



## ENGINE PERFORMANCE CURVE

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

**POWERTECH 8.1L Engine**  
 Model: **6081HF001**

**353 hp (263 kW) Prime**  
**413 hp (308 kW) Standby**

[Option 1681/1682/1683/1685/1687]\*

Nominal Engine Power @ 1800 RPM			
Prime		Standby	
HP	kW	HP	kW
353	263	413	308

Generator Efficiency %	Fan Power		Power Factor	Prime Rating		Standby Rating <sup>1</sup>		4 sec Standby Block Load Capability
	hp	kW		kW	kVA	kW	kVA	
88-92	20.5	15.3	0.8	218-228	273-285	258-269	322-336	95%

Note 1: Based on nominal engine power. Derate 5% for 100% block load capability.\*

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)

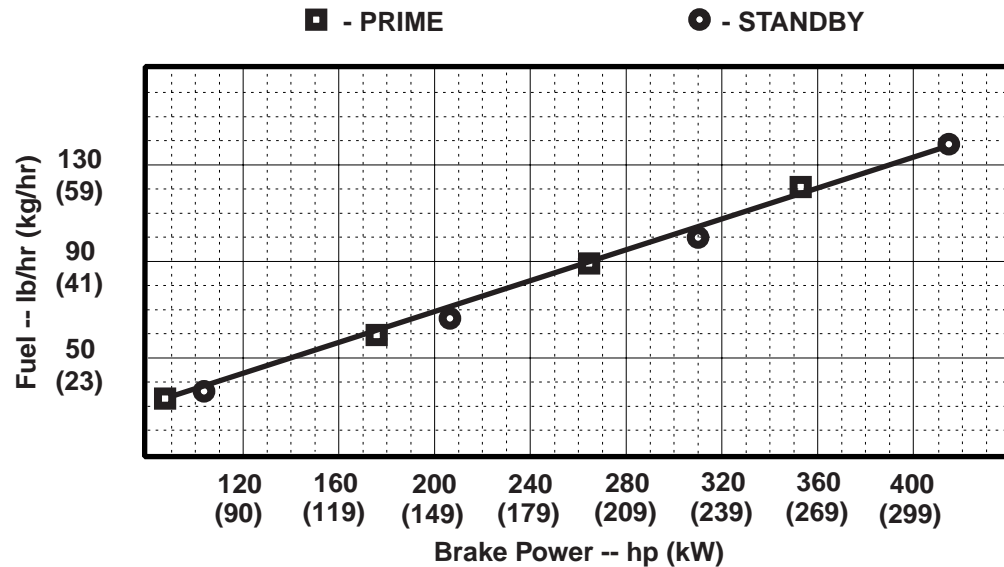
Gross power guaranteed within + or - 5% at SAE J1995 and ISO 3046 conditions:

- 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:

Emission Certifications:

Certified by:

CARB; EPA

Ref: Engine Emission Label

*Kevin J Bailey*  
 24 Nov '99

\* Revised Data

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 November 1999

## Engine Specification Data

### General Data

Model ..... 6081HF001  
 Number of Cylinders ..... 6  
 Bore and Stroke--in. (mm) ..... 4.56 x 5.06 (116 x 129)  
 Displacement--in.<sup>3</sup> (L) ..... 496 (8.1)  
 Compression Ratio ..... 15.7:1  
 Valves per Cylinder--Intake/Exhaust ..... 1/1  
 Firing Order ..... 1-5-3-6-2-4  
 Combustion System ..... Direct Injection  
 Engine Type ..... In-line 4-Cycle  
 Aspiration ..... Turbocharged  
 Charge Air Cooling System ..... Air-to-Air  
 Engine Crankcase Vent System ..... Open  
 Maximum Crankcase Pressure--in.H<sub>2</sub>O (kPa) ..... 2 (0.5)

### Physical Data

Length--in. (mm) ..... 47.6 (1210)  
 Width--in. (mm) ..... 23.5 (597)  
 Height--in. (mm) ..... 45.3 (1152)  
 Weight, dry--lb (kg) ..... 1710 (776)  
 (Includes flywheel housing, flywheel & electrics)  
 Center of Gravity Location  
     From Rear Face of Block (X-axis)--in. (mm) ..... 19.2 (482)  
     Right of Crankshaft (Y-axis)--in. (mm) ..... -0.3 (-8)  
     Above Crankshaft (Z-axis)--in. (mm) ..... 5.7 (145)  
 Max. Allow. Static Bending Moment at Rear  
     Face of Flywhl Hsg w/ 5-G Load--lb-ft (N•m) ..... 600 (814)  
 Thrust Bearing Load Limit (Forward)  
     Continuous--lb (N) ..... 1950 (8673)  
     Intermittent--lb (N) ..... 2925 (13010)

### Electrical System

Recommended Battery Capacity (CCA)  
     12 Volt System--am ..... 800  
     24 Volt System--am ..... 570  
 Maximum Allowable Starting Circuit Resistance  
     12 Volt System--Ohm ..... 0.0012  
     24 Volt System--Ohm ..... 0.002  
 Starter Rolling Current--12 Volt System  
     At 32 °F ( 0 °C)--amp ..... 950  
     At -22 °F (-30 °C)--a ..... 1300  
 Starter Rolling Current--24 Volt System  
     At 32 °F (0 °C)--amp ..... 600  
     At -22 °F (-30 °C)--amp ..... 700

### Air System

	<u>Prime</u>	<u>Standby</u>
Max. Allowable Temp Rise--Ambient Air to Engine Inlet--°F (°C) ..... 15 (8) ..... 15 (8)		
Maximum Air Intake Restriction Dirty Air Cleaner--in.H <sub>2</sub> O (kPa) ..... 25 (6.25) ..... 25 (6.25) Clean Air Cleaner--in.H <sub>2</sub> O (kPa) ..... 12 (3) ..... 12 (3)		
Engine Air Flow--ft <sup>3</sup> /min (m <sup>3</sup> /min) ..... 696 (19.7) .. 749 (21.2)		
Intake Manifold Press.--in.psi (kPa) . 35.2 (243) .. 39.9 (275)		
Rec'd. Intake Pipe Dia--in. (mm) ..... 4 (102) ..... 4 (102)		
Compressor Discharge Temp.-- °F (°C) ..... 390 (199) ... 399 (204)		
Maximum Pressure Drop Through Charge Air Cooler--in.H <sub>2</sub> O (kPa) ..... 52 (13) ..... 52 (13)		
Max. Temp. Out of Charge Air Cooler @ 77 °F (25 °C) Ambient--°F (°C) 140 (60) ..... 140 (60)		

### Exhaust System

	<u>Prime</u>	<u>Standby</u>
Exhaust Flow--ft <sup>3</sup> /min (m <sup>3</sup> /min) ..... 1808 (51.2) .. 2052(58.1)		
Exhaust Temperature--°F (°C) ..... 874 (468) ..... 957(514)		
Maximum Allowable Back Pressure--in.H <sub>2</sub> O (kPa) ..... 30 (7.5) ..... 30 (7.5)		
Recm'd Exhaust Pipe Dia--in. (mm) .. 4 (101.6) .... 4 (101.6)		

### Cooling System

	<u>Prime</u>	<u>Standby</u>
Engine Heat Reject.--BTU/min (kW) . 4791 (84) ... 5485 (96)		
Air/Air Exchanger Heat Rejection-- BTU/min (kW) ..... 2930 (51)* .. 3267 (57)*		
Coolant Flow--gal/min (L/min) ..... 71 (270) ..... 71 (270)		
Thermostat Start to Open--°F (°C) ..... 180 (82) ..... 180 (82)		
Thermostat Fully Open--°F (°C) ..... 202 (94) ..... 202 (94)		
Maximum Water Pump Inlet Restrict.--in.H <sub>2</sub> O (kPa) ..... 27 (7) ..... 27 (7)		
Engine Coolant Capacity--qt (L) ..... 15 (14) ..... 15 (14)		
Recm'd Pressure Cap--psi (kPa) ..... 10 (69) ..... 10 (69)		
Max. Top Tank Temp--°F (°C) ..... 221 (105) ... 221 (105)		
Min. Coolant Fill Rate--gal/min (L/min) ... 3 (11) ..... 3 (11)		
Min. Air-to-Boil Temperature--°F (°C) . 117 (47) ..... 117 (47)		

### Fuel System

	<u>Prime</u>	<u>Standby</u>
Fuel Injection Pump ..... RB P7100 ..... RB P7100		
Governor Regulation ..... 5 % ..... 5 %		
Governor Type ..... Mechanical .... Mechanical		
Fuel Consumption--lb/hr (kg/hr) 121.2 (55.1) ... 138.8 (63.1)		
Fuel Spill Rate--lb/hr (kg/hr) .... 364.6(165.6) ..... 354(160.8)		
(Total Fuel Flow--lb/hr (kg/hr) ..... 460 (209) ..... 460 (209)		
Maximum Fuel Transfer Pump Suction-- ft (m) fuel ..... 10* (3.0)* ..... 10* (3.0)*		
Fuel Filter Micron Size @ 98 % Efficiency . 8 ..... 8		

### Lubrication System

	<u>Prime</u>	<u>Standby</u>
Oil Press. at Rated Speed--psi (kPa) . 40 (275) ..... 40 (275)		
Oil Pressure at Low Idle--psi (kPa) .... 30 (210) ..... 30 (210)		
In Pan Oil Temperature--°F (°C) ..... 240 (115) ..... 240 (115)		
Oil Pan Capacity, High--qt (L) ..... 32.75 (31) ... 32.75 (31)		
Oil Pan Capacity, Low--qt (L) ..... 31.75 (30) ... 31.75 (30)		
Eng. Oil Capacity with Filters--qt (L) 33.75 (32) ... 33.75 (32)		
Engine Angularity Limits (Continuous) Any Direction--degrees ..... 20 ..... 20		

### Performance Data

	<u>Prime</u>	<u>Standby</u>
Rated Power--hp (kW) ..... 353 (263) ..... 413 (308)		
Rated Speed--rpm ..... 1800 ..... 1800		
Low Idle Speed--rpm ..... 850 ..... 850		
BMEP--psi (kPa) ..... 314 (2167) ... 368 (2538)		
Friction Power @ Rated Speed--hp (kW) ..... 28 (21) ..... 28 (21)		
Altitude Capability --ft (m) ..... 7500 (2300) ... 5000 (1500)*		
Ratio--Air : Fuel ..... 26.1:1 ..... 24.5:1		
Noise--dB(A) @ 1 m ..... NA ..... NA		

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

	<u>Prime</u>	<u>Standby</u>
25 % Power ..... 33.2 (15.1) ... 36.1 (16.4)		
50 % Power ..... 59.8 (27.2) ... 66.9 (30.4)		
75 % Power ..... 89.5 (40.7) ... 99.4 (45.2)		
100 % Power ..... 121.2 (55.1) . 138.8 (63.1)		

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

\* Revised Data  
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 November 1999