

STATIM 7000

CASSETTE AUTOCLAVE

- Service Manual

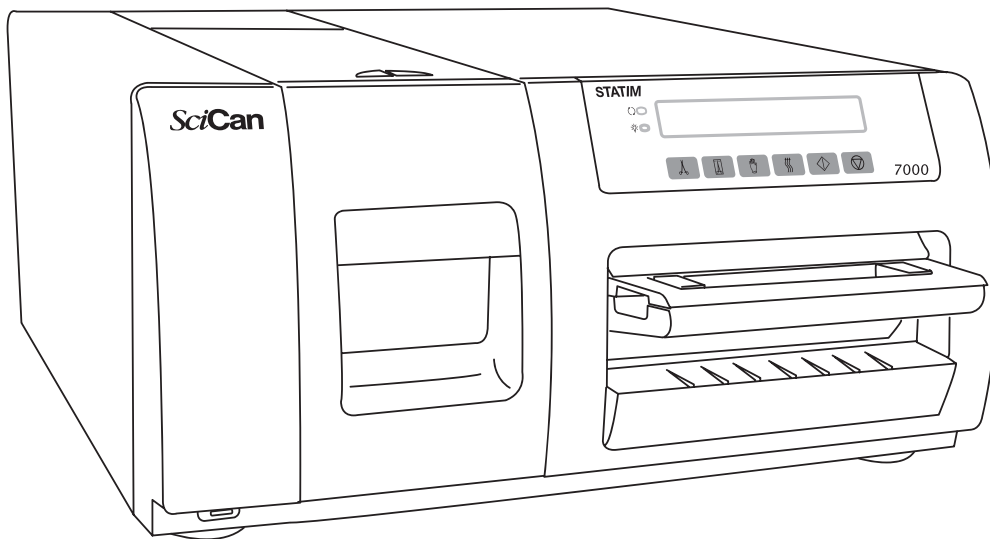


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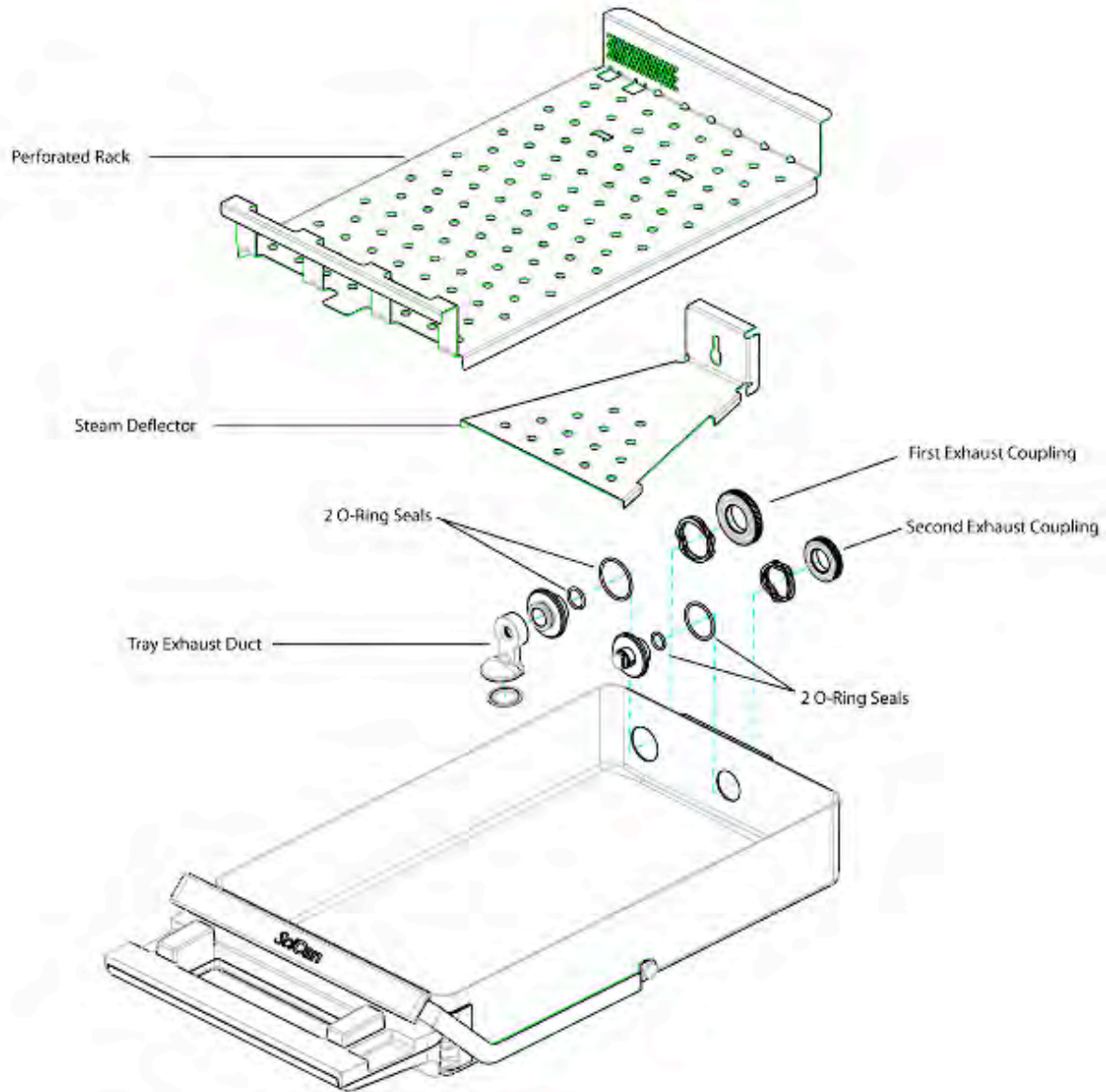
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STATIM 7000 Service Manual - Cassette

1. Cassette



1.1 Replacing the Cassette Seal and O-Rings

To ensure optimum performance of the Statim 7000, the seal is equipped with an electronic tag to ensure only authentic seals are used and also to provide the user a LCD message to replace the seal after 1000 cycles. The seal and O-rings should be changed every 1000 cycles or every 12 months.

STATIM 7000 Service Manual - Cassette

Replacement seals are available from SciCan (p/n 01-110295S Lid Seal). When the cassette seal has undergone 1000 cycles, an early message on the LCD will display SEAL LIFE WARNING - 100 CYCLES REMAINING, with a warning beep. The seals should be changed immediately. After 1100 cycles, your unit will stop operating and a message will be displayed SEAL LIFE EXPIRED, REPLACE. Replacement seals are available from your SciCan dealer.

To change the cassette lid seal, follow these steps:

1. Place the cassette lid and the new seal on a clean work surface.
2. Examine the position of the old seal in the cassette lid and arrange the new seal in the same orientation, next to the lid.
3. Remove the old seal and discard.
4. Clean any residue out of the seal channel and flush out the channel with distilled water.
5. Lubricate the new seal with the liquid seal lubricant provided.
6. Align the RFID tag in the new seal with the holes in the lid.
7. Insert the rounded edge of the seal under the round lip of the lid.

NOTE: When inserting the seal, seven round nibs should be visible. The nibs should fit flush with the lid's outer surface. Ensure the seal is completely inserted. Feel around the periphery to ensure the seal is securely seated.

To change the cassette tray seals (O-Rings), follow these steps:

1. Remove the Perforated Rack (01-110294S)
2. Remove the Tray exhaust duct (01-110297S)
3. Remove the Steam Deflector (01-110293S)
4. Unscrew the first coupling (Exhaust Coupling, 01-110292S) and carefully remove the two O-Ring seals.
5. Find the matching seals from the kit and install them on to the port valve.
6. Secure the first coupling to the cassette ensuring the metal spring is on the outer wall of the cassette.

STATIM 7000 Service Manual - Cassette

7. Unscrew the second coupling (Inlet Coupling, 01-110291S) and carefully remove the two O-Ring seals.
8. Find the matching seals from the kit and install them on to the port valve.
9. Secure the second coupling to the cassette ensuring the metal spring is on the outer wall of the cassette.
10. Replace the Tray Exhaust duct, steam deflector, and perforated rack.

NOTE: During a cycle, steam may appear between the lid and the tray. If this persists, remove the cassette and check that the seal is correctly installed. Be careful. The metal parts may be hot, and the cassette may contain hot steam. For the unit to function effectively, the steam deflector and perforated rack **MUST** be placed back in the cassette in the proper position.

1.2 Replacing the Cassette Handle

Cracked or otherwise broken Statim 7000 cassette handles can be replaced by following these steps:

1. Remove the two screws on the underside of each piece of the handle.
2. Remove the handle.
3. Separating the handle from the cassette may require pushing down forcefully on the handle.
4. Replace and re-attach.

STATIM 7000 Service Manual - Cover

2. Cover

1. With the unit off, unplug the power cord from the wall outlet and remove the cassette and reservoir from the unit.

2. Remove the water filter or water bypass cartridge (if the unit is using distilled water) from the reservoir area.



3. Remove the eight screws across the bottom front of the unit.

4. Push the cover forward from the back a little to loosen it.

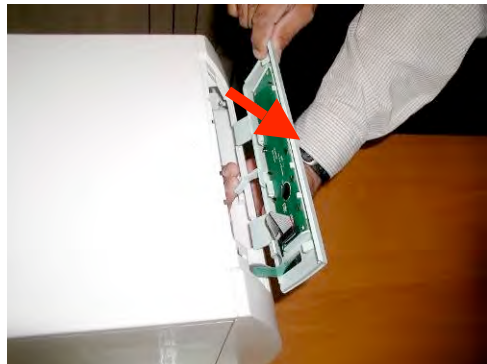


STATIM 7000 Service Manual - Cover

5. Detach the LCD/keypad by reaching up inside the cover through the armature opening to feel for a plastic tab located directly behind the Rubber and Plastics key.



6. Push this tab to the left to unlock the LCD/keypad from the cover.

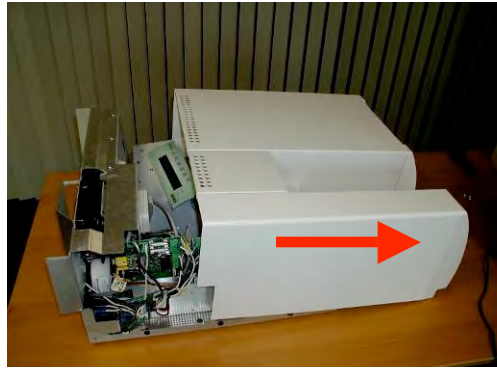


7. Place the LCD/keypad on top of the armature so that it is out of the way as you remove the cover.



STATIM 7000 Service Manual - Cover

8. Push the cover all the way forward to slide it off from the front.



9. Reverse removal instructions to replace. **NOTE: replacing cover may change to include info on cover engaging a rail.**

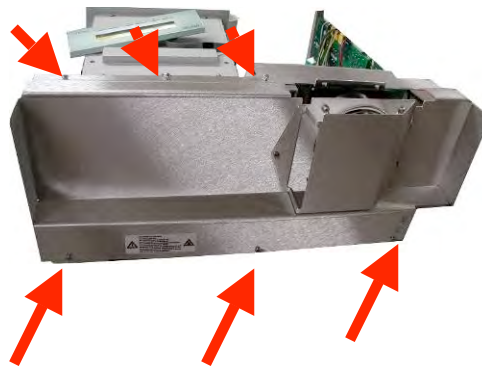
STATIM 7000 Service Manual – Cover Plate

3. Rear Chassis Cover Plate

Accessing the components behind the armature will require the removal of the rear chassis cover plate. To remove this plate, follow these steps.

1. Power **OFF** the unit, unplug it and remove the cover. See Cover. NOTE: The steam generator may be hot if the unit has been operating.
2. Disconnect the fan connectors.
3. Disconnect the inlet and outlet tubes on the biological air filter.

4. Remove the three screws across the top and the three screws across the bottom of the plate.



5. Lift the plate to remove.



6. Reverse instructions to replace.

STATIM 7000 Service Manual – Keypad & LCD

4. Membrane Keypad and LCD



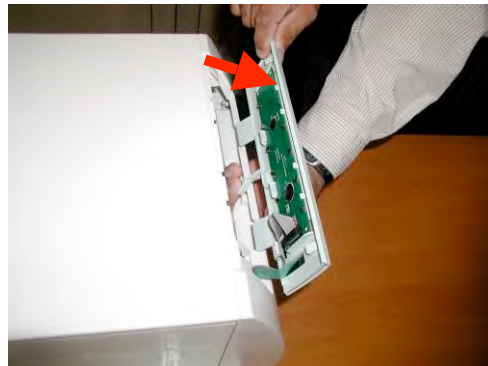
The membrane keypad and LCD contain circuitry that is static sensitive. Always wear a static strap when working with or near this circuitry. Transport electronic components in a static protected bag.

To replace the membrane keypad or LCD, perform the following steps:

1. With the unit off, unplug the power cord from the wall outlet and remove the cassette and reservoir from the unit.
2. Remove the water filter or water bypass cartridge (if the unit is using distilled water) from the reservoir area.
3. Remove the eight screws across the bottom front of the unit.
4. Push the cover forward from the back to loosen it.
5. Detach the LCD by reaching up inside the cover through the armature opening to feel for a plastic tab located directly behind the Rubber and Plastics key.



Push this tab to the left to unlock the LCD from the cover.



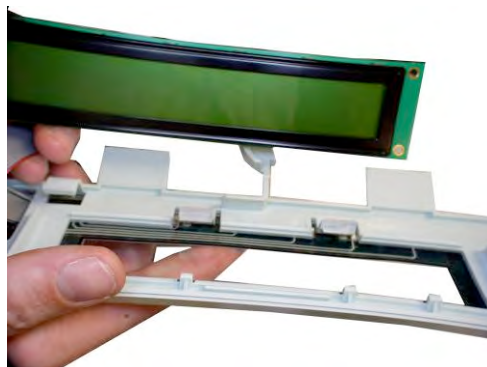
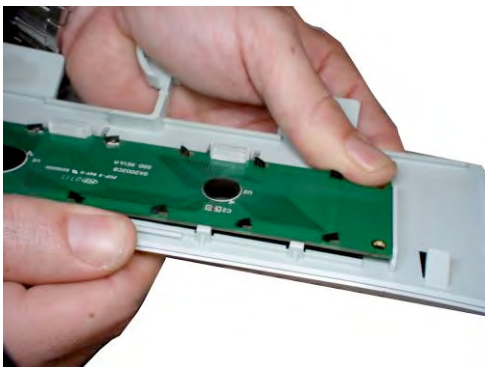
STATIM 7000 Service Manual – Keypad & LCD

6. Detach the LCD and place it on the Armature



7. Push the cover all the way forward to slide it off from the front.
8. Disconnect LCD connection from controller board.
9. Disconnect the membrane keypad connection from the controller board.
10. Disconnect the other membrane keypad connection from the auxiliary heater board.
11. Gripping the membrane keypad facedown and lengthwise with both hands, gently bend the sides back to release the LCD from its holding clips.

NOTE: The LCD and membrane keypad are considered separate components.



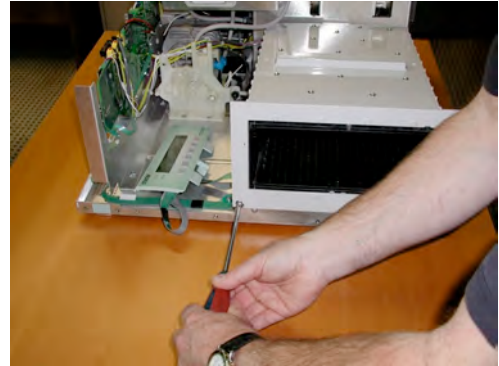
STATIM 7000 Service Manual - Armature

5. Armature



To remove the armature, follow these steps:

1. Power **OFF** the unit, unplug it and remove the cover. See Cover.
2. Remove the screws located in each of the armature's bottom corners.
3. Loosen the screw located at the armature's front top edge. NOTE: this screw is very long and does not need to be completely removed.



STATIM 7000 Service Manual - Armature

4. Slide the armature forward.
5. Reverse removal instructions to replace.



STATIM 7000 Service Manual - Isoplate

6. Isoplate



To remove the isoplate from the armature, follow these steps:

1. Remove the armature from the chassis and place it on a secure work surface. See Armature.

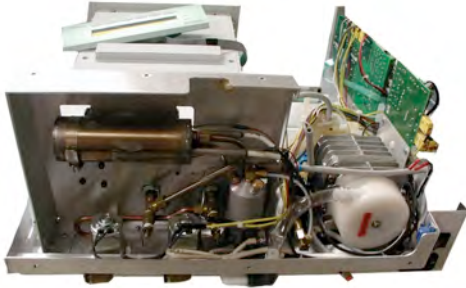
2. The isoplate is secured in the armature using screws with washers, on the top and bottom of the armature. Remove and retain all the screws with washers.



3. When all fasteners are removed, slide the isoplate out of the armature.
4. Reverse removal instructions to replace.

STATIM 7000 Service Manual – Steam Generator

7. Steam Generator



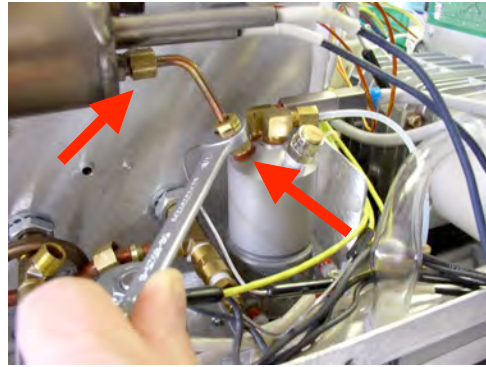
To remove the steam generator, follow these steps:

1. Power **OFF** the unit, unplug it and remove the cover. See Cover. NOTE:
The steam generator may be hot if the unit has been operating.
2. Disconnect the fan connectors.
3. Disconnect the inlet and outlet tubes on the biological air filter.
4. Remove the rear chassis cover plate by removing the three screws across the top and three screws across the bottom, and lifting the cover plate.
5. Disconnect the steam generator thermocouple from the controller board.
6. Cut the tie wraps holding the steam generator thermocouple.
7. Disconnect black steam generator thermal fuse wire from controller board connector terminal block.
8. Disconnect the white steam generator thermal fuse wire from the upper terminal in the steam generator.



STATIM 7000 Service Manual – Steam Generator

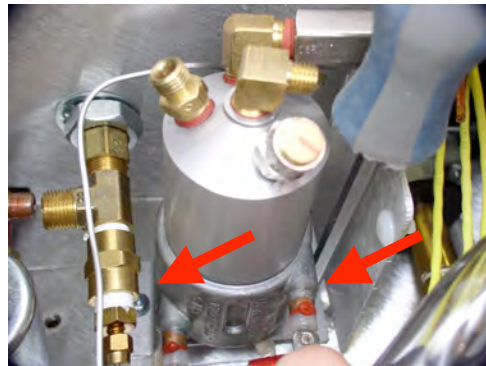
9. Disconnect, at both ends, the copper tubing connecting the steam generator to the auxiliary heater.



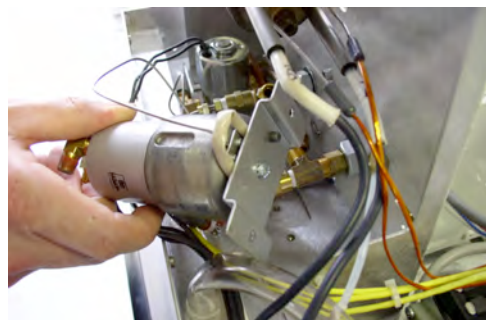
10. Disconnect the compression nut from the Teflon™ inlet tube.



11. Remove the two screws that hold the steam generator to the chassis.



12. Remove the steam generator.



STATIM 7000 Service Manual – Steam Generator

13. Reverse removal instructions to replace.
14. After you install a new steam generator, calibrate the unit. See Calibration.

STATIM 7000 Service Manual – Steam Gen. Check Valve

8. Steam Generator Check Valve



To inspect the check valve, turn ON the compressor using the Control Box, and allow the unit to run for a few minutes. Allow the unit to cool to the touch. Remove and inspect the air filter, the bacteria retentive filter and the compressor. See Compressor.

If there is evidence of water in the bacteria retentive filter, replace the steam generator check valve and the filter.

If there is evidence of water in the compressor or if the compressor filter is wet, replace the steam generator check valve, compressor and filters.

To Remove the Steam Generator Check Valve, follow these steps:

1. Turn the power switch OFF, and unplug the unit.
2. Carefully cut the cable tie holding the compressor tube onto the check valve inlet and pull the tube off the valve.
3. Disconnect the check valve. NOTE: Apply the wrench to the part of the valve closest to the steam generator.

To Replace the Steam Generator Check Valve, follow these steps:

1. Prepare the right angle fitting by wrapping the threads with Teflon™ pipe fitting tape (minimum one complete wrap).
2. Thread the new valve onto the right angle valve fitting in the top of the steam generator. Using a wrench on the end of the valve closest to the

STATIM 7000 Service Manual – Steam Gen. Check Valve

fitting, tighten the valve SNUG. Do not overtighten the new valve. Use a wrench to hold the right angle brass fitting so it does not move.

3. Carefully push the compressor tube onto the check valve and secure the tube to the valve using a high temperature application cable tie.

Install replacement filters as required.

9. Steam Generator Thermal Fuse



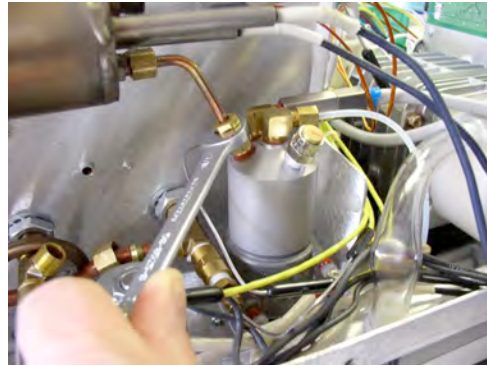
To remove the steam generator thermal fuse, follow these steps:

1. Power **OFF** the unit, unplug it and remove the cover. See Cover. NOTE:
The steam generator may be hot if the unit has been operating.
2. Disconnect the fan connectors.
3. Disconnect the inlet and outlet tubes on the biological air filter.
4. Remove the rear chassis cover plate by removing the 3 screws across the top and 3 screws across the bottom, and lifting the cover plate.
5. Disconnect the black thermal fuse lead wire from Controller Board connector terminal and the white wire from the steam generator.
6. Trace the path of the black wire back to the base of the steam generator. Cut all the cable ties holding the black wire.
7. Disconnect the compression nut holding the Teflon™ tube from the top of the steam generator.

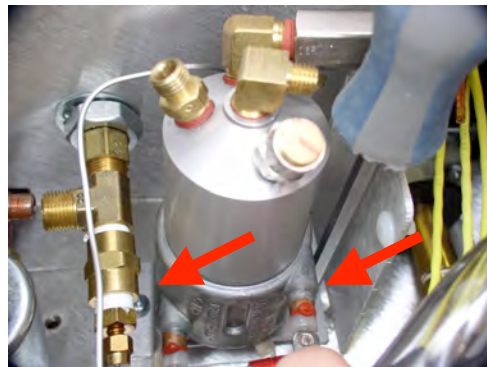


STATIM 7000 Service Manual – Steam Gen. Thermal Fuse

8. Disconnect, at both ends, the copper tubing connecting the steam generator to the auxiliary heater.

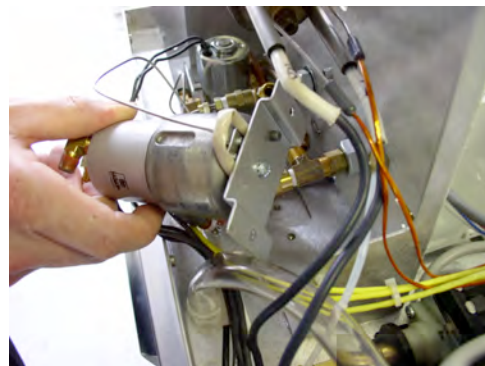


9. Remove the two screws from the steam generator bracket.
NOTE: The steam generator is still attached to the Controller board by the thermocouple lead.



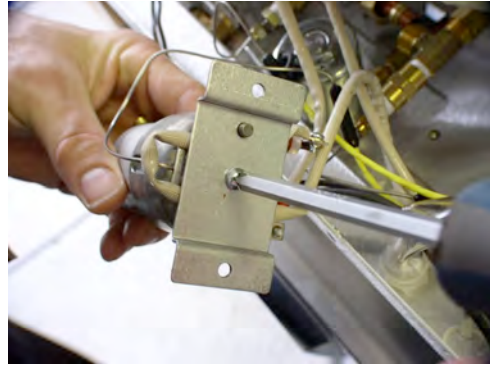
10. Carefully cut the two cable ties closest to the steam generator that hold the thermocouple leads together.

11. Gently lift and turn the steam generator assembly onto one side to expose the bottom of the assembly. **Be careful not to stress the thermocouple leads. (Min. bend radius - 3/16 inch / 5 mm).**



STATIM 7000 Service Manual – Steam Gen. Thermal Fuse

12. Remove the small screw that attaches the steam generator bracket to the steam generator.



13. Remove the fuse assembly. Note the wiring configuration and the location of the actual fuse (a large bump in the tube). When you reassemble the unit, the thermal fuse must be between the spacing stand-offs on the bottom of the steam generator. Be careful not to pinch the wire or crush the fuse.



14. Reverse removal instructions to replace.
15. After you install a new steam generator thermal fuse, calibrate the unit.
See Calibration.

STATIM 7000 Service Manual – Pressure Relief Valve

10. Pressure Relief Valve

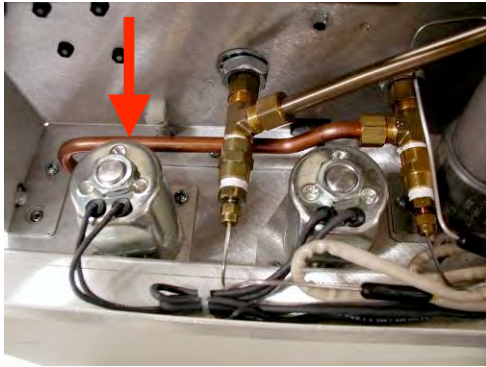


To remove the pressure relief valve from the steam generator, follow these steps:

1. Power **OFF** the unit, unplug it and remove the cover. See Cover. NOTE:
The steam generator may be hot if the unit has been operating.
2. Disconnect the fan connectors.
3. Disconnect the inlet and outlet tubes on the biological air filter.
4. Remove the rear chassis cover plate by removing the 3 screws across the top and 3 screws across the bottom, and lifting the cover plate.
5. Using a wrench, disconnect the pressure relief valve.
6. Reverse removal instructions to replace.

STATIM 7000 Service Manual – Chamber Solenoid Valve

11. Chamber Solenoid Valve



Chamber Solenoid Valve

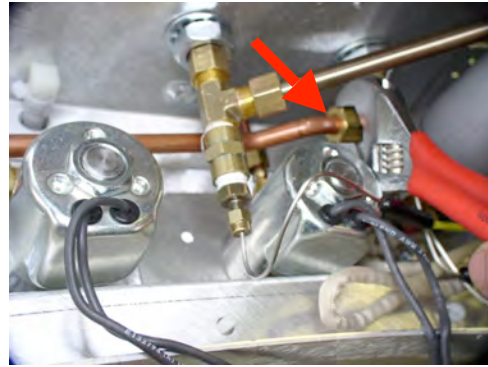
To remove the Chamber Solenoid (the solenoid on **left** when facing the back of the unit), follow these steps:

1. Power **OFF** the unit, unplug it and remove the cover. See Cover.
NOTE: The steam generator may be hot if the unit has been operating.
2. Disconnect the fan connectors.
3. Disconnect the inlet and outlet tubes on the biological air filter.
4. Remove the rear chassis cover plate by removing the 3 screws across the top and 3 screws across the bottom, and lifting the cover plate.
5. Carefully cut the cable ties holding the chamber solenoid leads to the Auxiliary Heater Controller Board terminal block (wires 15 and 16).

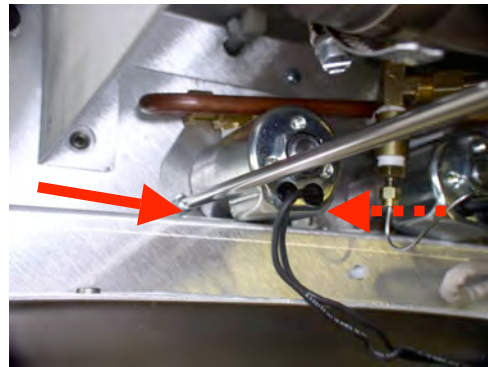


STATIM 7000 Service Manual – Chamber Solenoid Valve

6. Disconnect the copper tubing at the chamber thermocouple junction.



7. Remove the 2 screws that attach the chamber solenoid valve bracket to the chassis.



8. Remove 2 screws on the under side of the unit that hold the solenoid housing to the chassis.

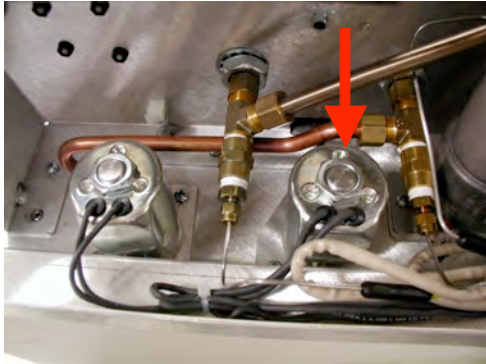


STATIM 7000 Service Manual – Chamber Solenoid Valve

9. Remove solenoid.
10. Reverse removal instructions to replace.
- 1.

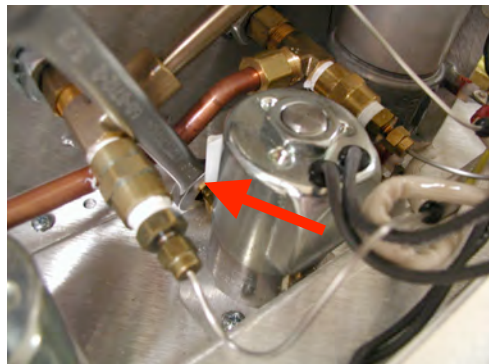


12 Validation Solenoid Valve



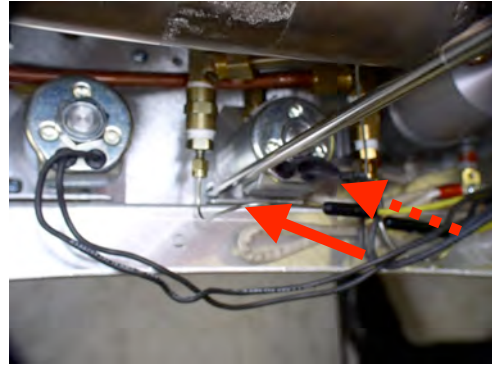
To remove the Validation Solenoid (solenoid on **right** when facing the back of the unit), follow these steps.

1. Power **OFF** the unit and remove the cover. See Cover. NOTE: The steam generator may be hot if the unit has been operating.
2. Disconnect the fan connectors.
3. Disconnect the inlet and outlet tubes on the biological air filter.
4. Remove the rear chassis cover plate by removing the 3 screws across the top and 3 screws across the bottom, and lifting the cover plate.
5. Carefully cut the cable ties holding the validation solenoid leads and disconnect the validation solenoid from the main Controller Board terminal block (wires 7 and 8).
6. Disconnect compression nut on the copper tube at the base of the solenoid.



STATIM 7000 Service Manual – Validation Solenoid Valve

7. Remove the 2 screws that attach the validation solenoid valve bracket to the chassis.



8. Remove 2 screws on the under side of the unit that hold solenoid housing to the chassis.



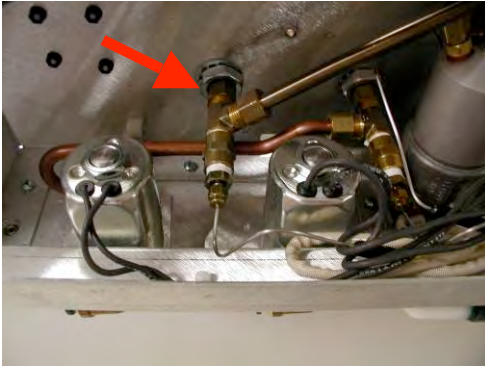
9. Remove solenoid.
10. Reverse removal instructions to replace.



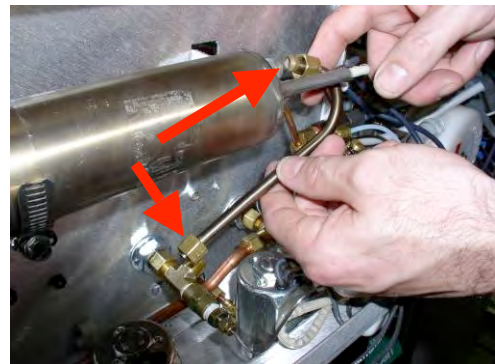
STATIM 7000 Service Manual – Chamber Thermocouples

13. Thermocouples

13.1 Auxiliary Heater Thermocouple (Inlet)

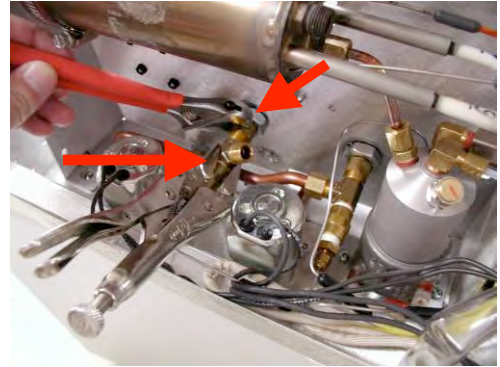


1. Power **OFF** the unit, unplug it and remove the cover. See Cover. NOTE:
The steam generator may be hot if the unit has been operating.
2. Disconnect the fan connectors.
3. Disconnect the inlet and outlet tubes on the biological air filter.
4. Remove the rear chassis cover plate by removing the 3 screws across the top and 3 screws across the bottom, and lifting the cover plate.
5. Carefully cut the cable ties holding the auxiliary heater thermocouple leads and disconnect from the Auxiliary Heater Controller Board.
6. Disconnect copper tubing connecting the auxiliary heater thermocouple to the auxiliary heater.



STATIM 7000 Service Manual – Chamber Thermocouples

7. Disconnect the auxiliary thermocouple housing from the rear chassis by securing the T fitting while removing the compression nut.



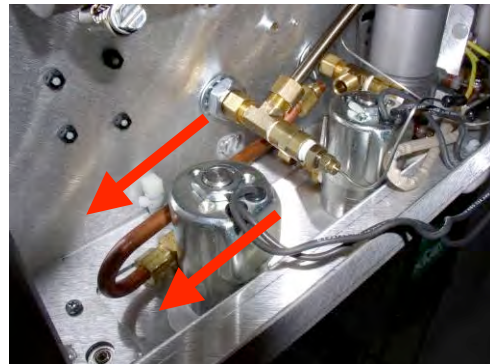
8. For replacement – need to learn more about the kits – thermo wire adjustment may be complex.
9. After you install a new thermocouple, calibrate the unit. See Calibration.

STATIM 7000 Service Manual – Chamber Thermocouples

13.2 Chamber Thermocouple (Outlet)



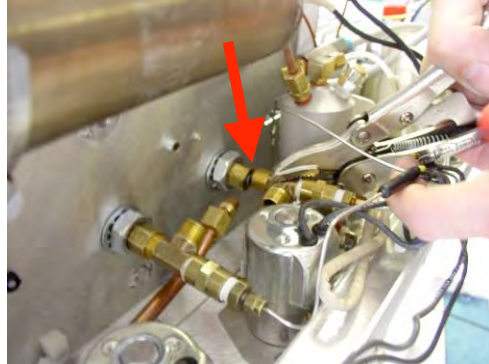
1. Power **OFF** the unit, unplug it and remove the cover. See Cover. NOTE: The steam generator may be hot if the unit has been operating.
2. Disconnect the fan connectors.
3. Disconnect the inlet and outlet tubes on the biological air filter.
4. Remove the rear chassis cover plate by removing the 3 screws across the top and 3 screws across the bottom, and lifting the cover plate.
5. Remove the 2 screws that attach the chamber solenoid valve bracket to the chassis.
6. Remove 2 screws on the under side of the unit that hold solenoid housing to the chassis.
7. Disconnect the compression nut on the copper tubing to the auxiliary heater thermocouple, remove the screws holding the chamber solenoid valve base to the chassis and slide the solenoid with the copper tubing attached, to the left.



STATIM 7000 Service Manual – Chamber Thermocouples

8. Remove the copper tubing connecting the auxiliary heater and the auxiliary heater thermocouple for easier access to the chamber thermocouple.

9. Disconnect the chamber thermocouple housing from the rear chassis by securing the T fitting while removing the compression nut.



10. Carefully cut the cable ties holding the chamber thermocouple wire and disconnect from the Controller Board.

11. Secure the T fitting while removing the compression nut.

12. For replacement – need to learn more about the kits – thermo wire adjustment may be complex.

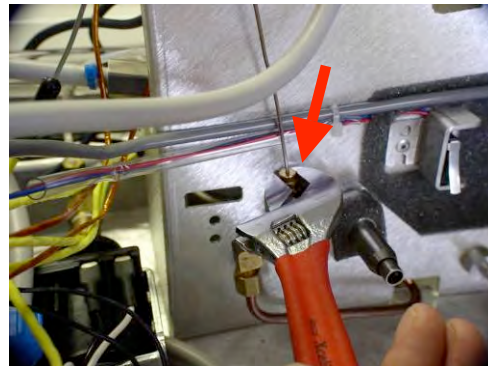
13. After you install a new thermocouple, calibrate the unit. See Calibration.

STATIM 7000 Service Manual – Chamber Thermocouples

13.3 Validation Thermocouple

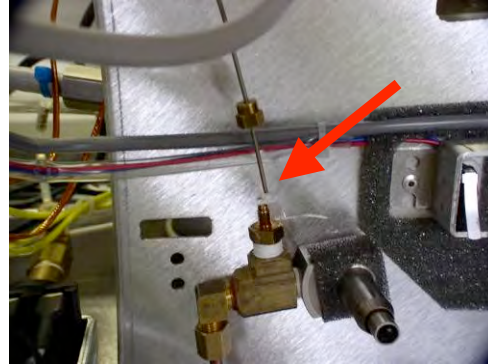


1. Power **OFF** the unit, unplug it and remove the cover. See Cover. NOTE:
The steam generator may be hot if the unit has been operating.
2. Disconnect the fan connectors.
3. Disconnect the inlet and outlet tubes on the biological air filter.
4. Remove the rear chassis cover plate by removing the 3 screws across the top and 3 screws across the bottom, and lifting the cover plate.
5. Remove Armature. See Armature.
6. Loosen smaller top nut to remove validation thermocouple.



STATIM 7000 Service Manual – Chamber Thermocouples

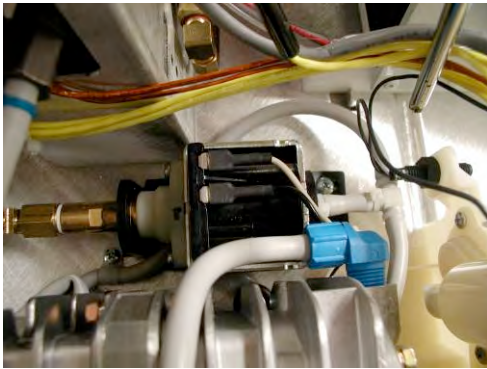
7. Remove the validation thermocouple.



8. Replacement instructions – need to learn how to align depth of thermocouple.

STATIM 7000 Service Manual - Pump

14. Pump

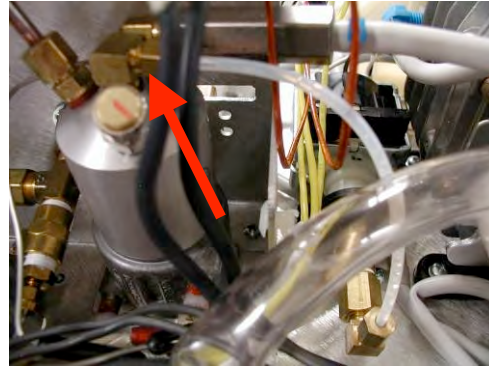


If you find a problem with the pump, follow these steps:

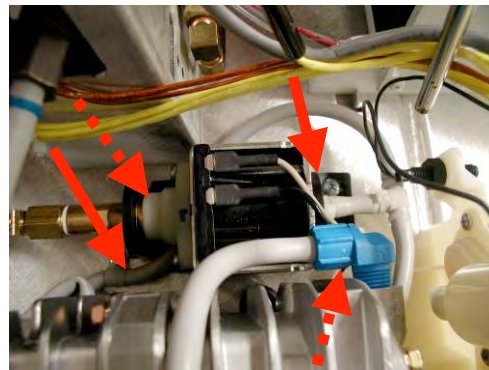
1. Power **OFF** the unit, unplug it and remove the cover. See Cover.
2. Disconnect the fan connectors.
3. Disconnect the inlet and outlet tubes on the biological air filter.
4. Remove the rear chassis cover plate by removing the 3 screws across the top and 3 screws across the bottom, and lifting the cover plate.
5. Check the inline water filter. Replace it if necessary.
6. Cut any cable ties that hold the inlet tube to the pump inlet fitting.
7. Disconnect the rubber tube from the pump inlet fitting.
8. Soak the tube in a mild solution suitable for removing scale or mineral deposits (e.g., vinegar) until any deposits have been dissolved. Rinse the tube with clean water.
9. Disconnect wires 5 and 6 from the Controller Board terminal block.

STATIM 7000 Service Manual - Pump

10. Remove the recovery tube compression fitting from the steam generator.



11. Remove the 4 screws that secure the pump assembly to the chassis and make note of the pump spring position.



12. Remove the pump.

13. Unscrew the inlet fitting. There is a mesh filter inside the pump inlet fitting and a rubber seal on the outside threaded end of the fitting. From the threaded end of the fitting, insert a blunt instrument and gently push the filter out.

Close up of inlet fitting and filter

- Rinse and replace once completed. Is there still mesh filter?
14. Inspect the filter and remove any debris. If the filter is damaged, replace the pump inlet fitting. Rinse with clean water.

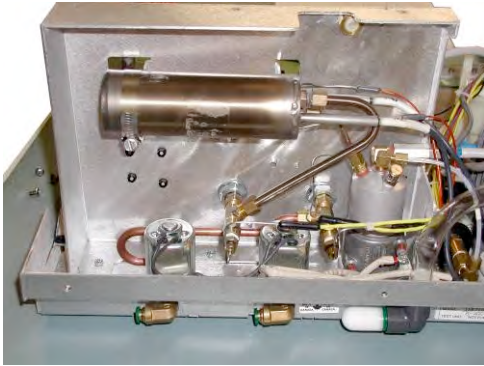
STATIM 7000 Service Manual - Pump

15. Insert the filter and reconnect the inlet fitting to the pump. Ensure that the rubber seal is in place. Finger tighten the fitting, and then tighten one half turn with a wrench.
16. Remove the compression nut from the tube that connects the pump to the steam generator.
17. Connect to the pump test bottle.
18. Ensure there is ample water in the service kit reservoir.
19. Power the unit **ON**, and activate the pump using the key pad...need more instructions.
20. Run a sterilization cycle. Verify that the cycle completes normally and there are no leaks.
21. Reverse removal instructions to replace.

Pump test bottle set up

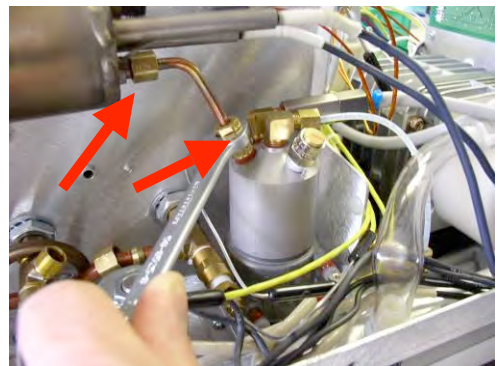
STATIM 7000 Service Manual – Auxiliary Heater

15. Auxiliary Heater



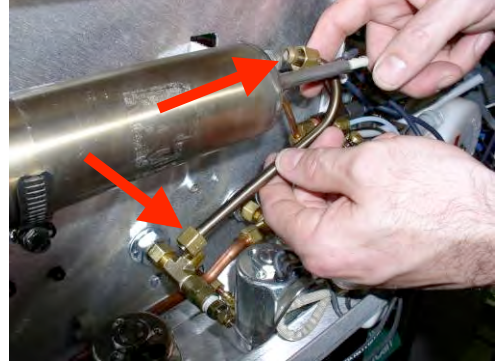
To remove the steam generator, follow these steps:

1. Power **OFF** the unit, unplug it and remove the cover. See Cover. NOTE:
The steam generator may be hot if the unit has been operating.
2. Disconnect the fan connectors.
3. Disconnect the inlet and outlet tubes on the biological air filter.
4. Remove the rear chassis cover plate by removing the 3 screws across the top and 3 screws across the bottom, and lifting the cover plate.
5. Disconnect the auxiliary heater thermocouple from the auxiliary heater board.
6. Disconnect both P9 wires one from the auxiliary board and one from the solid state relay. NOTE: the white wire running from the auxiliary board to the solid state relay should also be replaced when re-installing.
7. Cut the tie wraps holding the auxiliary heater thermocouple.
8. Disconnect the copper tubing connecting the steam generator to the auxiliary heater.

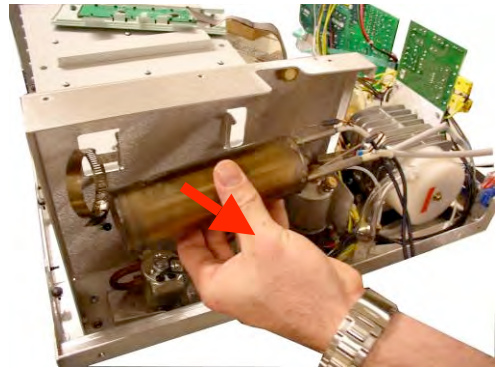


STATIM 7000 Service Manual – Auxiliary Heater

9. Disconnect the copper tubing connecting the auxiliary heater to the auxiliary heater thermocouple.



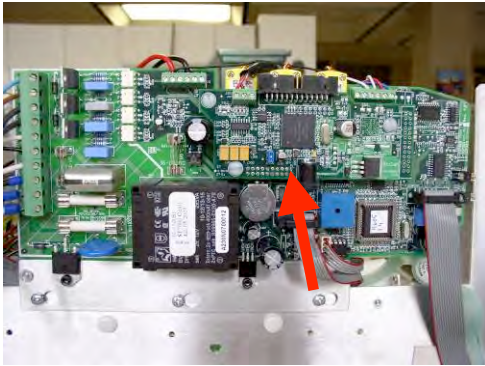
10. Loosen the clamp holding the auxiliary heater to the rear chassis.



11. Remove the auxiliary heater.
12. Reverse removal instructions to replace.
13. After you install a new auxiliary heater, calibrate the unit. See Calibration.

STATIM 7000 Service Manual – Adaptor Board

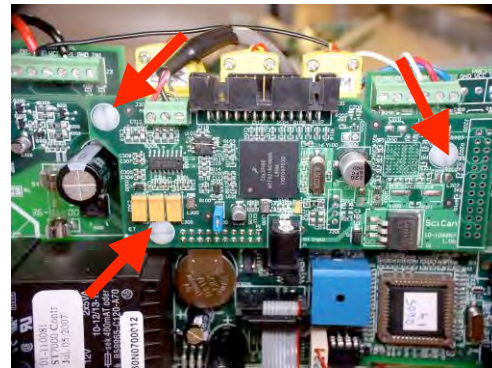
16. Adaptor Board



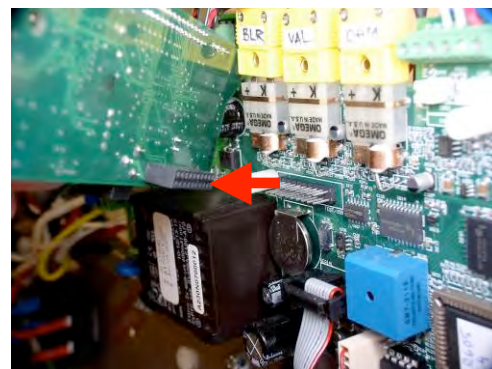
To remove the Adaptor Board, follow these steps.

1. Power **OFF** the unit and remove the cover. See Cover.
2. Disconnect the wires from the terminal block at the top of the Adaptor Board.

3. Remove the three plastic screws.



4. Slowly pull the adaptor board away and it will disengage the 20-pin connector that connects it to the controller board.
5. Reverse removal instructions to replace.



STATIM 7000 Service Manual – Controller Board

17. Controller Board



The controller board contains circuitry which is static sensitive. Always wear a static strap when working with or near this board. Transport the controller board in a static protected bag.

Before installing a new controller board, inspect the shield assembly to ensure that the fish paper shield and the insulating standoffs are in place.

NOTE: Use extra caution. The thermocouple leads at the board end are very fragile.

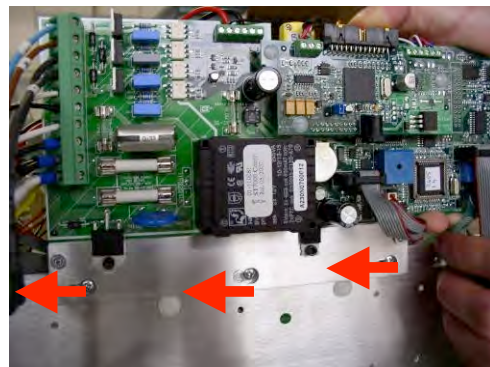
To remove the Controller Board Assembly, follow these steps:

1. Power **OFF** the unit, unplug it and remove the cover. See Cover.
2. Remove the Adaptor Board. See Adaptor Board.
3. Disconnect all the wires from the Controller Board terminal block positions.
4. Disconnect all the connectors on the flag terminals.
5. Disconnect all ribbon cable connections.

NOTE: Carefully bend all leads so they do not contact the Controller Board when it is removed.

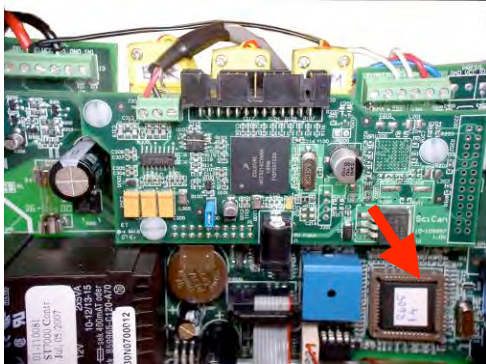
6. Loosen the three screws holding controller board metal base to bracket and slide the board to the left to release screws through the cut-out keys.

Reverse removal instructions to replace. Must perform calibration after installing a new controller board. See Calibration.



STATIM 7000 Service Manual – Microprocessor

18. Microprocessor

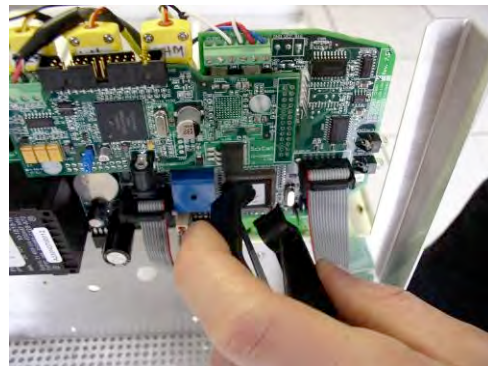


The microprocessor is static sensitive. Always wear a static strap when working with or near this component. Transport it in a static protected bag.

Note the orientation of pin 1 for the device and socket. Ensure that the device is fully inserted into the sockets.

To replace the microprocessor, perform the following steps:

1. Power **OFF** the unit, unplug it and remove the cover. See Cover.
2. Using a chip puller, remove the microprocessor from controller board socket.



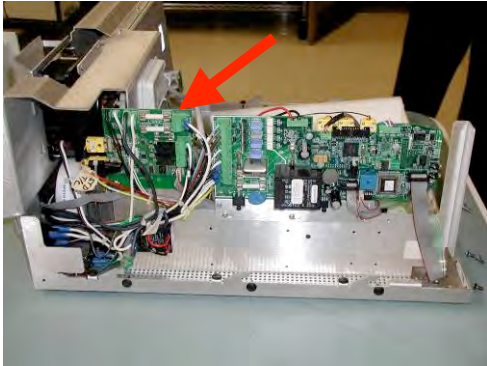
3. Discard the old microprocessor.
4. Install the new microprocessor.
5. After you install a new microprocessor calibrate. See Calibration.
6. When you power the unit **ON**, verify that the version number of the microprocessor is briefly displayed. If the LCD fails to display the "select a cycle" message, review the wiring connector placement and check that the

STATIM 7000 Service Manual – Microprocessor

microprocessor is positioned properly in the sockets and that there are no damaged pins.

STATIM 7000 Service Manual – Aux. Heater Board

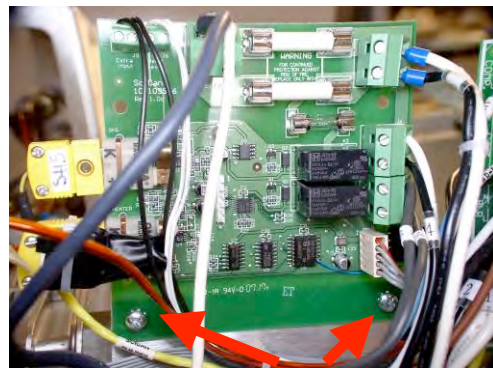
19. Auxiliary Heater Board



NOTE: Use extra caution. The thermocouple leads at the board end are very fragile.

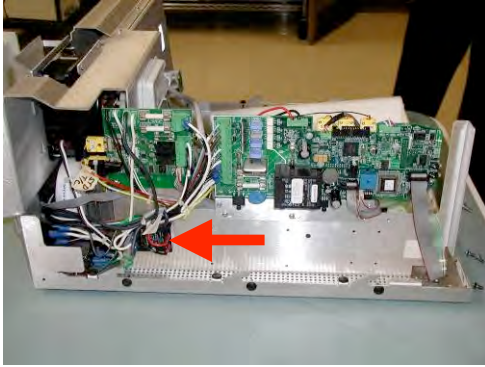
To remove the Auxiliary Heater Board, follow these steps:

1. Power **OFF** the unit, unplug it and remove the cover. See Cover.
2. Disconnect all the wires from the Auxiliary Heater Board terminal positions.
3. Disconnect all the connectors on the flag terminals.
4. Remove the two screws at bottom left and right of the board.
5. Remove the Auxiliary Heater Board.
6. Reverse removal instructions to replace.



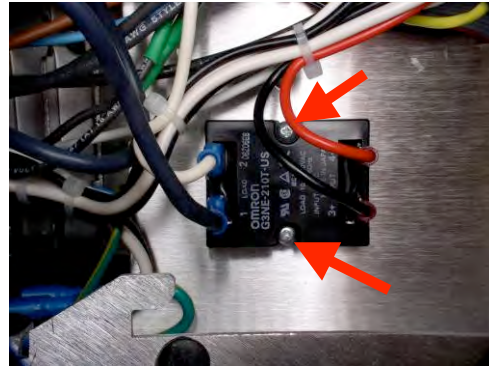
STATIM 7000 Service Manual – Solid State Relays

20. Solid State Relay



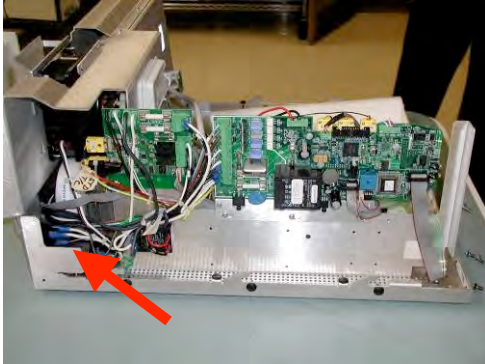
To remove the solid state relay, follow these steps:

1. Power OFF the unit and remove the cover. See Cover.
2. Disconnect the four wires.
3. Unscrew top and bottom screws and remove.
4. Reverse removal instructions to replace.



STATIM 7000 Service Manual – Mains Components

21. Mains Components



A dielectric strength test (hi-pot) must be performed on the unit if parts associated with the power main are serviced or replaced.

A protective bonding impedance test (ground continuity) must be performed on the unit if components of the protective earthing system are changed or connections broken and remade.

Hazardous voltages are accessible on the power cord, power cord receptacle, line filter, power switch, and power mains portion of the controller board when the power is **ON**. Disconnect the power cord before servicing the unit.

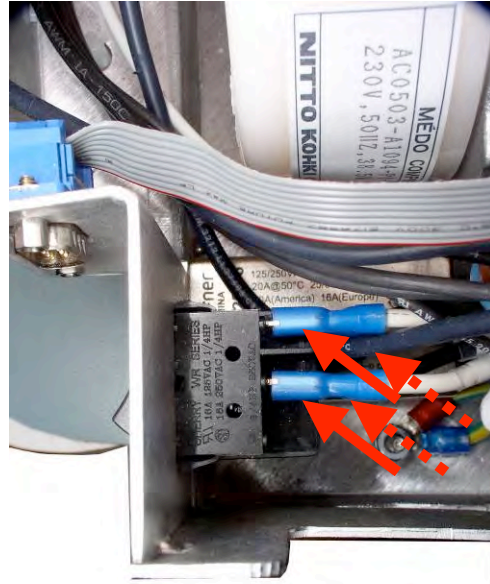
Replace mains input components with SciCan approved parts only to ensure adherence to applicable safety agency approvals, state, provincial, regional, and national laws.

To remove the mains components, follow these steps:

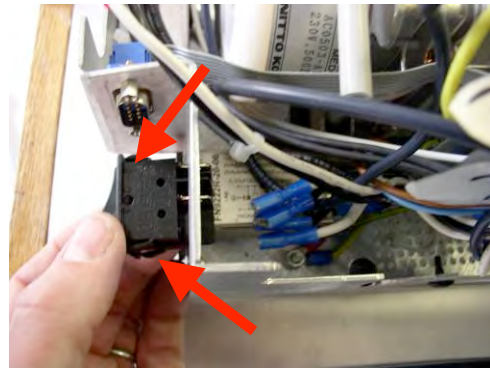
1. Power **OFF** the unit and remove the cover. See Cover.
2. Disconnect the fan connectors.
3. Disconnect the inlet and outlet tubes on the biological air filter.
4. Remove the rear chassis cover plate by removing the 3 screws across the top and 3 screws across the bottom, and lifting the cover plate.

STATIM 7000 Service Manual – Mains Components

5. Disconnect the four wires from the mains component.



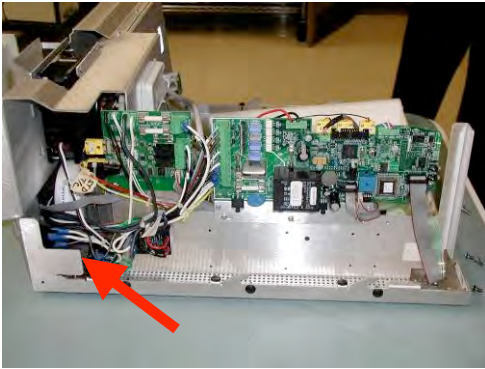
6. Push in the lock tabs on either side of switch and push the switch out through the opening in the chassis.



7. Reverse removal instructions to replace.

STATIM 7000 Service Manual – Line Filter

22. Line Filter

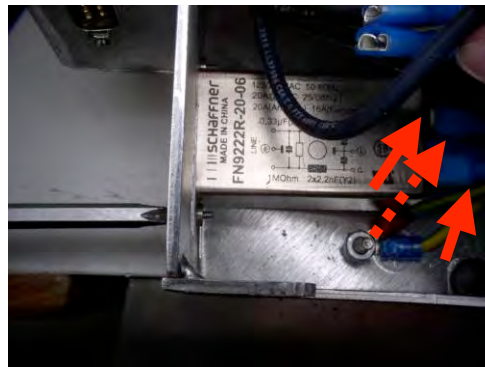


Follow these instructions only if you have the equipment needed to perform a dielectric strength test (hi-pot) and a protective bonding impedance test (ground continuity). If you do not have the required equipment, return the unit to SciCan for servicing.

It is difficult to determine when a line filter has failed. If the unit blows mains fuses in the service panel, there may be a short in the line filter. Disconnect all leads from the mains input and output and test for shorted circuits.

To remove the line filter, perform the following steps:

1. Power **OFF** the unit and remove the cover. See Cover.
2. Disconnect the fan connectors.
3. Disconnect the inlet and outlet tubes on the biological air filter.
4. Remove the rear chassis cover plate by removing the 3 screws across the top and 3 screws across the bottom, and lifting the cover plate.
5. Disconnect the white wire from receptacle line filter position N, the black wire from line filter position P, and the green wire from line filter ground position.



STATIM 7000 Service Manual – Line Filter

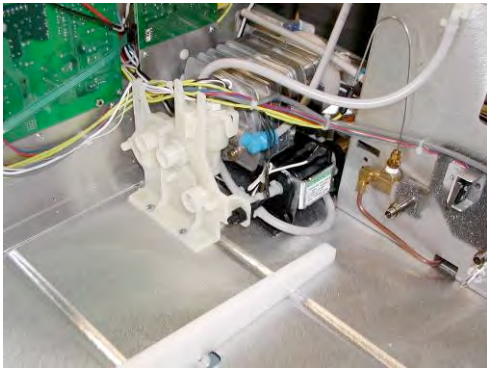
6. Remove the screws that hold the filter to the chassis.
7. Remove the filter.



8. Reverse removal instructions to replace.
9. After you replace the line filter, you must perform a dielectric strength test (hi-pot) and a protective bonding impedance test (ground continuity) before you plug in the power cord.

STATIM 7000 Service Manual – Reservoir Inlet Assembly

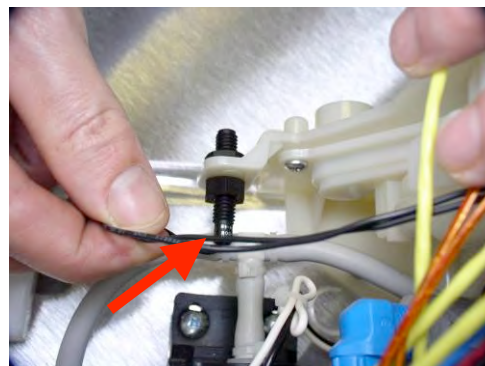
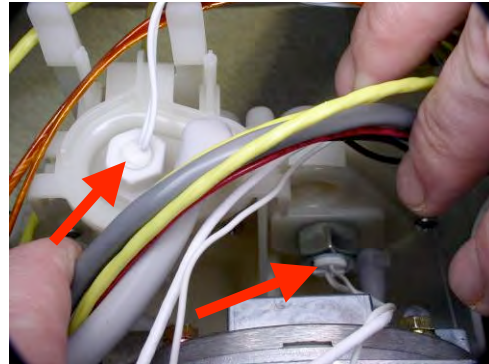
23. Reservoir Inlet Assembly



NOTE: this module includes the water quality sensor, the level sensor and the reservoir sensor.

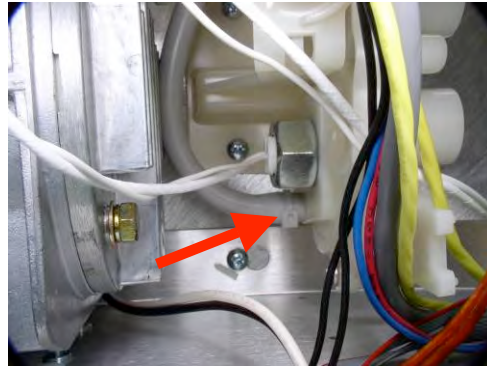
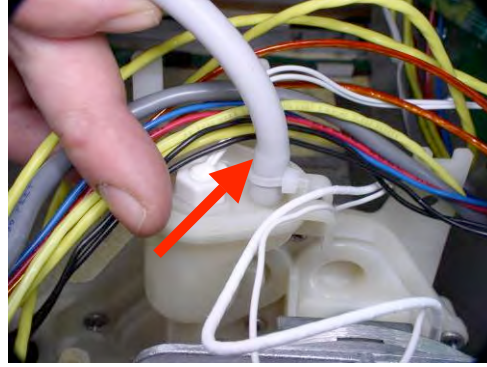
To remove the reservoir inlet assembly, follow these steps:

1. Power **OFF** the unit, unplug it and remove the cover. See Cover.
2. Disconnect the 4 white wires from the controller board and 2 black wires from the auxiliary heater board.

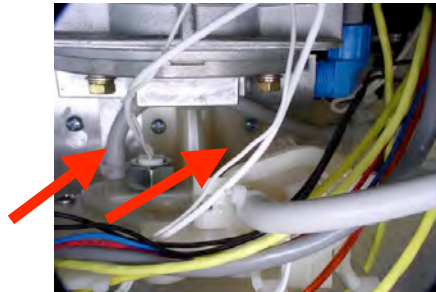
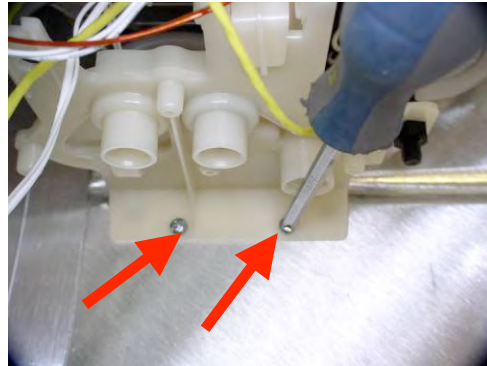


STATIM 7000 Service Manual – Reservoir Inlet Assembly

3. Disconnect the 2 rubber tubes.



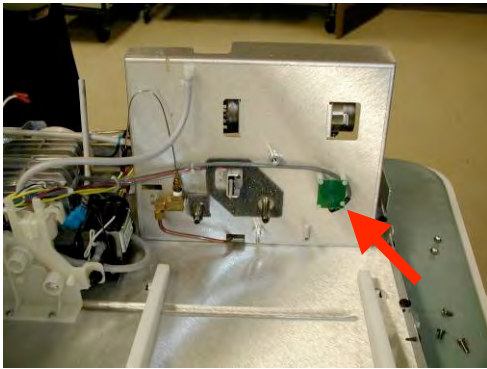
4. Remove 4 screws from base.



5. Remove the Reservoir Inlet.
6. Reverse removal instructions to replace.

STATIM 7000 Service Manual – RFID Adaptor Module

24 RFID Adaptor Module



To remove the RFID Adaptor Module, follow these steps:

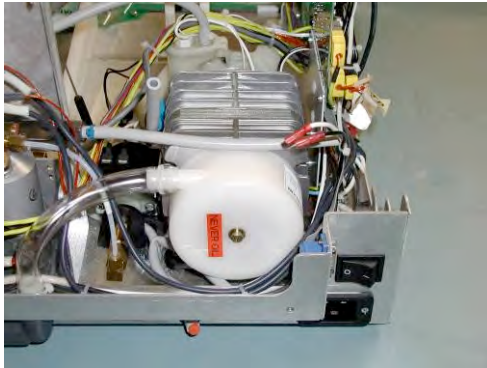
1. Power **OFF** the unit, unplug it and remove the cover. See Cover.
2. Remove the armature. See Armature.
3. Remove the four plastic stand-off screws holding the RFID adaptor to the rear chassis.



4. Disconnect the three RFID Adaptor Module wires from main controller board.

STATIM 7000 Service Manual - Compressor

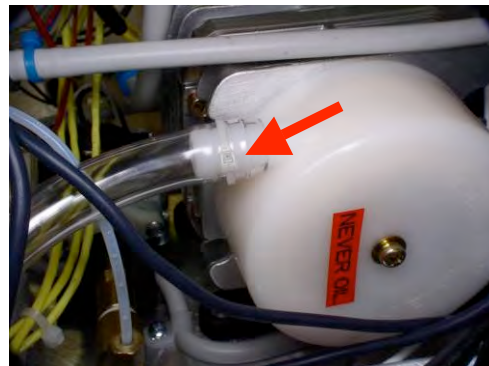
25. Compressor



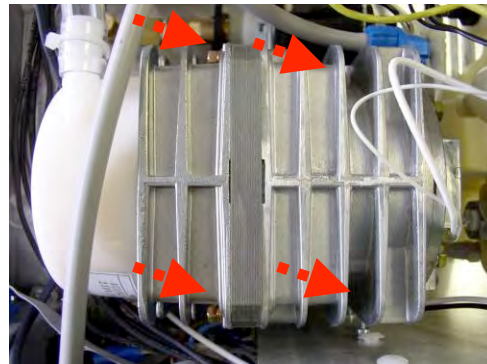
To remove the compressor, follow these steps:

1. Power **OFF** the unit, unplug it and remove the cover. See Cover. NOTE:
The steam generator may be hot if the unit has been operating.
2. Disconnect the fan connectors.
3. Disconnect the inlet and outlet tubes on the biological air filter.
4. Remove the rear chassis cover plate by removing the three screws across the top and three screws across the bottom, and lifting the cover plate.
5. Locate the transparent rubber

tube that extends from the compressor intake fitting to the air fitting. Cut the cable tie securing the tube to the compressor and remove the tube from the fitting.



6. Remove the four screws that attach the compressor bracket to the chassis.



STATIM 7000 Service Manual - Compressor

7. Disconnect the leads from Controller Board terminal block positions 9 LINE and J1-10 NEUTRAL, and carefully cut the cable ties securing the compressor leads.
8. Disconnect the ground wire from the compressor body and remove the compressor from the unit.
9. Reverse removal instructions to replace.

STATIM 7000 Service Manual – Conductivity Calibration

26. Conductivity Circuit Calibration Instructions

Statim 7000 equipped with PCB rev 7.x requires Conductivity Circuit Calibration

1. Turn the unit off.
2. Disconnect conductivity sensors wires
3. Using a wire, make a short on the FLOAT pins (J4-5 and J4-6)
4. Enter Service Mode by powering the unit up while holding Unwrapped and Wrapped button pressed. This **Service Mode** is password protected, enter password to continue (default password is: Unwrapped, Wrapped, R&P and Stop keys pressed in this order). The service technician can change this password. In case the changed password is lost a backdoor password can be used: Unwrapped, Wrapped, Unwrapped, Wrapped in this order.
5. Use Unwrapped Key to select next item in the menu or Wrapped Key to select previous item in the menu until Conductivity Setup is displayed.
6. Press Rubber and Plastic Key to enter Conductivity Setup selection.

Screen at this time:

CND=xx.xuS/NNN/y.yppm		
L=LL.L	H=HH.H	G=G.GG

Where:

- | | |
|------|--|
| xx.x | water conductivity in μS |
| NNN | conductivity measurement in ADC (Analog to Digital) counts (0...255) |
| y.y | water quality in ppm (parts per million) |
| HH.H | <u>H</u> igh value threshold (“Bad Water” limit), default $10\mu\text{S}$. Readings larger than this trigger “Bad Water Quality” error. |
| LL.L | <u>L</u> ow value threshold in μS , default $0.3\mu\text{S}$. Do not adjust this value in Statim 7000 because this value is not used for triggering the “No Water, Refill reservoir” message. There is a float sensor for that. |
| G.GG | Water conductivity circuit <u>G</u> ain. Default 1.00 |

Note: Water produced by a good **SciCan Water Filter Cartridge** or distilled water readings should be below the High threshold.

7. Check/adjust the High threshold value to the default one. Do not touch the Low value threshold even though it is possible to adjust.
8. By pressing the Rubber and Plastic Key the selection moves between LO, HI and G

STATIM 7000 Service Manual – Conductivity Calibration

9. Select “G”, Water conductivity circuit Gain (flashing value on the display), by pressing Rubber and Plastic Key
10. Adjust G.GG value so that the conductivity in ADC counts (NNN) shows 186 ± 1 count.
11. Press Stop key to exit Water conductivity mode and save *displayed* thresholds “HH.H”, “LL.L” and “G.GG” and enter normal mode of operation, “Select cycle” screen.

Note: **Keypad functions in Conductivity Setup screen:**

Unwrapped Key: increment current field (the flashing value on the display)

Wrapped Key: decrement current field (the flashing value on the display)

Rubber and Plastics: move to next field

Stop key: exit

STATIM 7000 Service Manual – S Class Calibration

27. Statim S-Class Calibration - Software Revision 6.00 & Higher

Instructions for the Calibration of Statim 7000 S-Class Autoclave

Warning

- *Incorrect or inaccurate calibration may cause unsuccessful sterilization of instruments.*
- *Always recalibrate the thermocouples, the pressure transducer, the conductivity and the voltage reading after replacing a steam generator, probe bracket, pressure transducer, controller board, pressure interface board, or microprocessor / EEPROM. In addition, after the thermocouple is bent or reconnected to the controller board, recalibration is recommended.*
- *Statim units contain electronic components that may be damaged or destroyed by electro-static discharge (ESD). Observe appropriate safeguards when calibrating.*
- *Always wear a static strap when working with or near printed circuit boards. In addition, use static footstraps, grounding mats and grounded work surfaces when calibrating.*
- *Make sure that there is sufficient water in the unit prior to starting calibration. **If a new SciCan Water Filter Cartridge is used select water priming option in the Technician menu.***

The steam generator thermocouple doesn't require calibration. The chamber thermocouple and pressure transducer however must be calibrated to ensure the correct operation of the unit. Also the voltage and water conductivity readings must be calibrated. The voltage reading calibration is part of this instruction whereas the conductivity calibration is part of another calibration instruction.

The voltage reading is calibrated by adjusting the Voltage Offset by using the UNWRAPPED and WRAPPED keys (see instructions below) while comparing the voltage reading on the display with a the voltage measured by a reference voltmeter.

The chamber thermocouple is calibrated by adjusting the Chamber Thermocouple Offset using the UNWRAPPED and WRAPPED keys (see instructions below) while comparing a temperature on the display with a temperature measured by a reference thermometer.

The pressure transducer is calibrated by using the same UNWRAPPED and WRAPPED (see instructions below) to adjust the measured chamber pressure reading on the LCD to match the reference pressure meter attached to the cassette. The calibration is then verified by comparing the measured chamber pressure to the calculated chamber pressure and making a fine adjustment, if necessary.

STATIM 7000 Service Manual – S Class Calibration

To calibrate a Statim 7000 unit, follow these steps:

SETUP:

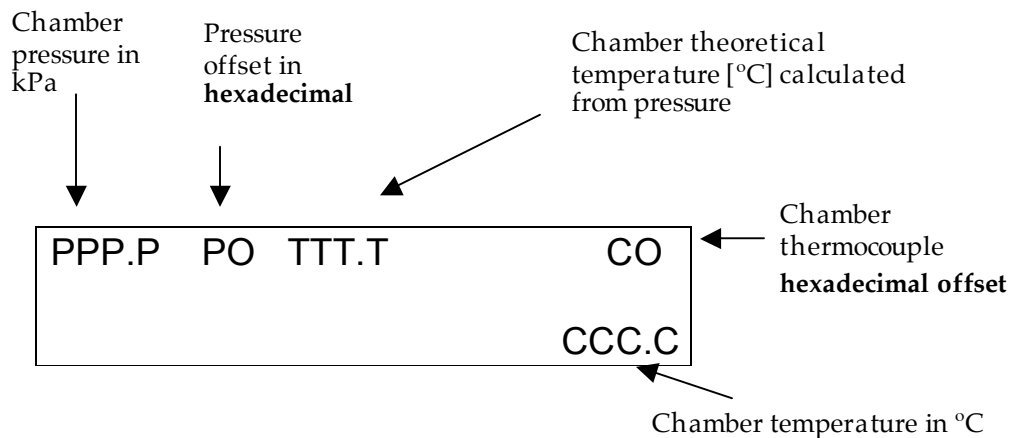
1. Turn the unit off and fill the water reservoir.
2. There is no need to remove the cover from the Statim in order to perform the calibration.
3. Insert a calibration cassette and connect the external temperature and pressure probe.
4. Power up unit while keeping Unwrapped and Wrapped button pressed to enter Statim **Service Mode**. This **Service Mode** is password protected, enter password to continue (default password is: Unwrapped, Wrapped, R&P and Stop keys pressed in this order). The service technician can change this password. In case the changed password is lost a backdoor password can be used: Unwrapped, Wrapped, Unwrapped, Wrapped in this order.

Keypad functions at this time:

Unwrapped Key:	Select next item in the menu.
Wrapped Key:	Select previous item in the menu.
Rubber and Plastic Key:	Enter current selection

Toggle using keypad through the menu selection to reach Calibration option and press R&P key.

5. Confirm that the display appears similar to the example above.



The value in the lower right-hand corner of the display (**CCC.C**) represents **Chamber Temperature**. The value in the upper left corner (**PPP.P**) is the Chamber **Pressure**. The following two digits in the upper left corner of the display (**PO**) represent the **Pressure Sensor Offset** value in hexadecimal followed by the theoretical chamber **Temperature** calculated from pressure (**TTT.T**). The two digits in the upper right corner of the display (**CO**) represent the **Chamber Offset** value in hexadecimal.

STATIM 7000 Service Manual – S Class Calibration

NOTE: *In order to account for the temperature drift of the pressure sensor, the field PO has two functions:*

- 1. When chamber pressure is below 115kPa the offset will have one value POA – Pressure Offset Atmospheric.*
- 2. When chamber pressure is higher than 115kPa the PO field will switch to indicate the POS – Pressure Offset Sterilization.*

CHAMBER CALIBRATION:

(Voltage reading, Temperature and Pressure)

6. To start the calibration cycle press and release the Unwrapped cycle button and then press START button. The system will run a normal sterilization cycle, but the LCD will show the calibration display. The calibration cycle starts with the **pressure sensor calibration** (see screen below). This pressure offset adjustment has to be done within 30 seconds.

PPP.P	PO	TTT.T	TO
Adjust Press!			CCC.C

7. By using the Unwrapped key (+) and Wrapped Key (-) adjust pressure offset (at atmospheric pressure) until the internal sensor pressure reading (as displayed in the PPP.P field) matches the pressure reading on the external pressure meter within ± 0.5 Kpa. The PO field will show the new pressure offset, which in this case (pressure below 115kPa) represents **POA** (Pressure Offset Atmospheric).
8. After 30 seconds, the calibration cycle will continue by entering the heating up phase and the screen will change for the **Voltage Reading calibration** (see screen below):

Voltage Calibration	
V=VVV	VCAL=CCC

Screen Representation

VVV = Voltage measured by unit

CCC = Voltage calibration offset.

Keypad functions at this time

Unwrapped	Increase current field
Wrapped	Decrease current field
Rubber and Plastics	Select and return to main menu
Stop	Exit, without saving, to normal mode of operation

STATIM 7000 Service Manual – S Class Calibration

- VCAL value should be adjusted so that the VVV value is the same as the line voltage measured by the reference voltmeter connected to the power line (same power outlet where Statim power cord is plugged in). Calibration should be done within $\pm 2\%$.
- This calibration phase lasts at least 30 seconds and it ends either by pressing the R&P button or automatically when the unit moves to the Conditioning phase. When the Voltage Reading calibration phase ends the screen moves to the main calibration screen, see below (see item 5 above for a description of this screen):

PPP.P	PO	TTT.T	TO
			CCC.C

- Allow the chamber to reach the sterilization temperature. As pressure builds in the chamber check for leaks in the cassette, associated piping and fittings. A steam leak in the system will introduce errors in the measurement and will result in improper calibration and non-sterile instruments.

Keypad functions at this time:

- | | |
|-------------------------|---|
| Unwrapped Key: | increment current selected offset (flashing offset) |
| Wrapped Key: | decrement current selected offset (flashing offset) |
| Rubber and Plastic Key: | select between PO and TO |
| Stop Key: | end chamber thermocouple calibration |

- During calibration the unit will run a normal cycle except the beginning of the holding phase (sterilization phase) when for ten consecutive times all the devices are turned off for approximately 10 seconds to facilitate the calibration process. During these periods the chamber temperature could go down to 131°C . After these ten “calm” periods the unit will resume normal operation (see the TIP below for checking the calibration during normal operation).
- During these “calm” periods observe the chamber temperature as displayed on the reference thermometer and on the lower right side of the Statim LCD (CCC.C value). Adjust the TO value by using the Unwrapped and Wrapped keys until the displayed temperatures match to within $\pm 0.2^{\circ}\text{C}$. Please note that Chamber Temperature Offset TO flashes when it is allowed to be adjusted. If PO flashes press R&P key to select TO field. Adjust TO when the display shows:

PPP.P	PO	TTT.T	TO
Adjust Temp!			CCC.C

- When chamber pressure is higher than 115kPa the PO field will switch to indicate the POS – Pressure Offset Sterilization. During the sterilization phase, after adjusting the temperature, press R&P key to select the PO field (PO field will be flashing) and using the keypad, adjust the pressure offset POS to match the external meter pressure indication within ± 1 kPa.

NOTE: POS should not be more than 14 counts (7kPa) away in any direction from POA.

STATIM 7000 Service Manual – S Class Calibration

TIP: To make sure the calibration has been done correctly, look at the external meter. When it shows 136.5°C you should hear the valve clicking (the valve opens at 136.5°C).

15. Verify that for the rest of the calibration cycle the temperature and pressure readings (internal and external) are the same.
16. When the adjustment is complete, press the STOP button to end the chamber calibration cycle. If not the Calibration cycle will end automatically after 5 min of holding the temperature above 134°C. Press the Stop button again to reset the unit.

NOTE: If during recalibration POA is changed, the value of POS will be automatically reset to the new value of POA, therefore when chamber pressure is higher than 115kPa, POS has to be readjusted.

17. Power off the Statim.
18. In order to complete the calibration of the Statim 7000 the calibration of the Conductivity reading circuit has to be done next (if not already done).

STATIM 7000 Service Manual – Calibration

28. Statim® 7000 Calibration - Software revision 6.00 and higher

Instructions for the Calibration of Statim 7000 Cassette Autoclave®

Warning

- *Incorrect or inaccurate calibration may cause unsuccessful sterilization of instruments.*
- *Statim units contain electronic components that may be damaged or destroyed by electro-static discharge (ESD). Observe appropriate safeguards when calibrating.*
- *Always wear a static strap when working with or near printed wiring boards. In addition, use static foot-straps, grounding mats and grounded work surfaces when calibrating.*
- *Make sure that there is sufficient water in the unit prior to starting calibration. **If a new SciCan Water Filter Cartridge is used select water priming option in the Technician menu.***

The chamber and validation thermocouples must be calibrated to ensure the correct operation of the Statim Autoclave. ***Always recalibrate the system thermocouples following a software upgrade, when the steam generator is serviced, when the P.C. board is replaced, or when either of the thermocouples is replaced. Pressure value is calculated from the calibrated validation thermocouple reading, no pressure calibration equipment is needed during the calibration procedure.***

The steam generator thermocouple doesn't require calibration. However, the Chamber and Validation thermocouples must be calibrated to ensure the correct operation of the unit. Also the voltage and water conductivity readings must be calibrated. The voltage reading calibration is part of this instruction whereas the conductivity calibration is part of another calibration instruction.

Validation thermocouple calibration is done automatically by running a special calibration cycle.

The chamber thermocouple is calibrated by adjusting the Chamber Thermocouple Offset using the Unwrapped and Wrapped keys while comparing a temperature on the display with a temperature measured by a reference thermometer.

To calibrate a Statim 7000 unit, follow these steps:

SETUP:

1. Turn the unit off and fill the reservoir with water.
2. There is no need to remove the cover from the Statim 7000 in order to perform the calibration.
3. Install a calibration cassette with the reference thermocouple inserted into the hole in the front of the chamber.
4. Power up unit while keeping Unwrapped and Wrapped button pressed to enter Statim **Service Mode**. This **Service Mode** is password protected, enter password to

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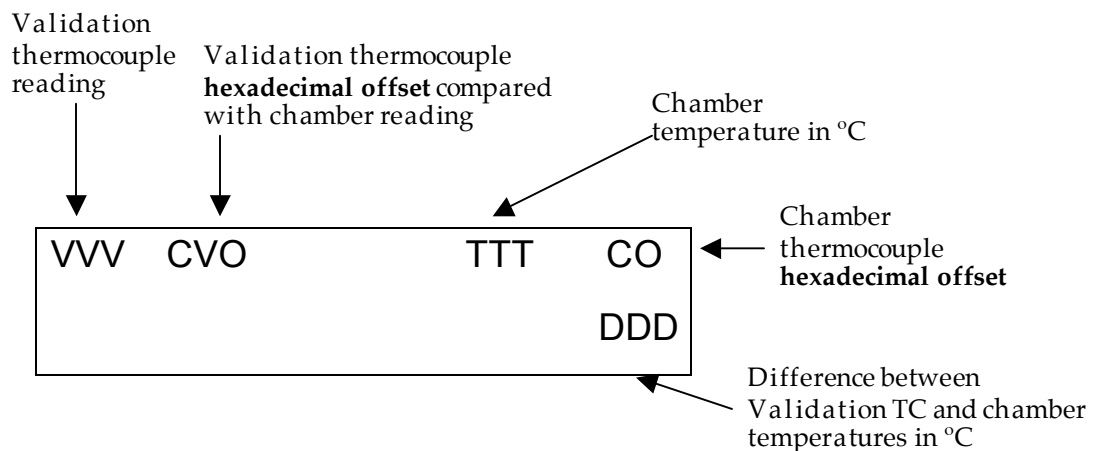
continue (default password is: Unwrapped, Wrapped, R&P and Stop keys pressed in this order). The service technician can change this password. In case the changed password is lost a backdoor password can be used: Unwrapped, Wrapped, Unwrapped, Wrapped in this order.

Keypad functions at this time:

Unwrapped Key:	Select next item in the menu.
Wrapped Key:	Select previous item in the menu.
Rubber and Plastic Key:	Enter current selection

Toggle using keypad through the menu selection to reach Calibration option and press R&P key.

5. Confirm that the display appears similar to the example above.



CHAMBER CALIBRATION:

(Voltage reading and Chamber thermocouple)

6. Press the Unwrapped cycle button (first from the left) and after that press START button to activate a chamber thermocouple calibration cycle. The calibration cycle will start by entering the heating up phase and the screen will change for the **Voltage Reading calibration** (see screen below):

Voltage Calibration
V=VVV VCAL=CCC

Screen Representation

VVV = Voltage measured by unit
CCC = Voltage calibration offset.

Keypad functions at this time

Unwrapped	Increase current field
Wrapped	Decrease current field
Rubber and Plastics	Select and return to main menu
Stop	Exit, without saving, to normal mode of operation

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7. VCAL value should be adjusted so that the VVV value is the same as the line voltage measured by the reference voltmeter connected to the power line (same power outlet where Statim power cord is plugged in). Calibration should be done within $\pm 2\%$.
8. This calibration phase lasts at least 30 seconds and it ends either by pressing the R&P button or automatically when the unit moves to the Conditioning phase. When the Voltage Reading calibration phase ends the screen moves to the main calibration screen, see below (see item 5 above for a description of this screen):
Note: No "*" will appear in the Chamber thermocouple calibration screen as it does for the Validation Thermocouple calibration

VVV	CVO	TTT	CO
			DDD

9. Wait for the chamber to reach the sterilization temperature of 134°C.

Keypad functions at this time:

Unwrapped Key:	increment current selected offset (flashing offset)
Wrapped Key:	decrement current selected offset (flashing offset)
Stop Key:	end chamber thermocouple calibration

10. Observe the chamber temperature as displayed on the reference thermometer and on the upper right of the Statim LCD (TTT value). Adjust the CO value by using the Unwrapped and Wrapped keys until the displayed temperatures match to within $\pm 0.2^\circ\text{C}$. Please note that the Chamber Temperature Offset (CO) is flashing when it is allowed to adjust it.
11. When the adjustment is complete, press the STOP button to end the chamber thermocouple calibration cycle.
12. Move to the Validation Thermocouple calibration procedure.

Validation Thermocouple Calibration: (Voltage reading and Chamber thermocouple)

13. Turn the machine off and back on, while keeping Unwrapped and Wrapped button pressed to go back to **Service Mode**. Enter password to continue. Toggle using keypad through the menu selection to reach Calibration option and press R&P key. The display should show the calibration screen.
14. Check that there is sufficient water in the water reservoir before proceeding.
15. Start a Validation Thermocouple self-calibration cycle. To do this, press and **hold** the UNWRAPPED button and in the same time press START button.
16. The calibration cycle will start by entering the heating up phase and the screen will change for the **Voltage Reading calibration** (see screen below):

Voltage Calibration
V=VVV VCAL=CCC

STATIM 7000 Service Manual – Calibration

Screen Representation

VVV = Voltage measured by unit

CCC = Voltage calibration offset.

Keypad functions at this time

Unwrapped

Increase current field

Wrapped

Decrease current field

Rubber and Plastics

Select and return to main menu

Stop

Exit, without saving, to normal mode of operation

17. VCAL value should be adjusted so that the VVV value is the same as the line voltage measured by the reference voltmeter connected to the power line (same power outlet where Statim power cord is plugged in). Calibration should be done within $\pm 2\%$.

18. This calibration phase lasts at least 30 seconds and it ends either by pressing the R&P button or automatically when the unit moves to the Conditioning phase. When the Voltage Reading calibration phase ends the screen moves to the main calibration screen, see below (see item 5 above for a description of this screen):

Note: The character “*” will appear immediately to the right of the Validation thermocouple hexadecimal offset on the display to indicate that a Validation thermocouple calibration cycle is running. This calibration will take approximately 6 minutes.

VVV	CVO*	TTT	CO
			DDD

19. Allow the Validation thermocouple self-calibration to complete. The temperature within the chamber will rise to the sterilization temperature. Wait until sterilization phase of the calibration cycle ends automatically. The offset value in the upper left-hand corner of the display (CVO) may have changed to a new offset value.

20. Press the STOP button to end the Validation TC self-calibration cycle.

21. Power off the Statim.

22. In order to complete the calibration of the Statim 7000 the calibration of the Conductivity reading circuit has to be done next (if not already done).