

UL - cUL LISTED RATINGS BHP & KW

ENGINE MODEL:	AF4-108B
EMISSIONS:	TIER 0
DATE:	09/01/2020
DRAWING NUMBER:	AF4-108B.00
PERFORMANCE CURVE NUMBER:	C04108B
RATED POWER:	121 BHP @ 2950 RPM 90 KW @ 2950 RPM
REFERENCE NUMBER:	14DS001E
VERSION:	A



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:	<input checked="" type="checkbox"/> WET <input type="checkbox"/> 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 OPERATING 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%	

• ALL DATA CERTIFIED WITHIN ±5%.

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]:	1.45 [10]
MINIMUM EXHAUST PIPE DIAMETER - IN [MM]:	2.5 [65]

AIR INTAKE SYSTEM

AIR CLEANER TYPE:	DRY TYPE, DISPOSABLE
AIR FLOW - CFM [M ³ /HR]:	303 [515]
AIR INLET RESTRICTION (DIRTY) - PSI [KPA]:	≤ 0.73 [5]
AIR INLET RESTRICTION (CLEAN) - PSI [KPA]:	≤ 0.44 [3]

LUBRICATION SYSTEM

OIL CAPACITY (ENGINE ONLY) - QTS [L]:	13.7 [13]
MAXIMUM SUMP OIL TEMPERATURE - °F [°C]:	248 [120]
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]	
MAXIMUM ENGINE COOLANT TEMPERATURE - °F [°C]:	≤ 208 [98]	
ENGINE COOLANT FLOW @ FULL SPEED - GPM [M ³ /HR]:	49.3 [11.2]	
RAW WATER COOLING CAPACITY - GPM [M ³ /HR]:	35 [8]	
MINIMUM / MAXIMUM RAW WATER COOLING CAPACITY - GPM [M ³ /HR]:	24.2 [5.5]	
RAW WATER PRESSURE - PSI [BAR]:	29 [2]	
MAXIMUM RAW WATER TEMPERATURE - °F [°C]:	100 [37.8]	
RAW WATER INTAKE PIPE SIZE:	RAW WATER INLET - IN:	1.00 NPT
	RAW WATER OUTLET - IN:	1.25 NPT

HEATER SYSTEM

WATTAGE - W:	2200
VOLTAGE (AC) - V:	240

DC ELECTRICAL SYSTEM

NORMAL SYSTEM VOLTAGE - V:	24
STARTER MOTOR - HP [KW]:	6.7 [5]
RECOMMENDED BATTERY SIZE - AH:	120
COLD CRANKING AMPS @ 0°F (-18°C):	750
RESERVE CAPACITY - AMPS:	223
CHARGING ALTERNATOR OUTPUT - AMPS:	35
STARTER CRANKING AMPS, ROLLING @ 0°F (-18°C):	360
MINIMUM CRANKING SPEED REQUIRED FOR UNAIDED COLD START - RPM:	310

● ALL DATA CERTIFIED WITHIN ±5%.

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
FUEL CONSUMPTION @ 2950 RPM - LB/BHP-HR [G/KW-HR]:	0.411 [250]
IDLE SPEED - RPM:	700 ~ 750
MAXIMUM GOVERNED SPEED - RPM:	3245
MAXIMUM ALLOWABLE FUEL HEIGHT ABOVE FUEL PUMP - FT [M]:	9.8 [3]
GOVERNED SPEED RATE - %:	≤ 10

① ALL DATA CERTIFIED WITHIN ±5%.



ENGINE MATERIALS & CONSTRUCTION

ENGINE		AIR INTAKE	
CAMSHAFT:		AIR CLEANER:	
TYPE	GROUND	TYPE	DRIP PROOF
MATERIAL	CARBON STEEL	MATERIAL	PLEATED PAPER
LOCATION	IN BLOCK	COOLING SYSTEM	
DRIVE	SPUR GEAR	COOLANT HEAT EXCHANGER:	
CONNECTING RODS:		TYPE	TUBE & SHELL
TYPE	I-BEAM, FRACTURE	MATERIAL	
MATERIAL	FORGED STEEL	ELECTRODE	ZINC
CRANKSHAFT:		HEADERS	COPPER
TYPE	GROUND	SHELL	ALUMINUM
MATERIAL	DUCTILE IRON	TUBES	COPPER
MAIN BEARINGS:		COOLANT PUMP:	
TYPE	PRECISION, HALF SHELL	TYPE	CENTRIFUGAL
MATERIAL	ALUMINUM BRONZE	DRIVE	V-BELT
CYLINDER BLOCK:		THERMOSTAT:	
TYPE	WET LINED	TYPE	NON-BLOCKING
MATERIAL	CAST IRON	QUANTITY	1
CYLINDER HEAD:		COOLING LOOP (GALVANIZED):	
TYPE	SLAB 2 VALVE	TEES, ELBOWS, PIPE	GALVANIZED STEEL
MATERIAL	CAST IRON	BALL VALVES	BRASS
CYLINDER LINERS:		SOLENOID VALVE	BRASS
TYPE	CENTRIFUGALLY CAST	PRESSURE REGULATOR	BRASS
MATERIAL	CAST IRON ALLOY	STRAINER	BRASS
PISTONS:		COOLING LOOP (316 STAINLESS STEEL):	
TYPE	1 PIECE	TEES, ELBOWS, PIPE	316 STAINLESS STEEL
MATERIAL	CAST ALUMINUM	BALL VALVES	316 STAINLESS STEEL
PISTON PINS:		SOLENOID VALVE	316 STAINLESS STEEL
TYPE	FULL FLOATING	PRESSURE REGULATOR	316 STAINLESS STEEL
MATERIAL	ALLOY STEEL	STRAINER	316 STAINLESS STEEL
PISTON RINGS:		FUEL SYSTEM	
FIRST	DUCTILE CAST IRON	FUEL INJECTION PUMP:	
SECOND	ALLOY CAST IRON	TYPE	FULL MECHANICAL, CENTRIFUGAL
THIRD	ALLOY CAST IRON	DRIVE	GEAR DRIVEN
VALVES:		LUBRICATION SYSTEM	
TYPE	POPPET	TYPE	GEROTOR
ARRANGEMENT	OVERHEAD	DRIVE	GEAR
VALVE # PER CYLINDER	1 INTAKE, 1 EXHAUST		
OPERATING MECHANISM	MECHANICAL ROCKER ARM		
LIFTER TYPE	LARGE HEAD		

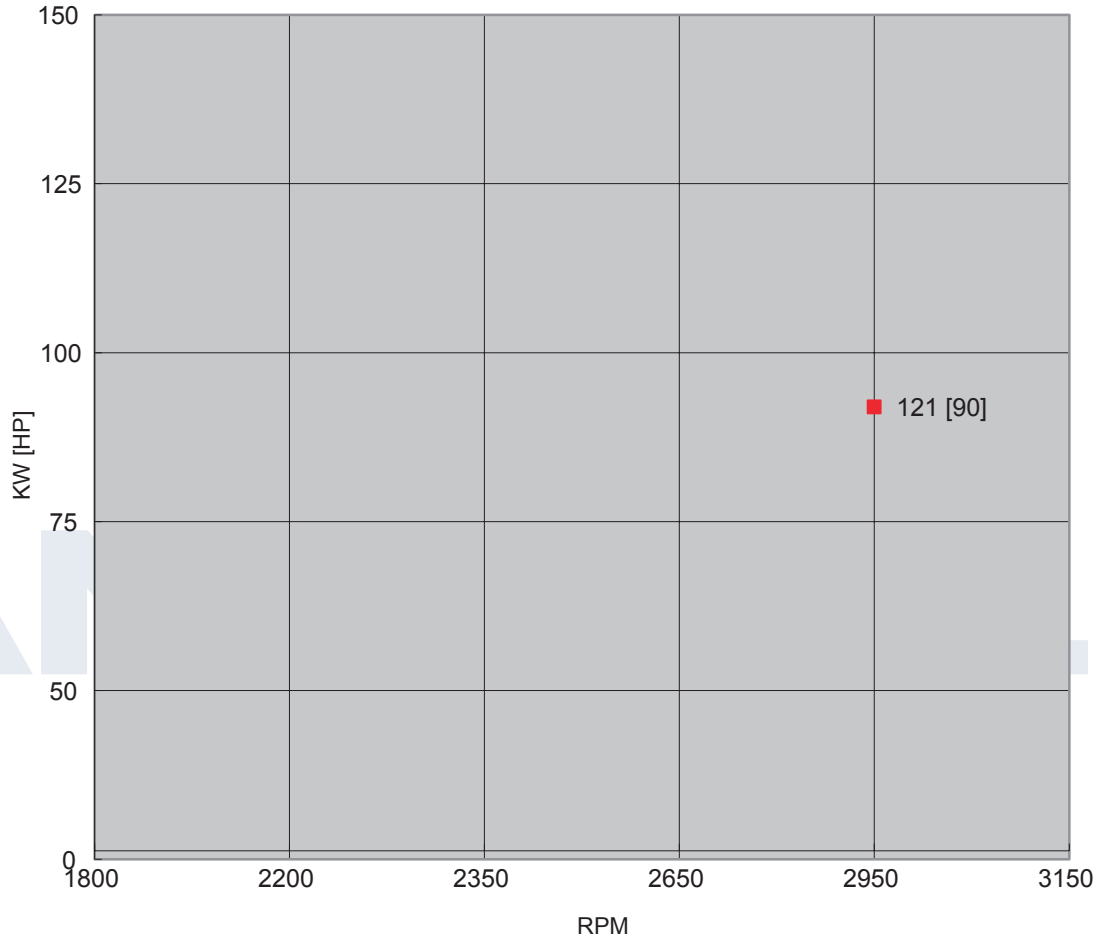
SPARE PARTS LIST

PART DESCRIPTION	QUANTITY	PART NUMBER	REMARKS
LUBRICATION SYSTEM			
OIL FILTER	1 PIECE	AF-2410201120002	
OIL PRESSURE SENSOR	1 PIECE	AF-21103-OPS	
FUEL SYSTEM			
FUEL FILTER	1 PIECE	AF-2410201250001	
INJECTION PUMP	1 PIECE	AF-2410201240026	
FUEL SUPPLY & RETURN HOSE	1 PIECE	AF4-108B-4.1	
	1 PIECE	AF4-108B-4.2	
COOLING SYSTEM			
HEAT EXCHANGER	1 PIECE	AF-AH300	
COOLING LOOP	1 SET	AF-CL0.5-00-CL	
COOLING HOSE (STRAIGHT)	2 SETS	AF-38-5-120-CHE	
	1 SET	AF-45-5-120-CHE	
COOLING HOSE	1 SET	AF-16-5-1000-CH	
	1 SET	AF-16-5-700-CH	
WATER PUMP	1 PIECE	AF-2410201920000	
WATER TEMPERATURE SENSOR	1 PIECE	AF-00121-WTR	
	1 PIECE	AF-00102-WTS	
THERMOSTAT	1 PIECE	AF-2210504300100	
PREHEATER	1 PIECE	AF-HT10-2	
FLOW SENSOR	1 PIECE	AF	
CONTROL SYSTEM			
STARTER	1 PIECE	AF-2410202610023	
ALTERNATOR	1 PIECE	AF-2409002310103	
BATTERY	2 PIECES	AF-N200	
STARTER CONTACTOR	2 PIECES	AF	
OVERSPEED SHUTDOWN	1 PIECE	AF	
SPEED SENSOR	1 PIECE	AF	
INSTRUMENT PANEL	1 SET	AF-ENL-AB-ETS	
TRANSMISSION SYSTEM			
BELT	1 SET	AF-AV17X1143LI-BT	
STOP SOLENOID	1 PIECE	AF-5295568-SN	
INTAKE & EXHAUST SYSTEM			
AIR FILTER	1 PIECE	AF-12015570-AF	
TURBOCHARGER	1 PIECE		

POWER CURVE

CURVE NUMBER:	C04108B	DATE:	09/01/2020
DISPLACEMENT - IN ³ [L]:	257 [4.21]	ASPIRATION:	TURBOCHARGED
POWER STANDARD:	UL	BORE & STROKE - IN [MM]:	4.25 x 4.53 [108 x 115]
NUMBER OF CYLINDERS:	4	FUEL SYSTEM:	INLINE, MECHANICAL

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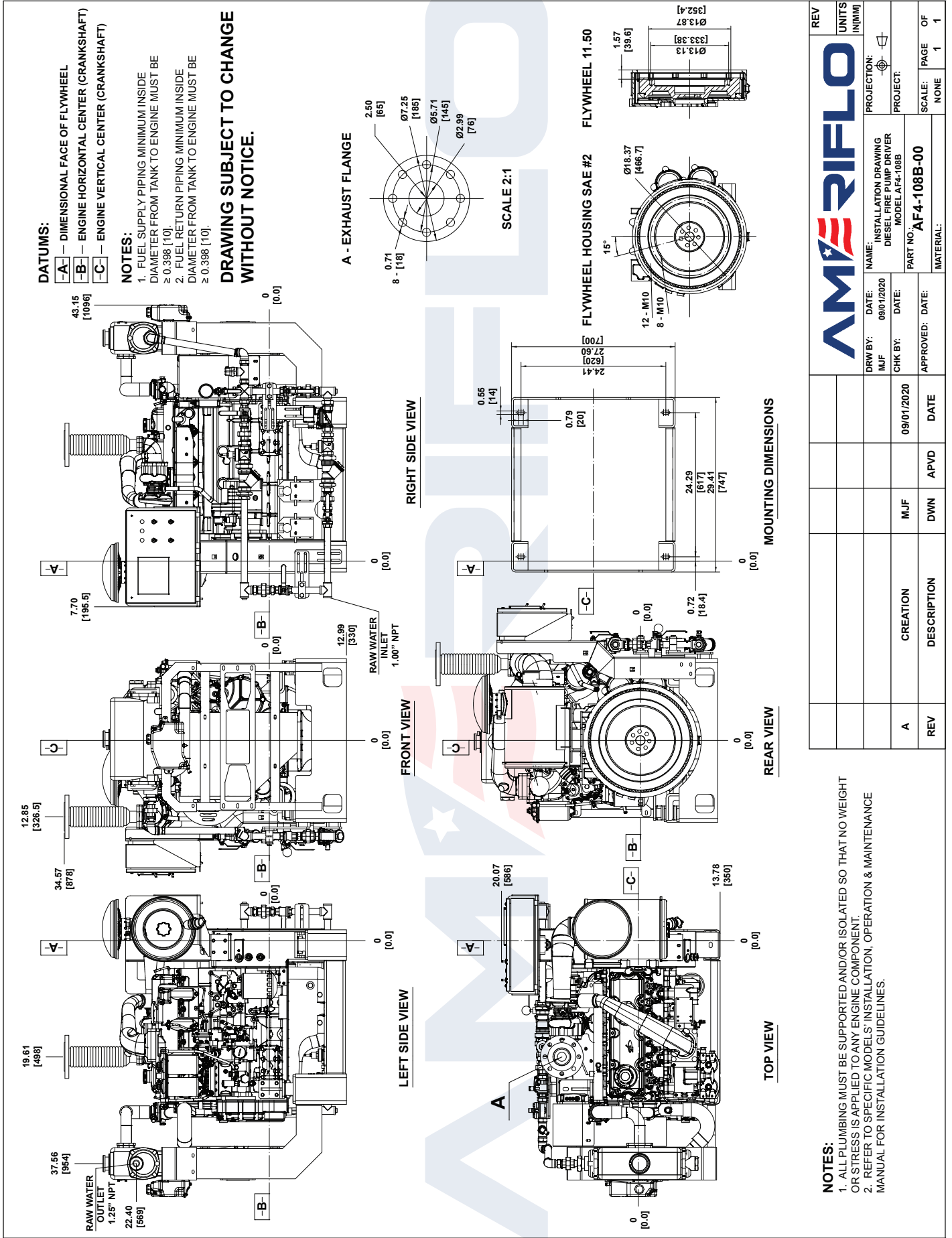


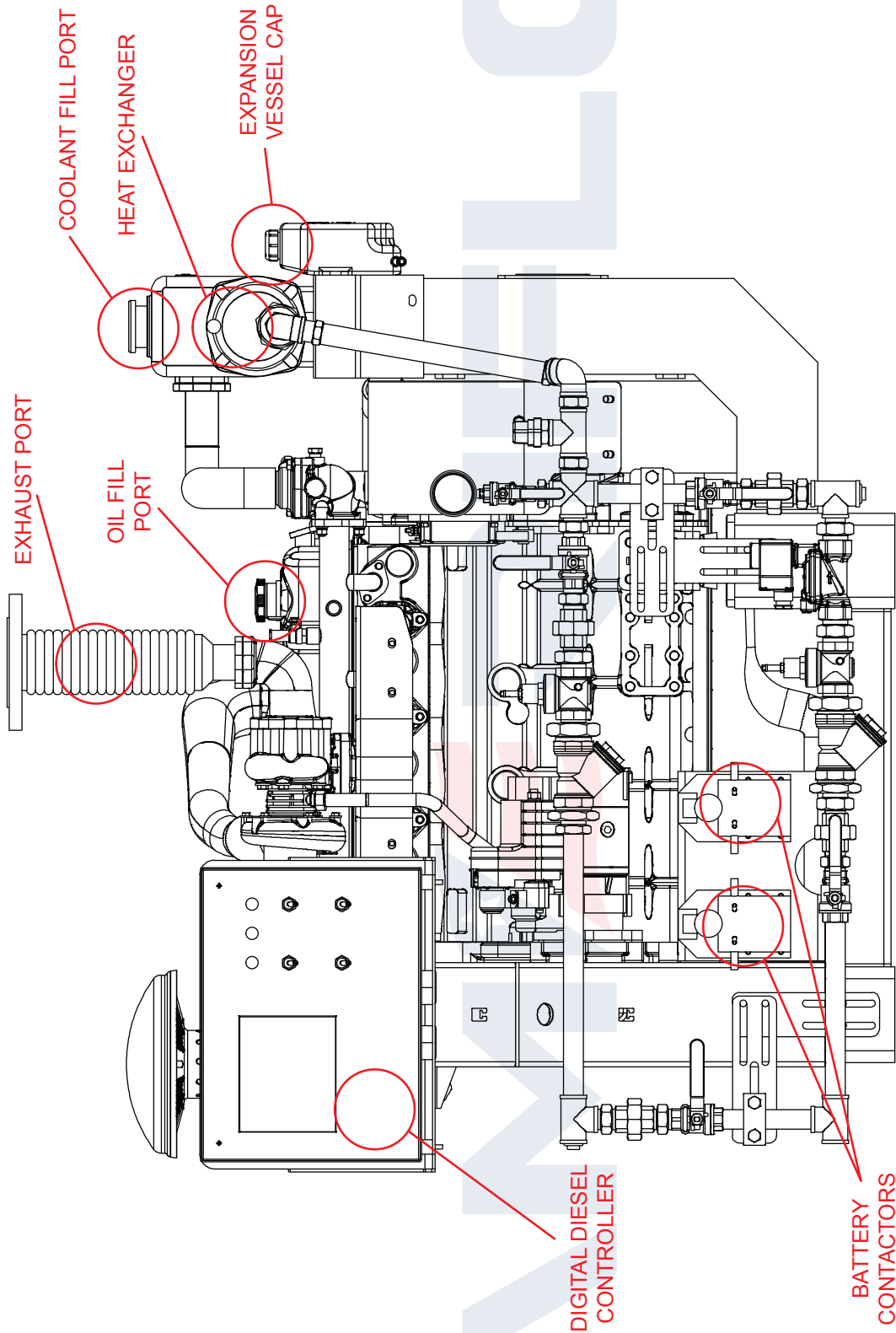
TORQUE		
SPEED	LB-FT	N-M
RPM		
1800		
2200		
2350		
2650		
2950	215	291
3150		

OUTPUT POWER		
SPEED	HP	KW
RPM		
1800		
2200		
2350		
2650		
2950	121	90
3150		

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

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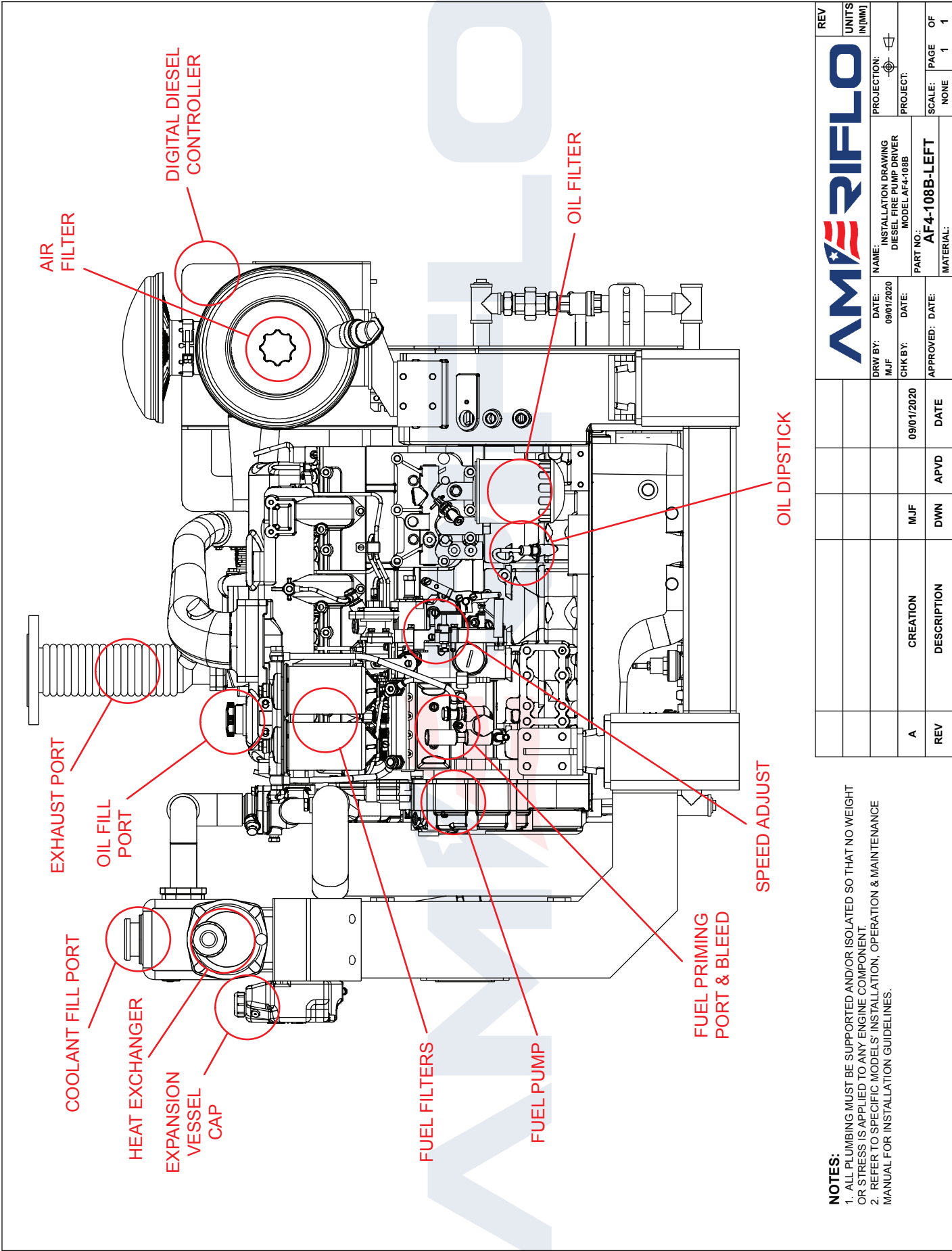
NOTES:

1. ALL PLUMBING MUST BE SUPPORTED AND/OR ISOLATED SO THAT NO WEIGHT OR STRESS IS APPLIED TO ANY ENGINE COMPONENT.
2. REFER TO SPECIFIC MODELS' INSTALLATION, OPERATION & MAINTENANCE MANUAL FOR INSTALLATION GUIDELINES.

REV	UNITS IN/[MM]	PROJECTION:	SCALE:	PAGE	OF
		AS SHOWN	NONE	1	1
		PROJECT:			
		PROJECT:			
		NAME: INSTALLATION DRAWING			
		DIESEL FIRE PUMP DRIVER			
		MODEL AF4-108			
		DATE: 09/01/2020			
		DRW BY: MJF			
		DATE: 09/01/2020			
		CHK BY:			
		APPROVED: DATE:			
		09/01/2020			
		MJF			
		DWN			
A		CREATION			
REV		DESCRIPTION			



AF4-108B-RIGHT
 MATERIAL:

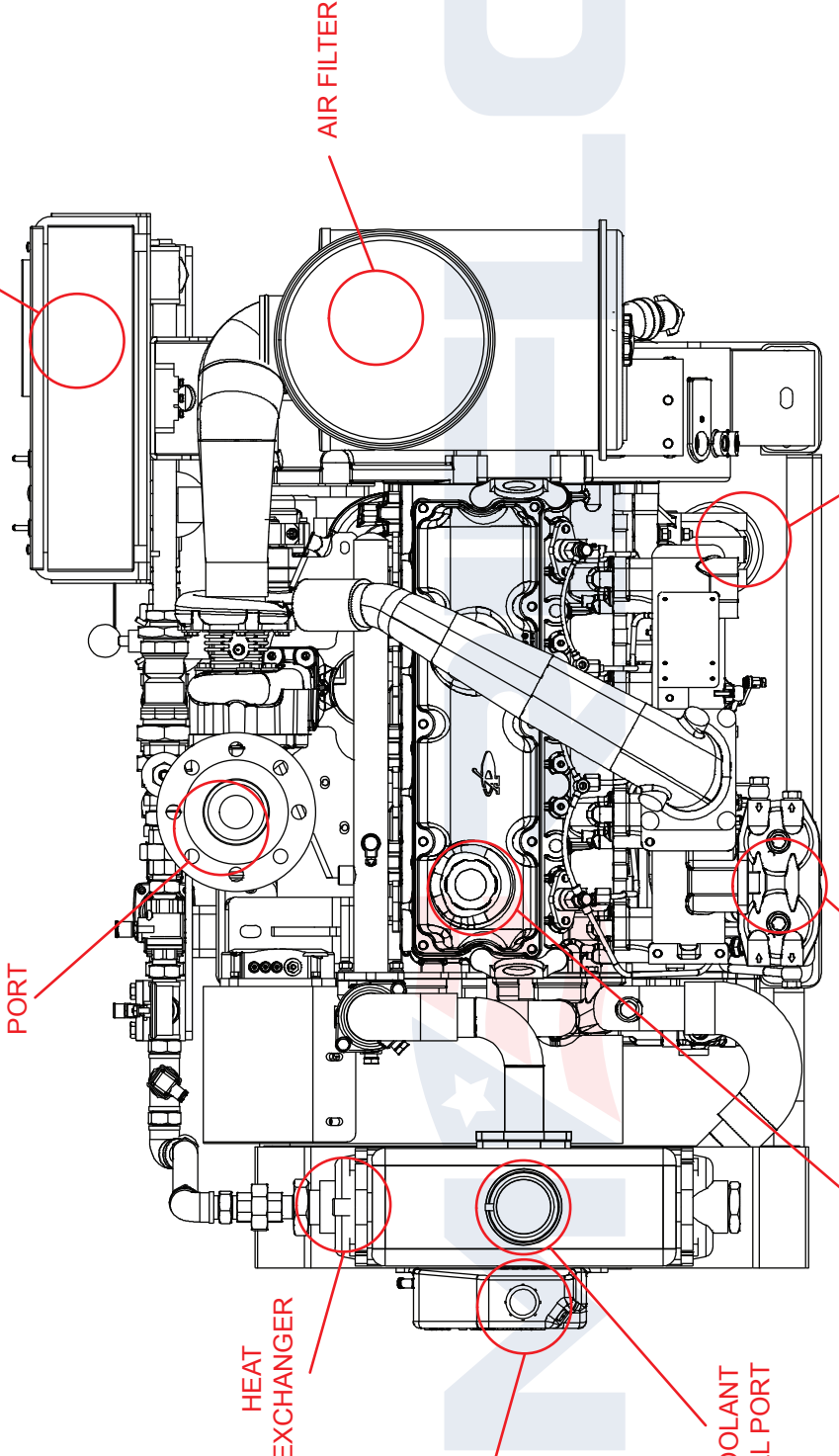


REV	UNITS																		
	IN (MM)																		
AMERIFLO		PROJECTION:																	
DRW BY:	DATE:	NAME:	INSTALLATION DRAWING															PROJECT:	
MJF	09/01/2020	MJF	DIESEL FIRE PUMP DRIVER															MODEL AF4-108B	
CHK BY:	DATE:	APPROVED:	DATE:															SCALE:	
																		NONE	
REV	DESCRIPTION	DWN	APVD	DATE															
A	CREATION	MJF		09/01/2020															

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DIGITAL DIESEL
 CONTROLLER



AIR FILTER

OIL FILTER

EXHAUST
 PORT

FUEL FILTERS

HEAT
 EXCHANGER

OIL FILL
 PORT

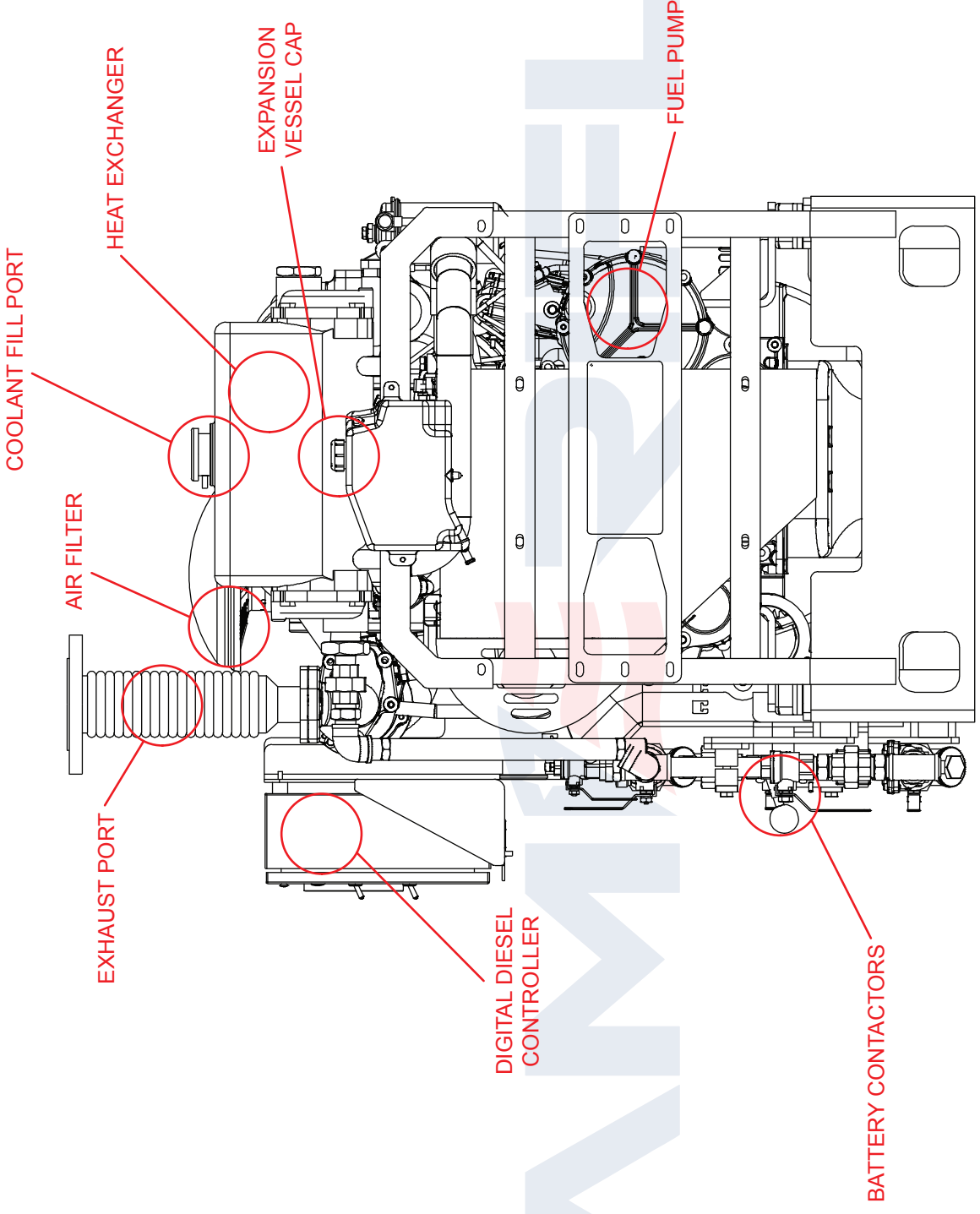
EXPANSION
 VESSEL CAP

COOLANT
 FILL PORT

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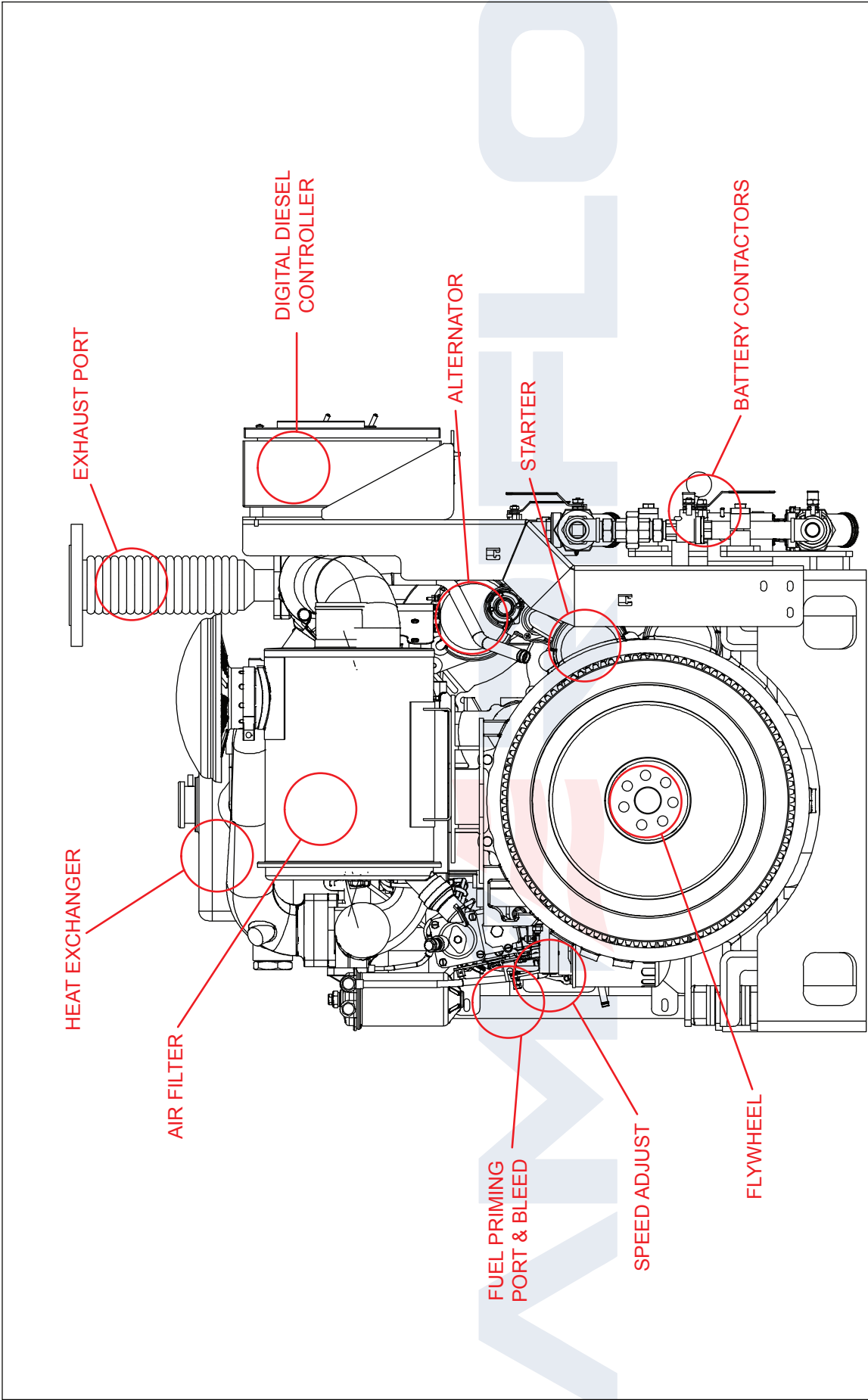
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		CREATION	MJF		09/01/2020				
NAME: INSTALLATION DRAWING DIESEL FIRE PUMP DRIVER MODEL AF4-108B PART NO.: AF4-108B-TOP MATERIAL:						PROJECT:			
DATE: 09/01/2020 DRW BY: MJF						PROJECT:			
DATE: 09/01/2020 CHK BY:						SCALE: NONE			
APPROVED: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



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REV	UNITS	PROJECT:	SCALE:	PAGE	OF
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		PROJECT:			
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		DATE: 09/01/2020			
		DRW BY: MJF			
		NAME: DIESEL FIRE PUMP DRIVER			
		DATE: 09/01/2020			
		CHK BY: MJF			
		MODEL: AF4-108			
		PART NO: AF4-108B-FRONT			
		APPROVED: DATE:			
		DATE: 09/01/2020			
		APVD			
		DWN			
		DESCRIPTION			
		CREATION			
		MJF			
A					
REV					





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REV	UNITS IN (MM)	SCALE:	PAGE	OF
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DRW BY: MJF	DATE: 09/01/2020	NAME: INSTALLATION DRAWING DIESEL FIRE PUMP DRIVER MODEL AF4-108B		
CHK BY:	DATE:	PART NO.: AF4-108B-REAR		
APPROVED:	DATE:	MATERIAL:		
	09/01/2020			
A		CREATION	MJF	
		DESCRIPTION	DWN	
		APVD		
		DATE		
REV				