



Agilent Technologies

Innovating the HP Way

Flat or Unresponsive Baseline Problems

Applies to 5970A/B Mass Spectrometers

Possible cases of the problem:

There are several possible causes of a non-responsive or dead baseline. Typically when the baseline goes dead during the run (especially if it seems to stop during a peak eluting), the most common cause is a blown filament in the Mass Specs source. Even though a blown filament is one of the most common problems to cause a flat or unresponsive baseline, there still exist the possibility of other hardware or electronics problems.

WHAT TO DO:

1) Go into manual tune and perform a spectrum scan:

NOTE: If the spectrum scan is successful, then the Mass Spec is most likely okay and the problem may be sample introduction related, i.e. Auto-sampler or syringe. The cause may also be a clogged or possibly broken column, column flow or lack thereof, or column installation. These are but a few problems that can cause a dead or flat baseline that do not involve direct problems with the Mass Spec.

2) If hardware or electronic problems exist, most will generate and display an error.

The following errors could appear:

- a) NO EMISSIONS CURRENT
- b) EXCESSIVE SIGNAL LEVEL
- c) EXCESSIVE SOURCE PRESSURE

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d) DIFFICULTY OF MASS FILTER ELECTRONICS

NOTE: This is just a few of the errors that could appear, if your error does not appear in this list refer to your hardware manual or call Agilent Technologies technical support for clarification of your particular error.

If you're getting the error...

No Emission Current

Typically this error points to a simple blown filament. On the 5970A/B it's an easy task to select the alternate filament by changing the position of the filament select switch, which is located on the left side of the Mass Spec behind the analyzer electronics cage.

NOTE: On older Mass Specs, (Mass Specs with 597X GCs), the analyzer electronics card cage and the filament select switch are on the opposite side.

After selecting the alternate filament, perform a spectrum scan or an analytical run to determine if problem still exists. If the problem is corrected, then the filament that was in use at the time of the error is bad and should be replaced at the time of next scheduled maintenance.

If problem still exists then Agilent Technologies technical support or on-site service is recommended!

Excessive Signal Level

This error typically is a result of an excessive ELECTRON MULTIPLIER VOLTAGE, but can be the result of cleaning the source, too much sample/solvent injected, a highly concentrated sample, or an electronics problem.

If the problem occurred after the source was cleaned, the resultant higher multiplier voltage, required by the dirty source, could cause an excessive signal level when the Mass Spec is initially tuned or scanned after a clean source is installed. To correct this problem, lower the multiplier voltage in manual tune and save this value to the TUNE PARAMETERS. Then re-tune the Mass Spec. If the Mass Spec passes the tune, more than likely the MS is okay.

If the problem still exists during the analytical run, make a blank run to determine if the MS will complete the run without generating an error. If the Mass Spec will complete the blank run, the error could be result of too much or too concentrated sample or of a solvent delay time that's not long enough to allow the solvent peak to elute before the MS filament is turned on. Also, don't forget to check the vacuum of the vacuum manifold.

If the error is generated under all of the above conditions, reset the electron multiplier voltage to zero, (in Manual Tune), then save to the TUNE PARAMETERS. Retry performing a scan or start a blank run; if the error still exists, Agilent Technologies technical support or on-site service is recommended!

Excessive Source Pressure

An excessive source pressure error is typically caused by just that, too high of a pressure measured in the source, vacuum manifold pressure should be checked. Check that column flow rate is not too high. If system will complete scan make sure that an air leak does not exist. Because of changes to the 5970A/B over it's life span, it should be very rare that this error appear during normal operation, when this error does occur and if the above suggestions do not correct the problem, Agilent Technologies technical support or on-site service is recommended!

Difficulty In Mass Filter Electronics

Difficulty in MASS FILTER ELECTRONICS simply means that for some reason the Mass Spec has lost control of the MASS FILTER otherwise know as the QUADS or QUADROPOLE. This can be the result of a mechanical problem, (quads or quad contacts), or an electronics problem, or even possibly improper vacuum. Verify that vacuum is good in the vacuum manifold. By following the vent procedure, vent the MS and remove the analyzer and place it on the counter top just as if you were going to perform a source cleaning. Remove the quads and side plates away from the analyzer base, (just as if you were going to change the electron multiplier).

CAUTION: There is no need to separate the side plates from the Quads.

Check the electrical contact pads on the end of the side plates after removing the quads from the base plate. The pads should be firmly attached to the side plates, shiny gold in color, and in generally good condition. On the base plate, (where the electron multiplier is mounted), there are two rows of double contacts, where the quads/side plates plug into.

Taking a pair of clean needle nose pliers and a lint free cloth, gently squeeze together the contacts so that when the quads/side plates are re-installed they provide a better/tighter contact on electrical pads. Check that there is no visible burn or electric arcing marks on the Quads. When re-installing the Quad/side plates you will notice that there is a gap in the double rows of contacts and also on the contact pads on the side plates. This gap is used to key the side plate contact pads to the double row of contacts, (in other words it only works when plugged in the correct way).

When aligning side plates and double row contacts, make sure that each contact pad is in contact with a double contact on the base plate, then bolt the assembly down with the four screws. Re-install analyzer and pump the system down. Allow an appropriate time to get a proper operating vacuum.

Retry a scan or start an analytical run to determine if the problem still exists. If the error still occurs, Agilent Technologies technical support or on-site service is recommended!