

FID Noise Troubleshooting

August 2026

The FID detector is located on the right side of the GC and looks like this.

The black wire which is clipped to the “collector electrode” connects to the FID Amplifier using a BNC connector which looks like this.

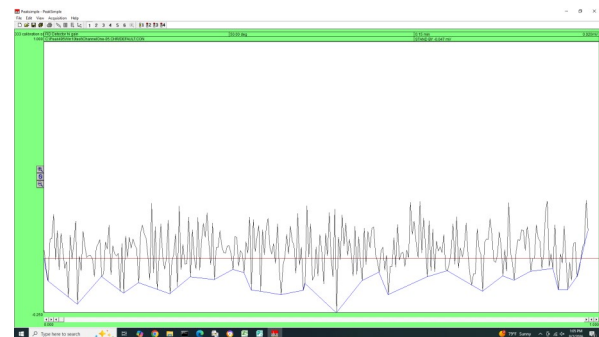
Troubleshooting Step #1:

Remove the BNC connector by twisting and lifting.

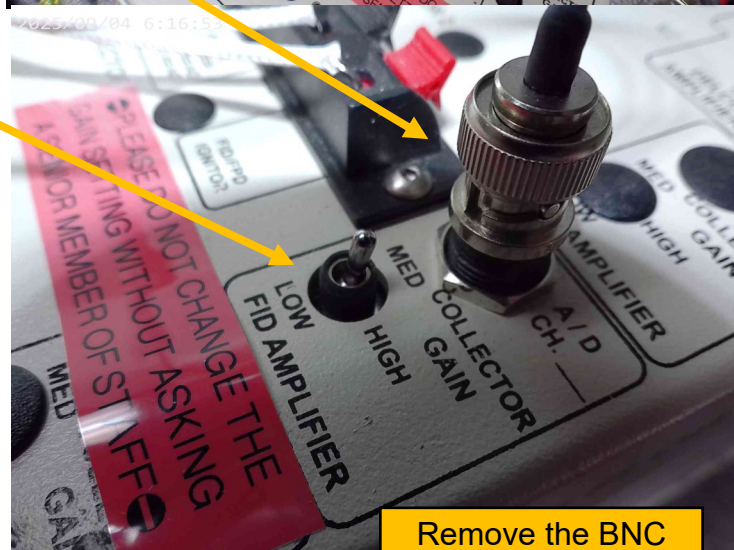
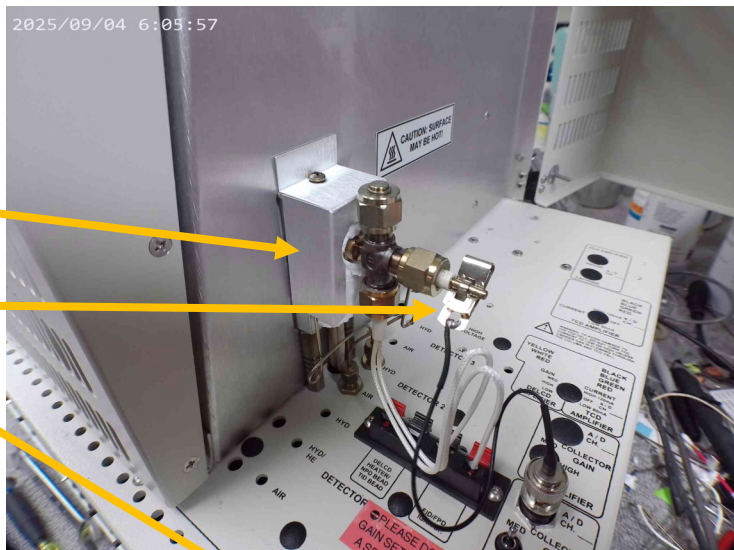
Set the amplifier gain to medium using the switch.

Set the GC oven temperature to a constant 50C.

Use the PeakSimple Data System to zoom in to the noise chromatogram and estimate the peak to peak noise in microvolts (μV).



On medium gain with the BNC connector removed, the noise should be less than 50 microvolts (peak top to peak bottom).



Remove the BNC connector.



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Troubleshooting Step #2

If the noise in Step 1 is OK, then re-connect the BNC plug and with no other changes turn the FID flame off. The easiest way is to just turn the built-in air compressor switch to "OFF". If you are using an external air source, then shut that off.

Allow a few minutes for the air supply to drop to zero and then evaluate the noise.

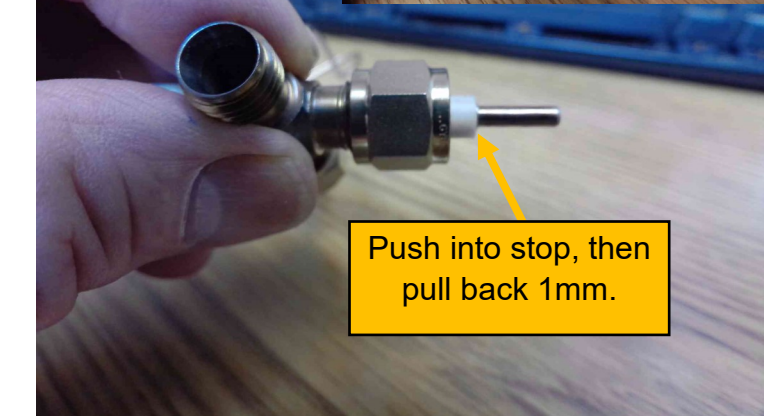
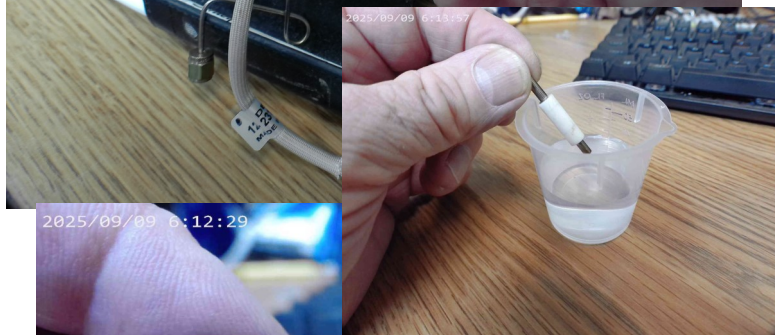
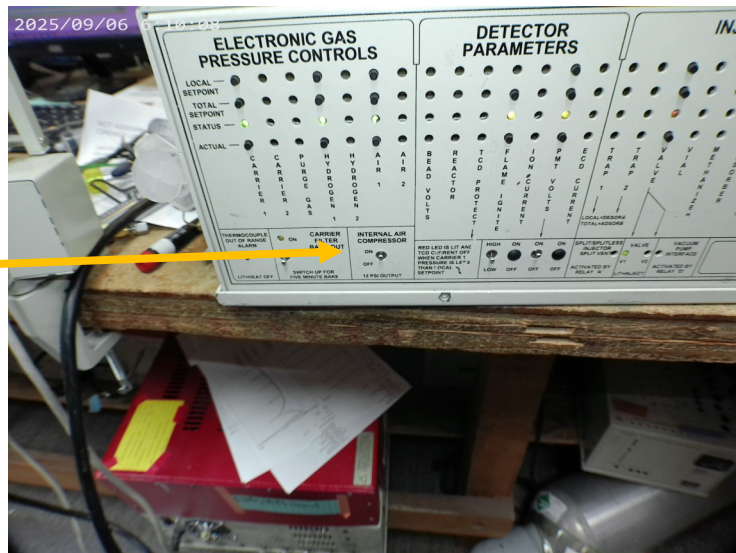
If the noise is significantly worse than in Step 1, then its likely the FID collector electrode's white ceramic insulator is dirty and allowing some leakage current to flow. The collector electrode looks like this.

Remove it by loosening the 1/4" swagelok nut which holds it. It is sometimes easier to remove when its hot so use a pliers to grab it instead of your fingers.

Rinse/soak in methanol, acetone or other solvent and wipe dry. The contamination gets in the pores of the white alumina ceramic so if its really dirty its best to replace it (SRI Part# 8670-0156).

When re-installing the cleaned collector electrode push it in toward the flame jet until it hits a mechanical stop, then pull about 1mm (not critical) to the right so the collector is not actually touching the stop. GCs built before 2005 may not have the mechanical stop.

If the noise is about the same as in Step 1 or only a little worse, proceed to Step 3.



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Troubleshooting Step #3

Turn the air compressor (or external air supply) back on and verify the flame is lit.

Measure the noise level again. If it seems like it gets worse with time, lower the amount of hydrogen feeding the flame. The optimum amount is 20-30 ml/minute. If using hydrogen carrier, lower the H₂ makeup to 3-4psi (just a trickle) so the combined H₂ flow to the FID is below 30ml/minute.

Troubleshooting Step #4

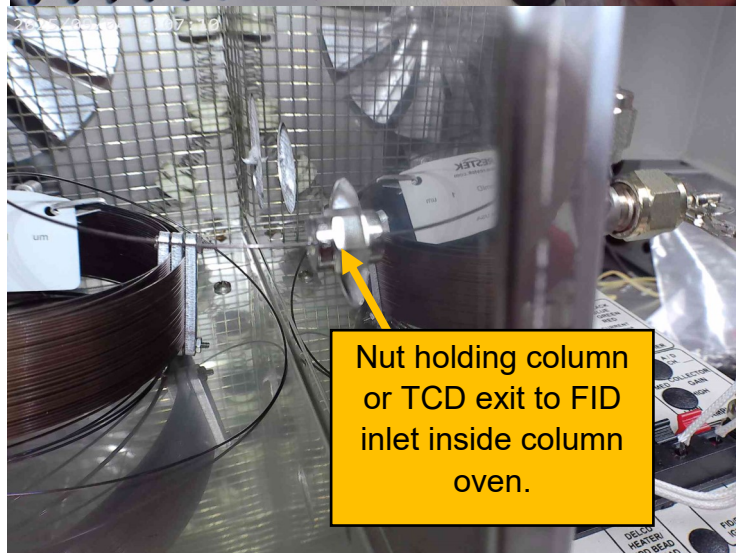
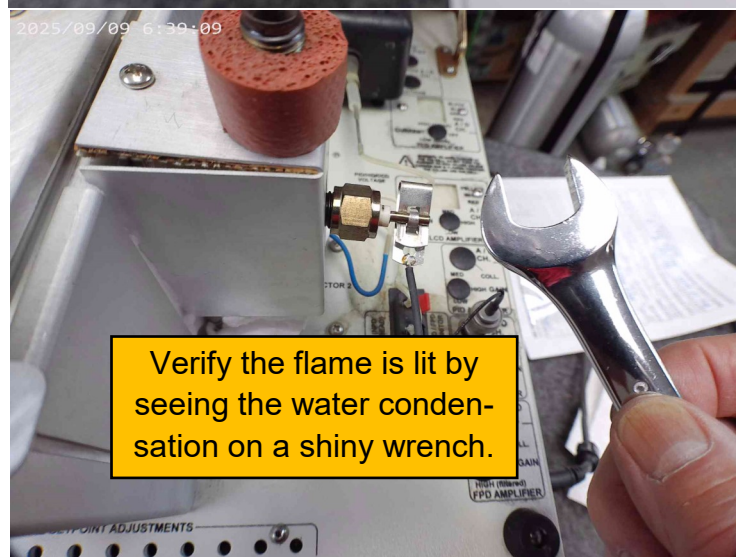
Remove the column or TCD exit tube from the FID inlet fitting inside the column oven.

Plug the FID inlet fitting with a swagelok cap fitting or a swagelok nut with a septum inserted in the nut (note the orientation of the septum– the fat end goes into the nut first).

Verify the flame is lit and evaluate the noise. If the noise is a lot better than in Step 3 then the noise is caused by something in the carrier gas and a column bake-out is likely to fix it.



Swagelok Cap fitting or nut with septum to block off FID inlet.



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