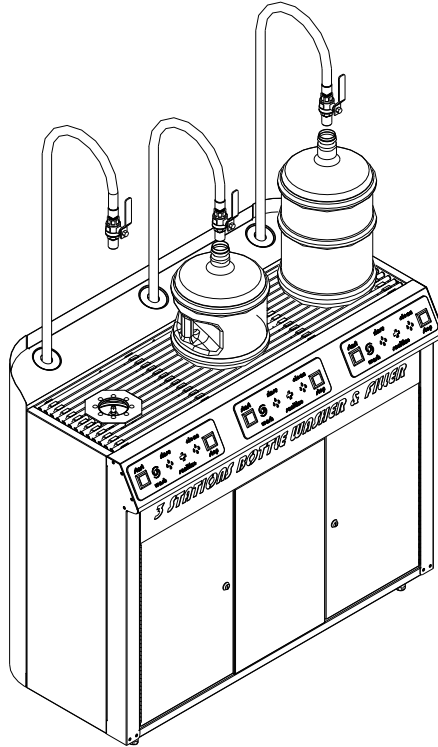


Precision Water Systems BWF- 3 Bottle Washer and Optional Filler kit



Owners' Guide

Model: PWS BWF-3

Part No: 900010

Series: 0001

Manufactured By:
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**Please read this Owners' Guide
completely before installing or
operating your
Precision Water Systems
BWF-3**

*Specifications are subject to
change without notice.*

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Introduction

Congratulations on the purchase of your new Precision Water Systems (PWS) BWF-3 Bottle Washer and (if purchased) the Filler Option!

When installed and maintained properly, your bottle washer and fill station will provide years of safe, trouble free service. It is important to observe and follow the safety and maintenance instructions carefully.

If you have any questions or concerns regarding installation or operation of your bottle washer and/or fill station please contact your dealer.

Your bottle washer and fill station must be installed according to any Local or State Regulations.

WARNING

This Bottle Washer and Filling System contains a preservative solution to prevent microbiological growth and freezing which if ingested, may cause irritation of the gastrointestinal tract, colic, diarrhoea or other similar symptoms. Therefore the unit should be properly flushed prior to use. This water should be disposed of immediately.

Records

Please record all of the important information below to assist you and the service centre in case there is any service work required in the future. All of the information is required to properly identify your bottle washer and fill station and will make servicing much easier. The information is located on the serial plate, which is located on the backside of the system.

PWS Model: BWF-3

Series: eg: 0004

Serial Number: eg: 0501812

Date of Purchase: _____

Warranty

- The warranty for your bottle washer and fill station covers defects to all components and electrical parts for one (1) year to the original purchaser.
- The HydroMinder Chemical Proportioner Model 511 system is also warranted for one (1) year.
- Stainless Steel parts are also warranted for one (1) year. With this warranty it is the responsibility of the bottle washer and fill station owner to properly maintain the bottle washer and fill station. If there is any misuse or abuse the one (1) year warranty will be void.

Misuse includes exposure of the system to over-strength chemical solutions causing corrosion and pitting of stainless steel and failure of other components.

- PWS does not warrant any transportation charges incurred to complete the repair. The bottle washer and fill station owner is responsible for all shipping charges to and from the service centre.
- Warranty is void if the bottle washer and fill station is found to have been consumer damaged or misused, caused by acts of God, unauthorized alteration, repair or vandalism.

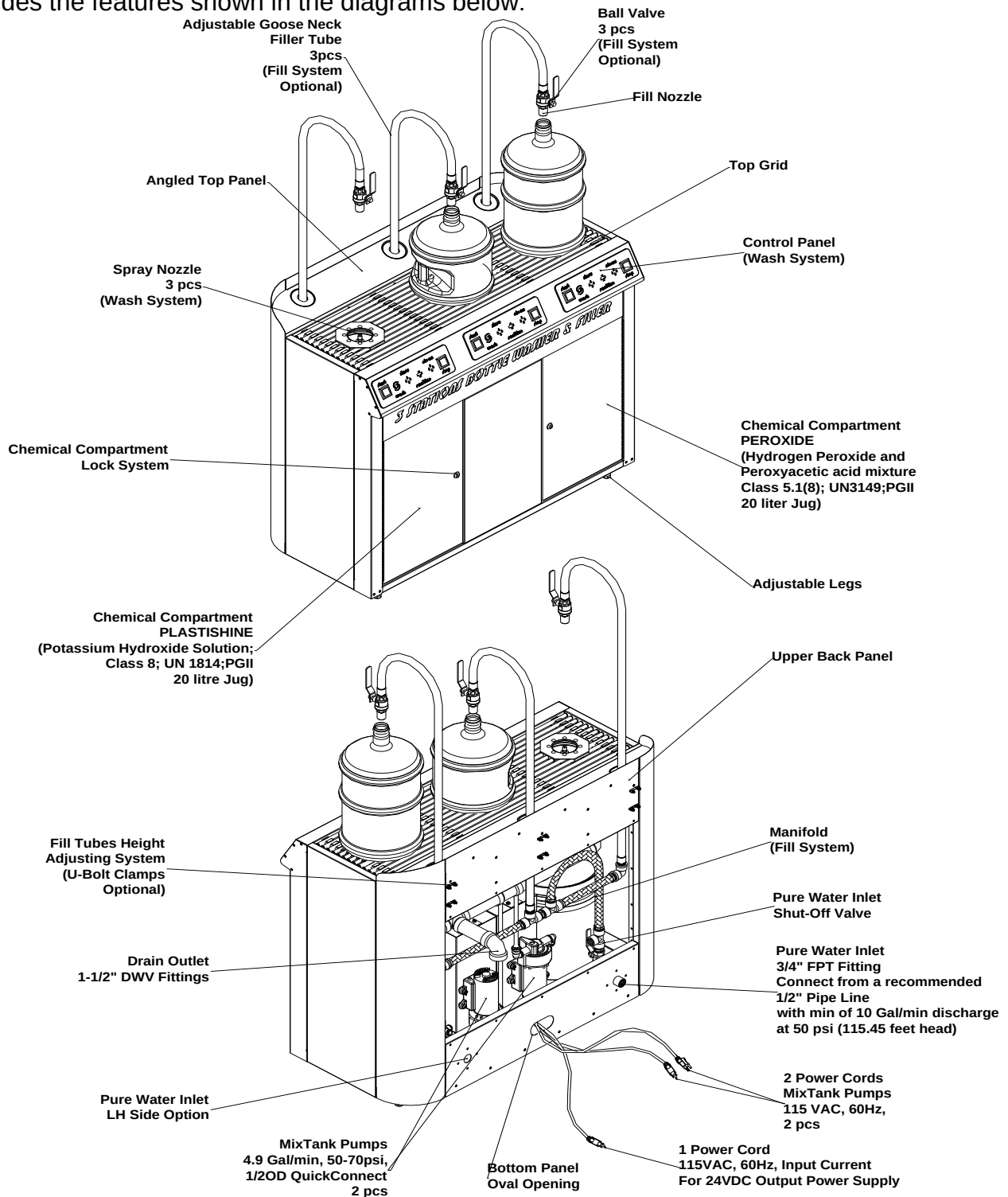
Important Safety Precautions

When using electrical appliances, basic safety precautions should always be followed including the following:

- 1. Read all instructions**
- 2.** To protect against electrical shock do not immerse cords or plugs in water or other liquid.
- 3.** Close supervision is necessary when any appliance is used near children.
- 4.** Do not operate any appliance with a damaged cord or plug or after the appliance malfunctions or has been damaged in any manner. Return appliance to the nearest service facility for examination, repair or adjustment.
- 5.** The use of accessory attachments not recommended by the appliance manufacturer may cause injuries.
- 6.** This appliance is intended for the self-serve water industry.
- 7. Save these instructions.**

Features

The BWF-3 Bottle washer and filler has been engineered from the ground up and includes the features shown in the diagrams below:



Bottle Washer and Filler Features Diagram

Finding a Good Installation Location

Before installing your bottle washer and filler it is important to find a good location. Following the points listed below will provide the best location for your bottle washer and filler.

1. There needs to be adequate room for customers to use the washer and filler.
2. Plan for electrical and plumbing requirements for the bottle washer and filler. The **Pre-Installation Preparation** section in the **Installation** section of this guide explains the electrical and plumbing requirements in detail. The most critical component of the installation in regards to plumbing is the drain location. A wall drain may be your only option. If a wall drain is used, be sure there is sufficient slope to follow local plumbing codes.
3. Good lighting is required to make sure the bottle washer and filler can be operated properly. Lighting may be added to an installation location easier than plumbing or floor drains.
4. An open area that can be kept clean and maintained is important when considering the location for your bottle washer and fill station.

CHEMICAL DATA SHEET

DESCRIPTION

BWF-3 is an automatic, 4-cycle chemical wash system.

The optional gooseneck filling system allows this equipment to be turned into a complete wash and fill station for the self-serve water business or to be added to an existing bottled water store.

The three station bottle washer and filling system will allow a bottled water customer to safely and hygienically clean the inside of their own bulk bottle through a four step automated wash, rinse, sanitize and clean process. Backlit buttons clearly indicate the progress of each cycle.

The mixing of chemicals through an internal hydro proportioning and dispensing system assures proper combination of chemicals and water in the required wash and sterilization steps.

For the WASH cycle, the BWF-3 is designed to use PLASTISHINE (45% Solution). An automatic hydro-proportioning system will dilute this chemical in a proportion of approximately 1/2 to 2/3 oz of concentrate per gallon of water.

PLASTISHINE is a non-chlorinated, low foaming, liquid detergent for use in automatic bottle and glass washers, as well as low temperature commercial dishwashing machines.

ACTIVE INGREDIENTS

Potassium Hydroxide (45% Solution); Class 8; UN 1814; PG II.

PRECAUTIONS

Contains caustic. Keep out of reach of children. Avoid contact with skin and eyes.

For SANITIZING the BWF-3 is designed to use PEROX-E.

PEROX-E (Hydrogen Peroxide) is a highly effective, rapid action sanitizer for use in the beverage and food processing industries. PEROX-E is effective against a wide range of microbial life, including bacteria, bacterial spores, yeast, molds and viruses. The powerful anti-microbial action of this product makes it ideal for killing the types of microorganisms commonly associated with those found in polycarbonate water bottles that are cleaned and sanitized before reusing.

This product contains hydrogen peroxide and acetic acid, which rapidly decompose in the environment.

Diluted PEROX-E does not require neutralization before discharge into municipal sewage systems.

BENEFITS:

- This product is an acid and aids in the removal of mineral deposits.
- Tolerant to residual alkaline cleaning solutions.
- Unlike chlorine, PEROX-E has low corrosivity to stainless steel.
- Effective in cold water.
- Effective against a wide spectrum of food spoilage organisms, coli forms and spores.

For the Sanitize cycle, the BWF-3 is diluting 1 oz of PEROX-E in 1 Gal of water. Food contact surfaces do not have to be rinsed at this concentration.

ACTIVE INGREDIENTS

Hydrogen Peroxide, Acetic Acid, Peracetic Acid and Dodecyl Benzene Sulphonic Acid. Class 5.1(8); UN 3149; PG II.

PRECAUTIONS

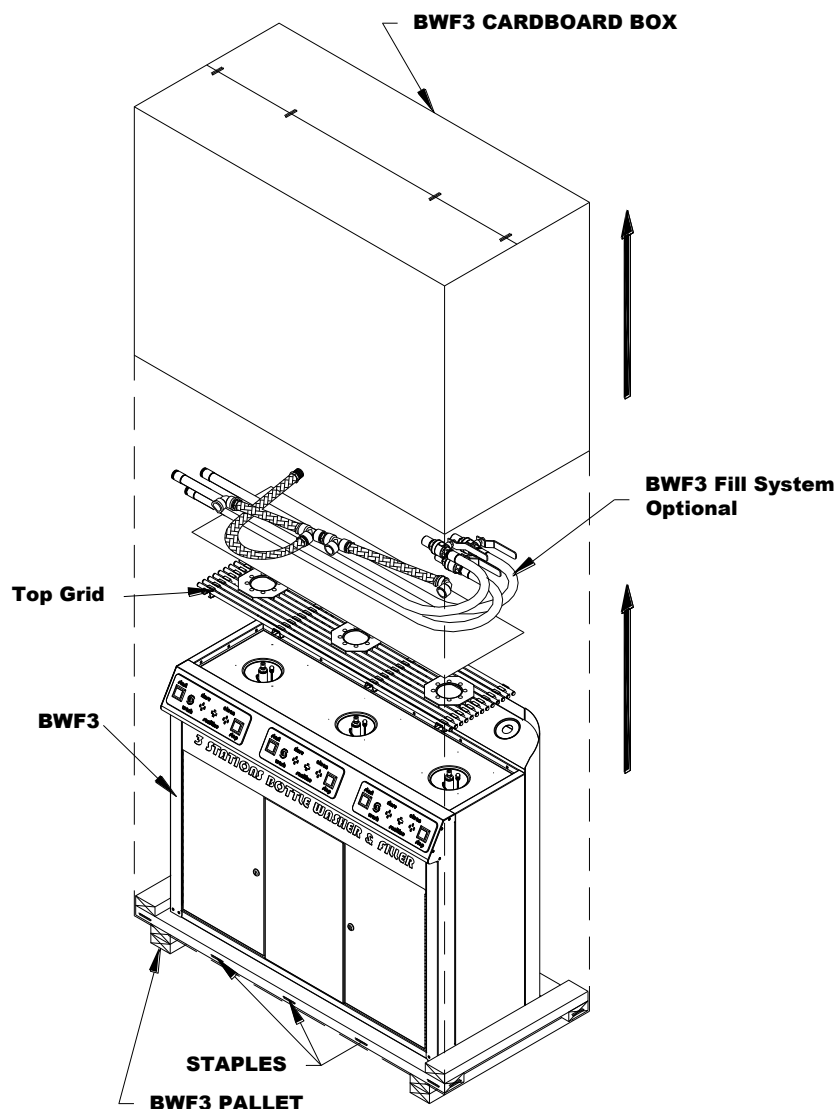
Highly CORROSIVE. Keep out of reach of children. Avoid contact with skin and eyes.

The information on this data sheet represents our current data and best opinion as to proper use in handling of the product under normal foreseeable conditions. Any use of this product which is not in conformance with this data sheet or the actual product label, or which involves using the product in combination with any other product or any other process is the responsibility of the user.

For more information on the chemicals please contact your local chemical supplier

Unpacking Your Bottle Washer and Filler

Bottle Washer and Filler Unpacking Diagram

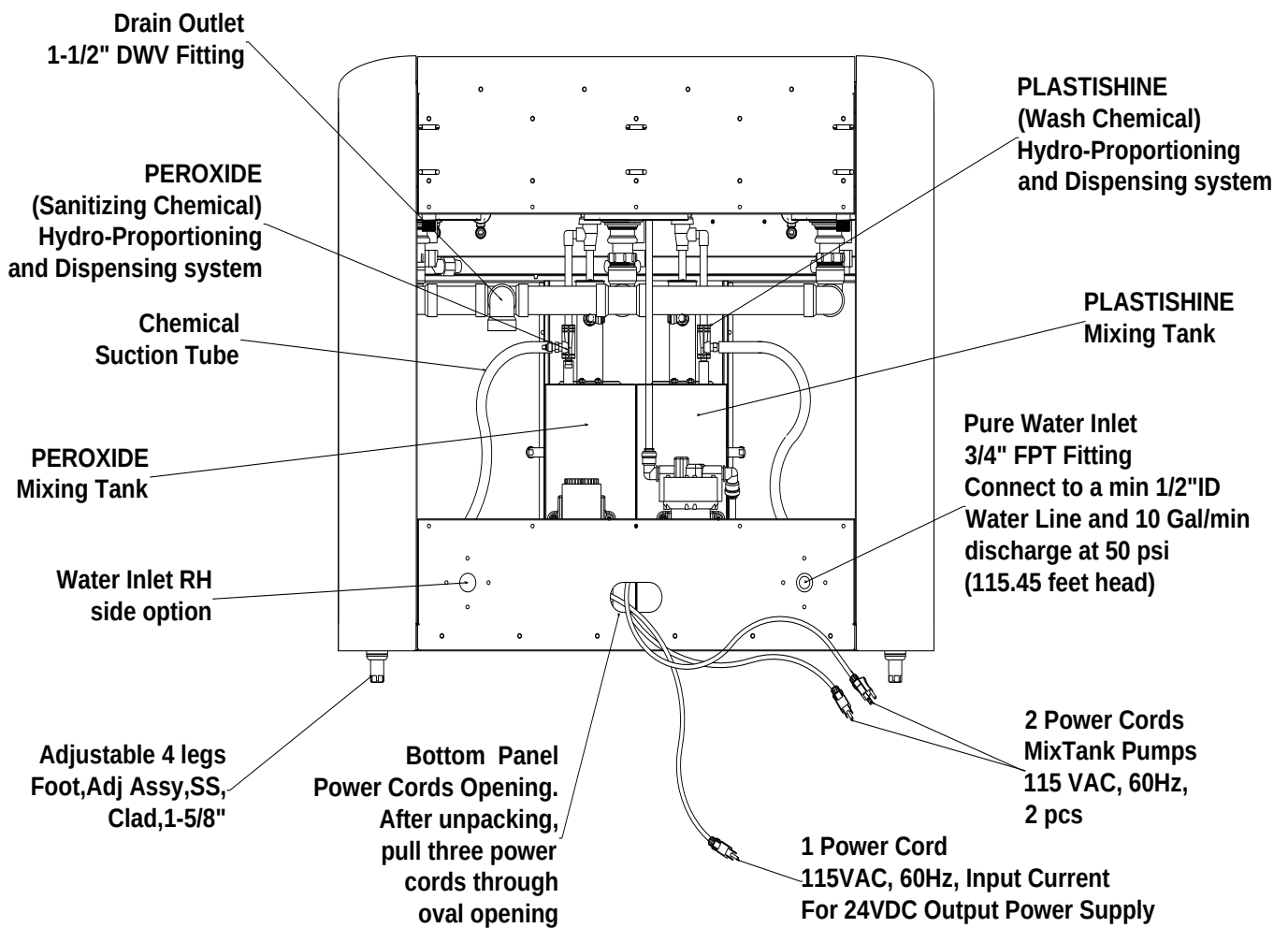


Your bottle washer and filler has been shipped on a pallet and is wrapped with cardboard, strapped and shrink-wrapped. Unpack the bottle washer and fill station by:

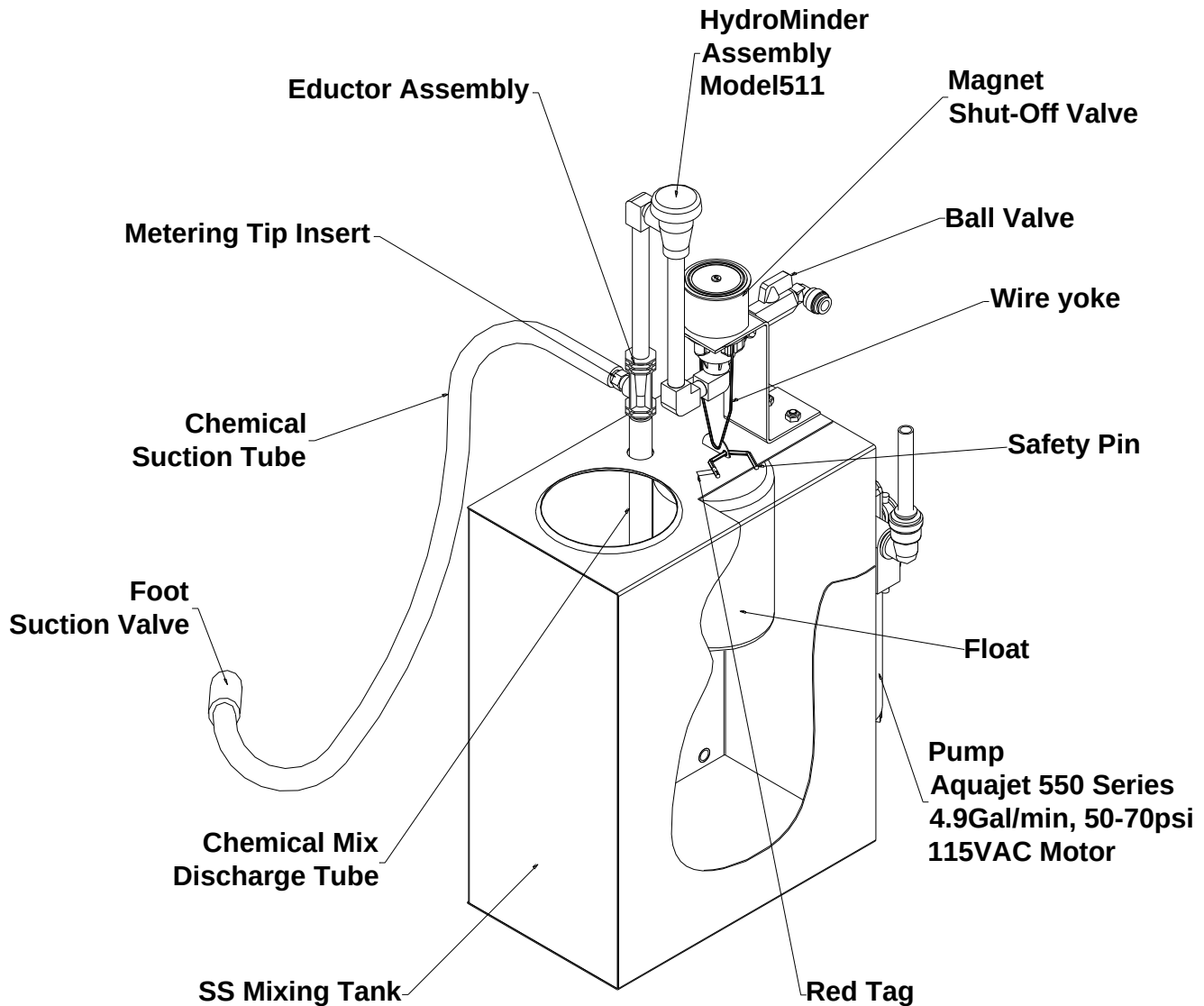
1. Removing the staples/screws off the cardboard at the bottom and lift the cardboard off of the wooden pallet.
2. Carefully remove any shrink-wrap and cut tie straps.
3. If purchasing the fill tubes, these can be found wrapped in packaging paper on top of the bottle washer. This package may also include the bottle filler manifold. If any parts are missing or if you have been given the wrong part, DO NOT return the bottle washer and filler unit. Contact your dealer for the required parts. They will be pleased to assist you.

Assembly

1. Remove the back cover of the BWF-3. You will be able to view all of the internal components from the back of the unit. (see diagram below)

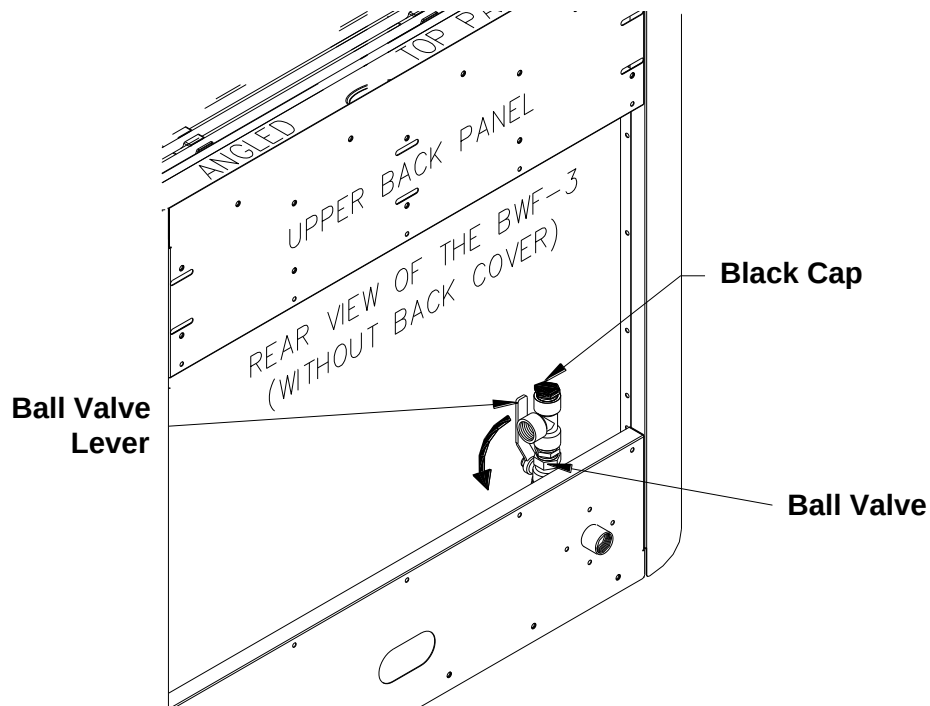


- 2. Remove** the Transport Float **Safety Pins**. Red Tags on each side of Mixing Tanks will clearly indicate location of **Safety Pins**. Pull gently and remove. A float system is attached to wire yoke. (See diagram below)



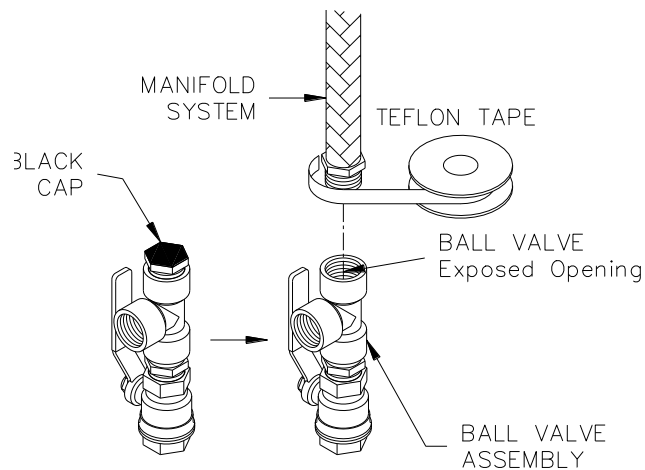
3. Ball Valve Lever (See diagram below)

Position the ball valve lever in the horizontal position (Closed Position). This will be opened later when the plumbing is hooked up and the system is ready to be run.



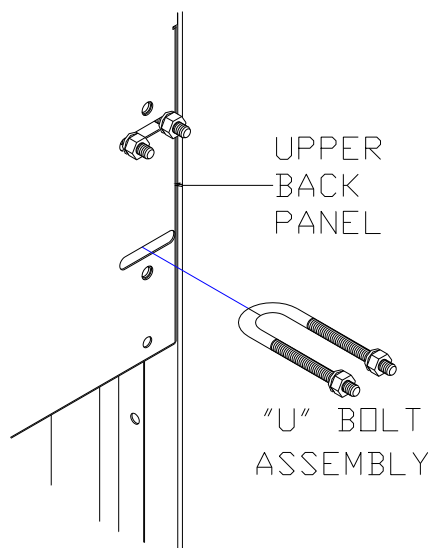
4. Gooseneck Filler System Assembly (Optional)

a) Screw off the black cap located on the Tee Valve, which is found above the ball valve fitting.

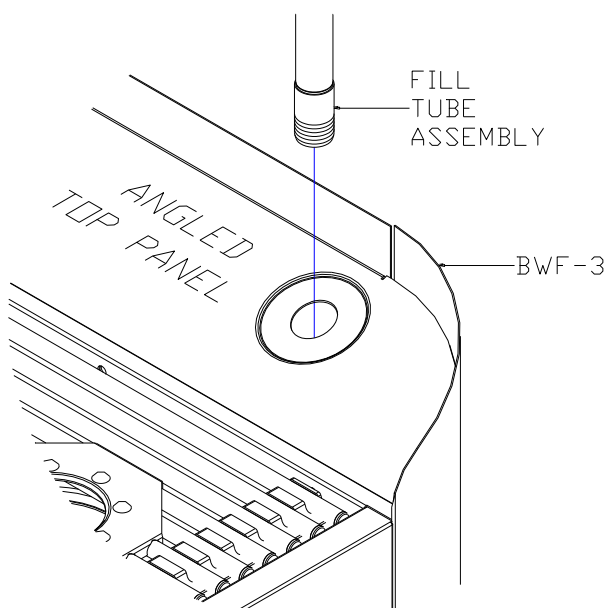


Screw the male fitting on the manifold system into the above exposed valve opening. Be sure to use Teflon tape on the fitting end before attaching. The manifold will remain loose until Gooseneck Filler tubes are attached. Continue with step b).

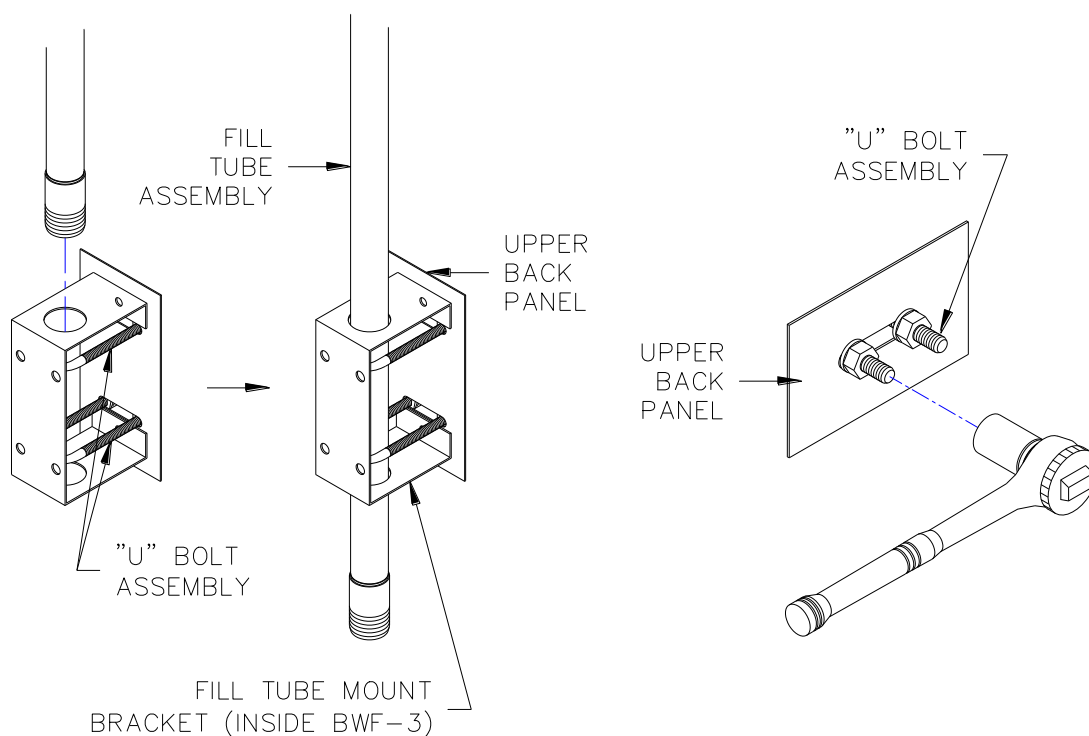
b). Insert the U-bolts through cutouts in Upper Back Panel.



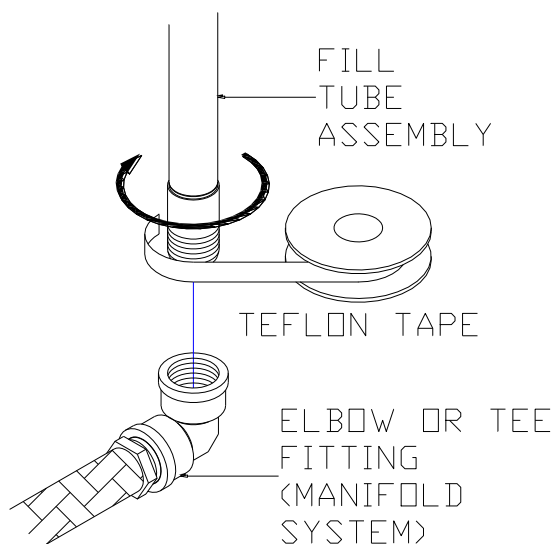
c). Insert each fill tube through an opening located on top and at the back of the BWF-3.



d). Adjust the height of each Gooseneck Filler Tube by tightening the two U-brackets found at the back of the unit

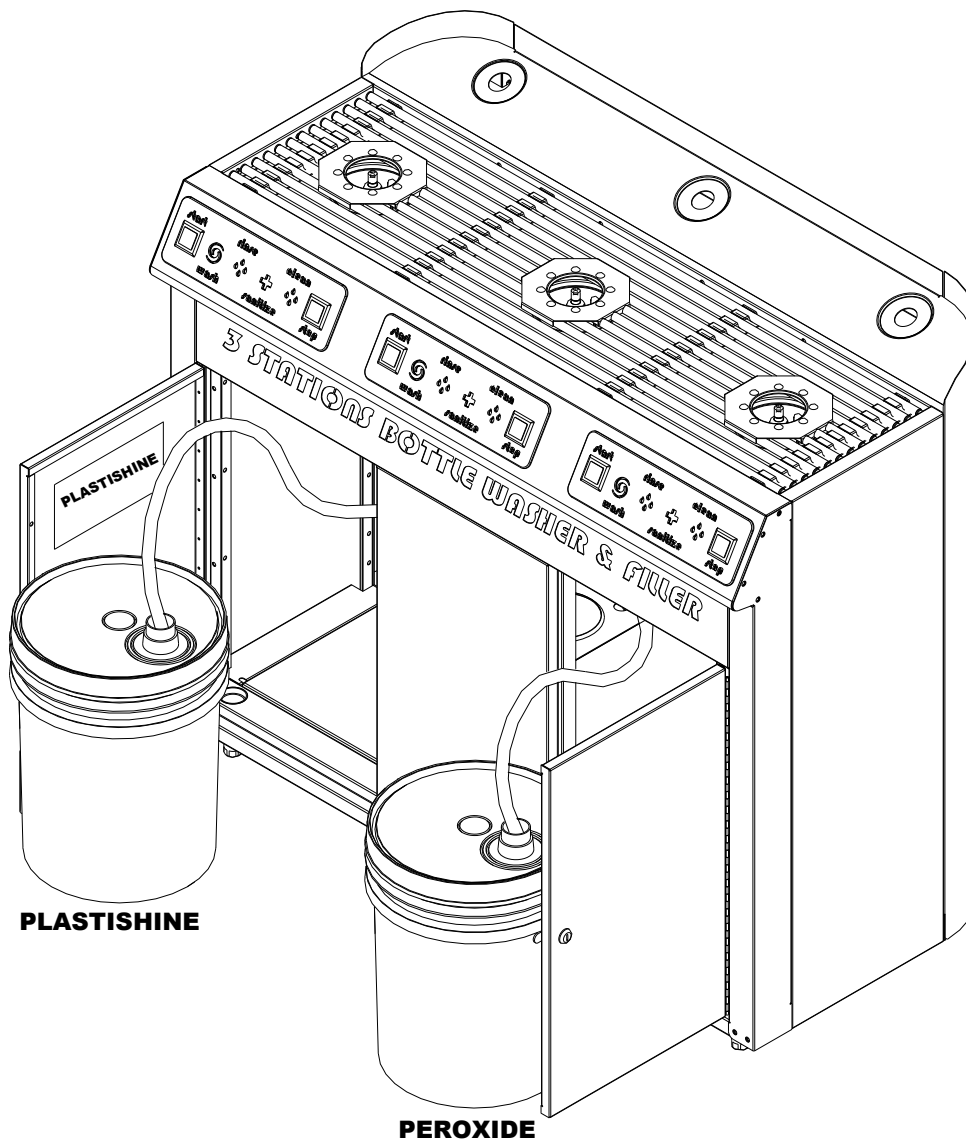


e). Apply Teflon tape to bottom of the fill tube and turn gently into manifold fitting until secure. There are three separate opening located on the manifold in which the fill tubes are inserted. **USE CAUTION NOT TO OVER TIGHTEN.**



5. Chemical Pail Insertion

Open both front doors on the BWF-3. Place pail of chemicals in the appropriate side of the BWF-3. (Indicated on the inside of the door panel) Insert the clear hose into each chemical pail. (Use gloves and protective eyewear for this step. Close door and lock.



Assembly of your bottle washer and fill station is now complete and ready to be installed.

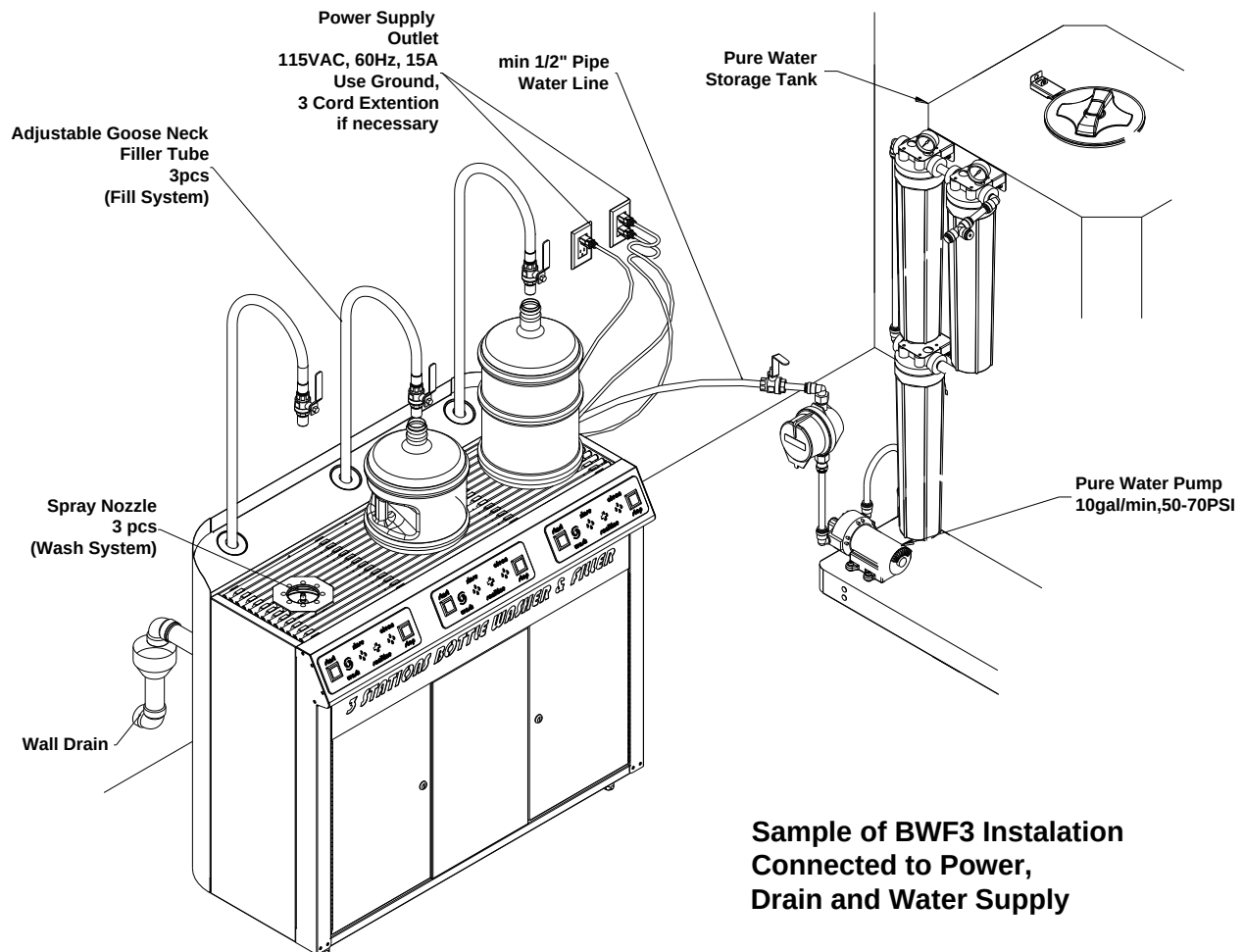
Installation

Pre-Installation Preparation

Introduction

To ensure that installation of your bottle washer and filler can be completed as quickly as possible, it is best to have all of the electrical supplies and plumbing fittings installed before your station arrives. All connections should be located so when your bottle washer and fill station arrives, all you have to do is assemble it, slide it against the wall, and connect the electrical and plumbing with a minimum amount of trouble.

The bottle washer and filler should be installed according to local electrical and plumbing codes. If you are unable to install the station according to code, then have a plumber and electrician complete all connections for you.



Water Connections

One cold pure water supply connection is required for the bottle washer and fill station. A solid minimum 1/2" inch supply line with a 3/4" MPT fitting can be attached to the water inlet located at the bottom of the washer.

BWF-3 Maximum Working Temperatures

Minimum 40°F (+4°C)

Maximum 104°F (+40°C)

BWF-3 Maximum Working Pressures

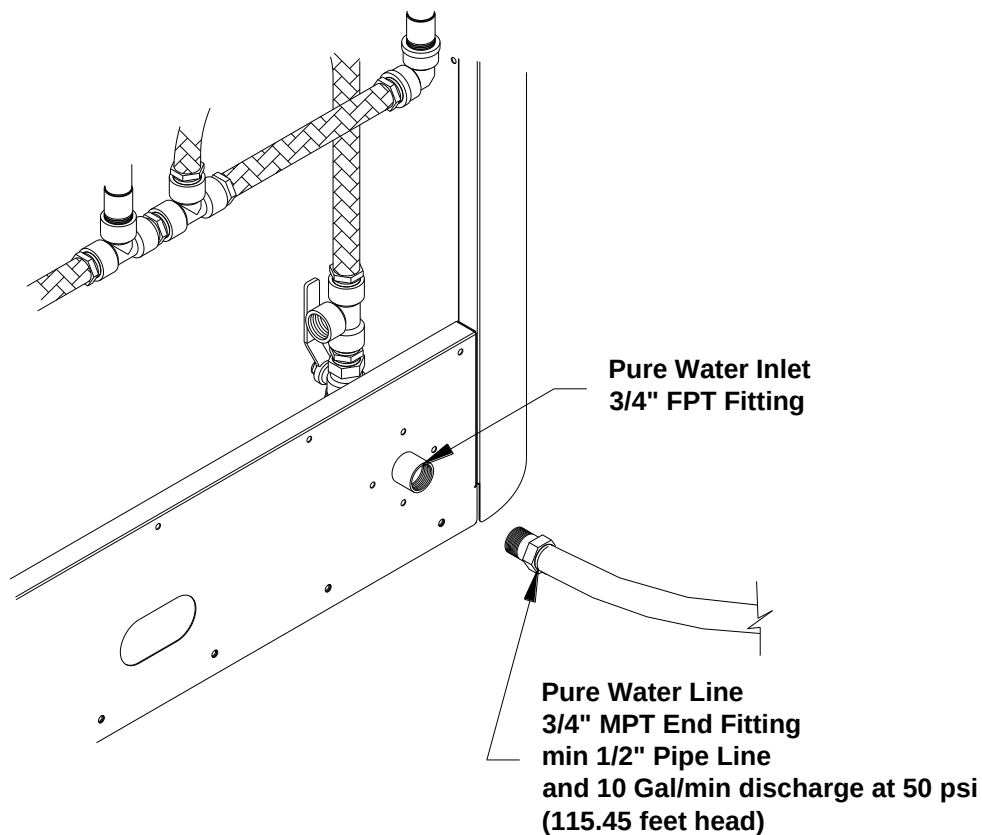
Minimum 40 psi (3 bar)

Maximum 90 psi (6 bar)

Burst Pressures are approximately 3 times the Maximum Working Pressure.

IMPORTANT

Do not connect machine to a hot water line!



IMPORTANT

Inlet water line has to be capable of providing a minimum of 10 Gal/min discharge and 40 psi of line pressure.

DO NOT EXCEED 90 psi (Solenoid Valves will not close)

The BWF-3's performance depends primarily on the indicated line pressure and discharge capability. The pressure is given by the head of water (distance between the levels of the surface of water in storage reservoir and the point of discharge) or mechanically from a pump.

One psi (pound per square inch) is equivalent to 2.3 feet water head.

As mentioned above, line pressure is not the only important factor to be taken in consideration before installing this equipment. The flow of water or discharge capability of the inlet water line will have to be also considered.

For example:

Considering a relatively short water line with no length or other bend restrictions with a water head of 120 feet (~50 psi):

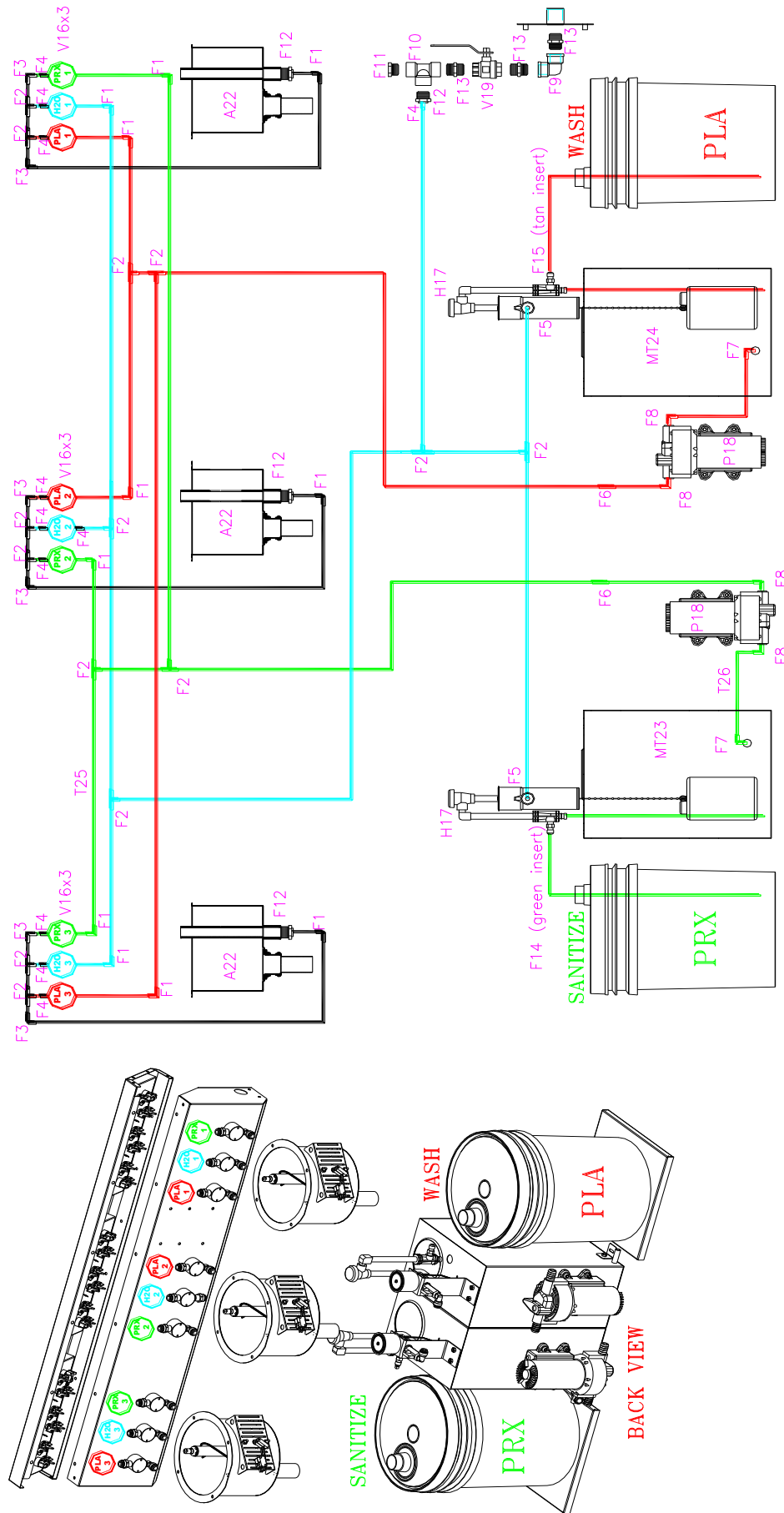
- for Ø1/4" ID (inside diameter)

Max discharge Volume is approx. 1.16 cubic feet/min = 8.68 Gal/min

- for Ø3/8" ID Max Volume = 2.61 cubic feet/min = 19.52 Gal/min

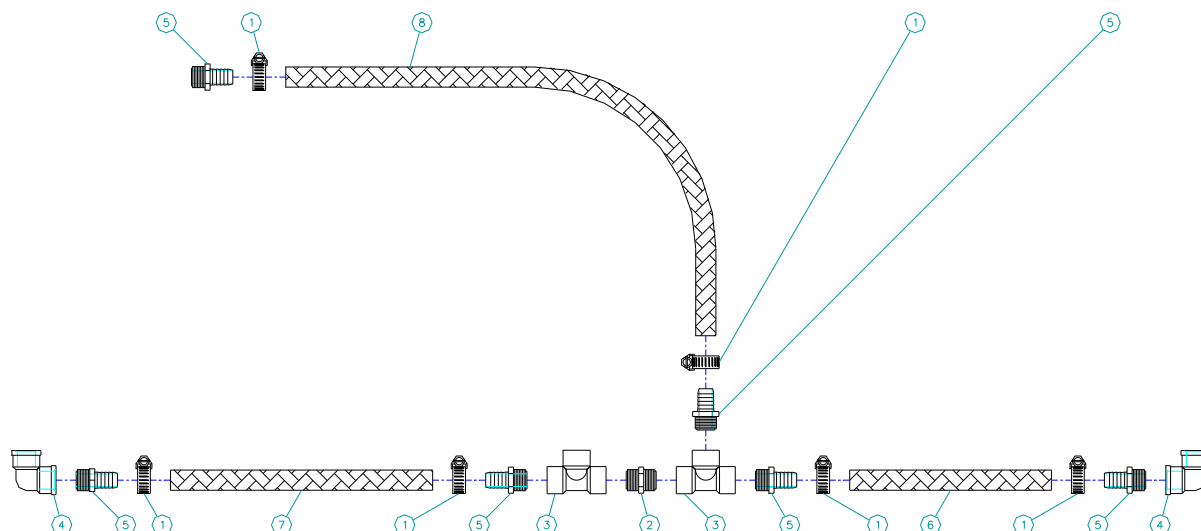
- for Ø1/2" ID Max Volume = 4.62 cubic feet/min = 34.6 Gal/min

Thus, the maximum water flow through a 1/2" water line with 50 psi is approximately 35 Gal/min. In reality, the internal water line will always be restricted by different valves or fittings. The loss of head due to too many right-angle fittings or long distance from the source of water (pump location) to the actual discharge point (unit's water inlet), will dramatically change the quality and efficiency of our bottle washing and filling system, especially if two or three stations are used simultaneously. This loss of efficiency will be mostly visible in the RINSE and CLEAN periods of the wash cycle where the unit is entirely dependent on the water line discharge and pressure.



BWF-3 PLUMBING-Wash System

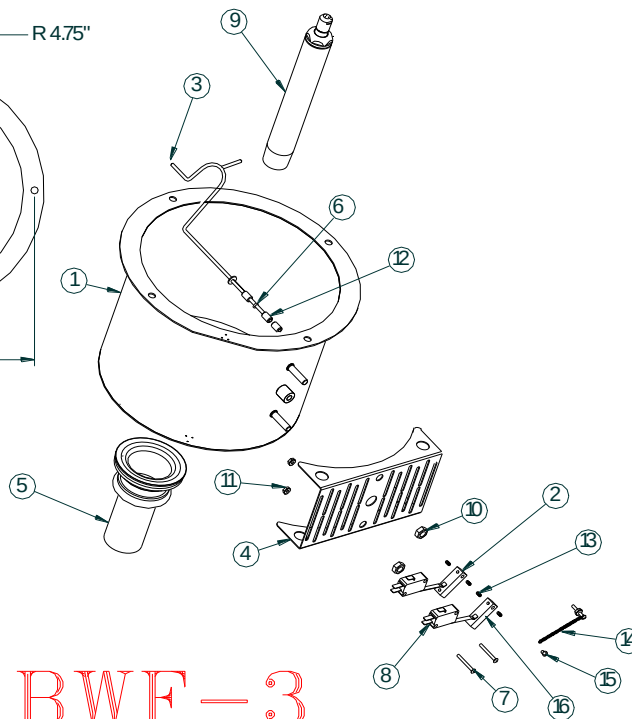
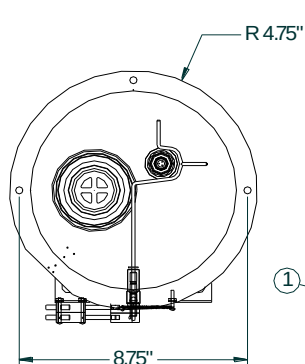
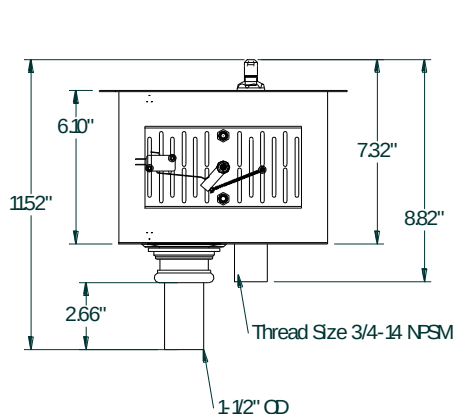
NO	Part #	Description	Qty
18	080282	Pump, 115V,AQ,Var,4.9Gal, 50PSI,Bey 2	2
17	080330	Hydrominder, Model 511	2
16	060135	Valve, Sol, 24VDC,14W, 3/8 FPT BE	9
15	(080330)	Ton (med.brown) Insert	1
14	(080330)	Green Insert	1
13	034064	NIPPLE 3/4MPT	3
12	034093	REDUCER BUSHING 3/4MPT-3/8FPT	4
11	034092	PLUG 3/4MPT	1
10	034043	TEE, NYLON, 3/4" FPT	1
9	034063	Elbow,90,PolyP, 3/4FPT BE	1
8	034096	ELBOW PUMP FITTING 1/2OD	2
7	034095	ELBOW 1/2OD,JG	2
6	034026	Coupler,3/8"JG x 1/2"JG	4
5	034020	ELBOW 3/8OD-1/4MPTF,JG	2
4	034096	CONNECTOR 3/8OD-3/8MPTF,JG	11
3	034013	ELBOW 3/8OD,JG	6
2	034091	TEE 3/8OD,LG	14
1	034019	Elbow,90,3/8"MPTx3/8" JG	11
26	052021	LDPE Tubing 1/2"OD, JG	1
25	052020	LDPE Tubing 3/8OD, JG	1
24	900435	Mix-Tank 22L,LH,WA	1
23	900436	Mix-Tank 22L,RH,WA	1
22	900256	Drain Reservoir, 8" Assy	3
21	080333	Peroxyacetic acid, 20L Jug	1
20	080332	PLASTISHINE, 20L Jug	1
19	030039	Valve,3/4"Ball,SS,FullFlow	1



8	052013Raw	TUBING, BRAIDED PVC, 3/4"ID
7	052013Raw	TUBING, BRAIDED PVC, 3/4"ID
6	052013Raw	TUBING, BRAIDED PVC, 3/4"ID
5	034062	COUPLER, POLY, 3/4"NPT X 3/4"HB
4	034063	ELBOW, POLY, 3/4"NPT, FEMALE
3	034043	TEE, POLY, 3/4"NPT, FEMALE
2	034064	NIPPLE, POLY, 3/4"NPT, MALE
1	080121	CLAMP, GEAR, 1-1/4" SS
No.	Part Number	Description

BWF-3

Filling Manifold



16	500278	Bar, Actuator, Boiler Float	1
15	012003-Mbd	ScwMachPltd4-40x3/8"Rnd/Sk	1
14	080334	Spring, Drain Reservoir 8"	1
13	016014	Set ScrewBlk6-32x0.25cup ft.	4
12	080127	NylonBushing0.25x0.125x0.4	3
11	026003	Nut Kep Flt 4-40	3
10	025000	Nut Hex SS 1/4-20	2
9	900250	SprayNozzle	1
8	060059	MicroswitchLongArmFormed	2
7	016017	ScwMachPltd4-40x1-1/4"Rnd/Sk	2
6	080128	O-ringViton0.063x0.125x0.25	1
5	080223	Bulk-head Drain	1
4	900249	Switch Bracket	1
3	900251	Switch Arm	1
2	900427	Bar Activator, FDR	1
1	900255	DrainReservoir-WeldedAssy	1
Nb	Part #	Description	Qty

BWF-3

Wash and Drain Reservoir

Drain Connections

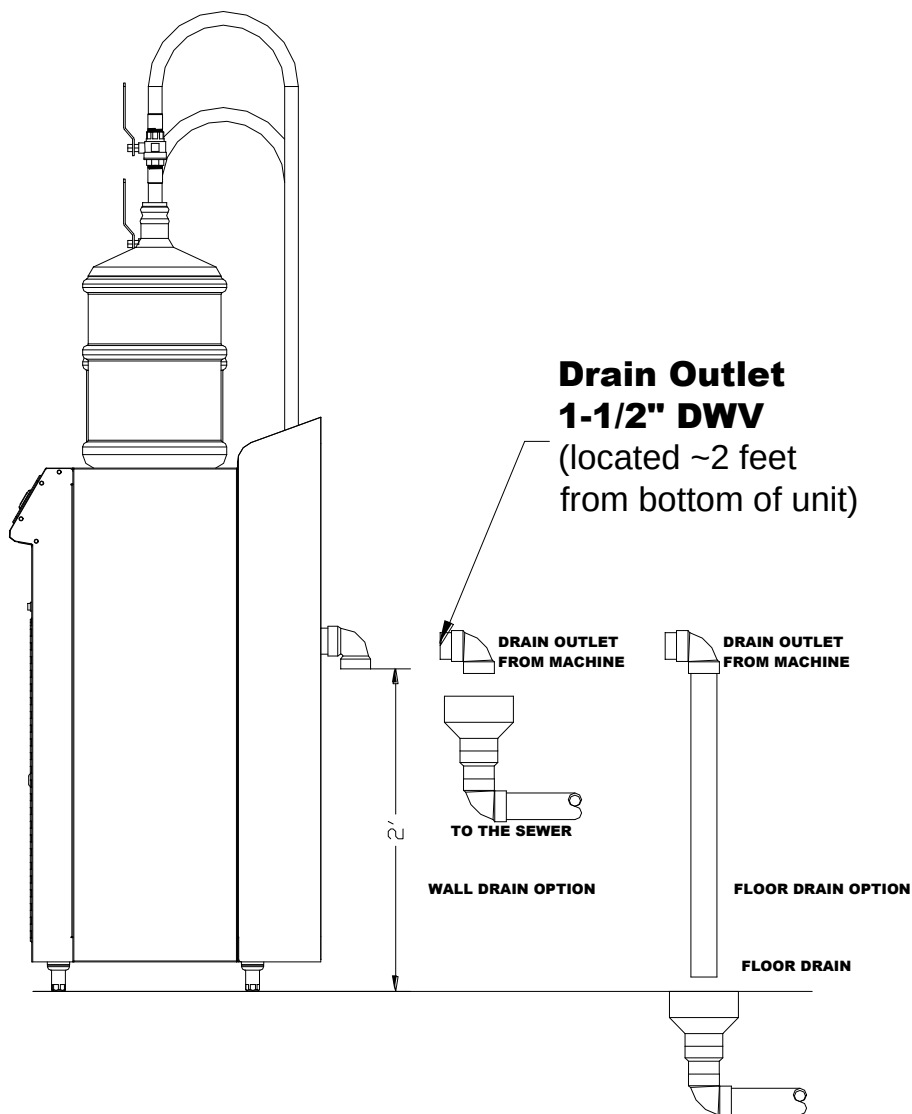
The Diagram below shows the dimensions and location of the BWF-3's Drain Outlet. This can be connected to a wall drain or by using an extension 1-1/2" DWV pipe (not provided) to a floor drain.

Important

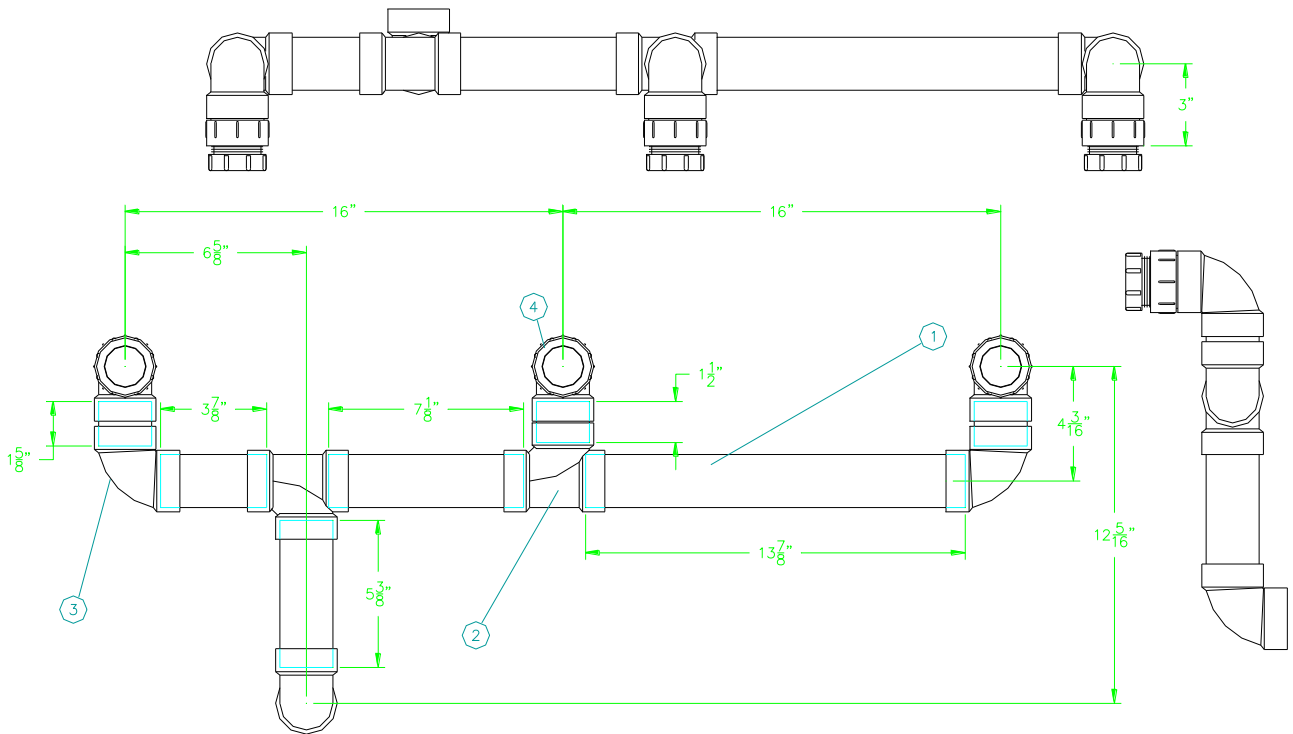
Be sure to install according to appropriate local building codes.

NOTE:

ALL DIMENSIONS ARE ACCURATE AT TIME OF PRINTING
BUT ARE SUBJECT TO CHANGE WITHOUT NOTICE.



Bottle Washer and Filler Drain Manifold



4	034060	Trap Adapt, ABS, 1-1/2" HB X 1-1/2" MALE
3	034061	ELBOW, ABS, 1-1/2" FEMALE
2	034059	TEE, ABS, 1-1/2" FEMALE
1	034058Row	PIPE, ABS, 1-1/2" X 3-7/8"

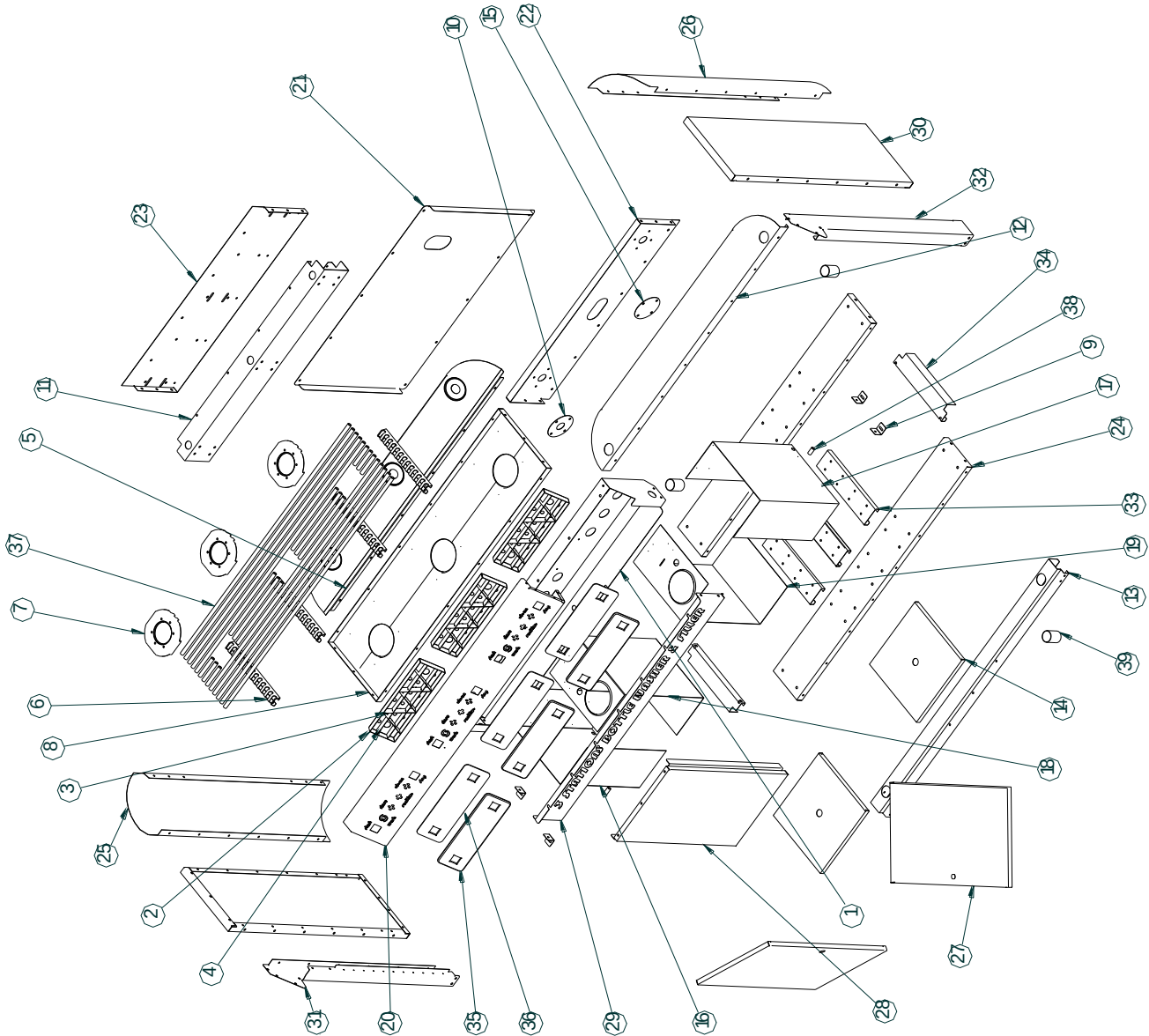
Electrical Connections

Three Prong 115Volt/60Hz/ 15Amps power connections are required for the BWF-3 System.

Verify that the available power matches the voltage, current, frequency, and phase specified on the systems nameplate before connecting any power to the unit.

Caution: Connecting the unit to a power source, which does not match the unit power rating, may cause damage to the unit and void the warranty.

BWF-3 ENCLOSURE PARTS LIST EXPLODED DIAGRAM



1	900268-	Electrical Panel	1
2	900269-	Light Box	3
3	900270-	LightBox Divider	15
4	900271-	Light Box Divider Long	6
5	900272-	Top Panel Angled	1
6	900273-	Bracket Grid	4
7	900302-	Funnel	3
8	900274-	Top Tray	1
9	900275-	Bracket Tank	4
10	900276-	Inlet Flange	1
11	900277-	Rear Bracket Faucets	1
12	900278-	Bottom Panel Back	1
13	900279-	Bottom Panel Front	1
14	900280-	Scale Tray	2
15	900281-	Over	2
16	900282-	TankSide Left	1
17	900283-	TankSide Right	1
18	900284-	TankTop Left	1
19	900285-	TankTop Right	1
20	900286-	Front Panel LaserCut	1
21	900287-	Back Cover Plate	1
22	900288-	Back Panel Bottom	1
23	900289-	Back Panel Top	1
24	900290-	Bottom Panel Center	2
25	900291-	Back Round Corner Left	1
26	900292-	Back Round Corner Right	1
27	900293-	Door Panel	2
28	900294-	FrontPanel Center	1
29	900295-	FrontBottom Panel LaserCut	1
30	900296-	Side Panel	2
31	900297-	SidePanel Front Left	1
32	900297-	SidePanel Front Right	1
33	900299-	BottomBracket Center	3
34	900300-	BottomBracket Corner	2
35	900301-	LEXANProtection Panel	3
36	900456-	LEXANFront Panel	3
37	900451-	Top Grid Cut Tubing	50
38	900439-	Tube-SS-0.5ODx1	2
39	900452-	LegTube163OD	4
Nb.	Part #	Description	Qty

Operation

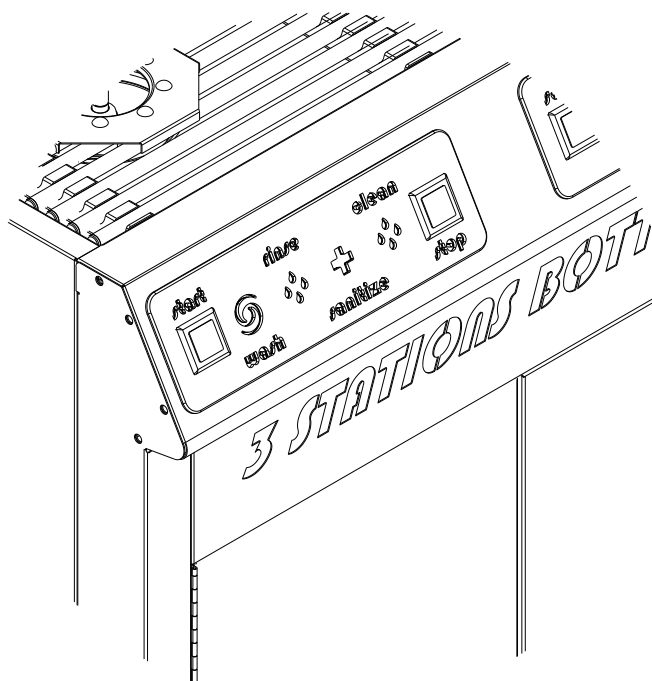
NOTE: Read all parts of the Owners' Guide before operating the Bottle Washer and Filler.

Introduction

For the washing and sterilizing of bottles made of polycarbonate, care must be taken in the mixing of chemicals and the appropriate rinse cycles. These have been preset at factory for your safety and convenience.

System Preparation

1. Screw in the pure water line into the opening located at the back of the unit.
2. Attach the BWF-3 drain system to the sewer system.
3. Plug into a power source
4. Slowly open the ball valve. The mixing tanks will fill and the pumps will shut off. If pumps do not shut off, remove fitting on specific line to pump and drain. Connect and try again in order to prime pump.
5. Place a bottle into each wash station opening. Check to see if the START button is lit. This will indicate all electronics are in working order.
6. Press the start button at the first station. Wait five seconds and repeat process for station 2 and 3. Run through the cleaning process a few times to assure proper mixing. Check all plumbing and electrical fittings for leaks. Attach back cover.



BDF-3 Front Panel Diagram (One Station)

Bottle Washer and Filler Procedure

Introduction

Once the start button is pressed an automatic cycle will take about 30 seconds to complete.

The four wash operational steps are

Step 1: Washing- 5 seconds

Step 2: Rinsing- 10 seconds

Step 3: Sterilizing- 5 seconds

Step 4: Cleaning- 10 seconds

Once finished, the operator turns the bottle over and fills the bottle manually.

Step 5 (optional): Filling- Varies upon pump and size of bottle.

Maintenance and Cleaning

Regular Maintenance

Keeping your bottle washer and fill station clean on a daily basis is the best maintenance that you can provide.

Remove the Top Grid and wash your top tray with a scotchbrite type pad to keep your BWF-3 sparkling clean.

Reservoir openings may have sharp edges. Therefore always wear protective gloves while performing this operation.

IMPORTANT

Never use steel wool type scrubbers as they will contaminate the stainless steel and promote rust.

PLEASE NOTE: Small plastic inserts located in most no spill caps may be left in polycarbonate bottles and when placed on bottle washer will fall to the bottom of the wash sink. Remove these clear inserts by simply placing your hand in the openings and discard. Be careful of sharp edges when inserting hand.

Troubleshooting

Caution! Always Disconnect all power before completing any Troubleshooting.

PROBLEM	CAUSE AND SOLUTION
A) Unit will not start	1. No electrical power. <i>(Check power supply, circuit breakers, fuses etc.; Make sure all three power cords are inserted into power outlets)</i> 2. Inlet Valve not opened. <i>(Remove back panel and open inlet water valve)</i> 3. No bottle inserted. <i>(Unit will not start without bottle inserted into wash station)</i> 4. Insufficient feed pressure. <i>(Check feed water supply)</i> 5. Pumps <i>(Check or replace)</i> 6. Solenoid Valves will not open. <i>(Check or replace).</i> 7. TWIDO Programmable Controller is not functioning. <i>(Send back for reprogramming or Replacing)</i> 8. START Micro Switch inside wash reservoirs will not close circuit <i>(Remove bottle and check switch arm proper functioning. Remove back panel and check micro-switch activators. See wash and drain reservoir diagram. Replace if necessary.)</i>
B) No water or low pressure	1. Feed water valve partially closed or turned off. <i>(check)</i> 2. Feed water line too small in diameter. <i>(See Water Connections Paragraph in this manual)</i> 3. Obstructed feed line. <i>(check)</i> 4. Inlet feed pressure too slow. <i>(check feed pressure and pumps)</i>
C) No WASH or SANITIZE	1. Mix Tank Pump will not start. <i>(check all power plugs and power supply)</i> 2. Malfunctioning Pump. <i>(Check, replace if necessary)</i> 3. Empty Mixing Tanks. <i>(Check Hydro-Minder Proportioner Valves to be open)</i> 4. Solenoid Valves will not open. <i>(Check and replace if necessary)</i>
D) START will not turn off after bottle removal	1. START Micro Switch inside wash reservoirs will not open circuit. <i>(Remove bottle and check switch arm proper functioning. Remove back panel and check micro-switch activators. See wash and drain reservoir assembly diagram. Replace if necessary.)</i>
E) Unit is turning on before bottle inserted or START button activated	1. Solenoid Valves will not close water circuit. <i>(Check valves and replace if necessary. See Plumbing Diagram)</i>
F) Mix Tank overflow	1. Hydro-Minder Proportioner malfunctioning. <i>(check, clean or replace)</i> 2. Excessive water pressure. <i>(check and install regulator)</i> 3. Valve parts dirty or defective. <i>(Clean or replace)</i> 4. Clogged valve orifice. <i>(Clean or replace)</i> 5. Float stuck. <i>(Check)</i>
G) Water Leaks	1. Plumbing problem. <i>(Check hose and fittings)</i>
H) Mix Tank empty	1. No water. <i>(check B)</i> 2. Float Safety Pin not removed. <i>(See Installation Paragraph)</i> 3. Defective HydroProportioner. <i>(Check, replace)</i>

I) No concentrate draw	1. Clogged foot valve. (Clean or Replace) 2. Metering Tip or eductor clogged. (Clean or Replace) 3. Low water pressure. (Check B) 4. Discharge tube not in place. (Check inside tank and reposition)
J) Mix Tank Pump is turning on for short periods without any activation (frequent “knock” noise)	1. Loss of pressure in plumbing circuit (Look for leaks. Check plumbing. Check inside wash reservoirs for nozzle leaks) 2. Solenoid valves plugged. Will not turn off completely. (Check or replace)

Contact any Precision Water Systems Service Centre to correct any problems with your Bottle Washer and Fill Station that is not covered in this guide.

To locate a Service Centre in your area contact the manufacturer at:

Precision Design & Manufacturing Inc.

10331 – 105th Street

Westlock, Alberta, Canada

T7P 2H7

<http://www.precisioncanada.com>

e-mail: info@precisioncanada.com

Phone: (780) 349 4933

FAX: (780) 349 4957

Optional Accessories

All Options are available from your Precision Water Systems Dealer or Service Centre

