Lafferty Equipment Manufacturing, LLC
Installation & Operation Instructions

Model # 980006 · 2-Way 105HC Filling Station

REQUIREMENTS

Chemical Concentrate

Water

Temperature	up to 160°F
Pressure	40 to 80 PSI
Flow	1.0 GPM @ 40 PSI
Supply Line	1/2"
Hose	1/2" ID x 15'
Nozzle	Trigger Gun

OPTIONS

Stainless Steel Hose Racks

Small Stainless Steel Hose Rack	# 224145

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 Valve - Viton Standard

Check Valve, Chemical, PP, 1/2" HB (EPDM)	# 491403

WEIGHT & DIMENSIONS

Single Package

Shipping Weight	10 lbs.
Shipping Dimensions	15" x 15" x 7"



Lafferty EQUIPMENT MANUFACTURING LLC

CFS TECHNOLOGIES

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WARNING! READ ALL INSTRUCTIONS BEFORE USING EQUIPMENT!

OVERVIEW

The 2-Way 105HC Filling Station has a water flow rate of 1 GPM @ 40 PSI and is a "high concentrate" 2-chemical or two ratio proportioner for filling smaller containers with strong solutions using a trigger gun. This venturi injection system uses city water pressure (40 - 80 PSI) to draw and blend a high concentration of chemical into the water stream to create up to 1:1 dilution ratios.

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 tip or plug in the chemical suction line. See chemical labels for dilution ratio recommendation or consult your chemical supplier.

- For the strongest dilution ratio do NOT install a metering plug or colored metering tip.
- An inline metering tip holder is provided, along with two plugs for 2:1 or 3:1 ratios.
- 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.
- Select the tip color that is closest to your desired chemical strength and thread into the tip holder as a starting place. **DO NOT OVER-TIGHTEN.**
- Splice metering tip holder or plug into suction tube, as shown in the diagram, and secure with clamp (certain models only).
- Application results will ultimately determine final tip color or plug size.
- Push the chemical tubes over the suction hose barb and the tip holder, and place the strainer in the chemical concentrate.
- Push the discharge tubes completely over the discharge barb.
- If necessary, cut suction tube(s) to length before attaching suction strainer.

TO OPERATE

Always make sure the discharge is pointed in a safe direction before turning inlet valve on. Trigger can be released at any time during operation but should not be left unattended for long periods of time without closing inlet ball valve.

1. Open the inlet and one chemical ball valve then place the nozzle in the container and pull the trigger.
2. When container is filled to the desired level release the trigger, return to the unit and close the inlet and the chemical ball valve.
3. Repeat step 1 & 2 for additional chemicals.
4. When complete close inlet ball valve, pull the trigger to relieve pressure in hose.
5. Make final metering tip adjustments based on application results. Try the next larger or smaller sized metering tip until the results are acceptable.

METERING TIP SELECTION

METERING TIP COLOR	OZ/MIN	DILUTION RATIO @ 40 PSI
Brown	0.56	229:1
Clear	0.88	145:1
Bright Purple	1.38	93:1
White	2.15	60:1
Pink	2.93	44:1
Corn Yellow	3.84	33:1
Dark Green	4.88	26:1
Orange	5.77	22:1
Gray	6.01	21:1
Light Green	7.01	18:1
Med. Green	8.06	16:1
Clear Pink	9.43	14:1
Yellow Green	11.50	11:1
Burgundy	11.93	11:1
Pale Pink	13.87	9:1
Light Blue	15.14	8:1
Dark Purple	17.88	7:1
Navy Blue	25.36	5:1
Clear Aqua	28.60	4:1
Black	50.00	3:1
No Tip Ratio Up To:		1:1

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

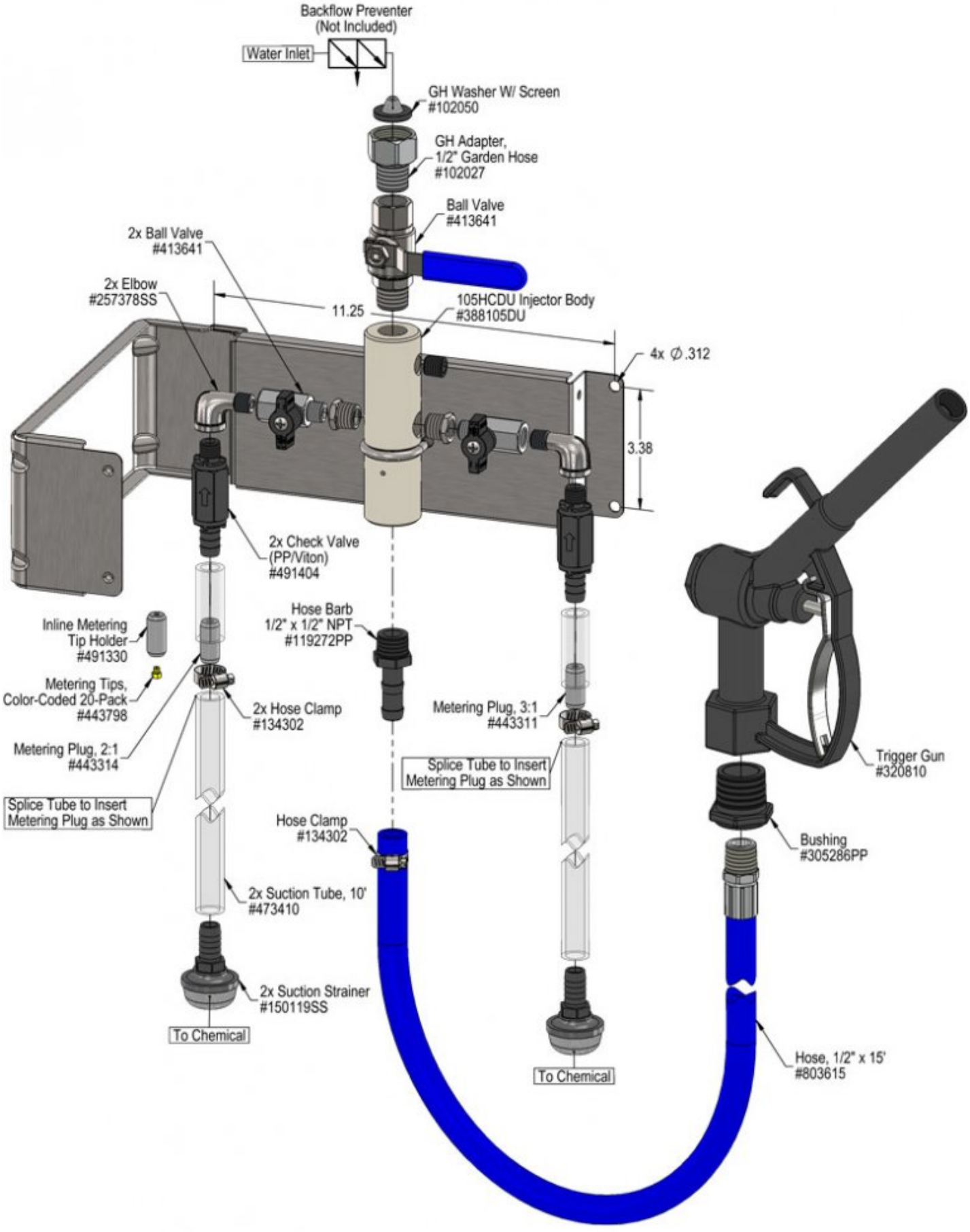
FORMULA

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
40	1.00
50	1.12
60	1.22
70	1.32
80	1.41


Backflow Preventer
(Not Included)
Water Inlet
GH Washer W/ Screen
#102050
GH Adapter,
1/2" Garden Hose
#102027
Ball Valve
#413641
2x Ball Valve
#413641
2x Elbow
#257378SS
11.25
105HCDU Injector Body
#388105DU
4x Ø.312
3.38
2x Check Valve
(PP/Viton)
#491404
Inline Metering
Tip Holder
#491330
Hose Barb
1/2" x 1/2" NPT
#119272PP
Metering Tips,
Color-Coded 20-Pack
#443798
2x Hose Clamp
#134302
Metering Plug, 3:1
#443311
Metering Plug, 2:1
#443314
Splice Tube to Insert
Metering Plug as Shown
Splice Tube to Insert
Metering Plug as Shown
Trigger Gun
#320810
Hose Clamp
#134302
Bushing
#305286PP
2x Suction Tube, 10'
#473410
2x Suction Strainer
#150119SS
To Chemical
To Chemical
Hose, 1/2" x 15'
#803615

Troubleshooting Guide

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

Possible Cause / Solution

Startup

1. **Water pressure or volume too low**
   - 35 PSI water pressure minimum see requirements.
2. **Inlet or chemical ball valve not completely open**
   - Completely open the ball valves.
3. **Chemical tube not immersed in chemical or chemical depleted**
   - Immerse tube or replenish.
4. **Metering tip too small**
   - Install larger metering tip.
5. **No metering tip installed or metering tip too large**
   - Install smaller metering tip.
6. **Discharge hose kinked or wrong size**
   - See requirements.

Maintenance

7. **Chemical strainer or metering tip partially blocked**
   - Clean or replace chemical strainer and/or metering tip.
8. **Chemical valve stuck or failed**
   - Clean or replace.
9. **Vacuum leak in chemical pick-up connections**
   - Tighten the connection.
10. **Chemical tube stretched out where tube slides over metering tip holder or pin hole/cut in chemical tube (sucking air in)**
    - Cut off end of tube or replace tube.
11. **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 and/or descaling acid. When there is no draw at all carefully remove fittings and soak entire body in descaling acid.
12. **Optional trigger gun or discharge ball valve not completely open (select models only)**
    - Completely depress trigger/open ball valve

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.