

# 963D

## Track Loader



### Engine

Engine Model	Cat® C6.6 ACERT™	
Flywheel Power	141 kW	189 hp

### Buckets

Capacity – General Purpose	2.45 m <sup>3</sup>	3.2 yd <sup>3</sup>
Capacity – Multi-Purpose	1.9 m <sup>3</sup>	2.48 yd <sup>3</sup>

### Weights

Operating Weight	20 220 kg	44,577 lb
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## 963D Track Loader

*The 963D has increased horsepower, excellent maneuverability and a redesigned operator cab for operator comfort.*

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### Engine

- ✓ The Cat® C6.6 ACERT engine utilizes the Caterpillar® Common Rail fuel delivery system. Designed for performance, durability, serviceability, and fuel economy, it meets EPA Tier 3, EU Stage IIIa and Japan Ministry of Land, Infrastructure & Transport Step 3 emission standards. **pg. 4**

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### Operator Station

- ✓ Experience a high level of efficiency, comfort and productivity with the new D-series cab. The cab features a new gauge cluster, a fully air-suspension seat, the new seat mounted controls, an automatic air climate control and provides excellent visibility. **pg. 6**

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### Monitoring System

- ✓ The 963D incorporates a new smooth, rounded gauge cluster with integral defroster vents. Together with the optional Cat® Messenger, it displays all necessary information within the operator's normal line of sight. **pg. 8**

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### SystemOne™ Undercarriage

The revolutionary Cat SystemOne Undercarriage provides maximum undercarriage life and reliability no matter the application, environment or underfoot conditions. Built to last longer and require less maintenance, it ensures a dramatic drop in owning and operating costs. **pg. 12**

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### Versatility

A large choice of buckets, Ground Engaging Tools (GET), and attachments, allow configuration of the 963D for maximum performance in any job. **pg. 14**

*Increased horsepower, excellent maneuverability, redesigned operator cab for comfort, the revolutionary SystemOne™ undercarriage and the new implement system increase your productivity, drastically reduce your operating costs and make the new 963D unsurpassed in versatility.*



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### Hydrostatic Drive

- ✓ The closed loop hydrostatic drive with electronic control provides precise modulation for quick, smooth operation and superior maneuverability. Shorter cycle times, high efficiency, and excellent maneuverability results in increased productivity. **pg. 9**

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### Implement System

- ✓ The 963D features a load sensing implement pump which reduces engine power consumption. The new electro-hydraulic implement controls lower the operator's effort. And the new position sensing cylinders allow setting kickouts at any position from the cab. **pg. 10**

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### Structure

- ✓ The D-series Main Frame and Loader Tower provide durability, resistance to twisting, and a solid base for all components. The Z-bar linkage offers high breakout force and fast dump speed for enhanced productivity. **pg. 11**

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### Serviceability and Customer Support

- ✓ The new 963D is equipped with a tiltable cab that allows complete service of the hydraulic system. Daily maintenance checks are performed from the machine's right side. **pg. 16**

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### Special Application Arrangements

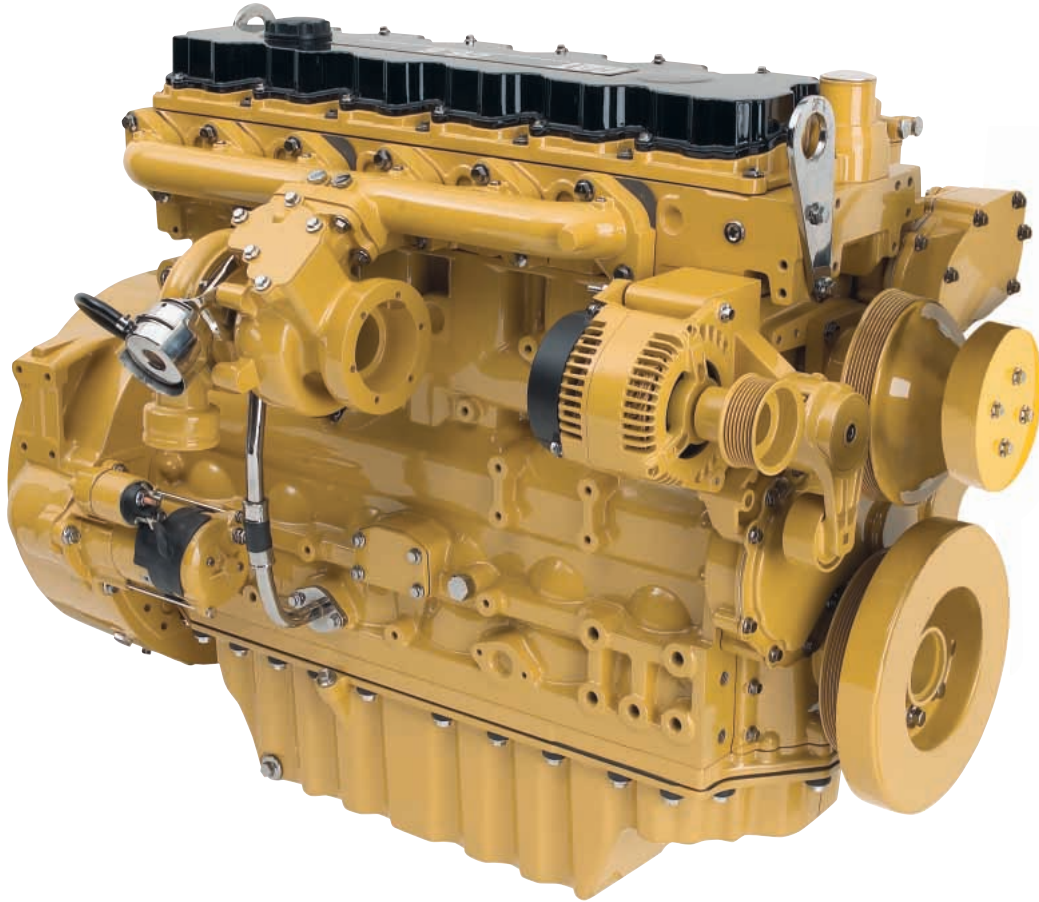
- Special arrangements – Waste Handling, Wide Gauge and more, are available or can be designed on request, to allow the 963D to work in special applications. **pg. 18**



✓ *New Feature*

## Engine

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



**Cooling module architecture.** The cooling system is a single cooling unit, which includes Radiator, ATAAC, Oil cooler and Fan installation. The cooling module is located at the rear of the loader, away from dust and debris stirred up by the bucket while the machine is working. The radiator has 6.5 fins per inch (fpi) which helps reduce plugging.

**Cat C6.6 ACERT™.** The Cat® C6.6 is a 6.6 liter (403 in<sup>3</sup>) displacement, six-cylinder, in-line configured engine that utilizes the Caterpillar® Common Rail fuel system for fuel delivery. It uses ACERT™ Technology, a series of Caterpillar engineered innovations that provide advanced electronic control, precision fuel delivery and refined air management, resulting in outstanding performance and lower emissions.

The C6.6 with ACERT Technology offers a compact design with big, heavy-duty engine features for outstanding durability, reliability and performance. The C6.6 incorporates a new cross flow cylinder head design, 4 valve head and an ADEM™ A4 electronic controller. The C6.6 also features proven cylinder block, pistons and crankshaft and incorporates the common rail fuel system. ACERT™ technology enables the C6.6 engine to meet the U.S. EPA Tier 3, European Union Stage IIIa and Japan Ministry of Land, Infrastructure & Transport Step 3 emissions standards, which dramatically reduce nitrous oxides (NOx) and other emissions.

ACERT™ technology used on the C6.6 consists of three basic building block systems: electronic control, fuel delivery, and air management. These have been refined to control the combustion process to a higher degree than ever before possible.

#### **Electronic control ADEM™ A4.**

The Advanced Diesel Engine Management – Electronic Control Module continuously monitors important engine conditions and functions. It uses sensors throughout the engine to regulate fuel delivery and all other engine systems that require input to manage load and performance. ADEM™ A4 is the brain behind engine responsiveness, self-diagnosis, controlling emissions, and fuel economy.

**Fuel System.** Through multiple injection fuel delivery, fuel is introduced in the combustion chamber in a number of precisely controlled microbursts. Injecting fuel in this way allows for precise shaping of the combustion cycle. The ADEM™ A4 module directs the injectors to deliver precise quantities of fuel at exactly the right times during the combustion cycle.

This process provides precise control over a range of combustion variables, which can be regulated to produce higher performance with fewer emissions. Fuel is delivered at high pressure to each combustion chamber through a Caterpillar designed injector linked to a Common Rail fuel system.

**Air Management.** Air management is a key concept in optimizing engine performance and controlling emissions. Engines must breathe clean cool air in order to perform. To aid this, the C6.6 uses a turbocharger fitted with a smart waste gate to give precise and reliable control of the boost pressure. A new cross-flow design in the cylinder head facilitates air movement, while tighter tolerances between the piston and cylinder liner reduce blow-by gases.

**Fuel pump.** The C6.6 uses an oil-lubricated high-pressure fuel pump to feed the common rail.

**Fuel Priming Pump.** An electrical fuel-priming pump, standard, is located between the fuel tank and the combined water separator/primary fuel filter. The triple fuel filters, water separator design, provides protection to the injection system against low-quality or contaminated fuel.



**Starting System.** The Electronic Speed Selector Switch (A), a “rocker” switch located on the right console, sets the engine rpm. The ADEM A4 engine controller will always start the engine in low idle. The engine rpm can be seen on the digital display of the instrument cluster in the gage cluster or in the performance menu in Messenger.

#### **Air-to-Air After cooler (ATAAC).**

The air-to-air after cooler is a single pass, aluminum, heat exchanger or cooling system for the pressurized air coming from the turbocharger, before it enters the engine intake manifold. Cooling the pressurized air from the turbocharger increases the density of the engine’s intake air. The increased air density in the cylinders results in more power, improved combustion, and reduced exhaust emissions.

**Serviceability.** Unit injectors can be serviced individually, without the need to service the whole fuel system.

**Engine Installation.** The engine is installed using rubber mounts to reduce the transfer of engine vibration to the frame and cab, lowering operator vibration, sound levels, and fatigue.



**Rear Engine Location.** Rear engine location allows excellent forward visibility, while serving as a working counterweight. It also helps reduce radiator plugging while providing easy service access to the engine and other major components.

**Hydraulic on-demand fan.** The fan is a hydraulic demand type with optional reversible function, and operates normally in suction mode.

The complete cooling package has been designed for a very easy maintenance with a complete accessibility to the cores for cleaning. Rear grill and fan door swings out and latches.

## Operator Station

*Designed for operator comfort, convenience, and ease of operation throughout the workday.*



**Working lights.** Eight working lights are available on the 963D. Four (2 front and 2 rear) are standard, four additional lights are optional.

**Storage spaces.** Storage spaces include space for lunch box, a beverage/ashtray holder, and a coat hook.



**Viewing Area.** Large windows use tinted glass to reduce glare and provide an excellent view to the bucket, tracks, and around the engine enclosure to the rear.

Side windows slide top down to allow the operator to let fresh air into the cab and communicate.

**Kickout settings.** Automatic kickouts are part of the electro-hydraulic controls; adjustable from inside the cab with a simple rocker switch. Kickout stops are hydraulically cushioned for greater operator comfort and less material spillage.

**Armrests.** The right hand side console features an adjustable armrest, wrist rest and joystick mount. The left side console is tiltable for improved ingress/egress and features adjustable armrest and control lever mount. Total adjustability lets the operator customize the armrests to the most comfortable position.

#### **Heating and Air Conditioning.**

Air conditioning is standard on 963D. Both the air conditioning and the heater deliver filtered, pressurized, temperature-controlled air to the operator and windows through 10 louvered vents.



#### **Caterpillar Air-suspension Seat.**

The Caterpillar air-suspension seat, with side-to-side isolator, is ergonomically designed and fully adjustable for maximum operator comfort and control. Retractable seat belt is 75 mm (3 in) wide for positive, comfortable restraint.

**Seat mounted controls.** Seat mounted controls provide less vibration for the operator and provide a combined seat and controls adjustment.

**Messenger.** Messenger is a new electronic monitoring system with real-time, visual feedback on engine and machine operating conditions. It provides information on diagnostic data, maintenance, and allows operating settings such as implement reactions.

#### **Electro-hydraulic implements controls.**

The new electro hydraulic implement controls on the 963D provide the operator with responsive, smooth and precise control of bucket and lift arms. Choice of joystick or two-lever control is available for bucket lift and dump.

**Rearview Mirror.** The rearview mirror is located above the front windshield, maximizing the operator's visibility.

**Dome Light.** A dome light is located in the cab headliner.

#### **Radio Installation Arrangement.**

A standard feature in the cab is a Radio Installation Arrangement, which includes a 24-volt to 12-volt converter and speakers.

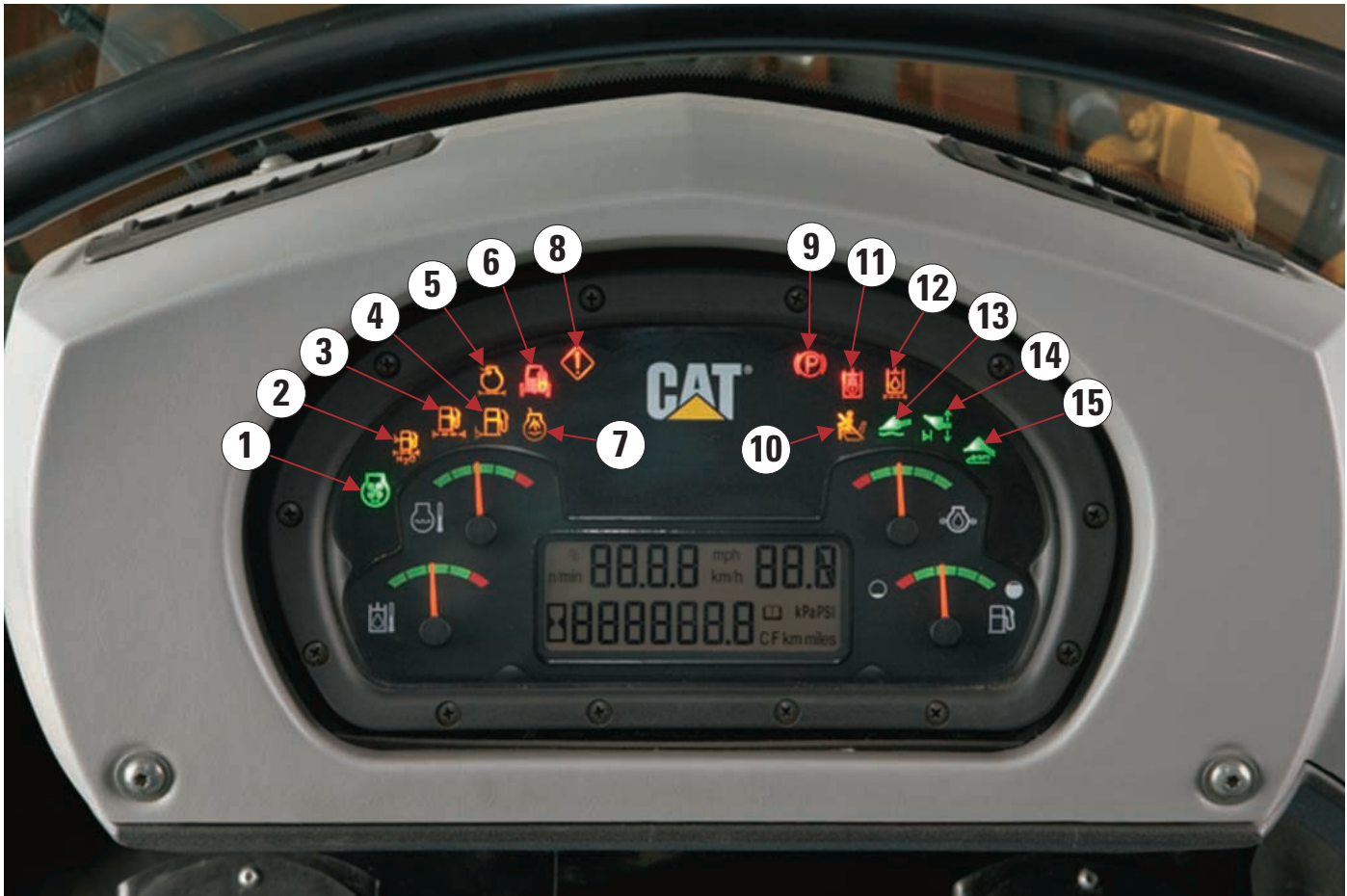
A Caterpillar heavy-duty (AM/FM) radio/CD player and satellite radios are available from dealers.

**Door release lever.** The door's release lever is accessible from the ground to unlock the door conveniently, as well as from inside the cab.

**Machine Security System.** Eliminate machine theft and unauthorized usage with the Cat Machine Security System (MSS). It is integrated into the machine's electronic system and can protect most brands of equipment by requiring a uniquely coded key to start the machine.

## Monitoring System

The gauge cluster provides all necessary functions and information within the operator's normal line of sight.



### The 963D gauge cluster display.

The gauge cluster displays all vital functions and alerts the operator to the nature of any abnormalities.

The 963D gauge cluster display includes:

- Four direct reading gauges
- Fifteen alert indicators
- A numeric message display

**Alert indicators.** The fifteen alert indicators used on the 963D are:

1. Reversible fan

2. Water separator

3. Fuel filters

4. Fuel level

5. Engine air filter

6. Machine security system

7. Either starting aid

8. Action lamp

9. Parking brake

10. Operator presence

11. Hydraulic lockout

12. Hydraulic oil filter

13. Bucket float

14. Lift kickout/lower kickout

15. Bucket leveler

**Gauge cluster-self test.** The gauge cluster self-test verifies that the main display module is operating properly every time the key start switch is turned from the "off" to the "on" position.



## Hydrostatic Drive

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

The electronically controlled hydrostatic drive system automatically matches machine travel speed to the combined travel and implement loads on the machine, enabling maximum travel speed, up to the speed selected by the operator.

### Electronic Hydrostatic Control (EHC).

Hydrostatic system has integrated electro-hydraulic controls (EHC), which provide optimum performance and efficiency.



### Variable Displacement Pumps and Drive Motors.

Variable displacement pumps and drive motors are electronically controlled by the EHC, offering high efficiency and precise travel. Each track is independently driven by a separate hydraulic circuit consisting of one pump, connected by Cat XT-6™ hydraulic hose and couplings to a piston motor.

**Fuel Management System.** This system allows the operator to select a lower RPM setting for reverse. Three selections are available in Messenger to match the engine speed in reverse to the application. Full speed is achievable in all settings.



**Travel Speeds.** Travel speeds are infinitely variable between zero and top speed. Two speed modes “work” and “travel”, provide two different speed ranges to best match machine speed and torque to the job conditions for maximum productivity. Maximum travel speed is 10 kph (6.2 mph) when the switch is set in the travel position.

### Hydrostatic Drive System Controls.

The control systems allow quick speed and directional changes. Two power train control options are available:

1. The V-lever system includes a single speed direction control lever and steering pedals that can be adjusted from 35° to 50° depending on operator preference and allow precise control of each track independently and on-demand counter rotation. An emergency brake pedal is located between the two steering pedals.
2. The joystick system features an S-lever pattern steering including a single joystick handle for speed, direction and steering functions, foot rests and an emergency brake pedal. Counter rotation is possible from moving or immobile machine. This power train control system is comparable to the drive system known from the Cat Multi Terrain and Skid Steer Loaders. A black button is located on the top to activate the horn.

**Speed Switches.** Both systems include speed mode switches.

For the V-lever system a “work mode” and “travel mode” switch allows to best match the machine speed to various job conditions. Switching between travel and work mode takes effect immediately.

The joystick includes two yellow buttons for maximum transmission speed setting. It features three machine travel speed limits, to best match application and controllability requirements. Limit increase and decrease take effect immediately.

**Steering.** Steering is accomplished by changing relative pump flows and/or motor displacements, which causes one track to rotate slower than the other track.



**Maneuverability.** The hydrostatic drive train also offers independent power and control of each track, with fast acceleration, infinitely variable speeds, and automatic, on-the-go, direction changes for each track. The operator can command smooth “power turns” or even counter-rotation of the tracks by simply pushing one of the steering pedals, if the machine is equipped with a V-lever, or moving the joystick in the right/left axis while the machine is stationary. The Caterpillar hydrostatic drive system manages itself, freeing the operator to concentrate on using the Cat track loader’s superb agility, speed, and maneuverability to do more productive work.

# Implement System

*Work smart and move more.*



### Electro-hydraulic Implement Controls.

Electro hydraulic implement controls on the 963D provide the operator with responsive, smooth and precise control of bucket and lift arms. They also allow the operator to set personal parameters through Messenger such as implement reactions.

**Load sensing hydraulics.** The 963D features a load sensing hydraulic system that automatically adjusts to operating conditions to provide only the hydraulic flow required by the implement for improved fuel efficiency.



**Automatic kickouts.** The standard programmable automatic kickouts provide flexibility and productivity for precise load and dump target heights. Tilt and lift kickouts are set by positioning the bucket or work tool and setting a rocker switch in the cab.



**Position sensing cylinder.** Position sensing cylinders allows you to:

- Set lift and tilt kickouts at any positions according to the applications without operator leaving the cab
- Advanced automatic features as feather catch (accelerate and stop smoothly) and snubbing (smooths start and stop cylinder motion)
- Sensing of the cylinder end of stroke
- Prevent unintended motion

## Structure

*Durable Slab section Frame and Loader Front End: Durable with increased space for larger components.*



### Mainframe and Loader Tower.

The 963D Main Frame and Loader Tower is a single, slab rails with reinforced cross members, with castings and forgings incorporated at points of high stress, to distribute those stresses over wider areas for long structural life.

**Design.** The part of the frame below the engine and operator's station consists of two Slab-section side-frame rails, which are joined at the rear by a box-section cross member. The Slab-section 963D frame resists twisting and impact forces to provide a solid foundation for all the components it supports. Mounting points for the final drives, pivot shafts, and platform are built into each mainframe side rail.

**Frame side plates.** The frame side plates are made of mild steel, which provides strength and resists shock and bending stresses. "Deep penetrating", "Backed up" welds are used for maximum strength.



**Loader tower.** The loader tower is integral with the basic main frame. The one slab plate continues forward to become one side of the loader tower in order to provide a smooth transition to loads from linkages to the mainframe rails. The loader tower provides a solid mount for lift arms, lift cylinders, and Z-bar tilt cylinder. A box-section cross member is welded below the two inboard loader tower plates to add strength. The equalizer bar, which connects the track roller frames to the main frame, is mounted below the loader tower. The result is an integrated main frame and loader tower assembly which will accommodate maximum load capability. The engine is at the rear, where its weight serves as a "working counterweight" to balance the machine for full bucket loads without adding inefficient "dead" weight.

**Z-Bar linkage.** Breakout force is exceptionally high due to mechanical advantage of Z-bar linkage design, and hydraulic pressure applied to the head end of the tilt cylinder. Using a single tilt cylinder and linkage provides the operator a better view of the work area, bucket, and cutting edge.

**Sealed Loader Linkage.** The 963D linkage has fewer grease points compared to other linkage designs because every pin joint is sealed to keep grease in and dirt out. Fewer grease points and sealed pins means less downtime for maintenance allowing more working hours between servicing.

**Lift Arms.** The two arms are welded into a single unit, using a weld-fabricated cross-tube. The fabricated cross-tube and tilt lever use forging at high stress points to spread the loads for long life.

The tilt link (Dog Bone) is a single forging. The 963D linkage design combines the advantages of strength and durability with minimum structural weight, so that productivity is not penalized by excess weight in the linkage.

## SystemOne™ Undercarriage

*The SystemOne undercarriage was designed exclusively for Caterpillar machines to reduce customers' operating costs, downtime and maintenance intervals.*



### **Revolutionary Undercarriage.**

SystemOne™ is the latest innovation in a century of undercarriage leadership. It was designed to reduce customers' operating costs and maintenance intervals.

The revolutionary Cat SystemOne™ Undercarriage provides maximum undercarriage life and reliability no matter the application, environment or underfoot conditions. Built to last longer and require less maintenance it ensures a dramatic drop in operating costs.

**Track Roller Frames.** The track roller frames are a welded, box section design, which provides strength and resistance to bending without adding extra weight. The track roller frames are pinned at the rear to the loader main frame with pivot shafts, which allow the front of the track roller frames to swing or oscillate about the pivot shafts at the rear.

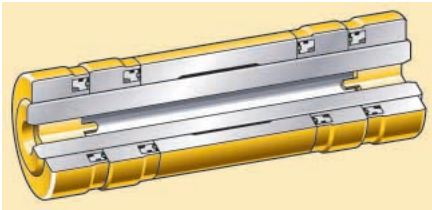
**Guiding System.** Better, more rigid guiding. The guiding system contacts link rails instead of pin ends and helps keep the track within the roller system.



**Carrier Rollers.** The 963D has seven track rollers, which spread machine weight over a large area and two upper carrier rollers on each side mounts to the machine mainframe.

The rollers and carrier rollers have been redesigned to run with the system. This will lead directly to better guiding. All rollers in this new system are single flange rollers with increased flange diameter. The increased flange diameters increase guiding capability.

**Idlers.** Idlers provide superior structural support and rebuild capabilities. Special heat treatment of the idler rim ensures proper hardness levels, which provides wear resistance. Cat's Duo-Cone® seals give lifetime lubrication, which eliminates idler maintenance and lowers operating costs.



**Cartridge Joints.** Factory-sealed cartridge joints are welded to control end play. They offer improved seal integrity through an innovative new sealing system and do not depend on the link interface to remain sealed. As with all new Cat undercarriage products, they are filled with special oils.

**Track Shoes.** The shoes for SystemOne™ are unique to this system. Several track shoe types tailor your machine for work in all underfoot conditions. The SystemOne links have a straight rather than offset bolt hole pattern.

Double grouser standard or narrow track shoes are available. The standard shoe can be fitted with center hole to reduce material packing.

**Long-life Sprockets.** The rotating bushing design of the SystemOne track greatly reduces wear on the sprocket teeth, allowing the sprockets to be used over the lives of multiple undercarriages.

**Oscillating Undercarriage.** The undercarriage on the 963D features an “oscillating track roller frame design” which decreases ground shock to the machine, increases machine stability, and provides a smoother, more comfortable ride for the operator. Oscillating track roller frames keep more of the track on the ground when operating on uneven terrain, which increases machine stability, felt by the operator, allowing faster machine operation, increased machine productivity and reduced operator fatigue.

**Track Adjuster.** The track adjuster and mechanical recoil system uses a large recoil spring and grease filled adjustment cylinder, which allows the idler to move forward and back to maintain proper track tension as it absorbs undercarriage shock loads.

**Equalizer Bar.** The equalizer bar is pinned in its center to the machine mainframe and at the ends to each track roller frame. This allows the forward ends of the track roller frames to oscillate, or move vertically, to keep more track on the ground in uneven underfoot conditions. The equalizer bar also provides a more stable work platform for the operator, who will be comfortable working at faster speeds for increased productivity.

## Versatility

*The large variety of tasks an operator can perform with the standard machine and Work Tools has lead to the Caterpillar Track Loader's reputation for versatility.*



**General Purpose Bucket.** The General Purpose (GP) bucket is designed for excellent loadability and long life in a broad range of applications such as hard bank excavating, stripping and stockpile loading. High-strength, low-alloy steel helps the bucket resist dents and abrasions. Rear edge of bucket is designed for improved efficiency when backdragging.

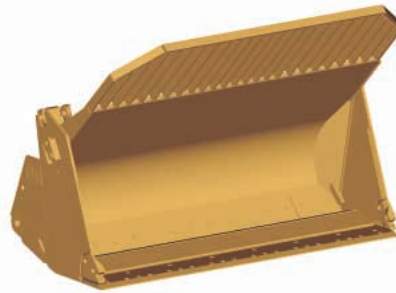
The shell-tine design in the bucket back and floor offers increased structural strength.



**Multi-Purpose Bucket.** The Multi-Purpose (MP) bucket combines the performances of a standard bucket, dozer blade and clamp. The bucket provides maximum versatility combined with strength to handle a broad range of applications, such as loading, stripping topsoil, clearing, bulldozing, picking up debris and grading.

### **General Purpose Landfill Bucket.**

With the integrated trash-rack, the General Purpose Landfill (GP Landfill) bucket becomes ideal for digging, loading and carrying as well as dozing and spreading material at landfills, or loading refuse at a transfer station.



### **Multi-Purpose Landfill Bucket.**

The Multi-Purpose Landfill (MP Landfill) bucket combines the versatility of a Multi-Purpose bucket with the performance of a landfill design. Constructed with a trash-rack for increased capacity, extra strength and better load retention. Ideal for applications in the harsh refuse market, whether digging or spreading material at the landfill or grasping and loading refuse at a transfer station.

**Bucket Protection Options.** Caterpillar offers several types of adapters, tips, and cutting edges, which increase bucket life and maximize performance.



**K Series™ Tooth System.** The K-Series tooth system provides longer tip and adapter life, faster cycle time with greater bucket fills and reduced machine strain. Therefore, it contributes to the reduction of operating costs.

Easy and convenient during the installation, this new system provides a very good response to the need of reliability and durability of such components.

**Longer Tooth Life.** Tips are installed with a slight twist and secured with a one-piece retainer, providing less tip movement and nose wear.

**Stable System Geometry.** Opposing, sloped rails on the adapter provide full length stabilization with minimal movement. The tip bears directly on the end of the adapter nose to absorb thrust loads, leading to better tip retention and a longer adapter life.

### **Easy Installation and Removal.**

Opposing sloped side rails and flanks keep the tip on the nose as the retainer is being installed and removed. The one-piece vertical retainer requires low force and no special tools, allowing faster and easier removal and installation, amounting to less machine down time for tip changes.

**Sharper Digging Profile.** Lower height at the front and the back of the nose provides a sharper profile. This provides more production, less machine strain and lower cost of machine operation.

**Reversible Tips.** Each tip ear has a retainer groove with a locking recess. Tips can be run in one direction, then “flipped,” or reversed, to get the maximum use of wear material from the tip.



**Tip Options.** Caterpillar GET offers a variety of tips to better accommodate your needs in any working environment, whether that is high impact or general-purpose applications.

These and other GET options are available from your Caterpillar Dealer.

**Penetration Tips.** Penetration tips are extremely strong and are for use in high impact and pry-out work such as rock.

**General Duty Tips.** General duty tips are for use in most general applications where breakage is not a concern.

**Extra-duty, Tips.** Extra-duty long tips are for use in general loading and excavation work. They have thirty-six percent more wear material than on standard tip. Provides increased strength, extended service life, and low cost-per-hour.



**Ripper-Scarifier.** A radial ripper-scarifier is available for the 963D as an attachment. It is mounted with two pins pressed into each side of the main frame. Two cylinders raise and lower the ripper. The ripper beam has three pockets for holding ripper shanks. The linkage pins do not require lubrication.

The 963D ripper-scarifier is intended for ripping frozen ground, asphalt and easily ripped rock.

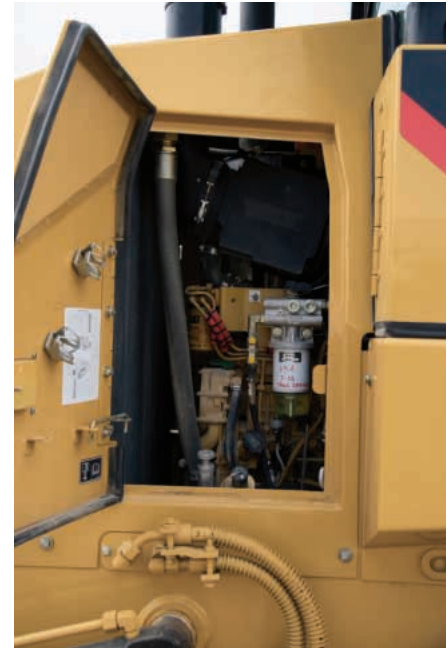
**Additional Work Tools.** Beyond the GP and MP buckets and the Ripper-scarifier your Cat dealer offers: Side-Dump Buckets, Landfill Buckets, Straight Trim Blades, Pallet Forks, Extendible Material Handling Arms, and Quick Couplers.

## Serviceability and Customer Support

*Grouped service points and excellent accessibility make the 963D easy to maintain.*



**Tiltable Cab.** The 963D is equipped with a tiltable cab. This new feature makes the maintenance and the repairs easier. By tilting the cab, you can access to the drive train and perform complete service of the hydraulic system.



### Right side compartments.

- The two maintenance-free batteries, the machine ECM and the window washer reservoir are located on the right side compartment, accessible from the ground.
- The engine compartment has large hinged openings with latches. On the door, you can clip a grease gun.

You can access to the following maintenance and service points:

Primary and secondary Engine Air filter

Engine air pre-cleaner

Water in fuel separator

Fuel filters

Engine crankcase breather filter

Engine oil filter

The Electric fuel-priming pump

The dipstick for the oil level in the engine crankcase and the fill tube.

The electrical disconnect switch.





**Fuel fill.** The fuel tank and the optional quick fill port are located on the right side compartment, below the cab access.



**Cooling System.** The fan and the grill swing open, providing excellent access for clean-out and maintenance. The heavy duty latched grill minimizes debris build-up.

**Ground Level Shutdown.** The Engine Control ECM monitors the status of a switch that is mounted behind a cover at the rear of the machine, allowing the machine to be shut down from ground level in emergency situations.

**Shovel holder.** As an optional attachment, a shovel holder, located on the rear right side of the machine, is available for undercarriage cleaning.



**Left side compartments.** The lower part of the compartment door can be used as a step to access the shunt tank fill, the air pre-cleaner (if equipped) and allows easy cleaning of the rear window.



**Cab Air Filter.** The cab air filter, the grouped pressure taps, the cab tilt locking bar, the optional cab tilt cylinder, the tool box, and the hydraulic oil filters are conveniently located below the left-side cab window.

**Hydraulic Tank.** The hydraulic tank is located in the front of the machine. It is accessible without raising the lift arms. A site gauge allows oil level check from the ground.

**Fuse Panel.** The fuse panel is located to the inside of the cab, on the rear right side console. It includes the ET port.

**Easy Diagnosis.** The gauge cluster and self-diagnosing Electronic Hydraulic Control (EHC) work together to warn against faults to reduce downtime.

**S-O-S Fluid Taps.** Simplifies drawing fluid samples for Scheduled Oil Sampling and reduces sample contamination.

**Quick-Connect Fittings.** The quick-connect hydraulic grouped pressure taps allow quick diagnosis of the hydrostatic drive and the implement hydraulic systems.

**Product Link.** This attachment allows a customer or dealer to remotely obtain machine diagnostics. Product Link provides updates on service meter hours, machine condition, machine location, and integrated mapping/route planning.

**Complete Customer Support.** Cat field service technicians have the experience and tools necessary to service your loader on site. Technical experts at the dealership and Caterpillar can provide additional assistance to field service technicians as needed. When on-site repair isn't enough, Cat dealerships are fully equipped to service your loader quickly.

**SAFETY.CAT.COM™.**

## Special Application Arrangements

*Special arrangements improve the 963D's performance in special applications.*



With the addition of certain special modifications, the capabilities of the 963D can be further expanded to handle some very harsh working conditions.

**Waste Handling/Demolition Arrangements.** Waste Handling arrangements provide added protection and are designed to make the 963D

perform well in landfills, or any waste handling or demolition applications where the machine spreads, compacts, sorts, shreds and crushes materials.

**Shiphold Arrangement.** The 963D with its low ground pressure and excellent stability works well on top of loose materials, cleaning the cargo from the sides of the holds and moving it into position for the unloading system. Lifting eyes are included so that the 963D can be lifted from the dock to the hold.

**Wide Gauge.** For underfoot conditions that require even lower ground pressure than the standard 963D undercarriage the gauge of the machine can be widened by 250 mm (9.8 inches) and the track shoe width increased to 800 mm (31.5 inches). The ground pressure is decreased to 53 kPa (7.7 psi).

**Custom Products Arrangements.** Other arrangements beyond those shown here are available. For other custom-designed arrangements for specific applications, contact your Caterpillar Dealer.

## Engine

Engine Model	Cat® C6.6 ACERT™	
Flywheel Power	141 kW	189 hp
Net Power – Caterpillar	141 kW	189 hp
Net Power – ISO 9249	141 kW	189 hp
Net Power – SAE J1349	141 kW	189 hp
Net Power – EEC 80/1269	141 kW	189 hp
Bore	105 mm	4.13 in
Stroke	127 mm	5 in
Displacement	6.6 L	403 in <sup>3</sup>

## Undercarriage

Track Shoe Type	Double Grouser	
Track Shoe Width – Standard	550 mm	21.6 in
Track Shoe Width – Optional	450 mm	17.7 in
Track Rollers – Each Side	7	
Number of Shoes – Each Side	38	
Track on Ground	2542 mm	100 in
Ground Contact Area – Standard Shoe	2.8 m <sup>2</sup>	4,340 in <sup>2</sup>
Ground Contact Area – Optional Shoe	2.3 m <sup>2</sup>	3,565 in <sup>2</sup>
Ground Pressure – Standard Shoe	70.9 kPa	10.3 psi
Ground Pressure – Optional Shoe	85.5 kPa	12.4 psi
Grouser Height – Double Grouser	42 mm	1.65 in
Track Gauge	1850 mm	72.8 in

## Drive System

Track Motor	Two, variable displacement, bent axis motors
Drive System	Hydrostatic drive with infinite machine speeds to 10.0 km/h (6.2 mph)
Drive Pump	Two, variable-displacement, slipper-type axial piston pumps
Track Motor	Two, variable-displacement, bent axis motors
Relief Valve Setting	47 500 kPa (6,890 psi)

## Service Refill Capacities

Fuel Tank	400 L	105.6 gal
Cooling System	31.5 L	8.3 gal
Crankcase (with Filter)	16.5 L	4.4 gal
Final Drives (each)	15 L	4 gal
Hydraulic Tank	90 L	23.7 gal
Pivot Shaft	1.8 L	0.5 gal

## Weights

Operating Weight	20 220 kg	44,577 lb
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## Buckets

Capacity – General Purpose	2.45 m <sup>3</sup>	3.2 yd <sup>3</sup>
Capacity – Multi-Purpose	1.9 m <sup>3</sup>	2.48 yd <sup>3</sup>
Bucket Width – General Purpose	2612 mm	102.8 in
Bucket Width – Multi-Purpose	2575 mm	101.3 in

## Ripper Specifications

Type	Radial	
Number of pockets	3	
Overall Width/Beam	1950 mm	76.7 in
Shank cross section	58.5 mm × 138 mm	50 in × 5.4 in
Ground Clearance	595 mm	23.4 in
Penetration	295 mm	11.6 in
Ripping Width	1836 mm	72.3 in
Cylinders – Bore	114.3 mm	4.49 in
Cylinders – Stroke	289 mm	11.3 in
Addition to Machine Length due to Ripper (in Transportation Position)	610 mm	24 in

## Hydraulic System – Equipment

Type	Closed center, load sensing/piston	
Output	209 L/min	55.2 gal/min
Main Relief Valve Setting	27 500 kPa	3,989 psi

## Standards

### ROPS/FOPS

### Brakes

### Cab

- ROPS (Rollover Protective Structure) offered by Caterpillar for the machine meets ROPS criteria SAE J1040 MAY94, ISO 3471:1994 DLV criteria SAE J397B, ISO 3164:1995.
- FOPS (Falling Object Protective Structure) meets SAE J/ISO 3449 APR98 Level II, ISO 3449:1992 Level II DLV criteria SAE J397B, ISO 3164:1995.
- Brakes meet SAE J/ISO 10265 MARCH99 ISO 10265:1998.
- The operator sound exposure Leq (equivalent sound pressure level) measured according to the work cycle procedures specified in ANSI/SAE J1166 OCT 98 is 80 dB(A), for cab offered by Caterpillar, when properly installed and maintained and tested with the doors and windows closed.
- The operator sound pressure level measured according to the procedures specified in ISO 6396:1992 is 76 dB(A) for the cab offered by Caterpillar, when properly installed and maintained and tested with the doors and windows closed.
- Hearing protection is recommended when operating with an open operator station and cab (when not properly maintained or doors/windows open) for extended periods or in noisy environment.
- The exterior sound pressure level for the standard machine measured at a distance of 15 meters according to the test procedures specified in SAE J88 APR 95, mid-gear-moving operation, is 80 dB(A).
- The labeled sound power level is 111 dB(A) measured according to the test procedure and conditions specified in 2000/14/EC.

## Bucket Cycle Times

Lift – Seconds	5.7
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Power Down – Seconds	3.7
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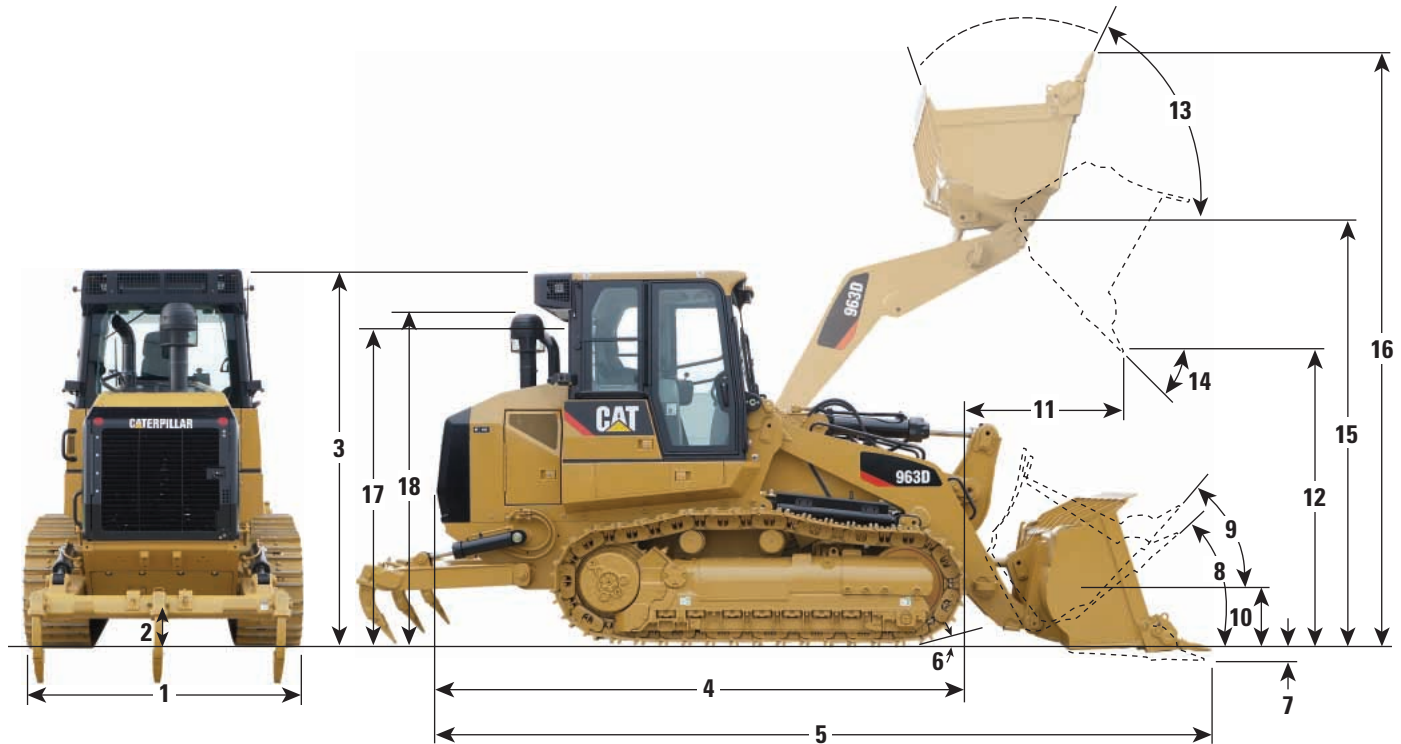
Float Down – Seconds	2.0
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Dump at Max Height from full rackback – Seconds	1.3
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Rackback at Max Height from full dump – Seconds	1.5
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## Dimensions

All dimensions are subject to change without notice.



<b>1</b>	Overall machine width without bucket: with standard tracks – 550 mm (21.6 in) shoes with narrow tracks – 450 mm (17.7 in) shoes	2280 mm (89.7 in) 2180 mm (85.8 in)
<b>2</b>	Ground clearance	471 mm (18.5 in)
<b>3</b>	Machine height to top of cab	3335 mm (131.3 in)
<b>4</b>	Length to front of track	4749 mm (187 in)
<b>5</b>	Overall machine length*	6941 mm (273.3 in)
<b>6</b>	Carry position approach angle	15°
<b>7</b>	Digging depth*	138 mm (5.4 in)
<b>8</b>	Maximum rollback at ground	43°
<b>9</b>	Maximum rollback at carry position	50°
<b>10</b>	Bucket height in carry position	457 mm (18 in)
<b>11</b>	Reach at full lift height and 45° dump*	1373 mm (54 in)
<b>12</b>	Clearance at full lift height and 45° dump*	2915 mm (114.8 in)
<b>13</b>	Maximum rollback, fully raised	52°
<b>14</b>	Maximum dump, fully raised Grading angle	53° 63°
<b>15</b>	Height to bucket hinge pin	3940 mm (155.1 in)
<b>16</b>	Overall machine height, bucket fully raised	5402 mm (212.7 in)
<b>17</b>	Height to top of seat with headrest	2790 mm (109.8 in)
<b>18</b>	Height to top of stack	2953 mm (116.3 in)

\* With general purpose bucket and extra duty teeth.

Dimensions vary with bucket. Refer to Operating Specifications chart.

# Operating Specifications

		General purpose bucket			Multi purpose bucket			Flush mounted teeth
Attachments on bucket cutting edge		None	Long teeth & segments	Bolt-on edge	None	Long teeth & segments	Bolt-on edge	Long teeth
Bucket weight	kg lb	1508 3,324.5	1866 4,113.8	1721 3,794.1	1942 4,281.3	2236 4,929.5	2155 4,750.9	1619 3,569.2
Rated load nominal heaped §	kg lb	3958 8,721.4	4214 9,290.2	4214 9,290.2	3216 7,090	3388 7,469.2	3440 7,583.8	4214 9,290.2
Rated capacity nominal heaped	m <sup>3</sup> yd <sup>3</sup>	2.3 3	2.45 3.2	2.45 3.2	1.9 2.4	2 2.6	2 2.6	2.45 3.2
Struck capacity	m <sup>3</sup> yd <sup>3</sup>	2 2.61	2.14 2.79	2.14 2.79	1.6 2.09	1.7 2.22	1.7 2.22	2 2.61
Bucket width overall * #	mm in	2508 98.7	2612 102.8	2539 99.9	2482 97.7	2575 101.3	2515 99	2583 101.6
Teeth		none	8 bolt-on with replaceable tips	none	none	8 bolt-on with replaceable tips	none	8 bolt-on with replaceable tips
<b>Dimensions and weights</b>								
Overall height	mm in	3335 131.3	3335 131.3	3335 131.3	3335 131.3	3335 131.3	3335 131.3	3335 131.3
Overall operating height *	mm in	5402 212.6	5402 212.6	5402 212.6	5308 208.9	5308 208.9	5308 208.9	5402 212.6
Clearance at 45° dump max lift *	mm in	3155 124.2	2915 114.7	3068 120.7	3000 118.1	2772 109.1	2909 114.5	2951 116.1
Reach at 45° dump max lift *	mm in	1160 45.7	1373 54.1	1215 47.8	1079 42.5	1253 49.3	1119 44	1397 55
Reach at 45° dump 2133 mm (84 in) clearance *	mm in	1784 70.2	1899 74.8	1806 71.1	1598 62.9	1650 65	1607 63.3	1940 76.4
Bottom dump clearance at 45° dump max lift	mm in	—	—	—	3450 135.8	3450 135.8	3450 135.8	—
Bottom dump reach at 45° dump max lift	mm in	—	—	—	627 24.7	627 24.7	627 24.7	—
Reach with lift arm horizontal and bucket level	mm in	2289 90.1	2604 102.5	2386 93.9	2346 92.4	2622 103.2	2447 96.4	2601 102.4
Overall length – bucket level on ground *	mm in	6584 258.2	6941 273.3	6706 264	6698 263.7	7013 276.1	6820 268.5	6907 271.9
Digging depth *	mm in	80 3.1	138 5.4	115 4.5	161 6.3	209 8.2	191 7.5	95 3.7
Full dump at max lift *	Deg	53	53	53	43	43	43	53
Carry height *	mm in	457 18	457 18	457 18	540 21.6	540 21.6	540 21.6	457 18
Rackback at carry *	Deg	50	50	50	52	52	52	50
Rackback at ground *	Deg	43	43	43	45	45	45	43
Grading angle max *	Deg	63	63	63	63	63	63	63
Static tipping load min * ***	kg lb	14 969 33,001	14 462 31,883.1	14 685 32,375	14 487 31,938.3	14 124 31,138	14 208 31,323.3	14 815 32,661.5
Breakout with tilt cylinders level at ground *	N lbf	208 658 46,908	203 868 45,831	206 184 46,352	193 265 43,447	189 538 42,609	190 769 42,886	207 438 46,634
Lift capacity to full lift – bucket racked *	kg lb	8803 19,407	8479 18,693	8609 18,979.57	8382 18,479	8152 17,972	8203 18,084.5	8703 19,186.8
Lift capacity at ground line – bucket racked *	kg lb	18 574 40,948.6	18 655 41,127	19 031 41,956	18 559 40,915.5	17 888 39,436.2	18 082 39,863.9	19 300 42,549
Shipping weight without bucket **	kg lb	18 330 40,410.7	18 330 40,410.7	18 330 40,410.7	18 385 40,532	18 385 40,532	18 385 40,532	18 330 40,410.7
Operating weight with bucket ***	kg lb	20 220 44,577.4	20 592 45,397.5	20 433 45,047	20 710 45,657.7	20 975 46,241.9	20 911 46,100.8	20 332 44,824.3

\* SAE J732 JUN92

\*\* With 10% fuel. All other fluid compartments full. No operator, no bucket pins.

\*\*\* Full fuel, 75 kg (165 lb) operator, standard machine.

# Width at cutting edge

§ Calculation based on 1602 kg/m<sup>3</sup> (2,700 lb/yd<sup>3</sup>) of loose dirt.

## Standard Equipment

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

### ELECTRICAL

Alternator, 24 volt, heavy duty brushless  
Alarm, backup  
Horn, electric  
2 heavy duty batteries, high output, maintenance free,  
1120 CCA  
Switch, main disconnect  
Starter, electric (heavy duty, 24 volt)  
Four halogen lights, two forward facing, roof mounted;  
two rearward facing, integrated in A/C unit

### OPERATOR ENVIRONMENT

Pressurized, sound suppressed, ROPS/FOPS cab  
Cab, windows, glued  
Cat Messenger  
Side sliding windows  
Air conditioning and heater/ defroster with temperature control  
Seat, fabric-covered, air suspended, adjustable, with  
side-to-side isolator  
Seat belt, retractable  
Electro Hydraulic Seat mounted control levers  
Control, joystick, bucket gp  
Electronic Monitoring System with gauges for:

- Engine coolant temperature
- Hydraulic oil temperature
- Engine oil pressure
- Fuel level

Mirror, rearview, inside  
Radio-ready. Includes 24 to 12 volt converter, speakers,  
antenna and 12 volt power outlet  
12 volt outlets (2)  
Coat hook  
Storage compartments under left armrest  
Document holder on right console  
Floor mat, rubber, heavy duty  
Windshield washers and wipers, front and rear  
Durable metal roof  
Parking brake switch and “brake-on” indicator light

### POWER TRAIN

Caterpillar C6.6 ACERT engine diesel engine, turbo  
charged with ATAAC  
Modular cooling system for engine air intake, oil and water  
Fan radiator, electronically controlled, hydraulically driven,  
temperature sensing, on demand  
Electro Hydrostatic Control (EHC) for transmission with  
travel and work modes  
Fuel priming pump, electric  
Water separator  
Air inlet  
Air cleaner dry-type, axial seal with integral pre-cleaner  
and dust ejection system, electronic filter condition indicator  
Muffler, under hood  
Starting aid ether injection  
Caterpillar extended life coolant  
Fuel, tank

### UNDERCARRIAGE

Caterpillar SystemOne track (38 sec.) 1850 mm (72.8 in)  
track gauge  
Final drive, standard  
Track, 550 mm (21.6 in), double grouser  
Track adjuster, hydraulic  
Sprocket rims, with replaceable bolt-on segments  
7 single flange track rollers per side, with two upper carrier  
rollers, lifetime lubricated  
Conventional idlers, lifetime lubricated  
Idler, scrapper  
Oscillating track roller frames

### HYDRAULIC

Oil change, standard  
Hydraulic oil  
Hydraulic, 2 way valve

### GUARDS

Guard, front  
Guard, rear  
Guards, full bottom

### OTHER STANDARD EQUIPMENT

Cab, tilt, locking bar  
Sound Suppression, Exterior  
Z-bar loader linkage  
Caterpillar Product Link 321 (for selected territories)  
Load sensing variable displacement implement pump  
Implement cylinders with integrated positioning sensors  
Operator programmable lift and tilt kickouts  
Engine enclosure with lockable doors  
Radiator core 6.5 fpi, debris resistant  
Hinged Radiator Guard and swing out fan  
Ecology grains on hydraulic tank  
Product Link ready  
Oil sampling valves  
Hydraulic hoses, Caterpillar® XT  
Hydraulic Oil, HYDO Advanced 10

### WARNING DECALS

Warning decals, ANSI, for NACD  
Warning decals, ISO

### SERVICE INSTRUCTIONS

English Instructions included in North America and  
Canada only

## Optional Equipment

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

### ELECTRICAL

- Beacon, rotating
- Lights, four, extra

### IMPLEMENT CONTROLS

- Control, joystick, GP bucket
- Control, joystick, MP bucket
- Control, two levers, GP bucket

### OPERATOR ENVIRONMENT

- Cat<sup>®</sup> Messenger
- Seat, air suspended, heated
- Cab windows, front sealed

### POWER TRAIN

- Fan, demand, reversing
- Tank fuel, fast fill
- Air inlet, pre-cleaner, turbine
- Oil change, high speed

### UNDERCARRIAGE

- Track, 450 mm (17.7"), DG, narrow
- Track, 550 mm (21.6"), DG, center hole
- Track, 450 mm (17.7"), DG, center hole
- Track, 560 mm (22"), SG, extreme service
- Track, 450 mm (17.7"), center hole, SG, extreme service
- Track, 800 mm (31.5"), DG, wide gauge
- Track, 560 mm (22"), center hole, SG, extreme service
- Idler, with seal protection

### GUARDS

- Guard, idler
- Guard, track roller
- Guard, cab lights
- Guard, lift lines
- Screen, windshield

### HYDRAULIC

- Hydraulic oil, bio
- Hydraulic, MP bucket, lines front
- Hydraulic, ripper, lines rear
- Hydraulic, MP bucket and ripper, lines front and rear

### BUCKET

- General purpose
- General purpose, flush mounted adapter
- General purpose, landfill
- Multi purpose
- Multi purpose, extreme service
- Multi purpose, landfill
- Refuse

### BUCKET ATTACHMENTS

- Cutting edge, bolt-on
- Segments, bolt-on
- Edge, segments, bolt-on
- Edge, segments, heavy duty
- Teeth, general duty, K80
- Teeth, penetration, K80
- Teeth, extra duty, K80
- Teeth, general duty, K90
- Teeth, extra duty, K90
- Tips, general duty, flush adapter

### OTHER ATTACHMENTS

- Cab tilt jack, hydraulic
- Shovel holder
- Bumper
- Ripper, multi-shank
- Hitch, drawbar
- Hitch, standard
- Striker bars, rear
- Sediment pump, fuel tank
- Heater, engine coolant, 120V
- Heater, engine coolant, 240V
- Counterweight, light
- Counterweight additional
- Antifreeze, -50° C (-58° F)

### GUARDS

- Guard front heavy duty
- Lines GP-brake – M
- Lines GP-Brake – Wide Gauge



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# Notes



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## Notes

# 963D Track Loader

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See your Caterpillar dealer for available options.

AEHQ5827-02 (9-08)

Replaces AEHQ5827-01

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