

JOHN DEERE POWERTECH™ 4.5L ENGINE

MODEL: 4045TFM50

NOGVA

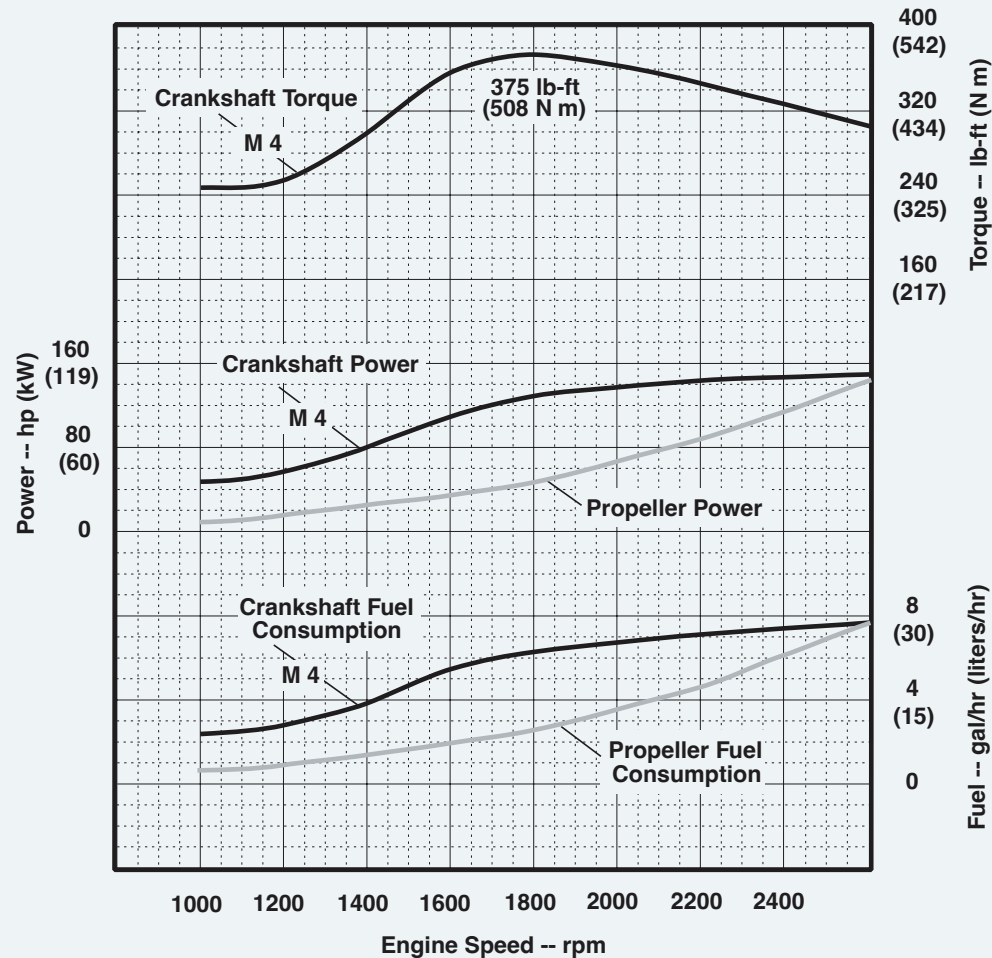
Rating: M4 - 150 hp (112 kW) @ 2600* rpm

Model: 4045TFM50

[Option 16LK / 16LL]*

(Propeller Shaft Power Based on 97% Marine Gear Efficiency)

Application: Marine



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:

All pressures shown in gauge pressure

Tier-1 Emission Certifications:

Certified by:

IMO Exempt (<130kW)

Ref: Engine Emission Label

Neal Seeger
23 JUNE 99

* Revised Data

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June 1999

MODEL: 4045TFM50

Common Specifications:

General Data

Model	4045TFM50
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

(Includes Engine, Flywheel Housing, Flywheel & Electrics)

Length--in.(mm)	34.8* (885)*
Width--in.(mm)	28.0* (712)*
Height--in.(mm)	35.9* (912)*
Weight, dry--lb (kg).....	1017 (462)
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)
Thrust Bearing Load Limit (Forward)--lb (N)	900 (4003)
Maximum Installed Angle	
Front Up--degrees.....	12*
Front Down--degrees	0

Fuel System

Fuel Injection Pump	Stanadyne DB-4
Governor Type	Mechanical
Governor Regulation--percent	7 to 10
Fuel Consumption--gal/hr (L/hr).....	7.8 (29.7)
Total Fuel Flow--gal/hr (L/hr)	33 (125)
Maximum Leak Off Line Pressure--psi (kPa)	2 (14)
Max. Fuel Transfer Pump Suction Lift--ft (m)	3 (0.9)
Max. Fuel Height Above Transfer Pump--ft (m)	4.5 (1.4)
Fuel Filter Size @98% Efficiency--Micron.....	8

Engine Specification Data

Lubrication System

Oil Pressure @ Rated Speed--psi (kPa).....	50 (345)
Oil Pressure @ Low Idle--psi (kPa)	15 (105)
Oil Temperature in Pan--iF (iC)	239 (115)
Oil Pan Capacity, High--qt (L)	13.7 (13)
Oil Pan Capacity, Low--qt (L)	12.7 (12)
Total Oil Capacity with Filters--qt (L)	14.8 (14)
Operational Angularity Limit - Any--degrees.....	30
Maximum Crankshaft Pressure--in. H ₂ O (kPa).....	2 (0.5)
Engine Crankcase Vent System	Open

Exhaust System

Exhaust Temperature--iF (iC).....	783 (417)
Exhaust Gas Flow--ft ³ /min (m ³ /min)	775 (21.9)
Maximum Back Pressure--in. H ₂ O (kPa)	30 (7.5)
Maximum Weight on Turbocharger--lb (kg)	55 (25)
Recommended Minimum Exhaust Outlet Size--in.(mm)	
Dry	3.0 (75)
Wet.....	3.25 (84)

Cooling System

Engine Heat Rejection--BTU/min (kW)	5575 (98)
Coolant Flow--gal/min (L/min).....	50 (189)
Minimum Coolant Fill Rate--gal/min (L/min)	3 (11)
Thermostat Start to Open--iF (iC)	176 (80)
Thermostat Fully Open--iF (iC)	201 (94)
Maximum Top Tank Temperature--iF (iC).....	212 (100)
Minimum Water-to-Boil Temperature--iF (iC)	86 (30)
Recommended Pressure Cap--psi (kPa)	7 (48)
Minimum Top Tank Pressure--in. H ₂ O (kPa).....	24 (610)
Max. Pressure Drop Across Keel Cooler--psi (kPa) ..	6 (41)
Engine Coolant Capacity--qt (L)	15 (14)

Sea Water System

Sea Water Pump Flow--gal/min (L/min).....	32 (122)
Maximum Inlet Restriction--in. H ₂ O (kPa)	120 (30)
Maximum Outlet Pressure--psi (kPa).....	10 (69)
Maximum Suction Lift--ft (m).....	10 (3)

Air System

Minimum Ventilation Area--in ² (m ²)	88 (0.057)
Maximum Allowable Air Temperature Rise	
Ambient to Engine Inlet--iF (iC)	31 (17)
Engine Air Flow--ft ³ /min (m ³ /min)	325 (9.5)
Intake Manifold Pressure--psi (kPa).....	20 (136)
Maximum Air Intake Restriction	
Dirty Air Cleaner--in. H ₂ O (kPa)	25 (6.3)
Clean Air Cleaner--in. H ₂ O (kPa)	12 (3.0)

Electrical System

12 Volt 24 Volt

Recommended Battery Capacity	
Cold Cranking Amps @ 32 iF (0 iC)--amp	640
Max. Starting Circuit Resistance--Ohms	0.0012 .. 0.002
Starter Rolling Current @ 32 iF (0 iC)--amp.....	920
.....	600

Performance Data

Rated Power--hp (kW)	150 (112)
Rated Power (Metric) Fuel @ 77 iF (25 iC)--PS	152
Rated Speed--rpm	2600
Rated Torque--lb-ft (N*m).....	304 (412)
Peak Torque--lb-ft (N*m)	374 (507)
Peak Torque Speed--rpm.....	1800
Torque Rise--percent	23
Low Idle Speed--rpm	700
BMEP--psi (kPa)	166 (1143)

Fuel Consumption for Typical Propeller Curve

Engine rpm	Crank Power hp (kW)	Crank Torque lb-ft (N*m)	Prop Power hp (kW)	Prop Fuel gal/hr(L/hr)
2600	150 (112)	304 (412)	145 (108)	7.8 (29.7)
2500	149 (111)	314 (426)	129 (96)	6.9 (26.1)
2400	148 (110)	324 (439)	114 (86)	6.1 (23.0)
2200	144 (108)	345 (467)	88 (66)	4.6 (17.5)
2000	138 (103)	362 (491)	66 (49)	3.6 (13.5)
1800	128 (96)	374 (507)	48 (36)	2.6 (10.0)
1600	109 (81)	357 (484)	34 (25)	1.9 (7.2)
1400	80 (59)	299 (405)	23 (17)	1.3 (5.0)
1200	58 (43)	254 (345)	14 (11)	0.9 (3.3)
1000	47 (35)	249 (337)	8 (6)	0.6 (2.3)

* Revised Data

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June 1999