

793F

Mining Truck



Engine

Engine Model	Cat® C175-16	
Gross Power – SAE J1995	1976 kW	2,650 hp

Operating Specifications

Nominal Payload Capacity	226.8 tonnes 250 tons
Gross Machine Operating Weight	386 007 or 390 089 kg (851,000 or 860,000 lb)

Features

Emissions

Meets U.S. EPA Tier 4 Final emission standards, and features the Caterpillar Selective Catalytic Reduction (SCR) system that provides the least Total Fluid Consumption cost with greater reliability.

High Performance Engine

The Cat C175-16 engine offers you the perfect balance between power, robust design and economy.

Enhanced Serviceability

Improved serviceability points and grouped service locations mean your truck spends more time on the haul road than in the shop.

Robust Braking

Cat oil-cooled, multiple disc brakes on all four corners offer you exceptional, fade-resistant braking.

Power Shift Transmission

A smooth shifting six speed transmission using ECPC gives operators a comfortable ride, constant power and improved fuel efficiency. The transmission includes Advanced Productivity Electronic Control Strategy (APECS), which provides a smoother ride for the operator, less spillage on the haul road, and faster machine acceleration.

Reliable Mechanical Drive System

The 793F's power train gives you the fastest truck on steep grades, poor underfoot conditions and on haul roads with high rolling resistance.

Comfortable Cab

Operators find the large, spacious cab offers excellent visibility and exceptional comfort.

Truck Body

A variety of Caterpillar designed and built bodies provide you optimal performance and reliability.



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Whether you're hauling copper, coal, gold, iron ore or overburden the 793F provides you with the best in class cost per unit of production. Including the improvements in safety, productivity, serviceability and comfort you will see why the 793F is the industry leader of its class. Combine these features with unmatched dealer support and you will see why more mine sites choose Cat Mining Trucks for their production needs.

Tier 4 Final 793F

Available for North America Only



Technician is shown using the ground level DEF fill on a 785G.

How Does Selective Catalytic Reduction Work?

Diesel Exhaust Fluid (DEF) is injected in controlled amounts into the engine exhaust stream. At elevated exhaust temperatures, urea in DEF is converted to ammonia. The ammonia reacts with Nitrous Oxide (NO_x) in the exhaust in the presence of the SCR catalyst and the reaction converts NO_x into harmless nitrogen and water.

Diesel Exhaust Fluid

DEF is a non-hazardous solution made up of urea and deionized water that has been commonly used in the on-highway industry for years.

- Similar infrastructure to diesel fuel.
- Requires specific storage container materials and controls to enable thaw and acceptable life.
- Standard ground level DEF fill on 793F.

Performance

- The Tier 4 Final 793F maintains the high top speed capability and productivity of the Tier 2 793F.
- Measured up to 5 percent reduction in diesel fuel consumption.
- Provides 93 percent reduction in Particulate Matter (PM) and 62 percent reduction in NO_x.
- Modular design is built on the reliability and durability of the Tier 2 793F.
- Delivers reduced sound levels compared to the Tier 2 793F.
- Closed loop feedback system ensures that Tier 4 Final aftertreatment system is performing at the optimal level.
- Tier 4 Final 793F has increased engine life targets from 3 406 870 liters (900,000 gallons) burned to 3 785 411 liters (1,000,000 gallons) burned before replacement.

Clean Emissions Module (CEM) ①

- Houses catalysts, mixing tube, NO_x sensors and DEF injectors.
- Located on the right hand platform for easy accessibility.
- Modular design minimizes impact to engine R&I.
- Exhaust or Body Heat options are available.

Pump, Electronics, and Tank Unit (PETU) ②

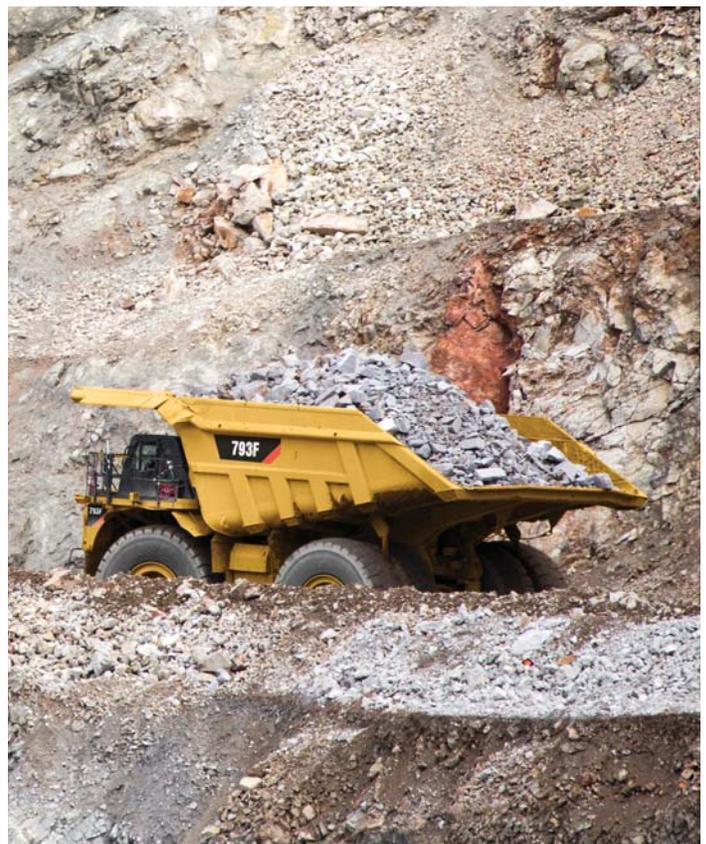
- Consists of DEF tank, pumps, controllers, and ground level fill.
- 234.7 L (62 gal) DEF tank integrated in the 2839 L (750 gal) fuel tank.
- DEF tank sized to be refilled when diesel is refilled.
- System effectively manages DEF temperatures via heated DEF tank and insulated DEF lines.

Serviceability

- Minimal impact to base-machine service intervals with no impact to the standard 500-hour and 1,000-hour planned maintenance (PM) activities.
- Tier 4 Final component intervals synchronized to minimize downtime.
- Engine oil interval extended from 500 hours to 1,000 hours due to low soot production (dependent on site specific evaluation and approval).
- On-board Tier 4 Final diagnostics integrated in to the machine's Vehicle Information Management System (VIMS).
- CEM unit is easily accessible from right hand platform allowing easy access to DEF injectors and NO_x sensors.
- CEM catalyst array is removable to minimize cost of ownership.
- Ground level fast-fill solution reduces refilling time.

Additional Information

- Available only for North American market.
- For detailed Tier 4 Final 793F machine specifications reference AEHQ8019.



793F Mining Truck Specifications

Engine

Engine Model	Cat C175-16	
Gross Power – SAE J1995	1976 kW	2,650 hp
Torque Rise	20%	
Bore	175 mm	6.9 in
Stroke	220 mm	8.7 in
Displacement	85 L	5,187 in ³

- Power ratings apply at 1,750 rpm when tested under the specified condition for the specified standard.
- Ratings based on SAE J1995 standard air conditions of 25° C (77° F) and 99 kPa (29.61 Hg) dry 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).
- No engine derating required up to 3200 m (10,500 ft) altitude.
- Meets Tier 4 Final emission standards.

Weights – Approximate

Operating Chassis Weight	124 586 kg	274,587 lb
Body Weight Range	26 862- 47 627 kg	59,220- 105,000 lb

- Chassis weight with 100 percent fuel, hoist, body mounting group, rims and 50/80 R57 tires.
- Body weight varies depending on how body is equipped.

Operating Specifications

Nominal Payload Capacity	226.8 tonnes	250 tons
Top Speed – Loaded	60 km/h	37.3 mph
Steer Angle	36 Degrees	
Turning Diameter – Front	28 m	93 ft
Turning Circle Clearance Diameter	33 m	107 ft
Target Gross Machine Weight	386 007 or 390 089 kg	851,000 or 860,000 lb

- Refer to the Cat Mining Truck 10/10/20 Overload Policy for maximum gross machine weight limitations.

Final Drives

Differential Ratio	1.8:1	
Planetary Ratio	16:1	
Total Reduction Ratio	28.8:1	

Transmission

Forward 1	12.9 km/h	8 mph
Forward 2	17.4 km/h	10.8 mph
Forward 3	23.8 km/h	14.8 mph
Forward 4	32.1 km/h	19.9 mph
Forward 5	43.6 km/h	27.1 mph
Forward 6	60 km/h	37.3 mph
Reverse	11.8 km/h	7.3 mph

Suspension

Effective Cylinder Stroke – Front	130.5 mm	5.1 in
Effective Cylinder Stroke – Rear	105.5 mm	4.2 in
Rear Axle Oscillation	±4.9 degrees	

Body Hoists

Pump Flow – High Idle	846 L/min	224 gal/min
Relief Valve Setting – Raise	20 370 kPa	2,955 psi
Body Raise Time – High Idle	19 Seconds	
Body Lower Time – Float	20 Seconds	
Body Power Down – High Idle	17.5 Seconds	

- Twin, two-stage hydraulic cylinders mounted outside main frame, double-acting cylinders in second stage.
- Power raise in both stages, power down in second stage.
- Automatic body lower modulation reduces impact on frame.

Brakes

Outside Diameter	874.5 mm	34.5 in
Brake Surface – Front	89 817 cm ²	13,921 in ²
Brake Surface – Rear	34 500 cm ²	20,847 in ²
Standards	ISO 3450:1996	

Weight Distributions – Approximate

Front Axle – Empty	49%
Rear Axle – Empty	51%
Front Axle – Loaded	33%
Rear Axle – Loaded	67%

Capacity – HP – 100% Fill Factor

Struck	112.6-151 m ³	147-197.5 yd ³
Heaped (SAE 2:1)*	162-191 m ³	212-250 yd ³

• Contact your local Cat dealer for body recommendation.

* ISO 6483:1980.

Service Refill Capacities

Fuel Tank	2839 L	750 gal
Cooling System	1074 L	284 gal
Crankcase	312 L	82 gal
Rear Axle Housing	984 L	260 gal
Steering System (Includes Tank)	290 L	77 gal
Brake/Hoist System (Includes Tank)	1315 L	347 gal
Torque Converter/Transmission Sump	102 L	27 gal
Torque Converter/Transmission System (Includes Sump)	209 L	55 gal
Diesel Exhaust Fluid Tank	234.7 L	62 gal

ROPS

ROPS Standards

- ROPS (Rollover Protective Structure) cab offered by Caterpillar meets ISO 3471:2008 for Operator and ISO 13459:2012 for Trainer.
- FOPS (Falling Objects Protective Structure) meets ISO 3449:2005 for Operator and ISO 13459:2012 Level II FOPS for Trainer.

Sound

Sound Standards

- The operator sound pressure level measured according to work cycle procedures specified in ISO 6394:2008 and ISO 6396:2008 is 74 dB(A) for cab offered by Caterpillar, when properly installed and maintained and tested with doors and windows closed.
- Hearing protection may be needed when operating with an open operator station and cab (when not properly maintained or doors/windows open) for extended periods or in a noisy environment.

Steering

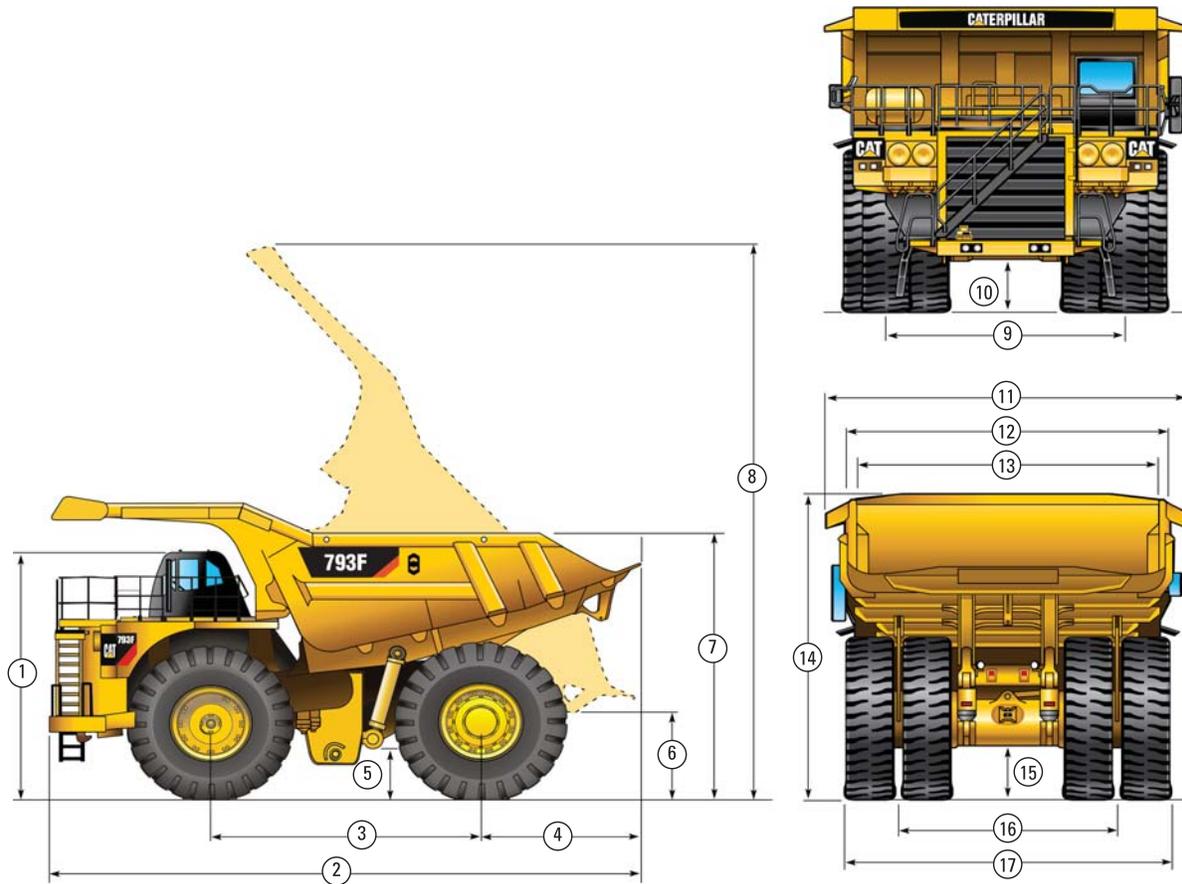
Steering Standards

ISO 5010:2007

793F Mining Truck Specifications

Dimensions

All dimensions are approximate.
Shown with 162 m³ (212 yd³) HP Body.



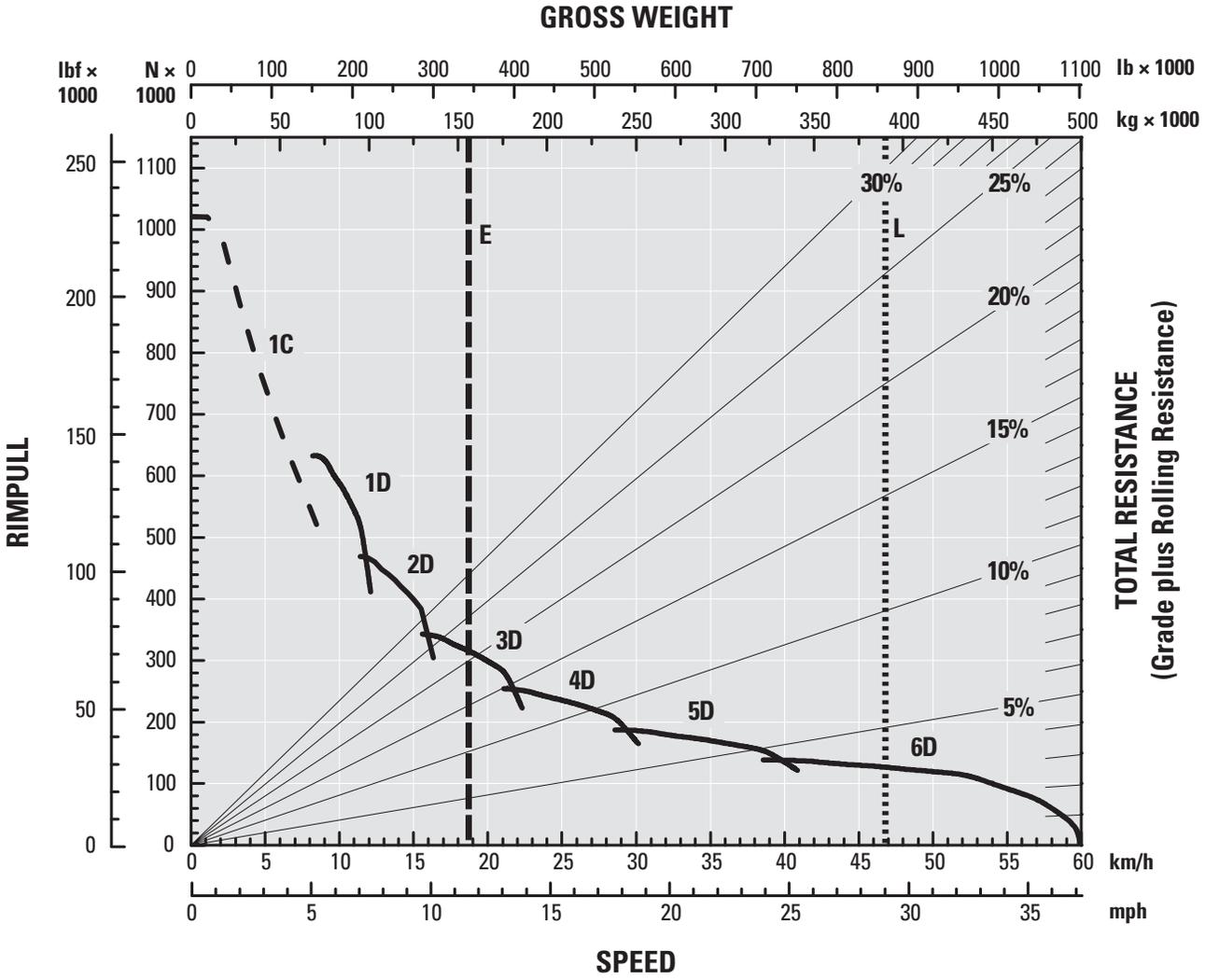
1 Height to Top of ROPS	5712 mm	18 ft 9 in	10 Engine Guard Clearance	1325 mm	4 ft 4 in
2 Overall Length	13 360 mm	44 ft 10 in	11 Overall Canopy Width	8563 mm	28 ft 1 in
3 Wheelbase	5905 mm	19 ft 5 in	12 Outside Body Width	7942 mm	26 ft 1 in
4 Rear Axle to Tail	3997 mm	13 ft 2 in	13 Inside Body Width	7334 mm	24 ft 1 in
5 Ground Clearance	1041 mm	3 ft 5 in	14 Front Canopy Height	7074 mm	23 ft 3 in
6 Dump Clearance	1301 mm	5 ft 4 in	15 Rear Axle Clearance	1130 mm	3 ft 9 in
7 Loading Height – Empty	6181 mm	20 ft 4 in	16 Centerline Rear Dual Tire Width	4963 mm	16 ft 3 in
8 Overall Height – Body Raised	13 710 mm	45 ft	17 Overall Tire Width	7605 mm	24 ft 11 in
9 Centerline Front Tire Width	5609 mm	18 ft 5 in			

793F Mining Truck Specifications

793F 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 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.

- Typical Field Empty Weight
- Target Gross Machine Weight
390 089 kg (860,000 lb)



- 1 – 1st Gear
- 2 – 2nd Gear
- 3 – 3rd Gear
- 4 – 4th Gear
- 5 – 5th Gear
- 6 – 6th Gear
- E – Empty
- L – Loaded
- * at sea level

- Torque Converter Drive
- Direct Drive

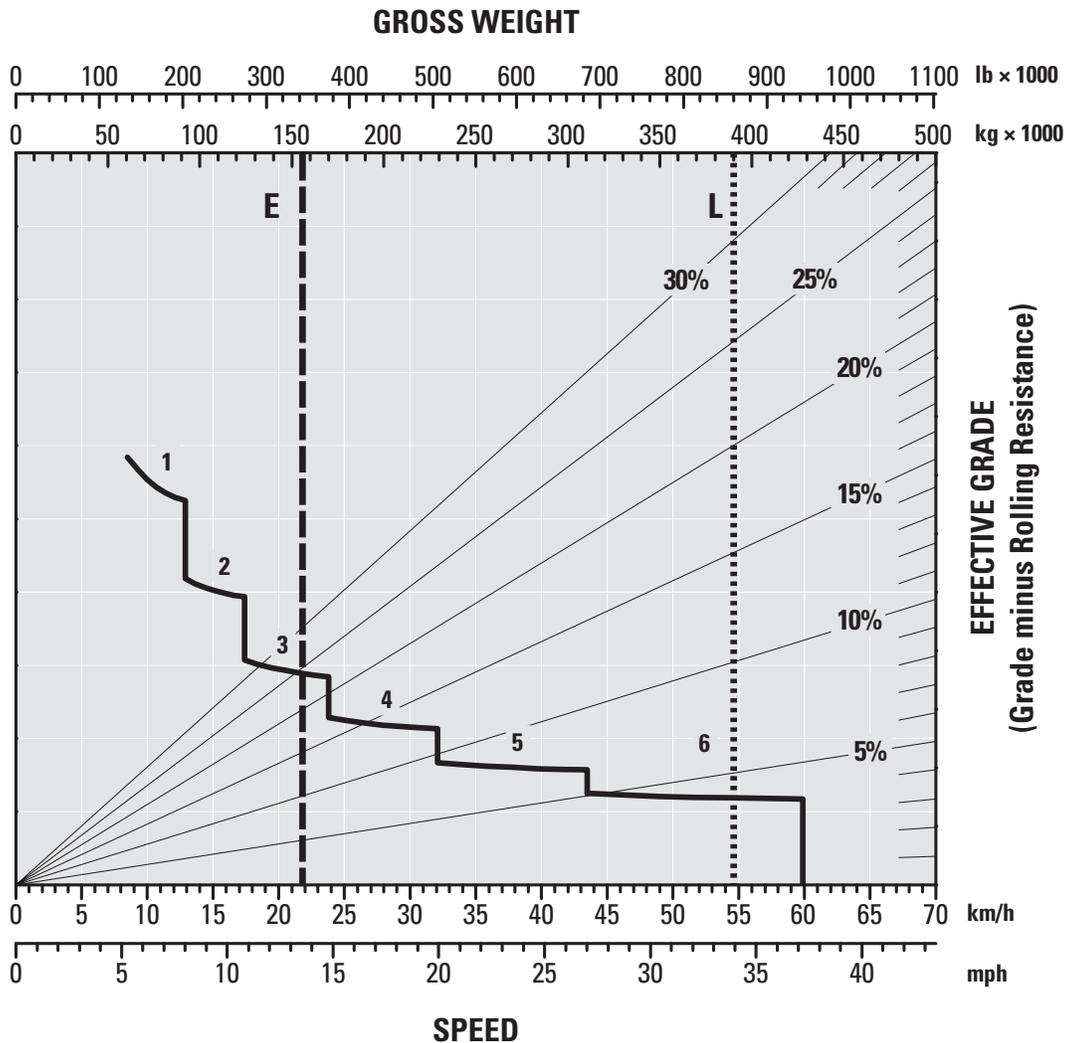
793F Mining Truck Specifications

793F Standard Retarding – Continuous*

To determine retarding performance: Add lengths of all downhill segments and, using this total, refer to proper retarding chart. Read from gross weight down to the percent effective grade. Effective grade equals actual % grade minus 1% for each 10 kg/t (20 lb/ton) of rolling resistance. From this weight-effective grade point, read horizontally to the curve with the highest obtainable gear, then down to maximum descent speed brakes can properly handle without exceeding cooling capacity. The following charts are based on these conditions: 32° C (90° F) ambient temperature, at sea level, with 46/90R-57 tires.

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.

- — — — — Typical Field Empty Weight
- Target Gross Machine Weight
390 089 kg (860,000 lb)

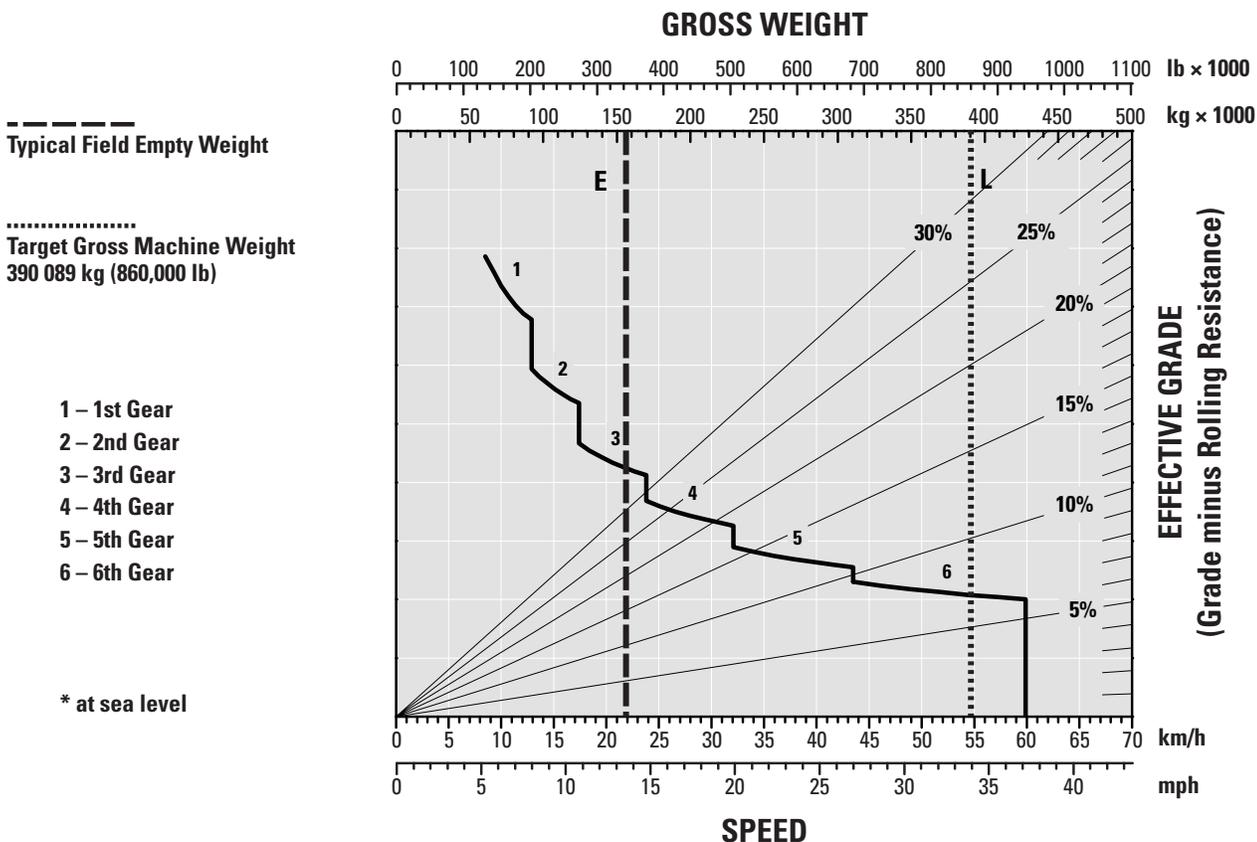


- 1 – 1st Gear
- 2 – 2nd Gear
- 3 – 3rd Gear
- 4 – 4th Gear
- 5 – 5th Gear
- 6 – 6th Gear

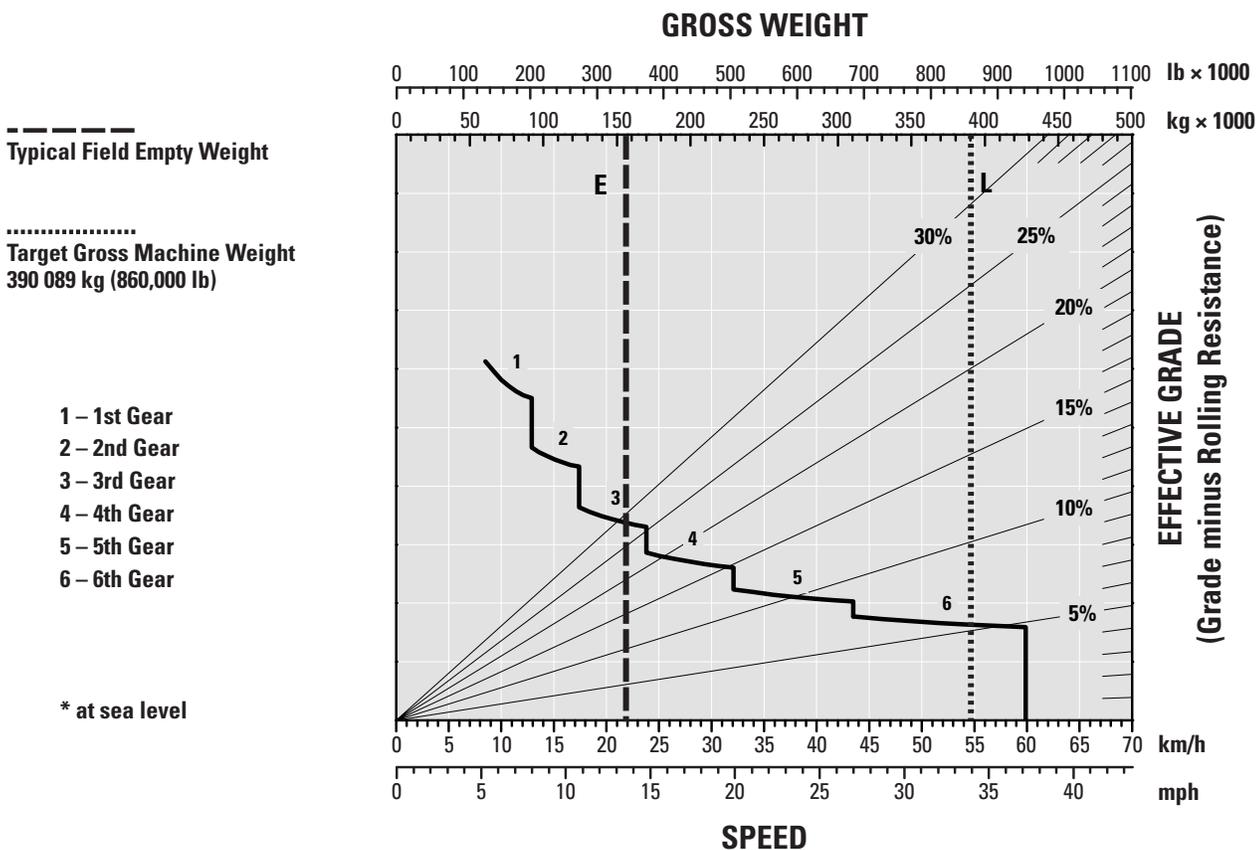
- E – Empty
- L – Loaded
- * at sea level

793F Mining Truck Specifications

793F Standard Retarding – 450 m (1,475 ft)*



793F Standard Retarding – 1500 m (4,900 ft)*



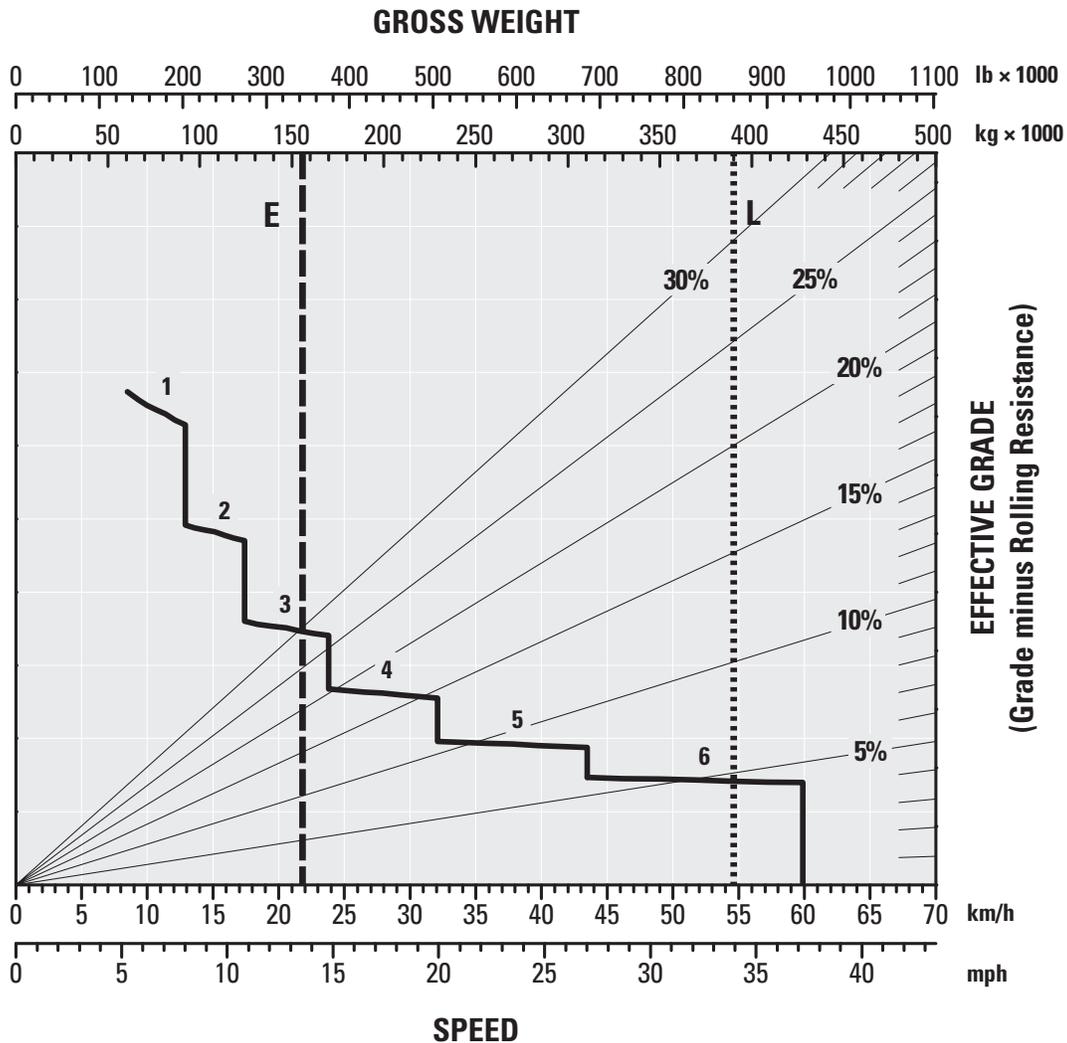
793F Mining Truck Specifications

793F Additional Retarding – Continuous*

To determine retarding performance: Add lengths of all downhill segments and, using this total, refer to proper retarding chart. Read from gross weight down to the percent effective grade. Effective grade equals actual % grade minus 1% for each 10 kg/t (20 lb/ton) of rolling resistance. From this weight-effective grade point, read horizontally to the curve with the highest obtainable gear, then down to maximum descent speed brakes can properly handle without exceeding cooling capacity. The following charts are based on these conditions: 32° C (90° F) ambient temperature, at sea level, with 46/90R-57 tires.

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.

- — — — — Typical Field Empty Weight
- Target Gross Machine Weight
390 089 kg (860,000 lb)

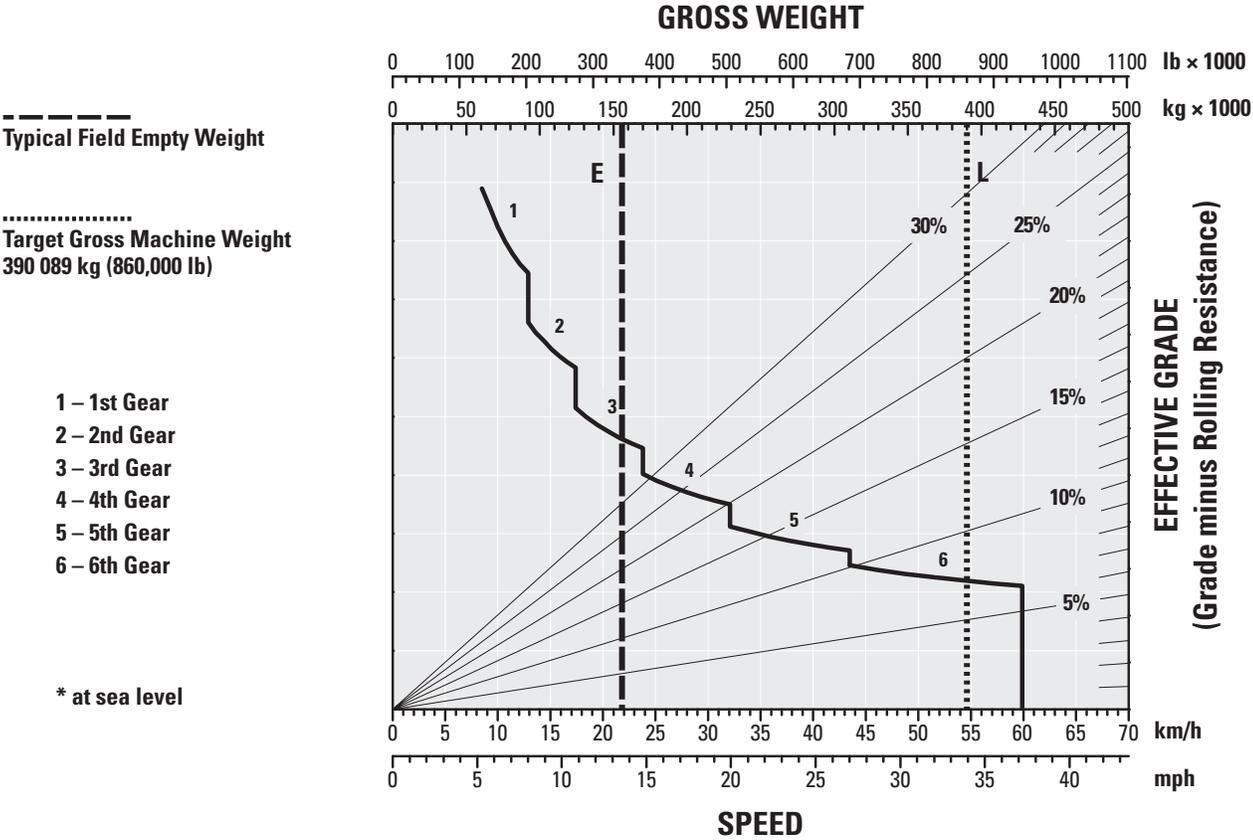


- 1 – 1st Gear
- 2 – 2nd Gear
- 3 – 3rd Gear
- 4 – 4th Gear
- 5 – 5th Gear
- 6 – 6th Gear

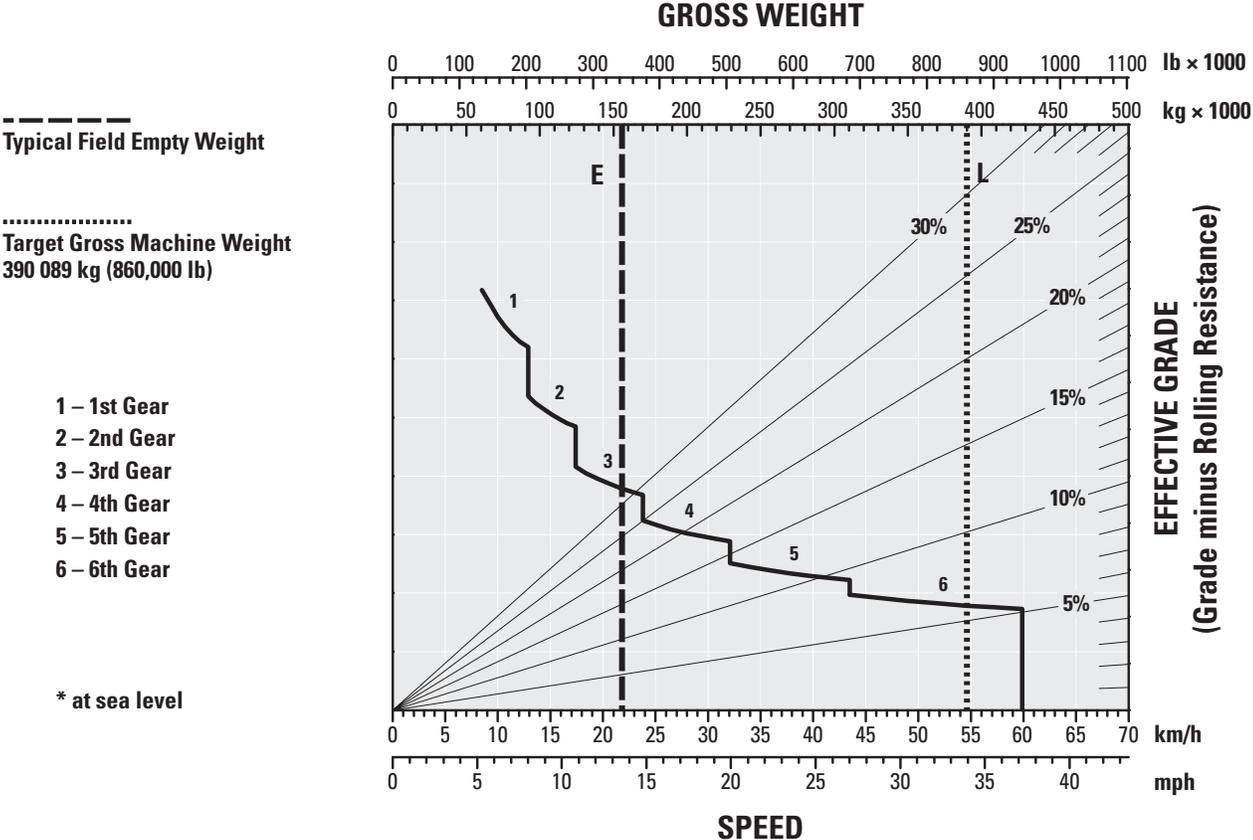
- E – Empty
- L – Loaded
- * at sea level

793F Mining Truck Specifications

793F Additional Retarding – 450 m (1,475 ft)*



793F Additional Retarding – 1500 m (4,900 ft)*



Standard Equipment

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

ELECTRICAL

- Alarm, Back-up
- Brushless Alternator, 225 ampere
- Batteries, 210-amp hour, low maintenance, 12-volt (2)
- Converter, 12-volt electrical
- Electrical System, 24-volt, 10, 15 and 20 amp
- Jump Start Receptacle
- Lighting System
 - Back-up and Hazard Lights
 - Directional Signals (front and rear LED)
 - Front Stair Access/Service Deck
 - Stop/Tail Lights (LED)
 - Engine Compartment
 - VIMS, Blue Light (LED)
 - Headlights, with Lo-Hi Beam Selector
 - Brake and Retarder Light Status Ready

OPERATOR ENVIRONMENT

- Air Conditioner with Automatic Climate Control
- 12-volt DC Power Supply (3)
- Coat Hook
- Cup Holder
- Diagnostic Connection Port
- Dome Courtesy Light
- Entertainment Radio Ready
 - 5 amp Converter, Speakers and Wiring Harness

- Gauge/Indicators
 - Gauge Panel:
 - Transmission Fluid Temperature
 - Brake Oil Temperature
 - Engine Coolant Temperature
 - Fuel Level
 - Torque Converter Oil Temperature
 - Electric Engine Control Fault Indicator
 - Electric Hour Meter
 - Speedometer
 - Tachometer
 - Diesel Exhaust Fluid Level Indicator
- Heater/Defroster, 11 070 kCal (45,930 Btu)
- Hoist, Body Control (electric)
- Horn
- Integrated Object Detection System
- Heated Mirrors, Right and Left
- ROPS Cab, Insulated/Sound Suppressed
- Seat, Operator, Air Suspension
- Seatbelt, Operator, Three Points, Retractable
- Seatbelt, Trainer, Two Points, Retractable
- Stairway and Walkway Access, 600 mm (23.6 in)
- Steering Wheel, Tilt, Padded, Telescopic
- Storage Compartments
- Tinted Glass
- Transmission Gear Indicator
- VIMS Message Center with Advisor
- Window, Operator, Electric Powered
- Windshield Wiper, Intermittent Control and A/C Condenser Filled Washer Bottle
- Plug and Play Radio 12V Unswitched Power Supply Outlets
- Fire Suppression Ready Cab

POWER TRAIN

- Cat C175-16 meets Tier 4 Final emission standards
 - Air Cleaner with Precleaner (4)
 - Air-to-Air Aftercooler (ATAAC)
 - Automatic Starter Protection
 - Ether Starting Aid (automatic)
 - Multi-Point Oil Pressure Sensing
 - Turbocharging (4)/Aftercooled
- Engine Aftertreatment System
 - Pump Electronic Tank Unit (PETU)
 - Clean Emissions Module (CEM)
- Braking System
 - Automatic Retarder Control, Adjustable
 - Brake Release Motor (towing)
 - Engine Overspeed Protection
 - Extended Life Brake Disc Material
 - Oil-cooled, Multi-disc (front and rear)
 - Service, Retarding, Parking, Secondary
 - Park Brake Integrated with Gear Selector
 - Secondary, Emergency
- Advanced Productivity Electronic Controls Strategy (APECS)
- Transmission
 - 6-speed, Automatic Powershift with Electronic Control (ECPC)
 - Body-up Reverse Neutralizer
 - Body-up Shift Inhibitor
 - Controlled Throttle Shifting
 - Directional Shift Management
 - Downshift/Reverse Shift Inhibitor
 - Individual Clutch Modulation
 - Lock-up Torque Converter
 - Neutral Coast Inhibitor
 - Neutral Start Switch
 - Programmable Top Speed
 - Pre-lubrication/Engine
 - Rear Axle Continuous Lubrication/Filtration

(continued on next page)

Standard Equipment *(continued)*

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

OTHER STANDARD EQUIPMENT

- Auto Lubrication System with 41 kg (90 lb) barrel, auto shutoff, and grease filter
- Aux “Buddy” Dumping Quick Connect
- Aux Steering Quick Connect (towing)
- Driveline Guard
- Fast Fill Diesel Exhaust Fluid System
- Fast Fill Diesel Fuel System
- Fuel Filter with Water Separator
- Ground Level Battery Lockout
- Ground Level Engine Shut-down
- Ground Level Engine Start Lockout
- Ground Level Transmission Lockout
- Ground Level VIMS Data Port
- Hi-speed Crankcase Oil Change
- Hydraulic Filters, 1,000 hour
- Reservoirs (3 separate)
 - Brake/Hoist, Steering/Fan, Transmission/Converter
- Rock Ejectors
- Service Points, Ground Level
- Sight Level Gauges for Hydraulic/Engine Oil
- S•O•SSM Sample Ports
- Supplemental Steering (automatic)
- Tie Down Eyes
- Tow Hooks (front)/Tow Pin (rear)
- Traction Control System
- Vandalism Protection Locks
- Vital Information Management System (VIMS)
 - Includes VIMS Payload Monitor with MAX Payload and Speed Manager
 - (Recommend using download cable 127-9797 and PC based software JERD2175. Supplemental software “VIMS Supervisor” YERA1403. Order separately. Computer not provided.)
- Primary Access Anti-slip High Visibility Demarcations
- Tie Off Points
- Rubber-lined Battery Box Lid
- Portable Fire Extinguisher Mounting
- SL-V Grease Injectors
- Fuel Tank Mud Guards

ANTIFREEZE

- Extended Life Coolant to -35°C (-30°F)

793F Optional Equipment

Optional Equipment

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

- Additional Retarding for Downhill Hauls
- Body Heat
- Cat Comfort Air Suspension Trainer Seat
- Antifreeze/Coolant Protects to -50°C (-58°F)
- Brake Wear Indicator Gauge
- Cabin Air Precleaner
- Center Tow Bumper Attachment
- Electric Powered Window, Right Side
- Electric Starting System
- Engine Coolant and Oil Heater for Cold Weather Starts
- Additional Lighting
- High Visibility Reflector Group
- Workshop Horn
- Working at Heights
- Emergency Stop
- Four Mirror Package
- Hydraulic Tank Mud Guards
- Engine Delay Shutdown Timer
- Extended Life Wheel Stations
- External Digital Payload Display
- Fast Fill Service Center with Live S•O•S and Keypad
- Cat Comfort Heated Operator Seat
- Hub Odometer (km and miles)
- Portable Fire Extinguisher
- Rear Axle Lubrication Cooler
- Retractable Front Sun Visor
- Rim Guard
- Rims (813 mm/32 in)
- Road Analysis Control (RAC)
- Throttle Lock
- Walkway and Handrail for Rear Cab Access
- Wheel Chocks
- Work Area Vision System (WAVS)

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

AEHQ8089 (10-2017)

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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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