

Planning of MU22 Main Bus-bar
and SS07 XSE Sextupole Replacement

Technical Stop Wednesday-Thursday
7-8/October 2009.

Preparation.

15/September

09:00 Bus-bar removal dry run in 151 workshop. (D.Bodart. + Transport)

5-6/October

Low intensity MD.

07/October

06:00 Beam off 06:00. To be confirmed by OP and RP.

06:00 All PS elements off. i.e. Ring, Injection and Extraction lines + LEIR lines.

08:00 RP radiation measurements. (M.Widorski)

08:00 Consignation of MPS, PFW's, Figure of 8, Back Leg windings.
(D.Bodart)

08:00 Consignation of XSE and Triplets. (D.Bodart + First line).

08:30 Access to PS tunnel.

Bus-bar Replacement.

Wednesday 7/October

- 08:00 – 08:30 Close vacuum sector valves, sectors 10 and 30. (J.Hansen)
- 08:30 – 09:00 Return replacement bus bar to tunnel via door 121. (OP Blind Access +Transport)).
- 08:30 – 09:30 Break vacuum with nitrogen in both sectors 10 and 30. (J.Hansen))
- 08:30 – 09:30 Disconnect and remove Ion Pump HV boxes on MU22. (J.Hansen))
- 08:30 – 09:30 Alignment measurement of Septum 23 before removal. (T.Dobers)
- 08:30 – 09:30 MU22 and MU23 cooling water off. (Access cable gallery D.Bodart)
- 08:30 – 09:30 MU22 Remove connection covers and disconnect bus-bar. (D.Bodart)
- 09:30 – 10:00 Remove Septum HT cables 15min. (A.Prost)
- 09:30 – 10:00 Remove septum control cables 15min. (A.Prost)
- 10:00 – 10:30 Disconnect vacuum flanges. (J.Hansen)
- 10:00 – 10:30 Remove septum complete with chassis, 25min. (Transport)
- 10:30 – 11:00 Remove stairs over MU22. (Transport)
- 10:30 – 11:00 Blank off flanges MU23. Restart pumping to protect SMH26 and SS21 BFA and KFA Kickers. (J.Hansen)
- 10:30 – 11:00 Remove Ion Pump down stream end of MU22. (J.Hansen)
- 10:30 – 11:00 MU23 Remove connection covers and disconnect bus-bar. (D.Bodart)
- 11:00 – 12:00 Remove damaged bus-bar. (Transport)
- 12:00 – 12:30 Lift replacement bus-bar into position. (Transport)

LUNCH.

- 13:30 – 14:30 Remove damaged bus-bar from the tunnel via door 121 to workshop 151. (OP Blind Access + Transport)
- 13:30 – 14:30 Bus-bar shimming, replace covers and reconnect. Cooling On (D.Bodart)
- 14:30 – 15:30 Re-installation of septum including alignment. (A.Prost. T.Dobers)
- 14:30 – 15:30 Return stairs over MU22 into position. (Transport)
- 15:30 – 16:30 Reconnection of all septum cables and HV insulation oil refilling.
- 15:30 – 16:30 Vacuum reconnection + re-install MU22 ion pump. (J.Hansen)
- 16:30 – 17:00 Vacuum pumping. (J.Hansen)
- 17:00 – 18:00 HV tests from reference room. No access to tunnel. (D.Bodart)
- 19:00 – 19:30 Initial vacuum test. (J.Hansen)
- 19:30 – 08:30 Vacuum Pumping all night. (J.Hansen)
- 20:00 – 08:30 Septum HV reconditioning.
- 20:00 – 08:00 Protons to Booster for Isolde. (OP)

Thursday 8/October

08:30 – 09:30 Vacuum tests. (J.Hansen)
09:30 – 10:00 De-consign MPS.
10:30 – 12:00 MPS On. Pulse the machine. (EPC/Y.Gaillard))
12:00 – 12:30 Thermal tests with MPS On. (D.Bodart)

LUNCH

14:00 – 15:00 Re-consign MPS. Install MU22 and MU23 connection covers. (D.Bodart)
15:00 – 15:30 Double check for earth faults. (D.Bodart)
15:30 – 17:00 De-consign, MPS PFW's, Figure of Eight and Back Leg windings.
17:30 Intervention in SS23 completed.

IN PARALLEL

Sextupole replacement SS07.

Wednesday 7/October.

- 08:30 – 09:30 Break vacuum with nitrogen. (J.Hansen)
- 08:30 – 09:30 Alignment measurement of sextupole before removal. (T.Bodart)
- 09:30 – 10:00 Disconnect vacuum flanges. (J.Hansen)
- 10:00 – 10:30 Remove the upper half of the quad to release the chamber. (D.Bodart)
- 10:00 – 10:30 Remove sextupole with the vacuum chamber.(D.Bodart + Transport)
- 10:30 - 11:00 Transport old sextupole to workshop 151 via door 121.
(OP Blind access + Transport)
- 11:00 – 11:30 Open the old sextupole to recuperate the vacuum chamber in 151.
(D.Bodart)
- 11:30 – 12:00 Install the chamber in the replacement sextupole. (D.Bodart)
- 12:00 – 12:30 Return replacement sextupole to the tunnel via door 121.
(OP Blind access + Transport)

LUNCH

13:30 – 14:30 Install the sextupole and align. (D.Bodart + Transport, T.Dobers)
14:30 – 15:00 Connect vacuum chamber and start pumping. (J.Hansen)
15:00 – 15:30 Install the quadrupole upper half and remake water, power and interlock connections. (D.Bodart)
15:30 – 16:00 Test interlocks on both XSE and Triplets. (S.Mataguez + R.Brown)
16:30 – 17:00 Initial vacuum tests. (J.Hansen)
17:00 **Attention HV tests on main magnets. (No access to the tunnel)**
17:30 – 18:00 De-consign XSE and Triplets. (D.Bodart. + First Line)
18:00 – 18:30 Start Pulsing XSE and inspect. (OP + D.Bodart)
19:00 Intervention in SS07 completed.