

# 621G/627G

## Wheel Tractor Scrapers

**CAT**<sup>®</sup>



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### Engine

Tractor Engine	Cat <sup>®</sup> C15 with ACERT <sup>®</sup> technology	
Net Power	246/272 kW	330/365 hp
Scraper Engine	Cat C9 with ACERT technology	
Net Power	178/198 kW	239/266 hp
Heaped Capacity	17 m <sup>3</sup>	22 yd <sup>3</sup>
Rated Load	23 950 kg	52,800 lb

# 621G/627G Wheel Tractor Scrapers

*Responsible, productive earthmoving machines, built to last.*

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## Power Train – Engine

- ✓ Electronically controlled Caterpillar® engines with ACERT technology, modular radiator with 9 fins per inch, and an Electronic Control Module maximizes power to the cutting edge and exceptional haul road speed. **pg. 4**

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## Power Train – Transmission

- ✓ Planetary powershift transmission delivers excellent load capability. Redesigned front and rear axles accommodate wider brake shoes and drums. The neutral coast inhibitor and programmable top gear reduce wear while increasing machine performance. **pg. 6**

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## Electronic Controls

- ✓ Electronic controls improve machine response and provide advanced diagnostic capabilities that result in better machine availability. The Product Link option allows remote monitoring of location, machine system status, and alert indicators. **pg. 7**

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## Push-Pull Arrangement (627G only)

For maximum production capability, Caterpillar offers an optional push-pull arrangement for the 627G, which allows two push-pull scrapers to act as a self-loading machine. **pg. 12**

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## Auger Arrangement

Provides self-loading capability with the same wide material appetite as an open bowl machine. **pg. 13**

*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.*



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### Operator Station

Convenient control placement and a comfortable work environment are keys to high productivity. Features include Single Lever Implement Control, an air seat suspension and improved instrumentation. **pg. 8**

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### Structures

Superior structural design delivers state-of-the-art ride, capacity, and material control while assuring the durability and reliability customers expect from Caterpillar. **pg. 10**

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### Scraper Bowl

- ✓ Caterpillar Scraper bowls deliver large loads with better retention, excellent material flow, fast cycle times and high productivity. Relocating the implement valve to the draft tube improves access and serviceability. **pg. 11**

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### Serviceability

- ✓ The latest electronic monitoring systems, grouped service points, and rugged Caterpillar components simplify maintenance and minimize downtime. New two-piece access doors open easily and stay open for better access. **pg. 14**

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### Customer Support

The best parts availability and the best service capability will help keep your equipment working. **pg. 15**



✓ *New Feature*

## Power Train – Engine

*The new ACERT technology and proven components are electronically integrated to achieve new levels of performance and efficiency.*



**C15 Tractor Engine.** The Cat C15 Electronically Controlled Unit Injection (EUI) diesel engine powers the tractor. With dual horsepower capability, it provides high power and torque rise for excellent lugging in tough loading conditions. The C15 is designed for long hours of continuous operation with high displacement and low RPM ratings.

**C9 Scraper Engine.** The 627G is tandem powered by the Cat C9 scraper engine for peak performance and high productivity in self-loading applications. The C9 has a smaller physical envelope than the Cat 3306 it replaced, weighs less, and delivers more horsepower. In addition, all daily inspection points are located on the right hand side for easier maintenance.

**Dual Horsepower.** Electronic engines deliver increased power when the auger is engaged or when the machine is in the roading gears, providing quicker acceleration on the haul road.

**ACERT Technology.** The C15 and the C9 electronic engines with ACERT technology meet US EPA Tier 3 and EU Stage III emission regulations. ACERT technology reduces emissions during the combustion process by using advanced technology in the air and fuel systems, in conjunction with integrated electronics. Caterpillar meets emission regulations at the combustion source rather than recycling exhaust gases.

### **Electronic Control Module (ECM).**

The ECM responds to operator commands and engine sensor input to optimize engine and machine performance. This advanced engine management software controls and protects the engine at all times against cold starts, high altitude operations and air filter plugging by monitoring:

- injection timing and pressure
- engine cooling fan speed
- ether starting aid
- hydraulic pumps

**ADEM™.** The ADEM controls engine speed by adjusting the fuel duration, resulting in quicker starts in hot and cold weather, better fuel economy, better operator response, and automatic compensation for altitude and filter plugging.

### **Air-to-Air Aftercooling (ATAAC).**

Reduces air inlet temperature for enhanced combustion efficiency, reduced emissions levels, higher altitude capability, and more power.

**Greater Reliability.** The EUI system has fewer moving parts than mechanical unit injection and requires few adjustments. ECM communicates with the monitoring system (EMS) to warn the operator of potential problems, preventing major damage from occurring.

**Maintenance.** EUI engines have virtually no mechanically controlled parts to wear or adjust. These have been replaced by electronic controls, reducing maintenance costs and increasing machine availability.

### **Control Throttle Shifting (CTS).**

Automatically synchronizes engine speed to transmission speed when shifting gears. CTS reduces power train stress and increases component life, as well as providing a smoother ride for the operator.

### **Automatic Ether Injection.**

ECM activates the ether injection system during engine cranking to help ensure reliable engine start-up in extreme cold operating conditions.

### **Directional Shift Management.**

During directional shifts or shifts from neutral during high engine speed, engages speed clutches before directional clutches to reduce power train energy and increase power train life.

### **Automatic Altitude Compensation.**

The ECM automatically matches fuel delivery to barometric pressure. Auto deration protects against excessive combustion temperatures that could result in component damage.

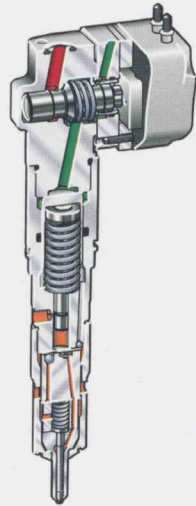
**Diagnostic Capability.** Electronic Technician (Cat ET) is used to display real-time pressures, temperatures, fuel settings and diagnostic messages as well as a historical information such as engine over-speeds, overheating, low oil pressure and air filter restriction events.

**Fuel Economy.** Electronic controls yield a fuel savings by optimizing the timing setting for varying conditions. The ECM matches timing to the load on the engine, engine speed and temperature.

**Air Filter Restriction.** The ECM monitors air filter restriction and sends a warning message to the Electronic Monitoring System III to alert the operator if the restriction exceeds the allowable limit.

**Reduced Exhaust Smoke.** The ECM reads electronic sensors to determine the optimum fuel/air ratio, then precisely controls fuel during cranking, starting and acceleration to reduce smoke. The ECM system is faster and more efficient than mechanically controlling the governor rack position.

**Low Battery Elevated Idle.** ECM automatically compensates for low alternator output at low idle by raising the rpm for brief intervals to keep the batteries fully charged.



#### **Electronic Unit Injection (EUI).**

Electronic injection provides complete control over injection timing, duration, rate and pressure under changing conditions over the entire engine operating range. The EUI controlled engine delivers:

- improved fuel efficiency
- more power
- decreased smoke and emissions
- faster hot and cold starts
- better high altitude performance
- less noise than mechanical injector engines

**Engine Speed Lock.** Allows the operator to maintain a given engine speed without using the accelerator pedal.

This eliminates operator fatigue associated with holding the pedal down for extended periods of time. An on/off rocker switch enables the Speed Lock feature, and a lamp indicates the feature is active. Moving the rocker switch to the off position, or activating the service brakes or the retarder, disables the feature.

#### **NGMR Engine Cooling System.**

The standard radiator for the tractor is the Next Generation Modular Radiator (NGMR) that features 9 fins per inch, whereas the previous model had a standard radiator of 33 fins per inch. The increased radiator fin spacing reduces clogging in severe applications.

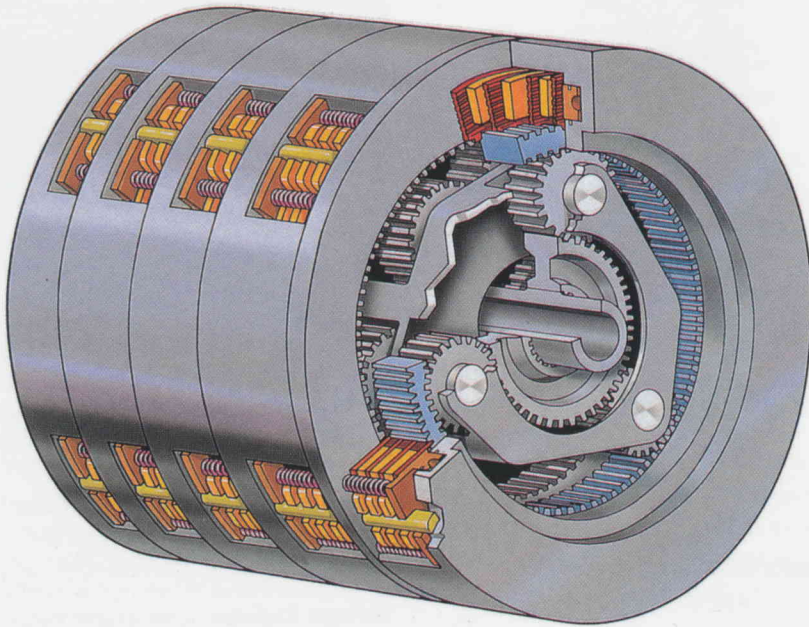
**Scraper Radiator.** The scraper has a standard unit core radiator, a one-piece unit design with 9 fins per inch. The larger fin spacing reduces clogging and eliminates the need for an attachment radiator.

**Automatic Belt Tensioning.** Both the tractor and scraper engines now have automatic belt tensioning rather than manual tensioning. Other improvements for both the tractor and scraper engines include:

- reducing the number of belts (from five to two on the tractor, from four to two on the scraper)
- eliminating the servicing for fan drive bearings

## Power Train – Transmission

*Integrated electronics allows the machine to monitor the power train which reduces stress as well as provide a better ride to the operator.*



**Transmission.** Electronically controlled Caterpillar planetary powershift transmission with eight forward and one reverse speed. Tractor gears 1 & 2 operate in converter drive for increased torque capability during cut and fill operations. Gears 3-8 operate in direct-drive for drive train efficiency during the haul. Reverse gear operates in converter drive. All scraper gears operate in converter drive for increased torque capability during the cut and fill.

**Planetary Design.** Provides larger contact area between gears than countershaft transmissions for greater load-carrying capacity.

**Neutral Coast Inhibitor.** Neutral coast inhibitor prevents the transmission from shifting into neutral if the operator selects neutral while moving, as well as maintaining the flow of the transmission fluid.

**Transmission Hold.** Allows the operator to maintain converter drive for increased rimpull, or hold the current gear for enhanced control.

**Programmable Top Gear Selection.** Allows the operator to manually set the top gear (3rd-8th) available to match conditions or the hauling speed of the fleet to specific job-site needs.

**Retarder.** The hydraulic retarder acts as an internal brake on the driveline that minimizes the need to apply service brakes. By engaging the retarder 3 to 4 seconds before the machine traverses a downhill grade, the operator can reduce wear on the service brakes and enhance machine control.

**Differential Control.** Electronic differential lock on the tractor helps prevent the drive wheels from spinning in poor underfoot conditions. The operator engages the differential lock by choosing either the right or left foot control located on the floor of the cab.

**Brake Performance.** Redesigned axles on both the tractor and scraper accommodate wider brake shoes and brake drums, improving brake performance as much as 20 percent and reducing brake and drum wear as much as 75 percent.

**Independent Systems.** Expanding-shoe type brakes are a cam-operated design that is air-applied and spring released. The braking system uses independent front and rear circuits, with the secondary brakes automatically applied if the service air pressure drops to 55 psi (380 kPa).

**Parking Brakes.** The push-button operated parking brake features a spring-applied, air-released mechanism that operates the service brakes. Meet the ISO 3450: 1998 standard.

**Final Drives.** Outboard-mounted, planetary design final drives reduce torque loads on other power train components. Large-capacity, double-row roller bearings and Caterpillar Duo-Cone seals deliver exceptional reliability in the toughest applications.

## Electronic Controls

*Instant response optimizes machine performance, and advanced diagnostic capabilities maximize machine availability.*



**Simplified System.** The electrical system has been redesigned to utilize three electronic control modules (ECM) on the tractor instead of four. The rear-powered scraper now has two ECMs rather than three.

### **Air Filter Restrictor Indicator.**

Electronic control module (ECM) monitors air filter restriction and sends a warning message to the electronic monitoring system (EMS) to alert the operator if the restriction exceeds the allowable limit.

**Automatic Ether Injection.** The ECM activates the ether injection system during engine cranking to enhance cold weather starting.

### **Automatic Altitude Compensation.**

At high altitudes the system automatically de-rates fuel delivery as a function of barometric pressure sensed by the system's atmospheric pressure sensor.

**Low Battery Elevated Idle.** ECM automatically compensates for low alternator output at low idle by raising the rpm for brief intervals to keep the batteries fully charged.

**Improved Serviceability.** Combined monitoring systems, easy access diagnostics and more durable components make routine maintenance and servicing simple and fast.

**Combined EMS Monitoring.** The Electronic Monitoring System (EMS III) on the 627G is designed to monitor both the tractor and scraper status and access fault codes from one location instead of two. Both the tractor and powered scraper use the same controller for parts commonality and easier servicing.

**Easy Access Diagnostics.** Diagnostic codes are accessible through the EMS main display module, via the Electronic Technician (Cat ET). This offers a head start on problem solving, with a radio call often providing the service technician with the knowledge of which tools, troubleshooting guides, and possibly even replacement parts to bring to the machine.

**Greater Reliability.** The Caterpillar EUI system has fewer moving parts than mechanical unit injection and requires few adjustments. ECM communicates with the monitoring system (EMS) to warn the operator when problems arise, preventing major damage from occurring.

**Maintenance.** EUI engines have virtually no mechanically controlled parts to wear or adjust. These have been replaced by electronic controls, reducing maintenance costs and increasing machine availability.

**Fuel Economy.** Electronic controls yield a fuel savings by optimizing the timing setting for varying conditions. The ECM matches timing to the load on the engine, engine speed and temperature.

**Product Link Ready.** Product Link is a wireless system that allows the customer to track machine data such as location, service meter hours as well as machine health information. The system has the capability to automatically issue alerts when the machine is being operated beyond owner defined time and location limits.

**Reduced Exhaust Smoke.** The ECM reads electronic sensors to determine the optimum fuel/air ratio, then precisely controls fuel during cranking, starting and acceleration to reduce smoke. The ECM system is faster and more efficient than mechanically controlling the governor rack position.

## Operator Station

*Redesigned for enhanced operator comfort and productivity.*



**Multi-Adjustable Seat.** The Cat Comfort Cloth Seat has an adjustable seat and armrests for maximum operator comfort.

- Swivels and locks in four positions (0°, 10°, 20° and 30°) providing the optimum operating position in the cut or on the haul.
- Fore/aft and vertical height adjustment to accommodate various sized operators.

**Seat Suspension.** The seat suspension redefines the ride of scrapers. It features a high performance air shock absorber with its own air compressor.

**Revised Steering Column.** Increases legroom a full 3.5 inches (89 mm), and reduces knee contact points.

**Standard Air Conditioning.** Gives the operator a comfortable workstation in any kind of weather. Relocated ventilation louvers improve airflow to the operator.

**Storage And Amenities.** Convenient storage location includes space for a lunch box and first aid kit. The cab also has a cup holder as well as an ashtray.



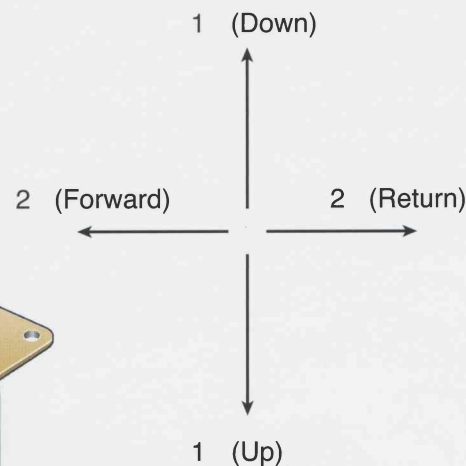
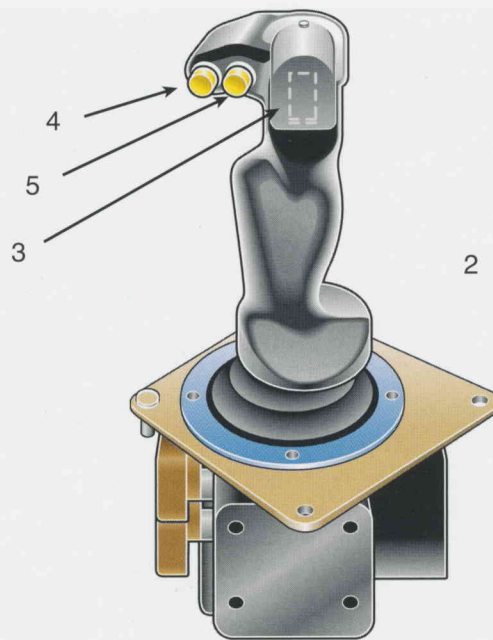
**Visibility.** Hood and front shroud width increased to accommodate the low emission engine, the air-to-air aftercooler (ATAAC), ether starting aid, and lights. Hood corners are sloped to maintain the same level of visibility as the E-Series.

**Single Lever Implement Control.**

Simple and easy to operate, the joystick enhances the productivity of operators of all skill levels. Requires less force to control the critical scraper functions and requires less lever travel. Grab handle/hand rest next to joystick controller so operator has a place to rest hand while on the haul and return roads.

- 1) Bowl (forward & back)
  - Apron position
  - Elevator direction, speed
- 2) Ejector (side to side)
- 3) Thumb rocker switch
- 4) Transmission Hold
- 5) Cushion Hitch
- 6) Trigger\* (not shown here – is on front of joystick)
  - Auger (on/off)
  - Push-Pull (bail up/down)
  - Elevator (on/off, resume)

\* Standard open bowl does not have a trigger



**Instrument Display Panel.** Features a quad-gauge layout showing engine coolant temp, transmission/torque converter oil temp, fuel level, and system air pressure. The 627G tachometer can monitor either front or rear engine speeds. Once the 627G tractor engine has been started, the operator can start the rear engine from inside the cab. EMS III can display both front and rear engine information right in the cab.

**Logical Control Placement.** Frequently used switches and indicator lights are on the instrument panel, and less frequently used switches on the overhead console.

**Engine Speed Lock Controller.**

Enhances operation during long haul cycles by allowing the operator to maintain a desired engine speed without maintaining pressure on the accelerator.

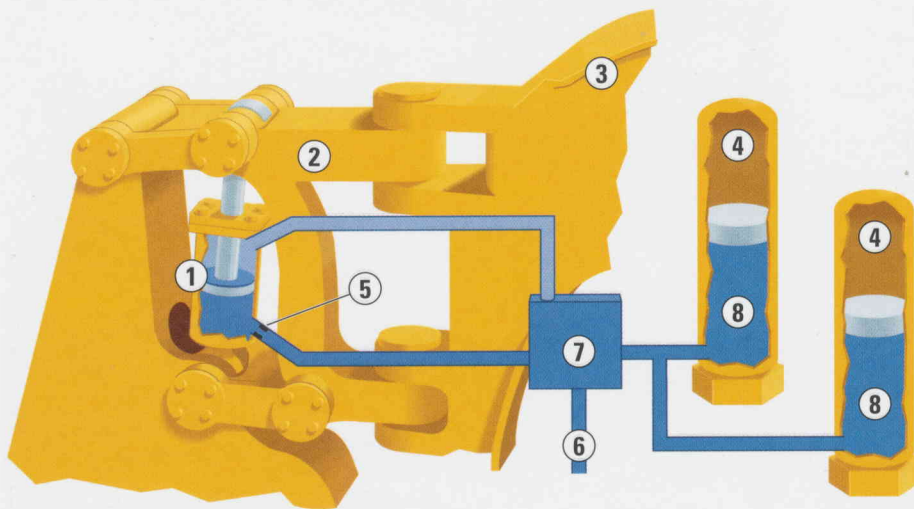
**Simplified Transmission Control.**

Simplifies gear selection (1st, 2nd, Drive and Reverse) and allows operator-defined top gear control. Relocating the gear control to the rear increases operator legroom.

## Structures

*Superior structural design and construction optimize performance and reliability.*

- 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



**Cushion Hitch.** The electronically actuated cushion hitch incorporates a parallelogram-type linkage for exceptional strength with nitrogen accumulators to deliver a smooth ride for enhanced operator comfort.

- controlled oil flow dampens rebound oscillation
- leveling valve automatically centers piston in cylinder for all loads
- steel castings are used extensively to eliminate many welded joints and increase strength
- double-kingbolt design withstands high external forces and simplifies installation and removal

**Nitrogen Accumulators.** Vertically mounted hydraulic cylinder transfers road shocks to nitrogen accumulators. Nitrogen accumulators absorb and dampen road shocks, thus preventing these loads from being transmitted to the operator.

**Lockout Switch.** An operator-selectable lockout switch, located on the joystick, locks the cushion hitch for improved control of the cutting edge during loading and dumping.

## Scraper Bowl

*Designed for optimum loading, material retention and ejection.*



**Redesigned Bowl.** Excellent productivity with a 10% increase in bowl capacity, improved draft arm protection, and better load retention. Low-profile design of the bowl offers less resistance to incoming materials, while cellular construction adds strength and dent resistance to bowl sides and floor.

### **Bulldozer Ejection System.**

Combines constant spreading control while minimizing carryback material. A spill guard on the ejector (standard on 627G, optional on 621G) helps retain material and keep it from spilling over onto the rear of the scraper.

**Cutting Edges.** May be adjusted according to job conditions. For most efficient loading, use the thinnest edge that provides satisfactory wear life and impact resistance.

### **Caterpillar Ground Engaging Tools**

**(GET).** A wide variety of Ground Engaging Tool (GET) options, such as standard, serrated, and abrasion resistant material (ARM), are available to optimize scraper loading in various materials. Most are reversible to provide long life and reduced operating costs. Contact your Cat Dealer to learn more about the best tools for your applications.

**Tandem Engines.** Two engines ensure the power to handle steep grades, and makes possible all wheel drive to handle soft, slippery underfoot conditions.

**Dual Horsepower.** Provides increased horsepower during the haul which results in faster cycle times.

**Material Application.** Well suited to handle a wide variety of material from clay to shot rock.

**Push-Loading.** To achieve maximum productivity, the 621G should be push loaded by a D8R or D9R Track-Type Tractor.

## Push-Pull Arrangement (627G only)

*Caterpillar offers a self-loading arrangement for the 627G.*



**Push-Pull Attachments.** This optional arrangement concentrates the combined horsepower of two machines onto one cutting edge. The push-pull attachments allow two individual machines to act as a self-loading system, typically loading both machines in less than a minute.

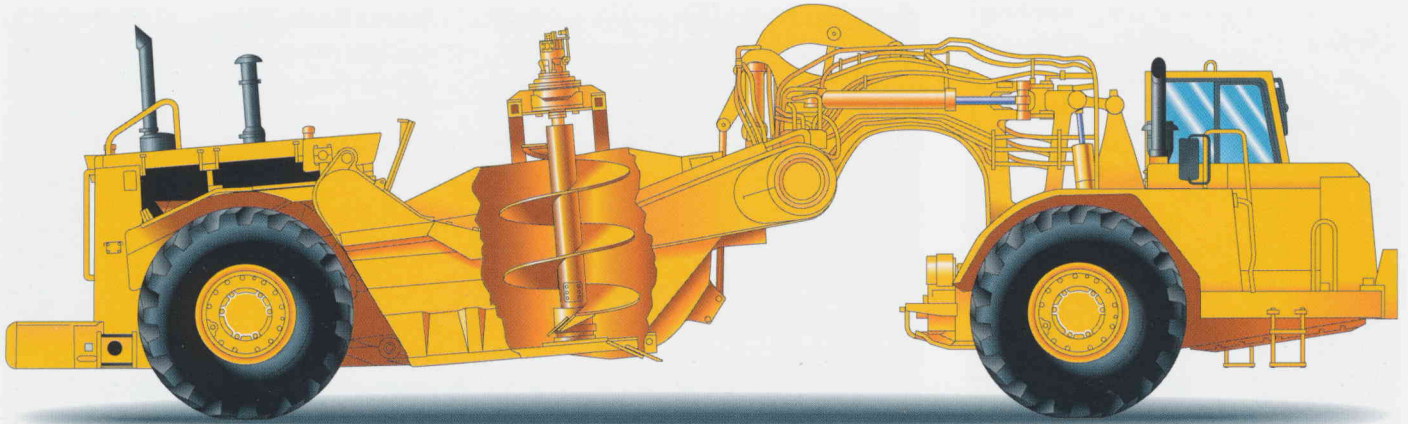
**Hydraulically Actuated Bail.** The push-pull arrangement uses a hydraulically actuated bail and cushioned plate bolted to the front of the tractor, and a hook that is attached to the rear of the scraper.

**Increased Production.** As the lead machine enters the cut, the trailing machine lowers the bail on the hook of the first machine. The second machine then pushes the first machine until it is loaded. When the second machine begins its loading cycle, the first machine pulls the second machine until it is loaded. After both machines are loaded, the second machine raises its bail and disengages from the first machine.

**Flexible Fleet.** This system provides a more balanced, flexible fleet using fewer machines and less investment than comparable self-loading or push-loading systems.

## Auger Arrangement

*Excellent self-loading capability in a wide range of material.*



**Versatility.** The auger has a wide material appetite ranging from rock to free flowing material such as sand. The auger lifts material off of the cutting edge, conditions it, and spreads it evenly in the bowl for true self-loading capability.

**Material Conditioning.** As the auger carries material from the cutting edge to the top of the load, it conditions the material into uniform size which helps eliminate voids in the bowl, thus ensuring consistent payloads. Conditioned material also requires less compactive force in the fill. In applications where dust is a concern, the auger has demonstrated that it significantly minimizes dust while loading when compared to the elevator loading system.

**Auger Benefits.** The auger actions on the material produce several benefits:

- wide material appetite, ideal for landfills
- blending material creates a consistent, well-mixed load
- conditioned material reduces voids in the bowl for larger, more consistent payloads, and promotes compaction in the fill
- reduces dust and noise during loading
- precise metering of material in the fill

**Dual Horsepower.** Tractor engine automatically reverts to the higher setting when the auger motor is engaged.

**Slip Limiter Switch (627G).** Prevents rear wheel slip during loading.

**Hydraulic System.** Single hydraulic system for entire machine with separate implement pumps/valves simplifies maintenance and improves reliability.

**Apron.** Prevents material spillage and retains fine material far better than an elevating scraper.

## Serviceability

*Count on Caterpillar for simplified service and the most productive uptime.*



**Grouped Service Points.** Maintenance and service points for the engine are grouped on the right-hand side for easy access. They include the engine air cleaner, engine oil check and fill, fuel filters and priming, coolant level sight glass, window washer bottle, air conditioning dryer cartridge, ether starting aid canister, engine oil filter, fan drive lubrication, and sampling ports for the engine oil and coolant.

- Spin-on fluid filters for all but the main hydraulic filter
- Cab wiring harness redesigned and relocated for better serviceability

### **Electronic Monitoring System (EMS III).**

Monitors machine status and provides real-time information to the operator including warnings of problems identified by the Electronic Control Modules.

**Event Log.** The EMS event log records problems detected by the control system, including the time an event occurs, the number of occurrences for the event, an event identifier and problem code. The event log can be accessed using the Electronic Technician (ET).

### **Implement Valve Relocation.**

The implement valve has been relocated from the tractor to the top of scraper draft tube, reducing the number of hoses and tubes that cross over the gooseneck. The move reduces potential leak points, and improves service access.

**One Piece Power Block.** Jumpstart receptacle and disconnect switch are integrated into a one-piece power block for better electrical integrity and serviceability. The disconnect switch, with a lockable cover, disables all power from the batteries and jumpstart functions.

### **Electro-Hydraulic Implement Control.**

Simplifies serviceability by removing the cab pilot valve and associated lines, which also improves reliability and reduces noise. The high efficiency electro-hydraulic pilot oil filter provides cleaner oil for the pilot system.

**Scraper Electrical Harness.** A ribbon wiring harness replaced the cable harness for improved wear and durability.

Its increased flexibility oscillates with the machine, and polyurethane boots offer better protection against the elements.

**Access Doors.** The tractor has a standard two-piece door on the right side for better access to service points. The hood, hinged on the front and supported by spring struts, easily opens towards the front of the machine, for better access to the top of the engine.

### **Electronic Technician (Cat ET).**

The Caterpillar Electronic Technician (Cat ET) Service Tool is useful in troubleshooting existing problems or identifying potential problems by displaying:

- Real-time pressures, temperatures, fuel settings and diagnostic messages
- Historical data such as engine over-speeds, overheating, low oil pressure and air filter restriction events
- More detailed information to the service technician who can access Cat ET via a laptop computer

**Easy Access Diagnostics.** Diagnostic codes are accessible through the EMS main display module, via the Cat ET. Relaying this information to the service technician can let him know which tools, troubleshooting guides, and possibly even replacement parts to bring to the machine.

## Customer Support

*Cat dealer services help you operate longer with lower costs.*



**Product Support.** You will find nearly all parts at our dealer parts counter. Cat dealers use a world-wide computer network to find in-stock parts to minimize machine down time. Save money with genuine Cat Reman parts. You receive the same warranty and reliability as new products at substantial cost savings.

**Machine Selection.** Make detailed comparisons of the machines under consideration before purchase. Cat dealers can estimate component life, preventive maintenance cost, and the true cost of lost production.

**Purchase.** Look past initial price. Consider the financing options available as well as day-to-day operating costs. 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.

**Customer Support Agreements.** Cat dealers offer a variety of product support agreements, and work with customers to develop a plan that best meets specific needs. These plans can cover the entire machine, including attachments, to help protect the customer's investment.

**Operation.** Improving operating techniques can boost your profits. Your Cat dealer has videotapes, literature and other ideas to help you increase productivity, and Caterpillar offers certified operator training classes to help maximize the return on your machine investment.

**Maintenance Services.** Talk to your dealer about the range of available maintenance services. Repair option programs guarantee the cost of repairs up front. Diagnostic programs such as S•O•S<sup>SM</sup> Analysis and Coolant Sampling and Technical Analysis help avoid unscheduled repairs.

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

## Engine

Tractor Engine	Cat C15 ACERT
Scraper Engine	Cat C9 ACERT

## Tractor Engine

Net Power – Gears 1-2	246 kW	330 hp
Net Power – Gears 3-8	272 kW	365 hp
Gross Power – Gears 1-2	268 kW	359 hp
Gross Power – Gears 3-8	294 kW	394 hp
Bore	140 mm	5.5 in
Stroke	165 mm	6.5 in
Displacement	15.2 L	928 in <sup>3</sup>

- Net power advertised is the power available at rated speed of 1800 rpm, measured at the flywheel when the engine is equipped with fan, air cleaner, muffler and alternator.

## Scraper Engine

Net Power – Gear 1	178 kW	239 hp
Net Power – Gears 2-4	198 kW	266 hp
Gross Power – Gear 1	192 kW	258 hp
Gross Power – Gears 2-4	213 kW	286 hp
Bore	112 mm	4.4 in
Stroke	149 mm	5.9 in
Displacement	8.8 L	538 in <sup>3</sup>

- Net power advertised is the power available at rated speed of 2200 rpm, measured at the flywheel when the engine is equipped with fan, air cleaner, muffler and alternator.

## Scraper Bowl

Heaped Capacity	17 m <sup>3</sup>	22 yd <sup>3</sup>
Rated Load	23 950 kg	52,800 lb
Struck Capacity	12 m <sup>3</sup>	15.7 yd <sup>3</sup>
Depth of Cut – Max.	333 mm	13.1 in
Width of Cut, to Router Bits	3023 mm	119 in
Ground Clearance – Max.	522 mm	20.6 in
Cutting Edge – Thickness	22 mm	0.88 in
Hyd. Penetration Force – 621G	150.4 kN	33,840 lb
Hyd. Penetration Force – 627G	215 kN	48,375 lb
Depth of Spread – Max.	522 mm	20.6 in
Apron Opening	1780 mm	70 in
Apron Closure Force	107 kN	24,075 lb

## Transmission

1 Forward	5 kph	3.1 mph
2 Forward	7.6 kph	4.7 mph
3 Forward	10.9 kph	6.8 mph
4 Forward	14.8 kph	9.2 mph
5 Forward	19.9 kph	12.4 mph
6 Forward	26.9 kph	16.7 mph
7 Forward	36.4 kph	22.6 mph
8 Forward	51.5 kph	32 mph
Reverse	9.2 kph	5.7 mph

## Hydraulics

Bowl Cylinder Bore	152 mm	6 in
Bowl Cylinder Stroke	813 mm	32 in
Apron Cylinder Bore	184 mm	7.25 in
Apron Cylinder Stroke	597 mm	23.5 in
Ejector Cylinder Bore	165 mm	6.5 in
Ejector Cylinder Stroke	1549 mm	61 in
Steering Circuit	209 L/min	55 gal/min
Scraper Circuit	284 L/min	65.5 gal/min
Cushion Hitch Circuit	37 L/min	9.8 gal/min
Supplemental Steering Circuit	150 L/min	39.9 gal/min
Relief Valve – Steering Circuit	15 500 kPa	2,250 psi
Relief Valve – Implement Circuit	15 000 kPa	2,175 psi

- Flow rates measured at 1900 rpm
- Supplemental steering measured at 24 km/h (14.9 mph)

## Steering

Steering Angle – Right	90°	
Width – 180° Turn	10.9 m	35.9 ft
Steering Angle – Left	85°	
Hydraulic Output	209 L/min	55 gal/min

- Optional supplemental steering system meets SAE J1511 (OCT 90) and ISO 5010 (1992) requirements
- Steering circuit at 1900 RPM



## Service Refill Capacities – Tractor

Crankcase	36 L	9.5 gal
Transmission	72 L	19 gal
Differential	144 L	38 gal
Final Drive (per side)	19 L	5 gal
Cooling System	107 L	28 gal
Hydraulic Reservoir	140 L	37 gal
Wheel Coolant (each)	45 L	12 gal
Windshield Washer	6 L	1.5 gal

## Service Refill Capacities – Scraper

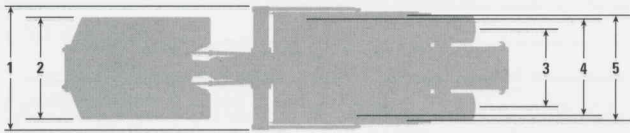
Fuel Tank – 621G	606 L	160 gal
Fuel Tank – 627G	1105 L	292 gal
Crankcase	30 L	7 gal
Transmission	59 L	15.6 gal
Differential	15 L	4 gal
Final Drive (per side)	19 L	5 gal
Cooling System	77 L	20.3 gal
Wheel Coolant (each)	45 L	12 gal

## Standards

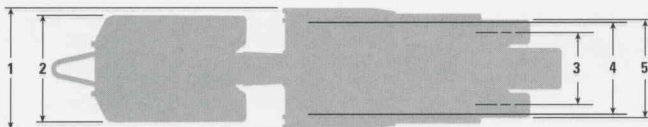
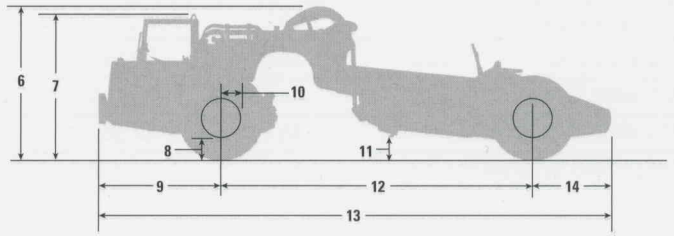
- Rollover Protective Structure (ROPS) meets SAE J320a, SAE J1040 MAY 94, ISO 3471-1986 and ISO 3471-1994
- Falling Object Protective Structure (FOPS) meets SAE J231 JAN 81 and ISO 3449-1992
- The operator sound exposure Leq (equivalent sound pressure level) measured according to the work cycle procedures specified in ANSI/SAE J1166 OCT98 is 81 dB(A), for cab offered by Caterpillar, when properly installed and maintained and tested with the doors and windows closed.
- Hearing protection may be needed when operating with an open operator station and cab (when not properly maintained or doors/windows open) for extended periods or in noisy environments.
- Standard air conditioning system contains environmentally friendly R134a refrigerant.

# Dimensions

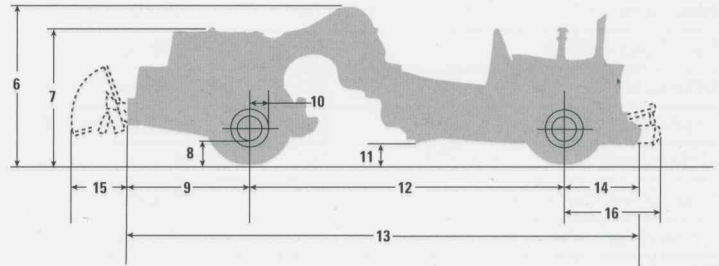
All dimensions are approximate.



**621G**



**627G**



1	Width – Overall Machine	3467 mm	136.5 in
2	Width – Tractor	3130 mm	123.2 in
3	Width – Rear Tire Center Lines	2180 mm	85.8 in
4	Width – Inside of Bowl	2946 mm	116 in
5	Width – Outside Rear Tires	3048 mm	120 in
6	Height – Overall Shipping	3705 mm	145.9 in
7	Height – Top of Cab	3423 mm	134.8 in
8	Ground Clearance, Tractor	553 mm	21.8 in
9	Front of Tractor to Front Axle	3058 mm	120.4 in

10	Rim Radius	432 mm	17 in
11	Height – Scraper Blade Max.	522 mm	20.6 in
12	Wheelbase	7722 mm	304 in
13	Length – Overall Machine	12 917 mm	508.5 in
14	Rear Axle to Rear of Machine	2142 mm	84.3 in
15	Bail Length – Max. (push-pull)	1612 mm	63.5 in
16	Extended Push Block (push-pull)	2786 mm	109.7 in

# Weights

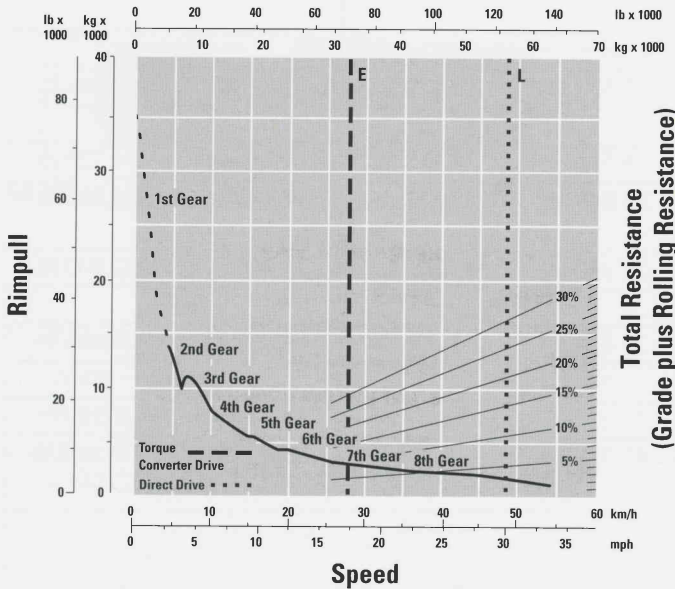
(approximate)

Model	621G		627G		627G	
			Standard		Push-Pull	
<b>Shipping, with ROPS cab and 10% fuel</b>						
Tractor	69%		59%		61%	
	22 677 kg	49,994 lb	21 975 kg	48,447 lb	23 650 kg	52,139 lb
Scraper	31%		41%		39%	
	10 118 kg	22,461 lb	15 271 kg	33,666 lb	15 120 kg	33,335 lb
<b>Total 100%</b>	<b>32 865 kg</b>	<b>72,455 lb</b>	<b>37 246 kg</b>	<b>82,113 lb</b>	<b>38 770 kg</b>	<b>85,473 lb</b>
<b>Operating empty, with ROPS cab, full fuel tanks and operator</b>						
Front axle	68%		59%		60%	
	22 760 kg	50,176 lb	22 330 kg	49,230 lb	23 623 kg	52,080 lb
Rear axle	32%		41%		40%	
	10 710 kg	23,612 lb	15 518 kg	34,211 lb	15 749 kg	34,720 lb
<b>Total 100%</b>	<b>33 470 kg</b>	<b>73,789 lb</b>	<b>37 848 kg</b>	<b>83,441 lb</b>	<b>39 372 kg</b>	<b>86,800 lb</b>
<b>Loaded, based on a rated load of:</b>	23 950 kg	52,800 lb	23 950 kg	52,800 lb	23 950 kg	52,800 lb
Front axle	53%		48%		49%	
	30 433 kg	67,092 lb	29 663 kg	65,396 lb	31 028 kg	68,405 lb
Rear axle	47%		52%		51%	
	26 987 kg	59,497 lb	32 135 kg	70,845 lb	32 294 kg	71,197 lb
<b>Total 100%</b>	<b>57 420 kg</b>	<b>126,589 lb</b>	<b>61 798 kg</b>	<b>136,241 lb</b>	<b>63 332 kg</b>	<b>139,601 lb</b>

# 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.

**621G Tier 3 — Rimpull  
Standard Arrangement\*  
Gross Weight**



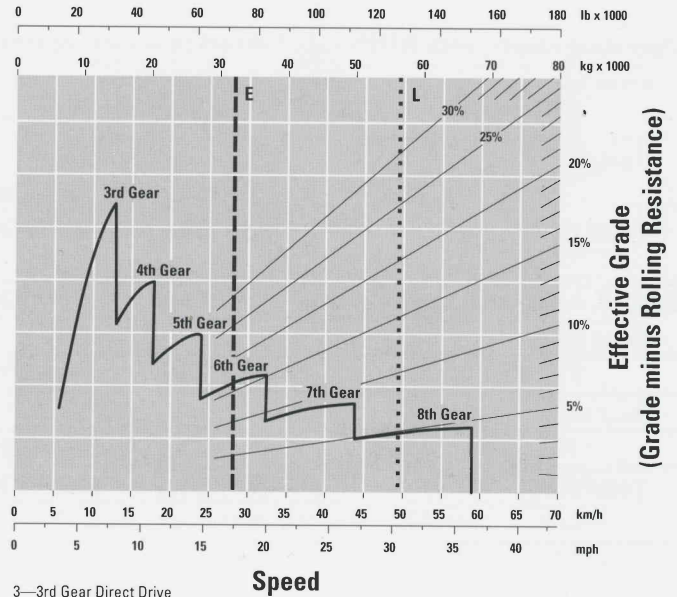
- 1—1st Gear Torque Converter Drive
- 2—2nd Gear Direct Drive
- 3—3rd Gear Direct Drive
- 4—4th Gear Direct Drive
- 5—5th Gear Direct Drive
- 6—6th Gear Direct Drive
- 7—7th Gear Direct Drive
- 8—8th Gear Direct Drive

\* at sea level

# 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.

**621G Tier 3 — Retarding\*  
Gross Weight**



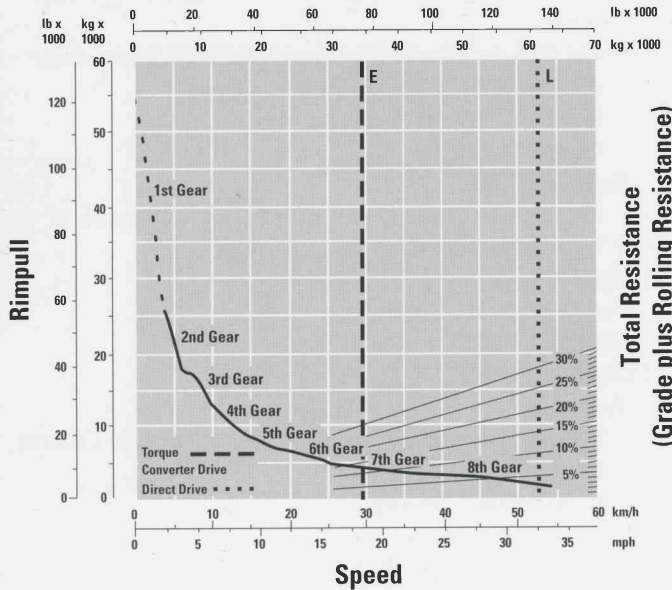
- 3—3rd Gear Direct Drive
- 4—4th Gear Direct Drive
- 5—5th Gear Direct Drive
- 6—6th Gear Direct Drive
- 7—7th Gear Direct Drive
- 8—8th Gear Direct Drive

\* at sea level

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**627G Tier 3 — Rimpull  
Standard Arrangement\*  
Gross Weight**



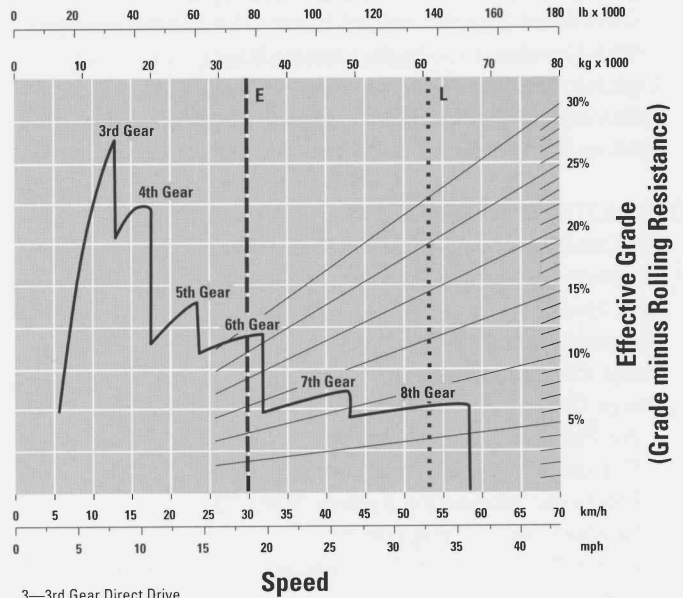
- 1—1st Gear Torque Converter Drive
- 2—2nd Gear Direct Drive
- 3—3rd Gear Direct Drive
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**627G Tier 3 — Retarding\*  
Gross Weight**



\* at sea level

## Standard Equipment

Standard equipment may vary. Consult your Caterpillar dealer for details.

### ELECTRICAL

- Alarm, backup
- Alternator, 75 amp – Tractor Engine
- Alternator, 35 amp – Scraper Engine (627G)
- Batteries (4), 12V Maintenance Free, High Output
- Batteries (2), 12V Maintenance Free, High Output (627G)
- Electrical System, 24V
- Lighting System – Tractor
  - Directional Signals; Hazard Lights; Headlights, Halogen with Dimmer; Floodlight, Cutting Edge
- Lighting System – Scraper
  - Directional Signals; Hazard Lights; Stop/Tail
- Starting Receptacle – Tractor and Scraper Engines

### OPERATOR ENVIRONMENT

- Air Conditioner (includes heater and defroster)
- Cigarette Lighter and Ashtray
- Coat Hook
- Diagnostic Connection Port (12V)
- Dome Courtesy Light
- Gauge Group
  - Air Pressure
  - Converter/Retarder Temperature
  - Electronic Monitoring System (EMS III)
  - Engine Coolant Temperature
  - Actual Transmission Gear Indicator
  - Fuel
  - Speedometer
  - Tachometer
  - Transmission Gear Indicator
- Horn
- Implement Control Joystick
- Rearview Mirrors
- Radio Ready (two bays, speakers, 5-amp converter)
- ROPS Cab with Sound Suppression and Pressurization
- Static Seatbelt
- Scraper Engine Controls (627G)
- Seat, Air Suspension, Caterpillar Comfort, Cloth
- Steering Wheel – Tilt and Telescoping
- Storage Compartment
- Engine Speed Control Lock
- Transmission Hold
- Windows – Sliding Side, Swingout
- Windshield – Laminated Glass
- Windshield Wiper/Washer – Front and Rear

### POWER TRAIN

- Engine
  - Electronic Unit Injection (EUI)
  - Electric Start, 24V
  - Fan, Suction
  - Ground Level Engine Shutdown
  - Muffler
  - Starting Aid, Ether
  - Thermo-shield, Laminated
- Tractor:
  - Cat C15, 6-cylinder Diesel with ACERT Technology
  - Air Cleaner, Dry-type with Pre-cleaner
  - Radiator, NGMR (9 fins per inch)
  - Guard, Crankcase
- Scraper (627G):
  - Cat C9, 6-cylinder Diesel with ACERT Technology
  - Unit Core Radiator (9 fins per inch)
- Braking System
  - Parking/Primary/Secondary
  - Shields – Brake
- Transmission
  - Tractor:
    - 8-speed Automatic Powershift with Electronic Control
    - Control Throttle Shifting
    - Differential – Lockup
    - Downshift Inhibitor
    - Neutral Coast Inhibitor
    - Programmable Top-gear Selection
  - Scraper (627G):
    - 4-speed Automatic Power Shift with Electronic Control

### OTHER STANDARD EQUIPMENT

- Extended Life Coolant,  $-36^{\circ}\text{C}$  ( $-33^{\circ}\text{F}$ )
- Fast Oil Change
- Fenders
- Rims – 29 in (736.6 mm)
- Tires, 33.25-R29 radial
- Tractor:
  - Air Dryer
  - Cushion Hitch
  - Locks, Vandalism Protection
  - Product Link Ready
  - Tow Pins – Front and Rear

## Optional Equipment

*Optional equipment may vary. Consult your Caterpillar dealer for details.*

	<u>kg</u>	<u>lb</u>		<u>kg</u>	<u>lb</u>
621G			627G		
Auger	4536	10,000	Auger	4536	10,000
Fenders, Scraper	121	266	Fuel System, Fast-fill	10	23
Fuel System, Fast-fill	10	23	Heater, Engine Coolant	2	4
Heater, Engine Coolant	2	4	Lights, Side Vision	5	10
Lights, Side Vision	5	10	Push Block, Extended (scraper)	200	440
Retarder, Hydraulic	150	330	Push-pull Arrangement (scraper)	489	1078
Steering, Secondary	50	110	Push-pull Arrangement (scraper) w/o Rear Engine Radiator Guard	349	770
			Retarder, Hydraulic (tractor)	150	330
			Retarder, Hydraulic (scraper)	154	340
			Steering, Secondary	50	110

# 621G/627G Wheel Tractor Scrapers



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AEHQ5612 (11-04)

Replaces AEHQ5528

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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