WATT'R TWIN™

Energy-Efficient Home Water System

Owner and Installation Manual

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Important Safety Information

WARNING

- Pressure relief valve and piping must be installed according to local codes and manufacturer's instructions.
- Never use extension cords to operate the WATT'R TWIN.
- Operate the WATT'R TWIN indoors only.
- The installation and use of this product must comply with all applicable state and local laws and regulations.
- Follow manufacturer's instructions provided with the WATT'R TWIN at all times.
- Disconnect the distiller from the power supply before assembling, adjusting or servicing the distiller.
- If you are not sure that your electrical outlet is properly grounded or that the circuit protection is correct, have it checked by a qualified electrician.

NEVER:

- Touch the boiling tank inside the distiller until it has cooled to room temperature.
- Immerse the distiller in water or any other liquid.
- Operate the distiller with a damaged cord.
- Allow the cord to become exposed to hot surfaces.
- Let children play with the distiller.

NOTES:

- Always turn the electrical power off before opening the drawer or removing the protective cover for *any reason* while the equipment is operating.
- **IMPORTANT:** This distiller is designed to be used only with Pure Water, Inc. accessories and replacement components.
- The physiological effects of the operation of this distiller, beneficial or otherwise have not been investigated by U.L.
- The area **MUST** be well ventilated.

Introduction

Congratulations on purchasing the WATT'R TWIN environmentally-friendly water system. With proper care and attention, the WATT'R TWIN will give you many years of service in providing additional hot water for your household needs, and also delicious, high-purity drinking water very economically. The WATT'R TWIN is the result of more than ten years of research and development and is the model of efficiency.

Please read this manual thoroughly before installing and using your WATT'R TWIN.

Record Important Information

The serial number is found on the back panel. You should record all of the information below for future reference.

Date of Purchase:_____

Model: **Pure Water WATT'R TWIN**

Serial Number: _____

Purchased from: _____

_____

Maintenance Supplies

These maintenance supplies can be purchased from your dealer, or directly from Pure Water, Inc.

- Lumen™ cleaner and descaler for cleaning the boiling tank. Stock #6603.
- Stainless steel polish. Stock #6606.
- Post-filter replacement cartridge. Stock #32513.

Included With Your Distiller

The WATT'R TWIN is shipped in 3 boxes:

BOX #1 The Drinking Water Purification System Box Includes:

- The water purification system built on a removable tray that is inserted into a stand for the hot water tank.
- A faucet kit so the distilled water pump can deliver distilled water to your sink.
- An ice-maker kit to allow you to run distilled water to your refrigerator.
- Tubing and fittings necessary to connect the drinking water to the faucet and icemaker.
- Tubing and fittings necessary to install the complete WATT'R TWIN properly.

Box #2 The Hot Water Tank Box Includes:

A heat recovery and storage tank (the "Hot Water Tank"). This looks similar to a water heater, but has a hollow stainless steel condensing tube inserted in place of the heating element.

Box #3 The Protective Cover Box Includes:

A mountable cover. This is used to hold the removable tray in place and protect the wiring, water, and steam lines between the drinking water system and the hot water tank.

How Your Distiller Works

The WATT'R TWIN is designed to produce approximately 1/2 gallon of high-quality, pure distilled water per hour, provided that hot water is needed.

The WATT'R TWIN is a fully automatic unit. The water level in the boiling tank and storage tank are controlled by individual probes and floats.

Raw Water

Feedwater is automatically added to the boiling chamber until a high level is reached and this triggers the heating element to operate. This begins the distillation cycle.

Steam

As the unit heats the water to steam, the water level in the boiling tank falls. When the water level gets close to the heating element, the low-level probe signals for feedwater to be added until the high level is reached. If, for some reason, no water enters the boiling tank when needed, the heating element will remain off until the condition is corrected.

Condensation

The steam rises into the patented heat exchange element. The steam transfers it's heat to the water in the hot water tank. The steam condenses into distilled water, and the water in the hot water tank heats up.

Distilled Water

Once the storage tank is full of distilled water, or the water in the hot water tank reaches a preset temperature, the unit will automatically shut down. If the distiller shuts off because the temperature in the hot water tank is too high, the distiller will restart when the temperature falls below the preset point. If the distiller shut off because the storage tank was full, the distiller will restart when the storage tank level drops to approximately 3/4 full, and the water in the hot water tank falls below a preset temperature.

To Your Family

The distilled drinking water is drawn from the storage tank through a faucet. A demand pump allows distilled water to be delivered to the faucet, chilled/hot water dispenser, refrigerator, icemaker or other locations as desired.

The WATT'R TWIN is equipped with an Automatic Drain Valve, which allows the residue from the boiling tank to be drained periodically. This drain valve is normally closed, so that it only opens when power is supplied to the valve. The drain valve is on a timer, so that when the unit is turned on, or before starting a distilling cycle, the drain valve opens for five minutes to drain the water and residue from the boiling chamber.

Getting to Know Your Distiller

Refer to the diagrams on pages 7, 8 and 9 and follow the numbers on the diagrams with those listed here.

Your WATT'R TWIN consists of two main components:

Note: The hot water system and the drinking water lines are completely separate and never mix.

A. A hot water tank which absorbs heat from the steam produced by the drinking water treatment system (Item B) and in which, hot water is produced as a by-product.

B. A drinking water treatment system. To make the WATT'R TWIN easy to service, the distiller is designed to be on a removable tray. When servicing is required, the tray is quickly disconnected and simply slides out.

Subcomponents:

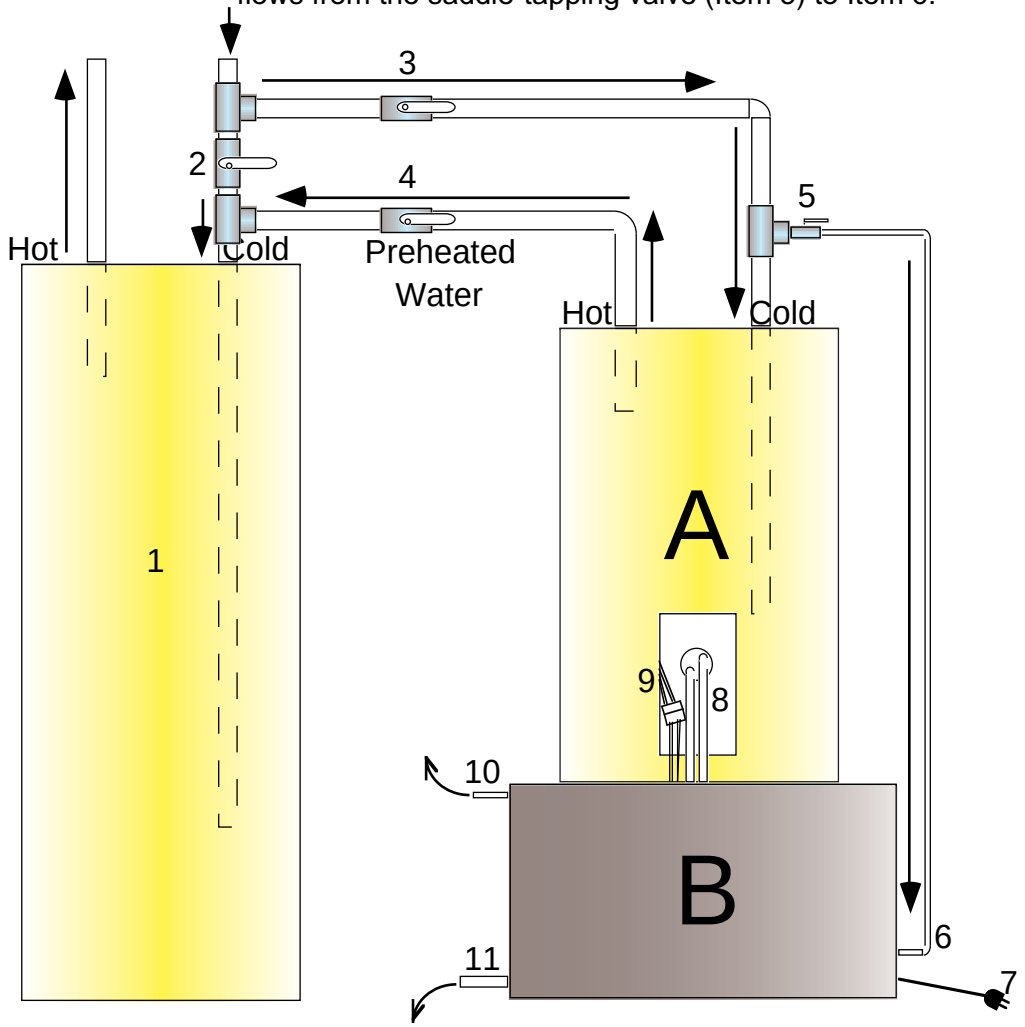
1. This is your current hot water heater. It can be gas, electric or oil-fired.

2. When closed, this valve diverts cold water coming into your hot water heater (Item 1) to the WATT'R TWIN.

3. This valve, when open allows cold water to flow into the hot water tank of the WATT'R TWIN.

4. When open, this allows water from the hot water tank to flow into the existing hot water heater.

5. This is the souce of the water to be purified for drinking by the distiller. It flows from the saddle-tapping valve (Item 5) to Item 6.



6. The quickconnect fitting for the plastic tubing bringing raw water from the saddle-tapping valve (Item 5).

7. The WATT'R TWIN has a power cord which plugs into a standard grounded wall outlet.

8. When the steam from the distiller rises, it goes up through the silicone tubing (Item 8) into a patented hollow stainless steel condenser which screws into the hot water tank where the heating element is normally placed. Here the cooler water in the water tank comes into contact with the outer surface of the condenser and removes heat produced by the steam. When the heat is removed, two things happen:

   a. The water in the hot water tank heats up

   b. The steam cools down and converts to high purity distilled water.

CAUTION: Water from the drain can be very hot and could burn. Keep children and pets away from the drain line.

9. The connection of the thermostat in the hot water tank to the electronic controls inside the distiller. With this connection, the distiller automatically turns on and off depending on the need for drinking water, and the temperature of the water inside the hot water tank.

10. This is the distilled water delivery line. Distilled water is pumped by the built-in pump to the distilled water faucet at your sink.

11. Water from the boiling chamber is automatically drained through this tube. This reduces the amount of buildup and maintenance for the boiling chamber. The tube must be connected to the drain with an appropriate

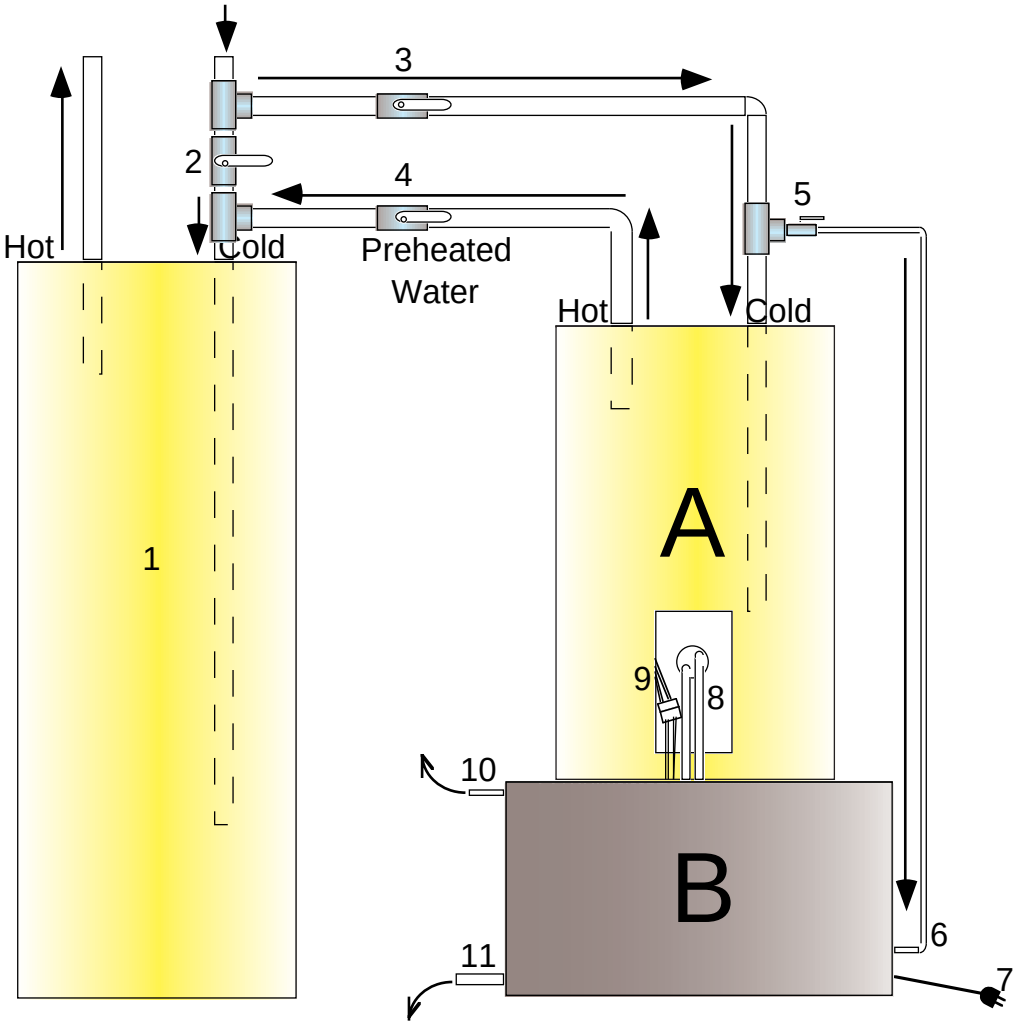
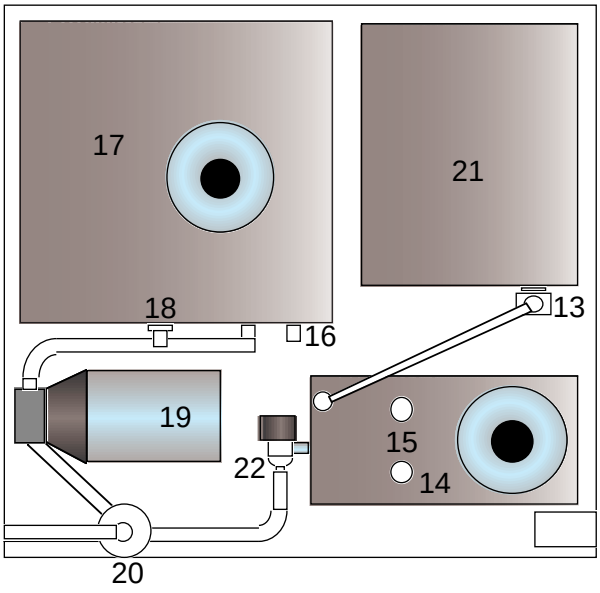


Figure 1

air gap depending on local, state or federal guidelines.

12. This is the distiller. On page 8, all of the main components in the distiller are identified and explained.
13. The inlet solenoid automatically allows raw water into the distiller.
14. This boiling chamber heats the raw water until it changes to steam.
15. These are the high and low level probes that control the level in the boiling chamber.
16. The distilled water enters the storage tank here.
17. The distilled water storage tank.
18. High, Medium and low level floats for the distilled water storage tank.
19. This pump, with built-in pressure switch, delivers pressurized water to remote locations.
20. The carbon filter is mounted inside the housing. This filter should be changed every 3 months or 90 days.
21. This enclosure houses all of the electronic controls for the entire distillation unit. This housing should only be opened by a Pure Water, Inc. certified service person.
22. This automatic valve drains the boiling chamber periodically to reduce buildup of scale and contaminants in the boiling chamber.

Top View of the Distiller



Selecting a Location:

The ideal location for the WATT'R TWIN will have:

- Level area near the existing home water heater (gas, electric, or oil-fired).
- At least 25 inches clearance in front of the unit so the drawer can be opened or removed for maintenance.
- Floor drain within 6 feet of the unit, or suitable condensate pump.
- The electrical receptacle must be a fully grounded, single phase, AC 115-120 volt, 15 amp minimum circuit. If a two-pronged wall receptacle is encountered, it is the personal responsibility and obligation of the customer to contact a qualified electrician and have it replaced with a properly grounded three-pronged wall receptacle or have a grounding adaptor properly grounded. (CAUTION: DO NOT USE AN EXTENSION CORD.)

Tools Needed:

- Phillips head screwdriver
- Pliers
- Several crescent wrenches
- Utility Knife for cutting tubing
- Drill with a extension and a 3/4" wood bit
- Tools needed for connecting and sweating copper piping together.
- 5 Gallons of distilled waer.

Note: Installation Should Be Done by a Qualified Installer

CAUTION

- The WATT'R TWIN is heavy. Please use care when removing it from the carton to prevent injury.
- DO NOT use a hot water line for your supply line.

DANGER

DO NOT PLUG THE UNIT INTO THE POWER SOURCE UNTIL INSTRUCTED.

Positioning the unit:

1. Open BOX #1. Remove the drinking water system and frame. Make sure that it remains in the upright position. Place in the desired location. Position the pull-out drawer to the front.
2. Remove the parts kits and packing materials packed in the distiller.
3. Open Box #2. Lift the hot water tank out and position it on the distiller frame. Line it up with the marks on the distiller frame platform.
4. Level the entire unit using the adjustable feet (Figure 4).

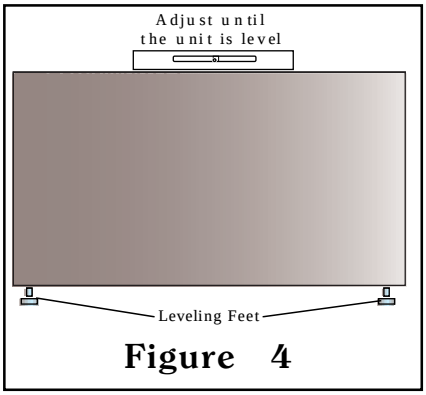


Figure 4

Connecting the Drain Line

1. Open the drawer so that the boiling tank is in view.
2. Connect the 5/8" tubing to the boiling tank solenoid. Run the tubing through the drain line hole on the side. Run to a drain that is rated to carry water at, or near, boiling temperatures. (See Figure 5.) Add the drain clamp to secure the hose.

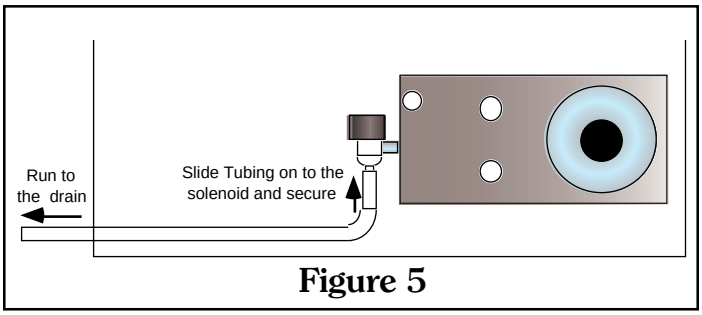


Figure 5

Connecting the Drinking Water System to the Hot Water Tank

1. Pull the Water Treatment drawer out about 5 inches.
2. Connect the silicone tube from the top of the boiling chamber to the (top) tube of the condensing coil. Clamp the hose.
3. Connect the silicone tube from the (bottom) tube of the condensing coil to the top of the storage tank. Clamp the hose.
4. Connect the 3 prong universal connector from the distiller to the one on the hot water tank.

Connecting the WATT'R TWIN to the Existing Water Lines

1. Turn off the water supply.
2. Drain any lines that are needed.
3. Have a professional plumber connect the waterlines as in Figure 1 on page 7. This configuration is designed so that the distiller and hot water tank can be isolated for servicing.
4. Pressurize the lines, fill the hot water tank, check for leaks.

Connecting the Water Supply to the Water Treatment System

1. To connect the 1/4" polyethylene tubing from the cold water line to the raw water inlet on the distiller:

a) Turn the household water supply off.

b) Install the saddle tapping valve on the COLD water copper tubing so the outlet is in a convenient direction. See figure 6.

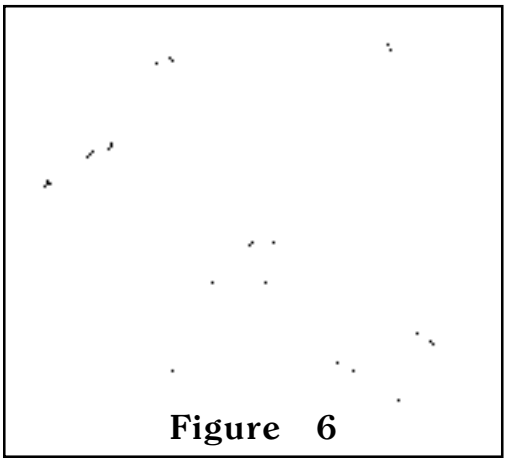


Figure 6

c) Tighten screws evenly. Brackets should be parallel. Tighten firmly. Do not over tighten.

d) Connect tubing to the saddle tapping valve outlet.

e) Cut a one foot piece of the 1/4" tubing off the end to allow the strainer to be installed.

f) Install the tubing onto the strainer. See figure 7. Make sure the tubing is inserted fully into the strainer and the flow is in the correct direction. Tighten the nut firmly.

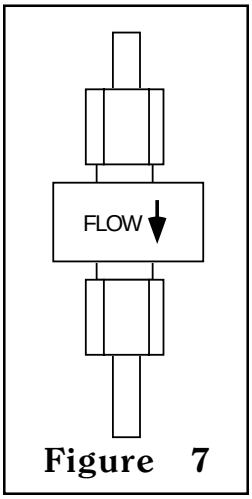


Figure 7

g) Connect the outlet side of the strainer to the raw water inlet of the distiller unit.

h) Turn the saddle tapping valve handle clockwise until you feel it is firmly seated.

Note: *You have now pierced the copper tube and the valve is closed*.

j) Turn the handle counterclockwise to open the valve. Turn the household water supply ON and check all connections for leaks.

k) Open the saddle tapping valve completely. Check the line for leaks. Tighten where required.

Connecting the Distilled Drinking Water Line

1. Plan the shortest and easiest path for the distilled water line to run to the sink and/or refrigerator.
2. Install the faucet at the sink.
3. Run the tubing from the faucet to the WATT'R TWIN. Cut and insert the end into the distilled water outlet at the water treatment system.
4. If Needed: At the location closest to the refrigerator, cut the distilled water line and install the Tee fitting for the refrigerator. Connect the tubing to the refrigerator.

Initial Startup

1. Plug the unit into the wall outlet. The unit will energize. The boiling tank will automatically drain for 5 minutes. Then it will begin to fill with water and start to heat up.
2. Connect the high temperature tubing from the boiling tank outlet to the storage tank inlet. This is a temporary connection. This is designed to send steam into the storage tank. This process is called Steam Sterilization. The heat will kill any bacteria or microbes in the storage tank. It is very important that this connection only be used for 30 minutes. After the 30 minutes is finished, unplug the unit from the wall and allow it to cool down. Do not plug the unit back in until instructed to do so.
3. Open the lid of the storage tank and pour 3-5 gallons of distilled water into the storage tank. Connect the tubing that supplies water to the faucet and/or ice-maker kit. Plug the distiller into the wall. The pump will start. Open the distilled water faucet at the sink. Once a steady flow of water is observed, close the faucet. The pump will remain on for several seconds and then turn off. Check all of the fittings for leaks.
4. Open the distilled water faucet until the flow stops. Close the faucet.

5. Connect the steam tube from the boiling chamber to the top tube on the condenser. Connect the tube from the lower condenser tube to the storage tank inlet.

6. Place the protective cover on the unit and secure it with the screws provided.

7. Allow the unit to operate for 24 hours. Open the distilled water faucet and drain all of the water from the tank.

8. The WATT'R TWIN unit is now fully operational.

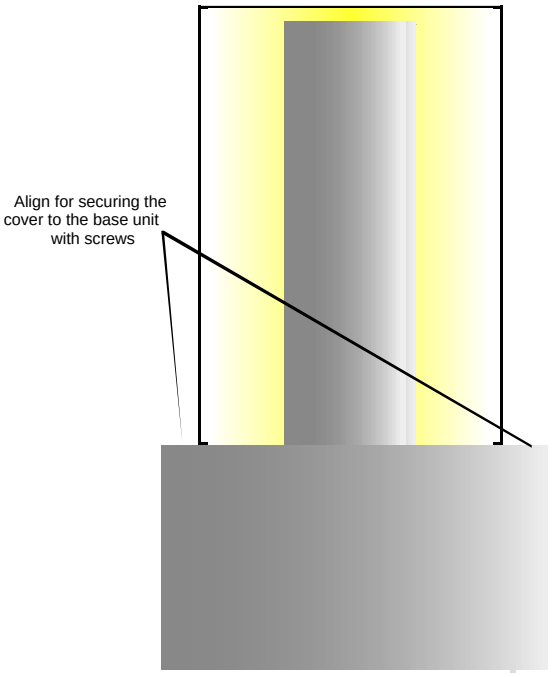


Figure 8

Overall Maintenance Requirements

The following guide should be used for the maintenance of your distiller. The timing will vary according to your local water conditions. Without proper maintenance, your distiller may not produce optimum results. The following is an average guide to maintenance:

Cleaning the Boiling Tank

CAUTION: UNDER NO CIRCUMSTANCES SHOULD THE CLEANING SOLUTION BE HEATED AND RUN THROUGH A STEAM STERILIZATION OR DISTILLATION CYCLE.

Note: Failure to clean the boiling tank can result in scale buildup causing premature heating element failure.

Notes and Cautions:

Caution**:** Under no circumstances should the cleaning solution be heated and run through a steam sterilization or distillation cycle.

Note: Failure to clean the boiling tank can result in scale buildup causing premature heating element failure.

To clean the boiling tank:

1. Unplug the distiller from the wall.
2. Carefully feel the boiling tank lid and check the temperature. If it is hot, wait at least 30 minutes for the unit to cool.
3. After the unit is cool, remove the boiling tank lid.
4. Using a pitcher, add hot water from your tap until it reaches just above the scale line.
5. Add Lumen™ by following the directions on the package.
6. Replace the boiling tank lid and let the solution stand overnight.
7. After the scale has softened, plug the distiller into the wall. This will allow the boiling tank to drain.
8. Rinse the boiling tank using a pitcher of tap water and allow it to drain. Repeat this procedure until boiling tank is clear of Lumen. *DO NOT allow the Lumen to remain in the Boiling Chamber.*

Changing the Post Filter (Every 3 months.)

1. Unplug the distiller from the wall.
2. Open the faucet at the sink to release pressure from the line. Then close the faucet.
3. Allow the unit to cool.
4. Remove the protective cover.
5. Have a bucket available to catch any excess water. Remove the post filter by releasing the fittings on each tube outlet. Push in on the grey ring in the fitting, while pulling the filter off with the other hand.
4. Remove the elbows and fittings from each end of the post filter by pushing in on the gray collets.
5. Reinstall the elbows and fittings onto each end of the new post filter. Insert fully and pull to test.
6. Install the new post filter onto the tubes. Insert fully. Plug the unit in and test for leaks.
7. Open the distilled faucet and allow 1-2 gallons of water to drain.
8. Replace the Protective cover.

Lack of Distilled Water at the Faucet

For the WATT'R TWIN system to operate successfully, there needs to be a demand of both hot water and drinking water. The WATT'R TWIN system has the ability to meet the drinking water requirements of the people living at the location where it is installed, but does not have an unlimited capacity.

Logic of the System

- High usage can lower the level of distilled water in the storage tank. The distiller will turn on automatically and make more water, however it will take several hours for the level of water in the storage tank to rise.
- The amount of hot water drawn out is not sufficient to turn the distiller on. If the water in the Hot Water Tank is not used, then there is no way for the steam to be condensed. The thermostat on the Hot Water Tank will not allow the distiller to turn on and process water.

Electrical Power

- Is there Power at the outlet? Is the distiller plugged into the wall outlet? Check and correct if necessary.
- Has the Circuit Breaker been tripped?

  The WATT'R TWIN draws about 10 amps, so ideally it should be on a separate circuit. If there is other electrical load on the circuit, this may be sufficient to trip a circuit breaker or fuse. A simple test is to plug a light or other small appliance into the same outlet and check whether it is operating.

Lack of Water

Is water getting to the WATT'R TWIN? If water is not reaching the unit, then it cannot distill.

- Sometimes the water supplies are shut down by the local water utility. Check and correct if necessary.
- Check all of the valves to be sure they are open.
- Check the storage tank, if full, no water will be produced.
- Check the water inlet solenoid to make sure that water passes through it when it is open.
  - Does it have power?
  - When power is supplied, does it open?

Drain Valve Not Closing Properly

To correct, apply power to the drain valve so it will open. Blow through the drain tubing to clear the debris that is preventing it from closing.

If a large piece of residue is stuck in the drain valve, it can prevent it from closing, which allows the feedwater to go straight to the drain and never reaches the boiling point to generate steam.

Water Leak

If a water leak occurs, it should be evident by inspecting the bottom of the distiller tray.

Before opening the distiller tray, unplug the power cord from the wall outlet. Open the top access panel and disconnect the tubing from the condenser in the Hot Water Tank.

Note: The WATT'R TWIN is designed to shut down should a leak be detected. The distiller tray has been designed with an electrical sensor and switch, so that if water starts to accumulate in the distiller tray, it will be detected and the system will automatically shut down.

Find the leak and correct. Reconnect all fittings and hoses. Remove water from tray, then monitor the restart.

Demand Pump Not Working

Open the distiller tray and look at the level of water in the Storage Tank.

- If the water level is above the bottom float there could be a problem.
    - Check the electrical connection. If the pump has power, but does not work when the faucet is opened.—Replace the pump.
- If the pump continues to work even if the faucet is closed:
    - There are leaks in the system. Find and correct all. Keep in mind, that even a small drip will cause the pump to activate.

Damaged or Scaled Heating Element

If, during your tests you have waited 2-3 hours for the distiller to generate more water, and the level in the storage tank is not above the bottom float in the storage tank, then you probably have a problem with your heating element.

a) Unplug the unit and allow to cool if necessary.

b) Remove the element plug from the element controller.

c) Remove the nuts holding the boiling chamber to the distiller tray.

d) Disconnect the electrical connections between the boiling chamber accessories and

the electrical enclosure.

e) remove the drain tubing from the drain solenoid. Lift the Boiling chamber out of the distiller tray.

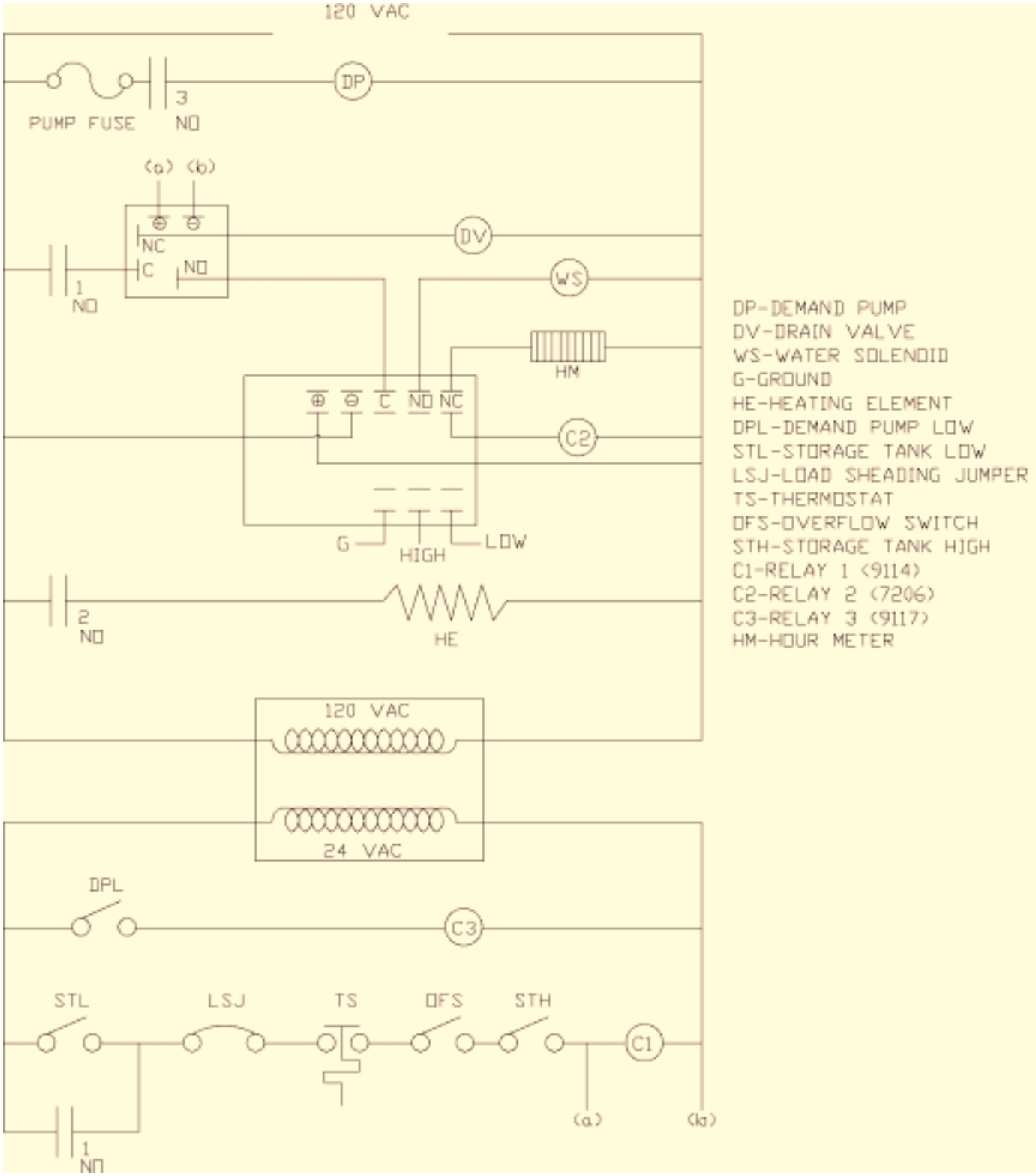
f) Put the boiling chamber in the sink. Remove the lid.

g) Dump the boiling chamber until the water level is 2 inches above the heating element. Connect the heating element directly to a 120V electrical outlet using the appropriate cord. Watch for signs that the heating element is starting to heat the water. Allow the water to come to a boil for about 2 minutes. This shows that the heating element is operating normally. If the heating element does not function, the heating element or heating element controller requires replacement.

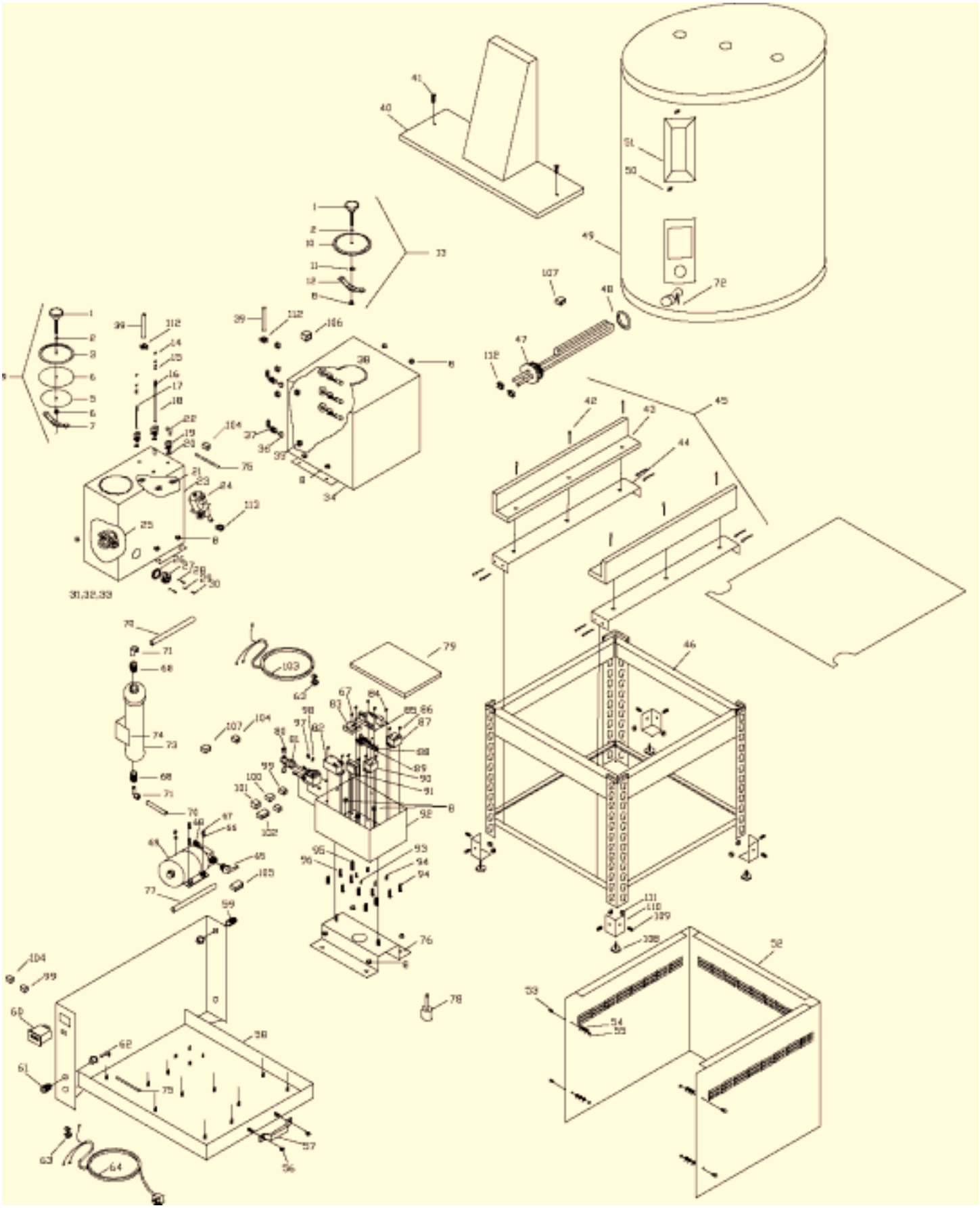
h) If the water in the boiling chamber becomes hot, but does not boil, then the boiling chamber needs to be descaled. (Refer to page 15 for instructions.)

i) Replace and reinstall the boiling chamber into the distiller tray. Connect all tubes and wires.

Electrical Schematic



Exploded View



Parts Listing

Key #	Part #	Description
1	8009	Lid Knob w/Stud
2	6022	Lid O-ring
3	519	Lid Disc
4	69	Gasket, B/t Lid
5	533	Washer, Gasket Retainer
6	9085	Spring, Lid
7	402B	Crossbar W/nut
8	224-0003	Nut, 1/4-20 Nylock
9	406	Complete B/T Lid Assembly
10	548	S/T Lid Disc, 4"
11	9009	Flat Washer
12	402C	S/T Crossbar w/nut. 4"
13	410	Complete S/T Lid Asembly
14	9018	Nut, #6-32, SS, Hex
15	9122	Tubing, 1/4" OD x 1/8" ID, Silicone
16	22008	Probe, Long
17	22009	Probe, Short
18	7055	Heat Shrink Tubing
19	9504	Conn, 1/4" Comp x 1/8" MPT
20	6025	Gasket,3/8" ID x 5/8" OD Silicone
21	9086	Nut, 1/8"-27 MPT
*	725	Kit, Probe–Includes #14-#21
22	221-9006	Elbow, 1/4" Push In
23	22568A-01	Boiling Tank, Welded
24	7256	Drain Valve, NC, 120V
25	9303	Heating Element, 1400W, 120V
26	9205	Gasket, Heating Element
27	7157	Controller, Heating Element
28	9208	Washer, Flat
29	9209	Washer, Lock
30	9207	Screw, M3
31	22060	Insulation, Sides (not shown)
32	22061	Insulation, Top (not shown)
33	32051	Insulation, Bottom (not shown)
34	22569A-01	Storage Tank, Welded
35	9622	Nut, 11/16", Jam
36	6019	O-ring, 11/16"
37	221-0369	Elbow, 11/16" UN x 3/8"
38	22517	Float Assembly
39	9500	Tubing, Silicone
40	22512-01	Front CoverPanel
41	9143	Screw, 5/16" Self Tapping
42	229-0654	Rivit, 3/16"
43	22046	Angle, Plastic, 24"
44	22048	Strap, SS
45	22511	Slide Assy–Includes #42-#44
46	22501B-01	Frame Assy
47	22040A-01	Cond. Coil, Welded
48	52605	O-ring, 1" ID
49	22100	Water Heater, 30 Gallons
50	9105	Screw, #8 x 3/4"
51	9144	Cover Plate
52	22001	Cladding
53	9056	Screw, #10-24
54	9099	Washer, 1/4"
55	9070	Nut, #10-24
56	9079	Nut, Acorn, 1/4"-20
57	9108	Handle, Black
58	22502A-02	Base, Studded
59	9612	3/8" Union Bulkhead
60	219-027	Hour Meter, 120V
61	221-9000	1/4" Union Bulkhead
62	221-9006	Elbow, Push In, 1/4"
63	7015	Cord Restraint
64	22519	Power Cord
65	9573	Elbow, hose, 3/8"
66	9094	Washer, #10
67	9070	Nut, #10-24, Nylock
68	9607	Conn, 3/8" Speedfit
69	22507	Pump Assembly
70	9577	Tubing, 3/8"
71	9614	Elbow, 3/8" Push In
72	9125	Plastic cap, yellow
73	22513	Filter Assembly
74	32510	Bracket with tape
75	9526	Tubing, 1/4"
76	22024A-02	Bracket, Elect box
77	9541	Tubing, Silicone
78	22560	Overflow Switch
79	22053	Top, elect box
80	9550	1/4" Comp Nut
81	7231	Solenoid Valve
82	9114	Relay, DPDT
83	9112	Drain Timer
84	9042	Nut, #6-32, Nylock
85	9106	Liquid Level Control
86	9003	Nut, #8-32 Nylock
87	7206	Relay, 120V
88	9111	Buss Connector, 4x2x3
89	9110	Buss Connector, 8x8
90	9117	Relay, 24V coil
91	22518	Transformer, 120V to 24V
92	22516A-01	Welded, elect box
93	9023	Screw, #6x1/2
94	223-0038	Screw, #6x3/4
95	9059	Screw, #10x1
96	9095	Screw, #8x1/2
97	9029	Screw, #10
98	9047	Speedclip Nut
99	7136	2 Pin Conn Female
100	7133	3 Pin Conn Female
101	7139	6 Pin Conn Female
102	7129	5 Pin Conn Female
103	22510	Heating Element Cord
104	7132	2 Pin Conn Male
105	7128	5 Pin Conn Male
106	7139	6 Pin Conn Male
107	7129	3 Pin Conn Male
108	9592	Leveler Leg
109	9141	Press-In Stud, 1/4"
110	22561A-01	Welded Foot Plate
111	9045	Nut, 1/4-20, SS
112	229-0577	Plastic Hose Clamp, 1/2"
113	6103	Plastic Hose Clamp, 5/8"