



JOHN DEERE

**ENGINE PERFORMANCE CURVE**

Rating: Gross Power  
 Application: Industrial - Heavy-Duty  
 Power Bulge - 10%  
 Torque Rise - 30%

**PowerTech Plus™ 13.5 L Engine**

Model: **6135HF485**

**JD Electronic Control**

**500 hp @ 1900 rpm**

**373 kW @ 1900 rpm**

[See Option Code Table]

**STANDARD CONDITIONS**

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:

Tier-3 Emission Certifications:

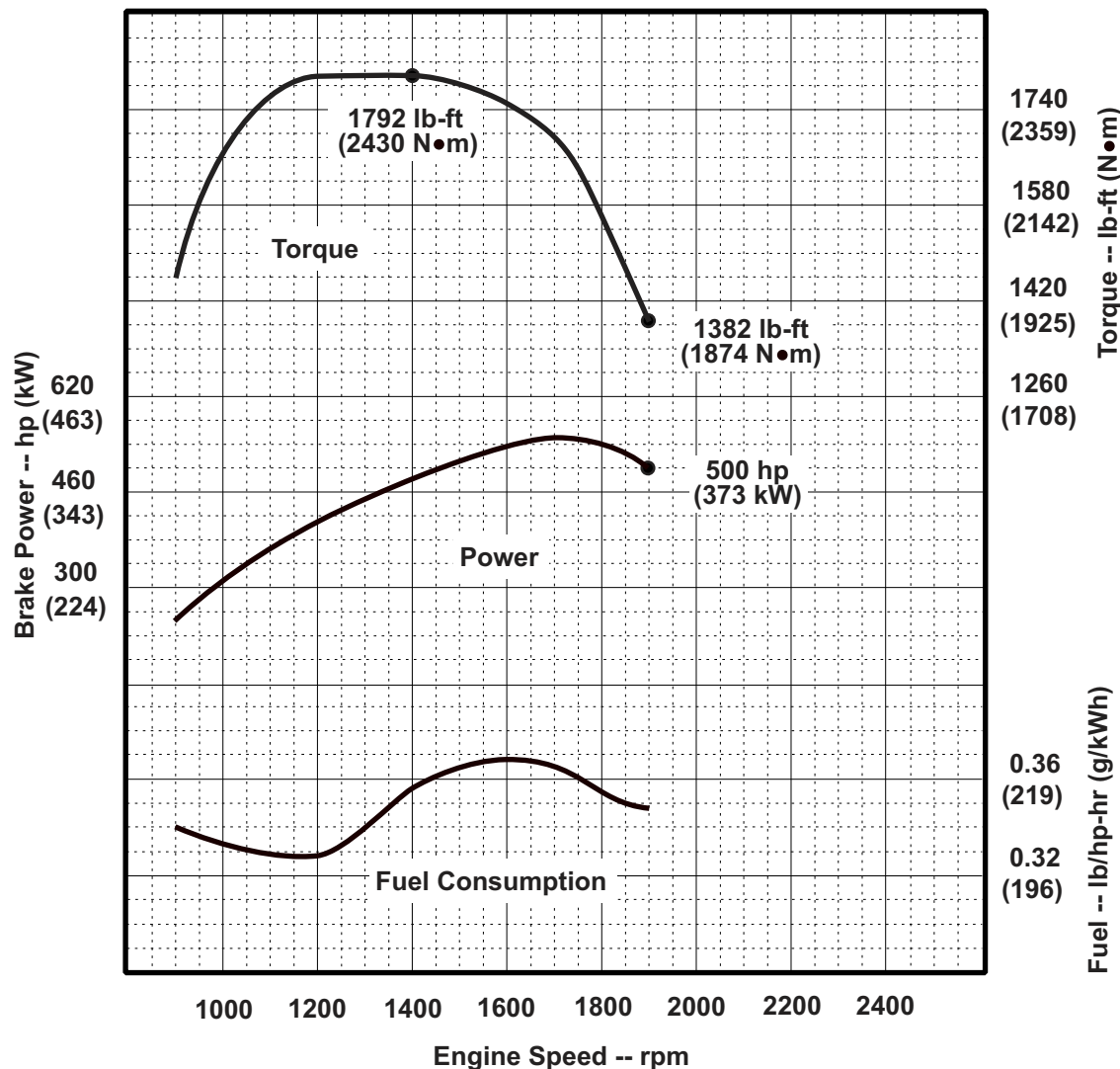
Certified by:

**CARB; EPA; EU**  
 Ref: Engine Emission Label

*Brian L. Carlson*  
 26 April 2006

\* Revised Data

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 April 2006



## Engine Installation Criteria

### General Data

Model ..... 6135HF485  
 Number of Cylinders ..... 6  
 Bore and Stroke--in. (mm)..... 5.20 (132) x 6.50 (165)  
 Displacement--in.<sup>3</sup> (L).....824 (13.5)  
 Compression Ratio ..... 16.0 : 1  
 Valves per Cylinder--Intake/Exhaust ..... 2 / 2  
 Firing Order..... 1-5-3-6-2-4  
 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) ..... 52.5 (1334)  
 Width--in. (mm) ..... 33.7 (855)  
 Height--in. (mm) ..... 59.5 (1512)  
 Weight, dry--lb (kg) ..... 3292 (1493)  
 (Includes flywheel housing, flywheel & electrics)  
 Center of Gravity Location  
     From Rear Face of Block (X-axis)--in. (mm) 20.0 (507)  
     Right of Crankshaft (Y-axis)--in. (mm).....0.1 (2)  
     Above Crankshaft (Z-axis)--in. (mm) ..... 8.1 (206)  
 Maximum Allowable 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..... 1821 (8100).....899 (4000)  
     Continuous ..... 1214 (5400).....562 (2500)  
 Max. Continuous Damper Temp--°F (°C) ..... 180 (82)

### Electrical System

**12 Volt**    **24 Volt**

Min. Battery Capacity (CCA)--amp..... 1900 ..... 925  
 Max. Allow. Starting Circuit 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. Voltage at ECU during Cranking--volts..... 6 ..... 10  
 Maximum ECU Temperature--°F (°C) ..... 221 (105)  
 Max. VTG Actuator Surface Temp.--°F (°C)..... 356 (180)  
 Maximum Harness Temperature--°F (°C) ..... 257 (125)

### Air System

Maximum Allowable Temp Rise--Ambient Air to  
     Engine Inlet--°F (°C) ..... 15 (8)  
 Maximum Air Intake Restriction:  
     Dirty Air Cleaner--in. H<sub>2</sub>O (kPa)..... 25 (6.25)  
     Clean Air Cleaner--in. H<sub>2</sub>O (kPa)..... 15 (3.75)  
 Engine Air Flow--ft<sup>3</sup>/min (m<sup>3</sup>/min) ..... 1165 (33)  
 Air Cleaner Efficiency--% ..... 99.9

### Charge Air Cooling System

Air/Air Exch'r. Heat Rej.--Btu/min(kW) ..... 5350 (94)  
 Compressor Discharge Temp.(Rated)  
     @ 77 °F (25°C) Ambient Air--°F (°C)..... 421 (216)  
 Compressor Discharge Temp.(Max.) @ Peak Torque,  
     47°C ambient, 80 kPa barometer--°F (°C)..... 493 (256)  
 Max. Pressure Drop, thru CAC--in.H<sub>2</sub>O (kPa) ..... 64 (16)  
 Min. Pressure Drop, thru CAC--in.H<sub>2</sub>O (kPa) ..... 32 (8)  
 Intake Manifold Pressure--psi (kPa) ..... 33 (227)  
 Max CAC Out Temp @ 77°F (25°C) Amb.--°F (°C) 127(53)  
 Min CAC Out Temp @ 77°F (25°C) Amb.--°F (°C) 113(45.0)  
 Max CAC Out Temp @ any Ambient--°F (°C) ..... 190(88)

### Cooling System

Engine Heat Rejection--BTU/min (kW) ..... 10,530 (185)  
 Coolant Flow--gal/min (L/min)..... 132 (498)  
 Thermostat Start to Open--°F (°C)..... 180 (82)  
 Thermostat Fully Open--°F (°C)..... 198 (92)  
 Engine Coolant Capacity--qt (L) ..... 19 (18)  
 Minimum Pressure Cap--psi (kPa)..... 14.5 (100)  
 Maximum Top Tank Temp--°F (°C) ..... 221 (105)  
 Minimum Coolant Fill Rate--gal/min (L/min) ..... 3 (12)  
 Minimum Air-to-Boil Temperature--°F (°C)..... 117 (47)  
 Minimum Pump Inlet Pressure--psi (kPa) ..... 4.4 (30)

### Exhaust System

Exhaust Flow--ft<sup>3</sup>/min (m<sup>3</sup>/min)..... 2507 (71)  
 Exhaust Temperature--°F (°C)..... 801 (427)  
 Max. Exhaust Restriction--in. H<sub>2</sub>O (kPa) ..... 40 (10)  
 Min. Exhaust Restriction--in. H<sub>2</sub>O (kPa) ..... 16 (4)  
 Max. Bend. Moment on Turbo Out.--lb-ft (N•m) ..... 5.2 (7)  
 Max. Shear on Turbo Outlet--lb (kg) ..... 24 (11)

### Fuel System

ECU Description ..... L15 Controller  
 Fuel Injection Pump ..... Unit Injection  
 Governor Type..... Electronic  
 Total Fuel Flow--lb/hr (kg/hr) ..... 326 (148)  
 Fuel Consumption--lb/hr (kg/hr)..... 174 (79)  
 Max. Fuel Inlet Temperature--°F (°C) ..... 212 (100)  
 Fuel Temp. Rise, Inlet to Return--°F (°C) ..... 102.6 (57)  
 Max. Fuel Inlet Restriction--in. H<sub>2</sub>O (kPa) ..... 40 (10)  
 Max. Fuel Inlet Pressure--in. H<sub>2</sub>O (kPa) ..... 96 (24)  
 Max. Fuel Return Pressure--in. H<sub>2</sub>O (kPa) ..... 140 (35)

### Lubrication System

Oil Pressure at Rated Speed--psi (kPa) ..... 45 (310)  
 Oil Pressure at Low Idle--psi (kPa) ..... 20 (138)  
 Max. Oil Carryover in Blow-by--lb/hr (g/hr) ..... 0.007 (3)  
 Max. Airflow in Blow-by--gal/min (l/min)..... 79 (300)  
 Max. Crankcase Pressure--in. H<sub>2</sub>O (kPa)..... 2 (0.5)

### Performance Data

Rated Power--hp (kW) ..... 500 (373)  
 Rated Speed--rpm ..... 1900  
 Breakaway Speed--rpm ..... 1950  
 Fast Idle Speed--rpm ..... 2100  
 Peak Torque--lb-ft (N•m)..... 1792 (2430)  
 Peak Torque Speed--rpm ..... 1400  
 Low Idle Speed--rpm ..... 900  
 BMEP--psi (kPa) ..... 253 (1745)  
 Friction Power @ Rated Speed--hp (kW) ..... 61 (46)  
 Altitude Capability--ft (m) ..... 10,000 (3050)  
 Ratio--Air : Fuel ..... 26.4 : 1  
 Smoke @ Rated Speed--Bosch No. .... 0.19  
 Noise--dB(A) @ 1 m ..... 98.8\*  
 Power Bulge--% ..... 10  
 Power Bulge Speed--rpm ..... 1700  
 Torque Rise--% ..... 30

### Heavy-Duty Power

Engine Speed rpm	Power hp (kW)	Torque lb-ft (N•m)	BSFC lb/hp-hr (g/kWh)
1900	500 (373)	1382 (1874)	0.349 (213)
1800	536 (400)	1564 (2120)	0.354 (216)
1700	548 (409)	1694 (2297)	0.366 (223)
1600	533 (397)	1749 (2371)	0.369 (225)
1400	478 (356)	1792 (2430)	0.356 (217)
1200	410 (305)	1792 (2430)	0.328 (200)
1000	317 (237)	1667 (2260)	0.332 (202)
900	250 (187)	1460 (1980)	0.340 (207)

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

\* Revised Data  
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