



JOHN DEERE

**ENGINE PERFORMANCE CURVE**

Rating: Marine  
 Application: Generator  
 Prime Power

**POWERTECH 4.5 L Engine**  
**Model: 4045DFM70**

**62 hp (46 kW) @ 1800 rpm**  
**54 hp (40 kW) @ 1500 rpm**

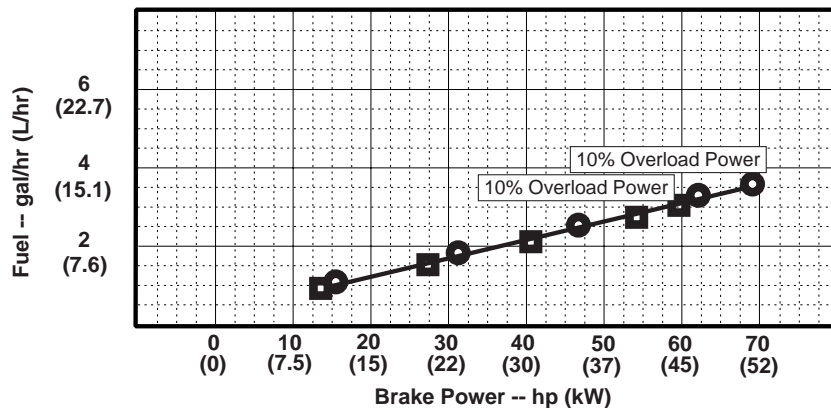
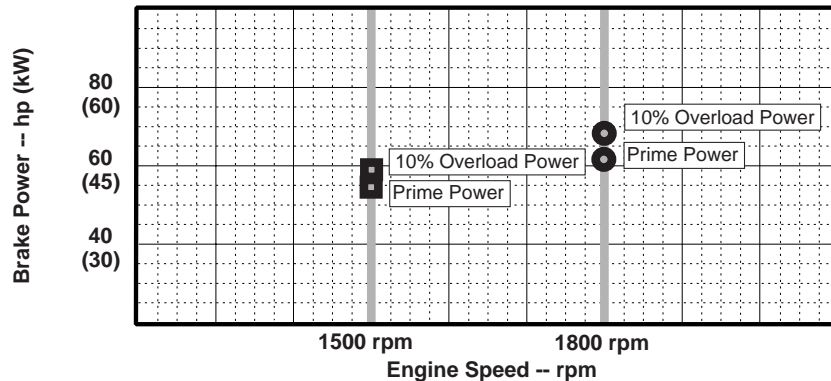
Speed rpm (Hz)	Generator Efficiency %	Keel Cooled		Power Factor	Calculated Gen-Set Rating	
		(no fan)			kW	kVA
1500 (50)	88-92	--	--	0.8	35-37	44-46
1800 (60)	88-92	--	--	0.8	40-42	50-53

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 8665 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:

1800 RPM Emission Certifications:	1500 RPM Emission Certifications:
<ul style="list-style-type: none"> <li>EPA Commercial Marine (40 CFR Part 94)</li> <li>IMO Exempt*</li> </ul>	<ul style="list-style-type: none"> <li>¥ IMO Exempt*</li> </ul>
Ref: Engine Emission Label	Ref: Engine Emission Label

Certified by:

*NEAL CEEPER 1 Apr 2004*

\* Revised Data  
 Curve 4045DFM7062MG..... Sheet 1 of 2  
 April 2004

## Engine Specification Data

### General Data

Model ..... 4045DFM70  
 Number of Cylinders ..... 4  
 Bore and Stroke--in. (mm)..... 4.2 x 5.0 (106.5 x 127)  
 Displacement--in.<sup>3</sup> (L) .....275 (4.5)  
 Compression Ratio ..... 17.6:1  
 Valves per Cylinder--Intake/Exhaust..... 1 / 1  
 Firing Order..... 1-3-4-2  
 Combustion System..... Direct Injection  
 Engine Type..... In-line, 4-Cycle  
 Aspiration..... Natural  
 Engine Crankcase Vent System ..... Closed  
 Max. Crankcase Pressure--in. H<sub>2</sub>O (kPa) .....2 (0.5)

### Physical Data

Length--in. (mm) .....34.8 (885)  
 Width--in. (mm) .....28.0 (712)  
 Height, Crank Center to Top--in. (mm).....24.4 (620)  
 Height, Crank Center to Bottom--in. (mm) ..... 11.1 (282.5)  
 Weight, dry--lb (kg).....1019 (462)  
 (Includes flywheel housing, flywheel & electrics)  
 Center of Gravity Location From  
 Rear Face of Block (X-axis)--in. (mm) ..... 11.0 (280)  
 Right of Crankshaft (Y-axis)--in. (mm) ..... -1.0 (-25)  
 Above Crankshaft (Z-axis)--in. (mm) .....7.9 (200)  
 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).....900 (4003)  
 Maximum Installation Angle  
 Front up--degrees .....12\*  
 Front down--degrees.....0

### Air System

**1800 rpm 1500 rpm**

Min. Ventilation Area--in.<sup>2</sup> (m<sup>2</sup>) .....34.1(0.022) .23.3(0.015)  
 Maximum Allowable Air Temperature Rise,  
 Ambient to Engine Inlet--°F (°C) .....30 (17) ..... 30 (17)  
 Engine Air Flow--ft<sup>3</sup>/min (m<sup>3</sup>/min) .....127 (3.6) .....85 (2.4)  
 Maximum Air Intake Restriction  
 Dirty Air Cleaner--in. H<sub>2</sub>O (kPa) .....25 (6.25) .....25 (6.25)  
 Clean Air Cleaner--in. H<sub>2</sub>O (kPa).....12 (3.0) ..... 12 (3.0)

### Cooling System

**1800 rpm 1500 rpm**

Eng. Heat Reject--BTU/min (kW).....2391 (42) 1793 (31.5)  
 Eng. Radiated Heat--BTU/min (kW) ..353 (6.2) .... 290 (5.1)  
 Coolant Flow--gal/min (L/min)..... 32\* (125\*) .. 30\* (116\*)  
 Min. Coolant Fill Rate--gal/min (L/min) 3.2 (12) ..... 3.2 (12)  
 Thermostat Start to Open--°F (°C) .....180 (82) ..... 180 (82)  
 Thermostat Fully Open--°F (°C).....203 (95) ..... 203 (95)  
 Maximum Top Tank Temp--°F (°C) ...212 (100) ... 212 (100)  
 Minimum Sea Water-to-Boil--°F (°C) ....90 (32) ..... 90 (32)  
 Min. Water Pump In. Press.--in. H<sub>2</sub>O (kPa)00 (00)..00 (00)  
 Rec'd. Pressure Cap--psi (kPa) ..... 10 (70) ..... 10 (70)  
 Max. Pressure Drop  
 Across Keel Cooler--psi (kPa).....4 (30) ..... 3 (20)  
 Engine Coolant Capacity--qt (L) ..... 13 (12) ..... 13 (12)

### Electrical System

**12 Volts 24 Volts**

Recommended Battery Capacity  
 CCA @ 32 °F (0 °C)--amp ..... 640 ..... 570  
 Max. Starting Circuit Resist.--Ohm ..... 0.0012 ..... 0.002  
 Starter Rolling Current  
 @ 32 °F (0 °C)--amp .....780 ..... 600

### Exhaust System

**1800 rpm 1500 rpm**

Exhaust Temperature--°F (°C).....1089 (587) .1049 (565)  
 Exhaust Gas Flow--ft<sup>3</sup>/min (m<sup>3</sup>/min) 367 (10.4) .... 237 (7.0)  
 Min. Exhaust Pipe Dia. Dry--in. (mm) ..2.0 (50)..... 2.0 (50)  
 Min. Exhaust Pipe Dia. Wet--in. (mm) .2.5 (65) ..... 2.5 (65)  
 Max. Allow. Back Press.--in. H<sub>2</sub>O (kPa)30 (7.5) .... 30 (7.5)  
 Max. Weight on Turbo--lb (kg) .....26.5(12.0)..26.5(12.0)

### Fuel System

**1800 rpm 1500 rpm**

Fuel Injection Pump--Stanadyne..... DB-2  
 Governor Type ..... Mech.  
 Governor Regulation--percent ..... 5  
 Total Fuel Flow--lb/hr (kg/hr).....214 (97) ..... 205 (93)  
 Total Fuel Flow--gal/hr (L/hr).....30 (114) ..... 29 (109)  
 Min. Rec'd. Fuel Line ID--in. (mm).....0.25 (6)  
 Min. Rec'd. Fuel Line Size ..... -5  
 Fuel Cons. 'Prime' --lb/hr (kg/hr)....23.4 (10.6) .... 19.0 (8.6)  
 Fuel Cons. 'Prime' --gal/hr (L/hr) .....3.3 (12.5) .... 2.7 (10.1)  
 Max Leak-off Line Press.--psi (kPa) .....4 (30)  
 Max. Fuel Trans. Pump Suction--ft (m).....10(3.0)  
 Max. Fuel Ht. Above Inj.Pump--ft (m) ..... 10(3.0)  
 Max. Fuel Inlet Temp. w/o derate--°F (°C) ... 104 (40)  
 Fuel Filter @ 98% Efficiency--Microns..... 2

### Lubrication System

**1800 rpm 1500 rpm**

Oil Press. at Rated Speed--psi (kPa)..50 (345)..... 45 (311)  
 Oil Pressure at Low Idle--psi (kPa) ..... 15 (105)..... 15 (105)

### Sea Water System

**1800 rpm 1500 rpm**

Sea Water Pump Flow--gal/min (L/min)22 (84) ..... 18(70)  
 Max. Inlet Restriction--in. H<sub>2</sub>O (kPa) ..120 (30) ..... 100(25)  
 Max. Outlet Press--psi (kPa).....20 (135) ..... 20 (135)  
 Max. Suction Lift--ft (m) .....10 (3.0) ..... 10 (3.0)

### Performance Data

**1800 rpm 1500 rpm**

Rated 'Prime' Power--hp (kW) ..... 62 (46) ..... 54 (40)  
 10% Overload Engine Power--hp (kW)67 (50) ..... 59 (44)  
 Low Idle Speed--rpm ..... 1400 ..... 1400  
 Rated Torque--ft-lb (N•m).....178 (241) .... 260 (353)  
 BMEP--psi (kPa) .....97 (669)..... 103 (707)  
 Friction Power @ Rated Speed--hp (kW)17 (13)..... 13 (10)  
 Smoke @ Rated Speed--Bosch No. .... NA..... NA

### Fuel Consumption

**1800 rpm 1500 rpm**

Prime:  
 25 % Power-- gal/hr (L/hr) .....1.1 (4.3)..... 0.9 (3.4)  
 50 % Power-- gal/hr (L/hr) ..... 1.9 (7.1) ..... 1.5 (5.5)  
 75 % Power-- gal/hr (L/hr) .....2.6 (9.9)..... 2.1 (7.8)  
 100 % Power-- gal/hr (L/hr) .....3.3 (12.5)..... 2.7 (10.1)  
 10% Overload Power-- gal/hr (L/hr) .3.6 (13.5).... 3.0 (11.3)

Data based on keel-cooled engine.  
 All values at rated speed and power with standard options unless otherwise noted.

\* Revised Data  
 Curve 4045DFM7062MG ..... Sheet 2 of 2  
 April 2004