LHC arc interconnection report
Resume of situation arc

• 3-4: research of leak E line in jumper DFBA L4
• 2-3: 1 leak to be repaired in consolidation phase in sector 7L3. Pressure test end of week 46
• 1-2: last IC closed, all sector to be leak tested
• 7-8: leak testing and repair started
• 8-1
  – closing interconnects of new Q17R8. Repair He gauge tomorrow. Closure as planned end of week. Request to ACR instrumentation team to verify asap the He gauges in other sectors (1-2 and last part 2-3). Possible deformation of bellow due to wrong manipulation
  – TS-MME intervening on the DFBAs
Resume situation special interconnect

- **4-5:**
  - 5L working on triplet providing priority to AT-VAC for connection to CMS
- **3-4:**
  - IC QDQI7R3 opened and also line N to allow DSLC ELQA tests
  - Electrical IC between DFBLC and DSLC done and successfully tested;
  - Cryogenics lines under closure including rework of the extremities in case of needs
- **2-3:**
  - Triplet at 2R is completely closed; pumping will start this afternoon.
  - Q6L3 is connected to QRL and under leak test
- **1-2**
  - Triplets are under closure:
    - Triplet 2L: Possible obstruction on E line; one IC has been cut to allow endoscopic inspection.
    - LSS1R: Additional cryo instrumentation: additional port are under installation on Q3 cryostat and Q4 jumper (DSL circuit) (Holes done; welding at the end of this week); for Q4-D2 and DFBAB, routing via existing ports.
- **7-8:**
  - Triplet 8L: leak on the CM circuit reappeared; not yet localized. One IC has been reopened to allow accumulation test.
- **8-1:**
  - Triplet 8R: waiting realignment of cryomagnets to start leak test of external envelope
- **F523 Contract:** Negotiation are well advanced for the extension up to April 2008. Functional test of induction soldering machines are taking place on 8/11/2007
The LHC arc interconnection

• 1695 interconnect magnet to magnet
• 224 interconnect magnet to QRL
• Each interconnect
  – 18 assembly actions divided in 9 interventions
  – 5 leak tightness check
  – 5 electrical tests
  – 1 RF test
• A sector
  – 1964 assembly interventions
  – 226 electrical tests on sub-assemblies
  – 70 vacuum tests on sub-assemblies
  – 14 RF test on sub-assemblies
Magnet to magnet electrical interconnection
Electrical tests

- Electrical tests 7-8
- Electrical tests 8-1
- Electrical tests 8-1
- Electrical tests 1-2
- Electrical tests 6-7
- Electrical tests 2-3
- Electrical tests 5-6
- Electrical tests 3-4
- Electrical tests 4-5
- Total electrical tests

80 tests/week

8 tests/week

20 tests/week
Welding in equivalent sleeves

- Equivalent sleeves welded 7-8
- Equivalent sleeves welded 8-1
- Equivalent sleeves welded 1-2
- Equivalent sleeves welded 6-7
- Equivalent sleeves welded 2-3
- Equivalent sleeves welded 5-6
- Equivalent sleeves welded 3-4
- Equivalent sleeves welded 4-5
- Total equivalent sleeves welded

- 35 sleeves/week
- 120 sleeves/week
- 250 sleeves/week
W closures

![Chart showing W closures over time with various categories like Close W 7-8, Close W 8-1, Close W 4-5, etc.](chart.png)
From November IEG deployed 15000 man hours/month
Change in interconnection coordination

• From Monday 12/11/07 the interconnection coordination of special interconnect and arc will be covered by a Jean Philippe Tock with Andrea Musso
Consolidation of IC Quality Control documentation in November – December 2007: some examples

- ICIT: extension of a few contracts
  
  transfer of inspection documentation (D. Tommasini)

- PIMs: analysis of IC distance – merging SMI2 measurements with production data at CMAs

  A. Poncet, J. Perreira, D. Missiaen - TS/SU (merci!)

- Recorded production data (TIG welding, BB brasing, US welding)

  Work well advanced thanks to E. Wildner, Z. Gao (6-month extension of contract until February 2008), T. Pettersson TS/CSE, R. Lyzwa TS/CSE

  ... but urgently need TS/CSE support to finish this work, please
LHC Interconnection Quality Assurance

LHC LAYOUT - INTERCONNECTION OPEN NC'S RESUME

Sector 1-2
Sector 2-3
Sector 3-4
Sector 4-5

(Choose the Sector to see)

LHC Interconnection Quality Assurance

SECTOR 7-8

IC distance  | Inspections  | Welding Data  | Contact Point  | Defects List  | Statistics

Difference value to nominal distance between IC Beam Screen Flanges

The values presented are from measurements done by TESLA, and they include the alignment on the tunnel.

- Positive value means that the IC length is above nominal that value.
- Negative value means that the IC length is below nominal that value.

<table>
<thead>
<tr>
<th>IC</th>
<th>Y1</th>
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Just thanks and ...