Jetanizer™ Installation Manual for Shimadzu 2030 GCs

Quick Start Guide

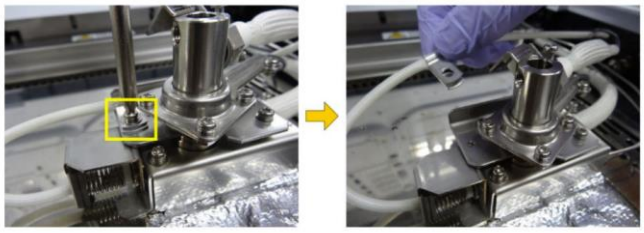
1. Install the Jetanizer like a normal FID jet (do not overtighten).
2. Operate at 400 °C with 35 sccm of hydrogen.

Installation Instructions

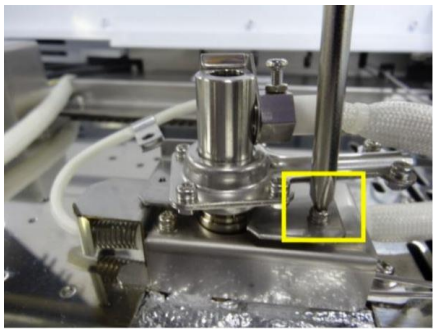
1. Set the oven temperature to 35 °C and wait for the oven to cool to 35 °C. Then set the oven to “OFF.”
2. Set FID flame and the FID temperature to “OFF.”
3. Wait for the FID temperature to cool below 50 °C.
4. Set all FID flows (air, hydrogen, and makeup) to “OFF.”
5. Turn off the power to the main instrument. The power button should not be illuminated.
6. If a column is installed, remove it from the FID.
7. Open the INJ/DET cover to access the FID assembly.
8. Disassemble the FID.
   Please follow the exact directions in your Shimadzu manual to ensure this is done properly.

A brief interpretation of this is outlined below:

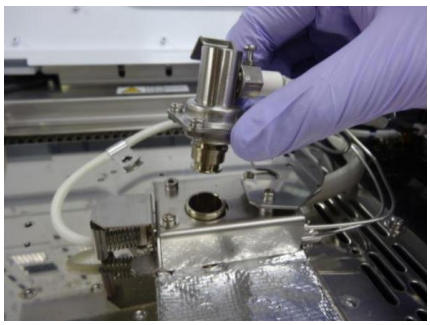
a) Remove the screw fixing the high voltage cable clamp and remove the clamp.



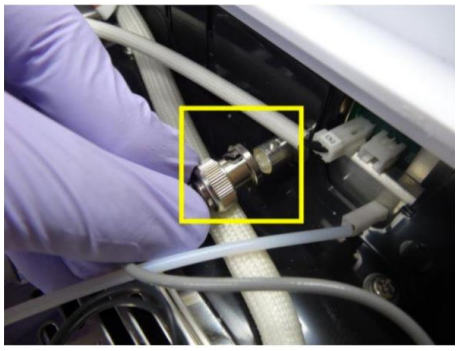
b) Loosen but do not remove screw adjacent to collector holding hardware.



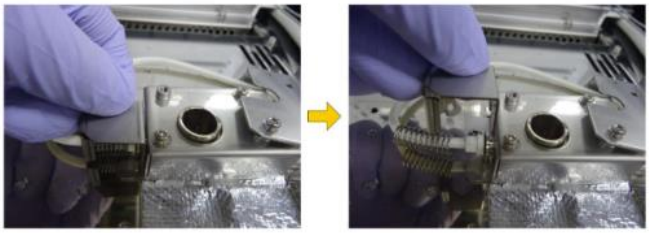
c) Slide collector hardware clockwise and remove collector by raising it.



d. Remove the connector of the signal code.



e. Raise sheet metal to access the high voltage electrode for removal.



f. Once removed, loosen the existing FID jet with a hex nut screwdriver and then remove this FID jet using a pair of tweezers. **Note:** Do not apply an impact force to the jet as this will damage the quartz section.

9. Install and hand tighten the Shimadzu Jetanizer with a hex nut driver. Tighten until securely fixed in place. Note: Do not install an Agilent version of the Jetanizer as this will not complete the proper circuitry required for a signal in this.
   Note: To ensure a proper seal is made with the FID assembly, install only a new Jetanizer. Do not install a Jetanizer that has been installed previously. Warning: Overtightening could cause damage to the Jetanizer or the FID assembly.
10. Re-install the remaining components in reverse order of assembly and then close the INJ/DET cover.
11. Re-install the column into the FID using a graphite ferrule, because only graphite ferrules withstand the high operating temperature of the Jetanizer. The graphite ferrule will need to be fixed without only the Graphite FID jig (P/N S221-41532-04). The expected insertion length for capillary columns is around 32mm.Using the jig will give you the incorrect sizing of 72 mm.
    Tip: User should make the ferrule connection in the FID itself, using typical non-jig procedure.
12. Turn on the column head pressure. Measure the column flow rate using a bubble flowmeter or electronic flowmeter connected directly to the outlet of the FID, and adjust the column head pressure, if necessary, to obtain the desired column flow rate. To get a proper seal for measurement at the FID, it is recommended to use a Shimadzu FID Flow Measurement jig (P/N S221-81209).
13. Set the FID hydrogen setpoint to 40 sccm.
14. Heat the FID to 450 °C for one hour to bake out the Jetanizer.
    Note: Only bakeout at 450 °C if FID is part of a GC-2030, FID-2030 model. For other GC types, please contact ARC.
15. Set the Jetanizer temperature to the operating temperature of 400 °C.
16. Cool the FID and measure the total column and hydrogen flow at the outlet of the FID. Calculate the hydrogen flow rate, which is the total measured flow rate minus the column flow rate. Increase or decrease the hydrogen setpoint if necessary, to achieve an actual hydrogen flow rate of 35 sccm
    1. Set the FID air setpoint to 350 sccm.
    2. Set the FID makeup gas setpoint to 5 sccm.
    3. Set the FID flame to “ON.” Wait for GC to display “FID ignited” or “FID Lit”.

Operation Instructions

1. Avoid heating the Jetanizer without carrier gas and FID hydrogen flowing.
2. Operate the Jetanizer with 35 sccm of hydrogen (measured directly from the FID), 350 sccm of air, and 5 sccm of makeup gas at an FID temperature of 400 °C.
3. If the Jetanizer will not be used for extended periods of time, turn off the FID flame, set the hydrogen flow rate to 5 sccm, and turn off the FID air.
4. Avoid excessive cycling of the FID temperature to prevent premature failure of the sealing surface.
5. To prolong the lifetime of the Jetanizer, avoid exposing to large amounts of molecules other than CO and CO_2, including but not limited to high molecular weight hydrocarbons, alkynes, and sulfur-containing molecules.