



JOHN DEERE

ENGINE PERFORMANCE CURVE

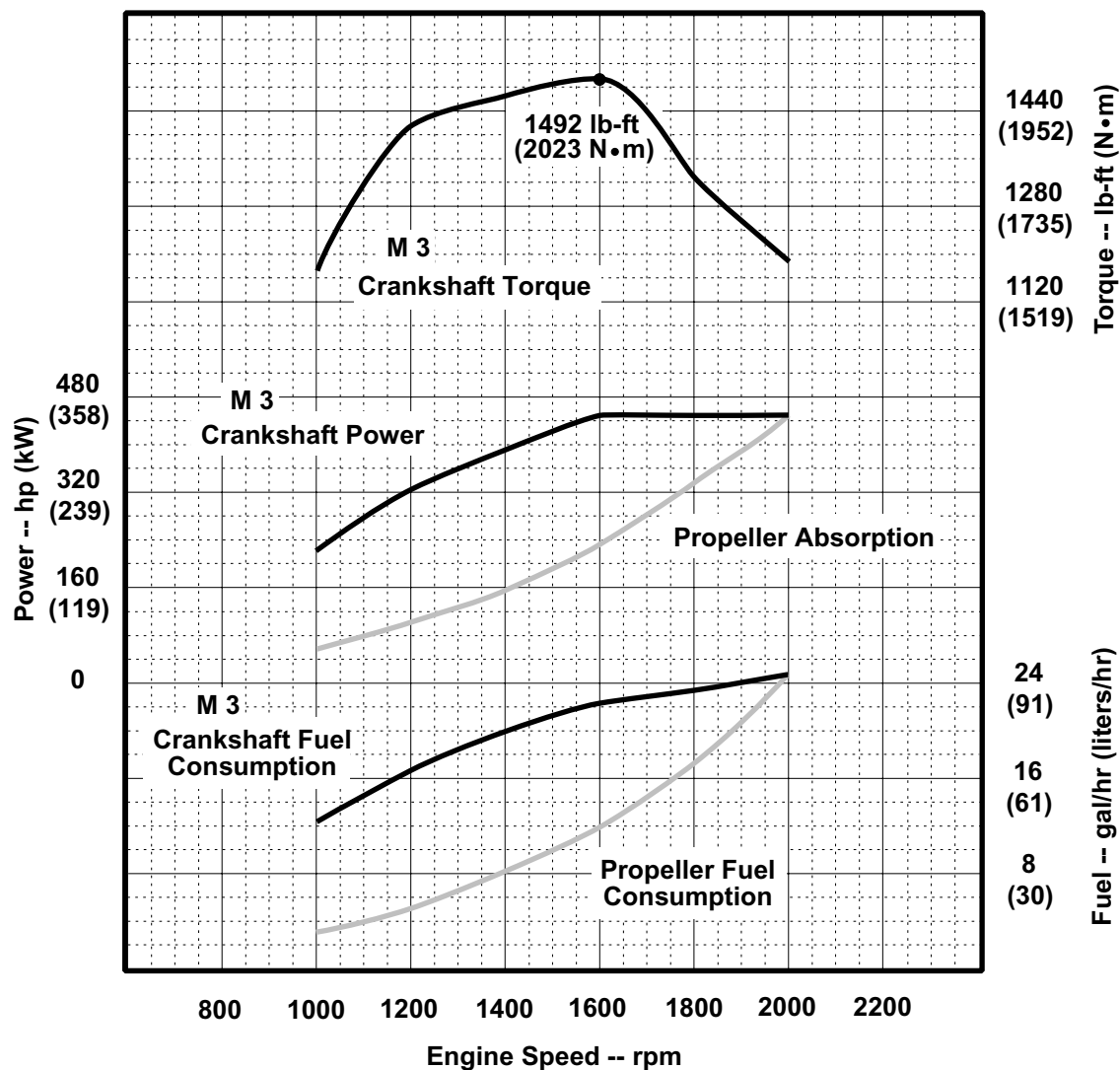
Rating: M3 - 455 hp (339 kW) @ 2000 rpm

PowerTech 12.5 L Engine

Model: **6125AFM75**

(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:

- EPA Commercial Marine (40 CFR Part 94)
 - IMO Annex VI
- Ref: Engine Emission Label

Certified by:

NEAL LEPPER
 26 MAR 2004

* Revised Data

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Common Specifications:

General Data

Model 6125AFM75
 Number of Cylinders 6
 Bore and Stroke--in.(mm)..... 5.00 x 6.50 (127 x 165)
 Displacement--in³ (L)766 (12.5)
 Compression Ratio 17.0 : 1
 Valves per Cylinder -- Intake / Exhaust2 / 2*
 Firing Order 1-5-3-6-2-4
 Combustion System Unit Injection
 Engine Type In-line, 4-Cycle
 Aspiration Turbocharged and Aftercooled
 Aftercooling System Engine Coolant
 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)56.1 (1426)
 Width--in.(mm)33.5 (850)
 Height (centerline to top)--in.(mm)30.5 (774)
 Height (centerline to bottom)--in.(mm)14.3 (364)
 Weight, dry--lb (kg).....3025* (1372*)
 Center of Gravity Location
 From Rear Face of Block (X-axis)--in.(mm) N/A
 Right of Crankshaft (Y-axis)--in.(mm).....0.9 (24)
 Above Crankshaft (Z-axis)--in.(mm).....9.1 (230)
 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)1835 (8162)
 Maximum Installed Angle
 Front Up--degrees 12
 Front Down--degrees 0

Air System

Minimum Ventilation Area--in² (m²).....297.6 (0.192)
 Maximum Allowable Air Temperature Rise
 Ambient to Engine Inlet--°F (°C)30 (17)
 Engine Air Flow--ft³/min (m³/min) 1102 (31.2)
 Intake Manifold Pressure--psi (kPa).....30 (208)
 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) 19,034 (334.4)
 Engine Radiated Heat--BTU/min (kW)..... 2556 (44.9)
 Coolant Flow--gal/min (L/min)..... 100 (377)
 Minimum Coolant Fill Rate--gal/min (L/min) 3.2 (12)
 Thermostat Start to Open--°F (°C) 160 (71)
 Thermostat Fully Open--°F (°C)..... 183 (84)
 Maximum Top Tank Temperature--°F (°C) 212 (100)
 Minimum Sea Water-to-Boil Temperature--°F (°C) .. 90 (32)
 Min. Water Pump Inlet Pressure--in. H₂O (kPa) 00 (00)
 Recommended Pressure Cap--psi (kPa)..... 15 (100)
 Max. Pressure Drop Across Keel Cooler--psi (kPa) .. 6 (40)
 Engine Coolant Capacity--qt (L) 38.0 (36)

Electrical System

Recommended Battery Capacity **12 Volt 24 Volt**
 Cold Cranking Amps @ 32 °F (0 °C)--amp 1800 900
 Max. Starting Circuit Resistance--Ohms 0.0012 ... 0.002
 Starter Rolling Current @ 32 °F (0 °C)--amp .1280 600

Exhaust System

Exhaust Temperature--°F (°C) 711 (377)
 Exhaust Gas Flow--ft³/min (m³/min) 2401 (68)
 Min. Exhaust Pipe Diameter, Dry--in.(mm) 6.0 (150)
 Min. Exhaust Pipe Diameter, Wet--in.(mm) 8.0 (200)
 Max. Allowable Back Pressure--in. H₂O (kPa) 30 (7.5)
 Max. Weight on Turbocharger--lb (kg) 55 (25)

Fuel System

ECU Description John Deere Electronic Control
 Fuel Injection Pump Unit Injectors
 Governor Type Electronic
 Governor Regulation--percent 0 to 5.7
 Total Fuel Flow--lb/hr (kg/hr) 273 (123.7)
 Total Fuel Flow--gal/hr (L/hr)..... 38 (146)
 Min. Rec'd. Fuel Line ID--in.(mm)..... 0.31 (7.0)
 Min. Rec'd. Fuel Line Size -6
 Fuel Consumption--lb/hr (kg/hr)..... 166.2 (75.4)
 Fuel Consumption--gal/hr (L/hr)..... 23.4 (88.7)
 Maximum Leak Off Line Pressure--psi (kPa) 11.6 (80)
 Max. Fuel Transfer Pump Suction Lift--ft (m) fuel... 10 (3.0)
 Max. Fuel Inlet Restriction--in. H₂O (kPa)-120 (-30.0)
 Max. Fuel Height Above Transfer Pump--ft (m) 10 (3.0)
 Max. Fuel Inlet Temperature--°F (°C) 194 (90)
 Fuel Filter Size @98% Efficiency--Micron 2

Lubrication System

Oil Pressure @ Rated Speed--psi (kPa) 45 (310)
 Oil Pressure @ Low Idle--psi (kPa) 20 (138)

Sea Water System

Sea Water Pump Flow--gal/min (L/min)..... 90 (340)
 Maximum Inlet Restriction--in. H₂O (kPa) 120 (30)
 Maximum Outlet Pressure--psi (kPa)..... 20 (140)
 Maximum Suction Lift--ft (m)..... 10 (3.0)

Performance Data

Rated Power--hp (kW) 455 (339)
 Rated Power (Metric) Fuel @ 77 °F (25 °C)--PS 460.9
 Rated Speed--rpm 2000
 Rated Torque--lb-ft (N•m)..... 1194 (1618.6)
 Peak Torque--lb-ft (N•m) 1492 (2023)
 Peak Torque Speed--rpm 1600
 Torque Rise--percent 25
 Low Idle Speed--rpm 600
 BMEP--psi (kPa) 235 (1620)
 Smoke @ Rated Speed--Bosch No. <1.0

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)
2000	455 (339)	1194 (1619)	455 (339.0)	24.3 (92.1)
1800	455 (339)	1326 (1798)	331 (247.1)	17.2 (65.2)
1600	455 (339)	1492 (2023)	233 (173.6)	12.0 (45.4)
1400	390 (291)	1464 (1985)	156 (116.3)	8.2 (30.9)
1200	322 (240)	1409 (1910)	98 (73.2)	5.1 (19.4)
1000	222 (165)	1165 (1579)	57 (42.4)	3.0 (11.5)

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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 March 2004