Roman Pot Insertion Instruction

As soon as the first run is started CALL MCR (X4662) for permission to operate the RPs.

If Roman Pots are moved without the permission it will cause BEAM DUMP.

On the right monitor on the top shelf you should see the Roman Pot operations window.

Before you get the permission from MCR you should see the red fields.

After you get permission by MCR calling back you will see green fields (See the next page.)

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Roman Pot (on acnlin21)

File   Tools   Diagnostics   Help

	W1U	W1D	W2U	W2D
Which Pot to Move?	✔	✔	✔	✔
Insert Target Position (mm):	40.0	−40.0	40.0	−40
Insert Target Position (step):	384860	385350	386838	385858
Current Position (step):	0			0
LVDT position (mm):	88.913	−88.807	88.916	−88.789
Fast Moving Fraction:	0.9	0.9	0.9	0.9
Nudge Step Size (steps):	200	200	250	230
Cur Motor Speed (steps/sec):	4000	4000	4000	4000
Enable Motion Control:	Off	Off	Off	Off
At Limit:	Retracted	Retracted	Retracted	Retracted
Motor Speed Vo (steps/sec):	5000	5000	5000	5000
Motor Speed Ve (steps/sec):	4000	4000	4000	4000
Single Rate Limit:	200000	200000	200000	200000
Single Rate PMT1:	1	1	1	1
Single Rate PMT2:	1	1	1	1
Permit Status:	enable	enable	enable	enable

	E1U	E1D	E2U	E2D
Which Pot to Move?	✔	✔	✔	✔
Insert Target Position (mm):	40.0	−40	40.0	−40
Insert Target Position (step):	393463	386600	385735	390027
Current Position (step):	0			0
LVDT position (mm):	89.700	−88.969	88.890	−89.204
Fast Moving Fraction:	1.0	0.9	0.9	0.9
Nudge Step Size (steps):	200	203	200	200
Cur Motor Speed (steps/sec):	5000	5000	5000	5000
Enable Motion Control:	Off	Off	Off	Off
At Limit:	Retracted	Retracted	Retracted	Retracted
Motor Speed Vo (steps/sec):	5000	5000	5000	5000
Motor Speed Ve (steps/sec):	4000	4000	4000	4000
Single Rate Limit:	200000	200000	200000	200000
Single Rate PMT1:	1	1	1	1
Single Rate PMT2:	1	1	1	1
Permit Status:	enable	enable	enable	enable

Insert   Home   Stop   Nudge In   Nudge Out

Blue Ring

W1   W2

Insert   Home   Stop   Nudge In   Nudge Out

Yellow Ring

E1   E2

radiation level [mR]: 6E9 4E9 2E9 0
10:01:50 10:02:10 10:02:30 10:02:50 10:03:10 10:03:30
time of day
● calcMan.NMC.b‑7w‑H:resultantValueM ■ calcMan.NMC.b‑7w‑V:resultantValueM

radiation level [mR]: 6000 4000 2000 0
10:01:50 10:02:10 10:02:30 10:02:50 10:03:10 10:03:30
time of day
● calcMan.NMC.y‑5e‑H:resultantValueM ■ calcMan.NMC.y‑5e‑V:resultantValueM

◀ ▶   Stop

Thu Feb 19 07:13:18 EST 2015 : Move roman pot [W1D] to 385350
Thu Feb 19 07:13:18 EST 2015 : Stopped one roman pot: SLOW
Thu Feb 19 07:13:18 EST 2015 : Move roman pot [W1U] to 384860
Thu Feb 19 07:13:18 EST 2015 : Stopped one roman pot: SLOW
Thu Feb 19 07:13:18 EST 2015 : Move roman pot [W2U] to 386838
Thu Feb 19 07:13:31 EST 2015 : Stopped all roman pots: INSERTDONE
Thu Feb 19 07:13:31 EST 2015 : ==========Insert done!

◀ ▶   Stop

Wed Feb 18 14:32:05 EST 2015 : Move roman pot [E2D] to 390027
Wed Feb 18 14:32:05 EST 2015 : Stopped one roman pot: SLOW
Wed Feb 18 14:32:05 EST 2015 : Move roman pot [E1D] to 386600
Wed Feb 18 14:33:15 EST 2015 : Stopped all roman pots: INSERTDONE
Wed Feb 18 14:33:15 EST 2015 : ==========Insert done!
Wed Feb 18 14:48:48 EST 2015 : Started to pull home roman pots
Wed Feb 18 14:50:39 EST 2015 : Stopped all roman pots: HOMEDONE
Wed Feb 18 14:50:39 EST 2015 : ==========Home Romanpot done!

Message: WARNING: Blue Ring −− Bottom Pot reached the beam!

Roman Pot Operations for Shift Crew

If you don't see the green lines you need kill Roman Pot process on the acnlin21 terminal window on the left monitor on the top shelf (see the last page) and restart the Roman Pot GUI.

There are several lines which show the status of the Roman Pots. Familiarize yourself with those lines.

The pictures in the middle of the ops window show position of the Roman Pots with respect to the beam center, for informational purposes only.

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Roman Pot Operations for Shift Crew

There are three buttons on the control GUI to be clicked to get the desired action:

1. **Insert** – to move the roman Pots to desired position

2. **Stop** – to stop movement (if you see sustained rate spike during the movement, for example).

3. **Home** – if for any reason you need to take Roman Pots to the Home position.

Before the Beam Dump or before the Vernier scan click the **Home** button to bring Roman Pots to the home position.

Call expert on call if you have questions or if you are not able to proceed with RP insertion

See Shift Leader's call list

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Roman Pot Insertion for Shift Crew

After getting the permission from MCR and seeing the fields turn green, in the top line type the desired distance for the roman pots to go to. The numbers are Positive for the upper Roman Pots and negative for the down Roman Pots. The sign matters and must be typed in.

NOTE: The Roman Pot insertion takes place as soon as possible after the data taking starts.

At all times during the insertion watch rates shown on the screen next to the control screens. They should not increase rapidly, only smoothly while insertion is in progress.

For each of the next steps the singles rates should stay **below 300 kHz** as long as they decay. They rise during the motion and flatten out once the motion stops.

Also note that DAQ needs to be data taking or initialized for the rates to be reliable, which is normally the case when insertion takes place. This is due to QT board features.

Call expert on call if you have questions or if you are not able to proceed with RP insertion

Roman Pot Operations for Shift Crew

Insertion is done in few steps:

1. Check the box under each RP label so that that RP is included in the motion. Normally all boxes need to be checked.

2. This step is done during the ZDC polarimetry and is to assure all is working OK and no RP runs out of control. Go to 50 and -50 (mm), by typing 50 and -50 in the second line from the top.

3. Hit the **Insert** button. Watch the rates and LVDT position line fifth line from the top.

4. **Wait 2 mins before before proceeding with insertion of Roman Pots.**

5. Move the Roman Pots in Four steps and observe the rates making sure that they do not increase rapidly:

    a) **Go to 35 (-35) mm, type in the numbers and hit the Insert Button. Check the LVDT reading after Roman Pots reach their position, it should be within 0.5 mm of the requested position. Wait 2 mins observing the singles rates, they should flatten.**

    b) **Go to 25 (-25) mm. observing the singles rates, they should flatten. Wait 2 mins observing singles rates, they should flatten.**

If for any of the steps below the singles rate is bigger than 300 kHz in a given Roman Pot move that Roman Pot back by 1 mm.

    a) **Go to 23 (-23) mm. observing the singles rates, they should flatten. Wait 2 mins observing singles rates, they should flatten.**

    b) **For E1U, E1D, E2U, E2D, W1U, W1D go to 21 (-21) mm. Wait 2 mins observing the singles rates, they should flatten.**

You are done: Inform the shift leader that RPs are ready for data taking.

Call expert on call if you are not able to proceed with RP insertion

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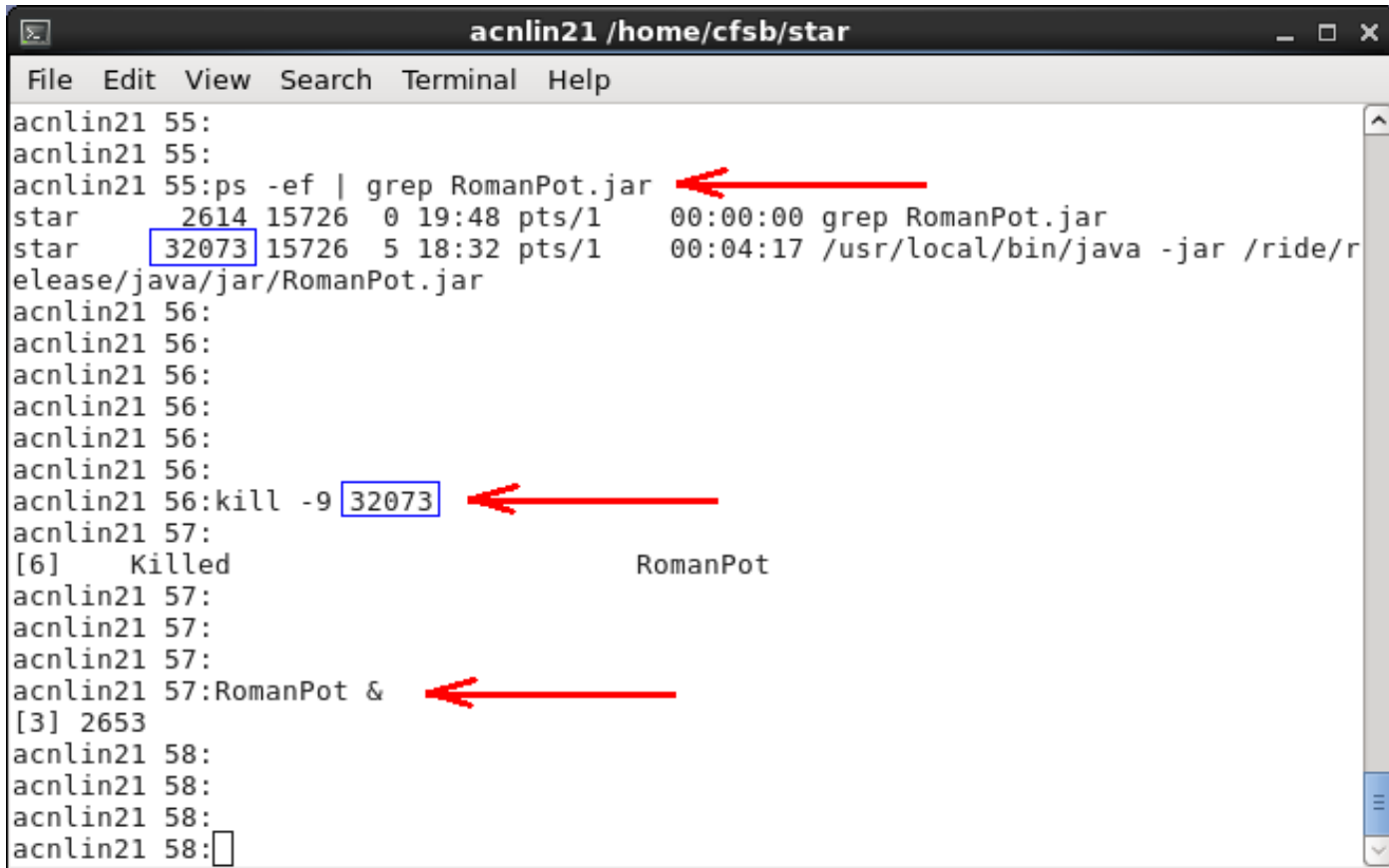# Roman Pot Operations Before and After Polarization Measurement

1. Before the polarization measurement or vernier scan and before there is a call from MCR. Prepare the Roman Pots to be retracted to +-40 mm.

2. When MCR calls hit the Insert button to retract RPs, this should take less than a minute. Immediately inform the Shift leader when RPs are at +-40 mm.

3. During the polarization measurement type in the values to start moving RPs back to the data taking position. All should be at +-25 mm.

4. When MCR calls that polarization measurement is done use the Insert button to move RPs to the preset distance in #3 above. Observe the rates.

5. If there is no spike move all RPs to +-23mm, observe the rates.

6. If there is no spike move W1D, W1U, E1U, E1D, E2U, E2D to +-21mm (all except W2U, W2D), observe the rates.

You are done: Inform the shift leader that RPs are ready for data taking.

Call expert on call if you are not able to proceed with RP insertion

Killing and Restating Roman Pot Process

Execute the following commands

Sample plot of singles rate changes during Roman Pot insertion for Blue Ring RPs