



JOHN DEERE

ENGINE PERFORMANCE CURVE

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

PowerTech Plus™ 4.5 L Engine

Model: 4045HF485

JD Electronic Control

154 hp @ 2400 rpm

115 kW @ 2400 rpm

[See Option Code Table]

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)

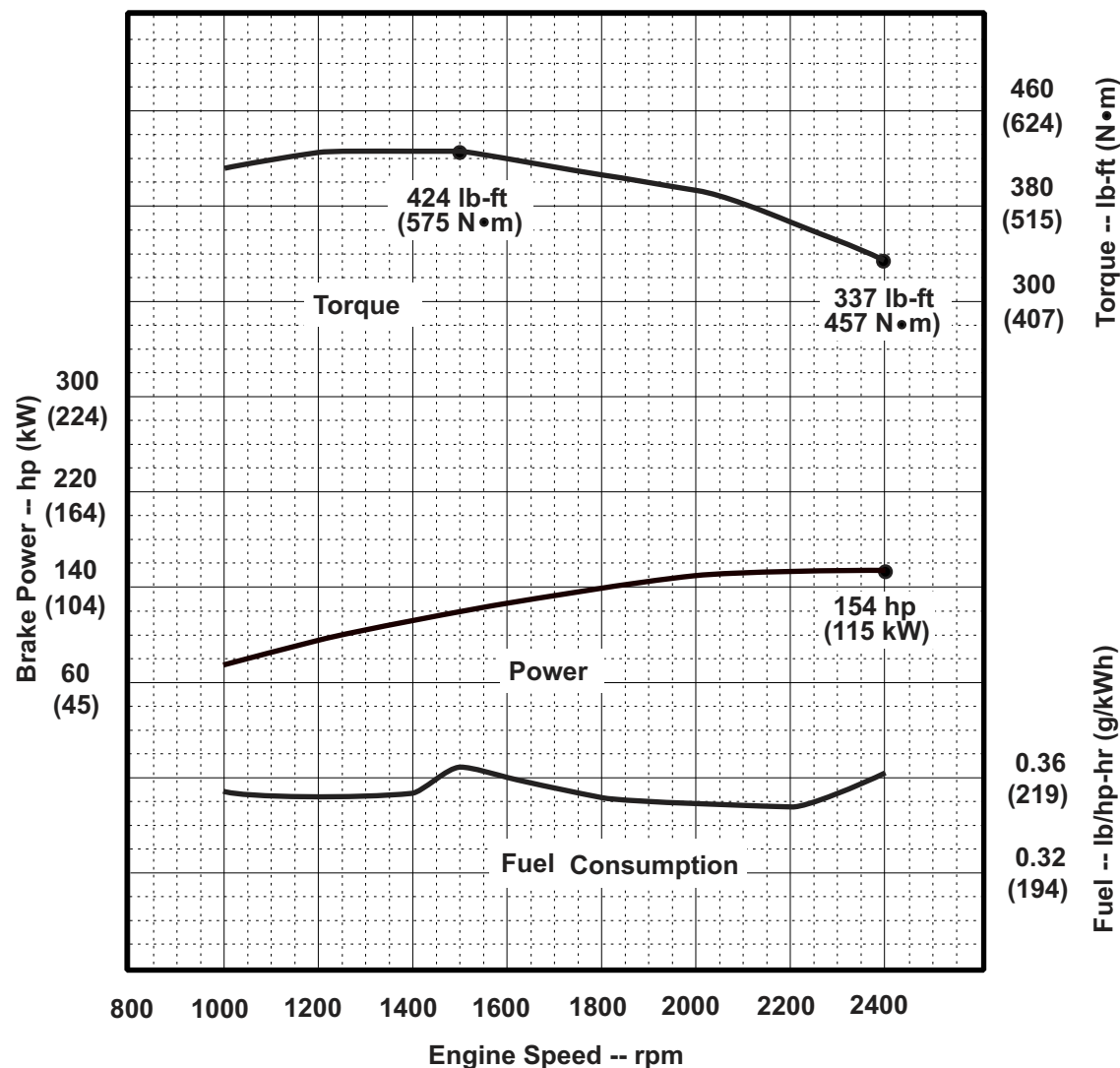
Conversion factors:

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:

Tier-3 Emission Certifications:

Certified by:

CARB; EPA; EU
Ref: Engine Emission Label

Brian L. Carlson
11 DEC 06

* Revised Data

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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. ³ (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

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)	
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 ₂ O (kPa).....	25 (6.25)
Clean Air Cleaner--in. H ₂ O (kPa).....	15 (3.75)
Engine Air Flow--ft ³ /min (m ³ /min)	361 (10.2)
Air Cleaner Efficiency--%	99.9

Charge Air Cooling System

Air/Air Exch'r. Heat Rej.--Btu/min(kW)	1474 (26)
Compressor Discharge Temp.(Rated)	
@ 77 °F (25°C) Ambient Air--°F (°C).....	357 (180)
Compressor Discharge Temp.(Max.)	
@ any Ambient--°F (°C)	500 (260)*
Max. Pressure Drop, thru CAC--in.H ₂ O (kPa)	52 (13)
Min. Pressure Drop, thru CAC--in.H ₂ O (kPa)	20 (5)
Intake Manifold Pressure--psi (kPa)	25 (170)
Max CAC Out Temp @ 77°F (25°C) Amb.--°F (°C) 126(52)	
Min CAC Out Temp @ 77°F (25°C) Amb.--°F (°C). 115(46)	
Max CAC Out Temp @ any Ambient--°F (°C)	190 (88)

Cooling System

Engine Heat Rejection--BTU/min (kW).....	4155 (73)
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 ³ /min (m ³ /min).....	776 (22)
Exhaust Temperature--°F (°C).....	739 (393)
Max. Exhaust Restriction--in. H ₂ O (kPa)	30 (7.5)
Min. Exhaust Restriction---in. H ₂ 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)	132 (60.0)
Fuel Consumption--lb/hr (kg/hr).....	56 (25)
Max. Fuel Inlet Temperature--°F (°C).....	176 (80)
Fuel Temp. Rise, Inlet to Return--°F (°C)	84.4 (47)
Max. Fuel Inlet Restriction--in. H ₂ O (kPa)	80 (20)
Max. Fuel Inlet Pressure--in. H ₂ O (kPa).....	NA (NA)
Max. Fuel Return Pressure--in. H ₂ 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 ₂ O (kPa).....	2 (0.5)

Performance Data

Rated Power--hp (kW).....	154 (115)
Rated Speed--rpm	2400
Breakaway Speed--rpm	2470
Fast Idle Speed--rpm	2600
Peak Torque--lb-ft (N•m).....	424 (575)
Peak Torque Speed--rpm	1500
Low Idle Speed--rpm	800
BMEP--psi (kPa)	185 (1277)
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	154 (115)	337 (457)	0.361 (220)
2200	154 (115)	368 (498)	0.349 (213)
2000	149 (111)	391 (530)	0.350 (213)
1800	139 (103)	405 (549)	0.351 (214)
1600	127 (94)	418 (567)	0.360 (219)
1500	121 (90)	424 (575)	0.364 (222)
1400	113 (84)	424 (575)	0.353 (213)
1200	97 (72)	423 (574)	0.351 (214)
1000	79 (59)	413 (559)	0.353 (215)

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

* Revised Data
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