



CAT[®] 785

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.

OPERATOR-FOCUSED ENVIRONMENT

The new cab features the Next Generation operator seat with GenTherm, improved storage, pass through egress, automated temperature control, and an integrated transmission hoist control and jog dial for improved control — providing the operator with a quieter, smoother, more comfortable ride.

POWER TO THE GROUND

The proven Cat 3512E engine offers flexibility both in terms of emission profiles and power ratings. An optional engine meeting U.S. EPA Tier 4 Final and EU Stage V emission standards is available with the Cat Selective Catalytic Reduction (SCR) system. With a standard power of 1,600 hp or an optional 1,450 hp — this truck is available to match your application.

SAFETY INFUSED

Integrated Cat Detect system, 360-degree surround view, LED lighting, 600 mm (24 in) wide walkways, guarding of rotating components and hydraulic brake system with enhanced traction control system. Optional Working at Heights and Powered Access Stairway.

STREAMLINED SERVICEABILITY

Modular HVAC and radiator, remote troubleshooting and flash updates, optional Cat Health Equipment Insights, Electronic Operation and Maintenance Manual (OMM), and ground level serviceability improve maintenance and reduce downtime.

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)



785 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® 3512E	
Rated Engine Speed	1,650 rpm	
Gross Power - SAE J1995:2014	1193 kW	1,600 hp
Net Power - SAE J1349:2011	1125 kW	1,509 hp
Emissions Rating	Fuel Optimized	
Bore	170 mm	6.7 in
Stroke	215 mm	8.5 in
Displacement	58.56 L	3,573 in ³

- Net Power advertised is the power available at the flywheel when the engine is equipped with air intake system, exhaust system, and alternator.
- U.S. EPA Tier 4 Final / EU Stage V available for applicable markets.
- Additional fuel optimized selectable power ratings: 1,450 hp

Operating Weights – all configurations

Gross Vehicle Weight	249 476 kg	550,000 lb
Front Axle Gross Vehicle Weight	82 327 kg	181,499 lb
Rear Axle Gross Vehicle Weight	167 148 kg	368,498 lb

Operating Weights – with Hoist Cylinders (LRC)

Bare Chassis Weight	85 623 kg	188,766 lb
Payload	163 853 kg	361,234 lb
Front Axle Bare Chassis Weight	47 435 kg	104,576 lb
Front Axle Payload	34 892 kg	76,923 lb
Rear Axle Bare Chassis Weight	38 188 kg	84,190 lb
Rear Axle Payload	128 960 kg	284,308 lb

Operating Weights – without Hoist Cylinders (LRC)

Bare Chassis Weight	83 725 kg	184,582 lb
Payload	165 751 kg	365,418 lb
Front Axle Bare Chassis Weight	46 383 kg	102,257 lb
Front Axle Payload	35 944 kg	79,242 lb
Rear Axle Bare Chassis Weight	37 341 kg	82,322 lb
Rear Axle Payload	129 807 kg	286,175 lb

Operating Weights – with Hoist Cylinders (HRC)

Bare Chassis Weight	86 751 kg	191,253 lb
Payload	162 725 kg	358,747 lb
Front Axle Bare Chassis Weight	48 060 kg	105,954 lb
Front Axle Payload	34 267 kg	75,545 lb
Rear Axle Bare Chassis Weight	38 690 kg	85,296 lb
Rear Axle Payload	128 458 kg	283,201 lb

Operating Weights – without Hoist Cylinders (HRC)

Bare Chassis Weight	84 853 kg	187,068 lb
Payload	164 623 kg	362,931 lb
Front Axle Bare Chassis Weight	47 008 kg	103,634 lb
Front Axle Payload	35 319 kg	77,865 lb
Rear Axle Bare Chassis Weight	37 844 kg	83,431 lb
Rear Axle Payload	129 304 kg	285,066 lb

- LRC = Lesser Regulated Countries. HRC = Highly Regulated Countries.
- Bare chassis weight does not include debris. Weights shown with Michelin 33R51 Tires. 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.

Tires & Rims

33.00 R51 (standard)	36.00 R51 (optional)
610 mm (24") Rims (standard)	660 mm (26") Rims (optional)

- Quick Change Rims optional.
- Caterpillar recommends the customer evaluate all job conditions and consult tire manufacturer for proper tire selection and TKPH (TMPH) capabilities.

Weights – Approximate

Rated Gross Machine Weight (RGMW)		
33.00 R51 Tires	249 476 kg	550,000 lb
36.00 R51 Tires	255 826 kg	564,000 lb
Nominal Rated Payload (NRP)		
33.00 R51 Tires	139 tonnes	153 tons
36.00 R51 Tires	142 tonnes	157 tons

- Consult your tire manufacturer for maximum tire load.

Weight Distributions – Approximate

Front Axle – Empty	55.4 %
Front Axle – Loaded	33 %
Rear Axle – Empty	44.6 %
Rear Axle – Loaded	67 %

Final Drives

Double reduction, planetary with full floating axles.	
Differential Ratio	2.10:1
Planetary Ratio	10.83:1
Total Reduction Ratio	22.75:1

785 Off-highway Truck Bare Chassis Specifications

Braking System

Service Brakes: Four-Corner, Wet Disc, Oil Cooled, Hydraulically Actuated		
Brake Surface – Front	61 270 cm ²	9,487 in ²
Brake Surface – Rear	89 728 cm ²	13,908 in ²
Standards (Service and Secondary)	ISO 3450:2011	
Parking Brake: Four-corner, Multi-disc, Spring applied, Hydraulically Released		

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.

Body Hoists

Twin, two-stage hydraulic cylinders with snubbing valve.		
Pump Flow – High Idle	729.6 L/min	317 gal/min
Relief Valve Setting – Raise	17 238 kPa	2,500 psi
Body Raise Time – High Idle	15.2 seconds	
Body Lower Time – Float	16.2 seconds	
Body Power Down – High Idle	15.9 seconds	

Service Refill Capacities

Fuel Tank	1552 L	410 gal
Diesel Exhaust Fluid (DEF) Tank	136 L	36 gal
Cooling System	379 L	100 gal
Crankcase	204 L	54 gal
Front Wheels, Each	30 L	8 gal
Differentials and Final Drives	527 L	139 gal
Steering Tank	110 L	29 gal
Steering System (includes tank)	170 L	45 gal
Brake/Hoist System	511 L	135 gal
Brake Hoist System (includes tank)	606 L	160 gal
Torque Converter/Transmission System (Includes Sump)	175 L	46 gal

Steering

Steer Angle	36°	
Turning Diameter – Front	29.8 m	97.75 ft
Steering Standards	ISO 5010:2007	

Cab

Air Conditioning (HFC - 134A refrigerant)	24,500 Btu/hr	
Heater / Defroster	33,300 Btu/hr	
ROPS Certification Rating	Tractor ROPS Rating	
785 WTR (Tractor)	105 000 kg	231,485 lb

- The operator sound pressure level, 77 dB(A) with direct drive and 75 dB(A) with optional clutch, tested to ISO 6396:2008.
- ROPS (Rollover Protective Structure) meets ISO 3471:2008 for Operator and ISO 13459:2012 for Trainer.
- FOPS (Falling Objects Protective Structure) meets ISO 3449:2005 Level II for Operator and ISO 13459:2012 Level II for Trainer.
- 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.

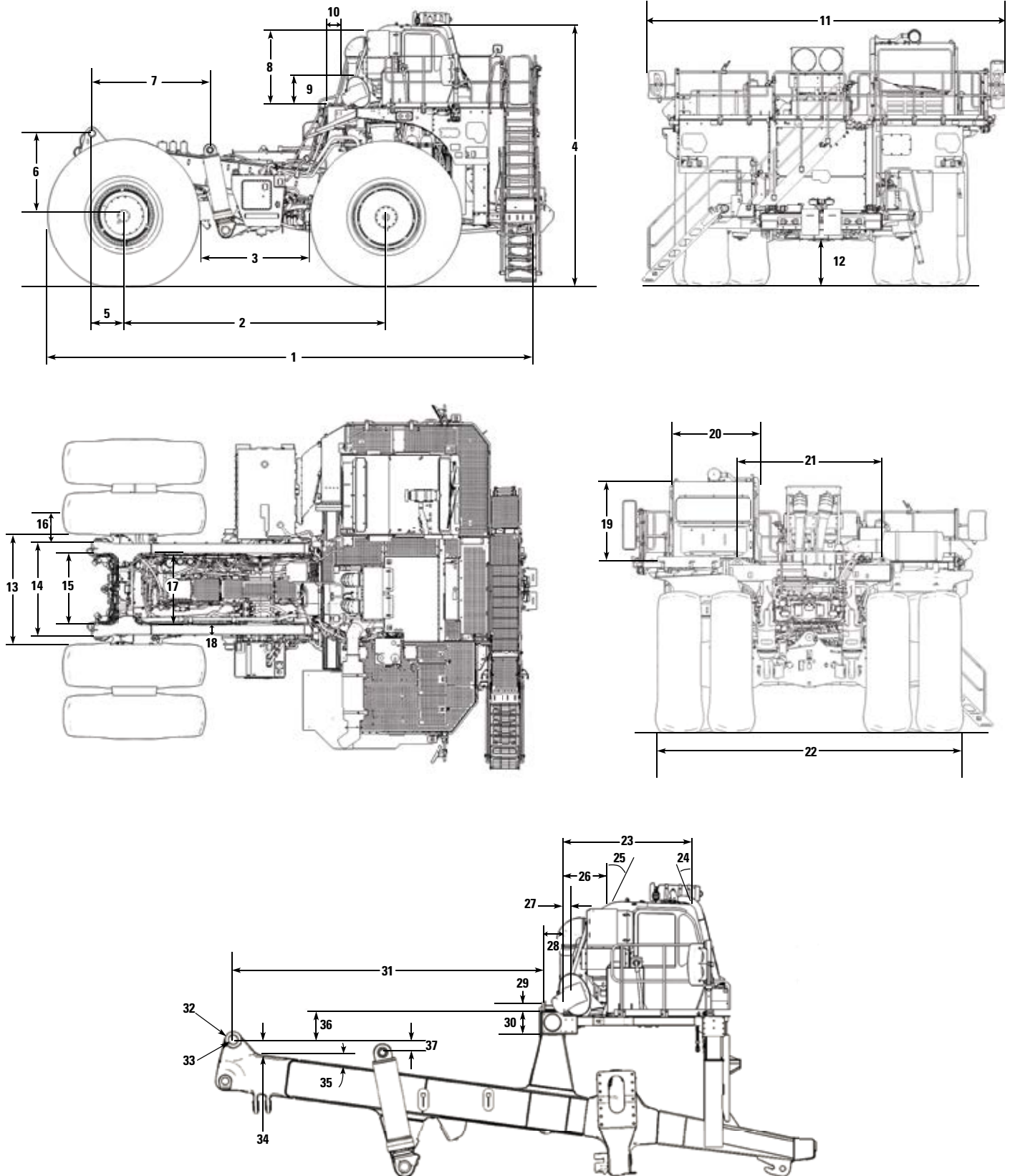
Suspension

Self-contained nitrogen/oil cylinders, pin-to-pin mounting, top & bottom double shear clevis attachments		
Effective Cylinder Stroke - Front	320 mm	12.6 in
Effective Cylinder Stroke - Rear	165 mm	6.5 in
Rear Axle Oscillation	+/- 5 degrees	

785 Off-highway Truck Bare Chassis Specifications

Dimensions

All dimensions are approximate.



785 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 **	5208 mm	205.04 in
5	Rear Axle to Body Pivot	640 mm	25.20 in
6	Distance between Body Pivot and Rear Axle	1618 mm	63.70 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	1714 mm	67.48 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	8100 mm	318.90 in
12	Engine Guard Clearance **	1038 mm	40.87 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	Height of the Cab from Main Beam	2085 mm	82.09 in
20	Cab Width	1804 mm	71.02 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	2088 mm	82.20 in
24	Cab Front Angle		14 degrees
25	Cab Rear Angle		22 degrees
26	Distance between Main Beam and Cab Roof	1044 mm	41.10 in
27	Distance between Main Beam and Cab Rear	53 mm	2.09 in
28	Main Beam Width	323 mm	12.72 in
29	Rocker Pad Height	94 mm	3.70 in
30	Main Beam Height	340 mm	13.39 in
31	Distance between Body Pivot and Main Beam	4662 mm	183.54 in
32	Body Pivot Outer Radius	120 mm	4.72 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	425 mm	16.73 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.

785 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					
Cat 3512E diesel engine:					
• Automatic engine and DEF thermal	•				
• Automatic low voltage idle management	•				
• Air cleaner with precleaner (two)	•				
• Turbocharging (four) with air-to-air aftercooler	•				
• Mechanical Electronic Unit Injector	•				
• Automatic starter protection	•				
• Automatic ether starting aid	•				
• No air – electric starter with 93-amp hour		•			
• Turbine air starter with air tank, air horn and automatic lubrication system				•	
• Variable speed fan drive				•	
Hydraulic braking system:					
• Automatic retarder control (ARC), adjustable	•				
• Brake release motor (towing)	•				
• Engine over speed protection	•				
• Extended life brake disc material	•				
• Hill start assist/Anti roll back strategy	•				
• Oil-cooled, multi-disc (front and rear) – service, retarding, parking, secondary		•			
• Park brake integrated with gear selector	•				
Transmission:					
• 6-speed, automatic power shift with Electronic Clutch Pressure Control (ECPC)	•				
• Advanced Productivity Electronic Control	•				
• Body-up reverse neutralizer	•				
• Body-up shift inhibitor	•				
• Downshift/reverse shift inhibitor	•				
• Directional shift management	•				
• Engine pre-lubrication system		•			
• Enhanced Traction Control System	•				
• Programmable top speed	•				
• Oil level sensor	•				
• Neutral coast inhibitor	•				
• Neutral start switch	•				
• Lock-up torque converter	•				
• Rear axle continuous lubrication/filtration	•				
• Rear axle continuous lubrication/filtration with cooler				•	
ELECTRICAL					
24V electrical system, low maintenance batteries	•				
Alarm, backup	•				
Auxiliary rear work lights, (one) LH side		•			
Brushless alternator, 225 amp	•				
Digital Payload Display		•			
Ground accessible power control box:					
• Ethernet VIMS™ port and VIMS lamp	•				
• Engine starter, transmission and battery lockouts	•				
Jump start/battery charge receptacle	•				
LED payload indicator lamps	•				
LED Lighting system:					
• Back-up and hazard lights	•				
• Curb lights, (one) RH side, (one) LH side	•				
• Turn signals (front and rear)	•				
• Engine compartment lights	•				
• Headlights with low-high beam selector	•				
• Ladder light and service deck lights	•				
• Stop/tail lights	•				
• Additional lighting package				•	
• Auxiliary VIMS				•	
• Body rear				•	
• Seat & park brake				•	
Workshop horn				•	
OPERATOR ENVIRONMENT					
5V USB charging port	•				
12V auxiliary power connection	•				
Cup holders	•				
Diagnostic connection port COM3 and Ethernet	•				
Delayed Engine Shutdown	•				
Dome courtesy light and map lights	•				
Emergency stop				•	
Entertainment radio ready:					
• Speakers	•				
• Antenna (AM/FM/WB/satellite radio)		•			
• Radio mounting provisions & 12V power supply	•				
Fire suppression ready					
Floor mat, multi-piece & replaceable	•				
Gauges and indicators panel:					
• Critical oil and coolant temperatures	•				
• Fuel and DEF level (if applicable)	•				
• Engine system, brake and transmission fault indicators	•				
• Operator selectable max. machine speed by rotary dial	•				
• Speedometer, Tachometer	•				
• Fuel and DEF level (if applicable)	•				
Heated mirrors, right and left	•				
Hoist, body control	•				
Interactive touchscreen vehicle information display:					
• Day/night mode	•				
• Action alarm	•				
• Quad gauge display	•				
Operator air suspension seat	•				
Operator Door Power Window	•				
Provision for customer accessory mounting	•				
Push button secure start	•				
Retractable front visor	•				
ROPS cab, insulated/sound suppressed	•				
Stairway and walkway access, 600 mm (24 in)	•				
Steering wheel, tiltable, telescopic	•				
Self-filling windshield washer fluid from AC condensate	•				

785 Off-highway Truck Bare Chassis Specifications

Standard and Optional Equipment

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

	Standard	Optional
Storage locations for operator gear	•	
Three-point seat belt for operator seat	•	
Trainer air suspension seat		•
Windshield wiper, intermittent control / washer	•	
Unitized hydraulic powered HVAC with automatic temperature control	•	
Ventilated operator seat	•	
Deluxe Cab:		•
• Advanced cabin filtration system	•	
• Catwalk and handrails for rear cab access	•	
• Heated, cooled, and ventilated front seat	•	
• Power right side window	•	
• Suspended companion seat	•	
• Storage tray	•	

OTHER EQUIPMENT

2560 L (676 gal) fuel tank (non-Tier 4)		•
Auxiliary “buddy” dumping quick connect	•	
Auxiliary connection ‘user defined shutdown’	•	
Auxiliary steering quick connect (towing)	•	
Bumper towing – center pin kit		•
Cold weather start (block heater)		•
Communication Ar – Minestar™ radio		•
eOMM	•	
Fast fill fuel and DEF remote fill system	•	
Fire extinguisher, portable		•
Five-piece crankcase guards		•
Fuel heater, fuel water separator		•
Fuel tank mud guard		•
Gauge, brake wear indicator		•
Ground accessible fluid service center, hydraulic and coolant		•
Guards for rotating components	•	
Hill Start Assist	•	
Hub odometer, kilometers		•
Hydraulic Filters, 1,000 hours	•	
Powered access stairway		•
Remote flash software and troubleshooting	•	
Rim Diffuser		•

	Standard	Optional
Secondary steering (automatic)	•	
Tie off points	•	
Tow hooks (front) and tow pin (rear)	•	
Sight glasses for hydraulic oils	•	
S•O•S SM sample ports	•	
Wheel chocks		•
Wireless Electronic Technician (ET)		•
Working at heights protection		•
Vital Information Management System (VIMS)	•	

CAT TECHNOLOGY PRODUCTS

Product Link™ Elite	•	
360 degree surround view camera		•
4G cellular/satellite dual mode		•
Connectivity bundle (includes: wireless operator ID, bluetooth key FOB to start)		•
Cyber security	•	
Driver Safety System (DSS) 4.0 Ready		•
Integrated object detection system	•	
MineStar GPS		•
MineStar communication group		•
Oil Renewal System (ORS) (non-Tier 4)		•
Road Analysis Control (RAC)		•
Tire Payload Monitoring System 2 (TPMS 2)	•	

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