



Ahrens-Fox Foam System Manual

Operation, Maintenance & Repair

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HME will not assume responsibility for product failure due to improper maintenance or operation.

HME is responsible only within the limits stated in the product warranty.

Information contained in this manual is subject to change without notice.

SAFETY



IMPORTANT!

FOLLOW THE SAFETY GUIDELINES LAID OUT IN THIS MANUAL AND ADHERE TO ALL WARNING, DANGER, CAUTION AND IMPORTANT NOTES.

ALL DOCUMENTATION MUST BE READ, UNDERSTOOD AND STRICTLY FOLLOWED BY ALL INSTALLERS, MAINTENANCE PERSONNEL, AND OPERATORS.

WHEN CREATING DEPARTMENTAL SOPS INCORPORATE THE WARNING AND CAUTION INFORMATION.

DEFINITIONS

DANGER! - IMMEDIATE HAZARD, WHICH WILL RESULT IN SEVERE PERSONAL INJURY OR DEATH IF THE WARNING IS IGNORED.

WARNING! - HAZARDS OR UNSAFE PRACTICES, WHICH COULD RESULT IN SEVERE PERSONAL INJURY OR DEATH IF THE WARNING IS IGNORED.

CAUTION! - HAZARDS OR UNSAFE PRACTICES WHICH COULD RESULT IN MINOR OR MODERATE PERSONAL INJURY IF THE WARNING IS IGNORED.

IMPORTANT! - THIS ACTION COULD RESULT IN DAMAGE TO THE APPARATUS OR OTHER PROPERTY.



IMPORTANT!

THE PROCEDURES IN THIS MANUAL ARE FOR GENERAL INFORMATION AND DO NOT REPLACE THE PROCEDURES, POLICIES, OR GUIDELINES ESTABLISHED BY THE AUTHORITY HAVING JURISDICTION, NOR DO THEY REPLACE THE RECOMMENDATIONS AND PROCEDURES PROVIDED IN THE APPARATUS MANUAL.

ALL FASTENERS ON THE FOAM SYSTEM ASSEMBLY ARE SELECTED FOR THE APPLICATION. DO NOT REPLACE FASTENERS WITH ANYTHING OTHER THAN HME PART NUMBERS PROVIDED. REPLACING WITH AN ALTERNATIVE POSES A SERIOUS SAFETY RISK.

ALL FASTENERS MUST BE INSTALLED WITH A LOCKING ANAEROBIC ADHESIVE/SEALANT, SUCH AS LOCTITE #243 OR EQUIVALENT.



WARNING!

MODIFICATIONS MADE TO THE FOAM SYSTEM ASSEMBLY WITHOUT PRIOR WRITTEN PERMISSION MAY RESULT IN PRODUCT DAMAGE OR INJURY.



WARNING!

BE SURE TO WEAR SAFETY GLASSES WHEN REMOVING AND/OR INSTALLING PARTS. WEAR HEAT-RESISTANT GLOVES WHEN HANDLING PARTS THAT REQUIRE HEATING FOR INSTALLATION AND/OR REMOVAL. FAILURE TO COMPLY MAY RESULT IN SERIOUS INJURY.



WARNING!

- **DO NOT** operate the foam system at pressures higher than the maximum rated pressure.
- Relieve all pump system pressure, and then drain all water from the pump system before servicing any of its component parts.
- Use only pipe, hose and fittings, which are rated at or above the maximum pressure rating at which the foam pump system operates.

FOAM SYSTEM

The Ahrens-Fox® foam system contains a stainless steel manifold with a single check valve for corrosion resistant durability and performance. Foam concentrate is injected directly into the water stream on the discharge side of the water pump. The foam proportioning system provides consistent foam concentrate injection for **Class “A” foam** operations with proportion ratios ranging from 0.1% to 1.0% with operating pressures from 0-400psi (0-2758kpa).

THEORY OF OPERATION

The Ahrens-Fox® foam system is an electric motor driven flow-based proportioning system that measures water flow and then injects the proportional amount of foam concentrate to maintain the preset percentage. Accurately delivering from 0.1% to 1.0% foam concentrate to the foam injector fitting. A flowmeter measures the water flow and sends a signal to the motor driver control. An encoder reads the output of the motor, ensuring the desired proportion of foam concentrate is being automatically delivered no matter the water flow rate.

Foam concentrate is injected directly into the water stream on the discharge side of the water pump. Because of this, check valves are used at installation so there is no foam concentrate contamination of the fire pump. It is then fed as foam solution into a standard fog nozzle, an air aspirated nozzle, or CAFS equipment.

The Ahrens-Fox® foam system is designed for **Class A foam** concentrate applications.

HME AHRENS-FOX® COMPONENT BREAK DOWN

The Ahrens-Fox® foam system is another product of HME’s dedication to total vertical integration of engineering and manufacturing complete fire apparatus under one roof. From custom chassis, cab, body, aerial ladders, pump modules, foam systems and stainless steel centrifugal pumps, HME Ahrens-Fox® is leading the way in creating the finest fire apparatus available today.

The Ahrens-Fox® tag is not just a name but a badge, a symbol of honor of the technological leadership in the fire service. Placed upon HME’s premier products and new technology the Ahrens-Fox® badge is a certificate to the end user that the latest in technology is employed in the design of the apparatus. Advancements, features and patented technology to assist the fire service to perform swift, effectively and efficiently. The DNA of HME’s technological innovation continues to serve as the driving force of HME’s leadership of the fire service.

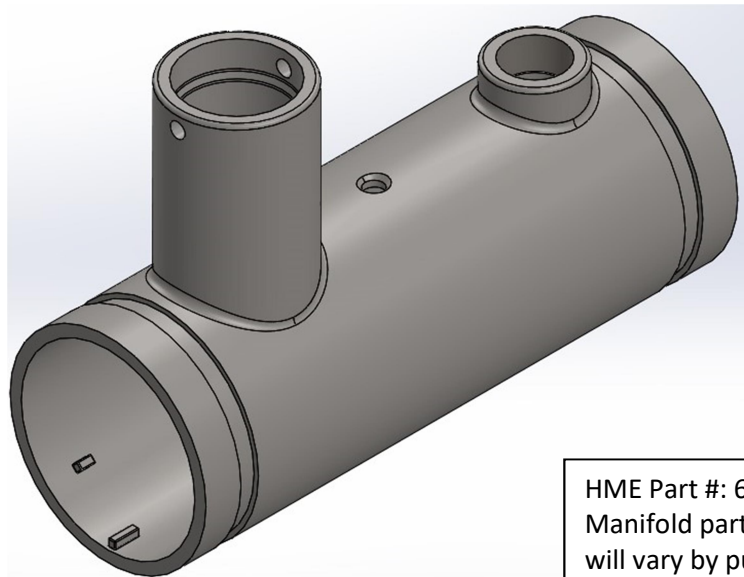
FOAM CONTROL DISPLAY MODULE

Every Ahrens-Fox® foam system contains a display module for operation of the foam system and calibration. Power is applied when either the auxiliary pump or main pump is running, once power is applied, the foam display screen will light up. The display module shows: water flow rate, foam concentrate injection percentage, total water flowed, total foam concentrate used, foam pump capacity. Foam concentrate will be injected proportionate to the water flow once “Pump Active” is green and water flow is detected.



STAINLESS STEEL MANIFOLD

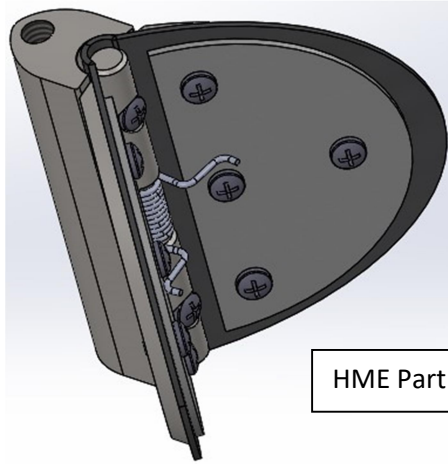
Every Ahrens-Fox® foam manifold contains a stainless steel manifold to extend the life that is 3” diameter with Victaulic ends. Installed on the manifold are a flow meter, butterfly check valve, and check valve/injector fitting.



HME Part #: 63228-71
 Manifold part numbers
 will vary by pump model.

BUTTERFLY CHECK VALVE

The butterfly check valve is installed in the foam manifold upstream from the flow meter to ensure that no foam gets into the main pump or pump water plumbing.



HME Part #: 63228-12

FLOW METER

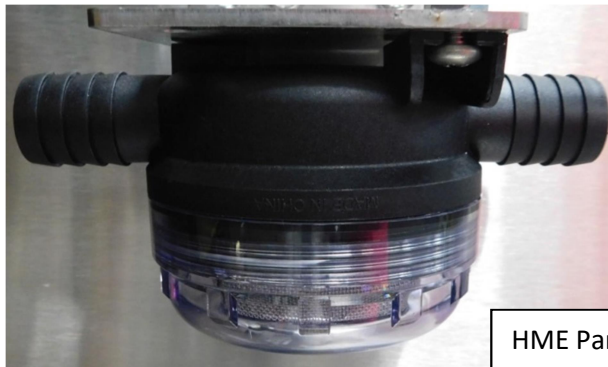
Every Ahrens-Fox® foam system must contain a flow meter for proper operation. This flow meter is installed directly into the stainless steel manifold downstream from the butterfly check valve. Information from the flow sensor is provided by a shielded cable to the foam pump and display module to begin foam concentrate injection



HME Part #: 62605-140

STRAINER

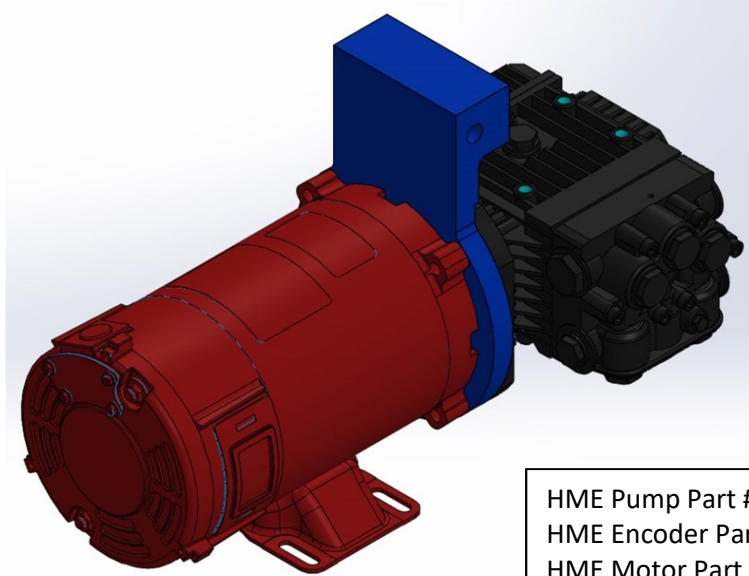
Every Ahrens-Fox® foam system must contain an inline strainer. This low pressure pump strainer uses 3/4" (19mm) barb hose connections and protects the pump from debris that might accumulate in the foam concentrate tank. The strainer assembly has a non-metallic housing with a stainless steel mesh screen.



HME Part #: 62605-77

PUMP/MOTOR ASSEMBLY

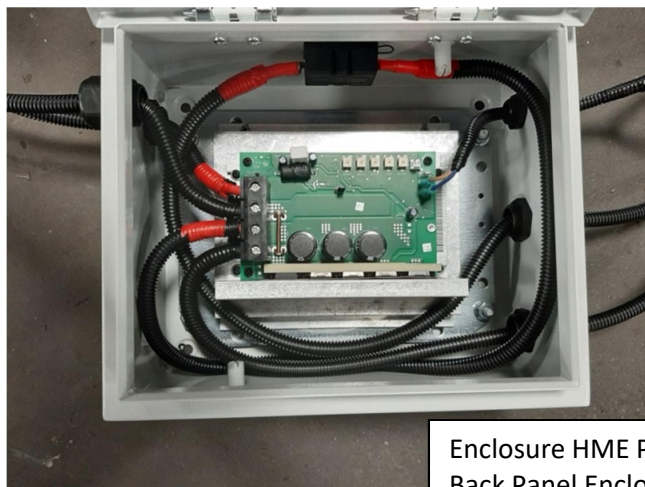
Every Ahrens-Fox® foam system contains a 3.0 GPM triplex plunger pump and a 1/2HP 12 volt motor. The plunger pump is constructed with die-cast bodies with a brass head and features a long life with durability and reliable continuous performance. The pump is close coupled to the electric motor, eliminating maintenance of an oil filled drive gearbox. The gear tooth encoder measures the output of the foam pump motor and sends that information to the chassis drive controller so the correct RPM is being provided to the system to perform as expected. There is a discharge relief valve installed on the outlet port of the foam pump. It is provided to protect the foam pump from excessive pressures. The relief valve is factory preset to 450psi.



HME Pump Part #: 62605-110 HME Encoder Part #: 62605-150 HME Motor Part #: 62605-120
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ENCLOSURE

Every Ahrens-Fox® foam system includes a locking enclosure which houses the electrical connections to the chassis drive controller. This controller accepts DC input voltage and output DC power voltage to control the speed of a low voltage motor. The enclosure is mounted in the pumphouse accessible for servicing if required.

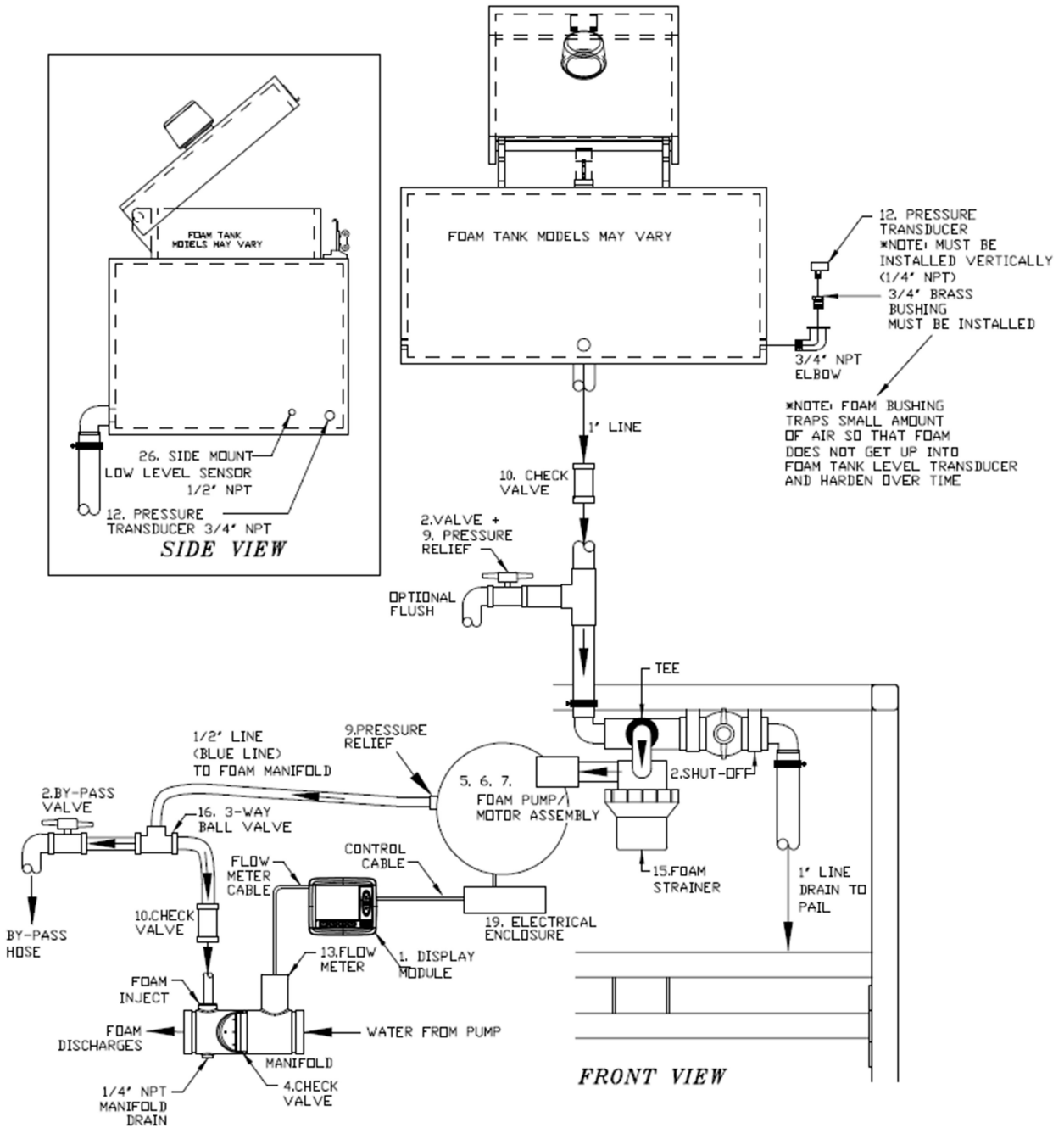


Enclosure HME Part #: 62613-265 Back Panel Enclosure Part #: 62613-266 Chassis Control Board Part #: 62605-130
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AHRENS-FOX® FOAM SYSTEM PART LIST

Item Number	HME Part Number	Description
1.	36908	MD3 DISPLAY MODULE
2.	62273-50	BALL VALVE: ¼" WITH NPT ENDS
3.	63228-71	MANIFOLD:CHECK VALVE/FOAM SYSTEM
4.	63228-12	3" BUTTERFLY CHECK VALVE
5.	62605-150	R45 ENCODER
6.	62605-130	60 AMP CHASSIS CONTROL BOARD
7.	62605-120	1/2HP 12V FOAM PUMP MOTOR
8.	62605-110	TRIPLEX 3.0 GPM PLUNGER PUMP
9.	62605-201	PRESSURE RELIEF VALVE (SET TO 20 PSI)
10.	62605-200	CV3 ½" CHECK VALVE
11.	62605-171	ANALOG SIGNAL OUTPUT CAN CONTROLLER
12.	60409-206	PSI PRESSURE TRANSDUCER
13.	62605-140	200 SERIES IMPELLER FLOW METER
14.	41983	IQAN XC3 EXPANSION CONTROLLER
15.	62605-77	¾" INLINE STRAINER
16.	62264-49	½" 3-WAY BALL VALVE
17.	56224-424	M5 MIDI SERIES FUSE HOLDER
18.	56224-425	70 AMP M5 MIDI SERIES FUSE
19.	62613-265	HINGED ENCLOSURE
20.	62613-266	BACK PANEL ENCLOSURE
21.	89489-50	WEATHERPROOF ¾" NYLON CORD GRIP
22.	62058-289	HME FOAM SYSTEM WIRE HARNESS
23.	63249-79	LABEL: HME MADDOG FOAM INFO
24.	63249-113	LABEL: AHRENS FOX FOAM SYSTEM DIAGRAM
25.	63249-137	LABEL: AHRENS FOX FOAM PROPORTION INFO
26.	62605-22	LIQUID LEVEL SWITCH: HORIZONTAL

FOAM OPERATIONS



FOAM PUMP/FOAM MOTOR DIMENSIONS

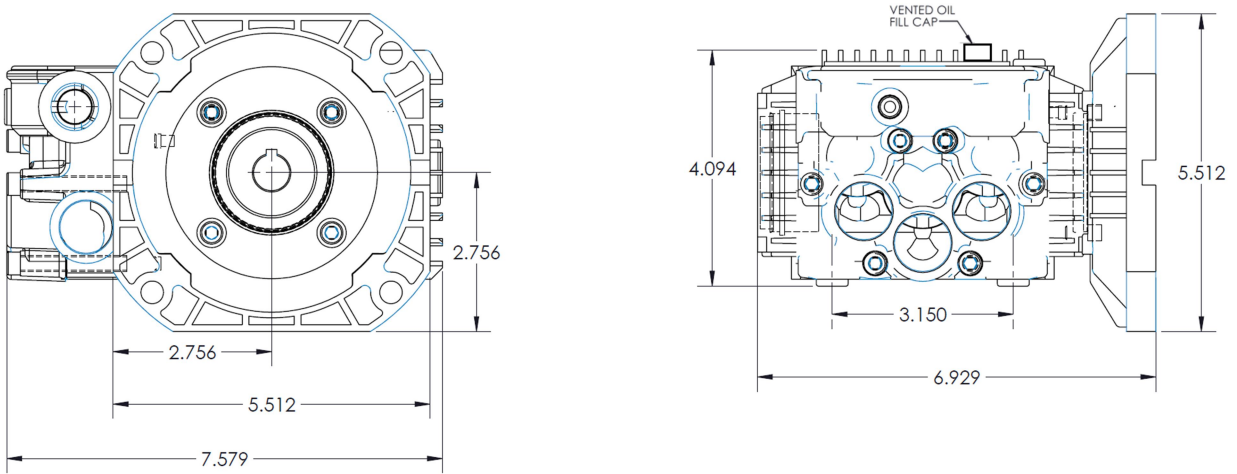


Figure 2: Plunger Pump Dimensions

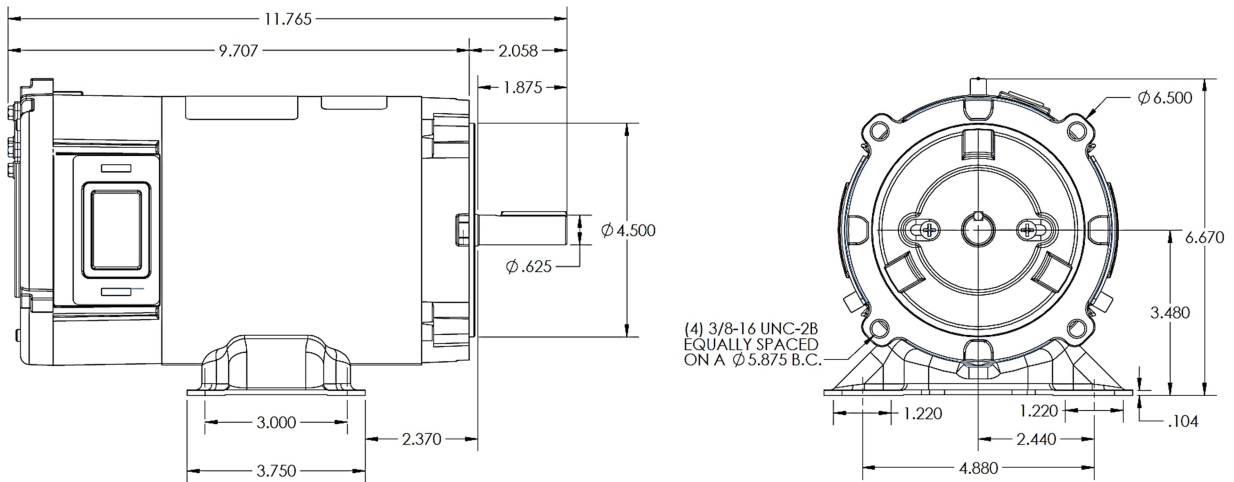


Figure 3: Foam Motor Assembly Dimensions

AHRENS-FOX® WIRING SCHEMATIC

See truck electrical packet for wiring schematic.

INSTALLATION

The following guidelines are offered to assist the system installer with a complete system installation.

FOAM PUMP AND MOTOR ASSEMBLY

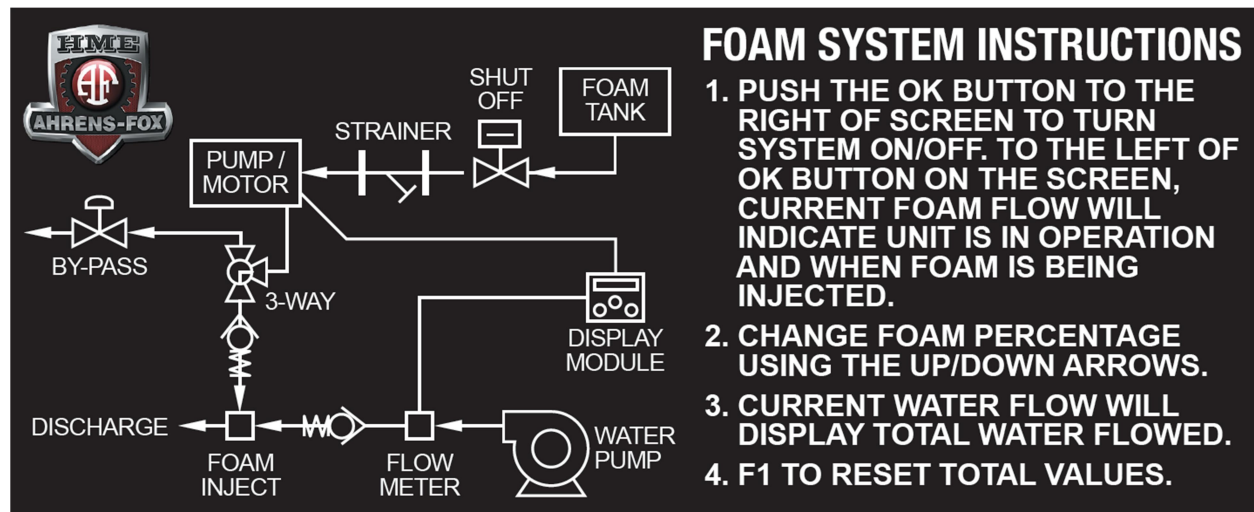
The foam pump and motor assembly must be installed in a location that is protected and free from excessive heat and road debris. The discharge of the foam tank must be mounted above the foam pump and motor to allow a gravity fed line to the foam pump. The foam tank must also be located where refilling can be easily accomplished with a 5 gallon (19 liter) pail.

When specifying a foam tank, the following should be included:

- Low tank level sensor
- Foam suction connections
- Tank drainage
- Fill openings complying to NFPA requirements

CONTROL UNIT AND SYSTEM DIAGRAM PLACARD

The location of the system diagram/instruction placard needs to be on the operator's panel of the apparatus in view during normal pumping operations.



FOAM CONCENTRATE STRAINER

Mount the in-line foam strainer in the foam concentrate hose from the foam tank to the foam pump suction connection. Due to gravity fed location of the in-line strainer, mounting should avoid air traps in the hoses. Allow adequate clearance to allow removal and cleaning of the mesh strainer during servicing.



CAUTION!

THE IN-LINE STRAINER IS A LOW PRESSURE DEVICE THAT WILL NOT WITHSTAND FLUSHING WATER PRESSURE. MAKE SURE INSTALLATION HAS SOLUTION FLOWING IN DIRECTION OF ARROW ON SIDE OF HOUSING.

APPARATUS DESIGN/BUILD FOR COLD WEATHER DUTY

If apparatus is to be in service in sub-freezing temperatures, the system is designed to keep ambient air temperature above 32°F (0°C) in the space around the foam pump when auxiliary heaters, heat pans, or enclosed pumphouse panels are installed. This is to help control the environment that the system is installed in. Adequate ventilation must also be available to cool the area around the unit to prevent overheating when operating in high temperature ambient environments.

ELECTRICAL REQUIREMENTS

The Ahrens-Fox® foam system primary power must be supplied from the main apparatus battery to the motor controller box on the foam pump and motor assembly. The foam system requires a minimum of 40 AMP electrical service.

FLOW SENSOR

The flow sensor paddle wheel is installed onto the foam manifold before the foam concentrate injection point.

CHECK VALVE/INJECTOR FITTING

Check valves installed on the foam manifold waterway are required to keep foam solution out of the main pump and allow priming without drawing foam into the system.

BYPASS HOSE CONNECTION

A bypass valve is mounted on the discharge of the foam pump. The bypass handle must be accessible by the pump operator during normal pumping operations. The bypass hose connections are ½" and are plumbed to the atmosphere. This hose is used for calibrating the foam pump, pumping the foam concentrate into a container to empty the foam tank, or to assist in priming of the foam pump.

AHRENS-FOX® FOAM SYSTEM DISPLAY MODULE

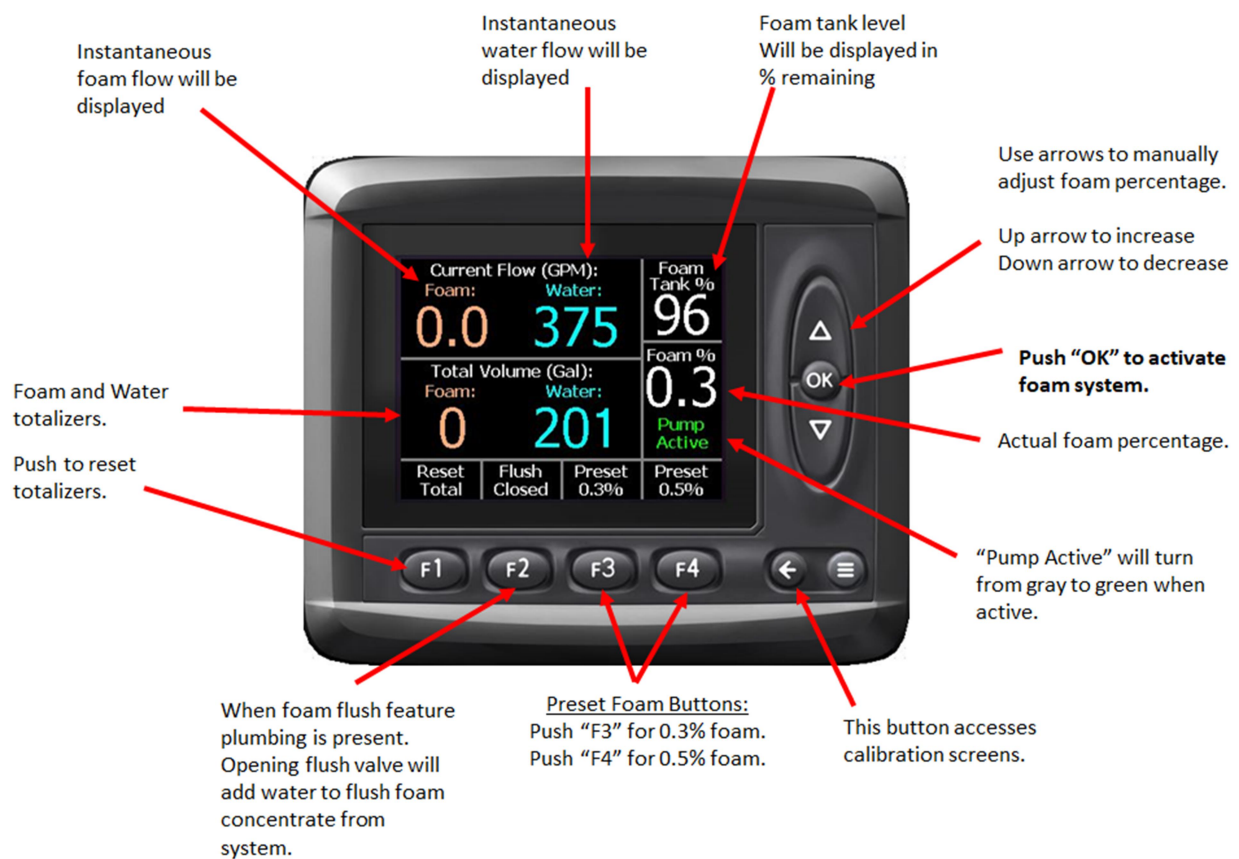
OPERATION

Power is applied to the foam controller when either the Auxiliary Pump or Main Pump is running. Once power is applied, the foam display screen will light up.

Foam system will be active when “OK” button is pressed and “Pump Active” turns from gray to green.

Foam concentrate will be injected proportionate to the water flow once “Pump Active” is green and water flow is detected. This concentrate level can be adjusted as needed by using the “up/down” arrows to increase/decrease percentage of foam injection by 0.1%. Foam system concentrate can also be put to the preset levels 0.3% by pressing “F3” or to “0.5%” by pressing “F4”.

DISPLAYED INFORMATION



DATE AND TIME

1. Power on the truck. Make sure the foam system screen is on and active.
2. If pin has already been entered skip to step 5.
3. Press and hold the “left facing arrow” button until the PIN code screen pops up.
 - a. Press “F2”.
4. Press the “up/down” arrow button to navigate the PIN numbers.
 - a. Pin is 1871.
 - b. Pressing the “OK” button will make you proceed to the next digit.
 - c. Once pin is entered completely press “F2” to continue.
5. Press the left facing arrow button.
 - a. This is the Calibration Home Screen.
6. Press F2, Foam Flow.
 - a. This is the Foam Calibration Screen.
7. Press “F1”, 25% foam.
 - a. 25% Foam Flow Point.
 - b. DO NOT PRESS “F2”, RESET.
8. Press “F1”, Main.
9. Press “F3”, Preferences.
10. Press “F2”, Date/Time.
11. Press “F1”, Date.
 - a. Use “up/down” arrow buttons to navigate the year, once selected, press “OK”.
 - b. Use “up/down” arrow buttons to navigate the month, once selected, press “OK”.
 - c. Use “up/down” arrow buttons to navigate the day, once selected, press “OK”.
12. Press “F2”, Time.
 - a. Use “up/down” arrow buttons to navigate the hour, once selected, press “OK”.
 - b. Use “up/down” arrow buttons to navigate the minute, once selected, press “OK”.
13. Once Date/Time set, press the three horizontal line button in the bottom right hand corner.
14. Press the left facing arrow” (2X).
15. Turn off the battery power and turn it back on.
16. Date and Time is now set.

FOAM TANK CALIBRATION

1. If pin has already been entered skip to step 4.
 2. Press and hold the “left facing arrow” button until the PIN code screen pops up.
 - a. Press “F2”.
 3. Press the “up/down” arrow button to navigate the PIN numbers.
 - a. Pin is 1871.
 - b. Pressing the “OK” button will make you proceed to the next digit.
 - c. Once pin is entered completely press “F2” to continue.
 4. Press the “left facing arrow” button.
- This is the Calibration Home Screen.



5. Press “F1”, Foam Tank.
6. Press “F1”, Calibrate Empty.
7. Fill foam transfer system.
8. Press “F2”, Calibrate Full.
9. Press “left facing arrow” (2x) to return to foam main menu.



WATER FLOW CALIBRATION



IMPORTANT!

AN ACCURATE FLOW MEASURING DEVICE MUST BE USED TO MEASURE THE WATER FLOW WHEN CALIBRATING THE FLOW SENSOR. USE A SUITABLE SIZE, SMOOTH BORE, NOZZLE AND AN ACCURATE AND CALIBRATED PITOT GAUGE INSTRUMENT. ALTERNATIVELY USE AN ACCURATE AND CALIBRATED IN-LINE FLOWMETER.

1. If pin has already been entered, skip to step 5.
 2. Press and hold the “left facing arrow” button until the PIN code screen pops up.
 - a. Press “F2”.
 3. Press the “up/down” arrow button to navigate the PIN numbers.
 - a. Pin is 1871.
 - b. Pressing the “OK” button will make you proceed to the next digit.
 4. Once pin is entered completely press “F2” to continue.
 5. Press the “left facing arrow” button.
- This is the Calibration Home Screen.
6. Press “F3” Water Flow.



7. Using “up/down” arrows, toggle “New Manifold Size to: 3.0”.
8. Start the water pump and flow the GPM of water listed on the “Calibration Flow” line
 - a. This will update the “Sensor Hz” in order to calibrate the system.
9. Press “F1” Calibrate flow.
10. Information on screen will update after 30 seconds to the calculated flow for that size manifold.
11. Press “left facing arrow” (2x) to return to foam main menu.

This calibration must be done prior to foam flow calibration for module to run proper percentage calculations.

FOAM FLOW CALIBRATION

1. If pin has already been entered, skip to step 5.
2. Press and hold the “left facing arrow” button until the PIN code screen pops up.
 - a. Press “F2”
3. Press the “up/down” arrow button to navigate the PIN numbers
 - a. Pin is 1871
 - b. Pressing the “OK” button will make you proceed to the next digit
4. Once pin is entered completely press “F3” to continue
5. Press the “left facing arrow” button

This is the Calibration Home Screen



6. Press “F2” Foam Flow
7. Have a stopwatch ready to time foam flow for 1 minute
8. Place a calibrated bucket below the bypass line drain to collect discharged foam solution.
9. Open bypass valve to allow foam solution to drain to atmosphere and into bucket.
10. Toggle between foam flow percentages by using “up/down” arrows. Set each percentage by hitting “OK” to start when selected.
 - a. Start with 25%
 - b. Simultaneously start your stop watch and hit the “OK” button
11. Test will run and % flow selection will remain yellow while test is in operation, then it will highlight green (30 seconds) when complete.
 - a. Will populate the pump/motor encoder frequency (hz) at that foam flow percentage.
 - b. Keep running the test for an additional 30 seconds (1 minute total).
 - c. Once 1 minute is reached, simultaneously press “OK” and stop the stopwatch.
12. Compare the GPM seen at the 25% set point with the amount of solution collected.
13. If the foam flow GPM and amount of solution collected match, proceed to step 14
14. If the foam flow GPM and amount of solution collected is different.
 - a. Press “F1”
 - b. Use “up/down” arrows to set actual foam flow point value seen during test
 - c. Press “Ok” to accept input.



15. Repeat steps 6-13 for remaining percentages until all data is entered for 25%, 50%, 75%, & 100%.
16. Press “left facing arrow” (2X) to return to foam main menu.
17. Close bypass valve.



IMPORTANT!

FOAM PUMP FEEDBACK IS CALIBRATED AFTER INSTALLATION TO VERIFY VALUES WITH THE ACTUAL FOAM CONCENTRATE BEING USED. ONLY CALIBRATE USING ACTUAL FOAM CONCENTRATES. DO NOT USE WATER, TRAINING OR TEST FOAMS FOR FEEDBACK CALIBRATION VERIFICATION

WATER SIMULATE

1. If pin has already been entered, skip to step 5.
2. Press and hold the “left facing arrow” button until the PIN code screen pops up
 - a. Press “F2”
3. Press the UP/DOWN arrow button to navigate the PIN numbers
 - a. Pin is 1871
 - b. Pressing the “OK” button will make you proceed to the next digit
4. Once pin is entered completely press “F3” to continue
5. Press the “left facing arrow” button

This is the Calibration Home Screen



6. Open bypass line to have foam flow through drain rather than through the system.
 - a. Collect foam solution in an appropriate size container by placing container directly under bypass line drain. This is to be able to reintroduce foam solution into the foam tank after test.
7. Press “F4” Water Simulate
8. Using “up/down” arrows, set water flow to desired simulated flow (300gpm) and press “OK” to activate simulation.



9. Once activated, navigate to main menu by pressing the “left facing arrow” (2x) and using “up/down” arrows set foam percentage to foam percentage of 1%
 - a. On the main menu you will now see the water current flow with a red text overlaid saying “simulate”. Foam pump will activate and run without the water pump once the test is started.



10. Press “OK” to activate pump. “Pump Active” text will turn from gray to green
11. Press “F1” to reset running total.
12. Monitor the current flow of foam and write down the value on the screen when foam flow displays a stabilized value.
13. End the simulation
 - a. Press “left facing arrow” to get to the calibration home screen
 - b. Press “F4” water simulate”
 - c. Press “OK”, the water simulation is now ended.
14. Navigate to the calibration home screen using the “left facing arrow”
15. Press “F2” Foam Flow
16. Look at the 100% set point and make sure GPM matches value seen during water flow simulation.
17. If value for 100% corresponds with the value seen during the simulation test, move on to step 19.
18. If value for 100% does not correspond with value seen during simulation test adjust the foam flow point with the following steps while on the foam flow calibration screen
 - a. Press “F4” 100% Flow to get to the foam flow point adjustment screen
 - i. “F1” Corresponds to 25%, “F2” Corresponds to 50%, “F3” Corresponds to 75%
 - b. Use “up/down” arrows to set actual foam flow point value seen during simulation test.
 - c. Press “Ok” to accept input.



19. Run simulation to test other foam percentages **0.7% foam @ 75% capacity**, **0.5% foam @ 50% capacity**, & **0.2% foam @ 25% capacity** by repeating steps 4-18

PRIMING THE PUMP

1. Engage parking break
2. Engage pump shift
3. Fill foam system to a minimum of 75%
4. Check clear hose running from drain shut off valve up to the foam pump for air
 - a. If air pocket present
 - i. Place bucket under truck at drain line hose end and slowly open and close the drain while wiggling the line to the pump in order to get larger air pockets out.
 - ii. Ensure that foam tank is still a minimum of 75% full.
5. Start the pump and allow water to flow
6. Make sure the discharge is opened
7. The calibration line should be open for the foam system
 - a. For pumpers, the blue calibration line is located behind the pump panel on the right usually beside the Foam Main Drain (blue handle and gray valve)
 - b. The brass calibration valve is typically located down the blue line, close to knee level.
8. Select highest foam flow percentage.
9. Press "OK" on the system controller to activate the foam pump.
 - a. AF Foam units run quiet with little vibration felt when operating and can be mistakenly thought to be not running.
10. Wait for a steady flow through the system. Very little air should be left in the line.
11. Press "OK" to deactivate foam pump.
12. Shut the system off.

MAINTENANCE

CHECK POSITION OF MANUALLY OPERATED VALVES

Ensure that all manually operated valves are in the correct post operation position

ROUTINE CHECKS

Routine checks should be done every four to six weeks, depending on the system use. High usage systems should be checked every two weeks

CHECK FOAM PUMP OIL

Ensure that the oil level is level with the line on the site glass and does not show signs of contamination.

CHECK SYSTEM COMPONENTS

Inspect components, wire harnesses, plumbing, and all connections. Look for looseness, wear or deterioration of materials, corrosion, and damage.

CLEAN THE PADDLE WHEEL SENSOR

Use water to clean the sensor. Do not use solvents.

CLEAN THE STRAINER

Clean the foam strainer and remove any debris that may have accumulated during operation. Remove cap and remove strainer, gently rinse strainer with running water.

CHANGE FOAM PUMP OIL

Change the foam pump oil after the first 50 hours of operation, then every 500 hours thereafter.

Manufacturer recommended oil: **HME part #: 63549-1** Plunger Pump Crankcase Oil

TROUBLESHOOTING

Symptom	Probable Cause	Corrective Action
Pump Runs but produces no flow.	-Pump is not primed.	-See foam pump priming section on page 22.
Pump loses prime.	-Air leak in suction hose or inlet fittings. -Suction Line is blocked or collapsed. -Clogged suction strainer.	-Remove suction hose and test for leaks by pressurizing with water. -Remove suction line and inspect for debris, avoid unnecessary bends. Do not kink hose. -Clean strainer
System is powered up, but the foam pump does not run	-No water is flowing in any of the foam discharges -Flowmeter is obstructed/non-functioning	-Flow water -Clean/clear flowmeter of debris -Inspect wiring and ground connection -replace flowmeter

REVISION RECORD

REVISION	INITIALS	DATE	PAGE	DESCRIPTION
A	JMC	5-20-2021	All	New Issue
B	JMC	5-25-2021	10	Revised Foam System Diagram