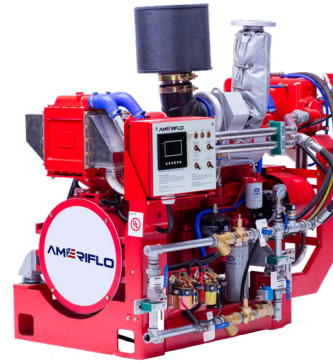


FM - APPROVED RATINGS BHP & KW

ENGINE MODEL:	AF6-110D
EMISSIONS:	TIER 0
DATE:	09/01/2020
DRAWING NUMBER:	AF6-110D.00
PERFORMANCE CURVE NUMBER:	C06110DF
RATED POWER:	239 BHP @ 2900 RPM 178 KW @ 2900 RPM
REFERENCE NUMBER:	14DS001E
VERSION:	A



GENERAL ENGINE DATA

TYPE:	4 CYCLE; INLINE; WATER COOLED	
NUMBER OF CYLINDERS:	6	
ASPIRATION:	TURBOCHARGED + WATER COOLED	
BORE & STROKE - IN [MM]:	4.33 x 5.04 [110 x 125]	
CYLINDER LINER TYPE:	■ WET □ DRY	
DISPLACEMENT - IN ³ [L]:	435 [7.127]	
COMPRESSION RATIO:	17:01	
FIRING ORDER:	1 - 5 - 3 - 6 - 2 - 4	
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]:	0.020 [0.50]
	EXHAUST - IN [MM]:	0.020 [0.50]
IGNITION TYPE:	COMPRESSION (DIESEL)	
CHARGE AIR COOLING TYPE:	RAW WATER	
WEIGHT (FUEL PUMP CONFIGURATION) - LBS [KG]:	1718 [780]	
DIMENSIONS (L x W x H) - IN [MM]:	62 x 37 x 46 [1565 x 946 x 1175]	
FLYWHEEL / FLYWHEEL HOUSING DIMENSIONS:	11.50 / SAE #3	
TORQUE @ RATED RPM - LB-FT [N-M]:	271 [368]	

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]:	≤ 1004 [540] @ 2950 RPM
EXHAUST GAS FLOW @ MAXIMUM OUTPUT - LBS/HR [KG/HR]:	2959 [1342] @ 2950 RPM
MAXIMUM ALLOWABLE BACK PRESSURE - PSI [KPA]:	1.09 [7.5]
MINIMUM EXHAUST PIPE DIAMETER - IN [MM]:	5 [125]

AIR INTAKE SYSTEM

AIR CLEANER TYPE:	DRY TYPE, DISPOSABLE
AIR FLOW - CFM [M ³ /HR]:	759 [1290] @ 2950 RPM
AIR INLET RESTRICTION - PSI [KPA]:	≤ 0.72 [5]

LUBRICATION SYSTEM

OIL CAPACITY (ENGINE ONLY) - QTS [L]:	27.5 [26]
MAXIMUM SUMP OIL TEMPERATURE - °F [°C]:	176 ~ 248 [80 ~ 120]
NORMAL OPERATING OIL PRESSURE RANGE - PSI [BAR]:	49.3 ~ 72.5 [3.4 ~ 5.0]
OIL PRESSURE @ IDLE - PSI [BAR]:	≥ 14.2 [0.98]

COOLING SYSTEM

COOLANT CAPACITY (ENGINE & HEAT EXCHANGER) - QTS [L]:	27.5 [26]	
THERMOSTAT RANGE:	START OPEN - °F [°C]:	169 [76]
	FULL OPEN - °F [°C]:	187 [86]
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]:	169 ~ 203 [76 ~ 95]	
ENGINE COOLANT FLOW @ FULL SPEED - GPM [M ³ /HR]:	61.6 [14]	
MINIMUM RAW WATER FLOW @ ENGINE SPEED (RPM)	2900	
RAW WATER TEMPERATURES TO 60.8°F [16°C] - GPM [M ³ /HR]:	26.4 [6.0]	
RAW WATER TEMPERATURES TO 100.4°F [38°C] - GPM [M ³ /HR]:	35.2 [8.0]	
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]:	8.05 [6]
RECOMMENDED MINIMUM BATTERY SIZE - AH:	150
COLD CRANKING AMPS @ 0°F (-18°C):	900
CHARGING ALTERNATOR OUTPUT - AMPS:	70

① ALL DATA CERTIFIED WITHIN ±5%.

FUEL SYSTEM

INJECTION PUMP:	INLINE, PLUNGER TYPE
INJECTION PUMP ADVANCE ANGLE - °:	24
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:	750
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	DUCTILE CAST IRON	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	ALLOY STEEL	TUBES	COPPER
MAIN BEARINGS:		COOLANT PUMP:	
TYPE	PRECISION, HALF SHELL	TYPE	CENTRIFUGAL
MATERIAL	TIM ALUMINUM ALLOY	DRIVE	V-BELT
CYLINDER BLOCK:		THERMOSTAT:	
TYPE	WET LINED	TYPE	NON-BLOCKING
MATERIAL	CAST IRON	QUANTITY	1
CYLINDER HEAD:		COOLING LOOP (GALVANIZED):	
TYPE	ONE PIECE	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		

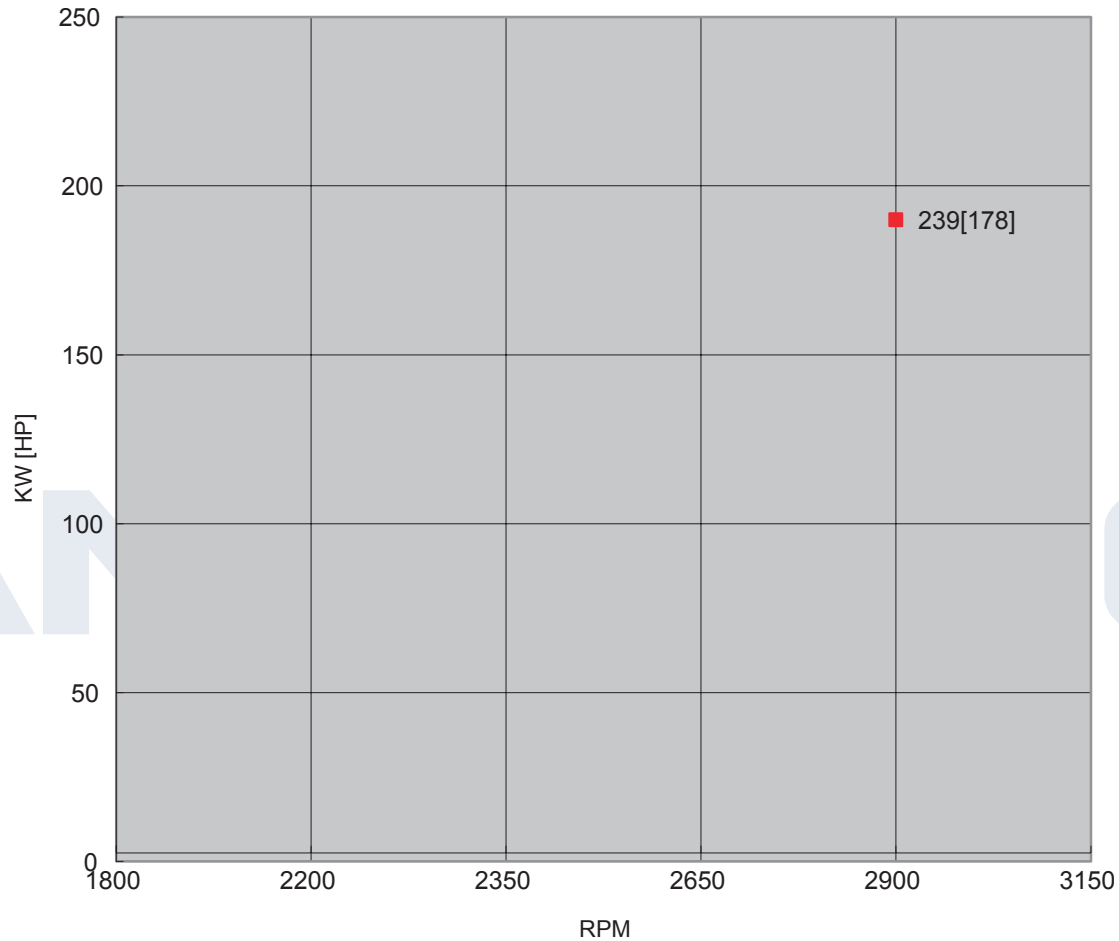
SPARE PARTS LIST

PART DESCRIPTION	PART NUMBER	REMARKS
AFTERCOOLER	AF120057-IC	KL6B
HEAT EXCHANGER	AFC300ZJ-HE	MAX. WORKING PRESSURE 72.5 PSI [5 BAR]
ALTERNATOR	JFZ2904	28 V / 45 A
STARTING SYSTEM	QDJ2709J-PC	24 V / 6 KW
TURBOCHARGER	HX40W	N/A
FUEL PUMP WITH SPEED CONTROLLER	BH6P120202	N/A
FUEL INJECTORS	1112020-400-0000W	0.25 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	WK150B	N/A
OVERSPEED SHUTDOWN DEVICE	YC-ENL-A0	N/A
SPEED SENSOR	KE10040	N/A
ENGINE HEATER	FH220300065	220 V / 3 KW MAX. TEMP 149°F [65°C]
	SH110200065	220 V / 2 KW MAX. TEMP 149°F [65°C] WITH PUMP
	SH110200065	110 V / 2 KW MAX. TEMP 149°F [65°C] WITHOUT PUMP
OIL FILTERS	1012010-400-0000F	1 PIECE
FUEL FILTERS	17001-001-0000A	1 PIECE
AIR FILTERS	ECC125004	1 PIECE
BELTS	1308032-300-YX10	2 PIECES
THERMOSTATS	1306010-001-0000Q	2 PIECES
EXHAUST BLANKET	AF6110D0602-EI	DN65
FUEL SUPPLY & RETURN LINES	AF6-110D-09.03 AF6-110D-09.04	N/A

POWER CURVE

CURVE NUMBER:	C06110D	DATE:	09/01/2020
DISPLACEMENT - IN ³ [L]:	435 [7.13]	ASPIRATION:	TURBOCHARGED + WATER COOLED
POWER STANDARD:	FM	BORE & STROKE - IN [MM]:	4.33 x 5.04 [110 x 125]
NUMBER OF CYLINDERS:	6	FUEL SYSTEM:	INLINE, MECHANICAL

❶ ALL DATA CERTIFIED WITHIN ±5%.

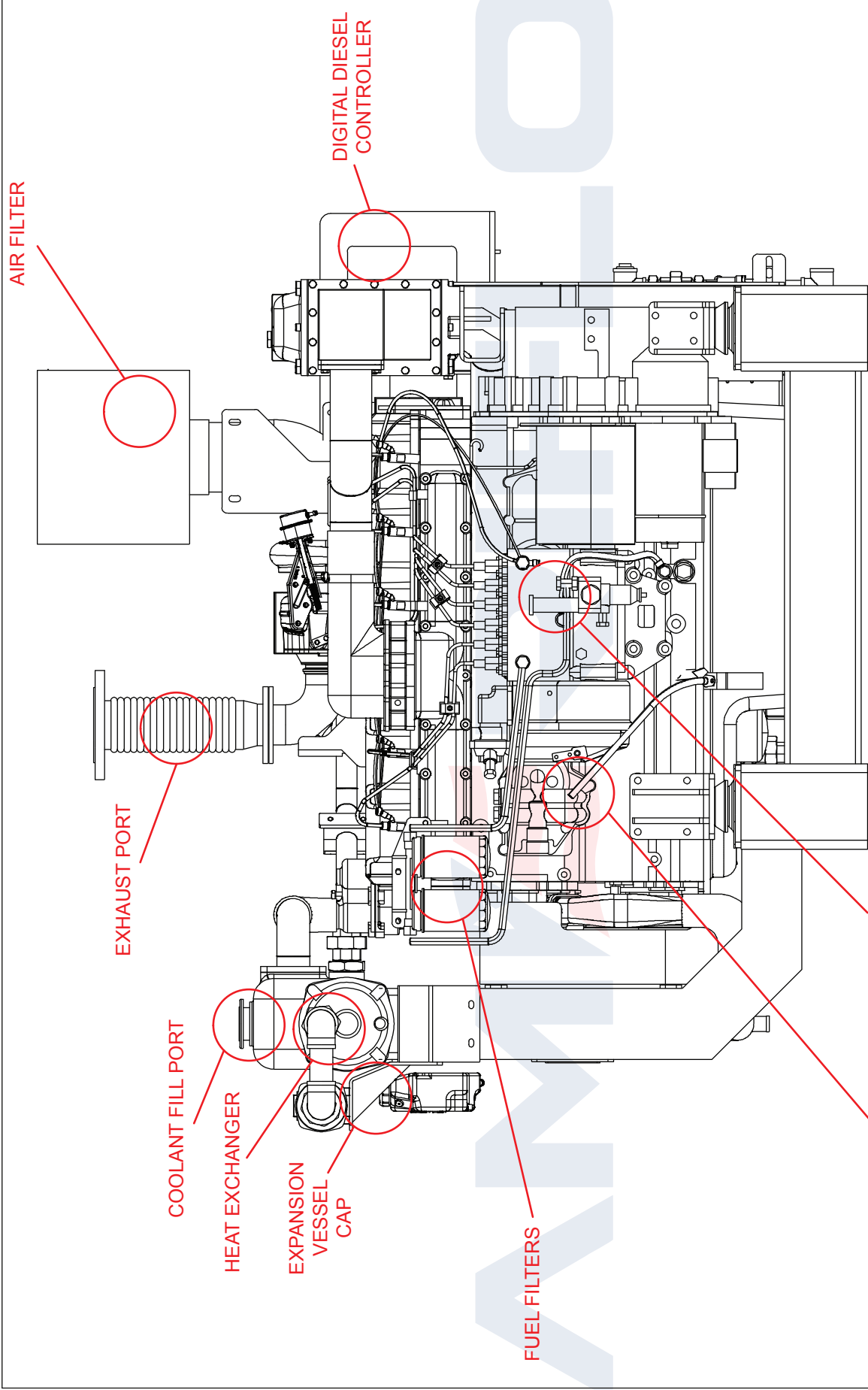


TORQUE		
SPEED	LB-FT	N-M
RPM		
1800		
2200		
2350		
2650		
2900	486	659
3150		

OUTPUT POWER		
SPEED	HP	KW
RPM		
1800		
2200		
2350		
2650		
2900	239	178
3150		

FUEL CONSUMPTION		
SPEED	LB/BHP-HR	G/KW-HR
RPM		
1800		
2200		
2350		
2650		
2900	0.395	240
3150		

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REV	UNITS (IN/MM)
A	1
REV	DESCRIPTION
	MJF
	DATE
	APVD
	DATE
	APPROVED: DATE:
	CHK BY: DATE:
	DRW BY: 09/01/2020
	MJF
	DATE: 09/01/2020
	NAME: INSTALLATION DRAWING
	DIESEL FIRE PUMP DRIVER
	MODEL AF6-110D
	PROJECT:
	PROJECTION:
	SCALE: NONE
	PAGE 1
	OF 1
	MATERIAL:
	PART NO.: AF6-110D-LEFT

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.

