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Stopped TL #1, Saved & Cleared to 62 mm, PDI through Au + C 10.2

Started 22:10:42 Run #8

Stopped 22:29:13

Saved PDI & cleared

Moved TL#1 to 76 mm, illuminating PDI through hole (2.3 mm PDI collimator)

Started 22:32:02 Run #9

Stopped 22:39:08

Rate on PDI very low so stopped run.

Going to adjust TL#1 position and look at scope.

S2 moved TL#1 to 78 mm

Started 22:52:28 Run #10

Stopped 23:14:42

Saved as alpha-2mm hole - pd1

cleared.

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23:17: Moved TL#2 to 150 mm

TL#1 to 23 mm Au (thick) in PD 3

Started 23:18:13 Run #11

Stopped 23:34:22

Saved PD spectra & cleared

alpha-foil Au - pd3

23:35 Moved TL#1 to 38 mm PDI through 4mm hole. Started 23:36:45 Run #12

Stopped 00:22:34 (+ day)

Saved PD spectra in 'alpha-4mmhole-pd3'

Saved all spectra, 'runs 4-12'.

Tuesday 17th May

00:13

All channels in S2-1 and W appear to be good.

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S21 $V=120.24V$ $I=0.49\mu A$

S22 $V=110V$ $I=1.41\mu A$

W $V=150V$ $I=0.22\mu A$

Pulsar walkthrough

Pulsar settings as on pll give only ~1V signals for S21. Changed removed x5 attenuation and running from 60,000 amplitude down

Run 14 - Front S2-1

Started 00:37:41

Stopped 00:42:24 3162 blocks

Run 15 - Back S2-1

~~Start
Stop~~

Run 16 - Back S2-1 Attⁿ x 2 on pulser 90,000, → 10,000

Start 00:51:14

Stop 00:53:39 blocks 1083.

Pulsar settings as on pll. ~~starting from~~

Run 17 S2-2 and W front.

start 00:56:59
stop 00:00:46

865
~~858~~ blocks.

Run 18 S2-2 and W back

start 01:03:06

stop 01:07:45

567 blocks.

Run 19 PDs (with high gain for thickness measurements)

start 01:11:58

stop 01:17:02

925 blocks.

01.18

Bias voltages off.
Preamplifier power off.

Cooler set point to 20°C.

Noticed TUDA AC's reading current on EPICS. Check in morning. Reset?

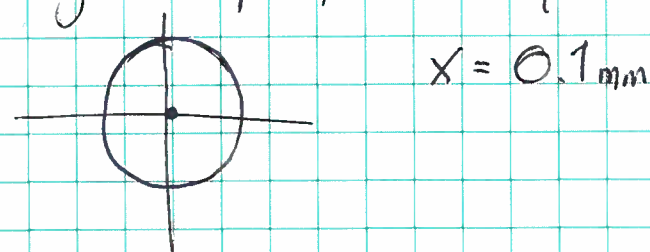
PD full range set to 200 MeV for the 'very unlikely case there is something heavier in the beam.

No. _____
Turbo off. 07:30 Vented
moved target ladders + adapters and pulled back
moved sources from in front of W and S2-1
moved W detector. removed blank flange from re-entrant section
Requested Ops vent IV3 → IV4 section and open IV3+4.
40 Checked alignment of telescope by sighting on target ball by bending magnet.
Telescope is aligned.
45 Reinstalled blank onto re-entrant flange.

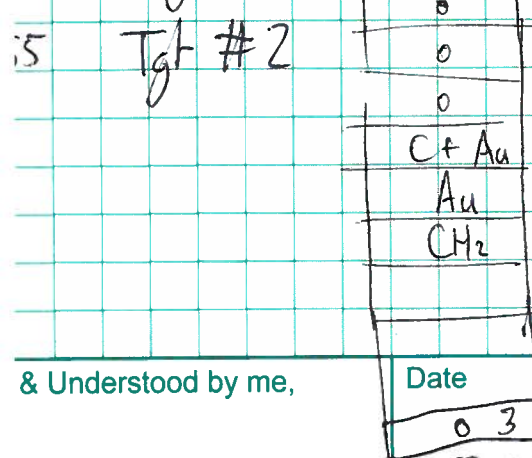
Alignment as per p29.

Loosened off all bolts on inside flange

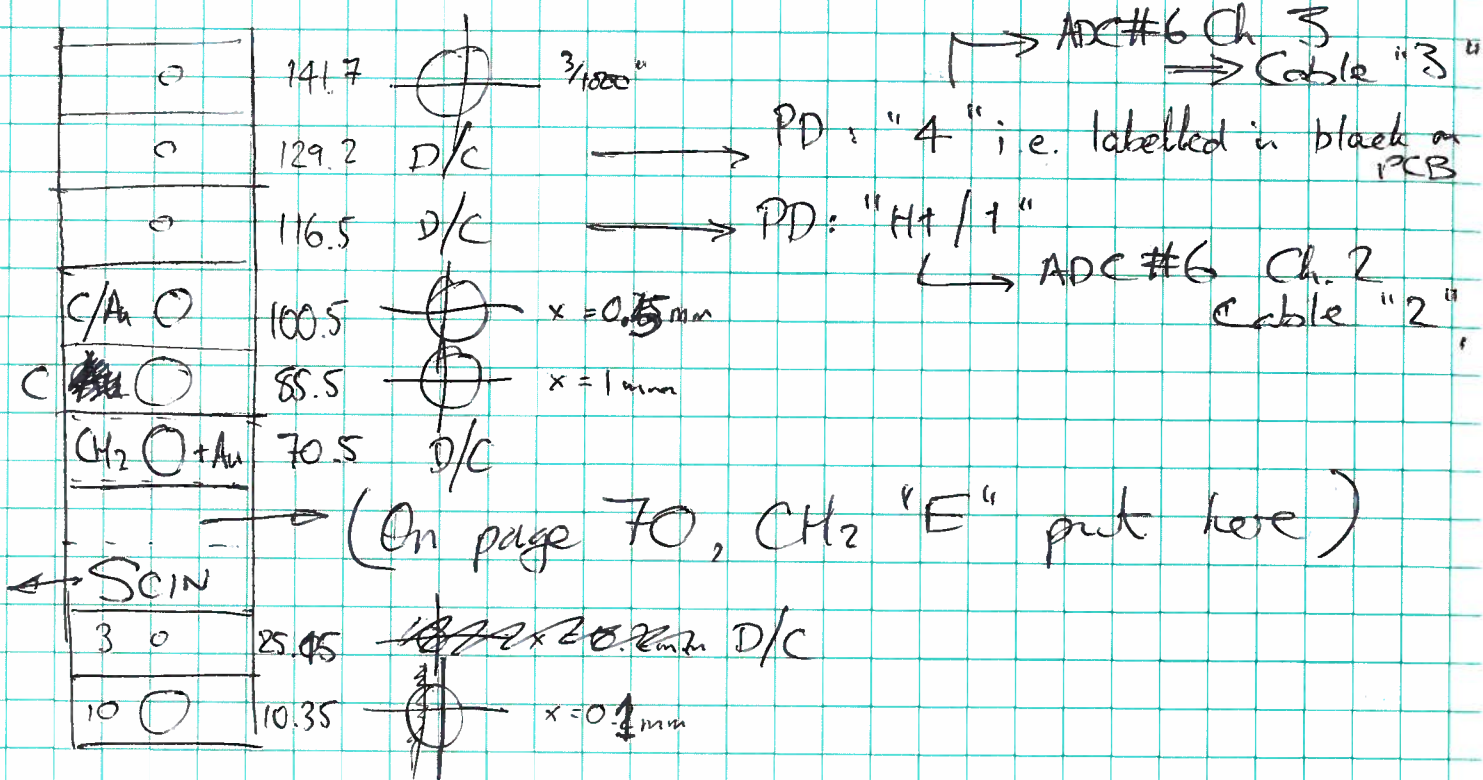
Tightened up systematically while checking alignment.



40 Tgt #1 re-surveyed (see page 30)



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On Tgt #1.

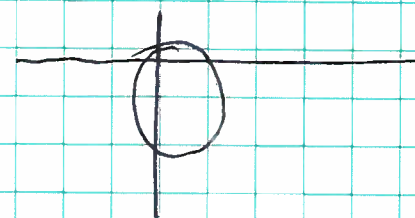
AP Diode mounted behind lower 3mm hole
Upper hole is obscured by PD PCB.
Source # ~~868~~ shining D/S.

↳ #708 (#868 returned to TIGRESS Lab)

4mm ϕ hole installed on PD frame for beam collimation.

Closed chamber to commence H₂ tests.

Before installing FCup, checked position of 4mm hole



x and y \approx 1mm out. Should be adjustable by differentially tightening onto the four rails.

To Page No. _____

~~Pumping~~
 Pumping out for H₂ tests. reached ~250 mTorr
 vent to N₂ = * 1 atm

Opened by pass valve, RV4 and pumping both out.

Opened H₂ line. Pumped down. Slow below 1 Torr. Closed valve on top of chamber.

Vac in TUDA got better. ~~After~~ After a few mins opened valve again. TUDA went from ~0.2 T. to > 1 Torr => leak in H₂ line.

After testing with alcohol & tightening connections above H₂ manual flow valve, think we are leak free!

Tested connections at panel also and found no leaks.

Connected flammable exhaust line to pump, filled chamber with ~250 Torr of N₂ and pumped to flush out exhaust line.

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17:20

Filling with H₂. Filled to 250 Torr in ~4 mins (249.573 Torr)

⊘ Waited ~10 minutes Pressure very stable.

Add ~5 Torr more hydrogen to check gauge still work. All fine.

17:38 Open H₂ flow valve & pumped out back to panel.

17:39 Baricton pressure reached 0 Torr.

17:45 ~~Reconnect~~ Reconnect gauges & vent to N₂, back to panel.

17:52 Closed vent valves and H₂ flow valve. Chamber safe.

⊘ 18:08 Attached leak checker to 2L volume, pumping out whole chamber.

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Matching & Calibrating

T.D's "gains", "offsets" & "variables" programs.

1. pulser walkthrough spectra to ... /spectra/pulser-pdhighgain
usly, these include 5160-5164 that were generated with high
gain for the pd's. So, this folder includes spectra from a variety of
the net result of which is spectra 5160-5164 all with pulser
throughs.

program 'gains' is then run on this spectrum.

offsets
gains /home/uda/51287/spectra/pulser-pdhighgain 10 4000 5 10
... /calibration/README for explanation).
peakfind parameters.

offsets
generates output in /tmp/gains.dat.

offsets
copied this to ... /calibration/gains.dat.

1. iterations, each with different peakfind parameters are required.
each run, select out of /tmp/gains.dat offsets.dat the 'good'
and save them to ... /calibration/offsets.dat.

Made a directory ... /spectra/alphacaldata which has alpha data
channels 5160-5164. Turns out 5160+5164 are low gain pds.

the program gains.

... makes /tmp/gains.dat.

... iterate to get a good /calibration/gains.dat.

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Once we have offsets.dat and gains.dat files we're happy
with for all 165 channels, copy these two files ~~into~~
/tmp/

run variables.

(options ... 165 channels, searching
from 0 to 159 for main channel.)

then copy part 4 to /opt/variables.dat.

check ✓

then look to see where middle α -peak is occurring. It's
at channel 524.

From README file, it looks like this should correspond to
 $E = 5.38$ MeV.

then insert $c(t) = 1.022$ into variables.dat file to as
to affect that change.

check ✓.

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4 NI Window leak tests. Blank Flange

Bypass closed.

Started to fill with He, realie turbo was still spinning
(thong switched off).
Quickly closed vent valve.

3 Filled chamber to 250 Torr He

Closed Valves.

26 Pressure = 85 Torr

Leak checker on - T.P. Pressure 1.0×10^{-3}

Leak rate 1×10^{-8} atm-cc/sec.

~~Start~~ Pump chamber to roughing pressure (≈ 300 mTorr)

Leak rate 8×10^{-8} atm-cc/sec

T.P. Pressure 2.0×10^{-4} Torr

Refilled to 250 Torr

Leak rate 8.7×10^{-8} atm-cc/sec.

Vent to nitrogen

19:30 ~~not~~ installed window #1 C

Pump down both sides together slowly.

< 300 m Torr

19:54 Leak checker on: T.P. pressure 2×10^{-1} Torr
rate 9.9×10^{-4} atm-cc/sec
with chamber isolated (no He).

↑

bypass valve still open.

With valve closed; pressure 1×10^{-3} Torr

rate 3.4×10^{-7} atm-cc/sec

20:00 Fill with 250 Torr He

P 0×10^{-2} Torr

rate 3.1×10^{-7} atm-cc/sec

~~1 (min) P~~

~~0 13.5 m Torr~~

~~2 32 m Torr~~

~~3~~

No. _____

Close hand valve to leak tester and monitor pressure:

<u>t (s)</u>	<u>P (mTorr)</u>
0	11
10	14
40	17
60	19
100	24
150	29
180	31
240	37
288 300	42

ump out chamber, open bypass and vent both sides together.

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20:46 Installed blank again. & pump out.

With TADT @ vacuum

P Ox₂⁴

rate 2.6 x 10⁻⁷

Fill to 250 Torr He.

rate 2.3 x 10⁻⁷ atm-cc/sec

<u>t (s)</u>	<u>P (mTorr)</u>
0	10
5	11
15	12
30	13
40	13
60	15
100	17
120	19
180	22
240	25
288 300	28

leak check pump closed

Vent to N₂.

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Date

1. ~~He~~ installed Window # 2C and pumped.

with ~~air~~ ~ 25 mTorr in chamber

rate 4.8×10^{-7} atm-cc/sec

with 254 Torr He in chamber

rate 4.1×10^{-7} atm-cc/sec

close leak check pump

t (s)	P (mTorr)
-------	-----------

0	12
---	----

20	15
----	----

30	16
----	----

40	17
----	----

60	18
----	----

100	21
-----	----

120	23
-----	----

180	27
-----	----

240	30
-----	----

288 300	34
--------------------	----

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21:52 Vent valve left open (with hand valve on gas bottle close)
pressure risen to ~~320 Torr~~ 320 Torr

~~Leak~~ Open to leak checker, rate now 3.1×10^{-7} atm-cc/sec

Pump out.

(Chamber pressure 1.1 Torr)

leak rate 2.1×10^{-7} atm-cc/sec

~~Leak~~ Open by pass & vent. to N_2 .

22:13 Installed Window # 3C and pumped

22:28 By pass closed, chamber ~ 150 mTorr

leak rate 3.7×10^{-7} atm-cc/sec
(and falling)

Fill with He to 250 Torr

leak rate 1×10^{-4} atm-cc/sec (!!)

22:34 Close leak checker pump valve

t (s)	P (mTorr)	t (s)	P (mTorr)
-------	-----------	-------	-----------

0	13	120	26
---	----	-----	----

20	16	180 180	30
----	----	--------------------	----

30	17	240	35
----	----	-----	----

40	18	288	39
----	----	-----	----

60	20		
----	----	--	--

100	24		
-----	----	--	--

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No. _____

Opened up leak checker again

rate 1×10^{-4} atm cc/sec.

Pump out chamber.

$P < 1$ Torr

leak rate 4.9×10^{-7} (and falling).

Vent to nN_2

Installed window #4C & pumped

Chamber at ≈ 250 mTorr, closed bypass valve.

rate 3.8×10^{-7} atm-cc/sec. (and falling)

Chamber filled to ~~265~~ 265.2 Torr

Leak checker rate 2.1×10^{-4} atm-cc/sec

Close leak check valve

<u>t(G)</u>	<u>P(mTorr)</u>	<u>t(G)</u>	<u>P(mTorr)</u>
-------------	-----------------	-------------	-----------------

0	13	180	35
---	----	-----	----

20	17	240	41
----	----	-----	----

30	18	288	45
----	----	-----	----

40	20		
----	----	--	--

60	22		
----	----	--	--

100	27		
-----	----	--	--

120	29		
-----	----	--	--

140			
----------------	--	--	--

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23:23

Pump out chamber.

Chamber at ≈ 220 mTorr

<u>t(G)</u>	<u>P(mTorr)</u>	- Close leak checker valve
-------------	-----------------	----------------------------

0	17	
---	----	--

30	20	
----	----	--

40	20	
----	----	--

60	22	
----	----	--

100	24	
-----	----	--

120	24	
-----	----	--

180	27	
----------------	----	--

- ~~RV5~~ RV5 tripped shut.

240	30	
-----	----	--

288	31	
-----	----	--

Chamber @ 140 mTorr

23:34 Opened bypass valve.

Turbo On

23:37 RV4 tripped shut. Re-opened.

Penning gauge On.

23:41

Cryo On

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(chamber left pumped down (turbo & cryo) with ~~big~~ RV ~~open~~ open.)

N₂ window in so vent carefully!

Wednesday 18th May 2011.

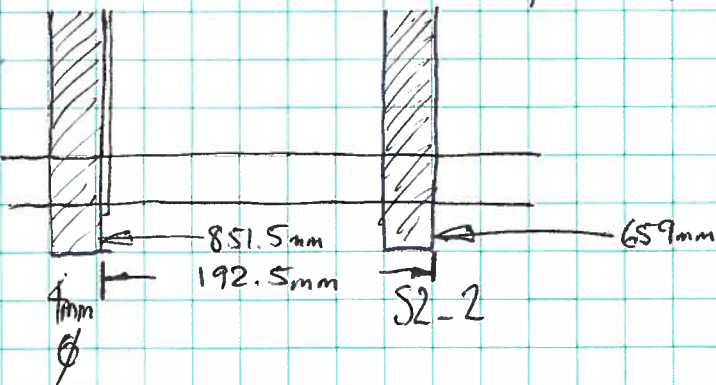
Started venting. Turbo off. QVS Closed. WS opened (checked hand valve closed first). Connected to N₂. Opened N₂. Cracked open hand valve. Slowly vented...

Venting completed.

Checked rough position of 4mm ϕ coll. on support ring. Same as p53.

Repositioning 4mm ϕ Support Rail.

From Jamie's logbook. ... required position of 4mm ϕ support ring is:

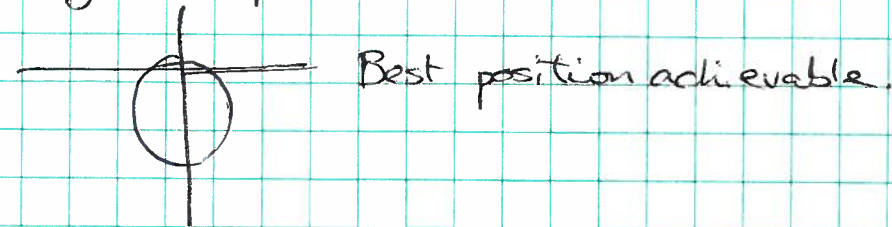


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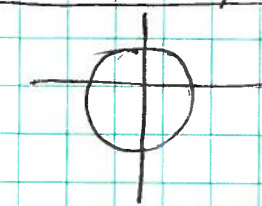
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10:00 Tried to position support ring on rails to improve position and alignment of 4mm ϕ .



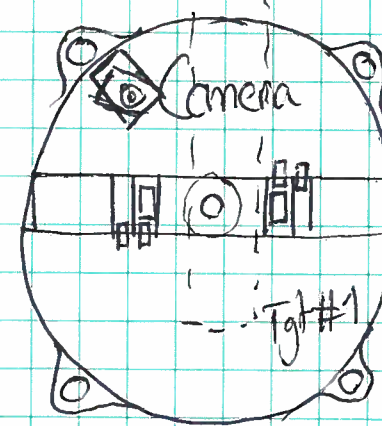
Proposed Solution: Drill two more holes for mounting the 4mm ϕ that are offset by ~ 12 mm.

* Installed 10mm ϕ hole (intended for use during initial beam tuning). Again low by ~ 1.2 mm. (i.e. just greater than range of travel of telescope).



Installed PDs for RBS Monitoring

The two Ecdi. PDs on the metal bracket installed HORIZONTALLY



(Looking U/S)

N.B. Due to symmetry + lack of labels (means identity of two Ecdi. PDs lost).

Installed FLAT Scin. target onto Tgt #2 at position above 3mm ϕ hole near bottom

\Rightarrow \sim Position of Scin = 41.15 mm

Change from 40 to 41.15 mm due to installation of camera and check it in Control Run.

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		Recorded by:	

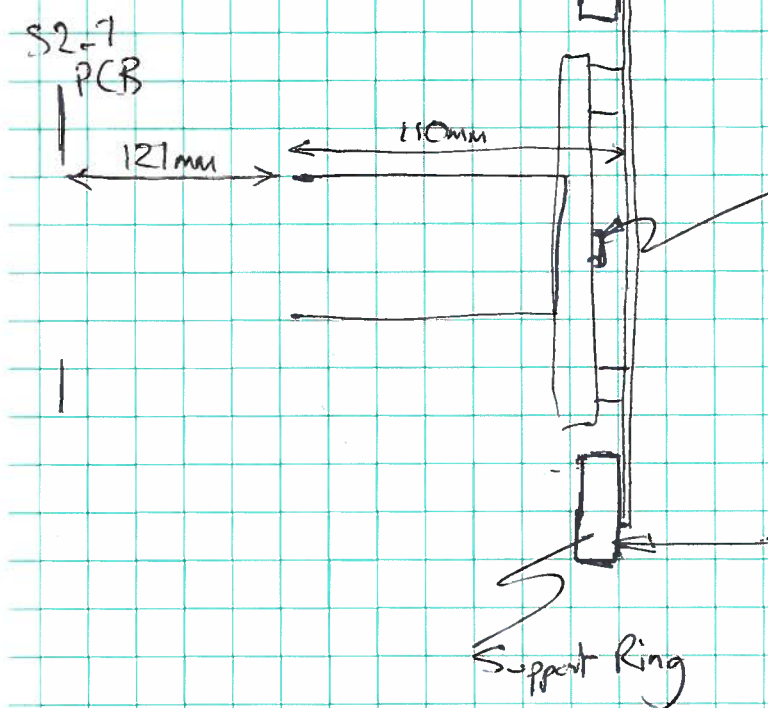
Charged to 41.15 mm camera

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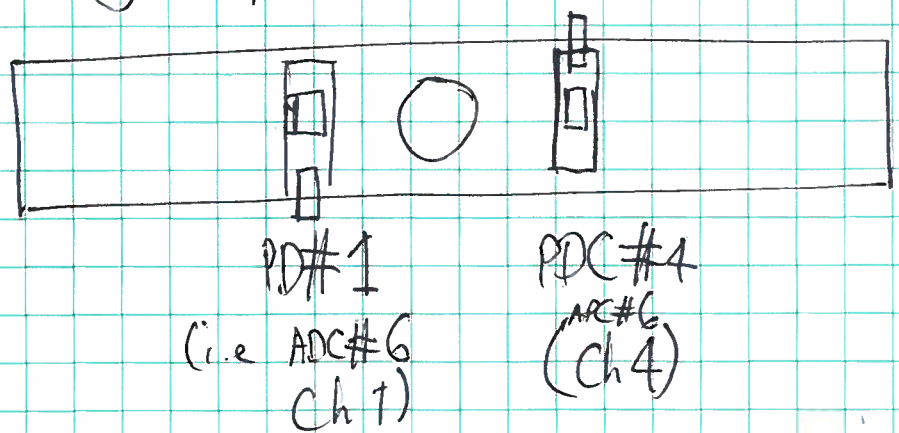
Installed Faraday Cup.

FC installed on W support ring.



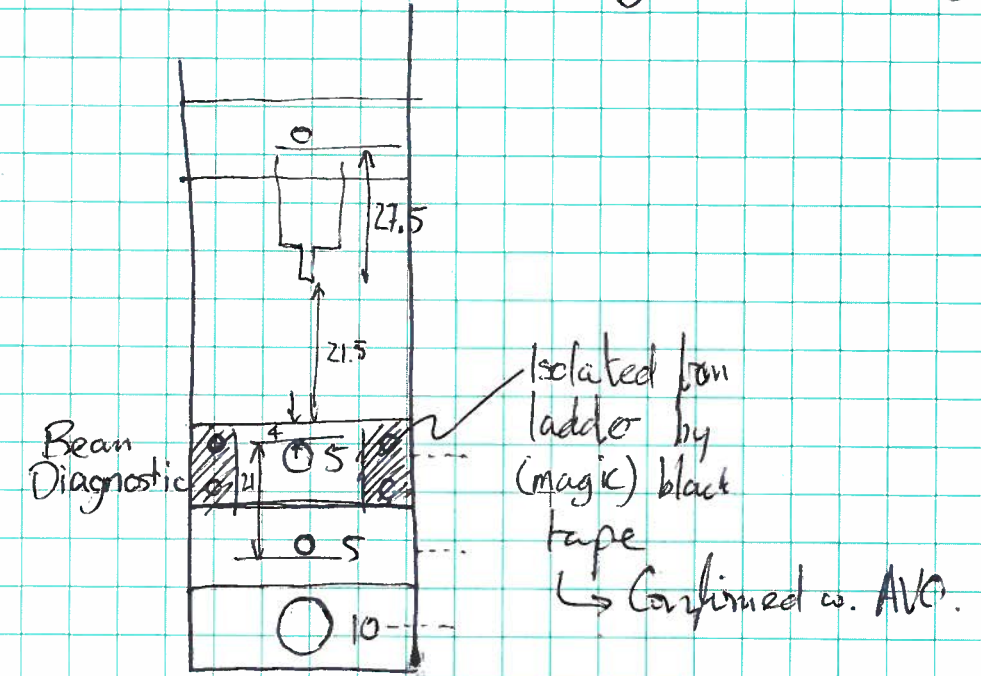
11:30
 Surveyed position of screw on back with telescope. Difficult to get sufficient light to see but centre of bolt was on "beamline" within ± 0.5 mm.
 Then pushed in and checked again. Position unchanged.

10 Cabling PDs.
 Looking u/s.

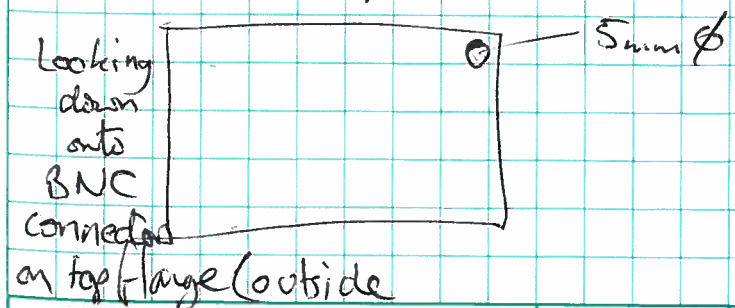


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- 12:20 Two LiMgO cables for Tgt#2 PDs put in place.
- 12:25 Shield installed on S2_1.
- 12:30 Pushed TUDA into position.
- 12:40 Pulled TUDA out. Removed Ni window and put in box.
- 12:45 Pushed TUDA back into position again.
- 14:10 Installed an ~~isolated~~ Electrically Isolated $5\text{mm } \phi$ on Tgt#1 as Secondary Beam Diagnostic



The base of the $5\text{mm } \phi$ connected by BNC cable to top flange.



No. 00 Installed Tgt #2.
Installed CH₂ foil "E" into spare target position on Tgt #2 and installed into chamber.
Lined up α -source on Tgt #1, CH₂ foil "E" and upper section of S2-2. This way can check thickness of CH₂ foil E.
Cabled up PDs on Tgt #2
- to keep cabling consistency with p35 + S3 upper PD is cabled into ADC#6 ch3 and the lower PD into ch2.
↳ Need to take calibration data for these to check resoldering on PD in Ch 2 has been successful.

Started pumping down - slowly.

Handvalve fully open @ ~30 T

40 mins to rough down $\Rightarrow \frac{1000}{2400}$ mb/s \Rightarrow ~0.4 mb/s

NOTE: CG4 lagged behind other gauges and did not appear to "go down" for sometime (10s of seconds)

Pumping rate when pressure dropped below 1T slowed.

Eventually traced leak to the main TUDA FCup on end flange - a single bolt slightly less tight than other three.

Tightened and pumping rate improved significantly

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TITLE _____

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19:10 FCup on TUDA end flange clearly not seated quite right. Needed repeated tighteners to get to turbo pressure.

19:10 Turbo on.

19:20 Closed handvalve on RVS.

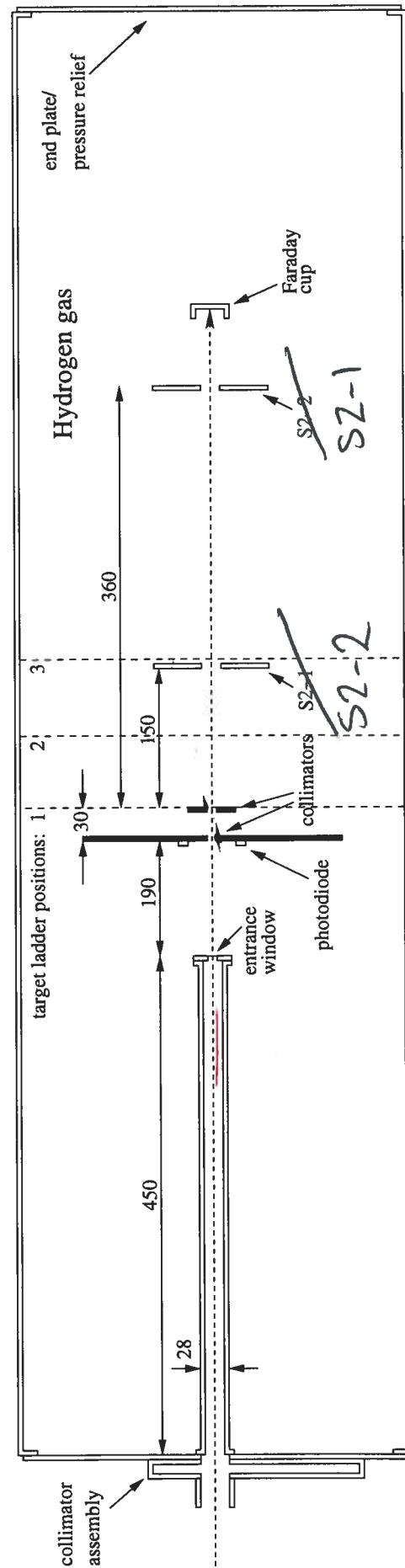
19:43 $P_{PNGS} = 9.97 \times 10^{-5} T$

19:58 $P_{PNGS} = 6.18 \times 10^{-5} T$

Leave to pump overnight.

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Chamber Diagram for 1501



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10:30 $P_{PNC5} = 3.8 \times 10^{-6} T$

Cooler m. $T_{sp} = +5.5^\circ C$

Brief (1.5 min) transient in $P_{PNC5} \rightarrow 4.05 \times 10^{-6} T$

10:55 $P_{PNC5} = 2.95 \times 10^{-6} T$

Cooler temp = $50^\circ C$.

Preamps on.
Coen HV on.

Bias on.	Detector	V	I(10:55)	I(11:10)
	S2-1	120	0.67	0.61
	S2-2	110	1.63	1.58
	PDs	30	0.58	0.55

PD#2 noisier than other three.

Run 20 CH₂ Foil E Thickness Measurement

Start: 11:12:50

Stop: 12:40:19 258 Blocks

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Pulser Walkthroughs

~~Pulser~~ settings or on ~~pg 11~~ x5 attenuator removed.
Start at 60,000 and work down.

S2-1 - no atten -ve pulse

Run # 21 - Junk

Run # 22 Start 60,000 going down to 10,000
then 1,000 going up to 1,000

Speed in pulser - run 22 - May 2011 ~~ic~~

S2-2 - with x5 atten
start @ 90,000 going down
~~then 1000 going up~~

Run # 23

~~S2-1 atten -ve pulse atten x2
90,000 going down~~

13:30 Tgt #1 @ 86.0mm \Rightarrow α source is 50mm above beamline.

Moved Tgt #2 \rightarrow 70mm to shine α 's into PDs on Tgt #2.

α 's seen on scope in PDs 2,3.

Run 24. PD tests (Tgt #2 PDs)

Start: 13:35:04

Stop: 14:12:20

Spectra for PDs 2 and 3 saved to
~/S1287/spectra/PDs2and3-HighGain-....

14:17 more pulser walk throughs.

Back S2-1 atten x2 -ve pulse

90,000 going down, other setting
as on p. 11.

Run # 25 - S2-1 back

Saved spectra.

14:26

Back S2-2 Run # 26 atten x5

90,000 going down.

Spectra saved.

No. _____

Leakage	currents:		
	V	I	
S2-1	120.24	0.55	
S2-2	110.16	1.58	
W	0	0	- Off
PD	30.0	0.55	

temp temp 16°C (bottom one)

'gas' temp 20°C (no gas in) - top one.

valves Off

're amp Off

Cooler to 20°C.

Cooler temp @ 18°C.

Cooler off. Turbo off. N₂ Status: ~ 700 psi left in bottle.

GV5 Closed. Hand valves on WVS and RV5 Closed.

Started venting to N₂ - slowly

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15:40 Opened side flange
Installed shield on S2-2
Ensured cabling from PDs moved without snagging.
Installed camera cables.

Checked camera alignment on video in Control Room

Left Tgt #1 in "open" position = 60.0mm
(no frame on target ladder)

THIS IS THE MAXIMUM POSITION FOR TGT#1.
i.e. Only 0 → 60mm of travel.

On Tgt #2 left 10mm ϕ in position (10.35)

see
label
p 80.

Diagnostics using Plane Monitor #1 box (UPSTREAM)

CH1 = ~~CH1~~ Isolated coil on ladder #1
CH2 = Faraday Cup.

Can be viewed through TUDA2 Optics page.

16:35 Started pumping.

Low gain resistors (10k) replaced in PD Amp
High res (22 Ω) used marked #1 and #2
in green on L and R package. Replaced
in case in cupboard.

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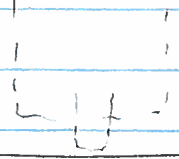



Date _____

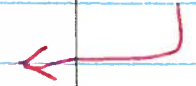
Invented by: _____

Date _____

Recorded by: _____

TGT # 1 (U/S)







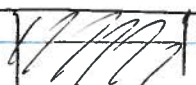


SOURCE		137.0 ("136.5 lin. ϕ dial")
USED	3 ϕ 	110.1 ("110.5 lin. ϕ dial")
D# ϕ	3 ϕ 	98.5 ("98.0 lin, 0.5 dial")
		60.0
M DIAGNOSTIC	5 ϕ 	39.75 (nominal)
ϕ	5 ϕ 	23.75
m ϕ	10 ϕ 	9.0



SR NON-GAS RUN, TRAVEL = 0 \rightarrow 60mm

MOVE TO POSITION BY INCREASING SETTING (i.e. MOVING DOWN)

TGT # 2 (D/S)

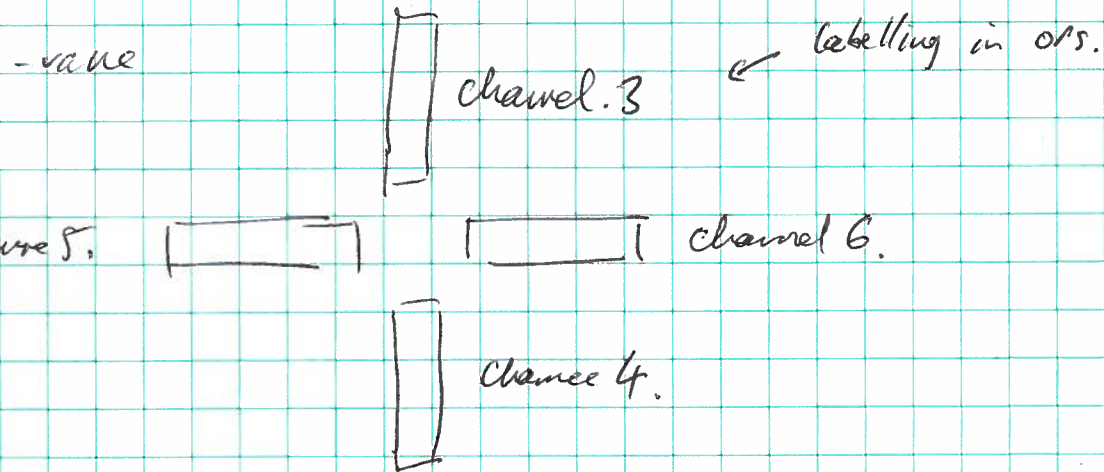
3mm ϕ		141.7
PD # 3	3 ϕ 	129.2
PD # 2	3 ϕ 	116.5
Flash Au (10/10)		100.5
Nat C		85.5
CH ₂ +Au Stack		70.5
(CH ₂ "E")		
Scintillator		41.5
3mm ϕ	3 ϕ 	25.15
	10 ϕ 	10.35

MOVE TO POSITION BY INCREASING SETTING (i.e. MOVING DOWN)

Cooler on
Biases on
Rate ~ 6k. trigger. In S2-2
Noise basically. Need
to tweak through?
Also, was camera left on?
Yes! Isn't this bad!

am. 1.5 eA on FCφ, change state S.
(so 3 pA).

Going in chamber!



Channel 5. (LEFT) shows ~1.4 eA with beam... ?!

connected FC at TUDA put beam back on, see this must
be signal in Ch 5 (LEFT) re this must
be the cup.

Moved target ladder #1 to 39.75 (5mm - with current
ends A).

at beam on, signal in top (Ch 3).

is optimizing-

(ish) Cooler set to 5.5°C preamps on. Bias on.

Marco works his magic ~90% transmission with 3 mm φ on
FCφ to tube FC. & 5 mm φ on
D/S ladder
w/s ladder.
↓ 1.50 ↓ 1.35 eA.

Now putting in scintillator
beam spot ~ perfect!

Now putting pd with poorer resolution (PD2) (as checked looking
at saved spectra on
p75).

Beam ~ ~~100~~ ¹⁰⁰ pps just upstream of TUDA (on the operator's side).
↳ not accurate rate.
↳ ~330 Hz in front of DTL.

Seeing nothing in PD2.

Trying PD3. → See events in PD2!
↳ rate ~ 250 Hz. ↳ 59418#6 ddc2. ?!!

Going to save some of this to disc. Energy calibration of beam
into pd.

Run 27 start 02.35.40 PD2 has 30,031 counts.

Stop. 02.42.06 Save all spectra to /spectra/run27/
checked run27 data exists on disc too!

DAQ MACHINE EVEN SLOWER THAN USUAL ?!!

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2, beam time > 90' Good.

camera was left on BAD.

SZ-2. now has noise ~ 6kHz BAD.

03/PD2 ?

↳ Ladder @ PD2 position, neither secs crants. ? BAD.
 @ PD3 " " PD2 " " "

ring (Camera off, Biases off, chiller off).

Cryo @ turbo off.

Asm, respirator & gloves take side panel off.

Ops do swipe tests.

All ok.

We should have
a work permit
done in advance!

ing Fc cable disconnected ✓

lower pd on ladder attached by lemo on rear side

upper pd " " for side.

Ladder moved up

Camera is v. wobbly on its mount. Recheck before closing (if we
close with it there!).

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Shield OFF SZ-1 (d/s).

CH₂ #5 foil now attached on 'other' side of ladder to add to
the other 4 & the Au foil.

~~0430~~ Checked positions of PDS on Tgt #2. Slight error discovered

Error occurred on p53 and subsequent diagrams of Tgt #2 are
based on the pic on p53.

PD #3 is in fact behind the top 3mm φ @ 141.7
2 " " @ 129.2

The 3mm φ @ 116.5 is open.

Tgt #2 (D/S)

PD #3		141.7	
PD #2		129.2	MOVE TO POSITION BY INCREASING SETTING
3mm φ		116.5	
Flash Au (10/10)		100.5	
Nat C		85.5	
CH ₂ + Au Stack		70.5	
			560
Scint.		41.5	
3mm φ		25.15	
10mm φ		10.35	

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Extended work permit for 7 days to allow opening of chamber.

Added Simon Fox, Chris Ruiz and Alison Laird as workers.

Installed Tgt#2. Tgt#1 left in TUDA cupboard with appropriate radiation sign.

Cabled up camera - checked alignment on monitor in Control Room. Circle on 3mm ϕ reductum by AMK

Recabled PDs.

Powered off the camera.

Removed S2-2 shield.

Closed side flanges

10 Commenced pumping down. - slowly

45 Turbo on
Cryo open
PNC5 on.

$$20 P_{PNC5} = 7.9 \times 10^{-5} \tau$$

$$\text{Cooler on. } T_{sp} = +5.5^\circ \text{C}$$

(10s transient on PNC5 $\sim 10\%$ increase)
 $\rightarrow 7.0 \rightarrow 7.7 \times 10^{-5} \tau$

Tgt#2 position set to 10mm ϕ (10.35)

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$$06:35 T_{\text{Cooler}} = +5.0^\circ \text{C}$$

Preamps on
Bias on

	V	I
S2-1	120	0.71
S2-2	110	1.78
PDs	30	0.63

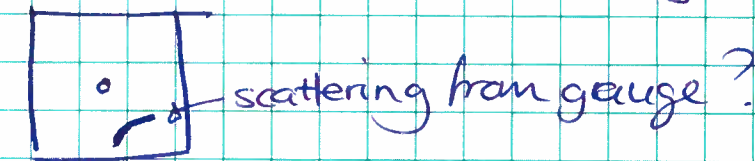
Thresholds in S2-2 raised $\sim 50\text{mV}$ to reduce trigger.

08:05

Beam into TUDA 150 pA.

Rate $\sim 60\text{Hz}$ above noise with 10mm ϕ

Checked with scintillator - beam spot still good
However noticed that there seems to be light in the chamber



154 epA on TUDAFc.

5th line

Run 28 started 09.00.21
stopped 09.08.59

triggers 65 Hz

S21 back 51

Spectra saved - Run 28 - 2011 May -----

Aulc in. 150 epA on FC ϕ \Rightarrow 45 k Hz

Reduced intensity to 15 epA on TUDAFc

rate $\sim 2.7\text{R}$.

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Run 29 ^{210}Ne St on Au/c
start 09.33.02

stop 09.45.19 69 blocks

Dead time huge presented ~ 4500
accepted ~ 20 !

Run 30

repeat of above to test DAC tape server
test.

Determined that deadtime fine when no data to
disk. Deadtime huge when storing data.

traced RF problem to missing RF signal - was at Heracles.

Run 31 Flash Au run for S2-1 High E Calibration.

start: 11:04:41 15.6 epA Flash Au
stop: 11:27:31 11839 blocks

waited until we had ~ 1000 counts in Au peak in Strip 48
of S2-1.

Spectra saved to run31-2011May.....

Install CH_2/Au Target stack

Run 32 CH_2 Target Stack (No W)

Start: 11:38:08

6309 Blocks.

50 epA

Stop: 12:12:53

~ 150 epA on FCP. Nothing on TUDAFIC.

Spectra show no indication that beam is getting
through target stack.

Decision: vent.

12:25 $T_{sp} = +20^\circ\text{C}$ (~~Make~~ Set cooler to warm up)

12:35
Pumps off
Bias off
Cooler off

NA closed by Ops.
Turbo off
Cryo closed off

string at run 32 data (sorts)

issues - timing resolution ~ 12 ns - is this enough

- spectrum 3000 + 3001 → ADC + TDC hit patterns don't match

mainly 32-2, particularly the back.

25 Decision made earlier to move to gas target running.

Ops are working on the tune.

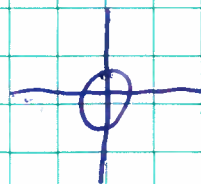
Shields reinstalled on S2-1 & S2-2

PD's plate. (Now labelled NS (near side) & FS (far side) on mounting).

Foraday cup mounting moved up like behind S2-1

Simon tested PD & and happy. Positioned on target bench

4mm collimator installed. Could not get centred so drilled out holes more



Looks to be centred horizontally, but low by ~ 18 thou (~ 0.5 mm I think)

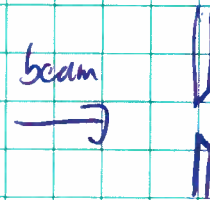
Will have to do.

(and 3mm coll removed).

Current read off removed from 5mm coll on TL#1 and attached to 4mm coll.

Isolated from mounting plate with plastic screws and nuts (Note: due to drilling out holes, need washers) to mount lens coll.

Collimator was mounted with 'knife edge' upstream.



Reinstall FC (mag.) and check alignment.

19:22

Insulating O-ring and KF25 clamp placed on RV4. Checked isolation from chamber - OK.

4mm collimator is now ~1.5mm further downstream (thickness of 1 plastic nut and 1 washer).

This now blocks target ladder #1. Can't get P20 into beam line.

40mm is now an open spot.

Don't move past 50mm!

Total trigger 5 ↓ 4-5 ↓

7 Both target loaders reinstalled.
 PRs connected, camera connected.
 Check camera alignment looking at 3mm hole on
 TL #2. - Ok. Unplugged 12V. Recheck circle
 on screen.
 Move TL 2 to 10mm collimator ~~and~~, also
 pump down.
 Reconnected Faraday Cup on outside feedthrough.

7 Turbo On.
 Cryo On PNG5 On
 Spoke to Bob regarding 4mm collimator being ~0.5mm low.
 He's considering what to do, but probably ~~try~~ try tuning
 through with 3mm centre, and ~~no~~ move it low if we
 have ~~to~~ to.

Bob says he's almost ready to take through.
 Chamber at 3.85×10^{-5} Torr.
 Switch on cooler in anticipation, set to 5.5°C

23:18 Pre-amps On, Bases On
 Bob TL #2 taking through with 3mm collimator on
 23:20 DAE appears to be running. RUN #133
 Started at 16:17:42 !!
 Stopped 23:23:30

(Tape server was enabled)
 Can't see any info on this run, in here.
 Perhaps started earlier for noise chasing, meaning to
 stop writing to tape and forgotten about?!

That's Run #33 v. probably junk.

No run 33 in /data2/dkta/51287 so
 guess it wasn't written at all.

23:55 DAE is horribly slow. Can't stop acquisition.
 is constantly 'Generating scaler data' or
 'Generating EPIC data'.

Try to quit and restart.

It won't Quit!

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26th

07 Bob ~~can~~ is getting ~82% through 3mm collimator

Some beam still hitting 4mm fixed collimator

Have offset 3mm down by 0.5mm to see if that helps

Transmission now ~90%

Exception monitor won't go away

MIDN Data Link (26581): data transfer - data received while TS halted

15 Finally quit and restarted.

Some exception monitor pop up ~~is~~ immediately.

Seems a little better

Leakage currents

S2-1	✓ 120.24	0.62
S2-2	110.11	0.04
W	150.2	0.02
PD	30.0	0.88

not in: IDIOT!!

Switch off bias to W.

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Cooler 5.5°C

Preamps 19°C

0:29 QA appeared to still be running. Stopped 00:28:14

Run number now displayed as 34, but still no RPS in /data2/data/51287?

Preamps reading 50°C! , cooler reading ~~5.5~~ 5.5°C

pressure 1x10⁻⁵ Torr

pre-amp and biaser switched off.

0:35 put scintillator in, lit up with fall beam so attenuating.

beam is not spot ~~that~~ very circular.

0:47 preamps reading 10°C, switch back on and watch temp.

0:48 preamps 14°C

0:50 preamps 15°C

0:52 preamps 15°C

seems ok now. will try Graves back on after I've spoken to Bob.

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Decided beam ~~was~~ is ok for overnight, we may want to treat it in the morning before running with gas.
Bob left.

FCO in
Will ramp up biases and match preamp temp.

~~3mm collimator~~

Preamps at 15/16°C

S2-1, S2-2 & PD biases on.

preamps	16°C	S2-1	120.32	0.66
		S2-2	110.2	0.04
		W	off	0
		PD	30	1.02

Must have been an anomalous reading.

Camera power unplugged.
Put PD #2 in, put 0.5 mm lower than setting.

S2-2	back	scaler reading	~600	?
	front	scalers reading	0	.

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1:25 FCO 1.2 nA (with x10 attn in).

10% transmission through 3mm collimator.

4.44 MeV/n

~ 400 pps in Ops 5: det.

Didn't zero spectrum, Run #34 is junk.

PD scalers reading ~500.

Lots of noise in PD #1

PD #2 seeing beam, in channel ~ ~~1895~~ 1895

Run #35 Started 01:39:52

Stopped 01:43:34

1:48 bias off, preamps off cooler set to 20°C.

Cryo off, turbo off.

2:07 Cooler off.

Vent.

Ops opened chamber & wiped - OK.

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