



Detector Support Group

Weekly Report, 2017-11-22

Status

RICH

- Installation preparation of electronic panel:
 - ★ Horizontal bar of stiffening tool removed, giving more clearance between RICH shell and assembly structure for electronic panel installation.
 - ★ Winch rope removed from rigging used to rotate detector shell to vertical.
 - Winch rope would block path electronic panel needs to take if not moved.
 - ★ Test lift of electronic panel performed to determine if panel was balanced and its center of mass was in plane of electronics.
 - Lifted panel only a few inches until clear of its support.
- Electronic panel installed on detector shell.
 - ★ Electronic panel lifted over assembly structure and lowered into place on detector shell.
 - ★ Support frame of electronic panel and stiffening tool prevented panel from being able to be placed directly on shell.
 - Used threaded rods to assist in dropping electronic panel the last few inches.



Tyler and Brian lifting E-panel with gantry crane.



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- Detector rotated from vertical to horizontal after installation of electronic panel.
- Portion of stiffening tool that prevented installation of exit window removed.
- Installed exit window on RICH shell.
- Installed and debugged two cables between cRIO and detector for nitrogen volume interlock sensors.
 - ★ Incorrect humidity readings debugged after installation.
- All interlock systems' humidity sensor calibrations updated.
 - ★ LabVIEW program updated to use manufacturer-provided calibration constants for each sensor.
- CS-Studio screen for RICH interlock system updated to show sensor values and location on a sketch of RICH for nitrogen volume.
- DIN rails and cable tray cut for modification of second RICH cRIO chassis for measuring humidity and temperature.
- Replacement HTSB cable fabricated.

ET

- Status read-back in chiller interlock cable debugged.
 - ★ Connection modified for the signal cable at its SubD-15 male connector that connects the cRIO modules with the Contact module.
 - Swapped pin location from its position of pinouts 4 and 5 to pinouts 4 and 12.
 - ★ Chiller status read-back verified by measuring +5 V when chiller is ON and 0 V when chiller trips.

MVT

- Argon purge control added for each mix.
- Three-wire RTD installed to measure the temperature of the gas pad.
- MVT added to main GUI.
- List of EPICS PVs generated to be added to the IOC and MYA.
 - ★ Added to space frame cRIO and aliased with shared variables.

Gas Systems

- Two LN₂ dewars set up in parallel for RICH in EEL.
- Manifold, fittings, and valves ordered for RICH N₂ supply changes.
- Heat tape ordered for MVT isobutane supply.



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Antonioli, Mary Ann

- Drew the **RICH** air cooling system, current and proposed upgrade, in Visio.
- Fabricated one **RICH** sensor cable (portion between detector and electronics panel), with Mindy.
- Made first edit of Pablo's Solenoid cooldown Note.
 - ★ Formatted tables.
- Discussed and explained cRIO test program with Pablo.
- Sorted trash from EEL125 in CMSA area, with Pablo, Tyler, Amanda, and Mindy.

Bonneau, Peter

Absent

Campero, Pablo

RICH

- Collaborated with Tyler with the debugging of incorrect readout for humidity sensor on the RICH E-panel (negative values).
 - ★ Set up computer to run RICH Hardware Interlock LabVIEW program and be able to monitor input row data from the humidity sensor.
 - ★ Verified wired connection on the ADC input cRIO module.
 - Measured input voltage on the ADC module and compared with value read in the program. Both values were consistent. (~ 1.08 V)
 - Found ground connection out of place, moved to appropriate pin to solve the issue.
 - Verified correct humidity readout (~ 4%) by comparing the voltage measured with the humidity assigned in the calibration table running in the LabVIEW program.
- Collaborated with the RICH E-panel installation

FT

- Debugged Chiller status read back given by its Contact module.
 - ★ Modified connection for the signal cable at its SubD-15 male connector that connects the cRIO modules with the Contact module.
 - Swapped pin location from its position 4 to 12 (+5V dc).
 - ★ Problem solved, verified chiller status read back by measuring +5 V when chiller is ON and 0 V when chiller trips.

Worked on cRIO Test Station

- ★ Debugged network issues for the "dsg9081" NI-cRIO controller.
 - Assigned new IP Address to be connected on the HallB-Subnet
 - Found issue with the new IP address assigned, problems not solve.
- ★ Configured and implemented cRIO-9076 to be use in the test station
 - Connected cRIO on the Hall-B subnet on EEL231 network switch.



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- Installed AIO modules and Relay modules.
- Modified LabVIEW project to run it in “dsgtscrio” cRIO controller.
- Solved inconsistencies with Sub-VI locations showed with Test Station LabVIEW program, which did not allow run the program.

Eng, Brian

MVT

- Added Ar purge control for each mix, sets MFCs gas to Ar or default gas.
- Installed 3-wire RTD to measure the temperature of the gas pad, used one of the spare wires.
- Added MVT to main GUI, will be deployed to the gas shed cRIO once HTCC has been migrated from spare cRIO.
- Generated list of EPICS PVs to be added to IOC & Mya, added them to space frame cRIO and aliased with shared variables.

RICH

- Assembled unistrut frame on transmission jack from PolTarg group to be used as the lifter for the frontal panel installation.
- Did a test lift of the e-panel and removed one of the parts of the stiffening tool to make more room for its installation.
- Installed e-panel in shell.
- Located more unistrut for to assemble smaller dry tent.
- Rotated RICH back to horizontal position, partially removed stiffening tool to install exit window.
- Swapped LN2 dewars with Marc.

HTCC

- EPICS PVs added to space frame cRIO in preparation for removal of spare cRIO that was intended only for used in the TEDF (still need to connect cables before cRIO can be removed).
- Moved svtsystem1 to EEL/125 and connected to larger UPS.

Hoebel, Amanda

DC

- Discovered TCU data did not save whole date range specified.
 - * Specified date of 2017-10-25 to 2017-11-08, received 2017-11-03 to 2017-11-08.

RICH

- Assisted in rotation of detector.

ET

- Chiller interlock cable modified to receive +5V signal.
 - * Pinouts changed from reading voltage across 4 and 5 to reading across 4 and 12, as pin 12 is common for the switch.
 - * Verified +5V readback in cRIO.



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- Created and edited weekly report.
- Created and presented report on RICH differential pressure calculation.

Jacobs, George

GAS Systems

- Set up 2 LN2 dewars in parallel for RICH in EEL.
- Discussions about a back-up N2 gas supply for RICH.
- Ordered manifold, fittings, and valves for RICH N2 supply changes.
- Ordered heat tape for MVT isobutane supply.

HALLB

- Ordered CO2 for Hall B DC and HTCC.
- Ordered tape for sealing the RICH.
- Submitted FML work request for electrical hook up on MVT gas heater blanket on target gas pad.
- Crane ops for RICH.

Leffel, Mindy

HTCC

- Replaced damaged BNC connector in hall B.

RICH

- Started modification of second RICH cRIO chassis for measuring humidity and temperature.
 - ★ Cut DIN rails and cable tray and gathered hardware.
- Contributed to installation of electronics panel.
- HTSB cables.
 - ★ Worked with Mary Ann to complete replacement cable.
 - ★ Cut and attached heat shrink to last long bundle with Mary Ann and Pablo.
- Worked with Amanda, Mary Ann, Pablo, and Tyler to transport, sort, and dispose of trash from room 125.

Lemon, Tyler

RICH

- Prepared for installation of electronic panel.
 - ★ Removed horizontal bar of stiffening tool, giving more clearance between RICH shell and assembly structure for electronic panel installation.
 - ★ Removed winch rope from rigging used to rotate detector shell to vertical.
 - Winch rope would block path electronic panel needs to take if not moved.
 - ★ Performed test lift of electronic panel to determine if panel was balanced and its center of mass was in plane of electronics.
 - Lifted panel only a few inches until clear of its support.



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- Installed electronic panel on detector shell.
 - * Electronic panel lifted over assembly structure and lowered into place on detector shell.
 - * Support frame of electronic panel and stiffening tool prevented panel from being able to be placed directly on shell.
 - Used threaded rods to assist in dropping electronic panel the last few inches.
- Rotated RICH from vertical to horizontal after installation of electronic panel.
- Removed portion of stiffening tool that prevented installation of exit window.
- Installed exit window on RICH shell.
- Installed and debugged two cables between cRIO and RICH for nitrogen volume interlock sensors.
 - * Debugged incorrect humidity readings with Pablo after installation.
- Updated all interlock systems' humidity sensor calibrations.
 - * LabVIEW program updated to use manufacturer-provided calibration constants for each sensor.
- Updated CS-Studio screen for RICH interlock system to show sensor values and location on a sketch of RICH for nitrogen volume.
 - * Electronic panel sensor locations will be added when location is finalized by INFN collaborators.
- Sorted trash from EEL 125 in CMSA with Mindy, Mary Ann, Amanda, and Pablo.

McMullen, Marc

RICH

- Completed insertion of the E-panel, rotation to the 0 degree position, and installation of the exit panel.
- Contacted the design authority on the modification for the valve panel. The valve panel will have oil coalescing filters added to the supply side of both the N2 and compressed air circuits.
 - * Changed the P&I diagram for the compressed air system to include the manifolds, per the DA's direction.
- Ordered 2 dewar for the N2 system. 2 more will be ordered on 11/22.
- Worked with Brian on assembling a lift to install the front panels with the RICH in the 0 degree position.
- Discussed front panel installation change with INFN and DSG management.
 - * Wrote THA for the installation process.

Gas System

- Completed cable run for the HTCC controls/instrumentation cabling.
 - * Cables will be terminated by 11/22.