

963C

Track Loader



Bucket Capacities

General Purpose	2.45 m ³	3.2 yd ³
Multi-purpose	2.0 m ³	2.6 yd ³

Operating Weight

G.P. Bucket + Teeth & Seg.	19 020 kg	41,939 lb
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Cat® 3116 Engine

Flywheel Power	119 kW	160 hp
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963C Track Loader

Leading edge design and unmatched versatility in one machine allows maximum productivity.

Hydrostatic Drive

- ✓ Hydrostatic drive with *electronic control offers modulated precision for quick, smooth operation and superior maneuverability. Two drive system speed modes allow the best match to job conditions. The Electronic Hydrostatic Control (EHC) is self-diagnosing and*
 - ✓ *the two separate hydraulic drive pumps are easy to access for serviceability.*
- pg. 4**

Computerized Monitoring System

- ✓ *The Caterpillar Computerized Monitoring System (CMS) serves as the interface between the operator and the*
 - ✓ *Electronic Hydrostatic Control (EHC) of the drive train, as well as providing gauges and indicators of machine functions. The CMS permits quick and simple calibration of the hydrostatic system and diagnostics of the power train and electrical systems.*
- pg. 7**

Great versatility.

The 963C works well in a wide range of applications. Heavy clearing, stripping top soil, landscape contouring, grading, dozing, excavating, backfilling, hard bank digging, carrying material, and truck loading can all be accomplished with one machine.

Reliable, durable operation.

Rugged construction, self diagnosis of electrical and power train systems, and easy maintenance help ensure extended service life with low operating costs.

Engine

The Cat 3116 TA Engine is designed for performance, durability, serviceability, low emissions and fuel economy. **pg. 5**

Operator Station and Controls

The Caterpillar® C-Series Track Loader is designed for greater operator productivity. Pilot-operated hydraulic controls for precise, consistent equipment control — together with adjustable magnetic lift kickout and bucket positioner, help reduce operator

- ✓ *fatigue. In the cab, reduced noise level,*
- ✓ *adjustable armrests, and Cat Contour Series seat improve operator comfort.*
- ✓ *Large, tinted windows, sun visor, improved front wiper, and defrost capability improve viewing of work areas.*

pg. 6



Structure

The box-section main frame is designed specifically for the work of a track loader. It provides durability, resistance to twisting and a solid base for all components. The Z-bar linkage offers

- ✓ *increased breakout force* and fast dump speed for enhanced productivity.
- pg. 8**

Oscillating Undercarriage

Improved traction, increased machine stability, and reduced frame impact are benefits of the Cat oscillating undercarriage. The Cat sealed and lubricated track reduces pin and internal bushing wear, reduces component friction and track noise, extending track life. **pg. 9**

Work Tools and Special Application Attachments

A large choice of buckets, Ground Engaging Tools (G.E.T.), as well as various specific attachments, allow configuration of the 963C for maximum performance in virtually any job. In extreme or specialized applications, such as sanitary landfills, material handling, demolition, shiphold unloading, or other low ground pressure applications, Cat can provide the needed attachments.

pg. 10-11

Complete Customer Support

The 963C design offers reduced maintenance, convenient access to components, easy diagnostic capabilities, as well as easy and economical component replacement possibilities. Cat Dealers also provide quick parts availability, preventative maintenance programs and flexible financing. **pg. 12**



✓ *New feature*

Hydrostatic Drive

The electronically controlled hydrostatic drive helps provide quick response for shorter cycle times and increased productivity.

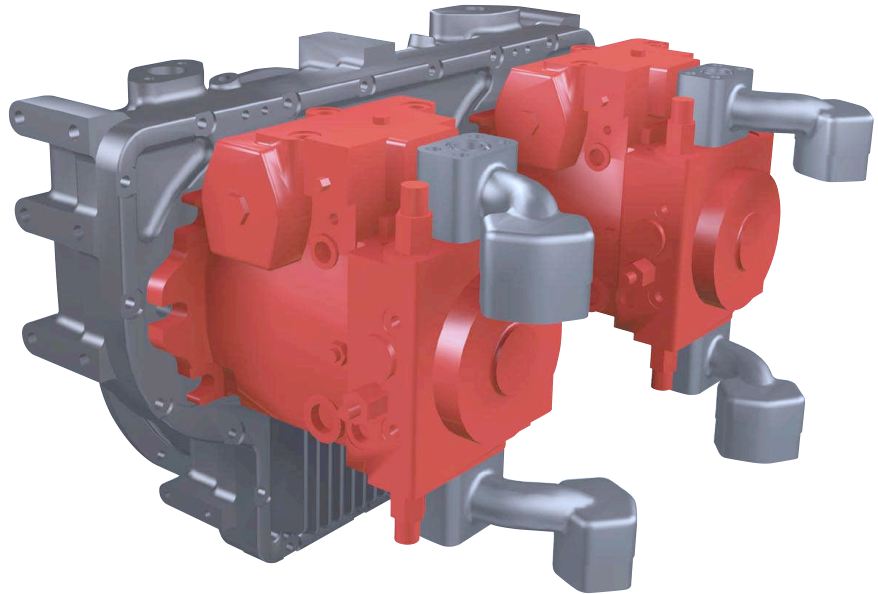
The Hydrostatic Drive eliminates the need for transmission shifting, which allows the operator to concentrate on working, maneuvering and production.

The Electronic Hydrostatic Control (EHC) controls the hydrostatic drive system.

- Electronic Hydrostatic Control automatically adjusts machine speed to give the equipment hydraulic system priority, while the hydrostatic system takes advantage of all available engine power.
- It maintains engine rpm in optimum operating range and balances the two track drive systems for straight travel without machine drift.
- The Electronic Hydrostatic Control interfaces with the Computerized Monitoring System. It is self-diagnosing, and fully compatible with Electronic Technician (ET) software. This allows quick and easy calibrations and troubleshooting.

Variable displacement pumps and variable displacement drive motors are electronically controlled by EHC, offering high efficiency and precise travel.

- Each track is driven by a separate hydraulic circuit consisting of one variable-displacement piston pump, connected by Caterpillar's XT-6 hydraulic hose and couplings to a variable-displacement piston motor.



Separate hydraulic pumps offer easy servicing. Pumps are shown in red above.

Independent power to each track for speed, maneuverability, or sideslope operation.

Turn-under power for added control, speed and versatility. "Power turns" give greater productivity when dozing, grading, or backfilling.

Counter rotation allows spot turns in tight space conditions.

Travel speeds are infinitely variable between zero and top speed. Two speed modes, "travel mode" and "work mode", provide two different speed ranges to best match machine speed and torque to the job conditions for maximum productivity. For example, while truck loading in tight-space conditions, the work mode can be used for more precise control of the hydrostatic drive system to easily match the speed of the tracks to the cycle time of the bucket control.

Engine

Provides power, reliability and acts as a working counterweight in the rear of the machine, for optimum machine balance.



The Cat 3116 Diesel Engine is a six cylinder, four-cycle design that provides long, effective power strokes for high torque and more complete fuel combustion.

Rear engine location allows excellent forward viewing, while serving as a working counterweight. It also helps reduce maintenance by preventing radiator plugging and provides easy service access to the engine and other major components.

Direct-injection fuel system uses unit injectors at each cylinder.

- Design eliminates external high-pressure fuel lines, providing efficient, precise fuel delivery and timing.
- High-injection pressures and short injection duration provide fast response, clean burning and added fuel savings.
- Unit injectors can be serviced individually, without the need to service the whole fuel system.

Turbocharger packs more air in the cylinders for excellent combustion and increased engine efficiency.

Aftercooler cools the inlet air for more efficient combustion and extended life of the piston rings and bore.

Air inlet heater assists engine starting in low temperature conditions by warming the air supplied to the engine.

Extended life coolant, standard in the engine cooling system, reduces the need for maintenance.

Dual fuel filters with water separator element are used in-line to help ensure clean fuel, which maintains performance and protects the engine for increased life.

High displacement-to-power ratio provides extended engine life and exceptional reliability.

Extended life design.

- Seven main bearings provide a large bearing surface area to distribute force loads in the engine.
- Durable alloy steel valves.
- Lightweight roller cam followers for reduced frictional losses and cam wear.
- Easily replaceable crankcase seals.
- Two oil jets per cylinder cool each piston for reduced piston and ring temperatures, increasing the life of cylinders and pistons.
- A ribbed, one-piece cylinder block with a cast-in oil-cooler manifold, as well as internal fuel lines, eliminates many external lines, gaskets, and seals.

Operator Station and Controls

Designed for operator comfort and ease of operation.



1 Caterpillar Contour Series seat is ergonomically designed and fully adjustable for maximum operator comfort and control — throughout the work day.

- Cushioned side bolsters prevent side-to-side movement.
- Backrest centerline conforms to the operator's natural spinal curve.
- Contoured base curves away from lower back to reduce pressure.
- 76 mm (3 in) wide seat belt is retractable for positive, comfortable restraint.
- Air suspension option is available for even greater operator comfort.

2 Adjustable armrests can be positioned up or down. The right armrest is adjustable forward and backward. Each armrest can be inclined to different angles for excellent operator comfort and control.

3 Improved air circulation system delivers filtered, pressurized and temperature-controlled air through 10 louvered vents. Integral air conditioning system is available. Heater with controls is standard on both cab and canopy-equipped machines.

4 Storage spaces include a lockable storage box, a lunch box compartment, beverage holder, and coat hook.

Sound-suppressed Rollover Protective Structure (ROPS)/Falling Objects Protective Structure (FOPS) cab is resiliently mounted for reduced vibration and a quiet working environment.

Enhanced viewing area to the front, sides and rear of the machine. Tinted windows, sun visor, washers and windshield wipers are all standard on cab machine. The front wiper has variable speed, intermittent control.

Radio installation arrangement, 24 to 12-volt converter, radio mounting space, and speakers are standard on cab-equipped machines.

Easy, precise operation of hydrostatic drive system for quick speed and direction changes and maximum maneuverability.

5 Hydrostatic drive control (see page 4).

6 Brake pedal is supplementary to hydraulic braking provided by hydrostatic system.

7 Pedal steering for precise control of each track independently and on-demand counter-rotation without need to stop machine.

Speed mode switch allows operator to choose between “work mode” for fine control or tight truckloading, or “travel mode” for maximum drive speed — to best match machine speed to job conditions (see page 7 for location).

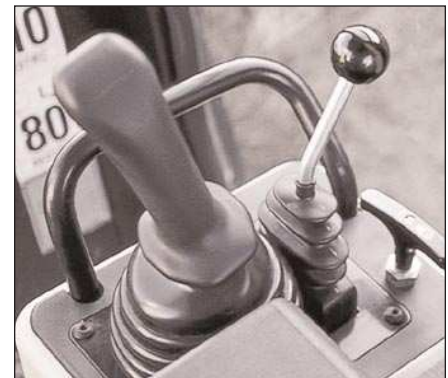
Pilot operated equipment controls are easy to operate for greater productivity.

8 Single lever pilot control for bucket lift and dump (2-lever control is optional).

▪ **Simultaneous bucket lift and dump** for fast controlled truck loading, smooth grading, and the ability to meter material from bucket.

▪ **Automatic, adjustable magnetic lift kickout and bucket positioner** allow the operator to concentrate on positioning the machine rather than the bucket, resulting in higher efficiency for greater productivity.

9 Optional pilot-operated control for ripper or multi-purpose bucket.



Computerized Monitoring System (CMS)

Quickly indicates servicing needs to reduce downtime.



The Computerized Monitoring System offers three main functions:

- Quick and simple calibration of the hydrostatic drive system.
 - Alerting the operator of particular situations can help prevent damage. For maximum reliability, an automatic self-test is performed by the system during every start.
 - By monitoring hydrostatic and electrical systems, the CMS identifies component(s) affected and logs the abnormal values of measured parameters in memory to aid service personnel in troubleshooting and repairs.
- 1 The gauge cluster** contains four gauges which monitor the following functions:
- Fuel level.
 - Engine coolant temperature.
 - Pump drive oil temperature.
 - Hydraulic (equipment/power train) oil temperature.

- 2 The warning cluster** groups the individual alert indicators of the following:
- Low fuel level.
 - High engine coolant temperature.
 - High pump drive oil temperature.
 - High hydraulic oil temperature.
 - Low engine oil pressure.
 - Low hydrostatic system charge pressure.
 - Low alternator output.
 - Diagnostic fault detected by EHC (Electronic Hydrostatic Control).
 - Air inlet heater activated.
- 3 The digital display** can show the operator's choice of hour meter, engine rpm, charge pressure or service codes.

The Computerized Monitoring System also functions as a warning system with three levels of warning:

- **Operator awareness.** An alert indicator signals a potential, non-critical situation.
 - **Operator response required.** In addition to the alert indicator, the action warning light (**4**) flashes to indicate that continued operation could cause component damage.
 - **Immediate safe shutdown.** An alert indicator illuminates the action warning light, flashes, and the action alarm sounds to alert the operator that continued operation will cause immediate component damage or a safety device malfunction.
- 5 Key start/stop switch**
- 6 Speed mode switch** (see page 6 for description).

Structure

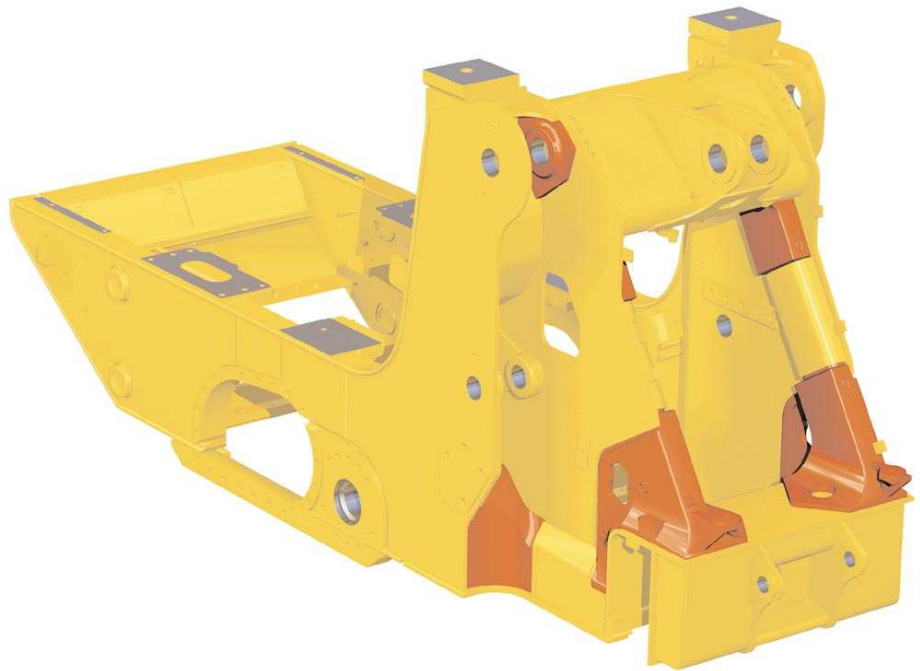
Box-section main frame is designed to handle heavy loads, while Z-Bar linkage maximizes breakout force.

Strong box-section main frame design, with continuous, deep-penetration welds resists twisting loads to protect components from excessive wear or damage without adding extra weight to the machine.

- **Four-plate loader tower** distributes forces evenly from the lift arms to the main frame, which eliminates twisting for maximum structural durability.
- **Castings** (in red on the illustration on the right) are used in areas of high stress concentration. Large radius curves dissipate stresses that could cause fatigue and cracking.
- **Mild-steel frame sections along with castings** provide flexibility, durability and excellent resistance to impact loads.
- **Durability designed and built into the structures** provides extended service life and allows for multiple rebuilds.

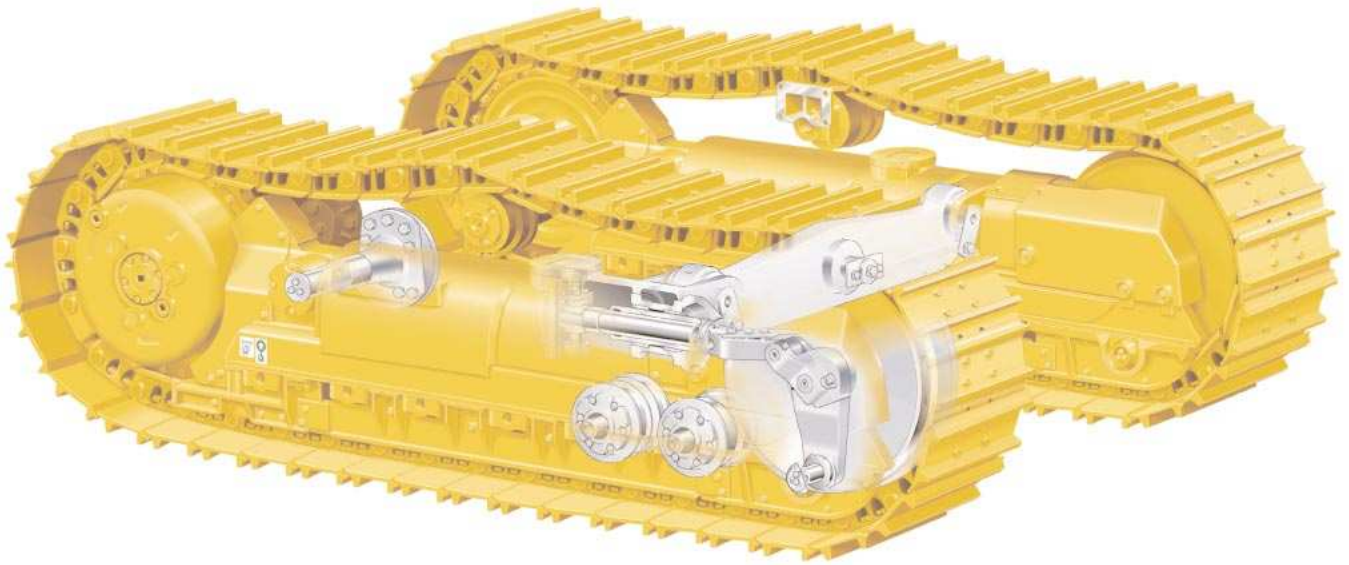
1 Z-bar linkage. Breakout force is exceptionally high due to the mechanical advantage of Z-Bar linkage design with hydraulic pressure applied to the head end of the tilt cylinder.

- **Dump speed is faster** because dump oil flows into tilt cylinder rod end.
- **Straddle mounting** supports all lift arm pivot points on both ends of the pin, eliminating twisting forces and enhancing structural durability.
- **Sealed loader linkages**, including low maintenance oil-lubricated lower bucket pins, substantially reduce maintenance time and lubrication requirements.
- **Linkage simplicity** reduces the number of parts and service points.



Oscillating Undercarriage

Keeps more track on the ground for maximum traction and stability. Several shoe options provide best match to job conditions.



Oscillating Undercarriage allows movement of each track independent of main frame.

- **Reduces frame impact** and improves traction over a rigid undercarriage design.
- **Increases stability** in rough terrain.

Swing link idler permits horizontal idler movement, absorbing shock loads and maintaining proper track tension, while eliminating the need for shims and wear strips.

Tracks are sealed and lubricated to keep abrasives out and virtually eliminate pin and internal bushing wear to keep maintenance costs down. These tracks also reduce component friction for less track noise and greater power train efficiency.

Bolt-on sprocket rim segments allow replacement of worn sprocket teeth without opening the track chain. Through-hardened steel forging provides extended service life.

Two-piece split master link allows easy track chain removal and installation.

Caterpillar brand undercarriage components are well-matched to each other and the machine for superior life and cost-effective operation.

Shoe options:

- 1 **Double grouser shoes**, standard, are designed for good traction, easy turns, and reduced bending.
 - 2 **Trapezoidal center hole shoes** let the sprocket push out dirt and debris, reducing packing between the shoe and the bushing.
 - 3 **Single grouser shoes** increase penetration and traction in lower impact and lower abrasion conditions.
 - 4 **Chopper shoes** are single grouser shoes with additional diagonal side grousers for increased chopping ability. Recommended for landfills, transfer stations and demolition applications.
- **Extreme service shoes** are available which have more hardened wear material for longer wear life and higher impact applications.
 - **Wider shoes** are also available to reduce ground pressure in soft underfoot conditions.

Other shoe options are available. Consult a Caterpillar Dealer for more information.

① Double Grouser Shoes



② Trapezoidal Center Hole Shoes



③ Single Grouser Shoes



④ Chopper Shoes



Work Tools

A variety of attachments and Ground Engaging Tools (GET) are available to maximize performance in any application.



1 General Purpose (GP) bucket is designed for excellent loadability and long life in applications such as hard bank excavating, stripping, and stock pile loading.

- High-strength, low-alloy steel for resistance to dents and abrasions.
- Shell-tine reinforcements support rear of bucket for increased structural strength.

2 Multi-purpose (MP) buckets are designed for a broad range of applications, such as: loading, stripping, clearing, bulldozing, picking up debris, and fine grading.

- Bucket clamps hydraulically to grip logs or handle other tough-to-grasp materials.
- Extreme-service version available for special applications.

3 Ripper-Scarifier adds extra versatility to expand the application of the machine.

- Hinged-type, with three shanks, beam mounted with two pins pressed into each side of main frame.
- Raised and lowered with two wide-mounted cylinders.
- Six pin linkage requires no lubrication.

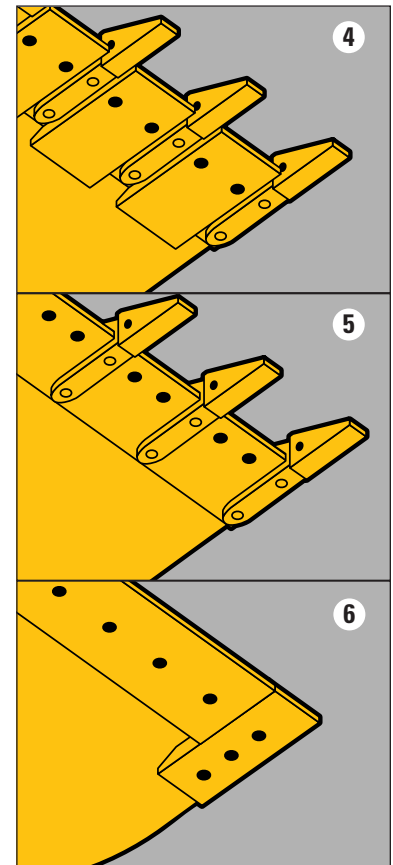
Bucket base edge protection options:

4 Bolt-on adapters, tips and bolt-on reversible edge segments provide a clean working floor and increase bucket capacity. Heavy-duty segments are available (with 62 percent more wear material than on standard segments).

5 Bolt-on, 2-strap adapters and tips, including corner adapters, offer excellent penetration.

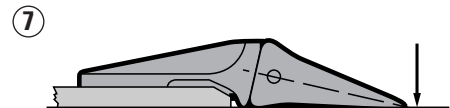
6 Bolt-on cutting edges, reversible, are ideal when penetration is not a consideration, such as in clean-up work or stockpiling applications.

7 Weld-on, top-strap adapters are also available with a GP bucket. They are flush-mounted with the bottom of the cutting edge to provide a smooth bucket bottom and unrutted work surface. These adapters can be used with any of the tip options (not with a bolt-on protection system).



Tip options:

- **Short:** extremely strong — use in high impact and pry-out work such as rock.
- **Long:** use in most general applications where breakage is not a concern.
- **Heavy-duty, long:** use in general loading and excavation work. Thirty-six percent more wear material than on standard. Provides increased strength, extended service life, and low cost-per-hour.



These and other G.E.T. options are available from Caterpillar Dealers.

Special Application Attachments

Special attachments are available or can be designed on request to allow the 963C to work in special applications.



Waste handling/demolition attachments provide added versatility and are designed to make the 963C perform well in sanitary landfills, waste handling or demolition applications where the machine spreads, compacts, sorts, shreds and crushes materials.

- **Bucket trash rack and side plates** increase bucket capacity. Increases productivity when handling low density material and protects machine linkage from debris.
- **Extensive guarding, various protections, and heavy-duty components** protect the machine from debris in the very severe conditions of waste handling or demolition.
- **Easy servicing** is targeted in every component design such as the following features:
 - Heavy-duty radiator grill can swing out for quick access to maintain radiator.
 - SY-KLONE® pre-cleaner removes large particles from incoming air and prevents them from reducing air filter life.

Shiphold attachments allow the 963C to work in the confined and harsh shiphold environment where the machine assists in the off-loading of bulk materials, such as iron ore, steel scrap, coal, minerals and grain.

- **Lifting hooks, reinforced lift-arm and a locking group** ensure well-balanced and secured lifting of the machine into shipholds.
- **Heavy-duty rear bumper** provides extra protection to the radiator and rear of the machine.
- **Horizontal muffler** is available to prevent damage during lifting.

Super Low Ground Pressure 963C is designed for work in extreme soft underfoot conditions.

- For enhanced flotation and stability, the idler is extended to the front of the machine and a track roller is added.
- Larger track shoes increase the ground contact area for reduced ground pressure.

Many other attachments are available. For other custom-designed arrangements for specific applications, consult a Caterpillar Dealer.

Complete Customer Support

Caterpillar's total commitment to customer support and simplified service is part of every Cat machine.

Reduced maintenance.

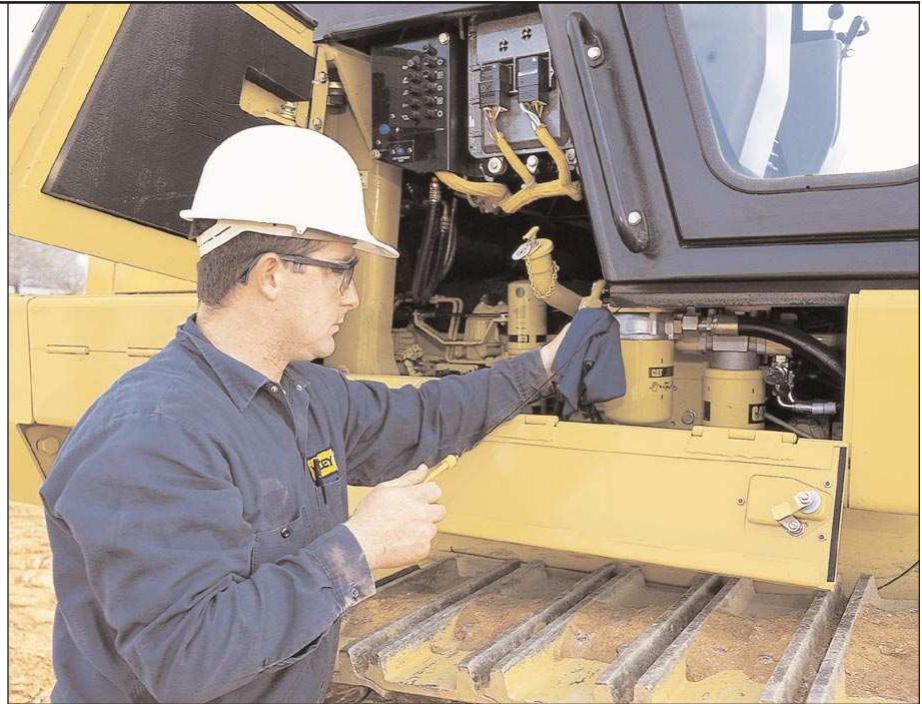
- Batteries are maintenance-free.
- Caterpillar Extended Life Coolant allows extended change intervals (6,000 hours).
- Sealed electrical connectors lock out dust and moisture.
- Cat sealed and lubricated tracks minimize pin and internal bushing wear and reduce maintenance costs.
- Caterpillar XT hydraulic hose, in medium and high pressure circuits, offers high abrasion resistance and far exceeds industry standards.
- O-Ring Face Seal (ORFS) hydraulic couplings help eliminate fluid leaks, provide positive coupling head seals and are reusable for low operating costs.
- Lower bucket pins are low-maintenance and oil-lubricated.
- S•O•S Fluids Analysis helps avoid unnecessary downtime and maintains the machine value.

Easy access to components.

- Hydraulic and fuel filters are located close to each other for easy maintenance.
- Rear engine location allows bucket-on-the-ground service checks and maintenance.
- Ground-level access to lubrication points.
- Hinged doors allow quick access to the engine, hydrostatic system along with the battery and tool boxes.

Easy diagnosis.

- The Computerized Monitoring System and self-diagnosing EHC work together to warn against both occurring and impending faults to reduce downtime.
- Rapid, easy calibration and troubleshooting of hydrostatic and electrical systems are performed through CMS and EHC systems.



- Electronic Technician (ET) software is fully compatible with the EHC and provides further diagnostic capabilities.
- Quick-disconnect hydraulic pressure taps allow quick diagnosis of the hydraulic system. More commonly used pressure taps are clustered inside the left engine door for easy access.

Easy component servicing.

- Removable cab floor-panels for easy access to internal components.
- Hydrostatic drive system with separate pumps and motors for low replacement or rebuild cost.
- Color-coded and numbered electrical wiring for easy repair.
- Split master link to easily open the track chain.
- Segmented drive sprocket for easy repair without splitting the track, as well as reduced replacement costs and less downtime.
- Caterpillar XT hydraulic hoses offer excellent flexibility for easy installation.
- Bolted grab irons are easily replaceable.

Low cost components replacement.

Economical Caterpillar Remanufactured parts are available for economical component replacement. Many Remanufactured parts are available for use in the 963C engine and hydraulic system.

Preventive maintenance programs.

Ask a Cat Dealer for help with managing machine service.

Parts availability. Most Cat parts are immediately available from any Cat Dealer. Cat Dealers rely on a worldwide computer network to find parts instantly, minimizing machine downtime.

Flexible financing. Cat Dealers can arrange affordable financing for the entire Caterpillar line. Contact a Dealer to learn how terms can be structured to match cash flows.

Engine

Four-stroke cycle, six cylinder Cat 3116 Turbocharged and Aftercooled Diesel Engine.

Ratings at 2,200 rpm*	kW	hp
Gross power	130	174
Flywheel power	119	160

The following ratings apply at 2,200 rpm when tested under the specified standard conditions for the specified standard:

Net power	kW	hp	PS
Caterpillar	119	160	—
ISO 9249	119	160	—
SAE J1349	—	158.2	—
EEC 80/1269	119	160	—
DIN 70020	—	—	162

Dimensions

Bore	105 mm	4.13"
Stroke	127 mm	5.00"
Displacement	6.6 liters	403 in ³

*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 2300 m (7,550 ft) altitude
- meets construction equipment emissions certification around the world
 - US Environmental Protection Agency (EPA) January 1997
 - European Economic Community (EEC) October 1998
 - Japan Ministry of Construction (JMOC) April 1997

Features

- direct-injection fuel system with individual adjustment-free unit injectors for each cylinder
- 3-ring, aluminum-alloy pistons with a forged steel crown, cam-ground, tapered and cooled by oil spray
- steel-backed aluminum bearings
- tapered connecting rods
- dry air cleaner with primary and secondary elements
- dual in-line fuel filters and water separator
- induction-hardened, forged crankshaft
- direct-electric 24-volt starting and charging system with 12-volt, 100 amp-hour batteries
- standard air inlet heater for starting down to -18° C (0° F)
- ether starting aid optional for starting down to -23° C (-10° F)
- standard oil cooler
- Cat premium, high-output battery (optional)

Undercarriage

Two-piece master link for easy track removal and installation. All rollers and idlers have Duo-Cone Floating Ring Seals and are Lifetime Lubricated.

	450 mm (17.7")		550 mm (21.7")	
	Shoe		Shoe	
Track rollers (each side)	6		6	
Number of shoes (each side)	37		37	
Length of track on ground	2.454 m	97"	2.454 m	97"
Ground contact area	2.21 m ²	3,425 in ²	2.70 m ²	4,184 in ²
Ground pressure*	84.4 kPa	12.24 psi	70.0 kPa	10.2 psi
Grouser height (double grouser)	35 mm	1.4"	35 mm	1.4"
Gauge	1850 mm	72.8"	1850 mm	72.8"

* Super LGP arrangement available for lower ground pressure applications.

NOTE: Ground pressure is calculated using operating weight of machine with GP bucket, teeth and segments.

Drive

Hydrostatic drive provides infinite machine speeds up to 9.68 km/h (6 mph), forward or reverse.

Features

- drive pumps: two variable-displacement, over-center, slipper-type axial piston pumps
- track motors: two variable-displacement, bi-directional, piston-slipper-type motors
- full flow filtering of hydrostatic drive system oil
- relief valve settings: 42 000 kPa/ 420 bar/6,090 psi
- charging pumps: two gear-type, mounted on the drive pumps, supply fluid to control system and drive pumps
- Electronic Hydrostatic Control (EHC) system controls each pump and motor for maximum machine performance
- Two speed modes to vary top speed electronically

Equipment Hydraulics

Open-centered, interrupted series system with full-flow filtering. System is completely sealed. Pilot-operated controls.

Hydraulic system, vane-type pump

Output at rated engine rpm and 6900 kPa (1,000 psi)	217 L/min	57.4 gpm
Relief valve setting (main)	21 000 kPa/210 bar	3,045 psi
Cylinders, double acting, bore and stroke		
Lift	140 x 837 mm	5.5 x 32.9"
Tilt	165 x 623 mm	6.5 x 24.5"

Pilot system

Output at rated engine speed and 2400 kPa/24 bar (348 psi)	12 L/min	3.2 gpm
Relief valve setting	2400 kPa/24 bar	348 psi

Hydraulic cycle time

Raise	6.7 seconds
Dump	1.5 seconds
Lower, empty, float down	2.0 seconds
Total*	8.7 seconds

Bucket controls

- lift circuit (raise, lower, hold, float): automatic kickout in raise is adjustable to desired height
- tilt circuit (tilt back, hold, dump): automatic bucket positioner is adjustable to desired digging angle

* With simultaneous raise and dump, dump time is included in raise time.

Features

- large capacity, one-section, vane-type pump, mounted on hydrostatic pump drive housing
- double-spool, spring-centered operating valves, located under loader frame crossmember for easy access
- lines are steel tubing and high pressure hose (XT-3 hose for the lift and tilt lines; XT-5 hose for the MP bucket and ripper lines) with flared fittings at connections
- system sealed to keep out wear-causing dirt
- protected by full-flow filter on return line, helping prevent foreign material from entering reservoir
- pilot-operated control valves require low operator effort while retaining delay free bucket control
- permits simultaneous lift and dump for fast truck loading and smooth grading
- O-Ring face seals

Brakes

Meets SAE standard J1026 APR90.

Service brake features

- hydrostatic, through machine drive system using speed/direction lever or center brake pedal

Secondary and parking brake features

- oil-disc brakes located between each hydraulic track motor and final drive
- each set has six steel discs splined to final drive input pinion, and seven friction discs splined to brake housing
- spring applied when speed/direction lever is in full stop position or center brake pedal is fully depressed
- hydraulically released by oil pressure from hydrostatic control system when engaged
- brake control springs automatically applied in the event of transmission hydraulic oil pressure loss

Lift Arms

Features

- solid-steel lift arms are straddle mounted to a fabricated single unit main frame with four-plate loader tower design
- integral loader tower features wide base, "A" frame profile
- straddle mounted pins are supported on both ends to eliminate twisting forces
- Caterpillar cartridge pins at the bucket lift arm joints are oil-lubricated to help eliminate routine maintenance

Final Drives

Features

- planetary gears
- isolated from machine weight and ground-induced shock loads by track roller frame pivot shafts and oscillating undercarriage
- externally mounted for easy maintenance and service

Cab

Caterpillar cab and Rollover Protective Structure (ROPS) are standard.

Features

- meets OSHA and MSHA limits for operator and sound exposure with doors and windows closed (according to ANSI/SAE J1166 MAY90)
- when equipped with sound-suppression attachment, meets the following operator and spectator dynamic dB(a) sound requirements:
 - operator: 80 per ISO 6396, 95/27/EC
 - spectator: 110 per ISO 6395, 95/27/EC
- ROPS/FOPS meet the following criteria:
 - SAE J1040 (MAY94)
 - ISO 3471 (1994)
 - European Machinery Directive 91/368/EEC
 - SAE J231 JAN81
 - ISO 3449-1992 LEVEL II
- operator's compartment features a Computerized Monitoring System (CMS) to monitor important machine systems
- the Computerized Monitoring System is self-diagnosing and easy to understand. It provides information modes to quickly localize mechanical or electrical problems

Track Roller Frames

Features

- roller frames use pinned equalizer bar and pivot shafts for limited oscillation
- equalizer bar is pinned to each roller frame and center of main frame to maintain a stable working platform
- rubber pads between equalizer bar and main frame dampen shocks
- roller frames are box-section with full-length welds

Steering

Features

- steering controlled by foot pedals
- partially depressing left or right pedal slows that track, causing machine to turn smoothly in that direction with full power to both tracks
- full pedal depression causes one track to stop, then reverse for track counter rotation, while the other track continues in the original direction
- spot turns within machine length

Ripper Specifications

Penetration (below face of shoe)	295 mm	11.6"
Ground clearance (under tip, from face of shoe)	660 mm	26.0"
Ripping width	1836 mm	72.3"
Cylinders (2):		
Bore	114 mm	4.5"
Stroke	335 mm	13.2"
Overall width/beam	1950 mm	76.8"
Addition to machine length due to ripper (in transportation position)	610 mm	24.0"

Features

- hinged-type with three-shank beam mounted with two pins pressed into each side of main frame
- raised and lowered with two wide-mounted cylinders
- six-pin linkage requires no lubrication

Service Refill Capacities

	L	Gallons
Fuel tank	315	83.2
Cooling system	50.2	13.3
Crankcase	21	5.6
Final drives (each)	15	4
Hydraulic system (equipment, power train and tank)	140	37
Hydraulic tank only	68	18
Pump drive box	3.8	1

Electrical

Features

- wiring harnesses wrapped with braided, vinyl-coated nylon shielding for maximum protection
- connectors are self-sealing, yet still provide easy service access
- 24 to 12-volt radio converter standard
- key start and stop
- color coded wires for improved serviceability

Operating Specifications

		General purpose bucket				Multi-purpose bucket		
		Bare	Bolt-on teeth & segments	Bolt-on cutting edge	Flush mounted, weld-on adapters & tips	Bare	Bolt-on teeth & segments	Bolt-on cutting edge
Rated bucket capacity † (Nominal heaped)	m ³	2.3	2.45	2.45	2.3	1.9	2.0	2.0
	yd ³	3.0	3.2	3.2	3.0	2.5	2.6	2.6
Struck capacity †	m ³	2.0	2.14	2.14	2.0	1.6	1.7	1.7
	yd ³	2.6	2.8	2.8	2.6	2.1	2.2	2.2
Bucket width*	mm	2508	2560	2525	2583	2482	2534	2523
	in	98.7	100.8	99.4	101.7	97.7	99.8	99.3
Dump clearance at full lift and 45° discharge †	mm	3145	2948	3061	3037	2967	2769	2873
	in	124	116	121	120	117	109	113
Reach at 45° discharge angle and 2133 mm (84") clearance †	mm	1771	1856	1797	1875	1579	1613	1588
	in	70	73	71	74	62	64	63
Reach at full lift and 45° discharge	mm	1152	1316	1210	1298	1032	1161	1084
	in	45	52	48	51	41	46	43
Digging depth †	mm	88	141	118	88	170	219	200
	in	3	6	5	3	7	9	8
Overall machine length	mm	6336	6625	6455	6629	6449	6713	6572
	in	249	261	254	261	254	264	259
Overall machine height with bucket at full raise	mm	5314	5314	5314	5314	5353	5353	5353
	in	209	209	209	209	211	211	211
Static tipping load	kg	13 564	13 000	13 150	13 430	12 780	12 511	12 500
	lb	29,909	28,665	28,996	29,613	28,180	27,587	27,563
Breakout force**	kN	191.7	172.6	173.4	186.7	178.6	167.6	176.5
	lb	43,133	38,844	39,020	42,002	40,185	37,706	39,713
Operating weight***	kg	18 684	19 020	18 904	18 784	19 327	19 556	19 527
	lb	41,198	41,939	41,683	41,419	42,616	43,121	43,057

* Bucket width with bolt-on cutting edge add 17 mm (.67"). For bolt-on teeth add 52 mm (2.0").

** Measured 100 mm (3.94") behind tip of cutting edge with bucket hinge pin as pivot point.

*** Includes coolant, lubricants, full fuel tank, ROPS cab, bucket and 75 kg/165 lb operator.

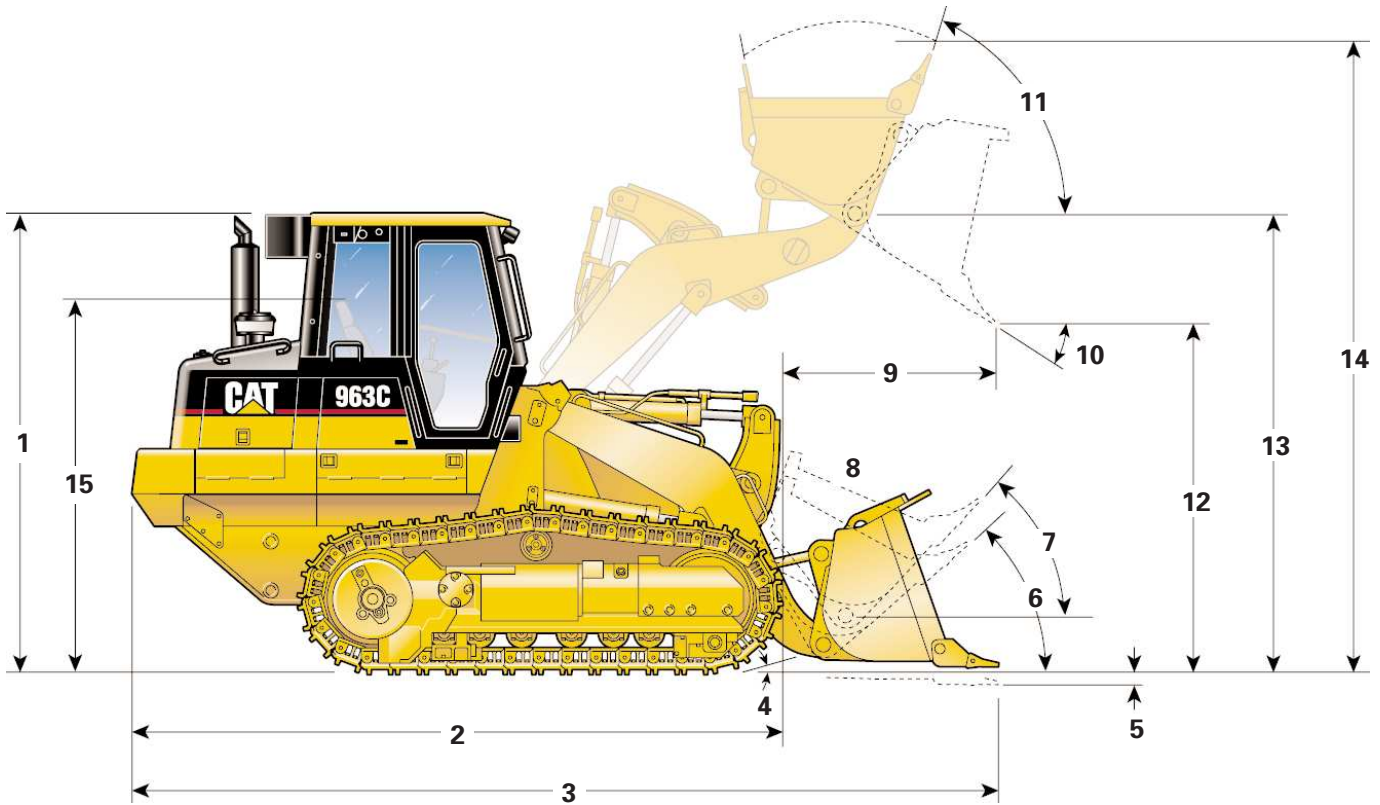
† Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers. SAE Standard J732 FEB80 and SAE Standard J742 OCT79 govern loader ratings.

	Change In Operating Weight		Change In Static Tipping Load	
ROPS canopy only (cab removed)	-221 kg	-487 lb	-260 kg	-573 lb
Ripper with 3 shanks (bumper removed)	+ 229 kg	+ 505 lb	+ 506 kg	+1,116 lb
Air conditioner	+95 kg	+209 lb	+152 kg	+ 335 lb
Wide shoes, 550 mm (21.7")	+247 kg	+545 lb	+164 kg	+ 362 lb
Rear bumper (removal)	-540 kg	-1,191 lb	-1190 kg	-2,624 lb

NOTE: Machine stability can be affected by the addition of other attachments. Add or subtract to/from machine operating weight and static tipping load.

Dimensions

All dimensions are subject to change without notice.



Overall machine width without bucket:

with standard track – 450 mm (17.7" shoes)	2300 mm (90.6")
with wide track – 550 mm (21.7" shoes)	2400 mm (94.5")
Ground clearance from face of shoe	390.5 mm (15.4")
Grading angle	68°
1 Machine height to top of cab	3323 mm (131")
2 Length to front of track	4630 mm (182.3")
3 Overall machine length	◆
4 Carry position approach angle	15°
5 Digging depth	◆
6 Maximum rollback at ground	41°
7 Maximum rollback at carry position	50°
8 Bucket in carry position	—
9 Reach at full lift height	◆
10 S.A.E. specified dump angle	45° (46° max.)
11 Maximum rollback, fully raised	59°
12 Dump clearance at full lift height and 45° discharge	◆
13 Height to bucket hinge pin	3929 mm (155")
14 Overall machine height, bucket fully raised	◆
15 Height to top of seat with headrest	2795.7 mm (110")

◆ Dimensions vary with bucket. Refer to Operation Specifications chart on page 16.

Standard Equipment

Standard and optional equipment may vary. Consult a Caterpillar Dealer for specifics.

Air inlet heater	Engine enclosure with lockable doors	Seat, fabric-covered Cat Contour Series, suspended and adjustable
Alarm, back-up	Fuel priming pump	Seat belt, retractable
Alternator (24-volt, 70-amp)	Gauge package for:	Speed mode switch
Armrests, adjustable	– fuel level	Sprocket guards
Ashtray, cigarette lighter (24V)	– engine coolant temperature	Sprocket rims, segmented
Batteries, high-output, maintenance free, 750CCA	– hydraulic (equipment/power train) oil temperature	Starting motor, 24-volt electric
Blower fan	– pump drive gear box oil temperature	Storage compartments under armrests (lockable on right armrest)
Bucket positioner, automatic	Heater/defroster with temperature control (also standard on canopy machines)	Track, Caterpillar sealed and lubricated (37 section)
Bumper, rear	Hitch, front retrieval	Track adjuster, hydraulic
Cab, sound suppressed with tinted glass, air pressurization, Rollover Protective Structure (ROPS) and Falling Objects Protective Structure (FOPS)	Horn	Track guiding guards, end section
Coat hook	Key start	Track idlers, lifetime lubricated
Computerized Monitoring System (CMS)	Lift kickout, automatic	Track rollers (6), lifetime lubricated
Controls (for equipment), single lever control, two-valve hydraulic, pilot operated	Lights (2), ROPS mounted, forward facing (halogen)	Track shoes, 450 mm (17.7"), double-bar grouser
Coolant: extended life coolant	Mirror, rearview, inside	Vandalism protection: Consists of lockable fuel tank cap with padlock, three padlocks to lock front service doors and radiator cap access door, and a ball valve to disconnect the control lever (see additional items included in canopy)
Cooler, oil equipment	Muffler	Windshield and back window washers and wipers (variable intermittent front wiper)
Crankcase guard, full	Operator panel, including: Computerized Monitoring System and hydrostatic information/ hour meter display	
Electronic Hydrostatic Control (EHC)	Pedal steering	
Engine: Caterpillar 3116TA Diesel Engine, direct injection, turbocharged and aftercooled, net 160 hp	Pre-cleaner, air intake	
Engine air filter, radial seal	Radiator guard, HD, perforated	
	Radio installation arrangement for 12-volt radio, with speakers (2)	

Optional Equipment

With approximate changes in operating weights.

	kg	lb		kg	lb
Air conditioner	95	209	Controls (for equipment hydraulic system)		
Antifreeze (for temperatures below -34° F/ -37° C down to -58° F/-50° C)	0	0	Two-lever control	0	0
Buckets:			3rd valve with or without lines for front and rear attachments	76	168
General purpose 2.45 m ³ (3.0 yd ³)	1274	2,809	Diverter valve for use when both front and rear lines are required	69	152
General purpose with weld-on flush- mounted adapters 2.3 m ³ (3.0 yd ³)	1375	3,031	Drawbar hitch	19	42
Multi-purpose 2.0 m ³ (2.5 yd ³)	1864	4,110	Guards:		
Bucket cutting edge, reversible, with end bits, sharpened, bolt-on For GP and MP buckets	208	459	Cab/canopy lights	13	28
Bucket edge segments, bolt-on For GP and MP buckets	82	180	Grill, swing-out, radiator	10	22
Standard	116	256	Idler	96	212
Heavy-duty (GP bucket only)	125	276	Lift cylinders	14	31
Bucket teeth, set of 8 bolt-on adapters and tips (J350 on GP bucket, J300 on MP bucket) Includes corner adapters			Seal protection	10	22
Long, for GP bucket	220	485	Track roller	146	322
Long, for MP bucket	148	326	Lighting system (halogen) Four lights, 2 forward, 2 rear	12	26
Short, for GP bucket	213	470	Ripper/scarifier - with three ripper shanks (bumper removed)	229	505
Short, for MP bucket	146	322	Seat, air suspended	10	22
Heavy-duty long	250	551	Sound suppression attachment (spectator)	65	143
Bucket uniteeth, bolt-on, set of 8 Includes 2 corner teeth For GP and MP buckets	148	326	Starting aids		
Bumper (removal)	-540	-1,190	Batteries, Cat premium, heavy-duty (900 CCA)	25	55
Canopy, ROPS (cab removed), includes rearview mirror, 2 forward facing lights, heater, vinyl seat and vandalism protection consisting of cab vandalism package plus instrument panel guard group with padlock	-221	-487	Engine coolant heater, 120- or 220-volt	0	0
			Ether starting aid	2	4
			Track shoes:		
			550 mm (21.7"), double bar grouser	247	545
			450 mm (17.7"), chopper shoes	524	1,155
			460 mm (18.1"), single bar grouser trapezoidal center hole, extreme service shoes	-740	-1,631
			560 mm (22"), single bar grouser	20	44
			560 mm (22"), single bar grouser, trapezoidal center hole, extreme service shoes	230	507

NOTE: Many special attachments, such as for waste handling or shiphold applications (see page 11), are available from Cat Dealers. All weights were originally measured in kilograms. Pounds were converted from kilograms and rounded off.

963C Track Loader

AEHQ5287 (04-99)
(Replaces AEHQ3842)

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Featured machines may include additional equipment only for special applications.

See your authorized Caterpillar Dealer for available options.

Materials and specifications are subject to change without notice.

