BARNSTEAD OPERATION MANUAL AND PARTS LIST
Series 583

BARNSTEAD THERMOLYNE CORPORATION

MODEL NUMBERS

<table>
<thead>
<tr>
<th>Model</th>
<th>Voltage</th>
<th>Model</th>
<th>Voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>D4511</td>
<td>120 Volt</td>
<td>D4525</td>
<td>240 Volt</td>
</tr>
<tr>
<td>D4521</td>
<td>120 Volt</td>
<td>D5831</td>
<td>120 Volt</td>
</tr>
<tr>
<td>D4522</td>
<td>240 Volt</td>
<td>D5832</td>
<td>240 Volt</td>
</tr>
<tr>
<td>D4523</td>
<td>100 Volt</td>
<td>D5833</td>
<td>120 Volt</td>
</tr>
<tr>
<td>D4524</td>
<td>120 Volt</td>
<td>D5834</td>
<td>240 Volt</td>
</tr>
</tbody>
</table>

"READ ALL WARNINGS, CAUTIONS, AND INSTRUCTIONS CAREFULLY BEFORE OPERATING THIS BARNSTEAD B-pure."

Record serial number here

E-PURE

Model O4641

SN 582720577423

January 1990

LT583X1
IMPORTANT INFORMATION
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.

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SAFETY INFORMATION

Your Barnstead B-pure has been designed with function, reliability and safety in mind. It is the user’s responsibility to insure conformance with required electrical codes. For safe operation, please observe the following:

SIGNAL WORDS

"DANGER" notes apply when there are hazards which result in severe personal injury or death.
"WARNING" notes apply when there is a possibility of personal injury.
"CAUTION" notes apply when there is a possibility of damage to the equipment.
"NOTES" alert the user of the manual to pertinent facts and conditions.

IMPORTANT

WATER PURIFICATION TECHNOLOGY EMPLOYS ONE OR MORE OF THE FOLLOWING:

CHEMICALS, ELECTRICAL DEVICES, MERCURY VAPOR LAMPS, STEAM AND HEATED VESSELS. CARE SHOULD BE TAKEN WHEN INSTALLING, OPERATING OR SERVICING BARNSTEAD PRODUCTS. LISTED BELOW ARE THE SPECIFIC SAFETY NOTES PERTINENT TO THE BARNSTEAD B-pure.

WARNINGS

WARNING

DO NOT MOUNT B-pure DIRECTLY OVER EQUIPMENT THAT REQUIRES ELECTRICAL SERVICE. ROUTINE MAINTENANCE OF THIS UNIT MAY INVOLVE WATER SPILLAGE AND SUBSEQUENT ELECTRICAL SHOCK HAZARD IF IMPROPERLY LOCATED.

WARNING

TO PREVENT ELECTRICAL SHOCK, DISCONNECT THE POWER PRIOR TO SERVICING B-pure.

WARNING

• AVOID SPLASHING DISINFECTING SOLUTIONS ON CLOTHING OR SKIN.
• ENSURE ALL PIPING CONNECTIONS ARE TIGHT TO AVOID LEAKAGE OF CHEMICALS.
• ALWAYS DEPRESSURIZE CHEMICAL LINES BEFORE DISASSEMBLY.
• ENSURE ADEQUATE VENTILATION.
• FOLLOW CAREFULLY THE MANUFACTURER’S SAFETY INSTRUCTIONS ON LABELS OF CHEMICAL CONTAINERS.

INTRODUCTION

It is the user's responsibility to read and understand the contents of this manual prior to installation and use of this equipment. This manual contains the information you will need to install, operate, and maintain the B-pure pressure cartridge system that you have purchased. Careful attention to the following instructions will assure you that your B-pure is correctly installed and provides trouble-free operation. Illustrated parts list are on pages 18, 19, 20. Take a few minutes to familiarize yourself with the hardware before installation.
**PRECAUTIONS BEFORE INSTALLATION**

The cartridge holders that make up the B-pure family are designed for a wide range of applications and configurations. It is not possible to include specifics in this manual for the broad application range. Barnstead recommends that you contact your local representative or Barnstead/Thermolyne Customer Service for guidance. Knowing the correct cartridges or filters for your specific application will assure you of the most efficient and economical use of your B-pure System.

All individual members of the B-pure family can be interconnected to form custom water treatment systems. If you are constructing a custom system, be sure to read the section Mix & Match before mounting the system. The mounting hole patterns will vary depending on the particular configuration that you choose.

The B-pure system requires expendable pretreatment, prefilters, deionization cartridges and final filters which are not supplied with the unit. They must be purchased separately. Descriptions, applications and catalog numbers of filters and cartridges are on page 12. When ordering, please state catalog number, description and quantity required. *Screws and fasteners required for wall mounting are not supplied with the unit.*

## GENERAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>FEEDWATER REQUIREMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPES</td>
</tr>
<tr>
<td>Tap, RO, DI, Distilled</td>
</tr>
<tr>
<td>PRESSURE (MAX)</td>
</tr>
<tr>
<td>7 kg/cm² (100 psig) maximum</td>
</tr>
<tr>
<td>TEMPERATURE</td>
</tr>
<tr>
<td>4-49°C (40-120°F)</td>
</tr>
</tbody>
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### INSTALLATION

<table>
<thead>
<tr>
<th>MOUNTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wall Mount with Bracket Provided</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DIMENSIONS mm(in.)</th>
<th>B-pure</th>
<th>Single B-pure</th>
</tr>
</thead>
<tbody>
<tr>
<td>WIDTH</td>
<td>381 (15)</td>
<td>178 (7)</td>
</tr>
<tr>
<td>DEPTH</td>
<td>171.5 (6-3/4)</td>
<td>171.5 (6-3/4)</td>
</tr>
<tr>
<td>HEIGHT</td>
<td>673 (26-1/2)</td>
<td>591 (23-1/4)</td>
</tr>
<tr>
<td>OP. WEIGHT kg (lbs)</td>
<td>12.7 (28)</td>
<td>5.9 (13)</td>
</tr>
</tbody>
</table>

### PLUMBING CONNECTIONS

<table>
<thead>
<tr>
<th>INLET</th>
<th>1/2&quot; NPTF</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUTLET</td>
<td></td>
</tr>
<tr>
<td>1/2&quot; NPTF</td>
<td>1/2&quot; NPTF</td>
</tr>
<tr>
<td>1/4&quot; NPTF</td>
<td></td>
</tr>
<tr>
<td>5/16&quot; OD</td>
<td></td>
</tr>
<tr>
<td>Hose Barb</td>
<td></td>
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</table>

### RESISTIVITY MEASUREMENT

<table>
<thead>
<tr>
<th>RANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1-18.3 Megohm-cm</td>
</tr>
<tr>
<td>(Temperature Compensated to 25°C [77°F])</td>
</tr>
<tr>
<td>ACCURACY</td>
</tr>
<tr>
<td>± 1.0 Megohm-cm</td>
</tr>
<tr>
<td>CELL</td>
</tr>
<tr>
<td>0.1 Constant</td>
</tr>
</tbody>
</table>

### ELECTRICAL REQUIREMENTS

| 120 VAC, 50/60 HZ NOMINAL | 108-132 VAC, 47-63 Hz, 5 Watts |
| 240 VAC, 50/60 HZ NOMINAL | 216-264 VAC, 47-63 Hz, 5 Watts |
INSTALLATION

UNPACKING

Unpack the B-pure carefully. B-pure units come completely assembled. A spare head interconnector (15853) is supplied as a loose part with the single B-pure (D4511) and the 1/2 PCS (D0701). Retain this item for possible later use in expansion.

SYSTEM LOCATION

The B-pure should be mounted at a convenient height for routine operation. Adequate front access will be required for cartridge or filter exchange and reading of the resistivity meter, if used. The following clearances are necessary:

- **Left & Right Side Clearance**
  - All B-pure Products
  - 4” MINIMUM

- **Free Space Below Canisters**
  - All B-pure Products
  - 4” MINIMUM

- **Free Space Above Center of Wall Bracket**
  - All B-pure Products Without Meter
  - 4” Minimum
  - All B-pure Products With Meter
  - 8” Minimum

WARNING

DO NOT MOUNT B-pure DIRECTLY OVER EQUIPMENT THAT REQUIRES ELECTRICAL SERVICE. ROUTINE MAINTENANCE OF THIS UNIT MAY INVOLVE WATER SPILLAGE AND SUBSEQUENT ELECTRICAL SHOCK HAZARD IF IMPROPERLY LOCATED.

The recommended dimensions for mounting hardware to support your equipment are:

- **Body Diameter** ................. 1/4” MAXIMUM
- **Head Diameter** ............... 3/8” MAXIMUM
- **Length** ......................... 1” TYPICAL

CAUTION

WALL AND MOUNTING HARDWARE MUST BE CAPABLE OF SUPPORTING THE FULL OPERATIONAL WEIGHTS AS OUTLINED IN THE TECHNICAL CHARACTERISTICS SECTION OF THIS MANUAL. INADEQUATE SUPPORT OR FASTENERS MAY RESULT IN DAMAGE TO MOUNTING SURFACE AND/OR EQUIPMENT. USE ADEQUATE HARDWARE FOR THE JOB. IF YOU ARE UNSURE OF THE HARDWARE, CONSULT YOUR BUILDING MAINTENANCE GROUP OR CONTRACTOR.
MOUNTING AND UTILITY CONNECTIONS

All B-pure installations require a user supplied shutoff valve in the incoming water service line. In some installations, it may be desirable to provide an outlet shutoff valve. A drawoff valve assembly is provided on the Dual Holder (D4521 or D4522) as a standard and may be ordered as an optional extra for other B-pure products. (See exploded view drawing for part numbers.)

NOTE
If you are constructing a custom water treatment system using B-pure Components, read the Mix & Match section of this manual before proceeding further.

Mount the B-pure unit by the following steps:

A. Remove the wall bracket from the unit by removing the two securing screws on the left and the right bottom portion of the bracket. Slide bracket downward to release.

B. Using the wall bracket as a template, mark the hole locations on the wall.

C. Drill holes in wall suitable for the selected fasteners.

D. Mount wall bracket and secure with fasteners.

E. Re-secure B-pure on Bracket and refasten securing screws.

F. Connect feedwater service to the left side of the head assembly using adapter provided. Use Teflon® tape on threads to assure a leak-free connection.

CAUTION
DO NOT OVER-TIGHTEN THIS CONNECTION. EXCESSIVE TIGHTENING WILL CRACK THE ADAPTER.

G. Make outlet connections as required by your specific application.

H. If you are installing a resistivity meter, apply 1 to 1-1/2 turns of Teflon® tape to the cell thread. Install meter into the top of the head.

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CAUTION
DO NOT OVER-TIGHTEN CELL. EXCESSIVE TIGHTENING WILL CRACK THE HEAD.

NOTE
The following step is only necessary when a resistivity meter has been installed on the 1/2 PCS Holder:

I. Remove the rear screw located on the right side of the meter. Position the vent lever under the meter and fasten to the meter case using the slotted hole in the vent lever. Before tightening the screw, make sure the vent lever rests on the red vent button. The vent can now be operated by depressing the lever extension on the left side of the meter.
OPERATION

INITIAL OPERATION

Two types of cartridges are used in B-pure Systems; 10" particulate filters that are used in the 1/2 size canisters and 17" water treatment cartridges used in the full size canisters.

INSTALLATION OF WATER TREATMENT CARTRIDGES

A. Remove the cartridge from the bag.

B. Remove the canister from the head by depressing the thumb lever and rotating the hand ring 1/4 turn clockwise.

C. Check to ensure that the small O-ring inside the head is in place. This is important because water will bypass the cartridge if this O-ring is not in place.

D. Place cartridge(s) in canister with the large opening down.

E. Wet cannister O Ring before installation. Install cannister by depressing thumb lever and rotating 1/4 turn in the counter clock-wise direction until locking pin is in appropriate position (see figure A).

CAUTION

SECURE LOCKING PIN BEFORE OPERATING. LOCKING PIN ON CANNISTER MUST BE FULLY RELEASED INTO HOLE IN HEAD BEFORE SYSTEM IS OPERATED.

![Figure A. Cannister Locking Pin Position.](image)

INSTALLATION OF PARTICULATE FILTERS

Two types of particulate filters are used in the 1/2 size canisters.

Prefilters: These devices are string-wound filters designed to prevent large particulates from entering a water treatment system. These filters do not require gaskets.

Final Filters: These devices are pleated membrane filters designed to remove particulates as small as 0.2 micron. These filters are supplied with gaskets which must be used to assure proper filter performance.
Install filters as follows:

A. Remove filter from package.
B. Install gaskets on end caps if provided with filter.
C. Insert filter into canister being sure that the boss in the canister is in the hole in prefilter bottom.
D. Insert the canister vertically upward so that the boss in the bottom of the head is inserted into the hole in the top of the filter. Screw the canister onto the head by hand until a tight connection is made.

FILLING PROCEDURE

After every cartridge exchange, some air will be trapped in the system. Air should be purged before routine use by the following procedure:

A. Place a container or suitable drain under the outlet valve.
B. Open all inlet valves and the outlet valve.
C. When there is a steady flow from the outlet valve, close the outlet valve.

Note
When using a submicron filter, hold purge button (red button on holder head) down until a steady flow of water is observed.
Check all fittings for leaks and tighten as necessary. (See 1/2 PCS manual for further details.)

E. If using a resistivity meter, plug into electrical service.
F. Open the outlet valve and allow water to flow through the system until desired purity is reached.

NORMAL OPERATION

Prior to withdrawing water for use, it is recommended that the user allow some water to run to drain to rinse up the system. If using a resistivity meter, the display will register a gradual improvement of water quality.

RESISTIVITY METER

The resistivity measurement in the Dual Holder B-pure is accomplished with an in-line digital readout meter and integral cell. The resistivity meter measures the specific resistance of the water on a scale of 0.1 to 18.3 megohm-cm. The resistivity measurement is automatically temperature compensated to 25°C regardless of system water temperature.

MAINTENANCE

CARTRIDGE AND FILTER REPLACEMENT

Depending on your particular usage, cartridges must be periodically replaced. The need for replacement of water treatment cartridges designed to remove ionized impurities can be determined by a drop in resistivity of the water. For 10µ particulate filters, replacement can be determined by a significant drop in pressure or a decrease in flowrate. Change all cartridges as follows:
WARNING

TO PREVENT ELECTRICAL SHOCK, DISCONNECT POWER PRIOR TO SERVICING B-pure.

A. Close the shutoff valve on the inlet side of the system.
B. Place a suitable container under the outlet and open the outlet valve to depressurize the system.
C. Place a container under the cartridge canister to collect any spillage.
D. Release the canister from the head and drain into container.
E. Remove old cartridge and discard.
F. Inspect the O Ring in the cannister and replace if worn.
G. Install a new cartridge or filter as explained in Initial Operation.

NOTE
Discard gaskets when changing final filter. Replace with new ones.

SYSTEM SANITIZATION

Frequency of cleaning is difficult to determine because of the wide variety of feedwater supplies, however the need for cleaning can be easily determined. Whenever a cartridge is replaced, always examine the inside of the canister for any residual deposits. If any are observed, clean the system as follows:

A. Disconnect power to system where appropriate.
B. Close the shutoff valve on the inlet side of the system.
C. Relieve pressure by opening and closing the outlet valve.
D. With the cartridges out of the canisters, wash the inside of the heads and canisters with soap or detergent, using a sponge or clean cloth. Rinse out the canisters and heads with clean water several times to remove the detergent residues.
E. Make up the following disinfecting solutions:

NOTE
The following sanitizing solution is sufficient for one large canister. Prepare a sufficient amount of solution to fill all of the canisters in your system.

1. Bleach: Add 230 milliliters of bleach (5.25% sodium hypochlorite) to 3.8 liters of water to make a 0.3% solution.
WARNING

- AVOID SPLASHING DISINFECTING SOLUTIONS ON CLOTHING OR SKIN.
- ENSURE THAT ALL PIPING CONNECTIONS ARE TIGHT TO AVOID LEAKAGE OF CHEMICALS.
- ALWAYS DEPRESSURIZE CHEMICAL LINES BEFORE DISASSEMBLY.
- ENSURE ADEQUATE VENTILATION.
- FOLLOW CAREFULLY THE MANUFACTURER'S SAFETY INSTRUCTIONS ON LABEL OF CHEMICAL CONTAINERS AND MSDS SHEETS SUPPLIED WITH THE CHEMICAL.

F. Fill each canister to within 2" of the top with the above disinfecting solutions, and reassemble the canisters on the unit.

G. Open the shutoff valve on the inlet side of the system.

H. Open the outlet valve and draw off approximately 200 ml. of solution. Discard this solution.

I. Close inlet and outlet valves.

J. Allow the disinfecting solution to stand for one half hour.

K. Open the inlet and outlet valves and flush the system for 10 minutes.

L. Close the shutoff valve on the inlet side of the system and open the outlet valve to depressurize the system.

M. Carefully remove all the canisters from the system, and discard the solution remaining from the canisters. DO NOT RINSE THE CANISTERS.

N. Install fresh cartridges in the system as explained in Initial Operation.

O. Turn to the Operation section of this manual for filling procedure and normal operation.

RESISTIVITY CELL CLEANING

Clean the resistivity cell as follows:

A. Disconnect power to the system.

B. Close the shutoff valve on the inlet side of the system.

C. Open the outlet valve.

D. Remove meter and cell assembly from the head. If you have used the vent lever accessory, you must remove the vent lever before unscrewing the meter.

CAUTION

THE CELL ELECTRODES ARE ETCHED TO IMPROVE WETTING CHARACTERISTICS. DO NOT MECHANICALLY ABRIDE OR DAMAGE THIS SURFACE.

E. Wash the cell in a mild detergent solution or a 10% inorganic acid solution (follow manufacturer's recommended handling procedure). This may be done in an ultrasonic cleaner or with a soft brush. The cell must be thoroughly rinsed in deionized water following the detergent or acid cleaning.
After cleaning, remove old Teflon tape from the head and cell threads and apply a fresh wrap of Teflon tape to cell body threads. Install the meter assembly in the B-pure System.

**CAUTION**
DO NOT OVER-TIGHTEN CELL. EXCESSIVE TIGHTENING WILL CRACK THE HEAD.

**SHUTDOWN**

If the B-pure System is to be shut down for an extended period of time, the system should be completely drained and the cartridges removed to prevent the growth of bacteria.

If the system has remained inactive and full of water, then the system should be drained, cleaned, and sanitized before new cartridges are installed.

---

**TROUBLESHOOTING CHART**

<table>
<thead>
<tr>
<th>SYMPTOM</th>
<th>PROBABLE CAUSE</th>
<th>TEST AND REMEDY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water will not rinse up to purity</td>
<td>Exhausted cartridges</td>
<td>Replace all cartridges as explained in the Maintenance Section</td>
</tr>
<tr>
<td></td>
<td>Cartridges upside down</td>
<td>Install the cartridges right side up as explained in Initial Operation</td>
</tr>
<tr>
<td></td>
<td>Cartridges out of order</td>
<td>Verify that cartridge order is correct for your specific application</td>
</tr>
<tr>
<td></td>
<td>Feedwater bypassing cartridge(s)</td>
<td>Be sure O-ring is not damaged and is properly installed</td>
</tr>
<tr>
<td></td>
<td>Excessive flowrate</td>
<td>Reduce flow to specified maximum or less</td>
</tr>
<tr>
<td>Reduced or no product flow</td>
<td>Particulate filter clogged</td>
<td>Replace the filter as explained in the Maintenance Section</td>
</tr>
<tr>
<td></td>
<td>Air trapped in filter</td>
<td>Purge air in the system as explained in Filling Procedure</td>
</tr>
<tr>
<td>SYMPTOM</td>
<td>PROBABLE CAUSE</td>
<td>TEST AND REMEDY</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-----------------------------------------------------</td>
<td>------------------------------------------------------</td>
</tr>
<tr>
<td>Leaking canisters</td>
<td>O Ring missing, damaged or not seated properly in the groove of the canister.</td>
<td>Replace or position correctly</td>
</tr>
<tr>
<td>Short cartridge life</td>
<td>Cartridges being used are beyond expiration date</td>
<td>Check the expiration date</td>
</tr>
<tr>
<td></td>
<td>Change in feedwater characteristics</td>
<td>Cartridges begin to lose capacity after being stored one year from date of manufacture. Replace the cartridges with unexpired ones.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If tapwater is the feedwater source, check the quality of the water. In some cases, the quality of the water will change with the seasons. Changing the source (city water to well water or well water to city) will result in a water quality change.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If feedwater is from a central water purification source, verify water quality and proper functioning of the system.</td>
</tr>
<tr>
<td>Excessive particulate passage</td>
<td>One or both gaskets missing or installed improperly.</td>
<td>Check that gaskets are installed on final filters properly.</td>
</tr>
</tbody>
</table>

**MIX AND MATCH**

**Introduction**

All B-pure products are designed for interconnection to form a variety of water systems. Individual applications will determine the correct sequence of B-pure components. After the sequence is determined the various parts can be easily arranged and connected. In this section we describe the general procedure for constructing a custom system and detail the procedures for constructing two commonly used configurations. We recommend you read the entire section before proceeding.

**Tools and Accessories**

Constructing a custom system will require the following tools:
1. A small screwdriver for drive pin removal.
2. A small mallet or hammer for re-seating the drive pins.

**General Procedure**

After carefully unpacking B-pure components place them on a table in the desired order. As a general rule, if you are using a D4521, D4522 or D4523 dual holder B-pure it should be located as far to the right as possible. This will reduce the number of changes that need to be made.

**CAUTION**

DO NOT ATTEMPT TO GET THE CORRECT SEQUENCE BY INTERCHANGING JUST THE CARTRIDGE CANNISTERS. THE 1/2 HOLDER (D0701) REQUIRES A SPECIAL HEAD. ALWAYS USE THE 1/2 SIZE CANISTER WITH THE HEAD THAT HAS THE RED VENT BUTTON.
Next remove all of the drive pins in the canister heads where two heads touch each other and remove the adapters or assemblies retained by the drive pins. Drive pins are removed by gently tapping them up with a screwdriver. Set the drive pins and other parts aside. If you have a Dual Holder (D4521, D4522 or D4523), it is not necessary to remove the factory installed drive pins that join the heads.

Locate the head interconnectors (15853) supplied as loose parts and install these wherever heads need to be joined. Make sure that the O-rings are still in the recesses of the heads. Re-install drive pins and tap gently with a hammer until they are seated.

You should now have a rigid assembly of heads and wall brackets in your desired sequence. Inlet and outlet adapters or assemblies can now be installed to suit your particular requirements. Turn to the Mounting and Utility Connections Section of this manual for mounting instructions.

**Three Holder B-pure Unit**

*(Two DI Cartridges and one Filter Cartridge)*

A common configuration built from B-pure component is the three holder unit. This unit allows the use of two water treatment cartridges and a final filter at the outlet. This will require one dual B-pure (D4521, D4522 or D4523) and a 1/2 PCS (D0701). This system can be purchased assembled utilizing Barnstead/Thermolyne part number D5635.

**Disassemble the units as follows:**

A. Position the Dual Holder on the left and the 1/2 Holder to its right.
B. Remove all the canisters.
C. Remove drawoff valve assembly from Dual Holder by driving up the drive pins.

**Reassemble the units as follows:**

A. Install the head interconnector into the outlet port of the Dual Holder. Be sure O-ring is in place. Install and seat drive pin.
B. Connect the 1/2 Holder head into the Dual Holder head so that the interconnector from the Dual Holder is in the inlet port of the 1/2 Holder. Be sure O-ring is in place. Install and seat drive pins.
C. Install drawoff valve assembly into the 1/2 Holder outlet port. Be sure the O-ring is in place. Install and seat drive pins.
D. Remove the 1/2" NPT plug from the 1/2 Holder head. Remove old Teflon® tape and apply a fresh wrap of tape on the plug. Install plug in the Dual Holder head.

**CAUTION**

DO NOT OVERTIGHTEN THIS PLUG. EXCESSIVE TIGHTENING WILL CRACK THE HEAD.

**NOTE**

Do not install the resistivity meter at this time.

Turn to the Mounting and Utility Connections section of this manual for mounting instructions.

**Three Holder B-pure**

*(Three Water Treatment Cartridges)*

A common configuration built from B-pure components is a Three-Holder System. This system will utilize three water treatment cartridges in series. This will require a Dual Holder (D4521, D4522 or D4523) and a single holder B-pure.

**NOTE**

Figure B Page 13 can be used as a guide for assembly order.

**Disassemble the unit as follows:**

A. Position Dual Holder on right and single holder on left on top of table.
B. Remove the canisters from all units.
C. Drive up drive pins from the outlet of the Single Holder and the inlet of the Dual Holder.

**NOTE**

This is accomplished by gently tapping from the bottom with a small screwdriver and a hammer. Excessive force will damage the pins.
D. Connect the two units together using the adapter supplied. Ensure O-ring is present in both openings. Install and seat Drive Pins.
E. Turn to Mounting and Utility Connections Section of this manual for mounting instructions.

### Table 1 - Cartridges and Filters

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>CAT. NO.</th>
<th>APPLICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Macropure</td>
<td>D0836</td>
<td>Effectively removes colloids, bacteria, chlorine and organics, increases filter life.</td>
</tr>
<tr>
<td>Pretreatment</td>
<td>D0835</td>
<td>Effectively removes colloids, bacteria, organics and chlorine.</td>
</tr>
<tr>
<td>Still Pretreatment</td>
<td>D0832</td>
<td>Removes ionized impurities and has a layer of activated carbon to remove chlorine and organics.</td>
</tr>
<tr>
<td>Organic Removal</td>
<td>D0813</td>
<td>Removes organics and chlorine.</td>
</tr>
<tr>
<td>Cation</td>
<td>D0815</td>
<td>Converts ionized salts to the acid form resulting in a product water that is low in pH, ideal for precious metal or isotope recovery.</td>
</tr>
<tr>
<td>Anion</td>
<td>D0760</td>
<td>Effective removal of weakly ionized impurities, raises the pH of solutions, recovers precious metal complexes.</td>
</tr>
<tr>
<td>High Capacity</td>
<td>D0803</td>
<td>Removes ionized impurities, produces a larger quantity of water than that of the Ultrapure, however at a lower resistivity.</td>
</tr>
<tr>
<td>Ultrapure</td>
<td>D0809</td>
<td>Removes ionized impurities to produce high resistivity water with a neutral pH.</td>
</tr>
<tr>
<td>Oxygen Removal</td>
<td>D0811</td>
<td>Maintains low oxygen content to prevent corrosion in cooling water loops, etc. The feedwater should contain less than 10 ppm of ionized solids.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Prefilters</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>15 micron</td>
<td>18018</td>
<td></td>
</tr>
<tr>
<td>10 micron</td>
<td>18011</td>
<td></td>
</tr>
<tr>
<td>5 micron</td>
<td>18017</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Final Filters</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2 micron</td>
<td>D0747</td>
<td></td>
</tr>
<tr>
<td>0.45 micron</td>
<td>D0748</td>
<td></td>
</tr>
<tr>
<td>0.2 micron</td>
<td>D0749</td>
<td></td>
</tr>
</tbody>
</table>
Figure B
Three-Holder B-pure
*(Three Water Treatment Cartridges)*
USE THE BARNSTEAD GSX-28 IF POSSIBLE. THE RUBBER IS MUCH SOFTER (EPR-50) THAN MOST STANDARD O-RINGS.

Figure C
Exploded View B-pure - D4511
PARTS LIST

GENERAL

This section contains parts list information for the B-pure product. When ordering spare parts, specify part number (cat. no.), description and quantity desired.

RECOMMENDED SPARES

Consumables. Consumable parts are those REQUIRED to support the day-to-day operation of this equipment. Barnstead 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 the USER can expect to replace on a more or less random basis.

The replacement of consumable parts is discussed in the Maintenance Section of this manual to assist the USER in accomplishing his own service.

NOTE

The only consumables used in the B-pure products are user selected. The following chart is provided for the user as a means of recording the cartridges, part numbers (cat. nos.), and location in the system.

CONSUMABLES

<table>
<thead>
<tr>
<th>Left to Right Order</th>
<th>DESCRIPTION</th>
<th>CAT. NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>D 0836</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>D 0837</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>D 5027</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>D 5021</td>
<td></td>
</tr>
</tbody>
</table>

General Maintenance Parts. 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 the USER stock the general maintenance parts as an aid to ensuring the continued operation of this equipment.

GENERAL MAINTENANCE PARTS

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>CAT. NO.</th>
<th>RECOMMENDED QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cartridge Canister Head</td>
<td>BK550X2</td>
<td>1/2 PCS 1 SINGLE PCS 1 DUAL PCS 2</td>
</tr>
<tr>
<td>O-ring Large Head Seal</td>
<td>GSX28</td>
<td>N.R. 1            2</td>
</tr>
<tr>
<td>O-ring (Between Heads)</td>
<td>06440</td>
<td>1                   1</td>
</tr>
<tr>
<td>Drive Pin</td>
<td>FP550X1</td>
<td>4                   4</td>
</tr>
<tr>
<td>Head Interconnector</td>
<td>15853</td>
<td>N/R                N/R</td>
</tr>
<tr>
<td>Connector (Inlet/Outlet)</td>
<td>15852</td>
<td>1                   1</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>CAT. NO.</th>
<th>1/2 PCS</th>
<th>SINGLE PCS</th>
<th>DUAL PCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cartridge Canister Head</td>
<td>BK550X2</td>
<td>N.R</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Filter Canister Head</td>
<td>16106</td>
<td>1</td>
<td>N/R</td>
<td>N/R</td>
</tr>
<tr>
<td>Full Size Cartridge Canister</td>
<td>CS550X1</td>
<td>N/R</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1/2 Size Filter Canister</td>
<td>30101</td>
<td>1</td>
<td>N/R</td>
<td>N/R</td>
</tr>
<tr>
<td>Resistivity Meter 115 VAC</td>
<td>D2770</td>
<td>N/R</td>
<td>N/R</td>
<td>1</td>
</tr>
<tr>
<td>Resistivity Meter 230 VAC</td>
<td>D2769</td>
<td>N/R</td>
<td>N/R</td>
<td>1</td>
</tr>
<tr>
<td>Cartridge Canister Handle</td>
<td>HN550X1A</td>
<td>N/R</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Recirc Pump: PU582X1A #881.00 798
Motor Combo - not available separately, no exchange or rebuild.

ORDERING PROCEDURES

Please refer to the Specification Plate for the complete model number, serial number and for series number when requesting service, replacement parts or in any correspondence concerning this BARNSTEAD 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 he cannot handle your request, then contact our Customer Service Department - (319) 556-2241 or (800) 553-0099.

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.

ONE YEAR LIMITED WARRANTY

Barnstead/Thermolyne Corporation warrants this product to be free from defects in material and workmanship for a period of one year from date of purchase.

This warranty applies only to defects in original parts or components, and does not apply to claims or alleged product failures resulting from unauthorized repairs, misuse, accidents or lack of proper maintenance, failure to follow Barnstead/Thermolyne's instructions for use or from ordinary wear and tear. Warranty service may be obtained by returning any defective product to an authorized Barnstead/Thermolyne dealer or to Barnstead/Thermolyne. Heating elements, 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. Barnstead/Thermolyne's sole obligation under this warranty shall be to repair or replace any products which it delivers and are found to be defective.

There are no other warranties, expressed or implied, made in connection with the sale of this product. Barnstead/Thermolyne expressly disclaims any implied warranty of merchantability or fitness for specific use.

Pump Motor: Fasco Industries Motor Div. #763-8567 Type V6381

Pump - Tuthill Pump Co. D1H893TB (1750 RPM)

Bowen & Assoc. 562-860-5613
Distributor

Barnstead/Thermolyne 1-800-553-0099