CATERPILLAR

992C
Wheel Loader

- **Rated load . . .** 40,500 lb/**18 400 kg.**
- **Cat 3412 diesel Engine . . .** 690 flywheel HP/**515 kW.**
- **Bucket capacity . . .** 13.5 yd^3/**10.3 m^3.**
- **Operating weight . . .** 189,814 lb/**86 098 kg.**

Machine shown may have optional equipment.

Caterpillar Engine

Flywheel power at 2200 RPM . . . . . 690 HP/**515 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 required up to 7,500 ft.*/2287 m *altitude.*

Caterpillar four-stroke-cycle, 3412 turbocharged and aftercooled diesel Engine, 65° V-12 with 5.4"/**137 mm** bore, 6.0"/**152 mm** stroke and 1649 cu. in./**27.0 liters** displacement.

Caterpillar direct injection fuel system with variable timing, adjustment-free fuel pumps and non-clogging injection valves. Integral inlet manifold porting with two intake and two exhaust valves per cylinder. Valves are pushrod actuated. Single camshaft is mounted into "V" of engine. 24-volt direct electric starting system. Ether starting aid for cold weather starting is standard.

transmission

Cat planetary type, full power shift in three forward and three reverse speeds.

Single lever on left side of steering column controls both speed and direction. Rotate handle for three speed ranges in forward and reverse. Move the lever forward or backward for directional changes. Transmission lever is locked in neutral by moving steering column to forward-most position. Variable capacity torque converter lets operator match rimpull to specific application.

992C
Wheel Loader

transmission (continued)

Maximum speeds, forward and reverse, with 6545-45, 38 PR (L-5) tires:

		1st	2nd	3rd
Forward,	MPH	4.3	7.6	13.0
	km/h	6.9	12.2	21.0
Reverse,	MPH	4.7	8.3	14.2
	km/h	7.5	13.3	22.9

Maximum speeds, forward and reverse, with Beadless Tires:

Forward,	MPH	3.9	6.9	11.6
	km/h	6.4	11.2	18.7
Reverse,	MPH	4.3	7.5	12.5
	km/h	7.0	12.2	20.2

axles

Front axle fixed, rear axle oscillates ±11°. One rear wheel can drop or rise a total of 24.8″/**630 mm** with all wheels remaining on ground for maximum traction. Free-floating axle shafts can be removed independently of wheels and planetaries. Conventional differentials. Optional NoSPIN differential recommended for slippery underfoot conditions.

final drives

All-wheel drive with planetary reduction in each wheel. Torque is developed at the wheel, putting less stress on axle shafts. Planetary units can be removed independently of wheels and brakes.

brakes

(System meets OSHA regulations.)

Service — Four-wheel, full hydraulic, fully enclosed oil-disc type. Self-adjusting with modulated engagement. Two brake pedals: right pedal brakes only; left pedal brakes while neutralizing transmission.

Parking — Spring-applied, dry disc parking brake acts on main drive line. Operator applies manually. Audible alarm and red warning light warn operator if transmission is engaged while parking brake is applied.

Emergency — Uses parking brake on main drive line. If hydraulic pressure drops below 1000 psi/**69 bar/6894 kPa** an audible alarm sounds, then brake automatically applies to bring machine to a controlled stop. Operator may also apply manually. EMS warns when pressure to parking brake drops.

tires

Tubeless, low aspect ratio, bias-belted, loader-dozer design. Mounted on demountable rims.

Standard tires . . . . . 45/65-45, 38 PR (L-5)

In certain applications, such as load-and-carry work, the productive capabilities of the loader may exceed the Ton-MPH capabilities of the tires. In this situation the Caterpillar Beadless Tire, which has no Ton-MPH limitation, should be considered.

Beadless Tires

Caterpillar steel shoe Beadless Tires are an optional arrangement with one-piece complete oval air chamber, helically wound with steel cable, and a separate, replaceable, cable-reinforced rubber mounting belt. Steel shoes bolt directly to anchor plates molded into mounting belts. Rim is two-piece, bolted together. *No Ton-MPH limitation.*

Number of shoes per belt 42
Size of shoes . . . . . 6.88″ x 43″/**175 x 1.092 m**

steering

Center-point frame articulation. Rear and front wheels track. Full hydraulic power with flow amplified system. Flow to steering cylinders is controlled by a steering wheel-operated metering pump. Full-flow filtering.

Minimum turning radius (over tires) (§) . . . . . 32′6″/**9.91 m**
Steering angle (each direction) . . . . . 35°
Hydraulic system — two 7.0″/**178 mm** bore, double-acting cylinders powered by a gear-type pump.
Output @ 2200 RPM with
1000 psi/**69 bar/6894 kPa** . . . . . 180 gpm/**680 liters**
Relief valve setting . . . . . 2500 psi/**172 bar/17 237 kPa**

bucket controls

Lift circuit — Pilot operated. Positions: Raise, hold, lower and float. Automatic kickout adjustable from horizontal to full lift.

Tilt circuit — Pilot operated. Positions: Tilt back, hold and dump. Automatic bucket positioner adjustable to desired loading angle.

No visual spotting required.

lift arm pins

All bucket pins are sealed, requiring lubrication only every 2,000 working hours. Four remote lubrication stations handle all other lubrication points.

loader hydraulic system

Closed with pressure control — 20 psi/**1.4 bar/1378 kPa** and vacuum relief. Pilot operated controls.
Two Caterpillar piston-type pumps for implement system:
Output @ 1856 RPM and 1000 psi/**69 bar/6894 kPa** with SAE No. 10 oil @ 150°F/**66°C** (two pumps) . . . . . 237 gpm/**897 liters/min**
Relief valve setting . . . . . 3250 psi/**224 bar/22 408 kPa**
Cylinders (double acting):
Lift — bore and stroke . . . . . 11.5″ x 52.5″/**292 x 1.334 m**
Tilt — bore and stroke . . . . . 10″ x 35.8″/**254 x 909 mm**
Pilot system — gear-type pump:
Output @ 1856 RPM and 400 psi/**27 bar/2758 kPa** . . . . . 20 gpm/**76 liters**
Relief valve setting . . . . . 340 psi/**23.4 bar/2344 kPa**

Hydraulic cycle time, rated load in bucket, in seconds (§):

Raise	Dump	Lower (empty, float down)	Total
11.4	3.4	3.7	18.5

service refill capacities

	U.S. Gallons	Liters
Cooling system	36	136
Crankcase	19	72
Transmission	35	132
Differential and final drives:		
Front	79	300
Rear	79	300
Hydraulic tank	143	541
Fuel tank	300	1136

ROPS

(Cab plus ROPS is standard.)

ROPS (Rollover Protective Structure) offered by Caterpillar for this machine meets ROPS criteria: SAE J394, SAE J1040c and ISO 3471. It also meets FOPS (Falling Object Protective Structure) criteria SAE J231 and ISO 3449.

992C VALUE ANALYSIS

Cat 3412
- Fuel efficient direct injection engine
- Performance proven reliability
- Simple design for maintenance ease
- 23% torque rise for tough loading applications

Z-bar linkage
- High breakout force
- Fast dump speeds
- Few lubrication points
- Reduced dump shocks

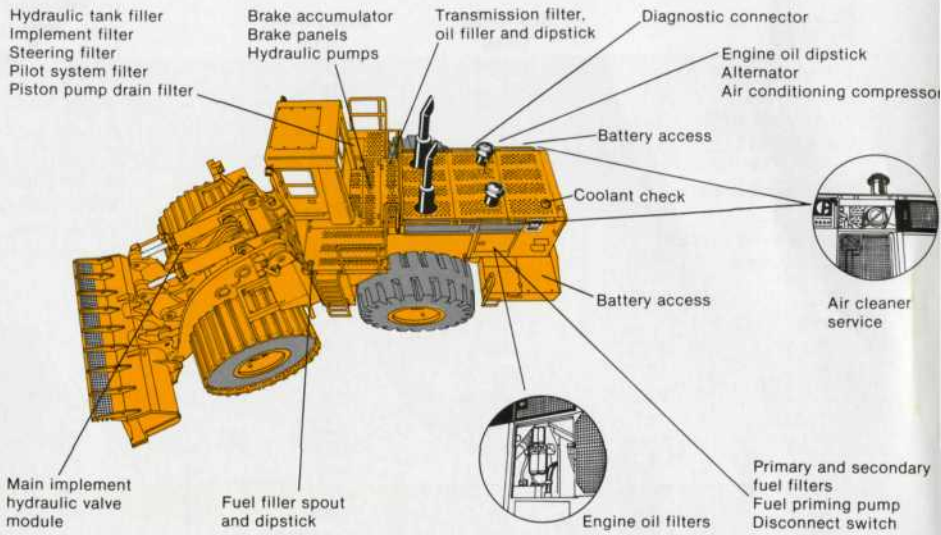
Operator's compartment
- Precise, low-effort controls
- Good visibility to bucket and sure feel of rear frame location
- Comprehensive Electronic Monitoring System
- Resilient mounting reduces vibration and noise

Buckets
- Shell-tine construction with tapered floor design provides more support for wear surfaces
- Modulok system features quick, easy replacement of wear surfaces
- Special strength material used in high stress areas
- Flexibility in matching machine to job conditions

Durability
- Sealed, adjustment-free four-wheel oil-disc brakes
- Cat planetary power shift transmission for smooth, on-the-go shifting
- Box-section main frame resists rough terrain shocks
- Sealed cartridge lift arm pins for long lube intervals (2,000 hr)
- Beadless tire option for abrasive underfoot conditions

Maintenance
- Centralized service centers
- Long lubrication intervals with ground accessible fittings
- Easy access to daily service areas

Serviceability — less time on maintenance.



Servicing ease is designed into the 992C:

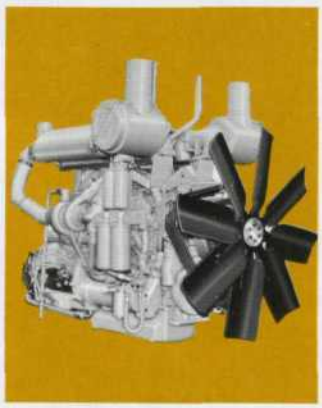
- Swing out doors on both sides of the engine compartment provide easy access to engine oil dipstick and filler spout, rear axle filler spout, fuel filters, engine oil filters, fuel priming pump, alternator, air cleaners, disconnect switch and air conditioner compressor. Batteries are accessible through hinged doors in the bumper.

- Hinged doors in the platform provide access to hydraulic tank and filters, implement filters, steering filter and pilot control filter to the right of the cab; transmission dipstick, filler spout and filter to the rear of the cab and fuel tank dipstick and filler spout to the left of the cab.

- Diagnostic connector enables quick evaluation of eleven starting and charging functions.

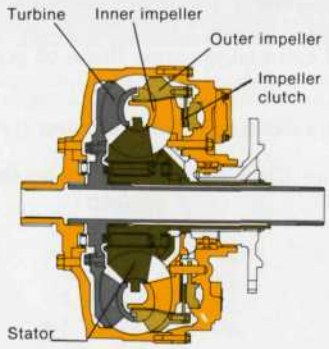
- Grease fittings are centralized into four lube stations. Stations one and two have three fittings each and are located on differential lever in front of each front tire. Station three is located to the right of the articulation joint and has nine fittings. The fourth station is to the left of the articulation joint and has seven fittings. All fittings are easily accessible from ground level.

Responsive power, matched to the job.



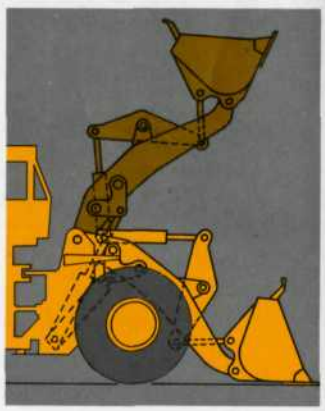
Cat 3412 diesel Engine has excellent response — the kind of response necessary for the stop and start operation of a loader. Twin turbochargers pack more air into cylinders for more power. Individual, interchangeable injection pumps for each cylinder require no adjustment. Large injection valve openings help prevent carbon build-up, even during idling.

Power shift transmission is designed for tough work . . . with big clutch packs surrounding planetary gear sets. Hydraulic modulation cushions clutch engagement for on-the-go shifting. Planet gears spaced 120° apart spread torque loads for longer life. Oil cooling and lubrication reduce heat and wearing friction.



Variable capacity torque converter lets operator apportion power between hydraulics and drive train to match job requirements. Two impellers in the converter are the key. The inner impeller always rotates at engine speed. The outer impeller connects to a clutch which can gradually engage the impeller to send more or less power through the converter for more or less rimpull. The operator can select appropriate setting for the job, from a soft setting to full match.

Designed for strength



High breakout force on the 992C is due to the mechanical advantage of the Z-bar linkage geometry and an effective, efficient use of the hydraulic system forces. With this linkage, the bucket's dump velocity decreases near the end of its dump motion, resulting in reduced dump shock.

Built in protection and efficiency.

Operator's compartment features Electronic Monitoring System (EMS) for status check of important machine systems with three levels of warning.

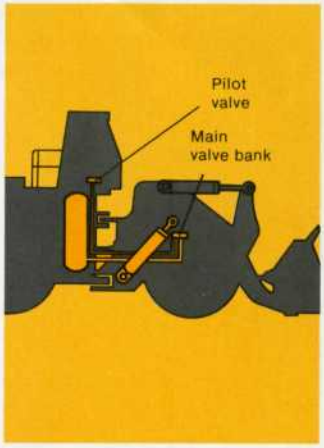
I. **Operator Awareness:** LED light on instrument panel indicates a potential but not yet critical problem.

II. **Operator Response Required:** A main warning light directly in front of operator indicates continued operation could cause eventual component failure.

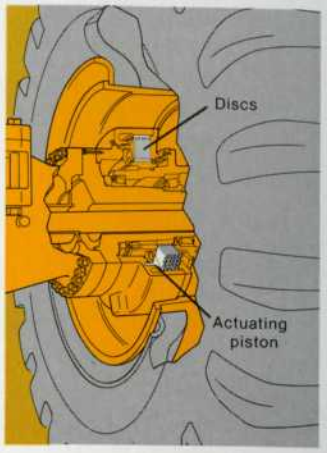
III. **Immediate Shutdown:** Flashing warning light and horn warn that operation will cause immediate failure of a component.

A circuit test switch verifies system reliability.

Sound-suppressed cab plus ROPS offers operator protection and encourages maximum efficiency. ROPS structure is isolated from operator station for noise control. The cab is resiliently mounted and the door framework is welded into the cab for extra rigidity. Features include tinted glass, windshield washer and wiper, large dome light, sliding left window, swing-out right-hand half door and large entry door with safety lock. When properly installed and maintained, cab meets OSHA and MSHA requirements for operator sound exposure limits in effect at date of manufacture.

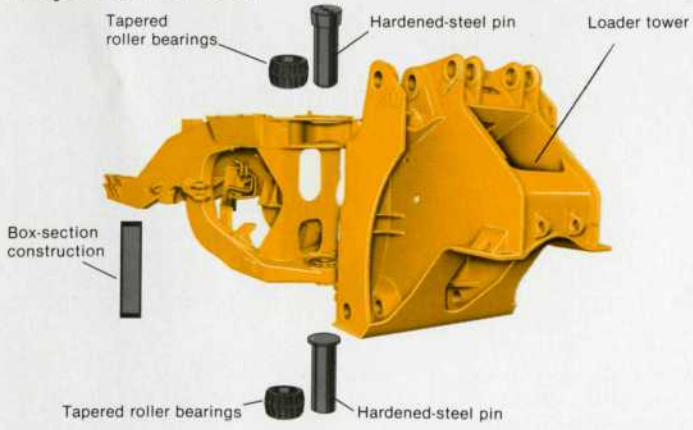


Pilot-operated control valves provide control . . . plus ease of operation. Hydraulic control levers are in a console to the operator's right. When the levers are engaged, pilot hydraulic pressure actuates the main control valve to meter oil flow to the corresponding lift or tilt cylinders, while the remote pilot valve maintains a constant pressure. No reaction delay, and lift arms and bucket can be inched and feathered with accuracy.



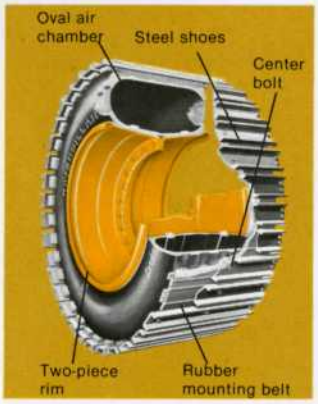
Four-wheel oil disc brakes have 4748 sq. in/**30 635 cm^2** of braking surface per wheel. Each brake has nine discs and ten plates cooled by oil for long life. They are completely sealed and require no adjustment.

and performance.



Loader tower and box-section main frame resist twisting and bending on rough ground. Two hardened-steel pins couple the front and rear frames. Both pins ride in double-tapered roller bearings. Bucket lift arms pins and hydraulic cylinder mounting pins are supported on both ends by steel plates in the loader tower, rather than on a single end as with cantilever mounting.

Reduce costs in rock.



Caterpillar steel shoe Beadless Tires . . . an optional arrangement that can provide increased tire life, reduced total tire costs and greater machine productive capabilities in abrasive applications and load-and-carry. Steel shoes help protect against sudden tire failure from rock cuts and short tread life from abrasion. They bolt directly to a replaceable mounting belt. Oval air chamber carcass is helically wound with tough steel cable for strength and protection.

Caterpillar steel shoe Beadless Tires are available in all wheel or front wheel arrangements.

Select all wheel Beadless for severe operating conditions where sharp rock, very abrasive material, or excessive tire spin require full four wheel steel shoe protection. Where previous experience indicates most tire damage or wear occurs on front tires only, select front wheel Beadless.

Operating Specifications

ROCK BUCKETS Rated load (§)		V-Edge With Teeth	V-Edge Without Teeth	V-Edge Modulok	Straight Edge With Teeth
	lb	40,500	40,500	40,500	40,500
	kg	18 400	18 400	18 400	18 400
Capacity, heaped	yd^3	13.5	13.5	13.5	13.0
	m^3	10.3	10.3	10.3	9.9
Capacity, struck (§)	yd^3	11.23	11.23	11.33	10.87
	m^3	8.59	8.59	8.66	8.31
Width (§)	ft	15′7″	15′7″	15′8″	15′7″
	m	4.750	4.750	4.775	4.750
Dump clearance @ full lift and 45° discharge (§)	ft	13′8″	14′8″	13′9″	14′8″
	m	4.168	4.485	4.195	4.470
Reach @ full lift and 45° discharge (§)	ft	7′7″	6′10″	7′7″	6′10″
	m	2.303	2.089	2.307	2.077
Reach @ 45° discharge angle, 7′0″/2134 mm clearance (§)	ft	11′	10′6″	11′	10′5″
	m	3.342	3.189	3.353	3.174
Reach with lift arm horizontal and bucket level	ft	14′9″	13′6″	14′8″	13′6″
	m	4.484	4.109	4.467	4.110
Digging depth (§)	in	2.28	2.28	2.28	2.28
	mm	58	58	58	58
Overall length (§)	ft	42′11″	41′8″	42′11″	41′8″
	m	13.078	12.703	13.061	12.704
Overall height (bucket @ full raise) (§)	ft	28′5″	28′5″	28′5″	28′5″
	m	8.653	8.653	8.653	8.653
Loader clearance circle (bucket in carry position) (§)	ft	71′3″	70′7″	71′5″	71′4″
	m	21.708	21.510	21.758	21.730
Breakout force* (§)	kN	654	657	668	803
	lb	145,915	146,499	149,037	179,204
	kg	66 187	66 452	67 603	81 287
Static tipping load,**					
Straight (§)	lb	105,110	106,113	101,647	106,828
	kg	47 678	48 133	46 107	48 457
Full 35° turn (§)	lb	94,248	95,251	90,805	95,919
	kg	42 751	43 206	41 189	43 509
Operating weight**	lb	189,814	188,888	191,979	188,572
	kg	86 098	85 678	87 080	85 535
With Beadless Tires:					
Static tipping load,					
Straight (§)	lb	115,869	116,872	112,392	117,694
	kg	52 558	53 013	50 981	53 386
Full 35° turn	lb	104,001	105,002	105,549	105,714
	kg	47 175	47 629	47 877	47 952
Operating weight	lb	207,578	206,655	209,743	206,339
	kg	94 156	93 737	95 138	93 594

*Measured 4.0″/102 mm behind tip of cutting edge with bucket hinge as pivot point.

**Static tipping load and operating weight shown include sound-suppressed cab and ROPS, 6545-45, 38 PR (L-5) tires, full fuel tank and operator. Machine stability and operating weight are affected by attachments. Additional static tipping load capacity can be achieved by use of counterweight. Add the following to operating weight and static tipping load:

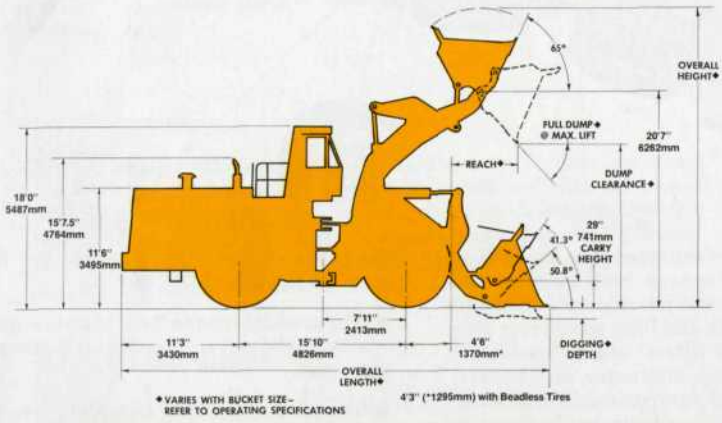
	Change in Operating Weight	Change in Articulated Static Tipping Load
Remove ROPS canopy and cab	−6,759 lb/−3066 kg	−5,604 lb/−2542 kg
Remove cab only	−660 lb/ −299 kg	−483 lb/ −219 kg
Remove ROPS canopy only	−6,101 lb/−2767 kg	−5,121 lb/−2323 kg
Add counterweight	+3,000 lb/+1361 kg	+5,785 lb/+2624 kg

Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers. SAE Standards J732c (1969) and J742b (1969) govern loader ratings, denoted in the text by (§).

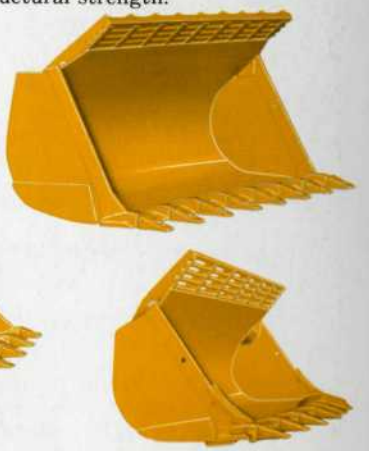
CATERPILLAR

dimensions (approximate)

	Standard Tires	Beadless Tires
Tread width	10'10"	10'7"
	3.302 m	3.226 m
Maximum width over tires	14'9"	14'5"
	4.495 m	4.385 m
Ground clearance	21"	18"
	544 mm	468 mm
Decrease in vertical dimensions	—	3.0"
	—	77 mm



992C buckets provide exceptional flexibility in matching the machine to job conditions. All are welded construction, abrasion-resistant steel, with high-strength material used in side plates, side cutting bars and bucket shells. They feature a tapered floor design of approximately 7°, with box-sectioned reinforcing material placed under the floor for increased structural strength.



• **Straight-edge rock bucket** with flush-mounted teeth provides good penetration and a smooth floor.

• **V-edge rock bucket** with double-strap teeth gives improved digging ability and increased cutting edge wear life. Designed for high-impact rock loading.

• **V-edge rock with Modulok system** features quick change wear surfaces and has abrasion-type teeth. Recommended for high-abrasion rock applications.

standard equipment

24-volt direct electric starting. 50-amp alternator. Ether starting aid. Muffler. Power shift transmission. Variable capacity torque converter. Sealed loader linkage. Automatic bucket positioner. Automatic lift kickout. Backup alarm. Crankcase guard. Fenders. Drawbar. Horn. Power train guard. Front and rear working lights. Rear view mirrors. Instrument panel lights. Sound-suppressed cab plus ROPS. Suspension seat. Seat belt. Service, parking and emergency braking system. Vandalism protection. Laminated Thermo-Shield. Electronic Monitoring System.

Functions monitored by EMS — Refer to page 5 for details.
LEVEL I — Alternator. Fuel level. Transmission oil filter.
LEVEL II — Coolant temperature. Hydraulic oil temperature. Transmission oil temperature.
LEVEL III — Coolant flow. Engine oil pressure. Brake oil pressure. Parking brake.

Critical functions have both audible and visible warning systems.

Indicators: Air cleaner service. Clock hour meter. Variable capacity torque converter setting.

optional equipment

(with approximate change in operating weight)

	Lb	Kg
Air conditioner/heater/defroster	390	177
Air conditioner/and defroster	340	154
Beadless Tire arrangements	See Operating Specifications	
Buckets:		
Rock, V-edge	16,576	7519
Rock, V-edge with teeth	17,500	7938
Rock, Modulok, V-edge	19,665	8920
Rock, straight with teeth	16,260	7375
Cab, sound-suppressed (removed)	−660	−299
Canopy, ROPS (removed)	−6100	−2767
Converter, electrical, for 12-volt accessories	8	3.5
Counterweight	3,000	1361
Fast fuel system	18	8
Fast oil change system	9	4
Fire suppression system (includes supplemental steering system)	830	376
Gauge group	2	1
Heater and defroster	150	68
Heater, engine coolant	7	3
Heater, fuel	101	46
Lighting system, two flood lights	9	4
Low temperature starting (2 starters)	82	37
Starting receptacle	9	4
Sound suppression system (non-U.S.)	190	86
Supplemental steering system	441	200

Materials and specifications are subject to change without notice.

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