

5/14/99

# COMPUTATION BOOK

2492

STAR TPC	NAME	ANDOTS
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Course I 8243

WAT  
E/ATT

STP

BES



AMPAD, Dallas, TX. 75252

21 128

ROLF

463-0865

LARRY VOGT PAGER X 4273

JEFF WOOD X 7580

WOOD@PHYSICS.UCLA.EDU

GLASSMAN HOODUP pg 54

PULSER SETTINGS pg 84

ANDRE LECROY SETTINGS pg 23

LASER TCD SCHEMATIC pg 64

NEW TCD IN/OUT pg 91

KEITHLEY SCANNER CARD REPLACEMENT pg 104

NEW GG CONTROL CABLES pg 147

NEW GG CALIBRATION PROGRAM pg 128, 130

TO WASH OUT BOARD

IN RUN CONTROL

EDIT CONFIG

CHOOSE DAQ DETAILS

GIVES LIST OF CRATES  
w/ WASH

OXFFF = ALL BOARDS

OXFFZ - 15-4 for instead

2

WEI MINH

330

672-2881

DECLAN

330

672-2407

5/14/99) TURNING ON ANODES IN MAGNET.  
TRY + USE SLOW CONTROLS - GET HV ERROR  
+ HANG UP AFTER TRIP @ 1000V.  
WEIMING COMES ON MONDAY.

REVERT TO VT100 SERIAL TERMINALS.

BRING UP WEST END INNER + OUTER.

1300) OUTERS TO 1400 V, NO PROBLEMS  
INNERS TO 1150 V

WEST CHANNELS SHOWING HIGHER THAN NORMAL CURRENT  
(PROBABLY OK BASELINE, NOT CHAMBER).

OUTER

- 1.0 = S3 # 5 .022
- 1.1 = S3 # 6 .014
- 3.1 = S7 # 6 .015
- 3.7 = S8 # 8 .015
- 4.4 = S10 # 5 .016

INNER

- 3.2 = S7 # 3 .018
- 4.1 = S9 # 2 .061 (SHOWS .061 @ 100V)
- 4.5 = 10 # 2 .040 ( " " " )

1600) TRIP - INNER S.4 = S12 # 1 RESET @ 1615 TO 1150

BRINGING UP EAST END

(OUTER 6.6 = S14 # 7 ONLY DRAWS .05 uA ON  
RAMP UP, NOT .5

(SEE PG 4)



1645) EAST OUTER UP TO 1400

EAST INNER UP TO 1150

EAST OUTER w/ HIGH BASELINE CURRENT:

9.3 = 519 # 8 , 016  $\mu$ A

EAST INNER w/ HIGH BASELINE CURRENT:

NONE

5/17/99 1300) FOUND CABLE PROBLEM WITH 6.6 = 524 #

FOUND CABLE 14-7 HOOKED TO PIG TAIL 14-8 + PIG TAIL 8 NOT ATTACHED TO SECTOR (NOT CLICKED FULLY). SO REALLY 2 PROBLEMS.

HOOK 14-7 TO PIG TAIL 7 + 14-8 TO PIG TAIL 8 AND ATTACH TO TPC.

BOTH DRAW NORMAL CURRENT.

5/19/99

TELNET TO CREIGHTON2.STAR

STARCMPI

SYSUSER "OK"

WIEMAN

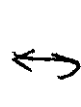
STAR SLOW STAR

SYSUSER  
DY4HWCO8  
~~SYSSTAR~~

DY4HWCO8

BAUD = 9600

SC. STAR  
STARCMPI



STARTPC  
~~SYSSTAR~~

> VT 150  
TERMINATION VT220#

TIP A = INNER

RESUSYS123 TIP B = OUTER

5/21/99

INNER SECTOR 8 #4 ACTS UP (HVCARD)

"ZERO" VOLT IS NOW 75, NOT ~20

I CHECK IT OUT USING LOAD BOX - OK TRIPS AT 1  $\mu$ A, CURRENT READ BACK ON. USE IT FOR NOW.

5/23/99

1200) LOOK AT SECTOR 3 (#1 HAS ADDIE PA FOR LASER)

LOOKS GOOD w/ 109  $\mu$ A

5/24/99 10:30 WEIMING HAS ADDED A "SCAN"

FEATURE TO ANODE PGM TO SPEED UP READ BACK OF V + I.

NOTES + PROBLEMS

1. FOR BRINGING UP ALL (OUTER) OR INNER SECTORS FOR  $Z < 0$  CAN SEE CURRENT BUT NOT MEASURED VOLTAGE. - OK
2. IF I PUSH "SCAN" BUTTON THEN CLOSE WINDOW IS IT STILL SCANNING? <sup>YES</sup> WHEN I RE-OPEN WINDOW SCAN BUTTON IS STILL PUSHED. MUST PUSH STOP
3. WHEN I SET ALL  $Z < 0$  OUTERS TO 200 + THEN OPEN SECTOR 12 (SAY) MEASURED V IS STILL 0 EVEN AFTER 5 MIN (WITH WINDOW CLOSED), AFTER WINDOW OPEN, IT STILL IS 0, ONLY WHEN I PUSH SCAN DOES IT SHOW 200V (AFTER 8 SEC).

6/5/99

- ARCHER: 1. ENDING TIP A TIP B SESSION (LOGOUT!) ~. <sup>ENAS session</sup>
2. KEYBOARD MAPPING ON SUN BOX.
  3. NO  $\blacklozenge$  SYMBOL + DON'T KNOW ABOUT  $\perp$  SYMBOL DO GET  $\wedge$  +  $\vee$

EPICS PGM FOR ANODES CRASHED TWICE WHEN TRYING TO RAISE ANODE HV - SWITCH TO SERIAL LINE.

LATER RUMOR HAS IT THAT EPICS PGM WORKS OK AFTER CONSOLE REBOOT.

VERSATELUM WORKS OK  
VERSATELUM VT 220/7-KIT

6/11/99

1700 USING WEIMING'S PGM - GET SECTOR 3 INNER TO 1000V + PGM LOSES ARCNET.

ALSO COULDN'T GET TO CONSOLE BECAUSE OF TERMINITZ SERVER PROBLEMS

545050X  
KILL - ANOHV

Hi, Declan,

- Thanks for your message.  
 In case the VME is hung, users could reboot it from an xterm by doing the following,
- 1, logon slow control server port 9006 with the command  
telnet scserv 9006
  - 2, type reboot at a '->' prompt  
You might have to type a carriage return before seeing the prompt.  
This terminal is a console terminal from now on. Please keep the console terminal alive until you are sure that TPC-ANODE-HV program works fine.
  - 3, wait for 10 minutes for the VME to be up.

IF TELNET  
 WORKS BUT  
 DOESN'T  
 RESPOND  
 TRY  
 CTRL+X  
 TO REBOOT

Usually, the TPC-ANODE\_HV would work after rebooting.

There will be a message ("... changed..." or "... processed...") printed out on the console terminal if any of the parameters CE, DV, TC ... is changed by a user.

If a message of "last trans not acknowledged" or "mainframe didn't acknowledged the last message" appears on the console terminal, either the VME or the ARCnet is in a wrong status, and the VME needs to be rebooted.

Wei-Ming

TO LOGOUT CTRL+ ]  
QUIT

6/10/99 1130 FIND INNER SECTORS BY HARDWARE VOLTAGE LIMIT SET TO 619V!

TRY + RESET TO 1200V w/ POT BUT IT'S NOT STABLE. PULL THE MODULE.  
S/N ~~668023~~ 668023

REPLACE IT WITH REPAIRED (?) S/N B68162 (HAD HIGH O LOAD & CURRENT).  
MODIFY TO MOD AN59 FIRST (SOLDER IN RE...

S/N B68162 NOT REPAIRED.

NO LOAD CURRENT

	.075
	.019
	.017
	.002
	.030
	.009
	.07

Over Voltage Trip

CH 0	500 V	1600 $\mu$ A	✓
	700 V	1918 $\mu$ A	
	950	TRIP	
CH 1		1040	✓
CH 2		1030	✓
3		1040	✓
4		1040	✓
5		1040	✓
6		1030	✓
7		1060	✓

1/11/99 1340 BCS, HW S/W B68162 CH 0 GAVE TROUBLE ON SECTOR. TRIPPED.

TRY AGAIN ON WATO BOX  
~~ALL~~ ALL CHANNELS NOW SEEM TO HAVE CURRENT RIPPLE THROUGH AS BEFORE.  
 UP TO ~400  $\mu$ A

CH 0	200 V	280 $\mu$ A $\pm$ 30
	400 V	478 $\mu$ A

Removed B68162 from sector 3,4 inner + insert and swapped with B68011 15,16 inner

	initial	final
Sector 3,4 inner	B68162	B68011
Sector 15,16 inner	B68011	B68162

1/15/99 1000 USING WERKING'S PGM TO RUN SECTOR 3 INNER GET TO 1150 OK. AFTER ~5 MIN OF MONITORING ARCNET CRASHES.

CONSOLE MSG = INTERRUPT: INT\_HANDLER() ; LAST TRANS NOT ACKNOWLEDGED.

ON SC STAR RIGHT MOUSE "TERMINAL"

THEN TYPE > XTERM & IN XTERM WINDOW



Hi, Blair,

If the hardware configuration is changed, several configuration files need to be changed. However, If you are going to load all the database (10 minutes loading time), I guess that it would be fine to modify just one file: sec\_slot.map. In this case, program would find empty databases and complained about it on the console terminal. But, the program might not crash. (Please let me know if the program would run with only one configuration file: sec\_slot.map changed) There is a brief description about how to make a change at the end of sec\_slot.map. More detailed description can be found in a file anhv.mem. Both sec\_slot.map and anhv.mam are in the computer  
sc.star.bnl.gov  
under

/star/sc/users/sysuser/epics/R3.12.2-LBL.4/TPCanhvApp/src

The serial line program should be fine. An empty slot would not affect it. It just shows what presented in the crate.

Wei-Ming

6/18/99

Hi, Blair,

I increased the delay time for each of the monitor processes in anode-HV program by about 25%. The increase would reduce the number of jobs transmitted through ARCnet per second by about one quarter. Hope this would make the HV program a little stable. Also, I sent a mail to LeCroy attached with the details of the user (JLAB) interrupt-handling routine. The mail tells the status-bit-setting before and after our HV program crashes. And, I hope LeCroy engineers could understand our problems and JLAB's routine well so that they could work out of something and improve the handshaking algorithms of ARCnet.

Regards,  
Wei-Ming

6/24/99  
130

RUN TEST ON WEI MING'S PGM -

REBOOT + TURN ON HV BUTTONS  
NO SCAN RUNNING. - ARC NET STAYS UP

1730

TURNED ANODES ON (9, 10, 11, 12, 5, 6)  
ALL OK - THEN GET A SPONTANEOUS REBOOT  
OF VME CPU.

SECTOR 6 #8 TRIP - RESET OK.

128/99

1000 } SECTORS 9, 10, 11, 12, 5, 6 + 3 INNER ON  
SECTOR 9 #2 SHOWS 6 mA - OK (SEE PG 3)  
SECTOR 9 #1 SHOWS 12-20 mA - NOT OK?

1115

WEI MING CRASH - REBOOT

1200

ANODES OFF

130/99

1500 } TURN ON SECTORS 3, 4, 5, 19, 20  
1 REBOOT

1600

ALL FOUR SECTIONS OF SECTOR 20 TRIP!

1630

SECTOR 20 #5 CURRENT LOOKS TWITCHY ON PLOT  
REBOOT IS -1.004 TO .001

1730

SECTORS 19, 20 OUTER TRIP ?!! CHECK HARDWARE LIMIT  
= 1497 V

1800

WEI MING'S PGM - 19 + 20 OUTER - IF I PUSH SCAN  
ON 19, SCAN BUTTON ON 20 ALSO GOES.  
... 19 + 20 INNER ALSO  
SAME FOR 3 + 4 - MUST GO BY HAND

7/1/99

1500 TURN ON 3, 4, 5, 19, 20  
1700 1 REBOOT - SPONTANEOUS  
1710 HAVE TO REBOOT AGAIN

7/6/99

1000 } TURN ON 3 INNER TO LOOK FOR BEAM  
CURRENTS 1 .006 ← .013  
2 - .003 → - .001  
2 → .013 → - .003

10

LOG ONTO DAQMAN

BOSSINGH

\$FORFRED

TO START MEDM SE  
USE CHATLW - JLC -  
- THIS ALLOWS US  
TO DO GG FROM CHA

PAD  
NOW

> CD /DATA/SCRATCH/ENB@ATA OR /DATA/SCRATCH

> TPM\_DAQ

7/9/99 1600 TURN ON 1-12, 19, 20  
1 REBOOT

~~1800~~ ON TURNING OFF GET ALL WEST END  
INNELS SHOWING TRIP.

TRY + RESET TRIPS BUT EPICS PGM WON'T -  
SAYS "CLEAR FAILED"

USE SERIAL LINE TO CLEAR TRIPS.

7/12/99 1400 ON TURNING ON ALL WEST END  
INNELS STILL SHOW TRIP.

EPICS CAN'T CLEAR

REBOOT

STILL CAN'T CLEAR

GET INODE AND NODE\_ID CE\_VALUE = 17  
THEN 18

"CLEAR FAILED"

STATUS RC 51.1 ST = 0401

FOUND ALL SECTORS HAD A DEMAND VOLTAGE  
OF 1600 V! HOW DID THAT GET THERE?

SET DEMAND = 0 + EVERYTHING CLEARS

1530 POWER ON SECTORS 1-12, 19, 20  
+ FIELD CAGE

1830 ALL OFF

7/13/99 (1700) TURN ON ALL SECTORS WEST END.

→ ~~WEHARDY~~ ~~CAN'T ENABLE A SINGLE SECTOR (OR SET V~~

19:40 #p. trip

Sec 1	outer	2 3 4 8
2		2 3 4 7 8
3		2 3 4 5 7 8
4		2 3 4 5 8
5		2 3 4 5 6 7 8
<del>6</del>		3 4 8
7 5		3 4 5
8		3 4 5 6 7 8
9		4 8
10		2 3 4 8
11		2 3 4 8
12		3 4 5 8

Trip happened when RHIC started beam injection and we can see big counts (~10-20/pulse) from WEST ZDC. It was losses around blue ring, but no visible losses at STAR position.

14/99

- MODE 0 MAINFRAME WRONG ID OR BAND
- MODE 1 MAINFRAME WRONG ID OR BAND

BRING UP WEST END WITH EPICS. AFTER VOLTAGES ARE UP EPICS GOES BONKERS. SHOWS RED CURRENT DRAW. SHOWS SOME SECTORS TRIPPED - VERY UNSTABLE DISPLAY. SERIAL LINE DISPLAY SHOWS VOLTAGES OK. REBOOT - DISPLAY THEN SHOWS NOTHING ON A ALTHOUGH SERIAL DISPLAY STILL OK.

REBOOT AGAIN - ALL OK

(210) TRIP - SECTOR 8 #1 ENO8 - RESET OK

(350) LOSSES AT 6:00 - TRIP OF S9 INNER 1-4

(400) ALL SECTORS TRIP DUE TO BEAM LOSSES. END RUN.

1430 SET OUTER @ 1300      GG CLOSED  
 INNER @ 1050      FIELD CAGE @ 314V

1431 SECTOR 9, #2, 3, 4 TRIP ON BEAM LOSS @ 1000V

1450 " " 2 3 4 TRIPS AGAIN @ 1000V  
 TURN 9 OFF.

1545 TURN ALL OFF

7/20/99 1100 SECTOR 9 #7 TRIP @ 1100V !?

7/22/99 1055 SECTOR 9 #4 TRIP @ 1000V BEAM ON?

1120 SECTOR 9 #3, 2 TRIP "EN08"

1800 SECTOR 9 #7 TRIP @ 1000V EN08 NO BEAM

7/23/99 WEST SECTORS ON FROM 1300 TO 1800. NO TRIP  
 NO BEAM

7/25/99 1100 ON TESTING AFTER SLO CONTROLS FLASHO  
 FIND SECTOR 8 #1 TRIPS AT 200V (EN08)  
 (= VOLTAGE ERROR?)

FIND THAT FOR 0 DEMAND VOLTAGE, MEASURED  
 VOLTAGE IS 187V

FOR 400 DEMAND, MEASURED = 400.

TRIPS AGAIN AT 200.

REPLACE MODULE - NEW MODULE = S/N B 68118

HV LIMIT SET TO 1200V

MOD ANS9 IS IN.

BAD MODULE = S/N 68046 BAN OUTPUT = 4

NEW MODULE HIGH BASELINE CURRENTS:

3.1 = S7 #2 = .030 - .040  
 3.2 = S7 #3 = .030 - .040  
 3.6 = S8 #3 = .060

1/26/99 1430 TURN ON WEST END INNER + OUTER

FOR MAG ON COSMICS - NO BEAM

1500) ALL OF 7 + 8 TRIP - NEW BOARD! ALL ENØ4

TRIPS AGAIN @ 200V ALL 8 CH

TRIPS AGAIN AFTER 5 MIN @ 200V ⇒ BAD BOARD

1530) TRIPS WHEN ENABLED W/ TARGET VOLTAGE = 0!

1/27/99 0930 TURN ON WEST END - S 7 + 8 STILL BAD

MANY REBOOTS

1210) TRIP S9 #4 (BEAM PROBABLY)

TRIP S9 #1, 2, 3 DEFINITELY BEAM

1300) TRIP S9 #6 - ENØ4

1330) RESET S9 #6

TURN ON S9 1-4 (BEAM IS OFF)

1345 BEAM ON - RAISE S9 1-4 TRIP CURRENT TO 2 mA

1355) S9 1-4 TRIP - SAW NO MAJOR LOSSES ENØ4  
LEAVE OFF

1645) S7 #7 TRIP BEAM ON ENØ4

1720) ALL INNER SECTION 4 TRIP - BEAM ENØ8

1800) TRIP ALL INNER SECTION 4 + OTHERS (SOME SECT 3, ONE SECT 2)  
BEAM ENØ8

1/29/99 0920) GET ACCESS

REMOVE S7+8 INNER S/N B68118

PUT BACK IN S/N B68046 - S8 #1 STILL BAD

+ MUST BE DISABLED.



14 2/29/99 } 1420 S1-12, 16-20 ON (EXCEPT S8 #1)

1425 } TRIP - 16 INNER, ALL 4 ENØ4

1430 } SECTOR 9 #7 TRIP ENØ8

1450 } SECTOR 16 INNER TRIPS AGAIN @ 1000 V ENØ

SECTOR 16 TRIPS ON RESET - NOTICE THAT  
M<sub>2</sub>PK<sub>2</sub> μA READS ~ 2 μA FOR ALL 8 CHANNELS  
TRY + TURN ON 15HG  
ALL TRIP AT 0 V

CHANGE pTRIP μA TO 4.0 (WAS 2.0)  
CAN THEY STAY ON W/ 100V.

TURN 15HG OFF + PONDER.....

1600 } DEZLAN WILL FIND MEANING OF ENØ4, ENØ8 + PK

1700 } SEC 9 2,3,4 TRIP ENØ8 SEC 20 #5 TRIP ENØ

RAISE SEC 9 INNER TRIP μA = 2.0  
pTRIP = 4.0

1710 } DEZLAN SAYS MEMS CURRENT GOES W/ TRIP μA  
+ HAS A TIME CONSTANT OF ~10 msec.

MCPK<sub>2</sub> μA GOES W/ pTRIP μA +  
HAS A TIME CONSTANT OF ~0.75 msec.

THEY ARE BOTH LOOKING FOR FAST TRANSIENTS.

CURRENTLY WE HAVE TRIP = 1.0 μA  
pTRIP = 2.0 μA

1720 } SEC 20 #5 TRIP AGAIN ENØ4

1740 } ALL INNER SECTORS #4 TRIP, EAST + WEST  
EXCEPT #9! ENØ8 ON BEAM

1900 } BEAM CONTINUES - EVENTUALLY ALL INNER SECT  
TRIP OFF EXCEPT #9

7/30/99

1924) HW Turn on west end to 10V for picture

confirm p. 13 section 8-1 will not enable trips at 0V.

Tried to set trip to 0 to force trip - didn't work Blaine has it locked out probably. Didn't bother to work around. Turned off

8/1/99

Hello Declan,

Which version of the manual do you have?

The trips were incorrect in the preliminary manual and were corrected before the product was released. EN04 indicates current peak detect trip and EN08 indicates slow current trip. They can be interchangeable depending on which is polled first after a current limit is exceeded.

Here is a newer version of the manual, in Microsoft Word format. (The one on the website needs updating!)

8/1/99

S/N B69118 SENT BACK BY DECLAN. HAS ALL CHANNELS WITH A MEPA = 2.0 uA. INSTEAD OF .200 uA. RA #

8/6/99

1030) TURN ON WEST PLUS 15-20. I FORGET ABOUT 15, 16 + THEY TRIP AT 1000V (SEE 16.14)

MEPA LOOKS ~ NORMAL - SOME MAYBE AROUND .5 INSTEAD OF .2 ALSO MEAS A ON CHANNEL 0 15 ~ .115 uA

LEAVE OFF 15, 16 INNER FOR NOW.

1800

OUTER 19, 20 TRIP ALL SECTIONS EN04

1810

RESET 19, 20

8/17/99

0945) S9 3, 4 TRIP - BEAM? EN08

1140

S9 2, 3, 4 TRIP - BEAM? EN08

S9 1, 4 TRIP EN08

16

1540

8/7/99 } 1300 WEI MING'S PGM HAVING TROUBLE.

KEEP REBOOTING + THEN GET NODEΦ MAINFRAME BAD S

1330 } FIND THAT MY PC CRASH HAD CAUSED HV TO TURN OFF IN BOTH CRATES. CHANNELS STILL ENABLED BUT HV OFF.

GET RESET + REBOOT VME AGAIN.

HV BACK ON VIA SERIAL LINES - VME STILL COMPLAINS ABOUT BAD STATUS. BUT SEEMS TO DISPLAY THINGS PROPERLY

8/8/99 } 0945 } I CYCLE POWER ON ANODE HV VME CRATE STILL COMPLAINS ABOUT MAINFRAME BAD STATUS

Hi, Blair,

From what you described in your mail, I believe that the two main-frames are both in bad status. You could check the status with the following procedures,

- 1, Enter the edit mode of the serial program on VT100 terminal.
- 2, Type config

You will see five Oct (Hex?) numbers on the screen. In normal case, the first Oct should be one of the four numbers: 174, 274, 2174, and 2274. The AnodeHV-Epics program will issue a warning if the first Oct is something else. Please check the section of the command CONFIG in LRS1458 manual to see what the status of the main-frame is.

The Epics program checks the status every 10 second. So, you will see the error message with this rate. There is nothing one could do to fix the problem at this moment. A cold start would reset the main-frame just as you said. I guess that the main-frame is not in a serious condition since it is still running and the bad config Oct-number just gives a warning that the status of the main-frame is not perfect.

Wei-Ming

STATUS CODE 0374 0000 0008 066C 008B

8/9/99 } 1100 } TURN ON EVERYTHING EXCEPT 5 21, 22 INNER  
1000V EACH AT THE MOMENT 5 16 INNER  
5 8 #1

1415 } ~ ALL INNER SECTORS HAVE TRIPPED @ 1000V - BEAM

SECTOR 9 2, 3, 4 TRIP ENDS BEAM

9/26/99

4 SPARE MODULES ARRIVE

S/N B 68969, B68957, B68974, B68973

10/21/99

OLD SETTINGS: MVDZONE = 1.2 NEW = 3.0  
MCDZONE = .01 NEW = .02

S/N B68046 NOW ALSO HAS #7 TRIP. S8#4  
READS 75 V FOR 45V DEMAND.  
ALSO CH 4 IS STILL BAD (S8#1)

10/22/99

S/N B68046 (WAS INNER 7,8)  
S/N B68162 (WAS INNER 15,16)

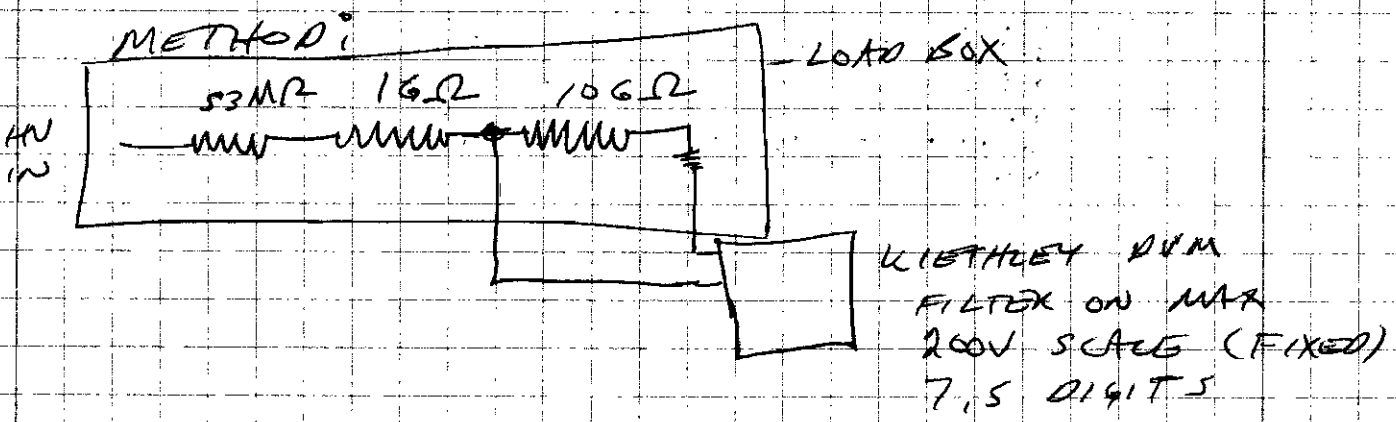
SENT BACK FOR REPAIR BY WEIMING.

PUT S/N B68023 INTO INNER 7,8 (REPAIRED)  
S/N 68974 INTO INNER 15,16 (NEW)

TRIP LIMIT SET = 1200V

10/27/99

WE MEASURE THE PRECISION OF THE SET POINT OF THE LECROY MODULES USING THE LOAD BOX.



INPUT IMPEDANCE = 10 MΩ

MEASURE LECROY V  
LECROY I  
KIETHLEY V  
CONVERTED V ) AT 01 PT.

AS PER HOWARD,  $\frac{V_0}{V_i} = 9.39803 \cdot 10^{-3} = \text{THEORETICAL VOLTAGE DIVISION}$

INNER

	$V_L$	$Z_L$	$V_M$	$V_C$
0.0	1150	1.096	10.829	1152.3
0.1	1150	1.089	10.830	1152.4
0.2	1150	1.083	10.827	1152.0
0.3	1156	1.089	10.836	1153.0
0.4	1150	1.081	10.829	1152.3
0.5	1150	1.081	10.830	1152.4
0.6	1151	1.096	10.835	1152.9
0.7	1150	1.091	10.821	1151.4
1.0	1150	1.096	10.824	1151.7
1.1	1150	1.090	10.828	1152.2
1.2	1151	1.080	10.834	1152.8
1.3	1150	1.093	10.831	1152.5
1.4	1151	1.080	10.831	1152.5
1.5	1150	1.081	10.830	1152.4
1.6	1151	1.079	10.833	1152.7
1.7	1149	1.082	10.820	1151.3
2.0	1149	1.092	10.814	1150.7
2.1	1150	1.078	10.822	1151.5
2.2	1151	1.088	10.827	1152.0
2.3	1150	1.096	10.827	1152.0
2.4	1150	1.072	10.827	1152.0
2.5	1150	1.084	10.823	1151.6
2.6	1151	1.091	10.831	1152.5
2.7	1151	1.083	10.833	1152.7
3.0	1151	1.081	10.835	1152.9
3.1	1151	1.099	10.833	1152.7
3.2	1150	1.097	10.829	1152.3
*** 3.3	1151	1.094	10.911	1160.9
3.4	1151	1.099	10.833	1152.7
3.5	1151	1.093	10.835	1152.9
3.6	1151	1.097	10.832	1152.6
3.7	1150	1.085	10.825	1151.8

B68023

REPLACED  
7/6/00

	$V_L$	$I_L$	$V_m$	$V_c$		$V_L$	$I_L$	$V_m$	
4.0	1151	1.100	10.830	1152.4	8.0	1150	1.081	10.821	1151.4
4.1	1151	1.121	10.833	1152.7	8.1	1150	1.085	10.825	1151.8
4.2	1150	1.083	10.833	1152.7	8.2	1150	1.089	10.829	1152.0
4.3	1151	1.084	10.831	1152.5	8.3	1150	1.093	10.828	1152.0
4.4	1151	1.095	10.836	1153.0	8.4	1150	1.083	10.828	1152.0
4.5	1151	1.127	10.838	1153.2	8.5	1150	1.098	10.826	1151.9
4.6	1150	1.054	10.828	1152.2	8.6	1150	1.098	10.826	1151.9
4.7	1150	1.102	10.837	1153.1	8.7	1150	1.094	10.830	1152.4
5.0	1150	1.098	10.829	1152.3	9.0	1150	1.082	10.827	1152.0
5.1	1150	1.075	10.830	1152.4	9.1	1150	1.088	10.832	1152.0
5.2	1150	1.079	10.834	1152.8	9.2	1151	1.079	10.833	1152.7
5.3	1151	1.055	10.832	1152.6	9.3	1150	1.093	10.829	1152.0
5.4	1151	1.088	10.836	1153.0	9.4	1151	1.092	10.833	1152.7
5.5	1151	1.096	10.830	1152.4	9.5	1150	1.075	10.825	1151.8
5.6	1150	1.103	10.825	1151.8	9.6	1150	1.087	10.831	1152.0
5.7	1150	1.097	10.830	1152.4	9.7	1150	1.099	10.828	1152.0
6.0	1151	1.087	10.838	1153.2	10.0	1150	1.090	10.829	1152.3
6.1	1150	1.096	10.828	1152.2	10.1	1150	1.084	10.823	1151.6
6.2	1150	1.104	10.823	1151.6	10.2	1150	1.089	10.827	1152.0
6.3	1150	1.093	10.822	1151.5	10.3	1151	1.091	10.833	1152.0
6.4	1150	1.091	10.830	1152.4	10.4	1150	1.089	10.828	1152.3
6.5	1151	1.099	10.831	1152.5	10.5	1150	1.087	10.823	1151.6
6.6	1151	1.094	10.832	1152.6	10.6	1150	1.092	10.831	1152.0
6.7	1150	1.093	10.829	1152.0	10.7	1150	1.090	10.827	1152.0
7.0	1151	1.088	10.834	1152.8	11.0	1151	1.087	10.830	1152.0
7.1	1151	1.104	10.834	1152.8	11.1	1151	1.089	10.828	1152.3
7.2	1151	1.100	10.837	1153.1	11.2	1150	1.090	10.833	1152.7
7.3	1152	1.092	10.834	1152.8	11.3	1150	1.088	10.824	1151.7
7.4	1151	1.079	10.834	1152.8	11.4	1151	1.095	10.830	1152.0
7.5	1151	1.087	10.834	1152.8	11.5	1150	1.087	10.821	1151.6
7.6	1150	1.107	10.831	1152.5	11.6	1151	1.091	10.827	1152.0
7.7	1151	1.093	10.840	1153.4	11.7	1150	1.089	10.824	1151.7

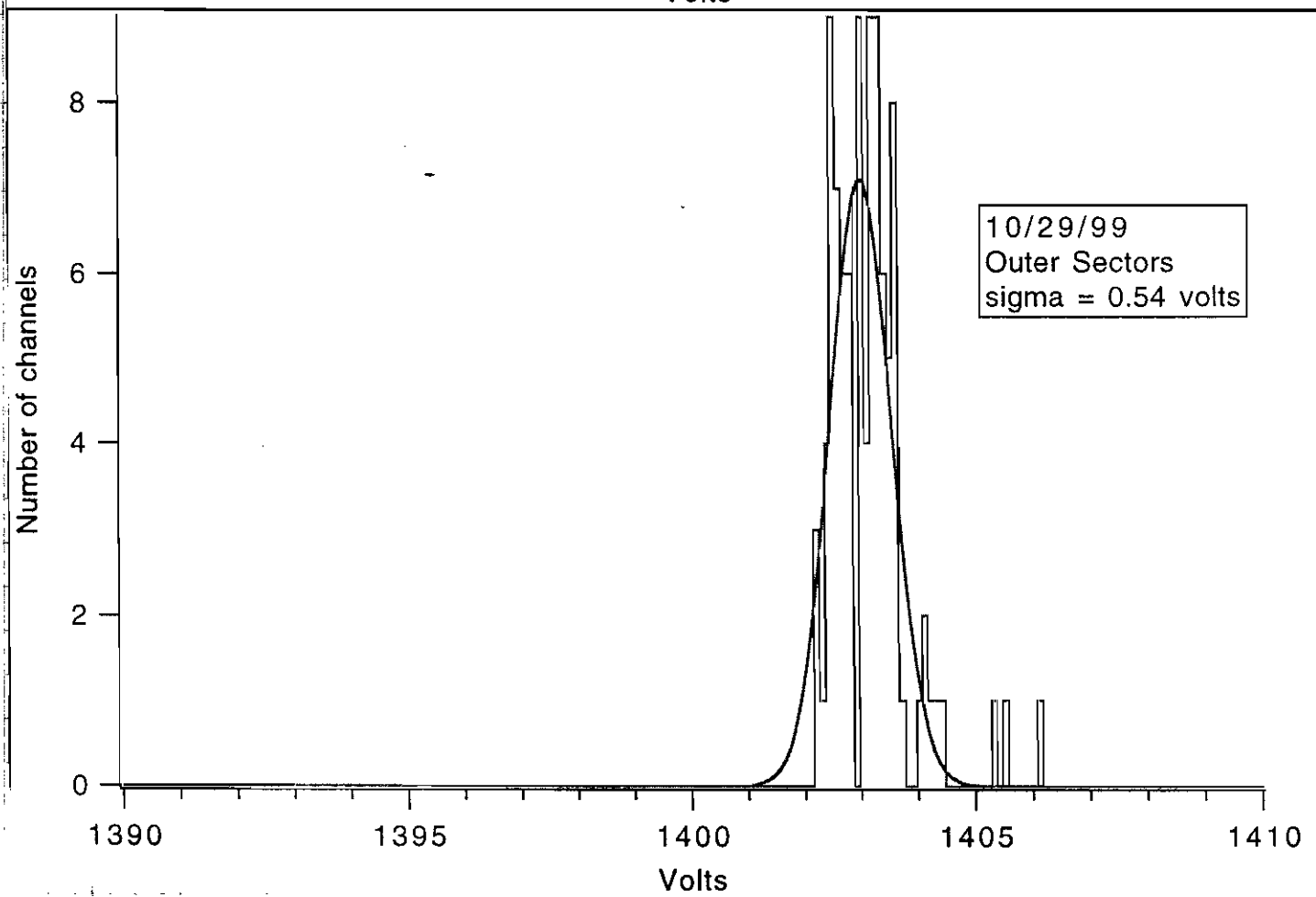
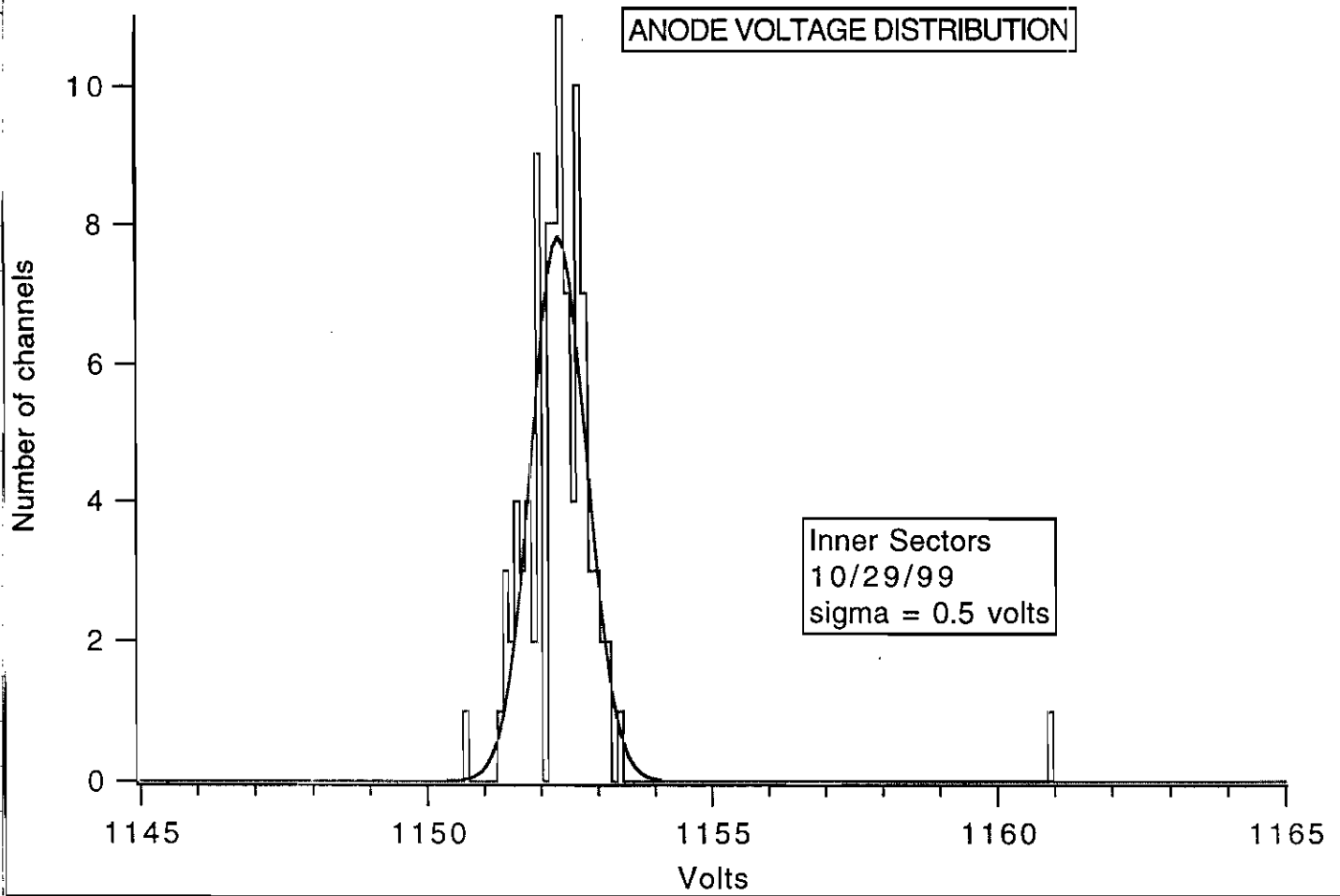


20/28/99

OUTER SECTORS

		$V_L$	$I_L$	$V_K$	$V_C$					
1	0.0	1401	1.326	13.182	1402.6	4.0	1400	1.321	13.188	1403.3
	0.1	1401	1.336	13.188	1403.3	4.1	1401	1.321	13.191	1403.6
	0.2	1400	1.326	13.187	1403.2	4.2	1400	1.321	13.198	1404.3
	0.3	1401	1.325	13.187	1403.2	4.3	1400	1.324	13.187	1403.2
2	0.4	1401	1.323	13.185	1403.0	4.4	1401	1.335	13.192	1403.7
	0.5	1401	1.322	13.191	1403.6	4.5	1400	1.329	13.189	1403.4
	0.6	1401	1.333	13.188	1403.3	4.6	1400	1.325	13.182	1402.6
	0.7	1400	1.324	13.181	1402.5	4.7	1400	1.320	13.189	1403.4
3	1.0	1400	1.346	13.187	1403.2	5.0	1401	1.326	13.191	1403.6
	1.1	1400	1.346	13.181	1402.5	5.1	1400	1.317	13.187	1403.2
	1.2	1400	1.340	13.188	1403.3	5.2	1400	1.325	13.186	1403.1
	1.3	1401	1.304	13.190	1403.5	5.3	1400	1.335	13.188	1403.3
4	1.4	1401	1.315	13.191	1403.6	5.4	1400	1.322	13.189	1403.4
	1.5	1402	1.337	13.191	1403.6	5.5	1400	1.319	13.185	1403.0
	1.6	1400	1.343	13.185	1403.0	5.6	1401	1.322	13.184	1402.8
	1.7	1401	1.348	13.187	1403.2	5.7	1400	1.319	13.185	1403.0
5	2.0	1400	1.344	13.182	1402.6	6.0	1401	1.310	13.190	1403.5
	2.1	1400	1.322	13.181	1402.5	6.1	1400	1.330	13.181	1402.5
	2.2	1400	1.324	13.182	1402.6	6.2	1401	1.323	13.189	1403.4
	2.3	1400	1.327	13.182	1402.6	6.3	1401	1.310	13.183	1402.7
6	2.4	1400	1.329	13.180	1402.4	6.4	1400	1.317	13.188	1403.3
	2.5	1400	1.322	13.180	1402.4	6.5	1400	1.326	13.187	1403.2
	2.6	1400	1.329	13.184	1402.8	6.6	1400	1.328	13.190	1403.5
	2.7	1400	1.321	13.181	1402.5	6.7	1400	1.307	13.184	1402.8
7	3.0	1401	1.328	13.186	1403.1	7.0	1400	1.327	13.180	1402.4
	3.1	1401	1.342	13.182	1402.6	7.1	1400	1.333	13.178	1402.2
	3.2	1401	1.320	13.188	1403.3	7.2	1401	1.330	13.179	1402.3
	3.3	1400	1.333	13.181	1402.5	7.3	1400	1.299	13.178	1402.2
8	3.4	1400	1.314	13.182	1402.6	7.4	1400	1.325	13.180	1402.4
	3.5	1401	1.319	13.189	1403.4	7.5	1401	1.304	13.184	1402.8
	3.6	1401	1.334	13.185	1403.0	7.6	1400	1.317	13.181	1402.5
	3.7	1401	1.340	13.187	1403.2	7.7	1400	1.321	13.178	1402.2

7	8.0	1401	1.312	13.190	1403.5	
	8.1	1402	1.339	13.196	1404.1	
	8.2	1402	1.341	13.215	1406.1	*
	8.3	1401	1.326	13.195	1404.0	
8	8.4	1401	1.329	13.196	1404.1	
	8.5	1401	1.329	13.187	1403.2	
	8.6	1402	1.325	13.209	1405.5	*
	8.7	1402	1.340	13.207	1405.3	*
9	9.0	1401	1.314	13.186	1403.1	
	9.1	1400	1.314	13.181	1402.5	
	9.2	1400	1.301	13.185	1403.0	
	9.3	1401	1.337	13.191	1403.6	
0	9.4	1400	1.315	13.190	1403.5	
	9.5	1400	1.311	13.185	1403.0	
	9.6	1401	1.326	13.197	1404.2	
	9.7	1400	1.307	13.185	1403.0	
1	10.0	1402	1.326	13.184	1402.8	
	10.1	1401	1.322	13.188	1403.3	
	10.2	1402	1.324	13.191	1403.6	
	10.3	1400	1.314	13.181	1402.5	
2	10.4	1400	1.322	13.183	1402.7	
	10.5	1401	1.324	13.184	1402.8	
	10.6	1401	1.310	13.188	1403.3	
	10.7	1401	1.322	13.189	1403.4	
3	11.0	1400	1.323	13.183	1402.7	
	11.1	1400	1.335	13.183	1402.7	
	11.2	1400	1.337	13.190	1403.5	
	11.3	1401	1.317	13.186	1403.1	
4	11.4	1401	1.325	13.183	1402.7	
	11.5	1401	1.330	13.185	1403.0	
	11.6	1400	1.330	13.183	1402.7	
	11.7	1401	1.330	13.199	1404.4	



1/12/99 | 1400 ) FIRE UP ANODES W/ WEI-MINGS NEW PGM.

CABLES TO TPC ARE DISCONNECTED.

SAVE CONFIG TO INDEX 1

RUP = 10                      TRIP = 2.0      MVDZONE = 3.0  
RON = 20                      pTRIP = 4.0      MCDZONE = .02  
~~ALL~~ ALL CHANNELS DISABLED  
HV OFF (IN + OUT)

	Voltage
13-1	3.72
13-2	3.70
13-3	3.54 *
14-1	3.68
14-2	3.68
14-3	3.68
15-1	3.68
15-2	3.36 *
15-3	

11/17/99 MEASURE AMP OUT OF ALL GND PLANE PULSE MODULE

CONDITIONS: TRIGGER ~ 93 HZ RATE LIMITER IS 100 HZ

- CHECKED THAT LIMITS @ 800 HZ.

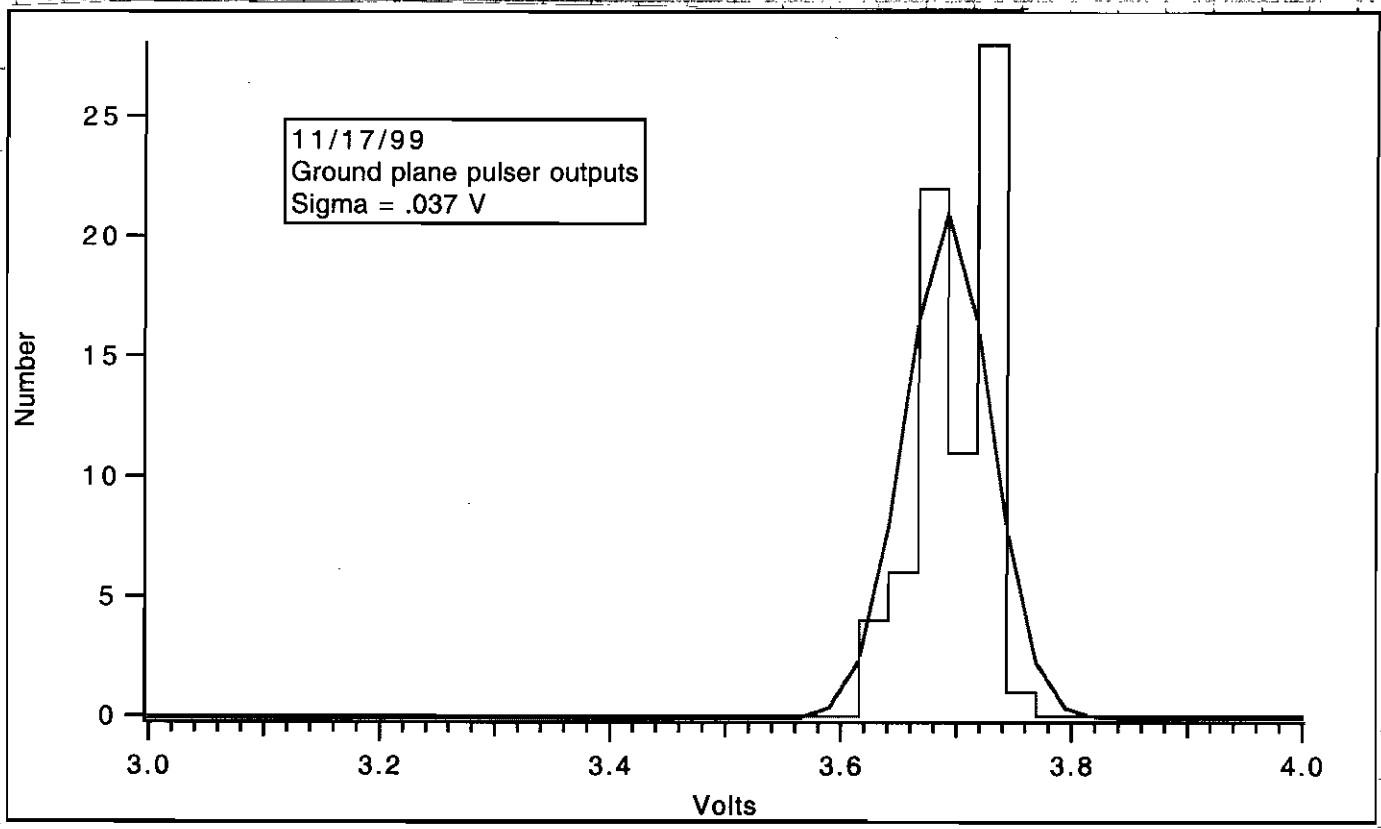
USE DIGITAL SCOPE INTO 50 Ω

AVERAGE OVER 30 PULSES ~~AND~~ ANALYSE MEASUREMENT

MEASUREMENT ER. R ~ ± .02V

USING FABRICES STANDARD PULSE LABELED "LASER"

MODULE #	SECTOR	V	S/N	SECTOR	V	S/N	SECTOR	V	S/N	SECTOR	
1	OUT	13-1	3.72	3	19-1	3.72	6	1-1	3.72	8	7-1
	OUT	13-2	3.68		19-2	3.68		1-2	3.72		7-2
	INBOX	13-3	3.70		19-3	3.68		1-3	3.72		7-3
	OUTEX	14-1	3.68		20-1	3.68		2-1	3.72		8-1
	OUTEX	14-2	3.68		20-2	3.68		2-2	3.74		8-2
	INBOX	14-3	3.68		20-3	3.72		2-3	3.76		8-3
	OUTEX	15-1	3.68		21-1	3.72		3-1	3.68		9-1
	OUTEX	15-2	3.70		21-2	3.72		3-2	3.74		9-2
	INBOX	15-3	3.68		21-3	3.72		3-3	3.72		9-3
2		16-1	3.72	4	22-1	3.68	7	4-1	3.68	9	10-1
		16-2	3.74		22-2	3.74		4-2	3.68		10-2
		16-3	3.74		22-3	3.72		4-3	3.63		10-3
		17-1	3.68		23-1	3.70		5-1	3.64		11-1
		17-2	3.72		23-2	3.74		5-2	3.66		11-2
		17-3	3.72		23-3	3.68		5-3	3.65		11-3
		18-1	3.72		24-1	3.68		6-1	3.66		12-1
		18-2	3.72		24-2	3.72		6-2	3.64		12-2
		18-3	3.72		24-3	3.74		6-3	3.62		12-3



De

Date: Mon, 24 Apr 2000 13:51:02 -0500 (EST)  
 From: "Blair C. Stringfellow" <string@physics.purdue.edu>  
 To: vahe <vahe@physics.ucla.edu>, Geno Yamamoto <geno@physics.ucla.edu>  
 Subject: pulser modules

Hi Vahe -

The FTPC showed up and Volker did indeed have a ground plane pulser module. I have not tested it yet. So, by my count we have:

HART

- 9 in the crate on the platform (TPC)
- 1 spare in the crate on the platform - new FTPC
- 1 spare (Volker) SIN OL
- 1 spare back at UCLA (Broken?) - ?

9/17/2001

If you know of any others, let me know.

VENET'S SESSION

STARONL  
 SYS# TEST  
 > XHOST +  
 > TELNET SC  
 LOGIN



Date: Thu, 18 Nov 1999 12:31:01 -0800 (PST)  
From: Neutronman <manderso@landau.ucdavis.edu>  
To: "Blair C. Stringfellow" <string@physics.purdue.edu>  
Subject: TPC Temp Commands: For Your Eyes Only

Hey Blair:

Here is all of the relevant instructions for TPC Temp

Use the normal user account: tpc\_temp  
password: Hot&Cold

there should be rcf and starcmp1 accounts with the same name (although Dennis said there may be a problem with one of those).

When you log-on as tpc\_temp, there will be an icon on the desktop labeled, Temperature Monitor. Double-click on that icon. It will ask you about 5 questions,

How many readings to average over: we normally use 5

How often to write out: we normally use 1 (the default unit is minutes)

how many readings until write to history: we use 57

high temperature before alarm status: have used 78 80

low temperature before alarm status: have used 68 70

Change the numbers as you see fit in order to monitor correctly. Commands may also be given over the net via the VNC.

Server name: tpctemp:0  
password: tempadmin

Finally, in case of emergency: Administrator password is: tempdaq

Any more questions or problems please contact me and I will tell you what we have come across in the past. Good luck.

~~restoring network connection to \\SOL\star  
INCORRECT PASSWORD FOR  
\\SOL\star  
After last connected to the computer as  
TPCTEMP\TPC\_Temp  
PASSWORD:  
connection not restored~~

LOG ON TO  
\*WLSUN1  
AS STARTPC  
RESU1S123

The web address is: tpctemp.star.bnl.gov

VNC stands for Virtual something something.  
I think the C stands for Controller or Computer

It is the program that Wayne installed so that we may access it over the net and basically be in front of the terminal. It is pretty cool. Wayne has it installed at his computer so you can access it from there. Hey who

FEE  
INTERLOCK FAILURE

(238)

12/12/99 1030 ALL ANODES ON.

HIGH CURRENTS (PROBABLY DUE TO P5) THRESH = 20mA  
INNER 4.20x4.13, 061  $\mu$ A) OUTER 4.4 .021  
INNER 4.5 1035  $\mu$ A) OUTER 9.3 .016 PLUS SEE PG 29

2/14/99 1400 POWERS THAT BE DECIDE ON THE FOLLOWING:

$$\bar{B} = 0$$

OUTER = 1450

INNER = 1170

GG = 127.0

$$\bar{B} = 1/2$$

OUTER = 1389

INNER = 1170

GG = 127.0

$$\bar{B} = 1$$

OUTER = 1389

INNER = 1170

GG = 127.0

ASICS TO START

L0 THRESH 1

BINS 3

H1 THRESH 3

BINS 1

1500 } TURN ON

1600 } TRIP SET 20 #5 - RESET

1710 } TRIP SET 6 #8 -

TRIP SET 7 #7

2/15/99 1000 TPC ON - EVERYONE BACKS OFF GW VOLTAGE

USE OUTER = 1390

INNER = 1170

1930 ALL OFF - NO TRIPS

2/16/99 0900 START TURNING ON - TROUBLE W/ WEIMING. RES OUT

12/16/99  
1115 PROCESSOR REBOOTS AGAIN. AFTER REBOOT, ARCNET SHOWS GREENS BUT ALL OTHER INFO STAYS GREY.

12/17/99  
0946 VME PROCESSOR: interrupt:  
Uninterruptible Interrupt!  
VECTOR NUMBER 24 (0-255) Spurious Int  
PROGRAM COUNTER 0x0002 or 368  
STATUS REGISTER 0x7300

0930 TPC ON 1390, 1170, 31KV

1015

ACCESS FAULT  
PROGRAM COUNTER 0x66b55dc2  
STATUS REG 0x3004  
ACCESS ADDRESS 0x66b55dc0  
SPECIAL STATUS 0x05e6  
TASK 0xe3e61c "ASYNC"

WRITE\_MSG() couldn't write in the msg pipe  
REBOOT. THEN ARCNET IS GREEN BUT NO READ BACK OF STATUS OR VOLTAGES.

CYCLE POWER ON CRATE.

1115 ALL OFF - NO MORE TRIPS

2/10/00 S/N B68046 B68162 RETURNED FROM LEZROY - NOT TESTED YET.

2/17/00 1600 TURN ON TPC 1390, 1170, 31KV, GATE OPEN  
ASIC 1, 3, 20  
1900 OFF - NO TRIPS

DENNIS t. SHOULD'N'T 061 BE RED? (OR YELLOW).

2/18/00 1100 TURN ON 1390, 1170, 31KV GATE WORKING

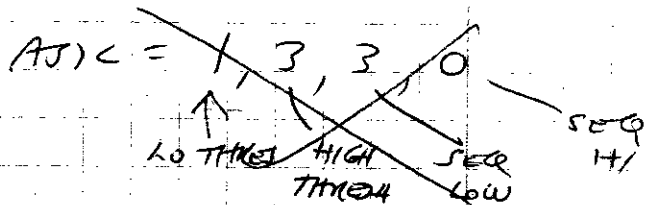
2/18/00) ALLOW HIGH CURRENTS:

OUTER 1.0 .019 INNER 7.1 .018 } SEE PG 29, 30  
1.1 0.19

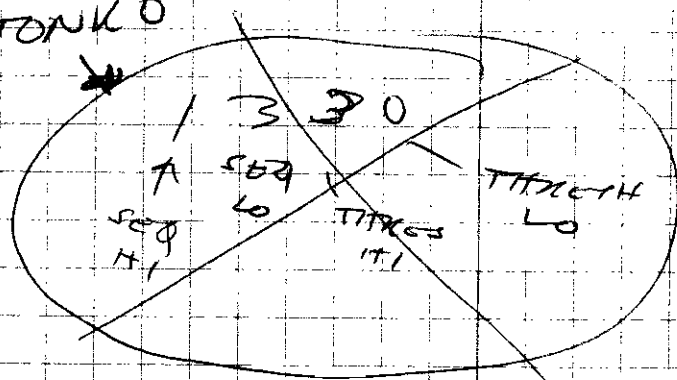
2/21/00) 1100) TURN ON TPC 31KV 1390, 1170 GATE NORMAL

COSMIC MN 1052017

THRESH HIGH = 3  
THRESH LOW = 0  
SEQ HI = 1  
SEQ LOW = 3



TOKO



2/22/00) TURN ON TPC 31KV 1390, 1170  
2/22/00) 1500) IWONA WANTS

0 2 3 1  
SH SL TH TL

1645) TRIP SECTOR 22 # 7 (10.6) ENO8 RESETS ON

2/23/00) 1030) TURN ON 31KV 1390, 1170

10541011

1200) TRIP OUTER SECTORS 19 AND 20! ENO4 RESET

1330) TRIP OUTER 20 # 5

2/28/00) 1100) TPC ON GG OUTER # 16 V66 = 120 AND RESUME  
SETPOINT = 127

2/29/00) 1000 TPC ON GG OUTER 16 STILL BAD

TRIP SECTOR 20 # 5

1330) GG 16 OUTER NOW OK?!

30

TO LOGON RCF FROM PURDUE:

SSH RCF.RHIC.BNL.GOV. (AS STRING)

SSH -Q STARTUP RCF.RHIC.BNL.GOV

3/1/00 0900 TURN ON TPC

1320

ANDOE PGM CRASHES OVER LUNCH. ALSO, ALL TOP LEVEL MEDIUM DISAPPEAR EXCEPT FOR #4. RELINK TOP + REBOOT 9006. AFTER REBOOT, PGM HAS GREEN ~~ON~~ GREEN, HV GREEN BUT SHOWS ALL SECTORS GREY (i.e. NOT ENABLED). SECTORS ARE ON! I PUSH ENABLE BUTTONS FOR INNER TOWER + THEN DISPLAY GOES GREEN => PGM READS BUTTON, NOT REAL STATUS.

1440

TRIP OUTER 4 #5

3/2/00

1330

TRIP OUTER 20 #5

1445

9006 SPONTANEOUSLY REBOOTS 3 TIMES IN A ROW. DIDN'T SEE THE REASON. 1600 BOOTS AGAIN

3/3/00

0900

START UP. PGM GOES UNRESPONSIVE  
trash: 0x84608 + LeCROY  
write-mag() couldn't write in the mag pi  
PGM STILL STRUGGLING  
CYCLE POWER ON CRATE.

1010

3/7/00

1500

END OF COSMIC RUN - HIGH CURRENTS (> 15)

OUTER:	1.0	.017	OLD	INNER:	4.0	.017	SEE P
	1.1	.019	OLD		4.1	.061	OLD
	3.1	.015			4.5	.035	OLD
	4.3	.016	OLD		4.7	.017	
					7.1	.016	OLD - REPLACE

\* PLUS MPLA FOR 10.0-10.7 <sup>INNER</sup> IS ONLY ~.045 EVERYBODY ELSE IS ~.200-.250

3/6/00

1100

REMOVE B68023 + GIVE TO WEI MING. RATE 37395 WAS INNER 3.0-3.7 (SECTORS 7,8) ← PUT IN S/N # 68969

SETENV DISPLAY LINUX2:0.0

3/6/00

HOOK AT BASELINE DC CURRENT (ONLY W2 IN TPC)

TRER	HV ON ALL CH DISABLED	HV ON ALL CH ENABLED	HV ON 200 V		HV ON DISABLED	HV ON ENABLED	HV ON 200 V		HV ON DISABLED	HV ON ENABLED	HV ON 200 V
0	-.006	-.001	-.003	5.0	-.004	-.001	-.001	10.0	-.001	-.001	.000
1	-.000	.005	.005	5.1	-.005	-.008	-.010	10.1	-.006	-.006	-.001
2	-.005	-.005	-.005	5.2	-.004	-.004	-.002	10.2	.004	.004	.004
3	-.007	-.002	-.004	5.3	.008	.010	.008	10.3	-.006	-.006	-.001
4	-.008	-.008	-.001	5.4	-.005	-.003	-.005	10.4	-.006	-.003	-.006
5	-.005	-.007	-.002	5.5	-.006	-.006	-.006	10.5	.004	.002	-.001
6	.002	-.001	-.003	5.6	-.003	-.006	-.003	10.6	-.017	-.017	-.011
7	-.008	-.005	-.008	5.7	-.009	-.004	-.009	10.7	-.008	-.008	-.001
8	.014	.009	.017	6.0	-.013	-.016	-.016	11.0	-.006	-.001	-.001
9	.014	.014	.012	6.1	.003	.006	.006	11.1	.001	.001	.001
10	.003	.008	-.001	6.2	-.010	-.010	-.005	11.2	.006	.006	.006
11	-.025	-.025	-.025	6.3	-.015	-.015	-.015	11.3	-.012	-.012	-.011
12	-.008	-.011	-.008	6.4	-.007	-.010	-.010	11.4	-.002	-.004	-.001
13	.005	.007	.005	6.5	-.004	-.001	-.004	11.5	.003	-.002	.001
14	.004	.006	.004	6.6	.000	.003	.000	11.6	.001	.001	.001
15	.014	.009	.011	6.7	-.018	-.018	-.018	11.7	-.001	.002	.001
16	.006	.006	.006	7.0	-.002	.000	.003				
17	-.002	-.007	-.012	7.1	.009	.006	.009		MVDZONE =		3.1
18	-.002	.000	-.002	7.2	.007	.007	.010		MCDZONE =		.02
19	-.005	-.003	-.008	7.3	-.022	-.024	-.024				
20	.003	.005	.003	7.4	-.003	-.001	-.003	12.0			.001
21	-.010	-.007	-.007	7.5	-.018	-.020	-.024	12.1			.003
22	-.005	-.005	-.005	7.6	-.002	-.005	-.005	12.2			.004
23	-.002	.000	-.002	7.7	-.000	-.003	-.005	12.3			.000
24	.000	.000	.000	8.0	-.018	-.013	-.018	12.4			-.001
25	<u>.017</u>	.020	.015	8.1	.008	.005	.005	12.5			.001
26	-.000	.002	.000	8.2	.008	.005	.008	12.6			.001
27	.006	.008	.008	8.3	-.003	-.003	-.003	12.7			.001
28	-.012	-.012	-.005	8.4	-.008	-.003	-.008	↑			
29	-.012	-.009	-.012	8.5	.006	.006	.003	GAIN			
30	.015	.010	.015	8.6	-.009	-.006	-.006	CH.			
31	.013	.013	.013	8.7	.004	.002	.002	3/10/01			
32	-.007	-.004	-.004	9.0	-.012	-.017	-.017				
33	-.004	-.004	-.004	9.1	-.007	-.009	-.009				
34	-.006	-.006	-.006	9.2	-.020	-.022	-.027				
35	-.007	-.001	-.003	9.3	.016	.021	.016				
36	.008	.008	.008	9.4	-.004	-.004	-.004				
37	-.003	-.003	-.003	9.5	-.025	-.022	-.042				

INNER	HV ON DISTRIBUTED	HV ON ENABLED	HV ON 200V		HV ON DISTRIBUTED	HV ON ENABLED	HV ON 200V		HV ON DISTRIBUTED	HV ON ENABLED	HV ON 200V
0.0	.006	.001	.008	5.0	.011	.011	.008	10.0	.004	.004	-.001
0.1	.004	-.001	.004	5.1	-.013	-.013	-.013	10.1	.001	.006	-.001
0.2	-.007	-.007	-.007	5.2	-.010	-.007	-.010	10.2	0	.005	0
0.3	.011	.009	.014	5.3	-.029	-.024	-.027	10.3	0	.003	0
0.4	-.010	-.012	-.007	5.4	.002	.005	0	10.4	.001	.003	.001
0.5	-.003	-.008	-.001	5.5	.006	.006	.011	10.5	-.001	-.001	.001
0.6	.011	.011	.011	5.6	.008	.008	.008	10.6	.001	.001	.001
0.7	.004	.004	.011	5.7	.004	.006	.004	10.7	.006	.004	.001
1.0	.011	.006	.008	6.0	-.006	-.006	-.001	11.0	-.005	-.007	-.001
1.1	-.001	-.001	.002	6.1	.003	.001	.001	11.1	.003	.005	.001
1.2	-.011	-.011	-.006	6.2	.007	.007	.007	11.2	-.001	-.001	-.001
1.3	-.002	-.002	.001	6.3	-.005	-.005	-.005	11.3	.001	.004	.001
1.4	-.013	-.011	-.011	6.4	-.007	-.007	-.009	11.4	.004	.006	.001
1.5	-.010	-.008	-.005	6.5	.002	.002	.002	11.5	0	.000	0
1.6	-.007	-.004	-.007	6.6	.001	.001	.001	11.6	.002	0	0
1.7	-.002	-.002	-.004	6.7	-.002	-.002	0	11.7	-.005	-.008	-.001
2.0	.007	.007	.009	7.0	-.006	-.006	-.003				
2.1	-.009	-.009	-.009	7.1	.013	.011	.013				
2.2	-.001	-.001	-.001	7.2	.001	.001	.004				
2.3	.010	.013	.010	7.3	.007	.005	.005				
2.4	-.020	-.020	-.020	7.4	-.013	-.010	-.010				
2.5	-.004	-.002	-.004	7.5	-.007	-.007	-.007				
2.6	.008	.005	.005	7.6	.011	.009	.009				
2.7	.001	-.009	-.009	7.7	-.004	.001	-.007				
3.0	-.004	-.004	.007	8.0	-.001	.002	-.001				
3.1	-.004	-.004	-.001	8.1	.002	-.002	-.002				
3.2	.006	.006	.004	8.2	.004	.004	.004				
3.3	-.001	-.003	-.003	8.3	-.002	.001	.001				
3.4	-.004	-.004	-.004	8.4	-.008	-.003	-.008				
3.5	-.003	-.003	-.001	8.5	.006	.011	.006				
3.6	-.003	-.003	-.003	8.6	.005	.000	0				
3.7	-.007	-.002	-.004	8.7	.004	.002	.002				
4.0	.012	.015	.012	9.0	-.001	-.001	.002				
4.1	.061	.061	.061	9.1	.009	.004	.002				
4.2	-.006	-.003	-.001	9.2	-.010	-.005	-.010				
4.3	-.004	-.004	-.004	9.3	-.006	-.006	-.004				
4.4	.002	.005	.002	9.4	.001	.001	.001				
4.5	.032	.035	.037	9.5	-.012	-.017	-.017				
4.6	-.023	-.025	-.028	9.6	-.001	-.004	-.001				

MVD ZONE = 3.1  
MCD ZONE = .02

2/8/00) FOUND BAD FEEDTHRU ON JAMES PATCH PANEL  
 FOR PULSER - SECTOR 9 CH1. HOOK CABLE UP  
 WITH JUST A BARREL.  
 1/17/00) SPLIT INNER + OUTER PROGRAMS TO SEPARATE CPU'S

Wei-Ming-

- > The start script directories for inner and outer
- > sectors are vtpc50 and vtpc51, respectively.

Blair and I have split the two CPUs and ARCNET cards into two separate crates. We have it running successfully (we think) right now, but the one problem is that your above sentence is incorrect. The inner sectors are controlled by vtpc51, and vtpc50 controls the outer sectors. Judging from the adl file, the outer sectors have A=0, which is the setting contained in vtpc50. As for the ARCNET cards, they are BOTH set with interrupt level 3, and base address 0xffffd000; that was the only setting that gave no problems.

Right now, Blair is testing for stability; once that's done, we will attempt to switch to a one CPU setup, to make sure that it can be done quickly and smoothly, and to make sure that each processor can handle the full load.

Could you give us a phone number where you can be reached this afternoon? Thank you.

-Dennis

Dennis,

You are right. Vtpc50 controls the outer and vtpc51 controls the inner. Sorry.

Both source codes match the hardware settings of  
 int\_level=3 and Base\_address = 0xffffd000.

I could be reached at (330) 672-2881 before 3:00 pm and  
 (330) 672-9739 (Star member, Spyridon Margetis's office)  
 after 3:00 pm.

Blair,

I think I found a bug in database which causes WHITES in the setup window. Next time you reboot the system, you would see readout instead of WHITES.

I checked the codes, and found that inner sectors at both endcaps would be calibrated when one of the 'calibration' button is pressed. So, I would delete the calibration button and the message bar in EC1 to avoid confusions. I tried to do it remotely, however, the network did not allow. Could you ask Dennis to modify a file at BNL. The file is

...../TPCanhv0App/op/adl/tpchv.mc.ec1.adl.

The only thing he needs to do is to delete the two applications of medm at the bottom right corner.

Wei-Ming

Blair-

Okay, here goes: vtpc7.star.bnl.gov is mounted in rack 2A7, and can be accessed through port 9006. It controls the INNER sectors, and has the startup script st.vtpc51.

The other processor is vtpc5.star.bnl.gov; it's mounted in rack 2A6 (thus completely messing up my GUI) and can be accessed through port 9013. It controls the OUTER sectors, and has the startup script st.vtpc50.

Should either of these processors fail, connect the ARCNET cable to the other one, and have it run the startup script st.vtpc5. The adl file would have to be changed from tpchv.adl.org.





MAIN DETU TOP  
RCCCT & SESSION  
← SET\_RS

4/4/00 } RHC CLOCK IS 9.38430 MHz  
RHC CLOCK WOULD DROPPING OUT

4/5/00 } RHC CLOCK IS BACK BUT FREQ HAS  
CHANGED NOW 9.33866 MHz

4/5/00 } TRIGGER INTERNAL CLOCK IS 9.21598  
TONKO NEEDS A BAD PAD FILE.  
ASCII  
NO COMMENTS, NO HEADERS

SECTOR	PAD ROW	PAD #	GAIN FACTOR
I	I	I	X.XX — <del>XXXXXX</del>
			PUT IN 0.00 PAD WON'T BE READ OUT

4/11/00 } FOR VME PROCESSOR RLOGIN  
ACCOUNT: TARGET  
PASSWORD: PASSWORD

5/4/00  
BCS,AL,DR

We make an access to investigate two problems:

1. The remote AC switch (RPS1) was no longer reachable via ethernet. The Wavetek and the Temperature PC were on but I had turned off the Glassman. We found nothing apparently wrong - the power light was on and the link light was flashing. There was no activity on the RTX, DTX and NET lights. Tried different port and different cable. No go. We unplugged the "A" side (hoping "B" would stay on, which it didn't) so all power was cycled. All three outputs came on, as they should (default condition.) but still no communications. Decide to punt. I leave the Temp PC and the Wavetek on the RPS1. I plug the Glassman into the power strip of the rack. We also try and talk to the RPS through the serial port, but get nothing.

2. We worked on the VME CPU for the cathode (and laser) - Rack 2A3.

History - this CPU was a 147 which crapped out some time ago (wouldn't boot - possible memory problem.) Dennis put in a 162 that also didn't work - it booted, but we couldn't raise the cathode HV. Dennis tried another 162 and that seemed to work, but we couldn't test all functions without gas in the TPC. On Wed before the access, Alexei tried to run the lasers remotely but they wouldn't come on. (This had worked before).

During the access we tried a 147 that we got from FTPC. That raised the Glassman HV and the lasers but the drift velocity TOF measurement was not working. Dennis found that on booting the CPU was not getting the proper file for the VME TDC. That was fixed and the TOF started to work (needed for closed loop operation). We then went back to the 162 and things seemed to work. Decide to run this way.

However, at the end we noticed that the TOF measurement seemed to start and stop for unknown reasons. It appeared that the "Start" signal (from the photodiode) would go from normal to a slower rate (with no following stop signal) Normal operation would then resume. Everything looked ok on the scope. This remains a mystery.

We leave the 162 in for now. We have one 147 spare from FTPC and one 147 sent by Greg Harper at U of Washington.

For normal operation of the VME TDC, the lights should be:

- Mode Green
- ADDR Flashes Yellow
- COM Flashes RED = common start
- HIT flashes Green for stop (from anode wire)
- PWR Green

ALSO LOWERED  
CFD FOR  
ANODE FROM  
~400mV TO  
~400mV  
16kV AT PA  
CHANGED  
FROM X10  
TO X1

The program measured TOF = 38.5 microsec, Drift Vel = 5.422 cm/microsec

This is more like the Dec value again.

5/18/00

MONITOR SETTINGS TO SEE ALL OF PAD MONITOR

1280 X 1024 75 HZ 32XXX COLORS

6/9/00

MEASURE TOF w/ CATHODE GET 36.8 <sup>microsec</sup> !!  
SHOULD BE 38.7

MEMBRANE = ~~395~~ 420 <sup>microsec</sup>  
IN MARCH WAS 395 SAYS BILL LOVE

6/12/00) 1720 TRIP SECTOR 9 INNER, ALL SECTIONS  
VOLTAGE = 1500 - BEAM ON/OFF

1730) TRIP AGAIN INNER 9, SECTORS 2, 3, 4  
VOLTAGE = 900! - BEAM ON

6/14/00) PUMP ROOM COMPUTER

SHORTCUT TO FIX

STAR MENU

CONNECTION - "SKIP ALL"  
ERRROR

6/15/00) METHANE SNIFFER. MAGNETIC SHOULD READ ~10.  
IF ANY CHANNEL IS ABOVE 15, STARTING TO CLOG.  
MAGNETIC IS IN LOWER CASE.

6/16/00) NEED TO CHANGE PETER'S GAS PGM TO STOP  
WRITING TO SOL + START WRITING TO ONLY SUNI  
NEW EPICS WRITER PATH

/ONLINE/dataspool/conditions/t/c/gas

THEN DENNIS IS SETUP BY REBOOTING 9012

CHECK IF DATA BEING WRITTEN BY GOING TO  
+ > ll

6/17/00) SECRET BUTTON FROM ALEREI - IF LASERS ARE  
RUN + THEN SHUT OFF BY THEMSELVES (SEQUENCE)  
THEY WON'T COME BACK ON (EVEN AFTER "PAUSE"  
TIME). NEED TO POWER OFF COMPLETELY  
(LASER 1, LASER 2, SEQUENCE, SAMPLER) + THEN  
BACK ON - OVERHEATING IS NOT A PROBLEM  
ANYMORE.

ALSO, IF WEST? LASER DOESN'T COME ON  
CYCLE POWER ON PC BOARD. ON BRANDIN DISPLAY,  
CLICK PINK "2 ON" BUTTON TO OFF,  
WAIT + THEN BACK ON

38 6/19/00

LINUX BOXES SCREEN STUCK

GET NEW TERMINAL SESSION:

- > xset q (query)
- > xset dpms 0 0 0
- > xset -dpms
- > xset s 0 0 (screen save)
- >> xset q

6/20) GAS STRIP CHARTS ON SC

SC > STRIPGAS

EVENT POOL

ON ONLSUN1 FOR PAD MDW:

CD / ONLINE / EVTPOOL / CURRENT

ARCHIVER

HTTP://SC.STAR.BNL.GOV/ARCHIVE

CREIGHTON 2 :

ROOT  
FAT BOY 7

FSCU-DISK ~~REPAIR~~  
REPAIR

STRIP CHART

ON SC

5 stripgas

6/25/00) 0300 AL GETS A TRIP OUTER 23 #5

1000) TRIP AGAIN OUTER 23 #5

7/1/00) TRIP OUTER 19+20 ALL - BEAM ON.  
RESET ON.

1250) TRIP OUTER 19+20 AGAIN - BEAM LOST ON QUENCH

1620) TRIP OUTER 20 #5 - BEAM ON

1725) TRIP OUTER 20 #5 - BEAM ON

59 2.36

3.98 TO GND  
3.84 TO GND

3.94  
3.82 CABLE

510, 11, 12 4.24

512 5.48 TO GND  
5.42 TO GND

7/5/00 1030

PULL HV CARD SECTOR 19, 20, OUTER  
S/N 68140

PUT IN S/N 68118 SET HARDWARE TRIP = 1510  
(SEE PG 15)

S/N 68118 SHOWS 150 V ON ALL CHANNELS  
EVEN FOR DEMAND = 0. NOT REPAIRED!

OK TRY S/N 68957

SET HARDWARE TRIP LIMIT TO 1508

DC CURRENTS:  
.002  
-.004  
.001  
.006  
.011  
.004  
-.012  
.002

(LIMIT = 1)

PVT ON 1000V	MEASURED CURRENT (uA)	TRIP OK? ( <del>TRIP</del> )
9.0	.975	1030 OK
9.1	.960	1060 OK
9.2	.960	1050 OK
9.3	.970	1040 OK
9.4	.973	1030 OK
9.5	.966	1040 OK
9.6	.961	1060 OK
9.7	.956	1060 OK

7/6/00 1045

CHECK SECTOR 8 INNER PULSE CABLE  
TERMINATION - IT ~~REMAINS~~ LOW ~~REPAIR~~

NO ~~REPAIR~~ INNER SECTORS

51.7  $\Omega$

INNER

7/5/00

REPLACE CATHODE MUMS 162 WITH MUMS 147  
(FROM GEX HARPER) 162 HAD FUNNY TOF BEHAVIOR  
TEST SPARE 147 - OK  
TEST 167 - OK

ALSO WE TEST SECRET CATHODE RESET BUTTON  
& IT WORKS! IF ~~GLASSMAN~~ GLASSMAN IS IN "CURRENT  
CONTROL" MODE RESET PUTS IT BACK IN  
"VOLTAGE CONTROL".

JUST IN CASE WE MOVE GLASSMAN AC TO  
R152

7/6/00

TRY A 167 IN INNER ANDDS TO SEE  
IF IT WORKS (+ ARCNET STAYS UP).  
LEAVE IN UNTIL MONDAY. (NEW 167 HAS 8 Meg  
162 HAD 16 Meg MEMORY.

NEW 167'S FROM EBAY (WHICH NEED ETHERNETS)  
HAVE 16 Meg

#### NETWORK PARAMETERS:

1. IP Address: 130.199.88.205
2. Subnet Mask: 255.255.254.0
3. Gateway Address: 130.199.88.24
4. IP Security

RPS2

MAC Address: 00-40-05-fa-06-d0

Network Power Switch v2.04 Site: (undefined)

Plug	Name	Status	Boot Delay	Password	Default
1	Glassman_HV	ON	15 sec	(undefined)	ON
2	(undefined)	OFF	5 sec	(undefined)	OFF
3	(undefined)	OFF	5 sec	(undefined)	OFF
4	(undefined)	OFF	5 sec	(undefined)	OFF
5	(undefined)	OFF	5 sec	(undefined)	OFF
6	(undefined)	OFF	5 sec	(undefined)	OFF
7	(undefined)	OFF	5 sec	(undefined)	OFF
8	(undefined)	OFF	5 sec	(undefined)	OFF

Communication Settings: 9600,N,8,1

Modem Init. String: ATEOMQ1&C1&D2S0=1

Modem Disc. String: (undefined)

Disconnect Timeout: 15 Min

Command Echo: On

Command Confirmation: On

7/24/00

03:30 Inner Sector 3 #1 & #3 tripped due to a magnet crash.

7/25/00

06:00

Outer Sector 20 #5 tripped.  
Beam was clogged and stored at this time.

7/25/00

06:20

Outer Sector 20 #5 tripped!  
Beam was clogged and stored at this time.  
Was going to leave it off yet. H.W. said to bring it back up.

7/25/00  
0900

MAKE A LASER RUN - DRIFT ONLINE = 38.6  $\mu$ m  
GREG HARPER'S DRIFT DISTANCE = 209.0  $\mu$ m / 5.4186  
RUN 1207008 BILL LOVE SAYS ~ 5.38  $\mu$ m WEST  
AVG 5.387 5.391 EAST

7/27/00

INNER CARD #1 (SECTORS 3, 4) IS STARTING  
TO DEVELOP STURIOUS CURRENT EVEN FOR  
HV = 20 V. LOOKS LIKE OLD SCROLLING PROBLEM.  
GENERATES FALSE ALARMS.

7/27/00

TRIED CLOSE LOOP RUNNING Y LASER - LOCKED ON  
NO STOPS + STARTS.



8/1/00) 0900) FIND INNER CRATE COMPLAINING AGAIN:

"NODE1 MAINFRAME IN BAD STATUS"

LAST TIME THIS HAPPENED (~1 OR 2 WEEKS AGO) HAD TO  
CYCLE POWER ON THE LEROY.

SEEMS LIKE WE STILL HAVE CONTROL, THOUGH.

TRY REBOOT - STILL SAME

TRY POWER CYCLE ON UME CRATE: STILL SAME

GET ACCESS + CYCLE POWER ON LEROY -

SEEMS OK

→ NEXT TIME TRY DROPPING INTERLOCK  
(SLIM CHANCE BUT WORTH A GO)

8/1/00) TOF 38.36  $V_0 = 5.44$

8/1/00) 1800) INNER REBOOTS AGAIN - AND AGAIN  
WE GET NODE1 MAINFRAME IN BAD STATUS  
GET AN ACCESS + POWER CYCLE

Date: Mon, 7 Aug 2000 09:59:41 -0500 (EST)  
From: Wei-Ming Zhang <zhang@hpacq.kent.edu>  
To: "Blair C. Stringfellow" <string@physics.purdue.edu>  
Cc: weiming zhang <zhang@ksuvxd.kent.edu>  
Subject: Re: error code

Hi, Blair,

As described in Appendix I "HV Mainframe Power-up" on P.83  
in the manual, "Power-up status code"=3 indicates a possibly serious  
(but not fatal) mainframe error has been detected.

The instruction in the first paragraph on P.49 tells to run the  
command PUPSTATUS in the serial session to get more information.  
The returned values of the command PUPSTATUS are explained on P.61.  
the error number returned by PUPSTAUTS is explained in Appendix II  
on P.87. Probably, we could decide what to do the next with the  
decoded error number.

Wei-Ming

stable. If the message keeps coming, something is  
wrong. I need to run a command CONFIG manually (or print  
the word0 in my program) to tell more about this 'bad status'  
The message shown in your mail indicated inner sectors (node1 for  
inner sectors and node0 for outer) in a bad status. Also, in the  
serial session (in line mode, not in full screen mode), you could  
type the command 'CONFIG' to display the four configuration words  
to see what is wrong, then, to decide if the system needs to  
be shut down.

Wei-Ming

8/3/00)

INNER CONFIG  
2174 0000 0008 006C 00

OUTER

2174 0000 0007 006C

8/8/00

02:30

Outer Sector ~~22~~ #7 tripped.  
Beam was clogged and stored at this time

8/6/00  
11:30

NOW HAVE OUTER LEBLOY GIVING ERROR MESSAGE

NOVED MAINTENANCE IN BAW STATUS.

CHRM CONFIG: 2374 0000 0007 006C 008B

DECODE 2374

001/011/101/100/~~019/~~

"POWER-UP STATUS CODE" = ERROR

8/6/00

TOF 38.45  $v_0 = 5.44$

8/6/00

21:00

Outer Sector 6 #8 tripped.  
Beam was clogged and stored at this time

8/6/00

23:45

Outer Sector 6 #8 tripped.  
Beam was clogged and stored at this time.

8/7/00

04:15

Multiple Sector Trips while taking down voltages. Very weird!  
All c... 5 9 10 ...

Sector 7 #5 tripped. Sector 13 #3 tripped.  
Sector 17 #1 tripped. There was no  
beam at the time.

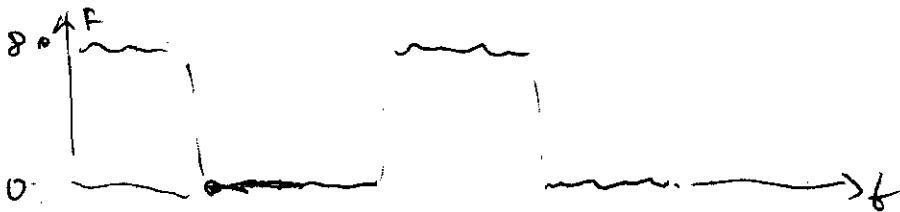
8/7/00 0300 MIKE GETS YELLOW ALARM ON OFC-WEST  
(TWICE?). ~~HE~~ DURING LASER RUN HE THEN  
KNOCKS DOWN.

0715 TRY FIELD CABE AGAIN. -GET MULTIPLE  $\Delta$  ALARMS

1100 GET ACCESS - FIND KIETHLET IN ERROR MODE,  
REBOOT PROCESSOR

ALSO CYCLE POWER ON ZECRO7 OUTER

08/08/00 Temperature TIC ~~Outer sector~~ Outer Wheel #7 (Sector 13 2) 4  
21:50 -bad connection, shows 79 and 6



8/9/00 ~~Time~~ Sector 9 #1 tripped. There was beam  
at the time.

8/9/00 ~~Time~~ Sector 6 #8 tripped. There was beam  
at the time.

8/12/00) 11:30) BEAM IN, INT ~ 8000B ~ 6000T

EVENT RATE ON SCALER 20-30/SEC  
SEE ~ 150 mA IN SUMMED ANODE CURRENT. (INNER + OUTER)  
COULD BE REAL, COULD BE BAD CALIB.

1230) WITH THESE BEAM INTENSITIES + GG OPEN  
SEE ~ 60-80 mA per INNER SECTOR  
~ 10 mA per OUTER SECTOR

WITH GG NORMAL + DATA TAKING, BACK TO ~150 mA SUM

WITH BEAM IN BUT NO DATA TAKING  
INNER GOES DOWN TO ~20 mA ⇒ 'REAL?'  
OUTER STAYS AT ~100 ⇒ BAD BASELINE?

REDUCE VOLTAGE FOR PED.

INNER DROPS TO ~0

OUTER DROPS TO ~20-30

AUG 13 2000

1800 Inner sector anode crate turned off. Saw on the serial connection  
to the VME crate that we have a message!

node1 mainframe in bad status.

Brought demand voltages in LeCroy serial connection down, rebooted  
VME crate, checked CONFIG in the serial connection. Got:

2374 0000 0008 006C 008B

POP STATUS 3 170 185

8/17/00)  
1500 GET ACCESS + CYCLE 1005X

Config.

2374 0000

0008 006C

008B.

8/14

Get another model mainframe in load status.

Input config: Get # 0374 0000 0008 006C 008B

purstatus: 3 170 185

15 AUG 00

03:50 SECTOR 6, CHANNEL 8 TRIPPED - WHILE CURRENT WAS BEING  
RAISED ON INNER  
BEAM IS COGGED AND STORED - DAC

16 AUG 00

04:12 <sup>Inner</sup> ✓ SECTOR 5, CHANNEL 2 TRIPPED DAC  
BEAM IS COGGED + STORED

17 AUG 00

01:37 Inner sector 3, CHANNEL 3 TRIPPED DAC  
BEAM IS COGGED + STORED, but was adjusted shortly before trip  
rich trips at same time?

03:25

Outer Sector 6, CHANNEL 8 TRIPPED DAC  
BEAM IS COGGED + STORED

06:50

outer sector 6, channel 8 tripped DAC  
BEAM IS COGGED AND STORED

18 AUG 00

04:10

outer Sector 6, channel 8 tripped DAC  
Beam is Coggged + stored

19 AUG 00

02:55

INNER ANODES TRIP WHILE BRING VOLTAGES UP. DAC  
BEAM HAD JUST BEEN COGGED AND STORED  
ANODES WERE AT 600 V WHEN TRIPPED

ALL inner anodes except sector 1, chs 2,4  
tripped sector 2, chs 1,4  
Sector 9, chs 1,2

120/00 0910) INNER CATE GLITCHES AGAIN -

~~SET~~ VOLTAGE WAS SET TO 800, BUT ALL CH WENT TO  $\phi$  + SERIAL SESSION DIED.

TURN BACK ON.

1600 OUTER 6 # 9 TRIPPED - NO ALARM FROM PETER OK SLOW UNTRIP

17:45 AL Inner sector 4 ch 1 tripped - Alarm came immediately

21-AUG-80

09:10 reboot arcnet inners

8/22/00 TO MOVE AN EVENTPOOL FILE TO SOMEWHERE SAFE

```
> SSH ONLINE -l STARCKOW
                LOGIN AS STARCKOW
                START # 91
```

```
cd /ONLINE/EVENTPOOL/CURRENT
```

```
> l * RUN # *
```

```
cd /ONLINE/PRODUCTION/USERS/STARCKOW
```

```
> cp /ONLINE/EVENTPOOL/CURRENT/RUN# RUN#
```

PUT PULSER RUN # 01235015 THERE -1 BIT.

8/22/00 Inner Sector 4 Channel 3 Tripped Mark  
Beam is clogged and stored

8/23/00 GETTING INNER SECTOR 3 CURRENTS  $\approx 30$  MA SOMETTIMES  
BEAM INT =  $\phi$  (TV NOT WORKING)  $9.8 \times 11.54$   
ZnC RATE = ~~20~~ 30

24-AUG-00

8/24/00 0930 TRIP INNER SECTOR 1, #1

8/25/00 04:12 rebooting arcnet inners DAC

8/25/00 1450 TRIP INNER 5 #3

8/26/00 02:33 TRIP inner 4 #2  
BEAM is on. DAC

8/26/00 1030 SPONTANEOUS INNER REBOOT

8/28/00 03:15 TRIP, inner 4, #2 Beam is on ~~BEAM~~ DAC

05:10 TRIP, inner 7, #1 BEAM is on DAC

05:30 arcnet inners → spontaneous reboot(?) DAC

8/28/00 1520 FIND INNER SECTOR 6 #2 HAS DEMAND V =  
INNER 6 #3, 4 HAVE 1100? ALL OTHER  
SECTORS AT 1170! HAVE JUST RAMPED UP  
FROM 800 V PEDestal LEVEL. WORK!  
BRING UP W/ SERIAL SESSION.

8/29/00 IN SYSUSER ON SC BOOT PARAMS, TRT ⇒  
ALL VXWORKS SCRIPTS (TYPE MORE)  
IF SOMEONE IS  
AT VXWORKS PROMPT, TYPE "C" + CHANGE  
LINE BY LINE.

THEN HIT "Q"

8/29/00  
~19:00  
AL

Lost voltage at all inner sectors. crighot2 freeze  
Kant's window became yellow, "0" voltage at reading  
window.

I  all current chart at inner sectors

8/30/00

08:15

Trip on Inner Sector 4 Channel 1. Beam was on but it was near the end of store.

8/30/00

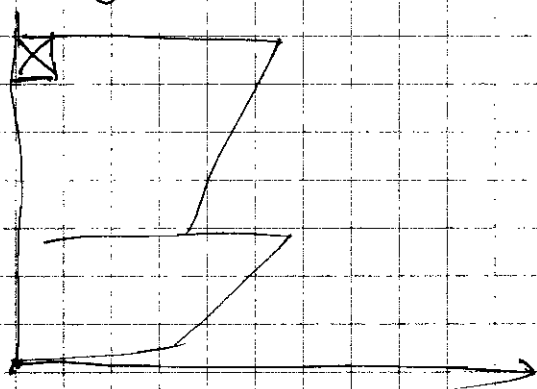
15:45

Trip on Inner Sector 4 Channel 3. Beam was on.

8/31/00

22:10 AL.

Run 1244036 data from online QA screen

Outer sector 20 right corner 38 → 45 rows  
was ~ 2 dead FEE

Run 1247024

Pulsed Run

Inner Sector 5 Channel 4. Beam

5+ physics - 1247024 - Inner Sector 9 Channel 4. Beam

∴ ch. 4 trip Beam ~ 100 20C cm/sec

9/02/00

inner sector 4 ch 2 trip with beam

22:30

~~Inner sector~~ Outer sector 20 channel 5 tripped with beam

23:00

Inner Sector 23 #2 Beam on

9/3/00

TOOK ANTI PULSER RUN RUN # 1247024

20 eV. ALSO TUNED TO STATES

IN DATA

CLOCK = 9.339 MHz



50

PHYSICS

protected  
Dark Matter

03-SEP-00

17:36	inner sector 19, ch 2	TRIPPED, BEAM IS ON
19:14	" " 4, ch 3	" " " "
23:25	" " 4, ch 1	" " " "

04 SEP-00

03:20	inner sector 4, ch 4	TRIPPED, BEAM IS ON
06:20	" " 5, ch 4	" " " "

04.09.00 FEE power supply alarm goes very often

04 Sept  
18:15

inner sector 7-section 4 current jumped to 1uA  
voltage to 0 and back up to 100 current OK  
Alarm showed up in Peter's Handler - that's what alerted problem

noted that inner 4 ch 1 had been left at 1000V  
probably from last trip at 4 Sept 16:10

10/26/00 FROM ALHONN'S DE/EX GAIN STUDIOS -

RECHECK SOME LECROY OUTPUTS ALA PAGES 17-21

	V <sub>L</sub>	I <sub>L</sub>	V <sub>K</sub>	V <sub>c</sub>
51 #5	1391	1.318	13.1072	1394.7
1 #6	1391	1.321	13.1084	1394.8
1 #7	1390	1.309	13.1034	1394.3
1 #8	1390	1.315	13.1047	1394.4
5 #5	1391	1.334	13.1016	1394.1
5 #6	1389	1.320	13.0955	1393.4
5 #7	1390	1.319	13.0986	1393.8
5 #8	1390	1.319	13.0986	1393.8
20 #5	1391	1.337	13.1023	1394.2
20 #6	1390	1.330	13.0987	1393.8
20 #7	1390	1.307	13.0960	1393.5
20 #8	1390	1.323	13.0987	1393.8
12 #1	1170	1.110	11.0366	1174.9
12 #2	1171	1.110	11.0284	1173.50
12 #3	1170	1.121	11.0250	1173.1
12 #4	1171	1.114	11.0302	1173.7
19 #1	1170	1.110	11.0320	1173.9
#2	1171	1.113	11.0312	1173.8
#3	1171	1.107	11.0278	1173.4
#4	1171	1.118	11.0293	1173.6

3/21/01 ONLY JUNK / NET / DAQMAN / DATA / SCRATCH / TPC  
FOR RMS FILES

3/23/01

HAVE TURNED ON CATHODE = 400 V - ALL OK

HAVE TURNED ON G6 - SECTOR 1 OUTER GAVE 0 V  
WAITING FOR G6 TESTS TO BE OVER, - WORKED ON ON  
3/23/00

WORKING ON FEE + RDO

3/26/01 (1520) TURN ON ANODES W/ 200 VOLTS  
CHECK FOR CABLE CONNECTED (= CURRENT DRAW)  
AND TRIPS.

INNER - ALL SECTORS OK -  
HOWEVER, CRATE IS STILL BAD

WOODEN MAINFRAMING IN BAD STATUS

CONFIG 0374 0000 0008 006C 009B  
↑ DIFFERENT  
PUPSTATUS 3 170 185

OUTER - ALL SECTORS OK

CONFIG = 0174 0000 0007 006C 008B  
PUPSTATUS = 1 1 1

3/27

GET S/N 68118 BACK FROM LECROY

- SENT BACK UNREPAIRED!

" UNREPAIRABLE DUE TO UNRELIABLE / INTERMITTENT  
PCB "

STILL BAD IN CRATE - FOR 100 V DEMAND,  
MEASURED = 350 V W/ NO LOAD + THEN  
TRIPS

CALL NEW COMPANY ABOUT THIS CARD + CRATE

MANY (UNDOCUMENTED) CHANGES! GREAT.

INSTALL S/N 69023 IN SLOT 13 OF OUTER CRATE.  
FOR NEW CAIN CHAMBER.

TEST OUTPUTS 0+1 ONLY FOR CURRENT + TRIP

3/29

CAI ENGINEER  
STEVE KRETCHMAN  
714-282-6203

CAI ANALYZER ACCURATE TO 1% OF FS  
= ~~0.2~~ 0.2

TRY RPS2 - OK - GLASMAN TURNS ON + OFF

TRY RPS1 - NOT OK - COMMANDS NOT  
ECHOED + COMMAND ECHO = OFF (SHOULD BE ON)

THEN IT TIMES OUT + F CAN'T LOG BACK IN.

IT HAS WAVEFORM + TRIP TEMP

LATER - LOGIN OK + SET COMMAND ECHO ~~ON~~ ON  
ALL OK.

3/20) TURN ON GG - SECTOR 4 OUTER VGG ONLY GOES TO  
100 V.

CHECK MONITOR OUT OF ALL SECTORS W/ PULSER  
- ALL OK

CHECK SPACE LECKROY MAINFRAME IN DAQ ROOM.

CONFIG = 0274 0000 0007 0000 009B  
RUPSTATUS = 2 2001 1

PULL 3 CARDS FROM INNER CRATE:

CONFIG 0274 0000 0008 0000 008B  
RUPSTATUS 2 2001 1

LOOKS OK - WAIT ..... HV "OFF" FOR THIS TEST

3/21/81 S 000 1000 1000 1000 1000

3/31/01 PUT ONE CARD BACK IN.

CONFIG = SAME PUP STATUS SAME  
LEAVE IT OVERNIGHT

4/1/01 STILL ON - MAYBE HV HAS TO BE ON?  
TURN ON 200V (CABLES NOT CONNECTED)  
2 CARDS STILL PULLED OUT  
LEAVE OVERNIGHT

4/2/01 CONFIG 2274 0660 6008 0000 008B  
PUP STATUS 2 2501 1

0930 PUT 1 CARD BACK IN - 1 STILL OUT  
200V AGAIN - CABLES DISCONNECTED  
... ON FOR ~10 HOURS, THEN TURN HV OFF

4/4/01 PUT LAST CARD BACK IN.  
200V - CABLES DISCONNECTED

4/4/01 GLASSMAN HOOKUP:

AC = RPS 2 PLUG A1  
TOGGLE = CURRENT TRIP  
FRONT POT CURRENT LIMIT = 1.20  
LV = 0.0

TBI

JUMPER

- 1 = #1 GREEN
- 2 = RED FROM AB
- 3 = BLACK FROM AB
- 4 = 4 ORANGE
- 5 = 5 RED
- 6 = NC
- 7 = 7 BLUE
- 8 = 8 YELLOW
- 9 = NC

CABLE 2, 3 AC

- 10 = HV ENABLE
- 11 = HV ENABLE COMMON



4/20/01) TURNING BACK ON AFTER CERTIFICATION:

1. GG INNER #4 GG ONLY 118
2. TRY AGAIN - NO GO,  
RAISE ~~DEMAND~~ DEMAND TO 137, OUTPUT GOES  
TO 127.

4/23/01) 4600 GAS SYSTEM IN RECIRC MODE

1. CATH. CHAMBER LOOKS OK @ 1390
2. GG NEEDS TO BE REBOOTED 3 TIMES BUT THEN  
IS OK (EVEN INNER 4)

3. CATHODE TO 31 KV

OFC\_1 W 84.78157

OFC\_1 E 84.77165

IFC\_1 W 84.78703

IFC\_1 E 84.78921

SHEN -6.47

-36.882

-37.26651

-195.215

-196.0022

-26.368

-26.267

-195.9059

-195.841

4. ANODES ON @ NOMINAL

ALL PBE + MWC FBE POWER ON

NEW TRANS 6 ROD'S DON'T CONFIGURE - POWER CYCLE, NO GO

5. OUTER SECTOR 6 FEE MANIFOLD THERMISTOR  
SHOWS 88°!

4/24/01

DANNY FINDS 3 PROMS IN BACKWARDS, 1  
RIBBON DISCONNECTED.

TWO BOARDS LOOK OK, SO PUT BACK IN TAI  
FOR NOW

SECTOR 1 ROD 2

SECTOR 23 ROD 4

ALL ROD'S OK.

1300) TAI PROMS INSTALLED FOR - OK.

1/25/01

1600

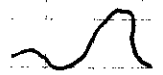
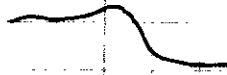
RUN LASERS CATH = 27.0 CS = 111  
CLOCK = 9.2159

MEMBRANE = 343

4/26/01

1100

BAD NOISE SHOWED UP YESTERDAY  
ON GAIN CHAMBER + THE ANODE PA.

GAIN SPECTRA GOES FROM  TO   
NOISE CAME SOMETIME AFTER 10:00 MTG.  
ON THE PA, NORMAL BASELINE OUT OF SHAPER MINIMUM ± 200mV  
INVESTIGATE SOURCE TODAY. W/ NOISE ~~MINIMUM~~ ± 1.0V  
AT 0900, NOISE NOT THERE

- TURN ON: FTFC LVPS - NO
- SVT COOLING SYSTEM - NO
- SVT LVPS - NO (FOR RDO)
- MWPC LVPS - NO
- GATED GRID - NO

WATER -

GAIN CHAMBER CNDLED TO WHEEL - NOW ON  
OUR PA - HARD CABLE HANGING OFF CARD - NOW ON (SAYS ALREADY)

STRIP GAS DISPLAYS ON ONLINUX?  
 FROM ONLINUX: SSH SYSUSER@ SEC, STAMP.BWL.60V  
~~LOG ON TO SEC~~  
 TYPE "STRIPGAS"

INDIVIDUALS:  
 STRIPDET  
 STRIPGAIN  
 STRIP1 PT5  
 2 PT8  
 3 PT8 + PT82  
 4 ANODES ± CURRENT  
 5 M102



58

4/26/d

1730

AFTER SC GLITCH, COME UP W/ IFC WEST HIGH CURRENT

AT 10KV, SHOULD BE 27.427

IS 27.578

NO CURRENT ON SHELL

RUN DOWN TO 0 + TRY + GO UP AGAIN.

AT 1KV WEST = 2.85155

EAST = 2.83588

RATIO = .9945

$\frac{181}{182} = .9945 \Rightarrow$  SHORTED STRIPE

@ 2KV WEST = 5.60436

EAST = 5.57382

.9946

4/27/01

1000

STILL SHOWING SHORTED STRIPE ON IFC WEST.

AT 27KV:

OFCW 73.8683

OFC E 73.86679

IFCW 74.28318

IFC E 73.87627

SHELL - 2 mA

- 32.131

- 22.539

- 17.304

- 171.0152

- 23.088

- 22.893

- 171.8297

- 170.854

1600

SECTOR 10 OUTER # 5 SHOWING 4.3 mA ON SERIAL SESS.

4.4

AT 1000V

CURRENT  $\approx$  .013  $\rightarrow$  .021

AT 500V

$\sim$  .011

1200

$\sim$  .031

4/30/01 1415) MEASURE FC WITH  $\Omega$  METER:

GO FROM HV CABLE TO STRIPE 181 BNC CABLE.

w/ KIETHLEY:

<u>OFCE</u>	<u>IFCE</u>	<u>OF CW</u>	<u>IF CW</u>
361.?	362.2	361.5	360.0
361.6	362.1	361.6	360.3

WITH M- $\Omega$  METER

@ 50V	360	362	360	360 (50V)
	360			360 (100V)

ONLY 3 DIGITS FOR M- $\Omega$  METER.

AL LOOKS IN AIR MANIFOLD TUBES AT 6:00 ON WEST - NOTHING BIG VISIBLE.

~~SET UP FOR BOLESCOPE.~~ - ALBERT CHECKS STRIPE TO STRIP  
FINDS ONE ~70cm IN AT 8- $\Omega$  BUT IT GOES AWAY. NO OTHERS

S/1/01)	361.3	361.6
---------	-------	-------

TRY w/ VOLTAGE

500V	OF CW 1.469	OF CE 1.469
	IF CW 1.469	IF CE 1.469

1000V ALL @ 2.838

2000V ALL @ 5.576

3000V OFC = 8.312 IFC = 8.313

4000V OFC = 11.041 IFC = 11.042

5000V ● 13.776 13.775

13.776 IF CW 13.777 IF CE

6000V IFC = 16.512

7000V IFC = 19.240

8000V IFC = 21.974

9000V IFC = 24.709

10000V 27.433 27.430

27.434 27.435

-11.93

-12.08

5/1/01 11:40 600V @ OUTER SECTOR 10 #5 w/ ~~LOAD~~ <sup>NO LOAD</sup>

200 V	.011	
500 V	.008	
1000 V	.008	⇒ NOT THE CARD.
1400 V	.013	

5/2/01 FROM LAST RUN, BAD FEES + RDO'S

FIXED ( SECTOR 22, Row 30, FEB 61, PADS 1-6  
31, 61, PADS 1-7 ) FEB

RDO SECTOR 7 RDO #?

RDO w/ FLUCTUATING BASELINE: SECTOR 21 RDO #3

5/2/01 1600 AZ CLEANS ETCD INNER FC w/ VACUUM CLEAN  
SEES SOME HAIR (WIND?) OR CHIPS.

TRY FC

1 kV	IFC	2.832		
2 kV		5.569		
5 kV		13.769		
10 kV		27.428		
15 kV	IFCW	41.317	IFCE	41.091
10 kV		27.575		27.424
5 kV		13.842		13.767
1 kV		2.847		2.831

5/3/01 1530 AZ CLEANS AGAIN

1 kV - STILL SHORTED

5/7/01 SHORT FOUND ON ~~NO~~ STRIPE ~ 179 - STILL SHORTED

11:50 CHAMBER w/ Ω METER.

AZ FINDS ~ 2mm CHUNK OF (METAL?) AT 6:00 - WASN'T  
THERE BEFORE - MAYBE FELL FROM ABOVE.

SHORT GONE w/ Ω METER

TRY HV

1 kV		2.832		
2 kV		5.569		
3 kV	IFCW	8.353	IFCE	8.306
5 kV		13.846		13.771
3 kV		8.353		8.306

6:00) NOTHING HAPPENED IN BETWEEN -  
MEASURED AGAIN - NO SHORT!

1 kV	2.832	
2 kV	5.569	
3 kV	8.35	8.306 ← BAD
5 kV	13.847	13.771
10 kV	27.581	27.430
1 kV	2.846	2.831

5/8/01) 11:00 AL INSPECTED 179 ALL AROUND w/ BOLE SCOPES.  
NOTHING FOUND.  
WEDNESDAY EVENING, HE MEASURES ~ 10 TO 15 uA  
& LEAVES PROBE IN PLACE.  
THIS MORNING, HE TURNS ON OVM & MEASURES 2 mA!  
SO ⇒ FIXED ITSELF OVER NIGHT!?  
- HE BLOWS DRY N2 ALL AROUND - BLOWING TOWARD  
END CAP. STILL 2 mA, TRY VOLTAGE:

1 kV	2.832
2 kV	5.569
3 kV	8.306
4 kV	11.035
5 kV	13.770
10 kV	27.429
15 kV	41.095
20 kV	54.747
25 kV	68.397
30 kV	82.066

GOOD FOR 25 MINUTES - RAMP DOWN.

11/9/01) AFTER POWER OUTAGE, TURN ON ALL SYSTEMS:

1. INTERLOCK STATUS BIT FOR FEE EACH 287 DOESN'T CLEAR - DS GO ON ANYWAY.
2. GC #4 INNER ONLY 118 VOLTS (SEE ABOVE).
3. FC ON TO 27 kV

ALSO, TPC WATER SUIII SETPOINTS NOT TO 74°F

Date: Thu, 17 May 2001 10:50:26 -0700  
 From: Eric Hjort <ELHjort@lbl.gov>  
 To: "Blair C. Stringfellow" <string@physics.purdue.edu>  
 Subject: Re: Padmonitor

Hi Blair,

I updated the padmonitor on onlsun1 (but not the one on real afs). It should work fine with the event pool, but some functionality has been lost. The run++ and run-- buttons won't work, and the event info that used to be printed in the file input window (showing the exact time the event was taken, among other things) is no longer present. This is a result of the changes to the event pool. Try it out and let me know what you think.

Eric

EVENT POOL

lnet/evp/a/run  
 b  
 c  
 d

UNIX EDITOR = P

FOR SECURE COPY <sup>OF A FILE</sup> FROM PURDUE -  
 LOGGED ON ~~FROM~~ SC:

TO  
 > scp <sup>bohr:</sup> string@physics.purdue.edu: filename.ext . /  
 TO COPY TO PURDUE  
 > scp filename.ext string@physics.purdue.edu:

5/22/01

ALL 66 DRIVER MODULES MODIFIED TO REDUCE SWITCHING PS NOISE. ALL PLATFORM INSTALLED MODULES COME UP TO VOLTAGE. MODS INCLUDES ALL TPC (12) + 4 SPARE + 2 FTAC.

CHECKED - VOLTAGE ON, SWITCHING ON

5/22/01

LEADY SERIAL SESSIONS SWITCHED FROM TIP SESSIONS ON CKR61TON2 TO SCSESV.

SCSESV 9037 = INNER  
 SLSESV 9038 = OUTER

5/30/01

FIXED PROBLEM W/ RACK 2 BY FEE PS. SYMPTOMS WERE THAT WHEN VME CRATE WAS TURNED OFF, THE PS IN THAT RACK TURNED ON! ONLY WAY TO TURN THEM OFF WAS TO TRIP RACK BREAKERS.

5/31/2001 } PUT LAMP ON PLATFORM METHANE SNIFFER  
PLUG INTO RPS2 #5 (FOR TV CAMERA).

RUN UP CATHODE - OK @ 27KV  
GG OK  
ALL FEE PS OK

INNER CRATE : CONFIG 0174 0000 0008 006C 008B  
PUPSTATUS 111

OUTER CRATE : CONFIG 0174 0000 0007 0075 008B  
I/O STATUS 111

6/6/01) LOG FILE FOR ANODE AUTO RAMP PGM  
ON SC ~sysuser/ETICS4/TPCApp/logger/  
USE "MORE" TO READ. current.log

6/8/01) REPLACED S21 ROD #3 LVPS. INTERMITTENT PROBLEM  
TRACED TO BAD PS. OK NOW. - SEE P468

Date: Wed, 27 Jun 2001 09:52:04 -0400 (EDT)  
From: Alexei N Lebedev <alebedev@rcf2.rhic.bnl.gov>  
To: "Blair C. Stringfellow" <string@physics.purdue.edu>  
Cc: alebedev@bnl.gov  
Subject: PC restart

Hello, Blair  
There 2 PC: with laser stuff- LANCASTER on first floor and videoPC on second floor. Usually these pc are stable and could be hanged in case of power dip. AT this point PC need to be rebooted. On both PC Windows 98 installed. No any password are installed, just hit ENTER.  
On LANCASTER on desktop PROJECT 4 is a program to start laser system remote control. Double click will open CONTROL UNIT window. Click on VIDEO SETUP will open VIDEO SETUP window. Press CONNECT button and TV frame will appear. Next step is to press LASER CONTROL and GRADUIROVKA buttons on first window(CONTROL UNIT). LASER CONTROL window provide lamp and Q switch trigger, synchronization for CCD cameras. For laser 1 and 2 190 microseconds are seted, for synchronization 100 milliseconds are seted. Press LASER 1, LASER 2, SYNC buttons to confirm this sets. Channel 1 and Channel 2 are to deliver TTL signals for Forward TPC flippers and to recicle low voltage power on west laser(unit1). Sometimes this laser failed to start. To recicle LV power, delete set in windo 5 in CHannel 2 and press button Set 2. LV will disappear. YOu could check it through remote video looking on west laser control board. At this point no LED will be seen. To restore LV, put flag into window 5 and press Set 2 button. LED will light on laser control board.  
To switch FTFC flippers window 1(east FTFC) and window 3 (west FTFC) sould be activated by the same method. Put flag into these windows and press Set 2 button. For TPC windows 1 and 3 should be cleared and confirmed by Set 2 button.

VIDEO PC  
STARTS  
PROCESSES  
AUTOMATICALLY  
AFTER  
WINDOW

East  
Laser

Date: Thu, 07 Jun 2001 12:46:55 -0700  
From: fred bieser <bieser@lbl.gov>  
To: Jon M Engelage <JMEngelage@lbl.gov>  
Cc: tonko@bnl.gov, string@physics.purdue.edu, egjudd@lbl.gov,  
hjcrawford@lbl.gov  
Subject: Re: SUMMARY: Special Triggers via the TCD Interface

OK, it's all coming back now: The methodology I described earlier does work and represents the original intent BUT with totally asynchronous requests, it eats up a lot of livetime waiting for the 10Hz laser. Howard showed me the diagram of how laser triggers were handled last summer and now I recall why:

EAS1  
Laser  
diode

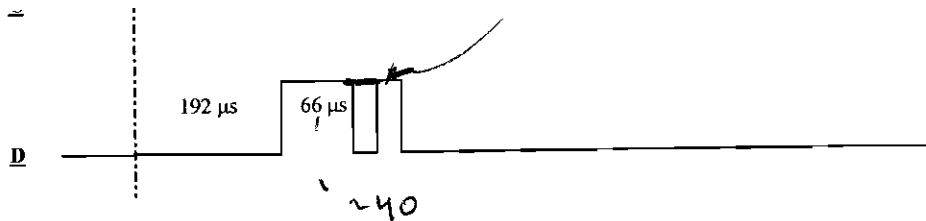
total deadtime is only 200microseconds (plus the usual 10ms event time). One weakness is that IF the flashlamp fires but the laser doesn't, DAQ is hung for 5seconds waiting for an event that doesn't come.

The suggested solution is to take a delayed pulse from the second delaygate (which drives the special trigger request LSB) and OR it with the PIN diode signal feeding the TCD J6 so that the TCD will be guaranteed to generate a RDO trigger.

The only down side I see is precluding other special trigger request patterns but I guess only the Laser event is generally interesting to intersperse with physics data.

Blair will update the block diagram and Howard will make it available on the web. (?)

fred



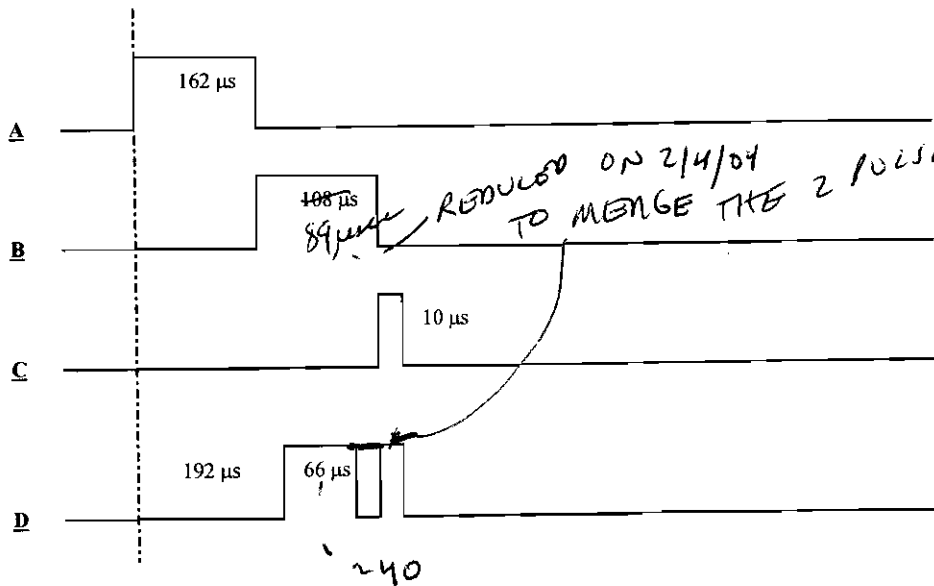
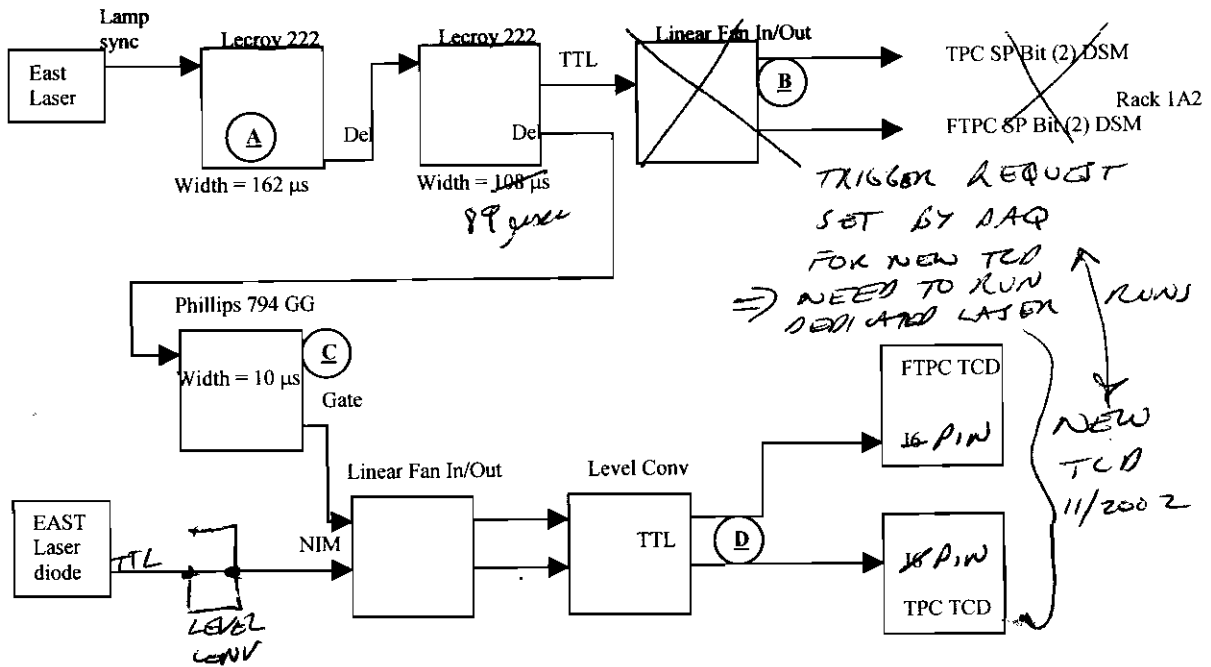
Rewiring of special laser trigger for TPC and FTTPC. (See page 29 of 2000 logbook for original version.) The purpose of this hard wired trigger request is to avoid the inherent 100 msec deadtime which would occur if the trigger request went through the TCD. (Laser rate ~ 10 Hz). The current version adds fanouts to make the FTTPC identical to the TPC. I have also added a "safety" pulse to the diode line - if the diode fails to fire, this safety pulse will trigger the system anyway. This gives an empty event but avoids the VERY long DAQ timeout. With no gas in the chamber, Tonko and I tested this setup (for the TPC only.) We started a run with the laser off and got no triggers. We then powered on the laser and the system took data. We then powered off the laser and the system stopped. This theoretically means we can turn on the laser during a physics run and interleave laser events without stopping. Note that BOTH TPC and FTTPC trigger no matter where the beams are steered. They are sharing the same laser, but the beam steering comes after the lamp sync and diode signals.

Blair Stringfellow

6/8/2001

bit (2) DSM  
~~X~~ Rack 1A2  
 Bit(2) DSM  
 JUST  
 P  
 ?  
 U  
 M  
 RUNS  
 NEW  
 TCD  
 11/2002

35



Rewiring of special laser trigger for TPC and FTPC. (See page 29 of 2000 logbook for original version.) The purpose of this hard wired trigger request is to avoid the inherent 100 msec deadtime which would occur if the trigger request went through the TCD. (Laser rate ~ 10 Hz). The current version adds fanouts to make the FTPC identical to the TPC. I have also added a "safety" pulse to the diode line - if the diode fails to fire, this safety pulse will trigger the system anyway. This gives an empty event but avoids the VERY long DAQ timeout. With no gas in the chamber, Tonko and I tested this setup (for the TPC only.) We started a run with the laser off and got no triggers. We then powered on the laser and the system took data. We then powered off the laser and the system stopped. This theoretically means we can turn on the laser during a physics run and interleave laser events without stopping. Note that BOTH TPC and FTPC trigger no matter where the beams are steered. They are sharing the same laser, but the beam steering comes after the lamp sync and diode signals.



6/22/00 ON PETER'S ALARM PLM, I INCREASE TIMEOUT FROM 300 TO 500 msec + RETRY FROM 1 TO 2.

HOPE THIS HELPS W/ "GKEY" ALARMS. THERE IS ALSO A DISABLE BUTTON FOR THIS BUT I LEAVE IT ENABLED FOR NOW

Jun 22 2001 10:44:30

cdev\_inout.txt

Page 1

# The "mode" must be non-zero to stop the run
# all other values will print warnings in log
# files but won't be proactive.
#
# "runmask" is a bit pattern representing run type
# for which this variable will be active. These are
# the currently (06/22/01) supported bits:

# TEST 0
# PED 1
# PHYS 3
# LASER 4
# PULSER 5
# CONFIG 6
# COSMICS 7

# "detmask" is DAQ's bit mask of detectors and is:

# TPC 0
# SVT 1
# TOF 2
# EMC 3
# FPD 4
# FTPC 5
# PMD 6
# RICH 7
# TRG 8
# L3 9
# SC 10

#mode[0,1,2] runmask[hex] detmask[hex] va
# Globals
0 0x08 0xffff cdev\_mainMagnet2
1 0xff 0xffff read\_freq
# DAQ specific
#2 0xff 0xffff cu\_vme15\_temp\_fan\_nms
# TPC
2 0x08 0x0001 tpchv:0\_alarm
2 0x08 0x0001 tpchv:1\_alarm
2 0x08 0x0001 cathode\_alarm
2 0x08 0x0001 GG\_alarm
2 0xff 0x0001 mwpc\_alarm
2 0x02 0x0001 tpchv:1\_ped\_alarm
2 0x02 0x0001 tpchv:1\_ped\_alarm
# RICH
2 0x0a 0x0080 richon\_lvtop
2 0x0a 0x0080 richon\_lvbot
2 0x0a 0x0080 richon\_lvdist
2 0x08 0x0080 richon\_collector
2 0x08 0x0080 richon\_hvwires

Date: Tue, 3 Jul 2001 12:45:52 -0500 (EST)
From: "Blair C. Stringfellow" <string@physics.purdue.edu>
To: Ante A Ljubicic <tonko@bnl.gov>,
Dennis Reichhold <reichhol@rcf.rhic.bnl.gov>,
"Blair C. Stringfellow" <string@physics.purdue.edu>
Subject: runmask error conditions for TPC

Here are the slow controls variables that should be tested for various runs for the TPC:

Table with 3 columns: runmask, detmask, variable. Contains entries for tpchv:0\_alarm, tpchv:1\_alarm, cathode\_alarm, GG\_alarm, mwpc\_alarm, tpchv:0\_ped\_alarm, tpchv:1\_ped\_alarm, and GG\_alarm.

I calculate that 0x98 is phys + laser + cosmics

ADD GG

VALID CATHODE = GLASSMAN ON, V > 25KV, Δ(DEMAND - REAL) < 80 VOLT
VALID GG = ALL GREEN OR YELLOW
VALID MWPC = ALL LVPS ON
VALID TPCHV!0 = Δ(MEAS - DEMAND) < 10 FOR EACH CHANNEL OUTER
ALL CHANNELS AT NOMINAL SETPOINT INNER

7/3/01 ) FIELD GAGE AGAIN - SEE

RAMPING TO FULL FIELD

@ 10 kV

D=4-5	OFCW	27.4 <sup>441</sup> <del>37</del>	IFCW	27.437
	OFCE	27.434	IFCE	27.436

@ 20 kV

FULL FIELD

D=6-8	OFCW	54.757	IFCW	54.751
	OFCE	54. <del>757</del> 746	IFCE	54.752

@ 30 kV

FULL FIELD

D ≈ 11	OFCW	84.805 ←	IFCW	84.796
	OFCE	84.790	IFCE	84.796

31 kV

HALF FIELD

D ≈ 3.7	OFCW	84.784	IFCW	84.784
	OFCE	84.790 <del>84.784</del>	IFCE	84.793 <del>84.784</del>

31 kV

FULL FIELD

D ≈ 11	OFCW	84.8012	IFCW	84. <del>790</del> <sup>790</sup>
	OFCE	<del>84.784</del> 84.784	IFCE	84.791

Plot

31 kV

0 FIELD

D ≈ 5	OFCW	84.782	IFCW	84.788
	OFCE	84.782	IFCE	84.790

7/2/01) RUN MAGNET TO FULL FIELD, CHECK CATHODE AT 31KV TO CHECK WHETHER WE REPEAT WHAT HW SAW AT END OF LAST RUN (OFC CURRENTS NOT EQUAL).

READINGS:

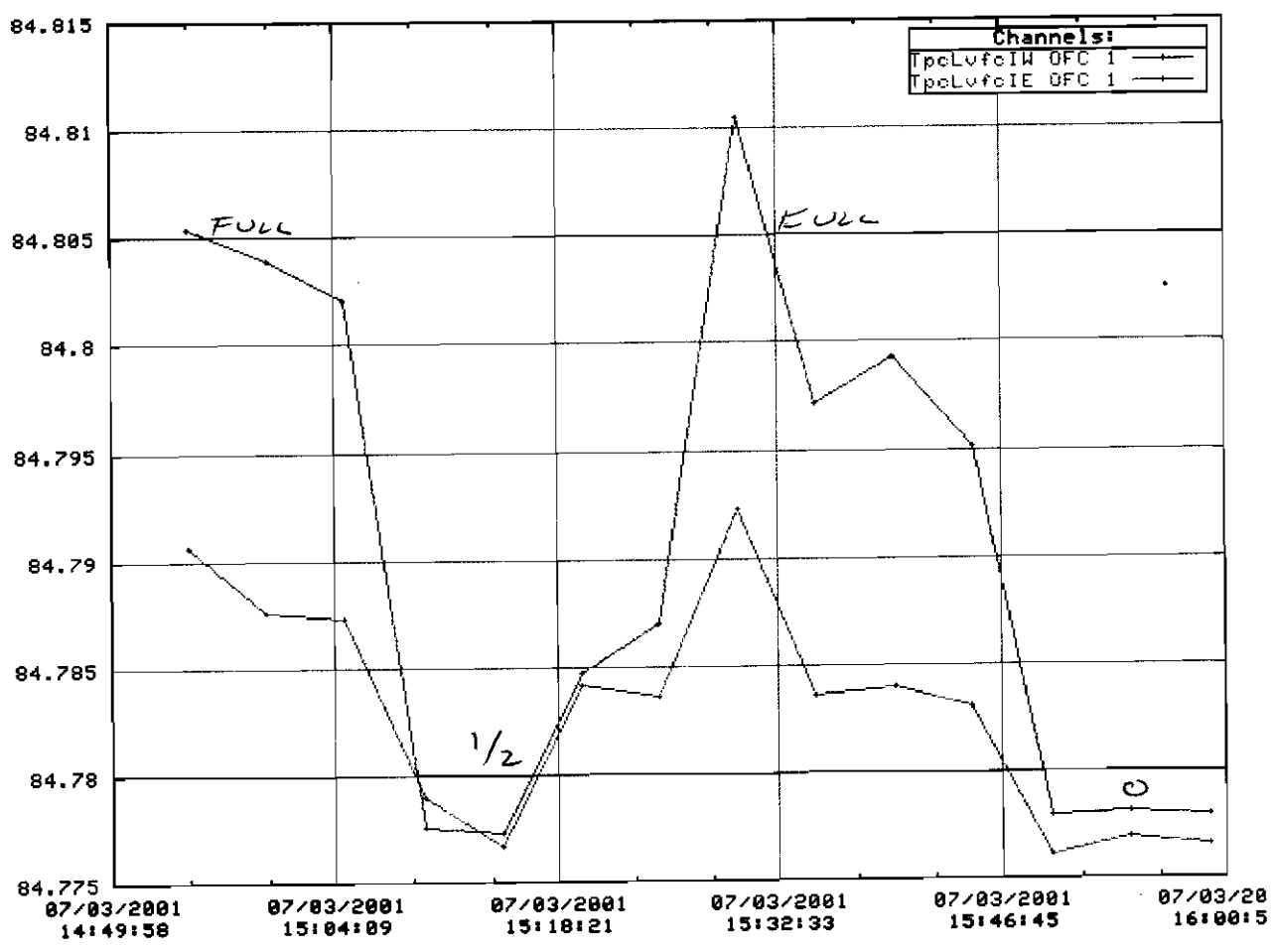
OFCW	84.806	} IS THIS DIFF WHAT HW SAW?
OFC E	84.790	
IFCW	84.795	
IFCE	84.797	

SEEMS CONSTANT OVER ~ 20 MIN.

OFCW	195.298
OFC E	195.937

RAMP DOWN



7/2/02 MAGNET POLARITY EFFECT, OFCW > OFCE

TPM.EXE FOR NEW PAD MOVN (IT'S IN /RTS/kim/SUN

YELLOW = EAST  
BLUE = WEST

7/6/01 10:30 RDO 21 #3 AGAIN DOESN'T CONFIGURE -  
COULD BE CONNECTOR AGAIN, FULL B FIELD

11:30 CONNECTOR OK. SWAP PS 21-3  $\Rightarrow$  21-2  
STAYS WITH 21-3  $\Rightarrow$  NOT THE PS!

AL CHECKS THE LED'S ON BOARD, LED DOESN'T  
SEEM TO BE ON (WHICH LED?)

WITH FIELD OFF RDO POWERS UP ON  
7/11/01 521 #3 TURNS OFF WHEN FIELD  $\approx$  3M.

7/6/01 1400 CHECK OUTER SECTOR 10 #5 w/ NANODIAMETER

<u>HV</u>	<u>SERIAL</u>	<u>NANODIAMETER</u>
20	.008 $\mu$ A	0.0 mA
200	.008	1.5
500	.011	3.5
800	.021	5.3
1000	.018	7.0
1200	.038 $\rightarrow$ .013	6.5 (AFTER 5 MIN)
1300	.021 $\rightarrow$	6.8
1390	.013	~5.0 AFTER 10 MIN - NO JUMPS

LOOKS OK

SEE

7/6/01 SETUP RDO 2-4 HAS PROBLEMS CONFIGURING, THEN  
FIND SWAPPED RECEIVER FIBER ON SECTOR 17, 1+2

LASER MEMBRANE POS = 351

RUN 2187058 PEDESTAL FILE RCF

RUN 2187059 LASERS RCF CLOCN = 9.341  
BFIELD OFF

A.L. Sector 23 ch 5 tripped twice!! during voltage ramp  
19:00 it was manual with 200 v steps 200, 400, 600, 800  
1000, 1200, 1300... 1390

7/7/01 6900 CHECK OUT 523 OUTER - OK @ 1390 FOR 1/2 HOUR.

2/14/01 1200) AFTER TRC ON FOR ~ 2 HOURS, OUTER SECTOR 10, #5 SHOWS CURRENT AGAIN. ~ 41 nA ON SERIAL SESSION.

2/15/01 11:30) SECTOR 10 #5 w/ NANOAMMETER AGAIN

	<u>SERIAL</u>	<u>NANO</u>
<del>400</del> 0 V	11	
400 V	8	2.6
800 V	23	13.3
1000 V	36	23
1200 V	41	28
1300 V	46	29
1390	41-43-36-29	28-24 (~5 min)

SWAP 10-5 + 10-6

	CH 10-5	CH 10-6	NANO (10-6)
400 V	.013	-.003	1.5
800 V	.009	.009	7
1000 V	13-8	14-9	13
1200 V	8-16	21	21
1300	13-11	24-26	25
1390	13-11	36-17-24	28-24 (5 min)

⇒ IT'S ON THE CHAMBER TRC OUTPUT OF CARD IN SLOT 13

400 V	.003	2
800	.008	7
1000	13	13
1200	25	21
1300	28	25
1390	38-18	28-27

SWAP THE CARD - TAKE SLOT 5 S/N 68031 + SWAP WITH SLOT 13 S/N 68023

SLOT 13 = GAIN CHAMBER ⇒ ONLY OUTPUT #1 USED THIS MAY KEEP CURRENT DRAW < MAXIMUM LEVEL FOR NOW

CHECK @ ~~1000~~

1000	9	14
1200	23-18	21
1300	28	25
1390	25-18	27

TO REBOOT A VME PROCESSOR WHICH IS STUCK AT THE VXWORKS PROMPT, TYPE @

6

Field Cage Currents & Voltages at 28.0 kV  
For B = 0

OFCW	76.601	OFCE	76.599
IFCW	76.606	IFCE	76.607
WOFC_0	-33.296	EOFC_0	-33.597
WOFC_1	-176.45	EOFC_1	-177.020
WIFC_0	-23.82	EIFC_0	-23.693
WIFC_1	-177.08	EIFC_1	-176.96

7/17/01) 1615) FULL FIELD LASER RUN BY REVERSED POL.  
 21<sup>#3</sup> CONFIGURES!? - NOT ON 7/19 BY B POL  
 SECTOR 10 #5 WARMING CURRENT OSC 6-14 mA.  
 SERIAL CURRENT ~ 15 mA - 18  
 TRIP ON SECTOR 23 #5 NO BEAM  
 AGAIN TRIP @ 1200 V!  
 RAISE SLOWLY → OK

7/18/01) 1100) POT CAUSTIC SODA IN WATER SYS. PH WAS 5.  
 NOW 10.8!

1715) PH = 9.92

7/19/01) 0845 PH = 7.68  
 1140 PH = 7.54 PI BOSS OFF R = 1.4 MΩ  
 0030) 21 3 DOES NOT CONFIGURE.

1130) S10 #5 SHOWS ~ 15-20 SERIAL  
 S9 #8 " 0-20 SERIAL (NEW) - GAVE ONE YELLOW

7/20/01) 0900) PH = 7.03 R = 1.9 MΩ

7/21/01) 1015 PH = 6.48 R = 1.7 MΩ

7/22/01) 0940 PH = 6.24 R = 1.5 MΩ  
 1715 PH = 6.17 R = 1.5 MΩ

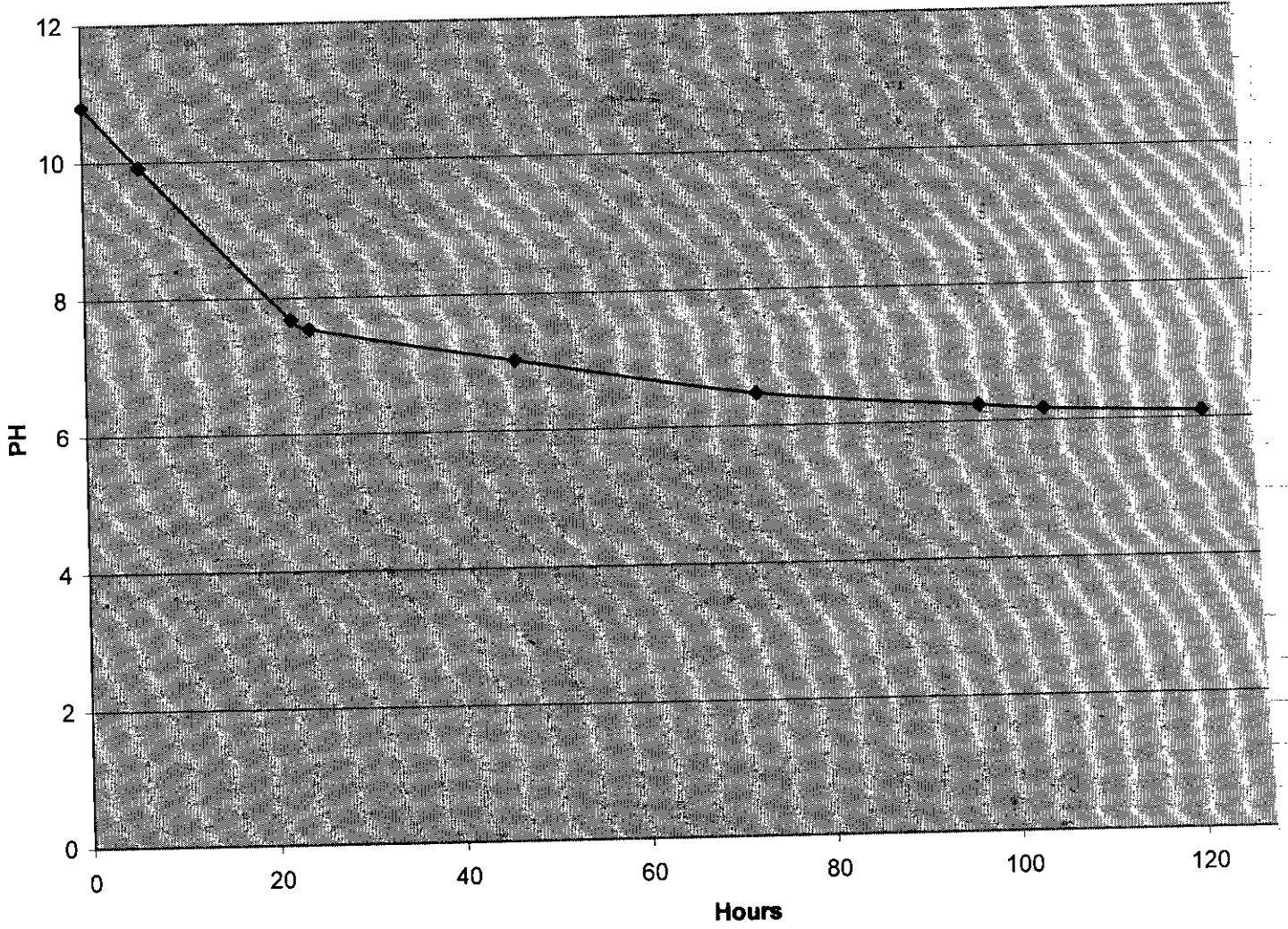
7/23/01) 0900 PH = 6.10 R = 1.4 MΩ

7/24/01) 0900 ~~6.03~~ 6.03 1.3 MΩ

7/26/01) 0900 6.03-6.09 1.2 MΩ

7/27/01) 0900 6.02 1.2 MΩ

TPC PH  
7/18/01



7/23/01

1400

Look @ ADG, SECTOR 5 - SHOWING NOISE 100  
~8 FEE'S.

PULSER SHOWS NO NOISE!?

TAKE EMPTY EVENT - STILL NO NOISE

MAGNET OFF, TPC OFF, ALL OTHER DET OFF.

NO BEAM - CHECK LATER W/ BEAM + MAGNET

7/25/01

FROM PHYSICS RUNS, SUT MAY BE CULPIT  
FOR S5 #6.

7/27/01 1300) SET UP FOR NOISE STUDIES FOR SECTOR 5, R

CONDITIONS FOR TPC: GG ON, FEES ON, ANODES, CATH  
MAGNET

8002 PED  
 RUN 2208003 PHYSICS TRIGGER (EMPTY) - NO NOISE TPC  
 RUN 2208005 SVT LUPS ON (R00) + READ OUT - NO NO  
 RUN 2208006 SVT HV ON - NO NOISE!  
 RUN 2208010 B=1, TPC ALL ON, SVT OFF TPC ONLY (N  
 RUN 2208011 B=1, TPC ANODES+CATH OFF, SVT OFF TPC ONLY (NO  
 RUN 8012 SAME AS 801, BUT  
 SWAP FIBER AT RECEIVER - NOISE GOES UP R  
 RUN 8013 CYCLE LUPS  $\checkmark$  TIMES - (NOISE)

NO CONSISTENT RESULTS, BUT PROBABLY NOT SVT.

PUT THOSE BAD SECTIONS IN BAD PAD FILE.

7/30/01 0900) LARRY PUTS IN  $\sim 4$  TEASPOONS OF CAUSTIC  
 PH GOES UP TO  $\sim 9.56$

ALSO, SETS CONTROLS FOR RESISTIVITY TO REGULATE  
 AT  $500 \mu\Omega$  (INSTEAD OF  $1 \text{ M}\Omega$ ) w/ A DEAD BAND  
 OF  $150 \mu\Omega$  TO SEE IF PH WILL SETTLE DOWN  $> 6.00$

7/31/01 0900 7.68  $R = 0.8 \text{ M}\Omega$

8/2/01 0900 6.45  $R = 1.1$

8/4/01 0900

8/6/01 6.24  $R = 1.0 \text{ M}\Omega$

8/7/01 " "

8/9/01 6.20  $R = .9 \text{ M}\Omega$



8/4/01) AL FINDS INNER CRATE FOR ANODES IN BAD STATUS AGAIN

CONFIG 2374 0000 0008 006C 008B ) ~ SAME  
POP STATUS 3 170 185 ) AS 1452

8/6/01) SECTOR 9 R004 HAS FLUCTUATING BASELINE

FIELD CAGE CURRENTS FOR OFC ARE EQUAL BY B = -1

AT 28 kV  
OFCW = 76.585 OFCE = 76.586  
IFCW = 76.591 IFCF = 76.593

8/7/01) CYCLE LOWER ON INNER LEFT CRATE

POP STATUS 1 1 1 ) OK  
CONFIG 0174 0000 006C 008B

8/8/01) SECTOR 9 #8 (4,3) TRIPS TWICE (SEE PG 69 - CABLE SWAP) - SHOWS CURRENT JUMP ON SERIAL SESSION

8/12/01) DAN NOTICES FEB POWER FOR 19-1 AND 19-4 ARE SWAPPED  
8/20/01 - NOT AT THE LPS. CHECK LATER ON THE FARE

8/14/01) 23-5 GUTTER TRIPS 3 TIMES AGAIN. RUN UP BY SERIAL SESSION.  
TRIPS @ 900 VOLTS  
TRIPS @ 700 VOLTS  
LEAVE OFF UNTIL ACCESS  
CONTROLS PROBLEM ON PATTERN - SWAPPED CABLE ON CROSS CONNECT 10/10/01

1440) ACCESS - SWITCH 25-5 + 23-6  
RAMP TO 700  
RAMP TO 900  
RAMP TO 1100  
1300

74

8/19/01

TO FIND DRIFT VEL:

LOG ON TO EFP:

USERNAME = TPC

PASSWORD = STAR\_TPC

> setenv DISPLAY

> cd online/changeStep

cd online/EQDiag

> changeStep.exe /e/Rem#  
↳ a, b, c, d

EQDiagMain

DRIFT  
VEL

8/22/01

IF PROCESSOR STOPS AT VX WORKS PROMPT,  
TYPE @ (CR)

IF BEAM PARAMS PLM GOES FUNNY:

SC> cd evstart      or      SYSUSER

8/26/01

SECTOR 9 #8 HAS TRIPPED ~5 TIMES IN LAST  
2 DAYS (SEE-P473, 69)

OUTER SECTOR CRATE BHM STATUS:

PUPSTATUS 3 170 185

CONFIG 2374 0000 0007 0075 008B

ON SERIAL SESSION FOR 9, 8 SEE JUMPING  
CURRENT @ 1100 VOLTS. LEAVE DISABLED FOR NOW.  
UNTIL ACCESS

8/28/01

0300 AZ TURNS 9, #8 BACK ON - ON FOR NOW.

8/29/01

1300

ACCESS - CYCLE POWER ON OUTER CRATE TO  
REMOVE BAD STATUS.  
LEAVE 9, 8 ALONE FOR NOW.

PUPSTATUS 111

CONFIG 0174 0000 0007 0075 008B

9/10/01

0900

TO PRINT FROM ONLLINUX1 (SCREEN CAPTURE)

- DISPLAY (BRINGS UP IMAGE MAGIC) > IMPORT ANODE\_CFG.PNG
  - ~~DISPLAY~~ (BRINGS UP IMAGE MAGIC)
  - ~~FILE OPEN~~ FILE OPEN
  - 6MB
  - DRAG+CLICK
  - SAVE
  - FILE AS GIF
  - PRINT USING ~~MOZILLA~~ MOZILLA
  - LP = ~~GOOD~~ PROPERTIES THEN PRINT
  - LP = COLOR PRINTED
- CLICK ONCE ON WINDOW  
 > DISPLAY ANODE\_CFG.PNG  
 CLICK ON IMAGE  
 IN IMAGE MAGIC  
 PRINT
- PRINT COMMAND  
 lpr -P onlprinter

EDITOR ON UNIX ~~STARTS~~ PICO

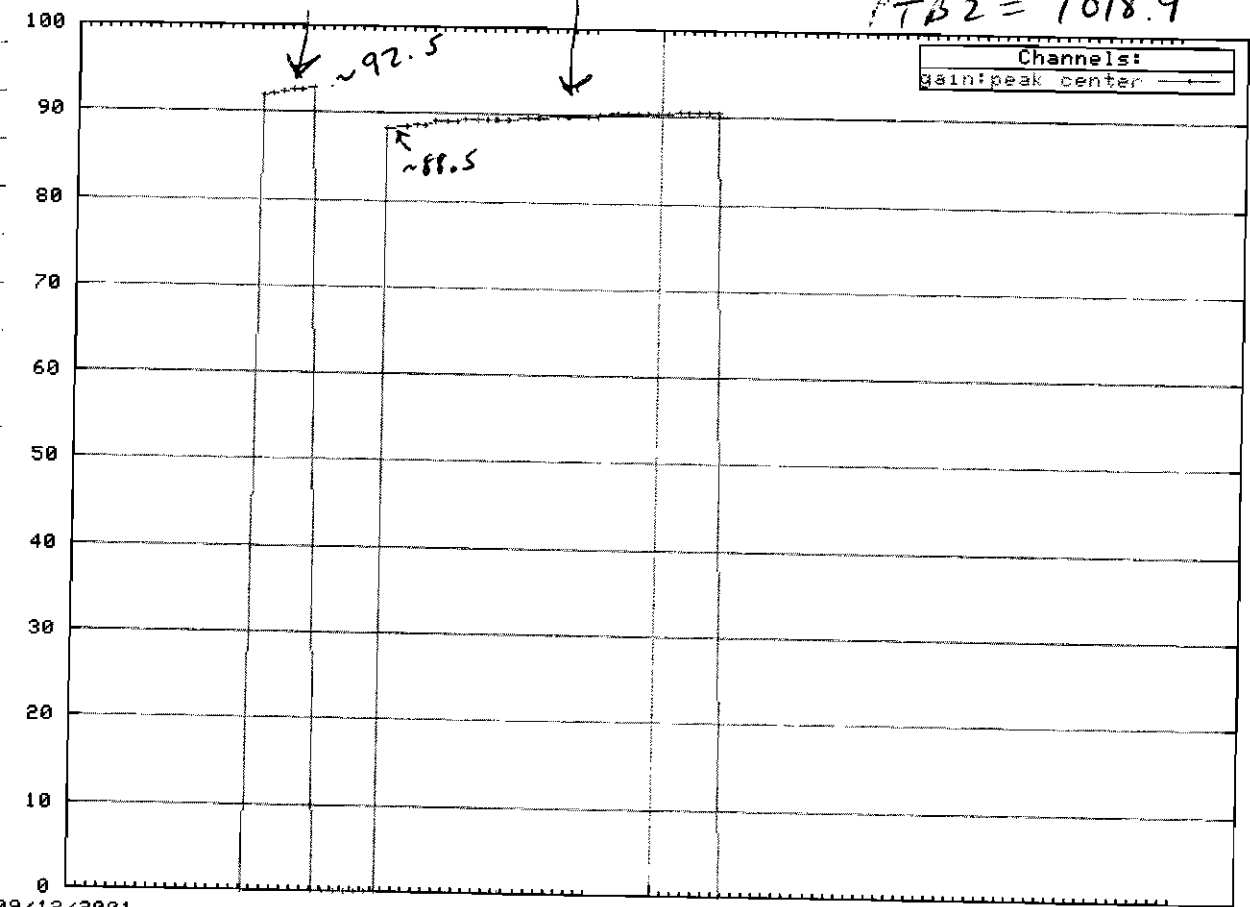
12/01

Channel Plot

$\beta = 0$

$\beta = 0.5$  (FULL)

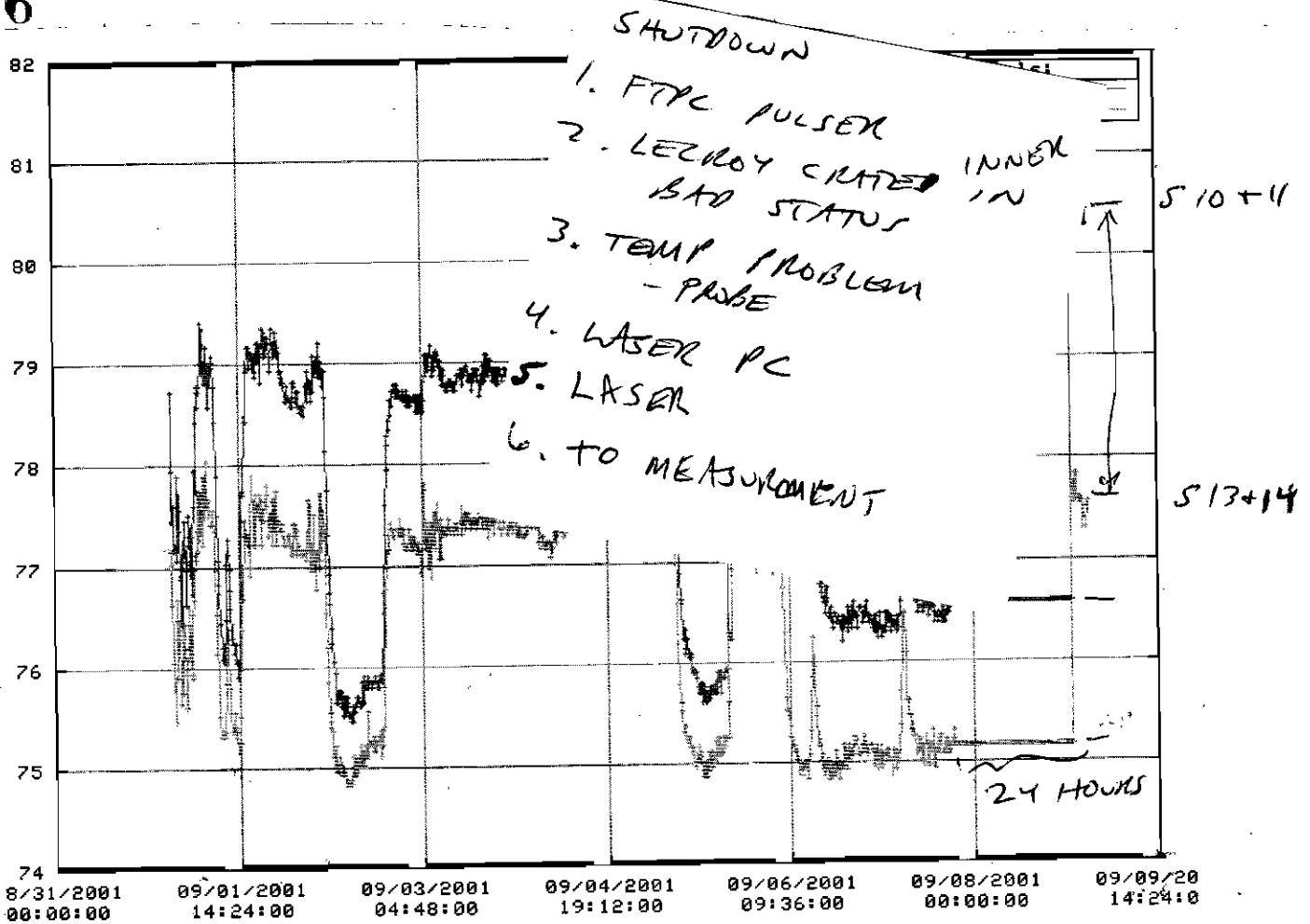
MTB2  $\approx$  1018.9



09/12/2001 19:06:49

09/13/2001 04:42:49

09/13/20 14:18:4



9/12/01

5 THERMISTORS HAVE JUMPED ~ 2 DEGREES.  
 SEEMS TO HAVE STARTED ON 9/7 - 9/8  AFTER  
 A NETWORK PROBLEM CAUSED LOSS OF COMM FOR  
 24 HOURS (PROCESSOR NEEDED TO BE REBOOTED + W/AS W/IT)  
 COINCIDENCE.

THE AFFECTED SENSORS ARE:

SECTOR 10+11 INNER WHEEL

SECTOR 10+11 INNER SECTOR R/D MANIFOLD

SECTOR 10+11 INNER SECTOR FEE MANIFOLD,

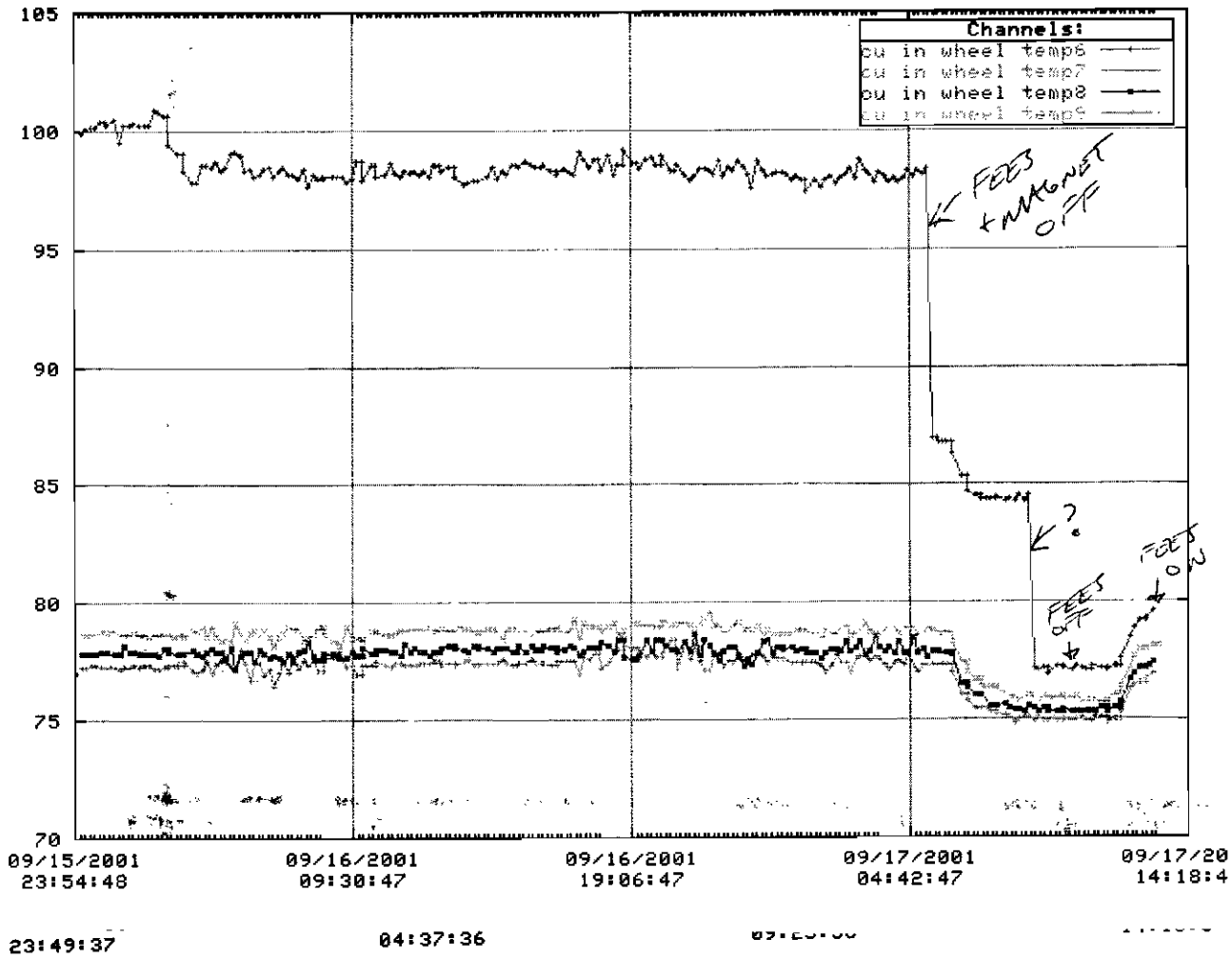
THESE SENSORS DO NOT SHARE A PVC STAIN PIPE  
 ON THE FACE.

THEY DO SHARE A CABLE (#11)

I CYCLE POWER ON TPCTEMP, BUT NO CHANGE

9/12/01

ALSO SECTOR 9, R/D 4 SHOWING FLUCTUATING  
 BASELINE



ALL FIVE SENSORS JUMP AGAIN ↑

9/17/01 } 0900 } WHEN MAGNET + FEES TURNED OFF THIS MORNING,  
 ALL 5 SENSORS DROPPED TO ~85°  
 LATER ~~SEEN AFTER~~ ( ~~2:00~~ ) THEY WERE BACK TO NORMAL  
 (77°)! 10/8/01 } - ALL FIVE JUMP BACK UP AGAIN  
 TO 105° - FEE POWER WAS CYCLED + MAGNET POWER

FIELD LAGE + ALL ANODES ~~ST~~ RIPPED ON BEAM  
 DUMP THIS MORNING. RUN UP ANODES + CATHODES - OK.

ALSO, INNER LEADY CRATE IN BAD STATUS  
 LOWF16 2374 0000 0008 006C 608B  
 PUBSTATUS 3 170 308  
 OUTER IS OK

→ 11/28/01 AL LOOKS AT CONNECTOR ON CABLE  
 " NO OBVIOUS PROBLEM  
 TIGHTENS NUTS

$$\Delta t = 1.65 \mu\text{sec}$$

9/18/01 1600 AFTER ACCESS:

1. REPLACED FTPL PULSEX FANOUT - NO LED LIGHT - NO OUTPUT - BLOWN FUSE
2. CYCLED POWER ON INNER ANODE CRATE
3. MEASURED TD FROM CTB TO GG OUTPUT.
4. BOOTED LANCASTER (LATER)

Date: Tue, 18 Sep 2001 14:25:32 -0400  
 From: James Dunlop <jcdunlop@star.physics.yale.edu>  
 To: pxs@mppmu.mpg.de, jcs@mppmu.mpg.de, string@physics.purdue.edu, kunde@star.physics.yale.edu, lasiuk@star.physics.yale.edu, dhhardtke@lbl.gov  
 Cc: jcdunlop@star.physics.yale.edu  
 Subject: T0 Measurement results

Ok,

- i) Time from Interaction to CTB Signal at CDB front: 0.185 us (from trigger document)
  - ii) Time from CDB front to RICH Signal:  $0.130 - 0.008 = 0.122$  us (from measurement)
  - iii) Time from RICH signal to both TPC and FTPC signal: 1.640 us (measured)
  - iv) Transit time on 100 ft of twinax cable: 0.150 ns (transit speed 20 cm/ns, measured on cable from Hank)
- Sum:  
 Time between CTB firing and GG signal at detector =  $2.10 \pm 0.03$  us

(gave it a  $\pm 0.030$  because of the gate length in the trigger = 0.060 us Maximal uncertainty I could think of here.)

Now in the TPC:

Signal from Gating Grid shows up in the pedestals according to Blair. There's a step in the pedestals between timebin 0 and timebin 1, but the pedestals in timebin 0 are nonzero. Timebin 1 looks like the other timebins.

Therefore assume that it's at the start timebin 1. This should be subtracted off from the above  $t_0$ , giving  
 electronic  $t_0 = 1.993 \pm 0.054$  (half-time of the clock).  
 We could revisit the error on this later.

Now as to what to do about the  $t_0$ Maker:

>From the studies of the RICH, we get a +0.18 cm gap in RICH-7 in the west when the drift velocity is good. This means that we need to add 0.18 cm to the TPC z.

This is with parameters  $L = 210.334$  cm,  $t_0 = 2.334$  us,  $V = 5.53$

$z = L - V(t_0 + t)$ , so we need to take  $L \rightarrow L + 0.18 = 210.514$ .  
 However, to match the measured  $t_0$ , we need to set  $t_0$  to 1.993 and keep z the same. This means that L needs to be decreased by  $(2.334 - 1.993) * V = 1.888$  cm.  
 Setting the  $t_0$  to 1.993, we need an L of 208.626 cm.

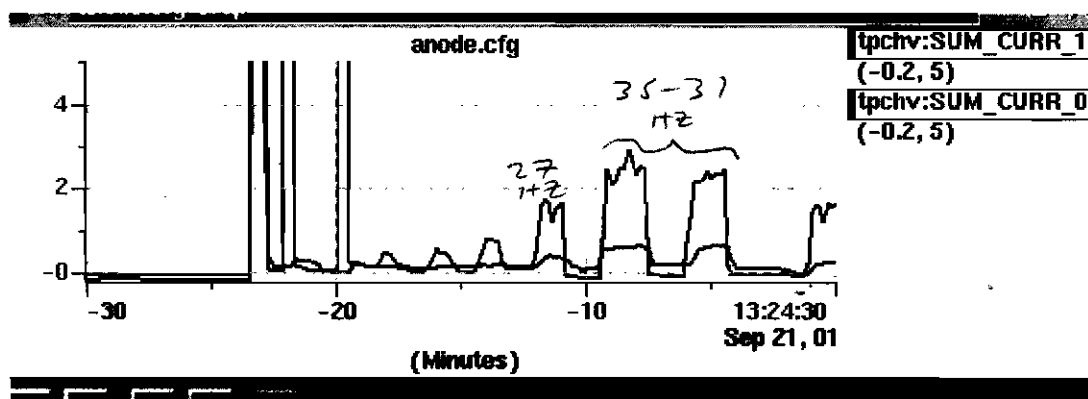
Interesting. 208.8 cm is supposedly the gating grid location.

--Jamie

21/01) L3 TEST - OPENING GG @ HIGH RATE ( )

Σ CURRENTS INNER ≈ 1.8 μA 27 HZ  
 OUTER =

35-37 HZ



24/01) PED + PULSER COMPARISON, PLM

RUN ON ONLLINUX1 OR

ONLLINUX1 XHOST + ~~130.199.89.59~~ 0.0 EVF.STAR.BNL.GOV

> SSH -l tpc EVF.STAR.BNL.GOV

PASSWORD = STAR-TPC

SETENV DISPLAY 130.199.89.59:0.0

> ELDiagMain.exe

... FILE "

CHOOSE PED OR PULSER FILE

DRIFT VB FILES ARE ON EVF /HOME/OPERATOR/online/ndrift

10/10/01) ACCESS -

1. FIXED THERMAL CUTOFF ON RD0 21-3  
 SHORTED LEADS TOGETHER
2. SWAPPED LVPS CONTROL CABLE ON CROSS CONNECT  
 FOR 19(1-3) + 19(4-6) (SEE PG 73)

11/8/01 TEST 2 NEW HV CARDS FROM VOLTRONICS  
 (1 STAR, 1 UCLA) (1 FOR STAR ON  
 S/N B 68032  
 B 68022 RUN ALL CH TO 1300V - 02

11/17/01 BEAM GAS STUDY RUN  
 RUN # 232022

PULSER TRIGGER w/ FANOUT OFF

BEAM IN RHIC

COPIED TO /EVP/aa/tpc + RCF

11/28/01 PP SHUTDOWN

1. REPLACED RDO 5-6 (HAD HOLES)
2. REPLACED RDO 9-4 LVPS (HAD FLUCTUATING BASELINE)
3. AL LOOKS AT CONNECTOR #11 FOR TPC COOLING MANIFOLD TEMP REAROUT.
4. RUN PULSER
5. RESET LEROY BUTER (WAS IN BAD STATE)

12/20/01 ACCESS TO

1. WORK ON LASER TRIGGER
2. LOAD @ 20-5 HV PROBLEM
3. REPLACE CATHODE 147 w/ 167?

RUN UP 20-5 ON OLD CARD w/ ANNO ACCUMULATOR  
 0900 1390 V  $I \approx 3$  mA NO JUMPS  
 1600 20-5 TRIPPED SOMETIME  
 REPLACE CARD OLD = 68957

NEW = 368096  
 1-39 PUT AT 1390

1090 ON FOR 10 MIN - TRY & LASER RUN



CAMERA 3

POISSON SPOT



East CCD 2E 04.25.01

CCD	Coordinates	ORIGIN	GRID = 1mm
	x y		
1	0.5 1.5	West TIC	↑ left ↗
2			↓ left →
3	1.3 2.7	east TIC	↓ left ↘
4			↘ down →
5	0.5 3.5	west TIC	↘ down ↙
6			

2/10/01

RESULTS OF ACCESS

1. FOUND PHOTO DIODE HAD PICKUP (FROM CRYSTAL)? AND WAS TRIGGERING PAQ ~70 µs BEFORE LASER FIRED ⇒ EMPTY CHAMBER.

NOW OK + LASER TRACES SEEN ON C3

→ 2. 90-5 SEEMS TO BE SECTOR. LEAVE OLD PS IN.

3. 167 PUT INTO CATHODE CRATE - CHECKED OK.

Dec 19, 01 7:49 AM trip in sect 6 ch 8

DEC 22 01 PROBLEMS WITH INNER SECTOR 4 V<sub>gg</sub>. AFTER TURNING OFF + BACK ON, READBACK ONLY 96V.

GENO CHECKS IT - OUTPUT OK, READBACK WRONG. AFTER POWER CYCLE, ~OK.

Blair:

To set alarm limits on PT-3 do:

- 1) telnet scserv 9012
- 2) dbpf "cu-tpc-gas-PT-3.HIGH", "2.0"
- 3) dbpf "cu-tpc-gas-PT-3.HIGH", "1.7"

- EUGENE

2/27/01

1600

FIVE THERMOCOUPLES JUMP AGAIN - AFTER A MAGNET ATMP. SAME AS BEFORE. JUMP TO ~83°.

1/02

Date: Thu, 27 Dec 2001 09:49:52 -0500 (EST)  
From: Wei-Ming Zhang <zhang@hpacq.kent.edu>  
To: Declan Keane <keane@kent.edu>  
Cc: string@physics.purdue.edu  
Subject: Re: STAR TPC anode control program

Hi, Declan,

There is some freedom in the mapping from TPC-Sector-Section to LeCroy-Slot-Channel, but not as flexible as described in your mail.

Four channels together in a sector, inner or outer, could be assigned to up-half or low-half of a LeCroy-1471 in any slot (0-15) in a LeCroy-1458 supply. A mapping file `sec_slot.map` in

`~/epics/R3.12.2-LBL.4/TPCanhv0App/src` (for outer) or

`~/epics/R3.12.2-LBL.4/TPCanhv1App/src` (for inner)

should be changed correspondingly if physical mapping is changed.

Also, the parameter `MAX_CARDS` in a file `tpchv.h` needs to be changed if extra LeCroy-1471 cards are added to the control system.

The detailed mapping scheme is described in a file `anhv.mem` in the above two directories. Dennis once added a line in `sec_slot.map` for an extra device. I think he is aware of this mapping file.

Wei-Ming

On Wed, 26 Dec 2001, Declan Keane wrote:

> Hi Weiming:

>

> Am I correct in recalling that your anode control program  
> has provision for connecting any LeCroy slot and channel  
> to any sector or section within a sector? This feature may  
> be increasingly desirable in the future, due to the fact  
> that cards sometimes develop one bad channel, while the  
> other 7 are fine.

>

> Declan

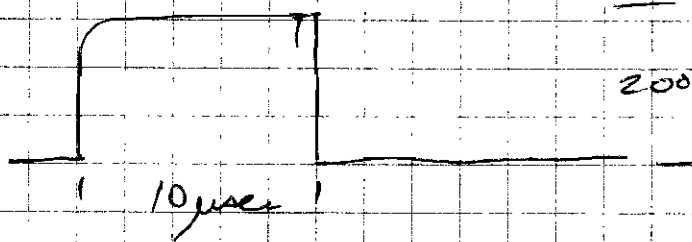
>

1/10/2002 TPC Anode trip - 9:00 am  
 Inner Sector #4, #2

1/13/02 1000 INNER LEADY CRATE  
 NEITHER EPICS OR SERIAL  
 (BOTH HAD BEEN WORKING, FIN  
 GET AN ACCESS + CYCLE POWS  
 LIFE TIME SERIAL SESSION PC

9/27/02) LOOK AT "LASER" PULSE  
 OUT OF WAVE TALK:

DC INTO 50 Ω



1-169	0
170	417
171	1151
172	1501
173	1686
174	1775
175	1818
176	1855
177	1887
178	1914
179	1936
180	1955
181	1969
182	1981
183	1991
184	1997
185	2001
186	2002
187-269	2002
270-380	0

Period = 38 microsec  
 380 points => 100 nsec per point  
 Sample Freq = 10.0 MHz  
 Wave Form Freq = 26.32 kHz  
 Amplitude 200 mVp  
 Arbitrary Waveform "Laser"

Trigger In: External, Positive, Level = 1

WAVE TALK SAYS: AMPL = 200 mVp

TRIGGER IN: <sup>SOURCE</sup> EXTERNAL, POSITIVE - DEFAULT = 0.00V

I CHANGE THIS TO  
 +1.00V  
 AFTER POWER ON

ARBITRARY FREQUENCY

SAMPLE FREQ = 10.0 MHz

WAVEFORM PERIOD = 38 μsec

FREQ = 26.32 kHz

OFF SET = 0

MODE TRIG'D CNT: 000000

PUSH ARBITRARY

PUSH MAIN OUT BUTTON - GREEN LIGHT

9/27/02 OLD TCD

DET BUSY OUT (TO BACK OF RACK)  
 DAQ BUSY IN (FROM NIM LEVEL SHIFT - TTL OUT) NORM

J2 OUT TO G<sub>6</sub> TO LEVEL SHIFT (TTL - NIM COMPL)  
 J3 OUT TO GND PLANE / V<sub>LSER</sub> (TTL)  
 J6 TPC LASER IN (FROM LEVEL SHIFT  
NIM - TTL COMPL

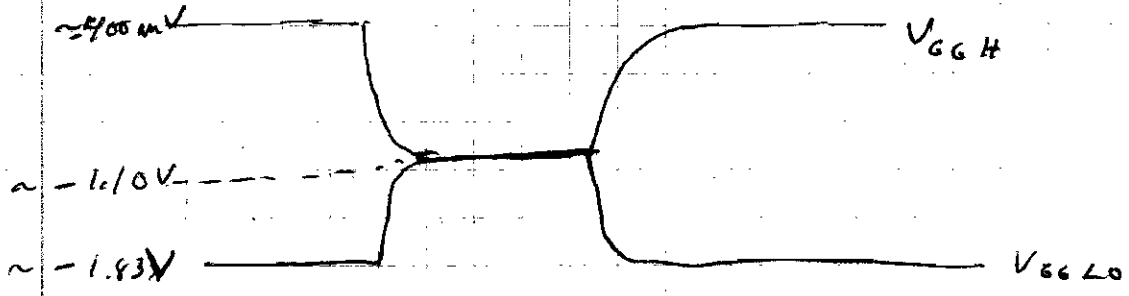
10/20/02 } CONFIGURE NEW RPS 3 FOR INNER + OUTER ANODES  
 PUT ALL 3 RPS ON ETHERNET FAN OUT  
 + GIVE THEM ALL NEW IP ADDRESSES?  
 SAME PASSWORD AS 1 + 2  
 RPS 1, STARP, BNL, 60V 130.199.60.26  
 RPS 2, STARP, BNL, 61V 130.199.60.205  
 RPS 3, STARP, BNL, 60V 130.199.60.206

10/1/02 } TURN ON G<sub>6</sub> BAD OUTPUTS:

2 OUTER	V <sub>66</sub>	102 V	} WENT TO NORMAL AFTER 2 HOURS
3 OUTER	V <sub>66L6</sub>	61 V	
4 OUTER	V <sub>66</sub>	99 V	

MON OUT CONFIRMS → 15 OUTER V<sub>66</sub> 60 ← WON'T GO ABOVE 60 EVEN FULL SET = 150  
 16 OUTER V<sub>66</sub> 89 (FOR 135 SET GET 114) AFTER 3 HRS 111.5 (70)  
 17 OUTER V<sub>66H7</sub> 59 (FOR 95 SET GET 75)  
 20 OUTER V<sub>66</sub> 109 (FOR 125 SET GET 118)

ON GND SCALE: COUPLING = 1 MΩ DL (FOR MON 8 OUTPUTS IN FRONT)



~ MON OUT 15 100 81

10/3/02

POWER RDO'S + FEE'S - LOOK AT RECEIVER LIGHTS?

FIND ~4 PS WITH SWITCHES IN LOCAL - FIXE

OTHER BAD RDO'S:

3-4	- PLUG IN FIBER - OK
2-6	- " " " "
13-3	- OK FIBER
16-3	(REALLY 18-6 - FIBER BUNDLE 17 WAS SWAPPED)
17-6	FLICKERS (WAS REALLY 17-2)
18-2	FLICKERS (WAS REALLY 17-2)
19-3	OK
24-1	OK

FIBER BUNDLE 16 ⇒

16-2 WAS HANGING MARKED BAD

16-7 WAS PLUGGED INTO 16-2 RDO

16-3 DIDN'T SHOW RECEIVER LIGHTS

16-8 WORKS! SO IS 16-3 BAD?

DANNY TAGS 16-3 AS BAD, 16-9 (SPARE)

NOW PLUGGED INTO 16-3 RDO

RECHECK W/ POWER. LATER

10/3/02

CHECK ANODES @ 200V - LOOK FOR CURRENT DRAW:

NOT CONNECTED 2.7 = 6-8 OUTER - FIXED (CABLE)

ALL OTHERS OK

INNER CABLE PUP STATUS 111

CONFID 0174 0000 0008 006C 008B

10/4/02

CHECK GG CABLES (CAP)

- FIND INNER+OUTER 8 SW APPED - FIXED.

ALL OTHERS OK

10/11/02) REPLACE BOTTOM UPS (2A9) WITH  
REFURBISHED UNIT THAT BROKE LAST YEAR.  
BATTERIES ARE NEW.

OTHER UPS (TOP) IN 2A9 IS NEW ONE  
INSTALLED LAST YEAR.

OLD BOTTOM TAKEN BY DANNY TO GET NEW  
BATTERIES - IT IS BIGGER THAN OTHER TWO.

TOP UPS = UPS2 HAS: WATER FLOW METERS (2A9)  
2 AC CORDS FOR TTL INTERLOCKS (2A8)

BOTTOM UPS = UPS1 HAS: VME CRATE (CANBUS)  
SERIAL SERVER  
ETHERNET SWITCH  
INTERLOCK PANEL IN 2A9.

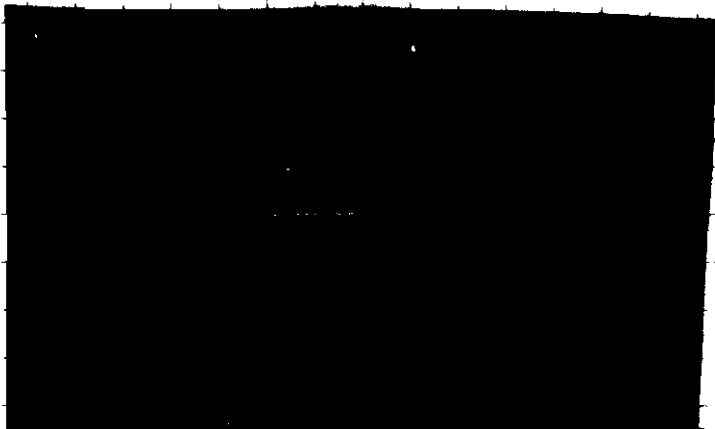
11/14/02) POWER UP AFTER ROLL - IN  
AGAIN RACK 2B3 HAS TO BE KICKED ON  
BLOWER TO CLEAN INTERLOCK

11/14/02) 1030) PUT WAVEMETER BACK ON PLATFORM -  
"LASER" PULSE SURVIVES!  
FIND THAT IF I LEAVE TRIGGER LEVEL AT  
0.0 V (DEFAULT) I GET DOUBLE PULSE OUT.  
IF SET TO +1.0 MANUALLY (BY TTL IN) GET SINGLE.

SET UP TO CHECK AMPLITUDES OF PULSES AGAIN.

TEST RATE LIMITER: CUTS OFF AT 900 HZ

AMPLITUDE CHECK NEXT PAGE:

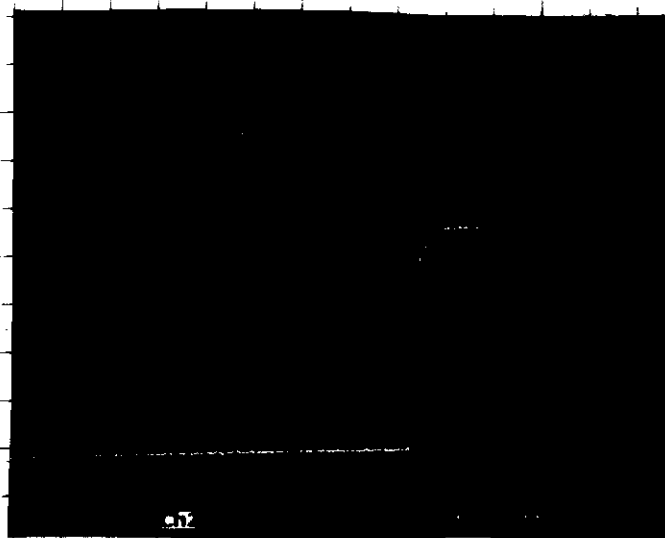
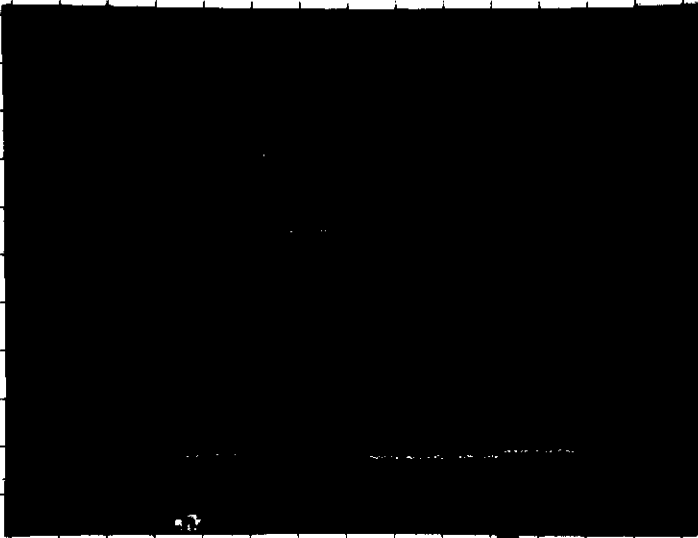


"LASER" PULSE  
OUT OF  
WAVEMETER  
INTO 50  $\Omega$

SAME METHOD AS PAGE 24

MODULE S/N	SECTOR	AMPL	S/N	SECTOR	AMPL	S/N	SECTOR		S/N	SECTOR	
1	<del>OUTER</del> 13-1	3.64	3	19-1	3.68	6	1-1	3.68	7	7-1	
	OUTER 13-2	3.60		19-2	3.68		1-2	3.70		7-2	
	INNER 13-3	3.60		19-3	3.68		1-3	3.64		7-3	NOISE
	OUTER 14-1	3.60		20-1	3.68		2-1	3.70		8-1	
	OUTER 14-2	3.60		20-2	3.68		2-2	3.70		8-2	NOISE
	INNER 14-3	3.60		20-3	3.64		2-3	3.68		8-3	
	OUTER 15-1	3.64		21-1	3.68		3-1	3.66		9-1	
	OUTER 15-2	3.64		21-2	3.68		3-2	3.68		9-2	
	INNER 15-3	3.66		21-3	3.70		3-3	3.66		9-3	NOISE
2	16-1	3.72	4	22-1	3.64	7	4-1	3.64	10	10-1	
	16-2	3.68		22-2	3.64		4-2	3.64		10-2	
	16-3	3.64		22-3	3.64		4-3	3.60		10-3	
	17-1	3.64		23-1	3.64		5-1	3.64		11-1	
	17-2	3.68		23-2	3.68		5-2	3.64		11-2	NOISE
	17-3	3.68		23-3	3.64		5-3	3.64		11-3	
	18-1	3.68		24-1	3.60		6-1	3.60		12-1	
	18-2	3.72		24-2	3.68		6-2	3.68		12-2	NOISE
	18-3	3.72		24-3	3.66		6-3	3.66		12-3	

ETPC OUTPUTS 1+2 3.68, 3.68



NOTE UNDERSHOT RISING EDGE  
 "WIDER" PULSE OUT OF FAN OUT



10/14/02 TEST NEW ANODE HV CARDS

1. OLD RICH CARD B68948 - RESET HV LIMIT TO 1490  
TEST ALL CHANNELS TRIP @ 1  $\mu$ A.
  2. VOLTRONICS S/N B68441 TRIPS OK
  3. VOLTRONICS S/N B69089 TRIPS OK
  4. VOLTRONICS S/N 68458 TRIPS OK
- TEST NEW CARDS FOR ACCURATE V - SAUG METHOD AS PG 17

10/15/02  
DOWNLOADED NEW AB PLC FIRM W/ 2 SEC DELAYS IN  
SGIS + OTHER INPUTS TO PLC  
CALIBRATED PIONEER HEADS - HAD TO ADJUST SPAN  
POT FOR ALL THREE. CONFIRMED RACK 2 WENT OFF.  
CALIBRATED GAY METHANE DET - STILL NEED TO CONFIRM  
PERMISSIVE DROP OUT

V <sub>LEAD07</sub>	I <sub>LEAD07</sub>	V <sub>METHANE</sub>	V <sub>CORRECT</sub>	S/N	V <sub>LEAD07</sub>	I <sub>LEAD07</sub>	V <sub>METHANE</sub>	V <sub>CORRECT</sub>
1150	1.095	10.8373	1152.8	B68458	1151.5	1.076	10.8424	1153.7
1150.2	1.086	10.8312	1152.5		1150.4	1.092	10.830	1152.4
1150.8	1.095	10.8396	1153.4		1150.5	1.093	10.830	1152.4
1150.4	1.094	10.8280	1152.2		1150.4	1.119	10.832	1152.6
1150.4	1.084	10.8309	1152.5		1149.8	1.084	10.831	1152.5
1150.0	1.083	10.8300	1152.4		1150.4	1.065	10.830	1152.4
1150.8	1.115	10.8290	1152.3		1150.9	1.079	10.834	1152.8
1149.8	1.094	10.8241	1151.7		1150.4	1.074	10.830	1152.4
				RICH B68948				
1150.3	1.099	10.8249	1151.8		1149.7	1.103	10.825	1151.8
1149.6	1.096	10.8170	1151.0		1151.1	1.095	10.833	1152.7
1149.7	1.083	10.8176	1151.0		1151.1	1.096	10.834	1152.8
1151.2	1.089	10.8274	1152.1		1149.8	1.087	10.825	1151.8
1150.4	1.109	10.8231	1151.7		1151.7	1.084	10.833	1152.7
1149.6	1.085	10.8209	1151.4		1150.7	1.088	10.830	1152.4
1150.1	1.095	10.8191	1151.2		1150.8	1.090	10.836	1153.0
1150.0	1.096	10.8214	1151.5		1149.9	1.080	10.827	1152.0

10/16/02 } IFC AIR BLOWER IS ON - RUN UP CATHODE

5 kV	13.772 13.773	13.772 13.773
10 kV	27.426 27.426	27.425 27.427
15 kV	41.085 41.088	41.084 41.083
20 kV	54.733 54.736	54.732 54.736
25 kV	68.375 68.380	68.375 68.380
30 kV	82.037 82.042	82.035 82.040

LOOKS OK - SEE PG 92

10/18/02 } POWER ANODE 20-5 (WHICH DIDN'T HOLD VOLTAGE IN LAST RUN). N<sub>2</sub> IN TPC. SEE IF IT'S THE ABDB

1000 V	OK	
1200 V	OK	(LEAKY I = 0.019, NANO AMP = 2.0)
1300 V		.011,
1390 V @ 300	OK	.014,
	OK @ 5:00	TURN OFF

10/22/02 } GG MODULES - SEE PG 85  
POWER UP

15 OUTER V<sub>GG</sub> STILL BAD (~55V)  
3 INNER V<sub>GG</sub> COMES UP BAD (101V) - LET IT  
(TURN OFF + TURN ON 3 INNER OK)  
WITH BREMOUT BOX, GATE NORMAL V<sub>GG11</sub> = 55 (SHOULD BE 55)  
V<sub>GG16</sub> = 55 (SHOULD BE 55)  
OPEN V<sub>GG</sub> = 55 (SHOULD BE 55)

REPLACE ~~GG~~ DRIVER MODULE,

NEW IS OUTER MEASURES 43.5, 118, 193.5 (@AUI = 117)  
 ⇒ NEEDS CALIBRATION.

OTHERS (13, 14, 16) OK.

2/29/02

NEW ARGON TANK OPERATIONAL  
 NOTICE FOR FILL - 48 HOURS  
 FOR TANK PROBLEMS - WELCO CGI (# ON SIDE OF TANK)  
 FOR FILL - PRAXAIR  
 FULL TANK = 125" H<sub>2</sub>O

RESTORE ALARM IN COUNTING HOUSE - LOUIS;  
 WIRES COME TO CONTROL ROOM ON 19  
 DAISY CHAINED TO 18, 37 (37 = CONTROL ROOM)  
 CHANGE 18 TO 16 (16 = COUNTING HOUSE UNDER MY DETK)  
 ADD 2 JARMS TO 16 IN COUNTING HOUSE.

### NEW TCD

Date: Thu, 24 Oct 2002 10:40:27 -0700  
 From: fred bieser <bieser@lbl.gov>  
 To: string@physics.purdue.edu  
 Cc: Tonko A. Ljubcic <tonko@bnl.gov>, hjcrawford@lbl.gov  
 Subject: tcd lemos

the new TCDs have (only) 7 LEMOs on the front panel: 4 inputs and 7 outputs

#### TTL Inputs:

"DAQ Live" input from DAQ (low=busy, high=alive)  
 "PIN" input from PIN diode confirming laser fired (was "laser ready" on old tcd)  
 "Ext Trig" input from external osc to issue triggers as set up via VME;  
 needs enable bit in CSR  
 "IN 1" input from laser prior to actual flash (TPC & FTFC only) or else not defined.

#### TTL Outputs:

"Det Busy" busy signal as sent to trigger  
 "grid gate" gating grid signal (TPC, FTFC) else not defined  
 "pulse" signal to fire pad plane pulser (trig command = ?)  
 "out1" delayed RHIC strobe (same as SCA sample clock for TPC only)  
 "out2" not defined  
 "out3" not defined  
 "out4" not defined

OLD VERSION OF P40 MONITOR (FROM JULY, AUG 2001)  
ON ONLSUM1 TYPE

1afs/rhic/stea/tpc/tpm.exe  
WON'T HAVE TONKO'S NEW COMPARISON FEATURES

11/20/02) P10 IN TPC - TURN ON ALL VOLTAGES

GG OK  
SLOW CONTROLS READOUT OF GAS / AXIAL DIST ON

SHORTED STRIPE SHOWS UP ON IFCW AGAIN!  
(SEE PG 58-59)

AT 5.00 KV  
IFCW = 13.86015 IFC E = 13.7825  
SHELL = -30 W

RATIO = .995  
AT 10KV

IFCW = 27.5882 IFC E = 27.4415 RATIO

AT 15KV  
IFCW = 41.3300 IFC E = 41.103 .99

AT 20KV  
IFCW = 55.3563 IFC E = 54.7498 .989

AT 15 KV  
IFCW = 41.5546 IFC E = 41.0984 .989  
(2 STRIP)

AT 10KV  
W = 27.7413 E = 27.4380 .989

AT 5KV  
W = 13.9371 E = 13.7848 .989

AT 1KV  
W = 2.8844 E = 2.8530 .989

AT 500V  
W = 1.4995 E = 1.48335 .989

INNER ANODES ON @ 1170 FOR ~ 1 HOUR

OUTER ANODES ON @ 1390 FOR ~ 1/2 HOUR

(INCLUDING 20-5)

11/21/02) TRY AGAIN:

1KV W = 2.86113 E = 2.8487 RATIO = .995

5KV W = 13.9565 E = 13.7849 RATIO = .995

VOLT W = 31.942 VOLT E = 31.777 RATIO = .995

7.51W W = 20.723 E = 20.6135 .995

- 11/20/02) OUTER ANODES - ARCNET KEEPS DROPPING  
OUT. CYCLE POWER ON VME + LECROY -  
NO GOOD.
- 11/21/02) REPLACE LECROY ARCNET CARD (FROM SPARE)  
- NO GOOD.  
REPLACE WHOLE MOTHER BOARD ETC -  
STILL NO GOOD.  
SERIAL SESSION STILL WORKS.

~~SWAP CABLES~~

- 11/22/02) SOFTWARE PROBLEM - DENNIS WORKING ON IT.
- 

11/22/02) 1530) AZ PUSLS LARGE MAGNETIC WASHER

FROM INNER FIELD CAGE! FROM SVT RAILS SUPPORT - NOT SHORTED ON 10/16/02 - MAGNET TESTED AFTER THAT.

5.0 kV	$w = 13.7828$	$E = 13.78292$	OK
10.0 kV	$w = 27.5883$	$E = 27.4373$	RATIO = .994
15.0 kV	$w = 41.32459$	$E = 41.09863$	.994
20.0 kV	$w = 55.04856$	$E = 54.74723$	.994
10.0 kV	$w = 27.58464$	$E = 27.43362$	.994
5.0 kV	$w = 13.95672$	$E = 13.78192$	.994
1.0 kV	$w = 2.86345$	$E = 2.84815$	.994
.5 kV	$w = 1.48786$	$E = 1.48015$	.994

11/23/02) 0930) AZ FINOS 6.8 k $\Omega$  SHORT AT STRIPE <sup>156</sup> - PROBABLY ~~IT~~ - WHOLE WASHER REPRODUCIBLE, NOTHING OBVIOUS SEEN - HE CLEANS, SHORT GOES UP TO 10 k $\Omega$  THEN 12k THEN 2 M  $\Omega$ . NOT VACUUMED YET.

1.0 kV	$w = 2.8539$	$E = 2.8536$	
5.0 kV	$w = 13.789$	$E = 13.789$	
10.0 kV	$w = 27.4443$	$E = 27.4441$	
15.0 kV	$w = 41.1052$	$E = 41.1051$	
20.0 kV	$w = 54.753$	$E = 54.753$	
25.0 kV	$w = 68.397$	$E = 68.397$	
30.0 kV	$w = 82.062$	$E = 82.062$	VW = -189.872 VE = -189.867

GOOD FOR 15 MINUTES - TURN OFF

11/25/02) AZ VACUUMS + CLEANS OVER WEEKEND. TRY AGAIN BEFORE TURNING ON BLOWER?

5.0 kV	$w = 13.8060$	$E = 13.8068$
10.0 kV	27.46090	27.46077
15.0 kV	41.12230	41.12278
20.0 kV	54.7689	54.7688
25.0 kV	68.41325	68.41363
30.0 kV	82.07730	82.07764

Hook up cover + TURN ON BLOWER.

5.0 kV	$w = 13.80163$	$E = 13.8033$
10.0 kV	27.45669	27.45660

1/25/02 } NEW TED - SET GG WIDTH (BY SOFTWARE)  
TO 45  $\mu$ sec.

PULSER OUT OK.

TRY + CHECK LASER TRIGGER - SEEMS TO WORK OK BUT NOT TRIED W/ TED YET (ONLY FROM DAQ)

ALSO, GG MODULES 1 INNER COME UP RED - TRY AGAIN

+ ? ~~16 OUTER~~ - 3 INNER @ 111.5 V<sub>GG</sub>  
16 OUTER @ 111.6

SECOND TIME, 1 INNER COMES UP YELLOW (72.8) - GREEN = 72.9  
WILL CHECK CALIB TOMORROW WITH JEFF WOOD.

26/02 } 0930 CHECK FIELD CAGE - OK @ 30 KV

1130 } REPLACE ANODE HV CARD FOR 23, 24 OUTER  
(FOR FLAWY 23-5).

OLD SN = B68129, NEW = 68046 )

HAVE DENNIS RESTORE NORMAL CONTROL PGM  
(235 WAS PLUGGED INTO CARD 13, OUTPUT 1)

ALSO, 20-5 WAS TRIPPING AND SET TO  $\phi$  IN  
CONTROL PGM. RESTORE TO FULL VOLTAGE FOR  
START OF RUN.

27/02 } GG CALIB MEASURE @ BACK OF MODULES

1 INNER	V <sub>GG</sub>	190.6	HI 40.5
3 INNER	V <sub>GG</sub>	108.8	
16 OUTER	V <sub>GG</sub>	111.3	
15 OUTER	V <sub>GG</sub>	116.8	(I REPLACED THIS MODULE EARLIER)

RECALIBRATED BY JEFF WOOD - ALL GREEN.  
X7580

1/600 } CHECK FIELD CAGE - TO 30 KV OK

2/2/02 } CHECK FIELD CAGE TO 30 KV - OK  
WEST POLE TIP IN.

INSTALL AC SWITCHES FOR LECROY PS (208 V)

RPS 3 # 1 = INNER ) TESTED OK.  
RPS 3 # 5 = OUTER

1/600 } INNER ANODE CPU WON'T BOOT - ETHERNET CONNECTION  
IN BACK OF VME CRATE -

12/4/02 } MISS 66 3 INNER NOW HAS  $V_{CC} = 121.4$   
 WAS LOW, NOW HIGH

1415 } MEASURE ON PLATFORM -  
 NOW READS LOW = 101.6  
 DVM = 101.0

SET TO 5 (125) - READS 115  
 BACK TO CR - NOW READS 125V! MEASURE ON PLATFORM  
 LOSE ACCESS - LEAVE IT FOR NOW.

12/5/02 } ACCESS - REPLACE<sup>CA</sup> DRIVER MODULE FOR  
 1, 2, 3, 4 INNER  
 REMOVE MODULE # 4  
 INSERT MODULE # 15

NEW CARD

1 INNER	$V_{CC HI} = 77$	} CAUS PROBLEM
3 INNER	$V_{CC} = 126$	
16 OUTER	$V_{CC} = 96 !?$	

FIXED - (POLARITY FOR NEW 1-4 INNER IS BACKWARD!?)  
 WAS FROM DAQ ROOM CRATE. - TEST W/ OMMETER.  
 NORMAL - RED DOT ON LOMO =  $V_{CC HI}$  PIN  
 IN THIS MODULE IT IS REVERSED  
 PUT IN NEW DRIVER FROM LAST 3 BUILT  
 BY VAHE (NOT YET TESTED BY ME)

NEW MODULE:

1 INNER	$V_{CC HI} = 78$
	$V_{CC} = 126$
3 INNER	$V_{CC} = 126$
16 OUTER	$V_{CC} = 106$

AFTER CARD, 1, 3 INNER OK

16 OUTER STILL ACTING UP. AFTER CR  
 IT'S OK, THEN JUMPS TO 129.

LOSE ACCESS - CONTACT GEND - HAVE ALREADY REP  
 DRIVER ONCE - DO WE NEED TO REPLACE CONTROL?

12/9/02 } TURN ON 66 - 16 OUTER  $V_{CC} = 129$   
 1 INNER  $V_{CC} = 118.4$  (YELLOW)



12/10/02) CHECK POLARITY OF GG OUTPUT MODULES FOR ALL SECTORS. - OK

ALSO INNER 1  $V_{GGLO} = -192.3$   $V_{GGHI} = -42.3$   $V_{GG} = -117.1$   
OUTER 16  $-204.9$   $-54.1$   $-129.1$   
INNER 4 ALSO ~ 2 VOLTS OFF

CONTROL MODULE ADDRESS (ROCKER SWITCH ON BOARD)  
16-20 OUTER 100 ~~111~~ 111 0101  
21-24 OUTER 000 111 0101

SWITCH CONTROL MODULES + ADDRESSES  
STAYS WITH 16 OUTER -  $V_{CC} = 131.1$   
LEAVE CONTROL MODULES SWAPPED.  
TRY + RECALIBRATE AGAIN - 1, 4 INNER  
16 OUTER

CALIBRATION WORKED FOR ALL CHANNELS!?  
LEAVE ON OVERNIGHT

11/02) STILL ON THIS MORNING.

12/02) STILL ON - TURN OFF

2/03) 1000) TURN ON ALL HV - ALL OK, FIELD GAGE OK @ 28KV ANODES @ 400V, GG GREEN.

PROBLEMS: 1. BLOWER IN 2B3 STUCK OFF AGAIN - KICK IT  
2. TPC TEMP WON'T RECONNECT TO  
ONLSO N1 AS STARTPG RES.....

KENNY REPLACES 2B3 BLOWER PRESSURE SWITCH  
WAYNE RENEWS STARTPG PASSWORD ON HERBURN

8/03) ACCESS DAY TURN ON TPC GG OK  
FEES OK  
CATHODE OK

● IFC CURRENTS; @ 28 KV  
OFCW 76.6144  
IFCW 76.6201  
OFCE 76.6137  
IFCE 76.6201

ANODES! OK AT 0950 (ALLOW) - OK FOR 2 HOURS

LASER RUN - CENTRAL MEMBRANE @ ~ 351  
(WAS ~ 343 IN 7/2001 FOR SCAN  
SO - NEW T2S? GAS?

1/10/03 1500 MAG ON @ FULL FIELD

RAD 13-2 DOESN'T POWER UP -  
THERMAL SWITCH? - YES - SEE BELOW

1530 GAIN CHAMBER = 117.5 ATB = 998  
MAG FIELD = FULL

WAS ~ 125 THE OTHER DAY w/  $\bar{B} = 0$  AND ATB ~

1/12/03 1000 SECTION 10-5 HAD YELLOW CORRENT  
ALARM YESTERDAY - I RUN UP TO 1390,  
SEE ~ 20 mA + VARIES. LEAVE IT FOR NOW  
ALSO - MEASURED OUTPUT VOLTAGE FOR THAT CASE 15 /  
LASER RUN EUP/a/ 4011073 NOT

1/14/03 0900 GG 23 INNER GOES BAD OVERNIGHT  
 $V_{GG23} = 70$  V. I SET IT TO 80 DEMAND TO  
GET 75 ON  $V_{GG23}$ . ACCESS TOMORROW

11:30 STILL DRIFTING DOWN - SET DEMAND = 84

1/15/03 1200 ACCESS - RAD 13-2 IS THE MAGNET  
(POWERS ON w/  $\bar{B} = 0$ )

CHECK GG 23 INNER DEMAND = 75

$V_{GG23} = 179.5$   $V_{GG} = 113$

$V_{GG21} = 38$

w/ NEW MODULE FROM CABINET -  
OUTPUT 3 HAS REVERSED POL

REPLACE MODULE - ALL COME UP GREEN  
BUT JEFF CALIBRATES JUST TO TEACH  
NEW GRAD STUDENT.

ALSO - 3 OUTER  $V_{GG23}$  MOVES AROUND + THEN SETTLES DOWN  
↑ HAPPEN TO GG

LOOK @ CURRENT ON 10-5 OUTER

LOOK w/ NANO AMMETER → ↓

400	8 mA	
600	15 mA → 5	8
1200	30	17
1300	28	19
1390	23	22

PUT 9-8 ON 10-5 OUTPUT + VICE VERSA

1. REPLACED 23 INNER GG DRIVER - FIXED 2 POLARITY REVERSALS IN NEW MODULE - CALIBRATED.
2. LOOKED AT HIGH CURRENT IN 10-5 - PROBABLY INSIDE SECTOR ~ 30 mA @ 1390
3. CONFIRMED RDO 13-2 AFFECTED BY MAGNET
4. CHANGED TCD RHC CLOCK FROM 40% DUTY FACTOR TO 20% ERROR RATE ON RDO 20-2 "MAYBE BETTER". LEAVE AT 20%.

ALSO TESTED THE GAIN CH W/  $\bar{B} = 0$

PH = 105.2 FOR PTB = 1014 - SUSPICIOUS - LATER

RUN HAD 103.68 FOR

FROM LASER RUNS, DRIFT VEL = 5.53 <sup>1014.55</sup> cm/msec  
I ALSO PLOT GAIN PEAK VS PTB FOR LAST 4 DAYS

0900 STRANGE ANDRE BEHAVIOR ON OWL SHIFT OPERATOR DIFFICULTY?

TO CHECK CONFIG + POPSTATUS:

PUTTY TO SC3 AS PER NORMAL

ON SC3 TYPE XTERM

THEN TELNET TO 9038, 9037. IF NOT CONFIG + POPSTATUS DON'T WORK.

OUTER CONFIG "NODE 0 MAINFRAME IN BAD STATUS"

2374 0000 0007 0075 009B

POPSTATUS

3 170 185

INNER CONFIG

2374 0000 0008 006C 008B

POPSTATUS

3 170 185 "NODE1 MAINFRAME IN BAD STATUS"

24/03 TPC TEMP CABLE GOES BAD AGAIN - SEE PAGE 76-77. COMES WITH POLARITY REVERSAL OF MAGNET FOR RDO 13-2

1/28/03

NOTICE OFC CURRENTS NOT EQUAL AFTER  
MAG REVERSAL ON 1/24/03. NOW POL = A

OFCW = 76.620  
OFCE = 76.5926

VOLTAGES  
-33.398  
-176.692 } W  
-33.754  
-177.238 } E

SEE PAGE 67

1/29/03

ACCESS 1. CYCLE POWER ON LECROY INNER + OUTER  
OUTER CONFIG 2174 0000 0007 0075 009B  
PUP STATUS 111  
INNER CONFIG 2174 0000 0008 006C 008B  
PUP STATUS 111

NO PULSE

MEASURE PULSER OUT FOR YURI CALS - SECTOR 1  
INTO 50 Ω  
Ave 100 PULSES  
OUTER FAOUT 1  
OUTER FAOUT 2  
INNER FAOUT

DIAL	PULSER	OUTER FAOUT 1	OUTER FAOUT 2	INNER FAOUT
200 mV	192 mV	3.60V	3.60V	3.60V
100 mV	95 mV	1.80V	1.76V	1.76V
50 mV	48 mV	868 mV	856 mV	856 mV
25 mV	24 mV	396 mV	392 mV	394 mV
13 mV	12.2 mV	NO PULSE	OUT	CUT OFF ~ 20 mV
400 mV	384	7.36	7.30	7.36 V
800 mV	770	14.80	14.60	14.8 V
1060 mV	950	18.6 V	18.4 V	18.4 V
1200 mV	1160	21.6	21.6	21.6
1400 mV		SATURATES		

1/30/03

DURING ACCESS - SHORT OUT R00 13-2 THERMAL CUT  
REPLACE R00 13-2 EXTENSION -  
FEES 180-181 HAD GONE OUT.  
PULSER SHOWS ON NOW

2/12/03

ACCESS CANCELLED!  
PENDING MAB LENS 1. RPS1 WON'T AN  
NEED TO PUT IN SPA  
2. LECROYS MAIN FRAME  
BAD STATUS

11/9/03 ACCESS.

1. REPLACE RPS 1 w/ SPARE, OLD ONE WOULDN'T COMMUNICATE, SAME CONFIG + PLUG ASSIGNMENT, (WAVETEK = 5, TPCTEMP = 8)
2. CYCLE POWER ON BOTH LERAOY MAINFRAMES
3. DENNIS LOOKS AT LUPS FOR 2-4, FINDS 400mV RIPPLE, --LUPS LOOKS OK  $\Rightarrow$  BAD RDO - NOTES IN NOTEBOOK  $\Rightarrow$  2-4 REPLACED LAST YEAR FOR SAME REASON.
4. LU ADDS PUMP FOR MS + HUNTS FOR LEAK.

11/26/03 ACCESS -

1. DENNIS SLOWS DOWN FIELD CAGE READOUT BY FACTOR OF 2.

SINCE MONDAY HAVE BEEN GETTING BRIEF FC ALARMS ( $\Delta$ ). LOOKS LIKE ALL 4 CURRENTS ARE VARYING COHERENTLY - HVPS?

EVEN GET ALARMS w/ HV = 0.

$\Rightarrow$  PROBABLY NOT A PROBLEM WITH FC.

DATA IN NOTEBOOK.

SLOW DOWN FC READOUT BY - FACTOR OF 2  
- STILL GET ALARMS.

11/25/03 ACCESS:

1. LERAOY MAINFRAMES NOT IN BAD STATUS!
2. RDO 2-4 - TONKOS PUTS BACK IN + TESTS - NO ERRORS  $\Rightarrow$  VARIABLE, LEAVE MARKED OUT + REPLACE LUPS NEXT WEEK.
3. MEASURES INNER 1 CG -  $V_{G6}$  HAS BEEN WANDERING, TEST NOT AVAILABLE THIS WEEK, SO LEAVE IT FOR NOW.  
HAD TO REBOOT

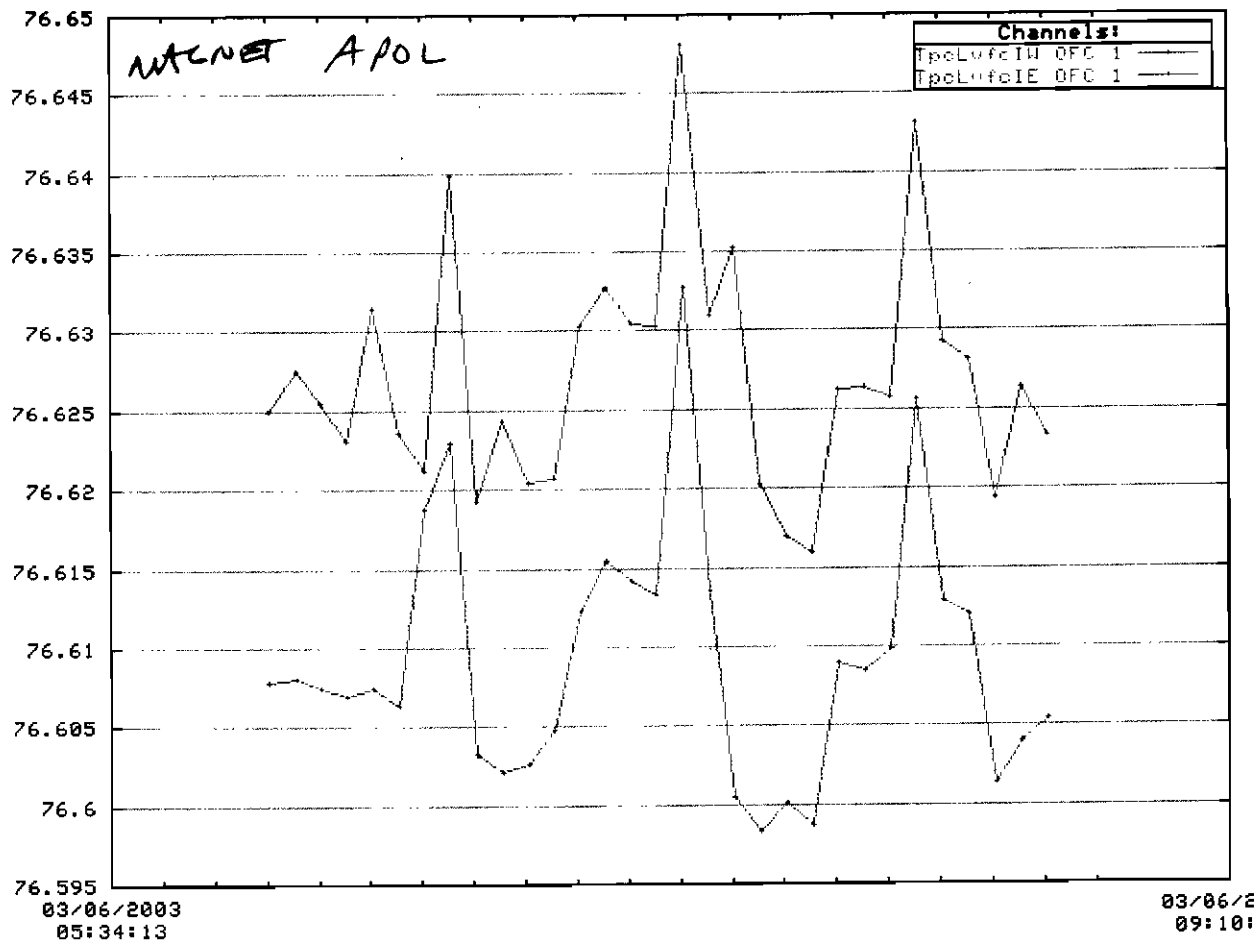
$V_{G6}$  SET = 115, READBACK = ~~113.8~~ 112.5 w/ NUM:  $V_{G6 LO} = -189.6 - 187.6$   
 $V_{G6 HI} = -345.6 - 32.3$   
 $V_{G6} = -112.8$   
 READOUT = 114.2  
 SET = 116  $\uparrow$   $V_{G6} = -114.4$

3/6/03 | 0900 | CAME IN TO FIND GAIN CH HV TRIPPED!

THEN OUTER LEADY GOES INTO BAD STATUS (TRIP WAS ~20 MIN BEFORE). HV TURNS OFF, GET EVERYTHING BACK ON, BUT GET NO GAIN FC SPECTRUM. RESTART PC/M (LABVIEW), STILL NO.  $\Rightarrow$  SMOGGED PA? I SEE CHANGE OF CURRENT WITHIN I RAMP HV, SO IT SEEMS OK.

ALSO GETTING LOTS OF FC ALARMS. MAGNET NOW A POL SO OFCW IS  $\rightarrow$  OFCB BY 20 mA ALREADY, SO ALARMS HAPPEN EASIER (SEE PG 101)

CURRENT SLOW CONTROLS ALARMS ARE  $H_{set} = 50$   
CHANGE TO  $H_1 = 80$ ,  $H_{HI} = 100$   $H_1 H_1 = 100$



12/03  
STILL  
TIES  
K OUT  
RAIN

ACCESS:

1. WEST LASER HAS BAD QSWITCH - NEEDS RETURN VISIT BY TECH TO BRING QSWITCH
2. REPLACED LUPS ROD 2-4 + PUT BACK IN RUN.
3. DETERMINED THAT GAIN CHAMBER PA IS PROBABLY SMOKED: +12V IS OK  
MCA IS OK  
HV IS OK  
NOISE ON PA OUT DOESN'T CHANGE IF I REMOVE +12V.  
TURN OFF GAIN CH DAQ PGM FOR NOW, NEW PA ON ORDER.
4. ~~INNER~~ INNER WHEEL 6 (10+11)  
INNER MANIFOLD (10+11)  
INNER SECTOR (10+11) } GO ABOVE 80 AGAIN (B=0)
5. FIXED OUTER LEAKY BAD STATUS.

103

OVER THE WEEKEND:

1. FC CURRENT GET WORSE - UPTO  $\Delta \approx 80$  w/ YELLOW ALARMS, LOOKS LIKE SAME PROBLEM. ON MONDAY (3/17) - ARMER.

2. INNER 1 & 6 ALSO WORSE. NEED 118 DEMAND TO GET 1/4

3. INNER 3+4 ANODES SHOW LOTS OF FLUCTUATING CURRENTS - UP TO YELLOW ALARM LEVEL CONDITIONS: BEAM ON DATA TAKING w/ 150 HZ ALL 8 CHANNELS SHOW THE SAME. WITHEN STOP DATA TAKING ALL CHANNELS CERM. VARIATION LOOKS WORSE  $\frac{1}{2}$  c. ONE CHANNEL GOES FROM -.008 TO .027% BACK - ~~LOTS~~ LOTS OF CHANGING - SERIAL DISPLAY UPDATES ~CONSTANTLY,  $\Rightarrow$  MAYBE WHOLE CATH. SEE NO CURRENT ON 1+2, 5+6 INNER.

REPLACES  
CATH - NEXT PAGE

18/03

10:00 DENNIS CHANGES AUTORAMP PGM FOR CATHODE TO WAIT LONGER @ 10 + 20 KV + SETS ALARM LEVEL TO 80 mA. AUTORAMP PGM HAD ABORTED ~3 TIMES DUE TO FALSE HIGH  $\Delta$ .

104

CAF: CLIENT ACCEPT ERROR  
IOSLib: TOO MANY OPEN FILES

3/19/03 ACCESS

SPACE  
GLASSMAN

① PUT IN SPACE GLASSMAN - LOOKS LIKE FC  
PROBLEM STAYS SAME ⇒ NOT PS

2. REPLACE INNER 3, 4 AN400E CARD - S/N B680  
→ PUT IN UVC S/N B68022

3. NO TIME TO DO GG

4. CYCLE POWER ON OUTER LEADY - IN BAD STATUS THIS

3/20/03

LOOK AT INNER 3, 4 - NO CHANGING CURRENT W/ G  
⇒ FIXED!

OVERNIGHT, OP RECORDED ~ 4 FC ALARMS. HOWEVER,  
ARCHIVER SHOWS ~ NORMAL. NEED TO INCREASE  
ARCHIVER FREQ.

3/21/03

STARTING TO GET MANY FC ALARMS > 10 W/ G,  
ARCHIVE PLOTS SHOW LARGER VARIATIONS ON FC  
CURRENTS

3/24/03

⇐ CHANGE OVER

I SCHMIDT

1. REPLACE INNER 1-4 GG DRIVER - PUT IN A  
CALIB TOMORROW

2. KENNY CHANGES FC CURRENT SWITCHER CARD  
+ CLEANS UP CONTACTS.  
CAN'T REPLACE VOLTAGE CARD SINCE I ORDERED  
THE WRONG ONE - 7064 INSTEAD OF 7054.  
ORDER TODAY.

→ 3. LASER (WEST) REPAIR NOT STARTED - PARTS NOT H

1700

TURN ON GG INNER 1 COMES UP @  $V_{GG} = 107.2$   
FOR SET = 115

MEASURE ON BACK:  $L_0 = -182.2$

$H_1 = -31.4$

$V_{GG} = 107.2$

SET TO 123 = 114.9 FOR OVERNIGHT TO SEE



730  
728  
006

5/03] CHECK FC I + V w/ NEW I SCANNER  $\beta = 0?$

	5KV	10KV	15KV	20KV	25KV	28KV
EW	13.734	27.358	40.996	54.615	68.246	76.431
EW	13.733	27.356	40.995	54.616	68.246	76.432
EW	13.732	27.354	40.992	54.612	68.241	76.422
EW	13.733	27.357	40.996	54.617	68.246	76.428
OW	5.98	11.93	17.88	23.82	29.77	33.34
LW	31.57	62.97	94.39	125.95	157.38	176.34
OW	4.25	8.49	12.72	16.96	21.18	23.73
LW	31.62	63.09	94.57	126.01	157.7	176.63
OE	6.04	12.04	18.06	24.06	30.06	33.68
IE	31.67	63.17	94.69	126.36	157.9	176.80
OE	4.26	8.50	12.74	16.98	21.22	23.76
IE	31.63	63.10	94.59	126.05	157.73	176.66

- 1. JEFF + DENNIS CALIBRATE THE GG MODULE.  
 INNER 1 NOW  $V_{GG} = 115.2$   
 INNER 4 TWEAKED UP FROM 113 TO 115.
- 2. FC AT 28 KV - LOOKS OK. STILL SEE ALL CURRENTS JUMP OCCASIONALLY TOGETHER BY ~6 mA. LEAVE UNTIL 1700.
- 3. NO WEST LASER REPAIR.

03) ACCESS (HAVEN'T BEEN RUNNING FOR DATA - PP SETUP)

- 1. PUT OLD GLASSMAN BACK IN CHECK FIELD CAGE TO 28KV - OK  
 CHECK INTERLOCK. - OK
- 2. CRATE SI HAD HIGH IS TEMP.  $\uparrow$  WATT @ 81 (AC?)  
 - PUT NIM FAN BELOW CRATE 43  $\rightarrow$  44
- 3. CHECK GG + LELLOY MAINFRAME STATUS - OK  
 $\rightarrow$  3 OUTER  $V_{GLO} = 72.8 \sim$  YELLOW  
 1 INNER OK

5/03] DENNIS SLOWS DOWN FC ARCHIVER AGAIN.

4/16/03 2 DAY ACCESS:

V SUMMER →

1. FOUND BAD CABLE FOR LASER (PIN DIODE) INPUT TO TCO. REPLACED + CHALLENGED DAQ w/ LASER - 10HZ ON, MAKE FULL LASER RUN TOMORROW WHEN WEST LASER REPAIR
2. REPLACED WETHELY 7054 VOLTAGE SWITCHER CARD, CHECKED FC TO 10KV
3. RESTRICTED TYC TEMP - HAD BLUE SCREENED
4. UNPLUGGED HV CABLE FOR SERTOK 20-5. THIS PREVENTS TRIPS IF IT ACCIDENTLY GETS REENABLED (CHALLENGED ~ 2 DAYS AGO)

4/17/03 WEST LASER REPAIRED BY SPECTRAPHYSICS  
AL MADE A TYC LASER RUN.

4/23/03 ACCESS - NO REAL WORK.  
HAVE NOTICED FC WORKOUT MISMATCH w/ B FIELD.  
MEASURE WITH B=0:

B=0				
280W	OFCW	76.602	OFCB	76.594 *
	Δ	2.78	Δ	6.8
	IFCW	76.599	IFCB	76.601
	Δ	1.10	Δ	2.1
		-33.40		-33.74
		-176.79		-177.34
		-23.78		-23.79
		-177.18		-177.14

4/26/03 w/ B = FULL (AABL)

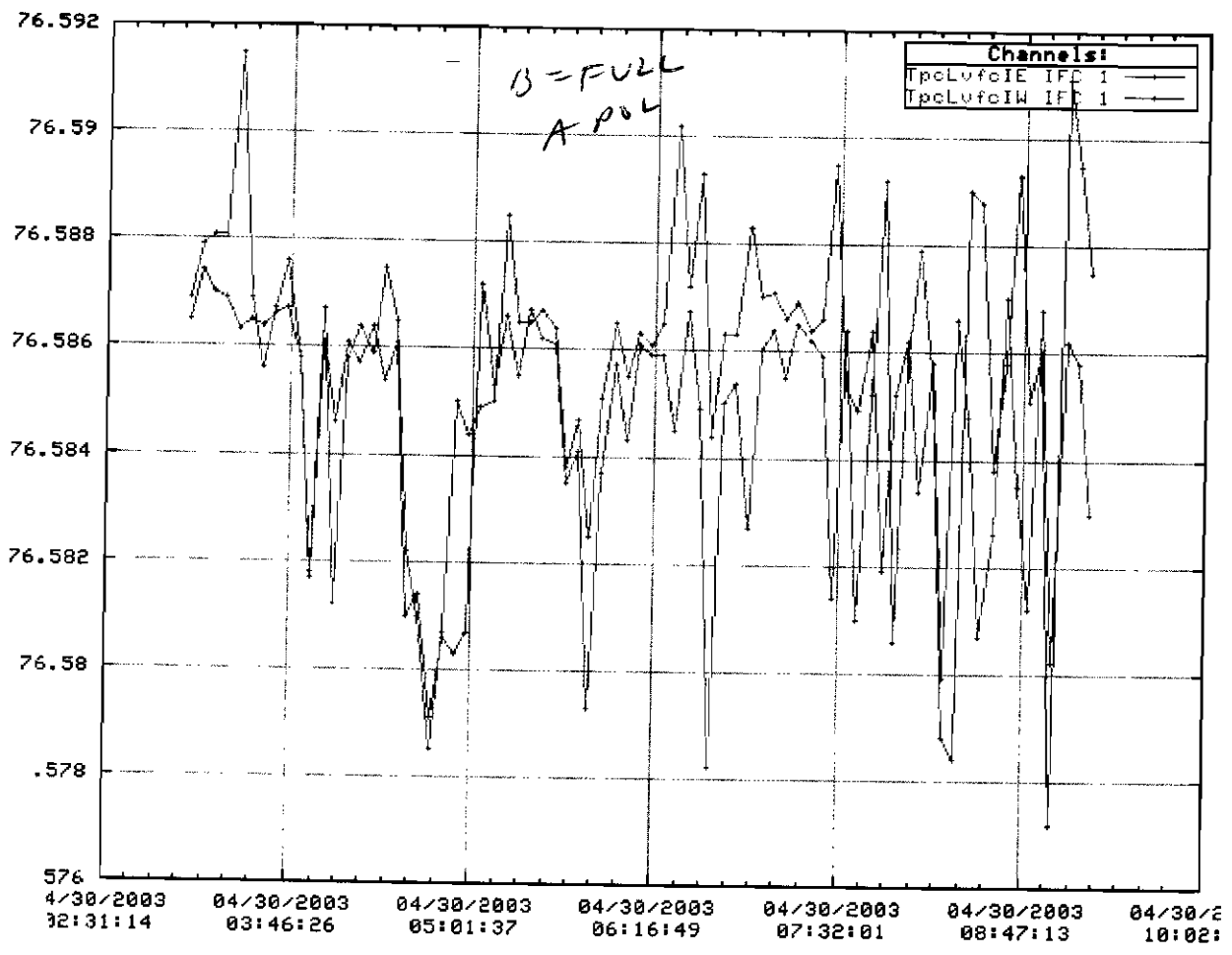
76.624 (76.638)	76.601
Δ = ~20 (UP TO 45)	Δ = 9
76.588	76.591
Δ = 7	Δ = 7
-33.34	33.739
-176.62	177.21

THEY READ 6V  
 CREW REPORTED FC/AAARM AT FLUCTUATES CLAIM Δ = 3000 mA!  
 CLEARER AFTER 2 MIN  
 ARCHIVER WORKING  
 TYC ARM CLAIMS YELLOW ARM @ Δ =

20/03

OWL SHIFT AGAIN COMPLAINED ABOUT AUTO RAMP QUITTING. ALSO GOT ONE MORE  $\Delta$  ALARM (BRIEF) @  $\Delta = 52W$  OF CW CONSISTENTLY 30 NA ABOVE OTHER 3 WJ B = FULL + A POLARITY. SPIKES TAKE  $\Delta$  TO 50

107



3) CHECK FC CURRENTS AT 10, 20, 28 WJ MAG = FULL A

10 KV	20 KV	28 KV
$\Delta = 9.6$	$\Delta = 21$	$\Delta = 30$
4.6	10	15
0.73	1.7	2
4.0	9.5	14

AUTO RAMP PROBLEM AGAIN LAST NIGHT ~ 11 PM. I NEED TO TALK TO DET OP. - OP ERROR

103) REVERSE OF CE + W CABLES @ I SCANNER (NOT V CABLES) MAG = FULL A POL

10 KV	20 KV
$\Delta = 9.5$	$\Delta = 19.23$
5.3	10
1.2	1.8
5.0	9.5

SWITCH V+I ON FRONT OF  $\Omega$  BOX

10KV  
20KV

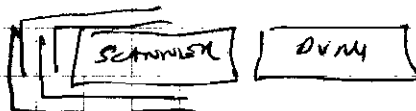
5/15/03 | 0900 | 24-5 ANODE TRIPS 4 TIMES OVERNIGHT

MEASURED CURRENT =  $-0.48$  (MOST NEG I  
 IN HV CHANNEL?)

5/16/03

ACCESS - WORK ON FC SCANNER

1. REMOVE RACK SIDE RAIL - NO HELP
2. ADD STEEL SHEETS FOR SHIELDING FROM BACK:



← RACK SIDE WALL IS MAGNETIC

AT 28 KV:

$D = 2.2$   
 $\Delta = 1.7$

76.588  
 76.592

76.585  
 76.592

$D = 5.8$   
 $D = 1.4$

) = FIXED FOR A P

5/18/03

2 FEE LVPS GO OUT @ ~ 1800. AT MIDNIGHT ALL OF  
 RACK 2B3 GOES OUT - INTERLOCK.

ACCESS ON S119 - FIND BLOWER VERY HOT + 2  
 CIRCUIT BREAKERS TRIPPED (= 1800 EPISODE).

FIND SPARE BLOWER + INSTALL - ALL LVPS COME  
 ON. THIS BLOWER WAS THE ONE THAT I USED  
 TO KICK TO GET PRESSURE SWITCH ON AFTER  
 SWID WAS OFF. KENNY REPAIRED PRESSURE SWITCH  
 ~ 2 MOS AGO. DANNY LOOKING AT FAN BLOWER  
 MOTOR NOW (BEARING WAS VERY STIFF).

CHECKING ON LIFETIME OF BLOWER AND GETTING  
 SPARES.

10/8/03

TURN ON BEFORE ROLL-IN - 2B3 PRESSURE SW  
 AGAIN DOESN'T CLEAR! KICKING DOESN'T HELP

~~NO REPAIRS~~ AFTER ROLL IN - BOTH

(20/03) DATA FROM GAS PC TO ONLSUNI STOPS AT ~0150  
 GAS PC DATAWRITER SAYS I/O ERROR 103  
 JEFF PORTER LOOKING @ ONLSUNI

1/02/03 1400 TURN ON SYSTEM AR TANK ~82"

START SOLGAS AR PURGE

START NEW GAS DB RUN JAN 2003.mdb

GAS

SYS

TO RESTART DATA WRITING TO ONLSUNI ON

LOG

Pg 106

GAS COMPUTER;

START - RUN - OPEN.CMD

C:\> net use & = CURRENT CONNECTIONS  
 IF NOT CONNECTED

C:\> net help use

C:\> net use \\ONLSUNI\online\tpcgas\user  
 storage

Date: Tue, 20 May 2003 23:08:51 -0400  
 From: R. Jeff Porter <porter@bnl.gov>  
 To: string@physics.purdue.edu, wbetts@bnl.gov  
 Cc: porter@bnl.gov  
 Subject: tpcgas back but weird

10/8/2003

PETER + WAYNE  
 SET GAS PC TO  
 AUTOMATICALLY  
 IN TO ONLSUNI  
 ON STARTUP.

Hi Blair & Wayne,

I got the tpcgas system to write out its data ... but I ended up needing to trick it. That is, it wouldn't write to,

/online/datapool/conditions/Tpc/gas

but would write to a newly created directory

/online/datapool/conditions/TpcGas/

It didn't help to remove the 'gas' directory and create it new.

This was very weird. I did go by and ask Valery about it. He didn't believe me and then came out and saw for himself. He concluded that it was something peculiar in the writing code.

I fixed our current problem by creating the 'gas' directory as a soft-link to the 'TpcGas' directory. This does work since the writing code never sees the 'gas' directory - only the slow-controls machine sees it. Again weird.

10/13/2003

TEST FIELD CAGE - DET ROLLED OUT, SVT, 550, FT.

	NO 5KV	10KV	15KV	20KV	25KV	28KV	30KV
OFCW	13.765	27.422	41.088	54.737	68.377	76.574	82.632
IFCW	13.765	27.422	41.087	54.737	68.377	76.574	82.638
OFCF	13.764	27.421	41.085	54.735	68.381	76.573	82.636
IFCF	13.765	27.422	41.085	54.733	68.372	76.574	82.637

OK

10/13/2003

AFTER POWER OUT ON FRI, INTERLOCK FOR 2B7 FEES DIDN'T CLEAR, LOOKS TO BE WATER SIGNAL ALSO, 2B3 WENT BAD AGAIN LAST WEEK, CROSS CONNECT LOOKED LIKE FRANKY PRESSURE SWITCH AGAIN. DISCOVERED THAT PRESSURE SWITCHES ARE ADJUSTABLE + WE HAVE TWO KINDS - ONE HAS HIGHER RANGE THAN THE OTHER. NOT FIXED YET - 2B3 BLOWER CABLE IS UNPLUGGED FOR NOW.

10/14/03

ON TURNING OFF, BLOWER SWITCH FOR 2B6 DOESN'T SHUT OFF LUPS IN THAT AREA. ARGH!

ALSO, MEASURE PRESSURE IN BLOWER IN 2B1

$$= 0.7 \text{ " H}_2\text{O}$$

10/27/03

1000 AFTER ROLL IN - BOTH 2B6 AND 2B7 WORK OK. THUS TURNING OFF BLOWER IN 2A6 DROPS INTERLOCK. 2B7 CROSS CONNECT CLEARS OK, SO

SEE PH 146

PHIL REPLACES PRESSURE SWITCH IN 2B3 AGAIN. PUT IN ONE WITH LOWER PRESS RANGE

START REPAIRING FEES

SHOULD USE TYPE "01" PRESSURE

DEAD BAND ON "00" TYPE IS VERY WIDE RANGE = .07 TO .15. WHEN BLOWER GOES ON, WORKS WELL. WHEN BLOWER TURNED OFF,

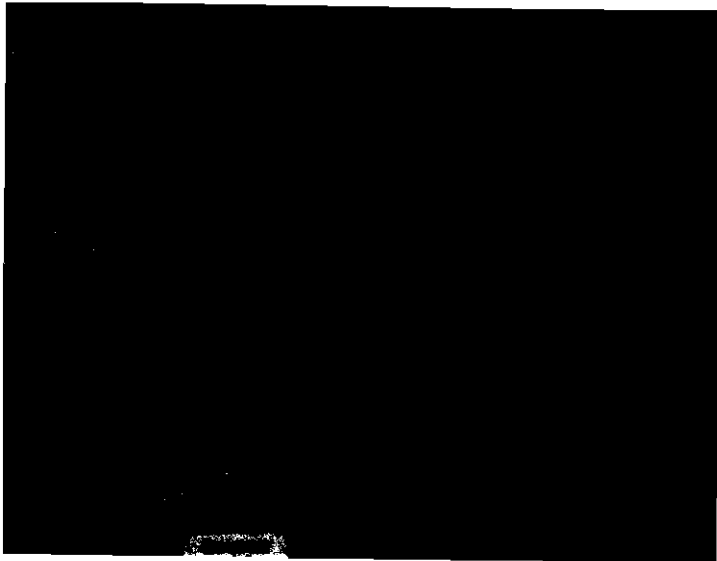
2/02) ROLLED IN, INNER FIELD CASE BLOWER IS ON.

MAGNET OFF TEST FC.

	5KV	10KV	15KV	20KV	25KV	28KV	30KV
W	13.791	27.447	41.106	54.747	68.388	76.584	82.048
W	13.792	27.445	41.104	54.745	68.387	76.591	82.046
E	13.789	27.444	41.101	54.743	68.378	76.578	82.041
E	13.791	27.446	41.104	54.746	68.381	76.583	82.046

1/03) PAUL SORENSON HERE ALL WEEK TO WORK ON GAIN CHAMBER PREAMP.

FINALLY GET IT WORKING.  
HAVE ADDED DIODES ON INPUT TO PROTECT PA.  
GET PULSER WORKING!



OUTPUT OF TAIL  
PULSER ON PLATFORM  
- INPUT TO TEST IN  
ON PA,  
SHOULD GIVE A  
POS PULSE AFTER  
SHAPER AT INPUT  
TO MCA

~ CHAMBER IS ON  
MCA

NEED TO ADJUST POSITION  
WHEN WE GET GAS

1/03) CHECK ANODES FOR CURRENT + TRIPS. (@ 200V IN N<sub>2</sub>)

INNER 14-1 UNPLUGGED - FOUND CABLE AT FACE HAD BEEN  
PULLED ON - AL "FIXED" IT BY TAPING. ON NOW  
OUTER 4-5 ACTED FUNNY + THEN TRIPPED.  
TRIED AGAIN + LOOKED NORMAL UP TO 400V

11/13/03 TURN ON GG, THREE BAD CHANNELS;  
RED = AFTER FIX

4. INNER <del>ON OUT</del>	$V_{GG\ HI} = 75.1$	$40.1$
	$V_{GG} = 94.2 \times 140.4$	$115.2$
	$V_{GG\ LO} = 75.0$	$190.4$

19 INNER	$V_{GG\ HI} = 74.8$	$40.0$
	$V_{GG} = 107.4 \times 121.6$	$114.8$
	$V_{GG\ LO} = 75.3$	$190.3$

20 OUTER	$V_{GG\ HI} = 74.9$	$40.5$
	$V_{GG} = 114.0$	$114.8$
	$V_{GG\ LO} = 67.6 \times 90.8$	$182.0$

11/14/03 DENNIS CALIBRATES GG CHANNELS - ALL ON  
ON RESTART

FIND 5 INNER PULSER AGAIN BAD.  
THIS TIME I DON'T SEE  $50\ \Omega$  FROM PLATFORM  
(SEE  $\infty$ )

11/16/03 PID IN CHAMBER  
LOOK AT 5 INNER PULSER CABLE <sup>FIXED - FOR A SEPARATE PIG TAIL C</sup>  
CAN FIND NO PROBLEM AT EITHER END TRAY-CONNECTED  
GET  $51\ \Omega$  AGAIN SOLID. <sup>END WAS LOOK</sup>  
NEED TO LOOK AT WHERE PIG TAIL PLUGS INTO  
CHAMBER.

1130 TURN ON GG - ALL 3 CHANNELS ABOVE APPEAR  
TO HAVE REVERTED TO THEIR PREVIOUS CALIB!  
SO NOW ALL THREE ARE HIGH! ARGH.

1330 DENNIS RECALIBRATES - REBOOT + LOOKS ALL  
GREEN

1530 AFTER 2 HOURS, 20 OUTER LO GOES TO 69.0!



530) GAS SYST RECIRC W/ P10

TURN ON ALL SYSTEMS TO FULL VOLTAGE  
(INCL 20-5)

20-5 TRIPS AFTER ~ 20 MIN

MAIN CH SHOWS NOTHING - NO NOISE, NO Fe, NO PULSES  
RESET MCA ON PLATFORM ... STILL NOTHING.  
EMAIL PAUL

640) TURN OFF HV (EXCEPT 66)

703) 1000) TRY A LASER RUN

66 20 OUTER STAYS AT 69.5 ALL NIGHT

1530) LASER RUN - BEAMS LOOK ~ WEAIR  
AZ CHECKING POWER METERS  
TIMING AT TED LOOKS OK

106, 216, 329  
 $\Delta = 110$

20/03) 0900 LASER LOOKS GOOD - IT WAS N2 IN THE GAS.

4/03) CROSS CONNECT IN 2B7 AGAIN FLAKY. ON  
TURNING ON FDS NONE OF 4, 5, 6 CAME ON (2B7)  
BUT SLOW CONTROLS DOESN'T SHOW BAD INTERLOCK.  
FIND CROSS CONNECT RED LED ON - CYCLE POWER  
ON VME CRATE - AFTER REBOOT ~~LED~~ LED ~ 1/2 ON  
& THEN FDS OUT - VER 7 WORKS. OK NOW.

→ FIXED? BY PHIL - FOUND THAT MODULE HAD A BAD  
10K  $\Omega$  PULL DOWN RESISTOR IN FAIL SAFE MOD  
WE HAD MADE. HE PUTS IN 600  $\Omega$  10K  $\Omega$ .

6/03) FIND ONE TACTEMP THERMOCOUPLE READING 88°  
(= INNER ROD 7). WE TRY & LOOK INSIDE W/  
BARE SCREW BUT NO GO. FAN BLOWING ON OUTSIDE  
BRINGS IT DOWN ~ 2°. (THIS ONE WAS ~ 116°  
LAST YEAR - MAYBE 82° BUT WAS NOT LOOKED AT.

TRY TURNING ON ONE BY ONE. -

IF ALL SIX OFF, T = AMBIENT ~ 79°

TURN ON ROD 1 - 79°

TURN ON ROD 2 - 79°

TURN ON ROD 3 - 81° (AND 3 - WITH INTERLOCK)

0930) TURN ON R001 FROM OUTER RADIUS IN SECTOR 7  
 ALL OTHER FEET OFF - AMBIENT = 75°  
 TURN ON R006

1000) R005 T=75.5  
 1025) R004 T=74.5  
 1055) R003 T=76.0  
 1130) T=78.0 - NOT MUCH

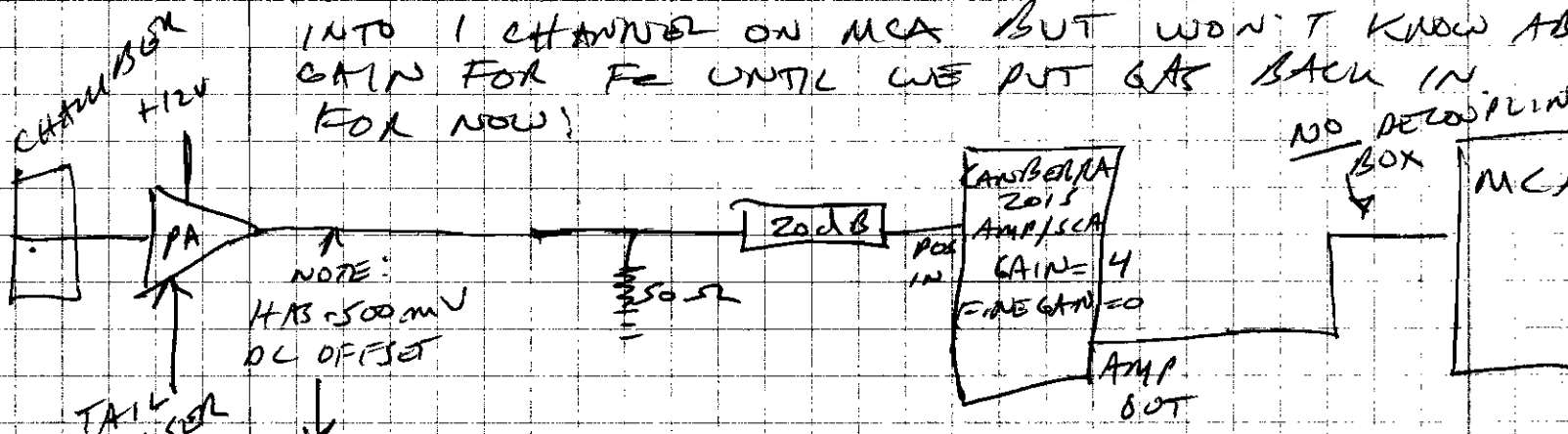
TURN ON R002  
 1400) 79.1

TURN ON R001  
 1500) 78.9  
 1505) TURN OFF R003

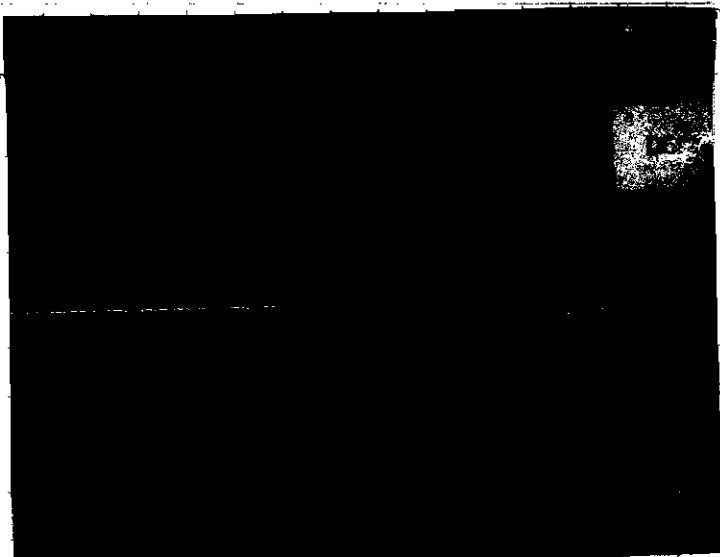
11/26/83) WORK ON GAIN CH - PAUL WAS HERE LAST WEEK (WHEN WE HAD GAS). PA OUT HAD LOTS OF NOISE + VARIABLE PULSER. NO SOLUTION NOTE: HE HAD MOVED DECOUPLING BOX (50 Ω PLUS CAP) FROM PA END TO MCA INPUT. THIS BOX SEEMED LIKE CAP (i.e. NOT "TUNED")

I PLAY WITH VARIOUS TERMINATIONS W/ + W/O BOX SIGNAL FROM PA DEFINITELY NEEDS 50 Ω TERM - IF NOT NOISE CAUSES 2 PULSER HEADS (SLOWLY JUMPS BETWEEN THE 2). CAN'T INVESTIGATE NOISE SINCE POLE TRIP IS IN.

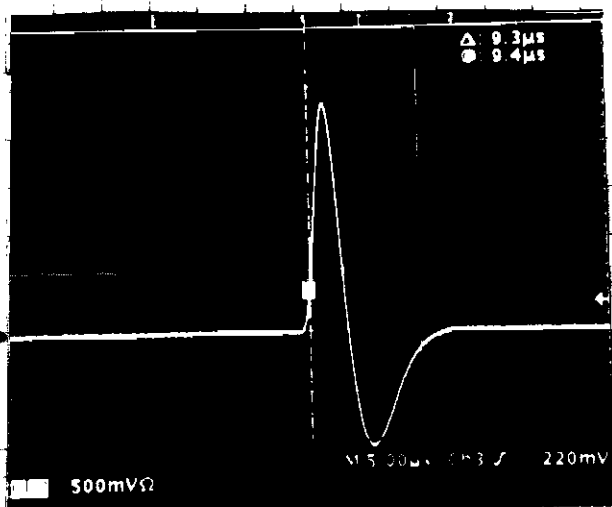
FIND KLUGE SOLUTION THAT GIVES PULSER INTO 1 CHANNEL ON MCA BUT WON'T KNOW AB GAIN FOR FE UNTIL WE PUT GAS BACK IN FOR NOW!



MCA HATES DC OFFSET, CAMBERRA TAKES IT OUT.



TAIL PULSER OUT  
GIVES



OUT OF CANBERRA  
GAIN = 4  
FINE GAIN = 0  
20 dB AT INPUT (+50 Ω)

THIS PULSE TO MCA (NO  
COUPLING BOX) GIVES PULSER  
IN ~ 2 CHANNEL @ ~ 200  
75 mV ON TAIL GIVES ~ 75  
COUNTS

2/07) CHECK GG WIDTH - 45  $\mu$ s

5 GG CHANNELS CAME UP BAD! ARGH (SEE P4112)

REBOOT, THEN 4 OUTER GOOT  
BAD!

	GUI	DVM
INNER HI	75.0	40.5
GG	93.5 → 95.0 → 107 → 101.4 115.3	ON TAIL 4 OUTER
LO	75.1 → 112.7 ON	190.5
INNER NEW	75.0	37.7
	→ 110.8	110.6
	75.0	185.5
INNER OLD	75.0	39.9
	→ 109.5 → 110.7	114.8
	74.9	189.2
OUTER NEW	74.9	40.6
	114.6	114.3
	→ 69.8 → 60.8	191.4

GUI	DVM
75.2	23.5
97.7	98.3
75.0	173.4

AFTER 30 MIN -  
RIGHTS DOWN TO  
~ 70

THEN 89.0, 90.2

4 OUTER AFTER RECAL

	DVM
75	50.6
115	124.8
75	199.0

12/2/03 REPLACE 1-4 OUTER DRIVER

IGNORE FOR NOW (ALSO 4 INNER V66 DROPS TO 3V ← INNER OUTPUT REAS 115 V66 191 GOES 67.

	OUTER	GUI	DVM
1	<del>HI</del> HI	75.8	40.5
	GG	115	116.5
	LO	74.9	190.5
2	OUTER HI	75.2	41.3
	GG	116.1	116.4
	LO	75.1	191.7
3		75.2	40.0
		115.2	114.8
		75.2	190.3
4		75.4	
		144.7 <sup>CH4</sup> <sub>BE REFL</sub>	144.7
		75.5	

HIGH - CHAN 4 HAS REVERSED POL!

PULL IT OUT - END OF ACCESS

12/3/03 1000 REVERSE CH 4 OF DRIVER. WAIT FOR ACCESS 1400 ACCESS - TURN ON GG - REPLACE 1-4 OUTER

	INNER	GUI	DVM		OUTER	GUI	DVM
9	INNER HI	75.5	46	3	OUTER HI	75.2	39.9
	GG	119.1	119		GG	115.1	114.7
	LO	75.0	194		LO	75.2	190.2
4	OUTER HI	75.4	70	4	OUTER	75.4	40
	GG	143.8	144.7		(REAL)	115.1	115
	LO	75.5	220			75.6	191
1	OUTER	75.9	40.1	19	OUTER	75	40.5
		115.4	115.3			114.6	114.3
		74.5	190.1			92	187
2	OUTER	75.2	41.4	19	OUTER	74.9	40
		116.1	116.4		REAL	114.8	114

20 OUTER	GUI	DVM
H1	74.8	14.8
G6	88.5	89
L0	65.3	154

LEAVE FOR NOW

19 INNER	GUI	DVM
V66	117.9	115.2

DENNIS RECAL

ON TURNING ON MAGNET LAST WEEK, I RAN UP FC. SAW NOISE ON CURRENTS => 'BAD D'S' THOUGHT IT WAS MARESS MAGNET RAMPING.

TODAY, GET ACCESS - NO MAGNET (BUT IT WAS AT FULL FIELD LAST WEEK FOR ~ 1/2 HOUR.

GET A SHORTED STRIPE ON EAST!

IFC <sub>W</sub>		IFC <sub>E</sub>		RATIO
27.825		27.976		.994
14.188		14.265		.995
3.253		3.267		.996
3.274		3.289		.995
14.173		14.250		.995

0900 CHECK IFC AGAIN - STILL BAD. WED = ACCESS ALSO GETTING LOTS OF NOISE ON ALL CURRENTS, EVEN FOR IAU=0. RHIC IS RUNNING - SO?

WE ALSO HAVE NEW MAGNETIC SHIELD ON KEITHLEY SWITCHES CHECK AGAIN WED. (ON NEXT RHIC SHUTDOWN)

GET SERVICE ON GAT ROOM UPS - HAVE TO TURN OFF POWER TO GET IT IN NIGHT MODE. WAS PROGRAMMED TO SHUT DOWN POWER IF IT GOT AN INTERNAL ERROR => COULDN'T PUT IT IN BY PARS.

TURN ON G6: LEAVE ON FOR NOW

19 INNER	V66 = 118.5	OLD
20 INNER	V66 = 100.8	(NEW!)

(2/16) STAYED SAME ALL NIGHT. TURN OFF & BACK ON. COMES

12/17/03 ACCESS FC CURRENTS LOW STABLE, OF COURSE

HOWEVER BASELINE HAS SHIFTED  
 W/ PS @ 1KV 3.28  
 W/ PS ON BUT  $V = \phi$  ALL LEAD .565  
 W/ PS OFF .444  
 W/ CABLE UNPLUGGED .415  
 SEE 3 OF THEM PLOT TO 23 THEN BACK UP  
 LOTS OF MOVEMENT

0915	GG	60I	DVM	DENNIS CARIBATES
	HI	75	39.8	39.82
	19 INNER	GG 118.5115	114.8	114.8
	LO	75	189.1	189.2
	HI	75.2	40.4	40.4
	20 INNER	GG 101.3115	114.3	114.3
	LO	75.2	189.6	189.6

AFTER ~ FEW HOURS, INNER 5 GOES YELLOW  $V_{60HI} = 72.0$

1600) STILL HUNTING FOR SHORTED STRIPE - HAVE 2 STRIPES AT ~20 TO 7  $\Omega$  ~11 OR 14 STRIPES IN.

ALSO LOOKING AT NOISE ON FC, NOISE STOPPED @ 10 BUT PICKED UP AGAIN AT 1500. DESKTOP METERLEY ISN'T FAST ENOUGH TO MEASURE. HAVEN'T REPLACED RACK MOUNT METERLEY YET. FAN ON BACK OF RACK SEEMS TO BRNCH CURRENT DOWN TO ~.2 BUT NOISE STILL THERE. PS HV CABLE IS UNPLUGGED

RACK MOUNT  
 DVM CPTB  
 ADDRESS = 16

CURRENT UNPLUG CABLE INTO DVM,  
 CURRENT READS ~ SAME .16 mA w/ NOISE UP TO .19  
 DOWN TO .08

CALM FOR LAST ~45 MIN @ .16.  
 FAN IN RACK

12/19/03 FC CURRENTS STILL CALM AFTER 2 DAYS SEEMS TO WORK. ALSO, W/ GUTSMAN OFF, I .1 WITH GUTSMAN ON BUT HV = 0,  $I \sim 0.2$

2/63 1000 STILL HAVE SHORTED STRIPE ON EAST IFC ~

STRIPE 169 OR 170. ALL EFFORTS AT REMOVING HAVE FAILED. MAY GET ONE MORE CHANCE MONDAY. NEED TO SEE IF WE CAN STILL RUN - SO RAISE CATHODE TO 28KV!

	1KV	5KV	10KV	15KV	20KV	25KV	28KV	30KV	AFTER 1 HR @ 28KV
W	2.936	13.866	27.517	41.174	54.817	68.450	76.655	82.114	76.652
W	2.936	13.867	27.517	41.175	54.816	68.456	76.654	82.116	76.652
E	2.937	13.866	27.515	41.171	54.812	68.452	76.649	82.109	76.646
E	2.952	13.943	27.668	41.400	55.117	68.834	77.077	82.568	77.073
O	1.239	6.030	12.011	17.993	23.962	29.928	33.487	35.868	33.502
I	6.532	31.778	63.309	94.841	126.537	158.061	176.985	189.587	176.983
O	.878	4.275	8.515	12.758	16.996	21.273	23.781	25.475	23.779
I	6.541	31.806	63.370	94.953	126.503	158.265	177.254	189.89	177.236
O	1.247	6.069	12.090	18.116	24.135	30.154	33.772	36.182	33.772
I	6.547	31.853	63.428	95.066	126.832	158.492	177.417	190.060	177.404
O	.882	4.293	8.552	12.814	17.071	21.326	23.884	25.888	23.885
I	6.578	31.988	63.732	95.482	127.268	159.158	178.246	190.952	178.219

.995 .995 .995 .995 .995 .995 .995 .995 .995

$\Delta = 423 \text{ mA}$

3) 1000 CAN'T FIND SHORTED STRIPE - BUTTON UP TUB IN 15L TIL FC CHECKED TO 28KV

	5 INNER	66	120	GVF	OVUM
				71.8	40.3
				114.9	114.8
				75.1	189.4

RETR BY DENNIS

3) 1400 DENNIS PUTS IN FIX FOR FC SUCH THAT IFCE I IS MULTIPLIED BY .995 BEFORE CALCULATING THE  $\Delta$ 'S (FOR ALARM PURPOSES). HOWEVER, THE RAW IFCE THAT IS DISPLAYED ON SLOW CONTROLS (+ THAT GOES TO ARCHIVER) IS UNCOLLECTED.

MAGNET AT B POLARITY (SWITCHED TODAY) FULL FIELD

	10KV	20KV	28KV
O	27.488	54.794	76.637
W	27.490	54.795	76.638
E	27.485	54.791	76.637

12/26/03 } 0945 } 4 GC 90 BAD AGAIN! HAVE BEEN ON

CONTINUOUSLY:

		GUI	DVM
5 INNER	HI	(77.8)	40.3
SEE PG 119	GG	114.9	114.8
	LO	75.1	189.4

		GUI	DVM
19 INNER	HI	75.1	40.3
	GG	105.3	114.8
	LO	74.9	189.4

pg 118, 117

		GUI	DVM
14 INNER	HI	75.2	39.1
	GG	111.2	113.9
	LO	75.0	188.5

		GUI	DVM
20 INNER	HI	75	40
	GG	<del>125.4</del>	114
	LO	74.9	189

REBOOT PROC

12/26/03 } 1200 INNER LEUROY IN BAD STATUS - ACCESS MON

12/29/03 } 0900 POWER CYCLE INNER LEUROY

RACK MOUNT HEAT EXCHANGER + FAN UNDER FC DVM - NOISE WAS ~BAD OVER WEEKEND. IT GOT BETTER AFTER POWER DIP LAST NIGHT @ ~6:20 PM. (MAGNET RAMPED DOWN).

1100 } REPLACE GC CONTROL MODULE FOR 19, 20 INNER  
 S/N = 11  
 PUT IN S/N = 17 (CHANGE ADDRESS TO = # 11)

5 INNER STILL BAD (SEE ABOVE)  
 14 INNER NOW OK GG = 114.1 GUI  
 19 INNER OK

		GUI	DVM
20 INNER	HI	75.5	40.4
	GG	(130.1)	114.4
	LO	75.4	189.7

DENNIS RECALIBRATES SINNER, 20 INNER

DENNIS HAS MOVED A COUPLE OF PROCESSES:

INTERLOCK/TPC TEMPS ARE IN INNER AND D06

DEWPT/TPC GAS ARE IN FEE CRATE



29/03 GAIN CHAMBER HAS PEAK IN CHANNEL ~55  
PULSER IN CH 200

ON SCOPE INTO 50  $\Omega$

SOURCE 500 mV

PULSER = 190 V

AMP

RAISE<sup>^</sup> GAIN FACTOR, REDUCE PULSER IN FACTOR 2  
(COARSE GAIN = 8)

SO, PEAK IS IN 109 ( $\bar{B} = 0$ , P10 IN PURGE MODE)

PULSER IS ~ 200 + 2 CH WIDE.

COMPARISON PGM DOES NOT GET PTB ATM PRESS. EMAIL PAUL

30 LASER RUN - PETER'S ALARM PGM DOESN'T  
CLEAR ON ANODE HV - SECTOR 20-5?

ALSO RPO 20-2 LOOKS SCRAMBLED FOR MANY  
FEET. TONKO?

NO OTHER PROBLEMS!

MEMBRANE @ 353

54

303 0900 RUN SERIES OF LASERS RUNS W/ SHUTTERS  
FULL  $\bar{B}$  FIELD

1. RUN 4364002 FULL  $\bar{B}$  FIELD, ALL LASERS
2. RUN 4364004 BEAMS @ 12, 6, 8
3. RUN 4364005 BEAMS @ 2, 8
4. ~~RUN 436400~~ BEAMS @ MAGNET CRASH

303 1710 FIRST LOOK AT AU AU W/ DAQ 100.

RATE ~ 80-90 HZ MIN BIAS

2/3 CLUSTERS 1/3 DATA

INNER SUM = 1.5 ~~uA~~ uA

OUTER SUM = ~.3 ~~uA~~ uA

THEN BATH ABOUT TRIS ~ 100 ANODES

12/31/03 } 2100 } RAISE CURRENT LIMITS FOR SUMMED AND  
CURRENTS + INDIVIDUAL CURRENTS IN POTENTIAL  
NEW LIMITS

	YLW	RED
INNER SUM	3.8 mA	4.0
OUTER SUM	1.0	1.2
EACH ANODE	.080	.100

2250 } LATER RUN MEMB @ 352

1/5/04 } 2030 } GET CALLED - CATHODE WON'T RAMP.  
COME IN. GLASSMAN IS ON (K) BUT HV  
WON'T COME ON. CYCLE POWER ON GLASSMAN,  
CONTROL CATHS. STILL NO GO.  
LATER FRANK GOES IN + TRIES TO TURN ON  
HV MANUALLY - NO GO.  
CATHODE WAS ON EARLIER (AFTERNOON). AFTER  
RAMP DOWN THE HV SEEMS TO HAVE GONE OFF  
BY ITSELF AT ~1630 (FROM  $\Phi$ ). CURRENTS DROPPED  
FROM .2 TO .1

1/6/04 } 1000 } FIXED - FOUND CATHODE INTLU (+ ONLY CATH)  
WAS TRIPPED IN GAS ROOM (OFF, NOT FLASHING)  
TOTAL MYSTERY - NO ALARM. SO ? POSSIBLY SPI  
IN GAP METHANE - JIM CLAIMS MAY NOT ALARM.

1/7/04 } 1000 } ACCESS

1. MEASURE JIM'S BOX TO GROUND

IFC EAST	<del>2.304</del> M.C. 2.304
OFC EAST	2.304
IFC WEST	2.304
OFC WEST	2.304

2. RESET INNER ANODE CATHS

3. PUT SPARE DVM ON FC - TEMP  
MOUNTAIN IN BACK OF EACH. RUNS ON  
NOISE LOOKS GOOD FOR 2 HOURS (FLAT)

4. SWAP HVPS FOR R00 20-2 + R00 20-1,  
BAD NOISE STAYS w/ R00.  $\Rightarrow$  BAD R00  
SWAP BACK + WTS R OUT R00 20-2 + 20-3 (C)

2/04) 1800 12 TAKES FIELD OFF LASER RUNS!

5007091	ALL BEAMS
092	12 + 6 + 8 (WEST)
093	2 + 8
094	4 + 8 + 10 EAST

2/04) 1000) CATHODE TRIPS AGAIN - PROBABLY ON OVERCURRENT, UNCLEAR IF IT WAS BEAM INDUCED. NO BEAM NOW - TRY FULL V

	10KV	20KV	28KV	
FCW	27.4165	54.721	76.561	
FCW	27.417	54.719	76.557	
FCE	27.415	54.717	76.552	
FCE	27.569	55.021	76.979	$\Delta = 4.22$

2/04) 0920) SPECIAL LASER RUNS TO TRY + UNDERSTAND SHORTED STRIPE COLLECTION B FIELD ON B POLARITY

INJECTION CLOCK? 9.3411 MHz PTB = 1011 SUMMER INNER ANODE CURRENT = ~.2  $\mu$ A

RUN	5012032	PED		
RUN	033	ALL BEAMS	CATH = 28KV	GG = 115
RUN	034	2 + 8 OCLOCK	"	"
RUN	035	2 + 8 OCLOCK	CATH = 31KV	GG = 127
RUN	036	ALL BEAMS	"	"
RUN	037	ALL BEAMS	CATH = 25KV	GG = 103
RUN	038	2 + 8 OCLOCK	CATH = 25	GG = 107

5/04) ANODE TRIP: inner sector 15, channel 2 beam was on (physics)

6/04) CALLED IN AT 11:30 PM. CATHODE WAS HAVING ~ "6 mA" SPIKES + WAS TRIPPING INTERLOCK (SOFTWARE, NOT HARDWARE). THE HV LIGHT STAYED ON + WHEN DENNIS CLEARED THE INTERLOCK - THE HV BANGED BACK ON @ 28KV. THEN WOULD TRIP AGAIN. WE CYCLE AC POWER SIMULTANEOUSLY (BOO!) ON GLASSMAN + VME CRATE. PROBLEM DISAPPEARS. THERE WERE 2 PHYSICS RUNS (OF ~ 2 HRS EACH) OVERNIGHT W/

1/14/04 cont) READ BACK GLASSMAN CURRENT IS READ BY:

VMIK 3122 ANALOG INPUT BOARD (CURRENT + VOLTAGE)  
GLASSMAN IS ALSO SUPPOSED TO HAVE A 30 SEC  
"SLOW START" OPTION, i.e. 30 SEC TO COME TO FULL V.

1/20/04

DENNIS CALLED @ 1745 LAST NIGHT - OUTER LEG  
MAINFRAME WENT BONKERS. NO ARCNET, NO SER  
SESSION. WE CYCLE POWER (RPS3) + IT LOOKS OK.  
I CHECK SERIAL SESSION + SETTINGS - OK.

1/20/04

DENNIS DOUBLES RAMP RATE (UP + DOWN) FOR  
CATHODE. HE ALSO PUTS IN A SOFTWARE  
FIX TO PREVENT INTERLOCK RESET FROM BANGING  
28 KV BACK ON (PG 123).

1/21/04

ACCESS: 1. REBOOT G6  
2. PUT 2 MΩ IN IFC E BEFORE J

MAGNET OFF

	1KV	5KV	10KV	15KV	20KV	25KV	28KV	30KV
OFCW	2.836	13.766	27.414	41.670	54.714	68.356	76.555	82.012
IFCW	2.836	13.767	27.415	41.071	54.715	68.356	76.553	82.013
OFCE	2.836	13.765	27.413	41.068	54.712	68.349	76.547	82.009
IFCE	2.836	13.766	27.415	41.071	54.715	68.355	76.552	82.013
W OFC_0	1.241	6.024	11.995	17.968	22.919	29.858	33.47	35.82
W OFC_1	6.562	31.834	63.395	94.452	126.69	150.25	177.21	189.105
W IFC_0	.882	4.277	8.515	12.757	16.994	21.229	23.774	25.469
W IFC_1	6.545	31.878	63.449	95.124	126.73	150.55	177.58	190.35
E OFC_0	1.251	6.068	12.083	18.102	24.116	30.129	33.743	36.15
E OFC_1	6.577	31.907	63.544	95.135	127.00	150.65	177.66	190.33
E IFC_0	.882	4.277	8.516	12.758	16.996	21.233	23.779	25.47
E IFC_1	6.570	31.879	63.442	95.123	126.73	150.47	177.47	190.14

1/21/04

MAG FIELD OFF LASER RUNS:

MEMBRANE = 34.

RUN 5021072 PED  
 RUN 5021080 ALL BEAMS CLOCK = 9.2159  
 RUN 5021081 2+8 O'CLOCK  
 RUN 5021082 8 O'CLOCK WEST ONLY + EAST MEMBR (ALL

(22/04) SPECIAL LASER RUNS FOR HOWARD

RUN 5022005	PED
RUN 5022006	GG = -115
RUN 5022007	GG = -140
RUN 5022008	GG = -165
RUN 5022009	GG = -90
RUN 5022010	GG = -65

MAG ON B POL  
LOUZE CLOCK  
NO BEAM IN RHIC  
ALL LASER BEAMS

- SECTORS 4 OUTER
- 8 OUTER
- 22 OUTER
- 24 OUTER
- 14, 15 INNER

ALL HAD ~63 VOLT (YELLOW)

(3/04) JUN CALLED LAST NIGHT - GOT SLOW CNTLS  $\Sigma$  CURRENT ALARM ON INNER. HAVE STARTED DAQ 100 EVENT THIRD EV = CLUSTERS + DATA. OTHERS = CLUSTER ONLY.

PETER'S ALARM SET AT  $4 \mu A$ , SLOW CNTLS PROBABLY 3. NEED TO RAISE ALARM LIMIT.

(4/5) RATE TEST: CENTRAL TRIGGER ANAU @ ~40 HZ  
GIVES ~3.5  $\mu A$  ON INNER  $\Sigma$ . OUTER  $\approx 1 \mu A$ .

(10) RAISE  $\Sigma$  CURRENT ALARM LIMIT IN SLOW CNTLS + PETER'S ALM

INNER = 5, 6  
OUTER = 3, 4

(14) 1200. GAP ~~CH4~~ CH4 SPIKES AGAIN + TURNS OFF CATHODE PS (LIKE ~1 MONTH AGO.) FIND READING ~17.2 (WAS 10-12) I RAISE FLOW FROM 2.0 TO 2.5 - READING GOES UP TO 19 (+TRIPS). REDUCE FLOW TO 1.5, READING DROPS TO ~8. RUN LIKE THIS. MAYBE TEMP IN ROOM. TRY + ORDER SPARE SENSOR.

1/27 1100] MAG FIELD REVERSED TODAY TO A POL

TAKE FIELD OFF LASER RUNS:

~~RUN 5027055 PEA~~  
~~RUN ALL BEAMS~~  
 RUN 5027056 PED  
 RUN 059 - ALL BEAMS  
 RUN 060 2+8 O'CLOCK

NO BEAM  
 LOCAL CLOCK =  
 MAG FIELD =  $\phi$

OUTER LEADY MAINFRAME TURNS OFF - MODE IN BAD STATUS.  
 (I JUST CHECKED IT ON ACCESS!) . GET HV BACK ON

1/28/04] FULL FIELD LASER RUNS - NO BEAM - A POL

~~RUN 5028027~~  
~~RUN 5028028~~  
~~RUN 5028029~~

~~PED~~  
~~TPC ALL BEAMS~~  
~~2+8 O'CLOCK~~

RUN 5028037  
 RUN 5028038  
 RUN 5028039

PED LOCAL CLOCK  
 ALL BEAMS  
 2+8 O'CLOCK

1/30/04] THEY RAN AU AU CENTRAL LAST NIGHT -  
 ~50 HZ. INNER  $\Sigma$  CURRENT WENT TO  
 ~6.5  $\mu$  OUTER WAS ~1.8

RAISE AZIMUTH LIMITS ON SLOW CONTROLS +  
 STAMP ANGLE

OUTER STAYS SAME - 3+4  
 RAISE INNER TO 8+10

2/2/04] SPECIAL RUNS TO INVESTIGATE NEW BAO  
 ELECTRONICS (FEES).

RUN 5033052  
 RUN 5033054

RUN MIN BIAS @ ~17 HZ  
 NORMAL MIN BIAS by 46 CLK  
 ~90 HZ

Date: Mon, 2 Feb 2004 14:48:15 -0500 (EST)  
 From: Dennis M. Reichhold <reichhol@rcf.rhic.bnl.gov>  
 To: Blair Stringfellow <string@physics.purdue.edu>  
 Subject: Gating grid reset

Blair-

I'm not sure why the program "goes to sleep" (and I think to understand it, I'd need to watch it while you were changing things), but there's a command on sc3 now, "ggreset" (it won't work on any session that was started before lunch) which should reset things. Let me know if you have any problems.

-Dennis

1/04 2000 BAD STORM TRIPS GAS SYSTEM -  
 ALL HV WERE ON.

1/04 RESTART GAS SYS  
 CHECK OUT HV

1. CYCLE POWER ON LEADYS (BAD STATUS)
2. CATH OK FL OK
3. G2 COMES UP GREEN

2/04  
 2/04 GLOBAL KILLS GAS SYS - RESTART TUES MORN  
 ACCESS

1. POWER CYCLE INNER ANODE
2. CHECK GAIN CH. PREAMP POWER = +12 VOLTS OK  
 NO SIGNAL FROM PA (NO PULSER),  
 SO ⇒ RIP

2/04 0630 CALLED - SECTORS 13+14 INNER (ALL) SHOWED  
 TRIPS. LOOKED @ SERIAL SESSION - ALL PARAMS FOR  
 THAT CELL WERE BOGUS - RUP = 50 OR . EVEN  
 HARDWARE VOLTAGE LIMIT WAS 5500V. CAN'T  
 RESET GOOD VALUES.

CYCLE AC POWER ON LEADOT - COMES BACK UP  
 WITH DEFAULT VALUES (IE NOT MY SETTINGS)  
 NOT IN MY SETTINGS BY SERIAL SESSION.

REBOOT VME - ALL LOOKS OK. ALTHOUGH VME  
 STILL COMPLAINS ABOUT NODE IN BAD STATUS,  
 EVEN AFTER POWER CYCLE.

3/3/04 2 MΩ IN WEST, NONE IN EAST

76.543      76.539  
76.128      76.971

5063 103 PEN LOCAL CLOCK  
5063 104 2 MΩ IN EAST (NORMAL) LOCAL C  
5063 105 2 MΩ IN WEST LOCAL  
5063 106 2 MΩ IN EAST (NORMAL)

3/17/04 ACCESS - SWITCH OVER TO CHILLERS = MCW 100  
FOR 1/2 HOUR - POWER OFF VME CRATES

1430 CHILLERS NO GO, STAY ON TOWER - TURN ALL  
BACK ON

4/6/04 3 DAY PP SHUTDOWN.

RE MEASURE SHORTED STRIPE TO GND.

RE CHECK FC CURRENT AFTER BUTTON UP:  
ALL OK

4/7/04 4 INNER G6 A LITTLE LOW:

	GVI	DVM	
H1	75	40.1	) AFTER REBOOT, V <sub>G6</sub> = 114 ⇒ OK.
G6	111.8	115.3	
L0	75	190.0	

PRACTICE W/ DR'S NEW G6 CALIB PGM.

5/5/04 PP RUNNING - HIGH LUMINOSITY

BBC NOTES: 167K INT RATE

Σ 47K OUT OF TIME (BCKW)

YELLOW 4.1 · 10<sup>9</sup>

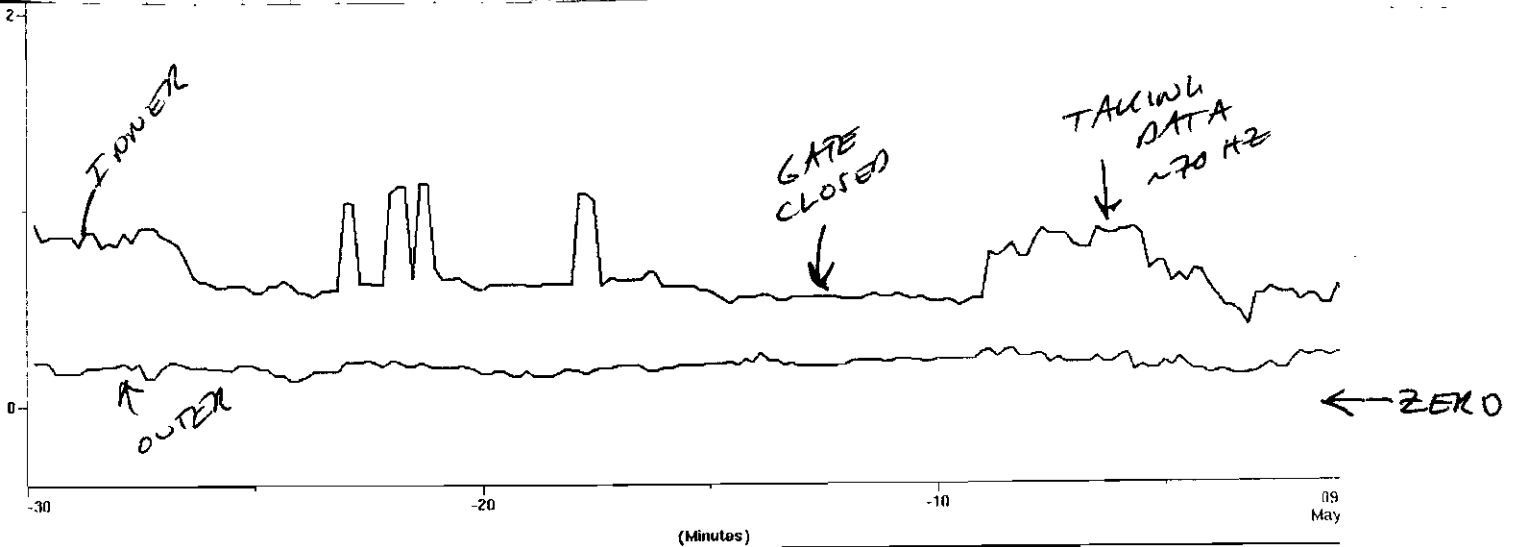
BLUE 3.7 · 10<sup>9</sup>

Σ INNER ANODES - GATE CLOSED ~ .8 μA

(@ PEN ESTAR Σ = 0)

Σ OUTER - GATE CLOSED ~ .2 μA





104) 66  
 SECTOR 4 OUTER HAS BEEN DRIFTING DOWN,  
 HAVEN'T MEASURED YET. WAS 111.7 (YELLOW).  
 SET TO 116 (= 112.9). THEN TWO DAYS  
 LATER, SET 118 (= 112.9)

104) PROBLEMS AT END OF RUN)

1. 66 OUTER 4 DRIFTS - OK 10/04
2. TEMP SENSOR INNER ROOF BAD (HANGING?) PG 113 RE  
 10/04
3. SHORTED STRIPE IN EAST IFC.  
 A. 2 MZ IN AT FIN'S BOX  
 B. SLOW CNTS ALARMS BUGGERED SO AS NOT TO ALARM  
 (14 119) STILL SHORTED 10/04
4. GAIN CHAMBER PA SMOKED AGAIN REPLACED 10/04
5. PSW1 ALARM IN HANOWANE BOX TOO HIGH (~.7 MOVE  
 to .5) - NO - ADJUST FEEDBACK VALUE TO GET HIGHER
6. GAP GAS CHY DET FLAWY? PRES ON SC1.
7. 137 FEES TO REPLACE - CALIBRATE OR NEW ONE  
 ON ORDER 10/04
8. WEST LASER OVER HEATS - DONE PLUS R001-4 10/04  
 - NEED TO TURN OFF AC  
 POWER BETWEEN RUNS

10/7/01 STARTUP - RUN 5

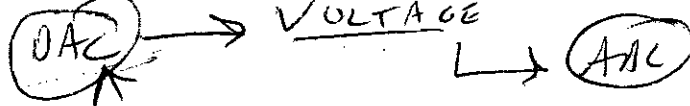
NOTES: ON NEW GUI CALIB PGM PUT IN  
 ABS VAL OF ACTUAL MEASURED  $V_{66HI} + LO$   
 I.E. 190 AND 40, NOT CALCULATED (~75)

1. ZB6 BLOWER DOESN'T CLEAR - I FOUND ON BLOWER TOP + OK.
- ✓ 2. GG OUTER 4  $V_{66} = 83V$ . ALL OTHERS OK THEN ~100 SETTLED DOWN
- ✓ 3. TEST ANODES @ 200V
- ✓ 4. BLOWER / CROSS CONNECT ON 1B3 DOESN'T CLEAR WAS OK BEFORE INTERLOCK TESTS. BLOWER ON? OK - SHUNT TRIP BREAKER NOT RESET
- ✓ 5. TIC TEMP NOT GETTING TO SLOW CONTROLS INFO ON FRONT PANEL OF BOX LOOKS OK. OK/SUN?
- ✓ 6. 9.4 OUTER HV CABLE NOT CONNECTED = 20-S DISCONNECTED LAST RUN BY RECONNECT FOR NOW TO TEST WHEN GAS.

GG 4 OUTER  $V_{66LO} = -189$   $V_{66} = -115.7$   
 $V_{66HI} = -39$   
 GUI READS  $V_{66} = 100.00$   
 CALIBRATE WITH NEW GUI CALIB PGM  
 NEW  $V_{66}$  GUI = 115.0

7. TEST FC - 2MΩ IN IFCE

	OFCW	DFCE	IFCW	IFCE	
5KV	13.750	13.750	13.753	13.750	OK
10KV	27.402	27.399	27.386	27.400	
15KV	41.060	41.057	41.068	41.058	
20KV	54.706	54.703	54.708	54.703	
25KV	68.350	68.344	68.343	68.344	
28KV	76.547	76.542	76.566	76.542	
30KV	82.008	82.004	82.068	82.003	



1/04) MEASURE CAP OF GG CABLES - ALL ON  
TURN ON GG:

3 OUTER COMES UP BY  $V_{66L0} = 70.7$

AFTER 1 HOUR

4 OUTER  $V_{66} =$  JUMPS TO 129.2 (THIS CHANNEL BAD AT END OF LAST RUN.)

15/04) GG ON AZL NIGHT:

- 4 OUTER  $V_{66} = 132.3$
- 4 INNER  $V_{66L0} = 71.7$
- 20 OUTER  $V_{66L0} = 69.0$

4	OUTER	GUI	$H1 = 75.5$	MEASURE	$H1 = 40.5 > 75$
			$G6 = 132.3$		$G6 = 116 > 75$
			$L0 = 73.3$		$L0 = 191.2 > 75$

4	<del>INNER</del>	GUI	$H1 = 75.2$	CALIB	$H1 = 39.3$
			$G6 = 113.7$		$G6 = 114.5$
			$L0 = 71.8$		$L0 = 186.4$

20	OUTER	GUI	$H1 = 74.9$		$H1 = 39.9$
			$G6 = 113.3$		$G6 = 114.2$
			$L0 = 69.0$		$L0 = 183.0$

5 MINUTES LATER 20 OUTER  $L0$  JUMPS UP 6 V! (LOAD?)  
RECALIBRATE AGAIN

20	OUTER	GUI	$H1 = 74.9$		$H1 = 40.2$
			$G6 = 114.0$		$G6 = 114.5$
			$L0 = 81.4$		$L0 = 195.6$

1/04) 1000 AFTER LOOKING AT PULSER FINOUTS ON FRI FIND MODULES 8+9 HAVE BLOWN FUSES!? REPLACE TODAY + LOOK ON.

1/04) 4 INNER BRIFTS DOWN AGAIN:

GUI	$H1 = 75.2$	DVM	$H1 = 38.9$	$38.9$
	$G6 = 113.5$		$G6 = 114.0$	$114.1$
	$L0 = 62.0$		$L0 = 176.1$	$189.8$

10/25/04 } 4 INNER JUMPS AGAIN V<sub>GGLO</sub> GUI = 96.4  
 THEN 79.2. INNER 1 V<sub>GGH</sub> GUI ALSO  
 SLIGHTLY OFF = 71.2.  
 CHANGE DRIVER MODULE.

NEW DRIVER:

4 INNER

	GUI	DVM	CALIBRATE
H1	75.2	39.91	39.3
G6	115.1	<del>200</del> 115.1	115.1
LO	95.2	210.0	190.3

10/27/04

PAUL REPLACES THE GAIN CH PREAMP, EVERYTHING  
 LOOKS GOOD WITH THE PULSER AGAIN, WAIT FOR  
 GAS.

10/28/04

SHUT DOWN ALL - POWER OUTAGE TOMORROW

BEFORE SHUTDOWN + WEST POLE TIP IN,  
 DO PULSER - ON  
 GG WAS ON FOR ~3 DAYS - ON.

11/4/04

AFTER POWER + WATER OUTAGES.

TEST ALL SYSTEMS

FES/RPO OK WEST POLE TIP IN  
 EXT IN TOMORROW

GG OK

ANODES ON @ 200V

FC HAS NOISE ON STARTUP

TEST TO 28KV, OK.

TEST RPS 1, 2, 3

11/19/04

TEST FC @ MAIN MAG 1/2 FIELD

OK TO 28KV

11/19/04

TEST FC @ MAG FULL FIELD

OK TO 28KV

1/22/04] TURN ON 66 - 3 DON'T COME UP  
ARCH!

				CALIBRATE
<u>3 INNER</u>	HI	74.9	38.3	38.4
	GG	113.3	113.1	113.1
	LO	70.0	183.6	188.8

<u>19 OUTER</u>	HI	74.9	40.5
	GG	114.6	114.3
	LO	70.0	188.7 !

READBACK JUMPS ABOUT, LEAVE FOR NOW

<u>20 OUTER</u>	HI	74.9	40.8 (40.4)	46.4 (40.4)
	GG	114.2	114.8	114.8
	LO	64.1	181.1 (199.2)	189.5 (189.7)

JUMPS UP AFTER CALIB

4] ACCESS GG STILL BAD!

				CALIB
<u>3 INNER</u>	HI	74.9	38.6	38.4
	GG	114.6	113.1	
	LO	68.7	182.4	188.7

<u>19 OUTER</u>		74.9	40.55	40.55
		114.6	114.4	

20 JUMPS  
70.3 ↔ 71.4 ↔ 72.3 188.9 STEADY 188.8  
CALIBRATE 73.6 ↔ 74.8

04] 11<sup>00</sup> TURNED ON 66 - 3 INNER BAD AGAIN  
19 OUTER READBACK JUMPS + IS RED (PROBLEM IS READBACK WAS 4 V + I CALIBRATED).

TURN OFF DRIVER AND CONTROL CRATE.

TURN ON 66 - 19 OUTER READBACK COMES UP 1350 VOLTS (i.e. ON NOW) - RECALIBRATE TO 73.6 NO JUMPS.  
3 INNER COMES UP A LITTLE LOW (WAS 68, NOW 72, CHECK ON PLATFORM.

<u>3 INNER</u>	HI	74.9	38.3	) LEAVE FOR NOW - GO TO GREEN AFTER 4 HOUR
	GG	113.4	113.1	
	LO	71.5-73.6	187.3	

134

copy st. config - 5341027 1+2 CONFIG  
30 CONFIG ALL

12/6/04

GG 3 INNER COMES UP IN HIGH CALIB MODE - ARG

H1 = 74.9  
GG = 113.3  
L0 = 82.3 ← FIP PROPS

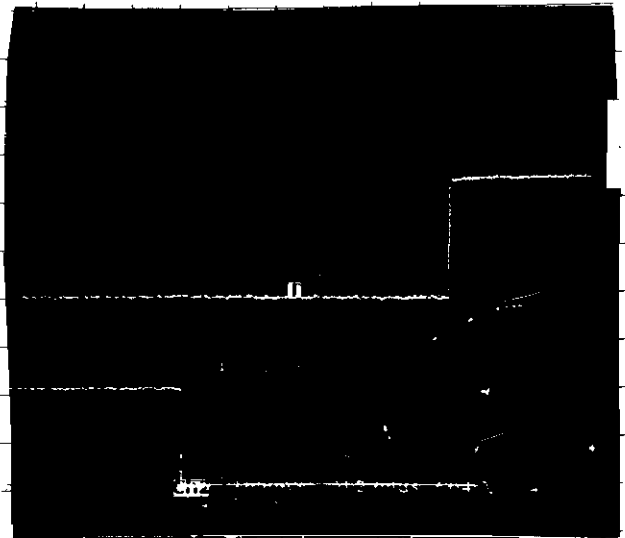
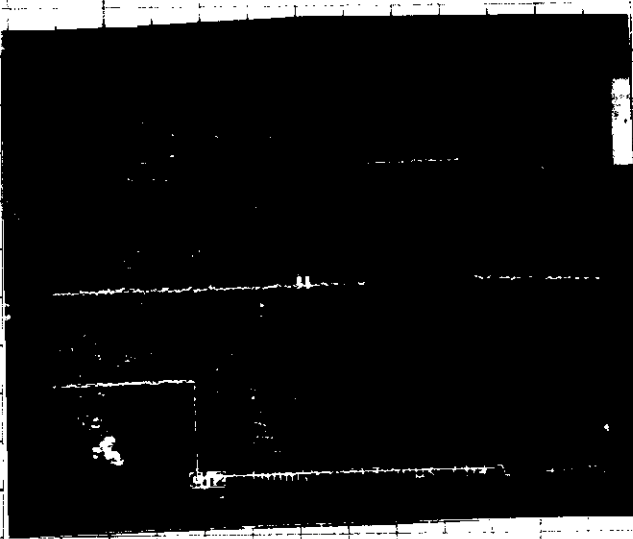
12/6/04

21-3 RDO NOT CONFIGURING\*

1600

TONKO RUNS NON-LED SUBTRACTED PULSER DATA WITH SQUARE WAVE PULSE.

50, 100, 200 mV WIDTH = 9 μsec



12/7/04 1100 CALIB GG 3 INNER

H1 = 74.9	38.32	<del>38.3</del> 38.3
GG = 113.2	113.1	113.1
L0 = 79.1 - down 3V	192.9	181.4

12/8/04

CAS IN TPC TURN ON ALL HV + TRY LASER RUNS  
(PT3 = 0.13 - LK ADJUSTS COEFF UP TO .93 - TRANSMITTER GAP)

LOW ANAM PT10 = 2.88  
IN SC

TRY 20-5 SINCE MORE ON @ 1400 @ 1390

MEMBRANE @ 352 ± OK OFF @ 45 MIN NO TRIP  
GAIN CH = 92 = OK

12/9/04

0900 TURN ON TPC MEMBRANE @ ~348.  
2 LASER RAFTS ON EAST SIDE MISSING 2+4  
A L THINKS PIPES ON FACE MISALIGNED

2/9/04) RND 21-3 BAD FPGA?  
 TRY + SWAP PS - NO GOOD.  
 TURN OFF TPC + GAS SYS, (CRHC DOWN)

1/14/04) PULL EAST POLETRIP TO REPLACE RND 21-3  
 + FIX LASER

1/15/04) 0900) DANNY POKES @ 21-3 + IT COMES BACK  
 TO LIFE, (FIBER SEATED?). I MAKE PULSER RUNS  
 + CYCLE POWER - OK. TRY AGAIN BEFORE CLOSING.

2/20/04) SWAP GG CPU - WAS A 162-VTPC3 NEW A 167  
 FROM BILL W. (NOT MY SPARE).  
 BOOTS OK BUT INNER 1+3 DON'T COME UP.

2/21/04) 167 STILL ALIVE.

		READBACK	DVM	101.5 READBACK ↑	DVM
1 INNER	H1	50.3	65.4	29.8 ±	13.2
	GG	115.3	114.9	115.3	114.9
	LO	74.9	189.9	74.9	74.9

3 INNER	H1	75.0
	GG	113.3
	LO	(82.1)

UPPER STATE

		DVM	DVM
1 INNER	H1	150.4	209
	GG	231	294.5
	LO	386.5	373

REPLACE DRIVER FOR INNER 1-4.

~~NO VOLTIMES FOR ALL 4 CH!~~

REPLACE CNTRL MOD FOR 1-4

STILL HAVE PROB Y CH 1

		DVM	DVM	DVM
2 INNER	H1	⊕ 33	-15.5	-39.8
	GG	114	114.2	
	LO	-189	-189.2	-189.2

HAD TO TUCKLE  
 THE DS TO  
 GET CH 1  
 ON. CALIB  
 CONSTS WERE  
 WAY OFF

	READBACK	DVM	CRIB DVM
<u>2 INNER</u>	H1 38.1	76.3	40
	GG 114.0	114.2	114.2
	<del>H1</del> 74.4	189.2	189.2
3 INNER	H1 74.6	38.33	38.5
	GG 113.2	113.8	113.5
	L0 82.4	196.3	189.7
1 INNER CHECK	H1 75.1	40	
	GG 115.6	115.2	OK
	L0 74.8	190.2	
19 OUTER	74.8	40.5	40.5
	114.6	114.2	114.2
	72.6	187.7	190.1

12/23/04

GG 167 STILL ALIVE AFTER ~ 2 DAYS.  
TURN OFF FOR XMAS - ALL CH OK @  
TURN OFF.

1/10/2005

1100] START TURNING ON FOR LUN II.

GG 167 WAS NOT RESPONDING - REBOOT  
THEN GG COMES UP GREEN - LEAVE IT ON.  
FEES ON → OK

- TEST CATHODE + FC MAGNET ON FULL  
TONKO TAMES PULSER RUN FOR BAD PAV FILE  
~~6010034~~ 6010034

SHORT

LOOKS LIKE WE HAVE ANOTHER SHORT IN I,  
EAST - ONE MORE STRIKE!

1/11/2005

0900

~19 IN CHAMBER - CHECK SHORT AGAIN

ON @ 1KV

ON @ 5KV

BAD @ 10KV

BAD @ 5KV

BAD @ 1KV



2/05) OPIS LATER RUNS TO STUDY NEW SHORT

NO BEAM ~~BEAM~~ MAGNET ON FULL POL B

FIRST SET UP 2 M $\Omega$  IN IFCEAST  
LOCKZ CLOCK

RUN	6012029	<del>0</del> PED
	6012030	ALL LASERS
	6012031	12+6
	6012032	2+8
	6012033	10+4

PUT IN 4 M $\Omega$  IN PLACE OF 2 M $\Omega$

RUN	6012034	ALL LASERS
	6012035	12+6
	6012036	2+8
	6012037	10+4

→ R PUT 2 M $\Omega$  BACK IN \*

WE PUT A FUDGE FACTOR BACK INTO DELTA (AZARM) CALCULATION FOR IFCEAST CURRENT. (SEE PG 119). THIS SHOULD FIX THE ALARM SCREEN + ALLOW USE OF THE AUTORAMP

TURN ON GAIN CH. ON FIRST GO, IT DOESN'T FIT GOOD SPECTRUM. CHANGE STARTING VALUE OF MEAN FROM 103 TO 85. THEN FITS OK. HOWEVER - NOT WRITING TO ONLSUNI. PAUL HAD WORKED ON PGM TO SKIP FIT IF SPECTRA = 0, BUT NOW DOESN'T WRITE AT ALL. ONLSUNI MOUNTED. PATH = ONLSUNI / DATAPool / CONDITIONS / TPC GAS / GAIN MONITOR SPECTRUM

05) 0400 WATER PROBLEMS SHUT ALL RACS DOWN.  
GAS SYS DUMPS

0900) TURN SYS BACK ON - ALL SEEM OK

GAIN CH TRIPS OVER WEEKEND. (HV) TURN IT BACK ON. TRY TO GET SPECTRUM THIS MORNING ⇒ NO COUNTS (NOT EVEN ALSEX) SO PA SMOKED AGAIN!

1/19/05) SHORT HUNTING IN INNER FC EAST.

SHORT FOUND 1.5KΩ MEASURED TO BE 62.5 CM FURTHER IN FROM FIRST STRIPE.

1200) WE CLEAN + SHORT GOES AWAY

ALL

1KV	2.829
5KV	13.759
10KV	27.408
15KV	41.063
20KV	54.706
25KV	68.347
28KV	76.541
30KV	82.001

FIND ~ FEW WHITE PIECES (SMALL)  
AL CLAIMS THEY ARE MAGNETIC.  
COULD BE FLAKES FROM SILVER PA  
ON SVT CONE?

1/20/05) MAGNET ON - FC STILL ON  
(ALSO HAD NO 3 PTT WEST  
TRIPS LAST NIGHT

1/26/05) 1100) MAKE FIELD ON LASER RUNS W/ SHUTTERS

RUN	6026060	PED	LOCAL CLOCK
RUN	62		ALL SHUTTERS OPEN
RUN	63		12 + 6 O'CLOCK
RUN	64		2 + 8
RUN	65		4 + 10

2/1/05) 0730 POWER DIP + SGIS SCREWUP (UPS) SHOT DOWN  
SYSTEM + GAS SYSTEM.

1100) TURN ON ALL - LOOKS OK. CC COMES BACK GREEN  
LASER OK TPL ON @ FULL VOLTAGE

2/1/05) 1900) CALLED AT HOME

16 OUTER V<sub>GG</sub> DRIFTED TO RED-YELLOW.  
FIND IT AT 109.2  
SET TO 119, GET 114  
2 HRS LATER, DOWN TO 113. SET TO 120

2/2/05) 0920 16 OUTER V<sub>CC</sub> @ 113.0 NEED ACCESS

2/3/05) 1000 16 OUTER DOWN TO 112.3 - RAISE INPUT TO 12

	16 OUTER	ΔV <sub>VM</sub>		
41	75.4	39.4	CA18	95.4
6L	102.5	114.5		113.8
40	75.6	189.7		75.6

4/5 1400. TIC TESTS @ LEVEL 2 ABORTS.

OPEN GATE W/ INCREASING RATES - TAKE MIN BIAS DATA TO LOOK FOR DISTORTIONS (OFFLINE) + LOOK AT ANODE CURRENTS.

Σ ANODE CURRENTS - BEAM BUT GATE CLOSED

INNER ~ 2      OUTER ~ 1

"NORMAL" MIN BIAS Σ INNER = 5 μA      OUTER = 1 μA  
180 HZ      Σ INNER = 6 μA      SINGLE INNER = 50-60 μA  
                 Σ OUTER = 2 μA      ~~5 μA~~

280 HZ      Σ INNER = 8 μA      SINGLE INNER = 70-90

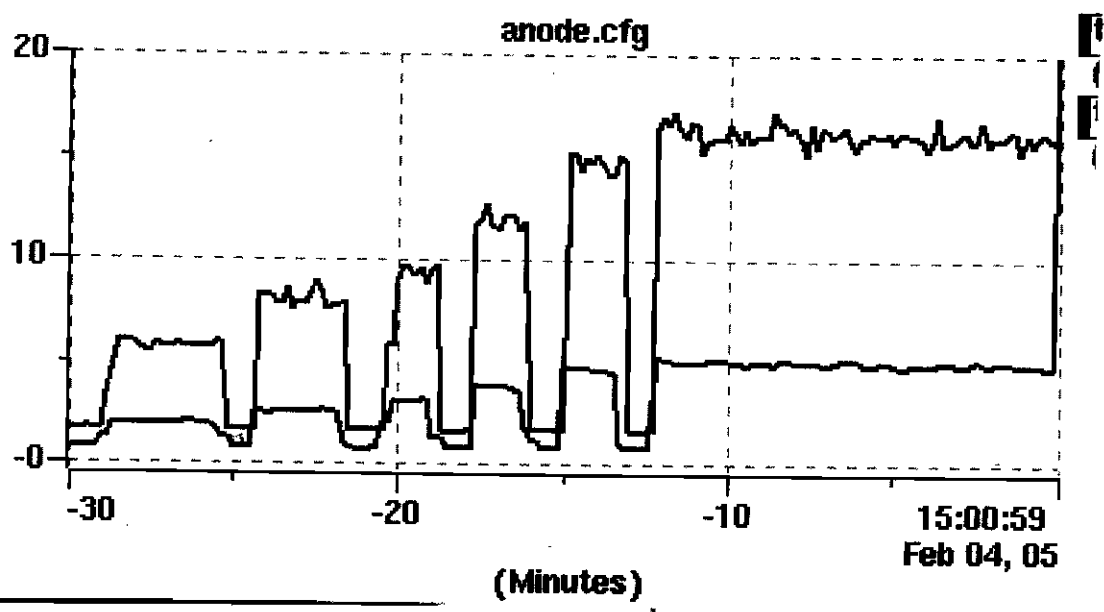
350 HZ      Σ INNER = 10 μA      SINGLE = 90-100

470 HZ      12 μA      SINGLE = 120-140

~~600~~ HZ      15 μA      OUTER = ~4 μA      150-170

~740      17 μA      OUTER = 5      160-180

AFTER 15 MIN - TRIP SET 10, CH 4



- OS) RUN 1051 NORMAL PHYSICS - HIGH TOWER (FACTOR 2)
- RUN 1052 LASER (GAIN)
- RUN 6041053 SECTION 4 OF INNER 1-6 SET AT 1115 ↑
- RUN 6041054 SECTION 1 OF OUTER 1-6 SET AT 1315 (FACTOR 2)
- LY) RUN 6041055 SECTION 1 OF INNER 1-6 SET AT 1115

2/10/05 ) CALLED AT 1715. ANODE AUTORAMP PGM

GOES STRANGE. TRY TO GO FROM PED TO FULL PGM IMMEDIATELY COMES BACK "ANODES ARE AT VOLTAGE". REBOOT BURTON (TWICE) - SAME PROBLEM. SET HV BY HAND LATER (2200) AFTER DUMP. BILL W REBOOTS INNER + OUTER ANODE PROC (+ BURTON?) + PGM SEEMS OK. SO?

2/10/05 ) 2000 MANY ANODE TRIPS - I WATCH LOG FOR ~1 HOUR BUT NOT MUCH WORK. TRIPS ARE ALL INNER, BOTH E + W. YELLOW BEAM LIFETIME BAR!

LATER AFTER COMPLAINT MCR BACKS OUT COLLIMATOR + TAKING I CALM DOWN (MAYBE?)

3/2/05 ) 6616 OUTER WANDERS DOWN ~ 4 VOLTS + YELLOW AFTER CALIB ON 2/3 (PG 138) HAD BEEN STABLE WITH DEMAND = 113, REARBACK = 116 TONIGHT GOES DOWN TO 111 REARBACK SET TO 115 THIS LATER GOES BACK UP TO 117. SET TO 114 DEMAND FOR 115.9 REARBACK.

3/3/05 ) SET UP FOR TPC LASER RUNS, B FIELD OFF.

RUN	6062 008	4022 CLOCH PERESTA
RUN	009	ALL BEAMS
RUN	010	12 + 6 0' CLOCH
	011	2 + 8 0' CLOCH
	012	4 + 10

3/16/05 ) ~ WEEK AGO FOUND RPS1 + 2 NOT COMMUNICATING + RPS3 VERY SLOW TO RESPOND TO RINGS. TODAY MAKE ACCESS + FIND ALL 3 OK. ALL 3 ARE ON A 3 PORT HUB - AC FOR HUB IS PLUGGED INTO RACK 8 (NOT 9) SO POWER OUTAGE TURNS IT OFF. WE MOVE AC FOR HUB TO UPS IN RACK 9. THEORY IS THAT POWER OUTAGES CAN SCREW UP HUBS. HOWEVER ~~SOME~~ <sup>SOME</sup> RPS IN STAR HAVE ~~BEHAVIOR~~ <sup>BEHAVIOR</sup> SAME BEHAVIOR

105) FIND OFCW CURRENT FLIP FLOPPING BETWEEN TWO READINGS - NORMAL + +60-FO.M. HAS BEEN LIKE THIS SINCE ~3/10/05. SEE NOTEBOOK FOR PLOTS

105) OFCW GOES BACK TO NORMAL ON 3/20/05 @ 3:00 AM.

105) TO DO FOR THURS ACCESS

1. PLATFORM HYGROMETER IS OFF - TURNED ON
2. DIGITAL THERMOMETER OK
3. GG 16 OUTER - MEASURE AGAIN
4. METHANE SNIFFER CALIB? OK
5. PMP GAS SYS DONE
6. CHECK FIELD GAGE KEITHLEY - ARC SHIELD ETC OK
7. RPS 1, 2, 3 GO OFF NETWORK AGAIN - NO SOLUTION YET

105) 1900 CALLED WITH PROBLEMS w/ ANODE AUTORAMP PGM. WOULDN'T GO FROM FULL TO PED.

I HAVE OP REBOOT BURTON + I REBOOT BOTH 9006 + 9013 CALLED AGAIN @ 2200 - AGAIN WOULDN'T GO DOWN FROM FULL. CALL BILL + WORK ON IT FOR 1 HOUR. FIND THAT AT TIMES AUTORAMP PGM THINKS IT DOES THE RIGHT THING BUT DEMAND V DOESN'T GET TO LECROY. SAW:

1. AFTER RAMPING TO PED CLICK OFF. PGM SAYS "RAMPING V" BUT LECROY STAYS AT PED. CLICK OFF AGAIN + IT WORKS. FULL CLICK OFF
2. AFTER RAMPING TO ~~PED~~ + INNER'S RAMP DOWN BUT OUTER'S DON'T! => RUN BY HAND
3. AT 0800 BURTON CRASHED. REBOOT BETWEEN STORES. RUN LIKE THIS UNTIL TOMORROW.

THEORY FOR RPS'S IS TEMPERATURE IN RAMP. WAYNE WRITES SCRIPT TO TEST EACH HOUR (PING) - TEMP TEST ON ACCESS DAY IS NEGATIVE

WJ  
GUN

ANODE RAMP REMAINS A MYSTERY. BILL ADDS MEASURED + DEMAND VOLTAGE WINDOW TO RAMP. ALSO ADD A CHECK TO MAKE SURE DV GETS TO LECROY + IF NOT SEND DV AGAIN. NEED NO BEAM + PRACTICE.

14/05) NEW AUTO RAMP SCREWS UP AGAIN GOING FROM PED TO 0. NEW DV DOESN'T GET TO EITHER LECROY. NEED TO ADD SOURCE SEND TO ...

3/30/05) GG OUTEX 16

	READBACK	DVM	CALIB	READBACK	DVM
H1	75.4	39.4		75.3	39.4
GG	121.9	114.5	SENSE	113.8	114.5
L0	75.5	189.8		75.5	189.8

4/6/05) ANODE OUTEX 11.7 = 24 # 8 SHOWS 67 V FOR DEMAND = 0.

4/8/05) ANODE AUTO RAMP PGM WORK.

1. BILL W ADD DEBUG COMMENTS + MORE ROBUST OUTPUT OF DEMAND V (W/ CHECKING) FOR BOTH UP + DOWN.
2. REPLACE TRANSISTION MODULE
3. REPLACE ETHERNET HUB + CABLE FROM TRONT ALG

Date: Thu, 7 Apr 2005 18:09:22 -0500 (CDT)  
 From: wtw00992@creighton.edu  
 To: Blair C. Stringfellow <string@physics.purdue.edu>  
 Cc: Bill Waggoner <bwaggoner@creighton.edu>  
 Subject: Anode Autoramp

Hi,

I changed the ramp off so that when the difference is <30 the ramp down finishes.

I changed the sprint's so that it tells what is Ramping.

I added another message so that it displays the time count of the ramp.

I added these as print's to the other states (besides off which I had) so that you can see what is happening when you telnet burton.

I also added my check states that I had for the ramp off state to the ramp for all the other ramp states. This is checking at time count of 30, 60 and again at 90 to make sure that things are ramping by comparing the readback voltage to the readback voltage before the ramp begins. If they arent equal it resets the demand values.

# NEXT ACCESS

FIND BAD CABLE FOR TPC LASER TRIGGER

REPLACED 2 CABLES FROM FANOUT TO TPC FOR TPC, FTIC (PIN 0100 SOFTWARE? SETTINGS?)

GG CONTROL CRATE TURNS OFF FOR CANBUS REBOOT - ~~SETTINGS~~ SOFTWARE?

ANODE OUTER (11-) = 67V - MEASURE

BOTH LEADERS IN BAD STATUS

BOTH OUTER FC CURRENTS JUMP UP ~100mA AGAIN FOR 0 + 1uV, THEN CALMS BACK DOWN.

W/ A STORE @ 28uV, LOOKS OK DURING ACCESS, GG 19 INNER GOES YELLOW - READ 66 = 110

		READBACK	DVM	
19	HI	75.2	39.8	} NEVER MIND - I PUSH ON CABLES + IT'S ON NOW!?
	GG	115.5	114.8	
	LO	75.4	199.4	

↓  
RIBBON

10 MINUTES LATER 19 OUTER GOES OFF!

		READBACK	DVM	
19	HI	79.7		} RIBBON CABLES AGAIN - 2 NOT CLICKED
	GG	114.5		
	LO	72.5		

5) BILL W MOVES AUTOMAPS TO NEW PROCESSOR (TO SEPARATE FROM OTHER PROCESSES)  
 NOW ON: STARGATE, STAMP, SWL, GOV (162 PROC)  
 CAN ALSO USE TIP a FROM SCY IN ADDITION TO TELNET FROM SC3 TO REBOOT

5) 1800 CALLED - NOW GG OUTER 20 GOES BAD! YELLOW ALARM AT ~112.0. RAISE TO 117 LATER RAISE TO 119 TO GET 114.5

5) 0915 GG OUTER DOWN TO 112.6 FOR 119 DEMAND RAISE TO 120 DEMAND - GIVES 113.3

1115) DROPS TO 110.7

1400) DROPS TO 96.5 (RED)

1800) BACK TO NORMAL! RESET DEMAND TO 115

OFCW AGAIN STARTS TO SHOW HIGH CURRENT - UP ABOUT 60 TO 70 mA. NOT CONTINUOUS.

5) OFCW UP AGAIN. TEST AT JAR 1005 CATHODE V.



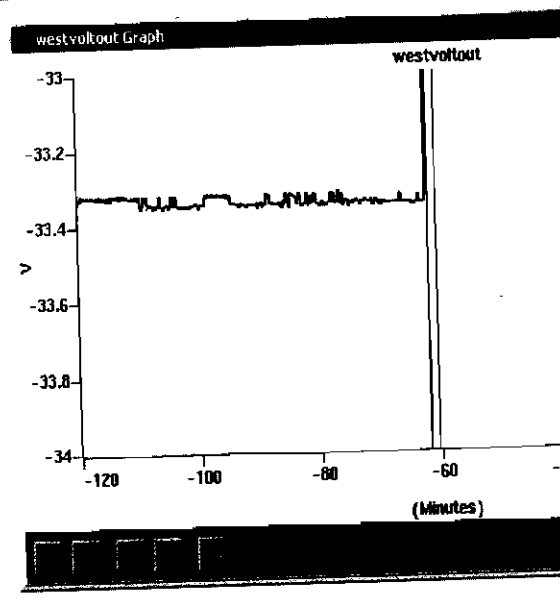
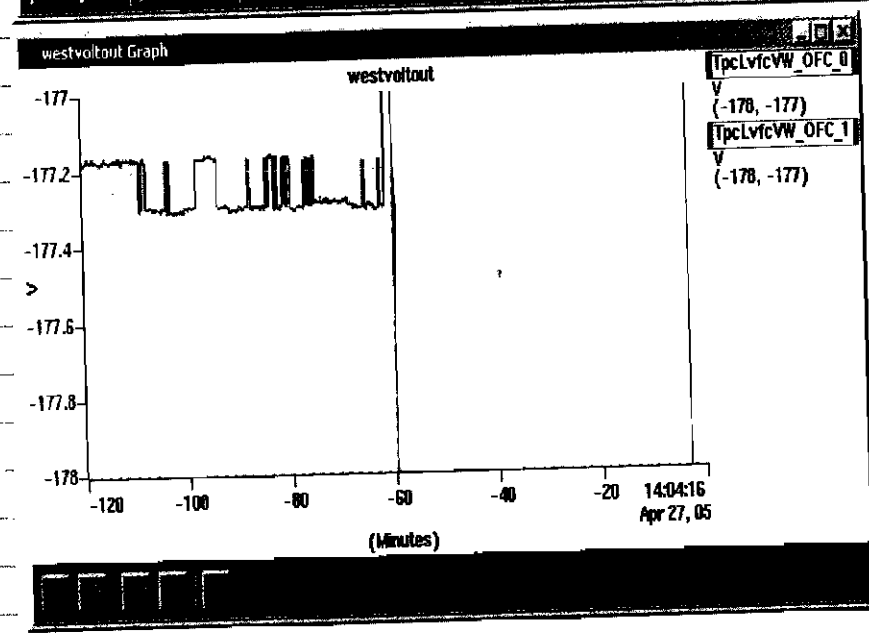
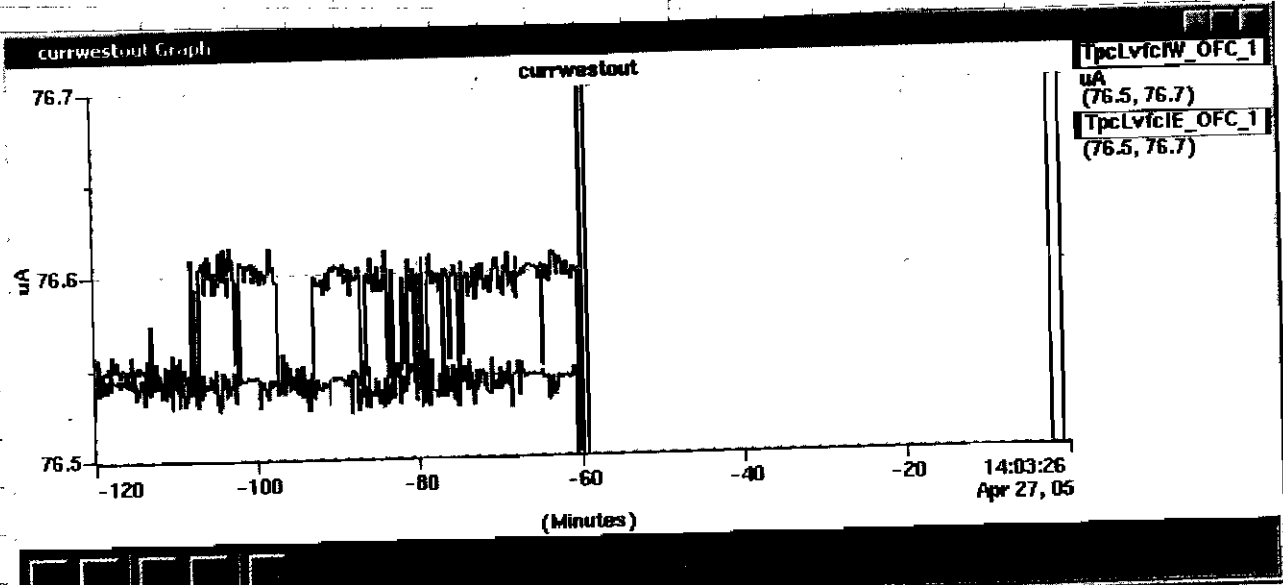
1030 ) OFCW CURRENT

4/27/05

28 kV	$\frac{\Delta}{6.4}$	36 28	$\frac{\Delta}{6.2}$
20	44	25	57
15	34	20	44
10	23	15	33
5	11	10	20
0	~0k	5	6-8

ALSO LOOK AT OFCW VOLTAGES - SEE PLOTS

ALSO SHOWS UP W/ NO IN RHIC



### 4/27/05 OFCW current and voltages

5/2/05 OFCW GOES QUIET AGAIN OVER WEEKEND, - SEE PG 145 FOR CABLE REVERSAL

5/3/05 OUTER LE CROY GOES CRAZY OVERNIGHT - LOG IN TO SERVIC SESSION. LE CROY SAYS INPUT VOLTAGE NOT IN VALID RANGE



ACCESS ON 5/4

1. DEMANDS CRASHED? - FOUND FROZEN, REBOOT ON
2. OFCW STRIPE 181<sup>+182</sup> + OFCE STRIPE 181<sup>+182</sup> REVERSED AT INPUT TO JIM'S BOX
3. OUTER ANODE LEADY  
CYCLE POWER ON INNER + OUTER LEADY FOR CURRENT TEST

OFC W/ E+W REVERSED @ 28KV MAINNET OFF

	181 REVERSED	NORMAL	BOTH REVERSED
OFCW	76.5139	76.538	76.541
OFCW	76.5345	76.537	76.540
OFCE	76.514	76.536	76.540
OFCE	76.5356	76.538	76.541
C-0	-33.316	-33.32	-33.33
C-1	-177.217	-177.229	-177.089
C-0	-23.770	-23.771	-23.777
C-1	-177.589	-177.602	-177.429
C-0	-33.744	-33.743	-33.752
C-1	-177.735	-177.735	-177.833
C-0	-23.753	-23.758	-23.760
C-1	-177.442	-177.440	-177.334

NOTE DIFF

OOPS - ONLY REVERSED 181 - NEED TO REVERSE BOTH 181 + 182 I THINK

BETTER!

EXTRA OFC CURRENT SHOWED UP ON 5/8/05 AM. CURRENT APPEARED ON EAST SIDE ⇒ PROBLEM IN OFC W/ST ITSELF + NOT RESISTOR BOX OR KEITHLEY. MAGNITUDE WAS SAME i.e. ~60 mA

CALL AT 2:30 AM. OUTER 14 GG 6005 REN  
 $V_{OGM} \approx 19$ ,  $V_{OL} = 0$ , LOG IN + REBOOT - COMES BACK NORMAL.

ACCESS -

1. SWITCH OFC CABLES BACK TO NORMAL.
2. OUTER ANODE MAINFRAME IN BAD STATUS - LEAVE IT.

1430 BILL W. MODIFIES AUTORAMP PROGRAM ONCE AGAIN, WE HAD THE CASE WHERE, AFTER ARCNET LOST, THE DEMAND VOLTAGE IN AUTORAMP WINDOW WAS SET TO  $\emptyset$ . NOW IT SHOULD ACTUALLY READ THE (EXISTING) DEMAND VOLTAGE + WRITE IT OUT TO GUI.

0900 END OF RUN IV

START RUN 06 (MAYBE) RUN 6 CANCEL

11/18/05) TURN ON LUPS BLOWERS  
 2B6 DOESN'T CLEAR INTERLOCK (RED LIGHT)  
 2B7 TURNS ON EVEN IF BLOWER IS OFF

2B7: OPEN BLOWER + FIND WIRE FROM SWITCH HAD COME LOOSE, FIX + REINSTALL

2B6 - OPEN - SWITCH IS 19-00. REPLACE WITH 1910-01. ADJUST AS ON PAGE 110.

11/29/05) TEST OF FC BEFORE I CO BACK)  
 PERMANENT SHORT IN EAST IFC  
 NO EXTERNAL 2 M-Ω

	<u>2KV</u>	<u>5KV</u>	<u>10KV</u>	<u>15KV</u>	<u>20KV</u>	<u>25KV</u>	<u>28KV</u>	
OFCW	5.552	13.744	27.391	41.043	54.685	68.315	78.517	8
IFCW	5.552	13.744	27.389	41.041	54.681	68.317	78.512	8
OFCF	5.552	13.744	27.389	41.041	54.681	68.317	78.512	8
IFCF	5.552	13.744	27.389	41.042	54.682	68.316	78.511	8
							33.26	
							177.14	
							23.77	
							177.40	
							33.75	
							177.67	
							23.674	
							177.43	

GOOD FOR 10 MINUTES.  
 COME IN, RAIS OUT  
 NO MAG FIELD YET  
 NO BLOWER YET.

11/13/06) 1420) DELAYED START - RUN 6

TURN ON SYSTEMS  
 NO GAS, BLOWER ON, POLE TIPS OUT, NO MAGNET

LUPS ON  
 FC

	<u>2KV</u>	<u>5KV</u>	<u>10KV</u>	<u>15KV</u>	<u>20KV</u>	<u>25KV</u>	<u>28KV</u>	
OFCW	5.552	13.748	27.399	41.056	54.685	68.376	76.533	81
IFCW	5.553	13.748	27.401	41.058	54.702	68.328	76.523	81
OFCF	5.554	13.747	27.398	41.054	54.692	68.334	76.527	81
IFCF	5.553	13.749	27.395	41.051	54.700	68.329	76.523	81

VOLTAGES  
 AT

3/06/1500 ANODES GOOD TO 200V (N2)

GG OK EXCEPT 12 OUTER V<sub>CC</sub> HT = 116V

TEST ANODE CURRENT DRAW AT 200V  
(UNPLUG GAIN CH PLUG IN 20-5 FOR GAS TEST)  
ALL OK + NO TRIPS

3] CHECK PULSER OUTPUTS - SAME METHOD AS PG 29

13-1	3.60	19-1	3.70	1-1	3.70	7-1	3.68
13-2	3.56	19-2	3.68	1-2	3.68	7-2	3.72
13-3	3.60	19-3	3.64	1-3	3.68	7-3	3.74
14-1	3.60	20-1	3.68	2-1	3.68	8-1	3.64
14-2	3.60	20-2	3.70	2-2	3.68	8-2	3.68
14-3	3.66	20-3	3.66	2-3	3.70	8-3	3.68
15-1	3.56	21-1	3.72	3-1	3.64	9-1	3.64
15-2	3.58	21-2	3.68	3-2	3.68	9-2	3.70
15-3	3.66	21-3	3.64	3-3	3.68	9-3	3.68
16-1	3.68	22-1	3.66	4-1	3.64	10-1	3.68
16-2	3.68	22-2	3.62	4-2	3.64	10-2	3.64
16-3	3.70	22-3	3.70	4-3	3.66	10-3	3.64
17-1	3.64	23-1	3.64	5-1	3.64	11-1	3.70
17-2	3.68	23-2	3.68	5-2	3.64	11-2	3.68
17-3	3.70	23-3	3.64	5-3	3.66	11-3	3.70
18-1	3.68	24-1	3.62	6-1	3.66	12-1	3.64
18-2	3.72	24-2	3.70	6-2	3.64	12-2	3.66
18-3	3.64	24-3	3.68	6-3	3.66	12-3	3.70

6] GG - FEW CH MOVING AROUND - "FIXED" BY PUSHING ON CABLES

	12 OUTER SOLID REAR	SOLID DM	LOOKS LIKE A BAD CABLE - TWINEX CONNECTOR OUT OF MODULE FRAME - BAD GND? ASK TO HAVE IT REPLACED. ALL OTHERS OK. FIXED BY KA
H1	116.0	0	
GG	115.5		
LO	75.0	160.0	

FOUND THAT IF SOME CHANNELS DRIFT I CAN GET THEM BACK BY PRESSING ON RIBBON CABLE CONNECTORS - SO OXIDATION? DANNY NOTICES THAT RIBBON PROTRUDES BEYOND CONNECTOR + MAY BE CLOSE TO TOUCHING FACE

1/23/06 <sup>1600</sup> GAS TEST ABORTED BECAUSE OF BAD VALUE SVI  
 RUN LASER RUNS IN PID PURGE MODE  
 MEMBRANE = 352 ⇒ OK.

1/27/06 WEST POLE TIP IN - CATHODE OK TO 28KV  
 EAST " GOES IN MON.  
 ALL FEES OK - SEE NOTEBOOK.  
 4 DAQ 1000 FEET INSTALLED IN SECTOR 18

2/1/06 0900 EAST POLE TIP GOING IN - FEES OK  
 FIELD CAGE OK.

2/10/06 0900 FC OK, FEES OK, GG OK  
 STILL NO MAGNET

2/15/06 1300 TEST FC WITH FULL MAG FIELD

OK AT 29 KV FOR TEN MINUTES - THEN  
 2 STRIPE SHORT DEVELOPS ON IFCW.  
 RUN DOWN FC - STILL SHORTED @ 2KV  
 RUN DOWN MAGNET - STILL SHORTED @ 2KV AND 1  
 RATIO = .9889 & CURRENT = 843 mA @ 29

2/16/06



POLE TIP PULLED  
 ← FOUND ~ ~~19" FC~~ 19" FC  
 AL TAPE, SLIGHTLY STR

2/17/06 0900 CHECK FC, POLE TIP OUT BLOWER ON  
 OK @ 28KV FEES OK  
 1200 POLE TIP INSERTED FC, FEES OK

3/1/06 1400 GAS IN - TRY LASER RUNS - TROUBLE UP AND

FIELD  
 H.I.B

ALSO INNER SECTOR UT100 SESSION CLAIMS  
 "FAILED TO OPEN SAVE FILE"

LASER RUN - NO B FIELD RUN 7060070  
 ALL BEAMS

SECTION 20 - 5 TRIPS AFTER 1 HOUR - UNPLUGGED

3/1/06 1200 MAG FIELD ON LASER RUN 7061100

26) DATA TAKEN LAST NIGHT w/ TPL. SOON AFTER TURN ON, OFCW CURRENT JUMPED UP 60-80 mA LIKE LAST YEAR (SEE PG 144).

6) 1000 HAD REPORTED FC CURRENTS LAST NIGHT - NOT ALLOW FIND IFCE HAD GONE UP LINEARLY - UP TO  $\Delta = 100 \text{ mA}$  RUN FC UP TODAY - SAME PROBLEM.

100) TURN ON AT 5KV - LET IT RUN - ALL  $\Delta$  OK  
 15) NO PROBLEM @ 5KV - RAISE TO 10 - IFCE  $\approx +10 \text{ mA}$  (FOR 1.25 HRS) THEN GOES UP LINEARLY TO  $\sim 20 \text{ mA}$  SEE PLOT THEN 30

100) LOWER TO 5KV - PROBLEM PERSISTS @  $\sim 16 \text{ mA}$  (PLOT) 0 VOLTS  
 10) RAISE TO 5KV - PROBLEM PERSISTS

TURN ON TPC FOR BEAM TEST

6) 0830 OP TURNED ON AT 7:30. AFTER 1 HOUR IFCE  $\Delta$  WENT ABOVE 200 mA (NEW ALARM LIMIT) + THEY TURN OFF.

RAISE FC

5KV	$\Delta = 15 \text{ mA}$
10KV	$\Delta = 72 \text{ mA}$ (x2 YESTERDAY)
15KV	$\Delta = 136 \text{ mA}$
20KV	$\Delta = 190 \text{ mA}$

RAISE TO FULL VOLTAGE FOR DOG + PONY SHOW ---

25KV	$\Delta \approx 220 \text{ mA}$
28KV	$\Delta \approx \text{UP TO } 250 \text{ mA}$ THEN DROPS TO 75 THEN UP AGAIN - OFF FOR WORK

RTIC ACCESS - TURN ON FC @ 28KV. NO BEAM, AUTO ON

SEEMS TO HAVE PLATEAUED @  $\sim 250 \text{ mA}$ . STILL HAS "NOISE"

0930 RAN ALL NIGHT - IFCE PLATEAUED  $\Delta \sim 260 - 280 \text{ mA}$  SEE IF CAN FIND THRESHOLD. NO BEAM

1KV	$\Delta = 0$	9	68	2	10
2KV	0	10	90	1	4
3	0	9	70		
4	0	8	58		
5	0	7	50		
16mA		6	44		
24		5	30		

3/15/06

ACCESS DAY 1. REPAIRED SMALL WATER LEAK.

ON WEST SIDE TPC, PLASTIC ELBOW HAD A CRACK FROM SOMEONE STEPPING ON IT.

2. REPLACED 167 VME PROC IN CRATE 58 THAT DOES GAS + HYGROMETER. PUT IN SPARE W/ MORE MEMORY (WAS 4MB, NOW 32). OLD PROCESSOR RAN OUT OF MEMORY.

3. TPC TCD REPAIRED - CAN NOW RUN 90T  
27 PER LOCAL CLOCK.3/17/06RUN 7076028 LASER ATIC CLOCK  
7076029 LASER LOCAL CLOCK1000 PUT IN 1 MWL IN 1FCE

5 KV	$\Delta =$	-28
6 KV	$\Delta =$	-25
7 KV	$\Delta =$	-22
10 KV	$\Delta =$	-15
15 KV	$\Delta =$	-10
20 KV	$\Delta =$	0
25 KV	$\Delta =$	0
28 KV	$\Delta =$	0 $\rightarrow$ 15 LET IT WORK

RUN 7076032 LASER LOCAL CLOCK.

3/27/06AZ CHANGED WEST TRIGGER BOARD LAST ACCESS + WEST LASER SHIFTED ~10-12 USER EARLIER  $\rightarrow$  LOST 3 BEAMS. HE THEN TRIED TO SHIFT IT BACK BY CHANGING ADJ DELAY, BUT IS STILL OFF ~1  $\mu$ sec. WILL REPLACE TRIG BOARD ON 3/29 ACCESS.3/28/061200ACCESS. WEST LASER TRIGGER BOARD REPLT  
TRY MAG OFF LASER RUN.TPC RAO 23-5 GIVING PROBLEMS - REMOVE 23+24 F  
WEST LASER TIMING LOOKS OK - ALSO SHOTTS  
NOW WORK. 23-5 STARTS WORKING.3/29/06CALLED @ 7:00. INTERLOCK PROBLEM ON LUPS 2  
GET ACCESS + FIND BLOWER VERY HOT.

PULL UNIT - FAN BAD. DANNY INSTALLS

NEW FAN IN BOX. NEED ACCESS

3/24/06

2/06 } 2200) CALLED. OUTER ANODE HV WAS OFF  
 + DOTS WERE YELLOW. LOGGED IN + TRIED TO TURN  
 ON. MAINFRAMING REPORTED "24V BAD - THERMAL PROBLEM"  
 I CYCLE AC POWER + NO HELP.

GET ACCESS + INSTALL <sup>MY</sup> SPARE CRATE (THIS IS MEN PA  
 CRATE = MP. OLD WAS IS LP). MP CRATE WAS  
 RECENTLY USED BY SVT FOR ~2 WEEKS.  
 NEW CRATE WORKS OK - I SET UP RAMP UP, DN  
 TRIP LEVELS, MCDV ETC.  
 RUNS ALL NIGHT OK,  
 OLD CRATE SENT FOR REPAIR.

06 } 0915 SURPRISE ACCESS - NO LASER RUNS w/ MAG ON  
 FC W { 7094 030 HOUR CLOCK PED BEAM OFF  
 BAD { 7094 031 " " LASER w/  $\Omega$  NO SHUTTERS  
 { 7094 032 " " LASER w/  $\Omega$  SHUTTERS 2+8 WEST  
 { 7094 033 " " NO  $\Omega$  ALL BEAMS 14+20 EAST  
 { 7094 034 " " NO  $\Omega$  SHUTTERS IN 2+8  
 { 035 " "  $\Omega$  IN ALL BEAMS 14+20  
 { 7094 036 " " " SHUTTERS 2+8  
 14+20

10/06 ) SCSEKRV DIES OVER WEEKEND. CAN'T GET  
 ANY TELNET SESSION TO VME PROCESSORS.  
 CAN LOGIN DIRECTLY w/ ETHERNET  
 TARGET PASSWORD: PASSWORD.

1900 ) GET ACCESS / POWER CYCLE / ALL OK NOW.

ACCESS OFFLINE & B: STAR HOME  $\rightarrow$  COMPUTING  $\rightarrow$  STAR DB  
 STAR DB BROWSER  $\rightarrow$  CALIBRATIONS  $\rightarrow$  TPC  $\rightarrow$   
 TPC DRIFT VEL (CLICK ON BEGIN TIME  
 TO SORT)

24/06 ) TURNING BACK ON AFTER 10 DAYS OFF DUE TO POWER  
 BREAKER FAULT. GOT ON LAST NIGHT, BUT THEN HOSE IN  
 2B2, 2B3 HAD LEAK + TRIPPED ALL OFF.

ACCESS: 1. HOSE REPLACED  
 2. FC DVM IN FUNNY STATE - CYCLE POWER TO  
 3. SETUP PULSER - OK  
 4. 2nd VME PROCESSOR IN CRATE 58 (FOR GA  
 + HYGROMETER) HAD TROUBLE BOOTING -  
 3rd TIME IT IS OK

5/8/06: 0900 1. CATHODE VOLTAGE STOPPED RAMPING @ 4.1 kV  
 at ~ 0645. CREW TOOK DATA ANYWAY, DISCOVERED  
 AT 0900. NOT CLEAR WHY RAMP STOPPED. - OPERATOR

LOWER CYCLE  
 ON 5/10/06  
 NOW ON.  
 CARD NOT  
 REPLACED

2. FIND ANODE HV FOR SECTION 22-4 (10.7) IS  
 20 VOLTS LOW. CAN SET DV = 1190, + GET 1170 MEAS  
 IF SET 100, GET 80, SO DC OFFSET.  
 REPLACE BOARD ON WED. → ~~REPLACE BOARD ON WED.~~

5/9/06  
 11:00

141 = 41 OLD (ORIGINAL)  
 L<sub>0</sub> = 190 POLARITY  
 PUT POLARITY REVERSING CATHODE  
 IN TPC WEST GG. RUN TODAY  
 LIKE THIS + REMOVE TOMORROW  
 REMOVED 5/10/06 - ONLY MIA  
 ~ 4% OIL

5/9/06  
 16:00

LASER RUNS FOR GG REVERSAL TESTS:

6/2 4344

RUN 7129061 ALL BEAMS MAGON BEAM ON 4000  
 RUN 7129062 SHUTTERS IN <sup>2+8</sup>14+20 MAGON BEAM ON 4000

5/29/06

IFCG CURRENT HAS CREPT UP SOME MORE. TYPICALLY  
 130 - 140 mA EXCESS @ 28KV. REMOVE 1.0 MΩ  
 BOX + PUT IN 1.5 MΩ BOX. AFTER 90

MAGNET  
 OPT

	2KV	5KV	10KV	15KV	20KV	25KV	28KV	28KV
OFCW	5.560	13.753	27.400	41.054	54.691	68.334	76.528	76.524
OFC E	5.560	13.752	27.399	41.051	54.690	68.326	76.521	76.519
IFCW	5.560	13.753	27.399	41.051	54.691	68.328	76.522	76.519
IFC E	5.537	13.714	27.339	40.989	54.620	68.243	76.470	76.477

ON -90 Δ = -40  
 LEAVE IT IN FOR NOW - SEEMS LOWER THAN IT SHOULD BE -  
 SHOULD HAVE SUBTRACTED ~ 110 mA. WAIT FOR MAGNET.

5/25/06

0930. OVERNIGHT IFCG STARTS ~ 20-30 mA LOW + HIS  
 SO IFCG = IFCW.

6/5/06

IFCG ALARMS IN SC @ Δ = 200 mA, WITH 1.5 MΩ  
 IN ⇒ ONE OF 3 MΩ STRIPES IS THE SHORT.  
 PREPARE 2 MΩ EXTERNAL Ω. AFTER 3 HO

6/8/06

100 PUT IN 2 MΩ IN IFCG

	2KV	5KV	10KV	15KV	20KV	25KV	28KV	28KV
OFCW	5.504	13.758	27.420	41.089	54.740	68.399	76.598	76.587
OFC E	5.504	13.758	27.405	41.059	54.701	68.370	76.538	76.532
IFCW	5.504	13.758	27.405	41.058	54.700	68.338	76.535	76.531

WAS  
 HIGH  
 DROP  
 50 mA



Date: Mon, 05 Jun 2006 10:31:21 -0400  
From: Jeff Landgraf <jml@bnl.gov>  
To: Tonko A. Ljubicic <tonko@bnl.gov>  
Cc: Blair C. Stringfellow <string@physics.purdue.edu>  
Subject: Re: TPC RDO

>>  
>>  
>> 1. Can the source of the errors be put into the DAQ monitor page?  
>> 2. Can we resurrect something like the reverse video display  
>> that would have given me this info?  
>> 3. Can somebody teach me to log in and see the error messages?  
>>

The monDisplay page is working again on the xterm on the far right.  
Blair, if you ever need it and its not up follow these steps:

1. Log on to daqman.starp.bnl.gov as operator (from any star computer)  
> ssh operator@daqman *AW ; STAR\_DAQ*
2. type:  
> /RTS/bin/LINUX/i686/monDisplay

You might need to expand the size of the display window to see everything. If so, you will have to restart the monDisplay program...  
it doesn't automatically follow the screen resizing.

-jeff

*SIZE TO SCREEN  
USE \* - TO TOGGLE DISPLAY TO  
HOLD ON TPL*

ON DAQMAN

TPM - DAG

/DATA/SCRATCH/ENV DATA

TAPEX1. X00000000614

✓ ENVATL DAN/HLO

✓ ENVATL CALIB/GENE

EMAIL QA BO

DO ACCOUNTING

SUMMER TODO LIST

✓ GAS ✓ LIST

SUMMER, 2006.

- ✓ MWC LVPS FOR HW - GND CABLES.
- ✓ LASER SERVICE
- ✓ BAD FEE/RDO LIST
- ✓ DAQ1000?
- ✓ LVPS BLOWERS
- ✓ 2B8 STANDPIPE
- ✓ INNER ARCNET - SWAP CABLE + VME PROC
- ✓ TEST FC GPIB CONTROLLER
- ✓ BRAHMS - LEIKOY + FEES
- ✓ MOVE INTERLOCK A/O TO CANBUS CRATE - SPARE INTERF
- ✓ BAD ANODE PS - INNER 9-1