Lafferty Equipment Manufacturing, LLC
Installation & Operation Instructions

Model # 977801 · DART™ AP-MM Spray System

REQUIREMENTS

Chemical Concentrate
Static Tank of Water

Compressed Air	up to 10 CFM
Minimum Air Supply Line	3/8"
Hose	3/4" ID x 40'
Nozzle	#180193SS
Electric	120V

OPTIONS

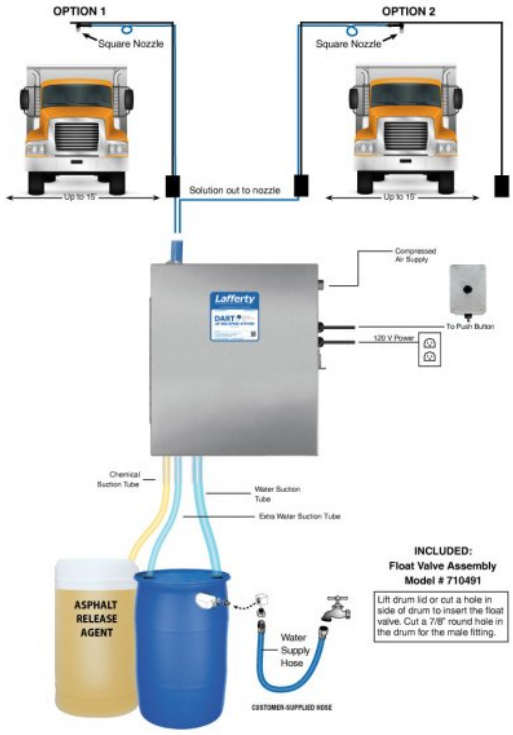
Drum & Tote Stick Lengths & Seal Materials

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	75 lbs.
Shipping Dimensions	34" x 29" x 11"



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 Spray System is a push button activated, time delayed, asphalt release applicator that mounts to a user-supplied drive-through arch for spraying asphalt truck beds. 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 an accurately diluted solution. The driver pushes the button to activate the system; a delay timer allows the driver to position the truck under the nozzle before spraying begins and a run timer prevents overuse of the release agent.

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 within 15' of the drive lane. 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 nozzle assembly as shown . To prevent dripping after each cycle **leave a loop in the hose** to make the nozzle higher than the bottom of the loop.
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. 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 two 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 for water.
7. Connect the 3/4" water suction tube to the hose barb. Secure all tubes with the clamps – do not over-tighten. Immerse ALL suction tubes into a container of water for initial testing.
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 nozzle. 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 sprayer will operate for. Set the timer by turning the knob to the amount of run time that you require for spraying (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.

TO TEST

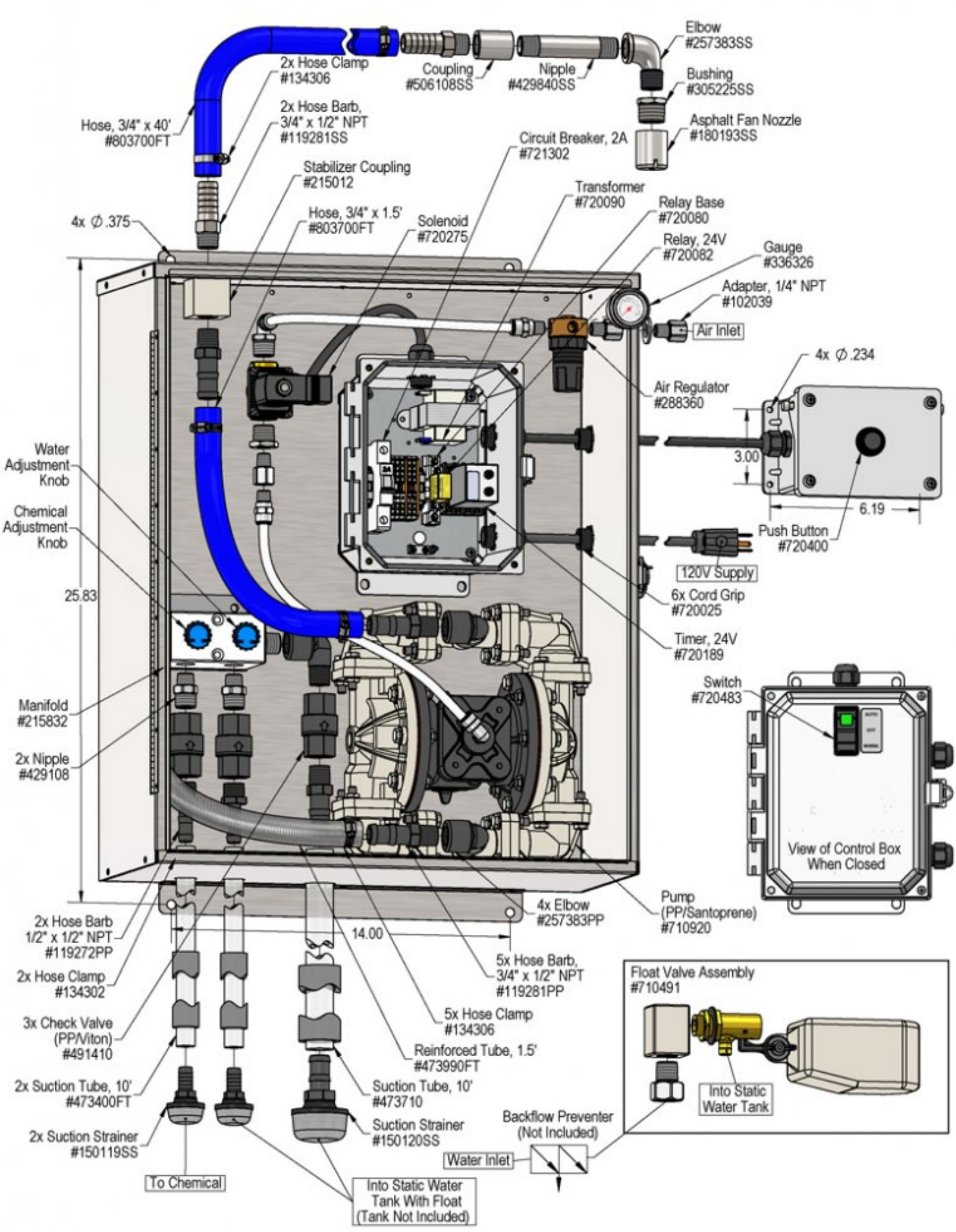
1. Perform "test runs" with water only and make any necessary timer and nozzle adjustments.
2. After several successful test runs have been made you are ready to set the chemical dilution.
3. Immerse chemical suction tube into the chemical container.
   - **IF a ready to use chemical solution is being used place all three tubes in the solution**.

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. Once adjustments have been made to timers and chemical dilution.
2. Push the button and drive the first truck through and make any last adjustments needed.
3. The unit is ready for operation.


Elbow
#257383SS
2x Hose Clamp
#134306
Coupling
#506108SS
Nipple
#429840SS
Bushing
#305225SS
Hose, 3/4" x 40'
#803700FT
2x Hose Barb,
3/4" x 1/2" NPT
#119281SS
Asphalt Fan Nozzle
#180193SS
Circuit Breaker, 2A
#721302
Stabilizer Coupling
#215012
Transformer
#720090
Relay Base
#720080
4x Ø.375
Hose, 3/4" x 1.5'
#803700FT
Solenoid
#720275
Relay, 24V
#720082
Gauge
#336326
Adapter, 1/4" NPT
#102039
Air Inlet
4x Ø.234
Air Regulator
#288360
Water
Adjustment
Knob
Chemical
Adjustment
Knob
3.00
6.19
Push Button
#720400
120V Supply
25.83
6x Cord Grip
#720025
Timer, 24V
#720189
Switch
#720483
Manifold
#215832
2x Nipple
#429108
View of Control Box
When Closed
Pump
(PP/Santoprene)
#710920
4x Elbow
#257383PP
2x Hose Barb
1/2" x 1/2" NPT
#119272PP
14.00
5x Hose Barb,
3/4" x 1/2" NPT
#119281PP
2x Hose Clamp
#134302
5x Hose Clamp
#134306
3x Check Valve
(PP/Viton)
#491410
Reinforced Tube, 1.5'
#473990FT
Float Valve Assembly
#710491
2x Suction Tube, 10'
#473400FT
Suction Tube, 10'
#473710
Into Static
Water Tank
2x Suction Strainer
#150119SS
Suction Strainer
#150120SS
Backflow Preventer
(Not Included)
Water Inlet
To Chemical
Into Static Water
Tank With Float
(Tank Not Included)

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) Pump runs too fast with no output.	1, 5, 7	15, 16, 19
C) Unit will not draw chemical.	5, 6, 7, 8, 9, 10, 11, 12	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**
   - Turn water knob counterclockwise.
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.