

OPERATOR MANUAL
RELIANCE® 1024/1034
Laboratory Glassware Dryers

(10/18/01)
Rev. 4

P-122990-607

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A WORD FROM STERIS CORPORATION

This manual contains important information on the proper use and routine care of this dryer. All personnel involved in the use of this equipment should carefully review and comply with the warnings, cautions and instructions contained in this manual. These instructions are important to protect the health and safety of personnel operating the equipment and should be retained in a conveniently accessible area for quick reference.

Complete instructions for uncrating this unit, as well as equipment drawings, have been furnished. If missing, contact STERIS for replacement copies giving the serial, equipment and model numbers of the unit.

A listing of the safety precautions to be observed when operating and servicing this equipment can be found in Section 1 of this manual. Do not operate or service the equipment until you have become familiar with this information.

Indications for Use

The Reliance® 1024/1034 Laboratory Glassware Dryers are designed for efficient drying of laboratory glassware and metal goods used in research, support production and quality control laboratories. These dryers are specifically designed to only process goods as outlined in this manual. If there is any doubt about a specific material or product, contact the manufacturer of the product for the recommended processing technique.

Advisory

Any alteration of this equipment not authorized or performed by STERIS Engineering Service which could affect its operation will void the warranty, could adversely affect sterilization efficacy, could violate federal, state and local regulations and jeopardize your insurance coverage.

Service Information

A thorough preventive maintenance program is essential to safe and proper equipment operation. Comprehensive instructions for yearly preventive maintenance can be found in the *Maintenance Manual, 764323-294*, available from your STERIS representative.

You are encouraged to contact your STERIS representative concerning our Preventive Maintenance Agreement. Under terms of this agreement, preventive maintenance is provided on a scheduled basis, to help assure equipment performance at peak capability and minimize untimely or costly interruptions. STERIS maintains a nationwide staff of well-equipped, factory-trained technicians to provide this service, as well as on-site installation, training and expert repair services. Please contact your local STERIS representative for service details.

STERIS carries a complete line of accessories for use with this unit. A STERIS representative will gladly review these with you.

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LISTING OF WARNINGS, CAUTIONS AND SYMBOLS

The following is a listing of the safety precautions which must be observed when operating and servicing this equipment. WARNINGS indicate the potential for danger to personnel, and CAUTIONS indicate the potential for damage to equipment. These precautions are repeated, in whole or in part, where applicable, throughout the manual.



WARNING - BURN HAZARD:

-  Wear gloves when unloading unit. Glassware manifolds and chamber bottom become very hot during unit operation.
-  Before unloading or servicing the unit, allow dryer and dryer surfaces to cool down.

WARNING - FALL HAZARD:

-  To prevent falls, keep floor dry. Promptly clean up any spills or drippage.




WARNING - PERSONAL INJURY AND/OR EQUIPMENT DAMAGE HAZARD:

-  Safe and reliable operation of this equipment requires regularly scheduled preventive maintenance, in addition to the faithful performance of routine maintenance. Contact STERIS Engineering Service to schedule preventive maintenance.
-  Repairs and adjustments to this equipment must be made only by fully qualified service personnel. Maintenance performed by inexperienced, unqualified personnel or installation of unauthorized parts could cause personal injury, invalidate the warranty, or result in costly damage and ineffective cleaning of loads. Contact STERIS Engineering Service regarding service options.












WARNING - ELECTRIC SHOCK AND BURN HAZARD:

-  Before performing any service on the unit, lock building electrical supply disconnect switch to OFF position.

CAUTION - POSSIBLE EQUIPMENT DAMAGE:

-  Use non-abrasive cleaners when cleaning unit. Follow directions on containers and rub in a back-and-forth motion (in same direction as surface grain). Cleaners rubbed in a circular motion or applied with a wire brush or steel wool on door and chamber assemblies can be harmful to stainless steel. Do not use cleaners on painted surfaces.
-  Never use glue, silicone, chemical sealant or liquid-type threadlocker on this unit. If necessary, use high temperature-type RTV silicone.
-  If applicable, always position manifolds over optional manifold connectors before operating unit. If manifolds are not positioned correctly, damage may result and unit will be unable to effectively dry load.

Definition of Symbols

Symbol	Definition
	Transfer of Heat, Hot Surface
	Protective Earth (Ground)
	Warning! Risk of Electrical Shock
	Attention, Consult Manual for Further Instructions
	Tip N'Tell Indicator
	Maximum Relative Humidity
	This side Up
	Keep Dry
	Fragile
	Do not Stack
	Maximum Temperature
A	Amperage Rating of the Unit
V	Voltage Rating of the Unit
~	Alternating Current
kW	Power Rating of the Unit
Hz	Frequency of the Unit
φ	Phase of the Unit

An Equipment Drawing, showing all utility and space requirements, was supplied with the dryer. Clearance space, specified on Equipment Drawing, is necessary for easy installation and proper operation and maintenance of unit. *Uncrating/Installation Instructions* were also furnished with the dryer. If any of these documents are missing or misplaced, contact STERIS giving the serial, equipment and model numbers of the unit. Replacement copies will be sent to you promptly.

After installing the dryer according to the *Uncrating/Installation Instructions* provided, complete the following checklist to assure complete and correct installation. Or, if you desire, contact your STERIS Engineering Service representative to test your installation and demonstrate proper equipment operation.

////////////////////
**Installation
Checklist**
////////////////////

- Disconnect switches (not provided by STERIS), capable of being locked in OFF position only, installed in electrical supply lines near the unit and in compliance with local codes, OSHA standards, etc. (see Figure 2-1).

NOTE: If unit is installed next to other equipment, disconnect switches should be located so that service can be shut off to one piece of equipment at a time.

- Unit positioned, as shown on Equipment Drawing, with required clearance space and in relation to building supply lines.
- Unit is level. If necessary, adjust dryer leveling legs.
- Electrical supply for unit is as specified on Equipment Drawing.
- Floor surrounding unit has non-slip surface.

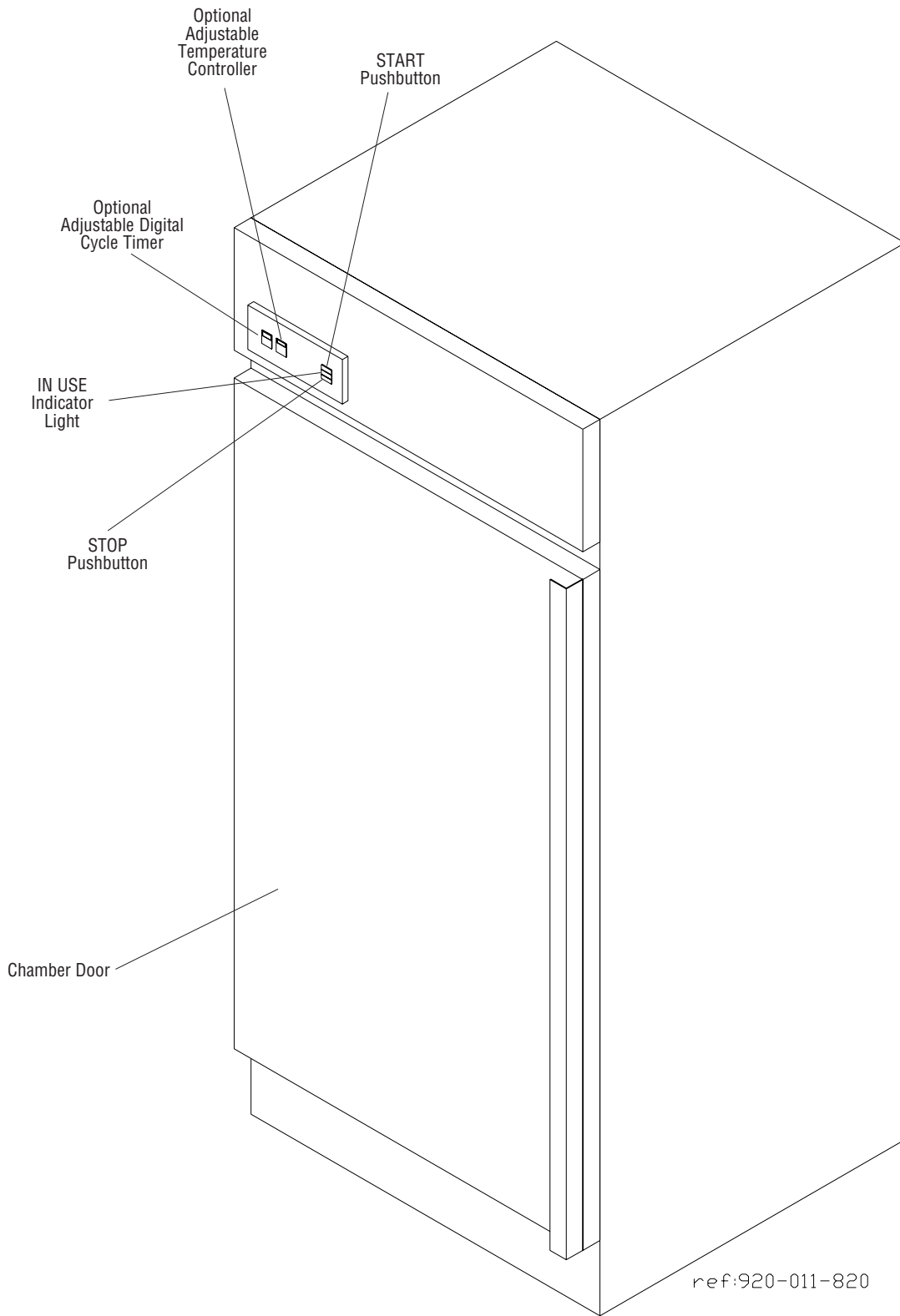


Figure 2-1. Reliance 1024 Laboratory Glassware Dryer

Before Operating Equipment

WARNING - FALL HAZARD:
To prevent falls, keep floor dry. Promptly clean up any spills or drippage

1. Check that building electrical supply disconnect switch (circuit breaker) is positioned to ON.
2. Open chamber door. Lift up shelves from guide tabs and remove shelves from chamber.
3. Check that drying chamber is empty and all packing material has been removed.
4. If unit is equipped with manifold drying option, check that manifold connectors are properly installed.

Load Chamber

CAUTION: If applicable, always position manifolds over optional manifold connectors before operating unit. If manifolds are not positioned correctly, damage may result and unit will be unable to effectively dry load.

1. Position shelves in chamber as follows:
 - a. Insert guide tabs, at height to accommodate load being processed, into shelf support strips (see Figure 3-1).
 - b. Place shelf on guide tabs.

NOTE: Allow excessive moisture to drain from glassware before loading.

2. Loosely arrange glassware on shelves to allow air flow around each piece or place loaded baskets on shelves.

IMPORTANT: Do not load glassware or baskets on chamber bottom plate.

3. If unit is equipped with manifold drying option, slide loaded manifolds into manifold support until manifolds stop in position.

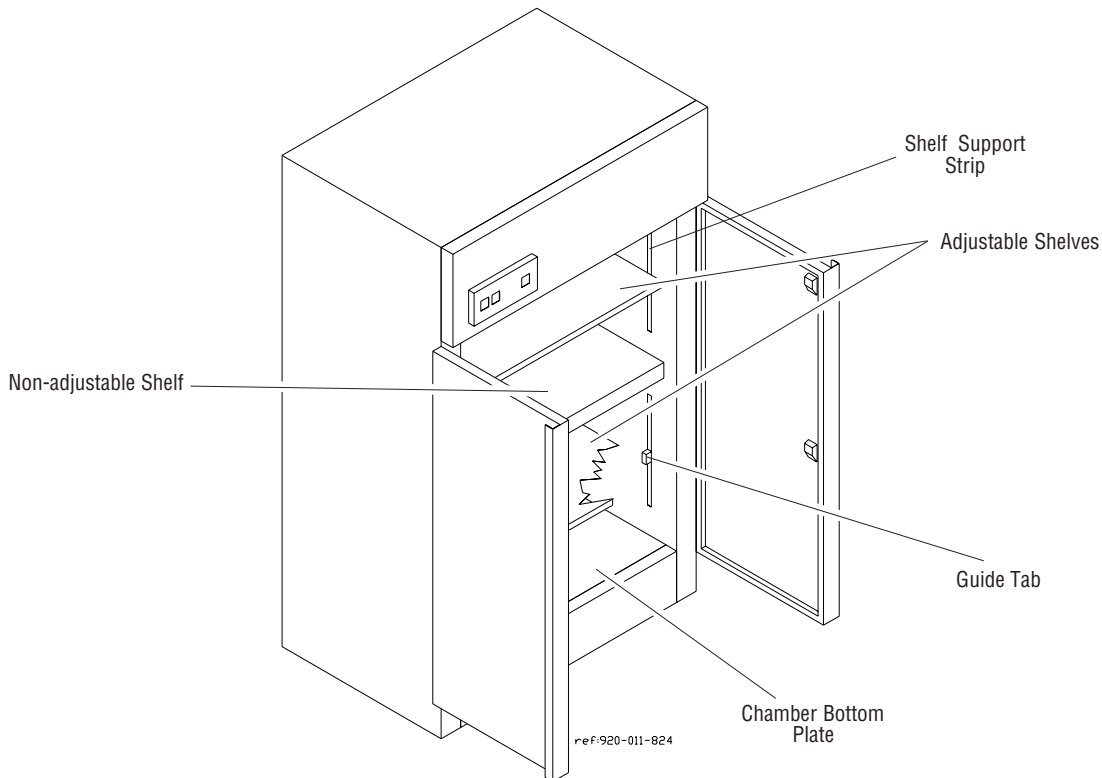


Figure 3-1. Drying Chamber

Set Digital Cycle Timer (if option applies)

If unit is equipped with option, the digital cycle timer is mounted at the far left of the control panel (see Figure 3-2). The upper display counts down the time remaining in the drying cycle, and the lower display indicates the preset cycle time. Cycle time is displayed in hours: minutes (HH:MM) and can be set from 00:00 to 99:59 hours.

Cycle time must be set before starting dryer operation. To set cycle time, press the increment keys as follows:

- Key 1 — to change the first digit of the preset time display
- Key 2 — to change the second digit of the preset time display
- Key 3 — to change the third digit of the preset time display
- Key 4 — to change the fourth digit of the preset time display

Pressing the increment key increases the value of the corresponding digit by one.

Once cycle time is set, operator can start dryer operation. When cycle time is expended (countdown display shows 00:00), drying system automatically stops.

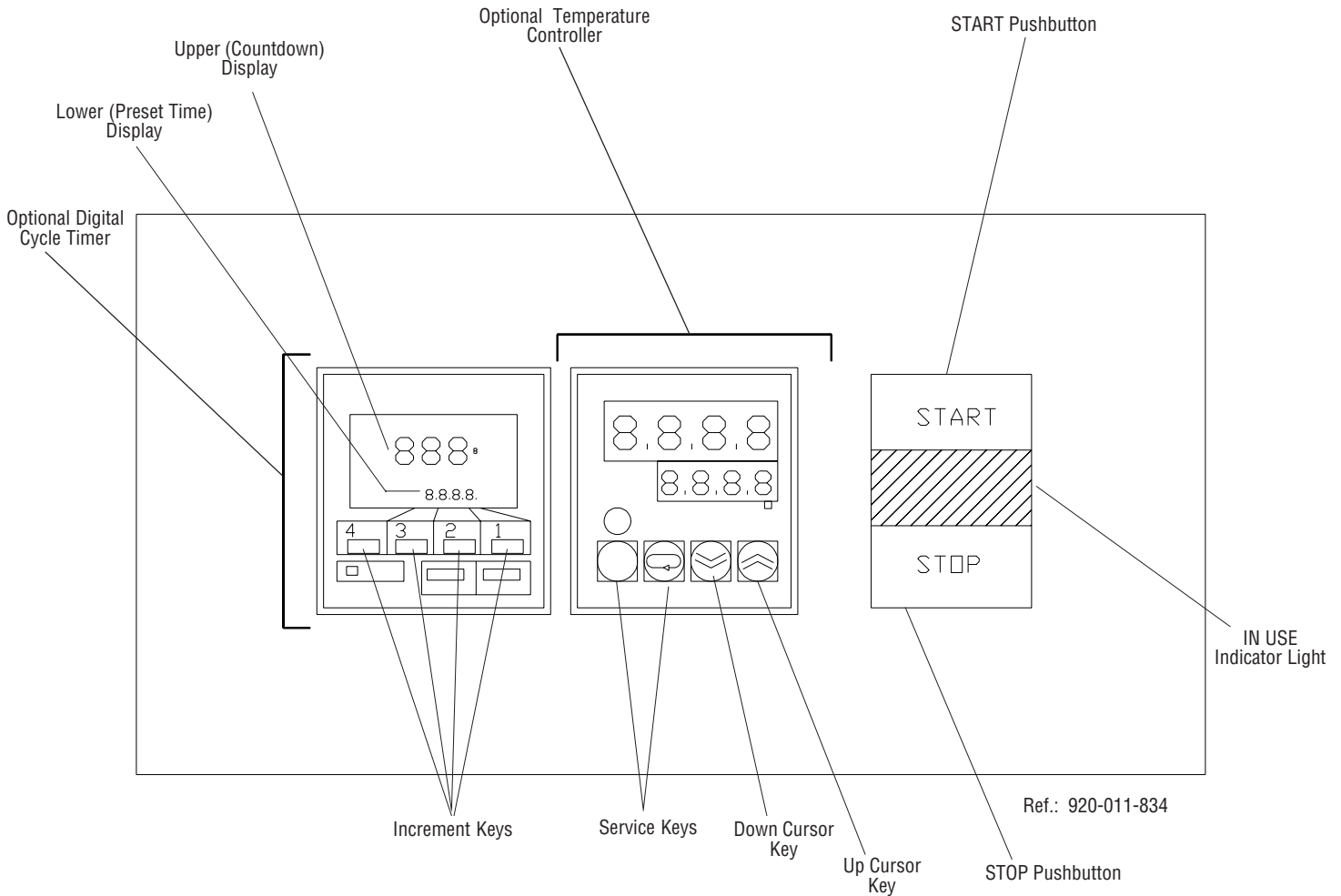


Figure 3-2. Control Panel

////////////////////////////////////
**Set Digital
Temperature
Controller (if option
applies)**
////////////////////////////////////

If unit is equipped with option, the temperature controller is mounted in the middle of the control panel, next to the START/STOP pushbutton assembly (see Figure 3-2). The upper (Process Value [PV]) display indicates the actual air temperature in the chamber during unit operation, and the lower (Set Value [SV]) display indicates the set drying temperature. Temperature is displayed in °F or °C, depending on factory set-up. Drying temperature can be set from 0°F to 200°F (0°C to 93°C), or from 0°F to 175°F (0°C to 79°C) if unit is equipped with manifold drying option.

Temperature controller only functions when unit is operating. START pushbutton must be pressed before set drying temperature can be changed. To change drying temperature, press cursor keys as follows:

- Up cursor key - to increase set value by 1°C or 1°F
- Down cursor key - to decrease set value by 1°C or 1°F

Once temperature is set, drying system heats chamber air until the set temperature value is reached. During unit operation, chamber temperature is monitored and maintained at the set temperature value.

NOTE: The two first keys (Service keys) are only used by qualified service technicians when replacing the temperature controller (see Figure 3-2).


////////////////////////////////////
Operation
////////////////////////////////////


1. Make sure glassware is placed correctly on shelves as explained in “Load Chamber” section. If option applies, make sure manifolds are correctly positioned in chamber.
2. Close chamber door(s).
3. Press START pushbutton (see Figure 3-2). In Use indicator light glows amber. Dryer operation is continuous until STOP pushbutton is pressed.
4. If unit is equipped with digital timer operation, dryer operation is continuous until preset cycle time expires.

NOTE: Dryer operation can be stopped at any time by pressing STOP pushbutton.

NOTE: If running the first cycle of the day, allow load to dry longer. The chamber is heated only when unit is operating. When unit is not in use, chamber cools and a longer first cycle must be run before air reaches set temperature.


5. If unit is equipped with temperature controller option, adjust the set temperature value, if desired.
6. If chamber temperature exceeds 245°F (118°C), a security thermal switch cuts power to the drying system (heater and blower) and turns off the In Use indicator light. Dryer must be reset by a qualified service technician.
7. When desired cycle is complete, press STOP pushbutton to halt dryer operation. In Use light turns off.
8. Open chamber door(s) and allow glassware to cool down before unloading.


 **WARNING - BURN HAZARD:**
Before unloading or servicing the unit, allow dryer and dryer surfaces to cool down.

 **WARNING - BURN HAZARD:**
Wear gloves when unloading unit. Glassware, manifolds and chamber bottom become very hot during unit operation.

////////////////////////////////////
Shutdown
////////////////////////////////////

1. Open chamber door and allow drying chamber to cool.
2. Position building electrical supply disconnect switch (circuit breaker) to OFF.
3. Clean unit as described in Section 4, *Routine Maintenance*.

 **WARNING – PERSONAL INJURY AND/OR EQUIPMENT DAMAGE HAZARD:** Safe and reliable operation of this equipment required regularly scheduled preventive maintenance, in addition to the faithful performance of the routine maintenance. Contact STERIS Engineering Service to schedule preventive maintenance.

 **WARNING – PERSONAL INJURY AND/OR EQUIPMENT DAMAGE HAZARD:** Repairs and adjustments to this equipment must be made only by fully qualified service personnel. Non-routine maintenance performed by inexperienced, unqualified personnel or installation of unauthorized parts could cause personal injury, invalidate the warranty, or result in costly damage. Contact your STERIS Engineering Service representative regarding service options.

 **WARNING – FALL HAZARD:** To prevent falls, keep floor dry. Promptly clean up any spills or drippage.

Procedures described in this section should be performed at regular intervals as indicated. The indicated frequencies are minimum and should be increased with increased usage of the equipment. Should a problem occur, refer to Section 5, *Troubleshooting*.

A Preventive Maintenance Agreement is available to assure peak equipment performance and avoid unscheduled downtime. The agreement includes maintenance adjustments, and replacement of worn parts by a qualified technician on a scheduled basis. Contact your STERIS representative if interested.

Any maintenance procedure not included in this section should be performed by a qualified technician. These procedures are described in the *Maintenance Manual, P-764323-294*, available from your STERIS Engineering Service representative.

Cleaning Procedures

NOTE: Follow manufacturer's recommendations regarding use of cleaning products (i.e., concentration, safety precautions, etc.)

» Weekly

WARNING — ELECTRIC SHOCK HAZARD: Before performing any service on the unit, lock building electrical supply disconnect switch to OFF position.

CAUTION: Use non-abrasive cleaners when cleaning unit. Follow directions on containers and rub in a back-and-forth motion (in same direction as surface grain). Cleaners rubbed in a circular motion or applied with a wire brush or steel wool on door and chamber assemblies can be harmful to stainless steel. Do not use cleaners on painted surfaces.

1. Clean unit exterior as follows to remove general or stubborn stains.
 - a. Using a damp cloth or sponge, apply cleaner in a back-and-forth motion, in same direction as surface grain.
 - b. Thoroughly wipe off cleaner.
 - c. Polish surface with a clean, dry, lint-free cloth.
2. Wash chamber interior with a mild detergent solution. Rinse with tap water and dry with a lint-free cloth.

NOTE: If interior is stained, clean to remove general and stubborn stains by using a damp cloth or sponge. Apply cleaner in a back-and-forth motion, in same direction as surface grain. Thoroughly wipe off cleaner and polish with a clean, dry, lint-free cloth.

» Bi-monthly

Clean aluminium filter, located on top of dryer, as follows (see Figure 4-1):

1. Loosen wing nut and move filter clip away from filter.
2. Lift up end of filter by the handle. Pull filter out from under tabs.
3. Using pressurized air or water, thoroughly remove dirt and lint from filter.
4. Slide filter under tabs and set into panel cutout.
5. Move filter clip over filter and tighten wing nut.

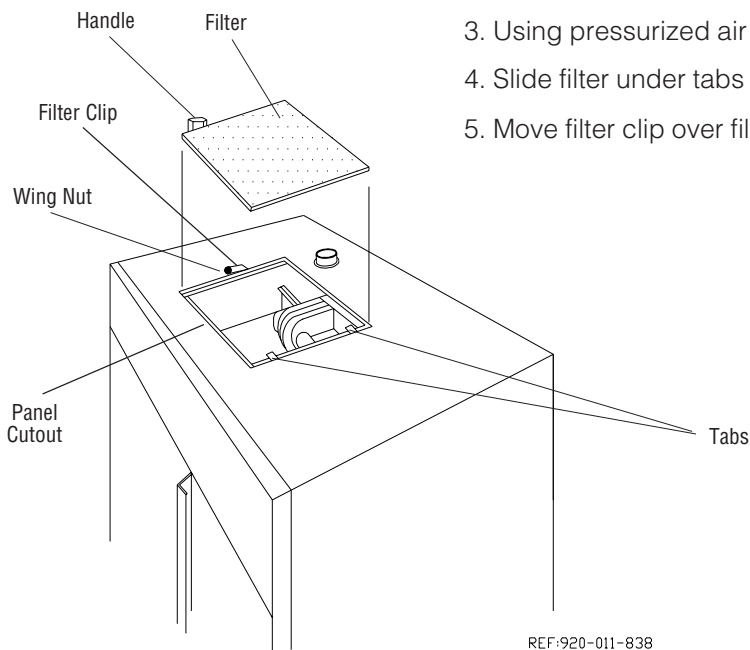


Figure 4-1. Filter Removal

⚠ WARNING – PERSONAL INJURY AND/OR EQUIPMENT DAMAGE HAZARD: Repairs and adjustments to this equipment must be made only by fully qualified service personnel. Non-routine maintenance performed by inexperienced, unqualified personnel or installation of unauthorized parts could cause personal injury, invalidate the warranty, or result in costly damage. Contact your STERIS Engineering Service representative regarding service options.

⚠ WARNING – FALL HAZARD: To prevent falls, keep floor dry. Promptly clean up any spills or drippage.

This section describes the type of dryer malfunctions likely to occur and indicates probable causes and corrective actions.

If you are unable to correct the problem with use of the Troubleshooting Chart, or if a problem occurs that is not described on the chart, please call your local STERIS Engineering Service representative. A factory-trained service technician will promptly place your dryer in proper working condition. Never permit unqualified persons to perform service on the dryer.

Table 5-1. Troubleshooting Chart

PROBLEM	TO CORRECT
1. Unit does not operate when START pushbutton is pressed.	<ol style="list-style-type: none"> 1. Building electrical supply disconnect switch (circuit breaker) OFF — Position to ON. 2. If unit is equipped with digital cycle timer option, time is set at 00:00 — Change preset cycle time. 3. Security thermal switch open (chamber temperature exceeded 245°F [118°C]) — Call a qualified service technician.
2. Load does not dry.	<ol style="list-style-type: none"> 1. Glassware not adequately drained of excessive moisture — Drain glassware. 2. Drying time too short — Dry load longer. 3. First cycle of day — Allow load to dry longer. 4. If unit is equipped with manifold drying option, manifolds are not positioned in chamber correctly over a manifold connector. 5. If unit is equipped with manifold drying option, manifold connectors are not connecting with properly positioned manifolds — Manually move manifold connectors up and down to check for smooth operation.

Ordering Information

Use only STERIS authorized parts on this equipment. Use of unauthorized parts will void the warranty. To order replacement parts and/or products, proceed as follows:

1. Include the part number and description as listed below.
2. Include the model and serial numbers of your equipment on your order.
3. Send your order directly to the STERIS Sales and Service Center servicing your area.

Contact your STERIS representative if you need parts that are not listed below.

Replacement Parts and Products

The parts listed in this section are those that would be necessary to do minor maintenance on this dryer.

Table 6-1. Replacement Parts	
DESCRIPTION	PART NUMBER
Cabinet: FILTER	P-117951-071
Chamber: TAB, Guide SUPPORT, Manifold	P-117950-473 P-117950-010
Control Panel: ASSEMBLY, START/STOP Pushbutton BULB	P-117902-181 P-117901-252
Electrical Control Box: FUUSE, 6.25 A, 250 V FUUSE, 3 A, 250 V FUUSE, 6 A, 600 V FUUSE, 10 A, 600 V FUUSE, 20 A, 250 V FUUSE, 15 A, 500 V FUUSE, 25 A, 600 V FUUSE, 2 A, 500 V	P-117951-583 P-117941-391 P-117903-070 P-117902-672 P-117909-199 P-117951-809 P-117951-811 P-117951-584

Publications listed in this section are those associated with the use and maintenance of the Reliance® 1024/1034 Laboratory Glassware Dryers.

When ordering, please include the part number (if applicable), description and quantity of each publication requested. Order directly from your STERIS representative.

PUBLICATION	PART NUMBER
Tech Data Sheet	SD340
Uncrating/Installation Instructions	P-122990-608
Maintenance Manual	P-764323-294
Equipment Drawings: <ul style="list-style-type: none">• Reliance 1024 Laboratory Glassware Dryer• Reliance 1034 Laboratory Glassware Dryer	P-122991-019 P-122991-020