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| | Assembly Procedure for Installing Straws | | |
| | ATLAS project document no. ATL-IT-AP-0022 | Date last modified. 21 May, 2001 | Approval status Full Production |

1 Scope

1.1 Scope

This procedure establishes requirements to install the straws into module during assembly.

1.2 Applicability

1.2.1 Applicability

This procedure applies to the process of installing all straws by the Indiana and Duke Production Facilities.

1.2.2 Relation to Other ATLAS Project Requirements

The assembly procedure described by this specification is in addition to other tests and inspections required for module assembly. Module assembly may continue only after acceptable results from this procedure.

2 Applicable Documents

2.1 Document List

The following documents of the issue in effect on the effective date of this specification form a part of this specification to the extent specified herein.

2.1.1 ATL-IT-EY-0004, ATLAS U.S. Environmental, Health, and Safety Plan

2.2 Amendments and Revisions

Whenever this procedure is amended or revised subsequent to its effective date, the Revised Version will be placed in the Engineering Data Management System, the Production DataBase displays, and released to the technicians. The Production Engineers will coordinate release to the technicians.

3 Requirements

3.1 Background

The straws are installed after all the dividers and radiators have been installed and after the HV plates have been lightly fastened at the two ends. At this point the module in the assembly frame is very stable and the holes in the dividers and the HV plates are well aligned by the connection of the ears to the assembly frame.

Appendix A provides a checklist to be used by Technicians performing this procedure.


3.2 General Instructions

The guide rods, which were used to help load the radiator, remain in place until replaced by the alignment straws at the end of the straw insertion. Ensure that the assembly station, module, straw tray, and surrounding area are clean.

In general, the straw insertion sequence starts adjacent to the center guide rod and proceeds sequentially up and down until each batch is complete. The straw end with the **paint dot** is always positioned toward the **back end** of the module. The straws are alternately inserted from each end with straws in **odd** numbered holes being pushed in from the **back** end.

The straws are inserted by sliding a bullet into the proper end of a straw and then pressing the straw slowly through the hole in the HV plate, being sensitive to extra resistance. A push tool is used to help insert the straw the last few inches.

The push tool is also used to pinch the straw against the HV plate while the bullet is being pulled of on the other end. This prevents the straws from going beyond its correct position.

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When inserting the straw onto the bullet sleeve, the technician must be careful about the wrap direction on the sleeve. The sleeve on the bullet must always be turned so that the leading edge of the wrap is a downward step. Reject any straw that is damaged, especially if one or more of the carbon fiber stiffeners is loose anywhere along the straw. If a straw buckles while being inserted push it back out from the other end. All rejected straws are placed in the original container to record from which batch they came. This bag will have the label cut off of the outside and inserted in the bag.

Technician rotate the frame after about half of the straws are inserted and again before the end of straw insertion to try and equalize the stress on the dividers.

4 Preparation for Delivery

4.1.1 Storage, Packing , and Shipping Requirements

There are no storage, packing, and shipping requirements applicable to this procedure.


5 Environment, Health, and Safety (EH&S)

5.1.1 EH&S Invoked

No special EH&S hazards are associated with the conduct of this process.

6 References

- 6.1 Hvdd001a.dwg, Module 1 Thin HV Silk Screen (Appendix B)
- 6.2 Hvdd001a.dwg, Module 2 Thin HV Silk Screen (Appendix B)
- 6.3 Hvdd001a.dwg, Module 3 Thin HV Silk Screen (Appendix B)
- 6.4 ATLITD__0025, Detector Element Straw
- 6.5 ATLITB1_0001, Type 1 Isometric Assembly Diagram (Exploded)
- 6.6 ATLITB2_0001, Type 2 Isometric Assembly Diagram (Exploded)
- 6.7 ATLITB3_0002, Type 3 Isometric Assembly Diagram (Exploded)

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Appendix A

Table Name: tblChecklistInstallStraws

Step Check List Steps

- 1 Scan the "Assembly Procedure to Install Straws" Product ID Barcode.
- 2 Please review the written procedure before beginning insertion. Enter "Done".
- 3 Push the guide rods back and forth to see if all are moving freely. Rotate the assembly frame once if the radiator seems to have settled. Leave the module sitting on its side D. Enter "Done".
- 4 Enter the barcode for the batch of straws to be inserted.
- 5 Enter the position number of the first straw to be inserted
- 6 Insert all the straws in the batch (or as many as is required to complete the module if less than the full batch). Enter "Done".
- 7 If more straws are needed, enter "Repeat". Otherwise, enter "Done".
- 8 Record the number of straws left over in the last batch inserted.
- 9 Replace each guide rod with an alignment straw. Enter Done.
- 10 Rotate the frame to try and equalize the stress on the dividers. Enter "Done".
- 11 Enter "Save" to save data and exit

the form. Otherwise enter "Cancel" to exit the form without saving.

Procedure to Install Straws Product ID Barcode



Procedure Part Number



Approvals

| Name | Signature | Revision | Date |
|------------|-----------|----------|------|
| J.Callahan | | A | |
| D.Rust | | A | |
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