

Rapid Digestor Fume Removal System

Model 23500-20 – Designed for 20 Place Block Digestors

Model 23500-25 – Designed for Rapid Digestor 25 Place

Model 23540 – Designed for Rapid Digestor 4 Place

INSTRUCTION MANUAL

For more information, please contact us:

ExpotechUSA
10700 Rockley Road
Houston, Texas 77099
USA

281-496-0900 [voice]

281-496-0400 [fax]

E-mail: sales@expotechusa.com

Website: www.ExpotechUSA.com

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PREFACE

Thank you for displaying confidence in us by selecting a Labconco Rapid Digester Fume Removal System. Our design engineers, assemblers and inspectors have utilized their skills and years of experience to ensure that the new Labconco Rapid Digester Fume Removal system meets our high standards of quality and performance.

IMPORTANT NOTICE

This manual should be read carefully by all the end users in order to become familiar with the operation of the Labconco Rapid Digester Fume Removal System. Recommendations are made within the manual to help you obtain maximum performance and life from your products.

We have included sections on initial set up, operations, maintenance and troubleshooting to provide you with all the tools necessary to achieve maximum performance.

General Description

The Labconco Fume Removal Systems are designed to remove corrosive fumes produced when performing Kjeldahl digestions utilizing either the Labconco's Rapid Digestors or Block Digestors having a 20 digestion tube configuration. Models 23500-25 and 23540 are used with Labconco's Rapid Digestors, whereas, Model 23500-20 is used with the 20 place block digester systems. Fumes from a digestion are removed from the digestion tubes through the exhaust manifold by a water jet eductor, which empties into a convenient drain.

Detailed Operation Function

The Labconco fume Removal System consists of the exhaust manifold, water jet eductor, stand for exhaust manifold, and drip pan. Model 23540 fume removal system for the 4-place digester does not include jet eductor, stand, or drip pan.

Exhaust Manifold

The manifold consists of the glass removal system contained in aluminum, stainless steel on the 4-place system housing. All aluminum parts are finished by a chemically etched process to withstand corrosion. The glass manifold has either four, twenty, or twenty-five bulbs, depending on model number that fit directly into the digester tubes providing fume removal. The glass manifold pipes are interchangeable and can be replaced in case of breakage. High temperature acid resistant hose is provided for the connection from the glass manifold to the water jet eductor.

Water Jet Eductor – Not applicable to Model #23540

The Water Jet Eductor is made of an acid resistant material to assure long life and trouble free operation. The movement of water through the eductor creates a vacuum that exhausts the fumes collected by the exhaust manifold. The amount of water flow required is usually in the range of 2-3 gallons/minute. The amount of vacuum required from the water eductor is controlled by the adjustment of the water flow rate.

Stand and Drip Pan – Not applicable to Model #23540

The stand is designed to hold the exhaust manifold when not in use. The drip pan is placed under the stand to catch any acid drippings. Each is finished with an acid resistant coating to assure long life and good appearance.

INTRODUCTION

Specifications

1. Water Requirements

Supply	tap water
Demand	2-3 gallons/minute
Connections for eductor	1/2" male (A1/2" x 3/8" nipple is provided for connection to a regular laboratory gooseneck faucet.

2. Physical Specifications

Weight (exhaust manifold including water jet eductor).	5.7 lbs. Model #23500-20 (20 place system) 7.1 lbs. Model #23500-25 (25 place system) 4 lbs. Model #23540 (4 place system without Water Jet Eductor).
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3. Drain

Drain must be capable of handling 2-3 gallons/minute water flow. Eductor water outlet must enter into a sink or a laboratory drain and it is recommended that the eductor drain be located in a fume hood. If location in fume hood is not possible, refer to layout drawings located on page 8. Water Jet Eductor not included with Model #23540.

Installation

Unpacking

Use caution when unpacking the digester and accessories to avoid damage. The exhaust housing and manifold are shipped in the same carton. Remove items from the carton and inspect for any damage. Inspect all packing material to insure that no accessories or small parts are discarded by accident. If damage from shipping has occurred, the customer must file a claim with the carrier IMMEDIATELY! Do not return any item to Labconco Corporation without written authorization from the factory. Your local laboratory apparatus dealer can assist you and should be contacted if problems occur.

Installation and Assembly (refer to detail drawings located on page 7, 8, 9, 10, and 11)

Install eductor by one of the methods described in the detailed drawing. The eductor assembly as provided is for connection to a regular laboratory gooseneck faucet – (method 1). Model #23540, fume removal system for Rapid Digester 4 place, is not provided with the Water Jet Eductor. Any non-metallic water aspirator pump such as Nalgene® 6140 or equivalent is suitable for use with the 4-place fume removal system. It is recommended that eductor and drain be located in a fume hood to remove the small amount of gases that do not dissolve in the water stream. It is also recommended that the digester and fume removal system be located in a fume hood to prevent accumulation of fumes in the laboratory during observation and dilution of the digested samples. Assemble glass manifold sections as shown in detailed drawing. Model #23540 comes completely assembled. Align manifold pipes into manifold by placing glass manifold assembly on flat surface. Adjust each manifold pipe section to assure a snug fit into the ground glass taper joint. Place stainless steel retainer clip around glass taper joints as shown in detail drawing. Insert assembled glass manifold into manifold housing. Attach rear brackets into place with screws that are provided. Glass manifold should be free to move slightly in housing to prevent any stresses. Refer to detailed drawing located on 9, 10, and 11.

Connect manifold assembly to the water aspirator with the high temperature acid resistant hose provided. Expansion of the acid resistant hose may be necessary to facilitate installation of the hose to the glass manifold hose connection. The exhaust system is now ready for operation.

OPERATION

Operation

Place exhaust manifold on top of digestion tubes immediately after placing tubes in digester. Refer to Digester instruction manual for operation of digester. Alignment is accomplished by a side to side, front to back motion. It is not necessary to have a full rack of tubes in place, but there must be a tube in each corner and the center of the digester for support of the exhaust manifold. Adjust water flow to eductor to maximum and allow water flow to be at a maximum until the large amount of fumes produced during first stages of digestion have subsided. (Usually 5-7 minutes, depending on moisture content and size of sample). Reduce water flow to the point where all fumes are removed.

CAUTION: If maximum water flow to the eductor is allowed to continue throughout entire digestion, the removal of too much acid could take place, resulting in caking of sample contents contained in the digestion tubes and/or nitrogen loss. Remove only those fumes that have been expelled to the top of the digestion tubes. At the end of the digestion period, remove digestion tubes from digester for cooling. Leave exhaust manifold in place on top of the tubes during removal and cooling period.

Tilt exhaust manifold to the rear to allow drainage of acid from the manifold to the eductor after cooling period. Place exhaust manifold on stand allowing drip pan to collect all acid expelled from the manifold. Drip pan is to be placed directly under stand to catch acid drainage from manifold. This drainage can be held to a minimum if exhaust manifold is tilted to the rear to allow drainage of acid into the eductor. Stand and drip pan is not provided with Model #23540.

Maintenance

Periodic cleaning of the exhaust manifold is necessary for efficient operation of the system. The glass manifold can be disassembled and washed with detergent and water solution when cool. The manifold can also be washed by immersion and rinsing each bulb with water. Adjust eductor to maximum water flow to drain water wash from manifold. Inspect each bulb contained on the manifold pipes for obstructed vent hole. If obstructed, remove foreign material before reassemble. Rinse drip pan with water after each use.

Service (Model #23500-20 and 23500-25 only)

Replacement of glass manifold

1. Remove four screws from rear side of manifold housing.
2. Remove the two rear manifold brackets that retain the old manifold. Remove old manifold by slipping manifold glass pipes from front bracket.
3. Assemble glass manifold as in installation and assembly page 3.
4. Install new glass manifold in housing and reassemble in reverse order.

Replacement of Glass Manifold Sections

1. Follow steps 1 and 2 under “Replacement of Glass Manifold” above.
2. Remove retaining clip from section of manifold that requires replacement.
3. Replacement manifold section and reassemble in reverse order.

REPLACEMENT PARTS

REPLACEMENT PARTS LIST

Models 23500-20 and 23500-25

<u>Part Number</u>	<u>Description</u>
13575	Water Jet Eductor
16223	2' Drain Hose, Rubber
23526	Manifold Complete – 20 Place
23515	Glass Pipe – 20 Place
23516	Rear, Glass Manifold – 20 Place
23513	Manifold Complete – 25 Place
23532	Glass Pipe – 25 Place
23533	Rear, Glass Manifold – 25 Place
15400	Tubing High Temperature – Acid Resistant (per ft)
23517	Stainless Steel Clip

Model #23540

<u>Part Number</u>	<u>Description</u>
16226	Viton tubing, high temperature and acid resistant
23085	Glass Pipe

WATER EDUCTOR ASSEMBLY

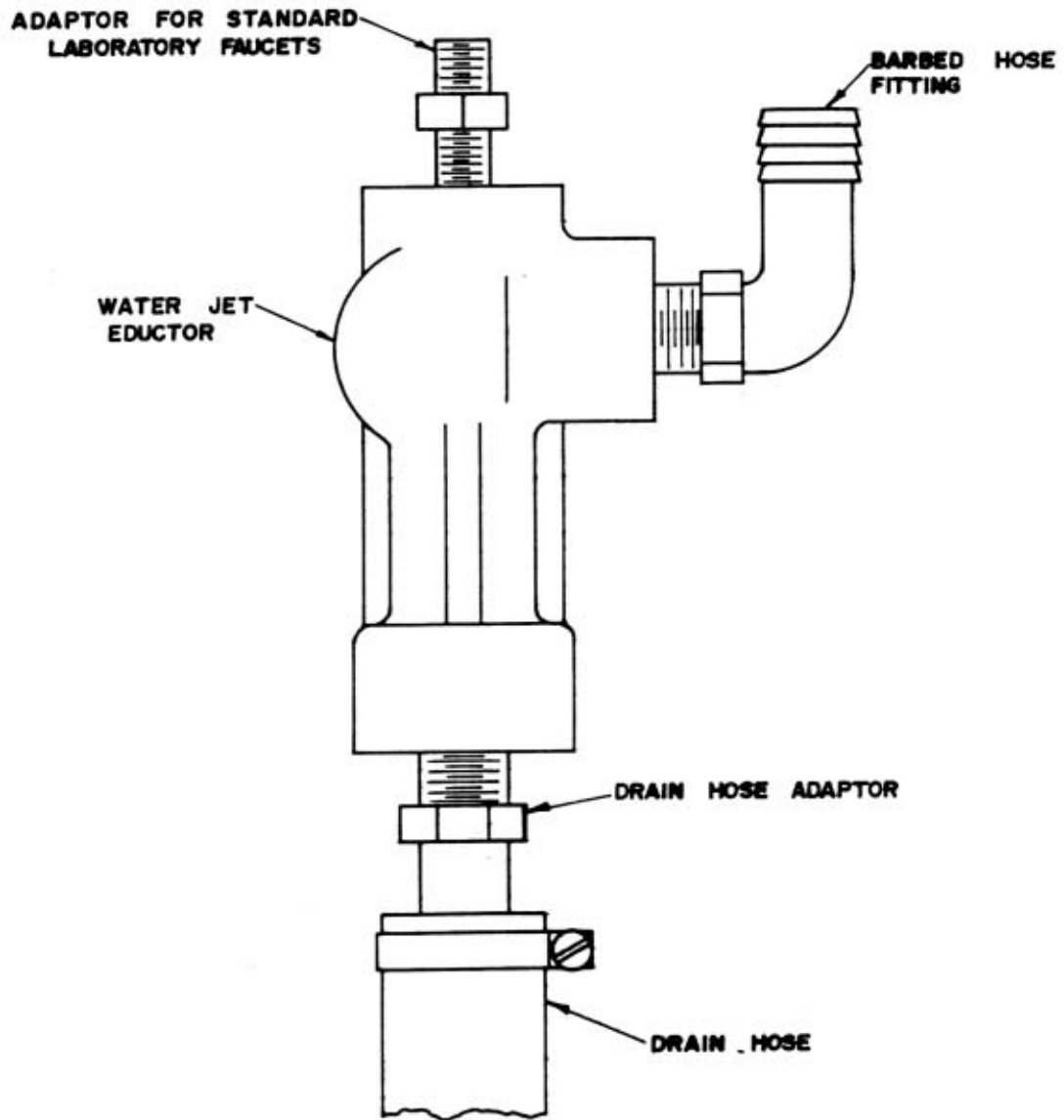


Figure 1

WATER EDUCTOR INSTALLATION METHODS

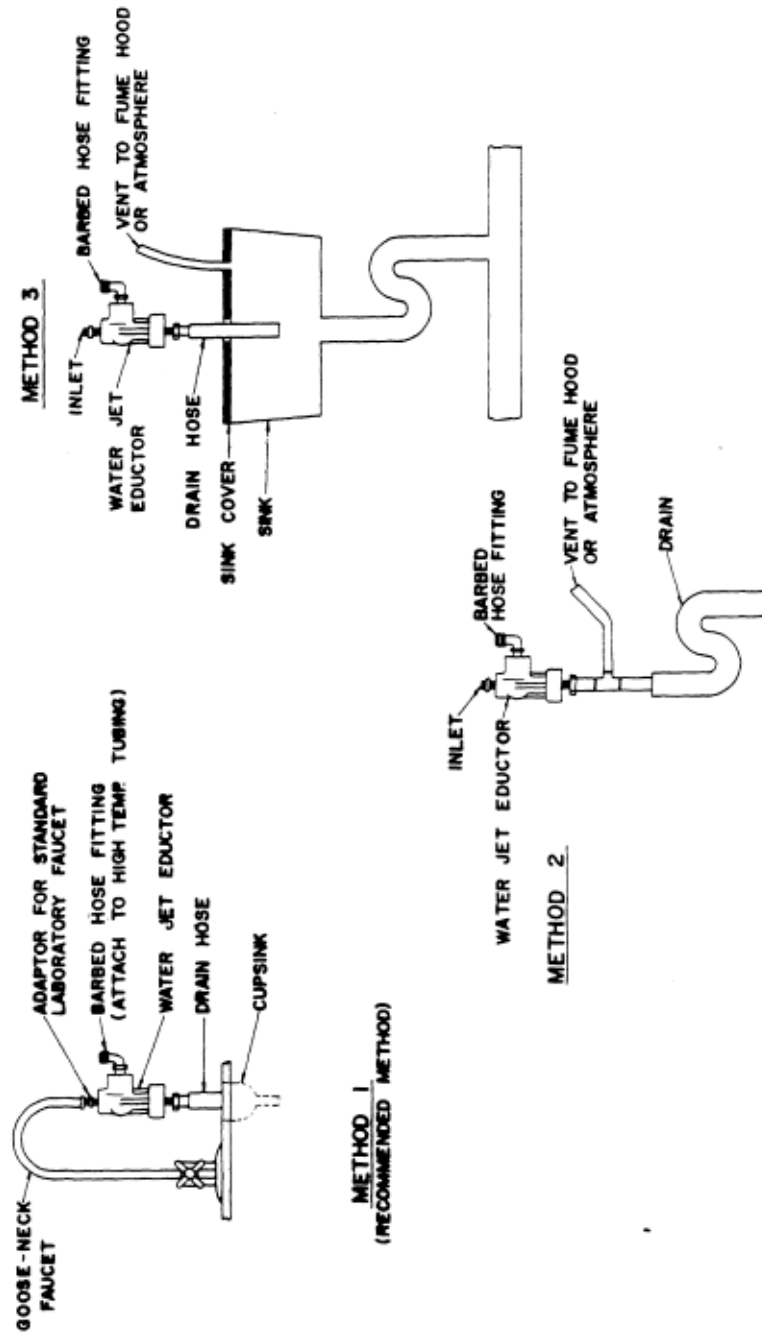


Figure 2

MODEL NO. 23500-20
(For 20 Place digestion Systems)

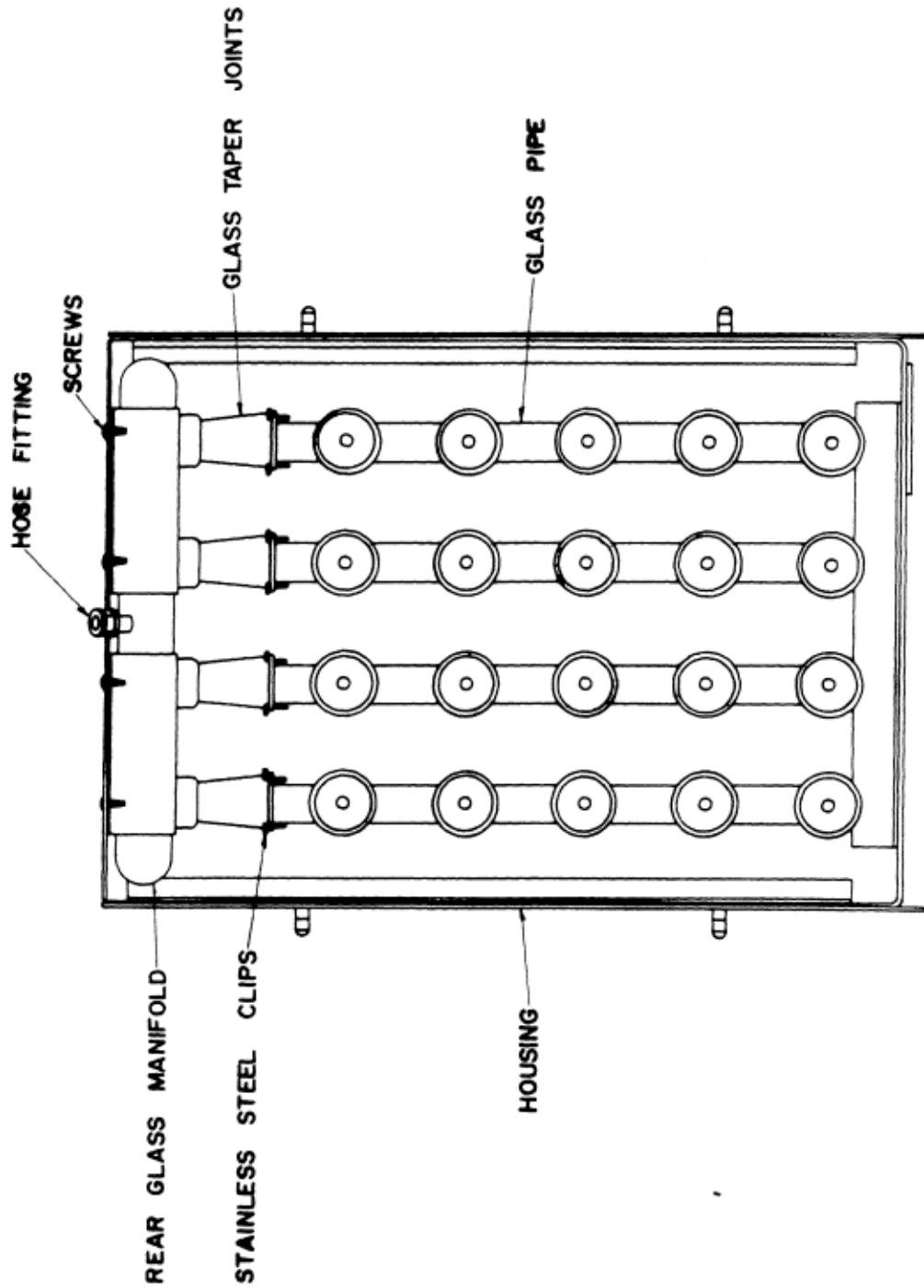


Figure 3

MODEL NO. 23500-25
For 25 Place Digestion Units

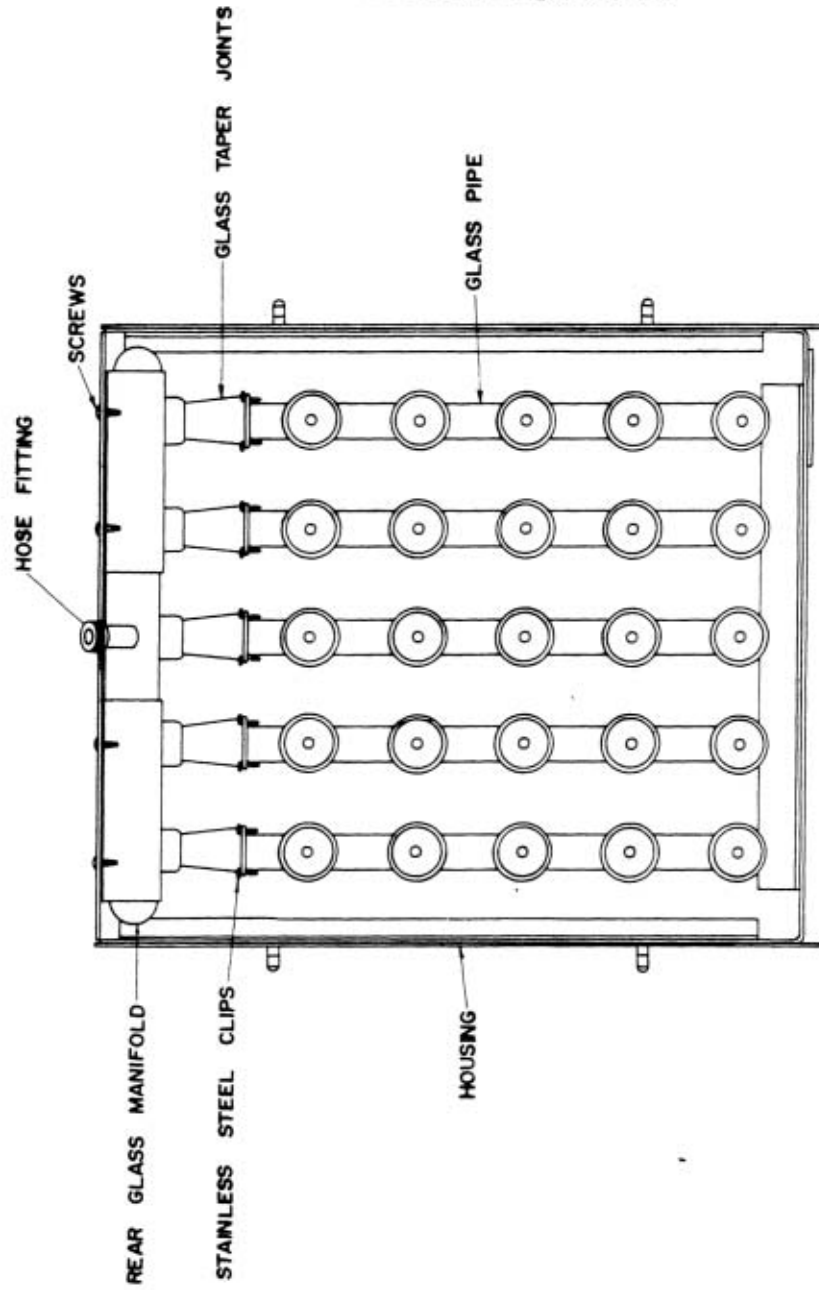


Figure 4

FUME REMOVAL R/D-4

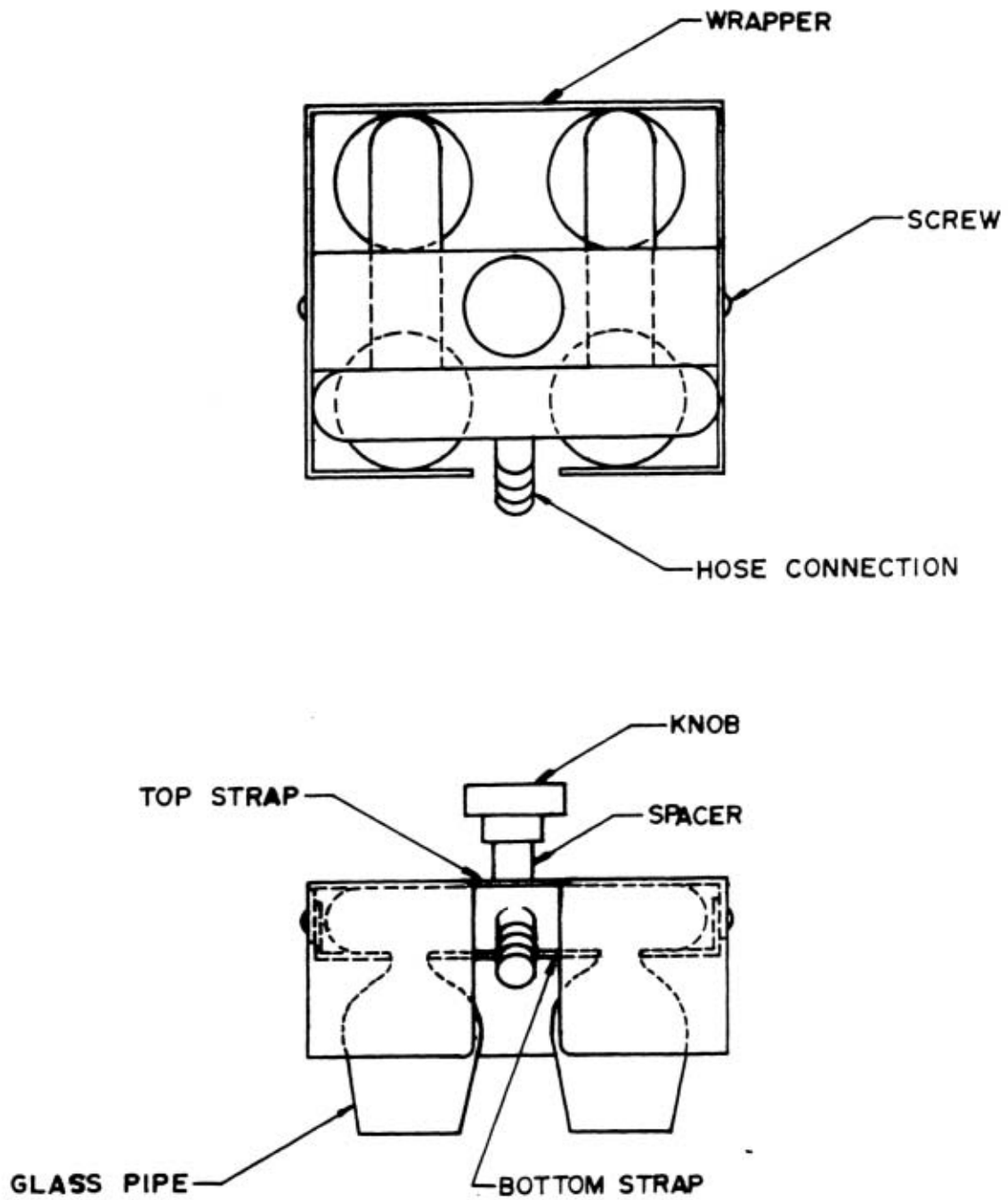


Figure 5

WARRANTY

We are committed to providing our customers with quality equipment and service after the sale. Part of this objective involves keeping you informed of changes and new product additions. We therefore request that you take a moment to fill out the product registration card so we may know your location as well as some of the reasons that prompted you to purchase our products.

Labconco provides a warranty on all parts and factory workmanship. The warranty includes areas of defective material and workmanship, provided such defect results from normal and proper use of the equipment.

The warranty for all Labconco products will expire one year from date of installation or two years from date of shipment from Labconco, whichever is sooner, except the following:

- Purifier® Delta™ Series Biological Safety Cabinets, which carry a three-year warranty from date of installation or four years from date of shipment from Labconco, whichever is sooner.
- Carts carry a lifetime warranty.
- Glassware is not warranted from breakage when dropped or mishandled.

This limited warranty covers parts and labor, but not transportation and insurance charges. In the event of a warranty claim, contact Labconco Corporation or the dealer who sold you the product. If the cause is determined to be a manufacturing fault, the dealer or Labconco Corporation will repair or replace all defective parts to restore the unit to operation. Under no circumstances shall Labconco Corporation be liable for indirect, consequential, or special damages of any kind. This statement may be altered by a specific published amendment. No individual has authorization to alter the provisions of this warranty policy or its amendments. Lamps and filters are not covered by this warranty

WARNING: The disposal and/or emission of substances used in connection with this equipment may be governed by various federal, state or local regulations. All users of this equipment are urged to become familiar with any regulations that apply in the user's area concerning the dumping of waste materials in or upon water, land or air and to comply with such regulations.

If a shipment is received in visibly damaged condition, be certain to make a notation on the delivering carrier's receipt and have his agent confirm the damage on your receipt. Otherwise, the damage claim may be refused.

If concealed damage or pilferage is discovered, notify the carrier immediately and retain the entire shipment intact for inspection. Interstate Commerce Commission rules requires that the claim be filed with the carrier within 15 days after delivery.

NOTE: Do not return goods. Goods returned without prior authorization will not be accepted. Labconco Corporation and its dealers are not responsible for shipping damage. Claims must be filed directly with the freight carrier by the recipient. If authorization has been received to return this product, by accepting this approval, the user assumes all responsibility and liability for biological and chemical decontamination and cleansing. Labconco reserves the right to refuse delivery of any products, which do not appear to have been properly cleaned and/or decontaminated prior to return.

For more information, please contact us:

[ExpotechUSA](#)
[10700 Rockley Road](#)
[Houston, Texas 77099](#)
[USA](#)

[281-496-0900 \[voice\]](#)

[281-496-0400 \[fax\]](#)

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Website: www.ExpotechUSA.com