



JOHN DEERE

ENGINE PERFORMANCE CURVE

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

PowerTech E™ 3.0L Engine

Model: **5030HF285**

87 hp (65 kW) Prime

96 hp (72 kW) Standby

| Nominal Engine Power @ 1800 RPM | | | |
|---------------------------------|----|---------|----|
| Prime | | Standby | |
| HP | kW | HP | kW |
| 87 | 65 | 96 | 72 |

| Generator Efficiency ¹ % | Fan Power | | Power Factor | Prime Rating | | Standby Rating ² | | ISO 8528 G2 Block Load Capability ³ |
|--|-----------|-----|--------------|--------------|-------|-----------------------------|-------|--|
| | hp | kW | | kW | kVA | kW | kVA | |
| 88-92 | 4.8 | 3.6 | 0.8 | 54-56 | 68-70 | 60-63 | 75-79 | NA |

Note 1: Est. min. generator efficiency, with 5% fan power loss, to achieve Prime kVA (1500 rpm) / Standby kWe (1800 rpm).
 Note 2: Based on nominal engine power.
 Note 3: Results may vary by alternator and voltage regulator selection.

Air Intake Restriction 12 in.H₂O (3 kPa)
 Exhaust Back Pressure 30 in.H₂O (7.5 kPa)

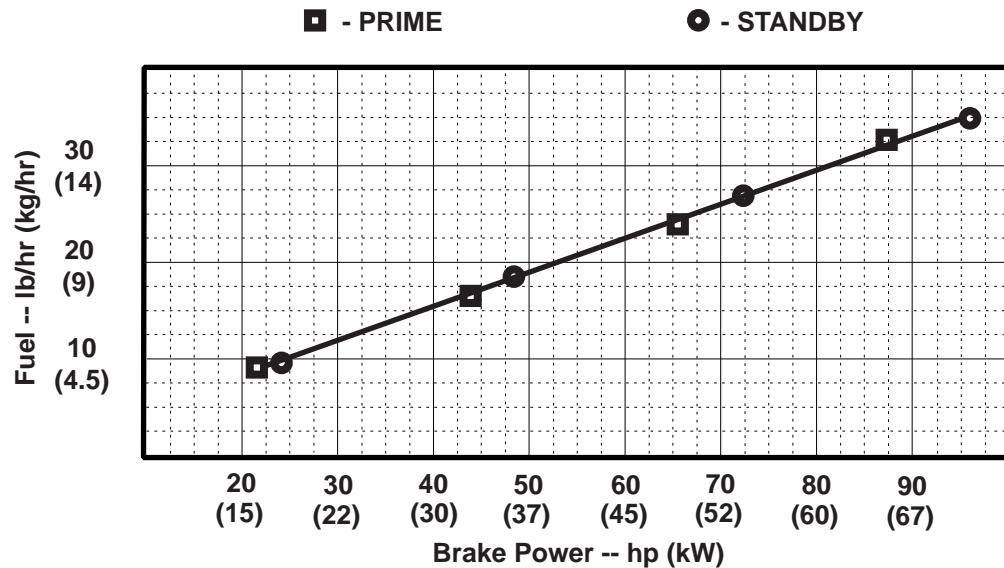
Gross power guaranteed within + or - 5% at SAE J1995 and ISO 3046 conditions:

- 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

Ref: Engine Emission Label

Vincent P. ...
 11-28-2007

* Revised Data

Curve 5030HF285180096 Sheet 1 of 2
 November 2007

Engine Installation Criteria

General Data

| | |
|---|----------------------|
| Model | 5030HF285 |
| Number of Cylinders | 5 |
| Bore and Stroke--in.(mm)..... | 3.4 x 4.1 (86 x 105) |
| Displacement--in. ³ (L) | 186 (3.05) |
| Compression Ratio | 18.2 : 1 |
| Valves per Cylinder--Intake/Exhaust | 1 / 1 |
| Firing Order | 1-2-4-5-3 |
| Combustion System | Direct Injection |
| 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) | 31.5 (799) |
| Width--in.(mm) | 22.3 (566) |
| Height--in.(mm) | 31.5 (800) |
| Weight, dry--lb (kg)..... | 633(287) |
| (Includes flywheel housing, flywheel & electrics) | |
| Center of Gravity Location | |
| From Rear Face of Block (X-axis)--in.(mm) | 9.5 (241) |
| Right of Crankshaft (Y-axis)--in.(mm) | 0.5 (12) |
| Above Crankshaft (Z-axis)--in.(mm) | 4.9 (124) |
| Max. Allow. Static Bending Moment at Rear | |
| Face of Flywhl Hsg w/ 5-G Load--lb-ft (N•m) | 369 (500) |
| Thrust Bearing Load Limit --lb (N) <u>Forward</u> <u>Rearward</u> | |
| Intermittent..... | 629 (2800) 180 (800) |
| Continuous | 1147 (5100) 337 (1500) |
| Max. Front of Crank. Torsional Vibration--DDA..... | 0.25 |
| Max. Cont. Damper Temp--°F (°C) | 180 (82) |

Electrical System

12 Volt 24 Volt

| | | |
|--|--------------|-------|
| Rec'md. Battery Capacity (CCA)--amp | 750 | 500 |
| Max. Allow. Starting Circuit Resist.--Ohm .. | 0.0012 | 0.002 |
| Starter Rolling Current | | |
| At 32 °F (0 °C)--amp | 290 | 310 |
| At -22 °F (-30 °C)--amp | 370 | 340 |
| Min. Volts at ECU while Cranking--volts..... | 6 | 10 |
| Max. ECU Temp.--°F (°C) | 221 (105) | |
| Max. Harness Temp.--°F (°C)..... | 257 (125) | |

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 ₂ O (kPa) | 25 (6.25) | |
| Clean Air Cleaner--in.H ₂ O (kPa) | 12 (3) | |
| Engine Air Flow--ft ³ /min (m ³ /min) | 179 (5.1) | 186 (5.3) |
| Air Cleaner Efficiency--% | 99.9 | |

Charge Air Cooling System

Prime Standby

| | | |
|--|------------------|------------|
| Air/Air Exchanger Heat Rejection-- | | |
| BTU/min (kW) | 598 (10.5) | 723 (12.7) |
| Compress. Dischrg. Temp.(Rated) | | |
| @ 77°F (25°C) Amb. Air--°F (°C)... | 333(167) | 351(177) |
| Compress. Dischrg. Temp.(Max.) | | |
| @ 47°C amb. and | | |
| 80 kPa bar.--°F (°C) | NA (NA) | NA (NA) |
| Press. Drop, thru CAC--in.H ₂ O (kPa) | | |
| Max. | 52 (13) | |
| Min. | 28 (7) | |
| Intake Manifold Pressure--psi (kPa) | 20(140) | 22(154) |
| CAC Out Temp @ 77°F (25°C) Amb.--°F (°C) | | |
| Max. | 140 (60) | |
| Min. | 118 (48) | |
| CAC Out Temp @ any Ambient--°F (°C) | | |
| Max. | 190 (88) | |

Cooling System

Prime Standby

| | | |
|---|------------|--|
| Engine Heat Reject.--BTU/min (kW). 2430(42.7) ... | 2590(45.5) | |
| Coolant Flow--gal/min (L/min)..... | 26 (100) | |
| Thermostat Start to Open--°F (°C) | 192 (89) | |
| Thermostat Fully Open--°F (°C)..... | 212 (100) | |
| Engine Coolant Capacity--qt (L) | 2.7 (2.6) | |
| Min. Pressure Cap--psi (kPa) | 14.9 (103) | |
| Max. Top Tank Temp--°F (°C) | 230 (110) | |
| Min. Coolant Fill Rate--gal/min (L/min) | 3 (9.5) | |
| 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 ³ /min (m ³ /min)..... | 459(13.0) ... | 484(13.7) |
| Exhaust Temperature--°F (°C) | 941(505) | 972(522) |
| Max. Exhaust Restriction---in. H ₂ O (kPa) | 30 (7.5) | |
| Min. Exhaust Restriction---in. H ₂ 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 | L18 Controller | |
| Fuel Injection Pump | Denso HP3 | |
| Governor Type | Electronic | |
| Total Fuel Flow--lb/hr (kg/hr)..... | 154 (70.0) | |
| Fuel Consumption--lb/hr (kg/hr)..... | 33 (15) | 35 (16) |
| Max. Fuel Inlet Temp.--°F (°C) | 176 (80) | |
| Fuel Temp. Rise, Inlt to Retrn--°F (°C) | 54(30) | |
| Max. Fuel Inlet Restriction--in. H ₂ O (kPa) | 120 (30) | |
| Max. Fuel Inlet Pressure--in. H ₂ O (kPa) | 96 (24) | |
| Max. Fuel Return Pressure--in. H ₂ O (kPa) | 140 (35) | |

Lubrication System

Prime Standby

| | | |
|--|-------------|--|
| Oil Press. at Rated Speed--psi (kPa)..... | 41 (280) | |
| Min. Oil Pressure--psi (kPa)..... | 36 (250) | |
| Max. Oil Carryover in Blow-by--lb/hr (g/hr) | 0.002 (1.0) | |
| Max. Airflow in Blow-by--gal/min (l/min)..... | 12 (45) | |
| Max. Crankcase Pressure--in. H ₂ O (kPa)..... | 2 (0.5) | |

Performance Data

Prime Standby

| | | |
|-------------------------------------|-----------------|------------|
| Rated Power--hp (kW) | 87 (65)..... | 96 (72) |
| Rated Speed--rpm | 1800 | |
| Low Idle Speed--rpm | 1150 | |
| BMEP--psi (kPa) | 211 (1455)..... | 226 (1557) |
| Friction Power | | |
| @ Rated Speed--hp (kW) | 12 (9) | |
| Altitude Capability--ft (m) | 10,000 (3050) | |
| Ratio--Air : Fuel..... | 22.7 : 1 | 21.3 : 1 |
| Smoke @ Rated Speed--Bosch No. | 1.96..... | 2.42 |
| Noise--dB(A) @ 1 m | 84.7..... | 86.0 |

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

Prime Standby

| | | |
|-------------------|-------------------|-------------|
| 25 % Power | 9.0 (4.1) | 9.5 (4.3) |
| 50 % Power | 16.3 (7.4) | 18.0 (8.2) |
| 75 % Power | 24.1 (10.9) | 26.7 (12.1) |
| 100 % Power | 32.6 (14.8) | 35.4 (16.0) |

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

* Revised Data
Curve 5030HF285180096..... Sheet 2 of 2
November 2007