

870G/GP

Engine	870G/GP		
Manufacturer and Model	John Deere PowerTech™ PSX 9.0L	John Deere PowerTech™ Plus 9.0L	John Deere PowerTech™ 9.0L
Non-Road Emissions Standard	EPA Interim Tier 4/EU Stage IIIB	EPA Tier 3/EU Stage IIIA	EPA Tier 2/EU Stage II
Cylinders	6	6	6
Displacement	9.0L (548 cu. in.)	9.0L (548 cu. in.)	9.0L (548 cu. in.)
Net Power			
Gear 1	138 kW (185 hp)	134 kW (180 hp)	134 kW (180 hp)
Gear 2	143 kW (192 hp)	136 kW (182 hp)	136 kW (182 hp)
Gear 3	157 kW (210 hp)	152 kW (204 hp)	152 kW (204 hp)
Gear 4	166 kW (223 hp)	163 kW (219 hp)	163 kW (219 hp)
Gear 5	172 kW (231 hp)	169 kW (227 hp)	169 kW (227 hp)
Gear 6	185 kW (248 hp)	179 kW (240 hp)	179 kW (240 hp)
Gear 7	195 kW (261 hp)	186 kW (250 hp)	186 kW (250 hp)
Gear 8	198 kW (265 hp)	190 kW (255 hp)	190 kW (255 hp)
Net Peak Torque	1300 Nm (959 lb.-ft.)	1287 Nm (949 lb.-ft.)	1287 Nm (949 lb.-ft.)
Net Torque Rise	53%	60%	60%
Aspiration	Series turbocharged, charge-air cooled	Turbocharged, charge-air cooled	Turbocharged, charge-air cooled
Lubrication	Full-flow spin-on filter and integral cooler	Full-flow spin-on filter and integral cooler	Full-flow spin-on filter and integral cooler
Air Cleaner with Restriction Indicator	Dual element, dry	Dual element, dry	Dual element, dry

Cooling

Cooling-on-demand, hydraulic-driven, variable-speed fan drive to optimize fuel consumption; auto-reversing fan to keep coolers clean; swing-out rear fan door and foldout or sliding coolers for easy cleaning of all cooling components

Engine Coolant, Extended Life, Rating -37 deg. C (-34 deg. F)

Powertrain

Transmission	Direct-drive John Deere PowerShift Plus™, modulated shift-on-the-go, Event-Based Shifting (EBS), inching pedal; independent transmission reservoir with separate filtration and cooling system with 121-L/min. (32 gpm) gear pump
Gears	
Forward	8
Reverse	8
Maximum Travel Speeds	<i>With no tire slip at 2,180 rpm, 14.00-R24 tires</i>
Shift Lever Position 1	3.9 km/h (2.4 mph)
Shift Lever Position 2	5.6 km/h (3.5 mph)
Shift Lever Position 3	7.9 km/h (4.9 mph)
Shift Lever Position 4	10.9 km/h (6.8 mph)
Shift Lever Position 5	16.7 km/h (10.4 mph)
Shift Lever Position 6	23.3 km/h (14.5 mph)
Shift Lever Position 7	32.2 km/h (20.0 mph)
Shift Lever Position 8	45.0 km/h (28.0 mph)
Front Axle	Heavy-duty welded fabrication
Oscillation (total)	32 deg.
Wheel Lean Angle (each direction)	20 deg.
Differentials	Spiral bevel; hydraulically actuated, clutch type can be applied on-the-go; selectable manual or automatic differential lock
Steering (all models include steering wheel)	All-hydraulic power-frame articulation for maneuverability and productivity; crab steering reduces side drift, positions tandems on firm ground, and increases side-slope stability; return-to-straight control included in Grade Pro option
Turning Radius (front steer and articulation)	7.21 m (23 ft. 8 in.)
Articulation (both right and left)	22 deg.
Final Drives	Inboard-mounted planetary sealed in cooled, filtered oil
Drive-Chain Pitch	51 mm (2 in.)
Brakes	Foot-controlled, hydraulically operated, multiple wet-disc brakes sealed in pressurized, cooled, filtered oil; both independent systems effective on all 4 tandem wheels
Primary and Secondary Brakes	Hydraulically actuated, inboard of tandem pivot, self-adjusting, sealed in cooled and filtered oil, multi-disc (ISO 3450)
Parking Brake	Automatically spring applied, hydraulically released, oil cooled, self-adjusting (ISO 3450)



Hydraulics		870G/GP
Closed-center, pressure-compensated load-sensing (PCLS), variable-displacement piston pump, O-ring face-seal fittings		
Maximum Pump Flow	217 L/min. (57.4 gpm)	
Maximum System Pressure	18 961 kPa (2,750 psi)	
Pump Displacement	90 cm ³ (5.5 cu. in.)	
Blade Function		
All-hydraulic, industry-standard lever placement of blade-function controls; includes float position; 7 discrete saddle positions		
Blade Range		
Lift Above Ground	452 mm (17.8 in.)	
Blade Side Shift (right or left)	683 mm (26.9 in.)	
Pitch at Ground Line		
Forward	42 deg.	
Back	5 deg.	
Shoulder Reach Outside Wheels (frame straight, right or left)	2329 mm (7 ft. 8 in.)	
Bank Cut Angle (right or left)	90 deg.	
Productivity		
Blade Pull (maximum weight [22 054 kg (48,620 lb.)], 0.9 coefficient of traction)	13 299 kg (29,320 lb.)	
Electrical		
Solid-state load center and sealed-switch module		
Voltage	24 volt	
Number of Batteries	2	
Battery Capacity	1,400 CCA	
Reserve Capacity	440 min.	
Amp-Hour Rating	224 amp-hour	
Alternator Rating	100, 130, or 150 amp	
Lights	Driving lights; 2 high- and 2 low-beam halogen headlights; front and rear LED turn signals and marker lights; LED brake and hazard warning lights	
Mainframe		
Type	Welded box construction	
Width (minimum)	307 mm (12.1 in.)	
Height (minimum)	307 mm (12.1 in.)	
Thickness		
Side	16 mm (0.63 in.)	
Top and Bottom Plate	30 mm (1.17 in.)	
Modulus		
Minimum Vertical Section	1770 cm ³ (108 cu. in.)	
Average Vertical Section at Saddle	2635 cm ³ (161 cu. in.)	
Draft Frame (drawbar)		
Welded box construction machined for flatness with double ball-and-socket pivot connection equipped with quick-change replaceable wear inserts		
Circle		
Welded construction, heat-treated, machined for flatness, equipped with quick-change replaceable wear inserts		
Circle Diameter	1524 mm (60 in.)	
Rotation	360 deg.	
Drive	Hydraulic motor and worm gear with positive lock	
Circle Side Shift (right and left)	787 mm (31 in.)	
Moldboard		
High-strength, pre-stressed for higher strength, wear-resistant, high-carbon steel and reversible end bits; blade side-shift wear system includes quick-change replaceable wear inserts and quick-adjust jackscrew system		
Length	4.27 m (14 ft. 0 in.)	
Height (measured along arc, including cutting edge)	686 mm (27 in.)	
Thickness	25 mm (1 in.)	
Cutting Edge		
Dura-Max™ through-hardened steel edge		
Thickness	19 mm (0.75 in.)	
Width	203 mm (8 in.)	

Scarifiers		870G/GP		
		<i>Front</i>	<i>Mid-mount</i>	
Type		V-type toolbar with manual 2-pitch positions, with hydraulic float	Radial linkage, with NeverGrease™ pin joints; V-type toolbar with manual 3-pitch positions, with hydraulic float	
Width of Cut		1.20 m (4 ft. 0 in.)	1.19 m (3 ft. 11 in.)	
Number of Shanks/Teeth		5 (maximum capacity 9)	11	
Lift Above Ground		589 mm (23.2 in.)	335 mm (13.2 in.)	
Maximum Penetration		335 mm (13.2 in.)	325 mm (12.8 in.)	
Shank				
Spacing		146 mm (5.75 in.)	117 mm (4.6 in.)	
Size		25 x 76 mm (1 x 3 in.)	25 x 76 mm (1 x 3 in.)	
Front Lift Group (Balderson-style)				
Parallel linkage, mechanical pins, and hydraulic float				
Lift				
Above Ground (top of tube)		1864 mm (73.4 in.)		
Range		988 mm (38.9 in.)		
Rear Ripper/Scarifier				
Parallel linkage, with NeverGrease pin joints, hydraulic float, and integrated hitch				
		<i>Ripper</i>	<i>Scarifier</i>	
Width of Cut		2.21 m (7 ft. 3 in.)	2.18 m (7 ft. 2 in.)	
Number of Shanks/Teeth		3 (maximum capacity 5)	None standard (maximum capacity 9)	
Lift Above Ground		602 mm (23.7 in.)	810 mm (31.9 in.)	
Maximum Penetration		426 mm (16.8 in.)	323 mm (12.7 in.)	
Shank Size		61.5 x 133 mm (2.42 x 5.25 in.)	25 x 76 mm (1 x 3 in.)	
Operator Station				
Low-profile cab with ROPS (ISO 3471-2008) and FOPS (ISO 3449-2005)				
Tires/Wheels				
		<i>14.00-24 on 254-mm (10 in.) Rim</i>	<i>17.5-25 on 356-mm (14 in.) Rim</i>	<i>550/65R25 on 432-mm (17 in.) Rim</i>
Wheel Tread on Ground (front and rear)		2.08 m (82 in.)	2.16 m (85 in.)	2.21 m (87 in.)
Overall Width (top of tires, front and rear)		2.49 m (98 in.)	2.64 m (104 in.)	2.77 m (109 in.)
Ground Clearance (front axle, front and rear)		587 mm (23.1 in.)	587 mm (23.1 in.)	612 mm (24.1 in.)
Serviceability				
Refill Capacities				
Fuel Tank		416.4 L (110 gal.)		
Cooling System		57.9 L (15.3 gal.)		
Engine Oil with Filter		28.0 L (7.4 gal.)		
Transmission Fluid (refill)		28.4 L (7.5 gal.)		
Differential Housing		37.9 L (10 gal.)		
Tandem Housings (each)		73.8 L (19.5 gal.)		
Circle Gearbox		5.7 L (1.5 gal.)		
Hydraulic Reservoir		60.6 L (16 gal.)		
Operating Weights				
With Full Fuel Tank, 4.27-m x 686-mm x 25-mm (14 ft. x 27 in. x 1.0 in.) Moldboard with 203-mm x 19-mm (8 in. x 3/4 in.) Cutting Edges, 17.5 R 25 L2 Tires, and 79-kg (175 lb.) Operator				
		<i>EPA Interim Tier 4/EU Stage IIIB</i>	<i>EPA Tier 3/EU Stage IIIA and EPA Tier 2/EU Stage II</i>	
Front		4531 kg (9,990 lb.)	4540 kg (10,010 lb.)	
Rear		12 487 kg (27,530 lb.)	11 843 kg (26,110 lb.)	
Total		17 019 kg (37,520 lb.)	16 384 kg (36,120 lb.)	
Typical Operating Weight with Front Push Block, Rear Ripper/Scarifier, and Other Equipment				
Front		5788 kg (12,760 lb.)	5869 kg (12,940 lb.)	
Rear		14 515 kg (32,000 lb.)	13 689 kg (30,179 lb.)	
Total		20 303 kg (44,760 lb.)	19 558 kg (43,119 lb.)	
Maximum Operating Weight		22 054 kg (48,620 lb.)	22 054 kg (48,620 lb.)	

Option Weights	870G/GP
Moldboards with Through-Hardened Dura-Max Cutting Edge	
3.66 m x 686 mm x 25 mm (12 ft. x 27 in. x 1 in.) with 203-mm x 19-mm (8 in. x 3/4 in.) cutting edge and 16-mm (5/8 in.) hardware	- 126 kg (- 278 lb.)
3.96 m x 686 mm x 25 mm (13 ft. x 27 in. x 1 in.) with 203-mm x 19-mm (8 in. x 3/4 in.) cutting edge and 16-mm (5/8 in.) hardware	- 72 kg (- 159 lb.)
4.27 m x 686 mm x 25 mm (14 ft. x 27 in. x 1 in.) with 203-mm x 19-mm (8 in. x 3/4 in.) cutting edge and 16-mm (5/8 in.) hardware	9.5 kg (21 lb.)
4.88 m x 686 mm x 25 mm (16 ft. x 27 in. x 1 in.) with 203-mm x 19-mm (8 in. x 3/4 in.) cutting edge and 19-mm (3/4 in.) hardware	137 kg (302 lb.)
Extensions, 610 mm (2 ft.) (right or left)	
For Use with 686-mm (27 in.) Moldboards	120.2 kg (265 lb.)
Overlay End Bits, Reversible (one pair)	
For 152-mm (6 in.) Cutting Edge	19.5 kg (43 lb.)
For 203-mm (8 in.) Cutting Edge	23.1 kg (51 lb.)
Extended-Wear Circle Wear Inserts	19.5 kg (43 lb.)
Circle-Drive Slip Clutch	9.1 kg (20 lb.)
Moldboard Impact-Absorption System	43.1 kg (95 lb.)
Ripper/Scarifier, Rear Mounted with Hitch and Ripper Shanks (3)	1139 kg (2,510 lb.)
Scarifier Shanks with Teeth (9 for rear ripper/scarifier)	68 kg (150 lb.)
Ripper Shanks and Teeth (2)	63 kg (139 lb.)
Rear Counterweight with Integral Rear Hitch	727.1 kg (1,603 lb.)
Rear Hitch	54.4 kg (120 lb.)
Push Block, Front	1338 kg (2,950 lb.)
Scarifier	
Front Mount with Teeth (5)	831.4 kg (1,833 lb.)
Mid-Mount with Teeth (11)	1481 kg (3,265 lb.)
Front Lift Group (Balderson-style)	762.9 kg (1,682 lb.)
Tires	
14.00-24, 12 PR G2	- 272.2 kg (- 600 lb.)
17.5-25, 12 PR G2/L2	- 157.9 kg (- 348 lb.)
14.00-R24, Radial, G2/L2 General Purpose	- 51.7 kg (- 114 lb.)

Machine Dimensions	
A Height to Top of Cab	3.18 m (10 ft. 5 in.)
A' Height to Top of Full-Height Cab	3.40 m (11 ft. 2 in.)
B Height to Top of Exhaust	3.13 m (10 ft. 3 in.)
C Height to Top of Blade-Lift Cylinders	3.05 m (10 ft. 0 in.)
D Tandem Axle Spacing	1.54 m (5 ft. 1 in.)
E Blade Base	2.53 m (8 ft. 4 in.)

Option Weights (continued)	870G/GP
Tires (continued)	
14.00-R24, Radial, G2/L2 Snow	- 10.9 kg (- 24 lb.)
17.5-R25, Radial, L2 General Purpose	0 kg (0 lb.)
17.5-R25, Radial, G2/L2 Snow	43.5 kg (96 lb.)
17.5-R25, Radial, G3/L3 General Purpose	89.8 kg (198 lb.)
550/65R25 XLD70 G3/L3 Radial, General Purpose	443.6 kg (978 lb.)
Multi-Piece Rims	
254 mm x 610 mm (10 in. x 24 in.)	- 87.1 kg (- 192 lb.)
356 mm x 635 mm (14 in. x 25 in.)	0 kg (0 lb.)
432 mm x 635 mm (17 in. x 25 in.)	54.4 kg (120 lb.)
Fenders	
Front	76.7 kg (169 lb.)
Rear	140.6 kg (310 lb.)
Cab	
Low with Opening Front and Side Windows	14.5 kg (32 lb.)
Tall with Fixed Front and Side Windows	58.5 kg (129 lb.)
With Opening Front and Side Windows	73 kg (161 lb.)
Premium Air-Suspension, Heated Seat with Adjustable Arm- and Headrests	12.7 kg (28 lb.)
Coolant Heater	4.1 kg (9 lb.)
Fast-Fill Fuel System	13.6 kg (30 lb.)
Quick Service	10.9 kg (24 lb.)
Sound-Absorption Package (machines equipped with Tier 3/Stage IIIA and Tier 2/Stage II engines only)	14.1 kg (31 lb.)
Secondary Steering	26.3 kg (58 lb.)
Beacon Bracket	8.2 kg (18 lb.)
Fire Extinguisher	14.5 kg (32 lb.)
Lighting Packages	
10 Halogen Lights	4.53 kg (10 lb.)
16 Halogen Lights	7.25 kg (16 lb.)
18 Halogen Lights	8.2 kg (18 lb.)
High-Front Light Bar for Snowplowing	20 kg (44 lb.)
24- to 12-Volt, 30-Amp Converter	1.4 kg (3 lb.)
Auxiliary Hydraulic Control Valve Section and Controls	6.8 kg (15 lb.)
Hydraulics For Front-Mounted Equipment	8.6 kg (19 lb.)
Wipers/Washers, Lower-Front Windows	4.1 kg (9 lb.)

Machine Dimensions (continued)	
F Wheelbase	6.16 m (20 ft. 3 in.)
G Overall Length	8.89 m (29 ft. 2 in.)
H Overall Length with Scarifier	9.69 m (31 ft. 9 in.)
I Overall Length with Push Block and Ripper	9.99 m (32 ft. 9 in.)
I' Overall Length with Scarifier and Ripper	10.59 m (34 ft. 9 in.)

For Overall Width see Tires/Wheels on page 34.

