FLOWMATIC®
YOUR SINGLE SOURCE SUPPLIER

INSTALLATION, OPERATION AND MAINTENANCE MANUAL

Warning

Please read carefully before proceeding with installation. Your failure to follow a attached instructions or operating parameters may lead to the product's failure and possible damage to property.

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Save manual for future reference.

Model FMRO4-ZW

ZERO WASTE REVERSE OSMOSIS SYSTEM

Thank you for your purchase of a Flowmatic Reverse Osmosis system. With proper installation and maintenance, this system will provide you with high quality water for years to come. All of Flowmatic water enhancement products are rigorously tested by independent laboratories for safety and reliability. If you have any questions or concerns, please contact our customer service department at 1-800-461-4406

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Operational Parameters

Do not use with water that is microbiologically unsafe or of unknown quality, without adequate disinfection before or after the system.

Operating Temperatures:	Maximum 100°F (37.8°C)	Minimum 40°F (4.4°C)
Operating Pressure:	Maximum 100 psi (7.43 g/cm2)	Minimum 40 psi (2.80 kg/cm2)
pH Parameters:	Maximum 11	Minimum 3
Iron:	Maximum 0.2 ppm	
TDS (Total Dissolved Solids):	< 1000 ppm	
Turbidity:	<5NTU	

Hardness: Recommended hardness not to exceed 7 grains per gallon, or 120ppm. System will operate with hardness over 7 grains but the membrane life may be shortened. Addition of a water softener may lengthen the membrane life.

Note: RO unit must be installed a mimimun of 25 feet from hot water heater.

FMRO4-ZW System

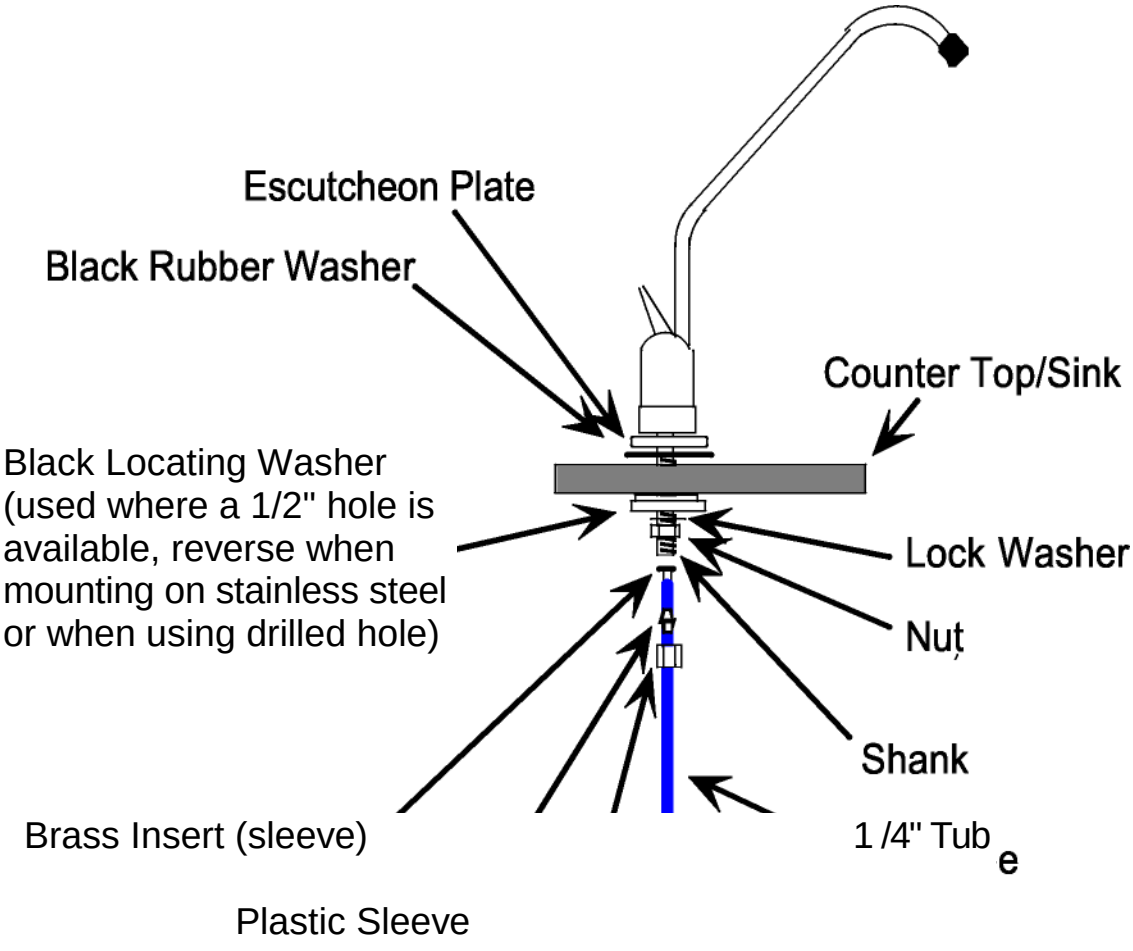
System includes:
RO module, 24 volt Pump, 3 gal Storage tank, Long reach faucet, Manual, Warranty Card, Parts Bags, (2 Water line fitting valves, 2 Washers,Transformer, 2 Mounting screws, 1 Teflon tape roll, 2 Brass inserts, 2 Plastic sleeves, 1 Ball valve, one 1/4” Connector)

Tools recommended for installation

7/16” Drill bit for faucet
Channel lock piers
Phillips Screw Driver
1/2" - 5/8" Open End Wrench
Adjustable Wrench
Sharp knife
Electric Drill

Installation of Faucet

Caution: Porcelain sink surface material is extremely hard and may crack or chip. Use extreme caution when drilling. Watts accepts no responsibility for damage resulting from the installation of the faucet.



Step 1 Determine desired location to drill a hole for the faucet on your sink.

Step 2 Using a variable speed drill on the slowest speed, drill a 7/16” hole for the faucet. Use water to keep the drill bit cool while drilling. (If the drill bit gets hot it may cause the porcelain to crack or chip).

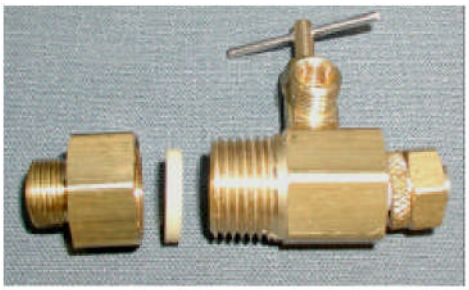
Step 3 Place the escutcheon chrome plate and the black rubber washer on the faucet shank. (Parts found in faucet parts bag).

Step 4 Insert the faucet shank through the hole in sink and let it rest on the sink top.

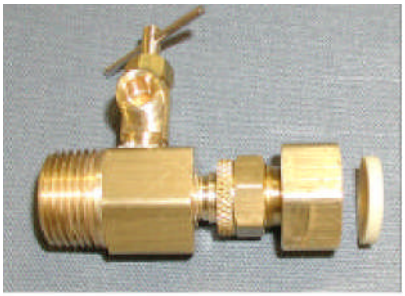
Step 5 From the underside of the sink slide on the locating washer, lock washer and brass nut onto the shank. Check orientation of faucet then tighten brass nut securely.

Installation of hot and cold water supply line valves

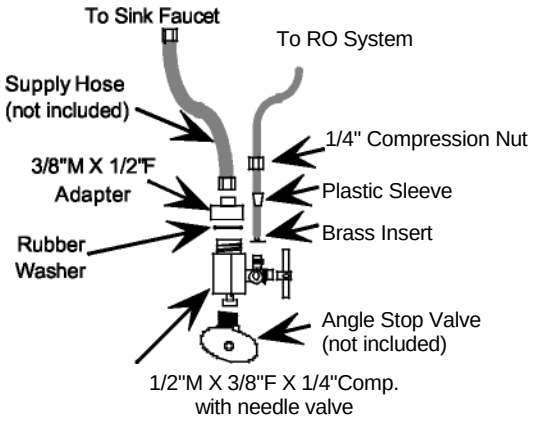
For 3/8” plumbing

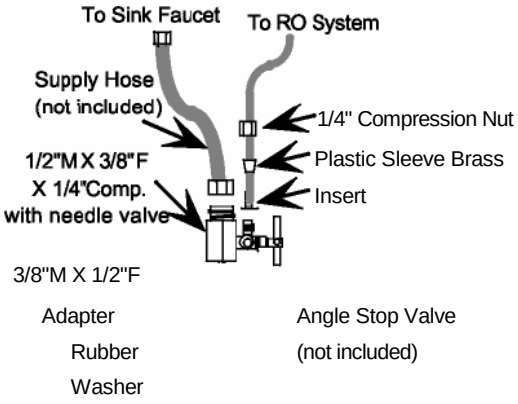


For 1/2” plumbing



Hand tighten brass nuts then apply 1/4 turn with a wrench.





RO Tubes will be connected on page 6.

Step 6 Turn off the hot and cold water supply to the faucet by turning the angle stop valves off.

Step 7 Remove water supply line at faucet to the angle stop valves.

Step 8 Attach the water supply line valves as illustrated in the drawings above.

Step 9 Re -attach the water supply line to the fittings attached to the angle stop valves.

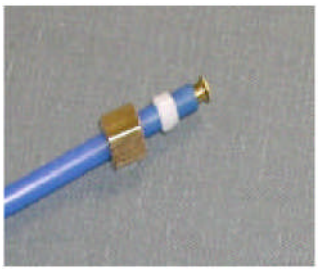
Mounting the RO module

Step 10 Determine the best location for the RO Module to be mounted and allow for future system maintenance. Use a Phillips screwdriver and secure the screws 5 3/4” apart and 16” from the bottom of the cabinet. **Note:** There will be (2) Blue, (1) Green and (1) Black coming from the module. Do not cut these tubes at this time.

Connecting to the faucet

Step 11 Connect blue tube from in-line filter over to the faucet shank. Place the brass nut onto the tube, followed by the plastic sleeve (tapered end pointing to the end of tube) and then place the brass insert into the end of the tube.

Step 12 Insert the blue tube into the end of the faucet shank and use a wrench to tighten the brass nut securely.



Connect the hot and cold water supply line valves

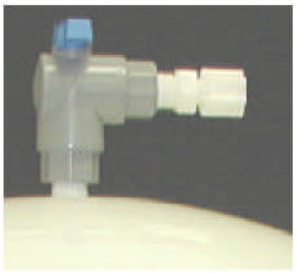
Step 13 Insert the Green tube into the Cold water needle valve fitting 1/4” tube compression fitting until it stops. Slide the Nut and Plastic Sleeve down to where you can thread them onto the male pipe threads. Use a 1/2” wrench to securely tighten.

Step 14 Insert the Black tube into the Hot water needle valve fitting 1/4” tube compression fitting until it stops. Slide the Nut and the Plastic Sleeve down to where you can thread them onto the male pipe threads. Use a 1/2” wrench to securely tighten.

Installation of Storage Tank

Step 15 Apply Teflon tape in a clockwise direction around the male pipe threads on the tank.
Thread the ball valve (supplied in the parts bag) onto the stainless steel connector on the tank.
Note: Do not over tighten plastics connections.

Step 16 Step 17 Thread 1/4" plastic connector fitting (supplied in the parts bag) into the ball valve attached to the tank.



Connecting the Tank

Step 18 Postion the tank in the desired location. Stand it upright or using black plastic stand lay it on it's side. Connect remaining blue tube from he RO module over to the tank ball valve connector.

Step 19 Push blue tube into the connector on the end of ball valve until it stops. Use a wrench to securely tighten the nut on the connector.

Start up Instructions

Warning: To prevent the possibility of electrical shock, clean up any water on cabinet floor and dry all water from outside of RO unit.

Step 1 Turn on the incoming hot and cold water angle stop valves. Turn on the water line needle valves by turning counter clockwise. Check the system for leaks and tighten fittings as necessary. **Note:** Check daily over the next week to ensure no leaks are present.

Step 2 Plug the (24 volt) transformer power cord connector into the RO system wire harness connector (labeled transformer.)

Step 3 Plug the transformer into the electrical outlet under the sink.

Step 4 Ensure ball valve on tank is open.

Step 5 Open the RO faucet and leave it open until water begins to drip. Then close the faucet. The tank will take 2 to 4 hours to fill completely.

Note: Water may be cloudy or milky due to air in the system. This conditions will resolve its self after a couple of tanks of water. After a final filter change you will see gray water until the carbon particles have flushed from the filter.

Step 6 After the tank has filled once, open the RO faucet and drain the tank.

Step 7 Close RO faucet and allow the tank to fill, (2-4 hours). System is now ready to use.

Note: This system can be hooked up to an ice maker. Place a tee after the final filter and before the faucet. It is recommended to install a ball valve on the ice maker line. This enables you to shut off the water supply to ice maker while the tank is filled and flushed to remove the carbon particles from the final filter. Each time the tank becomes empty you will need to close the water supply to the ice maker until the tank refills.

Semi-annual maintenance

Step 1 Turn off the water supply line needle valves.

Step 2 Close the ball valve on the tank.

Step 3 Open the RO faucet to allow the system to depressurize for 5 - 10 minutes before attempting to remove Housings.

Step 4 Unplug transformer from electrical outlet.

Step 5 Carefully remove the filter housings and pour water out of the housings. Dispose of the used filters.

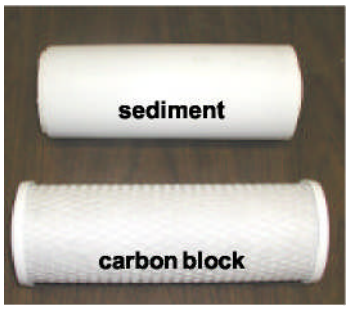
Step 6 Wash housings with mild soap and rinse thoroughly with water.

Semi-annual maintenance continued

Step 7 Inspect O-rings for wear and replace them if needed (order part no. WP113029 from Watts.) Lubricate O-rings with a water soluble lubricant such as KY Jelly®, (petroleum based lubricants such as Vaseline® must not be used.) Be sure to properly seat the O-ring in the housing before threading the housings onto the lid assembly.

Note: Keeping the RO module in an upright position while re-attaching the housings will help ensure the o-ring stays properly seated and reduces the possiblity of leaks.

Step 8 The sediment filter has a cloth like appearance. It must be placed in the 1 st housing on the left where the water inlet connects.



Step 9 The carbon bock filter has a mesh covering and has a gasket on each end. Replace the filter in the 2nd housing with the carbon block filter.

Step 10 Visually inspect oring to be sure they are properly seated before threading the housing onto the lid assembly and hand tighten securely.

Annual Maintenance

Step 1. Perform Semi-annual Preventive Maintenance Steps on page 8.
Note: For the annual maintenance drain the tank.

Step 2 Replace the final filter by removing the white nuts from both ends of the filter. Remove the connectors from both ends (keep and reuse). Discard the old final filter and replace with new filter reusing the connectors.

Note: Flow arrow on final filter must be pointing in the direction of water flow to the faucet.

Step 3 The tank shut off switch has quick-disconnect connectors. Remove the blue tube from the tank side of the tank shut-off switch. Depress the gray ring with the tip of your finger and pull the tube straight out .

Step 4 Use a clean eye dropper to insert ½ teaspoon of 3% hydrogen peroxide or common house hold bleach into the blue tube. (This will flow into the tank once water is turned back on to unit.)

Step 5 To reconnect insert tube into the connector and push firmly.

Step 6 Follow Start Up procedure on page 8.

Membrane Maintenance

Membrane filters have a life expectancy of 2 to 5 years, depending on the incoming water conditions and the amount of use of the RO system.

If at any time you notice a reduction in water production or a change in the taste of the RO water, it could be time to replace the membrane.

Step 1 To change the membrane, use a 5/8" wrench to remove the nut from the cap side of the membrane housing (the end with only one elbow). Remove the cap from the white horizontal membrane housing.

Note: To assist with the removal of cap a double sided wrench canbe purchased from Watts Premier.

Step 2 Using a pair of pliers, grip and pull firmly on the membrane filter to remove it from the housing and discard the membrane.

Step 3 Unwrap new membrane filter and lubricate the o-rings with water soluble lubrication such as KY Jelly® . Insert the end with the two black O-rings into the membrane housing.

Step 4 Once membrane filter has been inserted into the housing you must take your thumbs and give a firm push to properly seat the membrane. Replace membrane housing cap and tighten.

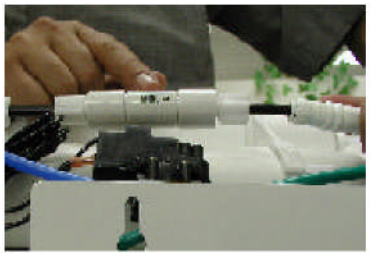
Note: To be properly seated the tip of the membrane filter must be below the housing edge.

Step 5 Screw the membrane filter housing cap back on securely.

Step 6 Connect the green tube back to the membrane cap fitting.

Step 7 You must change the flow restrictor each time you change the Membrane filter. Replace the existing flow restrictor with the new one by removing the White compression nuts. Make sure the arrow is pointing toward the check valves and hot water line fitting.

Step 8 Follow Start Up procedures on page 8.



Trouble shooting

Problem	Cause	Solution
Low/slow production	Excessive air pressure in tank	Relieve pressure at Schrader valve on tank (set to 7 psi with the tank empty)
	Pump not operating	Wiring connection broken (plug 110 AC wall plug back in at wall and/or reconnect the 24 VAC wire harness connectors) Replace pump if needed
	Fouled membrane	Replace membrane
	Plugged pre-filters	Replace filters
	Crimped tubing	Check tubes to make sure they are not kinked
	Angle stop or water line valve not fully opened	Ensure valves are opened by turning valve handle counter clockwise until it stops
Milky colored water	Air in the system	Air in the system is a normal occurrence with initial start up of the RO system. This milky look will disappear during normal use within 1-2 weeks. If condition reoccurs after filter changes, drain tank 1 to 2 times.
Faucet Dripping	Needs adjustment	see page 12
Pump short cycles	Ball valve on tank closed	Open the ball valve on the top of the tank
	Blue tube blocked between the tank and RO system	Remove kinked/damaged section and replace if necessary
	Faulty pressure switch	Call for technical support
Bowl leaks at the top after changing the filters	Damaged/Dry O-ring	Lubricate with water soluble lubricant or replace O-ring as necessary (Do not use Vaseline or other petroleum based lubricants)
Pump constantly running	Electrical fault	Call for technical support
	Faucet left on	Close faucet and let tank fill for 2 to 3 hours
	Plugged pre-filters	Replace filters

Checking air pressure in tank

Note: Check air pressure when tank is empty. Step 1 Open faucet and drain the tank.

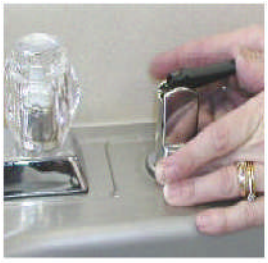
Step 2 Using a digital air gauge check the air pressure in the tank. There should always be between 5-7 psi.

Step 3 If you have more than 7 psi release air and recheck. If you have less than 5 psi, add air. Air can be added with a bicycle pump.

Adjust Faucet

If the faucet has developed a drip it can be corrected by following the steps outlined below.

Step 1 Remove faucet Spout first. Position both thumbs on the back edge of the lever and push forward.



Step 2 Lever will slide forward and completely off of the faucet base.

Step 3 Small brass tee can be turned 1/2 turn, counterclockwise, to adjust the tension on the black lever. This adjustment may be necessary to stop slow drips from tip of faucet. You may need to repeat the process until the faucet does not drip. Brass tee must always end up facing across body of faucet in order to slide black lever on.

SERVICE RECORD

DATE OF PURCHASE / /	**DATE OF INSTALL** / /	**INSTALLED BY** NAME:	**SERIAL NO.** #

Date of Maintenance	(6 mos.) 1st stage Sediment	(6 mos.) 2nd stage Carbon Block	(1 yr.) Final Filter Carbon	(2-5 yrs.) TFM Memb.	OTHER

NOTES:

Limited Warranty

What your Warranty Covers:
Limited 3 year warrranty on the Reverse Osmosis module, tank and faucet if defective.
1 year warranty on the electrical components, pump, pressure switch, solenoid valve, and transformer if defective.
No warranty on replaceable filters and membranes.

Return unit after obtaining a return authorization (see below), less tank, within 3 year of original retail purchase, FLOWMATIC SYSTEMS will repair or, at FLOWMATIC'S option, replace the system at no charge.

How to obtain Warranty Service:
For warranty service, call 1-800-461-4406 for a return authorization number. Then, ship your Reverse Osmosis unit (less tank) to our factory, freight and insurance prepaid, with proof of date of original purchase. Please include a note stating the problem. Flowmatic will repair it, or replace it, and ship it back to you prepaid.

What this warranty does not cover:
This warranty does not cover defects resulting from improper installation, (contrary to FLOWMATIC SYSTEM's printed instructions), from abuse, misuse, misapplication, improper maintenance, neglect, alteration, accidents, casualties, fire, flood, freezing, environmental factors, or other such acts of God.

This warranty will be void if defects occur due to failure to observe the following conditions:
1. The Reverse Osmosis System must be hooked up to a potable municipal or well cold water supply.
2. The hardness of the water should not exceed 7 grains per gallon, or 120 ppm.
3. Maximum incoming iron must be less than 0.2 ppm.
4. The pH of the water must not be lower than 3 or higher than 11.
5. The incoming water pressure must be between 40 and 100 pounds per square inch.
6. Incoming water to the RO cannot exceed 105 degrees F (40 degrees C.)
7. Incoming TDS/Total Dissolved Solids not to exceed 1800 ppm.
8. Do not use with water that is micro-biologically unsafe or of unknown quality without adequate disinfection before or after the system.

This warranty does not cover any equipment that is relocated from the site of its original installation.

This warranty does not cover any equipment that is installed or used outside the United States of America and Canada.

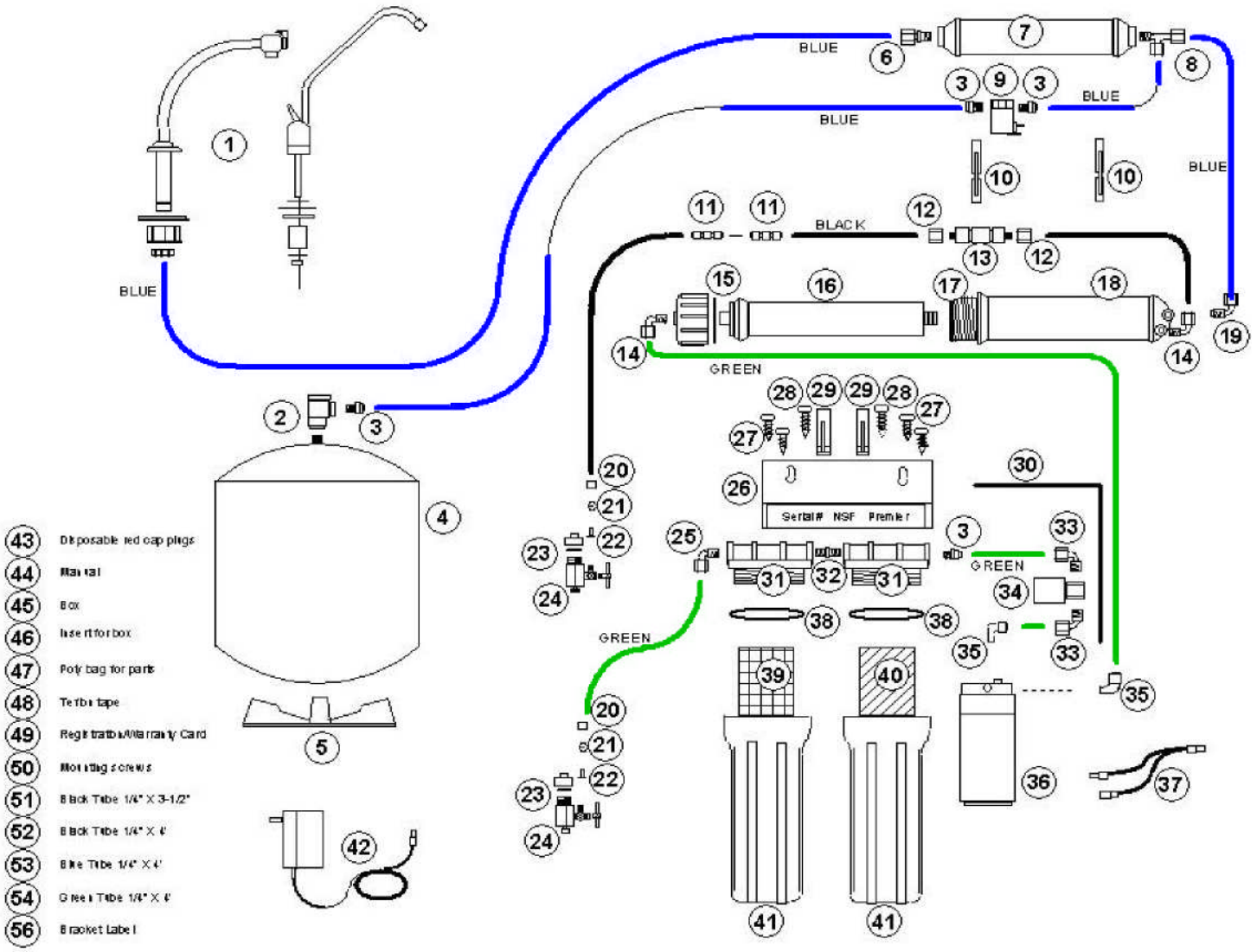
LIMITATIONS AND EXCLUSIONS:

FLOWMATIC SYSTEMS WILL NOT BE RESPONSIBLE FOR ANY IMPLIED WARRANTIES, INCLUDING THOSE OF MERCHANTIBILITY AND FITNESS FOR A PARTICULAR PURPOSE. FLOWMATIC WILL NOT BE RESPONSIBLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING TRAVEL EXPENSE, TELEPHONE CHARGES, LOSS OF REVENUE, LOSS OF TIME, INCONVENIENCE, LOSS OF USE OF THE EQUIPMENT, AND DAMAGE CAUSED BY THIS EQUIPMENT AND ITS FAILURE TO FUNCTION PROPERLY. THIS WARRANTY SETS FORTH ALL OF FLOWMATIC'S RESPONSIBILITIES REGARDING THIS EQUIPMENT.

OTHER CONDITIONS:
If Flowmatic chooses to replace the equipment, Flowmatic Systems may replace it with reconditioned equipment. Parts used in repairing or replacing the equipment will be warranted for 90 days from the date the equipment is returned to you or for the remainder of the original warranty period, whichever is longer. This warranty is not assignable or transferable.

YOUR RIGHTS UNDER STATE LAW:
Some states do not allow limitations on how long an implied warranty lasts, and some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply. This warranty gives you specific legal rights, and you may have other legal rights which vary from state to state.

4 Stage Zero Waste Reverse Osmosis System

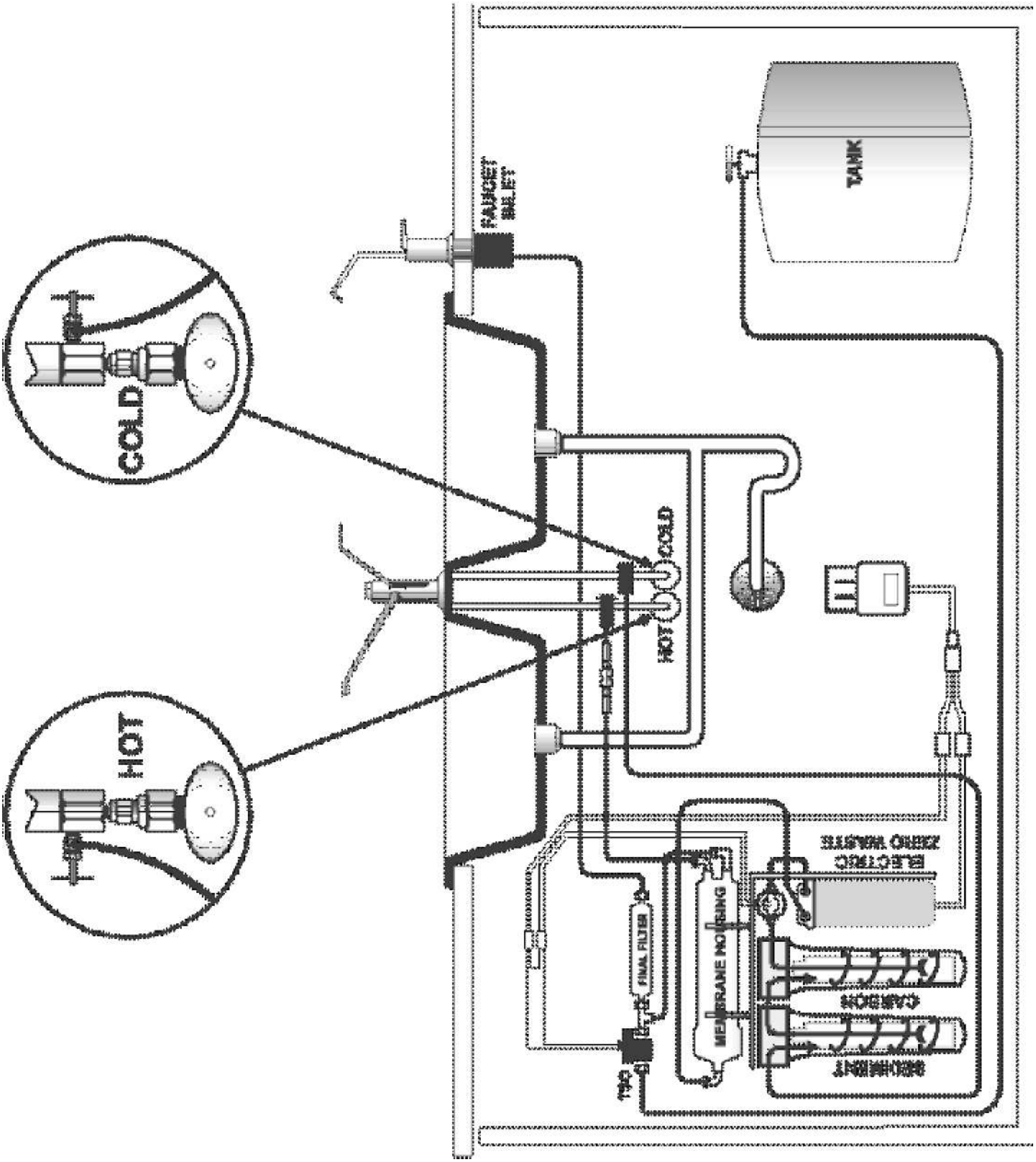


Rev 8/05/02

* The reverse osmosis system contains a replaceable treatment component, critical for the effective reduction of total dissolved solids and that the product water shall be tested periodically to verify that the system is performing properly

Item No.	Part No.	Item Description
1	116023	FAUCET-NON AG-CHROME(TF)
2	134029	VALVE-BALL-PLAS-ELB-1/4FXC1/4F
3	125082	CON-1/4TXC1/4M-JG
3	125083	CON-JG-1/4JGXC1/4M-WH
4	119007	TANK-PRES-3 GAL WHITE
5	119028	TANK STAND
6	125017	CON-PL-1/4CXC1/4M
7	100017	GAC-IL-10"-1/4 F
8	125063	TEE MALE RUN 1/4 Tx1/4M DMT WHT
9	152032	SWITCH,PRESSURE 60psig - TSO
10	164010	CLIP-DOUBLE-MEM TO IL
11	234014	VALVE-CHECK QUICK CON (0 WASTE
12	125002	NUT-PL-1/4C-WHITE CELCON
13	222010	FLOW RESTRICTOR 500 ML
14	125031	ELB-PL-1/4 CXC1/8M-90
15	113038	O-RING SET FOR VESSEL
16	110005	MEM-TFM-25 GPD-DRY
17	113038	O-RING SET FOR VESSEL
18	113032	VESSEL-MEM-HOUSING-RES
19	134011	VALVE-CHECK-PLA-ELBOW1/4 CXC1/8M
20	146032	NUT-8/32 STEEL
21	131012	DELRIN SLEEVE- PLASTIC
22	131017	INSERT
23	146025	ADAPTA-VALVE WASHER
24	134007	VALVE,ADAPTA PREMIER
25	125034	ELB-PL-1/4 CXC1/4M-90
26	137013	BRACKET-4SV-STEEL-WHITE

27	146001	SCREW-#10-3/4" PHIL PANHEAD
28	146004	SCREW-#10-1" PHIL PANHEAD
29	164006	CLIP-MTG-MEM-VESSEL
30	337002	BRACKET 16 GAUGE CRS (0 WASTE)
31	113007	LID-WHITE 1/4" FPT UNASSEMBLED
32	131021	HEX NIPPLE BR-1/4 HEAVY DUTY
33	125088	ELB-90°-1/4Tx1/8M-(DMT)White
34	152035	VALVE-SOLENOID ELEC 1/8" ESO
35	125089	ELB-90-1/4Tx1/4 INSERT DMT WHT
36	152008	PUMP BOOSTER LOW FLOW 1/4"
37	152044	WIRE HARNESS FOR ESO
38	113029	ORING- FILTER HOUSING
39	104017	SED-SPUN-10"-5M-CTG(5M-10)
40	101009	CARBONBLOCK-10"-5M-CTG
41	113024	HOUSING-FILTER 10" WHITE
42	252004	TRANSFORMER 115V/60HZ 2AMP FOR
43	146024	SCREW 8/32 X 1 1/4 PANHEAD - MOUNTING
44	199348	MANUAL, UNIVERSAL
45	199134	BOXMASTER
46	199120	BOXINSERT
47	199042	POLYBAG 7" X 15" .002 1000/CS
48	199055	TAPE TEFLON 1/2" X 60" SPOOL
48	199048	TAPE TEFLON 1/4"X.003X95YD
48	199054	TAPE TEFLON 3/16"X.003X20YD
49	199353	WARRANTY CARD PINK PR-6
50	140031	CAP PLUG 1/4 RED
51	610115	TUBING 1/4" BLACK 3-1/2" - FR
52	610117	TUBING 1/4" BLACK 4' - FR
53	610113	TUBING 1/4" BLUE 4'
54	610109	TUBING 1/4" GREEN 4'
55	299007	LABEL WATTS PUREWATER RO SERV


COLD
HOT
FAUCET INLET
TANK
COLD
HOT
ELECTRIC
FINAL FILTER
MEMBRANE HOUSING
CASING