

# **Counter Top Reverse Osmosis System**

## **Owners Manual: Operation and Maintenance**



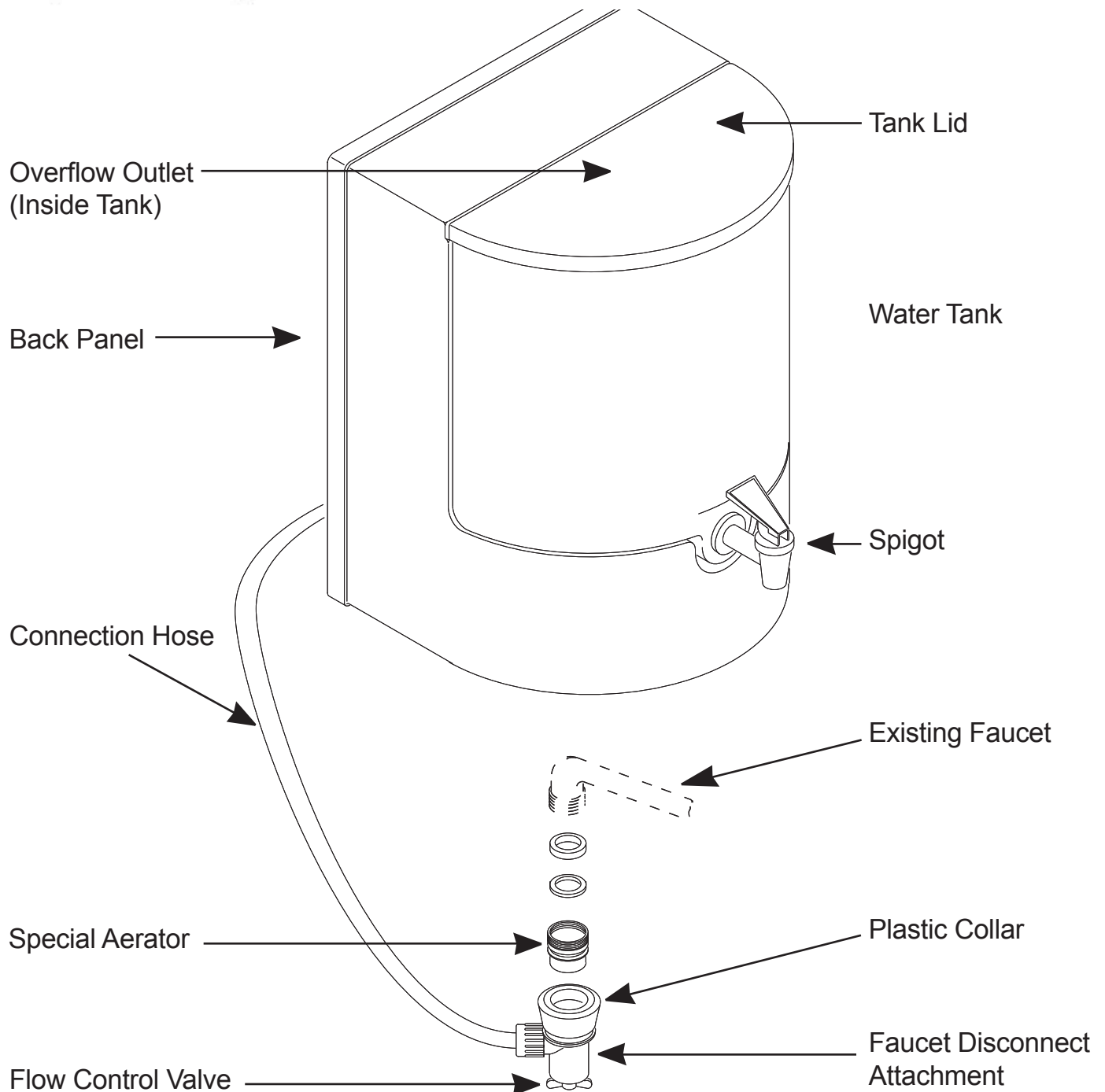
**Model # RC540T35**

# Table of Contents

Introduction to Your Reverse Osmosis Appliance	1
How Your Reverse Osmosis Appliance Works	2
Placement of the RO Appliance	3
Installation of the Spigot	4
Connection to the Faucet	4
Start-up and Operation	5
Overflow Feature	5
Pump with Tank Level Control Function	6
Disconnecting the Faucet Disconnect Attachment	7
Cleaning the Tank	7
Performance Guidelines	7
Periodic Flushing	7
Helpful Hints	7
Replacing Cartridges	8
Replacing the Membrane	9
Troubleshooting	10
Specifications	11

# Introduction to Your Reverse Osmosis Drinking Water Appliance

Congratulations on selecting the Reverse Osmosis Drinking Water Appliance. This appliance will provide excellent quality drinking water for you and your family. Please take a moment to familiarize yourself with the appliance below.



# How your Reverse Osmosis Drinking Water Appliance Works

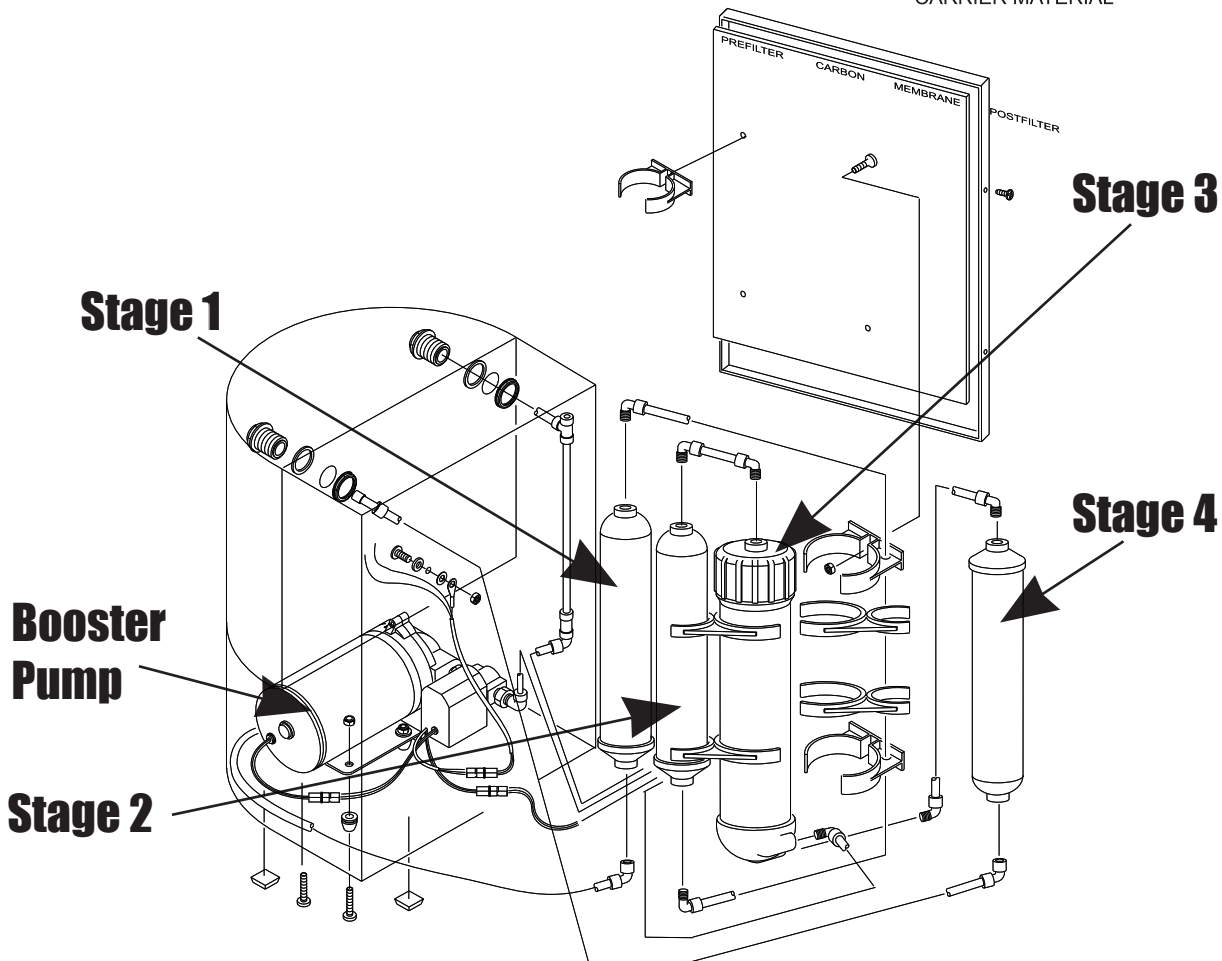
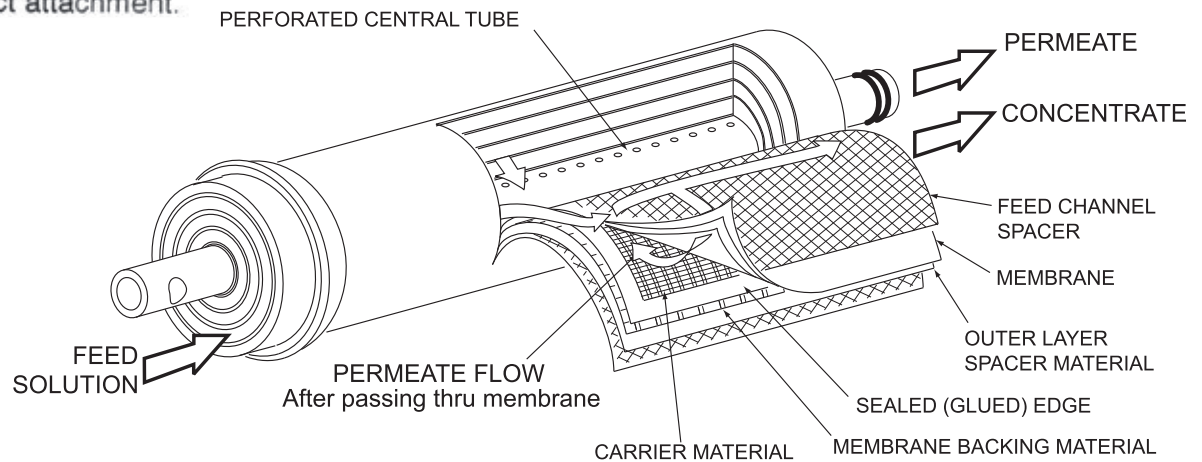
The Reverse Osmosis Drinking Water Appliance utilizes a 4 stage process to provide high quality drinking water. Please find below the 4 stages of your drinking water appliance.

**Stage 1:** 5 micron prefilter removes small particles, dirt and suspended matter from the city water. The removal of this dirt protects the remaining cartridges and extends their performance

**Pump:** Booster Pump increases feed water pressure to insure membrane performance when the feed water pressure is below 40 PSI. The Tank Level Control (TLC) automatically shuts off the pump and feedwater supply when the tank is full.

**Stage 2:** Granular Activated Carbon Prefilter removes chlorine to protect the membrane. Chlorine will destroy the membrane. This filter also improves taste, odor and color problems commonly found in water supplies.

**Stage 3:** TFC Reverse Osmosis Membrane effectively reduces metals, salts and total dissolved solids. The contaminants are rejected to the drain through the flow control valve on the disconnect attachment.



# Placement of the RO Appliance

Step 1: Dust may have accumulated in the reservoir. Wipe clean and rinse thoroughly.

Step 2: Place the appliance on the counter with the connection hose laying flat at counter level and able to reach the faucet.

Step 3: There should be no sharp bends or kinks in the hose.

Step 4: For the overflow feature to work, the top of the appliance must be **MUST BE a minimum of 12 mm (5 in.) HIGHER** than the end of the aerator.

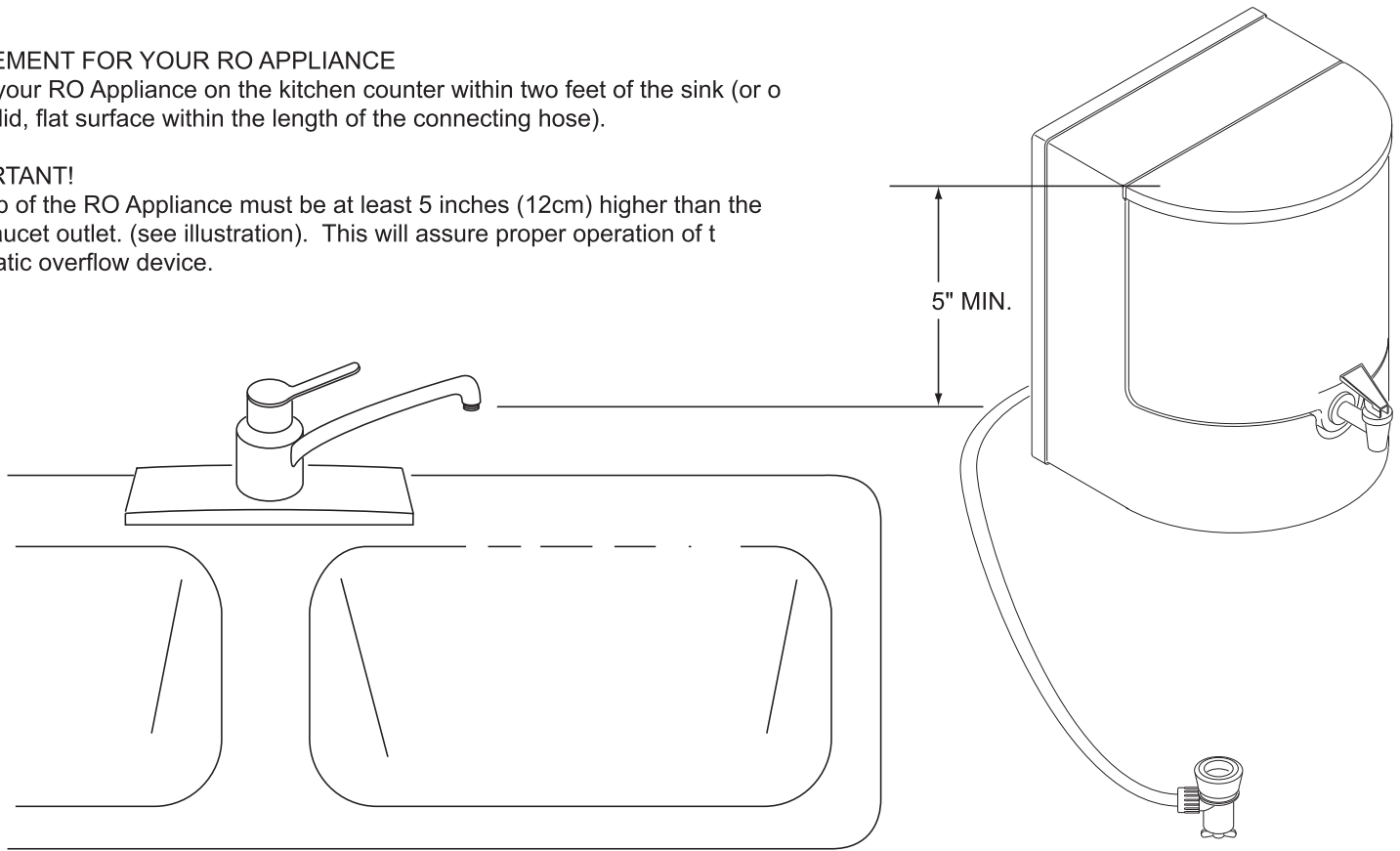
Note: The tubing harness should remain lower than the faucet disconnect attachment.

## PLACEMENT FOR YOUR RO APPLIANCE

Place your RO Appliance on the kitchen counter within two feet of the sink (or on any solid, flat surface within the length of the connecting hose).

### IMPORTANT!

The top of the RO Appliance must be at least 5 inches (12cm) higher than the sink faucet outlet. (see illustration). This will assure proper operation of the automatic overflow device.





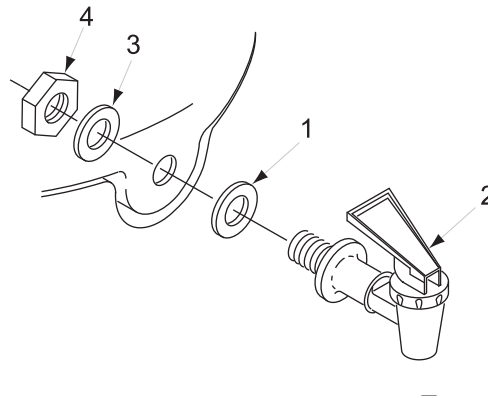
# Installation of the Spigot

Step 1: Install spigot as per instructions (a) through (e) below.

## SPIGOT INSTALLATION

- Slip the white O-ring (1) over the threaded shaft of the spigot (2).
- Insert the spigot shaft through the hole in the front of the reservoir.
- Slip the flat white washer (3) over the threaded shaft of the spigot (2).
- Thread the plastic nut (4) onto the end.
- Rotate the spigot (2) until the assembly is snug and the spigot is in a vertical position.

DO NOT OVERTIGHTEN!



## Connection to the Faucet

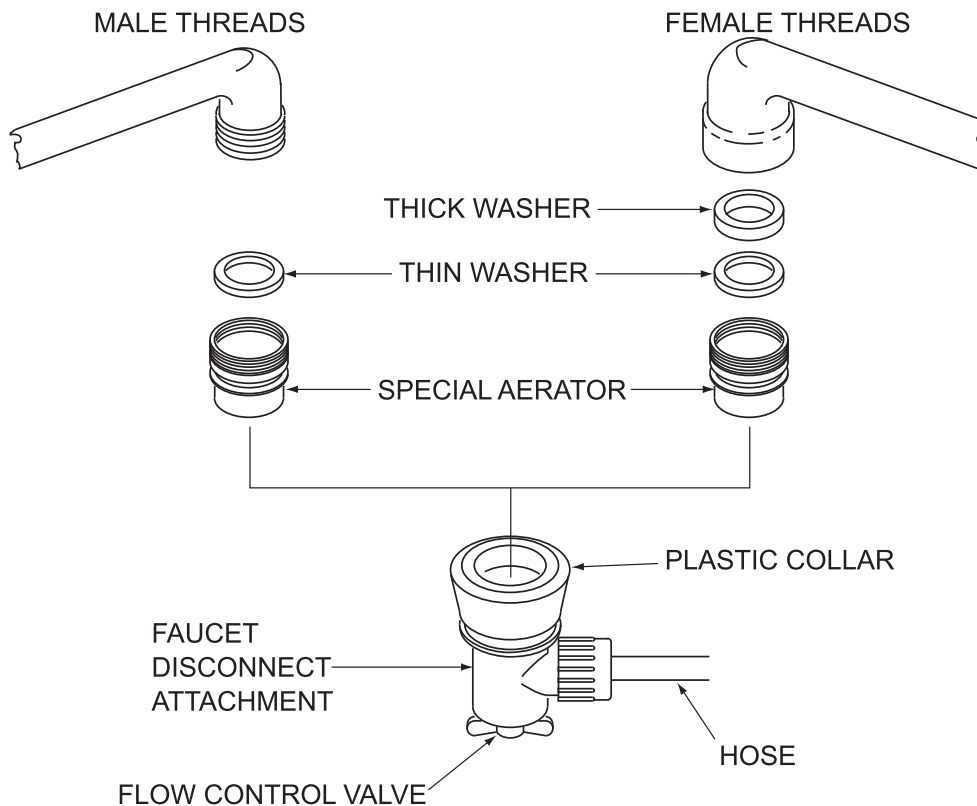
Step 1: Remove all old aerators from the faucet. A new special aerator and adapter fittings are included with the appliance.

Step 2: Identify if your faucet has male or female threads

Step 3: Assemble the proper sequence of washers to complete the aerator installation as per diagram below.

Step 4: Tighten the final connection carefully with a pair of pliers. (Wrap tape around the jaw of the pliers to prevent marring.)

Step 5: To attach the appliance to the faucet, pull down on the white plastic collar on the quick release disconnect and push over the aerator until it seats. Then release the white collar, allowing it to snap into place.



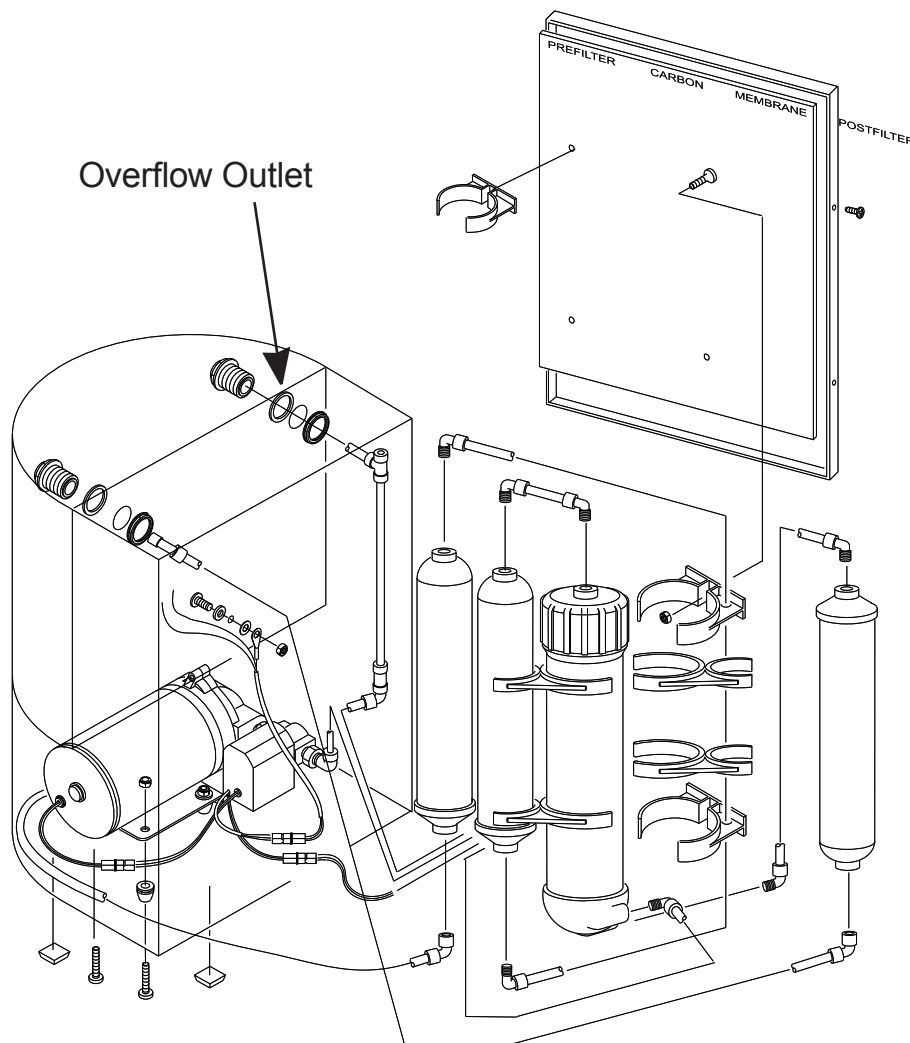
# Start-up and Regular Operation

## Start-up

- Step 1: Open the flow control valve three turns (counterclockwise as viewed from the bottom).
- Step 2: Slowly turn on the cold water until it is completely on. NEVER ALLOW HOT WATER TO ENTER THE UNIT. Water will immediately pressurize the system and flush from the flow control valve into the sink. Allow the appliance to flush for 5 - 10 minutes.
- Step 3: Slowly tighten the flow control valve until the water flow is reduced to a trickle. This water is called the "reject flow." The "reject flow" carries away the rejected impurities.
- Step 4: The "reject flow" should be approx. 350 ml./minute. This rate of flow must **ALWAYS** be maintained when the RO appliance is in operation. Never try to stop the flow completely or the RO appliance could be damaged in a short time.
- Step 5: The appliance will start to produce water and the reservoir will slowly fill.
- Step 6: The rate of production will depend on the temperature of the water and the house water pressure.
- Step 7: Depending on conditions, typical production will range from 95 to 132 liters every 24 hours. (Production rates @ 60 PSI, 77° F, and 500TDS feedwater)
- Step 8: The 5.0 liter reservoir will typically take 1-2 hours to fill. This slow process assures high quality water.
- Step 9: Discard the first two full reservoirs and then begin to use and enjoy high quality water.

## Overflow Feature:

When the reservoir is filled any additional water produced overflows back through the connecting hose and into the sink. The overflow inlet is the opening on the left rear of the reservoir.



## Pump with Tank Level Control Function

(If there is no pump, skip this step)

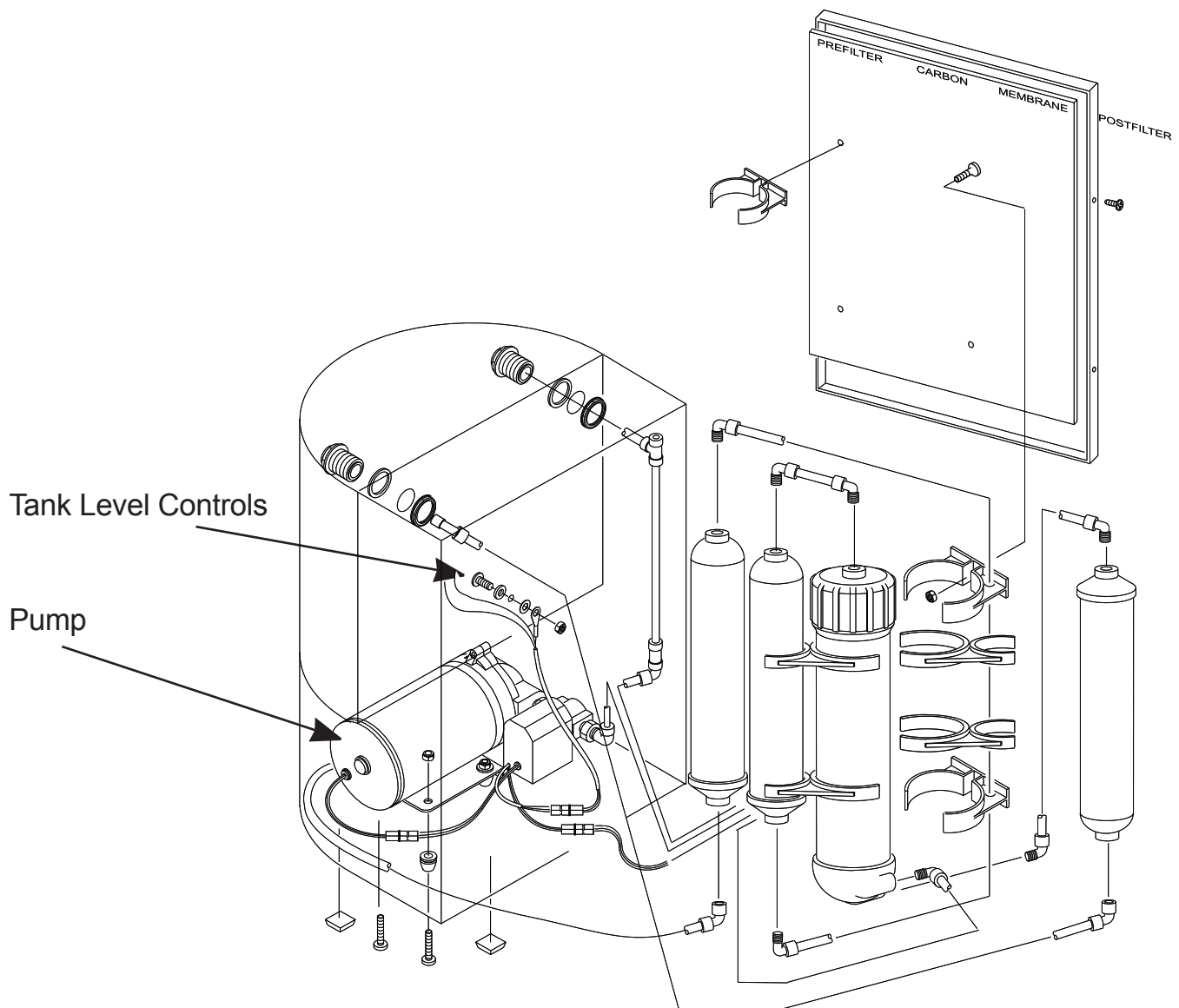
The pump provides superior performance characteristics to deliver near constant "boost" pressure to the RO membrane in low inlet water pressure. The TLC senses the water level through (3) sensors installed through the wall of the countertop tank. The stainless sensor positioned at the predetermined "full level" turns the pump off and closes the integral feed water valve. As the product water falls below the "re-fill level" the middle sensor automatically restarts the pump and reopens the feed water integral valve.

Step 1: Plug in the pump into the electrical outlet.

Step 2: Pump will continue to run until the product water tank is full then automatically shuts off.

Step 3: When the water level reaches the refill level, the middle sensor automatically re-starts the pump and reopens the feed water valve.

NOTE: Pump will not be damaged if water is NOT running through the pump while the pump is on.





## Disconnecting the Faucet Disconnect Attachment

- Step 1: Open the flow control valve two full turns from the closed position and flush for 1-2 minutes.
- Step 2: Turn off the cold water and wait at least 10 seconds. Then remove the quick connect form aerator by pushing down on the plastic locking collar.

**IMPORTANT:** Never try to remove the faucet disconnect attachment while the cold water is still on. Always relieve the pressure by opening the flow control valve first.

## Cleaning the Tank

Periodically inspect and clean reservoir with baking soda and a soft brush. To sanitize the reservoir, use 1/4 tsp. of household liquid chlorine bleach in a full reservoir and allow to stand for 1/2 hour. Fill the tank once and then drain. The second tank may be used for consumption. Cleaning the tank is recommended every 3 - 6 months. **DO NOT USE A SPONGE, SCOURING POWDER OR OTHER ABRASIVE CLEANSERS.**

## Performance Guidelines

- a) Do not allow the appliance to run on hot water or the membrane filter will be damaged and void the warranty.
- b) Do not allow the appliance to freeze or the membrane will be damaged and void warranty.
- c) NEVER completely CLOSE the flow control valve so the the reject flow is stopped or membrane filter will become damaged and void the warranty.
- d) The reject flow MUST continually flow to move the contaminants off the surface of the membrane. Without the reject water flow, impurities will slowly build up on the membrane and ruin the membrane..
- e) During operation, adjust the flow control valve so that a small trickle flows. The reject flow should be one cup per 60 seconds.

## Periodic Flushing

To assure long life of the membrane, flush the appliance BEFORE and AFTER every use for one minute. If the water supply is high in salts, sediment, dirt or rust, flush for 5 minutes.

Step 1: Open the flow control valve until a strong stream flows to the sink. After flushing and prior to use, close down the flow control valve so the proper reject flow resumes. (Appx. 350 ml./ per minute)

Step 2: If your appliance has been disconnected for more than 72 hours or you suspect the water quality is lower than usual, flush for at least 5 minutes.

## Helpful Hints

SITUATION	HELPFUL HINT
Using tap water while RO Appliance is filling.	Just open the flow control valve and use the water as usual. Return flow control valve to 350 ml/minute flow rate.
When to make water.	RO appliance take 1-2 hours to make a tank of water. A family of four will use about 2 tanks per day for drinking and cooking.
How to store water.	Store product water in covered, sanitary containers in the refrigerator to keep fresh.
Minimize airborne contaminants.	Always keep the reservoir lid on securely.
Long periods of non-use.	If you plan to be away for three weeks or more, it is recommended the filter and RO membrane be removed from the appliance and sealed in a plastic bag in the refrigerator.

# Replacing Cartridges

## Changing the Filters and Membrane

On municipally treated water, the membrane and activated carbon postfilter (Stage 4) should be changed when dissolved solids of processed water exceeds 20-30% or the taste is undesirable. All filters can be changed by hand. All filters can be ordered through your local Representative. Please see chart on pg. 10 of the manual for recommended frequency of changes.

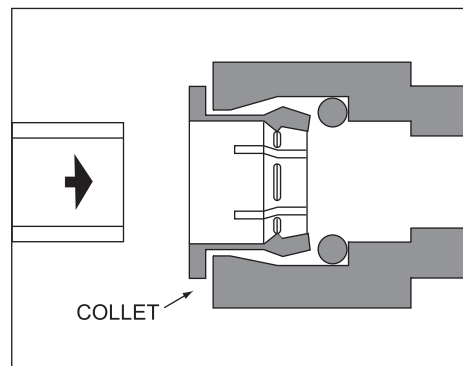
### Replacing Cartridges

Step 1: Remove the four screws from the back of the unit.

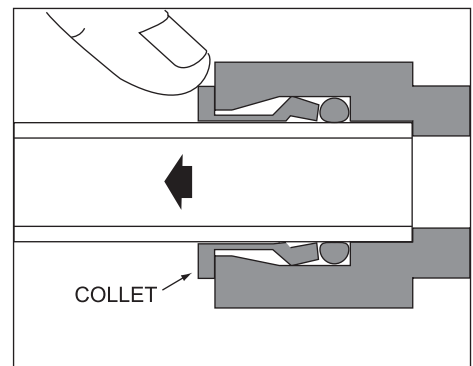
Step 2: Use the Quick Connect diagram to disconnect the old filters and replace the new filters. Push in the collet to release the tube.

Step 3: Remove the old filter from the clips. Install the new filter into the clips. Reinsert the tubing as per diagram below. The tubing may have to be recut to insure a tight fit and no leakage.

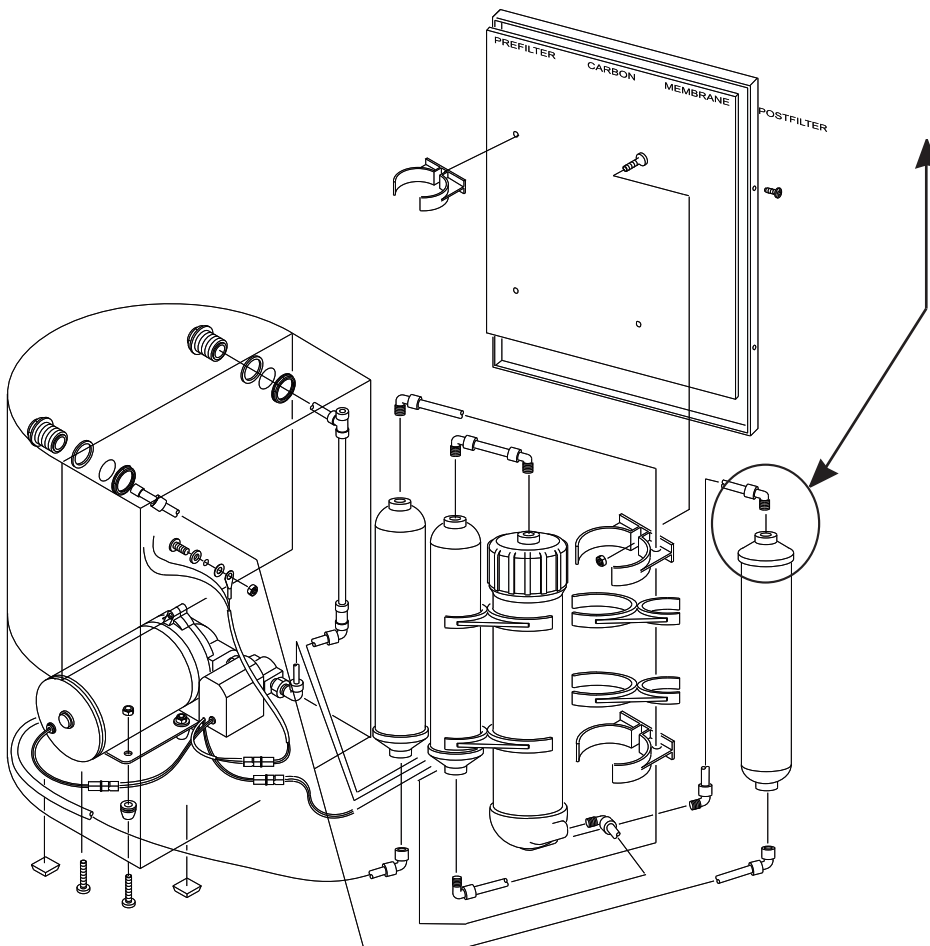
Step 4: Replace back cover with four screws.



SIMPLY PUSH IN TUBE TO ATTACH



PUSH IN COLLET TO RELEASE TUBE



# Replacing the Membrane

Step 1: Remove the four screws from the back of the unit.

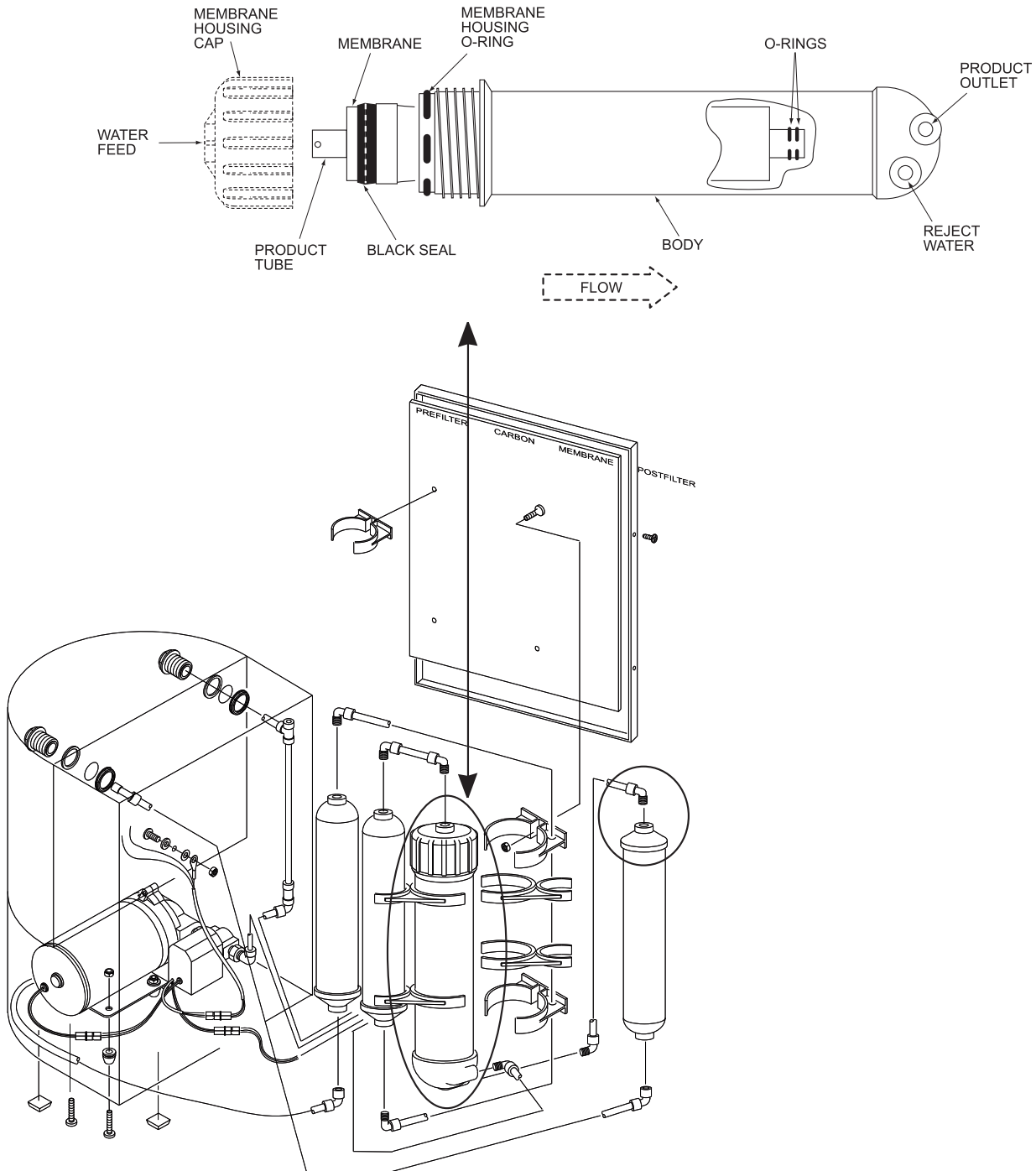
Step 2: Use the Quick Connect diagram to disconnect the water feed tube from the top membrane vessel.

Step 3: Unscrew the top of the membrane vessel counterclockwise and remove the old membrane.

Step 4: Insert the new membrane and screw cap back on.

Step 5: Reinsert feedwater tube into the top of the membrane vessel.

Step 6: Replace back cover with four screws.





# Troubleshooting

Please see the chart below for possible causes and solutions.

Problem	Possible Causes	Solution
Unpleasant taste and/or odor	Carbon Post Filter	Replace carbon post filter and flush appliance for 5 minutes.
	Reservoir needs sanitizing	See page 6 for instructions
	If problem persists, replace all filters and membrane and sanitize reservoir.	
Rotten egg smell form water	Hydrogen sulfide is in the household water supply	Hydrogen sulfide must be removed from household water supply before RO appliance.
	Appliance misused or stored for extended periods of time under unfavorable conditions.	Replace all cartridges and membrane and sanitize reservoir.
Salty taste or "whitish" ice cubes. TDS test indicates less than 75% rejection.	RO membrane fouled or expended.	Flush appliance by opening wing valve 2 full turns from the closed position for 5-10 minutes. Allow reservoir to fill and discard. If problem persists replace RO membrane.
Reservoir fills much faster than usual (less than 30 hour)	RO membrane has deteriorated	Replace all cartridges and sanitize reservoir
Appliance will not flush at full force	Clogged prefilter cartridge	Replace sediment and carbon prefilter
Excessive reservoir fill time (Over 4 hours)	Household water pressure too low	Pressure should be 40 PSI minimum
	Clogged prefilter	Replace Sediment Prefilter
	Extremely low water temperature	Water production decreases with cooler water temperatures. Extra time will be required.
Reservoir Overflows	Top of appliance is not 5" (12cm) higher than the end of the faucet aerator.	Raise appliance so that the top is at least 5" (cm) higher than the end of the faucet aerator
	Connection hose has bend or tubing inside shroud is twisted or kinked.	Straighten connection hose or remove shroud to inspect for twisted tubing.
Leak at fitting	Defective connection	Access inside of the appliance, remove tubing by depressing the small collet and pulling tubing out. Using a utility razor knife, squarely cut 1/4" (.06 cm) off tubing from the end. Reinsert the tubing into the fitting as far as possible. Check for leaks.
Leak at cartridge	Misaligned or damaged O-ring seal (s)	Replace cartridge or check for misaligned O - Ring.



## Specifications:

### Filter Assembly Components:

Stage	Filter	Description	Model No.
Pump	Booster Pump	Booster Pump with Tank Level Control	CDP 6800
Stage 1	Sediment Prefilter	5 micron depth cartridge	IL210P
Stage 2	Carbon Prefilter	Granular Activated Carbon Filter	IL210C
Stage 3	RO Membrane	35 GPD Thin Film Composite Membrane	TFC35
Stage 4	Carbon Post Filter	Granular Activated Carbon Filter	IL210C

### Recommended Frequency of Changing Filters and Membrane

Stage	Filter	Frequency	Model No.
Stage 1	Sediment Prefilter	Every 6-12 months.	IL210P
Stage 2	Carbon Prefilter	Every 6-12 months. If chlorine level is known to be high or if there is a noticeable change in taste or smell, change carbon prefilter every 6 months.	IL210C
Stage 3	RO Membrane	Every 18-24 months or as determined by a TDS test available from your TDS representative.	TFC35
Stage 4	Carbon Post Filter	Every 6-12 months or if taste is undesirable.	IL210C

### Daily Production:

35 gallons per day / 135.5 liters per day.

**TDS Rejection:** 96% nominal to atmosphere.

\* Rated at 77° F, 60 PSI, 500 ppm (25C°, 4.1 bar, 500 ppm TDS). Actual production rate will depend on local temperature, pressure, TDS level and membrane variation. Each membrane is factory tested and sanitized before shipping.

**Reservoir Capacity:** 5 liters

**Shipping Weight:** 6.8 kgs./15 lbs.

### Parameters of Appliance:

Water Characteristic	Limits
Total Dissolved Solids	< 2000 ppm
Hardness (Calcium Carbonate)	< 350 mg./l
Iron	< 0.1 mg./l
Manganese	< 0.05 mg/l
Hydrogen Sulfide	none allowed
Free Chlorine	< 1.5 mg./l
Water Temperature	40° - 85° F (4°-20°C)
Water Pressure	40-85 psi (2.75-5.8 bar)
pH	4 - 11

< = less than

**Caution:** Do not use this appliance where water is micro biologically unsafe or of unknown quality.

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