



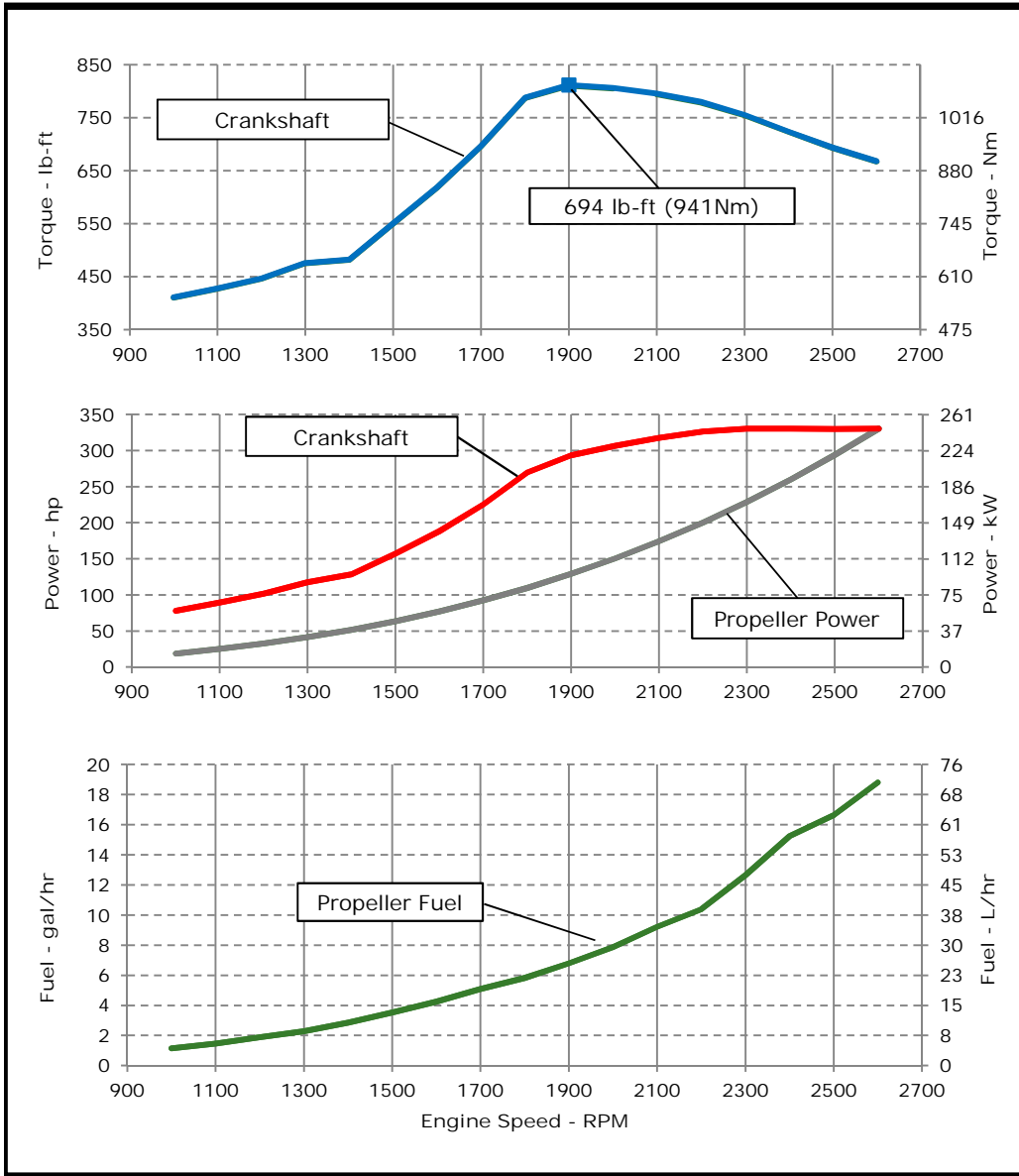
JOHN DEERE

ENGINE PERFORMANCE CURVE

Rating: M4 - 330hp (246kW) @ 2600 RPM
Application: Marine

PowerTech™ 6.8L Engine

Model: 6068AFM85



REFERENCE CONDITIONS

Air Intake Restriction..... 12 in.H₂O (3 kPa)
 Exhaust Back Pressure..... 30 in.H₂O (7.5 kPa)

Rated speed and power
 Gross power guaranteed within ±5% at SAE J1995 and ISO 3046
 J1995 and ISO 3046 conditions:

- 77 °F (25 °C) air inlet temperature
- 29.31 in.Hg (99 kPa) barometric pressure
- 104 °F (40 °C) fuel inlet temperature
- 0.853 fuel specific gravity @ 60 °F (15.5 °C)

Ambient air temperature is defined to be the temperature of ambient air close to operating vessel that is not influenced in any manner by operating characteristics of the vessel (free field temp).

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 from currently available data. Subject to manufacturing and measurement variations and to change without notice.
 Actual performance is subject to application and operation conditions outside of John Deere control.

Notes:

M4: The M4 rating is for marine propulsion applications that typically operate between 1,000-3,000 hours per year and have load factors below 40 percent. This rating is for applications that use full power no more than 1 hour out of each 12 hours of operation. The remaining time of operation is at or below cruising speed.

Possible applications: Inshore crew boats, charter fishing boats, pilot boats, dive boats, and planning hull commercial fishing boats.

Designed/Calibrated to meet:

- EPA Commercial Marine Tier 3
- IMO MARPOL Annex VI Compliant
- NRMM (97/68/EC), as amended

Ref: Engine Emission Label

Certified by:

25-Feb-13

Performance Curve: 6068AFM85_D

All values at rated speed, power, and standard conditions, per SAE J1995 unless otherwise noted.

Engine Installation Criteria

General Data

Model	6068AFM85		
Number of Cylinders	6		
Bore	107 mm	4.21 in	
Stroke	127 mm	5.00 in	
Displacement	6.8 L	415 in ³	
Compression Ratio	16.7:1		
Valves per Cylinder, Intake/Exhaust	2/2		
Combustion System	Direct injection		
Firing Order	1-5-3-6-2-4		
Engine Type	In line, 4 Cycle		
Aspiration	Turbocharged and Aftercooled		
Aftercooling System	Engine coolant		
Engine Crankcase Vent System	Closed		

Cooling System*

Engine Coolant Heat Rejection**	264 kW	15044 BTU/min
Max. Pressure Drop Across Keel Cooler	40 kPa	5.8 psi
Coolant Flow	282 L/min	74 gal/min
Seawater Flow (heat exchanged)	266 L/min	70 gal/min
Thermostat Start to Open	81 °C	178 °F
Thermostat Fully Open	95 °C	203 °F
Engine Coolant Capacity, HE	L	gal
Engine Coolant Capacity, KC	L	gal
Min. Coolant Fill Rate	12 L/min	3.2 gal/min
Min. Pressure Cap	110.3 kPa	16 psi
Min. Pump Inlet Pressure	30 kPa	4.4 psi
Max. External Coolant Restriction	40 kPa	5.8 psi
Normal Operation Max Top Tank Temperature	100 °C	212 °F
≤ 5% of Total Operating Time Top Tank Temperature	100-110 °C	212-230 °F
Absolute Max Top Tank Temperature	110 °C	230 °F
Recommended Fuel Cooler	9 kW	511 BTU/min
Engine Radiated Heat	36 kW	2034 BTU/min

* The cooling system should be capable of typical at ambient up to the maximum conditions in which the vessel will operate.

Typical operation is defined as the average load sustainable in the vessel over 10 min.

** Reference 32 °C Sea Water Temperature

Physical Data

Length to rear face of block	1034 mm	40.7 in
Length maximum	1333 mm	52.5 in
Width maximum	854 mm	33.6 in
Height, crank centerline to top	646 mm	25.4 in
Height, crank centerline to bottom	290 mm	290 in
Weight, with oil, no coolant (includes engine, flywheel housing, flywheel, and electronics)	787 kg	1735 lb
Center of Gravity Location, X-axis From Rear Face of Block	390 mm	15.3 in
Center of Gravity Location, Y-axis Right of Crankshaft	-14 mm	-0.6 in
Center of Gravity Location, Z-axis Above Crankshaft	186 mm	7.3 in
Max. Allowable Static Bending Moment At Rear Face of Flywheel Housing with 5-G Load	814 Nm	600 lb-ft
Thrust Bearing Load Limit, Forward Continuous	2.2 kN	495 lbf
Thrust Bearing Load Limit, Forward Intermittent	4 kN	899 lbf
Thrust Bearing Load Limit, Rearward Continuous	1 kN	225 lbf
Thrust Bearing Load Limit, Rearward Intermittent	2 kN	450 lbf

Electrical System

Min. Recommended Battery Capacity, 12V @32 °F (0 °C)	925 amps
Min. Recommended Battery Capacity, 24V @32 °F (0 °C)	625 amps
Starter Rolling Current, 12V @32 °F (0 °C)	920 amps
Starter Rolling Current, 24V @32 °F (0 °C)	600 amps
Min. Voltage at ECU during Cranking, 12V	6 volts
Min. Voltage at ECU during Cranking, 24V	10 volts
Max. Allowable Start Circuit Resistance, 12V	0.002 ohms
Max. Allowable Start Circuit Resistance, 24V	0.0012 ohms
Recommended Starter Cable, 12V 100"	#00
Recommended Starter Cable, 24V 100"	#2
Recommended Starter Cable, 12V 200"	#0000 or 2#00
Recommended Starter Cable, 24V 200"	#0
Electrical Component Maximum Temperature Limit	125 °C 257 °F

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Engine Installation Criteria

Fuel System

ECU Description	L14			
Fuel Injection Pump	HPCR			
Governor Type	Electronic			
Volumetric Fuel Consumption	71.2	L/hr	18.8	gal/hr
Mass Fuel Consumption	60.5	kg/hr	133	lb/hr
Total Fuel Volumetric Flow	192	L/hr	50.7	gal/hr
Total Fuel Mass Flow	163	kg/hr	360	lb/hr
Max. Fuel Inlet Restriction*	20	kPa	80	in.H2O
Max. Fuel Inlet Pressure	20	kPa	80	in.H2O
Max Fuel Return Pressure	20	kPa	80	in.H2O
Max. Fuel Height Above Transfer Pump	2.4	m	7.9	ft
Max. Leak-off Return Height	2.4	m	7.9	ft
Max. Fuel Inlet Height Above Fuel Tank Supply	2.4	m	7.9	ft
Normal Operation Fuel Temperature	40	°C	104	°F
Max. Fuel Inlet Temperature	100	°C	212	°F
Min. Recommended Fuel Line Inside Diameter	7.46	mm	0.29	in
Min. Recommended Fuel Line Size	5 (-) AN			
Primary Fuel Filter	10 mic			
Secondary Fuel Filter	2 mic			

Lubrication System

Oil Pressure at Rated Speed	310	kPa	45	psi
Oil Pressure at Low Idle (800rpm)**	150	kPa	22	psi
Max. Crankcase Pressure	2	kPa	8	in.H2O
Maximum Installed Angle, Front Down	0 deg			
Maximum Installed Angle, Front Up	12 deg			
Engine Angularity Limits Any Direction, Continuous***	25 deg			
Engine Angularity Limits Any Direction, Intermittent***	35 deg			

* With clean filters

** With John Deere Plus-50 II™ 15w-40, not applicable with break in oil.

*** With 19BP option

Air Intake System

Engine Air Flow	19.9	m ³ /min	701	ft ³ /min
Intake Manifold Pressure	210	kPa	30.5	psi
Manifold Air Temperature	107	°C	225	°F
Maximum Manifold Air Temperature	130	°C	266	°F
Max. Allowable Temperature Rise, Ambient	17	°C	30	°F
Air to Engine Inlet				
Max. Air Intake Restriction, Clean Air Cleaner	3	kPa	12	in.H ₂ O
Max. Air Intake Restriction, Dirty Air Cleaner	6.25	kPa	25	in.H ₂ O
Min. Ventilation Area	0.122	m ²	189	in ²

Performance Data

Rated Power	246	kW	330	hp
Rated Speed	2600 RPM			
Peak Torque Speed	1900 RPM			
Low Idle Speed	600 RPM			
Rated Torque	904	Nm	666	ft-lb
Peak Torque	1099	Nm	811	ft-lb
BMEP, Rated	1670	kPa	242	psi
Rated Pferdestärke (metric hp)	334 ps			
Front Drive Capacity, Intermittent	907	Nm	669	lb-ft
Front Drive Capacity, Continuous	907	Nm	669	lb-ft

Exhaust System

Exhaust Flow	48	m ³ /min	1695	ft ³ /min
Exhaust Flow @ gas STP	18.9	m ³ /min	666	ft ³ /min
Exhaust Temperature	481	°C	898	°F
Max. Allowable Exhaust Restriction	7.5	kPa	30	in.H ₂ O
Max. Shear on Turbocharger Exhaust Outlet	11	kg	24.3	lb
Max. Bending Moment on Turbocharger Exhaust Outlet	7	Nm	15.4	lb-ft
Min. Exhaust Pipe Diameter, Dry	114.3	mm	4.5	in
Min. Exhaust Pipe Diameter, Wet	127	mm	5.0	in

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Engine Installation Criteria

Engine Performance Data Table

Engine Speed	Crank Power		Crank Torque		* Prop Power		* Prop Fuel		* Prop BSFC
RPM	kW	hp	Nm	lb-ft	kW	hp	L/hr	gal/hr	g/kW-hr
2600	246	330	905	667	246	330	71	19	246
2500	246	330	940	693	219	294	63	17	244
2400	246	330	980	723	194	260	58	15	253
2300	246	330	1023	755	171	229	48	13	238
2200	243	326	1056	779	149	200	39	10	224
2100	237	318	1077	795	130	174	35	9	229
2000	229	307	1092	805	112	150	30	8	226
1900	219	293	1099	811	96	129	26	7	227
1800	201	270	1067	787	82	110	22	6	229
1700	168	225	944	696	69	92	19	5	237
1600	140	188	838	618	57	77	16	4	238
1500	117	157	746	550	47	63	13	4	239
1400	96	128	653	482	38	52	11	3	238
1300	88	118	644	475	31	41	9	2	239
1200	76	102	605	446	24	32	7	2	250
1100	67	90	579	427	19	25	6	1	251
1000	58	78	557	411	14	19	4	1	261

* Theoretical 3.0 exponent propeller curve , measured at flywheel

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