



Sterilemax

Table Top Steam Sterilizer

Service and Repair Manual

Series 1277

Model Numbers:
ST75920-33
ST75925

Table of Contents

Safety Information	3
Technical Data	6
Environmental Conditions	7
Declaration of Conformity	7
General Description	8
Electrical	8
Over Temperature Protection (OTP)	10
Controls	11
Piping.....	11
Sequence of Operation	12
Special Operating Instructions.....	13
Emergency Off (Cycle Abort)	13
Resetting the Automatic OTP	13
Erratic Controls Display or Operation	13
Power Failure During Sterilizing Cycle	14
Repairs and Adjustments.....	15
Changing Temperature Units	15
Changing Pressure Units	15
Setting Month/Date/Year/Hour/Minute.....	16
Changing Printer Mode	17
Removing Covers	18
Replacing Covers	18
Removing PC Boards	19
Replacing Pump	21
Changing Door Gasket	22
Heater Replacement	23
Solenoid Valve Replacements	24
Pressure Relief Valve Replacement	26
Temperature Probe Testing and Replacement	26
Fan Replacement	27
Replacing Power Module	28
Replacing Reservoir Float.....	29
Replacing LCD PC Board	30
Temperature Readout Calibration	30
Replacing the Door Switch	32
Replacing the Pressure Locking Pin in the Door	33
Replacing the Solid State Relay	34
Replacing the On/Off Power Switch	34
Replacing the Over Temperature Protection (OTP) Relay	35
Replacing the Automatic Over Temperature Protection (OTP) Sensor.....	36
Replacing the Mechanical Over Temperature Protection (OTP) Sensor	37
Replacing the Pressure Transducer	38
Replacing the Transformer	38
Replacing the Power Supply Fuse	39
Resetting the Mechanical Over Temperature Protection (OTP) Sensor	40
Problem Solving Chart.....	41
Figures	43
Parts List	51
Ordering Procedures	52
Decontamination Statement	52
Two-Year Limited Warranty	56

Safety Information

Alert Signals



Warning

Warnings alert you to a possibility of personal injury.



Caution

Cautions alert you to a possibility of damage to the equipment.



Note

Notes alert you to pertinent facts and conditions.



Hot Surface

Hot surfaces alert you to a possibility of personal injury if you come in contact with a surface during use or for a period of time after use.

Warnings

1. Do not use this equipment for any purpose other than its intended use, described in this manual.
2. Use only self-venting, automatic sealing stoppers when processing liquids or media. Use of other stoppers or seals, or lack of stoppers, will create the possibility of burns or injury from boiling liquids and exploding flasks.
3. Refer servicing to qualified personnel.
4. Use caution when opening the sterilizer door. Stand to the side behind the door and open door slowly and partially to protect yourself from escaping steam or boiling liquids and exploding flasks.
5. Sterilizer and trays will be hot after cycle is run. Always wear protective gloves and apron when removing a processed load. Protective gloves and apron should also be worn when reloading sterilizer following previous operation.
6. Do not attempt to open sterilizer door until the display reads "Cycle Complete". Pressure within the chamber could cause the door to open with extreme force, possibly causing personal injury.
7. Ensure that the sterilizer is cool before cleaning to avoid burns.
8. Pressurized steam will be discharged when the relief valve is opened. To prevent burns, place a steam barrier (such as a rolled towel) around the opening in the back of the unit. To prevent burns, wear gloves or use an extension device if it becomes necessary to operate the pull ring.
9. Do not use the sterilizer to process volatile substances or materials which could release toxic or explosive substances.
10. Connect only to an electrical circuit of the appropriate voltage and load rating.

SAFETY INFORMATION

11. Do not overfill reservoir. To avoid slippery conditions and possible load recontamination, immediately wipe up all spillage resulting from overfilling chamber or reservoir.
12. Do not add water to reservoir while a sterilization cycle is in process. When the cycle ends and steam vents back into the reservoir, a sudden overflow of hot water could occur, possibly resulting in burns to personnel.
13. To prevent collection of mineral deposits and corrosion of chamber components, use distilled or low quality deionized water only. Clean chamber after each use if sterilizing saline solutions.
14. Processing goods at less than recommended time/temperature could result in unsterile goods.
15. Reprocess your load when the sterilizing cycle has been terminated prematurely. The load may not be sterile when the sterilizing cycle has been terminated prematurely.
16. Open door slowly at the end of a liquid sterilization cycle. Do not allow hot bottles to be jolted. This can cause bottle explosions. Do not move bottles if any boiling or bubbling is present.
17. Allow bottles to cool before attempting to move them from sterilizer shelf or tray(s) to the storage area.
18. If media is processed, bottles and tubes should contain no more than 3/4 the total volume of the container. When processing water bottles and test tubes, the bottles and tubes should contain no more than 3/4 the total volume of the container. Chamber should be cleaned daily when processing media.
19. Keep patients at least six (6) feet away from the sterilizer when it is in use.
20. Do not operate this sterilizer in the presence of flammable or explosive substances (such as anesthetics). A fire or explosion could occur.
21. Never use a wire brush, steel wool, abrasive material, or chloride-containing products to clean door and chamber assembly.

22. Use a process monitor in every cycle to ensure exposure to minimum sterilizing conditions. Use a biological indicator once a week to verify your sterilization process.
23. Dental handpieces should be run only on optional cycle at 132°C for 10 minutes. Check manufacturer's recommendations for sterilization parameters.

Technical Data

Trays

Tray Dimensions

Large - 15 1/2" x 9 3/16"
(39.4 x 23.3 cm)
Small - 15 1/2" x 6"
(39.4 x 15.2 cm)

Number of Trays

The sterilizer is supplied with two trays, 1 large and 1 small, and one rack.

Dimensions

Capacity

34 Liters (Vessel) (1.2 cubic feet)
7.0 Liters (Reservoir)

Overall Dimensions

W x D x H Inches(cm)
22 7/16" x 24 1/2" x 17"
(57.0 x 62.2 x 43.2)
Chamber (Dia. x Depth)
12" X 18"
(30.5 x 45.7)

Shipping Weight

85 lbs. (38.5 kg)

Electrical

Heater Power

1500 W

Power requirements

120V, 50/60 Hz, 12.5 Amps
220V, 50/60 Hz, 6.5 Amps

Standards

ASME
UL/cUL to UL3101-1

Reservoir Water

Distilled or low quality
deionized
Max. 1.5 Megohm/cm
Min. .5 Megohm/cm

Mounting

Benchtop only

Controls

Fixed Cycles
- Liquid
- Packs
- Wrapped
- Unwrapped
Optional Cycle



Note

You can examine the pressure vessel rating plate for the sterilizer chamber by opening the panel on the back cover of the sterilizer, then removing the small plug of insulation on the back of the sterilizer chamber.

Environmental Conditions

Operating: 4°C - 40°C; 20% - 80% relative humidity, non-condensing. Installation Category II (overvoltage) in accordance with IEC 664. Pollution Degree 2 in accordance with IEC 664. Altitude limit: 3,650 meters.
Storage: -25°C - 65°C; 20% - 80% relative humidity.

Declaration of Conformity

We hereby declare under our sole responsibility that this product conforms with the technical requirements of the following standards:

EMC:	EN 61000-3-2	Limits for harmonic current emissions
	EN 61000-3-3	Limits for voltage fluctuations and flicker
	EN 61326-1	Electrical equipment for measurement, control, and laboratory use; Part I: General Requirements.
Safety:	EN 61010-1	Safety requirements for electrical equipment for measurement, control, and laboratory use; Part I: General Requirements.
	EN/EIC 61610-2-041	Part II: Particular requirements for laboratory equipment for the heating of materials.

per the provisions of the Electromagnetic Compatibility Directive 89/336/EEC, as amended by 92/31/EEC and 93/68/EEC, and per the provisions of the Low Voltage Directive 73/23/EEC, as amended by 93/68/EEC.

The authorized representative located within the European Community is:

Thermo Fisher Scientific
419 Sutton Road
Southend On Sea
Essex SS2 5PH
United Kingdom

Copies of the Declaration of Conformity are available upon request

General Description

Electrical

1. **Door Switch:** Prevents the unit from running a sterilization cycle if the door is not fully closed.
2. **Main Control PC Board:** Contains the microprocessor and related circuits to control the sterilizer's operation. It also contains the necessary circuitry to convert the analog signals from the thermocouple and the pressure sensor into digital form, calibrate those signals and send them to the main control board.
3. **Power Supply Board:** Converts Supply power into 5VDC and 12VDC to power the various electrical components of the sterilizer, except the heater, which is powered by supply voltage.
4. **Solenoid PC Board:** Contains the necessary circuitry to control the opening and closing of the fill, water removal and vent solenoid valves and the operation of the pump.
5. **Power Module:** With the power cord, serves as the point of connection between the sterilizer and the power mains.
6. **Transformer:** Steps supply voltage down for the power supply board.
7. **Optional Non-Recirculating Tank:** The optional non-recirculating tank is used to collect the remaining cycle water after a cycle has completed. This prevents any debris from the cycle to go back into the fresh water reservoir.
8. **Membrane Panel:** An 11 button membrane panel that allows the operator to control the operation of the sterilizer and to modify the sterilizer's operational parameters.
9. **ON/Off Switch:** Located on the underside of the front case, below the membrane switch. The on/off switch has a build-in circuit breaker to protect the sterilizer from current overload.

10. **Heater:** The heater in this sterilizer contains a high wattage element for heating the sterilizer to exposure temperatures. The heater also incorporates an automatic over temperature protection circuit. If the heater overheats, turn the main power switch off and allow time for the heater to cool and reset. The heater is bolted to the bottom of the sterilizer chamber and is accessible through an access panel on the bottom of the unit.
11. **Optional Printer:** The optional printer provides a paper tape record for future reference and verifies sterilizer performance, load control identification, and quality assurance checks for each cycle.
12. **Fill Solenoid:** Located on the water inlet line between the water pump and the sterilizer chamber, the fill solenoid opens when energized, allowing water from the reservoir to be pumped into the chamber.
13. **Water Removal Solenoid:** Located on the water return piping between the chamber and the reservoir. The water removal solenoid opens when energized, allowing the remaining cycle water to flow into the reservoir or optional non-recirculating tank.
14. **Vent Solenoid:** Located on the steam return piping between the sterilizer chamber and the reservoir, the vent solenoid closes when energized, allowing steam pressure and temperature to rise to sterilization levels in the chamber. In the event of power failure, the vent solenoid will open, venting the chamber, ending the sterilization cycle and allowing you access to the load in the chamber.
15. **Temperature Probe:** Located in the top center of the back wall of the sterilizer chamber, the temperature probe supplies an analog signal to the analog PC board.
16. **Pump:** When energized at the initiation of a sterilization cycle, the pump will run for a specified time, which will vary depending on the cycle selected. This ensures that the chamber is always filled with the proper amount of water for the cycle being run.

GENERAL DESCRIPTION

17. **Fan:** Wired directly to the main on/off switch, the fan will run continuously while the main on/off switch is on to provide cooling for the PC boards.
18. **SSR/OTP Board:** Contains necessary circuitry to detect either an open or shorted RTD.

Normal operation of this board includes cycling the heating element to prevent the unit from overheating.

Over Temperature Protection (OTP)

1. **Automatic OTP:** Sensor is attached to heating element. In an overheat situation, the circuit will turn heating element off and indicate on the display "Cycle Aborted Due To Auto OTP Device, Press Stop, Shut off Unit Power To Reset." See **Resetting the Automatic OTP** for resetting instructions.
2. **Mechanical OTP:** This is a fail safe OTP. In the event the automatic OTP fails, the manual OTP will turn the heating elements off. This is indicated on the display as "The Mechanical OTP Has Tripped. Shut off Unit Power And Reset. Caution - Unit Hot!!" The Mechanical OTP will have to be manually reset. See **Resetting the Mechanical OTP Sensor**.

Controls

On/Off Switch:

Turns power on to the unit.

Liquids:

Starts fixed liquids cycle of 15 minutes at 121°C.

Unwrapped:

Starts fixed unwrapped goods cycle of 3 minutes at 135°C.

Packs:

Starts fixed packs cycle of 30 minutes at 121°C.

Wrapped:

Starts fixed wrapped goods cycle of 10 minutes at 135°C.

Start Cycle:

Pressing this button starts the predetermined cycle.

Stop:

This button will stop any cycle in progress and return the unit to the idle mode.

Optional Cycle:

Allows users to set their own parameters for time, temperature, and drying time.

Select:

Used for diagnostic testing.

Up/Down Arrows:

Used to adjust parameters.

Piping

Reservoir Drain Connection

Used to drain reservoir of water. Only done while unit is in idle mode or off and door is open. This connection is a self-sealing quick disconnect fitting with a corresponding quick disconnect insert attached to a length of tubing.

Reservoir

Holds 7 liters of distilled or low grade deionized (minimum 0.5 megohm/cm, maximum 1.5 megohm/cm) water. Used to supply water to chamber.

Pressure Relief Valve

Opens at 45 PSI to prevent over pressuring the chamber above ASME rating.

Sequence of Operation

Cycle Status	Action	Display
Power On	Main On/Off switch on. LCD energized. Fan on. Power supply energized. Vent solenoid is open.	After heading and version, display goes to SELECT CYCLE.
Cycle Type Selected	Printer prints cycle type, time, temperature and pressure parameters	Display indicates cycle parameters and may indicate drying time or optional settings.
Start Cycle Button Pressed	Fill solenoid and pump energize to fill chamber with water, printer prints cycle no., date, time and heading.	Door closed, if not, unit displays: DOOR OPEN - CLOSE TO CONTINUE. Display indicates unit is filling with water and "Cycle Type".
Heating	Printer starts recording cycle information. Unit energizes heater. Vent valve stays open until cold air is removed and closes at preset temperature to build pressure.	Display is indicating elapsed time, temperature, pressure and "Cycle Type" heating.
Exposure/ Sterilization	Preset temperature and pressure is achieved. Heater will be cycling On/Off to maintain temperature. Exposure timer is activated.	Display is indicating elapsed/ exposure time, temperature, pressure and "Cycle Type" venting.
Venting	Heater turns off, vent solenoid is fully open until 2 psi, except for liquid cycle where vent solenoid stays closed until 2 psi. At 2 psi the water removal solenoid opens until approx. 1 psi is reached and then closes. Vent solenoid is opened and remains open.	Display is indicating elapsed time, temperature, pressure and "Cycle Type" venting.
Cycle Complete	Buzzer sounds. Vent valve stays open.	Display indicates: VENTING COMPLETED, OPEN DOOR AND PRESS START TO BEGIN DRYING CYCLE or if liquid cycle, START will go to SELECT CYCLE.
Drying	Open door, press START key, unit energizes heater and timer starts counting. Printer prints: DRYING CYCLE INITIATED.	Display is indicating the elapsed time and drying time along with STOP TO CANCEL.
Drying Completed	Heater turns off, buzzer sounds and printer prints: DRYING CYCLE COMPLETED.	Display indicates: DRYING CYCLE COMPLETED and PRESS START TO SELECT CYCLE.
Start Cycle Button Pressed		Display indicates: SELECT CYCLE

Special Operating Instructions



Warning

Do not attempt to open the sterilizer door until the display reads "Cycle Complete." Pressure within the chamber could cause the door to open with extreme force, possibly causing personal injury.

Reprocess your load in the event the sterilizing cycle has been terminated prematurely.

Failure to drain excess water from the sterilizer chamber after a cycle abort may result in subsequent unsterile loads as a result of contact with water in the chamber. Always drain excess water from the chamber after aborting a cycle.

allow chamber to cool before draining excess water.



Note

If display shows, "The Mechanical OTP Has Tripped. Shutoff Unit Power and Reset - Caution - Unit Hot!!" - Reset as described under **Resetting the Mechanical OTP Sensor**.

Emergency Off (Cycle Abort)

Pressing the "Stop" button will immediately terminate sterilization. Allow the sterilizer to cool and press the "Stop" button again to reset the sterilizer. Proceed with a new sterilization cycle normally.

When terminating a load, pressing the "Stop" button will vent steam from the chamber back into the reservoir.

Resetting the Automatic OTP

Display shows: "Cycle Aborted Due To Auto OTP Device. Press STOP Shutoff Unit Power To Reset.

1. Press the "Stop" button.
2. Wait for the display to read "Select Cycle".
3. Turn power switch off and then on to reset the Software Program.
4. Open the chamber door and allow the chamber to cool.
5. Select your desired cycle and run the cycle with an empty chamber to verify operation.
6. In the event of a repetition of fault, call Customer Service.

Erratic Controls Display or Operation

Abnormal sterilizer operation or controls display could be caused by an internal or external electrical voltage surge. Such a voltage surge could be caused by any of a number of events: a momentary surge in the power supply, a nearby lightning storm, or even a static electrical charge carried by operating personnel.

Abnormal operation or displays are not common occurrences and may never happen. No damage to the equipment will occur if such an event should happen.

SPECIAL OPERATING INSTRUCTIONS



Warning

Reprocess your load in the event the sterilizing cycle has been terminated prematurely. The load may not be sterile when the sterilizing cycle has been terminated prematurely.

If an abnormal condition should occur, terminate any processing cycle in process. (Press "Stop.") Reset the sterilizer by turning the power switch (on the front right corner of the unit) to OFF. Wait 30 seconds and turn the power switch back on. Select your desired cycle and proceed with normal operation.

Power Failure During Sterilizing Cycle

All Selector/Indicator Panel lights will be off. Allow the unit to cool down. Reset the sterilizer by turning the power switch (under the front right corner of the unit) to OFF. Wait 30 seconds and turn the power switch back on. Drain excess water from the sterilizer chamber. Then reprocess your load normally.

Repairs and Adjustments

Changing Temperature Units

To change the units in which the chamber temperature is displayed on the digital display and printer tape (°C or °F):

1. From the "Select Cycle" screen, press the "Select" key and then the UP ARROW KEY.
2. Wait for the sterilizer to display the "Change Time" screen. Press the DOWN ARROW KEY to select "No."
3. The sterilizer will then display the "Change Temperature" screen. Press the UP ARROW KEY to select "Yes."
4. At the "Temperature Units" screen, press the UP ARROW KEY to toggle between °C and °F.
5. After you have selected your desired temperature units, press the "Start" key.
6. At the "Change Pressure Units" screen, press the DOWN ARROW KEY to select "No" .
7. At the "Change Printer Mode" screen, press the DOWN ARROW KEY to select "NO" and return to the "Select Cycle" screen.

Changing Pressure Units

To change the units in which the chamber pressure is displayed on the digital display and the printer tape (PSI, BAR or KPA):

1. From the "Select Cycle" screen, press the "Select" key and then the UP ARROW KEY.
2. Wait for the sterilizer to display the "Change Time" screen. Press the DOWN ARROW KEY to select "No."
3. The sterilizer will then display the "Change Temperature" screen. Press the DOWN ARROW KEY to select "No."

4. At the "Change Pressure Units" screen, press the UP ARROW KEY to select "Yes."
5. At the "Pressure Units" screen, press the UP ARROW to cycle between the three available units.
6. When you have selected your desired pressure units, press the "Start" key to enter units.
7. At the "Change Printer Mode" screen, press the DOWN ARROW key to select "No" and return to the "Select Cycle" screen.

Setting Month/Date/Year/Hour/Minute

To set the current date and time:

1. From the "Select Cycle" screen, press the "Select" key and then the up arrow key.
2. Wait for the sterilizer to display the "Change Time" screen. Press the up arrow key to select "Yes."
3. At the "Set Current Month" screen, press the up or down arrow key to set the current month. Press the "Start" key when the current month is set.
4. At the "Set Current Date" screen, press the up or down arrow key to set the current date. Press the "Start" key when the current date is set.
5. At the "Set Current Year" screen, press the up or down arrow key to set the current year's final two digits. Press the "Start" key when the current year is set.
6. At the "Change Hour" screen, press the up or down arrow key to set the current twenty-four hour clock hour. Press the "Start" key when the current hour is set.
7. At the "Change Minute" screen, press the up or down arrow key to set the current minute. Press the "Start" key when the current minute is set.

8. At the "Change Temperature Units" screen, press the down arrow key to select "No."
9. At the "Change Pressure Units" screen, press the down arrow key to select "No".
10. At the "Change PrinterMode" screen, Press the DOWN ARROW KEY to select "NO" and return to the "Select Cycle" screen.

Changing Printer Mode

This display is used to change the serial port mode of use for optional printers from "USED"/"UNUSED":

1. From the "Select Cycle" screen, press the SELECT KEY and UP ARROW KEY.
2. Wait for the sterilizer to display the "Change Time" screen. Press the DOWN ARROW KEY to select "NO."
3. The sterilizer will then display the "Change Temperature" screen. Press the DOWN ARROW KEY to select "NO."
4. At the "Change Pressure Units" screen, press the DOWN ARROW KEY to select "NO."
5. At the "Change Printer Mode" screen, press the UP ARROW KEY to select "YES."
6. At the "Printer Mode Set To" screen, press the UP ARROW to toggle between the available modes.
7. When you have selected your desired mode of operation, press the START KEY to return to the "Select Cycle" screen.

**Note**

If unit has optional non-recirculating tank attached, then drain cooling tank and disconnect hose from the back of the sterilizer before removing back cover.

**Note**

The back cover must be removed before the top cover can be removed.

**Note**

The top cover must be removed before the front cover can be removed.

**Note**

Note the location and orientation of the ribbon cables for proper reattachment.

Removing Covers

1. Disconnect the sterilizer from the power supply. Ensure that the sterilizer is cool and depressurized.

Back Cover: You can obtain access to the fan and the certification label for the sterilizer's pressure chamber by removing the back cover. To remove the back cover:

The back cover is secured by twelve screws. Remove these twelve screws, then pull the cover straight out to remove.

Top Cover: The top cover is secured by six screws, three on either side. Remove these screws, then lift the cover straight up to remove.

Front Cover: Remove the three screws securing the front cover. Carefully pull the front cover straight out. Disconnect the display and the keypad ribbon cable from the main PC board.

Replacing Covers

Replacing the Front Cover

1. Reattach the keypad ribbon cable to the pins on the main PC board. Ensure that the ribbon cable is not twisted, as twisting may result in misconnecting the keypad.
2. Hold the ribbon cable from the LCD PC board out flat. Rotate the connector on the end of the cable on quarter turn counterclockwise and attach the LCD PC ribbon cable to the main PC board. The blue line on the ribbon should be on the bottom.
3. Replace the main power switch into its slot in the bottom of the front cover.
4. Replace the front cover and secure it with three screws.

Replacing the Top Cover

1. Slide top cover down over the sterilizer.
2. Make sure the front edge of the top cover is below the notch in the case.
3. Replace the six screws.

Replacing the Back Cover

1. Replace the back over and secure with the twelve screws.

CAUTION: Do not operate unit if an optional non-recirculating tank is used until the following steps are completed.

1. Reconnect hose to back of sterilizer.
2. Refill the cooling tank of the non-recirculating tank.

Removing PC Boards

OTP, Power and Solenoid PC Boards

The OTP, power and solenoid PC boards are located in the back of the unit. The power PC is on the back wall; the solenoid PC board is on the interior wall separating the control section of the sterilizer from the sterilizer chamber, adjacent to the power PC board, and the OTP PC board is below the solenoid PC board.

1. Remove the top and back covers as described under **Removing Covers**.
2. Remove the wires attached to the PC board, taking care to note the location of each to ensure proper attachment to your new board.
3. Remove the four screws securing the PC board to the case. Remove the PC board.
4. Install the new PC board in the same orientation as the board you removed. Secure with the four screws you removed in step 2.



Note

Disconnect the sterilizer from the power supply. Ensure that the sterilizer is cool and depressurized. See *Component Layout Interior at the back of this manual*.

5. Attach all wiring to the new PC board, taking care to attach it to the new PC board in the same position from which you removed it from the old PC board.
6. Replace the top and back covers as described under **Replacing Covers**.
7. Reconnect the sterilizer to the power supply.

**Note**

The “Hidden” key is located in the blank position below the “Down Arrow” key and to the left of the “Wrapped Key”. See *Keypad Layout at the end of this manual*.

**Note**

If the offset value cannot be determined, call Customer Service for assistance. Model number and serial number are required.

Analog and Main PC Boards

Main PC board is located on the interior wall behind the front cover.

1. Determine what the current offset value is for unit:
 - a. Connect unit to power source and turn on.
 - b. From “Select Cycle” display, press the “Select” and then the “Up Arrow” keys.
 - c. Once the display shows “Change Time”, press the “Down Arrow” key until the display shows “Change Pressure Units” display.
 - d. Press the “Hidden” key. The display should show “Set Temp Offset”. Press the “Up Arrow” for Yes to display the current offset value. Write down the value for the offset so it can be entered into the replacement PC board assembly.
 - e. Turn the unit off and disconnect from power source.
2. Remove the back, top and main covers as described under **Removing Covers**.
3. Remove the wires attached to the main PC board, taking care to note the location of each to ensure proper attachment to your new board.
4. Remove the five nuts securing the main PC board to the case. Remove the main PC board.
5. Install the new main PC board in the same orientation as the board you removed. Secure with the five nuts you removed in step 4.
6. Attach all wiring to the new main PC board, taking care to attach it to the new main PC board in the

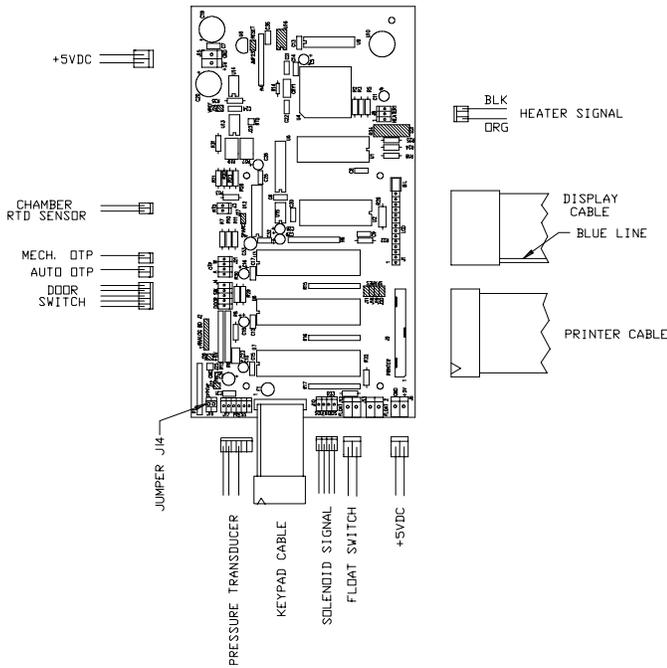


Figure 1



Note

To verify that the offset value is correct, follow the Temperature Readout Calibration Procedure.



Note

Make sure the tubing between the pump and the fill solenoid is not pinched or crimped. This will restrict water flow to the chamber.

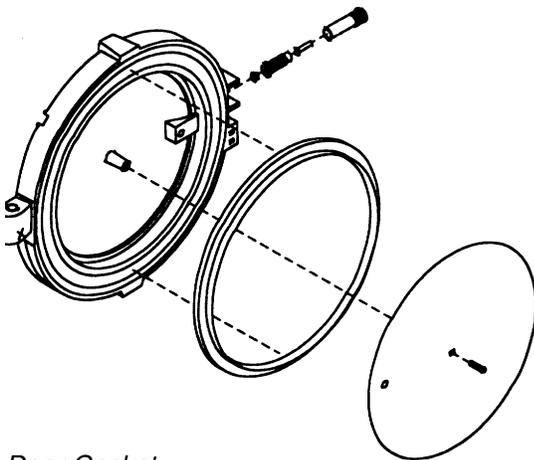
same position from which you removed it from the old main PC board. See Figure 1.

7. Replace the front, top and back covers as described in **Replacing Covers**.
8. Reconnect the sterilizer to the power supply and turn on. Verify the display shows: Vendor, Model and Version, then switches to “Select Cycle”.
9. Go back through Step 1 until the display shows “Set Temp Offset” display and current offset value.
10. Change the offset value to the number recorded from the old PC board, using “Up” or “Down” arrow key. Press the “Start” key to return to the “Select Cycle” display.
11. Re-enter the altitude adjustment and display parameters according to the Repair and Adjustments Section.

Replacing Pump

1. Disconnect the sterilizer from the power supply. Ensure that the sterilizer is cool and depressurized.
2. Drain the reservoir as described in **Draining the Reservoir**.
3. Remove the top and back covers as described in **Removing Covers**.
4. Place the sterilizer on its side.
5. Locate and remove the two bolts securing the pump assembly to the main case.
6. Place the sterilizer upright.
7. Remove the pump wires from the pump, noting their attachment point to ensure proper polarity when reconnecting wires. The red wire is (+); the black wire is (-).

8. Remove the two lengths of water tubing from the pump, noting their attachment locations to ensure proper attachment to the new pump.
9. If your new pump was not supplied with rubber standoff posts, remove the rubber standoff posts from the old pump and install them on the new pump.
10. Attach the water tubing to the appropriate connections on the new pump.
11. Place the sterilizer on its side.
12. Secure the pump assembly with the two bolts you removed in step 5.
13. Place the sterilizer upright.
14. Attach the pump wires to the appropriate location on the pump.
15. Replace the top and back covers as described in **Replacing Covers**.
16. Refill the reservoir.
17. Reconnect the sterilizer to the power supply.

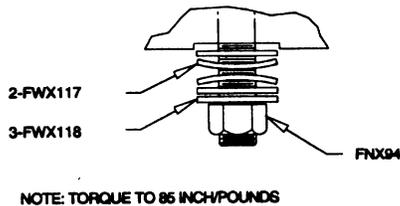


Door Gasket

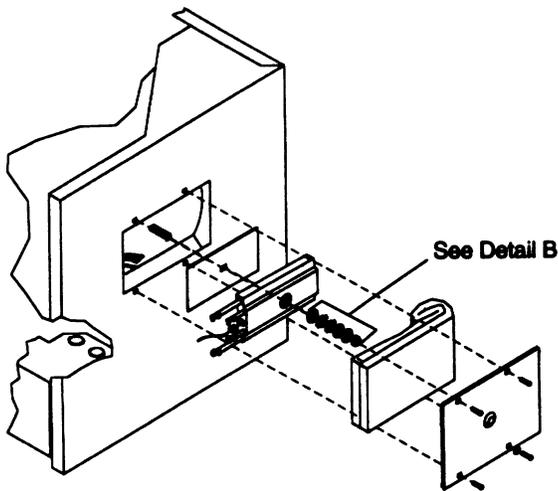
Changing Door Gasket

1. Disconnect the sterilizer from the power supply. Ensure that the sterilizer is cool and depressurized.
2. Remove the old gasket by pulling it out of the door.
3. Use a warm, soapy water combination to lubricate the gasket for easier installation.
4. Working around the door from one point, insert the outer edge of the gasket under the machined lip of the gasket groove in the door.

5. Working around the door from one point, press the inner edge of the gasket into the gasket groove, ensuring that the gasket is fully seated in the groove.
6. Reconnect the sterilizer to the power supply.



Detail B

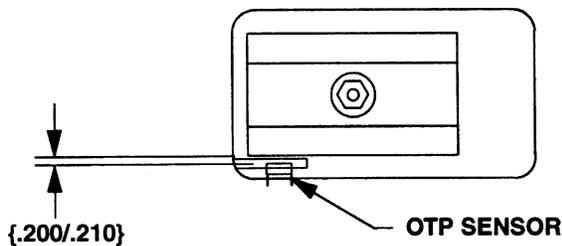


Element Assembly

Heater Replacement

1. Disconnect the sterilizer from the power supply. Ensure that the sterilizer is cool and depressurized.
2. Drain the reservoir as described in **Draining the Reservoir**.
3. Place the sterilizer on its side.
4. Remove the 4 screws securing the bottom access cover. Remove the bottom access cover. Remove the piece of blanket insulation covering the heating element.
5. Remove the nut securing the heater to the bottom of the sterilizer chamber. Take note of the orientation of the 2 flat washers, 2 belleville washers and 1 flat washer on the element. Remove the heating element.
6. Remove the heater wires from the heater. Remove the OTP sensor, taking care not to damage the lead wires of the sensor.
7. Insert the OTP sensor into the new heating element. Attach the heater wires to the new heater.
8. Position the new heating element on top of the conducting gasket, against the chamber.
9. Install the first flat washer against the element.
10. Install the first belleville washer with the crown away from the element. Install the second belleville washer with the crown towards the element.

REPAIRS AND ADJUSTMENTS



Element & Mechanical OTP



Note

When replacing the fill solenoid, attach the silicone tubing to the fill solenoid before attaching the solenoid to the bracket.

When the solenoid is secure, check to insure that the silicone tubing is not pinched near the pump. This would prevent water from entering the chamber.

11. Install two flat washers on top of the belleville washers.
12. Install the nut on the stud and tighten hand tight.
13. Adjust the alignment of the conducting gasket and element to the curve of the chamber. Center the washers on the stud.
14. Verify the distance between the side of the heating elements and mechanical OTP surface is **.200 - .210 of an inch**. If not, adjust accordingly.
15. **Tighten the nut with a torque wrench to 85 inch-pounds.**
16. Recheck distance between element and mechanical OTP.
17. Replace the blanket insulation over the heating element. Replace the bottom access cover and secure it with the screws you removed in step 4.
18. Place the sterilizer upright.
19. Reconnect the sterilizer to the power supply.

Solenoid Valve Replacements

1. Disconnect the sterilizer from the power supply. Ensure that the sterilizer is cool and depressurized.
2. Remove the top and back covers from the unit as described in **Removing Covers**.
3. Disconnect the solenoid valve wires from the solenoid PC board, noting their attachment location to ensure proper attachment of the new solenoid valves' wires.
4. Disconnect the piping from the solenoid valve, or in those cases where the piping is attached to an elbow or tee which is in turn attached to the solenoid valve, from the elbow or tee, being careful not to bend the piping.

5. Remove the screws securing the solenoid valve to the sterilizer. The vent solenoid is secured to the back wall of the sterilizer by two screws. The fill solenoid is secured to the side of the rear interior wall by two screws. The water removal solenoid is attached to a bracket that needs to be removed first. Then the solenoid can be removed.
6. Remove the solenoid valve.
7. Remove any elbow or tee attached to the old solenoid valve, noting its orientation to ensure proper installation on the new solenoid.
8. Remove any old PTFE tape from the elbow or tee and piping. Wrap new PTFE tape on the threads of the elbow or tee and piping, leaving the first thread uncovered to allow easier assembly.
9. Attach the elbow or tee you removed in step 6 to the new solenoid valve, orienting it as it was oriented on the old solenoid valve.
10. Place the solenoid valve in its proper position on the sterilizer. Secure with the screws you removed in step 4.
11. Attach the piping to the solenoid valve, being careful not to bend the piping.
12. Attach the solenoid valve wires to the appropriate location on the solenoid PC board.
13. Replace the top and back covers as described in **Replacing Covers**.
14. Reconnect the sterilizer to the power supply.

Pressure Relief Valve Replacement

1. Disconnect the sterilizer from the power supply. Ensure that the sterilizer is cool and depressurized.
2. Remove the top and back covers from the unit as described in **Removing Covers**.
3. Hold the elbow to prevent it from moving. Unscrew the pressure relief valve.
4. Wrap PTFE tape around the threads on the new pressure relief valve, leaving the first thread uncovered for easier assembly.
5. Hold the elbow to prevent it from moving. Tighten the pressure relief valve until it is secure.
6. Replace the top and back covers as described in **Replacing Covers**.
7. Reconnect the sterilizer to the power supply.



Note

The temperature probe wires are accessible from the side of the unit and are located behind the front cover.

Temperature Probe Testing and Replacement

Testing

1. Disconnect the sterilizer from the power supply. Ensure that the sterilizer is cool and depressurized.
2. Remove the top and back covers as described in **Removing Covers**.
3. Disconnect the temperature probe wires from the logic PC board (J3), noting their attachment location for proper reattachment.

4. Using an ohmmeter, test the resistance through the temperature probe. An infinite or zero ohm reading indicates that the temperature probe must be replaced.

Replacement

5. Unscrew the temperature probe from the back of the sterilizer chamber.
6. Wrap PTFE tape around the threads on the new temperature probe, leaving the first thread uncovered for easier assembly.
7. Insert the new temperature probe into the temperature probe port in the back of the sterilizer chamber and tighten.
8. Thread the temperature probe wires around the sterilizer chamber and through the hole in the frame panel to the side of the logic PC board.
9. Attach the temperature probe wires to the logic PC board (J3).
10. Replace the top and back covers as described in **Replacing Covers**.
11. Reconnect the sterilizer to the power supply.



Note

To verify that the offset value is correct, follow the temperature readout calibration procedure.

Fan Replacement

1. Disconnect the sterilizer from the power supply. Ensure that the sterilizer is cool and depressurized.
2. Remove the Back cover from the unit as described in **Removing Covers**.
3. Disconnect the fan wires from the terminal block, taking care to mark and note their location.
4. Remove the four bolts securing the fan to the fan bracket.

5. Secure the new fan to the fan bracket with the four bolts you removed in step 2.
6. Reconnect the fan wires to the terminal block, taking care to connect them to their proper location.
7. Replace the back cover as described in **Replacing Covers**.
8. Reconnect the sterilizer to the power supply.

Replacing Power Module

1. Disconnect the sterilizer from the power supply. Ensure that the sterilizer is cool and depressurized.
2. Unplug the power cord from the power module.
3. Remove the top and back covers from the unit as described in **Removing Covers**.
4. Remove the wires from the power module, noting their attachment locations to ensure proper attachment to the replacement.
5. Remove the screws securing the power module to the case.
6. Remove the power module.
7. Install the new power module and secure it with the screws you removed in step 5.
8. Attach the wires you removed in step 4 to the new power module, ensuring that you attach them in the proper locations.
9. Replace the top and back covers as described in **Replacing Covers**.
10. Plug the power cord into the power module.
11. Reconnect the sterilizer to the power supply.

Replacing Reservoir Float

1. Disconnect the sterilizer from the power supply. Ensure that the sterilizer is cool and depressurized.
2. Remove the front, top and back covers from the unit as described in **Removing Covers**.
3. Drain the reservoir as described under **Draining the Reservoir**.
4. Disconnect the reservoir float wires from the main PC board (J12), noting their attachment location for proper attachment of the replacement.
5. Remove the reservoir float.
6. Wrap the threads of the new reservoir float with PTFE tape, leaving the first thread uncovered for easier assembly.
7. Insert the new reservoir float into the reservoir float hole in the side of the reservoir.
8. Tighten the reservoir float, ensuring that the float is positioned to fall below the central contact rod of the float assembly as the water level drops below the level of the reservoir float.
9. Attach the reservoir float wires to the main PC board.
10. Replace the front cover and the main cover as described in **Removing the Covers**.
11. Refill the reservoir.
12. Reconnect the sterilizer to the power supply.



Note

The software set exposure temperature is **0.5° higher** than the temperature displayed and printed by the sterilizer. Therefore, when calibrating a 121° cycle, subtract the displayed chamber temperature plus 0.5°C from the probe temperature recorded in step 8. When calibrating a 135° C cycle, subtract the displayed temperature plus 0.5°C from the probe temperature recorded in step 8.



Note

Install the thermocouple kit temperature probe into the open port on the tee in the top rear of the sterilizer chamber. Ensure that the probe tightly seals the port.

Replacing LCD PC Board

1. Disconnect the sterilizer from the power supply. Ensure that the sterilizer is cool and depressurized.
2. Remove the top and back covers from the unit as described in **Removing Covers**.
3. Unclip the LCD PC board from the front cover.
4. Clip the new LCD PC board to the front cover.
5. Replace the front, top and back covers as described in **Replacing Covers**.
6. Reconnect the sterilizer to the power supply.

Temperature Readout Calibration

Thermocouple Installation

1. Disconnect the sterilizer from the power supply. Ensure that the sterilizer is cool and depressurized.
2. Remove the top and back covers from the unit as described under **Removing Covers**.
3. Remove the plug in the tee installed in the top rear of the sterilizer chamber. The other two branches of the tee are connected to the vent piping and the pressure relief valve.
4. Wrap PTFE tape around the threads on the thermocouple temperature probe, (TC759X1A) leaving the first thread uncovered for easier assembly. Plug thermocouple leads into temperature meter (PM20700) to read the temperature of the chamber.
5. Reconnect the sterilizer to the power supply.

Testing Temperature Readout

6. With the sterilizer chamber empty and the door closed, run at least 2 cycles—1 packs and 1 wrapped.
7. Initiate a packs cycle.
8. Record the chamber temperature on the display and the temperature from the Thermo Scientific temperature probe. With 1 minute remaining in the sterilizing phase.
9. To calculate the offset value, take and subtract the (displayed chamber temperature plus 0.5°C) from the temperature indicated on the temperature probe.
10. Allow cycle to complete process.
11. If the offset value is greater than $\pm 3^{\circ}\text{C}$, go to **Adjust Temperature Offset** to adjust the temperature offset.
12. Initiate a wrapped cycle as a second cycle or additional cycles, if necessary, until the offset value is less than $\pm 3^{\circ}\text{C}$. If the offset value is less than $\pm 3^{\circ}\text{C}$, go to **Reassembly**, otherwise go to step 8 for recording temperatures.

Reassembly

13. Disconnect the sterilizer from the power supply. Ensure that the sterilizer is cool and depressurized.
14. Remove the thermocouple temperature probe.
15. Wrap new PTFE tape around the threads on the plug you removed in step 3, leaving the first thread uncovered for easier assembly. Reinstall the plug, ensuring that it seals the port.
16. Replace the top and back covers as described in **Replacing Covers**.
17. Reconnect the sterilizer to the power supply.

**Note**

The hidden key is located in the blank position below the DOWN ARROW KEY and to the left of the WRAPPED KEY.

**Note**

If the calculation in step 16 results in an offset less than -4.0 or greater than 4.0, the unit cannot be calibrated using this method. Call Customer Service for assistance.

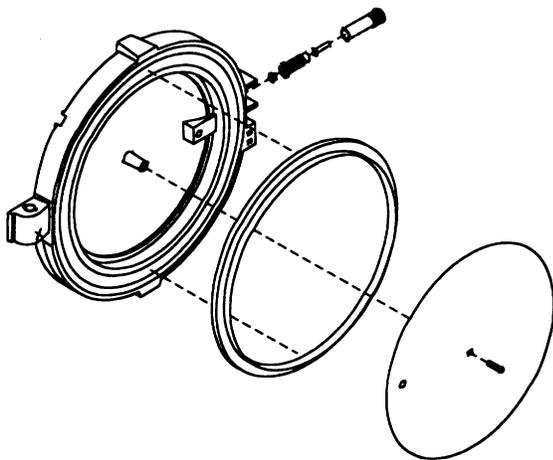
Adjusting Temperature Offset

1. From the "Select Cycle" screen, press the "Select" key and then the up arrow key.
2. Wait for the sterilizer to display the "Change Time" screen. Press the down arrow key to select "No."
3. The sterilizer will then display the "Change Temperature" screen. Press the down arrow key to select "No."
4. At the "Change Pressure Units" screen, press the "Select" key and then the hidden key.
5. At the "Modify Chamber Offset" screen, press the up arrow to select "Yes."
6. At the "Set Temp Offset" screen, note the different current offset. Add the difference you recorded in step 9 to the current offset to the number you just recorded.
7. Press the "Start" key to return to the "Select Cycle" display. Go to step No. 12 to run a second or additional cycles.

Replacing the Door Switch

1. Disconnect the sterilizer from the power supply. Ensure that the sterilizer is cool and depressurized.
2. Remove the front, top and back covers as described in **Removing the Covers**.
3. Disconnect the Door Switch wires from the main PC board (J4).
4. Mark the location of the door switch assembly. Remove the door switch assembly from the upper right hand corner of the sterilizer.
5. Install the new door switch assembly in the location you marked in step 4.

6. Attach the door switch wires to the Main PC Board (J4).
7. Replace the front, top and back covers as described in **Replacing Covers**.
8. Reconnect the sterilizer to the power supply.



Door Gasket



Note

Do not force the brass housing assembly into the door. This will cause damage to the silicone spring.

Replacing the Pressure Locking Pin in the Door

1. Disconnect the sterilizer from the power supply. Ensure that the sterilizer is cool and depressurized.
2. The pressure locking pin is located inside of the fork on the left side of the door. Remove the pressure locking pin by unscrewing the brass housing out of the door. Note that the silicone spring, pin and inner bushing may not come out with the brass housing.
3. Wet the lip of the silicone spring around the inner bushing with water. Install the brass housing/silicone spring/pin/inner bushing assembly into the opening in the door.
4. Push the brass housing in until the threads engage, then tighten it until the brass housing bottoms out on the door. **Do not overtighten.** Ensure that the pin lines up in the hole of the brass housing.
5. Reconnect the sterilizer to the power supply.

Replacing the Solid State Relay

1. Disconnect the sterilizer from the power supply. Ensure that the sterilizer is cool and depressurized.
2. Remove the top and back covers as described in **Removing Covers**.
3. Disconnect the wires from the solid state relay, noting the location and polarity of the wires.
4. Remove the solid state relay from the base of the sterilizer, noting the orientation of the relay.
5. Install the new solid state relay in the same direction as the old solid state relay.
6. Attach the wires to the solid state relay in the proper locations.
7. Replace the top and back covers as described in **Replacing Covers**.
8. Reconnect the sterilizer to the power supply.

Replacing the On/Off Power Switch

1. Disconnect the sterilizer from the power supply. Ensure that the sterilizer is cool and depressurized.
2. Remove the front, top and back covers as described in **Removing Covers**.

NOTE THE ORIENTATION OF THE ON/OFF POWER SWITCH.
3. Disconnect the wires from the on/off power switch, taking note the location of their attachment to the switch.
4. Attach the wires to the new on/off power switch.

5. Install the new on/off power switch into the front cover.
6. Replace the front, top and back covers as described under **Replacing Covers**.
7. Reconnect the sterilizer to the power supply.

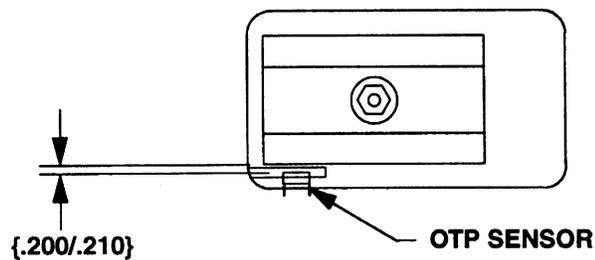
Replacing the Over Temperature Protection (OTP) Relay

1. Disconnect the sterilizer from the power supply. Ensure that the sterilizer is cool and depressurized.
2. Remove the top and back covers as described under **Removing Covers**.
3. Disconnect the wires from the OTP Relay, taking note of the location and polarity of the wires and diode.
4. Remove the OTP Relay from the base of the sterilizer, noting the orientation of the OTP Relay.
5. Install the new OTP Relay in the same direction as the old relay.
6. Attach the wires to the OTP Relay in the proper location.
7. Replace the top and back covers as described in **Replacing Covers**.
8. Reconnect the sterilizer to the power supply.

Replacing the Automatic Over Temperature Protection (OTP) Sensor

1. Disconnect the sterilizer from the power supply. Ensure that the sterilizer is cool and depressurized.
2. Drain the reservoir as described under Draining the Reservoir.
3. Remove the top and back covers as described under **Removing Covers**.
4. Disconnect the Automatic OTP Sensor wires from the OTP PC Board (PC1118X2, location J2). Feed the wires to the back of the unit behind the heating element.
5. Turn the unit on its side to gain access to the heating element access cover.
6. Remove the heating element access cover and the blanket insulation, exposing the heating element.
7. Unscrew the OTP Sensor out of the back of the heating element and remove from the unit.
8. Install the new OTP Sensor in the back of the heating element. Tighten the OTP Sensor until it is snug. **Do not overtighten.**
9. Replace the blanket insulation and access cover on the heating element.
10. Set the sterilizer right side up.
11. Route the OTP Sensor wires back over to the OTP PC Board (PC1118X2) and reconnect to J2.
12. Replace the top and back covers as described under **Replacing Covers**.
13. Refill the reservoir.
14. Reconnect the sterilizer to the power supply.

Replacing the Mechanical OTP Sensor



Element & Mechanical OTP

1. Disconnect the sterilizer from the power supply. Ensure that the sterilizer is cool and depressurized.
2. Drain the reservoir as described under **Draining the Reservoir**.
3. Remove the top and back covers as described under **Removing Covers**.
4. Disconnect the Mechanical OTP Sensor wires from the OTP PC board (PC1118X2, Location J4). Feed the wires to the back of the unit.
5. Turn the unit on its side to gain access to the heating element access cover.
6. Remove the heating element access cover and the blanket insulation, exposing the heating element and Mechanical OTP.
7. Remove the two screws that secure the Mechanical OTP bracket to the chamber. Take note of which holes were used on the bracket for reassembly. Remove the assembly from the sterilizer.
8. Remove the old Mechanical OTP Sensor and replace with new sensor. Disconnect the wires from the old sensor and connect to the new sensor.
9. Mount the Mechanical OTP sensor bracket on the leg of the chamber, using the same mounting holes.
10. Check and verify the distance between the side of the heating element and the Mechanical OTP surface is .200 - .210 of an inch. If not, adjust accordingly.
11. Replace blanket insulation and access cover on the heating element.
12. Set the sterilizer right side up.

13. Route the OTP sensor wires back over to the OTP board (PC1118X2) and reconnect to J4.
14. Replace the top and back covers as described under **Replacing Covers**.
15. Refill the reservoir.
16. Reconnect the sterilizer to the power supply.

Replacing Pressure Transducer

1. Disconnect the sterilizer from the power supply. Ensure that the sterilizer is cool and depressurized.
2. Remove the top and back covers as described under **Removing Covers**.
3. Disconnect wire harness and pressure tubing.
4. Remove pressure transducer and replace with new pressure transducer. Make sure print on transducer is down and the notch on pin 1 is toward reservoir.
5. Reconnect tubing and wire harness, noting orientation.
6. Replace the top and back covers as described under **Replacing Covers**.
7. Reconnect the sterilizer to the power supply.

Replacing the Transformer

1. Disconnect the sterilizer from the power supply. Ensure that the sterilizer is cool and depressurized.
2. Remove the top and back covers as described in **Removing Covers**.

3. Disconnect the transformer wires that are attached to the terminal block and power supply PC Board (J1,J2,J10), taking note of location for wires.
4. Remove the transformer from the base of the sterilizer. Remove the bracket and wires from the transformer, noting their location and orientation.
5. Install the bracket and transformer wires on the new transformer. Install the new transformer into the base of the sterilizer.
6. Reconnect the wires from the transformer terminal block and power supply PC board (J1,J2,J10).
7. Replace the top and back covers as described in **Replacing Covers**.
8. Reconnect the sterilizer to the power supply.

Replacing the Power Supply Fuse

1. Disconnect the sterilizer from the power supply. Ensure that the sterilizer is cool and depressurized.
2. Remove the top and back covers as described in **Removing Covers**.
3. The fuse is located on the power supply.
4. Replace open fuse with AZ9027 (250V, 3.15 amp).
5. Replace the top and back covers as described in **Replacing Covers**.
6. Reconnect the sterilizer to the power supply.



Note

If the Mechanical OTP is tripped, the automatic OTP circuit needs to be checked to determine why it did not terminate the cycle.

Resetting the Mechanical OTP Sensor

1. Disconnect the sterilizer from the power supply. Ensure that the sterilizer is cool and depressurized.
2. Drain the reservoir as described in **Draining the Reservoir**.
3. Turn the unit on its side to gain access to the heating element access cover.
4. Remove the heating element access cover and blanket insulation.
5. Push the red button on the mechanical OTP sensor until it "clicks."
6. Replace the blanket insulation and access cover on the heating element.
7. Set the sterilizer right side up.
8. Refill the reservoir.
9. Reconnect the sterilizer to the power supply.

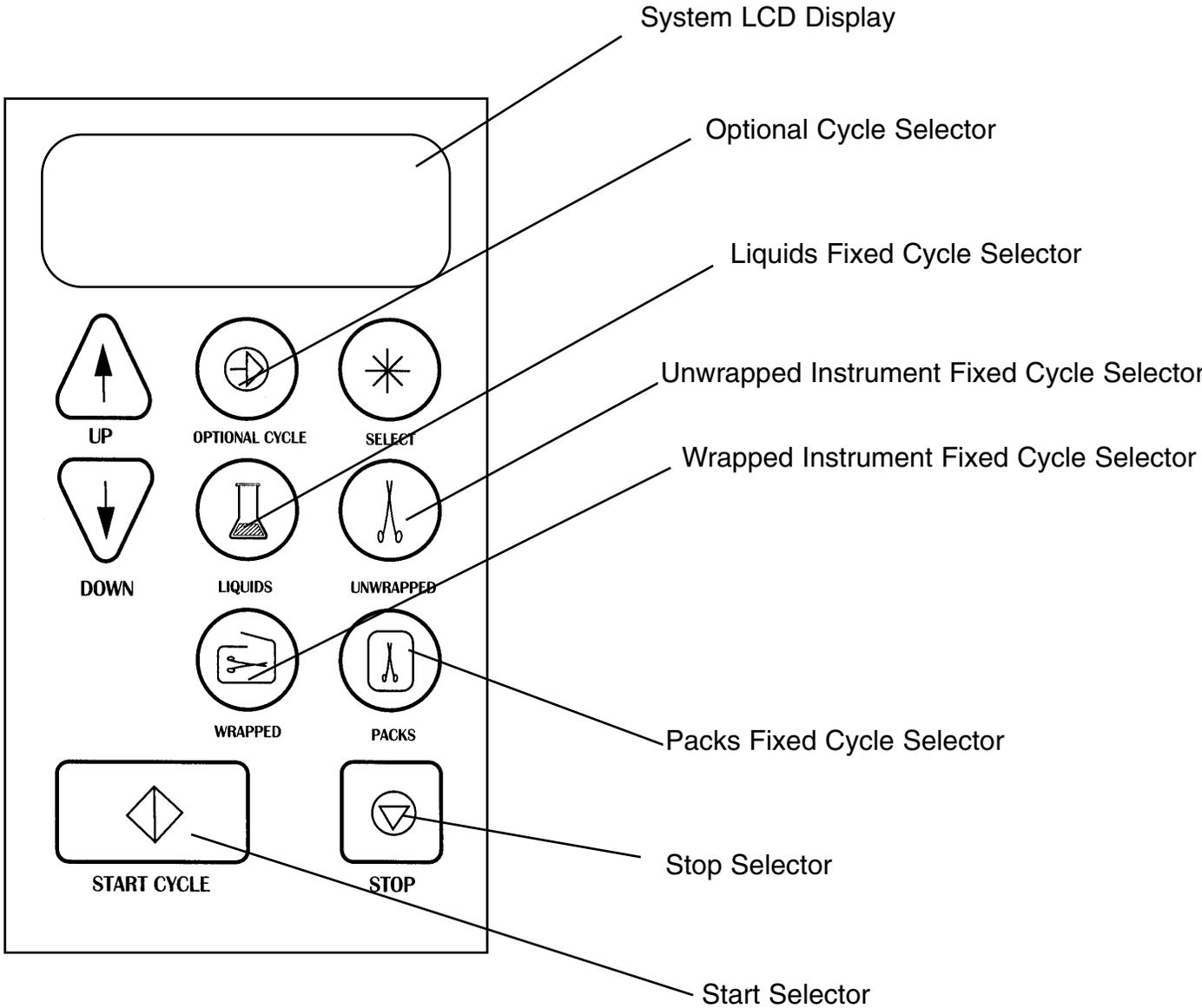
Problem Solving Chart

Fault Indication	Fault Cause	Solution
Cycle halted, display reads: "Cycle Halted Due To Heatup Exceeding Maximum Heatup Time, Push Stop To Reset."	The temperature in the vessel has not reached the specified setpoint within 115 minutes,	<ol style="list-style-type: none"> 1. Check for adequate water fill at the beginning of cycle. 2. Check solenoid valves/ door gasket for leaks. 3. See "Sterilizer will not heat."
Cycle halted, display reads: "Cycle Failed Due To Over Temperature Condition, Press Stop. "To Continue."	The temperature inside the chamber has exceeded more than 5°C above the setpoint.	Press the STOP button, allow chamber to depressurize and cool, drain the chamber, restart cycle.
Exposure phase lengthened beyond programmed time.	Temperature in the chamber dropped more than 1°C but not more than 5°C below the setpoint, causing the exposure phase timer to reset. (Not applicable to liquid cycle.)	None necessary. Load is sterile at end of cycle.
Cycle halted display reads, "Cycle Failed Due To Low Temperature Condition, Press Stop To Continue."	Temperature in the chamber dropped more than 1°C below the setpoint in a liquid cycle, or more than 5°C in any other cycle.	Press the STOP button, allow chamber to depressurize and cool, drain the chamber, restart cycle.
Cycle halted, display reads: "The Door Has Opened, Sterilization Cycle Aborted, Press Stop To Continue."	The door switch opened after the initiation of a cycle.	Press the STOP button, allow chamber to depressurize and cool, drain the chamber, restart cycle, ensuring that the door is securely closed.
Cycle does not start, display reads "The Door Is Open, Close Door To Continue."	The door switch was open when START was pressed.	Close door securely. Cycle will start when door switch is closed.
Display reads: "Unit Has Enough Water For One More Cycle, Please Refill Reservoir."	The water level switch in reservoir opened during the fill, indicating low water.	Allow cycle to run. After cycle has ended, refill reservoir before running another cycle.

PROBLEM SOLVING CHART

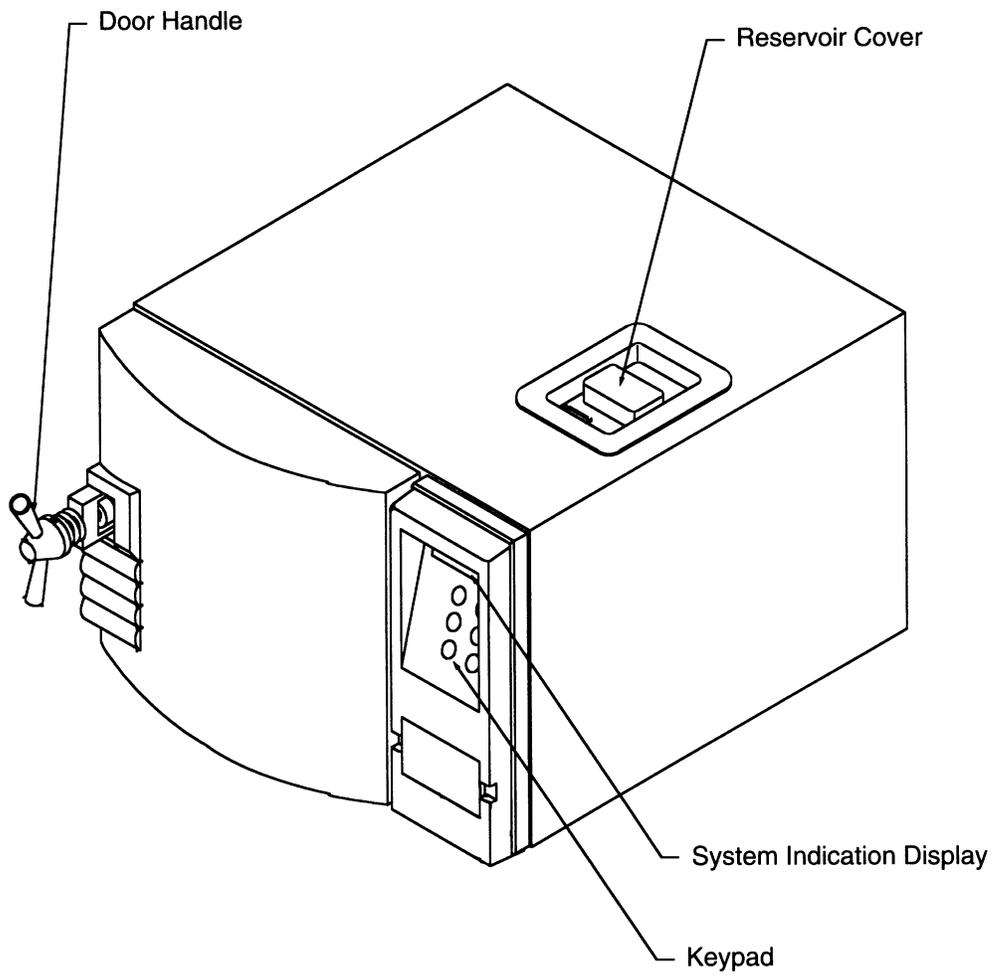
Fault Indication	Fault Cause	Solution
Cycle does not start, display reads "Reservoir is Empty. Fill and Restart Sterilization Cycle."	The water level switch is open at the beginning of a cycle, indicating low water.	Refill reservoir. Restart cycle.
When STOP is pressed the display reads "Pressure Greater Than 1 psi, Please Wait To Stop."	The cycle has stopped, but the chamber pressure is too great to safely open the door.	Wait for pressure to drop.
When START is pressed at the end of venting to begin the drying phase, the display reads "Door Must Be Open To Begin Drying Cycle."	Door is closed. (Door must be open for adequate drying.)	Open door. Press START.
Display reads "Drying Cycle Aborted Due to Closure Of Door, Open Door To Continue." (Heater and timer will both be off).	Door switch closed during the drying phase.	Open door. Drying cycle will continue automatically from the point at which it quit.
Mechanical over pressure relief valve opens, venting pressure from chamber.	Pressure in the chamber has exceeded 45 psi.	Press the STOP button, allow chamber to depressurize. Restart cycle. In the event of a repetition of fault, call Barnstead International Customer Service.
Display reads "Cycle Aborted Due To Auto OTP Device. Press STOP, shutoff unit power to reset.	Temperature sensor on the heater has reached its preset cutoff point or sensor failure.	See Resetting the Automatic OTP . In the event of a repetition of fault, call Barnstead International Customer Service.
Sterilizer will not heat. Display reads: "The Mechanical OTP Has Tripped. Shutoff Unit And Restart. Caution - Unit Hot!!"	The fail-safe mechanical over temperature switch has opened due to significant thermal runaway.	Reset as described under Resetting the Mechanical OTP Sensor . In the event of a repetition of fault, call Barnstead International Customer Service.
No display or printout, but fan on back is running.	Fuse protecting the power supply are blown.	Replace fuse as described under Replacing The Power Supply Fuses .

Figures

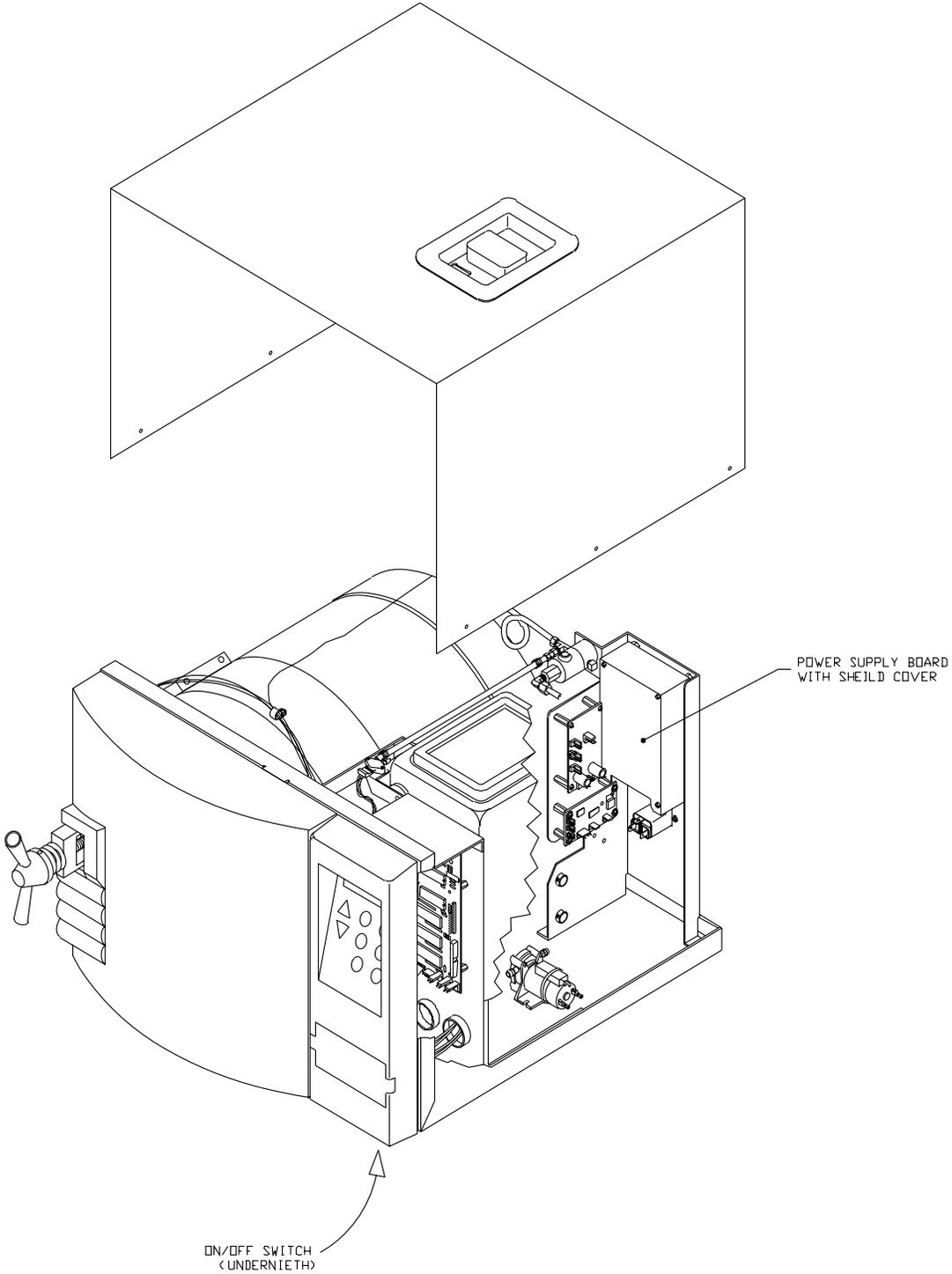


Keypad Layout

FIGURES

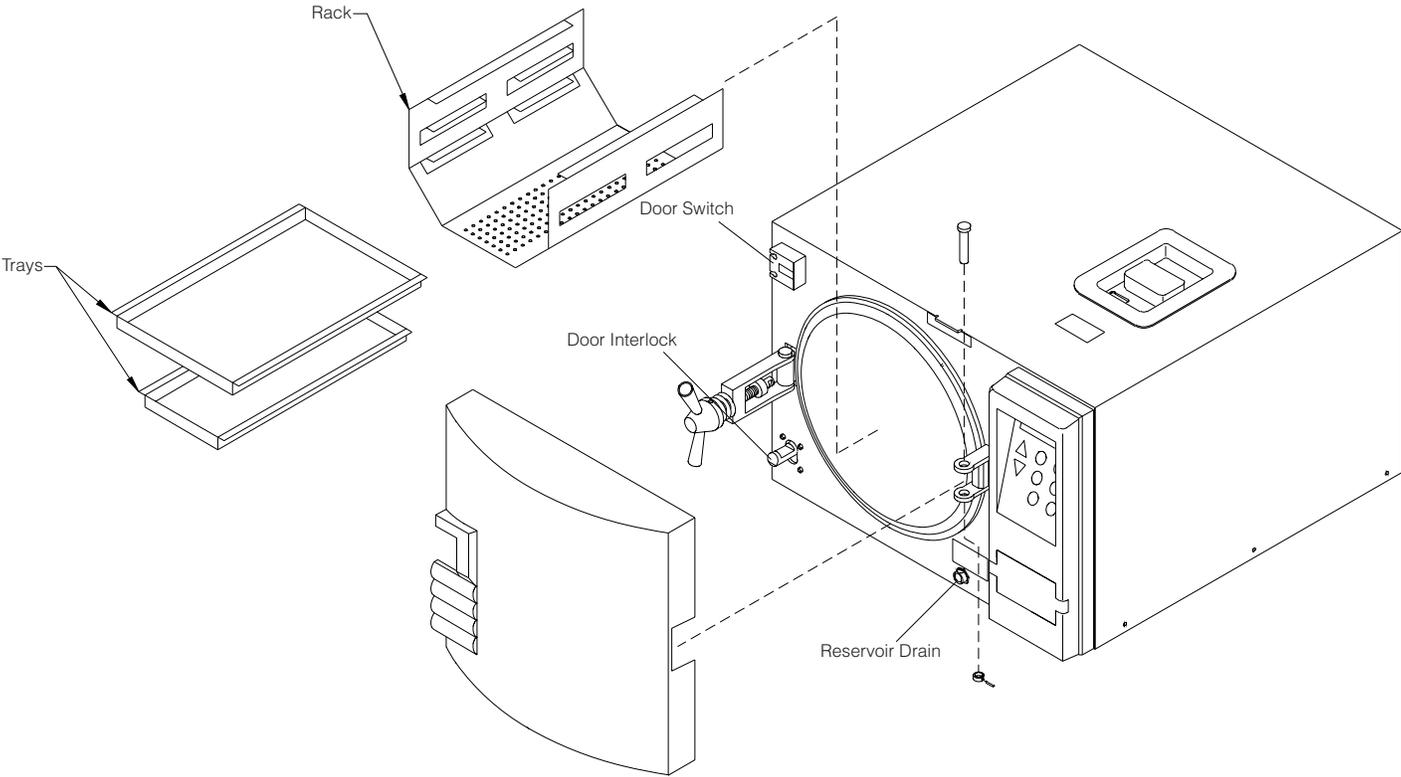


Sterilizer Component Layout - Exterior

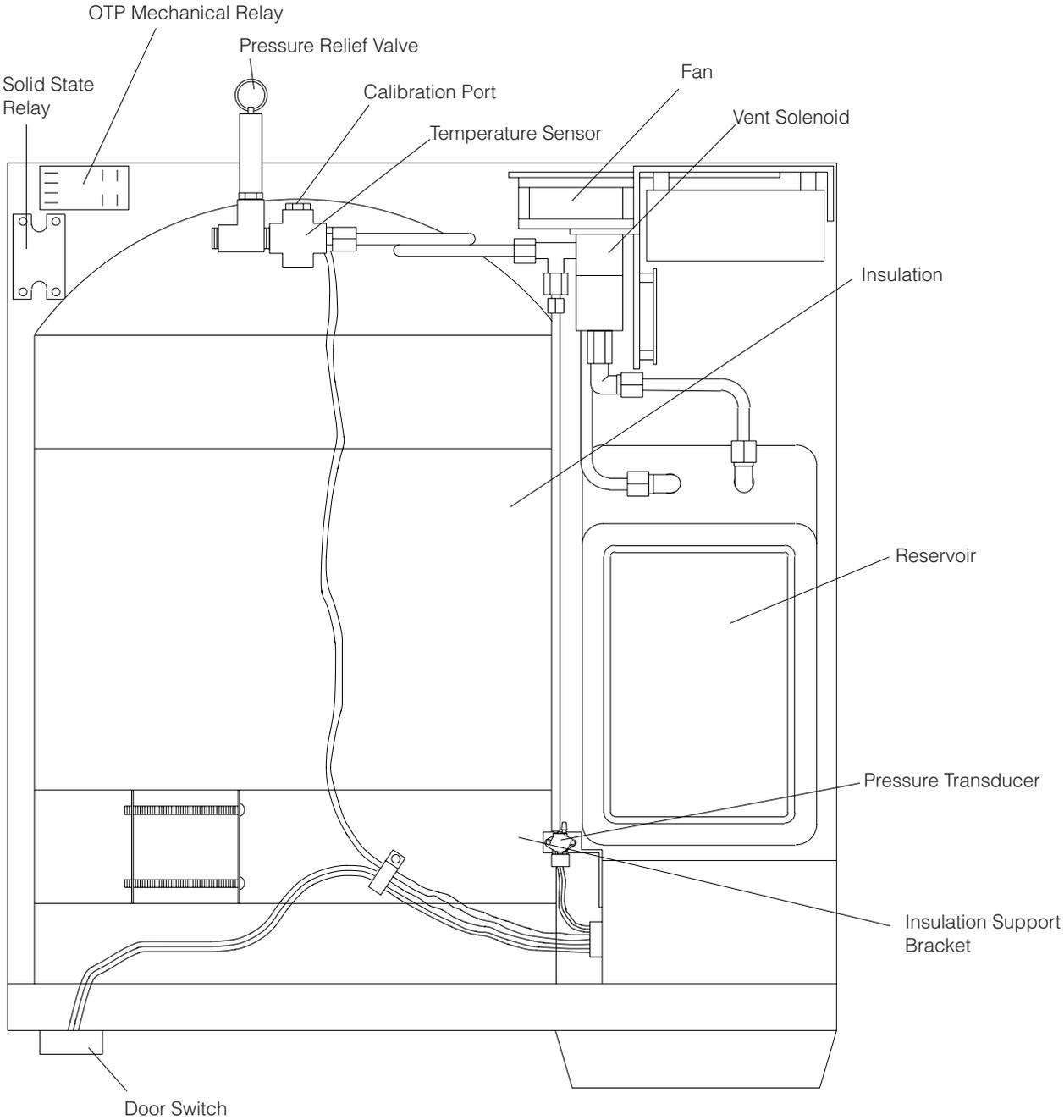


Sterilizer Component Layout - Interior

FIGURES

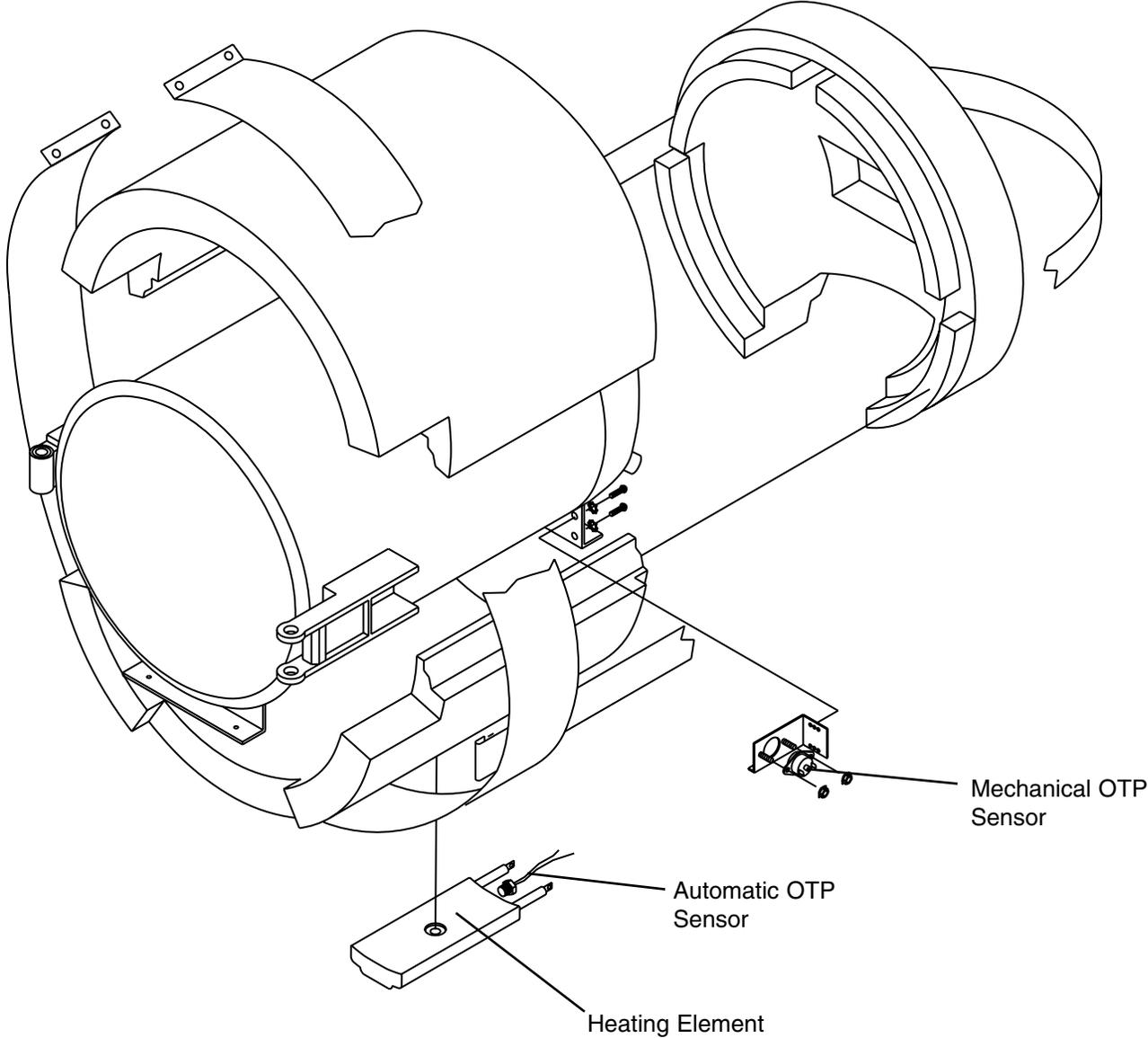


Sterilizer Component Layout - Chamber and Door

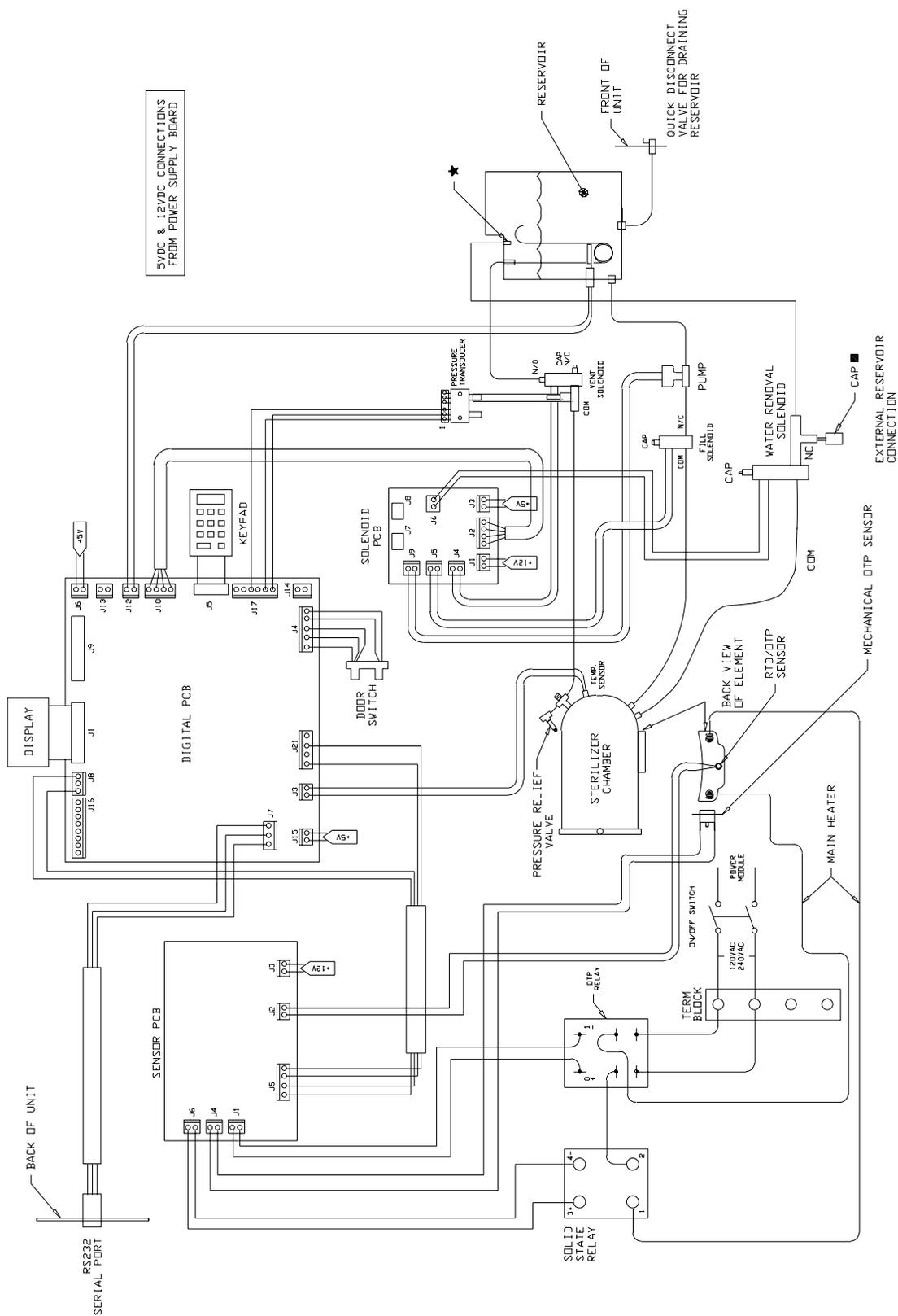


Sterilizer Component Layout - Top View

FIGURES

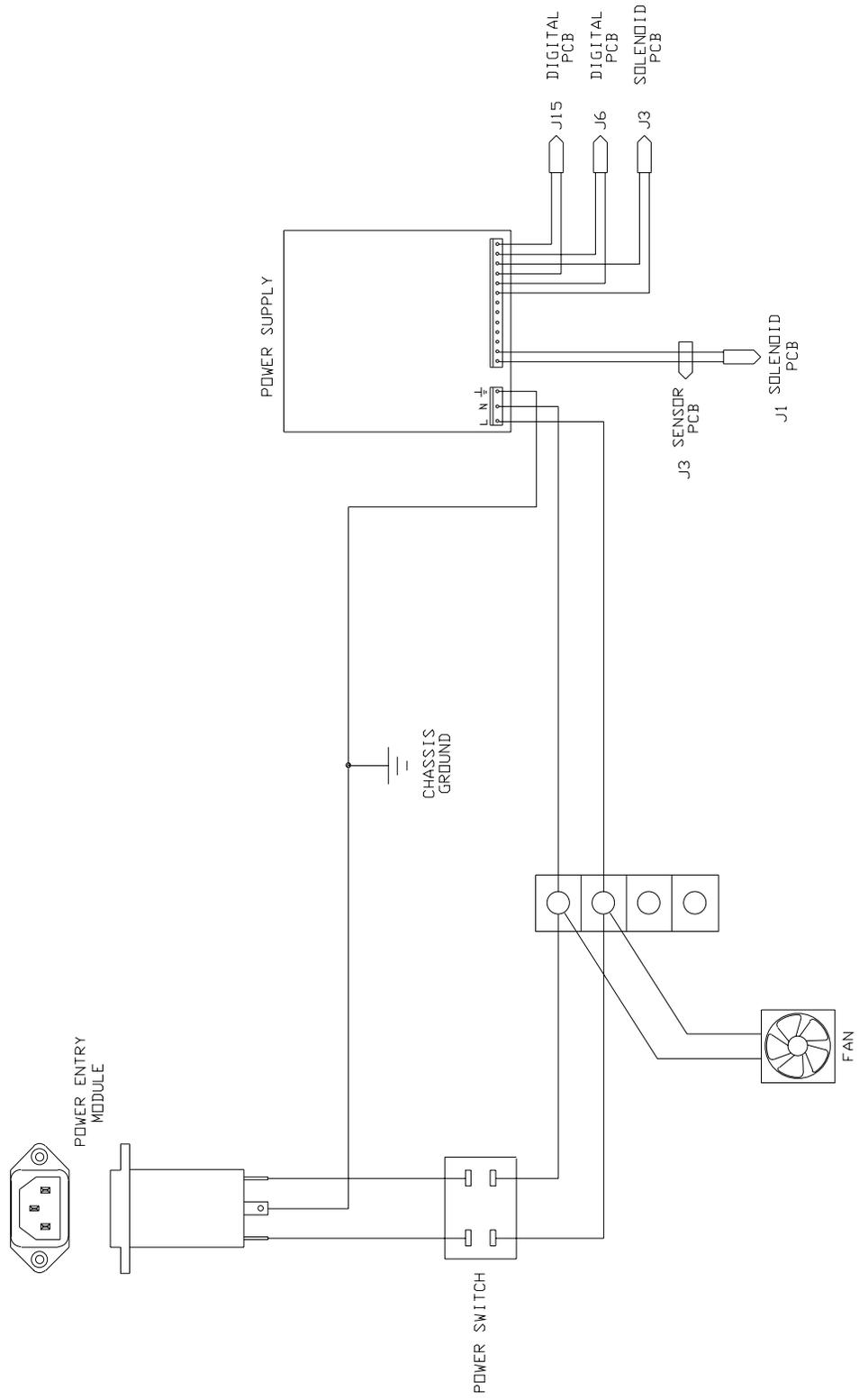


*Insulation Installation
Reservoir Cutaway*



Flow and Wiring Diagram

FIGURES



Power Supply Wiring Diagram

Parts List



Warning

Replace fuses with same type and rating

Description

Printer Ribbon
Printer Paper Tape Roll
Solenoid Valve
Power Supply
PC Board (Solenoid)
Pressure Relief Valve
Tank, Lower Float
PC Board (Logic)
ON/OFF Switch
Terminal Strip
Relay Contact
Pump
Door Gasket
Fan
Heater
Gasket (Chamber)
Relay, Solid State
PC Board (OTP)
Tray (Large)
Tray (Small)
Door Switch
Membrane Panel
Water Reservoir
Safety Latch
Shaft Ass'y (Main Door Latch)
Pressure Pin (Door)
Handle (Yoke Assembly)
Drain Tube Assembly
Reservoir Cover
Chamber Temp. Sensor
Automatic OTP Sensor
Mechanical OTP Sensor
Pressure Transducer
Fuse for TBX116

120 V

Part No.

AYX21
AY669X4
RY759X1A
TNX116
PC1277X2
250052401
SW759X1A
PC1277X1
SWX141
TRX177
RZX60
PUX16
GS759X1A
FA981X1A
ELX9
GS759X4
RZX34
PC1118X2
TY759X2A
TY759X3A
SW1118X1
SW759X3
TY759X1
SF759X1A
SF759X2A
SP759X1
HNX18
TU759X9A
DL759X2
RS1277X1
RS759X2A
FZ759X1
TDX5
AZ9027

220V

Part No.

AYX21
AY669X4
RY759X1A
TNX116
PC1277X2
250052401
SW759X1A
PC1277X1
SWX104
TRX177
RZX60
PUX16
GS759X1A
FA759X1A
ELX10
GS759X4
RZX34
PC1118X2
TY759X2A
TY759X3A
SW1118X1
SW759X3
TY759X1
SF759X1A
SF759X2A
SP759X1
HNX18
TU759X9A
DL759X2
RS1277X1
RS759X2A
FZ759X1
TDX5
AZ9027

Ordering Procedures

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

All parts listed herein may be ordered from the **Thermo Scientific** dealer from whom you purchased this unit or can be obtained promptly from the factory. When service or replacement parts are needed we ask that you check first with your dealer. If the dealer cannot handle your request, then contact our Customer Service Department at 563-556-2241 or 800-553-0039.

Prior to returning any materials, please contact our Customer Service Department for a "Return Materials Authorization" number (RMA). Material returned without an RMA number will be refused.

Decontamination Statement

We cannot accept any product or component sent for repair or credit that is contaminated with or has been exposed to potentially infectious agents or radioactive materials.

No product or component will be accepted without a "Return Materials Authorization" (RMA) number.

One Year Limited Warranty

This Thermo Scientific product shall be free of defects in materials and workmanship for one (1) year from the first to occur of (i) the date the product is sold by the manufacturer or (ii) the date the product is purchased by the original retail customer (the "Commencement Date"). Except as expressly stated above, WE MAKE NO OTHER WARRANTY, EXPRESSED OR IMPLIED, WITH RESPECT TO THE PRODUCTS AND EXPRESSLY DISCLAIM ANY AND ALL WARRANTIES, INCLUDING BUT NOT LIMITED TO, WARRANTIES OF DESIGN, MERCHANT ABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

An authorized representative of the manufacturer must perform all warranty inspections. In the event of a defect covered by this warranty, the manufacturer shall, as its sole obligation and exclusive remedy, provide free replacement parts to remedy the defective product. In addition, for products sold by the manufacturer within the continental United States or Canada, the manufacturer shall provide free labor to repair the products with the replacement parts, but only for a period of ninety (90) days from the Commencement Date.

The warranty provided hereunder shall be null and void and without further force or effect if there is any (i) repair made to the product by a party other than the manufacturer or its duly authorized service representative, (ii) misuse (including use inconsistent with written operating instructions for the product), mishandling, contamination, overheating, modification or alteration of the product by any customer or third party or (iii) use of replacement parts that are obtained from a party who is not an authorized dealer of Thermo Scientific products.

Heating elements, because of their susceptibility to overheating and contamination, must be returned to the factory and if, upon inspection, it is concluded that failure is due to factors other than excessive high temperature or contamination, the manufacturer will provide warranty replacement. As a condition to the return of any product, or any constituent part thereof, to the factory, it shall be sent prepaid and a prior written authorization from the manufacturer assigning a Return Materials Number (RMA) to the product or part shall be obtained.

IN NO EVENT SHALL THE MANUFACTURER BE LIABLE TO ANY PARTY FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, OR FOR ANY DAMAGES RESULTING FROM LOSS OF USE OR PROFITS, ANTICIPATED OR OTHERWISE, ARISING OUT OF OR IN CONNECTION WITH THE SALE, USE OR PERFORMANCE OF ANY PRODUCTS, WHETHER SUCH CLAIM IS BASED ON CONTRACT, TORT (INCLUDING NEGLIGENCE), ANY THEORY OF STRICT LIABILITY OR REGULATORY ACTION.

For the name of the authorized Thermo Scientific dealer nearest you or any additional information, contact us:

2555 Kerper Blvd., Dubuque, Iowa, 52001-9918

Phone: 563-556-2241 or 1-800-553-0039

Fax: 563-589-0516

E-mail: mkt@thermofisher.com

Web: www.thermo.com