



JOHN DEERE

### ENGINE PERFORMANCE CURVE

Rating: M3 - 236 hp (176 kW) @ 2400 rpm

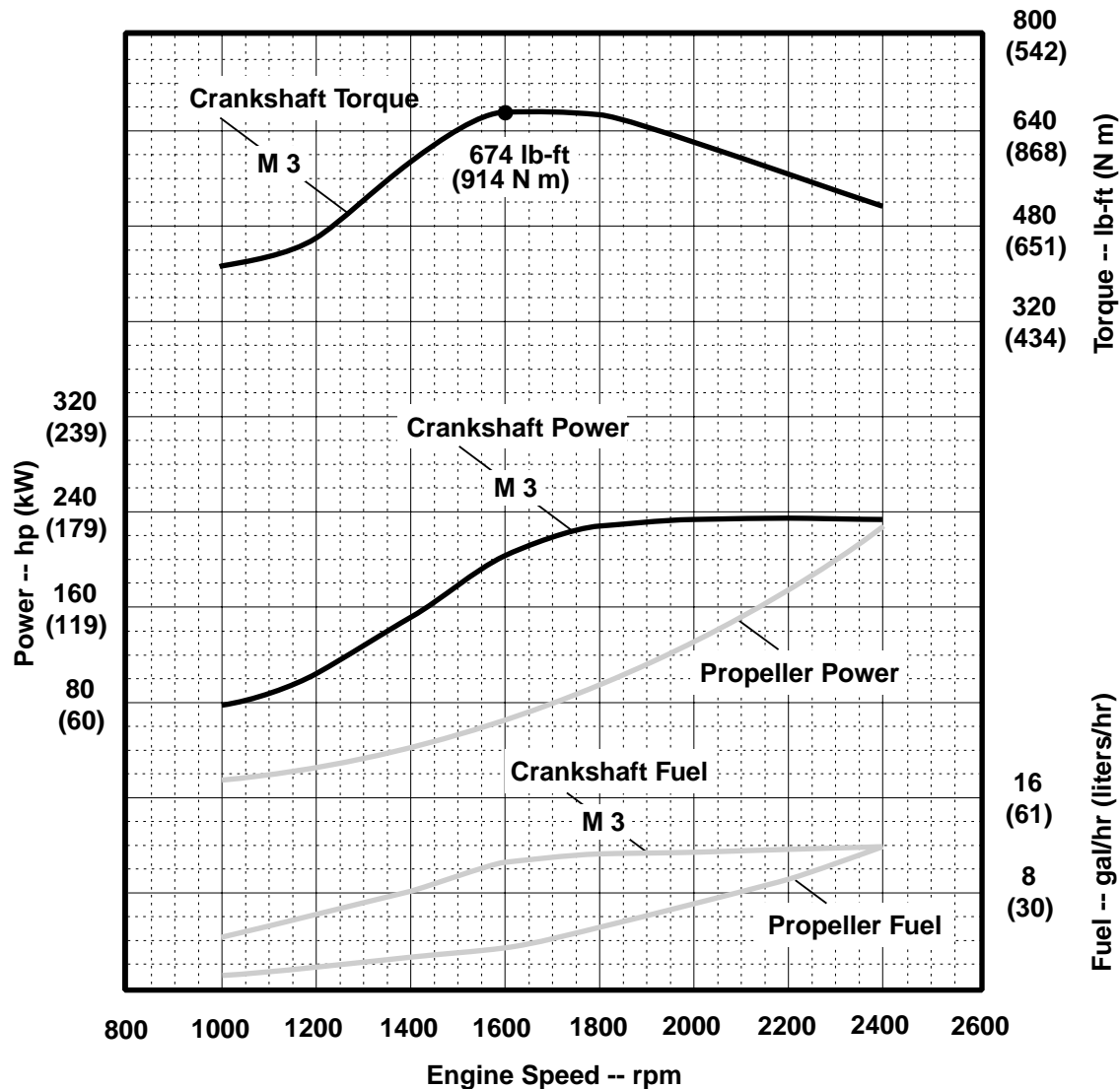
Application: Marine

### PowerTech 6.8 L Engine

Model: **6068SFM50**

[See Option Code Table]

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



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:

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

Certified by:

*NEAL LEEPER*  
*22 APR 2004*

\* Revised Data

Curve: 6068SFM50236M3..... Sheet 1 of 2  
April 2004

## Common Specifications:

### General Data

Model ..... 6068SFM50  
 Number of Cylinders ..... 6  
 Bore and Stroke--in.(mm)..... 4.19 x 5.00 (106 x 127)  
 Displacement--in<sup>3</sup> (L) .....414 (6.8)  
 Compression Ratio ..... 17.0 : 1  
 Valves per Cylinder -- Intake / Exhaust..... 1 / 1  
 Firing Order..... 1-5-3-6-2-4  
 Combustion System..... Direct Injection  
 Engine Type ..... In-line, 4-Cycle  
 Aspiration ..... Turbocharged  
 Aftercooling System ..... Seawater

### Physical Data

(Includes Engine, Flywheel Housing, Flywheel & Electrics)  
 Length--in.(mm) .....46.6 (1183)  
 Width--in.(mm) .....28.4 (721)  
 Height (centerline to top)--in.(mm) .....24.4 (619)  
 Height (centerline to bottom)--in.(mm) .....12.9 (327)  
 Weight, dry--lb (kg).....1399 (636)  
 Center of Gravity Location  
     From Rear Face of Block (X-axis)--in.(mm) ....16.9 (430)  
     Right of Crankshaft (Y-axis)--in.(mm)..... 2.0 (50)  
     Above Crankshaft (Z-axis)--in.(mm).....8.9 (225)  
 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<sup>2</sup> (m<sup>2</sup>).....180 (0.12)  
 Maximum Allowable Air Temperature Rise  
     Ambient to Engine Inlet--°F (°C) ..... 160 (71)  
 Engine Air Flow--ft<sup>3</sup>/min (m<sup>3</sup>/min) .....516 (14.6)  
 Intake Manifold Pressure--psi (kPa)..... 17 (114.6)  
 Maximum Air Intake Restriction  
     Dirty Air Cleaner--in. H<sub>2</sub>O (kPa).....25 (6.3)  
     Clean Air Cleaner--in. H<sub>2</sub>O (kPa)..... 12 (3.0)

## Engine Specification Data

### Cooling System

Minimum Coolant Fill Rate--gal/min (L/min) ..... 3 (11)  
 Thermostat Start to Open--°F (°C) ..... 176 (80)  
 Thermostat Fully Open--°F (°C).....201 (94)  
 Maximum Top Tank Temperature--°F (°C) .....212 (100)  
 Minimum Water-to-Boil Temperature--°F (°C).....201 (94)  
 Recommended Pressure Cap--psi (kPa)..... 1 (10)  
 Engine Coolant Capacity--qt (L) ..... 30 (28)

### Electrical System

**12 Volt 24 Volt**

Recommended Battery Capacity  
     Cold Cranking Amps @ 32 °F (0 °C)--amp..800 ..... 570  
 Max. Starting Circuit Resistance--Ohms.....0.0012 .. 0.002  
 Starter Rolling Current @ 32 °F (0 °C)--amp .....920 ..... 600

### Exhaust System

Exhaust Gas Flow--ft<sup>3</sup>/min (m<sup>3</sup>/min) ..... 1088 (30.8)  
 Exhaust Temperature--°F (°C) ..... 711 (377)  
 Maximum Back Pressure--in. H<sub>2</sub>O (kPa) ..... 30 (7.5)  
 Maximum Weight on Turbocharger--lb (kg) ..... 55 (25)  
 Rec'd Minimum Exhaust Outlet Diameter--in.(mm)  
     Dry ..... 4.5 (115)  
     Wet.....5.0 (127)

### Fuel System

Fuel Injection Pump ..... Bosch VP-44  
 Governor Type .....Electronic  
 Governor Regulation--percent ..... 4  
 Total Fuel Flow--gal/hr (L/hr)..... 44 (165.5)  
 Minimum Hose ID--in. (mm)..... 0.27 (7)  
 Minimum Fuel Supply and Return Hose Size ..... -5  
 Fuel Consumption--gal/hr (L/hr)..... 12.0 (45.5)  
 Maximum Leak Off Line Pressure--psi (kPa) ..... 2 (14)  
 Max. Fuel Transfer Pump Suction Lift--ft (m) fuel ..... 3 (0.9)  
 Max. Fuel Inlet Pressure--psi (kPa) ..... 4 (30)  
 Max. Fuel Height Above Transfer Pump--ft (m) ..... 4.6 (1.4)  
 Max. Fuel Inlet Temperature--°F (°C) ..... 167 (75)  
 Fuel Filter Size @98% Efficiency--Micron ..... 5

### Lubrication System

Oil Pressure @ Rated Speed--psi (kPa)..... 56 (385)  
 Oil Pressure @ Low Idle--psi (kPa) ..... 15 (105)

### Sea Water System

Sea Water Pump Flow--gal/min (L/min)..... 57 (214)  
 Maximum Inlet Restriction--in. H<sub>2</sub>O (kPa) ..... 120 (30)  
 Maximum Outlet Pressure--psi (kPa)..... 24 (165)  
 Maximum Suction Lift--ft (m)..... 10 (3)

### Performance Data

Performance Option Codes .....72FZ / 72GA  
 Rated Power--hp (kW) ..... 236 (176)  
 Rated Power (Metric), Fuel @ 77 °F (25 °C)--PS ..... 239  
 Rated Speed--rpm ..... 2400  
 Rated Torque--lb-ft (N•m)..... 517 (700)  
 Peak Torque--lb-ft (N•m) ..... 674 (914)  
 Peak Torque Speed--rpm..... 1600  
 Torque Rise--percent ..... 30.5  
 Low Idle Speed--rpm ..... 650  
 BMEP--psi (kPa) ..... 188 (1294)

### 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)
2400	236 (176)	516 (700)	229 (171)	12.0 (45.5)
2300	236 (176)	539 (731)	201 (150)	10.6 (40.0)
2200	236 (176)	564 (765)	176 (131)	9.2 (34.7)
2100	236 (176)	591 (801)	153 (114)	8.0 (30.2)
2000	236 (176)	620 (841)	132 (99)	6.9 (26.1)
1900	233 (174)	645 (875)	114 (85)	5.9 (22.4)
1800	228 (170)	665 (902)	97 (72)	5.1 (19.4)
1600	205 (153)	674 (914)	68 (51)	3.6 (13.6)
1400	158 (118)	592 (802)	45 (34)	2.5 (9.4)
1200	106 (79)	465 (630)	29 (21)	1.6 (6.1)
1000	79 (59)	415 (562)	17 (12)	1.0 (3.9)

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

\* Revised Data  
 Curve: 6068SFM50236M3 ..... Sheet 2 of 2  
 April 2004