



120

Motor Grader

Technical Specifications

Engine – Tier 3 Equivalent/EU Stage IIIA

Engine Model	Cat® C7.1	
Emissions	U.S. Tier 3 Equivalent	EU Stage IIIA
Base Net Power ISO 9249/SAE J1349	93 kW	125 hp
Base Net Power EEC 80/1269 (metric)	127 hp	
Power Range – Net	93-116 kW	125-156 hp
Power Range – Net (metric)	127-158 hp	
All Wheel Drive Range – Net	97-129 kW	130-173 hp
All Wheel Drive Range – Net (metric)	131-176 hp	
Derating Altitude	4500 m	14,764 ft
Derating Altitude AWD	3000 m	9,842 ft

Engine – Tier 4 Final/EU Stage IV

Engine Model	C7.1	
Emissions	U.S. Tier 4 Final	EU Stage IV
Base Net Power ISO 9249/SAE J1349 EEC 80/1269	104 kW	140 hp
Base Net Power ISO 9249/SAE J1349 EEC 80/1269 (metric)	142 hp	

Power Range – Net	104-123 kW	140-164 hp
Power Range – Net (metric)	142-167 hp	
All Wheel Drive Range – Net	108-141 kW	144-189 hp
All Wheel Drive Range – Net (metric)	146-192 hp	
Bore	105 mm	4.1 in
Displacement	7.01 L	427.8 in ³
Stroke	135 mm	5.3 in
Engine RPM	2,000	
Number of Cylinders	6	
Torque Rise – ISO 9294	42%	
Maximum Torque – ISO 9294	822 N·m	606 lb·ft
Maximum Torque (All-Wheel Drive On)	828 N·m	611 lb·ft
Derating Altitude	3000 m	9,842 ft
Derating Altitude AWD	1676 m	5,499 ft
Maximum – Fan Speed	1,300 rpm	
Minimum – Fan Speed	600 rpm	
Ambient Capacity	50° C	122° F

- Net Power is tested per ISO 9249, SAE J1349, and EEC 80/1269 Standards in effect at the time of manufacture.
- VHP Plus is standard for the 120 and 120 all-wheel drive (AWD).
- Rated speed at 2,000 rpm.

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120 Net Power – Tier 3 Equivalent/EU Stage IIIA

Gear	Non-AWD – kW (hp)	AWD Off – kW (hp)	AWD On – kW (hp)
Forward			
1st	93 (125)	97 (130)	96 (129)
2nd	97 (130)	100 (135)	101 (136)
3rd	101 (136)	104 (140)	107 (144)
4th	108 (145)	111 (149)	115 (155)
5th	112 (150)	124 (167)	128 (171)
6th	116 (156)	129 (173)	129 (173)
7th	116 (156)	129 (173)	129 (173)
8th	116 (156)	129 (173)	129 (173)
Reverse			
1st	93 (125)	97 (130)	96 (129)
2nd	97 (130)	100 (135)	101 (136)
3rd-6th	101 (135)	104 (140)	107 (144)

120 Net Power – Tier 4 Final/EU Stage IV

Gear	Non-AWD – kW (hp)	AWD Off – kW (hp)	AWD On – kW (hp)
Forward			
1st	104 (139)	108 (145)	109 (146)
2nd	107 (143)	111 (149)	114 (153)
3rd	110 (148)	114 (153)	120 (161)
4th	119 (160)	122 (164)	122 (164)
5th	123 (165)	134 (180)	141 (189)
6th	123 (165)	134 (180)	141 (189)
7th	123 (165)	134 (180)	141 (189)
8th	123 (165)	134 (180)	134 (180)
Reverse			
1st	104 (139)	108 (145)	109 (146)
2nd	107 (143)	111 (149)	114 (153)
3rd-6th	110 (148)	114 (153)	120 (161)

Power Train

Forward/Reverse Gears	8 Forward/6 Reverse
Transmission	Direct Drive Powershift Countershaft
High Idle Speed	2,000 rpm
Low Idle Speed	
Tier 3	800 rpm
Tier 4	1,030 rpm
Air Cleaner	Dry

Hydraulic System

Type	Closed – Center
Type Circuit	Parallel
Pump Type	Variable Displacement Piston
System Pressure	24 129 kPa 3500 psi
System Flow	0-200 L/min 0-53 gal/min

Operating Specifications

Top speed forward	48.3 km/h	30.1 mph
Top speed reverse	38.1 km/h	23.7 mph
Turning Radius, Outside Front Tires	7.4 m	291.3 in
Steering Range	50° Left and Right	
Articulation Angle	20° Left and Right	
Forward		
1st	4.1 km/h	2.6 mph
2nd	5.6 km/h	3.5 mph
3rd	8.2 km/h	5.1 mph
4th	11.3 km/h	7.0 mph
5th	17.7 km/h	11.0 mph
6th	24.1 km/h	15.0 mph
7th	33.2 km/h	20.6 mph
8th	48.3 km/h	30.1 mph
Reverse		
1st	3.3 km/h	2.0 mph
2nd	6.1 km/h	3.8 mph
3rd	8.9 km/h	5.5 mph
4th	14.0 km/h	8.7 mph
5th	26.2 km/h	16.3 mph
6th	38.1 km/h	23.7 mph

- Machine speed measured at 2,150 rpm with 14.00R24 radial tires, no slip.

120 Motor Grader Specifications

Base Machine Weight – Tier 3 Equivalent/EU Stage IIIA

Lever/Steering Wheel Weight*	13 527 kg	29,822 lb
Joystick Weight*	13 810 kg	30,446 lb
Lever/Steering Wheel All-Wheel Drive (AWD) Weight*	14 282 kg	31,486 lb
Joystick All-Wheel Drive (AWD) Weight*	14 485 kg	31,934 lb

*Typically equipped includes blade, tires, push plate, ripper, bottom guard, operator, and full fluids.

Typically Equipped Machine Weight

Lever/Steering Wheel Weight*	15 699 kg	34,610 lb
Joystick Weight*	15 824 kg	34,886 lb
Lever/Steering Wheel All-Wheel Drive (AWD) Weight*	16 454 kg	36,275 lb
Joystick All-Wheel Drive (AWD) Weight*	16 499 kg	36,374 lb

*Typically equipped includes blade, tires, push plate, ripper, bottom guard, operator, and full fluids.

Major Component Weights

Moldboard (with cutting edge)		
3658 mm × 610 mm × 22 mm (12 ft × 24 in × 7/8 in)	670 kg	1,474 lb
4267 mm × 610 mm × 22 mm (14 ft × 24 in × 7/8 in)	782 kg	1,720 lb
Guards		
Transmission	105 kg	231 lb
Front Fender	50 kg (AWD)/ 93 kg (STD)	110 lb (AWD)/ 205 lb (STD)
Blade Extension		
LH and RH – 152.4 wide, 15.9 thick cutting edge (each)	113 kg	249 lb
LH and RH – 203.2 wide, 19 thick cutting edge (each)	127 kg	280 lb
Mid-Mount Scarifier Package	834 kg	1,835 lb
Front Lift Group	680 kg	1,496 lb
Push Plate	895 kg	1,969 lb
Rear Ripper	680 kg	1,496 lb
Front Scarifier	434 kg	956 lb

Base Machine Weight – Tier 4 Final/EU Stage IV

Lever/Steering Wheel Weight*	13 892 kg	35,067 lb
Joystick Weight*	14 024 kg	35,358 lb
Lever/Steering Wheel All-Wheel Drive (AWD) Weight*	14 647 kg	36,731 lb
Joystick All-Wheel Drive (AWD) Weight*	14 699 kg	36,846 lb

Typically Equipped Machine Weight

Lever/Steering Wheel Weight*	15 906 kg	35,067 lb
Joystick Weight*	16 038 kg	35,358 lb
Lever/Steering Wheel All-Wheel Drive (AWD) Weight*	16 661 kg	36,731 lb
Joystick All-Wheel Drive (AWD) Weight*	16 713 kg	36,846 lb

Service Refill Capacities

Fuel Tank	246 L	65 gal
Circle Drive	7 L	1.8 gal
Engine Crankcase	18 L	4.8 gal
Cooling System	52.5 L	14 gal
Hydraulic System	97 L	25.6 gal
Diesel Exhaust Fluid Tank (Tier 4 only)	15 L	4 gal
Transmission and Differential	60 L	15.8 gal
Tandem	60 L	15.8 gal

Tandems

Oscillation Front Up	15°
Oscillation Rear Up	22°

120 Motor Grader Specifications

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)	270 mm	10.6 in
Size (inner diameter)	189 mm	7.4 in
Lining Area Per Brake	3,504 cm ²	543.1 in ²

Parking Brake

Type System	Hydraulic Actuated
Type Brake	Multiple Oil Disc, Meets ISO 3450
Slope Holding Ability	30°
Secondary Brakes	Dual Circuit Control System, Applies Two Service Brakes

Moldboard

	Standard		Option 1		Option 2	
Width	3.7 m	12 ft	3.7 m	12 ft	4.3 m	14 ft
Height	610 mm	24 in	610 mm	24 in	610 mm	24 in
End Bit	152 mm	6 in	152 mm	6 in	152 mm	6 in
Cutting Edge	152 mm	6 in	203 mm	8 in	203 mm	8 in
Arc Radius	413 mm	16.3 in	413 mm	16.3 in	413 mm	16.3 in
Throat Clearance	120 mm	4.7 in	124 mm	4.9 in	89 mm	3.5 in

Drawbar Circle Moldboard

	Standard		Top Adjust	
Range of Motion				
Lift Cylinders	2		2	
Maximum Depth of Cut	775 mm	30.5 in	775 mm	30.5 in
Maximum Lift Above Ground	410 mm	16.1 in	410 mm	16.1 in
Throat Clearance	120 mm	4.7 in	120 mm	4.7 in
Circle Center Shift Cylinder				
Center Shift Right	656 mm	25.8 in	656 mm	25.8 in
Center Shift Left	656 mm	25.8 in	656 mm	25.8 in
Moldboard Side Shift Cylinder				
Side Shift Left	660 mm	26 in	660 mm	26 in
Side Shift Right	510 mm	20.1 in	510 mm	20.1 in
Blade Tip Cylinder				
Maximum Blade Tip Forward	40°		40°	
Maximum Blade Tip Backward	5°		5°	
Circle Drive	360° of Blade Rotation			
Link Bar	7 Positions to adjust the drawbar circle moldboard range of motion			
Drawbar Shoes	4 with replaceable wear strips			

Circle

Section	Rolled Ring Forging
Number of Teeth	64
Rotation	360°

120 Motor Grader Specifications

Maximum Shoulder Reach Outside of Tires

Blade	3.7 m (12 ft)		4.3 m (14 ft)	
Right	1905 mm	75 in	2210 mm	87 in
Left	1742 mm	68.6 in	2180 mm	85.8 in

- An additional 300 mm (11.8 in) of reach can be achieved to the right or left by changing the side shift mounting bracket on the 4.3 m (14 ft) blade.

Ripper

Ripping Depth Maximum	288 mm	11.2 in
Ripper Shank Holder	5	
Ripper Shank Holder Spacing	533 mm	20.8 in
Penetration Force	5119 kg	11,287 lb
Pryout Force	2029 kg	4,474 lb
Machine Length Increase, Beam Raised	900 mm	35.1 in

Mid Mount Scarifier

Front, V-Type: Working Width	1205 mm	47.4 in
Number of Shanks	11	
Shank Spacing	116 mm	4.5 in
Scarifying Width	1031 mm	40.2 in

Electrical

Starting System Type	Direct Electric
Heavy Duty Battery	
CCA at -18°	1,125 amp
Volts	12V
Quantity	2
Extreme Duty Battery	
CCA at -18°	1,400 amp
Volts	12V
Quantity	2
Standard Alternator	145 amps at 24V
Heavy Duty Alternator	150 amps at 24V

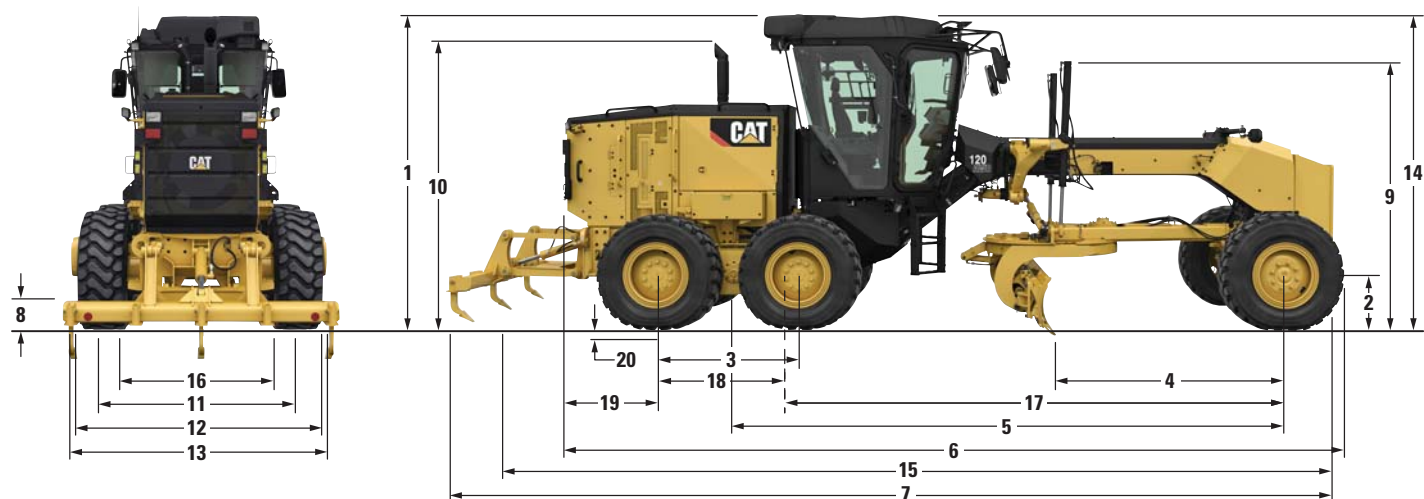
Electrical – Tier 3 Equivalent/EU Stage IIIA Lever

Starting System Type	Direct Electric
Standard Duty Battery	Only offered on Levers
CCA at -18°	900 amp
Volts	12v
Quantity	2
Heavy Duty Battery	
CCA at -18°	1,125 amp
Volts	12V
Quantity	2
Extreme Duty Battery	
CCA at -18°	1,400 amp
Volts	12V
Quantity	2
Standard Alternator – Levers	115 amps at 24V
Standard Alternator – Joystick	145 amps at 24V
Heavy Duty Alternator	150 amps at 24V

120 Motor Grader Specifications

Dimensions

All dimensions are approximate.



1 Height – Top of Cab	3465 mm	136.4 in
2 Height		
Front Axle Center (Non AWD)	590 mm	23.2 in
Front Axle Center (AWD)	596 mm	23.5 in
3 Length – Between Tandem Axles	1510 mm	59.5 in
4 Length		
Front Axle to Moldboard (Non AWD)	2551 mm	100.4 in
Length – Front Axle to Moldboard (AWD)	2516 mm	99 in
5 Length		
Front Axle to Mid Tandem (Non AWD)	5945 mm	234 in
Front Awd Axle to Mid Tandem (AWD)	5910 mm	232.7 in
6 Length		
Front Tire to Rear of Machine (Non AWD)	8534 mm	336 in
Front Tire to Rear of Machine (AWD)	8499 mm	334.6 in
7 Length – Push Plate to Ripper	9838 mm	387 in
8 Ground Clearance at Rear Axle	349 mm	13.7 in

9 Height to Top of Cylinders	2895 mm	114 in
10 Height to Exhaust Stack	3185 mm	125.4 in
Height to Exhaust Stack (Tier 3)	2924 mm	115 in
11 Width – Tire Center Lines	2070 mm	81.5 in
12 Width – Outside Rear Tires	2491 mm	98 in
13 Width		
Outside Front Tires (Non AWD)	2495 mm	98.2 in
Outside Front Tires (AWD)	2638 mm	103.9 in
14 Maximum Height – with Attachments	3440 mm	135.4 in
15 Length – Push Plate to Raised Ripper	9583 mm	377 in
16 Width – Inside Rear Tires	1649 mm	64.9 in
17 Length		
Front Axle to Articulation Hitch (Non AWD)	5284 mm	208 in
Front Axle to Articulation Hitch (AWD)	5249 mm	206.7 in
18 Length – Rear Axle to Articulation Hitch	660 mm	26 in
19 Length – Rear Axle to Rear of Frame	1726 mm	68 in
20 Height – Tire Deflection at Performance Weight	45 mm	1.8 in

120 Standard and Optional Equipment

Standard and Optional Equipment

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

	Standard	Optional
ENGINE		
Cat C7.1 engine	✓	
ECO mode	✓	
Extreme duty starter		✓
50° C (122° F) ambient capacity	✓	
43° C (109° F) ambient capacity – all wheel drive	✓	
All-Wheel Drive (AWD)		✓
Differential lock/unlock	✓	
Engine idle shutdown timer	✓	
Transmission, autoshift		✓
MOLDBOARD		
Standard drawbar circle moldboard	✓	
Circle drive slip clutch	✓	
Top adjust drawbar circle moldboard		✓
Circle saver		✓
ELECTRICAL		
Sealed alternator	✓	
Reversing lights	✓	
Breaker panel	✓	
900 CCA standard duty batteries*	✓	
1,125 CCA heavy duty batteries	✓	
1,400 CCA extreme duty batteries		✓
Electric starter	✓	

*Available on T3 Lever machines only (1,125 and 1,400 CCA are optional).

(continued on next page)

120 Standard and Optional Equipment

Standard and Optional Equipment *(continued)*

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

	Lever/Steering Wheel		Joystick	
	Standard	Optional	Standard	Optional
CAB				
Vinyl seat	✓		N/A	N/A
ROPS	✓		✓	
Air suspension adjustable seat		✓	✓	
Leather heated/cooled seat		✓		✓
Seat belt, retractable	✓		✓	
Seat belt, indication		✓		✓
203 mm (8 in) touchscreen monitor*		✓	✓	
254 mm (10 in) hybrid information display	✓		N/A	N/A
Canopy cab (T3 lever only)		✓	N/A	N/A
Heating, ventilation, and air conditioning (HVAC) system**		✓	✓	
Defrost fans		✓		✓
Halogen lighting		✓		✓
Cup and bottle holders	✓		✓	
Implement lockout		✓	✓	
Adjustable control console	✓		✓	
Interior lights (dome lamp)	✓		✓	
LED lighting		✓		✓
Entertainment Radio Ready		✓	✓	
Coat hook	✓		✓	
USB/Auxiliary Radio		✓		✓
Joystick controls		N/A	✓	
Communication radio mounting		✓		✓
Steering wheel and lever controls	✓		N/A	
Heated mirrors		✓		✓
Electric throttle control	✓		✓	
Front windshield wiper	✓		✓	
Front windshield wiper (lower)		✓	N/A	N/A
Rear wiper		✓		✓
Rear window screen		✓		✓
Cab storage	✓		✓	
Side window wipers	N/A	N/A		✓
Slider side window		✓		✓

(continued on next page)

120 Standard and Optional Equipment

Standard and Optional Equipment *(continued)*

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

	Standard	Optional
SAFETY AND SECURITY		
Parking brake	✓	
Back up alarm	✓	
Signaling/warning horn	✓	
Warning beacon		✓
Rearview mirror	✓	
Rearview camera		✓
Hydraulic brakes	✓	
Secondary steering system	✓	
Side view mirrors	✓	
Strategically placed walkways and grab rails	✓	
SERVICE AND MAINTENANCE		
Ground level DEF fill – Tier 4 Final/EU Stage IV	✓	
Grouped location for engine oil and fuel filters	✓	
Extended Life Coolant	✓	
CAT CONNECT TECHNOLOGY		
Cat GRADE with Digital Blade Slope Meter		✓
Cat GRADE with Cross Slope Indicate		✓
Cat GRADE with Cross Slope		✓
Cat GRADE Attachment Ready Option (ARO)		✓
Stable blade		✓
Product Link*	✓	
Remote services		✓
*Optional on Lever models.		
GUARDS		
Front fenders*		✓
Rear fenders		✓
Front axle guard for all-wheel drive		✓
Transmission		✓
Cover, under cab platform		✓
*Not available for lever and steering wheel tandem machines.		
ATTACHMENTS		
Push block		✓
Ripper		✓
Scarifier		✓
Mid mount scarifier		✓
Front lift group		✓
Front blade		✓



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