



JOHN DEERE

**ENGINE PERFORMANCE CURVE**

Rating: Gross Power  
 Application: Industrial - Intermittent  
 Power Bulge - 0%  
 Torque Rise - 26%

**PowerTech Plus™ 4.5 L Engine**

Model: **4045HF485**

**JD Electronic Control**

**173 hp @ 2400 rpm**

**129 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)

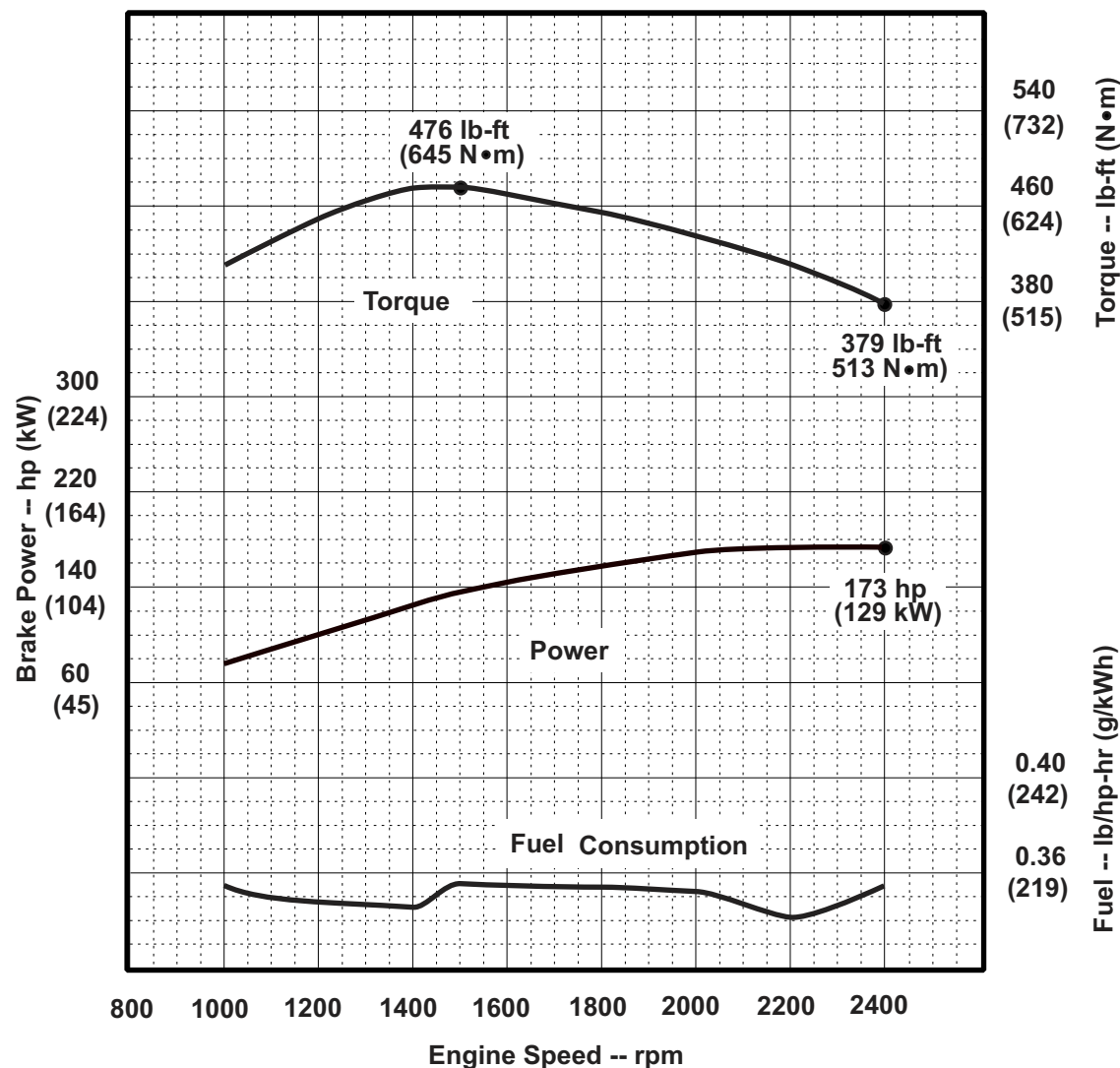
Conversion factors:

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:
CARB; EPA; EU Ref: Engine Emission Label	<i>Brian L. Carlson</i> 11 DEC 06

\* Revised Data  
 Curve: 4045HF485173\_2400\_0\_26 ..... Sheet 1 of 2  
 December 2006

## Engine Installation Criteria

### General Data

Model .....	4045HF485
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 .....	17.0 : 1
Valves per Cylinder--Intake/Exhaust .....	2 / 2
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) .....	34.1 (867)
Width--in. (mm) .....	26.8 (680)
Height--in. (mm) .....	41.5 (1055)
Weight, dry--lb (kg) .....	1083 (491)
(Includes flywheel housing, 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).....	2.2 (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) <u>Forward</u> <u>Rearward</u>	
Intermittent.....	899 (4000).....450 (2000)
Continuous .....	495 (2200).....225 (1000)
Max. Front of Crank. Torsional Vibration--DDA.....	0.25
Max. Continuous Damper Temp--°F (°C) .....	180 (82)

### Electrical System

Min. Battery Capacity (CCA)--amp.....	<b>12 Volt</b> 800.....	<b>24 Volt</b> 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)	
Max. VTG Actuator Surface Temp.--°F (°C).....	356 (180)	
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) .....	402 (11.4)
Air Cleaner Efficiency--% .....	99.9

### Charge Air Cooling System

Air/Air Exch'r. Heat Rej.--Btu/min(kW) .....	1719 (30)
Compressor Discharge Temp.(Rated)	
@ 77 °F (25°C) Ambient Air--°F (°C).....	421 (216)
Compressor Discharge Temp.(Max.)--°F (°C)	
@ any Ambient--°F (°C) .....	500 (260)*
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) .....	20 (5)
Intake Manifold Pressure--psi (kPa) .....	25 (175)
Max CAC Out Temp @ 77°F (25°C) Amb.--°F (°C) 126(52)	
Min CAC Out Temp @ 77°F (25°C) Amb.--°F (°C) 119 (49)	
Max CAC Out Temp @ any Ambient--°F (°C) .....	190 (88)

### Cooling System

Engine Heat Rejection--BTU/min (kW) .....	4024 (71)
Coolant Flow--gal/min (L/min).....	87 (330)
Thermostat Start to Open--°F (°C).....	180 (82)
Thermostat Fully Open--°F (°C).....	203 (95)
Engine Coolant Capacity--qt (L) .....	9 (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)

### Exhaust System

Exhaust Flow--ft <sup>3</sup> /min (m <sup>3</sup> /min).....	884 (25)
Exhaust Temperature--°F (°C).....	768 (409)
Max. Exhaust Restriction--in. H <sub>2</sub> O (kPa) .....	30 (7.5)
Min. Exhaust Restriction---in. H <sub>2</sub> O (kPa).....	12 (3)
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 .....	L14 Controller*
Fuel Injection Pump .....	Denso HP3
Governor Type.....	Electronic
Total Fuel Flow--lb/hr (kg/hr) .....	148 (67.0)
Fuel Consumption--lb/hr (kg/hr).....	62 (28)
Max. Fuel Inlet Temperature--°F (°C).....	176 (80)
Fuel Temp. Rise, Inlet to Return--°F (°C) .....	92 (51)
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)
Oil Pressure at Low Idle--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) .....	173 (129)
Rated Speed--rpm .....	2400
Breakaway Speed--rpm .....	2470
Fast Idle Speed--rpm .....	2600
Peak Torque--lb-ft (N•m).....	476 (645)
Peak Torque Speed--rpm .....	1500
Low Idle Speed--rpm .....	800
BMEP--psi (kPa) .....	208 (1433)
Friction Power @ Rated Speed--hp (kW) .....	17 (13)
Altitude Capability--ft (m) .....	10,000 (3050)
Ratio--Air : Fuel .....	27 : 1
Smoke @ Rated Speed--Bosch No. ....	<1
Noise--dB(A) @ 1 m .....	90.3
Power Bulge--% .....	0
Power Bulge Speed--rpm .....	NA
Torque Rise--% .....	26

Engine Speed rpm	Power hp (kW)	Torque lb-ft (N•m)	BSFC lb/hp-hr (g/kWh)
2400	173 (129)	379 (513)	0.355 (216)
2200	173 (129)	413 (559)	0.341 (208)
2000	167 (125)	439 (595)	0.351 (214)
1800	156 (116)	454 (616)	0.353 (215)
1600	143 (107)	470 (637)	0.353 (215)
1500	135 (101)	476 (645)	0.356 (217)
1400	127 (95)	476 (645)	0.346 (211)
1200	103 (77)	450 (611)	0.348 (212)
1000	79 (59)	413 (559)	0.355 (216)

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

\* Revised Data  
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December 2006