



CAT[®] 785D

OFF-HIGHWAY TRUCK BARE CHASSIS

Caterpillar offers off-highway truck bare chassis designed for specialty machines in a variety of applications — including water trucks, tow tractors, and fuel / lube trucks. When configured as a water truck, the tank capacity is 30,000 gallons (113 500 liters). These partial machine configurations allow construction, quarry, and mining customers to purchase complete solutions from our global Cat[®] dealer network — with support every step of the way.

PROVEN CAT TRUCK PLATFORM

Cat trucks are built for durability, reliability, and efficiency to deliver the performance you need in some of the toughest applications around the world.

APPLICATION-SPECIFIC CAB & ROPS CERTIFICATION

Cat Off-Highway Truck Bare Chassis ROPS is certified to ISO 3471 Tractor criteria, to provide a higher level of protection for towing applications.

CUSTOMIZATION FOR YOUR APPLICATION

Cat bare chassis can be customized for your application — including water trucks, tow tractors, and fuel / lube trucks.

POWER TO THE GROUND

The Cat 6-speed planetary power shift transmission is matched with the direct-injection 3512C engine to deliver constant power over a wide range of operating speeds and is built tough for long life between overhauls.

SERVICE WITH EASE

Easy maintenance procedures ensure high reliability and long life with low operating costs. Easy access to daily service points simplifies servicing and reduces time spent on regular maintenance procedures.

SUPPORTED BY THE CAT DEALER NETWORK

- + Full support of Cat dealer and parts network
- + Cat dealer installation & retrofit kits available
- + Eligible for Equipment Protection Plans (EPP) & Customer Value Agreements (CVAs)



785D Off-highway Truck Bare Chassis Specifications

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

Engine

Engine Model	Cat® 3512C HD	
Rated Engine Speed	1,750 rpm	
Gross Power – SAE J1995:2014	1082 kW	1,450 hp
Net Power – SAE J1349:2011/ISO 9249:2007	1005 kW	1,348 hp
Engine Power – ISO 14396:2002	1082 kW	1,450 hp
Emissions Rating	Fuel Optimized	
Torque Rise	23%	
Bore	170 mm	6.7 in
Stroke	215 mm	8.4 in
Displacement	58.56 L	3,573.6 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.
- 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 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).
- No engine derating required up to 4267 m (14,000 ft) altitude.

Operating Weights – with Hoist Cylinders

Bare Chassis Weight	82 022 kg	180,827 lb
Payload	167 454 kg	369,173 lb
Gross Vehicle Weight	249 476 kg	550,000 lb
Front Axle Bare Chassis Weight	43 677 kg	96,290 lb
Front Axle Payload	39 399 kg	86,860 lb
Front Axle Gross Vehicle Weight	83 076 kg	183,150 lb
Rear Axle Bare Chassis Weight	38 345 kg	84,537 lb
Rear Axle Payload	128 055 kg	282,313 lb
Rear Axle Gross Vehicle Weight	166 401 kg	366,850 lb

Operating Weights – without Hoist Cylinders

Bare Chassis Weight	80 426 kg	177,309 lb
Payload	169 050 kg	372,691 lb
Gross Vehicle Weight	249 476 kg	550,000 lb
Front Axle Bare Chassis Weight	43 133 kg	95,091 lb
Front Axle Payload	39 943 kg	88,059 lb
Front Axle Gross Vehicle Weight	83 076 kg	183,150 lb
Rear Axle Bare Chassis Weight	37 294 kg	82,218 lb
Rear Axle Payload	129 107 kg	284,632 lb
Rear Axle Gross Vehicle Weight	166 401 kg	366,850 lb

- The payload includes anything added to the bare chassis.
- Care must be taken when designing any attachments so that the axle weights are not exceeded.

Weights – Approximate

Rated Gross Machine Weight (RGMW)	249 476 kg	550,000 lb
Nominal Rated Payload (NRP)	141 tonnes	155 tons

- Consult your tire manufacturer for maximum tire load.

Weight Distributions – Approximate

Front Axle – Empty*	53.25 - 53.63 %	
Front Axle – Loaded	33.3 %	
Rear Axle – Empty*	46.37 - 46.75 %	
Rear Axle – Loaded	66.7 %	

*Depends on configuration.

Final Drives

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

- Maximum travel speeds with standard 33.00-R51 tires.

Braking System

Brake Surface – Front	61 270 cm ²	9,497 in ²
Brake Surface – Rear	89 729 cm ²	13,908 in ²
Brake Standards	ISO 3450:2011	

Body Hoists

Pump Flow – High Idle	750 L/min	198 gal/min
Relief Valve Setting – Raise	17 238 kPa	2,500 psi
Body Raise Time – High Idle	15.2 seconds	
Body Lower Time – High Idle	15.9 seconds	
Body Lower Time – Float	16.2 seconds	
Body Power Down – High Idle	15.9 seconds	

- Twin, two-stage hydraulic cylinders mounted inside main frame; double-acting cylinders in second stage.
- Power raise in both stages; power down in second stage.

Suspension

Effective Cylinder Stroke - Front	306.5 mm	12.1 in
Effective Cylinder Stroke - Rear	165 mm	6.5 in
Rear Axle Oscillation	+/- 5 °	

785D Off-highway Truck Bare Chassis Specifications

Service Refill Capacities

Fuel Tank	1893 L	500 gal
Cooling System	379 L	100 gal
Crankcase	204 L	54 gal
Differentials and Final Drives	436 L	115 gal
Steering Tank	90 L	24 gal
Steering System (includes tank)	117 L	31 gal
Brake/Hoist System	337 L	89 gal
Brake Hoist System (includes tank)	641 L	169 gal
Torque Converter/Transmission System (Includes Sump)	248 L	65.51 gal

Steering

Steering Standards	ISO 5010:2007	
Steer Angle	36°	
Turning Diameter – Front	29.8 m	97.7 ft
Machine Clearance Diameter	33.2 m	109 ft

Tires

Standard Tire	33.00-R51 (E3 & E4)
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- Productive capabilities of the 785D 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.

Cab

Air Conditioning	42 780 kJ/kg	18,390 BTU/lb
Heater / Defroster	11 070 kCal	43,930 BTU
Sound Standards	ANSI/SAE J1166 MAY90 SAE J88 APR95	
ROPS Certification Rating	Tractor ROPS Rating	
785D WTR (Tractor)	94 000 kg	207,234 lb

- The operator sound exposure Leq (equivalent sound pressure level) measured according to work cycle procedures specified in ANSI/SAE J1166 MAY90 is 80 dB(A) for cab offered by Caterpillar, when properly installed, maintained and tested with doors and windows closed.
- The exterior sound pressure level for the standard machine measured at a distance of 15 m (49 ft) according to the test procedures specified in SAE J88 APR95, mid-gear moving operation is 89 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.
- The ROPS (Rollover Protective Structure) for the offered by Caterpillar meets ISO 3471:1994 ROPS criteria.
- The FOPS (Falling Objects Protective Structure) meets ISO 3449:1994 Level II FOPS criteria.
- Note: Welding on ROPS or making modifications to the ROPS may void the ROPS certification. Please contact Caterpillar OEM Solutions if the application requires welding on the machine frame.

Cat® Water Delivery System (WDS) - optional

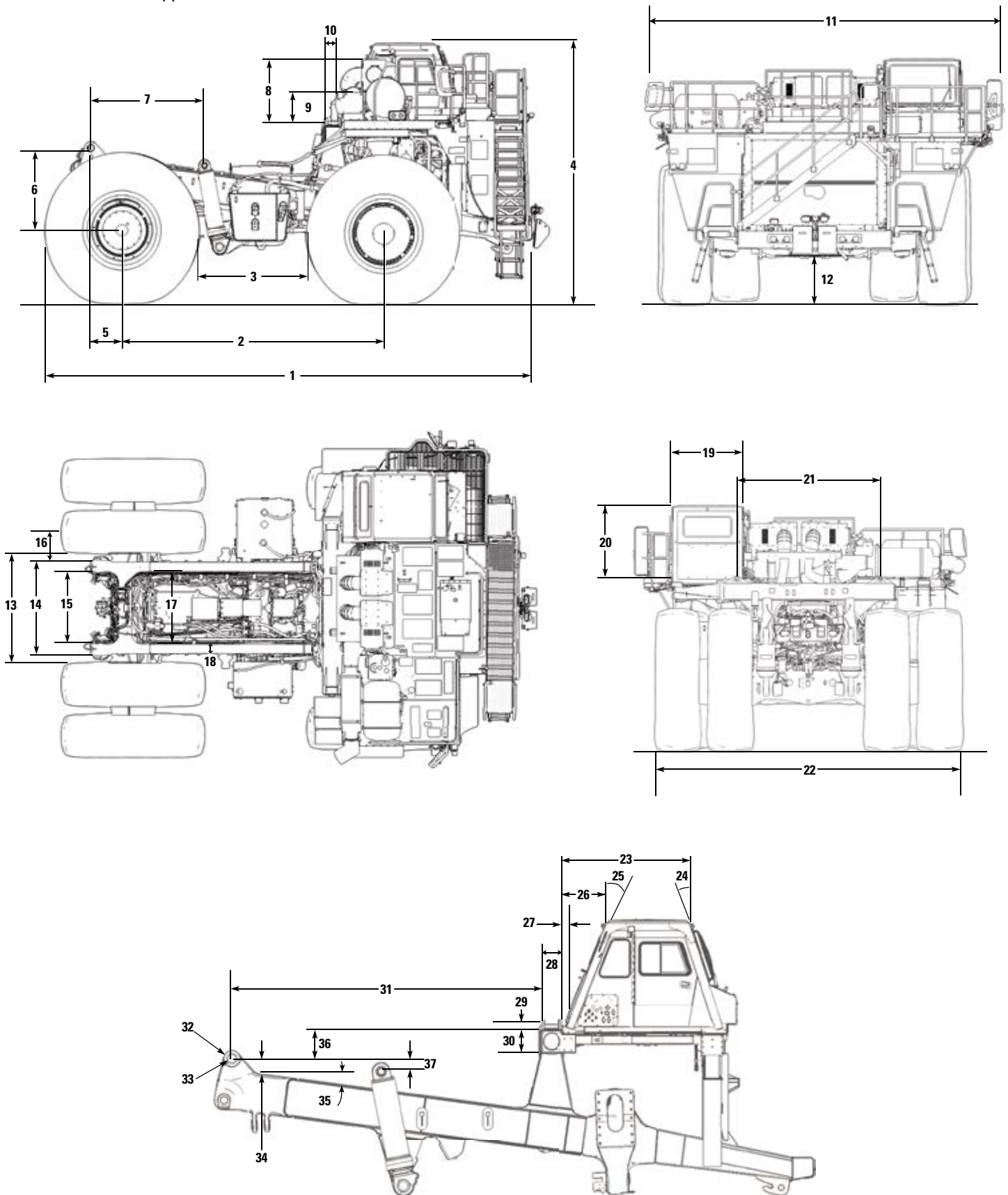
Operator selectable coverage	0.2-0.8 L/m ² (4 kph - 40 kph)	0.5-0.2 gal/ft ² (3 mph - 25 mph)
Maximum water flow	3785 L/min	1,200 gal/min
Water per spray head (minimum)	130 L/min	35 gal/min
Water per spray head (maximum)	2270 L/min	600 gal/min
Spray head opening range (minimum)	1 mm	0.04 in
Spray head opening range (maximum)	19 mm	0.75 in
Maximum size debris flushed through spray head	19 mm	0.75 in
Spray width per head (dependent on flow)	4.5-9.1 m	15-30 ft
Spray system hydraulic tank capacity	27.5 L	7.25 gal
Maximum number of rear spray heads	7	
Minimum number of rear spray heads	3	
Maximum number of front/side spray heads	2	
Minimum number of front/side spray heads	0	
Maximum water from cannon (idle)	2271 L/min	600 gal/min
Maximum water from cannon (high idle)	4732 L/min	1,250 gal/min
Maximum cannon spray distance	61 m	200 ft
Wet water pump/hydraulic motor coupling		

- Coverage rates above 0.6 L/m² may not be available at higher speeds depending on head count and configuration.
- Opening is automatically controlled by the system to achieve AutoMode Coverage or Manual Mode Flow Rate.
- AutoMode Spray controls water coverage automatically to the number of heads being used and ground speed achieved.
- Manual Mode allows the operator to set a water flow rate that is constant regardless of ground speed.
- Spray Heads on competitive water distribution systems require tools and maintenance to change flow and spray pattern. Caterpillar is the only company to have variable active spray heads to regulate water spray.
- Water flow is continually adjusted during operation to conserve water and achieve desired coverage and flow rate.

785D Off-highway Truck Bare Chassis Specifications

Dimensions

All dimensions are approximate.



785D Off-highway Truck Bare Chassis Specifications

Dimensions

1	Overall Length ** (does not include Wheel Chocks)	9730 mm	383.07 in
2	Wheel Base	5180 mm	203.94 in
3	Distance between Tires **	2165 mm	85.24 in
4	Height to Top of ROPS **	5143 mm	202.48 in
5	Rear Axle to Body Pivot	637 mm	25.07 in
6	Distance between Body Pivot and Rear Axle	1595 mm	62.80 in
7	Distance between Body Pivot and Hoist Cylinders - Horizontal	2251 mm	88.62 in
8	Distance between Main Beam and Top of Air Cleaner	1293 mm	50.91 in
9	Distance between Main Beam and Engine Hood - Vertical	650 mm	25.59 in
10	Distance between Main Beam and Engine Hood - Horizontal	268 mm	10.55 in
11	Overall Width	7703 mm	303.27 in
12	Engine Guard Clearance **	980 mm	38.58 in
13	Distance between Hoist Cylinders	2348 mm	92.44 in
14	Distance between Body Pivots - Outer	1885 mm	74.21 in
15	Distance between Body Pivots - Inner	1518 mm	59.76 in
16	Body Pivot Bearing Width	175 mm	6.89 in
17	Distance between Frame Rails	1510 mm	59.45 in
18	Frame Rail Width	200 mm	7.87 in
19	Cab Width	1660 mm	65.35 in
20	Height of the Cab from Main Beam	1639 mm	64.53 in
21	Distance between Rocker Pads	3000 mm	118.11 in
22	Overall Tire Width	6277 mm	20.58 in
23	Distance between Main Beam and Cab Front	1955 mm	76.97 in
24	Cab Front Angle		18 degrees
25	Cab Rear Angle		21.33 degrees
26	Distance between Main Beam and Cab Roof	625 mm	24.61 in
27	Distance between Main Beam and Cab Rear	390 mm	15.35 in
28	Main Beam Width	361 mm	14.21 in
29	Rocker Pad Height	80 mm	3.15 in
30	Main Beam Height	354 mm	13.94 in
31	Distance between Body Pivot and Main Beam	4658 mm	183.39 in
32	Body Pivot Outer Radius	240 mm	9.45 in
33	Body Pivot Pin Diameter	129.5 mm	5.10 in
34	Distance between Body Pivot and Frame	230 mm	9.06 in
35	Frame Slope Angle		7.5 degrees
36	Distance between Main Beam and Body Pivot Pin	439 mm	17.28 in
37	Distance between Body Pivot and Hoist Cylinders - Vertical	194 mm	7.64 in

** These dimensions may vary based on tire size, pressure and load. All dimensions are for reference only and may change for different machine configurations.

785D Off-highway Truck Bare Chassis Specifications

Standard and Optional Equipment

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

	Standard	Optional		Standard	Optional
POWERTRAIN			OPERATOR ENVIRONMENT		
Cat 3512C HD-EUI diesel engine:			Air Conditioner	•	
• Air Cleaner with Precleaner (2) Engine	•		Coat hook	•	
• Engine Shutdown	•		Diagnostic connection port	•	
• Ether starting aid	•		Dome courtesy light	•	
• Air to air aftercooler (ATAAC)	•		Entertainment radio ready: 5 amp converter, speakers, antenna, wiring harness	•	
• Elevated low idle control	•		Footrest, operator		•
• Auto starter protection	•		Gauges/Indicators:		
• Multi-point oil pressure sensing	•		• Air cleaner service indicator	•	
• Antifreeze, extended life coolant –35° C (–30° F)	•		• Quad gauge panel: Air pressure, Brake oil temperature, Engine coolant temperature, Fuel level	•	
• Engine pre-lube		•	• Electric engine control fault indicator	•	
Braking System:			• Electric hour meter/tachometer	•	
• Brake release motor (towing)	•		• Speedometer	•	
• Oil-cooled, Multiple-disc (front and rear), (service, retarding, parking, secondary)	•		• Tachometer	•	
• Automatic retarder control	•		• Transmission gear indicator	•	
• Engine overspeed protection	•		• VIMS message center with universal gauge	•	
• Extended life brake disc	•		• VIMS keypad	•	
Transmission:			• Heater/defroster	•	
• 6-speed automatic powershift with electric control (TCC)	•		Horn	•	
• Body-up shift inhibitor	•		Hose, cab clean-out		•
• Controlled throttle shifting	•		ROPS cab insulated/sound suppressed	•	
• Directional shift management	•		Storage compartment	•	
• Downshift/reverse shift inhibitor	•		Seatbelt, 75 mm (3 in), retractable	•	
• Individual clutch modulation	•		Steering wheel, tilt, padded, telescopic	•	
• Neutral coast inhibitor/start switch	•		Sun visor	•	
• Body-up reverse neutralizer	•		Tinted glass	•	
• Programmable top gear	•		Window, electric powered, operator	•	
• Lock-up torque convertor	•		Windshield wiper, intermittent control, and washer	•	
• Caterpillar flexible core radiator	•		Vacuum, cab clean-out		•
Oil quick disconnect	•		Deluxe Cab: includes suspended operator seat, suspended companion seat, retractable front windshield visor, cab cleanout		•
Oil cooler, rear axle		•			
Oil renewal system		•			
ELECTRICAL			CAT TECHNOLOGY PRODUCTS		
Alarm, Back-up	•		Object Detection System (cameras and radar)	•	
Alternator, 105 ampere	•		Product Link™ Elite	•	
Batteries, 12V (2), 93 amp/hour	•		Control, Road Analysis (RAC)		•
Converter, 12V electrical	•				
Electrical system, 24V, 15 amp	•				
Lighting System, LED:					
• Backup and hazard lights	•				
• Directional signals, front and rear	•				
• Headlights and foglights	•				
• Lo-hi beam selector	•				
• Left-hand ladder/service deck	•				
• Stop/tail lights	•				
• Engine compartment	•				
• VIMS, blue light	•				
Payload, indicator lights	•				
Payload, digital display		•			

785D Off-highway Truck Bare Chassis Specifications

Standard and Optional Equipment

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

	Standard	Optional
OTHER EQUIPMENT		
Air Line Dryer (2)	•	
Body Mounting Group	•	
Auto lubrication system (Lincoln)	•	
Dumping, Auxiliary Quick Connect for "Buddy Dumping"	•	
Steering, Auxiliary Quick Connect for Towing	•	
Continuous rear axle filtration	•	
Diagonal stairway, 600 mm (24 in)	•	
Driveline Operator Safety Guard	•	
Fast-fill Fuel System	•	
VIMS Dataport	•	
Battery Disconnect	•	
High speed crankcase oil change	•	
Grease injector	•	
Reservoirs (separate): Brake/converter/hoist, Steering, Transmission	•	
S•O•S SM sample ports	•	
Supplemental steering, automatic	•	
Tie down eyes	•	
Tow hooks, front/tow pin, rear	•	
Traction control system	•	
Vital Information Management System (VIMS)	•	
Mounting, Water with Hoist Cylinder	•	
Mounting, Water without Hoist Cylinder		•
Brake Wear Indicator		•
Fire extinguisher, portable		•
Larger Fuel Tank: 2,498 Liter (660 gallon fuel tank) with a non-pressurizing fast fill system		•
Hub Odometer, Kilometers		•
Hub Odometer, Miles		•
Wheel Chocks		•
Quick Change Rims		•
Heater, Diesel fuel		•
Powered Stairway		•
Starting, Cold Weather		•
Service Center, Wiggins		•
Working at Heights		•

	Standard	Optional
CAT WATER DELIVERY SYSTEM (WDS) - OPTIONAL ATTACHMENT		
Controls:		
• Factory installed	•	
• Integrated into cab	•	
Water System Monitor:		
• Integrated into cab	•	
• Programmable spray configurations	•	
• Automatic diagnostic messages	•	
Variable Hydraulic Pump Drive:		
• 1,200 gpm at speeds of 3 to 25 mph	•	
• Auto shut-off	•	
• Soft startup	•	
Stainless Steel Spray Heads:		
• Resists corrosion	•	
• Maintenance free	•	
• Patented design	•	
Independent Hydraulic Cooling System:		
• Minimizes overheating	•	
Water Cannon:		
• Hydraulically controlled	•	
• Optional nozzles		•
• Integrated joystick with cab controls	•	
WDS Camera System: includes three cameras, three camera washers and cable assemblies		•

Parts & service available through global Cat dealer network

For more information on Cat Truck Bare Chassis, contact OEM Solutions:

oem_solutions@cat.com | www.cat.com/oemsolutions

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