



JOHN DEERE

**ENGINE PERFORMANCE CURVE**

Rating: Gross Power  
 Application: Generator  
 1800 RPM (60 Hz)

**PowerTech 4.5L Engine**  
**Model: 4045HF475**

**174 hp (130 kW) Prime**  
**192 hp (143 kW) Standby**

[See Option Table]

Nominal Engine Power @ 1800 RPM			
Prime		Standby	
HP	kW	HP	kW
174	130	192	143

Generator Efficiency %	Fan Power		Power Factor	Prime Rating		Standby Rating <sup>1</sup>		4 sec Standby Block Load Capability
	hp	kW		kW	kVA	kW	kVA	
88-92	9.6	7.2	0.8	107-112	134-141	119-124	148-156	70%

Note 1: Based on nominal engine power. Derate 30% for 100% block load capability.

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)

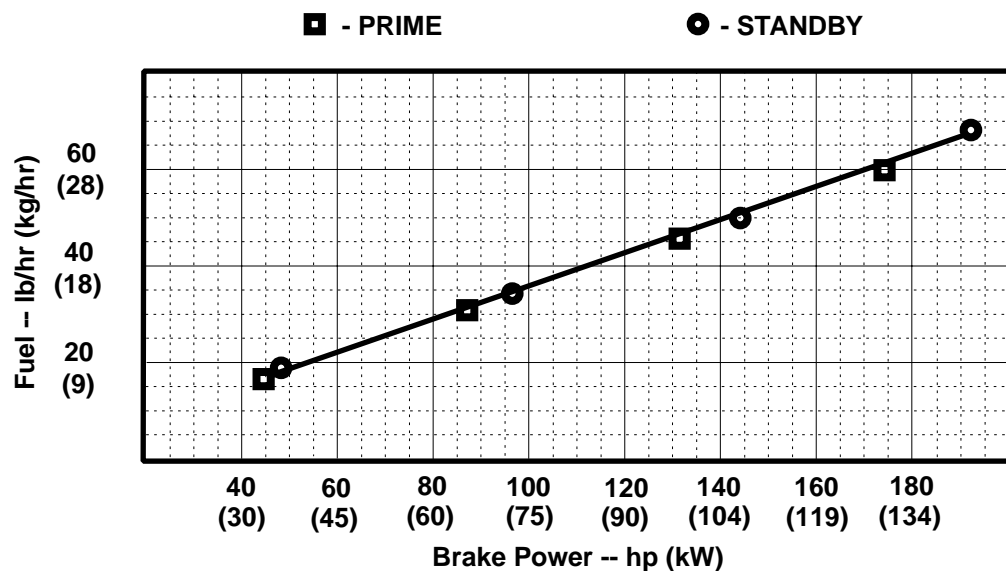
Gross power guaranteed within + or - 5% at SAE J1995 and ISO 3046 conditions:

- 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-2 Emission Certifications:

Certified by:

CARB; EPA

Ref: Engine Emission Label

*Brian L. Carlson*  
 19 APRIL 2002

\* Revised Data

Curve 4045HF4751800192 ..... Sheet 1 of 3  
 April 2002

## Engine Specification Data

### General Data

Model .....	4045HF475
Number of Cylinders .....	4
Bore and Stroke--in. (mm).....	4.19 x 5.00 (106 x 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.....	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 <sub>2</sub> O (kPa).....	2 (0.5)

### Physical Data

Length--in. (mm) .....	33.9 (862)*
Width--in. (mm) .....	23.8 (605)*
Height--in. (mm).....	40.3 (1025)*
Weight, dry--lb (kg).....	994 (451)
(Includes flywheel hsg., 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)
Max. Allow. Static Bending Moment at Rear	
Face of Flywhl Hsg w/ 5-G Load--lb-ft (N•m) ..	600 (814)
Thrust Bearing Load Limit (Forward)	
Intermittent--lb (N).....	900 (4003)
Continuous--lb (N) .....	500 (2224)

### Electrical System

**12 Volt      24 Volt**

Rec'd Battery Capacity (CCA)--amp .....	640	570
Max. Allow. Start. Circ't Resist.--Ohm ..	0.0012	0.002
Starter Rolling Current:		
At 32 °F ( 0 °C)--amp .....	780	600
At -22 °F (-30 °C)--amp.....	1000	700

### Air System

**Prime      Standby**

Max. Allowable Temp Rise--Ambient Air to		
Engine Inlet--°F (°C) .....	15 (8)	15 (8)
Maximum Air Intake Restriction		
Dirty Air Cleaner--in.H <sub>2</sub> O (kPa) .....	25 (6.3)	25 (6.3)
Clean Air Cleaner--in.H <sub>2</sub> O (kPa) .....	12 (3)	12 (3)
Engine Air Flow--ft <sup>3</sup> /min (m <sup>3</sup> /min).....	330 (9.4)	360 (10.2)
Intake Manifold Pressure--psi (kPa) ...	23 (158)	26 (181)
Recm'd Intake Pipe Dia--in. (mm).....	3 (76.2)	3 (76.2)
Compress. Discharge Temp--°F (°C).....	334(168)	369(187)
Max. Press. Drop Through		
Charge Air Cooler--in.H <sub>2</sub> O (kPa).....	52 (13)	52 (13)
Max. Temp. Out of Charge Air Cooler @		
77°F (25°C) Ambient Air--°F (°C).....	140 (60)	140 (60)

### Cooling System

**Prime      Standby**

Engine Heat Reject.--BTU/min (kW).....	3415 (60)	3757 (66)
Air/Air Exchanger Heat Rejection--		
BTU/min (kW) .....	1258 (22.1)	1537 (27)
Coolant Flow--gal/min (L/min).....	38 (144)	38 (144)
Thermostat Start to Open--°F (°C) .....	180 (82)	180 (82)
Thermostat Fully Open--°F (°C).....	201 (94)	201 (94)
Engine Coolant Capacity--qt (L) .....	9 (8.5)	9 (8.5)
Recm'd Pressure Cap--psi (kPa) .....	10 (69)	10 (69)
Max. Top Tank Temp--°F (°C) .....	221 (105)	221 (105)
Min. Coolant Fill Rate--gal/min (L/min) ...	3 (11)	3 (11)
Min. Air-to-Boil Temperature--°F (°C) ..	117 (47)	117 (47)

### Exhaust System

**Prime      Standby**

Exhaust Flow--ft <sup>3</sup> /min (m <sup>3</sup> /min).....	869 (24.6)	954(27)
Exhaust Temperature--°F (°C) .....	979 (526)	1018(548)
Maximum Allowable Back		
Pressure--in.H <sub>2</sub> O (kPa).....	30 (7.5)	30 (7.5)
Recm'd Exhaust Pipe Dia--in. (mm) ..	4 (101.6)	4 (101.6)

### Fuel System

**Prime      Standby**

Fuel Injection Pump (Denso).....	HPCR	HPCR
Governor Regulation.....	4 %	4 %
Governor Type.....	Electronic	Electronic
Total Fuel Flow--lb/hr (kg/hr).....	139.3 (63.2)	147.3 (66.8)
Fuel Consumption--lb/hr (kg/hr).....	60.0 (27.2)	67.9 (30.8)
Maximum Fuel Transfer Pump		
Suction--ft (m) fuel .....	3 (0.9)	3 (0.9)
Max. Fuel Inlet Temp.--°F (°C).....	176 (80)	176 (80)
Fuel Filter Micron Size @ 98 % Efficiency ..	2	2

### Lubrication System

Data based on engine with oil pan option code ..... 1976

**Prime      Standby**

Oil Pressure		
at Rated Speed--psi (kPa) .....	50 (345)	50 (345)
Oil Pressure at Low Idle--psi (kPa) ....	15 (105)	15 (105)
In Pan Oil Temperature--°F (°C) .....	239 (115)	239 (115)
Oil Pan Capacity, High--qt (L) .....	22 (20.5)	22 (20.5)
Oil Pan Capacity, Low--qt (L) .....	21 (19.5)	21 (19.5)
Total Eng. Oil Capacity w/ Filters--qt (L).....	23 (21.5)	23 (21.5)
Eng. Angularity Limits and direction--deg.		
Intermittent.....	35	35
Continuous.....	20	20

### Performance Data

**Prime      Standby**

Rated Power--hp (kW) .....	174 (130)	192 (143)
Rated Speed--rpm .....	1800	1800
Low Idle Speed--rpm .....	1400	1400
BMEP--psi (kPa) .....	278 (1915)	305 (2100)
Friction Power		
@ Rated Speed--hp (kW) .....	17 (13)	17 (13)
Altitude Capability--ft (m) .....	NA	NA
Ratio--Air : Fuel.....	23.4:1	22.1:1
Noise--dB(A) @ 1 m .....	NA	NA

### Fuel Consumption -- lb/hr (kg/h)

**Prime      Standby**

25 % Power .....	16.8 (7.6)	18.5 (8.4)
50 % Power .....	31.3 (14.2)	34.4 (15.6)
75 % Power .....	45.4 (20.6)	50.0 (22.7)
100 % Power .....	60.0 (27.2)	67.9 (30.8)

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

\* Revised Data  
Curve 4045HF4751800192.....Sheet 2 of 3  
April 2002

## Engine Specification Data

### Electronic Engine Controller (JDEC)

Performance System Option Code Table		
Option Codes		System Voltage
Injection Pump	Performance Software	
161V	72AV	12V
165A*	72CN*	24V

ECU Feature Software Option Code (8300 Group) Table Generator* Applications -- 4-valve HPCR							
Option Code	Oil Pressure Sensor	Governing 8 % or Isochronous	Cruise Control	Engine Protection		Available Throttle Inputs	
				ECU Software	External Input	Analog	Digital
8365	No	Selectable	No	None	Derate & Shutdown	Two	Adj. 3-State
8366	Yes	Selectable	No	None	Derate & Shutdown	Two	Adj. 3-State
8367	Yes	Selectable	No	Shutdown	Derate & Shutdown	Two	Adj. 3-State

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Curve 4045HF4751800192.....Sheet 3 of 3  
April 2002