

17th LHC Machine Committee Information Meeting - 3 June, 2009

Status of Sector 3-4 Repair

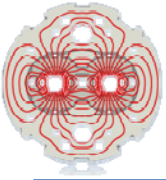
Francesco Bertinelli - TE/MSC
(15 minutes)

On behalf of - and with several contributions from - surface and IC teams

Update since LMC Information Meeting 8 April, 2009 (last 8 weeks)

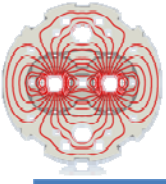
Sector 3-4 (surface and tunnel) and beyond

For splice measurements and repair: see A. Siemko presentation



Surface News Week 23/2009

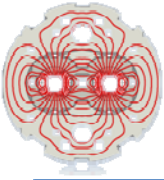
- Last magnets transported and installed in Sector 3-4:
 - 2 MB in W16 - MB2437(A28R3) and MB3383(A33R3)
 - last 2 SSS in W18 - SSS279(Q32R3) and SSS344(Q30R3)
- Some surface resources moved to tunnel activities
- Installation of the SSS vertical assembly tower (ACCEL tower) in Bdg. 181 started (with little information from ACCEL available ...)
- Surface repair of damaged magnets from 3-4 in Bdg. 180 (Long Magnet Facility): preliminary activities starting when manpower is available
- Cold testing in SM18: MB2303 (B32R6 - 50 n Ω) program ongoing, no change in resistance



ACCEL Tower for SSS assembly



Courtesy H. Prin, P. Fessia



MB2303 Cold Testing Progress

- Typical Error for D2 measurement: 6.29E-12 Ohm

After 10h @ 9000 A

Before test: **51.1** nOhm

After test: **50.6** nOhm

After provoked quench @ 9000 A

Before test: **50.6** nOhm

After 6 quench: **51.1** nOhm

After Thermal Cycling (1.9 K – 300 K – 1.9 K)

Before test: **51.1** nOhm

After thermal cycling: **51.6** nOhm

Training up to 11850 A

Before test: **51.6** nOhm

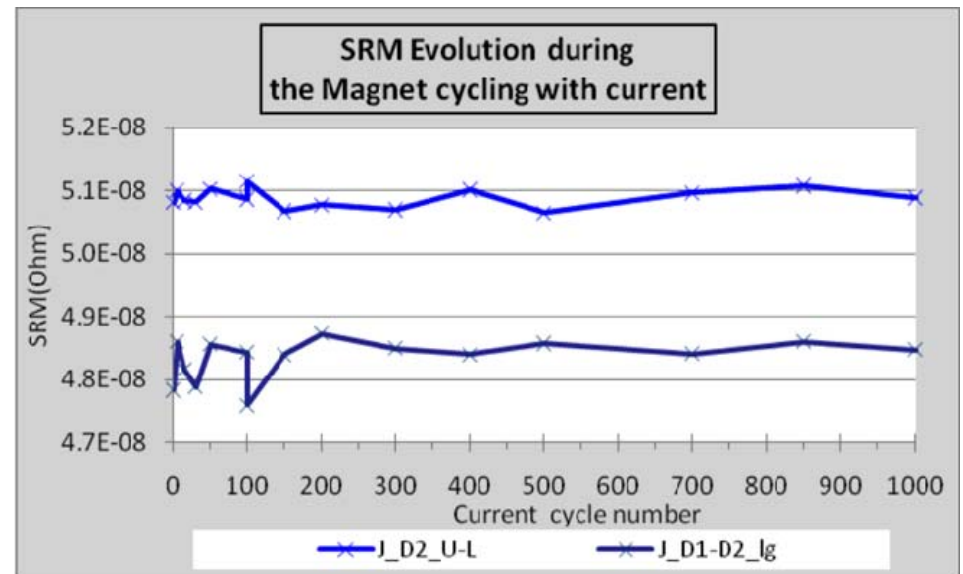
After quench @10898 A: **51.5** nOhm

After this quench, the magnet reached 11850 A.

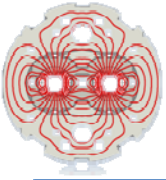
After 500/500 cycles @ 5000-11850-5000 A

Initial Value : **53.4** nOhm (cycle measurement : 5000-8500-11850-8500-5000 A)

After 170 cycles: **53.9** nOhm



Courtesy M. Bajko



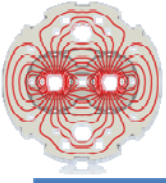
Tunnel News 3-4 D-area

IC	BR	SP	V	E	C'	Y	X	Pq	M	K	N-I	A1	A2	N	MN	Th	J
QBQI.19R3	Blue	Orange									C						
QQBI.19R3																	
QBBI.A20R3																	
QBBI.B20R3																	
QBQI.20R3			Pink								C						
QQBI.20R3			Pink														
QBBI.A21R3																	
QBBI.B21R3																	
QBQI.21R3											C						
QQBI.21R3																	
QBBI.A22R3																	
QBBI.B22R3																	
QBQI.22R3			Pink								C						
QQBI.22R3																	
QBBI.A23R3																	
QBBI.B23R3																	
QBQI.23R3											C						
QQBI.23R3																	
QBBI.A24R3																	
QBBI.B24R3																	
QBQI.24R3											C						
QQBI.24R3																	
QBBI.A25R3																	
QBBI.B25R3																	
QBQI.25R3			Pink								C						
QQBI.25R3																	
QBBI.A26R3																	
QBBI.B26R3																	
QBQI.26R3											C						
QQBI.26R3																	
QBBI.A27R3																	
QBBI.B27R3																	

IC	BR	SP	V	E	C'	Y	X	Pq	M	K	N-I	A1	A2	N	MN	Th	J
QBQI.27R3											C						
QQBI.27R3																	
QBBI.A28R3																	
QBBI.B28R3																	
QBQI.28R3											C						
QQBI.28R3																	
QBBI.A29R3																	
QBBI.B29R3																	
QBQI.29R3											C						
QQBI.29R3																	
QBBI.A30R3																	
QBBI.B30R3																	
QBQI.30R3											C						
QQBI.30R3																	
QBBI.A31R3																	
QBBI.B31R3																	
QBQI.31R3											C						
QQBI.31R3																	
QBBI.A32R3																	
QBBI.B32R3																	

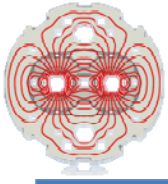
	Brazing	Spool	V	E	M	X	K	N
Week 13	8	6	7	8	0	0	0	0
Week 14	9	7	10	11	3	0	0	0
Week 15	5	4	2	1	0	0	0	0
Week 16	5	1	7	7	0	0	0	0
Week 17	5	14	6	8	3	15	0	0
Week 18	4	6	2	0	11	7	0	0
Week 19	4	4	7	0	7	19	16	0
Week 20	5	7	0	9	0	2	0	0
Week 21	1	4	0	0	15	0	1	16
Week 22	1	0	0	0	0	1	7	14

Courtesy A. Musso

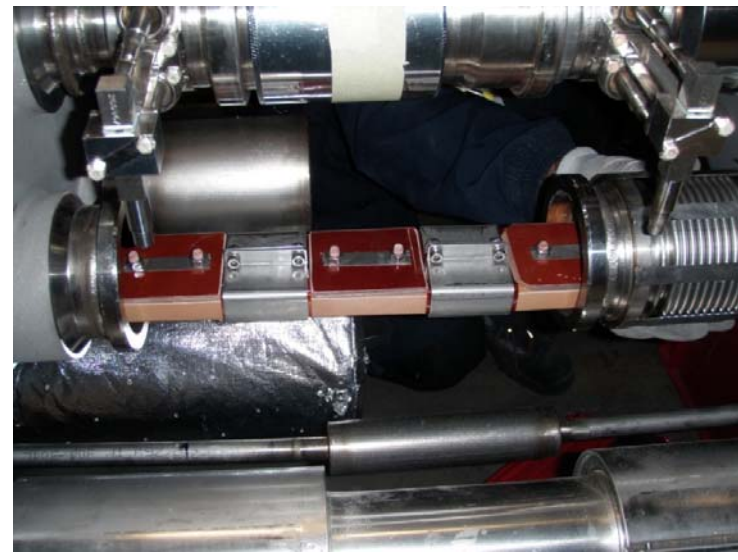


Tunnel News Sector 3-4

- Some milestones:
 - Finished cleaning of beam lines (4800 m, 110 PIMs cut)
 - Finished beam lines PIM welding, leak testing ongoing
 - Solved several difficult non-conformities (in-situ repair of overheated SC cable)
 - Finished electrical ELQA tests
 - Last M electrical connection tomorrow 4 June
 - Last N electrical connection tomorrow 4 June
- Plan to close last W bellows end W25
- Attention to workload for leak testing (remaining lines, vacuum sectors)



Repair overheated cable QBBI.B29R3

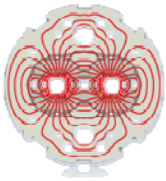


Courtesy P. Fessia

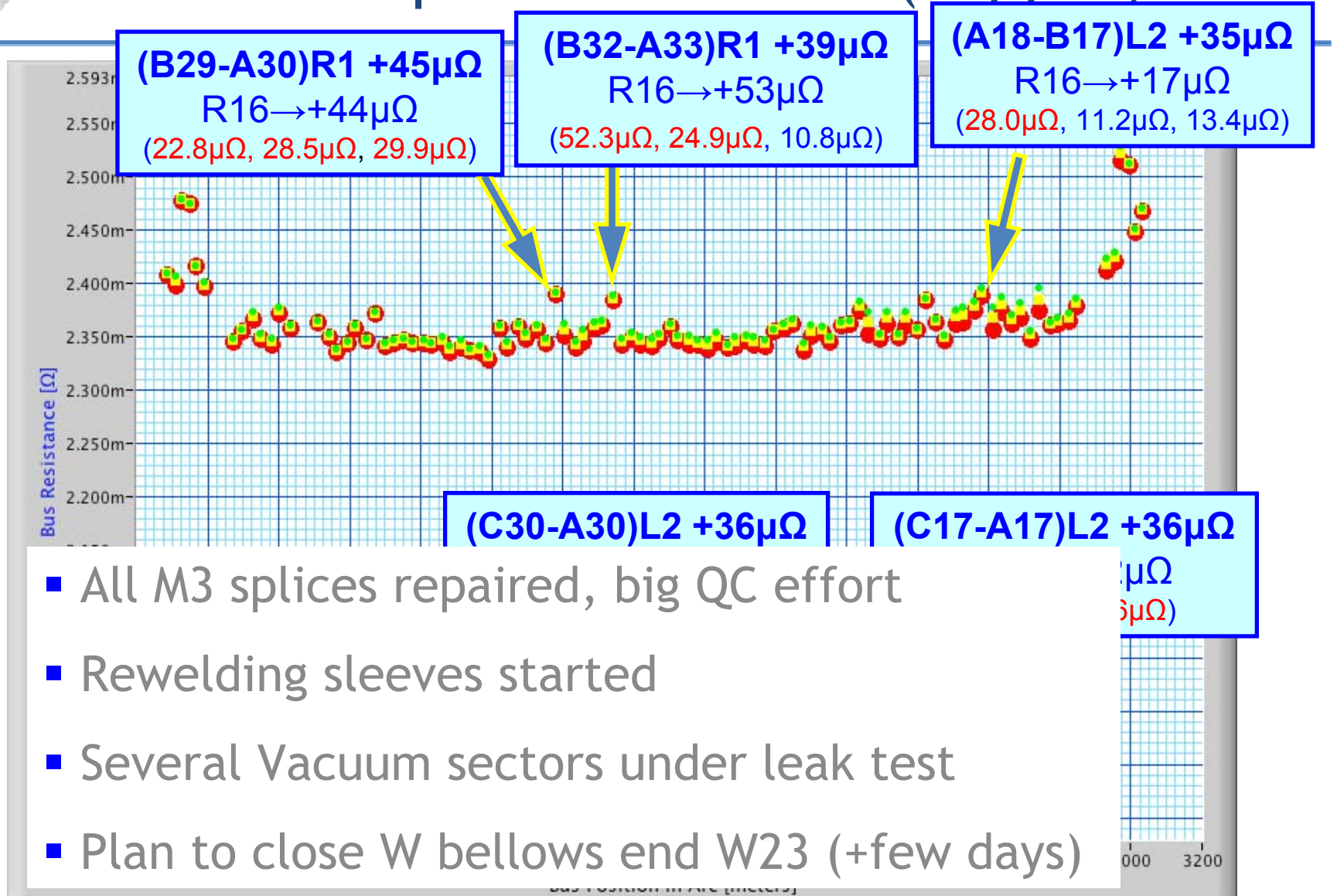
3 June, 2009

LMC Info Meeting - Francesco Bertinelli

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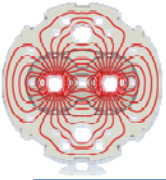


1-2 M3 splice resistance (copper)



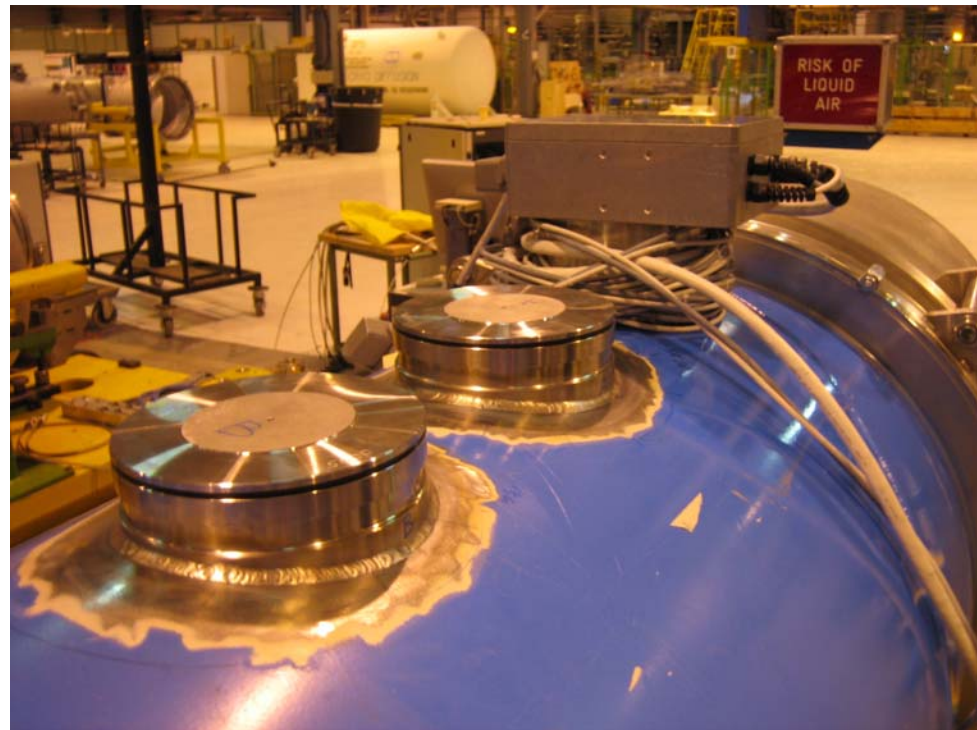
Courtesy R. Flora, C. Scheuerlein

- All M3 splices repaired, big QC effort
- Rewelding sleeves started
- Several Vacuum sectors under leak test
- Plan to close W bellows end W23 (+few days)

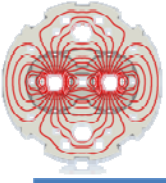


Arc Pressure Relief Nozzles - DN200

- All DN200 nozzles installed in arc dipoles W17



Courtesy M. Karppinen, JC. Perez

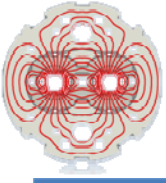


Triplets

- All triplets done, repairs and pressure relief nozzles



Courtesy H. Prin

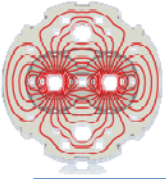


DFBs Consolidation

- DFBs good progress, done except for 3-4 (mid June)



Courtesy A. Perin, O. Pirotte

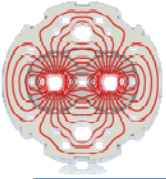


Stand Alone Magnets

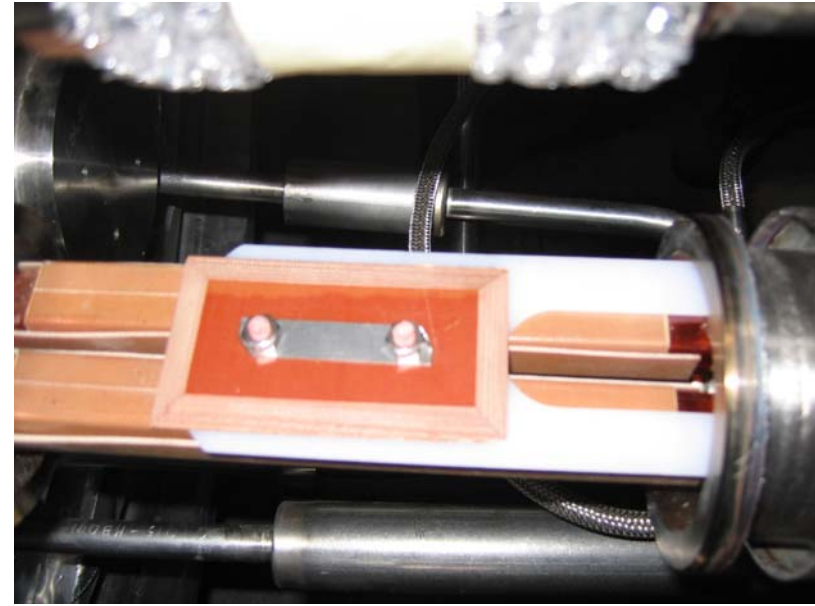
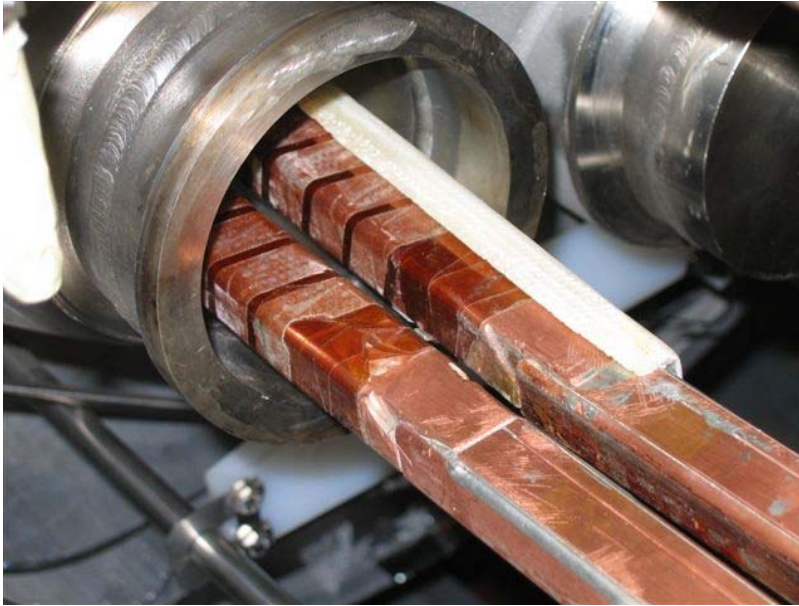


- All pressure relief nozzles installed except one (Q6L1 in sector 8-1 with work continuing after PIM re-cooling this week W23)
- all helium gauges repaired (TE-MSG with EN-MME)
- He deflectors being installed

Courtesy J.-P- Tock, J. Mazet

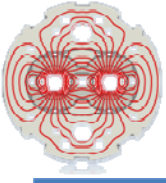


Connection Cryostats, Sector 5-6



- Wear tests of existing insulation
- Additional insulation with PEHD C-profiles
- Good progress
- Plan to close with sector 5-6 end W24

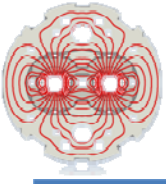
Courtesy V. Parma, A. Vande Craen, J.P. Tock

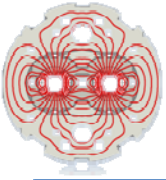


Conclusions

- IC work globally under control
- Globally according to planning of Chamonix last February
- Finish IC work ~W26 (close W bellows) - depending on quadrupole splices in sector 6-7

Thanks for your attention





13 kA splice

