

777E

Off-Highway Truck



Engine Model

Engine Power – ISO 14396	749 kW	1,004 hp
Gross Power – SAE J1995	758 kW	1,016 hp
Net Power – SAE J1349	708 kW	949 hp

Operating Specifications

Nominal Payload (100%)	98.2 tonnes	108.2 tons
Body Capacity (SAE 2:1)	60.1 m ³	78.6 yd ³

• Refer to the Caterpillar 10/10/20 Payload Guidelines.

Weights

Maximum Gross Vehicle Weight	163 360 kg	360,147 lb
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The Off-Highway Truck E Series represents a new era for this size class from Caterpillar. We designed and manufactured a truck that is reliable, economical and offers comfort, confidence as well as control for the operator. The customer's long-term success is our goal. With E Series trucks, we're on the right road.

Safety

Connecting people and equipment safely





A Focus on Personnel

The 777E is designed to minimize slips and falls, providing firm footing and stability.

- Ground level Engine and Machine lockout controls
- Integrated access system with handrails for three points of contact
- Aggressive tread plate on all step areas with lighted access for night operation

Confidence and Control

Confident operators will move material quickly, efficiently and profitably.

- Wet Disc Braking on rear wheels is standard
- Integrated park brake for slope holding capability
- Manual Retarder provides better speed control on downhill grades
 - Automatic Retarding Control is optional
- Traction Control System if equipped, improves control in poor underfoot conditions

Key Features

The 777E is solidly constructed for safety.

- Rollover and Falling Object Protection is an extension of the truck frame
- Emergency egress available through the right-side hinged window
- Laminated glass is used in the front and left-side windows
- Ground level engine shutdown
- Integrated four-point seat belt, with reminder
- Trainer seat with lap belt facilitates on-the-job training
- Excellent visibility with mirror and lighting options
- Supplemental steering in the event of a shutdown
- Gear limiting during body up operations



Operator Work Environment

Productivity from comfort, confidence, control



The all new 777E operator station interior is ergonomically designed for total machine control in a comfortable, productive and safe environment.



Comfort

- A newly designed interior operator interior station is ergonomically designed for total machine control, comfortable and safe environment
- Cat Comfort Seat with air suspension and retractable four-point harness is adjustable and secure
- Outstanding visibility with mirror and lighting options
- Left-side power window
- HVAC is standard

Information

The Advisor display and VIMS™ software are important reporting tools that help you analyze:

- Productivity, haul road efficiency, operator skill with TPMS installed
- Fuel use, cycle times, idle time
- Machine health and events

Control

From improved visibility to helpful technology, it's never been easier to be so productive.

- Excellent visibility and clear sight lines to the haul road
- Cat systems include features to help the operator control ground speed, engine speed, braking on grade, traction, even fuel consumption, for greater confidence and higher productivity



Operator seat

Environmental Responsibility

Help the environment, help your bottom line





Burning less fuel, extending the service life of components like filters, tires or fluids, even using remanufactured parts, are all environmentally friendly. They are also bottom line friendly, reducing your operating costs while reducing the impact on our world.

Fuel Economy

The 777E fuel saving strategies find opportunities to reduce fuel burn and fuel costs.

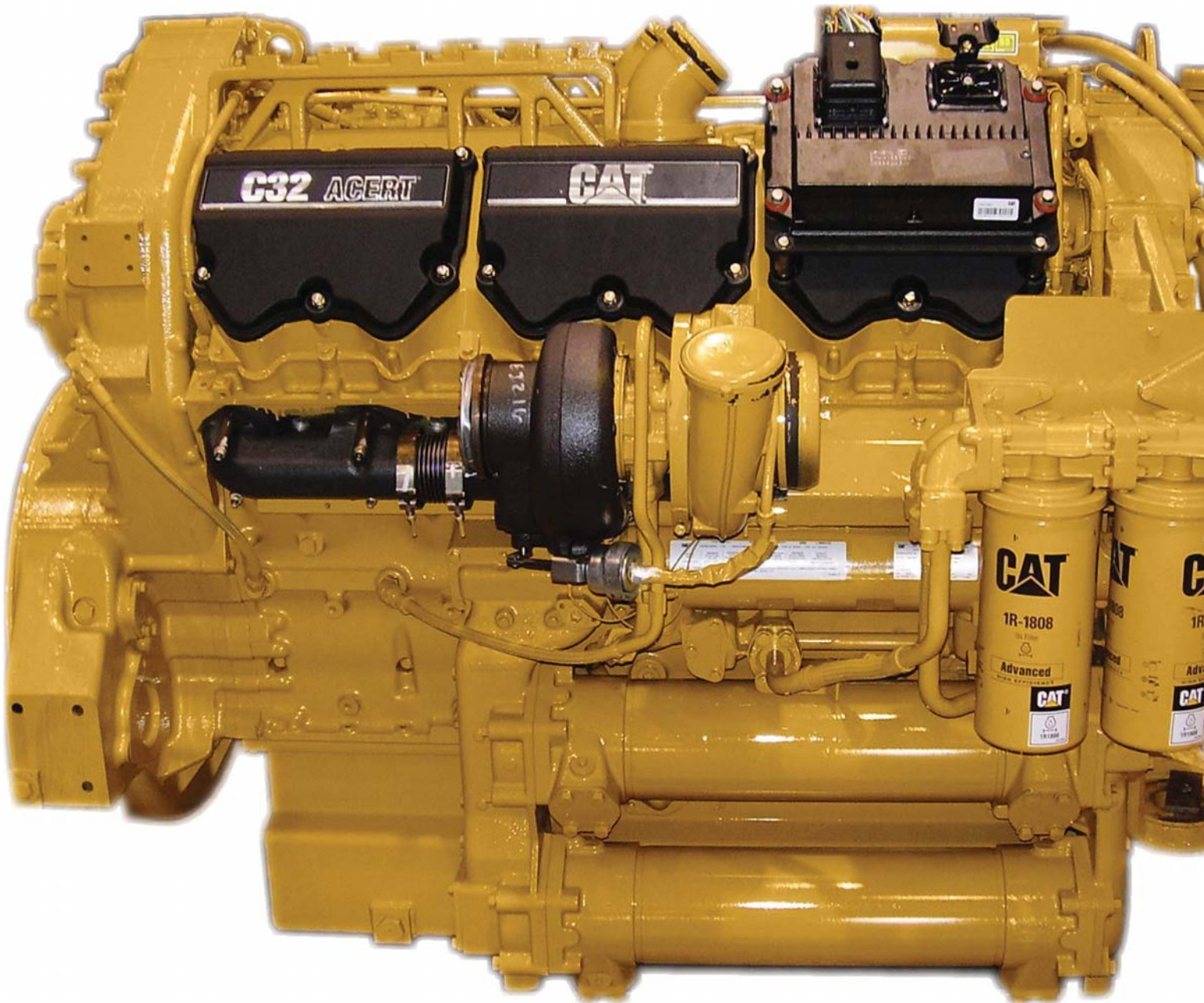
- Meets U.S. EPA Tier 2 Equivalent emission standards
- Certified for China Nonroad Stage III emission standards
- Economy Mode modifies engine maps to take advantage of steady grades and level ground, reducing power and fuel burn
- Programmable top gear/speed to help operators maintain speed limits and save fuel
- Speed Limiting automatically selects the most fuel efficient gear and speed for the terrain instantaneously
- Engine Idle Shutdown identifies when the truck is in park and idles for more than a preset time and initiates engine shutdown to conserve fuel

Component Life

- Engine Oil Service Interval increased to 500 hours
- Remanufactured parts are an economical and eco-friendly alternative to new
- Castings and box-section frame construction ensure long life
- Delayed Engine Shutdown prevents hot shutdowns that can reduce component life



Fuel Economy Mode Switch



Performance

More power, better production

The 777E will haul your material faster and more efficiently with increases in torque, new transmission controls and higher travel speeds.

- New transmission controls carry more torque through the shifts, producing faster cycle times, most noticeably on grades
- An increase in travel speed in 7th gear also helps generate faster cycle times



Updated Cat C32 ACERT™

- Seven percent more usable torque improving performance and cycle times
- Cat MEUI™ injectors improve fuel efficiency and load response
- Excellent high-altitude capability
- The C32 ACERT is carefully balanced with vibration controls that reduce noise and protect against unnecessary harmonics
- Ground level engine shutdown switch for safety

Transmission

The ECPC (Electronic Clutch Pressure Control) Transmission with controlled throttle shifting regulates engine speed, torque converter lock-up and clutch engagement. The result is smoother shifts, reduced clutch wear and longer component life.

- Downshift Inhibitor prevents engine over speeding by keeping the transmission from downshifting until engine speed reaches the downshift point

Brakes

The front dry calipers with rear oil-cooled multiple disc brakes deliver reliable performance and control in the most extreme haul-road conditions.

Automatic Retarder Control (ARC) (optional)

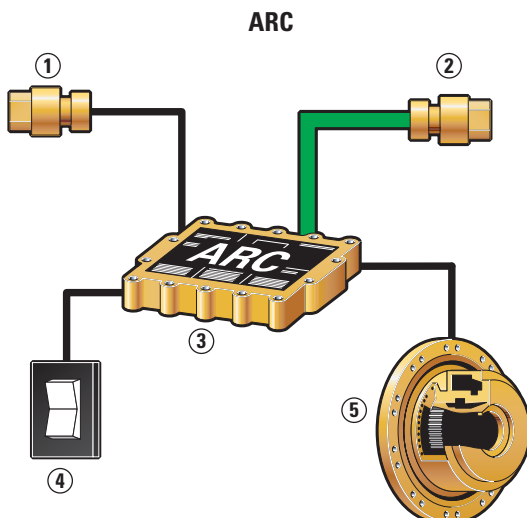
ARC controls braking on grade electronically, maintaining consistent engine speed, lower fuel burn, and better control.

Engine Over Speed Protection

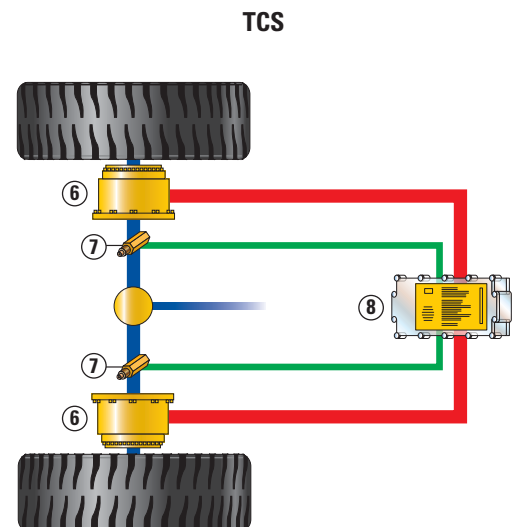
Electronically senses engine conditions and automatically up-shifts one gear to prevent over speeding. If over speeding occurs in the top gear, the lock-up clutch is disengaged, and the brakes are applied.

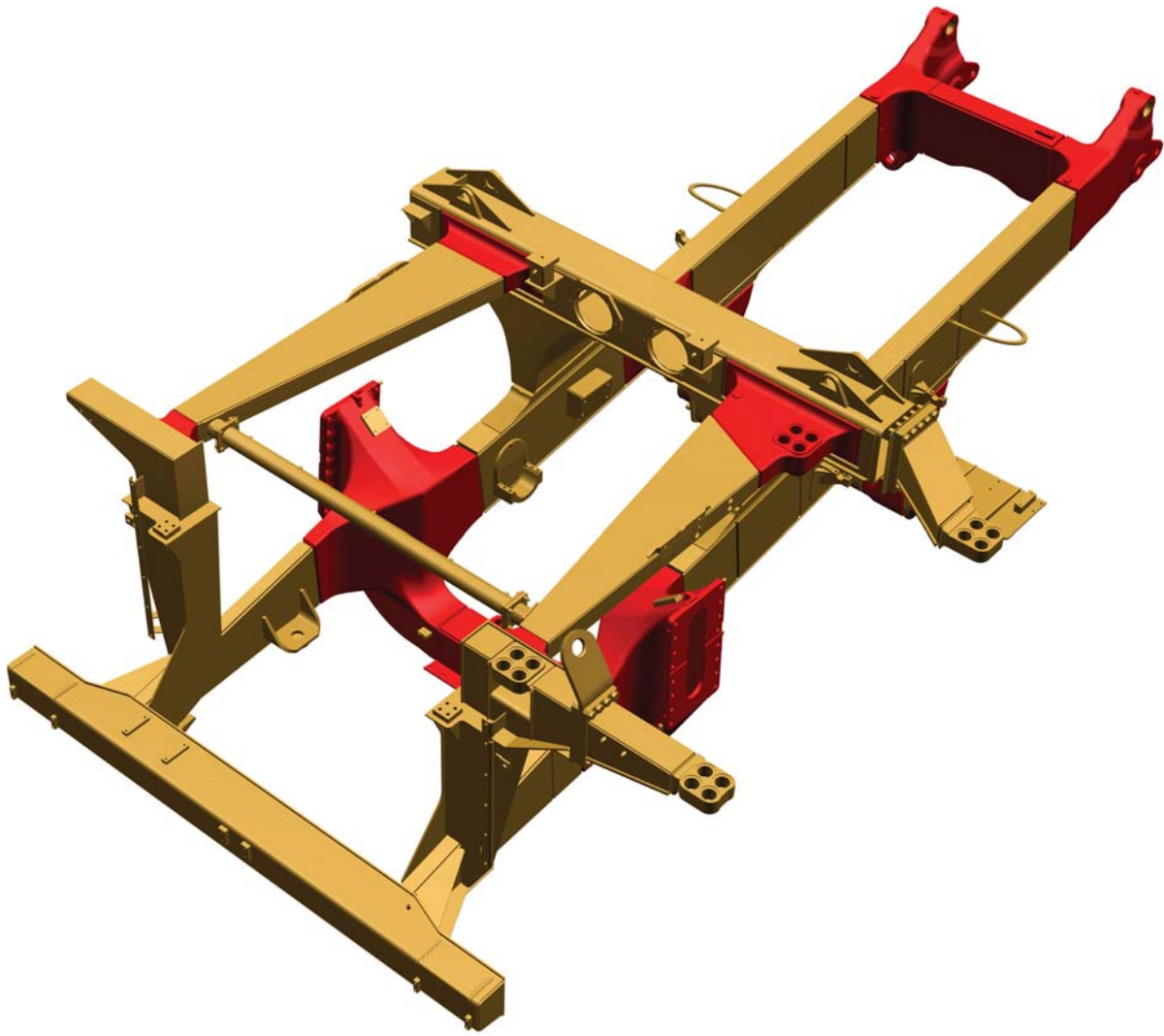
Traction Control System (TCS) (optional)

The Traction Control System controls rear wheel slip for greater traction and enhanced truck performance in poor underfoot conditions. If slippage exceeds a set limit, rear wet brakes slow the spinning wheel and torque is transferred to the tractive wheel for optimum control.



- 1) Service Brake Sensor
- 2) Engine Sensor
- 3) ARC
- 4) ARC Switch
- 5) Brakes
- 6) Service Brakes
- 7) Axle Speed Sensor
- 8) TCS





Structures

Reliability established over years of service

Structural Strength

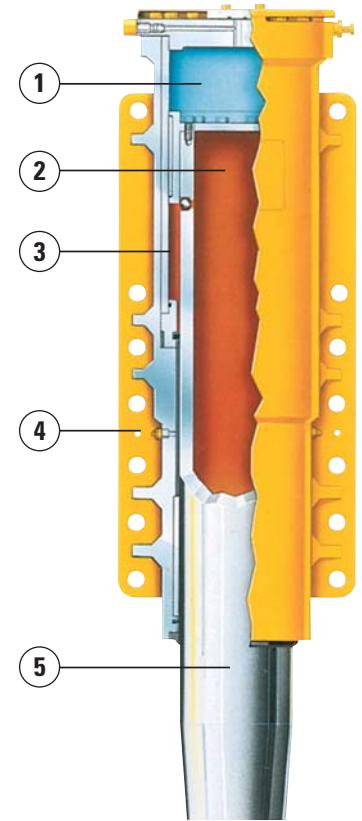
The 777E frame uses a proven box-section design that resists damage from twisting loads without adding extra weight. Castings have large radii with internal reinforcing ribs to dissipate stress and move welds to lower stress areas for longer frame life.

- Mild steel used throughout frame provides flexibility, durability and resistance to impact loads, even in cold climates, and allows for easy field repairs
- The open design allows easy access to power train components, reducing removal and installation time, and lowering overall repair costs
- The integral ROPS structure is designed as an extension of the truck frame, resiliently mounted to the main frame to reduce vibration and sound

Suspension

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

- Front spindles and wheels are rigidly mounted to the cylinder rods for reliable operation and long life
- Rear wheel spindles are solid steel for longer life, and the rear suspension cylinders have been inverted to minimize contamination
 - These rugged cylinders use large diameter bore and low pressure nitrogen/oil design for long life with minimal maintenance



- 1) Nitrogen
- 2) Oil
- 3) Rebound Chamber
- 4) Cylinder Housing
- 5) Piston



Steering

Cat integrated steering and suspension system is designed for precise steering, excellent maneuverability, minimal tire wear and superior ride control.

- The steering linkage is designed to provide good feedback to the operator
- The Cat king pin front suspension system maintains steering tolerances and tire alignment
- The steering system is separate from the main hydraulic system to prevent cross-contamination and overheating from other sources
- Main hydraulic steering system is backed by a battery powered supplemental steering system that allows up to three 90° turns in case of engine failure
 - System automatically engages when needed



Body Options

Rugged performance in the toughest applications

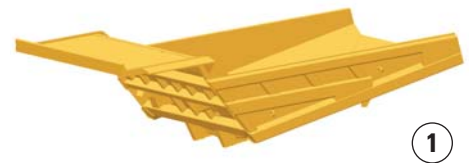
Dual Slope Body

- Excellent material retention and stability in steep slope haul profiles
- Heaped capacity of 60.1 m³ (78.8 yd³) in standard configuration
- Material is carried low and centered for stability
- Different sized sideboards are available to increase capacity for lighter weight materials
- 400 BHN steel on interior surfaces offers excellent wear characteristics
- Body liner options are available to help extend the body system's life

X Body

If you're feeding a crusher, the flat floor of the X Body is an excellent choice for metering material.

- The X Body also offers excellent material retention and stability
- Steel liners are available for wear protection



1) Dual Slope Body
2) X Body Flat Floor



Service Convenience

Simple, cost-effective solutions



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

Service Center – Electrical Connections

- Master disconnect switch
- Engine lockout switch
- Machine lockout switch
- Breaker access

Diagnostic Capability

- Critical power train data, including transmission shifting, engine speed and fuel consumption, provides service technicians with enhanced diagnostic capability to reduce downtime and operating costs
- Cat ET service tool provides service technicians with easy access to stored diagnostic data through the Cat Data Link

777E Off-Highway Truck Specifications

Engine

Engine Model	Cat C32 ACERT	
Engine Speed	1,750 rpm	
Engine Power – ISO 14396	749 kW	1,004 hp
Gross Power – SAE J1995	758 kW	1,016 hp
Net Power – SAE J1349	708 kW	949 hp
Net Torque @ 1,300 rpm	4757 N·m	3,509 lbf-ft
Net Torque Rise	23%	
Cylinders	12	
Bore	145 mm	5.7 in
Stroke	162 mm	6.4 in
Displacement	32.1 L	1,959 in ³

- Power rating applies 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 100 kPa (29.61 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).
- No engine derating required up to 3048 m (10,000 ft) altitude.
- Meets U.S. EPA Tier 2 Equivalent emission standards.
- Certified for China Nonroad Stage III emission standards.

Transmission

Forward 1	10.7 km/h	6.6 mph
Forward 2	14.6 km/h	9.1 mph
Forward 3	19.8 km/h	12.2 mph
Forward 4	26.7 km/h	16.6 mph
Forward 5	36.2 km/h	22.5 mph
Forward 6	48.6 km/h	30.2 mph
Forward 7	65.9 km/h	40.9 mph
Reverse 1	12.1 km/h	7.5 mph

- Maximum travel speeds with standard 27.00R49 (E4) tires.

Final Drives

Differential Ratio	2.74:1
Planetary Ratio	7.00:1
Total Reduction Ratio	19.16:1

Brakes

Brake Surface Area Front Caliper	2787 cm ²	432 in ²
Brake Surface Area Front OCDB	40 846 cm ²	6,331 in ²
Brake Surface Area – Rear	102 116 cm ²	15,828 in ²
Brake Standard	ISO 3450:2011	

Body Hoists

Pump Flow – High Idle	491 L/min	130 gal/min
Body Raise Time – High Idle	15 seconds	

Capacity – Dual Slope – 100% Fill Factor

Struck	42.1 m ³	55 yd ³
Heaped 2:1 (SAE)	60.1 m ³	78.6 yd ³

Capacity – X Body – 100% Fill Factor

Struck	43.1 m ³	56.3 yd ³
Heaped 2:1 (SAE)	64.1 m ³	83.8 yd ³

Weight Distributions – Approximate

Front Axle – Empty/Loaded	44%/30%
Rear Axle – Empty/Loaded	56%/70%

Suspension

Effective Cylinder Stroke – Front	318 mm	12.5 in
Effective Cylinder Stroke – Rear	165 mm	6.5 in
Rear Axle Oscillation	5.4°	

Sound

- | | |
|-----------------|----------------------------------|
| Sound Standards | ISO 6393:2008,
SAE J1166:2008 |
|-----------------|----------------------------------|
- The operator sound exposure Leq (equivalent sound pressure level) measured according to work cycle procedures specified in SAE J1166:2008 is 80 dB(A) for cab offered by Caterpillar, when properly installed and maintained and tested with doors and windows closed.
 - The dynamic operator sound pressure level is 80 dB(A) as per ISO 6396:2008 for cab offered by Caterpillar. When properly installed and maintained and tested with doors and windows closed.

777E Off-Highway Truck Specifications

Steering

Steering Standard	ISO 5010:2007	
Steer Angle	30.5°	
Turning Diameter – Front	25.3 m	83 ft
Turning Circle Clearance Diameter	28.4 m	93 ft 2 in

- Separate hydraulic system prevents cross-contamination.

ROPS

ROPS/FOPS 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 criteria for Trainer.

Tires

Standard Tire	27.00R49 (E4)
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- Productive capabilities of the 777E 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.

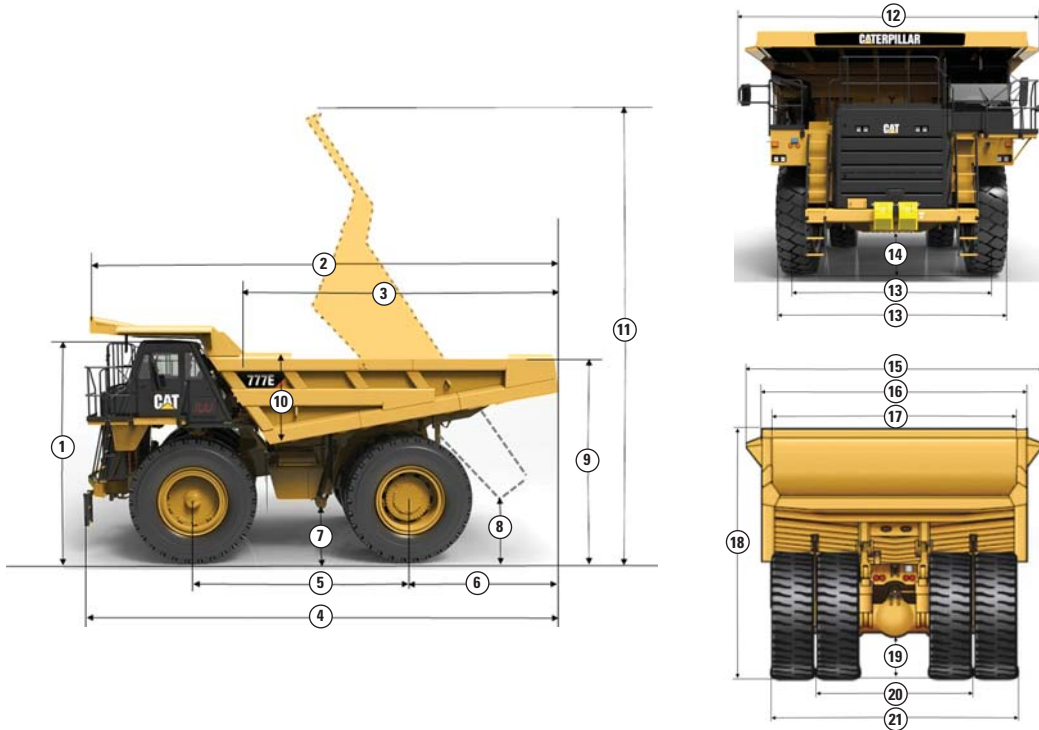
Weights

	Dual Slope				X Body			
	Without Liner		With Liner		Without Liner		With Liner	
	kg	lb	kg	lb	kg	lb	kg	lb
Target Gross Machine Weight	163 360	360,147	163 360	360,147	163 360	360,147	163 360	360,147
Body System Weight	16 070	35,428	16 070	35,428	15 900	35,053	15 900	35,053
Empty Operating Weight	65 158	143,648	70 753	155,983	64 988	143,274	69 674	153,604
Target Payload	98 202	216,499	92 607	204,164	98 372	216,873	93 686	206,543
Maximum Payload (110%)	108 022	238,148	101 868	224,580	108 209	238,560	103 055	227,196
Maximum Not to Exceed Payload (120%)	117 842	259,798	111 128	244,996	118 046	260,247	112 423	247,850

777E Off-Highway Truck Specifications

Dimensions

All dimensions are approximate.



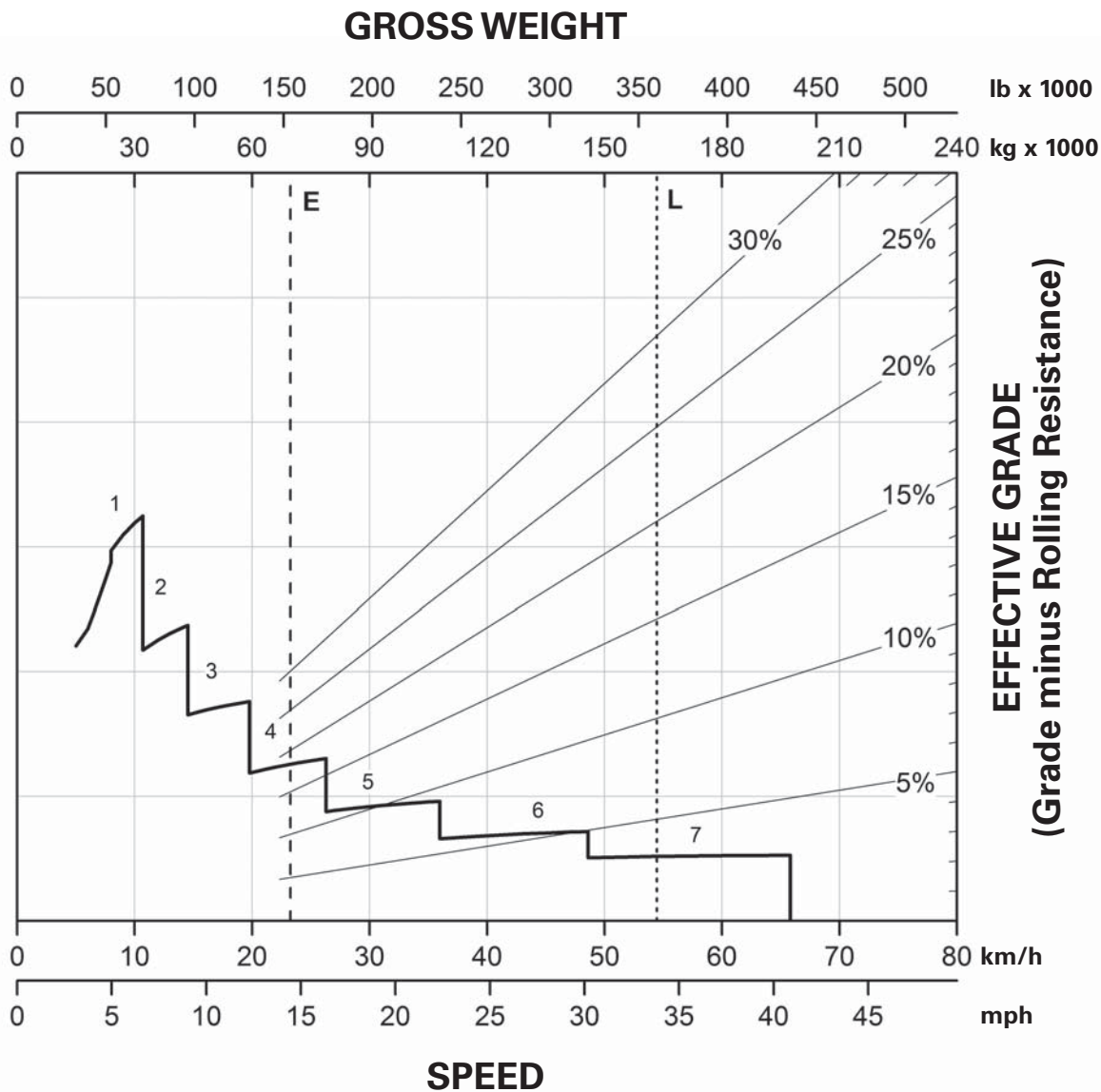
	Dual Slope		X Body	
	mm	ft	mm	ft
1 Height to Top of ROPS – Loaded	4730	15.51	4730	15.51
2 Overall Body Length	9555	31.35	10 070	33.00
3 Inside Body Length	6870	21.54	7258	23.81
4 Overall Length	10 004	32.82	10 230	33.56
5 Wheel Base	4570	15.00	4570	15.00
6 Rear Axle to Tail	3045	10.00	3263	10.70
7 Ground Clearance	896	2.93	896	2.93
8 Dump Clearance	890	2.91	818	2.68
9 Loading Height – Empty	4380	14.37	4430	14.53
10 Inside Body Depth – Maximum	1895	6.21	1777	5.83
11 Overall Height – Body Raised	10 050	33.00	10 400	34.12
12 Operating Width	6105	20.00	6105	20.00
Operating Width Extended Catwalk	6545	21.47	6545	21.47
13 Center Line Front Tire Width	4163	13.66	4163	13.66
Overall Front Tire Width	4961	16.28	4961	16.28
14 Engine Guard Clearance	864	2.83	864	2.83
15 Overall Canopy Width	6056	19.87	6200	20.34
16 Outside Body Width	5524	18.12	5689	18.66
17 Inside Body Width	5200	17.06	5450	17.88
18 Front Canopy Height – Loaded	5177	17.00	5370	17.62
19 Rear Axle Clearance	902	2.95	902	2.95
20 Center Line Rear Dual Tire Width	3576	11.73	3576	11.73
21 Overall Tire Width	5262	17.26	5262	17.26

777E Off-Highway Truck Specifications

777E Retarding Performance (Tier 2 Equivalent)

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 27.00R49 (E4) 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.



CONTINUOUS GRADE LENGTH

- 1 — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear
- 4 — 4th Gear
- 5 — 5th Gear
- 6 — 6th Gear
- 7 — 7th Gear

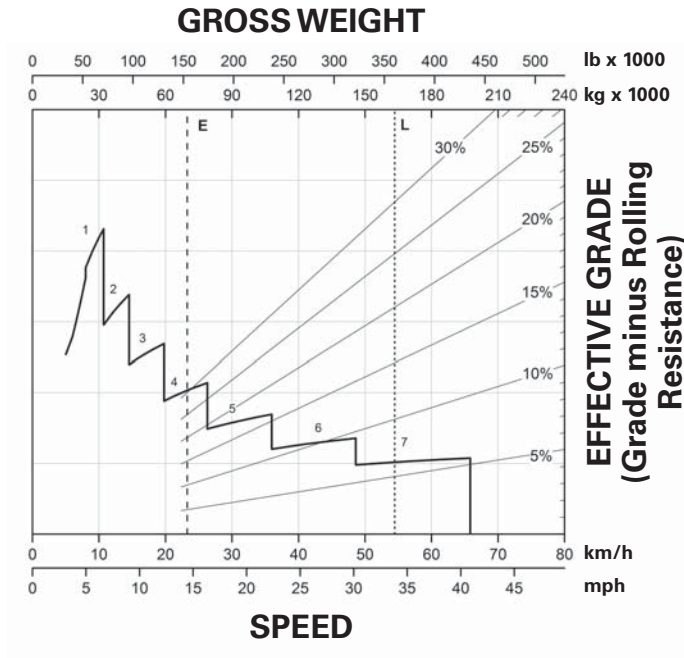
- E — Empty 70 753 kg (155,983 lb)
- L — Maximum GMW 163 360 kg (360,147 lb)

777E Off-Highway Truck Specifications

777E Retarding – 450 m (1,500 ft)

E — Empty 70 753 kg (155,983 lb)
 L — Maximum GMW 163 360 kg (360,147 lb)

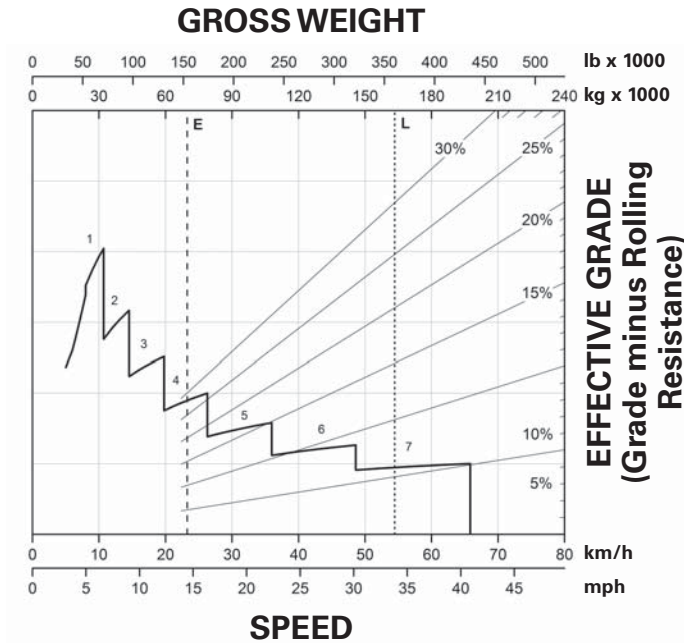
- 1 — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear
- 4 — 4th Gear
- 5 — 5th Gear
- 6 — 6th Gear
- 7 — 7th Gear



777E Retarding – 600 m (2,000 ft)

E — Empty 70 753 kg (155,983 lb)
 L — Maximum GMW 163 360 kg (360,147 lb)

- 1 — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear
- 4 — 4th Gear
- 5 — 5th Gear
- 6 — 6th Gear
- 7 — 7th Gear

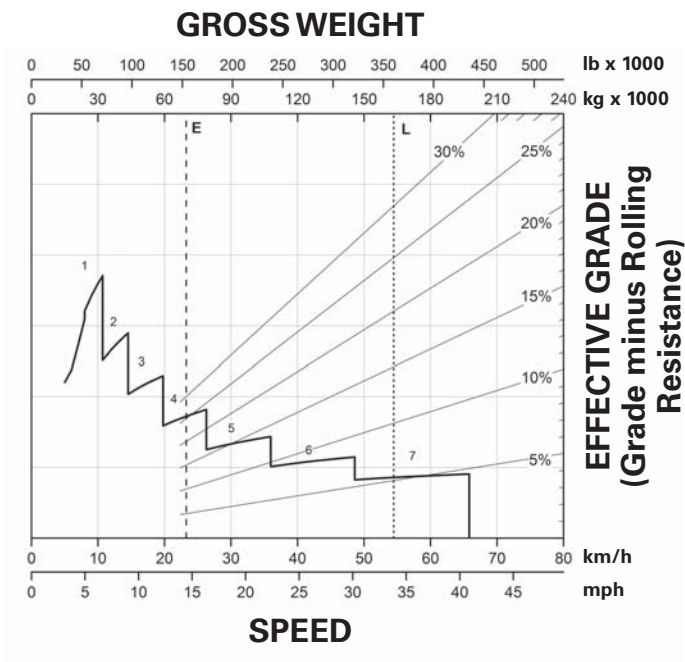


777E Off-Highway Truck Specifications

777E Retarding – 900 m (3,000 ft)

E — Empty 70 753 kg (155,983 lb)
 L — Maximum GMW 163 360 kg
 (360,147 lb)

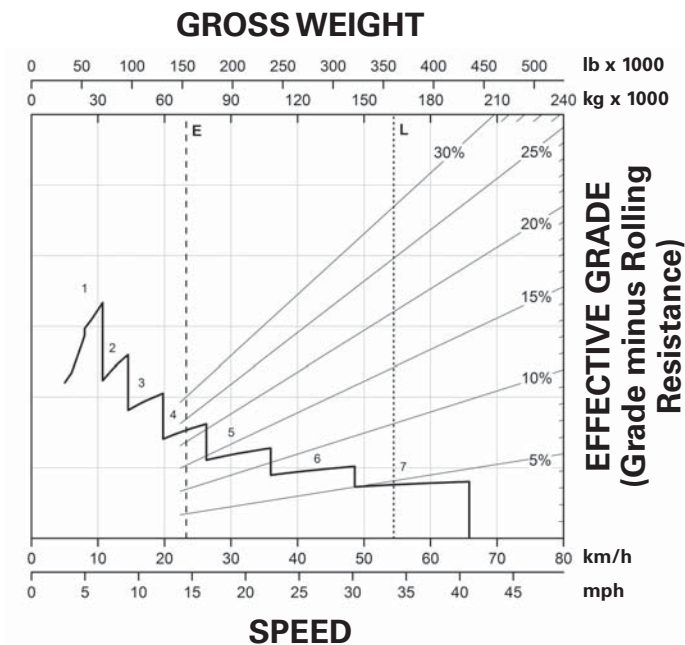
1 — 1st Gear
 2 — 2nd Gear
 3 — 3rd Gear
 4 — 4th Gear
 5 — 5th Gear
 6 — 6th Gear
 7 — 7th Gear



777E Retarding – 1500 m (5,000 ft)

E — Empty 70 753 kg (155,983 lb)
 L — Maximum GMW 163 360 kg
 (360,147 lb)

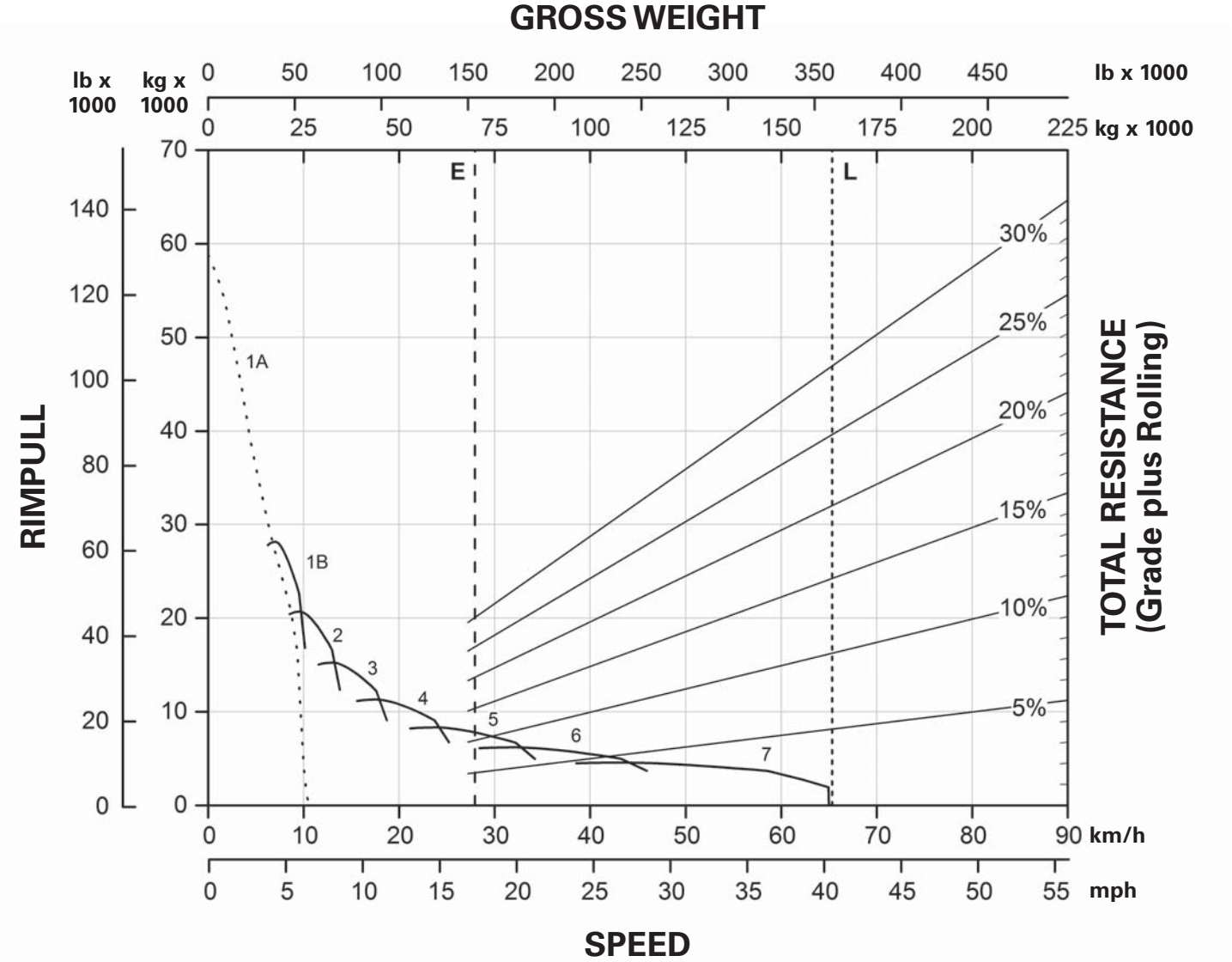
1 — 1st Gear
 2 — 2nd Gear
 3 — 3rd Gear
 4 — 4th Gear
 5 — 5th Gear
 6 — 6th Gear
 7 — 7th Gear



777E Off-Highway Truck Specifications

777E 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.



- 1A — 1st Gear (Torque Converter)
- 1B — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear
- 4 — 4th Gear
- 5 — 5th Gear
- 6 — 6th Gear
- 7 — 7th Gear

- E — Empty 70 753 kg (155,983 lb)
- L — Maximum GMW 163 360 kg (360,147 lb)

Standard Equipment

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

POWER TRAIN

- Engine idle shutdown
- Air-to-air aftercooler (ATAAC)
- Air cleaner with precleaner (2)
- Automatic cold mode idle control
- Auto neutral idle
- Engine over speed protection
- Electric priming pump
- Two starters and four batteries
- Fuel filter/water separator
- Turbocharger (2)
- Biodiesel compatibility
- Braking system
 - Oil-cooled, multiple disc (rear)
 - Parking
 - Secondary
 - Caliper disc (front)
 - Manual retarder (utilizes rear oil-cooled, multiple disc brakes)
 - Brake release motor (towing)
- Body up-shift inhibitor
- Controlled throttle shifting
- Directional shift management
- Downshift inhibitor
- Neutral start switch
- Neutral coast inhibitor
- Reverse shift inhibitor
- Reverse neutralizer during dumping
- Programmable top gear/speed limit selection
- Economy mode

SUSPENSION SYSTEMS

- Hydro pneumatic suspension
 - Front and rear

ELECTRICAL

- Alarm, backup
- Alternator, 145 amp
- Auxiliary jump start receptacle
- Batteries, maintenance-free, 12V (4), 190 amp-hour
- Electrical system, 10 amp, 24V to 12V converter
- MineStar™ ready
- Backup light, halogen
- Directional signals/hazard warning
 - Front and rear, LED
- Headlights, halogen, with dimmer
- Operator access courtesy lights
- Stop/tail lights, LED

OPERATOR ENVIRONMENT

- HVAC
- Ashtray and cigarette lighter
- Coat hook
- Diagnostic connection port
- Entertainment radio ready
 - Speakers, antenna, wiring harness
- Air cleaner service indicator
- Transmission oil temperature gauge
- Air system pressure gauge
- Brake oil temperature gauge
- Coolant temperature gauge
- Hour meter
- Tachometer
- Engine overspeed indicator
- Fuel level, gauge
- Speedometer with odometer
- Transmission gear indicator
- Hoist lever
- Horn
- Load counter, automatic
- Mirrors, left and right
- ROPS cab, insulated/sound suppressed
- Seat, Cat comfort, full air suspension and retractable four-point seat belt with shoulder harness with seat belt reminder

- Seat, trainer with lap belt
- Steering wheel, padded/tilt/telescopic
- Storage compartment
- Sun visor
- Throttle lock
- Right-side access door
- Left-side power window
- Windshield wiper, intermittent, and washer
- Tinted, laminated glass

GUARDS

- Engine crankcase
- Driveline, operator safety
- Vandalism protection lock

FLUIDS

- Extended life coolant to -35°C (-30°F)

OTHER STANDARD EQUIPMENT

- Airline dryer
- Body mounting group
- Body safety pin (secures body in up position)
- Body down indicator
- CD ROM parts book
- Center mounted rims
- Ground level battery disconnect
- Ground level engine shutdown
- Ground level grease fittings
- Reservoirs
 - Transmission
 - Steering
 - Brake, converter and hoist
- Rims 19.5×49
- Rock ejectors
- Supplemental steering, automatic
- Tie down eyes
- Tow hooks (front)/tow pin (rear)

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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