

# Lafferty Equipment Manufacturing, LLC Installation & Operation Instructions

## Model # 910065 · WPS Single Foam Stick System

### REQUIREMENTS

Chemical Concentrate OR Ready-to-Use Chemical Solution

Water to Fill Tank (If Diluting Concentrate)

Compressed Air up to 4 CFM

Liquid Tubing - Pump to Tee 1/2" I.D.

Liquid Tubing - Tee to Foam Sticks 3/8" I.D.

Tubing From Air Supply 1/4" I.D.

### OPTIONS

Alternate Check Valve (Viton Standard)

TL Check Valve, PVC / EPDM, 3/8"

# 491456-E



[www.laffertyequipment.com](http://www.laffertyequipment.com)

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

### OVERVIEW

The WPS Single Foam Stick System is a foam applicator designed for car-wash pre-soak, brush lubrication or to apply any foaming product. This system uses a rugged, air-operated, double-diaphragm Warren-Rupp pump to either draw ready-to-use chemical or to draw water and chemical concentrate from static tanks and accurately blend them using precision metering tips. Thick, rich, clinging foam is created by injecting compressed air into the solution to greatly expand volume and coverage ability. The foam is then projected through the pair of 6 foot foam sticks. A fixed flow rate allows just one air valve to easily adjust foam quality for both sticks. Great for retrofitting and for new installations.

SAFETY & OPERATIONAL PRECAUTIONS

- 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.

TO INSTALL (REFER TO DIAGRAM ON NEXT PAGE)

1. Remove the tube lock check valves from the enclosed bag and install as shown in the drawing.
2. Mount each of the foam sticks to a suitable surface. They should be mounted so that the last hole (in the cap) hits the bottom of the vehicle. The stick sets should be "mirror-images" of each other once mounted.
3. Run 1/2" I.D. chemical tubing from the "solution pumping source" to the middle of the arch and connect with a tubing tee (not included). From there step down to 3/8" I.D. tubing and connect to the solution check valve. The tubes must be the same length for the best performance.
4. Run 1/4" air tubing from your compressed air supply and push connect it to the 1/4" tube lock of the supplied tee. Run the supplied 5/32" tubing to each stick.
  - **If pre-diluted chemical is being used immerse both pick up tubes in solution and skip to: To Operate**
  - **To set the chemical dilution ratio for mixing on the fly, thread one of the color coded metering tips into one chemical check valve. See chemical labels for dilution ratio recommendation or consult your chemical supplier.** (See tip selection chart)
  - For the strongest dilution ratio, do NOT install a colored metering tip or in some cases you will install a tip in the water side if strong dilution ratios are required.
  - The dilution ratios in the metering tip chart are based on water thin chemicals with a viscosity of 1CPS.
  - Thicker chemicals **will** require a larger tip than the ratios shown in the chart.
  - Select and thread the tip color that is closest to your desired chemical strength into the tip holder as a starting place. Start out with a larger tip than you think you will need to make sure you have enough chemical to foam.
  - Application results and foam texture and cleaning results will ultimately determine final tip color.
  - Once metering tip is installed, push the chemical tube over the check valve barb and place the strainer in the chemical concentrate.
  - Push the second tube on the other check valve barb and place the strainer in a static tank of water. Do NOT pressurize the tube.

TO OPERATE

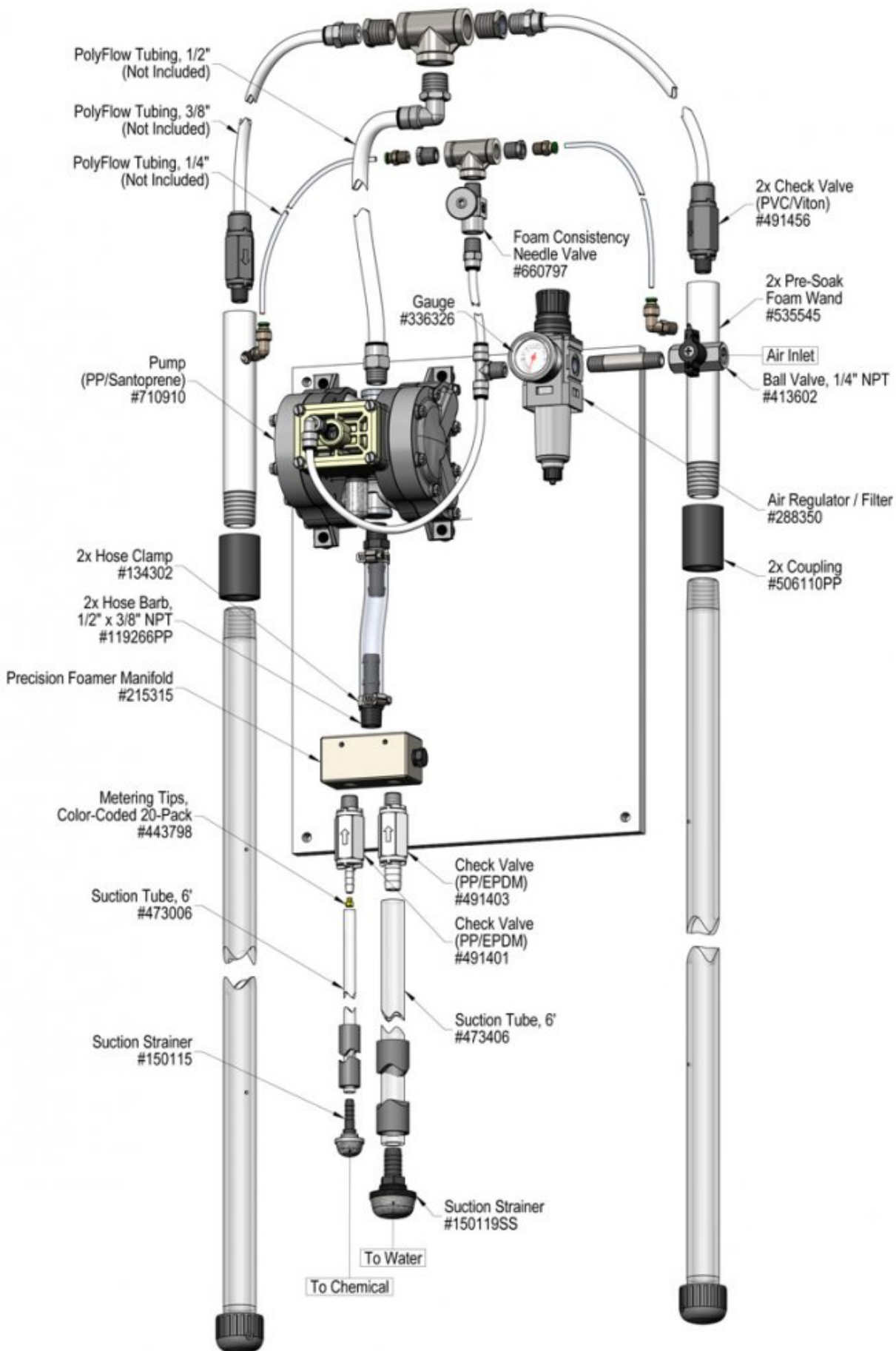
1. Turn the needle valve knob on the splitter completely clockwise, then open it 1/2 turn counterclockwise.
2. Activate the air pressure. Wait a few seconds to purge the air out of the solution tube and for the solution to get to the foamers.
3. If the foam isn't acceptable turn the needle valve *slightly* counterclockwise for dryer foam and *slightly* clockwise for wetter foam. If the needle valve is open too much, the foam will be pushed past the first holes. If this happens, turn the needle valve slightly clockwise until all the holes are foaming. Once the sticks are foaming properly, no further adjustment should be needed. You are ready for operation.

METERING TIP SELECTION

METERING TIP COLOR	OZ/MIN	DILUTION RATIO @ 40 PSI
Brown	0.56	187:1
Clear	0.88	119:1
Bright Purple	1.38	76:1
White	2.15	49:1
Pink	2.93	36:1
Corn Yellow	3.84	27:1
Dark Green	4.88	22:1
Orange	5.77	18:1
Gray	6.01	17:1
Light Green	7.01	15:1
Med. Green	8.06	13:1
Clear Pink	9.43	11:1
Yellow Green	11.50	9:1
Burgundy	11.93	9:1
Pale Pink	13.87	8:1
Light Blue	15.14	7:1
Dark Purple	17.88	—
Navy Blue	25.36	—
Clear Aqua	28.60	—
Black	50.00	—
No Tip Ratio Up To:		6:1
The dilution ratios above are approximate values. Due to chemical viscosity, actual dilution ratios may vary.		
FORMULA		
<b>GPM × 128 ÷ Desired Dilution Ratio = oz/min</b> <ul style="list-style-type: none"> <li>• See Unit Flow Rates chart for GPM</li> <li>• Use 20 for 20:1 dilution ratio, 30 for 30:1, etc.</li> <li>• Match calculated ounces per minute (oz/min) to nearest oz/min in Metering Tip Selection chart.</li> </ul>		

UNIT FLOW RATES

PSI	GPM
60	1.00



## Troubleshooting Guide

Problem	Possible Cause / Solution	
	Startup	Maintenance
A) Foam surges or sputters.	1, 2, 3, 4, 5	6, 7, 8
B) Foam too dry.	1	
C) Foam too wet.	1, 3, 4, 5	6
D) Solution drips after shutting down.		6

Possible Cause / Solution	
Startup	Maintenance
<b>1. Air volume too high or too low</b> <ul style="list-style-type: none"> <li>Adjust the needle valve very slightly counterclockwise for dryer and clockwise for wetter. VERY little air is needed, if the top hole is sputtering you have too much air on them, turn needle valve knob slightly clockwise until all holes produce foam.</li> </ul>	<b>6. Solution Chemical check valve stuck or failed.</b> <ul style="list-style-type: none"> <li>Clean or replace.</li> </ul>
<b>2. Use of an oiler in the airline will cause poor foam quality</b> <ul style="list-style-type: none"> <li>Use only clean, dry air.</li> </ul>	<b>7. Leak in air or solution connections.</b> <ul style="list-style-type: none"> <li>Tighten the connection or cut off 1/2" of tube and reconnect.</li> </ul>
<b>3. Solution Pressure too Low</b> <ul style="list-style-type: none"> <li>Must be 40 PSI <u>minimum</u>. 60 PSI maximum</li> </ul>	<b>8. Needle valve clogged not allowing enough air</b> <ul style="list-style-type: none"> <li>Clean or replace.</li> </ul>
<b>4. Not enough chemical.</b> <ul style="list-style-type: none"> <li>Increase concentration.</li> </ul>	<b>9. Chemical build-up may have formed in the foamer causing low flow</b> <ul style="list-style-type: none"> <li>When there is no flow at all, carefully remove fittings and soak entire foam wand in descaling solution. Or replace.</li> </ul>
<b>5. Discharge tubes kinked or wrong size.</b> <ul style="list-style-type: none"> <li>Straighten the tubes or replace with correct size.</li> </ul>	

**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.

