



JOHN DEERE

**ENGINE PERFORMANCE CURVE**

Rating: Gross Power  
 Application: Generator (60 Hz)  
 Target: 225 kWe Standby Market

**PowerTech Plus™ 9.0L Engine**  
 Model: **6090HF485**

**315 hp (235 kW) Prime**  
**346 hp (258 kW) Standby**

[See Option Code Tables]

Nominal Engine Power @ 1800 RPM			
Prime		Standby	
HP	kW	HP	kW
315	235	346	258

Generator Efficiency %	Fan Power (6% of Standby)		Power Factor	Prime Rating		Standby Rating <sup>1</sup>		ISO 8528 G2 Block Load Capability
	hp	kW		kW	kVA	kW	kVA	
90-94	20.7	15.48	0.8	197-206	247-258	218-228	273-285	90%

Note 1: Based on nominal engine power.

**STANDARD CONDITIONS**

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:

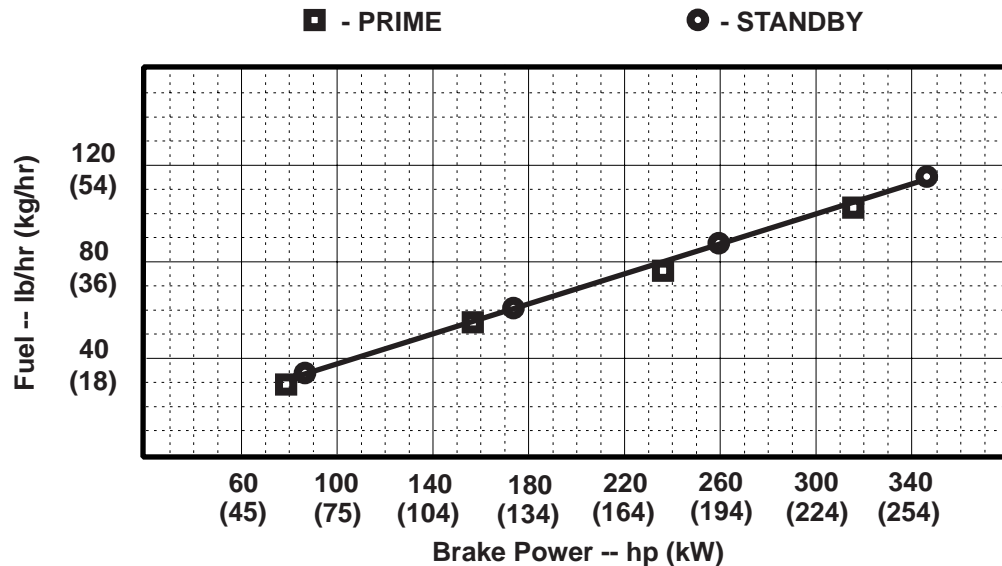
- Power: kW = hp x 0.746
- Fuel: 1 gal = 7.1 lb, 1 L = 0.85 kg
- Torque: N•m = lb-ft x 1.356

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

Notes:

*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:
<b>CARB; EPA</b>	<i>Brian L. Carlson</i>
Ref: Engine Emission Label	<b>20 FEB 06</b>

\* Revised Data  
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 February 2006

## Engine Installation Criteria

### General Data

Model ..... 6090HF485  
 Number of Cylinders ..... 6  
 Bore and Stroke--in. (mm).... 4.661 x 5.354 (118.4 x 136.0)  
 Displacement--in.<sup>3</sup> (L) ..... 548 (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) ... 356 (180)  
 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.H<sub>2</sub>O (kPa) ..... 25 (6.25)  
     Clean Air Cleaner--in.H<sub>2</sub>O (kPa) ..... 15 (3.75)  
 Engine Air Flow--ft<sup>3</sup>/min (m<sup>3</sup>/min) .... 691 (19.6) .. 735 (20.8)  
 Air Cleaner Efficiency--% ..... 99.9

### Charge Air Cooling System

**Prime    Standby**

Air/Air Exchanger Heat Rejection--  
 BTU/min (kW) ..... 3273(57.5) . 3634(64.9)  
 Compress. Dischrg. Temp.(Rated)  
     @ 77 °F (25°C) Amb. Air--°F (°C) 398(203.6) ... 424(217.5)  
 Compress. Dischrg. Temp.(Max.)  
     @ 47°C amb. and  
     80 kPa bar.--°F (°C) ..... 500(260) .... 500(260)  
 Press. Drop, thru CAC--in.H<sub>2</sub>O (kPa)  
     Max. .... 64 (16)  
     Min. .... 32 (8)  
 Intake Manifold Pressure--psi (kPa) 33 (224.75) .... 35 (244.2)  
 CAC Out Temp @ 77°F (25°C) Amb.--°F (°C)  
     Max. .... 127 (53)  
     Min. .... 117 (47)  
 CAC Out Temp @ any Ambient--°F (°C)  
     Max. .... 190 (88)

### Cooling System

**Prime    Standby**

Engine Heat Reject.--BTU/min (kW) 5977(105) ... 6318(111)  
 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)

### Exhaust System

**Prime    Standby**

Exhaust Flow--ft<sup>3</sup>/min (m<sup>3</sup>/min)..... 1465 (41) ... 1600 (45)  
 Exhaust Temperature--°F (°C) ..... 714 (379) ... 758 (403)  
 Max. Exhaust Restriction----in. H<sub>2</sub>O (kPa) ..... 40 (10)  
 Min. Exhaust Restriction----in. H<sub>2</sub>O (kPa) ..... 16 (4)  
 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) ..... 450 (204)  
 Fuel Consumption--lb/hr (kg/hr) ..... 103 (46.8) .... 115 (52.2)  
 Max. Fuel Inlet Temp.--°F (°C) ..... 176 (80)  
 Fuel Temp. Rise, Inlt to Retr--°F (°C) 96.48(54) . 109.8(61)  
 Max. Fuel Inlet Restriction--in. H<sub>2</sub>O (kPa) ..... 80 (20)  
 Max. Fuel Inlet Pressure--in. H<sub>2</sub>O (kPa) ..... 80 (20)  
 Max. Fuel Return Pressure--in. H<sub>2</sub>O (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) ..... 40 (150)  
 Max. Crankcase Pressure--in. H<sub>2</sub>O (kPa) ..... 2 (0.5)

### Performance Data

**Prime    Standby**

Rated Power--hp (kW) ..... 315 (235) ..... 346 (258)  
 Rated Speed--rpm ..... 1800 ..... 1800  
 Low Idle Speed--rpm ..... 1150 ..... 1150  
 Rated Torque--lb-ft (N•m) ..... 1689 (1246) .. 1856 (1369)  
 BMEP--psi (kPa) ..... 252 (1739) ... 277 (1911)  
 Friction Power @ Rated Speed--hp (kW) 32 (24) ..... 32 (24)  
 Altitude Capability--ft (m) ..... 10,000 (3000)  
 Ratio--Air : Fuel ..... 28 : 1 ..... 26 : 1  
 Smoke @ Rated Speed--Bosch No. .... 0.22 ..... 0.2  
 Noise--dB(A) @ 1 m ..... 90.7\* ..... 91.0\*

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

**Prime    Standby**

25 % Power ..... 29.62 (13.4) .... 33.95 (15.4)  
 50 % Power ..... 54.54 (24.7) .... 60.85 (27.6)  
 75 % Power ..... 78.33 (35.5) .... 87.96 (39.9)  
 100 % Power ..... 103.26 (46.8) .. 115.52 (52.4)

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

\* Revised Data

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February 2006