Lafferty Equipment Manufacturing, LLC
Installation & Operation Instructions

Model # 975297 · Portable WR-2 Foam / Rinse / Sanitize W/ SmartWand™

REQUIREMENTS

Chemical Concentrate

Water

Temperature	up to 160°F
Pressure	35 to 125 PSI
Flow	4.0 GPM @ 40 PSI
Supply Line	1/2"

Hose

Foam	1/2" ID x 50'
Rinse	1/2" ID x 50'
Sanitize	1/2" ID x 50'

Nozzle

Foam	SmartWand
Rinse	SmartWand
Sanitize	SmartWand

OPTIONS

5 Gallon Pail

Pail, 5 Gallon Round W/ Suction Stem	# 709105

Safe Flow Lid™ for 1 Gallon Jugs

Lid, Suction Tube, and Strainer	# 709101

Square Jug Rack Conversion

Specify Round or Square Jug Racks at time of order

Alternate Check Valve - EPDM Standard

Check Valve, Chemical, PP/Viton, 1/4"	# 491315

WEIGHT & DIMENSIONS

Single Package

Shipping Weight	64 lbs.
Shipping Dimensions	26" x 24" x 48"

Lafferty® EQUIPMENT MANUFACTURING LLC

CFS TECHNOLOGIES

www.laffertyequipment.com
501-851-2820

WARNING! READ ALL INSTRUCTIONS BEFORE USING EQUIPMENT!

OVERVIEW

The Portable WR-2 Foam/Rinse/Sanitize System is a combination medium volume airless foam/rinse/sanitizer applicator featuring the unique all-in-one SmartWand™. Featuring an all stainless steel cart assembly, this venturi injection system uses standard city water pressure (35 - 125 PSI) to draw and blend chemical concentrate into the water stream to create an accurately diluted solution. The foaming solution then flows through the discharge hose and the SmartWand™ which draws in atmospheric air to create and project wet, clinging foam on to any surface up close or at distances up to 6 feet. Simply open the appropriate ball valve and rotate the SmartWand™ to use the fan pattern spray setting to apply sanitizer or to rinse at full pressure.

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. Place a container of chemical concentrate in the jug rack(s).
2. Connect the hose(s) as shown in the diagram.
3. To prevent blocking the small water jets in the injector flush any new plumbing of debris before connecting water.
4. Connect water supply. If water piping is older or has known contaminants, install a water 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 inlet valve on. Discharge can be shut off at any time during operation but should not be left off for long periods of time with the inlet valve on.

OPEN ONLY ONE INLET WATER BALL VALVE AT A TIME

TO FOAM

1. Make sure all inlet and the discharge ball valves are closed.
2. Open the foam ball valve, rotate the SmartWand with the hole in the side of the SmartWand pointing upward and open the ball valve to begin foaming. (The SmartWand will now remain in foaming mode until the ball valve is closed)
3. When finished foaming, close the discharge ball valve then close the foam ball valve.

TO RINSE

1. Open rinse ball valve, rotate the SmartWand with the hole in the side pointing down. Open the discharge ball valve to rinse.
2. When finished rinsing close the discharge ball valve then close the rinse ball valve.
3. If this is the final rinse, briefly re-open the discharge ball valve to relieve pressure in hose.

TO SANITIZE

1. Open sanitize ball valve and rotate the SmartWand so that the hole in the side of it points down.
2. Open the discharge ball valve to sanitize. When sanitizing is finished, close the discharge and sanitize ball valves.
3. Briefly reopen the discharge ball valve to relieve pressure in the hose. Always close all ball valves after use.

METERING TIP SELECTION

METERING TIP COLOR	OZ/MIN	DILUTION RATIO @ 40 PSI		
		FOAM	RINSE	SANITIZE
Brown	0.56	306:1	—	457:1
Clear	0.88	195:1	—	291:1
Bright Purple	1.38	124:1	—	186:1
White	2.15	80:1	—	119:1
Pink	2.93	59:1	—	87:1
Corn Yellow	3.84	45:1	—	67:1
Dark Green	4.88	35:1	—	52:1
Orange	5.77	30:1	—	44:1
Gray	6.01	29:1	—	43:1
Light Green	7.01	24:1	—	37:1
Med. Green	8.06	21:1	—	32:1
Clear Pink	9.43	18:1	—	27:1
Yellow Green	11.50	15:1	—	22:1
Burgundy	11.93	14:1	—	21:1
Pale Pink	13.87	12:1	—	18:1
Light Blue	15.14	11:1	—	17:1
Dark Purple	17.88	10:1	—	14:1
Navy Blue	25.36	7:1	—	10:1
Clear Aqua	28.60	—	—	9:1
Black	50.00	—	—	—
No Tip Ratio Up To:		6:1	—	7:1

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

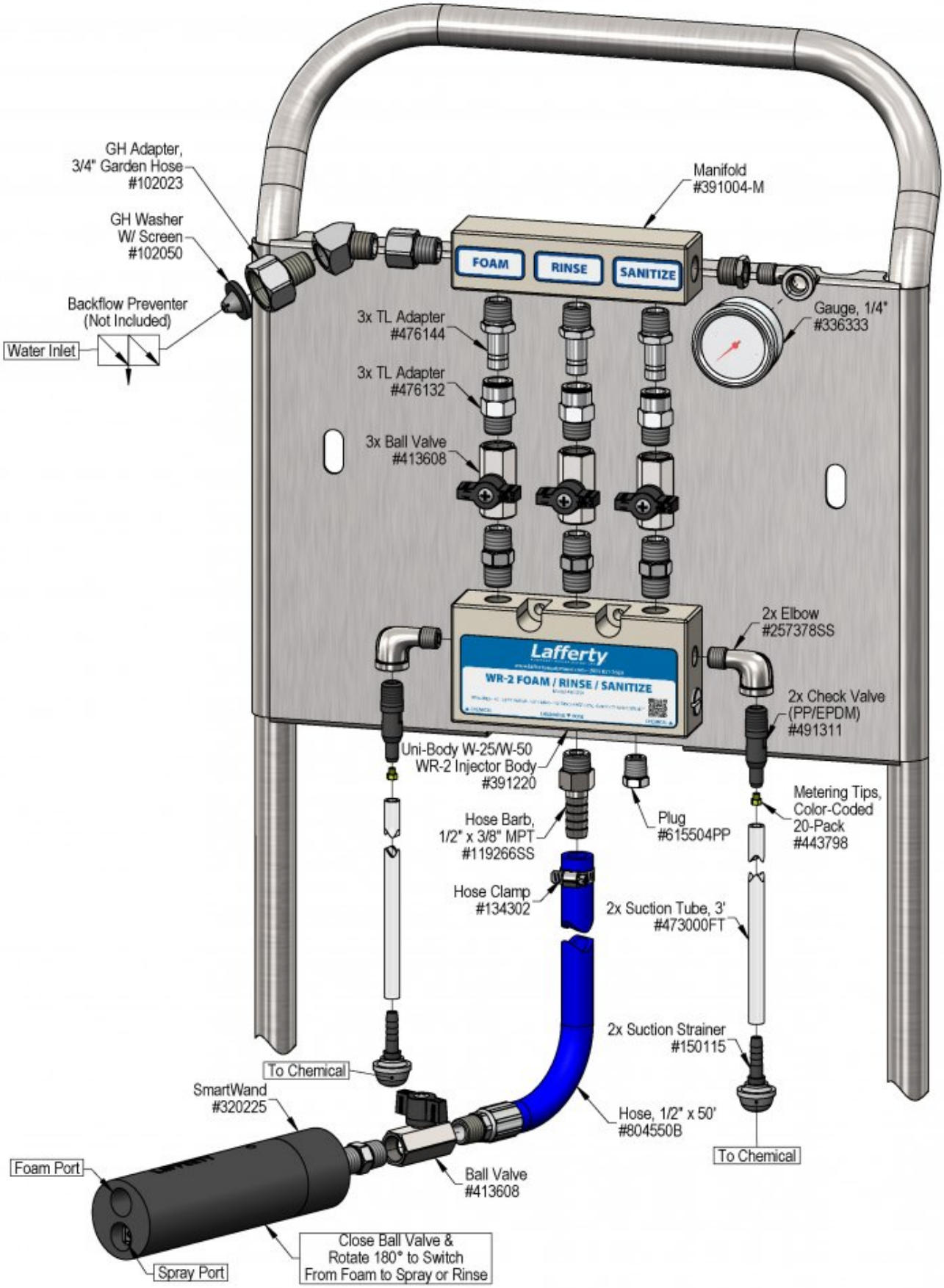
FORMULA

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		
	FOAM	RINSE	SANITIZE
35	1.25	3.74	1.87
40	1.34	4.00	2.00
50	1.50	4.47	2.24
60	1.64	4.90	2.45
70	1.77	5.29	2.65
80	1.90	5.66	2.83
90	2.01	6.00	3.00
100	2.12	6.32	3.16
110	2.22	6.63	3.32
120	2.32	6.93	3.46
125	2.37	7.07	3.54


GH Adapter, 3/4" Garden Hose #102023
GH Washer W/ Screen #102050
Backflow Preventer (Not Included)
Water Inlet
Manifold #391004-M
FOAM
RINSE
SANITIZE
Gauge, 1/4" #336333
3x TL Adapter #476144
3x TL Adapter #476132
3x Ball Valve #413608
Lafferty
WR-2 FOAM / RINSE / SANITIZE
2x Elbow #257378SS
2x Check Valve (PP/EPDM) #491311
Uni-Body W-25/W-50 WR-2 Injector Body #391220
Hose Barb, 1/2" x 3/8" MPT #119266SS
Plug #615504PP
Metering Tips, Color-Coded 20-Pack #443798
Hose Clamp #134302
2x Suction Tube, 3' #473000FT
2x Suction Strainer #150115
To Chemical
SmartWand #320225
Hose, 1/2" x 50' #804550B
To Chemical
Foam Port
Ball Valve #413608
Close Ball Valve & Rotate 180° to Switch From Foam to Spray or Rinse
Spray Port

Troubleshooting Guide

Problem	Possible Cause / Solution	
	Startup	Maintenance
A) Unit will not draw chemical.	1, 2, 3, 4, 5	9, 11, 12, 13, 14, 15, 16
B) Using too much chemical.	7	
C) Foam/spray does not clean / perform.	6, 8	12, 13, 14, 16
D) Water back flowing into chemical		9
E) Solution backing up into water line.		10
F) Smart Wand won't switch from foam to spray		17

Possible Cause / Solution

Startup

1. **1. Water pressure too low**
   - Increase water pressure (see requirements).
2. **Water ball valve or discharge ball valve not completely open**
   - Completely open the valves.
   - (2-Way units make sure one chemical ball valve is open)
3. **More than one inlet ball valve is open**
   - Open only one inlet ball valve at a time.
4. **Discharge too long or kinked**
   - Straighten hose.
5. **Chemical tube not immersed in chemical or chemical depleted**
   - Immerse or replenish chemical
6. **Improper chemical**
   - Ensure product is recommended for foaming and/or the application.
7. **Dilution too strong even with smallest metering tip**
   - Some weak dilutions at lower water pressures are impossible to achieve with a single metering tip. Pre-dilute your chemical until desired dilution ratio is achieved. Or order 491307-1/4" Inline Dual Metering Tip Holder.
8. **Dilution too weak**
   - Install larger metering tip.

Maintenance

9. **Chemical check valve stuck or clogged**
   - Clean or replace.
10. **No backflow preventer installed**
    - Install appropriate backflow preventer onto water line.
11. **SmartWand screen blocked**
    - Dried chemical build-up may be obstructing flow through the screen. Remove fittings and soak the entire SmartWand in de-scaling acid.
12. **Metering tip blocked**
    - Clean or replace metering tip.
13. **Chemical tube stretched out where tube slides over check valve or pin hole/cut in chemical tube (sucking air in)**
    - Cut off end of tube or replace tube.
14. **Vacuum leak in chemical pick-up connection**
    - Tighten the connection.
15. **Water inlet strainer screen clogged**
    - Clean screen or replace.
16. **Chemical build-up or scale may have formed in the body causing poor or no chemical pick-up**
    - Remove fittings and soak entire body in de-scaling acid. Replace fittings being careful not to cross thread or over tighten.
17. **Smart Wand jammed**
    - Tap the wand against a hard surface to dislodge internal ball. If that fails soak the wand in descaling solution.
    - Carefully remove the 2 screws in the end and remove the cap. Dislodge ball, make sure o-ring is in place and replace screws do not over tighten.

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.