



JOHN DEERE

ENGINE PERFORMANCE CURVE

Rating: Gross Power
 Application: Generator (60 Hz)
 Target: 125 kWe Standby Market

PowerTech E™ 4.5L Engine
 Model: **4045HF285**

179 hp (134 kW) Prime
197 hp (147 kW) Standby

[See Option Code Tables]

| Nominal Engine Power @ 1800 RPM | | | |
|---------------------------------|-----|---------|-----|
| Prime | | Standby | |
| HP | kW | HP | kW |
| 179 | 134 | 197 | 147 |

| Generator Efficiency % | Fan Power (6% of Standby) | | Power Factor | Prime Rating ² | | Standby Rating _{1,2} | | ISO 8528 G2 Block Load Capability |
|------------------------|---------------------------|-----|--------------|---------------------------|---------|-------------------------------|---------|-----------------------------------|
| | hp | kW | | kWe | kVA | kWe | kVA | |
| 88-92 | 8.7 | 6.5 | 0.8 | 112-117 | 140-146 | 124-129 | 155-161 | ___% |

Note 1: Based on nominal engine power.
 Note 2: kWe / kVA rating assumes 90% efficiency. "Generator Efficiency %" will vary.

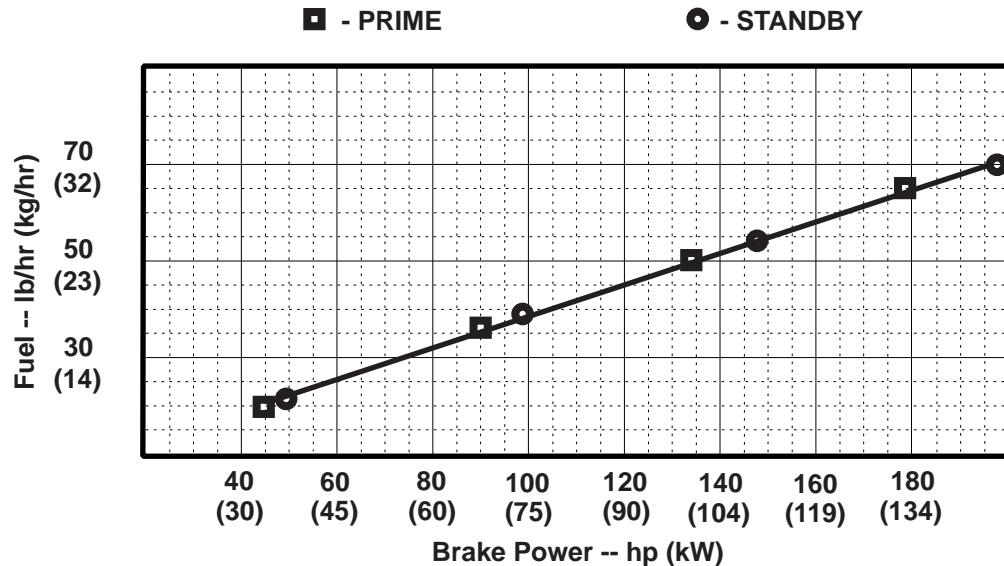
STANDARD CONDITIONS

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

Ref: Engine Emission Label

Advance Information

* Revised Data

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 May 2008

Engine Installation Criteria

General Data

Model 4045HF285
 Number of Cylinders 4
 Bore and Stroke--in. (mm)..... 4.19 x 5.00 (106 x 127)
 Displacement--in.³ (L) 275 (4.5)
 Compression Ratio 19.0:1
 Valves per Cylinder--Intake/Exhaust 1 / 1
 Firing Order 1-3-4-2
 Combustion System Unit 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) 33.9 (860)
 Width--in. (mm) 24.1 (612)
 Height--in. (mm) 40.9 (1039)
 Weight, with oil--lb (kg)..... 1083 (491)
 (Includes flywheel hsg., flywheel & electrics)
 Center of Gravity Location
 From Rear Face of Block (X-axis)--in. (mm) ... 9.8 (249)
 Right of Crankshaft (Y-axis)--in. (mm) 2.17 (55)
 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 --lb (N) Forward Rearward
 Intermittent..... 899 (4000) 450 (2000)
 Continuous 495 (2200) 225 (1000)
 Max. Front of Crank. Torsional Vibration--DDA 0.25

Electrical System

12 Volt 24 Volt

Min. Battery Capacity (CCA)--amp..... 800 570
 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. Harness Temperature--°F (°C) 248 (120)
 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) 311(8.8) ... 341(9.65)
 Air Cleaner Efficiency--% 99.9

Charge Air Cooling System

Prime Standby

Air/Air Exchanger Heat Rejection--
 BTU/min (kW) 1295(22.8) .. 1508 (26.5)
 Compress. Dischrg. Temp.(Rated)
 @ 77 °F (25°C) Amb. Air--°F (°C) . 334(168) 369(187)
 Compress. Dischrg. Temp.(Max.)
 @ 47°C amb. and
 80 kPa bar.--°F (°C) NA (NA) NA (NA)
 Press. Drop, thru CAC--in.H₂O (kPa)
 Max. 52 (13)
 Min. None
 Intake Manifold Pressure--psi (kPa) 21(147) 25(172)
 CAC Out Temp @ 77°F (25°C) Amb.--°F (°C)
 Max. 113 (45)
 Min. 104 (40)
 CAC Out Temp @ any Ambient--°F (°C)
 Max. 190 (88)

Cooling System

Prime Standby

Engine Heat Reject.--BTU/min (kW).... 3643(64) 4098(72)
 Coolant Flow--gal/min (L/min)..... 48(180)
 Thermostat Start to Open--°F (°C) 180 (82)
 Thermostat Fully Open--°F (°C)..... 203 (95)
 Engine Coolant Capacity--qt (L) 9 (8.5)
 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 (11)
 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)..... 869 (24.6) 953(27.0)
 Exhaust Temperature--°F (°C) 1062(572) . 1076 (580)
 Max. Exhaust Restriction---in. H₂O (kPa) 30 (7.5)
 Min. Exhaust Restriction---in. H₂O (kPa) None
 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 L16 Controller
 Fuel Injection Pump Denso HP3
 Governor Type Electronic
 Total Fuel Flow--lb/hr (kg/hr)..... 152 (68.9) ... 169 (76.6)
 Fuel Consumption--lb/hr (kg/hr) 63 (29.0) 70 (31.9)
 Max. Fuel Inlet Temp.--°F (°C) 176 (80)
 Fuel Temp. Rise, Inlt to Retr--°F (°C)84.6(47) 88.2(49)
 Max. Fuel Inlet Restriction--in. H₂O (kPa) 80 (20)
 Max. Fuel Inlet Pressure--in. H₂O (kPa) NA (NA)
 Max. Fuel Return Pressure--in. H₂O (kPa) 80 (20)

Lubrication System

Prime Standby

Oil Press. at Rated Speed--psi (kPa)..... 46 (320)
 Min. Oil Pressure--psi (kPa)..... 15 (105)
 Max. Oil Carryover in Blow-by--lb/hr (g/hr) 0.002 (1.0)
 Max. Airflow in Blow-by--gal/min (l/min)..... 26 (100)
 Max. Crankcase Pressure--in. H₂O (kPa)..... 2 (0.5)

Performance Data

Prime Standby

Rated Power--hp (kW) 179 (134)..... 197 (147)
 Rated Speed--rpm 1800 1800
 Low Idle Speed--rpm 1150 1150
 Rated Torque--lb-ft (N•m)..... 961 (709).... 1057 (780)
 BMEP--psi (kPa) 287 (1980).... 316 (2178)
 Friction Power
 @ Rated Speed--hp (kW) 17 (13)
 Altitude Capability--ft (m) 10,000(3050) 7500(2286)
 Ratio--Air : Fuel..... 22 : 1 21 : 1
 Smoke @ Rated Speed--Bosch No. 0.44 1.25
 Noise--dB(A) @ 1 m NA NA

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

Prime Standby

25 % Power 19.8 (9.0) 21.4 (9.7)
 50 % Power 36.4 (16.5) 39.5 (17.9)
 75 % Power 50.3 (22.8) 54.2 (24.6)
 100 % Power 65.0 (29.5) 70.0 (31.9)

Advance Information

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

* Revised Data
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