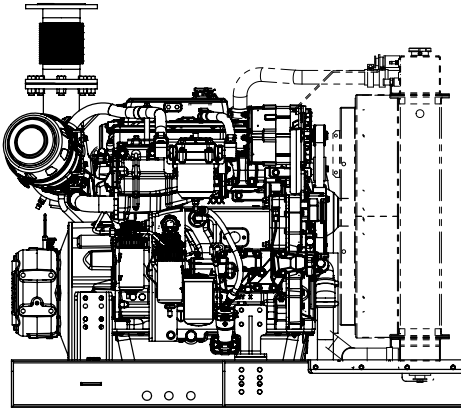
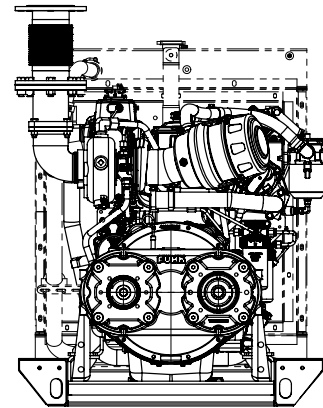


Model - J3M0453W6-SDB 125hp @2500rpm



Overall Dimensions

57.8" L
39.6"W
50.7"H



Standard Spec Configuration

Engine

- John Deere 4045AM85 160hp @2300rpm
- EPA Marine Tier III Compliant
- Controls Inc M3-4004 Panel
- Radiator Cooled, (KC shown)
- Blower Fan
- Full Belt Guard
- CCV System
- K&N Air Cleaner
- 4-point lift lugs
- Oil Pan Drain Valve
- 24v DC Engine electrical System
- ABS Type Approved

Optional Spec Configuration

- Keel Cooled, Dry Exhaust
- Heat Exchanger Cooled, Wet Exhaust
- 12v DC Engine Electrics
- ABS Certified
- 110v Block Heater
- Various Control Panel Options and Harness Lengths
- Various Driven Accessories (shown with FUNK double B pad)

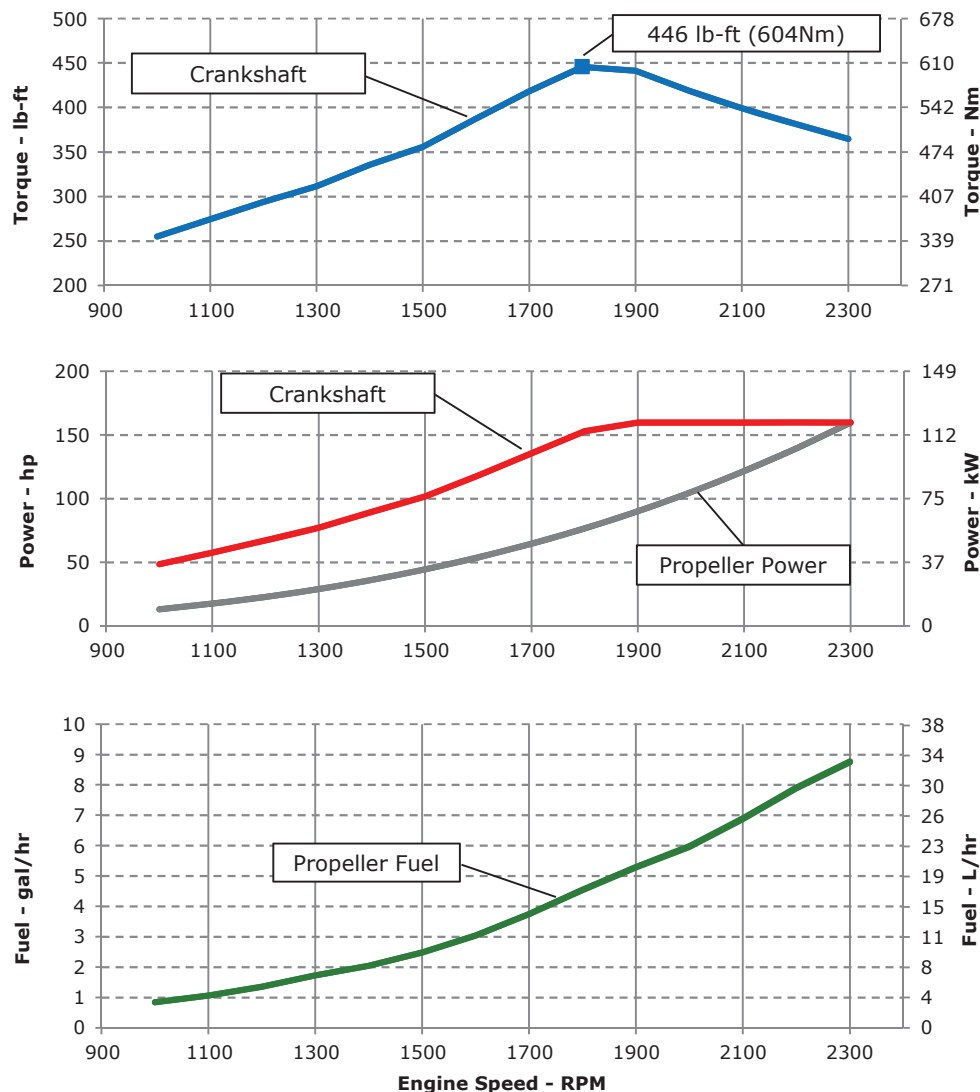


ENGINE PERFORMANCE CURVE

Rating: **M1 - 160hp (119kW) @ 2300 RPM**
Application: **Marine**

PowerTech™ 4.5L Engine

Model: 4045AFM85



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:

M1: The **M1** rating is for marine propulsion applications that may operate up to 24 hours per day at uninterrupted full power and have load factors greater than 65 percent.

Possible applications: Line hauls tugs and towboats, fish and shrimp trawlers/draggers, and displacement hull fishing boats.

Designed/Calibrated to meet:

- EPA Marine Tier 3 Commercial (40 CFR 1042)
- IMO MARPOL Annex VI Exempt (<130 kW)
- China Stage 2 Commercial Propulsion (GB15097-2016)
- EU Stage IIIa Inland Waterways (NRMM 97/68/EC, as amended)
- Recreational Craft Directive 2 (2013/53/EU)

Ref: Engine Emission Label

Certified by:

26-Jan-22

Performance Curve: 4045AFM85_A

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

Engine Installation Criteria

General Data

Model	4045AFM85			
Number of Cylinders	4			
Bore	107	mm	4.21	in
Stroke	127	mm	5.00	in
Displacement	4.5	L	275	in ³
Compression Ratio	16.7:1			
Valves per Cylinder, Intake/Exhaust	2/2			
Combustion System	Direct injection			
Firing Order	1-3-4-2			
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**	129	kW	7343	BTU/min
Max. Pressure Drop Across Keel Cooler	40	kPa	5.8	psi
Coolant Flow	198	L/min	52	gal/min
Min. Coolant Pump Inlet Pressure	30.3	kPa	4.4	psi
Thermostat Start to Open	71	°C	160	°F
Thermostat Fully Open	83	°C	182	°F
Engine Coolant Capacity, HE	17	L	4.4	gal
Engine Coolant Capacity, KC	20	L	5.2	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 Tank Temperature	100-110	°C	212-230	°F
Absolute Max Top Tank Temperature	110	°C	230	°F
Recommended Fuel Cooler	2	kW	139	BTU/min
Engine Radiated Heat	8	kW	474	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	752	mm	29.6	in
Length to rear face of flywheel housing (SAE #3)	890	mm	35.0	in
Length maximum	1105	mm	43.5	in
Width maximum	864	mm	34.0	in
Height, crank centerline to top	654	mm	25.7	in
Height, crank centerline to bottom	310	mm	12.2	in
Weight, with oil, no coolant (includes engine, flywheel housing, flywheel, and electronics)	578	kg	1274	lb
Center of Gravity Location, X-axis From Rear Face of Block	273	mm	10.8	in
Center of Gravity Location, Y-axis Right of Crankshaft	4.78	mm	0.2	in
Center of Gravity Location, Z-axis Above Crankshaft	227	mm	8.9	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)	625	amps
Min. Recommended Battery Capacity, 24V @32 °F (0 °C)	500	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
Electrical Component Maximum Temperature Limit	125	°C 257 °F
Maximum ECU Temperature	105	°C 221 °F

Performance Curve: 4045AFM85_A

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

Engine Installation Criteria

Fuel System

ECU Description	L14		
Fuel Injection Pump	HPCR		
Governor Type	Electronic		
Volumetric Fuel Consumption	33.2	L/hr	8.8 gal/hr
Mass Fuel Consumption	28.2	kg/hr	62 lb/hr
Total Fuel Volumetric Flow	152	L/hr	40.0 gal/hr
Total Fuel Mass Flow	129	kg/hr	284 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	6.63	mm	0.26 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	436	kPa	63 psi
Oil Pressure at Low Idle (800rpm)**	213	kPa	31 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***	35	deg	
Engine Angularity Limits Any Direction, Intermittent***	45	deg	

Seawater Pump System

Seawater Pump Flow	231	L/min	61 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 19CZ option

Air Intake System

Engine Air Flow	9.39	m³/min	331.6	ft³/min
Intake Manifold Pressure	135.4	kPa	19.6	psi
Manifold Air Temperature	81	°C	178	°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	0.058	m²	90	in²

Performance Data

Rated Power	119	kW	160	hp
Rated Speed	2300	RPM		
Peak Torque Speed	1800	RPM		
Low Idle Speed	600	RPM		
Rated Torque	494	Nm	364	ft-lb
Peak Torque	567	Nm	418	ft-lb
BMEP, Rated	1386	kPa	201	psi
Rated Pferdestärke (metric hp)	162	ps		
Front Drive Capacity, Intermittent	621	Nm	458	lb-ft
Front Drive Capacity, Continuous	621	Nm	458	lb-ft

Exhaust System

Exhaust Flow	22.4	m³/min	791	ft³/min
Exhaust Flow @ gas STP	10.1	m³/min	357	ft³/min
Exhaust Temperature	441	°C	826	°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	101.6	mm	4.0	in
Min. Exhaust Pipe Diameter, Wet	114.3	mm	4.5	in

Performance Curve: 4045AFM85_A

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

Engine Installation Criteria

Engine Performance Data Table

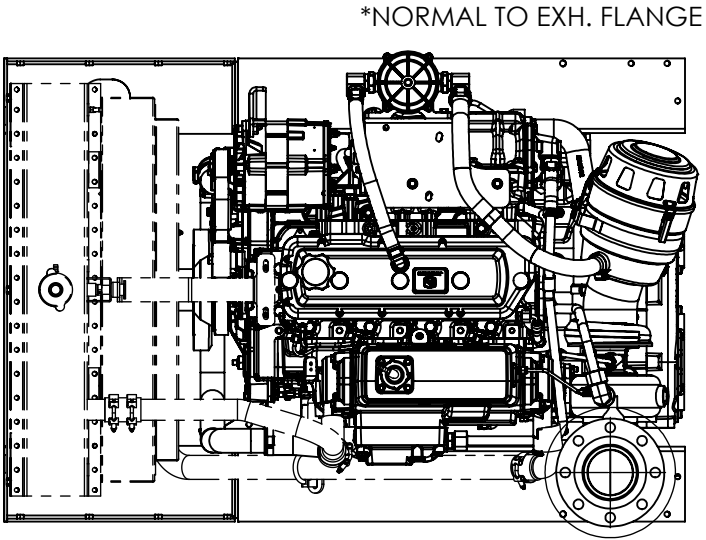
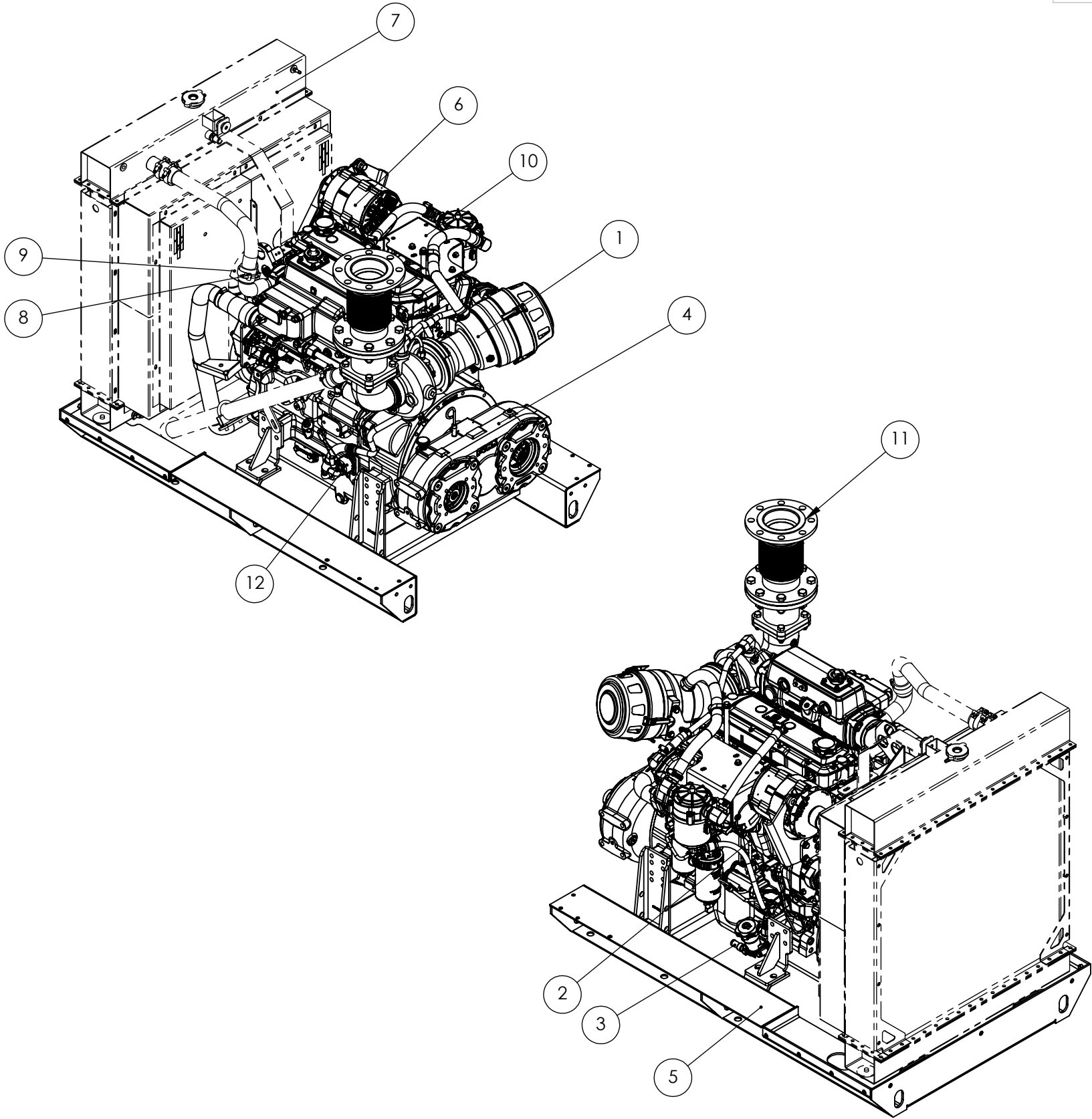
Engine Speed	Crank Power		Crank Torque		* Prop Power		* Prop Fuel		* Prop BSFC
RPM	kW	hp	Nm	lb-ft	kW	hp	L/hr	gal/hr	g/kW-hr
2300	119	160	494	364	119	160	33.2	8.8	237
2200	119	160	517	381	104	140	29.9	7.9	244
2100	119	160	541	399	91	121	26.1	6.9	245
2000	119	160	568	419	78	105	22.6	6.0	246
1900	119	160	598	441	67	90	20.0	5.3	254
1800	114	153	604	446	57	76	17.2	4.5	256
1700	101	135	567	418	48	64	14.2	3.7	251
1600	88	118	525	387	40	54	11.5	3.0	244
1500	76	102	482	355	33	44	9.4	2.5	242
1400	67	89	455	336	27	36	7.7	2.0	245
1300	57	77	422	311	21	29	6.5	1.7	259
1200	50	67	398	294	17	23	5.1	1.4	258
1100	43	57	372	274	13	17	4.0	1.1	263
1000	36	49	346	255	10	13	3.2	0.8	279

* Theoretical 3.0 exponent propeller curve , measured at flywheel

Performance Curve: 4045AFM85_A

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

ECR #	REV	DESCRIPTION OF CHANGE	DATE	REV BY
		INITIAL RELEASE		



A *SEE PAGE 2

ITEM NO.	NUMBER	DESCRIPTION	QTY.
1	45AM32-160-PKP0	45AM85, 160HP, 24V	1
2	2601	110V BLOCK HEATER	1
3	RE509019	VALVE, M18, 3/4 BARB	1
4	200-1175	FUNK PUMP DRIVE, 2826P, .909:1 SAE 3	1
5	250-A3995	SKID ASSY, 4045T/A	1
6	700-A3578	200A/24V ALT. 4045TM	1
7	300-A3997	DR3921A, 45AM85	1
8	300-A3706	45AFM/10.2"/1:1	1
9	300-A4003	26"DIA/BLWR/3.5"SPC	1
10	130-A3870	CCV SYSTEM, RH SERV.	1
11	400-A1378	EXHAUST ASSY, DRY ELBOW	1
12	700-A3697	24V/200A STR. RLY ASSY	1


PLEASE REVIEW, VERIFY, SIGN AND DATE THIS DESIGN TO ENSURE THAT OUR DESIGN MEETS YOUR APPLICATION REQUIREMENTS. PLEASE RETURN TO YOUR SDI/BPS REPRESENTATIVE.

BY: _____ DATE: _____

- NOTES:**
1. INSTALLATION DRAWING ONLY.
 2. DO NOT SCALE FROM DRAWING.
 3. CONTACT SUPERIOR DIESEL FOR ALL ENGINE CODES AND PART NUMBERS.


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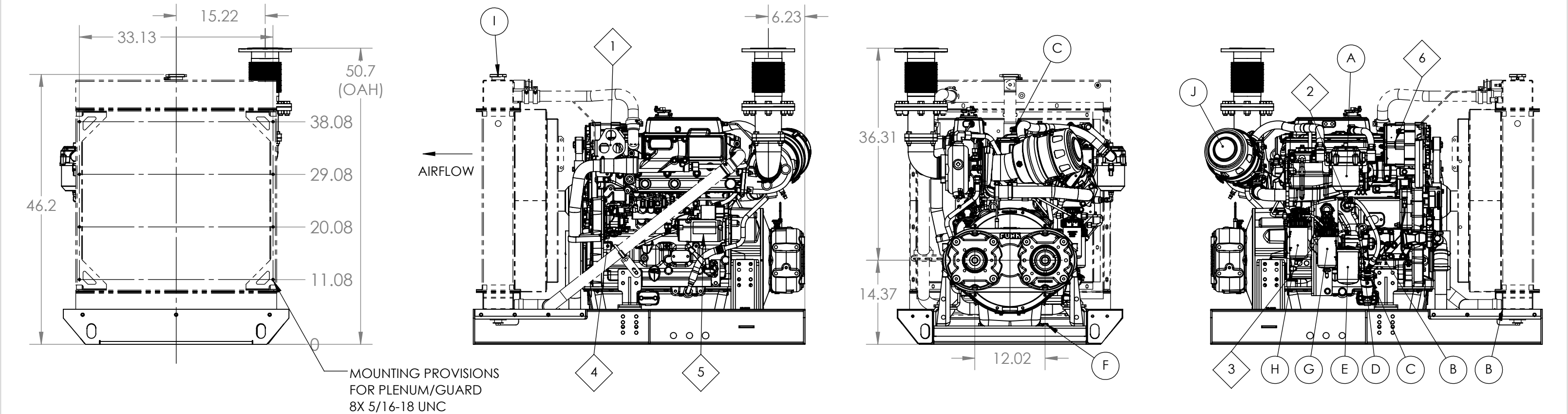
RHINELANDER, WI (715) 365-0500
SEVILLE, OH (330) 769-1850
ESSEX, CT (860) 767-7502

VALUE-ADDED ENGINE & DRIVETRAIN DISTRIBUTORS



TOLERANCE ON DIMENSIONS UNLESS OTHERWISE NOTED	DRAWN	DATE	TITLE	
ANGLES: ±.5°	CHECKED	DATE	MARINE AUX. OPU	
FRACTIONS: ±1/32	-	-	45AFM, 24V, 160HP	
DECIMALS: .0 = ±.060 .00 = ±.030 .000= ±.010	MODELS AFM85		200A ALT, 2-PAD FUNK	
MATERIAL		WEIGHT TBD	DRAWING NO J3M0453W6-PCE	
			SHEET 1 OF 2	REV.

ECR #	REV	DESCRIPTION OF CHANGE	DATE	REV BY
		INITIAL RELEASE		



CUSTOMER SERVICE POINTS ●		
ITEM	NAME	
A	CCV SYSTEM	
B	COOLANT DRAIN(S)	
C	OIL FILL(S)	
D	OIL DIPSTICK	
E	OIL FILTER	
F	OIL DRAIN	
G	PRIMARY FUEL FILTER	
H	SECONDARY FUEL FILTER	
I	COOLANT FILL & PRESSURE CAP	
J	REPLACEABLE AIR FILTER	
CUSTOMER INSTALLATION POINTS ◆		
ITEM	NAME	REMARKS
1	ECU HARNESS CONNECTION	SEE OPTION DRAWING
2	BLOCK HEATER	110 VOLT, 3 WIRE PLUG
3	FUEL INLET	#8 (1/2") BARB
4	FUEL RETURN	#8 (1/2") BARB
5	STARTER	SEE OPTION DRAWING
6	ALTERNATOR	SEE OPTION DRAWING
7	PUMP DRIVE	SEE PRODUCT MANUAL

NOTES:

- SEE APPLICABLE ENGINE INSTALLATION DRAWINGS FOR FURTHER INFORMATION.
- ORIGIN - CENTERLINE OF CRANKSHAFT AT REAR FACE OF BLOCK.

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VALUE-ADDED ENGINE & DRIVETRAIN DISTRIBUTORS

TOLERANCE ON DIMENSIONS UNLESS OTHERWISE NOTED	DRAWN	DATE	TITLE	
ANGLES: ±.5°	CHECKED	DATE	MARINE AUX. OPU	
FRACTIONS: ±1/32	-	-	45AFM, 24V, 160HP	
DECIMALS: .0 = ±.060 .00 = ±.030 .000 = ±.010	MODELS		200A ALT, 2-PAD FUNK	
MATERIAL	AFM85		DRAWING NO	
			J3M0453W6-PCE	
		WEIGHT	SHEET	REV.
		TBD	2 OF 2	