670A MOTOR GRADER

FEATURES

125 SAE net hp (93 kW)
12-ft. (3.65 m) moldboard with 0.62 x 6 in. (16 x 152 mm) through-hardened Dura-Max™ cutting edge; 13- and 14-ft. (3.95 and 4.25 m) moldboards and 2-ft. (610 mm) extensions available

Power shift transmission; 8 speeds forward, 4 reverse

Articulated frame steering

Differential lock-unlock

All-hydraulic control of blade and machine functions

Closed-center hydraulic system with built-in positive hydraulic locks provides instant response without blade drift or creep

Hydraulically controlled, 7-position lift arms let you position blade for 90-degree bank cuts, left or right, in approximately one minute, without leaving the seat

Oscillating front axle and rear tandem

Hydraulic front-wheel lean

Rollover protective structure (ROPS) w/cab

ADD VERSATILITY WITH:

Scarifier
Rear-mounted ripper
Snow plow and wing
Bulldozer
Automatic blade control

ENGINE PERFORMANCE

Graphs showing engine performance with engine speed (RPM) on the x-axis and power (hp) and torque (ft-lb) on the y-axis. The graph also shows fuel consumption (g/kWh) and fuel efficiency (lb/hp-hr) with labels on the axes.
670A MOTOR GRADER SPECIFICATIONS

(Specifications and design subject to change without notice. Wherever applicable, specifications are in accordance with SAE Standards. Except where otherwise noted, these specifications are based on a unit with 13.00-24, 8-PR, tubeless tires with 8 in. (203 mm) rims, 12-ft. (3.66 m) moldboard with 6-in. (152 mm) cutting edge, and standard equipment. Weights include lubricants, coolants, full fuel tank and 175 lb. (79 kg) operator.)

Rated Power @2300 rpm:

<table>
<thead>
<tr>
<th>SAE</th>
<th>DIN 70 020</th>
</tr>
</thead>
<tbody>
<tr>
<td>125 hp (93 kW)</td>
<td>125 hp (93 kW)</td>
</tr>
</tbody>
</table>

Net engine power is with standard equipment including air cleaner, exhaust system, alternator, and cooling fan, at standard conditions per SAE J1349 and DIN 70 020, using No. 2-D fuel @35 API gravity. Net rating is required up to 10,000 ft. (3050 m) altitude. Gross power is without cooling fan.

Engine: John Deere 6-414T

- Type: 4-stroke cycle, turbocharged diesel
- Bore and stroke: 4.19 x 5.00 in. (106.4 x 127 mm)
- No. of cylinders: 6
- Displacement: 141.6 cu. in. (2.3 L)
- Compression ratio: 16.2 to 1
- Maximum net torque @1300 rpm: 372 lb-ft (504 Nm) (51.4 kg-m)
- Lubrication: Pressure system w/full-flow filter
- Cooling fan: Suction Type
- Air cleaner w/restriction indicator: Dry
- Fuel system: In-tank fuel system
- Emissions: EPA Tier 2 Bin 5
- Drive: Hydraulic motor and worm gear with positive track drive.

Transmission:

- Direct drive, full power shift with planetary gear reductions. Foot inching pedal.

Travel Speeds (2300 engine rpm, no tire slip):

<table>
<thead>
<tr>
<th>Shift Lever Position Forward</th>
<th>Reverse</th>
</tr>
</thead>
<tbody>
<tr>
<td>mph</td>
<td>km/h</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>1</td>
<td>2.3</td>
</tr>
<tr>
<td>2</td>
<td>3.2</td>
</tr>
<tr>
<td>4</td>
<td>4.8</td>
</tr>
<tr>
<td>5</td>
<td>6.3</td>
</tr>
<tr>
<td>6</td>
<td>8.2</td>
</tr>
<tr>
<td>7</td>
<td>10.5</td>
</tr>
<tr>
<td>8</td>
<td>14.1</td>
</tr>
<tr>
<td>10</td>
<td>23.9</td>
</tr>
</tbody>
</table>

Differential Lock: Foot-operated hydraulically actuated

Rear Drive: Inboard planetary final drives with heat-treated, splined steel torque shafts. Oscillating welded construction tandems; nodular cast sprockets driving 2 in. (51 mm) pitch roller chain in oil bath.

Front Axle: Fabricated steel box frame with steel spindles

Total oscillation: 30 deg.

Steering:

- Front: Full hydraulic power system. Steering capabilities without powerUnavailable
- Rear: Hydraulically articulated frame steering (25 deg. left or right)

Minimum turning radius: 22 ft. (6.7 m)

Brakes:

- Service: Foot-operated, hydraulically actuated, wet-disk, effective on 4 tandem wheels
- Parking: Foot-operated, mechanical, dry-disk, effective on 4 tandem wheels

Hydraulic System:

- Closed center w/pressure controlled 4.0 cu. in. (65 cm²) variable-displacement pump
- 37.6 gpm (2.4 L/s) standard

Moldboard:

- Wear-resistant high-carbon steel
- Length: 12 ft. (3.66 m)
- Height: 24 in. (610 mm)
- Thickness: 0.88 in. (22 mm)

Cutting Edge: Dura-Max® through-hardened curved steel

- Thickness and width: 0.62 x 6 in. (16 x 152 mm)

Blade Range:

- Lift above ground: 16.1 in. (409 mm)
- Blade side shift: Right or left: 26.9 in. (683 mm)
- Shoulder reach outside wheels (frame straight): Right: 84.6 in. (215 mm)
- Left: 87.6 in. (222 mm)
- Pitch at ground line: 10 deg. forward

Blade Lifting Mechanism:

- Control: Dual-lever, hydraulic w/float position

Lift Arms: Nodular cast iron

- Positions: 7
- Control: Hydraulic, foot operated

Circle: Fabricated steel angle construction

- Circle diameter: 58 in. (1.47 m)
- Rotation: 360 deg.
- Drive: Hydraulic motor and worm gear with positive lock

Sideshift, right: 30.0 in. (762 mm)
Left: 34.4 in. (874 mm)

Drawbar: Welded box section, 3.5 x 7 x 0.375 in. (89 x 178 x 9.5 mm)

Frame:

- Rear mainframe: Welded box section from mainframe arch to front hood
- Width, minimum: 10 in. (255 mm)
- Height, minimum: 13 in. (330 mm)
- Weight per ft., minimum: 171 lb. (77 kg/m)
- Minimum vertical section modulus: 118 in³ (1935 cm³)

Tires:

- 13.00-24, 8-PR, G2, standard
- 13.00-24, 12-PR, G2
- 14.00-24, 10- or 12-PR, G2
- 17.5-25, 12-PR, L2

Dimensions:

<table>
<thead>
<tr>
<th>Wheel Size</th>
<th>Front</th>
<th>Rear</th>
<th>Width</th>
<th>Ground Clearance</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.00-24</td>
<td>6 in.</td>
<td>14 in.</td>
<td>7.6 in.</td>
<td>7 ft.</td>
</tr>
<tr>
<td>14.00-24</td>
<td>10 in.</td>
<td>14 in.</td>
<td>7.6 in.</td>
<td>7 ft.</td>
</tr>
<tr>
<td>17.5-25</td>
<td>14 in.</td>
<td>14 in.</td>
<td>7.6 in.</td>
<td>8 ft.</td>
</tr>
</tbody>
</table>

Height to top of steering wheel: 7 ft. 4.4 in. (2.25 m)

Capacities:

- U.S. | Liters |
|------|--------|
- Fuel tank: 60 gal. | 227.0 |
- Cooling system: 7 gal. | 26.5 |
- Engine lubrication, including filter: 20 qt. | 18.9 |
- Transmission and hydraulic system: 28 gal. | 108.0 |
- Tandem housings (each): 5 gal. | 18.9 |
- Worm gearbox: 3 qt. | 2.8 |

Scarifier (Special Equipment):

- V-type for 4 ft. (1.22 m) 3 manual pitch positions and hydraulic float
- Number of teeth: 5 standard, 9 optional
- Shank size: 1 by 6 in. (25 x 76 mm)
- or 1 1/4 x 4 in. (32 x 102 mm)

Ripper (Special Equipment): 8 ft. (2.44 m) cut width, parallelogram linkage, 2 manual shank vertical positions

- Number of shank pockets: 5
- Number of shanks: 3
- Lift above ground: 14.5 in. (368 mm)
- Penetration: 14 in. (356 mm)
- Shank size: 2 x 5 in. (51 x 127 mm)
- Lift above ground (shank in upper position): 23.5 in. (597 mm)
670A MOTOR GRADER SPECIFICATIONS

**Additional Standard Equipment:**
- Gauges:
  - Air filter indicator
  - Engine oil pressure
  - Fuel level
  - Transmission clutch pressure
  - Transmission filter indicator
  - Transmission lube pressure
  - Transmission temperature
  - Water temperature
- Horn
- Hourmeter
- Lights, driving
- Lights, stop and tail
- Moldboard float
- Precooler
- Reverse warning alarm
- ROPS cab with seat belt, front wiper and dome light
- Seat, cushioned vinyl
- Turn signals

**Optional or Special Equipment with Weights:**
(Add these weights to SAE Standard Equipment operating weights to obtain total operating weights.)
- Accelerator-decelerator
- Air conditioner with heavy-duty alternator
- Articulation indicator
- Automatic blade control
- Auxiliary function valve
- Blade, front bulldozer with float control
- Bottom guard, heavy-duty with rear hitch
- Bottom guard, regular
- Cold-weather starting aid
- Dura-Max through-hardened cutting edge, 3/4 x 8 in. (19 x 203 mm)
- Engine disconnect, cold weather
- Engine side shields
- Fan, defroster
- Heater, coolant
- Heater, cab, 19,000 BTU (5.6 kW)
- Heater, cab, 38,000 BTU (11.1 kW)
- Heater, cab, 40,000 BTU (11.7 kW)
- Heater, roof-mounted, 25,000 BTU (7.3 kW) (add to air conditioner)
- Hydraulic pump, pressure controlled, variable displacement, 6.0 cu. in. (98 cm³), 52.4 gpm (3.3 L/s)
- Lights, blade
- Lights, work, 2 front/2 rear floods
- Mat, floor
- Mirror, outside rear view, convex, outside
- Mirrors, outside rear view, convex, both sides
- Mirror, outside rear view, flat, one side
- Mirror, outside rear view, flat, both sides
- Moldboard:
  - 12-ft. (3.66 m) w/3/4 x 8 in (19 x 203 mm) through-hardened Dura-Max cutting edge
  - 13-ft. (3.96 m) w/3/4 x 6 in. (16 x 152 mm) through-hardened Dura-Max cutting edge
  - 13-ft. (3.96 m) w/3/4 x 8 in. (19 x 203 mm) through-hardened Dura-Max cutting edge
  - 14-ft. (4.27 m) w/3/4 x 6 in. (16 x 152 mm) through-hardened Dura-Max cutting edge
  - 14-ft. (4.27 m) w/3/4 x 8 in. (19 x 203 mm) through-hardened Dura-Max cutting edge

**SAE Operating Weight**

<table>
<thead>
<tr>
<th>Item</th>
<th>On Front Wheels</th>
<th>On Rear Wheels</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard equipment</td>
<td>7962 lb. (3612 kg)</td>
<td>9121 lb. (4142 kg)</td>
<td>17,083 lb. (7754 kg)</td>
</tr>
<tr>
<td>and scarifier</td>
<td>8388 lb. (3805 kg)</td>
<td>9826 lb. (4451 kg)</td>
<td>18,214 lb. (8256 kg)</td>
</tr>
</tbody>
</table>

**Weights**

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<thead>
<tr>
<th>Item</th>
<th>lb.</th>
<th>kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moldboard extensions, 2-ft. (610 mm), right or left (less cutting edge)</td>
<td>220</td>
<td>100</td>
</tr>
<tr>
<td>Overlay end bits (1 pair), 6 in. (152 mm)</td>
<td>62</td>
<td>28</td>
</tr>
<tr>
<td>Overlay end bits (1 pair), 8 in. (203 mm)</td>
<td>77</td>
<td>35</td>
</tr>
<tr>
<td>Rear hitch</td>
<td>67</td>
<td>30</td>
</tr>
<tr>
<td>Rims: 10 in. (254 mm) for 13.00-24 tires</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>10 in. (254 mm) for 14.00-24 tires</td>
<td>472</td>
<td>214</td>
</tr>
<tr>
<td>14 in. (356 mm) for 17.50-25 tires</td>
<td>674</td>
<td>306</td>
</tr>
<tr>
<td>Ripper, rear mounted with hitch</td>
<td>2516</td>
<td>1141</td>
</tr>
<tr>
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<td>674</td>
<td>306</td>
</tr>
<tr>
<td>Ripper, rear mounted with hitch</td>
<td>2516</td>
<td>1141</td>
</tr>
<tr>
<td>ROPS canopy w/seat belt and instrument panel cover</td>
<td>442</td>
<td>200</td>
</tr>
<tr>
<td>Scarifier, regular w/five teeth</td>
<td>966</td>
<td>448</td>
</tr>
<tr>
<td>1 x 3 in. (25 x 76 mm)</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Seat belt, 3-in. (76 mm)</td>
<td>111</td>
<td>50</td>
</tr>
<tr>
<td>Seat, deluxe suspension, cloth covered</td>
<td>58</td>
<td>26</td>
</tr>
<tr>
<td>Seat, deluxe suspension, vinyl covered</td>
<td>761</td>
<td>345</td>
</tr>
<tr>
<td>Sound suppression package (for use with ripper)</td>
<td>248</td>
<td>112</td>
</tr>
<tr>
<td>Winter door cam for cab</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Wiper, rear windshield</td>
<td>4</td>
<td>2</td>
</tr>
</tbody>
</table>

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<tr>
<th>Item</th>
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<th>kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.00-24, 8 PR, G2</td>
<td>50</td>
<td>27</td>
</tr>
<tr>
<td>14.00-24, 10 PR, G2</td>
<td>270</td>
<td>122</td>
</tr>
<tr>
<td>17.5-25, 12 PR, L2</td>
<td>528</td>
<td>239</td>
</tr>
<tr>
<td>Toolbox</td>
<td>12</td>
<td>5</td>
</tr>
</tbody>
</table>

**Dimensions**

- Rims: 10 in. (254 mm) for 13.00-24 tires
- 14.00-24, 10 PR, G2
- 17.5-25, 12 PR, L2
- Toolbox
- Winter door cam for cab
- Wiper, rear windshield
670A MOTOR GRADER DIMENSIONS

- 10 ft. 6 in. (3.20 m)
- 8 ft. 9.3 in. (2.67 m)
- 5 ft. 0.71 in. (1.54 m)
- 8 ft. 4 in. (2.54 m)
- 19 ft. 7 in. (5.97 m)
- 27 ft. 3.2 in. (8.31 m)
- 30 ft. 2 in. (9.20 m)
- 32 ft. 6 in. (9.90 m)