



**JOHN DEERE**

**ENGINE PERFORMANCE CURVE**

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

**PowerTech™ M 2.4L Engine**  
**Model: 4024TF281**

43 hp (32 kW) Prime  
 49 hp (36.4 kW) Standby

Nominal Engine Power @ 1800 RPM			
Prime		Standby	
HP	kW	HP	kW
43	32	49	36.4

Generator Efficiency %	Fan Power (% of Standby)		Power Factor	Prime Rating		Standby Rating		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.

**STANDARD CONDITIONS**

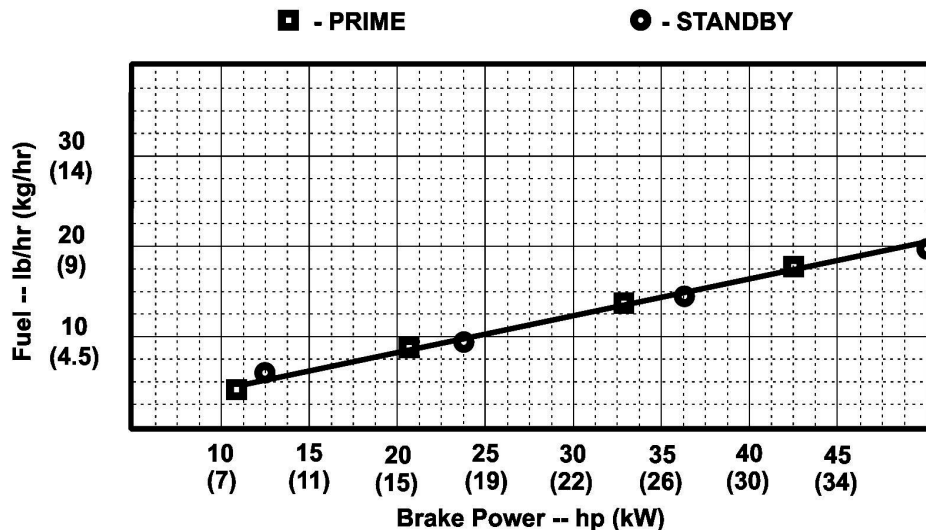
Air Intake Restriction.....12 in.H<sub>2</sub>O (3 kPa)  
 Exhaust Back Pressure.....60 in.H<sub>2</sub>O (15 kPa)

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 = 0.85kg  
 Torque: N·m = lb·ft x 1.356

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

Notes: 1) This Performance Curve provides installation requirements necessary for the engine to emit at its certified emission levels. For additional information necessary to meet applicable regulatory requirements, refer to the John Deere Emissions-related Installation Instructions (AG01):  
<https://power.deere.com/wps/myportal/jdps/products/engines/apguidelines>.  
 2) A crankshaft Torsional Vibration Analysis is required on all Gen Set applications.



Designed/Calibrated to meet:	Certified by:
<ul style="list-style-type: none"> <li>CARB</li> <li>EPA</li> </ul>	 11-27-2007
Ref: Engine Emission Label	

Performance Curve: 4024TF281\_B\_S0\_R0

## Engine Installation Criteria

### General Data

Model	4024TF281	
Number of Cylinders	4	
Bore	86 mm	3.4 in.
Stroke	105 mm	4.1 in.
Displacement	2.4 L	146 in. <sup>3</sup>
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	

### Physical Data

Length	662 mm	26.1 in.
Width	566 mm	22.3 in.
Height	772 mm	30.4 in.
Weight, with oil & no coolant (Includes engine, flywheel housing, flywheel & electrics)	251 kg	553 lb
Center of Gravity Location, X-axis From Rear Face of Block	194 mm	7.6 in.
Center of Gravity Location, Y-axis Right of Crankshaft	14 mm	0.6 in.
Center of Gravity Location, Z-axis Above Crankshaft	108 mm	4.3 in.
Max. Allowable Static Bending Moment At Rear Face of Flywheel Housing with 5-G Load	500 N-m	368 lb-ft
Thrust Bearing Load Limit Forward, Intermittent	5100 N	1147 lb
Thrust Bearing Load Limit Forward, Continuous	2800 N	629 lb

### Electrical System

Recommended Battery Capacity, 12V @32 °F (0 °C)	750 amps
Recommended Battery Capacity, 24V @32 °F (0 °C)	NA
Starter Rolling Current, 12V @32 °F (0 °C)	290 amps
Starter Rolling Current, 24V @32 °F (0 °C)	NA
Starter Rolling Current, 12V @-22 °F (-30 °C)	370 amps
Starter Rolling Current, 24V @-22 °F (-30 °C)	NA
Max. Allowable Start Circuit Resistance, 24V	NA
Max. Allowable Start Circuit Resistance, 12V	0.0012 Ohm
Max. Voltage From Engine to Crankshaft, 12V	0.15 volts
Max. Voltage From Engine to Crankshaft, 24V	0.15 volts

### Cooling System

Engine Heat Rejection, Prime	23 kW	1309 BTU/min
Engine Heat Rejection, Standby	25 kW	1423 BTU/min
Coolant Flow	91 L/min	24 gal/min
Thermostat Start to Open	89 °C	192 °F
Thermostat Fully Open	100 °C	212 °F
Engine Coolant Capacity	2.6 Liter	2.7 quart
Min. Pressure Cap	103 kPa	15 psi
Max. Top Tank Temperature	105 °C	221 °F
Min. Limiting Ambient Temperature, Standby	47 °C	116.6 °F
Min. Coolant Fill Rate	9.5 L/min	2.5 gal/min

### Exhaust System

Exhaust Flow, Prime	7.4 m <sup>3</sup> /min	261 ft. <sup>3</sup> /min
Exhaust Flow, Standby	8.0 m <sup>3</sup> /min	283 ft. <sup>3</sup> /min
Exhaust Temperature, Prime	517 °C	963 °F
Exhaust Temperature, Standby	552 °C	1026 °F
Max. Allowable Exhaust Restriction	7.5 kPa	30 in. H <sub>2</sub> O

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## Engine Installation Criteria

### Fuel System

Fuel Injection Pump	Unit Pump	
Governor Type	Electrical	
Governor Regulation	0%	
Total Fuel Flow	84 kg/hr	185 lb/hr
Fuel Consumption, Prime	8.1 kg/hr	18 lb/hr
Fuel Consumption, Standby	9.0 kg/hr	20 lb/hr
Max. Fuel Transfer pump Suction	3.0 m	9.8 ft
Max. Fuel Inlet Temperature	85 °C	185 °F
Fuel Filter @98% Efficiency	5 mic	

### Lubrication System

Oil Pressure at Rated Speed	296 kPa	43 psi
Oil Pressure at Low Idle	NA	
Max. Crankcase Pressure	0.5 kPa	2 in. H <sub>2</sub> O

### Air Intake System

Engine Air Flow, Prime	2.8 m <sup>3</sup> /min	99 ft. <sup>3</sup> /min
Engine Air Flow, Standby	3.0 m <sup>3</sup> /min	106 ft. <sup>3</sup> /min
Intake Manifold Pressure, Prime	64 kPa	9.3 psi
Intake Manifold Pressure, Standby	75 kPa	10.9 psi
Maximum Allowable Temperature Rise, Ambient Air to Engine Inlet	8 Δ°C	15 Δ°F
Max. Air Intake Restriction, Clean Air Cleaner	3.0 kPa	12.0 in. H <sub>2</sub> O
Max. Air Intake Restriction, Dirty Air Cleaner	6.25 kPa	25.0 in. H <sub>2</sub> O

### Performance Data

Rated Power, Prime	32 kW	43 HP
Rated Power, Standby	36.4 kW	49 HP
Rated Speed	1800 rpm	
Low Idle Speed	NA	
Rated Torque, Prime	169.8 N·m	125 lb-ft
Rated Torque, Standby	193.1 N·m	142 lb-ft
BMEP, Prime	883 kPa	128 psi
BMEP, Standby	981 kPa	142 psi
Altitude Capability, Prime	3048 m	10000 ft
Altitude Capability, Standby	3048 m	10000 ft
Friction Power @Rated Speed	7.4 kW	10 HP
Air:Fuel Ratio, Prime	23.9:1	
Air:Fuel Ratio, Standby	22.5:1	
Smoke @Rated Speed Prime	2.7	Bosch No.
Smoke @Rated Speed Standby	2.9	Bosch No.
Noise @1 m Prime	82.9 dB(A)	
Noise @1 m Standby	81.7 dB(A)	

Fuel Consumption	Prime		Standby	
	lb/hr	kg/h	lb/hr	kg/h
25 % Power	4.4	2.0	6.0	2.7
50 % Power	8.8	4.0	9.9	4.5
75 % Power	13.4	6.1	14.6	6.6
100 % Power	17.9	8.1	19.8	9.0

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