DT Installation Issues

CMS week,

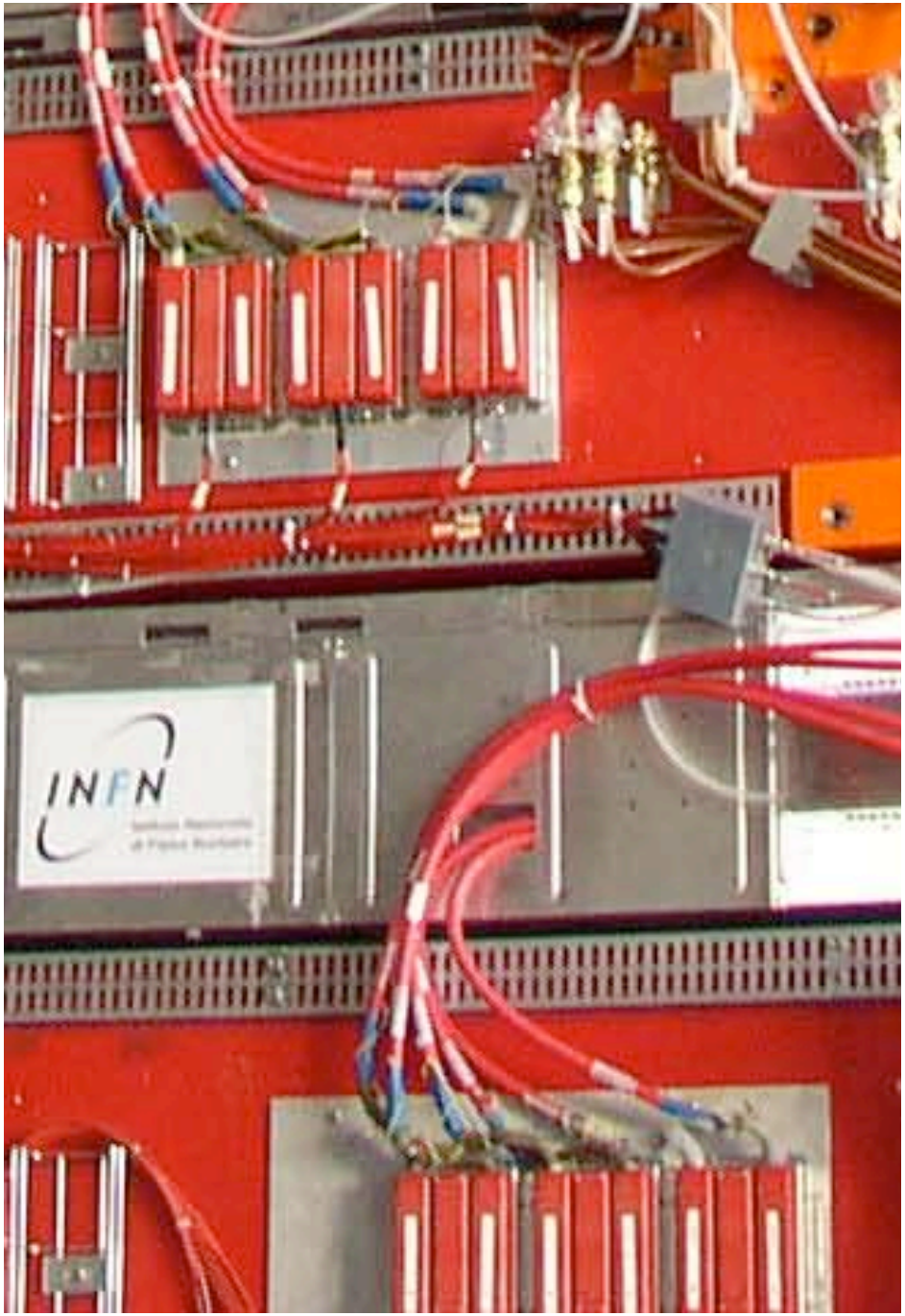
CERN March 15th 2005

A. Benvenuti

INFN Bologna

Hardware Status Update

- Second Cradle (MB4 Torino size) assembled. Pneumatic movements to be done in April then loading tests for TIS approval.
- Chamber rotator mounted on L3 scissor lift, minor modifications to be done in April. Overall height changed with respect to previous drawings,probably not enough clearance for installation under the cryostat in UX5.
- CIEMAT insertion tool to be commissioned (Carlos Burgos) after rails modification. Urgent, to be done before the next installation period. Second set for MB4 cradle ordered ????
- Additional supports for DT+RPC storage at ISR to be delivered this week. Plans for support rails at ISR under way (Massimo)
- Test installation in horizontal sectors (1 or 7) to be done during the next installation period.
- Supports for HV pp and LV patch connectors for MB4/4, MB4/10 to be finalized (Mimmo)
- Orders for: Support plates, flex rails, radial cable trays… (Mimmo)

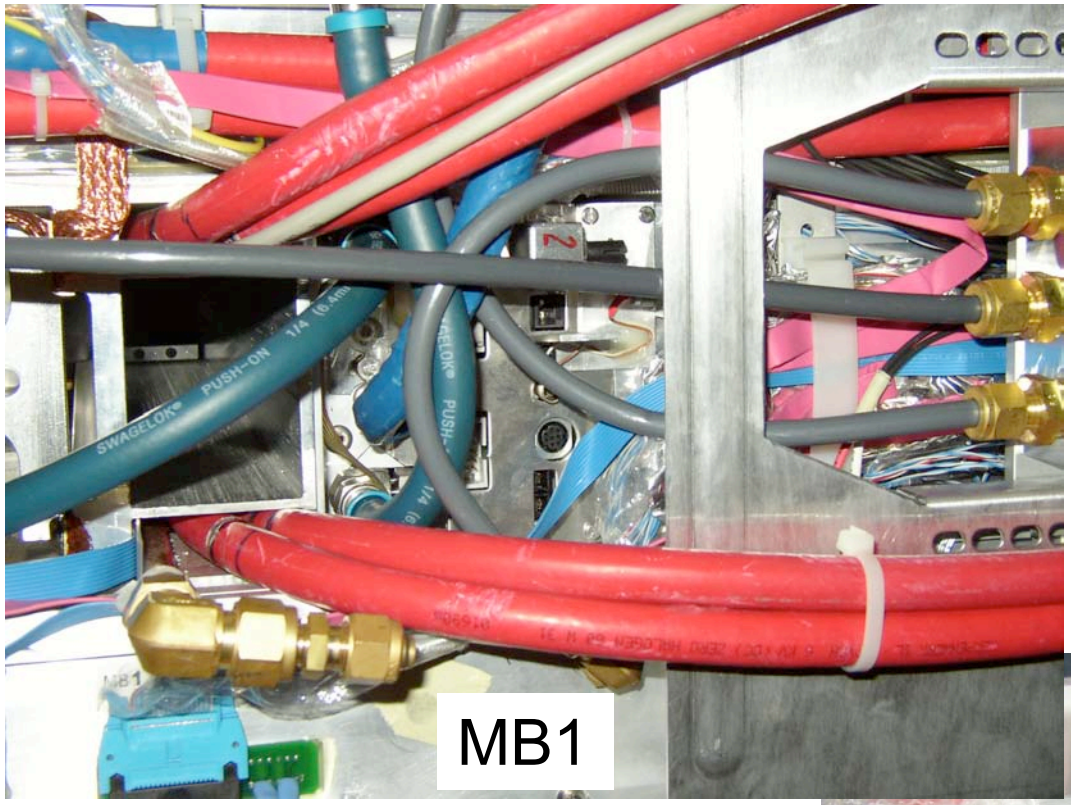


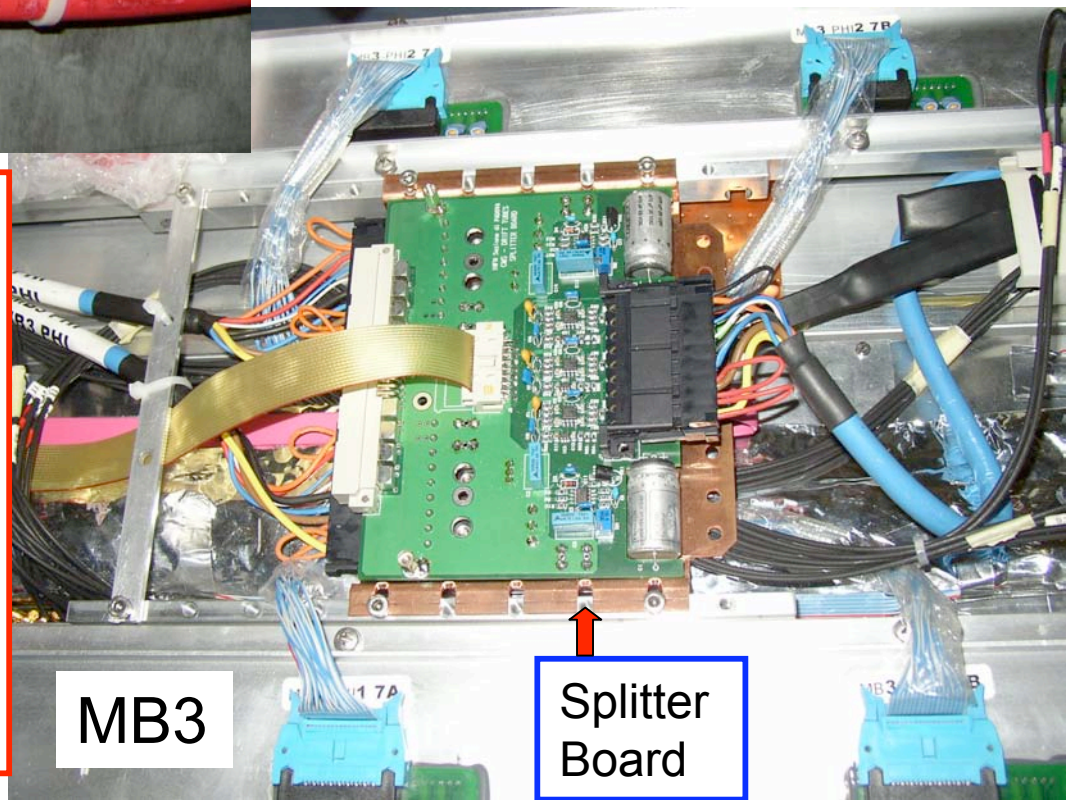
HV Grounding Scheme

- The reference ground is given by the ground contacts inside the SL. It is connected to the HV supply ground at the patch panel connector.
- The support plate is in good contact to the iron.
- The patch panel mechanical support is in good contact with the support plate.
- The ground shields of the HV cables from the supply and the SL are connected together and isolated from the iron.

Feedback from Minicrates Installation

- Some carters prevents access to the MC for external connections, they should be shortened. Define optimal dimensions during MC test (Franco) and negotiate with Matteo.
- Connection to the LV patch panel is very difficult, actually Vittorio could not make the connection. Check cable connectorization (Carlos)
- LV cable length still to be defined for MB4/10? MC arrived with wrong terminations.
- Cooling connection across sectors must pass under gas pipes. This implies that one connector must be inserted in the hose in situ. Very difficult to do on the wheel.
- All components: HV, LV support plates, radial trays, flex rails,.. Must be in place before the chamber installation.
- MC functionality test still for “experts only” and hampered by hardware problems (old supplies…).





Cramped environment is dangerous for cables and connections integrity.

LV connection to SB requires to remove carter, cover and DCS

Commissioning completed when MC tested from balcony with final cables

Feedback from Minicrates Installation

- Adjusting the chamber position and tiding up all cabling and connections requires a fair amount of work not yet folded in the schedule.
- Some jig is needed to check that the chambers and cabling are within our envelope (Mimmo/Massimo).
- The SX5 environment is very dirty. Lots of dust accumulated inside alignment passage. Should be checked if it is a problem (Gyorgy). We should put some covers.
- There is a lot of iron filings and dirt on the iron. It should be cleaned before the magnet test. Alain needs some convincing.
- Should we plan to put some covers on the chambers?

→ Technical support from home institutions needed to complete the chamber work on the wheel

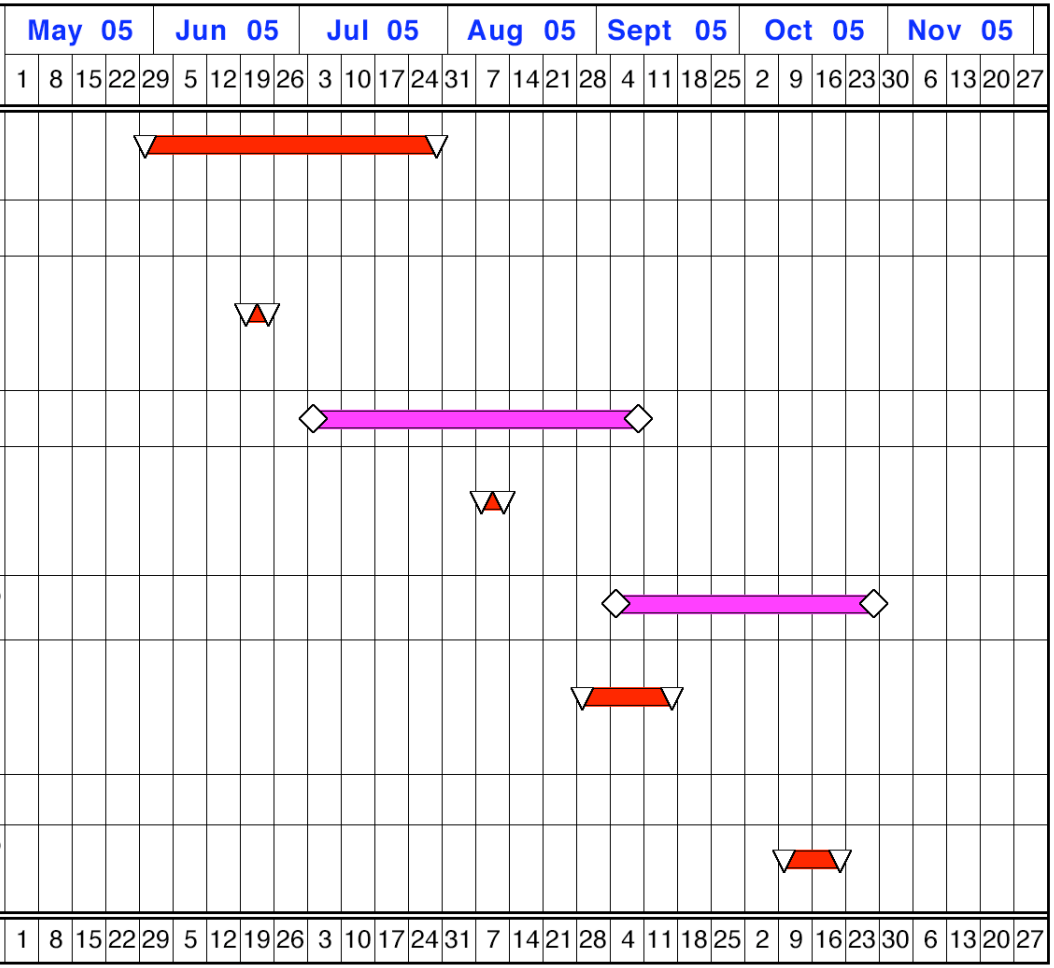
Installation/cabling Scheduling Conflicts

Cosmic Challenge/Magnet Test preparations interfere with BMU installation and cabling:

- moving HB+ from Alcove requires rearranging (closing) YB, YE
- insertion of ECAL modules requires support structure in front of YB0 this interferes with chamber installation and cabling
- Tracker insertion requires support structures at both ends YB0. It interferes with YB- S10/11 installation
- Access to YB- is needed for ancillary work: mounting MB1 supports, support plates drilling holes et cetera. An appropriate window must be established in the schedule
- We should include in the schedule the time required to set-up and cable the MABs for sectors 10/11 and photogrammetry if needed

Revised Installation and Cabling Schedule

Activity Name	Start Date	Finish Date
YB+1 Installatio, 34 Chambers 68 MC	5/30/05	7/29/05
YB+2 Installation, 6 MB4 + MB4/9-11 76 MC Installed from minus side	6/20/05	6/24/05
YB+2 Cabling	7/4/05	9/9/05
YB+1 Installation,6MB4 + MB4/9-11 84 MC	8/8/05	8/12/05
YB+1 Cabling	9/5/05	10/28/05
YB+0 Installation , 20 Chambers (with 3 MB4T) 104 MC Move YB+1?	8/29/05	9/16/05
YB-1,YB-2 Sectors 10,11 122 MC	10/10/05	10/21/05



12 MC/month production rate up to end of June then 16 MC/month

Summer Vacations NOT considered

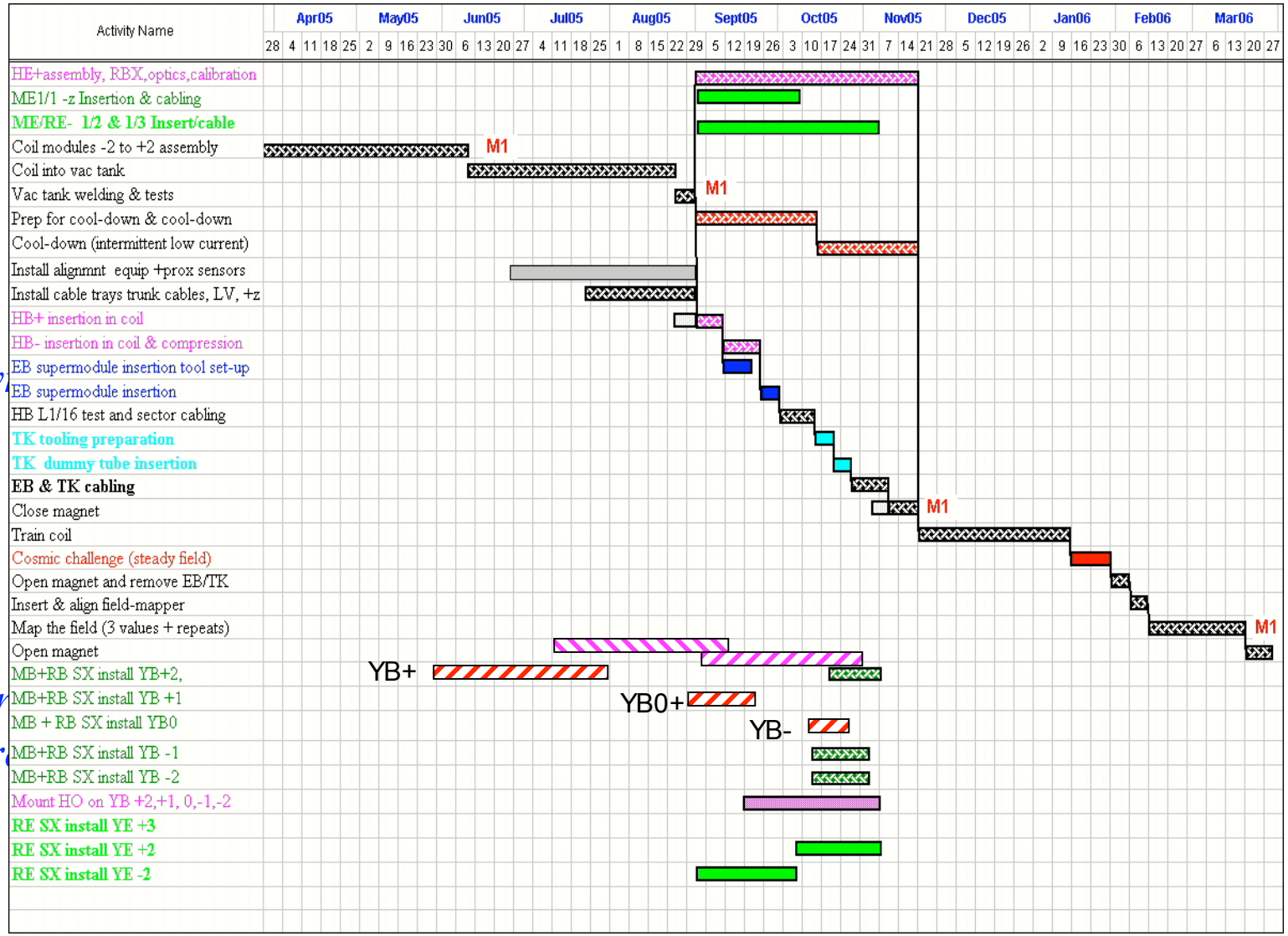
Possible conflicts with Magnet Test/Cosmic Challenge to be worked out

Magnet test: v34.1 schedule draft 2

Fundamental "feature":

exploit cool dow time to install ECAL and TK

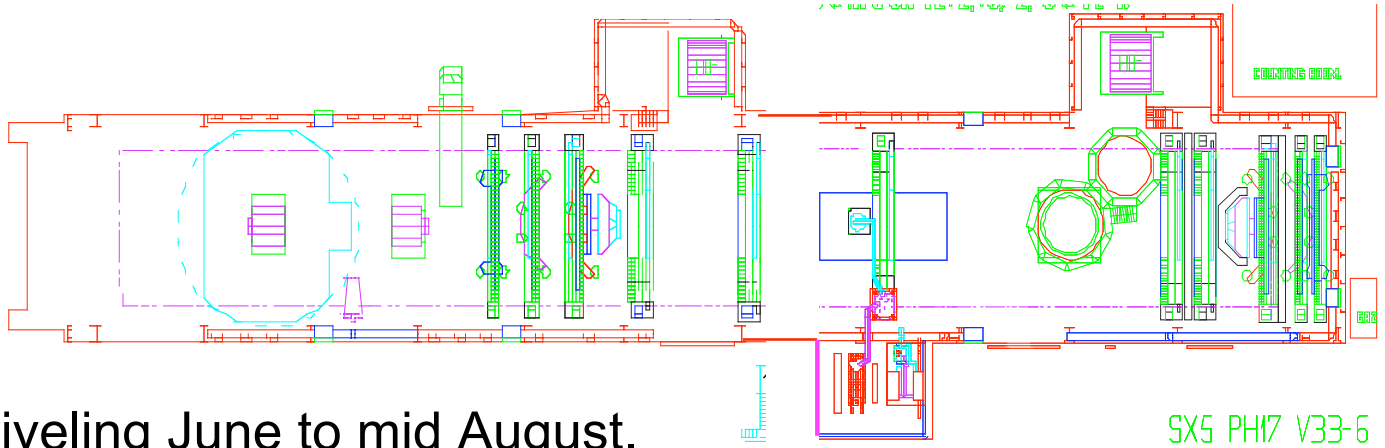
ECAL & TK MUST be removed after training & befor field-mapping



SX5 configuration up to swiveling

(Austin CTF 11/03/05)

+z end -z end



Magnet swiveling June to mid August.

allows for parallel work on coil, HB+, HB-,YE-1, YE+1, +end YB (muon barrel)
in this way we hope to recover the recently accumulated delay

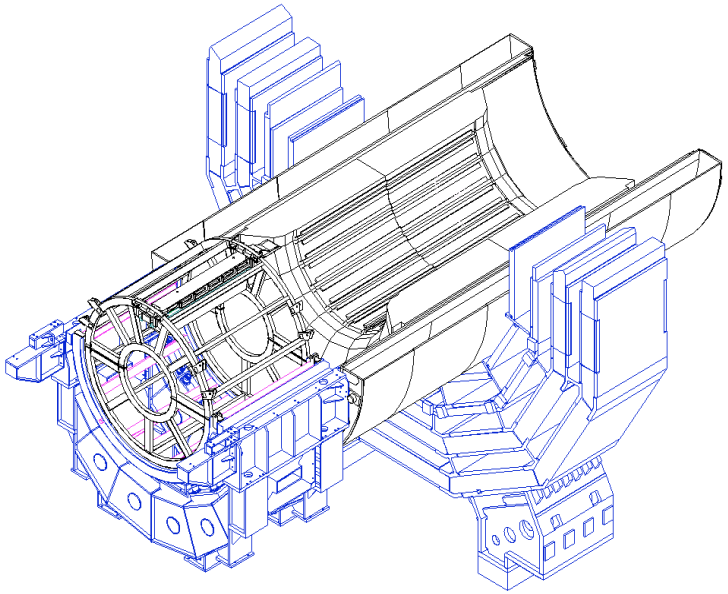
ME/HE slice test cables can run across +z alcove, but not –z alcove

HB+ insertion requires rearranging YE+, YB+

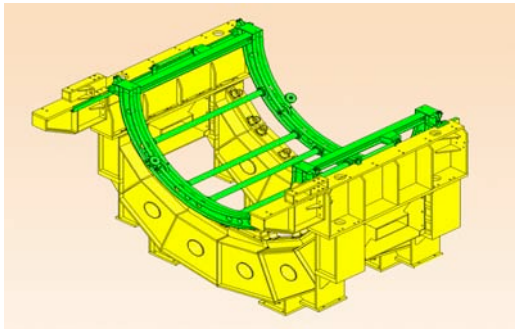
ECAL in magnet test

Install SMs in 6 o'clock position: 1 or 2?

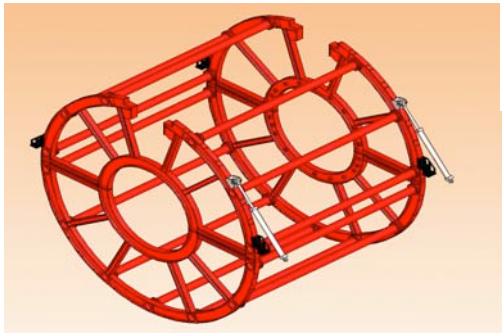
How is the Tracker then installed?



HB cradle with cage cradle



Cage (both halves)



Delivery of insertion tool May 2005

Need HF-raisers and HB cradle

Commissioning Items

A. Benvenuti

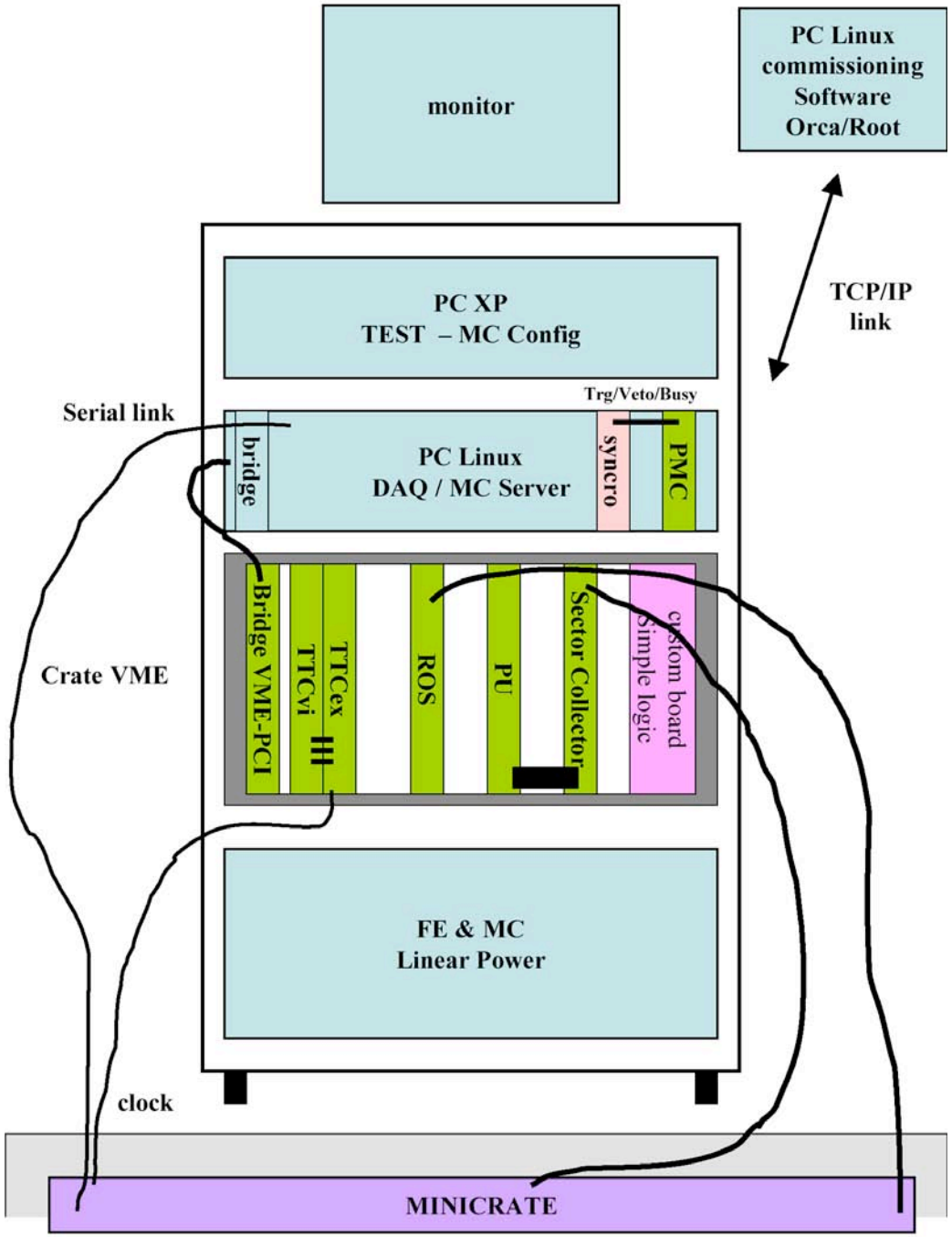
INFN Bologna

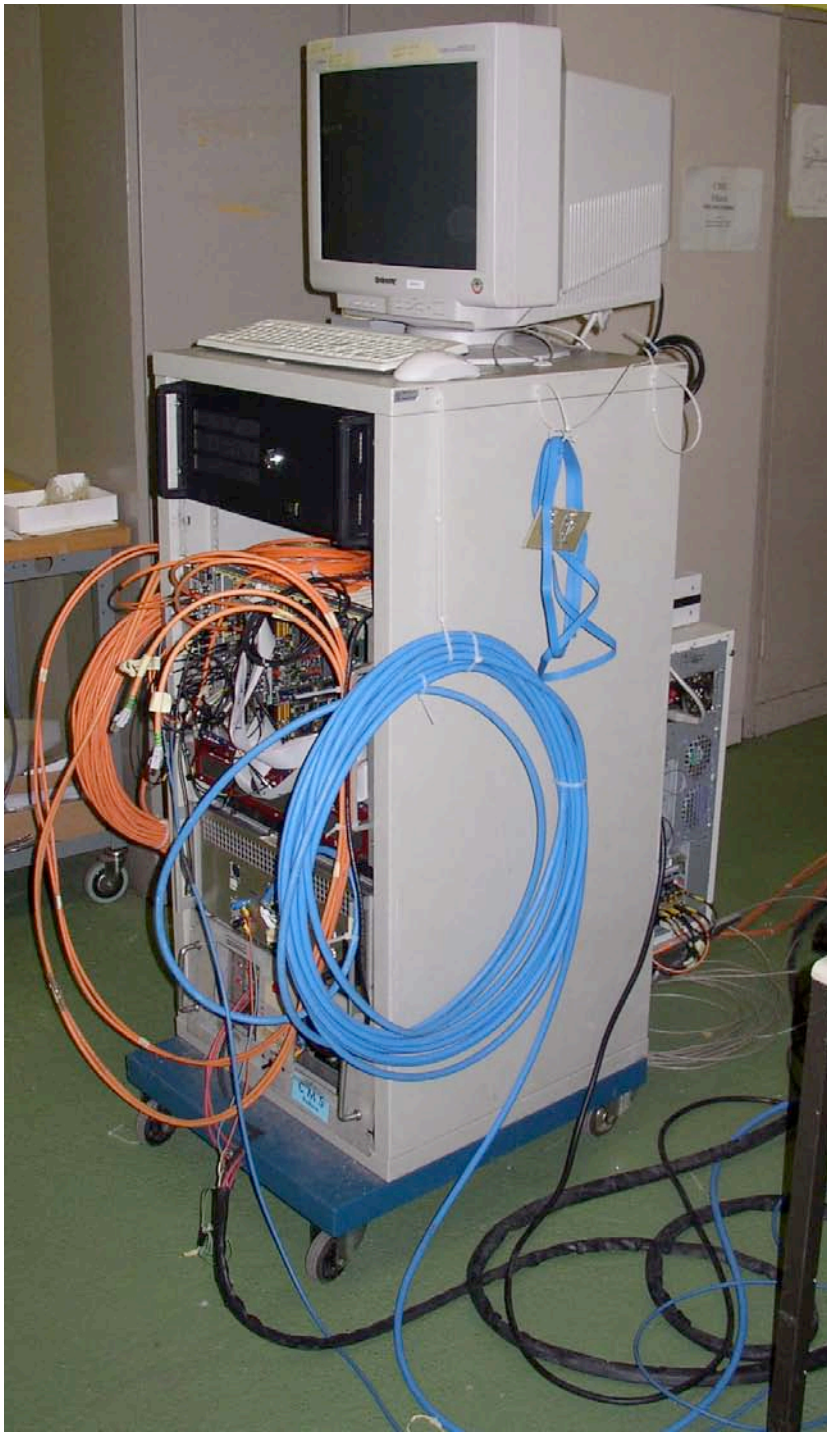
CMS week,

CERN March 15th 2005

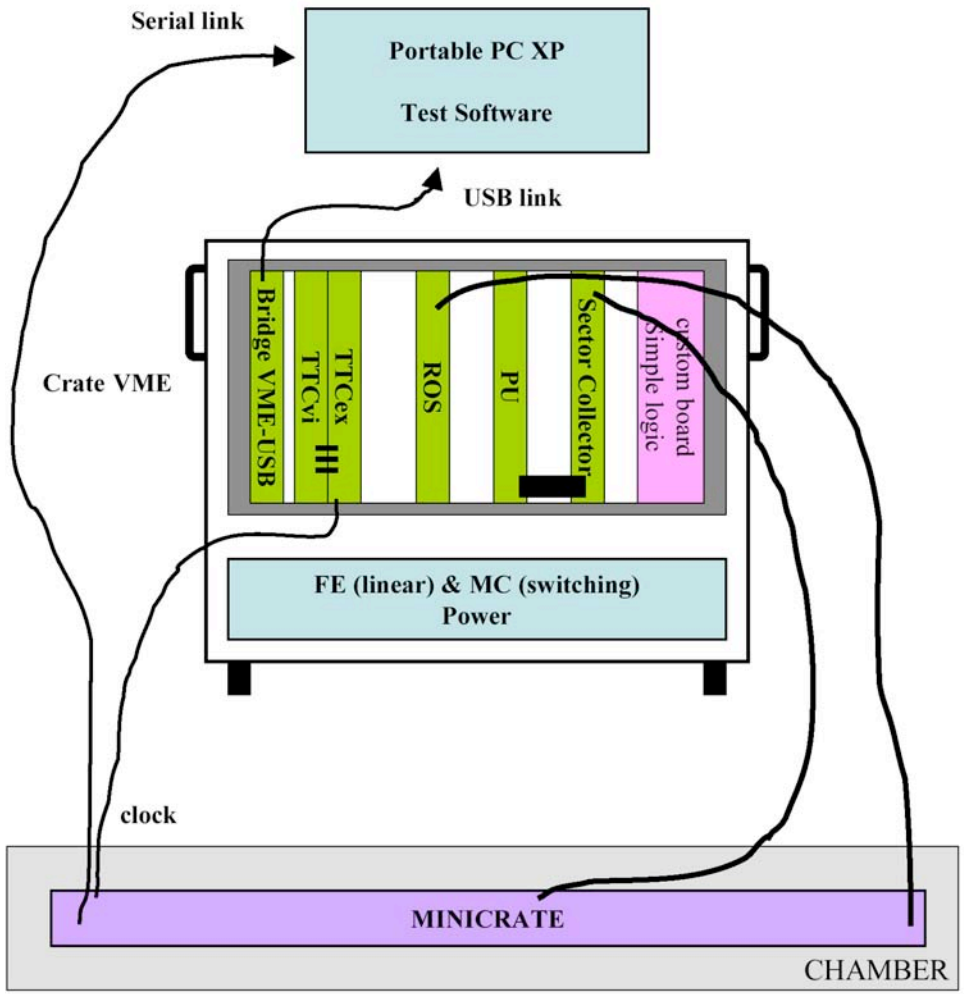
Hardware Status

- All components should be available this week apart for a TTCVI module to be repaired.
- Monitoring program in progress (Marco Zanetti, Enrico +..) will be tuned as we progress on the learning curve.
- Configuration files and trigger control available (Franco Gonella Riccardo Travaglini)
- Logistic (connecting the MC to the test stand) is a challenge given the cumbersome layout of the test stand
- Will start commissioning on the bottom sectors since they are accessible with the test stand on the ground and S10, S11 must be commissioned for the cabling test
- The upper sectors should be reachable with ~30m flying cables.


monitor
PC Linux
commissioning
Software
Orca/Root
TCP/IP
link
PC XP
TEST – MC Config
Trg/Veto/Busy
Serial link
bridge
PC Linux
DAQ / MC Server
syncro
PMC
Bridge VME-PCI
TTCex
TTCvi
ROS
PU
Sector Collector
custom board
Simple logic
Crate VME
FE & MC
Linear Power
clock
MINICRATE



- The test stand should be compacted to a portable version to check the MC functionality after cabling.



Martin Wensveen wants to use scaffolding for cabling. It will probably be in place for the MB4To commissioning.

The scaffolding will make the access to the MC more difficult.

Commissioning at the Sector level will be possible in May.

We should plan to have the necessary hardware to do so:

Borrow another ROS8.

How to Proceed

- YB+2 will be in its new location at the end of this week
- It is time to setup the test stand at SX5 and try to commission one chamber.
- It will take some effort just to find some space, procure some infrastructure and make the test operational
- The cooling circuit should be certified for some chambers by the end of next week, but commissioning can be debugged even without the cooling or with the stand alone system.
- We (Enrico) should schedule groups of 2, 3 people, as for a test beam run, starting the week after Easter at latest.