

615C

Series II
Elevating Scraper

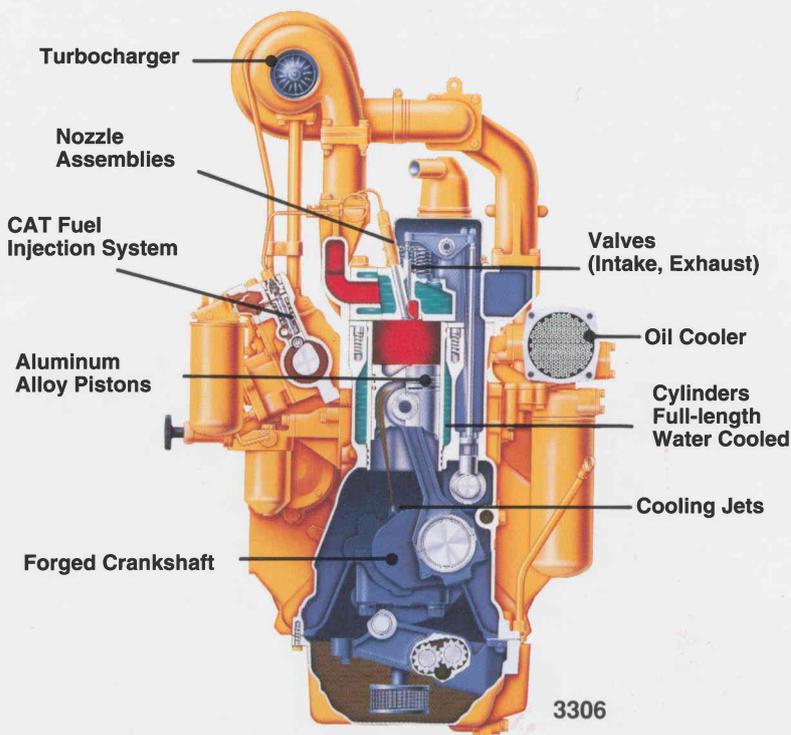


Heaped Capacity	13 m ³	17 yd ³
Rated Load	18 506 kg	40,800 lb
Operating Weight	44 113 kg	97,250 lb

FEATURES

Caterpillar® 3306 Field-proven for maximum reliability, durability and economy.

- **Four-stroke-cycle design** — long, effective power strokes, more complete fuel combustion.
- **Turbocharged for increased performance and efficiency** — especially at high altitudes, up to 1707 meters (5,600 feet).
- **Realistic power rating** — full rated power available on the job.
- **High 35% torque rise for superior lugging** — keeps 615C moving through tough spots without downshifting.
- **High-pressure, direct-injection fuel system** — provides excellent fuel atomization for unmatched fuel economy, reliability and durability.
- **Full-length, water cooled cylinder liners** — provide maximum heat transfer.
- **Oil-cooled pistons** — increase heat dissipation, promote longer piston life.
- **Oil cooler maintains proper oil temperature** — helps cool engine components, prolongs lubricant life.



- **Resiliently mounted engine** — reduces noise and vibration for greater operator comfort and productivity.

Planetary Power Shift Transmission

- **Torque converter** provides excellent rimpull in torque converter drive.
- **Single-lever, on-the-go shifting** for easy selection of the optimum speed range throughout the work cycle.
- **Six speeds forward and one reverse.**
- **Gears one through six** provide automatic torque converter lock-up for maximum haul road speeds and fuel efficiency.
- **Automatically shifts to torque converter drive** during elevator operation for maximum hydraulic power to the elevator during loading.
- **Transmission guard** protects the transmission and transfer gears from underside damage.

Elevator Mechanism/Bowl

General earthmoving to finish work with work-alone capability.

- **Two-speed elevator drive and high hydraulic horsepower** provide maximum loading performance over a wide range of material conditions. Low speed and high horsepower for tough materials or deeper cuts and high speed with lower horsepower for easier materials or windrow loading.
- **Elevator flights** break up the material during the loading and unloading process — fill area workload is reduced.
- **Retracting floor, bulldozer ejector and reversible elevator** provide clean, quick material ejection.
- **Low-profile bowl design** lets loaded material flow to the rear of the bowl — new material enters with less resistance.
- **Wide cutting edge** allows a large volume of material to enter the bowl — even with shallow cuts, loads are obtained quickly.



- **Angled top plate on ejector** helps retain loads for maximum productivity and minimum haul road spillage.
- **Adjustable throat opening** — lower elevator linkage may be adjusted from 25 to 610 mm (1" to 24") from the cutting edge for optimum loading with various material types and conditions.

■ Durability / reliability

- Retractable floor
 - roller mounted design reduces the chance of binding
 - positive support, while closed, transfers stresses from the rollers to the bowl frame.
- Heat-treated carrier rollers and chain idlers for wear resistance.
- Elevator flights
 - triangularly reinforced for strength
 - flexible elevator mounting prevents damage from sudden shock.
- Cellular bowl construction for strength and dent resistance.

■ Serviceability

- Segmented elevator drive sprockets allow exchange without removing the chain.



FEATURES

Cutting Edges Caterpillar cutting edges help you match the machine to job requirements.



Cutting Edge	Penetration Capability	Resistance To Breakage	Typical Application Range
Straight	Low	High	Finish / General
Stinger	Medium	Medium	General
Teeth	High	Low	General

- **Reversibility extends the life** — lowers your G.E.T. cost.
- **Heat-treated and through hardened with minimum Rockwell surface hardness of 45** — long life before reversal is required.

- **All scraper ground engaging tools are warranted against breakage** — if any of the components breaks during normal operation, Caterpillar will replace them free of charge.*

* Refer to complete Caterpillar G.E.T. warranty.

Operator's Compartment

Logical, convenient control placement and exceptional operator comfort promote fast, confident machine operation for top productivity.

■ Excellent visibility

- Cutting edge — enhances finish work capability and overall loading and dumping effectiveness.
- Gauges — whether loading, dumping or hauling, the operator can easily monitor machine operating conditions.

■ **Seat** — multi-adjustable with air/hydraulic suspension for shift-long comfort.

■ **Tilt/telescopic steering wheel** — enhances operational comfort and allows easier entrance and exit.

■ **Modulated, variable-flow steering** for precise, low effort maneuverability.

■ **Controls** — easy to reach with low operational effort.

- Ejector return with detent and automatic kickout — allows operator to concentrate on other areas of machine operation.

■ **Sound** — 75 dB(A) operator exposure level when equipped with optional cab (page 11).

■ **Vibration** — resiliently mounted engine and cab/canopy minimize vibration of the operator's compartment.



- Tach/hour meter
- Speedometer
- EMS
- Fuel gauge
- Secondary brake
- Bowl control
- Ejector control
- Differential lock
- Elevator control
- Elevator direction



■ **Tilt-out windshield** — additional control of fresh air circulation.

■ **Integral Rollover Protective Structure (ROPS)**

- Canopy — included in the standard arrangement.
- Cab (optional) — further protection from the elements. Includes rear window wiper and washer. Optional heater or heater/air conditioner provides pressurization, filtration and temperature-controlled air.

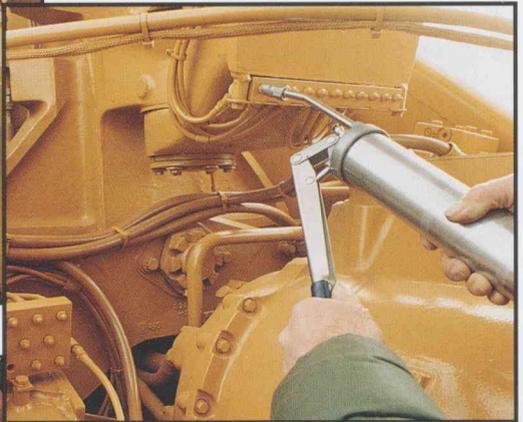
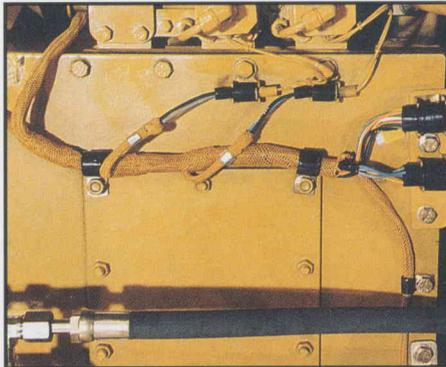
■ **Electronic Monitoring System (EMS)** — three stages of alert notify the operator of varying degrees of required action to avoid possible damage or failure to components/systems.

FEATURES

Serviceability

Less time spent on maintenance gives you more time on the job.

- **Diagnostic connector** — (located in the cab) with the aid of a service tool, allows quick analysis of the starting and charging system.
- **Wiring** — with the increasing use of electronics in today's machines, the quality of materials and design is having a greater effect on machine availability.
 - Commonality — consistent use of numerical coding and coloring of wires across the product line means service personnel can transfer their electrical system knowledge from one CAT machine to another.
 - Connectors — junctions stay clean and solid with non-automotive type connectors.
 - Braiding — provides protection against abrasion and helps keep routing clean.
 - Bosses — for attachment of bolt-on clips to keep wiring in place — prevents loose connections due to vibration and failures due to abrasion.
- **Outboard, planetary final drives** — can be removed independently of wheel mounting and brakes.
- **Quick connect/disconnect check points** — hydraulic pressures can be obtained quickly and easily. Periodic inspection and diagnosis of hydraulic system problems is enhanced.
- **Ground-level access** — transmission fill and check, hydraulic fill and check, manual fuel check (gauge in cab) and fill, majority of grease points, fuel tank sediment and water drain, air tank sediment and water drain, air filters, batteries, rear brake reservoir, engine oil filter, transmission filter and primary fuel filter.



- **Maintenance platform access** — engine oil check and fill, engine coolant level check and fill, front brake reservoir, hydraulic system filter, secondary fuel filter.

Total Customer Support

Unmatched in the industry!

- **Parts** — time spent waiting on parts directly affects your bottom line! Caterpillar and its worldwide dealer network maintain the largest and most comprehensive parts support system in the industry. Most parts are immediately available directly from the dealer. Worldwide distribution centers provide backup support.
- **Service** — whether in the dealer's fully equipped shop or in the field, trained service personnel using the latest technology and tooling will keep your equipment working.
- **Exchange components** — for quick, yet cost-effective repairs with minimal downtime.
- **Machine management** — Cat dealers help manage equipment investments with:
 - Vehicle systems analysis to match the right machine to your job conditions.
 - Effective preventive maintenance programs.
 - Diagnostic programs like S•O•S Fluids Analysis and Technical Analysis help avoid unnecessary downtime and maintain the value of your machine.
 - Information to make the most cost-effective repair option decisions.
 - Customer meetings, training for operators and mechanics.



- **Literature** — extensive operation and maintenance manuals, parts manuals and other support information help you get the full value out of your equipment investment.

- **Financing/leasing** — through CAT Financial or an alternate source, your dealer can arrange attractive financing or leasing on the entire line of Cat equipment.



SPECIFICATIONS



Caterpillar Engine

Gross power @ 2200 rpm 208 kW (279 HP)
 Flywheel power @ 2200 rpm 197.5 kW (265 HP)
 (Kilowatts (kW) is the International System of Units equivalent of horsepower).

Net power at the flywheel of the machine engine is based on SAE J1349 standard conditions of 25° C (77° F) and 100 kPa (29.61" Hg. Power is based on using 35° API 15.6° C (60° F) gravity fuel having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 29.4° C (85° F) and with a density of 838.9 g/l (7.001 lb/U.S. gal). Power rating is adjusted for machine equipped with fan, air cleaner, water pump, fuel pump, muffler and lubricating oil pump. No derating is required up to 1500 m (5,000 ft) altitude.

DIN 6271/1 (Gross) 282.9 PS
 DIN 6271/1 (Flywheel) 268.7 PS

Caterpillar four-stroke-cycle, turbocharged and jacket-water aftercooled, 3306 diesel engine with six cylinders, 121 mm (4.75") bore, 152 mm (6") stroke and 10.5 liters (638 cu. in.) displacement.

Caterpillar direct-injection fuel system. Individual, adjustment-free fuel injection pumps and non-clogging valves. Stellite-faced valves, hard alloy-steel seats and valve rotators. Integral inlet manifold porting with one intake and one exhaust valve per cylinder. Cam-ground and tapered, aluminum-alloy pistons have three-rings and are cooled by oil spray. Steel-backed, copper-bonded aluminum bearings, Hi-Electro hardened crankshaft journals. Pressure lubrication with full-flow filtered and cooled oil. Dry-type air cleaner with primary and secondary elements and automatic dust ejector. Independent, 24-volt direct electric starting. Ether aid available for cold weather starting.

Use economical No. 2 fuel with a minimum cetane rating of 40. Premium quality fuel can be used, but is not required.



Steering

Two Caterpillar double-acting hydraulic cylinders provide full 90° right or left steering. Modulated, variable-flow steering.

Cylinder Bore 114 mm (4.5")
 Stroke 904 mm (35.6")
 Rod 57 mm (2.2")

Turning Radius 4.81 m (15.79')

Optional supplemental system (ground driven piston pump) provides hydraulic power for steering in the event of engine power loss. Emergency steering meets SAE J53 and J1511 and ISO 5010.



Transmission

Caterpillar-built, six speed forward, one reverse, planetary power shift, manual transmission with single-lever control. First through sixth gears provide automatic torque converter lockup for direct drive efficiency and high haul road speeds. Transmission automatically returns to torque converter drive during elevator operation to provide maximum elevator power for quick loading.

Top speeds (equipped with 29.5-25 tires, 44 113 kg (97,250 lb) gross machine weight and 3% total resistance)

Gear.....	1	2	3	4	5	6
kph	3.5	5.8	10.0	16.4	28.2	44.4
mph	2.2	3.6	6.2	10.2	17.5	27.6

Top speeds (equipped with 26.5-25 tires, 44 113 kg (97,250 lb) gross machine weight and 3% total resistance)

Gear.....	1	2	3	4	5	6
kph	3.2	5.5	9.3	15.3	26.4	42.2
mph	2.0	3.4	5.8	9.5	16.4	26.2



Differential Control

Normal differential action allows an uneven distribution of power between the drive wheels in a poor traction situation — loading, dumping and poor haul road conditions. The CAT differential lock, engaged with a foot pedal, prevents the uneven distribution of power and minimizes wheel spin.



Final Drives

Type Planetary/Outboard
 Axle Full-floating

Reduction Ratio

Differential.....	3.55:1
Planetary	5.06:1
Total	17.95:1

Majority of reduction is taken at the wheel to minimize stresses in the rest of the powertrain. Caterpillar planetary units can be removed independently of wheel mounting and brakes.



Brakes

System meets SAE J1473 and ISO 3450 standards.

Service Brake Features:

- Air applied, spring released
- Expanding — shoe type

Parking — Shoe-type mounted on rear of transmission transfer case.

Secondary — Uses service brakes. Has a separate air tank and can be actuated by a button on the dash. The system is designed so no single component or line failure will cause a total loss of brakes. If the standard circuit air pressure drops below 413 kPa/4.13 bar (60 psi), an electric warning horn and dash light (EMS) signal the operator. If the air pressure drops to 276 kPa/2.76 bar (40 psi), the brakes automatically actuate.



Tires

Productive capabilities of the 615C II are such that, under certain job conditions, t-kmh (ton-mph) capabilities of standard or optional tires could be exceeded and, therefore, limit production. Caterpillar recommends the user evaluate all job conditions and consult the tire manufacturer to make proper tire selection.

Standard (Tractor / Scraper)	29.5-R25
Optional (Tractor / Scraper).....	29.5-25 22PR (E-2)
	29.5-25 22PR (E-3)
	29.5-25 34PR (E-3)
	26.5-25 26PR (E-2)
	26.5-R25



Hydraulics

Powered by double-section vane pumps with open-center circuits.

Pump outputs at 2300 rpm and 6900 kPa (1000 psi)

Bowl & Ejector Circuit	136 l/min (36 gal/min)
Steering Circuit.....	193 l/min (51 gal/min)

Elevator	
(Low speed & reverse)	303 l/min (80 gal/min)
(High speed)	436 l/min (116 gal/min)



SPECIFICATIONS



Bowl

Cellular construction with 290 000 kPa (42,000 psi) minimum yield strength steel. Hydraulic dozer-type ejector.

Capacity

Rated load.....18 508 kg (40,800 lb)
 Struck (SAE).....11 m³ (14.0 yd³)
 Heaped (SAE).....13 m³ (17.0 yd³)

Width of cut

Outside router bits.....2896 mm (9'6")
 Floor/cutting edge retraction1180 mm (46.5")
 Ejector travel1092 mm (43.0")
 Hitch oscillation9° left or right

Equipped with 26.5-25 or 29.5-25 tires

Maximum depth of cut401 mm (15.8")
 Maximum depth of spread414 mm (16.3")
 Ground clearance
 (minimum occurs at cutting edge).....439 mm (17.3")

Cutting Edge

Three reversible sections. Heat-treated and through hardened. Center section is predrilled for installation of four optional teeth to increase penetration.

Minimum Rockwell surface hardness 45
 Center section 22 x 406 x 1510 mm
 (.88" x 16" x 59.5")
 End sections 22 x 406 x 536 mm
 (.88" x 16" x 21.1")

Caterpillar double-acting cylinders:

Location	Quantity	Bore	Stroke	Rod
Bowl	2	127 mm (5.0")	574 mm (22.6")	57 mm (2.3")
Floor	1	140 mm (5.5")	680 mm (26.8")	70 mm (2.8")
Ejector	1	108 mm (4.3")	1092 mm (43.0")	64 mm (2.5")



Elevator

Length (overall).....3722 mm (12' 2.5")
 Width of flight face175 mm (6.9")
 Length of flights.....1974 mm (6'6")
 Number of flights.....18
 Flight spacing412 mm (16.22")
 Working speeds at relief valve setting 17 350 kPa (2516 psi)
 High forward75 m/min (245'/min)
 Low forward.....54 m/min (176'/min)
 Reverse.....28 m/min (91'/min)

Power supply: Hydraulic motor on scraper transmits power to elevator through 42:1 planetary gear reduction box.

Drive sprockets: Segmented sprockets allow exchange without removing the chain.

Chain: Large rollers, pins and links are hardened to resist abrasion. Chain tension adjustable at carrier idlers.

Elevator mounting: Elevator frame has 4-bar linkage (mounted top and bottom on each side). Lower linkage may be adjusted from 25 to 610 mm (1" to 24") from the cutting edge.



Controls

Four levers for hydraulic actuation.

Elevator speedtwo speeds forward/stop/
 single speed reverse
 Elevator directionforward/reverse
 Bowlraise/hold/lower
 Ejectiondump/hold/return
 "Return" is detent held with automatic kickout to "hold" when ejector reaches full return. Detent can be overridden at any time.



Cab

(ROPS canopy is standard in U.S.A.).

ROPS (Rollover Protective Structure) offered by Caterpillar for this machine meets ROPS criteria SAE J320a, SAE J1040-FEB86, SAE J1040-APR88 and ISO 3471-1986. It also meets FOPS (Falling Object Protective Structure) criteria SAE J231 and ISO 3449.

When properly installed and maintained, cab offered by Caterpillar when tested with doors and windows closed per work cycle procedures specified in ANSI/SAE J1166 MAY90 results in an operator sound exposure L_{eq} (equivalent sound pressure level) of 75 dB(A). This operator A-weighted sound exposure level can be used in conjunction with OSHA, MSHA and EEC Occupational Noise Exposure Criteria.



Weight

Standard equipment with ROPS canopy, full fuel tank and operator.

	kg	Lb
Empty		
Tractor — 66%	16 895	37,250
Scraper — 34%	8710	19,200
Total	25 605	56,450
Loaded (based on 18 506 kg (40,800 lb) rated load)		
Tractor — 51%	22 685	50,010
Scraper — 49%	21 428	47,240
Total	44 113	97,250



Service Refill Capacities

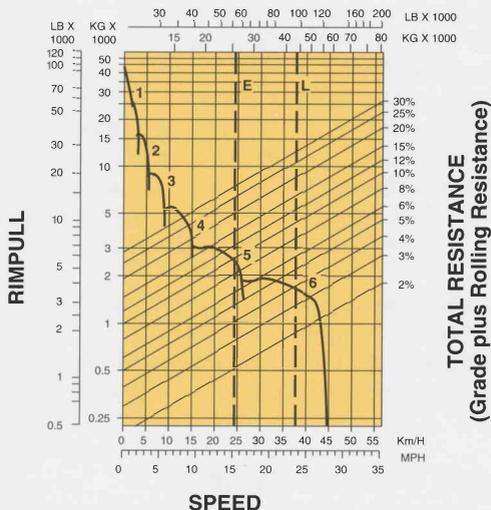
	L	U.S. Gallons
Fuel tank	399	105
Crankcase	24	6
Transmission	36	9.5
Differential and final drives	61	16
Cooling system	65	17
Hydraulic system (steering and implements)	160	42
Speed reducer	14	3



SPECIFICATIONS

GROSS WEIGHT

(26.5-R25 Tires)

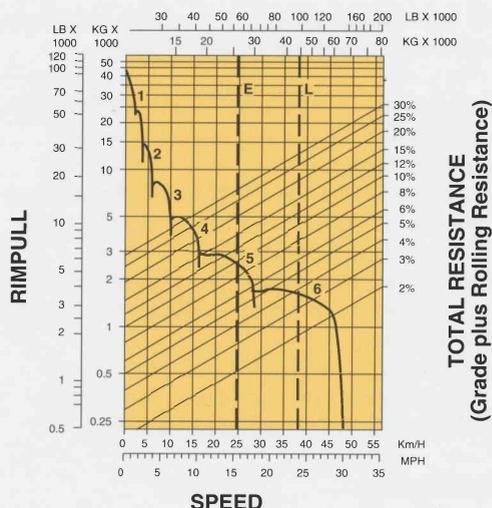


GROSS WEIGHT LINES

E — EMPTY...25 447 kg (56,100 lb)
L — LOADED...44 113 kg (97,250 lb)

GROSS WEIGHT

(29.5-R25 Tires)



GROSS WEIGHT LINES

E — EMPTY...25 447 kg (56,100 lb)
L — LOADED...44 113 kg (97,250 lb)

Gradeability/Rimpull/Speed

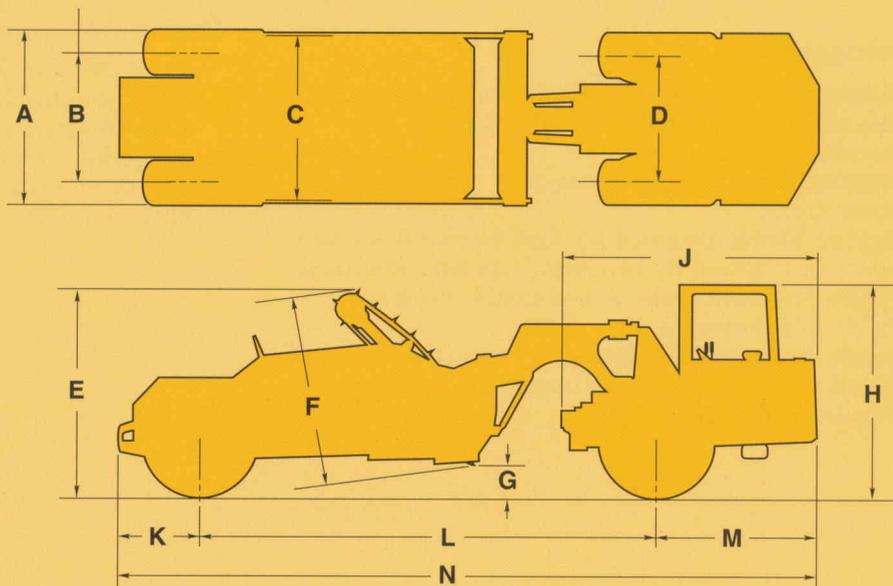
To determine gradeability performance: Read from gross weight to the % of total resistance. Total resistance = actual % grade + % rolling resistance. From this weight-resistance point, read horizontally (left or right) to the curve with the highest obtainable gear, then down to the corresponding speed. Useable rimpull will depend upon traction available and weight on drive wheels.



Dimensions

(approximate)

- A — 3045 mm (10')
- B — 2115 mm (6'9")
- C — 2616 mm (8'7")
- D — 2115 mm (6'9")
- E — 3589 mm (11'9")
- F — 3353 mm (11'0")
- G — 495 mm (19.5")
- H — 3218 mm (10'7")
- J — 4420 mm (14'6")
- K — 1419 mm (4'9.5")
- L — 6979 mm (22'11")
- M — 2966 mm (9'6")
- N — 1161 mm (38'1")



Standard Equipment

(May vary — consult your Caterpillar Dealer for specifics)

Air cleaner service indicator	Fenders (tractor)	Muffler
Alarm, back up	Fuel pump, electric	Precleaner, air cleaner
Alternator, 50-amp	Gauges:	Seat, multi-adjustable with air/hydraulic suspension
Batteries (2), 172 amp-hr. 700 cca	Air pressure	Seat belt, retractable
Brakes:	Engine coolant temperature	S•O•S oil sampling valves for engine, transmission and hydraulic systems.
Caliper disc (front & rear)	Fuel	Starting, electric
Parking	Speedometer	Steering wheel, tilt and telescopic
Secondary	Tachometer with electric hour meter	Tires, 29.5-R25
Canopy, ROPS (standard in U.S.A.)	Torque converter oil temperature	Tow pins, front and rear
Crankcase guard	Headlights, halogen with dimmer	Transmission, powershift
Differential lock	Hitch	Windshield, tilt-out, tinted
Electrical system, 24-volt	Horn	Windshield washer and wiper (front)
Electronic Monitoring System (EMS)	Mirror, right-hand and rearview (cab interior)	
Fan (engine), suction	Locks, vandalism protection	

Functions monitored by EMS:

Category I — Alternator. Parking brake on - transmission in neutral. (EMS panel light).

Category II — Coolant temperature. Converter oil temperature. (EMS panel light and action light).

Category III — Brake air pressure. Brake oil pressure. Engine oil pressure. Parking brake on - transmission in gear. Supplemental steering active (if equipped). (EMS panel light, action light and alarm).

Optional Equipment

(with approximate change in operating weight)
(equipment may vary — consult your Caterpillar Dealer for specifics)

	kg	lb		kg	lb
Air conditioner and heater	60	132	Starting receptacle.....	2	5
Heater.....	40	88	Supplemental steering system.....	76	168
Cab, ROPS includes			Suspension system, front axle.....	907	2000
rear window wiper and washer	198	436	Teeth (scraper), bolt-on set of four		
Ether starting aid	2	5	with replaceable tips	52	115
Fenders (scraper)	87	191	Tires, set of two:		
Floodlight (bowl & cutting edge).....	2	4	29.5-25 22 PR (E-3).....	-95	-208
Guard, powertrain	27	60	29.5-25 34 PR (E-3).....	165	364
Lighting system (highway):			26.5-R25	-477	-1051
*scraper — includes directional and hazard	9	20	Omission of 29.5-R25 (set of two)	-1144	-2523
*tractor — includes directional/hazard and stop/tail.....	8	17	Tool kit	10	23
Rim Group			Vandalism dash protection (canopy equipped units).....	5	12
(heavy-duty driver/flange locks)	5	11			

* Must be ordered together



The Competitive Edge

Performance

- **Engine unit injection** allows very high injection pressures and short injection times — fast response.
- **Two-speed elevator drive and high hydraulic horsepower** provide maximum loading performance over a wide range of material conditions.
- **Spacing between elevator flights and cutting edge** is adjustable for optimum loading with various material types and conditions.
- **Wide cutting edge** allows a large volume of material to enter the bowl even with shallow cuts, loads are obtained quickly.
- **Logical, convenient control placement** and exceptional operator comfort promote fast, confident machine operation for top productivity.

Durability/Reliability

- **Internal engine fuel passages** eliminate the need for high pressure lines and their connections.
- **Roller mounted retractable floor design** reduces the chance of binding. Positive support, while closed, transfers stresses from the rollers to the bowl frame.
- **Heat-treated elevator carrier rollers and chain idlers** for wear resistance.
- **Elevator flights** are triangularly reinforced for strength.
- **Flexible elevator mounting** prevents damage from sudden shock.
- **Cellular bowl construction** for strength and dent resistance.
- **Electronic Monitoring System (EMS)** has three stages of alert to notify the operator of varying degrees of required action to avoid possible damage or failure of components/systems.

Serviceability

- **Diagnostic connector** with the aid of a service tool, allows quick analysis of the starting and charging system.
- **Ground-level access** to majority of daily maintenance areas.
- **Engine block** designed for first overhaul without reborings, followed by two reborings with identical weight oversized pistons, and lastly, the availability of dry sleeves.
- **Quick connect/disconnect hydraulic pressure check points** for periodic inspection and diagnosis of hydraulic system.

- **Common numerical coding and coloring of wires** across the Caterpillar product line.
- **Rebuildable cylinder heads** with replaceable valve seats and guides.
- **Externally mounted water pump** for easy access. Fully serviceable with all components available through the CAT parts system.
- **Quick access engine side covers** with attached cam followers allow easy inspection of followers and cam lobes. Pushrods can be removed without pulling the cam.
- **Segmented elevator drive sprockets** allow exchange without removing the chain.
- **Outboard, planetary final drive units** can be removed independently of wheel mounting and brakes.

Total Customer Support System

- **Parts** — Caterpillar and its worldwide dealer network maintain the largest and most comprehensive parts support system in the industry.
- **Trained service personnel** using the latest technology and tooling will keep your equipment working.
- **Machine management** vehicle systems analysis to match the right machine to your job conditions; preventive maintenance programs; diagnostic programs like Scheduled Oil Sampling and Technical Analysis; cost effective repair options; customer meetings; operator and mechanical training.
- **Exchange components** for quick, yet cost-effective repairs with minimal downtime.
- **Flexible financing and leasing** through CAT Financial or an alternate source, your dealer can arrange attractive financing or leasing on the entire line of CAT equipment.

Custom Products

- In addition to the standard range of optional equipment, special attachments and machine configurations to suit particular customer applications can be made. Contact your Caterpillar dealer for details on matching Caterpillar products to your special applications.

CATERPILLAR®