ROUTINE MAINTENANCE

Amsco® Century® Series Sterilizers

(05/27/05) P129367-410
A WORD FROM STERIS CORPORATION

This manual contains important information on proper maintenance of this sterilizer. All operators and department heads are urged to carefully review and become familiar with the warnings, cautions, and instructions contained herein. This sterilizer is specifically designed to process goods using only the cycles as specified in this manual. If there is any doubt about a specific material or product, contact the manufacturer of the product for the recommended sterilization technique.

STERIS Corporation carries a complete line of accessories for this unit to simplify, organize, and assure the sterilization process. Instrument trays, pouches, and biological/chemical monitoring systems are all available to fulfill your facility’s processing needs. A STERIS representative will gladly review these with you.

A summary of the Safety Precautions to be observed when operating or servicing this sterilizer can be found in Section 1 of this manual. Do not operate or service the sterilizer until you have become familiar with this information.

This sterilizer is not designed to process flammable compounds. Any alteration of the sterilizer which affects its operation will void the warranty, could adversely affect sterilization efficacy, could violate federal, state and local regulations, and jeopardize your insurance coverage.

A thorough preventive maintenance program is essential to safe and proper sterilizer operation. You are encouraged to contact STERIS concerning our preventive maintenance agreement. Under terms of this agreement, preventive maintenance, adjustments, and replacement of worn parts are done on a scheduled basis to help assure optimal equipment performance and to help avoid untimely or costly interruptions. STERIS maintains a nationwide staff of well-equipped, factory-trained technicians to provide this service, as well as expert repair services. Contact STERIS Corporation for details.
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The following list of Safety Precautions must be observed when operating or servicing this unit. WARNINGS indicate the potential for danger to personnel, and CAUTIONS indicate the potential for damage to equipment. The precautions are repeated (in whole or in part) where applicable throughout the manual. Carefully read these Safety Precautions before proceeding to use or service the unit.

**WARNING — BURN HAZARD:**

- **Before performing any cleaning or maintenance procedures, allow sterilizer, generator (if applicable) and accessories to cool to room temperature.**
- **Sterilizer and rack/shelves will be HOT after cycle is run.** Always wear protective gloves and apron (also face shield if processing liquids) when removing a processed load. Protective gloves and apron should also be worn when reloading sterilizer following previous operation.
- **A steam supply malfunction, identified by an audible (warble tone) and visual alarm, can cause the sterilizer chamber to fill with scalding water.**
  - Do not open the door.
  - Call for service immediately.
- **Before daily flushing of the generator,** generator must be at 0.0 psig and cooled to room temperature.
- **Failure to shut off the steam supply when cleaning or replacing strainers** can result in serious injury.
- **Jacket pressure must be at 0.0 psig** before beginning work on the steam trap.
- **Proper testing of the safety valve requires the valve to be under pressure.** Exhaust from the safety valve is hot and can cause burns. Proper safety attire (gloves, eye protection, insulated overalls) as designated by OSHA are required. Testing is to be performed by qualified service personnel only.
- **Sterilizer operator may be severely burned by scalding water if the water level control malfunctions.** The steam generator level control may malfunction if the supply water exceeds 26,000 ohms/cm (38.5 micromhos conductivity minimum). Do not connect to treated water (e.g., distilled, reverse osmosis, deionized) unless water resistivity is determined to be acceptable. If water exceeds 26,000 ohms/cm, contact STERIS for information concerning modifications required to the generator control system.

**WARNING — ELECTRIC SHOCK HAZARD:**

- **Disconnect all utilities to sterilizer before servicing.** Do not service the sterilizer unless all utilities have been properly locked out. Always follow OSHA Lockout-Tagout and electrical safety-related work practice standards. (See 29 CFR 1910.147 and .331 through .335.)
- **Disconnect facility power or place control disconnect switch,** located on control box, to OFF before removing or replacing any fuses or printed circuits boards from the sterilizer’s control section.

**WARNING — EXPLOSION HAZARD:**

- **This sterilizer is not designed to process flammable compounds.**

**WARNING — SLIPPING HAZARD:**

- **To avoid slippery floor conditions,** immediately wipe up any spilled liquids or condensation in sterilizer loading or unloading area(s).
WARNING — STERILITY ASSURANCE HAZARD:

⚠️ Load sterility may be compromised if the biological air removal or air leak test indicates a potential problem. If these indicators show a potential problem, refer the situation to a qualified service technician before using the sterilizer further.

⚠️ According to AAMI standards, a measured leak rate greater than 1.0 mm Hg/minute indicates a problem with the sterilizer. Refer the situation to a qualified service technician before using the sterilizer further.

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 to schedule preventive maintenance.

⚠️ Repairs and adjustments to this equipment must be made only by fully qualified service personnel. Maintenance performed by inexperienced, unqualified persons or the installation of unauthorized parts could cause personal injury or result in costly equipment damage.

WARNING — PERSONAL INJURY HAZARD:

⚠️ Keep hands and arms out of the door opening when closing the door.

CAUTION — POSSIBLE EQUIPMENT DAMAGE:

⚠️ Insufficient service clearance will make repairs more difficult and time consuming.

⚠️ Piping sized too small may cause water hammer, resulting in damage to the sterilizer.

⚠️ Never use a wire brush, abrasives or steel wool on door and chamber assembly. Do not use cleaners containing chloride on stainless-steel surfaces. Chloride based cleaners will deteriorate stainless-steel eventually leading to failure of the vessel.

⚠️ After installation, it is mandatory to brace piping at the drain funnel so that it will not move vertically.

⚠️ Allow thermostatic traps to cool to room temperature before removing cover. Since there is nothing to limit expansion, the bellows may rupture or fatigue if trap is opened while hot.

⚠️ Actuation at less than 75% of rated pressure can allow debris to contaminate the seat and cause the safety valve to leak. A leaking safety valve must be replaced.

⚠️ Failure to flush generator on a daily basis could result in generator malfunctions. Warranty on the generator will be voided unless flushed daily.

⚠️ Before flushing generator, ensure generator drain valve is fully open to prevent generator heaters from turning on during flush phase.

⚠️ Sterilization of chloride-containing solutions (e.g., saline) can cause chamber corrosion and is not recommended by the manufacturer. If, however, chloride-containing solutions must be processed, clean the chamber after each use.
**INSTALLATION VERIFICATION**

### 2.1 General

An Equipment Drawing showing all utility and space requirements was supplied with the sterilizer. Clearance space shown on the drawing is necessary for ease of installation and to assure proper operation and maintenance of equipment. Installation and Uncrating Instructions were also furnished with the sterilizer. If any of these documents are missing or misplaced, contact STERIS giving the Serial, Equipment and Model numbers. Replacement copies will be sent to you promptly.

### 2.2 Installation Checklist

#### 2.2.1 Service Clearance

- Clearance as specified on the **Equipment Drawing** must be available.

#### 2.2.2 Plumbing Service

- **Feed Water:**
  - All supply line shutoffs must be provided with lockout capability.
  - Backflow prevention is by others.
- **Water Pressure** measured (specification is 30 to 50 psig, static and dynamic). Water pressure supplied must be within specifications as shown on the **Equipment Drawing**. If pressure is too high, a regulator must be installed. If water pressure is too low, equipment performance will be affected; use of a booster pump (by others) is recommended.
- **Water Quality** supplied must be within specifications. Improper water quality adversely affects equipment operation, especially units equipped with an electric steam generator. Damage to the equipment from improper water quality is not covered under warranty.
- **Steam Supply:**
  - Shutoffs (with provisions for lockout and tag out) located nearby.
  - Supply piping adequately sized.
  - Supply pressure measured (specification is 50 to 80 psig, static and dynamic).
- **Steam Piping** to the sterilizer is to be trapped at a point before connection to the sterilizer. Trap is required to remove condensate from the steam line.
- **Drain Piping** must be sloped properly, and sized to handle the maximum waste flow from the sterilizer.
2.2.3 Electrical Service

- All **disconnects** must be provided with lockout capability.
- 120 VAC, one phase service to the unit must be as specified on the Equipment Drawing.
- 120 VAC, one phase service requires a clearly marked **disconnect** located near the sterilizer.
- 120 VAC, one phase service should be on a separate circuit, and not tied into circuits containing large reactive loads (e.g., motors).
- Three phase power for optional electric steam generators must meet specifications on the Equipment Drawing.
- Three phase service requires a clearly marked **disconnect** located near the sterilizer.

2.2.4 Sterilizer Final Check

- Door runs up and down smoothly.
- Door open/close time is 7.0-9.0 seconds (power door units).
- Door up switches adjusted correctly.
- Chamber strainer in place.
- Rack and shelves/loading car operates correctly.
- Paper loaded in printer.

2.2.5 Cycle Operation

- **WARNING - EXPLOSION HAZARD:** This sterilizer is not designed to process flammable compounds.
- **CAUTION - POSSIBLE EQUIPMENT DAMAGE:** Sterilization of chloride-containing solutions (e.g., saline) can cause chamber corrosion and is not recommended by the manufacturer. If, however, chloride-containing solutions must be processed, clean the chamber after each use.
- Unit powers up correctly.
- If prevacuum sterilizer, run leak test cycle — leak rate is to be less than 1.0 mmHg/minute.
- Verify operation of a typical cycle (e.g., Gravity).
Figure 2-1. Typical Amsco® Century® Series Sterilizer
PREVENTIVE MAINTENANCE

3.1 Periodic Maintenance Schedule

Maintenance procedures described in Sections 3 and 4 should be performed regularly at the intervals indicated, using the maintenance schedule in Table 3-1 as a guide. Local conditions (water quality, usage, etc.) may require more frequent maintenance than indicated. Refer to ILLUSTRATED PARTS BREAKDOWN publication (P129367-409) for replacement parts list.

If an operating problem occurs, refer to Section 5, Troubleshooting.

**Table 3–1. Periodic Maintenance Schedule for Century Sterilizer**

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<td><strong>1.0 PREPARATIONS FOR PERIODIC MAINTENANCE</strong></td>
<td></td>
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<tr>
<td>1.1 Discuss equipment operation with department personnel.</td>
<td>X</td>
</tr>
<tr>
<td>1.2 Inspect printouts for signs of trouble.</td>
<td>X</td>
</tr>
<tr>
<td>1.3 Install test equipment.</td>
<td>X</td>
</tr>
<tr>
<td>1.4 When necessary, shut off all building services (using lockout and tag out procedures), and drain all utility lines.</td>
<td>X</td>
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<tr>
<td><strong>2.0 DOOR ASSEMBLY</strong></td>
<td></td>
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<tr>
<td>2.1 Verify door up proximity switch setting.</td>
<td>X</td>
</tr>
<tr>
<td>2.2 Check tension on power door cable.</td>
<td>X</td>
</tr>
<tr>
<td>2.3 Check door for smooth operation.</td>
<td>X</td>
</tr>
<tr>
<td><strong>3.0 STEAM AND WATER SUPPLY HAND VALVE</strong></td>
<td></td>
</tr>
<tr>
<td>3.1 Inspect each hand valve for smooth operation and proper valve seating.</td>
<td>X</td>
</tr>
<tr>
<td>3.2 Inspect valve for leaks.</td>
<td>X</td>
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</tbody>
</table>
### Table 3–1. Periodic Maintenance for Century Sterilizer (Cont’d)

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<tr>
<td><strong>4.0 MANIFOLD PIPING</strong></td>
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<tr>
<td>4.1 Steam supply manifold — rebuild all components.</td>
<td>X</td>
</tr>
<tr>
<td>4.2 Exhaust manifold — rebuild all components.</td>
<td></td>
</tr>
<tr>
<td>4.3 Double door steam supply valve — rebuild all components.</td>
<td>X</td>
</tr>
<tr>
<td>4.4 Double door exhaust manifold — rebuild all components.</td>
<td></td>
</tr>
<tr>
<td><strong>5.0 OTHER PIPING</strong></td>
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<tr>
<td>5.1 Rebuild Pressure Regulating Valve.</td>
<td>X</td>
</tr>
<tr>
<td>5.2 Rebuild jacket trap.</td>
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<tr>
<td>5.3 Clean steam supply strainer.</td>
<td></td>
</tr>
<tr>
<td>5.4 Clean water supply strainer.</td>
<td></td>
</tr>
<tr>
<td>5.5 Test safety valve for proper operation.</td>
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<tr>
<td>5.6 Check chamber and jacket pressure gauges for accuracy.</td>
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<tr>
<td>5.7 Replace air inlet filter cartridge.</td>
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<tr>
<td>5.8 Water Valves - rebuild valve(s).</td>
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<td>6.1 Check cooling fan operation.</td>
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<tr>
<td>6.2 Replace fan filter.</td>
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<td>6.3 Confirm control calibration.</td>
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<td>6.4 Replace battery.</td>
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<td>6.5 Verify operation of flood alarm control.</td>
<td>X</td>
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<tr>
<td>6.6 Replace printer.</td>
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<tr>
<td>6.7 Replace ribbon cartridge.</td>
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<td><strong>7.0 ELECTRIC STEAM GENERATOR (IF APPLICABLE)</strong></td>
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<tr>
<td>7.1 Discuss generator maintenance required with department personnel.</td>
<td>X</td>
</tr>
<tr>
<td>7.2 Flush generator (See <strong>ATTENTION</strong> note below this section).</td>
<td></td>
</tr>
<tr>
<td>7.3 Inspect all wiring and connections for damage and fraying.</td>
<td>X</td>
</tr>
<tr>
<td>7.4 Inspect control wiring.</td>
<td>X</td>
</tr>
<tr>
<td>7.5 Inspect fuses and fuse clips.</td>
<td>X</td>
</tr>
<tr>
<td>7.6 Inspect heater controls.</td>
<td>X</td>
</tr>
<tr>
<td>7.7 Inspect hand valves.</td>
<td>X</td>
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<tr>
<td>7.8 Replace hand valves.</td>
<td></td>
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</table>

**ATTENTION** note below this section:
### Table 3–1. Periodic Maintenance for Century Sterilizer (Cont’d)

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<td><strong>7.0 ELECTRIC STEAM GENERATOR (IF APPLICABLE, Cont’d)</strong></td>
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<tr>
<td>7.9 Replace check valves.</td>
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<tr>
<td>7.10 Inspect solenoid valves for proper operation (run a cycle).</td>
<td>X</td>
</tr>
<tr>
<td>7.11 Rebuild solenoid valves.</td>
<td>X</td>
</tr>
<tr>
<td>7.12 Verify operation of safety valve.</td>
<td>X</td>
</tr>
<tr>
<td>7.13 Clean strainers</td>
<td>X</td>
</tr>
<tr>
<td>7.14 Inspect gauge glass.</td>
<td>X</td>
</tr>
<tr>
<td>7.15 Replace water gauge glass and washers.</td>
<td>X</td>
</tr>
<tr>
<td>7.16 Inspect pressure control switches.</td>
<td>X</td>
</tr>
<tr>
<td>7.17 Verify proper setting of pressure switches (control safety and SP-1)</td>
<td>X</td>
</tr>
<tr>
<td>7.18 Verify pressure gauge.</td>
<td>X</td>
</tr>
<tr>
<td>7.19 Check proper operation of pressure gauge.</td>
<td>X</td>
</tr>
<tr>
<td>7.20 Clean water level control rods.</td>
<td>X</td>
</tr>
<tr>
<td>7.21 Verify water level control operation.</td>
<td>X</td>
</tr>
<tr>
<td>7.22 Clean heating element and boiler chamber.</td>
<td>X</td>
</tr>
<tr>
<td>7.23 Descale generator.*</td>
<td>X</td>
</tr>
<tr>
<td>7.24 Determine water hardness, compare to specification.</td>
<td>X</td>
</tr>
<tr>
<td>7.25 Test safety valve for proper operation.</td>
<td>X</td>
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</table>

**ATTENTION:** Warranty on this steam generator will be voided unless daily flushing procedures are performed. See Daily Maintenance Instructions in this manual for proper instruction, or call STERIS for assistance.

*More frequent descaling may be necessary depending on local water quality and frequency of flush. Contact STERIS for this service.

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<tr>
<th><strong>8.0 FINAL TEST</strong></th>
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<tr>
<td>8.1 Clean lint and dirt from components.</td>
<td>X</td>
</tr>
<tr>
<td>8.2 Inspect wiring, terminals and socket connection for damage or fraying.</td>
<td>X</td>
</tr>
<tr>
<td>8.3 Run machine through each cycle to verify proper operation. Check all displays and printouts.</td>
<td>X</td>
</tr>
<tr>
<td>8.4 Remove all test equipment installed for inspection.</td>
<td>X</td>
</tr>
<tr>
<td>8.5 Install any panel or cover removed during inspection.</td>
<td>X</td>
</tr>
<tr>
<td>8.6 Inspect areas to ensure removal of all materials used during inspection.</td>
<td>X</td>
</tr>
</tbody>
</table>
If a building steam source is not available, the sterilizer may be equipped with an electric steam generator. The generator automatically converts water to steam using electric heat. The steam created is then used to power the sterilizer.

Steam generators are highly susceptible to mineral scaling if the supplied water has any level of hardness. Refer to Table 3-2 for water quality requirements.

**IMPORTANT:** Regardless of the hardness level of supplied water, the generator must be flushed every day before use to prevent mineral scaling or carryover of debris into the chamber.

**ATTENTION:** Warranty on this steam generator will be voided unless daily flushing procedures are performed.

1. Press the **ON** button on the sterilizer touch screen (screen #0). Display advances to screen #72. Instructions on how to flush the generator are listed on screen #72.

2. Check generator pressure gauge (see Fig. 3-1). Generator must be at 0.0 psig and room temperature before flushing.

**WARNING - BURN HAZARD:** Before daily flushing of the generator, generator must be at 0.0 psig and cooled to room temperature.

**CAUTION - POSSIBLE EQUIPMENT DAMAGE:** Before flushing generator, ensure generator drain valve is fully open to prevent generator heaters from turning on during flush phase.
NOTE: If generator is not at 0.0 psig, the Flush can be bypassed by pressing CANCEL, however the flush should not be bypassed on a continuous basis or else damage to the generator will occur.

To ensure generator is at 0.0 psig the sterilizer can be shut off at end of the day and by next morning the unit will be able to be flushed. Approximately seven hours is required for generator to cool down to less than 140°F (60°C).

3. Open drain valve on the side of the generator electric box (see Fig. 3-1).

4. Verify that the water supply valve to the sterilizer are open.

5. Ensure the water supply valve to the generator is open (see Fig. 3-1).

6. Press START TIMER on screen #72. Water automatically flushes through the generator and out the drain for five minutes. Flush timer on screen #72 counts down time remaining in the flush phase.

7. After five minutes, alarm buzzer sounds and display advances to screen #73. Instructions on how to restart the generator are listed on screen #73.

8. Close the generator drain valve.

9. Press CONTINUE on screen #73. Generator automatically fills to the proper level and starts to heat. Display screen advances to the Main Menu screen (#1). Allow 10 minutes warm-up time once generator starts to fill.

10. Close front cabinet panel.

NOTE: The generator must be flushed every day before use.

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Table 3-2. Required Feed Water Quality for Carbon Steel Steam Generators

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<tr>
<th>Condition</th>
<th>Nominal Conditions</th>
<th>Maximum Conditions</th>
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</thead>
<tbody>
<tr>
<td>Temperature as supplied</td>
<td>140° F (60° C)</td>
<td></td>
</tr>
<tr>
<td>Total Hardness as CaCO₃*</td>
<td>0-17 mg/L</td>
<td>130 mg/L</td>
</tr>
<tr>
<td>Total Dissolved Solids</td>
<td>50-150 mg/L</td>
<td>250 mg/L</td>
</tr>
<tr>
<td>Total Alkalinity as CaCO₃</td>
<td>50-100 mg/L</td>
<td>180 mg/L</td>
</tr>
<tr>
<td>pH</td>
<td>6.8-7.5</td>
<td>6.5-8.5</td>
</tr>
<tr>
<td>Total Silica</td>
<td>0.1-1.0 mg/L</td>
<td>2.5 mg/L</td>
</tr>
<tr>
<td>Resistivity - ohms/cm</td>
<td>2000-6000</td>
<td>26000</td>
</tr>
</tbody>
</table>

*17.1 mg/L = 1 grain hardness
**3.2.2 Clean Chamber Drain Strainer**

**IMPORTANT:** The chamber drain strainer must be cleaned at least once a day, preferably in the morning before running the first cycle.

1. Remove the drain strainer from the drain in the bottom of the chamber as shown in Figure 3-2.
2. Remove any obvious debris from the strainer. If necessary, clear the screen in the strainer using a brush, wire or similar tool.
3. Once it has been cleared of obvious debris, reverse flush the strainer under running water.
4. Replace the strainer in the chamber drain.

![Figure 3-2. Remove Chamber Drain Strainer](image)

**3.2.3 Clean Chamber**

**IMPORTANT:** The entire chamber should be wiped down and rinsed following any spills or other soiling.

1. If applicable, the shelf assembly must be removed before cleaning the chamber.
   - **Single Door**
     a. Use a 1-1/8-inch socket wrench to loosen and remove the rear retaining nut (see Fig. 3-3) on the shelf assembly.
     b. Use a 1/8-inch hex wrench to loosen (but don’t remove) the six set screws (see Fig. 3-3) at the front of the shelf assembly.
     c. Carefully slide the shelf assembly out from the operating (unloading) end of the sterilizer.
   - **Double Door**
     a. Loosen (but do not remove) the six set screws (see Fig. 3-3) at both ends of the shelf assembly.
     b. Carefully slide the shelf assembly out from the operating end of the sterilizer.

**WARNING - SLIPPING HAZARD:** To avoid slippery floor conditions, immediately wipe up any spilled liquids or condensation in sterilizer loading or unloading area(s).

**WARNING - BURN HAZARD:** Before performing any cleaning or maintenance procedures, allow sterilizer, generator (if applicable) and accessories to cool to room temperature.
2. Wash the inside of the chamber and shelf assembly (plus any other loading equipment) with a mild detergent solution such as STERIS Liqui-Jet 2* Instrument Detergent, Criti-Klenz® Instrument Detergent, or current STERIS equivalent.

**IMPORTANT:** Chamber must be at room temperature, sterilizer off all night, before washing.

3. Once the chamber is clean replace the shelf assembly reversing the procedure given in Step 1.

---

![Figure 3-3. Remove Chamber Shelf Assembly](image)

**3.3 Weekly Maintenance**

---

**WARNING - BURN HAZARD:** Before performing any cleaning or maintenance procedures, allow sterilizer to cool to room temperature.

---

Flush chamber drain as follows whenever line becomes clogged:

- **a.** Turn off steam supply valve. Wait until jacket pressure is zero. Wait until chamber has cooled to room temperature.
- **b.** Remove chamber drain strainer (Fig. 3-2). Clean strainer using procedures given above, if necessary.
- **c.** Pour a solution of one pint of hot water and 1/4 cup of STERIS Liqui-Jet 2* Instrument Detergent or Criti-Klenz® Instrument Detergent (or current STERIS equivalent) into drain. Solution may puddle in the bottom of the chamber.
- **d.** Wait five minutes.
- **e.** Close the door, turn the steam valve on and run a Gravity cycle set for one minute sterilize and one minute dry.
- **f.** Open door and place strainer back in drain.

* Contact STERIS.
3.4 As Required

3.4.1 Change Printer Paper Roll

The printer paper roll should be changed whenever a colored stripe is visible on one or both edges of the printout paper.

1. Tear paper between take-up spool and printer.

2. Remove take-up spool from drive by inserting fingers in cavity as shown and pushing spool to the right.

3. Pull off right end of spool and remove used paper roll from spindle.

4. Open access door and remove old paper roll, gently pulling any remaining tape up and out of printer.
5. Insert new paper roll.

6. Insert end of paper into printer slot just behind ink cartridge.

7. Press PAPER FEED touch screen pad on display until paper advances through printer and ink cartridge, exiting the front.

8. Continue pressing PAPER FEED (or pull tape gently) until about 18" (457 mm) of paper hangs out of printer. Insert end of paper into slot of take-up spool, then replace right end of spool.
9. Rotate spool in direction shown until paper is secure.

10. Reinstall take-up spool on magnetic idler. Manually roll up slack paper.

3.4.2 Change Printer Ink Cartridge

The printer ink cartridge should be changed as soon as the type on printouts is light or faded, and before printouts become difficult to read.

1. Tear paper between take-up spool and printer.

2. Open access door, then press on right end of ink cartridge, until left end of cartridge pops out of the printer.
3. Slip cartridge off end of paper tape, slip new cartridge over tape in the same way as before, making sure paper tape slides between ink cartridge housing and ink ribbon.

4. Install left end of cartridge first, then push right end in as shown, snapping it into place.

5. Retighten ribbon by rotating wheel on left side of cartridge 1/4 turn. Then see Section 3.4.1, Change Printer Paper Roll, Steps 8 through 10 to reinstall take-up spool.
3.4.3 Replace Door Seal

If the door seal requires replacement, perform the following:

1. Use a tongue depressor or similar non-metal tool to pry and twist one section of the seal from the groove. Refer to Figure 3-4a.

2. Grasp the raised section of the seal and pull the remainder from the end-ring groove.

3. Examine the end ring groove for debris or residue. Clean if necessary.

4. Install new seal as follows:

   **NOTE:** When replacing the door seal, note the following:

   1) Ensure date information molded into rear of seal (refer to Fig. 3-4b) is at the bottom of the groove.

   2) Reference indicators are located inside the rear groove of door seal, at the middle of each side (refer to Fig. 3-4b).

   • **Do not** use a sharp instrument to install the seal.

   • **Do not** stretch the seal.

   a. Align right and left reference indicators with the screws attaching the end frame to the support stand, align top and bottom indicators with the ports in the top and bottom of the end ring frame.

   b. Press seal in at each reference point with fingertips.

   c. Press remainder of the seal into end-ring groove, starting at the corners.

5. Test installation.

   a. Attempt to close the door. If the door jams or sticks at any point in its travel check to ensure the seal has been fully pressed into the groove.

   b. Run a shortened test cycle to determine if the door seals adequately. If steam leaks from around the door or the seal, abort the cycle and examine the seal to ensure it has been properly seated in the end-ring groove. Once re-seated, run another test cycle. If the door fails to seal following the second test, another problem may exist. Contact your supervisor before using the sterilizer further.

   c. At the end of cycle, ensure seal has retracted fully into the groove.
Figure 3-4a. Remove Door Seal

Twist with Tongue Depressor to Pry Out Door Seal

Location of Reference Indicators

Figure 3-4b. Location of Seal Date Information and Reference Indicators

Location of Reference Indicators

Location of Seal Date Information

Rear of Door Seal
The material in this section of the manual is provided to allow for servicing components of the sterilizer most likely to need attention. These procedures are more advanced than cleaning and replacing expendables (such as printer paper and door seals). These procedures should always be performed by an experienced, trained service technician.

**WARNING - BURN HAZARD:** Before performing any cleaning or maintenance procedures, allow sterilizer, generator (if applicable) and accessories to cool to room temperature.

**CAUTION - POSSIBLE EQUIPMENT DAMAGE:** Sterilization of chloride-containing solutions (e.g., saline) can cause chamber corrosion and is not recommended by the manufacturer. If, however, chloride-containing solutions must be processed, clean the chamber after each use.

### 4.1 Air Filter Replacement

Refer to Figure 4-1 for location.

The purpose of the bacterial air filter is to filter incoming air. The system is exposed to contamination whenever the filter or the air lines below the filter are opened. Keep these components as clean as possible when servicing. The bacterial air filter contains a replaceable filter cartridge, refer to Section 3.1, *Periodic Maintenance Schedule* for frequency.

1. Remove the bowl from the filter body by loosening the retaining nut.
2. Remove the old filter element and discard.
3. Insert the new filter element (P129360-802) into the bowl.
4. Replace the bowl and tighten the retaining nut.

Refer to Figure 4-1 for location of strainers.

The strainers should be opened for cleaning after initial start-up and at least twice a year thereafter (refer to Section 3.1, *Periodic Maintenance Schedule*). Accumulation of sediment and rust will reduce pressure and flow. In extreme conditions, blockage may occur.

- **Disassembly**

  Shut off supply and vent pressure in line by running a short sterilizer cycle. Abort the cycle when no pressure is present in the steam or water lines.

  1. Shut off water and stream supplies.
  2. Remove the hex plug and gasket.
  3. Pull strainer and screen from body.
  4. Scrape and polish all rust and residue from the strainer screen and body. Use a wire brush or steel wool. Ensure all perforations are clear by poking open with a wire. Replace screen if damaged, rusted or corroded.
Figure 4-1. Serviceable Components
• Reassembly
  1. Insert the screen into the strainer body. Take care that no dirt or other particles remain in the strainer body.
  2. Replace and tighten hex plug. Use a new gasket if necessary.
  3. Ensure all pipe connections are tight after assembly.

Refer to Figure 4-1 for location.

• Disassembly
  1. Using a suitable wrench, unscrew and remove the cap and attached diaphragm assembly.
  2. Remove seat from body using a hex socket wrench.
  3. Wipe out bowl taking care that loose material does not enter the piping.

• Reassembly
  1. Screw new seat in firmly. (Use a socket head wrench to tighten.)
     NOTE: Seat and diaphragm are a lapped pair.
  2. Install new diaphragm.
  3. Replace cap and attached diaphragm assembly, using a new gasket.
  4. Check for leaks.

### 4.3 Steam Trap Replacement

**WARNING - BURN HAZARD:** Before performing any cleaning allow sterilizer and generator (if applicable) to cool to room temperature.

**WARNING - BURN HAZARD:** Jacket pressure must be at 0.0 psig before beginning work on the steam trap.

**CAUTION - POSSIBLE EQUIPMENT DAMAGE:** Allow thermostatic traps to cool to room temperature before removing cover. Since there is nothing to limit expansion, the bellows may rupture or fatigue if trap is opened while hot.

### 4.4 Valves

#### 4.4.1 Clean or Replace Piping Check Valves

Repair of check valves is limited to cleaning of valve seats and/or replacing seal rings when foreign matter causes improper operation. When a valve becomes defective, the entire valve must be replaced or repaired with the appropriate Seal Kit. Refer to ILLUSTRATED PARTS BREAKDOWN publication (P129362-409) for correct check valve part number.

#### 4.4.2 Clean or Replace Manifold Check Valves

Repair of check valves is limited to cleaning valve seats when foreign matter causes improper operation. If the seat itself is damaged, the valve can be repaired according to the instructions in the Manifold Repair Kit. Refer to ILLUSTRATED PARTS BREAKDOWN publication (P129367-409) for correct Manifold Repair Kit part number.

#### 4.4.3 Rebuild Manifold Solenoid Valves

Solenoid valves can be rebuilt following the instructions included in the manifold repair kit. Refer to ILLUSTRATED PARTS BREAKDOWN publication (P129367-409) for correct Manifold Repair Kit part number.
4.4.4 Safety Valve Test

**WARNING - BURN HAZARD:** Proper testing of the safety valve requires the valve to be under pressure. Exhaust from the safety valve is hot and can cause burns. Proper safety attire (gloves, eye protection, insulated overalls) as designated by OSHA, is required. Testing is to be performed by qualified service personnel only.

**CAUTION - POSSIBLE EQUIPMENT DAMAGE:** Actuation at less than 75% of rated pressure can allow debris to contaminate the seat and cause the safety valve to leak. A leaking safety valve must be replaced.

The safety valve is to be tested periodically (refer to Section 3.1, *Periodic Maintenance Schedule*). This procedure can also be used to test the optional integral steam generator’s safety valve (if applicable).

- Prevent damage during testing by ensuring that **at least 75% of rated pressure is in the chamber**. Check current pressure level by observing chamber pressure gauge (located behind the front access door).
- Open the try lever and hold the valve open for one to two seconds.
- Allow the try lever to snap shut.

4.4.5 Pressure Regulating Valve Adjustment

Any adjustments to this valve should be performed by a qualified service technician. Improper adjustments to this valve may result in inadequate sterilizer operation.
This section pictorially lists and describes all the possible alarm conditions which may occur when operating the Amsco® Century® Series sterilizer.

If a problem occurs that is not described in this section, please call STERIS. A trained service technician will promptly place your sterilizer in proper working condition.

NOTE: Never permit unqualified persons to service the sterilizer.

### 5.1 General

**WARNING – PERSONAL INJURY AND/OR EQUIPMENT DAMAGE HAZARD:** Repairs and adjustments to this equipment must be made only by fully qualified service personnel. Maintenance performed by inexperienced, unqualified persons or installation of unauthorized parts could cause personal injury or result in costly equipment damage.

**WARNING – ELECTRIC SHOCK HAZARD:** Disconnect all utilities to sterilizer before servicing. See Section 1 for additional warnings.

**WARNING – BURN HAZARD:** Before performing any cleaning or maintenance procedures, allow sterilizer and generator (if applicable) to cool to room temperature.

#### 5.1.1 Typical Alarm Screen

When an alarm condition occurs, the alarm buzzer sounds and the touch screen automatically displays the corresponding alarm screen. Typically, each alarm screen indicates the alarm name, current chamber status, current sterilizer activity and operator instructions (see Fig. 5-1).

![Figure 5-1. Typical Alarm Screen](image)
For Healthcare Only

Figure 5-1. Typical Alarm Screen

Touch screen buttons, located along bottom of alarm screen, are used to perform the following functions.

- Pressing SILENCE ALARM turns off the alarm buzzer.
- Pressing STATUS PRINT generates a printout of the current temperature and pressure in the sterilizer chamber at the time the button was pressed.
- Pressing PAPER FEED advances the printer paper up by one line.
- Pressing SERVICE HELP advances display to the corresponding service information screen. This screen provides the qualified service technician with possible causes and advanced corrective actions for that alarm condition.

**IMPORTANT:** In the event of an alarm condition, the operator should always follow the instructions indicated on the alarm screen.

When an alarm occurs the printer automatically generates a printout, typically listing alarm name, time alarm occurred, current chamber status and any associated sensor temperature. See Figure 5-2.

The following alarm screens will appear only during cycle operation.

### 5.2 In-Cycle Alarms

<table>
<thead>
<tr>
<th>Alarm</th>
<th>Description</th>
<th>Screen with Operator Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Too Long In Charge</td>
<td>Occurs if chamber does not reach the set temperature within the allotted time.</td>
<td></td>
</tr>
</tbody>
</table>

For Life Sciences Only
## Alarm Troubleshooting

### Screen with Operator Instructions

**Alarm:** Too Long In Charge, Continued  
**Description:** For Healthcare Only  
**Screen:**

- **Status:** Alarm
- **Chamber:** 000.0°C 00.0 psig
- **Sterilizer Will:** Automatically try to complete cycle
- **Operator Instructions:**
  1. Silence alarm
  2. Check steam supply valve  
     → If closed, open valve
  3. If alarm recurs, call service

### Screen with Service Instructions

**For Life Sciences Only**

**Status:** Service Information: Too Long In Charge  
**Cause:** Chamber did not reach sterilize temperature within allotted time  
**Causes and Correction:**
1. Steam pressure less than 50 psig  
   → Check steam supply piping
2. Steam regulator malfunction  
   → Repair
3. Solenoid valve malfunction  
   → Repair S09  
   → Repair S02
4. Control out of calibration  
   → Recalibrate (contact qualified service person)

**Screen:**

- **Status:** Service Information: Too Long In Charge  
- **Cause:** Chamber did not reach sterilize temperature within allotted time  
- **Causes and Correction:**
1. Steam pressure less than 50 psig  
   → Check steam supply piping
2. Steam regulator malfunction  
   → Repair
3. Solenoid valve malfunction  
   → Repair S09  
   → Repair S02
4. Control out of calibration  
   → Recalibrate (contact qualified service person)

**Screen:**

- **Status:** Service Information: Too Long In Charge  
- **Cause:** Chamber did not reach sterilize temperature within allotted time  
- **Causes and Correction:**
1. Steam pressure less than 50 psig  
   → Check steam supply piping
2. Steam regulator malfunction  
   → Repair
3. Solenoid valve malfunction  
   → Repair S09  
   → Repair S02
4. Control out of calibration  
   → Recalibrate (contact qualified service person)
<table>
<thead>
<tr>
<th>Alarm</th>
<th>Description</th>
<th>Screen with Operator Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Too Long In Exhaust</strong></td>
<td>Occurs if chamber does not exhaust to 4.0 psig within the allotted time.</td>
<td><img src="image1.png" alt="Screen with Operator Instructions" /></td>
</tr>
<tr>
<td><strong>For Life Sciences Only</strong></td>
<td></td>
<td><img src="image2.png" alt="Screen with Service Instructions" /></td>
</tr>
<tr>
<td><strong>For Healthcare Only</strong></td>
<td></td>
<td><img src="image3.png" alt="Screen with Service Instructions" /></td>
</tr>
</tbody>
</table>
### Alarm: Too Long In Evacuation

**Description:**
Occurs if chamber does not reach the set evacuation level within the allotted time.

**For Life Sciences Only**

**Operator Instructions:**
1. SILENCE ALARM
2. CHECK WATER SUPPLY VALVE → IF CLOSED, OPEN VALVE
3. IF ALARM RECURS, ABORT CYCLE AND CALL SERVICE

**Screen with Operator Instructions**

<table>
<thead>
<tr>
<th>Status</th>
<th>Alarm</th>
<th>Too Long In Evacuation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chamber</td>
<td>000.0 C</td>
<td>00.0 psig</td>
</tr>
</tbody>
</table>

**Sterilizer Will:**
- **Automatically Try to Complete Cycle**

**For Healthcare Only**

**Operator Instructions:**
1. SILENCE ALARM
2. CHECK WATER SUPPLY VALVE → IF CLOSED, OPEN VALVE
3. IF ALARM RECURS, ABORT CYCLE AND CALL SERVICE

**Screen with Operator Instructions**

<table>
<thead>
<tr>
<th>Status</th>
<th>Alarm</th>
<th>Too Long In Evacuation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chamber</td>
<td>000.0 C</td>
<td>00.0 psig</td>
</tr>
</tbody>
</table>

**Sterilizer Will:**
- **Automatically Try to Complete Cycle**

**NOTE:** This alarm has two service help screens.

**For Life Sciences Only**

**Screen with Service Instructions**

<table>
<thead>
<tr>
<th>Status</th>
<th>Service Information: Too Long In Evacuation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chamber Did Not Reach Required Vacuum Level Within Allotted Time</td>
<td></td>
</tr>
</tbody>
</table>

**Causes and Correction:**
1. Water Pressure Less Than 30 PSIG → Check Water Supply Piping
2. Chamber Drain Strainer Plugged → Clean
3. Check Valve Malfunction → Repair
4. Solenoid Valve Malfunction → Repair
5. Door Seal Not Activated → Check Seal
   → Check Seal Steam and Exhaust
<table>
<thead>
<tr>
<th>Alarm</th>
<th>Description</th>
<th>Screen with Service Instructions</th>
</tr>
</thead>
</table>
| **Too Long In Evacuation, Continued** | **For Healthcare Only** | **STATUS.. SERVICE INFORMATION:** 203  
→ CHAMBER DID NOT REACH REQUIRED VACUUM LEVEL WITHIN ALLOTTED TIME  
**CAUSES AND CORRECTION:**  
1. WATER PRESSURE LESS THAN 30 PSIG  
   → CHECK WATER SUPPLY PIPING  
2. CHAMBER DRAIN STRAINER PLUGGED  
   → CLEAN  
3. CHECK VALVE MALFUNCTION  
   → REPAIR  
4. SOLENOID VALVE MALFUNCTION  
   → REPAIR  
5. DOOR SEAL NOT ACTIVATED  
   → CHECK SEAL  
   → CHECK SEAL STEAM AND EXHAUST |
| **For Life Sciences Only** | **STATUS.. SERVICE INFORMATION:** 204  
→ CHAMBER DID NOT REACH REQUIRED VACUUM LEVEL WITHIN ALLOTTED TIME  
**CAUSES AND CORRECTION:**  
6. LEAK IN PLUMBING  
   → REPAIR  
   → RUN A LEAK TEST  
7. CONTROL OUT OF CALIBRATION  
   → RECALIBRATE CONTROL (CONTACT QUALIFIED SERVICE PERSON) |
| **For Healthcare Only** | **STATUS.. SERVICE INFORMATION:** 204  
→ CHAMBER DID NOT REACH REQUIRED VACUUM LEVEL WITHIN ALLOTTED TIME  
**CAUSES AND CORRECTION:**  
6. LEAK IN PLUMBING  
   → REPAIR  
   → RUN A LEAK TEST  
7. CONTROL OUT OF CALIBRATION  
   → RECALIBRATE CONTROL (CONTACT QUALIFIED SERVICE PERSON) |
### Alarm: Too Long In Air Break

**Description:** Occurs if chamber does not air break the vacuum to 2.0 inHg within the allotted time.

**Screen with Operator Instructions:**

<table>
<thead>
<tr>
<th>Action</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SILENCE ALARM</td>
<td>Status: Too Long In Air Break</td>
</tr>
<tr>
<td>STATUS PRINT</td>
<td>Chamber: 000.0 C 00.0 psig</td>
</tr>
<tr>
<td>PAPER FEED</td>
<td>Sterilizer will:</td>
</tr>
<tr>
<td></td>
<td>- Automatically try to complete cycle</td>
</tr>
<tr>
<td></td>
<td>- Extend air break time</td>
</tr>
<tr>
<td>SERVICE HELP</td>
<td>Operator Instructions:</td>
</tr>
<tr>
<td></td>
<td>1. Silence alarm</td>
</tr>
<tr>
<td></td>
<td>2. If alarm recurs, call service</td>
</tr>
</tbody>
</table>

**For Life Sciences Only:**

**Screen with Service Instructions**

<table>
<thead>
<tr>
<th>Action</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>STATUS FEED</td>
<td>Status: Service information: Too Long In Air Break</td>
</tr>
<tr>
<td>SERVICE MODE</td>
<td>Chamber did not air break vacuum to 2 inHg within allotted time</td>
</tr>
<tr>
<td>EXIT</td>
<td>Causes and correction:</td>
</tr>
<tr>
<td></td>
<td>1. Air inlet filter plugged</td>
</tr>
<tr>
<td></td>
<td>→ Replace</td>
</tr>
<tr>
<td></td>
<td>2. Solenoid valve malfunction</td>
</tr>
<tr>
<td></td>
<td>→ Repair S01</td>
</tr>
<tr>
<td></td>
<td>3. Control out of calibration</td>
</tr>
<tr>
<td></td>
<td>→ Recalibrate (contact qualified service person)</td>
</tr>
</tbody>
</table>

**For Healthcare Only:**

**Screen with Service Instructions**

<table>
<thead>
<tr>
<th>Action</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>STATUS FEED</td>
<td>Status: Service information: Too Long In Air Break</td>
</tr>
<tr>
<td>SERVICE MODE</td>
<td>Chamber did not air break vacuum to 2 inHg within allotted time</td>
</tr>
<tr>
<td>EXIT</td>
<td>Causes and correction:</td>
</tr>
<tr>
<td></td>
<td>1. Air inlet filter plugged</td>
</tr>
<tr>
<td></td>
<td>→ Replace</td>
</tr>
<tr>
<td></td>
<td>2. Solenoid valve malfunction</td>
</tr>
<tr>
<td></td>
<td>→ Repair S01</td>
</tr>
<tr>
<td></td>
<td>3. Control out of calibration</td>
</tr>
<tr>
<td></td>
<td>→ Recalibrate (contact qualified service person)</td>
</tr>
<tr>
<td>Alarm</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>-------------</td>
</tr>
<tr>
<td><strong>Under Sterilize Temperature</strong></td>
<td>Occurs if chamber temperature drops below sterilize temperature.</td>
</tr>
<tr>
<td><strong>For Life Sciences Only</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>For Healthcare Only</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>NOTE:</strong> If under-temperature value is set to “RESUME”, the sterilizer will automatically resume sterilize time after set temperature is reached.</td>
<td></td>
</tr>
<tr>
<td><strong>For Life Sciences Only</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Under Sterilize Temperature, Continued

**Alarm**

<table>
<thead>
<tr>
<th>Description</th>
<th>Screen with Service Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOTE: If under-temperature value is set to &quot;RESUME&quot;, the sterilizer will automatically resume sterilize time after set temperature is reached.</td>
<td><img src="image" alt="Service Instructions Screen" /></td>
</tr>
</tbody>
</table>

**For Healthcare Only**

### Over Sterilize Temperature

**Alarm**

<table>
<thead>
<tr>
<th>Description</th>
<th>Screen with Operator Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occurs if chamber temperature exceeds the maximum sterilize temperature (control temperature plus over temperature value).</td>
<td><img src="image" alt="Operator Instructions Screen" /></td>
</tr>
</tbody>
</table>

**For Life Sciences Only**

**For Healthcare Only**
<table>
<thead>
<tr>
<th>Alarm</th>
<th>Description</th>
<th>Screen with Service Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Over Sterilize Temperature Continued</strong></td>
<td>For Life Sciences Only</td>
<td><img src="image" alt="Screen with Service Instructions" /></td>
</tr>
<tr>
<td><strong>Too Long In Sterilize</strong></td>
<td>Occurs if cycle remains in the sterilize phase longer than the allotted time. (Lab/Sci program option only.)</td>
<td><img src="image" alt="Screen with Operator Instructions" /></td>
</tr>
<tr>
<td>Alarm</td>
<td>Description</td>
<td>Screen with Service Instructions</td>
</tr>
<tr>
<td>-------</td>
<td>-------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td><strong>Too Long In Sterilize, Continued</strong></td>
<td>Occurs if chamber pressure is 1.0 psig below the fixed rate during slow exhaust phase. (Sterilizers with Liquid cycle option only.)</td>
<td><img src="image" alt="Screen with Service Instructions" /></td>
</tr>
<tr>
<td><strong>Exhaust Rate Too Slow</strong></td>
<td></td>
<td><img src="image" alt="Screen with Service Instructions" /></td>
</tr>
<tr>
<td></td>
<td></td>
<td><img src="image" alt="Screen with Service Instructions" /></td>
</tr>
</tbody>
</table>
**Exhaust Rate Too Fast**

Occurs if chamber pressure is 1.0 psig above the fixed rate during slow exhaust phase. (Sterilizers with Liquid cycle option only.)

**Screen with Operator Instructions**

- **STATUS..** ALARM!
- **CHAMBER:** 000.0 C 00.0 psig
- **STERILIZER WILL:**
  - AUTOMATICALLY TRY TO COMPLETE CYCLE
  - TRY TO EXHAUST CHAMBER ACCORDING TO OPTIMAL COOLING RATE
- **OPERATOR INSTRUCTIONS:**
  1. SILENCE ALARM
  2. IF ALARM RECURS, CALL SERVICE

**Screen with Service Instructions**

- **STATUS..** SERVICE INFORMATION:
- **CHAMBER EXHAUSTED FASTER THAN THE EXPECTED RATE**
- **CAUSES AND CORRECTION:**
  1. SOLENOID VALVE MALFUNCTION
  2. CHAMBER STEAM TRAP MALFUNCTION
  3. CONTROL OUT OF CALIBRATION
  → REPAIR S40
  → REPAIR S03
  → REPAIR
  → RECALIBRATE (CONTACT QUALIFIED SERVICE PERSON)

**Screen with Operator Instructions**

- **STATUS..** ALARM!
- **CHAMBER:** 000.0 C 00.0 psig
- **STERILIZER WILL:**
  - AUTOMATICALLY ABORT CYCLE
  - EXHAUST OR AIR BREAK CHAMBER TO ATMOSPHERIC PRESSURE
- **OPERATOR INSTRUCTIONS:**
  1. SILENCE ALARM
  2. CALL SERVICE

**Door Unsealed**

Occurs if steam pressure in door seal drops below 10 psig.
**Chamber Pressure/ Temperature Failure**

Occurs if chamber pressure or temperature readings are outside the normal steam range during sterilize phase.

**Alarm**

**Troubleshooting Routine Maintenance 129367-410**

<table>
<thead>
<tr>
<th>Alarm</th>
<th>Description</th>
<th>Screen with Service Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Door Unsealed, Continued</td>
<td>For Life Sciences Only</td>
<td><img src="image" alt="Screen with Service Instructions" /></td>
</tr>
<tr>
<td>For Healthcare Only</td>
<td><img src="image" alt="Screen with Service Instructions" /></td>
<td></td>
</tr>
<tr>
<td>Chamber Pressure/ Temperature Failure</td>
<td><img src="image" alt="Screen with Operator Instructions" /></td>
<td></td>
</tr>
<tr>
<td>Alarm</td>
<td>Description</td>
<td>Screen with Service Instructions</td>
</tr>
<tr>
<td>-------</td>
<td>-------------</td>
<td>----------------------------------</td>
</tr>
</tbody>
</table>
| **Chamber Pressure/ Temperature Failure, Continued** | For Life Sciences Only | Status.. Service Info: Chamber Pressure/Temperature Failure → Pressure or Temperature outside normal steam range
CAUSES AND CORRECTION:
1. Control out of calibration → Recalibrate [Contact Qualified Service Person]
2. Transducer, CP, malfunction → Repair
3. RTD probe, CT, malfunction → Repair
4. Main control failure → Check control board power status LEDs → Replace 146656-185 control board → Recalibrate |
| For Healthcare Only | | Status.. Service Info: Chamber Pressure/Temperature Failure → Pressure or temperature outside normal steam range
CAUSES AND CORRECTION:
1. Control out of calibration → Recalibrate [Contact Qualified Service Person]
2. Transducer, CP, malfunction → Repair
3. RTD probe, CT, malfunction → Repair
4. Main control failure → Check control board power status LEDs → Replace 146659-065 control board → Recalibrate |

*Depending upon the configuration of the unit, screen text may reference 146656-185 control board, or 146659-065 control board.
**Reference Drain Deviation Alarm**

Occurs if chamber temperature varies ±2°F (1°C) from the reference temperature. (Lab/Sci program option only.)

**Screen with Operator Instructions**

```
STATUS.. ALARM! REFERENCE DRAIN DEVIATION ALARM 249
CHAMBER: 000.0 C 00.0 psig
REFER: 000.0 C
STERILIZER WILL:
• AUTOMATICALLY TRY TO COMPLETE CYCLE
OPERATOR INSTRUCTIONS:
1. SILENCE ALARM
2. CALL SERVICE
```

**Screen with Service Instructions**

```
STATUS.. SERVICE INFORMATION:
REFERENCE/CHAMBER DEVIATION 250
→ DEVIATION BETWEEN REFERENCE AND CHAMBER PROBE IS MORE THAN 1 C.
CAUSES AND CORRECTION:
1. LOOSE CONNECTION IN PROBE WIRING
   → REPAIR
2. CHAMBER/REFERENCE PROBE FAILED
   → REPLACE
3. CONTROL OUT OF CALIBRATION
   → RECALIBRATE (CONTACT QUALIFIED SERVICE PERSON)
4. MAIN CONTROL FAILURE
   → CHECK CONTROL BOARD POWER STATUS LED
   → REPLACE 146656-185 CONTROL BOARD
   → REPLACE 146659-003 ANALOG BOARD
   → RECALIBRATE
```

**Waste Temperature Probe Failure**

Occurs if waste line temperature reading is outside the normal range of 32-293°F (0-145°C).

**Screen with Operator Instructions**

```
STATUS.. ALARM! WASTE TEMPERATURE PROBE FAILURE 215
CHAMBER: 000.0 C 00.0 psig
WASTE: 000.0 C
STERILIZER WILL:
• PREVENT NEW CYCLE FROM BEING STARTED UNTIL ALARM IS CLEARED
OPERATOR INSTRUCTIONS:
1. SILENCE ALARM
2. CALL SERVICE
```

**Screen with Service Instructions**

```
PAPER FEED CLEAR ALARM EXIT
```

```
STATUS.. SERVICE INFORMATION:
REFERENCE/CHAMBER DEVIATION 250
→ DEVIATION BETWEEN REFERENCE AND CHAMBER PROBE IS MORE THAN 1 C.
CAUSES AND CORRECTION:
1. LOOSE CONNECTION IN PROBE WIRING
   → REPAIR
2. CHAMBER/REFERENCE PROBE FAILED
   → REPLACE
3. CONTROL OUT OF CALIBRATION
   → RECALIBRATE (CONTACT QUALIFIED SERVICE PERSON)
4. MAIN CONTROL FAILURE
   → CHECK CONTROL BOARD POWER STATUS LED
   → REPLACE 146656-185 CONTROL BOARD
   → REPLACE 146659-003 ANALOG BOARD
   → RECALIBRATE
```

```
PAPER FEED CLEAR ALARM EXIT
```
### Alarm

<table>
<thead>
<tr>
<th><strong>Waste Temperature Probe Failure, Continued</strong></th>
</tr>
</thead>
</table>

#### Description

For Life Sciences Only

- **Waste Temperature Probe Failure**, *For Life Sciences Only*
  - **Status**: SERVICE INFORMATION: 216
  - **Waste Temp Probe Failure**: RTD Probe, WT Output Is Outside Normal Range
  - **Causes and Correction**:
    1. Loose Connection in Probe Wiring → Repair
    2. Probe Failed → Replace → Recalibrate
    3. Control Out of Calibration → Recalibrate (Contact Qualified Service Person)
    4. Main Control Failure → Check Control Board Power Status LEDs → Replace 146656-185 Control Board → Recalibrate

<table>
<thead>
<tr>
<th><strong>For Healthcare Only</strong></th>
</tr>
</thead>
</table>

*Depending upon the configuration of the unit, screen text may reference 146656-185 control board, or 146659-065 control board.*
### 5.3 Out-of-Cycle Alarms

The following alarm screens will appear only when the sterilizer is **not processing** a cycle.

<table>
<thead>
<tr>
<th>Alarm</th>
<th>Description</th>
<th>Screen with Operator Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Too Long To Close Door</strong></td>
<td>Occurs if door switch does not make contact within allotted time.</td>
<td><img src="image" alt="Alarm Screen" /></td>
</tr>
</tbody>
</table>

**Screen with Service Instructions**

![Service Instructions Screen](image)
### Alarm: Too Long To Open Door

**Occurs if door switch does not open within the allotted time.**

<table>
<thead>
<tr>
<th>Alarm</th>
<th>Description</th>
<th>Screen with Operator Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Too Long To Open Door</td>
<td>Occurs if door switch does not open within the allotted time.</td>
<td><img src="image" alt="Screen with Operator Instructions" /></td>
</tr>
</tbody>
</table>

#### For Life Sciences Only

**STATUS..**

**SERVICE INFORMATION:**

TOO LONG TO OPEN DOOR

- DOOR SWITCH DID NOT OPEN IN ALLOTTED TIME

**CAUSES AND CORRECTION:**

1. DOOR SWITCH MALFUNCTION
   - CHECK LS1(LS2) CONNECTIONS
   - READJUST LS1(LS2)
2. Poser Door Mechanism Failure
   - REPAIR MECHANISM
   - REPLACE MOTOR

<table>
<thead>
<tr>
<th>PAPER FEED</th>
<th>CLEAR ALARM</th>
<th>EXIT</th>
</tr>
</thead>
</table>

#### For Healthcare Only

**STATUS..**

**SERVICE INFORMATION:**

TOO LONG TO OPEN DOOR

- DOOR SWITCH DID NOT OPEN IN ALLOTTED TIME

**CAUSES AND CORRECTION:**

1. DOOR SWITCH MALFUNCTION
   - CHECK LS1(LS2) CONNECTIONS
   - READJUST LS1(LS2)
2. Poser Door Mechanism Failure
   - REPAIR MECHANISM
   - REPLACE MOTOR

<table>
<thead>
<tr>
<th>PAPER FEED</th>
<th>EXIT</th>
</tr>
</thead>
</table>
### Alarm Description

**Pressure In Chamber**

Occurs if 2.0 psig pressure is sensed in the chamber.

---

### Screen with Operator Instructions

**Status:**

ALARM

PRESSURE IN CHAMBER

CHAMBER: 000.0 C 00.0 psig

STERILIZER WILL:

* AUTOMATICALLY EXHAUST CHAMBER TO ATMOSPHERIC PRESSURE

OPERATOR INSTRUCTIONS:

1. SILENCE ALARM
2. IF ALARM RECURS, CALL SERVICE

---

### Screen with Service Instructions

**For Life Sciences Only**

**Status:**

SERVICE INFORMATION:

PRESSURE IN CHAMBER

→ 2 PSIG PRESSURE SENSED IN CHAMBER WHEN NOT IN CYCLE

CAUSES AND CORRECTION:

1. SOLENOID VALVE MALFUNCTION → REPAIR S02
2. CONTROL OUT OF CALIBRATION → RECALIBRATE (CONTACT QUALIFIED SERVICE PERSON)
3. TRANSDUCER, CP, MALFUNCTION → REPAIR → RECALIBRATE
4. MAIN CONTROL FAILURE → CHECK CONTROL BOARD POWER STATUS LED → REPLACE 146656-185 CONTROL BOARD → RECALIBRATE

---

**For Healthcare Only**

*Depending upon the configuration of the unit, screen text may reference 146656-185 control board, or 146659-065 control board.*

**Status:**

SERVICE INFORMATION:

PRESSURE IN CHAMBER

→ 2 PSIG PRESSURE SENSED IN CHAMBER WHEN NOT IN CYCLE

CAUSES AND CORRECTION:

1. SOLENOID VALVE MALFUNCTION → REPAIR S02
2. CONTROL OUT OF CALIBRATION → RECALIBRATE (CONTACT QUALIFIED SERVICE PERSON)
3. TRANSDUCER, CP, MALFUNCTION → REPAIR → RECALIBRATE
4. MAIN CONTROL FAILURE → CHECK CONTROL BOARD POWER STATUS LED → REPLACE CONTROL BOARD* → RECALIBRATE

---
<table>
<thead>
<tr>
<th>Alarm</th>
<th>Description</th>
<th>Screen with Operator Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste Temperature Probe Failure</td>
<td>Occurs if waste line temperature reading is outside the normal range.</td>
<td><img src="image" alt="Operator Instructions Screen" /></td>
</tr>
</tbody>
</table>

### Screen with Operator Instructions

- **Alarm:** WASTE TEMPERATURE PROBE FAILURE
- **Chamber Temperature:** 000.0 °C
- **Waste Temperature:** 000.0 °C
- **Sterilizer Will:** Prevent new cycle from being started until alarm is cleared.
- **Operator Instructions:**
  1. Silence Alarm
  2. Call Service

<table>
<thead>
<tr>
<th>Alarm</th>
<th>Description</th>
<th>Screen with Service Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste Temperature Probe Failure</td>
<td>Occurs if waste line temperature reading is outside the normal range.</td>
<td><img src="image" alt="Service Instructions Screen" /></td>
</tr>
</tbody>
</table>

### Screen with Service Instructions

- **Alarm:** WASTE TEMPERATURE PROBE FAILURE
- **Status:** Service Information
- **Causes and Correction:**
  1. Loose connection in probe wiring → Repair
  2. Probe failed → Replace → Recalibrate
  3. Control out of calibration → Recalibrate (Contact qualified service person)
  4. Main control failure → Check control board power status LEDs → Replace 146656-185 control board → Recalibrate

### For Healthcare Only

*Depending upon the configuration of the unit, screen text may reference 146656-185 control board, or 146659-065 control board.*
The following alarm screens will appear any time the sterilizer is energized. The sensors are continually monitored whenever the sterilizer is in or out of cycle.

### 5.4 Sensor Alarms

<table>
<thead>
<tr>
<th>Alarm</th>
<th>Description</th>
<th>Screen with Operator Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water In Chamber</td>
<td>Occurs if excess water is sensed in the chamber.</td>
<td><img src="image" alt="Operator Instructions" /></td>
</tr>
</tbody>
</table>

#### Alarm Screen with Service Instructions

**Screen with Service Instructions**

**For Life Sciences Only**

<table>
<thead>
<tr>
<th>Status..</th>
<th>Service Information: WATER IN CHAMBER</th>
<th>210</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EXCESS WATER SENSED IN CHAMBER, WARNING! BURN HAZARD</td>
<td></td>
</tr>
<tr>
<td>Causes and Correction:</td>
<td>1. JACKET STRAINER PLUGGED → CLEAN</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. JACKET TRAP FAILED CLOSED → REPAIR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. CHAMBER TRAP FAILED CLOSED → REPAIR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. WATER ENTERED CHAMBER THROUGH STEAM PIPING → CHECK BOILER OR STEAM GENERATOR → REPAIR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. WATER FLOAT SENSOR MALFUNCTION → REPAIR</td>
<td></td>
</tr>
</tbody>
</table>

**For Healthcare Only**

<table>
<thead>
<tr>
<th>Status..</th>
<th>Service Information: WATER IN CHAMBER</th>
<th>210</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EXCESS WATER SENSED IN CHAMBER, WARNING! BURN HAZARD</td>
<td></td>
</tr>
<tr>
<td>Causes and Correction:</td>
<td>1. JACKET STRAINER PLUGGED → CLEAN</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. JACKET TRAP FAILED CLOSED → REPAIR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. CHAMBER TRAP FAILED CLOSED → REPAIR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. WATER ENTERED CHAMBER THROUGH STEAM PIPING → CHECK BOILER OR STEAM GENERATOR → REPAIR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. WATER FLOAT SENSOR MALFUNCTION → REPAIR</td>
<td></td>
</tr>
<tr>
<td>Alarm</td>
<td>Description</td>
<td>Screen with Operator Instructions</td>
</tr>
<tr>
<td>-------</td>
<td>-------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>Too Long In Jacket Charge</td>
<td>Occurs if jacket does not reach set temperature within allotted time.</td>
<td>![Operator Instructions Screen]</td>
</tr>
</tbody>
</table>

**Screen with Service Instructions**

**For Life Sciences Only**

<table>
<thead>
<tr>
<th>Status..</th>
<th>Service Information: TOO LONG IN JACKET CHARGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>→ JACKET DID NOT REACH REQUIRED TEMPERATURE WITHIN ALLLOTTED TIME</td>
<td></td>
</tr>
</tbody>
</table>

**Causes and Correction:**
1. STEAM PRESSURE LESS THAN 50 PSIG  → CHECK STEAM SUPPLY PIPING
2. STEAM REGULATOR MALFUNCTION  → REPAIR
3. SOLENOID VALVE MALFUNCTION  → REPAIR S09
4. CONTROL OUT OF CALIBRATION  → RECALIBRATE (CONTACT QUALIFIED SERVICE PERSON)

**For Healthcare Only**

<table>
<thead>
<tr>
<th>Status..</th>
<th>Service Information: TOO LONG IN JACKET CHARGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>→ JACKET DID NOT REACH REQUIRED TEMPERATURE WITHIN ALLLOTTED TIME</td>
<td></td>
</tr>
</tbody>
</table>

**Causes and Correction:**
1. STEAM PRESSURE LESS THAN 50 PSIG  → CHECK STEAM SUPPLY PIPING
2. STEAM REGULATOR MALFUNCTION  → REPAIR
3. SOLENOID VALVE MALFUNCTION  → REPAIR S09
4. CONTROL OUT OF CALIBRATION  → RECALIBRATE (CONTACT QUALIFIED SERVICE PERSON)
**Alarm**

**Too Long To Seal Door**

Occurs if door seal does not reach 10 psig within allotted time.

**For Life Sciences Only**

**Description**

STATUS.. ALARM! TOO LONG TO SEAL DOOR 227

CHAMBER: 000.0 C 00.0 psig

STERILIZER WILL:

• AUTOMATICALLY ABORT CYCLE

OPERATOR INSTRUCTIONS:

1. SILENCE ALARM
2. CHECK STEAM SUPPLY VALVE
   → IF CLOSED, OPEN VALVE AND RESELECT CYCLE
3. IF ALARM RECURS, CALL SERVICE

**Screen with Operator Instructions**

<table>
<thead>
<tr>
<th>SILENCE</th>
<th>STATUS</th>
<th>PRINT</th>
<th>PAPER</th>
<th>FEED</th>
<th>SERVICE</th>
<th>HELP</th>
</tr>
</thead>
</table>

**For Healthcare Only**

STATUS.. ALARM! TOO LONG TO SEAL DOOR 227

CHAMBER: 000.0 C 00.0 psig

STERILIZER WILL:

• AUTOMATICALLY ABORT CYCLE

OPERATOR INSTRUCTIONS:

1. SILENCE ALARM
2. CHECK STEAM SUPPLY VALVE
   → IF CLOSED, OPEN VALVE AND RESELECT CYCLE
3. IF ALARM RECURS, CALL SERVICE

**Screen with Operator Instructions**

<table>
<thead>
<tr>
<th>SILENCE</th>
<th>ABORT</th>
<th>STATUS</th>
<th>PRINT</th>
<th>PAPER</th>
<th>FEED</th>
<th>SERVICE</th>
<th>HELP</th>
</tr>
</thead>
</table>

**For Life Sciences Only**

**Screen with Service Instructions**

STATUS.. SERVICE INFORMATION: TOO LONG TO SEAL DOOR

→ DOOR SEAL DID NOT REACH 10 PSIG WITHIN ALLOTTED TIME

CAUSES AND CORRECTION:

1. SEAL PRESSURE SWITCH MALFUNCTION
   → REAJUST PS1(PS2)
   → REPAIR PS1(PS2)
2. SEAL NOT ACTIVATING
   → CHECK SEAL STEAM
   → CHECK SEAL EXHAUST
3. SOLENOID VALVE MALFUNCTION
   → REPAIR S35(S36)

**Screen with Service Instructions**

<table>
<thead>
<tr>
<th>PAPER</th>
<th>FEED</th>
<th>CLEAR</th>
<th>ALARM</th>
<th>EXIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alarm</td>
<td>Description</td>
<td>Screen with Service Instructions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| **Too Long To Seal Door,**  | For Healthcare Only                                                          | **STATUS.. SERVICE INFORMATION: TOO LONG TO SEAL DOOR**  
→ DOOR SEAL DID NOT REACH 10 PSIG WITHIN ALLOTTED TIME  
**CAUSES AND CORRECTION:**  
1. SEAL PRESSURE SWITCH MALFUNCTION  
→ READJUST PS1(PS2)  
→ REPAIR PS1(PS2)  
2. SEAL NOT ACTIVATING  
→ CHECK SEAL STEAM  
→ CHECK SEAL EXHAUST  
3. SOLENOID VALVE MALFUNCTION  
→ REPAIR S35(S36)  
| **Too Long To Unseal Door** | Occurs if door seal pressure does not drop below 10 psig within allotted time. | **STATUS.. ALARM! TOO LONG TO UNSEAL DOOR**  
CHAMBER: 000.0 C 00.0 psig  
STERILIZER WILL:  
• REMAIN IN ALARM CONDITION UNTIL DOOR IS UNSEALED  
**OPERATOR INSTRUCTIONS:**  
1. SILENCE ALARM  
2. CALL SERVICE  
3. IF LOAD MUST BE REMOVED, REFER TO EMERGENCY DOOR OPERATION PROCEDURE IN OPERATING MANUAL.  
| **For Life Sciences Only**  |                                                                             | **STATUS.. SERVICE INFORMATION: TOO LONG TO UNSEAL DOOR**  
→ DOOR SEAL PRESSURE NOT BELOW 10 PSIG WITHIN ALLOTTED TIME  
**CAUSES AND CORRECTION:**  
1. SEAL PRESSURE SWITCH MALFUNCTION  
→ READJUST PS1(PS2)  
→ REPAIR PS1(PS2)  
2. SEAL NOT RETRACTING  
→ CHECK SEAL STEAM  
→ CHECK SEAL EXHAUST  
3. SOLENOID VALVE MALFUNCTION  
→ REPAIR S35(S36)  
→ REPAIR S35(S36)  
<p>|</p>
<table>
<thead>
<tr>
<th>Alarm</th>
<th>Description</th>
<th>Screen with Service Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Too Long To Unseal Door, Continued</strong></td>
<td>For Healthcare Only</td>
<td><img src="image" alt="Alarm Description Screen with Service Instructions" /></td>
</tr>
<tr>
<td><strong>Chamber Pressure Transducer Failure</strong></td>
<td>Occurs if chamber pressure reading is outside the normal range.</td>
<td><img src="image" alt="Screen with Operator Instructions" /></td>
</tr>
</tbody>
</table>
### Chamber Pressure Transducer Failure, Continued

<table>
<thead>
<tr>
<th>Alarm</th>
<th>Description</th>
<th>Screen with Service Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>For Life Sciences Only</td>
<td><strong>Alarm Description</strong> Screen with Service Instructions</td>
<td><strong>STATUS.. SERVICE INFO: CHAMBER PRESSURE TRANSDUCER FAILURE</strong> TRANSDUCER, CP, OUTPUT VOLTAGE IS OUTSIDE NORMAL RANGE&lt;br&gt;Causes and Correction:&lt;br&gt;1. LOOSE CONNECTION IN TRANSDUCER WIRING → REPAIR&lt;br&gt;2. TRANSDUCER FAILED → REPAIR → RECALIBRATE&lt;br&gt;3. CONTROL OUT OF CALIBRATION → RECALIBRATE (CONTACT QUALIFIED SERVICE PERSON)&lt;br&gt;4. MAIN CONTROL FAILURE → CHECK CONTROL BOARD POWER STATUS LEDS → REPLACE 146656-185 CONTROL BOARD → RECALIBRATE</td>
</tr>
</tbody>
</table>

*For Healthcare Only*<br>*Depending upon the configuration of the unit, screen text may reference 146656-185 control board, or 146659-065 control board.*

### Chamber Temperature Probe Failure

<table>
<thead>
<tr>
<th>Alarm</th>
<th>Description</th>
<th>Screen with Operator Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occurs if chamber temperature reading is outside the normal range.</td>
<td><strong>STATUS.. ALARM! CHAMBER TEMPERATURE PROBE FAILURE</strong> CHAMBER: 000.0 C 00.0 psig&lt;br&gt;STERILIZER WILL: • AUTOMATICALLY ABORT CYCLE&lt;br&gt;<strong>OPERATOR INSTRUCTIONS:</strong>&lt;br&gt;1. SILENCE ALARM&lt;br&gt;2. CALL SERVICE</td>
<td></td>
</tr>
</tbody>
</table>

*For Healthcare Only*
<table>
<thead>
<tr>
<th>Alarm</th>
<th>Description</th>
<th>Screen with Service Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chamber Transducer</td>
<td>For Life Sciences Only</td>
<td><img src="image" alt="Alarm Description Screen" /></td>
</tr>
<tr>
<td>Probe Failure,</td>
<td>Continued</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CAUSES AND CORRECTION:</td>
<td></td>
</tr>
<tr>
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<td>1. LOOSE CONNECTION IN PROBE WIRING</td>
<td>Repair</td>
</tr>
<tr>
<td></td>
<td>2. PROBE FAILED</td>
<td>Replace</td>
</tr>
<tr>
<td></td>
<td>3. CONTROL OUT OF CALIBRATION</td>
<td>Recalibrate</td>
</tr>
<tr>
<td></td>
<td>4. MAIN CONTROL FAILURE</td>
<td>Check control board power status</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LEDs</td>
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<tr>
<td></td>
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<td>Replace 146656-185 control board</td>
</tr>
<tr>
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<td></td>
<td>Recalibrate</td>
</tr>
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<td></td>
<td>Recalibrate</td>
</tr>
</tbody>
</table>

*Depending upon the configuration of the unit, screen text may reference 146656-185 control board, or 146659-065 control board.
Jacket Temperature Probe Failure

Occurs if jacket temperature reading is outside the normal range.

For Life Sciences Only

*Depending upon the configuration of the unit, screen text may reference 146656-185 control board, or 146659-065 control board.

For Healthcare Only
## Alarm Description

<table>
<thead>
<tr>
<th>Alarm</th>
<th>Description</th>
<th>Screen with Operator Instructions</th>
</tr>
</thead>
</table>
| **Door Switch Failure** | Occurs if door seal switch contact is made but door switch is still open.  | **STATUS..** ALARM!  
DOOR SWITCH FAILURE (LS1)  
CHAMBER: 000.0°C 00.0 psig  
STERILIZER WILL:  
• AUTOMATICALLY ABORT CYCLE  
• EXHAUST CHAMBER TO ATMOSPHERIC PRESSURE  
OPERATOR INSTRUCTIONS:  
1. SILENCE ALARM  
2. CALL SERVICE  
Silence Alarm  | Status  | Paper Feed  | Service Help |
| **For Life Sciences Only** |                                                                 | **STATUS..** SERVICE INFORMATION:  
DOOR SWITCH FAILURE  
→ DOOR SWITCH OPEN WHILE SEAL SWITCH CLOSED  
CAUSES AND CORRECTION:  
1. DOOR SWITCH MALFUNCTION  
→ CHECK LS1(LS2) CONNECTIONS  
→ READJUST LS1(LS2)  
→ REPAIR LS1(LS2)  
2. SEAL PRESSURE SWITCH MALFUNCTION  
→ READJUST PS1(PS2)  
→ REPAIR PS1(PS2)  
| Paper Feed  | Service Mode  | Exit  |
| **For Healthcare Only** |                                                                 | **STATUS..** SERVICE INFORMATION:  
DOOR SWITCH FAILURE  
→ DOOR SWITCH OPEN WHILE SEAL SWITCH CLOSED  
CAUSES AND CORRECTION:  
1. DOOR SWITCH MALFUNCTION  
→ CHECK LS1 CONNECTIONS  
→ READJUST LS1  
→ REPAIR LS1  
<p>| Clear Alarm  | Paper Feed  | Exit  |</p>
<table>
<thead>
<tr>
<th>Alarm</th>
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<th>Screen with Operator Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Load Temperature Probe Failure</strong></td>
<td>Occurs if load temperature reading is outside the normal range. (Lab/Sci program option only.)</td>
<td><img src="image1.png" alt="Operator Instructions" /></td>
</tr>
</tbody>
</table>

**Screen with Operator Instructions**

```
STATUS..  ALARM! LOAD TEMPERATURE PROBE FAILURE
CHAMBER:  000.0 C  00.0 psig
LOAD:  000.0 C
STERILIZER WILL:
  • AUTOMATICALLY ABORT CYCLE
OPERATOR INSTRUCTIONS:
1. SILENCE ALARM
2. CALL SERVICE
```

<table>
<thead>
<tr>
<th>Silence Alarm</th>
<th>Status Print</th>
<th>Paper Feed</th>
<th>Service Help</th>
</tr>
</thead>
<tbody>
<tr>
<td>SILENCE ALARM</td>
<td>STATUS PRINT</td>
<td>PAPER FEED</td>
<td>SERVICE HELP</td>
</tr>
</tbody>
</table>

**Screen with Service Instructions**

```
STATUS.. SERVICE INFORMATION: LOAD TEMP PROBE FAILURE
→ RTD PROBE, LT. OUTPUT IS OUTSIDE NORMAL RANGE
CAUSES AND CORRECTION:
1. LOOSE CONNECTION IN PROBE WIRING  ➔ REPAIR
2. PROBE FAILED  ➔ REPLACE
3. CONTROL OUT OF CALIBRATION  ➔ RECALIBRATE (CONTACT QUALIFIED SERVICE PERSON)
4. ANALOG BOARD FAILURE  ➔ CHECK ANALOG BOARD POWER STATUS LED ➔ REPLACE 146659-003 CONTROL BOARD ➔ RECALIBRATE
```

<table>
<thead>
<tr>
<th>Paper Feed</th>
<th>Service Mode</th>
<th>Exit</th>
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<td>SERVICE MODE</td>
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<td>Screen with Instructions</td>
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<td>-------</td>
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</tr>
<tr>
<td><strong>Input/Output Board #1 Communication Failure</strong></td>
<td>The I/O board fails to achieve communication with board #1, #2, or #3 in the control box.</td>
<td><img src="image" alt="Screen with Instructions" /></td>
</tr>
<tr>
<td><strong>Relay #1 Failure</strong></td>
<td>Occurs if switched neutral relay associated with door seal A, door seal B, and the chamber float switch fails.</td>
<td><img src="image" alt="Screen with Instructions" /></td>
</tr>
<tr>
<td>Alarm</td>
<td>Description</td>
<td>Screen with Operator Instructions</td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------------------------------------------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>ROM Failure</td>
<td>Occurs if read-only memory on the main control board fails.</td>
<td><img src="image1.png" alt="Screen with Operator Instructions" /></td>
</tr>
<tr>
<td>RAM Failure</td>
<td>Occurs if random-access memory on the main control board fails.</td>
<td><img src="image2.png" alt="Screen with Operator Instructions" /></td>
</tr>
<tr>
<td>ADC Failure</td>
<td>Occurs if analog-to-digital board on the main control board fails.</td>
<td><img src="image3.png" alt="Screen with Operator Instructions" /></td>
</tr>
<tr>
<td>Alarm</td>
<td>Description</td>
<td>Screen with Operator Instructions</td>
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<tr>
<td>---------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td><strong>Board Over Temp Failure</strong></td>
<td>Occurs if temperature of the main control board exceeds acceptable conditions.</td>
<td><img src="image" alt="Board Over Temp Failure Screen" /></td>
</tr>
<tr>
<td><strong>Door Seal A Switch Malfunction</strong></td>
<td>Occurs if switched neutral relay associated with door seal A, closed switch fails.</td>
<td><img src="image" alt="Door Seal A Switch Malfunction Screen" /></td>
</tr>
<tr>
<td><strong>Service Information</strong></td>
<td><img src="image" alt="Service Information Screen" /></td>
<td><img src="image" alt="Service Information Screen" /></td>
</tr>
</tbody>
</table>

**Status:**
- **Alarm:**
  - Load Board Over Temp Failure
  - Load Door A Seal Switch Malfunction
- **Chamber:**
  - 300.0°F 0.0 psig
  - 104.3°F 5.4 psig
- **Sterilizer Will:**
  - Automatically abort cycle
- **Operator Instructions:**
  1. Silence alarm
  2. Call service