



JOHN DEERE

**ENGINE PERFORMANCE CURVE**

Rating: Gross Power  
 Application: Generator  
 1800 RPM (60 Hz)

**PowerTech 2.4L Engine**

Model: **4024TF270**

**43 hp (32 kW) Prime**

**48 hp (36 kW) Standby**

Nominal Engine Power @ 1800 RPM			
Prime		Standby	
HP	kW	HP	kW
43	32	48	36

Generator Efficiency <sup>1</sup> %	Fan Power		Power Factor	Prime Rating		Standby Rating <sup>2</sup>		4 sec Standby Block Load Capability <sup>3</sup>
	hp	kW		kWe	kVA	kWe	kVA	
88*	2.4*	1.8*	0.8	27	34	30	38	100%

Note 1: Est. min. generator efficiency, with 5% fan power loss, to achieve Prime kVA (1500 rpm) / Standby kWe (1800 rpm).  
 Note 2: Based on nominal engine power.  
 Note 3: Results may vary by alternator and voltage regulator selection.

Air Intake Restriction ..... 12 in.H<sub>2</sub>O (3 kPa)  
 Exhaust Back Pressure ..... 30 in.H<sub>2</sub>O (7.5 kPa)

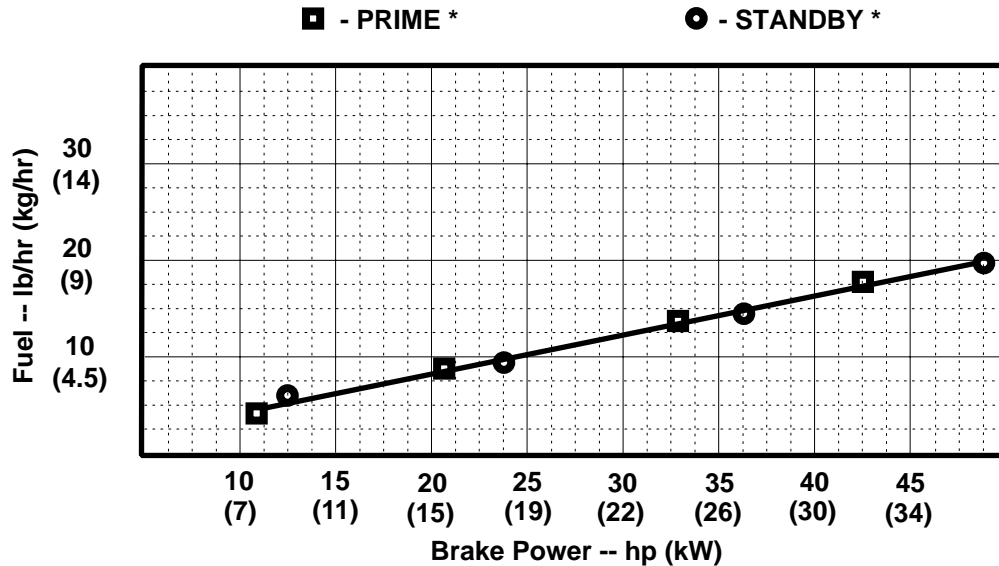
Gross power guaranteed within + or - 5% at SAE J1995 and ISO 3046 conditions:

- 77 °F (25 °C) air inlet temperature
- 29.31 in.Hg (99 kPa) barometer
- 104 °F (40 °C) fuel inlet temperature
- 0.853 fuel specific gravity @ 60 °F (15.5 °C)

Conversion factors:

- Power: kW = hp x 0.746
- Fuel: 1 gal = 7.1 lb, 1 L = 0.85 kg
- Torque: N•m = lb-ft x 1.356

All values are from currently available data and are subject to change without notice.



Notes:

Tier-2 Emission Certifications:

Certified by:

CARB; EPA

Ref: Engine Emission Label

*Brian L. Carlson*  
 13 Nov 03

\* Revised Data  
 Curve 4024TF270180048..... Sheet 1 of 2  
 November 2003

## Engine Specification Data

### General Data

Model .....4024TF270  
 Number of Cylinders ..... 4  
 Bore and Stroke--in.(mm)..... 3.4 x 4.1 (86 x 105)  
 Displacement--in.<sup>3</sup> (L)..... 149 (2.4)  
 Compression Ratio ..... 20.5 : 1\*  
 Valves per Cylinder--Intake/Exhaust ..... 1 / 1  
 Firing Order ..... 1-3-4-2  
 Combustion System..... Direct Injection  
 Engine Type ..... In-line, 4-Cycle  
 Aspiration ..... Turbocharged  
 Engine Crankcase Vent System ..... Open  
 Maximum Crankcase Pressure--in.H<sub>2</sub>O (kPa) .....2 (0.5)

### Physical Data

Length--in.(mm) .....26.1 (662)  
 Width--in.(mm) ..... 22.3 (566)\*  
 Height--in.(mm) .....30.4 (772)  
 Weight, dry--lb (kg).....553 (251)  
 (Includes flywheel housing, flywheel & electrics)  
 Center of Gravity Location  
     From Rear Face of Block (X-axis)--in.(mm)....7.6 (194)  
     Right of Crankshaft (Y-axis)--in.(mm) .....0.6 (14)  
     Above Crankshaft (Z-axis)--in.(mm) .....4.3 (108)  
 Max. Allow. Static Bending Moment at Rear  
     Face of Flywhl Hsg w/ 5-G Load--lb-ft (N•m)....369 (500)  
 Thrust Bearing Load Limit (Forward)  
     Continuous--lb (N) ..... 1147 (5100)  
     Intermittent--lb (N).....629 (2800)

### Air System

**Prime    Standby**

Maximum Allowable Temp Rise--Ambient Air to  
     Engine Inlet--°F (°C) ..... 15 (8) ..... 15 (8)  
 Maximum Air Intake Restriction  
     Dirty Air Cleaner--in.H<sub>2</sub>O (kPa).... 25 (6.25) ...25 (6.25)  
     Clean Air Cleaner--in.H<sub>2</sub>O (kPa)..... 12 (3) ..... 12 (3)  
 Engine Air Flow--ft<sup>3</sup>/min (m<sup>3</sup>/min) ..... 99 (2.8)\* . 106 (3.0)\*  
 Intake Manifold Pressure--psi (kPa).....9 (64)\* .....11 (75)\*

### Cooling System

**Prime    Standby**

Eng. Heat Rejection--BTU/min (kW) .. 1303 (23) .. 1412 (25)  
 Coolant Flow--gal/min (L/min).....24\* (91)\* ... 24\* (91)\*  
 Thermostat Start to Open--°F (°C) ..... 180 (82) .... 180 (82)  
 Thermostat Fully Open--°F (°C).....201 (94) .... 201 (94)  
 Maximum Water Pump  
     Inlet Restriction--in.H<sub>2</sub>O (kPa) .....28 (7) ..... 28 (7)  
 Engine Coolant Capacity--qt (L) .....2.7 (2.6) .... 2.7 (2.6)  
 Recm'd Pressure Cap--psi (kPa) ..... 10 (69) ..... 10 (69)  
 Maximum Top Tank Temp--°F (°C) .. 221 (105)\* . 221 (105)\*  
 Min. Coolant Fill Rate--gal/min (L/min) 2.5 (9.5) .... 2.5 (9.5)  
 Min. Air-to-Boil Temperature--°F (°C) .. 117 (47) .... 117 (47)

### Electrical System

**12 Volt    24 Volt**

Rec'md. Battery Capacity (CCA)--amp.....750 ..... N/A  
 Max. Allow. Starting Circuit Resist.--Ohm ...0.0012 ..... N/A  
 Starter Rolling Current  
     At 32 °F ( 0 °C)--amp.....290 ..... N/A  
     At -22 °F (-30 °C)--amp .....370 ..... N/A

### Exhaust System

**Prime    Standby**

Exhaust Flow--ft<sup>3</sup>/min (m<sup>3</sup>/min)..... 261 (7.4)\* ...283(8.0)\*  
 Exhaust Temperature--°F (°C) ..... 963(517)\* ...1026 (552)\*  
 Max. Allow. Back Press.--in.H<sub>2</sub>O (kPa).30 (7.5) ..... 30 (7.5)

### Fuel System

**Prime    Standby**

Fuel Injection Pump (Stanadyne)..... Unit Pump  
 Governor Regulation.....0% ..... 0%  
 Governor Type ..... Electrical ... Electrical  
 Total Fuel Flow--lb/hr (kg/hr).....185 (84) .... 185 (84)  
 Fuel Consumption--lb/hr (kg/hr)..... 17.9(8.1)\* ..19.8(9.0)\*  
 Maximum Fuel Transfer Pump Suction--  
     ft (m) fuel.....10(3.0) ..... 10 (3.0)  
 Max. Fuel Inlet Temp.--°F (°C)..... 185 (85)\* ...185 (85)\*  
 Fuel Filter Micron Size @ 98 % Efficiency ..... 5 ..... 5

### Lubrication System

**Prime    Standby**

Oil Pressure at Rated Speed--psi (kPa) .....43 (296)\*  
 Oil Pressure at Low Idle--psi (kPa) ..... N/A\*  
 In Pan Oil Temperature--°F (°C) ..... 226 (108)\* . 232 (111)\*

### Performance Data

**Prime    Standby**

Rated Power--hp (kW) ..... 43 (32) ..... 48 (36)  
 Rated Speed--rpm ..... 1800 ..... 1800  
 Low Idle Speed--rpm ..... N/A\* ..... N/A\*  
 BMEP--psi (kPa) ..... 128 (883) .. 142 (981)  
 Friction Power @ Rated Speed--hp (kW)10(7.4)\* ..10(7.4)\*  
 Altitude Capability--ft (m) ..... 10,000 (3050)\*  
 Ratio--Air : Fuel..... 23.9:1\* ..... 22.5:1\*  
 Smoke @ Rated Speed--Bosch No. .... 2.7\* ..... 2.9\*  
 Noise--dB(A) @ 1 m ..... N/A ..... N/A

### Fuel Consumption -- lb/hr (kg/h)    **Prime\*    Standby\***

25 % Power .....4.4 (2.0)..... 6.0 (2.7)  
 50 % Power ..... 8.8 (4.0)..... 9.9(4.5)  
 75 % Power ..... 13.3 (6.1) ..... 14.6 (6.6)  
 100 % Power ..... 17.9 (8.1) ..... 19.8 (9.0)

All values at rated speed and power with standard options unless otherwise noted.

\* Revised Data  
 Curve 4024TF270180048 ..... Sheet 2 of 2  
 November 2003