Lafferty Equipment Manufacturing, LLC
Installation & Operation Instructions

Model # 975186 · Portable WR-1 Spray / Rinse W/ Pistol Grip Gun

REQUIREMENTS

Chemical Concentrate

Water

Temperature	up to 160°F
Pressure	35 to 125 PSI
Flow	4 GPM @ 40 PSI
Supply Line	1/2"

Hose

Spray	1/2" ID x 50'
Rinse	1/2" ID x 50'

Nozzle

Spray	2550
Rinse	2550

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

Lafferty EQUIPMENT MANUFACTURING LLC

CFS TECHNOLOGIES

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WARNING! READ ALL INSTRUCTIONS BEFORE USING EQUIPMENT!

OVERVIEW

The Portable WR-1 Spray/Rinse System is a combination medium volume chemical spray applicator featuring a rinse mode and 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 solution is then projected through the discharge hose, pistol grip gun and recessed fan nozzle as a uniform spray. Close the chemical ball valve and open the rinse valve 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 SPRAY

1. With pistol grip gun in hand and the discharge ball valve closed, open the spray ball valve.
2. Open the discharge ball valve to begin application.
3. Make final metering tip adjustments based on results.
4. When finished, close the discharge ball valve return to the unit and close the spray ball valve.
5. Briefly open discharge ball valve to relieve pressure in the hose.

TO RINSE

1. With pistol grip gun in hand and the discharge ball valve closed, open the rinse ball valve.
2. Open the discharge ball valve to begin application.
3. When finished, close the discharge ball valve, return to the unit and close the rinse ball valve.
4. Briefly open discharge ball valve to relieve pressure in the hose.

METERING TIP SELECTION

METERING TIP COLOR	OZ/MIN	DILUTION RATIO @ 40 PSI	
		SPRAY	RINSE
Brown	0.56	526:1	—
Clear	0.88	335:1	—
Bright Purple	1.38	213:1	—
White	2.15	137:1	—
Pink	2.93	100:1	—
Corn Yellow	3.84	77:1	—
Dark Green	4.88	60:1	—
Orange	5.77	51:1	—
Gray	6.01	49:1	—
Light Green	7.01	42:1	—
Med. Green	8.06	37:1	—
Clear Pink	9.43	31:1	—
Yellow Green	11.50	26:1	—
Burgundy	11.93	25:1	—
Pale Pink	13.87	21:1	—
Light Blue	15.14	19:1	—
Dark Purple	17.88	16:1	—
Navy Blue	25.36	12:1	—
Clear Aqua	28.60	10:1	—
Black	50.00	—	—
No Tip Ratio Up To:		7:1	—

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

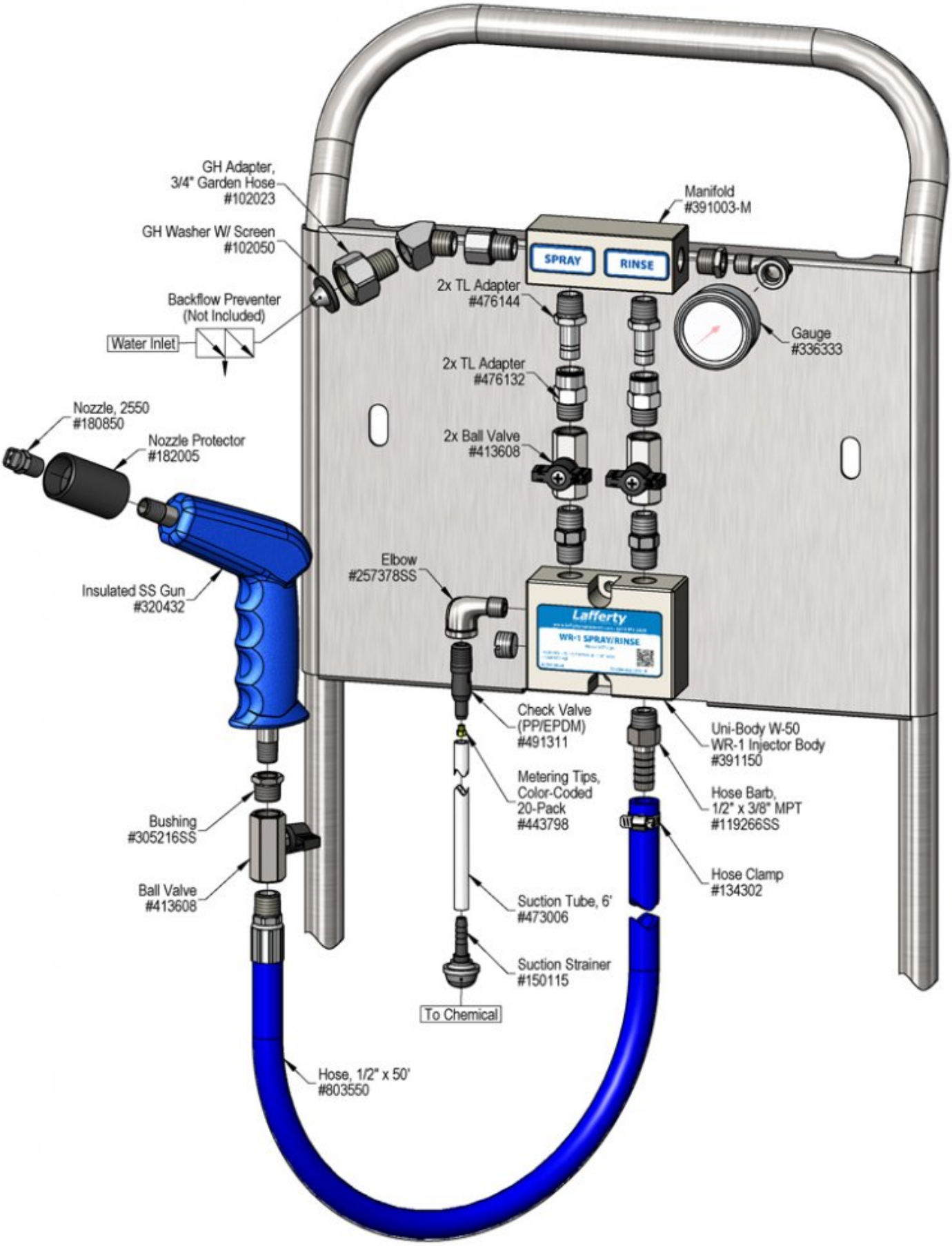
FORMULA

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	
	SPRAY	RINSE
35	2.15	3.74
40	2.30	4.00
50	2.57	4.47
60	2.82	4.90
70	3.04	5.29
80	3.25	5.66
90	3.45	6.00
100	3.64	6.32
110	3.81	6.63
120	3.98	6.93
125	4.07	7.07


GH Adapter, 3/4" Garden Hose #102023
GH Washer W/ Screen #102050
Backflow Preventer (Not Included)
Water Inlet
Nozzle, 2550 #180850
Nozzle Protector #182005
Insulated SS Gun #320432
Bushing #305216SS
Ball Valve #413608
Hose, 1/2" x 50' #803550
Manifold #391003-M
SPRAY
RINSE
2x TL Adapter #476144
2x TL Adapter #476132
2x Ball Valve #413608
Gauge #336333
Elbow #257378SS
Lafferty
WR-1 SPRAY/RINSE
Check Valve (PP/EPDM) #491311
Metering Tips, Color-Coded 20-Pack #443798
Suction Tube, 6' #473006
Suction Strainer #150115
To Chemical
Uni-Body W-50 WR-1 Injector Body #391150
Hose Barb, 1/2" x 3/8" MPT #119266SS
Hose Clamp #134302

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
B) Dilution too weak	2, 4, 5	8, 9, 10, 11, 12, 13
C) Dilution too strong	3	
D) Water backing up into chemical container		8

Possible Cause / Solution

Startup

1. **Inlet ball valve not completely open or both inlet valves are open**
   - Completely open one inlet and the discharge ball valve.
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 or wrong size or kinked**
   - 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 (see requirements)

Maintenance

8. **Discharge valve left closed with inlet valves open - chemical check valve stuck or failed**
   - Clean or replace check valve.
   - Close inlet ball valves when not in use.
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. **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.

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.