

Lafferty Equipment Manufacturing, LLC Installation & Operation Instructions

Model # 989225 · 207HC Level Master™ (No Tank)

REQUIREMENTS

Chemical Concentrate

Water

Temperature	up to 160°F
Pressure	40 to 80 PSI
Flow	2 GPM @ 40 PSI
Supply Line	1/2"

OPTIONS

Alternate Check Valve - Viton Standard

Check Valve, Chemical, PP, 1/2" HB (EPDM)	# 491403
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Level Master Tank Sizes (Specify When Ordering)

7 Gallon	# 709170
16 Gallon	# 709171
20 Gallon	# 709172



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**WARNING! READ ALL
INSTRUCTIONS BEFORE
USING EQUIPMENT!**

OVERVIEW

The 207HC Level Master™ is a water driven chemical proportioner that automatically maintains a constant supply of highly concentrated ready-to-use solution in a paired tank (sold separately). When the solution in the tank drops below a pre-set level, 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 near 1:1 dilution ratios. The solution replenishes with a water flow rate of 2.0 GPM @ 40 PSI and will cycle continuously.

SAFETY & OPERATIONAL PRECAUTIONS

- When connecting to a potable water supply follow all local codes for 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 eye wear when working with chemicals.
- Always direct the discharge away from people and electrical devices.
- Follow the chemical manufacturer's safe handling instructions.
- NEVER mix chemicals without first consulting chemical manufacturer.

TO INSTALL (REFER TO DIAGRAM ON NEXT PAGE)

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

1. Position Level Master Tank on a **level surface**.
2. Carefully unpack the lid / float assembly and thread on to tank opening. Ensure that the float(s) are hanging freely.
3. Connect the water supply. DO NOT TURN ON.

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

1. Securely attach the Level Master assembly to an empty tank. Gravity will cause the float valve to automatically sit in the "down" position. The float valve is now open.
2. Completely open the water inlet ball valve to begin filling the tank with diluted solution.
3. When the solution in the tank reaches the fill level, the float will rise and shut off the water flow.

NOTE: The fill level is pre-determined by the length of the "push rod" attached to the float, which is intended to be used as provided. If necessary, the float can be lowered 1/2" by partially unscrewing it from the push rod.

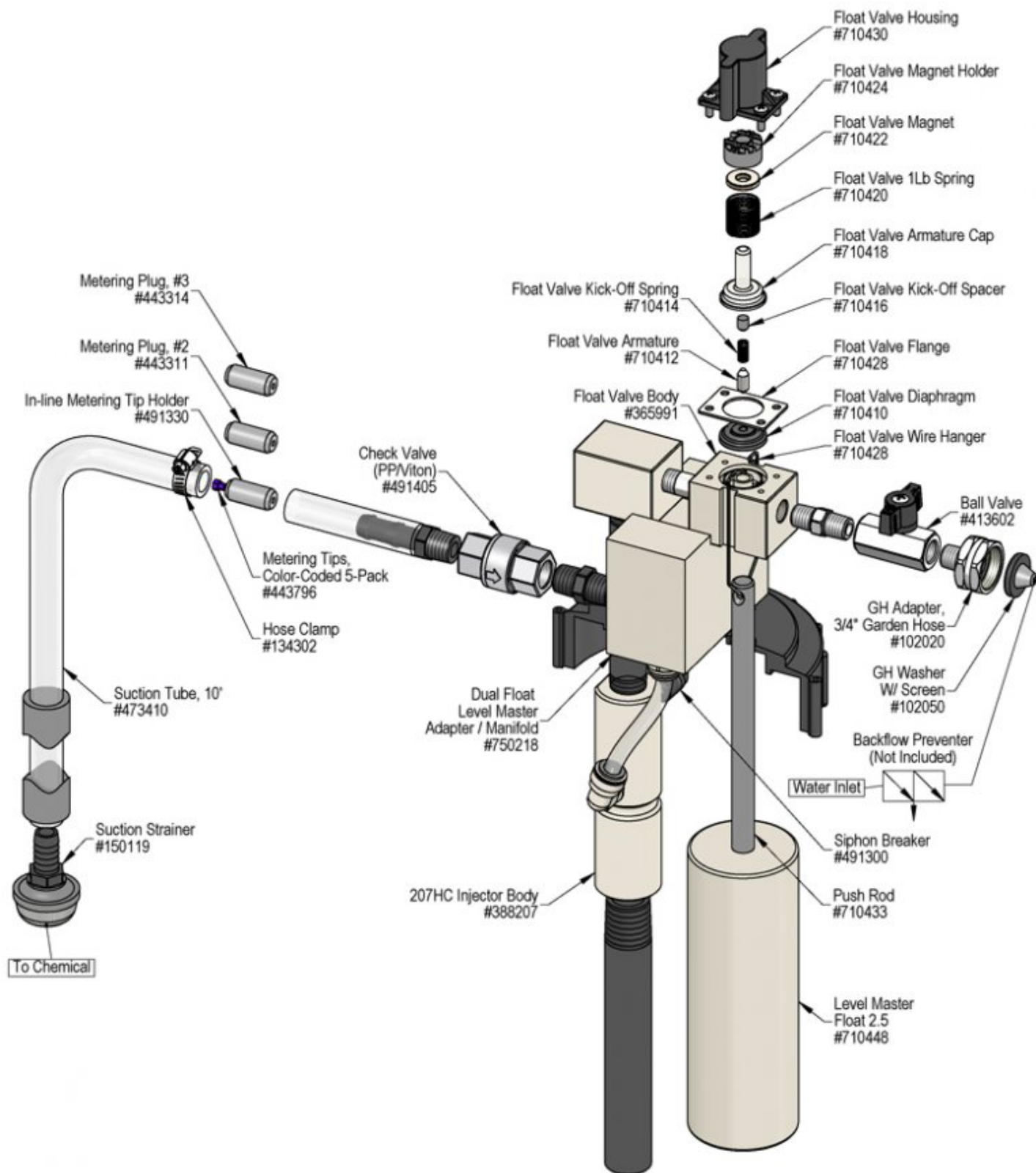
4. Unit is now ready for use and will maintain the solution level until the inlet ball valve is manually closed.
5. Make final metering tip adjustments based on application results.

METERING TIP SELECTION

METERING TIP COLOR	OZ/MIN	DILUTION RATIO @ 40 PSI
Brown	0.56	457:1
Clear	0.88	291:1
Bright Purple	1.38	186:1
White	2.15	119:1
Pink	2.93	87:1
Corn Yellow	3.84	67:1
Dark Green	4.88	52:1
Orange	5.77	44:1
Gray	6.01	43:1
Light Green	7.01	37:1
Med. Green	8.06	32:1
Clear Pink	9.43	27:1
Yellow Green	11.50	22:1
Burgundy	11.93	21:1
Pale Pink	13.87	18:1
Light Blue	15.14	17:1
Dark Purple	17.88	14:1
Navy Blue	25.36	10:1
Clear Aqua	28.60	9:1
Black	50.00	5:1
No Tip Ratio Up To:		1.1:1
The dilution ratios above are approximate values. Due to chemical viscosity, actual dilution ratios may vary.		
FORMULA		
GPM × 128 ÷ Desired Dilution Ratio = oz/min <ul style="list-style-type: none"> • 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	2.00
50	2.24
60	2.45
70	2.65
80	2.83



Troubleshooting Guide

Problem	Possible Cause / Solution	
	Startup	Maintenance
A) Unit will not draw chemical.	1, 4, 5	9, 10, 11, 12, 16
B) Dilution too strong.	2	
C) Dilution too weak.	3, 4, 5	9, 10, 11, 12, 16
D) Primary float will not activate (does not fill)	7, 9	13, 14, 15, 17
E) Primary float valve will not turn off (overfills or triggers secondary fail-safe float valve on double-float models)	6, 7, 8	13, 14, 15, 17

Possible Cause / Solution	
Startup	Maintenance
<ol style="list-style-type: none"> Water ball valve not completely open <ul style="list-style-type: none"> Completely open water ball valve. Metering tip too large or no tip installed <ul style="list-style-type: none"> Install smaller metering tip. Not enough chemical <ul style="list-style-type: none"> Install a larger metering tip. Chemical tube not immersed in chemical or chemical depleted. <ul style="list-style-type: none"> Immerse tube or replenish. Water pressure too low or water temperature too high <ul style="list-style-type: none"> Requires 25 PSI water pressure, see requirements. Water pressure too high <ul style="list-style-type: none"> Install a water pressure regulator if pressure exceeds 100 PSI. Level Master body is not level <ul style="list-style-type: none"> Install the Level Master on an even surface where the body (injector) is level to the horizon. Ensure that the Level Master will not become unbalanced as it fills. If the body is not level, the float assembly may snag and prevent proper activation and/or deactivation. Secondary fail-safe float has been triggered (<i>double float models only</i>) <ul style="list-style-type: none"> Manually reset the secondary fail-safe float valve (refer to operation instructions) Inspect the primary float assembly before resetting the secondary float valve. If necessary, troubleshoot the primary float assembly. 	<ol style="list-style-type: none"> Chemical strainer or metering tip blocked <ul style="list-style-type: none"> Clean or replace chemical strainer and/or metering tip. Chemical tube stretched where tube slides over metering tip holder or pin hole/cut in tube (sucking air) <ul style="list-style-type: none"> Cut off end of tube or replace tube. Vacuum leak in chemical pick-up connections <ul style="list-style-type: none"> Tighten the connection. Water strainer screen clogged <ul style="list-style-type: none"> Clean the water strainer screen. Physical blockage or interference is preventing the float from rising or falling <ul style="list-style-type: none"> Ensure that the tank is on a level surface. Ensure that the float, push rods, and metal clips are hanging freely without any interference. Float valve parts are dirty or defective <ul style="list-style-type: none"> Clean or replace the affected parts (may require careful disassembly, refer to parts diagram). Ensure that all parts are free of rust, grease, and loose metal chips. Depending on the type of chemical used and other operational variables, regular cleaning and/or replacement may be required. Float valve diaphragm stretched out or damaged <ul style="list-style-type: none"> Replace the float valve diaphragm. Chemical build-up or scale may have formed in the injector body causing poor or no chemical pick-up <ul style="list-style-type: none"> 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. Upward force has unclipped hanger from magnet holder <ul style="list-style-type: none"> <i>Carefully</i> remove float housing and align wire hanger to grooves in magnet holder. Pull down on wire hanger until you hear a sharp 'click' after the normal activation sound. Wire hanger must be <i>fully</i> seated in magnet holder grooves, as shown on LEFT.



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.

