Maintenance: status and plans
Maintenance: status and plans

Outline

- LV
- HV
- Hardware Maintenance and Commissioning
- Online System
Low-Voltage Repairs

An extraction is an "expensive" resource. They are made in commitment with the amount of efficiency that recovered and the schedule.

Future repairs:

**W+1/RB4-/S10: NTC**
Run2 Eff: 98% for RB4-_BW, 84% - RB4-_FW

**W+1/RB2in/S04: NTC**
- Run2 Eff: 68% for RB2in-BW, 88% RB2n-FW, 89% for RB2in-MID
- Replacing the DB didn't recovered the chamber. Problem in the I2C line to the backward partition.

**RE-2/R3/S04: NTC**
Run2 Eff: A - > 90%; B - >95%; C - >95%;

**RE-3/R3/S19**
Connector C1 was silent. FEB replaced. The extracted FEB needs to be replaced again for a correct time code one.

Documentation: [RPC LS2 LV Maintenance Twiki](#)
HV Maintenance

W-2:
Far: Done before COVID
Near: 17/Aug - 09/Oct

W-1, W0 (Minus):
Done before COVID

W+1, W0 (Positive):
Done before COVID

W+2:
17/Aug - 09/Oct
Maintenance: status and plans

HV Maintenance

RE-2: 10/Jul - 13/Aug

W-2: Far: Done before COVID
    Near: 17/Aug - 09/Oct

W-1, W0 (Minus): Done before COVID

W+1, W0 (Positive): Done before COVID

W+2: 17/Aug - 09/Oct

RE+3: 07/Jul - 17/Jul

RE+3: Done before COVID and validated last week.

RE-3: 21/Aug - 08/Oct

RE-2:

W-2:

Far: Done before COVID
Near: 17/Aug - 09/Oct

W-1, W0 (Minus):
Done before COVID

W+1, W0 (Positive):
Done before COVID

W+2:
17/Aug - 09/Oct

RE+3:

Done before COVID and validated last week.

RE+3:

RE-2:

W-2:

Far: Done before COVID
Near: 17/Aug - 09/Oct

W-1, W0 (Minus):
Done before COVID

W+1, W0 (Positive):
Done before COVID

W+2:
17/Aug - 09/Oct

RE+3:

Done before COVID and validated last week.

RE+3:

RE-2:

W-2:

Far: Done before COVID
Near: 17/Aug - 09/Oct

W-1, W0 (Minus):
Done before COVID

W+1, W0 (Positive):
Done before COVID

W+2:
17/Aug - 09/Oct

RE+3:

Done before COVID and validated last week.

RE+3:
HV Maintenance

Slow Conditioning:
- YB-: 6 conds.
- YB+: 2 conds.
- Endcaps: To be done.
- Strategy: Change the HV connectivity (SG, DG) of the tripping chambers and chamber that were found in SG.

These problems are the convolution of the results from Conditionings + MWGR + private validations + Run2 HV List.

- Green: Fixed - Currents brought back to low values.
- Yellow: Cleared - Currents are still high. The chamber is still tripping, but the source of the problem is understood and it is fixable.
  - Problem with boards, USC -- PP line, chamber that are improving with time...
- Red: Not OK - chambers in which the HV problem remains, for some reasons.
  - Not accessible, not enough slack for the reparation, full layer with problems, very high and linear currents.
- Blue: TBD (Investigation To Be Done) - No interventions + commissioning, yet

Details: RPC LS2 HV Reparations
HV Maintenance
Commissioning and Hardware Maintenance
Maintenance: status and plans

Commissioning

Short Term

RPC have 2 requests for commissioning activities:

1. **HV Conditioning in a larger portion of the system, especially the Endcap.**
   - So far, the endcap wasn't fully validated for HV currents.
   - This would allows us to check the currents level in the endcap and ensure that, in case of problems, nothing is missed.
   - **For this one, at least two days are required for a safe procedure.**
   - **Schedule: Next week.**

2. **Power ON the LV on part of our system in order to allows to test:**
   - VME PCs with hardware.
   - Confirm and investigate optical link problems we had with TwinMux, during MWGR#1.
   - **This one is fine for shifters during working hours.**
   - **Schedule: Next week.**

Both are on hold, waiting RUN coord. green light.

Long Term

- **Besides, RE+3/RE+2.**
- **From september, RPC will restart YB+ campaigns for:**
  - remaining gas leak repairs.
  - remaining standard maintenance (HV/LV).
- **Commissioning of YB+: until first week of November/2020.**
  - HV/LV, connectivity, gas.
  - Remaining Endcap commissioning will happen, also along this period.
- Ensure hardware availability, in order to take profit, as much as possible, of future global runs (**next one: Jul/2020**).
- Plans for the gas mixture: keep it up to October/2020 (or until commissioning and test on Recuperation system completed). Return: not before middle/2021 (in preparation for datataking).

Cleared cases:
- Some time should be devoted to follow-up them.
- 8 cases.
Hardware Maintenance

- RE chambers are ready for HV conditioning upon increasing gas flow and safety restrictions.
  - We need to follow the critical path on the negative end and the cabling work on the positive.
  - Safety restrictions mean that we can power only when people are not working physically.

- 2 LBB boxes in X4S51 need cabling. YEN3_Far CCU ring cannot be closed before finishing this cabling.

- 2 TC crates in S1F02 should be repaired. Damaged due to a water leak.
- Refurbishment of these crates demands non-CERN based personpower.
  - Hard to manage with COVID restrictions.
  - Schedule: along this year.
Online Systems
1. **New VME PCs commissioning - Software only.**
   - VME PCs were replaced right before the COVID closure.
   - Done.

2. **VME PCs commissioning - With hardware.**
   - Should be done after we get green light to power UXC hardware.

3. **TC10:**
   - During MWGR#1, one board wasn’t configuring. Tried to reload the firmware, but no success.
   - Will investigate this, again, when the system is back. Low priority, for now.

4. **RPC → TwinMux Link problem.**
   - Another problem spotted on MWGR#1.
   - Proposed action: power/reload firmware of TwinMux after RPC in ON and configured.
   - DT is aware, and agreed to do it next week, as soon as we can power.
   - TwinMux now is ON. It’s just a matter of power our system, including all 5 DAQ/Control racks (we need the splitters).

5. **XDAQ upgrade.**
   - For the next GRs all subsystems should move to XDAQ15 (C++11 - Linux Centos7 based). The modifications needed in our software are ready.
   - After all the items above, we will do the migration and take a hardware test.
Backup