownership period, local prices of fuel and labor, the repair and maintenance costs, shipping costs from the factory, interest rates, etc. No attempt is made in this handbook to provide precise hourly costs for each model. Users must be able to estimate with a reasonable degree of accuracy what a machine will cost per hour to own and operate in a given application and locality. Therefore, this section provides a suggested method of estimating hourly owning and operating costs. When this method is coupled with local conditions and dealer input, it will result in reasonable estimates.

The method suggested follows several basic principles:

- Repair and Planned Maintenance cost per hour are developed jointly by the customer and local Caterpillar Dealer.
- In the examples, labor is assumed @ \$60.00 per hour, fuel @ \$1.25 per gallon. For reliable estimates, these costs must always be obtained locally.
- Because of different standards of comparison, what may seem a high application to one machine owner may appear only medium to another.
- Unless otherwise specified, the word "hour" when used in this section means clock or operating hours, not Service Meter Units.

HOURLY OWNING AND OPERATING COST ESTIMATE

DATE _____

Estimate #1 Estimate #2

A—Machine Designation _____
 B—Estimated Ownership Period (Years) _____
 C—Estimated Usage (Hours/Year) _____
 D—Ownership Usage (Total Hours)(B × C) _____

OWNING COSTS

1. a. Delivered Price, to the Customer (including attachments) _____
 b. Less Tire Replacement Cost if desired _____
 c. Delivered Price Less Tires _____

2. Less Residual Value at Replacement (____%) _____ (____%) _____
 (See subsection 2A on back)

3. a. Net Value to be recovered through work _____
 (line 1c less line 2)

b. Cost Per Hour:

$\frac{\text{Net Value}}{\text{Total Hours}}$ (1) _____ (2) _____

4. Interest Costs $\frac{N + 1}{2N} \times \text{Del. Price} \times \frac{\text{Simple Int.}}{\% \text{ Rate}}$ = _____
 N = No. Yrs. Hours/Year

(1) $\frac{+ 1}{+ 1} \times \text{_____} \times \text{_____} \%$ (2) $\frac{+ 1}{+ 1} \times \text{_____} \times \text{_____} \%$
 _____ = _____ = _____
 _____ Hours/Yr. _____ Hours/Yr.

5. Insurance $\frac{N + 1}{2N} \times \text{Del. Price} \times \frac{\text{Insurance}}{\% \text{ Rate}}$ = _____
 N = No. Yrs. Hours/Year

(1) $\frac{+ 1}{+ 1} \times \text{_____} \times \text{_____} \%$ (2) $\frac{+ 1}{+ 1} \times \text{_____} \times \text{_____} \%$
 _____ = _____ = _____
 _____ Hours/Yr. _____ Hours/Yr.

(Optional method when Insurance cost per year is known)

Ins. \$ _____ Per Yr. ÷ _____ Hours/Yr. =

Estimate #1

Estimate #2

6. Property Tax $\frac{N + 1}{2N} \times \text{Del. Price} \times \text{Tax Rate \%}$
 N = No. Yrs. _____ =
 Hours/Year

(1) $\frac{+ 1}{\text{_____}} \times \text{_____} \times \text{_____ \%}$ (2) $\frac{+ 1}{\text{_____}} \times \text{_____} \times \text{_____ \%}$
 _____ = _____ = _____
 _____ Hours/Yr. _____ Hours/Yr.

(Optional method when Property Tax cost per year is known)

Property Tax \$ _____ Per Yr. \div _____ Hours/Yr. =

7. TOTAL HOURLY OWNING COST
 (add lines 3b, 4, 5 and 6)

OPERATING COSTS

8. Fuel: Unit Price \times Consumption

(1) _____ \times _____ = _____
 (2) _____ \times _____ = _____

9. Planned Maintenance (PM)-Lube Oils, Filters, Grease, Labor:
 (contact your local Caterpillar Dealer)

10. a. Tires: Replacement Cost \div Life in Hours
 Cost (1) _____ (2) _____
 Life

b. Undercarriage
 (Impact + Abrasiveness + Z Factor) \times Basic Factor
 (1) (_____ + _____ + _____) = _____ \times _____ = _____
 (2) (_____ + _____ + _____) = _____ \times _____ = _____
 (Total) (Factor)

11. Repair Cost (Per Hour)
 (contact your local Caterpillar Dealer)

12. Special Wear Items: Cost \div Life
 (See subsection 12A on back)

13. TOTAL OPERATING COSTS
 (add lines 8, 9, 10a (or 10b), 11 and 12)

14. MACHINE OWNING PLUS OPERATING
 (add lines 7 and 13)

15. OPERATOR'S HOURLY WAGE (include fringes)

16. TOTAL OWNING AND OPERATING COST

SUBSECTION 2A: Residual Value at Replacement

Gross Selling Price	(est. #1) (___%)	_____	(est. #2) (___%)	_____
Less: a. Commission		_____		_____
b. Make-ready costs		_____		_____
c. Inflation during ownership period*		_____		_____
Net Residual Value		_____ (___%)		_____ (___%) of original delivered price
(Enter on line 2)				

*When used equipment auction prices are used to estimate residual value, the effect of inflation during the ownership period should be removed to show in constant value what part of the asset must be recovered through work.

**SUBSECTION 12A: Special Items
(cutting edges, ground engaging tools, bucket teeth, etc.)**

(1)	Cost	Life	Cost/Hour	(2)
1.	_____ ÷ _____	= _____		1. _____ ÷ _____ = _____
2.	_____ ÷ _____	= _____		2. _____ ÷ _____ = _____
3.	_____ ÷ _____	= _____		3. _____ ÷ _____ = _____
4.	_____ ÷ _____	= _____		4. _____ ÷ _____ = _____
5.	_____ ÷ _____	= _____		5. _____ ÷ _____ = _____
6.	_____ ÷ _____	= _____		6. _____ ÷ _____ = _____
		Total (1) _____		(2) _____

(Enter total on line 12)

1-7

ESTIMATING OWNING COSTS*(Line Items 1 through 7)*

To protect their equipment investment and be able to replace it, the machine owner must recover over the ownership period an amount equal to the loss in resale value plus the other costs of owning the equipment including interest, insurance and taxes.

The machine owner, for accounting purposes, estimates resale value loss in advance, and recovers his original equipment investment by establishing depreciation schedules according to the various uses of the equipment. Proper financial and tax assistance is highly recommended when establishing depreciation schedules.

Considering today's economic conditions worldwide and the trend toward larger, more expensive equipment, many users choose to keep these units on the job well after they have been fully depreciated for tax purposes. On the other hand, tax incentives in many areas may favor trading a machine well before that occurs.

The ownership period in years, the hours per year, and the total number of hours on a machine, are significant factors in determining O&O costs. Additionally, since the ownership period and machine hours can vary widely for different customers for a given model, it is not practical to calculate O&O costs using an assumed ownership period. The customer must provide that information for each situation.

These same factors will be used to develop the Repair costs and Planned Maintenance costs by your local Caterpillar Dealer.

The machine depreciation method suggested in this handbook is not based on or related to any tax considerations, but rather is a simple straight line write-off based solely on the number of years and hours the owner expects to use during the ownership period.

Accordingly, it is imperative that careful consideration be given the selection of depreciation periods, and that for owning and operating cost calculations they be based on actual ownership periods and hours on the machine rather than tax write-off life.

Typical Application Descriptions

The following tables show typical descriptions for work performed by each product family for three different application levels. It is only a guide and can be used along with the fuel and tire charts to help determine fuel and tire cost factors. Additionally, many times the ownership period and the number of hours per year a machine is used, is related to application.

TYPICAL APPLICATION DESCRIPTIONS

	LOW	MEDIUM	HIGH
TRACK-TYPE TRACTORS	Pulling scrapers, most agricultural drawbar, stockpile, coalpile. No impact. Intermittent full throttle operation.	Production dozing in clays, sands, gravels. Pushloading scrapers, borrow pit ripping, most landclearing applications. Medium impact conditions. Production landfill work.	Heavy rock ripping. Pushloading and dozing in hard rock. Work on rock surfaces. Continuous high impact conditions.
MOTOR GRADERS	Light road maintenance. Finishing. Plant and road mix work. Light snowplowing. Large amounts of traveling.	Haul road maintenance. Road construction, ditching. Loose fill spreading. Landforming, landleveling. Summer road maintenance with medium to heavy winter snow removal. Elevating grader use.	Maintenance of hard packed roads with embedded rock. Heavy fill spreading. Ripping-scarifying of asphalt or concrete. Continuous high load factor. High impact.
EXCAVATORS M-Series	Utility construction, low density material, rehandling and scrap handling applications.	Continuous digging in sandy clay/sandy gravel, site development and lumber yard applications.	Continuous digging in rock/natural bed clay, high impact, using hammer, working in forests or quarries.
EXCAVATORS 320-385	Shallow depth utility construction where excavator sets pipe and digs only 3 or 4 hours/shift. Free flowing, low density material and little or no impact. Most scrap handling arrangements.	Mass excavation or trenching where machine digs all the time in natural bed clay soils. Some traveling and steady, full throttle operation. Most log loading applications.	Continuous trenching or truck loading in rock or shot rock soils. Large amount of travel over rough ground. Machine continuously working on rock floor with constant high load factor and high impact.
5000 SERIES EXCAVATORS	Continuous loading in loose banks or stockpile. Good underfoot conditions. (Might be considered similar to "normal" wheel loader conditions.)	Continuous loading in well-shot rock or fairly tight bank. Good underfoot conditions; dry floor, little impact or sliding on undercarriage. Travel time is 3%-6%.	Continuous loading in poorly-shot rock, virgin or lightly-blasted tight banks. Adverse underfoot conditions: rough floors; high impact and/or sliding on undercarriage.

	LOW	MEDIUM	HIGH
FELLER BUNCHERS	Continuous felling and stacking in good underfoot conditions. Flat ground uniform trees below 305 mm (12 inches).	Continuous cycling in good underfoot conditions. Rolling terrain, some trees up to 508 mm (20 inches) or some hardwoods.	Continuous cycling in steep terrain over stumps and fallen trees. Most trees 508 mm (20 inches) or larger hardwoods.
BACKHOE LOADERS	Light duty utility applications in light to medium soil. Trenching depths less 1.83 m (6 feet).	Utility applications in medium to heavy soil. Occasional use of constant flow implements. Dig depths to 3.05 m (10 feet).	Production applications or digging in rock. Regular use of constant flow implements. Dig depths over 3.05 m (10 feet).
FOREST PRODUCTS	Intermittent skidding for short distances, no decking. Good underfoot conditions: level terrain, dry floor, few if any stumps.	Continuous turning, steady skidding for medium distances with moderate decking. Good underfooting: dry floor with few stumps and gradual rolling terrain.	Continuous turning, steady skidding for long distances with frequent decking. Poor underfoot conditions: wet floor, steep slopes and numerous stumps.
PIPELAYERS	Little or no use in mud, water or on rock. Use on level, regular surfaces.	Typical pipelayer use in operating conditions ranging from very good to severe.	Continuous use in deep mud or water or on rock surfaces.
WHEEL TRACTOR-SCRAPERS	Level or favorable hauls on good haul roads. No impact. Easy-loading materials.	Varying loading and haul road conditions. Long and short hauls. Adverse and favorable grades. Some impact. Typical road-building use on a variety of jobs.	High impact condition, such as loading ripped rock. Overloading. Continuous high total resistance conditions. Rough haul roads.
CONSTRUCTION & MINING TRUCKS & TRACTORS	Continuous operation at an average gross weight less than recommended. Excellent haul roads. No overloading, low load factor. (See Hourly Fuel Consumption section for definition.)	Continuous operation at an average gross weight approaching recommended. Minimal overloading, good haul roads, moderate load factor. (See Hourly Fuel Consumption section for definition.)	Continuous operation at or above maximum recommended gross weight. Overloading, poor haul roads, high load factor. (See Hourly Fuel Consumption section for definition.) Note — Continual loading beyond recommended maximum gross weight will further reduce Zone C hours.

	LOW	MEDIUM	HIGH
ARTICULATED TRUCKS	Earthmoving and stockpile use with well matched loading equipment. Short to medium hauls on well-maintained level haul roads. Free flowing material. Few impact loads.	Varying load and haul road conditions. High rolling resistance and poor traction during part of the job. Some adverse grades. Some impact loads. Typical use in road-building, dam construction, open-pit mining, etc.	Continuous use on very poorly maintained haul roads, high rolling resistance and poor traction. Frequent adverse grades and high impact loads. Poorly-matched loading equipment with continuous over loading.
WHEEL TRACTORS & COMPACTORS	Light utility work. Stockpile work. Pulling compactors. Dozing loose fill. No impact.	Production dozing, pushloading in clays, sands, silts, loose gravels. Shovel clean-up.	Production dozing in rock. Push-loading in rocky, bouldery borrow pits. High impact conditions. Land-fill compactor work.
WHEEL LOADERS	Intermittent truck loading from stockpile, hopper charging on firm, smooth surfaces. Free flowing, low density materials. Utility work in governmental and industrial applications. Light snowplowing. Load and carry on good surface for short distances with no grades.	Continuous truck loading from stockpile. Low to medium density materials in properly sized bucket. Hopper charging in low to medium rolling resistance. Loading from bank in good digging. Load and carry on poor surfaces and slight adverse grades.	Loading shot rock (large loaders). Handling high density materials with counterweighted machine. Steady loading from very tight banks. Continuous work on rough or very soft surfaces. Load and carry in hard digging; travel longer distances on poor surfaces with adverse grades
TRACK LOADERS	Site clearing of small vegetation, stripping top soil, carrying to stockpile. Intermittent truck loading from stockpile. Free flowing, low density materials with standard bucket. No impact. Backfilling and grading.	Bank excavation, intermittent ripping, basement digging of natural bed clays, sands, silts, gravels. Some traveling. Steady full throttle operation.	Loading shot rock, cobbles, glacial till, caliche. Steel mill work. High density materials in standard bucket. Continuous work on rock surfaces. Large amount of ripping of tight, rocky materials. High impact conditions.
INTEGRATED TOOLCARRIERS	Intermittent truck loading from stockpile, hopper charging on firm, smooth surfaces. Free flowing, low density materials. Utility work in governmental and industrial applications. Light snow-plowing. Load and carry on good surface for short distances with no grades.	Continuous truck loading from stockpile. Low to medium density materials in properly sized bucket. Hopper charging in low to medium rolling resistance. Loading from bank in good digging. Load and carry on poor surfaces and slight adverse grades.	Loading shot rock (large loaders). Handling high density materials with counterweighted machine. Steady loading from very tight banks. Continuous work on rough or very soft surfaces. Load and carry in hard digging; travel longer distances on poor surfaces with adverse grades.

	LOW	MEDIUM	HIGH
UNDERGROUND ARTICULATED TRUCKS	<p>Continuous operation at <80% of maximum recommended gross weight. Short to medium haul distances: 300-1000 meters (990-3300 feet) Well-maintained, level haul roads. Very few tray impacts. Low load factor.</p>	<p>Intermittent operation at maximum recommended gross weight. Medium to longer haul distances: 1000–5000 meters (3300–16,000 feet) Varying haul road conditions and/or grades. Occasional tray impacts. Medium load factor.</p>	<p>Continuous operation at maximum recommended gross weight. Long haul distances: >5000 meters (>16,000 feet) Poor haul road conditions and/or steep grades. Frequent tray impacts. High load factor.</p>
UNDERGROUND LOAD HAUL DUMP UNITS	<p>Dig and carry operation from stock piles to ground level transfer station. Low density, free flowing ore and waste. Excellent draw point floor surfaces. Short haul distances: 25–100 meters (80–330 feet) Level roads with good surface conditions. Low load factor.</p>	<p>Intermittent development/production loading into trucks/transfer station. Good digging with well shot, low to medium density ore and waste. Average draw point floor surfaces. Medium haul distances: 100–200 meters (330–660 feet) Poor road surfaces with slightly adverse grades. Medium load factor.</p>	<p>Continuous production loading of trucks at or near maximum load height. Difficult digging. Loading haul trucks. Rough draw point surfaces. Long haul distances: 200–300 meters (650–990 feet) Poor haul roads with adverse grades. High load factor.</p>
UNDERGROUND RIGID TRUCKS	<p>Continuous operation at <80% of maximum recommended gross weight. Short to medium haul distances: 300–1000 meters (990–3300 feet) Well-maintained, level haul roads. Very few tray impacts. Low load factor.</p>	<p>Intermittent operation at maximum recommended gross weight. Medium to longer haul distances: 1000–5000 meters (3300–16,000 feet) Varying haul road conditions and/or grades. Occasional tray impacts. Medium load factor.</p>	<p>Continuous operation at maximum recommended gross weight. Long haul distances: >5000 meters (>16,000 feet) Poor haul road conditions and/or steep grades. Frequent tray impacts. High load factor.</p>

- ① Delivered Price To Customer
- ② Residual Value at Replacement

1

DELIVERED PRICE TO CUSTOMER

(Line Item 1a, b and c)

Delivered price should include all costs of putting a machine on the user's job including transportation and any applicable sales taxes.

On rubber tired machines, tires are considered a wear item and covered as an operating expense. Accordingly, some users may wish to deduct tire costs from the delivered price particularly for larger machines.

2

RESIDUAL VALUE AT REPLACEMENT

(Line Item 2 and Subsection 2A)

Any piece of earthmoving machinery will have some residual value at trade-in. While many owners prefer to depreciate their equipment to zero value, others recognize the residual resale or trade-in value. This is at the estimator's option, but as in the discussion of depreciation, today's higher equipment costs almost dictate that resale value be considered in determining the net depreciable investment. And if machines are traded early for tax incentive purposes, resale value becomes even more significant.

For many owners, potential resale or trade-in value is a key factor in their purchasing decisions, since this is a means of reducing the investment they must recover through depreciation charges. The high resale value of Caterpillar built machines can reduce hourly depreciation charges, lower total hourly owning costs and improve the owner's competitive position.

When resale or trade-in value is used in estimating hourly owning and operating costs, local conditions must be considered, as used equipment values vary widely around the world. However, in any given used equipment business, factors which have greatest influence on resale or trade-in value are: age of machine (years), the number of hours on the machine at the time of sale or trade, the type of jobs and operating conditions in which it worked, and the physical condition of the machine. Your local Cat Dealer is your best source for determining current used equipment values.

Subsection 2A can be used to calculate the estimated residual value. If recent auction prices for used machines are used as a guide, then the value (or percentage) should be adjusted downward to remove the effect of inflation. Governmental indices on construction equipment costs or Dealer price records can be used to calculate the amount of inflation for the appropriate useful life. Another way to estimate residual value is comparing the current used machine value to the current new machine price provided major product changes haven't occurred.

③ Value to be Recovered Through Work

④ Interest

⑤ Insurance

⑥ Taxes

Owning & Operating Costs

3 **VALUE TO BE RECOVERED THROUGH WORK**

(Line Item 3a and b)

The delivered price less the estimated residual value results in the value to be recovered through work, divided by the total usage hours, gives the hourly cost to protect the asset's value.

4 **INTEREST**

(Line Item 4)

Many owners charge interest as part of hourly owning and operating costs, others consider it as general overhead in their overall operation. When charged to specific machines, interest is usually based on the owner's average annual investment in the unit.

Interest is considered to be the cost of using capital. The interest on capital used to purchase a machine must be considered, whether the machine is purchased outright or financed.

If the machine will be used for N years (where N is the number of years of use), calculate the average annual investment during the use period and apply the interest rate and expected annual usage:

$$\frac{\left[\frac{N + 1}{2N} \times \text{Delivered Price} \right] \times \text{Simple Interest \% rate}}{\text{hours/year}}$$

5-6 **INSURANCE AND TAXES**

(Line Items 5 and 6)

Insurance cost and property taxes can be calculated in one of two ways. If the specific annual cost is known, this figure should be divided by the estimated usage (hours/years) and used. However, when the specific interest and tax costs for each machine are not known, the following formulas can be applied:

$$\frac{\frac{\text{Insurance}}{N = \text{No. Years}} \left[\frac{N + 1}{2N} \times \text{Delivered Price} \right] \times \text{Insurance rate \%}}{\text{hours/year}}$$

$$\frac{\frac{\text{Property Tax}}{N = \text{No. Years}} \left[\frac{N + 1}{2N} \times \text{Delivered Price} \right] \times \text{Tax rate \%}}{\text{hours/year}}$$

8-13

ESTIMATING OPERATING COSTS*(Line Items 8 through 13)*

8

FUEL CONSUMPTION*(Line Item 8)*

Actual fuel consumption should be measured in the field. However, if no opportunity exists to do this, consumption can be estimated when the machine application is known.

Application determines engine load factor which in turn controls engine fuel consumption. An engine continuously producing full rated horsepower is operating at a load factor of 1.0. Earthmoving machines may reach a 1.0 load factor intermittently, but seldom operate at this level for extended periods of time. Periods spent at idle, dozer and pusher travel in reverse, haul units traveling empty, close maneuvering at part throttle and operating downhill are examples of conditions which reduce load factor.

The following tables provide hourly fuel consumption estimates at various load factors for Caterpillar built machines. Since machine uses vary, application guides are also provided to aid in estimating load factor.

To estimate hourly fuel cost, select the load factor based on application and find hourly consumption. Then:

$$\text{Hourly consumption} \times \text{Local Unit Price of Fuel} = \text{Hourly Fuel Cost}$$

When using these tables, keep in mind the many variables which can affect fuel consumption. Two operators of different temperament or attitude operating identical machines side by side in the same material can have as much as 10-12% difference in their consumption rates. However, the ranges shown should be applicable across a wide spectrum of conditions. Your Caterpillar dealer representative can help select the most reasonable estimate for your specific situation; we suggest you call on him.

Keep in mind also that a fuel consumption study measured over a short period of operation will give higher fuel consumption than shown here because: (1) the study will be at 100% efficiency, without breaks or idle time, and (2) the operators will know they're "under the gun" to produce and look good. On the other hand, these tables allow for "normal" inefficiencies in the working cycle and will more closely relate to "normal" day to day operation.

FUEL CONSUMPTION TABLES & LOAD FACTOR GUIDES

TRACK-TYPE TRACTORS

Model	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
D3G	9.0-11.0	2.5-3.0	11.0-13.0	3.0-3.5	13.0-15.0	3.5-4.0
D4G	9.0-11.0	2.5-3.0	11.0-13.0	3.0-3.5	13.0-15.0	3.5-4.0
D5G	11.0-13.0	3.0-3.5	13.0-15.0	3.5-4.0	15.0-17.0	4.0-4.5
D5N	6.5-11.5	1.5-3.5	11.5-16.0	3.5-4.5	13.75-18.5	3.75-5.0
D6N	12.0-16.5	3.0-4.5	13.75-21.5	4.0-5.5	18.5-26.5	5.0-7.0
D6G	12.0-17.0	3.5-4.5	17.0-22.0	4.5-6.0	22.0-27.5	6.0-7.5
D6R Series II	13.5-21.0	3.5-5.5	19.0-27.0	5.0-7.5	25.0-33.5	6.5-9.0
D7G	16.0-22.5	4.5-6.0	22.5-29.0	6.0-8.0	29.0-35.5	8.0-9.5
D7R Series II	17.0-24.5	4.5-6.5	24.5-31.5	6.5-8.5	31.5-39.0	8.5-10.5
D8R/D8R Series II	22.5-32.0	6.0-8.5	32.0-41.5	8.5-11.0	41.5-51.0	11.0-13.5
D9R	32.0-46.0	8.5-12.5	46.0-59.5	12.5-16.0	59.5-73.0	16.0-19.5
D10R	40.5-58.0	11.0-15.5	58.0-75.0	15.5-20.0	75.0-92.5	20.0-24.5
D11R	61.0-87.0	16.5-23.0	87.0-113.0	23.0-30.0	113.0-139.5	30.0-37.0

*D7G fuel consumption data is based on a precombustion chamber equipped engine. Fuel consumption for a direct injection equipped D7G should be approximately 10% less.

MOTOR GRADERS

Model	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
120H*	9.0-13.0	2.5-3.5	13.0-17.0	3.5-4.5	15.0-19.0	4.0-5.0
135H*	9.0-13.0	2.5-3.5	13.0-17.0	3.5-4.5	17.0-21.0	4.5-5.5
12H	9.0-13.0	2.5-3.5	13.0-19.0	3.5-5.0	19.0-23.0	5.0-6.0
140H*	9.0-15.0	2.5-4.0	15.0-19.0	4.0-5.0	19.0-25.0	5.0-6.5
143H**	9.0-15.0	2.5-4.0	15.0-21.0	4.0-5.5	21.0-26.0	5.5-7.0
160H*	13.0-19.0	3.5-5.0	17.0-25.0	4.5-6.5	25.0-30.0	6.5-8.0
163H**	13.0-19.0	3.5-5.0	19.0-25.0	5.0-6.5	25.0-30.0	6.5-8.0
14H	13.0-21.0	3.5-5.5	21.0-26.0	5.5-7.0	26.0-32.0	7.0-8.5
16H	17.0-25.0	4.5-6.5	25.0-32.0	6.5-8.5	32.0-40.0	8.5-10.5
24H	32.0-45.0	8.5-12.0	45.0-61.0	12.0-16.0	61.0-74.0	16.0-19.5

*Multiply consumption by 1.10 when equipped with Variable Horsepower or Engine Power Management.

**Multiply consumption by 1.15 when operating in All Wheel Drive.

LOAD FACTOR GUIDE

High: Ditching, fill spreading, spreading base material, ripping, heavy road maintenance, snow plowing.

Medium: Average road maintenance, road mix work, scarifying, snow plowing.

Low: Finish grading, light maintenance, road travel.

Owning & Operating Costs

- ⑧ Hourly Fuel Consumption Tables
- Skid Steer Loaders
 - Articulated Trucks (Underground)

SKID STEER LOADERS & MULTI TERRAIN LOADERS

Model	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
216B	2.28-3.98	0.60-1.05	3.98-6.26	1.05-1.65	6.26-7.97	1.65-2.11
226B	2.78-4.86	0.73-1.29	4.86-7.64	1.29-2.02	7.64-9.73	2.02-2.57
232B	2.28-3.98	0.60-1.05	3.98-6.26	1.05-1.65	6.26-7.97	1.65-2.11
236B	3.10-5.43	0.82-1.43	5.43-8.53	1.43-2.25	8.53-10.85	2.25-2.87
242B	2.78-4.86	0.73-1.29	4.86-7.64	1.29-2.02	7.64-9.73	2.02-2.57
246B	3.45-6.04	0.91-1.60	6.04-9.50	1.60-2.51	9.50-12.09	2.51-3.19
248B	3.45-6.04	0.91-1.60	6.04-9.50	1.60-2.51	9.50-12.09	2.51-3.19
252B	3.10-5.43	0.82-1.43	5.43-8.53	1.43-2.25	8.53-10.85	2.25-2.87
262B	3.45-6.04	0.91-1.60	6.04-9.50	1.60-2.51	9.50-12.09	2.51-3.19
247B	2.78-4.86	0.73-1.29	4.86-7.64	1.29-2.02	7.64-9.73	2.02-2.57
257B	2.78-4.86	0.73-1.29	4.86-7.64	1.29-2.02	7.64-9.73	2.02-2.57
267B	3.10-5.43	0.82-1.43	5.43-8.53	1.43-2.25	8.53-10.85	2.25-2.87
277B	3.45-6.04	0.91-1.60	6.04-9.50	1.60-2.51	9.50-12.09	2.51-3.19
287B	3.45-6.04	0.91-1.60	6.04-9.50	1.60-2.51	9.50-12.09	2.51-3.19

ARTICULATED TRUCKS (Underground)

Model	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
AD30	27.0-38.0	7.1-10.0	38.0-45.0	10.0-11.9	45.0-56.0	11.9-14.8
AD45	19.6-35.4	5.0-9.5	35.5-55.0	9.5-14.5	55.0-75.0	14.5-20.0
AD55	30.0-43.0	8.0-11.5	43.0-57.0	11.5-15.0	57.0-70.0	15.0-18.5

LOAD FACTOR GUIDE

- High: Continuous operation at the recommended maximum gross vehicle weight over long haulage distances, adverse grades and poorly maintained roads.
- Medium: Normal operation with average gross weight less than the recommended maximum gross weight on good haul roads with some adverse grades.
- Low: Considerable amount of idling. Short to medium haulage distances with less than the recommended maximum gross weight on well maintained level haul roads.

LOAD HAUL DUMP UNITS (LHD'S) (Underground)

Model	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
R1300G	11.3-15.1	3.0-4.0	15.1-18.9	4.0-5.0	18.9-30.2	5.0-8.0
R1600G	15.1-22.7	4.0-6.0	22.7-28.3	6.0-7.5	28.3-39.7	7.5-10.5
R1700G	22.7-26.4	6.0-7.0	26.4-34.0	6.0-9.0	34.0-45.4	9.0-12.0
R2900G	30.2-37.8	8.0-10.0	37.8-45.4	10.0-12.0	45.4-56.7	12.0-15.0

LOAD FACTOR GUIDE

- High: Continuous loading cycle. Continuous loading of poorly broken ore from draw points. Long haulage distances. Adverse grades. Little or no idle time.
- Medium: Steady loading cycle. Medium haulage distances. Well maintained roads. Adverse grades. Frequent periods of idling.
- Low: Intermittent load cycle. Loading well broken, low density ore and waste. Short haulage distances. Long periods of idle time.

EXCAVATORS

Model	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
301.5	2.1-2.5	0.55-0.66	2.5-2.9	0.66-0.77	2.9-3.3	0.77-0.87
301.6	2.1-2.5	0.55-0.66	2.5-2.9	0.66-0.77	2.9-3.3	0.77-0.87
301.8	2.1-2.5	0.55-0.66	2.5-2.9	0.66-0.77	2.9-3.3	0.77-0.87
302.5	2.7-3.3	0.71-0.87	3.3-3.8	0.87-1.0	3.8-4.4	1.0-1.16
303 CR/SR	3.4-4.0	0.89-1.07	4.0-4.7	1.07-1.24	4.7-5.4	1.2-1.42
304 CR	4.0-4.8	1.06-1.28	4.8-5.6	1.28-1.49	5.6-6.4	1.49-1.7
305 CR/SR	4.7-5.7	1.24-1.49	5.7-6.6	1.49-1.74	6.6-7.5	1.74-1.99
307C	3.0-5.0	1.0-1.25	5.0-8.0	1.25-2.0	7.0-10.0	1.75-2.5
308C CR/SR	3.0-5.0	1.0-1.5	5.0-8.0	1.5-2.0	7.0-10.0	2.0-2.5
311C	4.0-6.0	1.0-1.5	6.0-9.0	1.5-2.25	9.0-12.0	2.25-3.5
312C	4.0-6.0	1.0-1.5	6.0-9.0	1.5-2.25	10.0-13.0	2.25-3.5
313C CR/SR	4.0-6.0	1.0-1.5	6.0-9.0	1.5-2.5	10.0-13.0	2.5-3.5
314C	4.0-6.0	1.0-1.5	6.0-9.0	1.5-2.5	10.0-13.0	2.5-3.5
315C	5.0-9.0	1.25-2.25	9.0-13.0	2.25-3.5	13.0-15.0	3.5-4.0
318C	8.0-12.0	2.0-3.5	15.0-19.0	4.0-5.0	20.0-23.0	5.3-6.1
M313C	6.6-10.1	1.7-2.68	10.1-14.3	2.68-3.78	14.3-16.7	3.78-4.41
M315C	7.48-11.21	1.98-2.96	11.21-15.57	2.96-4.11	15.6-18.1	4.11-4.77
M316C	8.3-12.5	2.2-3.3	12.5-17.3	3.3-4.6	17.3-20.1	4.6-5.3
M318C	9.75-14.25	2.58-3.77	14.25-18.75	3.77-4.96	18.75-21.76	4.96-5.75
M322C	10.41-15.7	2.75-4.15	15.7-20.83	4.15-5.5	20.83-24.0	5.5-6.35
M325C MH*	12.9-15.9	3.4-4.2	20.8-23.8	5.5-6.3	23.8-27.6	6.3-7.3
M325C L MH*	14.0-19.0	3.7-5.0	23.0-27.0	6.1-7.1	27.0-32.0	7.1-8.5
W330B MH*	19.0-24.0	5.0-6.3	29.0-33.0	7.7-8.7	34.0-39.0	9.0-10.3
W345B MH*	25.0-30.0	6.6-7.9	38.0-42.0	10.0-11.1	45.0-50.0	11.9-13.2
320C	10.0-14.0	2.6-3.7	17.0-20.0	4.5-5.3	20.0-23.0	5.3-6.1
322C	12.0-16.0	3.2-4.2	20.0-23.0	5.3-6.1	23.0-27.0	6.1-7.1
325C	14.0-19.0	3.7-5.0	23.0-27.0	6.1-7.1	27.0-32.0	7.1-8.5
330C	19.0-24.0	5.0-6.3	29.0-33.0	7.7-8.7	34.0-39.0	9.0-10.3
345B Series II	25.0-30.0	6.6-7.9	38.0-42.0	10.0-11.1	45.0-50.0	11.9-13.2
365B Series II	33.0-38.0	8.7-10.0	50.0-55.0	11.9-14.5	60.0-67.0	15.9-17.7
385B	43.0-48.0	11.4-12.7	62.0-68.0	16.4-18.0	71.0-78.0	18.8-20.6
5090B	43.0-48.0	11.4-12.7	62.0-68.0	16.4-18.0	71.0-78.0	18.8-20.6
5110B	69.0-74.0	18.0-19.0	84.0-89.0	22.0-24.0	103.0-108.0	27.0-28.0
5130B	91.0-95.0	24.0-25.0	110.0-114.0	29.0-30.0	129.0-132.0	34.0-35.0
5230B	163.0-193.0	43.0-51.0	193.0-204.0	51.0-54.0	208.0-227.0	55.0-60.0

*If the application of these machines is to be used for scrap handling, the LOW hourly fuel consumption rate would typically apply.

NOTE: Fuel consumption rates for 320C through 385B include machine at idle per load factor definition.

LOAD FACTOR GUIDE

High: Most pipeline applications in hard rocky material. Digging 90-95% of the daily work schedule.

Medium: Most residential sewer applications in natural bed clay. Digging 60-85% of the daily work schedule. Most log loading applications.

Low: Most utility, urban applications in sandy loam. Digging less than 50% of the daily work schedule. Scrap handling applications.

Owning & Operating Costs

⑧ Hourly Fuel Consumption Tables

- Front Shovels
- Pipelayers
- Wheel Tractor-Scrapers

FRONT SHOVELS

Model	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
5080	—	—	58.0-65.0	15.0-17.2	66.0-74.0	17.0-19.6
5090	43.0-48.0	11.4-12.7	62.0-68.0	16.4-18.0	71.0-78.0	18.8-20.6
5130B	91.0-95.0	24.0-25.0	110.0-114.0	29.0-30.0	129.0-132.0	34.0-35.0
5230B	163.0-193.0	43.0-51.0	193.0-204.0	51.0-54.0	208.0-227.0	55.0-60.0

LOAD FACTOR GUIDE

High: Steady cycling in hard to dig material.

Medium: Steady cycling with frequent periods at idle.

Low: Light easy work. Considerable idling.

PIPELAYERS

Model	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
561M	4.0-7.0	1.0-2.0	7.5-11.0	2.0-3.0	9.5-13.0	2.5-3.5
572R	7.5-11.0	2.0-3.0	13.0-17.0	3.5-4.5	17.0-21.0	4.5-5.5
583R	9.5-13.0	2.5-3.5	16.5-20.0	4.5-5.5	22.5-26.0	6.5-7.5
589	17.0-21.0	4.5-5.5	26.0-30.0	7.0-8.0	34.0-40.0	9.0-10.5

LOAD FACTOR GUIDE

Pipelayer load factor depends largely on amount of time spent at idle speed.

WHEEL TRACTOR-SCRAPERS

Model	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
613C	15.0-19.0	4.0-5.0	21.0-25.0	5.5-6.5	27.5-34.0	7.25-9.0
615C	23.0-26.0	6.0-7.0	30.0-36.0	8.0-9.5	42.0-47.5	11.0-12.5
621G	27.0-32.0	7.0-8.5	38.0-44.0	10.0-11.5	49.0-57.0	13.0-15.0
623G	30.0-36.0	8.0-9.5	40.0-46.0	10.5-12.0	53.0-59.0	14.0-15.5
627G	45.5-51.0	12.5-13.5	64.0-76.0	17.0-18.5	85.0-89.5	22.5-23.5
631G	40.0-45.0	10.5-12.0	53.0-59.0	14.0-15.5	72.0-78.0	19.0-20.5
637G	64.0-70.0	17.0-18.5	87.0-93.0	23.0-24.5	113.5-121.0	30.0-32.0
651E	47.0-57.0	12.5-15.0	66.0-76.0	17.5-20.0	87.0-95.0	23.0-25.0
657E	87.0-98.0	23.0-26.0	116.0-125.5	30.5-33.0	153.0-163.0	40.5-43.0

LOAD FACTOR GUIDE

High: Continuous high total resistance conditions with steady cycling.

Medium: Typical road building use.

Low: Average use but with considerable idling, favorable grades, low rolling resistance and easy loading material.

- Backhoe Loaders
- Forest Products

BACKHOE LOADERS

Model	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
416D (NA)	6.4-8.3	1.7-2.2	8.3-10.2	2.2-2.7	10.2-12.1	2.7-3.2
416D (T)	7.6-9.5	2.0-2.5	9.5-11.4	2.5-3.0	11.4-13.2	3.0-3.5
420D	8.1-10.0	2.2-2.7	10.0-11.9	2.7-3.2	11.9-14.2	3.2-3.8
424D (NA)	6.4-8.3	1.7-2.2	8.3-10.2	2.2-2.7	10.2-12.1	2.7-3.2
428D	7.6-9.5	2.0-2.5	9.5-11.4	2.5-3.0	11.4-13.2	3.0-3.5
430D	8.9-11.2	2.4-3.0	11.2-13.1	3.0-3.5	13.1-15.3	3.5-4.1
432D	8.1-10.0	2.2-2.7	10.0-11.9	2.7-3.2	11.9-14.2	3.2-3.8
438D	8.9-11.2	2.4-3.0	11.2-13.1	3.0-3.5	13.1-15.3	3.5-4.1
442D	8.9-11.2	2.4-3.0	11.2-13.1	3.0-3.5	13.1-15.3	3.5-4.1
446B	10.6-12.9	2.8-3.4	12.9-15.1	3.4-4.0	15.1-17.4	4.0-4.6

NA = Naturally Aspirated
T = Turbocharged

LOAD FACTOR GUIDE

- High: Production work with long cycles and/or constant flow implements.
- Medium: General work with regular cycles in medium applications.
- Low: Utility work with intermittent cycles in light to medium applications.

FOREST PRODUCTS

Model	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
320C FM	23.0-24.0	6.0-6.5	24.0-26.0	6.5-7.0	25.0-27.0	7.0-7.5
322C LL	25.0-28.0	6.5-7.5	26.0-29.0	7.0-7.5	27.0-30.0	7.5-8.0
325C LL	26.0-29.0	7.0-7.5	27.0-30.0	7.0-8.0	29.0-32.0	7.5-8.5
330C LL	36.0-40.0	9.5-10.5	37.0-41.0	10.0-11.0	38.0-42.0	10.0-11.0
517	5.7-13.2	1.5-3.5	13.2-18.9	3.5-5.0	15.0-22.7	4.0-6.0
527	13.2-18.9	3.5-5.0	18.9-23.6	5.0-6.25	23.6-32.2	6.25-8.5
525B	10.4-15.1	2.75-4.0	15.1-20.8	4.0-5.5	20.8-32.2	5.5-8.5
535B	10.4-15.1	2.75-4.0	15.1-22.7	4.0-6.0	22.7-34.0	6.0-9.0
545	10.4-15.1	2.75-4.0	15.1-24.6	4.0-6.5	24.6-37.8	6.5-10.0
539	26.0-29.0	6.87-7.66	27.0-30.0	7.13-7.93	29.0-32.0	7.66-8.45
550	*	*	*	*	*	*
570	*	*	*	*	*	*
580	*	*	*	*	*	*
554	*	*	*	*	*	*
574	*	*	*	*	*	*

*Insufficient data.

LOAD FACTOR GUIDE — 525B

- High: Skidding loads over 6800 kg (15,000 lb) in steep terrain (over 10%) with high skidding resistance.
- Medium: Skidding loads up to 6800 kg (15,000 lb) in moderate terrain (5-10%) with average skidding resistance.
- Low: Skidding loads less than 4500 kg (10,000 lb) in flat terrain (0-5%) with low skidding resistance.

LOAD FACTOR GUIDE — 517

- High: Skidding loads over 4536 kg (10,000 lb) in steep terrain (over 30%) with high skidding resistance.
- Medium: Skidding loads up to 4536 kg (10,000 lb) in moderate terrain (8-30%) with medium skidding resistance.
- Low: Skidding loads less than 4536 kg (10,000 lb) in flat terrain (0-8%) with low skidding resistance.

LOAD FACTOR GUIDE — 527

- High: Skidding loads over 6360 kg (14,000 lb) in steep terrain (over 30%) with high skidding resistance.
- Medium: Skidding loads up to 6360 kg (14,000 lb) in moderate terrain (8-30%) with medium skidding resistance.
- Low: Skidding loads less than 6360 kg (14,000 lb) in flat terrain (0-8%) with low skidding resistance.

Owning & Operating Costs

- ⑧ Hourly Fuel Consumption Tables
- Off Highway Trucks & Tractors
 - Articulated Trucks ● Telehandlers

OFF HIGHWAY TRUCKS & TRACTORS

Model	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
769D	20.8-30.3	5.5-8.0	30.3-40.0	8.0-10.5	40.0-68.0	10.5-14.0
771D	22.7-32.2	6.0-8.5	32.2-41.6	8.5-11.0	41.6-55.0	11.0-14.5
773E	24.5-36.0	6.5-9.5	36.0-53.0	9.5-14.0	53.0-68.0	14.0-18.0
775E	30.3-41.6	8.0-11.0	41.6-56.8	11.0-15.0	56.8-73.8	15.0-19.5
776D	53.0-73.8	14.0-19.5	73.8-96.5	19.5-25.5	96.5-117.3	25.5-31.0
777D	36.0-53.0	9.5-14.0	53.0-73.8	14.0-19.5	73.8-96.5	19.5-25.5
784C	53.0-79.5	14.0-21.0	79.5-109.8	21.0-29.0	100.8-145.7	29.0-38.5
785C	72.5-83.0	19.0-22.0	91.0-96.0	24.0-24.5	101.0-109.0	27.0-29.0
789C	96.5-110.5	25.5-29.0	121.0-128.0	32.0-34.0	134.5-145.0	36.0-38.5
793C (Standard Displacement)	122.5-140.0	32.5-37.0	153.5-162.0	40.5-43.0	171.0-184.0	45.0-48.5
793C (High Displacement)	116.5-133.0	31.0-35.0	145.5-154.0	38.5-40.5	162.0-174.5	43.0-46.0
797	172.5-197.0	45.5-52.0	215.0-228.0	57.0-60.5	240.0-259.0	63.5-68.5

NOTE: Load factors above 50% may be experienced in many applications.

LOAD FACTOR GUIDE

Low: 20%-30% Medium: 30%-40% High: 40%-50%

ARTICULATED TRUCKS

Model	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
725	10.6-14.8	2.8-3.9	14.8-20.8	3.9-5.5	20.8-30.1	5.5-8.0
730	11.7-16.3	3.1-4.3	16.3-23.0	4.3-6.1	23.0-33.2	6.1-8.8
735	16.6-23.1	4.4-6.1	23.1-32.4	6.1-8.6	32.4-46.8	8.6-12.4
740	16.7-23.2	4.4-6.1	23.2-32.6	6.1-8.6	32.6-47.1	8.6-12.5

LOAD FACTOR GUIDE

High: Long haul time with frequent adverse grades. Continuous use on very poorly maintained haul roads with high rolling resistance.

Medium: Normal load and haul time. Varying load and haul road conditions. Some adverse grades. Some high rolling resistance.

Low: Large amount of idling. Short to medium hauls on well maintained level haul roads. Minimum total resistance.

TELEHANDLERS

Model	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
TH210	5.1-6.8	1.3-1.8	8.5-10.1	2.2-2.6	11.8-13.5	3.1-3.5
TH215	5.1-6.8	1.3-1.8	8.5-10.1	2.2-2.6	11.8-13.5	3.1-3.5
TH220B (59-74 kW/80-99 hp)	5.0-7.0	1.3-1.8	10.0-14.0	2.6-3.7	13.0-17.0	3.4-4.5
TH220B (92 kW/123 hp)	5.0-8.0	1.3-2.1	10.0-16.0	2.6-4.2	13.0-20.0	3.4-5.3
TH330B (59-74 kW/80-99 hp)	5.0-7.0	1.3-1.8	10.0-14.0	2.6-3.7	13.0-17.0	3.4-4.5
TH330B (92 kW/123 hp)	5.0-8.0	1.3-2.1	10.0-16.0	2.6-4.2	13.0-20.0	3.4-5.3
TH340B	5.0-7.0	1.3-1.8	10.0-14.0	2.6-3.7	13.0-17.0	3.4-4.5
TH350B	5.0-7.0	1.3-1.8	10.0-14.0	2.6-3.7	13.0-17.0	3.4-4.5
TH360B	5.0-7.0	1.3-1.8	10.0-14.0	2.6-3.7	13.0-17.0	3.4-4.5
TH460B	5.0-7.0	1.3-1.8	10.0-14.0	2.6-3.7	13.0-17.0	3.4-4.5
TH560B (59-74 kW/80-99 hp)	5.0-9.0	1.3-2.4	10.0-15.0	2.6-4.0	13.0-17.5	3.4-4.6
TH560B (92 kW/123 hp)	5.0-9.0	1.3-2.4	10.0-17.0	2.6-4.5	13.0-21.0	3.4-5.5
TH580B	5.0-6.0	1.3-1.6	9.0-10.7	2.4-2.8	16.0-18.3	4.2-4.8

⑧ Hourly Fuel Consumption Tables
 ● Wheel Dozers, Soil Compactors, Landfill Compactors
 ● Compaction Equipment

Owning & Operating Costs

WHEEL DOZERS/SOIL COMPACTORS/LANDFILL COMPACTORS

Model	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
814F	21.0-25.0	5.5-6.5	26.0-30.0	7.0-8.0	36.0-40.0	9.5-10.5
815F	26.0-30.0	7.0-8.0	36.0-42.0	9.5-11.0	44.0-47.0	11.5-12.5
816F	26.0-30.0	7.0-8.0	36.0-42.0	9.5-11.0	44.0-47.0	11.5-12.5
824G	28.0-32.0	7.5-8.5	38.0-44.0	10.0-11.5	51.0-57.0	13.5-15.0
825G	36.0-42.0	9.5-11.0	51.0-57.0	13.5-15.0	60.0-66.0	16.0-17.5
826G	30.3-34.0	8.0-9.0	37.8-41.6	10.0-11.0	45.4-49.2	12.0-13.0
834G	33.9-42.6	8.7-10.9	44.8-50.2	12.1-13.1	64.5-69.9	17.0-18.6
836G	37.9-41.6	10.0-11.0	45.4-49.2	12.0-13.0	53.0-56.8	14.0-15.0
844	42.0-50.0	11.0-13.0	54.0-62.0	14.0-16.0	65.0-73.0	17.0-19.0
854G	53.0-61.0	14.0-16.0	68.0-76.0	18.0-20.0	83.0-91.0	22.0-24.0

LOAD FACTOR GUIDE

High: Heavy dozing, compacting heavy material. Heavy landfill work.

Medium: Production dozing, most pushloading, shovel cleanup, normal compaction.

Low: Considerable idling or travel with no load.

COMPACTION EQUIPMENT

Model	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
CP-323C	8.0-13.0	2.0-3.5	11.0-15.0	3.0-4.0	11.0-19.0	3.0-5.0
CS-323C	8.0-13.0	2.0-3.5	11.0-15.0	3.0-4.0	11.0-19.0	3.0-5.0
CS-431C	8.0-11.0	2.0-3.0	11.0-13.0	3.0-3.5	11.0-15.0	3.0-4.0
CP-433E	11.0-13.0	3.0-3.5	11.0-17.0	3.0-4.5	13.0-19.0	3.5-5.0
CS-433E	11.0-13.0	3.0-3.5	11.0-17.0	3.0-4.5	13.0-19.0	3.5-5.0
CS-531D	13.0	3.5	13.0-15.0	3.5-4.0	15.0-21.0	4.0-5.5
CP-533E	13.0	3.5	13.0-15.0	3.5-4.0	15.0-21.0	4.0-5.5
CS-533E	13.0	3.5	13.0-15.0	3.5-4.0	15.0-21.0	4.0-5.5
CP-563E	13.0	3.5	13.0-15.0	3.5-4.0	15.0-21.0	4.0-5.5
CS-563E	13.0	3.5	13.0-15.0	3.5-4.0	15.0-21.0	4.0-5.5
CS-573E	13.0	3.5	13.0-15.0	3.5-4.0	15.0-21.0	4.0-5.5
CS-583E	15.0-17.0	4.0-4.5	17.0-19.0	4.5-5.0	19.0-23.0	5.0-6.0
CP-663E	15.0-17.0	4.0-4.5	17.0-19.0	4.5-5.0	21.0-22.5	5.5-6.0
CS-663E	15.0-17.0	4.0-4.5	17.0-19.0	4.5-5.0	21.0-22.5	5.5-6.0
CS-683E	17.0-19.0	4.5-5.0	19.0-21.0	5.0-5.5	22.5-24.5	6.0-6.5
CB-214D	2.0-3.0	0.5-1.0	2.5-3.5	0.5-1.0	3.0-4.0	1.0-1.5
CB-224D	2.0-4.0	0.5-1.0	3.0-4.0	0.5-1.0	3.5-4.5	1.0-1.5
CB-225D	2.0-3.0	0.5-1.0	2.5-3.5	0.5-1.0	3.0-4.0	1.0-1.5
CB-334D	4.0-5.5	1.0-1.5	5.5-7.0	1.5-2.0	7.0-10.0	2.0-2.5
CB-335D	3.5-5.5	1.0-1.5	5.5-6.5	1.5-2.0	6.5-9.0	2.0-2.5
CB-434C	11.0-13.0	3.0-3.5	13.0-17.0	3.5-4.5	17.0-19.0	4.5-5.0
CB-534D	5.7-7.6	1.5-2.0	7.6-11.4	2.0-3.0	11.4-15.2	3.0-4.0
CB-634C	13.0	3.5-4.0	15.0-19.0	4.0-5.0	19.0-21.0	5.0-5.5
PS-150C	8.0-11.0	2.0-3.0	11.0-13.0	3.0-3.5	13.0-15.0	3.5-4.0
PS-200B	11.0	3.0	11.0-13.0	3.0-3.5	13.0-15.0	3.5-4.0
PF-300B	13.0	3.5	15.0-17.0	4.0-4.5	17.0-23.0	4.5-6.0
PS-300B	13.0	3.5	15.0-17.0	4.0-4.5	17.0-23.0	4.5-6.0
PS-360B	13.0	3.5	15.0-17.0	4.0-4.5	17.0-23.0	4.5-6.0

LOAD FACTOR GUIDE

High: Vibration 80-100%, heavy cohesive soil, 305 mm (12") lifts or more.

Medium: Vibration 50-80%, granular soil, 100 mm-305 mm (4"-12") lifts.

Low: Vibration 30-50%, asphalt mix, 51 mm-100 mm (2"-4") lifts.

Owning & Operating Costs

⑧ Hourly Fuel Consumption Tables

- Asphalt Pavers
- Cold Planers
- Road Reclaimers/Soil Stabilizers

ASPHALT PAVERS

Model	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
AP-200B	*	*	*	*	*	*
AP-650B	11.5-15.0	3.0-4.0	15.0-19.0	4.0-5.0	26.5-30.0	7.0-8.0
AP-800G	19.0-22.5	5.0-6.0	26.5-30.0	7.0-8.0	34.0-38.0	9.0-10.0
AP-900B	22.5-26.5	6.0-7.0	26.5-30.0	7.0-8.0	34.0-38.0	9.0-10.0
AP-1000B	22.5-26.5	6.0-7.0	26.5-30.0	7.0-8.0	34.0-38.0	9.0-10.0
AP-1050B	19.0-22.5	5.0-6.0	26.5-30.0	7.0-8.0	34.0-38.0	9.0-10.0
AP-1055B	22.5-26.5	6.0-7.0	34.0-38.0	9.0-10.0	41.5-45.5	11.0-12.0
BG-225C	11.5-15.0	3.0-4.0	15.0-19.0	4.0-5.0	26.5-30.0	7.0-8.0
BG-230	19.0-22.5	5.0-6.0	26.5-30.0	7.0-8.0	34.0-38.0	9.0-10.0
BG-240C	22.5-26.5	6.0-7.0	26.5-30.0	7.0-8.0	34.0-38.0	9.0-10.0
BG-260C	22.5-26.5	6.0-7.0	26.5-30.0	7.0-8.0	34.0-38.0	9.0-10.0
BG-245C	19.0-22.5	5.0-6.0	26.5-30.0	7.0-8.0	34.0-38.0	9.0-10.0
BG-2455C	22.5-26.5	6.0-7.0	34.0-38.0	9.0-10.0	41.5-45.5	11.0-12.0

*Insufficient data.

LOAD FACTOR GUIDE

High: Wide width, deep lift paving.

Medium: 3-4 m (10'-12') width, 50-75 mm (2"-3") lift.

Low: Narrow width paving — low production.

COLD PLANERS

Model	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
PM-465	37.0-45.0	10.0-12.0	45.0-57.0	12.0-15.0	60.0-76.0	16.0-20.0
PM-565B	37.0-53.0	10.0-14.0	53.0-68.0	14.0-18.0	72.0-87.0	19.0-23.0

LOAD FACTOR GUIDE

High: Steady, full depth.

Medium: 100 mm (4") cutting depth.

Low: 50 mm (2") or less cutting depth, 80% load cycle.

ROAD RECLAIMERS/SOIL STABILIZERS

Model	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
RM-250C	37.0-45.0	10.0-12.0	45.0-57.0	12.0-15.0	57.0-76.0	15.0-20.0
RM-350B	53.0-68.0	14.0-18.0	68.0-83.0	18.0-22.0	83.0-94.5	22.0-25.0

LOAD FACTOR GUIDE

High: 457 mm (18") soil/305 mm (12") asphalt.

Medium: 305 mm (12") soil/150 mm (6") asphalt.

Low: 150 mm (6") soil/100 mm (4") asphalt.

- Track Loaders
- Wheel Loaders & Integrated Toolcarriers

TRACK LOADERS

Model	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
933C	9.0-11.0	2.5-3.0	11.0-13.0	3.0-3.5	13.0-15.0	3.5-4.0
939C	11.0-13.0	3.0-3.5	13.0-15.0	3.5-4.0	15.0-17.0	4.0-4.5
953C	11.0-16.0	3.0-4.0	16.0-21.0	4.0-5.5	21.0-26.0	5.5-7.0
963C	13.0-17.0	3.5-4.5	19.0-23.0	5.0-6.0	23.0-28.0	6.0-7.5
973C	26.4-33.5	6.9-8.8	33.5-40.7	8.8-10.7	40.7-47.9	10.7-12.6

LOAD FACTOR GUIDE

- High: Continuous excavating and loading from bank. Land clearing.
- Medium: Bank or stockpile loading with idling periods. Load and carry.
- Low: Large amounts of idling in any application.

WHEEL LOADERS & INTEGRATED TOOLCARRIERS

Model	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
902	3.0	0.79	4.0-5.0	1.05-1.32	6.0-7.0	1.59-1.85
906	4.0	1.06	5.0-7.0	1.32-1.85	7.0-9.0	1.85-2.38
908	5.0	1.32	7.0-9.0	1.85-2.38	11.0-12.0	2.91-3.17
914G, IT14G	5.0-6.5	1.0-2.0	8.0-10.5	2.0-2.5	11.5-13.0	3.0-3.5
924G	5.5-7.5	1.5-2.0	9.5-12.0	2.5-3.0	13.0-15.0	3.5-4.0
928G, IT28G	7.5-11.0	2.0-3.0	11.0-15.0	3.0-4.0	15.0-19.0	4.0-5.0
938G, IT38G	9.0-12.5	2.0-3.0	13.0-17.0	3.5-4.5	18.0-22.0	4.5-5.5
950G Series II	9.5-12.5	2.5-3.5	14.5-18.0	3.5-4.5	19.5-24.0	5.0-6.5
962G/IT62G Series II	10.0-13.5	2.6-3.6	15.0-18.5	4.0-4.9	20.0-24.5	5.3-6.5
966G Series II	14.5-18.0	3.75-4.75	19.5-23.75	5.0-6.5	27.0-32.0	7.0-8.5
972G Series II	16.0-19.5	4.0-5.0	21.0-25.5	5.5-7.0	30.0-35.0	7.5-9.5
980G Series II	19.5-22.0	5.0-6.0	25.5-30.5	7.0-8.0	35.5-40.0	9.5-10.5
988G	32.6-41.0	8.4-10.5	43.1-48.3	11.6-12.6	62.0-67.2	16.3-17.9
990	46.0-54.0	12.0-14.0	61.5-69.0	16.0-18.0	81.0-88.5	21.0-23.0
992G	58.0-66.0	15.0-17.5	83.0-91.0	22.0-24.0	116.0-125.0	30.5-33.0
994D	102.0-109.5	27.0-29.0	129.0-144.0	34.0-38.0	163.0-178.0	43.0-47.0

LOAD FACTOR GUIDE

- Note: The above table lists general fuel rates (i.e. fuel burned per hour) based on the following load factors. Machine utilization and job efficiency should be used in conjunction with these load factors to properly evaluate fuel consumption. However, fuel efficiency (i.e. tons of material moved per unit of fuel burned) is the best indicator of the impact of fuel consumption on owning and operating costs.
- High: Continuous and aggressive tight truck loading, hard bank excavation, and shot rock loading from a face.
- Medium: Maximum productivity in aggregate truck loading and hopper charging. Assumes the normal tramming and load & carry associated with the high productivity stockpile load-out and batch plant applications.
- Light: Light utility, construction, low production aggregate truck loading, and most logging applications where there is considerable idling, empty traveling, and load & carry.

9

PLANNED MAINTENANCE (PM) LUBE OILS, FILTERS, GREASE, LABOR

Planned Maintenance (PM) costs should be developed by the Caterpillar Dealer, with customer input for the specific application.

PM costs include the parts and labor at the intervals specified in the Operation and Maintenance Manuals provided for each machine. PM costs for each machine may vary slightly depending upon factors required or specified by the customer. See your local Caterpillar dealer to develop the specific PM cost per hour estimate for your machine and application.

10a **TIRES**

(Line Item 10a)

Tire costs are an important part of the hourly cost of any wheel machine. Tire costs are also one of the most difficult to predict with many variables. The best estimate for tire costs are obtained when tire life estimates are based upon actual customer experience, and are used with prices the machine owner actually pays for the replacement tires.

For cases in which tire experience is not available, use the following tire life estimator curves.

Tire Life Estimators

- Curves do not allow for additional life from recapping. They assume new tires run to destruction, but this is not necessarily recommended.
- Based on standard machine tires. Optional tires will shift these curves either up or down.
- Sudden failure (blow out) due to exceeding Ton-MPH (tkm/h) limitations is not considered. Nor are premature failures due to puncture.
- Application Descriptions/Zones:

Low/Zone A: almost all tires actually wear through the tread from abrasion.

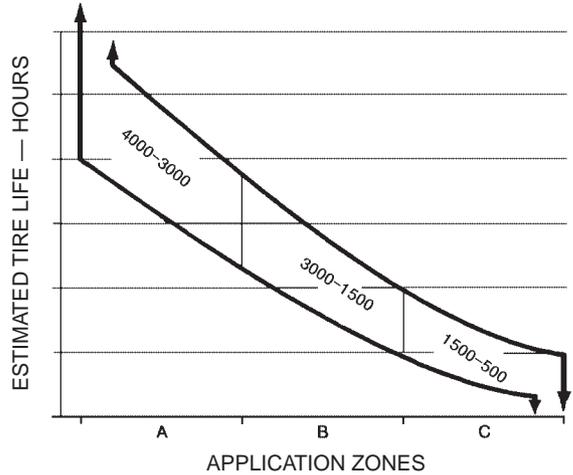
Medium/Zone B: tires wear out normally but others fail prematurely due to rock cuts, impacts and non-repairable punctures.

High/Zone C: few, if any, tires wear through the tread due to non-repairable damages, usually from rock cuts, impacts and continuous overloading.

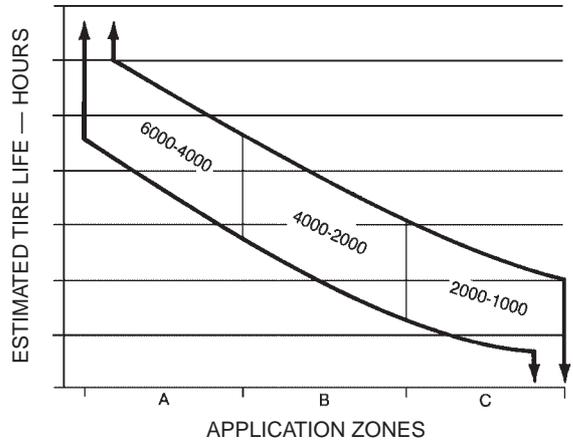
NOTE: Tire life can often be increased by using extra tread and extra deep tread tires.

NOTE: Premature failure could occur at any time due to puncture.

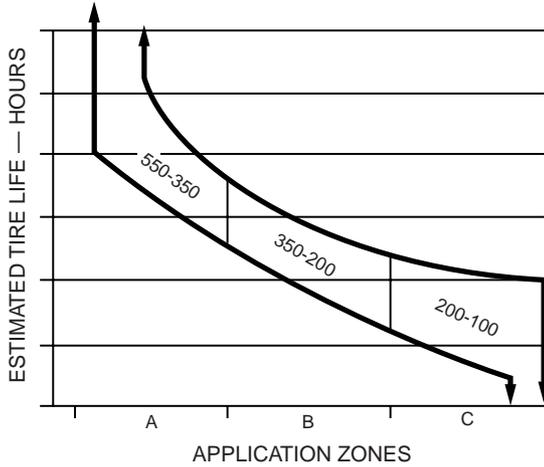
MOTOR GRADERS



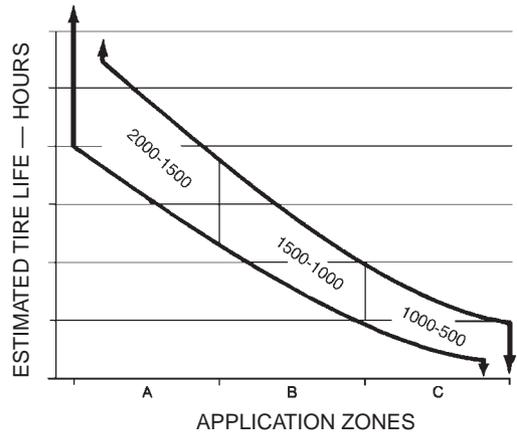
SKIDDERS



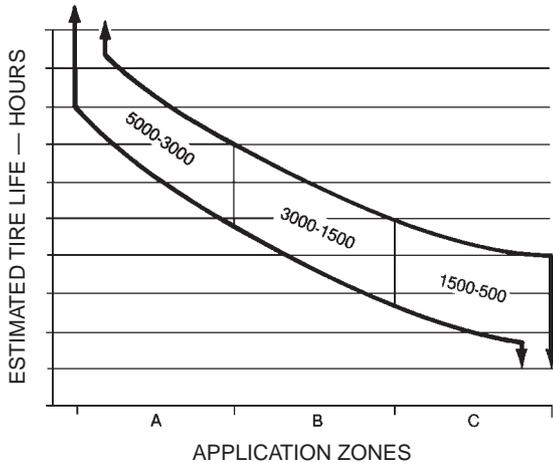
SKID STEER LOADERS



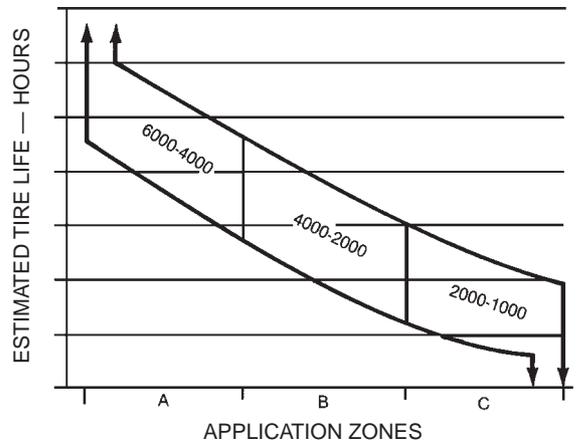
LOAD HAUL DUMP UNITS



WHEEL TRACTOR-SCRAPERS



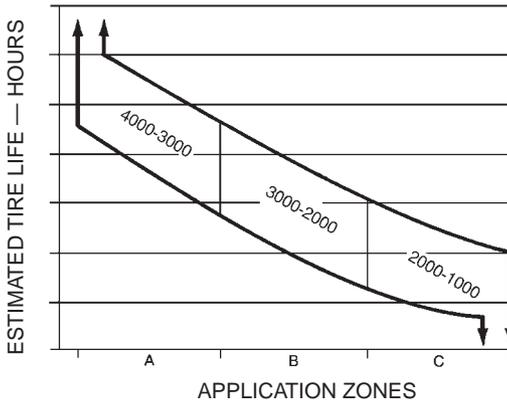
CONSTRUCTION & MINING TRUCKS



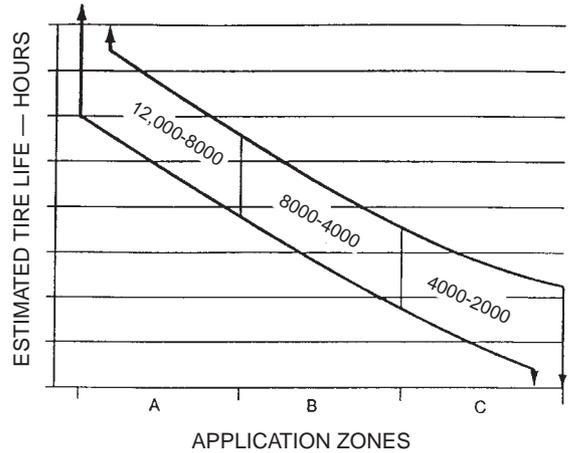
Key:

- Zone A — Almost all tires actually wear through the tread due to abrasion.
- Zone B — Some tires wear out normally while others fail prematurely due to rock cuts, impacts and non-repairable punctures.
- Zone C — Few, if any, tires wear through the tread because of non-repairable damages, usually from rock cuts, impacts or continuous overloading.

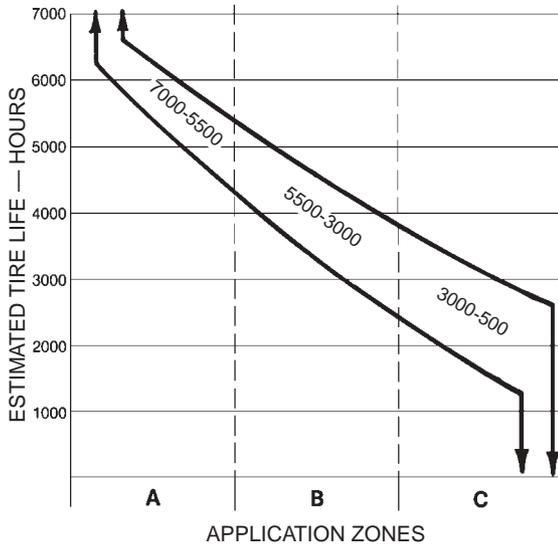
UNDERGROUND TRUCKS



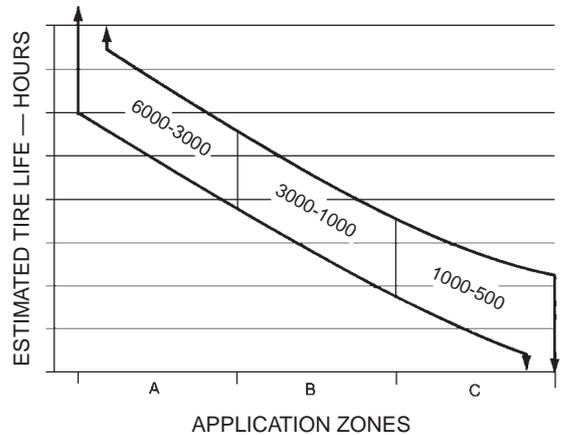
TRACTORS/WAGONS



ARTICULATED TRUCKS



**WHEEL TRACTORS
WHEEL LOADERS**



Key:

- Zone A — Almost all tires actually wear through the tread due to abrasion.
- Zone B — Some tires wear out normally, others fail prematurely due to rock cuts, impacts, and non-repairable punctures.
- Zone C — Few, if any, tires wear through the tread because of non-repairable damages, usually from rock cuts, impacts, or continuous overloading.

Application Tire Life	Tires Cost Per Hour - Basic Factors		
	Zone A 8000-5000	Zone B 5000-2500	Zone C 2500-500
Model			
990 II			
992G			
994D	\$20-\$40	\$30-\$80	\$60-\$400

GOODYEAR LIFE ESTIMATING SYSTEM

As an additional assist in estimating *hauling unit* tire life, Goodyear Tire and Rubber Co. has furnished the following information which is included here with their permission. READ THE PREAMBLE CAREFULLY.

“... at present, there is no completely accurate, fool-proof method of forecasting tire life. Tire engineers have many theoretical methods ... but these generally are so involved and time consuming that they are impractical for field use.

“However, the tire industry has made many surveys of tire performance and arrived at a system which can give rough *estimates* of tire life. Studies done by the major tire companies and by at least two major equipment manufacturers are in close agreement.

“The table [which follows] shows how to apply this system ...”

ESTIMATED TIRE SERVICE LIFE OF HAULING UNITS (Trucks & Scrapers)

No.	Condition	Factor
I	Maintenance	
	Excellent	1.090
	Average	0.981
	Poor	0.763
II	Speeds (Maximum)	
	10 mph ~ 16 km/h	1.090
	20 mph ~ 32 km/h	0.872
	30 mph ~ 48 km/h	0.763
III	Surface Conditions	
	Soft Earth — No Rock	1.090
	Soft Earth — Some Rock	0.981
	Well Maintained — Gravel Road	0.981
	Poorly Maintained — Gravel Road	0.763
	Blasted — Sharp Rock	0.654
IV	Wheel Positions	
	Trailing	1.090
	Front	0.981
	Driver (Rear Dump)	0.872
	(Bottom Dump)	0.763
	(Self Propelled Scraper)	0.654

No.	Condition	Factor
V	Loads (See No. VIII note)	
	T&RA/ETRTO* Recommended Loading	1.090
	20% Overload	0.872
	40% Overload	0.545
VI	Curves	
	None	1.090
	Medium	0.981
	Severe	0.872
VII	Grades (Drive Tires Only)	
	Level	1.090
	5% Max.	0.981
	15% Max.	0.763
VIII	Other Miscellaneous Combinations (See note below)	
	None	1.090
	Medium	0.981
	Severe	0.872
	Condition VIII is to be used when overloading is present in combination with one or more of the primary conditions of maintenance, speeds, surface conditions and curves. The combination of severe levels in these conditions, together with an overload, will create a new and more serious condition which will contribute to early tire failure to a larger extent than will the individual factors of each condition.	

*Tire and Rim Association/European Tire and Rim Technical Organization.

Type of Tire	Base Average Life		
	Hours	Miles	km
E-3 Std. Bias Tread	2510	25,100	40 400
E-4 Bias Xtra Tread	3510	35,100	56 500
E-4 Radial Xtra Tread	4200	42,000	67 600

Using Base Hours (or Miles), multiply by the appropriate factor for *each* condition to obtain approximate estimated hours (or miles) as the final product.

Example: An off-highway truck equipped with E-4 drive tires running on a well maintained haul road having easy curves and minimum grades and receiving “average” tire maintenance attention but being 20% overloaded:

Condition: I II III IV V VI VII VIII
 Factor: 0.981 × 0.872 × 0.981 × 0.872 × 0.872 × 0.981 × 0.981 × 0.981
 × 3510 base hours = 2114 hours (say 2100 hours)

As can be seen, this system requires the careful application of strictly subjective judgments, and can be expected to result in conservative estimates. Keep in mind, however, **that the system is offered only as an aid in estimating and not as a rigid set of rules.**

On the other hand, if tire life on a given job is considered less than satisfactory, an analysis of these factors may point to conditions which can be improved to the betterment of tire life.

Replacement tire prices should always be obtained from local tire company sources.

Since tires are considered a wear item in this method of estimating owning and operating costs, total tire replacement cost is deducted from machine delivered price to arrive at a net figure for depreciation purposes. Outlay for tires is then included as an item in operating costs:

$$\text{Hourly Tire Cost} = \frac{\text{Replacement Cost of Tires}}{\text{Estimating Tire Life in Hours}}$$

Recapping can sometimes lower hourly tire cost. Considerations are availability of molds, local recapping costs, and experience with recap life.

10b UNDERCARRIAGE
(Line Item 10b)

Undercarriage expense can be a major portion of the operating costs for track-type machines, and these costs can vary *independently* of basic machine costs. That is, the undercarriage can be employed in an extremely abrasive, high-wear environment while the basic machine may be in an essentially easy application, and vice-versa. For that reason, it is recommended that the hourly cost of undercarriage be calculated separately as a wear item rather than being included in the repair costs for the basic machine.

Three primary conditions affect probable life-expectancy of track-type undercarriage:

- 1. Impact.** The most measurable effect of impact is structural — that is bending, chipping, cracking, spalling, roll-over, etc., and problems with hardware and pin and bushing retention.

Impact ratings:

High — Non-penetrable hard surfaces with 150 mm (6") or higher bumps.

Moderate — Partially penetrable surfaces and bumps of 75-150 mm (3-6") height.

Low — Completely penetrable surfaces (which provide full shoe plate support) with few bumps.

- 2. Abrasiveness.** The tendency of the underfoot materials to grind away the wear surfaces of track components.

Abrasiveness ratings:

High — Saturated wet soils containing a high proportion of hard, angular or sharp sand or rock particles.

Moderate — Slightly or intermittently damp soils containing a low proportion of hard, angular or sharp particles.

Low — Dry soils or rock containing a low proportion of hard, angular or sharp sand or rock chip particles.

Impact and abrasiveness in combination can accelerate wear rates beyond their individual effects when considered alone, thus further reducing component life. This should be taken into account in determining impact and abrasiveness ratings or, if preferred, the combination can be included in selecting the "Z" factor.

- 3. "Z" factor.** Represents the combined effect on component life of the many intangible environmental, operational and maintenance considerations on a given job.

Environment and Terrain. Earth which may not be abrasive itself can pack in sprocket teeth, causing mis-match and high stress as the teeth engage the bushings. Corrosive chemicals in the materials being moved or in the natural soil can affect wear rates, while moisture and temperature can exaggerate the effect. Temperature alone can play its own role — hot slag and hard-frozen soils being but the extremes. Constant sidehill work can increase wear on the sides of components.

Operation. Some operator practices tend to increase track wear and cost if not controlled on the job. Such practices include high-speed operation, particularly in reverse; tight turns or constant corrections in direction; and stalling the tractor under load forcing the tracks to slip.

Maintenance. Good maintenance — proper track tension, daily cleaning when working in sticky materials, etc. — combined with periodic wear measurement and timely attention to recommended services (CTS) can extend component life and lower costs by minimizing the effects of these and other adverse conditions.

While impact and abrasion should not be too difficult to judge, selection of the proper “Z” factor will require careful analysis of job conditions such as weather, tendency for soil packing, side-hill loading, corrosive environment, etc.; operational factors such as high-speed reverse, amount of travel, tight turns, track slippage under overload, etc.; and maintenance considerations such as proper tensioning, use of Custom Track Service, etc.

Selection of the “Z” multiplier is strictly a matter of judgement and common sense, but its effect on cost can be the difference between profit on a controlled job and heavy loss where control is allowed to slip. To assist in arriving at an appropriate value for the “Z” factor, consider that proper maintenance — or the lack thereof — will represent about 50% of its effect, environment and terrain 30%, and operator practices 20%. For large excavators the amount of travel is the critical part of the “Z” factor. A good operator working under good field conditions can be counterbalanced by poor maintenance practices to yield a fairly high “Z” factor. On the other hand, close attention to maintenance, tension and alignment can more than offset a bad underfoot condition resulting in severe sprocket packing, and lead to selection of a moderate to low “Z” factor. Obviously, flexibility in selection of a “Z” factor has been built into the system, and use of this flexibility is encouraged. Further, a considerable measure of control can be maintained over the “Z” factor, and any reduction of its effects is money in the bank. Your Caterpillar Dealer CTS man can be invaluable in this endeavor as well as helping you establish a comprehensive undercarriage cost control program.

Estimating Undercarriage Cost

The guide below gives a basic factor for the various track-type machines and a series of conditions multipliers to modify the basic cost according to the anticipated impact, abrasive and miscellaneous (“Z”) conditions under which the unit will be operating.

- Step 1. Select machine and its corresponding basic factor.
- Step 2. Determine range for impact, abrasiveness and “Z” conditions.
- Step 3. Add selected conditions multipliers and apply sum to basic factor.

The result will be the estimated hourly cost for undercarriage in that application.

Undercarriage Basic Factors			
Model	Basic Factor		
5230B	20.1		
D11R	18.0		
5130B	15.9		
D10R	13.3		
5110B	11.7		
D9R	10.6		
D8R & D8R Series II	9.0		
973, 589, D7R Series II LGP	10.1		
D7R Series II, 963C, 583R, D6R Series II LGP, D7R XR Series II	8.5		
385B, 5090B	6.8		
D6R Series II, 953C, 572R, D6M LGP, 527	6.6		
365B Series II	6.5		
345B Series II	5.6		
D5N LGP, D6 SR, D6N XL, 517	5.3		
330C	4.7		
D3G (All), D4G (All), D5G (All), 933 (All), 939, 561M	3.9		
325C	3.6		
314C, 315C, 317C, 318B L, 322C	3.2		
320C	2.7		
307B, 308C, 311C, 312C	2.3		
Conditions Multipliers			
	Impact	Abrasiveness	“Z”
High	0.3	0.4	1.0
Moderate	0.2	0.2	0.5
Low	0.1	0.1	0.2

Example: D10R in high impact, non-abrasive material with a moderate “Z” factor.

$$\begin{aligned}
 \text{D10R Basic Factor} &= 13.3 \\
 \text{Multipliers:} \quad I &= 0.3 \\
 \quad \quad \quad A &= 0.1 \\
 \quad \quad \quad Z &= 0.5
 \end{aligned}$$

$$\text{U.C. cost} = 13.3 (0.3 + 0.1 + 0.5) = \mathbf{\$11.97/hour}$$

- NOTE:** 1. Conditions Multipliers may be selected in any combination. Thus, a multiplier of 0.4 (all low-range multipliers) represents the best of the best, while 1.7 (all high range multipliers) would be the worst of the worst conditions.
2. The hourly undercarriage cost estimate resulting from this method will be made up of *approximately* 70% parts cost and 30% labor charges. The cost of undercarriage components is based on published U.S. Consumers List Prices and may be adjusted as needed for import duties, exchange rates, etc. outside the United States. Labor has been figured at \$60.00 (U.S.) per shop hour.
 3. For further information and guidance, refer to the current issue of the Caterpillar Custom Track Service Handbook.
 4. This formula for estimating undercarriage cost should not be used for tractors working in stockpile coal handling applications. Undercarriage costs are nominal in stockpile coal handling, and using this formula will result in estimating cost substantially above actual costs.

11

REPAIR COSTS

(Line Item 11)

Repair cost per hour should be developed by the Caterpillar Dealer, with customer input for the specific machine application and requirements.

As with PM cost per hour, repair costs are significantly affected by the specific application and situation. Several important variables must be provided by the customer and the local Caterpillar Dealer. This will enable a calculated cost per hour that is specific to the machine conditions and customer needs.

Machine applications, operating conditions, ownership periods, component life, and maintenance attention determine repair costs. In any specific application, actual cost experience on similar machines and applications provides the best basis for establishing the hourly repair cost.

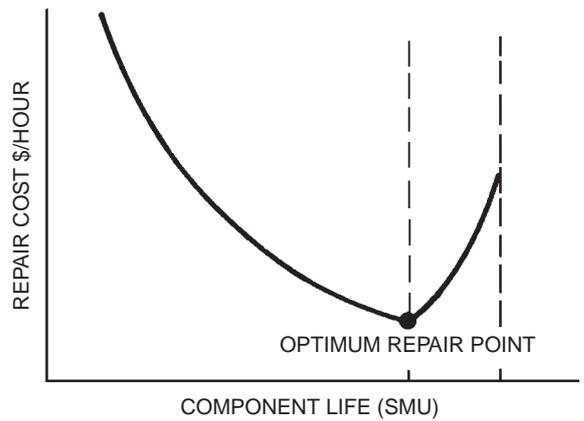
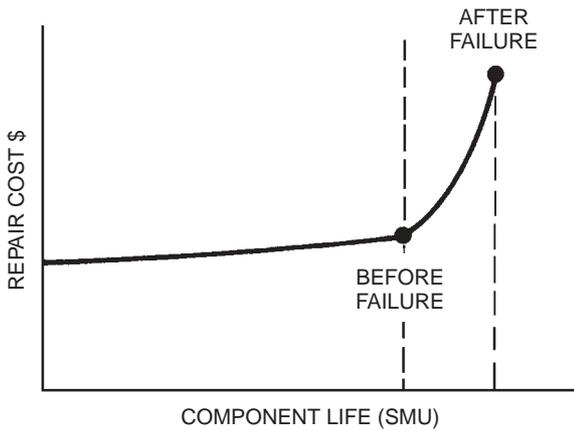
Repairs and component lives are normally the largest single item in operating costs and include all parts and direct labor (except operator's wages) chargeable to the machine. Shop overhead can be absorbed in general overhead or charged to machines as a percent of direct labor cost, whichever is the owner's normal practice.

Hourly repair costs for a single machine normally follow an upward staircase pattern since major outlays for repairs usually come in spurts. However, when broad averages are considered, the staircase becomes a smooth, upward curve. Since this hourly repair cost curve starts low and gradually rises over time, hourly operating costs must be adjusted upward as the unit ages. Alternatively an average repair cost can be used which provides a straight line graph. Most owners prefer the average method, and it is the one suggested here.

Since repair costs are low initially and rise gradually, averaging them produces extra funds at first which are reserved to cover future higher costs.

Your Caterpillar dealer has the ability to make more accurate repair cost estimates and we suggest you use their experience and expertise if you need help in estimating operating costs.

As stated, repair costs are affected by application, operating conditions, ownership period, maintenance, and age of the equipment. The most significant effects on cost will be those factors affecting major component life. A second significant factor is whether the repair is performed before or after catastrophic failure. Repair before a major component fails can be one-third of an after failure repair with only a moderate sacrifice in life (see graphs). Oil analysis and other diagnostic tools, maintenance inspections and indicators, and operator notes are vital to determine the optimum repair point and thereby achieving lower hourly repair costs. Maintenance practices are significant because they affect component longevity and the percentage of scheduled, before failure repairs.



⑫ Special Wear Items
 ⑮ Operator's Hourly Wage
 Owning & Operating Examples
 ● Track-Type Tractor

12

SPECIAL WEAR ITEMS

(Line Item 12 and Subsection 12A)

All costs for high-wear items such as cutting edges, ripper tips, bucket teeth, body liners, router bits, etc., and welding costs on booms and sticks should be included here. These costs will vary widely depending on applications, materials and operating techniques. Consult your Caterpillar Dealer Parts Department for estimated life under your job conditions.

15

OPERATOR'S HOURLY WAGE

(Line Item 15)

This item should be based on local wage scales and should include the hourly cost of fringe benefits.

EXAMPLES OF FIGURING OWNING AND OPERATING COSTS

(The following two examples are for illustrative purposes only. The intent is to show how the worksheets could be filled out. The PM and Repair costs should be developed by your local Caterpillar Dealer.)

Example I: ESTIMATING HOURLY OWNING AND OPERATING COSTS OF A TRACK-TYPE TRACTOR

Assume a power shift track-type tractor with straight bulldozer, hydraulic control, tilt cylinder and three-shank ripper, is purchased by a contractor for \$135,000, delivered price at job site.

Application will be production dozing of bank gravel. Minimal ripping will be required to loosen material.

In the following calculations, refer as necessary to the source material already reviewed.

OWNING COSTS —

To Determine Residual Value at Replacement

Enter delivered price, \$135,000, in space (A). (See example form at end of this discussion.) Since the machine being considered is a track-type tractor, no tires are involved. This particular owner's experience is that at trade-in time, the tractor will be worth approximately 35% of its original value. This \$47,250 trade-in value is entered in space (B) leaving a net of \$87,750 to be recovered through work.

Enter the net value to be recovered through work in space (C).

Indicated ownership period is 7 years with annual usage of 1200 hours per year or 8400 hours of total ownership usage.

Divide the Net Value from space (C), \$87,750, by Ownership Usage, 8400 hours, and enter result \$10.45 in space (D).

Interest, Insurance, Taxes

In this example, local rates are assumed as follows:

Interest	16%
Insurance	1%
Taxes	1%
	18%

Using the following formula:

N = 7:

$$\frac{\left[\frac{7 + 1}{2 \times 7} \times \$135,000 \right] \times 0.16}{1200} = \$10.29$$

Enter \$10.29 in space (E).

Insurance and property taxes can also be calculated using the same formula as shown for the interest cost, and entering them on lines 5 and 6.

Items 3b, 4, 5 and 6 can now be added and the result, \$22.02 entered in space (H) Total Hourly Owning Costs.

OPERATING COSTS —

Fuel

See fuel consumption tables. The intended application, production dozing, indicates a medium load factor. Assume that the estimated fuel consumption from the table is 17 liter/hr (4.5 U.S. gal/hr.). Cost of fuel in this locality is \$0.34/liter (\$1.25/U.S. gal.).

Consumption	Unit Cost	Total
17 liter/hr ×	\$0.34 liter	= \$5.78
4.5 gal/hr ×	\$1.25 gal.	= \$5.63

Enter this figure in space (I).

Planned Maintenance (PM) Cost per Hour

Use PM cost per hour estimate developed by your local Caterpillar Dealer. (For this example assume cost per hour is \$2.30) Enter this figure in space (J) on line 9.

Tires

Since this example considers a track-type tractor, space (K) is left blank.

Undercarriage

Our estimating reference gives an undercarriage cost Basic Factor of 6.6 for this tractor. It is anticipated that with some ripping on the job, impact loading of track components will be medium, indicating an “I” multiplier of 0.2. The gravel-sand mix in the bank, being dry, should be only moderately abrasive for an “A” multiplier of 0.2. In analyzing the miscellaneous conditions: there is enough clay in the bank to produce some packing of the sprockets; the operator is careful, but is forced into some tight turns because of space limitations; there is good drainage in the pit; track tension is checked weekly; and all track-type equipment on the job is enrolled in the Custom Track Service program. Accordingly, the “Z” multiplier is judged to be somewhat greater than low level — 0.3 in this case.

It should be noted that in applying particularly the “Z” factor, rather wide flexibility is provided and was used in the above example. Such flexibility is intended and its use encouraged.

Then:

$$\text{Cost per hour} = \text{Basic Factor} \times (\text{I} + \text{A} + \text{Z})$$

$$\text{Basic Factor} = 6.6$$

$$\text{Conditions Multipliers: I} = 0.2$$

$$\text{A} = 0.2$$

$$\text{Z} = 0.3$$

$$\text{Cost per hour } 6.6 (0.2 + 0.2 + 0.3) = \$4.62 \text{ which is entered in space (L).}$$

Repair Cost per Hour

Use the Repair cost per hour estimate developed by your local Caterpillar Dealer. (For this example assume cost per hour is \$6.12) Enter this figure in space (M) on line 11.

Special Items

Assuming the tractor is equipped with a three-shank ripper and an “S” dozer, allowance must be made for ripper tips, shank protectors, and dozer cutting edges.

Assume your knowledge of the operation indicates the ripper will be used only about 20% of total tractor operating time. Estimated tip life while in use is 30 hours. Therefore, tips will be replaced:

$$\frac{30 \text{ Hours}}{0.20} = \text{each } 150 \text{ hours of tractor operation}$$

Shank protector life is estimated at three times tip life or 450 hours of tractor operation.

Cutting edge life is estimated to be 500 hours.

Using local prices for these items, hourly costs are estimated as follows:

$$\text{Tips: } \frac{3 @ \$35.00 \text{ ea.}}{150 \text{ hr.}} = \$0.70 \text{ per hour}$$

$$\text{Shank Protectors: } \frac{3 @ \$55.00 \text{ ea.}}{450 \text{ hr.}} = \$0.37 \text{ per hour}$$

$$\text{Cutting Edges: } \frac{\$125 \text{ per set}}{500 \text{ hr.}} = \$0.25 \text{ per hour}$$

The total of these, \$1.32; is entered in space (N).

Items 8, 9, 10b, 11 and 12 can now be added and the result, \$19.99, is entered in space (O), Total Hourly Operating Costs.

Operator’s Hourly Wage

Assume this is \$25.00 including fringe benefits. This figure is entered in space (P).

Total Owning Costs, Total Operating Costs and Operator’s Hourly Wage are now added together and the result, \$67.01, is entered in space (Q). The itemized estimate of Hourly Owning and Operating Costs is now complete.

Example II: ESTIMATING HOURLY OWNING AND OPERATING COSTS OF A WHEELED VEHICLE

With only a few simple changes, owning and operating costs for a wheeled vehicle are calculated using the same format as that used for the Track-Type Tractor. Only the differences will be explained as we look at example calculations for a wheel loader.

OWNING COSTS —

To Determine Residual Value at Replacement

Enter delivered price in space (A). The cost of tires is deducted since they will be treated as a wear item. For purposes of illustration, the Wheel Loader is estimated to have a potential 48% trade-in value (B) at the end of the 5 year/7500 hour ownership usage, leaving a net value to be recovered through work of \$34,320 (C).

Interest, Insurance, Taxes

Refer to the formulas using the same rates as before and 1500 operating hours per year. The result \$4.22 is applied to the interest cost (E).

Insurance and property taxes can also be calculated using the same formula as shown for the interest cost.

The sum of lines 3b, 4, 5 and 6 gives the total hourly owning cost, line 7.

OPERATING COSTS —

Fuel

See the fuel consumption tables and apply the actual cost of purchasing fuel in the project area (I).

Planned Maintenance (PM) Cost per Hour

Use PM cost per hour estimate developed by your local Caterpillar Dealer. (For this example assume cost per hour is \$2.10.) Enter this figure in space (J) on line 9.

Tires

Use the tire replacement cost and the best estimate of tire life based on experience and anticipated job conditions.

Repair Cost per Hour

Use the Repair cost per hour estimate developed by your local Caterpillar Dealer. (For this example assume cost per hour is \$3.39.) Enter this figure in space (M) on line 11.

Special Items

Ground engaging tools, welding, etc. are covered here. Use current costs for cutting edges and similar items. Use your best estimate of the hours of life which can be expected from them based on previous experience in like materials. Enter the total on line 12.

The total of lines 8 through 13 represents hourly operating costs.

Operator's Hourly Wage

To give a true picture of operator cost, include fringe benefits as well as direct hourly wages (line 15).

TOTAL O&O

The total of lines 7, 13 and 15 is the total hourly owning and operating cost of the machine. Keep in mind that this is an estimate and can change radically from project to project. For the greatest accuracy, the hourly cost reflected in actual on-the-job cost records should be used.

HOURLY OWNING AND OPERATING COST ESTIMATE

DATE _____

	Estimate #1	Estimate #2
A–Machine Designation	Track-type Tractor	Wheel Loader
B–Estimated Ownership Period (Years)	<u>7</u>	<u>5</u>
C–Estimated Usage (Hours/Year)	<u>1200</u>	<u>1500</u>
D–Ownership Usage (Total Hours)(B × C)	<u>8400</u>	<u>7500</u>
OWNING COSTS	(1)	(2)
1. a. Delivered Price, to the customer (including attachments)	<u>135,000 (A)</u>	<u>70,000</u>
b. Less Tire Replacement Cost if desired	<u>N/A</u>	<u>4000</u>
c. Delivered Price Less Tires	<u>135,000</u>	<u>66,000</u>
2. Less Residual Value at Replacement	(35%) <u>47,250 (B)</u>	(48%) <u>31,680</u>
(See subsection 2A on back)		
3. a. Net Value to be recovered through work	<u>87,750 (C)</u>	<u>34,320</u>
(line 1c less line 2)		
b. Cost Per Hour:		
Net Value (1) <u>87,750</u> (2) <u>34,320</u>	<u>10.45 (D)</u>	<u>4.58</u>
Total Hours <u>8400</u> <u>7500</u>		
4. Interest Costs $\frac{N + 1}{2N} \times \text{Del. Price} \times \frac{\text{Simple Int.}}{\% \text{ Rate}} =$		
N = No. Yrs. Hours/Year		
(1) $\frac{7 + 1}{14} \times \frac{135,000}{1200 \text{ Hours/Yr.}} \times 16\%$		
(2) $\frac{5 + 1}{10} \times \frac{66,000}{1500 \text{ Hours/Yr.}} \times 16\%$		
= <u>10.29 (E)</u> = <u>4.22</u>		
5. Insurance $\frac{N + 1}{2N} \times \text{Del. Price} \times \frac{\text{Insurance}}{\% \text{ Rate}} =$		
N = No. Yrs. Hours/Year		
(1) $\frac{7 + 1}{14} \times \frac{135,000}{1200 \text{ Hours/Yr.}} \times 1\%$		
(2) $\frac{5 + 1}{10} \times \frac{66,000}{1500 \text{ Hours/Yr.}} \times 1\%$		
= <u>0.64 (F)</u> = <u>0.26</u>		
(Optional method when Insurance cost per year is known)		
Ins. \$ _____ Per Yr. ÷ _____ Hours/Yr. =		

Estimating form continues next page

SUBSECTION 2A: Residual Value at Replacement

Gross Selling Price	(est. #1) (___%) _____	(est. #2) (___%) _____
Less: a. Commission	_____	_____
b. Make-ready costs	_____	_____
c. Inflation during ownership period*	_____	_____
Net Residual Value	<u>47,250</u> (35%)	<u>31,680</u> (48%) of original delivered price
(Enter on line 2)		

*When used equipment auction prices are used to estimate residual value, the effect of inflation during the ownership period should be removed to show in constant value what part of the asset must be recovered through work.

SUBSECTION 12A: Special Items (cutting edges, ground engaging tools, bucket teeth, etc.)

(1)	Cost	Life	Cost/Hour	(2)
1.	<u>105</u> ÷	<u>150</u> =	<u>0.70</u>	1. <u>120</u> ÷ <u>200</u> = <u>0.60</u>
2.	<u>165</u> ÷	<u>450</u> =	<u>0.37</u>	2. _____ ÷ _____ = _____
3.	<u>125</u> ÷	<u>500</u> =	<u>0.25</u>	3. _____ ÷ _____ = _____
4.	_____ ÷	_____ =	_____	4. _____ ÷ _____ = _____
5.	_____ ÷	_____ =	_____	5. _____ ÷ _____ = _____
6.	_____ ÷	_____ =	_____	6. _____ ÷ _____ = _____
	Total	(1) <u>1.32</u>	(2) <u>0.60</u>	

(Enter total on line 12)

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SELECTION, APPLICATION, MAINTENANCE

Proper tire selection, application and maintenance continue to be the most important factors in earthmoving economics. Wheel tractors, loaders, scrapers, trucks, motor graders, etc. are earthmoving equipment whose productivity and payload unit cost may depend more on tire performance than any other factor.

Off-the-road tires must operate under a wide variety of conditions ranging from dry “potato dirt” through wet severe shot rock. Speed conditions vary from less than 1 mph average to 72 kmh (45 mph). Gradients may vary from 75% favorable to 30% adverse. Climatic conditions, operator skills, maintenance practices, etc. all may have a profound effect on tire life and unit costs.

Although one specific tire construction may be acceptable in a variety of applications, no one tire can meet all requirements on any one machine and perhaps not even one job. The many differences in tire requirements on earthmoving machines have resulted in a wide variety of tread and carcass designs being made available. The optimum tire selection for a specific machine on a given job should be a joint decision between the user and tire supplier. Several tire manufacturers have technical and application representatives in the field for proper guidance in tire selection.

When job conditions change, it may be desirable to select a different tire configuration to meet the new requirements.

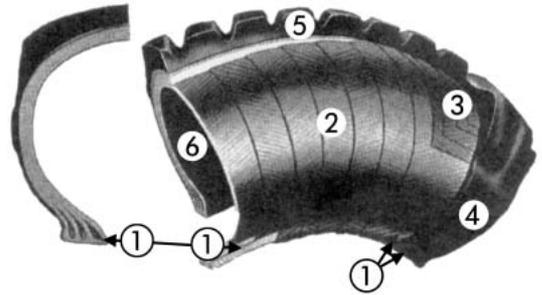
TIRE CONSTRUCTION

The pneumatic tire is essentially a flexible pressure vessel utilizing structural members (nylon, steel cable, etc.) to contain the hoop tension resulting from the inflation pressure. Rubber is utilized as a protective coating and sealant over the structural members and makes up the tread pattern which provides the wearing medium at the ground interface. The following brief explanation of the various tire constructions will assist you in selecting tires for your specific application.

Two distinct tire constructions approved on all Caterpillar machines are the BIAS PLY and RADIAL PLY tires. The following is a brief explanation of the principal features of these two constructions.

Bias Ply

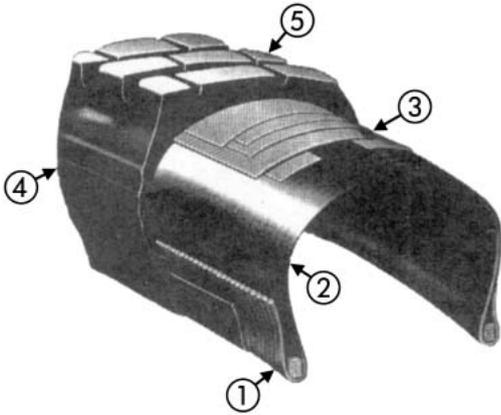
1. *Beads* — The tire beads consist of steel wire-bundles (3 or 4 in larger tires) which are forced laterally by tire inflation pressure to wedge the tire firmly on the rim's tapered bead seat. The nylon plies tie into the bead bundles. The forces inherent in the tire are transmitted from the rim through the bead bundles into the nylon.
2. *Body plies* — Layers of rubber-cushioned nylon cord comprise the tire carcass. Alternating plies of cord cross the tread centerline at an angle (bias). The term "ply rating" is an index of tire strength and not the actual number of tire plies.



Bias Ply Construction

3. *Breakers or tread plies* — These, if used, are confined to the tire's tread area and are intended to improve carcass strength and provide additional protection to the body plies. Some "work" tires employ steel breakers or belts to further protect the carcass.
4. *Sidewalls* — These are the protective rubber layers covering the body plies in the sidewall.
5. *Tread* — The wearing part of the tire which contacts the ground. It transmits the machine weight to the ground and provides traction and flotation.
6. *Inner liner* — This is the sealing medium which retains the air and, combined with the "O" ring seal and rim base, eliminates the need for inner tubes and flaps.
7. *Tubes and flaps (not shown)* — Required if the tire is not of tubeless construction with an inner liner.
8. *Undertread* — Protective rubber cushion lying between tread and body ply.

Radial Ply



Radial Ply Construction

1. *Beads* — A single bead bundle of steel cables or steel strip (spiraled like a clock spring) comprise the bead at each rim interface.
2. *Radial carcass* — This consists of a single layer or ply of steel cables laid archwise (on the radian) bead to bead.
3. *Belts* — Several layers or plies of steel cable form the belts which underlie the tread area around the tire circumference. The cable in each belt crosses the tread centerline at an angle with the angle being reversed from the preceding belt.
4. *Sidewalls*.
5. *Tread*.
6. *Undertread* — Protective rubber cushion lying between tread and steel belts.

TIRE TYPES

Off-the-road tires are classified by application in one of the following three categories:

1. *Transport tire* — For earthmoving machines that transport material such as trucks and wheel tractors.
2. *Work tire* — Normally applied to slow moving earthmoving machines such as graders and loaders.
3. *Load and carry* — Wheel loaders engaged in transporting as well as digging.

TIRE SIZE NOMENCLATURE

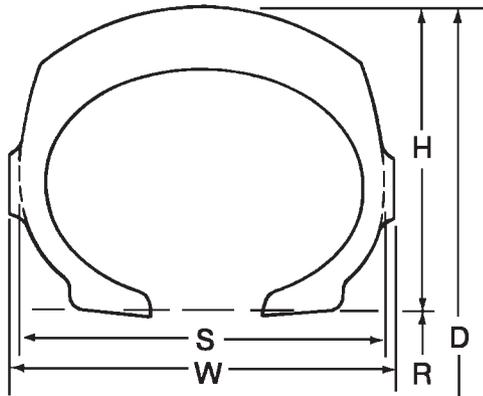
Tire size nomenclature is derived from the approximate cross section width and rim diameter with various systems being available:

1. A wide base tire, for example, is designated as a 29.5-35 with the approximate cross section width being the first number (inches) and the rim diameter the second number (inches). Industry standards permit this tire's width to be a maximum of 824 mm (32.45") in service.
2. A standard base tire, for example, is designated as a 24.00-35 with the approximate cross section width being the first number (inches) and the rim diameter the second number (inches). Industry standards permit this tire width to be a maximum 718 mm (28.27") in service.
3. A low profile tire, for example, is designated as a 40/65-39 (formerly 65/40-39 or 40-39) with the approximate cross section width being the first (40) number (inches) and the rim diameter the third (39) number (inches). The second number (65 actually is 0.65) is the aspect ratio (section height divided by section width).

If designated 40/65 R39, then the R denotes radial construction.

The wide base tire has an aspect ratio of approximately 0.83 and the standard base 0.95. The "low profile tire" has an aspect ratio of 0.65.

When comparing a wide base tire to a standard base tire, it must be remembered a larger first number on a wide base tire with the same rim diameter does not mean the wide base is larger in overall diameter. For example, the 18.00-25 standard base tire is larger in diameter than the 20.5-25 wide base. It is comparable in overall diameter to the 23.5-25 wide base.



Tire cross-section

- D = Tire Overall Diameter
- R = Nominal Rim Diameter
- H = Tire Section Height
- S = Tire Section Width
- W = Tire Width (includes ornamental ribs)
- $\frac{H}{S}$ = Aspect Ratio

CODE IDENTIFICATION FOR OFF-HIGHWAY TIRES

The tire industry has adopted a code identification system to be used for off-the-road tires. This identification system will reduce the confusion caused by the trade names for each type of tire offered by each tire manufacturer. The industry code identification is divided into six main categories by types of service as follows:

- C** — Compactor Service
- E** — Earthmover Service
- G** — Grader Service
- L** — Loader & Dozer Service
- LS** — Log-Skidder Service
- ML** — Mining & Logging Service

The sub-categories are designated by numerals, as follows:

Code Identification		% Tread Depth
Compactor		
C-1	Smooth	100
C-2	Grooved	100
Earthmover		
E-1	Rib	100
E-2	Traction	100
E-3	Rock	100
E-4	Rock Deep Tread	150
E-7	Flotation	80
Grader		
G-1	Rib	100
G-2	Traction	100
G-3	Rock	100
G-4	Rock Deep Tread	150
Loader & Dozer		
L-2	Traction	100
L-3	Rock	100
L-4	Rock Deep Tread	150
L-5	Rock Extra Deep Tread	250
L-3S	Smooth	100
L-4S	Smooth Deep Tread	150
L-5S	Smooth Extra Deep Tread	250
L-5/L-5S	Half Tread Extra Deep	250
Mining & Logging		
ML-1	Rib	100
ML-2	Traction	100
ML-3	Rock	100
ML-4	Rock Deep Tread	150
Log-Skidders		
LS-1	Regular Tread	100
LS-2	Intermediate Tread	125
LS-3	Deep Tread	150
HF-4	Extra Deep Tread	250

NOTE: On some Michelin tires the designation R or T may follow the TRA code to designate rock or traction type tire.

Tire and Rim Assoc. Code	Tread Type	FIRESTONE	CONTINENTAL GENERAL	GOODYEAR	BRIDGESTONE	MICHELIN
Compactor						
C-1	Smooth Compactor	Plain Roller		Smooth Compactor	Road Roller	X LISSE X LC
C-2	Grooved Compactor			All Weather Compactor	Alligator 2	
Earthmover						
E-1	Rib	Rib Excavator	Rock Rib LCM	Hard Rock RIB		XRIB
E-2	Traction	Super Ground Grip	All Duty DTL TL100	Earthmover Sure Grip Sure Grip Lug	Fast Grip, G-Lug VKT, VFT, VGT, VHB, VSB, VHS	XV, XL, XMP, XH, XS, XR
E-3	Rock	Rock Grip Excavator Super Rock Grip E67	ND LCM CM 100 SL 100 XG-3 LCM EA3	Hard Rock Lug Hard Rock Lug-8 Super Hard Rock Lug Super Hard Rock Lug-8 HRL-3B GP-2B RL-2+ RL-3J RL-3 RL-2F RL-3+ RT-3A	R-Lug, W-Lug E-Lug, VE Block V-LUG 2, VMT, VEL, VRL, VLT	XK, XR XMS XH XADN XAD65-1 XZH XADT XTS
E-4	Rock Deep Tread	Super Rock Grip Deep Tread Rock Master Deep Tread Power Lug Deep Tread	ND Super LCM Super LCM CM 150 XG-4 DTH4	HRL-4B RL-4 RL-4J RL-4H/4H II RL-4J II RL-4A RL-4B GP-4B GP-4D	R-Lug S, E-Lug S E-Lug S2 VELS, VRLS VMTS, VALS VZTS, VMTP VLTS	XDT, XDR XKDI XRS XADT
E-5	Rock Extra Deep Tread	Super Deep Tread				
E-7	Flotation	All Non-Skid EM Sand Champion Sand & Highway	Super Sand Flotation	SRB-7A	Alligator, VJSJ Sand Clipper 2 S-Lug	XS XRIB
Grader						
G-1	Rib	Rib Road Builder		RBG-IA	Rib Grader	
G-2	Traction	Super Ground Grip Road Builder	Loader Grader Loader Grader II TG2 TGL2	SGG-2A AS-3A SG-2B	Fast Grip, G-Lug VKT, VSW, VUT	XTL, XMPS, X SNOPLUS, XGLA2, XR
G-3	Rock	Rock Grip Road Builder	ND LCM Grader	RKG-3A	R-Lug	XH, XHAD XRDN, XLD L3
G-4	Rock Deep Tread	Super Rock Grip Deep Tread Road Builder		SGG-4B	R-Lug 5	XRD1, XLDD1 XLD SUPER L3
G-5	Rock Extra Deep Tread					XLDD2

Tire and Rim Assoc. Code	Tread Type	FIRESTONE	CONTINENTAL GENERAL	GOODYEAR	BRIDGESTONE	MICHELIN
Log-Skidder						
LS-1	Regular		Tree Logger Armor			
LS-2	Intermediate	Forestry Special	Timber Skid II		Timber Grip S Fast Grip	
LS-3	Deep	Champion Spade Grip Logger				
HF-4			Timber Skid Flotation			
Loader & Dozer						
L-2	Traction	Super Ground Grip LD	Loader Grader II LD Loader Grader LD All Duty TGL2	Sure Grip Loader Sure Grip Lug D&L SGL E/L-2A RL-2+ RL-2F	Fast Grip, VKT V-Grip, VSW, VUT S-Lug G-Lug	XTL, XGL 2 XF, XM27, XM47 X SNOPLUS XMPS, XR
L-3	Rock	Super Rock Grip LD	LD ND LCM LD 100 LDR3	Super Hard Rock Loader Super Hard Rock Lug D&L Super Hard Rock Lug 8-D&L HRL E/L-3A GP-2B RL-2+	R-Lug, VMT V-Lug 2, VLT	XRDN, XHA XHF, XK, XR XLD L3 XZSL
L-4	Rock Deep Tread	Super Rock Grip Deep Tread LD	LD-150 CRB LD-150 Belted	Super Hard Rock Lug Xtra Tred D&L Nylosteel NRL D/L-4A Belted HRL D/L 4G RL-4K GP-4B	R-Lug S, VALS N-Lug, VCH R-Lug S2 VLTS VSNT	XLDD1, XKD1 XLD SUPER L3
L-5	Rock Extra Deep Tread	Super Deep Tread LD GSR	LD-250 CRB LD-250 Belted	Super Xtra Tred D&L Nylosteel NRL D/L-5A Belted RL-5K	D-Lug M-Lug S VSDL VSDT	XLDD2 XMINE D2
L-3S	Smooth Tread	Plain Tread LD				
L-4S	Smooth Deep Tread	Plain Tread LD		SMO D/L-4A	Smooth Tread M	
L-5S	Smooth Extra Deep Tread	Plain Tread LD	LD-250 Super Smooth CRB LD-250 Super Smooth Belted	SMO D/L-5A	Smooth Tread MS VSMS	XSM2
L-5/L-5S	Half Smooth	Half Tread LD	LD-250 Haf Trac CRB LD-250 Haf Trac Belted		D-Lug 2	

RADIAL TIRE IDENTIFICATION

Code Identification for Michelin Tires

All Michelin earthmover tires are radial construction, designated by the “X” marking. They contain a single steel radial ply with a series of steel belts placed around the tire’s circumference which reinforce and stabilize the tread.

Following are the tread designs currently available from Michelin with the different internal constructions depending on the application.

- Type A4** Highly resistant to cutting, hacking and abrasion.
- Type A** Highly resistant to cutting, hacking and abrasion for use at average speeds higher than type A4.
- Type B4** A compromise between resistance to abrasion and heat generation for less aggressive surfaces (from 49”).
- Type B** Designed for low heat generation on long runs and in intensive service conditions.
- Type C4** Engineered to cope with high-speed travel on long hauls.
- Type C** Specially designed to cope with the highest-speed hauls.

The current combinations of tread patterns, construction, and tread depths offered, and primary TRA codes are:

Tread Design	Type A4	Type A	Type B	Type C	Primary TRA Codes
XH	—	x	—	x	G3, E2, E3
XF	—	x	—	—	L2
XMP	—	—	—	—	E2
XMPS	—	—	—	—	G2
XTL	—	x	—	—	L2, G2
XGLA2	—	x	—	—	L2, G2
XG	—	—	—	x	E2
XV	—	—	—	x	E2
XLDD1	—	x	—	—	L4
XLDD2	—	x	—	—	L5
XK	—	—	x	—	E3
XRDN	—	x	x	—	L3, E3
XRD1	—	x	—	—	L4
XKD1	x	x	x	—	E4
XMINED2	—	x	—	—	L5
XSMD2	—	x	—	—	L5S
XLISSE	—	—	—	—	C1
XMS	—	x	x	—	E3
XTS	—	—	x	—	E3

Tread Design	Type A4	Type A	Type B	Primary Type C	TRA Codes
XR	—	—	x	—	E3, G3
XADN	—	—	x	—	E3
XADT	—	—	x	—	E4
X SNOPLUS	—	—	—	—	L2, G2
XDT, XDR	x	—	x	x	E4 (T)
XRIB	—	x	—	—	E1
XAD65-1	—	—	x	—	E3/E4
XLD L3	—	x	—	—	L3/L4
XRS	—	—	x	—	E4 (R)

Since Michelin radial tires contain a single steel casing ply, they utilize the industry method of designating radial tire strength in terms of “stars.” Their system consists of a one star, two star, and three star rating as an indication of the tire’s carrying capacity. The one star is the lightest construction, generally used on work and slow moving transport machines. Two star tires are used on most medium and high speed transport machines. Three star construction provides the greatest carrying capacity for a given size and is only available in small standard base tires.

This combination of tread designs and types of construction provides a range of radial tires which cover most earthmoving applications. We recommend that in applying steel radial tires to your machines you provide all site condition data to the tire manufacturer. Obtain his recommendations as to which tire will provide the most economical operation.

Code Identification for Goodyear Radial Tires

All Goodyear steel radial earthmover tires have been designated *Unisteel* followed by a three or four digit alpha-numeric code that identifies the particular tread. The currently active codes are:

RL-2+	E 2/3 and L 2/3		
RL-2F	E2 and L2	RL-4H/HII	E4
RL-3	E3	RL-4J	E4
RL-3+	E3	RL-4JII	E4
RL-3J	E3 and L3	GP-2B	E3
RT-3A	E3		
RL-4	E4		L3
RL-4A	E4	SG-2B	G2
RL-4B	E4	RL-4K	L4
GP-4B	E4	GP-4B	L4
GP-4D	E4	RL-5K	L5

The RL stands for Rock Lug and indicates that the upper sidewall has rock protection. The number in the code corresponds to the tire industry identification system (2-traction, 3-rock, etc). The fourth digit, if any, is used to designate tread design differences for the same basic tread type (F-directional tread).

The carcass strength is indicated by a star rating system instead of the ply rating system. These symbols indicate the recommended inflation for a particular tire load.

Following the star rating code is Goodyear's Custom Compound and Construction code. For a tire designated "2S" the 2 indicates a heat resistant compound and the S indicates standard construction and an H indicates heavy duty construction. The higher the number the greater the abrasion and cut resistance with a corresponding lower T-km/h (TON-mph) rating.

Code Identification for Bridgestone Radial Tires

The Bridgestone steel radial earthmover has been designated as V-Steel. The current nomenclature is:

V-Steel Ultra Traction	(VUT)	G2/L2
V-Steel K-Traction	(VKT)	E2/L2/G2
V-Steel F-Traction	(VFT)	E2
V-Steel L-Traction	(VLT)	E3/L3
V-Steel M-Traction	(VMT)	E3/L3
V-Steel G-Traction	(VGT)	E2/E3
V-Steel M-Traction S	(VMTS)	E4
V-Steel R-Lug	(VRL)	E3
V-Steel R-Lug S	(VRLS)	E4
V-Steel A-Lug S	(VALS)	E4/L4
V-Steel H-Block	(VHB)	E2
V-Steel E-Lug	(VEL)	E3
V-Steel E-Lug S	(VELS)	E4
V-Steel D-Lug	(VSDL)	L5
V-Steel Smooth Tread MS	(VSMS)	L5S
V-Steel Snow Wedge	(VSW)	L2/G2
V-Steel Container Handler	(VCH)	L4
V-Steel Jamal	(VSJ)	E7
V-Steel Z-Traction S	(VZTS)	E4
V-Steel M-Traction Premium	(VMTP)	E4
V-Steel L-Traction S	(VLTS)	E4/L4
V-Steel N-Traction	(VSNT)	L4
V-Steel D-Traction	(VSDT)	L5
V-Steel Rock Deep Premium	(VRDP)	E4

Bridgestone has multiple tread compounds, with the three most commonly used being: type 1A = standard, type 2A = cut resistant and type 3A = heat resistant. The carcass strength, i.e., load carrying capacity of tire is indicated by star rating system; 1-star, 2-star and 3-star. All Bridgestone radial tires conform to the international tire standard of TRA and ETRTO.

TON-MILES PER HOUR

Tire selection and machine operating practices have, in some cases, become the critical factors in the over-all success of earthmoving ventures. One of the most serious problems occur when tires are operated at temperatures above their capabilities. Separation and related failures occur. To help you avoid temperature related failures, Caterpillar has been instrumental in developing the *Ton-Miles Per Hour*, (Ton-MPH) method of rating tires.

Heat and Tire Failure

Tire manufacturing requires heat in the vulcanizing process converting crude rubber and additives into a homogeneous compound. The heat required is typically above 132°C (270°F).

A tire also generates heat as it rolls and flexes. Heat generated faster than it can be radiated into the atmosphere gradually builds within the tire and reaches maximum level at the outermost ply or belt.

Over time, enough heat can develop from over-flexing to actually reverse the vulcanizing process or "revert" the rubber causing ply separation and tire failure. Only a brief time at reversion temperature initiates the failure. Experience shows that few pure heat separation cases occur. Most so-called heat separations are in tires operating below the reversion level.

As a tire's operating temperature increases the rubber and textiles within significantly lose strength. The tire becomes more susceptible to failures from cornering, braking, impact, cut through, fatigue and heat separation. If operating tires at higher temperatures is absolutely necessary, it is essential the machines be operated to reduce the probability of premature tire failure. No hard cornering without super-elevation, no panic braking, etc.

The Ton-MPH formula was developed to predict tire temperature buildup. The system is a method of rating tires in proportion to the amount of work they can do from a temperature standpoint. It utilizes the product of *load* × *speed* to derive an index of the tire temperature buildup. Maximum tire level-off temperatures of 107°C (225°F) for fabric cord tires and 93°C (200°F) for steel wire tires are the limits Caterpillar recommends. Even at these temperatures, failures may be initiated by overstressing the tires.

It is possible by using a needle type pyrometer to measure temperature at any desired point within the tire carcass. However, the instrumentation and the technique does not lend itself to general field use. The greatest difficulty is locating the thickest (therefore the hottest) tread bar in any given tire using giant calipers. The tire must then be drilled along the centerline of this bar from shoulder to shoulder at 52 mm (2") intervals. These 3.18 mm (1/8") diameter holes extend down through the tread and undertread to the topmost reinforcement. This procedure is fully described under SAE Recommended practice J1015.

The Ton-MPH rating system as given in this SAE specification is approved by most tire manufacturers. Michelin, in addition to providing Ton-MPH ratings has developed their own speed/load carrying rating system and we recommend that Michelin be consulted where high tire temperatures are a concern.

Heat generation in a specific tire at recommended pressure depends on three factors:

- the weight the tire is carrying (flex per revolution),
- the speed the tire is traveling over the ground (flexures over a period of time), and
- the air temperature surrounding the tire (ambient temperature) and road surface temperature.

Once a tire manufacturer has determined a tire's temperature characteristics and expressed them in Ton-MPH, the above listed specific job conditions can be used to determine any tire's maximum work capacity. These conditions provide on site ability to predict and avoid costly tire separations.

Ton-Mile-Per-Hour Rating System

The tire TMPH can be matched to the site TMPH as well as compared with TMPH values of different makes and types of tires.

TMPH Job Rate

Average Tire Load × Average Speed for the shift

Average Tire Load

$\frac{\text{"Empty" tire load} + \text{"loaded" tire load}}{2}$

2

Average Speed

$\frac{\text{Round trip distance in miles} \times \text{number of trips}}{\text{Total Hours (in the shift)}}$

For excessive haul length (20 miles or more) consult your tire representative for modification to the TMPH value.

To use in the metric system, change miles to kilometers and use metric tons.

It should be noted that prolonged operation at high carcass temperatures can fatigue the nylon at the flex points in the sidewalls.

The following are the most recent Ton-MPH ratings as made available by Goodyear, Michelin and Bridgestone, and are subject to change on their part at any time. Other tire manufacturers' Ton-MPH ratings will be included in future handbook editions when and if made available. For latest Ton-MPH ratings, consult specific tire manufacturer at time of machine and/or tire purchase.

Load-and-Carry T-km/h (Ton-MPH)

The wheel loader, when used in load-and-carry applications, may encounter temperature problems similar to those normally associated only with tires on scrapers, trucks and wagons. **Do not place the vehicle in load-and-carry applications without first consulting the tire manufacturer, or obtaining T-km/h (Ton-MPH) ratings and pressure recommendations from the tire manufacturer.**

Conventional and Radial Steel Cord Tire Options

Tire options now provide types to operate in conditions ranging from rock and abrasive materials, to jobs with high speed hauls in good materials.

The best tire type can be different for the drive tires than for other tires on the same machine. T-km/h (Ton-MPH) should be calculated for all tires.

Tire Drive-Away Recommendations

Heat separation can be a problem during machine delivery and moving machines from one job to another. Whenever roading earthmoving machines, *check your supplier for the tire manufacturer's recommended speed limitations on the specific tires involved.*

Some tire manufacturers also recommend that vehicles equipped with extra tread depth or special compounded tires should not be roaded without their specific approval. Our tests support this recommendation, especially for L-3, L-4, E-4 and L-5 tires.

Tires

T-km/h (Ton-MPH) Rating

- Goodyear Bias Ply Conventional Sizes

T-km/h (Ton-MPH) RATINGS AT 38° C (100° F) AMBIENT TEMPERATURE

For Haul Lengths of 32 km (20 Miles) or Less One Way

Because of the variance between specific tires it is recommended that at the time of purchase you check with your tire supplier for the manufacturer's specific T-km/h (Ton-MPH) ratings for the tires purchased.

GOODYEAR BIAS PLY CONSTRUCTION CONVENTIONAL SIZES

Industry Code	E-1		E-2	E-3		E-4			E-7
Tread Design	Hard Rock Rib HRR-1A		Sure Grip Lug SGL-2A	Hard Rock Lug HRL-3A Hard Rock Lug-8 HRL-3B		Hard Rock Lug XT HRL-4A Hard Rock Lug XT-8 HRL-4B			Sand Rib SRB-7A
Custom Code	2S	4S	4S	2S	4S	2S	4S	6S	4S
16.00-25 T-km/h Ton-MPH	182 125	131 90			102 70	131 90	95 65		
18.00-25 T-km/h Ton-MPH			146 100	182 125	131 90		117 80		234 160
18.00-33 T-km/h Ton-MPH				219 150	161 110		146 100	124 85	
21.00-25 T-km/h Ton-MPH									270 185
24.00-35 T-km/h Ton-MPH					255 175		234 160	204 140	
27.00-49 T-km/h Ton-MPH						460 315	328 225	277 190	
36.00-51 T-km/h Ton-MPH						679 465	489 335		628 430

T-km/h (Ton-MPH) RATINGS
AT 38° C (100° F) AMBIENT TEMPERATURE
For Haul Lengths of 32 km (20 Miles) or Less One Way

GOODYEAR BIAS PLY CONSTRUCTION WIDE BASE SIZES

Industry Code	E-2	E-3			E-7	
Tread Design	Sure Grip Lug SGL E/L 2A	Super Hard Rock Lug HRL E/L 3A	Super Hard Lug 8 HRL-3B	HRL-3F	Sand Rib SRB-7A	
Custom Code	4S	2S	4S	4S	3S	4S
20.5-25 T-km/h Ton-MPH	109 75		95 65			
23.5-25 T-km/h Ton-MPH	131 90		102 70			
26.5-25 T-km/h Ton-MPH	153 105		131 90			
29.5-25 T-km/h Ton-MPH	182 125		168 115			248 170
29.5-29 T-km/h Ton-MPH	197 135	255 175	182 125	190 130		
29.5-35 T-km/h Ton-MPH			212 145	234 160		
33.25-29 T-km/h Ton-MPH				204 140		
33.25-35 T-km/h Ton-MPH				248 170	234 160	
33.5-33 T-km/h Ton-MPH				248 170	234 160	
37.25-35 T-km/h Ton-MPH				321 220	307 210	
37.5-33 T-km/h Ton-MPH			299 205	321 220	307 210	
37.5-39 T-km/h Ton-MPH				350 240	328 225	

Tires

T-km/h (Ton-MPH) Rating

- Bridgestone Conventional Size

T-km/h (Ton-MPH) RATINGS AT 38° C (100° F) AMBIENT TEMPERATURE

For Haul Lengths of 32 km (20 Miles) or Less One Way
Maximum Speed Not to Exceed 48 km (30 Miles) per Hour

Because of the variance between specific tires it is recommended that at the time of purchase you check with your tire supplier for the manufacturer's specific T-km/h (Ton-MPH) ratings for the tires purchased.

BRIDGESTONE BIAS CONVENTIONAL SIZES

Industry Code	E-3			E-4			E-4		
Tread Design	RL			RLS			ELS/ELS2		
Custom Code	E2A	E1A	E3A	E2A	E1A	E3A	E2A	E1A	E3A
12.00-24/25 T-km/h Ton-MPH	66 45								
14.00-24/25 T-km/h Ton-MPH	109 75								
16.00-24/25 T-km/h Ton-MPH	139 95			111 76					
18.00-25 T-km/h Ton-MPH	173 119		263 180	153 105			153 105		
18.00-33 T-km/h Ton-MPH	190 130	212 145		161 110	182 125		161 110	182 125	
21.00-35 T-km/h Ton-MPH		270 185		204 140	226 155	321 220	204 140		
24.00-35 T-km/h Ton-MPH	291 199	328 225		234 160	277 190	394 270			
24.00-49 T-km/h Ton-MPH		431 295		292 200	343 235	482 330			
27.00-49 T-km/h Ton-MPH				336 230	406 278	547 375			

T-km/h (Ton-MPH) RATINGS
AT 38° C (100° F) AMBIENT TEMPERATURE
For Haul Lengths of 32 km (20 Miles) or Less One Way
Maximum Speed Not to Exceed 48 km (30 Miles) per Hour

BRIDGESTONE BIAS WIDE BASE SIZES

Industry Code	E-2			E-3			E-4		
Tread Design	FG			RL/VL2			RLS		
Custom Code	E2A	E1A	E3A	E2A	E1A	E3A	E2A	E1A	E3A
15.5-25 T-km/h Ton-MPH				51 35					
17.5-25 T-km/h Ton-MPH				58 40					
20.5-25 T-km/h Ton-MPH				80 55		111 76	51 35		
23.5-25 T-km/h Ton-MPH				107 73		149 102	66 45		
26.5-25 T-km/h Ton-MPH				132 90		183 125	80 55		
29.5-25 T-km/h Ton-MPH				150 103		220 151	88 60		
29.5-29 T-km/h Ton-MPH				204 140			139 95		
29.5-35 T-km/h Ton-MPH				255 175					
33.25-35 T-km/h Ton-MPH					292 200				
37.25-39 T-km/h Ton-MPH					358 245	467 320			
37.5-39 T-km/h Ton-MPH				325 223	372 255	489 335			

Tires

T-km/h (Ton-MPH) Rating

- Goodyear Radial Ply — Conventional Sizes

**T-km/h (Ton-MPH) RATINGS
AT 38° C (100° F) AMBIENT TEMPERATURE**

For Haul Lengths of 32 km (20 Miles) or Less One Way

GOODYEAR RADIAL PLY CONSTRUCTION CONVENTIONAL SIZES

Industry Code	E-2		E-2/E-3		E-3		E-4					
	RL-2F		GP-2B		RL-3+		RL-4H RL-4HII			RL-4J RL-4JII		
Custom Code	2S	4S	2S	4S	2S	4S	2S	4S	6S	2S	4S	6S
14.00R25 T-km/h Ton-MPH										124 85	95 65	
16.00R25 T-km/h Ton-MPH	190 130	146 100	220 150		168 115	124 85						
18.00R25 T-km/h Ton-MPH	248 170	190 130			226 155	168 115				190 130	146 100	
18.00R33 T-km/h Ton-MPH	292 200	219 150			263 180	197 135				226 155	175 120	131 90
24.00R35 T-km/h Ton-MPH					438 300	335 230				394 270	299 205	234 160
27.00R49 T-km/h Ton-MPH			730 500	562 385	628 430	474 325	547 327	423 290	328 225	547 375	423 290	328 225
33.00R51 T-km/h Ton-MPH							715 490	540 370	321 220			
36.00R51 T-km/h Ton-MPH							788 540	598 410	358 245	788 540	598 410	358 245
37.00R57 T-km/h Ton-MPH							1022 700	781 535	460 315	1095 750	730 500	490 335
40.00R57 T-km/h Ton-MPH							1145 785	875 600	518 355			

T-km/h (Ton-MPH) RATINGS
AT 38° C (100° F) AMBIENT TEMPERATURE
For Haul Lengths of 32 km (20 Miles) or Less One Way

GOODYEAR RADIAL PLY CONSTRUCTION WIDE BASE SIZES

Industry Code	E-2						E-3		
	TL-3B	RL-2+		RL-2F		GP-2B	RL-3	RL-3F	RL-3J
Tread Design									
Custom Code	2S	2S	4S	2S	4S	4S	4S	4S	4S
15.5R25 T-km/h Ton-MPH				146 100	109 75				
17.5R25 T-km/h Ton-MPH	190 130	146 100	109 75			151 105			124 85
20.5R25 T-km/h Ton-MPH		175 120	131 90			168 115			146 100
23.5R25 T-km/h Ton-MPH		197 135	146 100			197 135			160 110
26.5R25 T-km/h Ton-MPH		226 155	168 115			226 155			
26.5R29 T-km/h Ton-MPH									
29.5R25 T-km/h Ton-MPH		270 185	204 140			270 185			
29.5R29 T-km/h Ton-MPH		306 210	233 160	379 260	284 195		270 185		
33.25R35 T-km/h Ton-MPH				474 325	357 245				335 230
37.25R35 T-km/h Ton-MPH				547 375	416 285				379 260
37.5R39 T-km/h Ton-MPH				613 420	460 315				430 295
40.5/75R39 T-km/h Ton-MPH						445 305			
22/65R25 T-km/h Ton-MPH	284 195								
25/65R25 T-km/h Ton-MPH			182 125					182 125	
30/65R25 T-km/h Ton-MPH			160 110						

T-km/h (Ton-MPH) RATINGS
AT 38° C (100° F) AMBIENT TEMPERATURE
For Haul Lengths of 32 km (20 Miles) or Less One Way
Maximum Speed Not to Exceed 48 km (30 Miles) per Hour

BRIDGESTONE RADIAL PLY

Industry Code	E-4			E-4			E-4			E-4			E-4			
Tread Design	VMTS			VMTP			VRLS			VELS			VZTS			
Custom Code	E2A	E1A	E3A	E2A	E1A	E3A	E2A	E1A	E3A	E2A	E1A	E3A	E2A	E1A	E3A	
14.00R24/25	T-km/h Ton-MPH	91 62	119 82	136 93			85 58	112 77	128 88							
16.00R25	T-km/h Ton-MPH	123 84	157 108	179 123			112 77	146 100	168 115							
18.00R25	T-km/h Ton-MPH	169 116	209 143	244 167						144 99	179 123	209 143				
18.00R33	T-km/h Ton-MPH	199 136	246 168	287 197	185 127	229 157	267 183			170 116	211 145	246 168				
21.00R35	T-km/h Ton-MPH	265 182	328 225	383 262	237 162	293 201	342 234			227 155	281 192	328 225				
24.00R35	T-km/h Ton-MPH	338 232	418 286	489 335	314 215	388 266	453 310	314 215	388 266	453 310						
24.00R49	T-km/h Ton-MPH	398 273	492 337	575 394	361 247	446 305	522 358	341 234	421 288	492 337						
27.00R49	T-km/h Ton-MPH	486 333	600 411	702 481	440 301	544 372	636 436	415 284	513 351	600 411						
33.00R51	T-km/h Ton-MPH	660 452	802 549	953 653	591 405	700 479	855 586	558 382	679 465	807 553						
36.00R51	T-km/h Ton-MPH							642 440	781 535	927 635				845 579		
37.00R57	T-km/h Ton-MPH							694 475	845 579	1003 687			694 475		1003 687	
40.00R57	T-km/h Ton-MPH										773 529	940 644	1117 765	773 529	940 644	1117 765
46/90R57	T-km/h Ton-MPH										796 545	963 663	1105 788			
59/80R63	T-km/h Ton-MPH							Consult Bridgestone								

NOTE: For cycle lengths of 5 km (3 miles) or less (round trip), multiply the T-km/h (Ton-MPH) value in this table by 1.12.
 Additional tread compounds are available to meet specific T-km/h (Ton-MPH).

T-km/h (Ton-MPH) RATINGS
AT 38° C (100° F) AMBIENT TEMPERATURE
For Haul Lengths of 32 km (20 Miles) or Less One Way
Maximum Speed Not to Exceed 48 km (30 Miles) per Hour

BRIDGESTONE RADIAL PLY

Industry Code	E-2/E-3			E-3			E-3		
	VKT/VFT			VRL/VEL			VMT		
Custom Code	E2A	E1A	E3A	E2A	E1A	E3A	E2A	E1A	E3A
14.00R24/25 T-km/h Ton-MPH	106 73	141 97	159 109						
16.00R24/25 T-km/h Ton-MPH	134 92	179 123	202 138						
18.00R25 T-km/h Ton-MPH	193 132	239 164	280 192	181 124	224 153	262 179			
18.00R33 T-km/h Ton-MPH	227 155	281 192	328 225	213 146	263 180	307 210			
21.00R35 T-km/h Ton-MPH	302 207	374 256	437 299	284 195	351 240	410 281			
24.00R35 T-km/h Ton-MPH	386 264	477 327	558 382	362 248	448 307	524 359			
27.00R49 T-km/h Ton-MPH	557 382	688 471	804 551	521 357	644 441	753 516			
33.00R51 T-km/h Ton-MPH							837 573	1018 697	1209 828
36.00R51 T-km/h Ton-MPH							974 667	1185 812	1407 964
40.00R57 T-km/h Ton-MPH							1204 825	1463 1002	1739 1191

NOTE: For cycle lengths of 5 km (3 miles) or less (round trip), multiply the T-km/h (Ton-MPH) value in this table by 1.12.
 Additional tread compounds are available to meet specific T-km/h (Ton-MPH).

T-km/h (Ton-MPH) RATINGS
AT 38° C (100° F) AMBIENT TEMPERATURE
For Haul Lengths of 32 km (20 Miles) or Less One Way
Maximum Speed Not to Exceed 48 km (30 Miles) per Hour

BRIDGESTONE RADIAL PLY

Industry Code		E-2			E-2/E-3			E-3			E-4			E-4		
Tread Design		VKT			VMT/VLT			VRL			VALS			VLTS		
Custom Code		E2A	E1A	E3A	E2A	E1A	E3A	E2A	E1A	E3A	E2A	E1A	E3A	E2A	E1A	E3A
17.5R25	T-km/h Ton-MPH	95 65			90 62	144 99										
20.5R25	T-km/h Ton-MPH	160 110	206 141		149 102	194 133					114 78			126 86		
23.5R25	T-km/h Ton-MPH	205 140	263 180		190 130	248 170					146 100			161 110		
26.5R25	T-km/h Ton-MPH	257 176	312 214		220 151	293 201					165 113			186 127		
29.5R25	T-km/h Ton-MPH	310 212	376 258		266 182	354 242	399 273							225 154		
29.5R29	T-km/h Ton-MPH	330 226	401 275								212 145	257 174				
33.25R29	T-km/h Ton-MPH	407 279	494 338					319 218	435 298							
29.5R35	T-km/h Ton-MPH							279 191	380 260							
33.25R35	T-km/h Ton-MPH	441 302						346 237	472 323							
37.25R35	T-km/h Ton-MPH	530 363	644 441	720 493				413 283	563 386							
37.5R39	T-km/h Ton-MPH		696 477													
40.5/75R39	T-km/h Ton-MPH							495 339	675 462	765 524						
25/65R25	T-km/h Ton-MPH	162 111														
30/65R25	T-km/h Ton-MPH				225 154											

NOTE: For cycle lengths of 5 km (3 miles) or less (round trip), multiply the T-km/h (Ton-MPH) value in this table by 1.12.
 Additional tread compounds are available to meet specific T-km/h (Ton-MPH).

T-km/h (Ton-MPH) RATINGS
AT 38° C (100° F) AMBIENT TEMPERATURE
For Haul Cycles Less than 5 km (3 Miles) Round Trip*

MICHELIN RADIAL PLY CONSTRUCTION STANDARD BASE TIRES

Industry Code	E-2	E-3		E-4							
		XV	XR	XK	X Quarry	XDT			XDR		
Tread Design					A4	A	B	A4	A	B4	B
Type	C	B	B								
18.00R33 T-km/h Ton-MPH	436 299	305 209	279 191	105 72	157 108	192 132	262 179				
24.00R35 T-km/h Ton-MPH	740 507	518 355	474 325	207 142	266 182	326 223	444 304				
27.00R49 T-km/h Ton-MPH	1090 747	763 523	698 478		392 269	480 329	654 448		392 269	480 329	567 388
33.00R51 T-km/h Ton-MPH					558 382		929 637		496 340	620 425	744 510
36.00R51 T-km/h Ton-MPH		1295 887	1184 811						592 406	740 507	888 608
37.00R57 T-km/h Ton-MPH									678 464	848 581	1018 697
40.00R57 T-km/h Ton-MPH									768 526	960 658	1152 789
44/80R57 T-km/h Ton-MPH								Consult Michelin			
59/80R63 T-km/h Ton-MPH								Consult Michelin			

*Consult Michelin for T-km/h (Ton-MPH) ratings for haul cycles greater than 5 km (3 m).

NOTE: Additional tread compounds are available to meet specific T-km/h (Ton-MPH).

Tires

- T-km/h (Ton-MPH) Rating
- ISO Load Index Speed Symbol
- Michelin Radial Ply — Wide Base Sizes

**T-km/h (Ton-MPH) RATINGS
AT 38° C (100° F) AMBIENT TEMPERATURE**

For Haul Cycles Less than 5 km (3 Miles) Round Trip*

MICHELIN RADIAL PLY CONSTRUCTION WIDE BASE SIZES

Industry Code	E-3			E-4
Tread Design	XR	XTS	XMS	XRS
Type	B		B	B
29.5R29 T-km/h Ton-MPH	420 288	348 239		
33.25R29 T-km/h Ton-MPH	518 355	429 294		
37.25R35 T-km/h Ton-MPH	661 453	548 375		415 284
37.5R39 T-km/h Ton-MPH	721 494			
40.5/75R39 T-km/h Ton-MPH			766 525	

*Consult Michelin for T-km/h (Ton-MPH) ratings on haul cycles greater than 5 km (3 m).

**ISO Load Index Speed Symbol
AT 38° C (100° F) AMBIENT TEMPERATURE**

For Haul Lengths Greater than 5 km (3 Miles) Round Trip

MICHELIN RADIAL PLY CONSTRUCTION WIDE BASE SIZES

Industry Code	E-3	E-3 (DT)	E-3
Tread Design	XADN	XADT	XAD65-1
Type			
20.5R25	177B	177B	
23.5R25	185B	185B	
26.5R25	193B*	193B	
29.5R25	200B*	200B	
660/65R25 Super E3			186B
750/65R25 Super E3			190B
810/65R25 Super E3			196B

*E speed option available via special field request.

TIRE AND RIM ASSOCIATION RATINGS

While the T-km/h (Ton-MPH) Rating System provides a method to determine the tire's work capacity, Tire and Rim Association Ratings provide a guide for evaluating a tire's structural capacity. These two rating systems should be used in conjunction to evaluate tire performance.

TIRE SELECTION

Selecting the optimum tire for a given application is particularly critical for earthmoving. The machines have the capability to outperform the tires and, unless proper practices are observed, very costly premature tire failures can occur. Job conditions vary greatly throughout the world, as well as within any given job site, and selecting the optimum tire requires careful consideration of all factors involved. In general, the tire manufacturer should be consulted before making the selection for any given application. In some cases, the tire manufacturer can fabricate tires specifically tailored for a given job site.

For those applications where wear is extremely slow, especially as a result of only occasional operation throughout the year, the cheapest lightweight tire needs to be given strong consideration.

As job conditions become severe, the following factors should be evaluated in selecting a tire:

Transport or Load-and-carry —

- T-km/h (Ton-MPH) (primary consideration)
- Minimum approved ply rating or greater
- Largest optional size
- Thickest tread commensurate with T-km/h (Ton-MPH)
- Largest practical bar to gap ratio
- Most cut resistant tread commensurate with T-km/h (Ton-MPH)
- Belted construction

Grader —

- Tire load rating suitable for maximum equipped machine weight (See Tire Load Worksheet)
- Application specific tire (snow, construction, road maintenance, mining, general purpose, all season)
- Bias or radial based on initial cost, puncture resistance, rolling resistance, life to retread/repair

Tire Load Worksheet (Motor Graders)

A. Total machine operating weight:
 Base operating weight 1a _____
 Attachments #1 _____
 #2 _____
 #3 _____
 (Sum of #1-3) 2a _____

Total machine operating weight
 (Sum of 1a & 2a) 3a _____

B. Load on rear of machine
 _____ (0.7) x _____ (3a) = _____ 1b

C. Load per tandem tire
 _____ (1b) / _____ 4 = _____ 1c

D. Load on front of machine
 _____ 0.3 x _____ (3a) = _____ 1d

E. Load per front tire
 _____ (1d) / _____ 2 = _____ 1e

F. Controlling tire load
 the greater of 1c or 1e _____ 1f

G. Tire load rating _____ 1g

Tire acceptability check:

Tire load < tire load rating
 _____ 1f < _____ 1g

Loader or Dozer —

- Minimum approved ply rating or greater
- Largest optional size
- Thickest tread
- Thickest available undertread
- Buttressed shoulder
- Most cut resistant tread
- Largest practical bar to gap ratio
- Belted construction
- Lowest aspect ratio

All tires should be operated at the tire manufacturer's recommended inflation pressure for a given application. Inflation pressure should be checked every working day with an accurate Bourden-tube type gauge. This gauge should be checked against a known standard such as a dead weight tester at least once a month.

Excess loads may result from factors such as varying material density, field modifications to equipment, mud accumulation, load transfer, etc. Only under these conditions may the actual in service tire load exceed the rated machine load. When excess loads are encountered, cold inflation pressures **must** be increased to compensate for higher loads. Increase tire inflation pressure 2% for each 1% increase in load.

	Maximum Excess Load	Pressure
Bias Ply	15%	30%
Radial Ply	7%	14%

The above loads will result in reduced tire performance and must be approved by the tire manufacturer.

The use of chains is difficult to justify except under a few conditions. Chains are very costly and heavy, and require more maintenance than most operations can provide. On some models sufficient clearance does not exist for chains with all tire combinations. Extensive modifications may be required if chains are needed for the job.

Foam filling tires is normally not recommended due to high cost and lack of local filling facilities. Its use should be confined to loader and dozer applications where penetrations occur almost daily. If foam is used be sure to adhere to recommended equivalent pressures of nitrogen and use highest available ply rating. Consult tire manufacturer for specific warranty concerns.

TIRE SELECTION GUIDE

Material	Road or ground condition	Treads	
		Wheel Tractor-Scrapers	Wheel Tractors or Wheel Loaders
Silt and clay, No Rock, High moisture content.	Good varying to poor. High rolling resistance.	Traction Type (E-2).	Traction Type (L-2).
Silt and Clay, Some rock, Variable moisture content.	Good varying to poor.	Rock-type (E-3) best unless traction is a problem — then use traction tires (E-2). Rock-type offers more resistance to cutting.	Rock-type (L-3, L-4 or L-5) best unless traction is a problem — then use traction (L-2) tires. Rock-type offers more resistance to cutting.
Silty or clayey gravel and sand, Low moisture content.	Excellent to good. Firm surface.	Rock-type (E-3) offers better wear.	Rock-type (L-3, L-4 or L-5) offers better wear.
Silty or clayey gravel and sand, High moisture content.	Poor, rutted, pot holes.	Rock-type (E-3).	Rock-type (L-3, L-4 or L-5).
Blasted rock.	Hard surface, rough.	Rock-type (E-3 or L-3 and L-4 if possible).	Rock-type (L-5 or L-5S).
Sand Very low silt or clay content.	Good to fair surface.	Rock-type (E-3 or L-3S and L-4S if possible) with low pressure. Creates minimum soil disturbance resulting improved flotation.	Rock-type (L-3 or L-3S) with low pressure. Creates minimum soil disturbance resulting in improved flotation.

TIRE SUPPLIER RECOMMENDED COLD INFLATION PRESSURES

The following tables present Caterpillar and the *tire suppliers'* recommended cold inflation pressures for tires on Caterpillar machines. An asterisk (*) indicates the standard tire size and ply rating.

The inflation pressure is based on a ready-to-work vehicle weight, rated payload, and average operating conditions. **Pressures for each application may need to be varied from those shown and should always be obtained from your tire supplier.**

Pressures for all tires apply to rib, traction, rock, deep tread, and super deep tread tires.

NOTE: Caterpillar now recommends using dry nitrogen (N₂) gas for both tire inflation and pressure adjustments on all current and past production machines.

EXCAVATORS — Bias Ply

For complete tire data and inflation pressures, see the Excavator section in this handbook.

SKIDDERS — Bias Ply

Model	Tire Size	Ply Rating	Pressure			
			Front		Rear	
			kPa	psi	kPa	psi
525B	24.5L-32	16	240	35	240	35
	30.5L-32	16	210	30	210	30
535B	30.5L-32	16	210	30	210	30
	35.5L-32	16	207	30	207	30
545	30.5L-32	16	210	30	210	30
	35.5L-32	16	207	30	207	30

FORWARDERS & HARVESTERS — Bias Ply

Model	Tire Size	Ply Rating	Pressure			
			Front		Rear	
			kPa	psi	kPa	psi
554	600/50-22.5*	16	241	35	310	45
	700/45-22.5*	16	276	40	310	45
574	600/55-26.5**	16, 20	310	45	414	60
	700/50-26.5**	16, 20	276	40	380	55
550	600/65-34	14	241	35	241	35
	700/55-34	14	241	35	241	35
570	600/65-34	14	241	35	241	35
	700/55-34	14	241	35	241	35
580	600/55-26.5	16, 20	310	45	—	—
	700/50-26.5	16, 20	275	40	—	—
	600/65-34	14	—	—	241	35
	700/55-34	14	—	—	241	35

*Recommended pressure when using tracks is 380 kPa (55 psi) on front and rear.
**Recommended pressure when using tracks is 480 kPa (70 psi) on front and rear.

MOTOR GRADERS — Bias Ply

Model	Tire Size	Ply Rating	Pressure			
			Front		Rear	
			kPa	psi	kPa	psi
120H	13.00-24TG*	10*, 12	241	35	241	35
	14.00-24TG	10, 12	241	35	241	35
	15.5-25	10, 12	241	35	241	35
	17.5-25	12	241	35	241	35
135H	13.00-24TG*	10*, 12	241	35	241	35
	14.00-24TG	10, 12	241	35	241	35
	15.5-25	12	276	40	276	40
	17.5-25	12	241	35	241	35
12H	13.00-24TG*	12	310	45	310	45
	14.00-24TG	10, 12	241	35	241	35
	15.5-25	12	241	35	241	35
	17.5-25	12	276	40	276	40
140H	14.00-24TG*	10*, 12	241	35	241	35
	17.5-25	12	241	35	241	35

*Standard tire and ply rating. Refer to Tire Load Worksheet to determine proper ply rating.

MOTOR GRADERS — Bias Ply (continued)

Model	Tire Size	Ply Rating	Pressure			
			Front		Rear	
			kPa	psi	kPa	psi
143H	14.00-24TG*	10*, 12	241	35	241	35
	17.5-25	12	241	35	241	35
160H	14.00-24TG*	10, 12*	241	35	241	35
	17.5-25	12	241	35	241	35
163H	14.00-24TG*	12	241	35	241	35
	17.5-25	12	241	35	241	35
14H	16.00-24TG*	16	310	45	310	45
	20.5-25	16	241	35	241	35
16H	18.00-25*	16	241	35	241	35
	23.5-25	16	241	35	241	35

*Standard tire and ply rating. Refer to Tire Load Worksheet to determine proper ply rating.

MOTOR GRADERS — Michelin, Goodyear and Bridgestone/Firestone Radial Ply

Model	Tire Size	Strength Rating	Michelin Pressure				Goodyear Pressure				Bridgestone Pressure			
			Front		Rear		Front		Rear		Front		Rear	
			kPa	psi	kPa	psi	kPa	psi	kPa	psi	kPa	psi	kPa	psi
120H	13.00R24TG	★	241	35	241	35	310	45	310	45	310	45	310	45
	14.00R24TG	★	207	30	207	30	310	45	310	45	310	45	310	45
	15.5R25	★	207	30	207	30	310	45	310	45	310	45	310	45
135H	13.00R24TG	★	207	30	276	40	310	45	310	45	310	45	310	45
	14.00R24TG	★	207	30	207	30	310	45	310	45	310	45	310	45
	15.5R25	★	207	30	207	30	310	45	310	45	310	45	310	45
12H	13.00R24TG	★	207	30	310	45	310	45	310	45	310	45	310	45
	14.00R24TG	★	207	30	241	35	310	45	310	45	310	45	310	45
	15.5R25	★	207	30	241	35	310	45	310	45	310	45	310	45
140H	14.00R24TG	★	207	30	241	35	310	45	310	45	310	45	310	45
	17.5R25	★	207	30	207	30	310	45	310	45	310	45	310	45
143H	14.00R24TG	★	207	30	241	35	310	45	310	45	310	45	310	45
	17.5R25	★	207	30	207	30	310	45	310	45	310	45	310	45
160H	14.00R24TG	★	207	30	241	35	310	45	310	45	310	45	310	45
	17.5R25	★	207	30	207	30	310	45	310	45	310	45	310	45
163H	14.00R24TG	★	207	30	276	40	310	45	310	45	310	45	310	45
	17.5R25	★	207	30	207	30	310	45	310	45	310	45	310	45
14H	16.00R24TG	★	207	30	241	35	310	45	310	45	310	45	310	45
	20.5R25	★	207	30	207	30	310	45	310	45	310	45	310	45
16H	18.00R25	★	207	30	207	30	310	45	310	45	310	45	310	45
	23.5R25	★	207	30	207	30	310	45	310	45	310	45	310	45
24H	29.5R29	★	—	—	—	—	—	—	—	—	310	45	310	45
	29.5R29	★★	207	30	276	40	310	45	310	45	310	45	310	45

BACKHOE LOADERS (Front)

Tire Size	Ply/Star Rating	Pressure	
		kPa	psi
11Lx16 F3	12	448	65
14.5/75x16.1 F3	10	276	40
12.5/80-18 I3 SG LUG	10	373	54
12.5x20 R4	10	345	50
340/80R18 IT510, IT530	★	345	50
335/80R18 XM27 139	★	345	50
15-19.5 SSSG	12	414	60

BACKHOE LOADERS (Rear)

Tire Size	Ply/Star Rating	Pressure	
		kPa	psi
16.9x24 R4	10	207	30
19.5x24 IT525	10	207	30
19.5LR24 IT510	★	276	40
16.9x28 R4	10	207	30
	12	276	40
16.9R28 IT510, IT530	★	276	40
16.9R28 XM27	★	276	40
18.4/15x26 R4	12	241	35
18.4/15R26 XM27	★	276	40
21Lx24 IT525	12	241	35

PAVING PRODUCTS — Bias Ply and Radial**Pneumatic Tires**

Model	Tire Size	Ply Rating	Tire Inflation Pressure ^{1,2}			
			Front		Rear	
			kPa	psi	kPa	psi
CB-225D	9.5/65 — 15	6	—	—	325	47
CB-335D	7.5 x 16	6	—	—	550	80
CB-535B	17/80R24 (R24)	Radial	—	—	1000	145
CB-545	13/80R20 (E20)	Radial	—	—	1000	145
CS-323C	11.2 x 24	6	—	—	138	20
CS-423E	14.9 x 24	6	—	—	138	20
CS-433E	14.9 x 24	6	—	—	138	20
CS-533E	23.1 x 26	8	—	—	138	20
CS-563E	23.1 x 26	8	—	—	138	20
CS-573E	23.1 x 26	8, 12	—	—	138	20
CS-583E	23.1 x 26	8, 12	—	—	138	20
CS-663E	23.1 x 26	12	—	—	138	20
CS-683E	23.1 x 26	12	—	—	138	20
CP-323C	11.2 x 24	6	—	—	138	20
CP-433E	14.9 x 24	6	—	—	138	20
CP-533E	23.1 x 26	8	—	—	138	20
CP-563E	23.1 x 26	8	—	—	138	20
CP-663E	23.1 x 26	12	—	—	138	20
PS-150B	8.5 x 15	6	414	60	414	60
	7.5 x 15	12	758	110	758	110
	7.5 x 15	14	896	130	896	130
	7.50R15	Radial	480	70	480	70
PS-200B	7.5 x 15	12	758	110	758	110
	7.5 x 15	14	896	130	896	130
	7.50R15	Radial	480	70	480	70
PF-290B	14/70 — 20	12	448	65	448	65
PF-300B & PS-300B	13/80R20 (E20)	Radial	1000	145	1000	145
	14/80R20 (F20)	Radial	1000	145	1000	145
PS-360B	14/70 — 20	12	448	65	448	65
		20	758	110	758	110
PS-500	17/80R24 (R24)	Radial	1000	145	1000	145
RM-250C	23.5-25	16	323	45	—	—
	15.5-25	8	—	—	207	30
RM-350B	23.5-25	16	414	60	—	—
	23.1-26	12	—	—	172	25
AP-800C	16.00-24	12	—	—	345	50
AP-900	18.00-25	16	—	—	345	50
AP-1000B	18.00-25	16	—	—	379	55

¹Inflation pressures are maximum rated pressures.²Pressure varies with application for Pneumatic Tire Compactors (PS and PF series).

WHEEL TRACTORS — Bias Ply

Model	Tire Size	Ply Rating or Strength Index	Pressure			
			Front		Rear	
			kPa	psi	kPa	psi
814F	23.5-25*	12	207	30	207	30
	26.5-25	14	172	25	172	25
824G	29.5-25*	22	241	35	241	35
834G	35/65-33*	24	241	35	241	35
		30	480	70	480	70
844	41.25/70-39	34	510	75	510	75
		42	510	75	510	75
854G	45/65-45	46	540	80	540	80

*Standard tire, ply rating, and inflation pressures.

WHEEL TRACTORS — Radial Ply

Model	Tire Size	Ply Rating or Strength Index	Pressure			
			Front		Rear	
			kPa	psi	kPa	psi
814F	23.5R25	★	276	40	276	40
	26.5R25	★	241	35	241	35
824G	29.5R25	★	345	50	345	50
834G	35/65R33	★	345	50	345	50
844	45/65R39*	★	483	70	483	70
	40.5/75R39	★	483	70	483	70
854G	45/65R45*	★	448	65	448	65

*Standard tire, ply rating, and inflation pressures.

WHEEL TRACTOR-SCRAPERS — Bias Ply

Model	Tire Size	Ply Rating	Pressure			
			Front		Rear	
			kPa	psi	kPa	psi
613C Series II	23.5-25	20	310	45	310	45
611, 615C Series II	29.5-25	28	345	50	310	45
	29.5-25	34	448	65	379	55
621G	33.25-29	26	379	55	310	45
	29.5-29	34	414	60	310	45
	29.5-35	28	379	55	276	40
623G	33.25-29	26	379	55	310	45
	29.5-29	34	448	65	345	50
	29.5-35	28	414	60	310	45
627G	33.25-29	26	379	55	310	45
	29.5-29	34	414	60	448	65
	29.5-35	34	345	50	379	55
631G	37.25-35	42	414	60	379	55
637G	37.25-35	42	414	60	379	55

ARTICULATED TRUCK — Radial Ply

Model	Tire Size	Ply Rating	Pressure					
			Front		Center		Rear	
			kPa	psi	kPa	psi	kPa	psi
725	20.5R25	★ ★	379	55	448	65	448	65
	23.5R25	★ ★	310	45	379	55	379	55
730	23.5R25	★ ★	345	50	345	50	345	50
	30/65R25	★ ★	276	40	345	50	345	50
735	26.5R25	★ ★	379	55	345	50	345	50
	29.5R25	★ ★	310	45	310	45	310	45
740	26.5R25	★ ★	414	60	448	65	448	65
	29.5R25	★ ★	345	50	345	50	345	50

WHEEL TRACTOR-SCRAPERS — Radial Ply

Model	Tire Size	Strength Index	Pressure											
			Michelin				Goodyear				Bridgestone			
			Front		Rear		Front		Rear		Front		Rear	
		kPa	psi	kPa	psi	kPa	psi	kPa	psi	kPa	psi	kPa	psi	
613C Series II	18.00R25	★	379	55	414	60	414	60	448	65	448	65	448	65
	23.5R25	★	276	40	276	40	345	50	345	50	379	55	379	55
611, 615C Series II	26.5R25	★★	379	55	379	55	483	70	483	70	483	70	483	70
	29.5R25	★	310	45	310	45	379	55	379	55	379	55	379	55
621G	29.5R29	★★	414	60	379	55	483	70	379	55	483	70	379	55
	29.5R35	★★	—	—	—	—	448	65	379	55	448	65	379	55
	33.25R29	★★	379	55	310	45	414	60	345	50	414	60	345	50
623G	29.5R29	★★	483	70	483	70	517	75	414	60	517	75	414	60
	29.5R35	★★	—	—	—	—	448	65	414	60	414	60	345	50
	33.25R29	★★	414	60	414	60	414	60	345	50	—	—	—	—
627G	29.5R29	★★	414	60	448	65	517	75	517	75	517	75	517	75
	29.5R35	★★	—	—	—	—	414	60	414	60	483	70	483	70
	33.25R29	★★	379	55	379	55	379	55	379	55	379	55	379	55
631G	37.25R35	★★	517	75	414	60	517	75	414	60	517	75	414	60
637G	37.25R35	★★	517	75	517	75	517	75	517	75	517	75	517	75
651E	37.5R39	★★	655	95	483	70	620	90	517	75	620	90	552	80
	40.5/75R39	★★	517	75	448	65	517	75	448	65	517	75	448	65
657E	37.5R39	★★	*	*	*	*	689	100	689	100	689	100	689	100
	40.5/75R39	★★	586	85	517	75	552	80	552	80	552	80	552	80

*Contact Michelin.

CONSTRUCTION & MINING TRUCKS & TRACTORS — Radial Ply

Model	Tire Size	Strength Index	Pressure											
			Michelin				Goodyear				Bridgestone			
			Front		Rear		Front		Rear		Front		Rear	
		kPa	psi	kPa	psi	kPa	psi	kPa	psi	kPa	psi	kPa	psi	
769D	18.00R33*	★★	689	100	689	100	724	105	724	105	689	100	689	100
771D	18.00R33*	★★	620	90	620	90	800	116	800	116	800	116	800	116
773E	24.00R35*	★★	552	80	552	80	552	80	552	80	585	85	585	85
775E	24.00R35*	★★	552	80	552	80	620	90	620	90	655	95	655	95
776D	27.00R49*	★★	655	95	655	95	586	85	586	85	620	90	620	90
777D	27.00R49*	★★	655	95	655	95	655	95	655	95	689	100	689	100
784B	36.00R51*	★★	758	110	758	110	689	100	689	100	689	100	689	100
785C	33.00R51*	★★	724	105	724	105	689	100	689	100	689	100	689	100
789C	37.00R57*	★★	620	90	620	90	689	100	689	100	689	100	689	100
793C	40.00R57*	★★	Consult Michelin				689	100	689	100	704	102	704	102
	44/80R57	★★	Consult Michelin				—	—	—	—	—	—	—	—
	46/90R57	★★	—	—	—	—	—	—	—	—	704	102	704	102
797B	59/80R63	★★	Consult Michelin				—	—	—	—	Consult Bridgestone			

*Standard tire and ply rating.

Tires

Standard Cold Inflation Pressures Bias and Bias Belted

- Wheel Loaders ● Skid Steer Loaders
- Log Loaders ● Integrated Toolcarriers

WHEEL LOADERS — Bias and Bias Belted

Model	Tire Size	Ply Rating or Strength Index	Pressure			
			Front		Rear	
			kPa	psi	kPa	psi
902	12.5-18	10	241	35	172	25
906	12.5-20	10	241	35	172	25
908	14.5-20	10	276	40	241	35
914G	15.5-25	12	276	40	172	25
	15.5-25	12	241	35	172	25
924G	17.5-25	12	310	45	207	30
	20.5-25	12	241	35	172	25
928G	17.5-25	12	345	50	241	35
	20.5-25	12	241	35	172	25
938G	20.5-25	12	345	50	241	35
950G	23.5-25	16	414	60	241	35
962G	23.5-25	16	414	60	241	35
966G	26.5-25	20	448	65	241	35
972G	26.5-25	20	448	65	241	35
980G	29.5-25	22	414	60	241	35
988G	35/65-33	36	510	75	410	60
		42	585	85	480	70
990 Series II	41.25/70-39	42	510	75	410	60
992G	45/65-45	46	510	75	410	60
		50	585	85	450	65
		58	650	95	480	70
994D	49.5/85-57 52/80-57 53.5/85-57	84	689	100	585	85
		68	689	100	585	85
		76	689	100	585	85

LOG LOADERS — Bias and Bias Belted

Model	Tire Size	Ply Rating	Inflation Pressure			
			Front		Rear	
			kPa	psi	kPa	psi
IT14G	15.5-25	12	310	45	207	30
	17.5-25	12	276	40	172	25
924G Versalink	17.5-25	12	310	45	241	35
	20.5-25	12	276	40	207	30
IT28G	20.5-25	12	276	40	207	30
938G	20.5-25	12	448	65	241	35
950G	23.5-25	16	414	60	241	35
966G	26.5-25	20	448	65	241	35
	23.5-25	24	586	85	241	35
980G	29.5-25	28	552	80	241	35
988G	35/65-33	36	552	80	276	40
	35/65-33	42	552	80	276	40

INTEGRATED TOOLCARRIERS — Bias and Bias Belted

Model	Tire Size	Ply Rating	Inflation Pressure			
			Front		Rear	
			kPa	psi	kPa	psi
IT14G	15.5-25	12	310	45	207	30
	17.5-25	12	241	35	172	25
924G Versalink	17.5-25	12	310	45	207	30
	20.5-25	12	241	35	172	25
IT28G	17.5-25	12	345	50	241	35
	20.5-25	12	241	35	172	25
IT38G	20.5-25	12	345	50	241	35
	20.5-25	16	483	70	241	35

SKID STEER LOADERS

Model	Tire Size	Pressure			
		Goodyear		Galaxy	
		kPa	psi	kPa	psi
216	7.00-15	379	55	—	—
	10-16.5	241	35	345	50
	31x15.50-15	172	25	—	—
226	10-16.5	241	35	345	50
	31x15.50-15	172	25	—	—
228	10-16.5	241	35	345	50
	31x15.50-15	172	25	—	—
236	8.25-15	345	50	—	—
	12-16.5	241	35	310	45
	31x15.50-15	172	25	—	—
246	12-16.5	241	35	310	45
	31x15.50-15	172	25	—	—
248	12-16.5	241	35	310	45
	31x15.50-15	172	25	—	—

Standard Cold Inflation Pressures
Radial, Bias and Bias Belted
● Telehandlers

Tires

TELEHANDLERS — Radial, Bias and Bias Belted

Model	Tire Size	Make	Tire Type	Strength Index	Inflation Pressures			
					Front		Rear	
					kPa	psi	kPa	psi
TH210	XM37 10.5/R20	Michelin	Agricultural		350	51	350	51
	XM37 12.5/80R20	Michelin	Agricultural		350	51	350	51
	10.5-20 MPT	Goodyear	Construction		375	54	375	54
	12.5-20 MPT	Goodyear	Construction		350	51	350	51
TH215	XM37 12.5/80R20	Michelin	Agricultural		350	51	350	51
	XZSL 375/75R20	Michelin	Construction		350	51	350	51
	12.5-20 MPT	Goodyear	Construction		350	51	350	51
TH220B	15.5 - 25 SGL-2A (T&S)	Goodyear	Construction		N/A	N/A	N/A	N/A
	17.5 LR 24 XM27	Michelin	Agricultural		310	45	310	45
	460/70R24 IND IT520 (17.5R24)	Goodyear	Agricultural		250	36	250	36
	15.5 - 25 SGL-2A	Goodyear	Construction	12	250	36	250	36
TH330B	13 - 24 CAT Brand	Caterpillar	Construction	12	450	65	450	65
	13 - 24 CAT Brand (T&S)	Caterpillar	Construction		N/A	N/A	N/A	N/A
	13 - 24 SGG-2A TL	Goodyear	Construction		370	54	370	54
	13 - 24 TG-02	Mitas	Construction	12	300	44	300	44
	13 - 24 TG-02 (T&S)	Mitas	Construction		N/A	N/A	N/A	N/A
	15.5 - 25 CAT Brand	Caterpillar	Construction	12	400	58	400	58
	15.5 - 25 CAT Brand (T&S)	Caterpillar	Construction		N/A	N/A	N/A	N/A
	15.5 - 25 SGL-2A	Goodyear	Construction	12	250	36	250	36
	15.5 - 25 EM20	Mitas	Construction	12	400	58	400	58
	15.5 - 25 EM20 (T&S)	Mitas	Construction		N/A	N/A	N/A	N/A
	15.5 R25 XHA	Michelin	Construction	★	400	58	400	58
	15.5 R25 XTLA	Michelin	Construction	★	400	58	400	58
	15.5/80 - 24 12PR	Goodyear	Agricultural	12	410	60	410	60
	460/70R24 IND IT520 (17.5R24)	Goodyear	Agricultural		270	40	270	40
	495/70R24 XM27 (19.5LR24)	Michelin	Agricultural		310	45	310	45
TH340B	13 - 24 CAT Brand	Caterpillar	Construction	12	450	65	450	65
	13 - 24 CAT Brand (T&S)	Caterpillar	Construction		450	65	450	65
	13 - 24 SGG-2A TL	Goodyear	Construction	12	330	48	330	48
	13 - 24 SGG-2A TL (T&S)	Goodyear	Construction		330	48	330	48
	13 - 24 TG-02	Mitas	Construction	12	300	44	300	44
	13 - 24 TG-02 (T&S)	Mitas	Construction		N/A	N/A	N/A	N/A
	15.5 - 25 CAT Brand	Caterpillar	Construction	12	400	58	400	58
	15.5 - 25 CAT Brand (T&S)	Caterpillar	Construction		400	58	400	58
	15.5 - 25 SGL-2A	Goodyear	Construction	12	290	42	290	42
	15.5 - 25 EM20	Mitas	Construction		400	58	400	58
	15.5 - 25 EM20 (T&S)	Mitas	Construction		400	58	400	58
	15.5 R25 XHA	Michelin	Construction	★	400	58	400	58
	15.5 R25 XTLA	Michelin	Construction	★	400	58	400	58
	15.5 R25 XTLA (T&S)	Michelin	Construction	★	400	58	400	58
	15.5/80 - 24 12PR	Goodyear	Agricultural	12	410	60	410	60
	17.5 LR 24 XM27	Michelin	Agricultural		310	45	310	45
	460/70R24 IND IT520 (17.5R24)	Goodyear	Agricultural		260	38	260	38

Tires

Standard Cold Inflation Pressures Radial, Bias and Bias Belted ● Telehandlers

TELEHANDLERS — Radial, Bias and Bias Belted

Model	Tire Size	Make	Tire Type	Strength Index	Inflation Pressures			
					Front		Rear	
					kPa	psi	kPa	psi
TH350B	13 - 24 CAT Brand	Caterpillar	Construction	12	450	65	450	65
	13 - 24 CAT Brand (T&S)	Caterpillar	Construction		450	65	450	65
	13 - 24 SGG-2A TL	Goodyear	Construction	12	350	51	350	51
	13 - 24 TG-02	Mitas	Construction	12	300	44	300	44
	13 - 24 TG-02 (T&S)	Mitas	Construction		N/A	N/A	N/A	N/A
	15.5 - 25 SGL-2A	Goodyear	Construction	12	350	51	350	51
	15.5 R25 XHA	Michelin	Construction	★	450	65	450	65
	15.5 R25 XTLA	Michelin	Construction	★	450	65	450	65
	15.5/80 - 24 12PR	Goodyear	Agricultural	12	410	60	410	60
TH355B	15.5 - 25 SGL-2A	Goodyear	Construction	12	350	51	350	51
TH360B	13 - 24 CAT Brand	Caterpillar	Construction		450	65	450	65
	13 - 24 CAT Brand (T&S)	Caterpillar	Construction		450	65	450	65
	13 - 24 SGG-2A TL	Goodyear	Construction	12	440	64	440	64
	13 - 24 TG-02	Mitas	Construction	12	300	44	300	44
	15.5 - 25 CAT Brand	Caterpillar	Construction	12	400	58	400	58
	15.5 - 25 CAT Brand (T&S)	Caterpillar	Construction		400	58	400	58
	15.5 - 25 SGL-2A	Goodyear	Construction	12	400	58	400	58
	15.5 - 25 EM20	Mitas	Construction		400	58	400	58
	15.5 R25 XHA	Michelin	Construction	★	450	65	450	65
	15.5 R25 XTLA	Michelin	Construction	★	450	65	450	65
15.5/80 - 24 12PR	Goodyear	Agricultural	12	410	60	410	60	
TH460B	14 - 24 12PR CAT Brand	Caterpillar	Construction	12	425	62	425	62
	14 - 24 12PR CAT Brand (T&S)	Caterpillar	Construction		425	62	425	62
	14 - 24 16PR TG-02	Mitas	Construction	16	425	62	425	62
	14 - 24 16PR TG-02 (T&S)	Mitas	Construction		N/A	N/A	N/A	N/A
	14 - 24 SGG-2A 12PR	Goodyear	Construction	12	425	62	425	62
	400/70R24 IT530 (16R24)	Goodyear	Construction		550	73	550	73
TH560B	14 - 24 16PR CAT Brand	Caterpillar	Construction	16	550	80	550	80
	14 - 24 16PR CAT Brand (T&S)	Caterpillar	Construction		550	80	550	80
	14 - 24 16PR TG-02	Mitas	Construction	16	425	62	425	62
	14 - 24 16PR TG-02 (T&S)	Mitas	Construction		N/A	N/A	N/A	N/A
	14 - 24 SGG-2A 16PR	Goodyear	Construction	16	525	76	525	76
	14 - 24 SGG-2A 16PR (T&S)	Goodyear	Construction		525	76	525	76

WHEEL LOADERS — Radial Ply

Model	Tire Size	Strength Index	Pressure											
			Michelin				Dunlop							
			Front		Rear		Front		Rear					
			kPa	psi	kPa	psi	kPa	psi	kPa	psi				
902	335/80R18 XM27	★	304	44	221	32	—	—	—	—				
	335/80R18 SPT9	★	—	—	—	—	276	40	172	25				
906	365/80R20 SPT9	★	—	—	—	—	276	40	172	25				
	375/75R20 XM27	★	276	40	193	28	—	—	—	—				
	405/70R20 SPT9	★	—	—	—	—	241	35	172	25				
908	425/75R20 XM27	★	276	40	193	28	—	—	—	—				
	405/70R20 SPT9	★	—	—	—	—	276	40	207	30				
Model	Tire Size	Strength Index	Pressure											
			Michelin				Goodyear				Bridgestone			
			Front		Rear		Front		Rear		Front		Rear	
			kPa	psi	kPa	psi	kPa	psi	kPa	psi	kPa	psi	kPa	psi
914G	15.5R25	★	310	45	172	25	—	—	—	—	414	60	276	40
	17.5R25	★	276	40	172	25	414	60	310	45	414	60	276	40
924G	17.5R25	★	276	40	172	25	414	60	310	45	414	60	276	40
	555/70R25	★	276	40	172	25	—	—	—	—	—	—	—	—
	20.5R25	★	241	35	172	25	414	60	310	45	414	60	276	40
928G	17.5R25	★	379	55	172	25	414	60	310	45	414	60	276	40
	555/70R25	★	310	45	172	25	—	—	—	—	—	—	—	—
	20.5R25	★	310	45	172	25	414	60	310	45	414	60	276	40
938G	20.5R25	★	310	45	172	25	276	40	241	35	276	40	207	30
	550/65R25	★	310	45	172	25	276	40	241	35	276	40	207	30
950G	23.5R25	★	241	35	172	25	310	45	207	30	310	45	207	30
	650/65R25	★	241	35	172	25	310	45	207	30	310	45	207	30
962G	23.5R25	★	276	40	172	25	345	50	207	30	345	50	207	30
	650/65R25	★	276	40	172	25	345	50	207	30	345	50	207	30
966G	26.5R25	★	310	45	172	25	345	50	207	30	345	50	276	40
	755/65R25	★	310	45	172	25	345	50	207	30	345	50	276	40
972G	26.5R25	★	345	50	172	25	414	50	276	40	345	50	276	40
	755/65R25	★	345	50	172	25	414	50	276	40	345	50	276	40
980G	26.5R25	★	—	—	—	—	448	65	310	45	414	60	276	40
	29.5R25	★	379	55	207	30	345	50	207	30	345	50	276	40
988G	35/65R33	★	586	85	276	40	483	70	345	50	540	80	345	50
	875/65R33	★★	—	—	—	—	655	95	448	65	—	—	—	—
990 Series II	45/65R39	★	483	70	276	40	—	—	—	—	580	85	414	60
	40.5/75R39	★	—	—	—	—	483	70	345	50	—	—	—	—
992G	45/65R45	★	552	80	276	40	586	85	448	65	580	85	414	60
	45/65R45	★★	—	—	—	—	—	—	—	—	685	95	414	60
994D	55/80R57	★	Contact Michelin				—	—	—	—	—	—	—	—

Tires

Standard Cold Inflation Pressures

Radial Ply

- Log Loaders
- Integrated Toolcarriers

LOG LOADERS — Radial Ply

Model	Tire Size	Strength Index	Pressure											
			Michelin				Goodyear				Bridgestone			
			Front		Rear		Front		Rear		Front		Rear	
		kPa	psi	kPa	psi	kPa	psi	kPa	psi	kPa	psi	kPa	psi	
IT14G	15.5R25	★	310	45	207	30	—	—	—	—	345	50	276	40
	17.5R25	★	241	35	172	25	414	60	310	45	345	50	276	40
924G Versalink	17.5R25	★	379	55	172	25	414	60	310	45	345	50	276	40
	555/70R25	★	241	35	172	25	—	—	—	—	—	—	—	—
	20.5R25	★	241	35	172	25	414	60	310	45	345	50	276	40
IT28G	555/70R25	★	310	45	172	25	—	—	—	—	—	—	—	—
	20.5R25	★	310	45	172	25	414	60	310	45	345	50	276	40
938G	20.5R25	★	310	45	172	25	345	50	276	40	345	50	276	40
	550/65R25	★	310	45	172	25	345	50	276	40	345	50	276	40
950G	23.5R25	★	241	35	207	30	414	60	276	40	345	50	276	40
	650/65R25	★	241	35	207	30	414	60	276	40	345	50	276	40
966G	26.5R25	★	310	45	207	30	414	60	276	40	414	60	276	40
	755/65R25	★	310	45	207	30	414	60	276	40	414	60	276	40
980G	29.5R25	★	379	55	207	30	483	70	276	40	448	65	276	40
988G	35/65R33	★	586	85	276	40	655	95	310	45	552	80	345	50
	35/65R33	★ ★	—	—	—	—	655	95	310	45	—	—	—	—

INTEGRATED TOOLCARRIERS — Radial Ply

Model	Tire Size	Strength Index	Pressure											
			Michelin				Goodyear				Bridgestone			
			Front		Rear		Front		Rear		Front		Rear	
		kPa	psi	kPa	psi	kPa	psi	kPa	psi	kPa	psi	kPa	psi	
IT14G	15.5R25	★	241	35	172	25	—	—	—	—	345	50	276	40
	17.5R25	★	207	30	172	25	414	60	310	45	345	50	276	40
924G Versalink	17.5R25	★	345	50	172	25	414	60	310	45	345	50	276	40
	555/70R25	★	207	30	172	25	—	—	—	—	—	—	—	—
	20.5R25	★	241	35	172	25	414	60	310	45	345	50	276	40
IT28G	17.5R25	★	379	55	172	25	414	60	310	45	345	50	276	40
	555/70R25	★	207	30	172	25	—	—	—	—	—	—	—	—
	20.5R25	★	207	30	172	25	414	60	310	45	345	50	276	40
IT38G	20.5R25	★	241	35	172	25	345	50	241	35	345	50	276	40
	550/65R25	★	241	35	172	25	345	50	241	35	345	50	276	40

Standard Cold Inflation Pressures
Bias and Bias Belted/Bias and Radial Ply
● Underground Mining

UNDERGROUND MINING — Bias and Bias Belted

LOAD – HAUL – DUMP			Ply Rating	Bridgestone			
Model	Wheel Size	Tire Size		Front*		Rear*	
				kPa	psi	kPa	psi
R1300	14.0×25	17.5×25	20	680	100	580	85
R1600	13.0×25	18.0×25	28	680	100	414	60
R1700G & R1700G SUPA14	22.0×25	26.5×25	32	580	85	414	60
R2900 & R2900 SUPA 20	25.0×25	29.5×29	34	640	94	414	60

ARTICULATED TRUCKS

AD45	25.0×29	29.5×29	40	640	94	640	94
AD55	28.0×33	35/65R33	—	—	—	—	—
AE40 Series II	29.5×29	29.5×R29	40	620	90	620	90

RIGID TRUCKS

69D Dump	13.0×33	18.0×R33	36	640	94	640	94
69D Ejector	13.0×33	18.0×R33	40	620	91	620	91
73D	15.0×35	21.0×R35	42	700	102	700	102

*For standard loading applications.

NOTE: When tramming cycles exceed 150 m (500 ft) contact tire supplier.

UNDERGROUND MINING — Bias and Radial Ply

LOAD – HAUL – DUMP			Ply Rating	Bridgestone Bias			
Model	Wheel Size	Tire Size		Front*		Rear*	
				kPa	psi	kPa	psi
R1300G	14.0×25	17.5×25	20	685	100	580	85
R1600G	13.0×25	18.0×25	28	685	100	410	60
R1700G	22.0×25	26.5×25	36	580	85	410	60
R2900G	25.0×29	29.5×29	34	615	90	410	60
R2900G Xtra	28.0×33	35/65×33	—	—	—	—	—
				Bridgestone Radial			
R1300G	14.0×25	17.5×25	★ ★	685	102	580	85
R1600G	13.0×25	18.0×25	★ ★	685	100	410	60
R1700G	22.0×25	26.5×25	★ ★	580	85	410	60
R2900G	25.0×29	29.5×29	★ ★	640	94	410	60
R2900G Xtra	28.0×33	35/65×33	★ ★	640	94	410	60

ARTICULATED TRUCKS

AD30	22.0×25	26.5R25	★ ★	540	80	615	90
AD45	25.0×29	29.5×R29	★ ★	650	95	650	95
AD55	28.0×33	35/65R33	★ ★	640	94	640	94

*For standard loading applications.

NOTE: When tramming cycles exceed 150 m (500 ft) contact tire supplier.

NOTE: The operating inflation pressure is based on the weight of the ready-to-work machine without attachments, at rated payload and in average operating conditions. The tire pressure for each application may vary. The tire pressure should always be obtained from your tire dealer.

BIAS PLY TIRES

RADIAL PLY TIRES

	WEIGHT INCREASE PER TIRE		MIXING PROPORTIONS				WEIGHT INCREASE PER TIRE		MIXING PROPORTIONS			
	kg	lb	CaCl***		Water		kg	lb	CaCl***		Water	
			kg	lb	liter	gal	kg	lb	kg	lb	liter	gal
13.00-24TG	188	414	55	122	132	35	185	407	57	125	128	34
14.00-24TG	215	475	63	140	151	40	256	565	79	173	179	47
15.5-25	192	423	56	125	136	36	224	493	69	151	155	41
16.00-24TG	333	735	98	217	234	62	355	783	109	240	246	65
17.5-25	262	577	77	170	185	49	311	686	95	210	216	57
18.00-25	454	1002	134	296	322	85	502	1107	154	340	348	92
18.4-34	417	919	123	272	295	78	—	—	—	—	—	—
20.5-25	405	892	119	263	284	75	448	987	137	303	310	82
23.1-26	522	1151	154	340	367	97	—	—	—	—	—	—
23.5-25	585	1291	173	382	412	109	633	1396	194	428	439	116
24.5-32	703	1549	207	458	496	131	—	—	—	—	—	—
26.5-25	758	1671	224	494	533	141	841	1853	258	568	583	154
26.5-29	752	1658	222	490	530	140	928	2045	284	627	644	170
28L-26	709	1563	209	462	500	132	—	—	—	—	—	—
29.5-25	970	2139	286	632	685	181	1073	2368	328	723	745	197
29.5-29	1050	2315	310	684	738	195	1190	2623	365	804	825	218
29.5-35	1159	2556	344	758	821	217	1286	2835	394	869	892	236
30.5L-32	874	1928	258	570	617	163	—	—	—	—	—	—
33.25-35	1485	3275	439	968	1048	277	1592	3508	487	1074	1105	292
37.25-35	1712	3775	505	1115	1211	320	2128	4692	653	1439	1476	390
38-39	1870	4123	552	1218	1317	348	—	—	—	—	—	—
35/65-33	1339	2953	396	873	942	249	1430	3152	438	967	992	262
40/65-39	2077	4580	614	1353	1465	387	2194	4836	673	1483	1522	402
41.25/70-39	1897	4183	561	1236	1336	353	—	—	—	—	—	—
45/65-45	2548	5617	753	1659	1794	474	—	—	—	—	—	—

*Ballast weight for bias ply tires from Goodyear data, radial ply weights from Michelin data. Contact your tire supplier for additional information. Under abnormal tire wear conditions, ballasting of rear tires may be desirable. Ballasting of front tires also should only be done where extremely rapid tire wear rates are encountered. Excessive weight will reduce machine performance.

**Fillage beyond 75% of tire enclosed volume is not recommended. With liquid ballasting, inflation pressure must be checked at least once per day.

***1.6 kg (3½ lb) Calcium Chloride per gallon water. Solution weighs 4.6 kg (10.15 lb) per gallon.

NOTE: When liquid ballasting telehandler tires, consult Telehandler's Operation and Maintenance Manual for requirements. Total machine mass including all attachments in operating condition, all reservoirs at full capacity and ballasted tires must not exceed certification mass listed on the ROPS certification label.

MINING AND EARTHMOVING

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INTRODUCTION

This section explains the earthmoving principles used to determine machine productivity. It shows how to calculate production on-the-job or estimate production off-the-job.

Machine performance is usually measured on an hourly basis in terms of machine productivity and machine owning and operating cost. Optimum machine performance can be expressed as follows:

$$\text{Lowest cost per ton} = \frac{\text{Lowest Possible Hourly Costs}}{\text{Highest Possible Hourly Productivity}}$$

ELEMENTS OF PRODUCTION

Production is the hourly rate at which material is moved. Production can be expressed in various units:

Metric

- Bank Cubic Meters — BCM — bank m³
- Loose Cubic Meters — LCM — loose m³
- Compacted Cubic Meters — CCM — compacted m³
- Tonnes

English

- Bank Cubic Yards — BCY — bank yd³
- Loose Cubic Yards — LCY — loose yd³
- Compacted Cubic Yards — CCY — compacted yd³
- Tons

For most earthmoving and material handling applications, production is calculated by multiplying the quantity of material (load) moved per cycle by the number of cycles per hour.

$$\text{Production} = \text{Load/cycle} \times \text{cycles/hour}$$

The load can be determined by

- 1) load weighing with scales
- 2) load estimating based on machine rating
- 3) surveyed volume divided by load count
- 4) machine payload measurement system

Generally, earthmoving and overburden removal for coal mines are calculated by volume (bank cubic meters or bank cubic yards). Metal mines and aggregate producers usually work in weight (tons or tonnes).

Volume Measure — Material volume is defined according to its state in the earthmoving process. The three measures of volume are:

BCM (BCY) — one cubic meter (yard) of material as it lies in the natural bank state.

LCM (LCY) — one cubic meter (yard) of material which has been disturbed and has swelled as a result of movement.

CCM (CCY) — one cubic meter (yard) of material which has been compacted and has become more dense as a result of compaction.

In order to estimate production, the relationships between bank measure, loose measure, and compacted measure must be known.

Swell — Swell is the percentage of original volume (cubic meters or cubic yards) that a material increases when it is removed from the natural state. When excavated, the material breaks up into different size particles that do not fit together, causing air pockets or voids to reduce the weight per volume. For example to hold the same weight of one cubic unit of bank material it takes 30% more volume (1.3 times) after excavation. (Swell is 30%).

$$1 + \text{Swell} = \frac{\text{Loose cubic volume for a given weight}}{\text{Bank cubic volume for the same given weight}}$$

$$\text{Bank} = \frac{\text{Loose}}{(1 + \text{Swell})}$$

$$\text{Loose} = \text{Bank} \times (1 + \text{Swell})$$

Example Problem:

If a material swells 20%, how many loose cubic meters (loose cubic yards) will it take to move 1000 bank cubic meters (1308 bank cubic yards)?

$$\begin{aligned} \text{Loose} &= \text{Bank} \times (1 + \text{Swell}) = \\ &1000 \text{ BCM} \times (1 + 0.2) = 1200 \text{ LCM} \\ &1308 \text{ BCY} \times (1 + 0.2) = 1570 \text{ LCY} \end{aligned}$$

How many bank cubic meters (yards) were moved if a total of 1000 loose cubic meters (1308 yards) have been moved? Swell is 25%.

$$\begin{aligned} \text{Bank} &= \text{Loose} \div (1 + \text{Swell}) = \\ &1000 \text{ LCM} \div (1 + 0.25) = 800 \text{ BCM} \\ &1308 \text{ LCY} \div (1 + 0.25) = 1046 \text{ BCY} \end{aligned}$$

Load Factor — Assume one bank cubic yard of material weighs 3000 lb. Because of material characteristics, this bank cubic yard swells 30% to 1.3 loose cubic yards when loaded, with no change in weight. If this 1.0 bank cubic yard or 1.3 loose cubic yards is compacted, its volume may be reduced to 0.8 compacted cubic yard, and the weight is still 3000 lb.

Instead of dividing by 1 + Swell to determine bank volume, the loose volume can be multiplied by the load factor.

If the percent of material swell is known, the load factor (L.F.) may be obtained by using the following relationship:

$$\text{L.F.} = \frac{100\%}{100\% + \% \text{ swell}}$$

Load factors for various materials are listed in the Tables Section of this handbook.

To estimate the machine payload in bank cubic yards, the volume in loose cubic yards is multiplied by the load factor:

$$\text{Load (BCY)} = \text{Load (LCY)} \times \text{L.F.}$$

The ratio between compacted measure and bank measure is called shrinkage factor (S.F.):

$$\text{S.F.} = \frac{\text{Compacted cubic yards (CCY)}}{\text{Bank cubic yards (BCY)}}$$

Shrinkage factor is either estimated or obtained from job plans or specifications which show the conversion from compacted measure to bank measure. Shrinkage factor should not be confused with percentage compaction (used for specifying embankment density, such as Modified Proctor or CBR).

Material Density — Density is the weight per unit volume of a material. Materials have various densities depending on particle size, moisture content and variations in the material. The denser the material the more weight there is per unit of equal volume. Density estimates are provided in the Tables Section of this handbook.

$$\text{Density} = \frac{\text{Weight}}{\text{Volume}} = \frac{\text{kg (lb)}}{\text{m}^3 (\text{yd}^3)}$$

$$\text{Weight} = \text{Volume} \times \text{Density}$$

A given material's density changes between bank and loose. One cubic unit of loose material has less weight than one cubic unit of bank material due to air pockets and voids. To correct between bank and loose use the following equations.

$$1 + \text{Swell} = \frac{\text{kg/BCM}}{\text{kg/LCM}} \text{ or } \frac{\text{lb/BCY}}{\text{lb/LCY}}$$

$$\text{lb/LCY} = \frac{\text{lb/BCY}}{(1 + \text{Swell})}$$

$$\text{lb/BCY} = \text{lb/LCY} \times (1 + \text{Swell})$$

Fill Factor — The percentage of an available volume in a body, bucket, or bowl that is actually used is expressed as the fill factor. A fill factor of 87% for a hauler body means that 13% of the rated volume is not being used to carry material. Buckets often have fill factors over 100%.

Example Problem:

A 14 cubic yard (heaped 2:1) bucket has a 105% fill factor when operating in a shot sandstone (4125 lb/BCY and a 35% swell).

- What is the loose density of the material?
 - What is the usable volume of the bucket?
 - What is the bucket payload per pass in BCY?
 - What is the bucket payload per pass in tons?
- a) $\text{lb/LCY} = \text{lb/BCY} \div (1 + \text{Swell}) = 4125 \div (1.35) = 3056 \text{ lb/LCY}$
- b) $\text{LCY} = \text{rated LCY} \times \text{fill factor} = 14 \times 1.05 = 14.7 \text{ LCY}$
- c) $\text{lb/pass} = \text{volume} \times \text{density lb/LCY} = 14.7 \times 3056 = 44,923 \text{ lb}$
 $\text{BCY/pass} = \text{weight} \div \text{density lb/BCY} = 44,923 \div 4125 = 10.9 \text{ BCY}$
 or bucket LCY from part b $\div (1 + \text{Swell}) = 14.7 \div 1.35 = 10.9 \text{ BCY}$
- d) $\text{tons/pass} = \text{lb} \div 2000 \text{ lb/ton} = 44,923 \div 2000 = 22.5 \text{ tons}$

Example Problem:

Construct a 10,000 compacted cubic yard (CCY) bridge approach of dry clay with a shrinkage factor (S.F.) of 0.80. Haul unit is rated 14 loose cubic yards struck and 20 loose cubic yards heaped.

- How many bank yards are needed?
- How many loads are required?

a) $\text{BCY} = \frac{\text{CCY}}{\text{S.F.}} = \frac{10,000}{0.80} = 12,500 \text{ BCY}$

b) $\text{Load (BCY)} = \text{Capacity (LCY)} \times \text{Load factor (L.F.)} = 20 \times 0.81 = 16.2 \text{ BCY/Load}$
 (L.F. of 0.81 from Tables)

$\text{Number of loads required} = \frac{12,500 \text{ BCY}}{16.2 \text{ BCY/Load}} = 772 \text{ Loads}$



Soil Density Tests — There are a number of acceptable methods that can be used to determine soil density. Some that are currently in use are:

- Nuclear density moisture gauge
- Sand cone method
- Oil method
- Balloon method
- Cylinder method

All these except the nuclear method use the following procedure:

- Remove a soil sample from bank state.
- Determine the volume of the hole.
- Weigh the soil sample.
- Calculate the density kg/BCM (lb/BCY).

The nuclear density moisture gauge is one of the most modern instruments for measuring soil density and moisture. A common radiation channel emits either neutrons or gamma rays into the soil. In determining soil density, the number of gamma rays absorbed and back scattered by soil particles is *indirectly* proportional to the soil density. When measuring moisture content, the number of moderated neutrons reflected back to the detector after colliding with hydrogen particles in the soil is *directly* proportional to the soil's moisture content.

All these methods are satisfactory and will provide accurate densities when performed correctly. Several repetitions are necessary to obtain an average.

- Load Weighing
- Time Studies
- Example (English)

FIGURING PRODUCTION ON-THE-JOB

Load Weighing — The most accurate method of determining the actual load carried is by weighing. This is normally done by weighing the haul unit one wheel or axle at a time with portable scales. Any scales of adequate capacity and accuracy can be used. While weighing, the machine should be level to reduce error caused by weight transfer. Enough loads should be weighed to provide a good average. Machine weight is the sum of the individual wheel or axle weights.

The weight of the load can be determined using the empty and loaded weight of the unit.
Weight of

$$\text{load} = \text{Gross machine weight} - \text{empty weight}$$

To determine the bank cubic measure carried by a machine, the load weight is divided by the bank-state density of the material being hauled.

$$\text{BCY} = \frac{\text{Weight of load}}{\text{Bank density}}$$

Times Studies — To estimate production, the number of complete trips a unit makes per hour must be determined. First obtain the unit's cycle time with the help of a stop watch. Time several complete cycles to arrive at an average cycle time. By allowing the watch to run continuously, different segments such as load time, wait time, etc. can be recorded for each cycle. Knowing the individual time segments affords a good opportunity to evaluate the balance of the spread and job efficiency. The following is an example of a scraper load time study form. Numbers in the white columns are stop watch readings; numbers in the shaded columns are calculated:

Total Cycle Times (less delays)	Arrive Cut	Wait Time	Begin Load	Load Time	End Load	Begin Delay	Delay Time	End Delay
	0.00	0.30	0.30	0.60	0.90			
3.50	3.50	0.30	3.80	0.65	4.45			
4.00	7.50	0.35	7.85	0.70	8.55	9.95	1.00	10.95
4.00	12.50	0.42	12.92	0.68	13.60			

NOTE: All numbers are in minutes

This may be easily extended to include other segments of the cycle such as haul time, dump time, etc. Similar forms can be made for pushers, loaders, dozers, etc. *Wait Time* is the time a unit must wait for another unit so that the two can function together (haul unit waiting for pusher). *Delay Time* is any time, other than wait time, when a machine is not

performing in the work cycle (scraper waiting to cross railroad track).

To determine trips-per-hour at 100% efficiency, divide 60 minutes by the average cycle time less all wait and delay time. Cycle time may or may not include wait and/or delay time. Therefore, it is possible to figure different kinds of production: measured production, production without wait or delay, maximum production, etc. For example:

Actual Production: includes all wait and delay time.
Normal Production (without delays): includes wait time that is considered normal, but no delay time.
Maximum Production: to figure maximum (or optimum) production, both wait time and delay time are eliminated. The cycle time may be further altered by using an optimum load time.

Example (English)

A job study of a Wheel Tractor-Scraper might yield the following information:

- Average wait time = 0.28 minute
- Average load time = 0.65
- Average delay time = 0.25
- Average haul time = 4.26
- Average dump time = 0.50
- Average return time = 2.09
- Average total cycle = 8.03 minutes
- Less wait & delay time = 0.53
- Average cycle 100% eff. = 7.50 minutes

Weight of haul unit empty — 48,650 lb

- Weights of haul unit loaded —
- Weighing unit #1 — 93,420 lb
- Weighing unit #2 — 89,770 lb
- Weighing unit #3 — 88,760 lb

$$\begin{aligned} &271,950 \text{ lb;} \\ &\text{average} = 90,650 \text{ lb} \end{aligned}$$

1. Average load weight = 90,650 lb – 48,650 lb = 42,000 lb
2. Bank density = 3125 lb/BCY
3. Load = $\frac{\text{Weight of load}}{\text{Bank density}}$

$$= \frac{42,000 \text{ lb}}{3125 \text{ lb/BCY}} = 13.4 \text{ BCY}$$
4. Cycles/hr = $\frac{60 \text{ min/hr}}{\text{Cycle time}} = \frac{60 \text{ min/hr}}{7.50 \text{ min/cycle}} = 80 \text{ cycles/hr}$
5. Production (less delays) = Load/cycle × cycles/hr

$$= 13.4 \text{ BCY/cycle} \times 8.0 \text{ cycles/hr} = 107.2 \text{ BCY/hr}$$

Example (Metric)

A job study of a Wheel Tractor-Scraper might yield the following information:

- Average wait time = 0.28 minute
- Average load time = 0.65
- Average delay time = 0.25
- Average haul time = 4.26
- Average dump time = 0.50
- Average return time = 2.09
- Average total cycle = 8.03 minutes
- Less wait & delay time = 0.53
- Average cycle 100% eff. = 7.50 minutes

Weight of haul unit empty — 22 070 kg

Weights of haul unit loaded —

- Weighing unit #1 — 42 375 kg
- Weighing unit #2 — 40 720 kg
- Weighing unit #3 — 40 260 kg

123 355 kg;
 average = 41 120 kg

1. Average load weight = 41 120 kg – 22 070 kg = 19 050 kg
2. Bank density = 1854 kg/BCM
3. Load = $\frac{\text{Weight of load}}{\text{Bank density}}$
 $= \frac{19\,050\text{ kg}}{1854\text{ kg/BCM}} = 10.3\text{ BCM}$
4. Cycles/hr = $\frac{60\text{ min/hr}}{\text{Cycle time}} = \frac{60\text{ min/hr}}{7.50\text{ min/cycle}} = 80\text{ cycles/hr}$
5. Production = Load/cycle × cycles/hr
 (less delays) = 10.3 BCM/cycle × 8.0 cycles/hr
 = 82 BCM/hr



ESTIMATING PRODUCTION OFF-THE-JOB

It is often necessary to estimate production of earthmoving machines which will be selected for a job. As a guide, the remainder of the section is devoted to discussions of various factors that may affect production. Some of the figures have been rounded for easier calculation.

Rolling Resistance (RR) is a measure of the force that must be overcome to roll or pull a wheel over the ground. It is affected by ground conditions and load — the deeper a wheel sinks into the ground, the higher the rolling resistance. Internal friction and tire flexing also contribute to rolling resistance. Experience has shown that minimum resistance is 1%-1.5% (see Typical Rolling Resistance Factors in Tables section) of the gross machine weight (on tires). A 2% base resistance is quite often used for estimating. Resistance due to tire penetration is approximately 1.5% of the gross machine weight for each inch of tire penetration (0.6% for each cm of tire penetration). Thus rolling resistance can be calculated using these relationships in the following manner:

$$\text{RR} = 2\% \text{ of GMW} + 0.6\% \text{ of GMW per cm tire penetration}$$

$$\text{RR} = 2\% \text{ of GMW} + 1.5\% \text{ of GMW per inch tire penetration}$$

It's *not* necessary for the tires to actually penetrate the road surface for rolling resistance to increase above the minimum. If the road surface flexes under load, the effect is nearly the same — the tire is always running “uphill”. Only on very hard, smooth surfaces with a well compacted base will the rolling resistance approach the minimum.

When actual penetration takes place, some variation in rolling resistance can be noted with various inflation pressures and tread patterns.

NOTE: When figuring “pull” requirements for track-type tractors, rolling resistance applies only to the trailed unit's *weight on wheels*. Since tracktype tractors utilize steel wheels moving on steel “roads”, a tractor's rolling resistance is relatively constant and is accounted for in the Drawbar Pull rating.

- Grade Resistance
- Total Resistance
- Traction

Grade Resistance is a measure of the force that must be overcome to move a machine over unfavorable grades (uphill). Grade assistance is a measure of the force that assists machine movement on favorable grades (downhill).

Grades are generally measured in percent slope, which is the ratio between vertical rise or fall and the horizontal distance in which the rise or fall occurs. For example, a 1% grade is equivalent to a 1 m (ft) rise or fall for every 100 m (ft) of horizontal distance; a rise of 4.6 m (15 ft) in 53.3 m (175 ft) equals an 8.6% grade.

$$\frac{4.6 \text{ m (rise)}}{53.3 \text{ m (horizontal distance)}} = 8.6\% \text{ grade}$$

$$\frac{15 \text{ ft (rise)}}{175 \text{ ft (horizontal distance)}} = 8.6\% \text{ grade}$$

Uphill grades are normally referred to as adverse grades and downhill grades as favorable grades. Grade resistance is usually expressed as a positive (+) percentage and grade assistance is expressed as a negative (-) percentage.

It has been found that for each 1% increment of adverse grade an additional 10 kg (20 lb) of resistance must be overcome for each metric (U.S.) ton of machine weight. This relationship is the basis for determining the Grade Resistance Factor which is expressed in kg/metric ton (lb/U.S. ton):

$$\begin{aligned} \text{Grade Resistance Factor} &= 10 \text{ kg/m ton} \times \% \text{ grade} \\ &= 20 \text{ lb/U.S. ton} \times \% \text{ grade} \end{aligned}$$

Grade resistance (assistance) is then obtained by multiplying the Grade Resistance Factor by the machine weight (GMW) in metric (U.S.) tons.

$$\text{Grade Resistance} = \text{GR Factor} \times \text{GMW in metric (U.S.) tons}$$

Grade resistance may also be calculated using percentage of gross weight. This method is based on the relationship that grade resistance is approximately equal to 1% of the gross machine weight for 1% of grade.

$$\text{Grade Resistance} = 1\% \text{ of GMW} \times \% \text{ grade}$$

Grade resistance (assistance) affects both wheel and track-type machines.

Total Resistance is the combined effect of rolling resistance (wheel vehicles) and grade resistance. It can be computed by summing the values of rolling resistance and grade resistance to give a resistance in kilogram (pounds) force.

$$\text{Total Resistance} = \text{Rolling Resistance} + \text{Grade Resistance}$$

Total resistance can also be represented as consisting completely of grade resistance expressed in percent grade. In other words, the rolling resistance component is viewed as a corresponding quantity of additional adverse grade resistance. Using this approach, total resistance can then be considered in terms of percent grade.

This can be done by converting the contribution of rolling resistance into a corresponding percentage of grade resistance. Since 1% of adverse grade offers a resistance of 10 kg (20 lb) for each metric or (U.S.) ton of machine weight, then each 10 kg (20 lb) of resistance per ton of machine weight can be represented as an additional 1% of adverse grade. Rolling resistance in percent grade and grade resistance in percent grade can then be summed to give Total Resistance in percent or Effective Grade. The following formulas are useful in arriving at Effective Grade.

$$\begin{aligned} \text{Rolling Resistance (\%)} &= 2\% + 0.6\% \text{ per cm tire} \\ &\quad \text{penetration} \\ &= 2\% + 1.5\% \text{ per inch tire} \\ &\quad \text{penetration} \end{aligned}$$

$$\begin{aligned} \text{Grade Resistance (\%)} &= \% \text{ grade} \\ \text{Effective Grade (\%)} &= \text{RR (\%)} + \text{GR (\%)} \end{aligned}$$

Effective grade is a useful concept when working with Rimpull-Speed-Gradeability curves, Retarder curves, Brake Performance curves, and Travel Time curves.

Traction — is the driving force developed by a wheel or track as it acts upon a surface. It is expressed as usable Drawbar Pull or Rimpull. The following factors affect traction: weight on the driving wheel or tracks, gripping action of the wheel or track, and ground conditions. The coefficient of traction (for any roadway) is the ratio of the maximum pull developed by the machine to the total weight on the drivers.

$$\text{Coeff. of traction} = \frac{\text{Pull}}{\text{weight on drivers}}$$

Therefore, to find the usable pull for a given machine:

$$\text{Usable pull} = \text{Coeff. of traction} \times \text{weight on drivers}$$

Example: Track-Type Tractor

What usable drawbar pull (DBP) can a 26 800 kg (59,100 lb) Track-type Tractor exert while working on firm earth? on loose earth? (See table section for coefficient of traction.)

Answer:

Firm earth — Usable DBP =
 $0.90 \times 26\,800 \text{ kg} = 24\,120 \text{ kg}$
 $(0.90 \times 59,100 \text{ lb} = 53,190 \text{ lb})$
 Loose earth — Usable DBP =
 $0.60 \times 26\,800 \text{ kg} = 16\,080 \text{ kg}$
 $(0.60 \times 59,100 \text{ lb} = 35,460 \text{ lb})$

If a load required 21 800 kg (48,000 lb) pull to move it, this tractor could move the load on firm earth. However, if the earth were loose, the tracks would spin.

NOTE: D8R through D11R Tractors may attain higher coefficients of traction due to their suspended undercarriage.

Example: Wheel Tractor-Scraper

What usable rimpull can a 621F size machine exert while working on firm earth? on loose earth? The total loaded weight distribution of this unit is:

Drive unit	Scraper unit
wheels: 23 600 kg	wheels: 21 800 kg
(52,000 lb)	(48,000 lb)

Remember, use weight on drivers only.

Answer:

Firm earth — $0.55 \times 23\,600 \text{ kg} = 12\,980 \text{ kg}$
 $(0.55 \times 52,000 \text{ lb} = 28,600 \text{ lb})$
 Loose earth — $0.45 \times 23\,600 \text{ kg} = 10\,620 \text{ kg}$
 $(0.45 \times 52,000 \text{ lb} = 23,400 \text{ lb})$
 On firm earth this unit can exert up to 12 980 kg (28,600 lb) rimpull without excessive slipping. However, on loose earth the drivers would slip if more than 10 620 kg (23,400 lb) rimpull were developed.



Altitude — Specification sheets show how much pull a machine can produce for a given gear and speed when the engine is operating at rated horsepower. When a standard machine is operated in high altitudes, the engine may require derating to maintain normal engine life. This engine derating will produce less drawbar pull or rimpull.

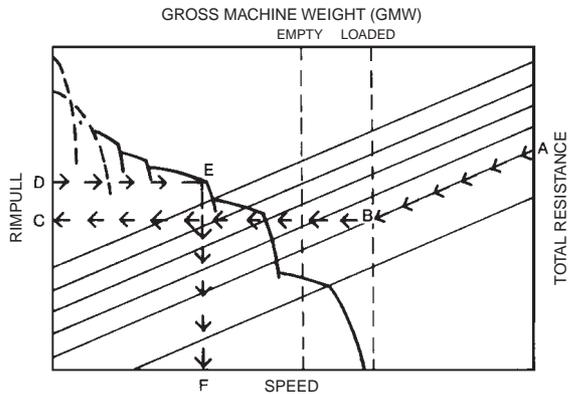
The Tables Section gives the altitude deration in percent of flywheel horsepower for current machines. It should be noted that some turbocharged engines can operate up to 4570 m (15,000 ft) before they require derating. Most machines are engineered to operate up to 1500-2290 m (5000-7500 ft) before they require deration.

The horsepower deration due to altitude must be considered in any job estimating. The amount of power deration will be reflected in the machine's gradeability and in the load, travel, and dump and load times (unless loading is independent of the machine itself).

The example job problem that follows indicates one method of accounting for altitude deration: by increasing the appropriate components of the total cycle time by a percentage equal to the percent of horsepower deration due to altitude. (i.e., if the travel time of a hauling unit is determined to be 1.00 minute at full HP, the time for the same machine derated to 90% of full HP will be 1.10 min.) This is an approximate method that yields reasonably accurate estimates up to 3000 m (10,000 feet) elevation.

Travel time for hauling units derated more than 10% should be calculated as follows using Rimpull-Speed-Gradeability charts.

1) Determine total resistance (grade plus rolling) in percent.



2) Beginning at point A on the chart follow the total resistance line diagonally to its intersection, B, with the vertical line corresponding to the appropriate gross machine weight. (Rated loaded and empty GMW lines are shown dotted.)

3) Using a straight-edge, establish a horizontal line to the left from point B to point C on the rimpull scale.

4) Divide the value of point C as read on the rimpull scale by the percent of total horsepower available after altitude deration from the Tables Section. This yields rimpull value D higher than point C.

- Job Efficiency
- Example Problem (English)

5) Establish a horizontal line right from point D. The farthest right intersection of this line with a curved speed range line is point E.

6) A vertical line down from point E determines point F on the speed scale.

7) Multiply speed in kmh by 16.7 (mph by 88) to obtain speed in m/min (ft/min). Travel time in minutes for a given distance in feet is determined by the formula:

$$\text{Time (min)} = \frac{\text{Distance in m (ft)}}{\text{Speed in m/min (ft/min)}}$$

The *Travel Time Graphs* in sections on Wheel Tractor-Scrapers and Construction & Mining Trucks can be used as an alternative method of calculating haul and/or return times.



The following example provides a method to manually estimate production and cost. Today, computer programs, such as Caterpillar's Fleet Production and Cost Analysis (FPC), provide a much faster and more accurate means to obtain those application results.

Example problem (English)

A contractor is planning to put the following spread on a dam job. What is the estimated production and cost/BCY?

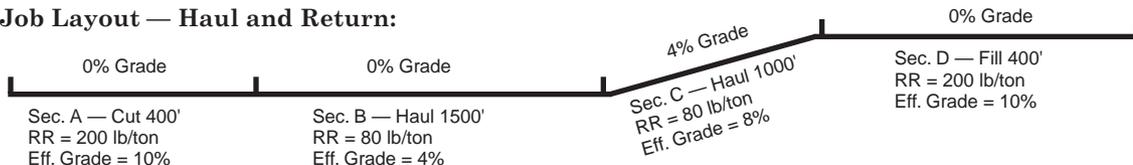
Equipment:

- 11 — 631G Wheel Tractor-Scrapers
- 2 — D9R Tractors with C-dozers
- 2 — 12H Motor Graders
- 1 — 825G Tamping Foot Compactor

Material:

- Description — Sandy clay; damp, natural bed
- Bank Density — 3000 lb/BCY
- Load Factor — 0.80
- Shrinkage Factor — 0.85
- Traction Factor — 0.50
- Altitude — 7500 ft

Job Layout — Haul and Return:



Total Effective Grade = RR (%) ± GR (%)

Sec. A: Total Effective Grade = 10% + 0% = 10%

Sec. B: Total Effective Grade = 4% + 0% = 4%

Sec. C: Total Effective Grade = 4% + 4% = 8%

Sec. D: Total Effective Grade = 10% + 0% = 10%

Job Efficiency is one of the most complex elements of estimating production since it is influenced by factors such as operator skill, minor repairs and adjustments, personnel delays, and delays caused by job layout. An approximation of efficiency, if no job data is available, is given below.

Operation	Working Hour	Efficiency Factor
Day	50 min/hr	0.83
Night	45 min/hr	0.75

These factors do not account for delays due to weather or machine downtime for maintenance and repairs. You must account for such factors based on experience and local conditions.

1. Estimate Payload:

Est. load (LCY) × L.F. × Bank Density = payload
 31 LCY × 0.80 × 3000 lb/BCY = 74,400 lb payload

2. Establish Machine Weight:

- Empty Wt. — 102,460 lb or 51.27 tons
- Wt. of Load — 74,400 lb or 37.2 tons
- Total (GMW) — 176,860 lb or 88.4 tons

3. Calculate Usable Pull (traction limitation):

Loaded: (weight on driving wheels = 54%) (GMW)

Traction Factor × Wt. on driving wheels =
 0.50 × 176,860 lb × 54% = 47,628 lb

Empty: (weight on driving wheels = 69%) (GMW)

Traction Factor × Wt. on driving wheels =
 0.50 × 102,460 lb × 69% = 35,394 lb

4. Derate for Altitude:

Check power available at 7500 ft from altitude deration table in the Tables Section.

- 631G — 100%
- D9R — 100%
- 12H — 83%
- 825G — 100%

Then adjust if necessary:

Load Time — controlled by D9R, at 100% power, no change.

Travel, Maneuver and Spread time — 631G, no change.

5. Compare Total Resistance to Tractive Effort on haul:

Grade Resistance —

$$\begin{aligned} \text{GR} &= \text{lb/ton} \times \text{tons} \times \text{adverse grade in percent} \\ \text{Sec. C:} &= 20 \text{ lb/ton} \times 88.4 \text{ tons} \times 4\% \text{ grade} = \\ &7072 \text{ lb} \end{aligned}$$

Rolling Resistance —

$$\begin{aligned} \text{RR} &= \text{RR Factor (lb/ton)} \times \text{GMW (tons)} \\ \text{Sec. A:} &= 200 \text{ lb/ton} \times 88.4 \text{ tons} = 17,686 \text{ lb} \\ \text{Sec. B:} &= 80 \text{ lb/ton} \times 88.4 \text{ tons} = 7072 \text{ lb} \\ \text{Sec. C:} &= 80 \text{ lb/ton} \times 88.4 \text{ tons} = 14,144 \text{ lb} \\ \text{Sec. D:} &= 200 \text{ lb/ton} \times 88.4 \text{ tons} = 17,686 \text{ lb} \end{aligned}$$

Total Resistance —

$$\begin{aligned} \text{TR} &= \text{RR} + \text{GR} \\ \text{Sec. A:} &= 17,686 \text{ lb} + 0 = 17,686 \text{ lb} \\ \text{Sec. B:} &= 7072 \text{ lb} + 0 = 7072 \text{ lb} \\ \text{Sec. C:} &= 7072 \text{ lb} + 6496 \text{ lb} = 14,144 \text{ lb} \\ \text{Sec. D:} &= 17,686 \text{ lb} + 0 = 17,686 \text{ lb} \end{aligned}$$

Check usable pounds pull against maximum pounds pull required to move the 631G.

Pull usable ... 47,628 lb loaded

Pull required ... 17,686 lb maximum total resistance

Estimate travel time for haul from 631G (loaded) travel time curve; read travel time from distance and effective grade.

Travel time (from curves):

$$\begin{aligned} \text{Sec. A:} &0.60 \text{ min} \\ \text{Sec. B:} &1.00 \\ \text{Sec. C:} &1.20 \\ \text{Sec. D:} &0.60 \end{aligned}$$

$$\underline{\quad\quad\quad} \\ 3.40 \text{ min}$$

NOTE: This is an estimate only; it does not account for all the acceleration and deceleration time, therefore it is not as accurate as the information obtained from a computer program.

6. Compare Total Resistance to Tractive Effort on return:

Grade Assistance —

$$\begin{aligned} \text{GA} &= 20 \text{ lb/ton} \times \text{tons} \times \text{negative grade in percent} \\ \text{Sec. C:} &= 20 \text{ lb/ton} \times 51.2 \text{ tons} \times 4\% \text{ grade} = \\ &4096 \text{ lb} \end{aligned}$$

Rolling Resistance —

$$\begin{aligned} \text{RR} &= \text{RR Factor} \times \text{Empty Wt (tons)} \\ \text{Sec. D:} &= 200 \text{ lb/ton} \times 51.2 \text{ tons} = 10,240 \text{ lb} \\ \text{Sec. C:} &= 80 \text{ lb/ton} \times 51.2 \text{ tons} = 4091 \text{ lb} \\ \text{Sec. B:} &= 80 \text{ lb/ton} \times 51.2 \text{ tons} = 4091 \text{ lb} \\ \text{Sec. A:} &= 200 \text{ lb/ton} \times 51.2 \text{ tons} = 10,240 \text{ lb} \end{aligned}$$

Total Resistance —

$$\begin{aligned} \text{TR} &= \text{RR} - \text{GA} \\ \text{Sec. D:} &= 10,240 \text{ lb} - 0 = 10,240 \text{ lb} \\ \text{Sec. C:} &= 4096 \text{ lb} - 4096 \text{ lb} = 0 \\ \text{Sec. B:} &= 4096 \text{ lb} - 0 = 4096 \text{ lb} \\ \text{Sec. A:} &= 10,240 \text{ lb} - 0 = 10,240 \text{ lb} \end{aligned}$$

Check usable pounds pull against maximum pounds pull required to move the 631G.

Pounds pull usable ... 35,349 lb empty

Pounds pull required ... 10,240 lb

Estimate travel time for return from 631G empty travel time curve.

Travel time (from curves):

$$\begin{aligned} \text{Sec. D:} &0.40 \text{ min} \\ \text{Sec. C:} &0.55 \\ \text{Sec. B:} &0.80 \\ \text{Sec. A:} &0.40 \end{aligned}$$

$$\underline{\quad\quad\quad} \\ 2.15 \text{ min}$$

7. Estimate Cycle Time:

$$\text{Total Travel Time (Haul plus Return)} = 5.55 \text{ min}$$

$$\text{Adjusted for altitude: } 100\% \times 5.55 \text{ min} = 5.55 \text{ min}$$

$$\text{Load Time} \quad\quad\quad 0.7 \text{ min}$$

$$\text{Maneuver and Spread Time} \quad\quad\quad 0.7 \text{ min}$$

$$\text{Total Cycle Time} \quad\quad\quad \underline{\quad\quad\quad} 6.95 \text{ min}$$

8. Check pusher-scraper combinations:

Pusher cycle time consists of load, boost, return and maneuver time. Where actual job data is not available, the following may be used.

$$\text{Boost time} = 0.10 \text{ minute}$$

$$\text{Return time} = 40\% \text{ of load time}$$

$$\text{Maneuver time} = 0.15 \text{ minute}$$

$$\text{Pusher cycle time} = 140\% \text{ of load time} + 0.25 \text{ minute}$$

$$\begin{aligned} \text{Pusher cycle time} &= 140\% \text{ of } 0.7 \text{ min} + 0.25 \text{ minute} \\ &= 0.98 + 0.25 = 1.23 \text{ minute} \end{aligned}$$

Scraper cycle time divided by pusher cycle time indicates the number of scrapers which can be handled by each pusher.

$$\begin{aligned} &\frac{6.95 \text{ min}}{1.23 \text{ min}} = 5.65 \end{aligned}$$

- Example Problem (English)
- Example Problem (Metric)

Each push tractor is capable of handling five plus scrapers. Therefore the two pushers can adequately serve the eleven scrapers.

9. Estimate Production:

$$\begin{aligned} \text{Cycles/hour} &= 60 \text{ min} \div \text{Total cycle time} \\ &= 60 \text{ min/hr} \div 6.95 \text{ min/cycle} \\ &= 8.6 \text{ cycles/hr} \end{aligned}$$

$$\begin{aligned} \text{Estimated load} &= \text{Heaped capacity} \times \text{L.F.} \\ &= 31 \text{ LCY} \times 0.80 \\ &= 24.8 \text{ BCY} \end{aligned}$$

$$\begin{aligned} \text{Hourly unit production} &= \text{Est. load} \times \text{cycles/hr} \\ &= 24.8 \text{ BCY} \times 8.6 \text{ cycles/hr} \\ &= 213 \text{ BCY/hr} \end{aligned}$$

$$\begin{aligned} \text{Adjusted production} &= \text{Efficiency factor} \times \text{hourly production} \\ &= 0.83 \text{ (50 min hour)} \times 213 \text{ BCY} \\ &= 177 \text{ BCY/hr} \end{aligned}$$

$$\begin{aligned} \text{Hourly fleet production} &= \text{Unit production} \times \text{No. of units} \\ &= 177 \text{ BCY/hr} \times 11 \\ &= 1947 \text{ BCY/hr} \end{aligned}$$

10. Estimate Compaction:

$$\begin{aligned} \text{Compaction requirement} &= \text{S.F.} \times \text{hourly fleet production} \\ &= 0.85 \times 1947 \text{ BCY/hr} \\ &= 1655 \text{ CCY/hr} \end{aligned}$$

Compaction capability (given the following):

- Compacting width, 7.4 ft (W)
- Average compacting speed, 6 mph (S)
- Compacted lift thickness, 7 in (L)
- No. of passes required, 3 (P)

$$\begin{aligned} \text{825G production} &= \\ \text{CCY/hr} &= \frac{W \times S \times L \times 16.3}{P} \quad (\text{conversion constant}) \\ &= \frac{7.4 \times 6 \times 7 \times 16.3}{3} \\ &= 1688 \text{ CCY/hr} \end{aligned}$$

Given the compaction requirement of 1655 CCY/hr, the 825G is an adequate compactor match-up for the rest of the fleet. However, any change to job layout that would increase fleet production would upset this balance.

11. Estimate Total Hourly Cost:

631G	@ \$65.00/hr × 11 units	\$715.00
D9R	@ 75.00/hr × 2 units	150.00
12H	@ 15.00/hr × 2 units	30.00
825G	@ 40.00/hr × 1 unit	40.00
Operators	@ 20.00/hr × 16 men	320.00

Total Hourly Owning and Operating Cost	\$1,255.00
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12. Calculate Performance:

$$\begin{aligned} \text{Cost per BCY} &= \frac{\text{Total cost/hr}}{\text{Production/hr}} \\ &= \frac{\$1,255.00}{1947 \text{ BCY/hr}} \\ &= 64\text{¢ BCY} \end{aligned}$$

NOTE: Ton-MPH calculations should be made to judge the ability of the tractor-scraper tires to operate safely under these conditions.

13. Other Considerations:

If other equipment such as rippers, water wagons, discs or other miscellaneous machines are needed for the particular operation, then these machines must also be included in the cost per BCY.



Example problem (Metric)

A contractor is planning to put the following spread on a dam job. What is the estimated production and cost/BCM?

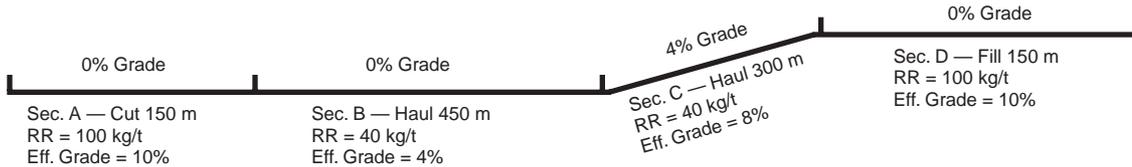
Equipment:

- 11 — 631G Wheel Tractor-Scrapers
- 2 — D9R Tractors with C-dozers
- 2 — 12H Motor Graders
- 1 — 825G Tamping Foot Compactor

Material:

- Description — Sandy clay; damp, natural bed
- Bank Density — 1770 kg/BCM
- Load Factor — 0.80
- Shrinkage Factor — 0.85
- Traction Factor — 0.50
- Altitude — 2300 meters

Job Layout — Haul and Return:



Total Effective Grade = RR (%) ± GR (%)

Sec. A: Total Effective Grade = 10% + 0% = 10%

Sec. B: Total Effective Grade = 4% + 0% = 4%

Sec. C: Total Effective Grade = 4% + 4% = 8%

Sec. D: Total Effective Grade = 10% + 0% = 10%

1. Estimate Payload:

Est. load (LCM) × L.F. × Bank Density = payload

24 LCM × 0.80 × 1770 kg/BCM = 34 000 kg payload

2. Machine Weight:

Empty Wt. — 46 475 kg or 46.48 metric tons

Wt. of Load — 34 000 kg or 34 metric tons

Total (GMW) — 80 475 kg or 80.48 metric tons

3. Calculate Usable Pull (traction limitation):

Loaded: (weight on driving wheels = 54%) (GMW)

Traction Factor × Wt. on driving wheels =

$$0.50 \times 80\,475\text{ kg} \times 54\% = 21\,728\text{ kg}$$

Empty: (weight on driving wheels = 69%) (GMW)

Traction Factor × Wt. on driving wheels =

$$0.50 \times 46\,475\text{ kg} \times 69\% = 16\,034\text{ kg}$$

4. Derate for Altitude:

Check power available at 2300 m from altitude deration table in the Tables Section.

631G — 100% 12H — 83%

D9R — 100% 825G — 100%

Then adjust if necessary:

Load Time — controlled by D9R, at 100% power, no change.

Travel, Maneuver and Spread time — 631G, no change.

5. Compare Total Resistance to Tractive Effort on haul:

Grade Resistance —

GR = 10 kg/metric ton × tons × adverse grade in percent

$$\text{Sec. C:} = 10\text{ kg/metric ton} \times 80.48\text{ metric tons} \times 4\% \text{ grade} = 3219\text{ kg}$$

Rolling Resistance —

RR = RR Factor (kg/mton) × GMW (metric tons)

$$\text{Sec. A:} = 100\text{ kg/metric ton} \times 80.48\text{ metric tons} = 8048\text{ kg}$$

$$\text{Sec. B:} = 40\text{ kg/metric ton} \times 80.48\text{ metric tons} = 3219\text{ kg}$$

$$\text{Sec. C:} = 40\text{ kg/metric ton} \times 80.48\text{ metric tons} = 3219\text{ kg}$$

$$\text{Sec. D:} = 100\text{ kg/metric ton} \times 80.48\text{ metric tons} = 8048\text{ kg}$$

Total Resistance —

TR = RR + GR

$$\text{Sec. A:} = 8048\text{ kg} + 0 = 8048\text{ kg}$$

$$\text{Sec. B:} = 3219\text{ kg} + 0 = 3219\text{ kg}$$

$$\text{Sec. C:} = 3219\text{ kg} + 3219\text{ kg} = 6438\text{ kg}$$

$$\text{Sec. D:} = 8048\text{ kg} + 0 = 8048\text{ kg}$$

Check usable kilogram force against maximum kilogram force required to move the 631G.

Force usable ... 21 728 kg loaded

Force required ... 8048 kg maximum total resistance

Estimate travel time for haul from 631G (loaded) travel time curve; read travel time from distance and effective grade.

Travel time (from curves):

Sec. A: 0.60 min

Sec. B: 1.00

Sec. C: 1.20

Sec. D: 0.60

$$\frac{3.40}{\text{min}}$$

NOTE: This is an estimate only; it *does not account for all the acceleration and deceleration time*, therefore it is not as accurate as the information obtained from a computer program.

6. Compare Total Resistance to Tractive Effort on return:

Grade Assistance —

GA = 10 kg/mton × metric tons × negative grade in percent

$$\text{Sec. C:} = 10\text{ kg/metric ton} \times 46.48\text{ metric tons} \times 4\% \text{ grade} = 1859\text{ kg}$$

Rolling Resistance —

RR = RR Factor × Empty Wt.

- Sec. D: = 100 kg/metric ton × 46.48 metric tons
= 4648 kg
- Sec. C: = 40 kg/metric ton × 46.48 metric tons
= 1859 kg
- Sec. B: = 40 kg/metric ton × 46.48 metric tons
= 1859 kg
- Sec. A: = 100 kg/metric ton × 46.48 metric tons
= 4648 kg

Total Resistance —

TR = RR + GA

- Sec. D: = 4648 kg + 0 = 4648 kg
- Sec. C: = 1859 kg + 1859 kg = 3718 kg
- Sec. B: = 1859 kg + 0 = 1859 kg
- Sec. A: = 4648 kg + 0 = 4648 kg

Check usable kilogram force against maximum force required to move the 631G.

- Kilogram force usable ... 16 034 kg empty
- Kilogram force required ... 4645 kg

Estimate travel time for return from 631G empty travel time curve.

- Travel time (from curves):
- Sec. D: 0.40 min
- Sec. C: 0.55 min
- Sec. B: 0.80 min
- Sec. A: 0.40 min
- 2.15 min

7. Estimate Cycle Time:

- Total Travel Time (Haul plus Return) = 5.55 min
- Adjusted for altitude: 100% × 5.55 min = 5.55 min
- Load Time 0.7 min
- Maneuver and Spread Time 0.7 min
- Total Cycle Time 6.95 min

8. Check pusher-scraper combinations:

Pusher cycle time consists of load, boost, return and maneuver time. Where actual job data is not available, the following may be used.

- Boost time = 0.10 minute
- Return time = 40% of load time
- Maneuver time = 0.15 minute
- Pusher cycle time = 140% of load time + 0.25 minute
- Pusher cycle time = 140% of 0.7 min + 0.25 minute
= 0.98 + 0.25 = 1.23 minute

Scraper cycle time divided by pusher cycle time indicates the number of scrapers which can be handled by each pusher.

$$\frac{6.95 \text{ min}}{1.23 \text{ min}} = 5.65$$

Each push tractor is capable of handling five plus scrapers. Therefore the two pushers can adequately serve the eleven scrapers.

9. Estimate Production:

- Cycles/hour = 60 min ÷ Total cycle time
= 60 min/hr ÷ 6.95 min/cycle
= 8.6 cycles/hr

- Estimated load = Heaped capacity × L.F.
= 24 LCM × 0.80
= 19.2 BCM

- Hourly unit production = Est. load × cycles/hr
= 19.2 BCM × 8.6 cycles/hr
= 165 BCM

- Adjusted production = Efficiency factor × hourly production
= 0.83 (50 min hour) × 165 BCM
= 137 BCM/hour

- Hourly fleet production = Unit production × No. of units
= 137 BCM/hr × 11 units
= 1507 BCM/hr

10. Estimate Compaction:

- Compaction requirement = S.F. × hourly fleet production
= 0.85 × 1507 BCM/hr
= 1280 CCM/hr

Compaction capability (given the following):

- Compacting width, 2.26 m (W)
- Average compacting speed, 9.6 km/h (S)
- Compacted lift thickness, 18 cm (L)
- No. of passes required, 3 (P)

$$\begin{aligned} 825G \text{ production} &= \\ \text{CCM/hr} &= \frac{W \times S \times L \times 10}{P} \text{ (conversion factor)} \\ &= \frac{2.26 \times 9.6 \times 18 \times 10}{3} \\ &= 1302 \end{aligned}$$

Given the compaction requirement of 1280 CCM/h, the 825G is an adequate compactor match-up for the rest of the fleet. However, any change to job layout that would increase fleet production would upset this balance.

11. Estimate Total Hourly Cost:

631G	@ \$65.00/hr × 11 units	\$715.00
D9R	@ 75.00/hr × 2 units	150.00
12H	@ 15.00/hr × 2 units	30.00
825G	@ 40.00/hr × 1 unit	40.00
Operators	@ 20.00/hr × 16 men	320.00

Total Hourly Owning and
 Operating Cost \$1,255.00

12. Calculate Performance:

$$\begin{aligned} \text{Cost per BCM} &= \frac{\text{Total cost/hr}}{\text{Production/hr}} \\ &= \frac{\$1,255.00}{1507 \text{ BCM/hr}} \\ &= 83¢/\text{BCM} \end{aligned}$$

NOTE: Ton-km/h calculations should be made to judge the ability of the tractor-scraper tires to operate safely under these conditions.

13. Other Considerations:

If other equipment such as rippers, water wagons, discs or other miscellaneous machines are needed for the particular operation, then these machines must also be included in the cost per BCM.

SYSTEMS

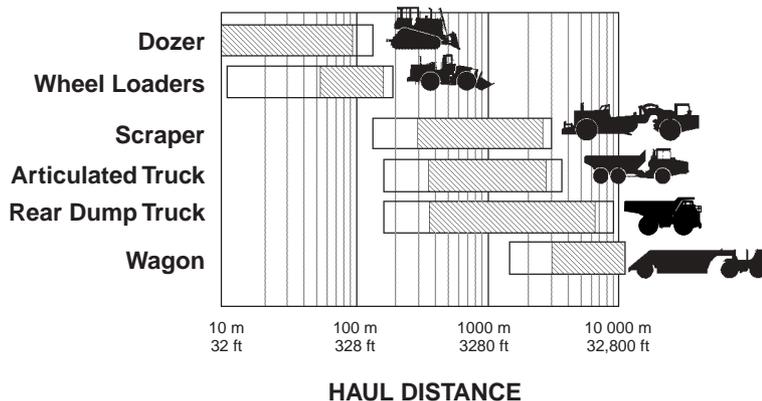
Caterpillar offers a variety of machines for different applications and jobs. Many of these separate machines function together in mining and earthmoving systems.

- Bulldozing with track-type tractors
- Load-and-Carry with wheel loaders
- Scrapers self-loading with elevator, auger, or push-pull configurations, or push-loaded by track-type tractors
- Articulated trucks loaded by excavators, track loaders or wheel loaders
- Off-highway trucks loaded by shovels, excavators or wheel loaders

Economic Haul Distances — Mobile equipment systems for construction or mining jobs operate in generalized economic application zones. These zones vary by machine with distance, underfoot conditions, grades, material type, production rate and operator skill. Of these factors, distance provides the best initial basis for system selection. The following table provides general rules of thumb for systems application based on distance. These haul ranges will vary by application.



GENERAL HAUL DISTANCES FOR MOBILE SYSTEMS



PRODUCTION ESTIMATING

Loading Match — Loading tools have a production range that varies with material, bucket configuration, target size, operator skill and load area conditions. The loader/truck matches given in the following table are with the typical number of passes and production range.

Your Cat Dealer can provide advice and estimates based on your specific conditions.

**Caterpillar Earthmoving and Mining Systems
Production/50 Min. Hr.**

Tonnes	Tons	Loading Tool	Passes	Target
2270/2450	2500/2700	994D HL	7	793C
2450/2700	2700/3000	994D	5	789C
2270/2450	2500/2700	994D HL	6	789C
2450/2700	2700/3000	994D	4	785C
1450/1600	1600/1800	992G	6	785C
1540/1720	1700/1900	992G	4	777D
1180/1360	1300/1500	990	3	773D
800/1000	880/1100	988G	3	769D
730/910	800/1000	988F	3	769D
2720/2900	3000/3200	5230 ME	7	793C
2540/2720	2800/3000	5230 FS	8	793C
2630/2810	2900/3100	5230 ME	6	789C
2450/2630	2700/2900	5230 FS	6	789C
2540/2720	2800/3000	5230 ME	5	785C
2360/2540	2600/2800	5230 FS	5	785C
1900/2100	2100/2300	5130B ME	7	785C
1700/1900	1700/2100	5130B FS	7	785C
1800/2000	2000/2200	5130B ME	5	777D
1540/1810	1700/2000	5130B FS	5	777D
910/1090	1000/1200	375 ME	7	773D
730/820	800/1000	5080 FS	7	773D
730/910	800/1000	375 ME	5	769D
630/820	700/900	5080 FS	5	769D

FUEL CONSUMPTION AND PRODUCTIVITY

Fuel efficiency is the term used to relate fuel consumption and machine productivity. It is expressed in units of material moved per volume of fuel consumed. Common units are cubic meters or tonnes per liter of fuel (cubic yards or tons/gal). Determining fuel efficiency requires measuring both fuel consumption and production.

Measuring fuel consumption involves tapping into the vehicle's fuel supply system — without contaminating the fuel. The amount of fuel consumed during operation is then measured on a weight or volumetric basis and correlated with the amount of work the machine has done. Caterpillar machines equipped with Vital Information Management System (VIMS) can record fuel consumed with relative accuracy, given the engine is performing close to specifications.

**Caterpillar Aggregate Systems
Production/50 Min. Hr.**

Tonnes	Tons	Loading Tool	Passes	Target
1540/1720	1700/1900	992G	4	777D
1450/1630	1600/1800	992G	3	775D
1090/1270	1200/1400	990	4	775D
910/1180	1000/1300	990	3	773D
700/900	770/990	988G	5	773D
630/900	700/900	988F HL	5	773D
800/1000	880/1100	988G	4	771D
730/910	800/1000	988F	4	771D
540/730	600/800	980F HL	6	771D
700/900	770/990	988G	3	769D
630/820	700/900	988F	3	769D
450/630	500/700	980F HL	5	769D
1500/1800	1700/2000	5130B FS	5	777D
1270/1450	1400/1600	5130B FS	4	775D
1180/1360	1300/1500	5130B FS	3	773D
630/900	700/900	5080 FS	7	773D
730/910	800/1000	5080 FS	5	771D
630/820	700/900	5080 FS	4	769D

FORMULAS AND RULES OF THUMB

Production, hourly = Load (BCM)/cycle × cycles/hr
 = Load (BCY)/cycle × cycles/hr

Load Factor (L.F.) = $\frac{100\%}{100\% + \% \text{ swell}}$

Load (bank measure) = Loose cubic meters (LCM) × L.F.
 = Loose cubic yards (LCY) × L.F.
 = $\frac{\text{Compacted cubic meters (or yards)}}{\text{Bank cubic meters (or yards)}}$

Shrinkage Factor (S.F.) = $\frac{\text{Compacted cubic meters (or yards)}}{\text{Bank cubic meters (or yards)}}$

Density = Weight/Unit Volume

Load (bank measure) = $\frac{\text{Weight of load}}{\text{Bank density}}$

Rolling Resistance Factor
 = 20 kg/t + (6 kg/t/cm × cm)
 = 40 lb/ton + (30 lb/ton/inch × inches)

Rolling Resistance
 = RR Factor (kg/t) × GMW (tons)
 = RR Factor (lb/ton) × GMW (tons)

Rolling Resistance (general estimation)
 = 2% of GMW + 0.6% of GMW per cm tire penetration
 = 2% of GMW + 1.5% of GMW per inch tire penetration

% Grade = $\frac{\text{vertical change in elevation (rise)}}{\text{corresponding horizontal distance (run)}}$

Grade Resistance Factor = 10 kg/m ton × % grade
 = 20 lb/ton × % grade

Grade Resistance = GR Factor (kg/t) × GMW (tons)
 = GR Factor (lb/ton) × GMW (tons)

Grade Resistance = 1% of GMW × % grade

Total Resistance
 = Rolling Resistance (kg or lb) + Grade Resistance (kg or lb)

Total Effective Grade (%) = RR (%) + GR (%)

Usable pull (traction limitation)
 = Coeff. of traction × weight on drivers
 = Coeff. of traction × (Total weight × % on drivers)

Pull required = Rolling Resistance + Grade Resistance
 = Total Resistance

Total Cycle Time = Fixed time + Variable time

Fixed time: See respective machine production section.

Variable time = Total haul time + Total return time

Travel Time = $\frac{\text{Distance (m)}}{\text{Speed (m/min)}}$
 = $\frac{\text{Distance (ft)}}{\text{Speed (fpm)}}$

Cycles per hour = $\frac{60 \text{ min/hr}}{\text{Total cycle time (min/cycle)}}$

Adjusted production = Hourly production × Efficiency factor

No. of units required = $\frac{\text{Hourly production required}}{\text{Unit hourly production}}$

No. of scrapers a pusher will load = $\frac{\text{Scraper cycle time}}{\text{Pusher cycle time}}$

Pusher cycle time (min) = 1.40 Load time (min) + 0.25 min

Grade Horsepower = $\frac{\text{GMW (kg)} \times \text{Total Effective Grade} \times \text{Speed (km/h)}}{273.75}$
 = $\frac{\text{GMW (lb)} \times \text{Total Effective Grade} \times \text{Speed (mph)}}{375}$

Notes —

STOCKPILE COAL HANDLING

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INTRODUCTION

Efficient methods have been developed for handling and storing coal with mobile equipment. Generally, a power plant or other industrial facility which uses coal, meets its daily requirements with incoming coal shipments and will maintain an emergency stockpile or deadpile. The deadpile is designed to meet the burn requirements during any interruption of coal shipments. Interruptions may include inclement weather, carrier strikes, scheduling problems, etc.

The deadpile will contain approximately a 90 day supply of coal and is constructed by thoroughly compacting lifts, or layers, of coal approximately 15 cm (6 in) thick. Thorough compaction of the entire stockpile, including the sides, eliminates air spaces, reducing the possibility of spontaneous combustion.

Reclaiming the deadpiled coal is critical when incoming shipments are not able to satisfy the burn requirements. Four basic types of mobile equipment are available for stockpiling and reclaiming coal — track-type tractors, wheel tractors, wheel loaders, and wheel tractor-scrappers. Each type has its own specific advantages. The equipment selected must be able to meet the maximum hourly burn rate.

MACHINE SELECTION

Track-Type Tractors

Track-type tractors continue to be the most widely used machines for coal handling operations. Equipped with a U-shaped coal dozer, they are suitable for meeting high production requirements over dozing distances of less than 152 m (500 ft). Their

tractive capabilities and gradeability permit them to operate on the sides of the stockpile and surge pile which often prove inaccessible to other types of equipment. They can also remove snow and frost penetrated coal from the stockpile surface so that rubber-tired equipment can work efficiently.

Wheel Tractors

These machines, with their long wheel base, low center of gravity, and articulated design, offer good stability and maneuverability. They have the ability to travel at a higher speed than the track-type tractor, moving easily from one area of operation to another, and provide greater compactive effort with fewer passes. They are capable of performing some utility functions. However, their coefficient of traction is less than that of track-type tractors. The most efficient dozing distance for the wheel tractor is usually less than 152 m (500 ft).

Coal scoops are also available for wheel tractors and may improve production under certain operating conditions.

Wheel Loaders

As dozing and hauling distances increase, wheel loaders are able to effectively move coal in load-and-carry operations. Since coal is a relatively light material, the loaders should be equipped with larger buckets sized for coal density. Versatility and mobility allow them to perform a variety of tasks, both on and off the stockpile. They can load trucks or railcars, dig out bottom ash and boiler slag from the ash storage areas, and move railcars within the vicinity of the power plant. Generally wheel loaders are more efficient than track or wheel tractors at distances of 122 m (400 ft) or more.

Coal Scrapers

Tandem powered coal scrapers are generally used when large volumes and long haul distances [over 152 m (500 ft)] are involved. They are able to effectively self-load coal, and have the advantage of being able to provide both high speed and large capacity; in addition, scrapers provide the greatest compactive effort. Coal scrapers are even more effective when top loading systems and drive-over reclaiming hoppers are used.

HOW TO EQUIP

Counterweighting

While larger blades or buckets allow for greater production, counterweighting is often necessary to improve the machine’s balance and handling capability. For track-type tractors, a rear counterweight is recommended. Wheel machines use various methods to add weight. For example, scoop dozers use front counterweights, and wheel machines often use tire ballast. Below is a weight comparison of the Caterpillar standard U-blade to the Coal Dozer, along with the recommended counterweight for D11R, D10R, D9R, D8R, and 834G.

**COAL STOCKPILE BLADE WEIGHT COMPARISON/
COUNTERWEIGHTING**

Model	U-Blade		Coal Dozer/ Scoop		Counterweight	
	kg	lb	kg	lb	kg	lb
D11R	11 608	25,590	11 340	25,000	4989	11,000
D10R	6188	13,643	6440	14,200	2928	6456
D9R	4179	9214	4490	9900	3142	6926
D8R	2825	6228	3200	7050	2749	6060
834G	2994	6600	3630	8000	75% CaCl ₂ in all tires —	
*834G with Scoop			8700	19,180	5360	11,816

Weights include blade or scoop only. The change in machine weight is determined by adding or subtracting the difference between the two blades. Counterweight or ballast may also need to be considered.

Track Shoe Width

Track shoes are an important consideration since shoe width determines tractive capability and compaction. Depending on the coal being stockpiled, the utility company will often have a strong preference concerning track shoe width. Basically, utilities stockpiling low rank or sub-bituminous rank lignite coal usually prefer the standard shoe width for maximum compactive effort to reduce the possibility of spontaneous combustion.

Utilities burning medium or high rank bituminous coals are not as concerned with spontaneous combustion and sometimes prefer a wider shoe that allows increased tractive capability on loose or less densely compacted coal stockpiles.

Tires

Many utility companies have established a tire preference for wheel machines. Normally a radial tire allows for the maximum tire print in the stockpile surface providing the best traction.

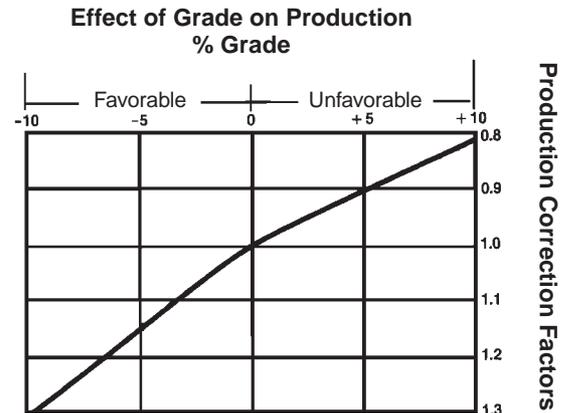
Tire pressure may be of equal importance to tire selection. Tests with hydro-inflated (liquid ballasting) tires indicate that inflation pressure of approximately 275 kPa (40 psi) improves machine performance over higher inflation pressure. Lower than 275 kPa (40 psi) is not recommended for hydro-inflated tires. (For more hydro-inflation information see the Tire section.)

Other

The 834G’s performance may be improved in the varying underfoot conditions of a coal stockpile with the use of a Detroit NoSPIN differential. This differential provides added tractive capability on all coal piles, particularly loose coal.

PRODUCTION FACTORS

1. *The effect of grade* — dozer production will increase 3% for each 1% of favorable grade and decrease 2% for each 1% of adverse grade up to grades of 10%. The graph below exemplifies this point.



As a rule of thumb, track-type tractors can negotiate grades of about 60% in loose coal. Wheel tractor dozers can negotiate grades up to 25% on fairly well compacted coal.

2. *Slot dozing*, which consists of dozing repeatedly in the same tracks, will increase production. The deeper the slot, the greater the increase in production. Obviously this will disrupt the surface of the pile; however it does provide maximum production.

Slot Condition	Slot Depth	Increase in Production
Slight	60 cm ~ 2 ft	10%
Consistent	60 cm-1.5 m ~ 2-5 ft	25%
Very Consistent	Over 1.5 m ~ Over 5 ft	30% +

3. *Relative traction* — machines will provide greater-tractive effort as the compaction beneath them increases.

Condition	Machine	Coefficient of Traction
Well Compacted Coal	Track-type	*0.75-0.80
	Wheel	0.40-0.50
Loose Coal	Track-type	*0.60
	Wheel	0.30-0.40

*D11R, D10R, D9R and D8R will often achieve a higher coefficient of traction due to their suspended undercarriage.

4. *Rolling Resistance* of rubber tired equipment will decrease as the compaction of the coal beneath the machines increases. Here are total rolling resistances on various surfaces.

	kg/Metric Ton	lb/U.S. Ton
● Main travel area from loading area to stockpile traveled and maintained.	29	65
● Travel over the compacted deadpile.	36	80
● Travel over thin lifts of uncompacted coal on the deadpile.	54	120
● Travel on loose piles under stacking conveyor or on a windrow.	90-136	200-300

5. *The degree of compaction required* — for medium and high rank bituminous coal, track-type tractors will normally provide ample compaction to prevent fires. For low rank coals, such as sub-bituminous and lignite, rubber tired machines, pneumatic compactors or sealing may be required to prevent fires. The following table illustrates the compaction that is possible if the coal is spread in thin lifts and the machine makes a sufficient number of passes over the entire lift surface.

Machine	kg/m ³	lb/ft ³	lb/yd ³
Track-type Tractors	960-1160	60-72	1620-1950
Wheel Tractors	1040-1200	65-75	1750-2030
Wheel Loaders	1040-1250	65-78	1750-2110
Wheel Tractor-Scrapers	1100-1280	68-80	1840-2160

ESTIMATING HOURLY PRODUCTION

The following graphs may be used for estimating the hourly production of machines handling mixed bituminous coal. The graphs are based on 100% machine efficiency under normal job conditions and average operator; they do not take into account adverse grades, downtime, wait time, poor traction, etc. These production estimates should be evaluated in light of individual job conditions and efficiency. Moreover, a job efficiency correction factor should be applied to the production estimate shown when using these graphs.

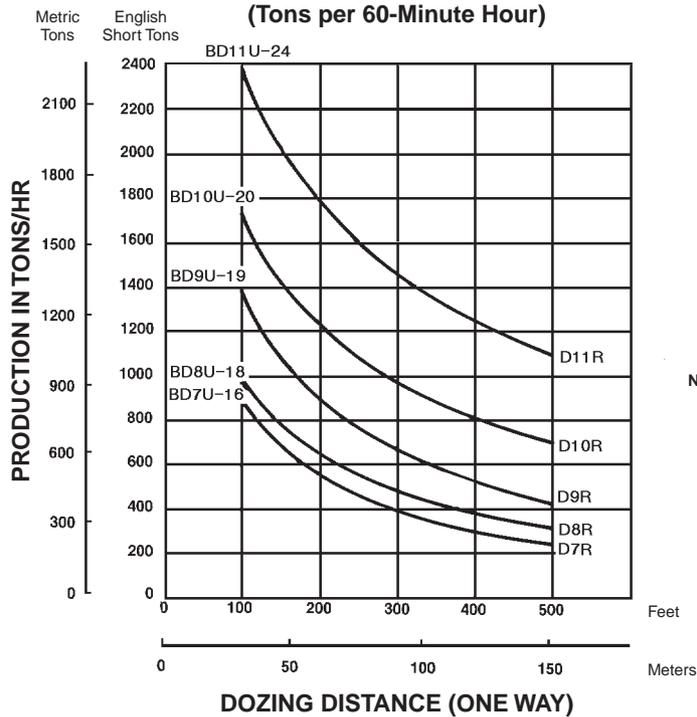
To estimate travel times for a specific machine refer to the performance graphs or charts in the appropriate model section of this book.

NOTE: Capacities and production curves on the next pages are based on bituminous coal with a density of 890 kg/m³ or 1500 lb/yd³ or 55 lb/ft³. For sub-bituminous coal with a density of 800 kg/m³ or 1350 lb/yd³ or 50 lb/ft³ multiply tonnage figure by 0.90. For lignite with an average density of 710 kg/m³ or 1200 lb/yd³ or 45 lb/ft³ multiply tonnage figure by 0.80.

Track-Type Tractors Estimated Production with U-Blade (Coal Dozer)

Factors:

- Mixed Bituminous Coal
- Storage and Reclamation
- 0% Grade
- 0.80 Coefficient of Traction



NOTE: This chart is based on numerous field studies made under varying job conditions. Refer to correction factors following these charts.

Tractor	U-Blade			Blade Capacities			
	Model	m	ft	Metric tons	U.S. tons	m ³	yd ³
D11R	BD11U-24	7.32	24'	66.7	73.5	74.9	98.0
D10R	BD10U-20	6.10	20'	40.85	45.0	45.9	60.0
D9R	BD9U-19	5.79	19'	32.6	35.9	37.0	48.0
D8R	BD8U-18	5.49	18'	19.0	21.0	21.4	28.0
D7R	BD7U-16	4.88	16'	14.28	15.75	16.05	21.0
D6R	BD6U	4.27	14'	8.84	9.75	9.9	13.0

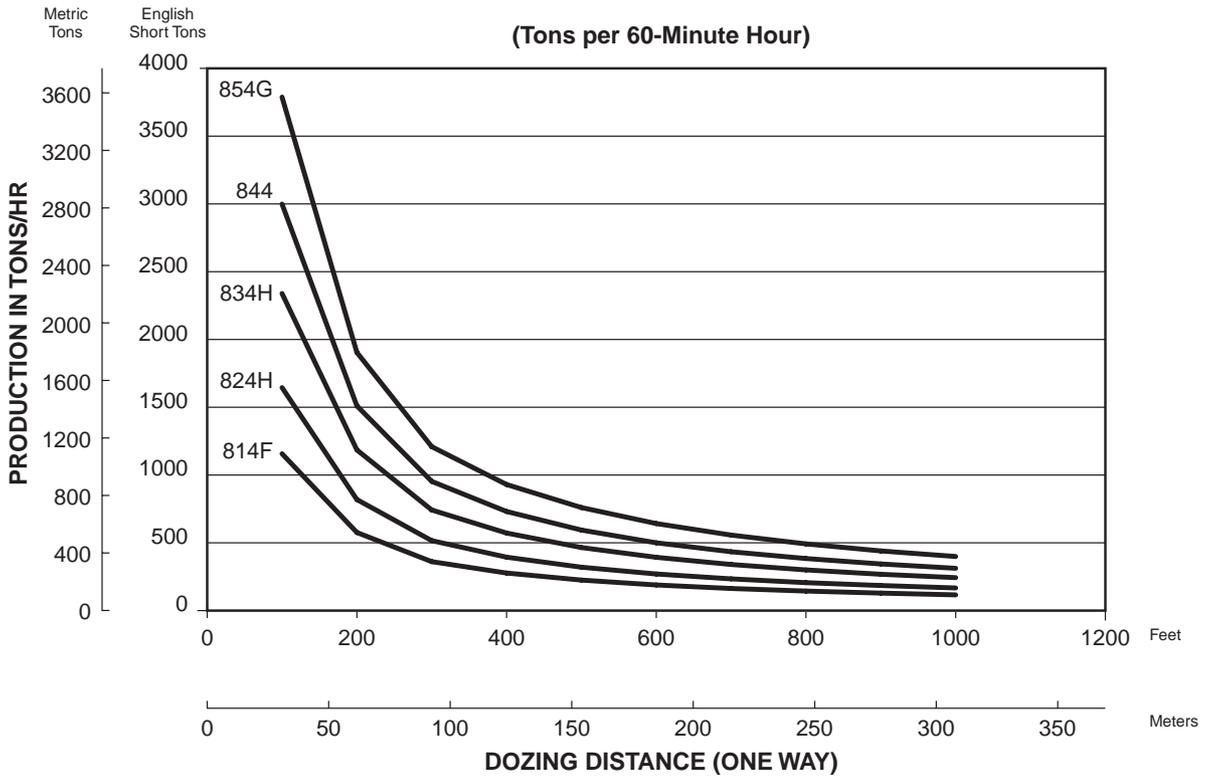
Refer to Track-Type Tractor/Bulldozer section for additional special attachment specifications.

Wheel Tractors Estimated Production with U-Blade (Coal Dozer)

NOTE: This chart is based on numerous field studies made under varying job conditions. Refer to correction factors following these charts.

Factors:

- Mixed Bituminous Coal
- Storage and Reclamation
- 0% Grade
- 0.80 Coefficient of Traction



Tractor	U-Blade			Blade Capacities			
	Model	m	ft	Metric tons	U.S. tons	m ³	yd ³
854G*							
844*							
834H	BD834U-20	6.17	20'3"	18.8	20.8	22.0	29
824H	BD824U-15	4.79	15'9"	14.2	15.7	16.1	21
814F	BD814U-14	4.32	14'2"	9.4	10.3	11.0	14

*Information unavailable at time of printing.

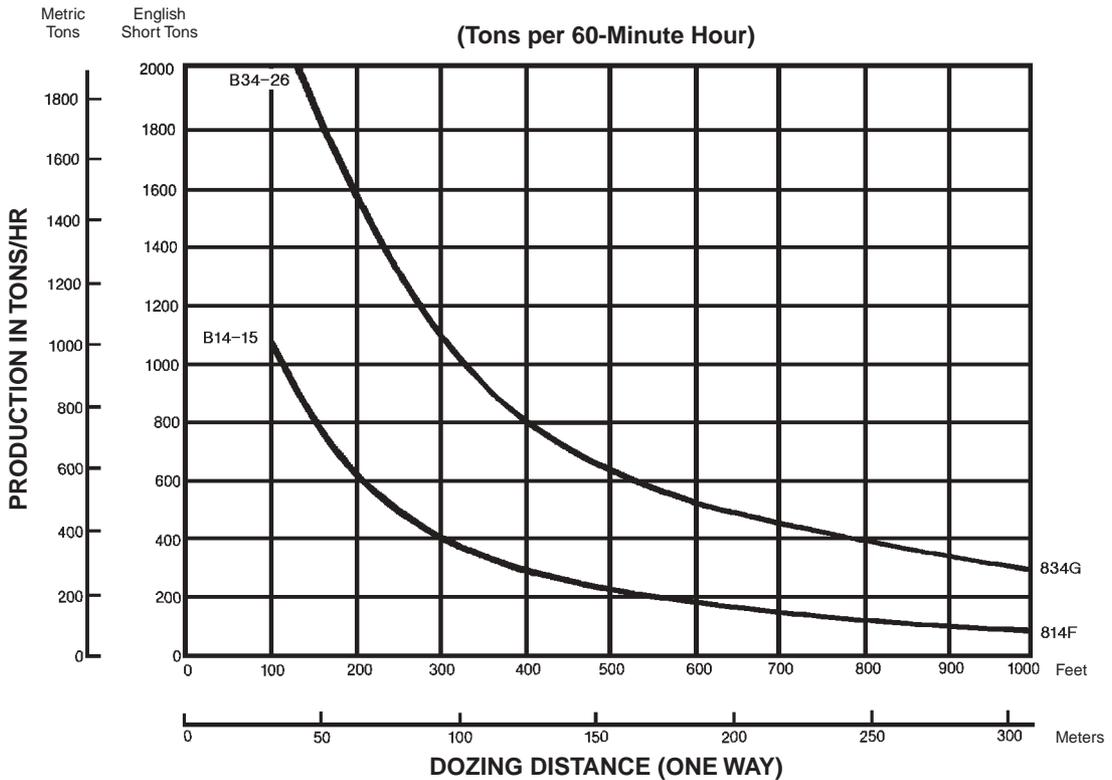
NOTE: Blade capacities in tons figured using weight of coal at 890 kg/m³ (1500 lb/yd³).

Refer to Track-Type Tractor/Bulldozer section for additional special attachment specifications.

Wheel Tractors Estimated Production with Coal Scoop

Factors:

- Mixed Bituminous Coal
- Storage and Reclamation
- 0% Grade
- 0.80 Coefficient of Traction



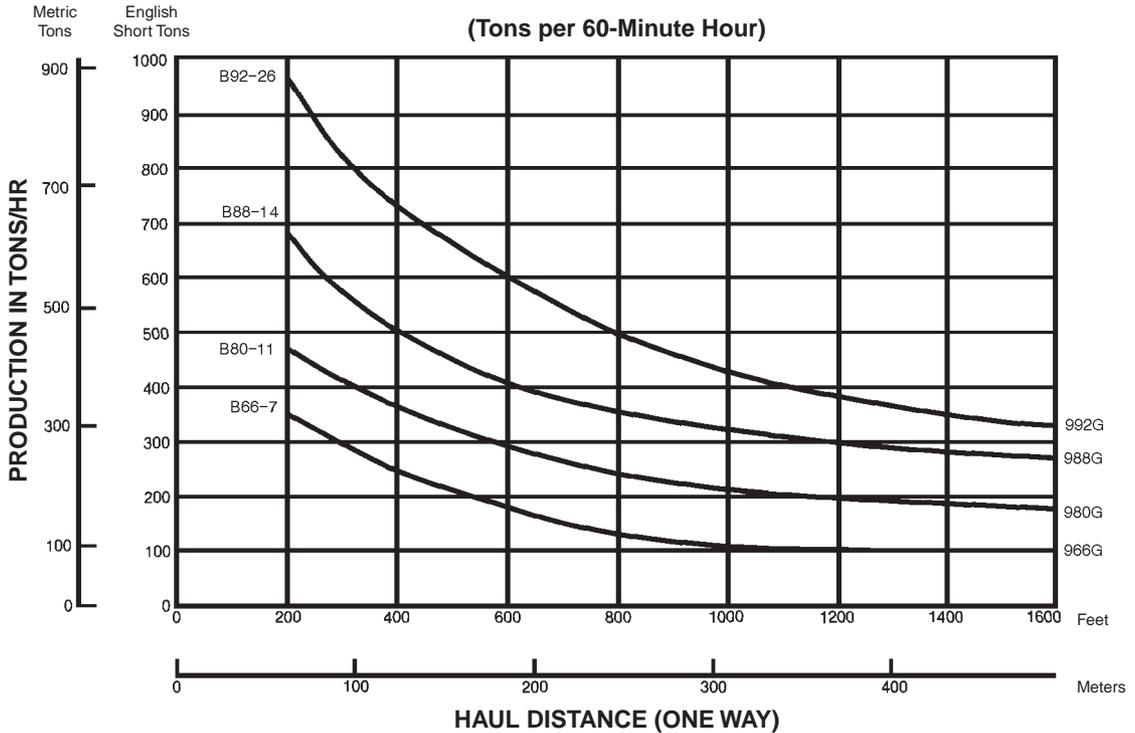
Tractor	Coal Scoop		Scoop Capacities (Lift and Carry)				Doze Capacities				
	Model	m	ft	Metric tons	U.S. tons	m ³	yd ³	Metric tons	U.S. tons	m ³	yd ³
834G	B34-26	5.3	17'4"	18.3	20.2	19.9	26	37.5	41.25	37.5	49
814F	B14-15	3.7	12'3"	8.2	9.0	11.5	15	16.3	18.0	19.1	25

Refer to Track-Type Tractor/Bulldozer section for additional special attachment specifications.

**Wheel Loaders Estimated Production
with Coal Bucket**

Factors:

- Mixed Bituminous Coal
- Storage and Reclamation
- 0% Grade
- 0.80 Coefficient of Traction



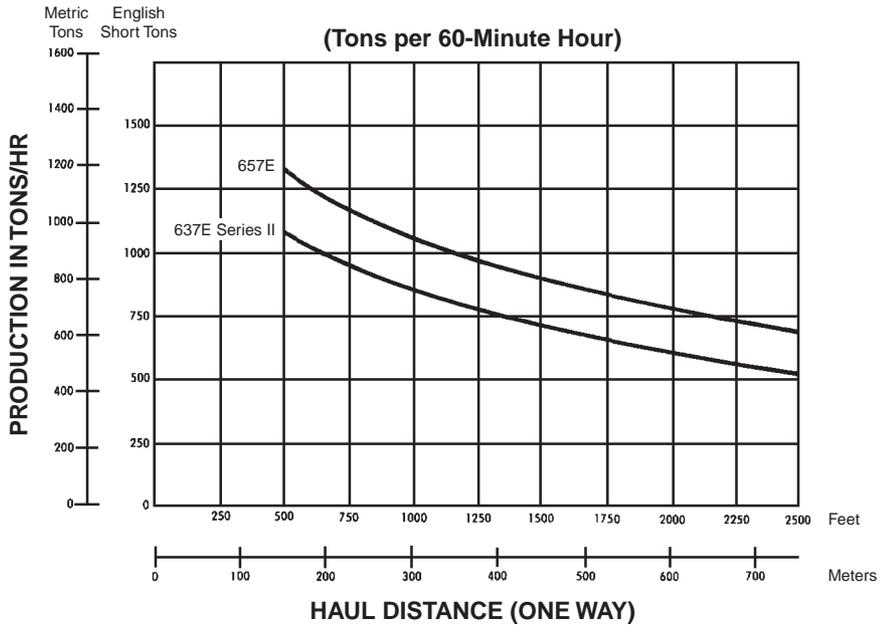
Loader	Coal Bucket	Bucket Capacities			
	Model	Metric tons	U.S. tons	m ³	yd ³
992G	B92-25	17.0	18.8	19.3	25.25
988G	B88-14	9.4	10.4	10.3	13.50
980G	B80-11	7.3	8.1	8.2	10.75
966G	B66-7	4.8	5.3	5.5	7.25

NOTE: Bucket capacities include bottom cutting edge in tons figured using weight of coal at 890 kg/m³ (1500 lb/yd³).

Wheel Tractor-Scrapers Estimated Production

Factors:

- Mixed Bituminous Coal
- Storage and Reclamation
- 0% Grade
- 0.50 Coefficient of Traction



Coal Scraper	Bowl Capacities									
	Metric tons	U.S. tons	Struck		1:1		2:1		3:1	
			m ³	yd ³	m^{3}	yd^{3}	m^{3}	yd^{3}	m^{3}	yd^{3}
657E	49.9	55	45	59	56	73	50	65	47	62
637E Series II	34.5	38	31	41	38	50	34	45	37	44

Average fixed time to load, maneuver and dump:
 657E — 1.12 min.
 637E Series II — 1.10 min.

NOTE:

- The 657E Coal Scraper is 1049 mm (41.3") longer and bowl sides and apron are 1080 mm (42.5") higher than its earthmoving counterpart.
- The 637E Series II Coal Scraper is 762 mm (30") longer and bowl sides, apron and ejector are 915 mm (36") higher than its earthmoving counterpart.
- The rimpull, travel times, and retarder performance for the coal scrapers are the same as for the standard machines. See Wheel Tractor-Scrapers section for charts and graphs.

Example Problem

A coal-fired utility company has a coal requirement of approximately 315 metric tons (350 tons) per hour. Specify the coal handling machine that will satisfy this demand.

Conditions:

- Lignite Coal 710 kg/m³ (1200 lb/yd³)
- 90 m (300 ft) push distance
- 5% adverse grade
- 50 minute hour operation efficiency

Solution:

Calculate the D9R's production equipped with the BD9U-19 Coal U-Blade by using the D9R production curve. Start at 90 m (300 ft) and read up to the D9R production line, then over to the left to determine its maximum hourly production of 612 metric tons (675 tons).

Since the graphs are based on a 890 kg/m³ (1500 lb/yd³) coal density, this production figure has to be adjusted to reflect lignite coal:

Coal density correction factor = $710/890$ (1200/1500) = 0.8.

Obtain the production correction factor for the 5% adverse grade from the chart: 0.9.

The correction factor for the 50 minute hour is $50/60 = 0.83$.

Now calculate the adjusted D9R hourly production using the correction factors:

$$\begin{aligned} \text{Metric} & 612 \times .8 \times .9 \times .83 = 366 \text{ tons/hour} \\ \text{English} & 675 \times .8 \times .9 \times .83 = 403 \text{ tons/hour} \end{aligned}$$

The D9R falls in the required production range. For short periods of peak power capacity, production could be increased by slot dozing.

Production for the D10R, 824G and 834G can be calculated using the same method.

D10R

$$\begin{aligned} \text{Metric} & 850 \times .8 \times .9 \times .83 = 508 \text{ tons/hour} \\ \text{English} & 935 \times .8 \times .9 \times .83 = 559 \text{ tons/hour} \end{aligned}$$

824G

$$\begin{aligned} \text{Metric} & 400 \times .8 \times .9 \times .83 = 239 \text{ tons/hour} \\ \text{English} & 440 \times .8 \times .9 \times .83 = 263 \text{ tons/hour} \end{aligned}$$

834G

$$\begin{aligned} \text{Metric} & 689 \times .8 \times .9 \times .83 = 412 \text{ tons/hour} \\ \text{English} & 760 \times .8 \times .9 \times .83 = 454 \text{ tons/hour} \end{aligned}$$

Therefore, the D9R or 834G could most economically satisfy the production requirements.

LAND CLEARING

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Land clearing must be treated more as an art than a science because production rates and methods vary greatly from one area to another. This section deals with the many variables in clearing and includes methods, equipment and procedures to determine productivity rates.

VARIABLES AFFECTING CLEARING OPERATIONS

Vegetative Growth — Factors affecting production and therefore cost, include the number of trees, size of trees, wood density, root systems, vines and undergrowth. These factors can be estimated by a “tree-count” as discussed under “Job Survey.”

End Use of Land — Since different end uses require different degrees of clearing (i.e. highways, dams, tree crops, row crops, etc.), this is one of the most important factors to consider in choosing the proper clearing method and equipment.

Soil Conditions or Bearing Capacity — Factors affecting clearing operations include topsoil depth, soil type, moisture content, and the presence of rocks and stones.

Topography — Grade and terrain factors such as steep slopes, ditches, swampy areas, boulders and even ant hills greatly affect the normal operation of some equipment.

Rainfall and Climate — Usually all phases of land clearing from cutting to burning are concerned to some degree with temperature changes and the amount of rainfall during the clearing operation.

Job Specifications — Specifications dictate the degree of clearing to be done, area size, completion dates, method of debris disposal, soil conservation and other factors which affect method and equipment selection.

JOB SURVEYS

Knowledge of rainfall and climate, end use of the land, and job specifications can be obtained from records, surveys, engineering studies, and written specifications. You should personally review the land to be cleared to gain other necessary and valuable information.

The survey should include a study of general topography and soil conditions. Note such problem factors as hills, rocks, or swamps which would significantly affect production or which would require special treatment.

Cruise the area to be cleared and determine the acreage of each vegetative type (i.e. upland woods, low timberlands, swamps). Make at least three tree counts at random for each vegetation type. To conduct these counts, randomly locate two points 100 meters (328 feet) apart. Count and measure vegetative growth along a straight line between these points for a width of about 5 meters (16 feet) on both sides. This gives the population of 1/10 hectare (1/4 acre).

1. Density of vegetation less than 30 cm (12 in) diameter
 - Dense — 1480 trees/hectare or more
(600 trees/acre)
 - Medium — 990-1480 trees/hectare
(400-600 trees/acre)
 - Light — less than 990 trees/hectare
(400 trees/acre)
2. Presence of hardwoods expressed in percent
3. Presence of heavy vines
4. Average number of trees per hectare (2.47 acres) in each of the following ground level diameter size ranges:
 - Less than 30 cm (1 ft)
 - 31 cm-60 cm (1-2 ft)
 - 61 cm-90 cm (2-3 ft)
 - 91 cm-120 cm (3-4 ft)
 - 121 cm-180 cm (4-6 ft)
5. Sum of diameter of all trees per hectare (2.47 acres) above 180 cm (6 ft) in diameter at ground level.

CLEARING METHODS AND EQUIPMENT

Methods for Initial Felling — There are several methods indicating the degree of clearing for initial felling and several types of equipment for use with each method. Equipment use in different size vegetation and different size areas is summarized in the table on the next page. This information should serve only as a rough guideline in selecting equipment. The economical land area for each type of equipment will vary with the capital cost of equipment and moving cost. It is also affected by whether there are alternate uses for equipment such as using tractors for other construction work or tillage.

Land Clearing Machines — Job size, severity of job such as tree size, and time limit to complete will influence machine selection. Some machines, such as the D6R, D7R and D8R are more suited for this type work than others, but imagination and resourcefulness can allow the use of other types of machines in specific applications. For example, loaders are used more today in raking and piling operations than ever before.

Operator Protection and Machine Guarding — Daily production has been estimated to increase 20% when cab guards are used. Cabs designed specifically for clearing are available from Rome and other auxiliary equipment manufacturers.

The radiator, engine, and underside of the tractor must be well protected. Perforated hoods, screens, crankcase guards and hydraulic cylinder guards are generally recommended.

Generally speaking, lower cost clearing can be done with larger tractors if the amount of clearing involved is sufficient to merit the initial investment in the bigger machine. Because most clearing work requires frequent direction changes, a power shift transmission should be standard equipment. The direct drive transmission tractor is recommended when the tractor is used principally in constant drawbar work such as chaining or pulling a disc harrow. In most applications, a winch should also be considered on one of every three tractors in a fleet.

EQUIPMENT SELECTION TABLE

	UPROOTING	CUTTING AT OR ABOVE GROUND LEVEL	KNOCKING TO THE GROUND	INCORPORATING INTO THE SOIL
LIGHT CLEARING — Vegetation up to 5 cm (2 in) diameter				
Small areas 4 hectares (10 acres)	Bulldozer blade	Wheel-mounted circular saws	Bulldozer blade	Moldboard plows, disc plows, disc harrows
Medium areas 40 hectares (100 acres)	Bulldozer blade	Heavy duty sickle mowers [up to 3.7 cm (1½ in) diameter] tractor-mounted circular saws, suspended rotary mowers	Bulldozer blade, rotary mowers; flail-type rotary cutters; rolling brush cutters	Moldboard plows; disc plows, disc harrows
Large areas 400 hectares (1000 acres)	Bulldozer blade, root rake, grubber, root plow, anchor chain drawn between two crawler tractors; rails	—	Rolling brush cutter; flail- type cutter; anchor chain drawn between two crawler tractors; rails	Undercutter with disc; moldboard plows; disc plows; disc harrows
INTERMEDIATE CLEARING — Vegetation 5 to 20 cm (2 to 8 in) diameter				
Small areas 4 hectares (10 acres)	Bulldozer blade	Wheel-mounted circular saws	Bulldozer blade	Heavy-duty disc plow; disc harrow
Medium areas 40 hectares (100 acres)	Bulldozer blade	Tractor-mounted circular saws, single scissor type tree shears	Bulldozer blade, rolling brush cutter [up to 12 cm (5 in) diameter], rotary mower [up to 10 cm (4 in) diameter]	Heavy-duty disc plow; disc harrow
Large areas 400 hectares (1000 acres)	Shearing blade, angling (tilted) bulldozer blade, rakes, anchor chain drawn between two crawler tractors, root plow	Shearing blade (angling or V-type)	Bulldozer blade, flail-type rotary cutter, anchor chain	Bulldozer blade with duty harrow
LARGE CLEARING — Vegetation 20 cm (8 in) diameter or larger				
Small areas 4 hectares (10 acres)	Bulldozer blade	—	Bulldozer blade	—
Medium areas 40 hectares (100 acres)	Shearing blade, angling (tilted), knockdown beam, rakes, tree stumper	Shearing blade (angling or V-type), tree shear [up to 70 cm (26 in) softwood; 35 cm (14 in) hardwood], shearing blade — power saw combination	Bulldozer blade	—
Large areas 400 hectares (1000 acres)	Shearing blade, angling (tilted), tree pusher, rakes, tree stumper, anchor chain with ball drawn between two crawler tractors	Shearing blade (angling or V-type), shearing blade — power saw combination	Anchor chain with ball drawn between two crawler tractors. [Use dozer blade for trees over 18 cm (7 in).]	—

NOTE: The most economical size area for each type of equipment will vary with the relative cost of capital equipment versus labor. It is also affected by whether there are alternate uses for equipment such as using tractors for tillage.

PRODUCTION ESTIMATING

GENERAL — CONSTANT SPEED OPERATIONS

Production is the hourly clearing rate usually expressed in hectares or acres.

For many land clearing operations, production is calculated by multiplying the tractor speed by the width of cut and converting to hectares or acres per hour.

Metric system:

The base formula is:

$$\frac{\text{Width of cut (meters)} \times \text{speed (km/h)}}{10} = \text{hectares/h}$$

When an efficiency of 82.5% is used, the formula becomes:

$$\frac{\text{Width of cut (m)} \times \text{speed (km/h)} \times .825}{10} = \text{hectares/h}$$

English measure:

$$\frac{\text{Width of cut (ft)} \times \text{speed (mph)}}{43,560 \text{ (ft}^2\text{)}} = \text{acres/hr}$$

The American Society of Agricultural Engineers formula for estimating hourly production of a constant speed operation is based on 82.5% efficiency. With this efficiency, the formula becomes:

$$\frac{\text{Width of cut (ft)} \times \text{speed (mph)} \times .825}{43,560 \text{ (ft}^2\text{)}} = \text{acres/hr}$$

Width of cut is the effective working width of the equipment and may not be the same as its rated width. Working width should be measured on the job but can be estimated when necessary.

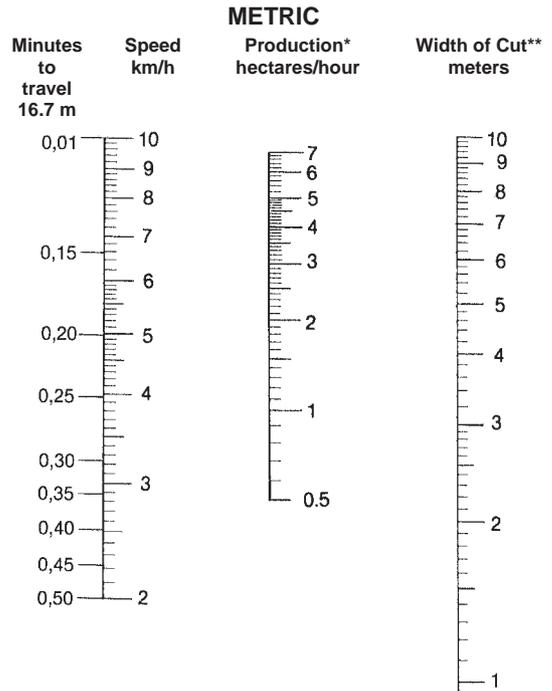
The actual machine speed can be determined by measuring the amount of time to travel a given distance. When using the metric system, the time to travel 16.7 meters or a multiple thereof, can be converted into kilometers per hour.

$$\frac{1.0}{\text{(Time in min. to travel 16.7 meters)}} = \text{speed (km/h)}$$

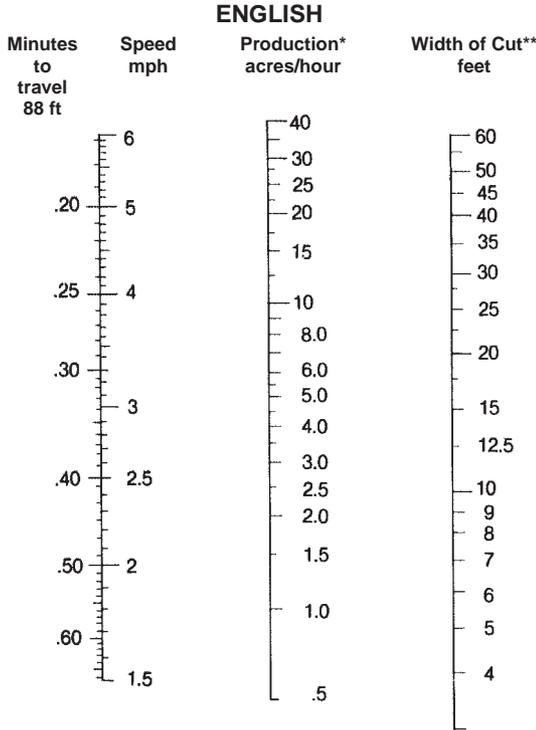
Since 88 ft/min. equals one mph, the lapsed time to travel 88 ft, or a multiple of 88 ft, can easily be converted into miles per hour.

$$\frac{1.0}{\text{(Time in min. to travel 88 ft)}} = \text{speed (mph)}$$

The following nomographs in both the Metric and English systems convert speed and width of cut directly into acres or hectares per hour at 82.5% efficiency without the need for calculations.



*Based on 82.5% efficiency.
**When width of cut exceeds 10 meters, use a multiple of the width of cut and increase production proportionately.



*Based on 82.5% efficiency.

**When width of cut exceeds 60 feet, use a multiple of the width of cut and increase production proportionately.

CUTTING PRODUCTION ESTIMATING

Most land clearing operations such as bulldozing, cutting, grubbing, raking and piling are not performed at constant speed. Because off-the-job production is difficult to estimate for these operations, Rome Industries has developed formulas for estimating cutting and piling time. These formulas take into consideration variable prime mover speeds through a factor, "B", the base time for each tractor to cover one hectare (2.47 acres) of light material.

To estimate **tractor cutting time per hectare** (2.47 acres) on a specific land clearing job, apply the factors shown in the following table, together with data obtained from the job survey, in the formula:

$$T = X [A(B) + M_1N_1 + M_2N_2 + M_3N_3 + M_4N_4 + DF]$$

where

T = Time per hectare (2.47 acres) in minutes

X = Hardwood or density factor affecting total time

A = Density or vine presence factor affecting base time

B = Base time for each tractor per hectare (2.47 acres)

M = Minutes per tree in each diameter range

N = Number of trees per hectare (2.47 acres) in each diameter range obtained from field survey

D = Sum of diameter in 30 cm (1 ft) increments of all trees per hectare (2.47 acres) above 180 cm (6 ft) in diameter at ground level obtained from field survey

F = Minutes per 30 cm (1 ft) of diameter for trees above 180 cm (6 ft) in diameter.

Hardwoods affect over-all or total time as follows:

75-100% hardwoods: Add 30% to total time (X = 1.3)

25-75% hardwoods: No change (X = 1.0)

0-25% hardwoods: Subtract 30% from total time (X = 0.7)

Production Factors for Felling with Rome K/G Blades

Tractor	Base Minutes per hectare (2.47 acres) "B"	Diameter Range				Dia. above 180 cm per 30 cm (6' per foot) "F"
		30-60 cm (1-2 ft) "M ₁ "	60-90 cm (2-3 ft) "M ₂ "	90-120 cm (3-4 ft) "M ₃ "	120-180 cm (4-6 ft) "M ₄ "	
165 hp	85	0.7	3.4	6.8	—	—
230 hp	58	0.5	1.7	3.3	10.2	3.3
305 hp	45	0.2	1.3	2.2	6.0	1.8
405 hp	39	0.1	0.4	1.3	3.0	1.0

Explanation of columns in table:

Tractor — Based on current model tractors (power shift when applicable) working on reasonably level terrain (below 10% grade) with good footing, no stones, average mixture of soft and hard woods. Tractor is in proper operating condition, blade is sharp, and properly adjusted.

Base Minutes — The base figures represent the number of minutes required for each tractor to cover a hectare (2.47 acres) of light material where no trees require splitting or other individual treatment. Time required is affected by the density of material less than 30 cm (1 ft) in diameter and the presence of vines.

- dense — 1480 trees/hectare (600 or more trees/acre): Add 100% to base time (A = 2.0)
- medium — 990-1480 trees/hectare (400-600 trees/acre): No change (A = 1.0)
- light — less than 990 trees/hectare (400 trees/acre): Subtract 30% from total time (A = 0.7)

- Cutting
- Piling

Presence of heavy vines: Add 100% to base time (A=2.0). Very heavy vines add 300% to base time. (A=3.0)

Dia. Range — M₁ represents minutes required to cut trees from 31-60 cm (1-2 ft) in diameter at ground level.

- M₂ same for trees 61-90 cm (2-3 ft) diameter.
- M₃ same for trees 91-120 cm (3-4 ft) diameter.
- M₄ same for trees 121-180 cm (4-6 ft) diameter.

For Dia. above 180 cm (6 ft) — The figures in this column represent size the number of minutes required per 30 cm (1 ft) of diameter for each tractor to cut trees above 180 cm (6 ft) in diameter. Thus, to fell a 240 cm (8 ft) diameter tree would require 8 × 1.8 or approximately 14.4 minutes with a D8R.

Example problem:

Calculate the felling production of a D8R with K/G Blade in these conditions: reasonably level terrain, firm ground, well drained, 85% hardwoods with heavy vines and the following average tree count per hectare (2.47 acre):

Diameter Range	Less than 30 cm (1 ft) "B"	31-60 cm (1-2 ft) "N ₁ "	61-90 cm (2-3 ft) "N ₂ "	91-120 cm (3-4 ft) "N ₃ "	121-180 cm (4-6 ft) "N ₄ "	Sum Dia's Above 180 cm (6 ft) "D"
Number of Trees	1100	35	6	6	4	488 cm (16 ft)

Solution:

$$\begin{aligned}
 T &= X [A(B)+M_1N_1+M_2N_2+M_3N_3+M_4N_4+DF] \\
 T &= 1.3 [2.0 (45)+0.2 (35)+1.3 (6)+2.2 (6)+6 (4)+16 (1.8)] \\
 &= 1.3 (90+7+7.8+13.2+24+28.8) \\
 &= 1.3 (170.8) \\
 &= 222 \text{ minutes/hectare (90 min/acre)}
 \end{aligned}$$



Where the job requires grubbing trees and stumps greater than 30 cm (1 ft) in diameter at the same time the trees are sheared, use the same basic procedure as defined above including the variables for the presence of hardwoods. After time per hectare (acre) in minutes has been determined, increase the over-all or total time by 25%.

Where the job requires re-entering the area (after all trees have been sheared) to remove stumps with a tilted shearing blade or stump, increase the total time by 50%.

PILING PRODUCTION ESTIMATING

A procedure has also been developed for estimating piling production for a tractor equipped with a K/G blade or rake.

To estimate tractor hours per hectare (acre) on a specific land clearing job, apply the factors shown in the following table with data obtained from the job survey, in the formula:

$$T = B+M_1N_1+M_2N_2+M_3N_3+M_4N_4+DF$$

where

- T = Time per hectare (2.47 acre) in minutes.
- B = Base time for each tractor per hectare (2.47 acre).
- M = Minutes per tree in each diameter range.
- N = Number of trees per hectare (2.47 acre) in each diameter range obtained from field cruise.
- D = Sum of diameter in 30 cm (1 ft) increments of all trees per hectare (2.47 acre) above 180 cm (6 ft) in diameter at ground level obtained from field cruise.
- F = Minutes per 30 cm (1 ft) of diameter for trees above 180 cm (6 ft) in diameter.

Production Factors for Piling in Windrows*

Tractor	Base Minutes per hectare (2.47 acres) "B"	Diameter Range				Dia. above 180 cm per 30 cm (6' per foot) "F"
		30-60 cm (1-2 ft) "M ₁ "	60-90 cm (2-3 ft) "M ₂ "	90-120 cm (3-4 ft) "M ₃ "	120-180 cm (4-6 ft) "M ₄ "	
165 hp	157	0.5	1.0	4.2	—	—
230 hp	125	0.4	0.7	2.5	5.0	—
305 hp	111	0.1	0.5	1.8	3.6	0.9
405 hp	97	0.08	0.1	1.2	2.1	0.3

*May be used with most types of raking tools and angled shearing blade. Windrows to be spaced approximately 61 meters (200 feet) apart.

Explanation of columns in table:

Tractor — Production with tractor working alone based on current model tractors (power shift when applicable) working on reasonably level (below 10% grade) terrain with good footing, no stones, average mixture of soft and hard woods. The tractor is in proper operating condition. Decrease total time by 25-50% depending on the number and size of trees when using three or more tractors in combination.

Base Minutes — The base figures represent the number of minutes required for each tractor to cover a hectare (2.47 acres) of light material.

Dia. Range — M_1 represents minutes required to pile trees from 31-60 cm (1-2 ft) diameter at ground level.

M_2 same for trees 61-90 cm (2-3 ft) diameter.

M_3 same for trees 91-120 cm (3-4 ft) diameter.

M_4 same for trees 121-180 cm (4-6 ft) diameter.

For Dia. above 180 cm (6 ft) — The figures in this column represent for each tractor size the number of minutes required per 30 cm (1 ft) of diameter to pile trees above 180 cm (6 ft) in diameter. Thus, to pile a 240 cm (8 ft) diameter tree would require 8×0.9 or approximately 7.2 minutes with a D8R tractor.

Where the job requires piling of grubbed trees and stumps greater than 30 cm (1 ft) in diameter, use the same basic procedure defined above and then increase over-all or total time by 25%.

In dense small diameter brush with few or no large trees, or when cutting is vine entangled, reduce the base time by 30%.

Example problem:

Calculate the windrow piling production of a D7R Series II with Rake in level terrain, no grubbing, and average mixture of hardwoods and softwoods where the average tree count per hectare (2.47 acres) is:

Diameter Range	Less than 30 cm (1 ft) "B"	31-60 cm (1-2 ft) "N ₁ "	61-90 cm (2-3 ft) "N ₂ "	91-120 cm (3-4 ft) "N ₃ "	121-180 cm (4-6 ft) "N ₄ "	Sum Dia's Above 180 cm (6 ft) "D"
Number of Trees	1100	35	6	6	2	0

Solution:

$$\begin{aligned}
 T &= B + M_1N_1 + M_2N_2 + M_3N_3 + M_4N_4 + DF \\
 &= 125 + 0.4(35) + 0.6(6) + 2.5(6) + 5.0(2) + [DF=0] \\
 &= 42.6 \\
 &= 177.6 \text{ minutes/hectare (72 min/acre)}
 \end{aligned}$$



To find the number of machines required for each operation, use the formula:

$$\text{Hr/hectare (acre)} \times \text{number of hectares (acres)} = \text{number of machines needed}^*$$

*Average machine production for all operation in hr/hectare (acre).

To cost estimate each method or phase of operation, use this calculation:

$$\text{Owning and Operating cost/hr} \times \text{hr/hectare (acre)} \times \text{number of hectares (acres)} = \text{cost}$$

Because of the many variables that increase or decrease production, these formulas should be considered only as guidelines in arriving at a rough production estimate. This estimate should be tempered by personal judgment based on past experience and personal knowledge of the area.

BLADE RAKES

Tractor Model and Dozer		D6R Series II			D7R Series II		
		6A	6S	6SLGP	7A	7S	7SLGP
Raking Width	m	3.3	2.62	3.3	3.72	3.18	3.66
	ft	10'10"	8'6"	10'10"	12'3"	10'5"	12'
Opening at Tooth Tips	mm	356	305	310	381	381	381
	in	14"	12"	12.22"	15"	15"	15"
Tooth Penetration	mm	432	457	406	559	559	559
	ft/in	17"	18"	16"	1'10"	1'10"	1'10"
Total Weight	kg	718	675	825	1144	1100	1119
	lb	1585	1490	1820	2525	2420	2470

RAKES FOR WHEEL LOADERS

Wheel Loader Model and Rake type		914G II Loader Rake	924G II Loader Rake	928G II Loader Rake	938G II Loader Rake	950G II/962G II Loader Rake	966G II/972G II Loader Rake
Raking Width	mm	2210	2486	2837	2845	3048	3353
	ft	7'3"	8'2"	9'4"	9'4"	10'0"	11'0"
Tooth Penetration	mm	762	653	914	914	965	1143
	ft	2'6"	2'2"	3'0"	3'0"	3'2"	3'9"
Opening at Tooth Tips	mm	318	310	349	298	298	330
	in	12.75"	12.2"	13.8"	11.75"	11.75"	13"
Rake Weight	kg	770	2282	1420	1450	1590	2210
	lb	1700	1035	3130	3200	3500	4880

RAKES FOR TRACK LOADERS

Track Loader Model and Rake type		953C Loader Rake	963C Loader Rake
Raking Width	mm	2845	2388
	ft	9'4"	7'10"
Tooth Penetration	mm	635	635
	ft	2'1"	2'1"
Opening at Tooth Tips	mm	298	330
	in	11.75"	13"
Rake Weight	kg	1450	1450
	lb	3200	3200

This listing is not all-inclusive. Contact your Caterpillar Dealer for special attachment needs.

WASTE HANDLING

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INTRODUCTION

An increasing volume of refuse is generated by every person, commercial entity and household day after day ... 365 days a year. Disposal of this waste is a major problem worldwide. Increased governmental legislation designed to protect the environment and rising transportation and land acquisition costs have made waste disposal a significant user of earthmoving and specialty mobile equipment.

TRANSFER STATIONS

TRANSFER STATIONS, MRF'S, (MATERIAL RECOVERY FACILITIES) SORTING STATIONS, RECYCLING STATIONS

Changing attitudes in waste applications

The growth in transfer stations has increased as the amount of material that is being recycled or otherwise diverted from landfill disposal has increased. As a result transfer stations, MRF's, (material recovery facilities), sorting stations and recycling stations, are becoming a more important part of the waste stream. As the number of disposal sites continues to decline and/or move further away from city centers, the number of transfer stations must increase to accommodate and redirect waste to the appropriate disposal facilities.

Primary role

- Transfer stations, are designed to consolidate the loads of several delivery vehicles into long-haul transfer trailer or rail haul units. On average 2–5 inbound loads for transfer trailers and 5 or more for rail haul units can be consolidated into one outbound load. As a result transfer stations offer cost savings over direct haul to the landfill.
- MRF's, Sorting Stations, and Recycling Stations are designed to divert recyclable materials from the waste stream. Depending whether the material is pre-sorted, co-mingled, or MSW (municipal solid waste), the goal is to divert recyclable material for re-consumption and lower the amount of waste placed into the landfill thereby extending the landfills natural life.
- Safety is a major concern in today's Waste Industry Transfer Stations, Sorting Stations, MRF's, and Recycling Stations, all help reduce primary road and landfill traffic, by helping reduce smaller waste trucks and public traffic, leading to improved safety for everyone.

Types of transfer stations

The two most popular styles of transfer stations in North America are top loading and compaction. While there are many different types of transfer stations, most operate out of these two designs.

Top loading systems are the most common and simplest to operate. Five types of top loading arrangements include direct loading, full separation, half-separation, floor loading, and surge pit. Depending on the type of transfer station, wheel loaders, track loaders, track-type tractors, compactors, and excavators, can be utilized alone or together in systems providing quick efficient waste handling.

Compaction transfer stations provide hydraulic compaction either prior to, or during the loading of the hauling vehicle. It is important to note this type of transfer station can utilize all of the same design features of the platform design except for the direct load and half-separation designs.

Material Recovery Facility (MRF's), Sorting Stations, and Recycling Stations

A well-coordinated recycling program can reduce volume going to the landfill by up to 50% or more. The types of facility designs that sort recyclables out of the waste stream are:

1. *Recycling Facility* — Recyclables are separated at the source prior to being loaded into the haul vehicle. At the recycling station, the materials are unloaded, stored, sold and shipped to be remanufactured or recycled.
2. *Clean MRF's* — A "clean" MRF accepts source-separated recyclable material from residential and commercial sources delivered in separate collection vehicles.
3. *"Dirty" MRF* — A dirty MRF accepts mixed waste that later may be sorted for recycling; or source-separated waste that is delivered in the same collection vehicle (i.e. blue bag systems)
4. *Sorting Stations* — some transfer stations are designed for some waste diversion and recycling from mixed waste streams, and are normally described as 'sorting' stations.

Typical Applications for Transfer Stations, Recycling Centers, MRF's, and Sorting Stations

There is a wide range of variability in transfer station applications and operations. Therefore, depending on facility size, amount of material handled, type of transfer station, etc., a wide variety of machines could be utilized.

Typically, residential and commercial waste trucks deposit the waste onto a tipping platform. A wheel loader then stockpiles it, loads it into the transfer trailers/rail units or moves it onto a conveyor or belt line for recycling. Some transfer stations utilize a hydraulic excavator to help sort, top off, and compact the material into the transfer trailer/rail units.

Material densification is a method that is increasingly becoming more popular within transfer stations throughout the U.S. Densification of material prior to load-out helps maximize the allowable weight carried by each haul unit. Common machines used for material densification are, track-type tractors and track loaders. These machines are normally equipped with waste densification shoes. Compactors can be used for densification and are normally aided by a combination of either wheel loaders and/or excavators.

For transfer stations, recycling stations, MRF's and sorting stations, a vast amount of support equipment is utilized. These range from, skid steer loaders, backhoe loaders, compact equipment, telehandlers, IT's, and small/medium wheel loaders.

EQUIPMENT SELECTION

As in the landfill application, the largest single cost for daily operation in transfer stations, etc., is purchasing, operating, and maintaining the equipment. Undersized, inadequate or unreliable equipment results in higher maintenance and repair costs and improper operations.

Equipment in transfer stations and related applications perform these functions.

1. **Stockpiling the waste** once it is dumped onto the tip platform or in the surge pit. Machines used could be wheel loaders, track loaders, or track-type tractors, or any combination of these.
2. **Loading the waste** into the transfer trailers or rail cars. Material is either pushed, loaded and carried, or grappled into the transport vehicles. Wheel loaders, track loaders, track-type tractors, excavators, or any combination of these can be utilized.
3. **Support equipment** for all the different styles of transfer stations, recycling stations, sorting stations, and MRF's is a must. IT wheel loaders equipped with brooms, forks, specialty buckets, etc. can increase production and efficiency of the tip floors and load out areas. Skid steers, backhoe loaders, telehandlers and small compact equipment, with couplers and versatile attachments, can perform many necessary duties from clean up to load out.
4. **Material densification** is accomplished by continuous running over the waste, turning the waste over, and 'working' the waste. This type of operation compacts and shreds the waste allowing for less volume but higher weights in on road or rail haul transfer vehicles. Compactors, track-type tractors, and track-type loaders, equipped with wheels or undercarriages specifically designed to densify the waste, are normally utilized in this type of application.

Machine Selection Factors

As in landfill applications, selecting the type, size, quantity, and combination of machines required in transfer stations and other sorting applications is determined by the following parameters.

1. Amount and type of waste to be handled daily — (daily tonnage) — again, machines should be spec'd towards peak times.
2. Type and size of the facility — top loading/compaction and the various floor arrangements possible.
3. Facility/load out dynamics
 - a. floor size — dimensions of the tip area, load out area, surge pit
 - b. ceiling height
 - c. haul unit specifications for load out
 - d. traffic patterns
4. Densification/compaction requirements for necessary load out tonnage's.
5. Supplemental tasks performed during the total workday.
6. Budget
7. Growth

Track-Type Tractors

Track-type tractors are designed and guarded to accommodate all waste applications. Used primarily to aid spreading and compaction on landfills, track-type tractors offer another alternative for densification and waste movement in large transfer stations. Most track-type tractors are used in surge pit style transfer stations. In this application, waste can be dumped on a second level below the main tipping floor. The track-type tractor then works the waste, spreading, densifying, and loading haul vehicles for the trip to the landfill. This design is used when maximum volume reduction is required and/or when peak rate of waste exceeds the available floor space.

- Track Loaders
- Landfill Compactors
- Wheel Loaders

Track Loaders

Track loaders are designed and guarded for many different types of waste applications. Because of its versatility, the track loader can perform several different functions within the transfer station. The machine's weight compacts the waste reducing volume and increasing density. This allows haul vehicles to obtain the maximum weight permissible for road or rail. They can either work alone, or in tandem with wheel loaders or excavators to load the haul vehicles. Equipping track loaders with multi-purpose buckets increases their versatility in allowing the operator to selectively grapple items for sorting and disposal.

Landfill Compactors

Landfill compactors are specialized pieces of equipment primarily designed for spreading and compacting large volumes of waste in a landfill environment. However, in some instances around the world where transfer stations have a large enough working area and densification of the waste is an operational goal, Landfill compactors are being utilized.

Landfill compactors offer two major advantages.

1. They are already configured and guarded to work in a waste environment.
2. They are capable of achieving superior compaction levels as compared to other mobile equipment.

Although Landfill compactors are not typically viewed as a primary piece of transfer station equipment, they are occasionally being used and may offer an alternative solution to a transfer station operator. Please consider maximum density, weight needed in the hauler, tip floor size and possible contact by the compactor.

Wheel Loaders

Wheel loaders are often one of the primary tools used in transfer stations to load and separate refuse. Almost all styles of transfer stations will utilize a wheel loader either on their tip floor, load out area, or as a support piece of equipment. Wheel loaders perform a variety of tasks such as, stockpiling of waste on the tip floor, feeding belts for the sorting line, top loading haul vehicles either same level, half separated, or full separation, and clean up around the facility. These machines are normally equipped with a wide variety of buckets, attachments, and tires. A good knowledge of the facility, its waste stream, and its imitating factors is needed for proper machine selection.

Depending on the size and design of the facility, amount and type of waste stream, and type of job the machine needs to perform, there are several models available for machine selection. Waste Handling Packages are offered on our large to medium wheel loader line and limited waste handling guarding packages are offered on our smaller wheel loaders.

Care should be taken in sizing your equipment for your peak periods, and your peak and support needs.

- **Compact wheel loaders (902–908)** — Normally utilized in small tonnage recycling stations, and support machines where maneuverability in cramped areas is needed.
- **Small wheel loaders (914G–928G)** — Used for maneuverability in stockpiling, sorting, and loading of types of material in transfer, recycling, and sorting stations. Also used as support and backup machines in larger applications.
- **Medium — large wheel loaders (938G–988G)** — Utilized for waste movement on tip floors and load out areas, the size, weight to horsepower ratios, and many options make these machines the work horse of the recycling, transfer, and sorting stations.
- **IT's or Integrated ToolCarriers (IT14G–IT62G)** — IT machines offer maneuverability and versatility in many different recycling, transfer, and sorting station applications. A wide variety of main and support attachments can be utilized daily for many different jobs to be performed around these facilities.

**Caterpillar Transfer Station/Waste Application Wheel Loader Guidelines
 Operating Recommendations**

Tons Per Day	0-100	100-350	350-500	500-1000	1000-1500	1500-2000	2000-2500	2500-3000	3000+
Waste Transfer Station	924-IT28	924-IT28 ^a	928-938	950/966 ^c	966/980 ^d	966/980 ^d	966/980 ^{d,e}	980 ^e	980 ^e
C and D Transfer Station	928-950 ^b	950/966 ^d	950/966	966/980	966/980	966/980 ^d	966/980 ^e	980 ^e	980 ^e
Clean M.R.F./Recycling*	902-IT28	914-924 ^a	928-IT28	928-938	938 ^e	950 ^e	950 ^e	966-980 ^e	966-980 ^e
Dirty M.R.F./ Sorting Station*	924-IT28	924-IT28 ^a	924-938 ^c	924-938 ^e	938-966 ^e	966-980 ^e	966-980 ^e	980 ^e	980 ^e
C and D M.R.F.	928-966	966 ^d	966	980/988	980/988 ^d	980/988 ^e	980/988 ^e	980/988 ^e	988 ^e

*M.R.F. (Material Recovery Facility) — Clean and dirty.
 Clean M.R.F./Recycling — source separated material — no damaging material involved.
 Dirty M.R.F./Sorting Station — non-separated material — has to be sorted — could involve moving damaging material.

- C & D = Construction and Demolition
- a = Multiple wheel loaders recommended (contact your local Caterpillar Dealership for recommendations)
- b = Depends on type and density of C & D material+
- c = Waste stream mixture may require multiple wheel loaders
- d = Operating hours may require additional machines
- e = Multiple machines required

Additional Considerations

All facilities are different and require special considerations when ordering and specifying equipment. Types of attachments/buckets and operating hours will dictate type of equipment and size necessary.



Hydraulic Excavators

Hydraulic excavators are often found in recycling, transfer, and sorting stations as a primary tool for loading transfer trailers, railcars, waste compaction and for presorting material being loaded onto the sorting conveyors. The main advantages of an excavator in this role are its fast cycle times, its ability to maneuver within confined spaces, and the versatility of the many work tools with which a hydraulic excavator can be equipped. Certain tools are ideal when sorting or separating refuse is necessary, while others can be used for simple, high-production loading and compaction.

When sizing an excavator, it is important to take into account the daily tonnage of an operation as well as facility constraints, such as ceiling height and floor size. While no official “waste handling arrangement” is currently available for excavators, Caterpillar has configured excavators for many heavy-duty applications and all of the components that would ideally suit a machine to a transfer station application are available.

Wheeled hydraulic excavators add the benefits of greater speed for moving about the transfer station and therefore can be positioned to work in virtually any area of the transfer station within minutes.

They can also be equipped with an optional 4' fixed or 6'6" hydraulic cab riser for improved capability to see down in the “hole” when loading through the floor or seeing into trailers positioned at the same ground level as the wheeled excavator.

LANDFILLS

The most commonly accepted way to dispose of refuse is to bury it in a landfill. A landfill protects the environment by disposing solid waste on land in an engineered cell. Building a cell involves spreading the waste in thin layers, compacting it to the smallest practical volume, covering it with soil by the end of each working day, and compacting the cover material. Proper equipment selection and operating technique can maximize refuse and cover compaction and extend the operational landfill life.

LANDFILL METHODS

There are three basic landfill methods:

In the *area* method, waste is usually deposited at the toe of the previously compacted cell and then spread and compacted. This method is attractive for landfills receiving over 450 metric tons (500 tons) of refuse per day because it reduces truck unloading congestion. Cover material is normally handled by articulated trucks or wheel tractor-scrappers from nearby borrow sites.

The *trench* method is normally found at smaller landfills where the ground water table is deep. A trench is excavated and refuse is deposited and compacted within it. Excavated material becomes the cover material. Since the trench working face is narrow, truck congestion can occur. This method is usually attractive to landfills receiving under 450 metric tons (500 tons) of refuse per day.

The *ramp* method combines the characteristics of both area and trench designs. Refuse is dumped, spread and compacted on existing slopes and covered with material excavated directly in front of the working face. The excavated area becomes part of the next cell. This is a good way for a landfill to begin operation with a minimum of equipment expenditures.

EQUIPMENT SELECTION

A landfill's largest single cost for daily operation is purchasing, operating and maintaining the mobile equipment. Undersized, inadequate or unreliable equipment results in breakdowns, higher operating costs and improper landfill operation.

Landfill equipment performs three distinct functions:

1. Waste handling and compaction equipment dispose of the waste. Track-type tractors, track loaders, and landfill compactors are the primary machines.
2. Cover material handling machines provide daily cover requirements. If supplying cover material is a machine's sole function at a landfill, it can be selected on the basis of normal earthmoving considerations, such as material characteristics, distance to borrow areas, volume to be transported, and other basic earthmoving principles, i.e., maximizing earth movement in the least amount of time at the lowest cost per yard.
3. Support equipment includes motor graders, backhoe loaders, hydraulic excavators, water trucks, air compressors, service vehicles, water pumps, generators and any other necessary equipment.

Track-Type Tractors

The track-type tractor is the most popular and versatile machine on a landfill. They not only spread and compact refuse and cover material, they also prepare the site, rip cover material, build haul roads, knock down trees, remove stumps, and work in virtually all weather conditions. They are well-suited for all three landfill methods (area, ramp, and trench).

The crawler tractor can achieve compaction densities of 475 to 590 kg/m³ (800-1000 lb/yd³). Maximum compaction is achieved when it works on a 3:1 slope, permitting the grousers to rip and tear while pushing and compacting waste up-slope. Economic limit of cover or waste movement by a track-type tractor is normally under 90 m (300 ft).

- Track Loaders
- Wheel Loaders
- Landfill Compactors
- Wheel Tractor-Scrapers
- Articulated Trucks

Track Loaders

Track loaders are highly versatile allowing them to perform many applications. Small landfills under 135 metric tons (150 tons) per day generally utilize a minimum amount of equipment. Track loaders can serve both the waste handling and cover material functions.

The track loader is an ideal machine for the trench method. Since the bucket does not extend outside the tracks, it can obtain full compaction to the trench walls. Rippers can be attached to handle frozen cover material. Compaction densities are similar to or slightly higher than the track-type tractor — 475 to 590 kg/m³ (800-1000 lb/yd³). Many people believe track loaders equipped with single grouser shoes provide maximum demolition and compaction densities. Loading the bucket during compaction passes increases weight helping achieve higher densities.

Equipping track loaders with multi-purpose buckets increases their versatility in single machine applications, allowing the operator to selectively grapple items out of the working face.

Landfill Compactors

Landfill compactors are specialized pieces of equipment effective in spreading and compacting large volumes of waste. Compactors offer higher operational speeds than track machines. This is the recommended machine if more than one spreading and compaction machine is needed and waste does not have to be pushed more than 90 m (300 ft).

Landfill compactors over 20 410 kg (45,000 lb) operating weight achieve the highest compaction levels — from 710 to 950 kg/m³ (1200-1600 lb/yd³).

Landfill compactors normally operate on slopes no steeper than 4:1 due to reduced compaction and operational safety. Compactors should not be used to excavate cover material.

Wheel Loaders

Although not recommended as a waste handling and compaction machine, wheel loaders are used by those communities sharing a single machine which travels from landfill to landfill. Versatility and mobility are the primary wheel loader advantages. In landfills over 272 metric tons (300 tons) per day, wheel loaders will sometimes be used to perform general clean-up tasks.

Wheel loaders can achieve compaction densities of 530 to 650 kg/m³ (900-1100 lb/yd³). A disadvantage of wheel loaders is that they can leave ruts in the refuse, requiring extra cover material.

Wheel Tractor-Scrapers

A scraper can be used to excavate trenches for site preparation, but usually performs a cover operation at a landfill and is most economical at distances over 185 m (600 ft). A scraper should be selected as if it were performing a typical earthmoving job.

Preferably, the scraper unloads the cover material close to the working face, either at the base or top. The cover material is then spread by the machine(s) working on the refuse. This reduces the possibility of tire damage from driving over the refuse. Foam filled tires are not recommended for scrapers due to the high travel speeds. Since excavating and transporting cover material is a major expense at a landfill, scrapers with work alone capability have been the most popular.

Articulated Trucks

Articulated trucks are versatile, highly maneuverable, all-weather haulers that can negotiate poor underfoot conditions and tight spaces normally found in landfills. In combination with a variety of loading tools, articulated trucks typically work in site preparation, cell construction, hauling cover material, and are economically effective at haul distances ranging from 0.1 km-5 km (600 ft-3 miles). In dump configuration, cover material can be dumped close to the face and spread by other machines. In ejector configuration, articulated trucks provide on-the-go dumping and can operate in soft material and on side-slopes that would not be suitable for machines in dump configuration. In addition, Cat articulated trucks are available in a range of container handler and refuse body configurations for specialized landfill applications.

Machine Selection Factors

Selecting the type, size, quantity, and combination of machines required to spread, compact, and cover varying daily refuse volumes is determined by the following parameters:

1. Amount and type of waste to be handled (daily tonnage)
 2. Amount and type of soil cover to be handled
 3. Distance cover material to be transported
 4. Weather conditions
 5. Compaction requirements
 6. Landfill method utilized
 7. Supplemental tasks
 8. Budget
 9. Growth
- A. *Daily tonnage and type of waste* — Amount of waste produced by a community is the major variable in selecting the appropriate size machine. The chart serves as a guideline in sizing a landfill machine. For example, if a community generates approximately 180 metric tons (200 tons) of refuse per day, a D6 or 963 and a 816 Landfill Compactor should be considered.

WASTE EQUIPMENT SELECTION BASED UPON POPULATION AND DAILY REFUSE TONNAGE

Population	Metric Tons/Day	U.S. Tons/Day	Machine(s) Required
0-20,000	0-45	0-50	D3 or 933
20,000-60,000	45-136	50-150	D4 or 939 and an 816
60,000-100,000	136-226	150-250	D5 or D6 or 953 and 816
100,000-140,000	226-317	250-350	D6 or D7 or 963 and 816
140,000-200,000	317-453	350-500	D7 or D8 or 973 and 816
200,000-300,000	453-680	500-750	D8 or D9 and 826
300,000-more	680-more	750-more	D9, D10 and 836/variety of support equipment

NOTE: Daily tonnage figures are based on 2.26 kg (5 lb) of residential refuse per person per day. The amount of waste/person/day can vary depending on the community and should be adjusted to the individual community.

Type of waste to be handled will strongly influence machine selection. The major solid waste components for a community should be identified and the proper machine chosen based on the type of waste and the compaction desired. For example, if the site receives a high proportion of noncompactible heavy industrial waste (rocks, bricks, concrete, reinforcing rod, etc.) a compactor might not achieve normal compaction densities and the pushing and tractive ability of a track-type tractor may be needed. However, a small track-type tractor has more difficulty compacting bulk waste such as washing machines and telephone poles than a landfill compactor.

Waste varies from location to location, even within a community; however, the following figures are representative in the U.S.:

Component	Percent by Weight
Paper	42
Food	16
Glass	14
Metal	12
Plastics	5
Wood	5
Rubber and Leather	4
Textiles	2

NOTE: Moisture content can have a significant effect on weight characteristics. Field tests have indicated moisture content can vary from 10-80% during dry and wet seasons.

B. *Amount and type of cover material to be handled* — Although landfill size and type will vary, a rule of thumb for estimating needed cover material is one cubic meter (cubic yard) of cover material for every four cubic meters (or cubic yards) of in-place compacted waste. That is, about 20-25% of a landfill's volume consists of soil used for cover (including daily and final covering). On smaller landfills, the percentage of soil could be as high as 50% to meet reasonable cover requirements.

It is important to remember that cover material also occupies landfill space reducing the volume available for refuse. For example a landfill with 1 900 000 m³ (2,500,000 yd³) of *total volume* would provide for disposing of 1 520 000 m³ (2,000,000 yd³) of refuse and allow 380 000 m³ (500,000 yd³) of cover material. This example considers one cubic yard of cover for every 4 cubic yards of in place compacted waste.

The type of cover material can also be important. If the material is sandy or highly abrasive, a rubber tired wheel loader or scraper might be considered rather than a track-type unit.

C. *Distance cover material is to be transported* will have a large effect on cover equipment selection. The following economic limits or guidelines are recommended for cover material movement. The quantity of material to be moved and the time available must be considered when using these guidelines.

Track-type tractor	0-90 m	(0-300 ft)
Track loader	0-152 m	(0-500 ft)
Wheel loader	0-185 m	(0-600 ft)
Wheel tractor-scraper	over 185 m	(over 600 ft)
Articulated trucks	over 185 m	(over 600 ft)

D. *Weather conditions* — when working in inclement weather, the tractive capability of a track-type machine may be necessary for poor underfoot conditions or to rip frozen cover material.

E. *Compaction requirements* — are becoming critical as extended landfill life is sought. If high density is desired, then a compactor may be necessary.

The following pages contain features, specifications and work tools for Caterpillar's Waste Handling machines. Additional information regarding drawbar pull/rimpull Vs groundspeed, controls, ground pressures, production estimating for these machines as well as specifications and performance information for Wheel Tractor Scrapers and Articulated Trucks can be found in their respective Performance Handbook sections.

REFUSE DENSITIES

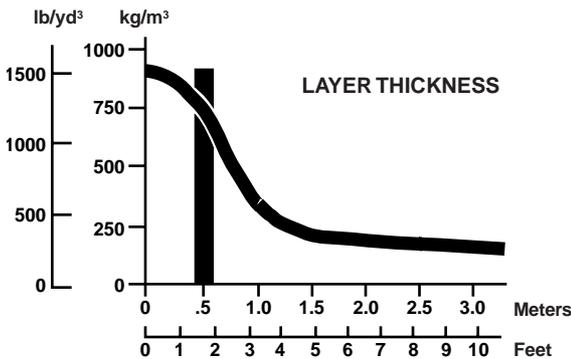
Generally, loose residential and commercial refuse weighs 150-180 kg/m³ (250-300 lb/yd³). A refuse collection vehicle will increase this density to 237-415 kg/m³ (400-700 lb/yd³). In-place landfill density can vary from 355-890 kg/m³ (600-1500 lb/yd³), depending on the compactive effort applied to the refuse. Landfill sites that accept a high percentage of demolition waste can have densities up to 1485 kg/m³ (2500 lb/yd³). Cover material will generally raise fill densities 60-120 kg/m³ (100-200 lb/yd³) over the figures given above.

	Weight of Refuse	
	kg/m ³	lb/yd ³
Loose Refuse:	150-180	250-300
Packer Truck:	237-415	400-700
Fill Density:	355-890	600-1500
Refuse and Cover:	415-1009	700-1700

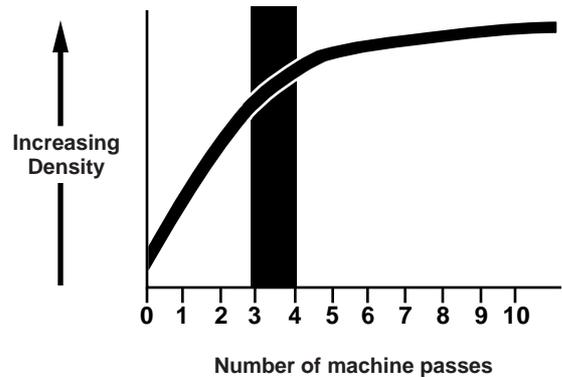
FACTORS GOVERNING COMPACTION

Assuming equal machine weight, regardless of the type of machine, the following factors (1-4) affect compaction:

1. Refuse Layer Thickness — The depth of each compacted layer is perhaps the single most important controllable factor influencing density. To obtain maximum density, waste should be spread and compacted in layers **not exceeding a depth of 610 mm (2 ft)**. Thicker layers will reduce the density that a machine can develop in a given number of passes. (Density figures shown do not include cover material.)



2. Number of passes made over the refuse also affects density. Regardless of the type of machine used, the unit should make 3-4 passes to achieve optimum density. The following graph illustrates that more than four passes result in little additional compactive effort. The added expense of additional passes is not justified by the incremental increase in density.



3. Slope — Maximum compactive effort by a track-type unit is achieved by working the waste on a slope of 3:1. Track-type machines achieve higher densities by grinding and shredding the refuse into smaller pieces as they climb a slope.

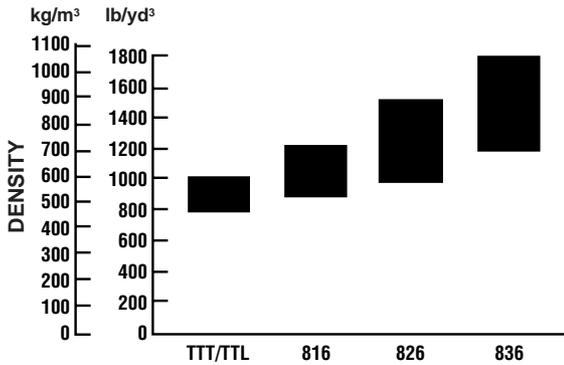
Just the opposite is true for landfill compactors, the flatter the slope the better. This is because the weight of the landfill compactor is more efficiently utilized and concentrated when working on a flat surface. Landfill compactors that are used on slight slopes achieve a higher compaction density due to shearing stress that aids shredding and better blending of material.

4. Moisture Content — has been shown to have a significant effect on compacted density. It is believed that water tends to weaken the bridging characteristics of refuse, particularly paper such as large pieces of cardboard, etc., thereby allowing tighter consolidation. The water may also act as a lubricant — much as it does for soils. A minimum amount of moisture can increase refuse compaction density by 10%.

The optimum moisture content for maximum compaction of household refuse appears to be around 50% by weight. Field tests show actual moisture contents varying from 10-80% during dry and wet seasons. Although higher moisture content can provide higher in-place densities, the chance of leachate formation also increases.

COMPACTION COMPARISON ESTIMATE

The following graph may be used as a rule of thumb for the compactive ranges of various types of landfill machines if proper operating technique is employed.



EXAMPLE OF INCREASED COMPACTION ON POTENTIAL LANDFILL LIFE

Landfill refuse capacity	1 530 000 m ³ (2,000,000 yd³)	
Operating days	260	
Daily volume	365 metric tons (400 tons)	
Yearly volume	94 328 metric tons (104,000 tons)	
Compaction	Landfill Life	Gain
590 kg/m ³ 1000 lb/yd³	9.6 years	0
710 kg/m ³ 1200 lb/yd³	11.5 years	1.9 years
830 kg/m ³ 1400 lb/yd³	13.4 years	3.8 years
950 kg/m ³ 1600 lb/yd³	15.3 years	5.7 years
1070 kg/m ³ 1800 lb/yd³	17.2 years	7.6 years

In this example, each 120 kg (200 lb) increase in refuse density results in an additional 1.9 years of landfill life. Also this example is exclusive of cover requirements.

COMPACTOR PRODUCTION GUIDELINES

Model	Tons/Day		Tons/Hr	
	Metric	U.S.	Metric	U.S.
836	1016	1000	127	125
826G	813	800	102	100
816F	508	500	63.5	62.5

All models are pushing refuse 61 m (200 ft) spreading and making 3 to 4 passes to compact. A pass is defined as: A machine traveling over the refuse one time in one direction on flat level ground. Adverse (uphill) or favorable (downhill) grades will effect the above production figures.

- F. *Landfill method utilized* — impacts the equipment needed. The area method, which is generally suited for flat or gradual sloping surfaces will get maximum compaction effort with a compactor. The trench method may require a track loader due to its excavating and tractive capabilities.
- G. *Supplemental tasks* — should be reviewed before selecting a landfill machine. Will the machine be required for site clearing, maintaining access roads, excavating, etc.? Auxiliary duties may require additional machine capability and/or attachments. If versatility is the key consideration, a track-type machine again becomes the logical choice.
- H. *Budget* — Smaller landfill operations with limited budgets may have to consider single machine versatility ahead of specialized machines or multiple units.
- I. *Growth* — Future increases in refuse volume must be considered to properly size machines.

LANDFILL ESTIMATING

Example Problem #1

A professional engineer has developed a small, rural landfill master plan. The local legislative regulatory agency has approved the plan and site.

Assume:

Topography: flat

Land availability:

area has several suitable sites at nominal price

Population served: 30,000

Projected population in 3 years: 40,000

Current daily refuse volume: ?

Type of refuse: mostly household, some commercial

Operation: propose 8 hours/day, 5½ days/week

Present equipment: none — new site

What would your comments and recommendations be on the following:?

- Probable amount of refuse generated daily?
- Type of machine for the proposed SLF?
- Size of machine for the proposed SLF?

Solution

- At three year projected population — 2.26 kg/day (5 lb/day) per person \times 40,000 people = 90.4 metric tons (100 tons) daily.
- Track loader — excavating ability, single machine application based on tonnage requirements.
- 953C handle current refuse, and has extra capacity for future growth. Small compactor if additional compaction is required.

Example Problem #2

Existing landfill has been in operation for several years.

Assume:

Type of operation: area fill

Cover material: suitable material within 90 m (300 ft)

Current daily refuse volume: 500 metric tons (550 tons)

Anticipated daily refuse volume in 3 years: 680 metric tons (750 tons)

Type of refuse: household, commercial, large amount of brush and building demolition debris

Land availability: limited, very expensive

Available Refuse Volume: $3\,249\,125 \text{ m}^3$ ($4,250,000 \text{ yd}^3$)

Operation: 8 hours/days, 5½ days/week

Present equipment: D8 (3 years old)

What would your comments and recommendations be on the following:

- What range of in-place densities could be expected using a track-type tractor; a Cat steel wheeled landfill compactor?
- What effect does machine selection have on site life?
- What are the advantages and limitations of steel wheeled landfill compactors?
- What are the advantages and limitations of track-type units?
- How many machines should be used on the site?
- What type should they be?
- What size should they be?

Solution

- a. The Track-Type Tractor will achieve 475 to 595 kg/m³ (800 to 1000 lb/yd³) in-place density. The Cat steel wheeled landfill compactor will achieve 595 to 830 kg/m³ (1000 to 1400 lb/yd³) in-place density.
- b. There are 3 249 125 m³ (4,250,000 yd³) available. 500 metric tons (550 tons) per day is how many m³ (yd³)? Assume a minimum density of 475 kg/m³ (800 lb/yd³).

$$500 \text{ metric tons/day} \times \frac{1000 \text{ kg/metric ton}}{475 \text{ kg/m}^3} = 1052 \text{ m}^3/\text{day}$$

$$550 \text{ tons/day} \times \frac{2000 \text{ lb/ton}}{800 \text{ lb/yd}^3} = 1375 \text{ yd}^3/\text{day}$$

$$5.5 \text{ days/week} \times 52 \text{ weeks/year} = 286 \text{ days/year}$$

$$\text{Yearly volume: } 1052 \times 286 = 300\,872 \text{ m}^3$$

$$1375 \times 286 = 393,250 \text{ yd}^3$$

Landfill life at this density:

$$\frac{3\,250\,000 \text{ m}^3}{300\,872 \text{ m}^3/\text{year}} = \frac{4,250,000 \text{ yd}^3}{393,250 \text{ yd}^3/\text{year}} = 10.8 \text{ years}$$

Similar calculations are performed to generate the following tables.

500 METRIC TONS/DAY (550 TONS/DAY)

kg/m ³	Density		Landfill Life (years)
	kg/m ³	lb/yd ³	
475	800		10.8
595	1000		13.5
715	1200		16.2
835	1400		18.9
950	1600		21.6

680 METRIC TONS/DAY (750 TONS/DAY)

kg/m ³	Density		Landfill Life (years)
	kg/m ³	lb/yd ³	
475	800		7.9
595	1000		9.9
715	1200		11.9
835	1400		13.9
950	1600		15.9

From the tables we determine that a track-type tractor, at 500 metric tons per day (550 tons/day), will provide 13.5 landfill life years at 595 kg/m³ (1000 lb/yd³). Compaction will extend that life 5.4 years to 18.9 years at 835 kg/m³ (1400 lb/yd³).

Proper compaction techniques are necessary to achieve the higher refuse densities and increase landfill life.

- c. Advantages: Provides highest compaction densities extending landfill life.

Limitations: Specialty unit designed to spread and compact — does not excavate virgin material economically, but can handle stockpile cover material.

- d. Advantages: most versatile unit, well suited to site preparation, finishing and access road construction and maintenance; all weather machines with excellent tractive ability.

Limitation: compaction — cannot achieve the in-place refuse densities of the specialized landfill compactors.

- e. Minimum of two. Additional equipment would depend on supplemental tasks.
- f. Track-type tractor — for earthmoving and refuse spreading work; steel wheeled compactor-quantity of refuse and land cost would justify.
- g. D8 — keeping existing unit; D9 — when new tractor is necessary; 826G — with large amount of demolition debris and brush and projected increase in tonnage would justify 826G over 816F.

NOTE: Ballasting the wheels on Caterpillar Landfill Compactors to increase machine weight and achieve higher compaction densities is not recommended. Landfills are high rimpull applications. Ballasting the wheels will significantly increase machine weight but decrease overall performance when traveling on the fill. Also, wheels are not necessarily air tight or leak proof.

Caterpillar Waste Handling Track-Type Tractor modifications are purpose built and installed at the original manufacturing facility prior to shipment.

Features:

- **Hinged heavy duty radiator doors** are guarded to prevent excessive trash build-up. Quick release handles allow easy access for cleaning.
- **Final drive, pivot shaft, and idler seal guarding** helps prevent wire, cable and similar material from winding around components and damaging seals.
- **Striker bars for front, rear and ripper** (all optional) keep trash from damaging fenders, fuel and hydraulic tanks or other sheet metal.
- **Lighting protection.** Front lights are mounted on top of bulldozer lift cylinders. Rear lights are ROPS mounted.
- **AMOCS Waste Handling Arrangement radiator** with 6 fins/inch (optional on D6R thru D10T).
- **Flexxaire fan** is recommended option for D6R thru D8R Series II.
- **Elevated sprocket** removes final drives from wear environment and eliminates impact loading for extended power train life.
- **Sheet metal guarding** near track and on dozer tilt hoses.
- **Fuel tank guards** keep trash from damaging fuel and hydraulic tanks or other sheet metal.
- **Clamshell guards** — a non-rotating guard installed over the final drives to help prevent wire wrap. Guards include inspection plates.
- **Reversible hydraulic demand fan** recommended for D8T, D9T, D10T.
- **Heavy duty steps and grab handles** resist damage from landfill debris.
- **Trapezoidal-shaped center hole track shoes (optional)** help keep track clean during machine operation.
- **Blade trash racks (optional)** prevent blade spill-over and damage to cylinders or radiator guard.
- **95 amp ducted alternator available on D6R, D7R, D8T, D9T, D10T** insures adequate current is available to maintain battery and operate accessories.
- **Elevated prescreener** to remove engine air inlet from debris environment. Larger surface area to resist plugging. Turbine precleaner is optional.
- **Cat turbine precleaner optimax dual-stage precleaner** removes large particulates from incoming air before they reach the air filter, helps extend filter life. (Optional on D6R-D10T.)
- **ROPS mounted air conditioning** helps prevent condenser core plugging. Provides full utilization of jacket water cooling system by avoiding additional heat load from radiator mounted condenser.
- **Laminated thermal shields** cover the exhaust stack inside the engine compartment, hot-side of the turbocharger, and the exhaust manifold. These shields reduce surface temperatures well below the flash point of most common combustibles encountered. (Optional on D6-D8. Standard on D9T, D10T.)
- **Chassis Guards.**
- **Sealed belly guards.**
- **Perforated engine enclosures** standard on D10R and required attachments on D6R thru D9R.
- **Carrier rollers** not recommended.



MODEL	D6R Series II WHA		D6R XL Series II WHA		D6R XW Series II WHA		D6R LGP Series II WHA	
Flywheel Power	123 kW	165 hp	138 kW	185 hp	138 kW	185 hp	138 kW	185 hp
Operating Weight:* Power Shift Clutch Brake (FTC)	20 600 kg	45,370 lb	20 984 kg	46,222 lb	—	—	22 725 kg	50,058 lb
Power Shift Differential Steer	20 600 kg	45,370 lb	21 285 kg	46,884 lb	22 181 kg	48,858 lb	23 075 kg	50,827 lb
Engine Model	C9		C9 ATAAC		C9 ATAAC		C9 ATAAC	
Rated Engine RPM	2000		2000		2000		2000	
No. of Cylinders	6		6		6		6	
Bore	112 mm	4.4"	112 mm	4.4"	112 mm	4.4"	112 mm	4.4"
Stroke	149 mm	5.9"	149 mm	5.9"	149 mm	5.9"	149 mm	5.9"
Displacement	8.8 L	537 in³	8.8 L	537 in³	8.8 L	537 in³	8.8 L	537 in³
Track Rollers (Each Side)	6		7		7		8	
Width of Standard Track Shoe	560 mm	1'10"	560 mm	1'10"	762 mm	2'6"	915 mm	3'0"
Length of Track on Ground	2.61 m	8'7"	2.82 m	9'3"	2.82 m	9'3"	3.25 m	10'8"
Ground Contact Area (w/Std. Shoe)	2.92 m ²	4532 in²	3.16 m ²	4888 in²	4.3 m ²	6661 in²	5.93 m ²	9254 in²
Track Gauge	1.88 m	6'2"	1.88 m	6'2"	2.03 m	6'8"	2.23 m	7'3"
GENERAL DIMENSIONS:								
Height (Stripped Top)**	2.38 m	7'5"	2.38 m	7'5"	2.38 m	7'5"	2.43 m	7'7"
Height (To Top of ROPS Canopy)	3.20 m	10'6"	3.20 m	10'6"	3.20 m	10'6"	3.25 m	10'8"
Height (To Top of ROPS Cab)	3.19 m	10'5"	3.20 m	10'6"	3.20 m	10'6"	3.25 m	10'8"
Overall Length (with S Blade)	5.11 m	16'9"	—	—	—	—	5.46 m	17'11"
(without Blade)	4.08 m	13'4"	4.08 m	13'4"	4.08 m	13'4"	4.24 m	13'11"
Width (Over Trunnion)	2.64 m	8'8"	2.64 m	8'8"	2.95 m	9'8"	3.43 m	11'3"
Width (without Trunnion — Std. Shoe)	2.44 m	8'0"	2.44 m	8'0"	2.74 m	9'0"	3.14 m	10'3.6"
Ground Clearance	383 mm	14.8"	383 mm	15"	383 mm	15"	433 mm	17"
Blade Types and Widths:								
Straight	3.35 m	11'0"	—	—	—	—	3.99 m	13'1"
Angle Straight	4.20 m	13'8"	4.20 m	13'8"	4.20 m	13'8"	—	—
Full 25° Angle	3.78 m	12'5"	3.78 m	12'5"	3.80 m	12'6"	—	—
Semi-U	3.26 m	10'8"	3.26 m	10'8"	3.56 m	11'8"	—	—
PAT Straight	—	—	3.62 m	11'10"	3.80 m	12'6"	4.17 m	13'7"
PAT Full 25° Angle	—	—	3.30 m	10'9"	3.44 m	11'3"	3.75 m	12'4"
Fuel Tank Refill Capacity	382 L	101 U.S. gal	382 L	101 U.S. gal	382 L	101 U.S. gal	382 L	101 U.S. gal

FTC — Fingertip clutch/brake control

* Operating Weight includes ROPS canopy, operator, lubricants, coolant, full fuel tank, hydraulic controls and fluid, straight dozer with tilt, horn, back-up alarm, retrieval hitch and front pull hook.

** Height (stripped top) — without ROPS canopy, exhaust, pre-cleaner, seat back or other easily removed encumbrances.

Waste Handling Track-Type Tractors

Specifications



MODEL	D7R Series II WHA		D7R XR Series II WHA		D7R LGP Series II WHA		D8R WHA	
Flywheel Power	179 kW	240 hp	179 kW	240 hp	179 kW	240 hp	228 kW	305 hp
Operating Weight*:								
Power Shift Clutch Brake (FTC)	27 920 kg	61,500 lb	28 497 kg	62,770 lb	30 062 kg	66,216 lb	—	
Power Shift Differential Steer	28 108 kg	61,912 lb	28 764 kg	63,357 lb	30 328 kg	66,802 lb	37 630 kg	82,880 lb
Engine Model	3176C SCAC		3176C SCAC		3176C SCAC		3406E TA	
Rated Engine RPM	2100		2100		2100		2100	
No. of Cylinders	6		6		6		6	
Bore	125 mm	4.92"	125 mm	4.92"	125 mm	4.92"	137 mm	5.4"
Stroke	140 mm	5.5"	140 mm	5.5"	140 mm	5.5"	165 mm	6.5"
Displacement	10.3 L	629 in³	10.3 L	629 in³	10.3 L	629 in³	14.6 L	893 in³
Track Rollers (Each Side)	7		8		7		8	
ERF†	—		—		9		—	
Width of Standard Track Shoe	560 mm	1'10"	610 mm	2'0"	914 mm	3'0"	560 mm	1'10"
Length of Track on Ground	2.89 m	9'5"	3.05 m	10'0"	3.16 m	10'5"	3.21 m	10'6"
Ground Contact Area (w/Std. Shoe)	3.22 m ²	4996 in²	3.72 m ²	5768 in²	5.78 m ²	8960 in²	3.57 m ²	5544 in²
Track Gauge	1.98 m	6'6"	1.98 m	6'6"	2.24 m	7'4"	2.08 m	6'10"
GENERAL DIMENSIONS:								
Height (Stripped Top)**	2.56 m	8'5"	2.56 m	8'5"	2.74 m	9'0"	2.67 m	8'9"
Height (To Top of ROPS Canopy)	3.53 m	11'7"	3.53 m	11'7"	3.52 m	11'6"	3.51 m	11'6"
Height (To Top of ROPS Cab)	3.43 m	11'2"	3.43 m	11'2"	3.58 m	11'9"	3.45 m	11'3"
Overall Length (with SU Blade)***	—	—	—	—	—	—	6.91 m	22'8"
(without Blade)	—	—	—	—	—	—	4.93 m	16'2"
Overall Length (with S Blade)	5.69 m	18'8"	5.81 m	19'1"	5.78 m	19'0"	—	—
(without Blade)	4.67 m	15'4"	4.67 m	15'4"	4.67 m	15'4"	—	—
Width (Over Trunnion)	2.87 m	9'5"	2.87 m	9'5"	3.37 m	11'1"	3.05 m	10'0"
Width (without Trunnion — Std. Shoe)	2.54 m	8'4"	2.59 m	8'6"	3.15 m	10'4"	2.70 m	8'8"
Ground Clearance	414 mm	16.3"	414 mm	16.3"	496 mm	17.5"	606 mm	1'11"
Blade Types and Widths:								
Straight	3.52 m	11'7"	3.32 m	11'7"	4.55 m	14'11"	—	—
Angle Straight	4.50 m	14'9"	4.50 m	14'9"	—	—	4.99 m	16'4"
Full 25° Angle	4.12 m	13'6"	4.12 m	13'6"	—	—	4.52 m	14'10"
Universal	3.98 m	13'1"	3.98 m	13'1"	—	—	4.26 m	14'0"
Semi-U	3.69 m	12'2"	3.69 m	12'2"	—	—	3.94 m	12'11"
Fuel Tank Refill Capacity	479 L	127	479 L	127	479 L	127	625 L	165
		U.S. gal		U.S. gal		U.S. gal		U.S. gal

FTC — Fingertip clutch/brake control

* Operating Weight includes ROPS canopy, operator, lubricants, coolant, full fuel tank, hydraulic controls and fluid, straight dozer with tilt, horn, back-up alarm, retrieval hitch and front pull hook.

— D8R equipped with track guides, ROPS/FOPS cab, single shank ripper and SU blade.

** Height (stripped top) — without ROPS canopy, exhaust, seat back or other easily removed encumbrances.

*** Includes drawbar.

† ERF — Extended Track Roller Frame. Extends frame 366 mm (14.4"), adds 3 track sections and 2 rollers/side.



MODEL	D8T WHA		D9T WHA		D10T WHA	
Flywheel Power	231 kW	310 hp	306 kW	410 hp	433 kW	580 hp
Operating Weight*	—		—		66 750 kg	147,161 lb
Power Shift Differential Steer	38 248 kg	84,320 lb	49 524 kg	109,180 lb	—	
Engine Model	C15 ACERT		C18 ACERT		C27 ACERT	
Rated Engine RPM	1850		1800		1800	
No. of Cylinders	6		8		12	
Bore	137 mm	5.4"	145 mm	5.7"	137 mm	5.4"
Stroke	172 mm	6.75"	185 mm	7.3"	152 mm	6"
Displacement	15.2 L	928 in ³	18.1 L	1104 in ³	27 L	1649 in ³
Track Rollers (Each Side)	8		8		8	
Width of Standard Track Shoe	560 mm	1'10"	610 mm	2'0"	610 mm	2'0"
Length of Track on Ground	3.21 m	10'6"	3.47 m	11'5"	3.88 m	12'9"
Ground Contact Area (w/Std. Shoe)	3.57 m ²	5544 in ²	4.24 m ²	6569 in ²	4.74 m ²	7347 in ²
Track Gauge	2.08 m	6'10"	2.25 m	7'5"	2.55 m	8'4"
GENERAL DIMENSIONS:						
Height (Stripped Top)**	—		—		3.22 m	10'7"
Height (To Top of ROPS Canopy)	3.51 m	11'6"	3.99 m	13'1"	4.34 m	14'3"
Height (To Top of ROPS Cab)	3.51 m	11'6"	3.82 m	12'6"	4.07 m	13'4"
Overall Length (with Blade & Ripper)	—		—		9.26 m	30'5"
(without Blade & Ripper)	—		—		5.33 m	17'6"
Overall Length (with SU Blade)***	6.41 m	21'0"	6.96 m	22'10"	—	
(without Blade)	4.96 m	16'4"	5.24 m	17'2"	—	
Width (Over Trunnion)	3.05 m	10'0"	3.30 m	10'10"	3.72 m	12'2"
Width (without Trunnion — Std. Shoe)	2.64 m	8'8"	2.87 m	9'5"	3.16 m	10'4"
Ground Clearance	608 mm	1'11"	596 mm	1'11" ■	615 mm	2'0"
Blade Types and Widths:						
Angle Straight	4.99 m	16'4"	—		—	
Full 25° Angle	4.52 m	14'10"	—		—	
Universal	4.26 m	14'0"	4.65 m	15'3"	5.26 m	17'3"
Semi-U	3.94 m	12'11"	4.31 m	14'2"	4.86 m	15'11"
Fuel Tank Refill Capacity	643 L	170 U.S. gal	889 L	235 U.S. gal	1204 L	318 U.S. gal

* Operating Weight includes ROPS canopy, operator, lubricants, coolant, full fuel tank, hydraulic controls and fluids, semi universal blade with tilt, back-up alarm, seat belts, lights, rigid drawbar and front towing device.

— D8T and D9T equipped with track guides, ROPS/FOPS cab, single shank ripper and SU blade.

— D10T includes 10 SU blade single shank ripper and ROPS cab.

** Height (stripped top) — without ROPS canopy, exhaust, seat back or other easily removed encumbrances.

*** Includes drawbar.

■ SAE J1234.

MODEL	D6R Series II, D6R XL Series II & D6R LGP Series II					
	6S		6SU		6SU XL	
Type	Straight		Semi Universal		Semi Universal	
Blade Capacities w/Trash Rack*	8.6 m ³	11.2 yd ³	11.2 m ³	14.3 yd ³	11.2 m ³	14.3 yd ³
Weight, Shipping** (Dozer)	2881 kg	6338 lb	3026 kg	6657 lb	3026 kg	6657 lb
Tractor & Dozer Dimensions:						
A Length (Blade Straight)	5.12 m	16'9"	5.31 m	17'5"	5.55 m	18'2"
Blade Dimensions:						
B Width (including std. end bits)	3.36 m	11'0"	3.26 m	10'8"	3.26 m	10'8"
C Height	1866 mm	6'1"	2019 mm	6'7"	2019 mm	6'7"
D Max. Digging Depth	473 mm	18.6"	473 mm	18.6"	459 mm	18.1"
E Ground Clearance @ Full Lift	1104 mm	3'7.5"	1104 mm	3'7.5"	1195 mm	3'11.1"
F Manual Tilt	689 mm	2'3.1"	670 mm	2'2.4"	670 mm	2'2.4"
G Max. Pitch	+5.3°–4.8°		+5.3°–4.8°		+5.3°–4.8°	
H Max. Hydraulic Tilt	764 mm	2'6.1"	743 mm	2'5.3"	743 mm	2'5.3"
J Hydraulic Tilt (Manual Brace Centered)	420 mm	16.5"	408 mm	16.1"	408 mm	16.1"

* Blade capacities as determined by SAE J1265.

Notice that the capacity of the U-blade is the volume carried by a straight blade of the same dimensions plus the volume included in the "cup" of the U-blade. It is intended for **relative comparisons of dozer sizes**, and not for predicting capacities or productivities in actual field conditions.

** Shipping Weight — Total Bulldozer Arrangement includes: Blade, push arms or C-frame, braces, cylinders, lines, trunnions and lift cylinder mountings.

MODEL	D6R Series II, D6R XL Series II & D6R LGP Series II			
	6S LGP		6SU XW	
Type	Straight		Semi Universal	
Blade Capacities*	9.3 m ³	12.1 yd ³	11.2 m ³	14.3 yd ³
Weight, Shipping** (Dozer)	2801 kg	6162 lb	3026 kg	6657 lb
Tractor & Dozer Dimensions:				
A Length (Blade Straight)	5.71 m	18'9"	—	
Blade Dimensions:				
B Width (including std. end bits)	3.99 m	13'1"	3.56 m	11'8"
C Height	1101 mm	3'7.3"	2019 mm	6'7"
D Max. Digging Depth	655 mm	2'1.2"	459 mm	18.1"
E Ground Clearance @ Full Lift	1083 mm	3'6.6"	1195 mm	3'11"
F Manual Tilt	632 mm	2'0.9"	670 mm	2'2.4"
G Max. Pitch	+5.3°–4.8°		+5.3°–4.8°	
H Max. Hydraulic Tilt	701 mm	2'3.6"	743 mm	2'5.3"
J Hydraulic Tilt (Manual Brace Centered)	385 mm	15.2"	743 mm	2'5.3"

* Blade capacities as determined by SAE J1265.

Notice that the capacity of the U-blade is the volume carried by a straight blade of the same dimensions plus the volume included in the "cup" of the U-blade. It is intended for **relative comparisons of dozer sizes**, and not for predicting capacities or productivities in actual field conditions.

** Shipping Weight — Total Bulldozer Arrangement includes: Blade, push arms or C-frame, braces, cylinders, lines, trunnions and lift cylinder mountings.

MODEL	D7R Series II & D7R LGP Series II			
	7S		7SU	
Type	Straight		Semi Universal	
Blade Capacities*	10.9 m ³	14.2 yd ³	14.0 m ³	18.4 yd ³
Weight, Shipping** (Dozer)	4028 kg	8861 lb	4083 kg	8982 lb
Tractor & Dozer Dimensions:				
A Length (Blade Straight)	5.81 m	19'1"	6.03 m	19'9"
Blade Dimensions:				
B Width (including std. end bits)	3.90 m	12'10"	3.69 m	12'1"
C Height	1971 mm	6'6"	2133 mm	7'0"
D Max. Digging Depth	527 mm	1'8.7"	527 mm	1'8.7"
E Ground Clearance @ Full Lift	1145 mm	3'9.1"	1145 mm	3'9.1"
G Max. Pitch Adjustment	+3.1°–3.9°		+3.1°–3.9°	
H Max. Hydraulic Tilt	845 mm	2'9.3"	799 mm	2'7.4"
J Hydraulic Tilt (Manual Brace Centered)	501 mm	1'7.7"	474 mm	18.6"

* Blade capacities as determined by SAE J1265.

Notice that the capacity of the U-blade is the volume carried by a straight blade of the same dimensions plus the volume included in the "cup" of the U-blade. It is intended for **relative comparisons of dozer sizes**, and not for predicting capacities or productivities in actual field conditions.

** Shipping Weight — Total Bulldozer Arrangement includes: Blade, push arms or C-frame, braces, cylinders, lines, trunnions and lift cylinder mountings.

MODEL	D7R Series II & D7R LGP Series II			
	7U		7S LGP	
Type	Universal		Straight	
Blade Capacities*	16.8 m ³	22 yd ³	12.3 m ³	16.1 yd ³
Weight, Shipping** (Dozer)	4402 kg	9684 lb	4113 kg	9061 lb
Tractor & Dozer Dimensions:				
A Length (Blade Straight)	6.27 m	20'7"	5.81 m	19'1"
Blade Dimensions:				
B Width (including std. end bits)	3.98 m	13'1"	4.50 m	14'9"
C Height	2162 mm	7'1"	1971 mm	6'6"
D Max. Digging Depth	527 mm	1'8.7"	668 mm	2'2.3"
E Ground Clearance @ Full Lift	1145 mm	3'9.1"	1153 mm	3'9.4"
G Max. Pitch Adjustment	+3.1°–3.9°		+3.0°–3.9°	
H Max. Hydraulic Tilt	861 mm	2'9.9"	686 mm	2'3"
J Hydraulic Tilt (Manual Brace Centered)	511 mm	1'8.1"	426 mm	16.8"

* Blade capacities as determined by SAE J1265.

Notice that the capacity of the U-blade is the volume carried by a straight blade of the same dimensions plus the volume included in the "cup" of the U-blade. It is intended for **relative comparisons of dozer sizes**, and not for predicting capacities or productivities in actual field conditions.

** Shipping Weight — Total Bulldozer Arrangement includes: Blade, push arms or C-frame, braces, cylinders, lines, trunnions and lift cylinder mountings.

MODEL	D8T WHA					
	8SU		8U		8SU LGP	
Type						
Blade Capacities*	20 m ³	26.1 yd³	24.8 m ³	32.4 yd³	21.1 m ³	27.6 yd³
Dozer Weight**	5466 kg	12,025 lb	6313 kg	13,888 lb	5624 kg	12,400 lb
Tractor & Dozer Dimensions						
Length Blade Straight	6.39 m	21'0"	6.79 m	22'3"	6.39 m	21'0"
Blade Dimensions						
Width including std. end bits	3.94 m	12'11"	4.26 m	14'0"	4.52 m	14'10"
Height	2464 mm	8'1"	2515 mm	8'3"	2465 mm	8'1"
Maximum Dig Depth	582 mm	1'10.9"	582 mm	1'10.9"	582 mm	1'10.9"
Ground Clearance at full raise	1231 mm	4'0.5"	1231 mm	4'0.5"	1231 mm	4'1"
Maximum Hydraulic Tilt	951 mm	3'1.4"	1028 mm	3'4.5"	—	

MODEL	D9T WHA				D10T WHA	
	9SU		9U		10U	
Type						
Blade Capacities*	28.8 m ³	37.6 yd³	33.5 m ³	43.8 yd³	48.9 m ³	63.9 yd³
Dozer Weight**	6964 kg	15,353 lb	8059 kg	17,751 lb	—	
Tractor & Dozer Dimensions						
Length Blade Straight	6.84 m	22'5"	7.18 m	23'7"	8.01 m	26'3"
Blade Dimensions						
Width including std. end bits	4.31 m	14'2"	4.65 m	15'3"	5.26 m	17'3"
Height	2845 mm	9'4"	2845 mm	9'4"	3174 mm	10'5"
Maximum Dig Depth	606 mm	1'11.9"	606 mm	1'11.9"	679 mm	2'2.5"
Ground Clearance at full raise	1422 mm	4'8"	1422 mm	4'8"	1497 mm	4'10.9"
Maximum Hydraulic Tilt	940 mm	3'1"	1014 mm	3'3.9"	1074 mm	3'6.3"

*Blade capacities, weights and heights include 762 mm (2'6") trash rack on D8T blades, 914 mm (3'0") trash rack on D9T blades, and 1067 mm (3'6") trash rack on D10T blades.

**Total bulldozer arrangement includes blade with trash rack, pusharms, braces, cylinders, lines, trunnions and lift cylinder mountings.

Features:

- **Unmatched versatility** — excavates, loads, carries, covers, dozes, spreads, compacts, shreds, sorts, grapples — a true all purpose machine. Performs well as a one-machine fleet, a support machine or an all-around backup unit.
- **Demolition applications** — The Waste Handling Arrangement (963C and 973C Waste Demolition Specials) can also be used in demolition or demolition transfer stations when properly equipped with the extra guarding required for this severe environment.
- **Special guard package** protects the final drive seals, pivot shafts and idlers from debris that can wrap around and damage these components.
- **Raised precleaner** with prescreener to prevent airborne debris from clogging engine air intake.
- **Additional heavy duty guarding** helps protect sheet metal and machine components from damage in waste handling applications.
- **Improved serviceability** — swing open doors, guards and air coolers give quick access for cleaning debris and servicing.
- **Hinged, heavy duty radiator guard** with quick release “T” handles allows for easy access to clean the radiator.
- **Debris Barrier Package** protects machine from material entering engine and other compartments.
- **Lamp guard group** protects front and rear lamps with bolt on grids.
- **Optional rear striker bars** keep trash from climbing the track and damaging fenders.
- **Optional final drive abrasion guards** are available in two-piece or four-piece sections to protect the final drive case from premature wear from abrasion or gouging.
- **Optional single grouser, trapezoidal-shaped center hole track shoes** provide maximum traction. The center holes allow sprocket to punch out dirt and debris, best choice for landfill applications.
- **Optional chopper shoe track** uses cast shoes with extreme service single and diagonal grousers that chop and shred material as the machine moves and turns. Very effective for waste or demolition stations.
- **Flexxaire engine cooling fan** (optional on 973C) manually or automatically changes direction to purge accumulated debris from the radiator.



MODEL	953C WHA		963C WHA		973C WHA	
Flywheel Power	90 kW	121 hp	119 kW	160 hp	157 kW	210 hp
Operating Weight*	14 670 kg	32,350 lb	21 200 kg	46,750 lb	26 820 kg	59,140 lb
Engine Model	3116 T		3116 TA		3306 T	
Rated Engine RPM	2200		2200		2200	
Bore	105 mm	4.13"	105 mm	4.13"	121 mm	4.75"
Stroke	127 mm	5"	127 mm	5"	152 mm	6"
No. Cylinders	6		6		6	
Displacement	6.6 L	403 in ³	6.6 L	403 in ³	10.5 L	638 in ³
Speeds Forward,	km/h	mph	km/h	mph	km/h	mph
1st	0-9.7	0-6	0-9.5	0-5.9	0-9	0-5.6
2nd	Infinitely		Infinitely		Infinitely	
3rd	Variable		Variable		Variable	
Reverse						
1st	0-9.7	0-6	0-9.5	0-5.9	0-9	0-5.6
2nd	Infinitely		Infinitely		Infinitely	
3rd	Variable		Variable		Variable	
Hydraulic Cycle Time, Bucket Empty, in Seconds:						
Raise	6.7		6.7		6.4	
Dump	1.4		1.5		1.7	
Lower (Empty, Float Down)	3		2		2.5	
Total**	9.7		8.7		8.9	
Track Rollers (Each Side)	6		6		7	
Width of Standard Track Shoe	380 mm	15"	450 mm	17.7"	500 mm	20"
Length of Track on Ground	2.295 m	7'6"	2.454 m	8'1"	2.917 m	9'7"
Ground Contact Area (with Std. Shoe)	1.74 m ²	2704 in ²	2.21 m ²	3425 in ²	2.92 m ²	4522 in ²
Ground Pressure	82.4 kPa	12 psi	94 kPa	13.6 psi	90.1 kPa	13.1 psi
Ground Clearance	377 mm	14.8"	390 mm	15.4"	456 mm	17.9"
Track Gauge	1.8 m	5'11"	1.85 m	6'0.8"	2.08 m	6'10"
Width without Bucket	2.18 m	7'2"	2.3 m	7'6.5"	2.58 m	8'6"
Fuel Tank Refill Capacity	241 L	63.8 U.S. gal	315 L	83.2 U.S. gal	415 L	110 U.S. gal
Hydraulic System Refill Capacity	104 L	27.5 U.S. gal	140 L	37 U.S. gal	159 L	42 U.S. gal

*Includes GP landfill bucket with bolt-on adapters, long tips and segments.

**Simultaneous lift/dump, dump time included in lift time.

See Wheel Loader section of this book for summary of S.A.E. Guidelines for Loader Specifications, to which Caterpillar adheres.

**MULTI-PURPOSE
LANDFILL BUCKETS**

Machine Model	953C*		963C*		973C*	
Bucket Model	B53-3ML		B63-4ML		B73-6ML	
Capacity, rated (Refuse)	2 m ³	2.62 yd³	2.7 m ³	3.5 yd³	4.4 m ³	5.75 yd³
Capacity, rated (Earth)	1.53 m ³	2 yd³	1.9 m ³	2.5 yd³	2.68 m ³	3.5 yd³
Width	2426 mm	8'0"	2529 mm	8'4"	3399 mm	11'2"
Height	1676 mm	5'6"	1905 mm	6'3"	1968 mm	6'6"
Depth	953 mm	3'2"	1060 mm	3'6"	1243 mm	4'1"
Teeth-optional		8		8		8
Clearance @ 45° dump	2738 mm	9'0"	2870 mm	9'5"	3121 mm	10'3"
Reach @ 45° dump	806 mm	2'8"	1013 mm	3'4"	1220 mm	4'0"
Digging depth	229 mm	9"	203 mm	8"	211 mm	8.3"
Weight (approx.)	1615 kg	3565 lb	2109 kg	4650 lb	2765 kg	6100 lb

*Standard GP or MP buckets with added trash rack also available.

Features:

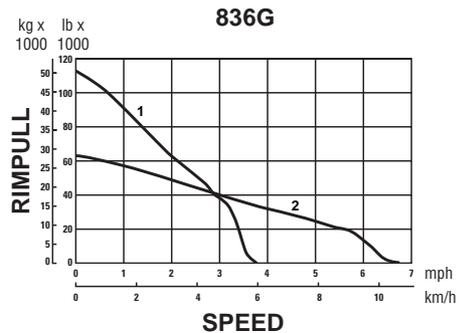
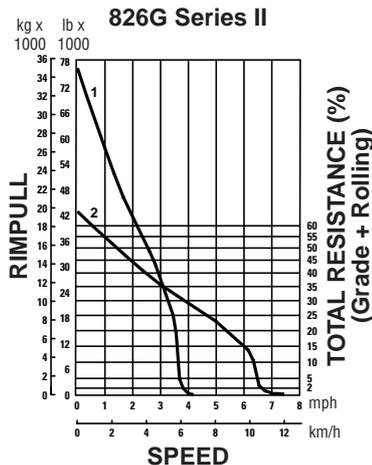
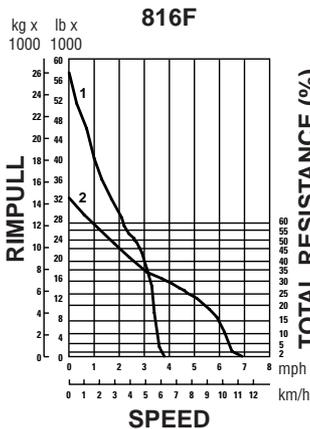
- **Choice of PLUS TIPS or Chopper Blades ...** PLUS TIPS are standard on 816F, 826G and 836G. Chopper blades alternate in a staggered-chevron design for maximum coverage and density.
- **Cat designed and manufactured power train ...** for optimum match, performance and efficiency. Responsive Cat diesel Engine. Single-lever planetary power shift. All-wheel drive.
- **Center-point articulation ...** excellent maneuverability. Front and rear drums track, so material is chopped and compacted twice each pass.
- **Protective guarding ...** helps keep trash from damaging machine components.
- **Caterpillar landfill blades** spread refuse and cover material ... built strong to handle the wide range of refuse encountered in landfills.
- **Operator comfort and convenience ...** sound suppressed cab with pressurized and filtered air circulation system. Adjustable suspension seat. Electronic Monitoring System and gauge package is standard. Optional air conditioner available.
- **Striker bars ...** standard on 816F, 826G and 836, prevents refuse from being carried over the rear wheels.
- **Smooth wheel option ...** If our tip selection does not meet your needs, consider our Caterpillar smooth steel wheel. We test and build a Caterpillar system. Engineers who work together with our power train, structures and manufacturing engineers design and manufacture our wheels in the same facility in which the machines are designed and built. This ensures the entire system is complemented by each component. If you alter components, you could compromise a system that was designed and tested for peak performance. If a wheel is produced that does not meet our design specifications and does not balance the load over our final drives, it could reduce the life of the bearing substantially and wear out other components creating unnecessary downtime. This also allows our standard axle guard system to work with the components for which it was designed.



MODEL	816F		826G Series II		836G	
Flywheel Power	190 kW	240 hp	253 kW	340 hp	358 kW	480 hp
Operating Weight*	23 946 kg	52,793 lb	36 967 kg	81,498 lb	53 682 kg	113,348 lb
Engine Model	3176 DITA		3406E DITA		3456 DITA	
Rated Engine RPM	2100		2000		1900	
No. Cylinders	6		6		6	
Displacement	10.3 L	628 in ³	14.6 L	893 in ³	15.8 L	966 in ³
Speeds:						
Forward	2		2		2	
Reverse	2		2		2	
Turning Radius with Straight Blade						
Inside Blade Corner	3.5 m	11'6"	3.2 m	10'6"	4.3 m	14'11"
Outside Blade Corner	6.7 m	21'9"	7.3 m	23'9"	9.0 m	29'6"
Fuel Tank Refill Capacity	464 L	122.6 U.S. gal	640 L	169.1 U.S. gal	795 L	210 U.S. gal
WHEELS:	PLUS TIP		PLUS TIP		PLUS TIP	
Each Drum Width	1.02 m	3'4"	1.2 m	3'11"	1.4 m	4'7"
Diameters, over Tips	1.7 m	5'10"	1.9 m	6'6"	2.0 m	6'9"
Drum only	1.3 m	4'3"	1.53 m	5'0"	1.62 m	5'8"
Tips per Wheel	20		25		35	
Tip Height	158 mm	6.5"	158 mm	6.5"	158 mm	6.5"
Chopper Blades per Wheel	20		24		28	
Blade Height	152 mm	6"	158 mm	6"	158 mm	6"
Width of Two Pass Coverage	4.5 m	14'9"	4.78 m	15'8"	5.67 m	18'7"
GENERAL DIMENSIONS:						
Height (Overall)	3.8 m	12'8"	4.2 m	13'7"	4.5 m	14'9"
Height (Top of Cab)	3.4 m	11'3"	3.8 m	12'8"	4.1 m	13'6"
Wheel Base	3.35 m	11'0"	3.7 m	12'2"	4.55 m	14'11"
Overall Length with Dozer	7.85 m	25'7"	8.27 m	27'2"	10.18 m	33'5"
Width over Drums	3.33 m	10'11"	3.8 m	12'8"	4.18 m	14'1"
Ground Clearance	456 mm	1'5"	489 mm	1'6"	697 mm	2'3"
LANDFILL BULLDOZER:						
Width	3.65 m	12'0"	4.5 m	14'9"	5.19 m	17'0"
Height**	1.91 m	6'3"	1.91 m	6'3"	2.22 m	7'3"

*Operating Weight includes coolant, full hydraulics, full fuel tank, all heaviest options and 82 kg (180 lb) operator.

**Height (stripped top) — without ROPS cab, exhaust, seat back or other easily removed encumbrances.



KEY
1 - 1st Gear
2 - 2nd Gear

MODEL	816F		826G Series II		836G	
Type	Landfill Spreading		Landfill Spreading		147-4425 Straight	
Capacity**						
Earth	2.9 m ³	3.79 yd³	3.68 m ³	4.81 yd³	5 m ³	6.66 yd³
Refuse	10.48 m ³	13.70 yd³	12.74 m ³	16.66 yd³	19.8 m ³	25.9 yd³
Weight, Dozer*	2107 kg	4645 lb	2739 kg	6038 lb	3400 kg	7650 lb
General Dimensions: (Tractor & Dozer)						
Length	7.79 m	25'7"	8.38 m	27'6"	10.18 m	33'4"
Width	3.65 m	12'0"	4.5 m	14'9"	5.19 m	17'0"
Blade Dimensions:						
Width, End Bits	3.65 m	12'0"	4.5 m	14'9"	5.19 m	17'0"
Height, Trash Rack	1915 mm	6'3"	1935 mm	6'4"	2220 mm	7'3"

*Total Bulldozer Arrangement.

**Blade capacities determined by SAE recommended practice J1265.

U-BLADE	816F		826G Series II		836G	
Model:	7Q-8239		135-7257		133-5771	
Blade:						
Capacity (Refuse)	12 m ³	16 yd³	17 m ³	22 yd³	25 m ³	33 yd³
Length (Cutting Width)	3658 mm	12'0"	4369 mm	14'4"	5182 mm	17'0"
Height	1702 mm	5'7"	2007 mm	6'7"	2210 mm	7'3"
Weight, Installed (without Hydraulics)	1633 kg	3600 lb	2994 kg	6600 lb	4309 kg	9500 lb

SEMI-U BLADE	816F		826G Series II		836G	
Model:	213-4473		N/A		N/A	
Blade:						
Capacity (Refuse)	9 m ³	12 yd³				
Length (Cutting Width)	3785 mm	12'5"				
Height	1626 mm	5'4"				
Weight, Installed (without Hydraulics)	2068 kg	4560 lb				

W-BLADE	816F		826G Series II	
Model:	156-8316		135-7326	
Replaces "S" Blade				
Blade:				
Capacity (Refuse)	12 m ³	16 yd³	17 m ³	22 yd³
(Dirt)	7.11 m ³	9 yd³	—	—
Length (Cutting Width)	3658 mm	12'0"	4420 mm	14'6"
Moldboard Height	1854 mm	6'1"	2057 mm	6'9"
Weight, Installed (without Hydraulics)	2068 kg	4560 lb	2994 kg	6600 lb

TILT STRAIGHT BLADE	816F		826G Series II	
Model:	136-7893		136-7892	
Blade:				
Capacity (Refuse)	11 m ³	14 yd³	13 m ³	17 yd³
Length (Cutting Width)	3658 mm	12'0"	4369 mm	14'4"
Weight, Installed	2323 kg	4900 lb	3529 kg	7780 lb

Features:

Caterpillar Waste Handling Wheel Loaders are equipped with the features and protection required in a demanding waste handling environment. These Caterpillar designed and built machines feature the following advantages:

- **Exceptional productivity** with fast cycle times for maximum production day-in day-out whether dozing, loading, stacking, or load and carry.
- **Protected work environment** enhances operator comfort, convenience and productivity.
- **Modified front frames** – (Standard on the 980G WHA) provide large cutouts that allows debris to fall out rather than packing and also provide easy access if cleaning is necessary.
- **Standard front drive guard and axle seal guards** (except 980G) protect from wire, string, strapping and other debris from wrapping and causing damage.
- **Front light guards** protect the lights from debris falling over the bucket spill plate.
- **Hinged crankcase and power train guards** help protect the engine and power train. The hinged design provides easy access for cleaning. (Powered guards available on some models.)
- **Standard waste application cooling system.** The improved, trash-resistant, multi-row module (IMRM) radiator, hood and engine enclosures work as a system to keep the radiator and engine compartment free of debris.
- **Trash resistant IMRM radiator** has six fins per inch (25.4 mm) and in-line tubes that resist plugging by allowing debris to pass through the core.
- **Hinged radiator prescreener** (966G & 972G) eliminates debris larger than what the radiator core will pass.
- **Hinged grill** (966G & 972G) allows access to hydraulic oil cooler and air conditioning condenser, which swing out for easy cleaning.

Recommended Waste Handling Options

- **Powered crankcase and power train guards** raise and lower at the flip of a switch allowing fast, easy and frequent cleanings.
- **High lift arrangement** increases bucket hinge pin height offering increased stacking and stockpiling capability. A critical feature when incoming volumes exceed conveyor capacity or floor space.
- **Traction control system (TCS)** option for 938G/IT38G provides maximum traction in slippery conditions. TCS electronically senses and limits wheel slip at each wheel independently.
- **Limited-slip differential** limits tire slip on both front and rear axles. Increases traction and reduces tire wear and scuffing in wet or dry conditions. Provides an alternative to the No SPIN differential which is not recommended due to increased tire wear, turning interference and poor tracking on dry surfaces.
- **Tire options:**
 - L-5 bias hard rock lug
 - L-5 slick
 - RL-5K Goodyear radials
 - XMINE Michelin radials (varies by model)
 - Foam-filled
- **Hitch guards** help protect components in hitch area from damage.
- **Reversing radiator fan** is hydraulically driven and can be reversed by a switch in the operator station or automatically by timer. Reduces need for cooling system cleaning and improves cooling capability.
- **Other guarding and options** are available. Contact your Caterpillar Dealer for information.

Work Tools

- **Refuse bucket** has excellent dozing and stockpiling capability. Large spill plate helps protect the machine from debris falling over the top of the bucket. Available in pin-on or quick coupler configurations.
- **Pallet forks** are ideal for handling refuse destined for further recycling or stacking refuse in landfills for covering.

- **Multi-purpose bucket** has the capability to clamp and sort large objects, doze cover material or other light dozing chores.
- **Quick coupler** increases versatility by allowing a single machine to utilize a wide variety of work tools in a host of applications.



MODEL	924Gz WHA		924G WHA		928G WHA IT28G WHA	
Flywheel Power	90 kW	121 hp	90 kW	121 hp	98 kW	131 hp
Peak Power	98 kW	132 hp	98 kW	132 hp	111 kW	149 hp
Engine Model	3056 DITAAC		3056 DITAAC		3056 DITAAC	
Rated Engine RPM	2300		2300		2300	
Bore	100 mm	3.94"	100 mm	3.94"	100 mm	3.94"
Stroke	127 mm	5"	127 mm	5"	127 mm	5"
No. Cylinders	6		6		6	
Displacement	6 L	366 in ³	6 L	366 in ³	6 L	366 in ³
Speeds Forward	km/h	mph	km/h	mph	km/h	mph
1st	6.6	4.1	6.6	4.1	7.9	4.9
2nd	12.0	7.5	12.0	7.5	12.6	7.8
3rd	21.3	13.2	21.3	13.2	25.8	16.0
4th	38.0	23.6	38.0	23.6	37.7	23.4
Speeds Reverse						
1st	6.6	4.1	6.6	4.1	7.9	4.9
2nd	12.0	7.5	12.0	7.5	12.6	7.8
3rd	21.3	13.2	21.3	13.2	25.8	16.0
Hydraulic Cycle Time*					Seconds	
Rated Load in Bucket:	Seconds		Seconds		928G	IT28G
Raise	5.2		5.2		6.0	6.0
Dump	1.1		1.6		1.2	2.0
Lower (empty, float down)	3.0		2.7		3.0	3.0
Total	9.3		9.5		10.2	11.0
Tread Width**	1.88 m	6'2"	1.88 m	6'2"	1.95 m	6'5"
Width Over Tires**	2.36 m	7'9"	2.36 m	7'9"	2.56 m	8'5"
Ground Clearance**	370 mm	15"	370 mm	15"	408 mm	16"
Fuel Tank Capacity	225 L	59.4 U.S. gal	225 L	59.4 U.S. gal	225 L	59.4 U.S. gal
Hydraulic Tank Capacity	70 L	18.5 U.S. gal	70 L	18.5 U.S. gal	70 L	18.5 U.S. gal
Hinge Pin Height:						
Full Lift Std.	3.69 m	12'1"	3.81 m	12'6"	3.87 m	928G 12'8" 3.98 m IT28G 13'1"
High Lift	—		4.32 m	14'2"	—	
Operating weight up to:	10 155 kg	22,388 lb	11 255 kg	24,813 lb	12 277 kg	928G 27,066 lb 12 909 kg IT28G 28,459 lb

*With standard lift arms.

**With standard tires.



MODEL	938G WHA IT38G WHA		950G WHA		962G WHA IT62G WHA	
Flywheel Power	119 kW	160 hp	134 kW	180 hp	149 kW	200 hp
Peak Power	128 kW	172 hp	147 kW	197 hp	154 kW	207 hp
Engine Model	3126 DITA		3126 DITA		3126 DITA	
Rated Engine RPM	2200		2200		2200	
Bore	110 mm	4.3"	110 mm	4.3"	110 mm	4.3"
Stroke	127 mm	5"	127 mm	5"	127 mm	5"
No. Cylinders	6		6		6	
Displacement	7.2 L	439 in³	7.2 L	439 in³	7.2 L	439 in³
Speeds Forward	km/h	mph	km/h	mph	km/h	mph
1st	7.6	4.7	6.9	4.3	6.9	4.3
2nd	13.9	8.6	12.7	7.9	12.7	7.9
3rd	23.9	14.8	22.3	13.9	22.3	13.9
4th	39.2	24.3	37.0	23.0	37.0	23.0
Speeds Reverse						
1st	7.6	4.7	7.6	4.7	7.6	4.7
2nd	13.9	8.6	13.9	8.7	13.9	8.7
3rd	39.2	24.3	24.5	15.3	24.5	15.3
4th	—		40.5	25.3	40.5	25.3
Hydraulic Cycle Time*						
Rated Load in Bucket:	Seconds		Seconds		Seconds	
Raise	6.0		6.3		6.3	
Dump	1.4		2.2		2.2	
Lower (empty, float down)	2.8		2.2		2.2	
Total	10.2		10.7		10.7	
Tread Width**	2.02 m	6'8"	2.14 m	7'0"	2.14 m	7'0"
Width Over Tires**	2.60 m	8'6"	2.89 m	9'6"	2.89 m	9'6"
Ground Clearance**	400 mm	16"	400 mm	16"	400 mm	16"
Fuel Tank Capacity	254 L	67 U.S. gal	295 L	78 U.S. gal	295 L	78 U.S. gal
Hydraulic Tank Capacity	90 L	23.8 U.S. gal	153 L	40.4 U.S. gal	88 L	23.2 U.S. gal
Hinge Pin Height:						
Full Lift Std.	3.85 m	12'7"	3.98 m	13'1"	4.17 m	13'8"
High Lift w/L-5 tires	4.20 m	13'9"	4.54 m	14'11"	—	
Operating weight up to:	15 290 kg	33,720 lb	21 430 kg	47,260 lb	19 070 kg	42,050 lb

*With standard lift arms.

**With standard tires.



MODEL	966G Series II WHA		972G Series II WHA		980G Series II WHA	
Flywheel Power	184 kW	246 hp	201 kW	270 hp	232 kW	311 hp
Peak Power	194 kW	260 hp	213 kW	285 hp	238 kW	319 hp
Engine Model	3306 ATAC		3196 ATAC		3406	
Rated Engine RPM	2150		2150		2000	
Bore	125 mm	4.9"	130 mm	5.1"	137 mm	5.4"
Stroke	140 mm	5.5"	150 mm	5.9"	165 mm	6.5"
No. Cylinders	6		6		6	
Displacement	10.3 L	629 in³	12 L	732 in³	14.6 L	893 in³
Speeds Forward	km/h	mph	km/h	mph	km/h	mph
1st	6.8	4.2	6.8	4.2	7.1	4.4
2nd	12.2	7.5	12.1	7.5	12.6	7.8
3rd	21.2	13.1	21.2	13.0	21.9	14.0
4th	35.6	22.1	35.7	22.0	37.4	23.2
Speeds Reverse						
1st	7.7	4.8	7.7	4.8	7.5	5.0
2nd	13.7	8.5	13.8	8.6	13.1	8.1
3rd	24.0	14.9	24.2	15.0	23.0	14.2
4th	38.5	24.0	38.8	24.0	40.0	25.0
Hydraulic Cycle Time*						
Rated Load in Bucket:	Seconds		Seconds		Seconds	
Raise	6.9		6.9		6.0	
Dump	1.4		1.7		2.0	
Lower (empty, float down)	1.8		1.8		3.4	
Total	10.1		10.4		11.4	
Tread Width**	2.23 m	7'4"	2.23 m	7'4"	2.44 m	8'0"
Width Over Tires**	2.97 m	9'9"	2.96 m	9'9"	3.25 m	10'8"
Ground Clearance**	430 mm	17"	430 mm	17"	467 mm	18.4"
Fuel Tank Capacity	410 L	108.3 U.S. gal	410 L	108 U.S. gal	470 L	124 U.S. gal
Hydraulic Tank Capacity	207 L	54.7 U.S. gal	207 L	54.7 U.S. gal	250 L	66 U.S. gal
Hinge Pin Height:						
Full Lift Std.	4.23 m	13'10"	4.44 m	14'7"	4.51 m	14'9"
High Lift w/L-5 tires	4.83 m	15'10"	4.88 m	16'1"	4.78 m	15'8"
Operating weight up to:	28 956 kg	63,836 lb	26 341 kg	58,072 lb	30 681 kg	67,639 lb

*With standard lift arms.

**With standard tires.

INFORMATION PRODUCTS AND SOLUTIONS

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INTRODUCTION

Having an accurate, real-time information stream about equipment location, health and operator efficiency is essential to any profitable operation. As pressure mounts to streamline operations at the job site level, customers seek help in coordinating machines, applications, operators, productivity, maintenance and risk — no matter what type of work they do.

Caterpillar® and our dealers have responded with comprehensive Asset Management Solutions for customers eager to proactively manage their equipment investment. These solutions monitor and manage equipment location, security, health conditions, maintenance schedules, and utilization. Our Asset Management Solutions offer theft deterrence, control machine access, and locate equipment. They're powered by technologies such as global positioning, cellular, digital and analog sensors, secure portals, and wireless communication. These innovations help customers reduce cost and risk. Caterpillar will continue to develop, evolve and support vital capabilities to help dealers deliver Asset Management solutions to customers.

In the area of Machine and Site Productivity Solutions, Caterpillar helps customers integrate machine information and control with such factors as site plans, operating conditions, and unique customer requirements. Our solutions accelerate and eliminate process steps, and optimize use of labor and other precious resources.

Working with dealers and their customers, Caterpillar is addressing broader Business Management Solutions as well. We're helping customers link knowledge across many business processes and systems — from human resources to supply chain management to risk management. This section outlines some of these innovative solutions available today.

PRODUCT	APPLICATIONS	MACHINES
Product Link™ System	On-board machine hardware that gathers and transmits data to EquipmentManager.	Entire fleet (Cat® and other)
EquipmentManager	Subscription service to monitor events or view performance and machine health.	Entire fleet (Cat® and other)
MSS (Machine Security System)	Special keys control access to machine starting. Prevents theft or unauthorized use of machines.	Entire fleet (Cat® and other)
Pocket Tec™ Software	Program keys for MSS; monitor or save engine functions to computer	Owner/Operator or Entire fleet (Cat® and other)
AccuGrade® GPS Grade Control	Complex contours, bulk earthworks, design files. Add machine-mounted components to AccuGrade Ready Option (ARO) for Global Positioning System (GPS)-based grade control. Tolerances of ±30 mm (1.18 in).	Selected models of track-type tractors
AccuGrade® Laser Grade Control	Finish grading. Tolerances of ± 4 to 6 mm (0.16 to 0.24 in). Use with integrated on-board AccuGrade Ready Option (ARO).	Selected models of track-type tractors and motor graders
AccuGrade® Sonic Grade Control	Sonic sensor controls blade elevation referenced off stringline or curb. Another configuration to use with the ARO.	H series Motor Graders
AccuGrade® Cross Slope Grade Control	Grade control for crowned roads and shoulders. Automatic system to control one end of motor grader blade to correlate with manually controlled slope of the other end.	H series Motor Graders
AccuGrade® ATS Grade Control	Automatic Total Station Grade control for high precision 3D applications using total robotic station for positioning.	H series Motor Graders
CAESbasic (Computer Aided Earthmoving System)	Surface Control and Machine Guidance. Uses high precision GPS and on-board computer to improve machine productivity.	Track-type tractors, wheel dozers, wheel tractor-scrappers, wheel loaders, shovels and surveyor truck
CAESultra	Surface Control, Machine Guidance, Ore Control and Landfill Compaction. Uses high precision GPS plus on- and off-board computers to maximize ore extraction or landfill airspace.	Track-type tractors, landfill compactors, wheel dozers, wheel tractor-scrappers, wheel loaders, shovels, and excavators
Aquila® Drill	Monitors drill performance and provides strata recognition. Uses GPS for precision guidance.	Blast hole drills
Aquila® Dragline	Monitor performance and improve machine productivity. Uses high precision GPS and on-board computing.	Draglines
MineStar® Integrated Systems	Integrated Fleet Management system.	Entire mining fleet
MineStar® Health System	Provides performance and machine health data/reports.	Mining machines equipped with VIMS® (Vital Information Management System)

PRODUCT LINK™ SYSTEM

For more information see www.cat.com/pl

With Product Link hardware installed on a machine, customers may subscribe to EquipmentManager from their Cat dealer. Product Link is the on-board machine hardware consisting of an antenna, electronic radio and connecting wiring that gathers and wirelessly transmits important data such as machine location, hours and health information. Product Link is available using either satellite or cellular radio technology.

Product Link model PL102c is a cellular option exclusive for North America. Cellular coverage in remote locations may be marginal or non-existent, so consideration should be given to where a machine will be used in selection of the appropriate Product Link model. Model PL121s uses the ORBCOMM satellite system of global satellites and may either be used by itself or in combination with the PL300 to obtain machine health and performance information. Product Link modules are configured and registered using Caterpillar Electronic Technician (ET). After installing the PL communicator module on the machine, a laptop PC containing ET is connected to this module and the dealer technician uses ET to program it for that specific machine.

EquipmentManager Information

Product Link Solutions

EquipmentManager Bundle	Feature	PL102c	PL151	PL201	PL121s	PL121s+ PL300
Asset Watch	Operating Hours	✓	✓	✓	✓	✓
	Location/Mapping	✓	✓	✓	✓	✓
	Product Watch (Geo Fence)	✓	✓	✓	✓	✓
	I/O Switch Channels		✓	✓		✓
	Fuel Usage			✓		✓
	Fuel Level			✓		✓
	Refueling Logs			✓		✓
Maintenance Watch	Last PM History	✓	✓	✓	✓	✓
	PM Due/Alerts	✓	✓	✓	✓	✓
	PM Checklist	✓	✓	✓	✓	✓
	Parts Ordering	✓	✓	✓	✓	✓
	Missed PM Alerts	✓	✓	✓	✓	✓
	Major Repair Tracking	✓	✓	✓	✓	✓
	Repair and Maintenance History	✓	✓	✓	✓	✓
	Forecast PM Parts, Labor and Fuel	✓	✓	✓	✓	✓
Customized PM Intervals/Checklist	✓	✓	✓	✓	✓	
Health Watch	Fault Codes Reports/Alerts			✓		✓
	Performance Trends/Alerts			✓		✓
	Utilization Reports/Alerts			✓		✓
	S-O-S Evaluation/Alerts			✓		✓

Please refer to the EquipmentManager chapter for additional information.

EQUIPMENTMANAGER

For more information see www.cat.com/em

EquipmentManager simplifies fleet management by providing valuable machine information in order to maximize machinery use and manage the entire operation more efficiently. EquipmentManager is the software on the Dealer Storefront internet website used to review data transmitted from the machine's on-board Product Link hardware. With Product Link hardware installed on a machine, customers may subscribe to EquipmentManager from their Cat dealer. Refer to the Product Link Chapter for more information on the on-board hardware required to transmit data to EquipmentManager.

EquipmentManager has three levels of machine status — red (requires immediate action), yellow (requires monitoring), and green (normal). Customers access the information shown below from the Dealer StoreFront website. They may search and categorize information by alert level, their own selected groupings of equipment, machine ID, make or model. They can also set custom preferences for how information is viewed. Alerts may be emailed or sent to a pager, cell phone or other device. Customers may choose from the following information “Watch” levels of service.

Asset Watch:

- Operating hours
- Product Watch (time and geo-fence)
- Fuel usage
- Refueling logs
- Machine start and stop times
- Location/mapping
- Product Watch Alerts
- Fuel level
- Operator ID
- I/O Switch channels

Maintenance Watch (Includes Asset Watch):

- Operating hours
- Next PM due
- PM checklist
- Missed PM alerts
- Parts ordering
- Forecast PM parts, labor, and fuel
- Last PM history
- PM alerts
- PM parts list
- Major repair tracking
- Repair and maintenance history
- Customized PM intervals and checklist

Health Watch (Includes Asset Watch and Health Watch Maintenance Watch):

- Fault codes
- Fault code alerts
- Utilization alert
- Performance alerts
- S·O·S Alerts
- Fault code procedures
- Fault code reports
- Utilization report
- Performance/trends reports
- S·O·S analysis evaluation

Utilization/Productivity Watch:

- Usage reports
- Customized reports
- Monitoring reports

Machine Management Options:

By Exception — EquipmentManager provides an overview of the events — or exceptions — that have occurred in the fleet. When viewing an exception report, customers can quickly identify the most important alerts requiring immediate attention. Items that may be categorized by severity include:

- Time-fencing and geographical fencing violations
- Maintenance due
- Utilization alerts
- Major repair due
- Fault code alerts
- Diagnostic events
- Performance alerts
- Fuel level alert

By Machine-specific Information — Perform a search by Group, Equipment Identification, Make, Model or S·O·S Compartment. Or conduct an Advanced Search, combining parameters from any of the four information levels — Asset Watch, Maintenance Watch, Health Watch and Productivity/Utilization Watch. For example, search for all machines within 100 miles of a given location that have PMs due next week.

EquipmentManager subscription prices are dealer determined. Contact your dealership's Equipment-Manager Administrator for subscription prices and information.

MACHINE SECURITY SYSTEM (MSS)

Manage Access to Your Machines

For more information see www.cat.com/mss

This system is designed by Caterpillar. It disables the starting system when someone attempts to steal a machine using a standard key. Only an MSS key with your unique code will allow the machine to start. The MSS electronic control module checks the key being inserted against your pre-approved list of authorized keys. MSS is integrated into the electronics, so it can't be bypassed to start your equipment. It is virtually impossible to defeat.

MSS programmable features can be tailored to your needs.

- Limit operators to selected machines.
- Control which hours and days equipment may be started (Guard against unauthorized “weekend use” of equipment).
- Control access by untrained operators or unauthorized personnel, reducing injury risk.
- Programmable for active and inactive periods, such as disarming the system during regular work hours when a standard key can be used, and then reverting to an MSS key after hours.
- MSS can be programmed so a key will expire on a certain date and no longer start the machine.
- MSS can be programmed so that one key can operate any machine in your fleet. A machine can be programmed to accept up to 255 unique MSS keys.

Availability

- May be installed in the field on Cat® machines and other brands of equipment.
- Available from the factory for many models.
- Works on both 12- and 24-volt systems.

POCKET TEC™ SOFTWARE

Program MSS Keys

For more information see www.cat.com/pt

You control which keys can be programmed to start a machine with your Personal Data Assistant (PDA) and Caterpillar's Pocket Tec™ software (both purchased separately). Use them to add, delete or change keys to allow or prevent access, and change which days or hours the machine may be started. Different editions of Pocket Tec™ software offer specialized information depending on your application. In addition to the MSS edition, Driver Edition is designed for an Owner/Operator or a driver in a fleet operation. It monitors truck engine functions and driving style. Fleet Edition is designed to manage a fleet of trucks and save the engine information to a PC.

**ACCUGRADE® GPS, SONIC, CROSS SLOPE
AND ATS GRADE CONTROL PRODUCTS**

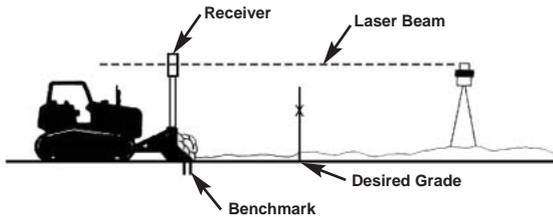
Meet Your Production Needs

The AccuGrade Ready Option is designed into the machine. It supports laser, sonic and GPS based grade control systems. Simply change sensors, receivers and displays to change the grade control system the machine uses. AccuGrade GPS will grade to a computer-automated profile for complex contours and bulk earthworks. Available on selected models first quarter 2005. AccuGrade sonic and cross slope functionality make fine grading with a motor grader easier and more accurate. Automatic controls require less operator effort. Automatic Total Station Grade control for motor graders offers high precision 3D applications using total robotic station for positioning. These options will be available first quarter 2005.

ACCUGRADE® LASER GRADE CONTROL

**Manage Fine Grading Tolerances
for Maximum Profit**

For more information see www.CatAccuGrade.com



The AccuGrade Laser Grade Control System is designed for a wide range of construction earthwork applications requiring tight tolerances and high production rates. Field-proven and versatile, the dual laser system is ideal for fine grading of sites with flat, single or dual slope surfaces, such as industrial, commercial and residential building sites. An AccuGrade laser grade control system consists of the AccuGrade Ready Option on the machine, laser masts and receivers, the cab control display, plus a laser transmitter. AccuGrade can be used indoors or outdoors and several machines can work off a single laser transmitter. Depending on the material, AccuGrade laser grade control can work to a finish grade accuracy of ± 4 to 6 mm (0.16 to 0.24 in).

**Conventional Staking Method Costs vs.
Laser Grade Control System Savings**

The AccuGrade Laser Grade Control System provides process control for the fine grading operation, affecting costs not typically associated with the machine. Some of the cost areas controlled by the system can be analyzed with an example:

Example Job Site Specifications (Metric)

- Pad Size: 3716 m²
- Metric Tons of Base Material: 1376 metric tons
- Cost of Base Material Metric Ton: \$7.26
- Cost of Concrete per Cubic Meter: \$57.34
- Grade Stakes: \$6 per stake
- Grade Checker Daily cost: \$100
- Laborer Daily cost: \$75
- Daily cost of owning and operating Dozer: \$536
- Daily cost of owning and operating Compactor: \$250
- Daily cost of owning and operating Loader: \$350



Example Job Site Specifications (English)

- Pad Size: 40,000 ft²
- Tons of Base Material: 1517 tons
- Cost of Base Material Ton: \$8.00
- Cost of Concrete per Cubic Yard: \$75
- Grade Stakes: \$6 per stake
- Grade Checker Daily cost: \$100
- Laborer Daily cost: \$75
- Daily cost of owning and operating Dozer: \$536
- Daily cost of owning and operating Compactor: \$250
- Daily cost of owning and operating Loader: \$350

Conventional Staking Method Costs (Metric)

Conventional Production per Day: 1394 m²
 Days to Fine Grade: 2.7
 Standard Grading Tolerance: ± 19.1 mm
 Material Base Costs: \$12,133
 Material Overage Costs (10% of base material):
 \$1,213
 Grade Stakes Costs (85 stakes with 7.62 m
 spacing): \$510
 Material Costs (Concrete 152.4 mm specified +
 19.1 mm tolerance): \$62,500
 Grade Checker Costs (3-4 men per machine):
 \$267
 Labor Cost (3.25 men): \$650
 Dozer Costs (2.7 days): \$1429
 Compactor Costs (1 day): \$250
 Loader Costs (2.7 days): \$940
Conventional Cost Estimate: \$79,892



Conventional Staking Method Costs (English)

Conventional Production per Day: 15,000 ft²
 Days to Fine Grade: 2.7
 Standard Grading Tolerance: ± 0.75 in
 Material Base Costs: \$12,133
 Material Overage Costs (10% of base material):
 \$1,213
 Grade Stakes Costs (85 stakes with 25 ft
 spacing): \$510
 Material Costs (Concrete 6.0 in specified +
 0.75 in tolerance): \$62,500
 Grade Checker Costs (3-4 men per machine):
 \$267
 Labor Cost (3.25 men): \$650
 Dozer Costs (2.7 days): \$1429
 Compactor Costs (1 day): \$250
 Loader Costs (2.7 days): \$940
Conventional Cost Estimate: \$79,892

Laser Grade Control System Savings (Metric)

Laser Grade Production per Day: 2787 m²
 (double production)
 Days to Fine Grade: 1.3
 Laser Grading Tolerance (12.7 mm improvement):
 ± 6.4 mm
 Grade Stake Savings (3 vs. 85 stakes): \$492
 Material Savings (60% Material Overage
 Saved): \$728
 Concrete Savings (12.7 mm saved due to tighter
 tolerance): \$4,630
 Grade Checker Savings (not needed): \$200
 Labor Savings (1 vs. 3.25) \$550
 Dozer Costs Savings (1.3 vs. 2.7 days): \$715
 Loader Costs Savings (1.3 vs. 2.7 days): \$470
**Savings Resulting from Laser Grade
 Control System: \$7,768**



Laser Grade Control System Savings (English)

Laser Grade Production per Day: 30,000 ft²
 (double production)
 Days to Fine Grade: 1.3
 Laser Grading Tolerance (0.5 in improvement):
 ± 0.25 in
 Grade Stake Savings (3 vs. 85 stakes): \$492
 Material Savings (60% Material Overage
 Saved): \$728
 Concrete Savings (0.5 in saved due to tighter
 tolerance): \$4,630
 Grade Checker Savings (not needed): \$200
 Labor Savings (1 vs. 3.25) \$550
 Dozer Costs Savings (1.3 vs. 2.7 days): \$715
 Loader Costs Savings (1.3 vs. 2.7 days): \$470
**Savings Resulting from Laser Grade
 Control System: \$7,768**

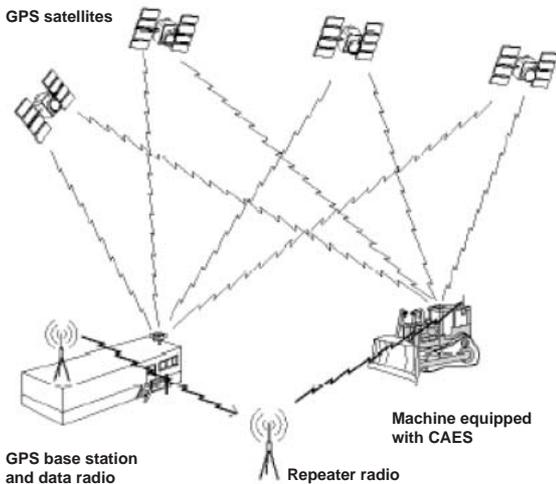
CAES (COMPUTER AIDED EARTHMOVING SYSTEM)

The Right Material in the Right Place for Maximum Machine Productivity

For more information see www.catcaes.com

Caterpillar CAES^{basic} and CAES^{ultra} (Computer Aided Earthmoving System) combine computer and wireless technology, and high precision GPS to help customers maximize machine productivity and job efficiency. In contrast to the typical autonomous (vehicle only) GPS position that is accurate to several meters, CAES positioning is upgraded to high precision (centimeter-level accuracy) by a correction factor called a CMR (Compact Measuring Record). The Real Time Kinematic (RTK) is the standard for how quickly these corrections are made and displayed. Fast and accurate positioning is the key to these high performance products.

Figure 1. Overview of the System



Parts of a High Precision GPS System

- GPS satellites and technology (owned and operated by the United States Government) no cost for use of signals.
- To get high precision signals a base station needs to be set at a surveyed point. This base station compares its known location with its received location to produce a correction factor (CMR).
- A radio network relays the CMR to the machine equipped with CAES.

To Equip a Machine with CAES Requires:

- An antenna to receive the signals from the satellites.
- A radio to receive the CMR from the base station.
- A receiver to compute the location of the vehicle.
- A display to compare the present location to the desired location contained in the design files stored in the display.

CAES^{basic}

Entry Level Grade and Slope Guidance System

The CAES^{basic} file conversion software stores design files on a flash card that is loaded into the display on the machine. The color display gives the operator real time site plan information and tracks the machine's position against the grade and slope requirements of the plan.

Features and Benefits

- Real time GPS positioning to cut and fill of the site plan, reducing errors and re-work.
- Text readout with centimeter level accuracy, improving grade and slope control.
- Records machine position information that can be translated off-board to determine machine productivity and update site plans.
- Proximity warning option provides the operator reference to hazards that should be avoided.
- Machine operator can enter flat plane and slope designs, increasing machine productivity and utilization.

CAESultra AND AQUILA® DRILL OFFICE SOFTWARE

CAESultra has more extensive office software that integrates planning and design operations. Engineers can transmit designs to the machine's on-board computer, which show the machine location relative to the design area, current surface, final design surface, and material map (for loading machines). These software packages allow you to create customized reports on productivity data, cycle times, volume and material type. They are powerful enough to allow the engineering process to change. Here's how.

Traditionally, an engineer working in the office creates a site plan on a computer. This information is then transferred to paper, and the surveyor goes out and stakes the area to identify elevation, grade, slope, or material type. Once the machine operator has completed the job, the surveyor resurveys the area and updates the office plan. This process is labor intensive and is prone to a check, rework, recheck approach.

CAES revolutionizes this process. Its high precision GPS system allows the machines to act as surveyors. Changes to a digital terrain model (the engineering design file) are recorded as they occur. The engineer can work with the updated design and modify it further without stopping the machine. It also provides machine operators and site managers information to eliminate rework, reduce field surveying and more accurately complete the earthmoving plan.

CAESultra

Get More Life from Your Landfill

CAESultra helps the landfill industry conserve air-space. For a landfill compactor, each time the wheel travels over a surface, the CAESultra screen changes color to acknowledge the compaction pass. CAESultra indicates finished areas. The operator achieves maximum effective compaction, by making only the necessary number of passes. Track-type tractors in landfills benefit from CAESultra because it indicates lift thickness of cover material and trash.

Additionally, CAES permits the identification of site-specific storage areas such as hazardous waste, medical, industrial, organic, and other materials which require special handling or a record of their placement. All of this information is monitored and managed in the landfill office with CAESultra Office Software.

CAESultra — Ore Control for Loading Tools

CAESultra moves the material identification file and survey system into the machine, eliminating the need for survey stakes. A touch screen monitor displays the location of pit boundaries, material type, bench height, and design grade, eliminating operator guesswork. With material types and locations displayed, ore identification and recovery are optimized.

AQUILA® DRILL

Production, Strata Recognition and GPS Guidance

Aquila Drill Systems are designed for installation on electric and hydraulic rotary blasthole drills. They assist with production and performance monitoring, strata recognition and GPS guidance. Typically provided as field retrofit to machines already operating at mine sites, the Aquila systems use on-board computing integrated with sensors to monitor critical machine performance characteristics. System modules help the operator and site managers enhance drill performance and improve the drilling and blasting operation. The Aquila products use a GPS and radio infrastructure common to CAES.

The **Production** module offers a graphical user interface to provide the operator with immediate feedback on drilling productivity and performance. The product minimizes operator input by an array of sensing hardware to detect:

- the end of hole
- reaching target depth
- recognition of steel changes

The **Strata Recognition** module analyzes the monitored drilling variables in real-time, determining variability in the hole geology. The different strata horizons are presented on the display. The system provides useful and concise information from the start of drilling — not large amounts of raw data that typify traditional drill monitoring systems. A Blastability Index (BI) is determined by the Strata Module and approximates the in-situ hardness of the ground. The hole-loading requirements and ore grindability predictions are then based on measured rock hardness enabling improved blending and optimized mill throughput rates.

Combining the **Production** module with the **Strata Recognition** module logs:

- bit rotary speed
- penetration rate
- depth
- rotary torque or pressure
- pull-down pressure
- bailing air pressure

Drilling practice, efficiency and productivity can then be analyzed and assessed.

The **GPS Guidance** module adds high precision GPS to help precisely position a drill on a blast pattern without the need for surveying or staking. The Guidance module uses a moving map display that shows the 3D (Northing, Easting and Elevation) of the drill and drill bit relative to the designed position of the blastholes. Once the drill is positioned and leveled over a hole, the system automatically determines collar elevation and then calculates the designed target depth. GPS Guidance improves the drill's production and utilization, and the operator's ability to drill to the plan. This leads to better rock fragmentation for easier loading. Since holes are drilled to the correct elevation leading to a flatter post-blast surface, the result is smoother pit floors. This helps eliminate rework, enhances the mobile equipment's performance and reduces its wear and tear.

AQUILA® DRAGLINE

Precision Tub Placement

The Aquila Dragline product combines on-board computing and high precision GPS with the machine's Programmable Logic Controller (PLC) for data acquisition. On-board productivity reports summarize progress of the shift. GPS-driven 3D plan and section views of both the dragline and cut guide the operator in excavation and spoil placement. The system eliminates the need for survey support to ensure proper tub placement and optimal range. The results are reduced rehandling, precise recording of each dig and dump location, and load weight for each cycle.

Centimeter level GPS enhances positioning of the dragline tub to assure the machine digs to plan. Hoist, drag and swing position data is used to with GPS positioning to include 3D plan with section views of the bench and cut profile. A graphical display shows the dragline body, boom, hoist and drag ropes and bucket position in real-time as the machine operates. These machine features are displayed as an animated overlay on top of a design file. The design files are customizable and consist of any design features relevant, i.e. toe and crest locations, tub center-line target positions, key cut, dig limits, no swing areas, avoidance zones, final design limits, target dig depths, etc.

MINESTAR® INTEGRATED SYSTEMS

Integrated Mining Information System

MineStar features machine health, productivity, machine and material tracking, and an advanced truck assignment program. When integrated with CAESultra and Aquila Drill Systems, this solution has the capability of linking machines in the field to MineStar office systems and to other information systems used on the mine.

There are six MineStar modules.

- **MineStar FleetCommander** — Schedules and assigns trucks; maximizes production and shovel utilization and minimizes truck wait time; designed to handle small, medium and large fleets.
- **MineStar Production** — Provides constant productivity information from trucks, loading tools and earthmoving machines to increase efficiency of mining operations.
- **MineStar Health** — Acquires machine and fleet health in real time over a wireless network from VIMS and reports to a service center or production database for improved maintenance operations.
- **MineStar Material Tracking** — Monitors material movement and type, alerts operators and planners of mis-routes to ensure material is moved to the proper location.
- **MineStar Machine Tracking** — Monitors machine location for the entire fleet; incorporates playback function to analyze dump movement and haul road congestion.
- **MineStar Business Enterprise** — Integrates mining functions such as mine planning, real time production and machine health, financial and human resource information to mining company Enterprise Systems.

MINESTAR® MACHINE HEALTH

Optimize Maintenance and Production of Machines Equipped with VIMS

Service personnel can assess machine maintenance and repair needs easier and more accurately than ever before — from miles away. MineStar Machine Health constantly and simultaneously records information on all critical machine systems, fleet-wide. It may also be integrated into a production database for expanded analysis. And, data is available in real-time or historical database. Linked with VIMS, MineStar Machine Health provides wireless or wired transfer of this critical data to the service center for processing and review. This product can be upgraded to the full MineStar solution.

Expansive data gathering

MineStar Machine Health tracks information collected by VIMS and includes:

- fluid and pressure levels
- system voltage
- component failure
- wear rate
- overloading
- load/dump/travel/delay times

Reduced Operating Costs

Information can be reviewed for an individual machine, or by equipment condition, class, or fleet. Key Performance Indicators can be custom configured for display. Mine personnel can extend component life, better prioritize and schedule maintenance.

Improved Productivity

Trend, histogram, cumulative, event, production, and performance data help mine managers make well-informed decisions to improve production. In-cab alerts and alarms are visible to the mine office, to help identify recurring problems.

TABLES

SWELL — VOIDS — LOAD FACTORS

SWELL (%)	VOIDS (%)	LOAD FACTOR
5	4.8	.952
10	9.1	.909
15	13.0	.870
20	16.7	.833
25	20.0	.800
30	23.1	.769
35	25.9	.741
40	28.6	.714
45	31.0	.690
50	33.3	.667
55	35.5	.645
60	37.5	.625
65	39.4	.606
70	41.2	.588
75	42.9	.571
80	44.4	.556
85	45.9	.541
90	47.4	.526
95	48.7	.513
100	50.0	.500

BUCKET FILL FACTORS

Material	Fill Factor
Loose Material	
Mixed Moist Aggregates	95-100%
Uniform Aggregates up to 3 mm (1/8")	95-100
3 mm-9 mm (1/8"-3/8")	90-95
12 mm-20 mm (1/2"-3/4")	85-90
24 mm (1") and over	85-90
Blasted Rock	
Well Blasted	80-95%
Average Blasted	75-90
Poorly Blasted	60-75
Other	
Rock Dirt Mixtures	100-120%
Moist Loam	100-110
Soil, Boulders, Roots	80-100
Cemented Materials	85-95

NOTE: Loader bucket fill factors are affected by bucket penetration, breakout force, rackback angle, bucket profile and ground engaging tools such as bucket teeth or bolt-on replaceable cutting edges.

NOTE: For bucket fill factors for hydraulic excavators, see bucket payloads in the hydraulic excavator section.

TYPICAL ROLLING RESISTANCE FACTORS

Various tire sizes and inflation pressures will greatly reduce or increase the rolling resistance. The values in this table are approximate, particularly for the track and track + tire machines. These values can be used for estimating purposes when specific performance information on particular equipment and given soil conditions is not available. See Mining and Earthmoving Section for more detail.

UNDERFOOTING	ROLLING RESISTANCE, PERCENT*			
	Tires Bias	Tires Radial	Track **	Track +Tires
A very hard, smooth roadway, concrete, cold asphalt or dirt surface, no penetration or flexing	1.5%*	1.2%	0%	1.0%
A hard, smooth, stabilized surfaced roadway without penetration under load, watered, maintained	2.0%	1.7%	0%	1.2%
A firm, smooth, rolling roadway with dirt or light surfacing, flexing slightly under load or undulating, maintained fairly regularly, watered	3.0%	2.5%	0%	1.8%
A dirt roadway, rutted or flexing under load, little maintenance, no water, 25 mm (1") tire penetration or flexing	4.0%	4.0%	0%	2.4%
A dirt roadway, rutted or flexing under load, little maintenance, no water, 50 mm (2") tire penetration or flexing	5.0%	5.0%	0%	3.0%
Rutted dirt roadway, soft under travel, no maintenance, no stabilization, 100 mm (4") tire penetration or flexing	8.0%	8.0%	0%	4.8%
Loose sand or gravel	10.0%	10.0%	2%	7.0%
Rutted dirt roadway, soft under travel, no maintenance, no stabilization, 200 mm (8") tire penetration and flexing	14.0%	14.0%	5%	10.0%
Very soft, muddy, rutted roadway, 300 mm (12") tire penetration, no flexing	20.0%	20.0%	8%	15.0%

*Percent of combined machine weight.

**Assumes drag load has been subtracted to give Drawbar Pull for good to moderate conditions. Some resistance added for very soft conditions.

ANGLE OF REPOSE OF VARIOUS MATERIALS

MATERIAL	ANGLE BETWEEN HORIZONTAL AND SLOPE OF HEAPED PILE	
	Ratio	Degrees
Coal, industrial	1.4:1—1.3:1	35-38
Common earth, Dry	2.8:1—1.0:1	20-45
Moist	2.1:1—1.0:1	25-45
Wet	2.1:1—1.7:1	25-30
Gravel, Round to angular	1.7:1—0.9:1	30-50
Sand & clay	2.8:1—1.4:1	20-35
Sand, Dry	2.8:1—1.7:1	20-30
Moist	1.8:1—1.0:1	30-45
Wet	2.8:1—1.0:1	20-45

Tables

ROUND REINFORCED CONCRETE PIPE APPROXIMATE WEIGHT PER FOOT

INSIDE DIAMETER		WEIGHT PER FT.	
mm	ft/in	kg	lb
305	12"	42	93
380	15"	58	127
460	18"	76	168
530	1'9"	97	214
610	2'0"	120	265
685	2'3"	146	322
760	2'6"	174	384
840	2'9"	205	452
915	3'0"	238	524
1070	3'6"	311	686
1220	4'0"	393	867
1370	4'6"	485	1069
1525	5'0"	588	1295
1675	5'6"	699	1542
1830	6'0"	821	1811
1980	6'6"	952	2100
2135	7'0"	1093	2409
2285	7'6"	1242	2740
2440	8'0"	1402	3090
2590	8'6"	1578	3480
2740	9'0"	1753	3865

NOTE: Table courtesy of American Concrete Pipe Assn.

COEFFICIENT OF TRACTION FACTORS

MATERIAL	TRACTION FACTORS	
	Rubber Tires	Tracks
Concrete	.90	.45
Clay loam, dry	.55	.90
Clay loam, wet	.45	.70
Rutted clay loam	.40	.70
Dry sand	.20	.30
Wet sand	.40	.50
Quarry pit	.65	.55
Gravel road		
(loose not hard)	.36	.50
Packed snow	.20	.27
Ice	.12	.12
Semi-skeleton shoes		
Firm earth	.55	.90
Loose earth	.45	.60
Coal, stockpiled	.45	.60

NOTE: The elevated sprocket design Track-type Tractors (D11R, D10R, D9R and D8R), with their suspended undercarriage, provide up to 15% more efficient tractive effort than rigid tracked Track-type Tractors.

SPEED CONVERSION

km/h Equivalents in m/min				MPH Equivalents in FPM			
km/h	m/min	km/h	m/min	mph	fpm	mph	fpm
1	16.7	21	350.0	1	88	21	1848
2	33.3	22	366.7	2	176	22	1936
3	50.0	23	383.3	3	264	23	2024
4	66.7	24	400.0	4	352	24	2112
5	83.3	25	416.7	5	440	25	2200
6	100.0	26	433.3	6	528	26	2288
7	116.7	27	450.0	7	616	27	2376
8	133.3	28	466.7	8	704	28	2464
9	150.0	29	483.3	9	792	29	2552
10	166.7	30	500.0	10	880	30	2640
11	183.3	31	516.7	11	968	31	2728
12	200.0	32	533.3	12	1056	32	2816
13	216.7	33	550.0	13	1144	33	2904
14	233.3	34	566.7	14	1232	34	2992
15	250.0	35	583.3	15	1320	35	3080
16	266.7	36	600.0	16	1408	36	3168
17	283.3	37	616.7	17	1496	37	3256
18	300.0	38	633.3	18	1584	38	3344
19	316.7	39	650.0	19	1672	39	3432
20	333.3	40	666.7	20	1760	40	3520

NOTE: Since 1 km/h equals 16.7 m/min (1000 ÷ 60), to interpolate add 1.67 m/min for each 0.1 km/h.

NOTE: Since 1 mph equals 88 fpm (5280 ÷ 60), to interpolate add 8.8 fpm for every 0.1 mph.

1 mph = 26.9 m/min.

BEARING POWERS

MATERIAL	BEARING POWER			
	Bar	lb/in ²	Metric t/m ²	U.S. tons/ft ²
Rock (semi-shattered)	4.8	70	50	5
Rock (solid)	24.1	350	240	24
Clay, dry	3.8	55	40	4
medium dry	1.9	27	20	2
soft	1.0	14	10	1
Gravel, cemented	7.6	110	80	8
Sand, compact dry	3.8	55	40	4
clean dry	1.9	27	20	2
Quicksand & alluvial soil	0.5	7	5	0.5

AGRICULTURAL COMMODITIES CONVERSION FACTORS

	lb	kg	Metric Ton
1 Bushel of Corn*	56	25.40	0.02540
1 Bushel of Soybean*	60	27.22	0.02721
1 Bushel of Oats*	32	14.51	0.01451
1 Bushel of Wheat*	60	27.22	0.02721
1 Bale of Cotton	478	216.81	0.21681

1 metric ton of Corn	39.37 Bushels*
1 metric ton of Soybean	36.75 Bushels*
1 metric ton of Oats	68.92 Bushels*
1 metric ton of Wheat	36.75 Bushels*
1 metric ton of Cotton	4.61 Bales

*Bushel is a volume measurement, 1 Bushel = 35.24 liters = 9.31 U.S. Gallons. In the agricultural mercantile exchange, the Bushel is widely used for grains as weight. For the above weights, the market assumes a standard density for each type of grain.

CURVE SUPERELEVATION IN PERCENT GRADE, TO PROVIDE NO LATERAL TIRE FORCE

Negotiating curves can generate high lateral tire forces. These forces contribute to high tire wear and ply separation. Superelevating the curve helps eliminate these forces. The amount of superelevation depends on the curve's radius and the speed at which it is negotiated.

The following table is a guide for providing the superelevation necessary to eliminate lateral forces.

Superelevated turns present a danger when slippery. For this reason, curves superelevated over 10% should be used with caution. Unless the proper speed is maintained, matching the elevation of the curve, a vehicle may slide off of the lower edge of the roadway. Superelevated curves should be maintained in good tractive conditions.

TURN RADIUS		Speed	Speed	Speed	Speed	Speed	Speed	Speed	Speed
m	ft	16 km/h 10 mph	24 km/h 15 mph	32 km/h 20 mph	40 km/h 25 mph	48 km/h 30 mph	56 km/h 35 mph	64 km/h 40 mph	72 km/h 45 mph
15.2	50	13%	30%	—	—	—	—	—	—
30.5	100	7%	15%	27%	—	—	—	—	—
45.7	150	4%	10%	18%	28%	—	—	—	—
61.0	200	3%	8%	13%	21%	30%	—	—	—
91.5	300	2%	5%	9%	14%	20%	27%	—	—
152.4	500	1%	3%	5%	8%	12%	16%	21%	27%
213.4	700	1%	2%	4%	6%	9%	12%	15%	19%
304.9	1000	1%	2%	3%	4%	6%	8%	11%	14%

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MAXIMUM SPEED ON CURVES FOR VARIOUS SUPERELEVATION GRADES WITH A 0.20 LATERAL COEFFICIENT OF TRACTION

Another approach to superelevated curves is to determine the safe speed for negotiating a turn at a certain lateral tire force. In general, a 20% lateral coefficient of traction is safe for all but slippery conditions. The following table shows maximum speed with various superelevations to maintain a 0.20 lateral coefficient of traction.

TURN RADIUS		Flat Curve		5% Super-elevation		10% Super-elevation	
m	ft	km/h	mph	km/h	mph	km/h	mph
7.6	25	14	9	16	10	17	11
15.2	50	20	12	22	14	24	15
30.5	100	28	17	31	19	34	21
45.7	150	34	21	38	24	42	26
61.0	200	39	24	44	27	48	30
91.5	300	48	30	54	34	59	37
152	500	62	39	70	43	76	47
213	700	74	46	—	—	—	—

A transition "spiral" may be necessary at higher speeds when entering or departing from a superelevated turn.

Tables

WEIGHT* OF MATERIALS	LOOSE		BANK		LOAD FACTORS
	kg/m ³	lb/yd ³	kg/m ³	lb/yd ³	
Basalt	1960	3300	2970	5000	.67
Bauxite, Kaolin	1420	2400	1900	3200	.75
Caliche	1250	2100	2260	3800	.55
Carnotite, uranium ore	1630	2750	2200	3700	.74
Cinders	560	950	860	1450	.66
Clay — Natural bed	1660	2800	2020	3400	.82
Dry	1480	2500	1840	3100	.81
Wet	1660	2800	2080	3500	.80
Clay & gravel — Dry	1420	2400	1660	2800	.85
Wet	1540	2600	1840	3100	.85
Coal — Anthracite, Raw	1190	2000	1600	2700	.74
Washed	1100	1850			.74
Ash, Bituminous Coal	530-650	900-1100	590-890	1000-1500	.93
Bituminous, Raw	950	1600	1280	2150	.74
Washed	830	1400			.74
Decomposed rock —					
75% Rock, 25% Earth	1960	3300	2790	4700	.70
50% Rock, 50% Earth	1720	2900	2280	3850	.75
25% Rock, 75% Earth	1570	2650	1960	3300	.80
Earth — Dry packed	1510	2550	1900	3200	.80
Wet excavated	1600	2700	2020	3400	.79
Loam	1250	2100	1540	2600	.81
Granite — Broken	1660	2800	2730	4600	.61
Gravel — Pitrun	1930	3250	2170	3650	.89
Dry	1510	2550	1690	2850	.89
Dry 6-50 mm (1/4"-2")	1690	2850	1900	3200	.89
Wet 6-50 mm (1/4"-2")	2020	3400	2260	3800	.89
Gypsum — Broken	1810	3050	3170	5350	.57
Crushed	1600	2700	2790	4700	.57
Hematite, iron ore, high grade	1810-2450	4000-5400	2130-2900	4700-6400	.85
Limestone — Broken	1540	2600	2610	4400	.59
Crushed	1540	2600	—	—	—
Magnetite, iron ore	2790	4700	3260	5500	.85
Pyrite, iron ore	2580	4350	3030	5100	.85
Sand — Dry, loose	1420	2400	1600	2700	.89
Damp	1690	2850	1900	3200	.89
Wet	1840	3100	2080	3500	.89
Sand & clay — Loose	1600	2700	2020	3400	.79
Compacted	2400	4050			
Sand & gravel — Dry	1720	2900	1930	3250	.89
Wet	2020	3400	2230	3750	.91
Sandstone	1510	2550	2520	4250	.60
Shale	1250	2100	1660	2800	.75
Slag — Broken	1750	2950	2940	4950	.60
Snow — Dry	130	220			
Wet	520	860			
Stone — Crushed	1600	2700	2670	4500	.60
Taconite	1630-1900	3600-4200	2360-2700	5200-6100	.58
Top Soil	950	1600	1370	2300	.70
Taprock — Broken	1750	2950	2610	4400	.67
Wood Chips**	—	—	—	—	—

*Varies with moisture content, grain size, degree of compaction, etc. Tests must be made to determine exact material characteristics.

**Weights of commercially important wood species can be found in the last pages of the Logging & Forest Products section. To obtain wood weights use the following equations: lb/yd³ = (lb/ft³) × .4 × 27
kg/m³ = (kg/m³) × .4

ALTITUDE DERATION

PERCENT FLYWHEEL HORSEPOWER
AVAILABLE AT SPECIFIED ALTITUDES

MODEL	0-760 m (0-2500')	760-1500 m (2500-5000')	1500-2300 m (5000-7500')	2300-3000 m (7500-10,000')	3000-3800 m (10,000-12,500')	3800-4600 m (12,500-15,000')
D3G XL	100	100	100	100	96	88
D3G LGP	100	100	100	100	96	88
D4G XL	100	100	100	97	88	81
D4G LGP	100	100	100	97	88	81
D5G XL	100	100	100	100	**	**
D5G LGP	100	100	100	100	**	**
D5N XL & LGP	100	100	100	100	100	100
D6N XL & LGP	100	100	100	100	100	100
D6G	100	100	100	100	94	87
D6R Series II (All)	100	100	100	100	92	84
D7G	100*	100*	100*	94	86	80
D7R Series II (All)	100	100	100	100	100	96
D8R	100	100	100	93	85	77
D8T	100	100	100	100	100	93
D9R	100	100	100	93	85	77
D9T	100	100	100	100	100	93
D10T	100	100	100	100	97	89
D11R/D11R CD	100	100	100	93	85	77
120H STD	100	100	100	100	100	100
120H Global	100	100	100	100	96	93
135H STD	100	100	100	100	100	98
135H Global	100	100	100	100	96	93
12H STD	100	89	83	77	71	65
12H Global	100	100	100	100	96	93
140H STD	100	100	100	100	97	89
140H Global	100	100	100	100	96	93
143H Global	100	100	100	100	96	93
160H STD	100	100	100	97	89	82
160H Global	100	100	100	100	96	93
163H Global	100	100	100	100	98	96
14H Global	100	100	100	100	98	96
16H Global	100	100	100	100	98	96
24H Global	100	100	100	100	93	85

*Refer to "Captive Vehicle Engine Fuel Specifications" microfiche at your local dealer.

**Information not available at time of printing.

Tables

ALTITUDE DERATION (Continued)

MODEL	0-760 m (0-2500')	760-1500 m (2500-5000')	1500-2300 m (5000-7500')	2300-3000 m (7500-10,000')	3000-3800 m (10,000-12,500')	3800-4600 m (12,500-15,000')
216B	100	90	81	75	62	50
226B	100	90	81	75	62	50
232B	*	*	*	*	*	*
236B	100	90	81	75	62	50
242B	*	*	*	*	*	*
246B	100	97	95	92	86	82
248B	*	*	*	*	*	*
252B	*	*	*	*	*	*
262B	*	*	*	*	*	*
268B	*	*	*	*	*	*
247B	*	*	*	*	*	*
257B	*	*	*	*	*	*
267B	*	*	*	*	*	*
277B	*	*	*	*	*	*
287B	*	*	*	*	*	*
301.5	95	89	81	71	N/A	N/A
301.6	95	89	81	71	N/A	N/A
301.8	95	89	81	71	N/A	N/A
302.5	95	89	81	71	N/A	N/A
303 SR/CR	93	85	78	N/A	N/A	N/A
304 CR	94	87	80	N/A	N/A	N/A
305 SR/CR	96	91	86	N/A	N/A	N/A
307C (4M40)	100	100	*	*	*	*
308C SR/CR	100	100	*	*	*	*
311C U	100	100	100	83	78	73
312C/312C L (3064 T)	100	100	100	83	78	73
312C/312C L (3054 T)	100	100	100	*	N/A	N/A
313C SR/CR	100	100	100	83	78	73
314C CR/314C LCR	100	100	100	83	78	73
315C/315C L (3046 T)	100	100	100	83	78	73
315C L (3054E T)	99	98	96	94	89	85
318C/318C L/318C LN/318C N	100	100	100	83	78	73
M313C	100	97	95	91	N/A	N/A
M315C	100	97	95	91	N/A	N/A
M316C	*	*	*	*	*	*
M318C	100	100	97	95	N/A	N/A
M322C	100	100	97	95	N/A	N/A

*Information not available at time of printing.

ALTITUDE DERATION (Continued)

MODEL	0-760 m (0-2500')	760-1500 m (2500-5000')	1500-2300 m (5000-7500')	2300-3000 m (7500-10,000')	3000-3800 m (10,000-12,500')	3800-4600 m (12,500-15,000')
320C/320C U	100	100	90	87	83	*
320C L/320C LU	100	100	90	87	83	*
320C N	100	100	90	87	83	*
321C LCR	100	100	90	87	83	*
322C	100	100	100	100	100	97
322C L	100	100	100	100	100	97
322C LN	100	100	100	100	100	97
325C	100	100	100	100	100	100
325C L	100	100	100	100	100	100
325C LN	100	100	100	100	100	100
330C	100	100	100	100	100	100
330C L	100	100	100	100	100	100
330C LN	100	100	100	100	100	100
345B Series II	100	100	100	100	93	93
365B L Series II	100	100	100	86	86	86
385B/385B L	100	100	100	93	85	78
5090B	100	100	100	93	86	78
5110B	100	100	100	100	93	85
5130B◀	100	100	100	100	93	86
5230B◀	100	100	100	100	93	86
416D/424D (NA)	95	89	81	71	N/A	N/A
416D/424D (Turbo)	99	97	95	91	N/A	N/A
420D/420D IT	99	97	95	91	N/A	N/A
428D	99	97	95	91	N/A	N/A
430D/430D IT	99	97	95	91	N/A	N/A
432D	99	97	95	91	N/A	N/A
442D	99	97	95	91	N/A	N/A
446D (Turbo)	100	100	97	91	N/A	N/A
Forest Products:						
525B	*	*	*	*	*	*
535B	*	*	*	*	*	*
545	*	*	*	*	*	*
517	100	100	100	99	95	87
527	100	100	100	100	99	91
320C FM	*	*	*	*	*	*
322C FM	*	*	*	*	*	*
325C FM	*	*	*	*	*	*
330C FM	*	*	*	*	*	*

*Information not available at time of printing.
 ◀EUI engine — Automatic altitude deration.

Tables

ALTITUDE DERATION (Continued)*

MODEL	0-760 m (0-2500')	760-1500 m (2500-5000')	1500-2300 m (5000-7500')	2300-3000 m (7500-10,000')	3000-3800 m (10,000-12,500')	3800-4600 m (12,500-15,000')
561M	100	100	100	94	86	80
572R Series II	100*	100*	100*	94	86	80
583R	100	100	100	100	94	87
589	100	100	94	87	80	73
621G◀	100	100	100	100	97	90
631G◀	100	100	100	100	97	90
651E◀	100	100	100	95	87	80
627G Tractor◀	100	100	100	100	97	90
Scraper	100*	100*	100*	92	85	79*
637G Tractor◀	100	100	100	100	97	90
Scraper	100*	100*	100	95	87	80
657E Tractor◀	100	100	100	94	88	81
Scraper◀	100	100	100	95	90	84
613C Series II	100	100	100	100	95	87
615C Series II	100*	100*	95	88	81	74
623G◀	100	100	100	100	97	90
769D◀	100	100	100	93	88	82
771D◀	100	100	100	93	88	82
773D◀	100	100	100	100	93	85
775D◀	100	100	100	100	93	85
777D◀	100	100	100	100	93	87
785C*◀	100	100	100	93	86	80
789C*◀	100	100	100	93	86	80
793C*◀	100	100	100	100	100	93
776D◀	100	100	100	100	93	87
784C◀	100	100	100	93	86	80
725	100	100	100	100	100	95
730	100	100	100	100	100	95
735	100	100	100	100	99	91
740	100	100	100	100	99	91
814F	100*	100*	100	100	97	94
824G Series II	100	100	100	97	89	82
834G	100	100	100	95	85	75
844	100	100	100	100	92	85
854G	100	100	100	100	93	87
815B	100*	100*	100	100	97	94
825G Series II	100	100	100	97	89	82
816F	100	100	100	100	97	94
826G Series II	100	100	100	97	89	82
836G	100	100	100	95	85	75

*Refer to "Captive Vehicle Engine Fuel Specifications" microfiche at your local dealer.

**Information not available at time of printing.

◀EUI engine — Automatic altitude deration.

ALTITUDE DERATION (Continued)*

MODEL	0-760 m (0-2500')	760-1500 m (2500-5000')	1500-2300 m (5000-7500')	2300-3000 m (7500-10,000')	3000-3800 m (10,000-12,500')	3800-4600 m (12,500-15,000')
902	95	89	81	71	N/A	N/A
906	95	89	81	71	N/A	N/A
908	99	97	95	91	N/A	N/A
914G/IT14G	99	97	95	91	N/A	N/A
924G/924G Hook On	100	100	100	100	97	89
928G/IT28G	100	100	100	100	92	85
938G/IT38G	100	100	100	100	100	97
950G Series II	100	100	100	100	100	100
962G/IT62G Series II	100	100	100	100	100	90
966G Series II	100	100	100	100	**	**
972G Series II	100	100	92	84	77	70
980G Series II	100	100	100	100	96	88
988G	100	100	100	95	85	75
990 Series II	100	100	100	100	92	85
992G	100	100	100	100	93	87
994D	100	100	100	100	**	**
939C	100	100	100	100	*	*
953C	100	100	100	100	100	100
963C	100	100	100	100	100	100
973C	100	100	100	100	100	98
TH210	95	89	81	71	N/A	N/A
TH215	95	89	81	71	N/A	N/A
TH220B	99	97	95	91	N/A	N/A
TH330B	99	97	95	91	N/A	N/A
TH340B	99	97	95	91	N/A	N/A
TH350B	99	97	95	91	N/A	N/A
TH360B	99	97	95	91	N/A	N/A
TH460B	99	97	95	91	N/A	N/A
TH560B	99	97	95	91	N/A	N/A
TH580B	99	97	95	91	N/A	N/A
PM-565B	100	100	100	*	*	*
RM-250C	100	100	100	100	100	100
RM-350B	100	100	100	*	*	*
AP-800C	99	97	95	91	N/A	N/A
AP-900B	*	*	*	*	*	*
AP-1000B	100	100	100-97	97-93	93-89	89-83
AP-650B	100	100	100	97-93	93-89	89-83
AP-655C	100	100	100	100	*	*
AP-1050B	100	100	100-97	97-93	93-89	89-83
AP-1055B	100	100	100-97	97-93	93-89	89-83

*Information not available at time of printing.

**Automatically derates 3%/300 m (1000 ft) above 3000 m (10,000 ft).

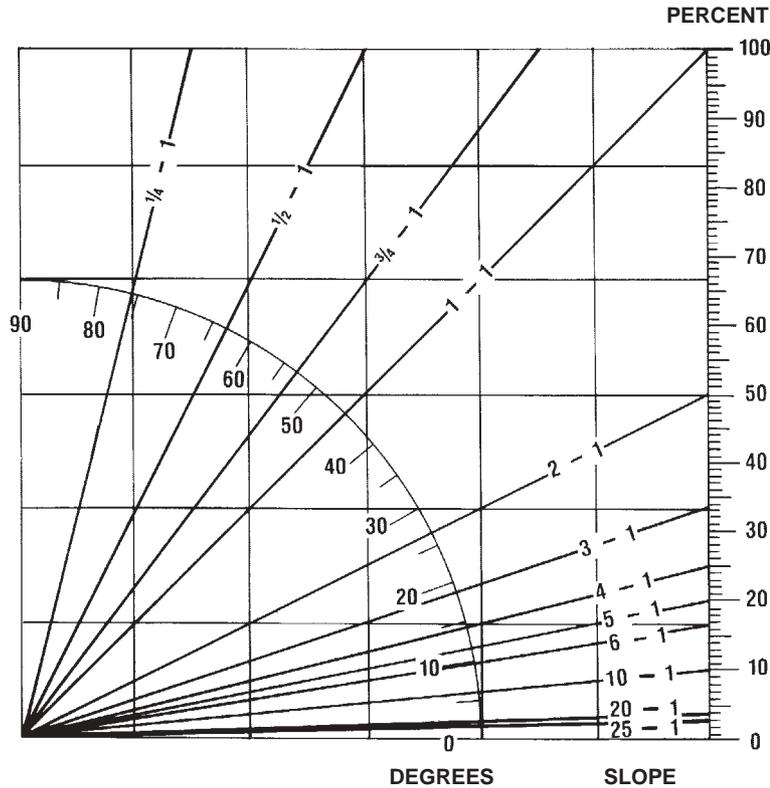
Tables

ALTITUDE DERATION (Continued)

MODEL	0-760 m (0-2500')	760-1500 m (2500-5000')	1500-2300 m (5000-7500')	2300-3000 m (7500-10,000')	3000-3800 m (10,000-12,500')	3800-4600 m (12,500-15,000')
BG-230	99	97	95	91	N/A	N/A
BG-240C	100	100	100-97	97-93	93-89	89-83
BG-260C	100	100	100-97	97-93	93-89	89-83
BG-225C	99	97	95	91	N/A	N/A
BG-245C	100	100	100-97	97-93	93-89	89-83
BG-2455C	100	100	100-97	97-93	93-89	89-83
BG-650	99	97	95	91	N/A	N/A
CS-323C	95	89	81	71	N/A	N/A
CS-423E	100	100-93	93-85	85-77	77-64	64-53
CS-433E	100	100	100	99-96	96-91	91-85
CS-533E	100	100	100-97	97-93	93-89	89-83
CS-563E	100	100	100	100	100	100
CS-573E	100	100	100	100	100	100
CS-583E	100	100	100	100	100	100
CS-663E	100	100	100	100	*	*
CS-683E	100-99	99-97	97-95	95-93	93-89	89-83
CP-323C	100	100-90	90-83	83-73	73-62	62-52
CP-433E	100	100	100-99	99-96	96-91	91-85
CP-533E	100	100	100-97	97-93	93-89	100
CP-563E	100	100	100	100	100	89-83
CP-573E	100	100	100	100	100	100
CP-583E	100	100	100	100	100	100
CP-663E	100	100	100	100	*	*
CB-214E	95	90	82	72	62	51
CB-224E/CB-225E	95	90	82	72	62	51
CB-334E	95	90	82	72	62	51
CB-335E	95	90	82	72	62	51
CB-434D	95	89	81	71	N/A	N/A
CB-534D/CB-534D XW	100	100	100	100	100	100
CB-634D	100	100	100-97	97-93	93-89	89-83
PS-150C	95	89	81	71	N/A	N/A
PS-360B	99	97	95	91	N/A	N/A
PF-300B	99	97	95	91	N/A	N/A
PS-300B	99	97	95	91	N/A	N/A
R1300G	*	*	*	*	*	*
R1600G	*	*	*	*	*	*
R1700G	*	*	*	*	*	*
R2900G	*	*	*	*	*	*
AE40 Series II	*	*	*	*	*	*
AD30	*	*	*	*	*	*
AD45	*	*	*	*	*	*
AD55	*	*	*	*	*	*

*Information not available at time of printing.

**GRADE COMPARISON CHART
DEGREES — PERCENT — SLOPE**



**GRADE IN DEGREES
AND PERCENTS**

DEGREES	PERCENT
1	1.8
2	3.5
3	5.2
4	7.0
5	8.8
6	10.5
7	12.3
8	14.0
9	15.8
10	17.6
11	19.4
12	21.3
13	23.1
14	24.9
15	26.8
16	28.7
17	30.6
18	32.5
19	34.4
20	36.4
21	38.4
22	40.4
23	42.4
24	44.5
25	46.6
26	48.8
27	51.0
28	53.2
29	55.4
30	57.7
31	60.0
32	62.5
33	64.9
34	67.4
35	70.0
36	72.7
37	75.4
38	78.1
39	81.0
40	83.9
41	86.9
42	90.0
43	93.3
44	96.6
45	100.0

Tables

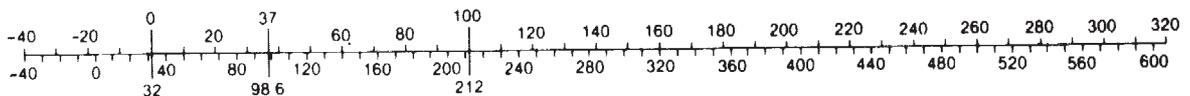
CONVERSION FACTORS

Multiply Metric Unit	By	To Obtain English Unit	Multiply English Unit	By	To Obtain Metric Unit
kilometer (km)	.6214	mile	mile, statute (m)	1.609	kilometer
meter (m)	1.0936	yard	yard (yd)	.9144	meter
meter (m)	3.28	foot	foot (ft)	.3048	meter
centimeter (cm)	.0328	foot	inch (in)	25.4	millimeter
millimeter (mm)	.03937	inch	sq mile (mile ²)	2.590	sq kilometer
sq kilometer (km ²)	.3861	square mile	acre	.4047	hectare
hectare (ha)	2.471	acre	sq foot (ft ²)	.0929	sq meter
sq meter (m ²)	10.764	square foot	sq inch (in ²)	.000645	sq meter
sq meter (m ²)	1550	square inch	cu yard (yd ³)	.7645	cu meter
sq centimeter (cm ²)	.1550	square inch	cu inch (in ³)	16.387	cu centimeter
cu centimeter (cm ³)	.061	cubic inch	cu foot (ft ³)	.0283	cu meter
cu meter (m ³)	1.308	cubic yard	cu inch (in ³)	.0164	liter
liter (L)	61.02	cubic inch	cubic yard (yd ³)	764.55	liter
liter (L)	.001308	cubic yard	mph	1.61	km/h
km/h	.621	mph	Ton — mph	1.459	tkm/h
liter (L)	.2642	U.S. gallon	U.S. gallon (US Gal)	3.785	liter
liter (L)	.22	Imperial gallon	U.S. gallon	.833	Imperial gallon
metric ton (t)	.984	long ton	long ton (lg ton)	1.016	metric ton
metric ton (t)	1.102	short ton	short ton (sh ton)	.907	metric ton
kilogram (kg)	2.205	pound, avdp.	pound (lb)	.4536	kilogram
gram (g or gr)	.0353	ounce, avdp.	ounce (oz)	28.35	gram
kilonewton (kN)	225	pound (force)	pound (lb) (force)	.00445	kilonewton
newton (N)	.225	pound (force)	pound (lb) (force)	4.45	newton
cu centimeter (cm ³)	.0338	fluid ounce	fluid oz (fl oz)	29.57	cu centimeter
kilograms/cu meter	1.686	pounds/cu yd	lb/cu ft (lb/ft ³)	16.018	kg/cu meter
kilograms/cu meter	.062	pounds/cu ft	lb/cu yd (lb/yd ³)	.5933	kg/cu meter
kilograms/sq cm (kg/cm ²)	14.225	pounds/sq in	pounds/sq. in.	.0703	kilogram/sq cm
kilocalorie (kcal)	3.968	Btu	psi	.0689	bar
kilogram-meter (kg•m)	7.233	foot-pound	psi	6.89	kilopascal
meter-kilogram (m•kg)	7.233	pound-foot	Btu	.2520	kilogram-calorie
metric horsepower (CV)	.9863	hp	foot-pound (ft-lb)	.1383	kilogram-meter
kilowatt (kW)	1.341	hp	horsepower (hp)	1.014	metric horsepower
kilopascal (kPa)	.145	psi	horsepower (hp)	.7457	kilowatt
bar	14.5	psi	pounds/cu yd	.0005928	tons/m ³
tons/m ³	1692	pounds/cu yd	pounds (No. 2 diesel fuel)	.1413	U.S. gallon
decaliter	.283	bushel	bushel	3.524	decaliter

NOTE: Some of the above factors have been rounded for convenience. For exact conversion factors please consult International System of Units (SI) table.

Temperature conversion

Degree C



Degree F

$$^{\circ}\text{C} = (^{\circ}\text{F} - 32) \div 1.8$$

$$^{\circ}\text{F} = (\text{C} \times 1.8) + 32$$

METRIC UNIT EQUIVALENTS

1 km	=	1000 m
1 m	=	100 cm
1 cm	=	10 mm
1 km ²	=	100 ha
1 ha	=	10,000 m ²
1 m ²	=	10,000 cm ²
1 cm ²	=	100 mm ²
1 m ³	=	1000 liters
1 liter	=	1000 cm ³
1 metric ton	=	1000 kg
1 quintal	=	100 kg
1 N	=	0.10197 kg•m/s ²
1 kg	=	1000 g
1 g	=	1000 mg
1 bar	=	14.504 psi
1 cal	=	427 kg•m
	=	0.0016 cv•h
	=	0.00116 kw•h
torque unit		
1 CV	=	75 kg•m/s
1 kg/cm ²	=	0.97 atmosph.

ENGLISH UNIT EQUIVALENTS

1 mile	=	1760 yd
1 yd	=	3 ft
1 ft	=	12 in
1 sq mile	=	640 acres
1 acre	=	43,560 sq ft
1 sq ft	=	144 sq in
1 cu ft	=	7.48 gal liq
1 gal	=	231 cu in
	=	4 quarts liq
1 quart	=	32 fl oz
1 fl oz	=	1.80 cu in
1 sh ton	=	2000 lb
1 lg ton	=	2240 lb
1 lb	=	16 oz, avdp
1 Btu	=	778 ft lb
	=	0.000393 hph
	=	0.000293 kwh
1 mechanical hp	=	550 ft-lb/sec
1 atmosph.	=	14.7 lb/in ²

POWER UNIT EQUIVALENTS

kW	=	Kilowatt
hp	=	Mechanical Horsepower
CV	=	Cheval Vapeur (Steam Horsepower)
		French Designation For Metric Horsepower
PS	=	Pferdestärke (Horsepower)
		German Designation For Metric Horsepower
1 hp	=	1.014 CV = 1.014 PS
	=	0.7457 kW
1 PS	=	1 CV = 0.986 hp
	=	0.7355 kW
1 kW	=	1.341 hp
	=	1.36 CV
	=	1.36 PS

Tables

Machine Model	Engine Model	Machine Model	Engine Model	Machine Model	Engine Model
Track-Type Tractors		Excavators		Backhoe Loaders	
D3G XL/LGP	3046 T	301.5	3003	416D	3054C
D4G XL/LGP	3046 T	301.5 CR	L3E*	420D/420D IT	3054C T
D5G XL/LGP	3046 T	301.6	3003	424D	3054C
D5N XL/LGP	3126B T	301.8	3003	428D	3054C T
D6N XL/LGP	3126B T	302.5	3013	430D/430D IT	3054C T
D6G	3306 T	303 SR/CR	S3L2	432D	3054C T
D6R Series II (All)	C9 ATAAC	304 CR	S4L2*	442D	3054CT
D7G	3306 T	305 SR/CR	K4N	446D	3114 T
D7R Series II (All)	3176C SCAC	307C/307C SB	Mitsubishi 4M40EI		
D8R/D8R LGP	3406E TA	308C CR	Mitsubishi 4M40EI	Forest Products	
D8T/D8T LGP	C15 ACERT	308C SR	K4N	Wheel Skidders	
D9R	3408E TA	311C U	3064 T	525B	3126 TA
D9T	C18 ACERT	312C/312C L	3064 T*	535B	3126 TA
D10T	C27 ACERT	312C/312C L	3064 T**	545	3306 TA
D11R/D11R CD	3508B TA	313C SR/CR	3064 T	Track Skidders	
		314C CR/LCR	3064 T	517	3304 TA
		315C/315C L	3046 T*	527	3304 TA
		315C L	3054E ATAAC**		
		318C/318C L/			
		318C LN/318C N	3066T	Pipelayers	
Motor Graders		M313C	3054E ATAAC	561N	3126B T
120H STD	3116 TA	M315C	3054E ATAAC	572R Series II	3176C T
120H Global	3126B ATAAC	M316C	3056E ATAAC	583R	3406C TA
135H STD	3116 TA	M318C	3056E ATAAC	589	3408 TA
135H Global	3126B ATAAC	M322C	3056E ATAAC		
12H STD	3306	320C/320C L/		Wheel Tractor-Scrapers	
12H Global	C-9 ATAAC	320C LN/320C S	3066 ATAAC	613C Series II	3116 TA
140H STD	3306 T	321C LCR	3066 ATAAC	615C Series II	3306 TA
140H Global	3176C ATAAC	322C/322C L	3126 TA	623G	3406E TA
143H Global	3176C ATAAC	325C L/325C LN	3126B ATAAC	621G	3406E TA
160H STD	3306 T	330C/330C L/330C LN	C-9 ATAAC	631G	3408E TA
160H Global	3176C ATAAC	345B L Series II	3176C ATAAC	651E	3412E TA
163H Global	3176C ATAAC	365B L Series II	3196 ATAAC	627G Tractor	3406E TA
14H Global	3176C ATAAC	385B/385B L	3456 ATAAC	627G Scraper	C9 TA
16H Global	3196 ATAAC	5110B	3412B HEUI	637G Tractor	3408E TA
24H	3412E TA	5130B	3508B (EUI) TA	637G Scraper	C9 TA
		5230B	3516B (EUI) TA	657E Tractor	3412E TA
				657E Scraper	3408E TA
Skid Steer Loaders		Front Shovels			
216B	3024C	5090B	3456 ATAAC		
226B	3024C T	5130B	3508 (EUI) TA		
232B	3024C	5230B	3516B (EUI) TA		
236B	3044C T				
242B	3024C T				
246B	3044C T				
248B	3044C T				
252B	3044C T				
262B	3044C T				
268B	3044C T				
247B	3024C T				
257B	3024C T				
267B	3044C T				
277B	3044C T				
287B	3044C T				

*Japan Sourced.

**France Sourced.

Machine Model	Engine Model	Machine Model	Engine Model	Machine Model	Engine Model
Construction & Mining Trucks		Track Loaders		Compactors	
769D	3408E TA	939C	3046 T	Single Drum, Smooth	
771D	3408E TA	953C	3126B T	CS-323C	3054C
773E	3412E TA	963C	3126B T	CS-423E	3054C
775E	3412E TA	973C	3306 TA	CS-433E	3054C T
777D	3508B (EUI) TA			CS-533E	3054C T
785C	3512B (EUI) TA	Telehandlers		CS-563E	3056E ATAAC
789C	3516B (EUI) TA	TH210	3054B	CS-573E	3056E ATAAC
793C	3516B (EUI) TA	TH215	3054B	CS-583E	3056E ATAAC
797B	3524B (EUI) TA	TH220B	3054E	CS-663E	3056E ATAAC
		TH330B	3054E	CS-683E	3056E ATAAC
		TH340B	3054E		
Construction & Mining Tractors		TH350B	3054 T	Single Drum, Padded	
776D	3508B (EUI) TA	TH360B	3054 T	CP-323C	3054C
784C	3512B (EUI) TA	TH460B	3054 T	CP-433E	3054C T
		TH560B	3054E T	CP-533E	3054C T
				CP-563E	3056E ATAAC
Articulated Trucks		Paving Products		CP-573E	3056E ATAAC
725	3176C ATAAC	Cold Planers		CP-583E	3056E ATAAC
730	3196C ATAAC	PM-565B	3408E TA	CP-663E	3056E ATAAC
735	3406E ATAAC				
740	3406E ATAAC				
		Reclaimer/Soil Stabilizers		Double Drum and Combi	
Wheel Dozers		RM-250C	3406C TA	CB-214E	3013C
814F	3176C ATAAC	RM-350B	3406C TA	CB-224E	3013C
824G Series II	3406E ATAAC			CB-225E	3013C
834G	3456 TA	Asphalt Pavers		CB-334E	3024C
844	3412E ATAAC	AP-800C	3054 T	CB-335E	3024C
854G	3508B TA	AP-900B	3116 T	CB-434D	3054C
		AP-1000B	3116 TA	CB-534D/CB-534D XW	3054C
Soil Compactors		AP-650B	3054 TA	CB-634D	3116 T
815F	3176C ATAAC	AP-655C	3056E ATAAC		
825G Series II	3406E ATAAC	AP-1050B	3116 TA	Pneumatic Tire-Asphalt	
		AP-1055B	3116 TA	PS-150C	3054C
Landfill Compactors		BG-230	3054 T	PS-360B	3054 T
816F	3176 TA	BG-240C	3116 T	PF-300B	3054 T
826G Series II	3406E TA	BG-260C	3116 TA	PS-300B	3054 T
836G	3456 TA	BG-225C	3054 TA		
		BG-245C	3116 TA	Underground Mining	
Wheel Loaders/Integrated Toolcarriers		BG-2455C	3116 TA	R1300G	3306 TA
902	3024	Windrow Elevators		R1600G	3176C ATAAC
906	3034	BG-650	3054 T	R1700G	3176C ATAAC
908	3054 T			R2900G/R2900G XTRA	3406E ATAAC
914G/IT14G	3054 T			AD30	3406E ATAAC
924G/924G (All)	3056 ATAAC			AD45	3408E TA
928G/IT28G	3056 ATAAC			AD55	C18
938G/IT38G	3126B ATAAC				
950G Series II	3126B ATAAC				
962G Series II/ IT62G Series II	3126B ATAAC				
966G Series II	3176C ATAAC				
972G Series II	3196 ATAAC				
980G Series II	3406E ATAAC				
988G	3456E ATAAC				
990 Series II	3412E ATAAC				
992G	3508B TA				
994D	3516B TA				

Tables

Engine Model and (Cylinders)	Machine	Aspiration	Fuel Injection System	Bore × Stroke		Displacement	
				mm	in	L	in ³
3003 (3)	301.5, 301.6, 301.8	NA	DI	75 × 72	2.95 × 2.83	0.95	58.2
L3E	301.5 CR	NA	DI	76 × 70	3.0 × 3.0	0.95	58.1
S3L2	303 SR/CR	NA	DI	78 × 92	3.0 × 4.0	1.3	79
3013C (3)	302.5, CB-214E, CB-224E, CB-225E	NA	DI	75 × 72	2.95 × 3.54	1.50	91.3
S4L2	304 CR	NA	DI	78 × 92	3.0 × 4.0	1.76	107
3014 (4)		NA	DI	75 × 72	2.95 × 3.54	2.0	122
3024C (4)	CB-334E, CB-335E, 902, 216B, 232B	NA	DI	84 × 100	3.31 × 3.94	2.22	135
	226B, 242B, 247B, 257B	T					
K4N	305 SR/CR, 308C SR	NA	DI	90 × 90	4.0 × 4.0	2.3	140
Mitsubishi 4M40EI (4)	307C, 307C SB, 308C CR	NA	DI	95 × 100	3.7 × 3.94	2.84	173
3034 (4)	906	NA	DI	97 × 100	3.32 × 3.94	2.95	180
3044C	268B, 267B, 277B, 287B, 236B, 246B, 248B, 252B, 262B	T	DI	94 × 120	3.7 × 4.7	3.3	201
3054E (I-4)	416D, 424D, CB-434D, CS-323C, CS-423E, CP-323C, TH210, TH215, PS-150C, TH220B, TH330B, TH340B	NA	DI	100 × 127	3.94 × 5.0	4.0	243
	(416D), 420D, 420D IT, (424D), 428D, 430D, 430D IT, 432D, 442D, AP-800C, BG-230, BG-650, 908, 914G, IT14G, PS-360B, PF-300B, PS-300B, CS-433E, CP-433E, CB-534C, TH350B, TH360B, TH460B, TH560B	T (optional)					
	M313C, M315C, AP-650B, 315C L**, BG-225C	TA					
3064 (I-4)	311C U, 312C, 314C CR/LCR, 313C SR/CR, 312C L**	T	DI	105 × 127	4.1 × 5.0	4.4	268
3114 (I-4)	446D	T	DI	105 × 127	4.13 × 5.0	4.4	268
3046 (I-6)		NA	DI	94 × 120	3.7 × 4.7	5.0	305
	D3G XL, D3G LGP, D4G XL, CS-533E, D4G LGP, D5G XL, D5G LGP, CP-533E, 315C/315C L*, 939C	T	DI				

*Japan sourced.

**France sourced.

DI — Direct Injection

T — Turbocharged

TA — Turbocharged and Aftercooled

NA — Naturally Aspirated

NOTE: Materials and specifications subject to change without notice. Component commonality of Cat Engines for all applications does not imply complete interchangeability. Contact your Caterpillar Dealer for specific information.

Engine Model and (Cylinders)	Machine	Aspiration	Fuel Injection System	Bore × Stroke		Displacement	
				mm	in	L	in ³
3056 (I-6)	924G, 924G Hook On, CS-563E, CS-573E, CS-583E, CS-663E, AP-655C, CS-683E, CP-563E, CP-573E, CP-583E, CP-663E, M316C, M318C, M322C, 928G, IT28G	ATAAC	DI	100 × 127	3.94 × 5.0	6.0	365
3066 (I-6)	318C (All)*, 320C, 320C L, 320C LN, 320C S, 321C LCR	T	DI	102 × 130	4.0 × 5.1	6.4	391
3116 (I-6)	CB-634D, BG-240C, AP-900B	T	DI	105 × 127	4.13 × 5.0	6.6	402
	613C Series II, BG-260C, BG-245C, AP-1050B, AP-1055B, 120H STD, 135H STD, BG-2455C, AP-1000B	TA	DI				
3304 (I-4)	527, 517	TA	DI	121 × 152	4.75 × 6.0	7.0	425
3126 (I-6)	D5N, D6N, 561N, 953C, 963C	T	DI	110 × 127	4.33 × 5.0	7.2	442
	322C, 322C L, 525B, 535B	TA					
	962G Series II, IT62G Series II, 938G, IT38G, 950G Series II, 120H Global, 135H Global, 325C, 325C L, 325C LN	ATAAC					
C-9 (I-6)	12H Global, D6R Series II (All), 330C, 330C L, 330C LN, 627G Sc., 637G Sc.	ATAAC	DI	112 × 149	4.4 × 5.9	8.8	538
3176 (I-6)	14H Global, 140H Global, 572R Series II, 143H Global, 160H Global, 163H Global, R1700G, R1600G, 345B L Series II, D7R Series II (All), 725, 814F, 815F, 816F, 966G Series II	ATAAC	DI	125 × 140	4.92 × 5.5	10.2	629

*France sourced.

DI — Direct Injection

T — Turbocharged

TA — Turbocharged and Aftercooled

ATAAC — Air/Air Aftercooled

NOTE: Materials and specifications subject to change without notice. Component commonality of Cat Engines for all applications does not imply complete interchangeability. Contact your Caterpillar Dealer for specific information.

Tables

Engine Model and (Cylinders)	Machine	Aspiration	Fuel Injection System	Bore × Stroke		Displacement	
				mm	in	L	in ³
3306 (I-6)	12H STD, D6G, 140H STD, 160H STD	T	DI	121 × 152	4.75 × 6.0	10.5	638
	R1300G, 615C Series II, 545, 973C, D7G	ATAAC	DI				
		ATAAC	DI				
3196 (I-6)	730, 365B L Series II, 16H Global, 972G Series II	ATAAC	DI	130 × 150	5.1 × 5.9	12.0	732
3406 (I-6)	621G, 623G, 627G Tr., RM-250C, RM-350B, 583R, D8R, D8R LGP	TA	DI	137 × 165	5.4 × 6.5	14.6	893
	826G Series II, 825G Series II, 824G Series II, R2900G, 735, 740, 980G Series II, AD30	ATAAC	DI				
C15 ACERT (I-6)	D8T, D8T LGP	TA	DI	137 × 172	5.4 × 6.75	15.2	928
3456 (I-6)	988G, 834G, 836G, 385B, 385B L, 5090B	ATAAC	DI	140 × 171	5.5 × 6.75	15.8	966
3408 (V-8)	D9R, 589, 631G, 637G Tr., 657E Sc., 771D, 769D, PM-565B, AD45	TA	DI	137 × 152	5.4 × 6.0	18.0	1099
		ATAAC					
C18 (I-6)	AD55	TA	DI	145 × 185	5.7 × 7.3	18.1	1104
C18 ACERT	D9T	TA	DI	145 × 185	5.7 × 7.3	18.1	1104
C27 ACERT (V-12)	D10T	TA	DI	137 × 152	5.4 × 6.0	27.0	1648
3412 (V-12)	D10R, 651E, 657E Tr., 773E, 775E, 24H, 5110B	TA	DI	137 × 152	5.4 × 6.0	27.0	1649
	990 Series II, 844	ATAAC	DI				
3508 (V-8)	D11R, 777D, 776D, 5130B, 992G, 854G	TA	DI	170 × 190	6.7 × 7.5	34.5	2105
3512 (V-12)	785C, 784C	TA	DI	170 × 190	6.7 × 7.5	51.8	3158
3516 (V-16)	789C, 793C, 994D, 5230B	TA	DI	170 × 190	6.7 × 7.5	69.1	4211
3524 (V-24)	797B	TA	DI	170 × 215	6.7 × 8.5	117.0	7130

DI — Direct Injection
T — Turbocharged

TA — Turbocharged and Aftercooled
ATAAC — Air/Air Aftercooled

NOTE: Materials and specifications subject to change without notice. Component commonality of Cat Engines for all applications does not imply complete interchangeability. Contact your Caterpillar Dealer for specific information.

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