



# 160

## Motor Grader

# Technical Specifications

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

### Table of Contents

<b>Specifications</b> .....	<b>2</b>
Engine .....	2
Net Power .....	2
Powertrain .....	2
Hydraulic System .....	3
Transmission Hydraulic System .....	3
Steering .....	3
Front Axle .....	3
Operating Specifications .....	3
Base Machine Weight .....	3
Typically Equipped Machine Weight .....	3
Service Refill Capacities .....	4
Air Conditioning System .....	4
Tandems .....	4
Service Brakes .....	4
Parking Brake .....	4
Moldboard .....	5
Circle .....	5
Standards .....	5
Ripper .....	5
Rear Scarifier .....	5
Mid-Mount Scarifier .....	5
Frame .....	6
Blade Range .....	6
Electrical .....	6
Dimensions .....	7
Optional Tire Arrangements .....	7
<b>Standard and Optional Equipment</b> .....	<b>8</b>
<b>160 Environmental Declaration</b> .....	<b>10</b>

# 160 Motor Grader Specifications

## Engine

Engine Model	Cat® C7	
Emissions	Meets U.S. EPA Tier 3/ EU Stage IIIA	
Torque Rise – ISO 9249:2007	50%	
Maximum Torque – ISO 9249:2007	1076 nM	794 lbf-ft
Maximum Torque – ISO 9249:2007 (AWD on)		
Derating Altitude	3048 m	10,000 ft
Fan Speed	1,925 rpm	
Bore	105 mm	4.1 in
Displacement	7.2 L	1.9 gal
Stroke	127 mm	5.0 in
Engine RPM	2,000 rpm	
Number of Cylinders	6	
Ambient Capacity	50°C	122°F

- Net power is tested per ISO 9249:2007, SAE J1349:2011 and 80/1269/EEC standards in effect at the time of manufacture.
- Net power advertised is the power available at rated speed of 2,000 rpm, measured at the flywheel when engine is equipped with fan, air cleaner, muffler and alternator.
- Maximum torque measured at 1,000 rpm in gears 4-8.
- Cat diesel engines are required to use ULSD (ultra-low sulfur diesel fuel with 15 ppm of sulfur or less) or ULSD blended with the following lower-carbon intensity fuels up to:
  - ✓ 20% biodiesel FAME (fatty acid methyl ester)\*
  - ✓ 100% renewable diesel, HVO (hydrotreated vegetable oil) and GTL (gas-to-liquid) fuels

Refer to guidelines for successful application. Please consult your Cat dealer or “Caterpillar Machine Fluids Recommendations” (SEBU6250) for details.

*\*Engines with no aftertreatment devices can use higher blends, up to 100% biodiesel (for use of blends higher than 20% biodiesel, consult your Cat dealer).*

## Net Power

Gear	VHP	
<b>Forward</b>		
1st	139 kW	186 hp
2nd	139 kW	186 hp
3rd	147 kW	197 hp
4th	154 kW	207 hp
5th	154 kW	207 hp
6th	154 kW	207 hp
7th	154 kW	207 hp
8th	154 kW	207 hp
<b>Reverse</b>		
1st	139 kW	186 hp
2nd	139 kW	186 hp
3rd	147 kW	197 hp
4th	154 kW	207 hp
5th	154 kW	207 hp
6th	154 kW	207 hp

## Powertrain

Forward/Reverse Gears	8 Forward/6 Reverse
Transmission	Direct Drive Power Shift
High Idle Speed	2,150 rpm
Low Idle Speed	800 rpm
Air Cleaner	Dry

# 160 Motor Grader Specifications

## Hydraulic System

Type	Closed – Center	
Type Circuit	Load Sensing, Closed Center, Proportional Priority Pressure Compensating System	
Pump Type	Variable Piston	
Output	24 150 kPa at 2,150 rpm	3,503 psi at 2,150 rpm
	0-155 L/min	0-40.9 gal/min
System Flow	0-155 L/min	0-40.9 gal/min

## Transmission Hydraulic System

Type	Direct Drive Powershift	
Lube Oil Pressure	20-90 kPa	3-13 psi
Pump Type	Gear	
Clutch Supply	78 L/min at 1600-1800 kPa	20.6 gal/min at 232-261 psi

## Steering

Rated Metering Capacity	159 cc/rev	
Front Steering Maximum Angle	47.5°	
Frame Steering Angle Left or Right	20°	

## Front Axle

Lean Angle	18° Left and Right	
Oscillation	32° Total	
Ground Clearance at Center	610 mm	24.1 in

## Operating Specifications

Top Speed Forward	46.9 km/h	29.1 mph
Top Speed Reverse	37.0 km/h	23.0 mph
Turning Radius, Outside Front Tires	7.5 m	24.6 ft
Steering Range	47.5° Left and Right	
Articulation Range	20° Left and Right	
Forward		
1st	4.0 km/h	2.5 mph
2nd	5.5 km/h	3.4 mph
3rd	8.0 km/h	5.0 mph
4th	11.0 km/h	6.8 mph
5th	17.4 km/h	10.8 mph
6th	23.6 km/h	14.7 mph
7th	32.5 km/h	20.2 mph
8th	47.3 km/h	29.4 mph

Reverse		
1st	3.2 km/h	2.0 mph
2nd	6.0 km/h	3.7 mph
3rd	8.8 km/h	5.5 mph
4th	13.6 km/h	8.5 mph
5th	25.4 km/h	15.8 mph
6th	37.0 km/h	23.0 mph

- Machine speed measured at 2,250 rpm with 14.00R24 radial tires, no slip.

## Base Machine Weight

Weight*	16 422 kg	36,204 lb
Front Axle	4927 kg	10,862 lb
Rear Axle	11 495 kg	25,342 lb

- \*Base operating weight on standard machine configuration is calculated with full fuel tank, coolant, lubricants, operator open canopy and 14.0R24 tires on single-piece rims.

## Typically Equipped Machine Weight\*

Weight*	18 417 kg	40,603 lb
Front Axle	5525 kg	12,181 lb
Rear Axle	12 892 kg	28,422 lb

- \*Typically equipped operating weight is calculated with full fuel tank, coolant, lubricants, operator, push block, rear ripper, tires on multi-piece rims (17.5-25 Bias), and other equipment.

# 160 Motor Grader Specifications

## Service Refill Capacities

Fuel Tank	305 L	80.6 gal
Radiator	40 L	10.6 gal
Crankcase	35 L	9.2 gal
Transmission, Differential, and Final Drive	47 L	12.4 gal
Tandem Housing (each)	63 L	16.6 gal
Hydraulic System	55 L	14.5 gal
Front Wheel Spindle Bearing	0.5 L	0.1 gal
Circle Drive Housing	7 L	1.8 gal

## Air Conditioning System

- The air conditioning system on this machine contains the fluorinated greenhouse gas refrigerant R134a or R1234yf. See the label or instruction manual for identification of the gas.
- If equipped with R134a (Global Warming Potential = 1430), the system contains 1.7 kg (3.7 lb) of refrigerant which has a CO<sub>2</sub> equivalent of 2.413 metric tonnes (2.659 tons).

## Tandems

Oscillation Front Up	15°
Oscillation Rear Up	25°

## Service Brakes

Type System	Dual Circuit Hydraulic	
Type Brake	Multiple Oil Disc	
Number of Brakes	4	
Number of Disc Assemblies (each)	6	
Size (outer diameter)	355 mm	14 in
Size (inner diameter)	255 mm	10 in
Lining Area Per Brake	5749 cm <sup>2</sup>	226.3 in <sup>2</sup>

## Parking Brake

Type System	Air Actuated
Type Brake	Disc Type
Slope Holding Ability	30% Grade
Meets ISO 3450:2011	
Secondary Brakes	Dual Circuit Control System, Applies Two Service Brakes

# 160 Motor Grader Specifications

## Moldboard

Width	4.3 m	14.1 ft
Height	3658 mm	144.0 in
Thickness	22 mm	0.9 in
End Bit		
Width	152 mm	6.0 in
Thickness	16 mm	0.6 in
Cutting Edge		
Width	203 mm	8.0 in
Thickness	16 mm	0.6 in
Arc Radius	413 mm	16.3 in
Throat Clearance	900 mm	35.4 in
Blade Pull		
Base GVW	9653 kg	21,281 lb
Maximum GVW	13 379 kg	29,496 lb
Down Pressure		
Base GVW	7780 kg	17,152 lb
Maximum GVW	13 964 kg	30,785 lb

## Circle

Section	Rolled Ring Forging	
Number of Teeth	64	
Rotation	360°	

## Standards

Rollover Protective Structure (ROPS)	ISO 3471:2008
Falling Objects Protective Structure (FOPS)	ISO 3449:2005 Level II
Steering	ISO 5010:2019*
Brakes	ISO 3450:2011

\* If equipped with optional secondary steering.

## Ripper

Ripping Depth Maximum	462 mm	18.2 in
Ripper Shank Holder	5	
Ripper Shank Holder Spacing	533 mm	21.0 in
Machine Length Increase, Beam Raised	970 mm	38.2 in
Penetration Force	9095 mm	20,051 in
Pryout Force	12 112 mm	26,702 in
Scarifier Shank Holder Quantity	9	

## Rear Scarifier

Working Width	2300 mm	90.6 in
Number of Shanks	9	
Shank Spacing	267 mm	10.5 in
Scarifying Depth, Maximum	266 mm	10.5 in

## Mid-Mount Scarifier

V-Type		
Working Width	1184 mm	46.6 in
Scarifying Depth Maximum	229 mm	9.0 in
Scarifier Shank Holders Quantity	11	
Scarifier Shank Holder Spacing	116 mm	4.6 in

# 160 Motor Grader Specifications

## Frame

Circle		
Diameter	1553 mm	61.1 in
Blade Beam Thickness	40 mm	1.6 in
Drawbar		
Height	127 mm	5.0 in
Width	76.2 mm	3.0 in
Front Axle		
Height to Center	628 mm	24.7 in
Wheel Lean, Left/Right	18 mm	0.7 in
Total Oscillation	32	
Front – Top/Bottom Plate		
Width	305 mm	12.0 in
Thickness	25 mm	1.0 in
Front – Side Plates		
Width	242.3 mm	9.5 in
Thickness	12 mm	0.5 in
Front – Linear Weights		
Minimum	165 kg	363.8 lb
Maximum	213 kg	469.6 lb
Front – Section Modulus		
Minimum	2083 kg	4,592.2 lb
Maximum	4785 kg	10,549.1 lb

## Blade Range

Circle Centershift		
Right	728 mm	28.7 in
Left	752 mm	29.6 in
Moldboard Sideshift		
Right	943 mm	37.1 in
Left	851 mm	33.5 in
Maximum Blade Position Angle	90°	
Blade Tip Range		
Forward	40 mm	1.6 in
Backward	5 mm	0.2 in
Maximum Shoulder Reach Outside of Tires		
Right	2261 mm	89.0 in
Left	2223 mm	87.5 in
Maximum Lift Above Ground	452 mm	17.8 in
Maximum Depth of Cut	790 mm	31.1 in

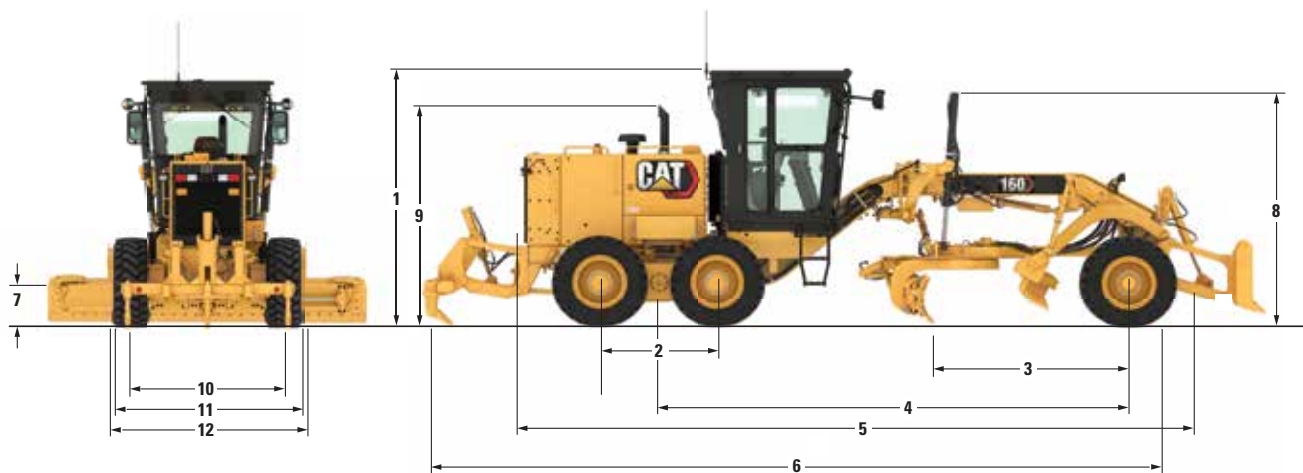
## Electrical

Starting System Type	Direct Electric
Heavy Duty Battery	
CCA at -18°	1,400 amp
Volts	12V
Quantity	2
Standard Battery	
CCA at -18°	900 amp
Volts	12V
Quantity	2
Standard Alternator	115 amps at 24V

# 160 Motor Grader Specifications

## Dimensions

All dimensions are approximate.



<b>1</b> Height – Top of Cab	3353.9 mm	132.0 in
<b>2</b> Length – Between Tandem Axles	1523 mm	60 in
<b>3</b> Length – Front Axle to Moldboard	2598 mm	102.3 in
<b>4</b> Length – Front Axle to Mid Tandem	6086 mm	239.6 in
<b>5</b> Length – Front Tire to Rear of Machine	8504 mm	334.8 in
<b>6</b> Length – Push Plate to Ripper	10 013 mm	394.2 in

<b>7</b> Ground Clearance at Rear Axle	337 mm	13.3 in
<b>8</b> Height to Top of Cylinders	3049 mm	120.0 in
<b>9</b> Height to Exhaust Stack	2895 mm	114.0 in
<b>10</b> Width – Tire Center Lines	2065 mm	81.3 in
<b>11</b> Width – Outside Rear Tires	2452 mm	96.5 in
<b>12</b> Width – Outside Front Tires	2481 mm	97.7 in

## Optional Tire Arrangements

Rim Size	Wheel Group	Tires
9 x 24	Single-Piece	14.00-24
10 x 24	Multi-Piece	14.00-24
14 x 25	Multi-Piece	17.5R25
14 x 25	Multi-Piece	17.5-25

**Note:** Consult your dealer for individual tire width, size and brand.

# 160 Motor Grader Specifications

## Standard and Optional Equipment

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

	Standard	Optional		Standard	Optional
<b>OPERATOR ENVIRONMENT</b>			<b>POWERTRAIN</b>		
Accelerator	✓		Engine, Cat C7 diesel with automatic engine derate and idle control	✓	
Air conditioner with heater		✓	Eco mode	✓	
Cab, non-rollover protective structure (ROPS)		✓	Engine idle shutdown	✓	
Cab, ROPS		✓	Next gen filter design	✓	
Canopy, ROPS		✓	Air cleaner, dry type radial seal with service indicator and automatic dust ejector	✓	
Control console, adjustable	✓		Air-to-air aftercooler (ATAAC)	✓	
Fan, defroster, front window		✓	Autoshift		✓
Fan, defroster, rear window		✓	Blower fan	✓	
Gauge cluster (includes voltmeter, articulation, engine coolant temperature, air brake pressure and fuel level)	✓		Brakes, oil disc, four-wheel air actuated	✓	
Guard rails, operator station	✓		Differential with lock/unlock	✓	
Heater, cab		✓	Dryer, air	✓	
Hydraulic controls, load sensing (right/left blade lift, circle drive, centershift, sideshift, front wheel lean and articulation)	✓		Fuel water separator	✓	
Indicator lights (includes high beam, LH and RH turn, low engine oil pressure, throttle lock, check engine, transmission filter bypass and check, centershift pin, brake air pressure, parking brake engaged, auto shift)	✓		Guard, transmission		✓
Meter, hour	✓		Muffler, under hood	✓	
Mirror, heated		✓	Parking brake, multi-disc, sealed and oil cooled	✓	
Mirrors, dual inside		✓	Prescreener	✓	
Mirrors, outside mounted		✓	Priming pump, fuel, resiliently mounted	✓	
Power port, 12V accessory		✓	Sediment drain, fuel tank	✓	
Power steering, hydraulic	✓		Tandem drive	✓	
Radio ready entertainment		✓	Transmission, 8 speed forward and 6 speed reverse, power shift, direct drive with electronic shift control and overspeed protection	✓	
Radio, Bluetooth		✓	Variable horsepower (VHP)	✓	
Rear vision camera		✓	<b>ELECTRICAL</b>		
Seat belt	✓		Alternator, 115 ampere	✓	
Seat, cloth, contour		✓	Backup alarm, reversing lights	✓	
Seat, vinyl adjustable		✓	Bar mounted, low directional and headlights		✓
Seat, vinyl-covered static	✓		Batteries, maintenance free 750 CCA	✓	
Steering wheel, tilt, adjustable	✓		Cab and bar mounted, high, directional, headlights and work lights		✓
Storage area, cooler/lunch box	✓		Combination headlight		✓
Sun shade, rear		✓	Common fuse block		✓
Tachometer/speedometer		✓	Electrical system, 24 volt	✓	
Throttle, electronic control	✓		Horn, electric, immobilizer ready	✓	
Wiper/washer, rear		✓	Indication display		✓
Wipers, intermittent front		✓	LED Lights		✓
			Lights, stop and tail	✓	
			Motor, starting	✓	
			Product Link™ ready	✓	
			Product Link Elite		✓
			Rear facing cab lights		✓
			Rotating amber beacon		✓
			Working lights	✓	



# 160 Motor Grader Specifications

## Standard and Optional Equipment *(continued)*

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

	Standard	Optional		Standard	Optional
<b>RIPPER/SCARIFIER</b>			<b>OTHER EQUIPMENT</b>		
Ripper/scarifier, rear mounted		✓	Accumulator, blade lift		✓
Scarifier, mid mounted, V-Type		✓	Battery, extreme duty (1,400 CCA)		✓
<b>HYDRAULICS</b>			Blade float	✓	
Hydraulic arrangements with one or more additional hydraulic valves are available for rear ripper, mid-mount scarifier, dozer, snow plow and snow wing		✓	Bumper, rear	✓	
Pump, hydraulic, high capacity (210 L/min, 55.7 gal/min)		✓	Circle drive slip clutch	✓	
<b>BLADES, MOLDBOARDS</b>			Circle Saver		✓
Blade, 4267 mm x 610 mm x 22 mm (14 ft x 24 in x 7/8 in) with hydraulic sideshift and tip and 5/8 in end bits, cutting edge 203 mm x 19 mm (8 in x 3/4 in) - for use with 4.3 m (14 ft) blade		✓	Cutting edges, 152 mm x 16 mm (6 in x 5/8 in) curved DH-2 steel	✓	
End bits, overlay, reversible pair for use with 203 mm (8 in) cutting edges		✓	Digital Blade Slope Meter		✓
<b>ANTIFREEZE</b>			Doors, engine compartment	✓	
Extended life coolant to -35°C (-30°F)		✓	Drawbar, 6 shoe with replaceable nylon composite wear strips	✓	
			Dryer, air		✓
			End bits, 16 mm (5/8 in) DH-2 steel	✓	
			Ether, starting aid		✓
			Frame, articulated with safety lock	✓	
			Fuel tank, 344 L (91 gallon)	✓	
			Grade Attachment Ready Option (ARO)		✓
			Ground level engine shutdown	✓	
			Heater, engine coolant, 220v		✓
			Link bar, 7 position	✓	
			Moldboard, 3658 mm x 610 mm x 22 mm (12 ft x 24 in x 7/8 in) blade with hydraulic sideshift and mechanical tip	✓	
			Moldboard, 4267 mm x 686 mm x 25 mm (14 in x 27 in x 1 in) blade with hydraulic sideshift and hydraulic tip	✓	
			Push plate, counterweight		✓
			Ripper tow package		✓
			Snow wing mounting, frame-ready		✓
			Scheduled Oil Sampling (S-O-S <sup>SM</sup> ) ports, engine, hydraulic transmission and cooling	✓	
			Toolbox with padlock	✓	
			Vandalism protection – including cap locks for hydraulic tank, radiator access cover, fuel tank, engine and transmission oil check/fill and lockable battery boxes	✓	

# 160 Environmental Declaration

The following information applies to the machine at the time of final manufacture as configured for sale in the regions covered in this document. The content of this declaration is valid as of the date issued; however, content related to machine features and specifications are subject to change without notice. For additional information, please see the machine's Operation and Maintenance Manual.

For more information on sustainability in action and our progress, please visit <https://www.caterpillar.com/en/company/sustainability>.

## Engine

- The Cat® C7 engine meets U.S. EPA Tier 3 and EU Stage IIIA.
- Cat diesel engines are required to use ULSD (ultra-low sulfur diesel fuel with 15 ppm of sulfur or less) or ULSD blended with the following lower-carbon intensity fuels up to:
  - ✓ 20% biodiesel FAME (fatty acid methyl ester)\*
  - ✓ 100% renewable diesel, HVO (hydrotreated vegetable oil) and GTL (gas-to-liquid) fuels

Refer to guidelines for successful application. Please consult your Cat dealer or "Caterpillar Machine Fluids Recommendations" (SEBU6250) for details.

*\*Engines with no aftertreatment devices can use higher blends, up to 100% biodiesel (for use of blends higher than 20% biodiesel, consult your Cat dealer).*

## Air Conditioning System

- The air conditioning system on this machine contains the fluorinated greenhouse gas refrigerant R134a or R1234yf. See the label or instruction manual for identification of the gas.
- If equipped with R134a (Global Warming Potential = 1430), the system contains 1.7 kg (3.7 lb) of refrigerant which has a CO<sub>2</sub> equivalent of 2.413 metric tonnes (2.659 tons).

## Paint

- Based on best available knowledge, the maximum allowable concentration, measured in parts per million (PPM), of the following heavy metals in paint are:
  - Barium < 0.01%
  - Cadmium < 0.01%
  - Chromium < 0.01%
  - Lead < 0.01%

## Sound Performance

Machine Sound Power Level (ISO 6395:2008) – 107 dB(A)

Operator Sound Pressure Level (ISO 6396:2008) – 71 dB(A)

- The dynamic machine sound power level measurements are performed according to the dynamic test procedures that are specified in ISO 6395:2008. The measurements were conducted at 70% of the maximum engine cooling fan speed.
- The dynamic operator sound pressure level measurements are performed according to the dynamic test procedures that are specified in ISO 6396:2008. The measurements were conducted at 70% of the maximum engine cooling fan speed, with the cab doors and the cab windows closed. The cab was properly installed and maintained.

## Oils and Fluids

- Caterpillar factory fills with ethylene glycol coolants. Cat Diesel Engine Antifreeze/Coolant (DEAC) and Cat Extended Life Coolant (ELC) can be recycled. Consult your Cat dealer for more information.
- Cat Bio HYDO™ Advanced is an EU Ecolabel approved biodegradable hydraulic oil.
- Additional fluids are likely to be present, please consult the Operations and Maintenance Manual or the Application and Installation guide for complete fluid recommendations and maintenance intervals.

## Features and Technology

- The following features and technology may contribute to fuel savings and/or carbon reduction. Features may vary. Consult your Cat dealer for details.
  - Reduced fuel consumption up to 5% with standard Eco mode
  - On-demand fan reduces fuel consumption and under-hood heat for longer component life
  - Hydraulic system makes the machine more precise and predictable for a consistent grade
  - Cut costs with extended maintenance cycles and reversing fan option
  - Improve jobsite efficiency with lower operating costs with Product Link™ and VisionLink® insights

## Recycling

- The materials included in machines are categorized as below with approximate weight percentage. Because of variations of product configurations, the following values in the table may vary.

Material Type	Weight Percentage
Steel	70.72%
Iron	16.22%
Uncategorized	4.95%
Nonferrous Metal	3.12%
Mixed-Metal & Nonmetal	2.32%
Plastic	1.03%
Other	0.62%
Fluid	0.53%
Rubber	0.23%
Mixed Nonmetallic	0.21%
Mixed Metal	0.04%
Total	100%

- A machine with higher recyclability rate will ensure more efficient usage of valuable natural resources and enhance end-of-life value of the product. According to ISO 16714 (Earthmoving machinery – Recyclability and recoverability – Terminology and calculation method), recyclability rate is defined as percentage by mass (mass fraction in percent) of the new machine potentially able to be recycled, reused or both.

All parts in the bill of material are first evaluated by component type based on a list of components defined by the ISO 16714 and Japan CEMA (Construction Equipment Manufacturers Association) standards. Remaining parts are further evaluated for recyclability based on material type.

Because of variations of product configurations, the following value in the table may vary.

Recyclability – 97%

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).

© 2024 Caterpillar  
All rights reserved

Materials and specifications are subject to change without notice. Featured machines in photos may include additional equipment. See your Cat dealer for available options.

VisionLink is a trademark of Caterpillar Inc., registered in the United States and in other countries.

CAT, CATERPILLAR, LET'S DO THE WORK, their respective logos, Product Link, HYDO, "Caterpillar Corporate Yellow", the "Power Edge" and Cat "Modern Hex" trade dress as well as corporate and product identity used herein, are trademarks of Caterpillar and may not be used without permission.

AEXQ4034-00 (11-2024)  
Build Number: 11A  
(Afr-ME, Aus-NZ, Eurasia, China,  
India, Indonesia, S Am)

