

# LAFFERTY EQUIPMENT MANUFACTURING, INC. Installation & Operation Instructions

## 315, 517 and 1035 Sanitizers Complete

### REQUIREMENTS

#### Water:

Supply line:

315.....1/2" I.D. minimum

517 & 1035 .....3/4" I.D. minimum

Temp. range.....Ambient to 160° F

Pressure range.....35 to 125 PSI

Flow range:

315 ..... 3.75 to 6.2 GPM

517 ..... 5.1 to 8.2 GPM

1035 ..... 9.7 to 12.3 GPM

#### Nozzle:

315 & 517..... size 40100

1035 ..... size 50250

#### Hose:

I.D. - 315 ..... 1/2"

- 517 & 1035..... 3/4"

Length ..... 50'

### OPTIONS

1/4" Inline Dual Metering Tip Holder...#491307

#### All Stainless Steel Accessories

- Hose Rack, Large .....# 224150
- Hose Rack, Small .....# 224145
- Jug Racks
  - 1 Gallon
    - Round .....# 224200
    - Square .....# 224205
  - 2 ½ Gallon (8 ½" x 10 ½").....# 224210
  - 5 Gallon (12" x 12").....# 224215

**READ ALL  
INSTRUCTIONS BEFORE  
USING EQUIPMENT!**



### Safety & Operation Notes

- **Manufacturer assumes no liability for the use or misuse of this unit.**
- **Backflow Prevention:** If you are connecting to a potable water supply, be sure to follow all local codes for backflow prevention.
- Wear protective clothing, gloves and eyewear when working with chemicals.
- Always direct the discharge away from people and electrical devices.
- Follow the chemical manufacturer's safe handling instructions.

Model # 973650 — 315



Model # 973750 — 517



Model # 973850 — 1035



[www.LaffertyEquipment.com](http://www.LaffertyEquipment.com)

501-851-2820

**Principles of Operation:** This is a venturi sanitizer that will siphon chemical concentrates from any sized container, providing up to 21 different dilution ratios. It requires enough water pressure and volume to meet the flow rate requirements.

**TO INSTALL** (Refer to diagram, next page.)

**Backflow prevention:** Follow all local codes for preventing backflow into the water supply before installing/operating equipment.

1. Mount the unit to a suitable surface above chemical supply to prevent siphoning.
2. Connect the hose as shown in the diagram.
3. Connect water supply. **DO NOT TURN ON**

To set the desired water to chemical dilution ratio you will have to select and install a metering tip into the chemical check valve.

To achieve some ratios you may need to order the optional Inline Dual Metering Tip Holder (see Options, page 1). The Inline Tip Holder can accept a metering tip at each end, as needed. It is best to have the chemical pass through the larger tip first and have the smallest tip last in line before the check valve. This will be in addition to a metering tip that is placed in the standard metering tip holder. The chemical tube will need to be cut and the Inline Tip Holder inserted like a connector between the two sections of tubing. Some experimentation may be needed to determine the exact combination of metering tips to achieve the desired dilution ratio.

For the strongest possible chemical dilution ratio, do not install a metering tip.

**How to Select the Correct Metering Tip** - See chemical label for dilution ratio recommendation or consult your chemical supplier.

- The dilution ratios provided in the *Metering Tip Selection Chart*, at right, are based on water-thin chemical.
  - Due to varying chemical viscosities, you may need to increase/decrease the metering tip size.
  - If you have water pressure other than the example, use the *Metering Tip Selection Formula*.
4. After metering tip is installed, push the chemical tube over the check valve and immerse the chemical strainer into your chemical concentrate.

**TO SANITIZE**

1. With the discharge ball valve closed, open the sanitize ball valve, and move to the area to be sanitized. Open the discharge ball valve and begin sanitizing.
2. When sanitizing is completed, close the discharge ball valve. Return to the unit and close the sanitize ball valve. Briefly re-open the discharge ball valve to relieve pressure in the hose.

Metering Tip Selection				
Metering Tip Color	Oz. per Min.	EXAMPLE: Dilution Ratio @ 40 PSI		
		315	517	1035
Brown	.84	610:1	777:1	1478:1
Clear	1.16	441:1	563:1	1070:1
Bright Purple	1.4	366:1	466:1	887:1
White	2.0	256:1	326:1	621:1
Pink	2.7	190:1	242:1	460:1
Corn Yellow	3.4	151:1	192:1	365:1
Dark Green	4.0	128:1	163:1	310:1
Orange	5.3	97:1	123:1	234:1
Gray	6.1	84:1	107:1	204:1
Light Green	7.0	73:1	93:1	177:1
Med. Green	8.5	60:1	77:1	146:1
Clear Pink	9.2	56:1	71:1	135:1
Yellow Green	11.2	46:1	58:1	111:1
Burgundy	12.5	41:1	52:1	99:1
Pale Pink	12.9	40:1	51:1	96:1
Light Blue	14.2	36:1	46:1	87:1
Dark Purple	17.6	29:1	37:1	71:1
Navy Blue	21.4	24:1	31:1	58:1
Clear Aqua	30.2	17:1	22:1	41:1
Black	40.4	13:1	16:1	31:1
No Tip	—	—	—	—

The dilution ratios provided above are approximate values. Your actual dilution ratio may be higher or lower due to variation in chemical viscosity.

Metering Tip Selection Formula	
(GPM x 128)	See chart below for GPM and convert to oz. per min.
÷	
Dilution Ratio	20:1, 30:1, etc.
=	
Oz. per Min.	Match to nearest number in chart above.

Water Flow Rate Chart			
Water Pressure	Water Flow Rate		
PSI	GPM		
	315	517	1035
40	4.00	5.10	9.77
50	4.47	5.70	10.92
60	4.90	6.25	11.97
70	5.29	6.75	12.92
80	5.66	7.21	13.82
90	6.00	7.65	14.66
100	6.32	8.06	15.45

**⚠ Turn Off Inlet Ball Valves When Not In Use.**

**IMPORTANT:** Unit supplied without a backflow preventer. Check local plumbing codes for requirements in your area and **install appropriate backflow preventer before operating.**

**Water Inlet**  
**35 – 125 PSI**  
 (1/2" I.D. minimum - 315)  
 (3/4" I.D. minimum - 517 & 1035)

*Drawing not "to scale"*

*For proper operation, use ONLY the supplied nozzle.*

**Nozzle**  
 #180146 - 40100 (315 & 517)  
 #180152 - 50250 (1035)

**Wand**  
 #536603

**Discharge Ball Valve**  
 #413641

**For pressures over 100 PSI, remove the discharge ball valve.**

**Sanitize Ball Valve**  
 #413626 - 315  
 #413641 - 517  
 #413648 - 1035

**Injector Body**  
 #381055 - 315  
 #381160 - 517  
 #381265 - 1035

**St. Elbow**  
 #257379

**Chemical Check Valve**  
 #491311

**Metering Tips, Color Coded (20 pk)**  
 #443798

**Hose Barb**  
 #119266 - 315  
 #119281 - 517  
 #119288 - 1035

**Chemical Tube, 6'**  
 #473006

**Hose Clamp**  
 #134302 - 315  
 #134306 - 517 & 1035

**Chemical Strainer**  
 #150115

**Discharge Hose, Blue**  
 #803650 - 315, 1/2" x 50'  
 #803750 - 517 & 1035, 3/4" x 50'

# Troubleshooting Guide

## 315, 517 and 1035 Sanitizers Complete

PROBLEMS	Possible Cause / Solution	
	Startup	Maintenance
A) Sanitizer will not draw chemical.	1, 4, 5, 6, 7	8, 9, 10, 11, 12, 13, 14, 15, 17, 18
B) Dilution too weak.	2	
C) Dilution too strong.	3	
D) Water backing up into chemical container.	8	
E) Chemical solution backing up into water line.		14

### Possible Cause / Solution

Startup	Maintenance
<ol style="list-style-type: none"> <li>1. <b>Inlet ball valve or discharge ball valve not completely open</b> <ul style="list-style-type: none"> <li>• Completely open the inlet and discharge ball valves.</li> </ul> </li> <li>2. <b>Not enough chemical - metering tip too small</b> <ul style="list-style-type: none"> <li>• Install larger metering tip.</li> </ul> </li> <li>3. <b>No metering tip installed or metering tip too large</b> <ul style="list-style-type: none"> <li>• Install smaller metering tip.</li> </ul> </li> <li>4. <b>Chemical tube not immersed in chemical or chemical depleted</b> <ul style="list-style-type: none"> <li>• Immerse tube or replenish.</li> </ul> </li> <li>5. <b>Discharge hose too long, wrong size, kinked or spliced/sectioned together (SEE REQUIREMENTS)</b> <ul style="list-style-type: none"> <li>• Straighten the hose - Replace hose with correct size or one-piece continuous hose.</li> </ul> </li> <li>6. <b>Nozzle size too small (SEE REQUIREMENTS)</b></li> <li>7. <b>Water pressure or water volume too low / inlet piping too small</b> <ul style="list-style-type: none"> <li>• Increase water pressure or water volume (SEE REQUIREMENTS).</li> </ul> </li> </ol>	<ol style="list-style-type: none"> <li>8. <b>Chemical check valve stuck or failed</b> <ul style="list-style-type: none"> <li>• Clean or replace.</li> </ul> </li> <li>9. <b>Chemical strainer or metering tip partially blocked</b> <ul style="list-style-type: none"> <li>• Clean or replace chemical strainer and/or metering tip.</li> </ul> </li> <li>10. <b>Chemical tube stretched out or pin hole/cut in chemical tube (sucking air in)</b> <ul style="list-style-type: none"> <li>• Cut off end of tube or replace tube.</li> </ul> </li> <li>11. <b>Vacuum leak in chemical pick-up connections</b> <ul style="list-style-type: none"> <li>• Tighten the connections.</li> </ul> </li> <li>12. <b>Inlet orifice clogged</b> <ul style="list-style-type: none"> <li>• Check/clean inlet orifice for obstructions. DO NOT DRILL OUT.</li> </ul> </li> <li>13. <b>Chemical build-up may have formed in the body causing poor or no chemical pick-up</b> <ul style="list-style-type: none"> <li>• Follow Preventive Maintenance instructions below, using hot water and/or descaling acid. When there is no draw at all, carefully remove fittings and soak entire body in descaling acid.</li> </ul> </li> <li>14. <b>No backflow preventer installed and/or inlet ball valve left on when not in use.</b> <ul style="list-style-type: none"> <li>• Install appropriate backflow preventer into water line.</li> </ul> </li> </ol>

**PREVENTIVE MAINTENANCE:** When the unit will be out of service for extended periods, remove chemical tube from chemical concentrate and place in water. Completely open the sanitize and discharge ball valves for several seconds to flush chemical and help prevent chemical build-up. Check and/or clean chemical strainer; replace if missing.