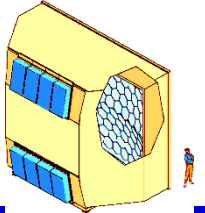
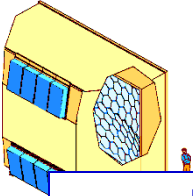


RICH

Activity and tentative planning




- ***STATUS OF MAINTENNACE ACTIVITY***
- ***TENTATIVE PLANNING***




REMINDER

■ Last RICH report at TB meetings: F. Tassarotto, 8/7/2019



RICH report



Fulvio Tassarotto (I.N.F.N. – Trieste)

RICH tuning and resolution study

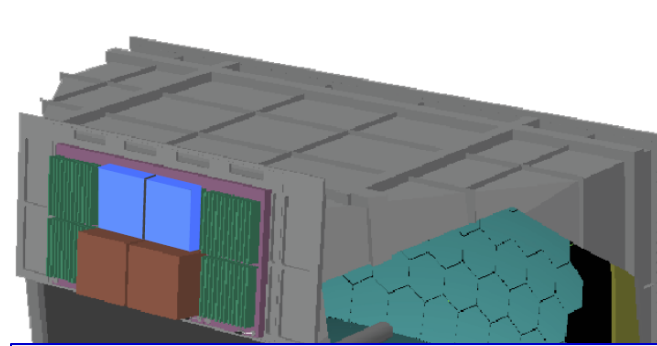
Squared mass study

The gas radiator and gas system

The MAPMT maintenance plan

Hybrid PD maintenance

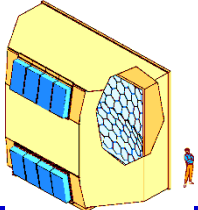
MWPC refurbishing



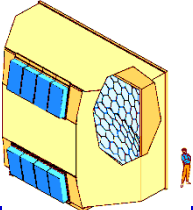
TODAY:

Status of activities with reference to the charge illustrated in these sections of the previous report

CERN, 08/07/2019 - COMPASS Technical Board Meeting Fulvio TESSAROTTO 1



RADIATOR GAS



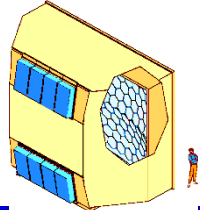
THE GAS HARDWARE

- ***refurbishing of the monochromator system***
 - ***already completed by July 2019***

- ***maintenance and modification of the pre-cleaning system***
 - ***now completed***

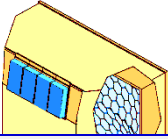
- ***Main compressors, repair and maintenance at Haug***
 - ***now completed***

- ***Fast circulation turbo pump***
 - ***Maintenance to be performed on site***
 - ***to be organize, when possible***



THE GAS HARDWARE, cont.

- **Consolidation of the radiator gas system**
 - major interventions, partially requiring the assistance of Stephane Berry
 - second pressure gauge
 - second controller
 - new connections to the controllers
 - split of the main input line with commuting valves
 - second pneumatic valve to be installed
 - 4 man-weeks needed (technical personnel) + availability Berry
 - **to be organized and done (when possible)**



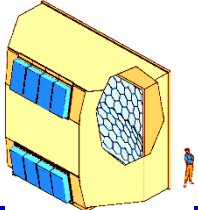
THE RADIATOR GAS

- **630 kg of C4f10 from F2 Chemicals**
 - **Purchasing now procedure completed (Oct 2019)**
 - **First delivery (~ 1/3) expected in April**
 - **Second and final delivery expected by Summer**

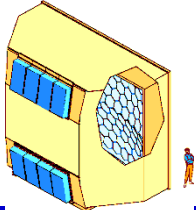
- **~ 500 kg of C4F10 by 3 M (old batch, good quality) from LHCb (?)**
 - **contacts with LHCb ongoing**
 - **For this purpose, dedicated measurements of the transparency of our “bad” sample in the visible domain performed (2017) and report written**
 - **Upon LHCb request, a report about the characterization of F2 Chemical gas now written**
 - **Waiting for a (positive) feedback from LHCb**

- **C4F10 cleaning**
 - **Time estimate: 3-4 months continuous working at CERN**
 - **To be started when possible**

- **Fluorocarbon training course**
 - **Attended by SD, SL, FT in February 2020**



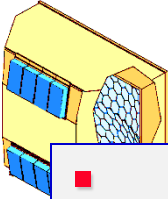
PHOTON DETECTORS



COOLING SYSTEM

- **Replacement of the pumps (exhausted)**
 - **Now completed**
- **Construction and installation of the new distribution manifolds (old ones were leaking)**
 - **Now completed**
- **Replacement of the plastic pipes from the manifolds to the individual cooling plates**
 - **3 man-weeks at CERN (technical personnel)**
 - **to be done when possible**

**Needed for
DRY RUN**



PD READ-OUT

- **Deployment of the *new optical fibers* (all fiber set damaged)**
 - Partially already performed
 - 2 man-weeks still needed
 - **to be done when possible**

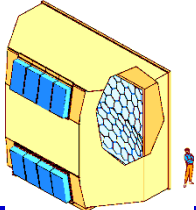
- **Replacement of the *LV power supply* for MAPMT r-o (old one: frequent failure rates)**
 - Work advanced
 - 1 man-week at CERN needed (Technical Personnel)
 - **to be done when possible**

- **Tests of the PD read-out systems**
 - LV PS replacement needed
 - Short tests also w/o cooling
 - Extensive test: chilled water required
 - Collaboration with Turin needed for MAPMTs
 - 2 man-weeks at CERN (1 unit of technical personnel)
 - **to be done when possible**

Needed for
DRY RUN

Needed for
DRY RUN

Needed for
DRY RUN

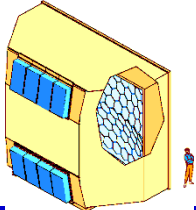


GASEOUS PDs

- Fix the HV connector of the grid plane of a MWPC
 - **Now done**
- Fix the r-o electronics of one of the Hybrid detectors
 - **To be done when possible**
- New HV PS of the MWPCs
 - Software preparation started
 - **To be completed when possible**
- New HV cabling of the MWPCs and installation of P, T sensors
 - **P, T sensors now ready** (to obtain stable MWPC gain)
 - 2 man-week of technical personnel
 - **to be completed when possible**

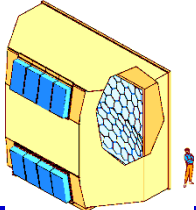
Better if implemented
Before the DRY RUN

Better if implemented
Before the DRY RUN



GASEOUS PDs, cont

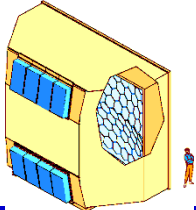
- **Validation of the new methane available at CERN**
 - Measurement of its UV transparency
 - Gas distribution system ready at 75% level
 - being built in Trieste, personnel forced at home
 - Control software of the gas system
 - Started, progress would require presence at Trieste lab, not possible
 - When system ready:
 - 1 man-week for installation at CERN (technical personnel)
 - 1 man-week for measurement at CERN
 - **All this when possible**



MAPMTs

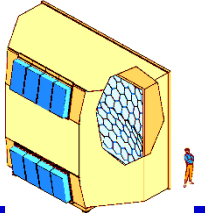
- **MAPMT replacements, if needed**
 - The need can be understood only after performing the r-o refurbishment
 - Hopefully, manpower already included in r-o refurbishing
 - **All this when possible**

**Better if idone
Before the DRY RUN**

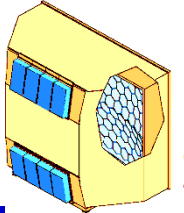


APPENDIX

- **Trieste contribution (mechanics) to H1 refurbishing**
 - Work discussed and planned with Mainz during last February
 - **Mechanical reinforcements to make H1 transportable installed**
 - Workflow stopped by the emergency
 - Still foreseen by Trieste: 2 man-weeks
 - **All this when possible (new schedules to be discussed with Mainz)**



- ***STATUS OF MAINTENNACE ACTIVITY***
- ***TENTATIVE PLANNING***



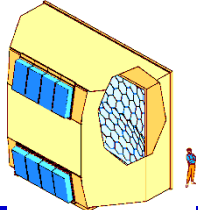
TO RESTART THE ACTIVITY AT FULL SPEED

2 ingredients both **NECESSARY**

- **Full access to CERN and to bld. 888 granted**
- **Traveling w/o restrictions granted to INFN personnel**
 - **physicists (included students and post docs)**
 - **technical personnel**

In the following, we assume as working hypothesis, that both conditions are there on 1 September

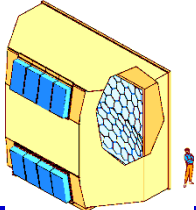
- **any later actuation of the 2 conditions corresponds to extra delay to be added to the estimations given in the following**



PREPARATION FOR DRY RUN

Here we assume a Dry Run in November

- Preparatory activity (mainly purchasing) on going
- If restarting of normal work conditions on 1 September
- **Available for the Dry Run:**
 - The whole read-out system of all the PDs
- **Tentatively available for the Dry Run:**
 - The new HV of the MWPC PDs (less critical item)



PREPARATION FOR THE 2020 RUN

If restarting of normal work conditions on 1 September

- **When RICH ready for data taking?**

The point is to compress a stopping period of 4.5 m in the minimum delay possible

- As much as possible of the preparatory work ongoing
- Maximum effort to keep the delay as short as possible
- A realistic estimation of the delay can only be provided when more input will become available