

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

HARDWARE COMMISSIONING COORDINATION - WEEK 49

7 December 2006 8:30 2889-R-009

Present: E.Barbero Soto, B.Bellesia, D.Bozzini, H.Buret, V.Chereyre, M.Coccoli, S.Feher, J.C.Guillaume, R.Lauckner, F.Millet, B.Perea Solano, R.Saban, A.Suraci, H.Thiesen, M.Vadon, A.Vergara.

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

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Vacuum:

- Purge and filling activities started yesterday.

Cryogenics: -

DFB Commissioning:

- J.C.Guillaume informed that the cables positioning is still ongoing and that the positioning work is in the following situation:
  - DFBMH;
  - DFBAN all done;
  - DFBAO 1 13kA cable to be positioned, only; galvanic insulation on the 13kA cables (except the one that is still being positioned);
  - DFBMA 1 6kA cable is ok only; all the 80A are ok; no galvanic insulation yet;
  - DFBMC all cables ok with galvanic insulation ok;
  - DFBX all positioned; 2 need galvanic insulation.
- J.C.Guillaume informed that there has been a problem (being fixed) on 2 current lead heating system cables (in LSSR7).
- V.Chareyre reminded that the EIQA-TP4B tests will start today on DFBMA/C.
- S.Feher informed that the first layer of coating on the DFBX G10 plates will be done tomorrow. The second layer can be applied after the 100V test (and thus it is not critical now). Also, he informed that there are 4 t-sensor cables with bugs that need to be fixed.

Safety:

- The Access & Safety cable positioning was finished yesterday.

Preparation of Powering Procedure Test (previously called Dry Run):

- B. Bellesia informed that yesterday the polarity tests on the 120A cables in RR77 were performed. Half of the 10 power converters had problems and are being repaired today.

- B.Bellesia update on the 60A power converter tests advancement: C12.R7 to C14.R7 was tested and there have been problems on one converter in C12.R7.
- V.Chareyre stressed the fact that the 120A cables should be disconnected during the EIQA-TP4B.

AOB:

- F.Millet asks to have a detailed coordination of information regarding the activities that will be ongoing on the arc subsectors, especially around the DFBs and the Inner Triplet. This should help to avoid the purge/filling/flushing to be a danger.

## 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, orbit corrector power converters & VAC.

### DC cabling

- 30.11.06 Non conformity: 4 temperature sensor cables need repair (D.Bozzini, A.Suraci)
- 25.11.06 Functional test on the leads heaters: DFBAO, DFBMA, DFBMC, DFBXG
- 22.11.06 Pre-connection of 120A cables in LSSR7 (TS/EL)
- 20.11.06 Galvanic insulation installation on all DFBs (AT/MEL)
- 13.11.06 6 kA and 13 kA cables positioning at DFBAO, DFBMA, DFBMC (Flohe)

### Vacuum

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### Cryogenics

- 22.11.06 Cryo-valves remote control in CCC by AB/CO
- 22.11.06 Control of quench valve

### DFB Commissioning

- 04.12.06 Re-positioning collars used to fix the WRL to the CLs (all DFBs) (A.Perin-D.Bozzini-F.Millet)
- 29.11.06 Pumping of Current Leads insulation vacuum for DFBX
- 13.11.06 EIQA-TP4-A for all DFBs between 7 and 8 (D.Bozzini: next(w48): DFBAO HC module, DFBMA, DFBMC, DFBX)

### Safety

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

- 25.11.06 EIQA-TP4B safety procedure (1900 volts tests!).

- 23.11.06 Wooden structure for UA access restriction (that will allow transport).
- 23.11.06 Preparation of a prototype insulating protection (derived from a plastic tube) of the monorail by J-C.Guillaume and approval by J.Etheridge.
- 23.11.06 Water leak on the tunnel concrete wall to be fixed (C33L8).
- 16.11.06 Cool down safety procedure & access conditions

Preparation of powering test

- 30.11.06 EI\_QA performed on C16L8. ICC test showed reversed sequence of V-taps on circuit RCBV16.L8B1. To be discussed on next RAT.
- 22.11.06 Installation of flexible cables by CV (UA83)
- 16.11.06 Water circulating in UA83 for the Powering Procedure Test: filters need to be checked.

AOB

- 13.11.06 BPM connection in Q2, Q3, Q4, Q5, Q6, Q7-wk49 (J-C.Guillaume & R.Jones)

**Closed Issues**

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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
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/cabbling 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	Diesel Tests
Week 50	Flushing
Week 50 [15.12.06]	Giga PAQ
Week 51	Cool Down Sector 78



### **Next RAT meeting**

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

Mirco Coccoli