Lafferty Equipment Manufacturing, LLC
Installation & Operation Instructions

Model # 913119 · W-20 Spray / LV Foam Hose Drop Station

REQUIREMENTS

Chemical Concentrate	
Water	
Temperature	up to 160°F
Pressure	35 to 125 PSI
Flow	0.80 GPM @ 40 PSI
Supply Line	1/2"
Compressed Air	up to 1.25 CFM
Hose	
Spray	1/2" ID x 50'
Foam	3/4" ID x 50'
Nozzle	
Spray	2520
Foam	80150

OPTIONS

Stainless Steel Hose Racks	
Large Stainless Steel Hose Rack	# 224150
Stainless Steel Jug Racks	
Jug Rack, SS, 1 Gallon, Round/Square	# 224200
Jug Rack, SS, 2 1/2 Gallon	# 224210
Jug Rack, SS, 5 Gallon, Round/Square	# 224215
Safe Flow Lid™ for 1 Gallon Jugs	
Lid, Suction Tube, and Strainer	# 709101
Alternate Check Valves - EPDM Standard	
Check Valve, Chemical, PP/Viton, 1/4"	# 491315
Check Valve, Air, SS/Viton, 1/4"	# 491306
Stainless Steel Foam Wand (Upgrade)	
Convert PP Wand to SS (New Units)	# 536603-X

WEIGHT & DIMENSIONS

Single Package	
Shipping Weight	45 lbs.
Shipping Dimensions	28" x 28" x 8"



Spray and foam wands shown at smaller scale than the unit

Lafferty® EQUIPMENT MANUFACTURING LLC

CFS TECHNOLOGIES

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WARNING! READ ALL INSTRUCTIONS BEFORE USING EQUIPMENT!

OVERVIEW

The W-20 Spray / LV Foam Hose Drop Station is a combination low volume applicator for applying one chemical as foam and another as a chemical spray. This venturi injection system uses standard city water pressure (35 - 125 PSI) to draw and blend chemical concentrates into the water streams to create accurately diluted solutions using precision metering tips to control chemical usage. Rich, clinging foam is created by injecting compressed air into the foaming solution to greatly increase volume and coverage ability. The foam is then projected through the discharge hose and fan nozzle at distances up to 9 feet. Use the spray function to project a chemical spray in a fan pattern. With a flow rate of under 1 GPM, this unit is great for foaming and spraying virtually any sized area or object slowly and completely.

SAFETY & OPERATIONAL PRECAUTIONS

- **When connecting to a potable water supply follow all local codes for backflow prevention.**
- **WARNING: Severe damage to your facility, or contamination of your potable water supply, can occur without proper backflow prevention.**
- 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 safety goggles when working with chemicals.
- Always direct the discharge away from people and electrical devices.
- For pressures over 100 PSI, remove the discharge valve or lower pressure.
- Never leave inlet ball valves on when unit is not in use.
- Follow the chemical manufacturer's safe handling instructions.
- NEVER mix chemicals without first consulting chemical manufacturer.

TO INSTALL (REFER TO DIAGRAM ON NEXT PAGE)

1. Mount the unit to a suitable surface above the chemical supply to prevent siphoning.
2. Connect the discharge hoses as shown in the diagram and close the inlet ball valves.
3. Flush any new plumbing of debris.
4. Connect water supply.
5. Connect compressed air supply. If piping is older and has known contaminants, install a filter.

Set the chemical dilution ratio by threading one of the color coded metering tips into each chemical check valve. See chemical labels for dilution ratio recommendation or consult your chemical supplier.

- For the strongest dilution ratio do NOT install a colored metering tip.
- 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.
- Application results will ultimately determine final tip color.
- Select the tip color that is closest to your desired chemical strength and thread it into the tip holder. **DO NOT OVER-TIGHTEN.**
- Push the chemical tube over the check valve barb and place the suction tube in the chemical concentrate.
- If necessary, cut suction tube(s) to length before attaching suction strainer.

TO OPERATE

Always make sure the discharge is closed or pointed in a safe direction before turning water on. Discharge can be shut off at any time during operation but should not be left unattended for long periods of time. Expect a strong blast when re-opening the discharge ball valve or trigger gun.

TO FOAM

1. Make final metering tip adjustments based on application results.
2. With wand in hand open the water ball valve, and the air ball valve.
3. Open the discharge ball valve.
    - Wait a few seconds and observe foam consistency.
    - Use the least amount of air needed to achieve good foam quality to prevent water pressure fluctuations from affecting performance. Air pressure must be kept lower than water pressure.
    - To adjust the foam consistency pull out on the air regulator knob, turn slightly clockwise for dryer foam and counterclockwise for wetter foam. Wait a few seconds to see each adjustment.
    - Medium wet foam will give the best cleaning results! Dry foam will NOT clean as well!
    - You may also have to try different sized metering tips and air settings until foam consistency and cleaning results are acceptable. Once this is set and desired foam consistency is achieved push lock the knob on the air regulator. You are ready to start application.
4. When foaming is completed, close the discharge ball valve, return to the unit and close the water and air ball valves. Briefly re-open the discharge ball valve to relieve pressure in the hose.
5. Rinse before the foam dries (if necessary).

TO SANITIZE

1. With spray wand in hand and the discharge ball valve closed open the inlet ball valve.
2. Open the discharge ball valve to begin application.
3. Make final metering tip adjustments based on application results.
4. When application is completed, close the discharge ball valve then close the inlet ball valve.
5. Briefly re-open the discharge ball valve to relieve pressure in hose. If applicable rinse the work surface before solution dries.

METERING TIP SELECTION

METERING TIP COLOR	OZ/MIN	DILUTION RATIO @ 40 PSI	
		SPRAY	FOAM
Brown	0.56	183:1	149:1
Clear	0.88	116:1	95:1
Bright Purple	1.38	74:1	60:1
White	2.15	48:1	39:1
Pink	2.93	35:1	28:1
Corn Yellow	3.84	27:1	22:1
Dark Green	4.88	21:1	17:1
Orange	5.77	18:1	14:1
Gray	6.01	17:1	14:1
Light Green	7.01	15:1	12:1
Med. Green	8.06	13:1	10:1
Clear Pink	9.43	11:1	9:1
Yellow Green	11.50	9:1	7:1
Burgundy	11.93	9:1	7:1
Pale Pink	13.87	7:1	6:1
Light Blue	15.14	7:1	5:1
Dark Purple	17.88	—	—
Navy Blue	25.36	—	—
Clear Aqua	28.60	—	—
Black	50.00	—	—
No Tip Ratio Up To:		6:1	5:1

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

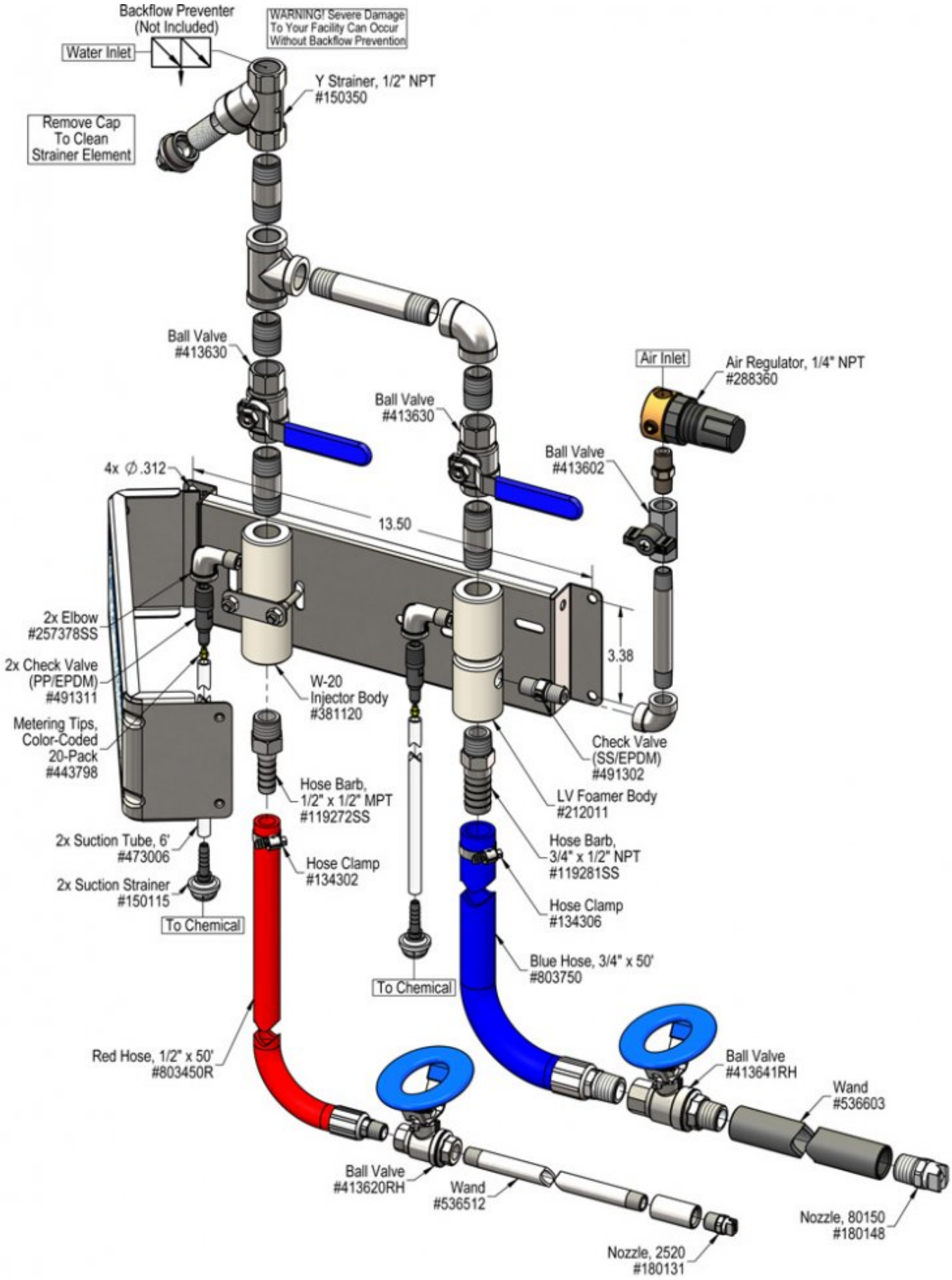
FORMULA

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	
	SPRAY	FOAM
35	0.75	0.61
40	0.80	0.65
50	0.89	0.73
60	0.98	0.80
70	1.06	0.86
80	1.13	0.92
90	1.20	0.98
100	1.26	1.03
110	1.33	1.08
120	1.39	1.13
125	1.41	1.15


Backflow Preventer
(Not Included)
WARNING! Severe Damage To Your Facility Can Occur Without Backflow Prevention
Water Inlet
Y Strainer, 1/2" NPT
#150350
Remove Cap To Clean Strainer Element
Ball Valve
#413630
Ball Valve
#413630
Air Inlet
Air Regulator, 1/4" NPT
#288360
Ball Valve
#413602
4x ∅.312
13.50
3.38
2x Elbow
#257378SS
2x Check Valve
(PP/EPDM)
#491311
Metering Tips,
Color-Coded
20-Pack
#443798
W-20
Injector Body
#381120
Check Valve
(SS/EPDM)
#491302
LV Foamer Body
#212011
Hose Barb,
1/2" x 1/2" MPT
#119272SS
2x Suction Tube, 6'
#473006
2x Suction Strainer
#150115
Hose Clamp
#134302
To Chemical
Hose Barb,
3/4" x 1/2" NPT
#119281SS
Hose Clamp
#134306
Blue Hose, 3/4" x 50'
#803750
To Chemical
Red Hose, 1/2" x 50'
#803450R
Ball Valve
#413641RH
Wand
#536603
Ball Valve
#413620RH
Wand
#536512
Nozzle, 80150
#180148
Nozzle, 2520
#180131

Troubleshooting Guide

Problem	Possible Cause / Solution	
	Startup	Maintenance
A) Foam surges and/or hose "bucks".	1, 2, 3, 4, 6, 7, 8, 9, 10	12, 13, 14, 15, 16, 18, 19
B) Foamer will not draw chemical.	1, 3, 4, 7, 8, 9, 10	12, 13, 14, 15, 16, 18, 19
C) Foam too wet.	2, 3, 4, 6, 7, 8, 9, 10	13, 14, 15, 16, 18, 19
D) Foam does not clean properly.	1, 4, 6, 11	
E) Using too much chemical.	5	
F) Water / Chemical backing up into air line.		17
G) Water backing up into chemical container.		12
H) Air or chemical solution backing up into water line.		20

Problem	Possible Cause / Solution	
	Startup	Maintenance
A) Sanitizer will not draw chemical.	3, 7, 8, 9, 10	12, 13, 14, 15, 18, 19
B) Dilution is too strong.	5	
C) Dilution is too weak.	4	
D) Water backing up into chemical container.		18

Possible Cause / Solution

Startup

1. **Air pressure too high**
   - Adjust the air regulator slowly counterclockwise until output stabilizes.
2. **Use of an oiler in the airline will cause poor foam quality**
   - Use only clean, dry air.
3. **Inlet and/or discharge ball valves not completely open**
   - Completely open the inlet and (if applicable) discharge ball valves.
4. **Not enough chemical - metering tip too small**
   - Install larger metering tip.
5. **No metering tip installed or metering tip too large**
   - Install smaller metering tip.
6. **Improper chemical**
   - Ensure product is recommended for foaming and the application.
7. **Chemical tube not immersed in chemical or depleted**
   - Immerse tube or replenish.
8. **Discharge hose too long or wrong size or kinked**
   - Straighten the hose or replace hose with correct size and length.
9. **Nozzle size too small**
   - Replace nozzle with correct size.
10. **Water pressure or water volume too low/inlet piping too small causing poor chemical pick up**
    - Increase water pressure or water volume.
11. **Soil has hardened on surface, rinse foam before it dries**
    - Reapplication may be necessary.

Maintenance

12. **Water strainer element clogged or inlet orifice clogged**
    - Clean or replace strainer element; check/clean inlet orifice for obstructions. DO NOT DRILL OUT.
13. **Chemical strainer or metering tip partially blocked**
    - Clean or replace chemical strainer and/or metering tip.
14. **Chemical tube stretched out or pin hole/cut in tube**
    - Cut off end of tube or replace tube.
15. **Vacuum leak in chemical pick-up connections**
    - Tighten the connection.
16. **Air regulator failed**
    - Clean or replace.
17. **Air check valve failed**
    - Clean or replace.
18. **Chemical check valve stuck or failed**
    - Clean or replace.
19. **Hard water scale or chemical build-up may have formed in the body causing poor or no chemical pick-up**
    - Follow Preventive Maintenance instructions below, using hot water or descaling acid. When there is no draw at all, carefully remove fittings and soak entire body in descaling acid.
20. **No backflow preventer installed and/or inlet ball valve left on when not in use**
    - Install appropriate backflow preventer into water line.

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.