



JOHN DEERE

**ENGINE PERFORMANCE CURVE**

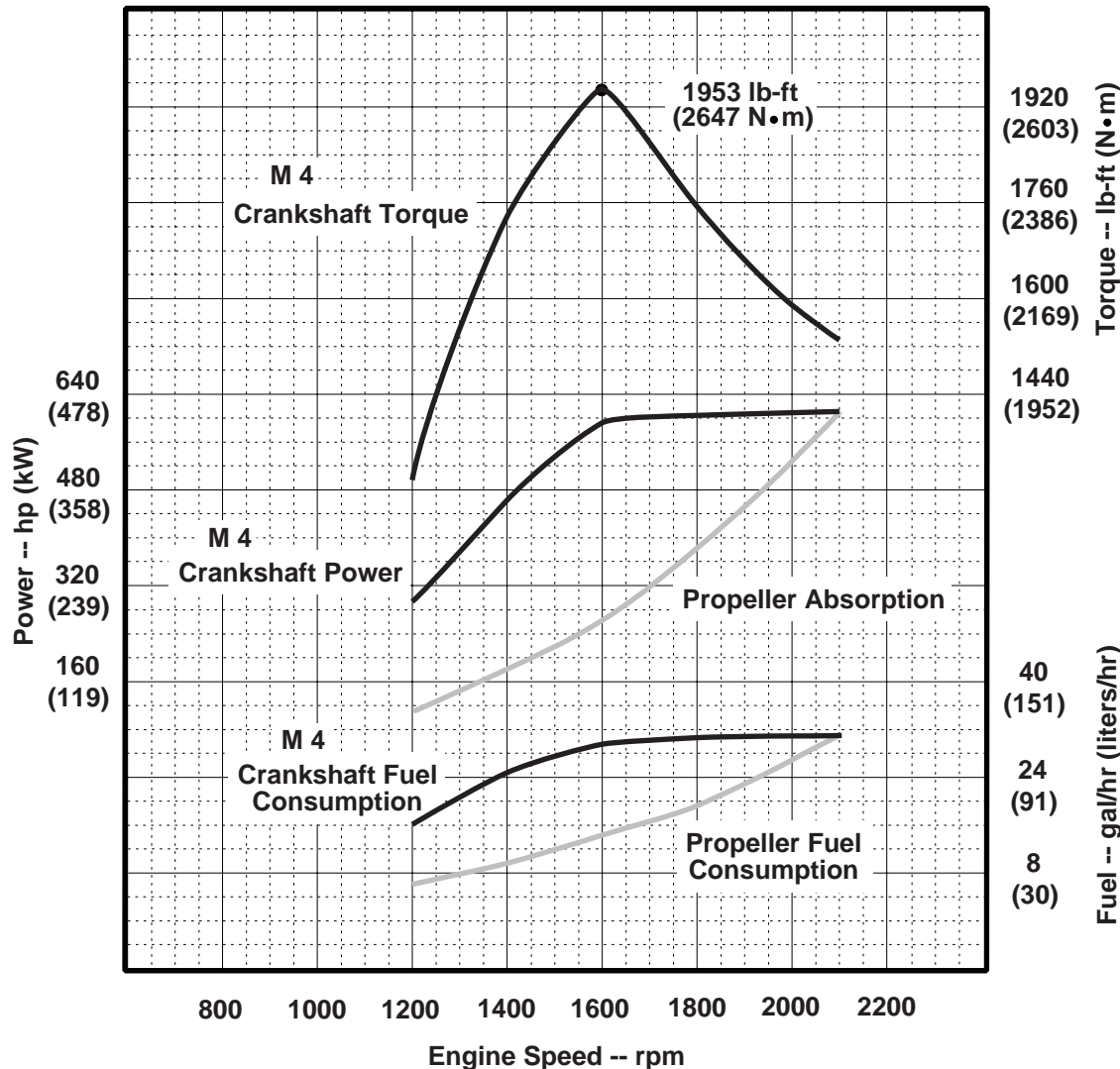
Rating: M4 - 610 hp (455 kW) @ 2100 rpm

**PowerTech 12.5 L Engine**

Model: **6125SFM75**

(Propeller Power is approximately 97% of Crankshaft Power)

Application: Marine



Air Intake Restriction ..... 12 in.H<sub>2</sub>O (3 kPa)  
 Exhaust Back Pressure ..... 30 in.H<sub>2</sub>O (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 (40 CFR Part 94)
- IMO Annex VI
- EU 2004/26/EC

Ref: Engine Emission Label

*Jennifer Barnett*  
 12 April 2007

\* Revised Data

Curve: 6125SFM75610M4..... Sheet 1 of 2  
 April 2007

## Common Specifications:

### General Data

Model ..... 6125SFM75  
 Number of Cylinders ..... 6  
 Bore and Stroke--in.(mm)..... 5.00 x 6.50 (127 x 165)  
 Displacement--in<sup>3</sup> (L) .....766 (12.5)  
 Compression Ratio ..... 17.0 : 1  
 Valves per Cylinder -- Intake / Exhaust..... 2 / 2  
 Firing Order..... 1-5-3-6-2-4  
 Engine Type..... In-line, 4-Cycle  
 Aspiration .....Turbocharged and Aftercooled  
 Aftercooling System ..... Sea Water  
 Engine Crankcase Vent System ..... Closed

### Physical Data

(Includes Engine, Flywheel Housing, Flywheel & Electrics)  
 Length--in.(mm) .....70.9 (1801)  
 Width--in.(mm) .....40.6 (1032)  
 Height (centerline to top)--in.(mm) .....31.0 (786)  
 Height (centerline to bottom)--in.(mm) .....14.3 (364)  
 Weight, dry--lb (kg) estimated.....3252 (1475)  
 Center of Gravity Location  
     From Rear Face of Block (X-axis)--in.(mm) ....16.5 (420)  
     Right of Crankshaft (Y-axis)--in.(mm).....5.3 (135)  
     Above Crankshaft (Z-axis)--in.(mm).....9.6 (244)  
 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--in<sup>2</sup> (m<sup>2</sup>).....344.1 (0.222)  
 Maximum Allowable Air Temperature Rise  
     Ambient to Engine Inlet--°F (°C) .....31 (17)  
 Engine Air Flow--ft<sup>3</sup>/min (m<sup>3</sup>/min) ..... 1278 (36.2)  
 Intake Manifold Pressure--psi (kPa).....30 (210)  
 Maximum Air Intake Restriction  
     Dirty Air Cleaner--in. H<sub>2</sub>O (kPa).....25 (6.25)  
     Clean Air Cleaner--in. H<sub>2</sub>O (kPa)..... 12 (3.0)

## Engine Specification Data

### Cooling System

Engine Radiated Heat--BTU/min (kW)..... 3307 (58.1)  
 Coolant Flow--gal/min (L/min)..... 105 (396)  
 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)  
 Recommended Pressure Cap--psi (kPa) ..... 15 (100)  
 Engine Coolant Capacity--qt (L) ..... 42 (40)

### Electrical System

**12 Volt 24 Volt**

Recommended Battery Capacity  
     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) ..... 739 (393)  
 Exhaust Gas Flow--ft<sup>3</sup>/min (m<sup>3</sup>/min) .....2853 (81)  
 Min. Exhaust Pipe Diameter, Dry--in.(mm) ..... 6.0 (152)  
 Min. Exhaust Pipe Diameter, Wet--in.(mm) ..... 8.0 (204)  
 Max. Allowable Back Pressure--in. H<sub>2</sub>O (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) ..... 322 (146)  
 Total Fuel Flow--gal/hr (L/hr)..... 46 (172)  
 Min. Rec'd. Fuel Line ID--in.(mm)..... 0.31 (8)  
 Min. Rec'd. Fuel Line Size ..... -6  
 Fuel Consumption--lb/hr (kg/hr)..... 214 (97)  
 Fuel Consumption--gal/hr (L/hr)..... 30 (114)  
 Maximum Leak Off Line Pressure--psi (kPa) ..... 11.5 (80)  
 Max. Fuel Transfer Pump Suction Lift--ft (m) fuel ..... 10 (3)  
 Max. Fuel Inlet Restriction--in. H<sub>2</sub>O (kPa) ..... -120 (-30.0)  
 Max. Fuel Height Above Transfer Pump--ft (m) ..... 10 (3)  
 Max. Fuel Inlet Temperature--°F (°C) ..... 194 (90)  
 Fuel Filter Size @98% Efficiency--Micron ..... 2

### Lubrication System

Oil Pressure @ Rated Speed--psi (kPa)..... 48 (334)  
 Oil Pressure @ Low Idle--psi (kPa) ..... 21 (146)

### Sea Water System

Sea Water Pump Flow--gal/min (L/min)..... 120 (454)  
 Maximum Inlet Restriction--in. H<sub>2</sub>O (kPa) ..... 120 (30)  
 Maximum Outlet Pressure--psi (kPa)..... 29 (200)  
 Maximum Suction Lift--ft (m)..... 10 (3.0)

### Performance Data

Rated Power--hp (kW) ..... 610 (455)  
 Rated Power (Metric) Fuel @ 77 °F (25 °C)--PS ..... 618.6  
 Rated Speed--rpm ..... 2100  
 Rated Torque--lb-ft (N•m)..... 1526 (2069)  
 Peak Torque--lb-ft (N•m) ..... 1953 (2647)  
 Peak Torque Speed--rpm..... 1600  
 Torque Rise--percent ..... 27  
 Low Idle Speed--rpm ..... 600  
 BMEP--psi (kPa) ..... 300 (2067)  
 Smoke @ Rated Speed--Bosch No. .... 0.38

### 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)
2100	610 (455)	1526 (2069)	610 (455)	31.3 (118.5)
2000	604 (451)	1587 (2152)	527 (393)	27.4 (103.8)
1800	602 (449)	1758 (2383)	384 (287)	19.8 (74.9)
1600	595 (444)	1953 (2647)	270 (201)	14.1 (53.5)
1400	462 (344)	1732 (2349)	181 (135)	9.5 (35.8)
1200	296 (221)	1297 (1759)	114 (85)	6.1 (23.0)

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

\* Revised Data  
 Curve: 6125SFM75610M4 ..... Sheet 2 of 2  
 April 2007