JOHN DEERE

ENGINE PERFORMANCE CURVE

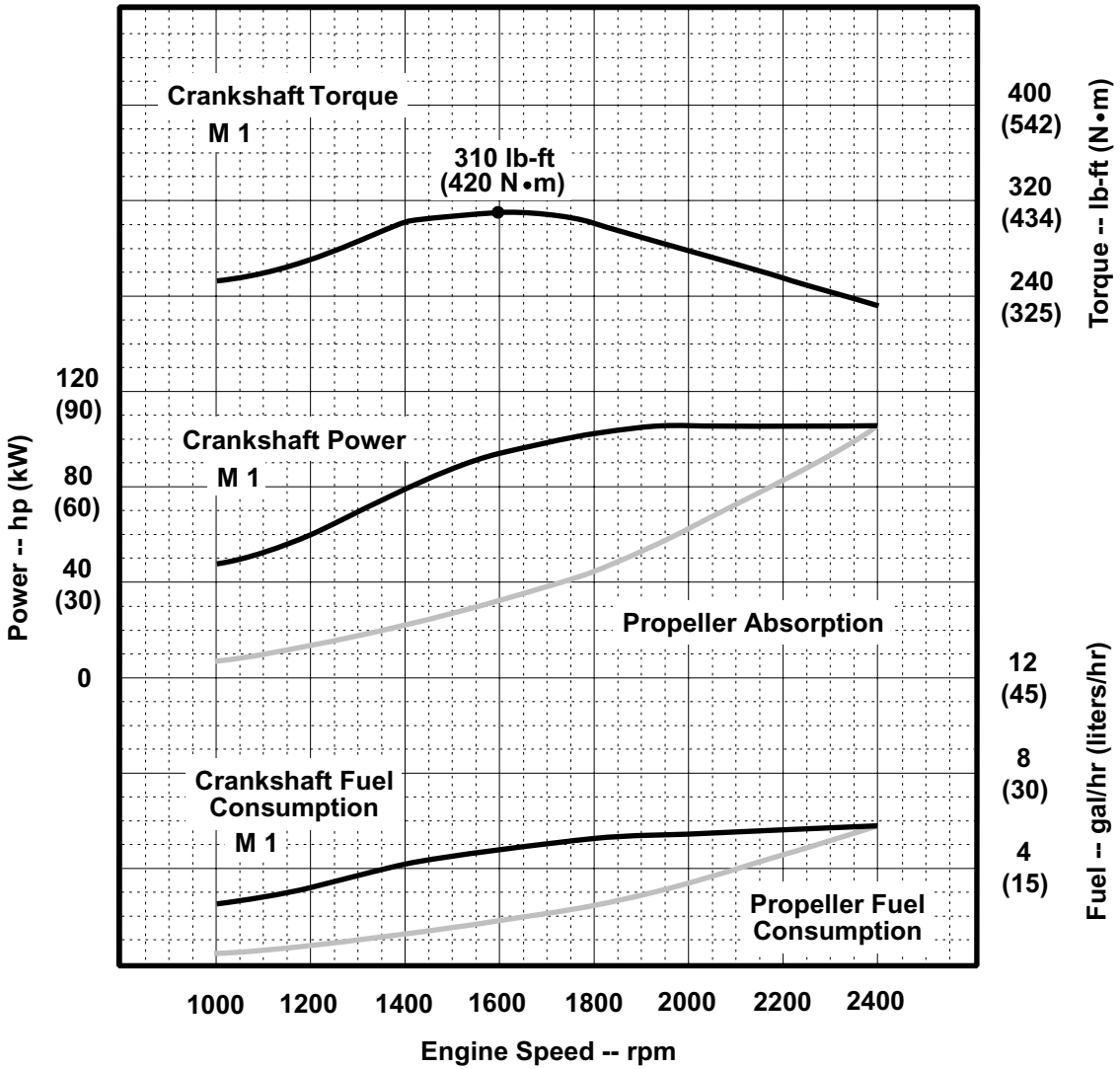
PowerTech 4.5 L Engine

Rating: M1 - 107 hp (80 kW) @ 2400 rpm

Model: **4045TFM75**

(Propeller Power is approximately 97% of Crankshaft Power)

Application: Marine



Air Intake Restriction ..... 12 in.H_2O (3 kPa)
Exhaust Back Pressure ..... 30 in.H_2O (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:

Tier-2 Emission Certifications:	Certified by:
• **EPA Commercial Marine** • **IMO Exempt** Ref: Engine Emission Label	NEAL LEEPER 22 APR 2004

* Revised Data

Curve: 4045TFM75107M1 ..... Sheet 1 of 2

April 2004

Engine Specification Data

Common Specifications:

General Data

Model 4045TFM75
Number of Cylinders 4
Bore and Stroke--in.(mm) ..... 4.2 x 5.0 (107 x 127)
Displacement--in^3 (L) 276 (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
Aftercooling System ..... none
Engine Crankcase Vent System ..... Open
Maximum Crankcase Pressure--in. H_2O (kPa) 2 (0.5)

Physical Data

(Includes Engine, Flywheel Housing, Flywheel & Electrics)
Length--in.(mm) 34.8 (885)
Width--in.(mm) 28.0 (712)
Height (centerline to top)--in.(mm) 24.4 (620)
Height (centerline to bottom)--in.(mm) 11.5 (292)
Weight, dry--lb (kg) 1019 (462)
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 Bearing Load Limit (Forward)--lb (N) 900 (4003)
Maximum Installed Angle
  Front Up--degrees 15
  Front Down--degrees 0

Air System

Minimum Ventilation Area--in^2 (m^2) 70 (0.045)
Maximum Allowable Air Temperature Rise
  Ambient to Engine Inlet--°F (°C) 30 (17)
Engine Air Flow--ft^3/min (m^3/min) 258 (7.3)
Intake Manifold Pressure--psi (kPa) 12 (80)
Maximum Air Intake Restriction
  Dirty Air Cleaner--in. H_2O (kPa) 25 (6.25)
  Clean Air Cleaner--in. H_2O (kPa) 12 (3.0)

Cooling System

Engine Heat Rejection--BTU/min (kW) 4195 (73.7)
Engine Radiated Heat--BTU/min (kW) 632 (11.1)
Coolant Flow--gal/min (L/min) 44 (167)
Minimum 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 Temperature--°F (°C) 212 (100)
Minimum Water-to-Boil Temperature--°F (°C) 90 (32)
Max. Water Pump Inlet Restriction--in. H_2O (kPa) ... 0 (0.0)
Recommended Pressure Cap--psi (kPa) 10 (70)
Max. Pressure Drop Across Keel Cooler--psi (kPa) .. 6 (40)
Engine Coolant Capacity--qt (L) 31.7 (30)

Electrical System

	12 Volt	24 Volt
Recommended Battery Capacity		
Cold Cranking Amps @ 32 °F (0 °C)--amp	640	570
Max. Starting Circuit Resistance--Ohms	0.0012	0.002
Starter Rolling Current @ 32 °F (0 °C)--amp	780	600

Exhaust System

Exhaust Temperature--°F (°C) 743 (395)
Exhaust Gas Flow--ft^3/min (m^3/min) 579 (16)
Min. Exhaust Pipe Diameter, Dry--in.(mm) 3.0 (75)
Min. Exhaust Pipe Diameter, Wet--in.(mm) 3.5 (90)
Max. Allowable Back Pressure--in. H_2O (kPa) 30 (7.5)
Max. Weight on Turbocharger--lb (kg) 27 (12)

Fuel System

ECU Description ..... John Deere Electronic Control
Fuel Injection Pump ..... Stanadyne DE-10
Governor Type ..... Electronic
Governor Regulation--percent ..... 0 to 5
Total Fuel Flow--lb/hr (kg/hr) 229 (104)
Total Fuel Flow--gal/hr (L/hr) 32 (122)
Min. Rec'd. Fuel Line ID--in.(mm) 0.25 (6.0)
Min. Rec'd. Fuel Line Size ..... -4
Fuel Consumption--lb/hr (kg/hr) 41.5 (18.8)
Fuel Consumption--gal/hr (L/hr) 5.8 (22.1)
Maximum Leak Off Line Pressure--psi (kPa) 2.9 (20)
Maximum Leak Off Line Height--ft (m) 8 (2.5)
Max. Fuel Transfer Pump Suction Lift--ft (m) fuel ... 10 (3.0)
Max. Fuel Inlet Restrict., Clean--in. H_2O (kPa) .. 120 (-30.0)
Max. Fuel Inlet Restrict., Dirty--in. H_2O (kPa) ... 160 (-40.0)
Max. Fuel Height Above Transfer Pump--ft (m) 7 (2.0)
Max. Fuel Inlet Temperature--°F (°C) 212 (100)
Fuel Filter Size @98% Efficiency--Micron 2

Lubrication System

Oil Pressure @ Rated Speed--psi (kPa) 51 (350)
Oil Pressure @ Low Idle--psi (kPa) 15 (100)

Sea Water System

Sea Water Pump Flow--gal/min (L/min) 30 (112)
Maximum Inlet Restriction---in. H_2O (kPa) 120 (30)
Maximum Outlet Pressure--psi (kPa) 20 (135)
Maximum Suction Lift--ft (m) 10 (3.0)

Performance Data

Performance Option Codes ..... 72FP / 72FQ
Rated Power--hp (kW) 107 (80)
Rated Power (Metric) Fuel @ 77 °F (25 °C)--PS 108
Rated Speed--rpm 2400
Rated Torque--lb-ft (N•m) 233 (316)
Peak Torque--lb-ft (N•m) 310 (420)
Peak Torque Speed--rpm 1600
Torque Rise--percent 32
Low Idle Speed--rpm 650
BMEP--psi (kPa) 126 (872)
Smoke @ Rated Speed--Bosch No. ..... <1.2

Fuel Consumption for Typical Propeller Curve

Engine rpm	Crank. Power hp (kW)	Crank. Torque lb-ft (N•m)	Prop. Absorption hp (kW)	Prop. Fuel gal/hr(L/hr)
2400	107 (80)	233 (316)	107 (80)	5.8 (22.1)
2200	107 (80)	255 (345)	82 (61)	4.6 (17.5)
2000	107 (80)	280 (380)	62 (46)	3.5 (13.1)
1800	103 (77)	301 (408)	45 (34)	2.5 (9.6)
1600	94 (70)	310 (420)	32 (24)	1.8 (6.7)
1400	80 (60)	302 (409)	21 (16)	1.2 (4.5)
1200	60 (45)	264 (358)	13 (10)	0.8 (2.8)
1000	48 (36)	254 (344)	8 (6)	0.4 (1.6)

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

* Revised Data
Curve: 4045TFM75107M1 ..... Sheet 2 of 2
April 2004