



Consolidation of sector 7-8

- ❖ 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

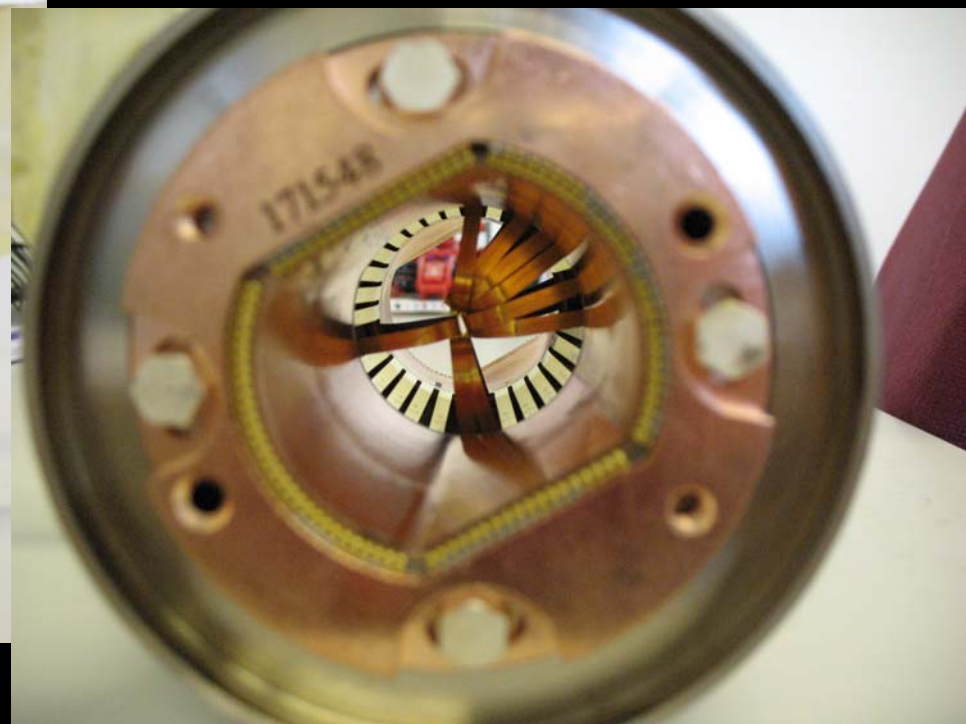
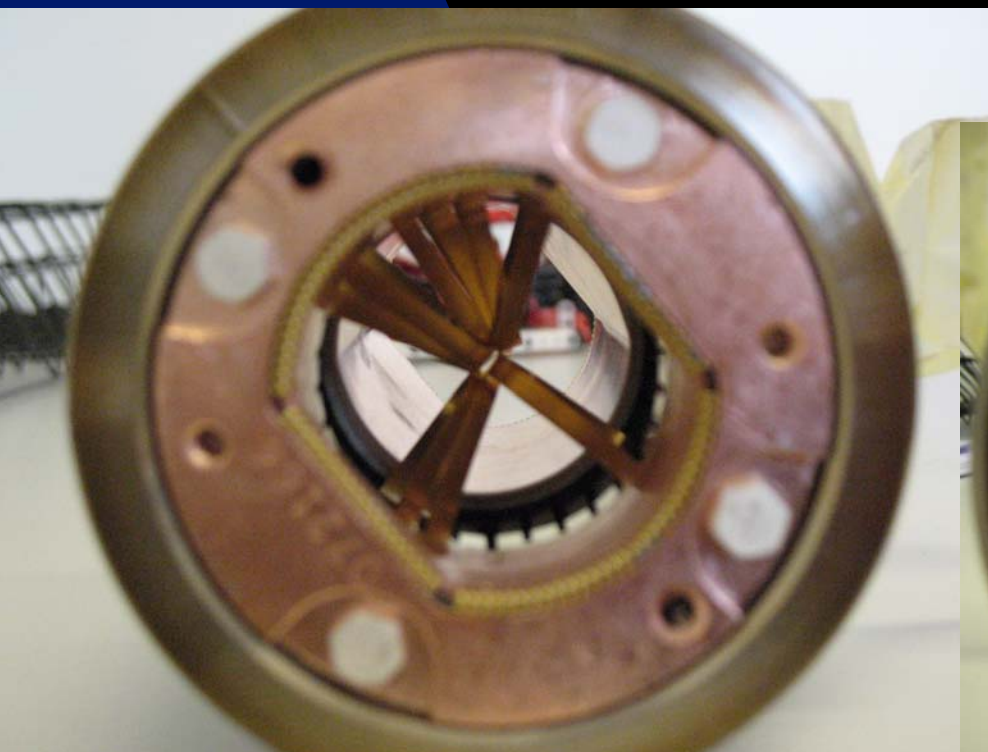
Planned interventions : Arc / Non-recurrent

- Replacement of wrong PIMs (8ICs)

Removal will be completed 17/8/2007

First adapted ones are available

Necessary to replace them





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 to be put in place today

Still OK for overall schedule



Consolidation of sector 7-8

Planned interventions : Arc / Non-recurrent

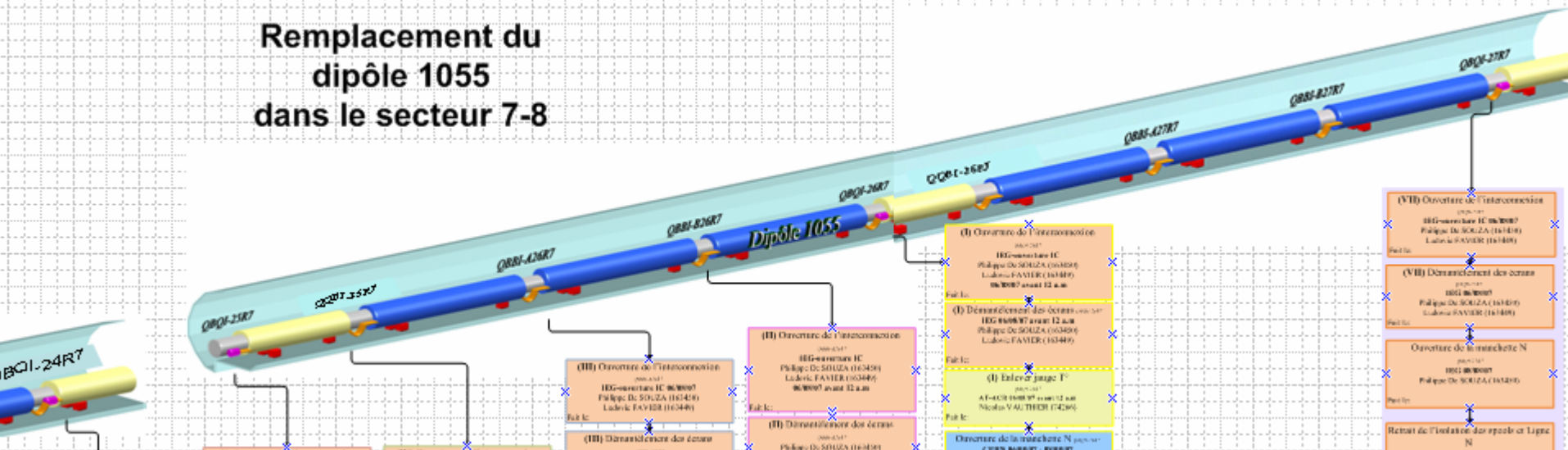
* Inspection of line N splices (4 line N boxes open) with highest standards

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

Remplacement du dipôle 1055 dans le secteur 7-8





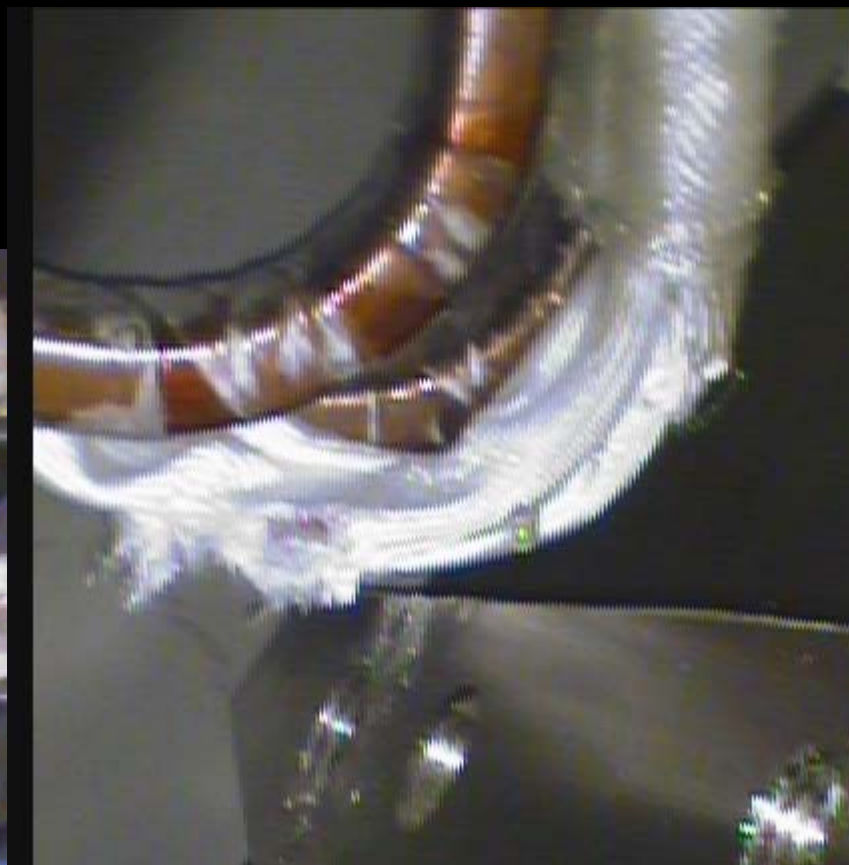
Consolidation of sector 7-8

Planned interventions : Arc / Non-recurrent

* SSS-500 series (#6)

M lines are open

Shortening is progressing according to schedule





Consolidation of sector 7-8

Planned interventions : Arc / Non-recurrent

- * Improve CC splices of instrumentation

Planned at the end of this week

- * Replace damaged line X bellows (known before closure)

To be completed 16/8/2007

- * Inspect some beam line bellows

2 To be inspected / All other "use as is"

- * Adapt QRL JT valves

?



Consolidation of sector 7-8

Planned interventions : LSSs / Non-recurrent

Inner triplet repair

Opening of interconnection

Inspection revealed a damaged spider on Q1L8

Decision to repair at the surface

Q1 was disconnected yesterday, ready for transport

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



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 !

* 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 planned this week



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 ?

...



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





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. Is it THE defect ?

Defect was reproduced at RT by moving the lyra.

Investigations and analysis are going on





Consolidation of sector 7-8

Planned interventions : Arc / Potentially recurring

* Leaks

CM to insulation vacuum (32L8)

3 ICs are opened

? On exact localisation

C'/K : (7R7)

7 ICs opened ; 2 more tomorrow

Two C' sleeves cut to allow access for leak test

Leak not yet localised

* Repair cryo thermometers (#5)

On-going ; satisfactory progress



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

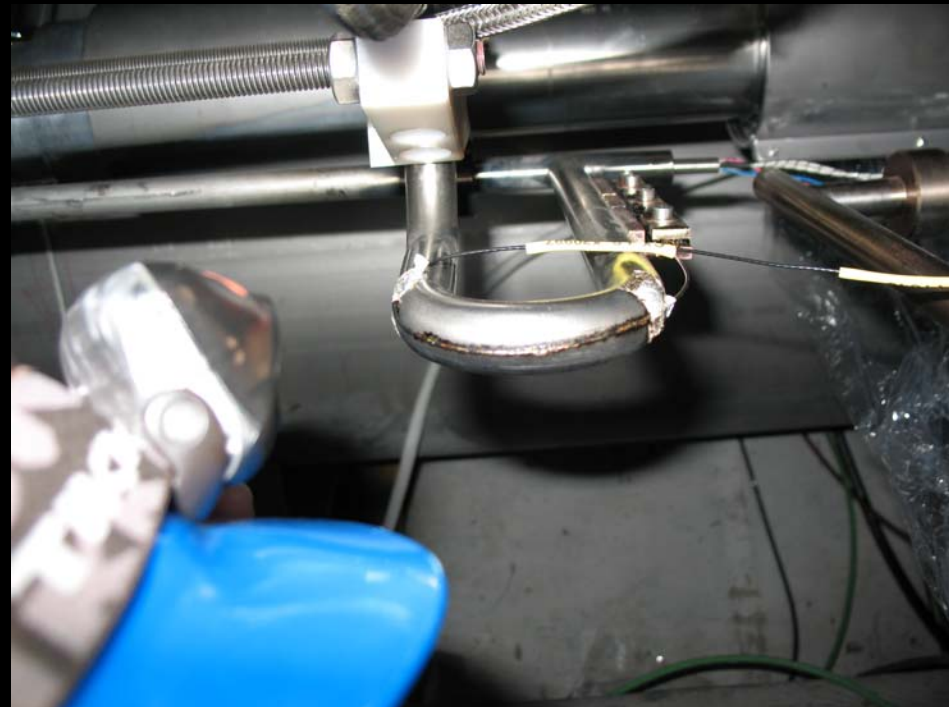
7 QBQI IC with heater inspected (26 in a sector)

4 : RAS

2 : Small degradation (hole or discoloration)

1 : Major defect (Q28R7)

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





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

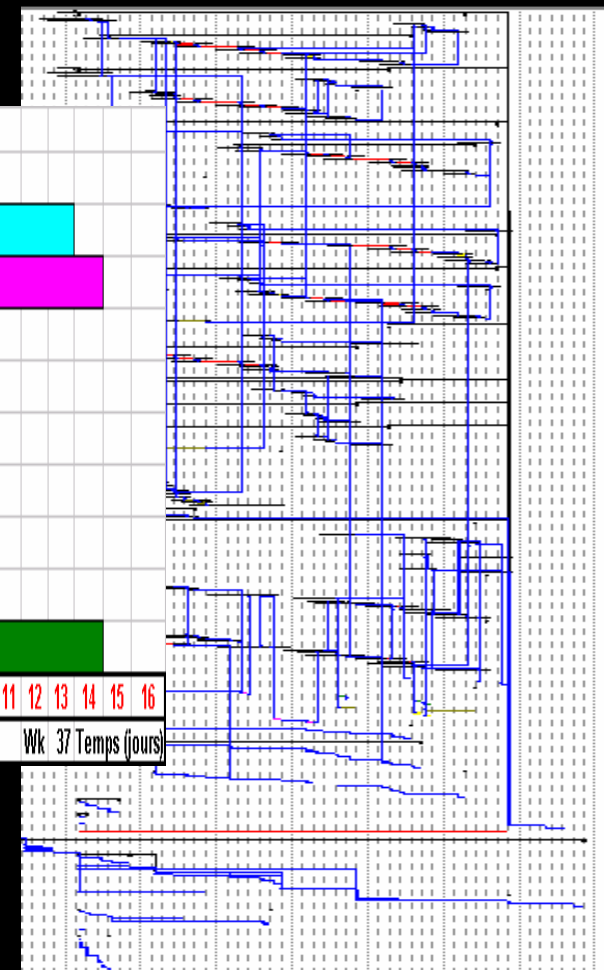
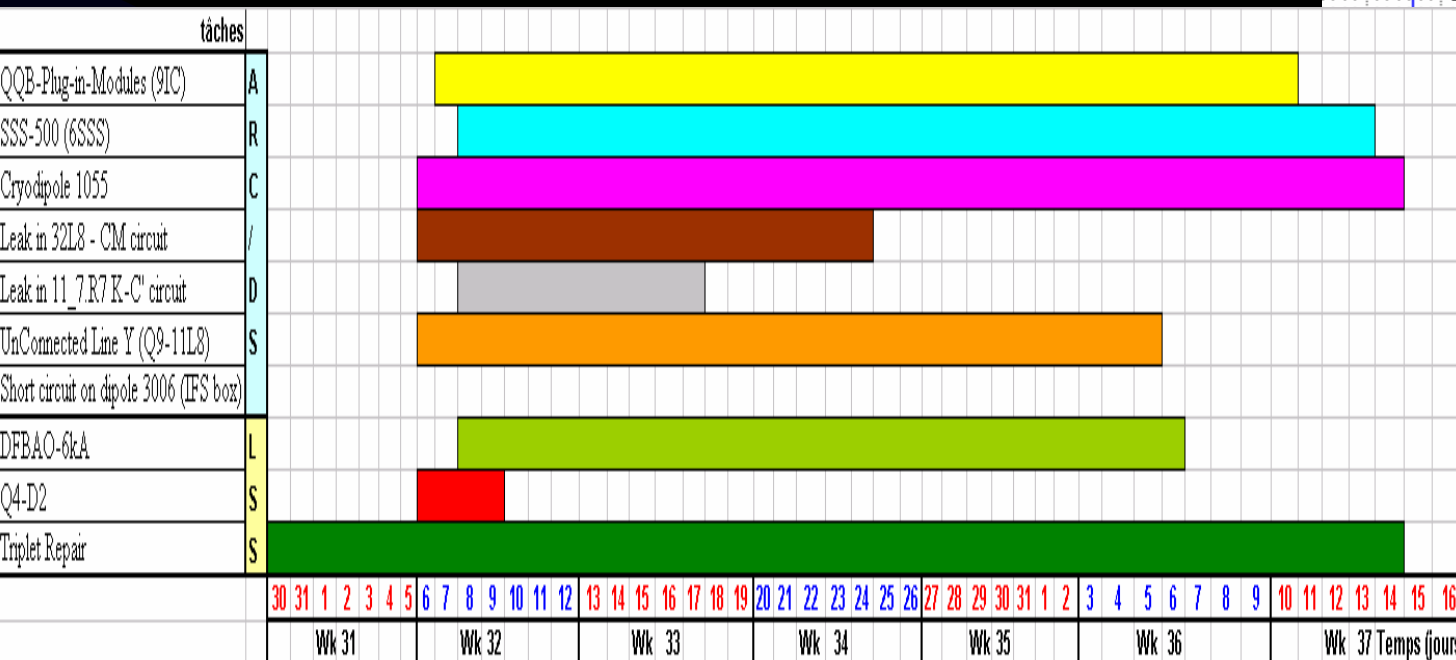
Phase separator still to be closed

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 test (openings)
 LSS : **W32-40 (Q1L8)** for interventions + 2 wk for leak test W 42-
 39 : BLM / Survey instrum

MARIC End : W42 (21/10/2007)
 15/08/2007



Consolidation of sector 7-8

Unknown (risk level)

Line N splices (Low)

3006 short : **Repaired**

Leak at DSR7 (Low) – **(Medium)**

Leak at 32L8 (Medium)

Line Y at Q9L8 **Repaired**

Cryogenics heaters (Medium)

Q4-D2 damage (Medium)

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

Leaks during closure – delay (High)

Short at Q22L8 (High)

SSS-500 (High)