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BARNSTEAD|THERMOLYNE CORPORATION

# EASYpure™ RO Reverse Osmosis System

*SERIES 742*

**INSTALLATION,  
OPERATION,  
SERVICE AND REPAIR MANUAL,  
AND PARTS LIST**

Model	Voltage	
D7421	120	
D7422	240	
D7422-33	230	
D7423	100	Low Pressure
D7428	120	Low Pressure
D7429	240	Low Pressure
D7429-33	230	Low Pressure

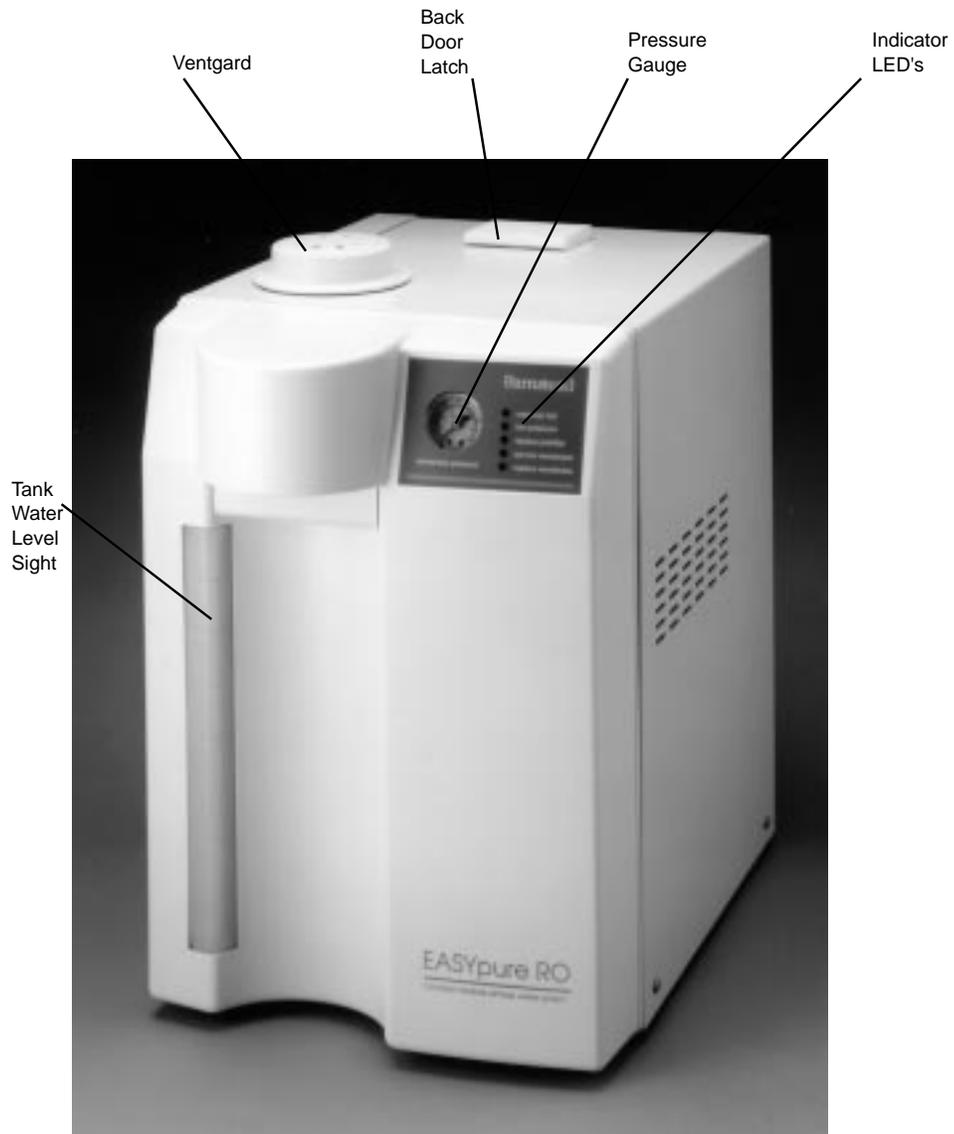


Figure 1 EASYpure RO  
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# Safety Information

Your Barnstead EASYpure RO has been designed with function, reliability, and safety in mind. It is your responsibility to install it in conformance with local electrical codes. For safe operation, please pay attention to the alert signals throughout the manual.

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## Alert Signals



### **Warning**

Warnings alert you to a possibility of personal injury.



### **Caution**

Cautions alert you to a possibility of damage to the equipment.



### **Note**

Notes alert you to pertinent facts and conditions.

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## Warnings

To avoid electrical shock, always:

1. Use a properly grounded electrical outlet of correct voltage and current handling capacity.
2. Do not mount the EASYpure RO directly over equipment that requires electrical service. Routine maintenance of this unit may involve water spillage and subsequent electrical shock hazard if improperly located.
3. Replace fuses with those of the same type and rating.
4. Disconnect from the power supply prior to maintenance and servicing.

To avoid personal injury:

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## SAFETY INFORMATION

1. Do not use in the presence of flammable or combustible materials; fire or explosion may result. This device contains components which may ignite such materials.
  2. Ensure all piping connections are tight to avoid leakage of chemicals.
  3. Ensure adequate ventilation when using chemicals for cleaning.
  4. Follow carefully the manufacturers' safety instructions on labels of chemical containers and Material Safety Data Sheets (M.S.D.S.).
  5. Refer servicing to qualified personnel.
- C. To ensure safe mounting:
1. Wall composition and construction, as well as fastener type, must be considered when mounting this unit. The mounting surface and fasteners selected must be capable of supporting a minimum of 120 lbs.; inadequate support and/or fasteners may result in damage to mounting surface and/or equipment. If you are unsure of mounting surface composition, condition and construction, or correct fasteners, consult your building maintenance group or contractor.

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# Specifications

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## Dimensions

30.5 cm W x 46.7 cm W x 46 cm H.

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## Feedwater Requirements<sup>1, 5</sup>

Max. Temperature .....48.8°C  
Min. Pressure (standard unit) .....30 psig  
(2.1 bar)  
Min. Pressure (low pressure unit) 9 psig  
(0.62 bar)  
Max. Pressure (standard unit).....100 psig  
(6.8 bar)  
Max. Pressure (low pressure unit)  
15 psig (1.1 bar)  
Inlet Flow Requirements .....53.5 lph  
pH .....4 - 11  
TDS (Max. ppm as CaCO<sub>3</sub>) .....500  
Silt Density Index .....<5%  
Free Chlorine.....<0.1 ppm<sup>2</sup>  
Langlier Saturation Index .....Negative  
Turbidity .....<1 NTU  
Iron (Total as Fe) .....<0.5 ppm

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## Product Water

## Specifications<sup>5</sup>

Product Water Flow Rate .....12 lph<sup>3</sup>  
% Recovery .....20%-26%

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## Membrane Rejection Rates<sup>4</sup>

Monovalent Ions .....90-95%  
Polyvalent Ions .....95-99%  
Particles.....>99%  
Microorganisms .....>99%  
Dissolved Organics (300 MW) ....>99%  
Reject Water Flow Rate 650 ml/min  
at  
60 PSIG ±5  
PSIG

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## Electrical Requirements

Model D7422-33 - 230 VAC ±10%, 47-63 Hz  
Model D7429-33 - 230 VAC ±10%, 47-63 Hz

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## Environmental Conditions

Operating: 17°C - 27°C; 20% - 80% relative  
humidity, non-condensing. Installation  
Category II (over-voltage) in  
accordance with IEC 664. Pollution  
Degree 2 in accordance with IEC  
664. Altitude limit: 2,000 meters.  
Storage: -25°C - 65°C; 20% - 80% relative  
humidity.

1 Feedwater suitability must be determined by a water analysis.

2 Free chlorine removed by pretreatment cartridge.

3 ±1.5 lph, feedwater at 25°C and 60 psig pressure.

4 Membrane performance is dependent on condition, pressure, recovery, water temperature and water composition. Listed membrane performance for a new membrane is based on optimum operating conditions of 60 psig, 15% recovery, 25°C (77°F) feedwater temperature and feedwater composition of a maximum of 500 ppm NaCl at a pH of 6.0-6.5.

5 Membrane performance, flowrates and recovery information are nominal values. Variations in the feedwater temperature, pumps and reject orifice may slightly alter these results.

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## Declaration of Conformity

Barnstead|Thermolyne hereby declares under its sole responsibility that this product conforms with the technical requirements of the following standards:

EMC: EN50081-1 Generic Emission Standard; EN 50082-1 Generic Immunity Standard.

Safety: IEC 1010-1-92 Safety requirements for electrical equipment for measurement, control and laboratory use; Part 1: General Requirements per the provisions of the Electromagnetic Compatibility Directive 89/336/EEC, as amended by 92/31/EEC and 93/68/EEC, and per the provisions of the Low Voltage Directive 73/23/EEC, as amended by 93/68/EEC.

The authorized representative located within the European Community is:

European manager  
Barnstead|Thermolyne  
Saarbrückener Str. 248  
D-38116 Braunschweig  
Germany

Copies of the Declaration of Conformity are available upon request.

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# Unpacking

Carefully remove the unit from its shipping container.

The following items are shipped separately and must be removed from the packaging prior to discarding the packaging:

1. EASYpure RO Ventgard air filter.
2. Power cord.
3. Pump interlock cord.
4. Membrane bypass tubing.

The following items are located inside the membrane access door:

1. Feedwater tubing.
2. Reject water tubing.
3. Product tubing to connect accessory reservoir.
4. Product tubing to connect another EASYpure unit.

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# Installation



## **Warning**

Do not mount the EASYpure RO directly over equipment that requires electrical service. Routine maintenance of this unit may involve water spillage and subsequent electrical shock hazard if improperly located.

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## Locating your EASYpure RO

Your EASYpure RO must be located within six feet of an electrical outlet appropriate for your unit, within five feet of your feedwater supply and close to an atmospherically vented drain. If you are using the accessory 30 Liter Reservoir (Part Number TY742X2A), the tank overflow on the EASYpure RO's integral 6.5 liter tank should be located below the level of the storage reservoir's overflow. This will ensure that the EASYpure RO's internal float switches will control the operation of the system. If the EASYpure RO is to be used with the accessory 30 Liter Reservoir, the reservoir must not be mounted farther than 4 feet away from the EASYpure RO. The EASYpure RO Bench Stand (Part Number D7424) will be required for a bench mounted installation with an accessory 30 Liter Reservoir.

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## General usage

Do not use this product for anything other than its intended usage.

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## Bench Mounting

If you are bench mounting the EASYpure RO without the accessory 30 Liter Reservoir (Part Number TY742X2A), simply place the EASYpure RO on a bench.

If you are bench mounting the EASYpure RO and using it in conjunction with the accessory 30 Liter Reservoir (Part Number TY742X2A), the EASYpure RO Bench Stand (Part Number D7424) must be added to the EASYpure RO to ensure automatic operation. Install the EASYpure RO Bench Stand as follows:

1. Remove the 4 feet from the EASYpure RO and retain the screws.
2. Place the EASYpure RO on the Bench Stand so that the screw holes where the feet were attached line up with the holes in the Bench Stand.
3. Install the 4 screws removed in step 1 through the bottom of the Bench Stand and into the EASYpure RO.
4. Install the accessory 30 Liter Reservoir according to the instructions in the accessory 30 Liter Reservoir manual.

**Note**

If you are bench mounting the unit, proceed to Utility Connections.

**Warning**

Wall composition and construction, as well as fastener type, must be considered when mounting this unit. The mounting surface and fasteners selected must be capable of supporting a minimum of 120 lbs.; inadequate support and/or fasteners may result in damage to mounting surface and/or equipment. If you are unsure of mounting surface composition, condition and construction, or correct fasteners, consult your building maintenance group or contractor.

Do not mount the EASYpure RO directly over equipment that requires electrical service. Routine maintenance of this unit may involve water spillage and subsequent electrical shock hazard if improperly located.

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## Wall Mounting

If you are wall mounting the EASYpure RO using the optional wall mounting bracket, mount the unit as follows:

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### Wall Mounting the EASYpure RO

1. Install the wall bracket (Part Number D7384) on the wall in a location that is accessible to water, power and an atmospherically vented drain, and that is convenient to use. A minimum of 4 fasteners must be used.
2. Remove the 4 feet from the EASYpure RO. Retain the screws.
3. Place the EASYpure RO on the wall bracket swivel base so that the screw holes where the feet were attached line up with the holes in the wall bracket. There are guides on the wall bracket that will mate with the EASYpure RO.

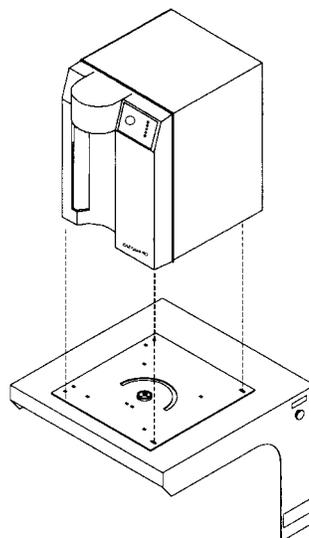


Figure 2 Wall Mounting the EASYpure RO

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## INSTALLATION

4. Install the four screws removed in step 2 through the bottom of the wall bracket and into the EASYpure RO.



### Note

We recommend a customer supplied shut off valve be installed in your feed water line.



### Note

The quick disconnect fittings have built-in shutoff valves in both the coupling and the insert.

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## Utility Connections

The EASYpure RO is supplied with four separate lengths of tubing to be used for feedwater, reject water, feed to accessory storage reservoir and feed to another EASYpure unit's connections. Each length of tubing is six feet long and has the necessary fittings installed.

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## Feedwater Connection

1. Locate the length of  $\frac{3}{8}$ " O.D. tubing provided with a quick disconnect insert on one end and a  $\frac{3}{8}$ " O.D. X  $\frac{1}{4}$ " NPT tubing adapter on the other.
2. Insert the quick disconnect insert into the feedwater inlet on the EASYpure RO. (See Figure 3 for location.) Install the tubing adapter onto your incoming water line. We recommend a customer supplied shut off valve be installed in your feed water line.

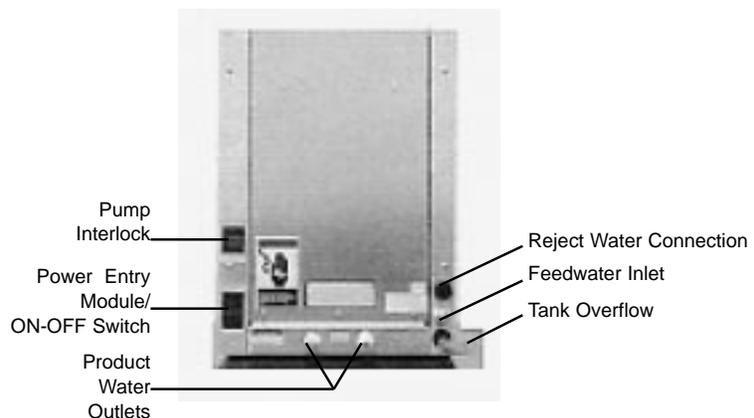


Figure 3 Connections

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### Reject Water Connection

1. Locate the reject water tubing. This is the piece of  $\frac{3}{8}$ " O.D. tubing that has an adapter on one end and no connector on the other end. Remove the nut, grab ring, backup ring and o-ring from the reject water fitting located at the lower right of the unit. (See Figure 4 for part identification and Figure 3 for fitting location.)
2. Thread the nut, grab ring and backup ring on the reject adapter. Do not use the o-ring at this time.
3. Push the tubing through the hex nut until it bottoms out in the adapter.
4. Remove the adapter nut and tubing. Place the o-ring over the tubing. Be careful not to push the backup ring or grab ring further back on the tubing when installing the o-ring. Connect the tubing to the reject connection on the EASYpure RO.

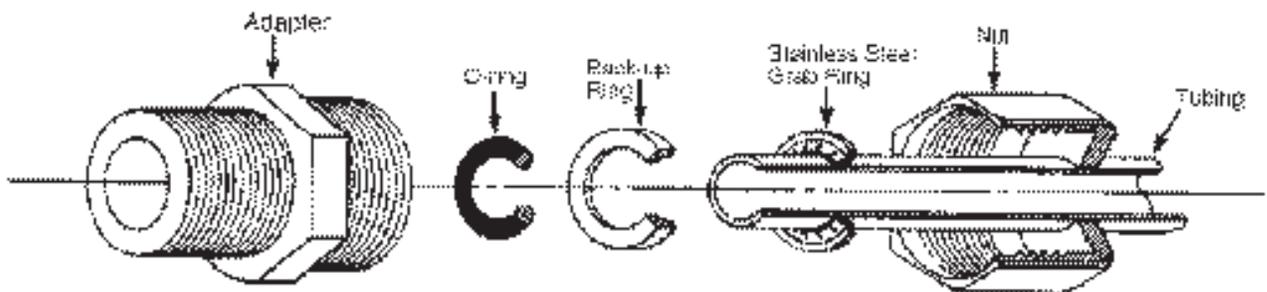


Figure 4 Typical Polypropylene Tubing Adapter Installation

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## INSTALLATION

5. Route the other end of the reject water tubing with the adapter installed to an atmospherically vented drain. Ensure there are no kinks in the tubing and that it proceeds in a downward plane.
6. If possible, use the tubing adapter to permanently install the reject water tubing in the drain.

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### **Tank Overflow Connection**

1. Refer to Figure 3 and attach a customer supplied hose barb connector and  $\frac{5}{8}$ " O.D. tubing to the tubing located at the lower right of the unit as you look at the rear of the unit.
2. Route tubing to an atmospherically vented drain. Ensure there are no kinks in the tubing and that it proceeds in a downward plane.

**Note**

Do not connect the product water tubing to a connected EASYpure unit until you have completed the membrane flush procedure for the EASYpure RO.

**Note**

The product water quick disconnect inserts can be installed in either product water quick disconnect coupling. The quick disconnect ends of the inserts are the same size.

**Note**

If you are not now feeding another EASYpure unit, save the pump interlock cord for possible future use.

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## Connections to Equipment Supplied By the EASYpure RO.

Your EASYpure RO also includes two lengths of tubing with quick disconnect inserts attached. One is  $\frac{1}{4}$ " O.D. tubing and one is  $\frac{3}{8}$ " O.D. tubing. Use the  $\frac{1}{4}$ " tubing to feed directly from the EASYpure RO to another EASYpure unit. Use the  $\frac{3}{8}$ " O.D. tubing to feed the accessory 30 Liter Reservoir if one is being used.

1. Install the quick disconnect insert attached to the tubing into one of the product water quick disconnect couplings on the EASYpure RO. (See page 11.)
2. Install the other end of the tubing into the unit being fed by the EASYpure RO according to the instructions in that unit's manual.
3. Locate the pump interlock cord supplied with the EASYpure RO. Plug one end of the pump interlock cord into the pump interlock on the EASYpure RO. (See page 11.) Remove the jumper plug from the pump interlock on the other EASYpure unit and save it for future use. Plug the other end of the cord into the pump interlock on the other EASYpure unit.

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## Installing The Prefilter and Membranes

1. Disconnect the unit from the power supply.
2. Pull the rear side of the door latch up and toward the front of the unit until the front of the door latch unhooks.
3. Lift the front of the door latch and open door.

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### **Prefilter Installation**

Chlorine and particulates will damage your membranes, resulting in premature membrane failure. Therefore, your EASYpure RO uses an extruded carbon prefilter to remove chlorine and particulates from your feed water.

Install the prefilter as follows:

1. Remove a new prefilter (Part Number D50246) from its plastic bag.

2. Wet the o-rings on both end caps of the prefilter.
3. Insert the upper end cap into upper center position until it bottoms out in the connector. (The upper end cap is the one with the right angle turn and the two flanges.) The two flanges on the end cap slide down on each side of the keyway wall. (See Figure 7.)
4. Lower the prefilter and insert the lower end cap into the lower center socket until it is firmly seated.



**Note**

The membrane by-pass tubing will be needed for sanitizing the EASYpure RO. **Do not discard it.**

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**Membrane Installation**

1. Remove the membrane bypass tubing from the EASYpure RO (see Figure 5). The membrane bypass tubing may be stored inside the EASYpure RO case for easy access when needed for the system sanitization procedure.

Membrane By-Pass Tubing

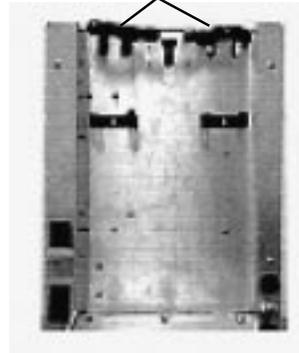


Figure 5 Membrane Bypass Tubing Installed

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## INSTALLATION



### Caution

Do not use a wrench on the tubing adapter connections. A sufficiently tight connection can be made by hand.

2. Remove an RO membrane cartridge (Part Number D7425) from its plastic bag.
3. Remove the nut, stainless steel grab ring, backup ring and o-ring from the connectors on the membrane.
4. Connect the product and reject tubes in the right-hand membrane position on the EASYpure RO to the product and reject outlet connectors on the RO membrane cartridge. Ensure that the o-ring, backup ring, stainless steel grab ring and nut are in place on the product and reject tubing on the EASYpure RO (see Figure 4, page 12). Ensure that the product tube is connected to the product connector and the reject tube is connected to the reject connector. Hand-tighten the connections.

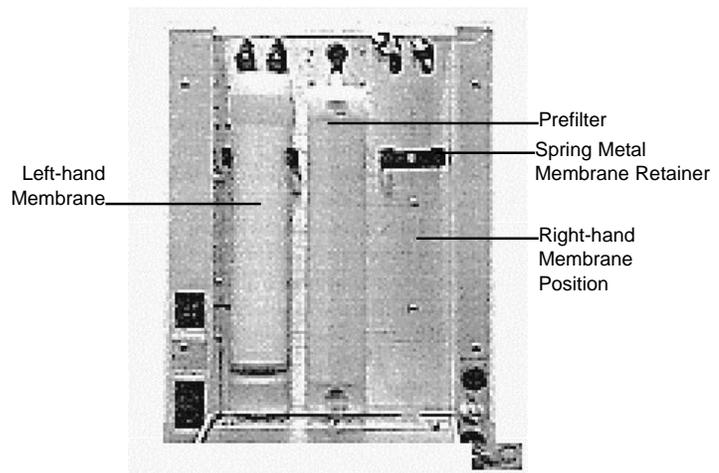


Figure 6 Proper Position of Prefilter and Membranes

5. Wet the o-rings on the bottom of the membrane cartridge. Insert the RO membrane cartridge into the right-hand spring metal retainer.
6. Slide the RO membrane cartridge down until the lower end cap is firmly seated in the lower right-hand socket.
7. Remove the second RO membrane cartridge (Part Number D7425) from its plastic bag. Install the second membrane in the left hand membrane position following the instructions in steps 3-6 above for the left hand connections.
8. Close and latch membrane access door.

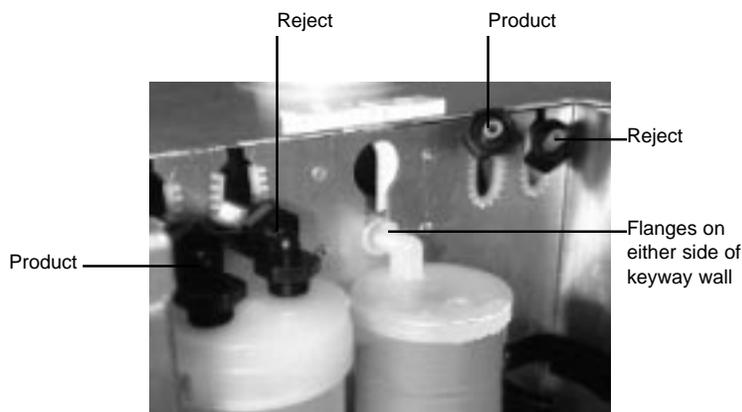


Figure 7 Prefilter and Membrane Connections



**Warning**

Use a properly grounded electrical outlet of correct voltage and current handling capacity.

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## Electrical Connections

1. Plug power cord into the unit's power entry module.
2. Connect your EASYpure RO to a properly grounded outlet of correct voltage and current handling capacity.

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## Membrane Flush

1. If not already done, disconnect the product water tubing from any EASYpure unit connected to your EASYpure RO. Direct the product water tubing to drain. If you are feeding an accessory 30 Liter Reservoir, disconnect the product water tubing from the accessory 30 Liter Reservoir. Direct the product water tubing to drain.
2. Disconnect the pump interlock cord from the other EASYpure unit.
3. Open the customer-supplied feed water valve.

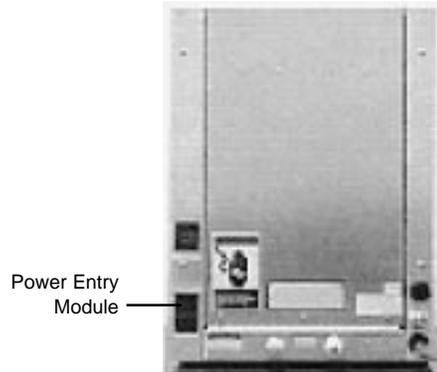


Figure 8 Power Cord Attachment

4. Turn the unit on by depressing the ON/OFF switch on the power entry module in the rear of the EASYpure RO (see Figure 8, page 19).
5. Allow the unit to operate for approximately one hour, sending all water produced to drain.
6. Turn unit power off. Reconnect the product water tubing to the other EASYpure unit. Reconnect the product water tubing to the accessory 30 Liter Reservoir. Reconnect the pump interlock cord to the other EASYpure unit.

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### Set "Replace Prefilter" Indicator

The extruded carbon prefilter both filters particulates and absorbs free chlorine out of your feedwater supply. After a certain point, the extruded carbon will become saturated with chlorine and will cease to effectively protect your membrane from the damaging effects of chlorine. The "Replace Prefilter" Indicator alerts you when the prefilter requires changing.

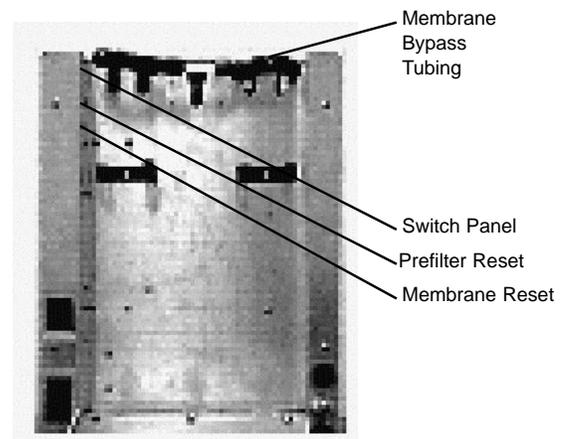


Figure 9 Switch Panel Location

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## INSTALLATION

To set the "Replace Prefilter" Indicator for your feedwater supply:

1. Determine the free-chlorine level of your feedwater (in ppm) using a commercially available test kit.
2. Disconnect the unit from the power supply.
3. Pull the rear side of the door latch up and toward the front of the unit until the front of the door latch unhooks.
4. Lift the front of the door latch and open door.
5. Locate the switch panel on the upper left sidewall of the membrane compartment. (See Figure 9 for location.)
6. The four rocker switches on the switch panel are numbered from left to right as you face the switch panel. Each switch has two possible positions: 1) top pressed in or 2) bottom pressed in. (See Figure 10.)

Set the switches for your free-chlorine level as follows:

## INSTALLATION

Free-Chlorine Range (ppm)	Switch 1	Switch 2	Switch 3	Switch 4
0.05-0.80 ppm	bottom in	bottom in	bottom in	top in
0.80-1.40 ppm*	top in	top in	bottom in	top in
More than 1.40 ppm	top in	bottom in	top in	top in

\* Factory set.

Close and latch the membrane access door. Your EASYpure RO is now ready for operation.

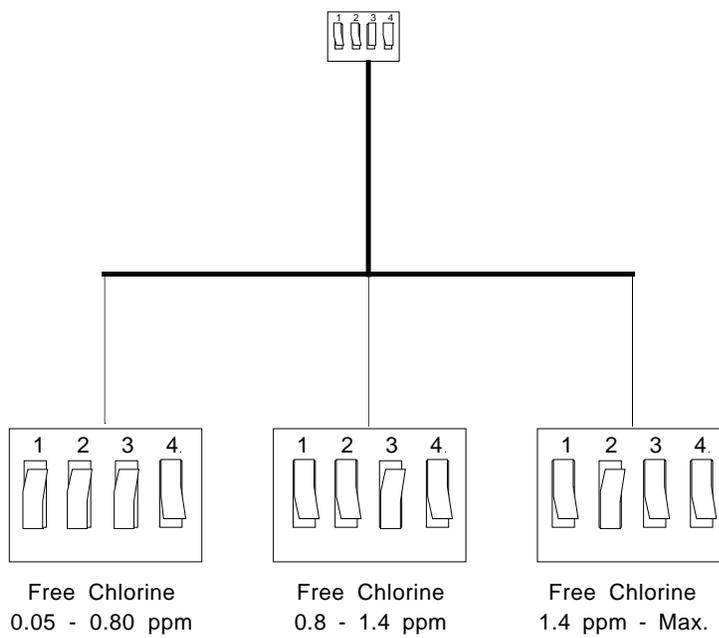


Figure 10 Switch Panel Settings

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# Operation



## Warning

Do not use in the presence of flammable or combustible materials; fire or explosion may result. This device contains components which may ignite such materials.

Your EASYpure RO was designed to operate automatically. The unit will automatically turn off when the tank is full and will restart when the tank empties slightly. The unit will restart automatically for 5 minutes every 3 hours 55 minutes of inactivity to flush the membrane during periods of non-use. This flush water will automatically run to the drain. *Please ensure that the unit remains on — if you need to de-energize the system for longer than 48 hours contact Barnstead|Thermolyne customer service. If water is not drawn from the tank for 72 hours, empty tank and refill with new RO water before using.*

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## Indicators

(See Figure 11, page 25.)

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### Pressure Gauge

On initial start-up, the pressure gauge will briefly indicate the feedwater pressure. Once the pump starts, the pressure gauge will indicate the pressure after the pump, which is the pressure on the reverse osmosis membranes. During normal operation, this gauge should read 55-65 psi.

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### LED's

There are five indicator lights on the EASYpure RO front panel. Their significance is as follows:

**Indicator Lights** These lights alert you of the operating status of the unit. If your attention is required to correct a problem or maintain the system, it will be indicated on the display (periodically check the panel to see if attention is required). A listing of the various indicator lights and their meanings follow:

1. **Reservoir full:** Your EASYpure RO is equipped with a float switch that will de-energize the unit when the reservoir is full. This light will illuminate, indicating the unit is in a standby mode. When the reservoir's water level is lowered about five inches, the unit will re-energize and the light will turn off.
2. **Low pressure:** If the incoming water pressure at the pump drops below 5 psig, a switch will de-energize the pump. This switch senses the pressure after the prefilter and before the pump. The EASYpure RO system will try to restart after it initially senses low pressure. If it senses low pressure the second time, it will switch the EASYpure RO off and will illuminate the low pressure light. Once the fault is corrected, the EASYpure RO must be manually restarted. (Power down and power up).
3. **Replace prefilter:** The carbon used in the extruded carbon cartridge has a finite life. The function of this cartridge is to remove particulates and chlorine



Figure 11 Display

from the feedwater. The "Replace Prefilter" Indicator notifies you when the prefilter requires changing. The frequency with which this light will illuminate will vary depending on the feedwater free chlorine level you have selected on the switch panel on the inside rear left side of the case. For proper operation and protection of your membrane, it is important that you accurately select your feedwater free chlorine level on the switch panel.

4. **Service membrane:** If the percent rejection rate of the membrane falls below 65% the light will illuminate, indicating membrane difficulty. In most cases replacement of the membranes is called for. Refer to troubleshooting guide for further information. At times during operation the light may illuminate. This may be caused by feedwater variation or extended periods of non-use. This should correct itself within a short time.
5. **Replace membrane:** Even under optimal conditions, your EASYpure RO reverse osmosis membranes have a finite life span. This indicator illuminates when your membranes have reached the end of their rated service life. Refer to page 32 for the proper replacement procedure.

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# Maintenance



## Warning

Disconnect from the power supply prior to maintenance and servicing.

Refer servicing to qualified personnel.

Ensure all piping connections are tight to avoid leakage of chemicals.

Ensure adequate ventilation when using chemicals for cleaning.

Follow carefully the manufacturers' safety instructions on labels of chemical containers and Material Safety Data Sheets (M.S.D.S.).

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## Caring For Your EASYpure RO

With proper care, your EASYpure RO will give you consistently pure water. To ensure continued good service, regularly perform the following procedures.

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### System Sanitization

The frequency of sanitizing depends on the rate and amount of contamination buildup.

The membrane cartridges *must* be removed.

The EASYpure RO can easily be completely sanitized by utilizing the sanitization cartridge (Part Number D50245). To accomplish this, follow these step-by-step instructions:

1. Turn off the EASYpure RO. Turn off an EASYpure unit or NANOpure fed by the EASYpure RO. Depressurize the EASYpure unit or NANOpure by opening the drawoff valve (auxiliary drawoff on NANOpure) and allowing water to flow until no more exits the unit. Disconnect the EASYpure unit or NANOpure from the power supply.
2. Close the inlet valve on the EASYpure unit. Disconnect from the EASYpure RO the tubing attaching the EASYpure RO to the EASYpure unit. Disconnect this same tubing from the EASYpure unit. Direct one end of the tubing to drain. Reattach the other end to the EASYpure RO. Allow the tank to drain.

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## MAINTENANCE

3. If you are feeding a NANOpure, remove from the NANOpure the tubing from the "T" on the accessory 30 Liter Reservoir. Drain the accessory 30 Liter Reservoir by opening the spigot.
4. Disconnect the quick disconnect insert(s) and product water tubing attached to the EASYpure RO.
5. Remove the pretreatment cartridge and membrane cartridges.
6. Install the membrane bypass tubing on the top membrane connectors.
7. Install the bottom bypass into the two membrane inlets.
  - a. Wet the o-rings on the connectors of the bypass tubing.
  - b. Insert the connectors into the two membrane inlets. Ensure that the metal clamps line up with the slots located on the floor of the cabinet.
  - c. Rotate the connectors to lock the metal clamps into position.
8. Install the sanitization cartridge in the pre-treatment cartridge position.
9. Power up the EASYpure RO and allow the water to move from the inlet line, through the sanitization cartridge, and through the rest of the system. The unit may turn off as a result of the low pressure condition once or twice during this step. If this occurs, power down and power back up again.

**Note**

Reinstalling your old membranes may reintroduce bacteria into your EASYpure RO system.

10. Allow the system to operate normally until the reservoir is full and the unit goes into standby.
11. Allow the solution to sit in the system for 30-45 minutes.
12. Reconnect the quick disconnect insert(s) and product water tubing removed in step 4. Direct the tubing to drain and drain the storage reservoir. After the reservoir is empty, disconnect the quick disconnect insert(s) and product water tubing again.
13. Remove the top and bottom membrane bypass tubing assemblies and retain them for future use. Remove the sanitization cartridge and discard it.
14. Install a new pretreatment cartridge. Reinstall existing membrane cartridges if they were operating properly.
15. Reset pretreatment timer. (See "Prefilter Replacement.")
16. Operate normally. Drain the first tankful of water as described in step 12.
17. Reconnect the product water tubing to the EASYpure unit. Reconnect the product water tubing to the NANOpure. Reconnect the EASYpure unit or NANOpure to the power supply.

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## MAINTENANCE

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### Ventgard<sup>®</sup> Filter Replacement

The materials in the Ventgard<sup>®</sup> have a limited capacity. The Ventgard<sup>®</sup> should be replaced every 90 days or after 1,000 gallons have been drawn from the storage tank. A Ventgard<sup>®</sup> may be stored in a cool, dry place almost indefinitely, provided the plastic bag has not been opened. Take the old Ventgard<sup>®</sup> off the top of the EASYpure RO and install a fresh one. (See Figure 12 for location.)

### General Cleaning Instructions

Wipe exterior surfaces with lightly dampened cloth containing mild soap solution.



Figure 12 Ventgard<sup>®</sup> Location

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# Service and Repair



## Warning

Disconnect from the power supply prior to maintenance and servicing.

Refer servicing to qualified personnel.

Ensure all piping connections are tight to avoid leakage of chemicals.

Ensure adequate ventilation when using chemicals for cleaning.

Follow carefully the manufacturers' safety instructions on labels of chemical containers and Material Safety Data Sheets (M.S.D.S.).

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## Normal Unit Operation

Below is a brief description of the normal automatic operation of the EASYpure RO. If the unit does not operate as described below, refer to the Troubleshooting Guide.

When you activate the power switch, the following events will occur:

1. All LEDs light momentarily to indicate that they work.
2. After approximately 5 seconds, the automatic solenoid valves are energized. The inlet valve opens, supplying the EASYpure RO with water. The flush valve also opens, diverting virtually all the water to drain.
3. After approximately 20 seconds, the pump energizes. The majority of the water produced goes to drain.
4. 10 seconds after the pump energizes, the pressure switch begins monitoring the incoming water pressure.
5. After 3 minutes, the flush solenoid valve closes and the EASYpure RO begins making product water and sending it to the storage reservoir.
6. The unit begins to monitor membrane performance and the storage reservoir floats begin to monitor tank levels 5 seconds after the flush solenoid valve closes. During operation, the storage reservoir floats will: 1) switch the EASYpure RO into standby mode (pump off) when the storage reservoir is full, 2) switch the EASYpure RO back into water production mode (pump on) when the reservoir level

drops approximately five inches, and 3) switch off any EASYpure unit connected to the EASYpure RO when the water level in the EASYpure RO's storage reservoir is too low to ensure an adequate water supply to the other EASYpure unit (this requires the pump interlock cord to be installed).

7. The microprocessor tracks operating time and at pre-selected intervals illuminates the "replace filter" light, signifying that the carbon cartridge should be replaced.
8. When the reservoir is full and the EASYpure RO is in standby mode, a clock is activated which energizes the EASYpure RO for five minutes every three hours and fifty-five minutes. This ensures that water will not stagnate on the membrane surface. The majority of the water produced during this five-minute cycle will divert to the drain.



**Warning**

Replace fuses with those of the same type and rating.

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**Fuse Replacement**

1. Disconnect the EASYpure RO from its power source. Remove the outer cover.
2. Locate the fuse holder, part of the power entry module (see Figure 13 for location), and remove.
3. Remove the burned out fuse(s) and replace with one(s) of equal size and rating.

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**Membrane Replacement**

A variety of factors will determine the service life of your EASYpure RO membranes. With proper maintenance, the membranes should last approximately one year for normal usage.

When either the "Service Membrane" or the "Replace Membrane" Indicator lights, use the following procedure to replace the membranes:

1. Disconnect the EASYpure RO from its power source.
2. Remove the membranes and discard.

Fuse Holder  
Location

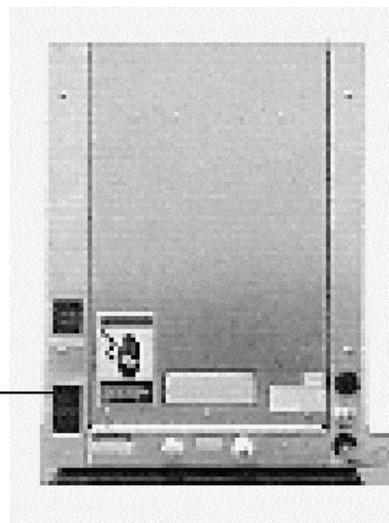


Figure 13 Fuse Holder Location



**Note**

This reset button is a two position button; it will be either up or down. Press it only once, to change its position. (I.e. if it was up before you changed the prefilter, you should press it down after you change the prefilter. If it was down before you changed the prefilter, you should press it after you change the prefilter to allow it to come up.)



**Note**

This reset button is a two position button; it will be either up or down. Press it only once, to change its position. (I.e. if it was up before you changed the membranes, you should press it down after you change the membranes. If it was down before you changed the membranes, you should press it after you change the membranes to allow it to come up.)

3. Install and flush new membranes using the procedure for membrane installation and flush listed under "Membrane Installation."
4. After you replace the membranes, press the "Replace Membrane" Indicator reset button, located directly below the "Replace Prefilter" Indicator reset button, which is in turn directly below the switch panel on the upper left sidewall of the membrane compartment. (See Figure 9, page 21, for location.)

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**Prefilter Replacement**

It is impossible to exactly predict prefilter life in the EASYpure RO. Due to varying amounts of particulates and chlorine in feedwater, life of the prefilter will vary. Replace the prefilter when decreased water flow or repeated "Low Pressure" shutdowns indicate that particulates have clogged the filter or when the "Replace Prefilter" Indicator lights, indicating that the prefilter has ceased to reliably remove chlorine from the feedwater.

1. Disconnect the EASYpure RO from its power source.
2. To replace the prefilter, remove the old prefilter, then follow the procedures in "Prefilter Installation" to install a new one.
3. After you replace the prefilter, press the "Replace Prefilter" Indicator reset button, located directly below the switch panel on the upper left sidewall of the membrane compartment. (See Figure 9, page 21, for location.)

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# Parts List

This section contains parts list information for the EASYpure RO Reverse Osmosis System. When ordering spare parts, specify part number (Cat. No.) and quantity desired. Also supply part number and serial number (located on the unit). When ordering electrical parts, provide voltage and frequency information.

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## Recommended Spares

**Consumables** Consumable parts are those required to support the day-to-day operation of this equipment. Barnstead|Thermolyne establishes two types of consumables; those items that must be periodically replaced to maintain performance (filters, resin cartridges, etc.) and other items of limited service life (indicator lights, fuses, etc.) that you can expect to replace on a more or less random basis. Wherever possible, Barnstead|Thermolyne recommends the frequency of replacement or provides information on service life expectancy. You thus may calculate a replacement schedule based on your usage pattern.

The replacement of consumable parts is discussed in the Maintenance section of this manual to assist you in accomplishing your own service.

### CONSUMABLES

Description	Cat. No.	Quantity
Pretreatment cartridge	D50246	3
Ventgard <sup>®</sup> Filter Element (EASYpure RO)	CV742X5A	2
Fuse 120V & 100V	04455	2
Fuse 230V (Fuse Type (T) 2a 250V)	5120-0025	2
Fuse 240V	FZX37	2
Sanitization Cartridge	D50245	1

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## PARTS LIST

**Safety Stock** For critical applications where performance with MINIMUM downtime is required, Barnstead|Thermolyne recommends that you maintain a local stock of those parts listed under “General Maintenance” and “Safety Stock.” In the event of component failure, this safety stock can be drawn upon by you or Barnstead|Thermolyne technicians, thereby, avoiding unnecessary delays in delivery of replacement parts.

### SAFETY STOCK

Description	Cat. No.	Quantity
Pump 100 volt low pressure	PU742X3A	1
Pump 120 volt	PU742X1A	1
Pump 120 volt low pressure	PU742X3A	1
Pump 230 volt	PU742X2A	1
Pump 230 volt low pressure	PU742X4A	1
Pump 240 volt	PU742X2A	1
Pump 240 volt low pressure	PU742X4A	1
Main PC Board	PC742X2A	1
Pressure Switch	01407	1
Solenoid Valve 100 & 120 Volt	RY631X1A	1
Solenoid Valve 230 Volt	RY631X3A	1
Solenoid Valve 240 Volt	RY631X3A	1
Pressure Regulating Valve*	02280	1
Reject Flow Restrictive orifice	PMX101	1
Membrane	D7425	2

\* Not included on low pressure units, Model numbers D7423, D7428, D7429 and D7429-33.

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# Ordering Procedures

Please refer to the Specification Plate for the complete model number, serial number, and series number when requesting service, replacement parts or in any correspondence concerning this unit.

All parts listed herein may be ordered from the **Barnstead|Thermolyne** dealer from whom you purchased this unit or can be obtained promptly from the factory. When service or replacement parts are needed we ask that you check first with your dealer. If the dealer cannot handle your request, then contact our Customer Service Department at 319-556-2241 or 800-553-0039.

Prior to returning any materials to **Barnstead|Thermolyne Corp.**, please contact our Customer Service Department for a "Return Goods Authorization" number (RGA). Material returned without a RGA number will be refused.

# Troubleshooting

<b>Problem</b>	<b>Possible Causes</b>	<b>Solutions</b>
EASYpure RO completely inactive (Controls not operating)	No electrical power to EASYpure RO  Blown fuses	Ensure EASYpure RO power cord is installed and connected to live power. Check/Replace fuses. Refer to <i>Fuse Replacement</i> for procedure.
No water flowing (low pressure indicator light illuminated)	Feedwater supply valve closed  Prefilter plugged Solenoid valve not open Feed pressure below specification	Open feedwater supply valve  Replace prefilter Replace solenoid valve Increase pressure
Illumination of service membrane light. Decrease in % rejection	Improperly installed membrane  Fouled membrane	Ensure membrane is installed properly  Replace membrane
Decrease in system productivity	Decrease in water temperature  Membrane fouled Low incoming water pressure  Low membrane operating pressure	If decline in flowrate is unacceptable install feedwater temperature valve to elevate water temperature Replace membrane Ensure prefilter is not blocked - Increase incoming water pressure Increase operating pressure





# WIRING DIAGRAMS

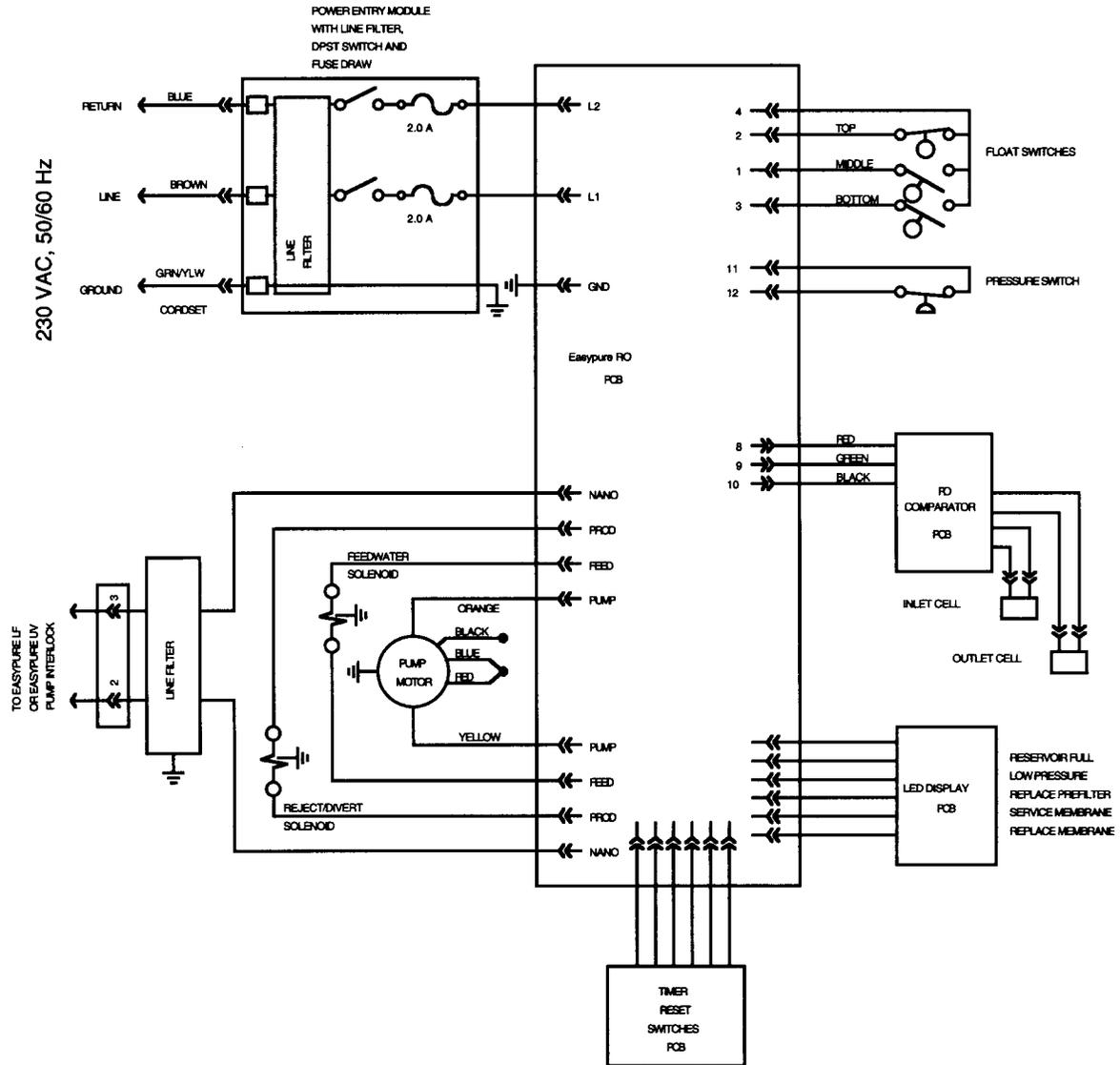
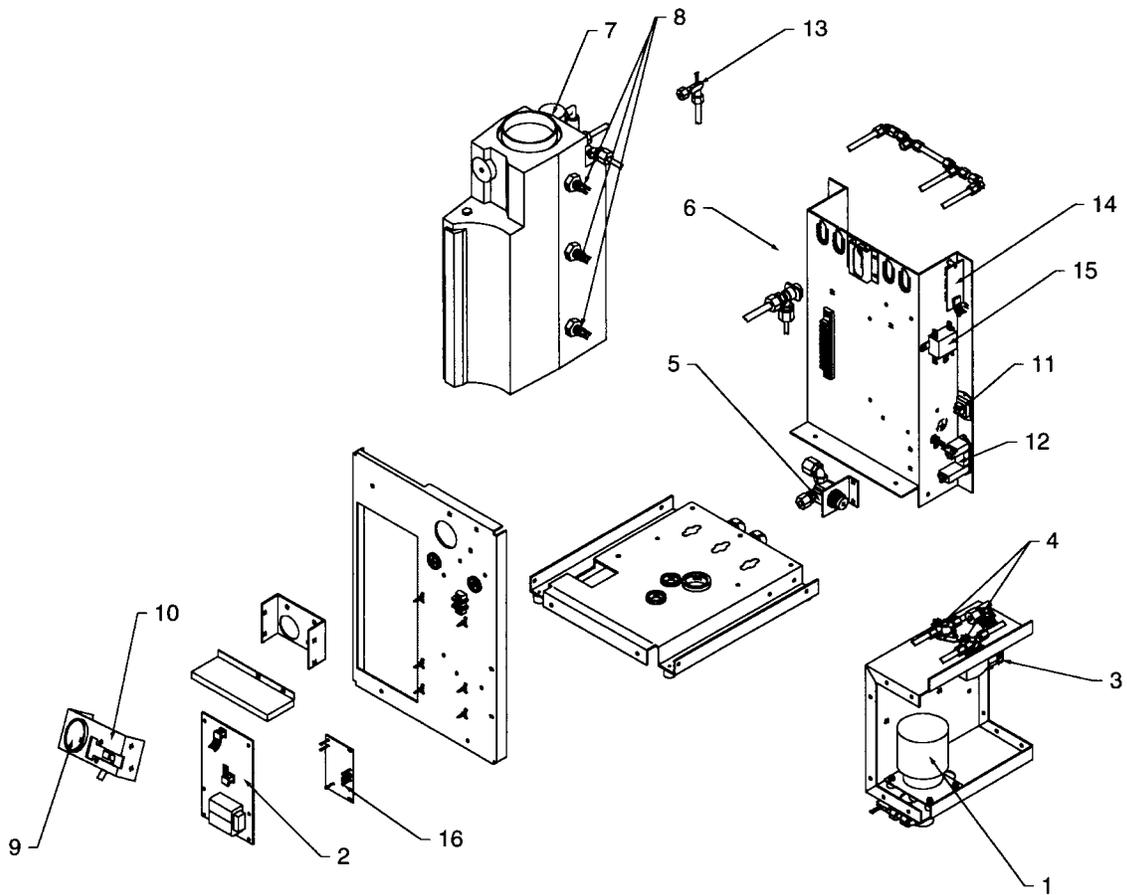


Figure 16 Wiring Diagram 230 Volts

# EASYpure RO Exploded View



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# Exploded View Key

Key	Part #	Description
1.	PU742X1A	Pump 120 Volt
	PU742X2A	Pump 230 Volt
	PU742X2A	Pump 240 Volt
	PU742X3A	Pump 100 Volt & 120 Volt low pressure
	PU742X4A	Pump 230 Volt low pressure
	PU742X4A	Pump 240 Volt low pressure
2.	PC742X2A	Main PC Board
3.	01407	Pressure Switch
4.	RY631X1A	Solenoid Valve 100/120 Volt
	RY631X3A	Solenoid Valve 230 Volt
	RY631X3A	Solenoid Valve 240 Volt
5.	02280	Pressure Regulating Valve*
6.	PMX101	Reject Flow Regulating Orifice (on side of rear case)
7.	PM703X7A	Overflow Valve
8.	SW742X1A	Float Switch, Reservoir
9.	MEX172	Pressure Gauge
10.	PC682X4A	PC Board
11.	CE742X1A	Interlock Receptacle
12.	CEX183	Power Entry Module
13.	E631X1A	Cell Assembly
14.	PC742X1A	PC Board
15.	CAX44	Powerline Filter
16.	PC631X3A	PC Board

\* Not included on low pressure units, Model numbers D7423, D7428, D7429 and D7429-33.

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# One Year Limited Warranty

**Barnstead|Thermolyne Corporation** warrants that if a product manufactured by **Barnstead|Thermolyne** and sold by it within the continental United States or Canada proves to be defective in material or construction, it will provide you, without charge, for a period of ninety (90) days, the labor, and a period of one (1) year, the parts, necessary to remedy any such defect. Outside the continental United States and Canada, the warranty provides, for one (1) year, the parts necessary to remedy any such defect. The warranty period shall commence either six (6) months following the date the product is sold by **Barnstead|Thermolyne** or on the date it is purchased by the original retail consumer, whichever date occurs first.

All warranty inspections and repairs must be performed by and parts obtained from an authorized **Barnstead|Thermolyne** dealer or **Barnstead|Thermolyne (at its own discretion)**. Heating elements, however, because of their susceptibility to overheating and contamination, must be returned to our factory, and if, upon inspection, it is concluded that failure is not due to excessive high temperature or contamination, warranty replacement will be provided by **Barnstead|Thermolyne**. The name of the authorized **Barnstead|Thermolyne** dealer nearest you may be obtained by calling 1-800-446-6060 or writing to:

**Barnstead|Thermolyne**  
P.O. Box 797  
2555 Kerper Boulevard  
Dubuque, IA 52004-0797  
USA  
FAX: (319) 589-0516

E-Mail: [mkt@barnsteadthermolyne.com](mailto:mkt@barnsteadthermolyne.com)

**Barnstead|Thermolyne's** sole obligation with respect to its product shall be to repair or replace the product. Under no circumstances shall it be liable for incidental or consequential damage.

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