



Cat[®] 785

Mining Truck

Technical Specifications

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

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785 Mining Truck 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: 1081 kW (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) (MSDII Body)	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 and mandatory attachments, hoist, body mounting group, rims, and tires.

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 and 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 Tonne Kilometers Per Hour (TKPH) Ton-Miles Per Hour (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 and 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 and 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.
- Rollover Protective Structure (ROPS) meets ISO 3471:2008 for Operator and ISO 13459:2012 for Trainer.
- Falling Objects Protective Structure (FOPS) meets ISO 3449:2005 Level II for Operator and ISO 13459:2012 Level II for Trainer.

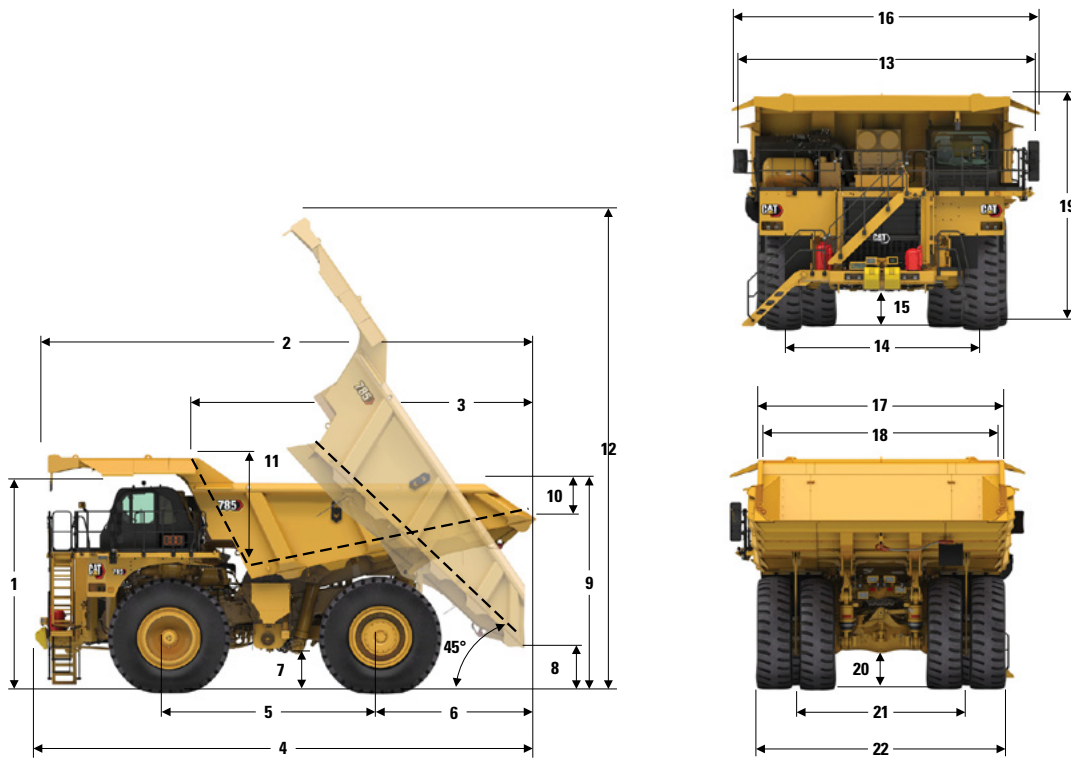
Steering

Steer Angle	36 degrees
Turning Diameter (ISO 7457:1997)	29.8 m 97.75 ft
Steering Standards	ISO 5010:2007

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Dimensions

All dimensions are approximate and may vary depending on bucket selection.

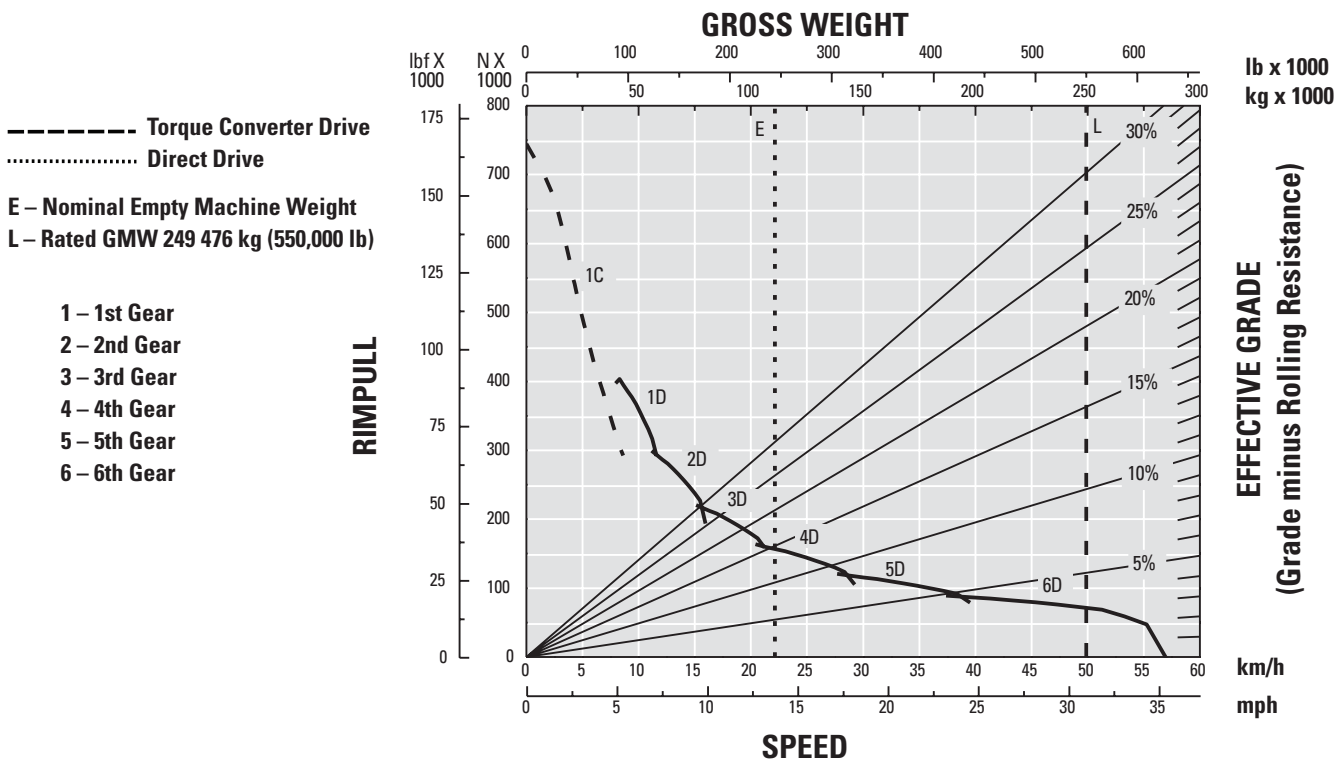


1	Height to Top of ROPS	5208 mm	17 ft 1 in
2	Overall Body Length	11 985 mm	39 ft 4 in
3	Inside Body Length	8318 mm	27 ft 3 in
4	Overall Length	11 957 mm	39 ft 3 in
5	Wheelbase	5180 mm	17 ft 0 in
6	Rear Axle to Tail	3829 mm	12 ft 7 in
7	Ground Clearance	1004 mm	3 ft 4 in
8	Dump Clearance	1128 mm	3 ft 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

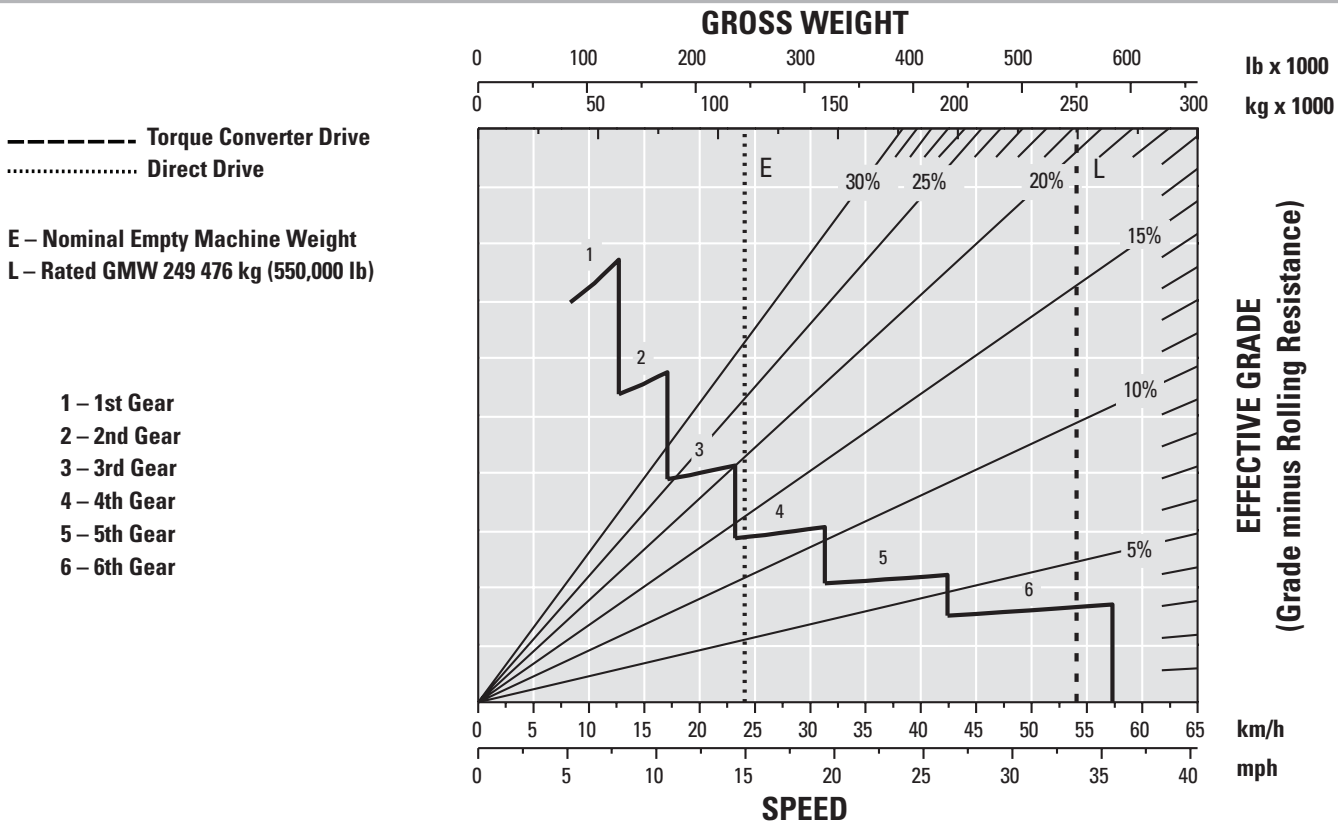
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785 Rimpull

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



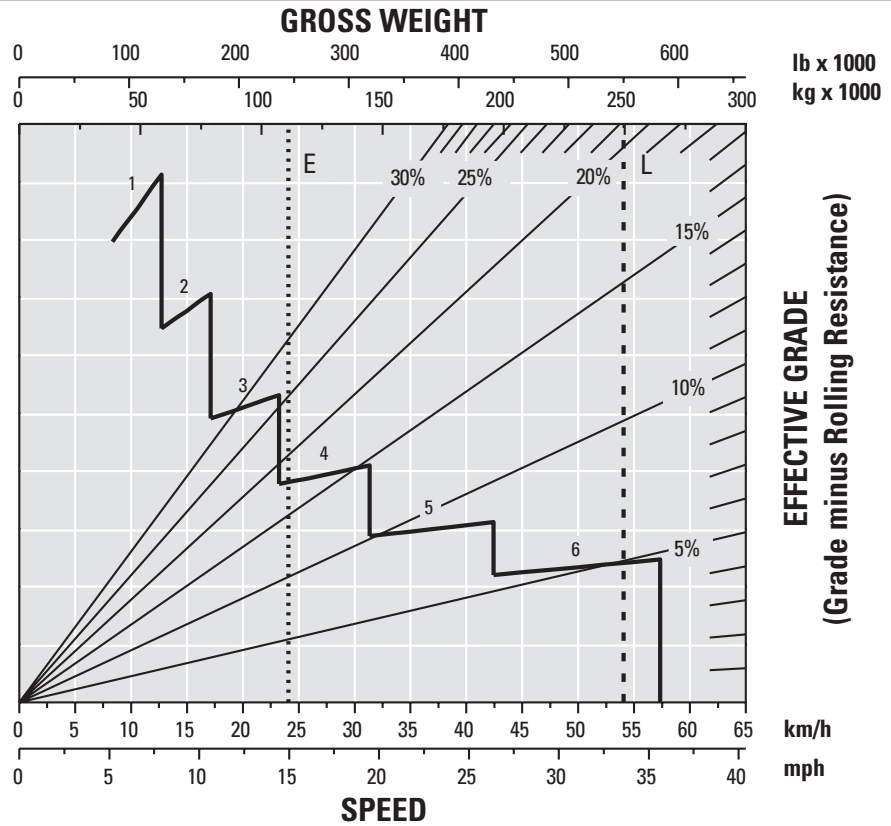
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785 Retarding – 450 m (1,475 ft)

Nominal Empty Machine Weight

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Gross Machine Weight
249 476 kg (550,000 lb)

- 1 – 1st Gear
- 2 – 2nd Gear
- 3 – 3rd Gear
- 4 – 4th Gear
- 5 – 5th Gear
- 6 – 6th Gear

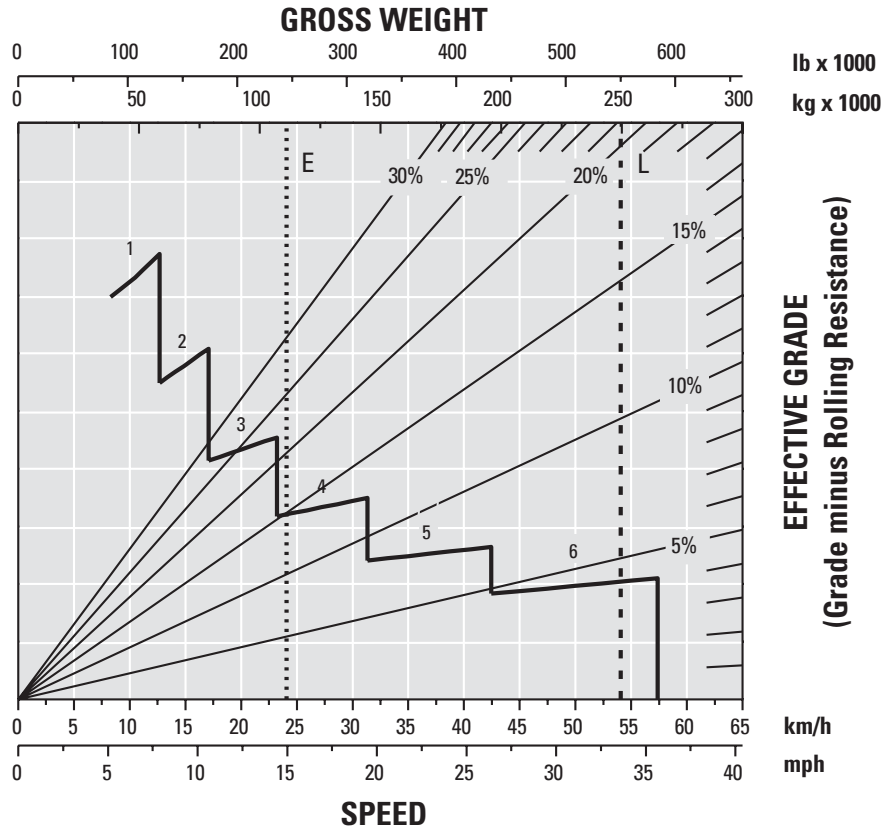


785 Retarding – 1500 m (4,900 ft)

Typical Field Empty Weight

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Gross Machine Operating Weight
249 476 kg (550,000 lb)

- 1 – 1st Gear
- 2 – 2nd Gear
- 3 – 3rd Gear
- 4 – 4th Gear
- 5 – 5th Gear
- 6 – 6th Gear



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 (two) 93 amp-hour	✓		5V USB charging port	✓	
Alarm, backup	✓		12V auxiliary power connection	✓	
Auxiliary rear work lights, (one) Left Hand (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: – Ethernet Vital Information Management System (VIMS™) port and VIMS lamp – Engine starter, transmission and battery lockouts	✓		Dome courtesy light and map lights	✓	
Jump start/battery charge receptacle	✓		Emergency stop	✓	
LED payload indicator lamps	✓		Entertainment radio ready: – Speakers	✓	
LED Lighting system: – Back-up and hazard lights – Curb lights, (one) Right Hand (RH) side, (one) LH side – Turn signals (front and rear) – Engine compartment lights – Headlights with low-high beam selector – Ladder light and service deck lights – Stop/tail lights	✓		– Radio mounting provisions and 12V power supply	✓	
– Additional lighting package		✓	– Antenna (AM/FM/WB/satellite radio)		✓
– Auxiliary VIMS			Fire suppression ready	✓	
– Body rear			Floor mat, multi-piece and replaceable	✓	
– Seat and park brake			Gauges and indicators panel: – Critical oil and coolant temperatures – Fuel and DEF level (if applicable) – Engine system, brake and transmission fault indicators – Operator selectable max. machine speed by rotary dial – Speedometer, Tachometer	✓	
– Workshop horn			Heated mirrors, right and left	✓	
TRUCK BODIES			Hoist, body control	✓	
MSD II body		✓	Interactive touchscreen vehicle information display: – Day/night mode – Action alarm – Quad gauge display	✓	
Dual slope body		✓	Operator air suspension seat	✓	
High Performance (HP) body		✓	Operator Door Power Window	✓	
Combination body (Coal/Overburden)		✓	Provision for customer accessory mounting	✓	
Body specific side wall and tail extensions		✓	Push button secure start	✓	
Customizable body liner packages		✓	Retractable front visor	✓	
Body heat exhaust		✓	ROPS cab, insulated/sound suppressed	✓	
Rock ejectors		✓	Stairway and walkway access, 600 mm (24 in)	✓	
Rear body lighting group: – Directional signals – 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)		✓			

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785 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
OPERATOR ENVIRONMENT <i>(continued)</i>			POWER TRAIN <i>(continued)</i>		
Three point seat belt for operator seat	✓		Hydraulic braking system:	✓	
Trainer air suspension seat		✓	– Automatic retarder control (ARC), adjustable and automatic		
Windshield wiper, intermittent control/washer	✓		– Brake release motor (towing)		
Unitized hydraulic powered HVAC with automatic temperature control	✓		– Engine over speed protection		
Ventilated operator seat	✓		– Extended life brake disc material		
Deluxe Cab:			– Oil-cooled, multi-disc (front and rear) – Service, retarding, parking, secondary		
– Advanced cabin filtration system	✓		– Park brake integrated with gear selector		
– Catwalk and handrails for rear cab access			Transmission:		
– Heated, cooled and ventilated front seat			– Six-speed, automatic power shift with Electronic Clutch Pressure Control (ECPC)	✓	
– Power right side window			– Advanced Productivity Electronic Control Strategy (APECS)		
– Suspended companion seat			– Body-up reverse neutralizer		
– Storage tray			– Body-up shift inhibitor		
POWER TRAIN			– Downshift/reverse shift inhibitor		
33R51 power train with standard rims	✓		– Directional shift management		
Cat 3512E engine:			– Enhanced Traction Control System		
– Automatic engine and DEF thermal management (if applicable)	✓		– Programmable top speed		
– Automatic low voltage idle management			– Oil level sensor		
– Air cleaner with pre-cleaner (two)			– Neutral coast inhibitor		
– Turbocharging (four) with air-to-air aftercooler			– Neutral start switch		
– Mechanical Electronic Unit Injector (MEUI™-A) fuel system			– Lock-up torque converter		
– Automatic starter protection			– Rear axle continuous lubrication/ filtration		
– Automatic ether starting aid			– Engine pre-lubrication system		✓
– No air – electric starter with 93-amp hour batteries (four), electric horn and automatic lubrication system		✓	– Rear axle continuous lubrication/ filtration with cooler		
– Turbine air starter with air tank, air horn and automatic lubrication system					
– Variable speed fan drive					

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Standard and Optional Equipment *(continued)*

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

	Standard	Optional		Standard	Optional
OTHER EQUIPMENT			CAT TECHNOLOGY PRODUCTS		
2560 L (676 gal) fuel tank (non-Tier 4)		✓	360 degree surround view camera		✓
Auxiliary “buddy” dumping quick connect	✓		4G cellular/satellite dual mode		✓
Auxiliary connection ‘user defined shutdown’	✓		Connectivity bundle (includes: wireless operator ID, bluetooth key FOB to start)		✓
Auxiliary steering quick connect (towing)	✓		Cyber security	✓	
Body heat exhaust		✓	Driver Safety System (DSS) 4.0 Ready		✓
Bumper towing – center pin kit		✓	Integrated object detection system with touchscreen display	✓	
Cold weather start (block heater)		✓	Minestar GPS		✓
Communication Ar – Minestar™ radio		✓	Minestar communication group (enables: Minestar Fleet, Auxiliary)		✓
Fast fill fuel and DEF remote fill system	✓		Oil Renewal System (ORS) (non-Tier 4)		✓
Fire extinguisher, portable		✓	Productivity bundle (includes: AutoHoist, crusher mode, dump control, Speed Coaching)		✓
Five piece crankcase guards		✓	Road Analysis Control (RAC)	✓	
Fuel heater, fuel water separator		✓	Truck Payload Monitoring System 2 (TPMS 2)	✓	
Fuel tank mud guard		✓	Product Link™ Elite	✓	
Gauge, brake wear indicator		✓	Remote Flash	✓	
Ground accessible fluid service center, hydraulic and coolant		✓	Remote Troubleshoot	✓	
Guards for rotating components	✓		Electronic Operations and Maintenance Manual	✓	
Hill Start Assist/Anti Roll Back	✓		Ground Control Standard Pkg	✓	
Hub odometer, kilometers		✓	Ground Control Advanced with Anti-lock Braking System (ABS) and Dynamic Stability Control (DSC)		✓
Hydraulic Filters, 1,000 hours	✓		Cruise Control		✓
Powered access stairway		✓			
Rim Diffuser		✓			
Secondary steering (automatic)	✓				
Tie off points	✓				
Tow hooks (front) and tow pin (rear)	✓				
Sight glasses for hydraulic oils	✓				
Scheduled Oil Sampling (S·O·S™) ports	✓				
Wheel chocks		✓			
Working at heights protection		✓			
VIMS	✓				

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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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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