



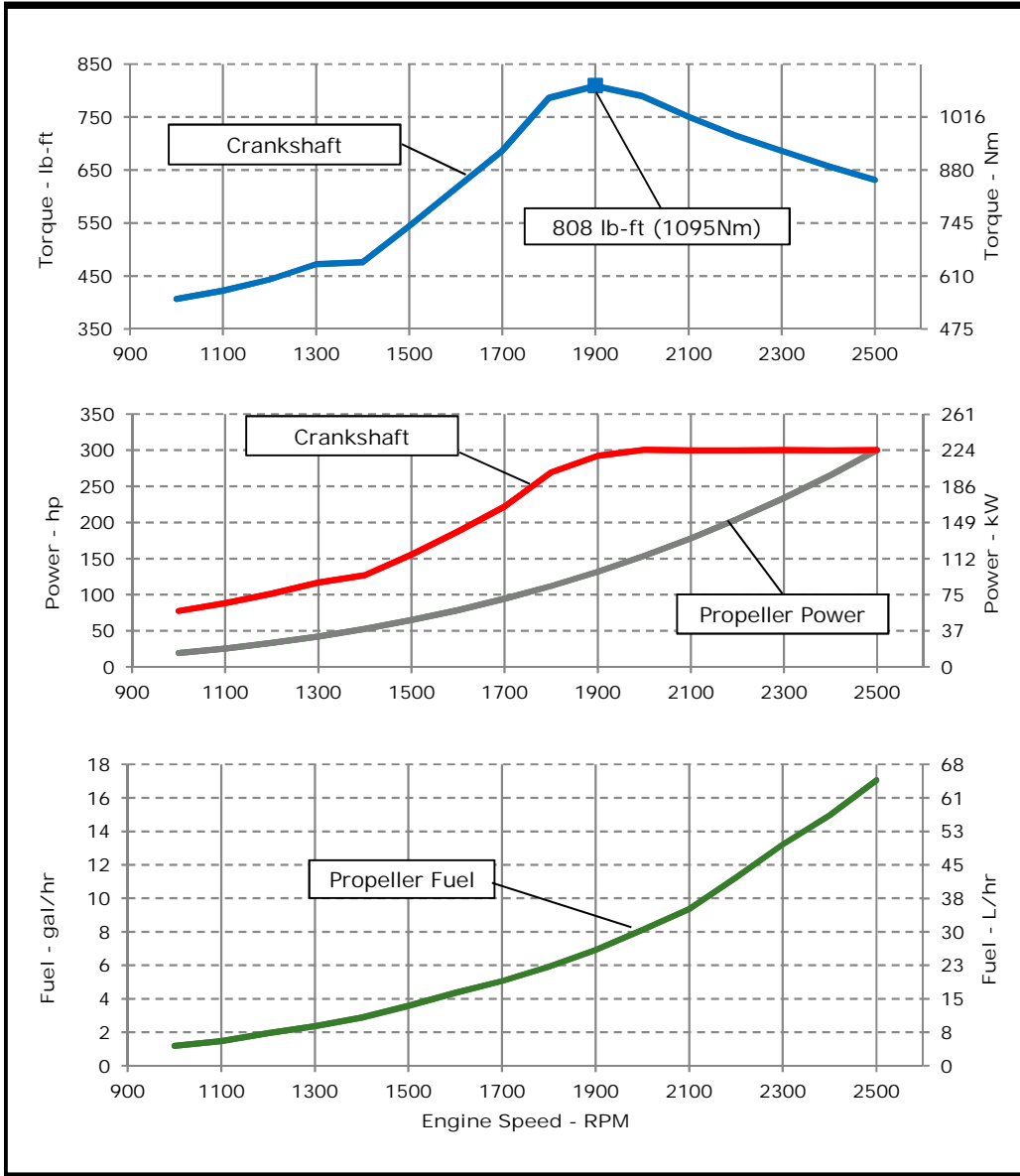
JOHN DEERE

ENGINE PERFORMANCE CURVE

Rating: M3 - 300hp (224kW) @ 2500 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 ISO 8665/SAE J1228 and ISO 3046/SAE J1995
Test 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.

All pressures shown in gauge pressure

Notes:

M3: The M3 rating is for marine propulsion applications that typically operate between 2,000-4,000 hours per year and have load factors up to 50 percent. This rating is for applications that use full power for no more than 4 hours out of each 12 hours of operation. The remaining time of operation is at or below cruising speed.

Possible applications: Coastal fishing boats offshore crew boats, research boats. Short range ferryboats and dinner cruise boats.

Designed/Calibrated to meet:	Certified by:
<ul style="list-style-type: none"> EPA Marine Tier 3 Commercial (40 CFR 1042) IMO Tier II Compliant (MARPOL Annex VI) EU Stage IIIa Inland Waterways (NRMM 97/68/EC, as amended) Recreational Craft Directive 2 (2013/53/EU) 	 29-Oct-18
Ref: Engine Emission Label	
Performance Curve: 6068AFM85_C	

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**	243 kW	13854 BTU/min
Max. Pressure Drop Across Keel Cooler	40 kPa	5.8 psi
Coolant Flow	271 L/min	72 gal/min
Min. Coolant Pump Inlet Pressure	30.3 kPa	4.4 psi
Thermostat Start to Open	81 °C	178 °F
Thermostat Fully Open	95 °C	203 °F
Engine Coolant Capacity, HE	34 L	9.0 gal
Engine Coolant Capacity, KC	33.5 L	8.8 gal
Min. Coolant Fill Rate	12 L/min	3.2 gal/min
Min. Pressure Cap	110.3 kPa	16 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	100-110 °C	212-230 °F
Tank Temperature		
Absolute Max Top Tank Temperature	110 °C	230 °F
Recommended Fuel Cooler	3 kW	150 BTU/min
Engine Radiated Heat	32 kW	1844 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 to rear face of flywheel housing (SAE #2)	1172 mm	46.1 in
Length maximum	1489 mm	58.6 in
Width maximum	862 mm	33.9 in
Height, crank centerline to top	644 mm	25.4 in
Height, crank centerline to bottom	291 mm	11.5 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 (for installations up to 5-G)	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	0.0012 ohms
Electrical Component Maximum Temperature Limit	125 °C 257 °F
Maximum ECU Temperature	105 °C 221 °F

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Engine Installation Criteria

Fuel System

ECU Description	L14			
Fuel Injection Pump	HPCR			
Governor Type	Electronic			
Volumetric Fuel Consumption	64.6	L/hr	17.1	gal/hr
Mass Fuel Consumption	54.9	kg/hr	121	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
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			

Seawater Pump System

Seawater Pump Flow	255	L/min	67	gal/min
Max. Suction Lift	3	m	9.8	ft
Max. Outlet Pressure	140	kPa	20	psi
Max. Inlet Restriction	30	kPa	4	psi

* 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	m ³ /min	668	ft ³ /min
Intake Manifold Pressure	197	kPa	28.6	psi
Manifold Air Temperature	102	°C	216	°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.H2O
Max. Air Intake Restriction, Dirty Air Cleaner	6.25	kPa	25	in.H2O
Min. Ventilation Area	0.116	m ²	180	in ²

Performance Data

Rated Power	224	kW	300	hp
Rated Speed	2500 RPM			
Peak Torque Speed	1900 RPM			
Low Idle Speed	600 RPM			
Rated Torque	856	Nm	631	ft-lb
Peak Torque	1095	Nm	808	ft-lb
BMEP, Rated	1581	kPa	229	psi
Rated Pferdestärke (metric hp)	305 ps			
Front Drive Capacity, Intermittent	907	Nm	669	lb-ft
Front Drive Capacity, Continuous	907	Nm	669	lb-ft

Exhaust System

Exhaust Flow	44	m ³ /min	1565	ft ³ /min
Exhaust Flow @ gas STP	18.3	m ³ /min	647	ft ³ /min
Exhaust Temperature	449	°C	840	°F
Max. Allowable Exhaust Restriction	7.5	kPa	30	in.H2O
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
2500	224	300	855	631	224	300	65	17	245
2400	224	300	890	656	198	266	57	15	243
2300	224	300	930	686	174	234	50	13	244
2200	223	300	970	715	153	205	43	11	237
2100	224	300	1017	750	133	178	35	9	227
2000	224	300	1070	789	115	154	31	8	228
1900	218	292	1095	808	98	132	26	7	227
1800	201	269	1065	786	84	112	22	6	228
1700	166	222	930	686	70	94	19	5	232
1600	140	187	834	615	59	79	16	4	239
1500	116	155	738	544	48	65	14	4	239
1400	95	127	645	476	39	53	11	3	235
1300	87	117	641	472	31	42	9	2	241
1200	76	101	601	443	25	33	7	2	253
1100	66	88	572	422	19	26	6	1	250
1000	58	77	551	407	14	19	4	1	267

* Theoretical 3.0 exponent propeller curve , measured at flywheel

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