

D0 STORE CHECKLIST Version 4.0 – 9/Feb/2004

Instructions: Use this checklist during shot setup, at the beginning of a store and at the end of a store. Detailed information can be found in the Shift Captain's binder. Refer to the current Run Plan for supplemental instruction.

Note the time in the appropriate boxes - a checkmark is not sufficient!

Captain(s):
Date Begin:
Date End:
Store #: [From Page 3]

Section 1 (Before a store – many steps can be performed simultaneously)

Time

- Check for *CRYO* or *FIRUS* alarms. Contact Operations Tech if you see or suspect there is a problem (building page x4674 or pager 314-5192).

Time

- About one hour before shot setup begins, check that the solenoid and toroids are ON. Circle the polarity (see Run Plan for weekly schedule).
 - Solenoid Current: 4748 A (± 2 A) FORWARD / REVERSE
 - Toroid Current: 1499 A (± 2 A) FORWARD / REVERSE
 If not, call Operations Tech and ask them to ramp the magnets, which takes about 20 minutes. *Lumi HV* needs to be at 100% (70%) when solenoid is ON (OFF). Call MCR and let them know magnets are being energized.

Time

- Verify the magnet alarms in the Alarm Display are not disabled.
- Check that the silicon radiation protection is active. On ACNET page E16, verify that BLM devices are enabled [EN]. If not, contact expert.

Time

- Check that the high voltage is in the following configuration:
 - Off: SMT
 - Standby: Muon, FPD
 - Full: CAL, ICD, LUMI

Time

- Check that the Calorimeter pedestal downloads are complete. CALMUO Shifter will need the CAL crates only to do the cal_prepare_for_run.

Time

- Start ACNET fast-time plots of the following devices:
 - Beam Losses and Luminosity: C:D0PHTL, C:D0AHTL, C:D0FLTL
 - Silicon Radiation Protection (Downstream Pbar Losses): C:D0BLDT, C:D0BLDI, C:D0BLDO, C:D0BLDB

- Visit Beams Division web page for current Tevatron information & to watch when proton bunches are about to be injected (“Proton load”)
 - Beams Status: <http://www-bd.fnal.gov/notifyervlet/www>
 - MCR e-log: <http://www-bd.fnal.gov/cgi-mcr/elog.pl>

- Turn up volume on Monitor 4 (above Luminosity console) in order to follow all the stages of Tevatron shot setup (Channel 13).

- Check that all disabled alarms in the Alarm Display are known to the detector shifters and/or experts. If not, send email to group leaders with list.

Note: Long term, disabled alarms should either be fixed or removed from the Significant Event System. Disabling should be a very short term solution (hours or a few days at the most).

Section 2 (While final proton bunches are loaded)

Time

- Ask the DAQ Shifter to reinitialize the Trigger Framework.

Time

- Switch to the current **global_CMT** trigger file & start a Non-Recording run as soon as final proton bunches are loaded. The trigger version should match that specified in the Run Plan. Load the “scraping” prescale set.

- Verify that DECTalk is working. Type from the command line:

d0cr_speak test (*‘setup d0online’ is required*)

Note: If you do not hear the word ‘test’ then check the volume on the speakers. If the volume is up, then power cycle the DECTalk box, located in the cabinet beneath the L2 console. You should hear a quick set up beeps and then ‘DECTalk version 2 is running’.

Section 3 (During ramping and scraping)

Time

- Start ACNET Lumberjack plotter (page D44) for:

- Beam Losses (*same as above*)

click on ‘Recall’; click on ‘D0 BLM INT’; modify ‘T1’; click on ‘T2 Now’; click on ‘C:D0BRUT’.

- Beam Intensity & Luminosity (*same devices as above*)

click on ‘Recall’; click on ‘D0 Store II’; modify ‘T1’; click on ‘T2 Now’; click on ‘C:D0FLTL’.

- Watch for HV trips in the LUMI, CAL and ICD systems. Reset any HV trips & record channel and cause (*shot setup, scraping*) in e-log. Trips are most common during Pbar injection & during scraping. If Lumi HV trips more than twice during shot setup, page the Lumi Expert.

- Check the SMT dose totals on ACNET page E16. Record the values in the e-log (*the values are usually less than 50rad*).

Note: If SMT BLM alarm sounds, record information from ACNET in e-log. If radiation abort is pulled, contact experts and follow the instructions on abort recovery procedure.

- Get ready to issue the *store_begin* <Store Number> command. The Store Number can be found on Channel 13 (Monitor 4). The DAQ Shifter should have an xterm open and ready to issue the comand.

Note: MCR may forget to call to announce the store number when scraping is finished. If you see on the Beams Division Notification page that the ‘Current State’ = “High Energy Physics” and ‘SDur’ is reset to 0 MINS, then call MCR to confirm we are in a store, and verify the Store Number.

Section 4 (After scraping – MCR should call to say ‘scraping complete’ & give *Store number*)

Time

- Time scraping ended (when MCR called).
- Initial instantaneous luminosity as seen in ACNET page C65, C:D0FLTL (in E30) _____
- Record the Halo Rates in kHz (ACNET page C65):
 - C: D0PHTL Proton halo _____ [< 60 kHz]
 - C: D0AHTL Pbar halo _____ [< 5 kHz]

Note: If losses are above limits, call MCR x3721. However, do **NOT** delay issuing the “store_begin” command and physics data taking if the Proton (Pbar) Halo < 80 (7) kHz.

Time

- Ask DAQ Shifter to issue the *store_begin* <Store Number> command. Verify the store number is correct once it shows up at the top of *Coormon*.

- Direct the SMT & CALMUO Shifters to bring their high voltage to full on the SMT & Muon detectors. This should take less than three minutes. Ask the SMT & CALMUO shifters to speak up when the HV is fully ramped.

- While SMT & Muon HV is ramping, ask the DAQ Shifter to stop the non-recorded run, and then turn **Recording ON**. Choose the appropriate prescale set according to the Run Plan. The DAQ Shifter should click on “start” in taker, fill out the taker dialogue window and then wait. The run does not begin until the DAQ Shifter clicks on “OK”.

- Turn down volume on Monitor 4 (*above Luminosity console*). The constant beeping means that pbar stacking has resumed.

- Verify again that all Luminosity HV channels are at full with no trips.

- Verify that SMT & Muon HV are at full with no trips.

Time

- Start Physics run. Proceed to Run Checklists.

Time

- Page the On-Call FPD Expert, who should come to insert the FPD Roman Pots.

- Continue monitoring ACNET plots of detector, Tevatron and SMT radiation. The integrated doses should have been reset by MCR.

Section 5 (*Preparation for the end of store*)

- If the store ends prematurely, ask the DAQ Shifter to stop the current run. Then ask the DAQ Shifter to issue the '*store_end*' command. Confirm that 'Not in Store' is seen at the top of *Coormon*. HV and Roman Pots should be adjusted as described in **Section 6**. Then skip to **Section 8**.

OR

- MCR has called to announce the beam will be dumped shortly. The MCR is supposed to call the Shift Captain 15 minutes before store termination.

OR

- MCR has called to announce the Tevatron will begin destructive beam studies. The MCR is supposed to give D0 a 15 minute warning. Consult with Run Coordinator if it is not clear the studies will be destructive.

Section 6 (*Transition to non-beam conditions*)

Time

- 15 minutes before end of store, put FPD HV to standby and return the pots home. Follow the instructions given in the green section of the FPD run checklist, located in the FPD checklist folder near the FPD console.

Time

- End global run no more than FIVE minutes before the beam studies begin or the store is expected to be terminated.

Time

- Ask the detector shifters to adjust HV (will take about 3 minutes):
 - SMT (Off) Muon (Standby)

Note: Luminosity, Calorimeter and ICD HV remain at 100%.

Section 7 (*End of Store*)

Time

- As soon as the HV is adjusted & FPD is in standby, ask the DAQ Shifter to issue the '*store_end*' command. Confirm that 'Not in Store' is seen at the top of *Coormon*. Call the MCR (x3721) and inform them that D0 is ready for the store to be dumped. They are waiting for your confirmation.

Section 8 (*Controlled Access or Long Period without physics quality beam*)

Time

- Call MCR to let them know our magnets are being turned off.

- Ask Operations Tech to ramp down & lock-out the magnets. This takes about 20 minutes. Lower Lumi HV to 70%. Confirm that the *V_{set}* values are at 70% of the *V_{max}* values.