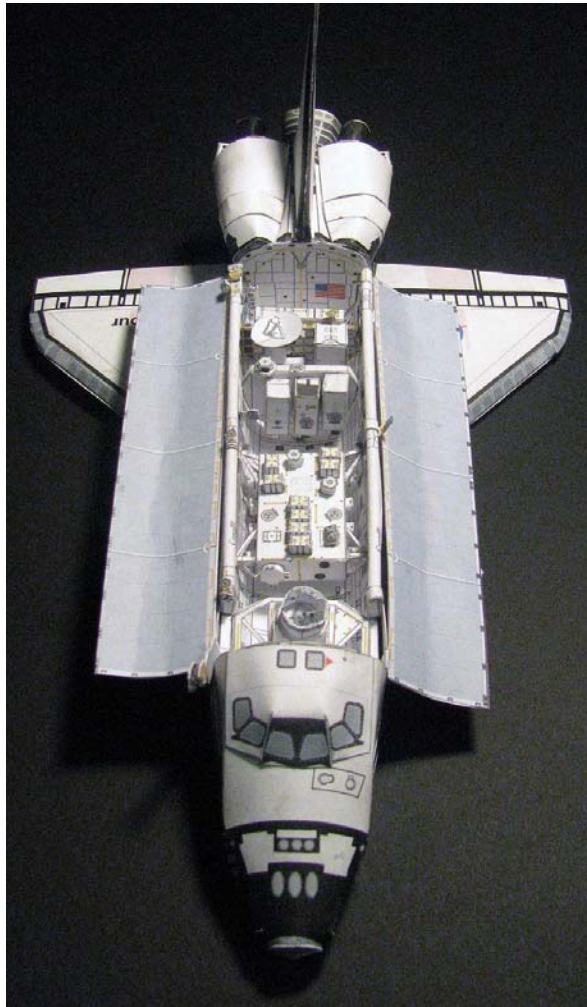




© 2009

Assembly Instructions for STS-127 payload



A SPECIAL THANKS!

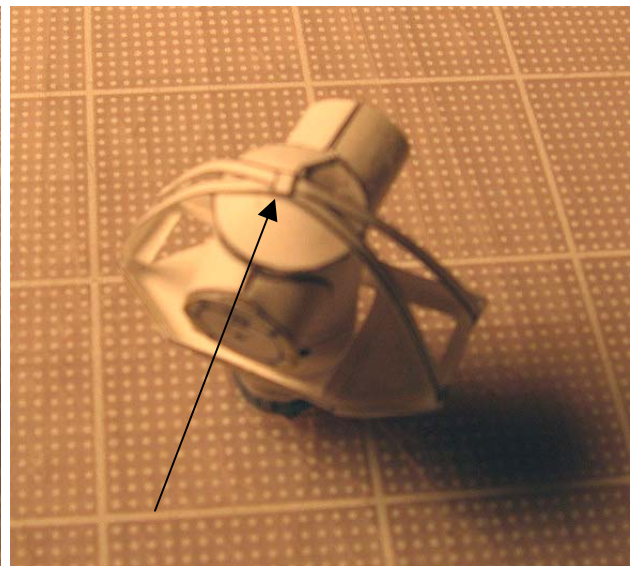
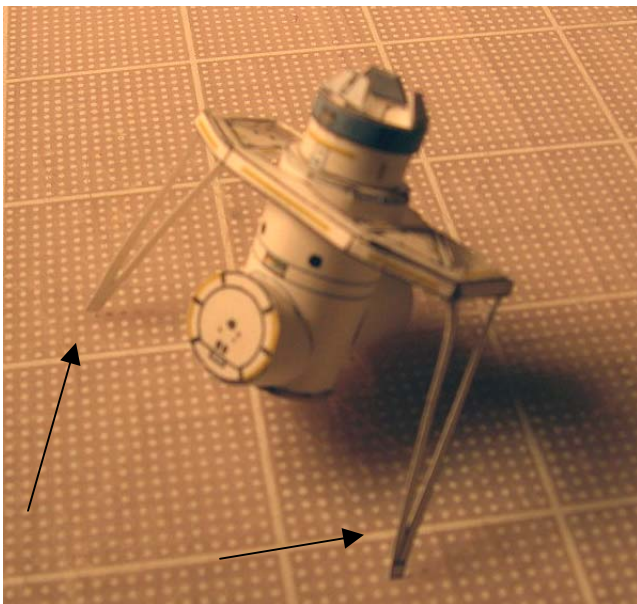
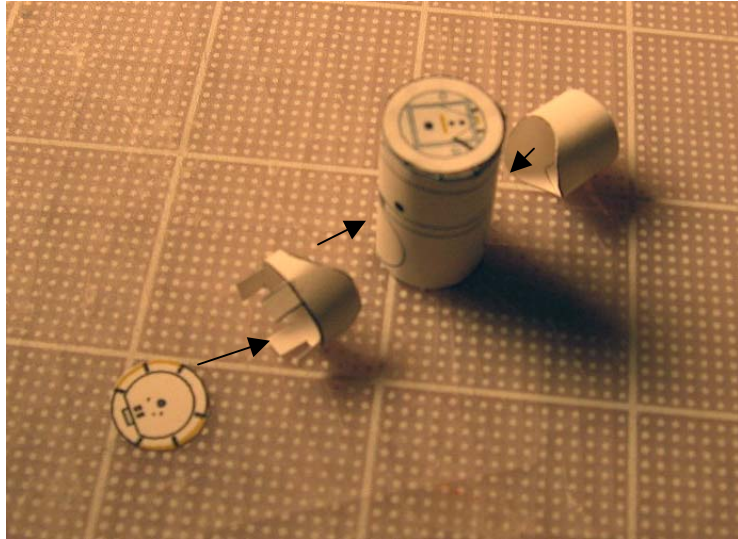
This Assembly Manual for STS-127 was made possible with the collaboration of my beta tester Aaron Obrien (spaceboy7441) who provided the photos of the assembly steps.

Thank you, Aaron!

Building the Orbiter Docking System – Bays 1 and 2



Make a cylinder and glue the elements indicated on this photo.

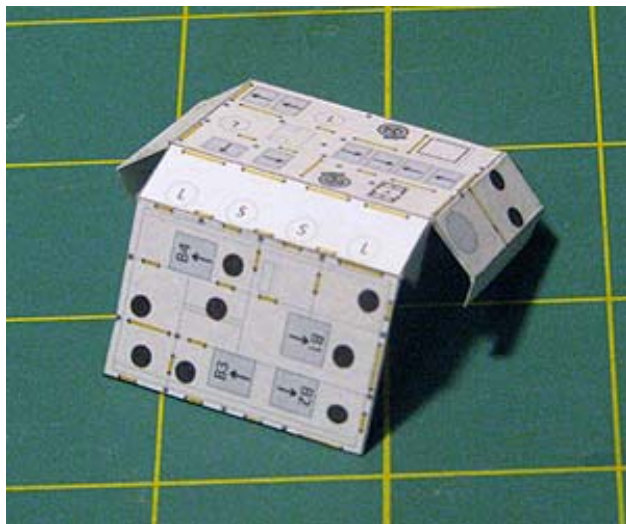
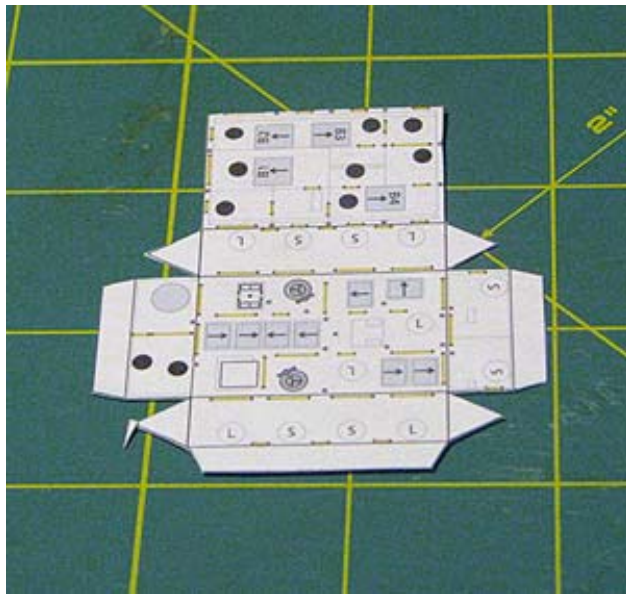


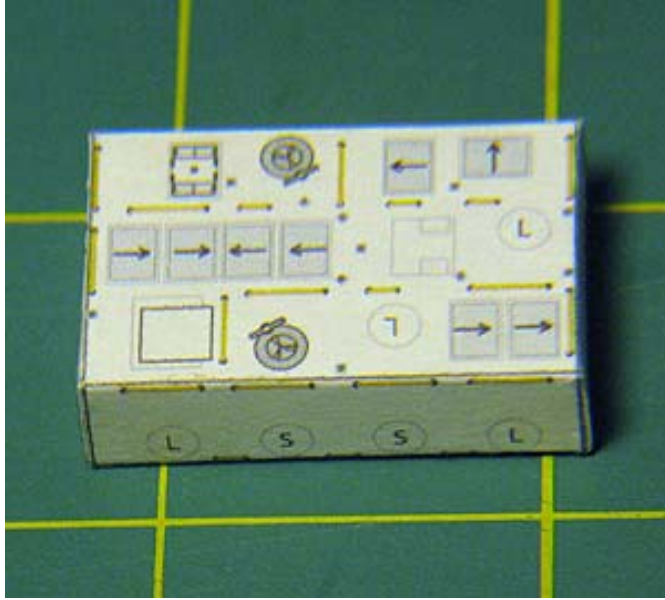
Photos show the position of the other elements when building this Docking System. Note how the side thin parts are glued at the bottom of the Docking System.



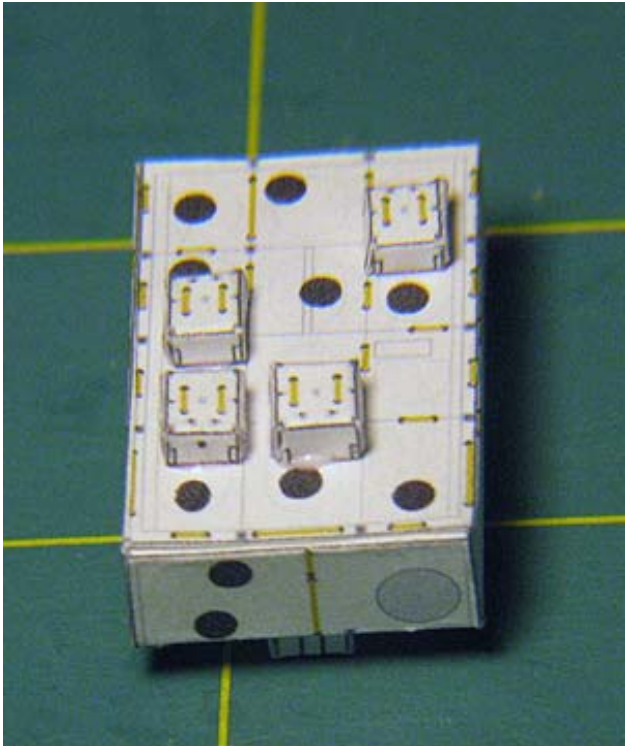
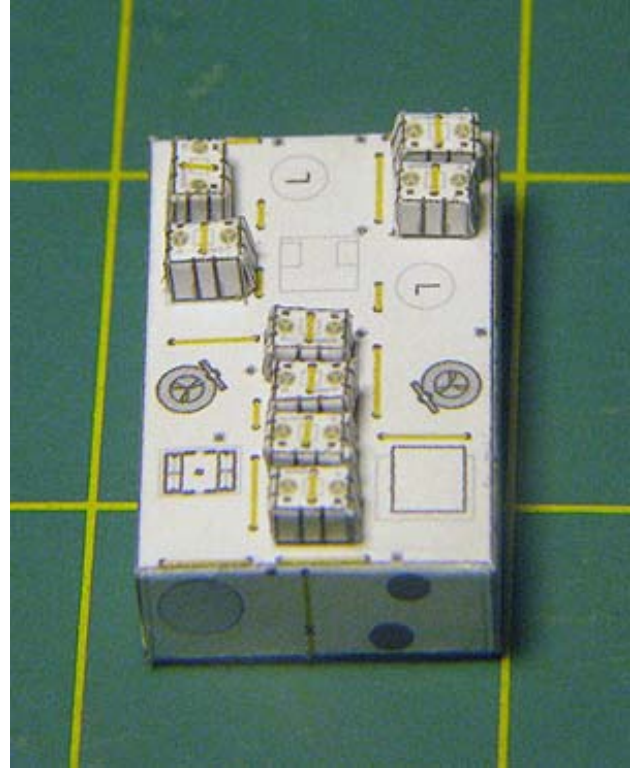
Note location of KU-band antenna that is glued on the tab from the right payload bay door.

Building the JEM Exposed Facility (EF) – (Bays 4 to 7)

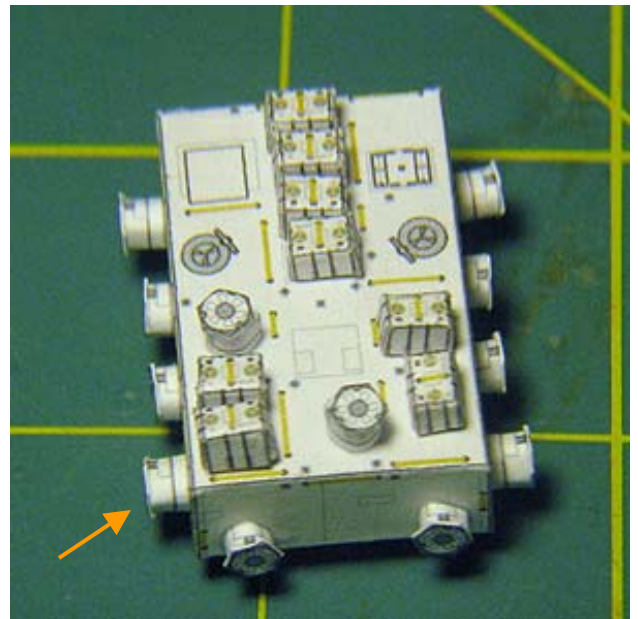




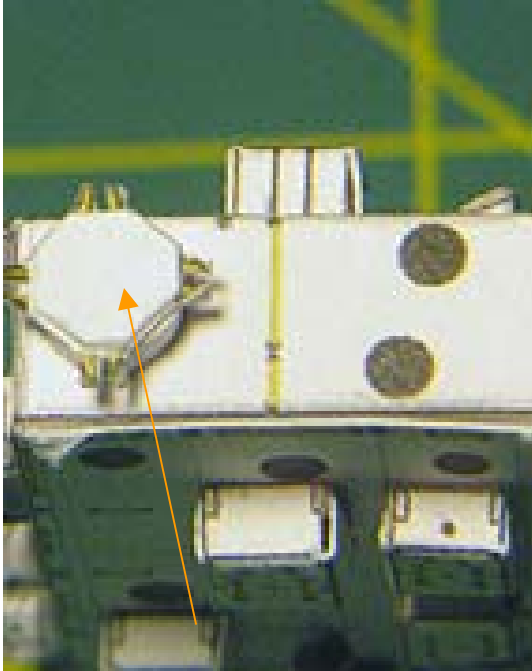
Glue the 8 small boxes following the direction of the arrows. These are the **Robot essential Orbital Replacement Units (R-ORU)**



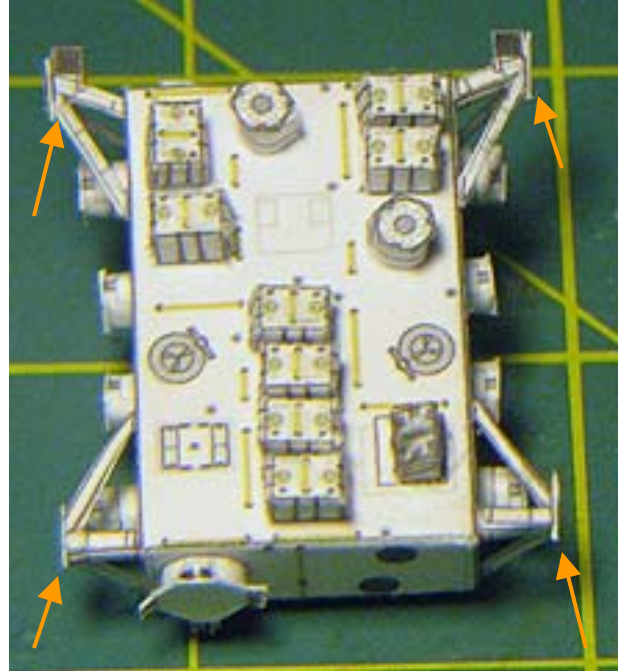
The underside of the JEM-EF showing the 4 **EVA ORU's (E-ORU)**



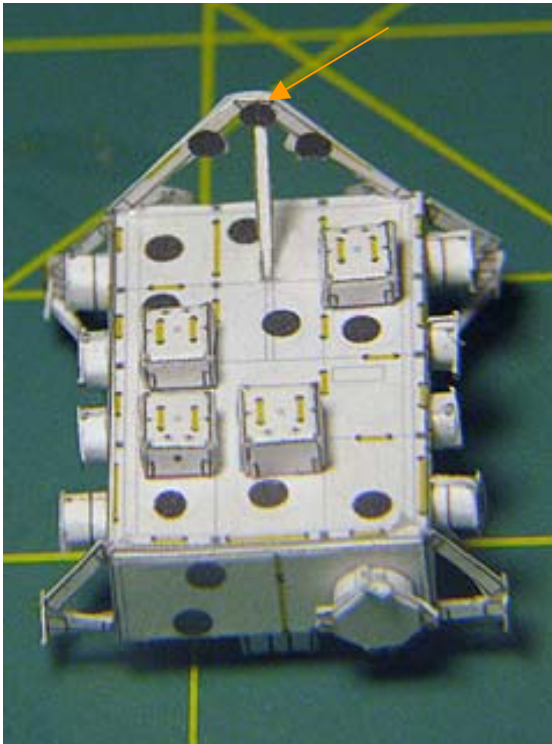
Then glue each of the Exposed Facility Units (12) covering the circles on all sides. Note that there are smaller (S) and larger (L) units.



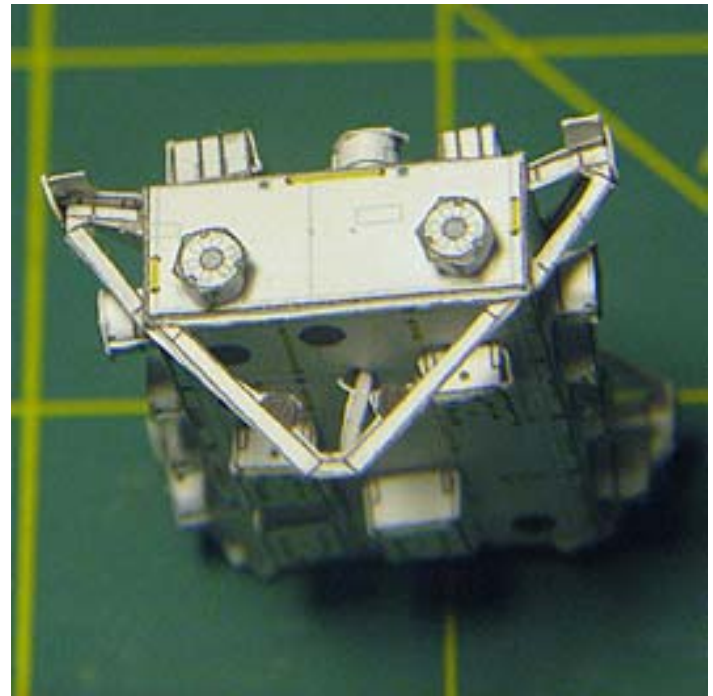
Location of the Berthing mechanism that attaches to KIBO.

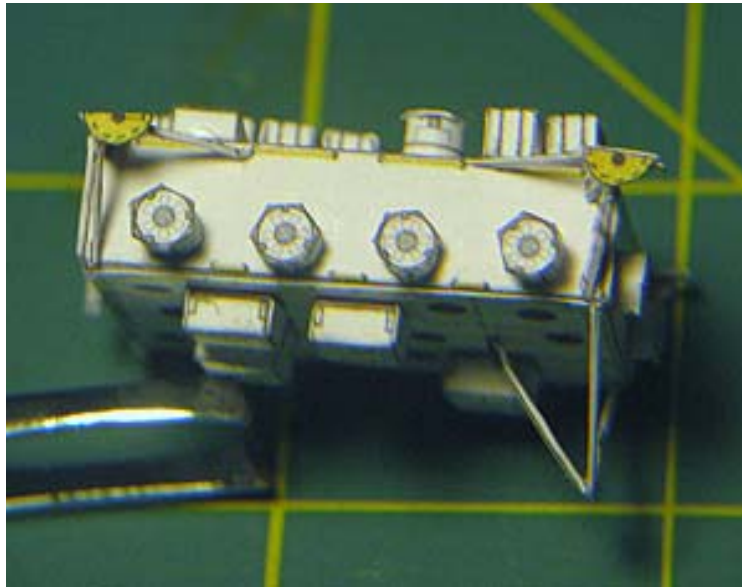


Note the location of the Trunnion attachments for the payload bay.

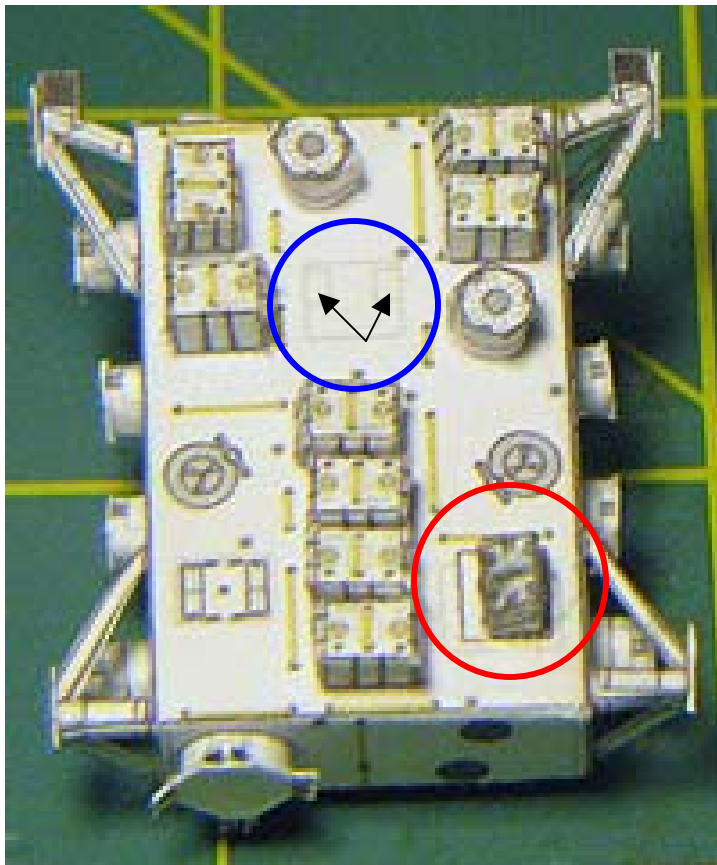


Note location of fifth attachment point to the payload bay.





Visual Equipment and Small Fine Arm Stowage Equipment (SSE)



Two other elements were added to the final model but not shown on this beta model.

The blue circle indicates where the **Visual Equipment** is located. The 2 small squares are where these extra parts will be glued vertically.

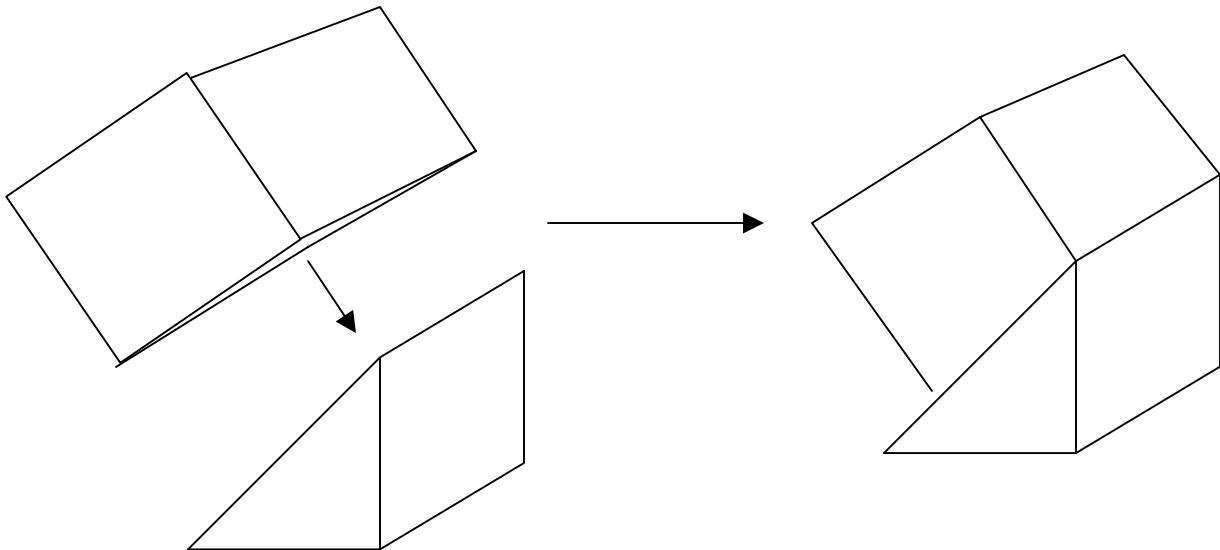
The red circle is the SSE area. On this beta model only one part is shown. The diagram on the next page shows how the **SSE** is configured for this mission. On a future Shuttle mission, the Small Fine Arm will complete this SSE.

Visual Equipment

Simple design for 1:144
payload bay
configuration model
only.
A separate design will
be available for a Space
Station configuration at
a later date.

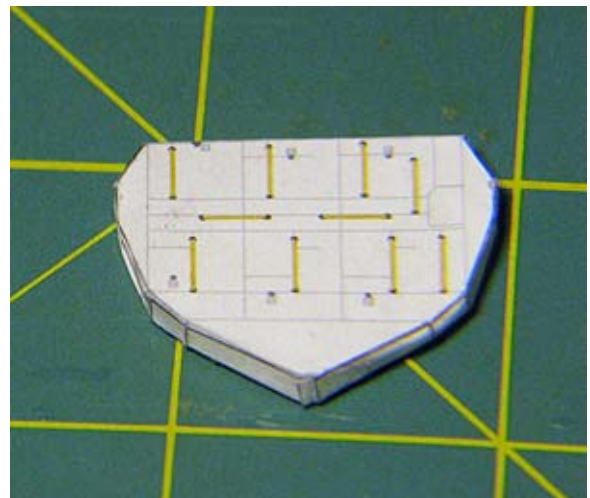
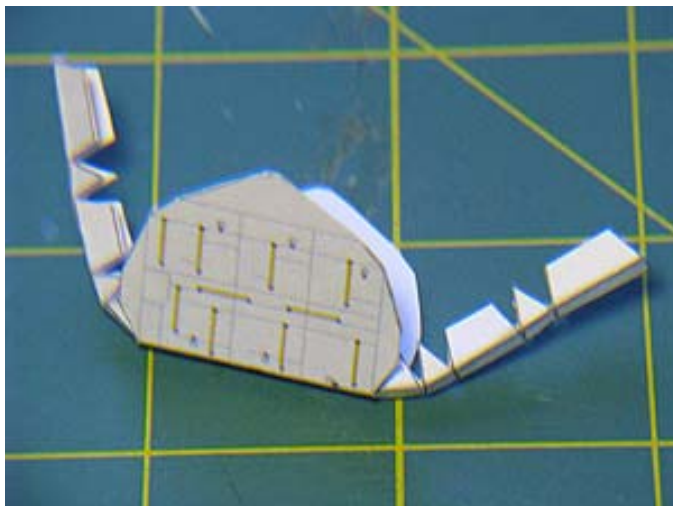
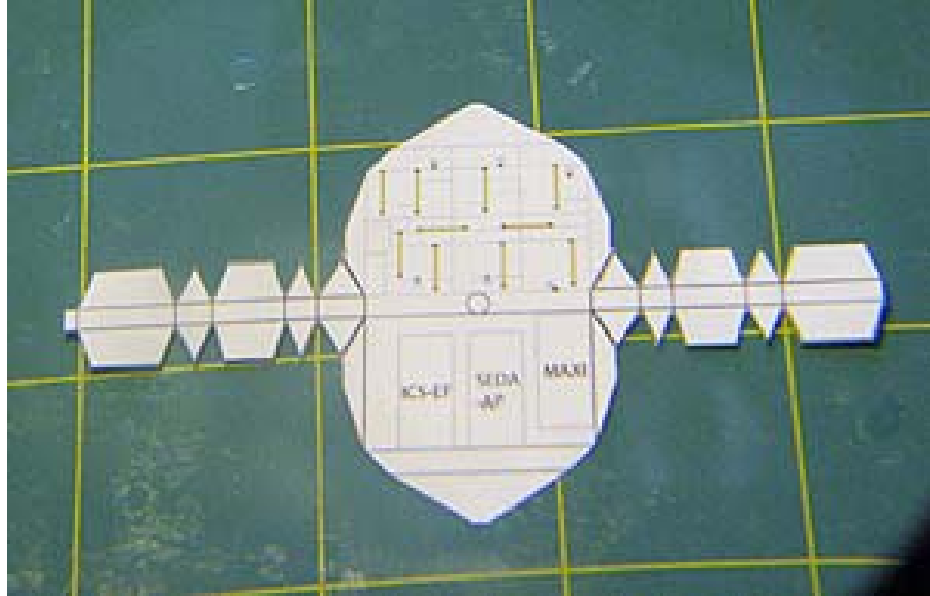


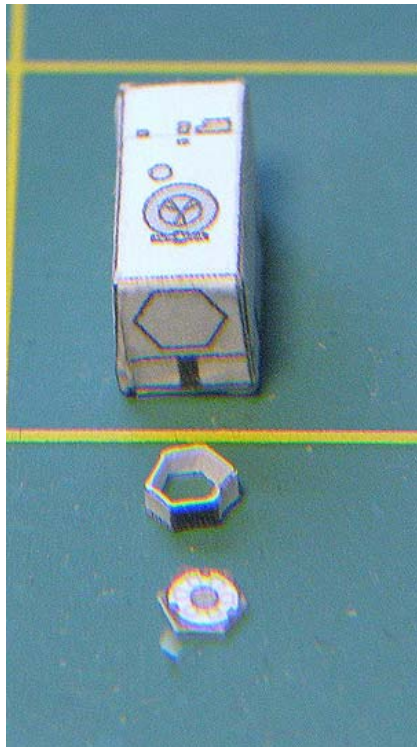
Small Fine Arm Stowage Equipment (SSE)



Building the Experiment Logistics Module-Exposed Section (ELM-ES) –(Bays 8-9)

This payload element carries 3 experiments to be installed on the JEM-EF. It will return to Earth empty with no payloads.

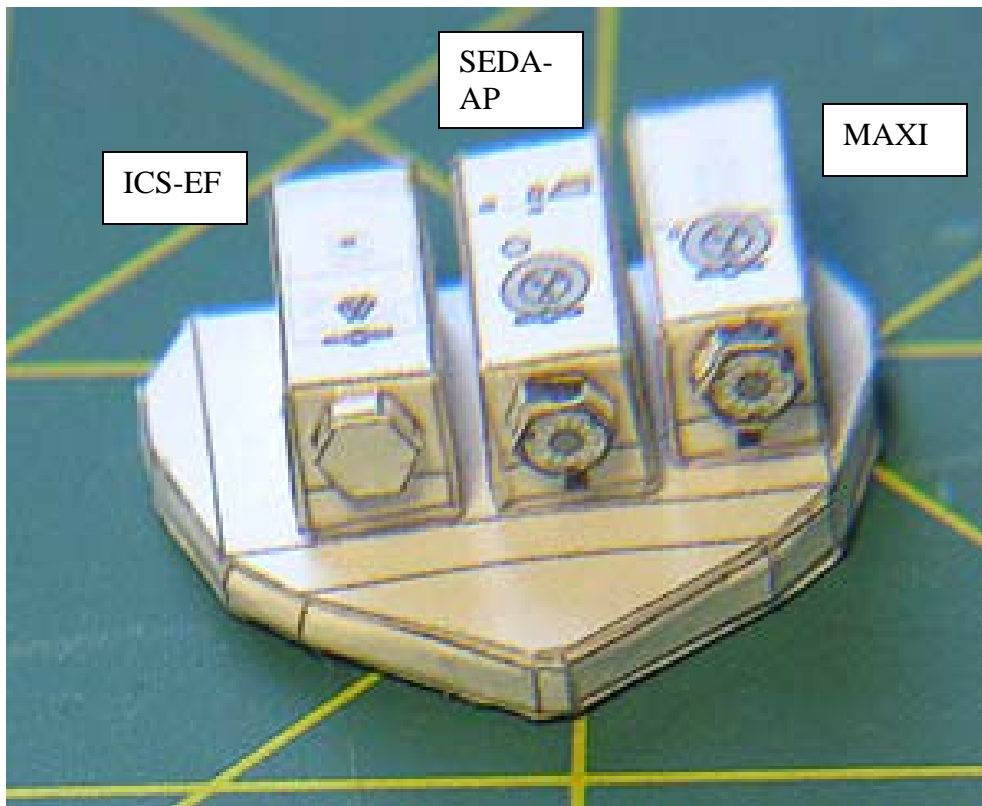


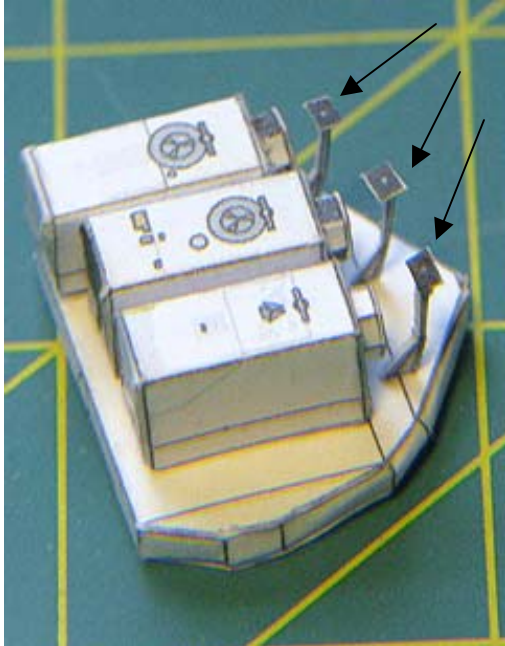


These are the parts that make each of the EF payloads.

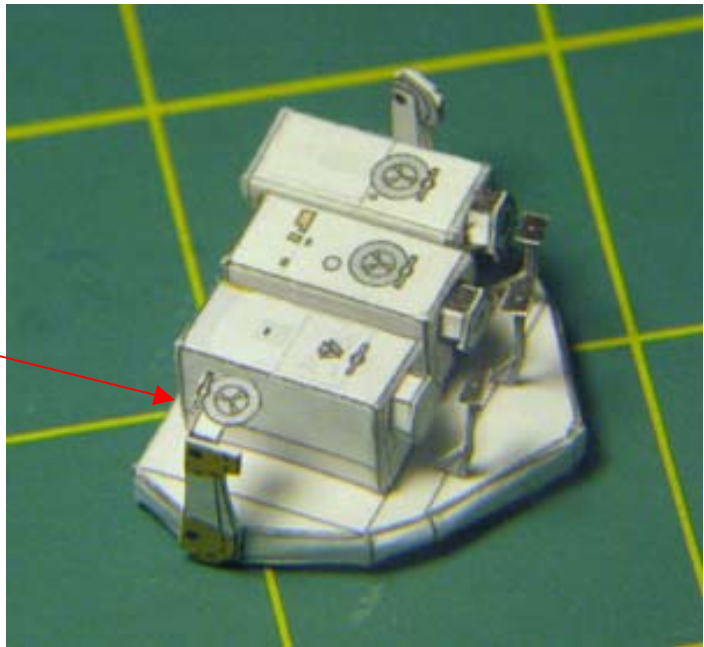
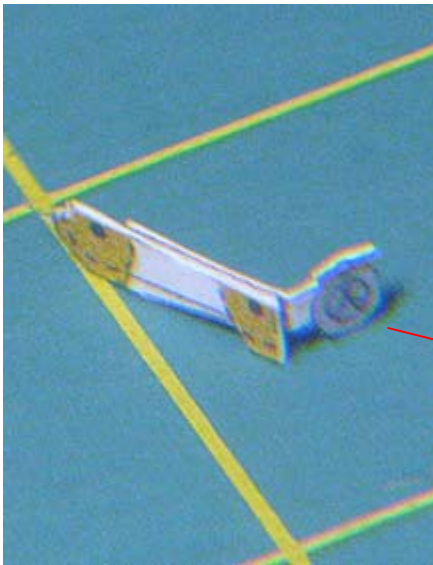
For this mission the payloads are:

- MAXI
- SEDA-AP
- ICS-EF





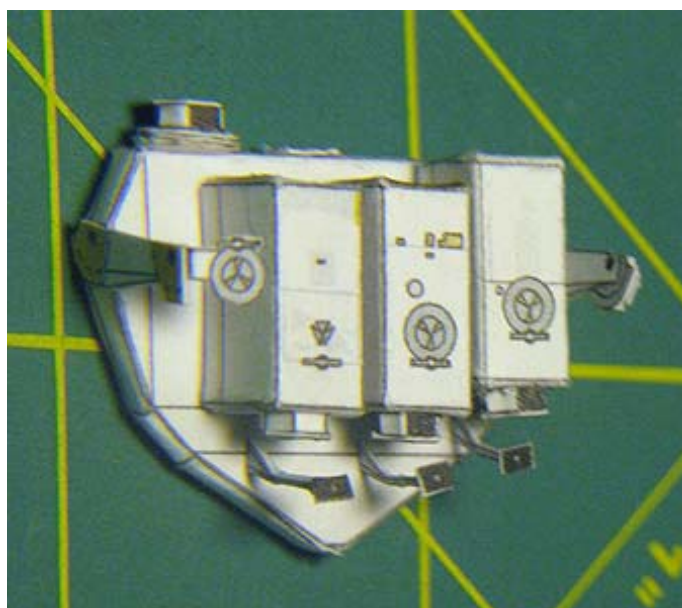
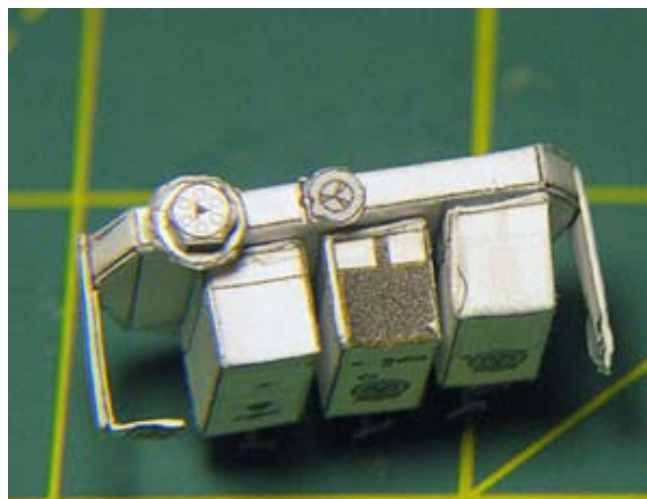
Note location of the visual targets for each of the EF payloads and the trunnions (red arrows).



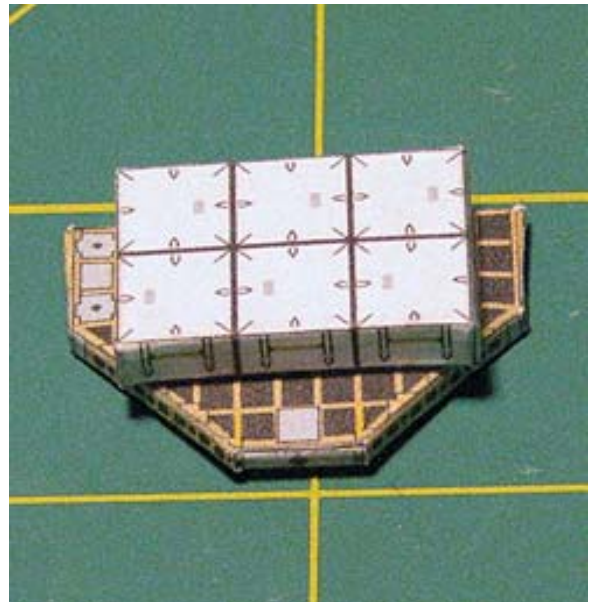
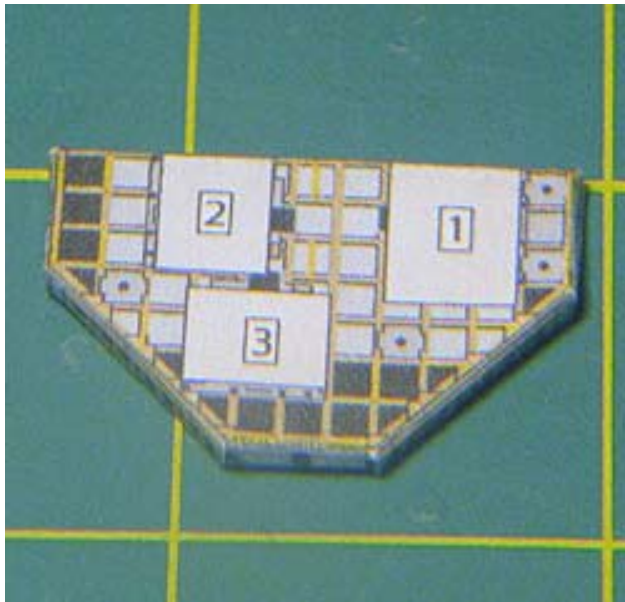
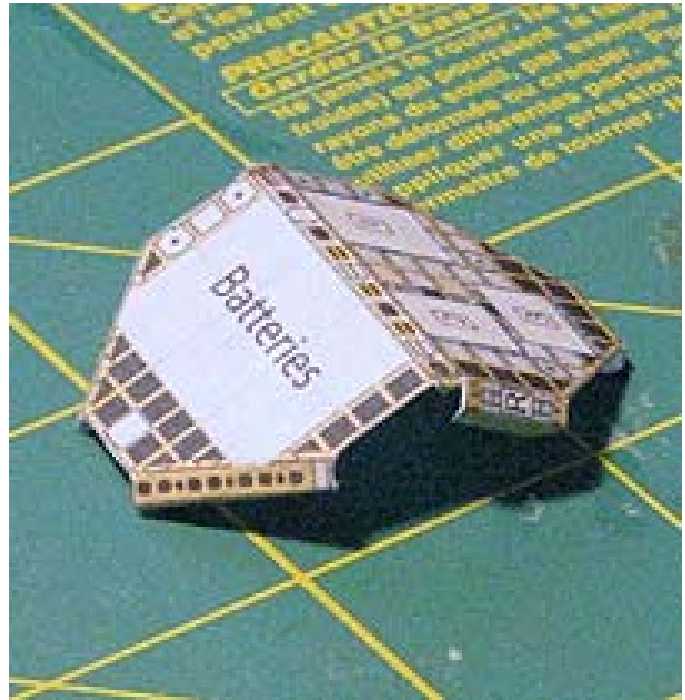
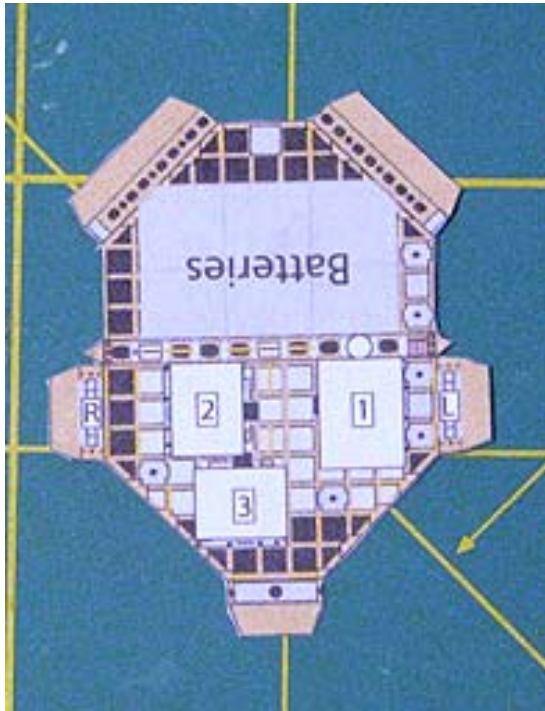
The right trunnion has an extra part that includes a Grapple fixture.

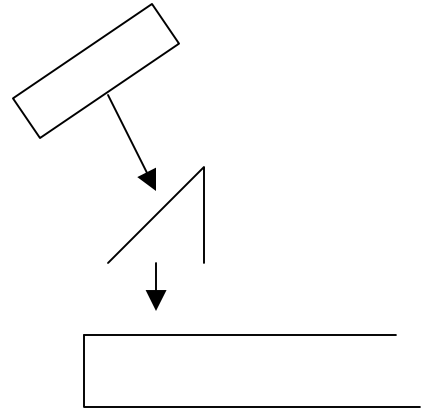
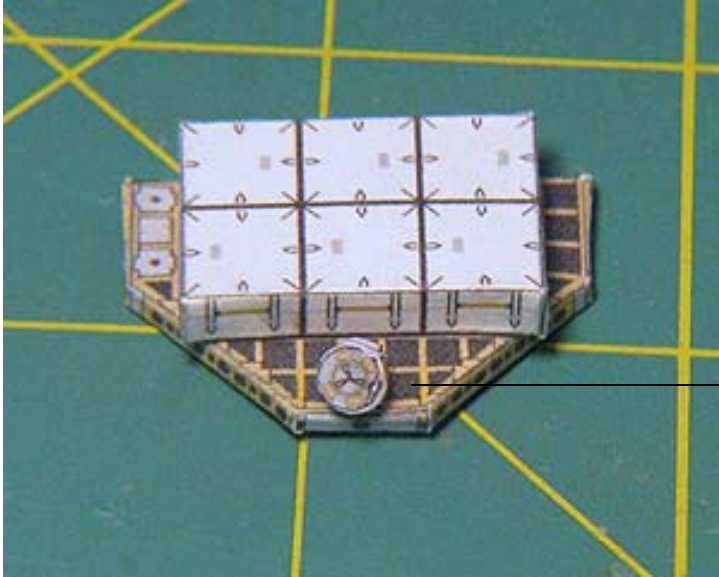


This is the Payload Interface Unit (PIU) that is used to attach the ELM-ES to the EF or ELM-PS, but for this payload bay configuration is for display only.

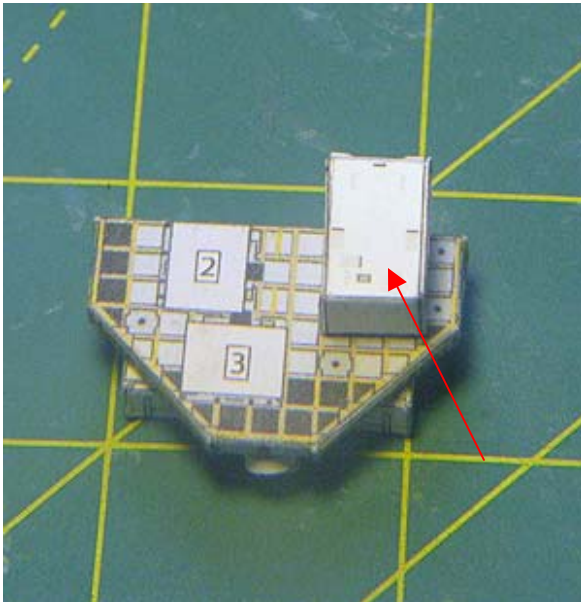


**Building the Integrated Cargo Carrier-Vertical Light Deployable (ICC-VLD)
(Bays 10 to 12)**

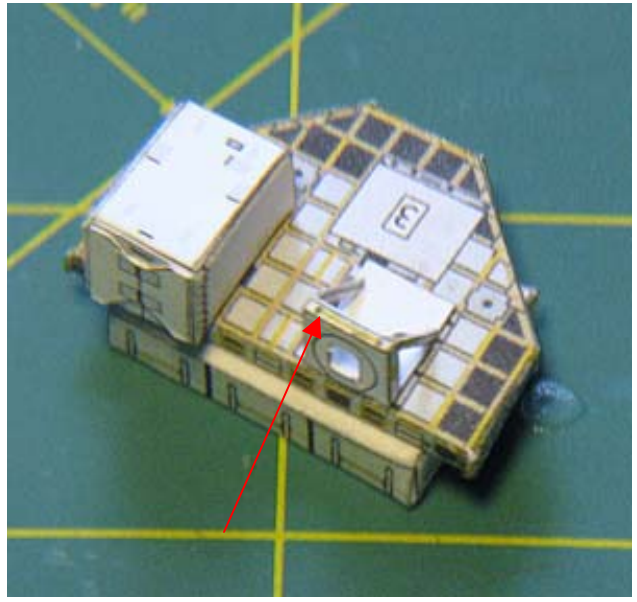




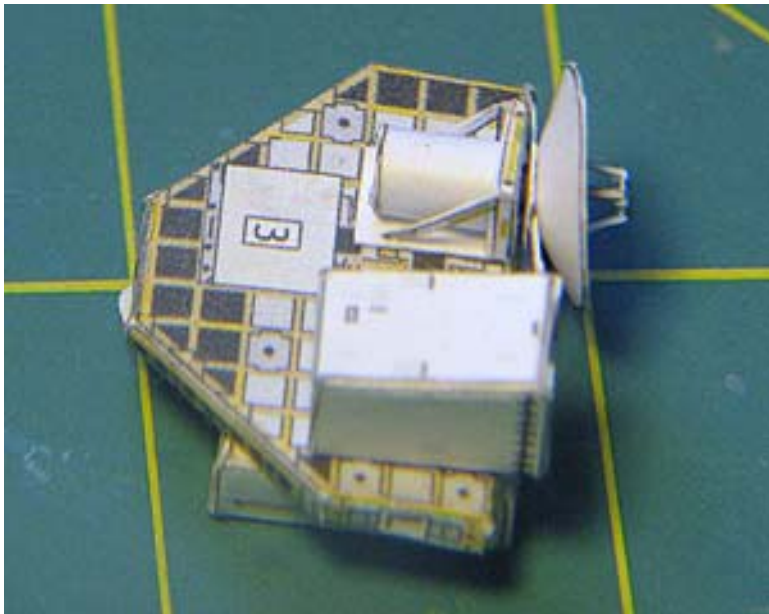
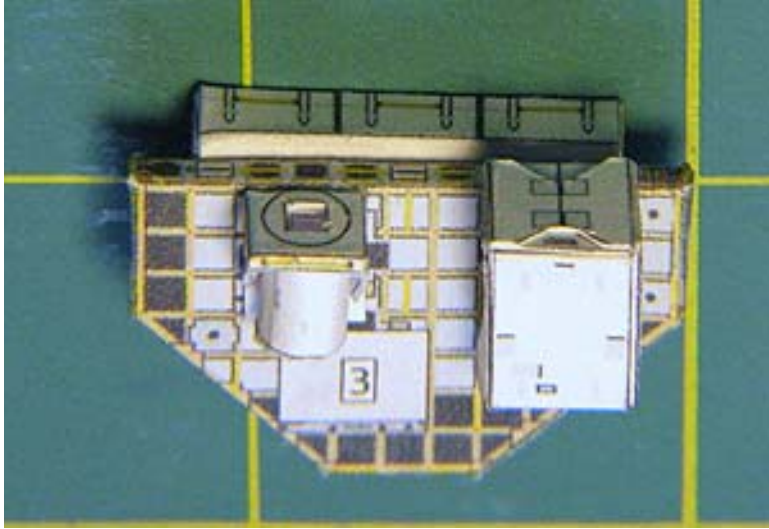
The ICC-VLD showing the block of 6 batteries and a Power and Data Grapple Fixture.

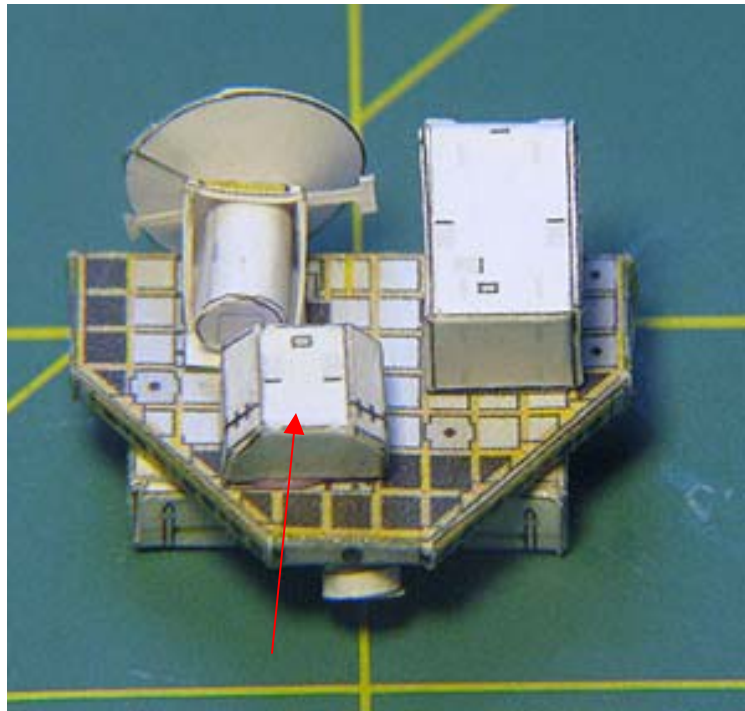


Pump Module installed

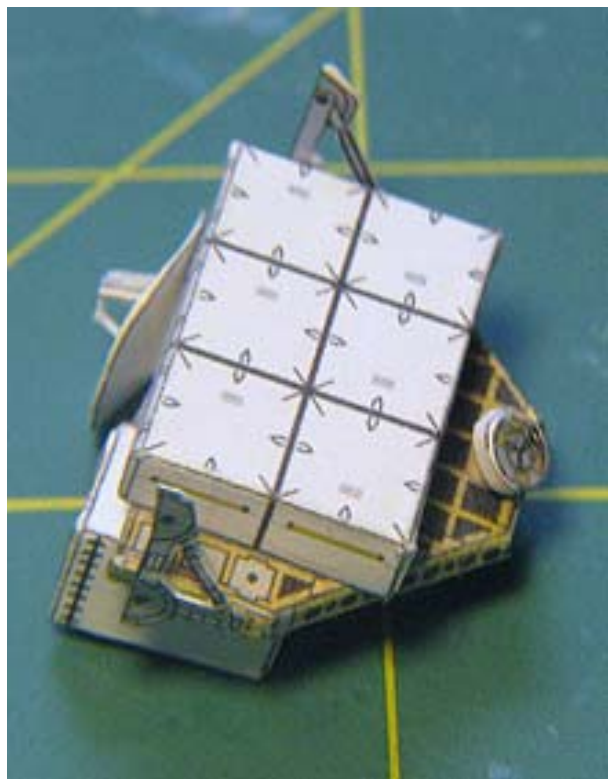


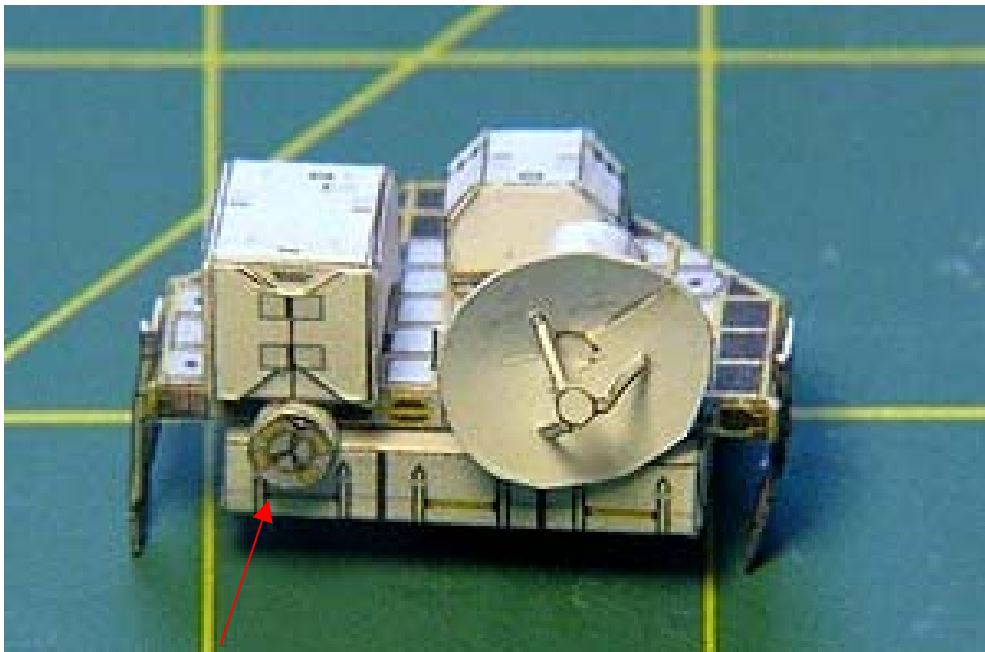
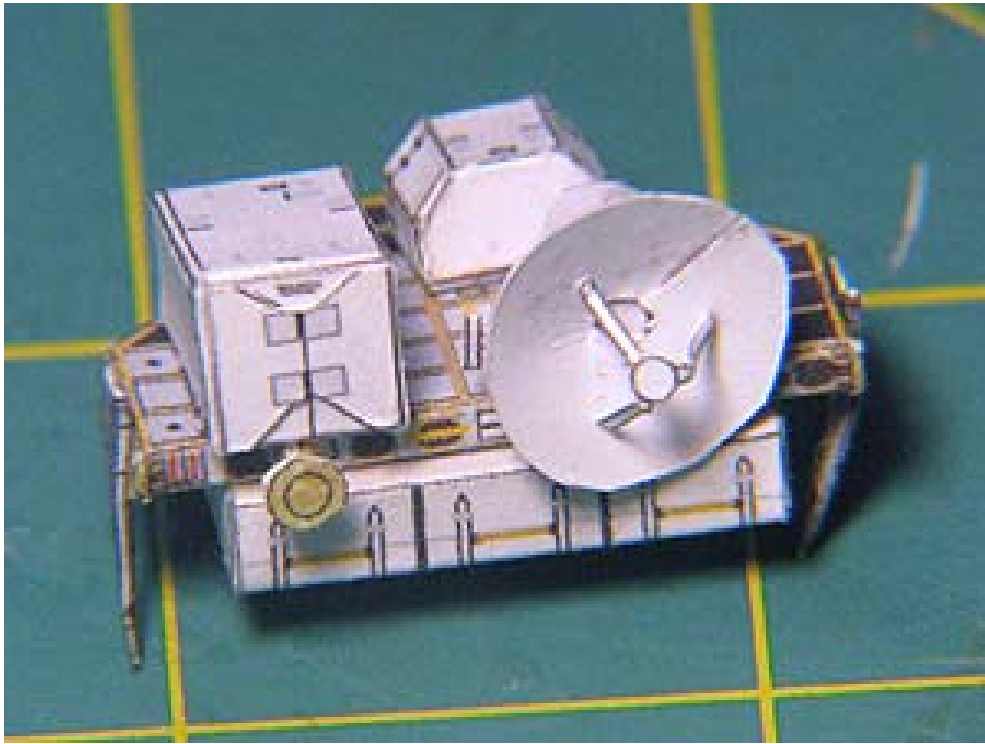
Canister support for the SGANT





Linear Drive Unit (LDU)



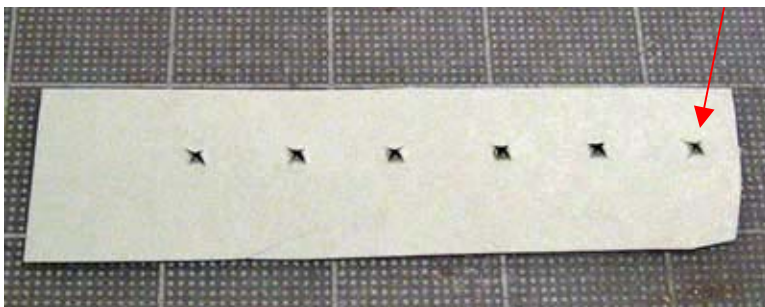
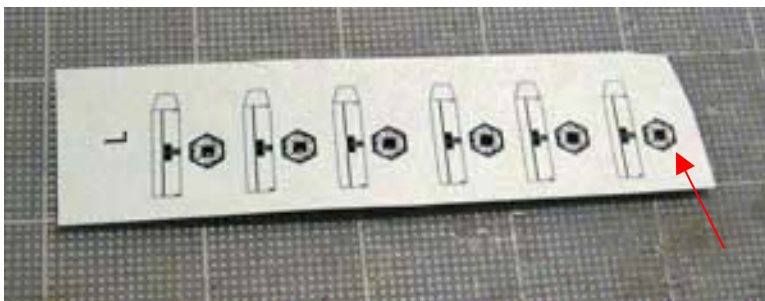
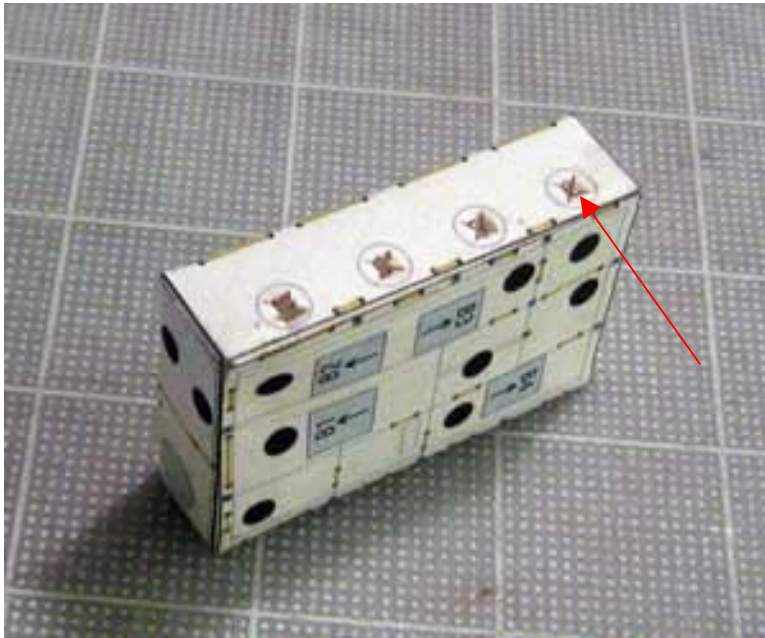


Power and Data
Grapple Fixture

Putting the model together with KIBO

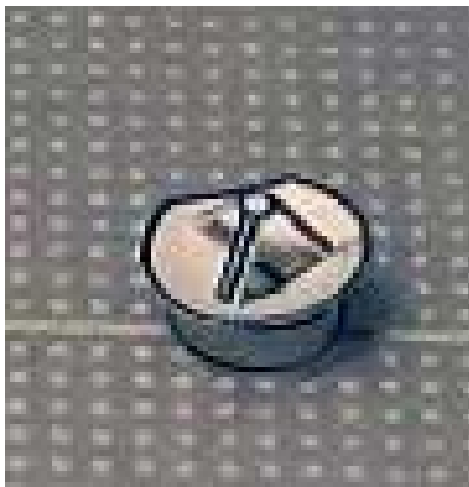
The JEM-EF has been designed to attach to the KIBO module through a rectangular connector. It is glued permanently.

The 3 external payloads have also been designed to attach to the JEM-EF, but are not glued. These payloads are temporary elements.



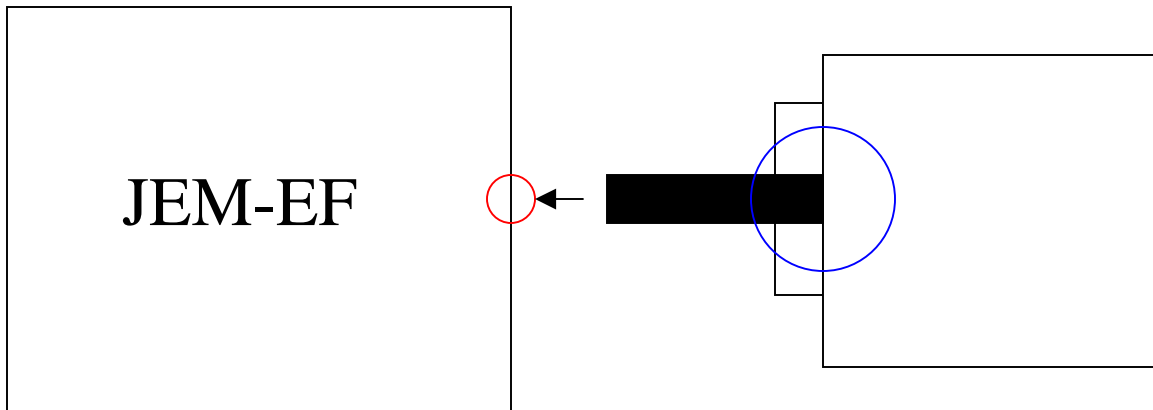
All the red "X" inside the circles that surround the JEM-EF and on the attachment hexagons needs to be cut with a craft knife in order to make an opening so the external payloads can be attached without gluing.

Special assembly for the ICS-EF

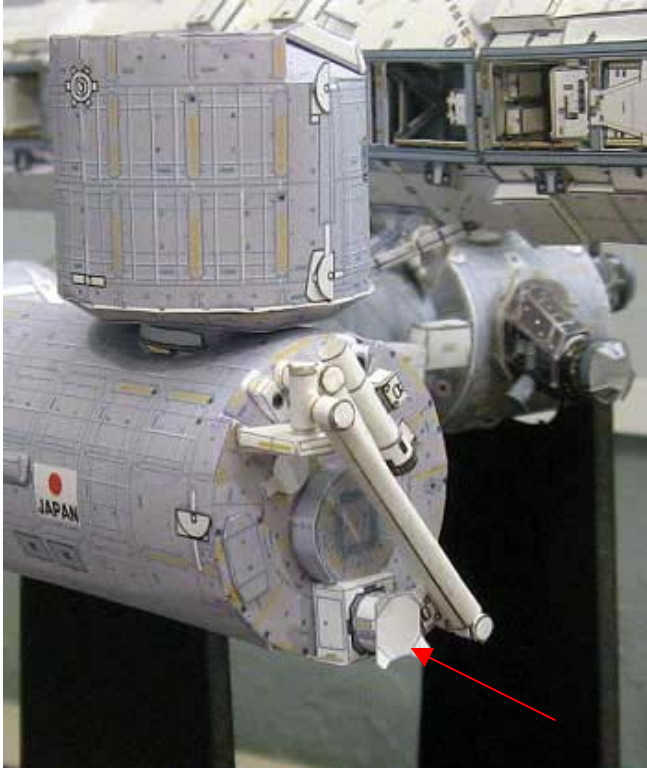




The other 2 external payloads are simple rectangular boxes and the assembly is straightforward. The arrow shows the black cylinder that serves as a connector for attachment to the JEM-EF.



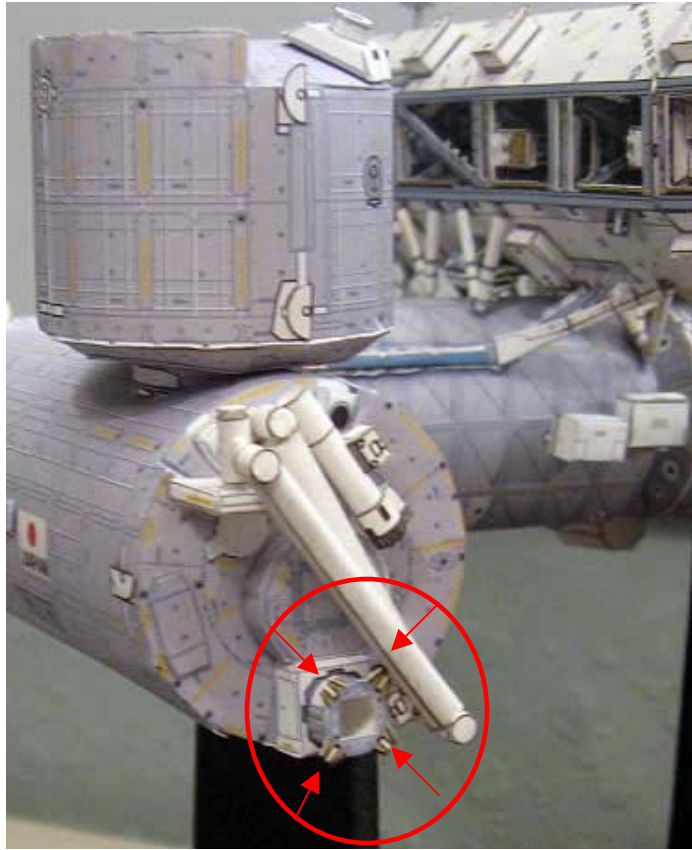
Note that the black cylinder perforates the hole on the payload attachment (blue) and also perforates the hole on the JEM-EF side, this way the payload is attached without gluing.



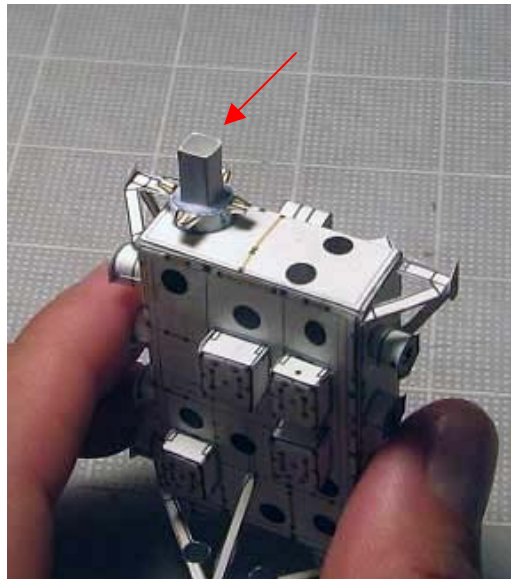
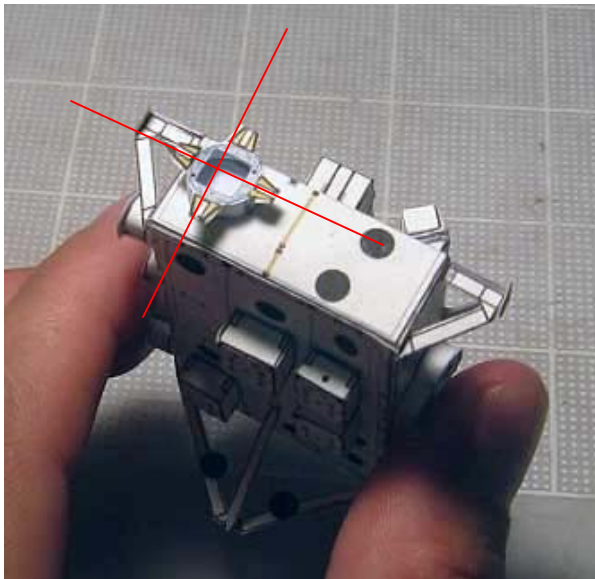
This is the original KIBO berthing mechanism in launch configuration. This part is available through STS-124 mission payload file.



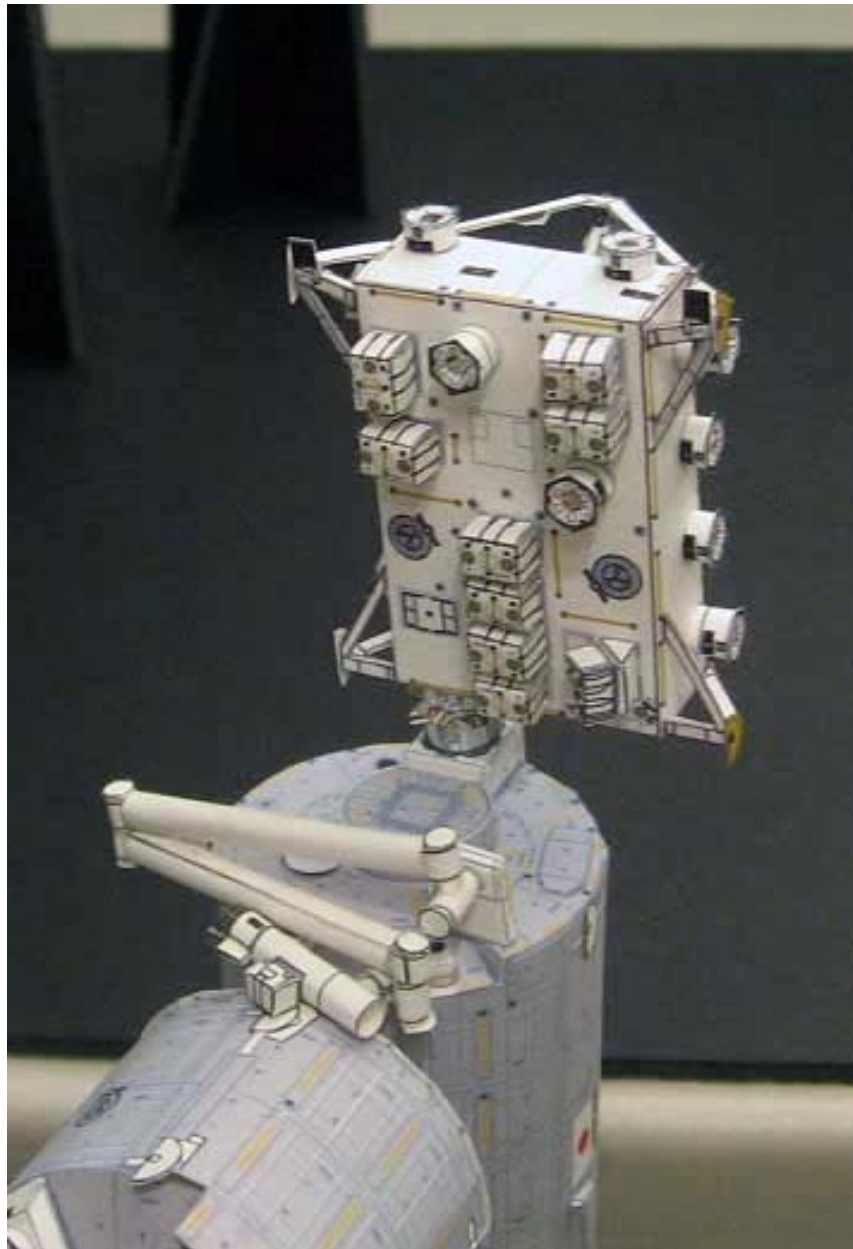
This is the berthing mechanism used to attach both KIBO and the JEM-EF for this mission. Note the square opening destined for a compatible connector.



KIBO with new berthing mechanism.
Note the orientation of the petals in X.



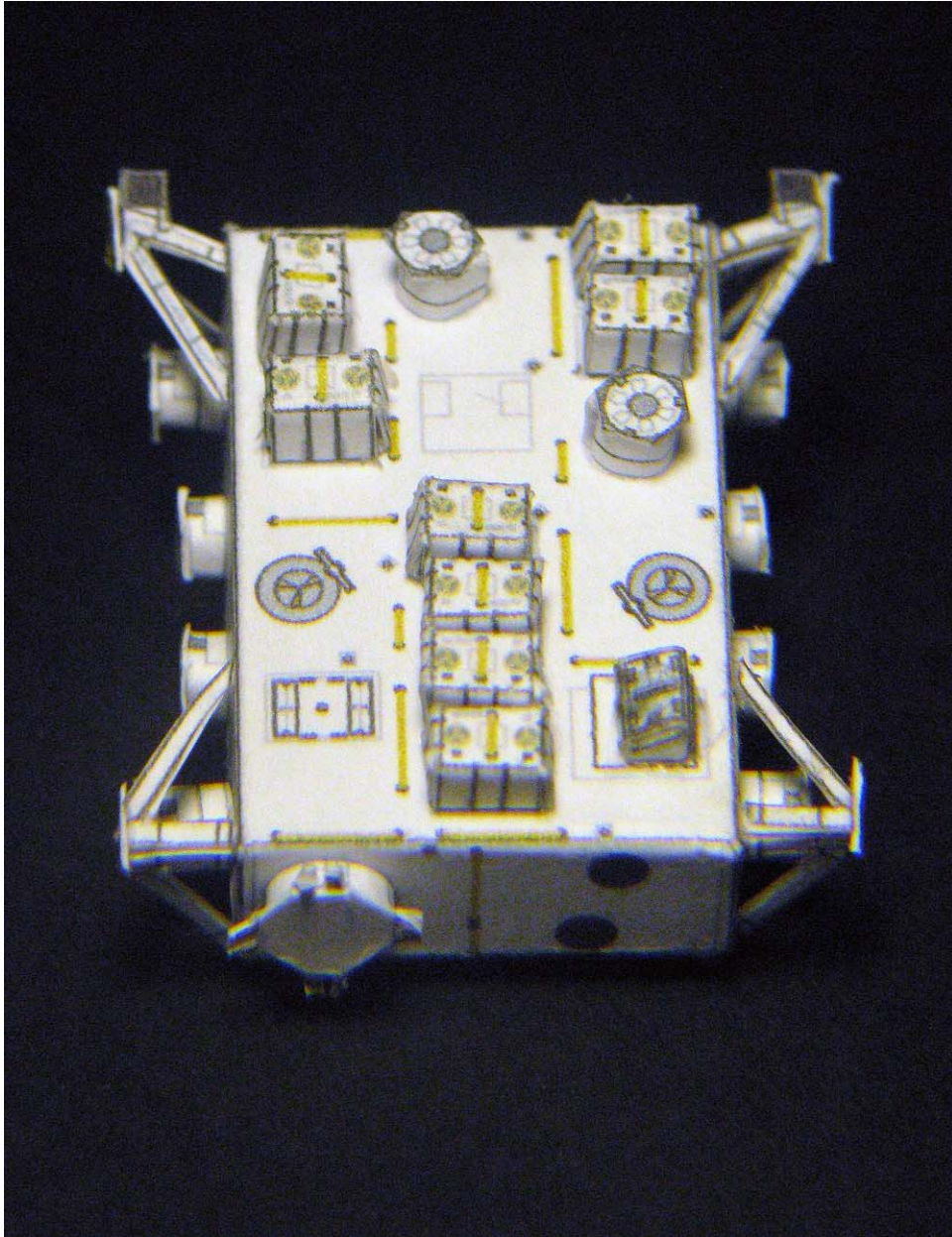
JEM-EF with berthing mechanism with rectangular connector. Note the orientation of the petals in +.

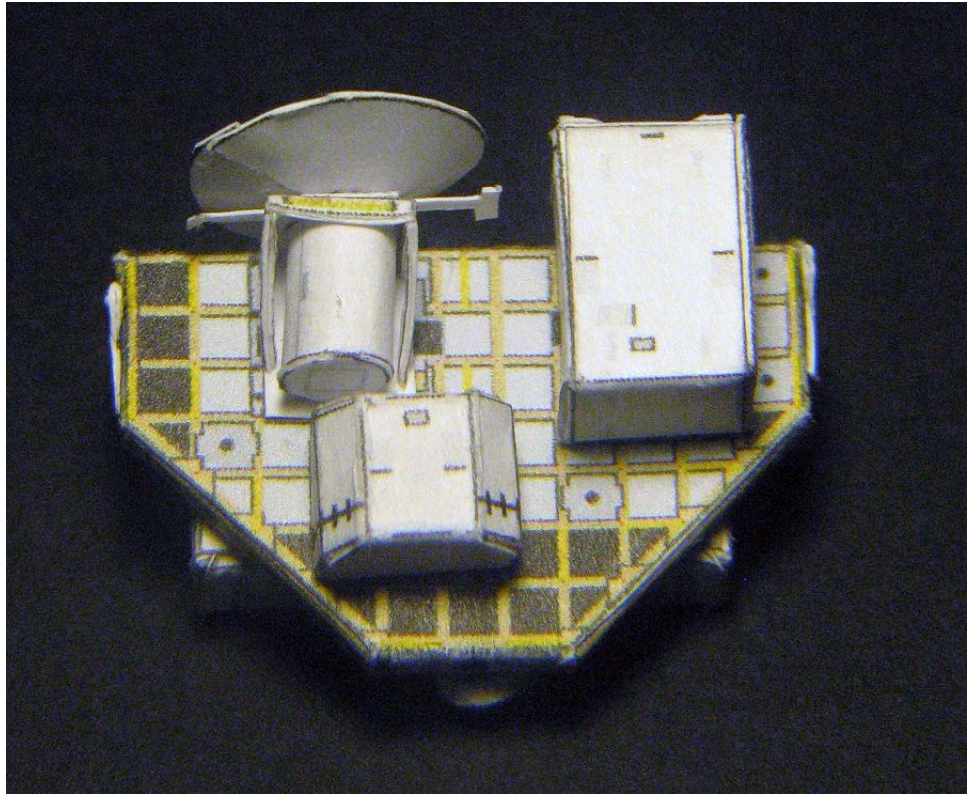
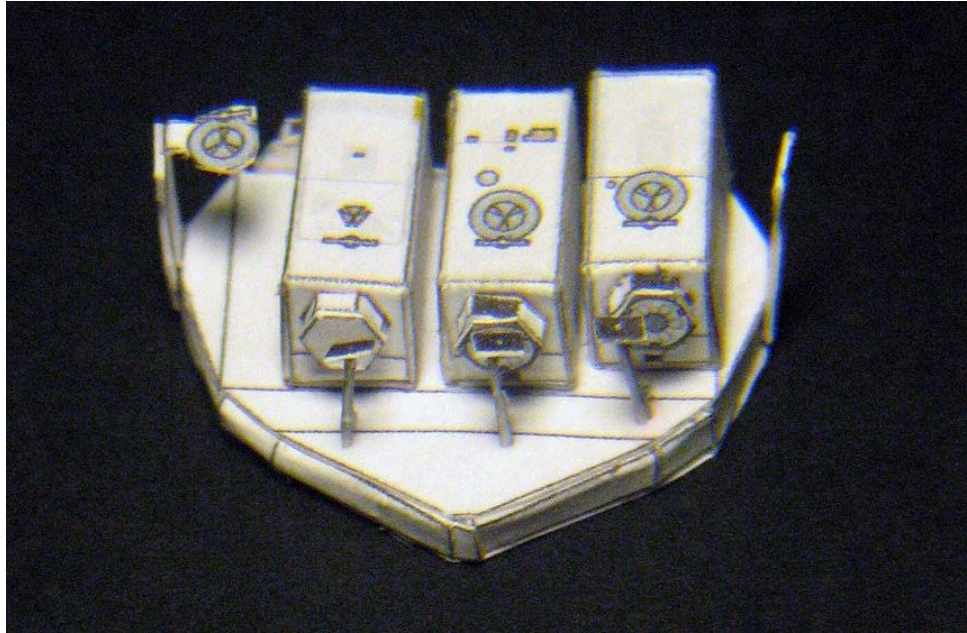


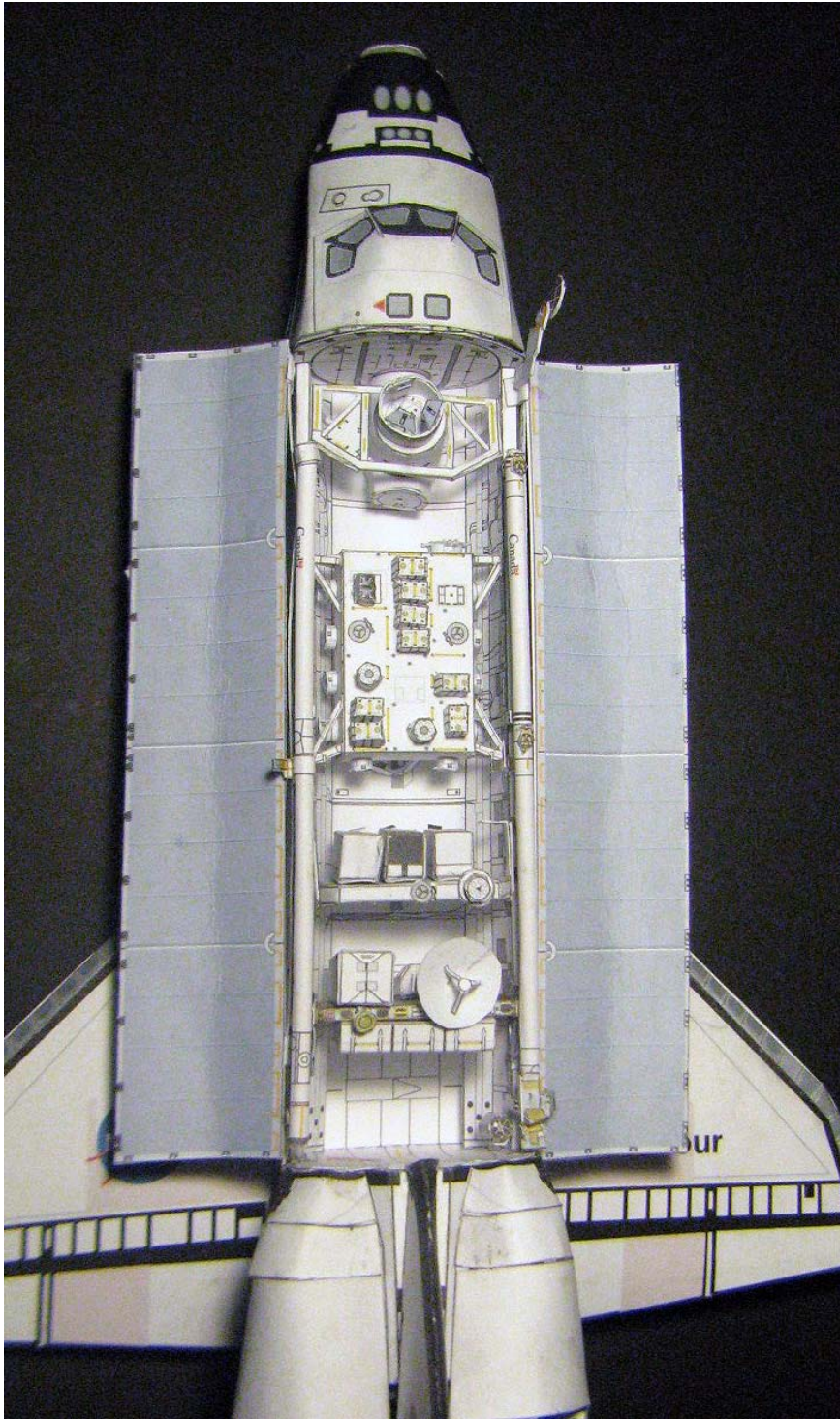
Critical step:

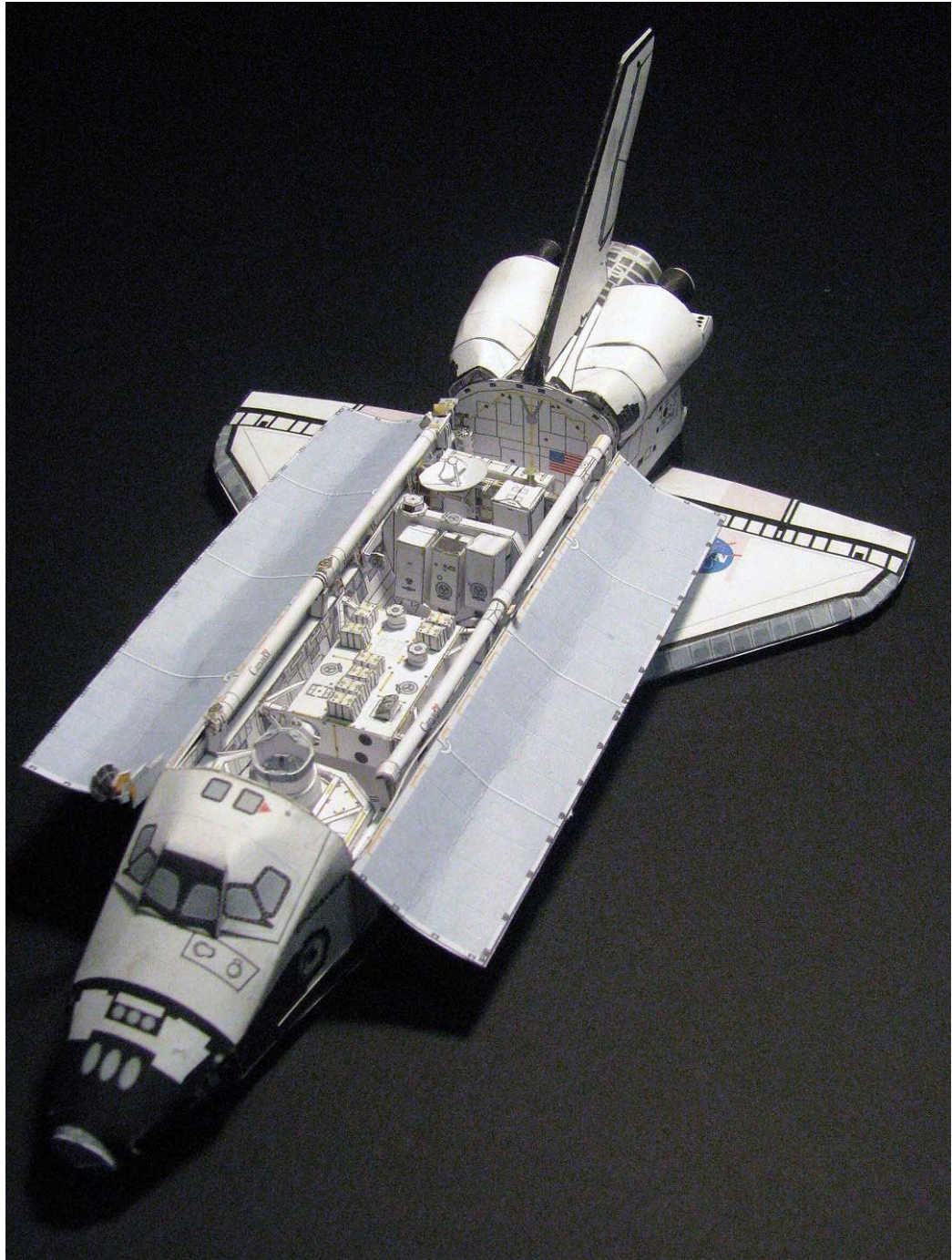
Glue both KIBO to JEM-EF and let it dry completely until it hardens.
Then, the external payloads can be attached.

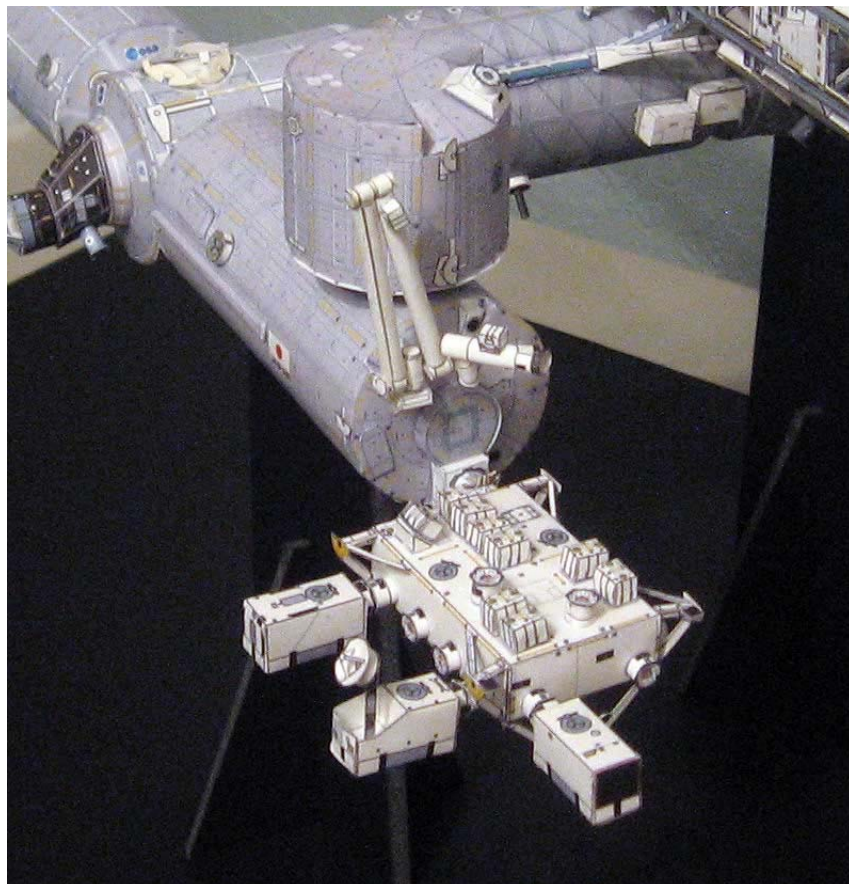
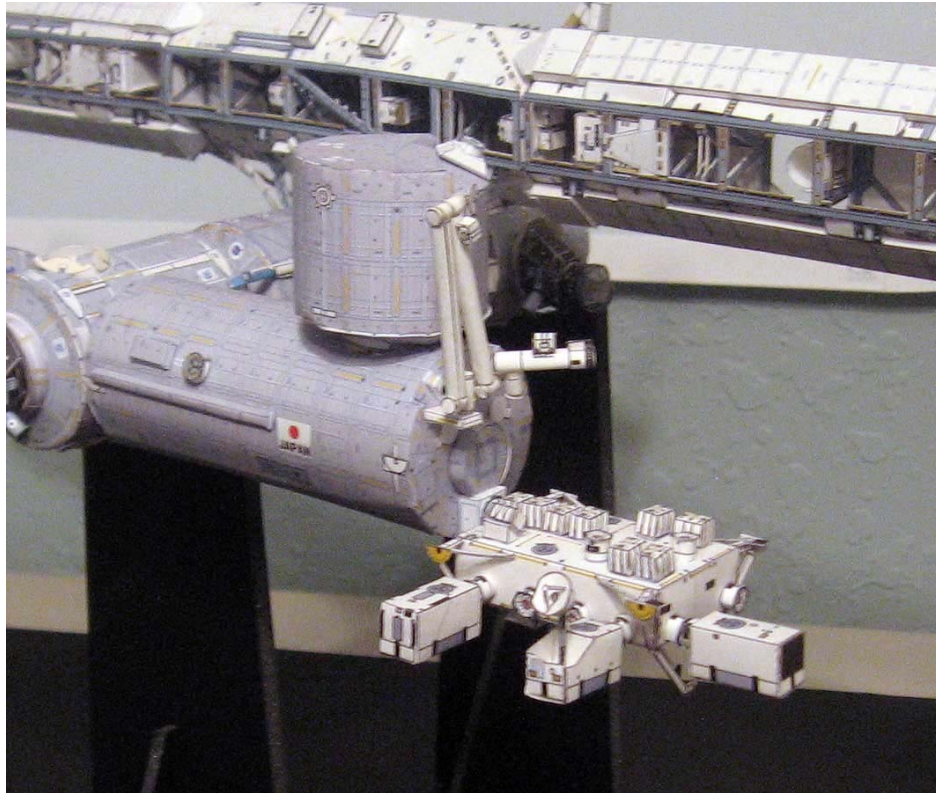
Reference

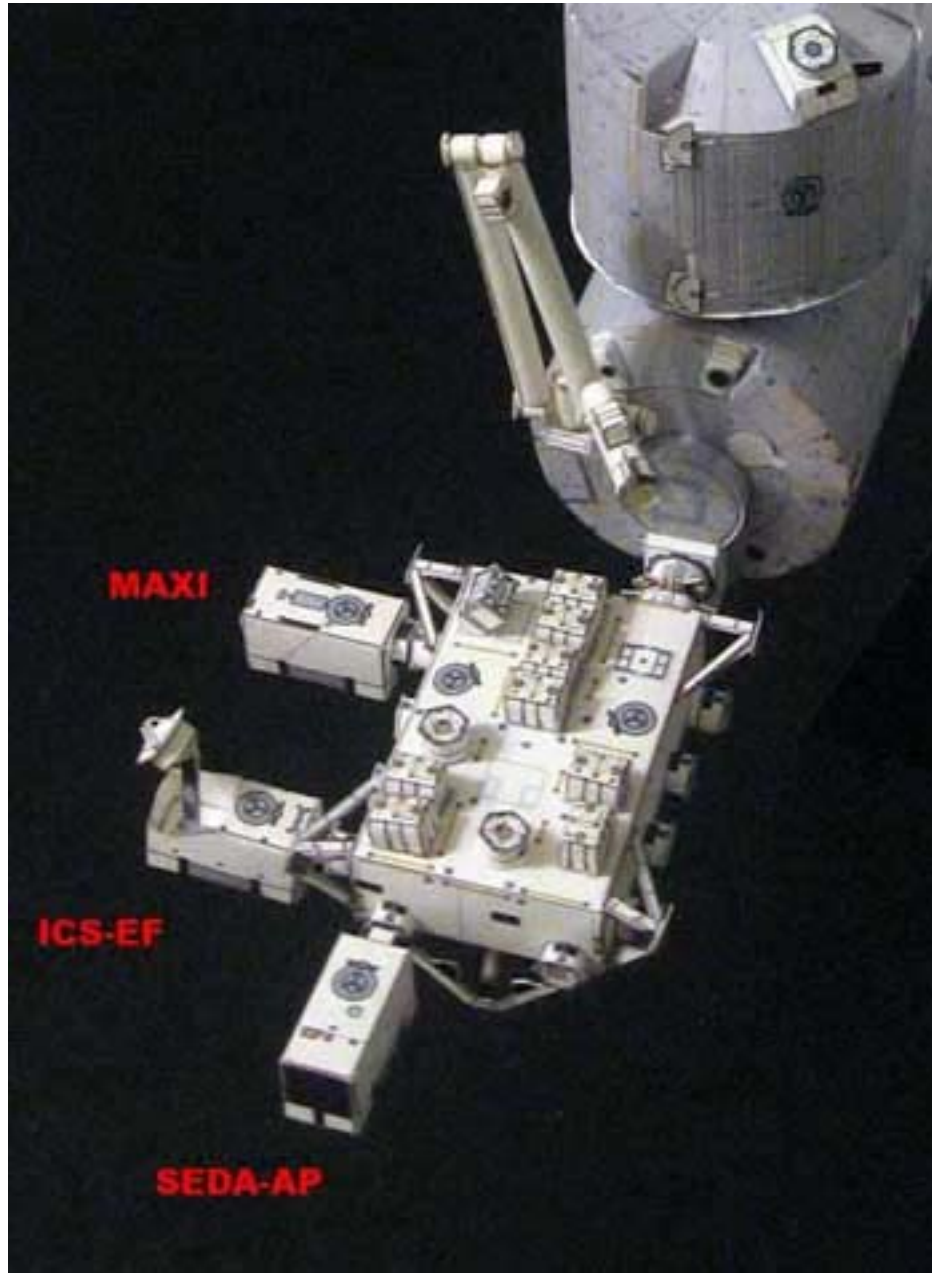












Enjoy!

<http://www.axmpaperspacescalemodels.com>