



# Cat<sup>®</sup> R1600G

## UNDERGROUND MINING LOADER

### FEATURES:

- **One Supplier** – Caterpillar designed and manufactured major power and drive train components for reliability and performance.
- **Reliable and Durable Engine** – The Cat<sup>®</sup> 3176C EUI ATAAC diesel engine delivers the perfect balance between power, robust design and economy.
- **Power Shift Transmission** – Reliable and rugged design to deliver power and efficiency for peak power train performance.
- **Powerful Hydraulics** – Perfect balance between low effort controls and powerful forces for smooth and fast cycle time.
- **Durable Structures** – The heavy duty frame is designed and built to absorb twisting, impact and high loading forces for maximum durability and reliability.
- **Comfortable Cab** – Ergonomically designed for all-day comfort, control and productivity.
- **Aggressive Bucket Design** – Engineered for optimal loadability and life in tough mining application. Various sizes and configurations available to match material and mine conditions.
- **Enhanced Serviceability** – Designed with improved service points and grouped service locations to simplify maintenance and repair.
- **Built in Safety** – Safety is not an after thought, but an integral part of all machine and system design.

## Specifications

### Engine

Engine Model	Cat <sup>®</sup> 3176C EUI ATAAC	
Rated Power	2,100 rpm	
Gross Power – SAE J1995 (1st gear/2-4th gear)	185/200 kW	248/268 hp
Net Power – SAE J1349 (1st gear/2-4th gear)	165/180 kW	221/241 hp
Net Power – ISO 9249 (1st gear/2-4th gear)	165/180 kW	221/241 hp
Net Power – 80/1269/EEC (1st gear/2-4th gear)	165/180 kW	221/241 hp
Bore	125 mm	4.9 in
Stroke	140 mm	5.5 in
Displacement	10.3 L	629.4 in <sup>3</sup>

- Power ratings apply at a rated speed of 2,100 rpm when tested under the reference conditions for the specified standard.
- Ratings based on SAE J1995 standard air conditions of 25° C (77° F) and 100 kPa (29.61 Hg) barometer. Power based on fuel having API gravity of 35 at 16° C (60° F) and an LHV of 42 780 kJ/kg (18,390 BTU/lb) when engine used at 30° C (86° F).
- Engine derate will commence at an altitude of 3000 m (9,842.5 ft).
- Compliant with U.S. Environmental Protection Agency Tier 2 emissions standards.

### Operating Specifications

Nominal Payload Capacity	10 200 kg	22,487 lb
Gross Machine Operating Weight	40 000 kg	88,185 lb
Static Tipping Load Straight Ahead Lift Arms Horizontal	28 100 kg	61,950 lb
Static Tipping Load Full Turn Lift Arms Horizontal	23 500 kg	51,809 lb
Breakout Force (SAE)	19 280 kg	42,505 lb

### Weights

Empty	29 800 kg	65,698 lb
Front Axle	12 516 kg	27,593 lb
Rear Axle	17 284 kg	38,105 lb
Loaded	40 000 kg	88,185 lb
Front Axle	28 000 kg	61,729 lb
Rear Axle	12 000 kg	26,456 lb

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## Transmission

Forward 1	5 km/h	3.1 mph
Forward 2	8.7 km/h	5.4 mph
Forward 3	15.2 km/h	9.5 mph
Forward 4	22.1 km/h	13.7 mph
Reverse 1	5.7 km/h	3.5 mph
Reverse 2	9.9 km/h	6.2 mph
Reverse 3	17.2 km/h	10.7 mph
Reverse 4	23.8 km/h	14.8 mph

## Hydraulic Cycle Time

Raise	7.6 Seconds
Dump	1.6 Seconds
Lower, empty, float down	2 Seconds
Total Cycle Time	11.2 Seconds

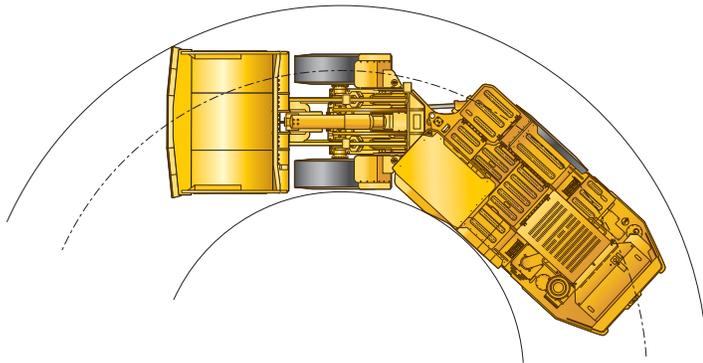
## Bucket Capacities

Dump Bucket – 1	4.8 m <sup>3</sup>	6.3 yd <sup>3</sup>
Dump Bucket – 2	4.2 m <sup>3</sup>	5.5 yd <sup>3</sup>
Dump Bucket – 3	5.6 m <sup>3</sup>	7.3 yd <sup>3</sup>
Dump Bucket – 4	5.9 m <sup>3</sup>	7.7 yd <sup>3</sup>
Ejector Bucket	4.8 m <sup>3</sup>	6.3 yd <sup>3</sup>

## Turning Dimensions

Outside Clearance Radius*	6638 mm	261.3 in
Inner Clearance Radius*	3291 mm	129.6 in
Axle Oscillation	10°	
Articulation Angle	42.5°	

\* Clearance dimensions are for reference only.



## Tires

Tire Size	18.00 × 25 – 28 PLY STMS L5S
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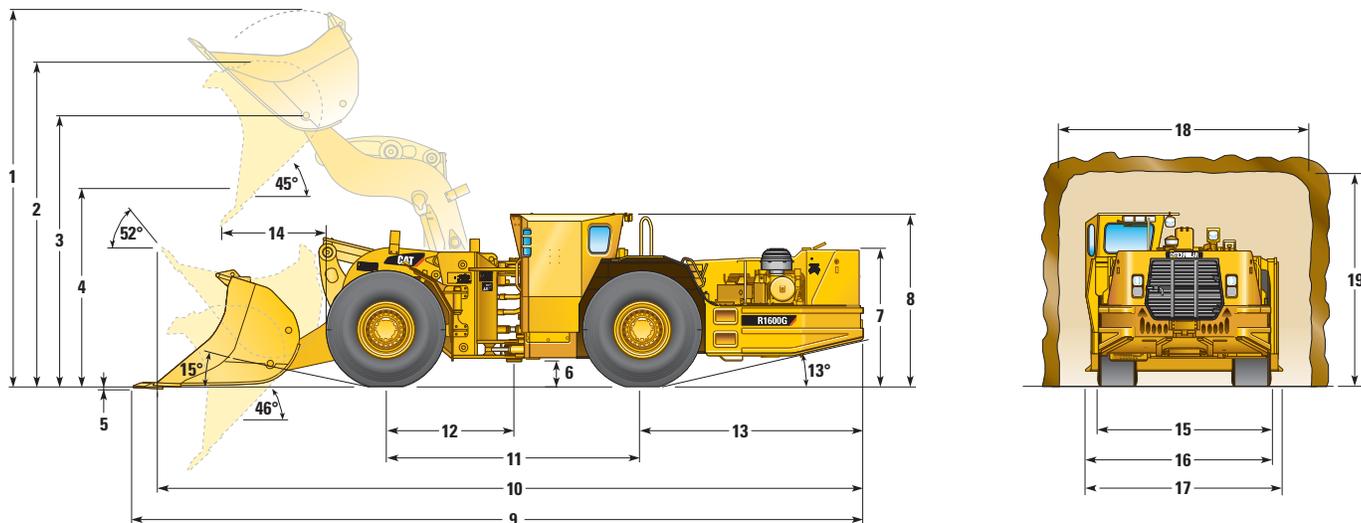
## Service Refill Capacities

Engine Crankcase with Filter	36.1 L	9.5 gal
Transmission	47 L	12.4 gal
Hydraulic Tank	125 L	33 gal
Cooling System	53 L	14 gal
Front Differential and Final Drives	70 L	18.5 gal
Rear Differential and Final Drives	70 L	18.5 gal
Front Differential and Final Drives (with Axle Oil Cooler)	80 L	21.1 gal
Rear Differential and Final Drives (with Axle Oil Cooler)	80 L	21.1 gal
Fuel Tank	400 L	105.7 gal
Secondary Fuel Tank (If Equipped)	330 L	87.2 gal

## Standards

Brakes	ISO 3450, AS2958.1, CAN-CSA424.30-M90
Cab/FOPS	BS EN ISO 3449, SAE J231, AS2294.3
Cab/ROPS	ISO 3471, SAE J1040, AS2294.2, EN13510

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## Dimensions (All dimensions are approximate.)

	227-4702		203-1792		227-4704		227-4703		229-1676	
	Dump Bucket	5.5 yd <sup>3</sup>	Dump Bucket	6.3 yd <sup>3</sup>	Dump Bucket	7.3 yd <sup>3</sup>	Dump Bucket	7.7 yd <sup>3</sup>	Ejector Bucket	6.3 yd <sup>3</sup>
	mm	in								
Bucket Capacity	4.2 m <sup>3</sup>	5.5 yd <sup>3</sup>	4.8 m <sup>3</sup>	6.3 yd <sup>3</sup>	5.6 m <sup>3</sup>	7.3 yd <sup>3</sup>	5.9 m <sup>3</sup>	7.7 yd <sup>3</sup>	4.8 m <sup>3</sup>	6.3 yd <sup>3</sup>
Bucket Width over Cutting Edge	2600	102.4	2600	102.4	2600	102.4	2900	114.2	2600	102.4
1 Height – Bucket Raised	5114	201.3	5204	204.9	5282	208.0	5242	206.4	5385	212.0
2 Height – Max Dump	4497	177.0	4497	177.0	4497	177.0	4497	177.0	4565	179.7
3 Height – Max Lift Bucket Pin	3752	147.7	3752	147.7	3752	147.7	3752	147.7	3752	147.7
4 Height – Dump Clearance at Max Lift	2311	91.0	2207	86.9	2042	80.4	2114	83.2	2120	83.5
5 Height – Digging Depth	28	1.1	39	1.5	54	2.1	45	1.8	47	1.9
6 Height – Ground Clearance	344	13.5	344	13.5	344	13.5	344	13.5	344	13.5
7 Height – Top of Hood	1895	74.6	1895	74.6	1895	74.6	1895	74.6	1895	74.6
8 Height – Top of ROPS	2400	94.5	2400	94.5	2400	94.5	2400	94.5	2400	94.5
9 Length – Overall (Digging)	9955	391.9	10 107	397.9	10 347	407.4	10 243	403.3	10 233	402.9
10 Length – Overall (Tramming)	9619	378.7	9711	382.3	9853	387.9	9790	385.4	9948	391.7
11 Length – Wheelbase	3536	139.2	3536	139.2	3536	139.2	3536	139.2	3536	139.2
12 Length – Front Axle to Hitch	1768	69.6	1768	69.6	1768	69.6	1768	69.6	1768	69.6
13 Length – Rear Axle to Bumper	3055	120.3	3055	120.3	3055	120.3	3055	120.3	3055	120.3
14 Length – Reach	1304	51.3	1408	55.4	1573	61.9	1504	59.2	1495	58.9
15 Width – Overall Tire	2400	94.5	2400	94.5	2400	94.5	2400	94.5	2400	94.5
16 Width – Machine with Bucket	2723	107.2	2723	107.2	2723	107.2	3018	118.8	2723	107.2
17 Width – Machine without Bucket	2564	100.9	2564	100.9	2564	100.9	2564	100.9	2564	100.9
18 Recommended Clearance Width	3500	137.8	3500	137.8	3500	137.8	3500	137.8	3500	137.8
19 Recommended Clearance Height	3000	118.1	3000	118.1	3000	118.1	3000	118.1	3000	118.1

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## STANDARD EQUIPMENT

### ELECTRICAL

- Alternator, 95-amp
- Battery Disconnect Switch, Ground Level
- Circuit Breaker, 80-amp
- Corrosive Protection Spray
- Diagnostic Connector
- Electric Starting, 24-volt
- Engine Shutdown Switch
- External Lighting System, Front, Rear
- Low Maintenance Batteries
- Reversing Alarm
- Starting and Charging System

### OPERATOR ENVIRONMENT

- Cat Electronic Monitoring System (Cat EMS)
- Electric Horns
- Gauges
  - Engine Coolant Temperature
  - Fuel Level
  - Hydraulic Oil
  - Speedometer
  - Tachometer
- Pilot Hydraulic Implement Controls, Single Joystick
- ROPS/FOPS Structure
- Suspension Seat with Retractable Seat Belt
- STIC™ Steering

## OPTIONAL EQUIPMENT

- Alternative Tire Arrangements
- Automatic Lube System
- Auxiliary Start Receptacle
- Brake Light
- Brake Pressure Gauges
- Brake Release Arrangements
- Bucket Heel Shrouds
- Bucket Sacrificial Wear Strip Package
- Centralized Lube System, Manual
- Draw Bar Attachment, Bolt-on
- Dual Fuel Tanks
- Ejector Bucket Ready
- Electronic Access Module
- Fast Fill System
  - Coolant
  - Engine
  - Fuel
  - Hydraulic
  - Transmission
- Fire Extinguishers

### POWER TRAIN

- Cat 3176C EUI ATAAC Diesel Engine
- Engine Air Intake Precleaner
- Technology, 6-Cylinder
- Long Life Coolant
- SAFR™ Full Hydraulic Enclosed Wet Multiple-Disc Brakes
- Heat Shields
- Planetary Powershift Transmission with Automatic Shift Control, 4 Speed Forward/4 Speed Reverse
- Torque Converter with Automatic Lockup Clutch
- Transmission Neutralizer

### OTHER STANDARD EQUIPMENT

- Brake Axle Cooling
- Bucket Positioner, Return To Dig
- Catalytic Exhaust Purifier/Muffler Group
- Engine and Transmission Belly Guards
- Fenders, Front, Rear
- Firewall
- Hydraulic Oil Cooler – Swing Out
- Rear Frame Protection Wear Bars 100 × 50 mm (4 × 2 in)
- Swing Out Radiator Grill
- Tires, 18.00 × 25 – 28 PLY STMS L5S

- Fire Suppression System
- Front Light Protectors
- Heater, Air Conditioning
- Idle Timer
- Oil Sample Adapters
- Operators Station
  - Air Conditioning
  - Pressurizer
  - Dome Light
  - Radio Ready
- Payload Control System (PCS)
- Remote Control Interface Kit
- Residual Brake Pressure Light, Dash Mounted
- Reversible Steering, Wheel Steer
- Ride Control System
- Seat Covers
- Secondary Steering System
- Service Tools
- Starting Receptacle
- Tee Seat

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