

## *Preparation of Cool-Down in Sector 78 RAT* Réunion Avancement Travaux

HARDWARE COMMISSIONING COORDINATION - WEEK 50

12 December 2006 8:30 2889-R-009

Present: B.Bellesia, D.Bozzini, S.Brown, P.Chambouvet, M.Coccoli, S.Feher, J.C.Guillaume, K.H.Mess, F.Millet, B.Perea Solano, R.Saban, R.Schmidt.

### **Preparation of the Cool-Down in Sector 78**

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#### Safety:

- The *gaine* monorail is not *consigné* today; Wed 13<sup>th</sup> and Thu 14<sup>th</sup> the *consignation* will take place at LSS7R from 8am to 5pm, if access is allowed.

#### Hardware Commissioning Coordination:

- R.Saban asks to restore the situation foreseen for last Friday 8<sup>th</sup> December, regarding:
  - Pressure in the DFBs and arc magnets
    - F.Millet informed that this work should be coordinated, i.e. he needs to know asap when will be possible to restore the pressure in the DFBs and in the arc (the arc magnets are hold at 1 bar and it would take half an hour to go up to 6 bars);
    - F.Millet reported also about all pressure gauge not working in the DFBs (AB/CO); this will give more troubles to restore the pressure to 2 bars, as such pressure cannot be read at the moment;
  - DC cabling
    - J.C.Guillaume informed that to finish the DC cabling setup in all DFBs in LSS7R and LSS8L it will take one full day at least;
    - The water leakage from the 13kA jumbo leads experienced yesterday has been stopped; TS/CV will repair the cooling water circuit and will give green light to J.C.Guillaume to send the Flohe team to reposition the cables;

#### EIQA:

- D.Bozzini informed that:
  - The short to ground found during last Friday 8<sup>th</sup> Nov EIQA-TP4B has been localized yesterday, thanks to ad-hoc tests;
  - The shorts are in the MBA circuit and the lowest resistances to ground measured where 62.5ohm and 261ohm in the 2 DC lines;
  - A 5mA current was injected locally and the fault was localized;

- A 5mA current was injected directly on the fault and the fault disappeared (new resistances to ground = 600ohm and 700ohm in the two lines); reasons are under investigation and K.H.Mess commented that he agrees with further investigation.

#### 60 A Orbit Correctors:

- B.Bellesia informed that the 60A power converters short circuit tests are ongoing with the polarity test of all the 7R arc cells (EIOA-DOC blocked postponed after the resolution of the resolution of the short to ground).

#### AC cabling:

- J-C.Guillaume informed that the 2 cryo-instrumentation cables that didn't pass the 1.9kV test had the connectors changed and an ad-hoc test is going to be performed today.

### Open Issues

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#### AC non-conformity

- 13.11.06 Non-conformity of the crates of cryo instrumentation (inrush current) (A.Suraci: ready next year)
- 13.11.06 Non-conformity of the AC cabling of the crates under the magnets. This concerns ACR, MEL & VAC.

#### DC cabling

- 30.11.06 Non conformity temperature sensor cables need repair LSS7R (D.Bozzini, A.Suraci)
- 25.11.06 Functional test on the leads heaters: DFBAO, DFBXG (P.Chambouvet)
- 22.11.06 Pre-connection of 120A cables in LSSR7 (TS/EL) - PC Non conformities (H.Thiesen)

#### Vacuum

- 12.12.06 One Pressure Gauge in DFBs cannot be read (F.Millet)

#### Cryogenics

- 22.11.06 Cryo-valves remote control in CCC by AB/CO (F.Millet)
- 22.11.06 Control of quench valve (F.Millet)

#### DFB Commissioning

- 08.12.06 DFBXG 100V test on current leads (S.Feher)
- 29.11.06 Pumping of Current Leads insulation vacuum for DFBX (S.Feher)

#### Safety

General remark: written communication in advance to announce operations!!!

- 23.11.06 Water leak on the tunnel concrete wall to be fixed (C33L8).

Preparation of powering test

30.11.06 EI\_QA performed on C16L8. ICC test showed reversed sequence of V-taps on circuit RCBV16.L8B1 (D.Bozzini)

AOB

13.11.06 BPM connection in Q2, Q3, Q4, Q5, Q6, Q7-wk50 (J-C.Guillaume & R.Jones)

### **Closed Issues**

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Wooden structure for UA access restriction (that will allow transport)	12.12.06
Non conformity in DFBMH, DFBAN and DFBXG current lead heaters (P.Chambouvet-J-C.Guillaume)	12.12.06
Galvanic insulation installation on all DFBs (AT/MEL)	08.12.06
Re-positioning collars used to fix the WRL to the CLs (all DFBs) (A.Perin-D.Bozzini-F.Millet)	08.12.06
6 kA and 13 kA cables positioning at DFBAO, DFBMA, DFBMC (Flohe)	08.12.06
Functional test on the leads heaters: DFBMA, DFBMC	08.12.06
EIQA-TP4B safety procedure (1900 volts tests!).	07.12.06
Cool down safety procedure & access conditions	07.12.06
Instrumentation cable HV tests in LSS8L (A.Suraci: 4 cables to be tested)	06.12.06
Non-conformity on instrumentation cables (temperature sensors on current leads) (A.Suraci: 3 cables are in repair-Wed.29th)	06.12.06
Quench protection continuity tests and cables assignment LLS7R (DFBMH, DFBAN) and LSS8L (DFBMC, DFBMA and DFBX)	06.12.06
DFBAN cable positioning (J.C.Guillaume)	06.12.06
Access & Safety Cable Installation (full sector) (J.C.Guillaume)	06.12.06
EIQA-TP4-A for all DFBs sector78	04.12.06
Water circulating in UA83 for the Powering Procedure Test: filters checked, installation of flexible cables by CV.	04.12.06
LHCb ODH System ready	04.12.06
Definition of owner of activity and pumping needs for current leads insulation vacuum (DFBX) (S.Feher, R.J.Rabehl)	04.12.06
DFB instrumentation cables to be connected (A.Suraci)	04.12.06
Functional test on the leads heaters DFBMA	04.12.06
Functional test on the leads heaters DFBMC	04.12.06
Non-conformity of the DC cabling of the orbit corrector power converters	04.12.06
Pretest of 60A converters in sector 78, location C16L8.	30.11.06

EIQA-TP4-A on DFBAN, DFBMH, DFBAO LC module	29.11.06
Pumping of insulation vacuum for all DFBs between 7 and 8 (except DFBX)	29.11.06
Functional test on the leads heaters DFBMH	29.11.06
Functional test on the leads heaters DFBAN	28.11.06
Pumping of current lead insulation vacuum DFBAN	25.11.06
120A and 600A positioning on DFBAN and DFBMH (INEO)	25.11.06
Missing labels on DFBAO instrumentation cables	24.11.06
Adjustment of cable length on DFBAO	24.11.06
Prototype of galvanic insulation to be tested at Point 6	23.11.06
Definition of Safety procedure for Powering Procedure Test (aka Dry Runs)	23.11.06
Leaks on DFBAO gas recovery line in repair/installation of helicoflex	22.11.06
21 leak detectors to be placed all along the arc 78	22.11.06
Connections (made by TS/MME) of 120 A cables to be verified (TS/EL)	22.11.06
600 A cable positioning on DFBAO	22.11.06
Pumping of current lead insulation vacuum DFBMH	21.11.06
Pressurized air supply to valve on WRL	21.11.06
Support on DFBAO WRL	21.11.06
Bellows in Q6-Q7 LSS8L which had been damaged, is now repaired	20.11.06
Valve on the WRL is operational	20.11.06
Leak in arc Q11-8L	20.11.06
Cryogenic valve manipulation on DFBX	20.11.06
Removal of some BLMs in conflict with the pumping groups	17.11.06
120 A Cables connection in DFBAO, DFBMC, DFBMA and DFBX LSS8L	17.11.06
DS7R and DS8L leak test finished	17.11.06
Leak in R7 repaired	17.11.06
Q6-Q7 bake-out completed	17.11.06
Current lead vacuum: man power and pumping groups availability	15.11.06
Hydraulic connection of the current leads	15.11.06
DFBX AT/MEL Transformers installation	14.11.06
WRL connection DFBMH LSS7R	14.11.06
ELQA-TP3 test of the sector 78	14.11.06
Polarity tests of the 600A and 120A cables for DFBAN and DFBMH (LSS7R)	14.11.06

QUI available	10.11.06
Pressure tests of QUI and DFBs safety valves finished	10.11.06
QRL valves available for all sector	09.11.06
QRL valve opening/cabling verification	13.11.06
Interconnections DFBAO, DFBMA and DFBMC.	13.11.06
WRL connection at DFBMC, DFBMA and DFBX	13.11.06
120A cables positioning at DFBAO, DFBMA and DFBMC	13.11.06
Q6-Q11L8 leak test envelope	13.11.06
Interconnections of DFBAN and DFBMH	13.11.06

### **Milestones: Test Schedule**

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Week 45	Interconnections
End week 46 [18.11.06]	Leak Test
End week 47 [24.11.06]	Pressure Test
Week 47-48	EE sensor tests in RR77
Week 48 & 49	Purge and filling
Week 49	Dry Run
Week 49	Short Circuit tests of 60 A
Week 49 [07.12.06]	Diesel Tests
Week 49	ELQA-TP4B (Phase I)
Week 50	Flushing
Week 50 [15.12.06]	ELQA-TP4B (Phase II)
Week 51	Cool Down Sector 78



### **Next RAT meeting**

**Wednesday, December 13th 8:30 @ P8 2889-R-009**

Mirco Coccoli