

631E, 633E, 637E Series II Wheel Tractor- Scrapers



Machine Model	631E II/637E II		633E II		637E II (Scraper only)	
Cat® Engine Model	3408E		3408E		3306	
Gross power at 2000 rpm					202 kW	270 HP*
Gears 1-2	354 kW	475 HP	384 kW	515 HP***	—	—
Gears 3-8	384 kW	515 HP	384 kW	515 HP	—	—
Flywheel power at 2000 rpm					186 kW	250 HP
Gears 1-2	335 kW	450 HP	366 kW	490 HP***	—	—
Gears 3-8	365 kW	490 HP	366 kW	490 HP	—	—
Heaped capacity, SAE rated	23.7 m ³	31 yd ³	26 m ³	34 yd ³	23.7 m ³	31 yd ³
Travel speeds, up to	53.5 km/h	33.2 mph**	53.8 km/h	33.4 mph	54.9 km/h	34.1 mph
Operating weight, empty	44 207 kg	97,460 lb**	51 065 kg	112,580 lb	51 106 kg	112,670 lb****

* Power ratings for the 3306 engine are at 2200 rpm

** 631E Series II only.

*** Power ratings for elevator on

**** Tractor/scraper weight

631E, 633E, 637E Series II Wheel Tractor-Scrapers

Highly productive earthmoving machines, built to last.

Power Train

Caterpillar® 3408E engine with hydraulically actuated, electronically controlled unit injector fuel system and eight-speed power shift transmission combine to form a responsive, highly fuel efficient power train. **pg. 4**

Electronically Controlled Cushion Hitch

Accumulator system dampens road shocks, helps prevent loping at high haul road speeds, locks out for precise control when loading and dumping. **pg. 6**

Push-Pull Arrangement (637E Series II optional)

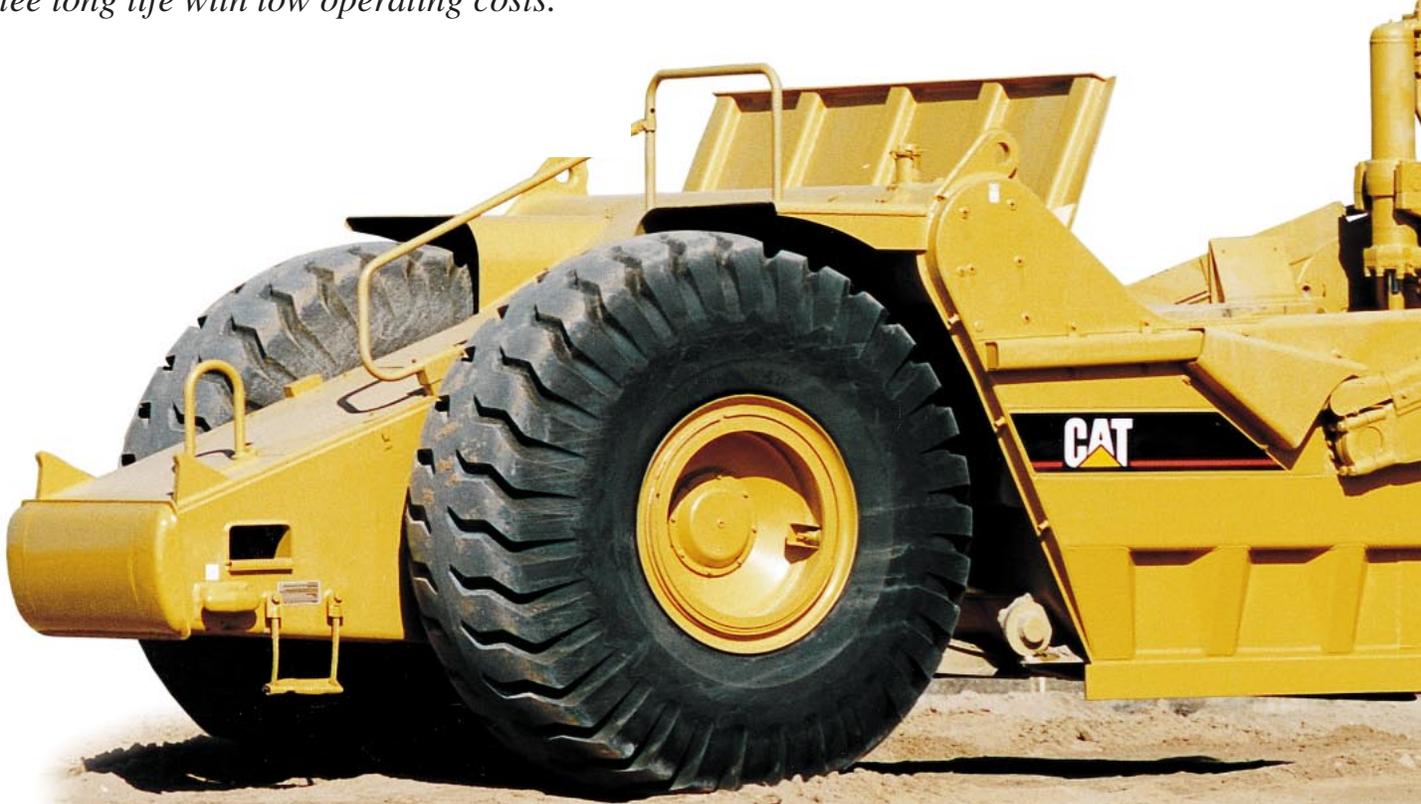
Provides the flexibility for self-loading, push-pull loading or standard push loading. **pg. 6**

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.



Scraper Bowl

Wide cutting edge and low-profile design contribute to large volume loads. Choose from open bowl, infinitely variable-speed elevator with two-stage ejection system or Caterpillar designed and manufactured auger system. **pg. 7**

Operator's Station

Convenient control placement and a comfortable work environment are keys to high productivity. Cab is rubber mounted to reduce sound and vibration. **pg. 8**



Power Train

Proven components combine to deliver the most durable, reliable power train in the industry, keeping costs low and production high.

Proven Cat engines provide the power and torque rise for excellent lugging in tough loading conditions. They are designed for long hours of continuous operation, with high displacement and low rpm ratings.

The fuel system and Electronic Control Module on the 3408E tractor engine economically and precisely deliver fuel. The system features hydraulically actuated, electronically controlled unit injectors for improved fuel economy, reduced engine operating noise and low emissions. The engine meets all CARB and EPA requirements.

High injection pressures, independent of engine speed, decrease smoke and emissions while improving response.

Variable injection timing and duration improve fuel efficiency and cold starting, decrease smoke and emissions.

Injection rate shaping reduces emissions and engine noise.

Fewer mechanical parts in the fuel system improves reliability.

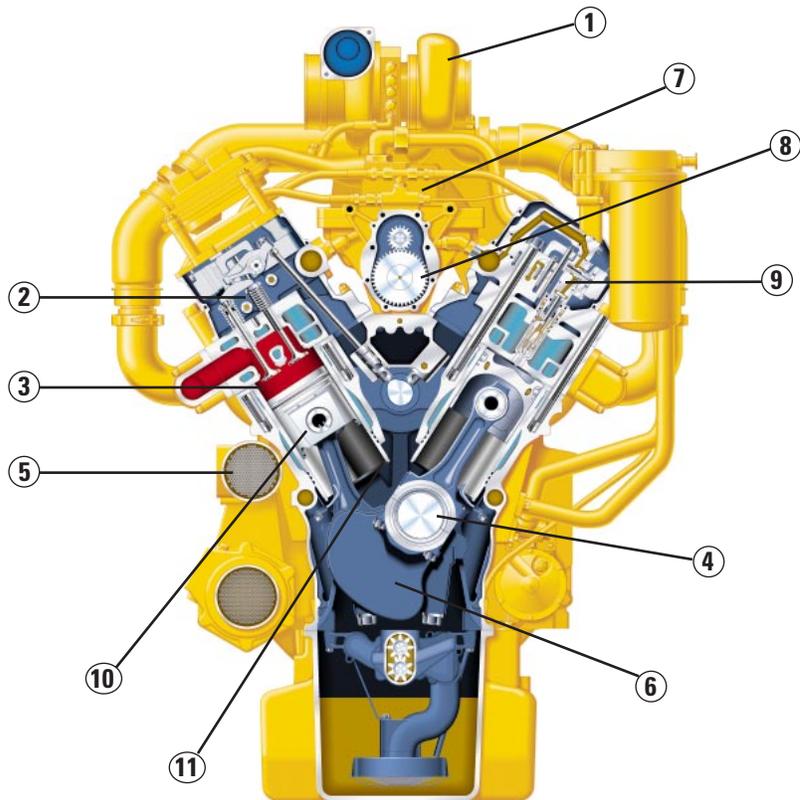
Electronic control provides:

- Automatic altitude deration.
- Automatic air filter restriction deration.
- Elevated low idle.
- Improved cold weather starting.
- Acceleration delay on startup to reduce engine wear.
- Advanced diagnostic capabilities.

Multiple horsepower ratings limit output in first and second gears unless the operator has the auger or elevator engaged. In that case, additional horsepower is available, as it is in higher gears.

Neutral start control prevents engine from starting unless transmission is in neutral.

Throttle back-up provides the operator with a preset engine speed control in the event of a throttle input failure.



Throttle lock allows the operator the capability of locking both engines on the 637E Series II at any operating level.

Directional shift management prevents the operator from shifting out of neutral when engine rpm is above a preset level. The throttle is interrupted, allowing engine speed to drop, before completing the directional change.

Controlled throttle shifting increases drivetrain life by reducing the fuel injection rate just prior to shifting.

Automatic ether starting aid greatly improves cold weather starting. Operator may inject additional ether, but the system regulates the maximum amount.

Electronic ground level shutoff enables the operator to stop the engine from the ground with the flip of a switch.

Steel spacer plate between the block and head eliminates the need for counterbores and helps prevent associated cracking problems.

Oil-cooled pistons and full-length water-cooled cylinder liners provide maximum heat transfer for longer component life.

1 Turbocharger

2 Valve rotators

3 Stellite-faced valves

4 Steel-backed, copper-bonded bearings

5 Oil cooler

6 Forged crankshaft

7 Aftercooler

8 High pressure oil pump

9 Adjustment-free fuel injectors

10 Aluminum-alloy pistons

11 Full-length, water-cooled cylinder liners

Aftercooler lowers intake charge air temperature to increase power and reduce thermal stresses that can cause premature wear of pistons, rings and liners.

Engine oil cooler maintains optimum oil temperature for proper cooling and longer lubricant life.

Laminated Thermo-Shield improves tractor protection by reducing the temperature of exposed engine surfaces, cools engine and operating compartments, extends hose and wiring life.

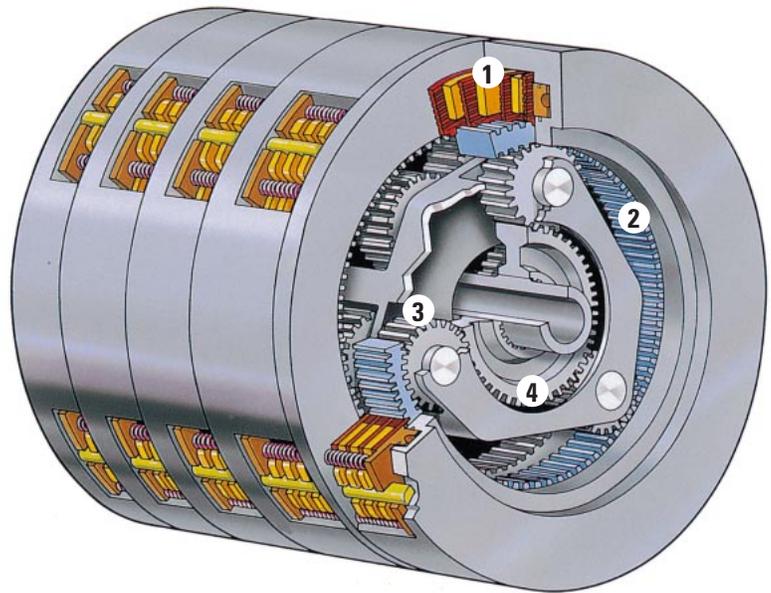
Direct injection fuel system on the 637E II's 3306 scraper engine is adjustment-free with individual injection pumps and valves.

- Automatic variable-injection timing delivers fuel as needed when engine speed varies between cut or fill work and high-speed hauling for maximum efficiency.

Optional retarder (631E II, 633E II) can extend brake life. (Standard on 637E II effective 1/1/00).

Eight-speed power shift transmission provides automatic, on-the-go shifting for simple, reliable operation. It also eliminates torque converter drive at haul road speeds. Individual clutch modulation makes for smooth shifts, increases component life and improves ride.

- First, second and reverse gears are torque converter drive for high rimpull and full hydraulic power when loading or ejecting.
- Third through eighth are direct drive for efficiency and maximum, usable haul road speeds.
- Transmission hold switch overrides automatic shifting, holds transmission in current gear. Electronic control can override transmission hold to help prevent engine overspeed.
- Transmission will not shift above gear selected by the operator.

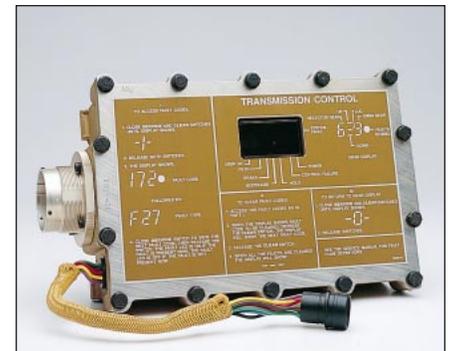


Neutral Coast Inhibitor Control helps prevent the transmission from shifting to neutral at speeds above 8.1 km/h (5 mph). This protects the transmission against operating with insufficient lubrication.

- Helps prevent possible transmission damage by inhibiting shifts into neutral.
- Helps prevent transmission overspeed, and maintain adequate cooling oil flow while coasting in neutral.

Top gear control helps prevent shifting above a programmed gear to better regulate haul road speeds.

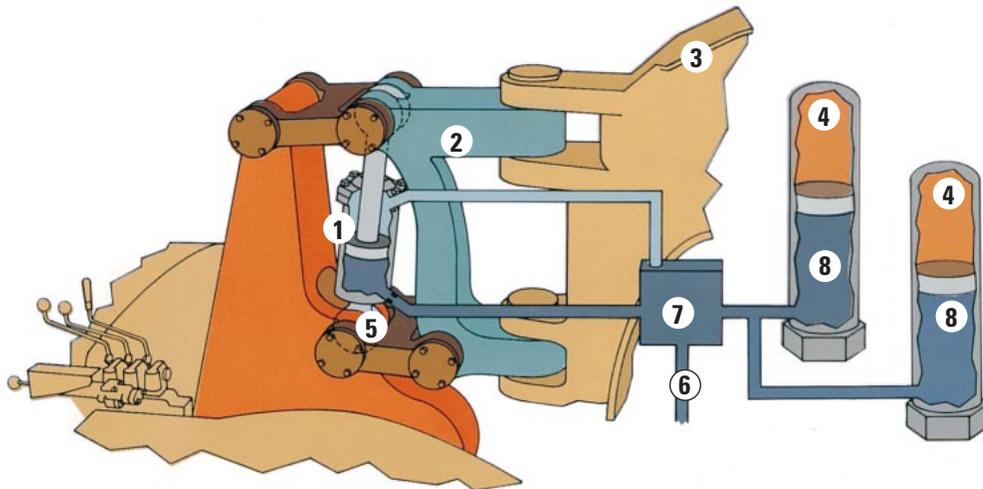
- 1 Clutch packs**
- 2 Ring gear**
- 3 Planet gears**
- 4 Sun gear**



Electronic Programmable Transmission Control (EPTC II) records both current and intermittent faults. Some status information can be accessed through the alphanumeric display on the control itself while other data is only retrievable using the Electronic Technician (ET).

Electronically Controlled Cushion Hitch

Smoother ride improves productivity.



Caterpillar electronically controlled cushion hitch design dampens shocks to provide a smoother ride. The result is higher speed capability, less machine wear and increased productivity.

- Nitrogen-over-oil accumulators absorb and dampen road shocks. A restricting orifice in the oil line reduces bounce-back from the accumulators to help prevent machine loping or bouncing at high haul road speeds.

- Electronically controlled cushion hitch locks down for positive control of the cutting edge during loading and dumping.
- Double kingbolt design withstands high external forces and allows easy installation and removal.
- Extensive use of steel castings eliminates many welded joints, making a strong hitch.

- 1 Load cylinder**
- 2 Hitch castings**
- 3 Scraper gooseneck**
- 4 Nitrogen accumulators**
- 5 Orifice**
- 6 Oil from tractor hydraulic system**
- 7 Leveling valve**
- 8 Free floating pistons**

Optional Push-Pull Arrangement (637E II only)

Self-loading power with the flexibility to match any job requirement.

This arrangement includes a hydraulically actuated bail and cushioned plate which are bolted to the front of the tractor and a hook which is attached to the rear of the scraper.

- Allows two push-pull scrapers to assist one another in loading.
- Gives the flexibility of self-loading, push-pull loading or allows standard push loading.

- Economically loads tough material.
- This arrangement can provide a more balanced, flexible fleet with less investment and fewer machines.

Scraper Bowl

Low, wide, large-capacity design boosts production.



Wide cutting edge scoops large volume loads from shallow cuts, while the low-profile design of the bowl offers less resistance to incoming materials.

Cellular construction adds strength and dent resistance to bowl sides and floor.

Steel router and edge supports, floor plates and high-abuse components are tempered for strength.

Cat bulldozer ejection system combines constant spreading control with bowl-cleaning efficiency.

Two-stage ejection system (633E II only) — floor slides back as ejector moves forward. Actuated by smooth, double-acting hydraulics.

Angled top plate on ejector helps retain load.

Infinitely variable-speed elevator

(633E II only) matches loading speed to material — from high speed for normal or loose conditions to low speed for tough materials.

- Elevator direction is reversible for spreading top soil and unloading cohesive materials.
- Carrier rollers and chain idlers are heat-treated for wear resistance.
- Split bolt-on drive sprockets eliminate the need to remove chain during service, require no periodic lubrication.
- Mechanically adjustable chains have exceptional pull strength for dependable performance and long life.
- Flexible elevator mounting protects flights and cutting edge from sudden shock loads.
- High-pressure piston pump enables operator to take deeper cuts and load in shorter distance with less elevator stall.
- Adjustable throat opening enables fast loading.

An auger mechanism in the bowl

(631E II and 637E II only) improves self-loading capabilities by lifting material off of the cutting edge and carrying it to the top of the load.

- Able to handle a wider variety of materials compared to conventional elevating scrapers.
- Eliminates the need for a large support fleet.
- Arrangement is ideally suited for landfill applications.
- Improves material mixing for greater compaction in the dump area.
- Minimizes dust and noise during loading.
- Auger mechanism is hydraulically driven and controlled by a switch on the apron lever in the operator's compartment.
- Cat designed and built for durability.

Operator's Station

Comfort and control increase operator efficiency.



Standard rubber-mounted cab reduces noise and vibration for comfortable, shift-long operation.

1 Low-effort controls are easily accessible for sure, precise operation.

2 Hydraulic servo-steering system provides low-effort automotive feel and excellent maneuverability.

3 Tilt steering column adjusts to five different positions for operator comfort and control.

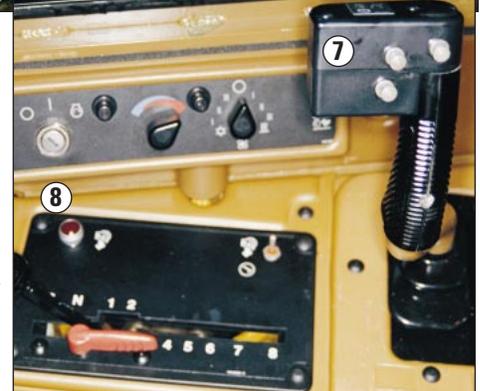
4 Suspension seat delivers a comfortable ride.

5 Electronic Monitoring System checks important machine systems, provides three-level warning.

6 Radio compatible wires in cab.

7 Multifunction bowl lever gives operators the ability to control important scraper functions without removing their hands from the bowl lever. The bowl lever will control bowl raise/lower, transmission lock, cushion hitch, bail (637E II only), and apron power down trigger using one lever.

8 Engine overspeed indicator light and alarm sound when the engine rpm exceeds 2700. The light and alarm deactivate when the rpm drops below 2200. The system can be tested with engine off and key turned to "on" position.



Serviceability

Simplified service means more productive uptime.

Many convenient service features keep these machines on the job:

- Scraper-mounted fuel tank improves access to tractor engine compartment.
- Improved wiring harness incorporates color coded and numbered circuits for quick identification, minimum 10-amp fuses and improved connectors.
- Diagnostic connector, with the aid of a service tool, allows quick analysis of the starting and charging circuits.
- O-ring face seals help keep these machines “dry.”
- Centralized lubrication blocks for the hitch and steering reduce lube time.
- Service points for the engine are grouped on the right side for easy access.
- Service platforms and numerous handholds improve access and safety.
- Increased component commonality with other Caterpillar scrapers/machines improves parts availability.
- Electronic ground-level engine shut-offs for convenient operator and service access.



Reliability

Cat is committed to provide the most dependable machines on the market.

Optional retarder extends brake life when working on severe, downhill slopes. Standard on 637E II.

Extensive use of castings in the frame, hitch and bowl provide long service life.

Wiring harness and hose assemblies run down the draft arms to eliminate the need for "jump-over" lines which can reduce hydraulic system efficiency.

Standard 37.25R35 tires provide the maximum flotation of the available options.

Scraper driveline guard protects the output case, differential and ejector cylinder to help minimize driveline maintenance costs.

Laminated Thermo-Shield helps keep surface temperatures in the engine compartment below the flash point of diesel fuel.

Complete Customer Support

When you buy a Cat machine, you get Caterpillar's total commitment to customer support.

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 preventive 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. Repair option programs guarantee the cost of repairs up front. Diagnostic programs such as Scheduled Oil Sampling and Technical Analysis help you avoid unscheduled repairs.

Replacement. Repair, rebuild or replace? Your Cat dealer can help you evaluate the costs 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.

Engines

All Caterpillar engines are built to excel in even the most demanding jobs.

631E II/637E II Tractor

Four-stroke cycle, 8 cylinder 3408E turbocharged and aftercooled diesel engine.

Ratings at 2000 rpm*	kW	HP
Gross power		
gears 1 - 2	354	475
gears 3 - 8	384	515
Net power		
gears 1 - 2	335	450
gears 3 - 8	365	490

The following ratings apply at 2000 rpm when tested under the specified standard conditions for the specified standard:

Net power (gears 3-8)	kW	HP	PS
Caterpillar	366	490	—
ISO 9249	366	490	—
EEC 80/1269	366	490	—
SAE J1349	362	485	—
DIN 70020	—	—	508

Dimensions

Bore	137 mm	5.4 in
Stroke	152 mm	6.0 in
Displacement	18.0 liters	1099 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 the engine is equipped with fan, air cleaner, muffler and alternator
- no derating required up to 1500 m (5000 ft) altitude

633E II

Four-stroke cycle, 8 cylinder 3408E turbocharged and aftercooled diesel engine.

Ratings at 2000 rpm*	kW	HP
Gross power		
gears 1 - 2	354	475
gears 3 - 8	384	515
Gross power (elevator on)		
gears 1-2	384	515
Net power		
gears 1 - 2	335	450
gears 3 - 8	365	490
Net power (elevator on)		
gears 1-2	365	490

The following ratings apply at 2000 rpm when tested under the specified standard conditions for the specified standard:

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DIN 70020	—	—	508

Dimensions

Bore	137 mm	5.4 in
Stroke	152 mm	6.0 in
Displacement	18.0 liters	1099 cu in

Features (all models)

- fuel system (3408E) delivers fuel economy through hydraulically actuated, electronically controlled unit injectors
- electronic control provides precise speed governing, active and logged diagnostic codes, cold start-up mode, low oil pressure warning/derate and high temperature warning/derate
- direct-injection fuel system (3306) with individual adjustment-free injection pumps and valves
- integral inlet manifold porting with two intake and two exhaust valves per cylinder with valve rotators on 3408E, and one intake and one exhaust valve per cylinder on 3306

637E II (Scraper only)

Four-stroke cycle, 6 cylinder 3306 turbocharged and aftercooled diesel engine.

Ratings at 2200 rpm*	kW	HP
Gross power	202	270
Net power	186	250

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

Net power	kW	HP	PS
Caterpillar	186	250	—
ISO 9249	186	250	—
EEC 80/1269	186	250	—
SAE J1349	184	247	—
DIN 70020	—	—	259

Dimensions

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

- cam-ground and tapered aluminum-alloy pistons with three keystone-designed rings; cooled by oil spray
- steel-backed, copper-bonded, aluminum bearings, through-hardened crankshaft journals
- pressure lubricated with full-flow filtered and cooled oil
- dry-type air cleaner with primary and secondary elements
- 24-volt direct-electric starting system; tractor has 75 amp alternator and four 12-volt 100 amp-hour batteries, scraper has 35 amp alternator and two 12-volt 100 amp-hour batteries (637E II only)
- standard ether starting aid
- convenient sampling valve for obtaining oil sample for S•O•S analysis. (Both tractor and scraper)

Transmission

Eight-speed automatic power shift.

631E II Maximum travel speeds

		km/h	MPH
Forward	1	4.7	2.9
	2	8.4	5.2
	3	11.9	7.4
	4	16.1	10.0
	5	21.6	13.4
	6	29.3	18.2
	7	39.4	24.5
	8	53.5	33.2
Reverse		9.9	6.2

633E II Maximum travel speeds

		km/h	MPH
Forward	1	4.8	3.0
	2	8.5	5.3
	3	11.9	7.4
	4	16.3	10.1
	5	21.7	13.5
	6	29.5	18.3
	7	39.8	24.7
	8	53.8	33.4
Reverse		9.9	6.2

637E II Maximum travel speeds

		km/h	MPH
Forward	1	5.5	3.4
	2	10.0	6.2
	3	12.2	7.6
	4	16.6	10.3
	5	22.2	13.8
	6	30.1	18.7
	7	40.6	25.2
	8	54.9	34.1
Reverse		9.9	6.2

Differential Control

Caterpillar differential lock.

Tractor Features

- engaged by foot pedal
- helps prevent drive wheels from spinning in poor underfoot conditions
- allows normal differential action when not engaged

Scraper Features (637E II only)

- automatic locking type

Tractor Features

- single-lever shift control
- torque converter multiplies torque in first, second and reverse
- third through eighth gears are direct drive
- all shifts up or down from second to eighth gear selected are automatic
- the bowl lever will control bowl raise/lower, transmission lock, cushion hitch, and bail (637E II only) using one lever
- microprocessor monitors output shaft speed and can override control to shift up or down one gear to ensure proper engine rpm
- Electronic Programmable Transmission Control System
- latching diagnostics, neutral coast inhibitor and top gear control
- Individual Clutch Modulation (ICM) for fast, smooth shifts and improved serviceability

Scraper Features (637E II only)

- planetary-type, full torque converter drive with four ranges
- shifting is synchronized to tractor transmission by solid-state switching

Final Drives

Planetary final drives and full-floating axles.

Features

- remove independently of wheel mounting for easy service
- double-row roller bearings are service-free
- protected with Duo-Cone Floating Ring Seals

Steering

Full hydraulic power steering.

Ratings 631E II

Width required for curb-to-curb	
180° turn	12.2 m 40' 1"
Steering angle, each direction	90°
Hydraulic output at 2000 rpm and 13 500 kPa (1960 psi)	370 liters/min 96.2 gpm
Ground-driven secondary steering system at 24 km/h (14.9 MPH)	200 liters/min 52 gpm

Ratings 633E II

Width required for curb-to-curb	
180° turn	13.16 m 43' 2"
Steering angle, each direction	90°
Hydraulic output at 2000 rpm and 13 500 kPa (1960 psi)	408 liters/min 107.6 gpm
Ground-driven secondary steering system at 24 km/h (14.9 MPH)	200 liters/min 52 gpm

Ratings 637E II

Width required for curb-to-curb	
180° turn	12.2 m 40' 1"
Steering angle, each direction	90°
Hydraulic output at 2000 rpm and 13 500 kPa (1960 psi)	370 liters/min 96.2 gpm
Ground-driven secondary steering system at 24 km/h (14.9 MPH)	200 liters/min 52 gpm

Features

- two double-acting hydraulic cylinders
- hydraulic follow-up system for automotive feel
- positive, modulated flow control for constant steering response
- optional supplemental steering system is ground-driven and provides hydraulic power for steering if needed
- optional supplemental steering system meets SAE J1511 (OCT90) and ISO 5010(1992) requirements

Cushion Hitch and Gooseneck

Parallelogram-type linkage connects two-piece hitch.

Features

- vertically mounted hydraulic cylinder transfers road shocks to nitrogen accumulators
- controlled oil flow dampens rebound oscillation
- leveling valve automatically centers piston in cylinder for all scraper loads
- cushion ride lock down control for positive cutting-edge down pressure when loading or spreading
- cushion hitch makes extensive use of steel castings, eliminating many welded joints and adding strength
- double-kingbolt design withstands high external forces, allows easy installation and removal
- box-section gooseneck reduces plate and weld stresses
- fabricated draft tube
- wide-mounted bowl lift cylinders

Tires

Standard

- 37.25R35, (E-3)

Optional

- 37.25R35, (E-2)
- 37.25-35, 42PR (E-3)

Note:

In certain applications, the scraper's productive capabilities might exceed the tires' tonnes-km/h (ton-MPH) capabilities. Caterpillar recommends you consult a tire supplier to evaluate all conditions before selecting optional tires.

Brakes

Meet the following standards: OSHA, MSHA, SAE J1473 OCT90, ISO 3450-1985 (E).

Service brake features

- air-applied, spring-released
- cam-operated, expanding-shoe type

Parking brake features

- uses service brakes which are spring-applied, air-released
- manually applied

Secondary brake features

- uses service brakes which are spring-applied, air-released
- can be applied with button on dash
- automatically applied if service air pressure drops to 276 kPa (40 psi)
- audible and visual action alert indicators inform operator when service air pressure drops to 414 kPa (60 psi)

Elevator (633E II only)

Infinitely variable, forward and reverse, to a loaded maximum of 100.9 m/min (331 fpm).

Length (overall)	4498 mm	14' 9"
Width of flight face	252 mm	9.9"
Length of flights	2889 mm	9' 5.5"
Spacing of flights	610 mm	24"
Number of flights		14

Features

- hydraulically driven through 42:1 planetary gear reduction box
- split construction drive sprockets
- adjustable chain with heat-treated rollers, pins and links
- single pivot elevator

Cab

Caterpillar cab and Rollover Protective Structure (ROPS) are standard in North America, Europe and Japan.

Features

- meets OSHA and MSHA limits for operator sound exposure with doors and windows closed (according to ANSI/SAE J1166 MAY90)
- ROPS meets the following criteria: SAE J320a SAE J1040 APR88 ISO 3471-1986, ISO 3471-1994
- also meets the following criteria for Falling Objects Protective Structure: SAE J231 JAN81 ISO 3449-1992

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 less than 85 dB(A) when measured per ISO 6394 or 86/662/EEC.

Controls

Three levers for actuation.

- bowl — raise, hold and lower
 - transmission lock
 - cushion hitch
 - bail (optional 637E II only)
 - apron power down (trigger)
- ejector — dump, hold, return and detented return
- elevator — infinitely variable (633E II only) forward and reverse
- apron — raise, hold, lower, float (631E II, 637E II)

Weights

(approximate)

Model	631E Series II		633E Series II		637E Series II			
					Standard		Push-pull	
Shipping, with ROPS cab and 10% fuel								
Tractor	20 068 kg	44,243 lb	21 000 kg	46,200 lb	20 082 kg	44,274 lb	21 631 kg	47,688 lb
Scraper	23 559 kg	51,939 lb	29 526 kg	64,958 lb	30 124 kg	66,412 lb	30 118 kg	66,398 lb
Total	43 627 kg	96,182 lb	50 526 kg	111,158 lb	50 206 kg	110,686 lb	51 749 kg	114,086 lb
Operating, with ROPS cab, full fuel tanks and operator								
Empty, front axle	67%		64%		59%		60%	
	29 575 kg	65,201 lb	32 682 kg	72,051 lb	30 153 kg	66,475 lb	31 589 kg	69,642 lb
Empty, rear axle	33%		36%		41%		40%	
	14 632 kg	32,259 lb	18 384 kg	40,529 lb	20 954 kg	46,195 lb	21 059 kg	46,428 lb
Total	44 207 kg	97,459 lb	51 066 kg	112,580 lb	51 107 kg	112,670 lb	52 648 kg	116,070 lb
Loaded, based on a rated load of:								
Front axle	53%		51%		49%		50%	
	41 538 kg	91,576 lb	45 013 kg	99,236 lb	41 711 kg	91,958 lb	43 334 kg	95,535 lb
Rear axle	47%		49%		51%		50%	
	36 688 kg	80,884 lb	43 247 kg	95,344 lb	43 414 kg	95,712 lb	43 334 kg	95,535 lb
Total	78 226 kg	172,459 lb	88 260 kg	194,580 lb	85 125 kg	187,670 lb	86 668 kg	191,070 lb

Hydraulics

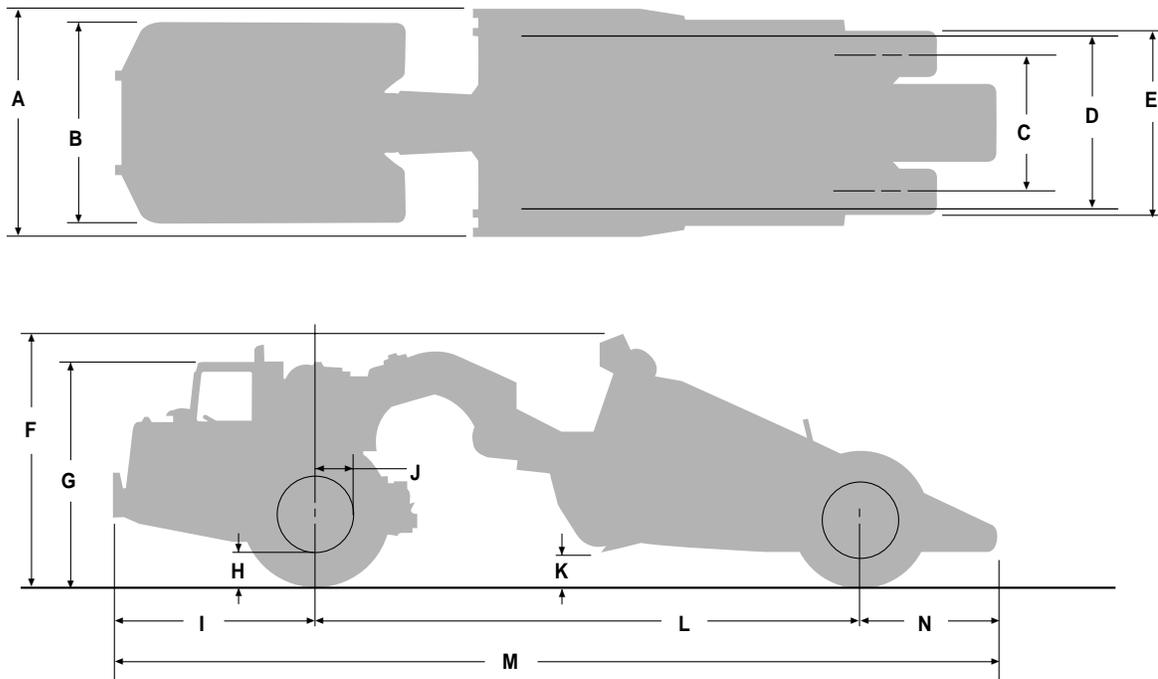
Closed, full-flow filtered hydraulic circuits powered by vane-type and piston-type pumps.

Model	631E Series II		633E Series II		637E Series II		
Double acting bowl cylinders (2)							
Dimensions:	bore	184 mm	7.2"	184 mm	7.25"	184 mm	7.2"
	stroke	873 mm	34.4"	508 mm	20"	873 mm	34.4"
Double acting apron (floor on 633E II) cylinder (1)							
Dimensions:	bore	210 mm	8.2"	159 mm	6.26"	210 mm	8.2"
	stroke	727 mm	28.6"	1327 mm	28.45"	727 mm	28.6"
Double acting ejector cylinder (1)							
Dimensions:	bore	210 mm	8.2"	165 mm	6.5"	210 mm	8.2"
	stroke	1880 mm	74"	1550 mm	67.5"	1880 mm	74"
Steering circuit	*398 liter/min	105 gpm	*389 liter/min	103 gpm	*389 liter/min	103 gpm	
Scraper circuit (elevator on 633E II)	*358 liter/min	95 gpm	*344 liter/min	91 gpm	*344 liter/min	91 gpm	
Cushion hitch circuit	*38 liter/min	10 gpm	*34.5 liter/min	9 gpm	*34.5 liter/min	9 gpm	
Optional supplemental steering circuit	*291 liter/min	77 gpm	*291 liter/min	77 gpm	*291 liter/min	77 gpm	
Relief valve settings for:							
Steering circuit	13 500 kPa	1960 psi	13 500 kPa	1960 psi	13 500 kPa	1960 psi	
Implement circuit	13 790 kPa	2000 psi	17 237 kPa	2500 psi	13 790 kPa	2000 psi	
Compensator settings for:							
Cushion hitch circuit	15 858 kPa	2300 psi	**15 858 kPa	2300 psi	15 858 kPa	2300 psi	
Elevator circuit	—	—	**36 517 kPa	5300 psi	—	—	

*2100 rpm
**2000 rpm

Dimensions

All dimensions are approximate.



Dimension/Model	631E Series II		633E Series II		637E Series II	
A Overall machine width	3938 mm	12' 11"	4050 mm	13' 3"	3938 mm	12' 11"
B Tractor width	3481 mm	11' 5"	3481 mm	11' 5"	3481 mm	11' 5"
C Width to center of rear tires	2464 mm	8' 1"	2464 mm	8' 1"	2464 mm	8' 1"
D Width to inside of bowl	3405 mm	11' 2"	3405 mm	11' 2"	3405 mm	11' 2"
E Width to outside of tires	3636 mm	11' 11"	3636 mm	11' 11"	3636 mm	11' 11"
F Overall shipping height	4286 mm	14' 1"	4240 mm	13' 11"	4286 mm	14' 1"
G Height to top of cab	3715 mm	12' 2"	3715 mm	12' 2"	3715 mm	12' 2"
H Tractor ground clearance	665 mm	2' 2"	665 mm	2' 2"	665 mm	2' 2"
I Length to front of machine from front axle	3359 mm	11' 0"	3359 mm	11' 0"	3359 mm	11' 0"
J Axle to vertical hitch pin	548 mm	1' 10"	548 mm	1' 10"	548 mm	1' 10"
K Maximum scraper blade height	545 mm	1' 9"	450 mm	1' 6"	545 mm	1' 9"
L Wheelbase	8769 mm	28' 9"	9021 mm	29' 7"	8769 mm	28' 9"
M Overall machine length	14 560 mm	47' 9"	14 812 mm	48' 7"	14 560 mm	47' 9"
N Length to rear of machine from rear axle	2432 mm	8' 0"	2432 mm	8' 0"	2432 mm	8' 0"
Push-pull (optional arrangement) Bail length					1930 mm	6' 4"

Scraper Bowl

High-carbon steel, box construction.

Model	631E Series II		633E Series II		637E Series II	
Maximum depth of cut	437 mm	17"	431 mm	17"	437 mm	17"
Width of cut, outside router bits	3512 mm	11' 6"	3512 mm	11' 6"	3512 mm	11' 6"
Maximum rated load	34 020 kg	75,000 lb	37 200 kg	82,000 lb	34 020 kg	75,000 lb
Heaped, SAE rating	23.7 m ³	31 yd ³	26 m ³	34 yd ³	23.7 m ³	31 yd ³
Struck, SAE rating	16.1 m ³	21 yd ³	17.7 m ³	23.2 yd ³	16.1 m ³	21 yd ³
Maximum ground clearance (cutting edge)	545 mm	21"	502 mm	19.8"	545 mm	21 "
Cutting edge dimensions						
Center section	22 x 406 x 1580 mm .88 x 16 x 62.2"		22 x 406 x 1580 mm .88 x 16 x 62.2"		35 x 406 x 1580 mm 1.38 x 16 x 62.2"	
End section	22 x 330 x 900 mm .88 x 13 x 35.4"		22 x 330 x 900 mm .88 x 13 x 35.4"		35 x 330 x 900 mm 1.38 x 13 x 35.4"	
Thickness of optional cutting edge	35 mm	1.38"	35 mm	1.38"	42 mm	1.62"
Maximum available hydraulic penetration force at cutting edge (empty)	255 kN	57,375 lb	389 kN	87,608 lb	360 kN	81,000 lb
Maximum depth of spread	480 mm	18.9"	578 mm	22.8"	480 mm	18.9"
Apron opening with bowl						
150 mm (6 in) above ground level	2007 mm	79"	—	—	2007 mm	79"
Apron closure force, cutting edge fully raised and apron opened 300 mm (12 in)	170 kN	38,250 lb	—	—	170 kN	38,250 lb

Service Refill Capacities

Model	631E II		633E II		637E II			
	L	Gal	L	Gal	Tractor		Scraper	
					L	Gal	L	Gal
Fuel tank	814	215	814	215	—	—	1268	335
Crankcase	45	11.7	45	11.7	45	11.7	27	7.2
Transmission	127	33	127	33	127	33	49	12.7
Differential	136	36	136	36	136	36	17	4.5
Final drive, each side	25	7	25	7	25	7	22	6.5
Cooling system	126	33	126	33	126	33	76	20
Hydraulic reservoir	190	50	190	50	190	50	—	—
Wheel coolant, each	75	19.5	75	19.5	75	19.5	75	19.5

Standard Equipment

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

Air horn	EMS action alert system	Secondary braking system
Air line dryer	Ether starting aid, automatic	Servo-steering and hydraulic system
Alternator (75-amp)	Fast fuel (effective 01/01/00 on 637E II only)	S•O•S oil sampling valves for engine, transmission and hydraulic systems
Back up alarm	Fast oil change system	Starting receptacle
Batteries, four, 12-volt, maintenance-free	Fenders (637E II only)	Suspension seat
Brake shields	Halogen lamps	Throttle lock
Cab, ROPS, sound suppressed, pressurized with heater	Hydraulic Retarder (637E II only)	Tilt steering column
Crankcase guard	Laminated Thermo-Shield	Tires
Cushion hitch, electronically controlled	Muffler	Tow pins, front and rear
Differential lock	Overspeed lamp	Transmission, automatic, eight-speed
Downshift inhibitor	Parking brake	Transmission hold switch
Dry-type air cleaner	Quick drop valve	Vandalism protection locks
Electric hour meter	Radio compatible wires	Windshield wiper and washer, front and rear
Electric starting (24-volt)	Rear-mounted floodlight	
Electronic Programmable Transmission Control II	Rearview mirrors	
	Safety glass windshield	
	Seat belt	

Optional Equipment

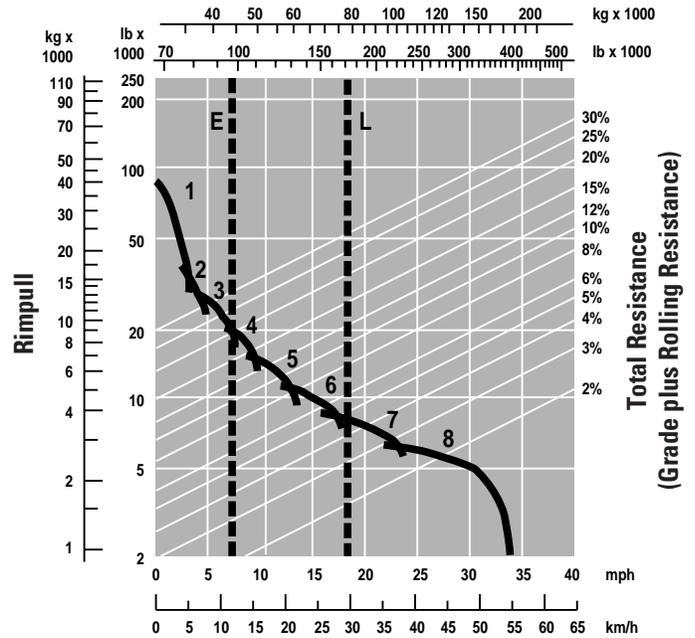
With approximate changes in operating weights.

Model	631E II		633E II		637E II	
Air conditioner	156 kg	345 lb	156 kg	345 lb	156 kg	345 lb
Door, hood, right side	15 kg	32 lb	15 kg	32 lb	15 kg	32 lb
Fuel system, fast fill	7 kg	15 lb	7 kg	15 lb	—	—
Open ROPS	-238 kg	-525 lb	-238 kg	-525 lb	-238 kg	-525 lb
Guards, heavy duty						
Crankcase	52 kg	114 lb	52 kg	114 lb	52 kg	114 lb
Power train	184 kg	405 lb	184 kg	405 lb	184 kg	405 lb
Push-pull (scraper 637E)	—	—	—	—	607 kg	1338 lb
Push-pull (tractor 637E)	—	—	—	—	1334 kg	2942 lb
Retarder, hydraulic	158 kg	348 lb	158 kg	348 lb	—	—
Scraper fenders	211 kg	465 lb	211 kg	465 lb	—	—
Supplemental steering	169 kg	372 lb	169 kg	372 lb	169 kg	372 lb
Stop/tail lamps/turn signals	26 kg	57 lb	26 kg	57 lb	19 kg	42 lb
Tires, set of two, tractor or scraper						
37.25R35, Radial steel cord (E-2)	137 kg	301 lb	137 kg	301 lb	137 kg	301 lb
37.25-35, 42PR (E-3)	161 kg	356 lb	161 kg	356 lb	161 kg	356 lb
Tractor side lights	4 kg	9 lb	4 kg	9 lb	4 kg	9 lb

Gradeability/Speed/Rimpull

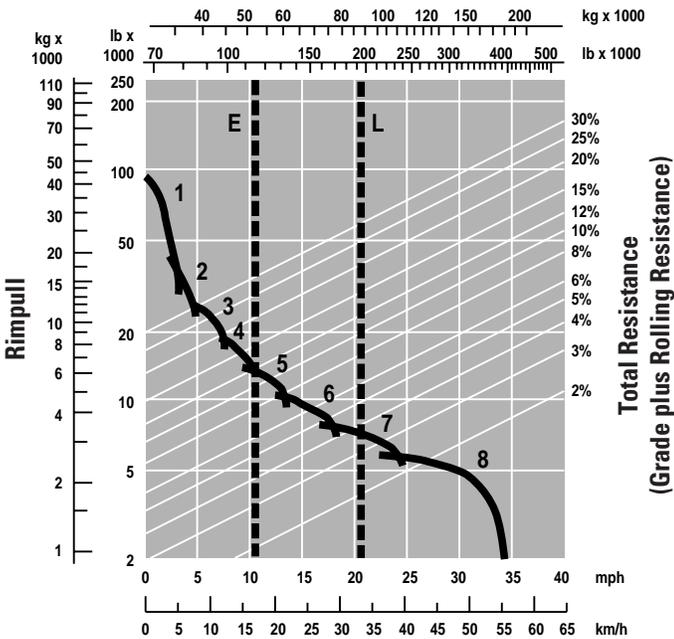
To determine gradeability performance: Read from gross weight down to the percent of total resistance. Total resistance equals actual percent grade plus 1% for each 9 kg/t (20 lb/ton) of rolling resistance. From this weight-resistance point, read horizontally to the curve with the highest obtainable gear, then down to maximum speed. Usable rimpull will depend upon traction available and weight on drive wheels.

**631E Series II Gross Weight
37.25R35 Tires**



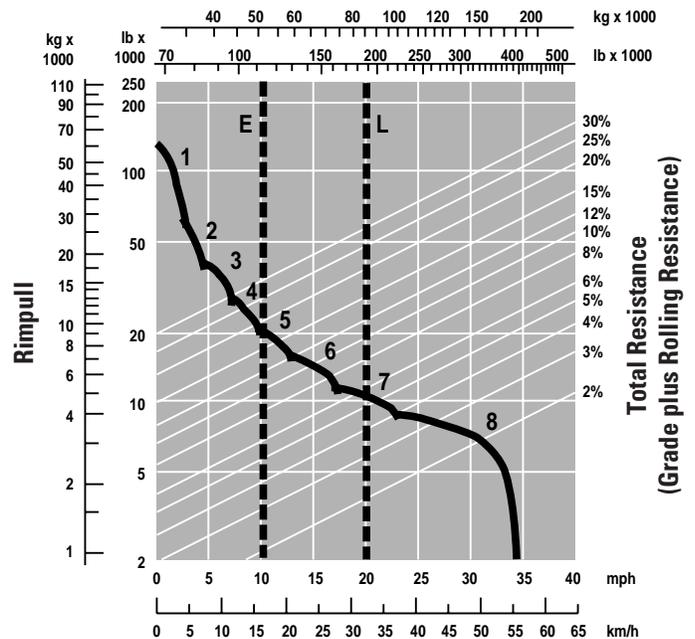
- 1—1st Gear Torque Converter Drive
- 2—2nd Gear Torque Converter Drive
- 3—3rd Gear Direct Drive
- 4—4th Gear Direct Drive
- 5—5th Gear Direct Drive
- 6—6th Gear Direct Drive
- 7—7th Gear Direct Drive
- 8—8th Gear Direct Drive
- E—Empty 44 207 kg (97,459 lb)
- L—Loaded 78 226 kg (172,459 lb)

**633E Series II Gross Weight
37.25R35 Tires**



- 1—1st Gear Torque Converter Drive
- 2—2nd Gear Torque Converter Drive
- 3—3rd Gear Direct Drive
- 4—4th Gear Direct Drive
- 5—5th Gear Direct Drive
- 6—6th Gear Direct Drive
- 7—7th Gear Direct Drive
- 8—8th Gear Direct Drive
- E—Empty 51 110 kg (112,670 lb)
- L—Loaded 88 310 kg (194,670 lb)

**637E Series II Gross Weight
37.25R35 Tires**

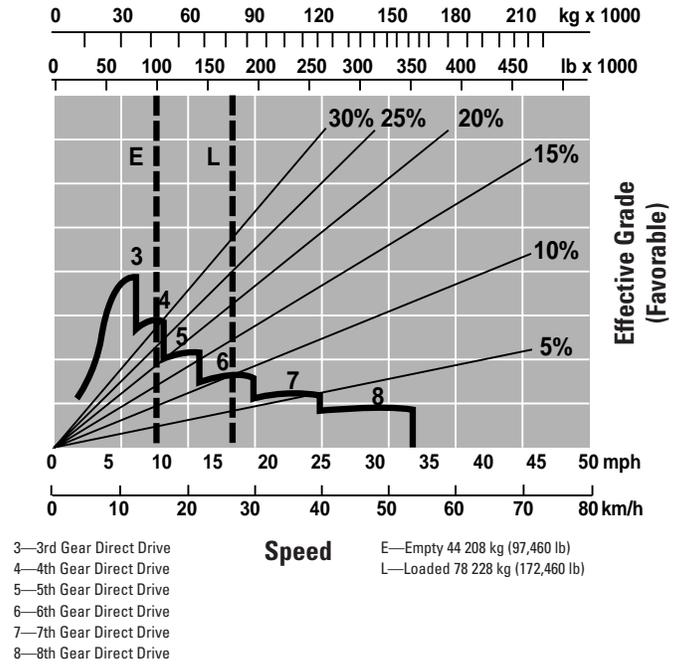


- 1—1st Gear Torque Converter Drive
- 2—2nd Gear Torque Converter Drive
- 3—3rd Gear Direct Drive
- 4—4th Gear Direct Drive
- 5—5th Gear Direct Drive
- 6—6th Gear Direct Drive
- 7—7th Gear Direct Drive
- 8—8th Gear Direct Drive
- E—Empty 50 990 kg (112,320 lb)
- L—Loaded 85 010 kg (187,320 lb)

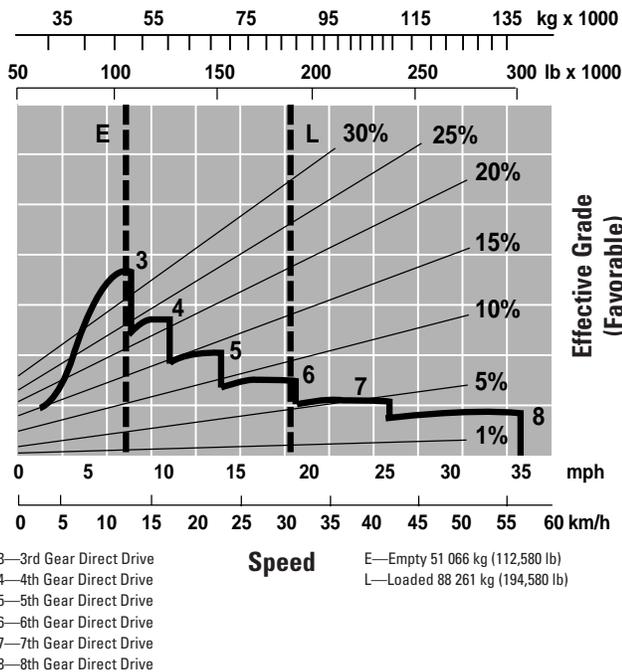
Retarding

To determine retarding performance:
 Read from gross weight down to the percent effective grade. (Effective grade equals actual percent grade minus 1% for each 9 kg/t (20 lb/ton) of rolling resistance). From this weight-effective grade point, read horizontally to the curve with the highest obtainable speed range, then down to maximum descent speed the retarder can properly handle.

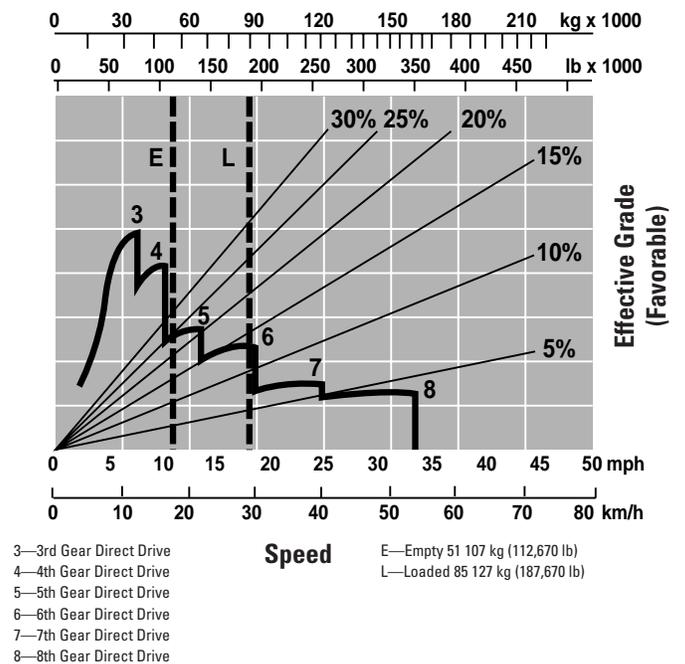
631E Series II Retarding Gross Weight



633E Series II Retarding Gross Weight



637E Series II Retarding Gross Weight



631E, 633E, 637E Series II Wheel Tractor-Scrapers

AEHQ5111-01 (8-99)
(Replaces AEHQ5111)

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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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