160/
160 AWD
Motor Graders



Operator Station
Industry leading cab design gives you unmatched comfort, visibility and ease of use, so your operators can be more confident and productive.

Structures, Drawbar, Circle and Moldboard
Durable structures with fast and simple DCM adjustments save you service time. Shims and wear strips save you money and make it easy to maintain factory tightness of components for better grading results.

Hydraulics
Load sensing, proportional hydraulics mean operators can rely on consistent power. This precise, predictable implement response will save time and help assure quality work.

Integrated Technologies
Grade control and machine monitoring technologies help you improve grading efficiency and enhance fleet management for improved machine utilization.

Safety
The safety of your operators and those on the job site is key in the design of every Cat® machine. Features like outstanding visibility, hydraulic lockout and redundant steering and braking systems help you meet your goals of getting everyone home safely at the end of each work day.

All Wheel Drive (AWD)
If you work in soft underfoot conditions where traction can be a challenge, optional All Wheel Drive (AWD) can give you the additional power to the ground you need to work more efficiently in mud, gravel, sand or snow. The added traction helps reduce sliding on side slopes.

CAT®

160/160 AWD Motor Graders Specifications

Engine

Engine Model*	Cat C9	
Base Power (1st gear) – Net	159 kW	213 hp
Base Power (1st gear) – Net (Metric)		216 hp
VHP Plus Range – Net	159-185 kW	213-248 hp
VHP Plus Range – Net (Metric)		216-251 hp
Displacement	8.8 L	537 in^3
Bore	112 mm	4.4 in
Stroke	149 mm	5.9 in
Torque Rise (VHP Plus)	40%	
Maximum Torque (VHP Plus)	1237 N·m	912 lb-ft
Speed @ Rated Power	2,000 rpm	
Number of Cylinders	6	
Derating Altitude	3048 m	10,000 ft
Standard – Fan Speed		
Maximum	1,450 rpm	
Minimum	600 rpm	
Standard – Ambient Capability	43° C	109° F
High Ambient – Fan Speed		
Maximum	1,650 rpm	
Minimum	600 rpm	
High Ambient Capability	50° C	122° F

- Maximum torque (VHP Plus) measured at 1,000 rpm.
- Net power is tested per ISO 9249, SAE J1349, and EEC 80/1269 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 running at minimum speed, air cleaner, muffler and alternator.
- Power as declared per ISO 14396
  Rated Speed = 2,000 rpm
  VHP Plus = 186 kW (249 hp)
- No engine derating required up to 3048 m (10,000 ft).

* Note: Emits equivalent to U.S. EPA Tier 3 or EU Stage IIIA.

Engine – AWD Model

Engine Model*	Cat C9	
Base Power (1st gear, AWD off) – Net	159 kW	213 hp
Base Power (1st gear) – Net (Metric)		216 hp
VHP Plus Range – Net	159-200 kW	213-268 hp
VHP Plus Range – Net (Metric)		216-272 hp
Displacement	8.8 L	537 in^3
Bore	112 mm	4.4 in
Stroke	149 mm	5.9 in
Torque Rise (VHP Plus)	40%	
Maximum Torque (AWD on)	1344 N·m	991 lb-ft
Speed @ Rated Power	2,000 rpm	
Number of Cylinders	6	
Derating Altitude	3048 m	10,000 ft
High Ambient – Fan Speed		
Maximum	1,650 rpm	
Minimum	600 rpm	
High Ambient Capability	50° C	122° F

- Maximum torque (VHP Plus) measured at 1,000 rpm.
- Net power is tested per ISO 9249, SAE J1349, and EEC 80/1269 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 running at minimum speed, air cleaner, muffler and alternator.
- Power as declared per ISO 14396
  Rated Speed = 2,000 rpm
  AWD = 201 kW (269 hp)
- No engine derating required up to 3048 m (10,000 ft).

* Note: Emits equivalent to U.S. EPA Tier 3 or EU Stage IIIA.

160 Net Power

Gear	VHP Plus kW (hp)	AWD Off kW (hp)	AWD On kW (hp)
Forward			
1st	159 (213)	159 (213)	166 (223)
2nd	162 (218)	162 (218)	177 (238)
3rd	166 (223)	166 (223)	181 (243)
4th	170 (228)	170 (228)	185 (248)
5th	174 (233)	174 (233)	200 (268)
6th	177 (238)	177 (238)	200 (268)
7th	181 (243)	181 (243)	200 (268)
8th	185 (248)	185 (248)	200 (268)
Reverse			
1st	159 (213)	159 (213)	159 (213)
2nd	162 (218)	162 (218)	162 (218)
3rd – 6th	166 (223)	166 (223)	166 (223)

Power Train

Forward/Reverse Gears	8 Forward/6 Reverse	
Transmission	Direct drive, power shift, countershaft	
Brakes		
Service	Multiple oil disc	
Service, Surface Area	23 000 cm^2	3,565 in^2
Parking	Multiple oil disc	
Secondary	Dual circuit control system	

Hydraulic System

Circuit Type	Electro-hydraulic load sensing, closed center	
Pump Type	Variable piston	
Pump Output	210 L/min	55.7 gal/min
Maximum System Pressure	24 150 kPa	3,500 psi
Standby Pressure	3100 kPa	450 psi

• Pump output measured at 2,150 rpm.

Operating Specifications

Top Speed		
Forward	47.4 km/h	29.5 mph
Reverse	37.4 km/h	23.3 mph
Turning Radius, Outside Front Tires	7.6 m	24 ft 11 in
Steering Range – Left/Right	47.5 degrees	
Articulation Angle – Left/Right	20 degrees	
Forward		
1st	4.1 km/h	2.5 mph
2nd	5.6 km/h	3.5 mph
3rd	8.1 km/h	5.0 mph
4th	11.2 km/h	7.0 mph
5th	17.4 km/h	10.8 mph
6th	23.7 km/h	14.7 mph
7th	32.6 km/h	20.3 mph
8th	47.4 km/h	29.5 mph
Reverse		
1st	3.3 km/h	2.0 mph
2nd	6.1 km/h	3.8 mph
3rd	8.8 km/h	5.5 mph
4th	13.7 km/h	8.5 mph
5th	25.7 km/h	16.0 mph
6th	37.4 km/h	23.3 mph

Service Refill

Fuel Capacity	416 L	110 gal
Cooling System	40.0 L	10.6 gal
Hydraulic System – Tank	64.0 L	16.9 gal
Engine Oil	30.0 L	7.9 gal
Trans./Diff./Final Drives	65.0 L	17.2 gal
Tandem Housing (each)	80.0 L	21.1 gal
Front Wheel Spindle Bearing Housing	0.50 L	0.13 gal
Circle Drive Housing	7.0 L	1.8 gal

160/160 AWD Motor Graders Specifications

Frame

Circle		
Diameter	1553 mm	61.1 in
Height	160 mm	6.3 in
Blade Beam Thickness	40.0 mm	1.6 in
Drawbar		
Height	152 mm	6.0 in
Width	76.2 mm	3.0 in
Front Frame Structure		
Height	305 mm	12.0 in
Width	305 mm	12.0 in
Thickness	16.0 mm	0.60 in
Front Axle		
Height to Center	571 mm	22.5 in
Wheel Lean, Left/Right	18 degrees	
Total Oscillation Per Side	32 degrees	

Tandems

Height	572 mm	22.5 in
Width	204 mm	8.0 in
Sidewall Thickness		
Inner	25.0 mm	1.0 in
Outer	18.0 mm	0.70 in
Drive Chain Pitch	50.8 mm	2.0 in
Wheel Axle Spacing	1523 mm	60.0 in
Tandem Oscillation		
Front Up	15 degrees	
Front Down	25 degrees	

Moldboard

Moldboard		
Width	3.7 m	12 ft
Height	610 mm	24.0 in
Thickness	22.0 mm	0.87 in
Arc Radius	413 mm	16.3 in
Throat Clearance	95.0 mm	3.7 in
Cutting Edge		
Width	152 mm	6.0 in
Thickness	16.0 mm	0.60 in
End Bit		
Width	152 mm	6.0 in
Thickness	16.0 mm	0.60 in
Blade Pull		
Base GVW	11 110 kg	24,494 lb
Maximum GVW	14 656 kg	32,310 lb
Base GVW (AWD)	16 032 kg	35,344 lb
Maximum GVW (AWD)	21 552 kg	47,515 lb
Down Pressure		
Base GVW	7682 kg	16,936 lb
Maximum GVW	13 153 kg	28,998 lb
Base GVW (AWD)	8558 kg	18,868 lb
Maximum GVW (AWD)	13 153 kg	28,998 lb

- Blade pull calculated at 0.9 traction coefficient, which is equal to no-slip conditions, and Gross Machine Weight.

Blade Range

Circle Centershift		
Right	728 mm	28.7 in
Left	695 mm	27.4 in
Moldboard Sideshift		
Right	950 mm	37.4 in
Left	820 mm	32.3 in
Maximum Blade Position Angle	90 degrees	
Blade Tip Range		
Forward	40 degrees	
Backward	5 degrees	
Maximum Shoulder Reach Outside of Tires		
Right	2278 mm	89.7 in
Left	2090 mm	82.3 in
Maximum Lift Above Ground	452 mm	17.8 in
Maximum Depth of Cut	750 mm	29.5 in

Ripper

Ripping Depth, Maximum	428 mm	16.8 in
Ripper Shank Holders	5	
Ripper Shank Holder Spacing	533 mm	21.0 in
Penetration Force	9317 kg	20,540 lb
Pryout Force	11 911 kg	26,259 lb
Machine Length Increase, Beam Raised	995 mm	39.2 in

Scarifier

Front, V-Type, 5 or 11 Tooth		
Working Width	1205 mm	47.4 in
Scarifying Depth, Maximum	467 mm	18.4 in
Scarifier Shank Holders	5/11	
Scarifier Shank Holder Spacing	116 mm	4.6 in
Mid, V-Type		
Working Width	1184 mm	46.6 in
Scarifying Depth, Maximum	292 mm	11.5 in
Scarifier Shank Holders	11	
Scarifier Shank Holder Spacing	116 mm	4.6 in
Rear		
Working Width	2300 mm	91.0 in
Scarifying Depth, Maximum	266 mm	10.5 in
Scarifier Shank Holders	9	
Scarifier Shank Holder Spacing	267 mm	10.5 in

Weights

Gross Vehicle Weight – Base		
Total	16 820 kg	37,082 lb
Front Axle	4475 kg	9,867 lb
Rear Axle	12 345 kg	27,215 lb
Gross Vehicle Weight – Maximum		
Total	23 947 kg	52,794 lb
Front Axle	7663 kg	16,894 lb
Rear Axle	16 284 kg	35,900 lb
Gross Vehicle Weight – Typically Equipped		
Total	19 715 kg	43,465 lb
Front Axle	5626 kg	12,404 lb
Rear Axle	14 089 kg	31,061 lb

- Base operating weight on standard machine configuration is calculated with full fuel tank, coolant, lubricants, operator and 17.50R25 tires with multi-piece (MP) rims.

Weights – AWD

Gross Vehicle Weight – Base		
Total	17 813 kg	39,270 lb
Front Axle	4986 kg	10,992 lb
Rear Axle	12 827 kg	28,278 lb
Gross Vehicle Weight – Maximum		
Total	23 947 kg	52,794 lb
Front Axle	7663 kg	16,894 lb
Rear Axle	16 284 kg	35,900 lb
Gross Vehicle Weight – Typically Equipped		
Total	20 607 kg	45,431 lb
Front Axle	6103 kg	13,455 lb
Rear Axle	14 504 kg	31,976 lb

- Base operating weight on standard machine configuration is calculated with full fuel tank, coolant, lubricants, operator and 14.0R24 tires with multi-piece (MP) rims.

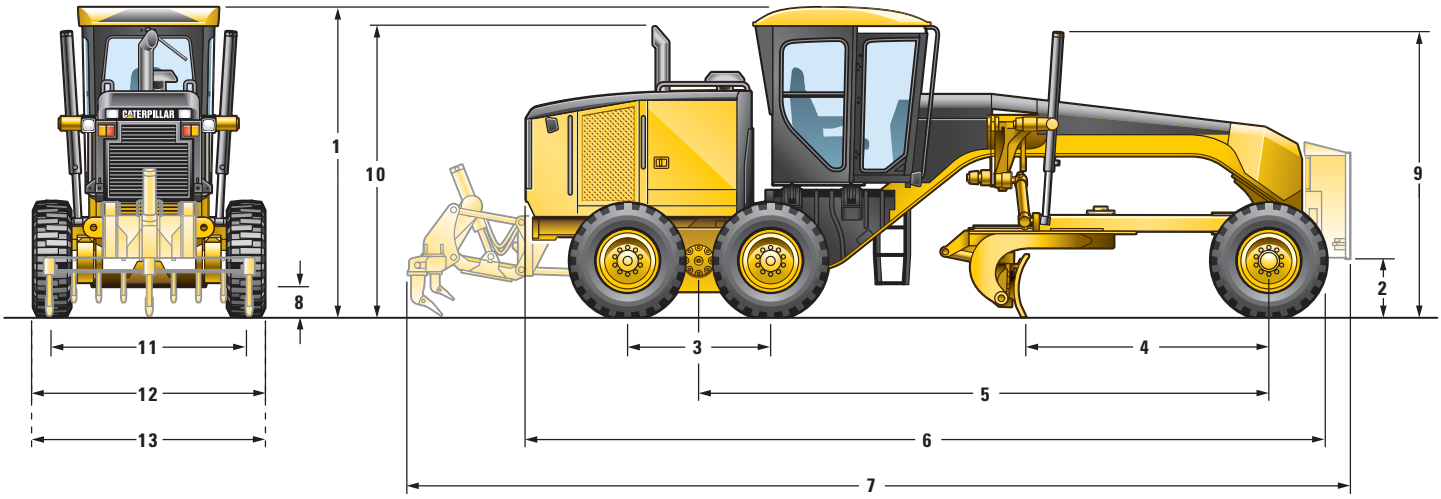
Standards

ROPS/FOPS	ISO 3471:2008, ISO 3449:2005 Level II
Steering	ISO 5010:2007
Brakes	ISO 3450:1996
Sound	ISO 6394:2008, ISO 6395:2008

- The static operator sound pressure level is 73 dB(A) when "ISO 6394:2008" is used to measure the value for an enclosed cab. The measurement was conducted with the cab doors and the cab windows closed. The cab was properly installed and maintained.
- The dynamic spectator sound pressure level is 107 dB(A) when "ISO 6395:2008" is used to measure the value for an enclosed cab. The measurement was conducted at 70% of the maximum engine cooling fan speed.

160/160 AWD Motor Graders Specifications

Dimensions



		160/160 AWD	
		mm	in
1	Height – Top of Cab	3308	130
	Height – Top of Cab Product Link™	3378	133
2	Height – Front Axle Center	596	23.5
3	Length – Between Tandem Axles	1523	60.0
4	Length – Front Axle to Moldboard	2552	100
5	Length – Front Axle to Mid Tandem	6123	241
6	Length – Front Tire to Rear of Machine	8754	344
7	Length – Push Plate to Ripper	10 136	399
	Length – Push Plate to Ripper Retracted	9818	386
8	Ground Clearance at Rear Axle	339	13.3
9	Height to Top of Cylinders	3040	119
10	Height to Exhaust Stack	3256	128
	Height to Exhaust Stack (AWD)	3256	128
11	Width – Tire Center Lines	2140	84.0
	Width – Tire Center Lines Front (AWD)	2223	87.0
12	Width – Outside Rear Tires	2511	98.0
13	Width – Outside Front Tires	2511	98.0
	Width – Outside Front Tires (AWD)	2594	102

• Dimensions based on 14.00R24 tire on multi-piece rim. Dimensions may vary with tire selection.

Optional Tire Arrangements

160/160 AWD		
Rim Size	Wheel Group	Tires
10 × 24	Multi-Piece	14.00-24
10 × 24	Multi-Piece	14.00R24
14 × 25	Multi-Piece	17.5R25

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

Standard Equipment

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

POWER TRAIN

- Air cleaner, dual stage, dry type, diesel, with automatic engine derate and automatic dust ejector, service indicator through Cat Messenger
- Air-to-air after cooler (ATAAC)
- Belt, serpentine, automatic tensioner
- Brakes, oil disc, four-wheel, hydraulic
- Demand fan, hydraulic
- Differential Lock/Unlock, Automatic
- Drain, engine oil, ecology
- Electronic over speed protection
- Engine
  - Cat C9, diesel, with automatic engine derate and idle control
    Note: Engine emits equivalent to U.S. EPA Tier 3 or EU Stage IIIA.
- Engine Idle Shutdown (EIS)
- Fuel tank, 416 L (110 gal), ground level access and sediment drain
- Fuel-water separator
- Muffler, underhood
- Parking brake – multi-disc, sealed, oil-cooled
- Priming pump, fuel
- Rear axle, modular
- Sediment drain, fuel tank
- Tandem drive
- Transmission, 8F/6R, power shift, direct drive
- Variable Horsepower Plus (VHP Plus)

ELECTRICAL

- Alarm, back up
- Alternator, 80 ampere, sealed
- Batteries, maintenance free, heavy duty, 1,125 CCA
- Breaker panel, ground accessible
- Cab harness and electrical hydraulic valves
- Electrical system, 24V
- Grade Control Ready – Cab harness, software, electrical hydraulic valves, bosses and brackets
- Lights, roof-mounted roading, reversing, LED stop and tail
- Product Link Ready
- Starter, electric

OPERATOR ENVIRONMENT

- Accelerator
- Air conditioning with heater
- Arm and wrist rest, electronically adjustable
- Articulation, automatic Return-to-Center
- Cat Messenger operator information system
- Centershift pin indicator
- Coat hook
- Cup holder
- Display, digital speed and gear
- Doors, left and right side with wiper
- Gauge, machine level
- Gauge cluster (analog) – fuel, articulation, engine coolant temp, engine RPM, hydraulic oil temp
- Hour meter, digital
- Joystick hydraulic controls right/left blade lift with float position, circle drive, blade sideshift and tip, centershift, front wheel lean, articulation and steering
- Joystick, adjustable armrests
- Joystick gear selection
- Joystick hydraulic power steering
- Ladders, cab, left and right side
- Lights, night time cab
- Mirror, inside rearview, wide angle
- Power port, 12V
- Radio Ready, Entertainment
- ROPS cab, sound suppressed
- Seat, cloth-covered, comfort suspension
- Seat belt, retractable 76 mm (3 in)
- Storage area for cooler/lunchbox
- Throttle control, electronic
- Windows, laminated glass:
  - fixed front with intermittent wiper
  - side and rear (3)

FLUIDS

- Antifreeze
- Extended Life Coolant to –35° C (–30° F)

TIRES, RIMS AND WHEELS

- Partial allowance for tires on 254 × 607 mm (10 × 24 in) multi-piece rims is included in the base machine price and weight

OTHER STANDARD EQUIPMENT

- Anti-glare paint
- Bumper, rear, integrated with hitch
- CD ROM Parts Book
- Clutch, circle drive slip
- Cutting edges
  - 152 × 16 mm (6 × 5/8 in)
  - curved DH-2 steel
  - 19 mm (3/4 in) mounting bolts
- Doors (3), engine compartment, locking
- Drawbar – 6 shoes, replaceable wear strips
- Electrical hydraulic valves, hydraulic lines for base 8 functions
- Endbits
  - 16 mm (5/8 in) DH-2 steel
  - 19 mm (3/4 in) mounting bolts
- Fluid check, ground level
- Frame, articulated, with safety lock
- Ground level engine shutdown
- Ground level fueling
- Hammer (emergency exit)
- Horn, electric
- Hydraulic lines for base functions
- Lockout, hydraulic implement (for roading and servicing)
- Moldboard – 3658 × 610 × 22 mm (12 ft × 24 in × 7/8 in)
- Mounting, cab roof accessories
- Pump, hydraulic, high capacity, 98 cm^3 (6 in^3)
- Radiator, cleanout access
- Secondary steering
- Serviceability, left-hand side
- S•O•S℠ ports: engine, hydraulic, transmission, coolant, fuel
- Tandem walkway/guards
- Tool box
- Tow hitch

160/160 AWD Motor Graders

Optional Equipment

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

	kg	lb
ELECTRICAL		
Alternator, 150 ampere	2	5
Batteries:		
extreme duty, 1,400 CCA	14	30
Converter, communication (CB)	5	11
Lights:		
Headlights, high	5	11
Headlights, low	5	11
Working lights, basic	9	20
Working lights, plus, LED	10	22
Warning: beacon or strobe	2	5
Mounting for warning light	5	11
GUARDS		
Articulation guard	13	30
Axle hose guard	7	15
Fenders, front	56	123
Fenders, rear	156	344
Sound guard (bottom)	110	243
Transmission guard	141	311
OPERATOR ENVIRONMENT		
Deluxe CD radio with MP3 and Bluetooth technology		
Fan, defroster, rear window	2	4
Mirrors, outside:		
heated 24V	15	33
mounted	15	33
Precleaner, HVAC	5	10
Radio ready, AM/FM	9	20
Seat, air suspension, cloth	2	5
Shade, sun	2	5
Wiper/washer, rear	2	4
POWER TRAIN		
Precleaner, snow/debris	2	4.4
Transmission, autoshift	2	5
OTHER ATTACHMENTS		
ARO	39	85
Accumulators, blade lift	77	170
Camera, rearview	9	20
Cat GRADE with Cross Slope	75	165
Cat Product Link 321 (Satellite)	13	29
Cat Product Link 522 (Cellular)	13	29
Compressor/tank, air	27	50
Heater, engine coolant:		
120V	1	3
240V	1	3
Hydraulic arrangements with one or more additional hydraulic valves are available for ripper, dozer, snow wings, front lift group, mid-mount scarifier.		
Security system	5	11
Snow wing mounting, frame ready	111	245
Sound suppression	15	33
Starting aid, ether	0.5	1
WORK TOOLS/ GROUND ENGAGING TOOLS		
Blade extension, left hand, 610 mm (2 ft)	113	249
Endbits, overlay	24	52
Front lift group, mounting	5	11
Front lift group	680	1,500
Mid-Mount Scarifier, Package	942	2,077
Mid-Mount Scarifier, Mounting	57	125
Moldboard		
4267 × 610 × 22 mm (14 ft × 24 in × 7/8 in)	100	220
4267 × 686 × 25 mm (14 ft × 27 in × 1 in)	257	567
4877 × 686 × 25 mm (16 ft × 27 in × 1 in)	472	1,041
Push plate	885	1,950
Ripper, mounting	32	70
Ripper, rear	962	2,120
Ripper tooth	28	61
Scarifier, front	434	956
MACHINE ARRANGEMENTS		
Snow Arrangement		

For more complete information on Cat products, dealer services, and industry solutions, visit us on the web at **www.cat.com**

AEHQ7233-03 (11-2019)
Replaces AEHQ7233-02
Build Number: 14A
(ANZ, CIS)

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