



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 ¹ %	Fan Power		Power Factor	Prime Rating		Standby Rating ²		4 sec Standby Block Load Capability ³
	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.H₂O (3 kPa)
 Exhaust Back Pressure 30 in.H₂O (7.5 kPa)

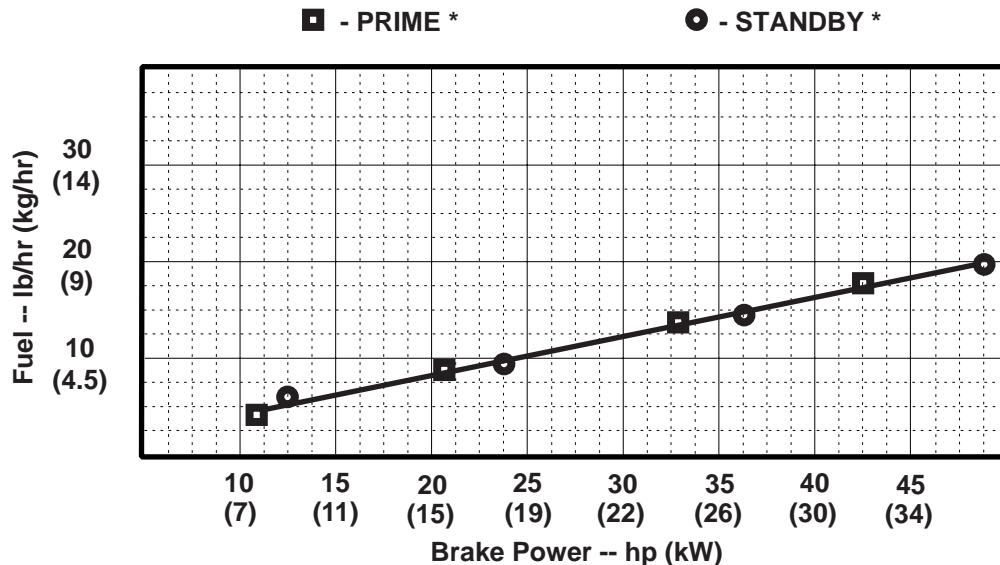
Gross power guaranteed within + or - 5% at SAE J1995 and ISO 3046 conditions:

- 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:

All OEM Gen Set Engine Applications must be pre-screened for torsional vibration compatibility with the respective alternator end hardware.

OEM Engine Application Engineering will perform this computer-based analysis work upon request. *

Tier-2 Emission Certifications:

Certified by:

CARB; EPA

Ref: Engine Emission Label

Brian L. Carlson
 13 Nov 03

* Revised Data

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Engine Specification Data

General Data

Model4024TF270
 Number of Cylinders 4
 Bore and Stroke--in.(mm)..... 3.4 x 4.1 (86 x 105)
 Displacement--in.³ (L)149 (2.4)
 Compression Ratio20.5 : 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.H₂O (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.H₂O (kPa).... 25 (6.25) ...25 (6.25)
 Clean Air Cleaner--in.H₂O (kPa)..... 12 (3) 12 (3)
 Engine Air Flow--ft³/min (m³/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.H₂O (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)--amp370 N/A
 Maximum Voltage From Engine Crankshaft/
 Generator Shaft to Ground--VAC* 0.15* 0.15*

Exhaust System

Prime Standby

Exhaust Flow--ft³/min (m³/min)..... 261 (7.4)* ...283(8.0)*
 Exhaust Temperature--°F (°C) 963(517)* ...1026 (552)*
 Max. Allow. Back Press.--in.H₂O (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 % Power4.4 (2.0)..... 6.0 (2.7)
 50 % Power 8.8 (4.0) 9.9(4.5)
 75 % Power13.3 (6.1)..... 14.6 (6.6)
 100 % Power17.9 (8.1)..... 19.8 (9.0)

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

* Revised Data

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