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BARNSTEAD|THERMOLYNE CORPORATION

**EASYpure™ UF**  
OPERATION MANUAL  
AND PARTS LIST  
*Series 1054*

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# Safety Information

## Safety Information

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

### Alert Boxes



#### **WARNING**

Warning alerts apply when there is a possibility of personal injury.



#### **CAUTION**

Caution alerts apply when there is a possibility of damage to the equipment.



#### **NOTE**

Notes alert the manual user to pertinent facts and conditions.

## **Warnings**

### **WARNING**

To avoid electrical shock, always:

1. Use a properly grounded electrical outlet of correct voltage and current handling capacity.
2. Do not locate the EASYpure UF 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. Disassembly of water lines and removal of cartridges will result in water spillage. Electrical shock hazard could result.
5. 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. This device is to be used with water feeds only. Sanitizing/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.
3. Avoid splashing disinfecting solutions on clothing or skin.
4. Ensure all piping connections are tight to avoid chemical leakage.
5. Ensure adequate ventilation.
6. Carefully follow manufacturer's safety instructions on labels of chemical containers and material safety data sheets.
7. Depressurize system prior to opening cartridge access door.
8. Refer servicing to qualified personnel.

# Introduction

## Introduction

The Barnstead EASYpure UF is a line-fed water purification system designed to provide Type I reagent-grade water. It uses a three-stage deionization process combined with a 10,000 molecular weight cutoff ultrafilter and a 0.2 micron filter to polish pretreated water (distilled, deionized, or reverse osmosis) to produce pyrogen-free (<0.005 EU/ml) water with a resistivity of up to 18.3 megohms-cm. Water resistivity is continuously sensed by a resistivity cell and displayed on a digital display. The EASYpure UF is designed to automatically clean the ultrafilter by flushing water through the filter and to drain for one minute every twenty-four hours.

## General Usage

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

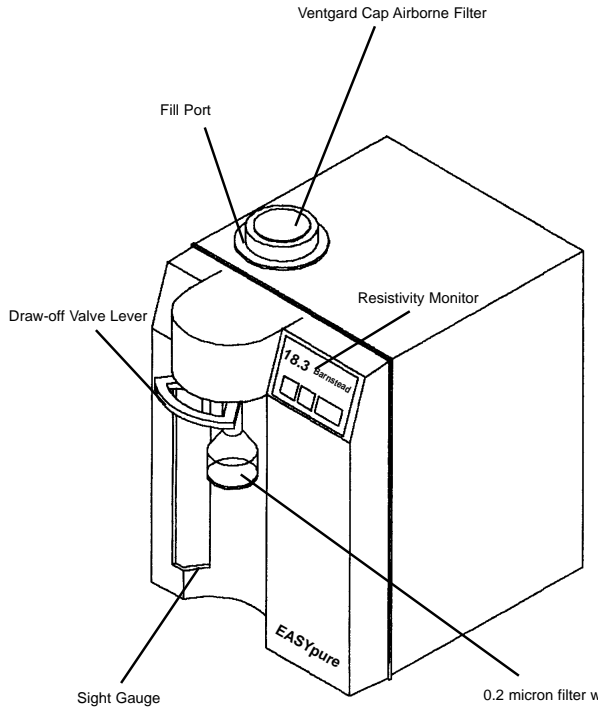


Figure 1 EASYpure UF Front

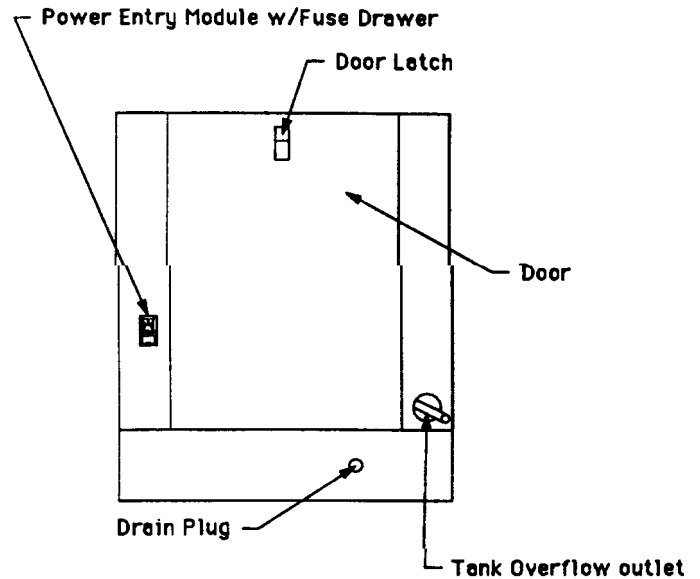


Figure 2 EASYpure UF Back

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# Specifications

## Dimensions and Clearance Requirements.

EASYpure UF dimensions - 12" W X 19" D X 17 1/8" H (30.5 cm X 48.3 cm X 43.5 cm).

### Clearances:

Sides - 4" (10.2 cm) minimum to allow air flow.

Above - 12" (30.5 cm) minimum for removal of the top cover.

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

## Feedwater Requirements

The EASYpure UF requires water pretreated by either distillation, deionization or reverse osmosis meeting the following criteria.

**TOC** - Less than 1.0 ppm.

**Turbidity** - 1.0 N.T.U. maximum

**Temperature** - 40°F - 120°F (4.4°C - 48.8°C)

### Resistivity (Minimum):

Distilled - 300,000 Ohms-cm

Deionized - 1.0 Megohms-cm

Reverse Osmosis - 50,000 Ohms-cm

Pressure: Gravity - 100 PSIG

## Product Water

### Quality

Resistivity: ASTM Type I

TOC: Less than 10 ppb

Endotoxin: Less than 0.005 EU/ML

Flow Rate: 1.5 LPM at 30 PSIG inlet feed water pressure at 60 Hz and with a new final filter.

## Electrical Requirements

The EASYpure UF is equipped with a power cord to be plugged into an electrical outlet of the appropriate voltage. A dedicated inlet line voltage source is recommended.

Model D7411 - 120 VAC +5%, -10%, 47-63 Hz.

Model D7412 - 240 VAC +5%, -10%, 47-63 Hz.

Model D7412-33 - 230 VAC ±10%, 47-63 Hz.

Model D7413 - 100 VAC +5%, -10%, 47-63 Hz.



## WARNING

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

## Environmental Conditions

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

Altitude limit: 5,000 meters.

Storage: -25°C to 65°C; 20% to 80% relative humidity.

## **Declaration of Conformity**

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

EMC: EN 50081-1 Generic Emission Standard;  
EN 50082-1 Generic Immunity Standard;

Safety: IEC 1010-1-92 Safety requirements for electrical equipment for measurement, control and laboratory use; Part 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:

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

Copies of the declaration of conformity are available upon request.

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# Unpackaging and Installation

## Unpackaging and Installation

1. Remove the unit from its shipping container. Ensure that the ultrafilter, feed and reject tubing, final filter, sanitization cartridges, adapter and power cord are removed from the packaging materials before discarding.



### NOTE

Cartridges are not provided with the EASYpure UF and must be ordered separately.

Description	Catalog Number
Pretreatment Cartridge DI Feed	D50230
Pretreatment Cartridge RO/Distill Feed	D50231
EASYpure High Purity/Low TOC Cartridge	D50229
Ultrapure Mixed Bed Cartridge	D50233



# Tubing Adapter Installation

## Tubing Adapter Installation

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

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 back-up 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 back-up 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.

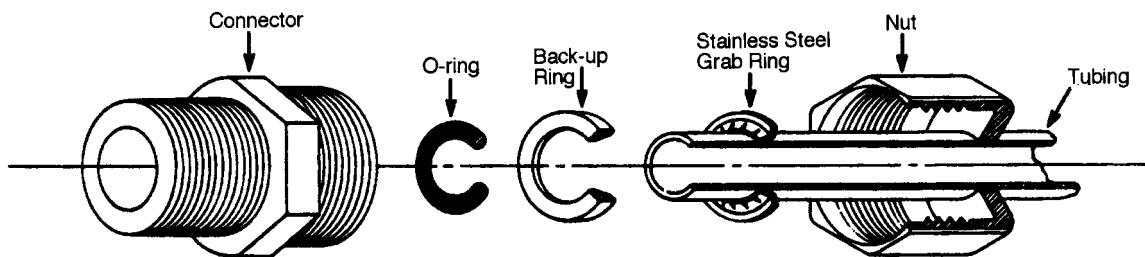


Figure 3 Typical Polypropylene Tubing Installation

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# Bench Mounting



## WARNING

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

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.



## NOTE

If you purchased a wall mount bracket for the EASYpure UF, refer to the Wall Mounting section of this manual.



## NOTE

The outlet of your storage reservoir must be above or at the same level as the inlet of the EASYpure UF.

## Bench Mounting

1. Place the EASYpure UF on a bench top convenient to your work area, noting the Clearance Requirements.

### Feedwater Connection

1. Locate the length of  $\frac{3}{8}$ " O.D. tubing provided with a quick disconnect insert on one end and a  $\frac{3}{8}$ " O.D. X  $\frac{1}{4}$ " NPT tubing adapter on the other.
2. Install the  $\frac{3}{8}$ " O.D. X  $\frac{1}{4}$ " NPT tubing adapter onto your incoming water line. We recommend a customer supplied shut off valve be installed in your feed water line. Do not connect the feedwater to your EASY pure UF until you are told to do so. (See Initial Operation.)

### Reject Water Connection

When the EASYpure UF flushes its membrane, the water used is sent to drain through this connection. To install:

1. Locate the reject water tubing. This is the piece of  $\frac{1}{4}$ " O.D. tubing that has an adapter on one end and no connector on the other end. Remove the nut, grab ring, backup ring and o-ring from the reject water fitting located at the lower right of the unit. (See Figure 3 for part identification and Figure 2 for fitting location.)
2. Follow the instructions under Tubing Adapter Installation and connect the reject water tubing to the reject connection on the EASYpure UF.
3. Route the other end of the reject water tubing (the end with the adapter installed) to an atmospherically vented drain. Ensure there are no kinks in the tubing and that it proceeds in a downward plane. If possible, use the tubing adapter to permanently install the reject water tubing in the drain.

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# Wall Mounting



## WARNING

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

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.



## CAUTION

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



## NOTE

The outlet of your gravity feed storage reservoir must be above or at the same level as the inlet of the EASYpure UF.

## Wall Mounting

Install the wall bracket on the wall in a location that is accessible to water and convenient to use. A minimum of 4 fasteners must be used.

1. Remove the pump interlock plug from the rear of the unit.
2. Open cartridge access door in the rear of the unit.
3. Remove the cover of the EASYpure UF by removing the screws that secure it to the unit and lifting it straight up.
4. Remove the four feet from the EASYpure UF and retain the screws.
5. Place the EASYpure UF with the ultrafilter installed 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 UF.

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## WALL MOUNTING

6. Install the four screws removed in step 7 through the bottom of the wall bracket and into the EASYpure UF.
7. Replace the EASYpure UF cover.
8. Reinstall the pump interlock plug.



### NOTE

Install the ultrafilter at this point, prior to installing the EASYpure UF on the wall bracket. See Ultrafilter Installation on page 9 of this manual.

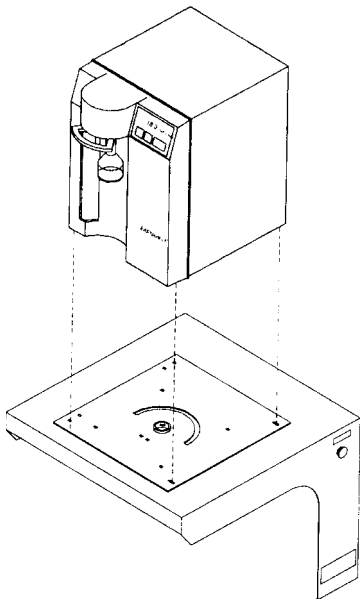


Figure 4 Orientation of Swivel Base

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# Ultrafilter Installation

## Ultrafilter Installation

Install the ultrafilter as follows:

1. If you have not already done so, remove the screws securing the EASYpure UF's cover. **Remove the cover.**
2. Remove the "T" securing the three pieces of tubing in the center of the EASYpure UF. (These pieces of tubing are the ultrafilter feed, reject and product lines. The reject and product tubing nuts are labeled.) Ensure that the nut, stainless-steel grab ring, back-up ring and o-ring from each connection remain on each piece of tubing. Dispose of the "T" once you have removed it.
3. Remove the ultrafilter from its protective bag.
4. Identify the feed, product and reject connectors on the ultrafilter. The feed connector is the solitary one on one end of the ultrafilter. Hold the ultrafilter so the feed connector is on the bottom and the two connectors on the top face you. Viewed this way, the product connector is the one on the left. The reject connector is the one on the right.
5. Remove the nut, stainless steel grab-ring, back-up ring and o-ring from each of the ultrafilter connections and discard. Connect the ultrafilter feed, reject and product lines to their respective connectors on the ultrafilter. Ensure that the stainless-steel grab ring, back-up ring and o-ring from each connector remain on each piece of tubing. Tighten the connectors by hand; do not use a wrench.
6. Press the ultrafilter into the ultrafilter securing clip inside the EASYpure UF case. Ensure that you maintain the proper orientation of the ultrafilter during installation, with the feed connection on the bottom and the reject and product connections on the top.
7. Replace the EASYpure UF cover and secure it with the screws removed in step #1. If you are wall mounting the EASYpure UF, return to step #4 of Wall Mounting. When you are finished mounting the unit, proceed with Initial Sanitization. If you are bench mounting the unit, proceed with Initial Sanitization now.



### WARNING

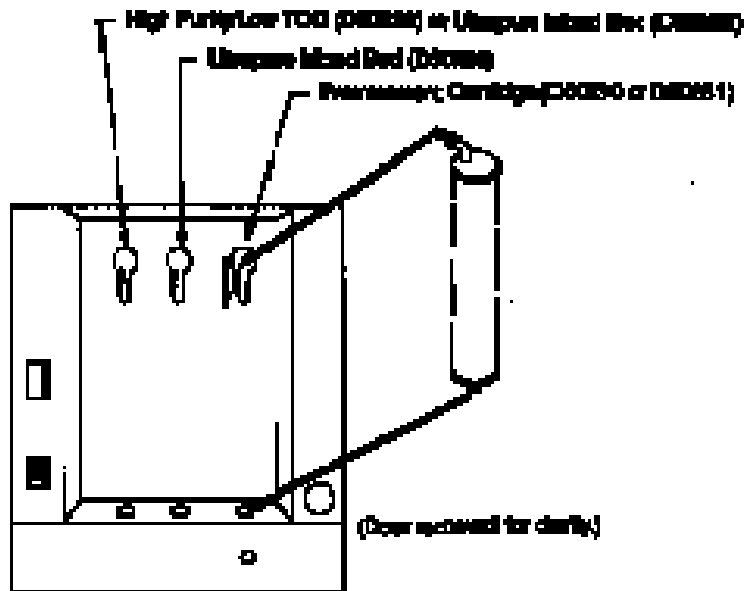
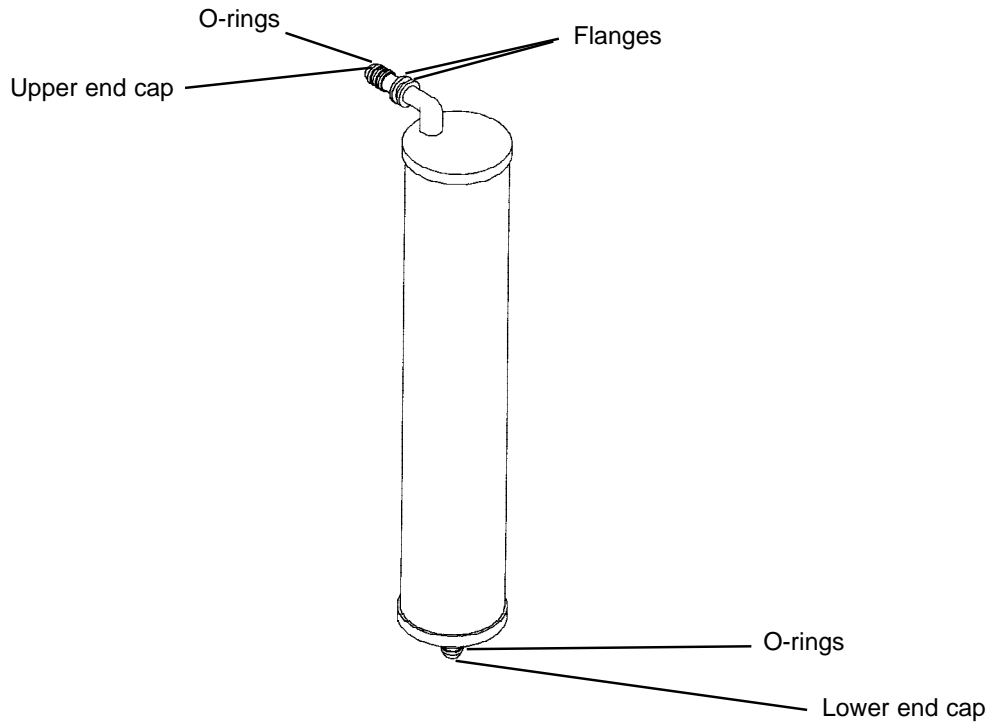
A small amount of 2.0% hydrogen peroxide is used to preserve the filter during storage. When removing the ultrafilter from the bag, ensure adequate ventilation and wear protective gloves and glasses.



### NOTE

The ultrafilter comes complete with fittings installed.

## ULTRAFILTER INSTALLATION



1. Wet O-rings on cartridge.
2. Insert upper cartridge end cap into upper socket in housing.
3. Slip upper cartridge end cap down in housing.
4. Finally insert lower cartridge end cap into lower socket.

Figure 5 Cartridge Installation

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# Main Power

## **Main Power Switch**

The main power switch on the EASYpure UF is located on the back right of the unit (as you face the front of the unit), directly above the power cord receptacle. This switch must be on for the unit to operate.

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# Control Panel

## Control Panel

The EASYpure UF is controlled through a control panel which incorporates three button switches, three indicating LED's and a digital display.

### Switches

The three switches on the control panel function as follows:

**START/STOP** - When the main power switch is on, pressing the START/STOP switch will start the pump and energize the display,. When the EASYpure UF is in Standby mode, pressing the START/STOP switch will return the unit to run mode. (See Modes below.)

**Standby** - When the EASYpure UF is in run mode, pressing the Standby switch will place the unit in Standby mode. (See Modes below.)

**Flush** - When the main power switch is on, pressing the Flush switch **once** will initiate a **one** minute flush of the ultrafilter. During this one minute flush, water is sent to drain through the reject tubing, the Manual/Extended Flush LED will be lit, and the display will be dark. If you press the Flush switch **twice**, the EASYpure UF will initiate a **five** minute flush. During this five minute flush, water is sent to drain through the reject tubing, the Manual/Extended Flush LED will flash, and the display will be dark. We recommend the you initiate a one minute manual flush when starting up the EASYpure UF prior to your day's work.



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# Display

## Display

When the EASYpure UF is in run mode, the display indicates the purity (in megohms-cm) of the water available for draw off. When the EASYpure UF is in Standby mode, the display will be dark and the Standby LED will be lit. When the EASYpure UF is in a Flush mode, the display will be dark and the Manual/Extended Flush LED will be lit or flash. If the display indicates anything else, see the Troubleshooting section of this manual.

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# Operational Modes

## Operational Modes

### Run and Standby 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 UF has two operational modes.

In the run mode, the pump continuously recirculates water through the cartridges. This is the mode that the unit enters upon startup. If water will be drawn from the EASYpure UF on a continuous basis throughout the day, it is recommended that the EASYpure UF be left in the run mode. In the run mode, the purity meter display indicates the resistivity of the water available for draw off.

In standby mode, the pump runs for ten minutes out of every hour (i.e. ten minutes on, fifty minutes off). If water will be drawn from the unit only infrequently, it is recommended that the unit be put into standby mode. To put the unit into standby mode, press the "STANDBY" switch on the front of the unit. The display will be dark and the Standby LED will be lit when the EASYpure UF is in Standby mode.

### Automatic Flush

In both run and Standby modes, the EASYpure will initiate a one minute automatic flush of the ultrafilter once every twenty-four hours of operation. This prevents bacterial buildup on the ultrafilter. A solid-state timer in the EASYpure UF counts the hours power is applied to the unit. When the timer reaches twenty-four hours, the EASYpure UF initiates a one minute flush, the Automatic Flush LED is illuminated, and the timer resets to zero.

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# Initial Operation

## Initial Operation

### Initial Sanitization

Your EASYpure UF has been shipped with a sanitization cartridge (Part #D50245) and two empty cartridges to allow you to sanitize your EASYpure UF prior to using it for the first time. To sanitize your EASYpure UF:



### WARNING

Avoid splashing disinfecting solutions on clothing or skin.

Ensure all piping connections are tight to avoid chemical leakage.

Ensure adequate ventilation.

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

1. Open the cartridge access door. Install the supplied D50245 sanitization cartridge in the empty cartridge position. The empty cartridges have been installed for you at the factory. (For instructions on installing cartridges, see Cartridge Installation.) Close and latch the cartridge access door.

This device is to be used with water feeds only. Sanitizing/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.

2. Insert the quick disconnect insert on the feedwater line into the feedwater inlet quick disconnect on the back of the EASYpure UF.
3. Plug power cord into the unit's power entry module and plug into a live outlet. Place the main power switch to the on position. Press the "Flush" button twice to begin an extended flush.
4. When the extended flush stops (5 minutes), open the draw-off valve. Press the "START" button. Draw off 2.0 liters of solution through the draw-off valve. Close the draw-off valve. Discard the solution.
5. Recirculate the disinfectant solution for approximately 30-45 minutes.
6. Turn the unit off, and disconnect the unit from the power supply.
7. Open the draw-off valve to depressurize the system. Leave draw-off valve open until solution **completely stops flowing**, draining as much of the system as possible.
8. Carefully remove all the empty cartridges from the

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## INITIAL OPERATION



### WARNING

Depressurize system prior to opening cartridge access door.



### NOTE

If the EASYpure UF is wall mounted, rotate the EASYpure UF until the cartridge access door faces forward and the EASYpure UF locks into place.



### NOTE

The EASYpure UF's cartridges must be installed in the proper order.



### NOTE

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



### NOTE

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



### WARNING

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

system, and discard the solution remaining in the cartridges. Retain the empty cartridges for future use. Discard the D50245 sanitization cartridge.

9. Proceed to Cartridge Installation and Rinse Up.

### Cartridge Installation and Rinse Up

1. Open cartridge access door in the rear of the unit by pushing the door latch down.
2. Remove a new Pretreatment cartridge (Catalog No. D50230 for DI Feed or D50231 for RO or Distilled Feed) from its plastic bag.
3. Wet the o-rings on both end caps.
4. Press the upper end cap into the upper right position until it bottoms out.
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) and High Purity/Low TOC (Catalog No. D50229) cartridges, placing them in the center and left-hand positions. *Do not install 0.2 micron filter and bell assembly at this time.*
7. Close cartridge access door.
8. Open draw-off valve.
9. Connect water supply to quick disconnect body.
10. Plug power cord into the unit's power entry module and plug into a live outlet. Place the main power switch to the on position.
11. Press the "Flush" button twice to begin an extended flush. When the extended flush stops, press the "Flush" button twice again to begin another extended flush.
12. When the second extended flush stops, open the draw-off valve and press the "START" button. Rinse 10-15 liters of water through the draw-off valve to drain.

13. Remove a new 0.2 micron filter and bell assembly from its bag and insert it into the Luer fitting. Gently turn it clockwise until it is fully seated in the Luer fitting.
14. Flush 10-15 liters of water through the filter.



**CAUTION**

Do not allow EASYpure UF to operate unless water is available to unit.



**NOTE**

For more demanding applications where low TOC water is required, a rinse of 15-20 liters through the cartridges and filter may be necessary.

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# Normal Operation



## NOTE

On initial startup, the purity meter may display “ERR.” This is caused by air in the cell and should be replaced by a resistivity reading almost immediately. If “ERR” does not go out after the pump has run for a minute or if it appears any time while the EASYpure UF is in operation, refer to the **Troubleshooting** section of this manual.



## NOTE

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

## Normal Operation

1. Press the “START” button on the front of the EASYpure UF.

The EASYpure UF’s pump will begin to run and the Purity meter will 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.

### Water Draw off

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

# Installing Float or Pressure Switch

## Installing Float or Pressure Switch

Accessories D0603, D0606 (float switches) and D2706 (pressure switch) are designed to protect the EASYpure UF pump by alerting the EASYpure UF of an inadequate feedwater condition so that the pump can be shut down. Use the following instructions for installation.

1. Disconnect electrical power.
2. If using D0606 float switch, follow the installation instructions included with the float switch for installation to tank.
3. If using D2706 low pressure switch, install the PVC tee (supplied with D2706) in incoming water line. Screw the switch into the top of the tee, then connect the inlet tubing to the EASYpure UF with the remaining opening.
4. Route cable from float or low pressure switch to the rear of the EASYpure UF.
5. Remove jumper plug and **save for future use**.
6. Plug cable into jumper plug outlet.
7. Reconnect electrical cord.

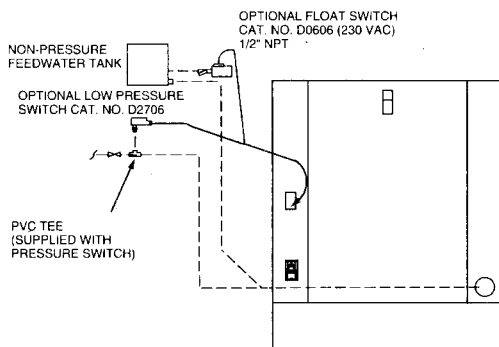


Figure 6 Float and Pressure Switch Installation

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# Maintenance and Servicing



## WARNING

Disconnect from the power supply prior to maintenance and servicing.

Refer servicing to qualified personnel.

Do not disassemble water lines or remove cartridges where spilled water could contact equipment that requires electrical service. Disassembly of water lines and removal of cartridges will result in water spillage. Electrical shock hazard could result.



## 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

If the EASYpure UF is wall mounted, remove the power cord and rotate the EASYpure UF until the cartridge access door faces forward and the EASYpure UF locks into place.



## NOTE

A small amount of water will drain from the cartridge when it is disconnected from the lower socket. Plug the cartridge's lower opening with your finger to minimize water spillage while you finish removing the cartridge.



## NOTE

Used cartridges may be recycled. See P.U.R.E. information packed with new cartridges.

## Maintenance and Servicing

### Cartridge Replacement

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

### Cartridge Removal

1. Turn unit off.
2. Disconnect the unit from the power supply.
3. Depressurize system by opening outlet valve.
4. Open the cartridge access door in the rear of the unit by sliding the latch down and pulling the door toward you. The door will swing down.
5. Grasp one of the cartridges at the bottom and pull it straight up to disconnect the lower end cap from the lower socket.
6. Move cartridge upward until upper socket is in keyhole of keyway.
7. Pull cartridge straight out from unit to disconnect upper end cap from upper socket.
8. Repeat steps for the other cartridges.
9. Discard the used cartridges. (See note below.)
10. Sanitize, install new cartridges and rinse according to the instructions for **Initial Sanitization** and **Cartridge Installation** in the **Initial Operation** section.





## CAUTION

Do not overtighten the 0.2 micron filter assembly onto the Luer fitting or use excessive force in seating it. The filter and/or Luer fitting can be damaged by overtightening or excessive force.



## NOTE

If a newly installed 0.2 micron filter clogs rapidly after installation, the EASYpure UF may need to be sanitized to remove bacterial contaminants. See **System Sanitization**.

## 0.2 Micron Filter Replacement

Replace the 0.2 micron final filter whenever any of the following conditions occur: every 30 days, the product water flow rate is reduced or bacteria break through. The 0.2 micron filter is shipped assembled with a bell. To replace the 0.2 micron filter assembly:

1. Remove the old 0.2 micron filter assembly by turning it counter-clockwise until it is free from the Luer fitting.
2. Remove the new 0.2 micron filter assembly from its bag and insert it into the Luer fitting. Gently turn it clockwise until it is fully seated in the Luer fitting.
3. Rinse 10-15 liters of water through the filter to drain prior to using the product water.

## System Sanitization

Frequency of cleaning is difficult to determine because of variability in feedwater and usage. Sanitization is recommended when cartridges are replaced or if a new 0.2 micron filter clogs rapidly after installation even though the cartridges were properly rinsed before the 0.2 micron filter was installed. To sanitize the EASYpure UF, the purification cartridges must be replaced with a sanitization cartridge and two empty cartridges. The simple to use sanitization cartridge is available from Barnstead|Thermolyne (Part #D50245). This is used in addition to the empty cartridges included with this unit to effect a complete sanitization.

1. Turn the EASYpure UF off. Depressurize the system by opening the outlet valve. When water stops flowing from the draw-off valve, the system is depressurized.
2. Disconnect the unit from the power supply.
3. Remove the 0.2 micron final filter. Open the cartridge access door in the rear of the unit. Remove the purification cartridges and replace with empty cartridges. Place a D50245 sanitization cartridge in the first position and install the empty cartridges in the other two positions. Close the cartridge access door.



### WARNING

Avoid splashing disinfecting solutions on clothing or skin.

Ensure all piping connections are tight to avoid chemical leakage.

Ensure adequate ventilation.

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

This device is to be used with water feeds only. Sanitizing/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. Connect power to the EASYpure UF. Press the "Flush" button twice to begin an extended flush.
5. When the extended flush stops (5 minutes), open the draw-off valve. Press the "START" button. Draw off 2.0 liters of solution through the draw-off valve. Close the draw-off valve. Discard the solution.
6. Recirculate the disinfectant solution for approximately 30-45 minutes. Then open the draw-off valve, directing the output to drain.
7. Turn the unit off, and disconnect the unit from the power supply.
8. To depressurize the system, leave the draw-off valve open until water completely stops flowing.
9. Carefully remove all the empty cartridges from the system, and discard the solution remaining in the cartridges. Retain the empty cartridges for future use. Discard the D50245 sanitization cartridge.
10. Install fresh cartridges in the system as indicated under Cartridge Replacement. *Do not reinstall used cartridges (they may contain large amounts of bacteria).*
11. Connect the power to the unit. Press the "Flush" button twice to begin an extended flush. When the extended flush stops, press the "Flush" button twice again to begin another extended flush.
12. When the second extended flush stops, open the draw-off valve and press the "START" button. Rinse 10-15 liters of water through the draw-off valve to drain.
13. Close the draw-off valve. Install a new 0.2 micron filter at the draw-off valve as indicated under Final Filter Replacement. Run 10-15 liters of water to drain before using water exiting the filter. The system is now ready to use.

**NOTE**

Some water will drain from the ultrafilter when you disconnect it. Have a container ready to hold the ultrafilter and catch the water while it drains.

**Ultrafilter Replacement**

The length of your ultrafilter's life will depend to some extent on conditions and use in your lab. When you are unable to completely sanitize your system (i.e. you can no longer get pyrogen-free water even after sanitizing the system), replace the ultrafilter as follows:

1. Turn off the EASYpure UF and disconnect it from the power supply.
2. Depressurize the EASYpure UF by opening the draw-off valve and allowing water to drain until no more water flows from the valve.
3. Follow the instructions for ultrafilter installation found under Ultrafilter Installation, removing the old ultrafilter in the same way that the instructions describe removing the "T."

**General Cleaning Instructions**

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

**Fuse Replacement**

1. Turn the system off.
2. Depressurize system by opening outlet valve.
3. Disconnect the EASYpure UF from the power supply.
4. Remove the power cord from the power entry module, and remove the pump interlock plug from the rear of the unit.
5. Remove the screws securing the EASYpure UF cover.
6. Remove the cover by lifting it straight up.
7. Pull out the fuse drawer located in the power entry module.
8. Remove old fuses and replace with fuses of the same type and rating. (See Parts Listing.)

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## MAINTENANCE AND SERVICING



### WARNING

Replace fuses with those of the same type and rating. Fuse Type 5 x 20 mm, Time Lag (T) 250 V 2.0 Amps



### 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.).



### WARNING

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



### CAUTION

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

9. Replace fuse drawer.
10. Replace cover, power cord, and pump interlock plug.
11. Reconnect unit to power supply.

### Cleaning the Resistivity Cell

1. Turn the system off.
2. Depressurize system by opening outlet valve.
3. Disconnect the EASYpure UF from the power supply.
4. Remove the power cord from the power entry module, and remove the pump interlock plug from the rear of the unit.
5. Remove the screws securing the EASYpure UF cover.
6. Remove the cover by lifting it straight up. Remove the filter and Luer fitting. Carefully remove the front cover. Disconnect membrane switch lead from the printed circuit board.
7. Remove the screw holding the cell-cable retaining clip.
8. Disconnect the cell lead from the printed circuit board and gently pull the cable out of the EASYpure UF frame.
9. Unscrew and remove the cell.
10. Carefully remove the O-ring before cleaning the cell.
11. Wash the cell in a mild detergent solution or a 10% Hydrochloric or Sulfuric acid solution (follow acid manufacturers warnings and recommended handling procedure). This may be done in an ultrasonic cleaner or with a soft brush.
12. Thoroughly rinse the cell in deionized or distilled water following the detergent or acid cleaning.
13. After cleaning, reinstall and check the o-ring on cell; replace if necessary.
14. Reinstall the cell into the cell well and hand tighten. Reroute the cable up through the housing and reconnect.

15. Reinstall the screw holding the cell-cable retaining clip. Reinstall membrane switch lead. Replace the front cover. Retape the Luer fitting with new Teflon<sup>®</sup> tape and reinstall fitting. Replace the top cover.
16. Reconnect the power cord and the pump interlock plug to the unit. Reconnect the unit to the power supply.

### **Shutdown**

If the EASYpure UF is to be shut down for an extended period of time, the unit should be completely drained and the cartridges and ultrafilter removed to prevent the growth of bacteria.

If the system has remained inactive and full of water for more than 96 hours, the unit should be drained, sanitized and new cartridges installed prior to use.

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# Troubleshooting

## Troubleshooting

Problem	Possible Causes	Solutions
EASYPure UF completely inactive. (pump not operating, control panel not lit, etc.).	No electrical power to EASYPure UF.  Main Power Switch off.  Fuses blown.	Ensure that the EASYPure UF power cord is connected to a live power source and completely plugged into electrical outlet.  Place to On Position.  Replace the fuses as indicated in the Fuse Replacement section.
Pump runs, but no display (no digital display).	Main PCB and display PCB not connected.	<i>Disconnect unit from power.</i> Check and reconnect boards.
Pump does not run. Display lit.	Low water in feedwater tank or low inlet water pressure.  Jumper or devices not installed in pump interlock.  Pump worn out or defective.	Replenish feedwater. Check inlet water line for constrictions, blockages or closed valves.  Install.  Replace pump.
Display reads "Err" when checking resistivity.	Resistivity cell lead disconnected.  Air in system.  Resistivity cell dirty.	Check resistivity cell lead.  Purge air from system by drawing off water according to the instructions in the Operation section.  Clean cell and reinstall.
Recirculated water will not rinse up to desired purity level.	Exhausted cartridge.  Cartridges out of order.	Replace the cartridges as indicated in the <b>Cartridge Replacement</b> section.  Install the cartridges in the proper order as indicated in the <b>Cartridge Installation</b> section.
Pyrogens in product water.	System contaminated.  Ultrafilter needs replacement.	Sanitize system.  Replace Ultrafilter.
Reduced or no product flow from the 0.2 filter assembly.	0.2 micron final filter clogged.  Cartridges improperly rinsed.	Replace the 0.2 filter assembly as indicated in the 0.2 Micron Filter Replacement section.  Rinse cartridges; install new filter.

Problem	Possible Causes	Solutions
<p>0.2 micron final filter clogs rapidly after replacement.</p> <p>Short cartridge life.</p>	<p>EASYpure UF contaminated with bacteria.</p> <p>Cartridges being used are beyond expiration date.</p> <p>Change in feedwater characteristics.</p>	<p>Sanitize EASYpure UF according to the instructions in <b>System Sanitization</b>. Replace the 0.2 filter assembly as indicated in the 0.2Micron Filter Replacement section.</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>If a Barnstead ROPure is the feedwater source, check that the membrane is functioning properly.</p> <p>If a Barnstead Still is the feedwater source, ensure that the distillate temperature does not exceed 120°F when added to the EASYpure UF feedwater reservoir.</p> <p>If feedwater is from a central water purification system, verify water quality and proper functioning of the system.</p>
<p>Water leakage inside EASYpure UF.</p>	<p>Cartridge connecting tubing not fully seated into sockets.</p> <p>Missing or defective cartridge O-rings.</p>	<p>Press connecting tubing firmly into sockets.</p> <p>Install or replace cartridge O-rings.</p>

# Parts and Supplies

## Parts and Supplies

### Consumables

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

Barnstead|Thermolyne establishes two types of consumables; those items that *must* periodically be replaced to maintain performance (filters, resin cartridges, etc.) and other items of limited life (indicator lights, fuses, etc.) that you can expect to replace on a more or less random basis. Where practical, Barnstead|Thermolyne 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|Thermolyne representative for additional information on the expendables kit.

Description	Catalog No.	Recommended Quantity
Pretreatment Cartridge		1
DI Feed	D50230	(for your feedwater type)
RO/Distilled Feed	D50231	
EASYPure High Purity/Low TOC Cartridge	D50229	1
Ultrapure Mixed Bed Cartridge	D50233	1
0.2 micron Final Filter and Bell Assembly	FL703X2	2
Fuse		2 each
100-120 Volt	04455	
240 Volt	FZX37	
230 Volt (Fuse Type 5 x 20 mm, Time Lag (T) 250 V 2.0 Amps)	5120-0025	
Empty Cartridges for sanitization (set of 2)	D7034	1
Sanitization Cartridge	D50245	1
O-rings, cartridges	06162	12

### General Maintenance

General maintenance parts are defined as laboratory level repair parts which do not require great expertise or



special tools for installation. Barnstead|Thermolyne recommends that you stock the general maintenance parts as an aid to ensuring the continued operation of this equipment.

	<b>Description</b>	<b>Recommended Quantity</b>	<b>Catalog No.</b>
	02214	1	Check valve
Luer Fitting	PM703X3		1
Pressure Regulating Valve	02280		1
Quick Disconnect, body	CUX12		1
Quick Disconnect, insert	CUX10		1

**Safety Stock**

For critical applications where performance with *minimum* downtime is required,

Barnstead|Thermolyne recommends that you maintain a local stock of those parts listed in the GENERAL MAINTENANCE PARTS and SAFETY STOCK sections.

<b>Description</b>	<b>Catalog No.</b>	<b>Recommended Quantity</b>
Display PCB	PC741X1A	1
Resistivity Monitor PCB		
100-120 Volt	PC741X2	1
230-240 Volt	PC741X4	1
Pump and Motor Ass'y.		
100-120 Volt	PU741X1A	1
230-240 Volt	PU741X2A	1
Resistivity cell	E703X1A	1
Draw-off valve Ass'y.	PM741X1A	1
Main PCB	PC741X3A	1
Solenoid Valve		
100-120 Volt	RY631X1A	1
230-240 Volt	RY631X3A	1

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# Ordering Procedures

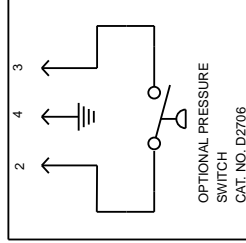
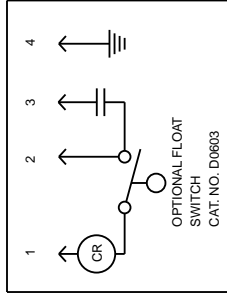
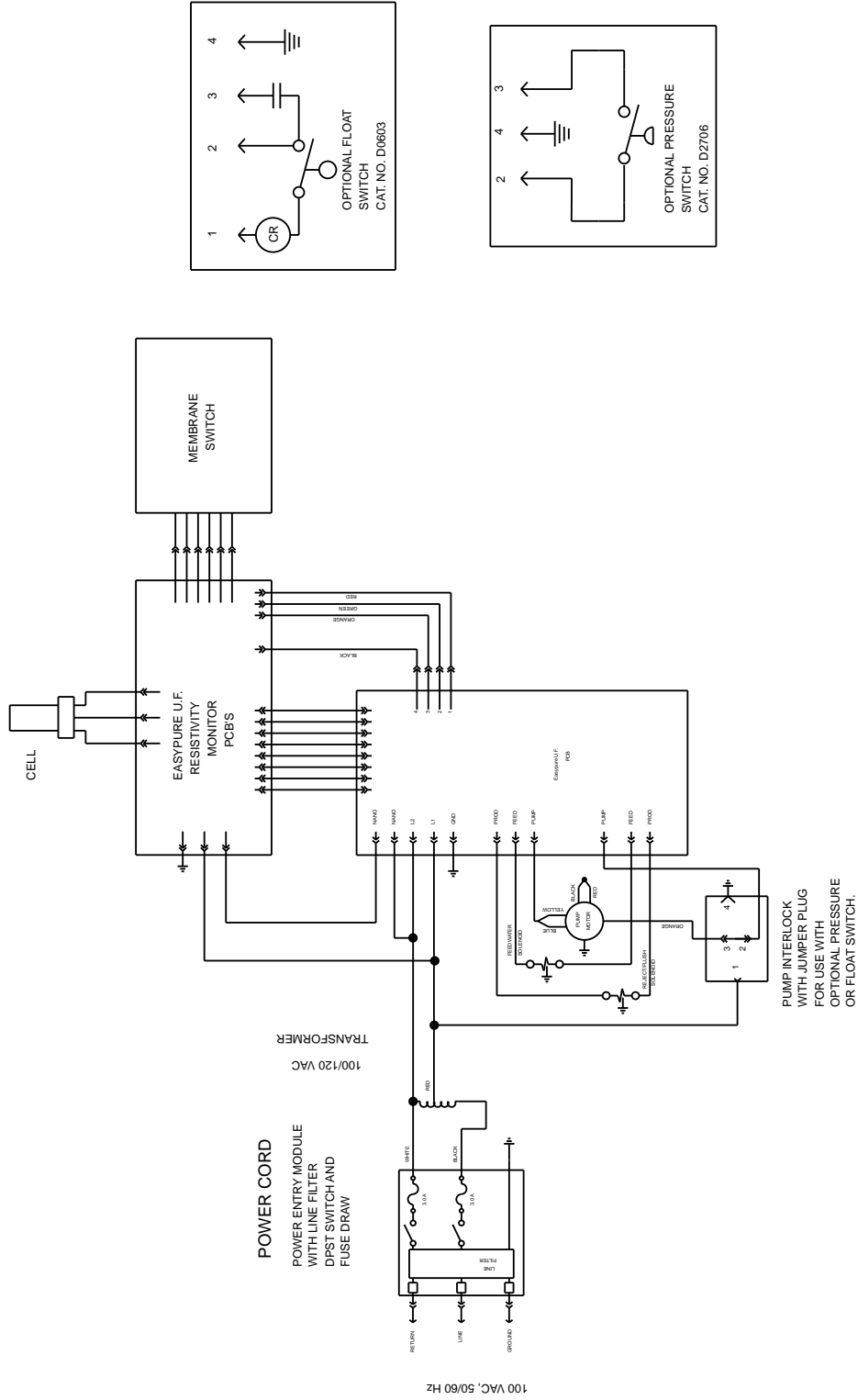
## Ordering Procedures

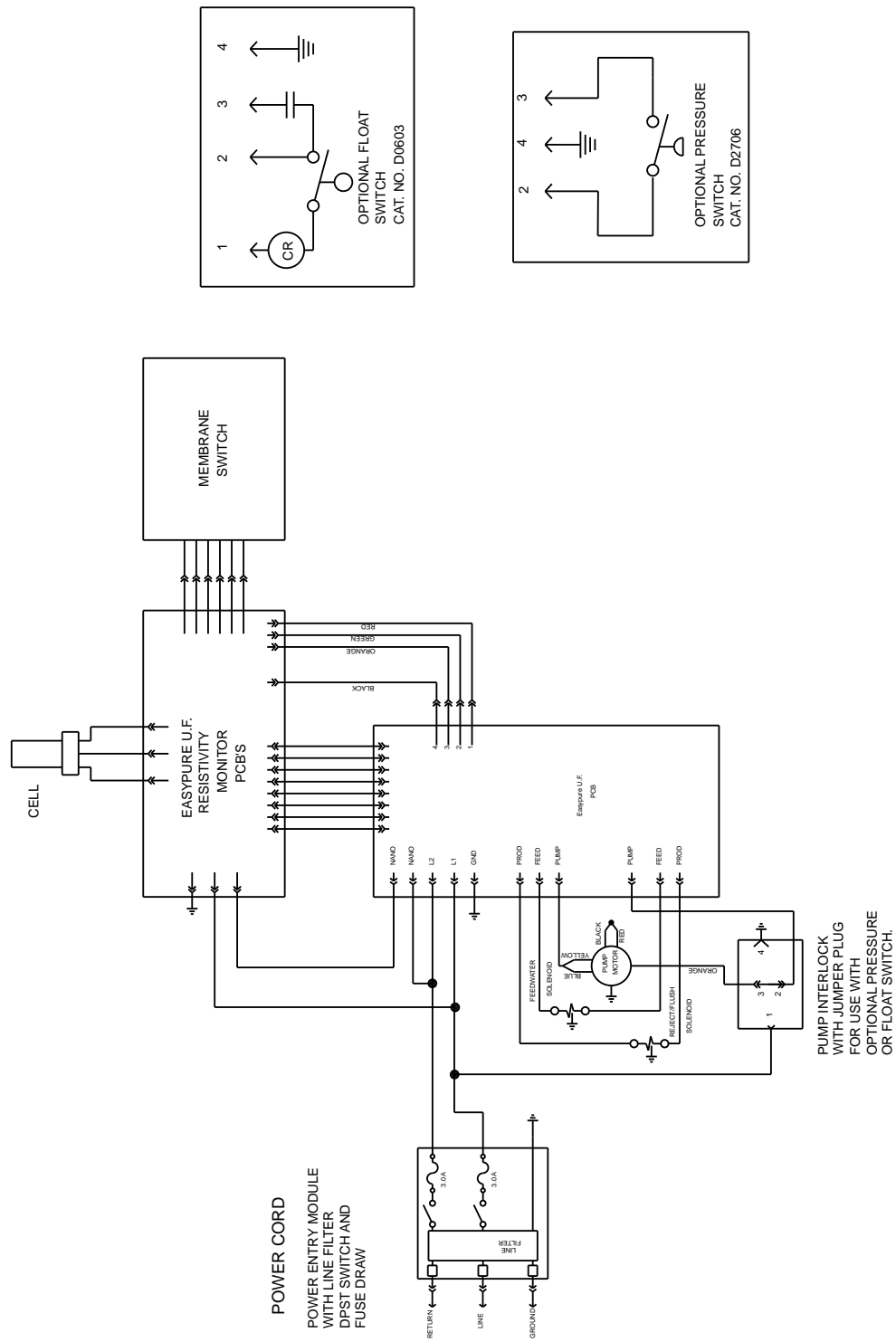
Please refer to the Specification Plate for the complete model number, serial number, and series number when requesting service, replacement parts or in any correspondence concerning this unit.

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

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

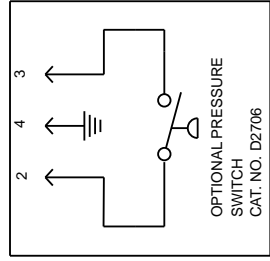
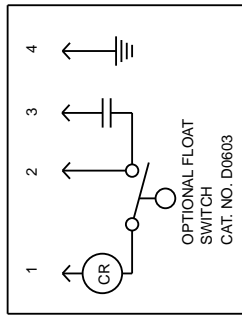
# Wiring Diagrams





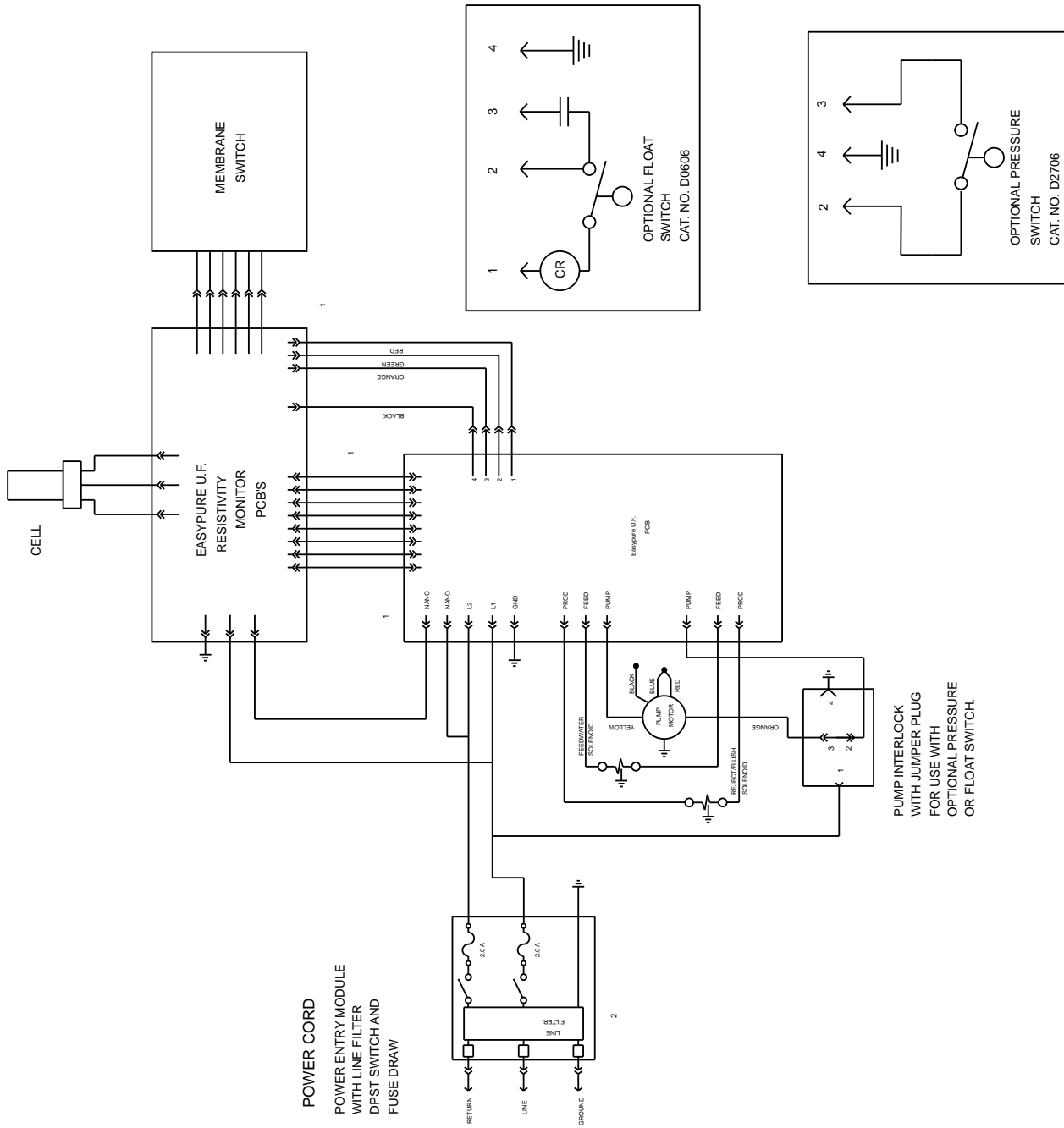
120 VAC, 50/60 Hz

Wiring Diagram for EasyPure U.F. System



PUMP INTERLOCK WITH JUMPER PLUG FOR USE WITH OPTIONAL PRESSURE OR FLOAT SWITCH.

# WIRING DIAGRAMS



230 VAC, 50/60 HZ

Figure 9 230/240 Volt Wiring Schematic

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# One Year Limited Warranty

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

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

**Barnstead|Thermolyne**

P.O. Box 797

2555 Kerper Boulevard

Dubuque, IA 52004-0797

USA

FAX: (319) 589-0516

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

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

THE WARRANTY STATED HEREIN IS THE SOLE WARRANTY APPLICABLE TO **Barnstead|Thermolyne** PRODUCTS. **Barnstead|Thermolyne** EXPRESSLY DISCLAIMS ANY AND ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR USE.

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