



JOHN DEERE

ENGINE PERFORMANCE CURVE

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

PowerTech™ E 9.0L Engine
 Model: **6090HF484**

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

[See Option Code Tables]

| Nominal Engine Power @ 1800 RPM | | | |
|---------------------------------|-----|---------|-----|
| Prime | | Standby | |
| HP | kW | HP | kW |
| 380 | 284 | 422 | 315 |

| Generator Efficiency % | Fan Power (6% of Standby) | | Power Factor | Prime Rating | | Standby Rating ¹ | | ISO 8528 G2 Block Load Capability |
|------------------------|---------------------------|------|--------------|--------------|---------|-----------------------------|---------|-----------------------------------|
| | hp | kW | | kW | kVA | kW | kVA | |
| 90-94 | 25.3 | 18.9 | 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:

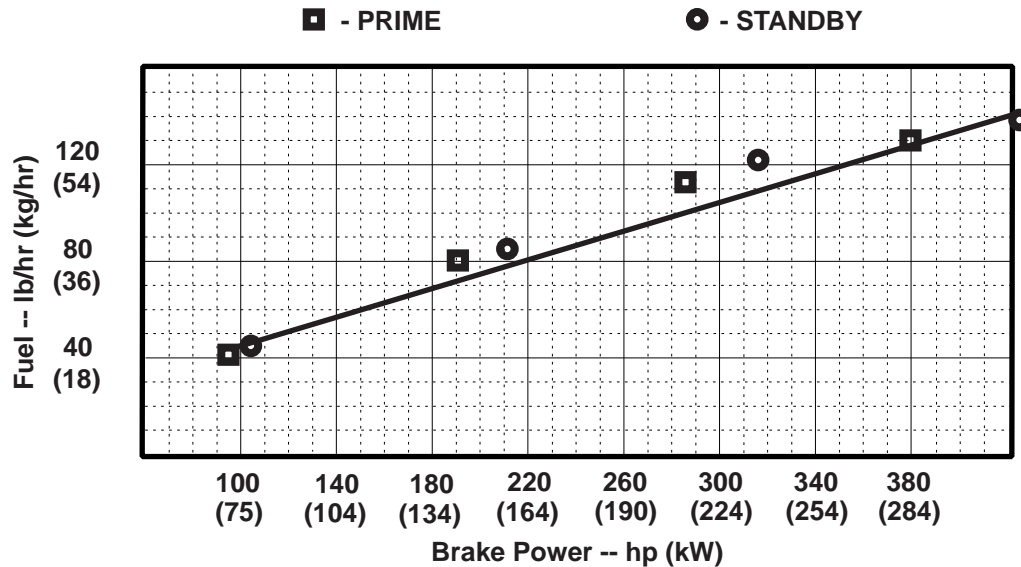
- Power: kW = hp x 0.746
- Fuel: 1 gal = 7.1 lb, 1 L = 0.85 kg
- Torque: N•m = lb-ft x 1.356

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-3 Emission Certifications: | Certified by: |
| CARB; EPA | <i>Vincenzo Pender</i> |
| Ref: Engine Emission Label | 02-25-'08 |

* Revised Data
 Curve 6090HF4841800422 Sheet 1 of 2
 February 2008

General Data

Model 6090HF484
Number of Cylinders 6
Bore and Stroke--in. (mm).... 4.661 x 5.354 (118.4 x 136.0)
Displacement--in.³ (L) 549 (9)
Compression Ratio 16.0 : 1
Valves per Cylinder--Intake/Exhaust 2 / 2
Firing Order 1-5-3-6-2-4
Combustion System HPCR
Engine Type In-line, 4-Cycle
Aspiration Turbocharged
Charge Air Cooling System Air-to-Air
Engine Crankcase Vent System Open

Physical Data

Length--in. (mm) 47.6 (1208)
Width--in. (mm) 24.8 (630)
Height--in. (mm) 43.8 (1113)
Weight, dry--lb (kg)..... 1986 (901)
(Includes flywheel hsg., flywheel & electrics)
Center of Gravity Location
From Rear Face of Block (X-axis)--in. (mm) 17.1 (434.4)
Right of Crankshaft (Y-axis)--in. (mm) 0.1 (2.24)
Above Crankshaft (Z-axis)--in. (mm) 7.9 (201.4)
Max. Allow. Static Bending Moment at Rear
Face of Flywhl Hsg w/ 5-G Load--lb-ft (N•m) 600.4 (814)
Thrust Bearing Load Limit --lb (N) Forward Rearward
Intermittent..... 2923 (13000) ... 1349 (6000)
Continuous 1933 (8600) ... 899 (4000)
Max. Front of Crank. Torsional Vibration--DDA..... 0.25
Max. Continuous Damper Temp--°F (°C) 180 (82)

Electrical System

12 Volt **24 Volt**

Min. Battery Capacity (CCA)--amp..... 1100 750
Max. Allow. Start. Circ't Resist.--Ohm.. 0.0012 0.002
Starter Rolling Current:
At 32 °F (0 °C)--amp 920 600
At -22 °F (-30 °C)--amp 1300 700
Min. Volts at ECU while Cranking--volts..... 6 10
Max. ECU Temperature--°F (°C) 221 (105)
Max. VTG Actuator Surface Temp.--°F (°C) NA
Max. Harness Temperature--°F (°C) 257 (125)
Maximum Voltage From Engine Crankshaft/
Generator Shaft to Ground--VAC 0.15 0.15

Air System

Prime **Standby**

Max. Allowable Temp Rise--Ambient Air to
Engine Inlet--°F (°C)..... 15 (8)
Maximum Air Intake Restriction
Dirty Air Cleaner--in.H₂O (kPa)..... 25 (6.25)
Clean Air Cleaner--in.H₂O (kPa) 15 (3.75)
Engine Air Flow--ft³/min (m³/min) 901(25.5) ... 901(25.5)
Air Cleaner Efficiency--% 99.9

Engine Installation Criteria

Charge Air Cooling System

Prime **Standby**

Air/Air Exchanger Heat Rejection--
BTU/min (kW) 4924(86.5) . 5009(88.0)
Compress. Dischrg. Temp.(Rated)
@ 77 °F (25°C) Amb. Air--°F (°C) . 433(223) 437(225)
Compress. Dischrg. Temp.(Max.)
@ 47°C amb. and
80 kPa bar.--°F (°C) 491(255) 496(258)
Press. Drop, thru CAC--in.H₂O (kPa)
Max. 52 (13)
Min. NA
Intake Manifold Pressure--psi (kPa) 37(252) 37(256)
CAC Out Temp @ 77°F (25°C) Amb.--°F (°C)
Max. 113 (45)
Min. NA
CAC Out Temp @ any Ambient--°F (°C)
Max. 190 (88)

Cooling System

Prime **Standby**

Engine Heat Reject.--BTU/min (kW).... 5350(94) 5920(104)
Coolant Flow--gal/min (L/min)..... 74* (280*)
Thermostat Start to Open--°F (°C) 180 (82)
Thermostat Fully Open--°F (°C)..... 201 (94)
Engine Coolant Capacity--qt (L) 17 (16)
Min. Pressure Cap--psi (kPa) 14.5 (100)
Max. Top Tank Temp--°F (°C) 230 (110)
Min. Coolant Fill Rate--gal/min (L/min) 3 (12)
Min. Air-to-Boil Temperature--°F (°C) 117 (47)
Min. Pump Inlet Pressure--psi (kPa)..... 4.4 (30)
Max. Rad. Syst. Restrict.--in. H₂O (kPa) 56 (14)

Exhaust System

Prime **Standby**

Exhaust Flow--ft³/min (m³/min).... 2066(58.5) ... 2084(59.0)
Exhaust Temperature--°F (°C) 1180 (638) ... 1180 (638)
Max. Exhaust Restriction---in. H₂O (kPa) 30 (7.5)
Min. Exhaust Restriction---in. H₂O (kPa) NA
Max. Bend. Moment, Turbo Out.--lb-ft (N•m) 5.2 (7.0)
Max. Shear on Turbo Outlet--lb (kg) 24 (11)

Fuel System

Prime **Standby**

ECU Description L14 Controller
Fuel Injection Pump Denso HP4
Governor Type Electronic
Total Fuel Flow--lb/hr (kg/hr)..... 450 (204)
Fuel Consumption--lb/hr (kg/hr) ... 130.7(59.3) .. 139.3(63.2)
Max. Fuel Inlet Temp.--°F (°C) 176 (80)
Fuel Temp. Rise, Inlt to Retr--°F (°C) 66.4 (37) ... 66.6 (37)
Max. Fuel Inlet Restriction--in. H₂O (kPa) 80 (20)
Max. Fuel Inlet Pressure--in. H₂O (kPa) 80 (20)
Max. Fuel Return Pressure--in. H₂O (kPa) 80 (20)

Lubrication System

Prime **Standby**

Oil Press. at Rated Speed--psi (kPa)..... 38 (260)
Oil Pressure at Low Idle--psi (kPa) 28 (190)
Max. Oil Carryover in Blow-by--lb/hr (g/hr) 0.007 (3)
Max. Airflow in Blow-by--gal/min (l/min)..... 11 (40)
Max. Crankcase Pressure--in. H₂O (kPa)..... 2 (0.5)

Performance Data

Prime **Standby**

Rated Power--hp (kW) 380 (284)..... 422 (315)
Rated Speed--rpm 1800
Low Idle Speed--rpm 1000
Rated Torque--lb-ft (N•m)..... 2039 (1504) .. 2266 (1671)
BMEP--psi (kPa) 305 (2100) ... 338 (2333)
Friction Power @ Rated Speed--hp (kW) 32 (24)
Altitude Capability--ft (m) 5502 (1677)
Ratio--Air : Fuel..... 29.0 : 1 27.0 : 1
Smoke @ Rated Speed--Bosch No. 0.5 0.3
Noise--dB(A) @ 1 m 91.1 91.3

Fuel Consumption -- lb/hr (kg/h)

Prime **Standby**

25 % Power 41.4 (18.8) 44.1 (20.0)
50 % Power 80.1 (36.3) 85.3 (38.7)
75 % Power 112.9 (51.2) 120.4 (54.6)
100 % Power 130.7 (59.3) 139.3 (63.2)

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

* Revised Data
Curve 6090HF4841800422..... Sheet 2 of 2
February 2008