



JOHN DEERE

ENGINE PERFORMANCE CURVE

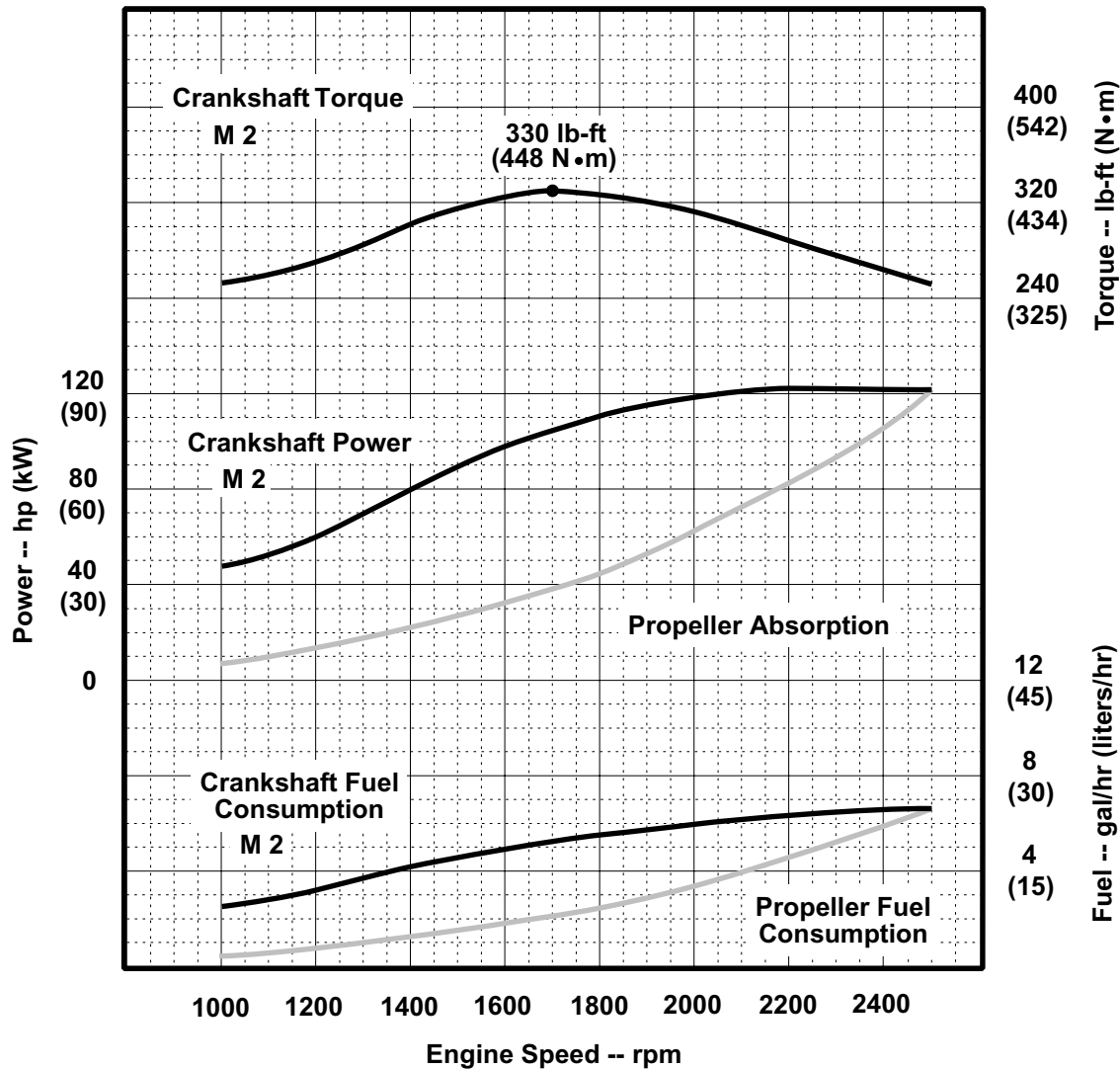
Rating: M2 - 121 hp (90 kW) @ 2500 rpm

PowerTech 4.5 L Engine

Model: **4045TFM75**

(Propeller Power is approximately 97% of Crankshaft Power)

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 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

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April 2004

Common Specifications:

General Data

Model4045TFM75
 Number of Cylinders 4
 Bore and Stroke--in.(mm)..... 4.2 x 5.0 (107 x 127)
 Displacement--in³ (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. H₂O (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--in² (m²).....81 (0.052)
 Maximum Allowable Air Temperature Rise
 Ambient to Engine Inlet--°F (°C)30 (17)
 Engine Air Flow--ft³/min (m³/min)258 (7.3)
 Intake Manifold Pressure--psi (kPa).....16 (108)
 Maximum Air Intake Restriction
 Dirty Air Cleaner--in. H₂O (kPa).....25 (6.25)
 Clean Air Cleaner--in. H₂O (kPa).....12 (3.0)

Engine Specification Data

Cooling System

Engine Heat Rejection--BTU/min (kW) 4810 (84.5)
 Engine Radiated Heat--BTU/min (kW)..... 734 (12.9)
 Coolant Flow--gal/min (L/min)..... 47 (178)
 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. H₂O (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

Recommended Battery Capacity **12 Volt 24 Volt**
 Cold Cranking Amps @ 32 °F (0 °C)--amp..640 570
 Max. Starting Circuit Resistance--Ohms0.0012 ... 0.002
 Starter Rolling Current @ 32 °F (0 °C)--amp ...780 600

Exhaust System

Exhaust Temperature--°F (°C)763 (406)
 Exhaust Gas Flow--ft³/min (m³/min) 675 (19)
 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. H₂O (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 TypeElectronic
 Governor Regulation--percent 0 to 5
 Total Fuel Flow--lb/hr (kg/hr) 231 (105)
 Total Fuel Flow--gal/hr (L/hr)..... 33 (124)
 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)..... 47.7 (21.6)
 Fuel Consumption--gal/hr (L/hr)..... 6.7 (25.4)
 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. H₂O (kPa) .-120 (-30.0)
 Max. Fuel Inlet Restrict., Dirty--in. H₂O (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)..... 31 (117)
 Maximum Inlet Restriction--in. H₂O (kPa) 120 (30)
 Maximum Outlet Pressure--psi (kPa)..... 20 (135)
 Maximum Suction Lift--ft (m)..... 10 (3.0)

Performance Data

Performance Option Codes 72FR / 72FS
 Rated Power--hp (kW) 121 (90)
 Rated Power (Metric) Fuel @ 77 °F (25 °C)--PS 122
 Rated Speed--rpm 2500
 Rated Torque--lb-ft (N•m)..... 254 (344)
 Peak Torque--lb-ft (N•m) 330 (448)
 Peak Torque Speed--rpm 1700
 Torque Rise--percent 30
 Low Idle Speed--rpm 650
 BMEP--psi (kPa) 138 (954)
 Smoke @ Rated Speed--Bosch No.<1.4

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)
2500	121 (90)	254 (344)	121 (90)	6.7 (25.4)
2400	121 (90)	264 (358)	107 (80)	6.2 (23.4)
2200	121 (90)	288 (391)	82 (61)	4.7 (17.9)
2000	119 (89)	313 (425)	62 (46)	3.5 (13.1)
1800	111 (83)	325 (440)	45 (34)	2.5 (9.6)
1700	107 (80)	330 (448)	38 (28)	2.1 (8.1)
1600	99 (74)	326 (442)	32 (24)	1.8 (6.7)
1400	80 (60)	302 (409)	21 (16)	1.2 (4.5)
1200	60 (45)	264 (358)	13 (10)	0.7 (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
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 April 2004