



Detector Support Group

Weekly Report, 2017-07-26

Status

Solenoid

- 1756-EWEB PLC module configured to Solenoid PLC program, for time synchronization between Solenoid PLC controls and JLab time.
- To solve the issue of the inability to change the DNS server's address on the three Cryo-con units, the firmware of the units was updated.

RICH

- Features added to Hardware Interlock system:
 - * Signal averaging to user interface.
 - * Programming to monitor state of HV and LV override switches.
 - * +5V power supply monitoring.
- Larger holes drilled into spherical mirror support frame.
 - * Eight existing holes used to fasten anchors that attach support frame to detector shell were too small for the required M5 bolts.
- Hoist rings received for front panel lifts.

FT

- Three HV cables modified to include pins to enable interlocks.
 - * Pin-outs 79 and 80 on card front panel needed to be shorted to each other to enable interlocks. HV cable did not have pins 79 and 80.

HDice

- SubVIs created and added to NMR program to read LHe temperature and LHe liquid level from sensors.

MVT

- Relief valves ordered to replace leaking valves.

GAS Systems

- Mixing code written for **MVT/FT**.
 - * Barrel Vertex Tracker and Forward Tagger (10% C₄F₁₀, 90% Argon)
 - * Forward Vertex Tracker (10% C₄F₁₀, 10% CF₄, 80% Argon)

Hall D

- On 7/25/17 CDC repairs completed.
 - * Pre-Amp cards were replaced and tested.
 - * Wire routing was reorganized to decrease stress on cabling.



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Antonioli, Mary Ann

Absent

Arslan, Sahin

Absent

Bonneau, Peter

Absent

Campero, Pablo

Solenoid

- Investigated procedures to perform calibrations of the Linear Variable Differential Transformers LVC-4000, to fix problems with Solenoid electric valves.
 - ★ EV8611CD and EV8611 presented negative values when fully closed.
- Valves displayed wrong colors in EPICS. Did not turn red when valves are fully closed.
- Configured 1756-EWEB PLC module to Solenoid PLC program.

- Monitored and analyzed Logbook entries and EPICs screens daily.
 - ★ On 7/25 CDC repairs were completed. Pre-Amp cards were replaced and tested. The wire routing was reorganized and split to decrease tension on the CDC cabling.

- Corrected Instrumentation and Controls Solenoid Power-Up DSG note with Amrit, Tyler and Amanda.

Eng, Brian

- Ordered new relief valves for **MVT** to replace leaking valves, still in procurement.
- Tested and evaluated Java Calibration Suite for **SVT** gain scans.
 - ★ Issues are only cosmetic so far, such as incorrect colors and messages not displayed properly. Need to run it when the **SVT** is powered.
- Received 3D gas system test prints for **RICH**.

Solenoid

- Troubleshooting problem with SST Cernox.
 - ★ cRIO did not have serial number, which meant temperature was incorrect.
 - ★ Worked fine after reverting wiring: <https://logbooks.jlab.org/entry/3479433>
- Upgraded 3 Cryo-con units to latest firmware with Tyler:
<https://logbooks.jlab.org/entry/3479488>
- Ordered spare Cryo-con unit since previous spare was used.
- Updated magnet documentation regarding solenoid networking:
<https://clasweb.jlab.org/torus/>



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Hoebel, Amanda

FT

- Modified three HV cables to include pins to enable interlocks.
 - * Pin-outs 79 and 80 on card front panel needed to be shorted to each other in order to enable interlocks. HV cable did not have pins 79 and 80.
 - * Added pins in holes 79 and 80, with Tyler, using jumper pins fabricated by Mindy.

HDICE

- Swapped GPIB card for GPIB-to-USB converter previously used for RICH mirror measurements.
 - * NMR program would not read field values from power supply using card.
 - * GPIB-to-USB converter fixed problem.
- Created subVIs in LabVIEW to read LHe temperature and LHe liquid level from sensors.
 - * Previous version of program supposedly read temperature and liquid level. The version upgraded by DSG could not read sensors.
 - * New subVIs had to be written to read values. Values are read by program and saved in file.
- Monitored EPICS and logbook.
 - * On 07/25/17, CDC wire routing was reorganized to decrease tension on cabling and to allow for simplified repairs in the future.
- Created summary page for weekly report.

Jacobs, George

- Discussed front panel cart designs for **RICH** lifts with T. Sandro.
- Received Hoist rings for front panel lifts.
- Lift plans for RICH are in progress.

GAS Systems

- Continuing discussions with DA, Matt M, about MVT gas mixing system.
- Meeting and discussions with Todd Averett, W&M, about C4F10 gas filling and recovery.
- Updated MVT gas mixing system P&I and components spreadsheet and added document control number.
- Created LTCC-SingleSector-piping.pdf.
- Updated LTCC-single-sector-controls-P&I diagram.
- Produced LTCC Single Sector Test Run Overview.

Leffel, Mindy

RICH

- Worked with Tyler on laser test stand.
 - * Setup and ran calibrations and mirror test runs.



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- Completed modifications to cRIO chassis.
 - ★ Added 20 terminal blocks.
 - ★ Terminated and connected new cables.
- Continued working on HTSB temperature jumpers.
- Worked with Sandro and Tyler drilling larger holes in the carbon fiber mirror support.

Lemon, Tyler

- Updated all three Cryo-con units for **solenoid** from firmware version 1.25 to 2.10 with Brian.
 - ★ Cryo-con units updated to resolve issue where DNS server could not be changed.

RICH

- Added features to Hardware Interlock system.
 - ★ Added signal averaging to UI.
 - ★ Added programming to monitor state of HV and LV override switches.
 - Override switches allow cRIO to go offline without crashing HV/LV.
 - ★ Added +5V power supply monitoring.
 - +5V power supply used to power humidity sensors and to determine state of override switches.
 - Only gives warning; does not turn HV/LV off if +5V power supply is not working correctly.
- Drilled bigger holes into spherical mirror support frame with Mindy and Sandro.
 - ★ Eight existing holes used to fasten anchors that attach support frame to detector shell were too small for the required M5 bolts.
 - ★ Dremel tool used to make holes big enough for the M5 bolts.
- Wrote status report talk for RICH project for presentation in DSG weekly meeting.

McMullen, Marc

MVT

- Wrote MVT/FT gas mixing code. There will be two mixtures:
 - ★ Barrel Vertex Tracker and Forward Tagger (10% C₄F₁₀ in a balance of Argon)
 - ★ Forward Vertex Tracker (10% C₄F₁₀ and 10% CF₄ in a balance of Argon)

RICH

- Reviewed the gas distribution scheme for the RICH detector.
- Held a meeting with Tyler, INFN, and the RICH Pressure Systems DA to verify the internal gas distribution scheme was in compliance.
- Revised RICH Mirror and Electronics Installation OSP to include requirements for Pressure Systems Awareness, Gas operations procedure, and gas distribution documents.
- Researched hardware for Stiffening Tool with Brian. Hardware has been converted from Metric Standard Rating (10.9) to Imperial Standard rating (grade 8).