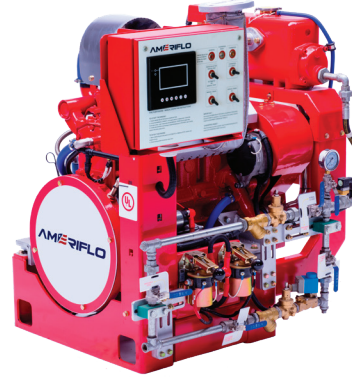


FM APPROVED RATINGS BHP & KW

ENGINE MODEL:	AF4-90C
EMISSIONS:	TIER 0
DATE:	10/01/2022
DRAWING NUMBER:	AF4-90C.00
PERFORMANCE CURVE NUMBER:	C0490BF
RATED POWER:	39 BHP @ 2950 RPM 29 KW @ 2950 RPM
REFERENCE NUMBER:	DS0490C
VERSION:	A


GENERAL ENGINE DATA

TYPE:	4 CYCLE; INLINE; WATER COOLED	
NUMBER OF CYLINDERS:	4	
ASPIRATION:	NATURAL	
BORE & STROKE - IN [MM]:	3.54 x 3.94 [90 x 100]	
CYLINDER LINER TYPE:	<input checked="" type="checkbox"/> WET <input type="checkbox"/> DRY	
DISPLACEMENT - IN ³ [L]:	155 [2.54]	
COMPRESSION RATIO:	17.5:01	
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]:	0.012 [0.30]
	EXHAUST - IN [MM]:	0.012 [0.30]
IGNITION TYPE:	COMPRESSION (DIESEL)	
CHARGE AIR COOLING TYPE:	N/A	
WEIGHT (FUEL PUMP CONFIGURATION) - LBS [KG]:	882 [400]	
DIMENSIONS (L x W x H) - IN [MM]:	47 x 31 x 40 [1205 x 790 x 1025]	
FLYWHEEL / FLYWHEEL HOUSING DIMENSIONS:	10.00 / SAE #4	
TORQUE @ RATED RPM - LB-FT [N-M]:	69 [94]	

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]:	≤ 932 [500]
EXHAUST GAS FLOW @ MAXIMUM OUTPUT - LBS/HR [KG/HR]:	2336 [1060]
MAXIMUM ALLOWABLE BACK PRESSURE - PSI [KPA]:	0.73 [5]
MINIMUM EXHAUST PIPE DIAMETER - IN [MM]:	3 [80]

AIR INTAKE SYSTEM

AIR CLEANER TYPE:	DRY TYPE, DISPOSABLE
AIR FLOW - CFM [M ³ /HR]:	235 [400]
AIR INLET RESTRICTION - PSI [KPA]:	0.44 [3]

LUBRICATION SYSTEM

OIL CAPACITY (ENGINE ONLY) - QTS [L]:	7.4 [7]
MAXIMUM SUMP OIL TEMPERATURE - °F [°C]:	248 [120]
NORMAL OPERATING OIL PRESSURE RANGE - PSI [BAR]:	29.0 ~ 65.3 [2.0 ~ 4.5]
OIL PRESSURE @ IDLE - PSI [BAR]:	> 14.5 [1]

COOLING SYSTEM

COOLANT CAPACITY (ENGINE & HEAT EXCHANGER) - QTS [L]:	15.9 [15]	
THERMOSTAT RANGE:	START OPEN - °F [°C]:	167 [75]
	FULL OPEN - °F [°C]:	185 [85]
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]:	21.1 [4.8]	
MAXIMUM RAW WATER PRESSURE - PSI [BAR]:	29.0 [2]	
MINIMUM RAW WATER FLOW @ ENGINE SPEED (RPM)	2950	
RAW WATER TEMPERATURES TO 60.8°F [16°C] - GPM [M ³ /HR]:	10.5 [2.4]	
RAW WATER TEMPERATURES TO 100.4°F [38°C] - GPM [M ³ /HR]:	23.8 [5.4]	
RAW WATER INTAKE PIPE SIZE:	RAW WATER INLET - IN:	0.75 NPT
	RAW WATER OUTLET - IN:	1.00 NPT

HEATER SYSTEM

WATTAGE - W:	2000
VOLTAGE (AC) - V:	220

DC ELECTRICAL SYSTEM

NORMAL SYSTEM VOLTAGE - V:	24
STARTER MOTOR - HP [KW]:	6.0 [4.5]
RECOMMENDED MINIMUM BATTERY SIZE - AH:	150
COLD CRANKING AMPS @ 0°F (-18°C):	900
CHARGING ALTERNATOR OUTPUT - AMPS:	25

① ALL DATA CERTIFIED WITHIN ±5%.

FUEL SYSTEM

INJECTION PUMP:	INLINE, PLUNGER TYPE
INJECTION PUMP ADVANCE ANGLE - °:	16 ± 1
MINIMUM SUPPLY LINE SIZE - IN [MM]:	0.313 [8]
MINIMUM RETURN LINE SIZE - IN [MM]:	0.313 [8]
FUEL MANAGEMENT CONTROL:	MECHANICAL
FUEL CONSUMPTION @ 2900 RPM - LB/BHP-HR [G/KW-HR]:	0.436 [265]
IDLE SPEED - RPM:	940
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	ALLOY STEEL	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		

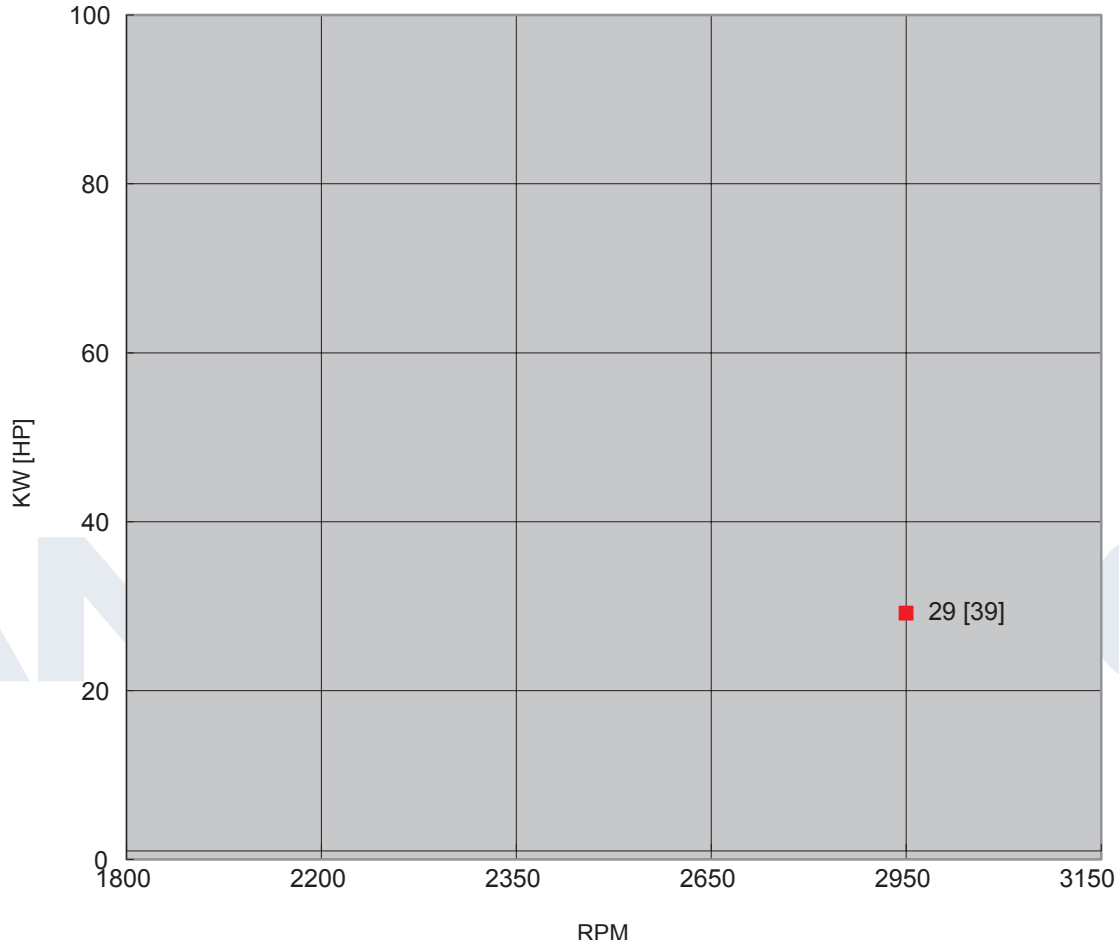
SPARE PARTS LIST

PART DESCRIPTION	PART NUMBER	REMARKS
AFTERCOOLER	N/A	N/A
HEAT EXCHANGER	AH300	MAX. WORKING PRESSURE 72.5 PSI [5 BAR]
ALTERNATOR	JFWZ27-143	28 V / 25 A
STARTING SYSTEM	QDJ2601K-P/3	24 V / 4.5 KW
TURBOCHARGER	N/A	N/A
FUEL PUMP WITH SPEED CONTROLLER	BH4Q80R8	N/A
FUEL INJECTORS	1112020-B01-0000K	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 °F [95 ± 3°C]
LOW COOLANT TEMPERATURE SENSOR	KE00105	104 ± 37 °F [40 ± 3°C]
HIGH TEMPERATURE RAW WATER SENSOR	204.040.15GO.1.IP65	104 ± 37 °F [40 ± 3°C]
FLOW SENSOR	MIK-P300	N/A
OVERSPEED SHUTDOWN DEVICE	YC-ENL-A0	N/A
SPEED SENSOR	KE10040	N/A
ENGINE HEATER	SH220200045	220 V / 3 KW MAX. TEMP 149°F [65°C]
	SH110200045	110 V / 3 KW MAX. TEMP 149°F [65°C]
OIL FILTERS	1012015AB01-0000	1 PIECE
FUEL FILTERS	1117010-B01-0000K	1 PIECE
AIR FILTERS	ECC105003	1 PIECE
BELTS	1308032-B01-0000	1 PIECE
THERMOSTATS	1306010-B01-0000Q	1 PIECE
EXHAUST BLANKET	AF490C0602-E1	DN50
FUEL SUPPLY & RETURN LINES	AF4-110D-09.03	N/A
	AF4-90-09.03	N/A

POWER CURVE

CURVE NUMBER:	C0490C	DATE:	10/01/2022
DISPLACEMENT - IN ³ [L]:	155 [2.54]	ASPIRATION:	NATURAL
POWER STANDARD:	UL/FM	BORE & STROKE - IN [MM]:	3.54 x 3.94 [90 x 100]
NUMBER OF CYLINDERS:	4	FUEL SYSTEM:	INLINE, MECHANICAL

● ALL DATA CERTIFIED WITHIN ±5%.

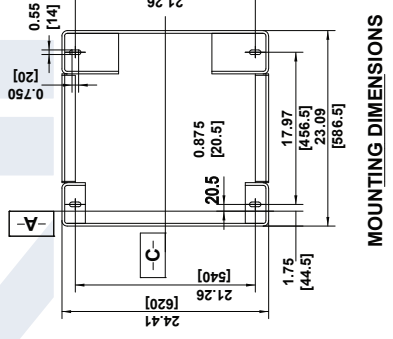
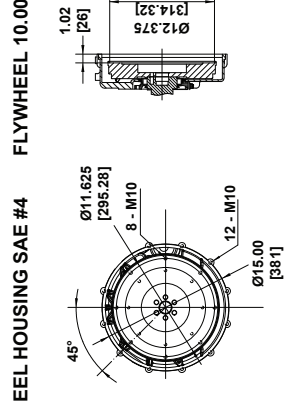
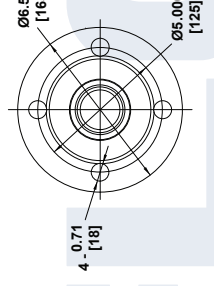
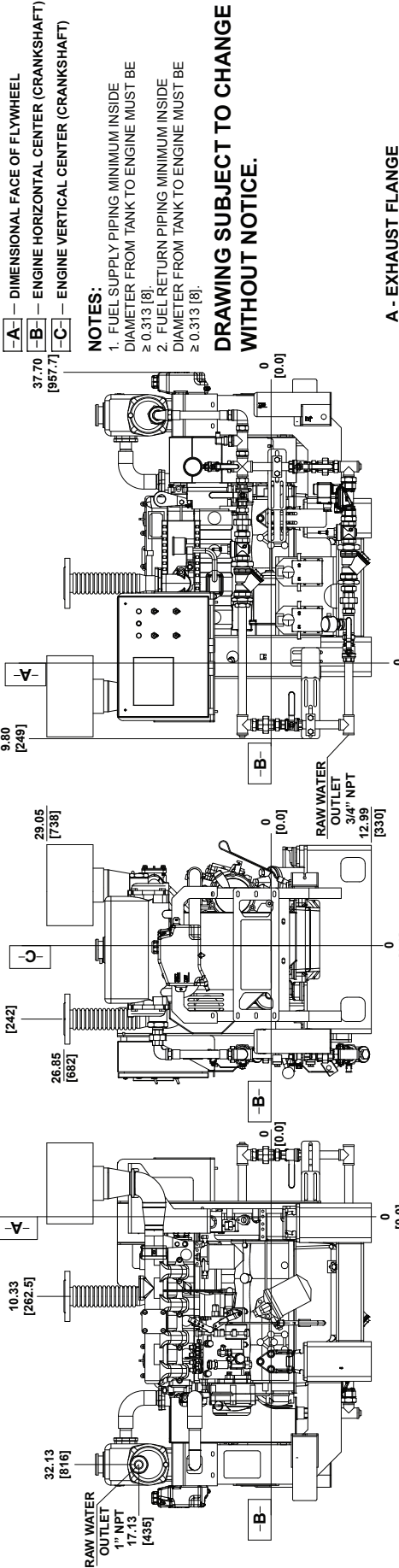


TORQUE		
SPEED	LB-FT	N-M
RPM		
1800		
2200		
2350		
2650		
2950	69	94
3150		

OUTPUT POWER		
SPEED	HP	KW
RPM		
1800		
2200		
2350		
2650		
2950	39	29
3150		

FUEL CONSUMPTION		
SPEED	LB/BHP-HR	G/KW-HR
RPM		
1800		
2200		
2350		
2650		
2950	0.436	265
3150		

● 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 J1394 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.



REV	UNITS IN/MM	AMERIFLO		PROJECT INFORMATION		SCALE		OF
		DATE: 10/01/2022	NAME: INSTALLATION DRAWING	PROJECTION: FIRST ANGLE	SCALE:	PAGE:	OF:	
		CHK BY: M/JF	MODEL: DIESEL FIRE PUMP DRIVER	PROJECT:	NONE	1	1	
		APPROVED: DATE:	PART NO.: AF4-90C-00	MATERIAL:				
A		10/01/2022	M/JF	DESCRIPTION	DWN	APVD	DATE	
REV				DESCRIPTION				

NOTES:

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

AIR FILTER

EXHAUST PORT

COOLANT FILL PORT
HEAT EXCHANGER

EXPANSION
VESSEL CAP

DIGITAL DIESEL
CONTROLLER

BATTERY
CONTACTORS

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.

AMERIFLO

NAME: INSTALLATION DRAWING
DIESEL FIRE IMPROVER
MODEL AF4-90C

PROJECTION:

PROJECT:

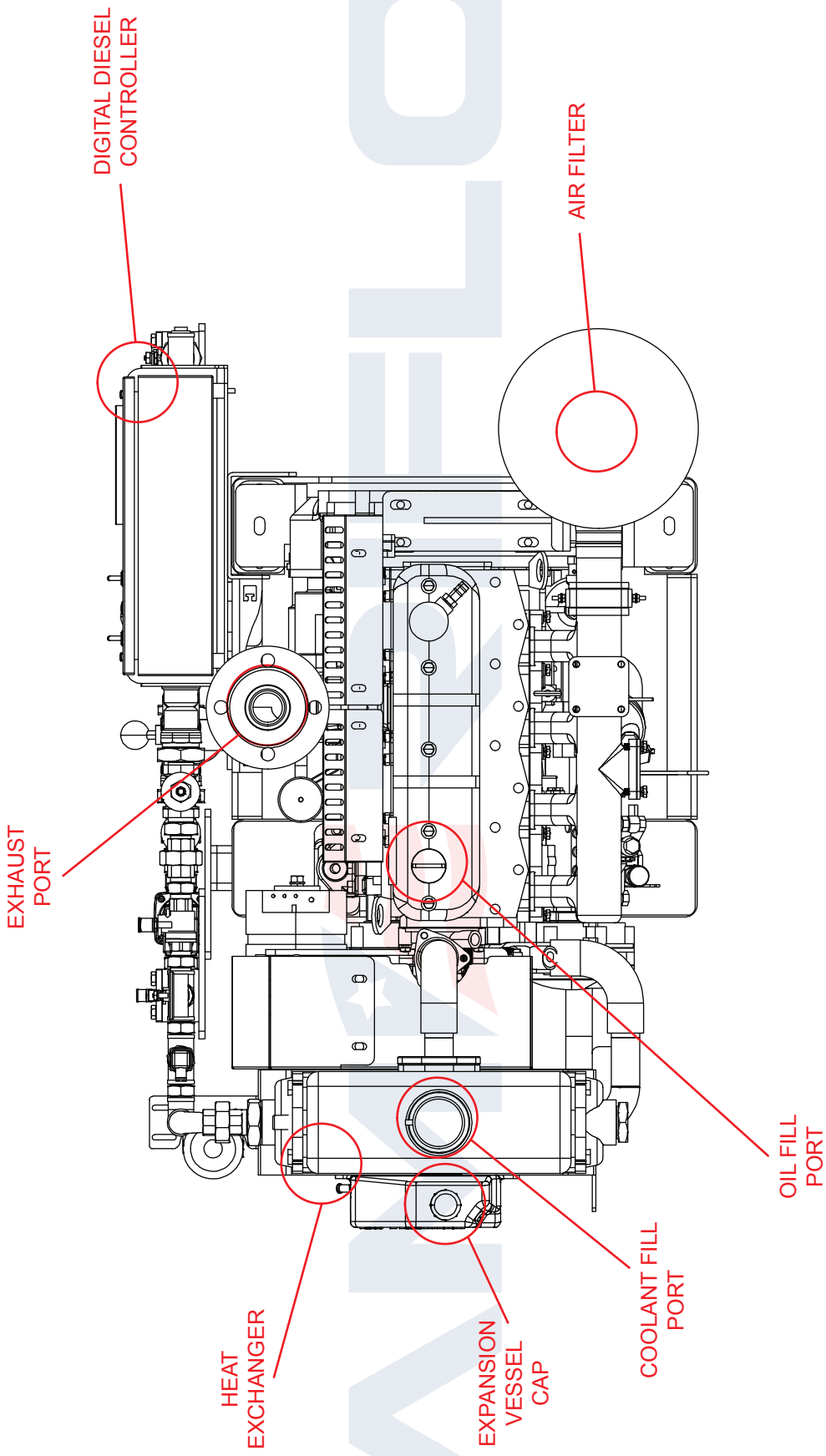
DRW BY: MJF
DATE: 10/01/2022

CHK BY: DATE:

APPROVED: DATE:

PART NO.: AF4-90C-RIGHT
MATERIAL:

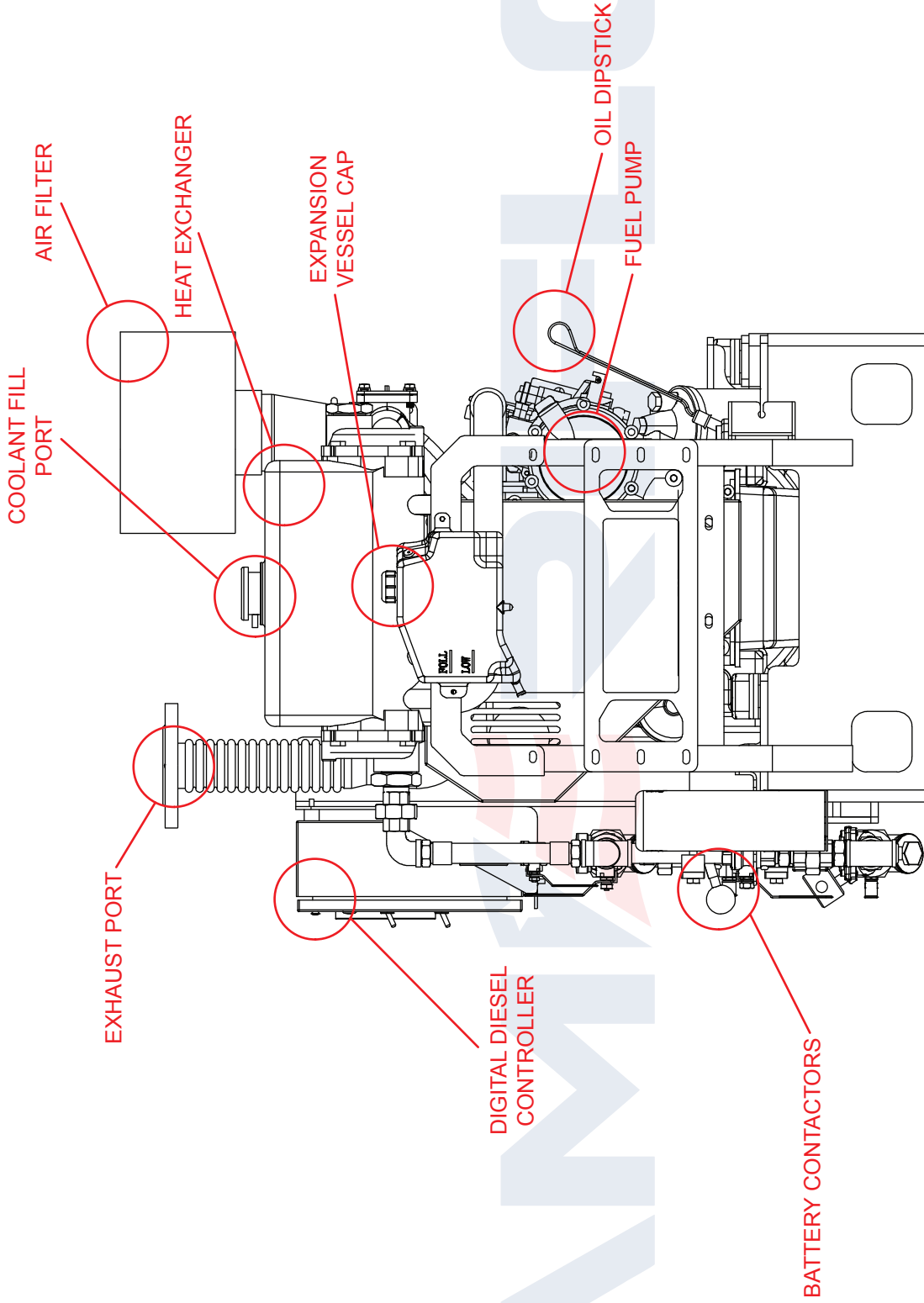
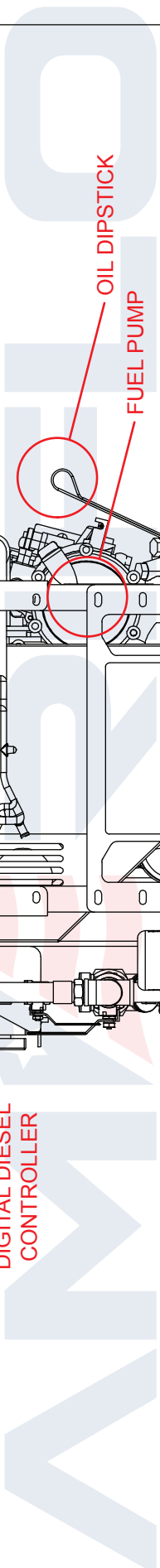
REV	UNITS (IN/MM)	SCALE	PAGE	OF
		NONE	1	1
REV	DESCRIPTION	DATE	APVD	DATE
A	CREATION	10/01/2022	MJF	
			DWN	



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	DESCRIPTION	DATE	APVD	DATE	SCALE	PAGE	OF
A	CREATION	10/01/2022	MJF			1	1

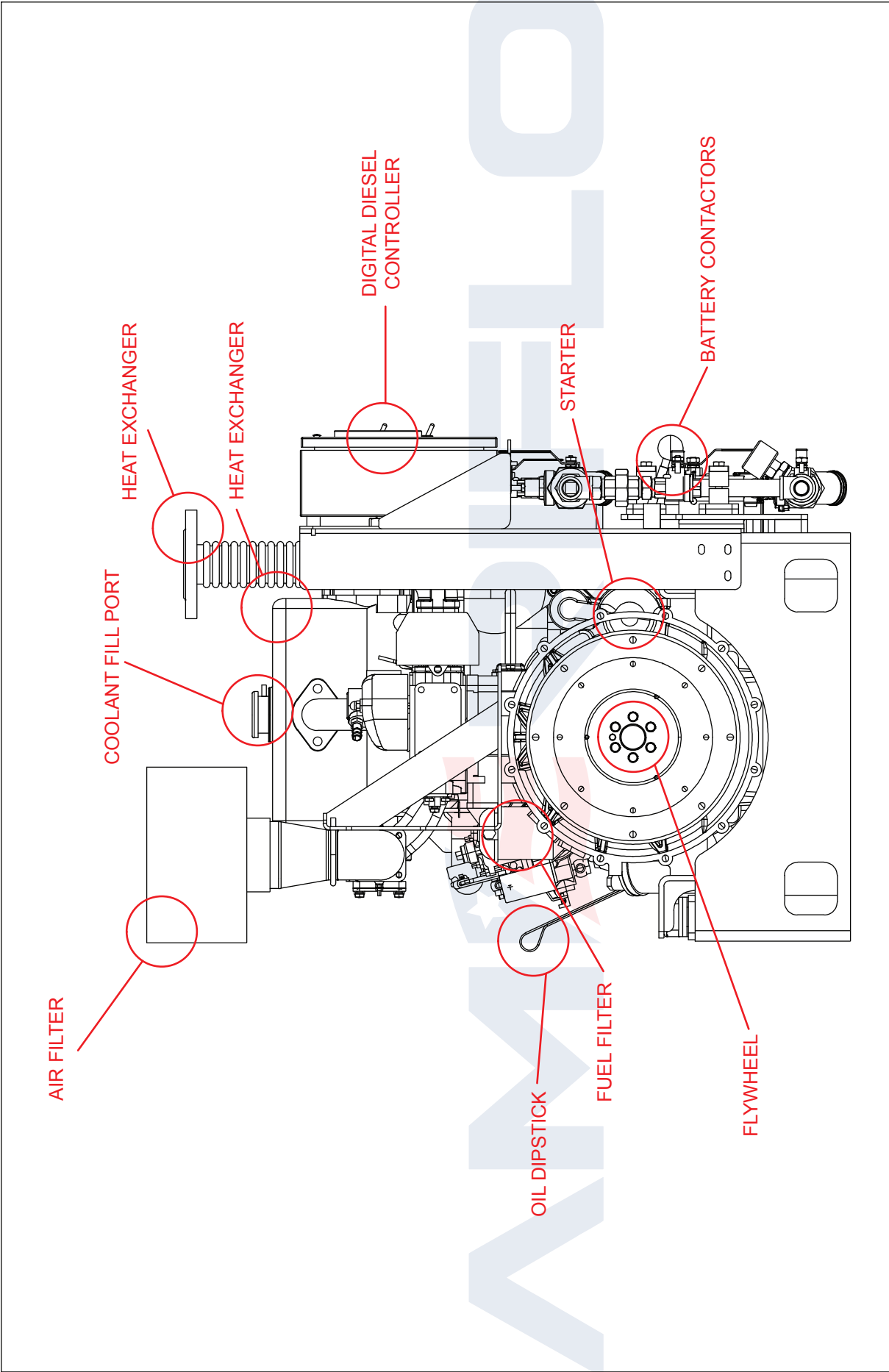
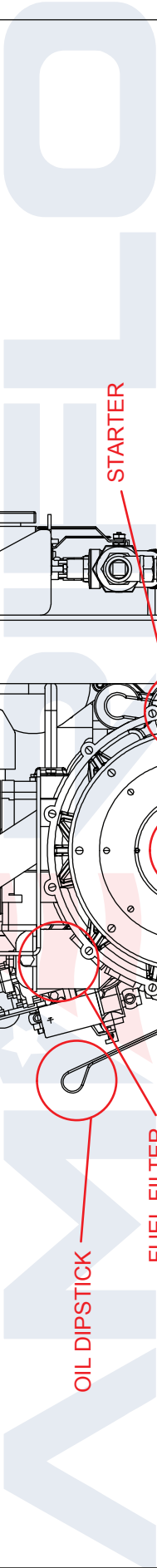
	NAME: INSTALLATION DRAWING DIESEL ENGINE AMP DRIVER MODEL AF4-90C	DATE: 10/01/2022 M.J.F.	DATE: 10/01/2022 M.J.F.	PROJECTION:	UNITS: IN(MM)
	PART NO.: AF4-90C-TOP			PROJECT:	
	MATERIAL:			SCALE: NONE	



REV	UNITS	AMERIFLO			
	IN(MM)				
		NAME: INSTALLATION DRAWING DIESEL FIRE AMP DRIVER MODEL AF4-90C			
		PROJECTION:			
		PROJECT:			
		PART NO.: AF4-90C-FRONT			
		MATERIAL:			
		DRW BY: M.J.F.			
		DATE: 10/01/2022			
		CHK BY: M.J.F.			
		DATE: 10/01/2022			
		APPROVED: DATE:			
A	REV	DESCRIPTION	DWN	APVD	DATE

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	DESCRIPTION	DATE	APVD	DATE
A	CREATION	MJF	DWN	
REV	DESCRIPTION			

DRW BY:	DATE:	NAME:	PROJECTION:
MJF	09/01/2020	INSTALLATION DRAWING DIESEL FIRE PUMP DRIVER	1st Angle
CHK BY:	DATE:	PART NO.:	PROJECT:
		MODEL AF4-90C	

SCALE:	PAGE OF
NONE	1 1

AMERIFLO	AF4-90C-REAR
	MATERIAL:

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.