

UL - cUL LISTED RATINGS BHP & KW

ENGINE MODEL:	AF4-102C
EMISSIONS:	TIER 0
DATE:	10/01/2022
DRAWING NUMBER:	AF4-102C.00
PERFORMANCE CURVE NUMBER:	C04102C
RATED POWER:	77 BHP @ 2950 RPM 57 KW @ 2950 RPM
REFERENCE NUMBER:	14DS001E
VERSION:	A



GENERAL ENGINE DATA

TYPE:	4 CYCLE; INLINE; WATER COOLED	
NUMBER OF CYLINDERS:	4	
ASPIRATION:	NATURAL	
BORE & STROKE - IN [MM]:	4.02 x 4.65 [102 x 118]	
CYLINDER LINER TYPE:	<input type="checkbox"/> WET <input checked="" type="checkbox"/> DRY	
DISPLACEMENT - IN ³ [L]:	236 [3.86]	
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 [0.40]
	EXHAUST - IN [MM]:	0.016 [0.40]
IGNITION TYPE:	COMPRESSION (DIESEL)	
CHARGE AIR COOLING TYPE:	N/A	
WEIGHT (FUEL PUMP CONFIGURATION) - LBS [KG]:	1107 [502]	
DIMENSIONS (L x W x H) - IN [MM]:	48 x 33 x 50 [1230 x 840 x 1275]	
FLYWHEEL / FLYWHEEL HOUSING DIMENSIONS:	11.50 / SAE #3	
TORQUE @ RATED RPM - LB-FT [N-M]:	137 [185]	

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]:	4310 [1955]
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]:	353 [600]
AIR INLET RESTRICTION (DIRTY) - PSI [KPA]:	≤ 0.87 [6]
AIR INLET RESTRICTION (CLEAN) - PSI [KPA]:	≤ 0.44 [3]

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]:	> 43.5 [3.0 ~ 6.0]
OIL PRESSURE @ IDLE - PSI [BAR]:	> 14.7 [1.0]

COOLING SYSTEM

COOLANT CAPACITY (ENGINE & HEAT EXCHANGER) - QTS [L]:	26.4 [25]	
THERMOSTAT RANGE:	START OPEN - °F [°C]:	169 [76]
	FULL OPEN - °F [°C]:	187 [86]
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]:	42.3 [9.6]	
MINIMUM / MAXIMUM RAW WATER PRESSURE - PSI [BAR]:	36.3 [2.5]	
MINIMUM RAW WATER TEMPERATURE - °F [°C]:	60.0 [15.6]	
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
RESERVE CAPACITY - AMPS:	290
CHARGING ALTERNATOR OUTPUT - AMPS:	35
STARTER CRANKING AMPS, ROLLING @ 0°F (-18°C):	245
MINIMUM CRANKING SPEED REQUIRED FOR UNAIDED COLD START - RPM:	220

● ALL DATA CERTIFIED WITHIN ±5%.

FUEL SYSTEM

INJECTION PUMP:	INLINE, PLUNGER TYPE
INJECTION PUMP ADVANCE ANGLE - °:	14 ~ 15
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]:	0.395 [240]
IDLE SPEED - RPM:	790
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	MIDDLE	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, NON-FRACTURE	MATERIAL	
MATERIAL	CARBON STEEL	ELECTRODE	ZINC
CRANKSHAFT:		HEADERS	ALUMINUM
TYPE	GROUND	SHELL	ALUMINUM
MATERIAL	DUCTILE IRON	TUBES	COPPER
MAIN BEARINGS:		COOLANT PUMP:	
TYPE	PRECISION, HALF SHELL	TYPE	CENTRIFUGAL
MATERIAL	TIN ALUMINUM ALLOY	DRIVE	V-BELT
CYLINDER BLOCK:		THERMOSTAT:	
TYPE	GANTRY	TYPE	NON-BLOCKING
MATERIAL	CAST IRON	QUANTITY	1
CYLINDER HEAD:		COOLING LOOP (GALVANIZED):	
TYPE	ONE PIECE PER CYLINDER	TEES, ELBOWS, PIPE	GALVANIZED STEEL
MATERIAL	CAST IRON	BALL VALVES	BRASS
CYLINDER LINERS:		SOLENOID VALVE	BRASS
TYPE	WET LINED	PRESSURE REGULATOR	BRASS
MATERIAL	CARBON STEEL	STRAINER	BRASS
PISTONS:		COOLING LOOP (316 STAINLESS STEEL):	
TYPE	TRUNK	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	CARBON STEEL	STRAINER	316 STAINLESS STEEL
PISTON RINGS:		FUEL SYSTEM	
FIRST	CAST IRON	FUEL INJECTION PUMP:	
SECOND	CHROME COPPER ALLOY	TYPE	FULL MECHANICAL, CENTRIFUGAL
THIRD	CARBON STEEL	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		

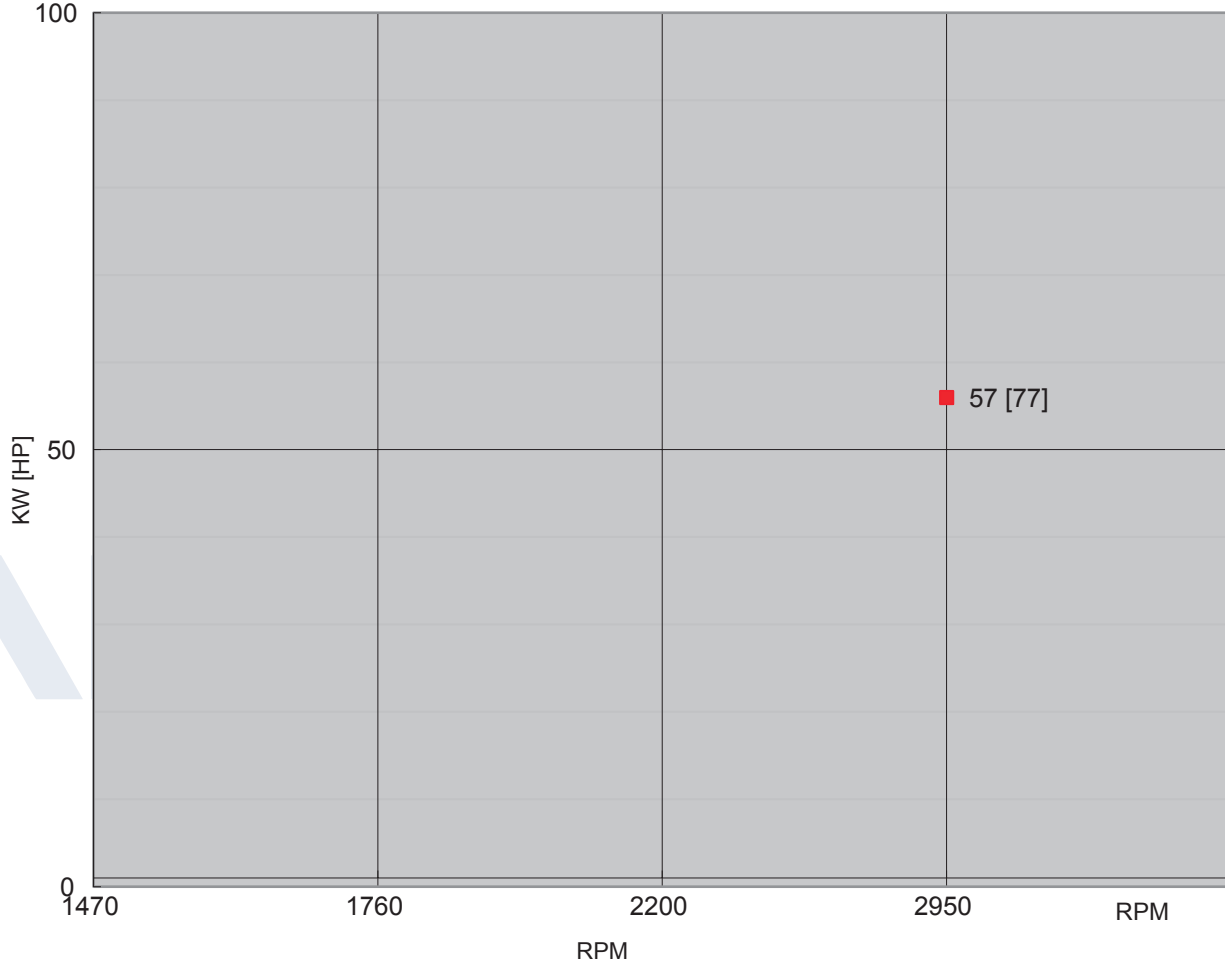
SPARE PARTS LIST

PART DESCRIPTION	QUANTITY	PART NUMBER	REMARKS
LUBRICATION SYSTEM			
OIL FILTER	1 PIECE	AF-1012101-A02-0000	
OIL PRESSURE SENSOR	1 PIECE	AF-21103-OPS	
FUEL SYSTEM			
FUEL FILTER	1 PIECE	AF-1117101-A01-00000	
INJECTION PUMP	1 PIECE	AF-4AW	
FUEL SUPPLY & RETURN HOSE	1 PIECE	AF4-105.4.1	
	1 PIECE	AF4-105.4.2	
COOLING SYSTEM			
HEAT EXCHANGER	1 PIECE	AF-AH300	
COOLING LOOP	1 SET	AF-CL0.75-00-CL	
COOLING HOSE (90° ELBOW)	2 SETS	AF-RE90-45/100P4	
COOLING HOSE (90° REDUCED ELBOW)	1 SET	AF-REC90-45-40/120P4	
COOLANT HOSE	1 PIECE	AF-8-3-300-CH	
	1 PIECE	AF-16-5-630-CH	
	1 PIECE	AF-16-5-1000-CH	
RUNNING WATER TEMPERATURE SENSOR	1 PIECE	AF-00105-WTR	
STANDBY WATER TEMPERATURE SENSOR	1 PIECE	AF-00105-WTS	
THERMOSTAT	1 PIECE	AF-1306010-001-0000Q	
PREHEATER	1 PIECE	AF-SH220200045 OR AF-SH110200045	
FLOW SENSOR	1 PIECE		
CONTROL SYSTEM			
STARTER	1 PIECE	AF-QDJ2516A-P	
ALTERNATOR	1 PIECE	AF-JFWZ29-109	
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/R-B	
TRANSMISSION SYSTEM			
BELT	1 SET	AF-1308032-001-DD80-BT	
STOP SOLENOID	1 PIECE	AF-DF23005	
INTAKE & EXHAUST SYSTEM			
AIR FILTER	1 PIECE	AF-ECC10504	
TURBOCHARGER	1 PIECE	AF	

POWER CURVE

CURVE NUMBER:	C04102C	DATE:	10/01/2022
DISPLACEMENT - IN ³ [L]:	236 [3.86]	ASPIRATION:	NATURAL
POWER STANDARD:	UL	BORE & STROKE - IN [MM]:	4.02 x 4.65 [102 x 118]
NUMBER OF CYLINDERS:	4	FUEL SYSTEM:	INLINE, MECHANICAL

● ALL DATA CERTIFIED WITHIN ±5%.

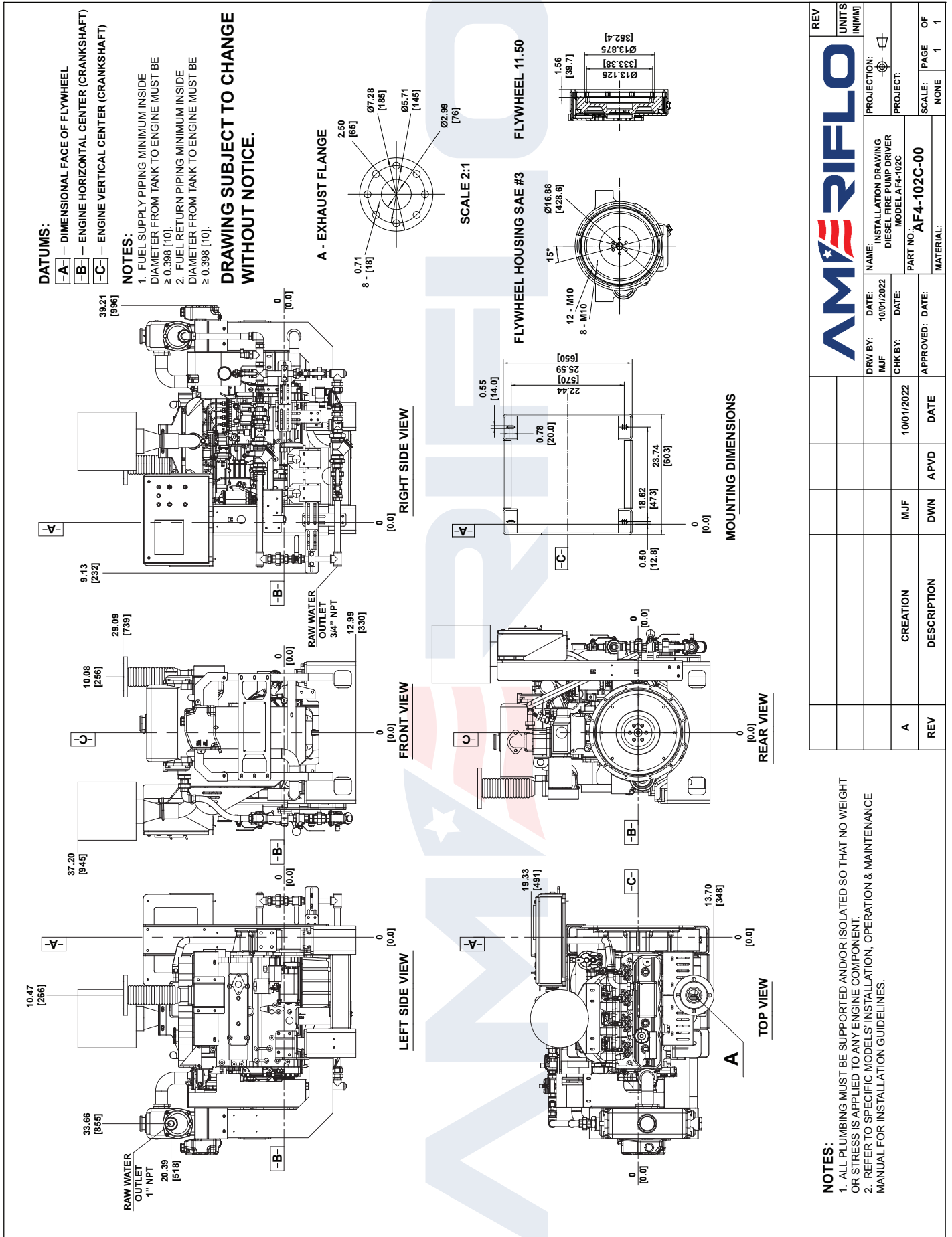


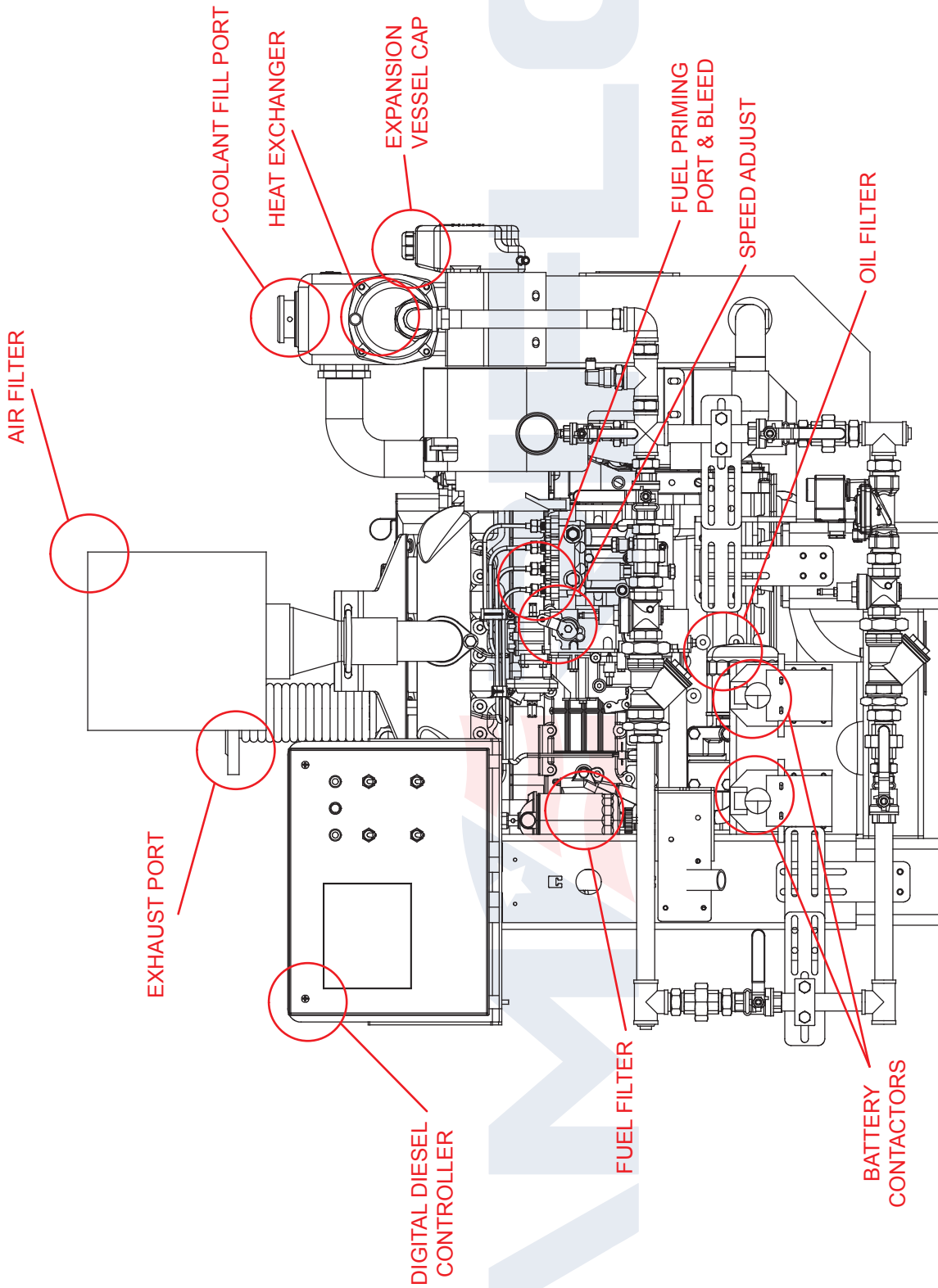
TORQUE		
SPEED	LB-FT	N-M
RPM		
1470		
1760		
2200		
2950	137	185

OUTPUT POWER		
SPEED	HP	KW
RPM		
1470		
1760		
2200		
2950	77	57

FUEL CONSUMPTION		
SPEED	LB/BHP-HR	G/KW-HR
RPM		
1470		
1760		
2200		
2950	0.395	240

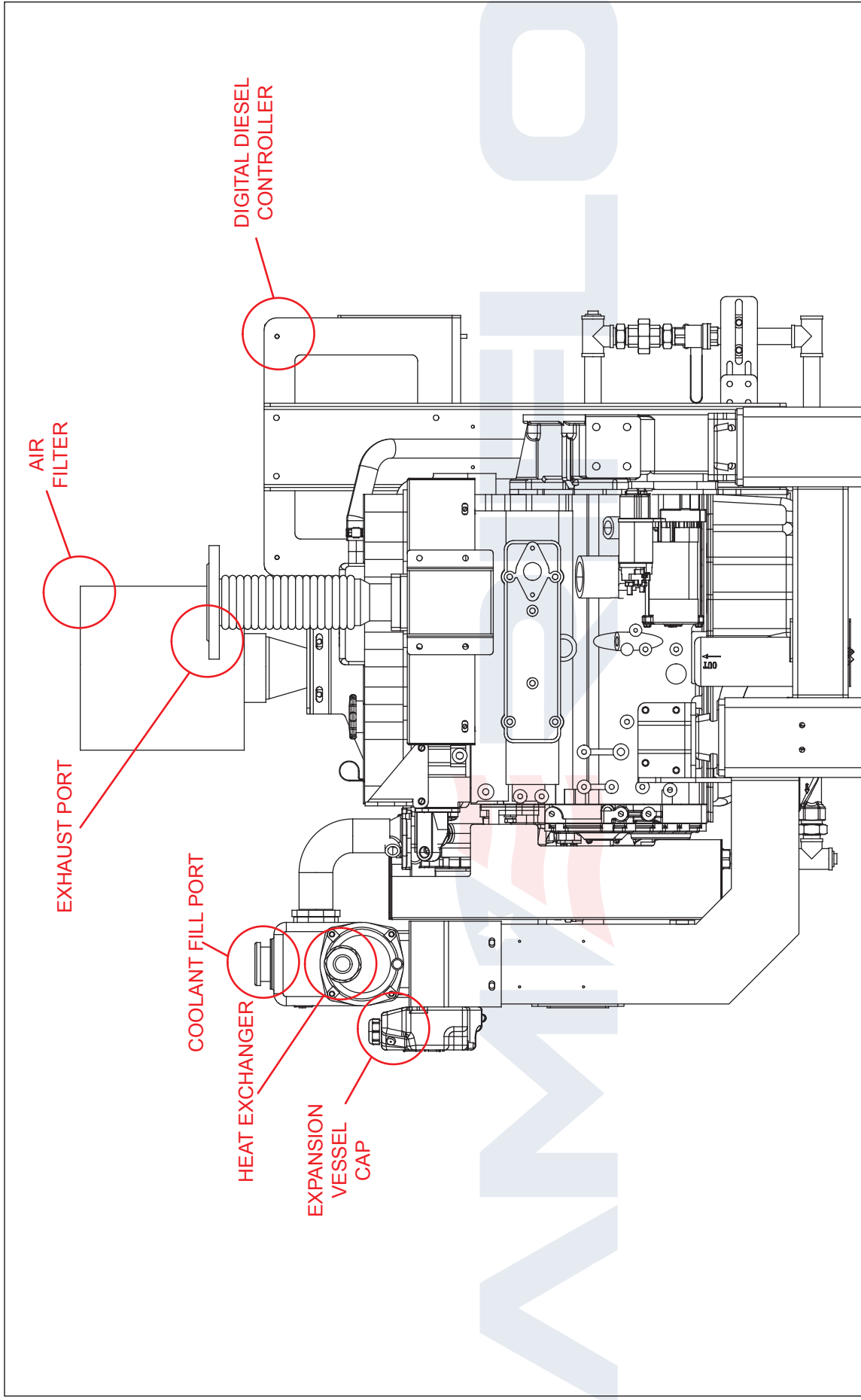
● ALL DATA IS BASED ON ENGINE OPERATING WITH FUEL SYSTEM, LUBRICATING OIL PUMP, AIR CLEANER AND ALTERNATOR. DOES NOT INCLUDE AIR COMPRESSOR, FAN & OPTIONAL EQUIPMENT. DATA IS BASED ON SAE STANDARD J1394 CONDITIONS AT 300 FEET [91.4 METERS] ALTITUDE, 29.61 INCHES [752 MILLIMETERS] HG DRY BAROMETER AND 77°F [25°C] INTAKE AIR TEMPERATURE USING #0 DIESEL FUEL FOLLOWING THE GB 252-2011 STANDARD.





- 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	DATE	DESCRIPTION	APVD	DWN	DATE	APPROVED	DATE	SCALE	PAGE	OF
											NONE	1	1
				10/01/2022	CREATION		MJF						
					DESCRIPTION								
					REV								
				DRW BY: MJF	NAME: INSTALLATION DRAWING DIESEL FIRE PUMP DRIVER								
				DATE: 10/01/2022	PROJECT: PROJECT								
				CHK BY:	MODEL AF4-102C								
				DATE:	PART NO: AF4-102C-RIGHT								
				APPROVED:	MATERIAL:								

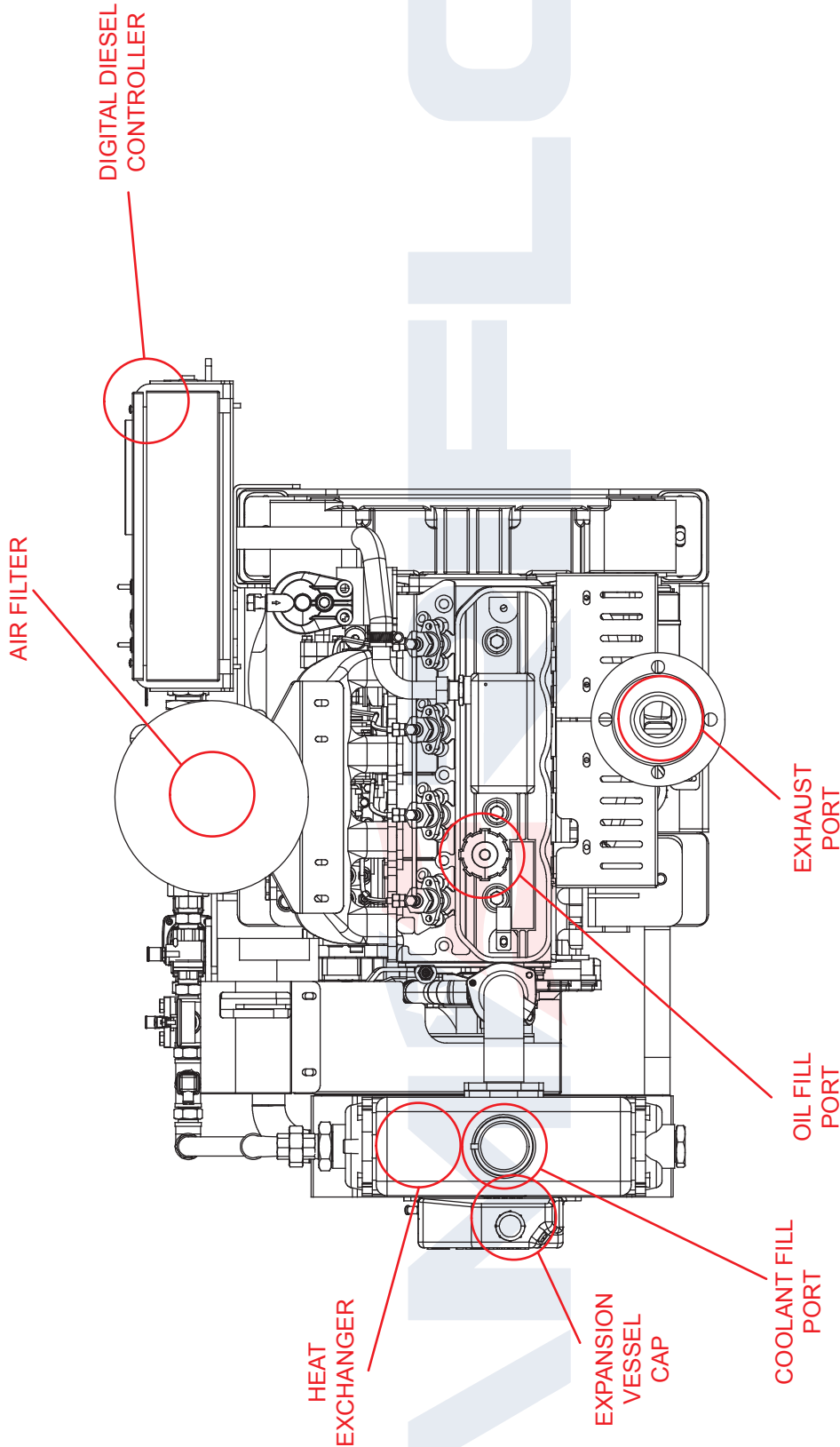


NOTES:

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.

REV	UNITS IN/[MM]
A	
REV	

NAME:	INSTALLATION DRAWING
DATE:	10/01/2022
DRW BY:	MJF
CHK BY:	
APPROVED:	
DATE:	
PROJECT:	DIESEL FIRE PUMP DRIVER MODEL AF4-102C
PART NO.:	AF4-102C-LEFT
MATERIAL:	
PROJECTION:	1st Angle
SCALE:	NONE
PAGE	1
OF	1

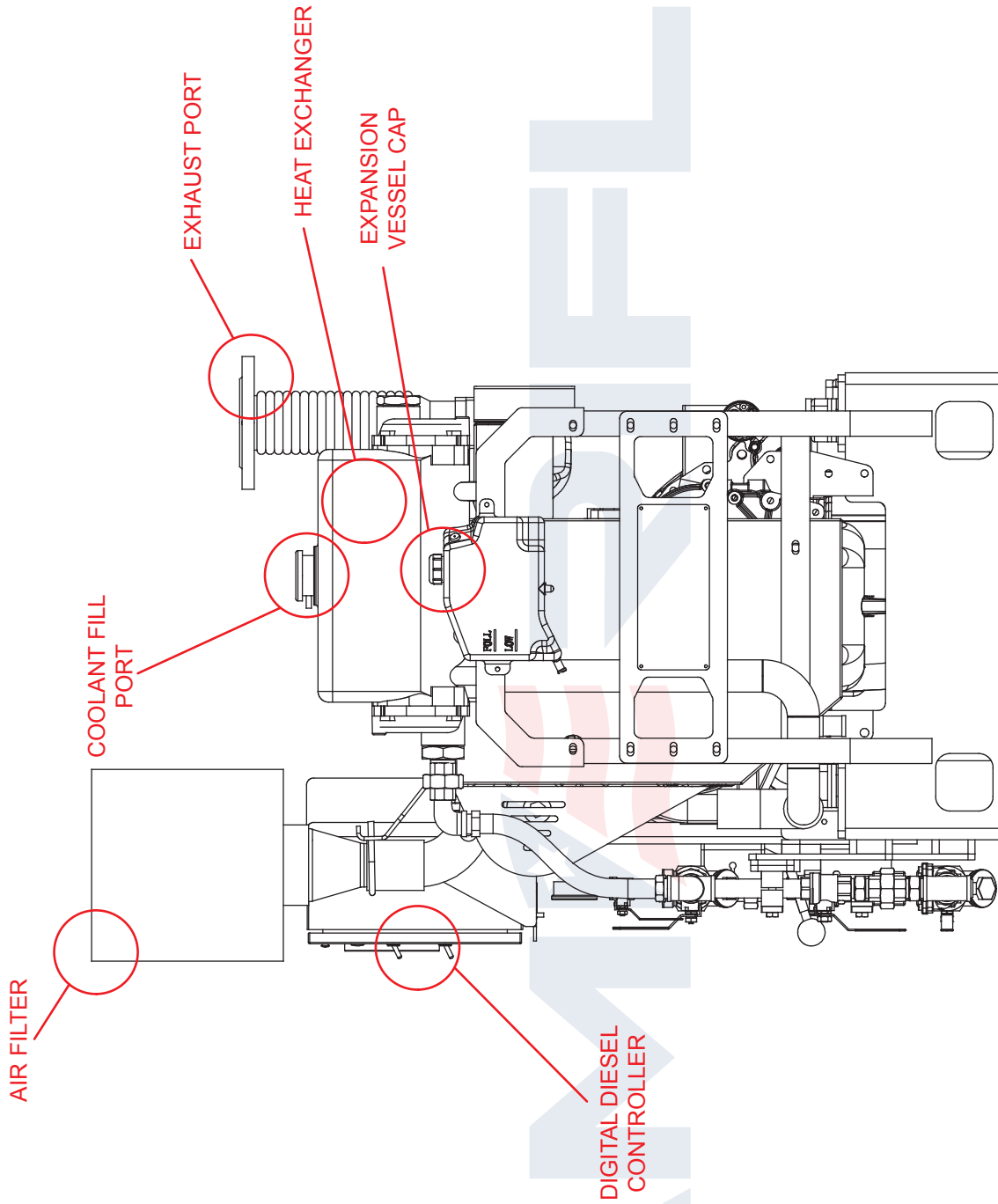


NOTES:

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	
REV	

DRW BY: MJF	DATE: 10/01/2022	NAME: INSTALLATION DRAWING	PROJECT: PROJECT
CHK BY:	DATE:	DIESEL FIRE PUMP DRIVER	MODEL AF4-102C
APPROVED: DATE:	PART NO: AF4-102C-TOP	MATERIAL:	
DATE:	DATE:	SCALE: NONE	PAGE 1
DATE:	DATE:	SCALE: NONE	OF 1

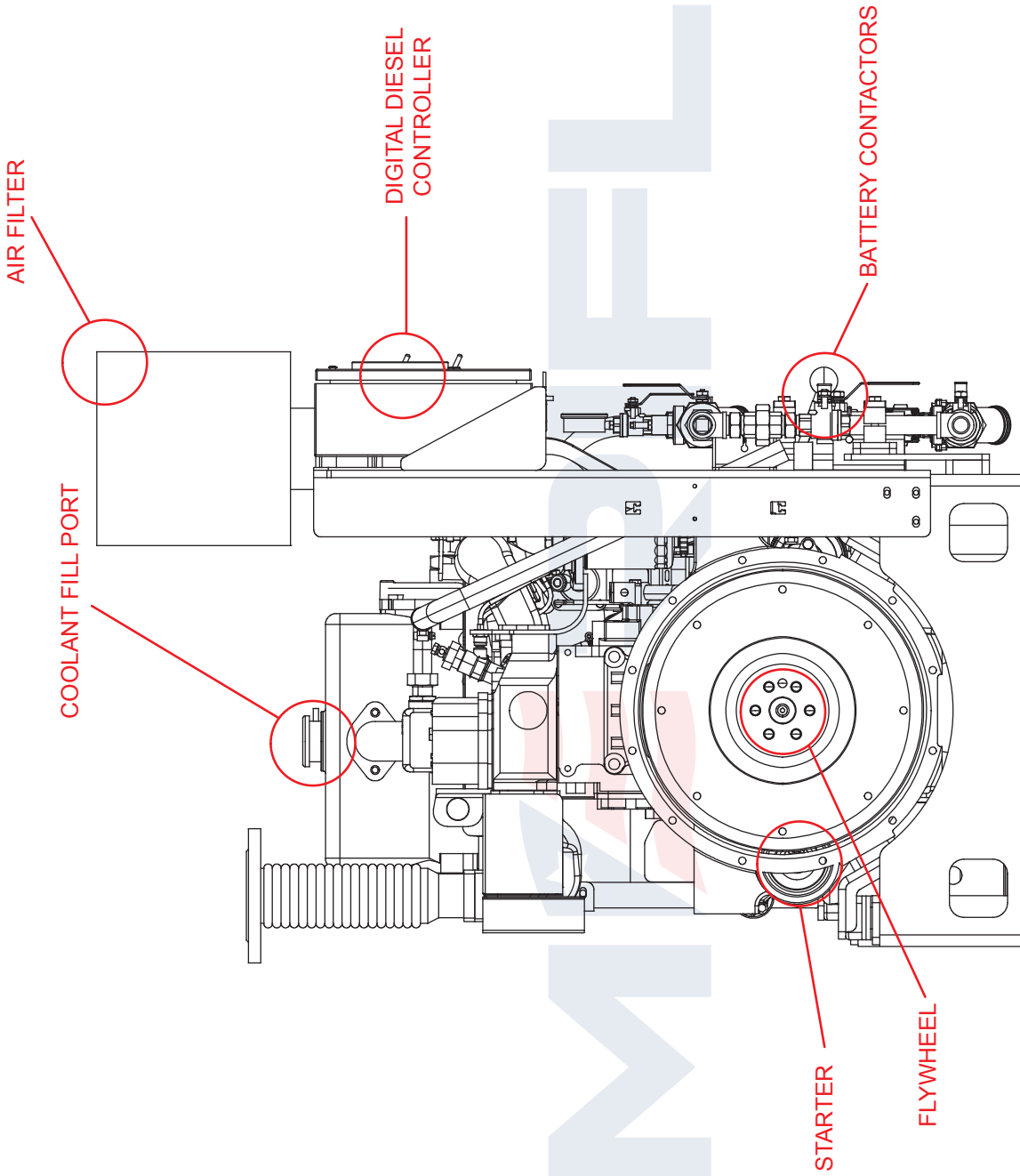


REV																						
A																						
REV																						

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
DATE:	10/01/2022
PROJ. NO.:	AF4-102C-FRONT
SCALE:	NONE
PAGE:	1
OF:	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	
REV	

DESCRIPTION	DWN	APVD	DATE
CREATION	MJF		10/01/2022

NAME:	INSTALLATION DRAWING
DATE:	10/01/2022
DRW BY:	MJF
CHK BY:	
APPROVED:	
DATE:	
PROJECT:	DIESEL FIRE PUMP DRIVER
MODEL:	AF4-102C
PART NO.:	AF4-102C-REAR
MATERIAL:	
SCALE:	NONE
PAGE:	1
OF:	1