Lafferty Equipment Manufacturing, LLC
Installation & Operation Instructions

Model # 972012 · 2-Way Acid Spray-All

REQUIREMENTS

Chemical Concentrate

Water

Temperature	up to 160°F
Pressure	35 to 125 PSI
Flow	1.28 GPM @ 40 PSI
Supply Line	1/2"
Hose	1/2" ID x 50'
Nozzle	2550

OPTIONS

Stainless Steel Hose Racks

Large Stainless Steel Hose Rack	# 224150

Stainless Steel Jug Racks

2 ½ Gal. (8 ½" x 10 ½")	# 224210
5 Gallon (12" x 12") Round/Square	# 224215

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	18 lbs.
Shipping Dimensions	28" x 19" x 8"



Lafferty® EQUIPMENT MANUFACTURING LLC

CFS TECHNOLOGIES

www.laffertyequipment.com
501-851-2820

WARNING! READ ALL INSTRUCTIONS BEFORE USING EQUIPMENT!

OVERVIEW

The 2-Way Acid Spray-All is a water-driven, medium volume spray applicator for applying 2 highly corrosive chemicals such as those used to remove concrete and for aluminum brightening. This acid-resistant venturi injection system uses standard city water pressure (35 - 125 PSI) to draw and blend a high concentration of acid into the water stream to create a strong solution. The solution is then projected through the discharge hose, wand and fan nozzle as a low pressure, uniform spray. Use the chemical ball valves to inject the 2 chemicals separately or simultaneously.

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)

If you are connecting to a potable water supply follow all local codes for backflow prevention.

1. Mount the unit to a suitable surface above the chemical supply to prevent siphoning.
2. Connect hose(s) as shown in the diagram.
3. Flush any new plumbing of debris before connecting water.
4. Connect water supply. Install a water filter if water piping is older or has known contaminants.

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 ball valve is closed or pointed in a safe direction before turning water on. Ball valve can be shut off at any time during operation but should not be left unattended for long periods of time.

1. Open the inlet and one chemical ball valve then open the discharge ball valve to begin application.
2. When application is completed, close the discharge ball valve, return to the unit and close the inlet and the chemical ball valve.
3. If applying additional chemicals repeat step 1 & 2 for each.
4. When final application is complete close inlet ball valve, re-open then close the discharge ball valve to relieve pressure in hose. If applicable rinse the work surface before it dries.

METERING TIP SELECTION

METERING TIP COLOR	OZ/MIN	DILUTION RATIO @ 40 PSI
Brown	0.56	293:1
Clear	0.88	186:1
Bright Purple	1.38	119:1
White	2.15	76:1
Pink	2.93	56:1
Corn Yellow	3.84	43:1
Dark Green	4.88	34:1
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	14:1
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:		2.5:1

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

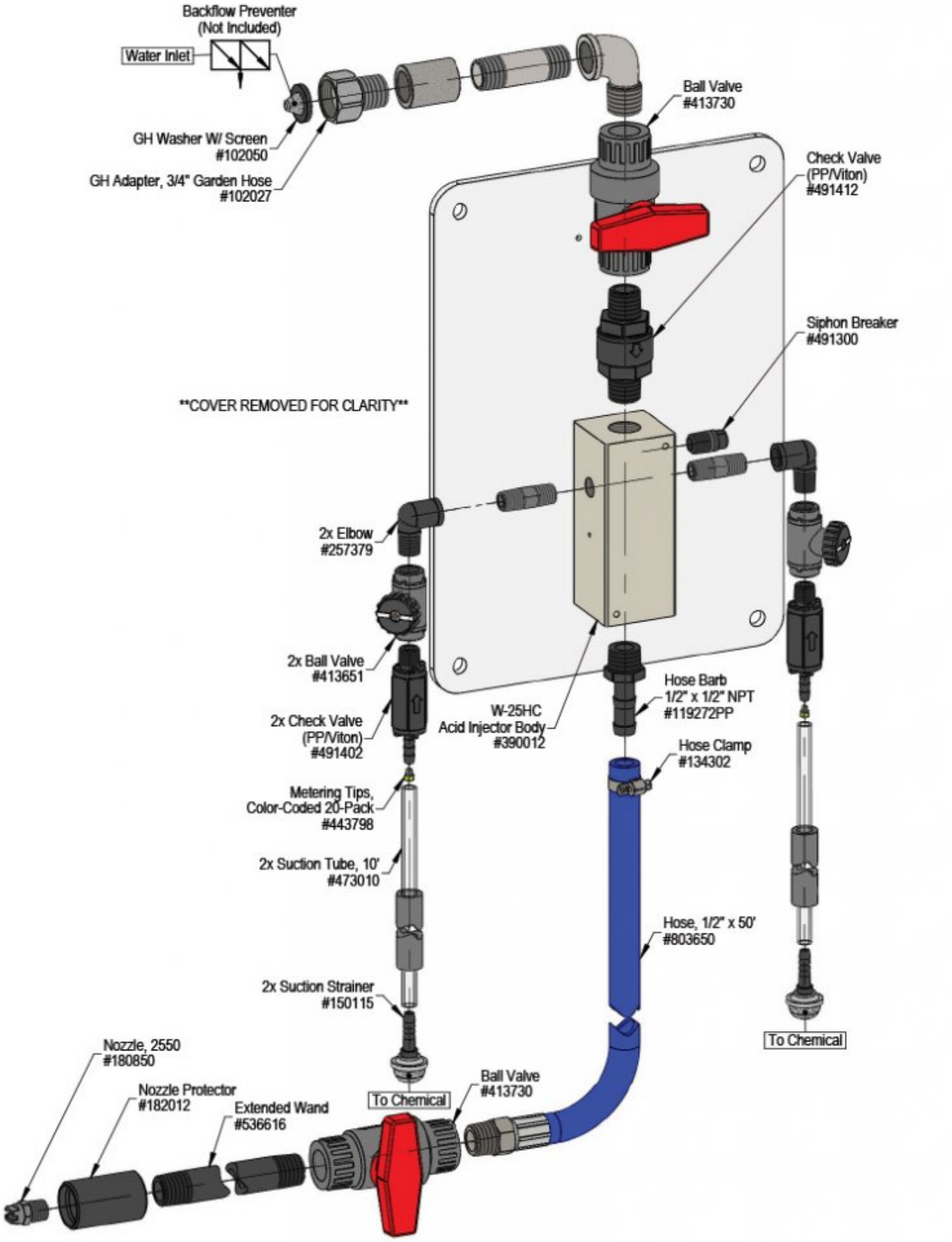
FORMULA

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
35	1.20
40	1.28
50	1.43
60	1.57
70	1.69
80	1.81
90	1.92
100	2.02
110	2.12
120	2.22
125	2.26


Backflow Preventer
(Not Included)
Water Inlet
GH Washer W/ Screen
#102050
GH Adapter, 3/4" Garden Hose
#102027
Ball Valve
#413730
Check Valve
(PP/Viton)
#491412
Siphon Breaker
#491300
COVER REMOVED FOR CLARITY
2x Elbow
#257379
2x Ball Valve
#413651
2x Check Valve
(PP/Viton)
#491402
W-25HC
Acid Injector Body
#390012
Hose Barb
1/2" x 1/2" NPT
#119272PP
Hose Clamp
#134302
Metering Tips,
Color-Coded 20-Pack
#443798
2x Suction Tube, 10'
#473010
Hose, 1/2" x 50'
#803650
2x Suction Strainer
#150115
To Chemical
Nozzle, 2550
#180850
Nozzle Protector
#182012
Extended Wand
#536616
To Chemical
Ball Valve
#413730

Troubleshooting Guide

Problem	Possible Cause / Solution	
	Startup	Maintenance
A) Unit will not draw chemical	1, 4, 5, 6, 7	8, 9, 10, 11, 12, 13, 14
B) Dilution too weak	2, 4, 5	8, 9, 10, 11, 12, 13, 14
C) Dilution too strong	3	14
D) Water backing up into chemical container		8

Possible Cause / Solution

Startup

1. **Inlet or discharge ball valves not completely open**
   - Completely open both ball valves.
2. **Not enough chemical - metering tip too small**
   - Install larger metering tip.
3. **No metering tip installed or metering tip too large**
   - Install smaller metering tip.
4. **Chemical tube not immersed in chemical or chemical depleted**
   - Immerse tube or replenish.
5. **Discharge hose too long for available water pressure, kinked or wrong size**
   - Straighten the hose or replace hose.
6. **Nozzle size too small (SEE REQUIREMENTS)**
7. **Water pressure or water volume too low/inlet piping too small causing poor chemical pick up**
   - Increase water pressure or water volume

Maintenance

8. **Chemical check valve stuck or failed**
   - Clean or replace.
9. **Chemical strainer or metering tip partially blocked**
   - Clean or replace chemical strainer and/or metering tip.
10. **Chemical tube stretched out or pin hole/cut in chemical tube**
    - Cut off end of tube or replace tube.
11. **Vacuum leak in chemical pick-up connections**
    - Tighten the connection.
12. **Water strainer clogged or missing/injector inlet orifice clogged**
    - Clean or replace strainer; check/clean inlet orifice for obstructions. DO NOT DRILL OUT.
13. **Hard water scale or chemical build-up may have formed in the injector body causing poor or no chemical pick-up**
    - Follow Preventive Maintenance instructions below, using hot water and/or de-scaling acid. When there is no draw at all, carefully remove fittings and soak entire injector body in de-scaling acid.
14. **More than one chemical ball valve is open**
    - 2-Way and 3-Way models only

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.