



EG20

MOTOR GRADER



Elphinstone Underground Support Solutions
elphinstone.com

Main image is referential and may include optional components.

ELPHINSTONE

UNDERGROUND RELIABILITY



TECHNICAL SPECIFICATIONS

Engine - Tier 3/Stage IIIA Equivalent

| | | |
|-------------------------------------|---|-----------------------|
| Engine Model | Cat C7.1 | |
| Emissions | Brazil MAR-1 emission standards, U.S. EPA Tier 3 and EU Stage IIIA equivalent | |
| Base Net Power ISO 9249/SAE J1349 | 97 kW | 130 hp |
| Base Net Power EEC 80/1269 (metric) | 132 hp | |
| Power Range - Net | 97-116 kW | 130-156 hp |
| Power Range - Net (metric) | 132-158 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 9249 | 42% | |
| Maximum Torque - ISO 9249 | 822 N-m | 606 lb-ft |
| Derating Altitude | 4500 m | 14,764 ft |
| Maximum - Fan Speed | 1,300 rpm | |
| Minimum - Fan Speed | 600 rpm | |
| Ambient Capacity | 50° C | 122° F |

- Cat engines are compatible with diesel fuel blended with the following lower-carbon intensity fuels up to:
 - 100% 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.
 - *For use of blends higher than 20% biodiesel, consult your Cat dealer.

120 Net Power - Tier 3/Stage IIIA Equivalent

| Gear | kW (hp) |
|---------|-----------|
| Forward | |
| 1st | 97 (130) |
| 2nd | 97 (130) |
| 3rd | 101 (136) |
| 4th | 108 (145) |
| 5th | 112 (150) |
| 6th | 116 (156) |
| 7th | 116 (156) |
| 8th | 116 (156) |
| Reverse | |
| 1st | 97 (130) |
| 2nd | 97 (130) |
| 3rd-6th | 101 (135) |

Engine - Tier 4 Final/Stage V

| | | |
|--|-----------------------------------|-----------------------|
| Engine Model | Cat C7.1 | |
| Emissions | U.S. EPA Tier 4 Final/ EU Stage V | |
| 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 | |
| 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 9249 | 42% | |
| Maximum Torque - ISO 9249 | 822 N-m | 606 lb-ft |
| Derating Altitude | 3000 m | 9,842 ft |
| Maximum - Fan Speed | 1,300 rpm | |
| Minimum - Fan Speed | 600 rpm | |
| Ambient Capacity | 50° C | 122° F |

- 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 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, air cleaner, muffler, and alternator.
- VHP Plus is standard for the EG20.
- Rated speed at 2,000 rpm.
- Biodiesel blends up to B30 (30% blend by volume) are acceptable when blended with 500 ppm (mg/kg) sulfur or less ULSD. B30 should meet ASTM D7467 specification (biodiesel blend should meet Cat biodiesel spec, ASTM D6751 or EN 14214). Cat DEOULS™ or oils that meet the Cat ECF-3, API CJ-4, and ACEA E9 specification are required. Consult your OMM for further machine specific fuel recommendations.

120 Net Power - Tier 4 Final/Stage V

| Gear | kW (hp) |
|---------|-----------|
| Forward | |
| 1st | 104 (139) |
| 2nd | 107 (143) |
| 3rd | 110 (148) |
| 4th | 119 (160) |
| 5th | 123 (165) |
| 6th | 123 (165) |
| 7th | 123 (165) |
| 8th | 123 (165) |
| Reverse | |
| 1st | 104 (139) |
| 2nd | 107 (143) |
| 3rd-6th | 110 (148) |



TECHNICAL SPECIFICATIONS

Powertrain

| | |
|-----------------------|---------------------------|
| Forward/Reverse Gears | 8 Forward/6 Reverse |
| Transmission | Direct Drive, Power Shift |
| 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 – Centre |
| 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 Tyres | 7400 mm | 291.3 in |
| Steering Range, Left/Right | 50 Deg. | |
| Articulation Angle, Left/Right | 20 Deg. | |
| Front Wheel Lean, Left/Right | 18 Deg. | |
| Total Oscillation | 32 Deg. | |
| Front Wheel Lean | 16 Deg. | |
| Total Oscillation | 32 Deg. | |

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 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.

Tandems

| | | |
|--------------------|---------|----------|
| Wheel Axle Spacing | 1510 mm | 59.45 in |
| Tandem Oscillation | | |
| Front Up | 15 Deg. | |
| Front Down | 22 Deg. | |

Moldboard

| | | |
|--------------------------------|-----------|-----------|
| Width - Standard | 3700 mm | 12 ft |
| Width - Optional | 3048 mm | 10 ft |
| Height | 610 mm | 24 in |
| Arc Radius | 413 mm | 16.3 in |
| Throat Clearance | 120 mm | 4.7 in |
| Cutting Edge | 152 mm | 6 in |
| Blade Pull - Base GVW | 9,266 kg | 20,429 lb |
| Blade Pull - Maximum GVW | 12,402 kg | 27,341 lb |
| Blade Down Force - Base GVW | 6,311 kg | 13,914 lb |
| Blade Down Force - Maximum GVW | 10,895 kg | 24,019 lb |

- Moldboard Pull calculated at 0.9 traction coefficient, which is equal to ideal no-slip conditions, and Gross Vehicle Weight (GVW).

Drawbar Circle Moldboard

| | | |
|---------------------------|---------|---------|
| Centreshift | | |
| Right | 656 mm | 25.8 in |
| Left | 656 mm | 25.8 in |
| Sideshift / 12' Moldboard | | |
| Right | 660 mm | 26 in |
| Left | 510 mm | 20.1 in |
| Sideshift / 10' Moldboard | | |
| Right | 359 mm | 14.1 in |
| Left | 205 mm | 8 in |
| Blade Tip Range | | |
| Forward | 40 Deg. | |
| Backward | 5 Deg. | |

Maximum Shoulder Reach Outside of Tyres

| Wheelbase / Blade Length | Left | | Right | |
|---------------------------|---------|---------|---------|---------|
| Standard / 12' | 1742 mm | 68.6 in | 1905 mm | 75 in |
| Standard / 10' | 1160 mm | 45.6 in | 1220 mm | 48 in |
| Shortened / 12' | 1690 mm | 66.5 in | 1730 mm | 68.1 in |
| Shortened / 10' | 1080 mm | 42.5 in | 1120 mm | 44 in |
| Maximum Lift Above Ground | 410 mm | | 16.1 in | |
| Maximum Depth of Cut | 775 mm | | 30.5 in | |

Circle

| | |
|-----------------|---------------------|
| Section | Rolled Ring Forging |
| Number of Teeth | 64 |
| Rotation | 360 Deg. |

Service Refill Capacities

| | | |
|---|--------|----------|
| Fuel Tank | 246 L | 65 gal |
| Circle Drive Housing | 7 L | 1.8 gal |
| Engine Oil | 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) | 11 L | 2.9 gal |
| Transmission / Differential | 60 L | 15.8 gal |
| Tandem Housing (each) | 60 L | 15.8 gal |



TECHNICAL SPECIFICATIONS

Weights - Tier 3/Stage IIIA Equivalent

| Gross Vehicle Weight, Base | | |
|---|-----------|-----------|
| Total | 13,899 kg | 30,642 lb |
| Front Axle | 3,603 kg | 7,943 lb |
| Rear Axle | 10,296 kg | 22,698 lb |
| Gross Vehicle Weight, Typically Equipped* | | |
| Total | 15,803 kg | 34,839 lb |
| Front Axle | 4,359 kg | 9,610 lb |
| Rear Axle | 11,444 kg | 25,229 lb |

Weights - Tier 4 Final/Stage V

| Gross Vehicle Weight, Base | | |
|---|-----------|-----------|
| Total | 14,272 kg | 31,464 lb |
| Front Axle | 3,564 kg | 7,856 lb |
| Rear Axle | 10,708 kg | 23,608 lb |
| Gross Vehicle Weight, Typically Equipped* | | |
| Total | 16,271 kg | 35,871 lb |
| Front Axle | 4,372 kg | 9,637 lb |
| Rear Axle | 11,899 kg | 26,234 lb |

- Base weight calculated on standard machine configuration with 14.0R24 12PR (G-2) tyres, SP rims, full fuel tank, coolant, lubricants and operator.
- *Typically equipped includes 3.7 m (12') blade, 14.00R24 tires, push plate, ripper, bottom guard, operator, and full fluids.

Standards

| | |
|-----------|---|
| ROPS/FOPS | ISO 3471:2008 / ISO 3449:2005 level II |
| Steering | ISO 5010:2007 |
| Brakes | ISO 3450:2011 |

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 | 3504 cm ² | 543.1 in ² |

Park Brakes

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

Electrical

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

Electrical - Tier 3/Stage IIIA Equivalent Lever

| Starting System Type | Direct Electric |
|--|-----------------|
| Standard Duty Battery (Only offered on Levers) | |
| - CCA at -18 Deg | 900 amp |
| - Volts | 12V |
| - Quantity | 2 |
| Heavy Duty Battery | |
| - CCA at -18 Deg | 1,125 amp |
| - Volts | 12V |
| - Quantity | 2 |
| Extreme Duty Battery | |
| - CCA at -18 Deg | 1,400 amp |
| - Volts | 12V |
| - Quantity | 2 |
| Standard Alternator | 115 amps at 24V |
| Heavy Duty Alternator | 150 amps at 24V |

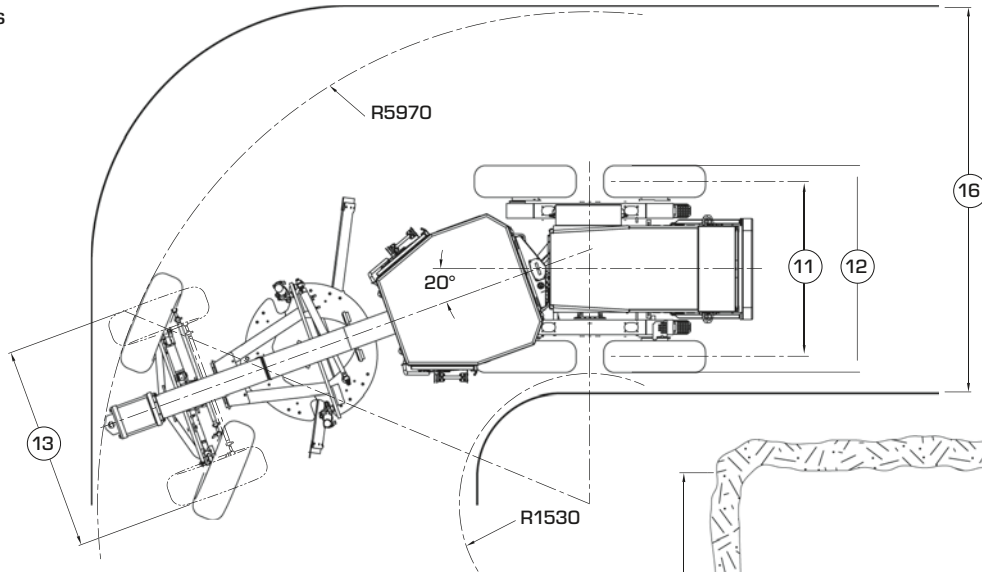
Ripper*

| | | |
|---|---------|-----------|
| 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 | 2028 kg | 4,474 lb |
| Machine Length Increase, Beam Raised | 900 mm | 35.1in |

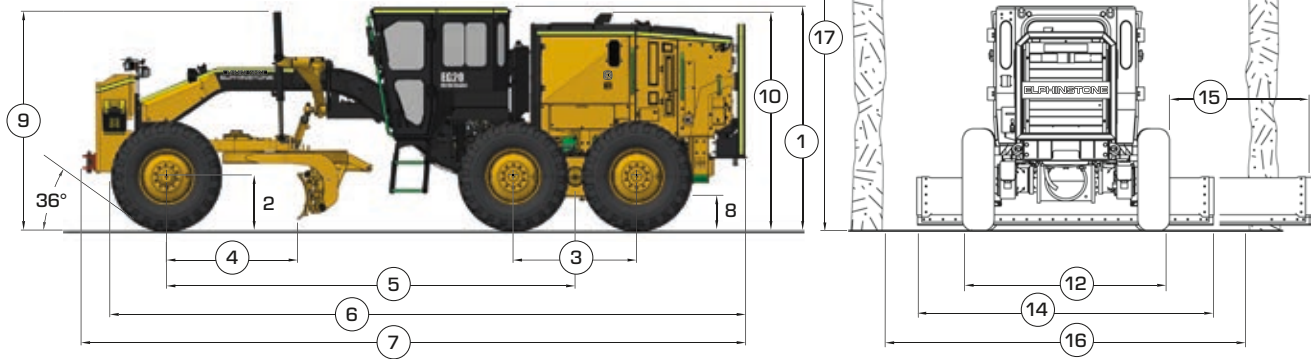
*Machine ready for dealer fit.



Turning Radius



Side View and Drive Size



Dimensions

Shortened spine option. All dimensions are based on 14.00R24 tyres. *Ripper is a dealer fit option

| | | | |
|----|--|--|--|
| 1 | Height - Top of Cab | 2640 mm | 8 ft 7.9 in |
| 2 | Height - Front Axle Centre | 590 mm | 1 ft 11.2 in |
| 3 | Length - Between Tandem Axles | 1510 mm | 4 ft 11.5 in |
| 4 | Length - Front Axle to Moldboard Length - Front Axle to Moldboard - Shortened Spine Option | 2598 mm 1690 mm | 8 ft 6.2 in 5 ft 6.5 in |
| 5 | Length - Front Axle to Mid Tandem Length - Front Axle to Mid Tandem - Shortened Spine Option | 5870 mm 4950 mm | 19 ft 3.1 in 16 ft 2.8 in |
| 6 | Length - Front Tyre to Rear of Machine Length - Front Tyre to Rear of Machine - Shortened Spine Option | 8380 mm 7500 mm | 27 ft 5.9 in 24 ft 7.3 in |
| 7 | Length - Counterweight to Rear of Machine Length - Counterweight to Rear of Machine - Shortened Spine Option Length - Counterweight to Ripper* Length - Counterweight to Ripper* - Shortened Spine Option | 8850 mm 7930 mm 9770 mm 8850 mm | 29 ft 0.4 in 26 ft 0.2 in 32 ft 0.6 in 29 ft 0.4 in |
| 8 | Ground Clearance - Transfer Case | 349 mm | 1 ft 1.7 in |
| 9 | Height - Top of Cylinders | 2600 mm | 8 ft 6.4 in |
| 10 | Height - Exhaust Stack | 2600 mm | 8 ft 6.4 in |
| 11 | Width - Tyre Centre Lines | 2056 mm | 6 ft 8.9 in |
| 12 | Width - Outside Rear Tyres | 2491 mm | 8 ft 2.0 in |
| 13 | Width - Outside Front Tyres | 2495 mm | 8 ft 2.2 in |
| 14 | Width - Moldboard Standard Width - Moldboard Optional | 3700 mm 3048 mm | 12 ft 10 ft |
| 15 | Maximum Reach, Standard 12 ft Moldboard | 1905 mm | 6 ft 3.0 in |

Drive Size

| | | | |
|----|-----------------------------------|---------|--------------|
| 16 | Minimum Width Portal (90° corner) | 4500 mm | 14 ft 9.2 in |
| 17 | Typical Minimum Height Portal | 4500 mm | 14 ft 9.2 in |

*Measurements subject to change

OVER 45 YEARS IN THE MINING INDUSTRY.

Elphinstone Pty Ltd is an established Caterpillar Original Equipment Manufacturer with over 45 years' experience in the mining industry. Elphinstone specialises in the design, manufacture and support of quality equipment for the global underground and surface mining industries.

The Elphinstone range of Underground Mining Support Vehicles combines practical design, the latest technology and quality manufacturing to ensure reliable performance.

The current product range includes specialised underground support vehicles, mine extraction devices, extended distance off-highway haulage trucks and water tanks customised to suit Caterpillar articulated trucks.

As an established Caterpillar Original Equipment Manufacturer, all Elphinstone products are sold and supported via the global Cat® dealer network.

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