Ceramic Probe Replacement Instructions

Accessory G6600-60035

Purpose

The Stainless Burner has two ceramic combustion tubes, which require periodic replacement: an inner and an outer tube.

Scope

This procedure applies to ceramic tube replacement in the Agilent Stainless Steel Burner.

Tools

- 1 - 1/4” Open End Wrench
- 1 - 3/8” Open End Wrench
- 2 - 7/16” Open End Wrenches
- 1 – 9/16” Open End Wrench

Procedure

1. Turn off the Interface Controller and let the system cool down *under vacuum*.

Note

The Burner is extremely hot when running. Do not touch the burner until it has cooled down.

2. Turn off the vacuum pump.
3. Remove the hydrogen line, using a 1/4” wrench while holding the Hydrogen Inlet Fitting with a 7/16” wrench to avoid excess torque on the ceramic tubes.
4. Remove the air line with a 1/4” wrench from the Air Inlet Nut, holding the nut with a 9/16” wrench to avoid excess torque on the ceramic tubes.

5. Remove the black PFA transfer line from the Tee of the Burner Interface with a 7/16” wrench. Hold the burner tee with a 3/8” wrench to avoid excess torque of the tee.

6. Remove the capillary column from the burner.

7. Unscrew the Air Inlet Nut fitting from the burner base (refer to Figure 1B) and carefully pull out the tower assembly (refer to Figure 1A).

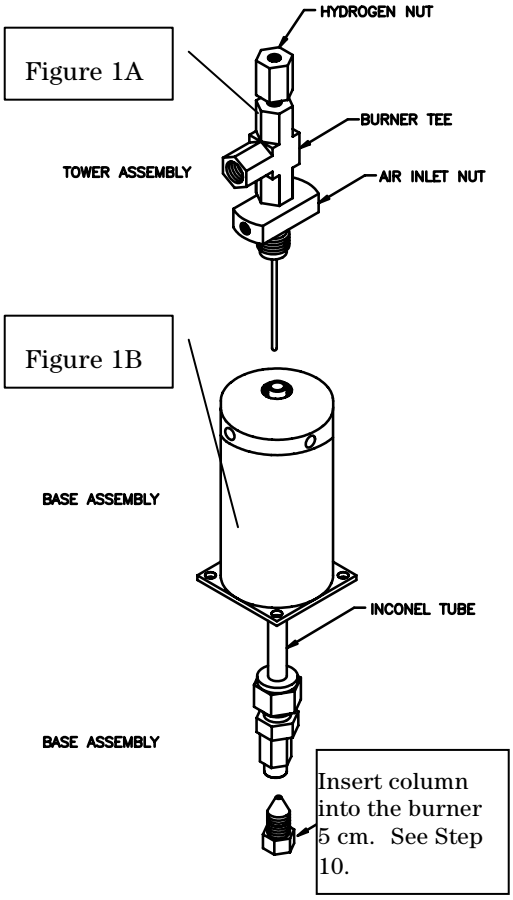

Figure 1

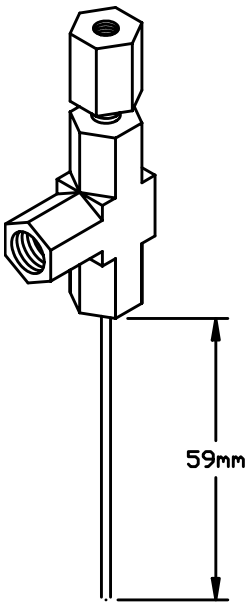

Figure 2

8. Unscrew the Tee from the Air Inlet Nut, and carefully remove the Tee with the attached inner ceramic tube.

Note

The 1/8” ferrule located on the outer ceramic tube does not fit tightly, and care should be taken not to drop the tube. Do not attempt to crush the ferrule onto the ceramic tube.

9. Unscrew the Hydrogen Nut from the Tee, and remove the 1/16" tube and ferrule.

10. Inspect both tubes for discoloration, scoring, or breakage. Inspect the attached Vespel ferrules for scoring or cracking.

11. Replace tubes and ferrules, as necessary. The placement of the 1/16” ferrule on the inner ceramic tube should allow 59 mm of tube to extend from the bottom of the Tee once the Hydrogen Nut is screwed into place, as shown in Figure 2. The placement of the 1/8” ferrule on the outer ceramic tube should be such that the outer tube is showing halfway in the transfer line inlet on the Tee after the Tee and the Air Inlet Nut are screwed together, as shown in Figure 3.

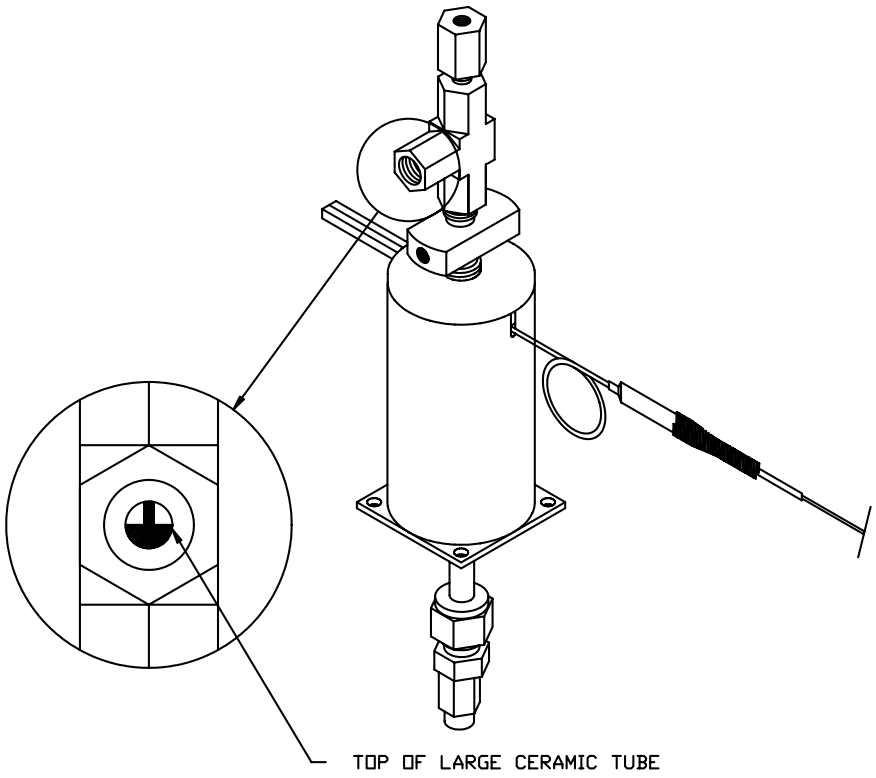

Figure 3

12. After the tower assembly has been reconstructed, visually confirm that the tubes are lined up straight in the middle of the assembly. The inner ceramic tube should be centered inside the outer ceramic tube. If it is not, disassemble the tower assembly and re-align the ceramic tubes.

13. Inspect the 1/4" Vespel ferrule, which is located on the Inconel tube in the middle of the burner casing. Replace this ferrule if it is cracked or worn. The placement of this ferrule should be such that the Inconel tube lies flush with the top of the casing, refer to Figure 4**.**

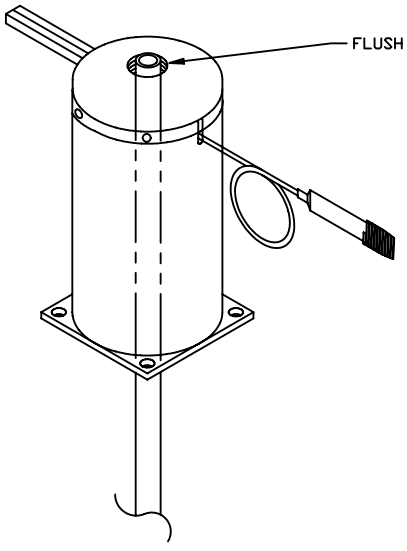

Figure 4

14. Screw the tower assembly onto the burner base. Reattach the gas lines and the black transfer line.

15. Re-insert the GC column into the burner. Do not force the column. The pathway is narrow and may take several tries to seat it correctly. The column should be inserted 5 cm into the burner from the top of the ferrule to the end of the column (see Figure1).

Note

All tower components should be hand tightened only. The tower should only be hand tightened into the burner base. If these components are tightened with a wrench, the ferrules may become cracked or warped, or there may be ceramic tube breakage. The only fittings that should be wrench tightened are the gas lines and the black transfer line. The hydrogen nut, tee, and air inlet nut should be backed up with the appropriate wrench to prevent strain on the ceramic tubes and ferrules.

16. Turn on the interface controller and allow the burner temperature and pressure to stabilize. Leak check the fittings by introducing a volatile sulfur compound, such as CS_2, around the joints, starting from top to bottom. If a leak is present, gently tighten any loose connections.

17. The ceramic tubes will need several hours to burn off any residue. It is recommended to “burn in” the tubes overnight prior to injecting standards and samples.

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