

## INSTALLATION, OPERATION AND MAINTENANCE MANUAL

#### Warning

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

#### Save manual for future reference

# SERIES WQT4 RO





Refer to the enclosed warranty and operating parameters to ensure proper use with your water supply.

#### **DISTRIBUTED BY:**

NOTE: This manual is used for several variations of the same system. Your system may vary slightly from the pictures or descriptions contained in this manual.

It is end users responsibility to ensure that this system is installed according to all local codes and regulations.

Thank you for your purchase of a state of the art Watts Reverse Osmosis (RO) water treatment system. Water quality concerns are becoming more of a focus for the public. This Watts water treatment system has been designed and tested to provide you with high quality water for years to come. The following is a brief overview of the system.

#### **Your Reverse Osmosis System:**

Osmosis is the process of water passing through a <u>semi permeable</u> membrane in order to balance the concentration of contaminants on each side of the membrane. A semi permeable membrane is a barrier that will pass some substances like clean water, but not other substances such as salts and minerals.

Reverse osmosis uses a semi permeable membrane; however, by applying pressure across the membrane, it concentrates contaminants on one side of the membrane, producing clean water on the other. This is why RO systems produce both clean drinking water and waste water that is flushed from the system.

Your system is a Four Stage RO which is based upon four separate treatment segments within one complete water filtration system. These stages are as follows:

#### Stage 1 – Sediment filter, recommended change 6 months.

The first stage of your RO system is a five micron sediment filter that traps sediment and other particulate matter like dirt, silt and rust which affect the taste and appearance of your water.

#### Stage 2 – Pre-Carbon filter, recommended change 6 months.

The second stage contains a carbon block filter. This helps ensure that chlorine and other materials that cause bad taste and odor are greatly reduced.

#### Stage 3- Membrane, recommended change 1-2 years.

Stage three is the heart of the reverse osmosis system, the RO membrane. This semi-permeable membrane will take out salts, minerals, metals, bacteria, viruses, cysts, and much more. Because the process of extracting this high quality drinking water takes time, your RO water treatment system is equipped with a storage tank.

#### Stage 4- Post Carbon Filter, recommend change 12 months.

The post carbon filter is a granular activated carbon (GAC) cartridge using coconut shell carbon. This filter provides final polishing and assures good tasting drinking water.

#### **System Maintenance**

Just because you can not taste it, does not mean that it is not there. Contaminants such as lead, chromium, VOC's and arsenic are undetectable to the taste. Additionally, over time if you do not replace the filter elements, other bad tastes and odors will be apparent in your drinking water.

This is why it is important to change out your filter at the recommended intervals as indicated in this system manual. Should you have any further questions please contact the dealer that you purchased the unit from.

With proper installation and maintenance, this system will provide you with high quality water for years to come. All of Watts water enhancement products are rigorously tested.

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## **Operational Parameters**

Operating Temperatures:	Maximum 100°F (37.8°C)	Minimum 40°F (4.4°C)
Operating Pressure:	Maximum 100 psi (7.0 kg/cm <sup>2</sup> )	Minimum 40 psi (2.80 kg/cm <sup>2</sup> )
pH Parameters:	Maximum 11	Minimum 2
Iron:	Maximum 0.2 ppm	
TDS (Total Dissolved Solids)	< 1800 ppm	
Turbidity	< 5 NTU	

**Hardness:** Recommended hardness should not exceed 10 grains per gallon, or 170 ppm. System will operate with hardness over 10 grains but the membrane life may be shortened. (Addition of a water softener may lengthen the membrane life.)

**Note:** The operating pressure in your home should be tested over a 24 hour period to attain the maximum pressure. If incoming pressure is above 85 psi a pressure regulator is recommended and if over 100 psi then a pressure regulator is required.

Note: Reverse Osmosis water should not be run through copper tubing as the purity of the water will leach copper and cause an objectionable taste in water and may cause damage to copper tubing. Watts supplies specialty medias that can be used if copper tubing is down stream of the RO. Be sure to follow any state or local regulations.

Contents of Reverse Osmosis (RO) System

- 1 Tank
- 1 RO System
- 1 Parts Bag
- 1 Faucet (sold separately)
- 1 Manual and Warranty Card





If any of the items are missing please contact your dealer.

## **Tools Recommended For Installation**

1 1/4" Hole Saw Bit for Faucet opening and/ or Round Knock out Punch for Stainless Sinks 1 1/4" Adjustable Wrench Sharp Knife 1/2"- 13/16" Open End Wrenches Phillips Screw Driver Needle Nose Pliers- Adjustable Pliers Electric Drill



## Drill a Hole for the Faucet in a Porcelain Sink

Note: Some sinks are predrilled with 1 ½" or 1 ¼" diameter hole that you can use for your RO faucet. (If you are already using it for a sprayer or soap dispenser, see step 1).

Porcelain sinks are extremely hard and can crack or chip easily. Use extreme caution when drilling. Watts accepts no responsibility for damage resulting from the installation of faucet.

- Step 1 Determine desired location for the faucet on your sink and place a piece of masking tape on location where the hole is to be drilled. Mark the center of the hole on the tape.
- Step 2 Using a variable speed drill on the slowest speed, drill a <sup>1</sup>/<sub>8</sub>" pilot hole through both porcelain and metal casing of sink at the center of the desired location. (If drill bit gets hot it may cause the porcelain to crack or chip), use lubricating oil or liquid soap to keep cool.



Step 3 Using a 1 ¼" hole saw, proceed to drill the large hole. Keep drill speed on the slowest speed and use lubricating oil or liquid soap to keep the hole saw cool during cutting.



Step 4 Make sure the surroundings of the sink are cooled before mounting the faucet to the sink after drilling. Remove all sharp edges.



## Punch a Hole for the Faucet in a Stainless Steel Sink

Note: If mounting faucet to a Stainless Steel Sink you will need a 1 ¼" Hole Punch. The faucet opening should be centered between the back splash and the edge of the sink, ideally on the same side as the vertical drain pipe.



Step 5 Drill a ¼" pilot hole. Use a ¹/₂" Hole Punch and an adjustable wrench to punch the hole in the sink. Change to the 1 ¼" Hole Punch to enlarge the hole.

5

The faucet can now be installed.

## **WATTS Chrome**

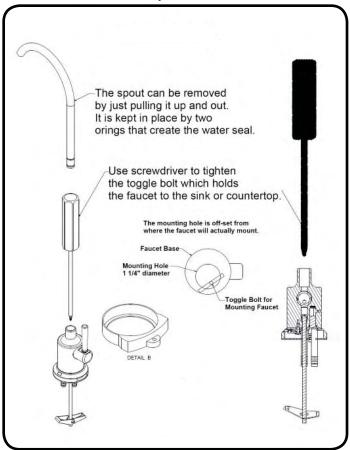
## (Top Mount) Faucet Installation

	Minimum	Maximum
Mounting Hole Size	1.00"	1.25"
Torque on Toggle Bolt	5lb.in. (max)	)

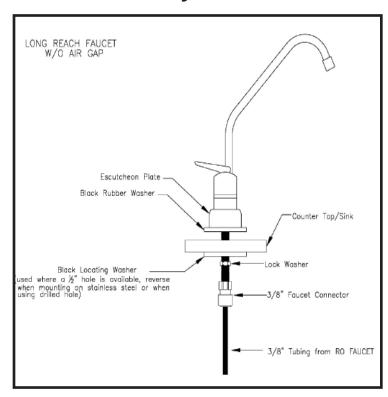
Gather and identify the faucet pieces.

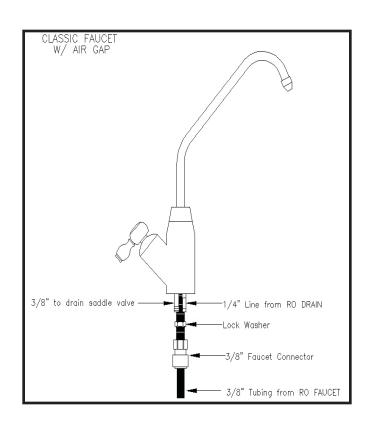
- Remove faucet base & faucet spout from their respective plastic bags. From above the sink, feed the faucet tubing & toggle bolt down through the 1¼" mounting hole in the sink. Ensure that the soft rubber gasket is uniformly positioned in between the base and the top of the sink.
- Align the faucet base so that the handle is on the right side and the base is sitting flush on the sink top. Turn the handle down (towards you) to the "ON" position to reveal the tightening screw (located where the spout will be inserted). Using a phillips head screwdriver, turn the screw clockwise until the toggle bolt secures the faucet base snug onto the sink top, do not over torque toggle bolt (5lb. in. max)
- Step 8 Once the faucet base is securely fastened to the sink top, insert the faucet spout into the faucet base until it is fully seated. Turn the handle up (away from you) to the "OFF" position.
- Step 9 Completion of faucet installation (tubing connections) will be done later in this manual. Refer to the *Black Tube Connection* (page 10), Red Tube Connection (page 11), and Blue Tube Connection (page 11) sections of this manual.

#### **Watts Top Mount Faucet**



# **Other Faucet Style Installation**





# **Adapta Valve Installation**



Configuration for 3/8" compression fittings



Hot Cold Supply



Configuration for 1/2" compression fittings

- Step 10 Locate the cold water supply under the sink.
- Step 11 Turn off the cold water supply to the faucet by turning the angle stop valve completely off.
- Step 12 Attach adapta valve as illustrated in the three photos above, choosing the configuration that fits your plumbing. (When attaching the adapta valve to straight pipe threads, use Teflon tape on the threads). The white tube from inlet side of RO module will be cut to length and attached later in the installation.

Caution: Water supply line to the system must be from the cold water supply line only. Hot water will severely damage your system.

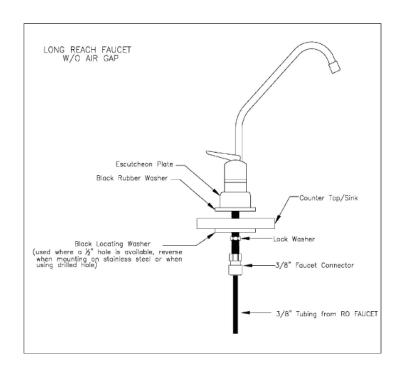
# **Reverse Osmosis Module Mounting**

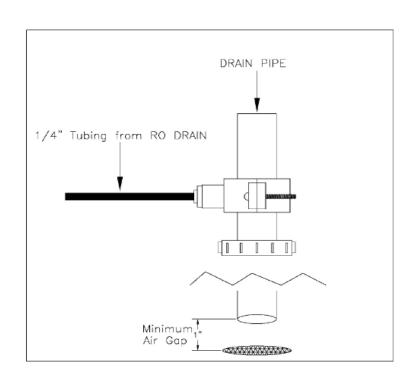
Step 13 Determine best location for the RO module to be mounted to allow for future system maintenance. The parts bag has 2 self tapping screws. Using a Phillips screwdriver, screw them into the cabinet wall 5" apart and 16" from the bottom of the cabinet.

Note: <u>Do not cut any RO system tubes at this time.</u>

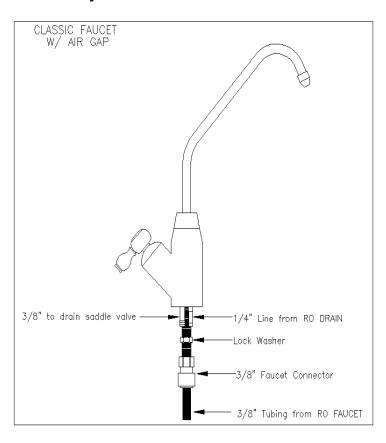


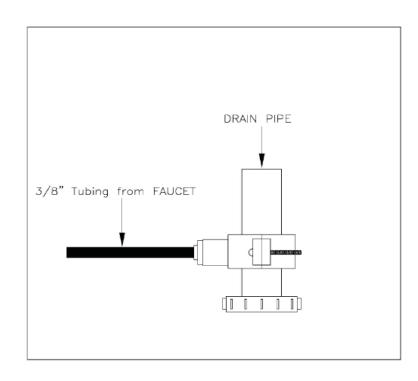
# Non Air Gap Faucet Installation





# Air Gap Faucet Installation





## **Drain Saddle Installation**

#### Drain Saddle fits standard 1 1/4" - 1 1/2" drain pipes

**Caution:** If you have a garbage disposal, do not install the drain line near it. Installation of the drain line must be either above the disposal, or if a second sink drain is available, install it above the cross bar on the second sink. Installation of the drain line near a garbage disposal may cause the drain line to plug.



Step 14 Gather the pieces of the drain saddle

2 Screws 1 Semi bracket with opening

2 Nuts for screws 1 Foam washer

1 Semicircle bracket



Step 15 The small square black foam gasket with a circle cut out of the middle must be applied to the inside of the drain saddle. Remove sticky tape backing and stick to the drain saddle as shown.



Step 16 Drill a ¼" hole through the drain pipe at least 1 1/2" above the nut of the P-trap to allow for the removal of the P-trap if necessary. Assemble the drain saddle around the drain pipe. Position the drain saddle over the drilled hole in pipe. Insert screw driver into the opening of the drain saddle and align with drilled hole in drain pipe. Using Phillips screw driver tighten screws evenly and securely on both sides of the drain saddle. The black tubing will be installed later.



Caution: Do not over tighten the screws. It may crack the drain saddle.

## **Tank Valve Installation - (Metal Tanks)**

Step 17 Wrap 3 to 4 turns of Teflon tape clockwise around the male pipe threads coming out of the top of the tank.

\*Note: Do not let the tape cover the opening in the fitting.



Step 18 Thread the plastic valve onto the tank fitting. **Do not over tighten or** the valve could crack.

# Tank Valve Installation - (Plastics Tanks)

- Step 17 Make sure the O-Ring is located at the bottom of recess for the tank connection.
- Step 18 Thread the plastic valve onto the tank fitting. *Do not over tighten or the valve could crack.*



## White Tube Connection

Note: The white tube will be cut into two pieces. One for the inlet and one for the tank.

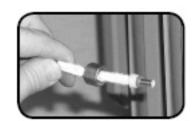
## Connect White Tube from TANK Port on RO Module to the Tank

Step 19 Position tank in desired location. Stand it upright or lay it on its side (using the black plastic stand). Measure the white tube from the RO module port marked TANK over to the tank and cut it to desired length.

Step 20 Insert the white 1/4" tube through tank valve compression nut. Place 1/4" plastic insert in tubing. Push tubing into valve. Hand tighten the compression nut securely, and add 1/4 turn with a wrench.

# Connect White Tube from Adapta Valve to IN Port on RO module

Step 21 Remove a brass nut, plastic sleeve and brass insert from the parts bag. Place nut on the tube first, then the sleeve (Small taper end of sleeve must point to the end of tube) and then insert the brass insert into the end of the tube.



Step 22 Insert the white tube into the ¼" opening on the adapta valve until it stops. Slide nut and sleeve down and thread onto the male pipe threads. Use a ½" wrench to securely tighten. Run the tube to the inlet on the side label IN of the RO system. Leave enough tube so it is not kinked and cut the tube to desired length.

Adapta Valve



Note: The DRAIN & TANK connections are underneath the bracket. See page 12

#### 3/8 " Black Tube Connection from Faucet

Note: The tubing must be as SHORT and STRAIGHT as possible to the drain saddle, making a downward slope from faucet to drain saddle to allow for proper drainage.

Step 23 Measure the black tube from faucet to the black drain saddle and make a straight cut through tube.

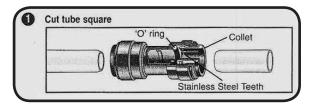
Step 24 Insert black tubing into the quick connect port. Make sure tubing is pushed all the way in.



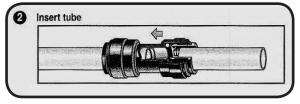
Note: This is a gravity feed line, if there is any bend or dip in the tube the rinse water will not flow into the drain properly. Water may back up and come out of the air gap hole in the back of the faucet base.

# How To Use the Quick Connect Fittings on the RO Module

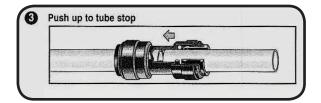
To make a connection, the tube is simply pushed into the fitting.



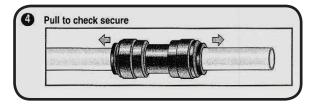
It is essential that the outside diameter be free of score marks and that burrs and sharp edges be removed before inserting into fitting.



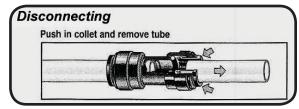
Fitting grips before it seals. Ensure tube is pushed into the tube stop.



Push the tube into the fitting, to the tube stop. The collet (gripper) has stainless steel teeth which hold the tube firmly in position while the O-ring provides a permanent leak proof seal.



Pull on the tube to check that it is secure. It is a good practice to test the system prior to leaving site and /or before use.



To disconnect, ensure the system is depressurized before removing the tube. Push in collect squarely against face of fitting. With the collet held in this position, the tube can be removed. The fitting can then be reused.

### Connect the Red Tube from Faucet to RO Module

Step 25 The drain line flow control is factory installed inside of the stem elbow on the inside of the bracket.

Tank Connection

Flow Restrictor inside Drain fitting

## Connect the Blue Tube from the Faucet to RO Module

Step 26 Insert the blue 3/8" tube from the faucet into the port on the system marked "FAUCET". Make sure the tube is pushed in all the way to the tube stop.

## Install the Cartridges

- Step 27 Identify each cartridge and the proper location on the system by matching the colors and description.
- Step 28 Insert each cartridge with a 1/4 turn in the clock wise direction. The cartridge is installed properly when the label is facing toward the front of the unit.



# **Start up Instructions**

- Step 1 Turn on the incoming cold water at the angle stop valve. Open the needle valve on the brass Adapta Valve by turning counter clockwise. Check the system for leaks and tighten any fitting as necessary. (Check frequently over the next 24 hours to ensure no leaks are present).
- Step 2 If system is connected to an ice maker, turn the ice maker off (or do not allow water to flow to the ice maker) until Step 5 "flushing" is complete and the tank has been allowed to completely fill. Connection from the RO to the ice maker system should have an in-line valve installed before the ice maker so it can easily be closed to prevent water flowing to the ice maker during start up and periodic maintenance. Your RO tank must be allowed to fill up in order for the ice maker system to work properly. (If you are installing an ice maker kit from Watts, tee off of the blue line between RO system and faucet).
- Step 3 Open the RO faucet and leave it open until water begins to trickle out, (it will come out slowly).
- Step 4 After water trickles out of the faucet, close the faucet so the tank will fill with water. The tank will take 3 to 6 hours to fill completely depending on the production capability of the membrane, local water temperature and pressure.
- Step 5 After the Tank has filled, open the faucet to flush the tank completely to remove carbon particles from final filter. Repeat this step two more times. The fourth tank can be used for drinking.

  \*Note: The flushing of the tank 3 times is only necessary during initial installation.

  This should take about a day to complete.

**NOTE:** This reverse osmosis system contains replaceable components critical to the efficiency of the system. Replacement of the reverse osmosis component should be with one of identical specifications, as defined by the manufacturer, to assure the same efficiency and contaminant reduction performance. Periodic inspection and following proper system maintenance is critical for continued performance.

## Cartridge Replacement

Cartridge replacement is made easy with the Watts Kwik Change system. The cartridge heads contain built in check valves and shutoff valves so that the cartridges can be changed without shutting off the water supply or the storage tank. The head are also hinged to allow easy access to the cartridges.

The following steps should be followed to change the cartridges.

Note: A small amount of water may be released when changing cartridges.

- Step 1 Rotate the cartridge 1/4 turn counter clockwise.
- Step 2 Remove the cartridge and dispose of it.
- Step 3 Remove the protective cap from the new cartridge.
- Step 4 Orient the cartridge with the label facing to the left (9 o'clock postion).
- Step 5 Push the cartridge into the head and rotate it clock wise 1/4 turn.
- Step 6 Wipe up any spill water.

The Sediment cartridge, and Pre carbon cartridge should be changed every six months.

The RO membrane cartridge should be changed every one or two years.

The Post carbon cartridge should be changed once a year.

## **Annual Maintenance**

# **Storage Tank Sanitization**

- Step 1 Turn off the incoming water supply at the adapta valve.
- Step 2 Open the faucet, allow the tank to empty, and the then close the faucet.
- Step 3 Remove the tubing between the tank and the RO unit.
- Step 4 Drain the water from the tubing and pour one teaspoon of household bleach into the tubing.
- Step 5 Reinstall the tubing between the tank and the RO unit.
- Step 6 Turn on the water supply at the adapta valve.
- Step 7 Allow the RO unit to fill the tank overnight.
- Step 8 Open the faucet and allow the tank to empty, and then close the faucet.
- Step 9 Replace the post carbon filter cartridge.

## **Drain line flow restrictor**

- Step 1 Turn off the incoming water supply at the adapta valve.
- Step 2 Remove the red tubing from the fitting.
- Step 3 Remove the fitting from the back of the RO unit.
- Step 4 Remove and inspect the orifice in the flow restrictor. Clean if necessary.
- Step 5 Reinstall the flow restrictor into the end of the fitting.
- Step 6 Reinstall the fitting to the back of the RO unit.
- Step 7 Reinstall the red tubing to the fitting.
- Step 8 Turn on the water supply at the adapta valve.





# Tank air pressure

- Step 1 Turn off the incoming water supply at the adapta valve.
- Step 2 Open the faucet, allow the tank to empty, and then close the faucet
- Step 3 Check the pressure in the tank using a tire pressure gauge on the air valve.
- Step 4 The tank pressure should be between 5-7 psi. Use a bicycle pump to add air if necessary.
- Step 5 Turn on the water supply at the adapta valve.



## **Procedure for Extended Non-Use**

If the system will not be used for an extended period (more than 2 months) perform the following.

- Step 1 Turn off the incoming water supply at the adapta valve.
- Step 2 Open the faucet, allow the tank to empty, and then close the faucet.
- Step 3 Remove and discard the sediment filter, pre carbon filter, and post carbon filter cartridges.
- Step 4 Remove the RO membrane cartridge. Place it in a zip lock bag and store it in the refrigerator.
- Step 5 To begin using the unit again, follow the startup and tank sanitization procedures.

# **TROUBLE SHOOTING**

Problem	Cause	Solution
1. Low/Slow Production	Crimps in tubing Clogged pre-filters Fouled membrane Tank valve closed	Assure a minimum of 40 psi incoming water pressure. Watts sells a booster pump if home water pressure is low. Make sure water supply is turned on and Adapta Valve is all the way open. Check tubing and straighten or replace as necessary. Replace pre-filters. Replace membrane and clean flow restrictor. Open valve on storage tank
2. Milky colored Water	Air in 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 change, drain tank 1 to 2 times.
Water constantly running/unit will not	Low water pressure	See #1 Above
shut off	Fouled membrane High water pressure High air pressure in tank	Replace membrane Check incoming water pressure to make sure it does not exceed 100psi. A pressure relief valve may be necessary. Empty storage tank of water. Set tank air pressure to 5 psi. See Page 15.
4. Noise from faucet or drain	Air gap faucet Location of drain saddle Higher capacity membrane High water pressure	Inherent sound with air-gap faucets. See diagram for proper location of drain saddle. Normal with high capacity membrane Check incoming water pressure to make sure it does not exceed 100psi. A presser relief valve may be necessary.
5. Faucet leaks from the air gap feature	Crimp or loop in drain line Drain tube clogged/restricted	Straighten black 3/8 drain tube. Cut off any excess tubing Caused from dishwasher or garbage disposal. Disconnect the 3/8" black tube at the drain, clean the 3/8" black tube out with a wire, then reconnect.
6. Small amount of water in storage tank	System just starting up  Low water pressure Too much air in tank	Normally it takes 6-10 hours to fill tank. Note: Low pressure and/or temperature can drastically reduce production rate.  See #1 Above Add air if below 5 psi and bleed if above 5 psi. Check only when tank is empty of water. See Page 15.
7. Water leaks from the filter housing	Not properly tightened. Missing or kinked O-ring	Tighten the bowl Turn off the water supply. Release the pressure, remove bowl and replace the O-ring. Make sure the O-ring is seated in the filter bowl properly before reinstalling the filter bowl.

ervice Record ate of Purchase:		Date of Install:	Serial No Installed by:		
Date	1st stage Sediment (6 months)	2nd stage Carbon (6 months)	4th stage Carbon (1 year)	3rd stage Membrane (2-5 years)	

NOTES:			

#### Limited Warranty

This Reverse Osmosis System is warranted against defects in material and workmanship for a period of one year from the date of installation, not to exceed 2 years from the date of manufacture. Expendable items such as filter cartridges and membranes are not covered by this warranty.

How to obtain Warranty Service: Contact the dealer that you purchased the system from. Watts will work in conjunction with our dealer to repair or replace at our discretion any unit that is determined to be defective. No returns will be accepted with out the proper return authorization number.

What this warranty does not cover: This warranty does not cover defects resulting from improper installation, from abuse, misuse, misapplication, improper maintenance, neglect, alteration, accidents, casualties, fire, flood, freezing, environmental factors, water pressure spikes or other such acts of God.

Return shipping charges are not included in this warranty and are the responsibility of the end user.

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 10 grains per gallon, or 170 ppm.
- 3. Maximum incoming iron must be less than 0.2 ppm.
- 4. The pH of the water must not be lower than 2 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 microbiologically 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:

WATTS WILL NOT BE RESPONSIBLE FOR ANY IMPLIED WARRANTIES, INCLUDING THOSE OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. WATTS WILL NOT BE RESPONSIBLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING WATER DAMAGE, 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 WATTS RESPONSIBILITIES REGARDING THIS EQUIPMENT.

#### OTHER CONDITIONS:

If Watts chooses to replace the equipment, it may be replace 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.

