



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.H₂O (3 kPa)
 Exhaust Back Pressure 30 in.H₂O (7.5 kPa)

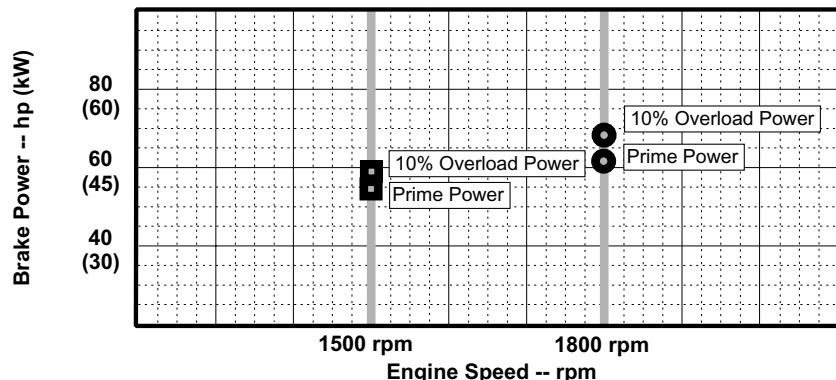
Gross power guaranteed within + or - 5% at SAE J1995 and ISO 8665 conditions:

- 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)

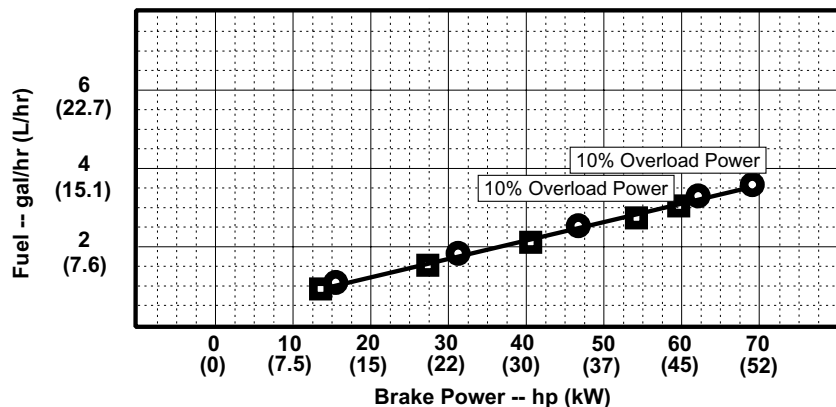
Conversion factors:

- 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.



■ - 1500 rpm ● - 1800 rpm



Notes:

1800 RPM Emission Certifications:	1500 RPM Emission Certifications:
<ul style="list-style-type: none"> • EPA Commercial Marine (40 CFR Part 94) • IMO Annex VI 	<ul style="list-style-type: none"> • IMO Annex VI
Ref: Engine Emission Label	Ref: Engine Emission Label

Certified by:

NEAL CLEPER 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.³ (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. H₂O (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 15
 Front down--degrees.....0

Air System

1800 rpm 1500 rpm

Min. Ventilation Area--in.² (m²)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--ft³/min (m³/min)127 (3.6)85 (2.4)
 Maximum Air Intake Restriction
 Dirty Air Cleaner--in. H₂O (kPa)....25 (6.25)25 (6.25)
 Clean Air Cleaner--in. H₂O (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).....25 (94) 14 (53)
 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. H₂O (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--ft³/min (m³/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. H₂O (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. H₂O (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