

Replacing the Heating Element for the Stainless Steel Burner

Accessory G6600-60008

Purpose

The purpose of this procedure is to explain how to replace the element of the stainless steel burner.

Scope

The scope of this procedure is for all SCD that utilize **stainless steel** burners.

Materials

- General tools
- Extracting tool (optional)
- 1/2" open-end wrench
- 3/8" open-end wrench
- 7/16" open-end wrench
- 7/64" open-end wrench

Procedure

Shut off interface controller, but leave the pump running until the burner cools.

Disconnect the transfer line from the "T" fitting. Disconnect the hydrogen line from the specialized nut.

1. Unscrew the "T" fitting from the burner and carefully raise the attached inner ceramic tube vertically from the burner.
2. Remove the 1/8" outer ceramic tube by raising the tube vertically.
3. Remove the ferrule from the "T" fitting with an extracting tool, if necessary. Removal of the inner ceramic tube will be required to remove a stuck ferrule.



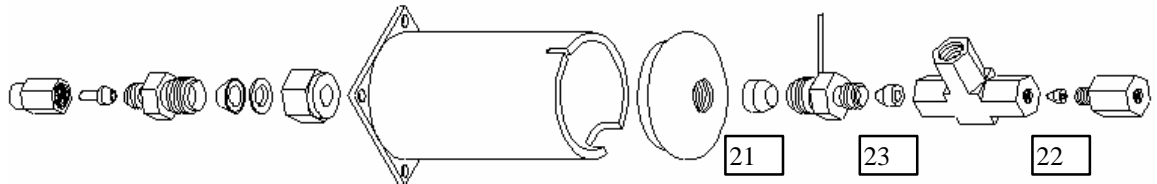
4. Disconnect the air inlet line from the back of the interface controller.
5. Disconnect the column from the burner.
6. Unscrew the air inlet fitting and remove the air inlet fitting. Take care not to break the weld to the air line.
7. Pull the Inconel® tube assembly out of the burner from below, inside the GC oven.
8. Remove the 1/4" Vespel® ferrule from the burner. Remove any debris from the case lid and from the Inconel® tube.
9. Remove the four socket head cap screws at the top of the burner case.
10. Remove the burner case lid.
11. Remove the thin, flexible ceramic wafer insulator.
12. Lift the thermocouple straight out of the case. Do not bend or break the thermocouple.
13. Lift the heating element straight out of the case.
14. Install the replacement heating element so that the leads project from the large slot on the side of the burner case. Take care not to stress the heating element wires.
15. Install the thermocouple so that the probe tip lies against the interior of the heating element, and the 1/16" OD thermocouple body sits in the slot in the case. Do not insert the thermocouple into the heater material itself.
16. Replace the wafer insulator.

Note

Failure to replace the insulator could result in an electrical short in the heating element and cause blown fuses.

17. Replace the burner lid and fasten it with the four socket head cap screws. Push the Inconel tube assembly back into the burner from below. Make sure the thermocouple tip fits between the Inconel® tube and the heating element.
18. Install a new 1/4" Vespel ferrule (G6600-80021) on the Inconel® tube.
19. Reinstall the air inlet fitting. The ferrule is positioned with the narrow end up. The ferrule should be swaged so that no more than 3 mm of the Inconel® tube projects above it. If the tube is not properly positioned then there will be insufficient room for the large ceramic tube.
20. Place the ferrule on the 1/16" tube. Slide the tube into the top of the "T" fitting. Tighten the specialized nut in place. Install new 1/16" tube, if necessary. 2 to 3 mm of the tube should project above the ferrule when the tube is fully swaged. Remove the specialized nut to inspect the tube position adjust and retighten.

21. Place the ferrule (G6600-80023) in the air inlet fitting. Do not insert the large ceramic tube. Gently tighten the “T” fitting in place. Remove the “T” fitting. Place the ferrule on the large ceramic tube and adjust the ferrule height by sliding the tube into the “T” fitting until the top of the tube is visible through the Valco® fitting. Place the tube in the air inlet fitting and tighten the “T” fitting finger tight.
22. Carefully insert the inner ceramic tube into the burner and screw down the “T” fitting 1/8 turn past finger tight.
23. Reconnect all the tubing, and pressure-check the system. Allow the system to reach operating temperature, then gently tighten the fittings.



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