Lafferty Equipment Manufacturing, LLC
Installation & Operation Instructions

Model # 910109 · APV Tire/Skirt Foamer System

REQUIREMENTS

Air Pressure	80 PSI Minimum
Flow Rate	up to 1.25 GPM
Compressed Air	up to 5 CFM
Liquid Tubing - Pump to Tee	1/2" I.D.
Liquid Tubing - Tee to Foamers	3/8" I.D.
Air Tubing to Foamers	1/4" I.D

OPTIONS

Air and Chemical Tubing (Order in 10' Increments)	
Air, Polyflow, 1/4" x 1'	# 475200FT
Solution, Pump to Tee, Polyflow, 1/2" x 1'	# 475400FT
Solution, Tee to Foamer, Polyflow, 3/8" x 1'	# 475300FT
Alternate Seal Materials - Santoprene Standard	
Viton Upgrade: Flojet Air Pump & Check Valves	# 710756
Kalrez Upgrade: Flojet Air Pump & Check Valves	# 710755
Alternate Chemical Check Valve - EPDM Standard	
Check Valve, Chemical, PP, 1/4" (Viton)	# 491402

(The pump panel and foamers are not to scale.)

Lafferty EQUIPMENT MANUFACTURING LLC

CFS TECHNOLOGIES

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WARNING! READ ALL INSTRUCTIONS BEFORE USING EQUIPMENT!

OVERVIEW

The APV Tire/Skirt Foamer System is a carwash foam applicator for applying foaming chemicals to vehicle tires, wheel skirts and undercarriages. An air-operated, double-diaphragm FloJet air pump draws ready-to-use chemical from one static tank, or blends water and chemical concentrate on the fly from two static tanks using precision metering tips. Rich, clinging foam is created by injecting compressed air into the solution to greatly increase volume and coverage ability. The foam is then projected through 2 adjustable nozzles to each side of the vehicle.

RELATED PART NUMBER 910105 DOES NOT INCLUDE THE PUMP PANEL (FOAMER NOZZLES AND AIR ADJUSTMENT NEEDLE VALVE ONLY)

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.
- Viton upgrade is available.

TO INSTALL (REFER TO DIAGRAM ON NEXT PAGE)

System requirements that are NOT included: Compressed air, air solenoid, 1/2", 3/8" & 1/4" poly tubing

The unit has been tested and air pressure preset at 80 PSI. Test "as is" before adjusting air pressure. Do not exceed 90 PSI.

- On the initial set up, use more chemical than is needed. This will ensure you have enough chemical to foam and make it easier to adjust the first time. Then go to normal concentrations.

1. Mount the wall unit above chemical and water containers.
2. Mount the two foamers in the bay on either side in a safe location within 3-4' of the surface to be foamed.
3. Push connect 1/4" tubing to the air discharge fitting and run it out to the bay and connect to the "splitter". Then run tubing out to each foamer. At this time, turn the needle valve knob completely clockwise to close it, then open approximately 1/3rd turn, counterclockwise.Once the system is turned on, you will finalize this adjustment. After all adjustments are made hold the knob in place and tighten the jam nut below the knob to keep it in place.
4. Push connect 1/2" tubing to the solution discharge fitting, run it out to the bay and connect to the "splitter". Then run 3/8" tubing to each foamer. For best performance install the splitter in the center of the bay, making the 3/8" tubing going to the foamers the same length.

- **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. Make sure the "foam consistency" needle valve knob on the splitter is only open approximately 1/3rd of a turn counterclockwise.
2. Activate the air pressure to the pump and wait a few seconds for the air to purge out of the solution tube and for the solution to get to the foamers.
3. Wait several seconds for the foam to stabilize. Turn the "foam consistency" needle valve *slightly* counterclockwise for dryer foam and *slightly* clockwise for wetter foam. If the needle valve is open too much, the foam will surge. If this happens, turn the needle valve slightly clockwise until foaming is smooth.
4. Adjust the nozzles up or down as needed for complete coverage.
5. Once the air setting and nozzles are adjusted properly, no further adjustment should be needed.
6. You are ready for operation.

METERING TIP SELECTION

METERING TIP COLOR	OZ/MIN	DILUTION RATIO @ 80 PSI
Brown	0.56	286:1
Clear	0.88	182:1
Bright Purple	1.38	116:1
White	2.15	74:1
Pink	2.93	55:1
Corn Yellow	3.84	42:1
Dark Green	4.88	33:1
Orange	5.77	28:1
Gray	6.01	27:1
Light Green	7.01	23:1
Med. Green	8.06	20:1
Clear Pink	9.43	17:1
Yellow Green	11.50	14:1
Burgundy	11.93	13:1
Pale Pink	13.87	12:1
Light Blue	15.14	11:1
Dark Purple	17.88	9:1
Navy Blue	25.36	6:1
Clear Aqua	28.60	6:1
Black	50.00	3:1
No Tip Ratio Up To:		-

The dilution ratios above are approximate values. Due to chemical viscosity, actual dilution ratios may vary.

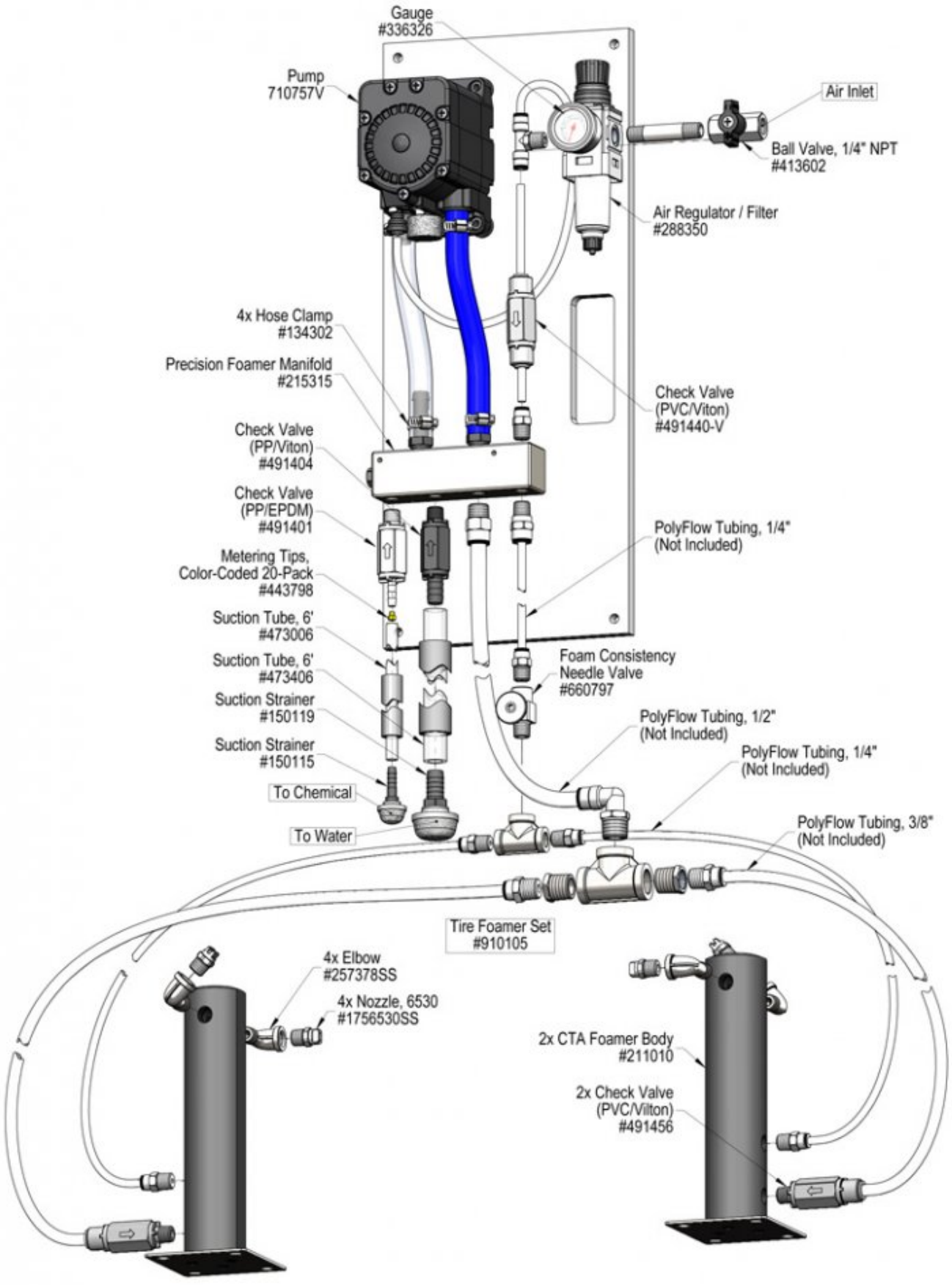
FORMULA

GPM × 128 ÷ Desired Dilution Ratio = oz/min

- *See Unit Flow Rates chart for GPM*
- *Use 20 for 20:1 dilution ratio, 30 for 30:1, etc.*
- *Match calculated ounces per minute (oz/min) to nearest oz/min in Metering Tip Selection chart.*

UNIT FLOW RATES

PSI	GPM
80	1.25


Gauge
#336326
Pump
710757V
Air Inlet
Ball Valve, 1/4" NPT
#413602
Air Regulator / Filter
#288350
4x Hose Clamp
#134302
Precision Foamer Manifold
#215315
Check Valve
(PVC/Viton)
#491440-V
Check Valve
(PP/Viton)
#491404
Check Valve
(PP/EPDM)
#491401
PolyFlow Tubing, 1/4"
(Not Included)
Metering Tips,
Color-Coded 20-Pack
#443798
Suction Tube, 6'
#473006
Suction Tube, 6'
#473406
Foam Consistency
Needle Valve
#660797
Suction Strainer
#150119
PolyFlow Tubing, 1/2"
(Not Included)
Suction Strainer
#150115
PolyFlow Tubing, 1/4"
(Not Included)
To Chemical
To Water
PolyFlow Tubing, 3/8"
(Not Included)
Tire Foamer Set
#910105
4x Elbow
#257378SS
4x Nozzle, 6530
#1756530SS
2x CTA Foamer Body
#211010
2x Check Valve
(PVC/Viton)
#491456

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, 9

Possible Cause / Solution

Startup

1. **Air volume too high or too low**
   - Adjust the needle valve very slightly counterclockwise for dryer and clockwise for wetter. VERY little air is needed, if the foam is sputtering you have too much air on them, turn needle valve knob slightly clockwise till the foam sprays consistently.
2. **Use of an oiler in the airline will cause poor foam quality**
   - Use only clean, dry air.
3. **Pump Air Pressure too Low**
   - Increase air pressure.
4. **Not enough chemical**
   - Increase concentration with larger metering tip or in the premixed solution.
5. **Discharge tubes kinked or wrong size.**
   - Straighten the tubes or replace with correct size.

Maintenance

6. **Solution check valve stuck or failed**
   - Clean or replace.
7. **Leak in air or solution connections**
   - Tighten the connection or cut off 1/2" of tube and reconnect.
8. **Needle valve clogged not allowing enough air**
   - Clean or replace.
9. **Chemical build-up may have formed in the foamer body causing low flow**
   - When there is no flow at all, carefully remove fittings and soak entire foam body in descaling solution. 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.