

**BF2 Series**  
**Bottle Filler, Sensor Operated**



**TECHNICAL ASSISTANCE TOLL FREE TELEPHONE NUMBER:**

**1.800.591.9360**

Technical Assistance Fax: 1.626.855.4894

**NOTES TO INSTALLER:**

1. Please leave this documentation with the owner of the fixture when finished.
2. Please read this entire booklet before beginning the installation.
3. Check your installation for compliance with plumbing, electrical and other applicable codes.

**LIMITED WARRANTY - UNITED STATES & CANADA**

Murdock warrants that its products are free from defects in material or workmanship under normal use and service for a period of one year from date of original shipment or for 18 months after the date of shipment from the factory, whichever comes first. Murdock's liability under this warranty shall be discharged solely by replacement or repair of defective material, provided Murdock is notified in writing within one year from date of shipment, F.O.B. Industry, California.

This warranty does not cover installation or labor charges and does not apply to materials, which have been damaged by other causes such as mishandling or improper care or abnormal use. The repair or replacement of the defective materials shall constitute the sole remedy of the Buyer and the sole remedy of Murdock under this warranty. Murdock shall not be liable under any circumstances for incidental, consequential or direct charges caused by defects in the materials, or any delay in the repair or replacement thereof. This warranty is in lieu of all other warranties expressed or implied. Product maintenance instructions are issued with each unit and disregard or non-compliance with these instructions will constitute an abnormal use condition and void the warranty. Stainless steel must be protected on job site during construction and must be properly maintained after the water has been introduced into the water cooler or drinking fountain, or Murdock's limited warranty is void.

**LIMITED EXPORT WARRANTY** - One year on parts only.

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7019-700-001  
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11/04/20

COMPLIES WITH  
**STANDARDS**



Member of  
  
MORRIS GROUP  
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**murdock®**  
SINCE 1853

15125 Proctor Ave, City of Industry,  
CA, 91746 U.S.A.  
Phone 800-591-9360  
626-336-4561  
Fax 626-855-4894  
[www.murdockmfg.com](http://www.murdockmfg.com)

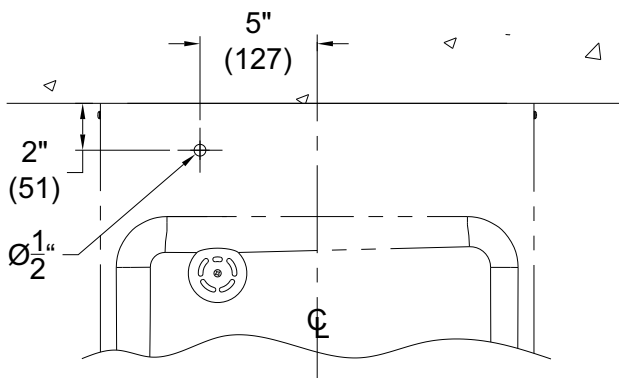
**PRIOR TO INSTALLATION**

Important: Some options may slightly alter installation. To ensure proper installation review the manual thoroughly and verify rough-ins before beginning any work. File this manual with the owner or maintenance personnel upon completion of installation

- Fixture mounting requirements: Industry standard wall construction, adequate to support the fixture and (installer provided) wall anchors sufficient to secure the fixture.
- Fixture operates within water pressure range of 20 to 105 psig. Murdock will not warranty fixtures damaged when connected to supply lines with flow pressure lower than 20 psig or higher than 105 psig.
- Per UPC 609.10- *All building water supply systems in which quick acting valves are installed shall be provided with devices to absorb the hammer caused by high pressure resulting from the quick closing of the valve. These pressure-absorbing devices shall be approved mechanical devices. Water pressure-absorbing devices will be installed as close as possible to the quick closing valve.*
- Water supply inlet is 1/4" OD polyethylene tube.
- Completely flush supply of all foreign debris before connecting to fixture. Bottle filler is designed to provide trouble free drinking water unaffected by fixture connection tubing and fittings and not cause problems with taste, odor, color or sediment.
- It is common for electrical equipment to be grounded to water lines either within a structure or away from it. Because this fixture is intended to dispense water that has been lowered in temperature, but otherwise remains unchanged by the materials in the water cooler, every attempt should be made to prevent this kind of grounding from generating feedback into the water cooler creating electrolysis. Electrolysis will cause a metallic taste or cause water metal content to increase.
- Receptacle(s) must be wired to a GFCI protected circuit. Fixture must be earth grounded per N.E.C. (National Electrical Code).
- Batteries are NOT included with this product. If using a battery pack provide 6 AA Alkaline or lithium batteries

**INSTALLATION INSTRUCTIONS:**

1. Remove drinking fountain access panel and shut off water supply , then actuate valve to relieve pressure.



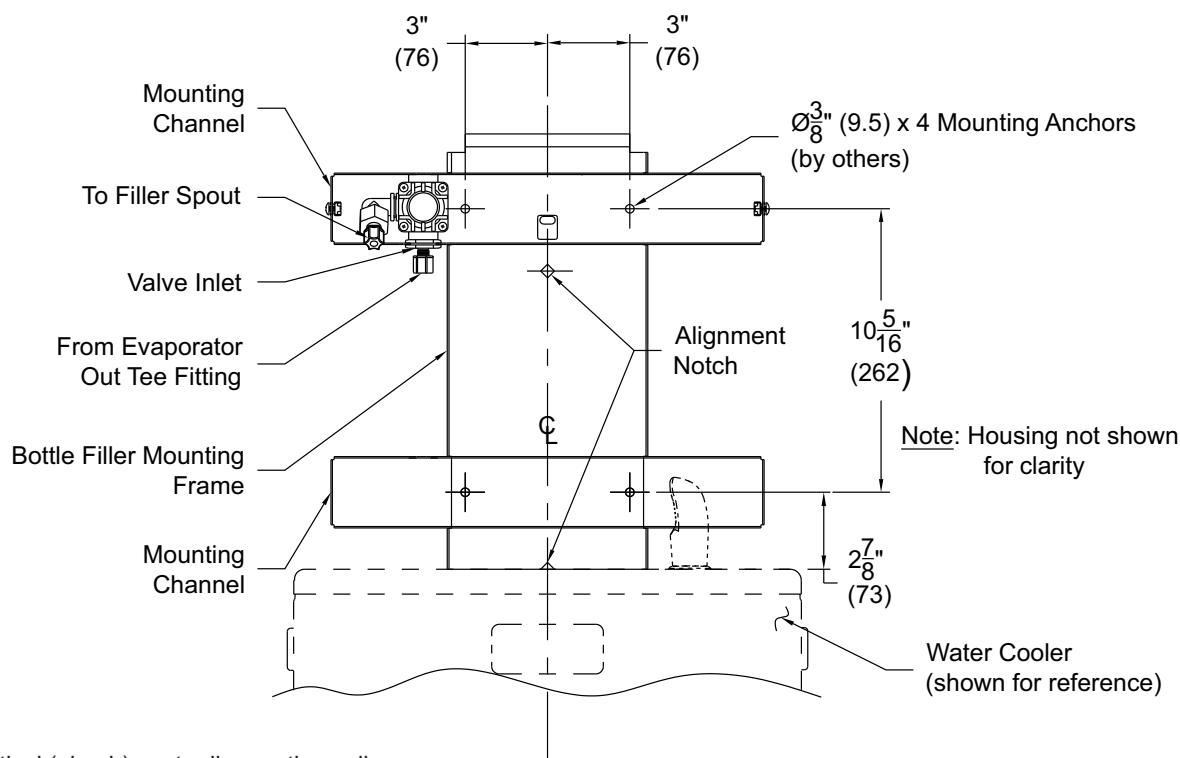
2. Drill 1/2" dia. hole thru drinking fountain deck (where shown above). Deburr hole and install grommet provided.

**Drilling Notes: (If 1/2" Hole Has Been Pre-Punched At The Factory Skip and Proceed to Step 3)**

- Wear approved safety glasses when drilling.
- Prior to drilling stainless steel, adhere masking tape over drilling area to protect finish and provide marking surface.
- Use a short, sharp high-speed drill bit and drill speed of 400-600 RPM; applying heavy pressure. Drill must cut at all times. DO NOT allow to drill bit to ride, this will cause work hardening and will make very difficult to drill or tap. Bibb washers, placed on drill shank will help to prevent marring the surface after the drill has broke through.

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**INSTALLATION INSTRUCTIONS CONTINUED:**



3. Mark vertical (plumb) center line on the wall.
4. Use the frame as a template. Align notches in frame with vertical center line, with frame sitting on the deck  
NOTE: FOUNTAINS SHOULD BE LEVEL.
5. Mark four mounting holes.
6. Install the four anchors (by others).
7. Remove top and channel, disconnect the PE tube from the fill tube.
8. Align mounting frame and mounting channels to the anchors (as shown) attach to wall with mounting fasteners (by others).

**NOTE: BEFORE PERFORMING STEP 9 IF STEP HAS BEEN FACTORY ASSEMBLED, GO ON TO STEP 11.**

- 9.\*In drinking fountain access compartment, remove the 1/4" push-in fitting from evap outlet and replace it with 1/4" push-in tee fitting. Reconnect the PE tube from the cartridge valve assembly to top of tee. (See page 4)  
\*See insert on page 4, for special installation instructions when installing on bi-level drinking fountains.

**NOTE: BEFORE PERFORMING STEP 10 REFER TO ELECTRICAL INSTALLATION STEP 1A AND 2.**

10. Remove the 18" piece of insulation from the 1/4" OD 30" PE tube . Pass the end of the 30" PE tube through the hole in the deck of the drinking fountain. Reinstall 18" piece of insulation on to the 30" PE tube, under basin. Connect the 30" PE tube to the side of the previously installed tee fitting, from step 10. (See page 4)
11. Reconnect 24" PE to fill tube. Engage the left side of the bottle filler housing behind the mounting channels, then stretch the housing over the right end of the mounting channels, make sure that the rubber trim on the housing is touching the deck. Secure the housing to the top channel, with 10-32 truss head screws provided.

**NOTE: BEFORE PERFORMING STEP 13 REFER TO ELECTRICAL INSTALLATION STEP 1B AND 2.**

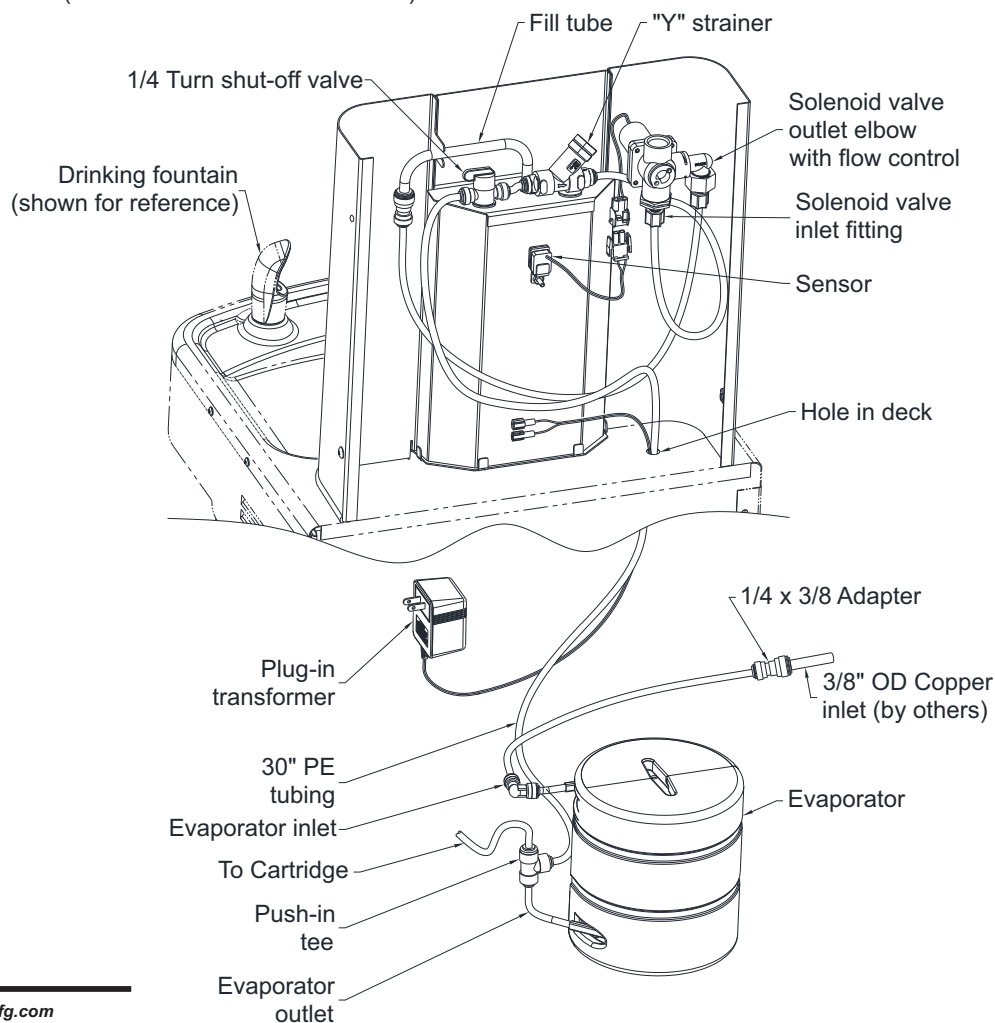
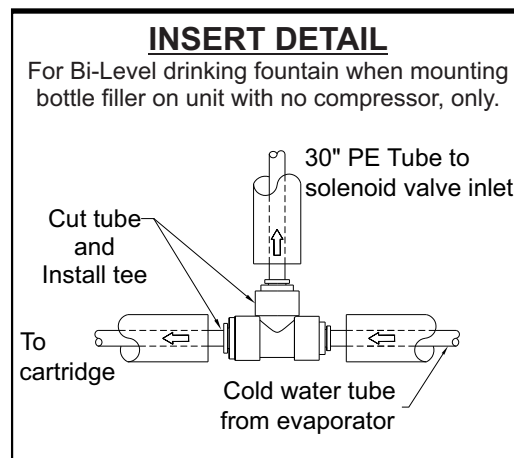
12. Install top with 8-32 round head screws provided.
13. Turn on the water supply stop, test unit and check for leaks, then reinstall access panel.

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**INSTALLATION INSTRUCTIONS CONTINUED:**

**TRANSFORMER/BATTERY WIRING  
AND WATER TUBING CONNECTIONS**

NOTE: Insulation on all water tubes not shown (all PE water tubes are insulated)

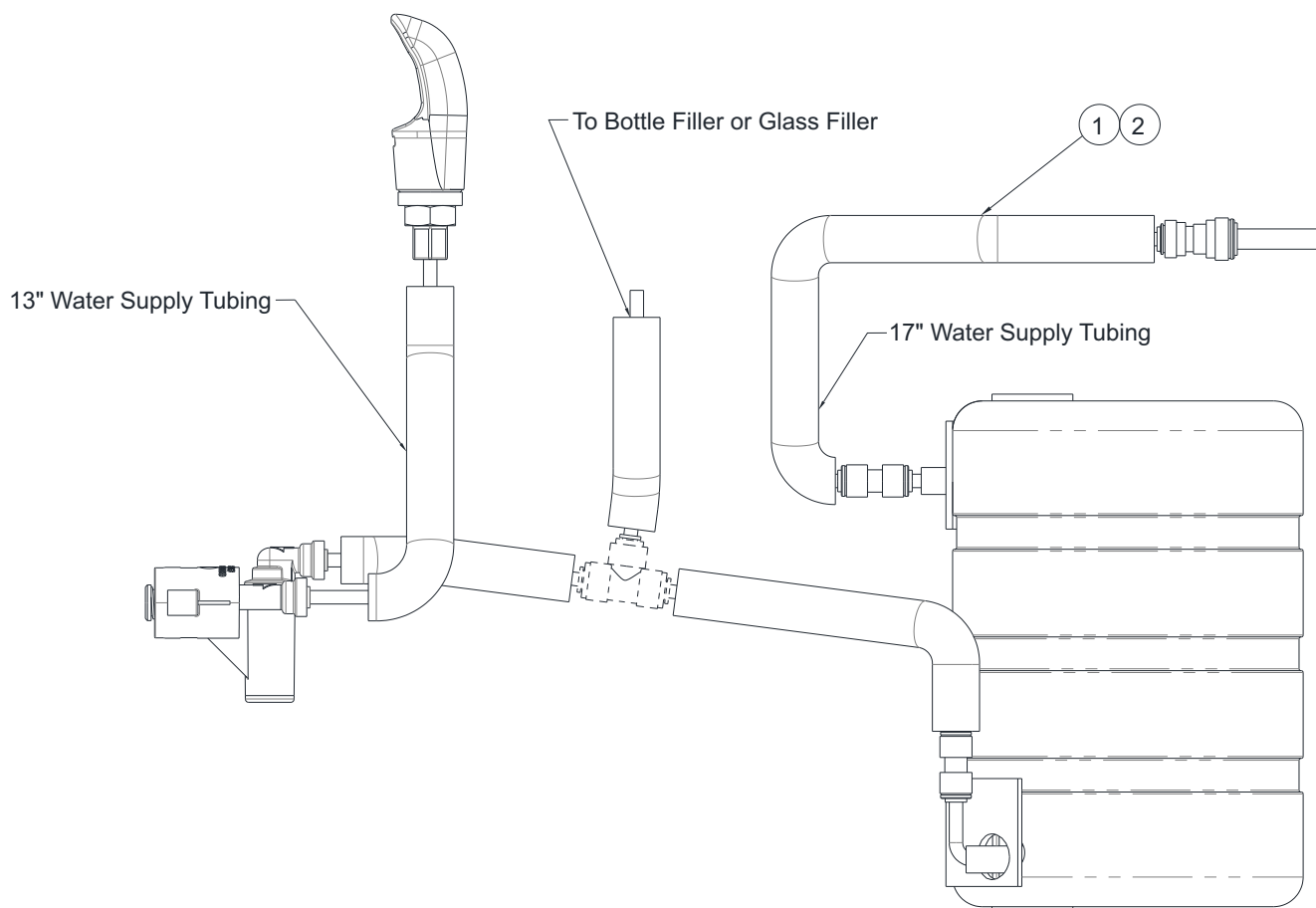


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**RETRO-FIT INSTALL FOR EXISTING WATER COOLER FIXTURE:**

**PRESSURIZED SINGLE UNIT PIPE INSTALLATION (WITH -GF & -BF OPTIONS)**

ITEM	PART NUMBER	DESCRIPTION	QTY.
1	7012-055-000	FOAM INSULATION, PIPE, 3/8" ID x 1/4" THICK	5.5'
2	2169-000-000	TUBING, LLDPE, BLUE 1/4" OD	5'

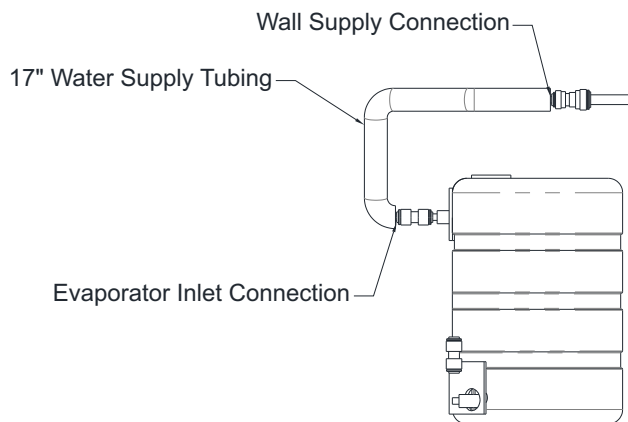


**RETRO-FIT INSTALL FOR EXISTING WATER COOLER FIXTURE (NON-PRESSURIZED UNIT):  
RE-PIPING FROM NON-PRESSURIZED TO PRESSURIZED (FOR -GF & -BF ONLY)**

To re-pipe a single non-pressurized unit to pressurized, you will have to move the water supply tubing around, with "NO" additional tubing needed. Before performing this task you **MUST SHUT OFF THE WATER SUPPLY**, and disconnect all supply connections.

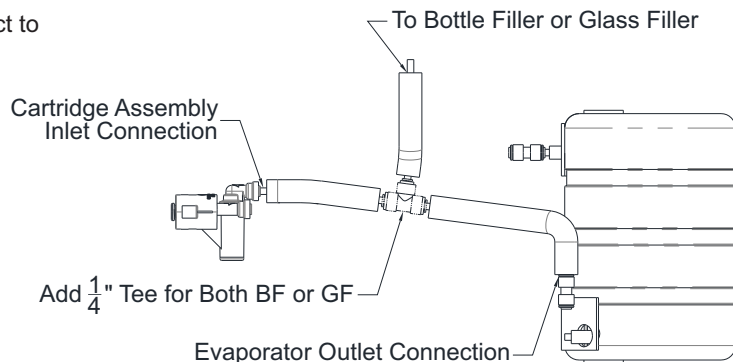
**STEP 1:**

Starting with the supply line coming from the wall, connect to the inlet of the evaporator assembly.



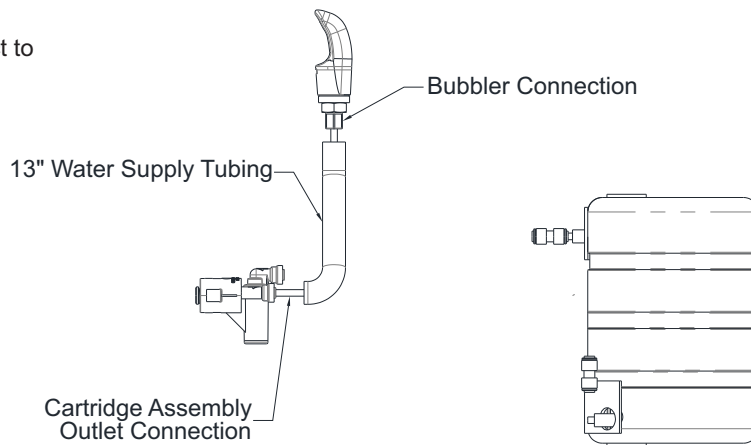
**STEP 2:**

From the outlet of the evaporator assembly, connect to the inlet of the cartridge assembly.



**STEP 3:**

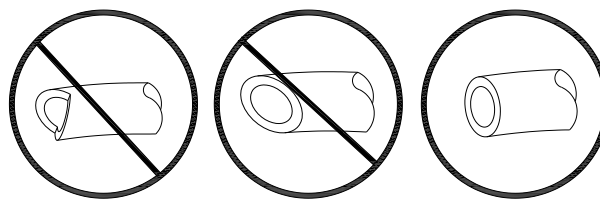
From the outlet of the cartridge assembly, connect to the bubbler.



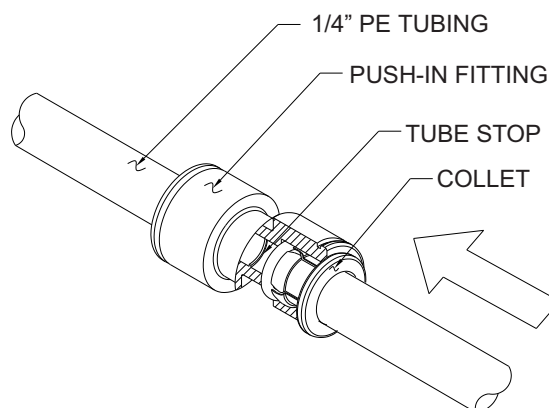
### **PUSH-IN FITTING INSTALLATION**

**NOTE: FITTINGS AND TUBE SHOULD BE KEPT CLEAN, BAGGED AND UNDAMAGED PRIOR TO INSTALLATION.**

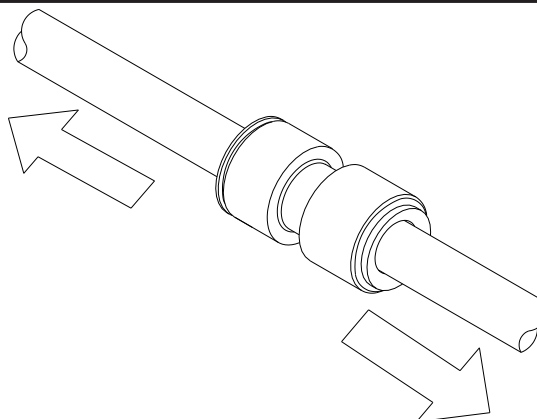
1. Cut to fit length of 1/4" PE tubing and remove any burrs or sharp edges. Ensure that the outside diameter is free from score marks. Tube ends should be square.



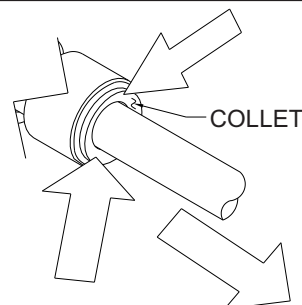
2. Firmly and fully insert the tubing end into the push-in fitting up to the tube stop located approximately 1/2" deep.



3. Pull on the fitted tubing to ensure it is secure. Tube should not come free from the fitting. Water test the connection assembly prior to leaving the site to ensure there are no leaks.



4. To disconnect the tube from the fitting ensure that the water supply is off. Push collet square towards the push-in fitting body and hold. While holding the collet in, pull on the PE tubing to remove from the push-in fitting.



### **ELECTRICAL INSTALLATION:**

**NOTE: PLUG IN OR BATTERY POWER IS A STANDARD FEATURE.**

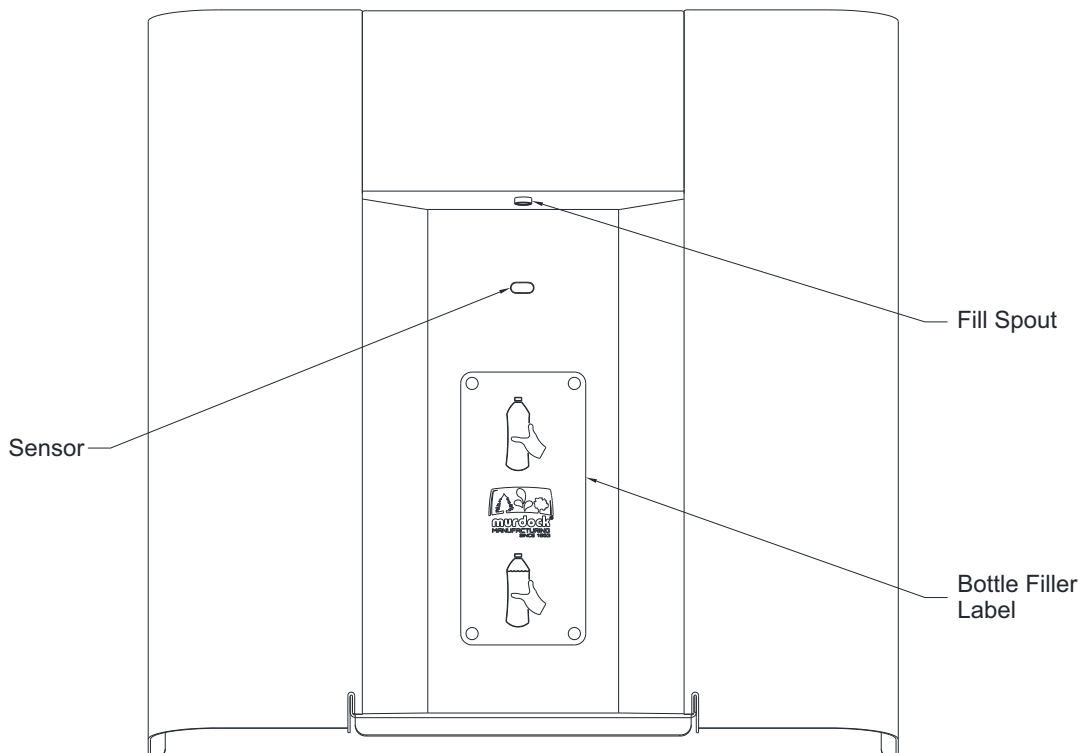
- 1A. Plug-In Operation: Plug transformer provided into GFCI protected electrical service, used by the drinking fountain. thread transformer wire through hole in deck and connect to red sensor wire. For Bi-Level wire may pass through drain connection opening.
- 1B. Battery Operation: Peel off paper backing from hook & loop pads then press battery holder firmly in place. (See page 4). Connect the battery holder wires to the red sensor wires. Unit requires six AA, alkaline or lithium batteries (not included). Note: When the battery holder is connected, the unit active.
2. Connect the blue sensor wires to the solenoid valve wires.(See Page 4)

### **START UP:**

1. Air within the bottle filler system or the structure supply pipping will cause an irregular spout outlet stream until purged out by incoming water. Hold cup (or similar object) directly below filler spout is recommended when first activating bottle filler to prevent excessive splashing. Active sensor until steady water stream is achieved.
2. Using the same method, hold cup (or similar object directly over bubbler(s) and active bubblers until air purged out and a steady stream is achieved.

### **OPERATING INSTRUCTIONS:**

Hold container to be filled just below the sensor in the center of the unit, then move the container upward, (make sure the container is centered under the fill spout) water flow starts automatically. When the container is almost filled, lower the container below the sensor until the water stops flowing. (see label on the Bottle Filler)



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**BOTTLE COUNTER ADJUSTING & RESETTING INSTRUCTIONS:**

**NOTE: Bottle Counter Has Multiple Functions**

Reset/ Mode Button

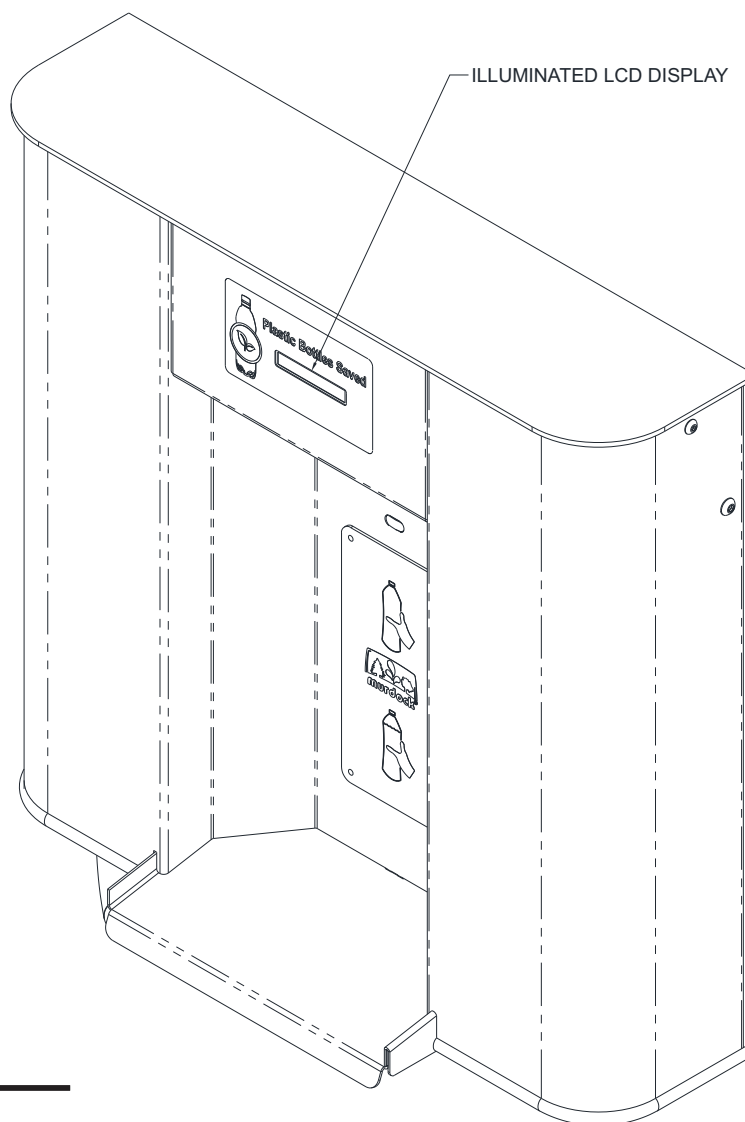
- Counts refilled bottles, otherwise purchased
- Adjustable for Units with and without filters
- "REPLACEMENT FILTER" alert function
- Alert reset, when filter is replaced

**Description**

Illuminated LCD display, counts bottles, and has a filter replacement alert function

**Bottle Counting Function**

The software applies a flow volume of approximately 16.9 fl oz (volume in standard size plastic water bottle) to each bottle counted. If the flow volume is less than 16.9 fl oz there will be no count but the volume will accumulate, so that part way through the next cycle the total bottle count will change.



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### **FILTER REPLACEMENT FUNCTIONS:**

**NOTE:** When the volume accumulates to 1500 gallons (recommended maximum filter flow volume) the "REPLACE FILTER" alert will appear on the display every time the bottle filler is activated.

#### **Counter Modes**

Located on the back of the display you will find the reset button for the mode settings. The Reset/Mode selection button is accessible by removing the top of the bottle filler, then locate the large hole in the back of the display mounting bracket. Use your finger or nonconductive implement to depress the Reset/Mode Selection Button.

**!!!DO NOT USE SHARP OR METAL IMPLEMENTS!!!**

With this reset button, you are able to indicate whether or not the unit has a filter or does not have a filter. The reset button will also take away the "REPLACE FILTER" alert once the filter has been replaced.

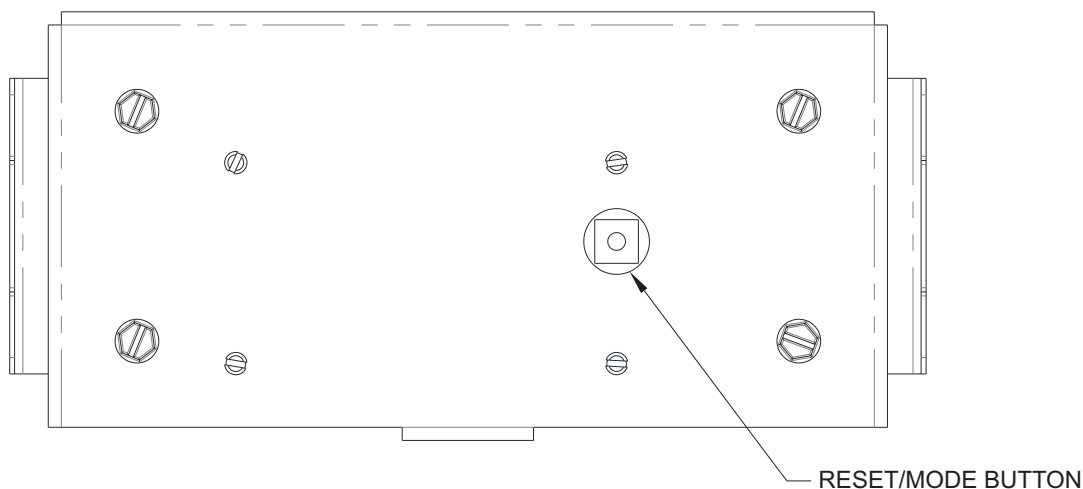
#### **Systems With or Without Filter**

- Depress the Reset/Mode selection button for 6 Seconds, the number of seconds will count up on the display.
- At the end of the 6 seconds, "FLTR YES" or "FLTR NO" **WILL APPEAR** on the display.
- "FLTR YES" means that there is a filter in the system and a "REPLACE FILTER" alert **WILL APPEAR** on the display when the maximum filter flow volume is reached.
- "FLTR NO" means that there is no filter in the system and a "REPLACE FILTER" alert **WILL NOT APPEAR** on the display.
- Release button when the option required is on the display (Filter Yes or No)

### **CLEARING "REPLACE FILTER" ALERT:**

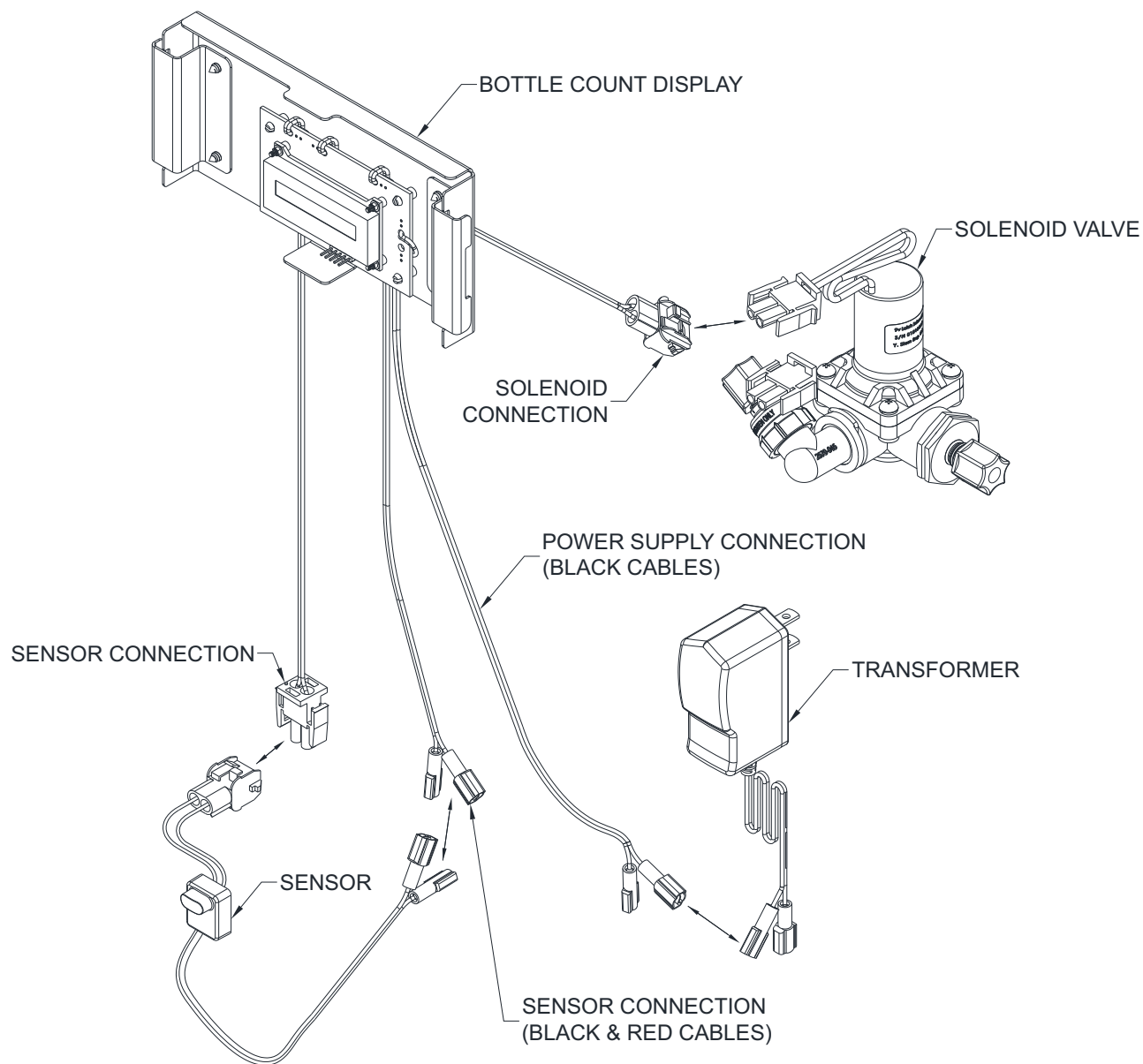
**NOTE:** This Function only applies if the system as a filter

- Replace old filter with new filter.
- Depress the Reset/Mode selection button for **2 SECONDS**
- The "REPLACE FILTER" will no longer appear on the display
- Test by actuating the bottle filler, alert will not appear.



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**BOTTLE FILLER & BOTTLE COUNTER CONNECTIONS:**



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**TROUBLE SHOOTING:**

**1. IF LIGHT WITHIN SENSOR DOES NOT FLASH ONCE WHEN USER IS WITHIN RANGE:**

- a. Verify 120VAC input & 9VDC output of transformer/battery pack output 9VDC.
- b. Replace defective transformer/batteries.
- c. Transformer polarity crossed. Replace transformer sensor may be damaged and also need replacement.
- d. Sensor in "Security Mode" after 30 seconds of constant detection. Remove source of detection and wait 30 seconds before checking.
- e. Sensor is picking up a highly reflective surface. Eliminate cause of reflection and wait 30 seconds before checking.
- f. Replace defective sensor.

**2. IF LIGHT WITHIN SENSOR LENS FLASHES ONCE WHEN THE USER IS WITHIN RANGE:**

- a. Repair bad connection from sensor to solenoid.
- b. There is debris or scale in the solenoid assembly. Remove solenoid, pull out plunger and spring. Clean with scale remover solution.
- c. There is debris or scale in center or two holes in convolution of the water diaphragm. Remove and clean.

**3. RESTRICTED OR NO WATER FLOW**

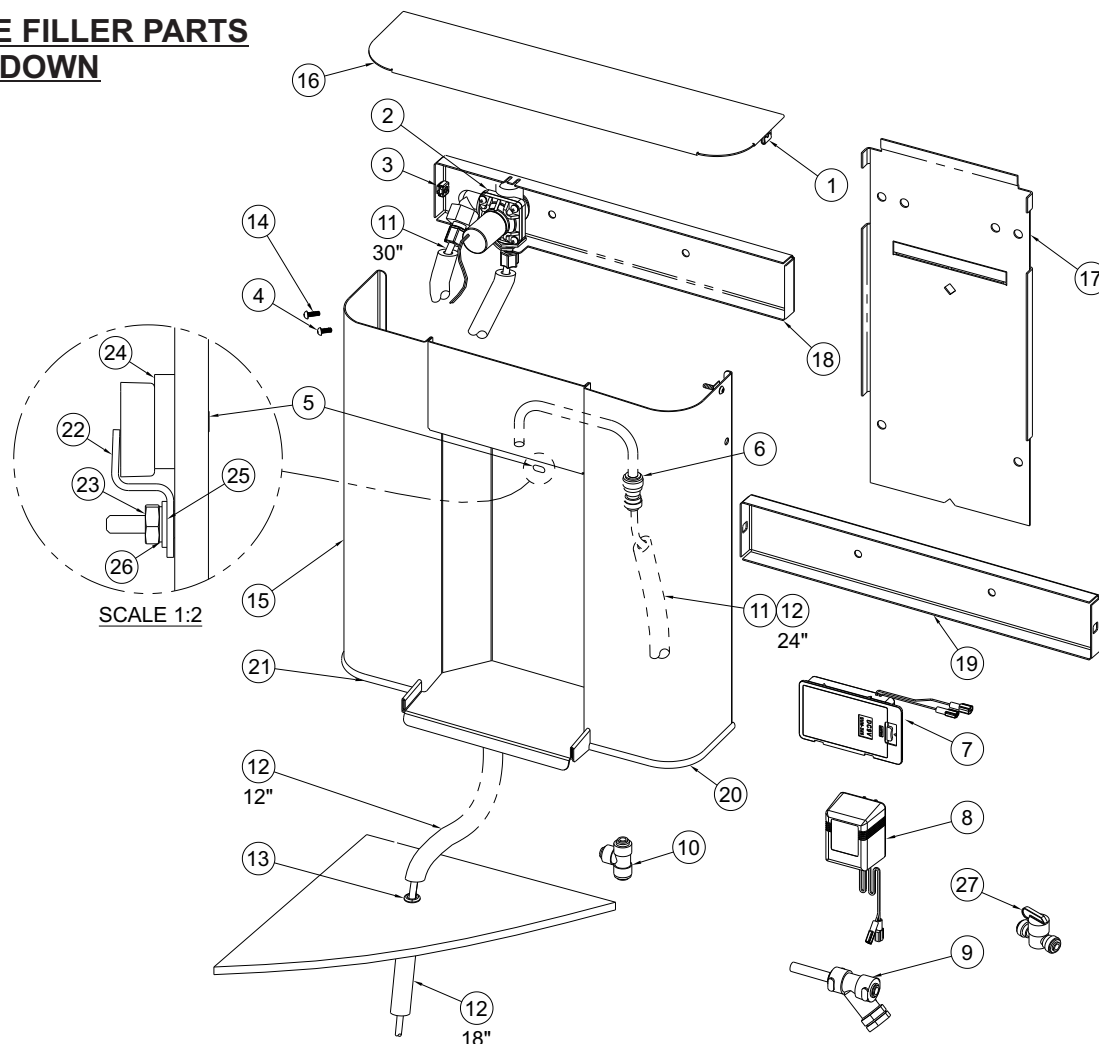
- a. Ensure Water Supply service stop valve is fully open.
- b. Verify minimum 20 psig supply line flow pressure.
- c. Check for twist or kinks in spout tubing.
- d. Check the water inlet "Y" strainer. Sediment from the main supply can get trapped in the screen along with installation materials such as pipe dope and flux. The screen should be cleaned and checked on a regular basis and replace if needed.
- e. Flow control in solenoid valve outlet elbow clogged remove & clean.
- f. The water cooler may also develop a freezing condition in which the water will become frozen inside the evaporator coil. This indicates a refrigeration problem or thermostat failure in which case the water cooler needs to be checked by a qualified technician.
- g. Low or dead batteries.
- j. No power to transformer connections loose or wires cut.

**CLEANING & MAINTENANCE GUIDE:**

1. To remove water spots or rust spots, stainless steel cleaner/polish on a cloth is recommended.
2. If there are stubborn spots or if you wish to treat a scratch, synthetic abrasive general purpose pads such as scotch brite are recommended.
3. Apply stainless steel cleaner/polish to the synthetic abrasive pads and carefully rub the panel with the grain.
4. Do NOT use harsh chemicals, abrasive or petroleum based cleaners. Use of these will void the Acorn Engineering warranty. DO NOT use abrasives on powder coated units.
5. Stainless steel should be kept clean at all times. If a coating of stainless steel cleaner/polish is maintained, stainless steel surfaces will retain their new, clean, polished appearance indefinitely. Use clean mild soapy water for powder coated units.
6. Periodically remove access panel of cooler and clean out inline "Y" strainer. If battery powered, replace batteries if needed. Remove top to access battery holder.
7. Low battery is indicated when light within sensor lens flashes multiple times, when activated.

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**BOTTLE FILLER PARTS  
BREAKDOWN**



ITEM #	PART NUMBER	DESCRIPTION	ITEM #	PART NUMBER	DESCRIPTION
1	7000-415-000	SELF-RETAINING J-NUT,SS	15	7014-002-003	BOTTLE FILLER SUB ASSEMBLY
2	7013-017-001	VALVE ASSEMBLY	16	7014-004-001	BOTTLE FILLER TOP
3	0316-018-000	10-32 STN STL NUT RETAINER	17	7014-006-199	BOTTLE FILLER FRAME
4	0279-002-000	#8-32 SOCKET CAP BTN HD SCREW	18	7014-008-001	CHANNEL AND VALVE ASSEMBLY
5	2563-380-001	SENSOR ASSEMBLY	19	7014-011-199	BOTTLE FILLER CHANNEL
6	1895-123-000	1/4" X 3/8" O.D. TUBE UNION PUSH-IN	20	7014-010-199	TRIM (RIGHT SIDE)
7	0710-361-001	AA 6-PACK BATTERY HOLDER	21	7014-009-199	TRIM (LEFT SIDE)
8	0710-736-001	9V PLUG-IN TRANSFORMER	22	7013-014-199	NANO SENSOR BRACKET
9	7013-210-001	"Y" STRAINER, BTL FILLER	23	0302-003-000	#8-32 S/S HEX NUT
10	1895-710-000	UNION TEE, 1/4" PUSH-IN	24	7013-009-001	NANO SENSOR SPACER
11	2169-000-000	1/4" O.D. LLDPE TUBING, BLUE	25	0331-023-000	#8 S/S FLAT WASHER
12	7012-055-000	FOAM PIPE INSULATION	26	6527-108-000	INTERNAL TOOTH LOCKWASHER
13	7013-020-000	GROMMET, 5/8"O.D.	27	7000-420-000	1/4 TURN SHUT-OFF VALVE
14	0112-021-000	#10-32 X 1/2" S/S HEX BTN HD SCREW			

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**NOTE:** Repairs must be made with Acorn parts only. Please order through your local representative or distributor. The phone number to locate your representative is 1.800.591.9360.