

Agilent GCMS systems 5977x, 7000x, and 7010x

Steps to shut down a system for:

- Power Outage
- Won't be used for a while
- Long Term Storage

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How to store an Agilent GCMS

Most of the time, an Agilent GCMS system is left on and ready for use.

- The carrier gas is on and there is flow through the column.
- The vacuum is at an operable level.
- The temperatures are stable.
- The system is clean.
- There is no oxygen or moisture inside the analyzer manifold.
- There is no delay if the system is needed.

What if there will be a power outage, the system won't be used for a while, or will be put into long term storage and needs to work afterwards?

Here are the steps that should be performed. These steps will speed up the process of getting the system back to full functionality. They also maintain the air and moisture free environment inside the analyzer manifold. Do not store a GCMS system fully vented as the electron multiplier will degrade over time if exposed to air. The electron multiplier is a consumable part and not covered by warranty or hardware service contract.

How to store an Agilent GCMS

What to do before shutdown:

- Perform an Autotune and print the report
- On a 7000x or 7010x system, do an Air/Water check and print that report, too
- Find out how long the system will be off, the steps are different for one hour, one day, one month, one year

How to store an Agilent GCMS

If the system will be shut off for a **very short time** – some minutes to a few hours:

1. Set the instrument to vent ([appendix 1](#))
2. When the system is ready to vent, turn off the GC, the MS, and the computer.
 - a) The rough pump has an anti-suckback valve that closes when the power is turned off
 - b) The GC electronic pressure control module valves close when the power is turned off. They are not shut-off valves.
3. Do not open the vent valve!

When ready to restart:

1. Turn on the GC and the computer
2. Follow the instructions for pump down ([appendix 2](#))

How to store an Agilent GCMS

If the system will be shut off for **one to a few days**:

1. Set the instrument to vent ([appendix 1](#))
2. When the system is ready to vent, turn off the GC, the MS, and the computer.
 - a) The rough pump has an anti-suckback valve that closes when the power is turned off
 - b) The GC electronic pressure control module valves close when the power is turned off. They are not shut-off valves.
3. Do not open the vent valve!
4. Turn off the carrier gas at the tank.

When ready to restart:

1. Turn on the carrier gas at the tank.
2. Turn on the GC and the computer
3. Follow the instructions for pump down ([appendix 2](#))

How to store an Agilent GCMS

If the system will be shut off for a **week or two**:

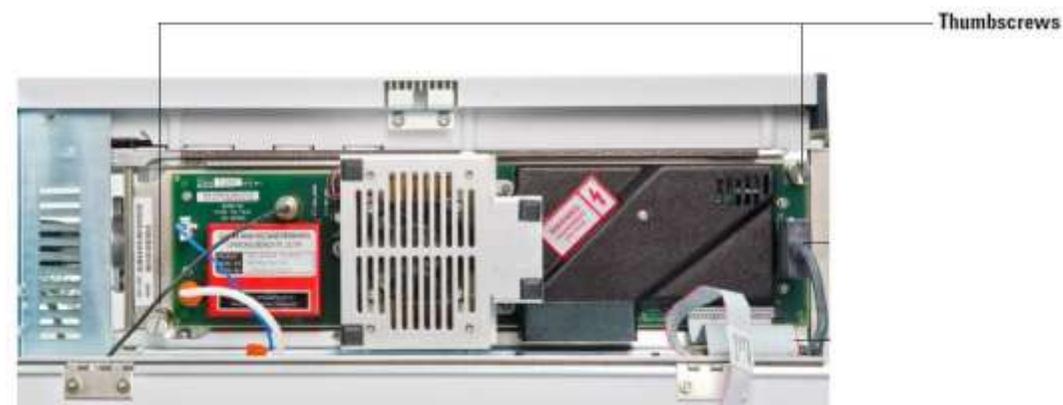
1. Set the instrument to vent ([appendix 1](#))
2. When the system is ready to vent, turn off the GC, the MS, and the computer.
 - a) The rough pump has an anti-suckback valve that closes when the power is turned off
 - b) The GC electronic pressure control module valves close when the power is turned off. They are not shut-off valves.
3. Using a ¼" wrench, loosen the MS column nut and remove the column from the MS.
4. Install a MS column nut (05988-20066) and blank ferrule (5181-3308) onto the transferline.
Or the Self-Tightening column nut (5190-5233) and blank ferrule (5190-4054)
5. Hold the analyzer door shut and turn on the MS.
6. Wait about a minute.
7. Turn off the MS power.
8. Do not open the vent valve!
9. Loosely tighten the analyzer shipping screws.
10. Turn off the carrier gas tank.



Self-Tightening MS interface Column Nut 5190-5233
Required short ferrule 250uM 5181-3323
Blank ferrule 5190-4054



MS interface column nut, 05988-20066

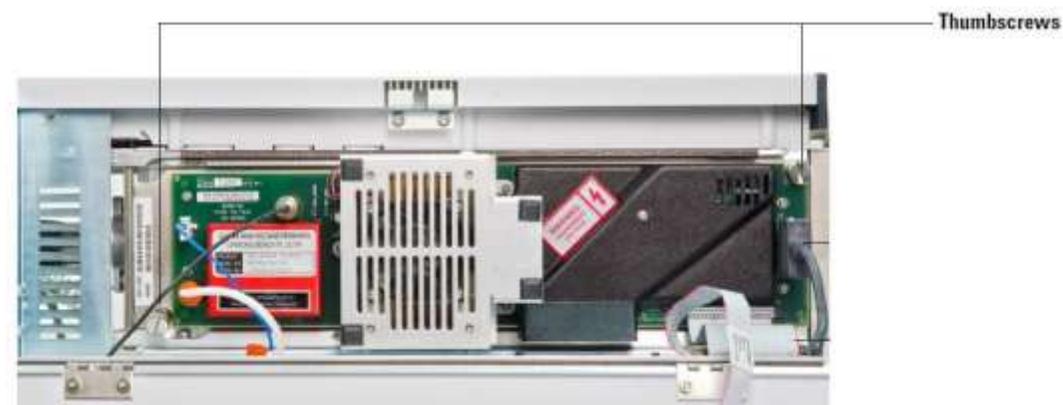


How to store an Agilent GCMS

If the system will be shut off for a **week or two**:

When **ready to restart**:

1. Turn on the carrier gas at the tank.
2. Turn on the GC and the computer.
3. Loosen the analyzer shipping screws completely. The vacuum holds the analyzer shut, so they are not needed during normal operation.
4. Open the MS vent valve.
5. Remove the column nut and blanking ferrule from the transferline.
6. Reinstall the column into the transferline.
7. Follow the instructions for pump down ([appendix 2](#)).



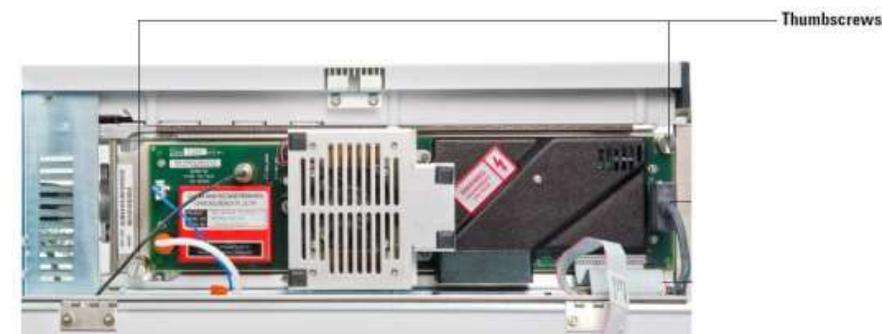
How to store an Agilent GCMS

If the system will be shut off for an indeterminate amount of time :

1. Set the instrument to vent ([appendix 1](#))
2. When the system is ready to vent, turn off the GC, the MS, and the computer.
 - a) The rough pump has an anti-suckback valve that closes when the power is turned off
 - b) The GC electronic pressure control module valves close when the power is turned off. They are not shut-off valves.
3. Using a ¼” wrench, loosen the MS column nut and remove the column from the MS.
4. Remove the column from the inlet. Store the column appropriately.
5. Install a MS column nut (05988-20066) and blank ferrule (5181-3308) onto the transferline.
Or the Self-Tightening column nut (5190-5233) and blank ferrule (5190-4054)
6. Hold the analyzer door shut and turn on the MS.
7. Wait about a minute.
8. Turn off the MS power.
9. Loosely tighten the analyzer shipping screws.
10. Turn off the carrier gas tank.
11. Install a column nut (5181-8830) and blank ferrule (5190-4054) into the inlet.



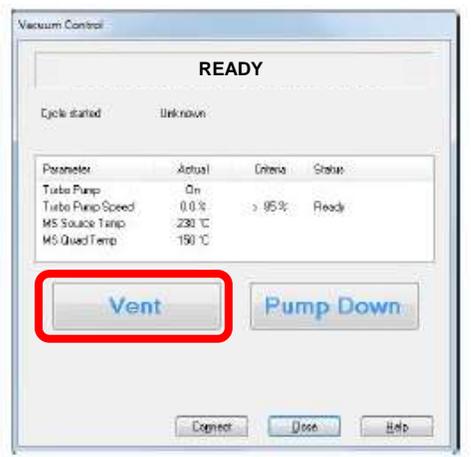
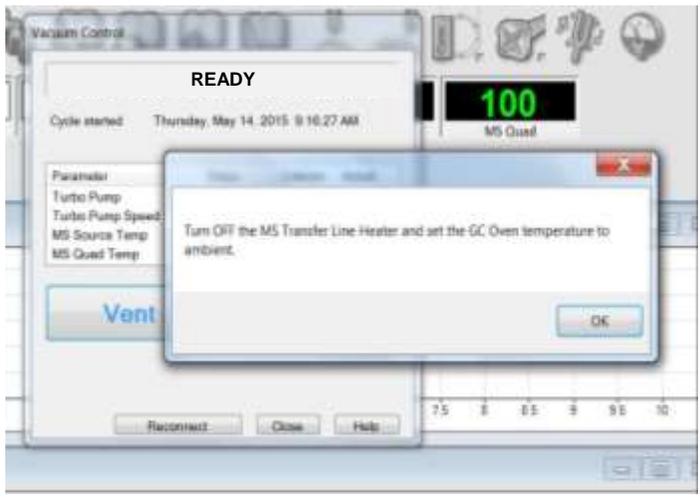
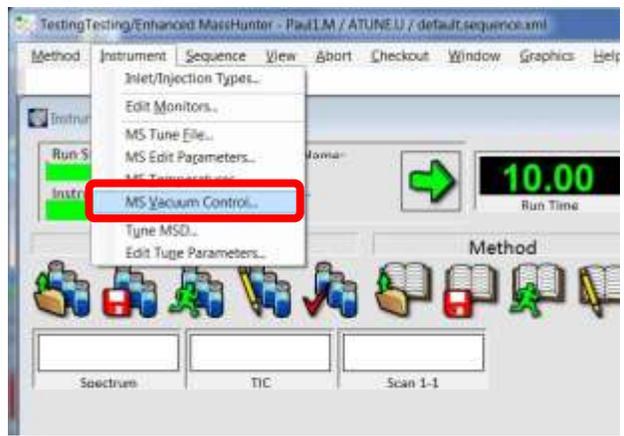
Self-Tightening MS interface Column Nut 5190-5233
Required short ferrule 250uM 5181-3323
Blank ferrule 5190-4054



Appendix 1 – How to vent the Mass Spec

To Vent the MSD

- In MassHunter Acquisition, Instrument Control view, select MS Vacuum Control
- Click on the Vent button – this initiates the vent cycle.



WARNING

If you are using hydrogen as a carrier gas, the carrier gas flow must be off before turning off the MSD power. If the foreline pump is off, hydrogen will accumulate in the MSD and an explosion may occur. Read "Hydrogen Safety" on page 19 before operating the MSD with hydrogen carrier gas.

CAUTION

Be sure the GC oven and the GC/MSD interface are cool before turning off carrier gas flow to prevent damage to the column.

Appendix 2 – How to pump down the MS

To Pump Down the MSD in EI Mode

1. Remove the analyzer window cover
2. Open the vent valve by turning the knob counter-clockwise – do not open it too far, ~1/2 turn is sufficient
3. Hold the analyzer door shut. Press on the metal box on the side board.
4. Press the **Power** button on the front of the MSD
5. The foreline pump will make a gurgling noise.
6. Listen to hear a sucking sound from the vent valve. This signifies that the side plate has sealed. Close the vent valve fully.
7. The rough pump gurgling should stop within a minute.
8. Start **MassHunter Data Acquisition**
9. In the Instrument Control view of the Instrument menu, select MS Vacuum Control to display the Vacuum Control dialog.
10. Click Pump Down in the Vacuum Control dialog and follow the system prompts.



11. When prompted, turn on the GC/MSD interface heater and GC oven. Click on OK when you have done so. The software will turn on the ion source and quadrupole heaters. The temperature setpoints are stored in the current tune file (*.u).
12. After the message Okay to run appears, wait at least 2 hours for the system to reach thermal equilibrium. Data acquired before the system is equilibrated may not be reproducible.



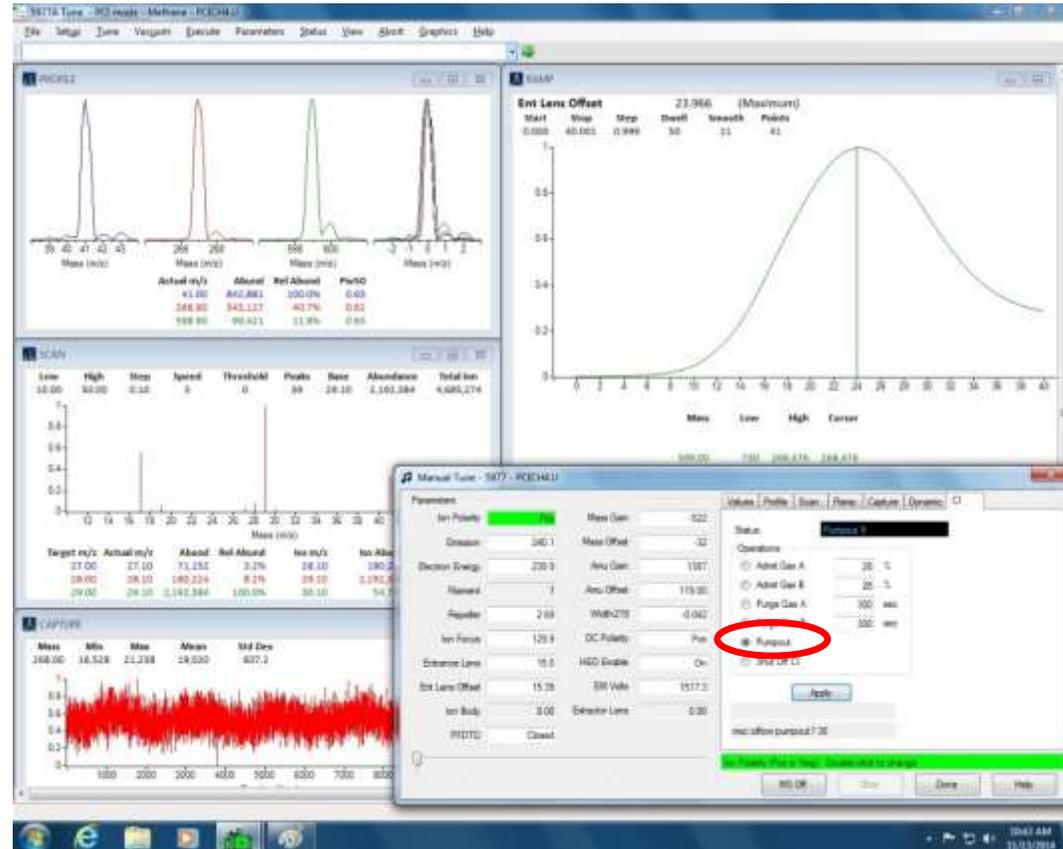
Do not turn on any GC heated zones until the carrier gas flow is on and has purged out any air. Heating a column with no carrier gas flow will damage the column.

Appendix 3 – If the system has CI capabilities

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If the system is to be shut down immediately following use of the system in CI mode there are a few extra steps.

1. Before setting the instrument to vent, go to Tune and Vacuum Control, Tune, Manual Tune, CI tab, and set the CI subsystem to Pumpout (select Pumpout and click the Apply button). This shuts off the CI reagent gas and pumps all the residual gas out of the CI flow components. This takes six minutes.
2. When the pumpout procedure is complete, turn off the CI reagent gas at the tank.



If the CI reagent gas used is ammonia, please follow all the required procedures in the *Operating in Chemical Ionization (CI) Mode* manual

How to move and store the MS from the 5977 Operator's Manual

To Move or Store the MSD

Materials needed

- Ferrule, blank (5181-3308)
- Interface column nut (05988-20066)
- Wrench, open-end, 1/4-inch × 5/16-inch (8710-0510)

Procedure

- 1 Vent the MSD (See “To Vent the MSD” on page 72).
- 2 Remove the column and install a blank ferrule and interface nut.
- 3 Tighten the vent valve.
- 4 Move the MSD away from the GC (see the 5977 Series MSD Troubleshooting and Maintenance Manual).
- 5 Unplug the GC/MSD interface heater cable from the GC.
- 6 Open the analyzer cover (See “To Open the MSD Covers” on page 71).
- 7 Finger-tighten the side plate thumbscrews.

Front thumbscrew

Rear thumbscrew



CAUTION

Do not overtighten the side plate thumbscrews. Overtightening will strip the threads in the analyzer chamber. It will also warp the side plate and cause leaks.

- 8 Plug the MSD power cord in.
- 9 Switch the MSD on to establish a rough vacuum. Verify that the turbo pump speed is greater than 50%, or that the foreline pressure is ~1 Torr.
- 10 Switch the MSD off.
- 11 Close the analyzer cover.
- 12 Disconnect the LAN, remote, and power cables.

The MSD can now be stored or moved. The foreline pump cannot be disconnected; it must be moved with the MSD. Make sure the MSD remains upright and is never tipped on its side or inverted.

CAUTION

The MSD must remain upright at all times. If you need to ship your MSD to another location, contact your Agilent Technologies service representative for advice about packing and shipping.

Parts:

Capillary Column Ferrules – for use with most brands of column, including DB, HP, CP, VF and Select columns

Column ID (mm)	Ferrule Nom ID	UltiMetal Plus Flexible Metal Ferrule Part No.	Graphite Short Ferrule Part No.	Polyimide Short Ferrule Part No.	85% Polyimide/ 15% Graphite Short Ferrule Part No.	Pre-Conditioned Long Ferrule 85% Polyimide/ 15% Graphite for MSD connection Part No.
0.025-0.05	0.4		500-2114	5062-3515	5062-3516	5062-3507
0.075	0.4		500-2114	5062-3515	5062-3516	5062-3507
0.1-0.25	0.4	G3188-27501	500-2114	5181-3322	5181-3323	5062-3508
0.1-0.25*	0.5		5080-8853	5062-3513	5062-3514	5062-3508
0.32	0.5	G3188-27502	5080-8853	5062-3513	5062-3514	5062-3506
0.45	0.8	G3188-27503	500-2118	5062-3511	5062-3512	5062-3538
0.53	0.8	G3188-27503	500-2118	5062-3511	5062-3512	5062-3538
No hole					5190-4054	5181-3308



Injection Port Self-Tightening Column Nut
5190-6194



Universal column nut, 5181-8830

Parts:

Recommended MS Interface Connections

Description		Part No.
Recommended		
Nut		
Self Tightening column nut, for MS interface		5190-5233
Ferrule		
250 µm Polyimide/graphite ferrule, 10/pk	short	5181-3323
320 µm Polyimide/graphite ferrule, 10/pk	short	5062-3514
No hole	short	5190-4054

Traditional		
Nut		
MS interface column nut, female		05988-20066
Ferrule		
0.4 mm Polyimide/graphite ferrule, 10/pk	long	5062-3508
0.5 mm Polyimide/graphite ferrule, 10/pk	long	5062-3506
No hole	long	5181-3308



MS interface column nut, 05988-20066



MS Self-Tightening Column
Nut
5190-5233

See: 5190-8819EN Quick Reference Guide Agilent 5973, 5975, and 5977 Series GC/MSD Supplies



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