



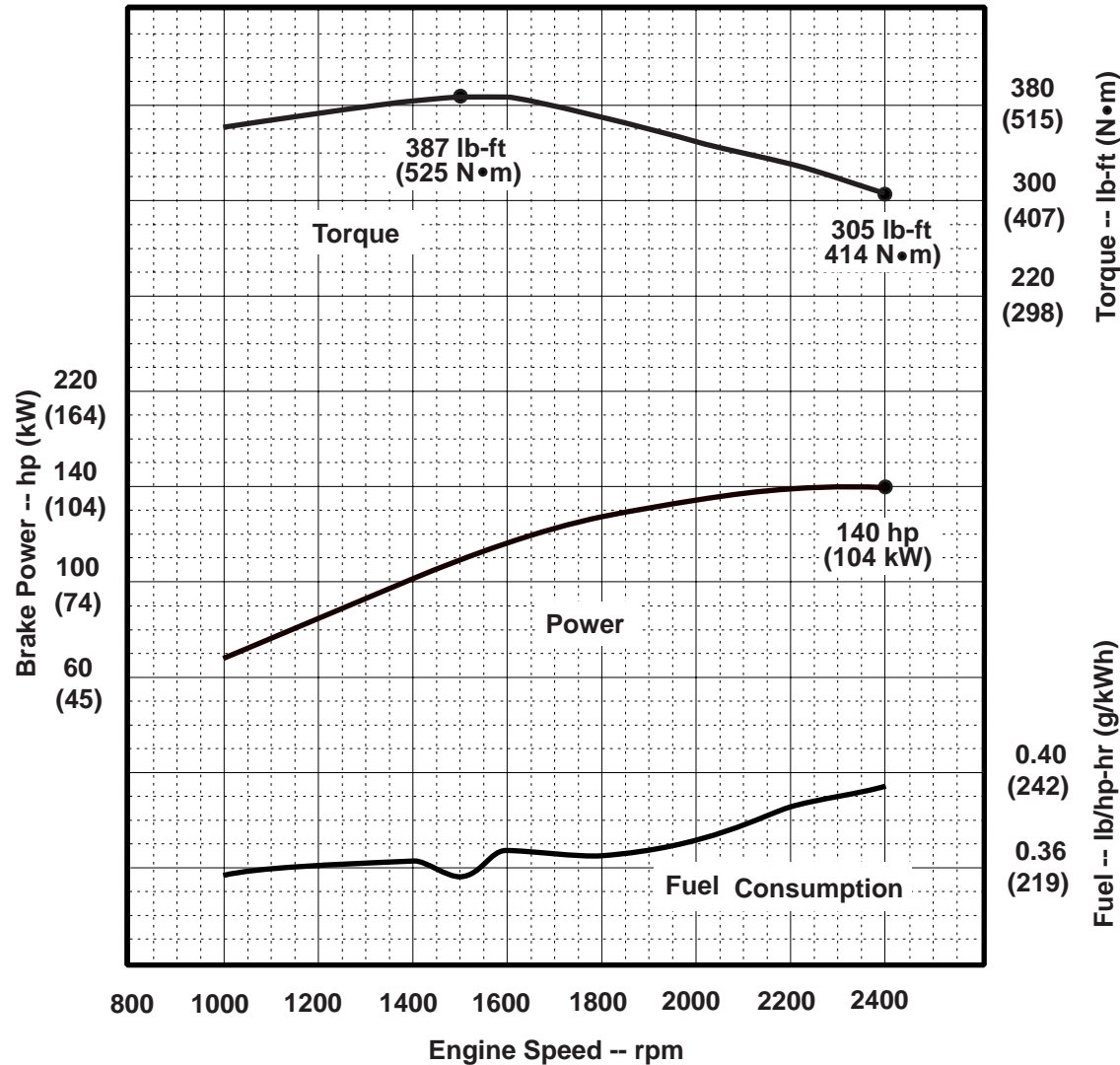
JOHN DEERE

### ENGINE PERFORMANCE CURVE

Rating: Gross Power  
Application: Industrial - Intermittent  
Power Bulge - 0%  
Torque Rise - 27%

**PowerTech E™ 4.5 L Engine**  
Model: **4045HF285**  
**JD Electronic Control**

**140 hp @ 2400 rpm**  
**104 kW @ 2400 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:
<b>CARB; EPA; EU</b> Ref: Engine Emission Label	<i>Brian L. Carlson</i> 23 OCT 06

\* Revised Data  
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October 2006

## Engine Installation Criteria

### General Data

Model ..... 4045HF285  
 Number of Cylinders ..... 4  
 Bore and Stroke--in. (mm)..... 4.19 (106) x 5.00 (127)  
 Displacement--in.<sup>3</sup> (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, dry--lb (kg) ..... 1083 (491)  
 (Includes flywheel housing, flywheel & electrics)  
 Center of Gravity Location (Estimated based on Tier 2)  
     From Rear Face of Block(X-axis)--in.(mm).....9.8 (249)  
     Right of Crankshaft (Y-axis)--in. (mm).....2.2 (55)  
     Above Crankshaft (Z-axis)--in. (mm).....5.7 (145)  
 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.....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. 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)  
 Maximum Harness Temperature--°F (°C) .....248 (120)

### 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) .....373 (10.6)  
 Air Cleaner Efficiency--% ..... 99.9

### Charge Air Cooling System

Air/Air Exch'r. Heat Rej.--Btu/min(kW) ..... 1440 (25.3)  
 Compressor Discharge Temp.(Rated)  
     @ 77 °F (25°C) Ambient Air--°F (°C).....362 (183)  
 Max. Pressure Drop, thru CAC--in.H<sub>2</sub>O (kPa) ..... 52 (13)  
 Min. Pressure Drop, thru CAC--in.H<sub>2</sub>O (kPa) ..... 0 (0)  
 Intake Manifold Pressure--psi (kPa) ..... 26 (177)  
 Max CAC Out Temp @ 77°F (25°C) Amb.--°F (°C) 140(60)  
 Max CAC Out Temp @ any Ambient--°F (°C) ..... 190 (88)  
 Min. CAC Out Temp--°F (°C)..... 118 (48)

### Cooling System

Engine Heat Rejection--BTU/min (kW) ..... 3153 (55.4)  
 Coolant Flow--gal/min (L/min)..... 59 (222)  
 Thermostat Start to Open--°F (°C)..... 180 (82)  
 Thermostat Fully Open--°F (°C).....203 (95)  
 Engine Coolant Capacity--qt (L) .....9.0 (8.5)  
 Minimum Pressure Cap--psi (kPa)..... 14.5 (100)  
 Maximum Top Tank Temp--°F (°C) ..... 230 (110)  
 Minimum Coolant Fill Rate--gal/min (L/min) ..... 3 (11)  
 Minimum Air-to-Boil Temperature--°F (°C)..... 117 (47)  
 Minimum Pump Inlet Pressure--psi (kPa) ..... 4.4 (30)  
 Max. Radiator System Restriction--in. H<sub>2</sub>O (kPa).... 80 (20)

### Exhaust System

Exhaust Flow--ft<sup>3</sup>/min (m<sup>3</sup>/min)..... 885 (25)  
 Exhaust Temperature--°F (°C)..... 855 (457)  
 Max. Exhaust Restriction--in. H<sub>2</sub>O (kPa) ..... 30 (7.5)  
 Min. Exhaust Restriction--in. H<sub>2</sub>O (kPa) ..... 0 (0)  
 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 ..... L16 Controller  
 Fuel Injection Pump ..... Denso HP3  
 Governor Type.....Electronic  
 Total Fuel Flow--lb/hr (kg/hr) ..... 132 (60.0)  
 Fuel Consumption--lb/hr (kg/hr)..... 55 (25.0)  
 Max. Fuel Inlet Temperature--°F (°C) ..... 176 (80)  
 Fuel Temp. Rise, Inlet to Return--°F (°C) ..... 78.5 (44)  
 Max. Fuel Inlet Restriction--in. H<sub>2</sub>O (kPa) ..... 80 (20)  
 Max. Fuel Inlet Pressure--in. H<sub>2</sub>O (kPa) ..... NA (NA)  
 Max. Fuel Return Pressure--in. H<sub>2</sub>O (kPa) ..... 80 (20)

### Lubrication System

Oil Pressure at Rated Speed--psi (kPa) ..... 58 (400)  
 Min. Allowed 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. H<sub>2</sub>O (kPa)..... 2 (0.5)

### Performance Data

Rated Power--hp (kW) ..... 140 (104)  
 Rated Speed--rpm ..... 2400  
 Breakaway Speed--rpm ..... 2470  
 Fast Idle Speed--rpm ..... 2600  
 Peak Torque--lb-ft (N•m)..... 387 (525)  
 Peak Torque Speed--rpm ..... 1500  
 Low Idle Speed--rpm ..... 800  
 BMEP--psi (kPa) ..... 168 (1155)  
 Friction Power @ Rated Speed--hp (kW) ..... 30 (22)  
 Altitude Capability--ft (m) ..... 10,000 (3050)  
 Ratio--Air : Fuel ..... 29 : 1  
 Smoke @ Rated Speed--Bosch No. ....<1  
 Noise--dB(A) @ 1 m ..... 93.0  
 Power Bulge--% ..... 0  
 Power Bulge Speed--rpm ..... NA  
 Torque Rise--%..... 27

Engine Speed rpm	Power hp (kW)	Torque lb-ft (N•m)	BSFC lb/hp-hr (g/kWh)
2400	140 (104)	305 (414)	0.393 (240)
2200	139 (104)	333 (451)	0.386 (235)
2000	134 (100)	351 (476)	0.372 (226)
1800	127 (94)	369 (500)	0.365 (222)
1600	118 (88)	387 (525)	0.368 (224)
1500	111 (82)	387 (525)	0.357 (218)
1400	102 (76)	382 (518)	0.362 (220)
1200	85 (63)	372 (504)	0.361 (220)
1000	69 (51)	361 (490)	0.358 (218)

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

\* Revised Data  
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