



JOHN DEERE

ENGINE PERFORMANCE CURVE

Rating: Marine
 Application: Generator
 Prime Power

POWERTECH 4.5 L Engine
 Model: **4045TFM50**
 [Option 16HM / 16HN]*

95 hp (71 kW) @ 1800 rpm
76 hp (57 kW) @ 1500 rpm

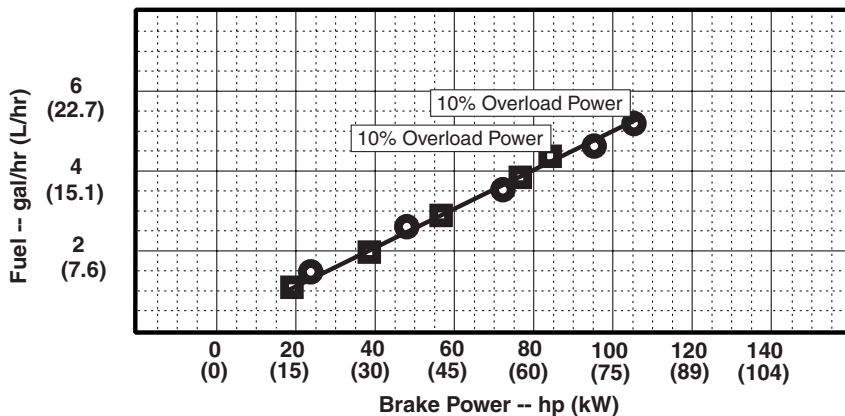
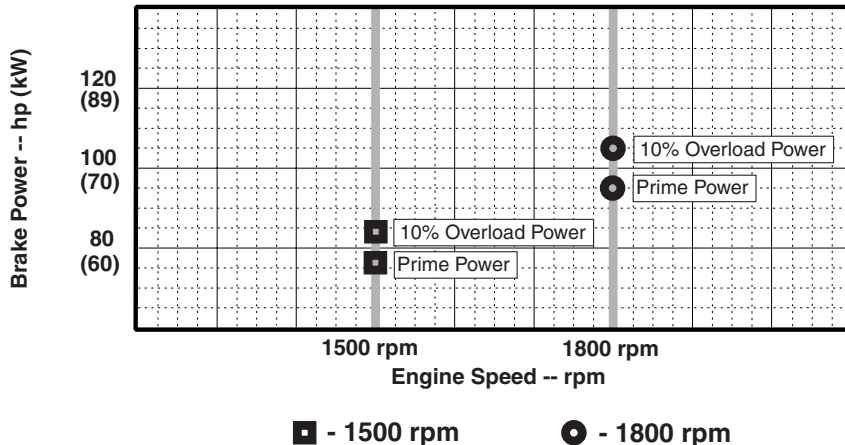
Speed rpm (Hz)	Generator Efficiency %	Keel Cooled (no fan)		Power Factor	Calculated Gen-Set Rating	
					kW	kVA
1500 (50)	88-92	--	--	0.8	50-52	62-65
1800 (60)	88-92	--	--	0.8	62-65	78-81

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:

Emission Certifications:

Certified by:

NONE

Neal Seeger
 5 Apr 99

Ref: Engine Emission Label

* Revised Data

Curve 4045TFM5095MG Sheet 1 of 2
 April 1999

Engine Specification Data

General Data

Model4045TFM50
 Number of Cylinders 4
 Bore and Stroke--in. (mm)..... 4.19 x 5.00 (106 x 127)
 Displacement--in.³ (L)276 (4.5)
 Compression Ratio 17.2:1
 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

Physical Data

Length--in. (mm)35* (885)*
 Width--in. (mm)28 (713)
 Height--in. (mm) 36 (911)
 Weight, dry--lb (kg).....1017 (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) 7.4 (189)
 Above Crankshaft (Z-axis)--in. (mm) 6.7* (170*)
 Max. Allow. Static Bending Moment at Rear Face
 of Flywhl Hsg w/ 5-G Load--lb-ft (N*m)600 (814)
 Maximum Installation Angle
 Front up--degrees12*
 Front down--degrees 0

Fuel System

1800 rpm 1500 rpm

Fuel Injection Pump--Stanadyne DB-4 DB-4
 Governor Type Mech. Mech.
 Governor Regulation 5 % 5 %
 'Prime' Fuel Consump.--gal/hr (L/hr) 4.6 (17.6)3.8 (14.4)
 Total Fuel Flow--gal/hr (L/hr) 30 (113)29 (109)
 Max Leak-off Line Pressure--psi (kPa).....2 (14)2 (14)
 Maximum Fuel Transfer Pump Suction--
 ft (m) fuel3 (0.9)3 (0.9)
 Max Fuel Height
 Above Injection Pump--ft (m)4.5 (1.4)4.5 (1.4)
 Fuel Filter @ 98% Efficiency--Microns 8 8

Lubrication System

1800 rpm 1500 rpm

Oil Press. 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) 13.7 (13) ... 13.7 (13)
 Oil Pan Capacity, Low--qt (L) 12.7 (12) ... 12.7 (12)
 Total Eng. Oil Cap. w/filters--qt (L) 14.8 (14) ... 14.8 (14)
 Oper. Angularity Limit, Any Direction--deg30 30
 Max. Crankcase Press.--in. H₂O (kPa) .. 2 (0.5) 2 (0.5)
 Engine Crankcase Vent Systemopen open

Exhaust System

1800 rpm 1500 rpm

Exhaust Temperature--°F (°C)772 (411) .. 775 (413)
 Exhaust Flow--ft³/min (m³/min)..... 375 (10.5) ... 300 (8.5)
 Maximum Allowable Back Pressure--
 in. H₂O (kPa) 30 (7.5) 30 (7.5)
 Maximum Weight on Turbo--lb (kg) 55 (25) 55 (25)
 Rec'd. Min. Exhaust Outlet Diameter
 Dry--in. (mm) 2.0 (50) 2.0 (50)
 Wet--in. (mm) 2.5 (63) 2.5 (63)

Cooling System

1800 rpm 1500 rpm

Eng. Heat Rejection--BTU/min (kW) . 2800 (49) .. 2275 (40)
 Eng. Radiated Heat--BTU/min (kW) .. 500 (8.8) ... 410 (7.2)
 Coolant Flow--gal/min (L/min).....33*(125)* .. 31*(116)*
 Min. Coolant Fill Rate--gal/min (L/min) 3 (11) 3 (11)
 Thermostat Start to Open--°F (°C) 176 (80) 176 (80)
 Thermostat Fully Open--°F (°C)..... 201 (94) 201 (94)
 Maximum Top Tank Temp--°F (°C) ... 212 (100) .. 212 (100)
 Minimum Water-to-Boil--°F (°C) 86 (30) 86 (30)
 Rec'd. Pressure Cap--psi (kPa) 7 (48) 7 (48)
 Max. Water Pump Inlet
 Restriction--in. H₂O (kPa) 40 (10) 40 (10)
 Max. Pres. Drop
 Across Keel Cooler--psi (kPa)..... 6 (41) 6 (41)
 Engine Coolant Capacity--qt (L) 15* (14*) ... 15* (14*)

Sea Water System

1800 rpm 1500 rpm

Sea Water Pump Flow--gal/min (L/min) 22 (83) 18 (68)
 Max. Inlet Restriction--in. H₂O (kPa) .. 120 (30) 120 (30)
 Max. Outlet Press--psi (kPa)..... 10 (69) 10 (69)
 Max. Suction Lift--ft (m) 10 (3) 10 (3)

Air System

1800 rpm 1500 rpm

Min. Ventilation Area--in.² (m²) 41 (0.026) ... 34 (0.022)
 Max. Allow. Temp Rise, Ambient Air to
 Engine Inlet--°F (°C) 31 (17) 31 (17)
 Engine Air Flow--ft³/min (m³/min) 150 (5) 125 (4)
 Intake Manifold Pressure--psi (kPa)..... 6 (42) 5 (32)
 Maximum Air Intake Restriction
 Dirty Air Cleaner--in. H₂O (kPa)..... 25 (6.3) 25 (6.3)
 Clean Air Cleaner--in. H₂O (kPa) ... 12 (3.0) 12 (3.0)

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 920 600

Performance Data

1800 rpm 1500 rpm

10% Overload Eng. Power--hp (kW) 105 (78) 84 (63)
 Prime Engine Power--hp (kW) 95 (71) 76 (57)
 Rated Speed--rpm 1800 1500
 Rated Torque--ft-lb (N*m)..... 305 (414) 294 (399)
 Low Idle Speed--rpm 1000 1000
 BMEP--psi (kPa) 152(1054)* ... 146(1015)*

Fuel Consumption

1800 rpm 1500 rpm

Prime:
 25 % Power-- gal/hr (L/hr) 1.5 (5.6) 1.1 (4.3)
 50 % Power-- gal/hr (L/hr) 2.6 (9.7) 2.0 (7.5)
 75 % Power-- gal/hr (L/hr) 3.5 (13.4) 2.8 (10.6)
 100 % Power-- gal/hr (L/hr) 4.6 (17.6) 3.8 (14.4)
 10% Overload Power-- gal/hr (L/hr) 5.2 (19.6) 4.3 (16.2)

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

* Revised Data
 Curve 4045TFM5095MG Sheet 2 of 2
 April 1999