

## 160 Motor Grader

# **Technical Specifications**

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

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|   | Cat® C9.3   |   |
|---|---|---|
| Ingine Model         Cat® C9.3           Imissions         U.S. EPA Tier 4 Final/ |   | r 4 Final/EU  |
|   | Stage V   |   |
| t   | 165 kW  | 221 hp  |
| t (Metric)  |   | 224 hp  |
|   | 165-203 kW  | 221-272 hp  |
| etric)  |   | 224-276 hp  |
|   | 172-219 kW  | 231-293 hp  |
| )   |   | 234-298 hp  |
|   | 9.3 L   | 567.5 in <sup>3</sup>   |
|   | 115 mm  | 4.5 in  |
|   | 149 mm  | 5.9 in  |
|   | 39%   |   |
| us)   | 1355 N·m  | 1,000 lb-ft   |
| n)  | 1464 N·m  | 1,079 lb-ft   |
|   | 2,000 rpm   |   |
|   | 6   |   |
|   | 3050 m  | 10,000 ft   |
|   |   |   |
|   | 1,400 rpm   |   |
|   | 1,550 rpm   |   |
|   | 500 rpm   |   |
|   | 43° C   | 109° F  |
|   | 50° C   | 122° F  |
| VHP Plus<br>kW (hp)   | AWD Off<br>kW (hp)  | AWD On<br>kW (hp)   |
|   |   |   |
| 165 (221)   | 172 (231)   | 180 (241)   |
| 172 (231)   | 180 (241)   | 195 (262)   |
| 180 (241)   | 188 (252)   | 199 (267)   |
| 188 (252)   | 191 (257)   | 203 (272)   |
| 191 (257)   | 195 (262)   | 219 (293)   |
| 195 (262)   | 199 (267)   | 219 (293)   |
| 199 (267)   | 203 (272)   | 219 (293)   |
| 203 (272)   | 203 (272)   | 219 (293)   |
|   |   | · · · · · · · · · · · · · · · · · · ·   |
| 165 (221)   | 165 (221)   | 165 (221)   |
| 172 (221)   | 172 (221)   | 172 (231)   |
| 1/2 (231)   | 1/2 (231)   | 1/2 (231)   |
|   | VHP Plus kW (hp)  165 (221) 172 (231) 180 (241) 188 (252) 191 (257) 195 (262) 199 (267) 203 (272) | U.S. EPA Tie Stage V  t 165 kW  t (Metric)  165-203 kW  172-219 kW  9.3 L  115 mm  149 mm  39%  as) 1355 N·m  n) 1464 N·m  2,000 rpm  6  3050 m  1,400 rpm  1,550 rpm  500 rpm  43° C  50° C  VHP Plus kW (hp)  VHP Plus kW (hp)  165 (221) 172 (231) 172 (231) 172 (231) 180 (241) 180 (241) 188 (252) 188 (252) 191 (257) 191 (257) 195 (262) 199 (267) 199 (267) 199 (267) 203 (272) 203 (272) |

#### Engine (cont'd)

- 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 160/160 AWD.
- 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, aftertreatment, and alternator.
- No engine derating required up to 3050 m (10,000 ft).
- Power as declared per ISO 14396

Rated rpm 2,000

VHP + = 204 kW (274 hp)

AWD = 220 kW (295 hp)

- 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).
- \*\* Tailpipe greenhouse gas emissions from lower-carbon intensity fuels are essentially the same as traditional fuels.
- Cat DEO-ULS 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.
- Cat engines equipped with a Selective Catalytic Reduction (SCR) system are required to use:
- Diesel Exhaust Fluid (DEF) which meets the requirements outlined in the International Organization for Standardization (ISO) standard 22241-1.

| Powertrain              |                         |                                    |  |
|-------------------------|-------------------------|------------------------------------|--|
| Forward/Reverse Gears   | 8 Forward/6             | 6 Reverse                          |  |
| Transmission            | APECS, Di<br>Powershift | APECS, Direct Drive,<br>Powershift |  |
| Brakes                  |                         |                                    |  |
| Service                 | Multiple Oi             | l Disc                             |  |
| Service, Surface Area   | 23 000 cm <sup>2</sup>  | 3,565 in <sup>2</sup>              |  |
| Parking                 | Multiple Oi             | Multiple Oil Disc                  |  |
| Secondary               | Dual Circui             | Dual Circuit Control               |  |
| Hydraulic System        |                         |                                    |  |
| Circuit Type            | Parallel                |                                    |  |
| Pump Type               | Variable Pisto          | Variable Piston                    |  |
| Pump Output             | 210 L/min               | 55.5 gal/min                       |  |
| Maximum System Pressure | 24 150 kPa              | 3,503 psi                          |  |
| Reservoir Tank Capacity | 64.0 L                  | 16.9 gal                           |  |
| Standby Pressure        | 6100 kPa                | 885 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 | 7.8 m     | 25 ft 7 in |
| Steering Range – Left/Right         | 50°       |            |
| Articulation Angle – Left/Right     | 20°       |            |
| Forward                             |           |            |
| 1st                                 | 4.1 km/h  | 2.6 mph    |
| 2nd                                 | 5.6 km/h  | 3.5 mph    |
| 3rd                                 | 8.1 km/h  | 5.1 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   |
|                                     |           |            |

• Calculated with no slip and 14.0R24 tires.

| Service Refill                      |        |          |
|-------------------------------------|--------|----------|
| Fuel Capacity                       | 394 L  | 104 gal  |
| Cooling System                      | 57.0 L | 15.0 gal |
| Hydraulic System                    |        |          |
| Total                               | 100 L  | 26.4 gal |
| Tank                                | 64.0 L | 16.9 gal |
| Engine Oil                          | 30.0 L | 7.9 gal  |
| Trans./Diff./Final Drives           | 70.0 L | 18.5 gal |
| Tandem Housing (Each)               | 87.0 L | 22.9 gal |
| Front Wheel Spindle Bearing Housing | 0.5 L  | 0.13 gal |
| Circle Drive Housing                | 7.0 L  | 1.8 gal  |
| Diesel Exhaust Fluid                | 22.0 L | 5.8 gal  |

| nm | 61.1 in |
|----|---------|
| m  | 6.3 in  |
| ım | 1.6 in  |
|    |         |
| m  | 6.0 in  |
| ım | 3.0 in  |
| ım | 0.50 in |
|    |         |
| m  | 12.0 in |
| ım | 0.87 in |
|    |         |
| m  | 12.6 in |
| m  | 12.0 in |
|    |         |
| m  | 23.5 in |
|    |         |
|    |         |
|    |         |

• Front-top/bottom plate – width tolerance  $\pm 2.5$  mm (0.098 in).

| Tandems            |         |         |
|--------------------|---------|---------|
| Height             | 572 mm  | 22.5 in |
| Width              | 204 mm  | 8.0 in  |
| Sidewall Thickness |         |         |
| Inner              | 17.5 mm | 0.69 in |
| Outer              | 18.0 mm | 0.71 in |
| Drive Chain Pitch  | 50.8 mm | 2.0 in  |
| Wheel Axle Spacing | 1523 mm | 60.0 in |
| Tandem Oscillation |         |         |
| Front Up           | 15°     |         |
| Front Down         | 25°     |         |

| Moldboard                               |           |           |
|---|-----------|-----------|
| Blade Width                             | 4.2 m     | 14 ft     |
| Moldboard                               |           |           |
| Height                                  | 610 mm    | 24.0 in   |
| Thickness                               | 22.0 mm   | 0.87 in   |
| Arc Radius                              | 413 mm    | 16.3 in   |
| Throat Clearance                        | 166 mm    | 6.5 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                                | 11 762 kg | 25,931 lb |
| Maximum GVW                             | 15 541 kg | 34,262 lb |
| Base GVW (AWD)                          | 16 700 kg | 36,817 lb |
| Maximum GVW (AWD)                       | 22 512 kg | 49,630 lb |
| Blade Down Pressure                     |           |           |
| Base GVW                                | 7713 kg   | 17,004 lb |
| Maximum GVW                             | 13 294 kg | 29,308 lb |
| Base GVW (AWD)                          | 8589 kg   | 18,935 lb |
| Maximum GVW (AWD)                       | 13 294 kg | 29,308 lb |
| Blade Range                             |           |           |
| Circle Centershift                      |           |           |
| Right                                   | 728 mm    | 28.7 in   |
| Left                                    | 695 mm    | 27.4 in   |
| Moldboard Sideshift                     |           |           |
| Right                                   | 660 mm    | 26.0 in   |
| Left                                    | 510 mm    | 20.1 in   |
| Maximum Blade Position Angle            | 90°       |           |
| Blade Tip Range                         |           |           |
| Forward                                 | 40°       |           |
| Backward                                | 5°        |           |
| 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               | 426 mm    | 16.8 in   |
| Ripper Shank Holders                 | 5         |           |
| Ripper Shank Holder Spacing          | 533 mm    | 21.0 in   |
| Penetration Force                    | 9440 kg   | 20,812 lb |
| Pryout Force                         | 12 924 kg | 28,493 lb |
| Machine Length Increase, Beam Raised | 1031 mm   | 40.6 in   |
| Scarifier                            |           |           |
| Front, V-Type: Working Width         | 1205 mm   | 47.4 in   |
| Front, V-Type, 5 or 11 Tooth         |           |           |
| Working Width                        | 1031 mm   | 40.6 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                        | 2133 mm   | 84.0 in   |
| Scarifying Depth, Maximum            | 426 mm    | 16.8 in   |
| Scarifier Shank Holders              | 9         |           |
| Scarifier Shank Holder Spacing       | 267 mm    | 10.5 in   |
| Weights                              |           |           |
| Gross Vehicle Weight, Base           |           |           |
| Total                                | 17 563 kg | 38,719 lb |
| Front Axle                           | 4494 kg   | 9,907 lb  |
| Rear Axle                            | 13 069 kg | 28,812 lb |
| Gross Vehicle Weight, Maximum        |           |           |
| Total                                | 25 013 kg | 55,144 lb |
| Front Axle                           | 7745 kg   | 17,075 lb |
| Rear Axle                            | 17 268 kg | 38,069 lb |
| Operating Weight, Typically Equipped |           |           |
| Total                                | 20 660 kg | 45,547 lb |
| Front Axle                           | 6004 kg   | 13,237 lb |
| Rear Axle                            | 14 656 kg | 32,310 lb |

| Weights – AWD                        |           |           |
|--------------------------------------|-----------|-----------|
| Gross Vehicle Weight, Base           |           |           |
| Total                                | 18 555 kg | 40,908 lb |
| Front Axle                           | 5004 kg   | 11,033 lb |
| Rear Axle                            | 13 551 kg | 29,875 lb |
| Gross Vehicle Weight, Maximum        |           |           |
| Total                                | 25 013 kg | 55,144 lb |
| Front Axle                           | 7745 kg   | 17,075 lb |
| Rear Axle                            | 17 268 kg | 38,069 lb |
| Operating Weight, Typically Equipped |           |           |
| Total                                | 21 552 kg | 47,514 lb |
| Front Axle                           | 6481 kg   | 14,289 lb |
| Rear Axle                            | 15 071 kg | 33,225 lb |

- Base operating weight on standard machine configuration is calculated with full fuel tank, coolant, lubricants, operator and 14.0R24 tires with multipiece (MP) rims.
- Typically equipped operating weight is calculated with push block, transmission guard, rear ripper/scarifier, 17.5R25 tires with multipiece (MP) rims, and other equipment.

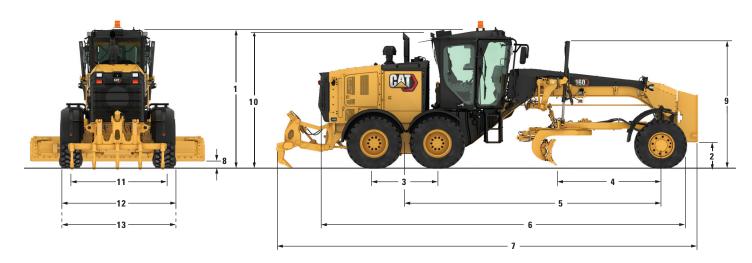
| Standards  |                    |  |
|--|--------------------|--|
| Rollover Protective Structure<br>(ROPS)/Falling Objects<br>Protective Structure (FOPS) | ISO 3471; ISO 3449 |  |
| Steering   | ISO 5010           |  |
| Brakes   | ISO 3450           |  |
| Sound  | ISO 6396; ISO 6395 |  |

- The declared dynamic operator sound pressure level is 71 dB(A) for the 160 and 160 AWD when "ISO 6396:2008" is used to measure the value for a European Union "CE" marked machine. The measurement was conducted at 70% of the maximum engine cooling fan speed. The sound level may vary at different engine cooling fan speeds.
- The declared exterior sound power level is 107 dB(A) for the 160 and 108 dB(A) for the 160 AWD when the value is measured according to the dynamic test procedures and the conditions that are specified in "ISO 6395:2008." The measurement was conducted for a European Union "CE" marked machine at 70% of the maximum engine cooling fan speed. The sound level may vary at different engine cooling fan speeds and during diesel particulate filter regeneration.

#### **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 1.9 kg (4.2 lb) of refrigerant which has a CO<sub>2</sub> equivalent of 2.717 metric tonnes (2.994 tons).

### **Dimensions**



|  | 160/160 AWD |      |
|--|-------------|------|
|  | mm          | in   |
| 1 Height – Top of Cab                    | 3308        | 130  |
| 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 | 8912        | 351  |
| 7 Length – Counterweight to Ripper       | 10 136      | 399  |
| 8 Ground Clearance at Rear Axle          | 339         | 13.3 |
| 9 Height to Top of Cylinders             | 3040        | 120  |
| 10 Height to Exhaust Stack               | 3256        | 128  |
| 11 Width – Tire Center Lines             | 2140        | 84.3 |
| 12 Width – Outside Rear Tires            | 2511        | 98.9 |
| 13 Width – Outside Front Tires           | 2511        | 98.9 |

<sup>•</sup> Calculated with 14.0R24 Tires.

## **Optional Tire Arrangements**

Common Tire Options

| 160/160 AWD |              |         |
|-------------|--------------|---------|
| Rim Size    | Wheel Group  | Tires   |
| 9 × 24      | Single Piece | 14.0R24 |
| 13 × 25     | Single Piece | 17.5R25 |
| 10 × 24     | Multipiece   | 14.0R24 |
| 10 × 24     | Multipiece   | 14.0-24 |
| 14 × 25     | Multipiece   | 17.5R25 |
| 14 × 25     | Multipiece   | 17.5-25 |

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

### **Standard and Optional Equipment**

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

|   | Standard | Optional |
|---|----------|----------|
| POWERTRAIN  |          |          |
| 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)   | ✓        |          |
| All wheel drive   |          | ✓        |
| Belt, serpentine, automatic tensioner   | ✓        |          |
| Brakes, oil disc, four-wheel, hydraulic   | ✓        |          |
| Demand fan, hydraulic, swing-out  | ✓        |          |
| Diesel exhaust fluid tank, 22.0 L (5.8 gal) ground level access, and sediment drain   | ✓        |          |
| Differential lock/unlock, automatic   | ✓        |          |
| Drain, engine oil, ecology  | ✓        |          |
| Economy mode  | ✓        |          |
| Electronic overspeed protection   | ✓        |          |
| Engine, C9.3, Tier 4 Final/Stage V emission standards   | ✓        |          |
| Fuel tank, 394 L (104 gal), ground level access and sediment drain  | ✓        |          |
| Parking brake – multi-disc, sealed, oil-cooled  | ✓        |          |
| Precleaner, snow  |          | ✓        |
| Priming pump, fuel  | ✓        |          |
| Rear axle, modular  | ✓        |          |
| Sediment drain, fuel tank   | ✓        |          |
| Starter, extreme duty, 1,000 amps   |          | ✓        |
| Tandem drive  | ✓        |          |
| Transmission, autoshift   |          | ✓        |
| Transmission, 8F/6R, powershift, direct<br>drive, Advanced Productivity Electronic<br>Control Strategy (APECS)                              | <b>√</b> |          |
| 50°C (122°F) ambient capacity   | ✓        |          |
| Reversing fan   |          | ✓        |
| Engine idle shutdown timer  | ✓        |          |

|  | Standard      | Optional |
|--|---------------|----------|
| MOLDBOARD  |               |          |
| Standard drawbar circle moldboard  | ✓             |          |
| Circle drive slip clutch   | ✓             |          |
| Circle saver   |               | ✓        |
| Top adjust drawbar circle moldboard  |               | ✓        |
| ELECTRICAL   |               |          |
| Alarm, back up   | ✓             |          |
| Alternator, 150 ampere, sealed   | ✓             |          |
| Breaker panel, ground accesible  | ✓             |          |
| 1,125 CCA heavy duty batteries   | ✓             |          |
| 1,400 CCA extreme duty batteries   |               | ✓        |
| Lights, roof-mounted roading, reversing, LED stop and tail   | ✓             |          |
| Grade Control Ready – Cab harness,<br>software, electrical hydraulic valves, bosses<br>and brackets  | ✓             |          |
| Product Link <sup>TM</sup>   | ✓             |          |
| Alternator, 280 ampere   |               | ✓        |
| Cab harness and electrical hydraulic valves  | ✓             |          |
| Electrical system, 24V   | ✓             |          |
| Electric starter   | ✓             |          |
| Lights: Headlights, high; Headlights, low; Working lights, basic; Working lights, plus, LED; Warning: beacon or strobe; Mounting for warning light | (continued or | <b>√</b> |

(continued on next page)

### Standard and Optional Equipment (continued)

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

|   | Standard | Optional |
|---|----------|----------|
| 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   | ✓        |          |
| 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, regen, DEF  | ✓        |          |
| Hour meter, digital   | ✓        |          |
| Joystick hydraulic controls right/left blade<br>lift with float position, circle drive, blade<br>sideshift and tip, centershift, front wheel<br>lean, articulation and power 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   | ✓        |          |
| ROPS cab, sound suppressed 70 dB(A)   | ✓        |          |
| Seat, cloth-covered, comfort suspension   | ✓        |          |
| Windows, laminated glass: fixed front with intermittent wiper; door with intermittent wipers (3)  | ✓        |          |
| Windows: tempered; left and right side wipers; rear and intermittent wiper  | ✓        |          |
| Mirrors, outside: heated 24V; mounted   |          | ✓        |
| Comfort Plus arrangement  |          | ✓        |
| Comfort Premium arrangement   |          | ✓        |
| SERVICE AND MAINTENANCE   |          |          |
| Grouped location for engine oil and fuel filters  | ✓        |          |
| Extended Life Coolant   | ✓        |          |
| Radiator, cleanout access   | ✓        |          |
| FLUIDS  |          |          |
| Antifreeze  | ✓        |          |
| TIRES, RIMS AND WHEELS  |          |          |
| Partial allowance for tires on 254 × 607 mm   | ✓        |          |

(10  $\times$  24 in) multi-piece rims is included in the base machine price and weight

|  | Standard | Optional |
|--|----------|----------|
| OTHER  |          |          |
| Accumulators, brake, dual certified  | ✓        |          |
| Anti-glare paint   | ✓        |          |
| Bumper, rear, integrated with hitch  | ✓        |          |
| CD-ROM Parts Book  | ✓        |          |
| Clutch, circle drive slip  | ✓        |          |
| Cutting edges: $152 \times 16 \text{ mm} (6 \times 5/8 \text{ in})$ ; curved DH-2 steel; $19 \text{ mm} (3/4 \text{ in})$ 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   | ✓        |          |
| Hammer (emergency exit)  | ✓        |          |
| Horn, electric   | ✓        |          |
| Hydraulic lines for base functions   | ✓        |          |
| Lockout, hydraulic implement (for roading and servicing)   | ✓        |          |
| Mounting, cab roof accessories   | ✓        |          |
| Pump, hydraulic, high capacity, 98 cm³ (6 in³)   | ✓        |          |
| Radiator, cleanout access (both sides with swing doors)  | ✓        |          |
| Secondary steering   | ✓        |          |
| Serviceability, LH side  | ✓        |          |
| Scheduled oil sampling (S·O·S <sup>SM</sup> ) ports: engine, hydraulic, transmission, coolant, fuel                                      | ✓        |          |
| Tandem walkway/guards  | ✓        |          |
| Tool box   | ✓        |          |
| Auto Articulate  |          | ✓        |
| Accumulators, blade lift   |          | ✓        |
| Drain, ecology, engine Wiggins   |          | ✓        |
| Heater, engine coolant: 120V; 240V   |          | ✓        |

(continued on next page)

### Standard and Optional Equipment (continued)

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

|   | Standard | Optional |
|---|----------|----------|
| OTHER (CONTINUED)   |          |          |
| Hydraulic arrangements with one or more additional hydraulic valves are available for rear ripper, dozer, snow plow and snow wing |          | <b>√</b> |
| Snow wing mounting, frame ready   |          | ✓        |
| Starting aid, ether   |          | ✓        |
| Reversing fan, automatic or manual  |          | ✓        |
| WORK TOOLS/G.E.T.   |          |          |
| Blade extension, left hand, 610 mm (2 ft)   |          | ✓        |
| Blade extension, right hand, 610 mm (2 ft)  |          | ✓        |
| Cutting edges, curved   |          | ✓        |
| Endbits, overlay  |          | ✓        |
| Grader bit, narrow and super penetration  |          | ✓        |
| Moldboard: 4267 mm × 610 mm × 22 mm (14 ft × 24 in × 7/8 in)  |          | ✓        |
| Moldboard: 4267 mm × 686 mm × 25 mm (14 ft × 27 in × 1 in)  |          | ✓        |
| Moldboard: 4877 mm × 686 mm × 25 mm (16 ft × 27 in × 1 in)  |          | ✓        |
| Push plate  |          | ✓        |
| Ripper, rear  |          | ✓        |
| Ripper tooth  |          | ✓        |
| Scarifier, front  |          | ✓        |
| Snow arrangement  |          | ✓        |
| Snow Wing Ready Package   |          | ✓        |
| Tow hitch   |          | ✓        |
| GUARDS  |          |          |
| Articulation guard  |          | ✓        |
| Cover, under cab platform   |          | ✓        |
| Fenders, front  |          | ✓        |
| Fenders, front, AWD   |          | ✓        |
| Fenders, rear   |          | ✓        |
| Front axle guard  |          | ✓        |
| Sound suppression (bottom)  |          | ✓        |
| Sound suppression (enclosure)   |          | ✓        |
| Transmission  |          | ✓        |

|  | Standard | Optiona |
|--|----------|---------|
| AT TECHNOLOGY                                |          |         |
| Stable Blade                                 |          | ✓       |
| Product Link                                 | ✓        |         |
| Remote Services                              | ✓        |         |
| Cat Grade with Cross Slope                   |          | ✓       |
| Cat Grade with Cross Slope Indicate          |          | ✓       |
| Cat Grade with 3D                            |          | ✓       |
| Digital blade slope meter                    |          | ✓       |
| Cat Grade Attachment Ready Option (ARO)      |          | ✓       |
| 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 | ✓        |         |
| Ground level fuel fill                       |          | ✓       |
| ATTACHMENTS AVAILABLE FROM FACTORY           |          |         |
| Push block                                   |          | ✓       |
| Ripper                                       |          | ✓       |
| Scarifier                                    |          | ✓       |
| Front lift group                             |          | ✓       |
| ADDITIONAL ATTACHMENTS                       |          |         |
| Snow wings                                   |          | ✓       |
| Plows  |          | ✓       |
| Blades                                       |          | ✓       |
| Blade extensions                             |          | ✓       |
| Brooms                                       |          | ✓       |

## **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.html.

#### **Engine**

- The Cat® C9.3 engine meets U.S. EPA Tier 4 Final, EU Stage V, and Japan 2014 emission standards.
- 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).
- \*\* Tailpipe greenhouse gas emissions from lower-carbon intensity fuels are essentially the same as traditional fuels.
- Cat engines equipped with a Selective Catalytic Reduction (SCR) system are required to use:
- Diesel Exhaust Fluid (DEF) which meets the requirements outlined in the International Organization for Standardization (ISO) standard 22241-1.

#### **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 1.9 kg (4.2 lb) of refrigerant which has a CO<sub>2</sub> equivalent of 2.717 metric tonnes (2.994 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

- The declared dynamic operator sound pressure level is 71 dB(A) for the 140 and 140 AWD when "ISO 6396:2008" is used to measure the value for a European Union "CE" marked machine. The measurement was conducted at 70% of the maximum engine cooling fan speed. The sound level may vary at different engine cooling fan speeds.
- The declared exterior sound power level is 107 dB(A) for the 140 and 140 AWD when the value is measured according to the dynamic test procedures and the conditions that are specified in "ISO 6395:2008." The measurement was conducted for a European Union "CE" marked machine at 70% of the maximum engine cooling fan speed. The sound level may vary at different engine cooling fan speeds and during diesel particulate filter regeneration.

#### **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
- Autodig with auto set tires provides consistent high bucket fill factors for up to 10% more productivity
- 5-speed advanced powershift transmission, including a lock-up clutch torque converter, delivers smooth shifting, fast acceleration, and speed on grade, amplifying your performance and fuel efficiency
- Reliable fuel systems boost machine performance and fuel economy, lowering overall costs and fuel consumption
- Automatic engine idle shutdown system reduces idle hours
- Extended maintenance intervals reduce fluid and filter consumption
- Remote Flash and Remote Troubleshoot

#### 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                    | 70.45             |
| Iron                     | 15.15             |
| Nonferrous Metal         | 3.16              |
| Mixed Metal              | 0.04              |
| Mixed Metal and Nonmetal | 3.52              |
| Plastic                  | 1.05              |
| Rubber                   | 0.23              |
| Mixed Nonmetallic        | 0.21              |
| Fluid                    | 0.54              |
| Other                    | 0.63              |
| Uncategorized            | 5.02              |
| 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**.

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

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