



### Minutes of Meeting

Date: 31.07.07

**Herschel**

Doc.-No.: HP-2-ASED-MN-1378

Meeting place: ASED-FN

Chairman: R. Stritter

Date/Time:

Secretary

Agenda dated: TRR Standard Agenda

Close of Meeting: 31.07.07

Subject: TRR for FPU to CVV Alignment

Participants: K. Goodey, ESA  
 N. Nikolaizig, ESA phone  
 D. Schink, ASED  
 E. Hoelzle, ASED  
 R. Stritter, ASED  
 S. Idler, ASED  
 Ph. Martin, TASF phone  
 EC. Sawyer, SPIRE phone  
 R. Huisman, HIFI phone  
 N. Geis, PACS phone  
 O. Bauer, PACS phone  
 H. Feuchtgruber, PACS phone

Additional Distribution: ESA  
 TAS-F

*Feuchtgruber H.*

Page: 1 of Page(s)

 Brief-Minutes (except following sheets)

 Summary of Results of Sheets 2 till

#### Conclusion:

Pending completion of the KIP's and the ongoing integration activities on the OBA the release for the FPU to CVV alignment measurements and the HIFI AD stability check is given with this.



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	Digitally signed by Eric Sawyer Date: 2007.08.01 08:51:22 +0100

Page: 1 of Page(s)

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Reference	Results	Remarks
	<p data-bbox="389 437 613 475"><b>TRR Agenda:</b></p> <ol data-bbox="479 587 1151 1198" style="list-style-type: none"><li data-bbox="479 587 1099 625">1. As Built / As Designed Configuration Status</li><li data-bbox="479 639 920 678">2. Inspection / Integration Status</li><li data-bbox="479 692 770 730">3. NCR / RFW Status</li><li data-bbox="479 745 875 783">4. Open Work / Open Actions</li><li data-bbox="479 798 936 836">5. Test Procedures / Test Reports</li><li data-bbox="479 850 1093 888">6. Safety Hazards and Hazardous Operations</li><li data-bbox="479 903 1151 941">7. Test Equipment / Facility and Calibration Status</li><li data-bbox="479 956 667 994">8. Cleanliness</li><li data-bbox="479 1008 994 1046">9. Test Personnel and Responsibilities</li><li data-bbox="479 1061 730 1099">10. Problem Areas</li><li data-bbox="479 1114 591 1152">11. AOB</li><li data-bbox="479 1166 674 1204">12. Conclusion</li></ol>	



Reference	Results	Remarks
	<p><b>1. As Built / As Designed Configuration Status</b></p> <p>Subject of the FPU to CVV alignment check is the Herschel PLM, CI 120000. The as-built status is shown in the PLM ISL as attached to this MoM, refer to Annex 1. The as-built status for PACS, SPIRE and HIFI FPU is as received and as stated in their individual ABCL's.</p> <p><b>2. Inspection / Integration Status</b></p> <p>Just before the alignment check an internal KIP for all FPU's will be performed by ASED. The present integration status on the OBA is given in the ISL, the remaining OW is shown in the ASED OW List, refer to Annex 2. All Instrument FPU were recently inspected during the Incoming Inspection at ASED. There is no blocking point w.r.t. the FPU to CVV alignment check.</p> <p><b>3. NCR / RFD Status</b></p> <p>NC-1897 : Discrepancies found during STM S/C alignment (STM 1) NCR is closed</p> <p>NC-2581 : S/C alignment stability before / after environment Action IO-2 is open – ASED to check reference before / after each measurement sequence and include results into as-run – NCR can be closed since PR was updated accordingly. - ASED to provide updated PR – done / closed.</p> <p>Status of remaining Instrument NCR / RFD with impact on FPU to CVV alignment :</p>	<p>Annex 1</p> <p>OW</p> <p>Annex 2</p>



Reference	Results	Remarks
	<p>HIFI : no NCR / RFD affecting alignment acc. to HIFI</p> <p>PACS : no NCR / RFD affecting alignment acc. to PACS</p> <p>SPIRE : no NCR / RFD affecting alignment acc. to SPIRE</p> <p><b>4. Open Work / Open Actions</b></p> <p>The present ASED OW List is given in Annex 2, no OW is blocking the FPU to CVV alignment.</p> <p>Status of remaining Instrument OW with impact on FPU to OBA alignment :</p> <p>HIFI : no OW acc. to HIFI            PACS : no OW acc. to PACS.            SPIRE : no OW acc. to SPIRE</p> <p>There are no open actions which would affect the FPU to CVV alignment measurements.</p> <p>ASED to check if the PACS alignment mirror presently declared as red-tag item can stay on the FPU also for launch.</p> <p>SPIRE confirms that the mirror cube is a red-tag and can be removed, the alignment reference is with this not lost.</p> <p>For HIFI the cube will stay on the Instrument for flight.</p> <p>Just before the alignment check an internal KIP for all FPU's will be performed.</p>	<p>AI [ASED 1]</p> <p>OW</p>



Reference	Results	Remarks
	<p><b>5. Test Procedures / Test Reports</b></p> <p>Astrium Test Procedure:</p> <p>Procedure for PFM Alignment of Herschel Instruments wrt. PLM            HP-2-ASED-TP-0111            Iss 1 (released first formal issue, all comments from TASF, ESA and Instruments have been considered)</p> <p>According to TP-0111 a re-adjustment of the OBA is already considered, in case such a re-adjustment will become necessary an NCR have to be raised and all further steps have to be clarified in an NRB.</p> <p>ADS ASED-SD-0177_1 "HIFI AD stability check during harness rail final fixation" , this activity will be performed after the alignment measurements together with HIFI, this is a check of the AD's only and has no influence on the FPU. HIFI is asked to approve this ADS.            ASED-SD-0177_1 is attached to the MoM, refer to Annex 3.</p> <p><b>6. Safety Hazards and Hazardous Operations</b></p> <p>No specific safety precaution or hazards identified for the tests.</p>	<p>Annex 3</p>



Reference	Results	Remarks																											
	<p><b>7. Test Equipment / Facility and Calibration Status</b></p> <p>The alignment will take place in ASED FN CR 100.</p> <p>Calibration status of alignment equipment will be provided thru the as-run procedure, all necessary equipments are calibrated till Sep. 07.</p> <p>The recommended optical reference checks as required in NC-2581 have been implemented in the PR. LMD was re-calibrated as provided in Distance Measurement Validity Check ASED-TR-0174.</p> <p><b>8. Cleanliness</b></p> <p>Alignment check will be performed under CR 100 conditions.            Recent cleanliness verification on OBA confirmed levels still below 300 ppm requirement.</p> <p><b>9. Test Personnel and Responsibilities</b></p> <table border="1" data-bbox="389 1091 1469 1423"> <tbody> <tr> <td>Test Director</td> <td>S. Idler</td> <td>ASED</td> </tr> <tr> <td>Test Conductor</td> <td>E. Hölzle / D. Schink</td> <td>ASED</td> </tr> <tr> <td>Product Assurance / QA</td> <td>Stritter / Schmidt</td> <td>ASED</td> </tr> <tr> <td>TASF PA responsible</td> <td>A. Knight</td> <td>TASF</td> </tr> <tr> <td>ESA Instrument I/F</td> <td>K Goodey</td> <td>ESA</td> </tr> <tr> <td>TASF responsible</td> <td>Ph. Martin</td> <td>TASF (present dur. test)</td> </tr> <tr> <td>HIFI Alignment I/F</td> <td>R. Huisman</td> <td>HIFI (present dur. test)</td> </tr> <tr> <td>PACS Alignment I/F</td> <td>N. Geis</td> <td>PACS (avail. on call)</td> </tr> <tr> <td>SPIRE Alignment I/F</td> <td>EC. Sawyer</td> <td>SPIRE (avail. on call)</td> </tr> </tbody> </table>	Test Director	S. Idler	ASED	Test Conductor	E. Hölzle / D. Schink	ASED	Product Assurance / QA	Stritter / Schmidt	ASED	TASF PA responsible	A. Knight	TASF	ESA Instrument I/F	K Goodey	ESA	TASF responsible	Ph. Martin	TASF (present dur. test)	HIFI Alignment I/F	R. Huisman	HIFI (present dur. test)	PACS Alignment I/F	N. Geis	PACS (avail. on call)	SPIRE Alignment I/F	EC. Sawyer	SPIRE (avail. on call)	
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	<p><b>10. Problem Areas</b></p> <p>None</p> <p><b>11. AOB</b></p> <p>ASED will inform all Instruments about the progress and about the first results on a daily basis.</p> <p>Presently it is assumed that the first alignment measurements will start on Thursday 2<sup>nd</sup> of Aug., alignment set-up will be done tomorrow. The measurement phase is planned for three days at least. The PTR is planned for Tuesday 7<sup>th</sup> of Aug. starting at 14:00.</p> <p><b>12. Conclusion</b></p> <p>Pending completion of the KIP's and the ongoing integration activities on the OBA the release for the FPU to CVV alignment measurements and the HIFI AD stability check is given with this.</p>	





**Herschel H-EPLM Integration Status for FPU to CVV Alignment :**  
 Status: 24.07.2007

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Equipment / CI-No.	Integr. Date	Model, Serial No	ABCL Ref. (or EIDP)	Qualified	Remarks / Open Work / NCR's
121110 CVV	02.06.05	PFM, SN01	HP-2-APCO-AB-0043, Issue 1, 19.01.05	y	NC-1161: One flange bolt broken at 30 Nm, torque reduced to 28 Nm, NC is closed. 09.12.05: 12 bolts removed for pull test & replaced by new ones from stock NC-1257: Positions of harness fixation brackets on CVV changed
121111 CVV Upper Bulkhead		PFM, SN01	HP-2-APCO-AB-0043, Issue 1, 19.01.05	y	NC-1174: Leakage at seal I/F to filling port; status of top plate see cryo cover 121131. Re-mated; NC-2558: Traces of contamination/corrosion found inside UB Molecular wipes taken, no aggressive radicals included, use as is for STM2. CVV screws preliminary mated: only each 4th screw inserted and torqued with 24Nm 27.07.2006 HP-2-ASED-SD-0116_REWORK OF SEALING SURFACE ON UPPER BULKHEAD AND FILLINGPORT performed (closeout of NC-1174) NC-1476: 2 stand-offs are detached, repair is open work Final integration of all I/F screws and torque with MA= 25Nm and second torque, final with MA= 31Nm , performed on 14.08.06 Screws LN 65056, 056-08028 charge FA 05/2146, nuts LN 65410-08, charge FA 05/2146 Removed acc. PR-0049 Issue2 23.03.2007 R.K. Preliminary Integration acc.PR-0064 T.B. Removal after Leaktest acc.PR-0049.2 T.B.
121112 CVV cylinder	15.10.04	PFM, SN01	HP-2-APCO-AB-0043, Issue 1, 19.01.05	y	Integration acc. to HP-2-ASED-PR-0020 /-0021 Report: HP-2-ASED-RP-0145 on 1.2.05: check of helicoils M8x1 on flanges, 5 helicoils on upper flange exchanged HP-2-ASED-SD-0115_RE- FASTENING OF CONNECTORS MOUNTED ON CVV CYLINDER_performed on 28.07.06 For integration and torque of I/F screws, See UB and LB
121112 Dummy receptacles on FT 303 and 304	21.03.05	PFM			FT 303 and 304 not used for wiring, integrated dummies are leak tested
121113 CVV Lower Bulkhead	06.06.07	PFM, SN01	HP-2-APCO-AB-0043, Issue 1, 19.01.05	y	Remated CVV screws preliminary mated: only each 4th screw inserted and torqued with 24Nm Final integration of all I/F screws and torque with MA= 25Nm and second torque, final with MA= 31Nm performed on 14.08.06 Screws LN 65056; 056-08028 ; charge FA 05/2146 Nuts LN 65410-08, charge FA 05/2146 Removed acc. PR-0049 Issue2 23.03.2007 R.K. Final Integration acc. PR-0023 Iss2 T.B.
121114 Radiator on -Z		PFM	HP-2-APCO-AB-0052, issue 2, 28.09.05	y	2 Parts pre-integration on 17.9.05 Integration acc. to HP-2-APCO-MA-0048 Both removed 05.04.2006
121115 Radiator on +Y		PFM	HP-2-APCO-AB-0052, issue 2, 28.09.05	Y	2 Parts, NC-1508: MLI too short, bolt torque 29 Nm Integration acc. to HP-2-APCO-MA-0048 NC-1851; Upper part removed on 19.12.05 due to interference with HSS strut 5, radiator reworked, new bracket added. Upper part re-installed 10.01.2006, bolt torqued 29 Nm Both removed 31.03.2006

Equipment / CI-No.	Integr. Date	Model, Serial No	ABCL Ref. (or EIDP)	Qualified	Remarks / Open Work / NCR's
121116 Radiator on -Y		PFM	HP-2-APCO-AB-0052, issue 2, 28.09.05	Y	Lower part removed 16.11.05; reintegrated 15.12.2005 Removed 30.03.2006
121117 IMT Crown	05.08.06	FS	HP-2-ASED-DW-0135		Glued and screwed to PFM Top Plate acc. to DW-0135, same configuration as used on EQM-PLM
121121-01 TSS chain pos. 1	23.12.04	PFM, SN 18	HP-2-ECD-AB-0001, Issue 1, 29.07.04	Y	Pre-integrated on 23.12.04, adjusted and tensioned on 17.1.05 load cells remounted on 07.08.06 adjusted to 5-6kN; adjustment 26.10.06 to 25 Nm
121121-01 TSS chain pos. 2	03.01.05	PFM, SN 3	"	Y	Pre-integrated on 03.01.05, adjusted and tensioned on 17.1.05 load cells remounted on 07.08.06 adjusted to 5-6kN; adjustment 26.10.06 to 25 Nm
121121-01 TSS chain pos. 3	03.01.05	PFM, SN 7	"	Y	Pre-integrated on 03.01.05, adjusted and tensioned on 17.1.05 load cells remounted on 07.08.06 adjusted to 5-6kN; adjustment 26.10.06 to 25 Nm
121121-01 TSS chain pos. 4	03.01.05	PFM, SN 13	"	Y	Pre-integrated on 03.01.05, adjusted and tensioned on 17.1.05 load cells remounted on 07.08.06 adjusted to 5-6kN; adjustment 26.10.06 to 25 Nm
121121-01 TSS chain pos. 5	03.01.05 19.07.06	PFM, SN 16	"	Y	Pre-integrated on 03.01.05, adjusted and tensioned on 17.1.05, one washer at Th. Shield 3 had to be reworked in order to remove an interference with the shield bracket Thermal bonding jumper integrated, isolation stand-offs for SPIRE JFET harness fixed law. ASED-SD-0101. load cells remounted on 07.08.06 adjusted to 5-6kN; adjustment 26.10.06 to 25 Nm
121121-01 TSS chain pos. 6	03.01.05 19.07.06	PFM, SN 4	"	Y	Pre-integrated on 03.01.05, adjusted and tensioned on 17.1.05 Thermal bonding jumper integrated, isolation stand-offs for SPIRE JFET harness fixed law. ASED-SD-0101. load cells remounted on 07.08.06 adjusted to 5-6kN; adjustment 26.10.06 to 25 Nm
121121-01 TSS chain pos. 7	03.01.05	PFM, SN 2	"	Y	Pre-integrated on 03.01.05, adjusted and tensioned on 17.1.05 load cells remounted on 07.08.06 adjusted to 5-6kN
121121-01 TSS chain pos. 8	03.01.05	PFM, SN 14	"	Y	Pre-integrated on 03.01.05, adjusted and tensioned on 17.1.05 load cells remounted on 07.08.06 adjusted to 5-6kN; adjustment 26.10.06 to 25 Nm
121121-02 TSS chain pos. 9	04.01.05	PFM, SN 11	"	Y	Pre-integrated on 04.01.05, adjusted and tensioned on 17.1.05 load cells remounted on 07.08.06 adjusted to 5-6kN; adjustment 26.10.06 to 25 Nm
121121-02 TSS chain pos. 10	04.01.05	PFM, SN 9	"	Y	Pre-integrated on 04.01.05, adjusted and tensioned on 17.1.05 load cells remounted on 07.08.06 adjusted to 5-6kN; adjustment 26.10.06 to 25 Nm
121121-02 TSS chain pos. 11	04.01.05	PFM, SN 17	"	Y	Pre-integrated on 04.01.05, adjusted and tensioned on 17.1.05 load cells remounted on 07.08.06 adjusted to 5-6kN; adjustment 26.10.06 to 25 Nm
121121-02 TSS chain pos. 12	04.01.05	PFM, SN 6	"	Y	Pre-integrated on 04.01.05, adjusted and tensioned on 17.1.05 load cells remounted on 07.08.06 adjusted to 5-6kN; adjustment 26.10.06 to 25 Nm
121121-02 TSS chain pos. 13	04.01.05	PFM, SN 5	"	Y	Pre-integrated on 04.01.05, adjusted and tensioned on 17.1.05 load cells remounted on 07.08.06 adjusted to 5-6kN; adjustment 26.10.06 to 25 Nm
121121-02 TSS chain pos. 14	04.01.05	PFM, SN 12	"	Y	Pre-integrated on 04.01.05, adjusted and tensioned on 17.1.05 A cut was missing in outer MLI blanket. Photos taken, cut made with sharp scissors load cells remounted on 07.08.06 adjusted to 5-6kN; adjustment 26.10.06 to 25 Nm
121121-02 TSS chain pos. 15	04.01.05	PFM, SN 15	"	Y	Pre-integrated on 04.01.05, adjusted and tensioned on 17.1.05 load cells remounted on 07.08.06 adjusted to 5-6kN; adjustment 26.10.06 to 25 Nm
121121-02 TSS chain pos. 16	04.01.05	PFM, SN 8	"	Y	Pre-integrated on 04.01.05, adjusted and tensioned on 17.1.05 load cells remounted on 07.08.06 adjusted to 5-6kN; adjustment 26.10.06 to 25 Nm

Equipment / CI-No.	Integr. Date	Model, Serial No	ABCL Ref. (or EIDP)	Qualified	Remarks / Open Work / NCR's
121121-04 Strap pre-tensioning devices	22.-24.09.04	PFM	HP-2-ECD-AB-0001, Issue 1, 29.07.04	y	Leak test after integration was successful
121122-01 Upper SFW	19.10.04 19.07.06	PFM	HP-2-HTSZ-LI-0008 Iss. 2, 23.10.03	y	Lateral struts adjusted and 21 Nm applied on bolt nuts; wire locking on all struts performed ASED-NC-0481, X-ray investigation of all strut fittings performed, all are ok. New Al-angles and Vespel stand-offs glued with EC 2216 on Y-side of frame, SD-0101
121122-02 Lower SFW	05.05.04 27.06.06	FM, SN 01	HP-2-HTSZ-LI-0008 Iss. 2, 23.10.03	y	wire locking on struts performed; New stand-offs and sensors on LSFW acc. to ASED-SD-0100 Harness Brackets Struts SLI on LSFW installed acc to ACR:SD-0102
121131 Cryo Cover incl. Top Plate	22.05.07	PFM, SN 01	HP-2-AAE-AB-0002, Issue 2, 07.03.05	y	NC-2316: Rework on cryo cover mirror, mirror polished. Deintegrated and shipped to AAE 02.04.2007 K.R. Final Integrated acc. PR-0091 22.05.2007 K.R.
121132 Cryo Baffle	22.05.07	PFM, SN-01	HP-2-AAE-AB-0003, issue 2, 31.05.05	y	HP-2-AAE-MA-0004 Baffle cover removed for inspection on 7.12.05, re-mounted on 22.12.06 Removed 05.04.2006 HP-2-ASED-SD-0093 Final Integrated acc. PR-0091 22.05.2007 K.R.
121140 Optical Bench Assembly	into CVV on 24.01.05  24.07.06	PFM, SN 003	HP-2-SEN-AB-0002 Issue 2, 16.11.04 additional holes acc. to NC-0678 and HP-2-ASED-ID-0096 OBHCL1 modified law. HP-2-ASED-DW-0234-01-0A	y	NC-0644: Several heli-coils were not mounted properly, replaced by ASED NC-0565: Cooling loop interference, rework performed by AIRL NC-0961: OBA labels covered with AL-tape MLI Straylight covers mounted on L 0 –Pod MLI SPIRE cooler pump and evaporator , Stray Light Cover, L 0 –Pod MLI SPIRE Detector , Stray Light Cover, HIFI LO, PACS Cooler Pump and Evaporator, PACS LO, according to HP-2-ASED-PR-0069_as run OBA cooling loop: straylight protection orifices mounted on inlet, add. holes for T-sensors drilled in OBHCL1 law. HP-2-ASED-DW-0234-01-0A
121140 LO Light tightness devices	19.01.05	PFM	HP-2-SEN-AB-0002 Issue 2, 16.11.04 (HP-2-SEN-DW-2200)	y	Incl. harness routing, modified acc. to ASED-SD-0101
121140 OBA	24.01.05	PFM	OBA integration status list of 24.01.05	y	shimmed and aligned Tubing fit check: 4 mm offset in X-dir. OBA outlet tube / shield inlet, on 1.2.05 adjusted with 2 mm shims at tripod
121141 Fixation bars for HIFI harness brackets	04.01.2005	PFM	HP-2-ASED-DW-0080-01-0A, NC-0678	n. a.	4 additional holes drilled into OB plate acc. to HP-2-ASED-ID-0096-01-0A "OB Fixation Bar I/F", four harness bracket nuts mounted with one screw each, see NC-0678 Cut-out Cover 3 removed 11.05.2006
121142 OB Instrument shield		PFM	HP-2-SEN-AB-0002 issue 2, 16.11.2004	y	Pre-integration acc. to HP-2-ASED-DW-0140-01-0A NC-0961: OBA labels covered with AL-tape Harness for T211, T212, T213 connected and tested AL-tapes applied on gaps for straylight protection OBS plate and OBS mounted according to HP-2-ASED-PR-0064 on 24.07.06 NC-xxxx: OBS plate reworked, see pics. 1082 & 1083 of 21.7.06 OBS Shield removed acc. PR-0049 R.S.
121142-01 HIFI Baffle Assy	21.07.06	PFM	HP-2-ASED-DW-0090-01-0A HP-2-ASED-DW-0130-01-0A HP-2-ASED-DW-0131-01-0B	y	De- integrated from PLM 26.04.2006, re-mounted acc. to PR-0064. FPU baffle DW-0130 and OBS baffle DW-0131 are black anodized.
121144 Thermal links					Integration of thermal flex links is reported in HP-2-ASED-SD-0004

Equipment / CI-No.	Integr. Date	Model, Serial No	ABCL Ref. (or EIDP)	Qualified	Remarks / Open Work / NCR's
121144-01 PACS Evaporator, LO Open Pod	11.6.04 11.07.07	H-0400-E-150	HP-2-AIRL-AB-0002, issue 1, 27.05.2004	y	Integrated by Airl (protective cover installed) Integr. procedure: HP-2-AIRT-PR-0001 Final integrated on PACS acc. PR-0089 by MPE 10.07.07
121144-01 PACS Evaporator flex link	08.05.07 11.07.07	2000_14C101 S/N:I	HP-2-AIRL-AB-0002, issue 1, 27.05.2004	y	integr. by ASED acc. to HP-2-ASED-PR-0026 NC-0807: Thermal I/F improved:CQM removed 19.04.2007 Geiger;NC-3256 Re-Integration acc-PR-0086 T.Bayer 08.05.2007 Final integrated on PACS acc. PR-0089 by MPE 10.07.07
121144-01 SPIRE Evaporator, LO Open Pod	11.6.04	H-0400-E-149	HP-2-AIRL-AB-0002, issue 1, 27.05.2004	y	Integrated by Airl (protective cover installed) Integr. procedure: HP-2-AIRT-PR-0001
121144-01 PACS LO cooler evaporator rigid pod	26.11.04 11.07.07	H-0400-E-121	HP-2-AIRL-AB-0004, issue 2, 29.09.2004	y	Final integrated on PACS acc. PR-0089 by MPE 10.07.07
121144-01 PACS LO cooler evaporator flex link	13.01.05 11.07.07	H-0400-E-110	HP-2-AIRL-AB-0004, issue 2, 29.09.2004	y	integr. by ASED acc. to HP-2-ASED-PR-0026 Final integrated on PACS acc. PR-0089 by MPE 10.07.07
121144-01 PACS LO cooler pump rigid pod	26.11.04 11.07.07	H-0400-E-105	HP-2-AIRL-AB-0004, issue 2, 29.09.2004	y	Final integrated on PACS acc. PR-0089 by MPE 10.07.07
121144-01 PACS LO cooler pump flex link	08.05.07 11.07.07	2000_14C102 S/N1	HP-2-AIRL-AB-0004, issue 2, 29.09.2004	y	integr. by ASED acc. to HP-2-ASED-PR-0026 NC-0807: Thermal I/F improved CQM removed 19.04.2007 Geiger;NC-3256 Re-Integration acc-PR-0086 T.Bayer 08.05.2007 Final integrated on PACS acc. PR-0089 by MPE 10.07.07
121144-01 PACS LO red detector rigid pod	11.07.07	H-0400-E-108	HP-2-AIRL-AB-0004, issue 2, 29.09.2004	y	Final integrated on PACS acc. PR-0089 by MPE 10.07.07
121144-01 PACS LO red detector flex link	08.05.07 11.07.07	520_5119_2A S/N.III	HP-2-AIRL-AB-0004, issue 2, 29.09.2004	y	integr. by ASED acc. to HP-2-ASED-PR-0026, NC-0434; NC-0807: Thermal I/F improved CQM removed 19.04.2007 Geiger;NC-3256 Re-Integration acc-PR-0086 T.Bayer 08.05.2007 Final integrated on PACS acc. PR-0089 by MPE 10.07.07
121144-01 PACS LO blue detector rigid pod	20.01.05 11.07.07	H-0400-E-122	HP-2-AIRL-AB-0004, issue 2, 29.09.2004	y	Final integrated on PACS acc. PR-0089 by MPE 10.07.07
121144-01 PACS LO blue detector flex link	07.05.07 11.07.07	520_5118_2A S/N.II	HP-2-AIRL-AB-0004, issue 2, 29.09.2004	y	integr. by ASED acc. to HP-2-ASED-PR-0026; fixed to MTD on 08.02.05 NC-0807: Thermal I/F improved CQM removed 19.04.2007 Geiger;NC-3256 Re-Integration acc-PR-0086 T.Bayer 07.05.2007 Final integrated on PACS acc. PR-0089 by MPE 10.07.07
121144-01 SPIRE LO cooler evaporator rigid pod	06.12.04	H-0400-E-117	HP-2-AIRL-AB-0004, issue 2, 29.09.2004	y	NC-0571: defect heli-coils replaced by ASED NC-2301: Discolouration of gold plating
121144-01 SPIRE LO cooler pump rigid pod	06.12.04	H-0400-E-117	HP-2-AIRL-AB-0004, issue 2, 29.09.2004	y	NC-0571: defect heli-coils replaced by ASED NC-2301: Discolouration of gold plating
121144-01 SPIRE LO SM detector rigid	26.11.04	H-0400-E-106	HP-2-AIRL-AB-0004, issue 2, 29.09.2004	y	

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pod					
121144-01 HIFI L0 rigid pod	06.12.04	H-0400-E-107	HP-2-AIRL-AB-0004, issue 2, 29.09.2004	y	NC-0571: defect helicoils replaced by ASED
121144-01 HIFI L0 flex link	24.07.2007	H-0400-E-114 STM	HP-2-AIRL-AB-0004, issue 2, 29.09.2004	y	NC-0434; SRON-NC-0653: Modified by removing 10 Cu-layers, perf. on 5.4.05 Removed on 12.07.06 H.G.; N/A for STM2 test Final integration H.G. acc. HP-2-ASED-PR-0090_1
121144-02 L1 PACS Photometer Thermal Link	10.02.05 11.07.07	PFM	HP-2-AIRL-AB-0003 issue 1, 30.07.2004		Torque on M4: 2.1 Nm + RT; Torqued with 3,25 Nm Final integrated on PACS acc. PR-0089 by MPE & H.G: 11.07.07
121144-02 L1 PACS Collimator Thermal Link	08.02.05 11.07.07	PFM	HP-2-AIRL-AB-0003 issue 1, 30.07.2004		Torque on M4: 2.1 Nm + RT; Torqued with 3,25 Nm Final integrated on PACS acc. PR-0089 by MPE & H.G: 11.07.07
121144-02 L1 PACS Spectrometer Thermal Link	08.02.05 11.07.07	PFM	HP-2-AIRL-AB-0003 issue 1, 30.07.2004		Torque on M4: 2.1 Nm + RT; Torqued with 3,25 Nm Final integrated on PACS acc. PR-0089 by MPE & H.G: 11.07.07
121144-02 L1 SPIRE 1 Thermal Link	29.05.06	PFM	HP-2-AIRL-AB-0003 issue 1, 30.07.2004		Procedure Variation on torque: M4: 2.1 Nm + RT; M8: 10.5 Nm acc. to SPIRE ICD Remounted acc HP-2-ASED-PR-0061_1
121144-02 L1 SPIRE 2 Thermal Link	29.05.06	PFM	HP-2-AIRL-AB-0003 issue 1, 30.07.2004		Remounted acc HP-2-ASED-PR-0061_1 Final integration H.G. acc. HP-2-ASED-PR-0090_1
121144-02 L1 HIFI Thermal flex Link	24.07.2007	PFM	HP-2-AIRL-AB-0003 issue 1, 30.07.2004		Torque on M4: 2.1 Nm + RT Removed on 12.07.06; N/A for STM2 test
121144-03 L3 JFET 6 (P) Thermal Link	29.05.06	PFM	HP-2-AIRL-AB-0003 issue 1, 30.07.2004		Remounted acc. HP-2-ASED-PR-0061_1
121144-03 L3 JFET 2 (S) Thermal Link	29.05.06	PFM	HP-2-AIRL-AB-0003 issue 1, 30.07.2004		Remounted acc. HP-2-ASED-PR-0061_1
121210 HTT	25.5.04	PFM, SN01	HP-2-AIR-AB-0001 Iss. 2, 22.7.04	y	
121221 PPS	10.6.04	PFM, SN01	HP-2-LIND-AB-3511 Iss. 4, 19.1.04	y	NCR-0256 Helicoflex HN 100 used instead of HN 200
121222 DLCM 1	25.5.04	PFM, SN01	HP-2-LIND-AB-4511 Iss. 4, 19.1.04	y	-y position, Ty-rap fixed with AL-tape, NCR-0256 Helicoflex HN 100 used instead of HN 200; SLI covered acc. to ASED-PR-0059
121222 DLCM 2	25.5.04	FM, SN02	HP-2-LIND-AB-4512 Iss. 4, 19.1.04	y	+y position, Ty-rap fixed with AL-tape, NCR-0256 Helicoflex HN 100 used instead of HN 200; SLI covered acc. to ASED-PR-0059
121223 <b>Cryo Components</b>					General: all VCR initially torqued 45°, after detecting leak at V701/702 25° added to each valve VCR connection around lower SFW

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121223-01 L101	25.5.04	PFM, SN01	HP-2-LIND-AB-5611 Iss. 3, 28.11.03	y	+y position NCR-0256 Helicoflex HN 100 used instead of HN 200 See NCR HP-2-ASED-NC-121223-ASED-NC-2339 pin bended Protection cover removed prior to cryostat closure
121223-01 L102	03.05.07	FM, SN02	HP-2-LIND-AB-5612 Iss. 3, 28.11.03	y	+y / -z position NCR-0256 Helicoflex HN 100 used instead of HN 200 Protection cover removed prior to cryostat closure NC-2659: LLP L 102 Zero reading on SCOE STM2 Ex-changed the L102 acc. PR-0088 03.05.07 M.L.
121223-02 L 701	03.05.07	PFM, SN 03	HP-2-LIND-AB-5513 Iss. 3, 28.11.03	y	Protective cover removed before LBTS1 mounting Protection cover removed prior to cryostat closure Ex-changed the L701 acc. PR-0088 03.05.07 M.L.
121223-02 L 702	29.03.04	FM, SN 02	HP-2-LIND-AB-5512 Iss. 3, 28.11.03	y	Protective cover removed before LBTS1 mounting Protection cover removed prior to cryostat closure
121224-02 H 701	30.07.04	FM 03	HP-2-ASED-DP-0035 Iss. 1, 17.03.04	y	incl. connector brackets
121224-02 H702	30.07.04	FM 04	HP-2-ASED-DP-0035 Iss. 1, 17.03.04	y	incl. connector brackets
121224-02 H103	3.8.04	FM01	HP-2-ASED-DP-0035 Iss. 1, 17.03.04	y	SLI covered acc. to ASED-PR-0059
121224-02 H104	3.8.04	FM02	HP-2-ASED-DP-0035 Iss. 1, 17.03.04	y	SLI covered acc. to ASED-PR-0059
121224-03 Ventline Heater H501	13.05.05	PFM, SN 1	HP-2-LIND-AB-7511, Issue 2, 17.03.05	y	Part of harness integrated by ASED acc. to CCH-PFM Wiring list NC-2305: Power cables of H501 partially bent.
121225 RD 724	29.03.04	FM2, SN 311148/4	HP-2-ASED-DP-0042 Iss. 1, 18.03.04	y	NC-0212: Mounted with HN 100 seal instead of HN 200; HP-2-ASED-DP-0042 includes Rembe EIDP HP-2-REMB-DP-0081(1) protective cover removed, RD housing SLI covered acc. to ASED-PR-0059
121225 RD124	24.11.04	FM1, SN 311148/9	HP-2-ASED-DP-0042 Iss. 1, 18.03.04	y	NC-0212: Mounted with HN 100 seal instead of HN 200 HP-2-ASED-DP-0042 includes Rembe EIDP HP-2-REMB-DP-0081(1) SLI covered acc. to ASED-PR-0059, protective cover removed
121226-01 SV 723	24.11.04	FS2, SN IA-81824/1/4	HP-2-ASED-DP-0040 Iss. 1, 18.03.04	y	with VCR coupling SLI covered acc. to ASED-PR-0059
121226-01 SV 123	26.01.05	FMI, SN IA-81824/1/1	HP-2-ASED-DP-0040 Iss. 1, 18.03.04	y	with flanges, helicoflex seals installed, final torque on flange bolts applied fits without the shims from the dummy!
121226-02 SV 521	16.09.05	SN 02	Swagelock SS-12C-VCR-WD-5 HP-2-ASED-TR-0097, issue 1, 26.09.05	y	Qualified acc. SD-0136 see NC-2452
121226-03 SV 921		SN 02	HP-2-ASED-DP-0039, issue -, 16.03.04	y	Flange 922-3, +plate 922-2 mounted on -Y M6 x 35 Fixationscrews torqued with 7 Nm acc. to Stoehr drwing 08-616 issue 05.05.03 Vacuum pump mounted on SV921 place; 07.08.06 SV921 should be tested after Mech. Test AI: Hans Huber SV921 is tested acc. SD-0136 see NC 2452 SV921 integrated acc. HP-2-STOE-ID-0001 H. Huber 19.01.2007 T=7 Nm; Removed for Evacuation TB/TV test; J. Huber 23.01.2007; re-integrated acc. HP-2-STOE-ID-0001

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					H.Huber 23.01.2007; Removal after abort 27.01.2007 Huber; Vacuum pump mounted Installed for restart TB/TV test 04.02.2007 A.Runge; Removed after TB/TV test acc.SD-0151 28.02.2007 A.Runge; re-installed for Transport acc. PR-0036 05.03.2007 Huber J. Removed acc PR-0045 Issue2 R.K. 23.03.07
121226-03 SV 922	07.08.06	SN 03	HP-2-ASED-DP-0039, issue -, 16.03.04	Y	Flange 922-2, +plate 922-4 mounted on +Y M6 x 35 Fixationscrews torqued with 7 Nm acc. to Stoehr drwing 08-616 issue 05.05.03 SV 922 should be tested after Mech.Test A1: Hans Huber SV 922 is tested acc. SD-0136 see NC 2452
121227 Adsorbers	23.05.07	PFM			Not mounted since not needed on STM level Non used I/Fs covered with SLI blankets and tape, ref. HP-2-ASED-PR-0059-1_as_run Final integrated of 3 Adsorbers at lower Part acc. PR-0094
121228-01 External Filling Port	10.08.06	PFM	HP-2-LIND-AB-6611, iss. 3, 13.12.04	y	External Filling Port Re-integrated on 10.08.06 Viton ring 169,2x 5,7 STM taken, MA 7,5 Nm Pressure plate S/N 02 PFM integrated 10.08.06 torqued with 10Nm Helicoflex seal HNV 200 batch 138512/ 03; 29.09.2005 used
121228-02 Internal Filling Port with OD 101		PFM OD; SN 2	HP-2-LIND-AB-6511 Iss. 4, 11.02.05	y	LIND-NC-0546: Weak design, stiffener bonded on tube weld on 11.02.05 ASED-NC-0905: I/F from Y201 transferline to the ext. FP did not fit, repaired, closed NC-1174: I/F sealing surface reworked according to HP-2-ASED-SD-0116_REWORK OF SEALING SURFACE ON UPPER BULKHEAD AND FILLINGPORT Helicoflex sealing used HN200, Helicoflex 122.3 x 132.1 x 4.9 Retorqued finally to MA: 24,3Nm OD 101 integrated 24.10.06, OD removed according DW at ESTEC 16.11.2006
121228-02 Thermal Strap (filling port to TS1)	19.05.05	PFM	HP-2-AIRT-ID-1084-00-A1, 05.01.05		Improved according to HP-2-ASED-PR-0059
121231 V 105	23.11.04	FM1, SN 3R	HP-2-ASIP-AB-0004 Iss. 3, 29.09.04	y	HP-2-ASIP-RD-0001/-0002/-0003/-0004, HP-2-ASED-RD-0024 SLI covered acc. to ASED-PR-0059
121231 V 701	23.11.04	FM3, SN 5R	HP-2-ASIP-AB-0006 Iss. 3, 11.10.04	y	HP-2-ASIP-RD-0001/-0002/-0003/-0004, HP-2-ASED-RD-0024 SLI covered acc. to ASED-PR-0059
121231 V 702	23.11.04	FM4, SN 6R	HP-2-ASIP-AB-0007 Iss. 3, 21.10.04	y	HP-2-ASIP-RD-0001/-0002/-0003/-0004, HP-2-ASED-RD-0024 NC-0812: Incorrect pin allocation for heater foil, use as is, change on EGSE harness SLI covered acc. to ASED-PR-0059
121231 V102	15.04.05	FM 5, SN07	HP-2-ASIP-AB-0008 Iss. 3, 02.11.04	y	NC-0530: Pull in current scatter high - use as is. NC-0011/NC-0017: Change from Cajon- to Hope glands EI- I/F Connector covered with kapton acc. To NCR 2437. MLI cover (BBP 1413, 1641 SBP 400-08) repaired law. NC-1609 and applied, stainless steel bonding leads mounted; ASED-PR- 0060
121231 V103	15.04.05	FM 8, SN10	HP-2-ASIP-AB-0012 Iss. 2, 04.03.05	y	NC-0011/NC-0017: Change from Cajon- to Hope glands EI- I/F Connector covered with kapton acc. To NCR 2437. MLI cover (BBP 1408, 1577 SBP 400-10) repaired law. NC-1609 and applied, stainless steel bonding leads mounted;ASED-PR- 0060
121231 V104	24.02.2005	FM 7, SN09	HP-2-ASIP-AB-0010 Iss. 3, 28.01.05	y	NC-0011/NC-0017: Change from Cajon- to Hope glands EI- I/F Connector covered with kapton acc. To NCR 2437. MLI cover (BBP 1482, 1470



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					SBP 400-09) repaired law. NC-1609 and applied, stainless steel bonding leads mounted; ASED-PR-0060
121231 V106	15.04.05	FM 9, SN11	HP-2-ASIP-AB-0013 Iss. 2, 17.03.05	y	NC-0011/NC-0017: Change from Cajon- to Hope glands EI- I/F Connector covered with kapton acc. To NCR 2437. MLI cover (BBP 1510, 1488 SBP 400-01) repaired law. NC-1609 and applied, stainless steel bonding leads mounted; ASED-PR-0060
121232 Liquid Helium Valve V 501	22.08.05	FM 10 S/N 12	HP-2-ASIP-AB-0014, issue 2, 15.06.05	y	Valve 501 should be tested after Mech.Test AI: Hans Huber Valve 501 is tested see NC 2452
121232 Liquid Helium Valve V 503	22.08.05	FM 11 S/N 13	HP-2-ASIP-AB-0015, issue 2, 15.06.05	y	
121232 Liquid Helium Valve V 504	22.08.05	FM 12 S/N 14	HP-2-ASIP-AB-0016, issue 2, 07.07.05	y	
121232 Liquid Helium Valve V 505	22.08.05	FM 13 S/N 15	HP-2-ASIP-AB-0017, issue 2, 07.07.05	y	
121241-01 HTT HST	see below & 19.06.06	PFM, SN01	HP-2-AIRT-AB-0003 Iss. 2, 22.07.04	y	Pipe supports improved wrt thermal behavior in lower HTT area according to HP-2-ASED-SD-0099_Thermal_Decoupling_of_Tubing_Suppor, see as run
121241-01 Line 1 of HOT HST	y		HP-2-AIRT-AB-0001 (2)	y	mounted with 3 brackets on HTT
121241-01 Line 1	y		HP-2-AIRT-AB-0003 (2)	y	
121241-01 Support bkt 16	y		HP-2-AIRT-AB-0003 (2)	y	
121241-01 Line 2	11.6.04		HP-2-AIRT-AB-0003 (2)	y	
121241-01 Support bkt 15	11.6.04 & 29.06.06		HP-2-AIRT-AB-0003 (2)	y	Pipe support improved wrt thermal behavior in lower HTT area according to HP-2-ASED-SD-0099_Thermal_Decoupling_of_Tubing_Support see as run
121241-01 Support bkt 17	11.6.04		HP-2-AIRT-AB-0003 (2)	y	
121241-01 Support bkt 18	11.6.04 & 29.06.06		HP-2-AIRT-AB-0003 (2)	y	Pipe support improved wrt thermal behavior in lower HTT area according to HP-2-ASED-SD-0099_Thermal_Decoupling_of_Tubing_Support see as run
121241-01 Line 3	11.6.04		HP-2-AIRT-AB-0003 (2)	y	NCR-279, holes elongated to fit to SV123 (angular displacement at I/F flange) NCR-273, tube re-bent to fit to V104
121241-01 Support bkt 6	11.6.04		HP-2-AIRT-AB-0003 (2)	y	
121241-01 Support bkt 19	11.6.04		HP-2-AIRT-AB-0003 (2)	y	
121241-01 Line 4	11.6.04		HP-2-AIRT-AB-0003 (2)	y	
121241-01 Support bkt 1	8.6.04 & 19.06.06		HP-2-AIRT-AB-0003 (2)	y	Pipe support improved wrt thermal behavior in lower HTT area according to HP-2-ASED-SD-0099_Thermal_Decoupling_of_Tubing_Support see as run,

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					SLI covered acc. to ASED-PR-0059
121241-01 Support bkt 9	8.6.04 & 19.06.06		HP-2-AIRT-AB-0003 (2)	y	Pipe support improved wrt thermal behavior in lower HTT area according to HP-2-ASED-SD-0099_Thermal_Decoupling_of_Tubing_Support see as run SLI covered acc. to ASED-PR-0059
121241-01 Support bkt 27	8.6.04 & 19.06.06		HP-2-AIRT-AB-0003 (2)	y	Pipe support improved wrt thermal behavior in lower HTT area according to HP-2-ASED-SD-0099_Thermal_Decoupling_of_Tubing_Support see as run SLI covered acc. to ASED-PR-0059
121241-01 Support bkt 11,12,13	8.6.04		HP-2-AIRT-AB-0003 (2)	y	
121241-01 Support bkt 14	8.6.04		HP-2-AIRT-AB-0003 (2)	y	
121241-01 Line 5	19.01.05		HP-2-AIRT-AB-0005 (2)	y	to filling port
121241-01 Support bkr 5 & 35	19.01.05 & 19.06.06		HP-2-AIRT-AB-0005 (2)	y	Pipe supports 5 & 35 improved wrt thermal behavior in lower HTT area according to HP-2-ASED-SD-0099_Thermal_Decoupling_of_Tubing_Support see as run
121241-01 Line 6	11.6.04		HP-2-AIRT-AB-0003 (2)	y	NCR-273, I/F problems corrected by re-bending
121241-01 Support bkt 31	8.6.04		HP-2-AIRT-AB-0003 (2)	y	
121241-01 Support bkt 22,23,24	8.6.04		HP-2-AIRT-AB-0003 (2)	y	
121241-01 Support bkt 25,26	8.6.04 & 19.06.06		HP-2-AIRT-AB-0003 (2)	y	Pipe supports 25 & 26 improved wrt thermal behavior in lower HTT area according to HP-2-ASED-SD-0099_Thermal_Decoupling_of_Tubing_Support see as run Supports 25 & 26 SLI covered acc. to ASED-PR-0059
121241-01 Line 7	11.6.04		HP-2-AIRT-AB-0003 (2)	y	
121241-01 Support bkt 3	11.6.04		HP-2-AIRT-AB-0003 (2)	y	
121241-01 Line 8	11.6.04		HP-2-AIRT-AB-0003 (2)	y	
121241-01 Support bkt 2	11.6.04		HP-2-AIRT-AB-0003 (2)	y	
121241-01 Support bkt 4	11.6.04		HP-2-AIRT-AB-0003 (2)	y	
121241-01 Line 9	19.01.05		HP-2-AIRT-AB-0005 (2)	y	SV 123 to FP wire locking done
121241-01 Support bkt 20	y		HP-2-AIRT-AB-0005 (2)	y	
121241-01 Support bkt 34	y & 13.07.06		HP-2-AIRT-AB-0005 (2)	y	Pipe support improved wrt thermal behavior in lower HTT area according to HP-2-ASED-SD-0099_Thermal_Decoupling_of_Tubing_Support see as run
121241-01 Support bkt 36	y		HP-2-AIRT-AB-0005 (2)	y	

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121241-02 HOT HST	on HTT		HP-2-AIRT-AB-0001 Iss. 2, 22.06.04	y	HOT HST "red tags": All removed before LBTS1 mounting <ul style="list-style-type: none"> <li>* Flushing system</li> <li>* Manometer</li> <li>* Tooling bracket / support, pressure sensor line</li> <li>* Tooling cap pressure sensor line</li> </ul>
121241-02 <b>Line 1</b>	on HTT		HP-2-AIRT-AB-0001 (2)	y	
121241-02 HOT HST Bkt 7	15.12.04 & 19.06.06		HP-2-AIRT-AB-0001 (2)		mounted on lower SPW Pipe support improved wrt thermal behavior in lower HTT area according to HP-2-ASED-SD-0099_Thermal_Decoupling_of_Tubing_Support see as run
121241-02 HOT HST Bkt 10	on HTT		HP-2-AIRT-AB-0001 (2)		
121241-02 HOT HST Bkt 11	on HTT		HP-2-AIRT-AB-0001 (2)		
121241-02 HOT HST Bkt 12	on HTT		HP-2-AIRT-AB-0001 (2)		
121241-02 <b>Line 2</b>	6.5.04		HP-2-AIRT-AB-0001 (2)	y	wire locking line 2 to line 3 done NC-0817: wrong routing, clash with TS, reworked to fit by bending - closed
121241-02 HOT HST Bkt 5	6.5.04		HP-2-AIRT-AB-0001 (2)		
121241-02 HOT HST Bkt 6	6.5.04		HP-2-AIRT-AB-0001 (2)		
121241-02 <b>Line 3</b>	6.5.04		HP-2-AIRT-AB-0001 (2)	y	30.6.06: Thermal connection of Line 3 to LSPW improved by mounting a Cu-wire between tube and frame.
121241-02 HOT HST Bkt 2	6.5.04		HP-2-AIRT-AB-0001 (2)		
121241-02 HOT HST Bkt 3	6.5.04		HP-2-AIRT-AB-0001 (2)		
121241-02 <b>Line 4</b>	6.5.04		HP-2-AIRT-AB-0001 (2)	y	wire locking line 4 to line 5 done
121241-02 HOT HST Bkt 1	6.5.04		HP-2-AIRT-AB-0001 (2)		
121241-02 <b>Line 5</b>	6.5.04 14.07.06		HP-2-AIRT-AB-0001 (2)	y	Pipe supports improved wrt thermal behavior in lower HTT area according to HP-2-ASED-SD-0099_Thermal_Decoupling_of_Tubing_Support see as run
121241-02 HOT HST Bkt 9	6.5.04		HP-2-AIRT-AB-0001 (2)		

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121242-01 External Tubing		PFM	HP-2-AIRT-AB-0006, issue 2, 02.08.05	y	HP-2-ASED-DW-0180-01, issue A, 19.07.05 Hand rails on Pos. V506 is missing & Part 380 missing(Modification of A-frame); all screws are torqued External Tubing removed 30.04.06 Final Integration of external tubing 22.11.2006 acc. SD 0063 Removed acc. SD-0063 Iss.2 22.03.2007
121242-01 External Tubing Brackets		PFM	HP-2-ASED-DW-0158-01, issue A, 25.05.05	y	Removed acc. SD-0063 Iss.2 22.03.2007
121242-04 Nozzle support structure (A-frame)		PFM	HP-2-ASED-DW-0158-01, issue A, 25.05.05	y	NC-1451: Modified for Radiator Mounting See OW124/closed; removed 31.08.05 Integration on 14.09.2005; Removed 15.09.05 -A-Frame blocked the Harness Integration, finally integrated 17.09.05; removed 05.04.06 HP-2-ASED-SD-0063 Final integration 21.11.2006 acc. SD 0063 Removed acc. SD-0063 Iss.2 22.03.2007
121242-05 Nozzles	03.01.2007	FM Large S/N1 Small S/N 1-2	HP-2-AIRT-AB-0006, issue 2, 02.08.05	Y	Acc. HP-2-ASED-DW-0159-01-0B & HP-2-ASED-DW-0180-04-0A NC-1553: Diameter of big nozzle enlarged to 3.3 mm Remove of STM nozzles and integration of FM nozzles acc. SD 0063 ; 21.11.06, removed 3 Nozzles and 2 distance rings on +Y / -Y side. Exchange sealing ring -> Helicoflex reintegration of Nozzles acc. SD-0063 03.01.07
121250 HOT	05.05.04	PFM 02	HP-2-AIR-AB-0002 Iss. 2, 01.07.04 except: new Fix. pads HP-2-ASED-DW-0200-01, A	y	Including 4 adjusted shim pads (FM1 to FM4) between each pad and the lower SFW (ref:HP-2-AIR-DW-2141), shim thickness see HP-2-ASED-PR-0015, para 5.1.12.3* 09.06.05: HOT fixation pads replaced by new ones made from stainless steel, see HP-2-ASED-SD-0098 as run. Blade thickness 1,21- 1,22mm, old shims from STM campaign used
121263 VG 901 / 902	08.06.05 03.05.07	F-No. 387 / 388 F-No. 394	HP-2-ASED-DP-0036 /1 (Balzers No. BGG 18753)	y	VG 901 see NC-2574; VG 901 not functioning STM2 CVV; Exchange of VG901 (SN387) see NC-2574 03.05.2007 M.L.
121264 Ventline Test Valve V 506	09/2005	SN 02	Swagelock SS-4BG-VCR-HC-TUV HP-2-ASED-TR-0098, issue 1, 23.09.05	y	Valve 506 should be tested after Mech.Test AI: Hans Huber Valve 506 is tested acc. SD.0136 see NC 2452
121311 Lower bulkhead thermal shield 1	25.05.2007	PFM 01	HP-2-AIRS-AB-0003, Issue 1, 17.12.04	Y	Closure of MLI with Cyl. TS on 13.04.05, harness for T421 & T422 connected and tested De-mating 10.05.2006; Re-installed acc.PR-0023 on 03.07.06 Deintegrated 23.03.2007 K.R Final integrated acc.PR-0023 H.G.
121312 Lower bulkhead thermal shield 2	30.05.2007	PFM 01	HP-2-AIRS-AB-0003, Issue 1, 17.12.04	Y	Closure of MLI with Cyl. TS on 20.04.05, harness for T441 & T442 connected and tested NC-0649: I/F holes for T-sensor missing, reworked by ASED, closed. De-mating 10.05.2006; re-installed acc.PR-0023 on 04.07.06 NC-2409: Teflon tube bracket reworked to provide more clearance to TS3 Deintegrated 23.03.2007 K.R Final integrated acc.PR-0023 H.G.
121313 Lower bulkhead thermal shield 3	01.06.07	PFM 01	HP-2-AIRS-AB-0003, Issue 1, 17.12.04	Y	Closure of MLI with Cyl. TS ongoing, harness for T461 & T462 connected and tested De-mating 10.05.2006 Re-installed acc.PR-0023 on 06.07.06 Deintegrated 24.03.2007 K.R Final integrated acc.PR-0023 H.G.
121320 Cyl. Thermal Shields	20.12.04	PFM	HP-2-AIRS-AB-0002, Issue 2, 13.12.04	y	Positioned on Rotary Table around Tanks, supported on AI stands Sensors incl. harness were mounted at AIRS before MLI integration

Equipment / CI-No.	Integr. Date	Model, Serial No	ABCL Ref. (or EIDP)	Qualified	Remarks / Open Work / NCR's
					NC-2351: Delamination of NI-coating on cyl. TS1 at TSS 07 I/F, covered with S-425 Al-tape.
121331 Upper bulkhead thermal shield 1		PFM 01	HP-2-AIRS-AB-0004, Issue 2, 24.02.05	y	Harness for T423, T424 & A421, A422 connected and tested NC-1047: Enlarge cut-out at filling port, reworked, closed NC-2448: Cut-outs at TSS chains 5, 6, 7 enlarged due to new SPIRE harness routing Deintegrated 24.03.2007 K.R
121331-01 TS1 LOU Baffle		PFM	HP-2-ASED-DW-0125-01-0A		Baffle sheets black anodized acc. to HP-2-ASED-DW-0124-01-0A Modified LOU baffle mounted to TS1 according to HP-2-ASED-SD-0112 Removed acc. PR-0049 T.B. 03.04.07
121332 Upper bulkhead thermal shield 2		PFM 01	HP-2-AIRS-AB-0004, Issue 2, 24.02.05	y	24.05.2005: Closure of MLI with Cyl. TS, Harness for T443, T444 connected and tested NC-1043: Cut-out reworked; NC-1098: Broken stand off repaired. Re- integrated; NC-2448: Cut-outs at TSS chains enlarged Deintegrated 25.03.2007 K.R
121332 Entrance Baffle		PFM	HP-2-AIRS-AB-0004, Issue 2, 24.02.05	y	Re- integrated Removed acc. PR-0049 T.B. 03.04.07
121332 LOU Baffle		PFM	HP-2-AIRS-AB-0004, Issue 2, 24.02.05	y	Re- integrated with new HIFI stray light baffle Removed acc. PR-0049 T.B. 03.04.07
121332 LOU Window Plate		PFM			Re- integrated acc. to HP-2-ASED-TP-0064 Removed acc. PR-0049 T.B. 03.04.07
121333 Upper bulkhead thermal shield3		PFM 01	HP-2-AIRS-AB-0004, Issue 2, 24.02.05	Y	02.06.2005: Closure of MLI with Cyl. TS, Harness for T463, T464 connected and tested NC-1044: Cut-out reworked Re- integrated; NC-2448: Cut-outs at TSS chains enlarged Deintegrated 26.03.2007 K.R
121341 MLI on lower bulkhead thermal shields	01.06.07 By AAEM	PFM 01	HP-2-AAEM-LI-0024, Issue 1, 11.08.04	Y	Stand offs inside all 3 LB shields covered with AL tape (close out of open work item) NC-0946: Small damages on MLI repaired MLI at TSS chain feed throughs closed acc. to NC-0950 Partly opened for TS De-Mating 11.05.2006, finally closed 10.07.06 Partly opened for TS De-Mating 26.03.07 AAEM Final closed acc. HP-2-AAEM-PR-0003 J.H. 01.06.2007
121342 MLI on cyl. th. shields	by AAEM 11/04	PFM	HP-2-AAEM-LI-0024, Issue 1, 11.08.04	y	MLI was integrated on Cy. Shields by AAEM at AIRS before shields delivery NC-0483: Cut-outs on MLI templates do not fit to cyl. TS, reworked, closed.
121343 MLI on upper bulkheads thermal shields	01.06.2005 by AAEM 06.07.06	PFM 01	HP-2-AAEM-LI-0024, Issue 1, 11.08.04	Y	Stand offs inside UB shield 1 covered with AL tape, 20.4. (close out of open work item) Partly removed for De-Mating of TS; NC-2295: Damages found on MLI - closed. New final installation 06.07.06 by AAEM see PR-0023; see IR42 Cu bonding leads replaced by steel leads acc. to ASED-PR-0060 NC-2459: MLI repaired with Mylar-VDA tapes, additional SLI patches on TS1 MLI. Partly opened for TS De-Mating 26.03.07 AAEM
121343-02 LOU Baffle MLI		PFM	HP-2-AAEM-LI-0024, Issue 1, 11.08.04	y	NC-1162: LOU Baffle MLI bonding leads not connected for STM Modified and re-integrated and HP-2-ASED-PR-0059_I_AS_RUN See also AAEM-PR-0003 as run

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121345 HTT MLI	30.09.-08.10.04	PFM	HP-2-AAEM-LI-0024 Iss. 1.0, 11.08.04 & HP-2-ASED-PR-0059_1_AS_RUN	y	IRR: HP-2-ASED-MN-0770; Procedure: HP-2-AAEM-PR-0003 (1) See HP-2-ASED-PR-0059_1_AS_RUN: modification performed in order to close open areas and mount SLI patches over Accelerometer, heater, DLCM 1 and 2, H103, H104, not needed interface flanges (Adsorber I/F)
121345 MLI grounding wires	y	PFM	HP-2-AAEM-LI-0024 Iss. 1.0, 11.08.04		See HP-2-ASED-PR-0059_1_AS_RUN
121345-01 L0 pods MLI	LB 19.07.06 UB 28.07.06	PFM	HP-2-ASED-DW-0212/213/...225/226-01-0A		L0 pods SLI covered acc. to HP-2-ASED-PR-0059_1_AS_RUN
121345-02 SV 123 MLI cap	27.07.06	PFM	HP-2-ASED-DW-0204-01-0A		SLI covered acc. to HP-2-ASED-PR-0059_1_AS_RUN
121345-03 PPS MLI cap	27.07.06	PFM	HP-2-ASED-DW-0205-01-0A		SLI covered acc. to HP-2-ASED-PR-0059_1_AS_RUN
Valve MLI covers V102, V103, V104, V105 integrated	27.07.06	PFM			acc. to HP-2-ASED-PR-0059_1_AS_RUN
121345-04 SLI for HTT open areas (tubing, flanges etc.)	27.07.06	PFM	HP-2-ASED-PR-0059-1_as_run		no drwg. issued, as built doc. is the as run procedure.
121346 HOT MLI	16.-19.08.04 & 06.10.04 & 12.06.06	PFM	HP-2-AAEM-LI-0024 Iss. 1.0, 11.08.04		IRR: HP-2-ASED-MN-0729; Procedure: HP-2-AAEM-PR-0003 (1) All integrated on 16.-19.8.04, except closure at accelerometer / harness region, closed on 06.10.04 See NCR: HP-2-ASED-121346-NC-2353 Outer layer tape opened and re-fixed, grounding cable cut and re-crimped with longer cable status 20.06.06 DW 279 closed 21.06.06
121346 MLI grounding wires GP1, GP2	Y	PFM			Grounding cables integrated see EIDP HP-2-ASSE-DP-0006
121347 Filling port MLI	28.07.06	PFM	HP-2-ASED-DW-0227-01-0A HP-2-ASED-DW-0228-01-0A		modified FP MLI mounted acc. to ASED-PR-0060
121348 SLI on (cryo) components at low_SFW	Y	PFM	HP-2-ASED-PR-0059-1_as_run		as built doc. is the as run procedure, all accessible tubing parts covered with SLI; Components covered with SLI: V701, V702, SV723, V105, RD724 flange, P701.
121351-02 CVV Cylinder MLI -Layer 1 -Layer 2 -Layer 3 -Layer 4		PFM	HP-2-AAEM-LI-0037, issue draft 2, 01.07.05	Y	HP-2-AAEM-PR-0004 Modified in order to give access to P02 Closure of NCR 1508: CVV blankets too short. Repaired for STM, some new blankets needed for PFM MLI at +Y radiator closed on 11.01.06 Removed 23.03.2006 HP-2-ASED-SD-0092; NC-1595
121352 Lower Baffle MLI -Layer 1 -Layer 2		PFM	HP-2-AAEM-LI-0037, issue draft 2, 01.07.05	y	HP-2-AAEM-PR-0004 Removed 28.02.2007 J.H. & AAEM; Visual Inspection performed

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-Layer 3 -Layer 4					
121352 Upper Baffle MLI -Layer 1 -Layer 2 -Layer 3 -Layer 4		PFM	HP-2-AAEM-LI-0037, issue draft 2, 01.07.05	y	HP-2-AAEM-PR-0004 Removed 23.03.2006 HP-2-ASED-SD-0092; NC-1595
121353 LOU MLI		PFM	HP-2-AAEM-LI-0037, issue draft 2, 01.07.05	y	De-integrated
121421-01 T 702	23.07.04	JX 74	HP-2-ASED-DP-0050, Issue 1, 25.04.05	y	C 100
121421-01 T 703	23.07.04	JX 75	HP-2-ASED-DP-0050, Issue 1, 25.04.05	y	C 100
121421-01 T106	3.8.04	JX72	"	y	C100, covered with 5 layer crinkled MLI on 01.04.05
121421-01 T107	3.8.04	JX73	"	y	C100
121421-01 T113	cancelled	KJ 03	"	y	C100 with reduced width, glued to Filling Port, NC-2307; disintegrated on 13.07.06, SD 101
121421-01 T114	cancelled	KJ 09	"	y	C100 with reduced width, glued to Filling Port, NC-2307; disintegrated on 13.07.06, SD 101
121421-01 T 115	18.07.06	KT90	HP-2-ASED-DP-0051, issue 1, 25.04.05	y	PT 1000 ASED-SD-0101, connected to T113 connector
121421-01 T 116	18.07.06	KR34	"	y	PT 1000 ASED-SD-0101, connected to T114 connector
121421-01 Temp. Sensor T117	17.07.06	KV 90	HP-2-ASED-DP-0050, Issue 1, 25.04.05	Y	C 100, electr. checked and torqued 19.07.06 ASED-SD-0101, harness re-routed
121421-01 Temp. Sensor T118	17.07.06	KV 91	"	Y	C 100, electr. checked and torqued 19.07.06 ASED-SD-0101, harness re-routed
121421-01 Temp. Sensor T202	17.11.04	KO 38	"	Y	C 100, electr. checked and torqued 09.02.05
121421-01 Temp. Sensor T208	17.11.04	KO 40	"	Y	C 100, electr. checked and torqued 09.02.05
121421-01 Temp. Sensor T254	01.12.04	KO 68	"	Y	C 100 electr. checked and torqued 09.02.05
121421-01 Temp. Sensor T256	14.12.04	KO 69	"	Y	C 100, electr. checked and torqued 09.02.05
121421-01 Temp. Sensor T258	14.12.04	KO 70	"	Y	C 100, electr. checked and torqued 09.02.05

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121421-01 Temp. Sensor T221	15.05.2007	KO45	"	Y	C 100, electr. checked and torqued on 09.05.05 removed 19.04.2007 Geiger Final Integration acc.PR-0086 H.G. on Red Detector flex link
121421-01 Temp. Sensor T222	15.05.2007	KO46	"	Y	C 100, electr. checked and torqued removed 19.04.2007 Geiger Final Integration acc.PR-0086 H.G. on Evaporator flex link
121421-01 Temp. Sensor T223	15.05.2007	KO47	"	Y	C 100, electr. checked, torqued NC-0775: broken bolt, closed removed 19.04.2007 Geiger Final Integration acc.PR-0086 H.G. on Cooler Pump flex link
121421-01 Temp. Sensor T224	15.05.2007	KO48	"	Y	C100, electr. checked and torqued 15.02.05 removed 19.04.2007 Geiger Final Integration acc.PR-0086 H.G. on Blue Detector flex link
121421-01 Temp. Sensor T225	14.02.05	KO49	"	Y	C 100, PO1 had to be rotated by 180° electr. checked and torqued 15.02.05
121421-01 Temp. Sensor T226	20.07.06	KV89	"	Y	C 100, electr. checked and torqued 20.07.06 (old KO50 replaced by KV89)
121421-01 Temp. Sensor T227	14.02.05	KO51	"	Y	C 100, PO1 had to be rotated by 180° electr. checked and torqued 15.02.05
121421-01 Temp. Sensor T228	14.02.05	KO52	"	Y	C 100, electr. checked and torqued 15.02.05
121421-01 Temp. Sensor T231	17.11.04	KO 53	HP-2-ASED-DP-0050, Issue 1, 25.04.05	Y	C 100, electr. checked and torqued 09.02.05
121421-01 Temp. Sensor T232	17.11.04	KO 54	"	Y	C 100, electr. checked and torqued 09.02.05
121421-01 Temp. Sensor T233	17.11.04	KO 55	"	Y	C 100, electr. checked and torqued 09.02.05 NC-0683: AI closed by shimming on 3.2.05 NC-1015: broken bolt, fixed with Kapton tape
121421-01 Temp. Sensor T234	17.11.04	KO 56	"	Y	C 100 electr. checked and torqued 09.02.05
121421-01 Temp. Sensor T235	17.11.04	KO 57	"	Y	C 100, electr. checked and torqued 09.02.05 NC-0683: AI closed by shimming on 3.2.05
121421-01 Temp. Sensor T236	17.11.04	KO 58	"	Y	C 100, electr. checked and torqued 09.02.05 NC-0683: AI closed by shimming on 3.2.05
121421-01 Temp. Sensor T237	17.11.04	KO 60	"	Y	C 100, electr. checked and torqued 09.02.05
121421-01 Temp. Sensor T238	13.07.06	MH 20	"	Y	PT 1000, electr. checked and torqued 19.07.06 ASED-SD-0101, harness re-routed



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121421-01 Temp. Sensor T239	13.07.06	MH 21	"	Y	PT 1000, electr. checked and torqued 19.07.06 ASED-SD-0101, harness re-routed
121421-01 Temp. Sensor T242	11.02.05	KO 61	"	Y	C 100, electr. checked and torqued 11.02.05
121421-01 Temp. Sensor T244	25.07.2007	KO 62	"	Y	C 100, electr. checked and torqued 11.02.05 C 100, electr. checked and torqued 25.07.2007 A.G.
121421-01 Temp. Sensor T248	11.02.05	KO 65	"	Y	C 100, electr. checked and torqued 11.02.05
121421-01 Temp. Sensor T246	17.11.04	KO 63	"	Y	C 100, electr. checked and torqued 09.02.05
121421-01 Temp. Sensor T247	17.11.04	KO 64	"	Y	C 100, electr. checked and torqued 09.02.05
121421-01 Temp. Sensor T250	15.02.05	KO66	HP-2-ASED-DP-0050, Issue 1, 25.04.05	Y	C 100, electr. checked and torqued 16.02.05
121421-01 Temp. Sensor T252	15.02.05	KO67	HP-2-ASED-DP-0050, Issue 1, 25.04.05	Y	C 100, electr. checked and torqued 16.02.05
121421-01 Temp. Sensor T212	25.04.05	KO42	HP-2-ASED-DP-0050, Issue 1, 25.04.05	Y	C 100, glued to OB shield with Stycast 2850 ST electr. grounding done with AL-tape
121421-01 Temp. Sensor T213	25.04.05	KO43	HP-2-ASED-DP-0050, Issue 1, 25.04.05	Y	C 100, glued to OB shield with Stycast 2850 ST electr. grounding done with AL-tape
121421-01 T862	17.03.05	KV84	HP-2-ASED-DP-0050, Issue 1, 25.04.05	Y	C 100
121421-02 T 321 T 322 T 323 T 324	22.08.05	LS 19 LS 20 LS 25 LS 26	HP-2-ASED-DP-0051, issue 1, 25.04.05	Y	PT 1000 on SVM TS
121421-02 T 501	15.09.05	LS23	HP-2-ASED-DP-0051, issue 1, 25.04.05	Y	PT 1000
121421-02 T 505	16.09.05	LS29	"	Y	PT 1000
121421-02 T 506	16.09.05	LS34	"	Y	PT 1000
121421-02 T 506	16.09.05	LS36	"	Y	PT 1000

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121421-02 T 601	y	ISO 8	"	y	PT 1000 on cover
121421-02 T 602	y	ISO 9	"	y	PT 1000 on cover
121421-02 T 651	y	KR32	"	y	PT 1000 on cryo baffle
121421-02 T 652	y	KR33	"	y	PT 1000 on cryo baffle
121421-02 T 901		LS27	"	y	PT 1000 Removed during TMS installation 31.05.2007
121421-02 T 902	09.09.05	LS28	"	y	PT 1000
121421-02 T 903	12.09.05	LS38	"	y	PT 1000
121421-02 T 904	12.09.05	LS40	"	y	PT 1000
121421-02 T 905	09.09.05	LS35	"	y	PT 1000
121421-02 T 906	y	LS43	"	y	PT 1000
121421-02 T 907	10.01.06	LS17	"	y	PT 1000; NC-1851: +Y Radiator Upper part removed for repair. Radiator Upper part installed; T907 connected ; NC-1941: one bolt on sensor connector slightly bent, to be replaced for PFM
121421-02 T 908	13.09.05	LS18	"	y	PT 1000
121421-02 T 909	12.09.05	KR20	"	y	PT 1000
121421-02 T 910	12.09.05	LS30	"	y	PT 1000
121421-02 T 911	12.09.05	LS41	"	y	PT 1000
121421-02 T 912	12.09.05	KO22	"	y	PT 1000

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121421-02 T 931	13.09.05	MH22	"	y	PT 1000 on LOU
121421-02 T 932	13.09.05	MH25	"	y	PT 1000 on LOU
121421-02 T 933	y	LS33	"	y	PT 1000 on LOR; final integration after LOR integration
121421-02 T 934	15.09.05	KO23	"	y	PT 1000 with cut ears on LOU
121421-02 T 935	15.09.05	LS42	"	y	PT 1000 with cut ears on LOU
121421-02 T 701	06.08.04	KR 23	HP-2-ASED-DP-0051, Issue 1, 28.01.05	y	PT 1000 NCR: 0354, T701 changed from original SN KO 05 due to broken connector screw
121421-02 T 704	06.08.04	KR 26	HP-2-ASED-DP-0051, Issue 1, 28.01.05	y	PT 1000, T704 changed from original SN KO 09
121421-02 T103	3.8.04	KH10		y	PT1000, covered with 5 layer crinkled MLI on 01.04.05
121421-02 Temp. Sensor T207	17.11.04	KR 27	HP-2-ASED-DP-0051, Issue 1, 25.04.05	Y	PT 1000, electr. checked and torqued 09.02.05
121421-02 Temp. Sensor T253	01.12.04	KR 31	HP-2-ASED-DP-0051, Issue 1, 25.04.05	Y	PT 1000, electr. checked and torqued 09.02.05
121421-02 Temp. Sensor T255	01.12.04	KT 97	HP-2-ASED-DP-0051, Issue 1, 25.04.05	Y	PT 1000, electr. checked and torqued 09.02.05
121421-02 Temp. Sensor T249	15.02.05	KR29	HP-2-ASED-DP-0051, Issue 1, 25.04.05	Y	PT 1000, electr. checked and torqued 16.02.05
121421-02 Temp. Sensor T251	15.02.05	KR30	HP-2-ASED-DP-0051, Issue 1, 25.04.05	Y	PT 1000, electr. checked and torqued 16.02.05
121421-02 Temp. Sensor T211	25.04.05	KR28	HP-2-ASED-DP-0051, Issue 1, 25.04.05	Y	PT 1000, glued to OB shield with Stycast 2850 ST electr. grounding done with AL-tape
121421-02 Thermistor T462 & CCH DCB22 on cyl. thermal shield 3	11 / 04	KU01	HP-2-ASED-DP-0051, Issue 1, 25.04.05; HP-2-CASA-AB-0002, issue 1, 07.07.04	Y	PT 1000 Procedure: HP-2-ASED-TP-0028
121421-02 Thermistor T442 & CCH DCA 21 on cyl. thermal shield 2	11 / 04	KH13	"	Y	PT 1000 Procedure: HP-2-ASED-TP-0028
121421-02 Thermistor T422 & CCH DCB 21 on cyl. thermal shield 1	11 / 04	KU02	"	Y	PT 1000 Procedure: HP-2-ASED-TP-0028 NC-0504: broken screw, reworked, closed.

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I21421-02 T801	See remark	KR34	HP-2-ASED-DP-0051, Issue 1, 25.04.05 PT 1000	Y	Procedure: HP-2-ASED-TP-0047, bonded with Stycast 2850 FT acc. to ISO-MP-BEB00.020, Issue 1 on AlMgSi 1Cu washers acc. to HP-2-ASED-DW-0138-01-0B NC-0820: Bonding directly on Ni coated CuBe failed during sample test, NRB: Introduction of additional AlMgSi 1Cu washers acc. to HP-2-ASED-DW-0138-01-0B T801 removed and changed with T 872, harness extended
I21421-02 T802	08.03.05	KH11	"	Y	Al tape over sensor "
I21421-02 T803	08.03.05	KH12	"	Y	"
I21421-02 T804	See remark	KT90	"	Y	T804 removed and changed with T 871, harness extended
I21421-02 T805	09.03.05	KT93	"	Y	Al tape over sensor "
I21421-02 T806	09.03.05	KT94	"	Y	"
I21421-02 T851	09.03.05	KT95	"	Y	Procedure: HP-2-ASED-TP-0046, NC-0820 and bonding remarks as for T801
I21421-02 T852	09.03.05	KT98	"	Y	"
I21421-02 T853	09.03.05	KU04	"	Y	"
I21421-02 T861	17.03.05	KO09	"	Y	"
I21421-02 T871 LSPW near TSS 13	20.06.06	LS 39	HP-2-ASED-DP-0051, Issue 1, 25.04.05	Y	PT 1000 Procedure HP-2-ASED-SD-0101_1_PLM MLI modifications_add sensors New sensor, changed with T 804 see SD-0101, Harness extended from T804
I21421-01 T872 LSPW near TSS 13	20.06.06	KV 85	HP-2-ASED-DP-0050, Issue 1, 25.04.05	Y	C100 Procedure HP-2-ASED-SD-0101_1_PLM MLI modifications_add sensors New sensor, changed with T 801 see SD-0101, Harness extended from T 801
I21421-02 Thermistor T461 & CCH DCA23 on lower bulkh. thermal shield 3	12.01.05	KO20	HP-2-ASED-DP-0051, Issue 1, 25.04.05; HP-2-CASA-AB-0002, issue 1, 07.07.04	Y	PT 1000 Procedure: HP-2-ASED-TP-0045 (NC-0651: M3 holes in connector brackets changed to 4.3, covered by HP-2-ASED-DP-0028, issue 2)
I21421-02 Thermistor T441 & CCH DCB 23 on lower bulkh. thermal shield 2	12.01.05	KO12	"	Y	PT 1000 Procedure: HP-2-ASED-TP-0045
I21421-02 Thermistor T421 & CCH DCA 22 on lower bulkh. thermal shield 1	12.01.05	KO11	"	Y	PT 1000 Procedure: HP-2-ASED-TP-0045

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121421-02 Thermistor T463 & CCH DCE11 on upper bulkh. thermal shield 3	04.03.2005	KO14	"	Y	See also drawing 2547-121430-100-1B-0B, "Herschel PFM Cryostat harness internal CCH & SIH"
121421-02 Thermistor T464 & CCH DCA11 on upper bulkh. thermal shield 3	04.03.2005	KO15	"	Y	See also drawing 2547-121430-100-1B-0B, "Herschel PFM Cryostat harness internal CCH & SIH"
121421-02 Thermistor T443 & CCH DCE12 on upper bulkh. thermal shield 2	07.03.2005	KO13	"	Y	
121421-02 Thermistor T444 & CCH DCB11 on upper bulkh. thermal shield 2	07.03.2005	KO25	"	Y	
121421-02 Thermistor T423 & CCH DCE13 on upper bulkh. thermal shield 1	08.03.2005	LS31	"	Y	
121421-02 Thermistor T424 & CCH DCA12 on upper bulkh thermal shield 1	08.03.2005	LS32	"	Y	
121422-01 Pressure Sensor P501	01.09.05	PFM S/N 510214	HP-2-ASED-DP-0033 Iss. 1, 16.03.04	Y	
121422-01 P701	13.01.05	FM2, SN 510212	HP-2-ASED-DP-0033 Iss. 1, 16.03.04	y	NC-0307: New design of pressure sensor bracket NC-0442: I/F deviation btw. P701 and int. CCH (different connector types, harness adaptor added)
121422-01 P101	preliminary fixed for test 11.6.04; final mech. integr. 13.1.05	FM1, SN 510211	HP-2-ASED-DP-0033 Iss. 1, 16.03.04	y	NCR-0272, Press sensor dropped NCR-0277, incorrect p. sensor bracket design NCR-0442, P701 harness (CCH CCA11) has a MDM 9P, this will not fit to sensor, ASED / CASA have to make an adaptor to sensor circular connector; adaptors with FM connector (baked) installed on 21.2.05, finally fixed and mated on 9.3.05
121422-01 P101 Support Plate	Y			y	
121422-01 P101 bkt (front/rear)	Y		NCR-0277	y	NCR-0277, incorrect p. sensor bkt design, corrected, closed
121422-01 P701 upper / lower bracket	Y		NCR - 0307	y	NCR - 0307: re-design and manufacture at AIR, closed
121422-02 Pressure Sensor P502	16.11.06	QM, SN 951634	HP-2-ASED-DP-0032 Iss. 1, 16.03.04	Y	NC-1519: Harness adapter installed for TB/TV test to correct contact problem, adapter removed before sine test Remove of QM 13.06.06 H. Huber

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					Reintegration acc. SD 0063 16.11.06 Torque 20 Nmr.; harness adapter should be integrated see NC-1519; harness adapter integrated 23.11.2006 A.G.
121423 A701	24.9.04	Endevco SN 11837	Endevco Model 2272 HP-2-ASED-TR-0031 /1	y	calibrated together with accel. harness
121423 A702	24.9.04	Endevco SN 11585	"	y	calibrated together with accel. harness
121423 A703	24.9.04	Endevco SN 11841	"	y	calibrated together with accel. harness
121423 Accelerometer (A201 to A206)	3.1.05	Endevco 11842 11840 Endevco 11844 Endevco 11826 Endevco 11851 Endevco 11848	"	y	first Hammertest performed 19.01.05  Observation at A 206 on 18.4.05: Shrink sleeve bend at connector to A 206. Kapton tape wrapped around for protection, health check and noise measurement on 21.4.05 ok.
121423 Accelerometer (A207 and A208)		Endevco 11865 Endevco 11843		y	PACS accelerometers; Removed 12.04.07 acc. PACS MTD removal T.B. Harness for Accelerometer should be clarify
121423 Accelerometer A421 on upper bulkhead thermal shield 1	xx.03.2005	SN 11847	"	Y	
121423 Accelerometer A422 on upper bulkhead thermal shield 1	xx.03.2005	SN 11850	Endevco Model 2272 HP-2-ASED-TR-0031 /1	Y	
121423 A101	24.9.04	Endevco SN 11833	"	calibrated	calibrated together with accel. harness; insulated with Kapton tape
121423 A102	24.9.04	Endevco SN 11846	"	calibrated	calibrated together with accel. harness; insulated with Kapton tape
121423 A103	24.9.04	Endevco SN 11839	"	calibrated	calibrated together with accel. harness; insulated with Kapton tape
121423 A104	24.9.04	Endevco SN 11849	"	calibrated	calibrated together with accel. harness; insulated with Kapton tape
121423 A105	24.9.04	Endevco SN 11825	"	calibrated	calibrated together with accel. harness; insulated with Kapton tape
121423 A106	24.9.04	Endevco SN 11845	"	calibrated	calibrated together with accel. harness; insulated with Kapton tape
121423 A107	24.9.04	Endevco SN 11832	"	calibrated	calibrated together with accel. harness; insulated with Kapton tape
121423 A108	24.9.04	Endevco SN 11580	"	calibrated	calibrated together with accel. harness; insulated with Kapton tape
121423 A109	24.9.04	Endevco SN	"	calibrated	calibrated together with accel. harness; insulated with Kapton tape

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		11876			
121424 HOT Accelerometer block type 1	28.7.04		HP-2-ASED-DW-0046	n.a.	Installed on HOT
121425 Adaptor Block Type 2 (4 x)	3.1.05		HP-2-ASED-DW-0047-01-0A	n.a.	LN 9016 washers used for mounting instead of HV 100
121426 Accel. blocks type 3 (+x / -x)	3.8.04		HP-2-ASED-DW-0059-01-0A	n.a.	(Qty = 2)
121427 Accel. block type 4	24.9.04		HP-2-ASED-DW-0060-01-0A	n.a.	Hammer test on A101 - A109 performed on 27.9.04
121431-01 HOT CCH Bundles			see below	y	From cryo components to Lower SFW CBs Ref: HP-2-ASED-TP-0022 (1) IRR: HP-2-ASED-MN-0729
121431-01 DCE 28	4.8.04		HP-2-CASA-AB-0004 Iss. 1, 28.07.04	y	L701 / H701 NCR 0343 - , LLP wiring change (closed)
121431-01 DCE 29	4.8.04		HP-2-CASA-AB-0004 Iss. 1, 28.07.04	y	L702 / H702 NCR 0343 - , LLP wiring change (closed)
121431-01 DCB 24	30.7.04		HP-2-CASA-AB-0003 Iss. 1, 20.07.04	y	T701 / T703 NC-0833, insulation damaged at HOT HST brkt 7, repaired and checked - closed
121431-01 DCE 24	30.7.04		HP-2-CASA-AB-0003 Iss. 1, 20.07.04	y	T702 / T704
121431-01 DCE 25	27.9.04		HP-2-CASA-AB-0004 Iss. 1, 28.07.04	y	A701, 702, 703 hammer test performed on 27.9.04
121431-01 CCH			HP-2-CASA-AB-0011 Iss. 1, 22.02.05	y	AB-0011 is the cover-ABCL for all internal CCH, IRR: HP-2-ASED-MN-0749 ASED-SD-0101: Routing of internal CCH modified
121431-01 DCM22	7.9.04		HP-2-CASA-AB-0004 Iss. 1, 28.07.04	y	
121431-01 DCM21	7.9.04		HP-2-CASA-AB-0004 Iss. 1, 28.07.04	y	
121431-01 DCA24	y		HP-2-CASA-AB-0004 Iss. 1, 28.07.04	y	
121431-01 DCB25	7.9.04		HP-2-CASA-AB-0004 Iss. 1, 28.07.04	y	
121431-01 DCE32	6.9.04		HP-2-CASA-AB-0004 Iss. 1, 28.07.04	y	
121431-01 DCE33	24.9.04		HP-2-CASA-AB-0004 Iss. 1, 28.07.04	y	

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121431-01 DCE34	24.9.04		HP-2-CASA-AB-0004 Iss. 1, 28.07.04	y	
121431-01 DCM23	2.9.04		HP-2-CASA-AB-0004 Iss. 1, 28.07.04	y	
121431-01 DCE27	2.9.04		HP-2-CASA-AB-0003 Iss. 1, 20.07.04	y	
121431-01 DCE30	7.9.04		HP-2-CASA-AB-0003 Iss. 1, 20.07.04	y	ASED-NC-0343 (closed): Pin allocation for L101 & L102 corrected
121431-01 DCM24	2.9.04		HP-2-CASA-AB-0003 Iss. 1, 20.07.04	y	
121431-01 DCE26	15.9.04		HP-2-CASA-AB-0006 Iss. 1, 10.09.04	y	
121431-01 DCE31	7.9.04		HP-2-CASA-AB-0004 Iss. 1, 28.07.04	y	ASED-NC-0343 (closed): Pin allocation for L101 & L102 corrected
121431-01 DCB17	15.9.04		HP-2-CASA-AB-0003 Iss. 1, 20.07.04	y	
121431-01 DCA18	15.9.04		HP-2-CASA-AB-0003 Iss. 1, 20.07.04	y	
121431-01 DCE 22	13.01.05		HP-2-CASA-AB-0006 Iss. 1, 10.09.04	y	to A20X
121431-01 DCE 23	13.01.05		HP-2-CASA-AB-0006 Iss. 1, 10.09.04	y	to A20X, DCE 23 re-routed on after OBA fit check on 21.01.2005, see log book and HP-2-ASED-TP-0044
121431-01 DCE 16	23.07.06		Acc.: HP-2-ASED-SD-0101	Y	Harness for new Sensors: T117 (CI00; tubing), T118 (CI00; tubing), T238 (PT1000; OBA ventline), T239 (PT1000; existing sensor T207)
121431-01 DCE 17	10.05.05		HP-2-CASA-AB-0002, issue 1, 07.07.04	y	
121431-01 DCA 17	10.05.05		HP-2-CASA-AB-0002, issue 1, 07.07.04	y	
121431-01 DCB 16	10.05.05		HP-2-CASA-AB-0002, issue 1, 07.07.04	y	
121431-01 DCE 21	xx.03.2005	PFM	HP-2-CASA-AB-0003 Iss. 1, 20.07.04	y	
121431-01 DCA 13	02.02.05	PFM	HP-2-CASA-AB-0003 Iss. 1, 20.07.04	y	CCH integration acc. to HP-2-ASED-TR-0065
121431-01 DCB 12	02.02.05	PFM	"	y	
121431-01 DCA 14	03.02.05	PFM	"	y	Thermal brackets not yet fastened - open work #45, closed on 3.2.05
121431-01 DCB 13	03.02.05	PFM	"	y	



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121431-01 DCE 15	03.02.05	PFM	"	y	NC-0766: wires broken (T249), repaired on 15.2.05, NCR closed.
121431-01 DCA 16	02.02.05	PFM	"	y	
121431-01 DCB 15	02.02.05	PFM	"	y	
121431-01 DCE 16	02.02.05 17.07.06	PFM	"	y	Remounted after modifications performed according to ACR-SD-0111 add temp sensor lines
121431-01 CCE11	21.02.2005	PFM	HP-2-CASA-AB-0009, issue 1, 17.12.04	Y	thermal bracket on TSS strap 11
121431-01 CCE12	21.02.2005	PFM	HP-2-CASA-AB-0005, issue 1, 06.08.04	Y	thermal bracket on TSS strap 11
121431-01 CCA11	21.02.2005	PFM	HP-2-CASA-AB-0009, issue 1, 17.12.04	Y	thermal bracket on TSS strap 18
121431-01 CCB11	22.02.2005	PFM	HP-2-CASA-AB-0009, issue 1, 17.12.04	Y	thermal bracket on TSS strap 18
121431-01 CCA12	22.02.2005	PFM	"	Y	thermal bracket on TSS strap 17
121431-01 CCB12	22.02.2005	PFM	"	Y	thermal bracket on TSS strap 17
121431-01 CCE13	22.02.2005	PFM	"	Y	thermal bracket on TSS strap 16
121431-01 CCE14	22.02.2005	PFM	"	Y	thermal bracket on TSS strap 16
121431-01 CCA10	23.02.2005	PFM	"	Y	thermal bracket on TSS strap 8 short jackposts exchanged by long ones to allow mounting of lock washers
121431-01 CCB10	23.02.2005	PFM	"	Y	thermal bracket on TSS strap 8 short jackposts exchanged by long ones to allow mounting of lock washers
121431-01 CCE10	23.02.2005	PFM	"	Y	thermal bracket on TSS strap 8 short jackposts exchanged by long ones to allow mounting of lock washers NC-0825: Two broken wires to T249 & T253, repaired, closed.
121431-01 CCE20	23.02.2005	PFM	HP-2-CASA-AB-0005, issue 1, 06.08.04	Y	thermal bracket on TSS strap 8 short jackposts exchanged by long ones to allow mounting of lock washers
121431-01 CCS11	See remark	SPARE	HP-2-CASA-AB-0009, issue 1, 17.12.04	y	SPARE, will not be integrated, no T/C bracket potted
121431-02 CCH-ICA-10	28.07.05	PFM	HP-2-CASA-AB-0018, issue 2, 29.07.05	y	ext. CCH: HP-2-ASED-TP-0076
121431-02 CCH-ICB-10	27.08.05	PFM	"	y	
121431-02 CCH-ICE-10	y	PFM	"	y	

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121431-02 CCH-ICE-20	y	PFM	"	y	
121431-02 CCH-ICE-11	28.07.05	PFM	"	y	
121431-02 CCH-ICE-12	y	PFM	"	y	
121431-02 CCH-ICE-13	27.07.05	PFM	"	y	
121431-02 CCH-ICE-14	27.07.05	PFM	"	y	
121431-02 CCH-ICA-11	26.07.05	PFM	"	y	
121431-02 CCH-ICA-12	28.07.05	PFM	"	y	
121431-02 CCH-ICB-11	28.07.05	PFM	"	y	
121431-02 CCH-ICB-12	28.07.05	PFM	"	y	
121431-02 CCH-ICE-31	31.08.05	PFM	"	y	
121431-02 CCH-ICE-32	31.08.05	PFM	"	y	
121431-02 CCH-ICE-33	y	PFM	"	y	
121431-02 CCH-ICE-34	y	PFM	"	y	
121431-02 CCH-ICE-35	y	PFM	"	y	
121431-02 CCH-ICA-31	27.07.05	PFM	"	y	
121431-02 CCH-ICB-31	27.07.05	PFM	"	y	

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121431-02 CCH-ICA-33	27.08.05	PFM	"	y	
121431-02 CCH-ICB-33	18.09.05	PFM	"	y	
121431-02 CCH-ICS-31	29.08.05	PFM	"	y	
121431-02 CCH-ICA-34	18.09.05	PFM	"	y	
121431-02 CCH-ICB-34	18.09.05	PFM	"	y	
121431-02 CCH-ICS-36	29.08.05	PFM	"	y	
121431-02 CCH-ICS-32	y	PFM	"	y	
121431-02 CCH-ICS-33	y	PFM	"	y	
121431-02 CCH-ICE-35	27.09.05	PFM	"	y	
121431-02 CCH-ICS-37	y	PFM	"	y	
121431-02 CCH-ICS-38	y	PFM	"	y	
121431-02 CCH-ICA-32	01.08.05	PFM	"	y	NC-1941: one connector bolt bent on 21T907-P01, bolt to be replaced for PFM
121431-02 CCH-ICB-32	17.08.05	PFM	"	y	
121431-02 CCH-ICA-51	See remark	PFM	"	y	HSS Sunshade; not integrated on STM level
121431-02 CCH-ICB-51	See remark	PFM	"	y	HSS Sunshade; not integrated on STM level
121431-02 CCH-ICA-41	22.09.05	PFM	"	y	SVM TS
121431-02 CCH-ICB-41	22.09.05	PFM	"	y	SVM TS

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121432 Harness anchors (cable support rails)	05.10 / 21.10.04	PFM	2547-121432-155-01-0A HP-2-ASED-DP-0028, iss. 2	n.a.	bonded with EC 2216; on 03.11.04 eight anchors removed and re-bonded in corrected position; position of all anchors checked and now ok. After harness integration lock wires applied on all upper and lower anchors
121432 Thermal bracket Assy on TSS chains 11, 16, 17, 18 (lower SFW)	22.03.05	PFM	2547-121432-156-01-0A 2547-121432-157-01-0A HP-2-ASED-DP-0028, iss. 2	y	Spacer width: 39.2 on chain 11 and 16; Spacer width: 43.2 on chain 17 and 18
121432-01 SIH-CH-01	14.07.06	PFM	HP-2-CASA-AB-0012, iss. 2, 18.04.05	y	finally routed and connected to HIFI CQM, ASED-SD-0110
121432-01 SIH-CH-02	14.07.06	PFM	"	y	finally routed and connected to HIFI CQM, ASED-SD-0110 NC-0816: Width of thermal bracket, reworked by ASED
121432-01 SIH-CH-03	14.07.06	PFM	"	y	finally routed and connected to HIFI CQM, ASED-SD-0110
121432-01 SIH-CH-04	14.07.06	PFM	"	y	finally routed and connected to HIFI CQM, ASED-SD-0110 NC-0816: Width of thermal bracket, reworked by ASED
121432-01 SIH-CH-05	22.03.05 14.07.06	PFM	"	y	FT connector J17 installed with non baked O-ring seal, accepted for this single case.
121432-01 SIH-CS-01 SPIRE J-FET harness	06.05.05 19.07.06	PFM	HP-2-CASA-AB-0013, iss. 1 rev.1, 18.07.05	y	finally routed and connected to SPIRE CQM, re-routed acc. to ASED-SD-0101 NC-0805: Backshell modified NC-0975: Outer and inner SPIRE wire shield contact, repaired by CASA.
121432-01 SIH-CS-02 SPIRE J-FET harness	15.04.05 19.07.06	PFM	"	y	finally routed and connected to SPIRE CQM, re-routed acc. to ASED-SD-0101 NC-0805: Backshell modified; NC-0895: Error in ICD, H/W is o.k.
121432-01 SIH-CS-03	06.05.05 19.07.06	PFM	"	y	finally routed and connected to SPIRE CQM NC-0805: Backshell modified NC-0975: Outer and inner SPIRE wire shield contact, repaired by CASA.
121432-01 SIH-CS-04	15.04.05 19.07.06	PFM	"	y	finally routed and connected to SPIRE CQM
121432-01 SIH-CS-05	15.04.05 19.07.06	PFM	"	y	finally routed and connected to SPIRE CQM
121432-01 SIH-CS-06	15.04.05 19.07.06	PFM	"	y	finally routed and connected to SPIRE CQM
121432-01 SIH-CS-07	15.04.05 19.07.06	PFM	"	y	finally routed and connected to SPIRE CQM
121432-01 SIH-CS-08	18.04.05 19.07.06	PFM	"	y	finally routed and connected to SPIRE CQM
121432-01 SIH-CS-09	18.04.05 19.07.06	PFM	"	y	finally routed and connected to SPIRE CQM
121432-01 SIH-CS-10	18.04.05 19.07.06	PFM	"	y	finally routed and connected to SPIRE CQM, re-routed acc. to ASED-SD-0101
121432-01 SIH-CS-11	15.04.05 19.07.06	PFM	"	y	finally routed and connected to SPIRE CQM, re-routed acc. to ASED-SD-0101
121432-01 SIH-CS-12	18.04.05 19.07.06	PFM	"	y	finally routed and connected to SPIRE CQM, re-routed acc. to ASED-SD-0101

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121432-01 SIH-CS-13	14.04.05 19.07.06	PFM	"	y	finally routed and connected to SPIRE CQM, re-routed acc. to ASED-SD-0101
121432-01 SIH-CP-01	20.04.05	PFM	HP-2-CASA-AB-0014, iss. 1, 30.03.05	y	finally routed and connected to PACS MTD
121432-01 SIH-CP-02	20.04.05	PFM	"	y	finally routed and connected to PACS MTD
121432-01 SIH-CP-03	19.04.05	PFM	"	y	finally routed and connected to PACS MTD
121432-01 SIH-CP-04	19.04.05	PFM	"	y	finally routed and connected to PACS MTD
121432-01 SIH-CP-05	20.04.05	PFM	"	y	finally routed and connected to PACS MTD
121432-01 SIH-CP-06	20.04.05	PFM	"	y	finally routed and connected to PACS MTD
121432-01 SIH-CP-07	21.04.05	PFM	"	y	finally routed and connected to PACS MTD
121432-01 SIH-CP-08	21.04.05	PFM	"	y	finally routed and connected to PACS MTD
121432-01 SIH-CP-09	21.04.05	PFM	"	y	finally routed and connected to PACS MTD
121432-01 SIH-CP-10	21.04.05	PFM	"	y	finally routed and connected to PACS MTD
121432-01 SIH-CP-11	21.04.05	PFM	"	y	finally routed and connected to PACS MTD; NC0917: Bent pin in FTH, reworked.
121432-01 SIH-CP-12	21.04.05	PFM	"	y	finally routed and connected to PACS MTD
121432-01 SIH-CP-13	20.04.05	PFM	"	y	finally routed and connected to PACS MTD
121432-01 SIH-CP-14	19.04.05	PFM	"	y	finally routed and connected to PACS MTD
121432-01 SIH-CP-15	19.04.05	PFM	"	y	finally routed and connected to PACS MTD
121432-02 SIH-IH-01	15.07.05 02.08.06	PFM	HP-2-ASSE-AB-0002, issue 1, 10.06.05	y	SIH-IH: HP-2-ASED-TP-0077 HIFI CQM
121432-02 SIH-IH-02	15.07.05 02.08.06	PFM	"	y	HIFI CQM
121432-02 SIH-IH-03	15.07.05 02.08.06	PFM	"	y	HIFI CQM
121432-02 SIH-IH-04	15.07.05 02.08.06	PFM	"	y	HIFI CQM
121432-02 SIH-IH-05	02.08.06	PFM	"	y	removed 07.07.06, NC-1171: Contact swap HIFI CQM

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121432-02 SIH-IH-06		PFM	HP-2-ASSE-AB-0003, issue 1, 16.08.05	y	LOU-Removed 21.03.2006 HP-2-ASED-SD-0054
121432-02 SIH-IH-07		PFM	"	y	LOU-Removed 21.03.2006 HP-2-ASED-SD-0054
121432-02 SIH-IH-08		PFM	"	y	LOU-Removed 21.03.2006 HP-2-ASED-SD-0054
121432-02 SIH-IH-09		PFM	"	y	LOU-Removed 21.03.2006 HP-2-ASED-SD-0054
121432-02 SIH-IH-10		PFM	"	y	LOU-Removed 21.03.2006 HP-2-ASED-SD-0054
121432-02 SIH-IH-11		PFM	"	y	LOU-Removed 21.03.2006 HP-2-ASED-SD-0054
121432-02 SIH-IH-12		PFM	"	y	LOU-Removed 21.03.2006 HP-2-ASED-SD-0054
121432-02 SIH-IS-01	18.07.06	PFM	HP-2-ASSE-AB-0005, issue 1, 15.07.05	y	
121432-02 SIH-IS-02	18.07.06	PFM	"	y	
121432-02 SIH-IS-03	18.07.06	PFM	"	y	
121432-02 SIH-IS-04	18.07.06	PFM	"	y	
121432-02 SIH-IS-05	18.07.06	PFM	"	y	
121432-02 SIH-IS-06	18.07.06	PFM	"	y	
121432-02 SIH-IS-07	18.07.06	PFM	"	y	
121432-02 SIH-IS-08	18.07.06	PFM	"	y	
121432-02 SIH-IS-09	18.07.06	PFM	"	y	
121432-02 SIH-IS-10	18.07.06	PFM	"	y	

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121432-02 SIH-IS-11	18.07.06	PFM	"	Y	
121432-02 SIH-IS-12	18.07.06	PFM	"	Y	
121432-02 SIH-IS-13	18.07.06	PFM	"	Y	
121432-02 SIH-IP-01	18.07.06	PFM	HP-2-ASSE-AB-0004, issue 1, 10.06.05	Y	
121432-02 SIH-IP-02	03.09.05	PFM	"	Y	
121432-02 SIH-IP-03	01.09.05	PFM	"	Y	
121432-02 SIH-IP-04	01.09.05	PFM	"	Y	
121432-02 SIH-IP-05	02.09.05	PFM	"	Y	
121432-02 SIH-IP-06	02.09.05	PFM	"	Y	
121432-02 SIH-IP-07	05.09.05	PFM	"	Y	
121432-02 SIH-IP-08	06.09.05	PFM	"	Y	
121432-02 SIH-IP-09	06.09.05	PFM	"	Y	
121432-02 SIH-IP-10	06.09.05	PFM	"	Y	
121432-02 SIH-IP-11	06.09.05	PFM	"	Y	
121432-02 SIH-IP-12	06.09.05	PFM	"	Y	
121432-02 SIH-IP-13	02.09.05	PFM	"	Y	
121432-02 SIH-IP-14	01.09.05	PFM	"	Y	

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121432-02 SIH-IP-15	02.09.05	PFM	"	Y	
121432-04 HIFI SIH-IH-21 to 24 (external coax cables)	05.07.2007	PFM	HP-2-ASED-PS-0048, Issue 3;18.10.07 HP-2-ASED-DW-0252_01_A_Part 21 HP-2-ASED-DW-0253_01_A_Part 22 HP-2-ASED-DW-0254_01_A_Part 23 HP-2-ASED-DW-0255_01_A_Part 24	Y	MA = 0,8 Nm, bonding measurement done Due to bad HF performance for STM use only; External Coax Cable Integration by ELSPEC
121432-04 HIFI SIH-CH-21 to 24 (internal coax cables)	25.05.07	PFM	HP-2-ASED-PS-0048, Iss 3 HP-2-ASED-DW-0183_01_B_Part 21 HP-2-ASED-DW-0186_01_B_Part 22 HP-2-ASED-DW-0189_01_B_Part 23 HP-2-ASED-DW-0192_01_B_Part 24	Y	STM parts removed from PLM, new type of coax needed for FM, no COAX cables necessary for STM 2 tests. Final Integration on PFM acc. PR-0152 on 25.05.07 A.K. & Elspec
121432-04 HIFI SIH-SH-21 to 24 (SVM coax cables)		PFM	HP-2-ASED-PS-0048, Issue 3;18.10.07 HP-2-ASED-DW-0279_01_0A_Part 21 HP-2-ASED-DW-0280_01_0A_Part 22 HP-2-ASED-DW-0281_01_0A_Part 23 HP-2-ASED-DW-0282_01_0A_Part 24	Y	
121433 CB 212420	16.09.05	PFM	HP-2-ASED-DP-0028, Issue 2	Y	Mating acc. HP-2-ASED-TP-0077 Brackets mounted to SVM according to HP-2-ASED-TP-0087 1.1 MLI standoffs integrated
121433 CB 311100	12.07.05	PFM	"	Y	Mating acc. HP-2-ASED-TP-0077 Brackets mounted to SVM according to HP-2-ASED-TP-0087 1.1 MLI standoffs integrated
121433 CB 311200	12.07.05	PFM	"	Y	Mating acc. HP-2-ASED-TP-0077 Brackets mounted to SVM according to HP-2-ASED-TP-0087 1.1 MLI standoffs integrated
121433 CB 311300	12.07.05	PFM	"	Y	Mating acc. HP-2-ASED-TP-0077 Brackets mounted to SVM according to HP-2-ASED-TP-0087 1.1 MLI standoffs integrated
121433 CB 312100	27.08.05	PFM	"	Y	Mating acc. HP-2-ASED-TP-0077 Brackets mounted to SVM according to HP-2-ASED-TP-0087 1.1 MLI standoffs integrated
121433 CB 312200	27.08.05	PFM	"	Y	Mating acc. HP-2-ASED-TP-0077 Brackets mounted to SVM according to HP-2-ASED-TP-0087 1.1 MLI standoffs integrated
121433 CB 312300	27.08.05	PFM	"	Y	Mating acc. HP-2-ASED-TP-0077 Brackets mounted to SVM according to HP-2-ASED-TP-0087 1.1 MLI standoffs integrated
121433 CB 313100	27.08.05	PFM	"	Y	Mating acc. HP-2-ASED-TP-0077 Brackets mounted to SVM according to HP-2-ASED-TP-0087 1.1 MLI standoffs integrated
121433 CB 313200	27.08.05	PFM	"	Y	Mating acc. HP-2-ASED-TP-0077 Brackets mounted to SVM according to HP-2-ASED-TP-0087 1.1 MLI standoffs integrated



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121433 CB 314200	27.08.05	PFM	"	Y	Mating acc. HP-2-ASED-TP-0077 (changed to CI 314200 due to writing error) Brackets mounted to SVM according to HP-2-ASED-TP-0087 1.1 MLI standoffs integrated
121433 CB 315100	27.08.05	PFM	"	Y	Mating acc. HP-2-ASED-TP-0077 Brackets mounted to SVM according to HP-2-ASED-TP-0087 1.1 MLI standoffs integrated
121433 CB 316100	27.08.05	PFM	"	Y	Mating acc. HP-2-ASED-TP-0077 Brackets mounted to SVM according to HP-2-ASED-TP-0087 1.1 MLI standoffs integrated
121433 CB 321100	27.08.05	PFM	"	Y	Mating acc. HP-2-ASED-TP-0077 Brackets mounted to SVM according to HP-2-ASED-TP-0087 1.1 MLI standoffs integrated
121433 CB 321200	27.08.05	PFM	"	Y	Mating acc. HP-2-ASED-TP-0077 Brackets mounted to SVM according to HP-2-ASED-TP-0087 1.1 MLI standoffs integrated
121433 CB 321300	27.08.05	PFM	"	Y	Mating acc. HP-2-ASED-TP-0077 Brackets mounted to SVM according to HP-2-ASED-TP-0087 1.1 MLI standoffs integrated
121433 Harness Rails	18.07.05	PFM	HP-2-ASED-DP-0028, Issue 2	y	Part No. 3132, 2900, 2728, 2526, 2400, 2300, 2122, 4344, 4200. Drwg. No. 2547-121430-200-07-0D; NC-1256: Fixed with bolts & nuts instead of helicoils
121433 Harness Rails	20.07.05	PFM	HP-2-ASED-DP-0028, Issue 2	y	Part No. 3334, 3900, 3900, 4041, 2 x 2100. Drwg. No. 2547-121430-200-07-0D; NC-1256: Fixed with bolts & nuts instead of helicoils
121433 P-clamps	27.08.05			y	on struts No. 22, 33, 38, 39, 40.
121433 LOU HRN Support Structure		PFM	HP-2-ASED-DW-0162-01 issue A, 31.05.05	y	Brackets -Z & +Z to be removed after mechanical tests at ESTEC (see OW 122) On + Z modify the hole M4 Removed 3D 03.06 HP-2-ASED-SD-0053
121433 Lower SFW Harness CBs					
121433 CB 214341	29.7.04		HP-2-ASED-DP-0028 (A)	n.a	Lower SFW CB +Y, connector labels exchanged on 21.01.05 SLI covered acc. to ASED-PR-0059
121433 CB 214342	29.7.04		HP-2-ASED-DP-0028 (A)	n.a	Lower SFW CB +Z SLI covered acc. to ASED-PR-0059
121433 CB 214343	29.7.04		HP-2-ASED-DP-0028 (A)	n.a	Lower SFW CB -Y; marking of connectors performed on 21.01.05 L-bracket for J01 exchanged on 3.12.04, SLI covered acc. to ASED-PR-0059
121433 CB 214344	29.7.04		HP-2-ASED-DP-0028 (A)	n.a	Lower SFW CB -Z SLI covered acc. to ASED-PR-0059
121433 CB 212510 + support	Y		HP-2-ASED-DP-0028 (A)	n.a	H701/702 CB

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121433 L701 P-Clamp + CB/Backshell	Y		HP-2-ASED-DP-0028 (A)	n.a	preliminary test bracket replaced by flight item
121433 L702 P-Clamp + CB/Backshell	Y		HP-2-ASED-DP-0028 (A)	n.a	preliminary test bracket replaced by flight item
121433 <b>Harness CBs</b>					In total 9 CB, 7 x 9 pole; 2 x 15 pole
121433 H103 CB	3.8.04	PFM		n.a	9 pole
121433 H104 CB	3.8.04	PFM		n.a	9 pole
121433 PPS CB	28.9.04	PFM		n.a	9 pole, preliminary test bracket replaced by flight item
121433 DLCM1 CB	28.9.04	PFM		n.a	(Qty = 2) 1 x 9 pole; 1 x 15 pole, preliminary test bracket replaced by flight item
121433 DLCM2 CB	28.9.04	PFM		n.a	(Qty = 2) 1 x 9 pole; 1 x 15 pole, preliminary test bracket replaced by flight item
21433 L101 conn. bkt. support (P- Clamp)	21.9.04	PFM		n.a	9 pole, preliminary test bracket replaced by flight item
121433 L102 conn. bkt. support (P- Clamp)	21.9.04	PFM		n.a	9 pole, preliminary test bracket replaced by flight item
121433 Pos. 110 Harness- Support 1 Cutout 1	04.01.2005	PFM	2547-121432-16I-01-0A	n. a.	
121433 Pos. 115 Harness- Support 1 Cutout 1	04.01.2005	PFM	2547-121432-16I-01-0A	n. a.	
121433 Pos. 120 Harness- Support 1 Cutout 2	04.01.2005	PFM	2547-121432-16J-01-0A	n. a.	
121433 Pos. 130 Harness- Support 2 Cutout 2	14.01.2005	PFM	2547-121432-16K-01-0A	n. a.	
121433 Pos. 140 Harness- Support 3 Cutout 2	04.01.2005	PFM	2547-121432-16L-01-0A	n. a.	
121433 (143134) Pos. 150 HIFI Harness Bracket		STM	2547-121432-16P-01-0A modified for STM	n. a.	NC-0730: For STM two diagonal struts were cut off. (Fixation bracket HP-2-ASED-DW-0115-01-0A is not used for STM2) Removed 5.5.06, re-installed 12.7.06 Removed 10.04.2007 Hengstler acc.PR-0057

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121433 (143134) Pos. 150 HIFI Harness Bracket	See remark	PFM	HP-2-ASED-DW-0211-01-0A (2547-121432-185-01-0A)	n. a.	New drwg. for PFM, positions of venting holes changed. Not installed for STM 2.
121433 Pos. 160 Harness-Support 1 Cutout 3	18.01.2005	PFM	2547-121432-16M-01-0A	n. a.	NC-0681: Modification of fixation holes I/F ASED-SD-0101: Rail wrapped with gore-tex
121433 Pos. 170 Harness-Support 2 Cutout 4	18.01.2005	PFM	2547-121432-16O-01-0A	n. a.	NC-0681: Modification of fixation holes I/F ASED-SD-0101: Rail wrapped with gore-tex ASED-SD-0111: Supports thermally decoupled with CFRP washers
121433 Pos. 180 Harness-Support 1 Cutout 4	14.01.2005	PFM	2547-121432-16N-01-0A	n. a.	ASED-SD-0101: Rail wrapped with gore-tex
121433 OB Harness-bracket 1	15.04.05	PFM	2547-121432-16Q-01-0A	n. a.	2 parts
121433 OB Harness-bracket 2	15.04.05	PFM	2547-121432-16R-01-0A	n. a.	
121433 OB Harness-bracket 3	15.04.05	PFM	2547-121432-16S-01-0A	n. a.	3 pcs
121433 OB Harness-bracket 4	15.04.05	PFM	2547-121432-16T-01-0A	n. a.	
121433 OB Harness-bracket 5	18.03.2005	PFM	2547-121432-16U-01-0B	n. a.	NC-0838: reworked to comply with drwg. issue B
121433 OB Harness-bracket 6	15.04.05	PFM	2547-121432-16V-01-0A	n. a.	
121433 OB Harness-bracket 7	15.04.05	PFM	2547-121432-16W-01-0A	n. a.	
121433 Upper SFW hamm. CBs	14.12.04	PFM	HP-2-ASED-DP-0028 (A)	na	acc. to HP-2-ASED-DW-0086-01 NC-0842, backshells of connectors had to be turned 180°
121433 TSS Harness supports	21.07.06	PFM	HP-2-ASED-DW-0203-01-0A	n.a.	new Vespel supports on TSS chains law. ASED-SD-0101
121500 (CFE) LOU Radiator		FM	CFE	y	16.11.2005: removed after TB/TV test Mounted 21.12.05; HP-2-ASED-SD-0030 Iss.1; removed 24.02.06 HP-2-ASED-SD-0042
121510 LOU Baffle		PFM			Mounted 07.07.05, removed on 08.07.05 after negative fit check, ref. NC-1245
121520 LOU Support Structure incl. Support Plate and I/F struts		PFM	HP-2-ECAS-DP-0004, Iss. 1, 13.12.04	y	Mating acc. to HP-2-ASED-PR-0024 Wire locking done 02.08.05 Removed 29.03.2006 HP-2-ASED-SD-0053
121530 HIFI-LOU Windows assy	22.-25.04.05	PFM, SN see under remarks	HP-2-QMC-AB-0001, Issue 2, 24.01.05	y	Incl. clamps, bolts and o-rings SN: B1/31, B2/28, B3/03, B4/12, B5/13, B6L/21, B6H/22
121530 Alignment windows assy	25.04.05	PFM SN: OA#3, OA#8	„	y	Incl. clamps, bolts and o-rings

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121550 LOU Waveguide Assy		PFM, SN 01	HP-2-RYM-AB-0030, issue 1, 31.10.04	y	WG Tapes removed 05.10.05 Lower section removed after TB/TV and re-mounted on 30.11.05; Screws secured with EC 2216; removed 24.03.2006 HP-2-ASED-PR-0053
122000 122300 122500 TMS incl. CB's	12.06.07	PFM-0300	HP-2-ECAS-DP-0009, issue 1, 31.08.05	y	Integration acc. to HP-2-ASED-SD-0043 NCR generated during Incoming and Integration see NC-1437 NC-1481: Flatness out of tolerance, to be reworked for PFM final installation and alignment check on 12.09.05 Mirror bracket -Z, -Y side installed on 09.09.05 Removed 27.03.06 HP-2-ASED-SD-0042 Final integrated acc.PR-0092 B.K.
122100 TMS Strut	12.06.07	PFM 0166	"	y	TMS/CVV_1 Strut blade at CVV wrongly installed see NC-1437 2 mm shim; Removed 27.03.06 HP-2-ASED-SD-0042 Final integrated acc.PR-0092 B.K.
122100 TMS Strut	12.06.07	PFM 0152	"	y	TMS/CVV_6 1mm shim; Removed 27.03.06 HP-2-ASED-SD-0042 Final integrated acc.PR-0092 B.K.
122100 TMS Strut	12.06.07	PFM 0151	"	y	TMS/CVV_5 2 mm shim; Removed 27.03.06 HP-2-ASED-SD-0042 Final integrated acc.PR-0092 B.K.
122100 TMS Strut	12.06.07	PFM 0163	"	y	TMS/CVV_4 Strut blade at CVV wrongly installed see NC-1437 2 mm shim; Removed 27.03.06 HP-2-ASED-SD-0042 Final integrated acc.PR-0092 B.K.
122100 TMS Strut	12.06.07	PFM 0154	"	y	TMS/CVV_3 2 mm shim; Removed 27.03.06 HP-2-ASED-SD-0042 Final integrated acc.PR-0092 B.K.
122100 TMS Strut	12.06.07	PFM 0165	"	y	TMS/CVV_2 Strut blade at CVV wrongly installed see NC-1437 2 mm shim Removed 27.03.06 HP-2-ASED-SD-0042 MLI installed for sine test; Final integrated acc.PR-0092 B.K.
122200 MLI on TMS struts		PFM	HP-2-AAEM-LI-0037, issue draft 2, 01.07.05	y	For sine test only partly installed: on TMS/CVV_2, TMS/CB 3, TMS/CB 4; TMS Removed 27.03.06 HP-2-ASED-SD-0042
122400 TMS Strut	12.06.07	PFM 0246	HP-2-ECAS-DP-0009, issue 1, 31.08.05	y	TMS/CB 2 Removed 27.03.06 HP-2-ASED-SD-0042 Final integrated acc.PR-0092 B.K.
122400 TMS Strut	12.06.07	PFM 0245	"	y	TMS/CB 1 Removed 27.03.06 HP-2-ASED-SD-0042 Final integrated acc.PR-0092 B.K.
122400 TMS Strut	12.06.07	PFM 0250	"	y	TMS/CB 6 Removed 27.03.06 HP-2-ASED-SD-0042 Final integrated acc.PR-0092 B.K.
122400 TMS Strut	12.06.07	PFM 0249	"	y	TMS/CB 5 Removed 27.03.06 HP-2-ASED-SD-0042 Final integrated acc.PR-0092 B.K.

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122400 TMS Strut	12.06.07	PFM 0248	"	Y	TMS/CB 4 MLI installed for sine test TMS Removed 27.03.06 HP-2-ASED-SD-0042 Final integrated acc.PR-0092 B.K.
122400 TMS Strut	12.06.07	PFM 0247	"	Y	TMS/CB 3 MLI installed for sine test TMS Removed 27.03.06 HP-2-ASED-SD-0042 Final integrated acc.PR-0092 B.K.
123110 Solar Array Structure		STM	HP-2-DSSA-DP-0001, issue 1, Aug. 2005	pending	Finally installed on 19.12.2005 HP-2-ASED-TP-0085 Iss.2 Removed 01.03.2006 HP-2-ASED-SD-0042
123112 Strut 1 HSS/SVM		S/N 0101	HP-2-ECAS-DP-0008, issue 1, 03.08.05	Y	NC-1602: HSS STM sine test aborted, dampers introduced on struts 1-12. Dampers are mounted. Removed 01.03.2006 HP-2-ASED-SD-0042
123112 Strut 2 HSS/SVM		S/N 0202	HP-2-ECAS-DP-0008, issue 1, 03.08.05	Y	NC-1602: HSS STM sine test aborted, dampers introduced on struts 1-12. Dampers are mounted. Removed 01.03.2006 HP-2-ASED-SD-0042
123112 Strut 3 HSS/SVM		S/N 0203	HP-2-ECAS-DP-0008, issue 1, 03.08.05	Y	NC-1602: HSS STM sine test aborted, dampers introduced on struts 1-12. Dampers are mounted. Removed 01.03.2006 HP-2-ASED-SD-0042
123112 Strut 4 HSS/SVM		S/N 0104	HP-2-ECAS-DP-0008, issue 1, 03.08.05	Y	NC-1602: HSS STM sine test aborted, dampers introduced on struts 1-12. Dampers are mounted. Removed 01.03.2006 HP-2-ASED-SD-0042
123112 Strut 5 HSS/CVV		S/N 0405	HP-2-ECAS-DP-0005, issue 1, 31.05.05	Y	NC-1602: HSS STM sine test aborted, dampers introduced on struts 1-12. Dampers are mounted. Removed 01.03.2006 HP-2-ASED-SD-0042
123112 Strut 6 HSS/CVV		S/N 0306	HP-2-ECAS-DP-0005, issue 1, 31.05.05	Y	NC-1602: HSS STM sine test aborted, dampers introduced on struts 1-12. Dampers are mounted. Removed 01.03.2006 HP-2-ASED-SD-0042
123112 Strut 7 HSS/CVV		S/N 0307	HP-2-ECAS-DP-0005, issue 1, 31.05.05	Y	NC-1602: HSS STM sine test aborted, dampers introduced on struts 1-12. Dampers are mounted. Removed 01.03.2006 HP-2-ASED-SD-0042
123112 Strut 8 HSS/CVV		S/N 0408	HP-2-ECAS-DP-0005, issue 1, 31.05.05	Y	NC-1602: HSS STM sine test aborted, dampers introduced on struts 1-12. Dampers are mounted. Removed 01.03.2006 HP-2-ASED-SD-0042
123120 Sunshade Structure		STM	HP-2-DSSA-DP-0001, issue 1, Aug. 2005	pending	Final Installation on 19.12.2005 HP-2-ASED-TP-0085 Iss.2 STM shall be refurbished to FM after S/C STM test Removed 01.03.2006 HP-2-ASED-SD-0042
123122 Strut 9 HSS/CVV		S/N 0109	HP-2-ECAS-DP-0005, issue 1, 31.05.05	Y	NC-1602: HSS STM sine test aborted, dampers introduced on struts 1-12. Dampers are mounted. Removed 01.03.2006 HP-2-ASED-SD-0042
123122 Strut 10 HSS/CVV		S/N 0210	HP-2-ECAS-DP-0005, issue 1, 31.05.05	Y	NC-1602: HSS STM sine test aborted, dampers introduced on struts 1-12. Dampers are mounted. Removed 01.03.2006 HP-2-ASED-SD-0042
123122 Strut 11 HSS/CVV		S/N 0211	HP-2-ECAS-DP-0005, issue 1, 31.05.05	Y	NC-1602: HSS STM sine test aborted, dampers introduced on struts 1-12. Dampers are mounted. Removed 01.03.2006 HP-2-ASED-SD-0042
123122 Strut 12 HSS/CVV		S/N 0112	HP-2-ECAS-DP-0005, issue 1, 31.05.05	Y	NC-1602: HSS STM sine test aborted, dampers introduced on struts 1-12. Dampers are mounted. Removed 01.03.2006 HP-2-ASED-SD-0042

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123311 Solar Array MLI		STM	HP-2-AAEM-LI-0037, issue draft 2, 01.07.05 HP-2-AAEM-DP-0005	Y	Integration of the panel for FM only after refurbishment Removed 01.03.2006 HP-2-ASED-SD-0042
123322 Sunshade MLI		STM	HP-2-AAEM-LI-0037, issue draft 2, 01.07.05 HP-2-AAEM-DP-0005	Y	Integration of the panel for FM only after refurbishment Removed 01.03.2006 HP-2-ASED-SD-0042
124100 PLM/SVM I/F Struts	08.07.05 - 20.07.05	PFM	HP-2-ECAS-DP-0002, iss. 1, 01.06.05	y	Mating acc. to HP-2-ASED-PR-0023
124200 PLM/SVM Strut MLI		PFM	HP-2-AAEM-LI-0037, issue draft 2, 01.07.05 HP-2-AAEM-DP-0005	y	Partly disintegrated For sine test MLI was integrated only on 2 Struts: (SN 22 & 23) Removed 21.03.06
124300 SVM Thermal Shield		PFM	HP-2-ECAS-DP-0007, issue 1.1, 04.08.05	y	Removed after TB/TV test 15.11.05 Re-mounting on 12.01.2006 acc.HP-2-ASED-SD-0031 Iss.1 Release 2 Removal 25.02.2006 HP-2-ASED-SD-0042; Re-mounting for TB/TV Test STM2 acc.SD-0031 15.01.2007; Removed 14.03.2007 acc.SD-0042
124320 SVM Thermal Shield MLI		PFM	HP-2-AAEM-LI-0037, issue draft 2, 01.07.05 HP-2-AAEM-DP-0005	y	Integrated 12.01.2006 for Vibration Removal 25.02.2006 HP-2-ASED-SD-0042 Re-mounting for TB/TV Test STM2 acc.SD-0031 15.01.2007 Removed 14.03.2007 acc.SD-0042
130000 SVM / PLM Mating		PFM	Alenia ABCL tbd	N/A	Mating to PLM according to HP-2-ASED-TP-0087 "1.1" De-Mating 02.03.2006 HP-2-ASED-SD-0042
130000 Grounding lines installed: (SVM) 3000HP207-401 3000HP207-403 3000HP207-405 3000HP207-407		ID NR: 25, 33 ID NR: 27, 35 ID NR: 37 ID NR: 31			Removed on 02.03.2006 acc. To HP-2-ASED-SD-0042
142111 SVM / PLM Mating with MPT		STM	Clampband S/N 02 from XMM stock mounted	N/A	Alenia item Mating to PLM according to HP-2-ASED-TP-0087 "1.1" De-Mating 02.03.2006 HP-2-ASED-SD-0042
142270 Load cells (Pretension Device)	28.02.2007	MGSE			Re-Integrated after TB/TV Test; Removed for Vibration Test 09.01.2006; installed -Z Side 07.03.2006; Installed on +Z Side 24.03.06 Re-integrated for adjustment of chains on 08.08.06 Removed for TB/TV Test STM2 10.01.2007 acc. SD-0145; covered with protective cap; Protective cap removed and installed the Pretension Device acc. TP-0133 R.Suess 28.02.2007
142300 Airlock Filling Port / CVV	15.06.07	MGSE			Re-integrated 17.11.05 Removed 12.04.2006; re-integrated SD0113; Removed 21.01.2007 acc. SD-0146; Prep. For TB/TV Test; TB/TV Safety Adapter installed; removed after TB/TV test 27.02.2007 a.. SD-0151 and installed the filling port A.Runge Removed acc.SD-0151; 22.03.2007 Integrated for Leaktest M.L. 15.06.07

Equipment / CI-No.	Integr. Date	Model, Serial No	ABCL Ref. (or EIDP)	Qualified	Remarks / Open Work / NCR's
142400 Alignment cubes -Z, +Y	01.08.05	OGSE			on CVV UB, Alignment Cube Cover removed 2x Alignment Cube Cover on -Z installed no cover on +y cube (under MLI) all Alignment Cube Covers installed 07.04.06 (Green Tag Items)
142410 HACS Camera +Z		OGSE	HP-2-TER-AB-0001, iss. 2-A, 03.06.05	Y	17.11.2005: removed after TB/TV test
142410 HACS Camera -Z		OGSE	HP-2-TER-AB-0001, iss. 2-A, 03.06.05	Y	17.11.2005: removed after TB/TV test
142410 HACS Harness - 2x power cables - 2x glass fibre cables		OGSE		y	17.11.2005: removed after TB/TV test
142511-01 HIFI FPU	17.07.2007	FM	ABCL by SRON		MTD removed 07.07.06 acc.PR-0057; HIFI CQM integrated acc. PR-0063 12.07.2006, NC-2330: CQM covered with SLI law. SD-0109, connector fit check done law. SD-0105 Deintegrated 12.04.2007 K.R Final Integration acc.HP-2-ASED-PR-0090 J HIFI Team & AESD Team
142511-01 HIFI Harness Bracket Fixation Clamp	20.07.2007	FM	HP-2-ASED-DW-0115-01 issue B, 27.04.2005		Integration acc. to HP-2-ASED-DW-0133-01 issue A, 17.12.2004 NC-0730: HIFI harness frame does not fit to HIFI MTD Removed, fixation clamps not used for STM2, no I/F to HIFI CQM. Integration of Harness Rail acc HP-2-ASED-PR-0090( NC-2417 raised)
142511-02 LOU PFM		PFM	HP-2-PROT-AB-0002, iss. B, 17.01.05	y	Mating acc. to HP-2-ASED-PR-0024 Alignment wrt. FPU done on 14.07.05 Removed 29.03.2006 HP-2-ASED-SD-0053
142512-01 SPIRE FPU	18.04.2007	PFM	SPIRE-RAL-DOC-001971		MTD removed 08.05.2006 Not all temp sensors mounted, aperture cover removed CQM removed acc.PR-0057 11.04.2007;return to Supplier Final Integration acc.PR-0083 K.R. 18.04.2007
142512-022 SPIRE JFET Photometer	18.04.2007	PFM	SPIRE-RAL-DOC-001971		MTD Removed 05.05.2006; CQM removed acc.PR-0057 11.04.2007;return to Supplier Final Integration acc.PR-0083 K.R. 18.04.2007
142512-021 SPIRE JFET Spectrometer	18.04.2007	PFM	SPIRE-RAL-DOC-001971		MTD Removed 05.05.2006 P04 repaired on 14.07.06 according to NCR1394 CQM removed acc.PR-0057 11.04.2007;return to Supplier Final Integration acc.PR-0083 K.R. 18.04.2007
142513 PACS single axis support	y		HP-2-PROT-AB-0006 issue C, 03.02.2005		
142513 PACS FPU	09.07.07	PFM	HP-2-PROT-AB-0006 issue C, 03.02.2005		NC-0650 and 0658: Rework on MTD after interference was found during fit check NC-631 (= PROT-NC-0006) deviation in connector 131100 J67 M8 bolts torqued 22 Nm; NC-0807: LD I/F bad contact, reworked, closed. Deintegrated 12.04.2007 K.R Final Integrated by MPE & T.B. acc.PR-0089
Heaters,TC's and PT1000 for TB/TV test on CVV,	12.09.06	STM 2	HP-2-ASED-PL-0046 Iss.1	n a	NC-1595: Heater burnt during TB/TV test

**End of list**



Annex 2

Dienstag, 31. Juli 2007

## Openwork, sorted by Actionee

ID	Work Area spacecraft	Description of open Work	must be ready before	Due Date	Priority	Actionee	Status	Issue Date	Originator
380	Mechanical PLM-PFM	<b>PACS</b> PACS Flex link final inspection after integration ASED-NC-3237	before Upper bulkhead final integration		2_Medium	Barlage, Bernhard	AI_open	10.07.2007	Schmidt, Thomas
327	Mechanical PLM-PFM	<b>CVV</b> See NCR 2498: For PFM final mounting of CVV Upper Bulkhead and Lower bulkhead new fixationscrews and new nuts have to be used. Closed for LBH acc. Final Integration 12.06.2007 see PR-	During exchange STM to PFM		1_High	Bayer, Thomas	AI_open	16.08.2006	Lamprecht, Ernst
143	Mechanical PLM-PFM	<b>CVV Cylinder</b> Change the Helicoil for the Cover for Strap pre-tensioning devices. 06.12.05: acc. To T. Bayer still open	before next TB/TV Test	01.03.2008	2_Medium	Bayer, Thomas	AI_open	16.09.2005	Langenstein, Rolf
200	Mechanical PLM-PFM	<b>LOU base plate, struts</b> Check the 2 helicoils for fibre glass brackets on + and - Z Side Screws (M5x19 and M5x17) could not mounted during LOR Integration	during exchange STM to PFM	30.05.2006	2_Medium	Bayer, Thomas	AI_open	21.12.2005	Langenstein, Rolf
213	Mechanical PLM-PFM	<b>LOU Radiator</b> Remove remaining adhesive tape remnants from peeling sensitive painted areas.  All screws shall be finally locked by an adhesive - refer to User Manual  HIFI - OW : provide new set of structural screws include an increased torque on the structural bolts to 6Nm for FM in the usermanual	integration of LOR		2_Medium	Bayer, Thomas	AI_open	10.03.2006	Stritter, René

# Openwork, sorted by Actionee

Dienstag, 31. Juli 2007

ID	Work Area spacecraft	Description of open Work	must be ready before	Due Date	Priority	Actionee	Status	Issue Date	Originator
306	Mechanical PLM-PFM	<b>Transport container</b> provide mechanical support for Laptop in safety cabinet provide windows/cut-outs in container's cover repair and clean container's cover	next transport		2_Medium	Bayer, Thomas	AI_open	12.07.2006	ngfermann, Mich
122	Mechanical PLM-PFM	<b>LOU Harness Support Structure</b> Harness brackets -Z and +Z have to be replaced after STM testkampaigh. Delamination of waveguide GFRP plates. 06.12.05, acc. to T. Bayer: waveguide fixation brackets, made of GFRP, shall be replaced for PFM.	During Waveguide Integration	01.08.2007	2_Medium	Bayer, Thomas	AI_open	30.08.2005	Langenstein, Rolf
331	Mechanical PLM-PFM	<b>A-frame</b> Reweigh the flight Configuration of A-frame and fill in the mass budget report. The weight with all Testitens = 14,8 kg	after Bakeout, before Cooidown	15.09.2007	3_Low	Bayer, Thomas	AI_open	21.11.2006	Schmidt, Thomas
321	Thermal PLM-PFM	<b>HIFI baffle</b> 2 HIFI LOU baffle fixationscrew from TS1 are touching the HIFI FPU straylight cover this must be reworked in order to solve the problem	During exchange STM to PFM		2_Medium	Bayer, Thomas	AI_open	03.08.2006	Lamprecht, Ernst
359	Electrical PLM-PFM	<b>thermistors</b> Installation and new Measurement of T901 on Upper Bulkhead -Z Side; there was removed during TMS Integration (Interfearence with TMS Integrationframe).	before upper CVV bulkhead integration		1_High	Grasl, Andreas	AI_open	31.05.2007	Langenstein, Rolf

## Openwork, sorted by Actionee

ID	Work Area spacecraft	Description of open Work	must be ready before	Due Date	Priority	Actionee	Status	Issue Date	Originator
340	Mechanical PLM-PFM	<b>SVM thermal shield</b> NC-1739 : Check bonding of SVM-TS during FM integration between the two TS panels, if necessary implement an additional bonding strap. See also NC-2954	FM SVM-TB/TV test		2_Medium	Grasi, Andreas	AI_open	09.01.2007	Stritter, René
320	Thermal PLM-PFM	<b>MLI</b> The groundingstrap No.:1561 from Thermalshield 2, UB MLI layer 4 must be connected to the grounding strap BP/200-25/HS2_3 (see G2990-000-000-B0) see NCR 2454	during (UB TS 2)Thermal Shield 2 integration		2_Medium	Hinger, Jürgen	AI_open	03.08.2006	Schmidt, Thomas
150	Thermal PLM-PFM	<b>MLI</b> Re-glue 2 loosened stand-offs on CVV Upper Bulkhead - Y and +Y side, ref. NC-1476.	before external CVV MLI integration		2_Medium	Hinger, Jürgen	AI_open	17.09.2005	ngfermann, Mich
345	Thermal PLM-PFM	<b>SVM thermal shield</b> Manufacture two new ESD suitable ITO protective foils on both panels(red-tag Items)	before Thermal Shield integration		2_Medium	Hinger, Jürgen	AI_open	10.02.2007	Schmidt, Thomas
189	Thermal PLM-PFM	<b>Thermalshield</b> repair broken stand-off on Upper bulkhead thermal shield 2 (see NC-1098). 01.12.2005: no access to upper bulkhead thermal shield 2 is given before PLM-STM vibration test. Action closed on PLM-STM (open work #165) and shifted to PLM-PFM.	before FM Thermal Shield integration		2_Medium	Hinger, Jürgen	AI_open	01.12.2005	Schmidt, Thomas
381	Cryogenic PLM-PFM	<b>SV123/723</b> External cleaning and visual cleanliness inspection of spare SV 123/723 is open.	storage of spare valves		2_Medium	Huber, Johann	AI_open	10.07.2007	Barlage, Bernhard

# Openwork, sorted by Actionee

Dienstag, 31. Juli 2007

ID	Work Area spacecraft	Description of open Work	must be ready before	Due Date	Priority	Actionee	Status	Issue Date	Originator
374	MGSE PLM-PFM	<b>Ziegler Pressure Transducer</b> Status check and re-calibration of the Ziegler pressure transducer.	before cryostat closure		1_High	Huber, Johann	AI_open	26.06.2007	Stritter, René
341	Electrical PLM-PFM	<b>L 701 &amp; L 702</b> Verification of all SCOE liquid level sensors I/F (L701,L702,L101,L102): HOT Empty -> do not operate L701/L702. by using a swicht or Connector shall be performed	Before TB/TV test	01.03.2008	2_Medium	Hund, Walter	AI_open	10.01.2007	Langenstein, Rolf
360	Thermal PLM-PFM	<b>T235 &amp; T236</b> On OBA Strap4 the T235 and T236 will be inspected for SLI contact/shorting, during the final inspection for UBH closure	before upper CVV bulkhead integration		1_High	Jahn, Gerd Dr.	AI_open	14.06.2007	Langenstein, Rolf
212	Thermal PLM-PFM	<b>PPS</b> Define proper verification whether the PPS is working in orbit - ref. to ASED-NC-1623 NRB dispo.  For PFM the PPS T-sensors T111 + T112 calibration shall be improved  For TB/TV Test STM 2 clos.see PTR MoM 1286 & 1295	after next cool down		2_Medium	Jahn, Gerd Dr.	AI_open	09.03.2006	Stritter, René
343	Mechanical PLM-PFM	<b>External Tubing bracket</b> check the torque of Clamp bracket on SV521 acc. SD-0063 should be torque with 7,0 Nm but the Clamp bracket is unknown.	final Integration of External Ventline	30.07.2007	2_Medium	Kettner, Bernhard	AI_open	17.01.2007	Langenstein, Rolf
291	Mechanical PLM-PFM	<b>radiator bracket</b> ASED to release ASED-DRWG HP-2-ASED-DW-0238-01-0A, manufacture bracket, perform Black Anodizing treatment and re-integrate it to +y radiator.	final FM integration		2_Medium	Kettner, Bernhard	AI_open	28.06.2006	Stritter, René

# Openwork, sorted by Actionee

Dienstag, 31. Juli 2007

ID	Work Area spacecraft	Description of open Work	must be ready before	Due Date	Priority	Actionee	Status	Issue Date	Originator
308	Electrical PLM-PFM	<b>TSMU</b> modify harness acc latest ICD update transport procedure for Shocklog batteries and compatible Laptop provide batteries	before next Transport		2_Medium	Koelle, Markus	AI_open	12.07.2006	ngfermann, Mich
221	Mechanical PLM-PFM	<b>OBS</b> IR # 5 : Check instrument entry baffle alignment during FM integration  Also done for STM 2, refer to IR # 50 - 52	during OBS integration		1_High	Kroeker, Jürgen	AI_open	05.05.2006	Stritter, René
319	Cryogenic PLM-PFM	<b>JFET anchoring</b> In the frame of PFM - UB integration the thermal anchoring of the JFET bundle copper straps on the TS2 shall be improved. Now only one Al tape is attached on TS2, for PFM the full copper cable length on TS2 shall be taped with Al tape (to have a good thermal contact).	before TS upper bulkhead integration		2_Medium	Lang, Jürgen	AI_open	02.08.2006	Hauser, Armin
325	Electrical PLM-PFM	<b>SPIRE SIH FTHR coupling-rings</b> Open Work: SPIRE SIH FTHR coupling-rings inside CVV re-torque not performed, due to mated Termination connectors, see also Annex 1  to be performed in the frame of PFM integration	During exchange STM to PFM		3_Low	Lang, Jürgen	AI_open	10.08.2006	Lamprecht, Ernst
384	Electrical PLM-PFM	<b>PACS FPU PFM</b> Detailed inspection of PACS FPU MDM connectors and connector savers prior electrical Integration	during integration	01.08.2007	1_High	Lang, Jürgen	AI_open	13.07.2007	Langenstein, Rolf

# Openwork, sorted by Actionee

Dienstag, 31. Juli 2007

ID	Work Area spacecraft	Description of open Work	must be ready before	Due Date	Priority	Actionee	Status	Issue Date	Originator
342	Electrical PLM-PFM	<b>Cryo Cover</b> Check the J07/P07 on Cryo Cover (Connector is loose) and fixed before Cryo Baffle install	before Cryo baffle Integration	30.08.2007	1_High	Lang, Jürgen	AI_open	10.01.2007	Langenstein, Rolf
377	Electrical PLM-PFM	<b>HIFI Coax Cables</b> Secure the SMA Connectors with EC 2216 on all intern CVV Coax cables before UBH closed	before Upper bulkhead final integration		1_High	Lang, Jürgen	AI_open	05.07.2007	Langenstein, Rolf
378	Electrical PLM-PFM	<b>HIFI Coax Cables</b> Secure all SMA Connector with EC2216 on SVM I/F and CVV external Coax Cables. The screws (16 St.) on connection J07, J08, J09, J10 on CB 311300 have also secured with EC 2216.	after Mating SVM/PLM		1_High	Lang, Jürgen	AI_open	05.07.2007	Langenstein, Rolf
140	Harness PLM-PFM	<b>harness</b> Shunshade harness and Temperature Sensors must be integrate before PFM Integration	during exchange STM to PFM	30.06.2006	2_Medium	Lang, Jürgen	AI_open	15.09.2005	Lang, Jürgen
126	Harness PLM-PFM	<b>LOU Harness Support Structure</b> On the HIFI LOU Connector J1171 must be exchange 6 Pins (which?)	During exchange STM to PFM	30.09.2005	1_High	Lang, Jürgen	AI_open	15.09.2005	Langenstein, Rolf
139	Harness PLM-PFM	<b>CVV External Harness</b> HIFI SIH Connector 311100 J01 modified (see NC-1171) must be before exchange STM to PFM	during exchange STM to PFM	30.06.2006	2_Medium	Lang, Jürgen	AI_open	15.09.2005	Lang, Jürgen

## Openwork, sorted by Actionee

ID	Work Area spacecraft	Description of open Work	must be ready before	Due Date	Priority	Actionee	Status	Issue Date	Originator
188	Harness PLM-PFM	<b>P502</b> Remove correction adapter after TB/TV test. Affected harness bundle repair tbc by J.Lang. Performed by J. Lang on 23.11.2005 for PLM-STM. For PLM-PFM action is still to be done(Lötstecker extern) Performed by J. Lang on 23.11.2005 for PLM-STM. For	before mechanical Tests		2_Medium	Lang, Jürgen	AI_open	01.12.2005	Gerner, Willi
361	Harness PLM-PFM	<b>CVV SI harness internal</b> Connector 131100 -Y P04,P12,P14,P15,P16,P18, +Y P20,P23,P28,P41,P43 missing screws.	before Upper bulkhead final integration		1_High	Lang, Jürgen	AI_open	14.06.2007	Schmidt, Thomas
336	Cryogenic PLM-PFM	<b>HTT</b> Finalise HP-2-ASED-SD-0143 (from step 08) and measure the HTT temperatures ~-1,9,~-2,0,~-2,1 Kelvin. For the TB/TV test not applicable; check with G.Jahn for further Investigation	He II Top up / TBT Test	28.02.2007	2_Medium	angfermann, Michael	AI_open	16.12.2006	Schmidt, Thomas
328	EGSE PLM-PFM	<b>P 101</b> Doubtful/wrong calibration for P101 & DLCM T101,T104,T105 =>  updated 03.07.07 - RS: For P101- a cold and a RT calibration was done, only the cold calibration data was and will be used in the future with the consequence that known deviations under warm conditions will be seen.  DLCM T101, T104, T105 - for these T-sensors a cold calibration below 2.1K was performed by LINDE, calibration data above 2.1K was not available, the LINDE calibration data will be combined with the SCHMIDT calibration data such that above 2.1K meaningful measurements will be possible, e.g. during cool-down, filling etc. - open	before next cool-down	15.08.2007	1_High	angfermann, Michael	AI_open	03.07.2007	Langenstein, Rolf

# Openwork, sorted by Actionee

Dienstag, 31. Juli 2007

ID	Work Area spacecraft	Description of open Work	must be ready before	Due Date	Priority	Actionee	Status	Issue Date	Originator
382	Cryogenic PLM-PFM	<b>A-frame</b> A-frame to be integrated and leak tested before cool down	CVV leak test		1_High	Runge, Axel	AI_open	11.07.2007	Huber, Johann
299	Software PLM-PFM	<b>HACS</b> ASED-NC-1583 - new S/W implementation and MS Windows time adaption will be performed for PFM.	PFM cool-down		3_Low	Schink, Dietmar	AI_open	06.07.2006	Stritter, René
289	Harness PLM-PFM	<b>harness</b> ASED to update ASED-IC-0013 to Iss. 2.1 acc to ASED-NC-1706	cryostat closure		1_High	Steininger, Eric	AI_open	27.06.2006	Stritter, René
387	Cryogenic PLM-PFM	<b>UB TS 1</b> Check all the knots on upper bulkhead. Check that wire are not touching Loops of wires of thermal/pressure sensors linked to Levels 0/1/2 can be in contact with an other temperature level (especially in the USFW/FIPO region if I remember righth). Avoid contact of JFET harness with the plates covering the OBA at "feedthrough" level. Check the thermalisation of JFET harness on shields. Check clearance of inlet/outlet of ventline wrt instrument shield. Check the clearances bewteen L0 and L2. The foils mounted on the pods and closing the gaps wrt OBA are touching the OBA on some locations. The mounting of those foils was made with kapton tape which is not stiff enough. This has to be reworked in order to be stiffer using e.g. aluminium tape as it was done on some locations.	MIP before TS 1 closure		1_High	Stritter, René	AI_open	24.07.2007	Schmidt, Thomas



Annex 3

<b>EADS Astrium</b> HERSCHEL H-EPLM	ACTIVITY SHEET	HP-2-ASED-SD-0177 Iss: 1	Page 1 of 5
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Location : FN	Title: HIFI AD Stability Check after Harness Rail final Fixation		
Facility : Class 100	Model: PFM	Subsystem: HIFI	Date:
CI No 120000	Test Conductor:		NCR Ref:
	Prepared By: E. Hölzle		CIL No:

**Scope:**  
 This Procedure covers the activities to perform: The HIFI AD stability check after Harness rail final fixation  
 This ACS shall be used in conjunction with the following Procedures and reference documents:  
 Procedure for PFM Alignment of Herschel Instruments w.r.t. PLM, HP-2-ASED-TP-0111

<b>EGSE S/W</b> reference and issue	<b>On-Board S/W</b> reference and issue
<b>Facilities required:</b>	OGSE: 1 Theodolite, 2 ATP, 2 Tripods MGSE: Inspection equipment: Consumables:
<b>Personnel required:</b>	1 AIT eng, 2 alignment eng 1 QA
<b>Safety and Hazards:</b>	No specific safety precautions or hazards identified.
<b>Constraints:</b>	Class 100 clean room PLM mounted on Integration Dolly or Rotary Table

No:	Activity	Proc/Drg/Result	Responsible & sign off
01	<b>See Annex</b>		
02			
03			
04			
05			
06			
07			
08			
09			
10			
11			
12			

Release AIT:	Release SE:	Release PA/Safety:	Sign off (PA/QC/Team Leader)
	31.07.07 <i>[Signature]</i>	<i>[Signature]</i>	

APPENDIX

## 1. Monitoring of HIFI FPU Alignment Devices during final harness rail fixation

The following steps have to be performed

1. Remove cover plate (red tag) from FPU openings versus LOU
2. Set up theodolite in front of AD +Z.
3. Level theodolite and achieve auto-collimation with AD +Z, set HZ = 0.0000 deg.
4. Rotate theodolite to the left until HZ = 270.0000 is reached.
5. Install ATP such that theodolite is in auto-collimation with ATP.
6. Rotate theodolite back to AD +Z and achieve auto-collimation. Check that HZ = 0.0000 deg  $\pm$  10 arcsec. If this condition is not fulfilled, repeat steps 2 – 5 until condition is achieved.
7. Unscrew provisionally installed fixation screws of harness rail on FPU and observe AD through theodolite in auto-collimation.

### 1.1 AD orientation before harness rail fixation:

8. Record the following values:

HIFI FPU AD+Z before harness rail fixation				Mean
HZ =				
V =				
Measurement Date:		Measurement Time:		

9. Set up theodolite in front of AD -Z such that ATP can be viewed from this position.
10. Level theodolite and achieve auto-collimation with ATP, set HZ = 270.0000 deg.
11. Rotate theodolite to the right and achieve auto-collimation with AD-Z.
12. Record the following values:

HIFI FPU AD-Z before harness rail fixation				Mean
HZ =				
V =				
Measurement Date:		Measurement Time:		

13. Check and record ATP position: .....

**1.2 AD stability monitoring during harness rail fixation**

14. Tighten fixation screws with final torque (according to HIFI-Integration Procedure HP-2-ASED-PR-0090) and observe the AD -Z side through theodolite in auto-collimation. Should any change occur, it will be quantified by the measurements from Sections 1.1 and 1.3.

**1.3 AD orientation after final harness rail fixation:**

15. Check theodolite levelling and achieve auto-collimation with ATP, set HZ = 270.0000 deg.

16. Rotate theodolite back to AD -Z and achieve auto-collimation.

17. Record the following values:

HIFI FPU AD-Z after harness rail fixation				Mean
HZ =				
V =				
Measurement Date:			Measurement Time:	

18. Set up theodolite in front of AD +Z such that ATP can be viewed from this position.

19. Level theodolite and achieve auto-collimation with ATP, set HZ = 270.0000 deg.

20. Rotate theodolite to the right and achieve auto-collimation with AD+Z.

21. Record the following values:

HIFI FPU AD+Z after harness rail fixation				Mean
HZ =				
V =				
Measurement Date:			Measurement Time:	

22. Check and record ATP position: .....

23. Mount cover plate on FPU openings again

**1.4 AD stability**

24. Compare the values from steps 8 and 21 (AD+Z before rail fixation) and from steps 12 and 17 (AD-Z after rail fixation).

The deviations shall be smaller than  $\pm 20$  arcsec ( $\pm 0.0056$  deg.).

Measured values  $\Delta H_z(+Z) =$

$\Delta V(+Z) =$

$\Delta H_z(-Z) =$

$\Delta V(-Z) =$

**Result:** With respect to harness rail fixation, the HIFI FPU-AD orientation

has remained stable

has not remained stable

Date/Time: .....

Personnel:

Name/Signature: .....

Name/Signature: .....

Name/Signature: .....