

## Vacuum Instructions

Open PanelMate S800vac.MT2 and go to page 5

### Closing Chamber:

- 1) Remove all paper, tools, gloves, and anything else not needed for exp
- 2) When closing doors, use a star pattern (or my numbers), keeping in mind that the hinges also serve as clamps. Attach 3 C-Clamps to the back door on marked spots, and one on the front door in the marked spot.
- 3) Check that the chamber is still isolated

### Starting Channel logger:

- 1) Open channel logger under NSC folder
- 2) File->Open->Hira->05133.CL
- 3) Change log directory to E:/05133/pumpdata (from laptop in pit)
- 4) Uncheck 'individual log files by day' to avoid two files from pumping overnight
- 5) Start logging

### Pumping Down:

- 1) Make sure all power (Caen Power supply, PA power, Tenelec (EB), white power supply box, +-12V...) is off. Disable drives and unplug target drive cables.
- 2) Check isolation
- 3) Make sure gates valves are closed to lower dipoles and S800 (upper left I246GV and lower right I255GV)
- 4) Click on 'vent status' then click 'stop venting procedure'
- 5) Click on 'pumpdown status main scattering chamber' then click start pumpdown. The chamber rough valve should open and after an initial increase, the pressure should start decreasing.
- 6) Around 100 torr (or sooner) click on 'quick rough down system' then click 'start quick roughdown of MSC'
- 7) At 50 torr the roots blower kicks on automatically.
- 8) At 100 mtorr (about 20 minutes) the turbo gate valve will open and the I252 Pirani gauge becomes meaningless. After another 2 minutes the first cryo gate valve will open. Turn on the ion gauge. (Located in mid level, middle upper panel marked with an orange tape, put EMIS to turn the ion gauge on).

### Second Cryo:

- 1) Check that the temp is below 20 torr (enter vault, walk around to back, look at analog temp display in red bin under cryo)
- 2) When a lower vacuum is needed for MCPs, click on 'cryopump-2 gate valve' and then click 'open'. This will only open if Cryo 1 is open. Only use 2<sup>nd</sup> cryo when needed.

### Turning off Turbo to reduce microphonics:

- 1) Turn off all electronics and unbias detectors in case something goes wrong with cryo gate valve

- 2) Click on 'I252GV Turbo Pump Gate Valve' and click 'bypass and close turbo gate valve'
- 3) The vacuum should go up slightly but then stabilize.
- 4) Click on Turbo Pump (should say at speed) and click stop.
- 5) Air will start to bleed in to slow it down. To increase the rate at which it slows down, and get it through the resonance faster, close the foreline valve I252FV.

Turning the Turbo back on: (READ AND UNDERSTAND ALL STEPS BEFORE BEGINNING)

- 1) Open the foreline valve
- 2) Start the turbo pump
- 3) Wait for turbo to get up to speed (10-15 min)
- 4) Turn off electronics and unbias detectors (in case something goes wrong with step 5)
- 5) Click on turbo gate valve then remove the bypass. This will close the cryo gate valve (and second cryo if it's open) and the pressure will start to shoot up. Immediately click on pumpdown status and start pumpdown. If you do the clicks quick enough, the turbo opens a second after the cryo closes and minimal pressure is lost. The cryo will open back up in 2 minutes.

Venting:

- 1) Make sure all power is off (see pumping). Disable drives and unplug target drive cables.
- 2) Make sure gate valves are closed to lower dipoles and S800 (upper left I246GV and lower right I255GV)
- 3) Click on pumpdown status and click stop pumpdown.
- 4) Pick a way to vent below

Venting with Dry Nitrogen (preferred):

- 5) Click on Vent Status->Begin venting OR Click on Vent Valve I252VV then click begin venting. This vents with dry nitrogen to 50 torr then shuts that valve and opens to air
- 6) Should reach air in about 30 minutes
- 7) BEFORE walking into chamber, turn on the portable oxygen monitor and stick it into the chamber with your arm to ensure the oxygen levels are good. If oxygen levels are not good, open the door and use a box fan to get air in. You can also turn on the big blower for the pit.

Venting with Air

- 5) Click on Vent Valve I252VV then click vent with Air. This doesn't start venting but sets a switch. Click Begin venting to vent with air.
- 6) Should reach 760 torr in about 25 min.