

## How to prepare COLTRIMS for and after the break

Procedure for putting the setup into sleep mode:

1. Stop the data acquisition on the computer: type "stop multi" in the command line of COBOLD
2. Turn off the detectors on the white ISEG power supply in the top NIM bin. **Note:** Do not touch the dials. Just flip the red switches down simultaneously on each power supply. You can leave the recoil-booster on.
3. **Note:** Let any other electronic run (NIM bins, spectrometer power supplies, rainbow coils power supply, Helmholtz coils power supply, cooling fans...)
4. Close the pneumatic beamline gate valve directly in front of the differential stage. Go to the beamline computer console showing the beamline and select the last valve. E.g. on BL 11 close valve 215B. Depending on what gases have been used close the hand valve to the differential pumping stage or not.
5. If you run a gas jet turn off the main valve on the gas bottle.
6. Vent the gas manifold on the chamber by slowly turning the pink tip point on the bottom three-way-valve away from you. The pressure gauge to your left needs to go all the way to zero.
7. Now pump down the gas line by turning the same pink tip towards you. The pressure gauge to your left will fall to -30. Let it pump like this.
8. Close the (red, blue, white) entrance valve on the manifold by turning it into the horizontal position.
9. Close the main valve on the gas regulator (turn the round knob or handle bar all the way to the left).
10. If you did run a gas jet open the "Bypass 1" in-between the source and the 2<sup>nd</sup> stage jet chamber (valve with the golden knob above the gas manifold). **Note:** "Bypass 2" in-between the 2<sup>nd</sup> stage jet chamber and the main chamber shall remain closed for better vacuum in the main chamber.
11. In case you run a liquid to gas jet just turn off the heater at the reservoir, i.e. hit the left button on the PID controller, then dial down the temperature to "20" with the arrow, and then confirm with the very right button. Do NOT open any bypasses.
12. Switch off the chamber ion gauges by turning the black dials on the right of the silver controllers to "4" first. Then press the "FILAMENT" button. Then press the "POWER" button. Press the "IG2" button on the black "Diff. IG" controller.

Procedure for starting up COLTRIMS again after the break:

1. Close all bypasses (Jet 1, Jet 2, and Gas Manifold).
2. Turn on ion gauges and prepare the gauges for a gas jet, i.e. put the source chamber gauge in the E-4 range, the 2<sup>nd</sup> jet stage into the E-6 range, and the jetdump gauge into the E-7 range.
3. Fill the LN2 coldtrap(s) and wait for them to take effect.
4. Close the valve in front of the jet nozzle.
5. In case you run a gas jet make sure that the gas bottle you want to use is closed but its regulator is open. Then select the corresponding gas line on the manifold and make sure the other gas lines are closed. Pump down this gas line with the diaphragm valve turning the pink tip of the three way valve towards you.
6. Open the protection valve above the convectron gauge and monitor the pump down process. Let it pump for 3 minutes and then stop the pumping by closing the 3-way-valve (pink tip goes into the middle position). Then close the convectron protection valve again.
7. Open the valve in front of the jet nozzle.
8. Close the gas regulator on the gas bottle. Open the main valve of the gas bottle and dial in the desired pressure (**note:** don't forget to close the protection valve above the manometer on the gas manifold to prevent damage).
9. If you run a liquid to gas jet you may get away with just starting the heater at the PID controller. For this press the very left button, then dial in the desired temperature with the arrow, and then confirm with the very right button and wait till the desired temperature has been reached. In case you need to fill the reservoir do not start the heater and follow the intricate procedure on how to operate the liquid to gas manifold:  
[http://amo-csd.lbl.gov/downloads/Liquid-to-Gas-Manifold\\_PIDControls.pdf](http://amo-csd.lbl.gov/downloads/Liquid-to-Gas-Manifold_PIDControls.pdf)
10. Open all valves to the beamline and the differential stage. See if there is light on some of the phosphors. If there is no light you should contact the beamline scientist.
11. Once you got light start the recoil ion detector by flipping both red switches up simultaneously on the white ISEG NIM power supply. Check the rate. If it makes sense, i.e. if the rate is not too high, power up the electron detector. Check the rate as well. If it is too high power down the electron detector and carefully steer or collimate the light beam first by watching the recoil ion detector rate and picture.
12. Start COBOLD and check all spectra. If it all makes sense take data in batch file format.