

# 789D

## Mining Truck



### Engine (options)

Engine Model	Cat® 3516C EUI	
Gross Power – SAE J1995	1566 kW	2,100 hp
Rated Net Power – ISO 9249	1468 kW	1,969 hp
Engine Model	Cat® 3516B EUI	
Gross Power – SAE J1995	1417 kW	1,900 hp
Net Power – SAE J1349	1320 kW	1,771 hp

### Weights – Approximate

Gross Machine Operating Weight (GMW)	324 319 kg	715,000 lb
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### Operating Specifications

Nominal Payload Capacity	181 tonnes	200 tons
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**Caterpillar's exclusive design ownership provides advantages by creating a total hauling unit that delivers the best integration of high production, availability, and payload in combination with low operating cost and long life.**



**The Cat® 789D continues the tradition of Caterpillar's proven 789 Truck with high productivity and lowest in class cost per ton. The 789D features the following:**

- **Safety and Sustainability.** Safety is top priority.
- **Engine options** to meet regulatory requirements or application specific needs.
- **Production capability** with nominal payload capacity of 181 metric tons (200 short tons).
- **Performance** with the 1976 kW (2,100 hp) engine delivers fast speed on grade.
- **Access and Egress** with a diagonal stairway for primary machine access and 600 mm (24 in) walkways. Another option is the powered ground level access.
- **Serviceability** to enable safer and more efficient maintenance.
- **Larger tire options** have been designed into the 789D to provide a broader choice for tires. Applicable hauling conditions will benefit from increased tire life or significant reduction in tire costs.
- **Application specific capabilities** for extreme ambient conditions, high altitude applications, and extra quiet machine to reduce spectator sound levels.
- **A variety of Cat Truck Bodies** are available including Mine Specific Design (MSD II), X, Combination, Gateless Coal and Dual Slope bodies.

## Contents

Power Train – Engine .....	3
Power Train – Transmission .....	4
Engine/Power Train Integration.....	5
Structures.....	6
Operator's Station .....	7
Cat Brake System.....	8
Truck Body Systems .....	9
Monitoring System.....	10
Safety .....	11
Sustainability .....	12
Serviceability .....	13
Customer Support.....	14
Specifications.....	15
Standard Equipment.....	23
Optional Equipment.....	24

# Power Train – Engine

The Cat® 3500 series engines are built for power, reliability and efficiency for superior performance in the toughest applications.

## Engine

Both the Cat® 3516B and 3516C EUI Quad turbocharged diesel engines deliver high power and reliability in the world's most demanding mining applications.

## Design

The 3500 series engines are 16-cylinder, four-stroke designs that uses long, effective power strokes for more complete fuel combustion and optimum efficiency.

## EPA Compliant

Where applicable, the 3516C engine is compliant with U.S. Environmental Protection Agency emissions requirements.

## High Torque Rise

The 23% net torque rise provides unequalled lugging force during acceleration, on steep grades and in rough underfoot conditions. Torque rise effectively matches transmission shift points for maximum efficiency and fast cycle times.

## Enhanced Life

High displacement, low rpm rating, and conservative horsepower ratings mean more time on the haul roads and less time in the shop.

## 3516B Separate Circuit Aftercooler

Allows the aftercooler circuit to operate cooler than jacket water temperature for a denser air charge and greater combustion efficiency.

## 3516C Air to Air Aftercooler (ATAAC)

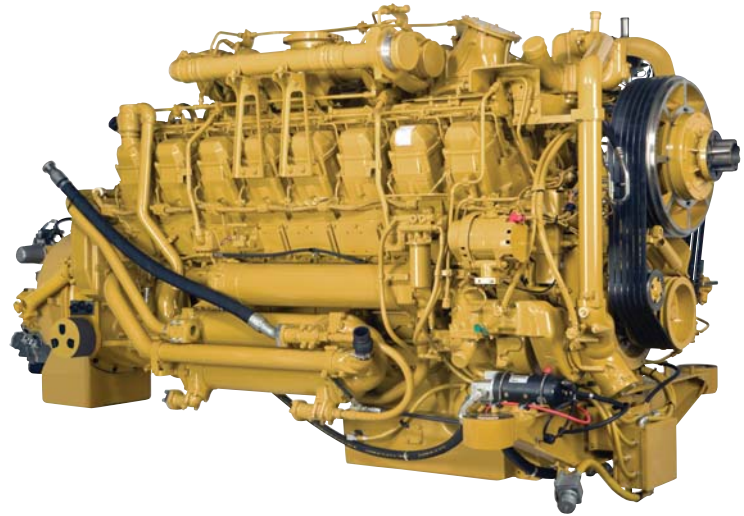
The 1566 kW (2,100 hp) engine option uses an Air To Air Aftercooler to achieve an even greater reduction in air intake temperatures. This results in improved fuel efficiencies and desired emissions levels.

## Electronic Control Module (ECM)

Utilizes advanced engine management software to monitor, control, and protect the engine utilizing self-diagnosing electronic sensors.

## Air Conditioner Compressor System

The air conditioner compressor and lines have been moved to provide easier service, less connection points and compliance to EU standards. Auto tension functionality makes removing and adjusting belts no longer necessary.



# Power Train – Transmission

Cat mechanical power train delivers more power to the ground for greater productivity and lower operating costs.



## Mechanical Power Train

The Cat mechanical drive power train and power shift transmission provides unmatched operating efficiency and control on steep grades, in poor underfoot conditions, and on haul roads with high rolling resistance.

### 1) Transmission

The Cat six-speed planetary power shift transmission is matched with the direct-injection 3516 diesel engine to deliver constant power over a wide range of operating speeds.

### Robust Design

Designed for the higher horsepower of the 3516 engine, the proven planetary power shift transmission is built tough for long life between overhauls.

### Transmission Chassis Control (TCC)

TCC uses electronically transferred engine rpm data to execute shifts at preset points for optimum performance, efficiency and clutch life.

### 2) Lock-Up Torque Converter

Combines maximum rimpull and cushioned shifting of torque converter drive with the efficiency and performance of direct drive. Engages at approximately 7.2 km/h (4.5 mph), delivering more power to the wheels.

### 3) Final Drives

Cat final drives work as a system with the planetary power shift transmission to deliver maximum power to the ground. Built to withstand the forces of high torque and impact loads, double reduction final drives provide high torque multiplication to further reduce drive train stress.

### Steering System

Hydraulic steering control system is designed for exceptional smoothness and precise control. A separate circuit prevents cross contamination for long life.

### Supplemental Steering

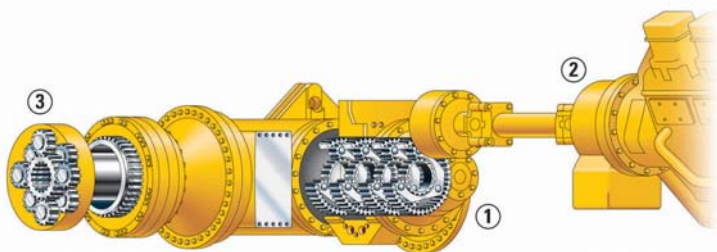
Supplemental steering system uses pressure accumulators and allows up to three 90 degree turns in case of engine failure.

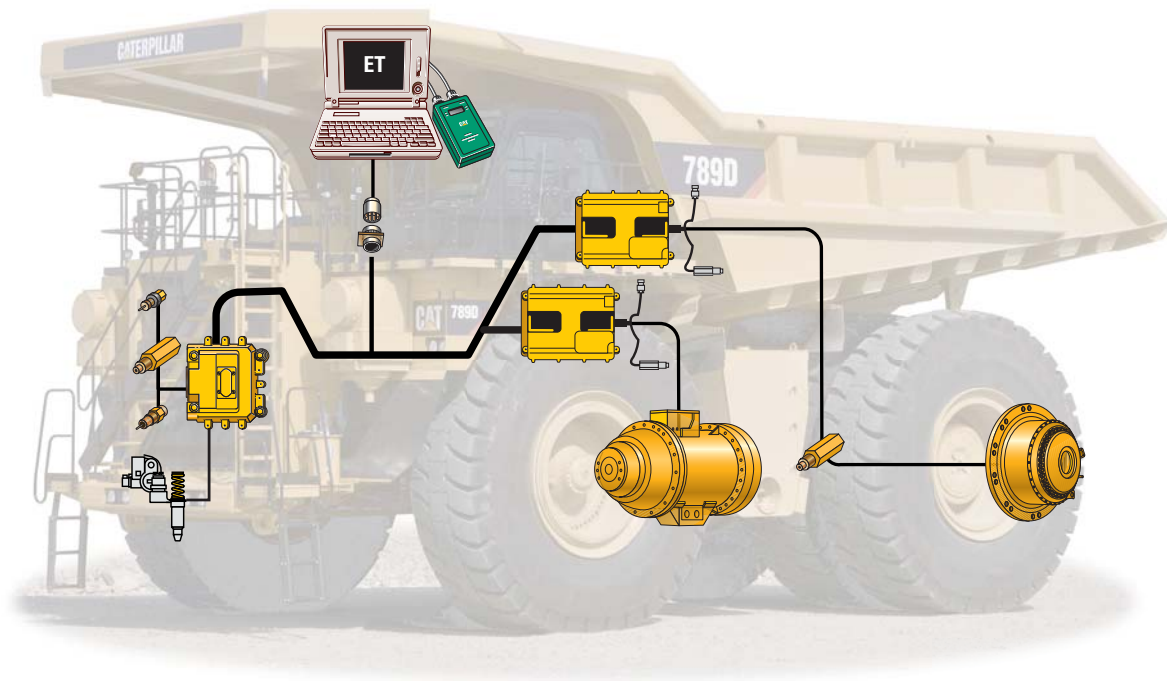
### Tires

Larger tire options have been designed into the 789D to provide a broader choice for tires. Applicable hauling conditions will benefit from increased tire life or significant reduction in tire costs.

### Wheels and Rims

Cast rear wheels and Cat center-mount rims are mounted using studs and nuts to minimize maintenance and maximize durability. Optional quick change rims also available.





# Engine/Power Train Integration

Electronically combines critical power train components to work more intelligently and to optimize overall truck performance.

## **Cat Data Link**

Electronically integrates machine computer systems to optimize overall power train performance, increase reliability and component life, and reduce operating costs.

## **Electronic Technician (Cat ET)**

Cat ET service tool provides service technicians with easy access to stored diagnostic data through the Cat Data Link to simplify problem diagnosis and increase machine availability.

## **Integrated Braking Control (IBC)**

Integrates Hydraulic Automatic Retarder Control and Traction Control into one system for optimum performance and efficiency.

## **Body-up Reverse Neutralizer**

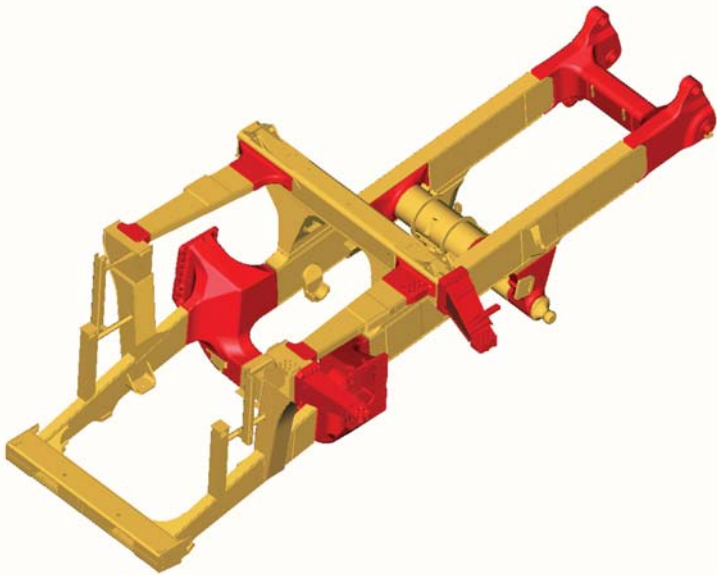
Automatically shifts the transmission to neutral if the hoist lever is activated while transmission is shifted in reverse.

## **Controlled Throttle Shifting**

Regulates engine rpm during shifting to reduce power train stress and clutch wear by controlling engine speed, torque converter lock-up and transmission clutch engagement for smoother shifts and longer component life.

# Structures

Rugged Cat structures are the backbone of the 789D mining truck's durability.



## Box-Section Design

The 789D frame uses a box-section design, incorporating two forgings and 21 castings in high stress areas with deep penetrating and continuous wrap-around welds to resist damage from twisting loads without adding extra weight.

## Serviceability

The open box-section frame design allows easy access to power train components, reducing overall removal and installation time, and lowering overall repair costs. The raised and pinned body allows excellent access to the transmission.

## Steel Structures

Mild steel used throughout frame provides flexibility, durability, and resistance to impact loads, even in cold climates. Additionally, mild steel facilitates easy field repair.

## Castings

Castings have large radii with internal reinforcing ribs to dissipate stress in areas of high stress concentration. Castings move welds to lower stress areas for greater frame life.

## Integral Four-Post ROPS Cab

Resiliently mounted to the main frame to reduce vibration and sound, the integral ROPS is designed as an extension of the truck frame. The ROPS/FOPS structure provides “five sided protection” for the operator.

## Suspension System

Designed to dissipate haul road and loading impacts for longer frame life and a more comfortable ride.

## Cylinders

Four independent self-contained, oil pneumatic, variable-rebound suspension cylinders are designed to absorb shocks in the most severe applications.

## Durable Design

Rugged cylinders utilize large diameter bore and low pressure nitrogen/oil design for long life with minimal maintenance.

- **Front.** Front cylinders with preset caster and camber are mounted to the frame and serve as steering kingpins for a tight turning radius with excellent maneuverability and low maintenance.
- **Rear.** Rear cylinders allow axle oscillation and absorb bending and twisting stresses caused by rough, uneven haul roads rather than transmitting them to the main frame.





# Operator's Station

Ergonomically designed for operator comfort, superior control, and high productivity.

## Operator Environment

Through the packaging of popular attachments into arrangements, customers can now select one cab that is equipped with desired features. Available offerings include a Standard Cab, Deluxe Cab or Deluxe Cold Weather Cab.

1) Air Suspension Seat with Three-Point Operator Restraint 2) Parking Brake Reset Valve 3) Trainer Seat 4) Storage Compartment 5) Operator Window 6) Secondary Brake Pedal 7) Transmission Console 8) Operator Controls 9) Adjustable Steering Wheel/Column (Tilt and Telescoping) 10) Heating/Air Conditioning 11) Monitoring System 12) Object Detection Monitor 13) Upper controls 14) Radio Ready

## Enhanced Operator Visibility

Through the use of the fully Integrated Object Detection System, RADAR AND CAMERA, the operator can receive both audible and visual indications of detected objects. In addition, the operators right hand view is improved due to relocation of the air tank lower on the chassis.

## Ergonomic Layout

The 789D operator station is ergonomically designed for total machine control in a comfortable, productive and safe environment. All controls, levers, switches and gauges are positioned to maximize productivity and minimize operator fatigue.

## Quiet Cab

Integral, sound-suppressed ROPS/FOPS cab is resiliently mounted to the mainframe to isolate the operator from sound and vibration for a quiet, secure and comfortable ride.

## Viewing Area

Designed for excellent all-around visibility and clear sight lines to the haul road. The large viewing area enables the operator to maneuver with confidence for high productivity.

## Radio Ready

The operator's station comes ready with power ports, speakers, antenna, and electrical connections to facilitate trouble-free radio installation. Consult your dealer for the complete line of available Cat radio options including satellite radio.

# Cat<sup>®</sup> Brake System

Reliable braking with superior control gives the operator the confidence to focus on productivity.



## Integrated Braking System

The Cat oil-cooled braking system delivers reliable performance and control in the most extreme haul road conditions. The integrated system combines the service, secondary, parking brake and retarding functions in the same robust system for optimum braking efficiency.

## Four Corner Retarding

Four corner retarding with 60/40 percent split (rear/front) in braking effort provides superior control in slippery conditions. Balanced front to rear brake torque provides exceptional braking performance and minimizes wheel lock-up, especially during retarding.

## Oil-Cooled Multiple Disc Brakes

Cat four-wheel, forced oil-cooled, multiple disc service brakes are continuously cooled by water-to-oil heat exchangers for exceptional, non-fade braking and retarding performance.

## Extended Life Disc Brakes

Extended life friction material has double the wear life of standard brakes and is twice as resistant to glazing for more consistent braking power with less noise.

## Pistons

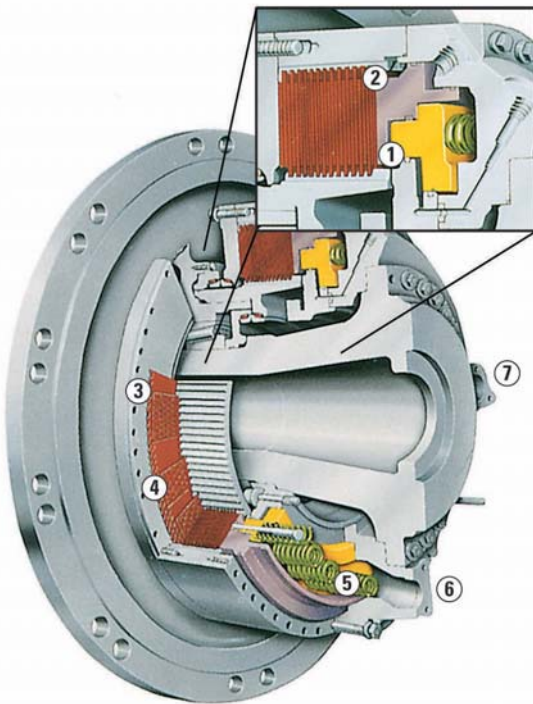
The Cat two-piece piston design combines the service, secondary, parking brake, and retarding functions in the same system. The primary piston hydraulically actuates both service and retarding functions. The secondary piston is spring-applied and held in the disengaged position by hydraulic pressure. If hydraulic system pressure drops below a specified level, the spring-applied secondary piston automatically applies the brakes.

## Parking Brake

Oil-cooled, spring-applied, hydraulically released parking brake is applied to all four wheels for superior parking capability on all grades up to 15 percent.

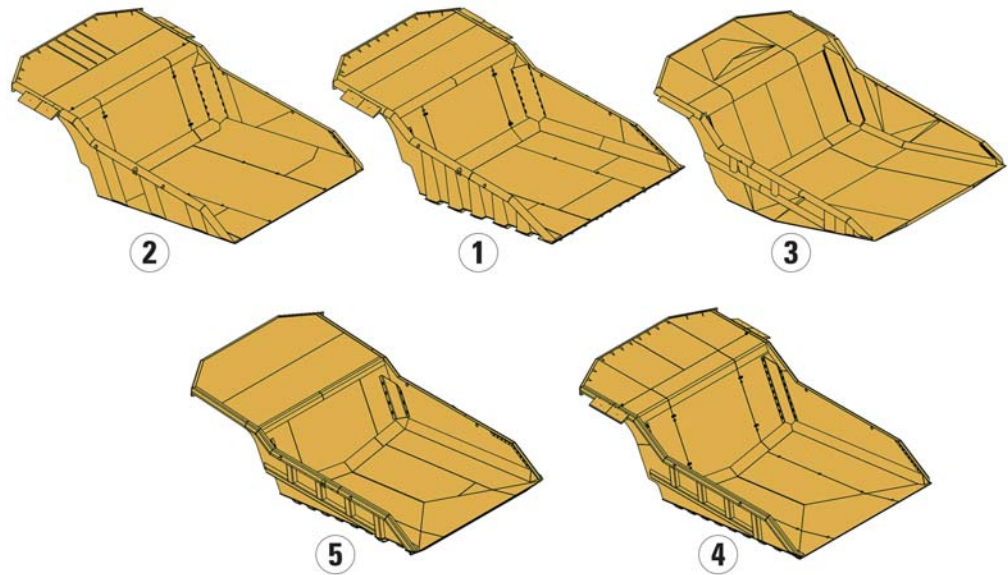
## Hydraulic Automatic Retarder Control (HARC)

Hydraulically activated automatic retarder control system electronically controls retarding on grade to maintain optimum engine rpm and oil cooling. Additional braking may be applied using the manual retarder or the brake pedal. HARC is deactivated when the operator applies the brake or accelerator controls.



- 1) Parking/Secondary Piston 2) Service/Retarding Piston  
3) Friction Discs 4) Steel Plates 5) Actuating Springs  
6) Cooling Oil In 7) Cooling Oil Out





# Truck Body Systems

Cat designed and built for rugged performance and reliability in the toughest mining applications.

## Cat Truck Bodies

Matching the truck body to the application is a critical part of achieving the best value from your 789D. Caterpillar offers a variety of application specific body options that yield a payload ranging from 177 to 188 metric tons (195 to 207 tons). The Caterpillar exclusive 10/10/20 payload guidelines help achieve a balance of excellent payload with safe operation.

## Body Options

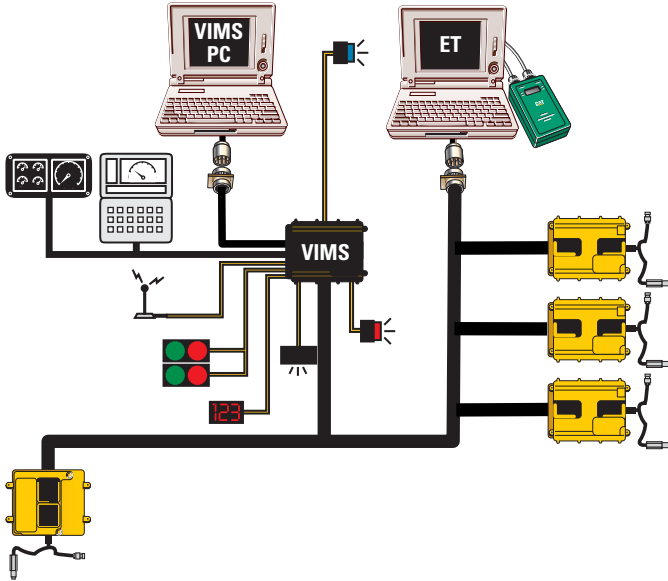
- 1) **Cat "X" Body** – The X body is a heavy duty body configured with a variety of liner options to meet site specific requirements of a mine. Like the Dual Slope – the X body is designed for durability across a range of harsh applications.
- 2) **Mine Specific Body (MSD II)** – For mature mines with good operational and maintenance practices, the lighter weight MSD II (Mine Specific Design) body is available in several sizes. It is a customer/site specific body that is designed to maximize performance. The MSD II is designed to maximize payload, provide good durability and can be configured with a variety of liner options to meet the specific requirements of the mine.
- 3) **Gateless Coal Body** – This specialized high volume body, available in several sizes, is targeted at dedicated coal haulage applications with minimal impact. The kicked up floor design eliminates the tailgate and gives the volume required to meet target payload.
- 4) **Combination Body** – This is a multi-purpose, high volume body for light density, well fragmented material. Based off of the dual slope design for customers who need a flexible body to haul light ore (such as coal) and light, well fragmented overburden.
- 5) **Dual Slope Body** – The original standard body, the Dual Slope body, provides excellent load retention, maintains a low center of gravity with optimum load distribution, reduces shock loading and is available in lined and unlined configurations. The Dual Slope body is intended for tough applications including greenfield sites and contracting mines.

## Custom Body Options

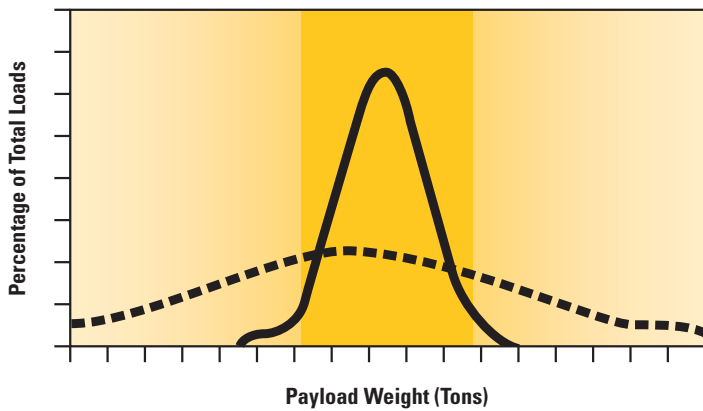
A variety of options including tail extensions, sideboards, tumble bars, rock boxes and rock shedders are available to maintain rated payload, reduce spillage and improve hauling efficiencies.

# Monitoring System

Vital machine health and payload data keeps the 789D performing at peak production levels.



**Payload Weight Distribution**



■ Recommended Payload Range      — With Production Management  
■ Inefficient Payload Ranges      - - Without Production Management



## VIMS™ Monitoring System

Intelligent Caterpillar designed machine monitoring system provides critical machine health and payload data in real-time to keep the 789D performing at top production levels. This system is translated and available in most of the major international languages.

## Production Management

Production Management enhances truck/loading tool effectiveness, improves fleet productivity and helps extend the life of truck frames, tires, rims and power train components, while lowering operating and maintenance cost.

## Payload Management

Max Payload Speed Manager is a feature that aids in managing the Cat 10/10/20 Overload Policy. Based on target payload weight and overload settings, the VIMS system logs and warns the operator when the truck reaches overload after 2nd gear reweigh. The truck will be limited to 2nd gear at 1,750 rpm, and the automatic retarder speed setting is reduced to 1,750 rpm until the load is dumped.

Payload management enables the manager to enhance truck/loading tool effectiveness and productivity levels by preventing overloads that can cause damage to component life and affect operator safety.

## Road Analysis Control (RAC)

Optional system monitors haul road conditions by measuring frame rack, pitch, and bias to improve haul road maintenance, cycle times, tire life, and fuel efficiency.

## VIMS-PC

VIMS-PC, the off-board reporting software program, allows service personnel to download a complete record of machine health and productivity data to a laptop computer for diagnosis and analysis. Easy-to-use software enables service technicians and mine management to generate health and payload reports for more effective machine management.

## VIMS Supervisor

Optional software allows mine management to easily manage and interpret VIMS data for optimum fleet management and productivity.

## Machine Management

Service technicians or mine personnel can download data and generate reports for better machine management. Data can be used to improve effectiveness of scheduled maintenance programs, maximize component life, improve machine availability, and lower operating costs.



# Safety

Cat mining machines and systems are designed with safety as their first priority.

## Product Safety

Caterpillar has been and continues to be proactive in developing mining machines that meet or exceed safety standards. Safety is an integral part of all machine and system designs.

## Mining Technologies

Cat® MineStar™ System encompasses a comprehensive suite of mining technologies grouped within a number of configurable capability sets, including Fleet, Terrain, Detect, Health, and Command. Object Detection is part of the Detect capability set and provides customers with a scalable system to aid in the awareness of machines and other objects in the near vicinity of working equipment.

Object Detection systems are factory installed as standard equipment on 789D mining trucks. The fully integrated Object Detection system, RADAR AND CAMERA, provides both audible and visual indications of detected objects using radars which surround the machine, along with cameras on each side to allow the operator to confirm the detected object. The cameras supplement the radar alerts and are selectable by touch screen menus through an intuitive interface.

## Overload Policy

Adherence to the Caterpillar 10/10/20 Overload Policy assures that steering and braking systems have sufficient capacity to perform.

## Standard Safety Features

Slip resistant surfaces, retractable, seat/shoulder belts with three-point operator restraint, wide-angle mirrors, body raised indicator, body retaining cable, guard rails, reverse neutralizer when dumping, low interior sound level, secondary steering system, ground level access shutoff switches.

[SAFETY.CAT.COM™](http://SAFETY.CAT.COM™)



# Sustainability

A variety of features improve sustainability in areas of decreasing waste, extending component life and lowering emissions levels.

## **Sustainability Features**

The 789D Mining Truck offers oil renewal systems, extended life filters and extended maintenance intervals which aid in decreasing the amount of waste contributed to our environment.

### **Oil Renewal System**

Optional oil renewal system extends engine oil change intervals from 500 hours to 4,000 hours or more to increase machine availability and reduce costs.

### **Engines with Advanced Technology**

Engines with advanced technology contribute less emissions to the environment while maintaining fuel efficiency.

### **Fuel Efficiency**

The engine provides additional retarding by running against compression on downhill hauls. During retarding applications the engine ECM does not inject fuel into the cylinders for exceptional fuel economy.

# Serviceability

Less time spent on maintenance means more time on the haul roads.

## Tie Off Points

Enhances working environment during service of recommended maintenance areas.

## Servicing Ease

Easy access to daily service points simplifies servicing and reduces time spent on regular maintenance procedures. Enhanced serviceability and 500-hour service intervals are designed to increase machine availability and productivity.

## Maintenance Platform

Provides access to engine, steering hydraulic tank, and battery compartment.

## In-Frame Access

Permits easy access to major components for easy servicing and removal.

## Ground-Level Access

Allows convenient servicing to tanks, filters, drains, and engine shutdown. Ground-level VIMS data port permits easier downloading of information.

## Autolube

Automatic lubrication system reduces maintenance time by automatically lubricating necessary components on a regular basis.

## Fast Fill Service Center

Optional fast fill service center features high speed fuel and oil exchange.

## Scheduled Oil Sampling

S•O•S<sup>SM</sup> sampling valves speed sampling and analysis reliability.

## Pressure Test Points

Disconnect valves are conveniently located throughout the hydraulic systems for easy pressure testing.

## Sealed Electrical Connectors

Electrical connectors are sealed to lock out dust and moisture. Harnesses are braided for protection. Wires are color coded for easy diagnosis and repair.

## Cylinder Heads

Individual cylinder heads are interchangeable for easy removal and visual inspection of internal parts.

## On-Board Diagnostic Systems

The VIMS system continuously monitors all critical machine functions and components to help locate faults quickly for faster repair.





# Customer Support

Cat dealers have what it takes to keep mining haul trucks productive.

## **Commitment Makes the Difference**

Cat dealers offer a wide range of solutions, services and products that help you lower costs, enhance productivity and manage your operation more efficiently. Support goes far beyond parts and service. From the time you select a piece of Cat equipment until the day you rebuild, trade or sell it, the support you get from your Cat dealer makes the difference that counts.

## **Dealer Capability**

Cat dealers will provide the level of support you need, on a global scale. Dealer expert technicians have the knowledge, experience, training and tooling necessary to handle your repair and maintenance needs, when and where you need them.

## **Product Support**

Cat dealers believe superior products deserve superior support. When Cat products reach the field, they are supported by a worldwide network of parts distribution facilities, dealer service centers, and technical training facilities to keep your equipment up and running. Cat customers rely on prompt, dependable parts availability and expertise through our global dealer network, ready to meet your needs 24/7.

## **Technology Products**

Cat dealers offer a range of advanced technology products such as VIMS monitoring system and MineStar® information management system. These products include radio data communications, machine monitoring and diagnostics, fleet management, and haul road maintenance software – all designed to improve fleet efficiency, increase productivity, and lower costs.

## **[www.cat.com](http://www.cat.com)**

For more complete information on Cat products, dealer services, and industry solutions, visit us on the web at [www.cat.com](http://www.cat.com).

# 789D Mining Truck Specifications

## Engine

Engine Model	3516C – HD	
Gross Power	1566 kW	2,100 hp
Rated Net Power (ISO 9249)	1468 kW	1,969 hp
Bore	170 mm	6.7 in
Stroke	210 mm	8.3 in
Displacement	78.1 L	4,766 in <sup>3</sup>

## Optional Engine

Engine Model	3516B EUI	
Gross Power	1417 kW	1,900 hp
Rated Net Power (ISO 9249)	1335 kW	1,791 hp
Bore	170 mm	6.7 in
Stroke	190 mm	7.5 in
Displacement	69 L	4,211 in <sup>3</sup>

- Power ratings apply at 1,750 rpm when tested under the specific conditions for the specified standard.
- Ratings based on SAE J1995 standard air conditions of 25° C (77° F) and 99 kPa (29.32 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).
- 3516B engine, (STANDARD) no derate required up to 2300 m (7,500 ft) altitude.
- 3516C engine, (EPA/ARB Flexibility) no engine derate required up to 2743 m (9,000 ft).
- 3516C engine, (STANDARD) no engine derate required up to 3658 m (12,000 ft).
- Where applicable, the 3516C engine, (EPA/ARB Flexibility) arrangement is compliant with U.S. Environmental Protection Agency regulations.

## Weights – Approximate

Gross Machine Operating Weight (GMW)	324 319 kg 715,000 lb	
Body Weight Range	23 920 kg- 45 547 kg	52,850 lb- 100,414 lb
Empty Operating Chassis Weight (EOCW)	99 129 kg 218,542 lb	

- Body weight varies depending on how body is equipped.
- Estimated weight of debris is not included in operating chassis weights.
- Chassis weight includes standard rims and tires, all operating fluid levels full, 100% fuel in standard tank and standard mandatory attachments.

## Operating Specifications

Nominal Payload Capacity	181 tonnes	200 tons
Standard MSD Body (SAE 2:1)	130 m <sup>3</sup>	170 yd <sup>3</sup>
Standard X Body (SAE 2:1)	123 m <sup>3</sup>	161 yd <sup>3</sup>
Standard Dual Slope Body (SAE 2:1)	108 m <sup>3</sup>	141 yd <sup>3</sup>
Standard Combi Body (SAE 2:1)	153 m <sup>3</sup>	200 yd <sup>3</sup>
Standard Gateless Coal Body (SAE 2:1)	191 m <sup>3</sup>	250 yd <sup>3</sup>

- Refer to the Cat Mining Truck 10-10-20 payload policy for maximum gross machine weight limitations.

## Transmission

Forward 1	12.6 km/h	7.8 mph
Forward 2	17.1 km/h	10.6 mph
Forward 3	23.1 km/h	14.4 mph
Forward 4	31.2 km/h	19.4 mph
Forward 5	42.3 km/h	26.3 mph
Forward 6	57.2 km/h	35.5 mph
Reverse	11.8 km/h	7.3 mph

- Maximum travel speeds with standard 37.00-R57 tires.

## Final Drives

Differential Ratio	2.35:1	
Planetary Ratio	10.83:1	
Total Reduction Ratio	25.46:1	

- Double-reduction, planetary, with full floating axles.

## Suspension

Effective Cylinder Stroke – Front	105 mm	4.0 in
Effective Cylinder Stroke – Rear	93 mm	3.5 in
Rear Axle Oscillation	± 5.6°	

## Brakes

Brake Surface – Front	81 693 cm <sup>2</sup>	12,662 in <sup>2</sup>
Brake Surface – Rear	116 283 cm <sup>2</sup>	18,024 in <sup>2</sup>
Standards	SAE J1473 OCT90 ISO 3450:1996	

- Gross Machine Operating Weight is 324 319 kg (715,000 lb).

## Body Hoists

Pump Flow – High Idle	731 L/min	193 gal/min
Relief Valve Setting – Raise	17 238 kPa	2,500 psi
Body Raise Time – High Idle	18.9 Seconds	
High Idle Body Lower Time – Float	17.3 Seconds	
High Idle Body Lower Time – Power	15.6 Seconds	

# 789D Mining Truck Specifications

## Weight Distributions – Approximate

Front Axle – Empty	46%
Rear Axle – Empty	54%
Front Axle – Loaded	33%
Rear Axle – Loaded	67%

## Tires

Standard Tires	37.00-R57
Optional Tires	40.00-R57

- Productive capabilities of the 789D truck are such that, under certain job conditions, TKPH (TMPH) capabilities of standard or optional tires could be exceeded and, therefore, limit production.
- Caterpillar recommends the customer evaluate all job conditions and consult the tire manufacturer for proper tire selection.

## Service Refill Capacities

Fuel Tank (standard)	2082 L	550 gal
Fuel Tank (optional)	3785 L	1,000 gal
Cooling System	725 L	192 gal
Crankcase	291 L	77 gal
Differential and Final Drives	583 L	154 gal
Steering System	189 L	50 gal
Brake/Hoist System	909 L	241 gal
Transmission Tank	76 L	20 gal

## ROPS

### ROPS Standards

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

## Sound

### Sound Standards

- The operator sound pressure levels are measured according to work cycle procedures specified in ISO 6394:2008 and ISO 6396:2008 is 78 dB(A).
- The exterior sound power level for the standard machine is tested using ISO 6393:2008 and ISO 6395:2008 procedures is 121 dB(A).
- 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

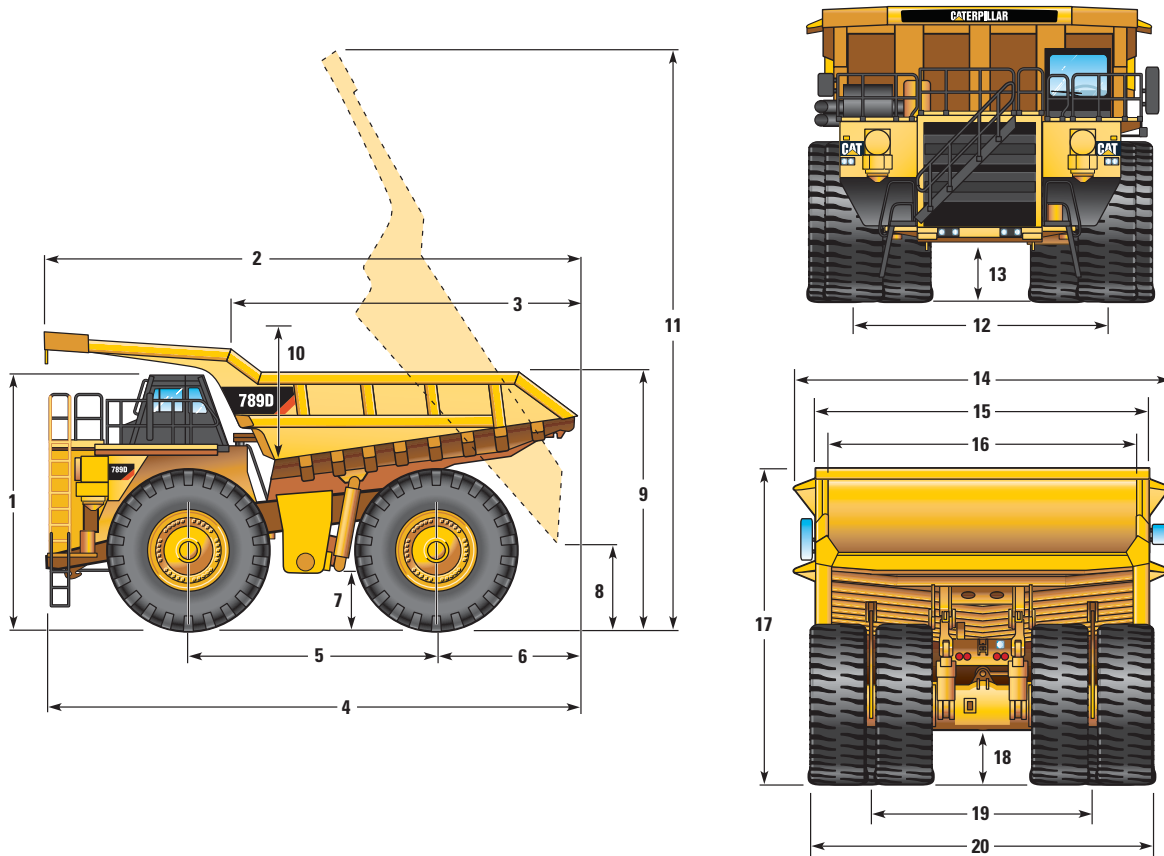
Steering Standards	SAE J1511 OCT90 ISO 5010:1992	
Steering Angle	36.07°	
Turning Diameter on Front Wheel	27.53 m	90.32 ft
Vehicle Clearance – Turn Circle	30.23 m	99.18 ft

- Gross Machine Operating Weight is 324 319 kg (715,000 lb).



## Dimensions

All dimensions are approximate. Dimensions are with standard dual slope body 344-7340 and 37.00-R57 tires.



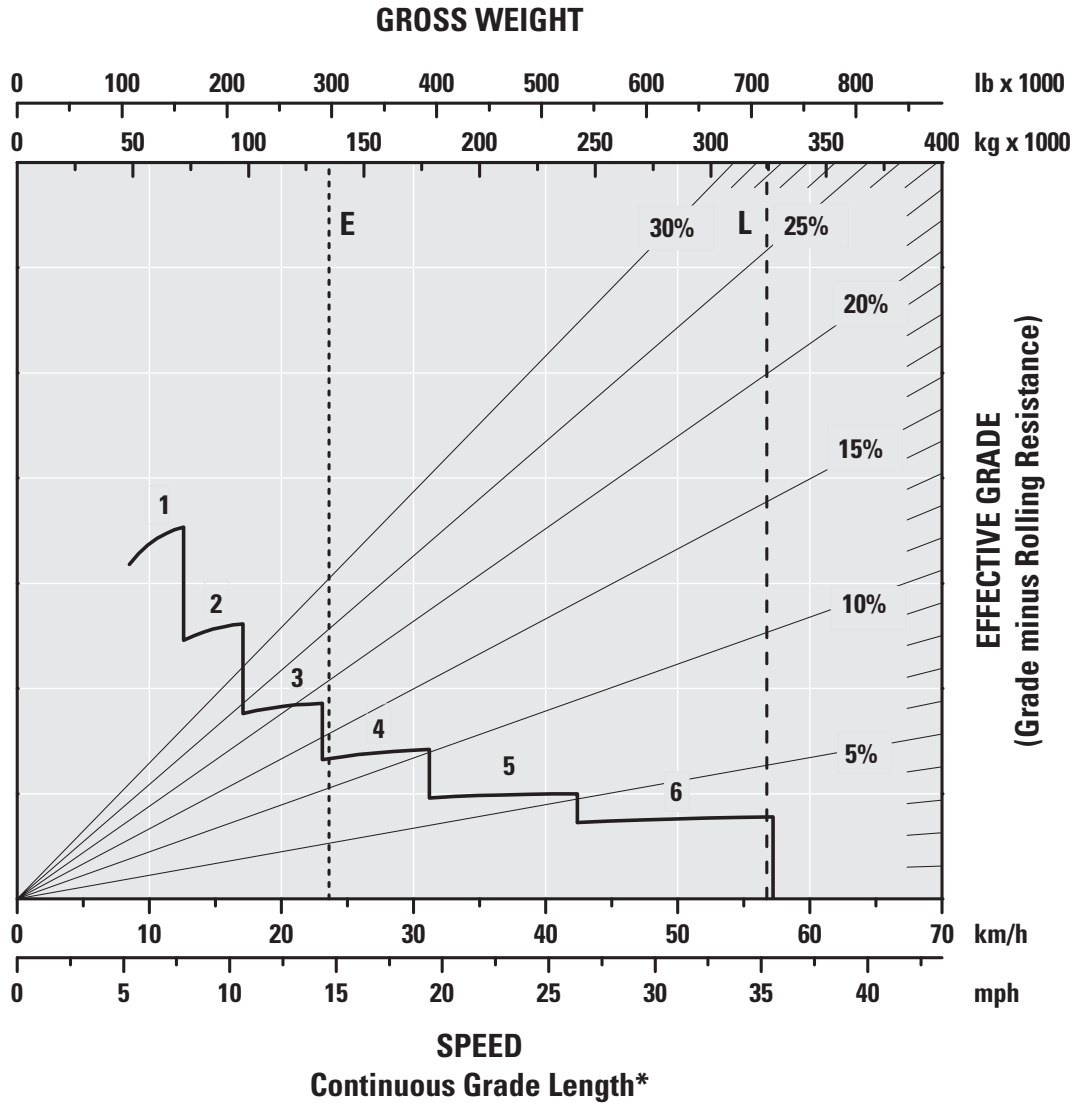
	<b>Dual Slope</b>	
<b>1</b> Height to Top of ROPS – Empty	5510 mm	18'1"
<b>2</b> Overall Body Length	12 723 mm	41'9"
<b>3</b> Inside Body Length	8293 mm	27'3"
<b>4</b> Overall Length	12 697 mm	41'8"
<b>5</b> Wheelbase	5700 mm	18'8"
<b>6</b> Rear Axle to Tail	3604 mm	11'10"
<b>7</b> Loaded Ground Clearance	1036 mm	3'5"
<b>8</b> Dump Clearance	1535 mm	5'0"
<b>9</b> Loading Height – Empty	5595 mm	18'4"
<b>10</b> Inside Body Depth – Maximum	2684 mm	8'10"
<b>11</b> Overall Height – Body Raised	13 198 mm	43'4"
<b>12</b> Centerline Front Tire Width	5374 mm	17'8"
<b>13</b> Engine Guard Clearance – Loaded	1057 mm	3'6"
<b>14</b> Overall Canopy Width	7645 mm	25'1"
<b>15</b> Outside Body Width	6995 mm	22'11"
<b>16</b> Inside Body Width	6500 mm	21'4"
<b>17</b> Front Canopy Height – Empty	6496 mm	21'4"
<b>18</b> Rear Axle Clearance – Loaded	1071 mm	3'6"
<b>19</b> Centerline Rear Dual Tire Width	4622 mm	15'2"
<b>20</b> Overall Tire Width	6926 mm	22'9"

# 789D Mining Truck Specifications

## Retarding Performance

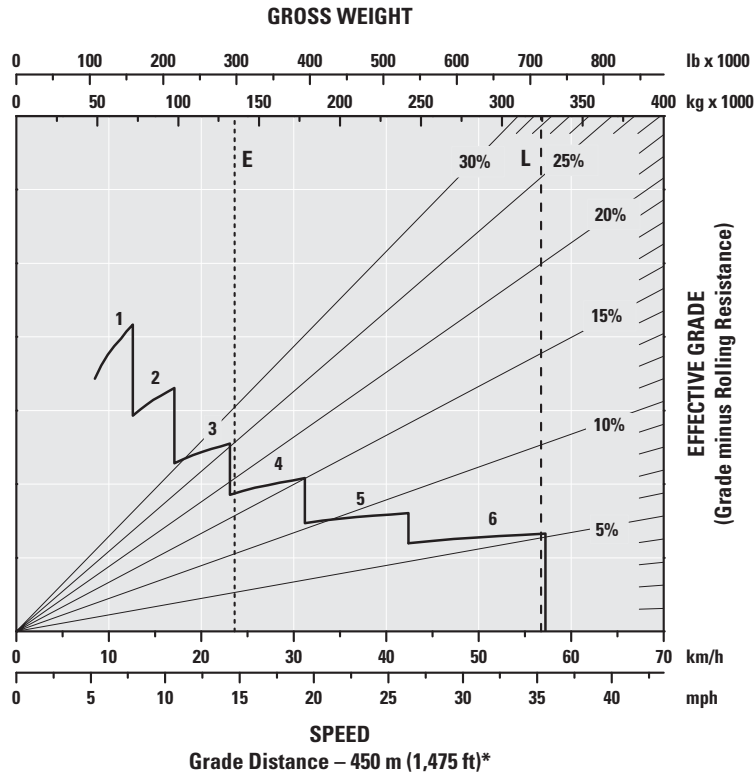
To determine retarding performance: Add lengths of all downhill segments and, using this total, refer to proper retarding chart. Read from gross weight down to the percent effective grade. Effective grade equals actual % grade minus 1% for each 10 kg/t (20 lb/ton) of rolling resistance. From this weight-effective 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 37.00-R57 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.

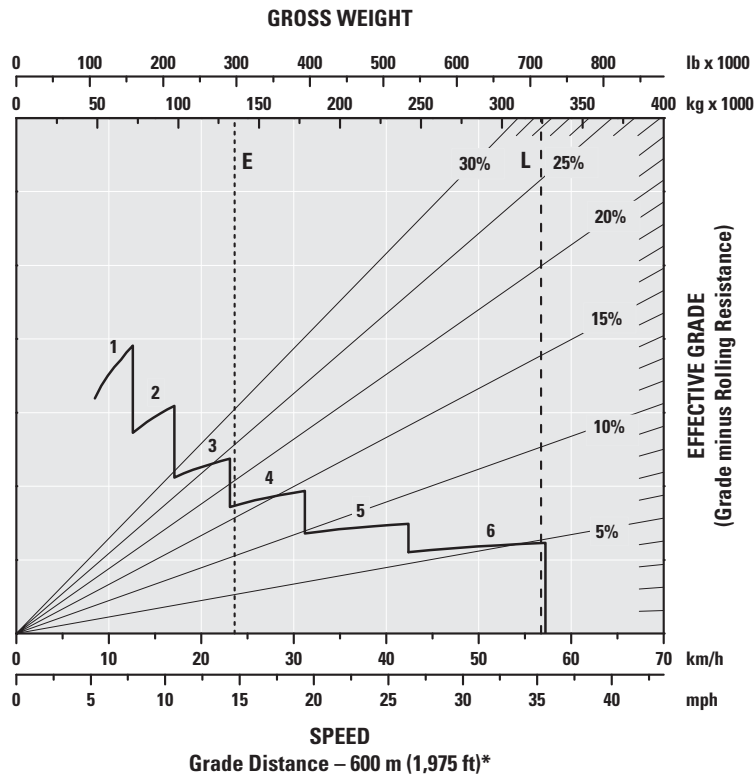


\*at sea level

# Retarding Performance



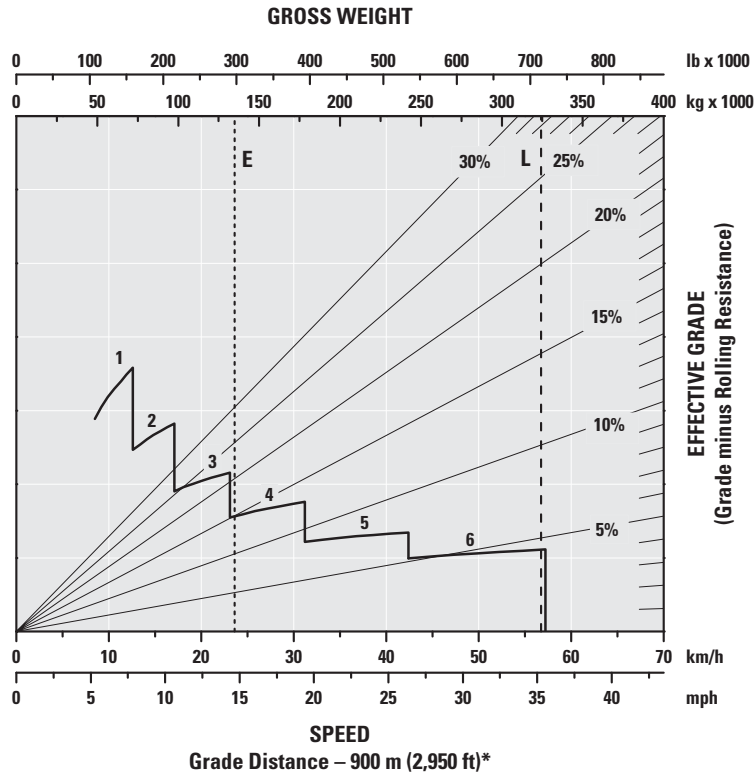
\*at sea level



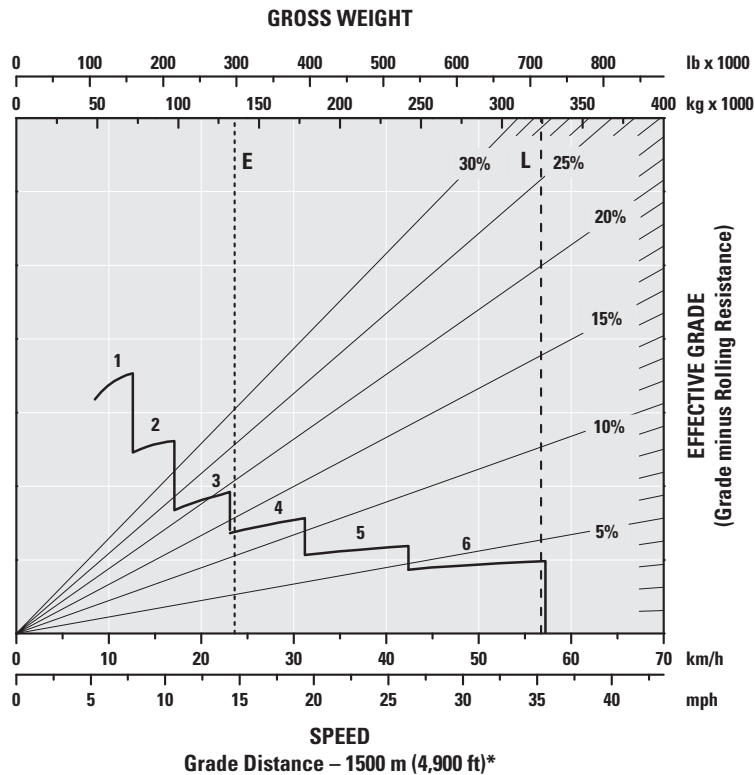
\*at sea level

# 789D Mining Truck Specifications

## Retarding Performance



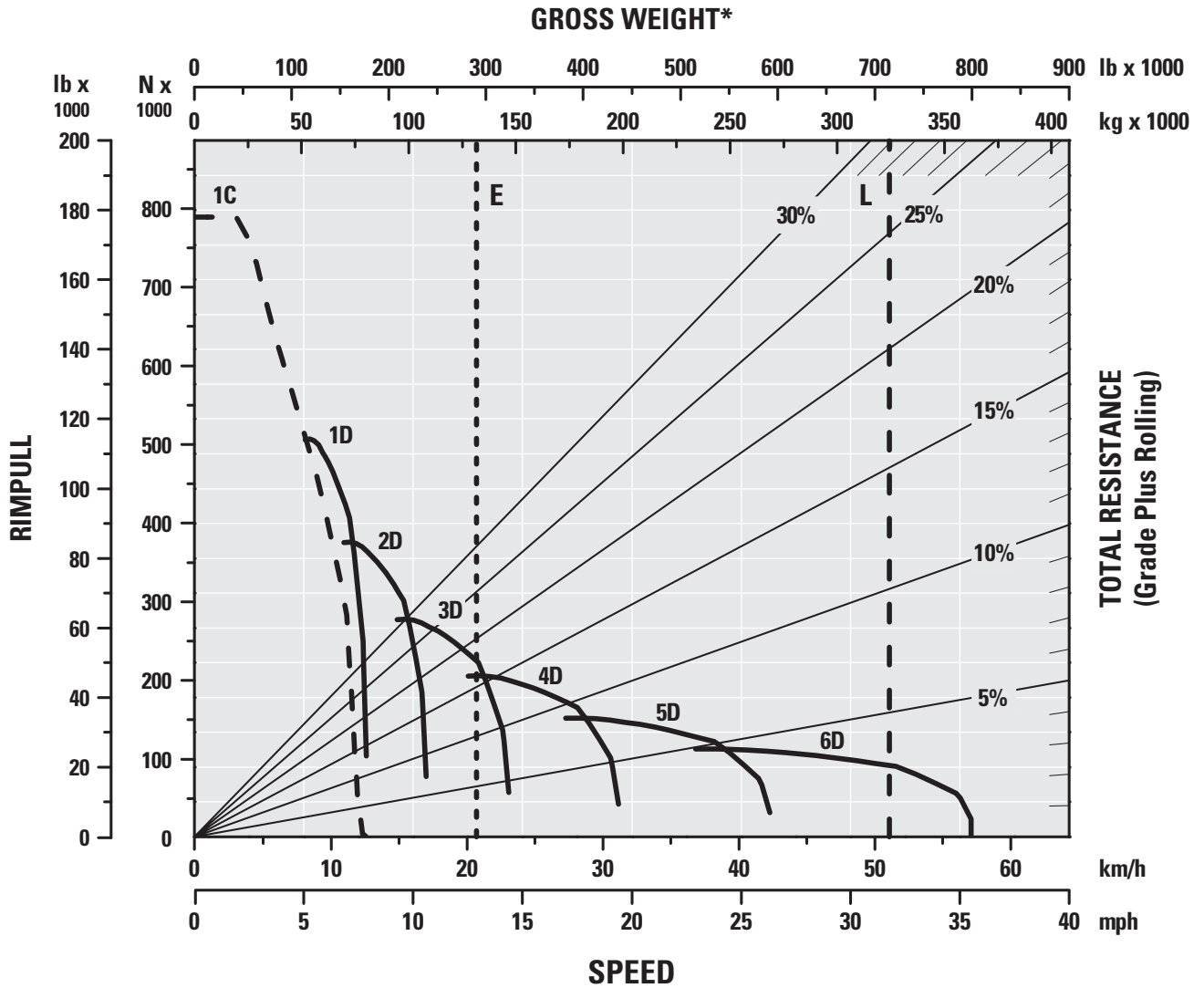
\*at sea level



\*at sea level

# 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.



\*at sea level

# 789D Mining Truck Specifications

## Weight/Payload Calculation

(Example)

	kg	lb	kg	lb	kg	lb
Chassis <sup>1</sup>	69 900	154,100	69 900	154,100	69 900	154,100
Tires (6) 37.00-R57	18 370	40,500	18 370	40,500	18 370	40,500
Standard Rims (6) 29-57	10 425	22,980	10 425	22,980	10 425	22,980
Estimated Empty Chassis Weight <sup>2</sup>	99 129	218,542	99 129	218,542	99 129	218,542
Type of Truck Body	<b>MSD Body</b>		<b>X Body</b>		<b>Dual Slope Body</b>	
Body Weight	23 970	52,845	30 132	66,430	26 610	58,665
Fully Lined Body (Optional and Recommended)	6150	13,560	7350	16,200	9707	21,400
Estimated Operating Machine Weight <sup>2</sup>	129 249	284,947	136 611	301,172	135 446	298,607
3% Debris Allowance <sup>3</sup>	3877	8,548	4098	9,035	4063	8,958
	<b>Tonnes</b>	<b>Tons</b>	<b>Tonnes</b>	<b>Tons</b>	<b>Tonnes</b>	<b>Tons</b>
Potential Target Payload <sup>4</sup>	191	211	184	202	185	204

<sup>1</sup> Includes: common arrangement, 100% fuel (2082 L/550 gal), fluids and standard mandatory attachments.

<sup>2</sup> Weights will vary dependent on configuration and may include  $\pm 2\%$  variation due to standard material tolerances.

<sup>3</sup> Calculations include 3% debris allowance. However, actual debris allowance should be considered based upon known site conditions.

<sup>4</sup> It is recommended to work with your Global Mining representative to calculate target payload per specific site.

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

## POWER TRAIN

Diesel engine/turbocharged/aftercooled:

- Ground level engine shutdown
- Ether starting aid (automatic)
- Aftercooler (separate circuit or air to air)
- Elevated low idle control
- Automatic starter protection
- Multi-point all pressure sensing

Braking system:

- Brake release motor (towing)
- Oil-cooled, multi-disc (front and rear) (service retarding, parking, secondary)
- Automatic Retarder Control
- Engine overspeed protection
- Extended life brake disc material

Transmission:

- 6-speed, automatic powershift with electronic control (TCC)
- Controlled throttle shifting
- Individual clutch modulation
- Body-up shift inhibitor
- Directional shift management
- Downshift/reverse shift inhibitor
- Oil level sensor
- Neutral start switch/coast inhibitor
- Body-up reverse neutralizer
- Programmable top gear
- Lock-up torque converter
- Rear axle continuous lubrication/ filtration

## ELECTRICAL

Alarm, backup

Alternator, 105 amp

Batteries, 12V (2), 93 amp-hour

Converter, 12V electrical

Electrical system, 24V, 15 amp

Lighting system:

- Backup and hazard lights
- Auxiliary work lights (2) rear, (1) RH side, (1) LH side
- Directional signals (front and rear LED)
- Engine compartment lights
- External payload lights
- Headlights with lo-hi beam selector
- Ladder light and service deck lights
- Left-hand ladder/service deck
- Stop/tail lights (LED)
- VIMS, blue light (LED)

## OPERATOR ENVIRONMENT

### STANDARD CAB

- Operator seat
- Non-suspension trainer seat
- Flip down front visor
- Standard side of cab access

### DELUXE CAB

- Heated and ventilated operator seat
- Suspension trainer seat
- Retractable front visor
- Rear of cab access and standard side of cab access
- Vacuum, cab clean-out
- Operator Footrest

### DELUXE COLD WEATHER CAB

- Heated and ventilated operator seat
- Suspension trainer seat
- Retractable front visor
- Rear of cab access and standard side of cab access
- Vacuum, cab clean-out
- Operator Footrest
- Deluxe Diffuser

Air conditioner

Auxiliary power connection/cigarette lighter

Diagnostic connection port

Dome courtesy light

Entertainment Radio Ready:

- 5 amp converter
- Speakers
- Antenna wiring

Gauges/indicators:

- Air cleaner service indicator
- Quad gauge panel
  - Air pressure
  - Brake oil temperature
  - Engine coolant temperature
  - Fuel level

Electric hour meter

Electric engine control fault indicator

Engine idle shutdown

Mirrors, right and left

Speedometer

Tachometer

Transmission gear indicator

VIMS message center with universal gauge

VIMS keypad

Heater/defroster (11 070 kCal/43,930 BTU)

Horn

Hoist, body control (electric)

Integrated object detection system

ROPS cab, insulated/sound suppressed

Seatbelt, operator, 75 mm/3" wide

Seatbelt, trainer, two points

Stairway and walkway access, 600 mm (24 in)

Steering wheel, tilt, padded, telescopic

Window, operator, electric powered

Windshield wiper, intermittent control and washer

## FLUIDS

Extended Life Coolant to  $-35^{\circ}\text{C}$  ( $-30^{\circ}\text{F}$ )

## OTHER STANDARD EQUIPMENT

Air line dryer

Auto lubrication system

Auxiliary “buddy” dumping quick connect

Auxiliary steering quick connect (towing)

Body mounting group

Center mounted rims (6) (29x57) (used for 37.00-R57 tires)

Driveline guard (fully enclosed)

Fast fill fuel system

Ground level VIMS data port

Ground level battery disconnect

Rock ejectors

Supplemental steering (automatic)

Tie off points

Tow hooks (front)

Tow pin (rear)

Traction Control System

Vital Information Management System

# 789D Optional Equipment

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

## BODY

Dual slope body:

- Body, dual slope, 109 m<sup>3</sup> (142 yd<sup>3</sup>)

Dual slope body attachments:

- Extensions, 457 mm (18"), side, DS, 123 m<sup>3</sup> (161 yd<sup>3</sup>)
- Extension, wraparound tail, DS
- Liner, entire body, DS
- Liner, wraparound, DS, 450 BHN
- Rock deflector, rear tire, DS

X body:

- Body, X, 123 m<sup>3</sup> (161 yd<sup>3</sup>)

X body attachments:

- Extensions, side, X, 185 mm (7"), 131 m<sup>3</sup> (171 yd<sup>3</sup>)
- Extensions, side, X, 385 mm (15"), 138 m<sup>3</sup> (181 yd<sup>3</sup>)

MSD II body:

- Body, MSD II, 130 m<sup>3</sup> (170 yd<sup>3</sup>)

MSD II body attachments:

- Extensions, side, MSD II, 141 m<sup>3</sup> (185 yd<sup>3</sup>)
- Extensions, side, MSD II, 153 m<sup>3</sup> (200 yd<sup>3</sup>)

Combination body:

- Body, combi, 153 m<sup>3</sup> (200 yd<sup>3</sup>)

Combination body attachments:

- Extensions, side, combi, 195 m<sup>3</sup> (255 yd<sup>3</sup>)

Gateless coal body:

- Body, gateless coal, 191 m<sup>3</sup> (250 yd<sup>3</sup>)

Gateless coal body attachments:

- Extensions, side, coal, 214 m<sup>3</sup> (280 yd<sup>3</sup>)
- Extensions, side, coal, 237 m<sup>3</sup> (310 yd<sup>3</sup>)

Body lighting group – rear:

- Directional signals (LED)
- Stop/tail lights (LED)

## ELECTRICAL

Lockout transmission, ground level

Auxiliary work lights

- (1) RH side, (1) LH side

## POWER TRAIN

Prelube, engine

Oil renewal system

## FILTRATION CONFIGURATIONS

Rear axle, cooler

## OTHER ATTACHMENTS

Information management:

- Control, road analysis (RAC)

Cold weather:

- Brake oil, recirculating
- Cold weather start

Service center:

- Service, 3516B, standard volume
- Service, 3516B, large volume
- Service, 3516C, standard volume
- Service, 3516C, large volume
- Service, engine oil, standard

Miscellaneous:

- Fire extinguisher, portable
- Hub odometer, kilometers
- Wheel chocks
- Gauge, brake wear indicator

## ANTIFREEZE

Coolant, –50° C (–58° F)



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