

Lafferty Equipment Manufacturing, LLC Installation & Operation Instructions

Model # 977840 · RADAR™ Single Eye 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

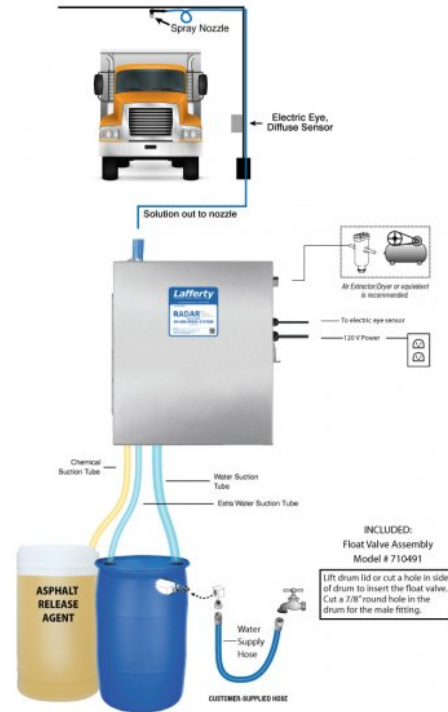
OPTIONS

Heater Assembly
Retro-Fit Heater Assembly # 720981

Drum & Tote Sticks (Viton Seals)

EPDM seals: Add "-E" to model number

33" Drum / Tote Stick	# 491643 / # 491653
48" Drum / Tote Stick	# 491648 / # 491654
54" Drum / Tote Stick	# 491645 / # 491656



RADAR™

RAPID
DRIVE THRU
ASPHALT RELEASE

Lafferty

EQUIPMENT MANUFACTURING LLC

CFS TECHNOLOGIES

www.laffertyequipment.com

501-851-2820

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



OVERVIEW

The RADAR™ Single Eye AP-MM Spray System is a photoelectric sensor-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. When a truck comes into range of the single-eye, diffuse-reflective photoelectric sensor, a delay timer allows the driver to position the truck under the nozzle before spraying begins and a run timer limits application to a pre-set time period or until the vehicle leaves the spraying area, whichever is first.

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. Use commercially available mounting hardware (not provided) appropriate to the surface material of construction and the weight of the unit.
2. Do NOT connect to electricity yet.
3. Construct the mounting arch, then mount the nozzle assembly as shown in the illustration on page 1.
4. To prevent dripping after each cycle leave a loop in the hose to make the nozzle higher than the bottom of the loop. This is not required if your unit has an integrated check valve near the nozzle.
5. Mount sensor within 10' of the truck lane (10' max. detection range).
6. Wire tie the cords securely to the arch.
7. 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.
8. 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 next page. One is for chemical concentrate the other for additional water, if needed.
9. 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.
10. Connect your clean, dry compressed air supply to the system as shown in the illustration. (Air Extractor / Dryer is recommended.)
11. Make sure the system is not plugged in to a power source. Open the control box cover. The box contains one timer with both "Delay & Run" adjustment knobs.
Delay: This mode allows you to set the length of time you want the unit to be inactive for before activation begins. 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 length of time you want the unit to run for after the delay period has expired. Set the timer by turning the knob to the amount of run time that you require. (0-60 Seconds)
 Note: if the truck exits before this time has elapsed the spray will stop.
12. Replace the control box cover.
13. Plug the power cord into a 120 VAC power outlet. Activate your air supply.

SWITCH SETTINGS (on front of Control Box)

- **ON** – Top of switch is depressed. Green light glows. Sensor and timers are bypassed.
- **OFF** – Switch is in middle position. Green/red lights are off
- **Automatic control** – Bottom of switch is depressed. Red light glows. Sensor and timers are in control.

TO TEST

1. Perform "test runs" with water only and make any necessary timer adjustments, and any nozzle or sensor adjustments.
2. NOTE: The system will shut off when the presence sensor no longer senses the truck.
3. After several successful test runs have been made you are ready to set the chemical dilution.
4. Immerse chemical suction tube into the chemical container.
 - **IF using a ready-to use (pre-diluted) chemical, place all three tubes in the solution.**

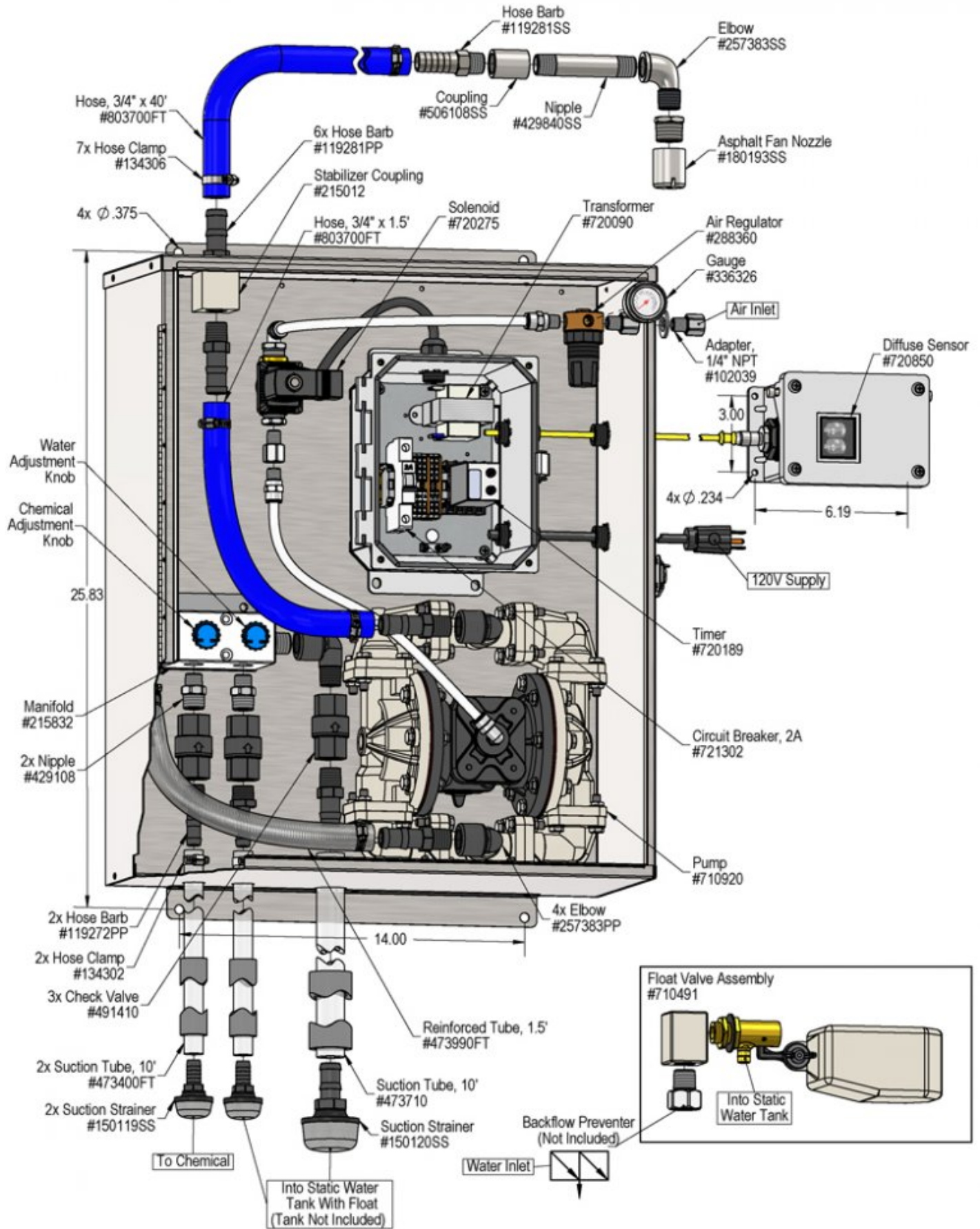
How to Set Your Dilution Ratio:

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

Once adjustments have been made to timers and chemical dilution:

1. Drive the first truck through and make any last adjustments as needed.
2. The unit is ready for operation.



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) Chemical is ineffective (asphalt continues to stick to truck)	6, 8	

Possible Cause / Solution	
Startup	Maintenance
<ol style="list-style-type: none"> 1. Problem with air pump <ul style="list-style-type: none"> • Refer to pump manual. 2. Use of an oiler in the airline will cause pump to stall <ul style="list-style-type: none"> • Use only clean, dry air. 3. Inadequate air supply <ul style="list-style-type: none"> • Adjust air regulator slowly clockwise. 4. Water knob not adequately opened <ul style="list-style-type: none"> • Turn water knob counterclockwise. 5. Water tube(s) not immersed in water or water depleted <ul style="list-style-type: none"> • Immerse tube(s) or replenish. 6. Chemical knob not adequately opened <ul style="list-style-type: none"> • Turn chemical knob counterclockwise. 7. Chemical tube not immersed in chemical or chemical depleted or stretched out. <ul style="list-style-type: none"> • Immerse tube or replenish. • Cut off 1/2" of pick up tube and reconnect 8. Improper chemical <ul style="list-style-type: none"> • Ensure product is recommended for the application. 9. Discharge hose wrong size or kinked (SEE REQUIREMENTS) 10. Sensor set or positioned improperly, or sensor failed <ul style="list-style-type: none"> • Adjust sensor • Replace sensor 11. Timer not set properly or malfunctioned <ul style="list-style-type: none"> • See Timer Adjustment on page 2 or replace timer. 12. May have electrical problems <ul style="list-style-type: none"> • Have a qualified electrician check electrical connections. Ensure circuit breaker (5 amp) has not been tripped. • Make sure radar sensor is functioning properly. 	<ol style="list-style-type: none"> 13. Chemical check valve stuck or failed <ul style="list-style-type: none"> • Clean or replace. 14. Chemical strainer blocked <ul style="list-style-type: none"> • 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) <ul style="list-style-type: none"> • Cut off end of tube or replace tube. 16. Vacuum leak in chemical pick-up connections <ul style="list-style-type: none"> • Tighten the connections. 17. Water check valve stuck or failed <ul style="list-style-type: none"> • Clean or replace. 18. Water strainers blocked <ul style="list-style-type: none"> • 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) <ul style="list-style-type: none"> • Cut off end of tube or replace tube. 20. Air regulator failed allowing too much air or not enough air <ul style="list-style-type: none"> • Clean or replace. 21. Air solenoid clogged or failed <ul style="list-style-type: none"> • 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.

