



637

Wheel Tractor-Scraper

Technical Specifications

Configurations and features may vary by region. Please consult your Cat® dealer for availability in your area.

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637 Wheel Tractor-Scraper Specifications

Engine

Engine Model: Tractor	Cat® C18	
Rated Engine Speed: Tractor	1,900 rpm	
Engine Power (ISO 14396:2002)	425 kW	570 hp
Meets U.S. EPA Tier 4 Final and EU Stage V emission standards, or noncertified and equivalent to U.S. EPA Tier 2, or noncertified and equivalent to U.S. EPA Tier 3 and EU Stage IIIA.		

Engine – Scraper

Engine Model: Tractor	Cat C9.3	
Rated Engine Speed: Tractor	2,150 rpm	
Engine Power (ISO 14396:2002)	200 kW	271.9 hp
Meets U.S. EPA Tier 4 Final and EU Stage V emission standards, or noncertified and equivalent to U.S. EPA Tier 2, or noncertified and equivalent to U.S. EPA Tier 3 and EU Stage IIIA.		

General Data

Overall Width	3.94 m	12'11"
Overall Height	4.15 m	13.7"
Scraper Capacity:		
Struck	18.8 m³	24.6 yd³
Heaped	26.4 m³	34.5 yd³
Rated Load	37 285 kg	82,200 lb
	37.2 tonnes	41.1 tons
Width of Cut	3.51 m	11'6"
Maximum Depth of Cut	475 mm	18.7"
Maximum Depth of Spread	451 mm	17.76"
Top Speed (Loaded)	55.8 km/h	34.7 mph
180° Curb-to-Curb Turning Width	12.23 m	40'2"
Tires:		
Tractor Drive	37.25R35**E3	
Scraper	37.25R35**E3	

Non Push-Pull

Operating Weight (Empty)	51 786 kg	114,127 lb
Overall Length	15.04 m	49'4"

Push-Pull

Operating Weight (Empty)	52 634 kg	118,241 lb
Overall Length (With Bail Down)	16.64 m	54'7"

Transmission

Forward 1	5.5 km/h	3.4 mph
Forward 2	10.0 km/h	6.2 mph
Forward 3	12.4 km/h	7.7 mph
Forward 4	16.9 km/h	10.5 mph
Forward 5	22.7 km/h	14.1 mph
Forward 6	30.6 km/h	19.0 mph
Forward 7	41.4 km/h	25.7 mph
Forward 8	55.8 km/h	34.7 mph
Reverse 1	9.9 km/h	6.2 mph

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Service Refill Capacities

	Tractor		Scraper	
Differential	153.0 L	40.4 gal	23 L	6.1 gal
Final Drive	33.0 L	8.7 gal	18.0 L	4.75 gal
Crankcase	52.0 L	13.7 gal	24.5 L	6.5 gal
Transmission System	110.0 L	29.0 gal	49.0 L	12.9 gal
Cooling System	71.0 L	18.7 gal	41.0 L	10.8 gal
Fuel Tank	1400 L		370.0 gal	
Hydraulic System	142.0 L		37.5 gal	
Diesel Exhaust Fluid (DEF) Tank	30.5 L	8.0 gal	22.0 L	5.8 gal
Window Washer Reservoir	5.0 L		1.3 gal	

Safety Criteria Compliance Standards

Rollover Protective Structure (ROPS)	ISO 3471:2008 for up to 21 282 kg (46,919 lb)
Falling Objects Protective Structure (FOPS)	ISO 3449:2005 Level II
Brakes	ISO 3450:2011
Steering System	ISO 5010:2019
Seat Belt	ISO 6683:2005, SAE J386
Reverse Alarm	ISO 9533:2010

Weights

Standard		
Shipping Weight – 10% fuel	50 727 kg	111,834 lb
Operating Weight – full fuel tanks empty load	51 768 kg	114,129 lb
Loaded, based on rated load	88 780 kg	195,726 lb
Push-Pull		
Shipping Weight – 10% fuel	52 592 kg	115,959 lb
Operating Weight – full fuel tanks empty load	53 634 kg	118,243 lb
Loaded, based on a rated load	90 646 kg	199,840 lb

Implement Cycle Times

Bowl Raise	3.5 seconds
Bowl Lower	3.5 seconds
Apron Raise	4.0 seconds
Apron Lower	3.8 seconds
Ejector Extend	8.5 seconds
Ejector Retract	8.5 seconds
Bail Raise	1.5 seconds
Bail Lower	2.1 seconds

Sound

- The exterior sound power level for the standard machine (ISO 6395:2008) is 119 dB(A).
- The interior sound pressure level for the standard machine (ISO 6396:2008) is 77 dB(A).

Air Conditioning System

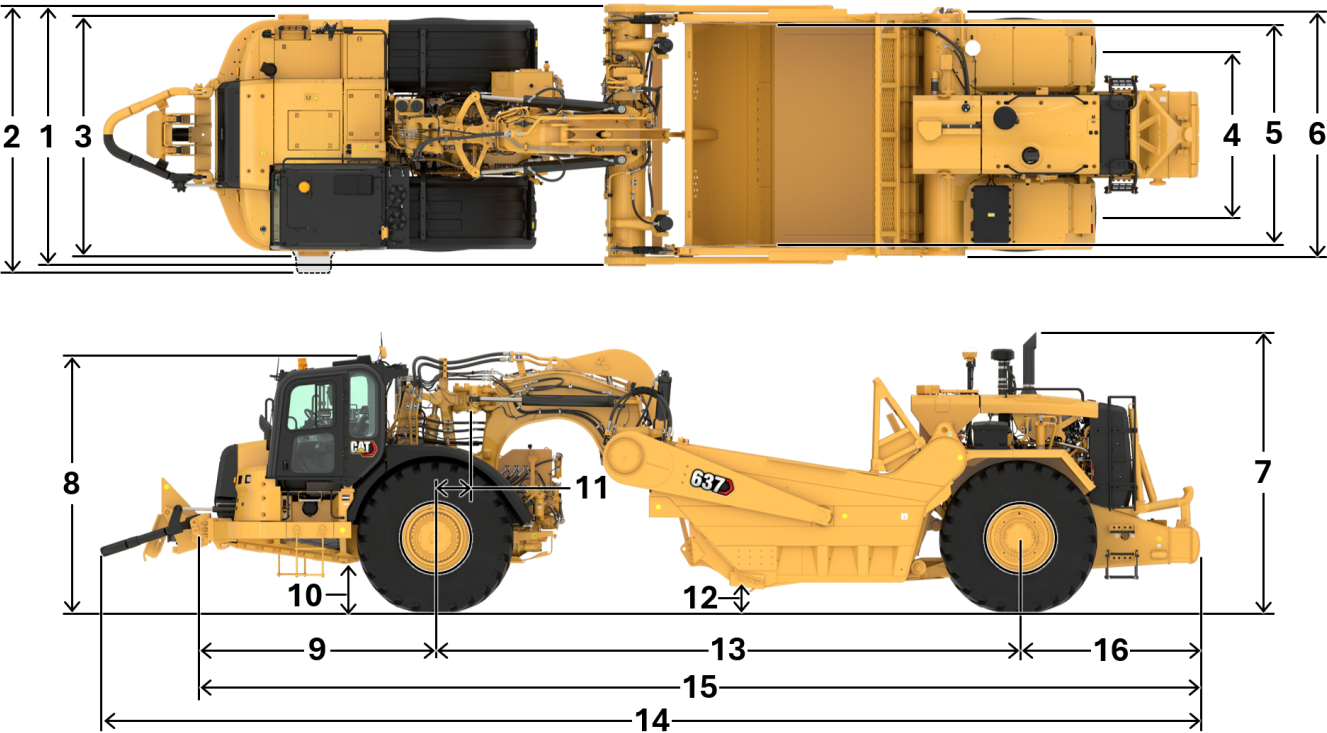
The air conditioning system on this machine contains the fluorinated greenhouse gas refrigerant R134a or R1234yf. Refer to the machine labeling for identification of the gas.

- If equipped with R134a (Global Warming Potential = 1430), the system contains 1.9 kg (4.2 lb) of refrigerant which has a CO₂ equivalent of 2.71 metric tonnes (2.99 tons).
- If equipped with R1234yf (Global Warming Potential = 0.501), the system contains 1.85 kg (4.1 lb) of refrigerant which has a CO₂ equivalent of 0.001 metric tonnes (0.001 tons).

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Dimensions

All dimensions are approximate.



637		
1	Overall Machine Width	3937 mm 155 in
2	Overall Machine Width – Ladder Down	3878 mm 152.7 in
3	Tractor Width	3499 mm 137.8 in
4	Rear Tire Centers Width	2462 mm 96.9 in
5	Inside of Bowl Width	3404 mm 134 in
6	Outside Bowl Width	3635 mm 143.1 in
7	Overall Height	4145 mm 163.2 in
8	Height to Top of Cab	3805 mm 149.8 in
9	Front of Tractor to Front Axle	3612 mm 142.2 in
10	Ground Clearance – Tractor	664 mm 26.1 in
11	Axle to Vertical Hitch Pin	509 mm 20 in
12	Scraper Blade Height – Maximum	510 mm 20 in
13	Wheelbase	8808 mm 346.8 in
14	Maximum Length – Push-Pull	16 640 mm 655.1 in
15	Overall Machine Length – Standard	15 164 mm 597 in
16	Rear Axle to Rear of Machine	2744 mm 108.0 in

Rimpull-Speed-Gradeability Curves: Example Tutorial

USE OF RIMPULL-SPEED-GRADEABILITY CURVES

The following explanation applies to Rimpull-Speed-Gradeability curves for wheel tractor-scrapers, construction and mining trucks/tractors, and articulated trucks.

Maximum speed attainable, gear range, and available rimpull can be determined from curves on the following pages when machine weight and total effective grade (or total resistance) are known.

Rimpull is the force (in kg, lb, or kN) available between the tire and the ground to propel the machine (limited by traction).

Weight is defined as gross machine weight (kg or lb)
= machine + payload

Total effective grade (or total resistance) is grade resistance plus rolling resistance expressed as percent grade.

Grade is measured or estimated.

Rolling resistance is estimated (see tables section for typical values).

10 kg/metric ton (20 lb/U.S. ton) = 1% adverse grade

Example:

With a 6% grade and a rolling resistance of 40 kg/metric ton (80 lb/U.S. ton), find total resistance.

Rolling resistance = $40 \text{ kg/t} \div 10 = 4\%$ effective grade
(English: $80 \text{ lb} \div 20 = 4\%$)

Total resistance = 4% rolling + 6% grade = 10%

Altitude Derating

Rimpull force and speed must be derated for altitude similar to flywheel horsepower. The percentage loss in rimpull force approximately corresponds to the percentage loss in flywheel horsepower. See tables section for altitude derations.

Rimpull-Speed-Gradeability

To determine gradeability performance: Read from gross weight down to the % of total resistance. [Total resistance equals actual % grade plus 1% for each 10 kg/metric ton (20 lb/U.S. ton) of rolling resistance.]

From this weight-resistance point, read horizontally to the curve with the highest obtainable speed range, then down to the maximum speed. Usable rimpull depends upon traction and weight on drive wheels.

Example Problem:

A 637 with an estimated payload of 37 013 kg (81,600 lb) is operating on a total effective grade of 10%. Find the available rimpull and maximum attainable speed.

Empty weight + payload = gross weight

$47\,628 \text{ kg} + 37\,013 \text{ kg} = 84\,641 \text{ kg}$

$(105,002 \text{ lb} + 81,600 \text{ lb} = 186,602 \text{ lb})$

Solution: Using graph on the next page, read from 84 641 kg (186,602 lb) (point A) on top of gross weight scale down the line to the intersection of the 10% total resistance line (point B).

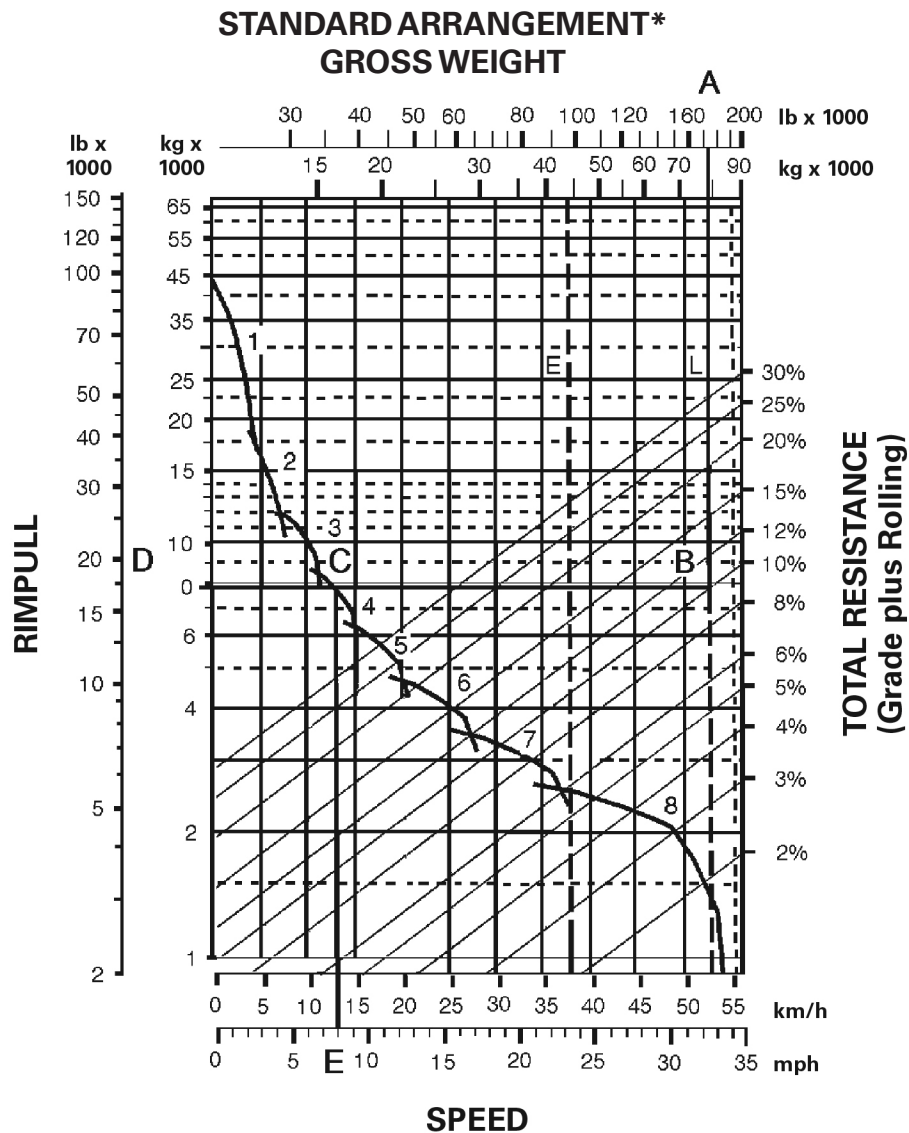
Go across horizontally from B to the rimpull scale on the left (point D). This gives the required rimpull: 7756 kg (17,100 lb).

Where the line cuts the speed curve (point C), read down vertically (point E) to obtain the maximum speed attainable for the 10% effective grade: 12.9 km/h (8 mph).

Answer: The machine will climb the 10% effective grade at a maximum speed of 12.9 km/h (8 mph) in 4th gear. Available rimpull is 7756 kg (17,100 lb).

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Rimpull-Speed-Gradeability Curves: Example Tutorial



KEY

- 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

KEY

- A — Loaded 84 641 kg (186,602 lb)
- B — Intersection with 10% total resistance line
- C — Intersection with rimpull curve (4th gear)
- D — Required rimpull 7756 kg (17,100 lb)
- E — Speed 12.9 km/h (8 mph)

*At sea level

Retarder Curves: Example Tutorial

USE OF RETARDER CURVES

The following explanation applies to retarder curves for wheel tractor-scrapers and articulated trucks.

The speed that can be maintained (without use of service brake) when the machine is descending a grade with retarder fully on can be determined from the retarder curves in this section if gross machine weight and total effective grade are known.

Total effective grade (or total resistance) is grade assistance minus rolling resistance.

10 kg/metric ton (20 lb/U.S. ton) = 1% adverse grade

Example:

15% favorable grade with 5% rolling resistance. Find total effective grade.

Total effective grade = 15% grade assistance – 5%

Rolling resistance = 10% total effective grade assistance

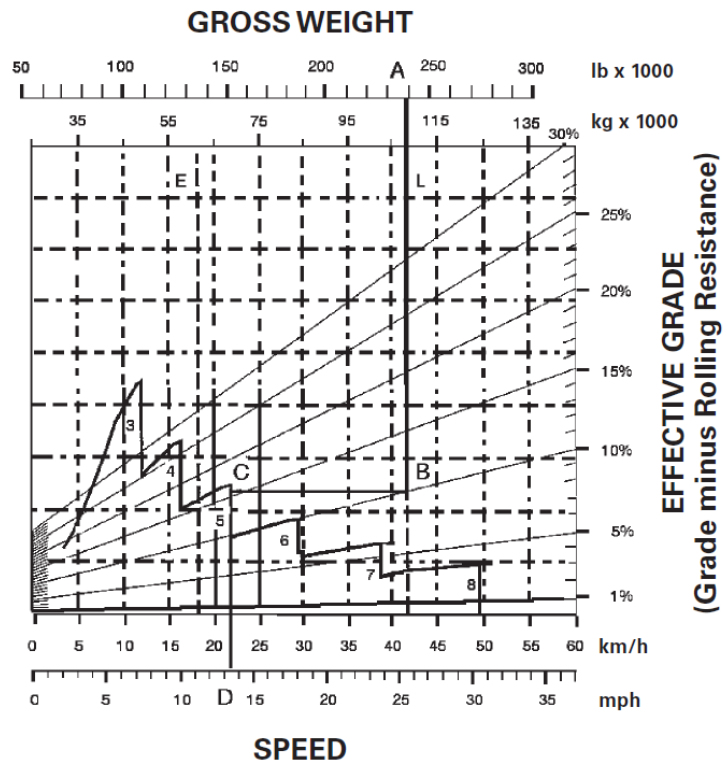
Example Problem:

A 637 with an estimated payload of 47 175 kg (104,000 lb) descends a 10% total effective grade. Find constant speed and gear range with maximum retarder effort. Find travel time if the slope is 610 m (2,000 ft) long.

Empty weight + payload = gross weight = 60 950 kg + 47 175 kg
= 108 125 kg (134,370 lb + 104,000 lb = 238,370 lb)

637 Wheel Tractor-Scraper Specifications

Retarder Curves: Example Tutorial



KEY

- 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

KEY

- A — Loaded 108 125 kg (238,370 lb)
- B — Intersection with 10% effective grade line
- C — Intersection with retarder curve (5th gear)
- D — Constant speed 21.7 km/h (13.5 mph)

Solution: Using the retarder curve below, read from 108 125 kg (238,370 lb) (point A) on top of gross weight scale down the line to the intersection of the 10% effective grade line (point B).

Go across horizontally from point B to the intersection of the retarder curve (point C). Point C intersects at the 5 (5th gear) range.

Where point C intersects the retarder curve, read down vertically to point D on the bottom scale to obtain the constant speed: 21.7 km/h (13.5 mph).

Answer: The 637 will descend the slope at 21.7 km/h (13.5 mph) in 5th gear. Travel time is 1.68 minutes.

$$\frac{610 \text{ m}}{363 \text{ m/min}} = 1.68 \text{ min}$$

* (mph x 88 = F.P.M.)

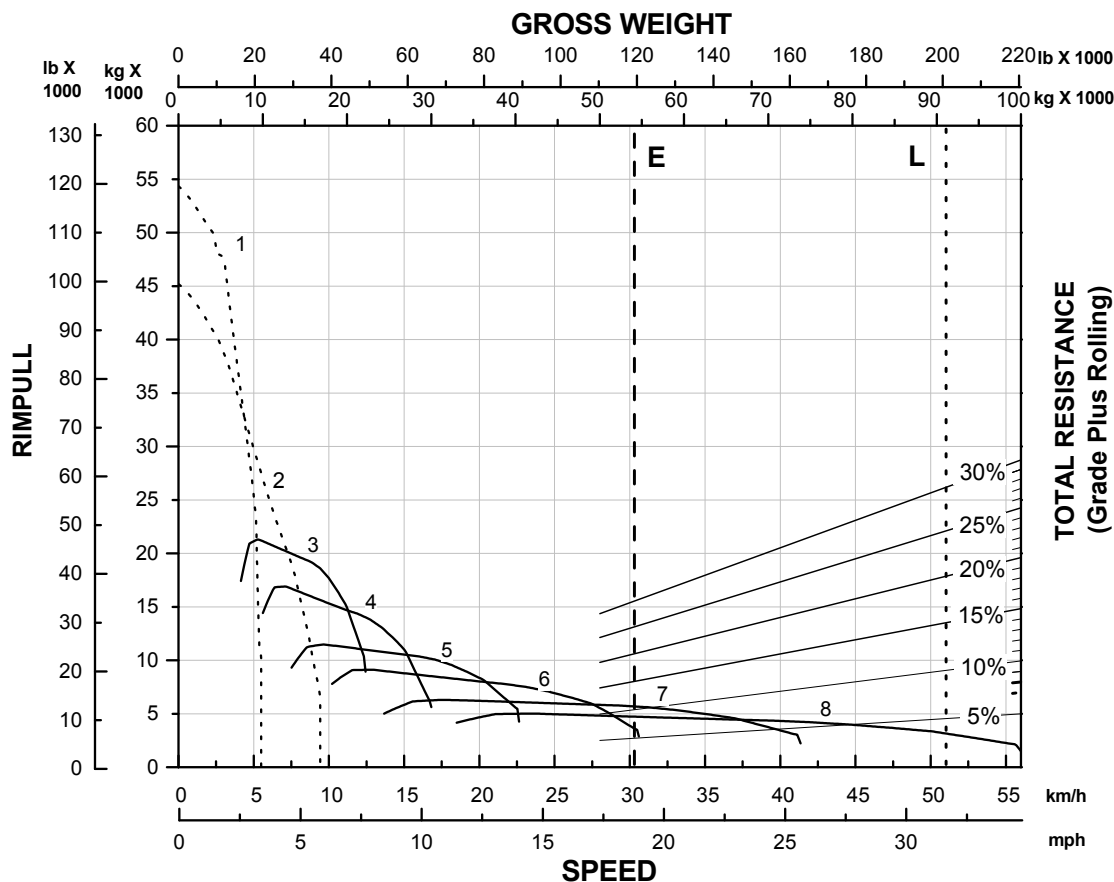
$$\frac{2,000 \text{ ft}}{13.5 \text{ mph} \times 88^*} = 1.68 \text{ min}$$

Note: The basic distance-speed-time formula is $60 D \div S = T$ (or “60 D Street”), where 60 is minutes, D is distance, S is speed, and T is time. In the above problem, $60 \times 610 \text{ m} \div 21.7 \text{ km/h} \times 1000 = T$.

$$\frac{60 \times 610}{21.7 \times 1000} = T = (1.68)$$

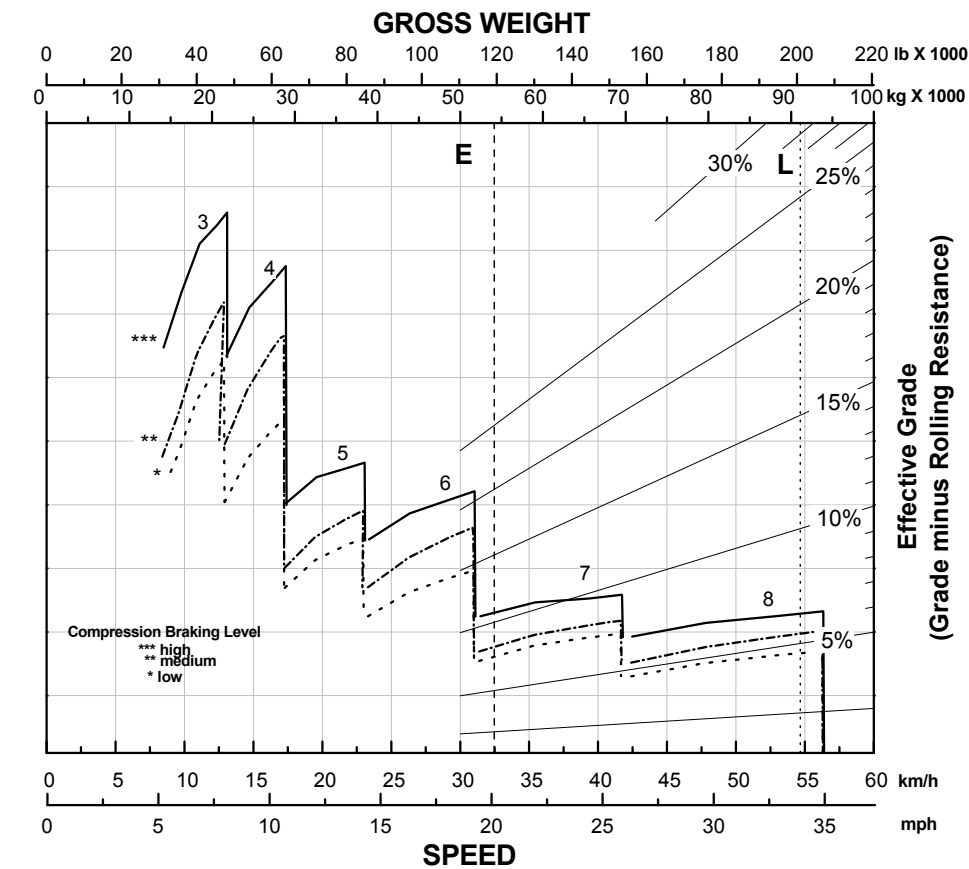
637 Wheel Tractor-Scraper Specifications

637 Rimpull-Speed-Gradeability - 37.25R35 Tires



637 Wheel Tractor-Scraper Specifications

637 Retarding - 37.25R35 Tires



- KEY

 - 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
- KEY

 - E — Empty 54 005 kg (119,060 lb)
 - L — Loaded 91 290 kg (201,260 lb)

637 Wheel Tractor-Scraper Standard Equipment

Standard and Optional Equipment

Standard equipment and optional attachments may vary. Consult your Cat® dealer for details.

	Standard	Optional		Standard	Optional
POWERTRAIN – TRACTOR			OPERATOR ENVIRONMENT – TRACTOR (continued)		
Cat C18 engine with Mechanically Actuated Electronic Unit Injection (MEUI™)	✓		Keypad switches: throttle lock, wipers/washers, hazard lights, retarding level select, work lights on/off, information mode on touchscreen display	✓	
Cat engine brake	✓		Powered access		✓
Differential lock	✓		Safety tab rocker switches	✓	
Electric start, 24V	✓		Seat belt, static two-piece	✓	
Fan, hydraulic	✓		Seat – Cat Advanced Ride Management (ARM), Cat Comfort Series III, rotates 30 degrees	✓	
Ground-level engine shutdown	✓		Steering wheel, tilt, telescoping, padded	✓	
Guard, crankcase	✓		Work Area Vision (3) Camera System	✓	
Starting aid, ether	✓		Windows, right side emergency egress	✓	
Braking system: primary and secondary, wet disc, hydraulic; parking, hydraulic-released, spring-applied	✓		254 m (10 in) touchscreen information display	✓	
Transmission: 8-speed planetary powershift, Electronic Clutch Pressure Control (ECPC), Advanced Productivity Electronic Control Strategy (APECS) software, programmable top gear selection, transmission hold, transmission guard, ground speed control, machine speed limit	✓		FLUIDS		
			Extended life coolant to -37° C (-34° F)	✓	
POWERTRAIN – SCRAPER			OTHER STANDARD EQUIPMENT – TRACTOR		
Cat C9.3 engine with high pressure common rail fuel	✓		Advanced cushion hitch	✓	
Cat engine brake	✓		Accumulators (cushion hitch and brake) with Canadian registration number (CRN)	✓	
Electric start, 24V	✓		Fast oil change (engine)	✓	
Fan, driveline	✓		Fenders, non-metallic	✓	
Ground engine shutdown	✓		Heater, engine coolant 120V	✓	
Muffler (U.S. EPA Tier 2 or U.S. EPA Tier 3 only)	✓		Tow pin, front	✓	
Starting aid, ether	✓		OTHER STANDARD EQUIPMENT – SCRAPER		
Braking system: primary and secondary, dry disc, hydraulic	✓		Bowl: 18.3 m³ (24.0 yd³) – struck, 26.0 m³ (34.0 yd³) – heaped	✓	
4-speed (torque converter drive), transmission planetary powershift	✓		Hydraulic position sensing cylinders (bowl lift and apron)	✓	
ELECTRICAL – TRACTOR			Fast-fill fuel tank	✓	
Alternator, 115 amp	✓		Fender, scraper	✓	
Batteries (4), 12V, 1,000 CCA, maintenance free	✓		Guard, overflow	✓	
Electrical system, 24V	✓		STEERING ARRANGEMENTS		
Lighting system: LED low beam, high beam, and work lights	✓		Secondary steering (ground driven)	✓	
Starting/charging receptacle	✓		INTEGRATED TECHNOLOGIES		
ELECTRICAL – SCRAPER			Product Link™		✓
Alarm, backup	✓		Sequence Assist and Cat Payload	✓	
Lighting system: brake lights – LED, turn signals with hazard function – LED	✓		Cat Grade, Cat Payload, Sequence Assist, and Load Assist		✓
OPERATOR ENVIRONMENT – TRACTOR			OTHER ATTACHMENTS		
HVAC powered air precleaner	✓		Push-pull		✓
HVAC system, heat, AC, defrost	✓		Steering lock – external	✓	
Thermostat control of HVAC system	✓		Cab beacon with air horn		✓
Coat hook	✓		SERVICE INSTRUCTIONS		
Lunchbox platform with holding strap	✓		Film arrangement – U.S. (ANSI)		✓
Diagnostic connection	✓		Film arrangement – International (ISO)		✓
Dome courtesy light	✓				
Horn, electric	✓				
T-handle implement control	✓				
12V power ports (2)	✓				
Radio ready	✓				
Rollover protective structure (ROPS)/falling objects protective structure (FOPS) cab, pressurized	✓				

637 Environmental Declaration

The following information applies to the machine at the time of final manufacture as configured for sale in the regions covered in this document. The content of this declaration is valid as of the date issued; however, content related to machine features and specifications are subject to change without notice. For additional information, please see the machine's Operation and Maintenance Manual.

For more information on sustainability in action and our progress, please visit <https://www.caterpillar.com/en/company/sustainability>.

Engine

- The Cat® C18 Tractor and Cat C9.3 Scraper engines are available in configurations that meet U.S. EPA Tier 4 Final and EU Stage V emission standards or equivalent to U.S. EPA Tier 2, or equivalent to U.S. EPA Tier 3 and EU Stage IIIA.
- Cat U.S. EPA Tier 4 and EU Stage V engines are required to use ULSD (ultra-low sulfur diesel fuel with 15 ppm of sulfur or less) and are compatible* with ULSD blended with the following lower-carbon intensity fuels** up to:
 - ✓ 20% biodiesel FAME (fatty acid methyl ester)***
 - ✓ 100% renewable diesel, HVO (hydrotreated vegetable oil) and GTL (gas-to-liquid) fuels
- Cat engines emitting equivalent to U.S. EPA Tier 2, or equivalent to U.S. EPA Tier 3 and EU Stage IIIA, are compatible* with diesel fuel blended with the following lower-carbon intensity fuels*** up to:
 - ✓ 100% biodiesel FAME (fatty acid methyl ester)****
 - ✓ 100% renewable diesel, HVO (hydrotreated vegetable oil) and GTL (gas-to-liquid) fuels

Refer to guidelines for successful application. Please consult your Cat dealer or "Caterpillar Machine Fluids Recommendations" (SEBU6250) for details.

** While Cat engines are compatible with these alternative fuels, some regions may not allow their use.*

*** Tailpipe greenhouse gas emissions from lower-carbon intensity fuels are essentially the same as traditional fuels.*

**** Engines with no aftertreatment devices are compatible with higher blends, up to 100% biodiesel (for use of blends higher than 20% biodiesel, consult your Cat dealer).*

***** For use of blends higher than 20% biodiesel, consult your Cat dealer.*

Air Conditioning System

- The air conditioning system on this machine contains the fluorinated greenhouse gas refrigerant R134a or R1234yf. Refer to the machine labeling for identification of the gas.
- If equipped with R134a (Global Warming Potential = 1430), the system contains 1.9 kg (4.2 lb) of refrigerant which has a CO₂ equivalent of 2.71 metric tonnes (2.99 tons).
- If equipped with R1234yf (Global Warming Potential = 0.501), the system contains 1.85 kg (4.1 lb) of refrigerant which has a CO₂ equivalent of 0.001 metric tonnes (0.001 tons).

Paint

- Based on best available knowledge, the maximum allowable concentration, measured in parts per million (PPM), of the following heavy metals in paint are:
 - Barium < 0.01%
 - Cadmium < 0.01%
 - Chromium < 0.01%
 - Lead < 0.01%

Sound

- The exterior sound power level for the standard machine (ISO 6395:2008) is 119 dB(A).
- The interior sound pressure level for the standard machine (ISO 6396:2008) is 77 dB(A).

Oils and Fluids

- Caterpillar factory fills with ethylene glycol coolants. Cat Diesel Engine Antifreeze/Coolant (DEAC) and Cat Extended Life Coolant (ELC) can be recycled. Consult your Cat dealer for more information.
- Cat Bio HYDO Advanced is an EU Ecolabel approved biodegradable hydraulic oil.
- Additional fluids are likely to be present, please consult the Operations and Maintenance Manual or the Application and Installation guide for complete fluid recommendations and maintenance intervals.

Features and Technology

- The following features and technology contribute to fuel savings and/or carbon reduction. Features may vary. Consult your Cat dealer for details.
 - Ground speed control helps lower fuel burn by allowing the operator to set the desired top speed and the machine will find the optimal gear for the engine and transmission
 - Optional Load Assist helps shorten the learning curve for inexperienced operators
 - Advanced Productivity Electronic Control System (APECS) allows the engines and transmission to communicate on a high level to better utilize the power and torque
 - Optional Cat Grade Control helps operators of all skill levels avoid costly rework, wasteful fuel burn, and greenhouse gas emissions to execute the design plan with greater speed and accuracy
 - On-demand hydraulic fan helps reduce fuel consumption and under-hood heat for longer component life
 - Improve jobsite efficiency with lower operating costs with Product Link™ and VisionLink™ insights

For more complete information on Cat products, dealer services, and industry solutions, visit us on the web at www.cat.com.

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

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AEXQ3594-02 (09-2025)
Replaces AEXQ3594-01
Build Number: 11
(Global, excluding Japan)

