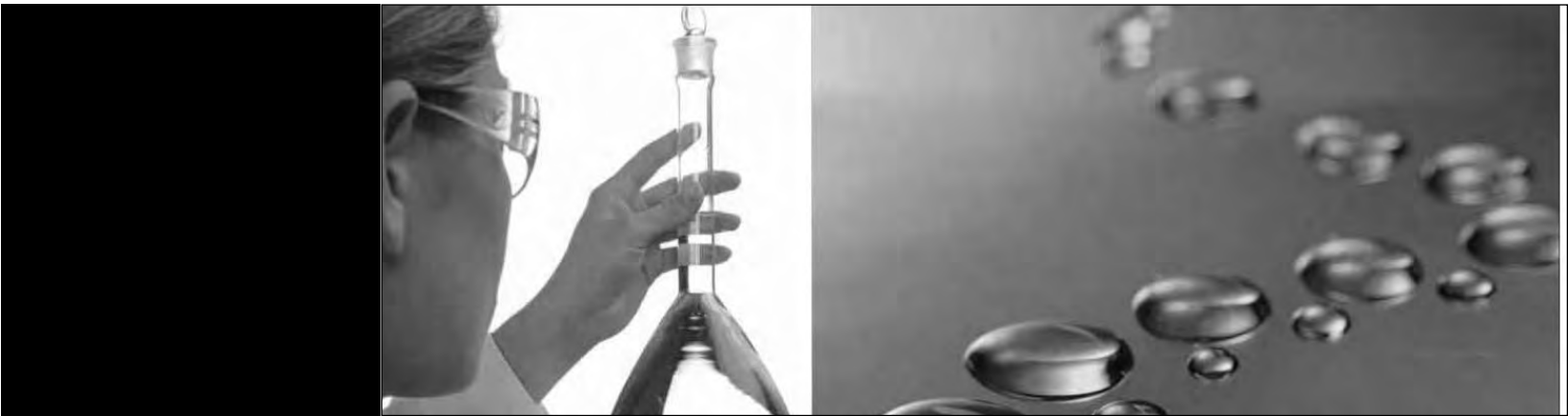


EASYpure® RoDi Ultrapure Water Purification System

Series 1332

Operating Manual and Parts List LT1332X1 Rev. 1



Models covered in this manual	
Model number	Voltage
D13321 (7128)	100-240V

MANUAL NUMBER LT1332X1 (7007128)

1	26638/SI-10360	10/19/10	Added 'Indoor Use Only' to Specs	ccs
0	--	5/26/10	Transfer to Marietta (was LT1332X1 7/3/08)	ccs
REV	ECR/ECN	DATE	DESCRIPTION	By



Important Read this instruction manual. Failure to read, understand and follow the instructions in this manual may result in damage to the unit, injury to operating personnel, and poor equipment performance. s

Caution All internal adjustments and maintenance must be performed by qualified service personnel. s

Material in this manual is for information purposes only. The contents and the product it describes are subject to change without notice. Thermo Fisher Scientific makes no representations or warranties with respect to this manual. In no event shall Thermo be held liable for any damages, direct or incidental, arising out of or related to the use of this manual.

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Important operating and/or maintenance instructions. Read the accompanying text carefully.



Potential electrical hazards. Only qualified persons should perform procedures associated with this symbol.



Equipment being maintained or serviced must be turned off and locked off to prevent possible injury.



Hot surface(s) present which may cause burns to unprotected skin, or to materials which may be damaged by elevated temperatures.



Marking of electrical and electronic equipment, which applies to electrical and electronic equipment falling under the Directive 2002/96/EC (WEEE) and the equipment that has been put on the market after 13 August 2005.



This product is required to comply with the European Union's Waste Electrical & Electronic Equipment (WEEE) Directive 2002/96/EC. It is marked with the WEEE symbol. Thermo Fisher Scientific has contracted with one or more recycling/disposal companies in each EU Member State European Country, and this product should be disposed of or recycled through them. Further information on Thermo's compliance with this directive, the recyclers in your country and information on Thermo products will be available at www.thermofisher.com.

- 4 Always use the proper protective equipment (clothing, gloves, goggles, etc.)
- 4 Always dissipate extreme cold or heat and wear protective clothing.
- 4 Always follow good hygiene practices.
- 4 Each individual is responsible for his or her own safety.

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Section 1 Safety Information

Your Thermo Scientific EASYpure™ RoDi has been designed with function, reliability, and safety in mind. It is the user's responsibility to install it in conformance with local electrical codes.

This manual contains important operating and safety information. The user must carefully read and understand the contents of this manual prior to the use of this equipment. For safe operation, pay attention to Notes, Cautions, and Warnings throughout the 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 Thermo Scientific products. The specific safety notes pertinent to this 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 mount your 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.

Section 2 Introduction

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 from Technical Services.

The EASYpure RODI is designed to be a bench mounted unit. If wall mounting is required, refer to "Wall Mounting" on Section 5.



Section 3 General Specifications

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 the back of the unit be accessible to open 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: 100-240VAC, +5%, -10%, 47-63 Hz

Feedwater Requirements¹

Types¹ 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 CaCO₃)

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: . . ≥0.8 LPM with a new D3750 final filter
Bacteria:Less than 1 CFU/ml

RO System

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

RO Membrane PerformanceRejection

Inorganic (minimum)>90%
Inorganic (typical)>96%
Particles>99%
Bacteria>99%
Organics (>100 MW)>99%

¹ *Feedwater suitability must be determined by a water analysis*

² *500 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. We recommend the use of a hot water mixing valve before the RO system for water cooler than 15°C (59°F).*

Environmental Conditions

Indoor use only
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

We hereby declare under our 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 61000-3-3Limits for voltage fluctuations and flicker

EN 61326-1Electrical 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.

Copies of the Declaration of Conformity are available upon request.

Section 4 Unpacking

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

- a) EASYpure RODI 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) Power cords
- e) Operation Manual (LT1332X1)
- f) UV lamp (LMX13)
- g) Ventgard® filter cap (CV742X5A)
- h) Hose barb fitting (05930)
- i) Tube removal tool (AYX23)

Section 5 Installation

Water Connection Details

Note Figures 5-1 and 5-2 will be used at the connection to the atmospheric drain. s

Refer to the figures below when performing the procedures on the following page.

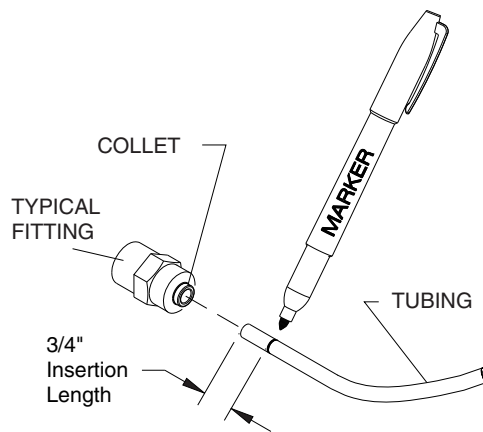


Figure 5-1. Tubing Installation

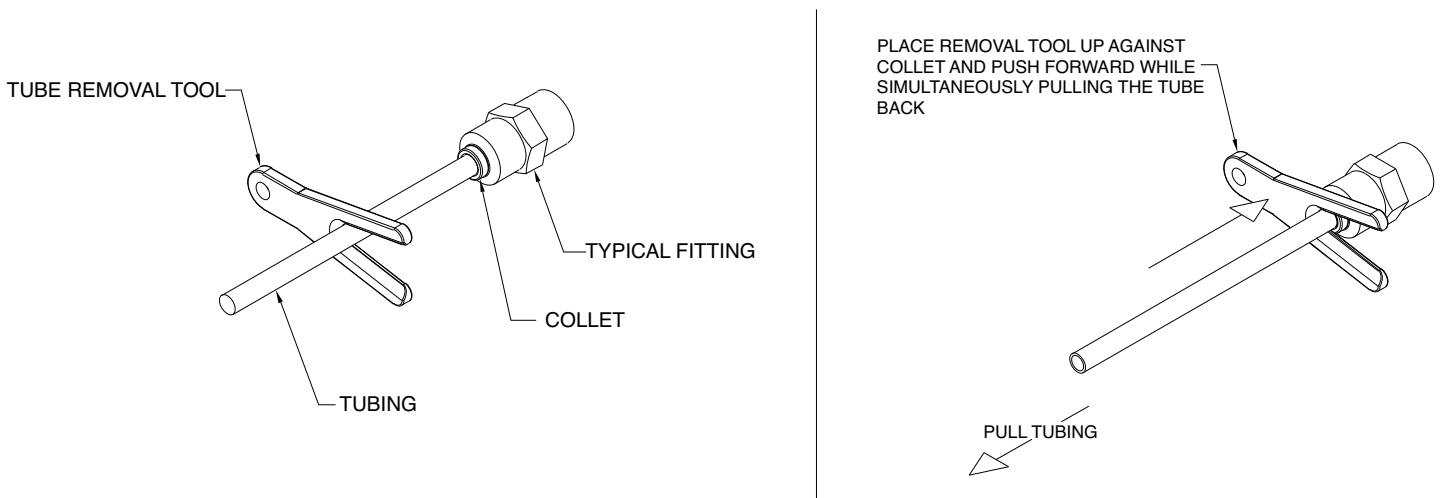


Figure 5-2. Tubing Removal

Push-to-Connect Fitting Tubing Installation

The following instructions will apply when you need to attach a piece of tubing to your EASYpure RODI 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 an insertion length of 11/16" from end of tube (Figure 5-1).
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.

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

Push-to-Connect Fitting Tubing Removal

1. Using the tool provided (Figure 5-2), push the collet toward the body while pulling on the tubing to release the tube.

Tubing Adapter Fittings

1. Completely disassemble the fitting. Refer to Figure 5-3 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 5-3. 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.

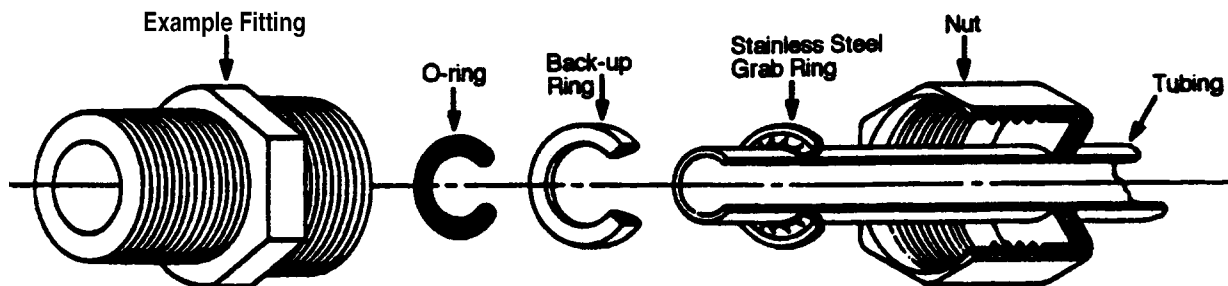


Figure 5-3. Typical Polypropylene Tubing Adapter Installation

Tubing Adapter Fittings (continued)

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. s

Quick Disconnect Fittings

These fittings are found on the water inlet. See Figure 5-4.

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

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 a click is heard. Gently pull on the tubing to verify it is secure.
3. To remove, press the metal thumbpad to release and pull coupling insert out.

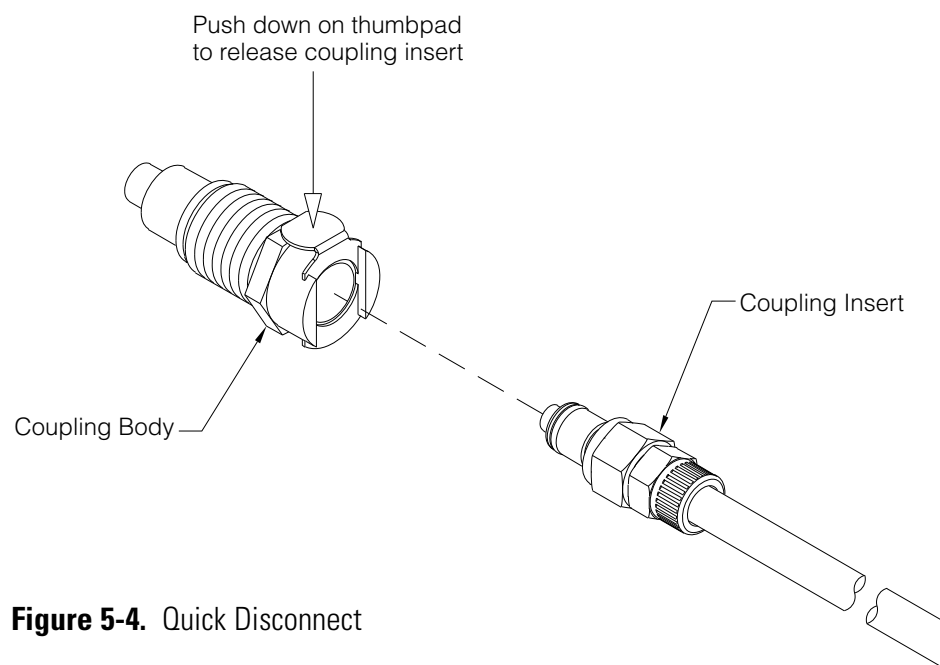


Figure 5-4. Quick Disconnect

Component Installation

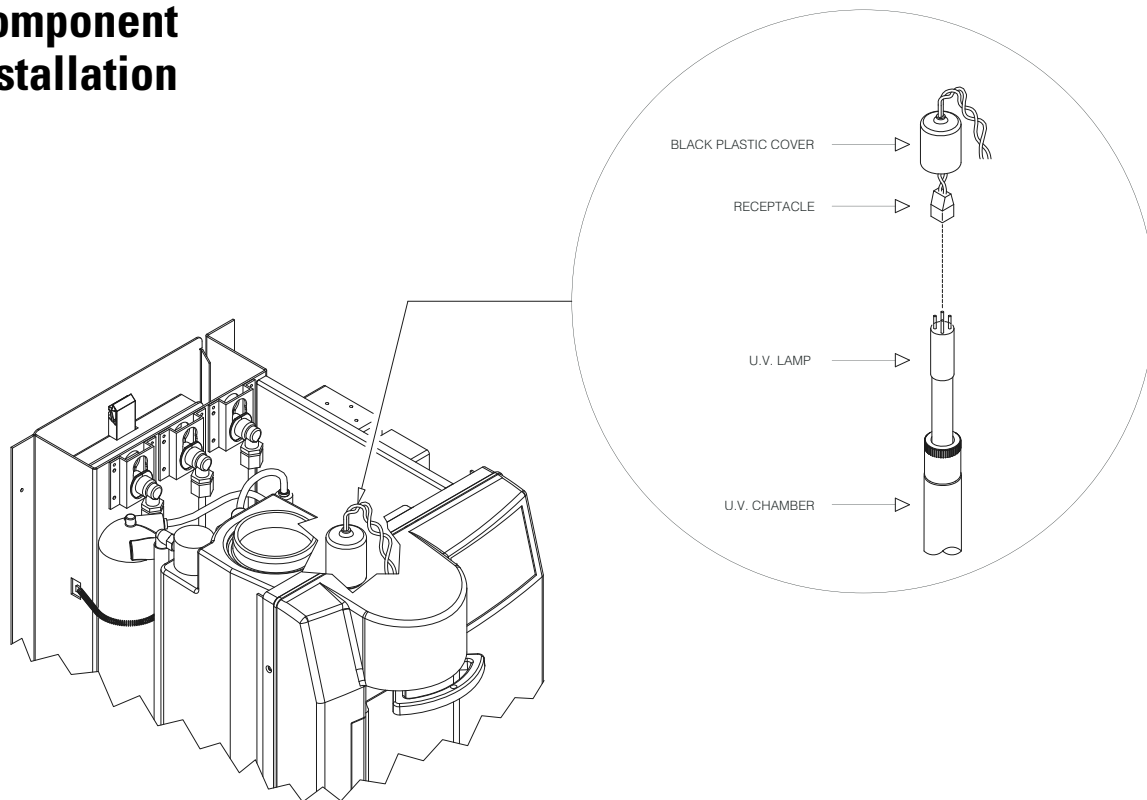


Figure 5-5. UV Lamp Installation

UV Lamp Installation

Before the EASYpure RODI is mounted, 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.

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

UV Lamp Installation (continued)

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.

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.

Reverse Osmosis (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. Refer to Figure 5-6.
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.

RO Membrane Installation (cont.)

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.

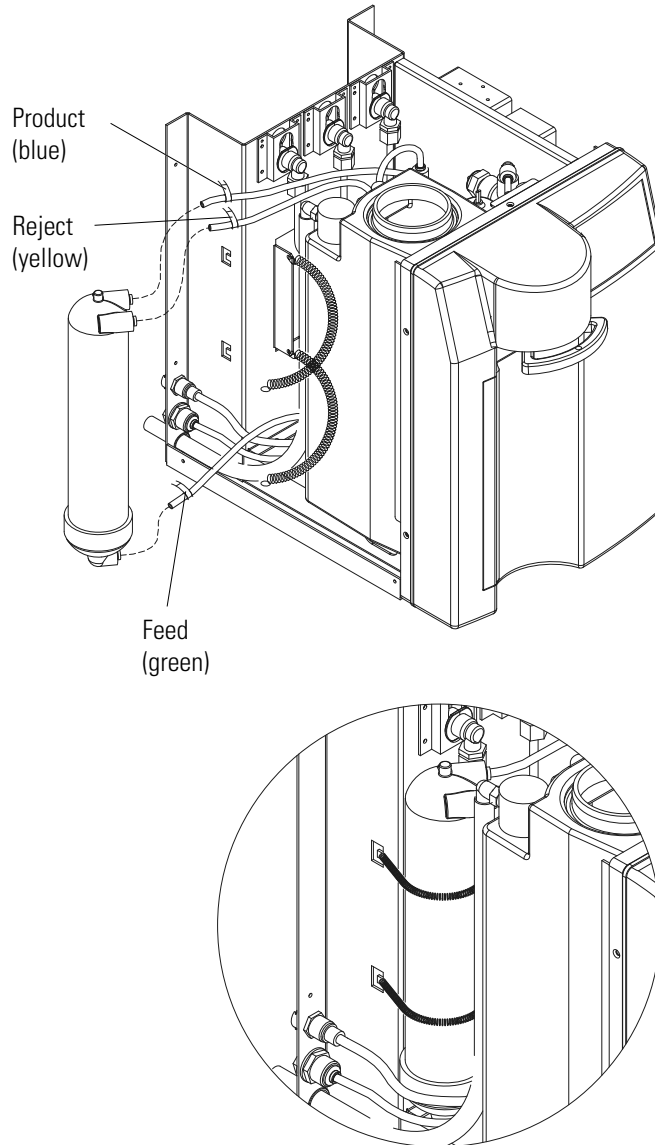


Figure 5-6. RO Membrane Installation

Initial Cartridge Installation

Refer to Figure 5-7 for the procedure below.

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 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 cartridge, placing it in position 2. Next, install the High Purity/Low TOC cartridge, placing it in position 3.
7. Close and latch cartridge access door. This serves to verify the cartridges have been properly seated.

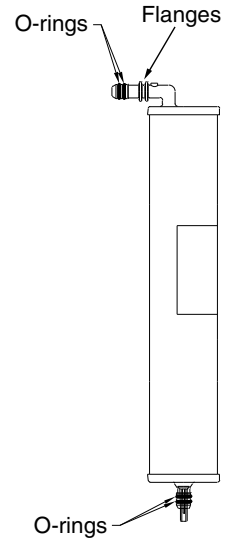


Figure 5-7. Installation

Caution 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.

Ventgard Cap Installation

The Ventgard cap is shipped as a complete unit; installation involves simply removing the new Ventgard cap from its plastic storage bag and placing it on the reservoir. Refer to the Maintenance section for further information.

Power Connections

1. The power cord connection is located on the upper right corner in the rear of the unit (see Figure 5-8).
2. Determine which power cord you need (this will be based on your country and outlets available in your lab). A 120V power cord with (2) 1.6 amp fuses and 240V power cords with (2) 0.63 amp fuses are provided with the unit.
3. Remove the fuse drawer, install the fuses included with the power cord to be used, and reinstall drawer.
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.

Warning Power unit OFF before unplugging unit. s

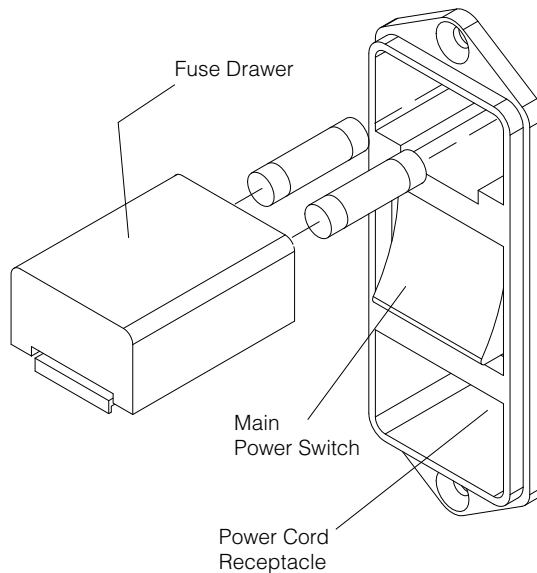


Figure 5-8. Power Connections

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.

To Reset Carbon Prefilter Timer (cont.)

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. s

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)

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 5-9.
3. Reinstall the four screws removed in Step 1 through the bottom of the wall bracket and into the EASYpure RODI.

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. s

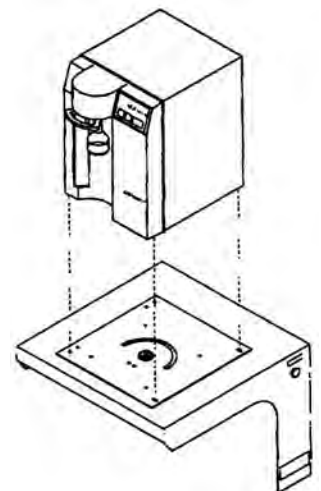


Figure 5-9. Swivel Base Orientation

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. A customer supplied shut-off valve is recommended 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.

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. s

Note Ensure the tubing has no kinks that could restrict water flow. s

Atmospheric Drain

The RO reject and flush water is sent to drain through this connection. Refer to Figures 5-10 and 5-11 on the following page.

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 **Push-to-Connect Fitting Tubing Installation** at the beginning of this section for more explicit details.

Overflow Drain

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.

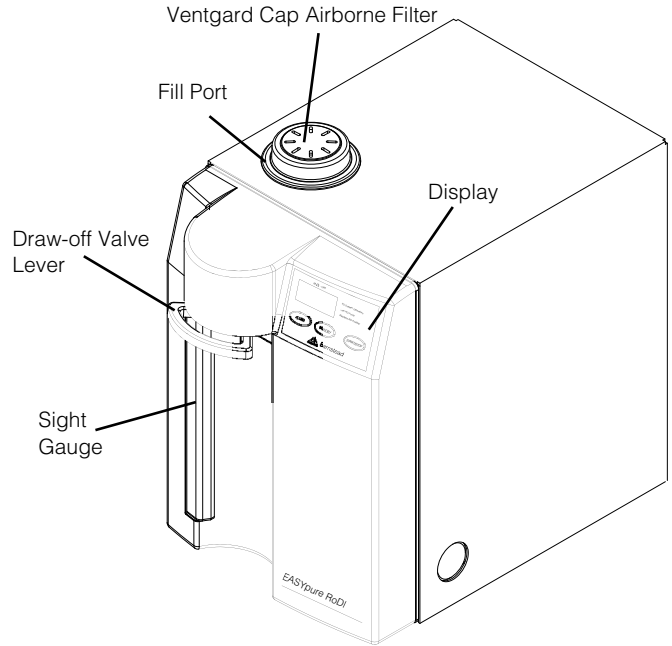


Figure 5-10. EASYpure RoDi Front

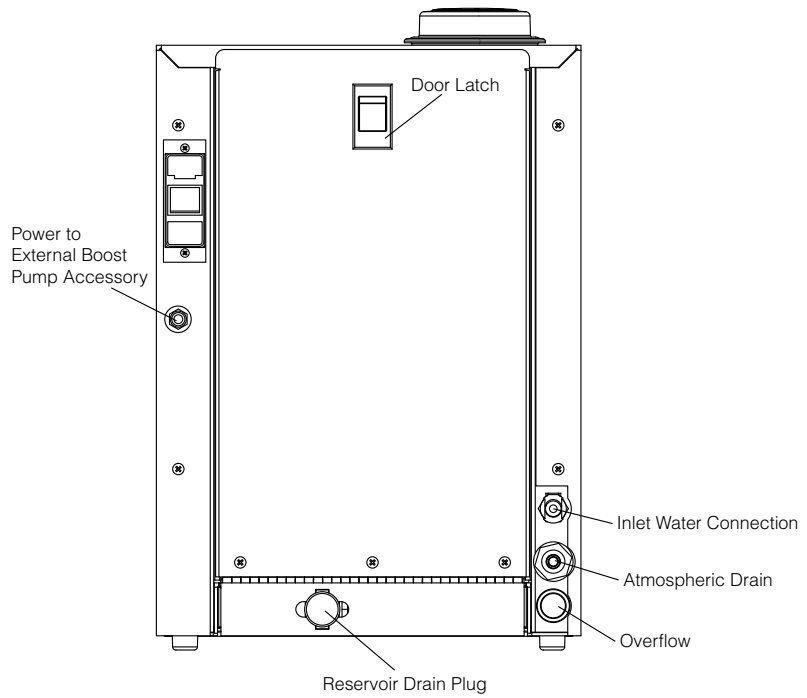


Figure 5-11. EASYpure RoDi Back (External Unit Connections)

Section 6 Controls and Normal Operation

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

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

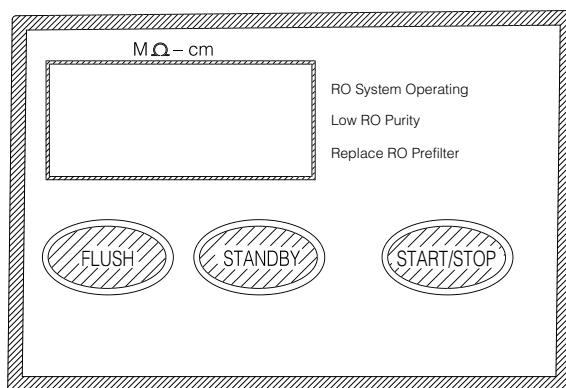


Figure 6-1. Control Panel

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 indicating the unit is running. Any number that appears after 10.0 indicates DI water purity. s

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.

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

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. s

Switches

Refer to Figure 6-1 on the previous page.

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 the flush was initiated.

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

Refer to Figure 6-1. In addition to displaying the temperature compensated (25°C) resistivity in M ohms-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. s

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.

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. s

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. s

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 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. s

Flush Mode

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.

Manual Flush (Reverse Osmosis 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 the flush was initiated.

Automatic Flush (Reverse Osmosis 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.

Section 6

Controls and Normal Operation

Dispensing Water From the 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.

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

Section 7 Initial Operation

Filling and Cartridge/ Membrane Rinse Up

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

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

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

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 could result in explosion and personal injury. s

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

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** in Section 5.)
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 if “Add” is displayed.

RO Membrane Rinse-Up (continued)

5. **Two 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 reinserted (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 drawoff 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.

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

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.

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Section 8 Normal 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 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 resistivity to rise to the desired purity before drawing off water.

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. s

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.

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. s

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 Figure 8-1). 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.

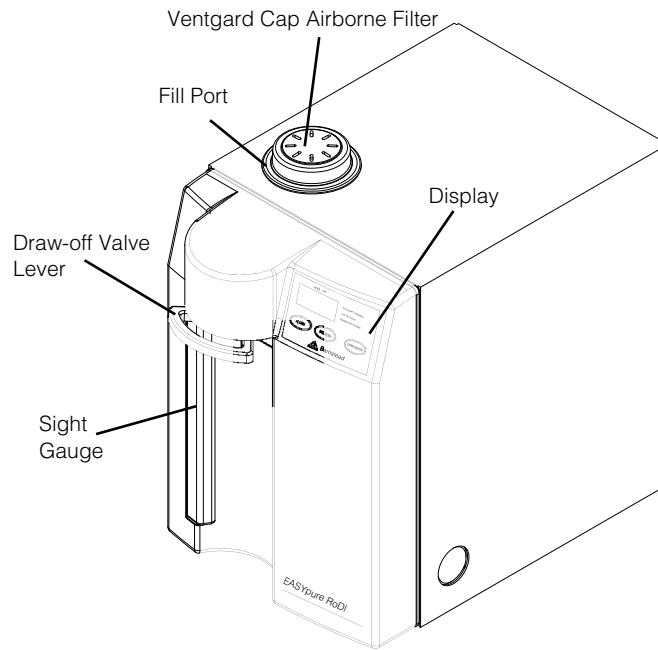


Figure 8-1. Sight Gauge Location

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. s

Section 9 Maintenance and Servicing

Warning Disconnect from 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. s

Frequency of cleaning will vary, depending on quality of feedwater and usage. Cleaning is necessary if any of the following occur; 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),
- b) hose barb used during initial installation.

Note Empty cartridges must be ordered separately. Contact Technical Services. s

System Cleaning

1. Remove cartridges from positions 2 and 3 and discard. Install empty cartridges according to the instructions in Cartridge Replacement (following in this section). 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.

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). s

System Cleaning (continued)

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. Remove the protective cover from the filter bell. Depress the draw-off lever. 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 procedure, 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 **DI Cartridge Replacement and Rinse Up** following in this 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** following in this section.

Cleaning the Resistivity Cell

Refer to Figure 9-1 below for this procedure.

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.

Warning Depressurize system prior to opening cartridge access door. s

Note Ensure you have the correct replacement o-ring available prior to cleaning resistivity cell. s

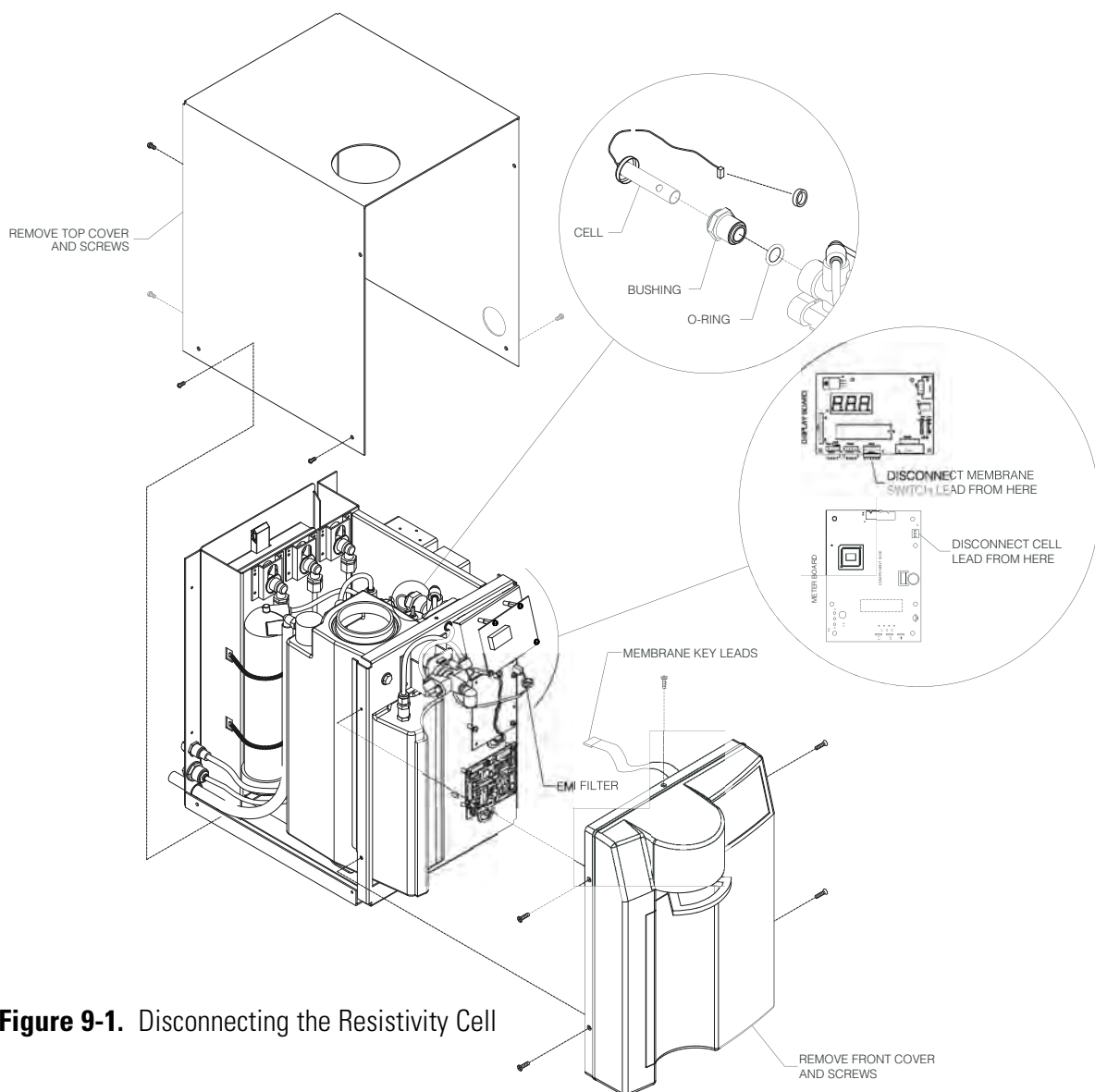


Figure 9-1. Disconnecting the Resistivity Cell

Cleaning the Resistivity Cell (continued)

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 manufacturer's 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.

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. s

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

12. After cleaning, reinstall with the replacement o-ring on cell.
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.

Cleaning the Resistivity Cell (continued)

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

Warning Disconnect from the power supply prior to maintenance and servicing. s

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

Component Replacement

Warning Refer servicing to qualified personnel. s

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. s

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. s

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

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. s

Note If your feedwater has large quantities of particulates, we strongly recommend installing/using a Thermo Scientific external pretreatment assembly in the feedwater line which contains a high volume 5 micron sediment cartridge along with anti-scalant. If in doubt about your feedwater, contact Technical Services for a W.A.T.E.R. sample test kit. s

RO Carbon Prefilter Replacement

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

1. Turn off the EASYpure RODI 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 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 **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.

DI Cartridge Replacement and Rinse-Up

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

Note Verify RO tank is full prior to cartridge replacement and rinse-up. s

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

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 drawoff 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 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. 9-2.
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 cartridge, placing it in position 3.

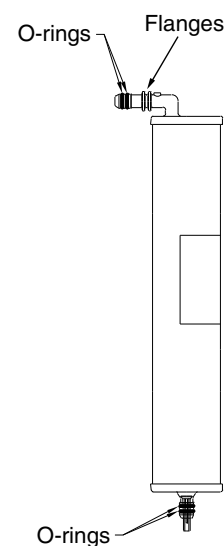


Figure 9-2. Installation

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

10. Close the cartridge access door.

DI Cartridge Replacement and Rinse-Up (cont.)

11. Install the hose barb into the fitting in the drawoff 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.

UV Lamp Replacement

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.

Refer to Figure 9-3 and follow the steps below to replace the ultraviolet lamp:

Warning Depressurize system prior to removing cover. s

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. s

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. s

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.

UV Lamp Replacement (continued)

4. Remove the screws securing the EASYpure RODI top cover.
5. Remove the top cover by lifting straight up.

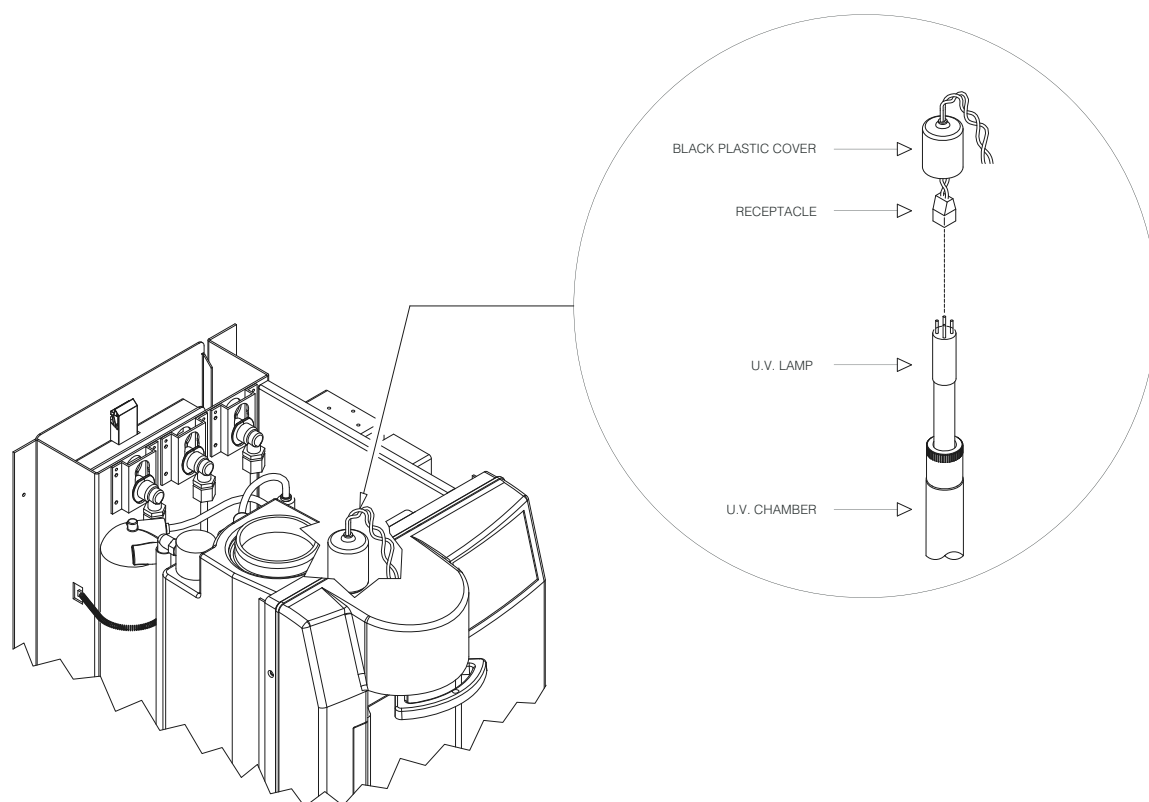


Figure 9-3. UV Lamp Installation

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 contains 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.

UV Lamp Replacement (continued)

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.

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

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. s

RO Membrane Replacement

Refer to Figure 9-4 for the procedure below.

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. s

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.

RO Membrane Replacement (cont.)

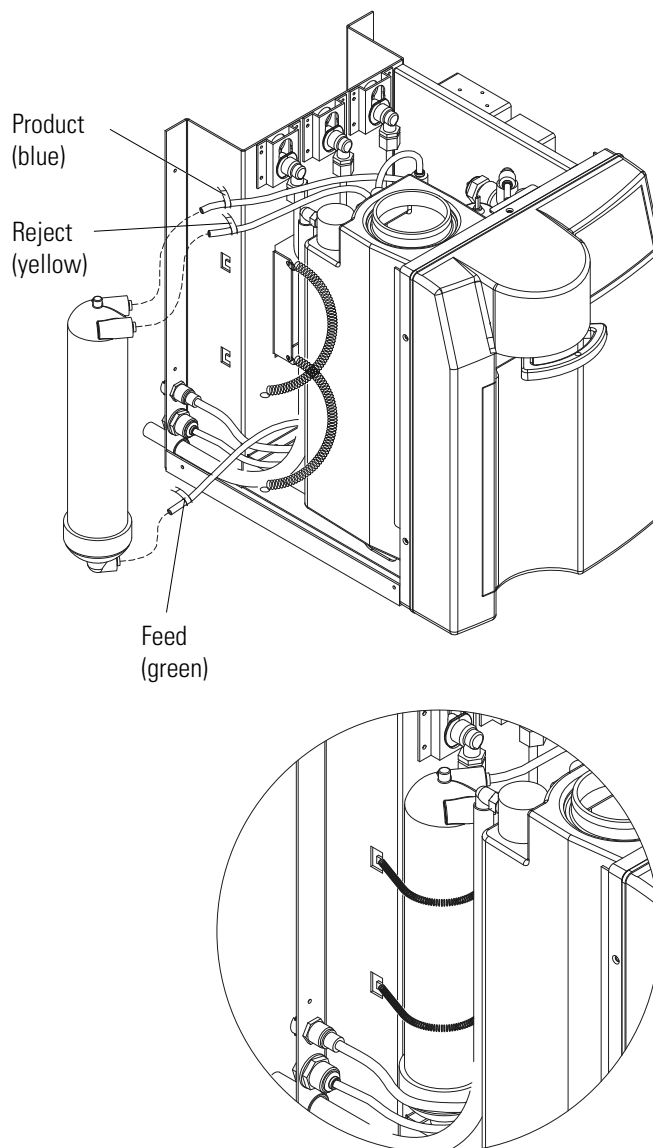


Figure 9-4. RO Membrane Installation

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.

RO Membrane Replacement (cont.)

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.

0.2 Micron Final Filter Replacement

Replace the 0.2 micron final filter whenever any of the following conditions occur: product water flow rate is reduced, 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.

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

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.

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.

Warning Replace fuses with those of the same type and rating. s

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

Section 9

Maintenance and Servicing

Unit Shutdown

If the EASYpure RODI 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, remove and discard cartridges and final filter. See **System Cleaning**, **Cartridge Replacement** and **0.2 Micron Final Filter Replacement** sections for reactivation.

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

Section 10 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 stand-by, "IdL" will normally be displayed.</p>	No electrical power to EASYPure RODI.	Ensure that the EASYPure RODI power cord is connected to a live power source and completely plugged into electrical outlet.
	Membrane key switch leads not connected.	Disconnect unit from power. Check and reconnect.
	Main power switch off.	Place to "On" position.
	Fuses blown or not installed properly. Check to make sure proper fuses were installed.	Replace the fuses as indicated in the Fuse Replacement section.
<p>Pump does not run. Display showing purity information.</p>	Loose wire connection to pump.	Ensure pump is properly connected to display/control.
	Display/control board is defective.	Call Technical Service.
	Pump worn out or defective.	Replace pump. Call Technical Service.
<p>Recirculated water will not rinse up to desired purity level.</p>	Exhausted cartridge	Replace the cartridge as indicated in the Cartridge Replacement section.
	Cartridges out of order.	Install the cartridges in the proper order as indicated in Cartridge Installation.
	Dirty resistivity cell.	Clean resistivity cell as indicated in the Maintenance and Servicing section.
	Water path restriction.	Check tubing for constriction (kinks) or blockages.
	Resistivity meter board out of tolerance.	Replace board. Call Technical Services.

Section 10
Troubleshooting

Problem (cont.)	Possible Causes (cont.)	Action (cont.)
0.2 micron final filter clogs rapidly after replacement.	Possible feedwater contamination.	Check that the service life of the RO membrane or RO carbon filter has not been exceeded. If not exceeded, call Technical Services for possible feedwater testing.
	Cartridges not properly rinsed up before use.	Rinse up cartridges as described in Cartridge Rinse-Up Procedures . Replace the 0.2 micron final filter assembly as indicated in 0.2 Micron Final Filter Replacement .
	EASYPure RODI contaminated with bacteria.	Clean EASYPure RODI according to the instructions in System Cleaning . Replace the 0.2 micron final filter assembly as indicated in 0.2 Micron Final Filter Replacement .
Short cartridge life.	Cartridges being used are beyond expiration date.	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.
	Change in feedwater characteristics.	Call Technical Services for possible feedwater testing.
	Increased product water usage.	Verify usage.
	RO membrane needs replacing.	Replace as described in Membrane Installation .
Water leakage inside EASYPure RODI	Loose connections.	Tighten connections.
	Tubing is not inserted completely.	Insert tubing completely. See Push-to-Connect Tubing Installation .
	Missing or defective cartridge o-rings.	Install or replace cartridge o-rings.
	Leak at cartridge.	Make sure cartridge access door is closed and latched.
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.)	Feedwater supply valve closed.	Open feedwater supply valve.
	RO prefilter plugged.	Replace RO prefilter.
	Solenoid valve not open.	Call Technical Services.
	Feed pressure below specification.	Increase pressure.
Low RO purity LED illuminated.	New RO membrane rinsing up.	Continue rinse-up.
	Improperly installed RO membrane.	Be sure RO membrane is installed properly.
Decrease in % rejection.	Fouled RO membrane.	Replace RO membrane.
Decrease in system productivity.	Decrease in water temperature.	If decline in flow rate is unacceptable, install feedwater temperature valve to elevate water temperature. Valve available by calling Technical Services.
	RO membrane fouled.	Replace RO membrane.
	Low incoming water pressure.	Be sure prefilter is not blocked. Increase incoming water pressure.
	Low RO membrane operating	Increase operating pressure. If pressure. needed, use Thermo Scientific accessory external pressure boost assembly.
RO prefilter plugs rapidly.	High turbidity feedwater.	Call Technical Services. If needed, use Thermo Scientific accessory External Filter Assembly with gauges. This contains high volume 5 micron particulate filtering in conjunction with membrane anti-scalant.

Error Conditions

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

¹ See *Wiring Diagram*

Section 11 Replacement Parts

Consumable parts are those required to support the day-to-day operation of this equipment. We established 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, we recommend 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 Technical Services representative for additional information on the expendables kit.

Ordering Procedures

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 Thermo Scientific dealer from whom you purchased this unit or can be obtained promptly from the factory. When service or replacement parts are needed, check first with your dealer. If the dealer cannot process your request, then contact our Technical Services Department.

Prior to returning any materials, contact our Technical Services Department for a "Return Materials Authorization" number (RMA). Material returned without an RMA number will be refused.

Section 11
Replacement Parts

Description	Catalog No.	Recommended Qty.	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 ¹	D50229	1	2 years
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

¹This 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. s

General Maintenance

General maintenance parts are defined as laboratory level repair parts which do not require great expertise or special tools for installation. We recommend that the general maintenance parts be stocked 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, we recommend 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 Assy	PU1286X1	1
Resistivity Cell	E703X1A	1
Resistivity Cell O-ring	GSX29	1
Draw-Off Valve Assy	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

Section 12 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:

- Pump housing (1)
- Plumbing adapters (2)
- 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 of the 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.

Installation Instructions (continued)

4. Carefully and cleanly cut the EASYpure RODI feedwater 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° 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 feedwater with high particulate and/or high scaling contaminants. If in doubt contact Technical Services for possible feedwater testing.

Accessory kit includes:

- Filter housing (1)
- Plumbing adapters (2)
- Pressure gauges (2)
- Filter/Antiscalant assembly (1)
- Wall bracket (1)
- 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 Filter Connection drawing following. (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.

Installation Instructions

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 RODI system and operate normally.

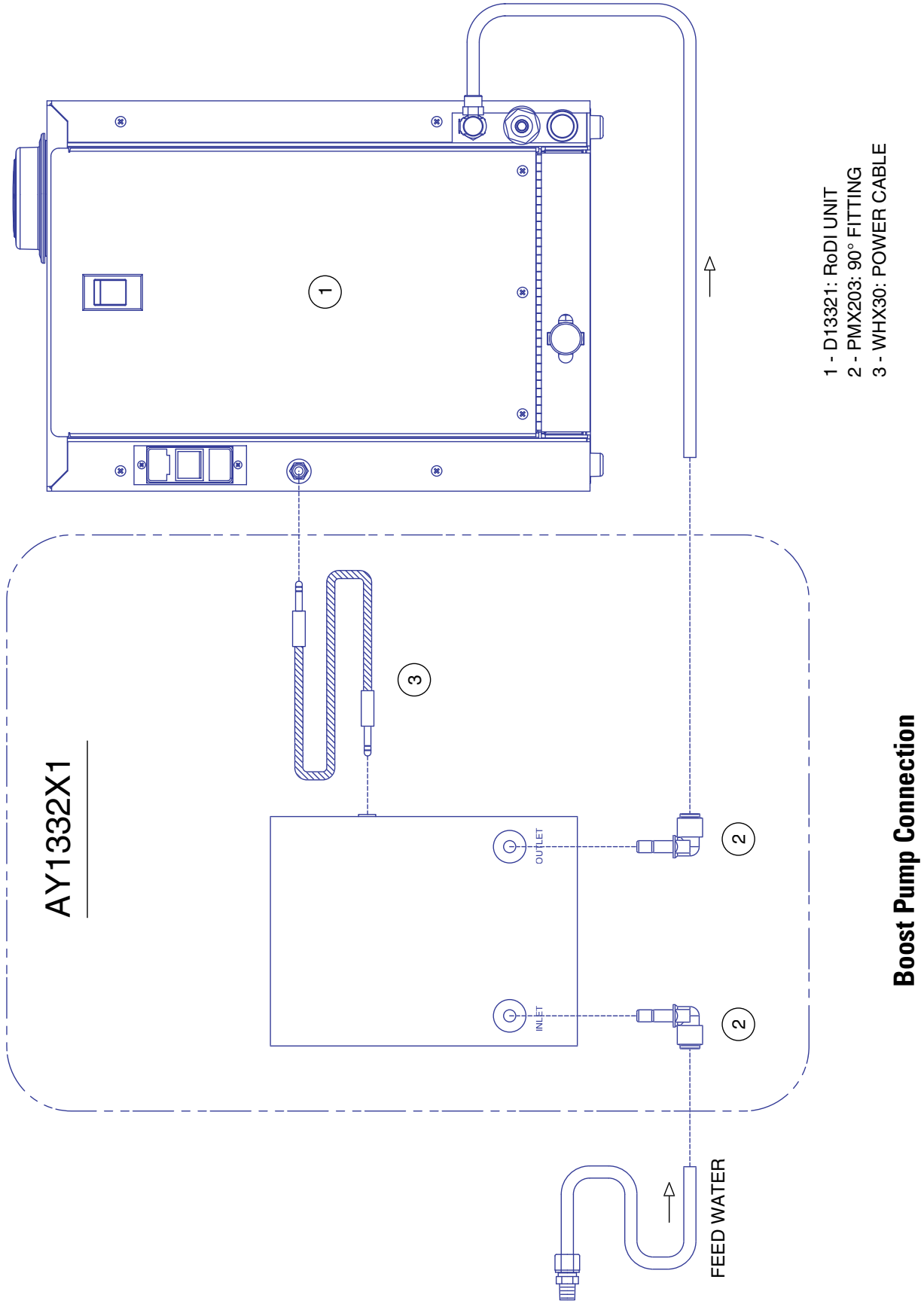
Filter/Antiscalant Cartridge Exchange

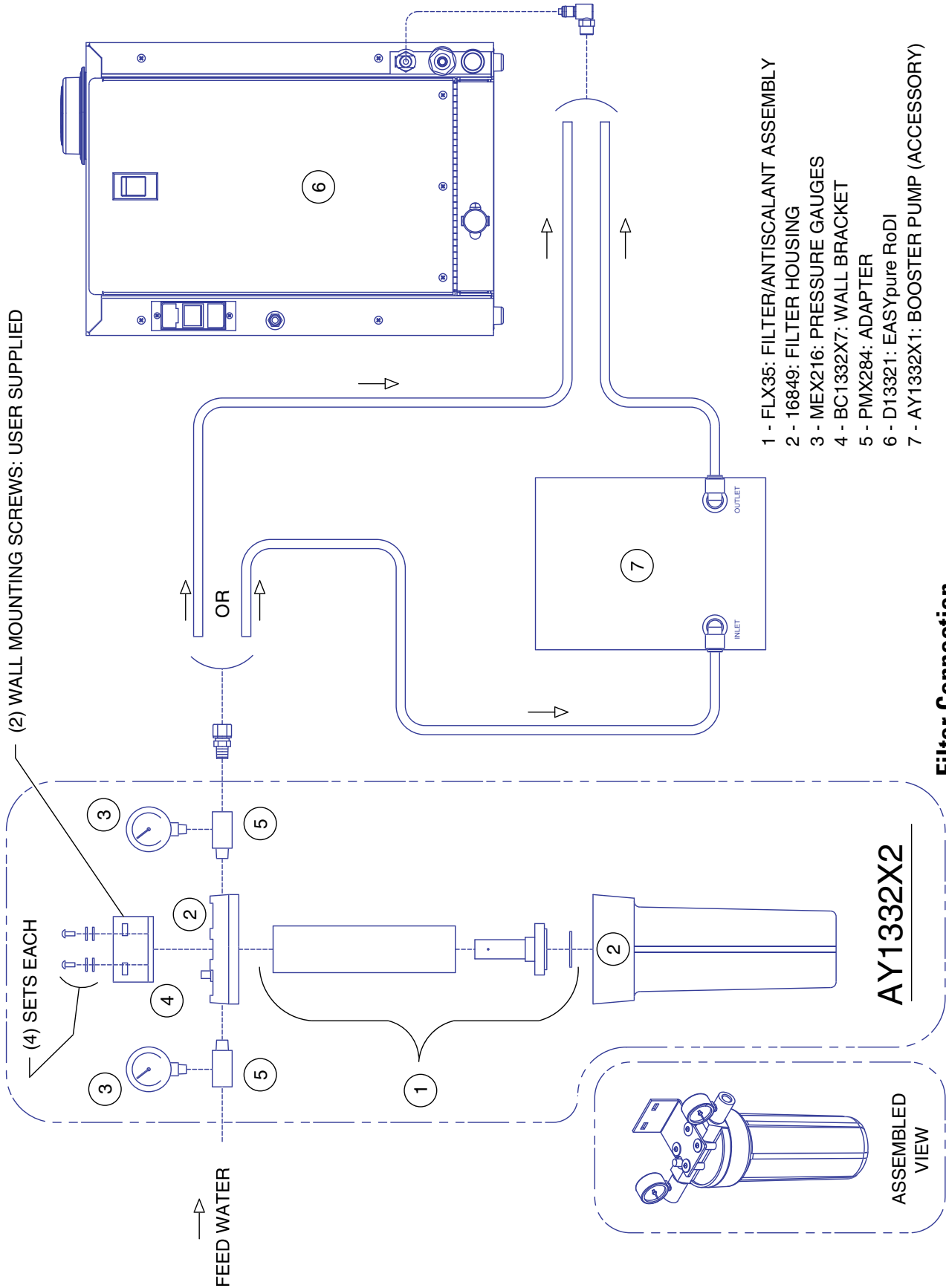
Filter/Antiscalant cartridge should be exchanged whenever inlet-outlet pressure difference exceeds 10psi (0.69 bar).

1. Turn power off to the EASYpure RODI 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.

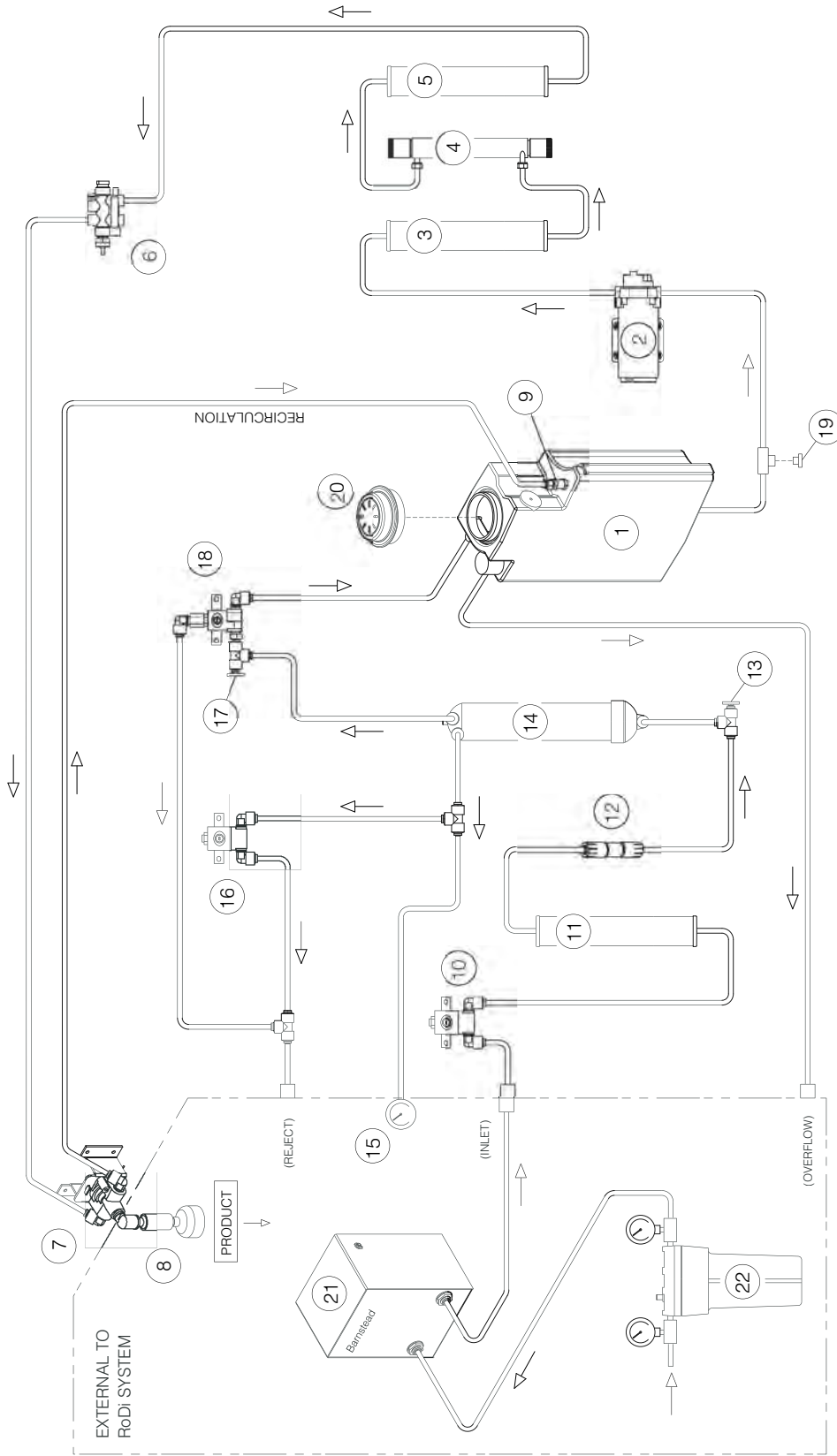
Important – be sure the end with the Antiscalant insert (which includes a gasket) is installed down into the housing so that it will NOT compress against the upper housing cover when the housing is reattached. s

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.





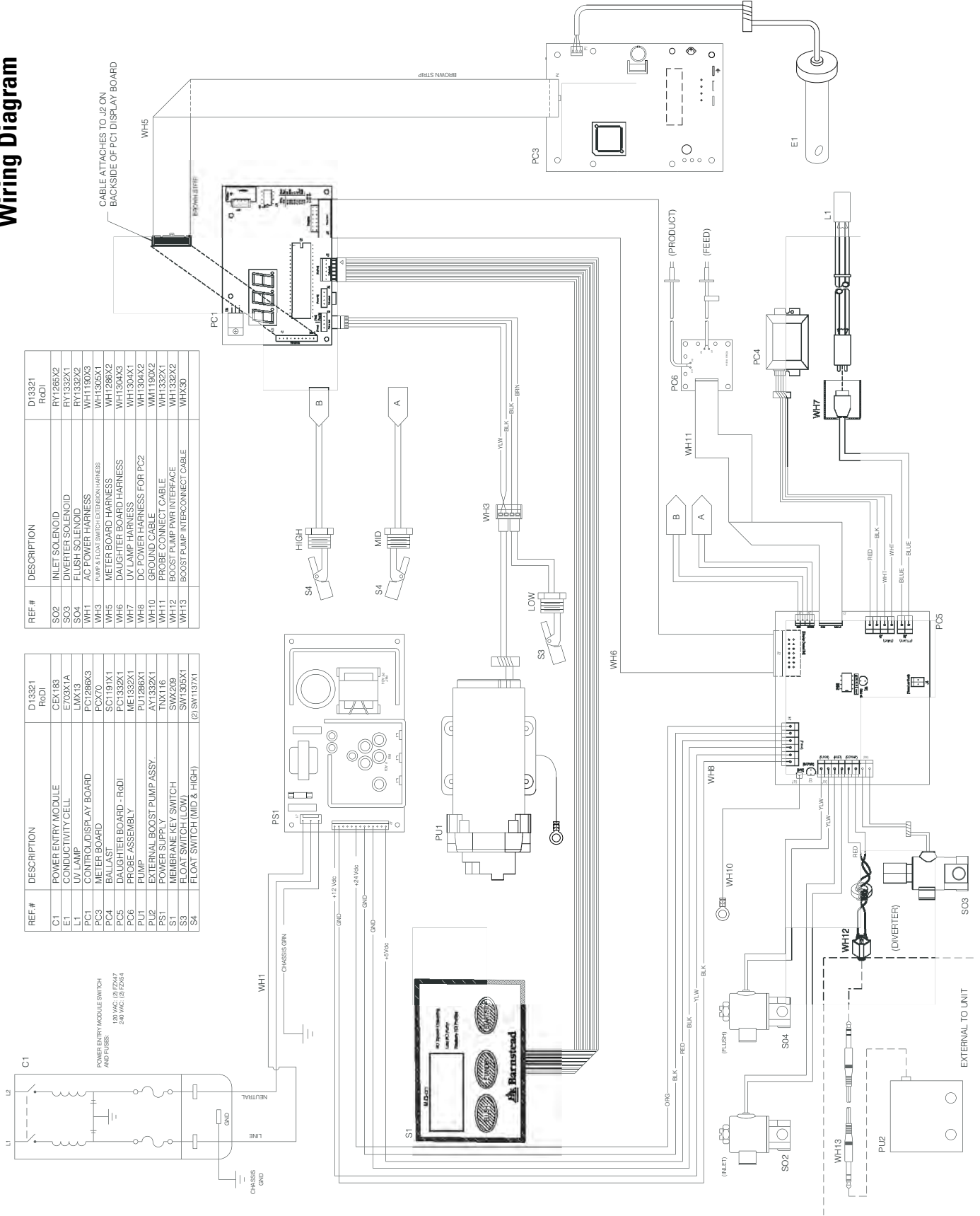
Water Process Flow Diagram



- 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"

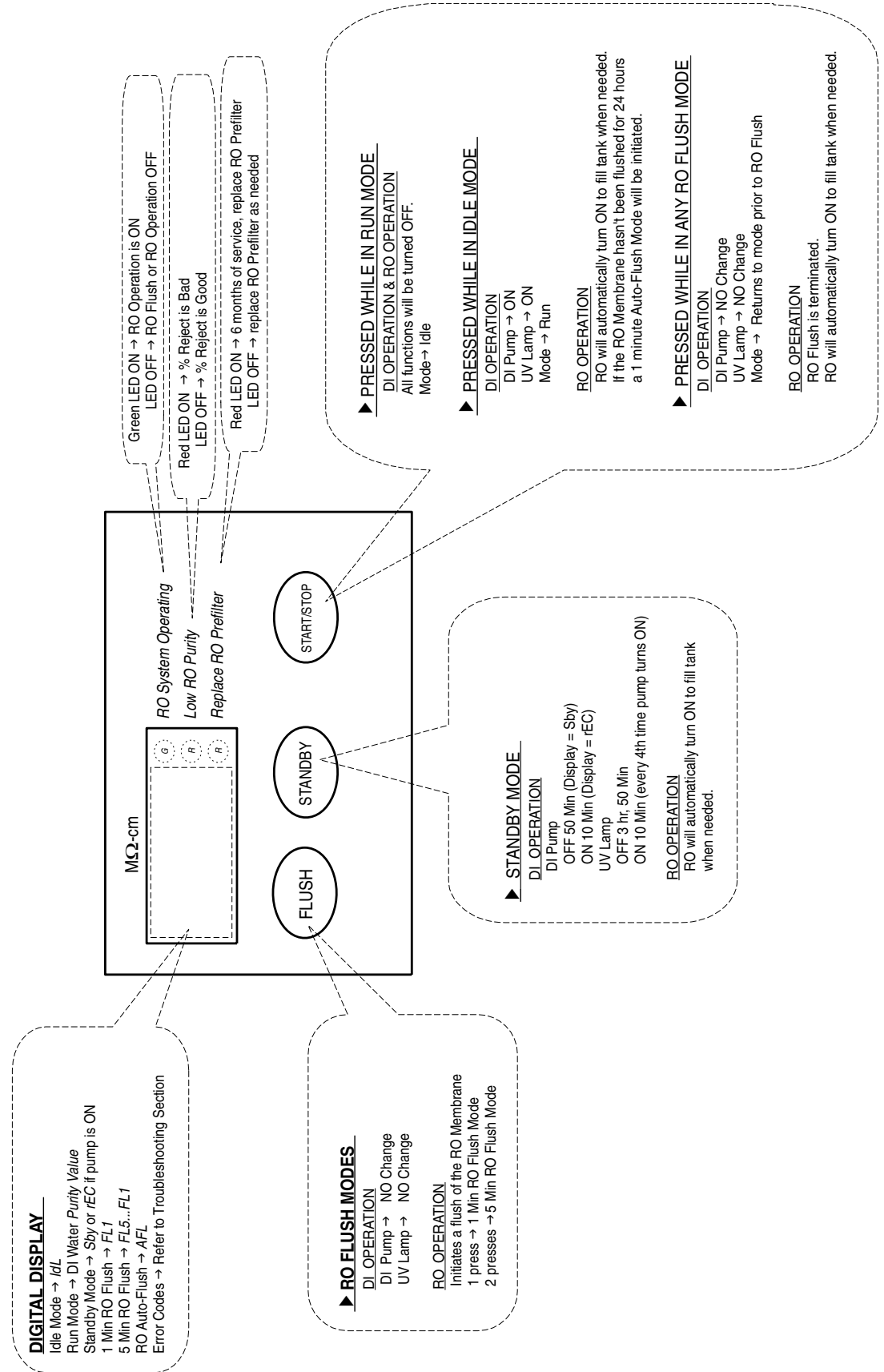
Wiring Diagram



REF.#	DESCRIPTION	D13321 RoDi
S02	INLET SOLENOID	RY7285X2
S03	DIVERTER SOLENOID	RY7332X1
S04	AC SOL ENOID	RY7332X1
WH3	PUMP & BALLAST SWITCH EXPANSION HARNESS	WH1305X1
WH4	METER BOARD HARNESS	WH1286X2
WH5	UV LAMP HARNESS	WH1304X3
WH6	DC POWER HARNESS FOR PC2	WH1304X2
WH10	GROUND CABLE	WH1190X2
WH11	PROBE CONNECT CABLE	WH1332X1
WH12	BOOST PUMP PWR INTERFACE	WH1332X2
WH13	BOOST PUMP INTERCONNECT CABLE	WH1X30

REF.#	DESCRIPTION	D13321 RoDi
C1	POWER ENTRY MODULE	CEX103
E1	CONDUCTIVITY CELL	E703X1A
PC1	CONTROL DISPLAY BOARD	PCY1813
PC2	METER BOARD	PCY180X3
PC3	METER BOARD	PCY180X3
PC4	BALLAST	SC1191X1
PC5	DAUGHTER BOARD - RoDi	PC1332X1
PC6	PROBE ASSEMBLY	ME1328X1
PUI	PUMP	PU1286X1
PS1	EXTERNAL BOOST PUMP ASSY.	AY1332X1
S1	POWER SUPPLY	TNX116
S3	MEMBRANE KEY SWITCH	SWX209
S4	FLOAT SWITCH (LOW)	SW1305X1
S4	FLOAT SWITCH (MID & HIGH)	(2) SW1137X1

User Interface Diagram



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