



JOHN DEERE

ENGINE PERFORMANCE CURVE

Rating: Marine
 Application: Generator
 Prime Power

POWERTECH 4.5 L Engine
 Model: **4045TFM75**

98 hp (73 kW) @ 1800 rpm
74 hp (55 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	48-51	60-64
1800 (60)	88-92	--	--	0.8	64-67	80-84

Air Intake Restriction 12 in.H₂O (3 kPa)
 Exhaust Back Pressure 30 in.H₂O (7.5 kPa)

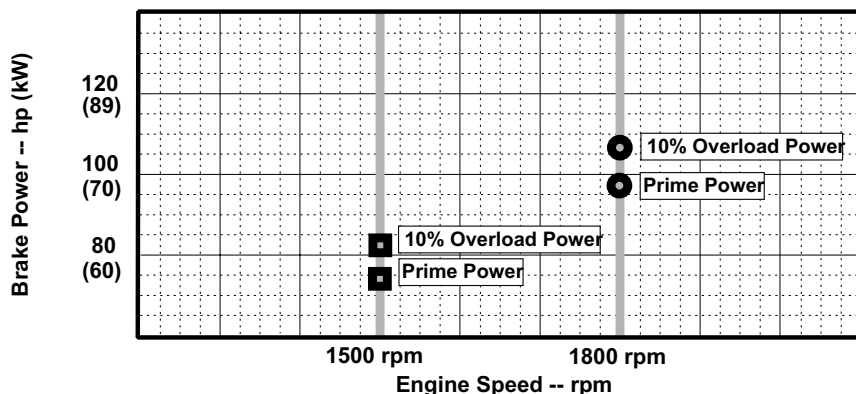
Gross power guaranteed within + or - 5% at SAE J1995 and ISO 8665 conditions:

- 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)

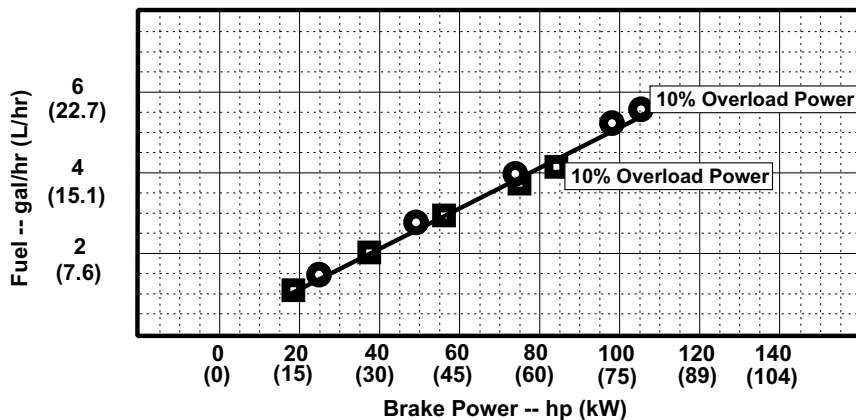
Conversion factors:

- 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 LEOPER 1 Apr 2004

* Revised Data
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 April 2004

Engine Specification Data

General Data

Model	4045TFM75
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	Turbocharged
Engine Crankcase Vent System	Open
Max. Crankcase Pressure--in. H ₂ 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)	11.5 (292)
Weight, dry--lb (kg).....	1019 (462)
(Includes flywheel housing, flywheel & electrics)	
Center of Gravity Location From	
Rear Face of Block (X-axis)--in. (mm)	10.6 (270)
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 (m ²)	49.6(0.032) .34.1(0.022)
Maximum Allowable Air Temperature Rise,	
Ambient to Engine Inlet--°F (°C)	30 (17) 30 (17)
Engine Air Flow--ft ³ /min (m ³ /min)	184 (5.2) 124 (3.5)
Maximum Air Intake Restriction	
Dirty Air Cleaner--in. H ₂ O (kPa).....	25 (6.25) 25 (6.25)
Clean Air Cleaner--in. H ₂ O (kPa).....	12 (3.0) 12 (3.0)

Cooling System

1800 rpm 1500 rpm

Eng. Heat Reject--BTU/min (kW).....	3523 (62) ... 2681 (47)
Eng. Radiated Heat--BTU/min (kW)	564 (9.9) 404 (7.1)
Coolant Flow--gal/min (L/min).....	25 (94) 14 (53)
Min. Coolant Fill Rate--gal/min (L/min)	3.2 (12)
Thermostat Start to Open--°F (°C)	180 (82)
Thermostat Fully Open--°F (°C).....	203 (95)
Maximum Top Tank Temp--°F (°C)	212 (100)
Minimum Sea Water-to-Boil--°F (°C)	90 (32)
Min. Water Pump In. Press.--in. H ₂ O (kPa)	00 (00)
Rec'd. Pressure Cap--psi (kPa)	10 (70)
Max. Pressure Drop	
Across Keel Cooler--psi (kPa).....	4 (30) 3 (20)
Engine Coolant Capacity--qt (L)	15 (14) 15 (14)

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 Gas Flow--ft ³ /min (m ³ /min) 463 (13.1).....	300 (9.0)
Exhaust Temperature--°F (°C)	889 (476) ... 851 (455)
Min. Exhaust Pipe Dia. Dry--in. (mm)	2.5 (65) 2.0 (50)
Min. Exhaust Pipe Dia. Wet--in. (mm)	3.0 (75) 2.5 (65)
Max. Allow. Back Press.--in. H ₂ O (kPa).....	30 (7.5)
Max. Weight on Turbo--lb (kg)	26.5 (12.0)

Fuel System

1800 rpm 1500 rpm

Fuel Injection Pump--Stanadyne.....	DE-10
Governor Type	Electronic
Governor Regulation--percent	0 to 5 0 to 6
Total Fuel Flow--lb/hr (kg/hr).....	212 (96) 205 (93)
Total Fuel Flow--gal/hr (L/hr).....	30 (113) 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).....	36.8 (16.7) .. 26.5 (12.0)
Fuel Cons. 'Prime' --gal/hr (L/hr)	5.2 (19.7) 3.7 (14.1)
Max Leak-off Line Press.--psi (kPa)	3 (20)
Max Leak-off Return Height--ft (m)	8 (2.5)
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).....	212 (100)
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 ₂ 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)	98 (73) 74 (55)
10% Overload Engine Power--hp (kW).....	107 (80) 82 (61)
Low Idle Speed--rpm	1150 1150
Rated Torque--ft-lb (N•m).....	285 (386) 260 (353)
BMEP--psi (kPa)	155 (1071) 142 (980)
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)	1.5 (5.8) 1.2 (4.6)
50 % Power-- gal/hr (L/hr)	2.8 (10.7) 2.0 (7.6)
75 % Power-- gal/hr (L/hr)	4.0 (15.3) 2.9 (10.8)
100 % Power-- gal/hr (L/hr)	5.2 (19.7) 3.7 (14.1)
10% Overload Power-- gal/hr (L/hr).....	5.6 (21.1) 4.1 (15.7)

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

* Revised Data
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April 2004