

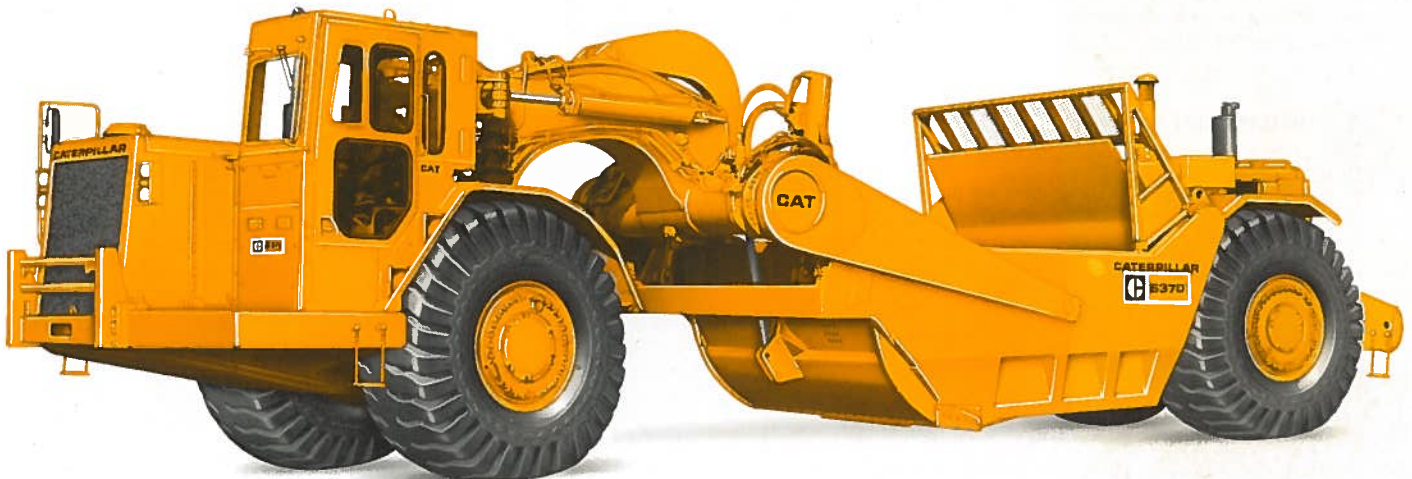


CATERPILLAR

637D Wheel Tractor-Scraper

Summary of features

- **Positive-action scraper** with 21/31 cu. yd. struck/16.1/23.7 m³ heaped capacity. Double-acting hydraulics for positive cutting edge penetration, apron closure and material ejection.
- **700 flywheel horsepower/522 kW** with two Cat diesel Engines and all wheel drive.
- **Eight forward speeds** up to 32 MPH/51.5 km/h with Cat semi-automatic power shift transmission.
- **Cushion hitch** absorbs haul road shocks, stabilizes machine travel, substantially increases usable working speeds.
- **90° steering** both right and left, even with ROPS . . . for maximum maneuverability.
- **Push-Pull Arrangement** . . . allows two 637D Wheel Tractor-Scrapers to assist one another in self-loading.
- **Differential lock** . . . operator controlled, rigidly connects both tractor drive wheels for positive traction.
- **Servicing ease** . . . unitized removal of scraper engine and transmission . . . unit accessibility of other major components.
- **CAT PLUS services** . . . from your Caterpillar Dealer . . . the most comprehensive, total customer support system in the industry.



Machine shown may have optional equipment.



Caterpillar Engines

	Tractor	Scraper
Flywheel power	450 HP/336 kW	250 HP/186 kW
Rated engine RPM	2000	2200

(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.

Tractor engine:

Caterpillar four-stroke-cycle 3408 turbocharged diesel Engine, 65° V-8 with 5.4"/137 mm bore, 6.0"/152 mm stroke and 1,099 cu. in./18.0 liters displacement.

Jacket water aftercooled. Integral inlet manifold porting with two intake and two exhaust valves per cylinder. Valves are actuated by a pushrod mechanism. Single camshaft is mounted in "V" of engine.

24-volt direct electric starting system. Ether starting aid for cold weather is standard.

Scraper engine:

Caterpillar four-stroke-cycle 3306 turbocharged diesel Engine with six cylinders 4.75"/121 mm bore, 6.0"/152 mm stroke and 638 cu. in./10.5 liters displacement.

637D

Wheel Tractor-Scraper

engines (continued)

Both engines:

Direct injection Cat fuel system with individual, adjustment-free injection pumps and valves, and variable injection timing. Stellite-faced valves, hard alloy steel seats and valve rotators. Integral inlet manifold porting with two intake and two exhaust valves per cylinder. Cam-ground and tapered aluminum alloy pistons with three-ring design, cooled by oil spray. Steel-backed aluminum bearings, Hi-Electro hardened crankshaft journals. Pressure lubrication with full-flow filtered and cooled oil. Dry-type air cleaner with primary and safety elements and automatic dust ejector. Independent 24-volt direct electric starting for each engine with ether starting aid for cold weather starting.



transmissions

Tractor — Cat eight-speed, semi-automatic power shift. First, second and reverse gears are torque converter drive; remaining six are direct drive. Single lever shift control provides automatic shifting in ranges 2 through 8, up to the gear selected by the control lever. A foot operated hold control, when engaged, prevents automatic shifting up or down. Reverse, first and second are manually selected. Standard downshift inhibitor reduces possibility of engine overspeeding should operator improperly downshift in automatic range.

Scraper — Planetary type, full torque converter drive with four ranges. Shifting is synchronized to tractor transmission by solid-state electronic switching.



differential controls

Tractor:

Cat differential lock, engaged by foot pedal, positively prevents either drive wheel from spinning free in poor traction conditions. Allows normal differential action when not engaged.

Scraper:

NoSPIN differential.



final drives

Compact planetary design and full-floating axles, independently removable from wheel mounting. Service-free, double-row roller bearings. Assemblies protected with Duo-Cone® Floating Ring Seals.



steering

Two double-acting hydraulic cylinders. Hydraulic follow-up system for automotive feel. Positive, well-modulated flow control for constant steering response. Full 90° right or left, unrestricted by ROPS.

Width required for curb-to-curb turn 40'1"/12.217 m



brakes

(System meets OSHA regulations.)

Service brakes are air-applied, spring-released, cam operated expanding shoe type. Mounted on each wheel, two per axle.

Parking — Uses service brakes. Spring-applied, air released. Apply manually with button on dash.

Emergency — Uses service brakes. Spring-applied, air released. Can be applied with button on dash. If service air pressure drops to 60 psi/2.07 bar/206 kPa, audible and visual alarms warn operator. Brakes apply automatically when air pressure drops to 40 psi/2.76 bar/276 kPa.



tires

Productive capabilities of the 637D are such that, under certain job conditions, Ton-MPH/tkm/h capabilities of standard or optional tires could be exceeded and therefore limit production. Caterpillar recommends the user evaluate all job conditions in order to make proper tire selection. Consult tire manufacturer for specific data.

Standard for tractor and scraper:

33.25-35, 38 PR (E-3)

Optional for tractor and scraper:

33.25-35 radial steel cord

37.25-35, 30 PR (E-3)

37.25-35, radial steel cord



cushion hitch and gooseneck

Parallelogram-type linkage connects two-piece hitch. Vertically mounted hydraulic cylinder transfers road shocks to two nitrogen accumulators. Controlled oil flow dampens "rebound" oscillation. Leveling valve automatically centers piston in cylinder for all scraper loads. Cushion ride lockout control retains positive cutting edge down-pressure for scraper loading and fill spreading. Cushion hitch makes extensive use of steel castings, eliminating many welded joints. Double kingbolt design withstands high external forces, allows easy installation and removal. Box-section gooseneck reduces plate and weld stresses. One-piece fabricated draft tube and wide-mounted bowl lift cylinders reduce stress in draft frame.



service refill capacities

	Tractor		Scraper	
	U.S. Gallons	Liters	U.S. Gallons	Liters
Fuel tank	200	760	170	643
Crankcase	12	45	7.2	27
Transmission	33.5	126	19	72
Differential	36	136	4.5	17
Final drive (each side)	11	41.6	11	41.6
Cooling system	37	140	20	76
Hydraulic reservoir	90	340	—	—



weights (approximate)

Weight Distribution:

Shipping — with ROPS canopy and 10% fuel

	Standard		Push Pull		Lb		Kg	
	%	Lb	Kg	%	Lb	Kg	%	Kg
Front axle	60.6%	62,780	28 476	62.2%	66,510	30 169		
Rear axle	39.4%	40,810	18 511	37.8%	40,480	18 362		
Total		103,590	46 987		106,990	48 531		

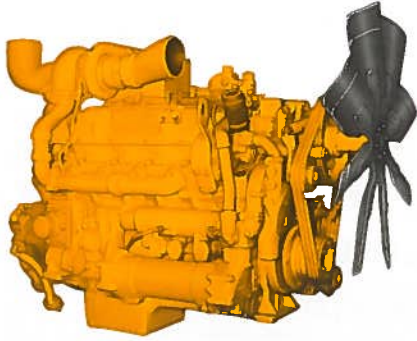
Operating — with ROPS canopy, full fuel tanks, and operator

	Standard		Push Pull		Lb		Kg	
	%	Lb	Kg	%	Lb	Kg	%	Kg
Front axle	60.8%	64,560	29 284	62.3%	68,290	30 976		
Rear axle	39.2%	41,580	18 860	37.7%	41,250	18 711		
Total		106,140	48 144		109,540	49 687		

Loaded — based on 75,000 lb/34 020 kg rated load

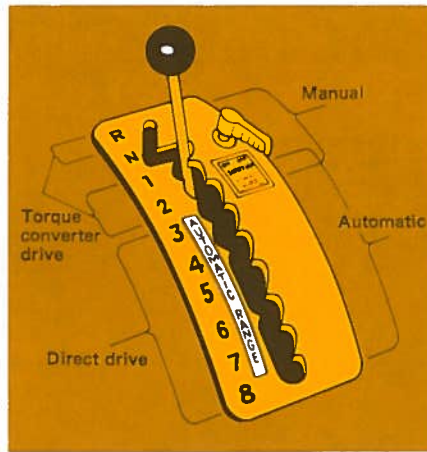
	Standard		Push Pull		Lb		Kg	
	%	Lb	Kg	%	Lb	Kg	%	Kg
Front axle	49.9%	90,360	40 986	51%	94,090	42 679		
Rear axle	50.1%	90,780	41 177	49%	90,450	41 028		
Total		181,140	82 163		184,540	83 707		

Reliable Cat power train — power you can depend on.



Reliability and durability . . . that's what you get from Cat diesel Engines. The 450 flywheel horsepower/336 kW 3408, a 65° V-8 with 1,099 cu. in./18.0 liters displacement, powers the tractor. Turbocharged and aftercooled for efficient fuel combustion, the 3408 offers performance with serviceability, long component life, simplified rebuild procedures.

The scraper uses the six cylinder 3306, with 638 cu. in./10.5 liters displacement. Generating 250 flywheel horsepower/186 kW, it is turbocharged and aftercooled.



Cat 8-speed transmission combines automatic shifting with high torque multiplication and direct drive efficiency. The transmission shifts up and down automatically between 2nd and the highest selected gear. Reverse and Gears 1 and 2 are torque converter drive for powerful rimpull needed for loading and dumping. Gears 3 through 8 are direct drive for quick acceleration and efficient hauling speeds.

Scraper transmission is four speed planetary, with broad range torque converter synchronized to tractor transmission by electronic switching.

Built-in convenience, comfort



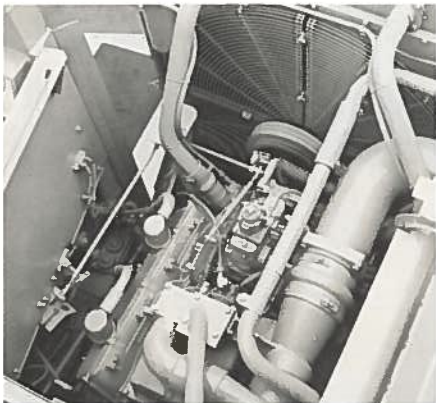
Machine and operator protection is designed in.

Optional ROPS sound-suppressed cab rests entirely on rubber mountings, with no metal-to-metal contact. Sound is further suppressed with insulated right and back walls, roof headliner and positive seals around windows and door. Seat belt, windshield, windshield wiper are standard. Air conditioner and heater are available options. **Integral ROPS canopy** (standard in U.S.A.) is rubber mounted to isolate vibration and reduce noise.

Standard emergency braking system is designed so no failure of a single component will cause total loss of brakes. Automatically actuates if operator fails to engage after warning horn sounds.

Seat belt, windshield, windshield wiper and backup alarm are standard . . . hydraulic retarder and supplemental steering are optional.

More work time.



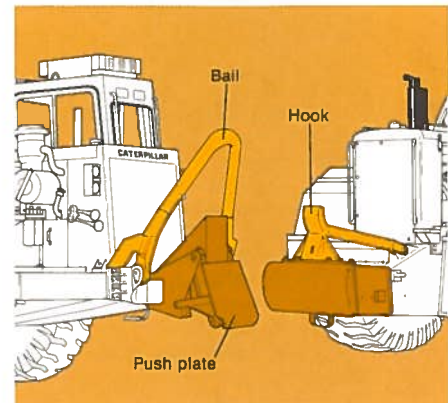
Servicing ease reduces downtime on the 637D:

- Two-piece hinged hood with access door on left front of tractor for easy engine access.
- Independent removal of major components.
- Central location of filters.
- Easily accessible hydraulic lines and wiring.
- Hydraulic tank mounted on right front deck for easy access.
- Sight gauges for transmission and differential.
- Hinged crankcase guard.
- Push-button air tank drains.



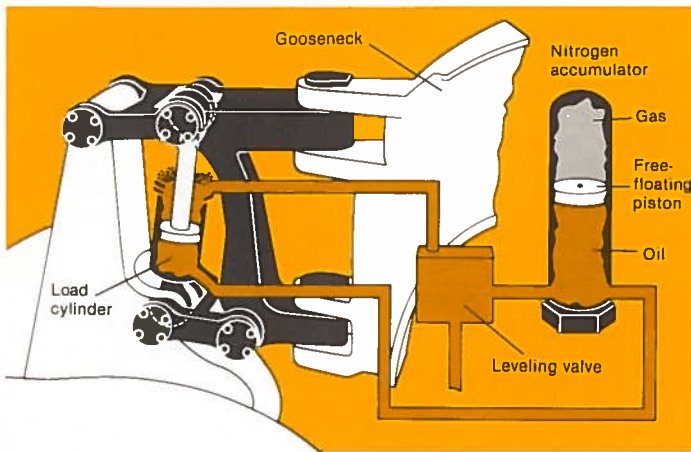
Large capacity, low, wide bowl design . . . coupled with 700 HP/522 kW and all wheel drive adds up to excellent loadability, maximum loads and high productivity. Angle and height of ejector are designed for optimum load retention and material rolling action. Positive bulldozer ejection, powerful double-acting hydraulics with quick-drop valves for pump loading. Carry check valves isolate bowl cylinders from the rest of circuit allowing lift cylinders to carry load rather than hydraulic lines. Wheels are cantilever-mounted.

Versatile Push-Pull.

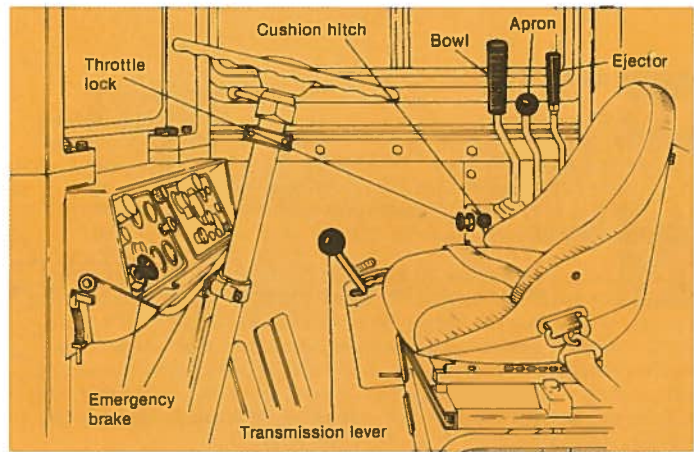


Push-Pull Arrangement allows two 637D Wheel Tractor-Scrapers to assist one another in self-loading. That means no push tractor with operator required . . . no pusher downtime . . . no scraper-pusher mismatch . . . no bunching. You get a balanced, more flexible spread with less investment and fewer machines. The arrangement includes a hydraulically actuated bail and cushion push plate bolted to the front of the tractor and a hook on the rear of the scraper.

nd protection mean more operator efficiency.



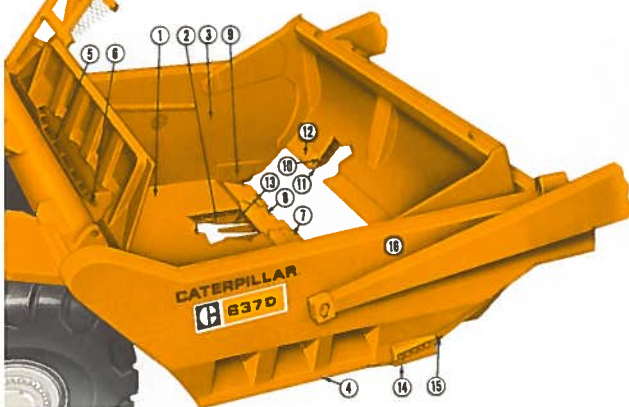
Cushion hitch provides smoother hauling and higher usable speeds. It connects two separate tractor and scraper castings at the top and bottom by mechanical links, forming a pivoting parallelogram arrangement which allows vertical movement between the two sections. A hydraulic cylinder connects the links from the bottom tractor pivot to the top scraper pivot. When the machine hits a bump, the load cylinder forces oil into two nitrogen-over-oil accumulators. The accumulators cushion the bump like a shock absorber. The system can handle several shocks at the same time to reduce machine bounce. And that means greater productivity . . . longer machine life . . . reduced haul road maintenance . . . less operator fatigue.



Convenient controls are designed to improve operator efficiency:

- Bowl-apron trigger control enables operator to position bowl and lower apron with one lever.
- Apron "float" and ejector "return" positions are detent-held to free operator's hand for other controls.
- Manually applied lock holds throttle in high idle position during long hauls or when climbing grades.
- Emergency brake button control located on dash.
- Familiar location of transmission console and scraper controls at operator's right.
- Emergency braking system designed so that no failure of a single component on the line will cause total loss of brakes.

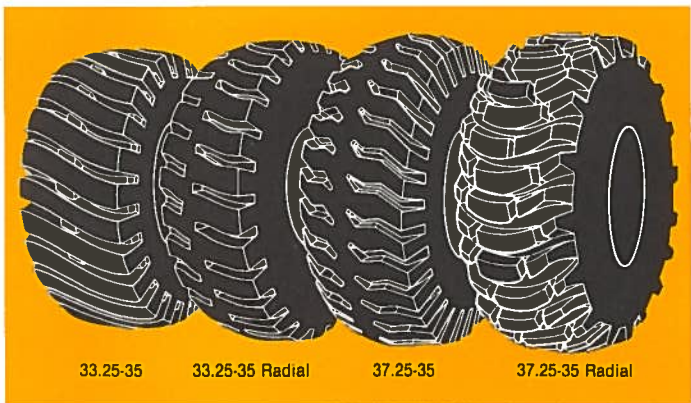
Rugged equipment for the tough applications.



For rock application, a Special Application Scraper is available. Complete bowl is box sectioned for maximum strength, and high-tensile steel is used in high wear and stress areas. Extensive heat treatment is used in bowl bottom plates, side bottom rails, cutting edge support, router bit support and apron front sheet and lip.

Strengthened for rock service:

- | | |
|---------------------------------------|-------------------------|
| Bowl | Ejector |
| 1. Bottom — top plate.* | 5. Front sheet. |
| 2. Bottom — bottom plate.* | 6. Bottom rail. |
| 3. Side sheets. | |
| 4. Side bottom rails.* | Apron |
| 7. Cutting edges.* | 10. Lip — channels.* |
| 8. Cutting edge support.* | 11. Lip — large plate.* |
| 9. Router bit support.* | 12. Apron front sheet.* |
| 13. More cutting edge support ribs. | *Heat treated. |
| 14. Router bits. | |
| 15. Router bit support reinforcement. | |
| 16. Side reinforcement plate. | |



Choose the tires that match your job. Standard 33.25-35, 38 PR (E-3) for good performance on many jobs. Optional radial steel cords in this size are also available. Optional wider tire, 37.25-35, 30 PR (E-3), provides greater load capacity and has a larger contact area to reduce ground pressure and increase flotation. Machines equipped with this tire can negotiate poorer underfoot conditions and travel faster on soft materials.

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capacity

Rated load	75,000 lb./34 020 kg
Heaped, SAE rating	31 cu. yd./23.7 m ³
Struck, SAE rating	21 cu. yd./16.1 m ³



design

Low, extra-wide scraper bowl is operated by high-speed hydraulics. Cutting edge near center of bowl for minimum material travel. Power-closing apron. Hydraulic dozer-type ejector. Reinforced box-section construction with extensive use of high-tensile-strength steel. Wide-mounted bowl lift cylinders. Minimum transporting width from inside-mounted apron arms and removable draft arms. Cantilever-mounted wheels with Lifetime Lubricated bearings and Duo-Cone® Floating Ring Seals.



operating data

Maximum depth of cut	19"/483 mm
Width of cut (outside router bits)	11'5.5"/3.490 m
Cutting edge dimensions:	
Standard, center section	0.88"×16"×62.2"/ 22×406×1.580 m
Each end section	0.88"×13"×35.4"/ 22×330×900 mm
Optional, center section . . .	
available in thickness up to	1.62"/42 mm
Each end section . . .	
available in thickness up to	1.62"/42 mm
Maximum available hydraulic penetration force @ cutting edge (approximate), empty	70,000 lb./31 750 kg
Maximum depth of spread	16.7"/424 mm
Apron opening — bowl 6"/150 mm	
off ground level	6'7"/2.010 m
Apron closure force with cutting edge fully raised and apron opened 12"/300 mm, approximate	
	38,000 lb./17 240 kg



hydraulics

Bowl, apron and ejector individually controlled. Bowl lever has raise, hold, power down and quick-drop positions. Trigger on bowl lever allows simultaneous apron closure with bowl actuation. Apron lever has open, hold, positive close and detented float positions. Ejector lever has forward, hold and detented return positions. Automatic kickout on return.

Bowl uses two 7.2"/183 mm bore and 34.4"/870 mm stroke, double-acting cylinders with special quick-drop valves. Carry check valves isolate circuit from load in hold position. Low, wide bowl for large payloads and excellent loadability.

Apron uses one 8.2"/208 mm bore and 28.6"/730 mm stroke, double-acting cylinder with multiplier linkage controlling force, speed and length of travel. Closure force regulated by relief valve protecting apron and bowl. Sequence relief valve protects circuit when bowl is raised with apron closed.

Ejector uses one 8.2"/208 mm bore and 74"/1880 mm stroke, double-acting cylinder.

Hydraulic circuits are filtered closed systems. Single reservoir with separate pumps for scraper-steering control and cushion hitch:

Output @ rated tractor RPM:

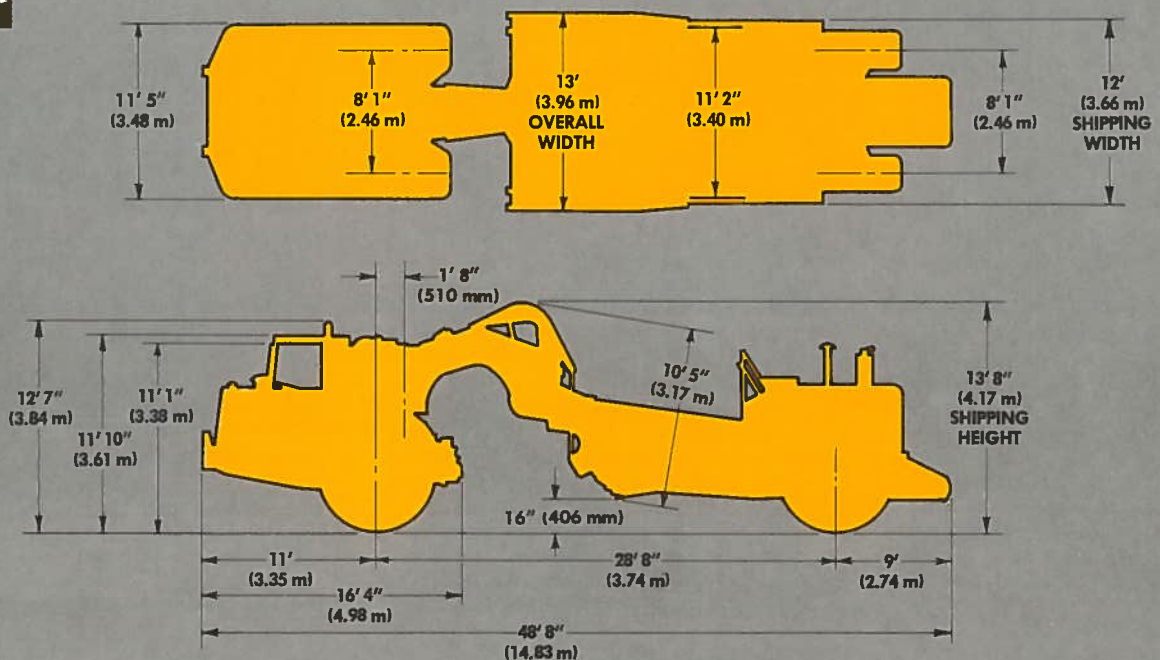
Steering	99 gpm/375 liters/min
Scraper	91 gpm/344 liters/min
Cushion hitch	16 gpm/61 liters/min

Relief valve setting:

Scraper	2000 psi/138 bar/13 790 kPa
Steering	1925 psi/133 bar/13 270 kPa
Cushion hitch	2300 psi/158 bar/15 860 kPa



dimensions (approximate)





standard equipment

24-volt direct electric starting. Two 35-amp alternators. Backup alarm. Two 220-amp-hour, 12-volt batteries on tractor. Two 172-amp-hour, 12-volt batteries on scraper. Suction fan. Muffler. Crankcase guard. Dry-type air cleaner with automatic dust ejector. 8-speed semiautomatic power shift transmission. Downshift inhibitor. Differential lock. Coolant flow indicator. Cushion hitch. Quick-drop bowl control valve. Combination bowl-apron control lever. Parking brake. Emergency braking system. Brake shields. Horn. ROPS canopy. ROPS mounting. Hydraulically adjustable suspension seat. Seat belt. Operator's station with vibration isolators. Electric hour meter. Windshield wiper. Dash lights. Headlights. Rear-mounted floodlight. Vandalism protection group. Ether starting aid. 33.25-35, 38 PR (E-3) tires.

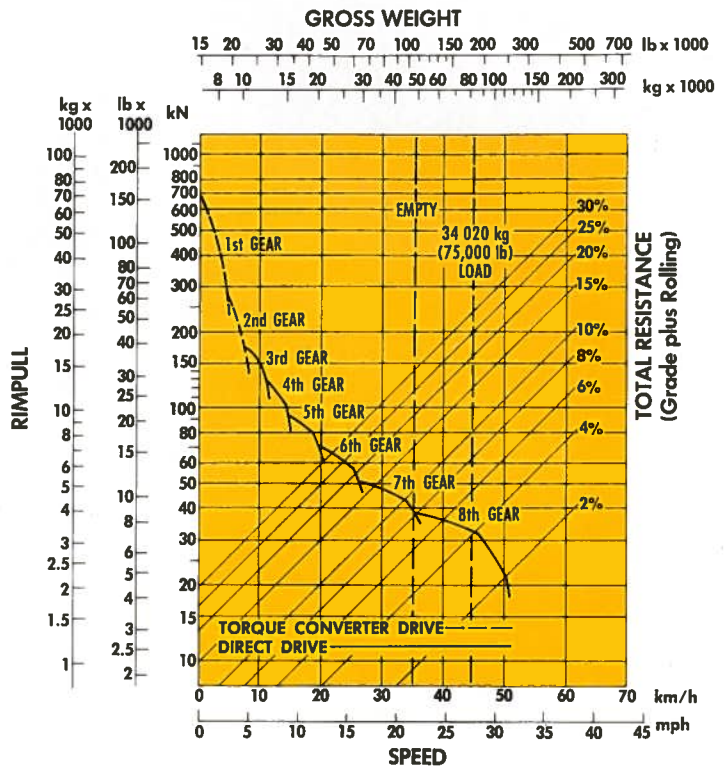


optional equipment

(with approximate change in operating weight)

	Lb	Kg
Air conditioner/heater (includes 50-amp alternator) . . .	262	119
Air-line dryer	85	39
Alternator, 50-amp	11	5
Cab, ROPS, sound suppressed	825	374
Canopy, ROPS (removed)	-600	-272
Crankcase guard (heavy-duty)	170	77
Cutting edges,		
Special application, three section (stinger and ends) 1-3/8"/349 mm	218	99
Special application, three section (stinger and ends) 1-5/8"/413 mm	407	185
Three section (stinger and ends) 1-5/8"/413 mm	138	63
Special application (provides level cut) 1-5/8"/413 mm	378	171
Fast-fill fuel system, automatic	7	3
For scraper	19	9
Fast oil change system	10	5
Heater, cab, roof-mounted	212	96
Heater, engine coolant, tractor	5	2
For scraper	3	1
Hood door, right side	21	10
Power train guard	340	154
Push-Pull arrangement	3400	1542
Retarder, hydraulic, tractor	371	168
For scraper	240	109
Special Application scraper	3000	1361
Starting receptacle	20	9
Supplemental steering system	225	102
Tires, set of two, tractor and scraper:		
33.25-35, radial steel cord	124	56
33.25-35, radial steel cord	-470	-213
37.25-35, 30 PR (E-3)	490	222
37.25-35, radial steel cord	720	327
Tool kit	23	10
Travel brackets	550	249

gradeability/speed/rimpull



To determine gradeability performance: Read from gross weight down to % of total resistance. (Total resistance equals actual % grade plus 1% for each 20 lb./ton/10 kg/t of rolling resistance.) From this weight-resistance point, read horizontally to the curve with the highest obtainable speed range, then down to maximum speed. Usable rimpull depends upon traction available and weight on drive wheels.

Materials and specifications are subject to change without notice.