3-25-83 8605

CATERPILLAR 245 Excavator

Summary of features

- **Variable flow hydraulic system** with Cat built piston pumps . . . hydraulic power proportioning . . . Cat high-pressure XT-5 hose.
- **Human-engineered cab** with joystick levers and function switches within easy reach. Four-way adjustable seat . . . tinted, break-resistant LEXAN sheet in skylight, side and rear windows.
- **Cat track-type undercarriage** with Lifetime Lubricated rollers and idlers, Sealed Track . . . and hydraulic track adjusters. Variable track gauge increases stability over the side when digging and lifting massive sewer pipe.
- **Hydrostatic drive** with independent track motors . . . travel speed of 1.9 MPH/3.1 km/h. Oil disc brakes automatically spring applied, hydraulically released.
- **Maximum digging depth . . .** 25'10"/7.874 m with 8'6"/2591 mm stick, 27'10"/8.48 m with 10'6"/3200 mm stick, 31'10"/9.703 m with 14'6"/4420 mm stick.
- **Maximum ground level reach** 40'11"/12.471 m with 8'6"/2591 mm stick, 41'10"/12.7 m with 10'6"/3200 mm stick, 46'0"/14.0 m with 14'6"/4420 mm stick.
- **CAT PLUS services . . .** from your Caterpillar Dealer . . . the most comprehensive, total customer support system in the industry.

Caterpillar Engine

Flywheel power @ 2100 RPM . . . . . 325 HP/242 kW (Kilowatts (kW) is the International System of Units equivalent of horsepower.)

The net power at the flywheel of the vehicle engine operating under SAE standard ambient temperature and barometric conditions, 77°F/25°C and 29.63" Hg/100 kPa, using 35 API gravity fuel oil at 60°F/15.6°C, and after deductions for fan, air cleaner, water pump, lubricating oil pump, fuel pump, alternator and muffler. No derating is required up to 7500 ft./2300 m altitude.

Caterpillar 4-stroke-cycle 3406 turbocharged and aftercooled diesel Engine with six cylinders, 5.4"/137 mm bore, 6.5"/165 mm stroke and 893 cu. in./14.6 liters displacement.

Direct injection Caterpillar fuel system with adjustment-free pumps and non-clogging injection valves. Parallel manifold porting with two intake and two exhaust valves per cylinder. Push-rod-type valve mechanism with two rocker arms per cylinder, one for each pair of intake and exhaust valves. Variable timing fuel system.

24-volt direct electric starting system with ether starting aid standard. (Ether canister not included.)

hydraulic system

Two Caterpillar variable displacement piston pumps power the boom, stick, bucket and travel circuits.

Power output @ rated engine RPM:
Maximum flow . . . . . 2 × 116 gpm/2 × 447 liters/min

Single variable displacement piston pump powers the swing circuit.

Output to swing circuit @ rated engine RPM:
Maximum flow . . . . . 71.5 gpm/271 liters/min

Single-section gear pump powers the pilot control circuit.

Output to pilot system @ rated engine RPM . . . . . 18 gpm/68 liters/min

Oil-to-air hydraulic oil cooler is mounted in front of engine radiator.

Relief valve settings:
Implement circuits . . . . . 4500 psi/310 bar/31 026 kPa
Travel circuits . . . . . 4500 psi/310 bar/31 026 kPa

Swing circuit:
Accelerating . . . . . 3500 psi/241 bar/24 131 kPa
Decelerating . . . . . 2500 psi/172 bar/17 237 kPa
Pilot circuit . . . . . 335 psi/23.1 bar/2310 kPa

CATERPILLAR

BUCKETS, TIP DESIGNS AND SIDECUTTERS TO SUIT YOUR JOB.

Backhoe buckets are available in five different bite widths to suit various job conditions. Bite width is measured over outside corners of long (general purpose) tips.

Bite width:

36″/900 mm and 42″/1050 mm buckets have deeper side profiles than the rest of the bucket line. With these buckets, you don't have to sacrifice capacity when digging a narrow trench.

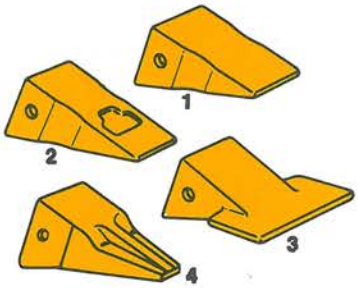
48″/1200 mm bucket works well in relatively hard digging because of its high cutting edge penetration forces. This and wider buckets have greater penetration forces because of a smaller side profile, which retains excellent loadability.

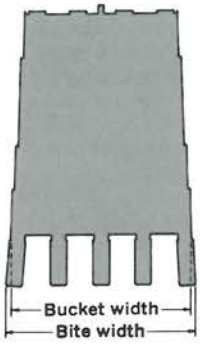
54″/1350 mm bucket performs best in general purpose work where good bucket loads are required. Increases production in easy and moderate digging conditions.

67″/1700 mm and 75″/1900 mm buckets deliver highest load capacity, especially for trenching and truck loading. Not recommended for use with the long stick in heavy materials and at maximum reach.

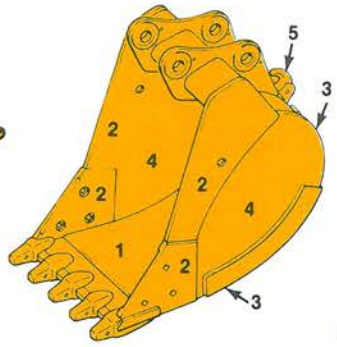
Four tip designs:

(1) Short (extreme service) . . . for digging tough materials;
(2) Long (general purpose) . . . for most digging applications;
(3) Wide (spade) . . . for less spilling and floor gouging.
(4) Penetration . . . self sharpening for digging in tough, compact material.





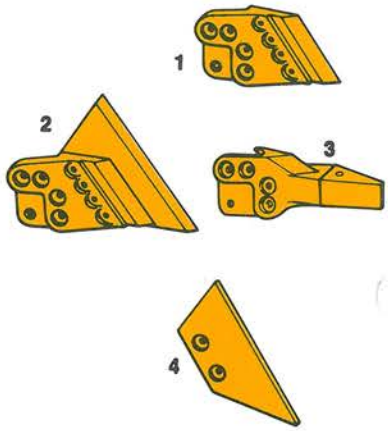
Rugged Caterpillar buckets can be curled 177° for excellent load retention and easy digging under cross-pipes. High-strength heat-treated steel is used in primary wear areas: (1) cutting edge, (2) side routers and (3) wear strips. Side plates (4) are angled inward to reduce bucket drag and aid self-cleaning. Bucket hook (5) is standard.



Four side cutter designs:***

(1) One-piece blade . . . effective in average digging conditions. Widens bite width 1.5″/38 mm each side.
(2) Blade with extension . . . for light to moderate digging conditions. Bolts to one-piece blade and widens bite width 3″/76 mm on each side.
(3) Tooth-type . . . for severe digging applications. Widens bite width 4″/102 mm on each side.
(4) Strike-off . . . protects bucket corners from wear. Does not widen bite width.

***Available only for 54″/1.350 m and smaller buckets.



Bucket specifications (includes tip adapters):

Bite Width measured over corners of long (general purpose) tips	SAE Cubic Yards*	† Liters	CECE** Liters	Weight With Tips	
	Heaped	Heaped	Heaped	lb.	kg
36″/900 mm	2.00	1530	1580	3475	1576
42″/1050 mm	2.50	1910	1910	3914	1775
48″/1200 mm	2.50	1910	1410	3933	1784
54″/1350 mm	3.00	2290	2140	4770	2160
67″/1700 mm	3.25	2480	2320	5340	2423
75″/1900 mm	3.75	2870	2630	5910	2679

*Based on SAE Standard J296 (identical to PCSA ratings).
†Metric values are calculated directly from the bucket rather than converted from SAE rated capacities.
**Committee for European Construction Equipment.

Materials and specifications are subject to change without notice.

AEHQ8605 (6-82)
(Replaces AEHQ9357)

Printed in U.S.A.

245

Excavator

hydraulic system (continued)

Cylinders, bore x stroke:

Boom (2) . . . . . 7.00″ × 63.88″/178 × 1623 mm
Stick (1) . . . . . 8.25″ × 68.5″/210 × 1740 mm
Bucket (1) . . . . . 7″ × 65″/178 × 1650 mm

Three abrasion resistant polyurethane seals work together to seal cylinder rod ends.

drive

Full hydrostatic; each track is driven by an independent hydraulic motor. Two travel pedals: right pedal gives forward movement . . . the left, reverse. Triple-reduction, spur-gear final drive, fully enclosed, splash lubricated. Duo-Cone® Floating Ring Seals on output shaft.

Maximum drawbar pull . . . . . 97,800 lb/438 kN/44 362 Kg
Maximum travel speed @ rated engine RPM:
Forward and reverse . . . . . 1.9 MPH/3.1 km/h

brakes

Two oil disc brakes on final drive input shafts. Spring applied, hydraulically released. Depressing either travel pedal simultaneously disengages brakes. When machine is stopped, brakes are automatically applied.

track

Cat designed and built track-type undercarriage. Reinforced box-section track roller frame. Sealed Track. Lifetime Lubricated rollers and idlers. Double grouser shoes and hydraulic track adjusters standard. Variable track gauge is extendable 16″/406 mm — retracted it reduces shipping width; extended it improves stability over the side. Idler end track guiding guards standard.

Number of shoes (each side) 45
Width of standard shoe . . . . . 30″/762 mm
Overall track length . . . . . 18′5″/5.613 m
Ground contact area (standard shoe) . . . . . 11,392 sq in/7.4 m²*
Overall track width with
extended gauge and standard shoe . . . . . 157.75″/3.956 m

*Per PCSA Standard No. 3.

swing mechanism

Variable displacement piston pump supplies power for swing circuit. Automatic servo system regulates pump flow according to swing requirements and provides low flow rate for maximum swing torque, or high flow rate for maximum swing speed. Swing drive has carburized drive gears. Hydraulic motor provides maximum rotational speed of 4.8 RPM. Shoe-type brake on swing drive case, manually applied, holds upper structure steady on side slopes. Smooth, modulated deceleration occurs when swing control lever is released, providing accurate positioning for next work cycle.

controls

Two joystick hand levers actuate boom, stick, bucket and swing.

Right lever: Move forward and backward to lower and raise boom. Right and left to control bucket curl and dump.

Left lever: Move forward and backward to move the stick out and in. Left and right to control swing direction.

Oblique movement of either lever operates any two functions simultaneously. Manually applied lever on the left console completely neutralizes the control system. Foot pedal combines flow from both piston pumps to increase boom-raise speed.

steering

A lever between the travel pedals provides gradual turns, pivot and counter-rotation steering. (1) Depress the forward or reverse pedal and move the lever right or left. This drives one track while slowing the other to turn the machine in the direction the lever was moved. (2) Move the lever farther, into contact with a "resistance" bumper spring, for a pivot turn with one track locked and the other driving. (3) Push the lever beyond the bumper spring to reverse the locked track for counter-rotation and a spot turn.

service refill capacities

	U.S. Gallons	Liters
Fuel tank	158	597
Cooling system	20.5	77.6
Lubrication:		
Engine oil	9.5	36
Pump drive	1.3	5
Swing drive	9.2	35
Final drive (each)	16.0	60.5
Hydraulic system (includes tank)	193	729
Hydraulic tank	106	403

shipping weight (approximate)

With standard 30″/762 mm double grouser track shoes, boom, lubricants, coolant, 10% fuel and without bucket:

With 8′6″/2591 mm stick . . . . . 133,239 lb/60 437 kg
With 10′6″/3200 mm stick . . . . . 133,744 lb/60 666 kg
With 14′6″/4420 mm stick . . . . . 134,804 lb/61 147 kg

See page 6 for bucket weights. For operating weight add 175 lb/80 kg for operator and 1004 lb/455 kg for fuel.

standard equipment

Alternator (35-amp) . . . All weather cab with: Defroster fan; Dome and dash lights; Instrumentation (engine oil pressure gauge, coolant temperature gauge, hydraulic oil temperature gauge, voltmeter, low hydraulic oil level light, air filter service light, hydraulic oil filter service light and flashing warning light); Electric clock hour meter; 4-way adjustable seat with armrests and side consoles; Dual windshield wipers with washer; 2-section windshield with tinted, laminated safety glass in top, clear, laminated safety glass in bottom; Non-opening skylight; Sliding rear window with friction lock; Floor mat; Cigar lighter . . . Walkway and handrails . . . 17,500 lb/7940 kg counterweight . . . Dry-type air cleaner and precleaner . . . Electric horns (front and rear) . . . Muffler . . . Basic machine working lights . . . Idler end track guiding guards . . . Hydraulic track adjusters . . . Lifetime Lubricated rollers and idlers . . . Tool compartment . . . Sealed linkage pins . . . Tow eyes (front and rear) . . . Sealed Track with 30″/762 mm double grouser track shoes . . . Lockable house and cab.

EUROPEAN-BUILT has tinted safety glass in windows; Suspension seat.

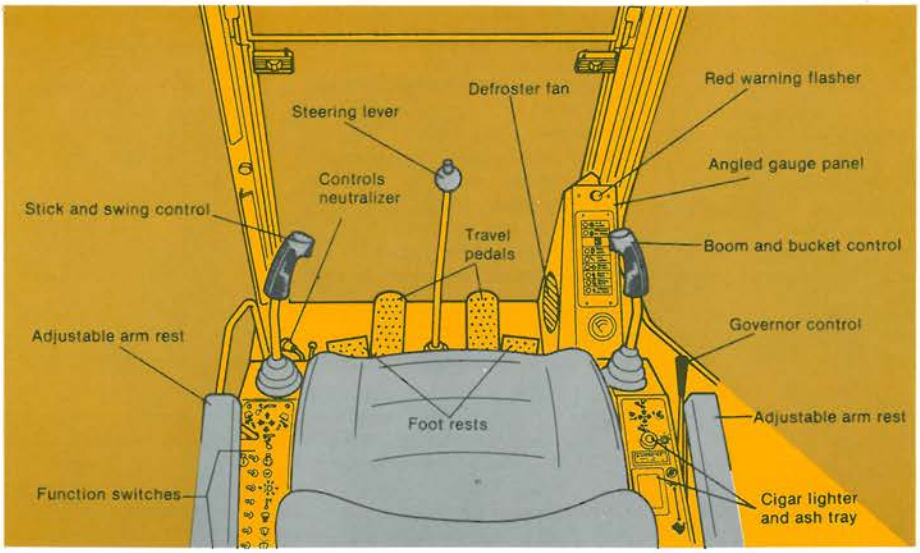
U.S.-BUILT has tinted LEXAN sheet in windows; Travel alarm. Seat belts.

optional equipment

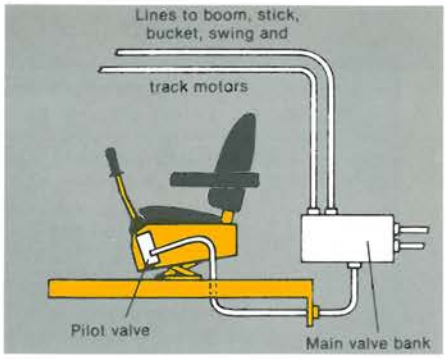
Alternator (50-amp) . . . Buckets . . . Bucket side cutters . . . Bucket tips . . . One piece boom . . . Backhoe sticks . . . Low temperature starting system . . . Fire extinguisher . . . Ether starting aid . . . Tool kit . . . Guards (hydraulic pump and lines, pilot line, swivel, track motor) . . . FOPS mounted working lights . . . Storage rack . . . Track shoes . . . Windshield vandalism guard . . . Counterweight removal device . . . auxiliary hydraulic system . . . cab heater; air conditioner (includes heater) . . . Tiltable suspension seat . . . Heavy lift hydraulic circuit . . . Full length track guiding guards.

U.S.-BUILT offers 24″/610 mm double grouser track shoes; 36″/914 mm double grouser track shoes; Suspension seat.

Built-in convenience, comfort and safety mean more operator efficiency.

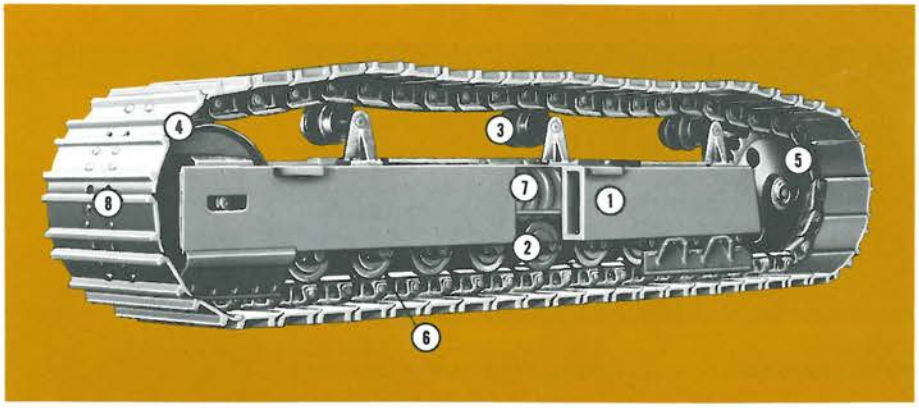


Built for tough applications, the 245 cab is heavy-duty constructed with 11-gauge sheet steel and box-section frame. The 36.5″/**926 mm** window-to-window inside cab dimension provides extra roominess. Two-section windshield, adjustable to five different visibility/ventilation combinations to maximize operator comfort and convenience, uses tinted safety glass in top and clear safety glass in bottom. 4-way adjustable seat with joystick levers and switches mounted on side consoles puts controls within comfortable reach. Angled gauge panel lets machine systems be monitored at a glance. Optional heater or combination air conditioner/heater package offers temperature-controlled air circulation. Optional tiltable suspension seat is available for added comfort.

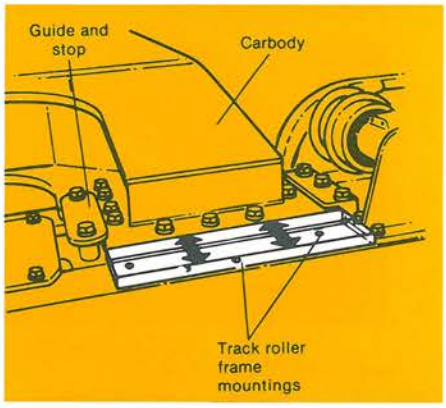


Controls respond smoothly and easily for precise work because they're boosted with a hydraulic-over-hydraulic pilot system that provides easy, well-modulated lever movement. No surge as with air-over-hydraulic controls and no high force needed to move levers as with mechanical controls. Boom-raise speed boosted by foot pedal.

Rugged track-type undercarriage on the 245 means low machine downtime . . . low maintenance costs.

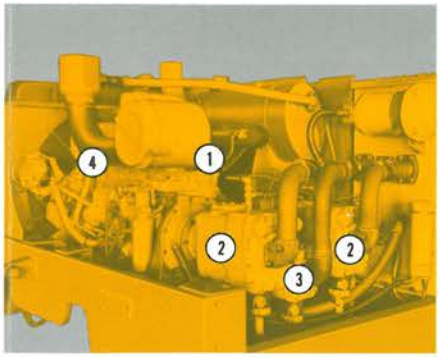


Track-type undercarriage by Caterpillar, the world's most experienced manufacturer of track-type vehicles, means rugged performance, long service life and a minimum of undercarriage service. It also means that the 245 can maneuver and travel at 1.9 MPH/**3.1 km/h** . . . about twice as fast as many comparable machines. Dependable components include: (1) Rugged, box-section roller frames; (2) Lifetime Lubricated track rollers, (3) carrier rollers, (4) idlers and (5) sprockets; (6) pins and bushings sealed with metal-to-metal discs; (7) hydraulic track adjusters and heavy duty recoil mechanisms; (8) bolt-on track shoes in several widths.



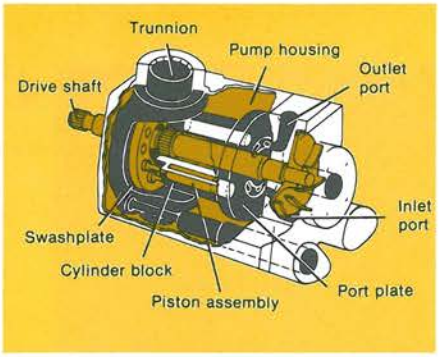
Variable track gauge reduces shipping width when retracted and increases lift capacities over the side up to 21% at ground line when extended — for digging or lifting massive pipe. The track gauge can be increased 16″/**406 mm** — from 111.75″/**2840 mm** to 127.75″/**3240 mm.**

Variable flow hydraulics for solid performance and precise control.



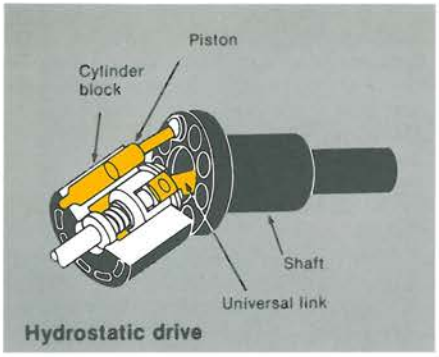
Powerful, dependable hydraulic components deliver high flows for rapid swing, lift and dump . . . and high digging forces for breaking out tough materials. Major hydraulic components are:

1. Cat 3406 diesel drives the pumps;
2. Two variable-displacement piston pumps power boom, stick, bucket and travel;
3. Single variable-displacement piston pump powers swing;
4. Single gear-type pump powers pilot controls.

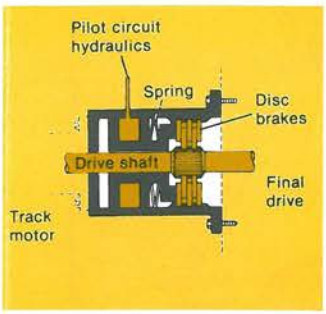


Variable displacement piston pumps provide the 245's aggressive digging power. The three pumps (two for work tools and travel power, one for swing) each contain a swashplate whose angle changes in reaction to work load. A greater angle (low pressure) lengthens piston stroke, providing more flow and speed when little resistance is encountered . . . a lesser angle (high pressure) shortens piston stroke, reducing flow when high resistance to digging or lifting is met. Since HP = Flow × Pressure, and flow is variable as pressure demands rise or fall, horsepower applied to the work remains essentially constant.

And power proportioning on the 245 means that individual piston pumps are not limited to a fixed fraction of engine power. When needed, either of the two implement pumps, or any one implement function can use full available engine horsepower. When more than one function is used, the pumps automatically proportion available power where needed.

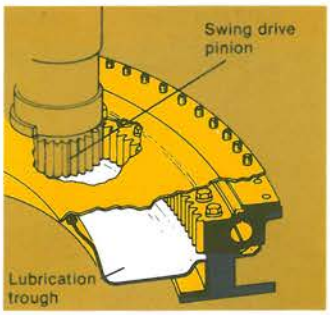


Hydrostatic drive delivers smooth, stepless power to final drives without a mechanical power train. Twin hydraulic track motors are powered by piston pumps, which automatically balance torque and ground speed requirements. Together, the motors develop 97,800 lb/**438 kN/44 362 kg** drawbar pull or 1.9 MPH/**3.1 km/h** travel speed. Track motors are independent, so you can counter-rotate the tracks for spot turns.



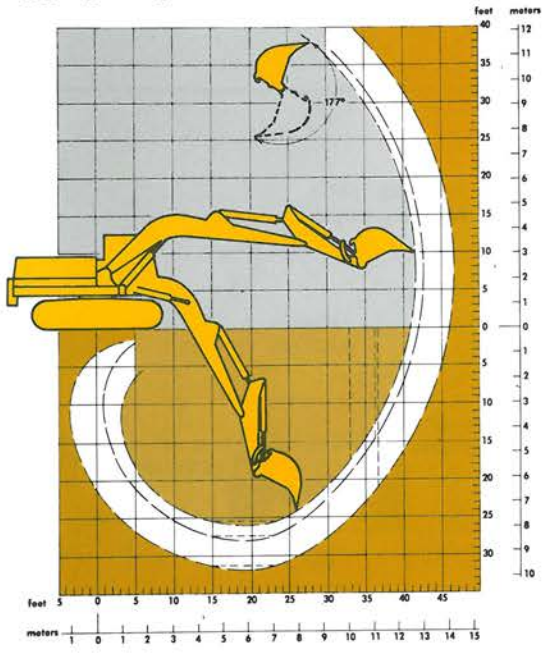
Oil-disc brakes act on the final drive input shafts to hold the 245 steady on slopes and while digging. Brakes are automatically spring-applied whenever travel pedals are disengaged and released by pilot circuit hydraulic pressure only when travel pedals are depressed.

Simple servicing . . . more work time.



- **Enclosed trough** lubrication for the swing gear and swing drive pinion helps keep out wear-causing contaminants. Lubricant rides in trough . . . permanently lubricated at assembly.
- **Linkage pins** need lubrication only every 50 service meter hours. Sturdy polyurethane lip maintains a constant seal with pin to help keep out wearing grit as it keeps grease in.
- **The swing bearing** needs greasing from a convenient fitting in the cab only every 50 service meter hours.

245 Digging Range



	With 8'6" 2591 mm Stick	With 10'6" 3200 mm Stick	With 14'6" 4420 mm Stick
Ground level reach	40'11"/12.471 m	41'10"/12.751 m	46'0"/14.021 m
Maximum depth	25'10"/7.874 m	27'10"/8.484 m	31'10"/9.703 m
Maximum vertical wall	17'5"/5.309 m	14'9"/4.496 m	21'5"/6.528 m
Maximum loading height	25'1"/8.026 m	23'10"/7.264 m	26'1"/7.950 m
Maximum depth to 8'/2.4 m level floor	25'4"/7.72 m	27'3"/8.306 m	31'5"/9.576 m