

- **Sector by sector**
- **DFBs interconnections**
- **Inner triplets**
- **Cleanliness**
- **Conclusion**

Work done by the whole MCS-IC section in collaboration with MCS-ET, MCS-SC, AT-MEL, AT-VAC, TS-IC, TS-SU, ... and IEG (F523 Contract) and especially :

LSSs

C Garion / I Slits

DS

T Colombet / C Vollinger / P Galbraith

DFBA / DFBA

F Laurent

DFBL / Cryo ext / WRL

I Slits

Arcs

P Fessia, A Musso, M Struik, C Vollinger (1...7)

F Seyvet (7-8)

F Bertinelli (8-1)

Progress status of the LHC interconnections

Sector 1-2

- IC works should start end of March 2007 (according to schedule)
BUT : 20 weeks allocated in the schedule ; never achieved so far and looks very difficult (same for 6-7)

Sector 2-3

- About 150 ICs are available for IEG
- 80 IC with beam lines connected (Stopped in this sector for PIM inventory ; should restart next week)
- 60 IC with busbars connected.

Sector 3-4

- Interconnection of inner lines at more than 90 %
- Line N insertion at about 70 %

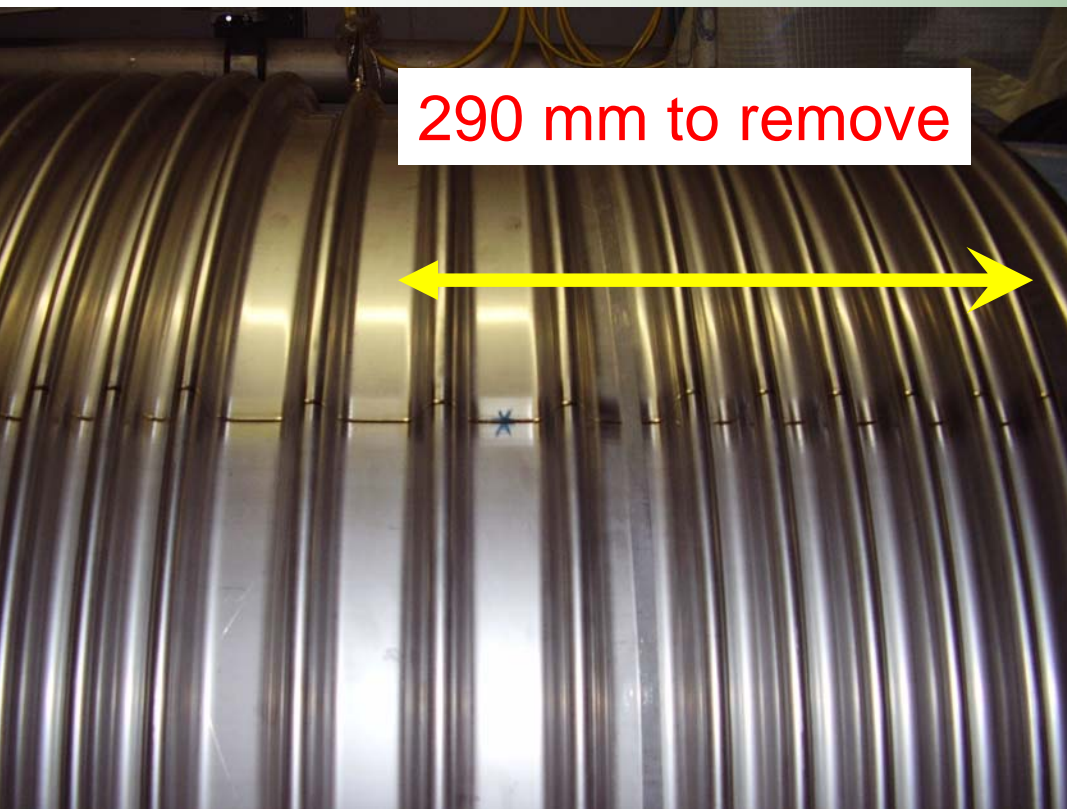
Progress status of the LHC interconnections

Sector 4-5

- Interconnection of inner lines completed except 2 (DS zones)
- Line N inserted in the whole sector including DS4R and 5L ; and closed in 90 % of the arc
- IC closure is on-going :
 - 167/212 done (about 80%)
 - 8/14 vac sectors closed
 - 5 tested and OK
 - 2 tested with leak localised (weld)
 - 1 tested with a BIG leak (missing weld ? TBC)

Progress status of the LHC interconnections

- Repair of W bellows (error during preparation)
 - *1 repair (cut and welds) [MCS, ICS, TS-MME]
 - *7 other cases identified (3 use-as-is ; 4 to be exchanged) [MCS/TS-IC]



Progress status of the LHC interconnections

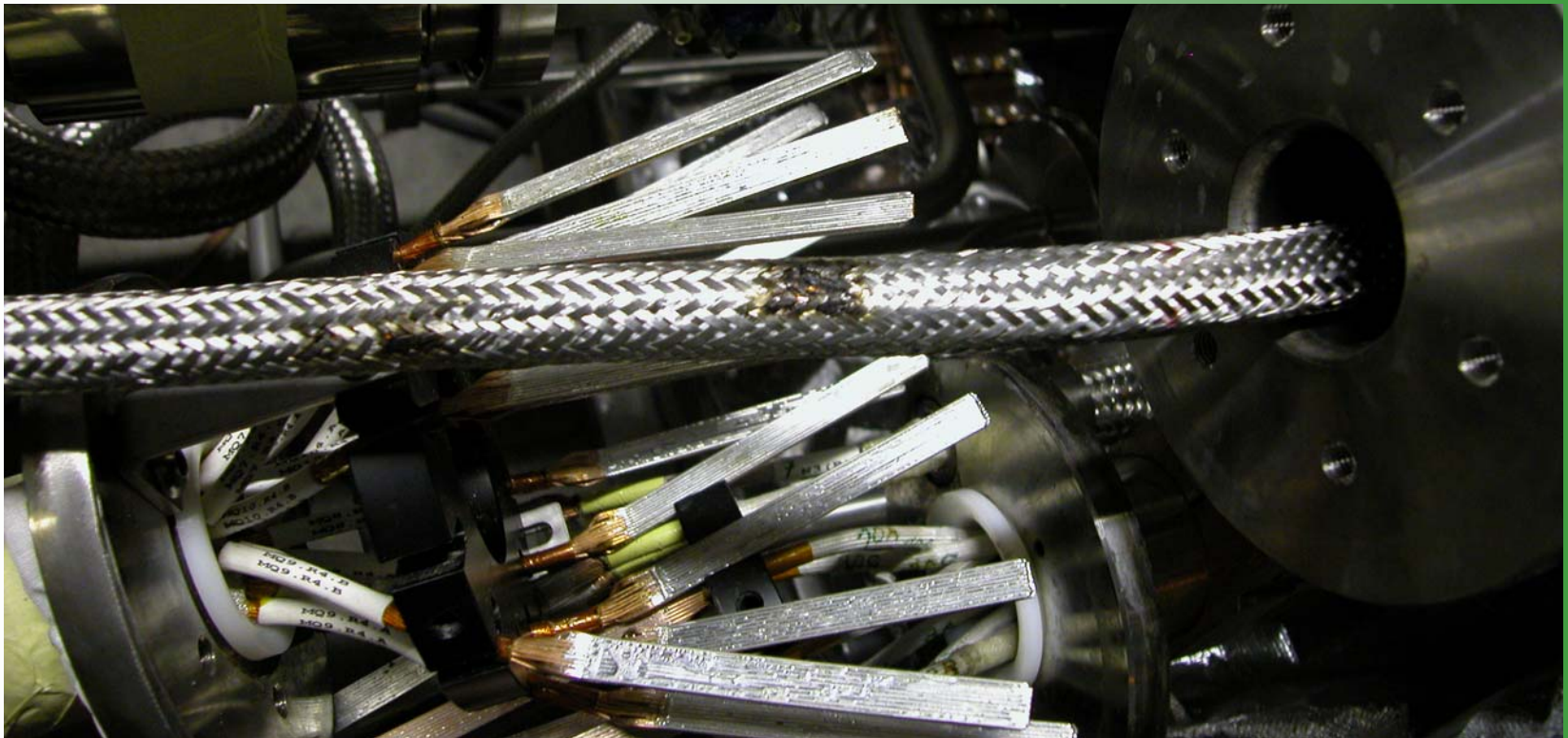
Sector 4-5

- Work in the DS zones is on-going

(Team reinforcement : C Vollinger / P Galbraith and IEG staff)

NC on 600 A cable in DFBA/Q7 interconnect 4R

Analysis going on (MEL / MCS) – DS4R works is stopped



Progress status of the LHC interconnections

Sector 5-6

- Interconnection of inner line is progressing (2 teams)
- Line N insertion is started
- Aluminium foil pumped in V lines during leak testing ;
RF test and PIM cutting to be done to investigate (not priority for cutting)
- DS6R IFS : should be completed by end of Feb so minor impact on
work in the DS zone (also 6-7)

Sector 6-7

- Started with interconnection of busbars mainly
BUT : 20 weeks allocated in the schedule ; never achieved so far and
looks very difficult (same for 1-2)

Sector 7-8

- See further presentations

Sector 8-1

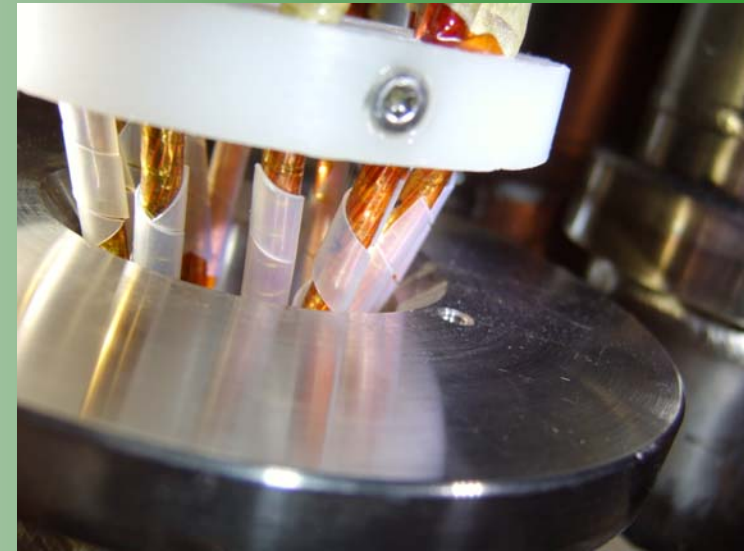
IC closure has started (About 25% closed)
Not priority from the resource point of view

Progress status of the LHC interconnections DFBA/ DFBM

Pt													Sect					Pt #C	Prog. [%]										
1							LC	HC	AT	Q7	1-2	Q7	AT	HC	LC		Q6	DMC	Q5	DMA	Q4	2	9	0%					
2						LCM			HC	AT	Q7	2-3	Q7	AT	HC		DMD	Q6					3	6	0%				
3						Q6			DMD			3-4	Q7	AT	HC		DMG				DMF	Q5	DME	Q4	4	9	46%		
4	Q4						LC	HC	AT	Q7	4-5	Q7	AT	HC	LC									5	8	70%			
5									LC	HC	AT	Q7	5-6	IM			AT			HC	LC		DMM	Q5	DMM	Q4	6	8	29%
6	Q4						LC	HC	AT	MB	6-7	Q7	AT	HC		DMH	Q6							7	8	9%			
7									Q6			7-8	Q7	AT	HC	LC	Q6				DMC	Q5	DMA	Q4	8	9	100%		
8	Q4						LC	HC	AT	Q7	8-1	Q7	AT	HC	LC									1	9	71%			
																						Global	66	43%					

- 7-8 : All DFBs are connected
- 4-5 : All DFBBMs interconnect are completed ; work is on going on both DFBA
- 8-1 : All DFBBMs interconnected (3)
 - Work is going on on R8 DFBA
 - Waiting repair on 1L of the short on 6kA cable
- 3-4 : Work is on going on DFBBMs in L4
- ATM/HCM connection are performed according to the needs
- Progress (43%) compatible with overall schedule

Progress status of the LHC interconnections DFBA/ DFBM



- 7-8 : 7R Not applicable
- 8L Specific insulation (see left picture)
- Influence on 7-8 commissioning ?
- 4-5 : 4R Inspected and protection in place
- 5L To be inspected if endoscope available
- 8-1 : 1L Opened and under repair
- 8R To be opened and repaired
- Others : OK

Progress status of the LHC interconnections

DFBL

- 5 L (DFBLD)

* Work was stopped for a “leak” in the DSL ; now situation is clear since yesterday [Redirected partially to DFBLE at 5R]

* Restart of IC works today :

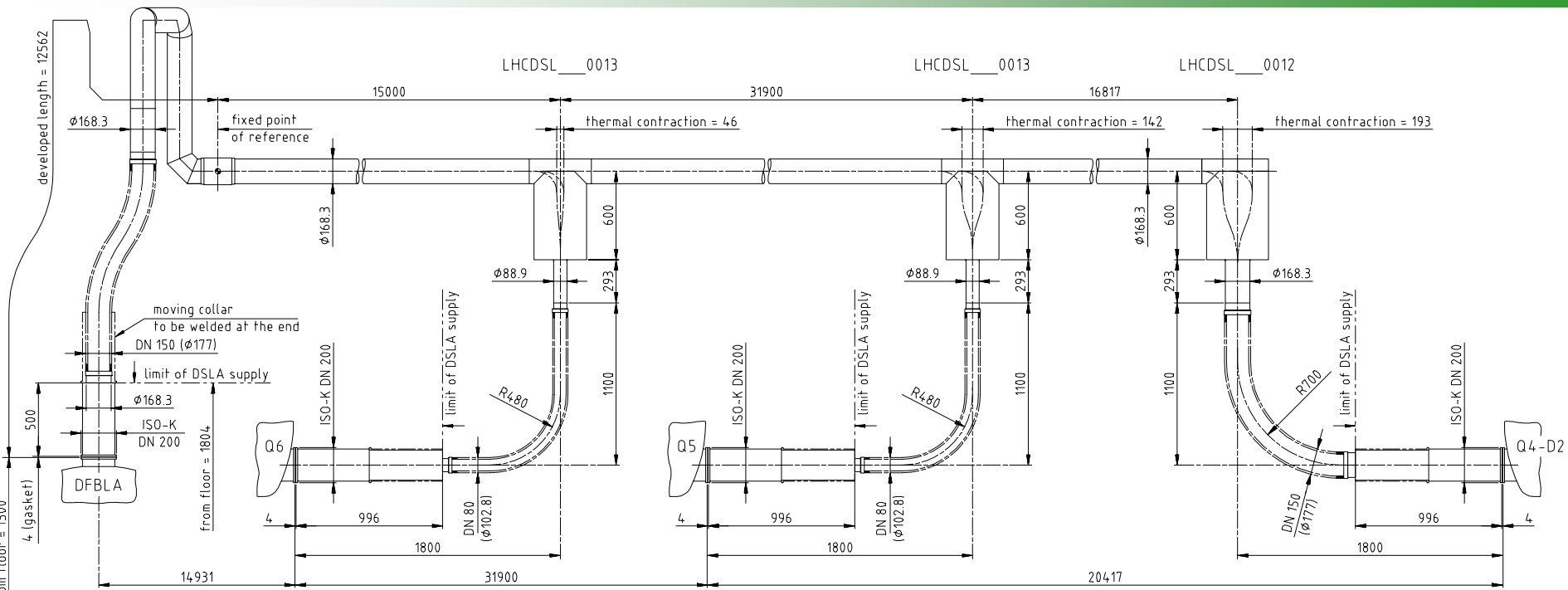
- Q5/Q6 : Electrical tests today

Installation of thermal shield and closure of IC tomorrow

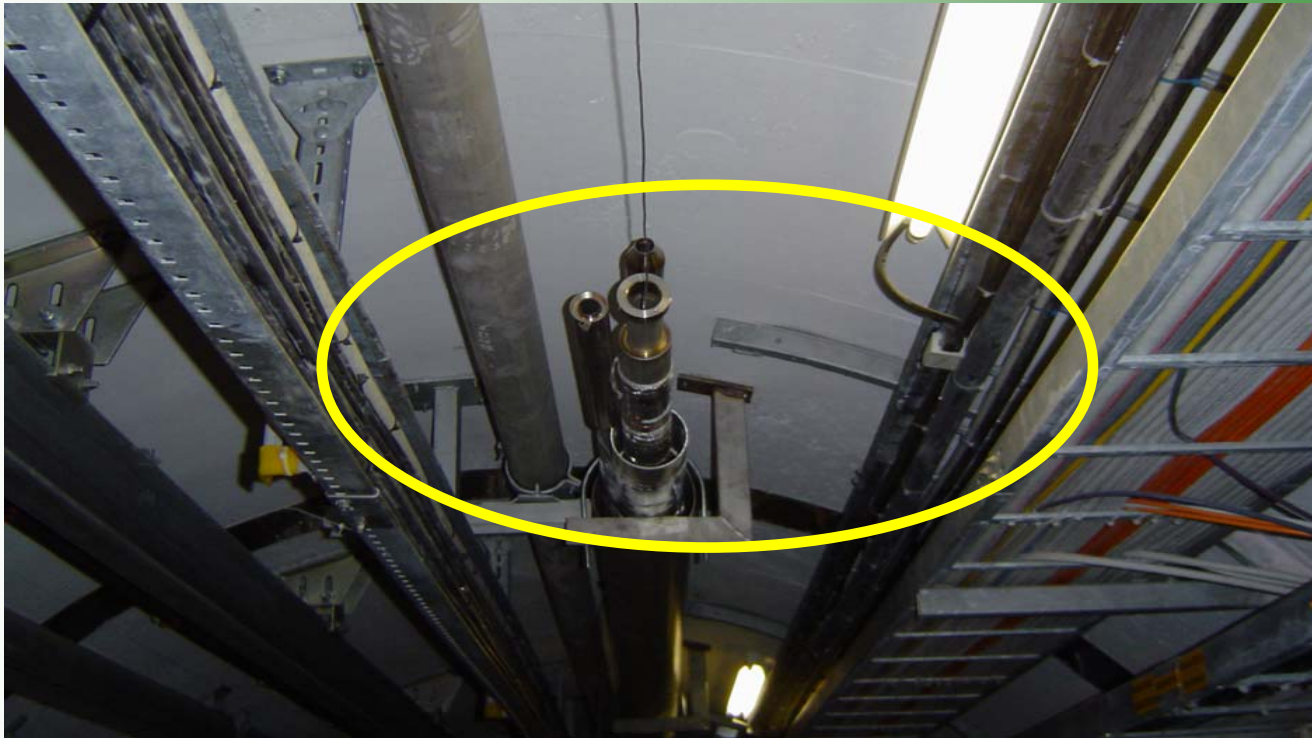
- Q4-D2: Electrical work will restart after re-closure of DSLD

- DFBLD/DSL D : Start after completion of Q4-D2 IC

Is on critical path for sector 4-5 pressure test (8 weeks)



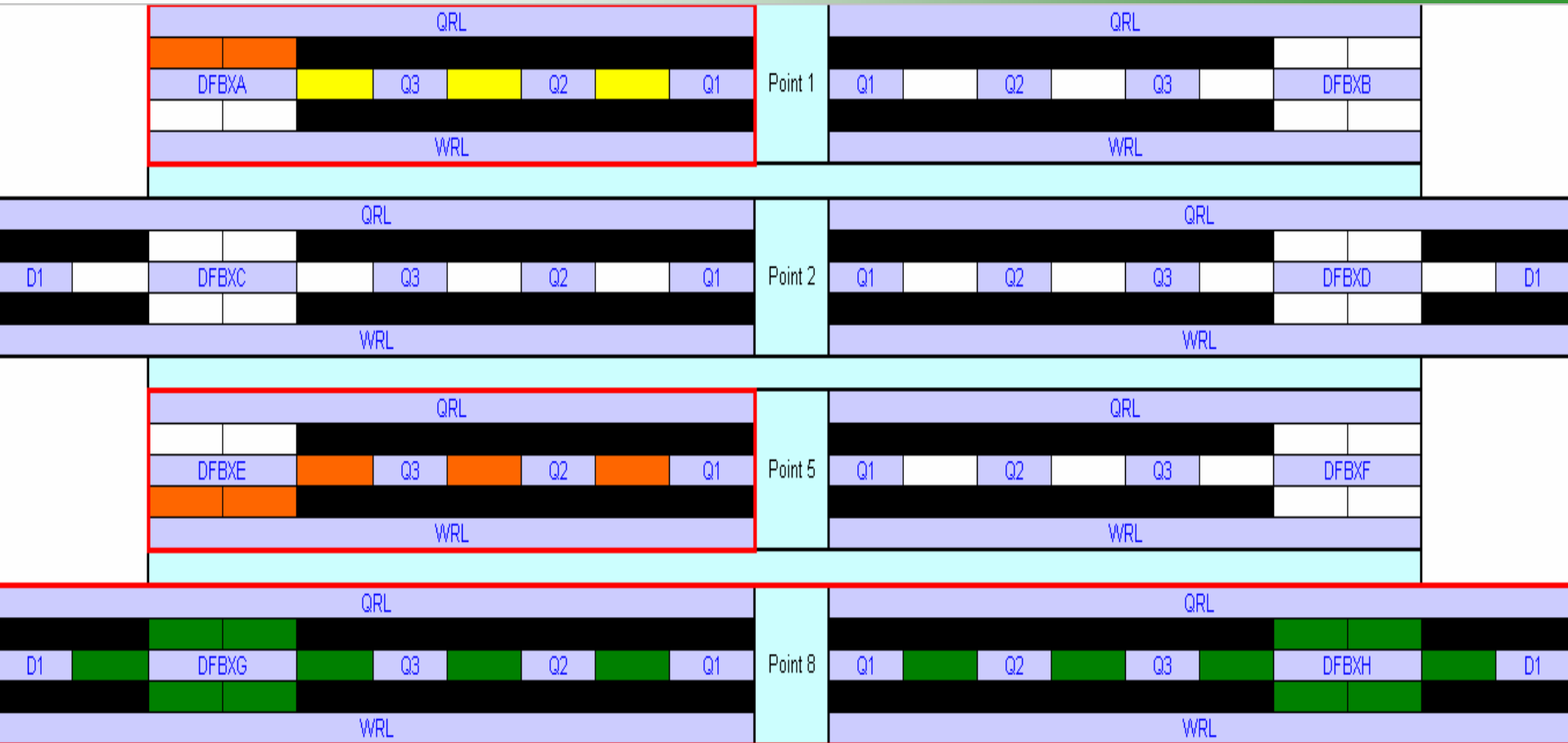
Progress status of the LHC interconnections DFBLC



Point 3 :

Additional IC to compensate for the too short cable
at a SPECIFIC location (First time so learning ...)
Stand-by due to leaks in DSLC
Is on critical path for sector 3-4 pressure test

Progress status of the LHC interconnections Inner Triplets



	not started
	electrical
	vacuum
	cryogenic
	closure

Courtesy of O Denis

Progress status of the LHC interconnections Inner Triplets

- 5 L :

* All operations possible before installation of the H pieces will be completed this week

* Decision on the repair of 5L (New tubes or PE reinforcement pieces to be taken Friday 16/2) ; this will allow to prepare the cryomagnet extremities

- 5R

* IC works is going on in 5R

- Other locations :

* Preparation of extremities (cutting) is going on based on the new tubes solution

Progress status of the LHC interconnections

Cleanliness

We noticed some grinding works on metallic structure without protection
4R, sector 8-1,...

Metallic dust found in some bellows convolution, closed to electrical
connections ...



Please remind (again and again) your teams
Raise the awareness.

Progress status of the LHC interconnections

Conclusions

- * Performing the IC work in 20 weeks (sector 1-2,6-7) is a challenge...
- * DS zones are involving a strong coordination and a lot of interfaces
- * 4-5 : Time was lost on DSL/Q_ IC ; difficult to recover
IC DSL/DFBL will be the first one so learning ...
- * Let's start DSLC as soon as possible to gain experience and identify/solve the problems
- * Progress in special IC is a little behind the arc progress ;
Will require a lot of parallel workfronts with specialised staff (Triplet repair, small delays accumulated here and there) – Resources from the standard IC will become available