



JOHN DEERE

ENGINE PERFORMANCE CURVE

Rating: Gross Power
 Application: Industrial - Heavy Duty/Continuous
 7% Timed Power Bulge

PowerTech 8.1 L Engine

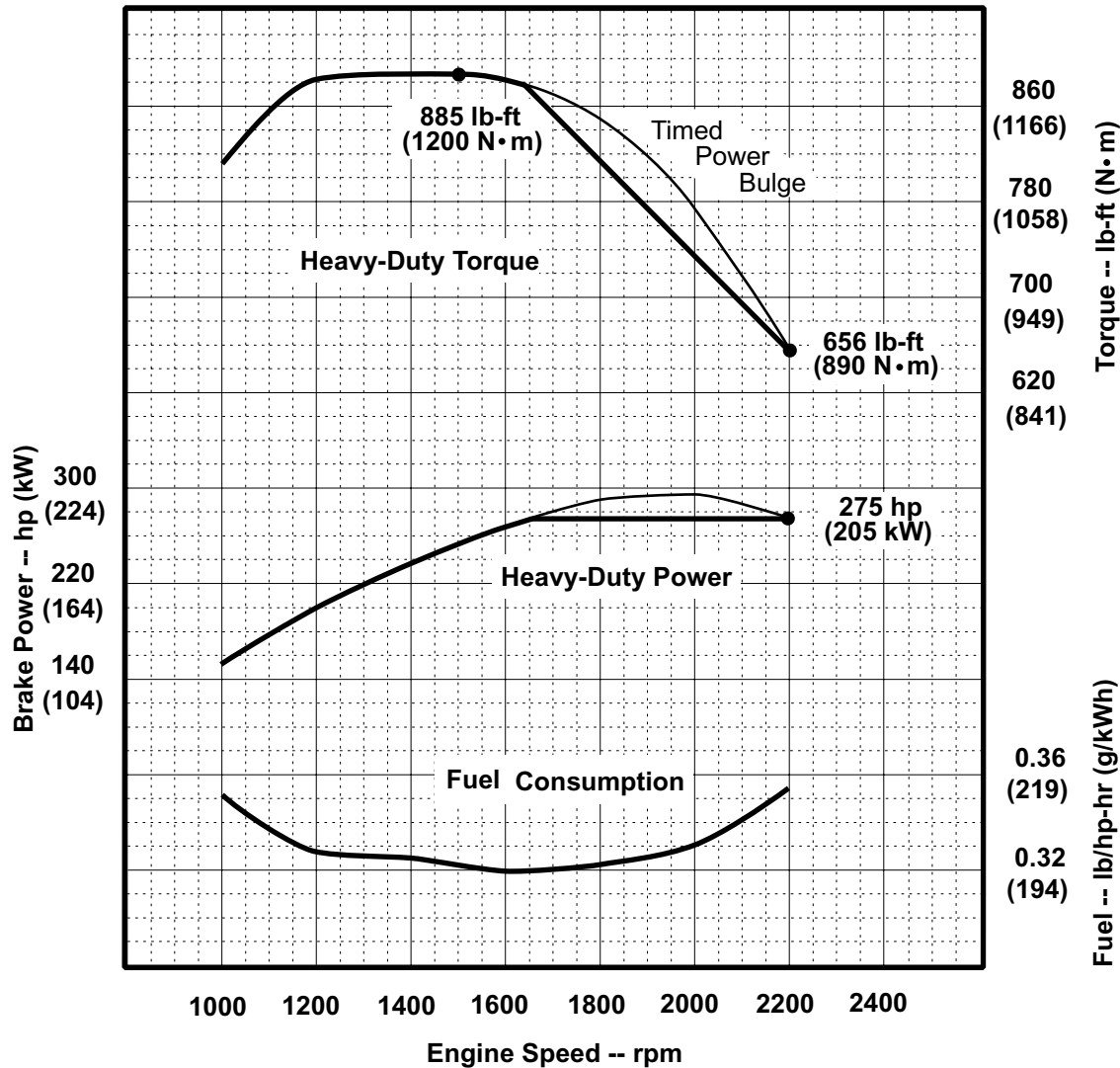
Model: **6081HF070**

JD Electronic Control

275 hp @ 2200 rpm

205 kW @ 2200 rpm

[See Option Code Tables]



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:

Tier-2 Emission Certifications:

Certified by:

CARB; EPA; EU
 Ref: Engine Emission Label

Brian L. Carlson
 22 July 04

* Revised Data

Curve: 6081HF070275HD Sheet 1 of 2
 July 2004

Common Specifications:

General Data

| | |
|--|-------------------------|
| Model | 6081HF070 |
| Number of Cylinders | 6 |
| Bore and Stroke--in. (mm)..... | 4.56 X 5.06 (116 X 129) |
| Displacement--in. ³ (L)..... | 496 (8.1) |
| Compression Ratio | 16.5:1 |
| 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 ₂ O (kPa) | 2 (0.5) |

Physical Data

| | |
|--|--------------|
| Length--in. (mm) | 47.6 (1210) |
| Width--in. (mm) | 23.5 (599) |
| Height--in. (mm) | 45.4 (1152) |
| Weight, dry--lb (kg) | 1711 (776) |
| (Includes flywheel housing, flywheel & electrics) | |
| Center of Gravity Location | |
| From Rear Face of Block (X-axis)--in. (mm) .. | 19.2 (488) |
| 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)--lb(N) | |
| Intermittent | 2925 (13010) |
| Continuous | 1950 (8673) |

Air System

| | |
|---|------------|
| Maximum 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) | 770 (21.8) |
| Intake Manifold Pressure--psi (kPa)..... | 28 (194) |
| Compressor Discharge Temp.--°F (°C)..... | 374 (190) |
| Max. Press. Drop Through | |
| Charge Air Cooler--in.H ₂ O (kPa) | 52 (13) |
| Max. Temp Out of Charge Air Cooler | |
| @ 77°F (25°C) Ambient--°F (°C)..... | 140 (60) |

Engine Specification Data

Cooling System

| | |
|--|-------------|
| Engine Heat Rejection--BTU/min (kW) | 4656 (81.8) |
| Air/Air Exch. Heat Reject.--Btu/min (kW) | 3062 (53.8) |
| Coolant Flow--gal/min (L/min)..... | 87 (330) |
| Thermostat Start to Open--°F (°C)..... | 180 (82) |
| Thermostat Fully Open--°F (°C)..... | 201 (94) |
| Engine Coolant Capacity--qt (L) | 15 (14) |
| Minimum Pressure Cap--psi (kPa)..... | 10 (69) |
| Maximum Top Tank Temp--°F (°C) | 221 (105) |
| Minimum Coolant Fill Rate--gal/min (L/min) | 3 (11) |
| Minimum Air-to-Boil Temperature--°F (°C)..... | 117 (47) |

Electrical System

12 Volt 24 Volt

| | | |
|---|------------|-------|
| Min. Battery Capacity (CCA)--amp | 800..... | 570 |
| Max. Allow. Starting Circuit Resist.--Ohm 0.0012..... | 0.002..... | 0.002 |
| Starter Rolling Current | | |
| At 32 °F (0 °C)--amp..... | 950..... | 600 |
| At -22 °F (-30 °C)--amp | 1300..... | 700 |

Exhaust System

| | |
|--|-----------|
| Exhaust Flow--ft ³ /min (m ³ /min)..... | 1621 (46) |
| Exhaust Temperature--°F (°C)..... | 716 (380) |
| Max. Allowable Back Pressure--in. H ₂ O (kPa) | 30 (7.5) |

Fuel System

| | |
|---|--------------|
| Fuel Injection Pump | Denso ECD-U2 |
| Governor Type..... | Electronic |
| Total Fuel Flow--lb/hr (kg/hr) | 772 (350) |
| Fuel Consumption--lb/hr (kg/hr)..... | 98 (44.3) |
| Max. Fuel Transfer Pump Suction--ft (m) fuel..... | 10 (3) |
| Max. Fuel Inlet Temperature--°F (°C) | 149 (65) |
| Fuel Filter Micron Size @ 98% Efficiency..... | 2 |

Lubrication System

| | |
|--|-----------|
| Oil Pressure at Rated Speed--psi (kPa) | 50 (345) |
| Oil Pressure at Low Idle--psi (kPa) | 30 (210) |
| In-Pan Oil Temperature--°F (°C) | 239 (115) |

Performance Data

| | |
|---|---------------|
| Rated Power--hp (kW) | 275 (205) |
| Rated Speed--rpm | 2200 |
| Breakaway Speed--rpm | 2250 |
| Fast Idle Speed--rpm | 2380 |
| Peak Torque--lb-ft (N•m)..... | 885 (1200) |
| Peak Torque Speed--rpm | 1500 |
| Low Idle Speed--rpm | 800 |
| BMEP--psi (kPa) | 199 (1375) |
| Friction Power @ Rated Speed--hp (kW) | 40 (30) |
| Altitude Capability--ft (m) | 10,000 (3050) |
| Ratio--Air : Fuel | 33.5:1 |
| Smoke @ Rated Speed--Bosch No. | < 2 |
| Noise--dB(A) @ 1 m | N/A |

| Engine Speed rpm | Heavy-Duty | | BSFC lb/hp-hr (g/kWh) |
|---------------------|-----------------|-----------------------|-----------------------------|
| | Power hp(kW) | Torque lb-ft (N•m) | |
| 2200 | 275 (205) | 656 (890) | 0.355 (216) |
| 2000 | 275 (205) | 722 (979) | 0.335 (204) |
| 1800 | 275 (205) | 803 (1088) | 0.323 (197) |
| 1700 | 275 (205) | 850 (1152) | 0.320 (195) |
| 1600 | 269 (200) | 881 (1195) | 0.320 (195) |
| 1500 | 253 (188) | 885 (1200) | 0.322 (196) |
| 1400 | 236 (176) | 885 (1200) | 0.325 (198) |
| 1200 | 201 (150) | 881 (1195) | 0.328 (200) |
| 1000 | 154 (115) | 811 (1100) | 0.351 (214) |

| Engine Speed rpm | Timed Power Bulge | | BSFC lb/hp-hr (g/kWh) |
|---------------------|-------------------|-----------------------|-----------------------------|
| | Power hp(kW) | Torque lb-ft (N•m) | |
| 2200 | 275 (205) | 656 (890) | 0.355 (216) |
| 2000 | 294 (219) | 772 (1047) | 0.330 (201) |
| 1800 | 291 (217) | 848 (1150) | 0.322 (196) |
| 1700 | 282 (210) | 870 (1180) | 0.320 (195) |
| 1600 | 269 (200) | 881 (1195) | 0.320 (195) |

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

* Revised Data
Curve: 6081HF070275HD Sheet 2 of 2
July 2004