



R1600H

Underground Mining Loader

Technical Specifications

Configurations and features may vary by region. Please consult your Cat® dealer for availability in your area.

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R1600H Underground Mining Loader Specifications

Engine

Engine Model	Cat® C11	
Engine Power – Ventilation Reduction (VR) Engine – ISO 14396:2002	202 kW	271 hp
Engine Power – U.S. EPA Tier 3 Engine – ISO 14396:2002	202 kW	271 hp
Bore	130 mm	5.1 in
Stroke	140 mm	5.5 in
Displacement	11.1 L	680.4 in ³

- Power ratings apply at a rated speed of 1,800 rpm when tested under the reference conditions for the specified standard.
- All rating conditions are based on ISO/TR14396:2002, inlet air standard conditions with a total barometric pressure of 100 kPa (29.5 in Hg), with a vapor pressure of 1 kPa (0.295 in Hg), and 25° C (77° F). Performance measured using fuel to EPA specifications in 40 CFR Part 1065 and EU specifications in Directive 97/68/EC with a density of 0.845-0.850 kg/L @ 15° C (59° F) and fuel inlet temperature 40° C (104° F).
- No engine derating required up to 3048 m (10,000 ft) for Tier 3 engine and 1828 m (6,000 ft) for VR engine.
- Optional Ventilation Reduction package available.
- Optional engine with emissions equivalent to Tier 3 and EU Stage IIIA is also available.

Operating Specifications

Nominal Payload Capacity	10 200 kg	22,487 lb
Gross Machine Mass	44 204 kg	97,453 lb
Static Tipping Load Straight Ahead Lift Arms Horizontal	25 905 kg	57,110 lb
Static Tipping Load Full Turn Lift Arms Horizontal	21 803 kg	46,067 lb
Breakout Force (ISO) Tilt	17 928 kg	39,524 lb
Breakout Force (ISO) Lift	19 202 kg	42,333 lb

Weights

Operating Mass*	30 150 kg	66,469 lb
Front Axle	12 884 kg	28,404 lb
Rear Axle	17 266 kg	38,065 lb
Operating Mass + Rated Payload*	40 350 kg	88,956 lb
Front Axle	28 128 kg	62,011 lb
Rear Axle	12 222 kg	26,944 lb

*Calculated Weight.

Transmission

Forward 1	4.5 km/h	2.8 mph
Forward 2	9 km/h	5.6 mph
Forward 3	16.8 km/h	10.4 mph
Forward 4	27.5 km/h	17.1 mph
Reverse 1	5 km/h	3.1 mph
Reverse 2	11 km/h	6.8 mph
Reverse 3	19 km/h	11.8 mph
Reverse 4	29.3 km/h	18.2 mph

Hydraulic Cycle Time

Raise	7.6 Seconds	
Dump	1.6 Seconds	
Lower, Empty, Float Down	2 Seconds	
Total Cycle Time	11.2 Seconds	

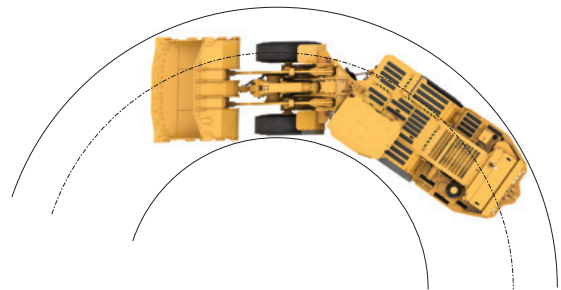
Bucket Capacities

Dump Bucket – 1	4.2 m ³	5.5 yd ³
Dump Bucket – 2 (standard bucket)	4.8 m ³	6.3 yd ³
Dump Bucket – 3	5.6 m ³	7.3 yd ³
Dump Bucket – 4	5.9 m ³	7.7 yd ³
Ejector Bucket	4.8 m ³	6.3 yd ³
Bolt-together Bucket	5.3 m ³	6.9 yd ³

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 × R25
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Service Refill Capacities

Engine Crankcase with Filter	34 L	8.98 gal
Transmission	47 L	12.4 gal
Hydraulic Tank	125 L	33 gal
Cooling System	61 L	16.1 gal
Front Differential and Final Drives	80 L	21.1 gal
Rear Differential and Final Drives	80 L	21.1 gal
Fuel Tank	400 L	105.7 gal
Secondary Fuel Tank (if equipped)	330 L	87.2 gal

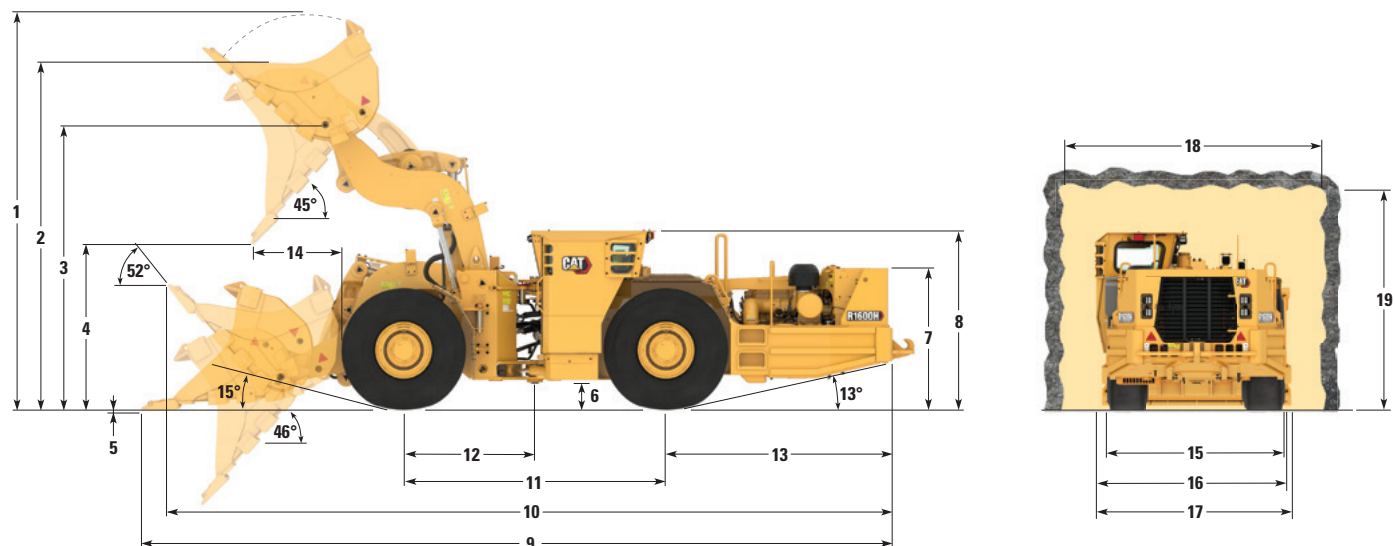
Standards

Rollover Protective Structure (ROPS)/Falling Object Protective Structure (FOPS) Certified Cab

R1600H Underground Mining Loader Specifications

Dimensions

All dimensions are approximate.



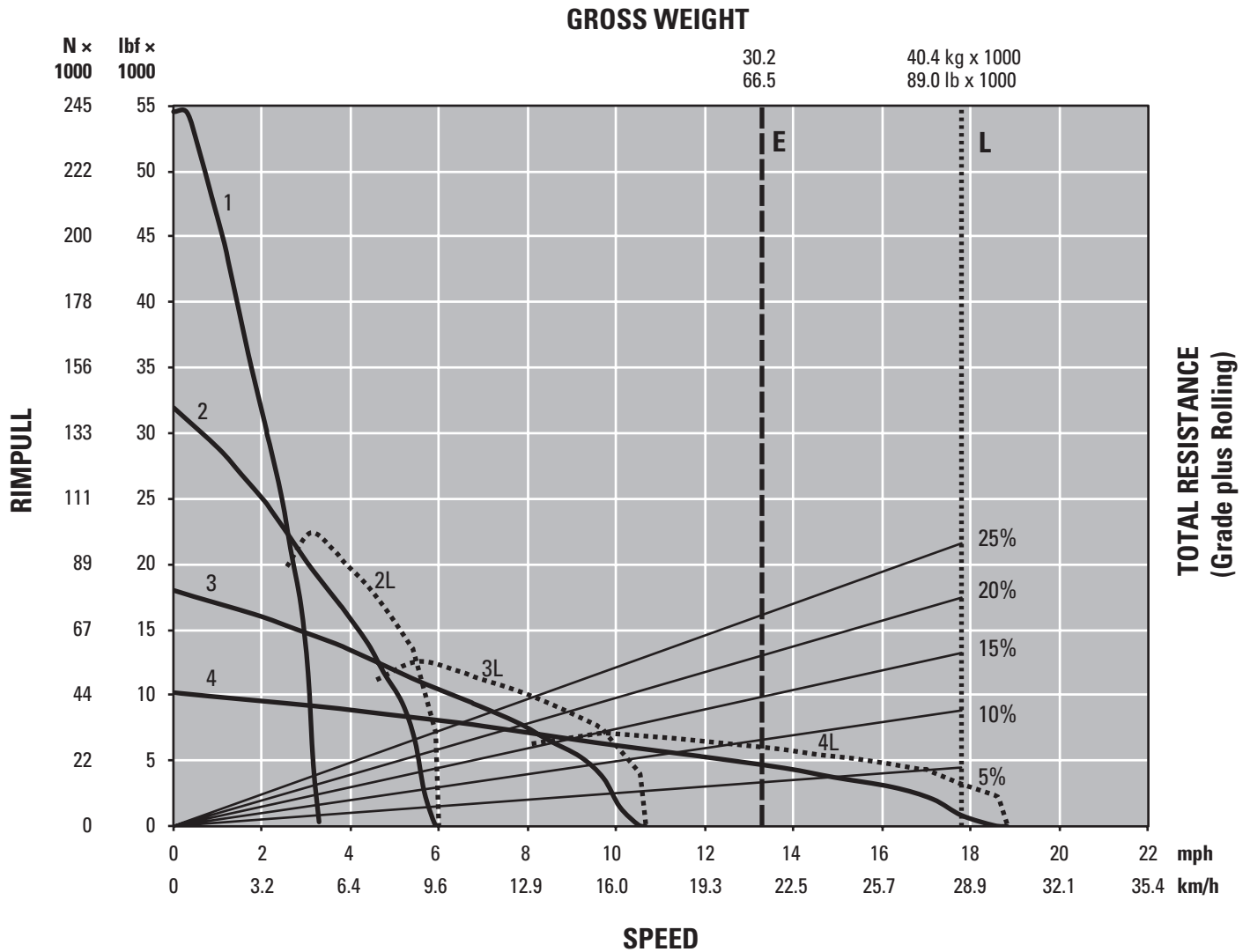
	514-5710		203-1792		227-4704		514-5720		260-5198		598-8733	
	Dump Bucket		Dump Bucket		Dump Bucket		Dump Bucket		Ejector Bucket		Bolt Together Bucket	
Bucket Capacity	4.2 m ³	5.5 yd ³	4.8 m ³	6.3 yd ³	5.6 m ³	7.3 yd ³	5.9 m ³	7.7 yd ³	4.8 m ³	6.3 yd ³	5.3 m ³	6.9 yd ³
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
Bucket Width over Cutting Edge	2600	102.4	2600	102.4	2600	102.4	2900	114.2	2600	102.4	3042	120
1 Height – Bucket Raised	5204	204.9	5204	204.9	5282	208.0	5282	208.0	5385	212.0	5182	204
2 Height – Max Dump	4497	177.0	4497	177.0	4497	177.0	4497	177.0	4565	179.7	4497	177.0
3 Height – Max Lift Bucket Pin	3752	147.7	3752	147.7	3752	147.7	3752	147.7	3752	147.7	3757	148
4 Height – Dump Clearance at Max Lift	2365	93.1	2207	86.9	2042	80.4	2095	82.5	2120	83.5	2190	86
5 Height – Digging Depth	24	0.9	39	1.5	54	2.1	47	1.9	47	1.9	76	3
6 Height – Ground Clearance	344	13.5	344	13.5	344	13.5	344	13.5	344	13.5	344	14
7 Height – Top of Hood	1895	74.6	1895	74.6	1895	74.6	1895	74.6	1895	74.6	1895	75
8 Height – Top of ROPS	2400	94.5	2400	94.5	2400	94.5	2400	94.5	2400	94.5	2400	94
9 Length – Overall (Digging)	9865	388.4	10 107	397.9	10 347	407.4	10 270	404.3	10 233	402.9	10 118	398
10 Length – Overall (Tramming)	9570	376.8	9711	382.3	9853	387.9	9805	386.0	9948	391.7	9881	389
11 Length – Wheelbase	3536	139.2	3536	139.2	3536	139.2	3536	139.2	3536	139.2	3536	139
12 Length – Front Axle to Hitch	1768	69.6	1768	69.6	1768	69.6	1768	69.6	1768	69.6	1768	70
13 Length – Rear Axle to Bumper	3055	120.3	3055	120.3	3055	120.3	3055	120.3	3055	120.3	3055	120
14 Length – Reach	1255	49.4	1408	55.4	1573	61.9	1530	60.2	1495	58.9	1433	56
15 Width – Overall Tire	2400	94.5	2400	94.5	2400	94.5	2400	94.5	2400	94.5	2400	94
16 Width – Machine without Bucket	2564	100.9	2564	100.9	2564	100.9	2564	100.9	2564	100.9	2564	101
17 Width – Machine with Bucket	2723	107.2	2723	107.2	2723	107.2	2965	116.7	2723	107.2	3042	120
18 Recommended Clearance Width	3500	137.8	3500	137.8	3500	137.8	3500	137.8	3500	137.8	3500	138
19 Recommended Clearance Height	3000	118.1	3000	118.1	3000	118.1	3000	118.1	3000	118.1	3000	118

R1600H Underground Mining Loader Specifications

Gradeability/Speed/Rimpull

To determine gradeability performance: Read from gross weight down to the percent of total resistance. Total resistance equals actual percent grade plus rolling resistance. As a general guide use 2% for rolling resistance in underground applications or refer to the Caterpillar Performance Handbook. From the total resistance point, read horizontally to the curve with the highest obtainable gear, then down to maximum speed. Usable rimpull will depend upon traction available and weight on drive wheels.

----- Typical Field Empty Weight
 Loaded Weight



KEY

- 1 – 1st Gear
- 2 – 2nd Gear
- 2L – 2nd Gear (Lockup Clutch)
- 3 – 3rd Gear
- 3L – 3rd Gear (Lockup Clutch)
- 4 – 4th Gear
- 4L – 4th Gear (Lockup Clutch)

KEY

- E – Empty 30 150 kg (66,470 lb)
- L – Loaded 40 350 kg (88,956 lb)

R1600H Standard and Optional Equipment

Standard and Optional Equipment

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

	Standard	Optional		Standard	Optional
POWER TRAIN			OPERATOR ENVIRONMENT		
Brakes, full hydraulic enclosed wet multiple-disc (SAFR™)	✓		Automatic Brake Application (ABA)	✓	
Engine:			Cab, ROPS and/or FOPS certified	✓	
– Cat® C11 6 cylinder, diesel	✓		Operators station ROPS/FOPS enclosed:		✓
– Air-to-air aftercooler (ATAAC)	✓		– Air conditioning		✓
– After-Treatment Options – DPF (Flow Thru)		✓	– Cab pressurizer and filter		✓
Engine options:			– Dome light		✓
– Engine, VR		✓	– Door strut		✓
– VR engine, Flow Thru Ready		✓	– Heater		✓
– Engine, Tier 3		✓	– Radio ready compartment for radio and speakers		✓
Fuel adapters:			– Wiper control, intermittent		✓
– Fuel tank, single, standard adapter	✓		Color Multi Purpose Display (CMPD):		
– Fuel tank, dual, standard adapter		✓	– Front and rear brake gauges	✓	
– Fuel tank, single, fast fill		✓	– Transmission pressure	✓	
– Fuel tank, dual, fast fill		✓	– System diagnostics	✓	
Fuel priming aid	✓		– Residual brake warning	✓	
Heat shields	✓		Duct, air, flow diverter		✓
Park brake switch engagement – push to apply/pull to apply		✓	Horns, electric	✓	
Precleaner, engine air intake	✓		Idle timer (enclosed cab or open cab)		✓
Radiator, high efficiency		✓	Instrumentation/gauges:		
Reversible steering		✓	– Speedometer/tachometer	✓	
Torque converter with automatic lock up clutch	✓		– Fuel level	✓	
Transmission, automatic planetary power shift (4F/4R)	✓		– Hydraulic oil temperature	✓	
Transmission neutralizer	✓		– Engine coolant temperature	✓	
			– Transmission oil temperature	✓	
ELECTRICAL			Operator Presence System	✓	
Alarm, reversing	✓		Pilot hydraulic implement controls (single joystick)	✓	
Alternator, 95 amp	✓		Suspension operator seat with retractable seat belt:		
Battery disconnect switch, ground level	✓		– Seat, suspension, vinyl	✓	
Batteries, low maintenance	✓		– Seat, suspension, TEE, vinyl		✓
Diagnostic connector	✓		– Seat, suspension, air, vinyl		✓
Engine shutdown switch	✓		– Seat, suspension, TEE, air		✓
Lighting:			– Seat cover		✓
– External, front, rear, halogen	✓		Secondary steering system		✓
– Stop, single, halogen	✓		STIC™ steering	✓	
– Work lights, LED		✓	Throttle:	✓	
Receptacle group, auxiliary start	✓		– Pedal, throttle	✓	
Starter, electric, 24-volt	✓		– Control, throttle		✓
Starting and charging system	✓				

(continued on next page)

R1600H Standard and Optional Equipment

Standard and Optional Equipment *(continued)*

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

	Standard	Optional		Standard	Optional
TECHNOLOGY			OTHER STANDARD AND OPTIONAL EQUIPMENT <i>(continued)</i>		
Command for Underground*		✓	Decals, international picto graphics	✓	
Remote control interface (excludes transmitter and receiver), includes warning lights (green)		✓	Draw bar attachment, bolt-on		✓
– Cattron		✓	Fast Fill System:		
– RCT		✓	– Coolant		✓
*Please consult with your regional commercial or technology representative prior to upgrading your machine to Command for Underground.			– Engine oil		✓
			– Fuel		✓
			– Hydraulic oil		✓
			– Transmission oil		✓
			Fenders, front, rear	✓	
TIRES, RIMS, AND WHEELS			Firewall	✓	
Tires must be selected from the Mandatory Attachments section	✓		Fluids:		
– Tire, 18 × R25 VSMS L5S Bridgestone			– Arctic fuel		✓
Rims:			– Arctic coolant		✓
– Tubeless, set of four	✓		Guards, engine and transmission	✓	
– Spare, tubeless		✓	Guards, light and window		✓
– Rim identification numbering		✓	Handholds	✓	
OTHER STANDARD AND OPTIONAL EQUIPMENT			Lifting Group, Mine Transfer		✓
Brake axle cooling	✓		Lubrication system:		
Cap, radiator, manual release	✓		– Semi central	✓	
Catalytic exhaust purifier/muffler	✓		– Centralized		✓
Brake release arrangements, includes steering release:			– Automatic		✓
– Recovery hook		✓	Protection bars, rear frame	✓	
– Recovery bar		✓	Radiator grill, swing out	✓	
Bucket dump (4.8 m ³ /6.3 yd ³)	✓		Ride Control System		✓
Buckets:			Service tools		✓
– Various sizes, dump (4.2 m ³ /5.5 yd ³ , 5.6 m ³ /7.3 yd ³ , 5.9 m ³ /7.7 yd ³)		✓	Service oil sample	✓	
– Bolt-together (5.3 m ³ /6.9 yd ³)		✓	Valve, drain, transmission oil filter	✓	
– Ejector (4.8 m ³ /6.3 yd ³)		✓	Wear protection bars:		
– Standard lip or bolt-on lip		✓	– Cab		✓
– Cutting edge, bolt-on		✓	– Hydraulic tank		✓
– Cutting edge, Cat modular weld on		✓	– Radiator		✓
– Lip fully welded or tack welded		✓	Wheel chocks		✓
– Heel shrouds, ejector and dump buckets		✓	Windows:		
– Mechanically Attached Wear Plate System (MAWPS)		✓	– Window, single pane	✓	
– Wear bars, ejector and dump buckets		✓	– Window, dual pane		✓
– Wear liner		✓			

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(Global)

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Materials and specifications are subject to change without notice. Featured machines in photos may include additional equipment. See your Cat dealer for available options.

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