



RICH Upgrade Infrastructure

Session III

Antonis Papanestis
RAL - STFC

- Dismantling of old detectors
- Installation:
 - New RICH1
 - New photon detectors for RICH2
- Required infrastructure
- Radiation protection
- DSS

Dismantling RICH1

- The big, difficult to move magnetic shielding stays in place.
 - Remove and store the side doors
- Requires specialised toolkits, mostly at hand.
- Requires the use of the crane for practically all operations.
 - Will take ~25 days.
- The beam pipe will have to be removed before the gas enclosure
- May require changes to the floor around RICH1
- Space rather limited, access to VELO and TT very difficult.
- “We know how to do it”.

Dismantling RICH2

- Only the photon detectors will need replacement.
- Requires crane.
- Current access tower not ideal.
 - May remove the top floor.
- Not clear if we want/can re-align the mirrors
 - Would require removal of front and back windows.
- Keep vibrations to a minimum
 - STAY AWAY!

Installing new RICH1

- Drill holes in magnetic shielding (RP).
- Coordination with beam-pipe.
- Will require specialised toolkits and use of the crane
 - Expect to take ~50 days.
 - Can the reach of the crane be improved?
- Modification to the RICH1 floor.
- Cable trays on wall, currently very tight. Should not have any more on walls or floor.
- If we continue to access via the PM lift, the door to the cryogenics area needs to be widened.
- Space very restricted.
- Semi-permanent platform to allow easy access to top detector box
- Should be able to service detector during TS with beam pipe under vacuum

The “shelf”

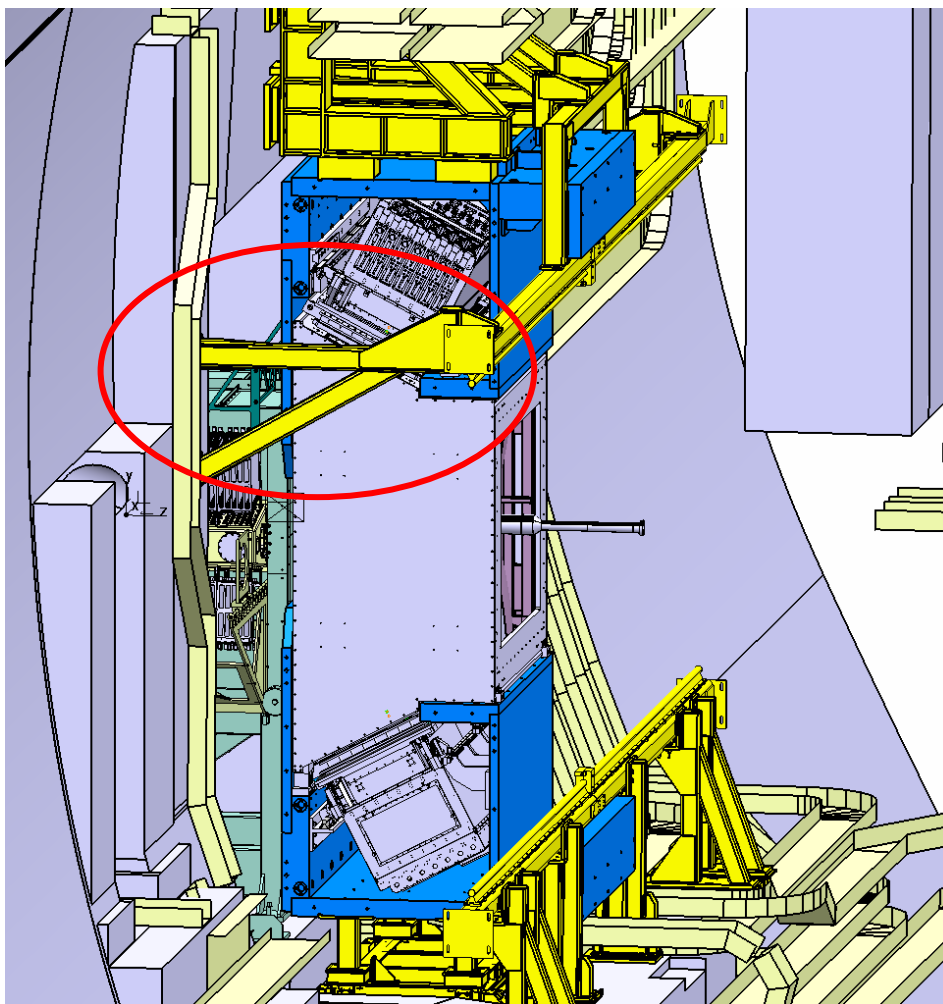
The magnetic shielding will be slightly modified.

The shelf is screwed on and can be removed.



The TT bar

- Complicates maintenance
- Currently requires working under an elevated load (against safety recommendations)
- Would be helpful if it was removed



Installing new RICH2

- Only photon detectors.
- Will need the big crane.
- Plan for easy access for maintenance during TS
 - May require support structures.
 - Can we use the empty space behind RICH2?
- Possible temporary or permanent modification of RICH2 tower.
 - Avoid “working at height” rules.
- New patch panel.
- Same as before...
 - KEEP AWAY!!!

Radiation protection

- No plans for destructive work during dismantling.
- New installation of RICH1 will require new holes in magnetic shielding.
- Current plan is to provide a new “shelf” instead of modifying existing one.
- HPDs and electronics will have some level of activation.
 - We will do what Gloria tells us to do.

Detector Safety System

- Will follow similar design and parameters as the current system.
- A few temperature sensors.
- A number of digital inputs (thermo-switches).
 - May need a few extra long distance cables.
- Monitoring of cooling plant.
- Similar actions (cut power to racks).