



Consolidation of sector 7-8

- ❖ UPDATE FROM MARIC 15.08.2007

- ❖ Started on 6/8/2007 as foreseen
One week delay for Triplet

- ❖ **Status of Interventions**

Arc/LSS – Recurrent / Potentially recurring

- ❖ **Evolution of unknowns**

`\cern.ch\dfs\Workspaces\s\Sector81Interconnect\Sector 7-8\Repair`
at shut down - Summer2007**/



Consolidation of sector 7-8

Planned interventions : Arc / Non-recurrent

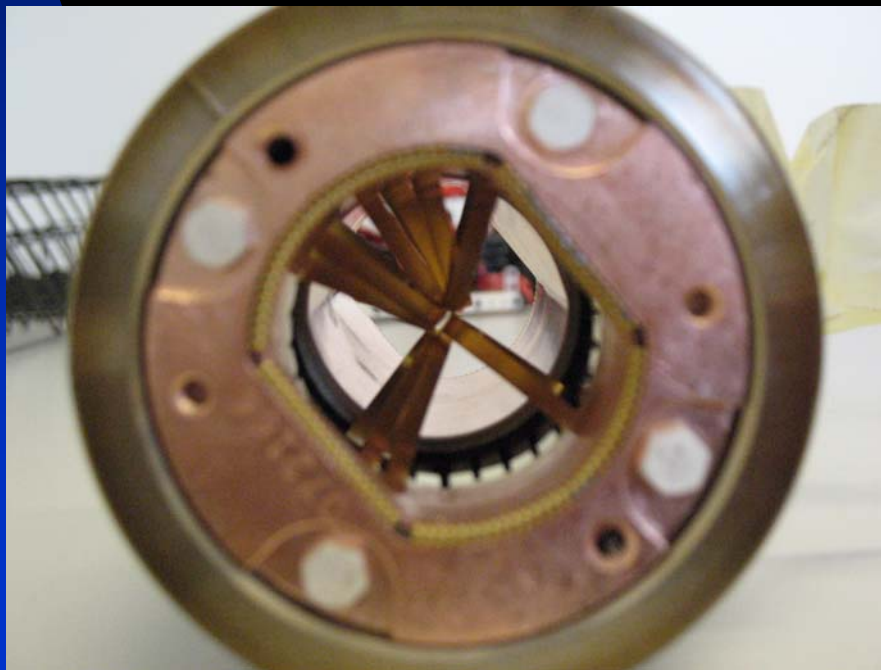
- Replacement of wrong PIMs (8ICs)

Removal will be completed today 17/8/2007 (7/8 IC done)

First adapted ones are available

Necessary to replace them

Reinstallation restarts middle of next week (on schedule)





Consolidation of sector 7-8

Planned interventions : Arc / Non-recurrent

* Replacement of cryodipole 1055 by 1334 (26R7)

Longest intervention in the arc but “standard” activities

Cryodipole was ready for removal on 10/8/2007

Problem with the transport equipment

Perturbation to other sectors

1334 was put in place 15.08.2007

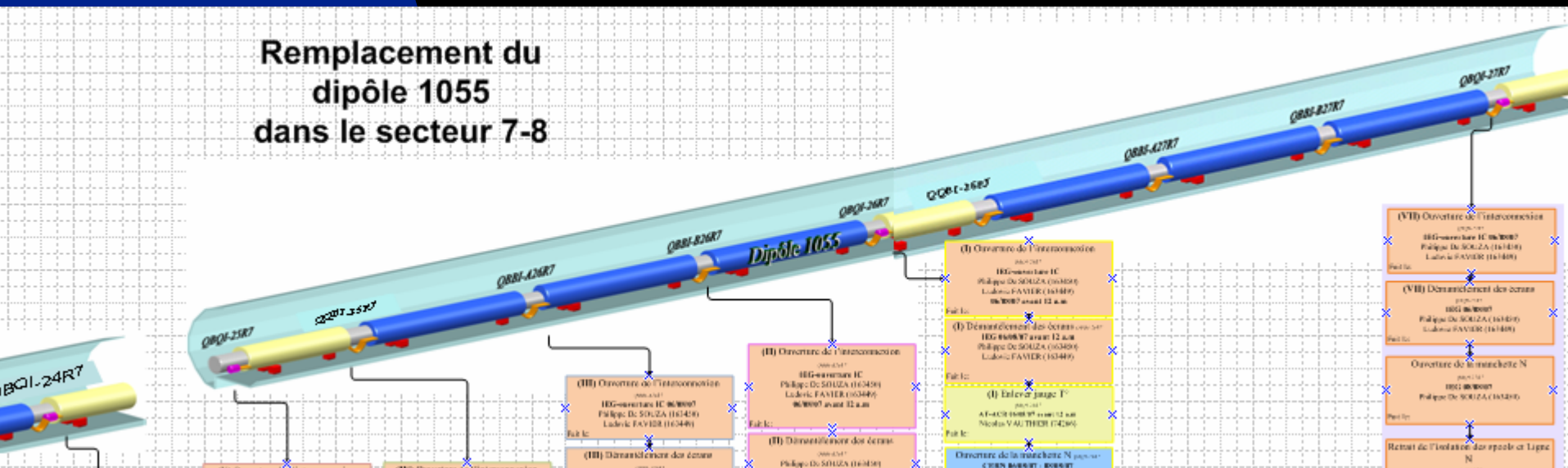
Additional delays as survey team was requested on Q26R7

Still OK for overall schedule but becomes critical (1-2 days!)

Consolidation of sector 7-8

Planned interventions : Arc / Non-recurrent

- * Inspection of line N splices (4 line N boxes open) with highest standards
 - 2 boxes were already inspected during assembly
 - 1 with one NC splice but acceptable as is
 - 1 with 5 NC splices to be repaired but no risk of breaking
- As no risk of breaking of splice, MARIC endorsed the proposal to close the subject.





Consolidation of sector 7-8

Planned interventions : Arc / Non-recurrent

* SSS-500 series (#6)

M lines are open

Shortening is progressing according to schedule (4/6 done)

Will be completed end of next week

The 2 first inspections are done (results under analysis)





Consolidation of sector 7-8

Planned interventions : Arc / Non-recurrent

- * Improve CC splices of instrumentation

To be completed in 7-8 today 17.08.2007

- * Replace damaged line X bellows : Done

Visual Inspection today 17.08.2007

Leak test with clam shells next week

- * Inspect some beam line bellows

All inspected / All “use as is” except one nested to be reinforced with resin

- * Adapt QRL JT valves

Planned for week 38



Consolidation of sector 7-8

Planned interventions : LSSs / Non-recurrent

Inner triplet repair

See R Ostojic slides. C Garion transparencies

Schedule :

- * Started one week late... increase parallelism allows to remain within original schedule

- * Removal of Q1L8 creates extrawork and delays of 1.5 week (Closure mid of W40 – 3.10.2007)

Provided that Q1L8 is available for reinterconnection 30/8/07

Slight impact on other triplets

More impact if triplet 5L is put in priority.



Consolidation of sector 7-8

Planned interventions : LSSs / Non-recurrent

* Replace O rings on DFBA/Q& R7 IC (Glued seal)

Availability of vulcanised seal in September !

IC open for leak detection in DSR7

* Improve electrical insulation of DFBAO 6kA

Opening by TS-MME on 20/8

• Q4-D2 opened for inspection ; support to be reinforced

- motion of 6.2/8.2 mm on beam lines

- motion of cold masses of 1 mm wrt cryostat

- shortening of IC by 9mm

- endoscopic and RF inspection : pending



Consolidation of sector 7-8

Planned interventions : LSSs / Potentially recurring

- DFBMC short circuit

- HV breakdown : NC831928

- Localised in a Fischer connector ; repaired

- High resistance : NC 831927

- Localised on the Q5 side

- Does it need to be repaired ? ... now ?

- Closure of DFBA module launched

- Link IC left open for additional test by MEL up to 23/8

- ...



Consolidation of sector 7-8

Planned interventions : Arc / Potentially recurring

* Short on MBB circuit at 3006 cryodipole

IFS cut on Monday 6/8

Visual inspection revealed defect –

Repaired, tested, reclosed : COMPLETED





Consolidation of sector 7-8

Planned interventions : Arc / Potentially recurring

* Short on MQD (Q22L8)[See presentation ELQA]

Opening of 1 IC (QQB) and 2 M lines ;

Unsoldering of main BB (Cut of SPPBB)

Endoscopic inspection revealed a defect. It is THE defect ?

Defect was reproduced at RT by moving the lyra.

Bellows cut ; next week, reinforcement of insulation





Consolidation of sector 7-8

Planned interventions : Arc / Potentially recurring

* Leaks

CM to insulation vacuum (32L8)

3 ICs are opened

Localised in M2 line (imported leak) [QBQI.32L8]

C'/K : (7R7)

9 ICs opened

Two C' sleeves cut to allow access for leak test

Jumper Q9 under opening

Leak not yet localised

* Repair cryo thermometers (#5)

Completed



Consolidation of sector 7-8

Planned interventions : Arc / Potentially recurring

* Cryogenics heaters :

Discovered during activities on 1055

One burnt MLI – Source heater on K-C' circuit

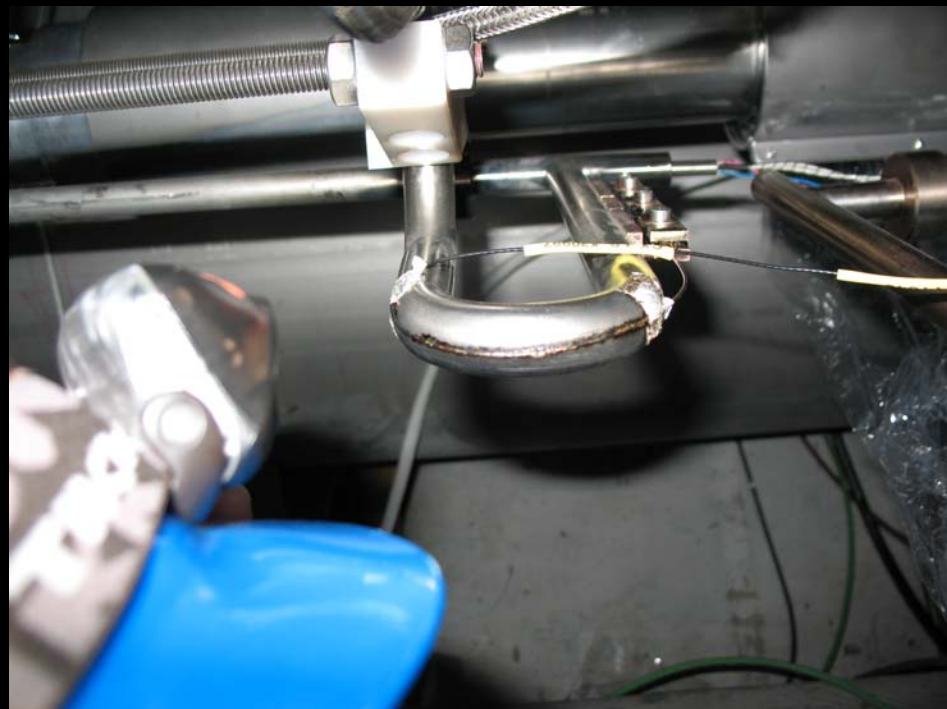
7 QBQI IC with heater inspected (26 in a sector)

4 : RAS

2 : Small degradation (hole or discoloration)

1 : Major defect (Q28R7) – Will be repaired

Already noticed in 8-1 ; Actions are taken by ACR





Consolidation of sector 7-8

Planned interventions : Arc / Potentially recurring

- Check and possibly repair line Y interconnection (Q9L8)

IC opened ;

Line Y was correctly connected in IC

Additional investigation localised the defect in the SSS

One additional IC open, phase separator open

Repair carried out and tested OK

Phase separator still to be closed (next week)

Then leak tested.

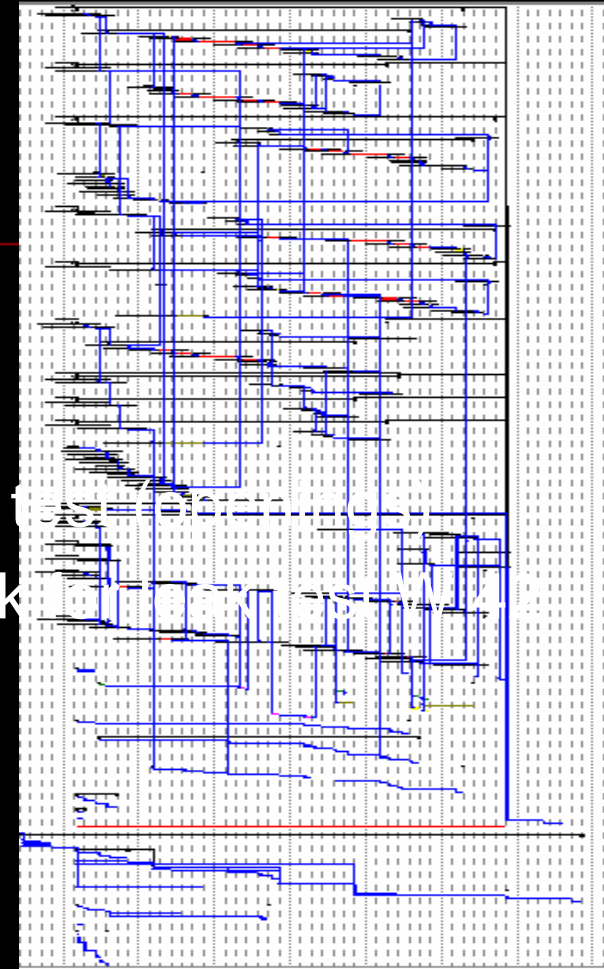
Cause : Badly soldered line Y to phase separator



Consolidation of sector 7-8

Schedule overview

- W31 : Preparation ; Was foreseen LSSs
- W32 : Opening of all ICs in 2 days – IEG
- Arc : W32-37 for interventions + 3 wk for leak t
- LSS : **W32-40 (Q1L8)** for interventions + 2 wk
- W39 : BLM / Survey instrum
- End : W42 (21/10/2007)





Consolidation of sector 7-8

Unknown (risk level)

Line N splices (Low) : **Closed**

3006 short : **Repaired** : **Completed**

Leak at DSR7 (Low) – **(Medium)**

Leak at 32L8 (Medium) – **(Low)**

Line Y at Q9L8 **Repaired**

Cryogenics heaters (Medium) – Closed

Q4-D2 damage (Medium)

Inner triplet schedule (Medium) – **(High)**

Leaks during closure – delay (High)

Short at Q22L8 (High) – **(Medium)**

SSS-500 (High)

PIMs and closure of IC stopped ! **(High)**