



JOHN DEERE

ENGINE PERFORMANCE CURVE

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

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

384 hp (287 kW) Prime
422 hp (315 kW) Standby

[See Option Code Tables]

Nominal Engine Power @ 1800 RPM			
Prime		Standby	
HP	kW	HP	kW
384	287	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	241-252	302-315	266-278	333-348	72%

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:

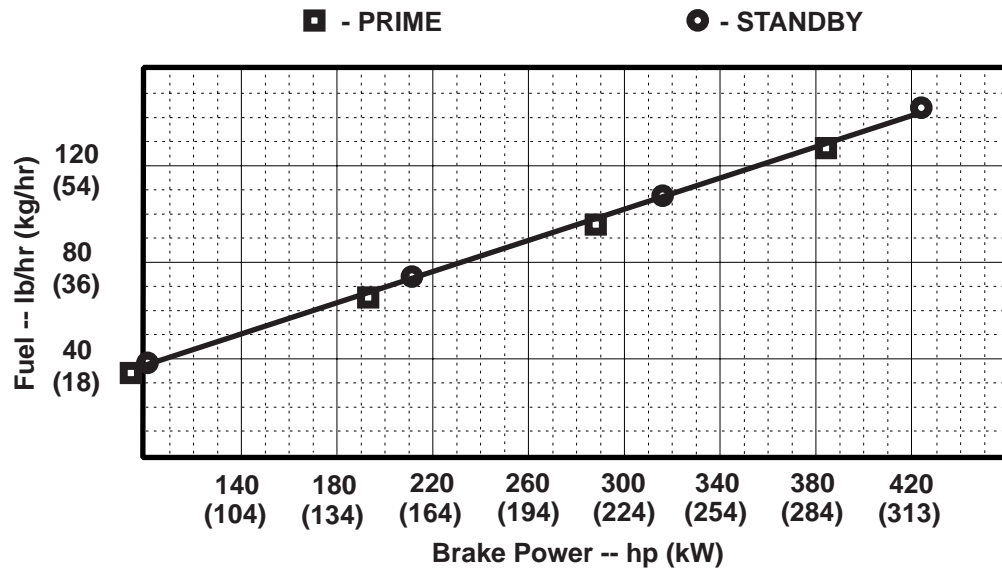
- Power: kW = hp x 0.746
- Fuel: 1 gal = 7.1 lb, 1 L = 0.85 kg
- Torque: N•m = lb-ft x 1.356

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>Brian L. Carlson</i>
Ref: Engine Emission Label	<i>20 FEB 06</i>

* Revised Data
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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.³ (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.H₂O (kPa) 25 (6.25)
 Clean Air Cleaner--in.H₂O (kPa) 15 (3.75)
 Engine Air Flow--ft³/min (m³/min) 778 (22.0) .. 802 (22.7)
 Air Cleaner Efficiency--% 99.9

Charge Air Cooling System

Prime **Standby**

Air/Air Exchanger Heat Rejection--
 BTU/min (kW) 4229(74.3) . 4309(75.7)
 Compress. Dischrg. Temp.(Rated)
 @ 77 °F (25°C) Amb. Air--°F (°C) 446(229.8) ... 447(230.7)
 Compress. Dischrg. Temp.(Max.)
 @ 47°C amb. and
 80 kPa bar.--°F (°C) 500(260) 500(260)
 Press. Drop, thru CAC--in.H₂O (kPa)
 Max. 64 (16)
 Min. 32 (8)
 Intake Manifold Pressure--psi (kPa) . 38(260.72) 38(261.3)
 CAC Out Temp @ 77°F (25°C) Amb.--°F (°C)
 Max. 127 (53)
 Min. 119 (48.5)
 CAC Out Temp @ any Ambient--°F (°C)
 Max. 190 (88)

Cooling System

Prime **Standby**

Engine Heat Reject.--BTU/min (kW) .. 6887(121) 7001(123)
 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--ft³/min (m³/min)..... 1769 (50) ... 1930 (55)
 Exhaust Temperature--°F (°C) 795 (424) ... 882 (472)
 Max. Exhaust Restriction----in. H₂O (kPa) 40 (10)
 Min. Exhaust Restriction----in. H₂O (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) 127 (57.7) 141 (63.9)
 Max. Fuel Inlet Temp.--°F (°C) 176 (80)
 Fuel Temp. Rise, Inlt to Retr--°F (°C) 105.3(59) .. 109.44 (61)
 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) 40 (150)
 Max. Crankcase Pressure--in. H₂O (kPa) 2 (0.5)

Performance Data

Prime **Standby**

Rated Power--hp (kW) 384 (287) 422 (315)
 Rated Speed--rpm 1800 1800
 Low Idle Speed--rpm 1150 1150
 Rated Torque--lb-ft (N•m) 2062 (1521) .. 2266 (1671)
 BMEP--psi (kPa) 308 (2123) 338 (2333)
 Friction Power @ Rated Speed--hp (kW) 32 (24)
 Altitude Capability--ft (m) 10,000 (3000)
 Ratio--Air : Fuel 25 : 1 23 : 1
 Smoke @ Rated Speed--Bosch No. 0.16 0.12
 Noise--dB(A) @ 1 m 91.1 91.3*

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

Prime **Standby**

25 % Power 34.70 (15.7) 39.46 (17.9)
 50 % Power 65.60 (29.8) 74.30 (33.7)
 75 % Power 96.07 (43.6) .. 108.69 (49.3)
 100 % Power 127.10 (57.7) .. 143.96 (65.3)

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

* Revised Data

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