



## 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	104 kW	140 hp	
EEC 80/1269	142 hp		
Base Net Power ISO 9249/SAE J1349	142 hp		
EEC 80/1269 (metric)			

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	7.0 L	427.8 in <sup>3</sup>
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.		

## 120 Motor Grader Specifications

120 Net Power – Tier 3 Equivalent/EU Stage IIIA				Power Train	
Gear	Non-AWD – kW (hp)	AWD On – kW (hp)	AWD Off – kW (hp)	Forward/Reverse Gears	8 Forward/6 Reverse
Forward				Transmission	Direct Drive Powershift
1st	93 (125)	97 (130)	96 (129)	Countershaft	2,000 rpm
2nd	97 (130)	100 (135)	101 (136)	High Idle Speed	2,000 rpm
3rd	101 (136)	104 (140)	107 (144)	Low Idle Speed	Tier 3 800 rpm
4th	108 (145)	111 (149)	115 (155)	Tier 4	1,030 rpm
5th	112 (150)	114 (157)	118 (161)	Air Cleaner	Dry
6th	116 (156)	119 (163)	122 (167)	<b>Hydraulic System</b>	
Reverse				Type	Closed – Center
1st	93 (125)	97 (130)	96 (129)	Type Circuit	Parallel
2nd	97 (130)	100 (135)	101 (136)	Pump Type	Variable Displacement
3rd-6th	101 (135)	104 (140)	107 (144)	System Pressure	24.129 kPa 3,500 psi
				System Flow	0-200 L/min 0-53 gpm
120 Net Power – Tier 4 Final/EU Stage IV				Operating Specifications	
Gear	Non-AWD – kW (hp)	AWD On – kW (hp)	AWD Off – kW (hp)	Top speed forward	
Forward				48.3 km/h 30.1 mph	
1st	104 (139)	108 (145)	109 (146)	Top speed reverse	
2nd	107 (143)	111 (149)	114 (153)	38.1 km/h 23.7 mph	
3rd	110 (148)	114 (153)	120 (161)	Turning Radius, Outside Front Tires	
4th	119 (160)	122 (164)	127 (168)	7.4 m 20.3 ft	
5th	123 (165)	124 (168)	131 (178)	Steering Range	
6th	123 (165)	124 (168)	131 (178)	50° Left and Right	
Reverse				Articulation Angle	
1st	104 (139)	108 (145)	109 (146)	20° Left and Right	
2nd	107 (143)	111 (149)	114 (153)	Forward	
3rd-6th	110 (148)	114 (153)	120 (161)	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
Reverse				1st	3.3 km/h 2.0 mph
1st	104 (139)	108 (145)	109 (146)	2nd	6.3 km/h 3.8 mph
2nd	107 (143)	111 (149)	114 (153)	3rd	8.9 km/h 5.5 mph
3rd-6th	110 (148)	114 (153)	120 (161)	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.					

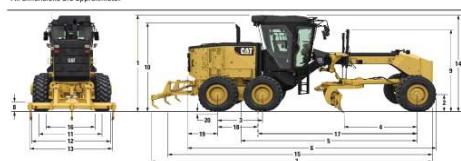
## 120 Motor Grader Specifications

Base Machine Weight – Tier 3 Equivalent/EU Stage IIIA			
Lever/Steering Wheel Weight*	11 527 kg 25,822 lb		
Joystick Weight*	13 810 kg 30,446 lb		
Lever/Steering Wheel All-Wheel Drive (AWD) Weight*	14 282 kg 31,460 lb		
Joystick All-Wheel Drive (AWD) Weight*	14 483 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*	15 099 kg 33,410 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)	48.3 km/h 30.1 mph		
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	107 kg 231 lb		
Front Fender	50 kg 110 lb		
(AWD) (AWD)	97 kg (STD) 205 lb (STD)		
Blade Extension			
LH and RH: 152.4 wide, 15.9 thick cutting edge (each)	113 kg 249 lb		
LH and RH: 201.2 wide, 19 thick cutting edge (each)	127 kg 280 lb		
Mid Mount Scarifier Package	834 kg 1,835 lb		
Front Lift Group	400 kg 882 lb		
Push Plate	895 kg 1,969 lb		
Rear Ripper	680 kg 1,496 lb		
Front Scarifier	434 kg 956 lb		
Service Refill Capacities			
Fuel Tank	246 L 65 gal		
Circle Drive	7 L 1.8 gal		
Engine Coolant	18 L 4.8 gal		
Cooling System	57 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		Parking Brake	
Type System	Dual Circuit Hydraulic	Type System	Hydraulic Actuated
Type Brake	Multiple Oil Disc	Type Brake	Multiple Oil Disc, Mats ISO 1430
Number of Brakes	4	Slope Holding Ability	30°
Number of Disc Assemblies (each)	6		
Size (outer diameter)	270 mm 10.6 in		Dual Circuit Control System, Applies Two Service Brakes
Size (inner diameter)	189 mm 7.4 in		
Lining Area Per Brake	3,204 cm <sup>2</sup> 543.1 m <sup>2</sup>		
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
Arm 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			
Range of Motion	Standard	Tier Adjust	
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	25.8 in
Center Shift Left	656 mm 25.8 in	656 mm 25.8 in	25.8 in
Moldboard Side Shift Cylinder			
Side Shift Left	660 mm 26 in	660 mm 26 in	26 in
Side Shift Right	510 mm 20.1 in	510 mm 20.1 in	20.1 in
Blade Tip Cylinder			
Maximum Blade Tip Forward	40°	40°	
Maximum Blade Tip Backward	25°	25°	
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

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		
3 Length – Between Tandem Axles	1510 mm 59.5 in		
4 Length – Front Axle to Moldboard (Non AWD)	2551 mm 100.4 in		
5 Length – Front Axle to Mid Tandem (Non AWD)	5945 mm 234 in		
6 Length – Front Tire to Rear of Machine (Non AWD)	8574 mm 336 in		
7 Length – Push Plate to Ripper	9836 mm 387 in		
8 Ground Clearance at Rear Axle	349 mm 13.7 in		
9 Height to Top of Cylinders	2095 mm 114 in		
10 Height to Exhaust Stack	1185 mm 123.4 in		
11 Height to Exhaust Stack (Tier 3)	2924 mm 115 in		
12 Width – Tire Center Lines	2070 mm 81.5 in		
13 Width – Outside Rear Tires	2491 mm 98 in		
14 Width – Outside Front Tires (Non AWD)	2495 mm 98.2 in		
15 Width – Outside Front Tires (AWD)	2638 mm 103.9 in		
16 Maximum Height – with Attachments	3440 mm 135.4 in		
17 Length – Push Plate to Raised Ripper	9583 mm 377 in		
18 Width – Inside Rear Tires	1649 mm 64.9 in		
19 Length – Front Axle to Articulation Hitch (Non AWD)	5284 mm 208 in		
20 Length – Front Axle to Articulation Hitch (AWD)	5249 mm 206.7 in		
21 Length – Rear Axle to Articulation Hitch	660 mm 26 in		
22 Length – Rear Axle to Rear of Frame	1726 mm 68 in		
23 Height – Tire Deflection at Performance Weight	45 mm 1.8 in		

## 120 Motor Grader Specifications

### Maximum Shoulder Reach Outside of Tires

- 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
-----------------------	--------	---------

Mid Mount Scarifier		
Front, V-Type: Working Width	1205 mm	47.4 in

Front, V-Type: Working Width	1205 mm	47.4 in
------------------------------	---------	---------

## Electrical

Volts	12V
Quantity	2

Extreme Duty Battery

Volts	12V
Quantity	2

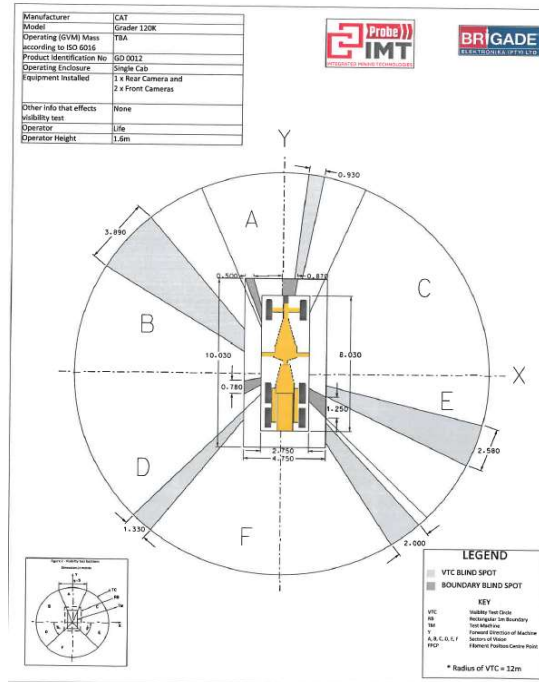
Electrical - Tier 3 Equivalent/EU Stage IIIA Lever	
Starting System Type	Direct Electric
Standard Duty Battery	Only offered on Levers

Starting System Type	Direct Electric
Standard Duty Battery	Only offered on Lavers

Heavy Duty Battery	
CCA at -18°	1,125 amp
Voltage	12V

Extreme Duty Battery	
CCA at -18°	1,400 amp

Standard Alternator - Remote	115 amps at 24V
Standard Alternator - Joystick	145 amps at 24V
Heavy Duty Alternator	150 amps at 24V

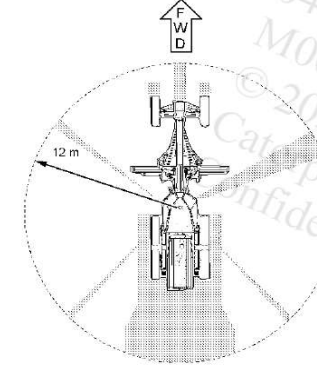


The size and

1

This machine may be equipped with optional visual aids that may provide visibility to some of the restricted visibility areas. Refer to this Operation and Maintenance Manual, "Mirror" for more information on additional visibility. If your machine is equipped with cameras, refer to this Operation and

\_\_\_\_\_



Note: The shaded areas indicate the approximate location of areas w

Notes: The shaded area indicates the approximate location of each of the 12,000 recorded locations.

SMCS - 7000 i07755728 1

The size and the configuration of this machine may result in areas that cannot be seen when the operator is seated. Illustration 1 provides an approximate visual indication of the areas of significant restricted visibility. Illustration 1 indicates restricted visibility areas at the ground level inside a radius of 12 m (39.37 ft) and 24 m (78.74 ft) from the operator on a machine with the use of visual aids. This illustration does not provide areas of restricted visibility for distances outside a radius of 24 m (78.74 ft).

This machine may be equipped with additional visual aids that may provide visibility to some of the restricted visibility areas. For areas that are not covered by the visual aids, job site organization must be utilized to minimize hazards of this restricted visibility. For more information regarding job site organization refer to Operation and Maintenance Manual, "Visibility Information".

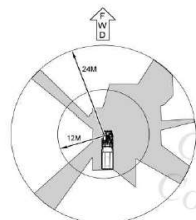


Illustration 1 g00423232

Note: The shaded areas indicate the approximate location of areas with significant restricted visibility.

GXM348-349, J4W1-UP

PSP-00049983  
2022/06/20  
13:43:47+02:00  
i07755728  
© 2022 Caterpillar Inc.  
Caterpillar:  
Confidential Green

## ROAD GRADER SIGHT LINE DIAGRAMME

SIDE VIEW  
(NTS)



FRONT VIEW  
(NTS)



■ No Vision