

What To Look For When You're Having Trouble With Your GC

There are many troubles one can have when operating a GC. As you know there are almost an unlimited amount of configurations, which add to the complexity of the trouble shooting process.

Most of the troubles experienced are when our results are not what we expect. This is where the investigation starts. Just like a crime scene there are clues to solving the problem.

Some of the most basic problems are:

- No peaks
- Late Peaks
- Poor chromatography (peak separation or shape)
- Poor Reproducibility (RSD)
- Injector Malfunction/Errors

Here is a list of first steps that every good investigator takes when troubleshooting a scene.

- 1- Secure the scene. This ensures that there is no change to the scene and the evidence is preserved. For your GC, stop where you are and start troubleshooting without making too many changes at once. Don't let others "adjust" your system until you have solved the problem, unless of course they KNOW the problem and can immediately fix it!
- 2- Observe & Properly Process the evidence. Take time, yes I know you are slammed and your boss/supervisor is breathing down your neck for results!!! If you don't take some time to observe then it may take LONGER to resolve your issue. Just like solving a crime when we follow the basic steps then we will get the best results even when it takes a bit longer. We always inspect for fingerprints and other clues to help put the pieces of this puzzle together. So take time to check your method and compare it with your instrument set-up. This is crucial to ensuring your success! Once you check and verify the settings are correct then check these basics. Some are;
 - A. Gasses: are all of the gasses on?
 - a) Do you have the correct pressure/flow?

- b) Are there any leaks? Check the injector port, the column mounts (where the column connects with the nuts to the injector & detector) the column itself... Sometimes columns crack so the sample does not make it to the detector.

B. Hardware:

- a) Are all of the system components powered “ON”... It does happen.
- b) Is the column properly connected? Make sure the ends of the column are tight. A quick way to do this is cool the oven and then open the door. Gently pull on each side of the column near the injector and detector... if the column moves then re-align & tighten the column nuts, which may just solve your trouble.
- c) Is the detector working properly? In the case of an FID detector is the flame lit and is there a signal? Check the signal output on the GC display. Another way of checking for a flame is holding a small, Clean & EMPTY beaker over the FID output. If it fogs the glass then it is lit.

If you don't know where this is Call Us and we will help. (800) 899-7010

- d) Check the Syringe: is the syringe working properly? Most times we must remove the syringe to check it. Once you remove it check it by verifying the plunger moves freely and smoothly in and out of the barrel. If it doesn't then just clean it or replace it. Don't have a new syringe? Call us to order one. (800) 899-7010. We carry stock for most applications.

C. Samples:

- a. Check the sample vial: Is there enough sample volume in the vial for your injection? There have been many times where the vial has been empty or too low for the syringe to aspirate enough sample for a proper injection.

- b. Is the Sample or Standard good? Could it be contaminated or improperly prepared??? WOW! This is HUGE! Just like processing hair, finger prints, fibers and DNA, your standards, samples and test mixes can get tainted or contaminated. Make sure you go over the preparation steps including glassware, pipettes, vials, caps and the like to ensure these are all clean and free from contaminants. There have been many cases thrown out of court due to contaminated or improperly processed evidence, which has caused a guilty party to go free!!! Be disciplined with these steps. Even in very productive labs we have seen contaminations in the oddest places. Prepare a fresh sample and try it again.
 - c. Here's a good one. Is the injector injecting the sample into the correct injection port? We often times find the sample being introduced into the incorrect port. Often this is due to the configuration or a mismatch between the software program and the hardware set-up. Perform an injection and watch to see where the injection happens.
3. Solve: Lets find the culprit. Once you locate the area of the problem now its time to solve the crime and find the suspect! The crime is how much stress this has caused you and your company! Most of these clues above are very basic and simple and when followed will help you quickly resolve your problem. Just correct the problem you found.
 4. Call for help: If you get through these points and haven't solved the problem then **JUST CALL US!** (800) 899-7010. We will help you over the phone or visit you if necessary.

**We are the experts on Repair, PM & Qualification
Services on these systems...and More!!!**