



CAT[®] 785

MINING TRUCK

FEATURES

Operator-Focused Environment – The Next Generation cab features the Next Generation operator seat with GenTherm, improved storage, pass through egress, automated temperature control, and an integrated transmission hoist control and jog dial for improved control while providing the operator with a quieter, smoother, more comfortable ride.

Cutting Edge Connectivity – Increased machine connectivity via cellular 4G/LTE (Product Link™ Elite), MineStar™ Fleet, Detect, and Health Equipment Insights, and haul road analytics, provide high-speed, quality data transfer for improved operator performance, maintenance, and machine life. New ECM's and software encrypted machine data, help to reduce the possibility for data infiltration, and increase cyber security.

Streamlined Serviceability – Modular HVAC and radiator, remote troubleshooting and flash updates, optional Cat[®] Health Equipment Insights, Electronic Operation and Maintenance Manual (OMM), and ground level serviceability improve maintenance and reduce downtime.

Built for the Future – Today's 785 has an electronic backbone to not only accommodate the latest features to boost productivity and efficiency today, but also tomorrow through the extra capacity built-in to accommodate continued innovation.

Performance and Emissions – The proven Cat 3512E engine offers flexibility both in terms of emission profiles and power ratings. An optional engine meeting U.S. EPA Tier 4 Final and EU Stage V emission standards is available with the Cat Selective Catalytic Reduction (SCR) system. The standard power of 1,600 hp is there for faster cycle times, or an optional 1,450 hp is available to match other fleet performance.

Safety – Integrated Cat Detect system, 360-degree surround view, LED lighting, 600 mm (24 in) wide walkways, guarding of rotating components and hydraulic brake system with enhanced traction control system. Optional Working at Heights and Powered Access Stairway.

Tire Options – With the 36R51 tire option, the 785 can take advantage of higher payload and higher TKPH, especially on flat long haul, high speed applications.

TECHNICAL SPECIFICATIONS

Engine		
Engine Model	Cat [®] 3512E	
Gross Power - SAE J1995:2014	1193 kW	1,600 hp
Net Power - SAE J1349:2011	1125 kW	1,509 hp
Rated Speed	1,650 rpm	
Emissions Rating	Fuel Optimized	
Bore	170 mm	6.7 in
Stroke	215 mm	8.5 in
Displacement	58.56 L	3,573 in ³

- Net Power advertised is the power available at the flywheel when the engine is equipped with air intake system, exhaust system, and alternator.
- U.S. EPA Tier 4 Final / EU Stage V available for applicable markets
- Additional fuel optimized selectable power ratings: 1,450 hp

Weights – Approximate			
Rated Gross Machine Weight (RGMW)			
33.00 R51 Tires	249 476 kg	550,000 lb	
36.00 R51 Tires	255 826 kg	564,000 lb	
Chassis Weight (CW)			
33.00 R51 Tires	84 731 kg	186,799 lb	
36.00 R51 Tires	87 631 kg	193,192 lb	
Body Weight (BW)	26 208 kg	57,779 lb	
Nominal Rated Payload (NRP)			
33.00 R51 Tires	139 tonnes	153 tons	
36.00 R51 Tires	142 tonnes	157 tons	

- Consult your tire manufacturer for maximum tire load
- Chassis weight with full fuel and fluids, standard & mandatory attachments, hoist, body mounting group, rims, and tires.



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Weight Distributions – Approximate

Front Axle - Empty	48 %
Rear Axle - Empty	52 %
Front Axle - Loaded	33 %
Rear Axle - Loaded	67 %

- Weight distributions optimized with Cat body.

Final Drives

Double reduction, planetary with full floating axles.	
Differential Ratio	2:10:1
Planetary Ratio	10.83:1
Total Reduction Ratio	22.75:1

Transmission

Forward 1	12.1 km/h	7.5 mph
Forward 2	16.3 km/h	10.2 mph
Forward 3	22.2 km/h	13.8 mph
Forward 4	29.9 km/h	18.6 mph
Forward 5	40.6 km/h	25.2 mph
Forward 6	54.8 km/h	34 mph
Reverse	11 km/h	6.8 mph
Top Speed - Loaded	54.8 km/h	34 mph

- Maximum travel speed(s) with standard 33.00 R51 tires.

Tires & Rims

33.00 R51 (standard)
36.00 R51 (optional)
610 mm (24") Rims (standard)
660 mm (26") Rims (optional)

- Quick Change Rims optional.
- Caterpillar recommends the customer evaluate all job conditions and consult tire manufacturer for proper tire selection and TKPH (TMPH) capabilities.

Braking System

Service Brakes: Four-Corner, Wet Disc, Oil Cooled, Hydraulically Actuated		
Front Wet Disc Brake Surface Area	61 270 cm ²	9,487 in ²
Rear Wet Disc Brake Surface Area	89 728 cm ²	13,908 in ²
Standards (Service and Secondary)	ISO 3450:2011	
Parking Brake: Four-corner, Multi-disc, Spring applied, Hydraulically Released		

Capacity – MSDII - 100% fill factor

Struck	72 m ³	94 yd ³
Heaped (SAE 2:1)	99 m ³	129 yd ³

- Consult your local Cat dealer for body recommendations.

Body Hoists

Twin, two-stage hydraulic cylinders with snubbing valve.		
Pump Flow - High Idle	729.6 L/min	317 gal/min
Relief Valve Setting - Raise	17 238 kPa	2,500 psi
Body Raise Time - High Idle	15.2 sec	
Body Lower Time - Float	16.2 sec	
Body Power Down - High Idle	15.9 sec	

Suspension

Self-contained nitrogen/oil cylinders, pin-to-pin mounting, top & bottom double shear clevis attachments		
Effective Cylinder Stroke - Front	320 mm	12.6 in
Effective Cylinder Stroke - Rear	165 mm	6.5 in
Rear Axle Oscillation	+/- 5 degrees	

Service Refill Capacities

Fuel Tank	1552 L	410 gal
Diesel Exhaust Fluid (DEF) Tank	136 L	36 gal
Cooling System	379 L	100 gal
Crankcase	204 L	54 gal
Front Wheels, Each	30 L	8 gal
Differentials & Final Drives	527 L	139 gal
Steering Tank	110 L	29 gal
Steering System (Includes Tank)	170 L	45 gal
Brake/Hoist Tank	511 L	135 gal
Brake/Hoist System (Includes Tank)	606 L	160 gal
Torque Converter/Transmission System (Includes Sump)	175 L	46 gal

Cab

Air Conditioning (HFC - 134A refrigerant)	24,500 Btu/hr
Heater / Defroster	33,300 Btu/hr

- The operator sound pressure level, 77 dB(A) with direct drive and 75 dB(A) with optional clutch, tested to ISO 6396:2008.
- ROPS (Rollover Protective Structure) meets ISO 3471:2008 for Operator and ISO 13459:2012 for Trainer.
- FOPS (Falling Objects Protective Structure) meets ISO 3449:2005 Level II for Operator and ISO 13459:2012 Level II for Trainer.

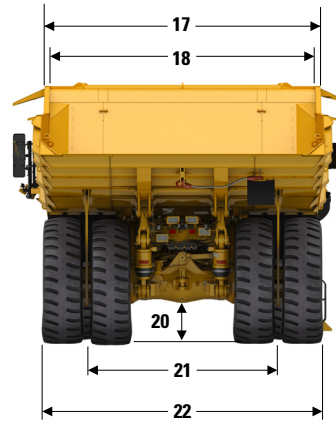
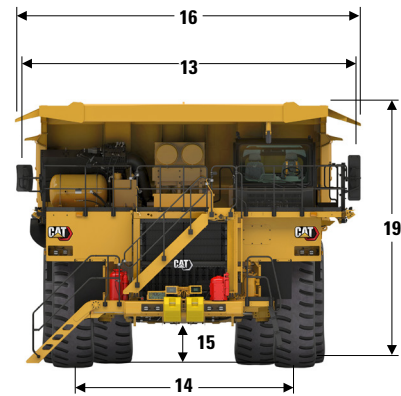
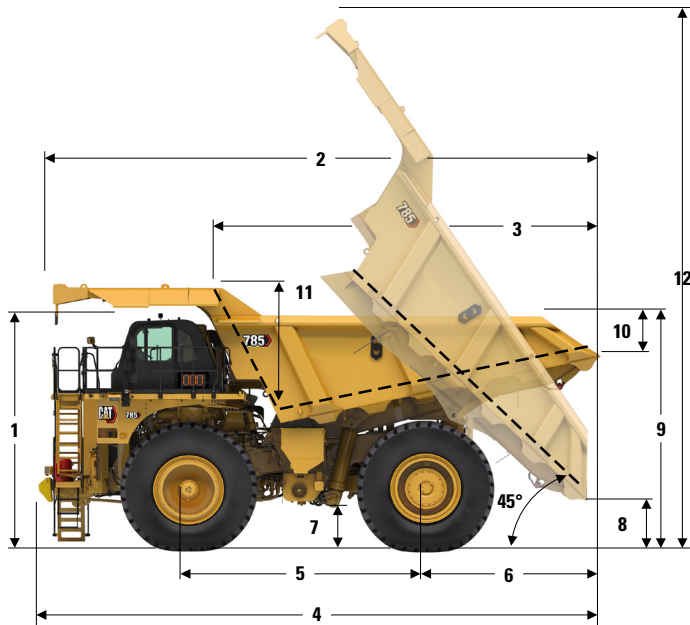
Steering

Steer Angle	36 degrees	
Turning Diameter (ISO 7457:2009)	29.8 m	97.75 ft
Steering Standards	ISO 5010:2007	

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Dimensions

All Dimensions are approximate. MSD II Body, 33.00 R51 tires, unloaded machine.

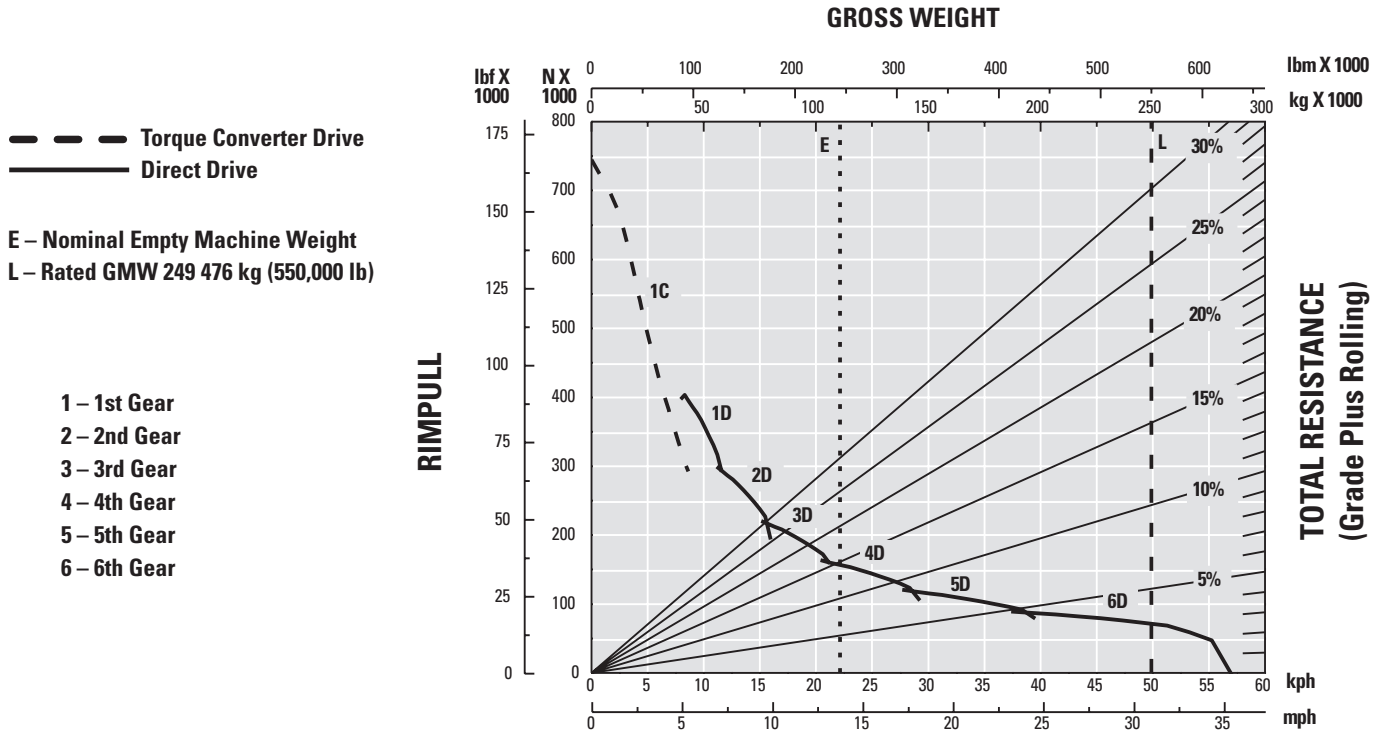


1 Height to Top of ROPS	5208 mm	17 ft 1 in
2 Overall Body Length	11 985 mm	39 ft 4 in
3 Inside Body Length	8318 mm	27 ft 3 in
4 Overall Length	11 957 mm	39 ft 3 in
5 Wheelbase	5180 mm	17 ft 0 in
6 Rear Axle to Tail	3829 mm	12 ft 7 in
7 Ground Clearance	1004 mm	3 ft 4 in
8 Dump Clearance	1128 mm	3 ft 8 in
9 Loading Height – Empty	5299 mm	17 ft 5 in
10 Rear Sidewall Height	874 mm	2 ft 10 in
11 Inside Body Depth – Maximum	2790 mm	9 ft 2 in
12 Overall Height – Body Raised	12 032 mm	39 ft 6 in
13 Operating Width	7535 mm	24 ft 9 in
14 Centerline Front Tire Width	4850 mm	15 ft 11 in
15 Engine Guard Clearance	1038 mm	3 ft 5 in
16 Overall Canopy Width	7562 mm	24 ft 10 in
17 Outside Body Width	6714 mm	22 ft 0 in
18 Inside Body Width	6010 mm	19 ft 9 in
19 Front Canopy Height	6035 mm	19 ft 10 in
20 Rear Axle Clearance	990 mm	3 ft 3 in
21 Centerline Rear Dual Tire Width	4285 mm	14 ft 1 in
22 Overall Tire Width	6277 mm	20 ft 7 in

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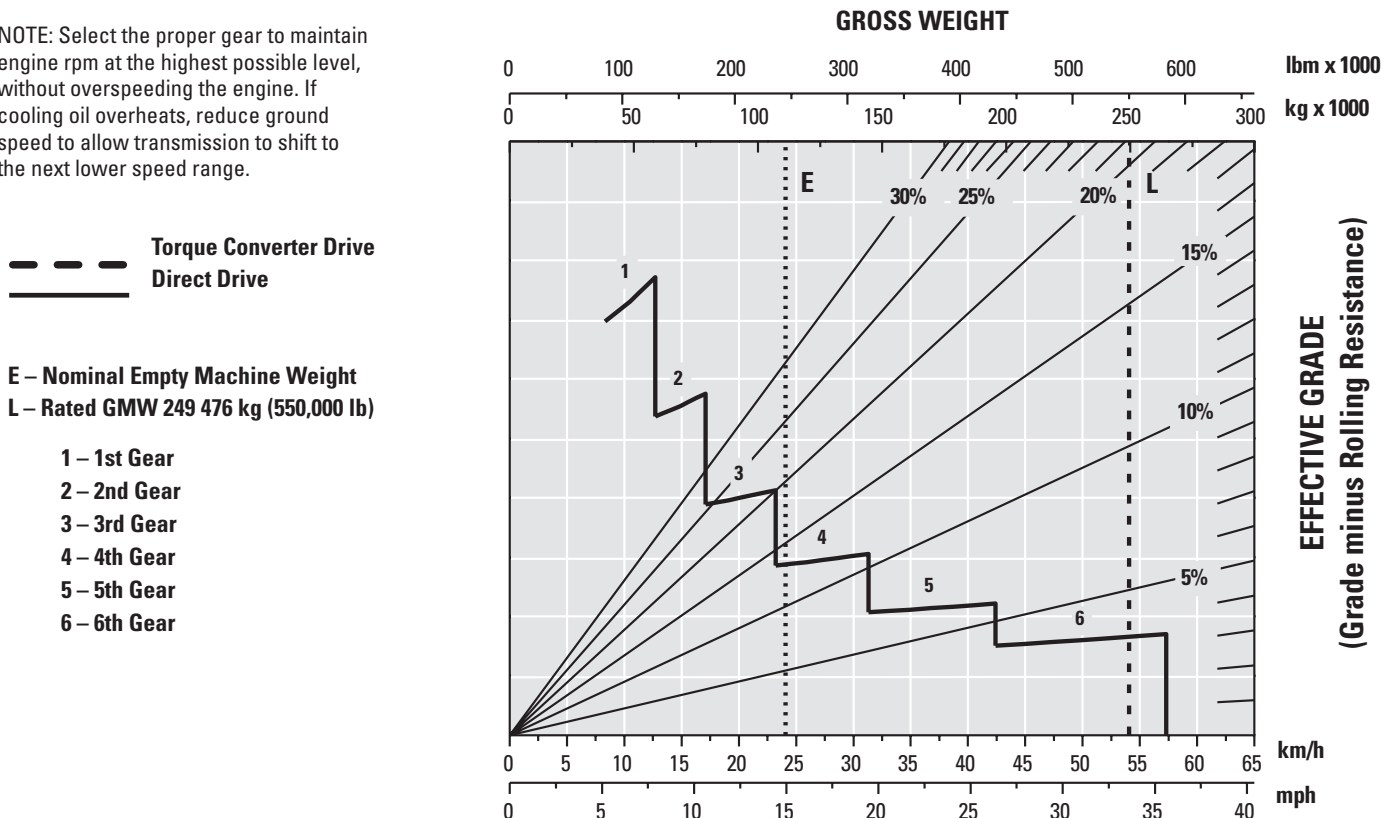
785 Rimpull

To determine gradeability performance: Read from gross weight down to the percent of total resistance. Total resistance equals actual percent grade plus 1% for each 10 kg/t (20 lb/ton) of rolling resistance. From this weight-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. The following charts are based on these conditions: 32° C (90° F) ambient temperature, at sea level, with 33R51 tires.



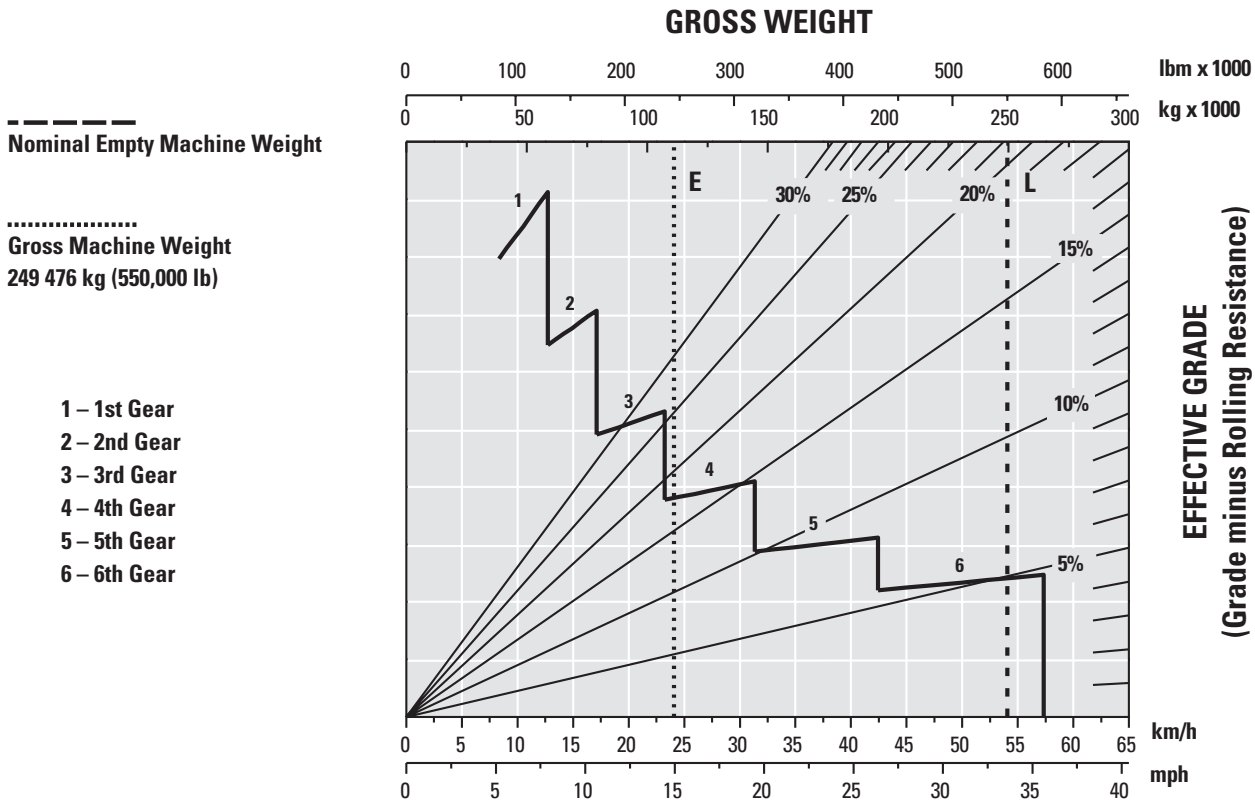
785 Retarding – Continuous

NOTE: Select the proper gear to maintain engine rpm at the highest possible level, without overspeeding the engine. If cooling oil overheats, reduce ground speed to allow transmission to shift to the next lower speed range.

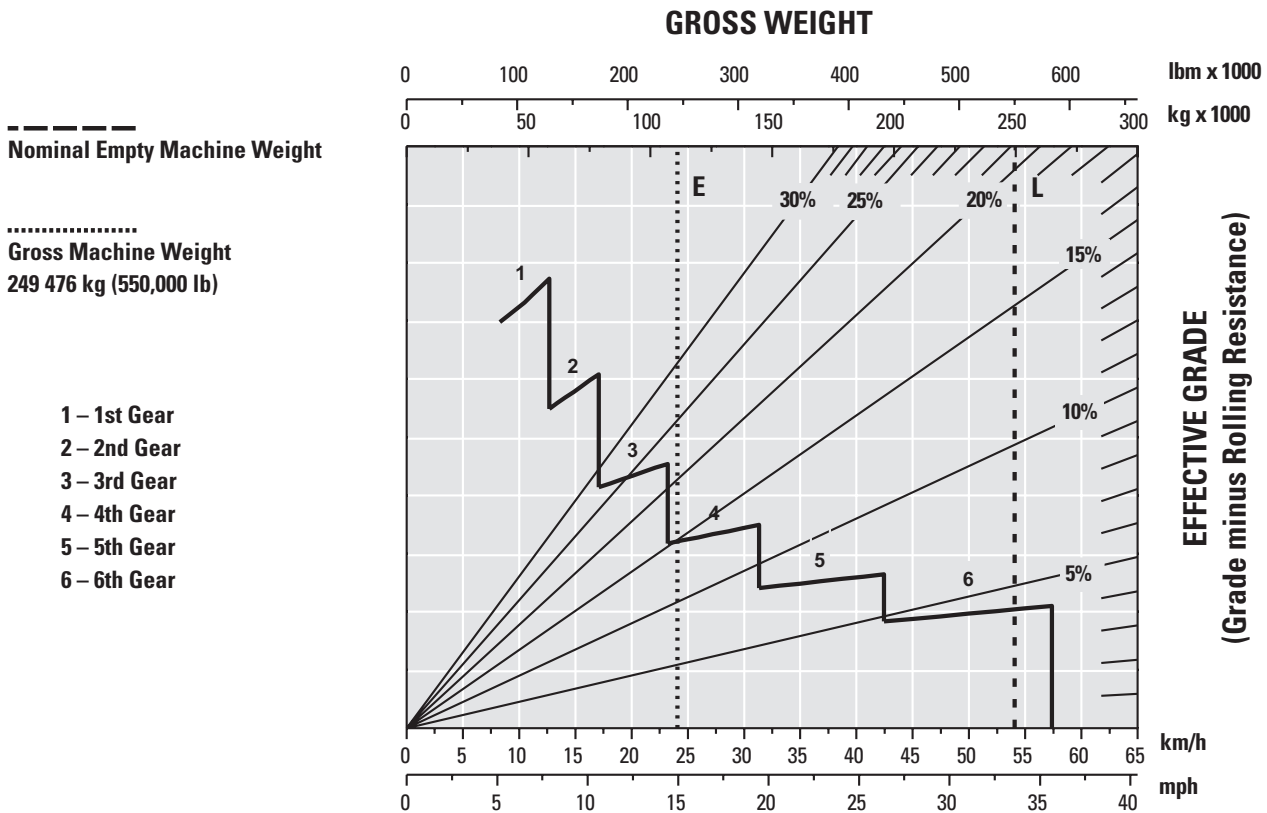


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785 Retarding – 450 m (1,475 ft)



785 Retarding – 1500 m (4,900 ft)



785 Mining Truck Specifications

Standard and Optional Equipment

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

	Standard	Optional		Standard	Optional
ELECTRICAL			OPERATOR ENVIRONMENT		
24V electrical system, low maintenance batteries (2) 93 amp-hour	✓		5V USB charging port	✓	
Alarm, backup	✓		12V auxiliary power connection	✓	
Auxiliary rear work lights, (one) LH side		✓	Cup holders	✓	
Brushless alternator, 225 amp	✓		Diagnostic connection port COM3 and Ethernet	✓	
Digital Payload Display		✓	Delayed Engine Shutdown	✓	
Ground accessible power control box:			Dome courtesy light and map lights	✓	
• Ethernet VIMS™ port and VIMS lamp	✓		Emergency stop		✓
• Engine starter, transmission and battery lockouts	✓		Entertainment radio ready:		
Jump start/battery charge receptacle	✓		• Speakers	✓	
LED payload indicator lamps	✓		• Antenna (AM/FM/WB/satellite radio)		✓
LED Lighting system:			• Radio mounting provisions & 12V power supply	✓	
• Back-up and hazard lights	✓		Fire suppression ready	✓	
• Curb lights, (one) RH side, (one) LH side	✓		Floor mat, multi-piece & replaceable	✓	
• Turn signals (front and rear)	✓		Gauges and indicators panel:		
• Engine compartment lights	✓		• Critical oil and coolant temperatures	✓	
• Headlights with low-high beam selector	✓		• Fuel and DEF level (if applicable)	✓	
• Ladder light and service deck lights	✓		• Engine system, brake and transmission fault indicators	✓	
• Stop/tail lights	✓		• Operator selectable max. machine speed by rotary dial	✓	
• Additional lighting package		✓	• Speedometer, Tachometer	✓	
• Auxiliary VIMS		✓	Heated mirrors, right and left	✓	
• Body rear		✓	Hoist, body control	✓	
• Seat & park brake		✓	Interactive touchscreen vehicle information display:		
Workshop horn		✓	• Day/night mode	✓	
TRUCK BODIES			• Action alarm	✓	
MSD II body: 100 m3 (131 yd3)		✓	• Quad gauge display	✓	
Dual slope body: 78 m3 (102 yd3)		✓	Operator air suspension seat	✓	
Body specific side wall and tail extensions		✓	Operator Door Power Window	✓	
Customizable body liner packages		✓	Provision for customer accessory mounting	✓	
Body heat exhaust		✓	Push button secure start	✓	
Rock ejectors		✓	Retractable front visor	✓	
Rear body lighting group:			ROPS cab, insulated/sound suppressed	✓	
• Directional signals		✓	Stairway and walkway access, 600 mm (24 in)	✓	
• Stop/tail lights		✓	Steering wheel, tiltable, telescopic	✓	
FLUIDS			Self-filling to windshield washer fluid from AC condensate	✓	
Extended Life Coolant to -35° C (-30° F)	✓		Storage locations for operator gear	✓	
Antifreeze/coolant protects to -50° C (-58° F)		✓	Three point seat belt for operator seat	✓	
			Trainer air suspension seat		✓
			Windshield wiper, intermittent control / washer	✓	
			Unitized hydraulic powered HVAC with automatic temperature control	✓	
			Ventilated operator seat	✓	

785 Mining Truck Specifications

Standard and Optional Equipment (continued)

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

	Standard	Optional		Standard	Optional
Deluxe Cab:					✓
• Advanced cabin filtration system	✓		• Programmable top speed	✓	
• Catwalk and handrails for rear cab access	✓		• Oil level sensor	✓	
• Heated, cooled and ventilated front seat	✓		• Neutral coast inhibitor	✓	
• Power right side window	✓		• Neutral start switch	✓	
• Suspended companion seat	✓		• Lock-up torque converter	✓	
• Storage tray	✓		• Rear axle continuous lubrication/filtration	✓	
			• Rear axle continuous lubrication/filtration with cooler		✓
POWER TRAIN			OTHER EQUIPMENT		
33R51 power train with standard rims	✓		2560 L (676 gal) fuel tank (non-Tier 4)		✓
Cat 3512E engine:			Auxiliary “buddy” dumping quick connect	✓	
• Automatic engine and DEF thermal management (if applicable)	✓		Auxiliary connection ‘user defined shutdown’	✓	
• Automatic low voltage idle management	✓		Auxiliary steering quick connect (towing)	✓	
• Air cleaner with precleaner (two)	✓		Body heat exhaust		✓
• Turbocharging (four) with air-to-air aftercooler	✓		Bumper towing – center pin kit		✓
• Mechanical Electronic Unit Injector (MEUI™-A) fuel system	✓		Cold weather start (block heater)		✓
• Automatic starter protection	✓		Communication Ar – Minestar™ radio		✓
• Automatic ether starting aid	✓		eOMM	✓	
• No air – electric starter with 93-amp hour batteries (four), electric horn and automatic lubrication system		✓	Fast fill fuel and DEF remote fill system	✓	
• Turbine air starter with air tank, air horn and automatic lubrication system		✓	Fire extinguisher, portable		✓
• Variable speed fan drive		✓	Five piece crankcase guards		✓
Hydraulic braking system:			Fuel heater, fuel water separator		✓
• Automatic retarder control (ARC), adjustable and automatic	✓		Fuel tank mud guard		✓
• Brake release motor (towing)	✓		Gauge, brake wear indicator		✓
• Engine over speed protection	✓		Ground accessible fluid service center, hydraulic and coolant		✓
• Extended life brake disc material	✓		Guards for rotating components	✓	
• Hill start assist/Anti roll back strategy	✓		Hill Start Assist	✓	
• Oil-cooled, multi-disc (front and rear) – Service, retarding, parking, secondary	✓		Hub odometer, kilometers		✓
• Park brake integrated with gear selector	✓		Hydraulic Filters, 1,000 hours	✓	
Transmission:			Powered access stairway		✓
• Six-speed, automatic power shift with Electronic Clutch Pressure Control (ECPC)	✓		Remote flash software and troubleshooting	✓	
• Advanced Productivity Electronic Control Strategy (APECS)	✓		Rim Diffuser		✓
• Body-up reverse neutralizer	✓		Secondary steering (automatic)	✓	
• Body-up shift inhibitor	✓		Tie off points	✓	
• Downshift/reverse shift inhibitor	✓		Tow hooks (front) and tow pin (rear)	✓	
• Directional shift management	✓		Sight glasses for hydraulic oils	✓	
• Engine pre-lubrication system		✓	S-O-S SM ports	✓	
• Enhanced Traction Control System	✓		Wheel chocks		✓
			Wireless Electronic Technician (ET)		✓
			Working at heights protection		✓
			Vital Information Management System (VIMS)	✓	

Standard and Optional Equipment

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

	Standard	Optional
CAT TECHNOLOGY PRODUCTS		
360 degree surround view camera		✓
4G cellular/satellite dual mode		✓
Connectivity bundle (includes: wireless operator ID, bluetooth key FOB to start)		✓
Cyber security	✓	
Driver Safety System (DSS) 4.0 Ready		✓
Integrated object detection system with touchscreen display	✓	
Minestar GPS		✓
Minestar communication group (enables: Minestar Fleet, Aux)		✓
Oil Renewal System (ORS) (non-Tier 4)		✓
Productivity bundle (includes: AutoHoist, crusher mode, dump control, Speed Coaching)		✓
Road Analysis Control (RAC)		✓
Tire Payload Monitoring System 2 (TPMS 2)	✓	
Product Link™ Elite	✓	

For more complete information on Cat products, dealer services, and industry solutions, visit us on the web at www.cat.com

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