# Lafferty Equipment Manufacturing, LLC
# Installation & Operation Instructions

## Model # 977901 · DART™ AP-MM Foam System

## REQUIREMENTS

**Chemical Concentrate**
**Static Tank of Water**

| | |
|---|---|
| **Compressed Air** | up to 16 CFM |
| **Minimum Air Supply Line** | 1/2" |
| **Hose** | 1" ID x 40' |
| **Nozzle** | Foam Bar Assembly W/ 4-80150 Nozzles |
| **Electric** | 120V |

## OPTIONS

**Drum & Tote Stick Lengths & Seal Materials**

| | |
|---|---|
| Drum Stick, 33" (Viton or EPDM) | # 491643 / 491643-E |
| Drum Stick, 48" (Viton or EPDM) | # 491648 / 491648-E |
| Drum Stick, 54" (Viton or EPDM) | # 491645 / 491645-E |
| Tote Stick, 33" (Viton or EPDM) | # 491653 / 491653-E |
| Tote Stick, 48" (Viton or EPDM) | # 491654 / 491654-E |
| Tote Stick, 54" (Viton or EPDM) | # 491656 / 491656-E |

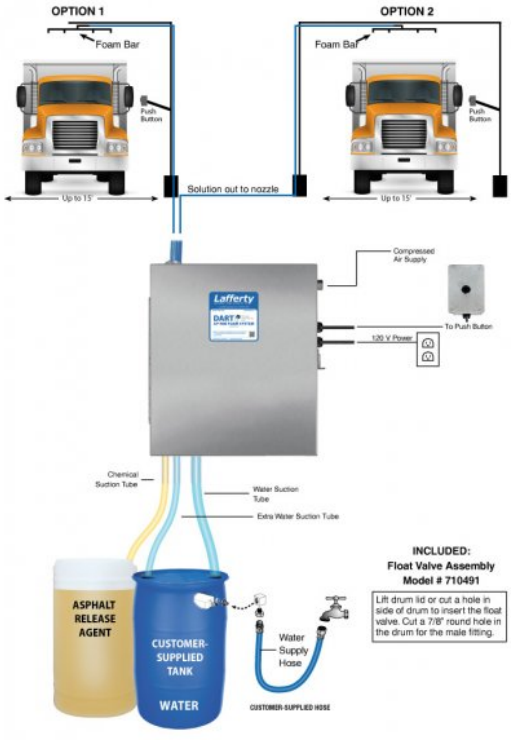
## WEIGHT & DIMENSIONS

**Single Package**

| | |
|---|---|
| Shipping Weight | 82 lbs. |
| Shipping Dimensions | 34" x 29" x 11" |

**Additional Package**

| | |
|---|---|
| Shipping Weight | 10 lbs. |
| Shipping Dimensions | 44" x 12" x 7" |




DART™ DRIVE THRU ASPHALT RELEASE, TIMED

Lafferty® EQUIPMENT MANUFACTURING LLC

CFS TECHNOLOGIES


www.laffertyequipment.com
501-851-2820


**WARNING!** READ ALL INSTRUCTIONS BEFORE USING EQUIPMENT!

## OVERVIEW

The *DART*™ AP-MM Foam System is a push button activated foam applicator that mounts to a user-supplied drive-though arch for applying asphalt release chemicals to truck beds. It is designed for facilities with low or fluctuating water pressure. This system uses a rugged Sandpiper air-operated, double-diaphragm pump to draw chemical concentrate and water from separate static tanks and blend them "on-the-fly" to create a diluted solution. Rich, clinging foam is created by injecting compressed air into the solution to greatly expand volume and coverage ability. When the driver pushes the button to activate the system, a delay timer allows the driver to position the truck under the foam bar before foaming begins and a run timer limits application to a pre-set time period.

## SAFETY & OPERATIONAL PRECAUTIONS

- **See Additional Safety Precautions included with the Electrical Control Box Installation Information**
- **Always consider electrical shock hazard when working with and handling electrical equipment. If uncertain, consult an Electrician. Electrical wiring should only be done by a qualified Electrician, per Local and State Electrical Codes**.
- For proper performance do NOT modify, substitute nozzle, hose diameter or length
- Manufacturer assumes no liability for the use or misuse of this unit.
- Wear protective clothing, gloves and eye-wear when working with chemicals.
- Always direct the discharge away from people and electrical devices.
- Follow the chemical manufacturer's safe handling instructions.
- DO NOT use d-Limonene or other chemicals that are not compatible with the Santoprene diaphragms.
- TEFLON upgrade is available.

## TO INSTALL (REFER TO DIAGRAM ON NEXT PAGE)

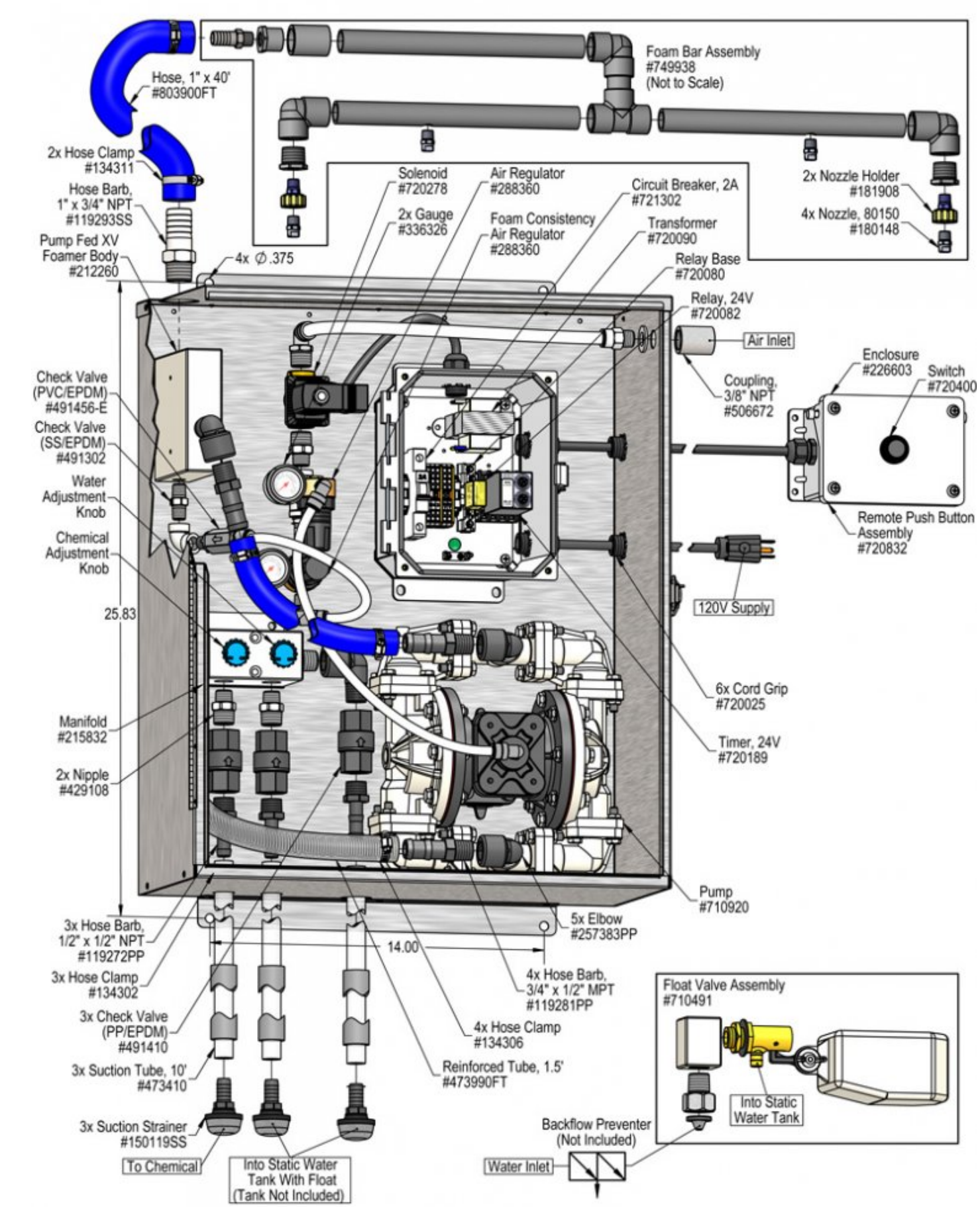
1. Mount the unit to a solid, secure surface. Mount above chemical and water containers.
2. Do NOT connect to electricity yet.
3. Choose between option 1 & 2 on page 1. Construct the mounting pole or arch, then mount the foam bar assembly as shown.
4. Mount the push button activation control box at a location of your choice prior to the mounting pole/arch (see 3, above)
5. Install the supplied float valve assembly into your water tank as shown in the illustration on page 3. Attach your water supply hose to the float valve and turn on the water to fill the tank.
6. Measure and cut the 1/2" suction tube into three sections of suitable length and connect them to the hose barbs as shown in the diagram on page 3. One is for chemical concentrate, the other two for water and the one with the knob is for additional water, if needed. Immerse chemical suction tubes into the chemical container and water tank.
7. **IF a ready to use chemical solution is being used place all three tubes in the solution**.
8. Connect your clean, dry compressed air supply to the system as shown in the illustration. (Air Extractor / Dryer is recommended.)
9. Make sure the system is not plugged in to a power source. Remove control box cover. The box contains one timer with "Delay & Run" adjustment knobs.
   **Delay:** This mode allows you to set the approximate amount of time needed from the time the truck driver presses the activation button until the truck bed is positioned underneath the foam bar assembly. Set the timer by turning the knob to the amount of delay time that you require (0-60 Seconds).
   **Run**: This mode allows you to set the amount of time the foamer will operate for. Set the timer by turning the knob to the amount of run time that you require for foaming (0-60 Seconds).
10. Replace the control box cover.
11. Plug the power cord into a 120 VAC power outlet. Activate your air supply.
12. The control box is equipped with a 3 position rocker switch. When set to "Auto", the unit will function according to the timer settings. When set to "Off" the unit is off. When "Manual" is depressed and held down the timer is bypassed.

**How to Set Your Dilution Ratio:**

1. Use the chemical / water adjustment knobs to control the amounts of chemical and "extra" water that flow through the unit. The adjustment knobs allow you to achieve virtually any dilution ratio and increase the flow rate of the water IF needed. Start out with the additional water knob turned completely clockwise and add extra water if needed.
2. Turn the adjustment knobs counterclockwise to increase flow or clockwise to decrease flow.
3. The chemical knob is preset to two full turns counterclockwise this setting is for initial testing.
4. To adjust the chemical concentration.
   - For a weaker dilution, turn the chemical knob clockwise.
   - For a stronger dilution, turn the chemical knob counterclockwise.

## TO OPERATE

1. The unit has been tested and is ready to operate. The pump air pressure regulator is preset and 60 PSI. This is the optimum pump pressure. The Foam Consistency regulator is preset at 50 PSI. Test "as is" before making any foam consistency adjustments.
2. Final dilution ratios and air adjustments will now have to be made.
   - To adjust foam consistency, pull out on the regulator knob and turn the the knob clockwise for dryer foam and counterclockwise for wetter foam.
   - Wait several seconds after each adjustment to see the results.
   - Too much foam consistency air will cause the hose to buck and jump and poor foam quality.
   - If foam remains too wet, slightly turn the chemical adjustment knob counterclockwise to increase chemical concentration or add air.
3. Once adjustments have been made to timers, chemical dilution and foam consistency, push the button and drive the first truck through and make any last adjustments as needed.
4. The unit is ready for operation.


Foam Bar Assembly
#749938
(Not to Scale)
Hose, 1" x 40'
#803900FT
2x Hose Clamp
#134311
Hose Barb,
1" x 3/4" NPT
#119293SS
Pump Fed XV
Foamer Body
#212260
Solenoid
#720278
Air Regulator
#288360
2x Gauge
#336326
Foam Consistency
Air Regulator
#288360
Circuit Breaker, 2A
#721302
Transformer
#720090
2x Nozzle Holder
#181908
4x Nozzle, 80150
#180148
4x Ø.375
Relay Base
#720080
Relay, 24V
#720082
Air Inlet
Coupling,
3/8" NPT
#506672
Enclosure
#226603
Switch
#720400
Remote Push Button
Assembly
#720832
120V Supply
Check Valve
(PVC/EPDM)
#491456-E
Check Valve
(SS/EPDM)
#491302
Water
Adjustment
Knob
Chemical
Adjustment
Knob
25.83
6x Cord Grip
#720025
Timer, 24V
#720189
Manifold
#215832
2x Nipple
#429108
Pump
#710920
3x Hose Barb,
1/2" x 1/2" NPT
#119272PP
5x Elbow
#257383PP
14.00
3x Hose Clamp
#134302
4x Hose Barb,
3/4" x 1/2" MPT
#119281PP
3x Check Valve
(PP/EPDM)
#491410
4x Hose Clamp
#134306
3x Suction Tube, 10'
#473410
Reinforced Tube, 1.5'
#473990FT
3x Suction Strainer
#150119SS
To Chemical
Into Static Water
Tank With Float
(Tank Not Included)
Backflow Preventer
(Not Included)
Water Inlet
Float Valve Assembly
#710491
Into Static
Water Tank

# Troubleshooting Guide

| Problem | Possible Cause / Solution | |
|---|---|---|
| | Startup | Maintenance |
| A) Air pump will not run/pump. | 1, 2, 3, 11, 12 | 13, 14, 17, 18, 19, 20 |
| B) Foam not acceptable. | 2, 3, 4, 5, 6, 7, 8, 9, 10 | 13, 14, 15, 16, 19 |
| C) Unit will not draw chemical. | 5, 6, 7, 8, 9, 10 | 13, 14, 15, 16, 17, 18, 19, 20, 21 |
| D) Water tube will not stay primed. | 5, 7 | 15, 16, 19 |
| E) Chemical tube will not stay primed. | 7 | 15, 16, 19 |
| F) Unit comes on and runs continuously. | 11, 12 | |
| G) Asphalt continues to stick to truck. | 6, 8 | |

## Possible Cause / Solution

### Startup

1. **Problem with air pump**
   - Refer to pump manual.
2. **Use of an oiler in the airline will cause pump to stall**
   - Use only clean, dry air.
3. **Inadequate air supply**
   - Adjust air regulator slowly clockwise.
4. **Water knob not adequately opened or open too much**
   - Turn water knob counterclockwise/clockwise.
5. **Water tube(s) not immersed in water or water depleted**
   - Immerse tube(s) or replenish.
6. **Chemical knob not adequately opened**
   - Turn chemical knob counterclockwise.
7. **Chemical tube not immersed in chemical or chemical depleted**
   - Immerse tube or replenish.
8. **Improper chemical**
   - Ensure product is recommended for the application.
9. **Discharge hose wrong size or kinked (SEE REQUIREMENTS)**
10. **Nozzle size too small (SEE REQUIREMENTS)**
11. **Timer not be set properly or malfunctioned**
    - See Timer Adjustment on page 2 or replace timer.
12. **May have electrical problems**
    - Have a qualified electrician check electrical connections. Ensure circuit breaker (5 amp) has not been tripped.

### Maintenance

13. **Chemical check valve stuck or failed**
    - Clean or replace.
14. **Chemical strainer blocked**
    - Clean or replace chemical strainer.
15. **Chemical tube stretched out where tube slides over check valve or pin hole/cut in chemical tube (sucking air in)**
    - Cut off end of tube or replace tube.
16. **Vacuum leak in chemical pick-up connections**
    - Tighten the connections.
17. **Water check valve stuck or failed**
    - Clean or replace.
18. **Water strainers blocked**
    - Clean or replace chemical strainers.
19. **Water tubes stretched out where tube slides over check valve or pin hole/cut in water tubes (sucking air in)**
    - Cut off end of tube or replace tube.
20. **Air regulator failed allowing too much air or not enough air**
    - Clean or replace.
21. **Air solenoid clogged or failed**
    - Clean or replace.

PREVENTIVE MAINTENANCE: When the unit will be out of service for extended periods, place chemical tube(s) in water and flush the chemical out of the unit to help prevent chemical from drying out and causing build-up. Periodically check and clean chemical strainer and replace if missing.