AMERIFLO

MODEL
AF4-108B

FM - APPROVED RATINGS BHP & KW

ENGINE MODEL:	AF4-108B
EMISSIONS:	TIER 0
DATE:	09/01/2020
DRAWING NUMBER:	AF4-108B-FM.00
PERFORMANCE CURVE NUMBER:	C04108BF
RATED POWER:	117 BHP @ 2950 RPM
	87 KW @ 2950 RPM
REFERENCE NUMBER:	14DS001E
VERSION:	A

FM APPROVED

GENERAL ENGINE DATA		
TYPE:		4 CYCLE; INLINE; WATER COOLED
NUMBER OF CYLINDERS:		4
ASPIRATION:		TURBOCHARGED
BORE & STROKE - IN [MM]:		4.25 x 4.53 [108 x 115]
CYLINDER LINER TYPE:		■ WET ☐ DRY
DISPLACEMENT - IN^3 [L]:		257 [4.214]
COMPRESSION RATIO:		17:01
FIRING ORDER:		1 - 3 - 4 - 2
COMBUSTION SYSTEM:		DIRECT INJECTION
ROTATION (AS VIEWED FROM FRONT OF ENGINE):		CCW
VALVES PER CYLINDER:		INTAKE: 1 EXHAUST: 1
VALVE LASH (COLD ENGINE):	INTAKE - IN [MM]:	0.016 ~ 0.018 [0.40 ~ 0.45]
	EXHAUST - IN [MM]:	0.018 ~ 0.020 [0.45 ~ 0.50]
IGNITION TYPE:		COMPRESSION (DIESEL)
CHARGE AIR COOLING TYPE:		RAW WATER
WEIGHT (FUEL PUMP CONFIGURATION) - LBS [KG]:		1391 [631]
DIMENSIONS (L x W x H) - IN [MM]:		51 x 37 x 48 [1292 x 940 x 1210]
FLYWHEEL / FLYWHEEL HOUSING DIMENSIONS:		11.50 / SAE #2
TORQUE @ RATED RPM - LB-FT [N-M]:		215 [291]

ENGINE PERFORMANCE DATA		
ESTIMATED FREE FIELD SOUND PRESSURE LEVEL AT 3 FEET [1 METER] WITH FULL-LOAD GOVERNED SPEED (INCLUDES NOISE FROM EXHAUST, COOLING SYSTEM AND DRIVEN COMPONENTS)	dBa	≤ 108
ALL DATA IS BASED ON ENGINE OPERATIONG WITH FUEL SYSTEM, LUBRICATING OIL PUMP, AIR CLEANER AND ALTERNATOR. DOES NOT INCLUDE AIR COMPRESSOR, FAN & OPTIONAL EQUIPMENT. DATA IS BASED ON SAE STANDARD J1349 CONDITIONS AT 300 FEET [91.4 METERS] ALTITUDE, 29.61 INCHES [752 MILLIMETERS] HG DRY BAROMETER AND 77°F [25°C] INTAKE AIR TEMPERATURE USING #0 DIESEL FUEL FOLLOWING THE GB 252-2011 STANDARD.		
ALTITUDE ABOVE WHICH OUTPUT SHOULD BE DERATED:	FEET [METER]	300 [91]
DERATE PER 1,000 FEET [305 METERS] ABOVE ALTITUDE LIMIT:	3%	
TEMPERATURE ABOVE WHICH OUTPUT SHOULD BE DERATED:	°F [°C]	77 [25]
DERATE PER 10°F [5.6°C] ABOVE TEMPERATURE LIMIT:	1%	

❶ ALL DATA CERTIFIED WITHIN ±5%.

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MODEL
AF4-108B

EXHAUST SYSTEM		
EXHAUST GAS TEMPERATURE @ MAXIMUM RATING (POWER) - °F [°C]:		≤ 1112 [600]
EXHAUST GAS FLOW @ MAXIMUM OUTPUT - LBS/HR [KG/HR]:		3095 [1404]
MAXIMUM ALLOWABLE BACK PRESSURE - PSI [KPA]:		1.02 [7]
MINIMUM EXHAUST PIPE DIAMETER - IN [MM]:		3.0 [80]
AIR INTAKE SYSTEM		
AIR CLEANER TYPE:		DRY TYPE, DISPOSABLE
AIR FLOW - CFM [M^3/HR]:		303 [515] @2950 RPM
AIR INLET RESTRICTION - PSI [KPA]:		≤ 0.73 [5]
LUBRICATION SYSTEM		
OIL CAPACITY (ENGINE ONLY) - QTS [L]:		13.7 [13]
MAXIMUM SUMP OIL TEMPERATURE - °F [°C]:		176 ~ 239 [80 ~ 115]
NORMAL OPERATING OIL PRESSURE RANGE - PSI [BAR]:		36.3 ~ 87.0 [2.5 ~ 6.0]
OIL PRESSURE @ IDLE - PSI [BAR]:		> 14.5 [1]
COOLING SYSTEM		
COOLANT CAPACITY (ENGINE & HEAT EXCHANGER) - QTS [L]:		21.1 [20]
THERMOSTAT RANGE:	START OPEN - °F [°C]:	158 [70]
	FULL OPEN - °F [°C]:	176 [80]
COOLANT PRESSURE MAXIMUM - PSI [BAR]:		13 [0.9]
RAW WATER PRESSURE RANGE @ HEAT EXCHANGER - PSI [BAR]:		72.5 [5]
ENGINE NORMAL OPERATING COOLANT TEMPERATURE - °F [°C]:		158 ~ 203 [70 ~ 95]
ENGINE COOLANT FLOW @ FULL SPEED - GPM [M^3/HR]:		49.3 [11.2]
MINIMUM RAW WATER FLOW @ ENGINE SPEED (RPM)		2950
RAW WATER TEMPERATURES TO 60.8°F [16°C] - GPM [M^3/HR]:		24.2 [5.5]
RAW WATER TEMPERATURES TO 100.4°F [38°C] - GPM [M^3/HR]:		30.8 [7.0]
RAW WATER INTAKE PIPE SIZE:	RAW WATER INLET - IN:	1.00 NPT
	RAW WATER OUTLET - IN:	1.25 NPT
HEATER SYSTEM		
WATTAGE - W:		3000
VOLTAGE (AC) - V:		220
DC ELECTRICAL SYSTEM		
NORMAL SYSTEM VOLTAGE - V:		24
STARTER MOTOR - HP [KW]:		6.7 [5]
RECOMMENDED BATTERY SIZE - AH:		150
COLD CRANKING AMPS @ 0°F (-18°C):		900
RESERVE CAPACITY - AMPS:		223
CHARGING ALTERNATOR OUTPUT - AMPS:		35

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FUEL SYSTEM	
INJECTION PUMP:	INLINE, PLUNGER TYPE
INJECTION PUMP ADVANCE ANGLE - °:	12 ± 1
MINIMUM SUPPLY LINE SIZE - IN [MM]:	0.394 [10]
MINIMUM RETURN LINE SIZE - IN [MM]:	0.394 [10]
FUEL MANAGEMENT CONTROL:	MECHANICAL
IDLE SPEED - RPM:	700 ~ 750
GOVERNED SPEED RATE - %:	≤ 10

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MODEL
AF4-108B

ENGINE MATERIALS & CONSTRUCTION

ENGINE

CAMSHAFT:	
TYPE	GROUND
MATERIAL	CARBON STEEL
LOCATION	IN BLOCK
DRIVE	SPUR GEAR
CONNECTING RODS:	
TYPE	I-BEAM, FRACTURE
MATERIAL	FORGED STEEL
CRANKSHAFT:	
TYPE	GROUND
MATERIAL	DUCTILE IRON
MAIN BEARINGS:	
TYPE	PRECISION, HALF SHELL
MATERIAL	ALUMINUM BRONZE
CYLINDER BLOCK:	
TYPE	WET LINED
MATERIAL	CAST IRON
CYLINDER HEAD:	
TYPE	SLAB 2 VALVE
MATERIAL	CAST IRON
CYLINDER LINERS:	
TYPE	CENTRIFUGALLY CAST
MATERIAL	CAST IRON ALLOY
PISTONS:	
TYPE	1 PIECE
MATERIAL	CAST ALUMINUM
PISTON PINS:	
TYPE	FULL FLOATING
MATERIAL	ALLOY STEEL
PISTON RINGS:	
FIRST	DUCTILE CAST IRON
SECOND	ALLOY CAST IRON
THIRD	ALLOY CAST IRON
VALVES:	
TYPE	POPPET
ARRANGEMENT	OVERHEAD
VALVE # PER CYLINDER	1 INTAKE, 1 EXHAUST
OPERATING MECHANISM	MECHANICAL ROCKER ARM
LIFTER TYPE	LARGE HEAD

AIR INTAKE

AIR CLEANER:	
TYPE	DRIP PROOF
MATERIAL	PLEATED PAPER

COOLING SYSTEM

COOLANT HEAT EXCHANGER:	
TYPE	TUBE & SHELL
MATERIAL	
ELECTRODE	ZINC
HEADERS	COPPER
SHELL	ALUMINUM
TUBES	COPPER
COOLANT PUMP:	
TYPE	CENTRIFUGAL
DRIVE	V-BELT
THERMOSTAT:	
TYPE	NON-BLOCKING
QUANTITY	1
COOLING LOOP (GALVANIZED):	
TEES, ELBOWS, PIPE	GALVANIZED STEEL
BALL VALVES	BRASS
SOLENOID VALVE	BRASS
PRESSURE REGULATOR	BRASS
STRAINER	BRASS
COOLING LOOP (316 STAINLESS STEEL):	
TEES, ELBOWS, PIPE	316 STAINLESS STEEL
BALL VALVES	316 STAINLESS STEEL
SOLENOID VALVE	316 STAINLESS STEEL
PRESSURE REGULATOR	316 STAINLESS STEEL
STRAINER	316 STAINLESS STEEL

FUEL SYSTEM

FUEL INJECTION PUMP:	
TYPE	FULL MECHANICAL, CENTRIFUGAL
DRIVE	GEAR DRIVEN

LUBRICATION SYSTEM

TYPE	GEROTOR
DRIVE	GEAR

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SPARE PARTS LIST		
PART DESCRIPTION	**PART NUMBER**	**REMARKS**
AFTERCOOLER	N/A	N/A
HEAT EXCHANGER	AH300	MAX. WORKING PRESSURE 72.5 PSI [5 BAR]
ALTERNATOR	D0708-3701100A	28 V / 35 A
STARTING SYSTEM	D21FA-3708100	24 V / 5 KW
TURBOCHARGER	1530-1118020B	N/A
FUEL PUMP WITH SPEED CONTROLLER	D0300-1111100A-493	N/A
FUEL INJECTORS	330-1112030	0.29 MM
CONTROLLER	AF.ENG.AB-ETS-R-B	N/A
BATTERY	908DFT	12 V / 200 AH
EMERGENCY STARTERS	535-0098	24 VDC 800 A
OIL PRESSURE SENSOR	KE21103	11.6 ± 4.35 PSI [80 ± 30 KPA]
HIGH TEMPERATURE COOLANT SENSOR	KE00105	203 ± 37 ºF [95 ± 3ºC]
LOW COOLANT TEMPERATURE SENSOR	KE00105	104 ± 37 ºF [40 ± 3ºC]
HIGH TEMPERATURE RAW WATER SENSOR	204.040.15GO.1.IP65	104 ± 37 ºF [40 ± 3ºC]
FLOW SENSOR	WK150B	N/A
OVERSPEED SHUTDOWN DEVICE	YC-ENL-A0	N/A
SPEED SENSOR	KE10040	N/A
ENGINE HEATER	SH220300065	220 V / 3 KW MAX. TEMP 149ºF [65ºC]
	SH110300065	110 V / 3 KW MAX. TEMP 149ºF [65ºC]
OIL FILTERS	150-1012240	1 PIECE
FUEL FILTERS	644-1105010	2 PIECES
AIR FILTERS	D73L00-1109100	1 PIECE
BELTS	YC80-8PK-1720B	1 PIECE
THERMOSTATS	630-1306004	1 PIECE
EXHAUST BLANKET	AF4108B0602-EI	DN65
FUEL SUPPLY & RETURN LINES	AF4-105-09.04 AF4-105-09.05	N/A

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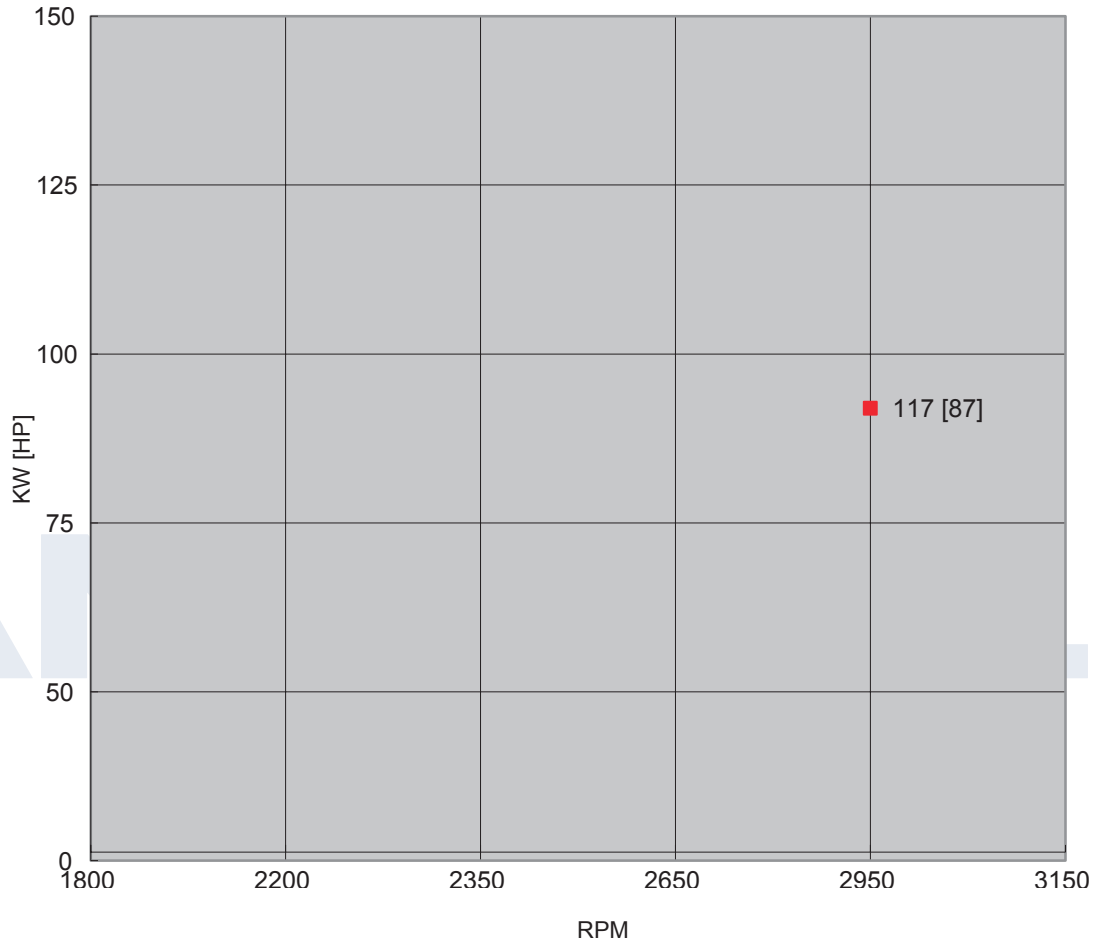
MODEL
AF4-108B

POWER CURVE			
CURVE NUMBER:	C04108BF	DATE:	09/01/2020
DISPLACEMENT - IN^3 [L]:	257 [4.21]	ASPIRATION:	TURBOCHARGED
POWER STANDARD:	FM	BORE & STROKE - IN [MM]:	4.25 x 4.53 [108 x 115]
NUMBER OF CYLINDERS:	4	FUEL SYSTEM:	INLINE, MECHANICAL

❶ ALL DATA CERTIFIED WITHIN ±5%.



TORQUE		
SPEED RPM	LB-FT	N-M
1800		
2200		
2350		
2650		
2950	215	291
3150		

OUTPUT POWER		
SPEED RPM	HP	KW
1800		
2200		
2350		
2650		
2950	117	87
3150		

FUEL CONSUMPTION		
SPEED RPM	LB/BHP-HR	G/KW-HR
1800		
2200		
2350		
2650		
2950	0.411	250
3150		

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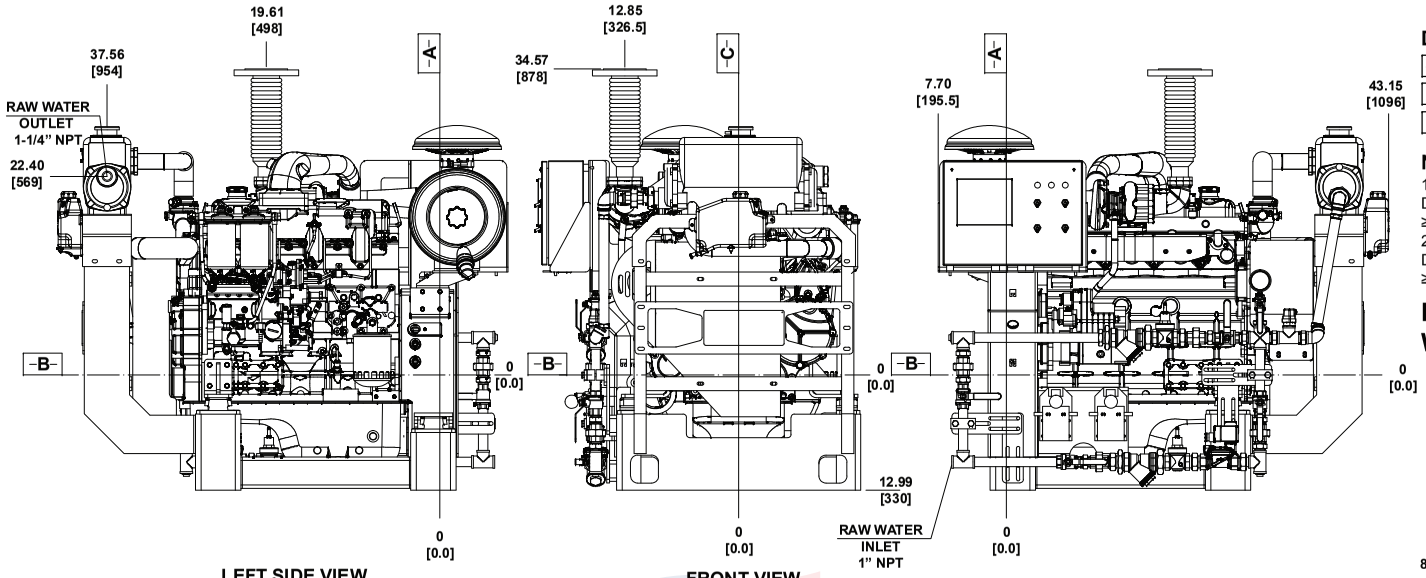


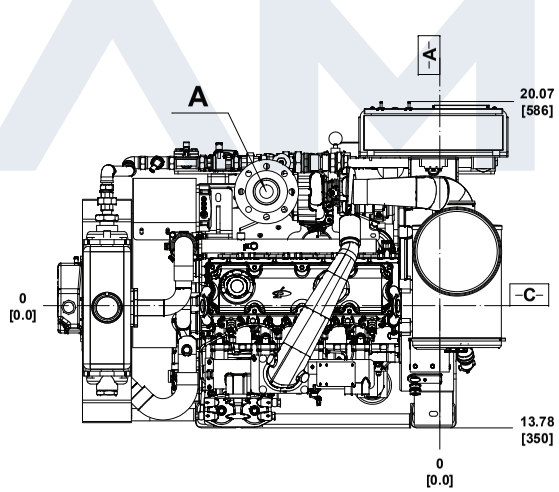
DATUMS:

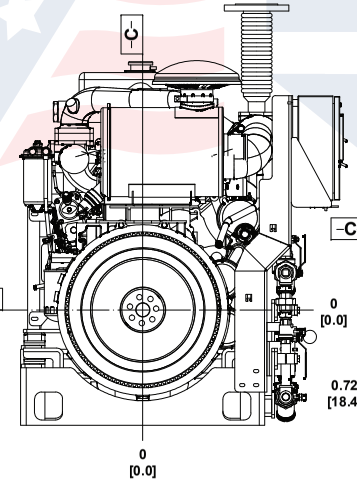
- -A- — DIMENSIONAL FACE OF FLYWHEEL
- -B- — ENGINE HORIZONTAL CENTER (CRANKSHAFT)
- -C- — ENGINE VERTICAL CENTER (CRANKSHAFT)

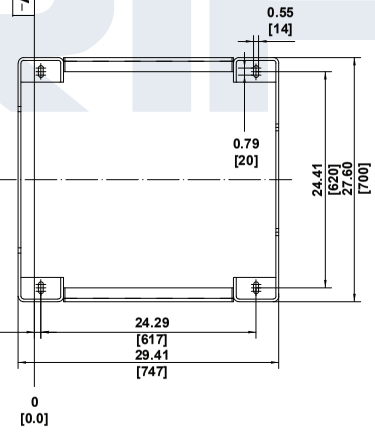
NOTES:

1. FUEL SUPPLY PIPING MINIMUM INSIDE DIAMETER FROM TANK TO ENGINE MUST BE ≥ 0.398 [10].
2. FUEL RETURN PIPING MINIMUM INSIDE DIAMETER FROM TANK TO ENGINE MUST BE ≥ 0.398 [10].

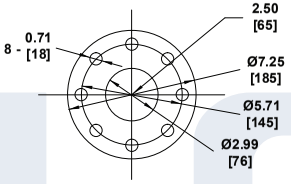
DRAWING SUBJECT TO CHANGE WITHOUT NOTICE.





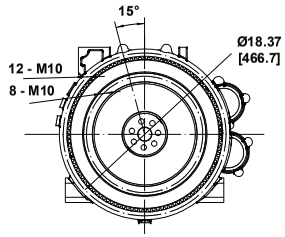


A - EXHAUST FLANGE

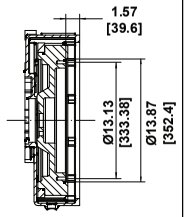


SCALE 2:1

FLYWHEEL HOUSING SAE #2



FLYWHEEL 11.50



NOTES:

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2. REFER TO SPECIFIC MODELS' INSTALLATION, OPERATION & MAINTENANCE MANUAL FOR INSTALLATION GUIDELINES.

REV	DESCRIPTION	DWN	APVD	DATE
A	CREATION	MJF		09/01/2020

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REV	
UNITS	IN[MM]
DRW BY: MJF	DATE: 09/01/2020
CHK BY:	DATE:
APPROVED:	DATE:
NAME:	INSTALLATION DRAWING DIESEL FIRE PUMP DRIVER MODEL AF4-108B
PART NO.:	AF4-108B-FM-00
MATERIAL:	
PROJECTION:	
PROJECT:	
SCALE: NONE	PAGE 1 OF 1

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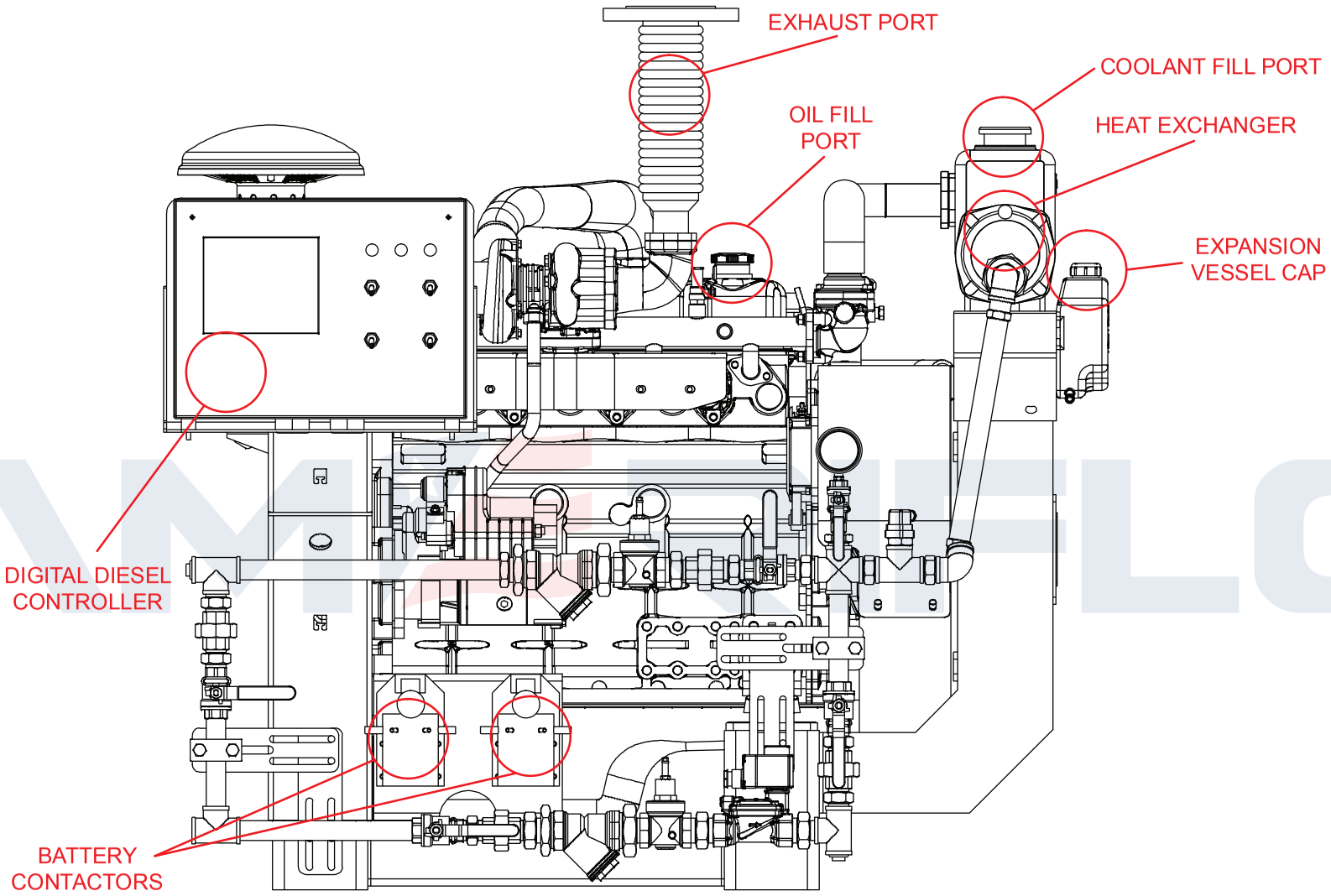

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REV	DESCRIPTION	DWN	APVD	DATE
A	CREATION	MJF		09/01/2020
REV	DESCRIPTION	DWN	APVD	DATE

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REV

UNITS IN[MM]

DRW BY: MJF DATE: 09/01/2020

CHK BY: DATE:

APPROVED: DATE:

NAME: INSTALLATION DRAWING DIESEL FIRE PUMP DRIVER MODEL AF4-108

PART NO.: AF4-108B-RIGHT

MATERIAL:

PROJECTION:

PROJECT:

SCALE: NONE

PAGE 1 OF 1

ENGINE MODEL AF4-108B

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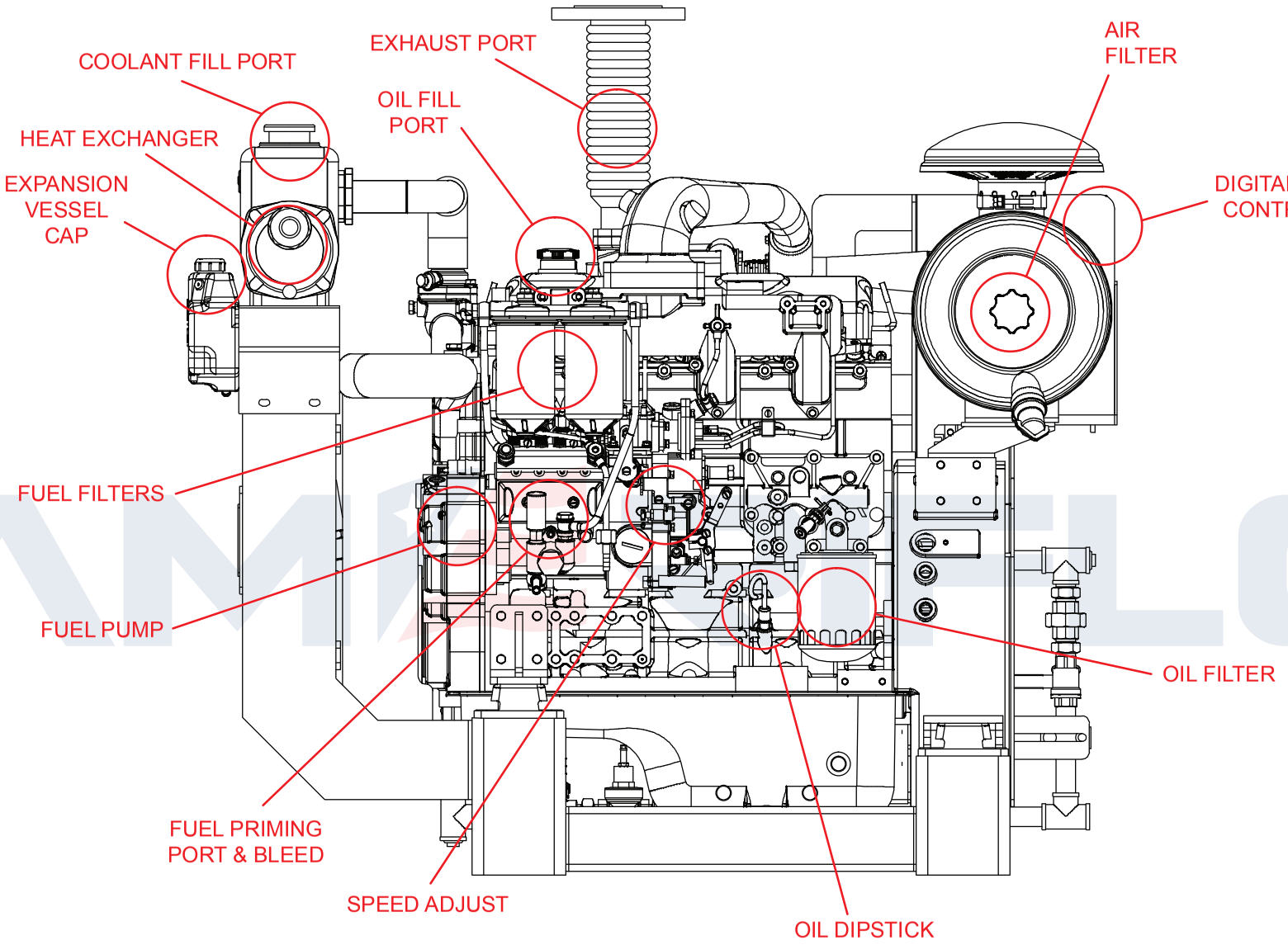

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REV	DESCRIPTION	DWN	APVD	DATE
A	CREATION	MJF		09/01/2020

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REV
UNITS IN[MM]

DRW BY: MJF DATE: 09/01/2020
CHK BY: DATE:
APPROVED: DATE:

NAME: INSTALLATION DRAWING DIESEL FIRE PUMP DRIVER MODEL AF4-108B

PART NO.: AF4-108B-LEFT

MATERIAL:

PROJECTION:

PROJECT:

SCALE: NONE

PAGE 1 OF 1

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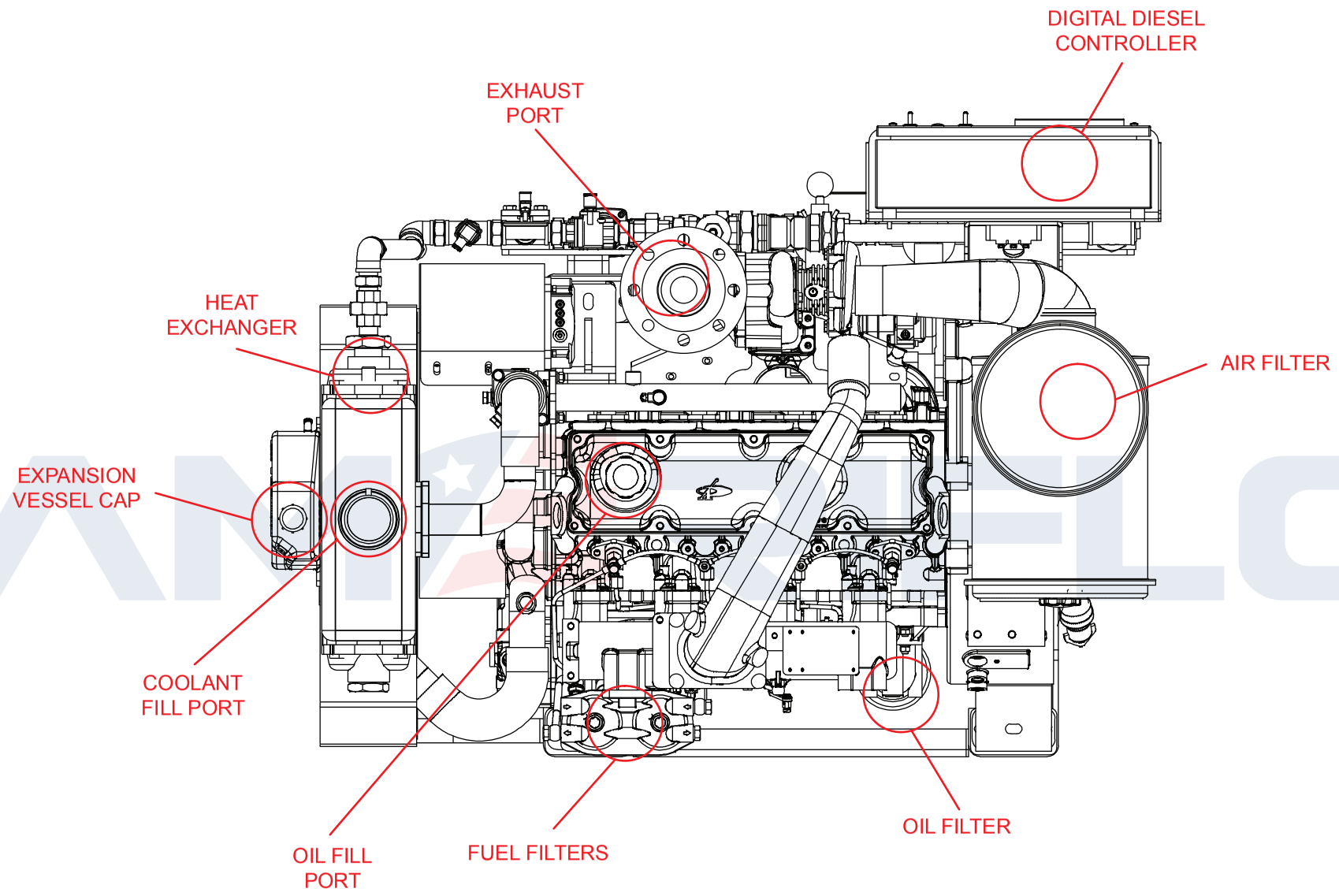

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A	CREATION	MJF		09/01/2020

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REV

UNITS IN[MM]

DRW BY: MJF DATE: 09/01/2020

CHK BY: DATE:

APPROVED: DATE:

NAME: INSTALLATION DRAWING DIESEL FIRE PUMP DRIVER MODEL AF4-108B

PART NO.: AF4-108B-TOP

MATERIAL:

PROJECTION:

PROJECT:

SCALE: NONE

PAGE 1 OF 1

ENGINE MODEL AF4-108B

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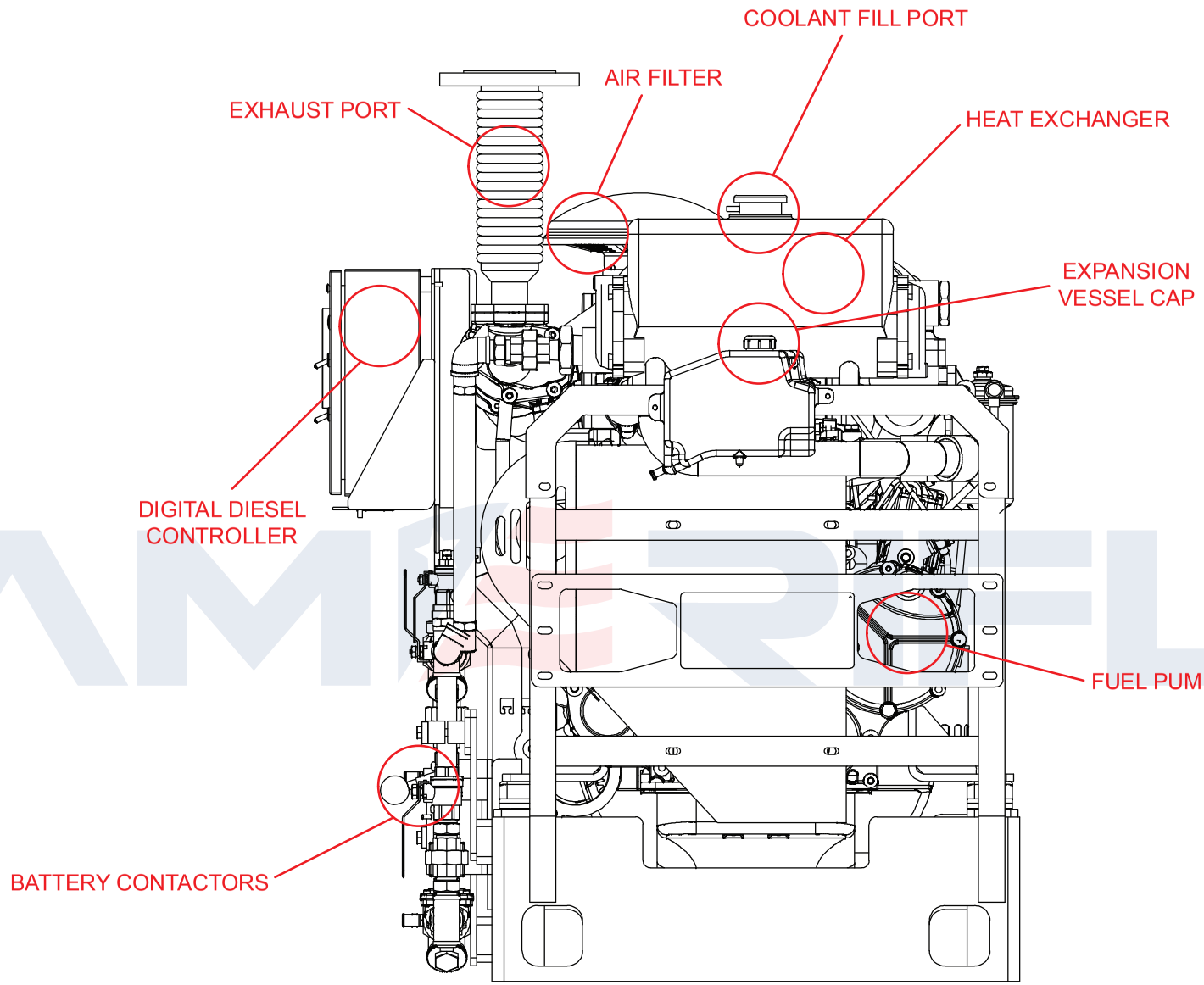

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A	CREATION	MJF		09/01/2020

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REV

UNITS IN[MM]

DRW BY: MJF DATE: 09/01/2020
CHK BY: DATE:
APPROVED: DATE:

NAME: INSTALLATION DRAWING DIESEL FIRE PUMP DRIVER MODEL AF4-108

PART NO.: AF4-108B-FRONT

MATERIAL:

PROJECTION:

PROJECT:

SCALE: NONE

PAGE 1 OF 1

ENGINE MODEL AF4-108B

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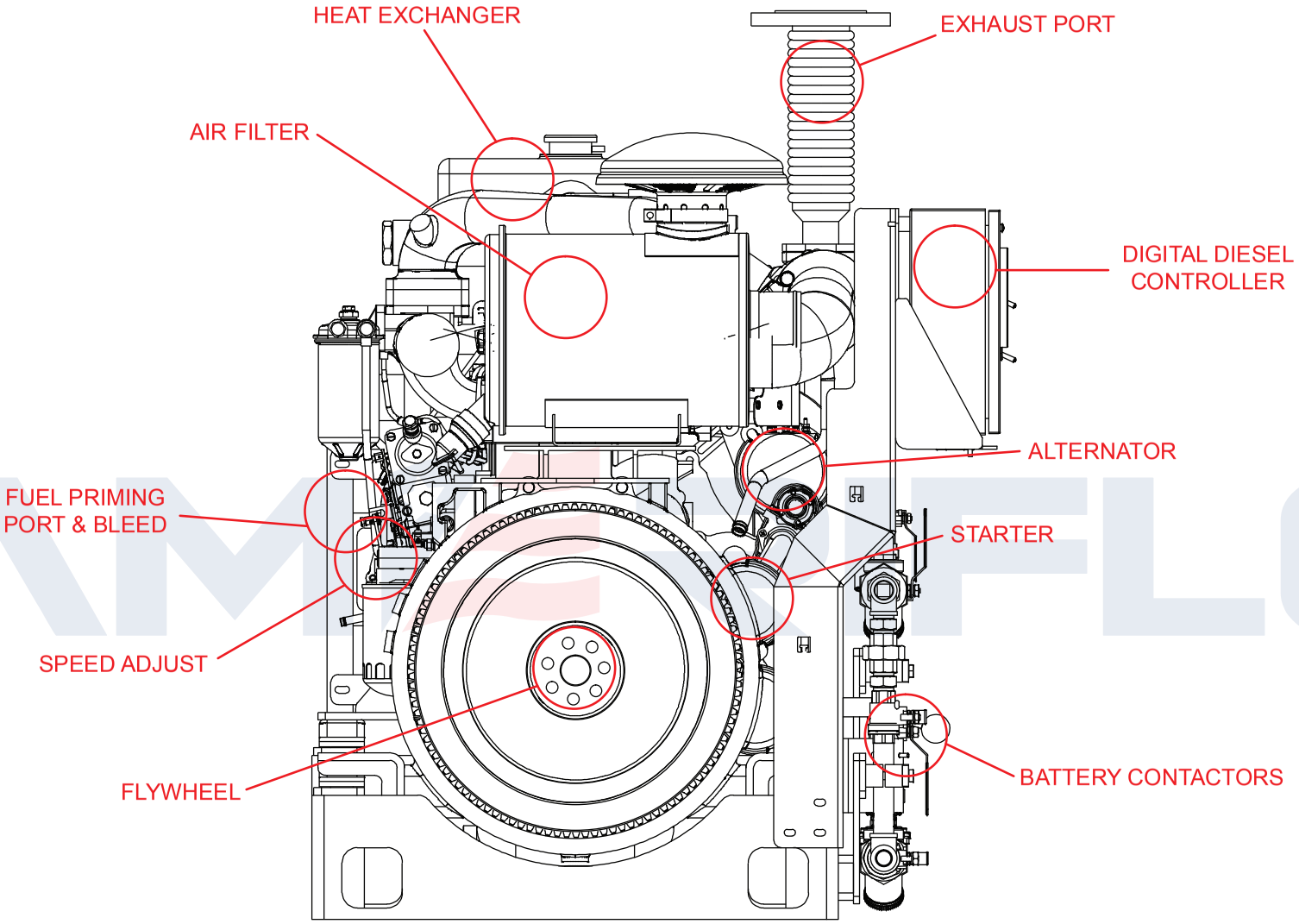

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REV	DESCRIPTION	DWN	APVD	DATE
A	CREATION	MJF		09/01/2020

AMERIFLO

DRW BY: MJF	DATE: 09/01/2020	NAME: INSTALLATION DRAWING DIESEL FIRE PUMP DRIVER MODEL AF4-108B	REV
CHK BY:	DATE:		UNITS IN[MM]
APPROVED:	DATE:	PART NO.: AF4-108B-REAR	PROJECTION:
		MATERIAL:	PROJECT:
			SCALE: NONE / PAGE 1 / OF 1