



# Sector 7-8 Consolidation

- ❖ Summary of activities
- ❖ Focus on interventions affecting the electrical circuits and their potential impact
- ❖ Connection cryostats
- ❖ Conclusions

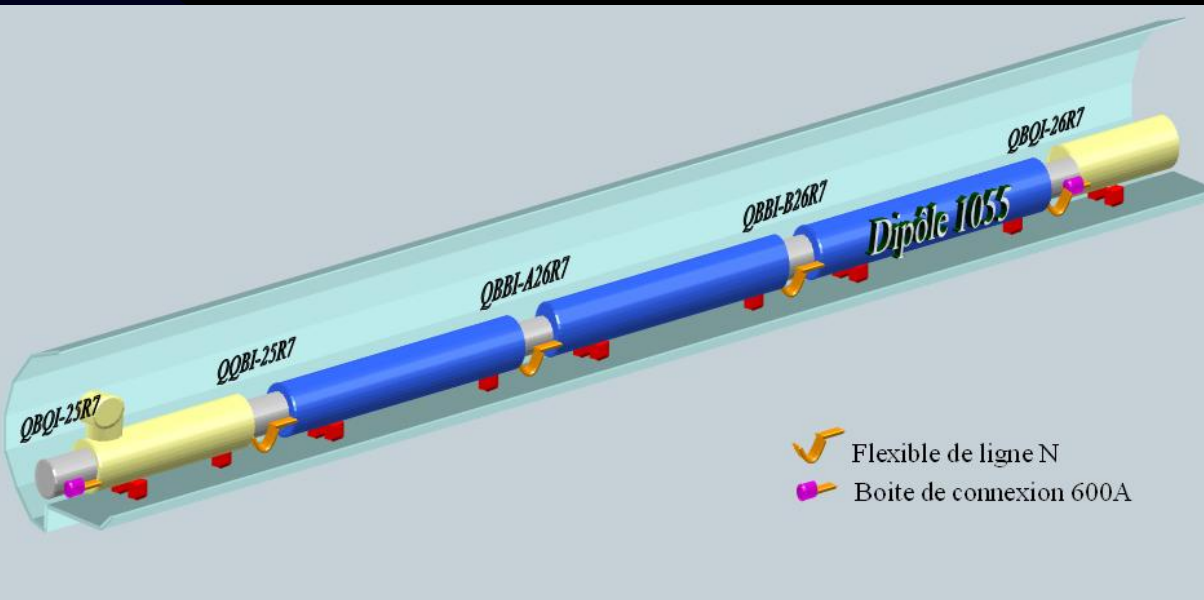


# Sector 7-8 Consolidation Summary of activities

#	Name	Elec ?	Arc/LSS	Recurrent?	Remark
1	Plug-in-Modules	No	Arc	Yes	Not foreseen / Each warm-up / Could affect LSS
2	Replacement 1055 by 1334	Yes	Arc	Potentially	
3	Line N splices	Yes	Arc	No	Once per sector / No problem so far
4	SSS 500 busbars	Yes	Arc (DS)	No	Done on all SSS-500
5	Connection cryostat instrum splice	Yes	CC	No	Done on all CC
6	Triplet L8 Repair	Yes	LSS	No	Triplet was not connected during 1st cool-down
7	Change "glued" O'rings on DFBA	No	Arc	No	Could be also in LSS
8	Improve 6 kA elec insulation on DFBAO	Yes	DFBAs	No	Done on all DFBAOs
9	Q4-D2 opening	No	LSS	No	Check after displacement
10	Short circuit in 3006	Yes	Arc	Potentially	Found on IFS
11	Short on MQD circuit	Yes	Arc	Potentially	Q22L8
12	Leaks 32L8/7R7	No	Arc	Potentially	Could be also in LSS
13	Cryogenics heaters / burnt MLI	No	Arc	No	Corrective and repair actions taken
14	Line Y check and repair	No	Arc	Potentially	Was defect imported from surface
15	Q5L8 : elec NC	Yes	LSS	No	Warm magnet in replacement
16	Connection cryostats lyras	Yes	Arc (DS)	No	Done in all sectors but 5-6

# Sector 7-8 Consolidation

## Replacement of 1055 by 1334

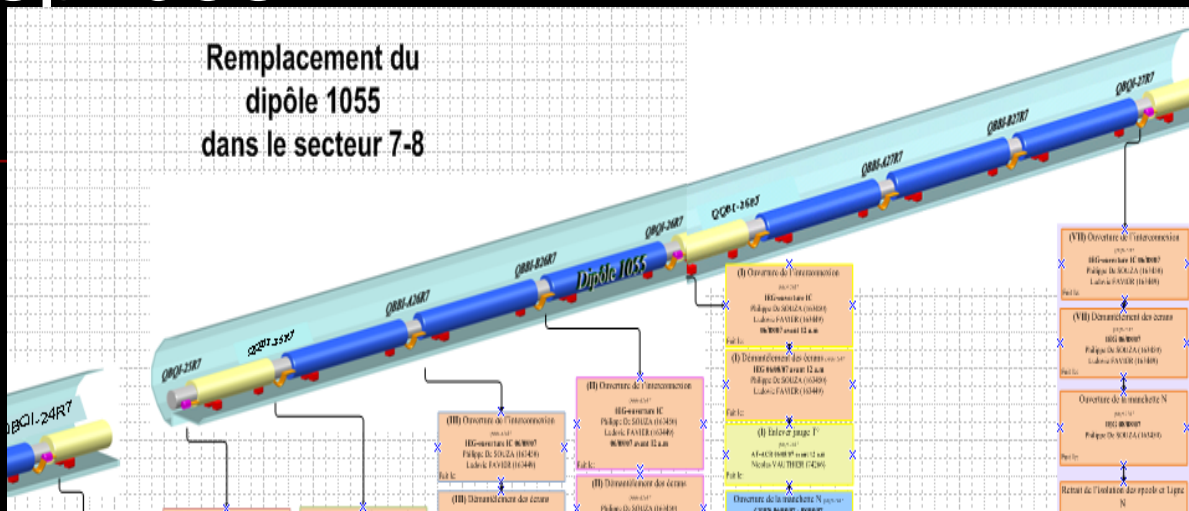


### Affected circuits :

- Main dipoles (M3)
- Main quadrupoles (M1&M2)
- Spool pieces (M1&M2)
- Line N

Electrical qualification successfully performed after reconnection

# Sector 7-8 Consolidation Line N splices



## 4 line N boxes open for replacement of cryodipole 1055 :

- \* Visual inspection carried out
  - QBQI.24R7 : 5 connection were corrected but no risk of breaking
  - QBQI,25R7 : No unacceptable NC but redone during normal activities
  - QBQI,26R7 : No unacceptable NC but redone during normal activities
  - QBQI.27R7 : 1 NC splice but acceptable as is
- \* Note : No evidence of “very” bad splice during HC tests

## Affected circuit :

- Line N

Electrical qualification successfully performed after reconnection



# Sector 7-8 Consolidation

## SSS-500 busbars

6 units were concerned in 7-8 :

Q7R7, Q8R7, Q9R7, Q10R7, Q11R7, Q11L8

All BB have been shortened

Affected circuits :

- Main dipoles (M3)
- Main quadrupoles (M1&M2)
- Spool pieces (M1&M2)

Electrical qualification successfully performed after reconnection





# Sector 7-8 Consolidation Triplet L8



## Affected circuits :

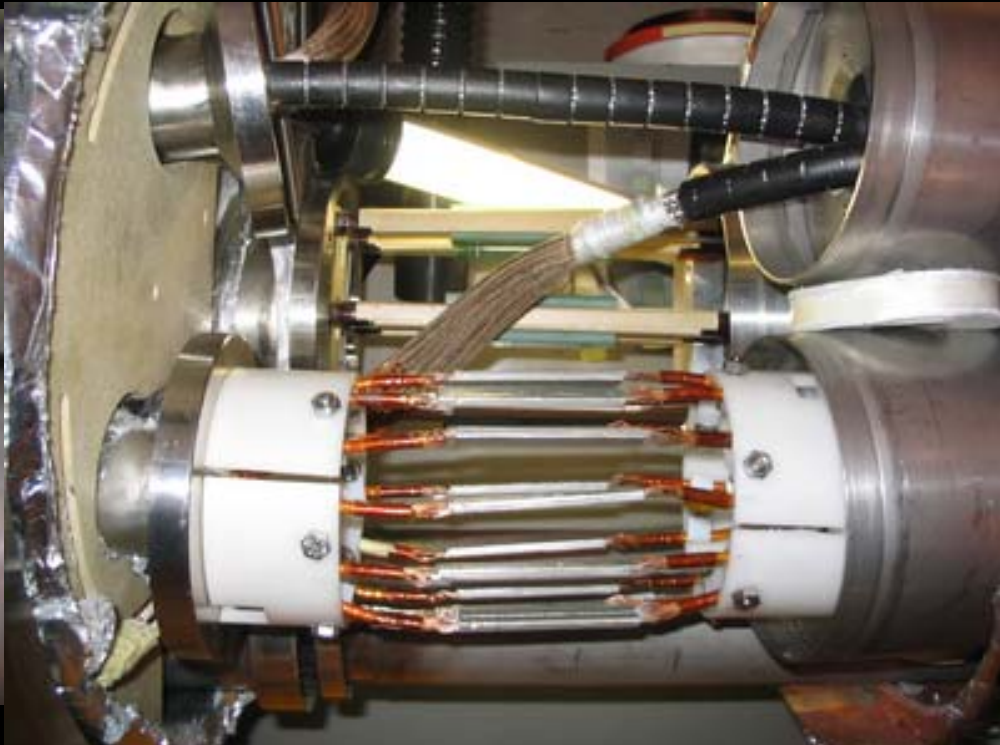
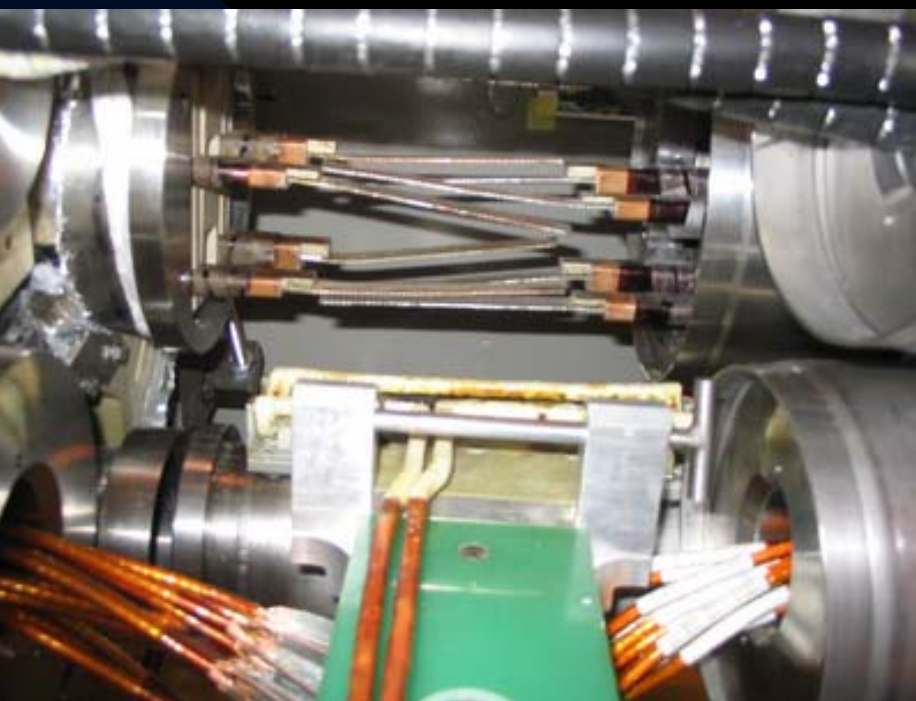
- All triplet circuits including D1 magnet

Electrical qualification successfully performed after reconnection



# Sector 7-8 Consolidation

## Improve insulation on DFBAO 6kA splices



### Affected circuits :

- All 6 kA circuits powered from DFBAO (L8)

Electrical qualification successfully performed after reconnection



# Sector 7-8 Consolidation

## Short circuit on 3006



IFS cut

Visual inspection revealed defect –

Repaired, tested, reclosed

Affected circuits :

- In IFS of 3006





# Sector 7-8 Consolidation

## Short on MQD circuit (Q22L8)

Reappeared during warm-up at same location and about same T as during cooldown



### Affected circuits :

- MQD
- spool pieces in M2 line

Electrical qualification successfully performed after reconnection



# Sector 7-8 Consolidation

## Elec NC on Q5L8/DFBMC

+ NC 831928 : HV breakdown

Localised in a Fischer connector ; repaired

+ NC 831927 High resistance

Localised on the Q5 side

Link between DFBM and Q5 opened

Warm magnet for compensation

Affected circuits :

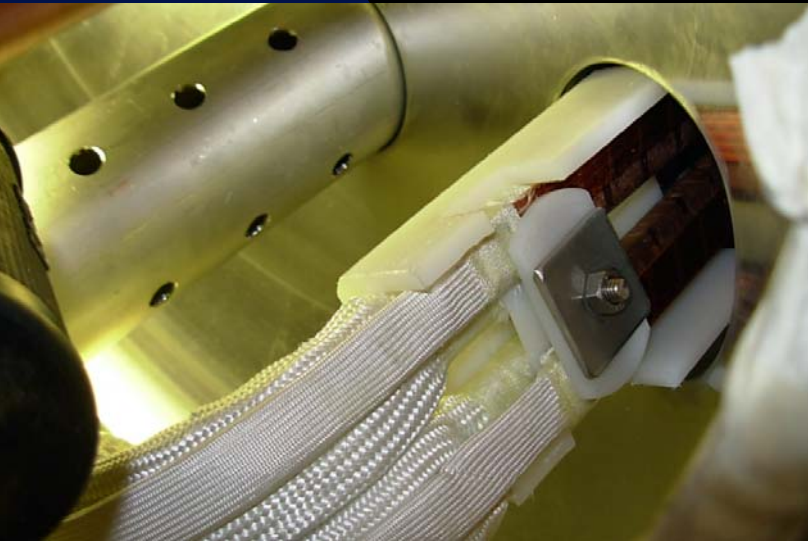
- Q5/DFBMC circuits



# Sector 7-8 Consolidation

## Connection cryostats

+ Not during consolidation but after start of cool-down  
(February 2008)



### Affected circuits :

- Main dipoles (M3)
- Main quadrupoles (M1&M2)
- Spool pieces (M1&M2)

Electrical qualification successfully performed after reconnection

MPP

28/04/2008



# Sector 7-8 Consolidation

## ❖ CONCLUSIONS

- All known problems have been treated
- Some circuits will be powered for the first time during the next tests (Triplets, ... )
- All possible tests to be done at warm were done
- Most of the circuits were touched so a re-qualification is necessary