

# 312D GC Series 2

Hydraulic Excavator



## Engine

Engine Model	3054C
Engine Power (ISO 14396)	59 kW (79 hp)
Net Power (SAE J1349/ISO 9249)	56 kW (75 hp)

## Weights

Operating Weight – Standard Undercarriage	12 500 kg
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312D GC Series 2 Features

Engine and Hydraulics

*The Cat® 312D GC Series 2 delivers excellent performance and lower operating costs. Unmatched versatility, improved controllability, easy operation and a comfortable operator station help to make the 312D GC Series 2 an industry-leading performer.*

Structures

*Caterpillar design and manufacturing techniques assure outstanding durability and service life.*

Operator Station

*The spacious cab features excellent visibility and easy-to-access switches. The monitor features a full-color graphical display that is user intuitive and highly visual with built-in pre-start machine checks. Overall, the new cab provides a comfortable working environment for efficient day-long operation.*

Service and Maintenance

*This machine has been designed so that routine service and maintenance can be completed quickly and easily to help reduce ownership costs. Convenient access points with extended intervals and advanced filtration keep downtime to a minimum.*

Complete Customer Support

*Your Cat dealer offers a wide range of services that can be set up under a customer support agreement when you purchase your equipment.*

Cat 312D GC Series 2 Total Solutions

*Caterpillar and its extensive dealer network offer a wide variety of solutions designed to meet the unique needs of your business.*

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Good machine performance combined with low owning and operating costs make the Cat 312D GC Series 2 hydraulic excavator the preferred machine of choice for utility contractors. Unmatched versatility, improved controllability, easy operation, and a comfortable, redesigned operator station help make the 312D GC Series 2 an industry-leading performer.



# Operator Station

Enhanced comfort, operation and visibility.

## Operator Station

The ergonomically designed operator station is spacious, quiet, and comfortable, assuring high productivity during a long work day. All switches are located on the right-hand console for convenient access.

## Monitor

The monitor is a full-color Liquid Crystal Display (LCD) that can be adjusted to minimize sun glare and has the capability of displaying information in Chinese and 26 other languages.

## Joystick Control

Low-effort pilot-operated joystick controls are designed to match the operator's natural wrist and arm position for maximum comfort and minimum fatigue.

## Seat

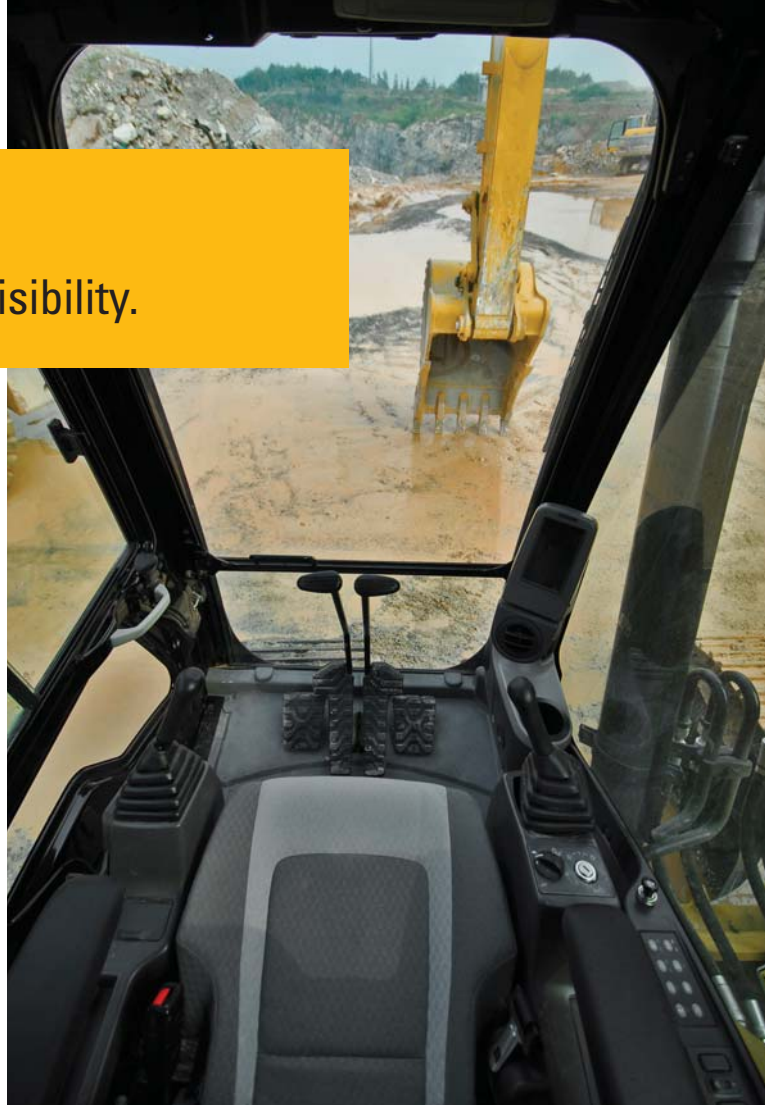
The standard suspension seat provides a variety of adjustments to suit the operator's size and weight including fore/aft height and weight. Wide adjustable armrests and a seat belt are also included.

## Console

The consoles feature a simple functional design to reduce operator fatigue, ease of switch operation, and excellent visibility. Both consoles have attached armrests with tilting adjustments.

## Cab Exterior

The cab shell features thick steel tubing along the bottom perimeter of the cab, improving resistance to fatigue and vibration.



## Cab Mounts

The cab shell is attached to the frame with viscous rubber cab mounts, which dampen vibrations and sound levels while enhancing operator comfort.

## Windows

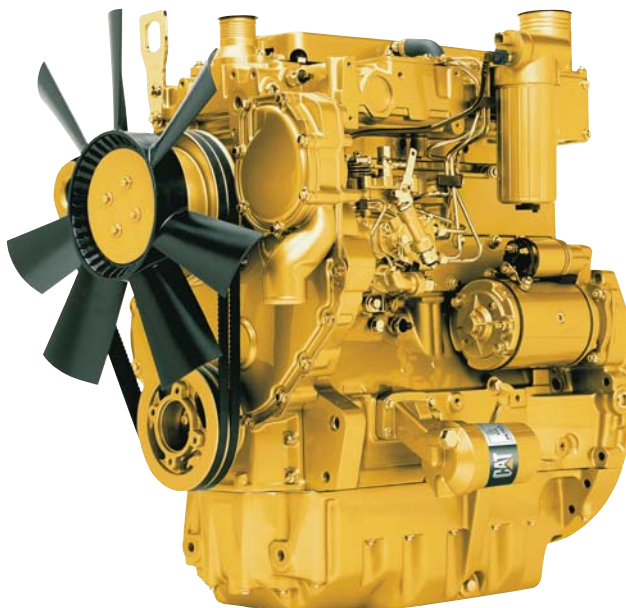
To maximize visibility, all glass is affixed directly to the cab, eliminating window frames. The upper front windshield opens, closes, and stores on the roof above the operator with a one-touch action release system.

## Wipers

Pillar-mounted wipers increase the operator's viewing area and offer continuous and intermittent modes.

# Engine

The Cat 3054C engine optimizes performance and meets emission standards.



The Cat 3054C engine has been designed to meet U.S. EPA Tier 2, EU Stage II, and China Nonroad II equivalent emission standards. This engine incorporates a time-proven mechanical governor and a low-pressure fuel injection system that are major contributors to the improvement of fuel system robustness, high fuel efficiency, and ease of troubleshooting. High filtration performance from the primary filter incorporating a water separator and a secondary filter also help to improve fuel filtration system reliability.

## **Automatic Engine Control and Fuel Delivery**

With a net power of 56 kW (75 hp) the 312D GC Series 2 has been designed with fuel economy in mind and burns approximately 14% less fuel when compared with the previous model depending on application.



# Hydraulics

Low effort and precise control for highly efficient performance.

## Outstanding Performance

The 312D GC Series 2 hydraulic system is designed for high efficiency and performance. Auxiliary hydraulic and electrical lines are routed to the boom foot making installation of hydraulic circuits much easier. This compact design utilizes short tubes and lines to reduce friction and pressure drops, resulting in a more efficient use of power.

- Hydraulic snubbers at the rod end of the boom cylinders and both ends of the stick cylinders cushion shock, reduce sound, and increase cylinder life.
- Flow is reduced to a minimum when controls are in neutral to reduce fuel consumption and extend component life.
- A hydraulic cross-sensing system uses two hydraulic pumps up under all operating conditions, improving productivity with faster implement speeds and quicker, stronger pivot turns.

## Boom and Stick Regeneration Circuit

The boom and stick regeneration circuit saves energy during boom-down and stick-in operation, increasing efficiency and lowering operating costs.

## Easy Operation

Work mode and power mode switches have been eliminated making full power available at all times. Operators do not need to learn different modes. An automatic boom and swing priority function automatically selects the best mode based on joystick movement.



# Undercarriage and Structures

Strong, stable and easy to maneuver.

Caterpillar uses advanced engineering and software to analyze all structures, creating a durable, reliable machine for robust applications. More than 70 percent of the structural welds are robotic and achieve additional penetration over manual welds. These structural components and undercarriage are the backbone of the machine's durability.

## Carbody Design

X-shaped, box-section carbody provides excellent resistance to torsional bending. Robot-welded track roller frames are press-formed, pentagonal units that deliver exceptional strength and service life.

## Grease Lubricated Track

Grease lubricated track seals protect the track link and deliver long track link pin and bushing inner wear.

## Travel Motors

Travel motors with automatic speed selection let the 312D GC Series 2 automatically change up and down from high and low speeds in a smooth, controlled manner.



## Front Linkage

Reliable, durable and versatile.

Cat booms and sticks are welded, box-section structures with thick multi-plate high-strength steel fabrications. Service intervals are extended with self-lubricating bearings that resist corrosion and galling for superior durability.

### Stick

A 2.5 m reach stick has new forged parts, and welded joints for increased durability, digging force, and lifting capability.

### Boom

A 4.65 m reach boom features parts made from a new forging pattern. A light attached to the left side offers improved visibility in dark and low-light conditions.





## Versatility

More options for more work.

Cat Buckets and Cat Ground Engaging Tools (GET) are designed and matched to the machine ensuring optimal performance and fuel consumption. They are built to Caterpillar specifications guaranteeing quality and durability, whatever the application.

### Utility Buckets

For digging in low-impact, low abrasive material such as dirt, loam and clay.

- Shallow profile is easier to empty sticky materials.
- Lightest structures decrease load time and increase the weight that can be lifted.
- Pre-drilled sidebars for optional sidecutters.





# Service and Maintenance

Simplified service and maintenance features save you time and money.



## Ground Level Service

The design and layout of the 312D GC Series 2 was made with the service technician in mind. Most service locations are easily accessible at ground level allowing service and maintenance to get completed quickly and efficiently.

## Pump Compartment

A service door on the right side of the upper structure allows ground-level access to the pump, pilot filter, drain filter, and the engine oil filter.

## Radiator Compartment

The left service door allows easy access to the engine radiator, oil cooler, air-to-air-aftercooler, water separator and first and second fuel filter. A reserve tank and drain cock are attached to the radiator for simplified maintenance.

The air filter features a double-element construction for superior cleaning efficiency. When the air cleaner plugs, a warning is displayed on the monitor screen inside the cab.

## Hydraulic Filter

The hydraulic return filter is an in-tank design with a service life of 2,000 hours. A sensor indicates through the in-cab monitor when the filter is plugged and needs to be replaced.

## Greasing Points

A concentrated remote greasing block on the boom delivers grease to hard-to-reach locations on the front.

## Fan Guard

The engine radiator fan is 180 degree enclosed by fine wire mesh, reducing the risk of an accident.

## Anti-Skid Plate

Anti-skid plate covers top of storage box and upper structure to prevent slipping during maintenance.

## Diagnostics and Monitoring

The 312D GC Series 2 is equipped with S-O-S<sup>SM</sup> sampling ports and hydraulic test ports for the hydraulic system, engine oil, and for coolant. A test connection for the Caterpillar Electronic Technician (Cat ET) service tool is located behind the cab.

## Extended Service Interval

312D GC Series 2 service and maintenance intervals are long which results in reduced service time and increased machine availability.



# Complete Customer Support

Cat dealer services help you operate longer with lower costs.

## Product Support

You will find nearly all parts at our dealer parts counter. Cat dealers utilize a worldwide computer network to find in-stock parts to minimize machine downtime. Save money with remanufactured components.

## Machine Selection

Make detailed comparisons of the machines you are considering before you buy. What are the job requirements, machine attachments and operating hours? What production is needed? Your Cat dealer can provide recommendations.

## Maintenance Services

Repair option programs guarantee the cost of repairs up front. Condition monitoring services and diagnostic programs such as scheduled oil sampling, coolant sampling, and technical analysis help you avoid unscheduled repairs.

## Customer Support Agreements

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

## Replacement

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



# 312D GC Series 2 Hydraulic Excavator Specifications

## Engine

Engine Model	3054C
Engine Power – ISO 14396	59 kW (79 hp)
Net Power – SAE J1349/ISO 9249	56 kW (75 hp)
Bore	105 mm
Stroke	127 mm
Displacement	4.4 L

- Net power advertised is the power available at the flywheel when the engine is equipped with fan, air cleaner, muffler and alternator.
- No engine derating required below 2300 m altitude.
- The 312D GC Series 2 meets emission regulation of Tier 2, Stage II, and China Nonroad II equivalent emission standards.
- 312D GC Series 2 meets Stage I of sound regulation.

## Weights

Operating Weight – Standard Undercarriage 12 500 kg

- Standard undercarriage: 500 mm shoes, 4.65 m reach boom, R2.5 stick, UD 0.53 m<sup>3</sup> bucket.

## Swing Mechanism

Swing Speed	11.2 rpm
Swing Torque	30.9 kN·m

## Drive

Maximum Travel Speed	5.1 km/h
Maximum Drawbar Pull	114 kN

## Hydraulic System

Main System – Maximum Flow (Total)	232 L/min
Maximum Pressure – Equipment	30 500 kPa
Maximum Pressure – Travel	35 000 kPa
Maximum Pressure – Swing	23 000 kPa
Pilot System – Maximum Flow	21.9 L/min
Pilot System – Maximum Pressure	4120 kPa
Boom Cylinder – Bore	110 mm
Boom Cylinder – Stroke	1015 mm
Stick Cylinder – Bore	120 mm
Stick Cylinder – Stroke	1197 mm
Bucket Cylinder – Bore	100 mm
Bucket Cylinder – Stroke	939 mm

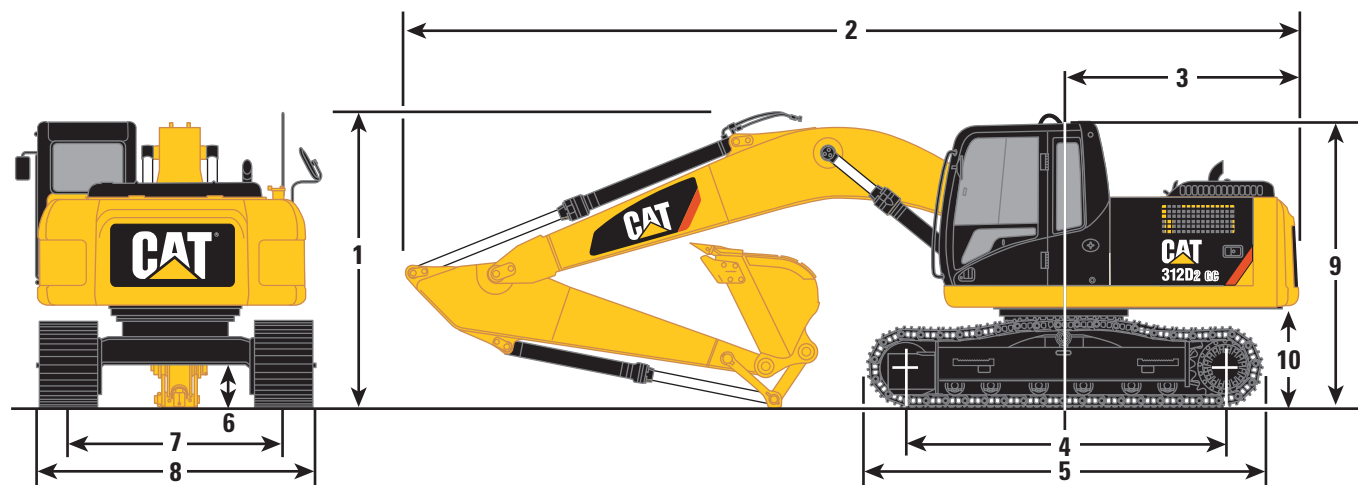
## Service Refill Capacities

Fuel Tank Capacity	250 L
Cooling System	18 L
Engine Oil (with filter)	16 L
Swing Drive	3 L
Final Drive (each)	3 L
Hydraulic System (including tank)	104 L
Hydraulic Tank	91 L

# 312D GC Series 2 Hydraulic Excavator Specifications

## Dimensions

All dimensions are approximate.



Boom Option	Reach Boom 4.65 m
Stick Option	R2.5
1 Shipping Height*	2830 mm
Shipping Height with Guard Rail	2830 mm
2 Shipping Length	
Standard Undercarriage	7610 mm
3 Tail Swing Radius	2140 mm
4 Length to Center of Rollers	
Standard Undercarriage	2780 mm
5 Track Length	
Standard Undercarriage	3490 mm
6 Ground Clearance	440 mm
7 Track Gauge	1990 mm
8 Transport Width	
500 mm Shoes	2490 mm
9 Cab Height	2760 mm
10 Counterweight Clearance**	900 mm

\*Including shoe lug height.

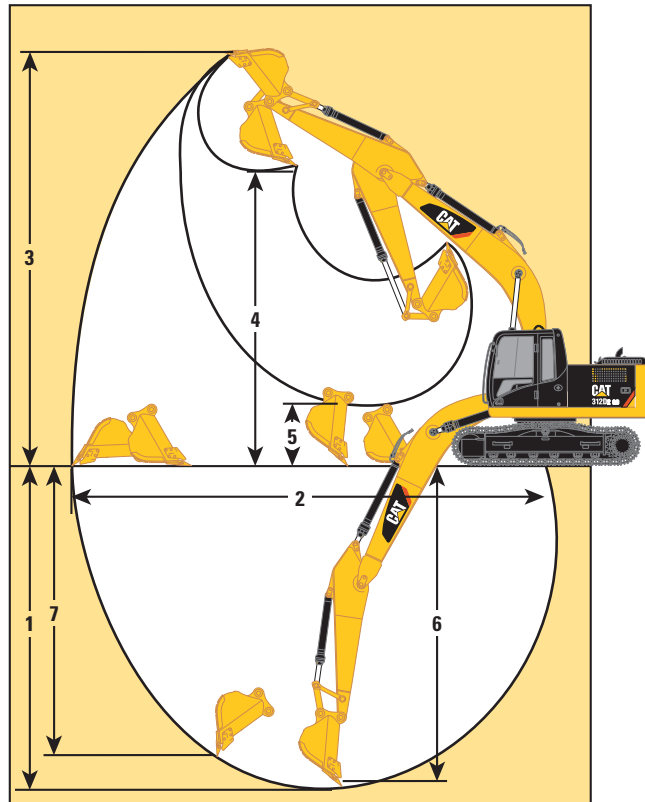
\*\*Without shoe lug height.



# 312D GC Series 2 Hydraulic Excavator Specifications

## Working Ranges

All dimensions are approximate.



Boom Option	Reach Boom 4.65 m
Stick Option	R2.5
1 Maximum Digging Depth	5540 mm
2 Maximum Reach at Ground Level	8180 mm
3 Maximum Cutting Height	8490 mm
4 Maximum Loading Height	6100 mm
5 Minimum Loading Height	2010 mm
6 Maximum Depth Cut for 2440 mm Level Bottom	5340 mm
7 Maximum Vertical Wall Digging Depth	4910 mm

Note: The measurement is applicable on the machine equipped with the UD 0.53 m<sup>3</sup> bucket.

# 312D GC Series 2 Hydraulic Excavator Specifications

## Operating Weight and Ground Pressure

Standard Undercarriage without Blade		500 mm Triple Grouser Shoes
Reach Boom – 4.65 m		
R2.5	12 500 kg	40.4 kPa

Weight is rounded up to nearest 100 kg including UD 0.53 m<sup>3</sup> bucket.

## Major Component Weights

Base Machine (with boom cylinder, without counterweight, front linkage and track)	4490 kg
Standard Undercarriage	2400 kg
GC Counterweight – 2.1 mt	2100 kg
Boom (includes lines, pins and stick cylinder)	
Reach Boom – 4.65 m	1030 kg
Stick (includes lines, pins and bucket cylinder)	
R2.5	570 kg
Track Shoe (Standard/per two tracks)	
500 mm Triple Grouser	1460 kg

All weights are rounded up to nearest 10 kg except for buckets. Kg was rounded up separately so some of the kg do not match.

Base machine includes 75 kg operator weight, 90% fuel weight, and undercarriage with center guard.



# 312D GC Series 2 Hydraulic Excavator Specifications

## Bucket and Stick Forces

<b>Boom Option</b>	<b>Reach Boom 4.65 m</b>
<b>Stick Option</b>	<b>R2.5</b>
<b>Utility Duty</b>	<b>0.53 m³</b>
Bucket Digging Force (ISO)	95 kN
Stick Digging Force (ISO)	65 kN
Bucket Digging Force (SAE)	85 kN
Stick Digging Force (SAE)	64 kN

## Bucket Specifications and Compatibility

	Width	Capacity	Weight	Fill	Reach Boom
					R2.5
<b>Without Quick Coupler</b>	mm	m³	kg	%	<b>500 mm TG</b>
Utility Duty (UD)	900	0.53	423	100	●
Maximum load pin-on (payload + bucket)				kg	1700

The above loads are in compliance with hydraulic excavator standard EN474, they do not exceed 87% of hydraulic lifting capacity or 75% of tipping capacity with front linkage fully extended at ground line with bucket curled.

Capacity based on ISO 7451.

Bucket weight with long tips.

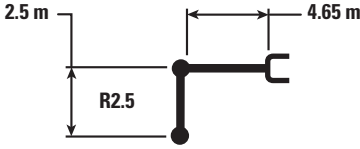
### Maximum Material Density:

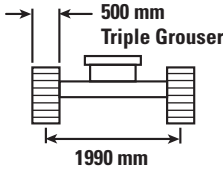
● 2100 kg/m³

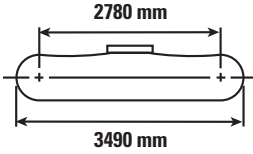
Caterpillar recommends using appropriate work tools to maximize the value customers receive from our products. Use of work tools, including buckets, which are outside of Caterpillar's recommendations or specifications for weight, dimensions, flows, pressures, etc. may result in less-than-optimal performance, including but not limited to reductions in production, stability, reliability, and component durability. Improper use of a work tool resulting in sweeping, prying, twisting and/or catching of heavy loads will reduce the life of the boom and stick.

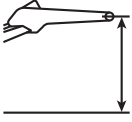











# 312D GC Series 2 Hydraulic Excavator Specifications

## Reach Boom Lift Capacities – Counterweight: 2.1 mt – without Bucket







		1.5 m		3.0 m		4.5 m		6.0 m				
												m
6.0 m	kg					*3350	*3350			*2450	*2450	5.37
4.5 m	kg					*3550	3550	3100	2250	*2250	2000	6.37
3.0 m	kg			*5850	*5850	*4350	3350	3000	2150	*2250	1750	6.90
1.5 m	kg			*8450	5600	4500	3100	2900	2050	2250	1600	7.08
0 m	kg			*6900	5300	4300	2950	2850	2000	2300	1650	6.93
-1.5 m	kg	*4850	*4850	8300	5250	4200	2900	2800	1950	2550	1800	6.42
-3.0 m	kg	*8750	*8750	*8100	5350	4250	2900			3250	2250	5.47



ISO 10567



\*Indicates that the load is limited by hydraulic lifting capacity rather than tipping load. The above loads are in compliance with hydraulic excavator lift capacity standard ISO 10567:2007. They do not exceed 87% of hydraulic lifting capacity or 75% of tipping load. Weight of all lifting accessories must be deducted from the above lifting capacities. Lifting capacities are based on the machine standing on a firm, uniform supporting surface. The use of a work tool attachment point to handle/lift objects, could affect the machine lift performance.

Lift capacity stays with ±5% for all available track shoes.

Always refer to the appropriate Operation and Maintenance Manual for specific product information.



## Standard Equipment

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

### ENGINE

- Diesel engine – Cat 3054C with mechanical governor
  - 2300 m altitude capability
  - 50 amp alternator, air intake heater
  - Tier 2, Stage II, and China Nonroad II equivalent emission package
- 10 micron fuel filter
- 4 micron fuel pre-filter
- One touch low idle with AEC
- Remote engine oil filter
- Radial seal air filter, double element
- Two speed travel
- Water separator in fuel line with indicator
- Waved fin radiator with side by side type oil cooler
- Fix type A/C condenser
- 43° C High ambient cooling
- Air precleaner

### CAB

- Bolt-on FOGS capability
- Openable front windshield with assist device
- Pillar mounted upper windshield wiper and washer
- Front windshield glass split by 70/30
- Cab sliding upper door window
- Rear window, emergency exit
- Removable lower windshield with in cab storage bracket
- Metal hatch
- Interior lighting
- Standard joystick
- Laminated front upper windshield
- Seat high back, mechanical suspension with head rest
- Seat belt, retractable
- Floor mat
- Bi-level air conditioner (auto) with defroster

- Windshield washer
- Coat hook
- Ashtray and lighter
- Beverage holder
- Literature holder
- Radio mounting
- Mounting for two stereo speakers
- Antenna flexible type
- Storage compartment suitable for lunch box
- Monitor
  - Language display
  - Full graphic and full color display
  - Warning information
  - Filter/fluid change information
  - Machine condition
  - Error code and tool mode setting information
  - Full time clock on monitor
- Positive filtered ventilation
- Seat integrated control joystick
- Adjustable armrest
- Adjustable console
- Neutral lever (lock out) for all controls
- Travel control pedals with removable hand levers
- Capability of installing two additional pedals

### ELECTRICAL

- Circuit breaker
- Cat battery

### COUNTERWEIGHT

- Counterweight without lifting eye (2100 kg)

### FRONT LINKAGE

- Boom, 4.65 m
- Stick, 2.5 m
- Bucket linkage

### TECHNOLOGY

- Product Link™, Cellular

### HYDRAULIC

- Hydraulic main pump
- High performance hydraulic return filter
- Regeneration control for boom and stick
- Boom lowering device for back up
- Boom drift reducing valve
- Stick drift reducing valve
- Reverse swing damping valve
- Automatic swing parking brake
- Auxiliary hydraulic valve
- Capability of stackable valves for main valve
- Capability of auxiliary circuit

### SECURITY

- Cat one key security system
- Signaling/warning horn
- Mirrors, rearview (frame – right, cab – left)
- Secondary engine shutoff switch
- Door locks
- Cap locks on fuel and hydraulic tanks
- Lockable external tool/storage box
- Openable skylight for emergency exit
- Rearview camera-ready

### LIGHTS

- Halogen boom light (left side)
- Exterior lights integrated into storage box

### UNDERCARRIAGE

- Grease lubricated track (GLT2)
- Idler section track guiding guard
- Towing eye on base frame
- Standard idler tension spring
- Guard, standard bottom
- 500 mm triple grouser shoes







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