



EASYpure[®] RoDi
OPERATION MANUAL
AND PARTS LIST
Series 1332

Model D13321
100-240 Volts

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Safety Information

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.

Your Barnstead EASYpure® ROdi has been designed with function, reliability, and safety in mind. It is your responsibility to install it in conformance with local electrical codes.

This manual contains important operating and safety information. You must carefully read and understand the contents of this manual prior to the use of this equipment. For safe operation, please pay attention to the alert signals throughout this manual.

Water purification technology employs one or more of the following: chemicals, electrical devices, mercury vapor lamps, steam and heated vessels. Care should be taken when installing, operating or servicing Barnstead products. The specific safety notes pertinent to this Barnstead product are listed below.

Warnings

To avoid electrical shock:

1. Use a properly grounded electrical outlet of correct voltage and current handling capacity.
2. Do not locate the EASYpure ROdi 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. Do not disassemble water lines or remove cartridges where spilled water could contact equipment that requires electrical service. Electrical shock hazard could result.
5. Power unit OFF before plugging in or unplugging unit.
6. Disconnect from the power supply prior to maintenance and servicing.

To avoid personal injury:

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. Do not use in the presence of highly corrosive substances such as bleach or acid baths; fire may result.
3. This device is to be used with water feeds only. Cleaning agents must be used in compliance with instructions in this manual. Failure to comply with the above could result in explosion and personal injury.
4. Avoid splashing cleaning solutions on clothing or skin.
5. Ensure all piping connections are tight to avoid chemical leakage.
6. Ensure adequate ventilation.
7. Carefully follow manufacturer's safety instructions on labels of chemical containers and material safety data sheets.
8. Depressurize system prior to opening cartridge access door or removing top cover.
9. This unit is equipped with an ultraviolet lamp. Ultraviolet radiation is harmful to the eyes and skin. Do not observe the lamp directly while it is illuminated.
10. Do not operate unit with door open. Inlet pressure may force RO prefilter out of position.
11. Refer servicing to qualified personnel.

Introduction

Product Overview

The Barnstead EASYpure RODi is a tap-fed water purification system designed to be simple to use and to provide reagent grade water that exceeds ASTM, Type I, and NCCLS/CAP Type I standards. It uses a thin film composite reverse osmosis membrane with one stage of pretreatment to produce RO water that is then polished using a two-stage deionization process combined with UV oxidation and a 0.2 micron final filter.

The % rejection between incoming and reverse osmosis product water is monitored and an indication is provided to the user if the RO water quality is unacceptable. RO membrane pressure is provided by a pressure gauge located on the right side of the unit. The DI water resistivity is continuously sensed by a resistivity cell and displayed on a digital display in megohms-cm.

RO operation is automatic and works independently of the DI system to fill the EASYpure RODi's self-contained 6.5-liter reservoir as determined via the position of 3 floats in the reservoir.

The EASYpure RODi is not shipped with a reverse osmosis membrane, cartridges or final filter. These must be ordered separately. The start-up kit containing these components can be ordered using part number D502132.

The EASYpure RODi is designed to be a bench mounted unit. If wall mounting is required, refer to "Locating the Unit" on page 18.



General Specifications

Dimensions and Clearance Requirements

EASYPure ROdI dimensions - 12" W X 19" D X 18 1/8" H (30.5 cm X 48.3 cm X 46.0 cm).

Clearances:

Sides - 4" (10.1 cm) minimum to allow air flow

Above - 12" (30.5 cm) minimum for UV lamp replacement

Cartridge replacement requires that you be able to access the back of the unit to open the cartridge access door (total depth, unit + open door, = 34") (86.4 cm).

Storage Reservoir Capacity - Approximately 6.5 liters usable, 7.0 liters total

Electrical Requirements

The EASYPure ROdI is equipped with two power cords and corresponding fuses taped to each power cord to be plugged into a grounded electrical outlet of the appropriate voltage.

Model D13321: 100-240 VAC +5% -10%, 47-63 Hz.

Feedwater Requirements¹

Types ¹	Tap (Potable)
Turbidity	1.0 N.T.U. maximum
Pressure Range	2 bar (30 psig) to 6.9 bar (100 psig)
Temperature Range	1-35°C (34-95°F)
Minimum Inlet Flow Requirements	15 lph
pH	3-10
TDS	≤800 (max. ppm as CaCO ₃)
Silt Density Index	<5%
Free Chlorine	<3 ppm
Langlier Saturation Index	<1
Iron (total as Fe)	<0.5 ppm
Silica	<30 ppm

DI Product Water

Quality

Resistivity: ASTM Type I

TOC: 1-5 PPB

Flow Rate: greater than or equal to 0.8 LPM with a new D3750 final filter

Bacteria: Less than 1 CFU/ml

GENERAL SPECIFICATIONS

RO System

Flow Rate²: 3.8 lph \pm 15% (1 gph) @ 10-20% recovery, 65 psig [4.5 bar] and 25°C

RO Membrane Performance

	<u>Rejection</u>
Inorganic (minimum)	>90%
Inorganic (typical)	>96%
Particles	>99%
Bacteria	>99%
Organics (>100 MW)	>99%

¹Feedwater suitability must be determined by a water analysis

²500 ppm NaCl feedwater solution @ 25°C (77°F), @ 4.5 bar (65 psig), 15% recovery. Flow rate and recovery will decrease with lower water temperature and pressure. Barnstead recommends the use of a hot water mixing valve before the RO system for water cooler than 15°C (59°F).

Environmental Conditions

Operating: 4°C - 49°C; 20% - 80% relative humidity, non-condensing. Installation Category II (overvoltage) in accordance with IEC 664. Pollution Degree 2 in accordance with IEC 664.

Altitude limit: 3,500 meters.

Storage: -25°C - 65°C; 10% to 85% relative humidity.

Declaration of Conformity

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

EMC:	EN 61000-3-2	Limits for harmonic current emissions
	EN 61000-3-3	Limits for voltage fluctuations and flicker
	EN 61326-1	Electrical equipment for measurement, control, and laboratory use; Part I: General Requirements
Safety:	EN 61010-1	Safety requirements for electrical equipment for measurement, control, and laboratory use; Part I: 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:

Electrothermal Engineering Ltd.
419 Sutton Road
Southend On Sea
Essex SS2 5PH
United Kingdom

Copies of the Declaration of Conformity are available upon request.

Unpacking

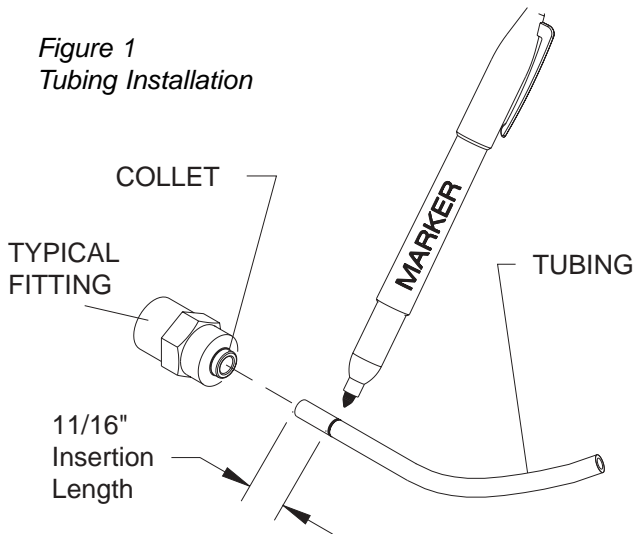
Unpacking

Remove the unit from its shipping container and ensure that the following items are removed from the packaging materials before discarding:

- a) EASYpure RO/DI unit
- b) Approximately 6' (2 m) of 1/4" O.D. drain tubing (TU1190X12) with a 1/4" NPT fitting at one end.
- c) Approximately 10' (3 m) of 3/8" O.D. feedwater tubing provided with a quick disconnect insert on one end and a 1/4" NPT fitting on other end (TU1119X7)
- d) North American power cord with attached (1.6 amp) fuse bag (CRX72)
- e) European power cord with attached (0.63 amp) fuse bag (CRX70)
- f) Operation Manual (LT1332X1)
- g) UV lamp (LMX13)
- h) Ventgard® filter cap (CV742X5A)
- i) Hose barb fitting (05930)
- j) Tube removal tool (AYX23)

Installation

Figure 1
Tubing Installation



Note

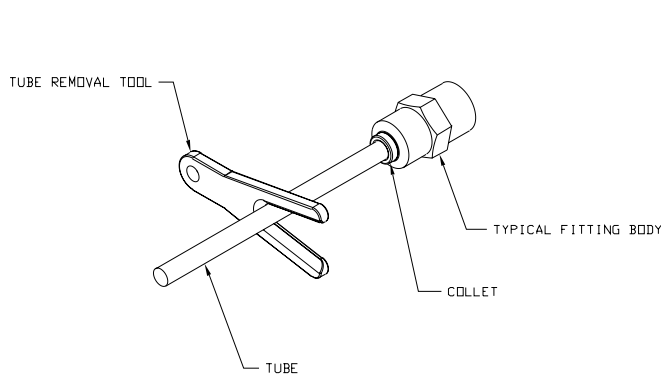
For easier insertion, wet the end of the tubing with water.



Note

Figure 1 & 2 will be used at the connection to the atmospheric drain.

Figure 2
Tubing Removal



Water Connection Details

Push-to-Connect Fitting Tubing Installation

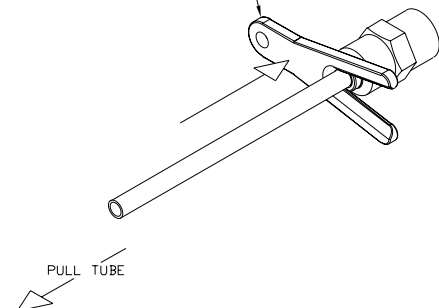
The following instructions will apply when you need to attach a piece of tubing to your EASYpure RO_{DI} during installation, unless otherwise noted in the installation instructions. To make tubing connections:

1. Make sure the tubing is cut off reasonably square and that no plastic burrs or ridges are present.
2. Mark from end of tube an insertion length of 11/16".
3. Wet the tube end with water and insert the tube straight into the fitting until it bottoms out on the interior shoulder and the insertion mark is no longer visible.

Push-to-Connect Fitting Tubing Removal (Refer to Fig. 1 & 2)

1. Using the tool provided (AYX23), push the collet toward the body while pulling on the tubing to release the tube.

PLACE REMOVAL TOOL UP AGAINST COLLET AND PUSH FORWARD WHILE SIMULTANEOUSLY PULLING THE TUBE BACK



Tubing Adapter Fittings

1. Completely disassemble the fitting. Refer to Figure 3 to familiarize yourself with the names of the component parts.
2. Make sure the tubing is cut off reasonably square and that no plastic burrs or ridges are present.
3. Place the grab ring and backup ring in the hex nut in the order and orientation shown in Figure 3. Thread the nut onto the adapter. DO NOT use the o-ring at this time.
4. Push the tubing through the nut until it bottoms out in the adapter.
5. 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.
6. Install the hex nut on the adapter and hand tighten.



Caution

Do not tighten tube fitting hex nut with a wrench. Tight connections can be easily made by hand.

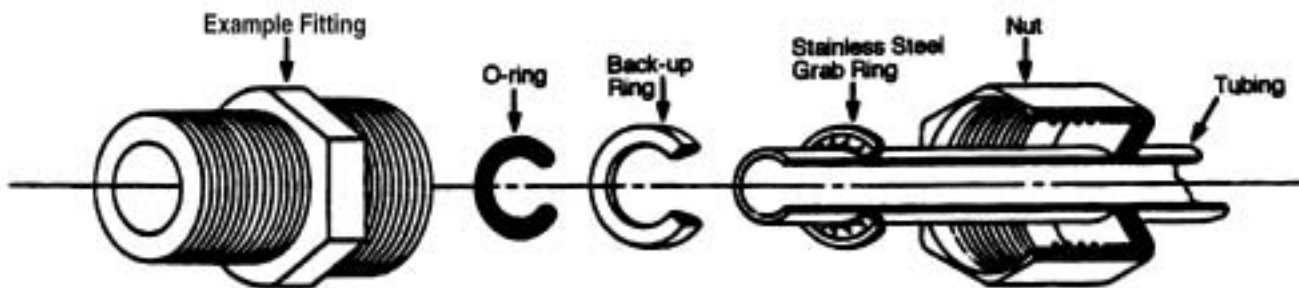


Figure 3: Typical Polypropylene Tubing Adapter Installation

**Note**

The quick disconnect fittings contain valves and if not properly inserted water will not flow.

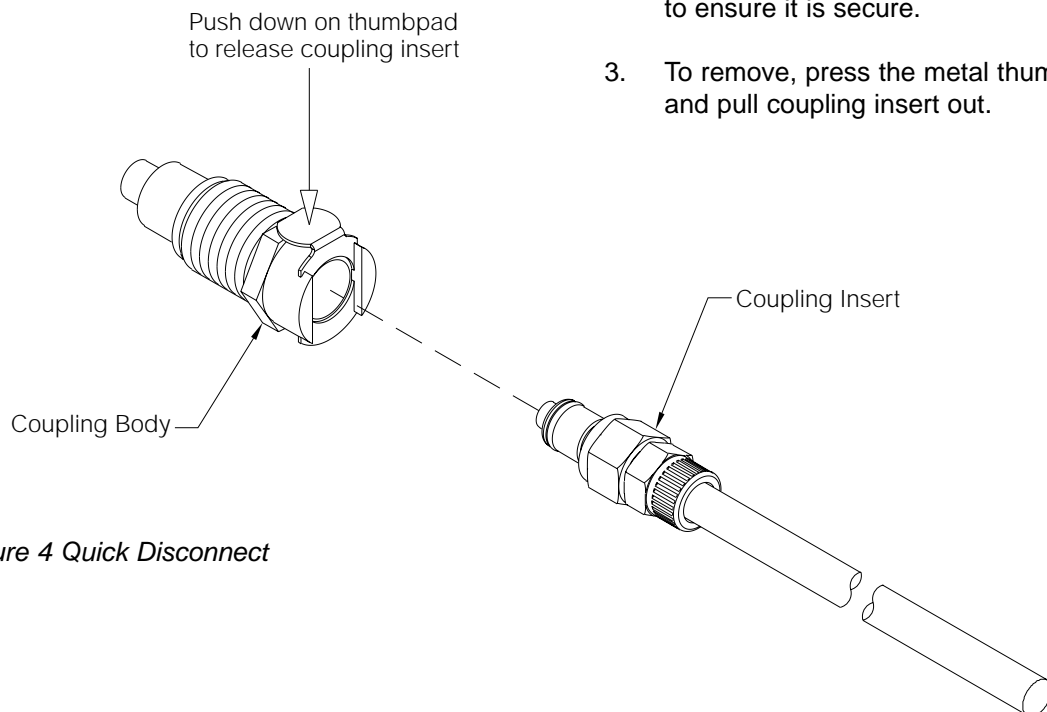


Figure 4 Quick Disconnect

Quick Disconnect Fittings

These fittings are found on the water inlet. (See Fig. 4)

To insert the inlet tubing:

1. Press on the metal thumbpad on the unit to ensure the fitting is open.
2. Install the coupling insert into the coupling body until you hear a click. Gently pull on the tubing to ensure it is secure.
3. To remove, press the metal thumbpad to release and pull coupling insert out.

INSTALLATION



Caution

Do not rotate the metal cover as this will loosen the water tight seal and thus damage the UV lamp.



Note

If UV lamp is not installed properly an "Er3" message will appear for 15 seconds of every minute.



Caution

Do not touch the glass portion of the UV lamp. We recommend that you wear lint-free gloves when handling the lamp. The glass portion must be free of fingerprints, perspiration, etc. Even a single fingerprint will reduce the effectiveness of the lamp. If you accidentally touch the glass portion of the lamp, clean the lamp with a lint-free cloth; use isopropyl alcohol if required.



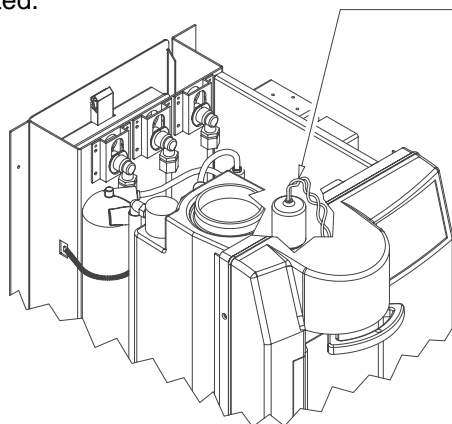
Note

The UV lamp contains mercury. If broken or no longer needed, do not dispose of the UV lamp in the trash. Recycle or dispose of the UV lamp as hazardous waste.



Warning

This unit is equipped with an ultraviolet lamp. Ultraviolet radiation is harmful to the eyes and skin. Do not observe the lamp directly when it is illuminated.



Component Installation

UV Lamp Installation (See Fig. 5)

Before you mount the EASYpure RODI, install the UV lamp as follows:

1. Remove the Ventgard cap and remove the screws securing the EASYpure RODI top cover.
2. Remove the top cover by lifting straight up.
3. Locate the UV oxidation chamber and pull the top black plastic cover off. *Do not pull on the cable.*
4. Remove the lamp from its container. **DO NOT TOUCH THE GLASS PORTION OF THE LAMP.** It is recommended that lint free gloves be worn when handling the lamp. The glass portion must be free of fingerprints, perspiration, etc. Even a light coating of perspiration will reduce the effectiveness of the lamp.
5. Clean the lamp with isopropyl alcohol and a lint free cloth.

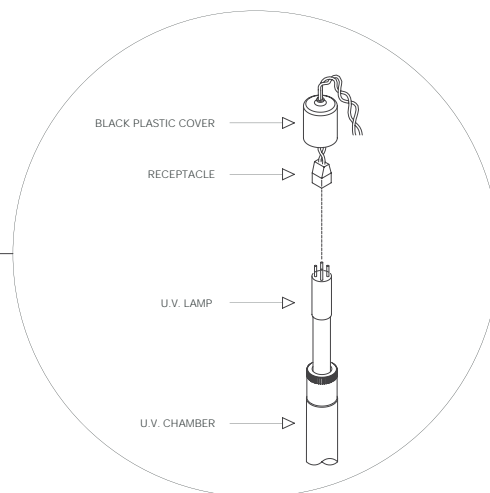


Figure 5: UV Lamp Installation

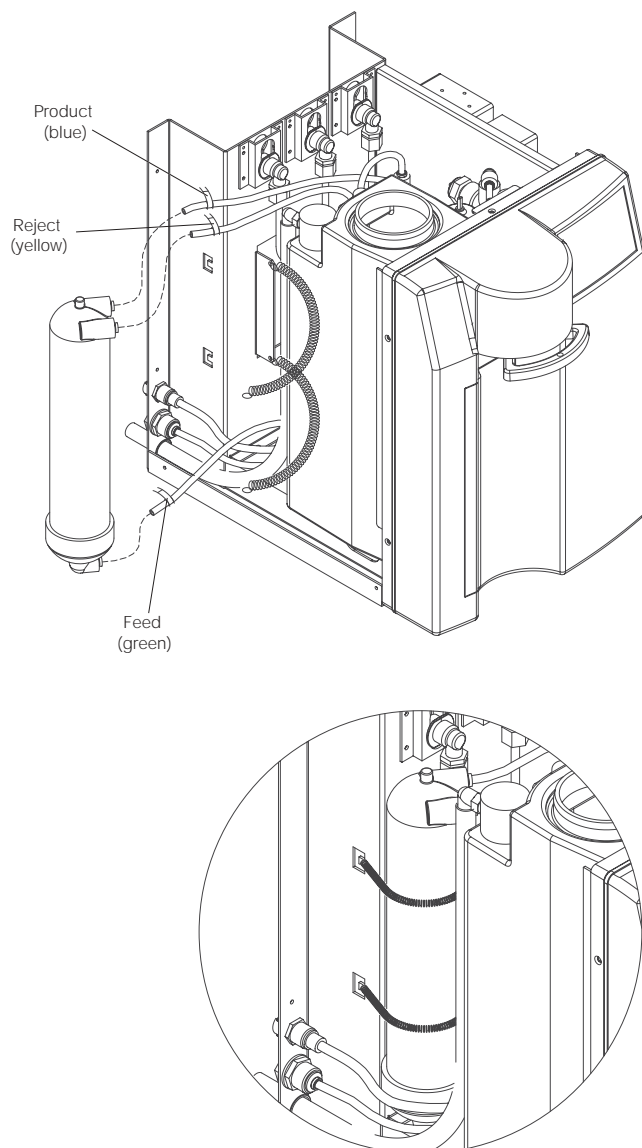


Figure 6: RO Membrane Installation

6. Carefully insert and hold the UV lamp partially into the UV chamber.
7. Connect the UV lamp to the receptacle in the black plastic cover. Slide the lamp completely into chamber and replace the black plastic cover on the UV chamber.
8. If an RO membrane is not also being installed or replaced, reinstall the EASYpure RODi top cover and latch the cartridge access door closed.

RO Membrane Installation

1. Remove the RO membrane from its packaging. Note the location of the FEED, PRODUCT, and REJECT connections on the housing. The correct orientation for the installed membrane will be vertical with the FEED connection down.
2. Remove the Ventgard cap and remove the screws securing the EASYpure RODi top cover. Remove the cover by lifting straight up.
3. Locate the three unconnected tubes labeled FEED, PRODUCT, and REJECT.
4. Note the orientation of the membrane housing and install the unconnected tubes into the corresponding connectors on the membrane housing. To do so, first wet the tube end with water and push the tube end firmly into the connector. Start with the FEED followed by the PRODUCT and finally the REJECT.
5. Fasten membrane in place by stretching the springs around the housing and hooking them on the tab cutouts in the chassis.
6. Replace the top cover and Ventgard cap, and latch the cartridge access door closed.

INSTALLATION



Note

The EASYpure RODi's cartridges must be installed in the proper position.

The upper end cap is the one with the right angle turn and two flanges. The lower end cap extends straight out from the cartridge.

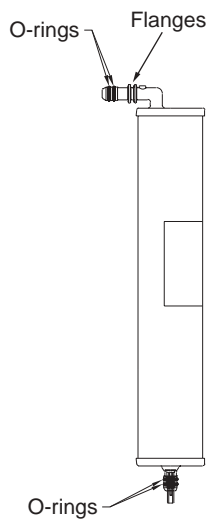


Figure 7: Cartridge Installation

Initial Cartridge Installation (See Fig. 7)

1. Open cartridge access door in the rear of the unit by pushing the door latch back.
2. Remove a new RO carbon prefilter cartridge (Catalog No. D50246) from its plastic bag.
3. Wet the o-rings on both end caps with water.
4. Press the upper end cap into the RO carbon prefilter position until it bottoms out. The two flanges on the upper end cap should be able to slide down on each side of the keyway wall.
5. Lower the cartridge and insert the lower end cap into the lower socket until it is firmly seated.
6. Repeat steps 2 - 5 with the EASYpure ULTRApure (Catalog No. D50233) cartridge, placing it in position 2. Next, install the High Purity/Low TOC (Catalog No. D50229) cartridge, placing it in position 3.
7. Close and latch cartridge access door. This serves to verify the cartridges have been properly seated.

Ventgard Cap Installation

Install Ventgard cap according to "Ventgard Cap Replacement" on page 39.

Power Connections

1. The power cord connection is located on the upper right corner in the rear of the unit (see Fig. 8).
2. Determine which power cord you need (this will be based on your country and outlets available in your lab). Both North American and European power cords are provided with the unit.
3. Remove the fuse drawer, install the fuses included with the power cord to be used, and reinstall drawer (see Fig. 8).
4. Verify power switch is turned off and attach receptacle end of power cord into the power socket.
5. Plug other end of power cord into facility power.

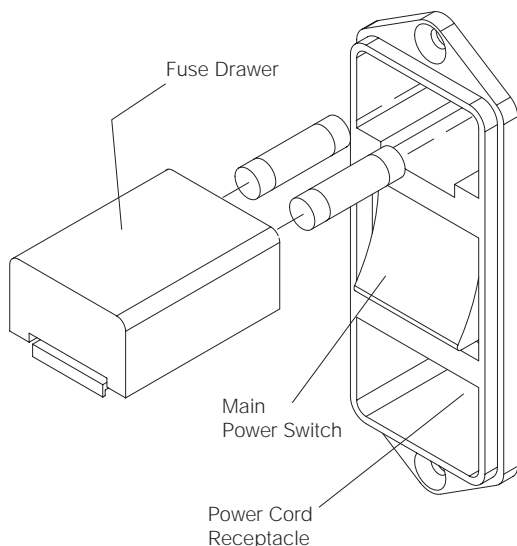


Figure 8: Power Connections



Warning

Power unit OFF before unplugging unit.

To Reset Carbon Prefilter Timer

The carbon prefilter timer records service time to ensure the reliability of the RO membrane. It must be reset *prior* to initial operation and after cartridge replacement.

1. Turn power OFF using switch on the back of the unit.
2. Press and hold the FLUSH key while turning the unit back ON.
3. When the “rESEt r0” begins to scroll across the display, release the FLUSH key.
4. When “- -” appears do the following in order:
 - a) Press Start/Stop key.
“YES” will appear on the display;
 - b) Press Start/Stop key.
“000” will appear on the display indicating that the timer has been reset.
5. The red “Replace RO Prefilter” LED will now turn off.

Note: If the Standby key is pressed instead of the Start/Stop key in step a) or b) above, the reset procedure will be terminated. In addition, the procedure will be terminated if 10 seconds or more goes by between pressing buttons.

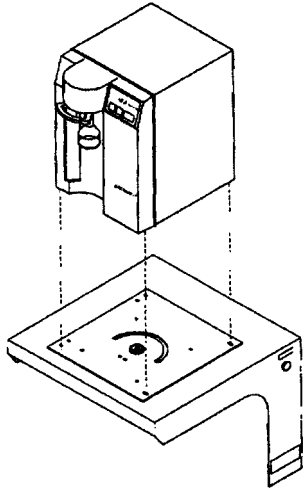


Figure 9: Orientation of Optional Swivel Base



Warning

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



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.



Warning

This device is to be used with water feeds only. Cleaning agents must be used in compliance with instructions in this manual. Failure to comply with the above could result in explosion and personal injury.



Note

Ensure there are no kinks in the tubing that could restrict water flow.

Locating Unit

Bench Mounting

1. Place the EASYpure RODi on a bench top that is accessible to water, electricity and an atmospherically vented drain, and that is convenient to your work area, noting the Clearance Requirements.

Wall Mounting (Optional) D13324

Install the optional wall bracket on the wall in a location that is accessible to water, electricity and an atmospherically vented drain, and that is convenient to use. A minimum of 4 customer supplied fasteners must be used. To mount the EASYpure RODi to a wall bracket:

1. Remove the four feet from the EASYpure RODi and retain the screws.
2. Place the EASYpure RODi on the wall bracket swivel base so 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 RODi. See Figure 9.
3. Reinstall the four screws removed in step 1 through the bottom of the wall bracket and into the EASYpure RODi.

Water Service Connections

Feed Water Connection

1. Locate the length of .95 cm (3/8") O.D. tubing provided with a quick disconnect insert on one end and a .95 cm (3/8") O.D. X .64 cm (1/4") NPT tubing adapter on the other.
2. Install the tubing adapter onto your incoming water line. Refer to tubing installation. We recommend a customer supplied shut off valve be installed in your feed water line. The quick disconnect insert will be inserted into the feed water inlet on the lower left corner in the rear of the EASYpure RODi during the Initial Operation.

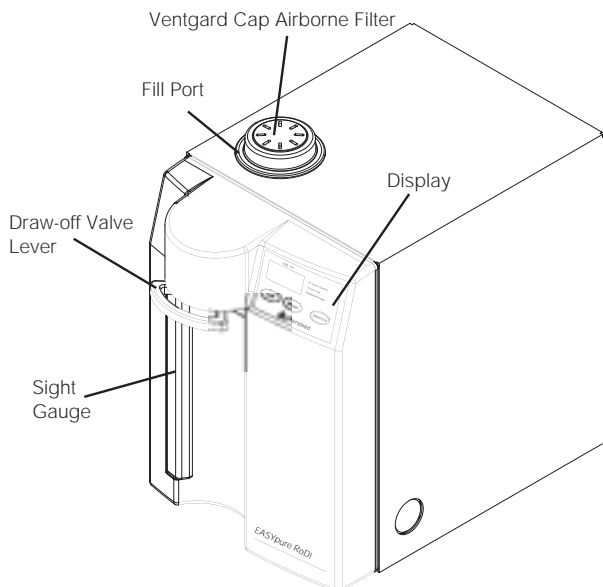


Figure 10: EASYpure RoDI Front

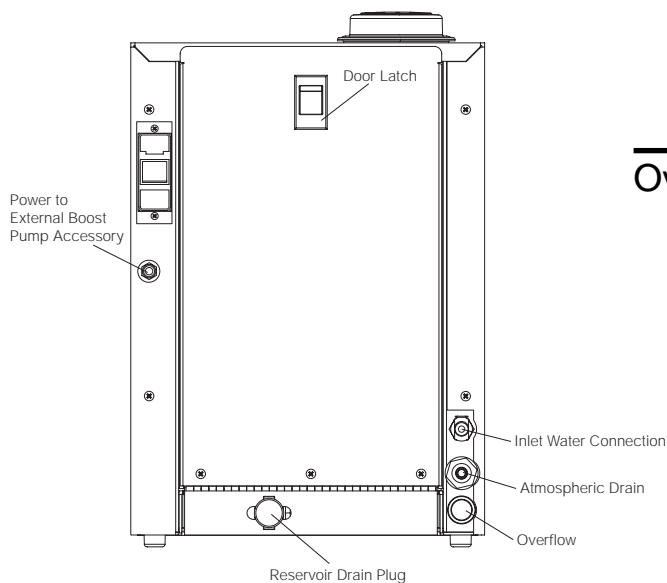


Figure 11: EASYpure RoDI Back
(External Unit Connections)

Atmospheric Drain

The RO reject and flush water is sent to drain through this connection.

1. Locate the drain water tubing. This is the 1/4" O.D. tubing that is approximately 6 ft. long with a 1/4" O.D. x 1/4" N.P.T. tubing adapter on one end. The atmospheric drain fitting is located on the lower left corner in the rear of the EASYpure RODI.
2. Install the tubing adapter into the atmospherically vented drain and route the tubing to the EASYpure RODI drain connector, ensuring that there are no kinks
3. Take the tubing end that has no fitting, wet the tube end with water and insert the tube straight into the unit drain connector until it bottoms out. Refer to section **Push-to-Connect Fitting Tubing Installation** for more explicit details.

Overflow Drain

1. To extend tank overflow tubing to an atmospheric drain, use 1/2" I.D. tubing and tubing connectors (user supplied) to connect the overflow drain tubing (lower left corner of the rear of the unit) to an atmospherically vented sink or floor drain.

Controls and Normal 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.



Warning

Do not operate unit with door open. Inlet pressure may force RO prefilter out of position.

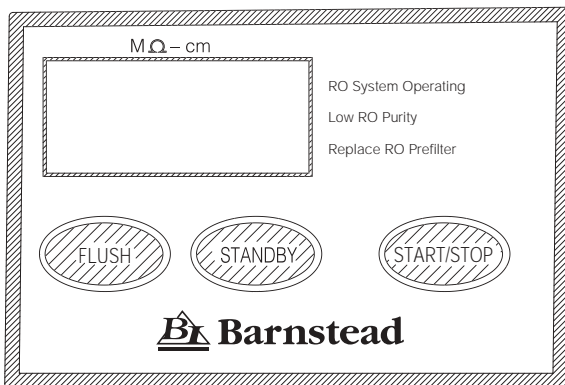


Note

On initial power-up, the display will run the following sequence:

- Model type is scrolled: "ro-di"
- The display's LEDs will light up,
- Followed by the unit software revision,
- Finally, "IdL" will be displayed.

Figure 12: Control Panel



Note

When the unit is first put in the Run Mode, the display will show 10.0 for a few seconds. This is an arbitrary number that indicates the unit is running. Any number that appears after 10.0 indicates DI water purity.

Power Switch

The power switch on the EASYpure ROdi is located on the back right side of the unit directly above the power cord receptacle.

Control Panel

The EASYpure ROdi control panel incorporates three switches, a digital display and three LEDs.

Switches (See Fig. 12)

When the main power switch is on, the three switches on the control panel function as follows:

1. **START/STOP:** When the unit is in the Idle Mode ("IdL") or Standby Mode ("SbY"), pressing the START/STOP switch will put the DI operation of the unit in the Run Mode, turning the DI pump and UV lamp on. The RO operation will automatically turn on in Run Mode to fill the tank as needed. When the unit is in the Run Mode pressing the START/STOP switch will put the RO and DI operation of the unit into the "IdL" Mode. When the unit is in any of the flush modes, pressing the START/STOP switch will return the unit to the mode it was in just prior to when the flush was initiated.
2. **STANDBY:** Pressing the STANDBY switch will place the DI operation of the unit in STANDBY ("SbY") Mode from either the Run Mode or the "IdL" Mode. Pressing the STANDBY switch while the unit is in STANDBY ("SbY") mode has no further effect. The RO operation will automatically turn on in STANDBY ("SbY") Mode to fill the tank as needed. When the unit is in STANDBY, water will recirculate for 10 minutes every hour.

3. **FLUSH:** Manual Flush: Pressing the Flush switch once will initiate a one minute flush of the RO membrane and the display will show FL1. Pressing the Flush switch twice will initiate a five minute flush of the RO membrane. During this five minute flush, the display will count down FL5, FL4, FL3, etc. After the timed flush has ended, the EASYpure RODI will return to the mode ("IdL", Run or "SbY") it was in when you initiated the flush.

AUTOMATIC FLUSH: In the Run and Standby Mode, the EASYpure RODI will initiate a one minute automatic flush of the RO membrane once every twenty-four hours (purity value being displayed.)

Display (See Fig. 12)

In addition to displaying the temperature compensated (25°C) resistivity in megohms-cm, the display also indicates operational modes and error indicators. The following is what can appear on the display:

SbY	Er1
rEC	Er3
IdL	Er4
AFL	Er5
FL5	Er6
FL4	Er7
FL3	Add
FL2	
FL1	

Three LEDs illuminate to provide system operational status as follows:

- **RO System Operating:** Green LED ON - RO Operation is ON; LED OFF - RO Flush or RO Operation is OFF.
- **Low RO Purity:** Red LED ON - % rejection between incoming water and product water is lower than expected; LED OFF - % reject is good.
- **Replace RO Prefilter:** Red LED ON - Unit has been in service for 6 months, replace RO prefilter; LED OFF - replace prefilter as needed and reset timer.



Note

When the RO operation is automatically turned on, only RO water that is above the specified % rejection setting (factory set to 75%) will be put into the tank. Anytime the RO purity falls below the % rejection setting the water will be diverted away from the tank and sent to drain.



Note

When the unit is first put in the Run Mode, the display will show 10.0 for a few seconds. This is an arbitrary number that indicates the unit is running. Any number that appears after 10.0 indicates purity.



Note

If the unit is in Standby and power to the unit is turned off or lost, the unit will return to Standby once power is restored.



Note

Do not put unit into Idle Mode or turn off the EASYpure RODi during non-work hours. Doing so will allow bacterial growth and other contamination of the water in the system. As a result, the system will require a lengthy rinse-up period at the beginning of the work day to achieve high-quality product water.

Pressure Gauge

This unit includes a pressure gauge to monitor the RO membrane pressure. The pressure gauge is located on the lower right side of the unit. A pressure of 65 psi (4.5 bar) is ideal for operation of the membrane; lower pressures produce less RO product water quantities (slower filling of reservoir) and higher pressures produces more RO product water quantities (quicker filling of reservoir.)

Operational Modes

Since not all qualities of permissible feedwater will reach maximum resistivity after one pass through the unit's cartridges (especially as the cartridges near exhaustion), the EASYpure RODi has two operational modes; Run and Standby.

Run Mode

In the Run Mode, the pump recirculates water through the cartridges and the UV lamp. It is recommended that the EASYpure RODi be left in the Run Mode during the day. In the Run Mode, the purity meter display indicates the resistivity (temperature compensated to 25°C) of the water available for draw off.

1. From "IdL" press the START/STOP button to start. The EASYpure RODi's pump will begin to run and display the resistivity of the water in megohm-cm.
2. Allow the water's resistivity to rise to the desired purity before drawing off water.

Also in the Run Mode, the RO operation automatically turns on to fill the reservoir tank as needed.

Standby Mode

In Standby ("SbY") Mode, the pump will operate for ten minutes out of every hour (i.e 50 minutes off, 10 minutes on), during which time the display reads "rEC" which indicates recirculation. Every fourth time that the pump turns on, the UV lamp will also turn on for 10 minutes (i.e 3 hours 50 minutes off, 10 minutes on). This will allow the

unit to produce high quality water quickly upon being placed in the Run Mode and prolong the life of the UV lamp. It is recommended that the EASYpure RODi be placed in the Standby Mode during non-work hours. At the end of the work day, press the STANDBY switch to place the unit in Standby Mode. "SbY" will appear on the display. Also in the Standby Mode, the RO operation automatically turns on to fill the reservoir tank as needed.

**Note**

Each time the RO system automatically turns ON, in Run or Standby mode, the RO membrane will be flush water to the drain for 30 seconds prior to filling the tank.

Flush Mode

Manual Flush (RO Membrane)

Pressing the Flush switch once will initiate a one minute flush of the RO membrane. During this one minute flush, water is sent to drain through the drain tubing and the display will show FL1. Pressing the Flush switch twice will initiate a five minute flush of the RO membrane. During this five minute flush the display will count down FL5, FL4, FL3, etc. After the timed flush has ended, the EASYpure RODi will return to the mode ("IdL", Run or "SbY") it was in when you initiated the flush.

Automatic Flush (RO Membrane)

In the Run Mode, the EASYpure RODi will initiate a one minute automatic flush of the RO membrane once every twenty-four hours of operation. This prevents buildup on the RO membrane. A microcontroller timer in the EASYpure RODi counts the hours power is applied to the unit. When the timer reaches twenty-four hours, the EASYpure RODi initiates a one minute flush if the unit is in the Run and Standby Modes. If the unit was in Standby, the automatic flush will occur immediately after the START/STOP switch is pressed and Run Mode entered. The timer will reset to zero when the one minute automatic flush is completed.

Idle Mode ("IdL")

"IdL" indicates the unit is powered and waiting to be placed in Run, Standby or Flush Mode.

**Note**

For critical applications, draw 50 to 100 ml of water from system and discard prior to drawing water for **each** use.

Dispensing Water from Unit

1. Remove the protective cap from the filter bell.
2. Place a container under the draw-off valve.
3. Depress the draw-off valve lever.
4. When draw off is complete, lift the draw-off valve lever and replace the protective cap on the filter bell.

Initial Operation



Note

Cartridge rinse up procedure must be followed after each cartridge and/or filter replacement.



Warning

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



Warning

This device is to be used with potable water feeds only. Cleaning agents must be used in compliance with instructions in this manual. Failure to comply with the above could result in explosion and personal injury.



Note

The display will read “ADD” when the reservoir is filling and water is not running through DI cartridge.



Note

For more demanding applications where low TOC water is required, a third reservoir volume rinse of the cartridges and filter may be necessary.

Storage Reservoir Filling and Cartridge/Membrane Rinse Up

RO Membrane Rinse-Up:

1. During initial operation be sure the reservoir Drain Plug (bottom rear of unit) is removed and that the unit is placed such that the reservoir drain is over a sink to allow for proper rinsing of RO membrane.
2. Connect water supply to unit by inserting the quick disconnect into the feed water inlet on the lower left side in the rear of the EASYpure RODI. Turn on main water supply. Turn the system power on by depressing the Main Power Switch to the ‘I’ position. A power-up sequence will occur showing the unit type, lighting up all the LEDs, showing the software revision and finally displaying “IdL”.
3. Reset the carbon prefilter timer. (See “To Reset Carbon Prefilter Timer.”)
4. Press the ‘Start/Stop’ switch on the keypad to start operation. Display will show “Add” and the ‘RO System Operating’ LED will be illuminated. The DI pump and UV lamp will not turn on any time “Add” is displayed.
5. 2 Hour New Membrane Rinse- Allow the unit to operate until the display shows “Er7” (approximately 2 hours.) This will rinse the new membrane of its preservatives. It is possible that during this time the “Low RO Purity” LED may illuminate.
6. After the membrane rinse the unit can be shut down and the reservoir drain plug can be re-inserted (insert completely then back out very slightly).

7. Again apply power to the system and press the 'Start/Stop' switch to start operation. Let the reservoir fill completely (may take up to six hours). During the filling process the unit pump may turn on/off and the unit display may alternate between "Add" and displaying a purity value, as the cartridges are slowly wetted. Reservoir will be completely full when the 'RO System Operating' LED is no longer illuminated.
8. Place the unit into "IdL" by pressing the START/STOP switch.
9. Install the hose barb fitting (included with accessories) into the draw-off valve assembly and place a suitable container under the draw-off valve.
10. Press the START/STOP switch and open the draw-off valve.
11. Rinse 1/2 of the total reservoir volume through the cartridges into the container, close the draw-off valve and discard the water.
12. Remove the hose barb fitting from the draw-off valve. Keep the hose barb fitting for future use.
13. Remove the new 0.2-micron final filter assembly from its bag and insert it into the draw-off valve. Gently tighten, turning the filter to the right. Remove the protective cap from filter.
14. Open the draw-off valve and flush the remaining 1/2 reservoir volume of water through the 0.2-micron final filter. "Add" will be displayed when the tank is empty.
15. Close the draw-off valve and replace protective cap on filter.
16. Allow the reservoir to refill itself and the system to go into recirculation.

**Note**

It is suggested that Teflon® tape be applied to the threads of the 0.2 micron final filter to ensure a tight seal.

Teflon® is a registered trademark of DuPont

Normal Operation



Note

If “Add” is displayed, the water level in the reservoir is below the low float. To prevent air from getting into the DI cartridges, the DI operation will be turned off until the RO operation fills the reservoir up past the low float.



Note

For critical applications, draw 50 to 100 ml of water from system and discard prior to drawing water for **each** use.



Note

Each time the RO system automatically turns ON, in Run or Standby mode, the RO membrane will be flush water to the drain for 30 seconds prior to filling the tank.



Note

When the RO operation is automatically turned on, only RO water that is above the specified % rejection setting (factory set to 75%) will be put into the tank. Anytime the RO purity falls below the % rejection setting the water will be diverted away from the tank and sent to drain.

Operation

1. Check feedwater and drain connections as described in “Water Service Connections” in the Installation section of this manual.
2. Turn main power on at power entry module.
3. Press the “START/STOP” button on the front of the EASYpure RODI. The EASYpure RODI’s pump will begin to run and the purity meter will initially display “10.0” followed by the number indicating the resistivity (temperature compensated to 25°C) of the water in megohm-cm. As needed the RO system will automatically operate to fill the reservoir.
4. Allow the water’s resistivity to rise to the desired purity before drawing off water.

Dispensing Water from Unit

1. Remove the protective cap from the filter bell.
2. Place a container under the draw-off valve.
3. Depress the draw-off valve lever.
4. When draw off is complete, lift the draw-off valve lever and replace the protective cap on the filter bell.

Reservoir Replenishment

As water is drawn off from the EASYpure RODI. The reservoir will be automatically refilled in either the Run Mode or the Standby Mode by the self contained RO system. The water level in the tank can be determined by using the sight gauge (See Fig. 9). If the water level is below the low float position in the reservoir, “Add” will be displayed and the DI operation will be turned OFF to prevent air from entering the DI cartridges. Once the water level fills up past the low float, the DI operation will resume per the mode the unit is in.

Maintenance and Servicing



Warning

Disconnect from the power supply prior to maintenance and servicing.

Do not disassemble water lines or remove cartridges where spilled water could contact equipment that requires electrical service. Electrical shock hazard could result.

Refer servicing to qualified personnel.



Note

Empty cartridges must be ordered separately. Contact Barnstead International and order part number D7034.



Warning

Avoid splashing cleaning solutions on clothing or skin.

Ensure all piping connections are tight to avoid chemical leakage.

Ensure adequate ventilation when using chemicals for cleaning.

Carefully follow manufacturer's safety instructions on labels of chemical containers and Material Safety Data Sheets (M.S.D.S).

System Cleaning

Frequency of cleaning will vary, depending on quality of feedwater and usage. Cleaning is necessary in any of the following occur: If residual deposits are evident inside feedwater reservoir, or if a new 0.2 micron final filter clogs rapidly. To clean the EASYpure RoDI the following is necessary: a) two empty cartridges (ordered separately, part number D7034), b) hose barb used during initial installation.

1. Remove cartridges from positions 2 and 3 and discard. Install empty cartridges (part number D7034) according to the instructions in **Cartridge Replacement**. Remove and replace cartridges one at a time to avoid draining UV chamber.
2. Remove 0.2 micron final filter and install the hose barb that was shipped with the system.
3. Remove Ventgard cap (be sure the reservoir tank is full) and add 10ml to 20ml of household chlorine bleach (5.25% sodium hypochlorite) to reservoir.
4. Replace Ventgard cap. Press the "START/STOP" button to put unit into Run Mode.
5. Allow the unit to recirculate the cleaning solution for thirty minutes.
6. Drain the system.
 - a. Put the unit into Run Mode and place a bucket or other suitable large container under the valve and draw off water as described under **Water Draw-Off** in the **Operation** section of this manual. To clean the valve. Draw off water until the water level in the feedwater reservoir is lowered to the point that "Add" is displayed. Lift draw-off valve to closed position.
 - b. Put the unit in Idle Mode, shut power off and disconnect the power cord from the power entry module. Disconnect water supply.

- c. Turn the unit around to provide access to the drain plug on the lower edge of the back panel.
 - d. Place the drain plug over a bucket or other suitable large container. Remove the drain plug by turning it while pulling until it comes out.
 - e. Drain remaining water from the reservoir and system.
 - f. Replace the drain plug, taking care to fully insert it into the drain fitting and then back out very slightly. Reconnect power and water.
7. Put the unit into Run Mode and allow the reservoir to automatically refill and recirculate the water through the system.
 8. After the “RO System Operating” LED is no longer illuminated, drain the system again as described in step 6 of this section, discarding the water.
 9. Place unit in “IdL” and remove the empty cartridges according to the instructions in the **Cartridge Removal** section. Drain and retain the empty cartridge tubes for future use. Remove the hose barb from the draw-off valve. Keep the hose barb for future use.
 10. Install and rinse new cartridges according to the instructions in the **DI Cartridge Replacement and Rinse Up** section. *Do not reinstall used cartridges or 0.2 micron final filter (they may contain large amounts of bacteria.)*
 11. Install and rinse new 0.2 micron final filter according to the instructions in the **0.2 Micron Final Filter Replacement** section of this manual.



Warning

Depressurize system prior to opening cartridge access door.



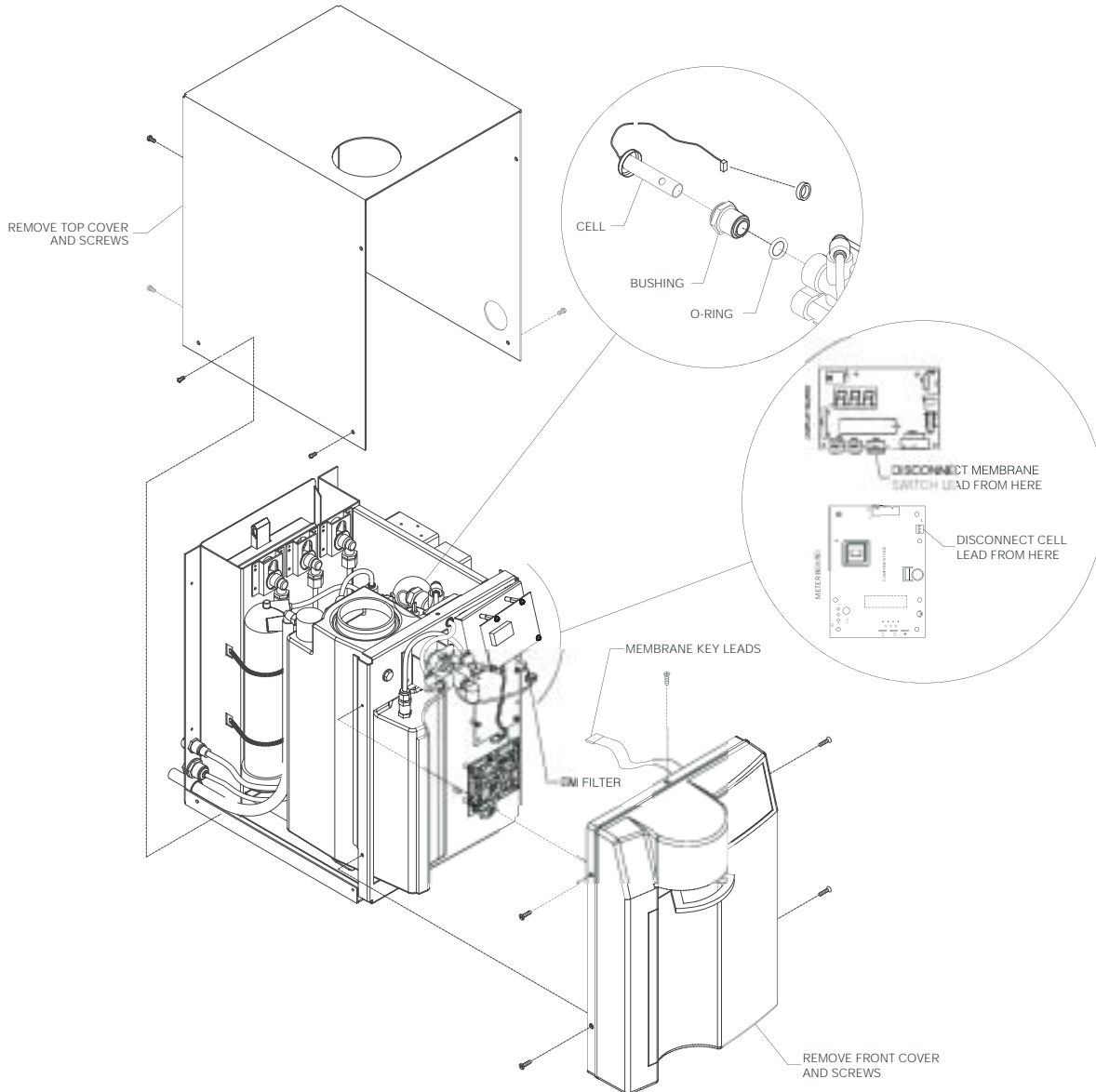
Note

Ensure you have an o-ring (part # GSX29) available prior to cleaning resistivity cell.

**Cleaning the Resistivity Cell
(See Fig. 13)**

1. Turn off the EASYpure RODi and disconnect it from the power supply. Remove the power cord.
2. Depressurize the system by opening the unit dispenser draw-off valve, allowing water to drain until no more flows from the valve.
3. Remove the Ventgard cap.
4. Remove the screws securing the EASYpure RODi top cover.

Figure 13: Disconnecting Resistivity Cell



**Caution**

The cell electrodes are etched to improve wetting characteristics. Do not mechanically abrade or damage this surface (i.e. do not clean with a wire brush, sandpaper, etc.).

Do not immerse the entire cell assembly in cleaning solution, only the electrode portion.

**Warning**

Carefully follow manufacturer's safety instructions on labels of chemical containers and material safety data sheets.

5. Remove the cover by lifting it straight up.
6. Remove the 0.2 micron final filter. Carefully remove the front cover screws and pull the cover off. Disconnect membrane key leads from the display board.
7. Disconnect the cell lead from the meter board, remove the EMI/RFI suppression filter and gently pull the cable out of the EASYpure RODi frame. Note orientation.
8. Unscrew bushing behind cell cap and remove the cell.
9. Carefully remove and discard the o-ring before cleaning the cell.
10. Wash the cell in a mild detergent solution followed by a 10% Hydrochloric or 10% Sulfuric acid solution (follow acid manufacturers warnings and recommended handling procedures found on package labels and Material Safety Data Sheets). This may be done in an ultrasonic cleaner or with a soft brush.
11. Thoroughly rinse the cell in deionized or distilled water following the detergent and/or acid cleaning.
12. After cleaning, reinstall with the replacement o-ring on cell (part # GSX29).
13. Reinstall the cell and hand tighten. Reroute the cable up through the housing, reinstall the EMI/RFI suppression filter (loop wire 1 time around filter) and reconnect cell lead to P1 connector on meter board.
14. Reinstall membrane key leads. While lifting dispense handle, replace the front cover. Reinstall the 0.2 micron final filter.
15. Reinstall the EASYpure RODi top cover and latch cartridge access door closed.

**Warning**

Disconnect from the power supply prior to maintenance and servicing.

16. Reinstall the Ventgard cap and 0.2 micron final filter.
17. Reattach the power cord and reconnect the unit to the power supply and feedwater.
18. Allow the reservoir to refill and operate normally.

General Cleaning Instructions

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



Warning

Refer servicing to qualified personnel.

Do not disassemble water lines or remove cartridges where spilled water could contact equipment that requires electrical service. Electrical shock hazard could result.



Warning

Depressurize system prior to opening cartridge access door.



Note

The cartridges will still contain water when removed. Therefore, you will want to have a sink, bucket or other waterproof container available to place them in after removal.



Note

The two flanges on the end cap should be able to slide down on each side of the keyway wall.



Note

For more demanding applications where low TOC water is required, allow the water to recirculate past the UV lamp for at least an hour before drawing off product water.



Note

If your feedwater has large quantities of particulates, we strongly recommend installing/using a Barnstead AY1332X3 external pre-treatment assembly in the feedwater line which contains a high volume 5 micron sediment cartridge along with anti-scalant. If in doubt about your feedwater, please contact Barnstead International for a W.A.T.E.R. sample test kit.

Component Replacement

RO Carbon Prefilter Replacement

Chlorine and particulates will damage your RO membrane, resulting in premature membrane failure. Therefore, your EASYpure RO DI uses an extruded RO carbon prefilter combination to remove chlorine and particulates from your feedwater. The frequency with which you will need to replace the internal RO carbon prefilter depends on your feedwater characteristics and your daily usage. Install the internal RO carbon prefilter as follows:

1. Turn off the EASYpure RO DI system and disconnect the feedwater.
2. Open the cartridge access door in the rear of the unit by pushing down the door latch.
3. Remove the cartridge in the RO carbon prefilter position by pulling the cartridge straight up until the upper socket is in the keyhole of the keyway. Next pull the cartridge straight out.
4. Remove the new RO carbon prefilter (Cat. no. D50246) from its plastic bag.
5. Wet the o-rings with water on both end caps.
6. Press the upper end cap into the RO carbon prefilter position until it bottoms out. Refer to Fig. 7 if needed.
7. Lower the cartridge and insert the lower end cap into the lower socket until it is firmly seated.
8. Close the cartridge access door.
9. Reconnect the feedwater.
10. Reset the carbon prefilter timer. See section **To Reset Carbon Prefilter Timer**.
11. Turn unit on and from "IdL" press the Start/Stop key to begin unit operation. The "Low RO Purity" LED may turn on and off as air is purged out of the cartridge. Once the RO Prefilter has been wetted, the LED should remain off.



Note

Remember, used cartridges can be recycled; See P.U.R.E. information packed with your new cartridges.



Warning

Do not operate unit with door open. Inlet pressure may force RO prefilter out of position.

DI Cartridge Replacement and Rinse Up

The frequency with which you will need to replace cartridges is dependent on your feedwater characteristics, your purity requirements, and your daily usage. Replace the cartridges when the product water purity drops below acceptable levels of resistivity or when organic levels become too high.

NOTE: Be sure the RO tank is full prior to cartridge replacement and rinse-up.

1. Turn off the EASYpure RODi and depressurize system by opening draw-off valve and allowing water to drain from the unit.
2. Remove the 0.2 micron final filter from the draw-off valve.
3. Open the cartridge access door in the rear of the unit by pushing back the door latch.
4. Remove the cartridge in position 2 by pulling the cartridge straight up until the upper socket is in the keyhole of the keyway. Next pull the cartridge straight out. Be sure to remove and replace one cartridge at a time to avoid draining UV chamber.
5. Remove a new EASYpure Ultrapure cartridge (Catalog No. D50233) from its plastic bag.
6. Wet the o-rings with water on both end caps.
7. Press the upper end cap into position 2 until it bottoms out. Refer to Fig. 7 if needed.
8. Lower the cartridge and insert the lower end cap into the lower socket until it is firmly seated.
9. Repeat steps 3-7 with the EASYpure High Purity/Low TOC (Catalog No. D50229) cartridge, placing it in position 3.
10. Close the cartridge access door.
11. Install the hose barb into the fitting in the draw-off valve.

12. Turn unit on and from “IdL” press the START/STOP button to begin unit operation.
13. Rinse approximately 3 liters (1/2 reservoir volume) of water through the draw-off valve to drain.
14. Close the draw-off valve.
15. Remove the hose barb from the draw-off valve and proceed to the **0.2 Micron Final Filter Replacement** section of this manual.
16. Place unit in Run Mode until desired purity is achieved.

**Warning**

Depressurize system prior to removing cover.

**Warning**

This unit is equipped with an ultraviolet lamp. Ultraviolet radiation is harmful to the eyes and skin. Do not attempt to observe the lamp directly, while it is illuminated.

**Caution**

Do not unscrew the metal end cap cover of the UV chamber, as this will loosen the water tight seal and may damage the replacement lamp. Pull the black plastic cover straight up.

UV Lamp Replacement (See Fig. 5)

Lamp life will vary according to the number of times the EASYpure RODi unit is turned on and off. The UV lamp should be replaced a minimum of every 12 months of operation. If the EASYpure RODi is cycled between Run, Standby and Idle Modes frequently during the work day, this may result in a shorter lamp life. Therefore, it is recommended that the EASYpure RODi be left in the Run Mode during normal working hours and in Standby Mode at night and on weekends.

To replace the ultraviolet lamp:

1. Turn off the EASYpure RODi and disconnect it from the power supply. Remove the power cord.
2. Depressurize the system by opening draw-off valve and allowing water to drain from the unit. Disconnect water line.
3. Remove the reservoir Ventgard cap.
4. Remove the screws securing the EASYpure RODi top cover.
5. Remove the top cover by lifting straight up.

MAINTENANCE AND SERVICING



Note

The UV lamp contains mercury. If broken or no longer needed, do not dispose of the UV lamp in the trash. Recycle or dispose of the UV lamp as hazardous waste.



Note

If UV lamp is not installed properly an “Er3” message will appear for 15 seconds of every minute during Run Mode.

6. Locate the UV oxidation chamber and pull the top black plastic cover off. *Do not pull on the cable.*
7. While holding on to the lamp, remove the plug from the lamp. Dispose of the UV lamp appropriately. The used lamp does contain mercury vapor and should not be disposed of in the trash. Recycle or dispose of the used lamp as hazardous waste.
8. Remove the replacement lamp from its container. **DO NOT TOUCH THE GLASS PORTION OF THE LAMP.** It is recommended that lint free gloves be worn when handling the lamp. The glass portion must be free of fingerprints, perspiration, etc. Even a light coating of perspiration will reduce the effectiveness of the lamp.
9. Clean the lamp with isopropyl alcohol and a lint free cloth.
10. Carefully insert and hold the UV lamp partially into the UV chamber.
11. Connect the UV lamp to the receptacle in the black plastic cover of the UV chamber. Replace the black plastic cover on the UV chamber.
12. Reinstall the EASYpure RODi top cover and latch cartridge access door closed.
13. Reinstall the Ventgard cap.
14. Reattach the power cord and reconnect the unit to the power supply.

**Warning**

Discard the RO membrane product water for at least two hours during the initial operation. The membrane contains a preservative solution to prevent microbiological growth.

RO Membrane Replacement (See Fig. 6)

1. If applicable, reset the carbon prefilter timer (it is recommended to replace RO carbon prefilter when replacing the RO membrane.) (See “To Reset Carbon Prefilter Timer.”)
2. Turn off the EASYpure RoDi and disconnect it from the power supply. Remove power cord.
3. Depressurize the system by opening draw-off valve and allowing water to drain from the unit until draining ceases.
4. Disconnect inlet feedwater connection.
5. Place unit such that reservoir drain is over a sink, remove lower rear drain plug and allow reservoir to completely drain.
6. Remove the Ventgard cap.
7. Remove the screws securing the EASYpure RoDi top cover.
8. Remove the top cover by lifting straight up.
9. Locate the RO membrane and carefully unhook the two springs that secure it.
10. Remove the old membrane by disconnecting the reject and product tubing from the top of the membrane and the feed water connection from the bottom. See page 11 for tubing removal instructions.
11. Remove the new RO membrane (FL1332X2) from its packaging. Note the location of the FEED, PRODUCT and REJECT connections on the housing. The correct orientation for the installed membrane will be vertical with the FEED connection down.
12. Locate the three unconnected tubes labeled FEED, PRODUCT and REJECT.

13. Note the orientation of the membrane housing and install the unconnected tubes into the corresponding connectors on the membrane housing. To do so, first wet the tube end with water and push the tube end firmly into the connector until it bottoms out. Start with the FEED, followed by the PRODUCT and finally the REJECT tube.
14. Fasten the membrane housing in place by stretching the springs around the housing and hooking them on the tab cutouts in the chassis.
15. Reinstall the EASYpure RODi top cover and the Ventgard cap.
16. Again be sure the unit is placed such that the reservoir drain is over a sink and that the drain plug has been removed.
17. Reattach power cord and feedwater supply.
18. Turn power switch on.
19. Press the "Start/Stop" switch on the keypad to start operation. The display will show "Add" and the "RO System Operating" LED will be illuminated.
20. Two Hour New Membrane Rinse: Allow the unit to operate until the display shows "Er7" (approximately 2 hours.) This will rinse the membrane of its preservatives. It is possible that during this time the "Low RO Purity" LED may illuminate.
21. After the membrane rinse has been completed, the unit can be turned off and the reservoir drain plug can be reinserted (Insert completely then back out very slightly).
22. To fill reservoir, turn power on and press the "Start/Stop" switch to start operation. During the filling process the internal DI pump may turn on/off and the unit display may alternate between "Add" and displaying a purity value as the cartridges are slowly wetted. The reservoir will be completely full (within 6 hours) when the "RO System Operating" LED is no longer illuminated.



Note

It is suggested that Teflon tape be applied to the threads of the 0.2 micron final filter to ensure a tight seal.

0.2 Micron Final Filter Replacement

Replace the 0.2 micron final filter whenever any of the following conditions occur: the product water flow rate is reduced or you experience bacteria break through, when cartridges are replaced, or when system is cleaned. The 0.2 micron final filter is shipped assembled with a bell. To replace the 0.2 micron final filter assembly:

1. Remove the old 0.2 micron final filter assembly by turning it to the left to unscrew it from the draw-off valve.
2. Remove the new 0.2 micron final filter assembly from its bag and insert it into the draw-off valve. Gently tighten, turning the filter to the right.
3. Open the draw-off valve and flush at least 3 liters (1/2 reservoir volume) of water through the 0.2 micron final filter.



Warning

Replace fuses with those of the same type and rating.

Ventgard Cap Replacement

The purifying media and filter in the Ventgard filter element have a limited capacity. Therefore, the Ventgard cap should be replaced every 120 days. The Ventgard cap is shipped as a complete unit; replacement involves simply removing the new Ventgard cap from its plastic storage bag and placing it on the reservoir. A Ventgard cap can be stored in a cool, dry place for two years, provided its plastic storage bag has not been opened.

Fuse Replacement

1. Turn off the EASYpure RoDI and disconnect it from the power supply. Remove the power cord.
2. Pull out the fuse drawer located in the power entry module.
3. Remove old fuses and replace with fuses of the same type and rating. (See **Replacement Parts** section.)
4. Replace fuse drawer.

5. Reattach the power cord and reconnect the unit to the power supply.
6. Operate normally.



Note

When in Standby, the unit will perform a 1 minute flush every 24 hours.

Unit Shutdown

If the EASYpure RO_{DI} will be inactive for a period up to a month, place the unit in Standby. For periods of time greater than a month, disconnect water and power sources, drain unit, close customer supplied water valve, and remove and discard cartridges and final filter. See **System Cleaning, Cartridge Replacement and 0.2 Micron Final Filter Replacement** sections for reactivation.

Troubleshooting

Problem	Possible Causes	Action
<p>EASYpure RODI completely inactive. (Pump not operating, display not lit, etc.)</p> <p>Note: When unit is powered and not operating, nor in standby, "IdL" will normally be displayed.</p>	<p>No electrical power to EASYpure RODI.</p> <p>Membrane key switch leads not connected.</p> <p>Main power switch off.</p> <p>Fuses blown or not installed properly.</p>	<p>Ensure that the EASYpure RODI power cord is connected to a live power source and completely plugged into electrical outlet.</p> <p>Disconnect unit from power. Check and reconnect.</p> <p>Place to "On" position.</p> <p>Check to make sure proper fuses were installed.</p> <p>Replace the fuses as indicated in the Fuse Replacement section.</p>
<p>Pump does not run. Display showing purity information.</p>	<p>Loose wire connection to pump.</p> <p>Display/control board is defective.</p> <p>Pump worn out or defective.</p>	<p>Ensure pump is properly connected to display/control (PC1286X1).</p> <p>Call Barnstead International Technical Service.</p> <p>Replace pump. Call Technical Service.</p>
<p>Recirculated water will not rinse up to desired purity level.</p>	<p>Exhausted cartridge</p> <p>Cartridges out of order.</p> <p>Dirty resistivity cell.</p> <p>Water path restriction.</p> <p>Resistivity meter board out of tolerance.</p>	<p>Replace the cartridge as indicated in the Cartridge Replacement section.</p> <p>Install the cartridges in the proper order as indicated in the Cartridge Installation section.</p> <p>Clean resistivity cell as indicated in the Maintenance and Servicing section.</p> <p>Check tubing for constriction (kinks) or blockages.</p> <p>Replace board (PCX70). Call Technical Service.</p>

TROUBLESHOOTING

Problem (cont.)	Possible Causes (cont.)	Action (cont.)
0.2 micron final filter clogs rapidly after replacement.	<p>Possible feedwater contamination.</p> <p>Cartridges not properly rinsed up before use.</p> <p>EASYPure RODI contaminated with bacteria.</p>	<p>Check that the service life of the RO membrane or RO carbon filter has not been exceeded. If not exceeded, call Technical Service for possible feedwater testing.</p> <p>Rinse up cartridges as described in Cartridge Rinse-Up Procedures. Replace the 0.2 micron final filter assembly as indicated in the 0.2 Micron Final Filter Replacement section.</p> <p>Clean EASYPure RODI according to the instructions in System Cleaning. Replace the 0.2 micron final filter assembly as indicated in the 0.2 Micron Final Filter Replacement section.</p>
Short cartridge life.	<p>Cartridges being used are beyond expiration date.</p> <p>Change in feedwater characteristics.</p> <p>Increased product water usage.</p> <p>RO membrane needs replacing.</p>	<p>Check the expiration date. Cartridges begin to lose capacity after being stored two years from the date of manufacture. Replace the cartridges with unexpired ones.</p> <p>Call Technical Service for possible feedwater testing.</p> <p>Verify usage.</p> <p>Replace as described in Membrane Installation.</p>
Water leakage inside EASYPure RODI	<p>Loose connections.</p> <p>Tubing is not inserted completely.</p> <p>Missing or defective cartridge o-rings.</p> <p>Leak at cartridge.</p>	<p>Tighten connections.</p> <p>Insert tubing completely. See Push-to-Connect Tubing Installation section of this manual.</p> <p>Install or replace cartridge o-rings.</p> <p>Make sure cartridge access door is closed and latched.</p>
Water leakage at a final filter	Not installed far enough.	Install or screw in further and/or add Teflon tape.
Chatter coming from cartridge.	Air in cartridge vibrating cartridge check valve.	No action needed. Chatter will diminish and stop once air is completely purged from system during normal operation.

Problem (cont.)	Possible Causes (cont.)	Action (cont.)
Tank not filling (low pressure indicated by gauge.)	<p>Feedwater supply valve closed.</p> <p>RO prefilter plugged.</p> <p>Solenoid valve not open.</p> <p>Feed pressure below specification.</p>	<p>Open feedwater supply valve.</p> <p>Replace RO prefilter.</p> <p>Call Technical Service.</p> <p>Increase pressure.</p>
<p>Low RO purity LED illuminated.</p> <p>Decrease in % rejection.</p>	<p>New RO membrane rinsing up.</p> <p>Improperly installed RO membrane.</p> <p>Fouled RO membrane.</p>	<p>Continue rinse-up.</p> <p>Be sure RO membrane is installed properly.</p> <p>Replace RO membrane.</p>
Decrease in system productivity.	<p>Decrease in water temperature.</p> <p>RO membrane fouled.</p> <p>Low incoming water pressure.</p> <p>Low RO membrane operating pressure.</p>	<p>If decline in flowrate is unacceptable, install feedwater temperature valve to elevate water temperature. Valve available from Barnstead International.</p> <p>Replace RO membrane.</p> <p>Be sure prefilter is not blocked. Increase incoming water pressure.</p> <p>Increase operating pressure. If needed, use Barnstead accessory AY1332X1 external pressure boost assembly.</p>
RO prefilter plugs rapidly.	High turbidity feedwater.	<p>Call Technical Service. If needed, use Barnstead accessory AY1332X2 External Filter Assembly with gauges. This contains high volume 5 micron particulate filtering in conjunction with membrane antiscalant.</p>

Error Conditions

Problem	Possible Causes	Action
Display reads "Er1" (Purity measurement error)	Air in system. Resistivity cell not connected to PCX70 meter board connection (P1). Resistivity cell dirty. Resistivity cell out of tolerance.	Purge air from system by drawing off water according to the instructions in the Operation section. Check resistivity cell lead connections (P1) on circuit board. (See Wiring Diagram) Clean cell and reinstall. Replace resistivity cell.
Display reads "Er3". (UV lamp error)	UV lamp cable not plugged into J6 of PC1302X1. UV lamp burnt out or nearing the end of its useful life. Chamber seal is compromised and UV lamp is getting wet. UV lamp not properly connected to UV cable connector. UV ballast out of tolerance.	Plug UV lamp cable into J6 of PC1302X1 daughter board. (See Wiring Diagram) Replace UV lamp (LMX13). Replace quartz sleeve and o-rings. Call Technical Service. Recheck/reconnect. Replace ballast. Call Technical Service.
Display reads "Er4" (Cell temperature sensor error)	Resistivity cell not connected to meter board (PCX70). Resistivity cell dirty. Resistivity cell temperature sensor out of tolerance. Meter board out of tolerance.	Check resistivity cell lead connection (P1) on meter board. (PCX70) (See Wiring Diagram) Clean cell and reinstall. Replace resistivity cell (E703X1A). Replace meter board (PCX70). Call Technical Service.
Display reads "Er5". (Meter board data error)	PC board communication trouble. Meter board not connected to display/control board. Meter board (PCX70) out of tolerance.	Cycle power. Check connection from meter board (PCX70 10 pin connector) to display/control board (J2). Replace meter board (PCX70). Call Technical Service.

Problem (cont.)	Possible Causes (cont.)	Action (cont.)
Display reads "Er6" (Reservoir float error)	One or more of the float connections to the PC boards are unplugged. One or more of the floats are sticking in position.	<i>High Float</i> -- J8 on daughter board (PC1332X1 PC5') <i>Medium Float</i> -- J9 on daughter board (PC1332X1, PC5') <i>Low Float</i> -- Position 3-4 of WH1305X1 (WH3') Call Technical Service.
Display reads "Er7". (Reservoir fill time error)	RO membrane rinse-up. No inlet water supply. Carbon prefilter (D50246) is clogged (visual check and/or pressure decrease from installation) Accessory AY1332X2 external system sediment/antiscalant filter (FLX35) is clogged.	Correct operation per Membrane Rinse-Up section. Continue following rinse-up procedure. Check water inlet connection to EASYpure RODI unit. Ensure tap water is turned on. Replace carbon prefilter (D50246) and reset prefilter timer. Replace external sediment/antiscalant filter.
"Low RO Purity" LED is ON - Red (% rejection is below set point)	RO probe connections to PC board are unplugged. RO membrane is fouled. RO probes are fouled or out of tolerance. Daughter board (PC1332X1') is out of tolerance.	Check ribbon cable connection between probe interface board (ME1332X1, PC6') and daughter board (PC1332X1, PC5') Replace RO membrane (FL1332X2). Call Technical Service. Call Technical Service.
"Replace RO Prefilter" LED is ON - Red (RO Carbon Prefilter Timer)	Six month service life of the Carbon Prefilter has expired.	Replace Carbon Prefilter (D50246) and reset Prefilter Timer.

¹ See wiring diagram

Replacement Parts

Consumables

Consumable parts are those *required* to support the day-to-day operation of this equipment.

Barnstead International establishes two types of consumables; those items that *must* periodically be replaced to maintain performance (filters, resin cartridges, etc.) and other items of limited life (fuses, etc.) that you can expect to replace on a more or less random basis. Where practical, Barnstead International recommends the frequency of replacement, or provides information on life expectancy from which you may calculate a replacement interval compatible with your usage pattern.

The replacement of consumable parts is discussed in the **Maintenance and Servicing** section to assist you in accomplishing your own service. Consumables may be ordered separately and in some cases, as an expendables kit. Check with your Barnstead International representative for additional information on the expendables kit.

Description	Catalog No.	Recommended Quantity	Max. Shelf Life
EASypure RODi Start-Up Kit Kit includes: D50246, D50233, D50229, D3750, FL1332X2	D502132	1	2 years ¹
RO Carbon Prefilter	D50246	1	2 years ¹
Ultrapure Mixed Bed Cartridge	D50233	1	2 years ¹
EASypure High Purity/Low TOC Cartridge	D50229	1	2 years ¹
0.2 Micron Final Filter and Bell Assembly	D3750	2	N/A
Ventgard Filter Element	CV742X5A	2	2 years ¹
Fuse, Power Entry:			
100-120 volt (slow blow 1.6 amp)	FZX47	2	N/A
240 volt (IEC127 timelag 0.63 amp)	FZX54	2	N/A
Ultraviolet Lamp	LMX13	1	5 years
EASypure RODi Replacement Kit Kit includes: D50246, D50233, D50229	D502133	1	2 years ¹
RO Membrane	FL1332X2	1	3 years ¹

¹ This is reference information. Please check actual expiration dates on individual cartridges for shelf life end dates. Cartridges used past the shelf lifetimes will exhibit decreased capacity.



Note

Shelf life will be inaccurate if products are taken out of their original packaging.

General Maintenance

General maintenance parts are defined as laboratory level repair parts which do not require great expertise or special tools for installation. Barnstead International recommends that you stock the general maintenance parts as an aid to ensuring the continued operation of this equipment.

Description	Catalog No.	Recommended Quantity
Check Valve	02214	1
Hose Barb Fitting	05930	1
Empty Cartridges (for cleaning)	D7034	1

Safety Stock

For critical applications where performance with *minimum* downtime is required, Barnstead International recommends that you maintain a local stock of those parts listed in the GENERAL MAINTENANCE PARTS and SAFETY STOCK sections.

Description	Catalog No.	Recommended Quantity
Replacement Display/Control Board	PC1286X2	1
Resistivity Meter Board	PCX70	1
Pump Ass'y	PU1286X1	1
Resistivity Cell	E703X1A	1
Resistivity Cell O-ring	GSX29	1
Draw-Off Valve Ass'y	PM741X1A	1
Daughter Board	PC1332X1	1
Ballast	SC1191X1	1
Quartz Sleeve	TU733X1	1
Quartz Sleeve O-rings	GSX62	2
Float Switch	SW1305X1	1
Power Supply	TNX116	1
Inlet Solenoid Valve	RY1265X2	1
Diverter Solenoid Valve	RY1332X1	1
Flush Solenoid Valve	RY1332X2	1
Pressure Gauge	MEX196	1
RO Membrane	FL1332X2	1

Accessories

Optional Accessory Ordering Information

External Boost Pump Assembly	AY1332X1
External Filter Assembly with Gauges	AY1332X2
External Filter Assembly Particulate/Antiscalant Cartridge	FLX35
Hot/Cold Mixing Valve	D7427
Wall Mount Bracket	D13324

AY1332X1 Boost Pump Accessory

This accessory should be used when customer site has low or widely fluctuating feedwater pressure. The boost pump will automatically turn on and off under the control of the EASYpure RoDI unit.

Accessory Kit Includes:

1. Pump housing (1)
2. Plumbing adapters (2)
3. Power cable (1)

Installation Instructions

1. Turn power off to the EASYpure RoDI system.
2. Close facility water supply valve.
3. Mounting:
 - a. Bench: Pump housing can be placed back-side down on a flat surface within 6 feet (1.83 meters) from the external pump power connection located on the back of the EASYpure RoDI unit.
 - b. Wall: Using 2 customer-supplied fasteners located 4.6 inches (11.7 cm) apart; install the housing on a wall in a location within 6 feet (1.83 meters) from the external pump power connection located on the back EASYpure RoDI unit. Be sure NOT to mount the housing over anything that could be damaged or be a safety issue if water spillage occurs.

4. Carefully and cleanly cut the EASYpure RODi feed-water tubing such that one piece will connect the EASYpure RODi to the external accessory pump. The other piece will be used to connect the facility water supply to the “inlet” of the accessory pump. Use 90-degree fittings as necessary to help route tubing to and from the external pump accessory.
5. Attach power cable from back of EASYpure RODi into the side of the Pump Housing.
6. Open facility water supply valve and check AY1332X1 for leaks.
7. Turn power on to the EASYpure RODi system and operate normally.

AY1332X2 External Filter Accessory

This accessory should be used when customer site has feed-water with high particulate and/or high scaling contaminants. If in doubt contact Barnstead International Technical Service for possible feedwater testing.

Accessory Kit Includes:

1. Filter housing (1)
2. Plumbing adapters (2)
3. Pressure gauges (2)
4. Filter/Antiscalant assembly (1)
5. Wall bracket (1)
6. Screw/washer sets for bracket/housing connection (4)

Installation Instructions

1. Turn power off to the EASYpure RODi system.
2. Close facility water supply valve.

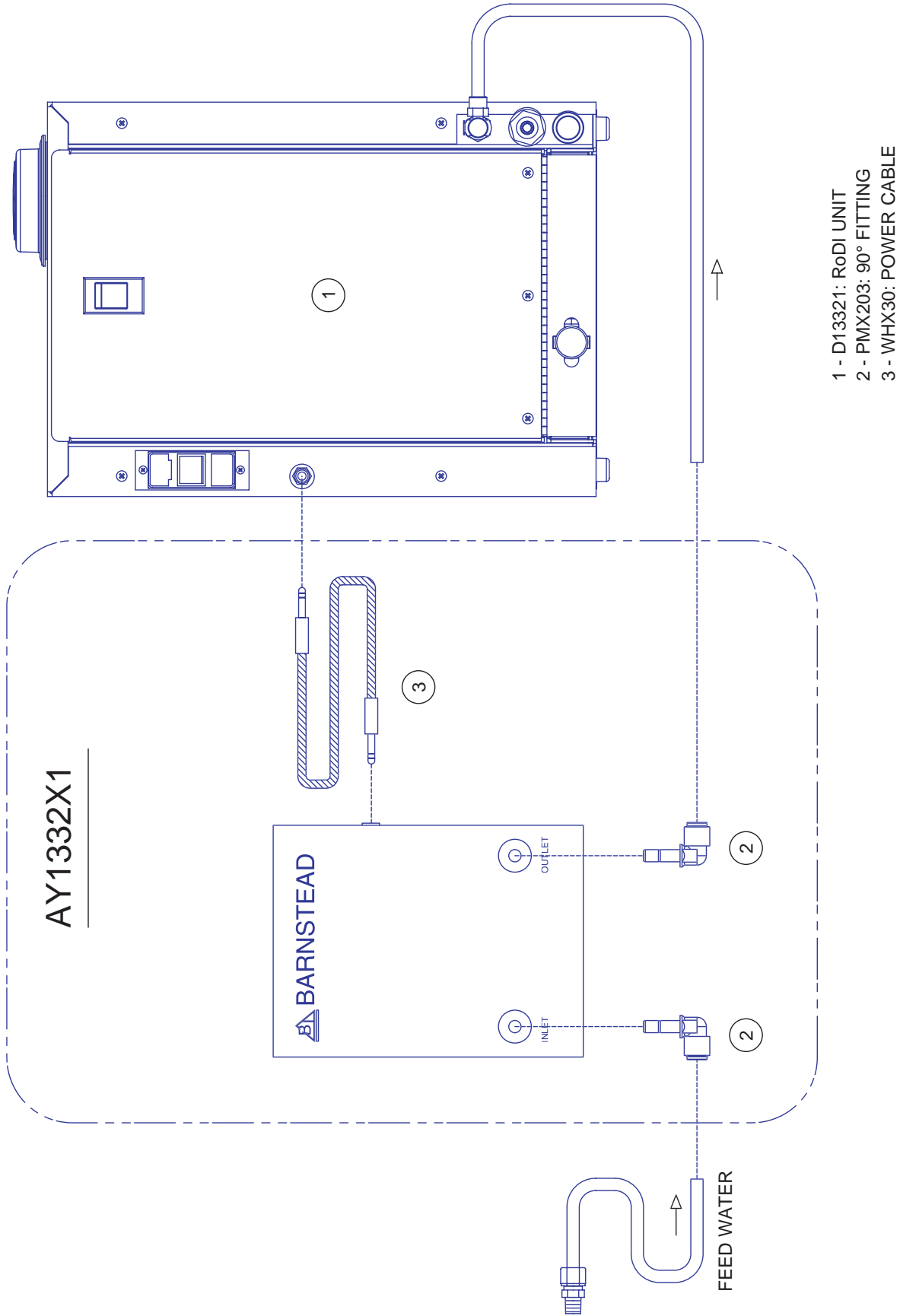
3. Completely and securely assemble AY1332X2 components. See drawing on page 53. (Note orientation of Filter/Antiscalant assembly). The use of Teflon® tape on NPT threads is recommended to aid in a secure leak proof assembly.
4. Using 2 customer-supplied fasteners, install the assembly on a wall in a location convenient for filter exchange. Be sure NOT to mount the assembly over anything that could be damaged or be a safety issue if water spillage occurs.
5. Install the D13321 inlet tubing connection into the outlet plumbing adapter.
6. Using a customer-supplied tubing/fitting (1/4 inch male NPT), securely attach feedwater connection to the 1/4 inch female NPT inlet plumbing adapter.
7. Open facility water supply valve and check AY1332X2 assembly for leaks.
8. Turn power on to EASYpure RO/DI system and operate normally.

Filter/Antiscalant Cartridge Exchange

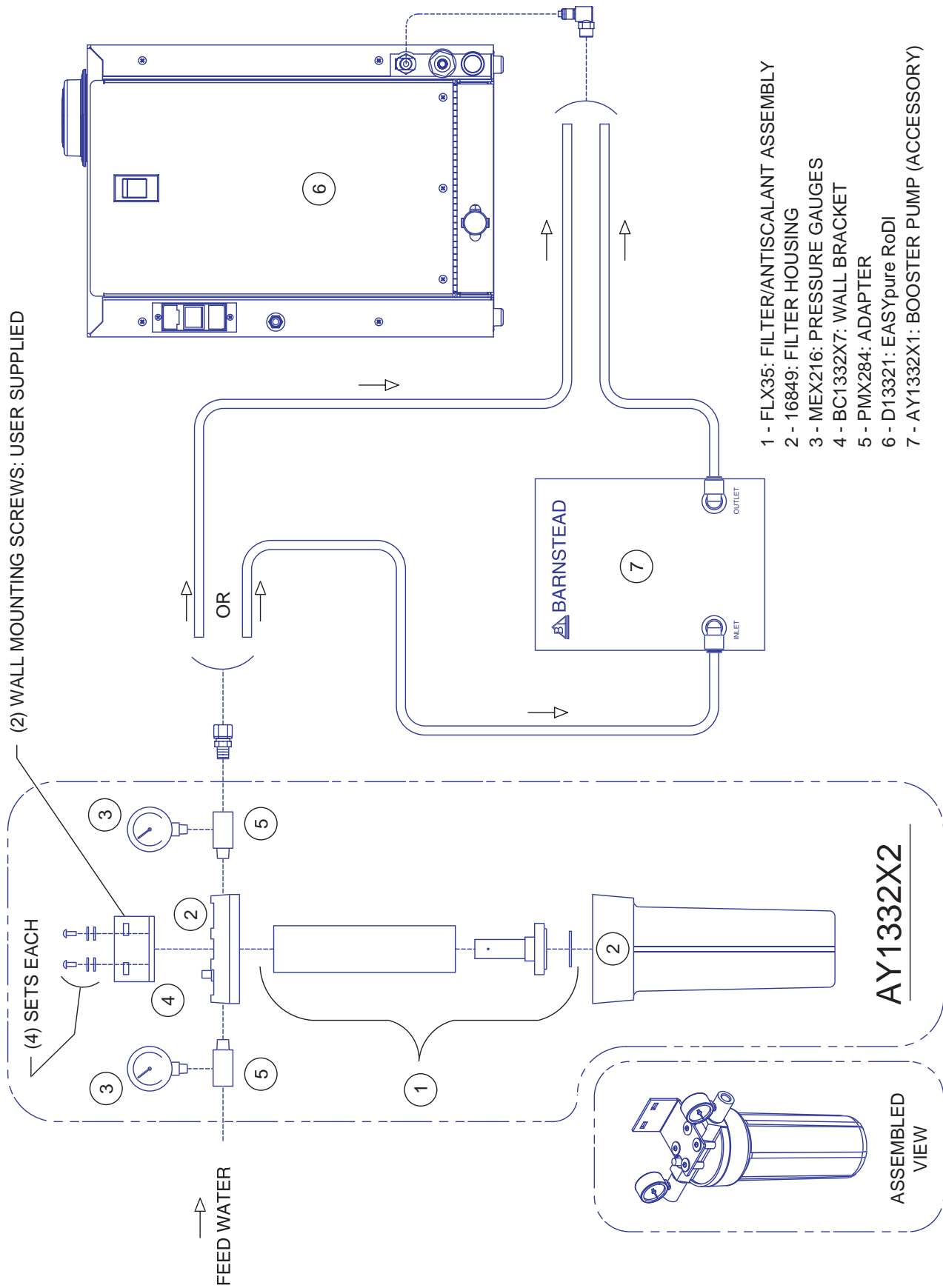
Filter/Antiscalant cartridge should be exchanged whenever inlet-outlet pressure difference exceeds 10psi (0.69 bar).

1. Turn power off to the EASYpure RO/DI system.
2. Close/shut off facility water supply or supply valve (located upstream of the AY1332X2 assembly.)
3. Depressurize housing by momentarily pressing the RED button on top of the housing cover. Note that a very small amount of water may spray out of the depressurization valve, under the RED button, during this step.
4. Carefully unscrew housing from housing cover, as it will be filled with water.
5. Remove and discard old Filter/Antiscalant cartridge.

6. Insert new Filter/Antiscalant cartridge.
IMPORTANT – be sure the end with the Antiscalant insert (which includes a gasket) is installed down into the housing so that it will NOT compress against the upper housing cover when the housing is reattached.
7. Reattach housing to housing cover.
8. Turn on facility water supply valve and check AY1332X2 assembly for leaks.
9. Turn power on to EASYpure RODi system and operate normally.



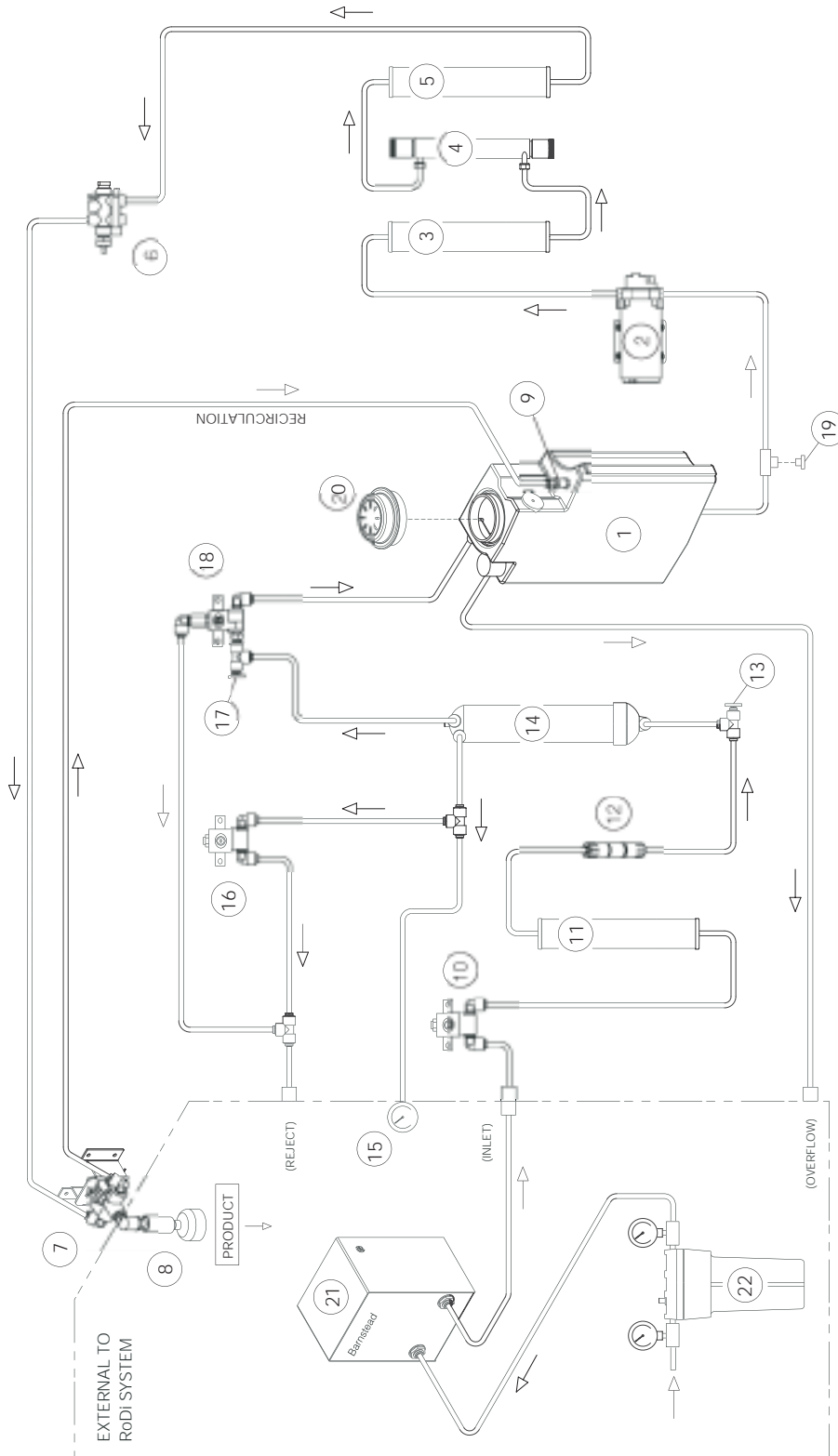
BOOST PUMP CONNECTION



FILTER CONNECTION

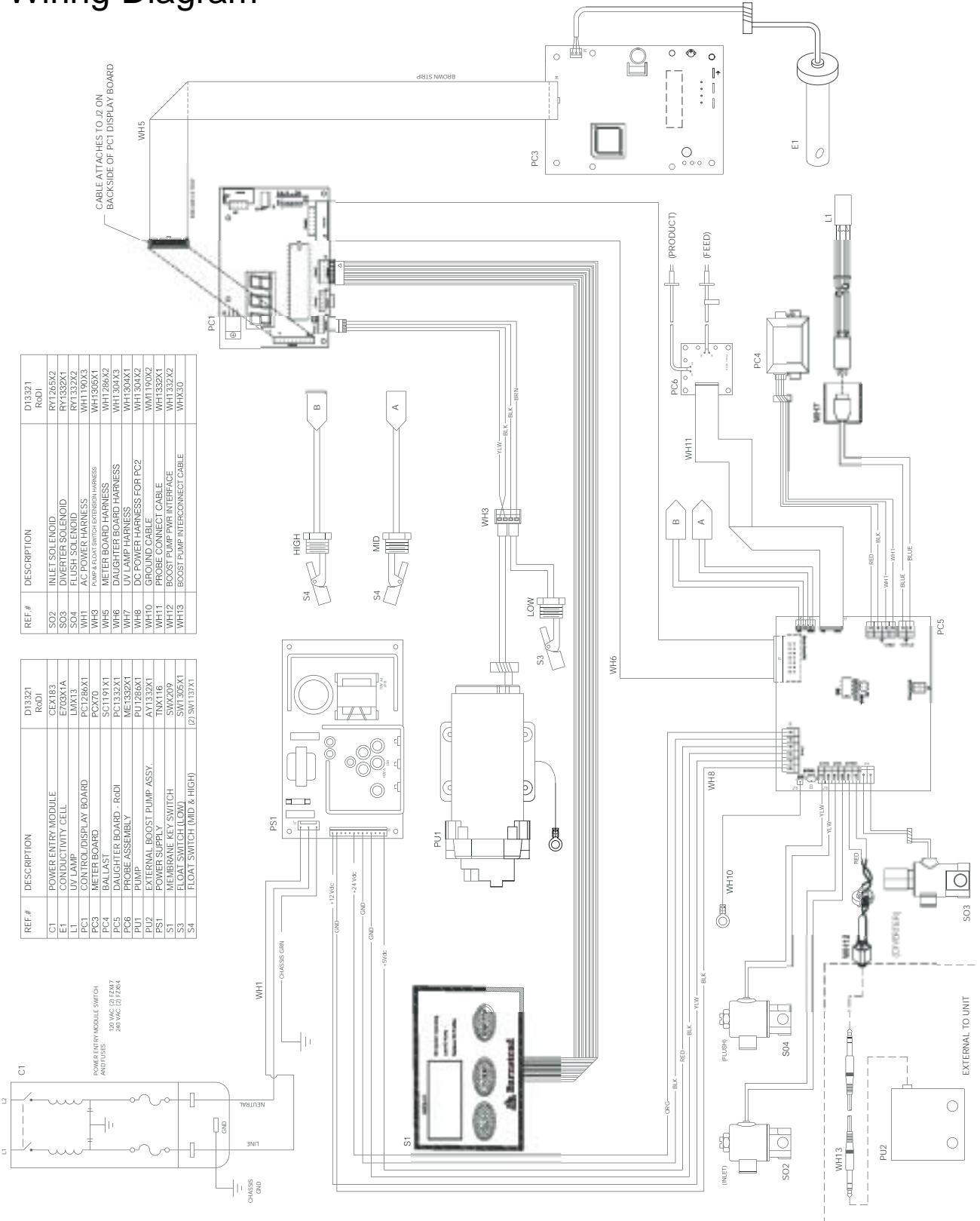
Technical Information

Water Process Flow Diagram



- 1 - STORAGE TANK
- 2 - PUMP
- 3 - ION-EXCHANGE CARTRIDGE
- 4 - UV OXIDATION CHAMBER
- 5 - ION-EXCHANGE/LOW TOC CARTRIDGE
- 6 - CONDUCTIVITY CELL
- 7 - PRODUCT DISPENSER
- 8 - .2µm FINAL FILTER
- 9 - NON-RETURN CHECK VALVE
- 10 - INLET SOLENOID
- 11 - RO PREFILTER
- 12 - FLOW RESTRICTOR
- 13 - CONDUCTIVITY CELL
- 14 - RO MEMBRANE
- 15 - MEMBRANE PRESSURE GAUGE
- 16 - RO FLUSH SOLENOID
- 17 - CONDUCTIVITY CELL
- 18 - DIVERTER SOLENOID
- 19 - TANK DRAIN PLUG
- 20 - TANK AIR VENT
- 21 - ACCESSORY "RO BOOST PUMP"
- 22 - ACCESSORY "SEDIMENT FILTRATION ASSEMBLY"

Wiring Diagram

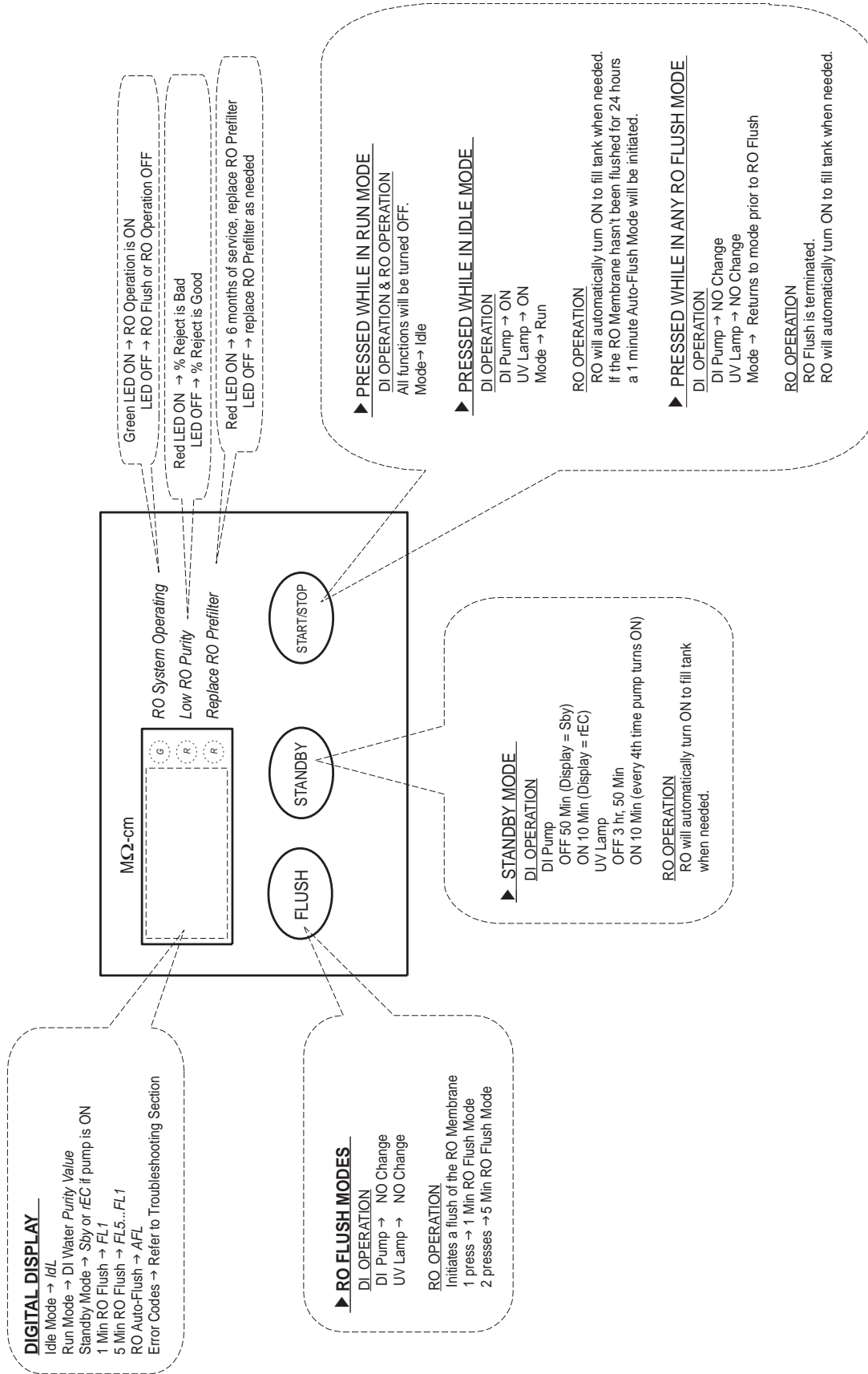


REF.#	DESCRIPTION	D13321
S02	INLET SOLENOID	RODI
S03	DIVERter SOLENOID	RY1265X2
S04	FLUSH SOLENOID	RY1332X1
S01	UV LAMP	RY1332X2
WH3	DAUGHTER BOARD HARNESS	WH1266X2
WH4	METER BOARD HARNESS	WH1266X1
WH5	DAUGHTER BOARD HARNESS	WH1304X3
WH6	UV LAMP HARNESS	WH1304X2
WH7	DC POWER HARNESS FOR PC2	WH1190X2
WH8	GROUND CABLE	WH1332X1
WH9	PROBE CONNECT CABLE	WH1332X2
WH10	BOOST PUMP PWR INTERFACE	WH1332X1
WH11	BOOST PUMP INTERCONNECT CABLE	WH1332X2
WH12	BOOST PUMP INTERCONNECT CABLE	WH1332X1

REF.#	DESCRIPTION	D13321
C1	POWER ENTRY MODULE	RODI
E1	CONDUCTIVITY CELL	CEX183
L1	UV LAMP	E703X1A
PC1	UV LAMP DISPLAY BOARD	LWX13
PC2	METER BOARD	PCZ106X1
PC3	BALLAST	SC1191X1
PC4	DAUGHTER BOARD - RODI	PC11332X1
PC5	EXTERNAL BOOST PUMP ASSY.	ME1332X1
PU1	PUMP	PU1266X1
PU2	EXTERNAL BOOST PUMP ASSY.	AY1332X1
PS1	POWER SUPPLY	TRX116
S1	MEMBRANE KEY SWITCH	SWX209
S3	FLIGHT SWITCH (MID & HIGH)	SW1332X1

POWER ENTRY MODULE SWITCH
120 VAC (1722A7)
AND FUSES
240 VAC (17484)

EASypure II RO/DI User Interface Diagram



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 International 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, contact our Customer Service Department at 563-556-2241 or 800-553-0039.

Prior to returning any materials to Barnstead International Corp., please contact our Customer Service Department for a "Return Materials Authorization" number (RMA). Material returned without an RMA number will be returned.

One Year Limited Warranty

Barnstead International (“BARNSTEAD”) warrants that a product manufactured by Barnstead shall be free of defects in materials and workmanship for one (1) year from the first to occur of (i) the date the product is sold by BARNSTEAD or (ii) the date the product is purchased by the original retail customer (the “Commencement Date”). Except as expressly stated above, BARNSTEAD MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED, WITH RESPECT TO THE PRODUCTS AND EXPRESSLY DISCLAIMS ANY AND ALL WARRANTIES, INCLUDING BUT NOT LIMITED TO, WARRANTIES OF DESIGN, MERCHANT ABILITY AND FITNESS FOR A PARTICULAR PURPOSE.


An authorized representative of BARNSTEAD must perform all warranty inspections. In the event of a defect covered by BARNSTEAD’s warranty, BARNSTEAD shall, as its sole obligation and exclusive remedy, provide free replacement parts to remedy the defective product. In addition, for products sold by BARNSTEAD within the continental United States or Canada, BARNSTEAD shall provide provide free labor to repair the products with the replacement parts, but only for a period of ninety (90) days from the Commencement Date.

BARNSTEAD’s warranty provided hereunder shall be null and void and without further force or effect if there is any (i) repair made to the product by a party other than BARNSTEAD or its duly authorized service representative, (ii) misuse (including use inconsistent with written operating instructions for the product), mishandling, contamination, overheating, modification or alteration of the product by any customer or third party or (iii) use of replacement parts that are obtained from a party who is not an authorized dealer of BARNSTEAD.

Heating elements, because of their susceptibility to overheating and contamination, must be returned to the BARNSTEAD factory and if, upon inspection, it is concluded that failure is due to factors other than excessive high temperature or contamination, BARNSTEAD will provide warranty replacement. As a condition to the return of any product, or any constituent part thereof, to BARNSTEAD’s factory, it shall be sent prepaid and a prior written authorization from BARNSTEAD assigning a Return Materials Number to the product or part shall be obtained.

IN NO EVENT SHALL BARNSTEAD BE LIABLE TO ANY PARTY FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, OR FOR ANY DAMAGES RESULTING FROM LOSS OF USE OR PROFITS, ANTICIPATED OR OTHERWISE, ARISING OUT OF OR IN CONNECTION WITH THE SALE, USE OR PERFORMANCE OF ANY PRODUCTS, WHETHER SUCH CLAIM IS BASED ON CONTRACT, TORT (INCLUDING NEGLIGENCE), ANY THEORY OF STRICT LIABILITY OR REGULATORY ACTION.

The name of the authorized Barnstead International dealer nearest you may be obtained by calling 1-800-446-6060 (563-556-2241) or writing to:

 **BarnsteadInternational**
an Apogent company *Your Lab Starts Here*

2555 Kerper Boulevard
P.O. Box 797
Dubuque, Iowa 52001-0797
Phone: 563-556-2241 or 800-553-0039
Fax: 563-589-0516
E-mail: mkt@barnstead.com
www.barnstead.com

