

**UL - cUL LISTED RATINGS BHP & KW**

<b>ENGINE MODEL:</b>	AF4-108
<b>EMISSIONS:</b>	TIER 0
<b>DATE:</b>	09/01/2020
<b>DRAWING NUMBER:</b>	AF4-108.00
<b>PERFORMANCE CURVE NUMBER:</b>	C04108
<b>RATED POWER:</b>	94 BHP @ 2950 RPM 70 KW @ 2950 RPM
<b>REFERENCE NUMBER:</b>	16DS001E
<b>VERSION:</b>	A



**GENERAL ENGINE DATA**

TYPE:	4 CYCLE; INLINE; WATER COOLED	
NUMBER OF CYLINDERS:	4	
ASPIRATION:	NATURALLY	
BORE & STROKE - IN [MM]:	4.25 x 4.65 [108 x 118]	
CYLINDER LINER TYPE:	<input type="checkbox"/> WET <input checked="" type="checkbox"/> DRY	
DISPLACEMENT - IN <sup>3</sup> [L]:	264 [4.32]	
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]:	0.014 ~ 0.016 [0.35 ~ 0.40]
	EXHAUST - IN [MM]:	0.016 ~ 0.018 [0.40 ~ 0.45]
IGNITION TYPE:	COMPRESSION (DIESEL)	
CHARGE AIR COOLING TYPE:	N/A	
WEIGHT (FUEL PUMP CONFIGURATION) - LBS [KG]:	1168 [530]	
DIMENSIONS (L x W x H) - IN [MM]:	49 x 35 x 42 [1245 x 900 x 1075]	
FLYWHEEL / FLYWHEEL HOUSING DIMENSIONS:	10.00 / SAE #3	
TORQUE @ RATED RPM - LB-FT [N-M]:	184 [249]	

**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	≤ 114
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]:	≤ 1166 [630]
EXHAUST GAS FLOW @ MAXIMUM OUTPUT - LBS/HR [KG/HR]:	1268 [575]
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 <sup>3</sup> /HR]:	253 [430]
AIR INLET RESTRICTION (DIRTY) - PSI [KPA]:	≤ 0.73 [5]
AIR INLET RESTRICTION (CLEAN) - PSI [KPA]:	≤ 0.36 [2.5]

**LUBRICATION SYSTEM**

OIL CAPACITY (ENGINE ONLY) - QTS [L]:	12.6 [12]
MAXIMUM SUMP OIL TEMPERATURE - °F [°C]:	248 [120]
NORMAL OPERATING OIL PRESSURE RANGE - PSI [BAR]:	36.3 - 65.3 [2.5 - 4.5]
OIL PRESSURE @ IDLE - PSI [BAR]:	≥ 17.4 [1.2]

**COOLING SYSTEM**

COOLANT CAPACITY (ENGINE & HEAT EXCHANGER) - QTS [L]:	15.8 [15]	
THERMOSTAT RANGE:	START OPEN - °F [°C]:	162 [72]
	FULL OPEN - °F [°C]:	180 [82]
COOLANT PRESSURE MAXIMUM - PSI [BAR]:	13 [0.9]	
MAXIMUM ENGINE COOLANT TEMPERATURE - °F [°C]:	≤ 203 [95]	
ENGINE COOLANT FLOW @ FULL SPEED - GPM [M <sup>3</sup> /HR]:	30.8 [7]	
MINIMUM / MAXIMUM RAW WATER COOLING CAPACITY - GPM [M <sup>3</sup> /HR]:	10 ~ 18 [2.3 ~ 4]	
MINIMUM / MAXIMUM RAW WATER PRESSURE - PSI [BAR]:	14.5 ~ 43.5 [1 ~ 3]	
MAXIMUM RAW WATER TEMPERATURE - °F [°C]:	100 [37.8]	
RAW WATER INTAKE PIPE SIZE:	RAW WATER INLET - IN:	0.50 NPT
	RAW WATER OUTLET - IN:	0.75 NPT

**HEATER SYSTEM**

WATTAGE - W:	1190
VOLTAGE (AC) - V:	240

**DC ELECTRICAL SYSTEM**

NORMAL SYSTEM VOLTAGE - V:	24
STARTER MOTOR - HP [KW]:	6.0 [4.5]
RECOMMENDED MINIMUM BATTERY SIZE - AH:	120
COLD CRANKING AMPS @ 0°F (-18°C):	638
RESERVE CAPACITY - AMPS:	224
CHARGING ALTERNATOR OUTPUT - AMPS:	27
STARTER CRANKING AMPS, ROLLING @ 0°F (-18°C):	295
MINIMUM CRANKING SPEED REQUIRED FOR UNAIDED COLD START - RPM:	412

● ALL DATA CERTIFIED WITHIN ±5%.

**FUEL SYSTEM**

INJECTION PUMP:	INLINE, PLUNGER TYPE
INJECTION PUMP ADVANCE ANGLE - °:	18 ± 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]:	0.398 [242]
IDLE SPEED - RPM:	800
MAXIMUM GOVERNED SPEED - RPM:	3300
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	
<b>CAMSHAFT:</b>		<b>AIR CLEANER:</b>	
TYPE	GROUND	TYPE	DRIP PROOF
MATERIAL	CARBON STEEL	MATERIAL	PLEATED PAPER
LOCATION	IN BLOCK	<b>COOLING SYSTEM</b>	
DRIVE	SPUR GEAR	<b>COOLANT HEAT EXCHANGER:</b>	
<b>CONNECTING RODS:</b>		TYPE	TUBE & SHELL
TYPE	I-BEAM, FRACTURE	MATERIAL	
MATERIAL	FORGED STEEL	ELECTRODE	ZINC
<b>CRANKSHAFT:</b>		HEADERS	COPPER
TYPE	GROUND	SHELL	ALUMINUM
MATERIAL	DUCTILE IRON	TUBES	COPPER
<b>MAIN BEARINGS:</b>		<b>COOLANT PUMP:</b>	
TYPE	PRECISION, HALF SHELL	TYPE	CENTRIFUGAL
MATERIAL	ALUMINUM BRONZE	DRIVE	V-BELT
<b>CYLINDER BLOCK:</b>		<b>THERMOSTAT:</b>	
TYPE	WET LINED	TYPE	NON-BLOCKING
MATERIAL	CAST IRON	QUANTITY	1
<b>CYLINDER HEAD:</b>		<b>COOLING LOOP (GALVANIZED):</b>	
TYPE	SLAB 2 VALVE	TEES, ELBOWS, PIPE	GALVANIZED STEEL
MATERIAL	CAST IRON	BALL VALVES	BRASS
<b>CYLINDER LINERS:</b>		SOLENOID VALVE	BRASS
TYPE	CENTRIFUGALLY CAST	PRESSURE REGULATOR	BRASS
MATERIAL	CAST IRON ALLOY	STRAINER	BRASS
<b>PISTONS:</b>		<b>COOLING LOOP (316 STAINLESS STEEL):</b>	
TYPE	1 PIECE	TEES, ELBOWS, PIPE	316 STAINLESS STEEL
MATERIAL	CAST ALUMINUM	BALL VALVES	316 STAINLESS STEEL
<b>PISTON PINS:</b>		SOLENOID VALVE	316 STAINLESS STEEL
TYPE	FULL FLOATING	PRESSURE REGULATOR	316 STAINLESS STEEL
MATERIAL	ALLOY STEEL	STRAINER	316 STAINLESS STEEL
<b>PISTON RINGS:</b>		<b>FUEL SYSTEM</b>	
FIRST	DUCTILE CAST IRON	<b>FUEL INJECTION PUMP:</b>	
SECOND	ALLOY CAST IRON	TYPE	FULL MECHANICAL, CENTRIFUGAL
THIRD	ALLOY CAST IRON	DRIVE	GEAR DRIVEN
<b>VALVES:</b>		<b>LUBRICATION SYSTEM</b>	
TYPE	POPPET	TYPE	GEROTOR
ARRANGEMENT	OVERHEAD	DRIVE	GEAR
VALVE # PER CYLINDER	1 INTAKE, 1 EXHAUST		
OPERATING MECHANISM	MECHANICAL ROCKER ARM		
LIFTER TYPE	LARGE HEAD		

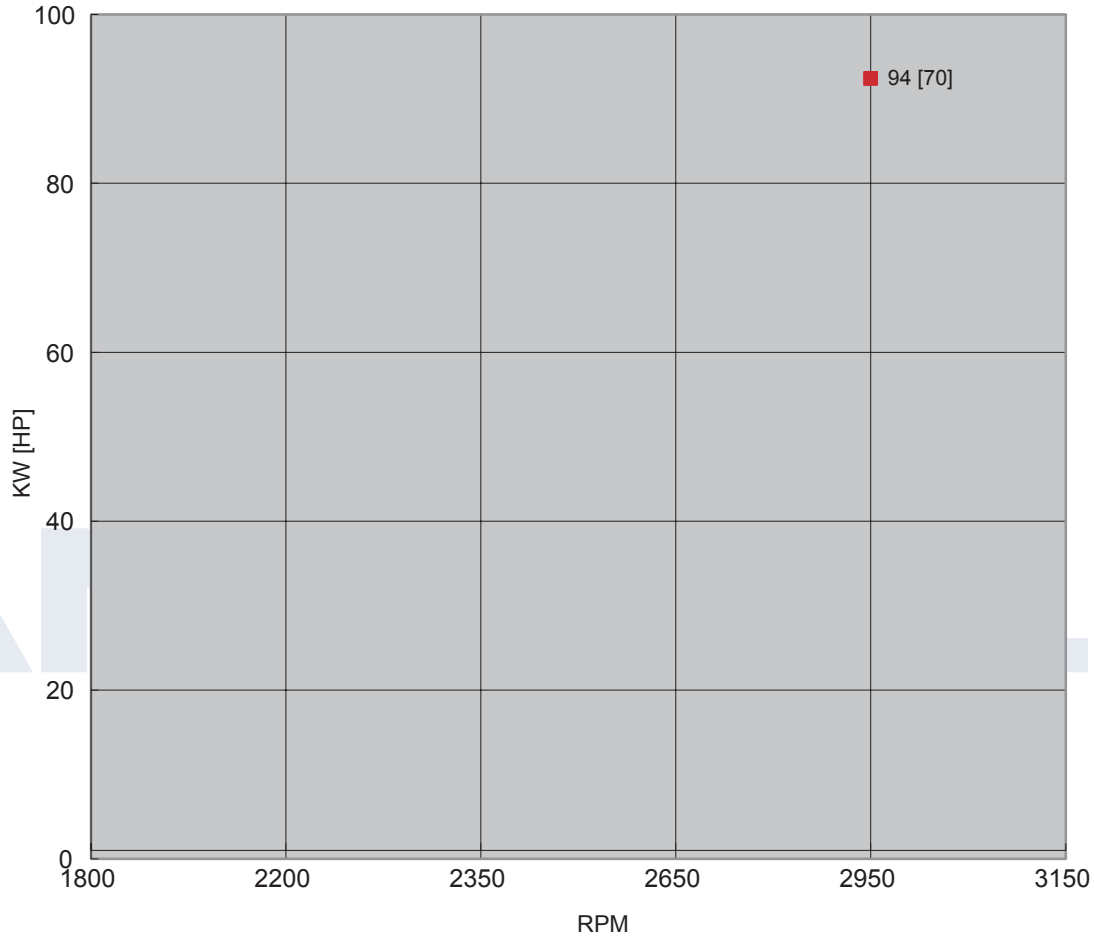
**SPARE PARTS LIST**

PART DESCRIPTION	QUANTITY	PART NUMBER	REMARKS
<b>LUBRICATION SYSTEM</b>			
OIL FILTER	1 PIECE	AF-2410201120002	
OIL PRESSURE SENSOR	1 PIECE	AF-21103-OPS	
<b>FUEL SYSTEM</b>			
FUEL FILTER	1 PIECE	AF-2410201250001	
INJECTION PUMP	1 PIECE	AF-2410201240026	
FUEL SUPPLY & RETURN HOSE	1 PIECE	AF4-108-4.1	
	1 PIECE	AF4-108-4.2	
<b>COOLING SYSTEM</b>			
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	
<b>CONTROL SYSTEM</b>			
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	
<b>TRANSMISSION SYSTEM</b>			
BELT	1 SET	AF-AV17X1143LI-BT	
STOP SOLENOID	1 PIECE	AF-5295568-SN	
<b>INTAKE &amp; EXHAUST SYSTEM</b>			
AIR FILTER	1 PIECE	AF-12015570-AF	

**POWER CURVE**

CURVE NUMBER:	C04108	DATE:	09/01/2020
DISPLACEMENT - IN <sup>3</sup> [L]:	264 [4.32]	ASPIRATION:	NATURALLY
POWER STANDARD:	UL	BORE & STROKE - IN [MM]:	4.25 x 4.65 [108 x 118]
NUMBER OF CYLINDERS:	4	FUEL SYSTEM:	INLINE, MECHANICAL

● ALL DATA CERTIFIED WITHIN ±5%.



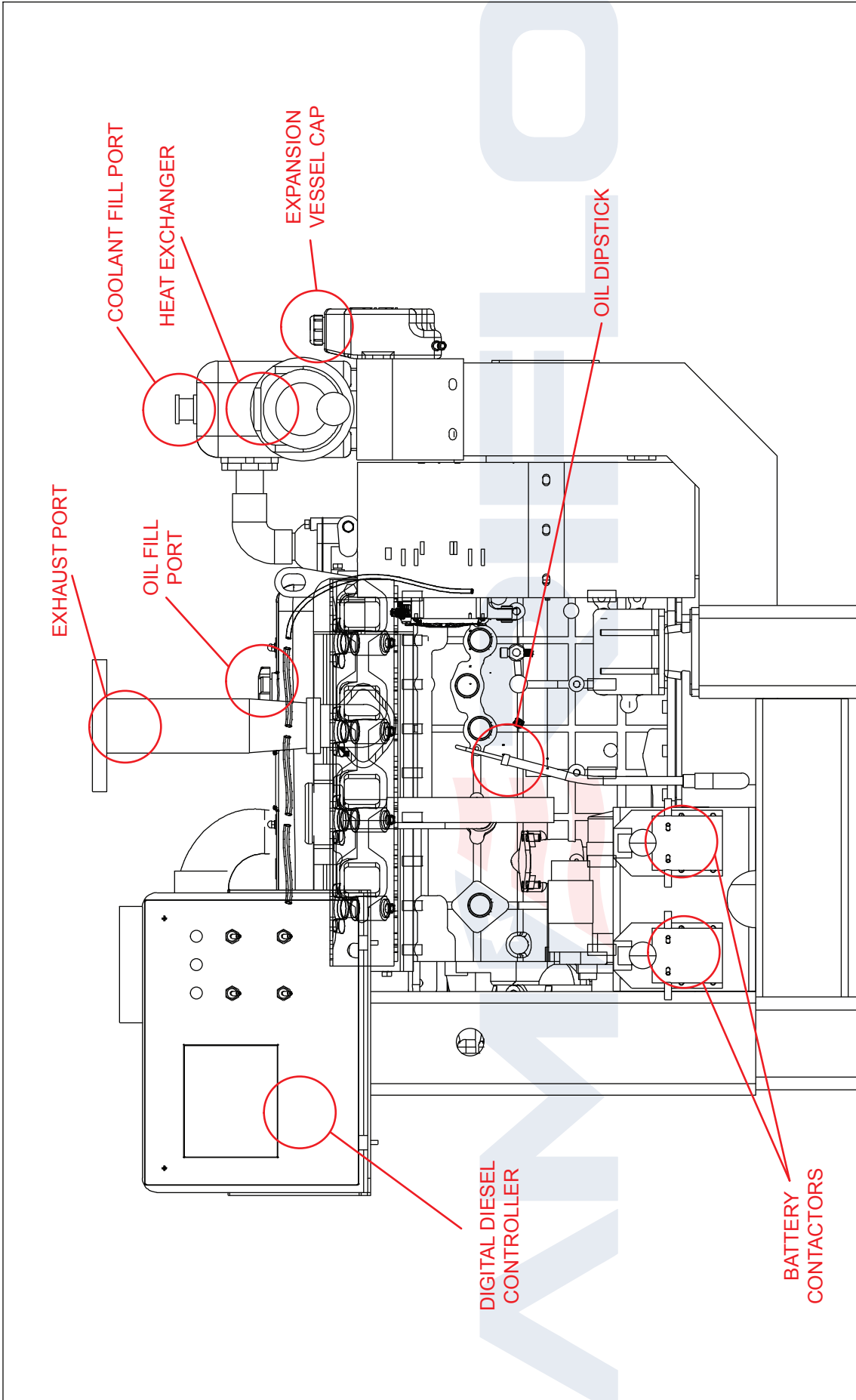
TORQUE		
SPEED	LB-FT	N-M
RPM		
1800		
2200		
2350		
2650		
2950	184	249
3150		

OUTPUT POWER		
SPEED	HP	KW
RPM		
1800		
2200		
2350		
2650		
2950	94	70
3150		

FUEL CONSUMPTION		
SPEED	LB/BHP-HR	G/KW-HR
RPM		
1800		
2200		
2350		
2650		
2950	0.398	242
3150		

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REV	UNITS IN/[MM]
A	
REV	

DESCRIPTION	DWN	APVD	DATE
CREATION	MJF		09/01/2020

NAME:	DATE:	DATE:	DATE:
INSTALLATION DRAWING	09/01/2020		
DIESEL FIRE PUMP DRIVER			
MODEL AF4-108			
PART NO.:	APPROVED:	DATE:	
AF4-108-RIGHT			
MATERIAL:			

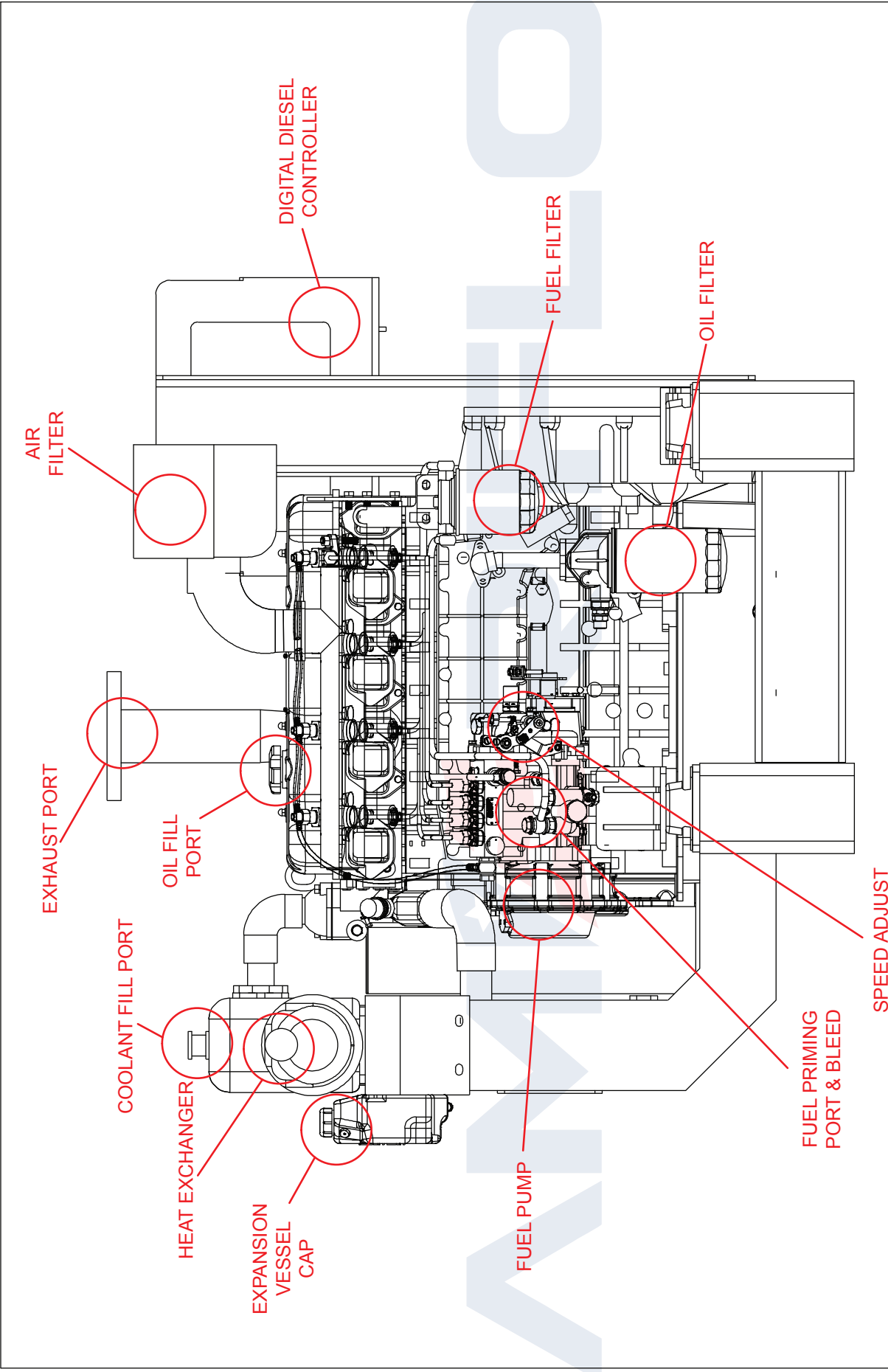
  

SCALE:	PAGE	OF
NONE	1	1

**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.

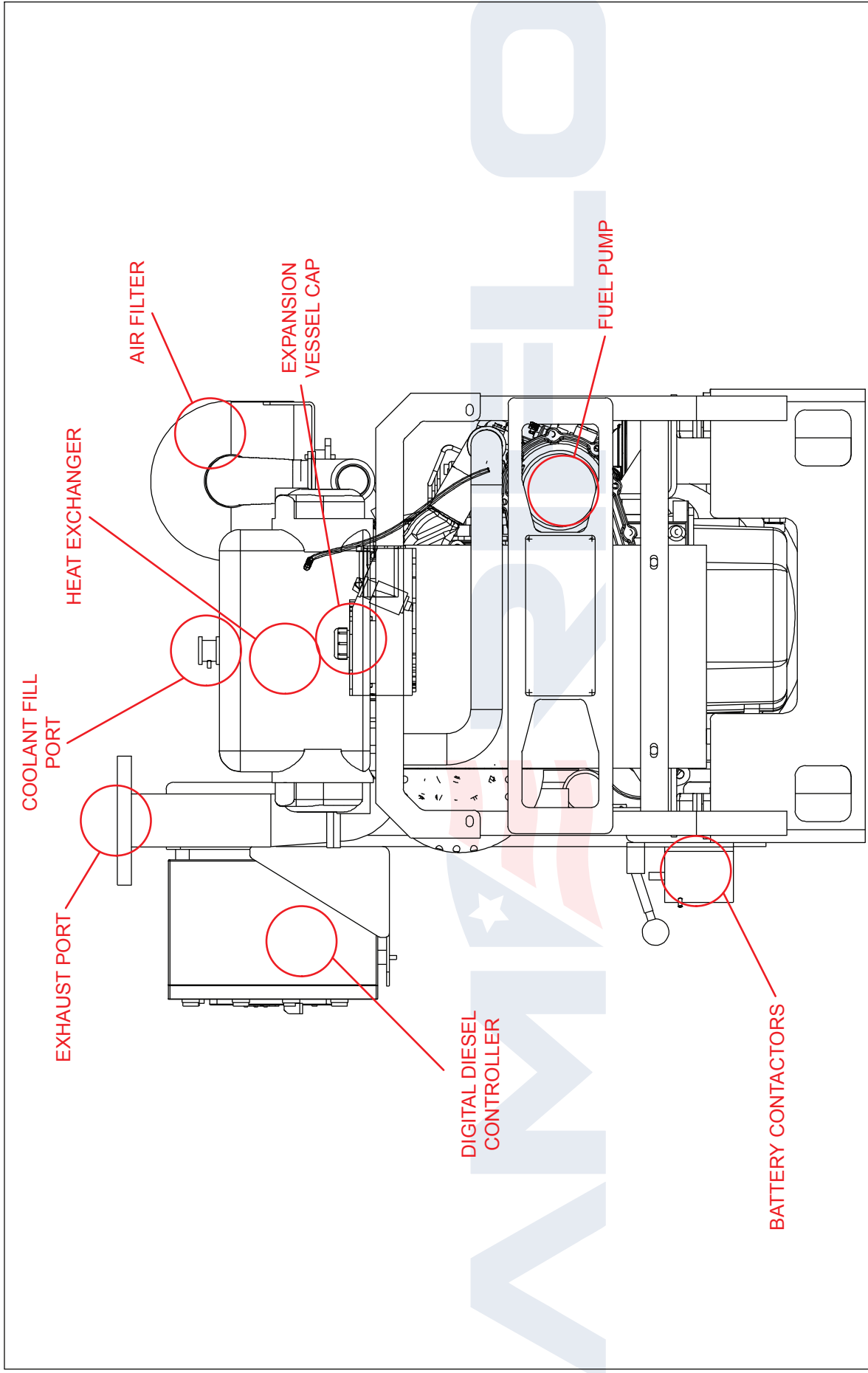






REV	UNITS IN/[MM]
A	CREATION
REV	DESCRIPTION
	DWN
	APVD
	DATE
	09/01/2020
	MJF
	APPROVED: DATE:
	CHK BY: DATE:
	NAME: DATE: 09/01/2020
	MJF
	PROJECT: DIESEL FIRE PUMP DRIVER
	MODEL AF4-108
	PART NO. AF4-108-LEFT
	MATERIAL:
	SCALE: NONE
	PAGE 1
	OF 1

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REV	UNITS IN/[MM]
A	
REV	

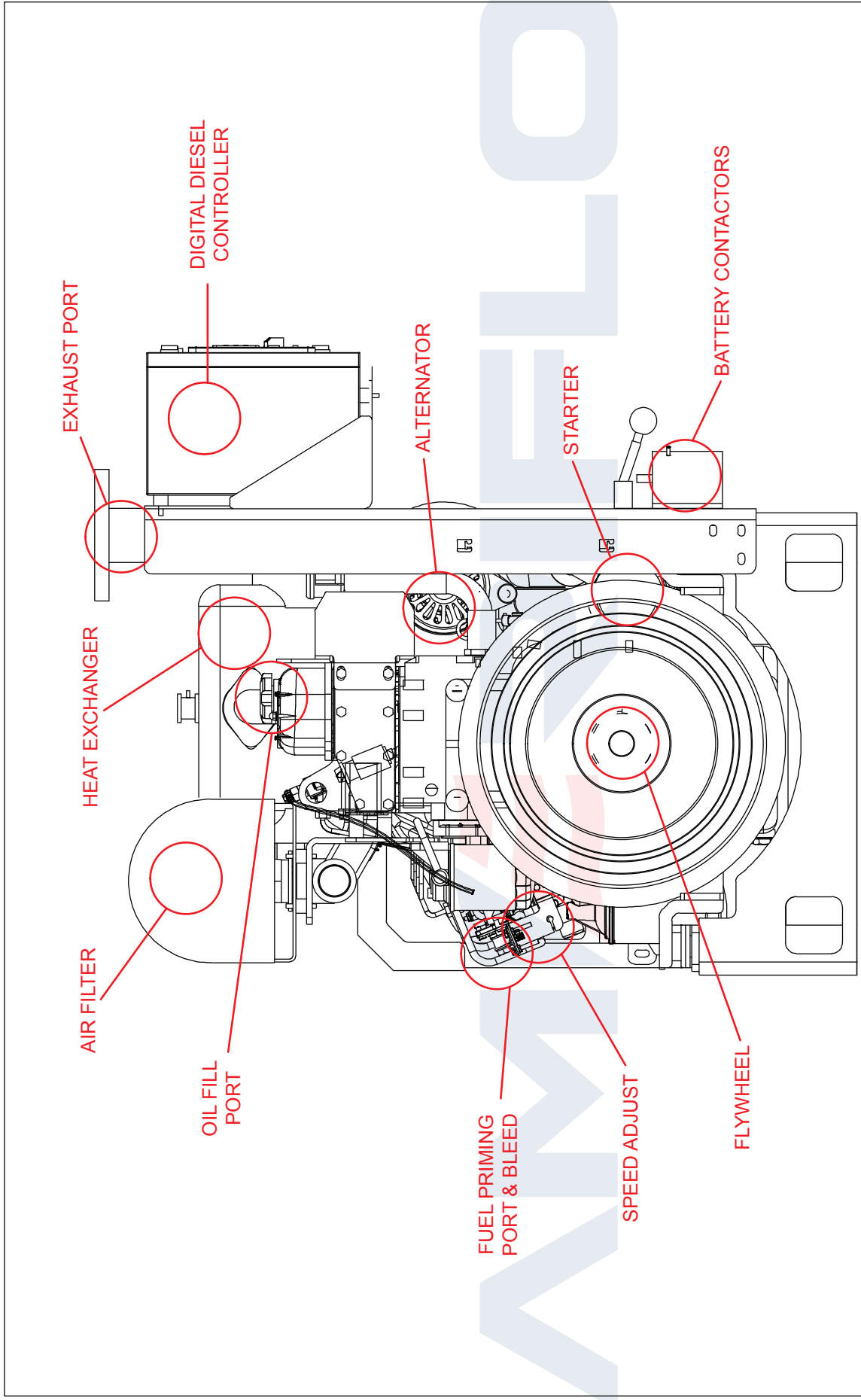
NAME: AMERIFLO	INSTALLATION DRAWING
DATE: 09/01/2020	DIESEL FIRE PUMP DRIVER
CHK BY: MJF	MODEL AF4-108
APPROVED: DATE:	PART NO: AF4-108-FRONT
	MATERIAL:

DESCRIPTION	DWN	APVD	DATE
CREATION	MJF		09/01/2020

PROJECTION: $\phi$	SCALE: NONE
PROJECT:	PAGE 1
	OF 1



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REV	UNITS	DATE	DATE	DATE	DATE	DATE	DATE
	IN (MM)						
A		MJF	MJF	MJF	09/01/2020		
REV		DESCRIPTION	DWN	APVD	DATE		

<b>AMERIFLO</b>		NAME: INSTALLATION DRAWING	PROJECT:
		DIESEL FIRE PUMP DRIVER	PROJECT:
		MODEL AF4-108	
PART NO: <b>AF4-108-REAR</b>		APPROVED: DATE:	SCALE: NONE
MATERIAL:			PAGE 1
			OF 1