

Collider Run II Shot Setup Documentation

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Sequencer: Pbar

Collider Aggregate: Run II Start Shot Setup

Previous Aggregate: None

Pre-cool the Core: We want to cool the core frequency width to 15Hz longitudinally before switching to the shot lattice. When the stack is large, we turn off stacking before starting shot setup in order to start the cooling process. The idea is to time there termination of stacking such that we do not stop stacking too early where we would lose valuable stacking time, and at the same time do not stop stacking too late where Pbar would delay the shot setup while trying to cool to 15Hz. The cooling process can be speeded up by using the 4-8GHz momentum cooling as outlined in <http://www-bdnew.fnal.gov/pbar/organizationalchart/drendel/TuningGuide/ShotsWith48>

Preparing to Start Shot Setup: This aggregate is run to begin the shot setup process for Pbar. The Pbar sequencer requires two dedicated MCR consoles plus two MCR comfort displays. Normally, CNS1 is used to run the Pbar sequencer, CNS101 is used for the Pbar life-o-meter, CNS2 is used for emittance plots and the Pbar longitudinal display, and CNS102 is used for the Pbar Radiation Detector Display.

When to Start this Aggregate? The Shot Scrapbook (<http://www-bd.fnal.gov/cgi-mach/machlog.pl?nb=scrap03&load=no>) contains data and screen captures collected from all of the sequencers during the shot setup. Each shot setup has a separate shot scrapbook chapter. The chapter is incremented by the Tevatron sequencer, so it is important to wait to start this aggregate until after the Tevatron has started the new shot scrapbook chapter.

Purpose of this Aggregate: The **Run II Start Shot Setup** aggregate is the first aggregate issued for Pbar when doing a shot setup. This aggregate stops stacking, starts comfort display and emittance plots, checks Accumulator BPMs, toggles state devices, loads a TLG with reverse proton events, starts momentum thermostat, sets up the unstacking display on SA#2, sets up the AP1 and AP3 lines for 8 GeV beam, and toggles alarm lists.

::: INSTRUCT 200 .

```

This aggregate and the following 8:
Run II Start Reverse Protons,
Run II Switch to Shot Lattice,
Run II Finish Reverse Protons,
Run II Continue Shot Set Up,
Run II Prepare to Load Pbars,
Run II Load Collider Pbars,
Run II Revert to Stack Lattice,
Run II Return to Stacking provide the means for setting up the Pbar
source to do pbar transfers to the Main Injector and/or Tevatron.

Each aggregate's title describes the activities contained within the
aggregate. Instructions provided along the way hopefully make the
process fairly painless under normal circumstances.

***Scan the most recent Pbar/Shots log books for anything that
may affect the shot set-up.***

Interrupt anywhere in this box to continue.
    
```

::: SHOT_LOG COMMENT .
 Enters the following comment into the Pbar portion of the shot scrapbook at <http://www-bd.fnal.gov/cgi-mach/machlog.pl?nb=scrap03>.

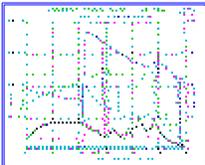
 **Time-** Starting Pbar Shot Set Up; the stack size is ##.####. - Sequencer

::: BEAM_SWITCH Pbar_Source Off .
 To avoid taking beam to Pbar while switching form 120GeV stacking mode to 8GeV shot mode, we take the software beam switch.

::: NOTIFY Start .
 Sends a Channel 13 Notify message to http://www-bd.fnal.gov/cgi-bin/notify_mes.pl?ch13=text.

::: CTLIT_DEVICE D:Q731 OFF D
 The command is bypassed. We used to turn off the AP2 line quadrupole power supply D:Q731 for shot setup, there used to be overheating problems with certain magnets, that would require periodic flushing of their LCW lines. Turning the device off was intended to extend the time between flushes.

::: START_PGM SA1144 . . .
 Starts the Stack-o-meter SA (keeper is David Sutherland) on comfort display console 101. If this plot dies, it can easily be restarted as follows. From CNS1, do a CNTL-SHIFT-4 to get to the CNS101 comfort display. Go to P69 and then click PLOT!! under the lifetime category.



Pbar Life-o-Meter. Click on thumbnail to view full-sized image.

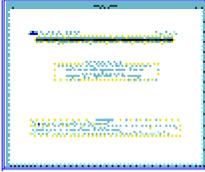
::: START_PGM SA1127 .
 Pbar Radiation Detector Display (keeper is Tony Leveling) on comfort display 102. This SA can be used during the beamline tuneup to verify that radiation levels are not high enough to rad trip.



Pbar Radiation Detector Display. Click on thumbnail to view full-sized image.

::: START_PGM P162 .
 Starts the Accumulator BPM TBT Page P162 (keeper is Keith Gollwitzer). This page, as shown below, checks the status of the Accumulator BPM houses and issues resets to any house that is not online. This allows plenty of time for the BPM houses to reboot before they are need in the beamline tuneup. Upon completion, this application will self terminate and the window will close on its own.

TV Window 'Run II Start Shot set up' from CNS52 - PA Slot



Accumulator BPM page. Click on thumbnail to view full-sized image.

```
::: WAIT_FOR SECS 30 .
A 30 second delay to allow the Accumulator BPM program above to complete its BPM
house check.

::: SETIT_DEVICE V:PSHOOT =1 .
Devices that start with V: are state parameters. State parameters define the
operational state of a device or accelerator, allow the sequencers to be more
automated, and prevent the different sequencers from getting out of sequence with
each other. Often one sequencer waits at a certain spot until another sequencer
changes a state parameter. V:PSHOOT is a state parameter for the Pbar transfer
state. V:PSHOOT state 1 means "not ready for transfer." Later on during the
shot, when the beam line tune up is complete, the Run II Continue Shot Setup
aggregate will change V:PSHOOT to 5 ("Pbar Shot Setup Complete"). The Collider
sequencer waits for V:PSHOOT to be set to 5 before loading final protons.

::: INSTRUCT 202 .
When prompted, select the appropriate mode from the menu
provided. For Collider Shot Set Up select 9 Pbar Shots to the
Tevatron. Alternately, select another mode as appropriate -
8 Reverse Protons would be a good choice for studies.

Interrupt anywhere in this box to continue.

::: SET_ENUMERATED V:APSMOD .
V:APSMOD is a state parameter representing the operational mode of the Pbar
Source. The set_enumerated command asks the user to selected from a menu of
V:APSMOD state values. Some common values for V:APSMOD include: 7 = Stacking,
8 = Reverse Protons, 9 = Pbar Shots to the Tevatron, and 12 = Pbar Shots to the
Recycler. As the above instruct suggests, selecting state 9 ("Pbar Shots to the
Tevatron") would be appropriate for RunII Collider Shot Setup.

::: SET_ENUMERATED V:PBSRC .
V:PBSRC is a state parameter representing the source or Pbars for the Tevatron.
The set_enumerated command asks the user to selected from a menu of V:PBSRC
state values. There are three choices: 1 = Pbars from Accumulator only, 2 = Pbars
from Recycler only, and 3 = Pbars from both Accumulator and Recycler.

::: SET_DEVICE A:APSHOT +=1 .
Increments the Pbar transfer series number by one. This number is incremented
before and after any Pbar transfer from the Accumulator to the Tevatron or
Accumulator to the Recycler.

::: ACL WAIT_FOR_READING_MATCH .
Runs an Accelerator Command Language (ACL) script called WAIT_FOR_READING_MATCH
that waits for "SDA Shot/Store #" (A:FILE) to read the same value as the Pbar
transfer series number (A:APSHOT). A more detailed treatment of ACL scripts can
be found at http://adcon.fnal.gov/userb/www/controls/clib/intro\_acl.html.

::: SET_DEVICE A:SHTNUM =0 .
Sets the "Pbar transfer series Shot #" parameter (A:SHTNUM) to zero. Later on
during the Run II Load Collider Pbars aggregate, A:SHTNUM is incremented by one
for every pbar transfer. So the first transfer has A:SHTNUM = 1, the second
transfer has A:SHTNUM = 2, ... ninth transfer has A:SHTNUM= 9.

::: SET_DEVICE V:CASPBT =1 .
The "Pbar transfer SDA case trigger" state (V:CASPBT) is set to 1, which
represents "Set up." The sequencer will again change this state parameters in
the Run II Continue shot setup aggregate. Possible values for this state
parameter include: 1 = Set up, 2 = Unstack Pbars, 3 = Transfer Pbars from
Accumulator to Main Injector, 4 = Accelerate Pbars in the Main Injector, 5 =
Coalesce Pbars in the Main Injector.

::: SET_DEVICE V:SETPBT =1 .
```

TV Window 'Run II Start Shot set up' from CNS52 - PA Slot

Sets the "Pbar transfer SDA set in case" state device to 1. This state parameter is later set to 5 in the **Run II Load Collider Pbars** and the **Run II Return to Stacking** aggregates. D88 currently shows no state information descriptions for the different states of this parameter. **Set**

```
::: CHECK_DEVICE A:APSHOT READING .
Prints the value of the "Pbar Transfer Series Number" parameter (A:APSHOT) in the
message window at the bottom of the sequencer in the following format.
COM: A:APSHOT present value = #####.00000

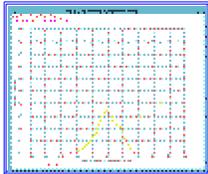
::: CTL_DEVICE A:ISHUTO OFF .
Turns off the accumulator injection shutter open timer. The Accumulator
injection shutter will now not be told to open.

::: CTL_DEVICE A:ESHUTO OFF .
Turns off the accumulator extraction shutter open timer. The Accumulator
extraction shutter will now not be told to open.

::: CTL_DEVICE A:ISHUTC ON .
Turns on the accumulator injection shutter close timer. The shutter open timer
was disabled and the shutter closed timer was enabled. This ensures that the
Accumulator Injection shutter stays closed.

::: CTL_DEVICE A:ESHUTC ON .
Turns on the accumulator extraction shutter close timer. The shutter open timer
was disabled and the shutter closed timer was enabled. This ensures that the
Accumulator Extraction shutter stays closed.

::: START_PGM SA1136 .
Accumulator Momentum profile using the VSA (keeper is Dave McGinnis). This is
normally run on the SC screen of the console that runs the Pbar Sequencer, and
can be restarted from P142. You can view the real-time version of this display
on CATV PBar #16. SA1136 calculates the frequency width (A:FRWDTH) of the
Accumulator beam. If the momentum cooling is being run too hard, you will see
coherent spikes on the display. This effects the frequency width calculation
(makes it artificially small). If coherent spikes are seen on the trace, you
can lower the 2-4GHz momentum power until the spike goes away.
```



Accumulator Momentum Distribution. Click on thumbnail to view full-sized image.

```
::: WAIT_FOR SECS 15 .
Delay to allow SA1136 to start.

::: SETIT_DEVICE A:VSAFWD =15 .
Sets the desired accumulator frequency width to 15Hz. We want to reach this
frequency width before later switching to the shot lattice.

::: SETIT_DEVICE A:DTMHVE =.5 .
Sets the horizontal minus vertical emittance difference for VSA vertical
thermostat. This is not currently necessary because next command puts the VSA in
momentum thermostat only mode. If the VSA is in momentum and vertical
thermostat mode (A:VSARST = 7), then this parameter would be used to determine
when to turn off the vertical cooling. When running in this mode, if the
difference between the horizontal and vertical emittances becomes greater than
A:DTMHVE, then the vertical cooling is gated off.

::: SETIT_DEVICE A:VSARST = 5 .
Puts the VSA in momentum thermostat mode. The thermostat tries to keep the
frequency width A:FRWDTH (measured by the VSA above) at the desired frequency
A:VSAFWD (set to 15 above). The momentum cooling is gated on as long as the
frequency width is larger than the desired frequency.

::: ACKNOWLEDGE .
```

TV Window 'Run II Start Shot set up' from CNS52 - PA Slot



This acknowledge instructs the Pbar sequencer operator that the next plot should be started on this console.

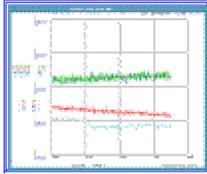
::: ACKNOWLEDGE .



This acknowledge instructs the Pbar sequencer operator not to start the Fast Time Plot on the same slot as the VSA SA is running. Normally the VSA is run on SC..

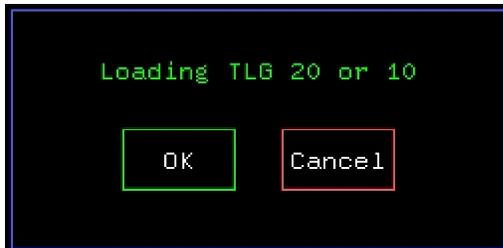
::: AUTO_PLOT Core Emittances .

Starts a Fast Time Plot that contains A:EMT3HN (0-4 pi-mm-mrad), A:EMT3VN (0-4 pi-mm-mrad), A:CENFRQ (62885-628890 Hz) and A:FRWDTH (0-20 Hz) over time (0-1200 sec). Our target A:FRWDTH is 15Hz.



Example plot from a shot setup when the momentum cooling was complete.

::: ACKNOWLEDGE .



This acknowledge informs the Pbar Sequencer Operator that a new TLG is about to be loaded. .

::: LOAD_TLG 10 REPEAT .

Loads TLG #10. See instruct below for more information on the TLGs. TLG #10 is used for Combination Shots (Accumulator and Reycler), while TLG #20 is used for Accumulator-only shots.

::: WAIT_DEVICE G:TLGSEQ .

Waits for TLG #10 to be loaded before continuing.

::: INSTRUCT 204 .

A Timeline with 3 reverse proton cycles and Tevatron tune up cycles has just been loaded. Nominally this is TLG #20. For Mixed Pbars #10 is used.

The Timeline should be checked to ensure that a \$80 precedes the reverse proton cycles. For beam line tune up there should be three reverse proton cycles to the Accumulator.

NEW - read this paragraph!!

If TLG #10 is activated for Mixed Pbars, have the MI person make sure the correct \$2E ramp is loaded (it should be already).

Other TLG files to use, and will likely be loaded automatically, are

- #19 for Accumulator TBT tuneup, #9 for Mixed Pbars
- #13 to load Collider Protons (no RR cycles in this file)
- #3 to load Collider Pbars, #18 to load Mixed Pbars
- #22 for Pbars to the Recycler

Files 19 and 20 have 2 \$2A modules, one for MI tune up the other for Tevatron reverse injection. Have one or the other, NOT BOTH!, enabled depending on programmatic needs.

Interrupt anywhere in this box to continue.

This instruct provides the Pbar sequencer operator with instructions to insure the proper TLG is loaded. On 3/9/05 a new instruction was added to remind the sequencer operator to have the Main Injector sequencer operator verify that the correct \$2E ramp is loaded if TLG #10 is being used in Combination Shots (Accumulator and Recycler).

::: ALARM_LIST PBAR 23 .

Bypasses the D59 alarm list entitled "PULSED" (pulsed devices).



Pbar alarm list 23. Click on thumbnail to view full-sized image.

::: WAIT_FOR SECS 3 .

::: ALARM_LIST PBAR 52 .

Bypasses the D59 alarm list entitled "ARF1".



Pbar alarm list 52. Click on thumbnail to view full-sized image.

::: SET_SEQ FILE 1 .

File #1 turns off pulsed devices, etc..

```
D:LNV    TURN DEVICE OFF      ok
D:PMAGV  TURN DEVICE OFF      ok
D:ISEPV  TURN DEVICE OFF      ok
D:IKIK   TURN DEVICE OFF      ok
D:EKIK   TURN DEVICE OFF      ok
D:ESEPV  TURN DEVICE OFF      ok
A:ISEP1V TURN DEVICE OFF      ok
A:ISEP2V TURN DEVICE OFF      ok
A:IKIK   TURN DEVICE OFF      ok
```

ok

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A:R1L1AM TURN DEVICE OFF ok
A:R1L2AM TURN DEVICE OFF ok
A:R1HLSC TURN DEVICE OFF
ok

A:EXTRAT EVENT DISABLE
ok

A:EKIKTG SET DEVICE 13.8365

ok

D:Q701 TURN DEVICE OFF ok
D:Q702 TURN DEVICE OFF ok
D:H704 TURN DEVICE OFF ok

::: WAIT_FOR SECS 3 .
::: SPECTRUM_LOAD 2 7 .

Downloads P41 file #7 to spectrum analyzer #2. This is the Accumulator unstacking display which can be viewed at CATV Pbar #28.

::: SEQ_PGM REQUEST AP0 Scope .
::: CHECK_DEVICE A:R2DDS1 SAVE_SET .
::: CHECK_DEVICE A:R2LLAM SAVE_SET .
::: CHECK_DEVICE A:DPHATT SAVE_SET .
::: SET_DEVICE A:DPHATT =5 .

Sets the accumulator horizontal damper attenuator to 5.

::: INSTRUCT 206 .



::: ALARM_LIST PBAR 2 .

Bypasses the D59 alarm list entitled "AP1 120".



Pbar alarm list 2. Click on thumbnail to view full-sized image.

::: WAIT_FOR SECS 3 .

::: ALARM_LIST PBAR 3 .

Unbypasses the D59 alarm list entitled "AP1 8GEV".



Pbar alarm list 3. Click on thumbnail to view full-sized image.

::: WAIT_FOR SECS 3 .

::: ALARM_LIST PBAR 12 .

Unbypasses the D59 alarm list entitled "AP3". This list consists of two lists "AP3 DGTL" and "AP3 ANLG."



Pbar alarm list 12, 13, and 14. Click on thumbnails to view full-sized images.

::: SET_SEQ_FILE 37 .

AP1 120Gev Supplies off

TV Window 'Run II Start Shot set up' from CNS52 - PA Slot

```

M:HV100  TURN DEVICE OFF          ok
M:Q101   TURN DEVICE OFF          ok
M:Q102   TURN DEVICE OFF
      ok
M:HV102  TURN DEVICE OFF          ok
M:Q103   TURN DEVICE OFF          ok
M:Q104   TURN DEVICE OFF          ok
M:Q105   TURN DEVICE OFF          ok
M:V105   TURN DEVICE OFF          ok
M:Q106   TURN DEVICE OFF          ok
M:Q107   TURN DEVICE OFF
      ok
M:Q108   TURN DEVICE OFF
                                ok

M:Q109I  TURN DEVICE OFF          ok
M:Q109V  TURN DEVICE OFF          ok
::: WAIT_FOR SECS 5                .
::: SET_SEQ FILE 41                .
      File #41 resets AP1 8 GeV devices
I:F17B3  RESET DEVICE              ok
M:HV200  RESET DEVICE              ok

M:Q201   RESET DEVICE              ok
M:HV202  RESET DEVICE              ok
M:Q203   RESET DEVICE              ok
M:Q204   RESET DEVICE              ok
M:Q205   RESET DEVICE
      ok

M:V205   RESET DEVICE              ok
M:Q206   RESET DEVICE              ok
M:Q207   RESET DEVICE              ok

M:Q208   RESET DEVICE              ok
M:Q209   RESET DEVICE              ok

::: SET_SEQ FILE 42                .
      File #42 turns on AP1 8 GeV devices
I:F17B3  TURN DEVICE ON            ok
M:HV200  TURN DEVICE ON            ok
M:Q201   TURN DEVICE ON            ok
M:VT101  TURN DEVICE ON            ok
M:VT101A TURN DEVICE ON            ok
M:Q102R  SET NEGATIVE              ok
M:Q202   TURN DEVICE ON            ok
M:HV202  TURN DEVICE ON            ok
M:Q203   TURN DEVICE ON            ok
M:Q204   TURN DEVICE ON            ok
M:Q205   TURN DEVICE ON            ok
M:HT105  TURN DEVICE ON            ok
M:V205   TURN DEVICE ON            ok
M:Q206   TURN DEVICE ON            ok
M:Q207   TURN DEVICE ON            ok
M:HT107  TURN DEVICE ON            ok
M:Q208   TURN DEVICE ON            ok
M:VT108  TURN DEVICE ON            ok
M:Q209   TURN DEVICE ON            ok

::: SET_SEQ FILE 47                .
      File #47 resets AP3 line devices
D:Q901   RESET DEVICE              ok

```

TV Window 'Run II Start Shot set up' from CNS52 - PA Slot

```
D:V901  RESET DEVICE
ok

D:Q903  RESET DEVICE      ok
D:Q907  RESET DEVICE      ok
D:Q909  RESET DEVICE
      ok
D:Q913  RESET DEVICE      ok
D:Q914  RESET DEVICE      ok
D:H914  RESET DEVICE      ok
D:Q916  RESET DEVICE      ok
D:Q917  RESET DEVICE

ok

D:Q919  RESET DEVICE      ok
D:Q924  RESET DEVICE      ok
D:Q926  RESET DEVICE      ok
D:H926  RESET DEVICE      ok
::: SET_SEQ FILE 48
      .
      File #48 turns on AP3 line devices
D:Q901  TURN DEVICE ON    ok
D:V901  TURN DEVICE ON    ok
D:HT901 TURN DEVICE ON    ok
D:Q903  TURN DEVICE ON    ok
D:HT906A TURN DEVICE ON   ok
D:VT906 TURN DEVICE ON    ok
D:HT906B TURN DEVICE ON   ok
D:Q907  TURN DEVICE ON    ok
D:Q909  TURN DEVICE ON    ok
D:HT910 TURN DEVICE ON    ok
D:Q913  TURN DEVICE ON    ok
D:Q914  TURN DEVICE ON    ok
D:H914  TURN DEVICE ON    ok
D:Q916  TURN DEVICE ON    ok
D:Q917  TURN DEVICE ON    ok
D:VT917 TURN DEVICE ON    ok
D:Q919  TURN DEVICE ON    ok
D:Q924  TURN DEVICE ON    ok
D:Q926  TURN DEVICE ON    ok
D:H926  TURN DEVICE ON    ok
D:VT925 TURN DEVICE ON    ok
::: INSTRUCT 208
      .
```

```
The next steps restore AP1/3 settings from a save file. Choose a
recent Shots or Pbar file made during shot set up to restore from.

Interrupt anywhere in this box to continue.
```

```
::: SET_SEQ FILE_SR 79
      .
      File #79 restores AP1 line 8 GeV settings.
M:HV200 RESTORE (D1 file)  SETTING  1183    ok
M:HT100 RESTORE (D1 file)  SETTING  1183    ok
M:HT100 RESTORE (D1 file)  ANL ALARM 1183    ok
M:Q201  RESTORE (D1 file)  SETTING  1183    ok
M:VT101 RESTORE (D1 file)  SETTING  1183    ok
M:VT101 RESTORE (D1 file)  ANL ALARM 1183    ok
M:VT101A RESTORE (D1 file) SETTING  1183    ok
M:VT101A RESTORE (D1 file) ANL ALARM 1183    ok
M:Q102R RESTORE (D1 file)  BASIC STS 1183    ok
M:Q202  RESTORE (D1 file)  SETTING  1183    ok
M:HV202 RESTORE (D1 file)  SETTING  1183    ok
M:Q203  RESTORE (D1 file)  SETTING  1183    ok
```

TV Window 'Run II Start Shot set up' from CNS52 - PA Slot

```

M:Q204 RESTORE (D1 file) SETTING 1183 ok
M:Q205 RESTORE (D1 file) SETTING 1183 ok
M:V205 RESTORE (D1 file) SETTING 1183 ok
M:HT105 RESTORE (D1 file) SETTING 1183 ok
M:HT105 RESTORE (D1 file) ANL ALARM 1183 ok
M:Q206 RESTORE (D1 file) SETTING 1183 ok
M:Q207 RESTORE (D1 file) SETTING 1183 ok
M:HT107 RESTORE (D1 file) SETTING 1183 ok
M:HT107 RESTORE (D1 file) ANL ALARM 1183 ok
M:Q208 RESTORE (D1 file) SETTING 1183 ok
M:VT108 RESTORE (D1 file) SETTING 1183 ok
M:VT108 RESTORE (D1 file) ANL ALARM 1183 ok
M:Q209 RESTORE (D1 file) SETTING 1183
ok
M:SMA1S RESTORE (D1 file) SETTING 1183 ok
M:SMA1S1 RESTORE (D1 file) SETTING 1183 ok
M:SMA1C RESTORE (D1 file) SETTING 1183 ok
M:SMA1C1 RESTORE (D1 file) SETTING 1183 ok
D:TRSM1S RESTORE (D1 file) SETTING 1183 ok
D:TRSM1R RESTORE (D1 file) SETTING 1183 ok
D:TRSM1C RESTORE (D1 file) SETTING 1183 ok
D:TRSM1D RESTORE (D1 file) SETTING 1183 ok
M:TR109S RESTORE (D1 file) SETTING 1183 ok
M:TR109T RESTORE (D1 file) SETTING 1183 ok
M:LMHLD RESTORE (D1 file) SETTING 1183 ok
M:LMHLD S RESTORE (D1 file) SETTING 1183 ok
M:AP1WCS RESTORE (D1 file) SETTING 1183 ok
M:AP1WCT RESTORE (D1 file) SETTING 1183 ok
M:TR105S RESTORE (D1 file) SETTING 1183 ok
M:TR105T RESTORE (D1 file) SETTING 1183 ok
::: SET_SEQ FILE_SR 87 .
File #87 restores AP3 line devices and settings
D:Q901 RESTORE (D1 file) SETTING 1183 ok
D:Q901 RESTORE (D1 file) ANL ALARM 1183 ok
D:V901 RESTORE (D1 file) SETTING 1183 ok
D:V901 RESTORE (D1 file) ANL ALARM 1183 ok
D:VS901 RESTORE (D1 file) SETTING 1183 ok
D:VS901 RESTORE (D1 file) ANL ALARM 1183 ok
D:HT901 RESTORE (D1 file) SETTING 1183 ok
D:HT901 RESTORE (D1 file) ANL ALARM 1183 ok
D:Q903 RESTORE (D1 file) SETTING 1183 ok
D:Q903 RESTORE (D1 file) ANL ALARM 1183 ok
D:VS904 RESTORE (D1 file) SETTING 1183 ok
D:VS904 RESTORE (D1 file) ANL ALARM 1183 ok
D:HT906A RESTORE (D1 file) SETTING 1183 ok
D:HT906A RESTORE (D1 file) ANL ALARM 1183 ok
D:VT906 RESTORE (D1 file) SETTING 1183 ok
D:VT906 RESTORE (D1 file) ANL ALARM 1183 ok
D:HT906B RESTORE (D1 file) SETTING 1183 ok
D:HT906B RESTORE (D1 file) ANL ALARM 1183 ok
D:Q907 RESTORE (D1 file) SETTING 1183 ok
D:Q907 RESTORE (D1 file) ANL ALARM 1183 ok
D:Q909 RESTORE (D1 file) SETTING 1183 ok
D:Q909 RESTORE (D1 file) ANL ALARM 1183 ok
D:HT910 RESTORE (D1 file) SETTING 1183 ok
D:HT910 RESTORE (D1 file) ANL ALARM 1183 ok
D:Q913 RESTORE (D1 file) SETTING 1183 ok
D:Q913 RESTORE (D1 file) ANL ALARM 1183 ok
D:QS915 RESTORE (D1 file) SETTING 1183 ok

```

TV Window 'Run II Start Shot set up' from CNS52 - PA Slot

```

D:QS915 RESTORE (D1 file) ANL ALARM 1183 ok
D:Q914 RESTORE (D1 file) SETTING 1183 ok
D:Q914 RESTORE (D1 file) ANL ALARM 1183 ok
D:H914 RESTORE (D1 file) SETTING 1183 ok
D:H914 RESTORE (D1 file) ANL ALARM 1183 ok
D:Q916 RESTORE (D1 file) SETTING 1183 ok
D:Q916 RESTORE (D1 file) ANL ALARM 1183 ok
D:Q917 RESTORE (D1 file) SETTING 1183 ok
D:Q917 RESTORE (D1 file) ANL ALARM 1183 ok
D:QS917 RESTORE (D1 file) SETTING 1183 ok
D:QS917 RESTORE (D1 file) ANL ALARM 1183 ok
D:VT917 RESTORE (D1 file) SETTING 1183 ok
D:VT917 RESTORE (D1 file) ANL ALARM 1183 ok
D:Q919 RESTORE (D1 file) SETTING 1183 ok
D:Q919 RESTORE (D1 file) ANL ALARM 1183 ok
D:QS919 RESTORE (D1 file) SETTING 1183 ok
D:QS919 RESTORE (D1 file) ANL ALARM 1183 ok
D:VT925 RESTORE (D1 file) SETTING 1183 ok
D:VT925 RESTORE (D1 file) ANL ALARM 1183 ok
D:Q924 RESTORE (D1 file) SETTING 1183 ok
D:Q924 RESTORE (D1 file) ANL ALARM 1183 ok
D:QS925 RESTORE (D1 file) SETTING 1183 ok
D:QS925 RESTORE (D1 file) ANL ALARM 1183 ok
D:HS925 RESTORE (D1 file) SETTING 1183 ok
D:HS925 RESTORE (D1 file) ANL ALARM 1183 ok
D:Q926 RESTORE (D1 file) SETTING 1183 ok
D:Q926 RESTORE (D1 file) ANL ALARM 1183 ok
D:QS926 RESTORE (D1 file) SETTING 1183 ok
D:QS926 RESTORE (D1 file) ANL ALARM 1183 ok
D:H926 RESTORE (D1 file) SETTING 1183 ok
D:H926 RESTORE (D1 file) ANL ALARM 1183 ok
D:QS928 RESTORE (D1 file) SETTING 1183 ok
D:QS928 RESTORE (D1 file) ANL ALARM 1183 ok
A:EKIKP RESTORE (D1 file) SETTING 1183 ok

A:CH1T2 RESTORE (D1 file) ANL ALARM 1183 ok
A:CH2T2 RESTORE (D1 file) ANL ALARM 1183 ok
A:CH3T2 RESTORE (D1 file) ANL ALARM 1183 ok
A:CV1T2 RESTORE (D1 file) ANL ALARM 1183 ok
A:CV2T2 RESTORE (D1 file) ANL ALARM 1183 ok
A:CV3T2 RESTORE (D1 file) ANL ALARM 1183 ok
::: SET_SEQ FILE 83 .
File #83 sets core cooling gating
A:CBPON SET DEVICE 3 ok
A:CBPOFF SET DEVICE 0
ok

A:CBPON SET TIMER REFER 99 ok
A:CBPOFF SET TIMER REFER 99
ok

A:CBPON EVENT ENABLE ok
A:CBPOFF EVENT ENABLE ok
::: CHECK_DEVICE D:R1LLMT SAVE_SET .
::: SET_SEQ FILE 85 .
RunIIb Misc. settings
A:R1HLT1 SET DEVICE 1.575 ok
A:R1HLT1 SET TIMER REFER 9A ok
A:R1HLT1 EVENT ENABLE
ok

```

TV Window 'Run II Start Shot set up' from CNS52 - PA Slot

```

A:R1HLT2 SET DEVICE          1.575          ok
A:R1HLT2 SET TIMER REFER    9A            ok
A:R1HLT2 EVENT ENABLE                          ok

A:R1LLT3 SET DEVICE          0              ok
A:R1LLT3 SET TIMER REFER    9A            ok
A:R1LLT3 EVENT ENABLE                          ok
ok

A:R1LLT4 SET DEVICE          .000211       ok
A:R1LLT4 SET TIMER REFER    94            ok
A:R1LLT4 EVENT ENABLE                          ok
ok

A:IBMS1  SET DEVICE          .1           ok
A:IBMS1  SET TIMER REFER    91  80       ok
A:IBMS1  EVENT ENABLE                          ok
ok

A:IBMS2  SET DEVICE          1             ok
A:IBMS2  SET TIMER REFER    94  80       ok
A:IBMS2  EVENT ENABLE                          ok
ok

D:SMB2C  ADD TIMER EVENT     9A            14 6
D:SMB2C  REMOVE TIMER EVNT  E1            14 6
D:ESEPC  SET DEVICE          .00001       ok
D:ESEPC  ADD TIMER EVENT     90            ok
D:ESEPC  REMOVE TIMER EVNT   80
ok

D:R1LLMT EVENT DISABLE                          ok
D:R1LLTT SET TIMER REFER    02            ok
D:R1LLTT SET DEVICE          0             ok
D:R1LLTT EVENT ENABLE                          ok

::: EVENT 91 DISABLE .
    Disables Accumulator unstacking cycle reset.

::: WAIT_FOR SECS 10 .
::: CTL_DEVICE M:Q102 RESET .
::: CTLIT_DEVICE M:Q202 ON .
::: SEQ_PGM REQUEST Acc Gap Mon .
    Lets operator chose which PA screen to start the Pbar GBIP command editor program
    (Budlong).

::: ACL COMPARE_10_DEVICES .
::: CHECK_DEVICE D:EKIKM1 SAVE_SET .
::: CHECK_DEVICE D:EKIKM2 SAVE_SET .
::: CHECK_DEVICE D:EKIKM3 SAVE_SET .
::: CHECK_DEVICE A:SCRES SAVE_SET .
::: SET_DEVICE A:SCRES +=1.8 .
::: CHECK_DEVICE A:ISEP1V SAVE_SET .
::: CHECK_DEVICE A:ISEP2V SAVE_SET .
::: ALARM_LIST PBAR 76 .
    Bypasses the D59 alarm list entitled "DEB COOL" (Debuncher Cooling). This list
    contains a number of other lists.

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TV Window 'Run II Start Shot set up' from CNS52 - PA Slot



Pbar alarm list 76. Click on thumbnail to view full-sized image.

::: SET_SEQ FILE 92 .

Open Debuncher PIN switches

D:H1PS1 TURN DEVICE OFF ok

D:H2PS1 TURN DEVICE OFF ok

D:H3PS1 TURN DEVICE OFF ok

D:H4PS1 TURN DEVICE OFF

ok

D:V1PS1 TURN DEVICE OFF ok

D:V2PS1 TURN DEVICE OFF ok

D:V3PS1 TURN DEVICE OFF ok

D:V4PS1 TURN DEVICE OFF

ok

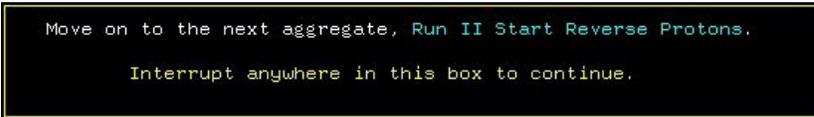
D:P1PS1 TURN DEVICE OFF ok

D:P2PS1 TURN DEVICE OFF ok

D:P3PS1 TURN DEVICE OFF ok

D:P4PS1 TURN DEVICE OFF ok

ok INSTRUCT 209 .



Collider Aggregate: **Run II Start Shot Setup** has been completed.
Next Aggregate: Run II Start Reverse Protons