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### WHAT IS REVERSE OSMOSIS (RO)?

Reverse osmosis (RO) is a water treatment process that removes undesirable materials from water by using pressure to force the water molecules through a semi-permeable membrane. This process is called "Reverse" Osmosis because a concentrated water solution (raw) is forced under pressure through a membrane to yield a diluted water solution (treated) for consumption. This treated water does not contain contaminants such as; chemicals, ionized salts, heavy metals, collides and organic molecules. The RO reduces the molecules down to a molecular weight of 100 and the rejection of dissolved salts is typically 95% to greater than 99%. Reverse Osmosis is the finest level of filtration available.

### WHAT IS OZONE?

Ozone (O<sub>3</sub>), one of nature's basic elements, is a very powerful disinfecting and deodorizing gas consisting of oxygen (O<sub>2</sub>) with an extra oxygen atom attached, therefore, becoming ozone (O<sub>3</sub>). When oxygen in the air is exposed to high intensity ultraviolet rays, such as our sun creating the ozone layer, ozone is created. When ozone does its job, it oxidizes by giving up and attaching its extra oxygen atom to anything that can be oxidized. Once this process occurs, the ozone molecule becomes oxygen (O<sub>3</sub> – O = O<sub>2</sub>). Thus, the only by-product of ozone is pure oxygen. In fact, ozone reverts to pure oxygen quite rapidly and naturally: The half-life of ozone in the air is on the order of hours and on the order of minutes when dissolved in water. Additionally, ozone dissolves over 12 times more readily into water than pure oxygen providing hundreds of times more dissolved oxygen in your water than could otherwise be possible.

### WHAT IS AN RO SYSTEM?

A typical system consists of:

1. Pre-filters to remove silt, iron, chlorine or other particulate matter.
2. A membrane to remove raw water contaminants.
3. A treated water storage tank.

### FACTORS AFFECTING AN RO SYSTEM

Permeate flux and salt rejection are the key performance parameters of the reverse osmosis process. They are mainly influenced by variable parameters such as; pressure, temperature, recovery, and feed water salt concentration.

#### Pressure

Increased feed water pressure will increase permeate flux and decrease the permeate TDS (Total Dissolved Solids). With excessive pressure the membrane may become deformed or compacted and a decrease in product flow will result.

#### Temperature

Increased temperature will increase permeate flux, which increases salt passage. It is also important to note that every unit is rated for a product flow temperature of 77°F (25°C). With a temperature decrease, the product flow will decrease. On average the membranes lose about 2% production for every degree below 77°F.

#### Recovery

The recovery is the ratio of the permeate flow to the feed flow. When recovery is increased, the permeate flux will decrease and the salt passage will increase.

#### Feed water Concentration

Increased TDS or salt concentrations will decrease permeate flux and increase salt passage. This can also lead to surface coating or fouling of the membrane by the salt.

### DOES AN RO SYSTEM DISINFECT WATER?

While the membrane used in an RO system will physically screen out and remove many microorganisms in water, including pathogenic bacteria, the membrane must not be relied upon to make a biologically questionable water supply safe and potable for consumption. Membrane imperfections or faulty water seals in the system could allow untreated water to pass through and over time bacteria could grow on or through the membrane. Be safe and be sure the raw water source for your RO system is safe and potable for consumption by having a sample tested by a certified water testing facility. This system uses ozone bubbling through the 375- gallon storage tank to insure your water is sanitized and biologically safe prior to exiting the tank for household water usage. The Ozone System is not intended to treat non-potable water fed to the RO system and doing so will void your warranty and will compromise the RO filters, membrane and product water.

#### WARNING

**DO NOT FEED NON-POTABLE WATER TO THIS RO/OZONE SYSTEM**

### WHAT IS IN THIS SYSTEM?

Your Whole House RO/Ozone System has five (5) major components and they are:

1. A 2000 GPD RO system with pre-filters consisting of: a) a pressure pump (195 PSI) to maximize membrane efficiency; b) a 2000 GPD TFC membrane; c) adjustable flow gauged drain and recycle (recovery) systems; and d) a product flow gauge showing GPM of product water produced---all protected by the following safety features to insure trouble free RO operation:
  - Dual normally closed solenoid switches in series; and
  - A normally open pump pressure switch
2. An Ozone system with pump and tank bubbler to adjust the Ph of the RO product water to insure it is not acidic and to sanitize the 375-gallons of stored water to insure it is safe prior to exiting the tank for household water usage. The Ozone system runs continuously.
3. A 375-gallon heavy duty industrial grade plastic tank with 16" non-vented lid; a 3" exhaust vent with fan; a 2" intake air vent, both piped to the exterior of the house; a boiler drain and several through tank bulkhead fittings for various system components. The tank has a square tube "H" style steel frame which is used to mount a 2' x 4' x ½" HDPE plastic board for mounting various system components.
4. A pressure sensitive instant on control head that turns on a ½ HP submersible pump suspended in the 375-gallon atmospheric water storage tank to provide 70 psi water to your home water piping system on demand.

5. A 3/4 HP 15A mercury float switch used to turn on/off the RO system ( 1. above) when water is required to fill the 375-gallon storage tank.

#### HOW DOES THE SYSTEM WORK?

1. Feed water enters the system through a 1/2" flexible SS line and flows through the RO pre-filters (5 micron sediment and 10 micron carbon block) which removes sediment and other suspended particles as well as any chlorine present.
2. The RO system power cord is plugged into the back of the storage tank water level float switch plug and water is made until the float level switch points up shutting off power to the RO system power cord.
  - a) If the tank is full, the float is pointing up and its mercury switch contacts are open---no power flows through the plug to the RO system power cord, hence, water is NOT made.
  - b) If the tank level is down 7-10", the float is pointing down and its mercury switch contacts are closed---hence, power passes through to the RO system power cord and water COULD BE made.
3. The presence of electricity to the RO system power cord through the back of the water level float switch opens up the dual normally closed water inlet solenoid valves allowing water to pass through to the pump/motor pressure switch, which completes part of the RO pump/motor electrical circuit.
4. Water pressure passing through the dual solenoid valves to the diaphragm of the pump/motor pressure switch (10 psi , ON and 5 psi, OFF) closes the pressure switch contacts, thereby completing the RO pump/motor electrical circuit.
5. Filtered inlet water passes through the RO pump and enters the membrane housing at 195 psi (standard system operating pressure). Water flows from top to bottom around the outside of the membrane. A portion of the feed water passes through the membrane to the center and exits at the top of the housing (1.3 GPM average) as product water. The remainder of the feed water exits through the bottom of the housing. A portion is captured and recycled (1.3 GPM average) through the RO system to conserve water and increase operating efficiency. The rest of the exiting water is sent to drain (2.4 GPM average). Adjusting the knurled knob needle valves at the base of the recycle/recovery and drain flow meters, allows you to adjust system operating pressure (195 psi maximum) as well as flow rates to recycle/recovery and drain.

#### CAUTION

**THE HIGHER THE FEED WATER TDS, THE LOWER THE RECYCLE/RECOVERY RATE SHOULD BE. WITH VERY HIGH TDS (GREATER THAN 2000), NO RECYCLE/RECOVERY SHOULD BE DONE TO EXTEND MEMBRANE SERVICE LIFE.**

6. The product water exiting through the top of the membrane housing passes through a product flow meter to the 375-gallon storage tank. Product water enters the top of the 375-gallon atmospheric storage tank and water is made until the storage tank water float lever switch is pointing up and its mercury switch contacts are open---no power through the back of the plug to the RO system power cord and the RO system shuts down and stands by to make water as needed.
7. In the 375-gallon water storage tank, a continuously running Ozone system is pumping a low level of ozone gas through a suspended bubbler assembly 12" from the bottom of the storage tank. The ozone gas rising through the bubbler assembly circulates the tank water continuously sanitizing the water as well as insuring the Ph of the water is not acidic, as acidic water attacks copper piping and other household equipment. The bubbling ozone also helps other existing dissolved gases to leave the stored water.
8. A 3" PVC Schedule 40 exhaust vent system is attached to the top of the 375-gallon atmospheric water storage tank to vent ozone as well as any other gases to the atmosphere outside the home. The system includes an externally mounted radon gas quality exhaust fan. The system is adjusted to maintain a slight negative atmosphere in the 375-gallon storage tank to insure proper evacuation of all gases outside of the home to protect inhabitants. The Radon quality exhaust fan has a 3/8" condensate fan bypass to stop exhaust pipe condensation from running down through the fan, thereby protecting against premature fan failure. A 2" air intake vent is also installed to the storage tank from the outside. This insures that no heated house air is drawn from the house as well as NOT creating a vacuum situation inside the house to draw in unwanted gases, such as Radon, from the surrounding earth.
9. A request for water from the 375-gallon storage tank (i.e., faucet opened, etc.) results in a waterline pressure drop. This drop in water pressure is sensed by the distribution control head which instantaneously turns on the 1/2 HP (70 psi) distribution water pump. This pump is submerged inside the 375-gallon storage tank and suspended under the control head by a 1" plastic water pipe. The pump bottom rests on the bottom of the 375-gallon storage tank to relieve strain on the control head. The water inlet of the pump is located 6" from the bottom so any tank sediment is not drawn into the pump. The control head has a 1" FIPT output fitting for the house water distribution system. The control head is thermal protected and automatically resets after service interruptions. Continual service interruptions put the control head into a manual only reset mode which further protects the distribution system from premature failure.
10. And the cycle repeats.
11. The water is now pure and ready to drink or use for other normal household water uses.

**Congratulations! You have bought the BEST Whole House Reverse Osmosis Residential Water System we have seen in the Industry.**

**WARNING**  
**PLEASE CHECK THE UNIT CAREFULLY BEFORE INSTALLING. IT IS NOT UNUSUAL FOR FITTINGS AND HOUSING TO LOOSEN DURING SHIPPING. IF THIS IS NOT CORRECTED, THE UNIT WILL LEAK**

## INSTALLATION INSTRUCTIONS

**CAREFULLY INSPECT THE UNIT FOR ANY SHIPPING DAMAGE. IF ANY IS FOUND, SUBMIT A CLAIM TO THE SHIPPING CARRIER AND COPY NATURES BEVERAGE. UNPACK THE UNIT AND SAVE PACKING MATERIALS--AT LEAST UNTIL THE UNIT IS OPERATING.**

1. It may be necessary to remove the RO system control board from the 375-gallon water storage tank to move the tank inside the house. To remove the system, proceed as follows:
  - a) Remove the two (2) bottom bolts from the blue "H" frame on equipment board side.
  - b) Hold equipment board frame and remove remaining two bolts from top of the frame. Carry equipment board frame into the house.
  - c) Remove four (4) bolts from the other side of frame, bottom first. Carry remaining frame pieces into the house.
2. Move the tank into the house--minimum door width is 30". If you are going downstairs into a basement, we suggest that you pick a level spot, lift one end of tank off the ground until angle of stairs is matching, support end, then measure vertical height and horizontal distance required to slide the tank downstairs and through the doorway. If the stair treads are removable, you may be able to lower tank down and slide through doorframe without angling the tank.  
**NOTE: We have removed doorframes, stairs and, in one case, used an elevator shaft to get the 375-gallon water storage tank into place. If you have the heart, you can do it too!**
3. Locate the tank so that:
  - a) You have reasonable access to a cold water feed.
  - b) The 3" vent will be as short and straight as possible to outside of house. The fan and any stack on the outside must clear any windows or doorframes. The discharge from fan should be at least 3' side distance from any windows if vented below window opening. We strongly recommend taking 3" stack to above roof line.
  - c) Electrical service is reasonably available. We suggest two (2) 20 AMP 120-VAC circuits for best operation. One (1) 20 AMP circuit should be GFI protected (plug control head/distribution pressure pump in here)
  - d) Run the power cord from the non-GFI breaker to the equipment board to the 4-way outlet (this is a GFI outlet). If only one 20 AMP 120 VAC circuit is available, it should be non-GFI and all system components will plug into the on-board electrical system.

**NOTE**  
**Experience has proven that one 15 AMP 120-VAC circuit is not sufficient to run the system satisfactory. At times, the AMP draw will exceed 15 AMPS (RO pump/motor start-up and control head/distribution pump start-up) causing the circuit breaker to trip.**

**WARNING**  
**Do not use GFI in the feed circuit to the system equipment board. The GFI outlet on the board and the GFI in the feed circuit will interact and usually trip one or the other GFI causing system shut down.**

4. We suggest you run the 3" exhaust vent first as it takes up the most space. You will need a 3 5/8" hole saw to drill a hole through the window sill to the outside. You will need a 3" PVC S40 male adapter to thread into existing black bulkhead fitting on top of the 375-gallon tank. The best clamping system for PVC pipe we have found is the "clic system" from Litchfield International, Inc. in Connecticut. Call 1-800-345-CLIC (2542) to find local suppliers. Be sure not to create any "traps" in the vent system or condensate will build up in trapped area.
5. Run the 2" air intake vent next. You will need a hole saw to drill through the window sill. Remount the metal framing to the tank. Lay cross piecing on top of tank and slide lowers under tank. Stand equipment board frame up, hold and loosely tighten top two (2) bolts; repeat on lowers (hint—jiggling the crosspieces helps start bolts). Secure other "H" frame in same manner. Tighten all bolts at this time.
6. Examine completed system picture and install any equipment shipped un-installed.

- a) Be sure to thread 2 x 20 housings (sediment and CTO) onto correct black head.  
**Note: Carbon block (CTO) has plastic mesh nettings.**  
 Flex pipe to house water piping. A bypass system should be installed between house raw water feed and system treated water feed to house piping. In the event of system failure, opening and closing bypass/feed valves will allow rawwater to be used in the home while the system is repaired.
- c) Assemble 1" black PVC well pipe to submersible pump. Install pump inside 375-gallon tank and screw pump pink fitting into control head bulkhead. The pump usually rests lightly on the bottom of the tank. This is okay as the pump intake is 6" from the bottom of the pump.
- d) Plug cord of float switch into one of the 4-way GPI outlets on covered water proof box. Plug RO power cord into back of float switch plug.

**WARNING**  
**If RO power plug is plugged into any outlet OTHER than the back of the float switch plug, the RO will not stop making water and you will flood your basement.**  
**NATURES BEVERAGE WILL NOT BE LIABLE FOR DAMAGES IN THIS EVENT**

7. Run 1/2 "cold" water feed to equipment board.
8. Run two (2) 20 AMP 120-VAC feeds to system area. Do not energize circuits at this time. Use 12-gauge two (2) wire with ground type "SJW" water resistant wire.
  - a) Plug system power cord into non-GFI power outlet.
  - b) One GFI circuit should terminate overhead into a duplex outlet, not supplied, near the water tank control head. The control head plugs into this outlet.

#### **WHAT IS THE EXPECTED SERVICE LIFE OF STAGE 1-3 REPLACEABLES?**

The Whole House RO system shipped assumes that your source water is safe and potable. A drawn glass of water is assumed to be clear and does not settle out silt or discolor from iron, maganese, tannins, nitrates, and does not exhibit any "rotten egg" smell. If the above are met, stage 1 & 2 filters should last six months to one (1) year and the stage 3 membrane should last one (1) year minimum. Premature failure of any stage (1-3) component requires a comprehensive water test to determine what pre-treatment is required to achieve the expected "normal" service life. Purchase Nature's Beverage pre-packaged maintenance sets (Part #70 for stages 1, 2, 3) or (Part #71 for stages 1,2,3) or individual stages 1-3 replaceable.

#### **WANT TO KNOW HOW WELL YOUR SYSTEM IS OPERATING?**

If you want to insure that your RO system is operating at top efficiency, a testing unit called an RO Comparator is required. Purchase Natures Beverage (Part #53) or purchase locally.

#### **NEED ACCESSORIES, SPARE PARTS, FILTERS, OR MEMBRANES?**

Purchase from Natures Beverage or purchase locally. See page \_\_\_ for NB 2000 GPD 375-T/OZ RO system parts list. Contact Natures Beverage for current pricing.

#### **INSTRUCTIONS FOR CHANGING FILTERS (STAGES 1 & 2)**

1. Turn off raw water feed to unit ball valve (when turned off, the valve lever should be perpendicular to the valve body.)
2. Unplug RO power cord from back of float switch plug.
3. Remove brass drain plug from bottom of membrane housing if any pressure remains in system
4. Unscrew the filter housings, counter clockwis e. (Clockwise if looking down from the top of the system.) If the housings are too tight use the filter wrench provided.
5. Match new filters with the existing ones to assure that the new ones are put in the right canister. Remove and safely discard old filters.
6. After installing new filter, check to make sure that the "O"-ring inside the canister is properly in its seat before putting canister back on the system.
7. Once housings are back in place and securely tightened, and the membrane drain plug is re-installed, you can plug the RO unit power plug into the back of the float switch plug. Turn the raw water feed back on. Check for leaks and turn system on by ?? Float to insure proper system on/off operation.
8. Due to carbon and other normal impurities present in the filters and a preservative used in the membrane, we recommend that you flush the system prior to drinking. Once the storage tank is full open the faucet and let the water run until it empties the storage tank. After the tank is drained, close the faucet and allow the tank to fill again, (Usually about two hours.) Then drain and allow to refill.
9. The water is now pure and ready to drink!

#### **INSTRUCTIONS FOR CHANGING MEMBRANE (STAGE 3)**

1. With water turned off, power turned off, and system pressure relieved (refer to filter changing instructions), remove the ½" white tubing connected to the membrane-housing lid at top. Pull out "U" clamp and lift out cover.
2. Remove membrane-housing lid by turning counter-clockwise. A crescent wrench or gas pliers may be used if housing is too tight.
3. Pull membrane out of housing. Pliers may be used if membrane will not release from housing. Pour out any extra water in housing.
4. Remove new membrane from plastic bag being careful not to touch the outer-wrapping of membrane because acids from your skin can damage the membrane. Handle membrane by the posts on either end.

5. Notice the "O"-rings at the membrane top. You may now install the membrane making sure to insert "O"-ring end into housing last.
6. Once the membrane is in, put the cap back on the housing and re-connect the tubing to the fitting on the cap.
7. Make sure the RO unit is plugged in properly and system operation tested.

**WARNING**  
**If RO power plug is plugged into any outlet OTHER than the back of the float switch plug, the RO will not stop making water and you will flood your basement.**  
**NATURES BEVERAGE WILL NOT BE LIABLE FOR DAMAGES IN THIS EVENT**

## GLOSSARY OF TERMS

<b>Absorbate:</b>	Material to be removed from solution.
<b>Absorbent:</b>	Material on which absorption will occur.
<b>Air Gap:</b>	A clear vertical space between the end of the RO drainline and the flood level rim of the house sanitary drain system connection point.
<b>Concentrate/Reject (waste water):</b>	The portion of water that does not pass through the membrane and goes to the drain.
<b>Feed Water:</b>	An incoming water source to the RO system.
<b>Flux:</b>	The rate of transfer of fluid, particles, or energy across a given surface.
<b>GAC:</b>	Granular Activated Carbon is regarded as one of the most effective water treatment materials in absorbing many types of soluble organic materials found in water.
<b>Membrane:</b>	The fabric that the feed water passes through to become product water. It is usually a large surface area sheet that is spiral wound into a tube shape. It has channels for product flow and removal once the feed water has passed through the membrane.
<b>Permeate (product water):</b>	Portion of the raw source water, which passes through the membrane. RO system treated water for consumption.
<b>Reverse Osmosis:</b>	The movement of raw source water through a semi-permeable membrane when pressure is applied to yield treated water.
<b>Surface Area:</b>	The surface of a material available for absorption to take place.
<b>Thin Film Composite (TFC)</b>	Thin membrane bonded to an anisotropic support layer. Synthetic fabric supports this composite. Thin film offers highest degree of selectivity, flux, and chemical stability.
<b>Total Dissolved Solids (TDS)</b>	Total amount of dissolved solids/salts in raw/treated This is a measure of product water purity.
<b>Ultraviolet (UV) Light:</b>	Radiation (Light) having a wavelength between 100-3900 angstroms.
<b>UV Germicidal Light:</b>	UV light that peaks at 2,537 angstrom wavelength and is in a wavelength that lies between 200-300 nanometers which kills all disease causing micro organisms.
<b>Gallons Per Day (GPD):</b>	Ro systems are normally sized with this rating. An 1800 GPD rating means this unit could produce 1800 gallons per day of purified water at a given temperature.
<b>Parts per Million (ppm):</b>	The measure of TDS. The parts of Total Dissolved Solids per one million parts of water (i.e. one pound of mineral salts dissolved in one million pounds of water will give one part per million of TDS).
<b>Percent Recovery:</b>	The amount of feed water that passes through the membrane to become product water (i.e., if 1,000 gallons of feed water are introduced to the RO system and 500 gallons of product water are produced, then the percent recover would be 50%).

**Percent Rejection:**

The amount of silt or chemicals rejected by the RO membrane.

**Turbidity:**

Suspended biological, inorganic and organic particles in water which may be in sufficient amount to make the water seem cloudy.

## SYSTEM SPECIFICATIONS NB 2000 GPD RO – 375T/OZ

FILTERS	SIZE	TYPE
Sediment Filter	20"	5um
Carbon Filter	20"	GTO

### Operating Limits

MEMBRANE TYPE	THIN FILM COMPOSITE
Maximum Operating Pressure	195 psi
Feed Line Pressure Min./Max.	30-85 psi
pH Range, Continuous	2-11
Feed Water Hardness	<10 gpg
Feed Water Iron	<0.1 ppm
Feed Water Manganese	<0.05 ppm
Feed Water Hydrogen Sulfide	Must be removed
Chlorine Tolerance	0 ppm
Organics Tolerance	0 ppm
Oil Tolerance	0 ppm
Maximum Allowable Back Pressure	40 psi
Operating Temperature	40-110° F
Maximum Feed Turbidity	0.5 NTU
Maximum Feed Silt Density Index	<4 SDI
Maximum TDS	2000 ppm

Notes:

1. Operating unit in excess of these water conditions will result in premature failure of the membrane. The warranty will be void if failure or reduced performance is due to improperly treated feed water.
2. System capacity: This system is designed to make a maximum of 2000 GPD with feed water meeting system specifications at 72°F. Actual GPD will depend on water temperature, actual water parameters and system filter/membrane service age as GPD will decrease over service life. Systems placed in service by us routinely produce 1500 – 2000 GPD.

## NB 2000 GPD RO – 375T/OZ-RADON

### Trouble Shooting Guide

PROBLEM	PROBABLE CAUSE	CURE
LOW WATER VOLUME	1 Feed valve shut off	1 Open feed valve
	2 Low feed pressure	2 Ensure source feed pressure is at a minimum of 40psi. Re-place booster pump or 24 volt DC transformer
	3 Pre-filter cartridge clogged	3 Replace pre-filter
	4 Clogged shut off valve	4 Clean or replace
	5 Product check valve stuck	5 Clean or replace
	6 Storage tank under/over pressurized	6 Tank should maintain 15 psi. when empty.
	7 System overuse	7 Demand exceeds system volume - increase holding tank and membrane size capacity
	8 Storage tank ball valve is turned off	8 Open ball valve.
HIGH TDS IN PRODUCT WATER	9 Membrane expended	9 Replace membrane
	10 Membrane bacteria fouled	10 Feed water must be chlorinated
	11 Clogged pre-filters	11 Replace
	12 Low brine flow to drain	12 Replace flow restrictor
	13 Low feed pressure	13 Ensure source feed pressure at a min. of 40psi. Replace booster pump or 24VDC transformer
	14 Feed water (TDS) increase	14 Determine TDS % rejection; replace membrane
BAD TASTING WATER	15 Post filter exhausted	15 Replace post-filter cartridge
	16 Depleted membrane	16 Check TDS % rejection-replace membrane.
	17 Tank & system contaminated	17 Replace pre & post filters, and sterilize system
	18 New post filter not flushed completely	18 Flush 1 full tank of pure water through system.
	19 1st daily usage	19 Allow water to run for 30 seconds before using.
	20 Feed water (TDS) increase	20 Change filters more frequently.
CLOUDY WATER	21 As feed water containing dissolved air passes through the RO system it becomes concentrated	21 Will change as (feed water) air levels change. Allowing product water to stand still, will allow air to dissipate from product water.
CLOUDY ICE CUBES	22 See #21	22 See #21
	23 Increase in product (TDS)	23 Change filters
	24 Ice cube configuration- as ice cubes dissolve; some shapes take on more air than others do. The larger & squarer shaped cubes are the cleanest.	24 Change ice cube mold, avoid small rounded cubes.
FITTING LEAKS IN GENERAL	25 Close the Saddle Tapping Valve (feed water) and relieve pressure before disconnecting any fitting. Tighten compression nuts or refer to the respective assembly drawing for proper assembly. If pipe threads are leaking, remove and re-tape with Teflon tape.	
FAUCET LEAKS OR DRIPS	26 Leaks from spout.	26 Adjust Faucet by turning the tee bar just below handle to provide a small amount of free play in handle when shut off.
		26 O-rings are bad. Repair or replace faucet.
	27 Leaks from base of delivery tube.	27 O-ring is bad. Replace O-ring.
	28 Leaks from beneath the handle.	28 O-rings are bad. Repair or replace the faucet.