

611

Wheel Tractor-
Scraper

CAT[®]



Cat[®] 3306 turbocharged diesel engine

Gross power	208 kW	279 hp
Net power	197.7 kW	265 hp
Heaped Capacity	11 m ³	15 yd ³
Rated Load	16 344 kg	36,000 lb
Operating weight	23 899 kg	52,640 lb

611 Wheel Tractor-Scraper

An outstanding choice for productivity and versatility.

Power Train

Perfectly matched power train. From the powerful and fuel efficient 3306T engine to the durable planetary power shift transmission, all Caterpillar® components work together to deliver responsive power when you need it. **pg. 4**

Operator Station

Convenient control placement and a comfortable work environment are keys to high productivity. Resiliently mounted engine and cab/canopy help minimize sound and vibration **pg. 6**

Cutting Edges

Cutting edges help you match the machine to job requirements. All scraper ground engaging tools are warranted against breakage. **pg. 8**

Top Performance

Quick loading, high travel speeds and the ability to load and dump on the run yield fast cycle times, allowing Caterpillar Wheel Tractor-Scrapers to consistently deliver high productivity at the lowest cost per ton.

Reliable, durable operation.

Rugged construction and easy maintenance guarantee long life with low operating costs.



Hauling System

The 611 was developed to be push loaded by the D6R Track-Type Tractor. The D6R is the most popular size track-type tractor in the field.

Serviceability

Ground-level access to majority of daily maintenance areas **pg. 9**

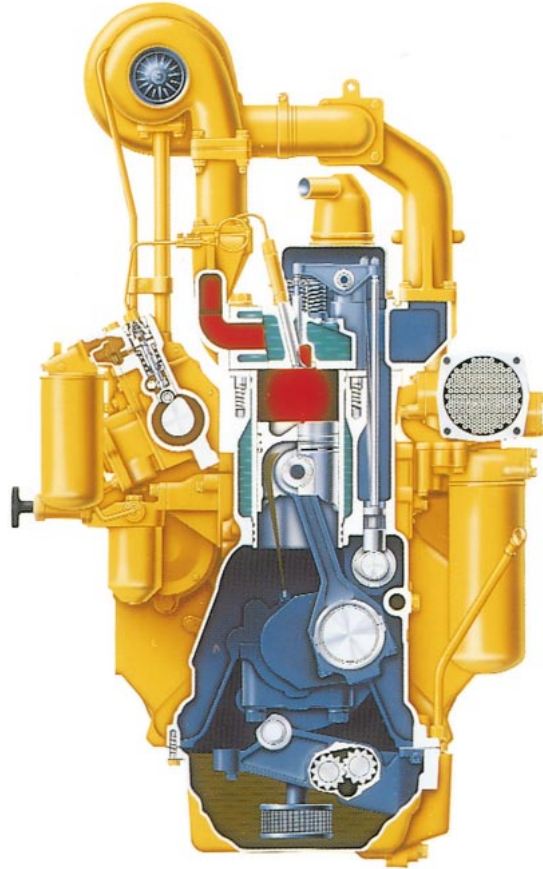
Customer Support

The best parts availability and the best service capability will help keep your equipment working. **pg. 10**



Power Train

The Caterpillar 3306 is 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 40% torque rise for superior lugging keeps 611 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.

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.

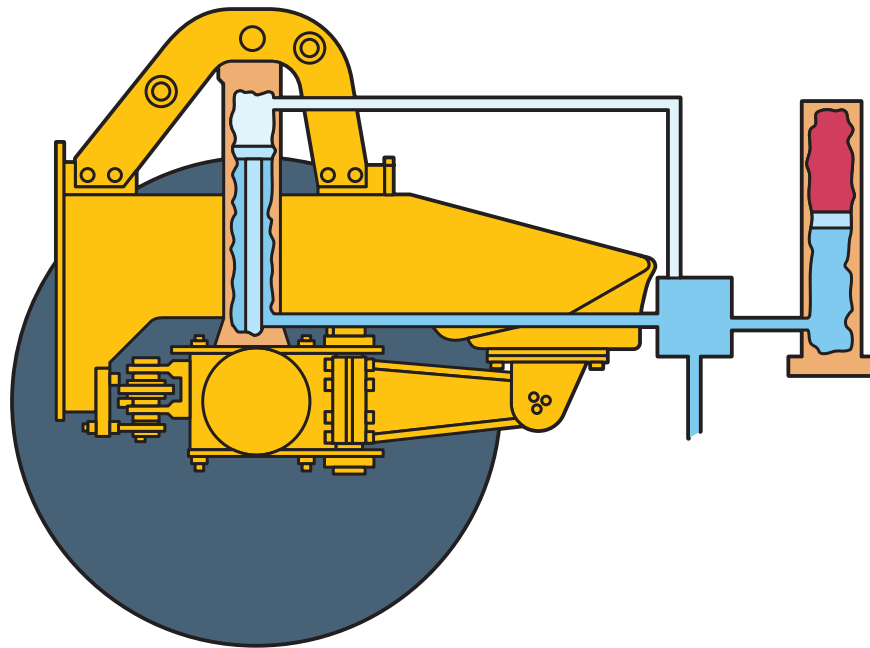
Six speeds forward and one reverse.

Gears one through six provide automatic torque converter lock-up for maximum haul road speeds and fuel efficiency.

Transmission guard protects the transmission and transfer gears from underside damage.

Suspended Axle

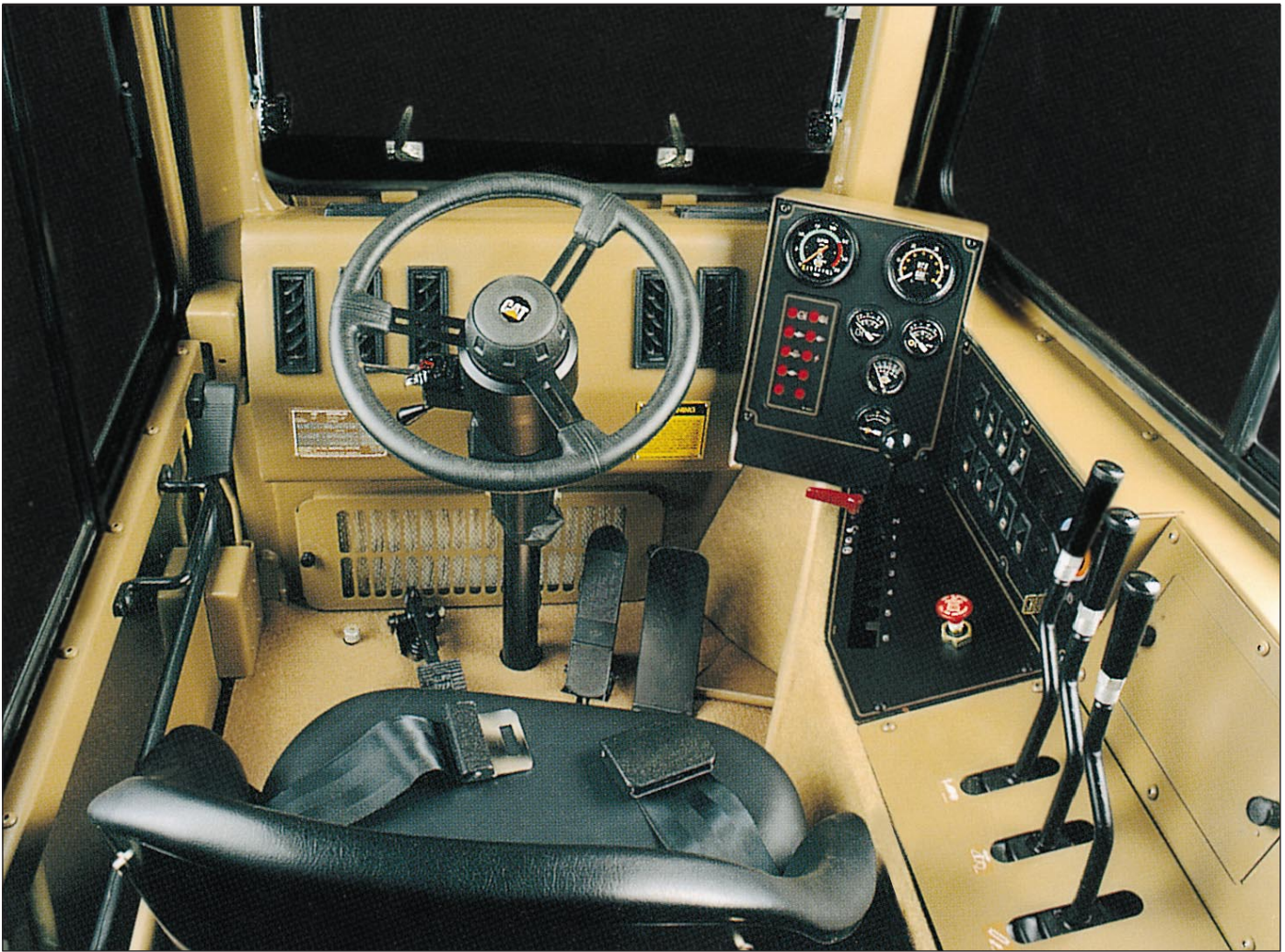
A smoother ride helps increase production and reliability.



- Significantly increases production over rough haul roads by reducing bounce for high speeds.
- Two load cylinders attached to the tractor frame and axle, absorb haul road shocks through a nitrogen-over-oil accumulator.
- Tag link mounted horizontally between the differential and the tractor frame helps prevent axle sideways.
- Automatic leveling valve provides maximum shock absorption at any scraper load.
- Selector lever in the cab locks out the axle suspension for precise loading or dumping.
- Maximum reliability with improved selector valve, suspension cylinder pins, charging valve, accumulator piston and wear rings.

Operator's Station

Comfort and control increase operator efficiency.



Excellent viewing area

- 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 is multi-adjustable with air 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 are 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 12).

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

Tilt-out windshield (open ROPS) — additional control of fresh air circulation.

Integral Rollover Protective Structure (ROPS)

- Canopy is 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.

Scraper Bowl

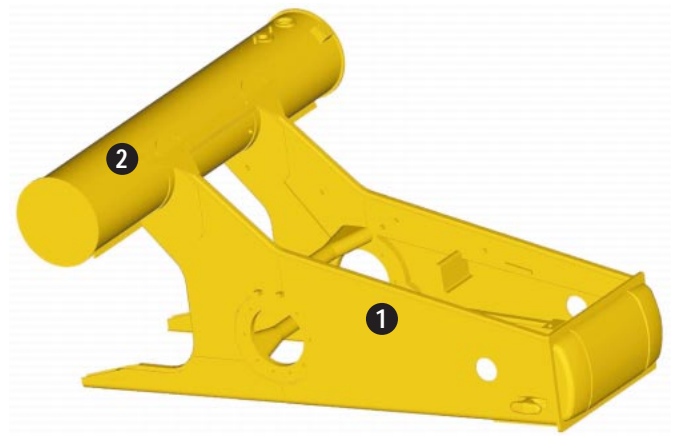
Modeled after the proven 621 Scraper design.



Apron actuation is accomplished by two cylinders located at both ends of the apron which link the apron to the bowl. Location of the cylinders guards them from debris and allows them to provide constant apron closing force. When the bowl is raised/lowered, apron opening does not change, which results in better material retention, as well as eliminates the need for an apron float switch.

Rigidity. (1) Rear frame has three cross beam castings which are stronger than welded fixtures. (2) Due to its tubular design, the round fuel tank resists torsional stresses. The large capacity tank increases productivity by allowing for longer work shifts between fuelings.

Ejection force – enough hydraulic pressure to eject sticky loads.



Cutting Edges

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

Reversibility extends the life lowers your GET 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 break during normal operation, Caterpillar will replace them free of charge.*

For optimum productivity:

- Select the thinnest GET that gives acceptable life
- Drop the cutting edge from the straight configuration to the stinger for production work.

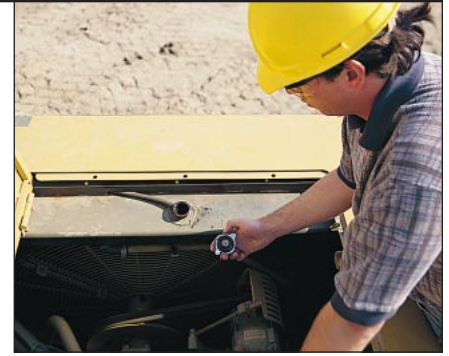


* Refer to complete Caterpillar G.E.T. warranty.

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

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, 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.
- **S•O•S Oil and Sampling Valves** provide a fast, convenient means of obtaining fluid samples and improve analysis reliability.

Complete Customer Support

Cat dealer services help you operate longer with lower costs.

Your Cat dealer offers a wide range of services that can be set up under a Customer Support Agreement when you purchase your equipment. The dealer will help you choose a plan that can cover everything from machine and attachment selection to replacement, to help you get the best return on your investment.

Selection. Make detailed comparisons of the machines you are considering before you buy. How long do components last? What is the cost of preventative maintenance? What is the true cost of lost production? Your Cat dealer can give you precise answers to these questions.

Purchase. Look past initial price. Consider the financing options available as well as day-to-day operating costs. This is also the time to look at dealer services that can be included in the cost of the machine to yield lower equipment owning and operating costs over the long run.

Operation. Improving operating techniques can boost your profits. Your Cat dealer has training videotapes, literature and other ideas to help you increase productivity.



Maintenance. More and more equipment buyers are planning for effective maintenance before buying equipment. Choose from your dealer's wide range of maintenance services at the time you purchase your machine. Diagnostic programs such as S•O•S Fluids Analysis and Technical Analysis help you avoid unnecessary downtime and maintain the value of your machine.

Replacement. Repair, rebuild or replace? Your Cat dealer can help you evaluate the cost involved so you can make the right choice.

Product support. You will find nearly all parts at our dealer parts counter. Cat dealers utilize a world-wide computer network to find in-stock parts to minimize machine down time. Save money with remanufactured parts. You receive the same warranty and reliability as new products at cost savings of 40 to 70 percent.

Engine

Six cylinder 3306 turbocharged and jacket-water aftercooled diesel engine.

Ratings at 2200 RPM*	kW	HP
Gross power	208	279
Net power	197.7	265

The following ratings apply at 2200 RPM when tested under the specific standard conditions for the specified standard:

NET POWER	kW	HP	PS
Caterpillar	197.7	265	—
ISO 9249	197.7	265	—
EEC 80/1269	197.7	265	—
SAE J1349	195.6	262.2	—
DIN 70020	—	—	274.8

Dimensions

Bore	121 mm	4.75 in
Stroke	152 mm	6.0 in
Displacement	10.5 liters	638 cu in

*Power rating conditions

- based on standard air conditions of 25°C (77°F) and 99 kPa (29.32 in Hg) dry barometer
- used 35° API gravity fuel having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 30°C (86°F) [ref. a fuel density of 838.9 g/L (7.001 lb/U.S. gal)]
- net power advertised is the power available at the flywheel when engine is equipped with fan, air cleaner, muffler and alternator
- no derating required up to 2300 m (7500 ft) altitude

Features

- direct injection fuel system with 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 with three keystone-designed rings; 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.

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.

Transmission

Caterpillar built, six-speed forward, one reverse, manual planetary power shift

Top speeds (equipped with 29.5R25 tires, 40 243 kg (88,640 lb) gross machine weight and 3% total resistance)

		km/h	MPH
Forward	1	3.5	2.2
	2	5.8	3.6
	3	10.0	6.2
	4	16.4	10.2
	5	28.2	17.5
	6	44.4	27.6

Top speeds (equipped with 26.5R25 tires, 39 971 kg (88,040 lb) gross machine weight and 3% total resistance)

Forward	1	3.2	2.0
	2	5.5	3.4
	3	9.3	5.8
	4	15.3	9.5
	5	26.4	16.4
	6	42.2	26.2

Features

- single lever control
- first through sixth gears provide automatic torque converter lockup for direct drive efficiency and high haul road speeds

Steering

Modulated, variable-flow steering.

Cylinder

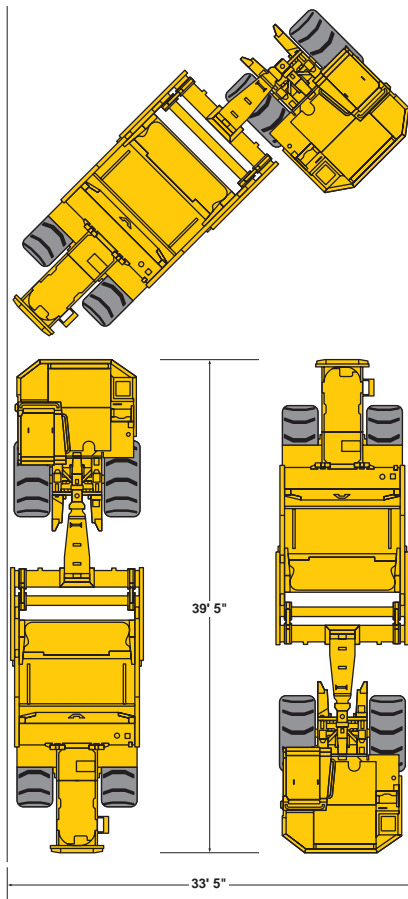
Bore	114 mm (4.5")
Stroke	904 mm (35.6")
Rod	57 mm (2.2")

180° Curb-to-curb

turning width 10.2 m (33' 5")

- Two Caterpillar double-acting hydraulic cylinders provide full 90° right or left steering.
- 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 ISO5010.

611
Curb-to-Curb
Turning Width



Cab

Caterpillar cab and Rollover Protective Structure (ROPS). ROPS canopy required in U.S.A.

Features

- meets OSHA and MSHA limits for operator and sound exposure with doors and windows closed (according to ANSI/SAE J1166 JUL87)
- ROPS meets the following criteria:
 - SAE J395
 - SAE J1040 APR88
 - ISO 3471-1 1986
 - ISO 3471-1 1994
- also meets the following criteria for Falling Objects Protective Structure:
 - SAE J231 JAN81
 - ISO 3449 1992 Level II

Note

When properly installed and maintained, the cab offered by Caterpillar, when tested with doors and windows closed according to ANSI/SAE J1166 MAY90, meets OSHA and MSHA requirements for operator sound exposure limits in effect at time of manufacture. The operator sound pressure level is 77 dB(A) when measured per ISO 6394 and 79 dB(A) when measured per ISO 6396.

Final Drives

Planetary/outboard type with full-floating axle.

Reduction Ratio

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

Features

- 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.

Service Refill Capacities

	Liters	Gallons
Fuel tank	580	153
Crankcase	27	7
Transmission	36	9.5
Differential and final drives	61	16
Cooling system	64	17
Hydraulic system (steering and implements)	159	42

Hydraulics

Powered by a double-section vane pump with open-center hydraulic circuits.

Pump output at 2200 rpm and 6900 kPa (1000 psi)

Bowl, Apron & Ejector Circuit
142 l/min (38 gal/min)

Steering Circuit
167 l/min (44 gal/min)

Controls

Three levers for hydraulic actuation.

- bowl — raise, hold and lower
- apron — raise, hold and lower
- ejector — dump, hold, return
 - “return” is detent held with automatic kickout to “hold” when ejector reaches full return
 - detent can be overridden at any time

Scraper Bowl

Cellular construction with 290 000 kPa (42,000 psi) minimum yield strength steel.

Capacity		
Rated load	16 344 kg	36,000 lb
Struck, SAE rating	8 m ³	11 yd ³
Heaped, SAE rating	11 m ³	15 yd ³
Width of cut		
Outside router bits	2903 mm	114.3"
Ejector travel	1141 mm	44.9"
Hitch oscillation	9° left or right	
Equipped with 26.5-25 or 29.5-25 tires		
Maximum depth of cut	353 mm	13.9"
Maximum depth of spread	376 mm	14.8"
Ground clearance (minimum occurs at cutting edge)	376 mm	14.8"
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"	

Cutting Edge

- three reversible sections
- heat-treated and through hardened

Caterpillar double-acting cylinders:

Location	Quantity	Bore	Stroke	Rod
Bowl	2	127 mm (5.0")	574 mm (22.6")	57 mm (2.3")
Ejector	1	108 mm (4.3")	1092 mm (43.0")	64 mm (2.5")
Apron	2	83 mm (3.25")	705 mm (27.8")	48 mm (1.8")

Weight (approximate)

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

Empty

Tractor - 66%	15 772 kg	34,740 lb
Scraper - 34%	8 127 kg	17,900 lb
Total	23 899 kg	52,640 lb

Loaded, based on a rated load of:

Tractor - 51%	20 524 kg	45,206 lb
Scraper - 49%	19 719 kg	43,434 lb
Total	40 243 kg	88,640 lb

Brakes

Meet the following standards: OSHA, MSHA, SAE J1473 OCT90, ISO 3450-1996.

Service brake features

- air-applied and spring-released
- expanding-shoe type
- a single pedal controls separate front and rear brake circuits

Parking brake features

- shoe-type mounted on rear of transmission transfer case

Secondary brake features

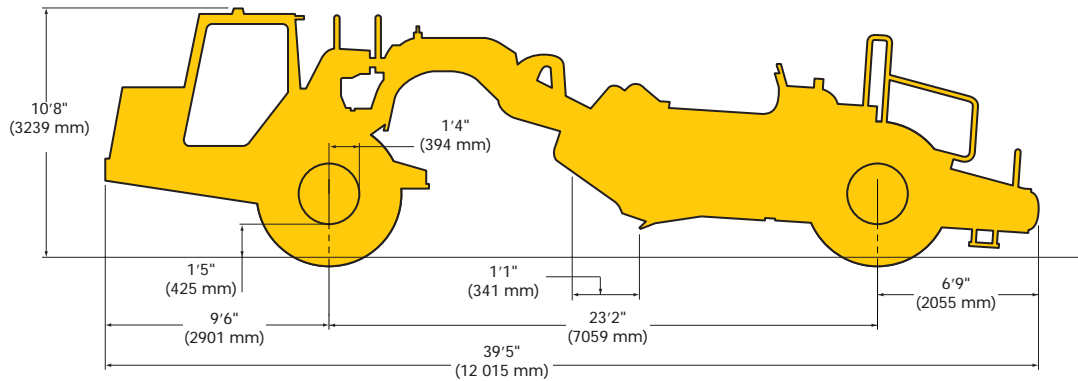
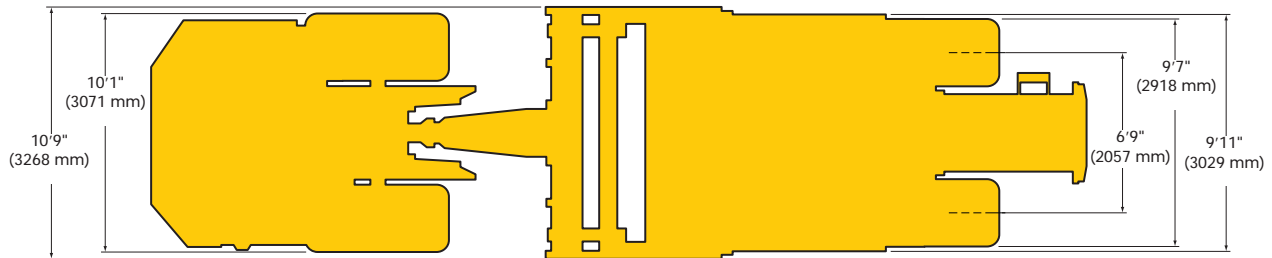
- system is designed so no single component or line failure will cause a total loss of brakes
- if the standard circuit air pressure drops below 413 kPa/4.13 bar (60 psi) electric warning horn and dash light (EMS) signal the operator

ASBS (Another Secondary Braking System)

- uses the parking brake valve to actuate the parking and rear service brakes in the event of a secondary, common component, brake failure.

Dimensions

All dimensions are approximate.



Gradeability/Speed/Rimpull

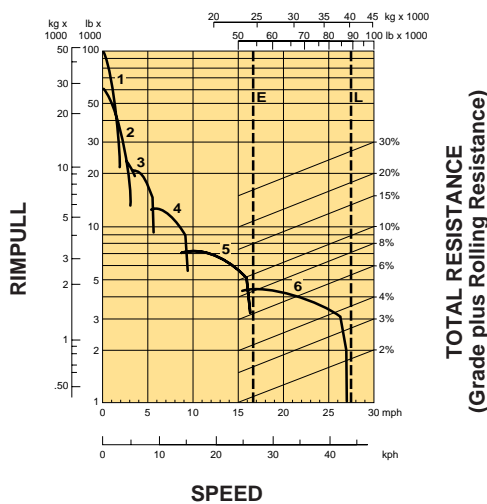
To determine gradeability performance: Read from gross weight to the % of total resistance. Total resistance = actual % grade + % rolling resistance. From this weight-resistance point, read horizontally (left or right) to the curve with the highest obtainable gear, then down to the corresponding speed.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

GROSS WEIGHT

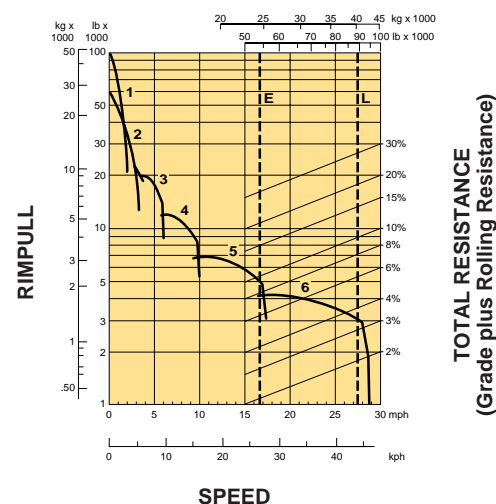
(26.5-R25 Tires)

GROSS WEIGHT

(29.5-R25 Tires)



GROSS WEIGHT LINES
 E Ñ EMPTY...23 626 kg (52,040 lb)
 L Ñ LOADED...39 971 kg (88,040 lb)



GROSS WEIGHT LINES
 E Ñ EMPTY...23 899 kg (52,640 lb)
 L Ñ LOADED...40 243 kg (88,640 lb)

Standard Equipment

Standard and optional equipment may vary. Consult your Caterpillar dealer for specifics.

Air cleaner service indicator
 Alarm, back up
 Alternator, 50-amp
 Batteries (2), 172 amp-hr. 700 cca
 Brakes:
 Caliper disc (front & rear)
 Parking
 Secondary
 Canopy, ROPS (standard in U.S.A.)
 Crankcase guard
 Differential lock
 Electrical system, 24-volt
 Electronic Monitoring System (EMS)
 Fan (engine), suction
 Fenders (tractor)
 Fuel pump, electric
 Gauges:
 Air pressure
 Engine coolant temperature
 Fuel
 Speedometer
 Tachometer with electric hour meter
 Torque converter oil temperature

Headlights, halogen with dimmer
 Hitch
 Horn
 Mirror, right-hand and rearview (cab interior)
 Locks, vandalism protection
 Muffler
 Precleaner, air cleaner
 Seat, multi-adjustable with air/hydraulic suspension
 Seat belt, retractable
 S•O•S oil sampling valves for engine, transmission and hydraulic systems
 Starting, electric
 Steering wheel, tilt and telescopic
 Suspension system, front axle
 Tires, 29.5-R25
 Tow pins, front and rear
 Transmission, powershift
 Windshield, tilt-out, tinted
 Windshield washer and wiper (front)

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 changes in operating weights. Consult your Caterpillar Dealer for specifics.

	kg	lb
Air conditioner and heater	60	132
Cab, ROPS includes rear window wiper and washer	198	436
Ether starting aid	2	5
Fenders (scraper)	87	191
Floodlight (bowl & cutting edge)	2	4
Guard, powertrain	27	60
Heater	40	88
Lighting system (highway):		
*scraper includes directional and hazard	9	20
*tractor includes directional/hazard and stop/tail	8	17

	kg	lb
Starting receptacle	2	5
Supplemental steering system	76	168
Teeth (scraper) bolt-on set of four with replaceable tips	52	115
Tires, set of two		
29.5-25 22PR (E-3)	-95	-208
26.5-R25	-272	-600
Omission of 29.5-R25 (set of two)	-1144	-2523
Tool kit	10	23
Vandalism dash protection (canopy equipped units)	5	12

* Must be ordered together

611 Wheel Tractor-Scraper

AEHQ5346-01 (5-99)
(Replaces AEHQ5346)

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Materials and specifications are subject to change without notice.
Featured machines in photos may include additional equipment.
See your Caterpillar dealer for available options.

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