



JOHN DEERE

ENGINE PERFORMANCE CURVE

Rating: Gross Power
Application: Industrial
Intermittent / Continuous

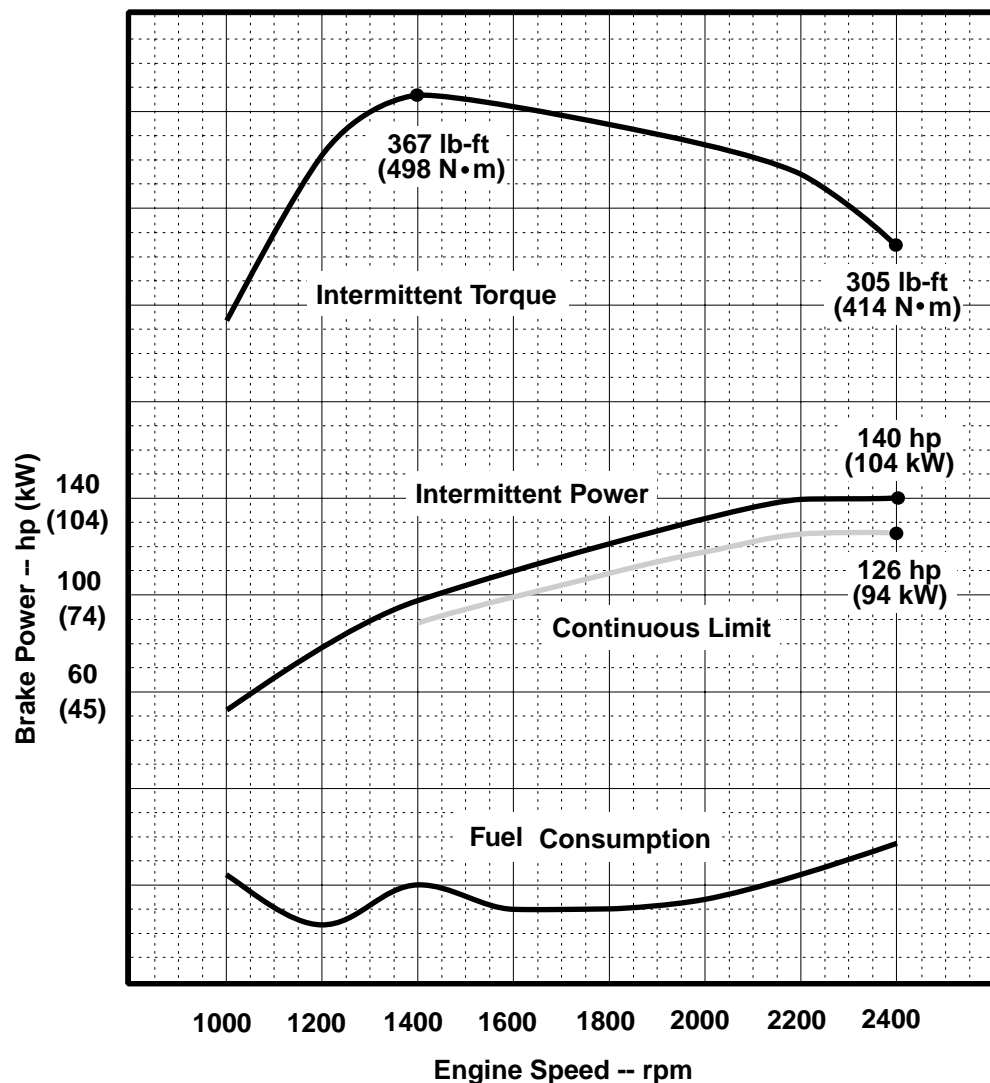
PowerTech 4.5L Engine

Model: 4045HF275

140 hp @ 2400 rpm

104 kW @ 2400 rpm

[See Option Code Tables]



Torque -- lb-ft (N·m)
360 (488)
320 (434)
280 (380)

Fuel -- lb/hp-hr (g/kWh)
0.40 (242)
0.36 (219)

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
21 NOV 2001

* Revised Data

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Common Specifications:

General Data

Model	4045HF275
Number of Cylinders	4
Bore and Stroke--in. (mm).....	4.19 x 5.00 (106 x 127)
Displacement--in. ³ (L).....	275 (4.5)
Compression Ratio	17.0:1
Valves per Cylinder--Intake/Exhaust	1/1
Firing Order	1-3-4-2
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)	34.1 (867)*
Width--in. (mm)	25.1 (637)*
Height--in. (mm)	38.5 (979)*
Weight, dry--lb (kg)	993 (451)
(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)	2.17 (55)
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 Brng. Load Limit (Forward)--lb (N) [I]	900 (4003)
[C].....	500 (2224)

Engine Specification Data

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) [I]	360 (10.2)
[C].....	346 (9.8)
Intake Manifold Pressure--psi (kPa) [I]	18 (123)
[C].....	16 (112)
Recommended Intake Pipe Diameter--in. (mm)	3 (76.2)
Compressor Discharge Temp--°F (°C) [I]	298 (148)
[C].....	284 (140)
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 Air--°F (°C)	140 (60)

Cooling System

Engine Heat Rejection--BTU/min (kW) [I].....	3032 (53)
[C].....	2731 (48)
Air/Air Exch. Heat Rejection--BTU/min (kW)[I]	910 (16)
[C]	797 (14)
Coolant Flow--gal/min (L/min)	51 (192)
Thermostat Start to Open--°F (°C)	180 (82)
Thermostat Fully Open--°F (°C).....	201 (94)
Engine Coolant Capacity--qt (L)	9 (8.5)
Recommended 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)

Fuel System

Fuel Injection Pump	Stanadyne DE10
Governor Regulation.....	7-10 %
Governor Type	Electronic
Fuel Consumption--lb/hr (kg/hr) [I].....	53.0 (24.0)
[C].....	49.0 (22.0)
Total Fuel Flow--lb/hr (kg/hr) [I].....	198.0 (90.0)
Maximum Fuel Transfer Pump Suction--ft (m) fuel... 3 (0.9)	
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)	15 (105)
In Pan Oil Temperature--°F (°C)	240 (115)

Exhaust System

Exhaust Flow--ft ³ /min (m ³ /min) [I]	858 (24.3)
[C].....	805 (22.8)
Exhaust Temperature--°F (°C) [I]	887 (475)
[C].....	860 (460)
Max. Allowable Back Pressure--in. H ₂ O (kPa)	30 (7.5)
Rec'd. Exhaust Pipe Diameter--in. (mm)	4.0 (101.6)

Electrical System

Recommended Battery Capacity (CCA)	
12 Volt System--amp	640
24 Volt System--amp	570
Maximum Allowable Starting Circuit Resistance	
12 Volt System--Ohm.....	0.0012
24 Volt System--Ohm.....	0.002
Starter Rolling Current--12 Volt System	
At 32 °F (0 °C)--amp.....	780
At -22 °F (-30 °C)--amp.....	1000
Starter Rolling Current--24 Volt System	
At 32 °F (0 °C)--amp.....	600
At -22 °F (-30 °C)--amp.....	700

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

Revised Data

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Engine Specification Data

Electronic Engine Controls (JDEC) Options

Performance System Option Code Table		
Option Codes		System Voltage
Injection Pump	Performance Software	
Standard Feature ECU		
161F	7262	12V
163K	7263	24V
Extended Feature ECU		
163G	7262	12V
161G	7263	24V

ECU Feature Software Option Code (8300 Group) Table							
Industrial Applications - Stanadyne DE10							
Option Code	Oil Pressure Sensor	Governing	Cruise Control	Engine Protection		Available Throttle Inputs	
				ECU Software	External Input	Analog	Digital
Standard Feature ECU							
8305	No	8% Droop	No	Derate Only	None	None	2-State
8308	Yes	8% Droop	No	Derate Only	None	None	2-State
8309	Yes	8% Droop	No	Derate w/shutdown	None	None	2-State
8316	No	8% Droop	No	Derate Only	None	None	Ramp
8317	Yes	8% Droop	No	Derate Only	None	None	Ramp
8318	Yes	8% Droop	No	Derate w/shutdown	None	None	Ramp
Extended Feature ECU							
8310	No	8% Droop	Yes	Derate Only	Shutdown Only	Two	2-State
8311	Yes	8% Droop	Yes	Derate Only	Shutdown Only	Two	2-State
8312	Yes	8% Droop	Yes	Derate w/shutdown	Shutdown Only	Two	2-State
8313	No	Selectable	No	Derate Only	Derate & Shutdown	Two	Adj. 3-State
8314	Yes	Selectable	No	Derate Only	Derate & Shutdown	Two	Adj. 3-State
8315	Yes	Selectable	No	Derate w/shutdown	Derate & Shutdown	Two	Adj. 3-State
8319	No	8% Droop	Yes	Derate Only	Shutdown Only	Two	Ramp
8320	Yes	8% Droop	Yes	Derate Only	Shutdown Only	Two	Ramp
8321	Yes	8% Droop	Yes	Derate w/shutdown	Shutdown Only	Two	Ramp
8322	No	Selectable	No	Derate Only	Derate & Shutdown	Two	Ramp
8323	Yes	Selectable	No	Derate Only	Derate & Shutdown	Two	Ramp
8324	Yes	Selectable	No	Derate w/shutdown	Derate & Shutdown	Two	Ramp

Performance Data

Rated Power--hp (kW)	[I]..... 140 (104)
	[C]..... 126 (94)
Rated Speed--rpm 2400
Peak Torque--lb-ft (N•m)	[I]..... 367 (498)
	[C]..... 330 (448)
Peak Torque Speed--rpm 1400
Low Idle Speed--rpm 800
BMEP--psi (kPa)	[I]..... 167 (1154)
	[C]..... 151 (1039)
Friction Power @ Rated Speed--hp (kW) 30 (22)
Altitude Capability -- ft (m) 10,000 (3050)
Ratio--Air : Fuel	[I]..... 28.8:1
	[C]..... 30.2:1
Smoke @ Rated Speed--Bosch No.	[I]..... < 2
	[C]..... < 2
Noise--dB(A) @ 1 m	[I]..... 94.8*
	[C]..... 94.4*

Engine Speed rpm	Contin. Limit hp(kW)	Intermit. Power hp(kW)	Intermit. Torque lb-ft(N•m)	BSFC lb/hp-hr (g/kWh)
2400	126 (94)	140 (104)	305 (414)	0.378 (230)
2200	126 (94)	140 (104)	333 (451)	0.365 (222)
2000	118 (88)	131 (98)	347 (470)	0.353 (215)
1800	109 (81)	121 (90)	354 (480)	0.350 (213)
1600	99 (74)	110 (82)	361 (490)	0.350 (213)
1400	89 (66)	98 (73)	367 (498)	0.360 (219)
1200	-----	78 (58)	342 (464)	0.343 (209)
1000	-----	52 (39)	273 (370)	0.363 (221)

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

Revised Data
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