



WP11

11T dipole interconnects at IP7

Kick-off meeting

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11T Dipole Technical Meetings – <https://vidyoportal.cern.ch/join/QNqznsMXeW> – 2020-03-25



***First of all, big, and warm thanks
for the work accomplished at Point 2
for the connection cryostats
This is already a big success for you all,
DISMAC, WP11, and HL-LHC***



Goal of the meeting(s)

- Today is a **kick-off meeting**, there will be other ones
- Draw out the **lessons learnt** during the construction of the interconnects of LEP/LEN cryostats at IP2
- Review the **list of issues and difficulties** encountered, see draft on slide 5, which needs to be completed
- Establish **why, what are the reasons** for these difficulties
- **Avoid that these are reproduced at IP7** for the 11T, i.e. anticipate and develop solutions beforehand

Status of magnets S1 and S2

- S1, LMBHB-002:
 - Qualified, installation endorsed by TE, HL-LHC, and LMC
 - Preparation activities prior to transport in the accelerator almost completed (leak test of BS capillaries on Friday 13 March)
- S2, LMBHA-001:
 - Cooldown 1 (CD1) done in Nov. 2019, electrical faults observed
 - Capillary tube replaced (part of the Instrumentation Feedthrough System)
 - CD2 done in Feb./March 2020, leakage current to ground resolved, spikes in voltage signals after quench still present, investigations ongoing
 - CD3 planned after the confinement period, as soon as we resume work on the CERN site

Draft list of issues encountered at IP2 for the CC

- Drawings not yet approved
- Information on alignment requirements not communicated in due time to Survey
- Jacks not available in due time
- Missing washers for the jacks
- Plug of the He heat exchanger not installed
- Non conformities on dimensions
- Leak across the beam screen, at 11L2
- Replacement of beam screen required, at 11R2
- The O-rings of the W-bellow were missing, and had to be installed/glued in the tunnel
- Thermal screens were not available in the tunnel and, not knowing where they were stored, we had to wait the return of A. Bastard who was not at CERN
- The insulation boxes (of the splices?) were badly put in place/positioned
- There were no instructions as to the need of installing MLI around the individual lines (what would be the impact if they would not be installed)
- Blockage of the the thermal screen at installation
- We shall not forget the M4 line for the 11T dipole full assembly

... TO BE COMPLETED

Are there any open points?

- How do we align, and keep in place, the lines of the by-pass cryostats prior to jointing them with the 11T?
- Soldering and insulation of the M4-lines, do we need a mock-up to practice? What about NDTs? What about a qualification at cold? At nominal current?
- Do we have all what we need for the re-integration of the N-line, which, by the way, shall be longer by 10 cm (discussed in June 2018!)?
- Anything specific to the trim leads?
- Anything specific to cryogenics, e.g. DN200?
- Anything specific to vacuum that was not discussed above?
- Anything specific to survey that was not discussed above?
- Once cold tests are completed, avoid as much as possible downtime between the different interventions, i.e. stripping, survey, installation of beam screens and leak tests

Stakeholders – tunnel activities – who does what

Activity	Who	Group
OPCLIC – Open & close ICs	Alain B.	TE-MSc
SIT (Special Intervention Team)	Sandrine LN & Nicolas B. Jean-Baptiste D.	TE-MSc
Splice soldering	Ludovic F.	TE-MSc
Bb preparation and shunt soldering	François-Olivier P.	TE-MSc
Splice insulation boxes	?	?
Installation of PIMs	Christian D. & Hervé R.	TE-VSc
Welding of the PIMs, and M-lines	Didier L.	EN-MME
Leak tests on M-lines	Natalia M. K. & Jaime P. E.	TE-VSc
Leak tests on PIMs	Cesar V. P.	TE-VSc
Inspection of welds (visual, other?)	?	?
Survey	Patrick B. & Jean-Frédéric F.	EN-SMM
Installation of jacks / positioning	Michel A. / Patrick B. & Jean-Fréd. F.	EN-ACE
To be completed	To be completed	To be completed

Work plan

- Please send us (Jean-Philippe and Frédéric) your feedback per email on the list of issues, and who does what
- Issues will be categorized, and you will be asked to think, and draw out solutions in order to avoid that these happen again at IP7 for the 11T



Thank you for your attention

