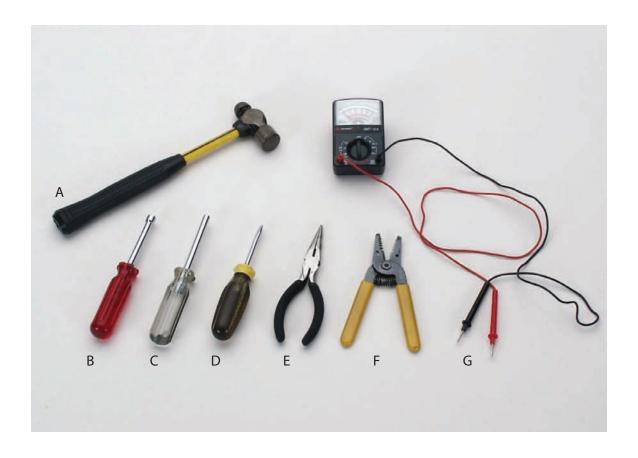




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Recommended Tools



- A Hammer
- B ³/₁₆ inch wrench
- C ¹/₄ inch wrench
- D Flat head/straight edge screwdriver
- E Needle nose pliers
- F Wire cutter/stripper
- **G** Ohmmeter
- H Wire crimpers (not pictured)

General Inspection

- 1. Visually check cord and electrical connection between the boiling chamber and chassis for any signs of damage. Figure A
- 2. Check the fan for free movement. If the fan does not rotate freely, determine cause of obstruction and correct. Figure B
- 3. Check for proper baffle installation: Figure C
 - Remove nut and check that baffle, o-ring and gasket have been inserted with the hole in the downward position.
 - Check to see if baffle, o-ring and gasket are worn, cracked, damaged or have scale deposits. Clean or replace if necessary.
 - Complete baffle check and tighten baffle nut firmly.
- 4. Plug in the water distiller to appropriate, functional electrical outlet.
- 5. Fill boiling chamber with water to the level of the 4 tabs inside and initiate cycle.
- 6. If the red light on the boiling chamber does not illuminate, first assure the chamber is fully inserted into chassis. Figure D If red light still does not illuminate, proceed to BOILING CHAMBER TROUBLESHOOTING & REPAIRS (pg 5).
- 7. If the red light does illuminate but the water distiller does not complete a cycle, check for build-up on the inside of the boiler. Excessive deposits can insulate the heater and cause a "short cycle". If excessive deposits are not found, proceed to BOILING CHAMBER TROUBLESHOOTING & REPAIRS Short Cycle (pg 7).
- 8. If the red light illuminates and the water distiller appears to be boiling water but excess heat or steam are present, proceed to CHASSIS SYSTEM TROUBLESHOOTING & REPAIRS (pq 10).
- 9. If the red light illuminates but the boiler does not heat up, proceed to BOILING CHAMBER TROUBLESHOOTING & REPAIRS (pg 9).
- 10. If the distillation cycle takes significantly longer than 4.5 hours, proceed to CHASSIS SYSTEM TROUBLESHOOTING & REPAIRS (pg 9).
- 11. If a great deal of water is evident on the chassis base at the end of a cycle after the unit has cooled for 30 minutes with the water reservoir in place:
 - Ensure that the water flow through the filter cup into the water reservoir is not obstructed. Replace filter cup if necessary.
 - Ensure that the water level inside the boiling chamber has been filled only to the level of the 4 tabs, and boiler cover is secure.
 - Ensure that the steam baffle, o-ring, gasket and baffle nut are properly installed. Figure C
 - See BOILING CHAMBER TROUBLESHOOTING & REPAIRS (pg 4).
 - Inspect steam spout and chassis tubing. Figure E
 See CHASSIS SYSTEM TROUBLESHOOTING & REPAIRS (pg 14).

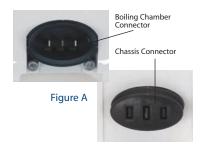




Figure B



Figure C



Figure D



Figure E

Boiling Chamber Troubleshooting & Repairs

DESCRIPTION

The boiling chamber consists of a water vessel, a heating unit, a thermostat, a control circuit board, a socket and various leads and connectors. When the start button is depressed, a relay on the control circuit board closes the power circuit to the heating circuit. A red indicator lamp attached to the control circuit board illuminates to verify start-up. The heating unit provides the heat to boil the water in the vessel. As the water volume in the boiling chamber is reduced, the thermostat, which is wired in series to the heater unit, senses the increased boiler temperature and opens the circuit to the heater. Any power interruption to the water distiller or the boiler will open the relay circuit and discontinue the cycle. To resume the cycle after power interruption, the start button must be depressed to close the relay circuit.

NOTE: Before opening the boiler for inspection, try inserting it into another water distiller that is known to function properly. If the boiler then functions properly the fault is related to the chassis. See CHASSIS SYSTEM TROUBLESHOOTING & REPAIRS (pg 10).

PRIMARY BOILER COMPONENTS

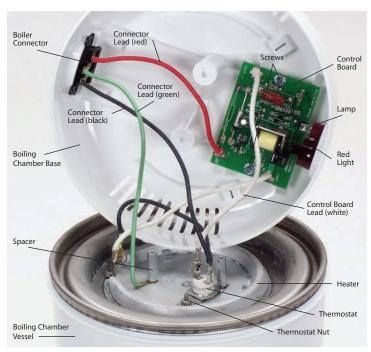


Figure F - Boiling Chamber Base

Vessel: the container that holds the water to be distilled. The heater is permanently attached to the base of the vessel. Figure F

Heater: when energized, heats the water in the vessel (boiler). The heater cannot be serviced. Figure F

Thermostat: senses the increase in temperature in the vessel. When the water level is reduced to a predetermined level (at the end of the cycle), the thermostat opens the power circuit to the heater. Figure F

Control Board: the printed circuit panel that controls power supply through the thermostat to the heater. Figure F

Baffle with O-ring and Gasket, Baffle Nut:

in conjunction with the chassis spout, provide a semi-passive steam connection between the

boiler and the cooling system in the chassis. The baffle has a "flat" side that aids in positioning the baffle properly into the boiler and has a "rib" that aids in the steam connection at the chassis. The flat side must be positioned downward to ensure that the drain port at the end of the baffle is also in the downward position. Check to see that the baffle is inserted correctly to ensure proper function. Figure C (pg 3)

Boiler Connector: makes the electrical connection between the boiler and the chassis. Figures F & G

BOILING CHAMBER INSPECTION & ELECTRICAL SERVICE

Replacing Boiling Chamber Connector

- 1. From the outside of the boiler, check for damage to the conductors in the boiler socket. Replace the boiler socket if damage is detected. Proceed to next step. Figure G
- 2. Remove the two screws that secure the connector to the boiling chamber. Figure G
- 3. Remove the two screws that secure the base of the boiler to the boiler vessel. Figure H
- 4. Remove the 3 leads (black, green and red) from the connector. Figure F (pg 4)
- 5. Remove the connector from the boiling chamber base and replace.
- Replace the 3 leads to the new connector. The black is connected to terminal labeled N; green is connected in the center and the red to the terminal labeled 7 or upside down L.
- 7. Secure the connector in place on the front of the boiling chamber with the two screws. Figure G
- 8. Inspect all wire terminals to ensure that they are properly connected and that the terminals are tight.
- Reinstall the boiler base, taking care not to damage the wires during reassembly and keep the wires clear of the two spacers.
 Be sure to align the tab on the boiler base with the notch on the vessel.
- 10. Secure the two screws into the boiler vessel. Figure H

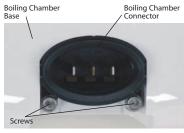


Figure G

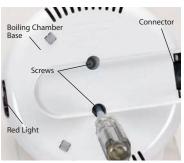


Figure H

The red light does not come on properly

Be sure the boiling chamber has been firmly pushed into the chassis and that the start button is depressed. If all terminals are in place and tight and the boiler/chassis connectors are functional, the likely fault is in the control board. Use ohmmeter to check for continuity function.

See CHECKING FOR ELECTRICAL CONTINUITY (pg 6). Then proceed to REPLACING CONTROL BOARD (pg 7).



Figure D

Checking for Electrical Continuity

Turn on the Ohmmeter; place or touch the wire ends to each side of the component part being tested, see below. If the meter needle goes up or to the right, the component has continuity and is functioning properly.

Boiling Chamber



Figure I – testing control board



Figure J – testing thermostat



Figure K – testing heater

Chassis



Figure L – testing fan motor



Figure M – testing condensing coil thermostat

Replacing the Control Board

- 1. Remove the boiler base by removing the two screws that secure the base of the boiler to the boiler vessel to access the control circuit board. Figure H
- 2. Use ohmmeter to check for continuity function. Figure I (pg 6)
- 3. Disconnect the leads to and from the control circuit board, make note of the connections before disconnecting the two white and one red leads. The leads are sized to fit the correct connection.

4. Remove the screws that secure the circuit control board to the boiling chamber base.

- 5. Lift the circuit control board from the boiling chamber base.
- 6. Align the lamp on the new circuit control board with the lens of the start button and position the circuit control board on the boiling chamber base.
- 7. Re-install the control circuit board mounting screws.
- 8. Reconnect the leads to and from the circuit control board.
- Reinstall the boiler base, taking care not to damage the wires during reassembly and keep the wires clear of the two spacers. Be sure to align the tab on the boiler base with the notch on the vessel.
- 10. Secure the two screws into the boiler vessel. Figure H

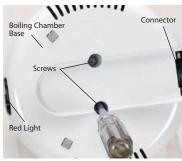


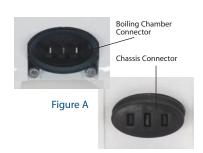
Figure H



Figure F - Boiling Chamber Base

Short Cycle - The water distiller stops running before the cycle is completed

Before proceeding, check the water level in the boiling chamber. If there is very little water left in the boiling chamber, ensure that the boiling chamber was filled to the 4 tab level inside the boiling chamber before starting the cycle. If very little water remains in the boiler and the boiler was inserted correctly prior to starting the cycle, go to CHASSIS SYSTEM TROUBLESHOOTING & REPAIRS (pg 10). If the boiling chamber contains a significant volume of water and all terminals are in place and tight and the boiler/chassis connectors are functional, the likely fault is in the thermostat.



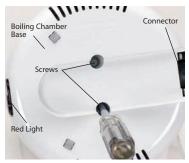


Figure H

Replacing the Boiler Thermostat

- 1. Remove the boiler base by removing the two screws that secure the base of the boiler to the boiler vessel to access the thermostat. Figure H
- 2. Use ohmmeter to check for continuity function. Figure J (pg 6)
- 3. Disconnect the leads to the thermostat. Make note of the connections before disconnecting the leads. Figure F
- 4. The thermostat is secured to the heating unit using two spacers and one nut. Remove the nut carefully as to not cross thread it. Use lubricant if needed to help unscrew nut and avoid the nut breaking off. If the thermostat moves freely this can cause poor sensing. This will not allow the boiling chamber to heat properly. This can be caused by the bracket being warped. Replace the thermostat.
- 5. Replace the new thermostat over stud and secure spacers and nut on three stud units. For four stud units, replace the new thermostat over two studs and secure nuts. Four stud construction not pictured.
- 6. Reconnect the leads to and from the circuit control board.
- 7. Reinstall the boiler base, taking care not to damage the wires during reassembly and keep the wires clear of the two spacers. Be sure to align the tab on the boiler base with the notch on the vessel.
- 8. Secure the two screws into the boiler vessel. Figure H

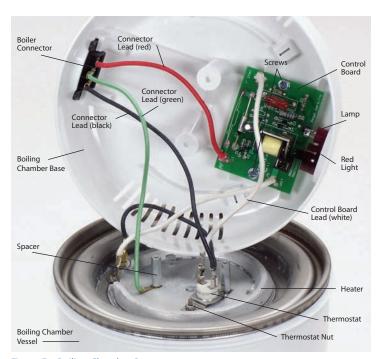


Figure F – Boiling Chamber Base

The water distiller's cycle is much longer than 4.5 hours; or, the red light illuminates but the boiler isn't heating

Before proceeding, ensure that the boiler is the proper voltage. Improper voltage (240 volt heater with 110 volt power supply or vise versa) the water distiller will produce at a greatly reduced rate. The voltage is indicated on the heater unit. If the boiler is of the correct voltage, the heater unit may be at fault.

- 1. Remove the boiler base by removing the two screws that secure the base of the boiler to the boiler vessel to access the heater.

 Figure H
- 2. Use ohmmeter to check for continuity function. Figure K (pg 6)
- 3. The heater unit is not field-serviceable. If the heater unit does not show continuity, the complete boiling chamber or the boiler vessel (service part available) must be replaced.
- 4. The boiler vessel for the 120V/240V includes the heater and 2 spacers. Figure F (pg 8)
- 5. Using the existing boiling chamber base, reconnect the components.
- 6. Reconnect the circuit control board white leads to the thermostat and heater.
- 7. Reconnect the connector leads. Black lead connects to the thermostat. The green lead is connected under the single spacer opposite the thermostat.
- 8. Reinstall the boiler base, taking care not to damage the wires during reassembly and keep the wires clear of the two spacers. Be sure to align the tab on the boiler base with the notch on the vessel.
- 9. Secure the two screws into the boiler vessel. Figure H



Figure D

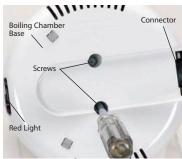


Figure H

Chassis System Troubleshooting & Repairs

CHASSIS ELECTRICAL SYSTEM DESCRIPTION

The chassis system consists of the cooling fan, the condensing coil, the condensing coil thermostat, the main power supply socket, the boiler electrical connector, the steam spout, vapor and water tubes, the water exit elbow, and various electrical leads and connectors. The main electrical supply system provides power from the household supply to the boiling chamber and the electric cooling fan. The steam spout provides the vapor connection between the boiling chamber and the vapor tubing. The vapor tubing routes the steam into the condensing coil. When the condensing coil reaches a specified temperature the condensing coil thermostat closes the power circuit to the fan motor. The fan supplies a flow of air past the condensing coil. The cooling process condenses the vapor back to its liquid state. The distilled water is routed from the condensing coil to the water jug through the water tube and the water exit elbow.

CHASSIS TUBING SYSTEM DESCRIPTION

Steam generated in the boiling chamber must be cooled to a liquid state, passed through the filter cup and then delivered to the water jug. The chassis tubing system incorporates a steam spout to make the connection between the boiler and the chassis. A silicon tube carries the steam into the condenser where the steam is cooled to a liquid state. The distilled water exits the condenser and is carried by gravity through another silicon tube to the exit elbow. From the exit elbow, the highly distilled water drips into the water jug.

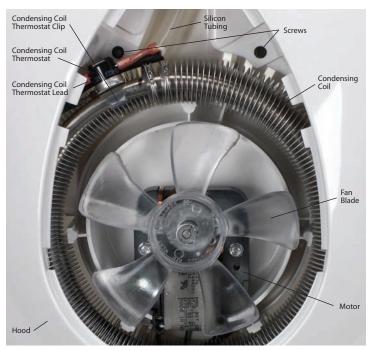


Figure O – Chassis without Vent Cover

PRIMARY CHASSIS COMPONENTS

Chassis Connector: distributes electrical supply from power cord to all of the electrical

components in the unit and makes the electrical connection between the chassis and the boiling chamber via the boiling chamber socket. Figure N



Figure N - Chassis Connector

Condenser: is a heat exchanger that transfers the heat from the steam, causing the steam to condense into its liquid state, distilled water. The condenser is comprised of a stainless steel tube with aluminum cooling fins. Figure O

Fan: consists of a motor and a fan rotor. Aids the condensation process by moving

a moderate volume of air through the condenser. The fan motor is fitted with an internal thermal fuse. Figure O

Condenser Thermostat: is an energy saving feature. It senses heat in the condenser and then closes the electrical circuit to the fan motor. Figure O

Steam Spout: in conjunction with the boiler baffle, makes the semi-passive steam connection between the boiler and the chassis. Figure P

Silicon Tubing: is of very high purity and very high durability.

Two lengths of silicon tubing are used to transport steam to the condenser and transport cooled water from the condenser to the water jug. NOTE: The section of silicon tubing that connects the steam spout to the condenser has a very small port drilled through it at one of its ends. This is a feature called a "volatile gas vent" and is intended to improve the water quality. When replacing the tubing, be sure that the vent is visible. The vented end of the tubing is to be connected to the condenser and the vent should be positioned to the top of the tubing. Figure Q

Exit Elbow: is the small white elbow from which the distilled water flows into the water jug. The exit elbow is connected by a section of silicon tubing to the condenser. Figure Q

NOTE: Unless otherwise specified, unplug the water distiller from the power supply before proceeding.

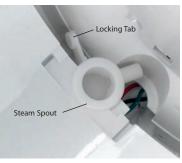


Figure P

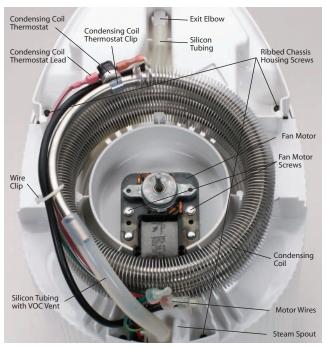


Figure Q - Chassis without Hood & Fan Blade

CHASSIS INSPECTION & ELECTRICAL SERVICE

Check for damage at the chassis connector and power cord; replace if necessary. See REPLACING THE CHASSIS CONNECTOR (pg 16).

Fan Blade Inspection and Repair

- 1. Remove the top vent cover. Figure R
 - Locate the "notch" at the back of the cover.
 - Insert a screwdriver. (Be careful not to damage the finish.)
 - Pry the back of the vent cover upward.
 - Pull the vent cover free from the chassis hood.
- 2. Verify free movement of the fan blade. Figure O (pg 10)
- 3. Inspect the fan blade for fractures or other damage.
- 4. Replace fan blade, if necessary, by pulling fan blade upward with both hands.
- 5. Place replacement fan blade over motor shaft and snap into place.



Figure R

The boiling chamber is heating water but the fan is not running. The fan motor is controlled by the condensing coil thermostat. Check the connections to be sure they are correct. If this is not the cause, the condensing coil thermostat or the fan motor internal fuse has failed.

Condensing Coil Thermostat Inspection and Repair

- 1. Remove the top vent cover. Figure R (pg 11)
 - Locate the "notch" at back of cover.
 - Insert screw driver. (Be careful not to damage the finish.)
 - Pry the back of the vent cover upward.
 - Pull the vent cover free from the chassis hood.
- 2. If the fan motor functions and the fan is not working, the condensing coil thermostat may need to be replaced.
- 3. Inspect the electrical lead at the condensing coil thermostat.
- 4. Use ohmmeter to check for thermostat continuity function. Figure M (pg 6)
- 5. If there is not continuity, disconnect the two lead wires. Figure S
- 6. Remove the thermostat from the clip.
- 7. Replace with new thermostat and reconnect two lead wires.
- 8. Position back onto coil in the thermostat clip.
- 9. Secure vent cover.

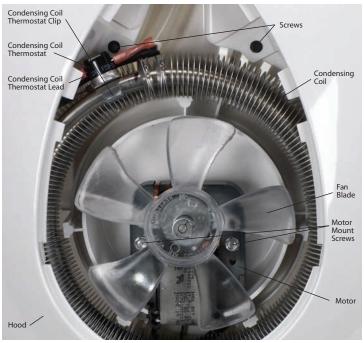


Figure S – Chassis without Vent Cover



Figure T

Fan Motor Inspection and Repair/Replacement

- 1. Remove the top vent cover. Figure R (pg 11)
 - Locate the "notch" at back of cover.
 - Insert screw driver. (Be careful not to damage the finish.)
 - Pry the back of the vent cover upward.
 - Pull the vent cover free from the chassis hood.
- 2. Use ohmmeter to check for fan motor continuity function. Figure L (pg 6)
- 3. Remove the fan blade by pulling fan blade upward with hands. Figure S
- 4. Check that the fan motor rotor moves freely. If there is resistance to movement, the fuse has likely opened and the fuse needs to be reset or the motor replaced.
- 5. The fuse on the motor is resetable by placing the boiling chamber into the chassis and pushing the red start button. Figure D (pg 9)
- 6. If this does not reset the motor, it will need to be replaced.
- 7. Remove the black screw on the backside of the unit that secures the hood to the chassis body Figure T and the two screws holding the front of the hood. Figure S Remove hood.

- 8. Remove the two motor mount screws that secure the fan motor. Figure U
- 9. Disconnect the wire from the condensing thermostat. Figure V
- 10. Cut the black and green wires as close as possible to the wire nut connector. Figure F (pg 4)
- 11. Inspect the chassis for signs of cracking or melting from overheating. If signs of overheating are present at motor mounts or motor mount plate, replace the chassis with a new one. Figure W
- Install new motor and securely install the two fan motor mounting screws.
 Place green ground wire into the hook on the chassis.
- 13. Strip the insulation from the wires to prepare for re-crimping.
- 14. Securely recrimp the new motor connections to the appropriate cut and stripped wires. Recommended tool not pictured. Use air or manual hand crimper.

 Reconnect long motor wire to thermostat and reattach wire lead.
- 15. Install the fan rotor blade and verify that it has unobstructed movement.
- 16. Make sure the wires will not contact the fan rotor or become crimped when the condensing coil or hood are reinstalled. Figure Q (pg 11) and Figure S (pg 12)
- 17. Reinstall hood.
- 18. Secure vent cover.

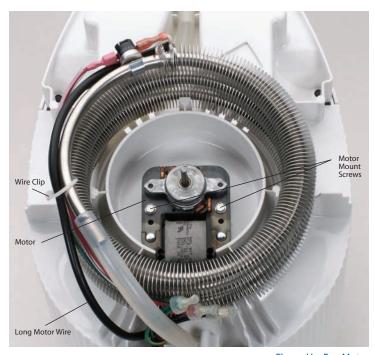


Figure U – Fan Motor

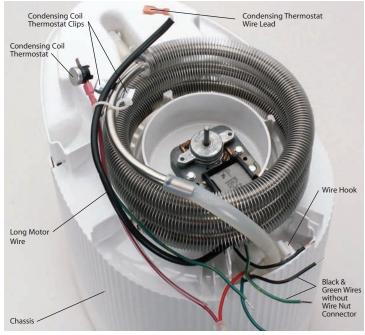


Figure V – Fan Motor with Wires Stripped

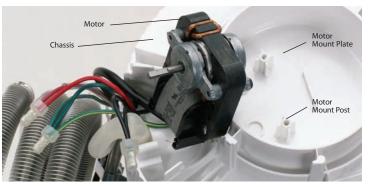


Figure W – Fan Motor Mount Plate



Figure P

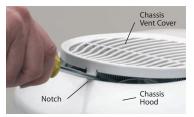


Figure R

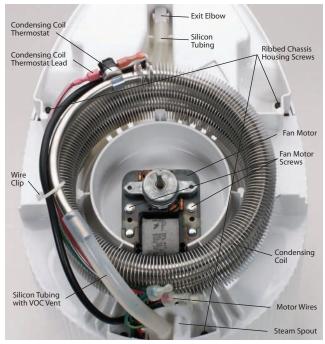


Figure Q - Chassis without Hood & Fan Blade

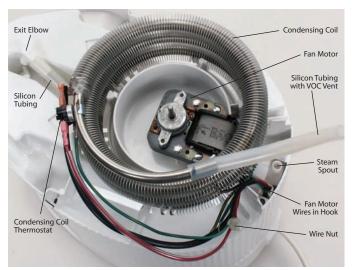


Figure X – Chassis with Silicon Tubing

Chassis Tubing Inspection and Repair

Inspect the steam spout at the inside back surface of the chassis. Figure P Replace if any damage is noted. See REPLACING STEAM SPOUT (pg 16).

- 1. Remove the top vent cover. Figure R
 - Locate the "notch" at back of cover.
 - Insert screw driver. (Be careful not to damage the finish.)
 - Pry the back of the vent cover upward.
 - Pull the vent cover free from the chassis hood.
- 2. Remove the black screw on the backside of the unit that secures the hood to the chassis body. Figure T (pg 12) Remove the two screws holding the front of the hood. Figure S (pg 12) Remove the hood.
- 3. Locate the silicon tubing that connects the steam spout to the condenser coil. Figure Q
 - 4. Correct any crimped tubing and replace any damaged tubing. Ensure that the VOC vent is positioned properly. The end of the tube that has the VOC vent is to be attached to the inlet end of the condenser coil and the vent must be on the topside of the tube when installed. Figure X
 - 5. Carefully inspect the silicon tubing that connects the condenser coil to the exit elbow.
 - 6. Correct any crimped tubing and replace any damaged tubing. Tubing should be taut.
 - 7. Make sure that the exit elbow is properly seated and that the locking tabs that secure it are fully engaged. Figure Q
 - 8. Ensure that no wires or tubes become crimped when the hood and vent cover are reinstalled. Figure O (pg 10)
 - 9. Reinstall hood.
 - 10. Ensure that the fan blade has free movement.
 - 11. Secure vent cover.

Replacing Steam Spout

- 1. Remove the top vent cover. Figure R
 - Locate the "notch" at back of cover.
 - Insert screw driver. (Be careful not to damage the finish.)
 - Pry the back of the vent cover upward.
 - Pull the vent cover free from the chassis hood.
- 2. Remove the black screw on the backside of the unit that secures the hood to the chassis body. Figure T (pg 12) Remove the two screws holding the front of the hood. Figure S (pg 12) Remove the hood.
- Locate the silicon tubing that connects the steam spout to the condenser coil.
 Figure Q (pg 14) and Figure X
- 4. Disconnect tube.
- 5. Remove 4 black screws securing chassis to inner housing. Figure Q (pg 14)
- 6. Lift chassis up slightly with condenser coil and wires attached.
- 7. Elevate high enough to remove steam spout from its location between the chassis and inner housing. Replace with new one, taking care to position it properly. Figure X
- 8. Lower chassis and secure to inner housing.
- 9. Reassemble to inner housing by replacing 4 black screws.
- 10. Reconnect hose into steam spout.
- 11. Ensure that no wires or tubes become crimped when the hood and vent cover are reinstalled.

 Figure O (pg 10)
- 12. Reinstall hood.
- 13. Secure vent cover.

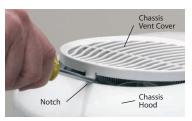


Figure R

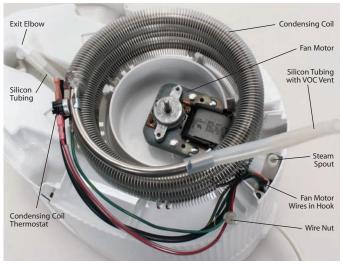


Figure X – Chassis with Silicon Tubing

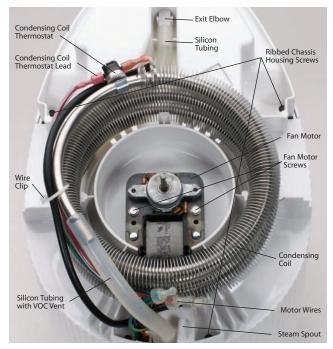


Figure Q - Chassis without Hood & Fan Blade

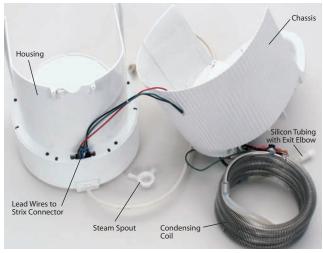


Figure Y - Chassis Assembly



Figure Z - Chassis Strix Connector Assembly

Replacing Chassis Connector

- 1. Remove the top vent cover. Figure R (pg 15)
 - Locate the "notch" at back of cover.
 - Insert screw driver. (Be careful not to damage the finish.)
 - Pry the back of the vent cover upward.
 - Pull the vent cover free from the chassis hood.
- 2. Remove the black screw on the backside of the unit that secures the hood to the chassis body. Figure T (pg 12) Remove the two screws holding the front of the hood. Figure S (pg 12) Remove the hood.
- 3. Locate the silicon tubing that connects the steam spout to the condenser coil. Figure Q
- 4. Disconnect tube.
- 5. Remove 4 black screws securing chassis to housing.
- 6. Locate the two tabs that secure the elbow.
- 7. Insert small screwdriver into the water exit elbow's exit port from the outside of the unit.
- 8. While applying slight pressure to the screwdriver, carefully pry apart the two locating tabs until the water exit elbow is free.
- 9. Lift and pivot the condensing coil over the back of the machine. Figure Y
- 10. Lift chassis slightly with condenser coil, motor and wires attached.
- 11. Grasp the steam spout from the boiler side (inside) of the unit.
- 12. Remove 4 black screws from inner housing and lift off of base.
- 13. Pull out Strix Connector. Figure N
- 14. Disconnect the wires from the connector. (Make a note of the wire connection location before disconnecting.) Figure Z

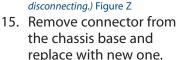




Figure N – Chassis Connector

- 16. Attach the 3 wires to the new connector. Black is connected on the left. (Note "B" on base.) Green with white tab is the middle and red is the right.
- 17. Replace the housing and secure with 4 screws. Secure wires in hook, to the right side of the spout on the inner housing. Figure V (pg 13)
- 18. Replace the chassis with 4 black screws.
- 19. Put the condensing coil into position and properly secure.
- 20. Reconnect and reassemble the exit tube and steam tube.
- 21. Readjust wires and thermostat on the condensing coil, if necessary.
- 22. Reinstall hood.
- 23. Secure vent cover.