

1. PROJECT CODE SA-AMS		2. JPIC CODE AMS		AMS-02 TASK SHEET (ATS)																													
3. T Y P E	A CONFIGURATION CHANGE <input checked="" type="checkbox"/>		4. ATS NO. ACC090401-4		5. PAGE 1 OF 22																												
	PERMANENT <input checked="" type="checkbox"/>	TEMPORARY <input type="checkbox"/>	6. MOD SHEET(S) NUMBER(S)																														
	B NONCONFIGURATION CHANGE <input type="checkbox"/>																																
10. PART NAME ACC			11. Sub Detector Name Anticoincidence Counter ACC		12. SERIAL/LOT NO.																												
14. APPLICABLE DOCUMENTS 090330_ACC_Connector_supports.pdf, 090330_ACC_OFC_Supports.pdf, Surface_Prep_Guide.pdf																																	
18. ATS TITLE AMS-02 ACC Connector Support Installation																																	
20. OPER SEQ. NO.	21. OPERATIONS (Print, Type, or Write Legibly)				VERIFICATION																												
					22. TECH	23. QA/DV																											
1.	AMS-02 ACC Connector Support Installation																																
	Open this ATS																																
	The responsible engineer for the AMS-02 ACC installation decides about changes in the series of the installation sequences.																																
2.	Weight table of all permanent installed flight parts																																
	<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Part</th> <th>QTY</th> <th>Weight (g)</th> </tr> </thead> <tbody> <tr> <td>Standard Connector Support Z+ side</td> <td>16</td> <td></td> </tr> <tr> <td>Standard Connector Support Z- side</td> <td>12</td> <td></td> </tr> <tr> <td>Special Connector Support Z- side</td> <td>4</td> <td></td> </tr> <tr> <td>Washer (NAS1149E832R)</td> <td>128</td> <td></td> </tr> <tr> <td>Screw (NAS1351N08LB8A286)</td> <td>64</td> <td></td> </tr> <tr> <td>Nut (H41-863-DFL)</td> <td>64</td> <td></td> </tr> <tr> <td>Bushing (draw.# ams02-07-3037)</td> <td>64</td> <td></td> </tr> <tr> <td>Optical fiber cable support</td> <td>24</td> <td></td> </tr> </tbody> </table>						Part	QTY	Weight (g)	Standard Connector Support Z+ side	16		Standard Connector Support Z- side	12		Special Connector Support Z- side	4		Washer (NAS1149E832R)	128		Screw (NAS1351N08LB8A286)	64		Nut (H41-863-DFL)	64		Bushing (draw.# ams02-07-3037)	64		Optical fiber cable support	24	
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Bushing (draw.# ams02-07-3037)	64																																
Optical fiber cable support	24																																
24. ORIGINATOR Th. Kirn			DATE	25. FINAL ACCEPTANCE STAMP AND DATE																													
<i>APPROVALS (Printed or Typed and Signed)</i>																																	
26. PROJECT ENGINEER M. Wlochal			DATE	27. QUALITY ENGINEER		DATE																											
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AMS-02 TASK SHEET (ATS)
CONTINUATION PAGE

4. ATS NO.

ACC090401-4

6. MOD NO.

20. OPER
SEQ. NO.

21. OPERATIONS
(Print, Type, or Write Legibly)

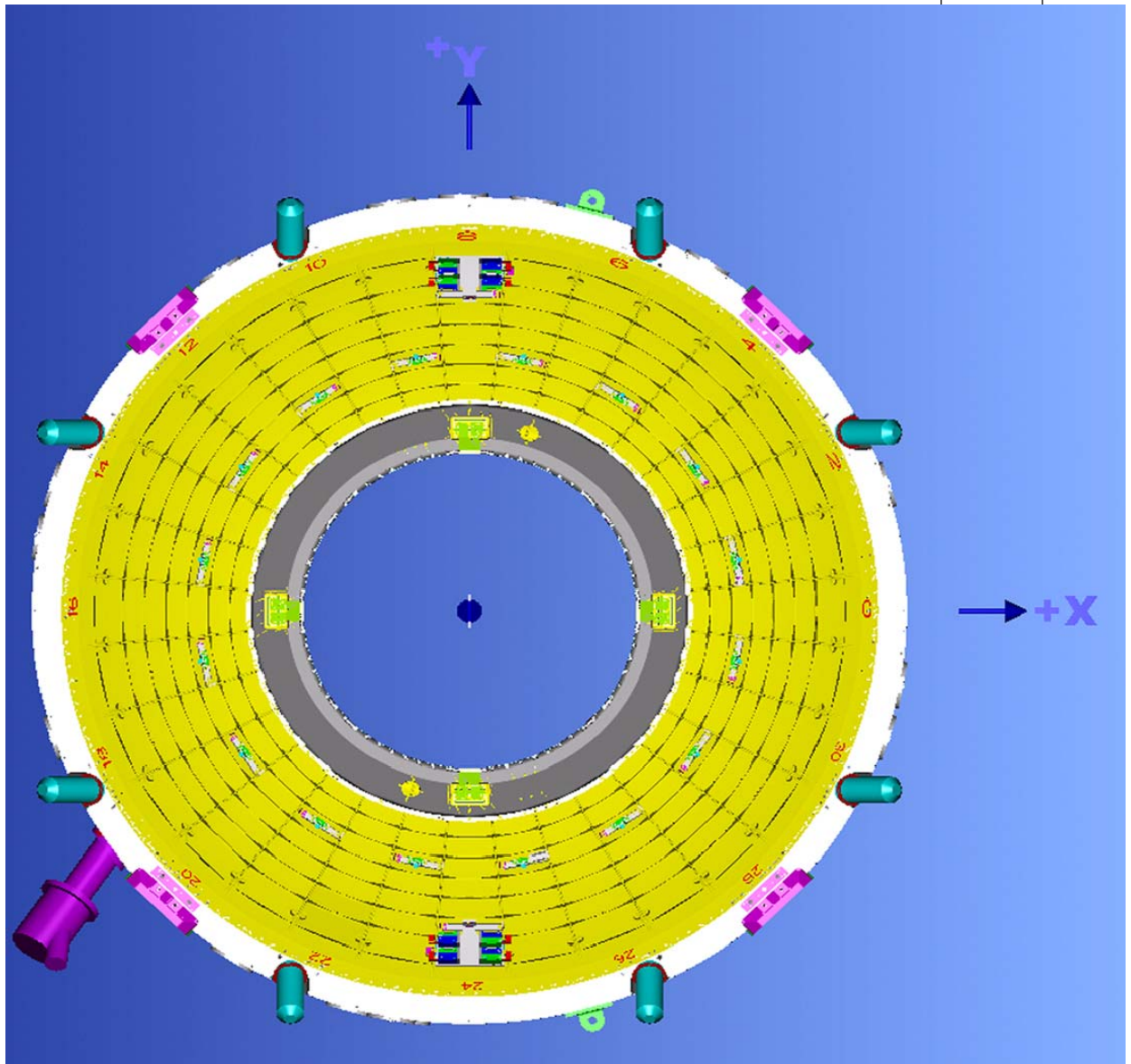
VERIFICATION

22. TECH

23. QA/DV

3. Connector support installation to VC. See Figure 1, 2 and 3, Photo 1, 2 and 3 and in more detail Figure 4 (part number: draw. # ams02-07-1033a)

Figure 1



AMS-02 TASK SHEET (ATS)
CONTINUATION PAGE

4. ATS NO.

ACC090401-4

6. MOD NO.

20. OPER
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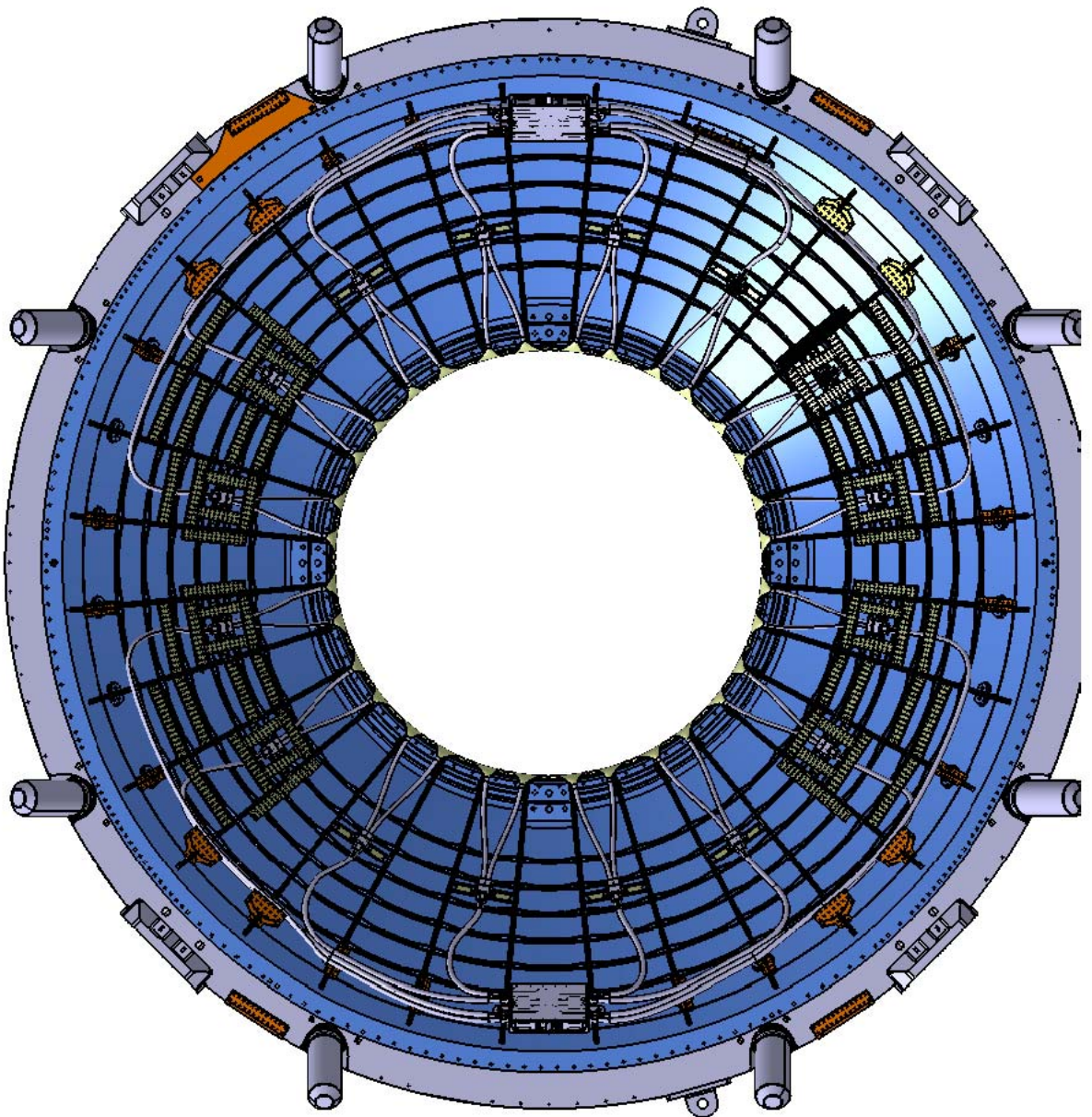
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(Print, Type, or Write Legibly)

VERIFICATION

22. TECH

23. QA/DV

Figure 2: Top view (Z+ side)



AMS-02 TASK SHEET (ATS)
CONTINUATION PAGE

4. ATS NO.

ACC090401-4

6. MOD NO.

20. OPER
SEQ. NO.

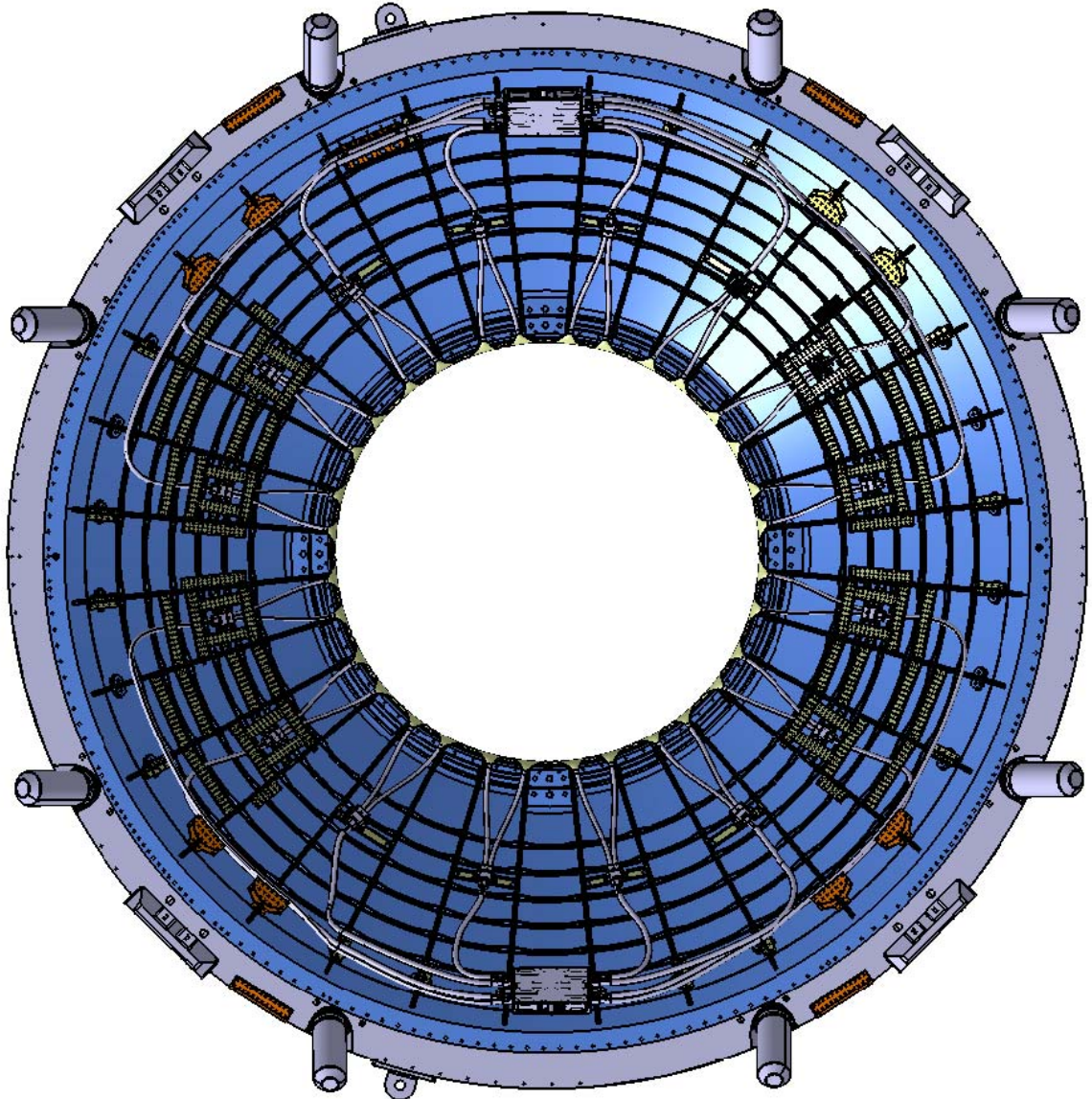
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(Print, Type, or Write Legibly)

VERIFICATION

22. TECH

23. QA/DV

Figure 3: Bottom view (Z- side)



AMS-02 TASK SHEET (ATS)
CONTINUATION PAGE

4. ATS NO.

ACC090401-4

6. MOD NO.

20. OPER
SEQ. NO.

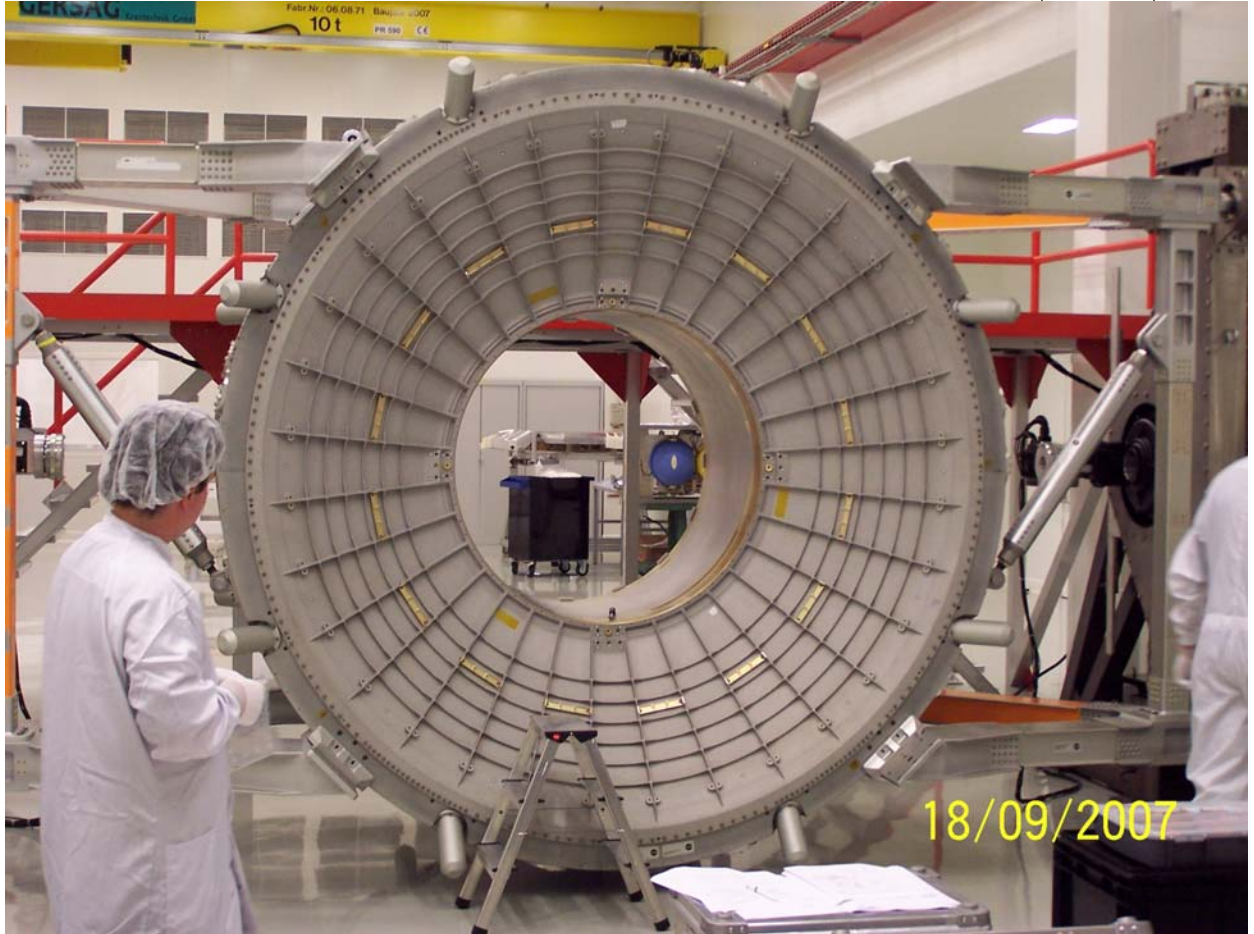
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22. TECH

23. QA/DV

Photo 1: Connector Supports mounted to VC (top view) during Pre-Integration:



AMS-02 TASK SHEET (ATS)
CONTINUATION PAGE

4. ATS NO.

ACC090401-4

6. MOD NO.

20. OPER
SEQ. NO.

21. OPERATIONS
(Print, Type, or Write Legibly)

VERIFICATION

22. TECH

23. QA/DV

Photo 2: 1 Standard Connector Support mounted to VC during Pre-Integration



Photo 3: 4 Special Connector Supports (drawing number: ams02-08-3007, ams02-08-3008, ams02-08-3009, ams02-08-3010, ams02-08-3014 and ams02-08-3015) for sectors 5, 11, 21 and 27 on Z- side



AMS-02 TASK SHEET (ATS)
CONTINUATION PAGE

4. ATS NO.

ACC090401-4

6. MOD NO.

20. OPER
SEQ. NO.

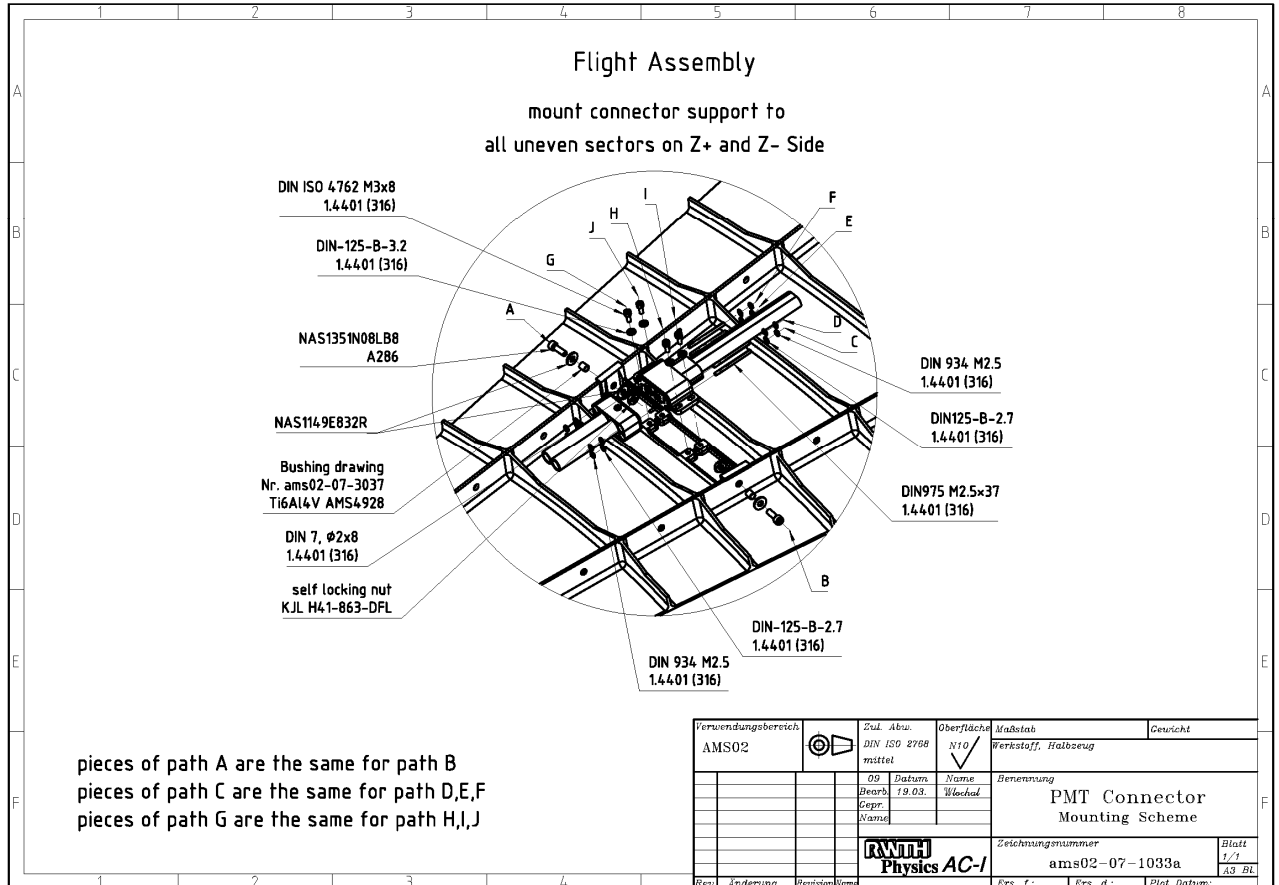
21. OPERATIONS
(Print, Type, or Write Legibly)

VERIFICATION

22. TECH

23. QA/DV

Figure 4



3.1 Apply lubricant Braycote 601EF on threads of screws (NAS1351N08LB8A286, Lot number: 40347)
QTY: 64
Braycote 601EF
Lot Number: _____ Expiration Date: _____

3.2 Apply Super Koropon base underside the NAS1149E832R washers in contact with aluminum parts of Vacuum Case Flanges or brackets (cover the whole surface of washers with a brush, and on the bushings (draw.# ams02-07-3037, mat: Ti6Al4V AMS4928). Parts are to be assembled in wet condition right after application, before drying out).

PN _____, Lot# _____, Exp date: _____.

AMS-02 TASK SHEET (ATS)
CONTINUATION PAGE

4. ATS NO.

ACC090401-4

6. MOD NO.

20. OPER
SEQ. NO.

21. OPERATIONS
(Print, Type, or Write Legibly)

VERIFICATION

22. TECH

23. QA/DV

- 3.3 Position Connector supports to VC sectors with uneven numbers (1, 3, 5, ..) on Z+ and Z- side, see Figure 1, 2, 3 and 4 and Photo 1, 2 and 3.
QTY: 32
 - 3.4 Insert washer (NAS1149E832R, Lot number: 8714-10-9-03) and bushing (draw.# ams02-07-3037, mat: Ti6Al4V AMS4928) onto screw (NAS1351N08LB8A286, Lot number: 40347), Position A, Figure 4
QTY: 32
 - 3.4.1 Insert screw with washer and bushing into VC-hole and connector support, Position A, Figure 4.
QTY: 32
 - 3.5 Insert washer (NAS1149E832R, Lot number: 8714-10-9-03) and bushing (draw.# ams02-07-3037, mat: Ti6Al4V AMS4928) onto screw (NAS1351N08LB8A286, Lot number: 40347), Position B, Figure 4.
QTY 32
 - 3.6 Insert screw with washer and bushing into VC-hole and connector support, Position B, Figure 4.
QTY: 32
 - 3.7 Insert washer (NAS1149E832R, Lot number: 8714-10-9-03) and nut (H41-863-DFL, Lot number: 8714-10-9-03) onto screw, Position A, Figure 4.
QTY: 32
 - 3.8 Insert washer (NAS1149E832R, Lot number: 8714-10-9-03) and nut (H41-863-DFL, Lot number: 8714-10-9-03) onto screw, Position B, Figure 4.
QTY: 32
 - 3.9 Tighten Position A and B (Figure 4, Table 1 for Z+ side, Table 2 for Z- side).
QTY: 32
- Maximum Locking Torque = 2.8 Nm, Minimum Locking Torque = 2.4 Nm
- Maximum Running Torque = 1.0 Nm, Minimum Running Torque = 0.3 Nm

Z+ side Sector	Position	Running Torque	Final Torque	Position	Running Torque	Final Torque
1	A			B		
3	A			B		
5	A			B		
7	A			B		

AMS-02 TASK SHEET (ATS)
CONTINUATION PAGE

4. ATS NO.

ACC090401-4

6. MOD NO.

20. OPER
SEQ. NO.

21. OPERATIONS
(Print, Type, or Write Legibly)

VERIFICATION

22. TECH

23. QA/DV

9	A			B		
11	A			B		
13	A			B		
15	A			B		
17	A			B		
19	A			B		
21	A			B		
23	A			B		
25	A			B		
27	A			B		
29	A			B		
31	A			B		

Table 1: Z+ side

Wrench PN _____ (Running)
Note M# _____ Cal Due Date _____

Wrench PN _____ (Final)
Note M# _____ Cal Due Date _____

Maximum Locking Torque = 2.8 Nm, Minimum Locking Torque = 2.4Nm

Maximum Running Torque = 1.0 Nm, Minimum Locking Torque = 0.3 Nm

Z- side Sector	Position	Running Torque	Final Torque	Position	Running Torque	Final Torque
1	A			B		
3	A			B		
5	A			B		
7	A			B		
9	A			B		
11	A			B		
13	A			B		

AMS-02 TASK SHEET (ATS)
CONTINUATION PAGE

4. ATS NO.

ACC090401-4

6. MOD NO.

20. OPER
SEQ. NO.

21. OPERATIONS
(Print, Type, or Write Legibly)

VERIFICATION

22. TECH

23. QA/DV

15	A			B		
17	A			B		
19	A			B		
21	A			B		
23	A			B		
25	A			B		
27	A			B		
29	A			B		
31	A			B		

Table 2: Z- side

Wrench PN _____ (Running)

Note M# _____ Cal Due Date _____

Wrench PN _____ (Final)

Note M# _____ Cal Due Date _____

AMS-02 TASK SHEET (ATS)
CONTINUATION PAGE

4. ATS NO.

ACC090401-4

6. MOD NO.

20. OPER
SEQ. NO.

21. OPERATIONS
(Print, Type, or Write Legibly)

VERIFICATION

22. TECH

23. QA/DV

4. Temporary PMT –Box installation to VC. See Figure 5 (draw. # ams02-07-1032, replace flight screws NAS 1351 N3 LB 10 No. 10-32 UNRF-3A A286 by temporary screws No. 10-32 UNRF-3A 1.4401, red marked) and Figure 6 for the allocation of PMT (production number) and optical clear fiber cable (production number) and Photo 4.

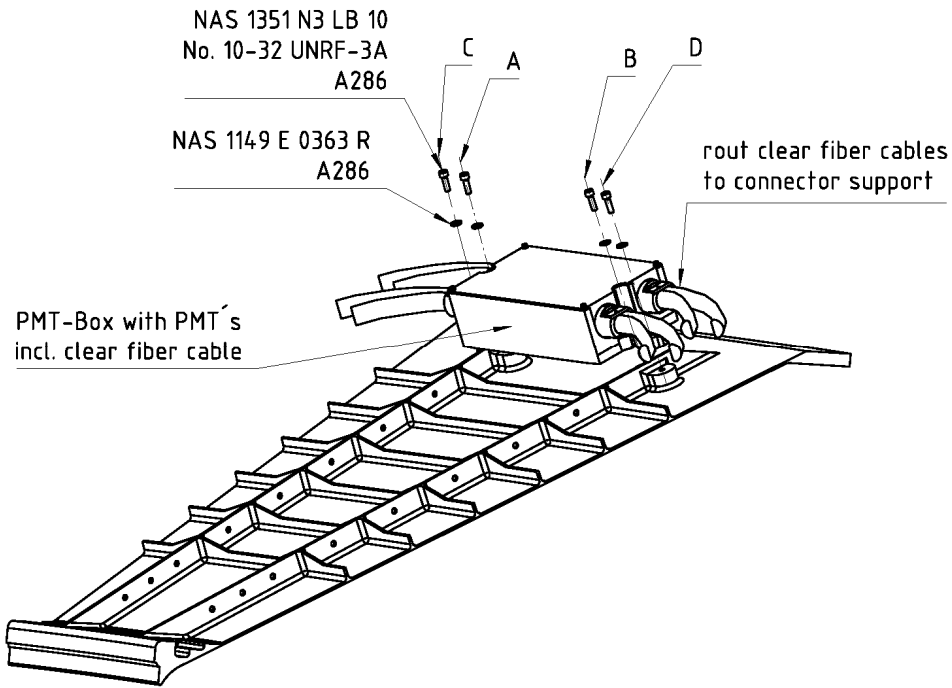


Figure 5

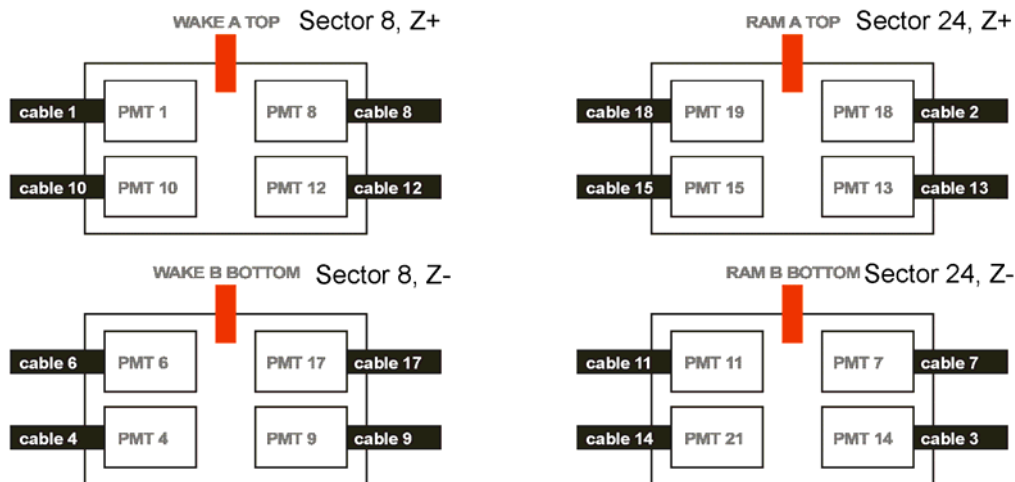


Figure 6: Allocation of PMTs and optical clear fiber cables.

AMS-02 TASK SHEET (ATS)
CONTINUATION PAGE

4. ATS NO.

ACC090401-4

6. MOD NO.

20. OPER
SEQ. NO.

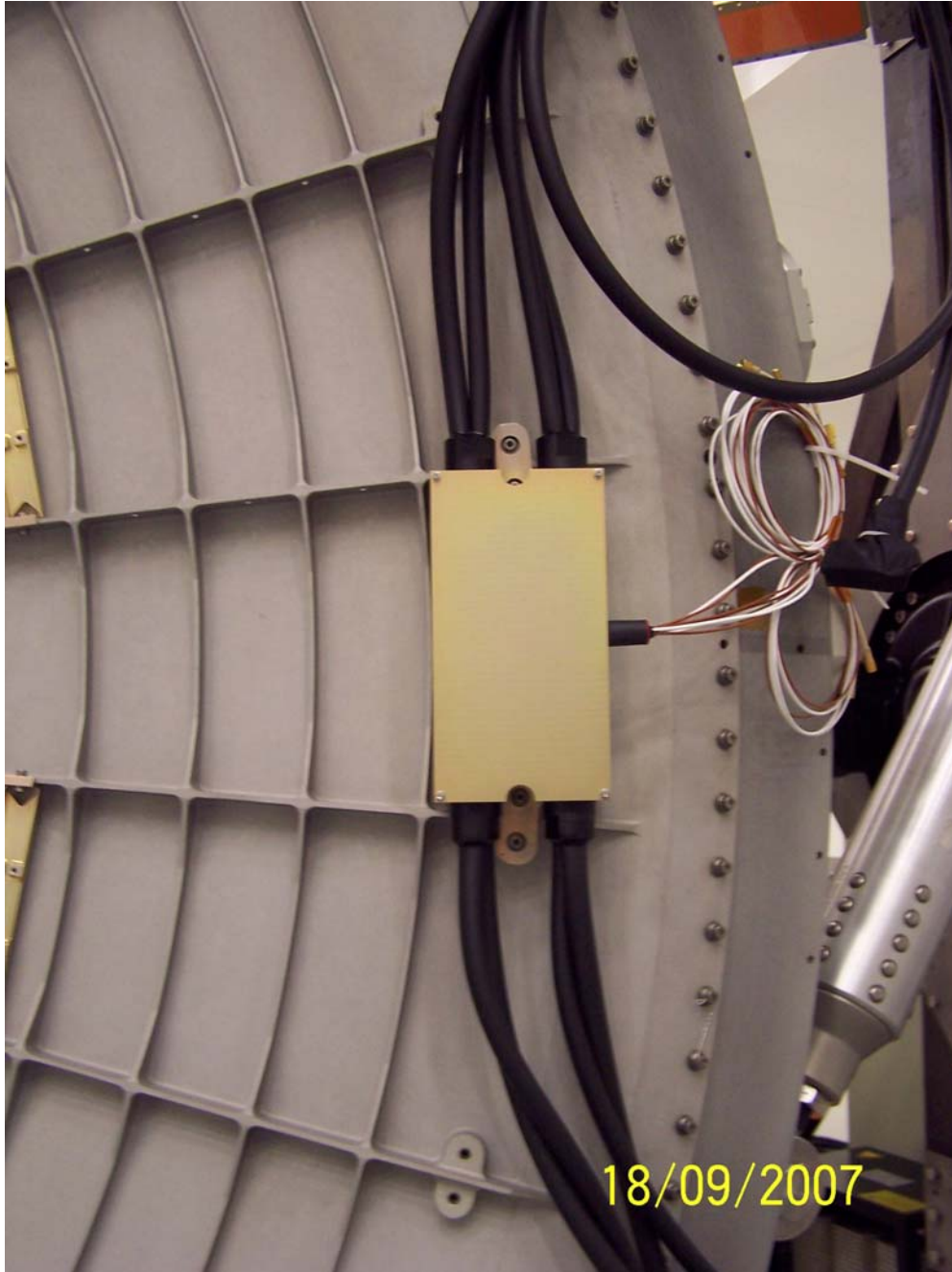
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(Print, Type, or Write Legibly)

VERIFICATION

22. TECH

23. QA/DV

Photo 4: Temporary PMT-Box installation during Pre-Integration



AMS-02 TASK SHEET (ATS)
CONTINUATION PAGE

4. ATS NO.

ACC090401-4

6. MOD NO.

20. OPER SEQ. NO.	21. OPERATIONS (Print, Type, or Write Legibly)	VERIFICATION	
		22. TECH	23. QA/DV
4.1	Position PMT-Box to sector 8 on Z+ side, Figure 6 (Photo 4).		
4.1.1	Put lubricant Braycote 601EF on threads of temporary screws (No. 10-32 UNRF-3A 1.4401) QTY: 4		
4.1.2	Insert washer (NAS 1149 E 0363 R A286, Lot number: S5271) onto screw (No. 10-32 UNRF-3A 1.4401), Position A, Figure 5		
4.1.3	“Hand tighten” Position A (Figure 5)		
4.1.4	Insert washer (NAS 1149 E 0363 R A286, Lot number: S5271) onto screw (No. 10-32 UNRF-3A 1.4401), Position B, Figure 5		
4.1.5	“Hand tighten” Position B (Figure 5)		
4.1.6	Insert washer (NAS 1149 E 0363 R A286, Lot number: S5271) onto screw (No. 10-32 UNRF-3A 1.4401), Position C, Figure 5		
4.1.7	“Hand tighten” Position C (Figure 5)		
4.1.8	Insert washer (NAS 1149 E 0363 R A286, Lot number: S5271) onto screw (No. 10-32 UNRF-3A 1.4401), Position D, Figure 5		
4.1.9	“Hand tighten” Position D (Figure 5)		
4.2	Position PMT-Box to sector 24 on Z+ side, Figure 6.		
4.2.1	Put lubricant Braycote 601EF on threads of screws (No. 10-32 UNRF-3A 1.4401) QTY: 4		
4.2.2	Insert washer (NAS 1149 E 0363 R A286, Lot number: S5271) onto screw (No. 10-32 UNRF-3A 1.4401), Position A, Figure 5		
4.2.3	“Hand tighten” Position A (Figure 5)		
4.2.4	Insert washer (NAS 1149 E 0363 R A286, Lot number: S5271) onto screw (No. 10-32 UNRF-3A 1.4401), Position B, Figure 5		
4.2.5	“Hand tighten” Position B (Figure 5)		
4.2.6	Insert washer (NAS 1149 E 0363 R A286, Lot number: S5271) onto screw (No. 10-32 UNRF-3A 1.4401), Position C, Figure 5		
4.2.7	“Hand tighten” Position C (Figure 5)		

AMS-02 TASK SHEET (ATS)
CONTINUATION PAGE

4. ATS NO.

ACC090401-4

6. MOD NO.

20. OPER SEQ. NO.	21. OPERATIONS (Print, Type, or Write Legibly)	VERIFICATION	
		22. TECH	23. QA/DV
4.2.8	Insert washer (NAS 1149 E 0363 R A286, Lot number: S5271) onto screw (No. 10-32 UNRF-3A 1.4401), Position D, Figure 5		
4.2.9	“Hand tighten” Position D (Figure 5)		
4.3	Position PMT-Box to sector 8 on Z- side, Figure 6.		
4.3.1	Put lubricant Braycote 601EF on threads of screws (No. 10-32 UNRF-3A 1.4401) QTY: 4		
4.3.2	Insert washer (NAS 1149 E 0363 R A286, Lot number: S5271) onto screw (No. 10-32 UNRF-3A 1.4401), Position A, Figure 5		
4.3.3	“Hand tighten” Position A (Figure 5)		
4.3.4	Insert washer (NAS 1149 E 0363 R A286, Lot number: S5271) onto screw (No. 10-32 UNRF-3A 1.4401), Position B, Figure 5		
4.3.5	“Hand tighten” Position B (Figure 5)		
4.3.6	Insert washer (NAS 1149 E 0363 R A286, Lot number: S5271) onto screw (No. 10-32 UNRF-3A 1.4401), Position C, Figure 5		
4.3.7	“Hand tighten” Position C (Figure 5)		
4.3.8	Insert washer (NAS 1149 E 0363 R A286, Lot number: S5271) onto screw (No. 10-32 UNRF-3A 1.4401), Position D, Figure 5		
4.3.9	“Hand tighten” Position D (Figure 5)		
4.4	Position PMT-Box to sector 24 on Z- side, Figure 6.		
4.4.1	Put lubricant Braycote 601EF on threads of screws (No. 10-32 UNRF-3A 1.4401) QTY: 4		
4.4.2	Insert washer (NAS 1149 E 0363 R A286, Lot number: S5271) onto screw (No. 10-32 UNRF-3A 1.4401), Position A, Figure 5		
4.4.3	“Hand tighten” Position A (Figure 5)		
4.4.4	Insert washer (NAS 1149 E 0363 R A286, Lot number: S5271) onto screw (No. 10-32 UNRF-3A 1.4401), Position B, Figure 5		
4.4.5	“Hand Tighten” Position B (Figure 5)		

AMS-02 TASK SHEET (ATS)
CONTINUATION PAGE

4. ATS NO.

ACC090401-4

6. MOD NO.

20. OPER SEQ. NO.	21. OPERATIONS (Print, Type, or Write Legibly)	VERIFICATION	
		22. TECH	23. QA/DV
4.4.6	Insert washer (NAS 1149 E 0363 R A286, Lot number: S5271) onto screw (No. 10-32 UNRF-3A 1.4401), Position C, Figure 5		
4.4.7	“Hand tighten” Position C (Figure 5)		
4.4.8	Insert washer (NAS 1149 E 0363 R A286, Lot number: S5271) onto screw (No. 10-32 UNRF-3A 1.4401), Position D, Figure 5		
4.4.9	“Hand tighten” Position D (Figure 5)		

AMS-02 TASK SHEET (ATS)
CONTINUATION PAGE

4. ATS NO.

ACC090401-4

6. MOD NO.

20. OPER
SEQ. NO.

21. OPERATIONS
(Print, Type, or Write Legibly)

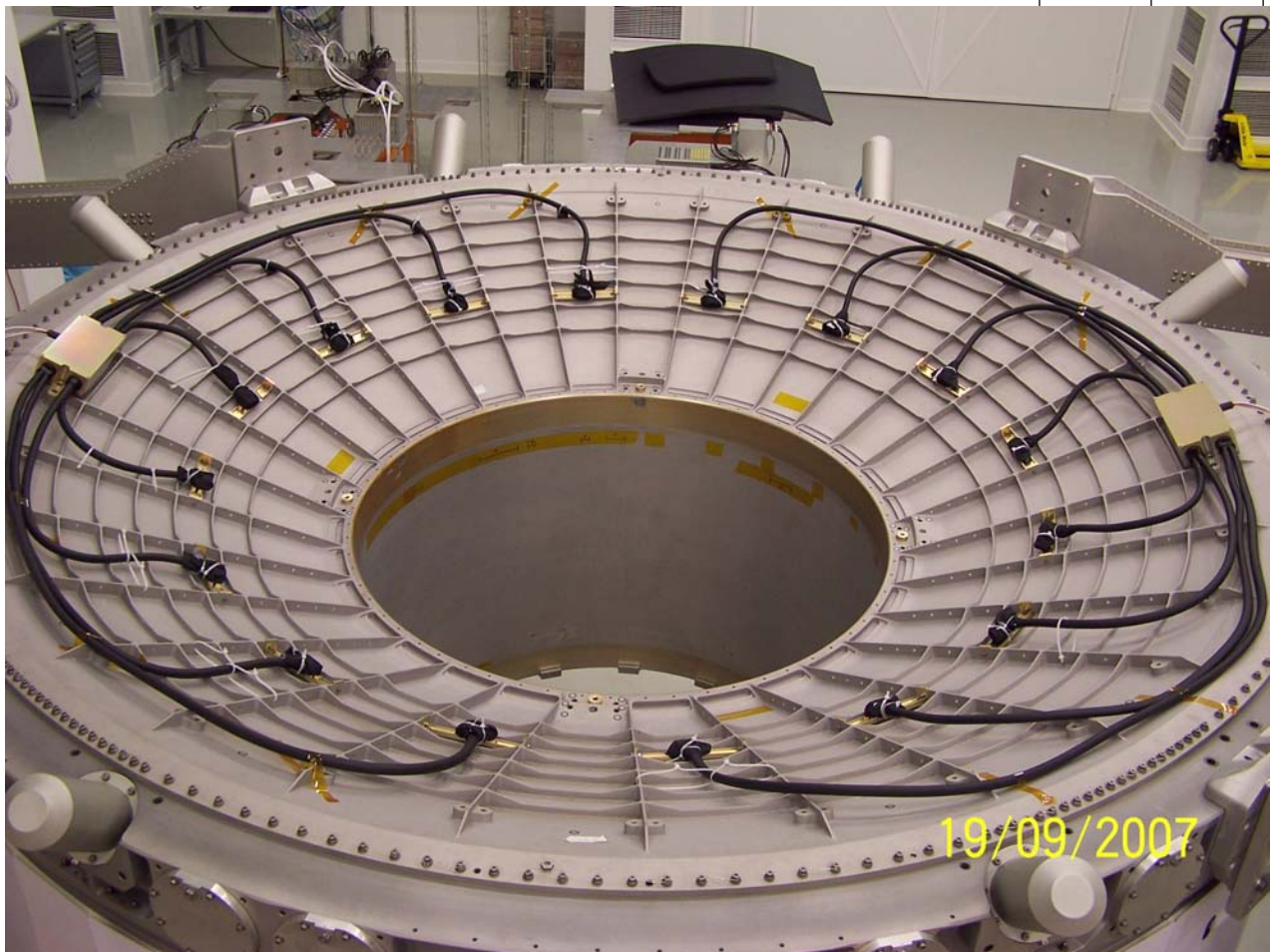
VERIFICATION

22. TECH

23. QA/DV

5. Temporary optical connector fixation to connector support on Z+ and Z- side with cable ties, see Photo 5. QTY: 32

Photo 5: Temporary fixation of optical connectors to connector support with cable ties during pre-integration



AMS-02 TASK SHEET (ATS)
CONTINUATION PAGE

4. ATS NO.

ACC090401-4

6. MOD NO.

20. OPER
SEQ. NO.

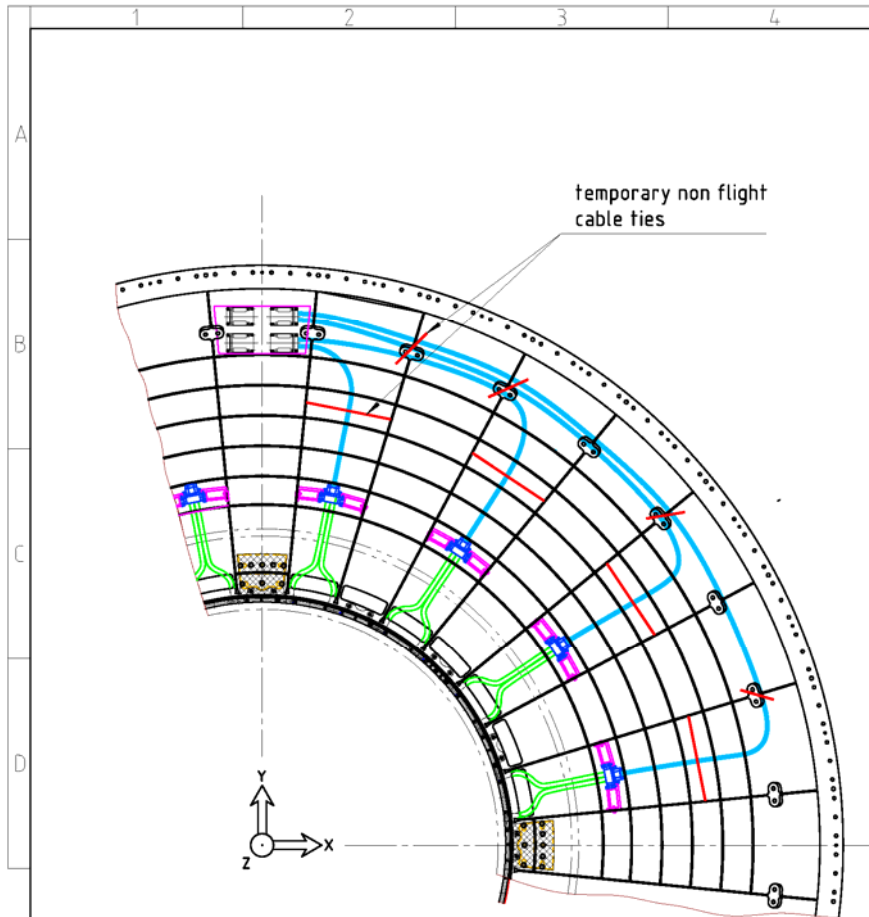
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22. TECH

23. QA/DV

6. Temporary fiber cable fixation to VC with cable ties, see Figure 7 and Photo 6:



Verwendungsbereich AMS 02		Zul. Abw. DIN ISO 2768 mittel	Oberfläche N10	Maßstab 1:10	Gewicht
		07 Datum Name		Werkstoff, Halbzeug	
		Bearb. 17.09. Wechsel		Benennung Temporary Fiber Cable Support	
		Name		Zeichnungsnummer ams02-07-1040	
		 Physics AC-1		Blatt 1/1 A4 Bl.	
Rev.	Änderung	Revision	Name	Ers. f.:	Ers. d.:
				Plot Datum:	

Figure 7: Allocation of temporary fiber cable fixation to VC with non-flight cable ties.

AMS-02 TASK SHEET (ATS)
CONTINUATION PAGE

4. ATS NO.

ACC090401-4

6. MOD NO.

20. OPER
SEQ. NO.

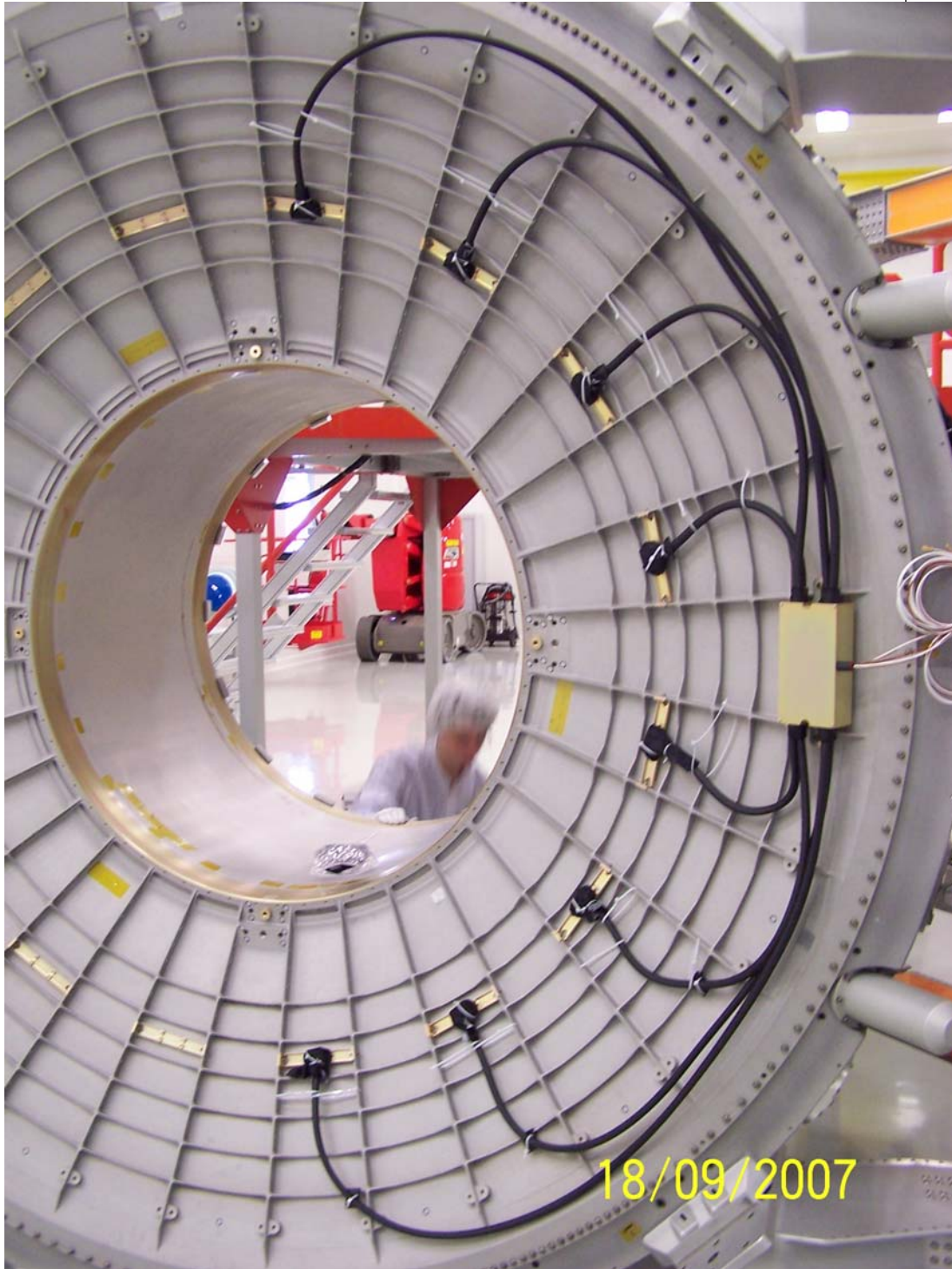
21. OPERATIONS
(Print, Type, or Write Legibly)

VERIFICATION

22. TECH

23. QA/DV

Photo 6: Temporary mounted PMT-Box and optical fiber fixation with cable ties to VC during pre-integration.



AMS-02 TASK SHEET (ATS)
CONTINUATION PAGE

4. ATS NO.

ACC090401-4

6. MOD NO.

20. OPER
SEQ. NO.

21. OPERATIONS
(Print, Type, or Write Legibly)

VERIFICATION

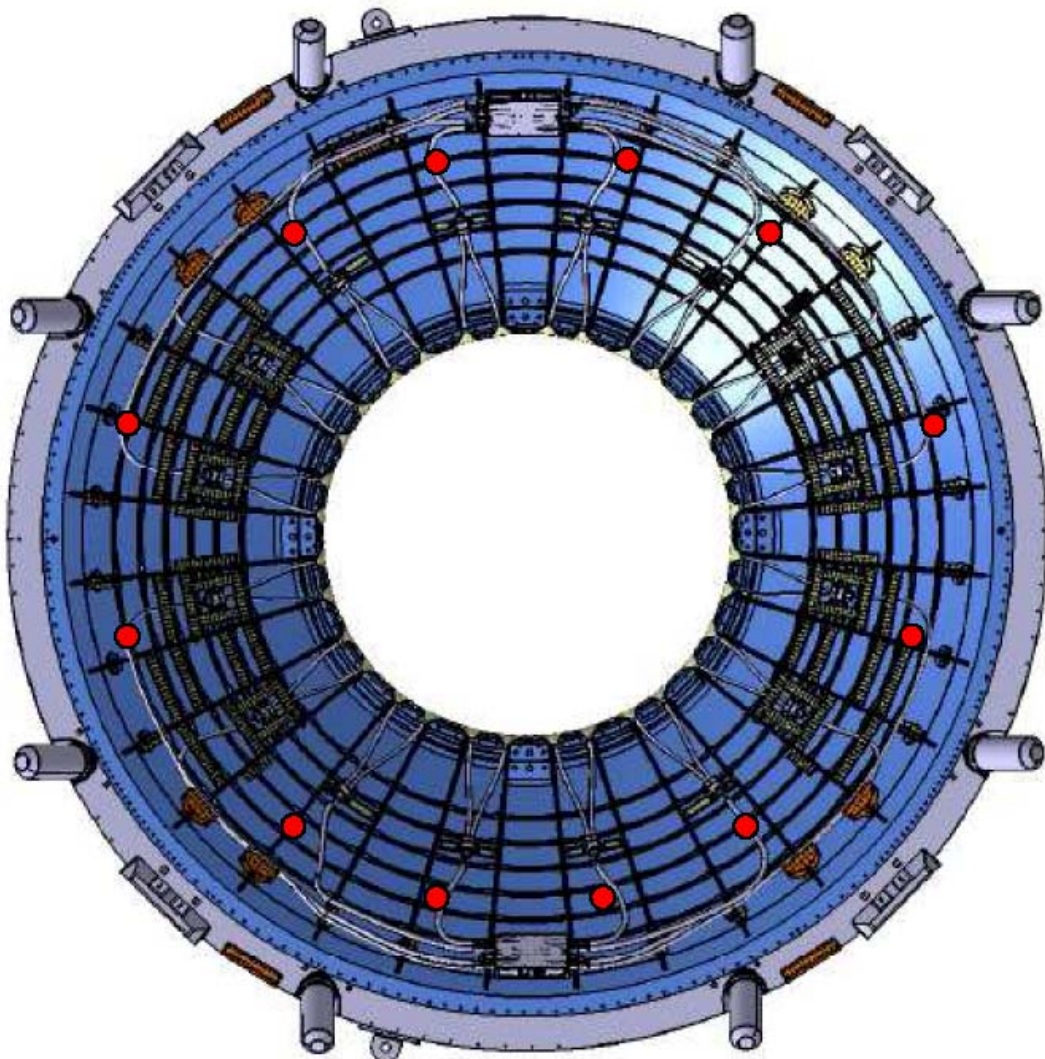
22. TECH

23. QA/DV

7. Glueing of optical fiber cable support (drawing number: ams02-svd-010, see 090330_ACC_OFC_Supports.pdf) to VC.
QTY: 24

7.1 Position optical fiber cable support on VC, see Figure 8 and Photo 7.

Figure 8: Allocation of optical fiber cable support on VC



AMS-02 TASK SHEET (ATS)
CONTINUATION PAGE

4. ATS NO.

ACC090401-4

6. MOD NO.

VERIFICATION

20. OPER
SEQ. NO.21. OPERATIONS
(Print, Type, or Write Legibly)

22. TECH

23. QA/DV

Photo 7: Temporary positioned optical fiber cable support on VC during pre-integration



- 7.2 Glue optical fiber supports to VC
QTY: 24
- 7.2.1 Primer EA9203-Q4659, Lot Number:
Expiration Date:

HYSOL EA934NA, Lot Number:
Expiration Date:
- 7.2.2 Reference to LOCTITE HYSOL surface preparation guide (see
Surface_Prep_Guide.pdf)
- 7.2.3 Clean surface to glue with isopropanol
- 7.2.4 Apply primer HYSOL EA9203-Q4659
- 7.2.5 Waiting time of at least 1 hour to dry primer
- 7.2.6 Glue ACC optical fiber cable support to VC with HYSOL EA934NA

AMS-02 TASK SHEET (ATS)
CONTINUATION PAGE

4. ATS NO.

ACC090401-4

6. MOD NO.

20. OPER
SEQ. NO.

21. OPERATIONS
(Print, Type, or Write Legibly)

VERIFICATION

22. TECH

23. QA/DV

- 8. Remove all temporary optical fiber cable fixations (cable ties) on Z+ and Z- side, Figure 7, Photo 5 and 6.
- 9. Inspection of AMS QA engineer after removal of all cable ties.
- 10. PMT –Box dismounting of VC (figure 5, draw. # ams02-07-1032, and figure 6 for the allocation of PMT (production number) and optical clear fiber cable (production number).
- 10.1 Removal of PMT-Boxes of sector 8 and 24 on Z+ and Z- side (see Figure 5 & 6).
- 10.1.1 Untighten Position A, B, C and D (Figure 5)
- 10.1.2 Remove screw (No. 10-32 UNRF-3A 1.4401) and washer (NAS 1149 E 0363 R A286) from position A, B, C and D (Figure 5), tag and bag screws and washers (table 3), clean holes.

Z+ side Sector	Position	Screw	Bag (“not for flight”)	Washer	Bag Lot Number
8	A	1		1	
	B	1		1	
	C	1		1	
	D	1		1	
24	A	1		1	
	B	1		1	
	C	1		1	
	D	1		1	
Z- side Sector	Position	Screw	Bag (“not for flight”)	Washer	Bag Lot Number
8	A	1		1	
	B	1		1	
	C	1		1	

AMS-02 TASK SHEET (ATS)
CONTINUATION PAGE

4. ATS NO.

ACC090401-4

6. MOD NO.

20. OPER
SEQ. NO.

21. OPERATIONS
(Print, Type, or Write Legibly)

VERIFICATION

22. TECH

23. QA/DV

	D	1		1	
24	A	1		1	
	B	1		1	
	C	1		1	
	D	1		1	

Table 3

10.1.3 Remove ACC PMT-Boxes with optical clear fiber cables and store for Flight Integration.

11. Close this TPS.