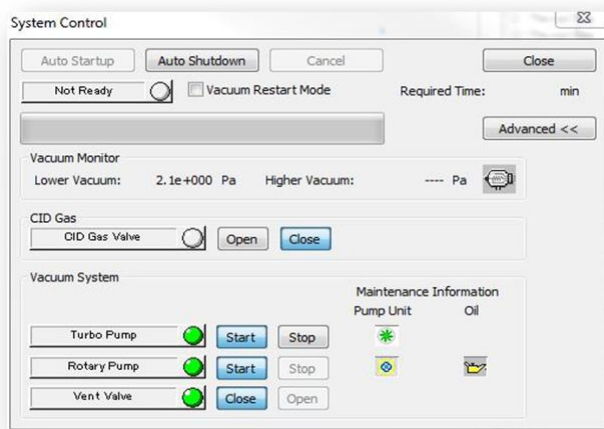


LCMS-8030/8040/8050/8060 Manual Vacuum Procedure

Manual Shut Down

This is a conservative manual shut down procedure. The goal is to allow the turbo to spin only when it is under a good vacuum.

1. Turn OFF all heaters.
2. Go to Instrument tab → System control → Advanced.



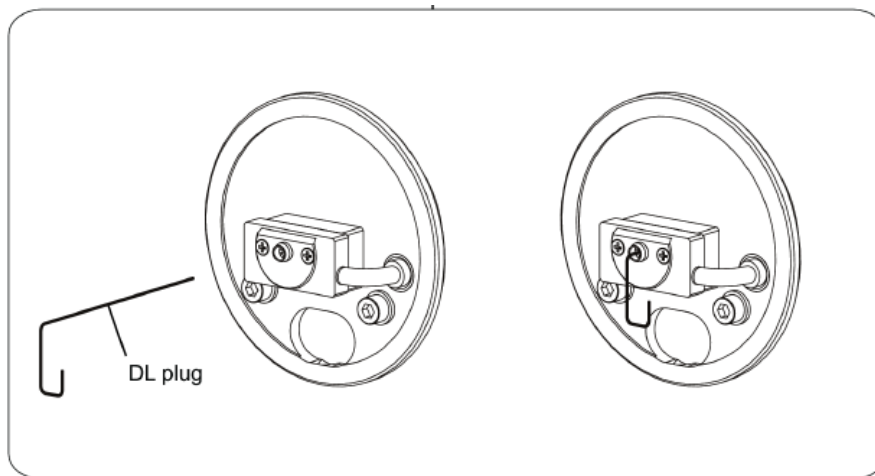
3. Turn off CID gas by closing the CID Gas Valve.
4. Turn off the Turbo Pump by selecting stop.
5. Wait approximately 1 hour for the turbo to spin down. A shorter time may be employed, but an hour is safe. At least 15 minutes is recommended.
6. Turn off Rotary pump by selecting stop.
7. Open Vent Valve.
8. Perform whatever maintenance is necessary. OR power the system off if this is for an emergency shutdown procedure.


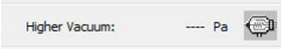
Manual Start Up

Again the goal is to only allow the turbo to spin while it is under a good vacuum. To perform a manual start up, the steps are as follows:

1. Make sure all vacuum seals which were opened during maintenance are closed.

2. Go to Instrument tab → System Control → Advanced. (Same view as in the startup procedure)
3. Start the Rotary Pump (the vent valve must be closed and should have closed automatically after 10 minutes.)
4. Open the source window and place a DL plug or GC septum on the DL. This will effectively close off the DL. Close the source window. If you do not have a DL plug or GC septum this process can still be completed but may take a little longer to reach vacuum.



5. Wait about 1 hour or until the Pirani Gauge (Lower Vacuum) reads at least $2 \text{ e}0$. The value obtained on the Pirani Gauge depends on whether the septum (step 4) was employed to close the DL or not. A septum will usually seal better and provide a PG reading as indicated. A PG reading around $2 \text{ e}0$ ensures that the system is leak free. *Slight variation of the PG vacuum is expected between different LCMS models, but all should reach $2 \text{ e}0$ when a GC septum is being used.
6. Start the turbo.
7. Wait about 1-2 hours, or overnight. *The longer you let the system pump back down the better.
8. Turn on the Ion Gauge by selecting the light bulb  to the right of the higher vacuum.  The status light on the front of the instrument will continue to blink until the Ion Gauge is turned on and reads $<3.0 \text{ e-3}$. A good trick to speed up this process

- is to turn on the ion gauge, turn off the ion gauge, observe Ready status, and execute step 10. A hot DL and Heat Block improve the vacuum conditions, but these devices cannot be turned on until the status light is solid green.
9. When the status light is solid green, turn on the DL and Heat Block temperatures to 200 C. Check ion gauge until a value of about 1.5 e-3 is obtained.
 10. Open the source window and remove the DL plug or the septum. Close the source window and turn the DL and Heat Block heaters back on. Verify ion gauge reading.
 11. Turn on the CID gas before analysis by opening the CID gas valve under Instrument tab
→System Control → Advanced.