

2.0 - Test Cell Mechanical Assembly Operations
Job: 7503 - Machine Assembly (station 6)-PERRY

1.0 - Component Preparation

S6-1.00A Assemble assembly structure 01FEB10 18MAR10 34 47
 7503-10-AM 2 Complete Base Support Structure Assembly 18MAR10 01 47
 S6-1.00B Assemble structure betweenassy sleds & FPA 18DEC09 18MAR10 57 47
 S6-1.01 Assemble three field period support stands (see 01DEC09 24FEB10 54 47
 S6-1.02 Assemble three spool piece support stands (see F 12JUL10 23JUL10 10 47
 S6-1.03 Assemble machine base structure (see Fig 2a) 17DEC09 10FEB10 32 47
 S6-1.04 Assemble three FPA installation carts (see Fig 1 11FEB10 24FEB10 10 47
 S6-1.05 Assemble spool support stand platforms 25JAN10 23JUL10 20 47
 S6-1.06 Fabricate and Assemble 3 laser support poles 18DEC09 04FEB10 29 47

2.0 - Test Cell Metrology set-up/deflection test

S6-2.01 Install test cell metrology site monuments 03DEC09 02MAR10 56 NO 47
 S6-2.02 Install the laser supports 05FEB10 12FEB10 6 NO 47
 S6-2.03 Laser tracker support pole bases installed 15FEB10 25FEB10 9 NO 47
 S6-2.04 Install laser support pole on each Period base. 26FEB10 02MAR10 3 47
 S6-2.05 Establish global coordinate system 03MAR10 10MAR10 6 NO 47
 S6-2.06 Qualify laser accuracy when laser is installed 11MAR10 18MAR10 6 NO 47

3.0 - Pre-installation set-up and test

S6-3.01 Install the machine base support structure 11FEB10 24FEB10 10 47
 S6-3.02 Install each of three FPA carts and drive system 25FEB10 17MAR10 15 47
 S6-3.04 Position the lower PF 5 and 6 coils 18MAR10 18MAR10 1 47

4.0 - FPA-1 Installation and Assembly Test

S6-4.01 Obtain a set of Period 1 alignment fiducial post 19MAR10 18MAR10 0 47
 S6-4.01A Exercise assembly structure with FPA-1 19MAR10 13MAY10 40 NO 47
 S6-4.02 Move FPA 1 support fixture to the assembly post 14MAY10 14MAY10 1 47
 S6-4.03 Using laser at Period 1 establish a global coor 17MAY10 18MAY10 2 NO 47
 S6-4.04 Position Period 1 on the period support stand 18MAY10 18MAY10 0 47
 7503-000 FPA-1 installed on sleds 18MAY10 01 47
 S6-4.05 Use the corner positioning device to position Pe 19MAY10 19MAY10 1 47
 S6-4.06 Adjust Wedgmont levelers to take the load. 20MAY10 20MAY10 1 47
 S6-4.07 Return FPA support fix with Period 1 to extract 21MAY10 21MAY10 1 47
 S6-4.08 Install personnel lift platform on right side Pe 24MAY10 21MAY10 0 47
 S6-4.09A Fabricate platform 19MAY10 21MAY10 3 47
 S6-4.09B Install platform 24MAY10 24MAY10 1 47
 S6-4.10 Measure VV AMC end flanges right side of Period 25MAY10 08JUN10 10 47
 S6-4.11 Measure the Period 1 left side VV AT type-C flange 08JUN10 08JUN10 0 47
 S6-4.11A Install platform 08JUN10 08JUN10 1 47
 S6-4.11B Measure end flange 10JUN10 23JUL10 10 47
 S6-4.12 Machine Period 1 C side spool flange only 24JUN10 22JUL10 20 VENR 47

5.0 - Spool piece Installation test

S6-5.01 Return FPA support fix Period 1 to extracted po 23JUL10 23JUL10 1 47
 S6-5.02 Local platform supports spool support stand Peri 26JUL10 23JUL10 0 47
 S6-5.02A Fabricate platform 26JUL10 28JUL10 3 47
 S6-5.02B Install platform 29JUL10 29JUL10 1 47
 S6-5.03 Reposition metrology lasers 30JUL10 02AUG10 2 47
 S6-5.04 Install the Period 1 spool support stand 03AUG10 05AUG10 2 47
 S6-5.05 Operational check bringing spool piece/Period 1 06AUG10 10AUG10 3 47
 S6-5.06 Spool flanges can continue to be machined 11AUG10 10AUG10 0 47
 S6-5.07 Loosen Period 1 VV supports and pull VV outward 11AUG10 12AUG10 2 47
 S6-5.08 Remove the spool, spool support stand and platfo 13AUG10 16AUG10 2 47

6.0 - Spool piece flange machining

S6-6.00A Obtain contract for machining of spool pieces 20JUL10 16AUG10 20 NO 47
 S6-6.00B Transport spool piece 1 to vendor 17AUG10 23AUG10 6 NO 47
 S6-6.00C Machine spool piece 1 24AUG10 14SEP10 16 NO 47
 S6-6.00D Transport spool piece 1 back to PPPPL 15SEP10 21SEP10 6 NO 77
 S6-6.00E Transport spool piece 2 to vendor 11AUG10 17AUG10 6 NO 60
 S6-6.00F Machine spool piece 2 15SEP10 05OCT10 15 NO 47
 S6-6.00G Transport spool piece 2 back to PPPPL 06OCT10 12OCT10 6 NO 56
 S6-6.00H Transport spool piece 3 to vendor 11AUG10 17AUG10 6 NO 75
 S6-6.00I Machine spool piece 3 08OCT10 26OCT10 18 NO 47
 S6-6.00J Transport spool piece 3 back to PPPPL 27OCT10 02NOV10 5 NO 47

7.0 - FPA-2 Installation

S6-7.01 Obtain set Period 2 alignment fiducial positions 18JUN10 18JUN10 1 44
 S6-7.02 Move FPA 2 support fixture to the assembly post 21JUN10 21JUN10 1 44
 S6-7.03 Place laser suprt pole Period 2 estab global coo 22JUN10 23JUN10 2 NO 44
 S6-7.04 Position Period 2 on the period support stand 24JUN10 23JUN10 0 44
 7503-110 FPA-2 installed on sleds 23JUN10 01 44
 S6-7.05 Period 2, bring three primary fiducials into al 24JUN10 24JUN10 1 44
 S6-7.06 Adjust Wedgmont leveler to take the load 25JUN10 25JUN10 1 44
 S6-7.07 Return FPA support fix Period 2 to extracted po 26JUN10 28JUN10 1 44
 S6-7.09 Install a personnel lift platform between Period 29JUN10 28JUN10 0 44
 S6-7.09A Fabricate platform 24JUN10 28JUN10 3 44
 S6-7.09B Install platform 29JUN10 29JUN10 1 44
 S6-7.10 Measure type C MC left end flanges of Period 2. 30JUN10 07JUL10 5 44
 S6-7.11 Pull VV outward to maximum extent 08JUL10 09JUL10 2 44
 S6-7.12 Return FPA 2 support fixture Period 2 to extract 12JUL10 12JUL10 1 44

8.0 - FPA-3 Installation

S6-8.01 Obtain set Period 3 alignment fiducial positions 11AUG10 11AUG10 1 0
 S6-8.02 Move FPA 3 support fixture to assembly position 12AUG10 12AUG10 1 0
 S6-8.03 Place laser support pole Period 3 estab global co 13AUG10 16AUG10 2 NO 0
 S6-8.04 Position Period 3 on period support stand 17AUG10 16AUG10 0 0
 7503-150 FPA-3 installed on sleds 16AUG10 01 0
 S6-8.05 position Period 3, bring 3 primary fiducials int 17AUG10 17AUG10 1 0
 S6-8.06 Adjust Wedgmont leveler up to take load 18AUG10 18AUG10 1 0
 S6-8.07 Return the FPA support fix Period 3 to extract 19AUG10 19AUG10 1 0
 S6-8.08 Install a personnel lift platform between Period 20AUG10 19AUG10 0 0
 S6-8.08A Fabricate platform 17AUG10 19AUG10 3 0
 S6-8.08B Install platform 20AUG10 20AUG10 1 0
 S6-8.09 Measure type MC right end flanges of Period 3. 23AUG10 27AUG10 5 0
 S6-8.1 Pull VV outward to maximum extent 30AUG10 31AUG10 2 0
 S6-8.11 Return FPA 3 support fix Period 3 to extracted 01SEP10 01SEP10 1 0

9.0 - Measure Type-C MC Flanges

S6-9.01 Mount laser head support bracket and laser head 03SEP10 03SEP10 2 0
 S6-9.02 Measure type C MC left end flanges of Period 3. 07SEP10 07SEP10 1 0
 S6-9.03 Measure Period 2 right side VV and Type-C end fl 08SEP10 09SEP10 2 0

10.0 - Type-C Shim Sizing/Prep

S6-10.01 Define the C-C shim thickness. 08SEP10 07SEP10 0 2
 S6-10.02 Compress alumina coated shims and sort 08SEP10 09SEP10 2 3

11.0 - Type-C Inboard Shim Installation Check

S6-11.01A Design 30APR10 27MAY10 20 NO 67
 S6-11.01B Fabricate 03SEP10 09SEP10 5 0
 S6-11.01C Install 10SEP10 13SEP10 2 0
 S6-11.02 Remove platforms used for C-C surface measurement 10SEP10 13SEP10 2 0
 S6-11.03 Slowly bring 3 FPA support fixtures to within a 14SEP10 14SEP10 1 0
 S6-11.04A Design platforms to access type-C flanges 09MAY10 28MAY10 20 NO 68
 S6-11.04B Fabricate 07SEP10 13SEP10 5 0
 S6-11.04C Install 14SEP10 14SEP10 1 2 0
 S6-11.04 Locate outboard shims (3 top / 3 bottom) each of 15SEP10 16SEP10 2 2 0
 S6-11.051 Design/proc camera system 14APR10 11MAY10 20 NO 67
 S6-11.052 Procure camera system 11JUN10 09JUL10 20 46
 S6-11.053 Train technicians on camera system 10SEP10 16SEP10 2 0
 S6-11.05 Return 3 FPA support fix to installed position. 17SEP10 21SEP10 3 NO 0
 S6-11.06 Install studs supernuts alternate locations, torqu 23SEP10 23SEP10 2 2 0
 S6-11.06 "wiggle" test on shims. Tighten bolt and reche 24SEP10 26SEP10 4 2 0
 S6-11.07 Measure the C-C gap at each stud location 30SEP10 04OCT10 3 2 0
 S6-11.09 Metrology measurements of all periods. 05OCT10 05OCT10 1 2 0
 S6-11.1A Back office input on new shim sizes 06OCT10 06OCT10 1 2 0
 S6-11.1B Loosen hardware and install new shims 07OCT10 08OCT10 2 2 0
 S6-11.1C Install studs and supernuts torqu to 50% 11OCT10 12OCT10 2 2 0
 S6-11.1D "wiggle" test on shims. Tighten bolts and reche 13OCT10 19OCT10 4 2 0
 S6-11.1E measure the C-C gap at stud locations 19OCT10 21OCT10 2 2 0
 S6-11.1F metrology measurements 22OCT10 22OCT10 1 2 0
 S6-11.11 Remove hardware return Period to retracted post 25OCT10 25OCT10 1 2 0
 S6-11.12 Assemble all inboard shim pucks 28OCT10 27OCT10 2 2 0
 S6-11.13 inboard retaining plate/shim pucks 1 "C" insert 28OCT10 28OCT10 1 2 0

12.0 - Install Remaining TF Coils

S6-12.01A Design and fabricate temporary TF supports 14JUN10 26JUL10 36 67
 S6-12.01 Install TF coils at each end with full TF support 29OCT10 09NOV10 6 0
 S6-12.02 align to fiducials on MC locking into minimum of 09NOV10 11NOV10 4 NO 0
 S6-12.03 Position FP1 TF coils so they are properly align 12NOV10 16NOV10 3 NO 0
 S6-12.04 Secure FP1 TF coils in place to measure the oute 17NOV10 22NOV10 4 NO 0
 S6-12.05 measure the interfacing FP1 TF surfaces 23NOV10 24NOV10 2 NO 0
 S6-12.06 retract TF coil outward FP1 as far as possible 29NOV10 29NOV10 1 2 0
 S6-12.07A On Period 2 install TF coils at each end 30NOV10 01DEC10 2 2 0
 S6-12.07B Align FP2 TF to fiducials on the MC locking into 02DEC10 03DEC10 2 2 0
 S6-12.07C Position FP2 TF coils so they are properly align 06DEC10 07DEC10 2 2 0
 S6-12.07D Secure FP2 TF coils in place to inspect and meas 08DEC10 08DEC10 2 2 0
 S6-12.07E Measure interfacing Period 2 TF surfaces and the 10DEC10 10DEC10 1 2 0
 S6-12.07F Retract FP2 TF coil outward as far as possible 13DEC10 13DEC10 1 2 0
 S6-12.08A On Period 3 install TF coils at each end 14DEC10 15DEC10 2 2 0
 S6-12.08B Align FP3 TF to fiducials on the MC locking into 16DEC10 17DEC10 2 2 0
 S6-12.08C Position FP3 TF coils so they are properly align 20DEC10 21DEC10 2 2 0
 S6-12.08D Secure FP3 TF coils in place to inspect and meas 22DEC10 23DEC10 2 2 0
 S6-12.08E Measure interfacing Period 3 TF surfaces and the 03JAN11 03JAN11 1 2 0
 S6-12.08F Retract FP3 TF coil outward as far as possible 04JAN11 04JAN11 1 2 0

13.0 - Install PF-4 Lwr & Solenoid supt column

S6-13.01 Place PF-4 lower in temp position 05JAN11 05JAN11 1 2 0
 S6-13.02 Temporarily place lower TF centering disks 05JAN11 05JAN11 1 2 0

14.0 - Move all Periods to installed position

S6-14.01 Install the local platforms between each Period 06JAN11 06JAN11 1 2 0
 S6-14.02 Install spool support stand and spool on platfo 07JAN11 07JAN11 1 2 0
 S6-14.03 Install a camera for viewing the VV / spool line 10JAN11 10JAN11 1 2 0
 S6-14.04 verify each Period in proper orientation meet ch 10JAN11 10JAN11 1 2 0
 S6-14.05 bring all three FPA & three spacers (spool piece 11JAN11 12JAN11 2 2 0
 7503-412M 2 Move FPA's & spacers together/thk flap complete 12JAN11 12 0
 S6-14.06A Design platform 19AUG10 16SEP10 20 69



