

# Alignment Installation in Barrel Wheels

- 1) Cables in Barrel Wheels
- 2) Components in Barrel Wheels: MABs, Z-bar, and PiConNet on MC
- 3) LV supply

# Cables in Barrel wheels (1)

Ready for installation on YB+1, YB+2: March (is it acceptable?)

Ready for installation on YB0: ??

What we need and where we are:

## 1) Cutting length for YB1 and YB2

- Enrique (w/ help from S. Bally) must provide final length Delivery: end of January YB2. Second week of February for YB1.

David has "measured on the wheel" the position/ length between Endcap electronic-boxes.

- Two/three weeks for connectorization (cables & laser o. fibers) & delivery to CERN

- Labels from S. Bally → Ready for installation end of February

- We assume: the cabling will be done by the same team as for the DT

## 2) Cutting length for YB0:

- Normal routing for barrel cables + Z-bar cables.

- Special MT routing from Tracker (Link) cables.

- Provisional cabling for the MT in YB0 for alignment (as well as YB-1,2) ? (to clarify!)

## Cables in Barrel wheels (2)

- 3) Barrel read-out o.fibers from racks to feet PP or USC:
  - We need to ask derogation to avoid feet PP
  - We prefer to have temporary solution for MT
- 4) Patch Panels:
  - Iron wheel pp/endcap-electronics/board-computing inside MAB volume: ready by March
  - Feet pp: not yet designed
- 5) Approval (from Fabio) of new request on crate space:
  - 1U in each wheel
  - 3U in YB0 (bottom far location)
- 6) Estimated time needed for alignment cables (from YE experience)
  - Total # of cables in barrel wheel < 60 grouped in 6 locations, YB+1,2 and 12 (6 + 6 z-bar) per side at YB0
  - Preparation+installation: 8h/wheel if done by experienced team (& same tooling)
  - Known incidents: tests of o.fibers (after working hours) & replacement if needed.

# Components in Barrel Wheels (1)

MABs: Ready for installation: March

Where we are and what we need:

## 1) MAB bench

- Mechanical parts (calibration plates, LED holders, etc..) are ready
- Survey network in January. Design is done

**NOTE: we need cherry picker/scissor lift at the ISR**

## 2) MAB "reparation"

- Auxiliary extension pieces for SU: not ready for the MT
- Z-cameras repair: end of January at the ISR, before MAB calibration

## 3) MAB assembly

- Cabling completed for the 36 units. Small MAB pp to be completed in January
- Video camera components: MT units are ready
- Install Link and Endcap components

## 4) MAB transport is ready

# Components in Barrel Wheels (2)

- Installation tasks:
  - MAB & PP/Electronic-boxes/board computer installation and connectorization
  - MAB installation and support plates Z adjustment
  - Local MAB PG
- Estimated installation sequence and needs:
  - Sequence flexible (follow the access of the wheels)
  - Estimated time:  
1 day per YB+1, YB+2, YB-1, YB-2 wheel and 2 days for YB0
  - Tolling: scissor lift and/or cherry picker
  - Personnel: Provided by the align group + SU availability

# Components in Barrel Wheels (3)

Z-bar: Not guaranteed that it will be ready for the MT

Plan of work:

1) Z-bar in YB0 (coil):

- CF bar design will start now (under Hubert's supervision)
- Fabrication beginning of January ? → ready by end of February?
- LED components are ready for assembly
- After assembly → Z-bar calibration: SU measurements (1 day)
  - special LED holder not ready

3) Preparatory work in the vacuum tank (if possible after January 20):

- Welding of extension profiles supports
- Welding plates with SU measurements

- Z-Bar installation: We still need to understand the logistics

# Components in Barrel Wheels (5)

## PiConNet

- 1) Ready for delivery to CERN by beginning of January
  - Units are ready. Now under programming and test
- 2) Check and prepare mechanical installation in the chambers at the ISR
  - Open the PADC and connect the PiConNet
  - Produce the fixation mechanics needed
  - Learn how to do it

The baseline agreement was to bypass the MC for LED control during the MT. If it can be reconsidered and use the MC for the operating chambers we can avoid several possible problems.

If not: we need to understand whether or not using the PiConNet we need to disconnect the DCS-5 cable for the chambers operating at the MT. This check can be done anytime at the ISR with an operating MC. If the check is needed we propose to do it during the chamber calibration campaign starting January 10.

# Components in Barrel Wheels (6)

- Installation in SX5

Scenario I (use of MC in operating chambers):

- Access to the HV side of the chambers in sectors 10,11 (only for chambers not used at the MT) with a cherry picker or equivalent
- Few hours per wheel on YB+1, YB0, YB-1, YB-2 whenever Alberto gives access to them (February?, March?)

Scenario II (do not use MC at all and we need to disconnect DCS-5):

- Access to the HV side of the chambers in sectors 10,11 (only for chambers not used at the MT) with a cherry picker or equivalent
- DT people to disconnect the MC
- Few hours per wheel on YB+2, YB+1, YB0, YB-1, YB-2 whenever Alberto gives access to them (February?, March?)



# LV Supply

- **What we ordered:**

- A1676A module (EASY-to-mainframe) 3 pcs
- AC-DC converter for 2 EASY crates 2 pcs
- EASY crate 3 pcs
- A3006 module (max +16V 6 channels, 90W/channel) 10 pcs

- We need ~30 channels on the endcap, 30 on the barrel. The intention is to put 2 EASY crates on the YB+2 integrated in the DT system (SY1527, connection to it, control). Endcap (1 EASY) is separate.