

1) Find Brian Schmidt

- ask what not to touch

2) Find

If closed remain closed

Brian
Schmidt

see below

check pre-accelerator

Weekly Maintenance

Name: _____ Date: _____

Preliminary:

Use your best judgment to determine if a particular step is not appropriate for today's maintenance!

- A) Determine whether or not the tandem or ion sources are currently operating.
- B) Begin filling the 500 L liquid nitrogen dewar at the linac hall fill station.
- C) Check the previous week's maintenance sheet for uncorrected problems.

Checklist:

Circle and explain all unchecked items on this list.

Top off all needed fluid levels in pumps, oilers, deionized water recirculator, emergency generator, etc.

- 1) On the back side of this sheet, record the control room Penning gauge vacuum readings.
- 2) Record the control room tank pressure _____ and temperature _____.
- 3) Record propane tank levels. (Located outside by helium tanks.) #1 _____ #2 _____.
- 4) Check the generator oil and water levels: start the generator and allow it to run until list is complete.
- 5) Record the pressure drop across the lab water filter located south of the LE tandem vault entrance _____.
- 6) Check the SNICS source deionized cooling water level.
- 7) Check the SNICS source backing pump oil level _____.
- 8) Check the pressure in the SNICS source argon cylinder; replace if less than 100 psi _____.
- 9) Record the SNICS source vacuum gauge readings on the back of this sheet.
- 10) Drain the water from the air line trap (NOT THE OILER) on west side of SNICS source.
- 11) Record the LE cryopump temperature and compressor hours on the back of this sheet.
- 12) Record the beam line LE Vacuum (Penning gauge) on the back of this sheet.
- 13) Actuate the LE cryopump gate valve.
- 14) There is an unpumped section of beam line between the LE valve and the SNICS source exit valve. If either valve is open, cycle the LE beam line gate valve.
- 15) If the tandem is not running, actuate (close and immediately open) both gas security ball valves.
- 16) Drain the LE air line water trap (NOT THE OILER).
- 17) Ensure that the LE faraday cup rotates and the indicator lights flash.
- 18) Record the Pelletron chain run time hours: #1 _____ #2 _____.
- 19) Record the Scott Airpack pressure. _____ (At HE end of the tandem in yellow case.)
- 20) Record the tandem pressure and temperature shown on gauges at HE end of tandem. P _____ T _____.
- 21) Record the HE cryopump temperature and compressor hours on the back of this sheet.
- 22) Record the HE pumping station vacuums on the back of this sheet.
- 23) Actuate the HE pumping station gate valve.
- 24) Actuate the HE beamline gate valve.
- 25) Ensure that the HE faraday cup rotates and the indicator lights flash.
- 26) Drain the HE air line water trap (NOT THE OILER).
- 27) Drain the compressor oil from the tandem 90 degree magnet image slits trap.
- 28) Ensure that the faraday cup 2 rotates and the indicator lights flash.
- 29) Record the target room 1-90 degree magnet vacuum on the back of this sheet.
- 30) Record the linac beam line vacuum and actuate entrance gate valve if vacuum permits.
- 31) Record the target room 1-90 degree magnet cryopump parameters on the back of this sheet.
- 32) Record the target room 1-90 degree magnet pumping station vacuums on the back of this sheet.
- 33) Actuate the target room 1-90 degree magnet pumping station gate valve.
- 34) Record the switching magnet cryopump parameters on the back of this sheet.
- 35) Record the switching magnet pumping station vacuums on the back of this sheet.
- 36) Actuate the switching magnet pumping station gate valve.
- 37) Ensure that all necessary switches are active on the tandem beam line valve status panel and that each item is in the protect mode at the individual device's control box or panel.
- 38) Drain the switching magnet water trap (NOT THE OILER).
- 39) Ensure that the 4 radiation warning signs are lit. Lamps are only lit if tandem or preaccelerator is on.
- 40) Drain the emergency generator temperature _____ oil pressure _____ and output voltages _____
1 _____ 2 _____ 3 _____.
- 41) Turn the generator and set switch to REMOTE position.
- 42) Record any problems found and corrected during this maintenance on the back of this sheet.
- 43) Drain the water traps located in the gas handling room on the north and south walls.

cross out
generators,
pressure drop,
drain

don't touch

unless
Brian say

ask
Brian

and put in clip board

X 40. Record the emergency generator temperature ____ oil pressure ____ and output voltages.

a. 1 ____ 2 ____ 3 ____

X 41. Turn off the generator and set switch to REMOTE position.

42. Record any problems found and corrected during this maintenance on the back of this sheet.

43. Drain the water traps located in the gas handling mom on the north and south walls.

44. If no experiment running: Close the Tandem Source - Tandem Vault - TR1 and TR2 doors, then verify the corresponding status lights on the Control Room interlock panel.

45. Activate the audible alarm in the control room and break the interlock by opening the TR1 door. Verify that alarm is audible.

46. Verify that the LE Cup can not be retracted at the cup control panel while door is open.

47. If Tandem is running: Verify the operation of lit signs at the TR1 and TR2 entries, near the film badge rack and the lit sign outside the loading dock.

IN CONTROL ROOM HE Penning gauge: ____ TORR LE Penning gauge: ____ TORR SNICS Penning gauge: ____ TORR
Polarized Ion Source: ____ TORR

IN TANDEM VAULT SOURCE AREA SNICS Backing Line Thermocouple ____ μ

SNICS Diffusion Pump Thermocouple ____ μ

SNICS Channel 2 Source Box Thermocouple ____ μ

IN TANDEM VAULT: LOW ENERGY END LE Cryopump: Head Temperature ____ K

LE Vacuum: Penning Gauge ____ TORR

IN TANDEM VAULT: HIGH ENERGY END

HE Cryopump: Head Temperature ____ K

HE Vacuum: Penning Gauge 1 ____ TORR, Penning Gauge 2 ____ TORR

TR 1-90 degree Magnet Penning gauge: ____ TORR TR 1-90 degree Magnet Cryopump: Head Temperature ____ K

Linac Beam Line Penning gauge: ____ TORR Switching Magnet Penning gauge ____ TORR

Additional Notes:

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This page has been accessed 111 times.

New - Check the emergency generator outside by loading dock, see below for what to check

above
SPS {
TC
control

IN CONTROL ROOM

HE Penning gauge: _____ TORR
LE Penning gauge: _____ TORR
SNICS Penning gauge: _____ TORR
~~Polarized Ion Source: _____ TORR~~

IN TANDEM VAULT SOURCE AREA

SNICS Backing Line Thermocouple _____ μ
SNICS ~~Diffusion~~ Pump Thermocouple _____ μ
SNICS Channel 2 Source Box Thermocouple _____ μ
haffle 1

IN TANDEM VAULT: LOW ENERGY END

LE Cryopump:
Compressor Hours*: _____ hrs Head Temperature _____ K
LE Vacuum: Penning Gauge: _____ TORR

IN TANDEM VAULT: HIGH ENERGY END

HE Cryopump:
Compressor Hours*: _____ hrs Head Temperature _____ K

HE Vacuum: Penning Gauge 1: _____ TORR
Penning Gauge 2: _____ TORR

TR 1-90 degree Magnet Penning gauge: _____ TORR
Linac Beam Line Penning gauge: _____ TORR

Target Room 1 90 degree magnet cryopump:
Compressor Hours*: _____ hrs Head Temperature _____ K

Switching Magnet Penning gauge: _____ TORR

Switching Magnet cryopump:
Compressor Hours*: _____ hrs Head Temperature _____ K

*Compare the hour meter to the tag on the cryopump. When the difference is less than 500 hours, contact Brian Schmidt (schmidt@nucmar.physics.fsu.edu).

NOTES:

- Filling Dewar

unconnect yellow hose



"Don't lose the thingy!"

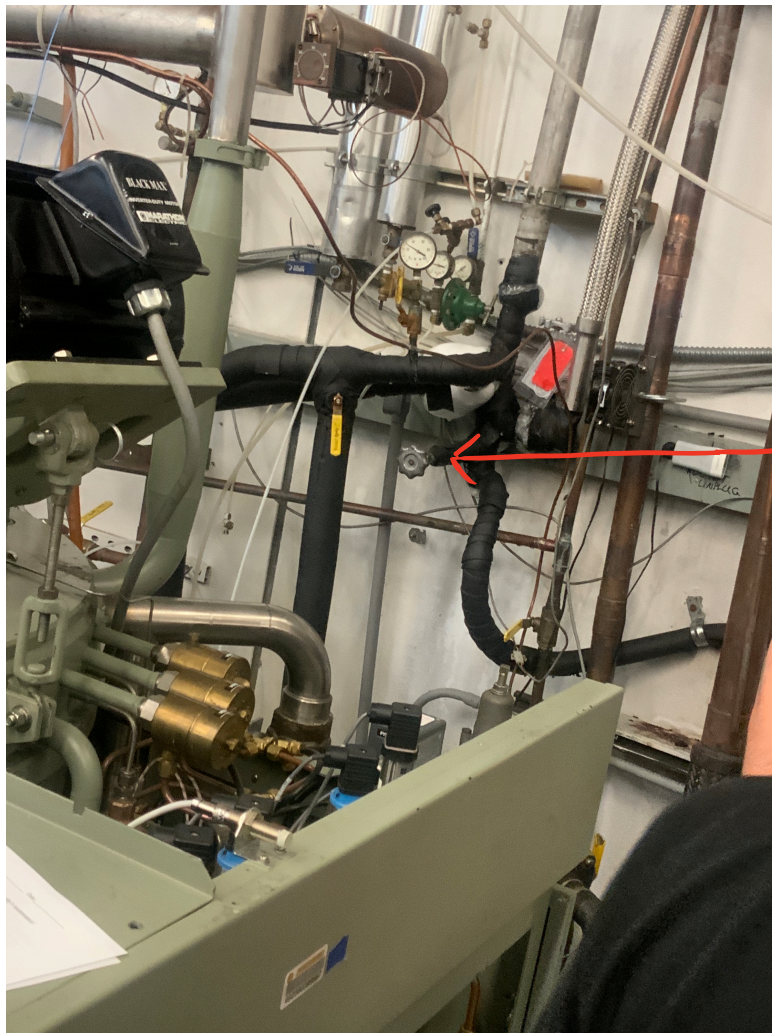
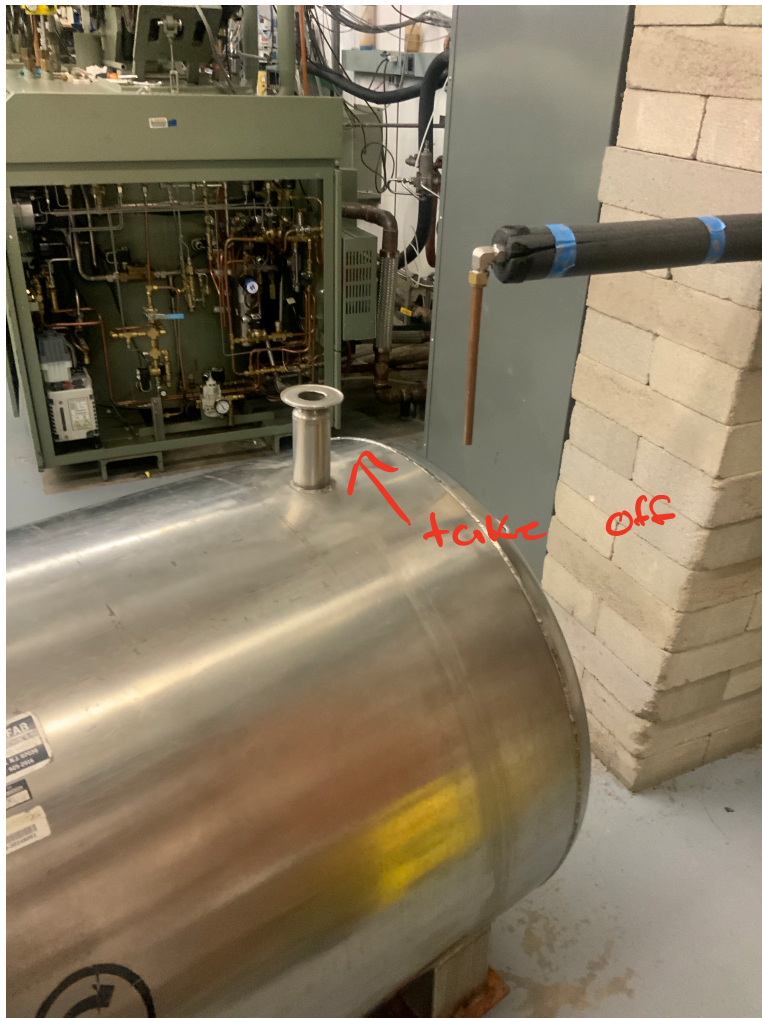
- Gordon McCann 3/29/23

Former Tandem Maintenance Captain

Sits on ledge next to walkway
leading into TR1 from TR2



Find / attach
copper rod



nozzle to turn
her on

Takes a while...

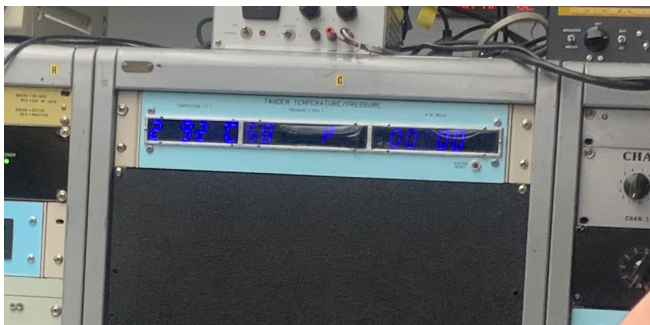
~1.5 hr if completely empty

Check list

1)



2)



3)



propane tanks
tell if below 20...

5)



Location reference
for propane tanks

New



Location of emergency generator, outside of lab loading dock area



Make sure the display is green and is ready for automatic use.
Display faces the 2nd floor bridge

6)



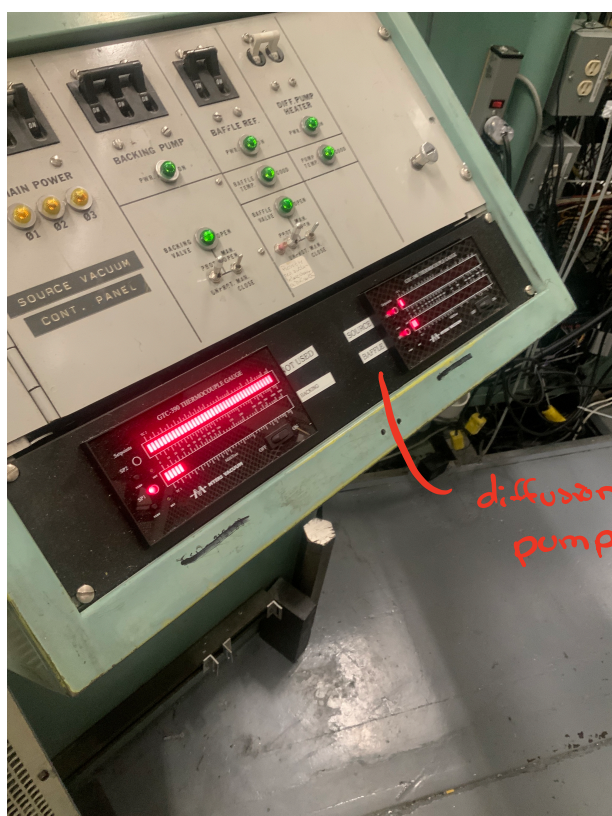
it below tape as Brian

7)



check to see if oil in tubes.

9)



diffusion pump

11) penning gauge ← (12)
temp (in Kelvin)



(15)



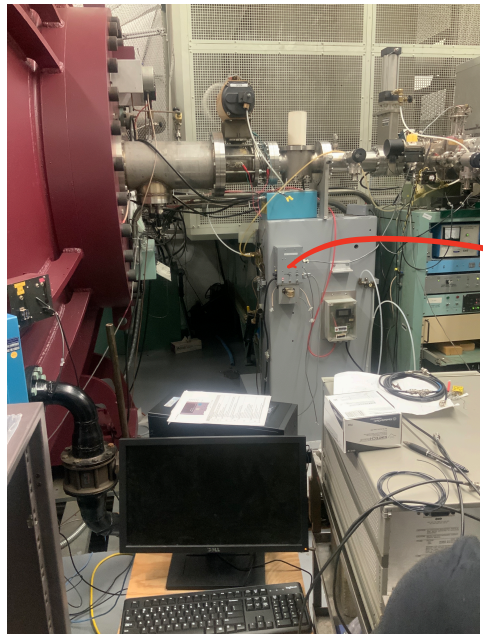
↑ compressor for compressor hours

13) IF need

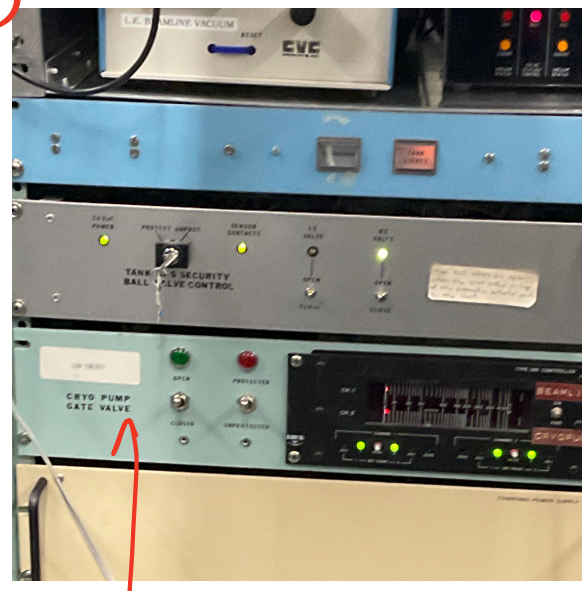
(if closed don't do anything)

*make sure Brian is aware before actuating *

17)



do not open if closed

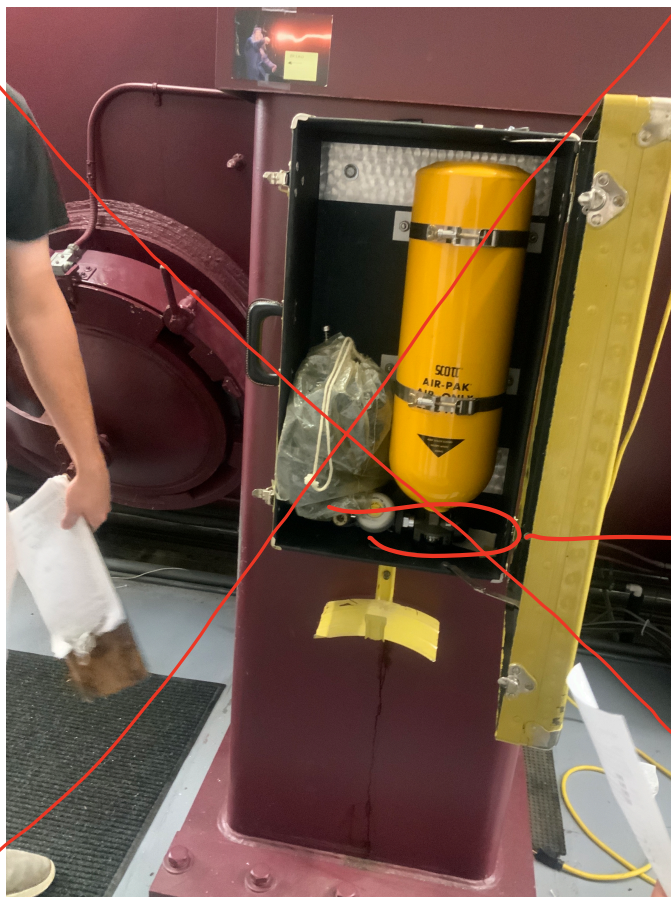


cryo pump gate valve

18)



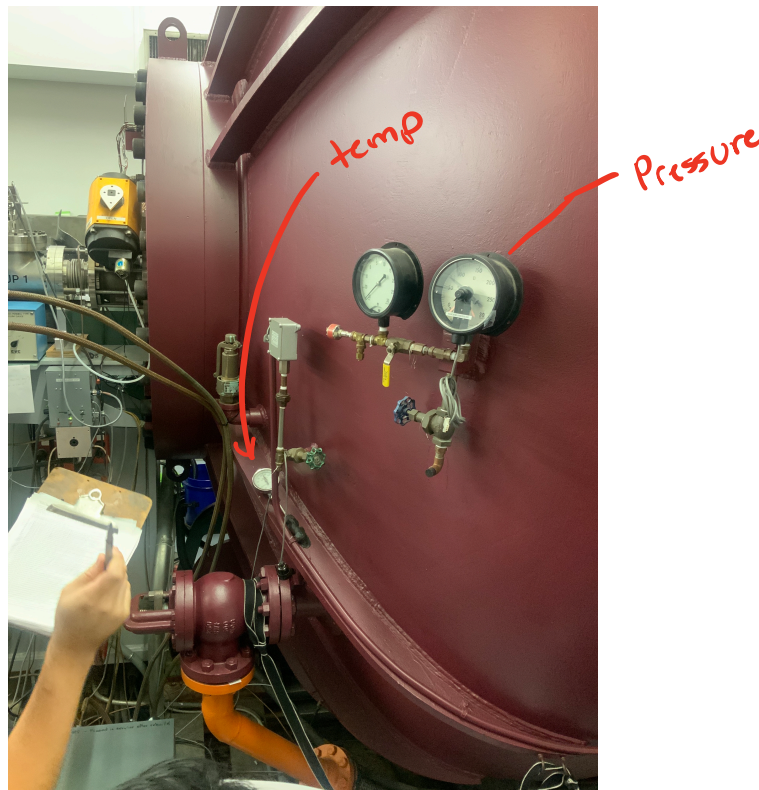
19)



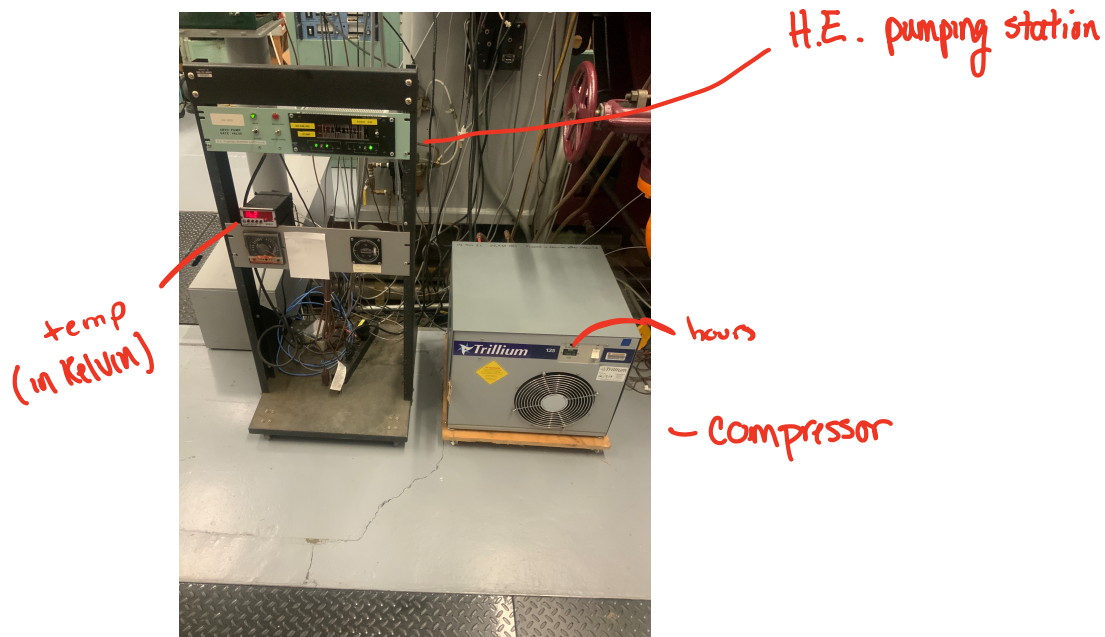
No longer
here, skip!

number down
here
& then lock it

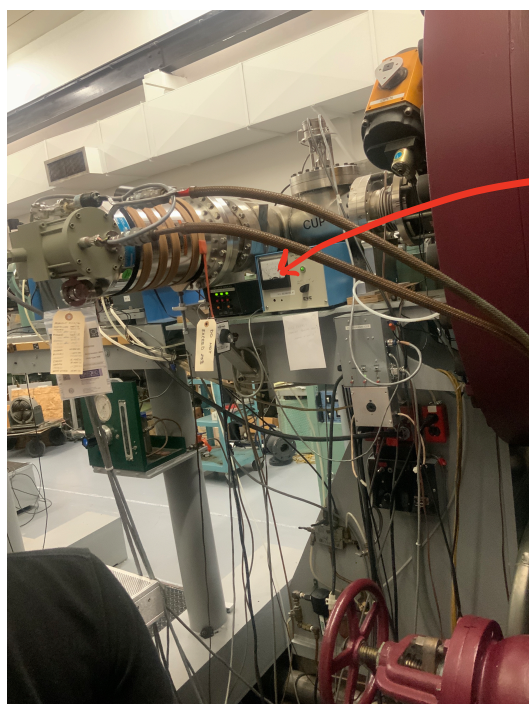
20)



21) H.E. (After condensation)

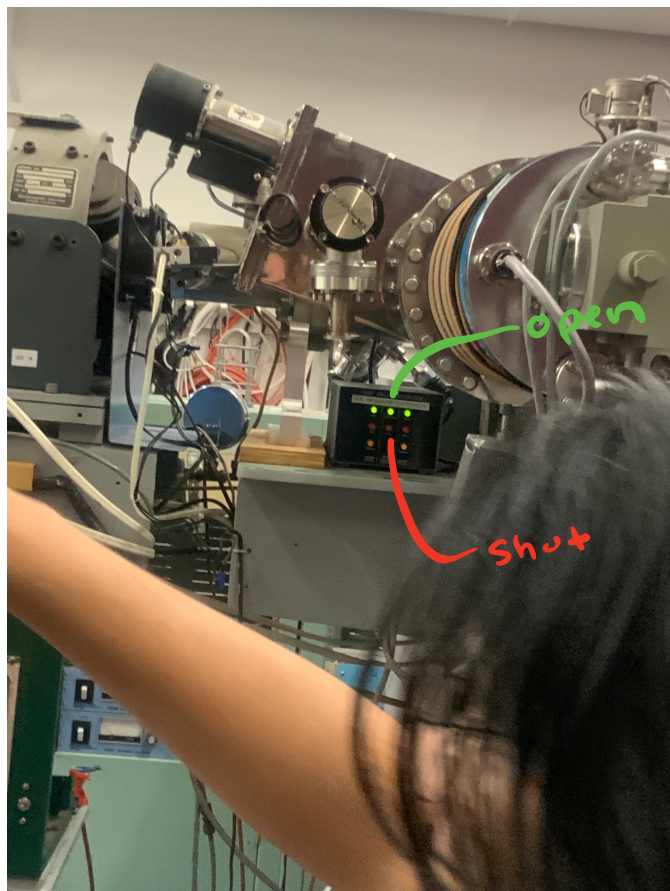


22)



H.E. penning
trap
(not there as of 3/29/23)

23)

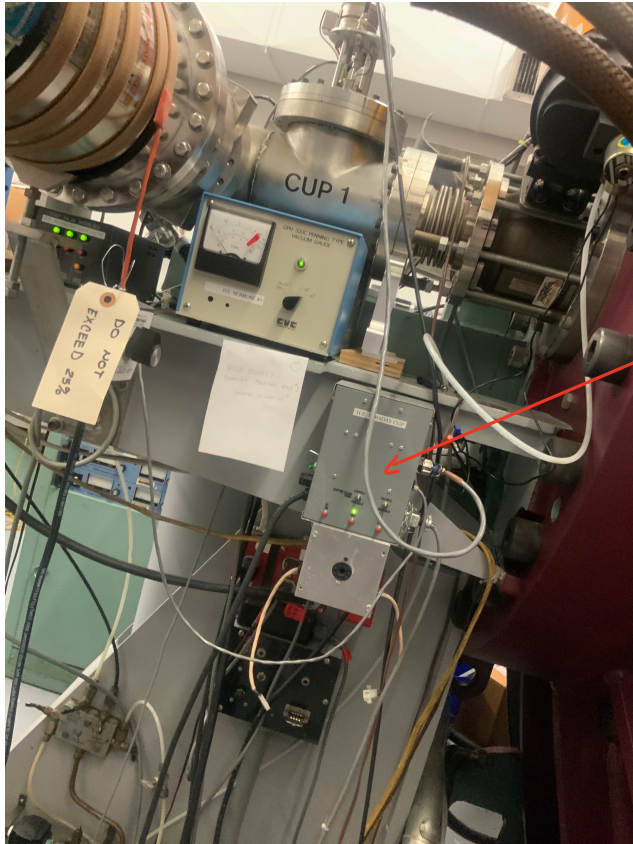


24)

open, close

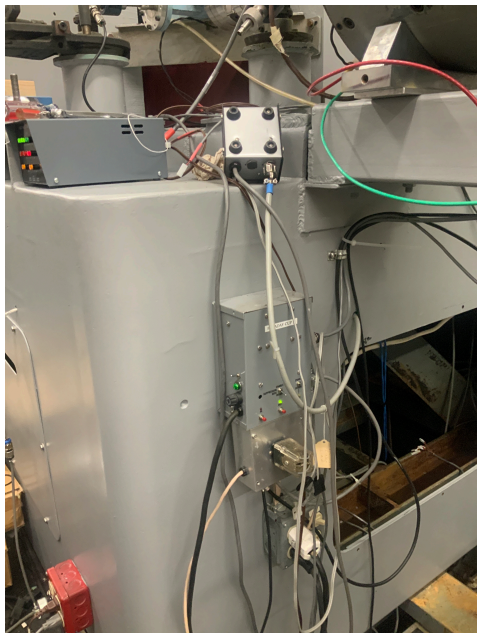


25)



faraday cup!
See if it rotates when
you close & open it

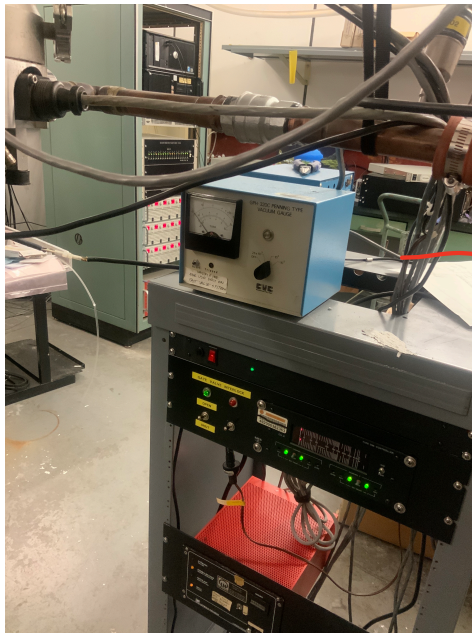
26)



29)



30)



Linac Gauge
(on other side of
beam line)

31)



+ compressor hours

32,33)



pumping gauge

90° magnet

compressor