

ENGINE PERFORMANCE CURVE



JOHN DEERE

Rating: Gross Power
 Application: Generator
 Target: 275 kW Standby Market
 1800 RPM (60 Hz)

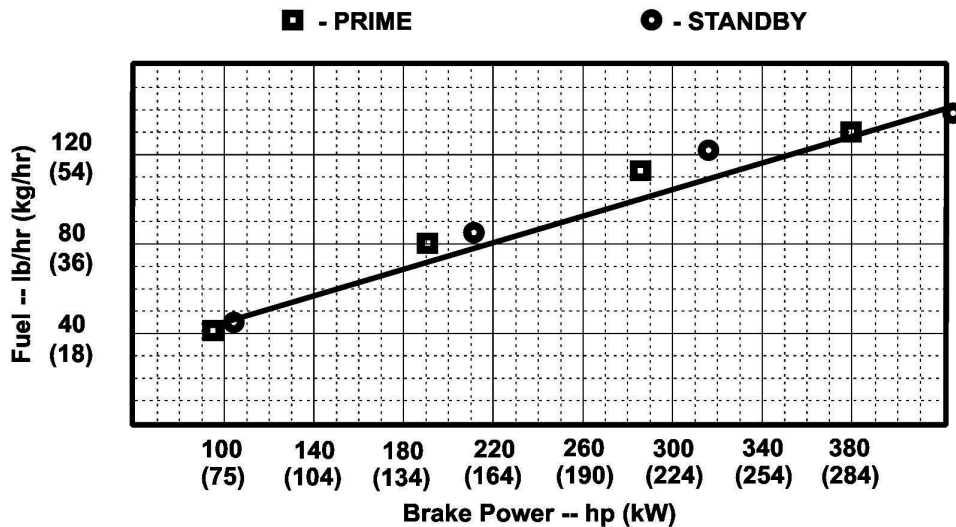
PowerTech™ E 9L Engine
 Model: 6090HF484
 JD Electronic Control

381 hp (284 kW) Prime
422 hp (315 kW) Standby

Nominal Engine Power @ 1800 RPM			
Prime		Standby	
HP	kW	HP	kW
381	284	422	315

Generator Efficiency %	Fan Power (6% of Standby)		Power Factor	Prime Rating		Standby Rating		ISO 8528 G2 Block Load Capability
	hp	kW		kW	kVA	kW	kVA	
90-94	33.9	25.3	0.8	242-253	303-316	266-278	333-348	NA

Note 1: Based on nominal engine power.



STANDARD CONDITIONS

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 = 0.85kg
- 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-3 Emission Certifications:

- CARB
- EPA

Ref: Engine Emission Label

Certified by:

Vincenzo Fender

02-25-'08

* Revised Data
 Curve 6090HF484_A_S0_R0

Engine Installation Criteria

<u>General Data</u>		<u>Charge Air Cooling System</u>	
6	Cylinders	252	Intake Manifold Pressure Prime
118.4 mm	Bore	256	Intake Manifold Pressure Standby
136.0 mm	Stroke		Intake Manifold Temperature at which Power De-rate Occurs
9 L	Displacement	88 °C	
16.0 : 1	Compression Ratio	86.5 kWbhp	Air/Air Exch'r. Heat Rej. Prime
2/2	Valves per Cylinder	88.0 kWbhp	Air/Air Exch'r. Heat Rej. Standby
1-5-3-6-2-4	Firing Order	223 °C	Compressor Discharge Temperature @ 77°F (25°C) Ambient Air Prime
HPCR	Combustion System		Compressor Discharge Temperature @ 77°F (25°C) Ambient Air Standby
In-line, 4-Cycle	Engine Type	225 °C	Compressor Discharge Temperature @ 117°F (47°C) 80 kPa Barometric pressure Prime
Air-to-Air Aftercooled Aspiration		255 °C	Compressor Discharge Temperature @ 117°F (47°C) 80 kPa Barometric pressure Standby
Air-to-Air	Charge Air Cooling System		Maximum Pressure Drop through CAC
Open	Engine Crankcase Vent System		Minimum Pressure Drop through CAC
		258 °C	Minimum Temperature Out of Charge Air Cooler Prime
434.4 mm	X-axis, Center of Gravity Location	13 kPa	Minimum Temperature Out of Charge Air Cooler Standby
2.24 mm	Y-axis, Center of Gravity Location	NA	Maximum Temperature Out of Charge Air Cooler Prime
201.4 mm	Z-axis, Center of Gravity Location		Maximum Temperature Out of Charge Air Cooler Standby
1113 mm	Height	NA	
1208 mm	Length		
82 °C	Max. Continuous Damper Temp	NA	
	Continuous, Thrust Bearing Load Limit Forward	45 °C	
8600 N	Intermittent, Thrust Bearing Load Limit Forward	45 °C	
13000 N	Continuous, Thrust Bearing Load Limit Rearward		
4000 N	Intermittent, Thrust Bearing Load Limit Rearward		
6000 N	Weight- with oil and no coolant		
901 kg	Width		
630 mm	Max. Allowable Static Bending Moment		
814 N-m	Front of Crank		
0.25 DDA			
<u>Electrical System</u>			
105 °C	Max. ECU Temperature		
125 °C	Max. Harness Temperature		
NA	Max. VTG Actuator Surface Temp		
6 volts	Min. Voltage at ECU during Cranking- 12V		
10 volts	Min. Voltage at ECU during Cranking- 24V		
1100 amps	Recommended Battery Capacity- 12V		
750 amps	Recommended Battery Capacity- 24V		
920 amps	At 0 °C - 12V, Starter Rolling Current		
600 amps	At 0 °C - 24V, Starter Rolling Current		
1300 amps	At -30 °C - 12V, Starter Rolling Current		
700 amps	At -30 °C - 24V, Starter Rolling Current		
0.0012 Ohm	Max. Allowable Start Circuit Resistance- 12V		
0.002 Ohm	Max. Allowable Start Circuit Resistance- 24V		
	Maximum Voltage From Engine Crankshaft- 12V		
0.15 volts	Maximum Voltage From Engine Crankshaft- 24V		
0.15 volts			

Engine Installation Criteria

Cooling System

16 Liter	Engine Coolant Capacity
94 °C	Thermostat Fully Open
82 °C	Thermostat Start to Open
110 °C	Max. Top Tank Temperature Prime
110 °C	Max. Top Tank Temperature Standby
14 kPa	Max. Radiator System Restriction
12 L/min	Minimum Coolant Fill Rate
100 kPa	Min. Pressure Cap
30 kPa	Min. Pump Inlet Pressure
280 L/min	Coolant Flow
94 kW/min	Engine Heat Rejection Prime
104 kW/min	Engine Heat Rejection Standby
-30 kPa	Max. Water Pump Inlet Restriction
47 °C	Min. Air-to-Boil Temperature Prime
47 °C	Min. Air-to-Boil Temperature Standby

Exhaust System

7.0 N-m	Max. Bending Moment on Turbo Outlet
11 kg	Max. Shear on Turbo Outlet
7.5 kPa	Maximum Allowable Exhaust Restriction
NA	Minimum Allowable Exhaust Restriction
58.5 m ³	Exhaust Flow Prime
59.0 m ³	Exhaust Flow Standby
638 °C	Exhaust Temperature Prime
638 °C	Exhaust Temperature Standby

Fuel System

L14 Controller	ECU Description
Denso HP4	Fuel Injection Pump
Electronic	Governor Type
20 kPa	Max. Fuel Inlet Pressure
20 kPa	Max. Fuel Inlet Restriction
80 °C	Max. Fuel Inlet Temperature
20 kPa	Max. Fuel Return Pressure
59.3 kg/hr	Fuel Consumption Prime
63.2 kg/hr	Fuel Consumption Standby
37 °C	Fuel Temperature Rise, Inlet to Return Prime
37 °C	Fuel Temperature Rise, Inlet to Return Standby
204 kg/hr	Total Fuel Flow Prime
204 kg/hr	Total Fuel Flow Standby

Lubrication System

0.5 kPa	Max. Crankcase Pressure
40 L/min	Max. Airflow in Blow-By
3 g/hr	Max. Oil Carryover in Blow-By
190 kPa	Oil Pressure at Low Idle
260 kPa	Oil Pressure at Rated Speed

Air Intake System

8 °C	Maximum Allowable Temp Rise--Ambient Air to Engine Inlet
25.5 m ³	Engine Air Flow Prime
25.5 m ³	Engine Air Flow Standby
99.9 %	Air Cleaner Efficiency
3.75 kPa	Clean Air Cleaner, Maximum Air Intake Restriction
6.25 kPa	Dirty Air Cleaner, Maximum Air Intake Restriction

Engine Installation Criteria

Performance Data

29.0:1	Prime, Air:Fuel Ratio
27.0:1	Standby, Air:Fuel Ratio
0.5	Smoke @ Rated Speed Prime
0.3	Smoke @ Rated Speed Standby
1677 m	Altitude Capability Prime
1677 m	Altitude Capability Standby
24 kW	Friction Power @ Rated Speed
1000 rpm	Low Idle Speed
91.1 dBa	Noise @ 1 m Prime
91.3 dBa	Noise @ 1 m Standby
284 kW	Rated Power Prime
315 kW	Rated Power- Standby
1800 rpm	Rated Speed
1671 N·m	Rated Torque Standby
1504 N·m	Rated Torque Prime
2333 kPa	Standby BMEP
2100 kPa	Prime BMEP
59.3 kg/hr	100%Power Prime
18.8 kg/hr	25%Power Prime
36.3 kg/hr	50%Power Prime
51.2 kg/hr	75%Power Prime
63.2 kg/hr	100%Power Standby
20.0 kg/hr	25%Power Standby
38.7 kg/hr	50%Power Standby
54.6 kg/hr	75%Power Standby