ORION

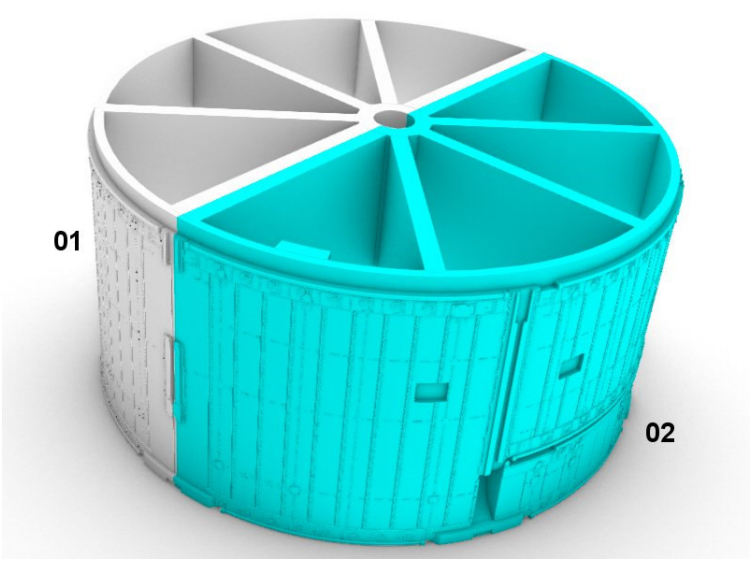
spacecraft

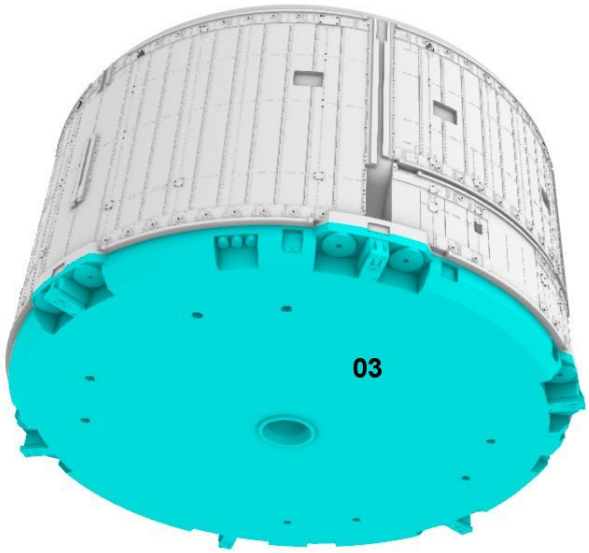
For further information on building this model check

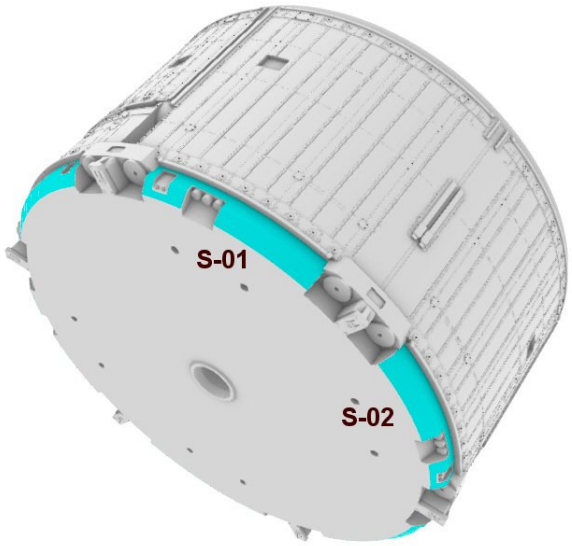
http://spacemodels.nuxit.net/1-48%20CSM/index.html

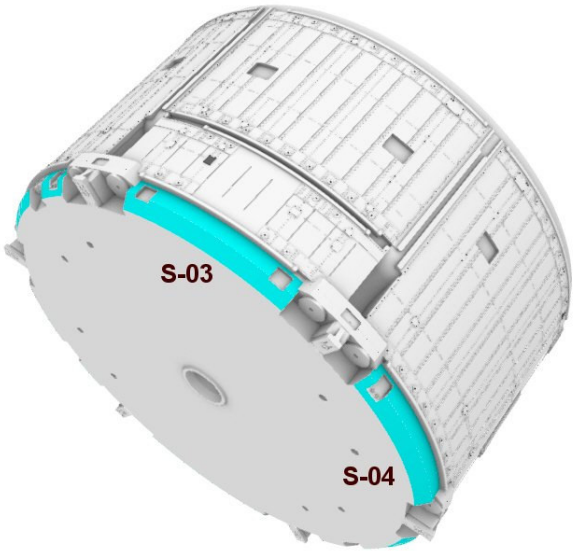
ORION

Service Module

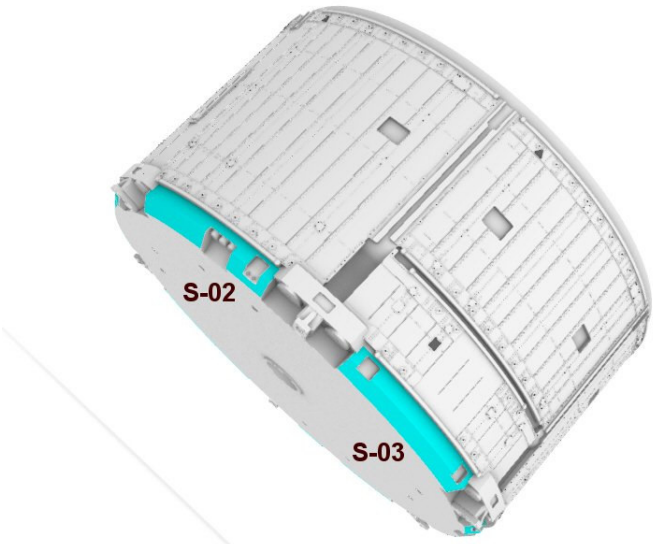


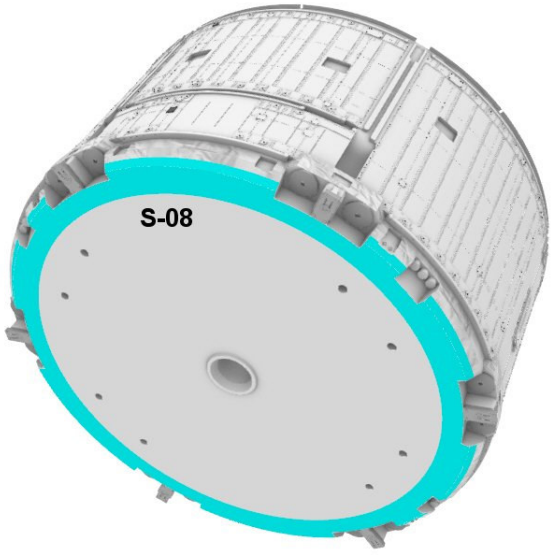


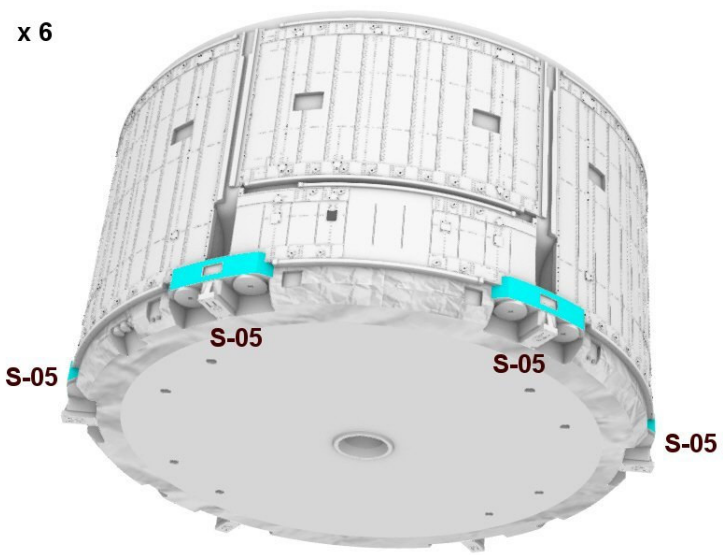


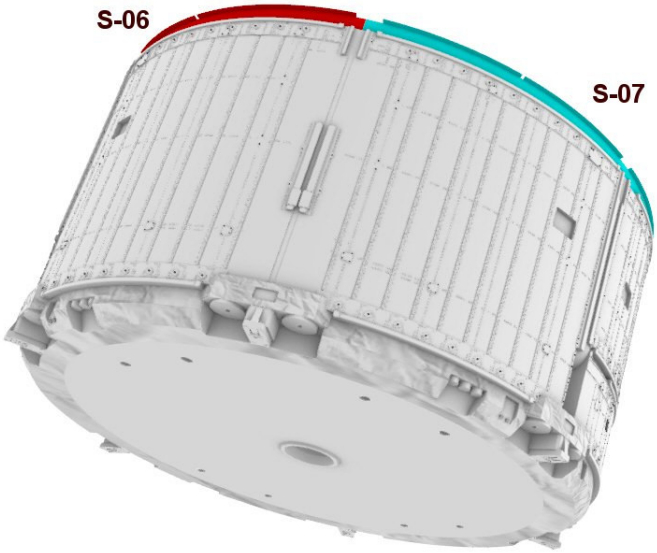


You can use the **pattern** file to cut parts S-01 to S-05 in aluminium foil or paper. All parts need to be crumpled in order to mimick the thermal blankets around the service module.

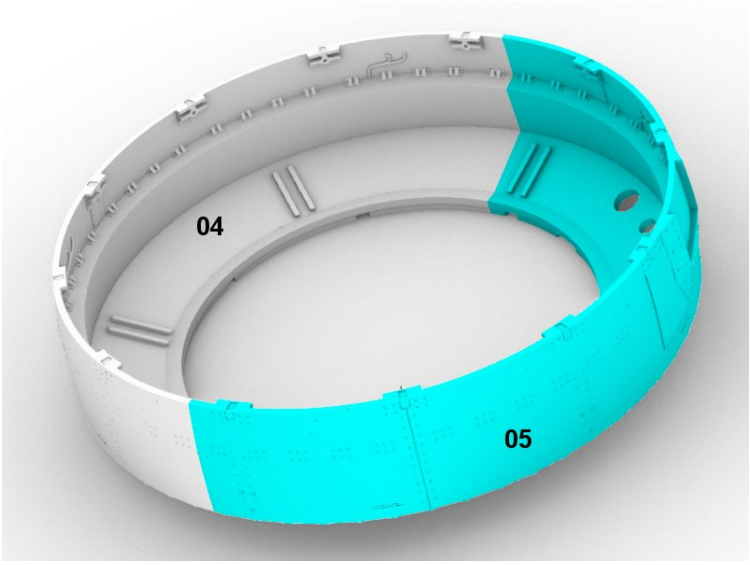


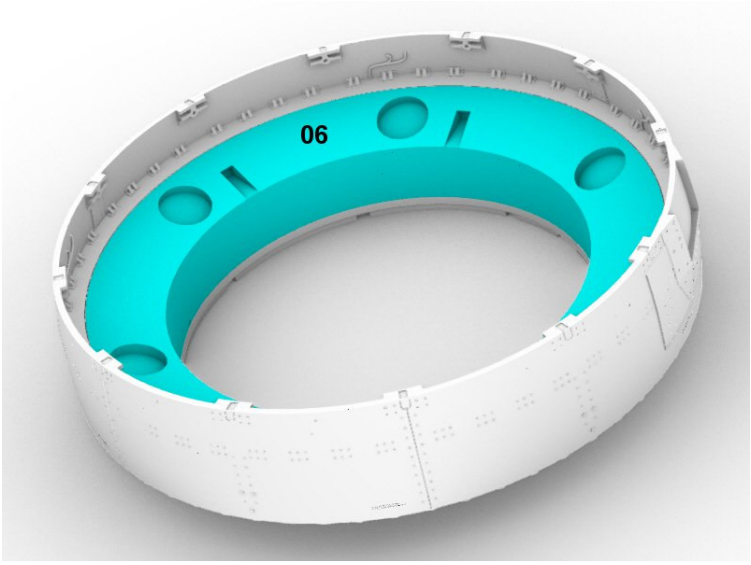


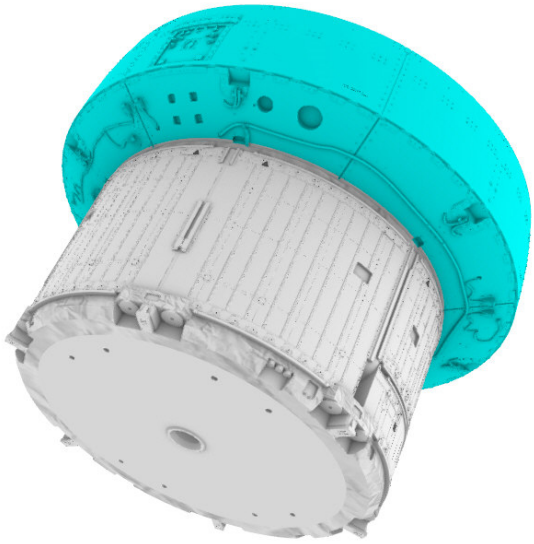


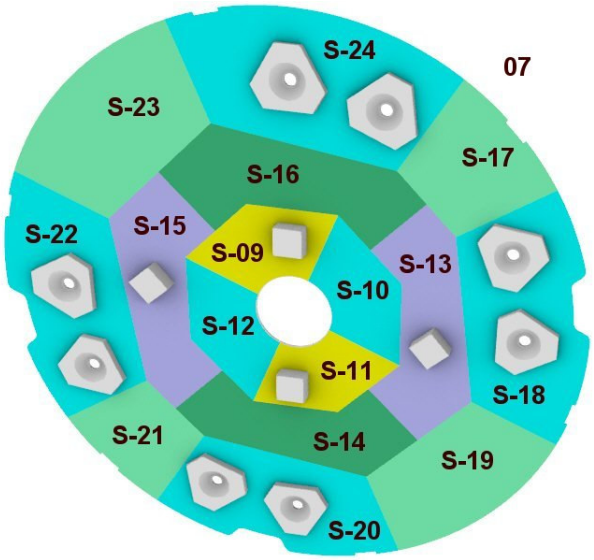


You can use the **pattern** file to cut parts S-05, S-06 and S-07 in aluminium foil or paper. These parts need to be crumpled in order to mimick the thermal blankets around the service module.

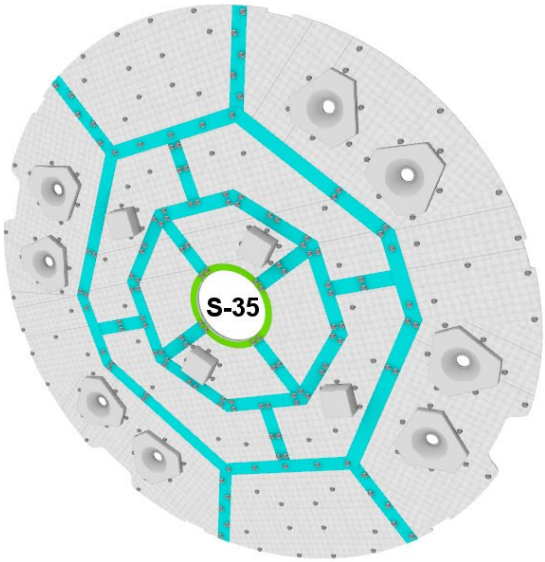




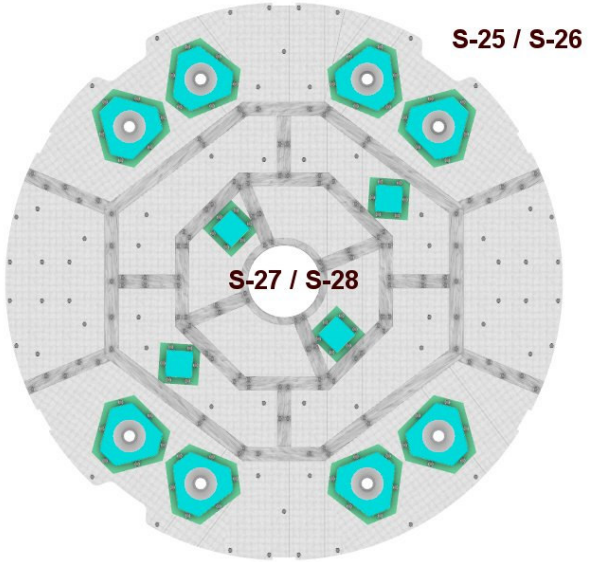




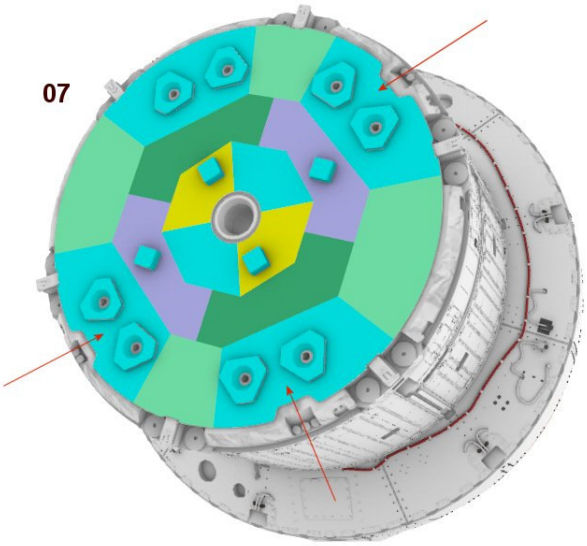
You can use the **pattern** file to cut parts S-09 to S-24 in embossed paper such as the one protecting new tablets or new phones



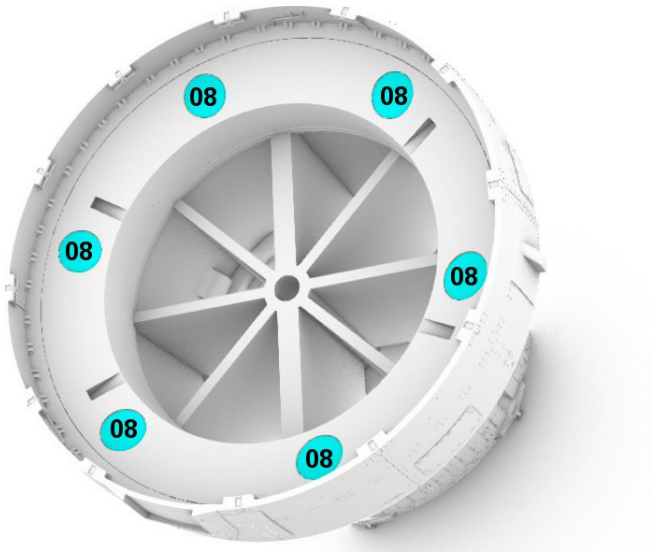
2 mm wide bands of papers.



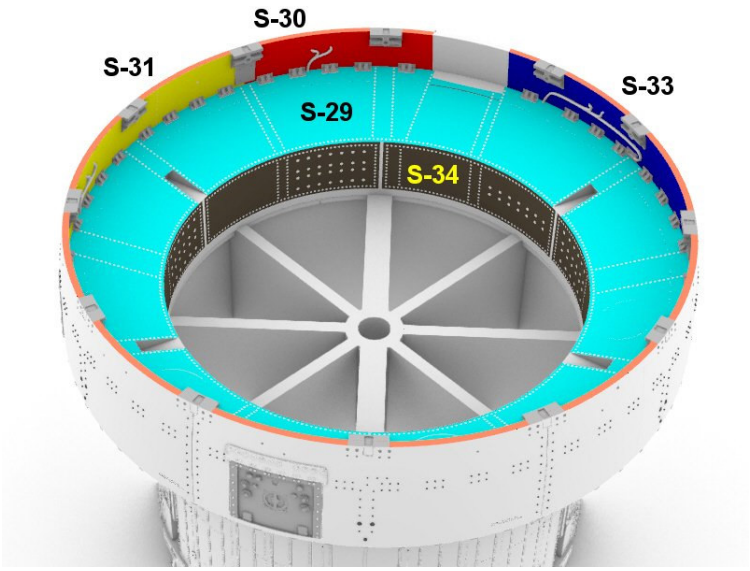
Parts S-25 to S-28 are cut into embossed paper.

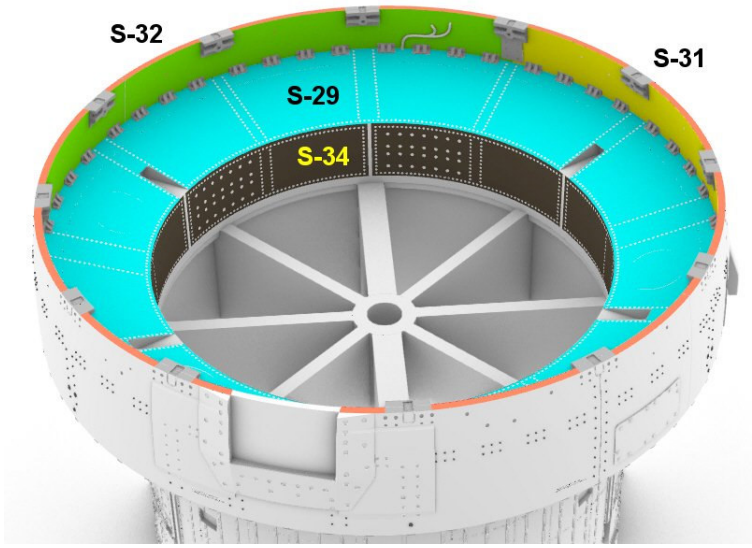


Align part 07 with the service module (see the 3 arrows). At this stage the service module can be painted in mat or satin white before painting details (see the last pages for information about painting details).

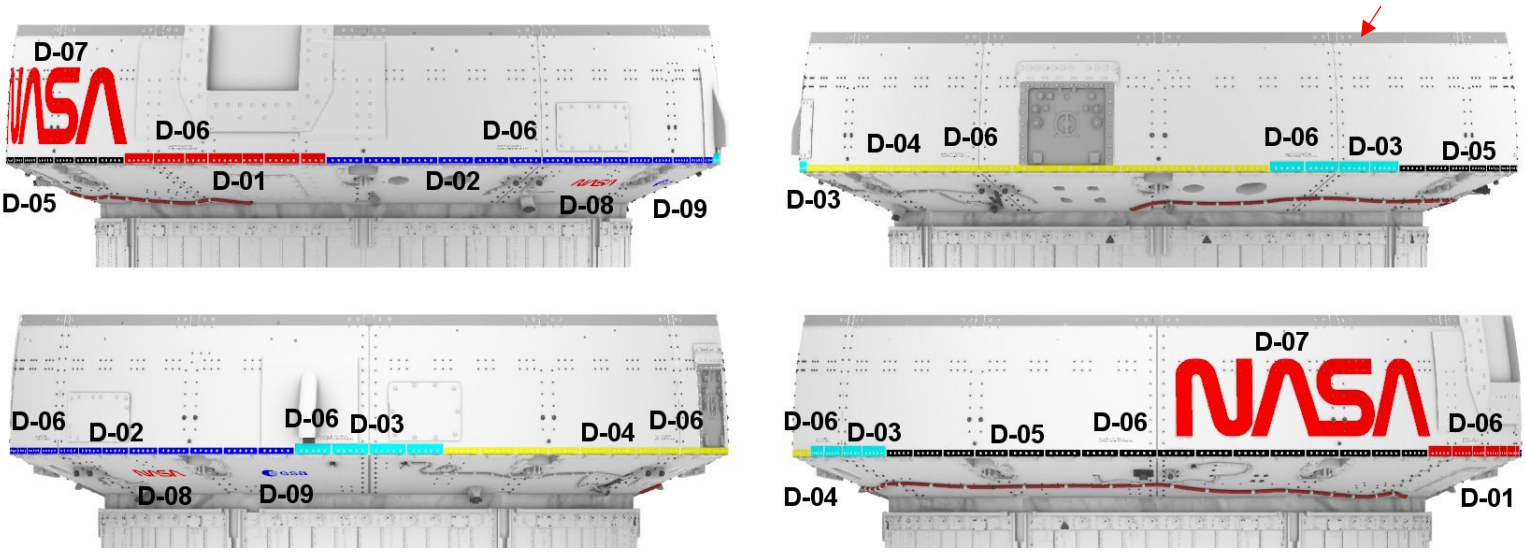


Parts 08 are strong magnets that will help to ensure contact between the service and the crew modules. There are 10 mm wide and 2 mm thick (see http://tinyurl.com/bdfysrwy).

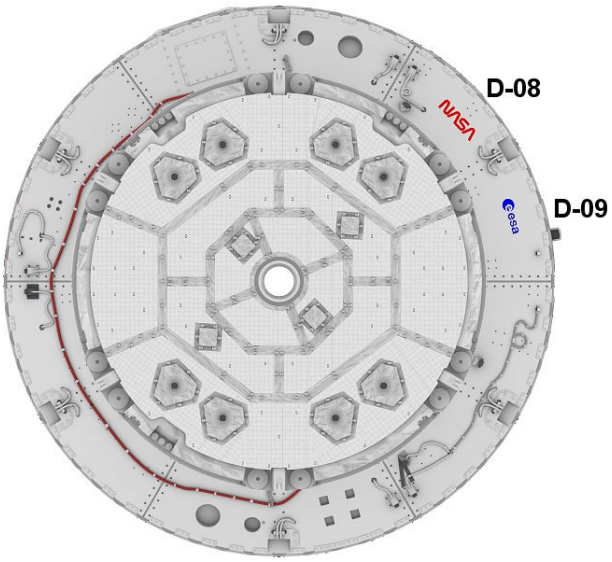


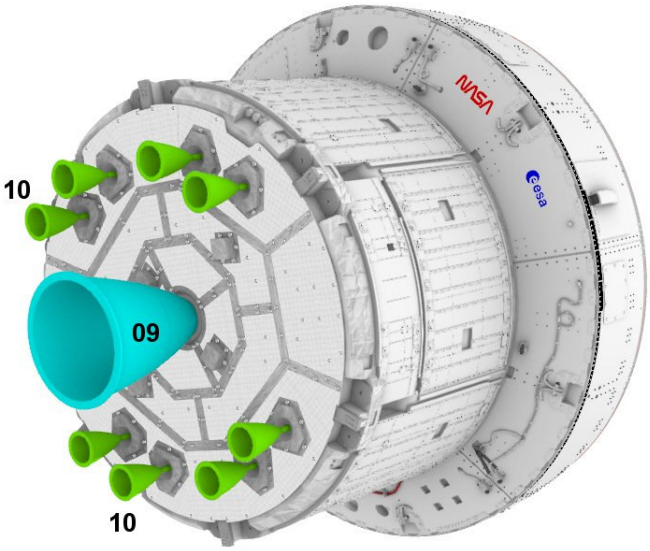


Surfaces S-29 to S-34 are glued inside the SM-CM adapter.

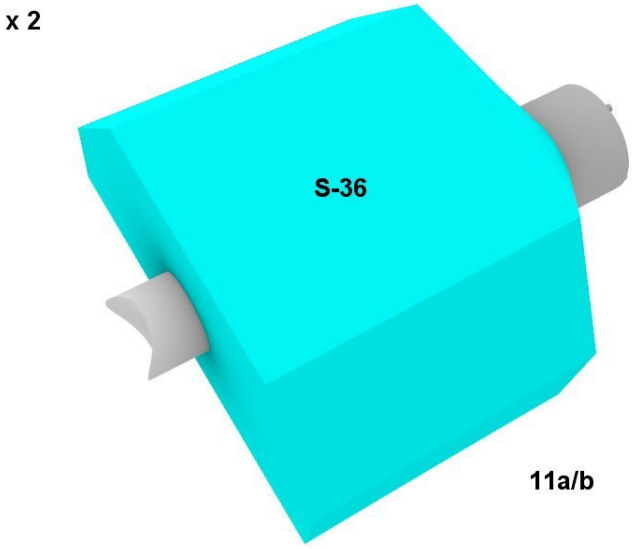


Placement of the decals on the SM-CM interface (see the file **decals-transparent**). Decals may be printed on white decal paper. A band of about 1.8 mm wide adhesive aluminium paper is fixed on the top of the SM/CM adapter (see red arrow on the right picture).

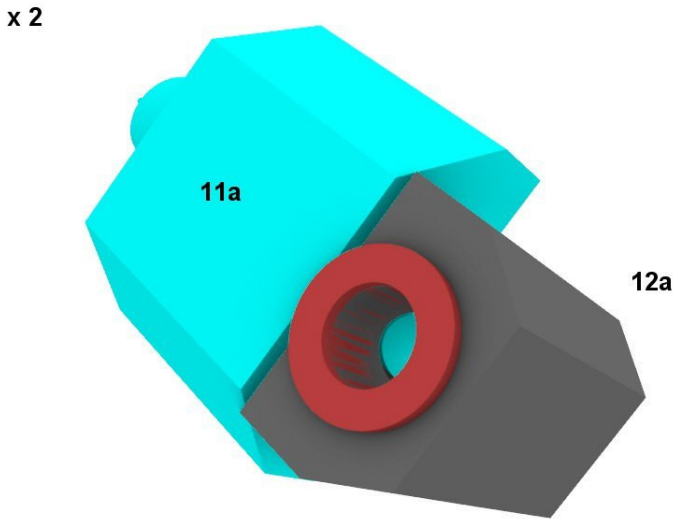




Placement of the decals on the SM-CM interface (see the file **decals-transparent**). Decals may be printed on white decal paper.

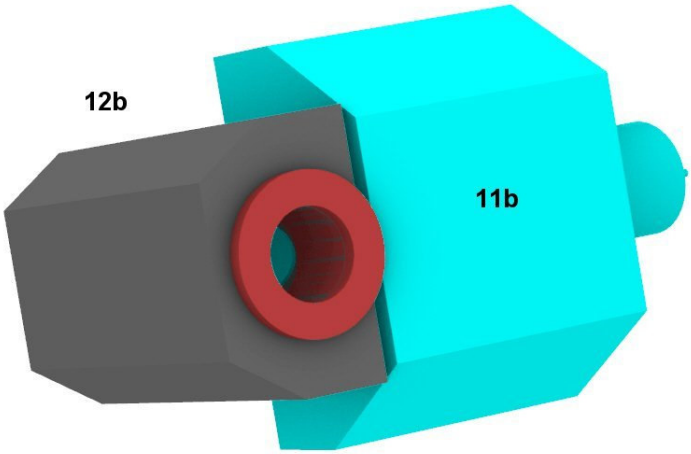


Parts 11a and 11b are covered with embossed paper (pattern S-36).



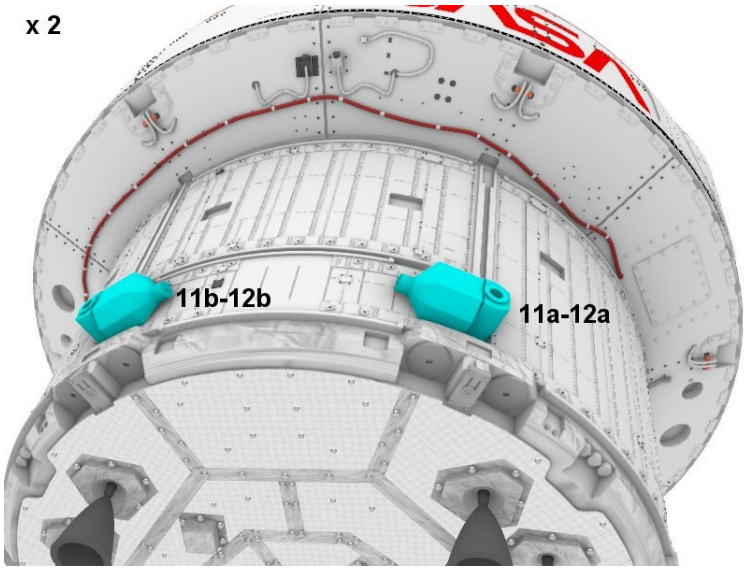
Inclination of part 12a will depend on the solar array inclination that you want to represent.

x 2



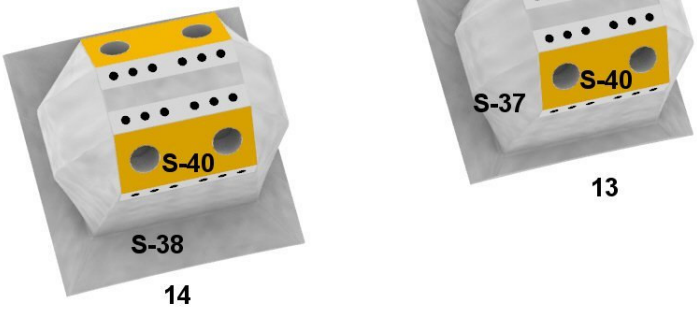
Inclination of part 12b will depend on the solar array inclination that you want to represent.

x 2

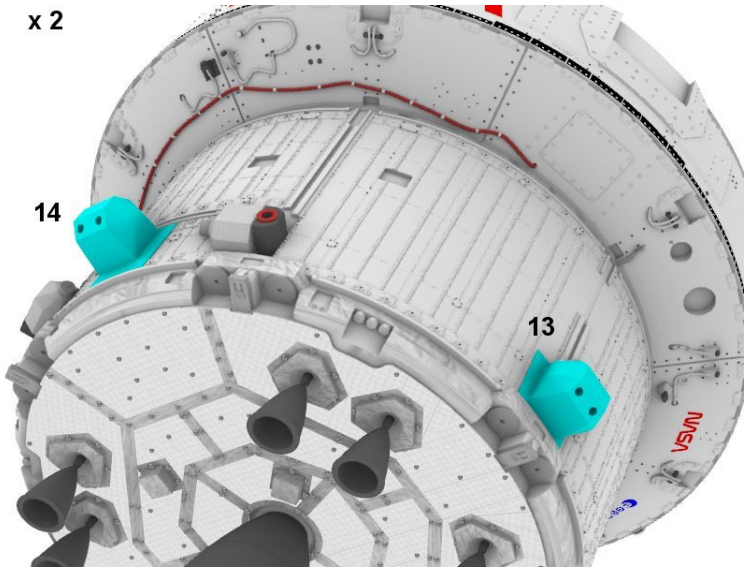


Complete solar array drives fixed on the service module (on each side of the SM).

x 2

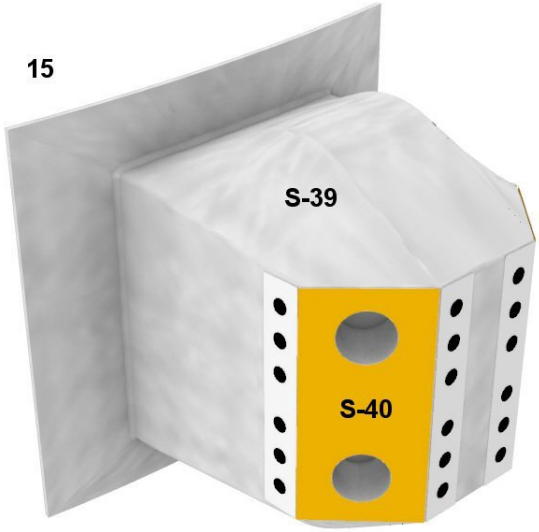


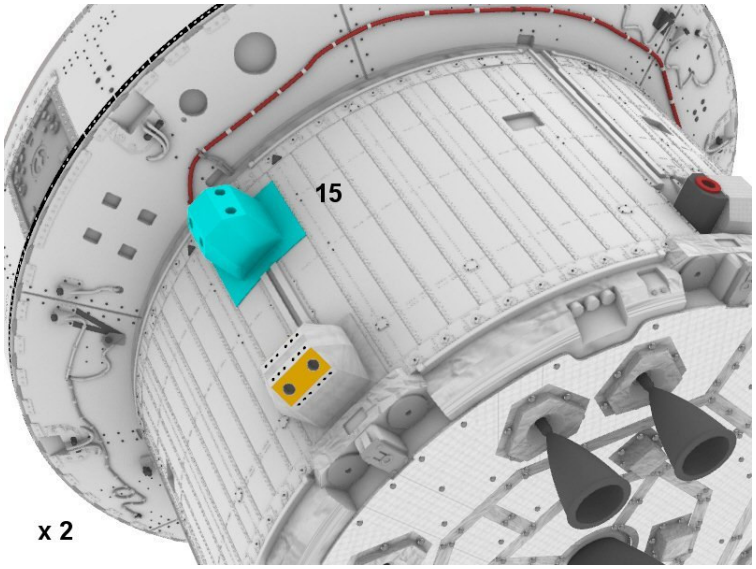
x 2



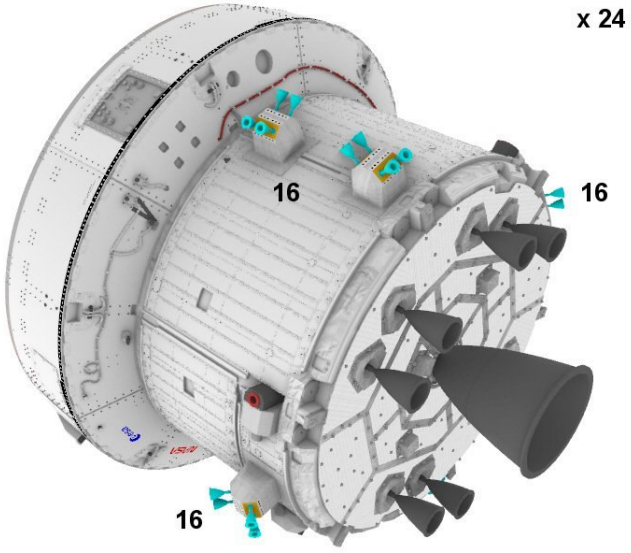
Parts 13 and 14 are covered with embossed paper and painted white. Then you can apply surfaces S-40. In the end they are fixed on the service module (on each side of the SM),

x 2

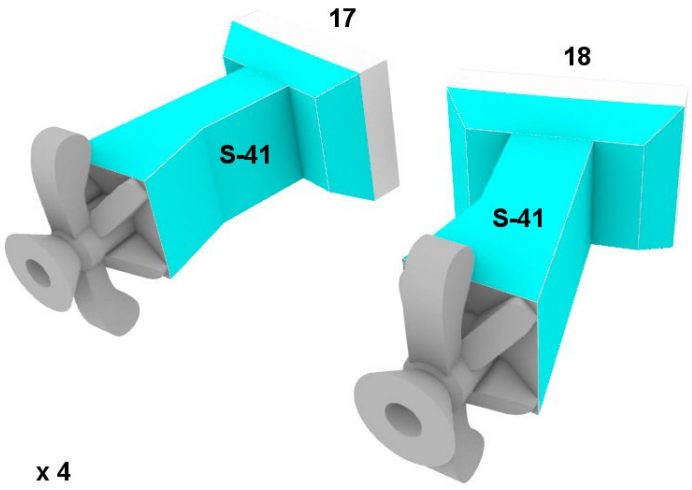




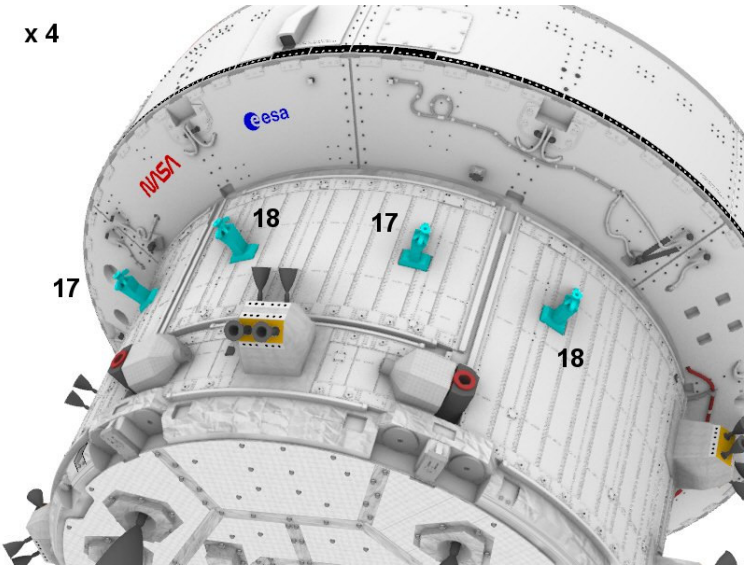
Parts 15 are covered with embossed paper and painted white. Then you can apply surfaces S-40. In the end they are fixed on the service module (on each side of the SM),



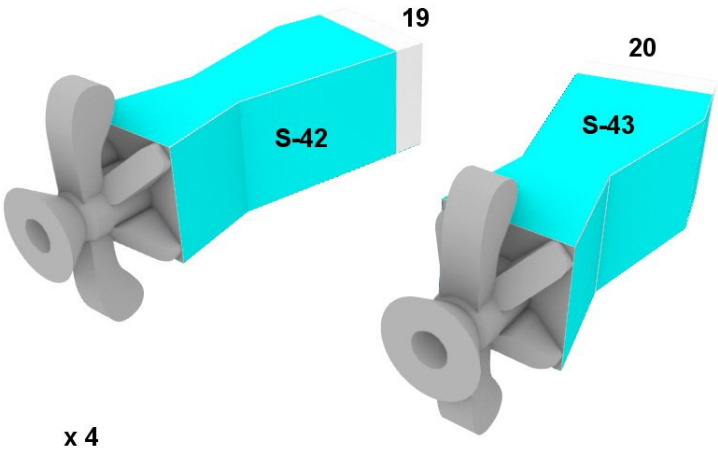
RCS thrusters are fixed.



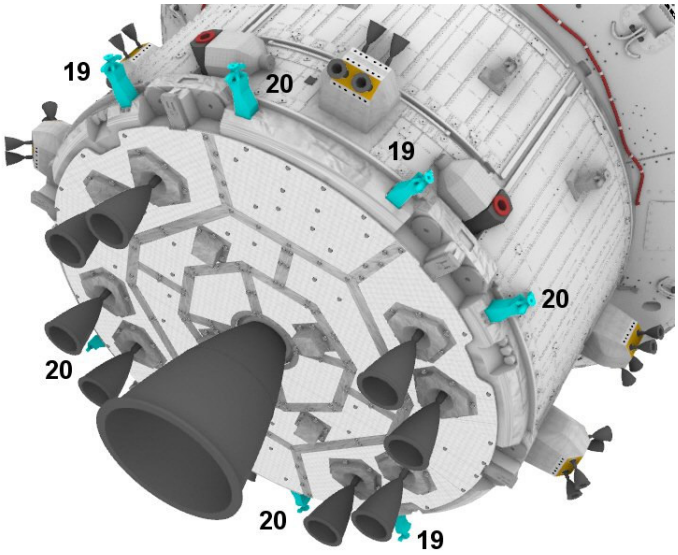
Solar array attachment devices are covered with embossed paper.



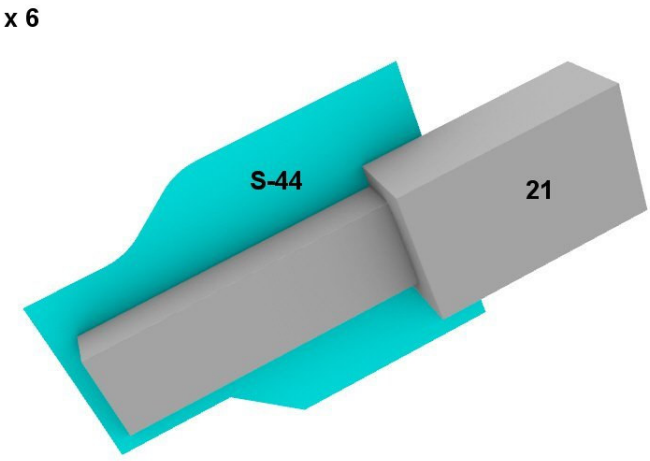
Solar array attachment devices are fixed on the service module.



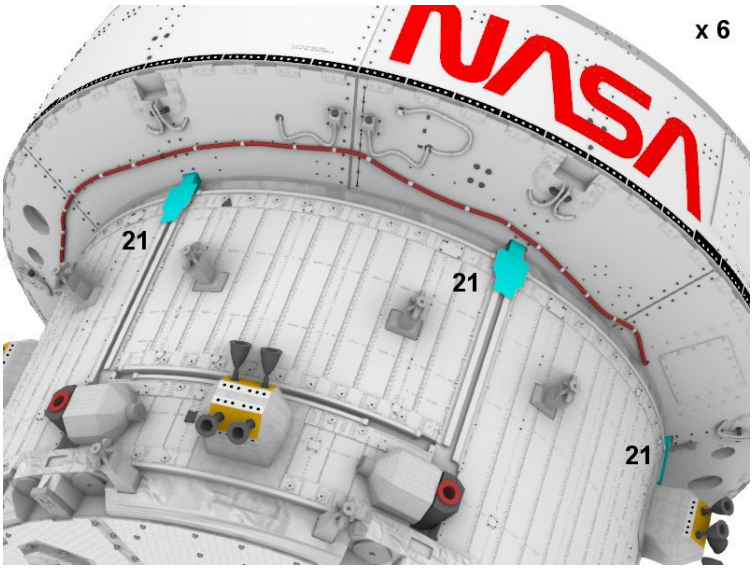
Solar array attachment devices are covered with embossed paper.



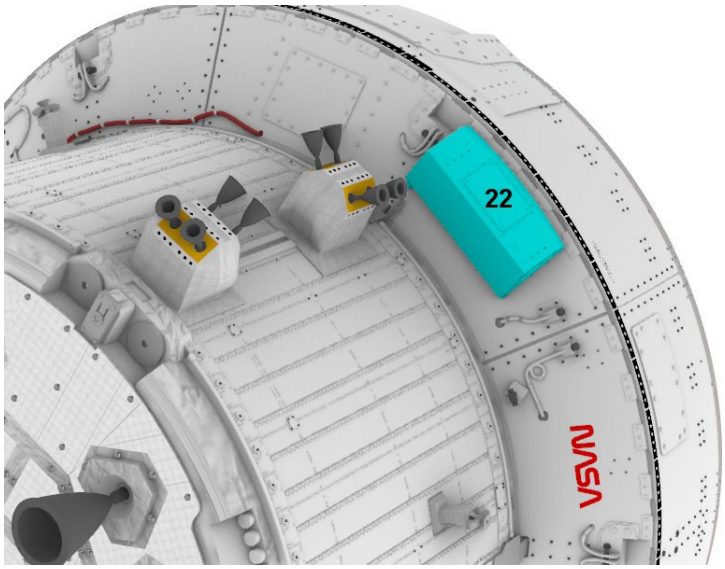
Solar array attachment devices are fixed on the service module.



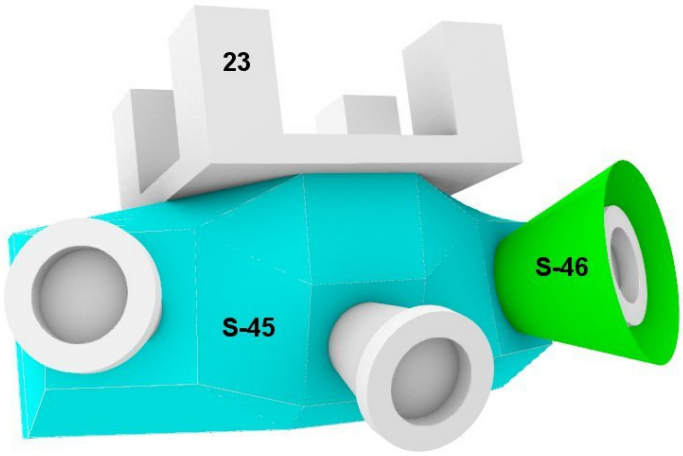
Parts S-24 need to be cut in plain paper.

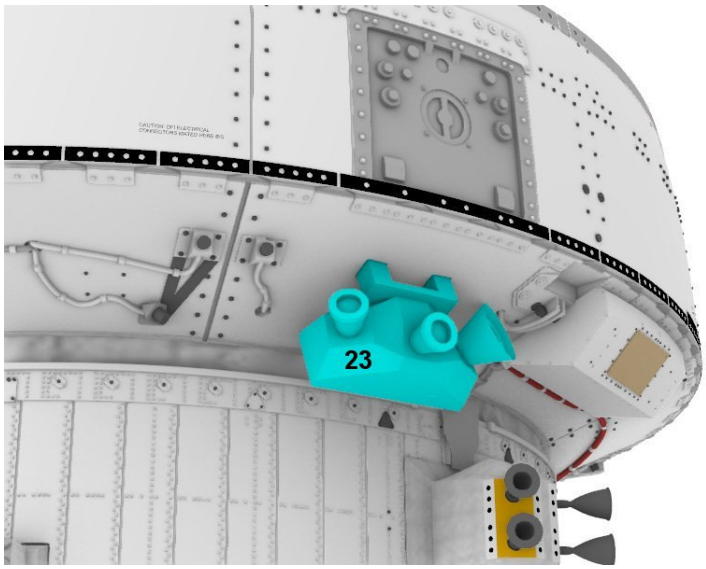


6 parts 21 are fixed around the service module.

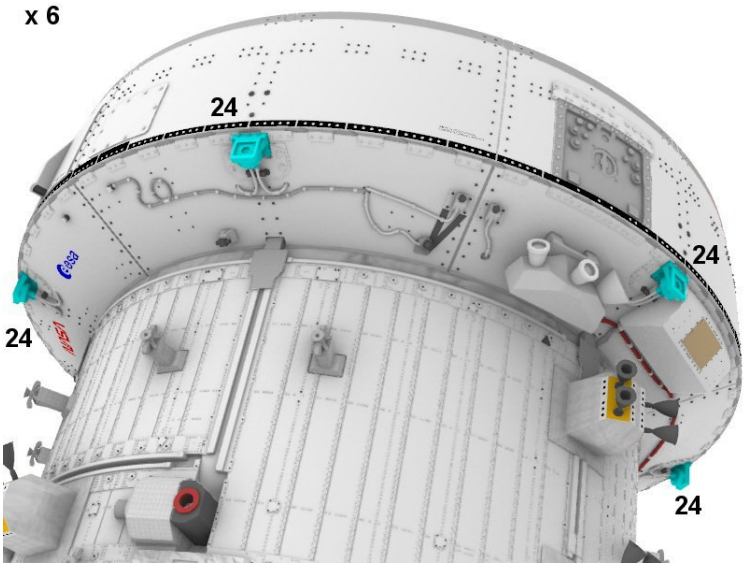


2 phased array antennas fixed on the service module.

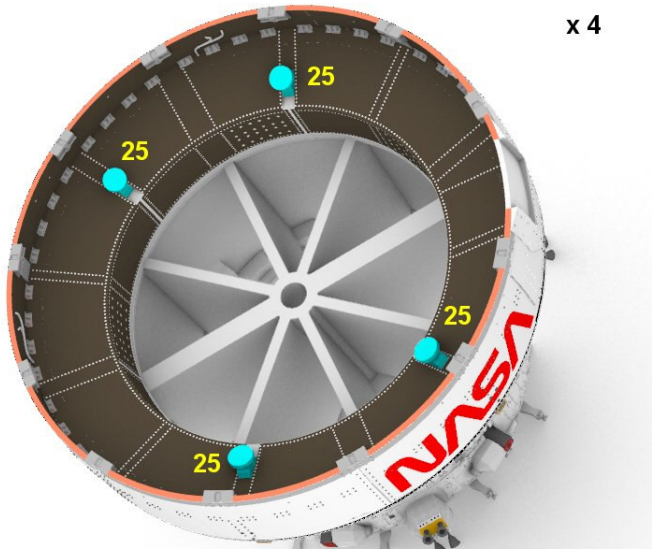




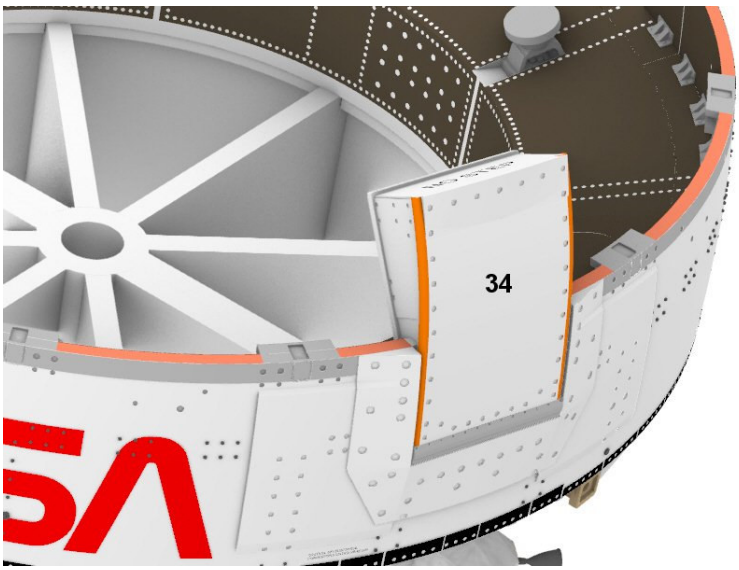
The star tracker structure is covered with embossed paper (S-45). A sun shield (S-46) is fixed around one of the tracker.



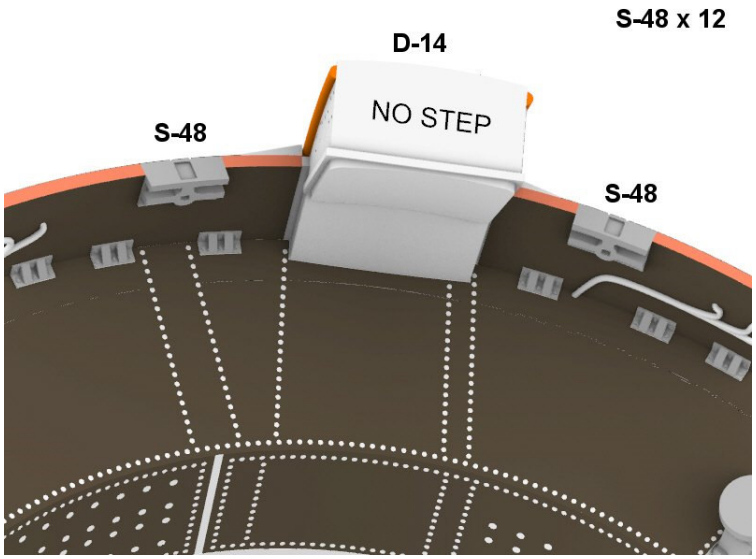
6 cameras are fixed around the CM/SM adapter.



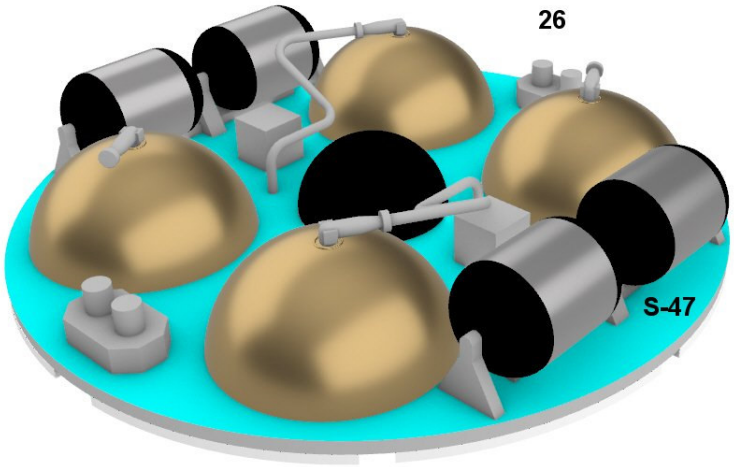
4 connectors between the the SM and the CM are fixed on the service module.



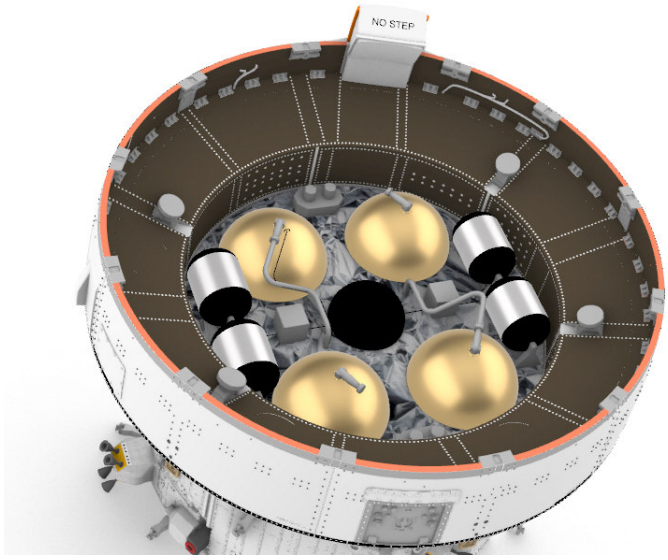
The umbilical is fixed on the CM-SM adapter.



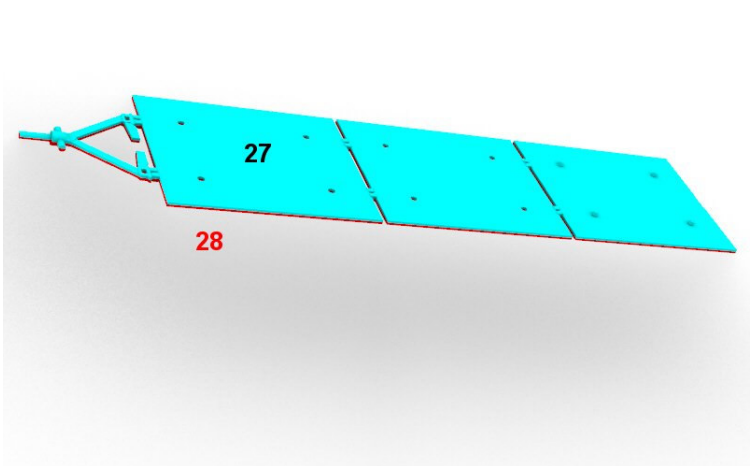
S-48 is cut in adhesive aluminium paper .

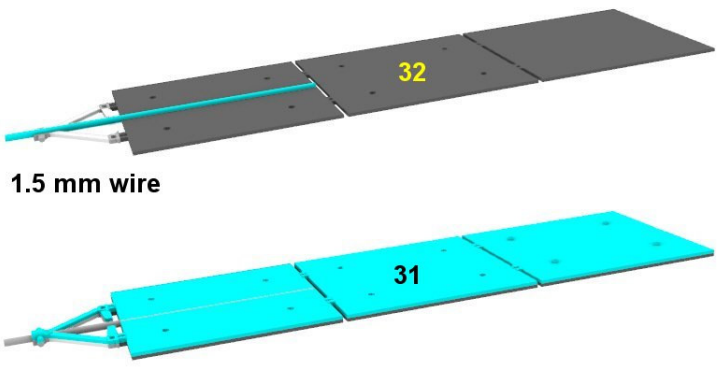


Pattern S-47 is used to insert crumpled aluminium paper at the base of part 26.

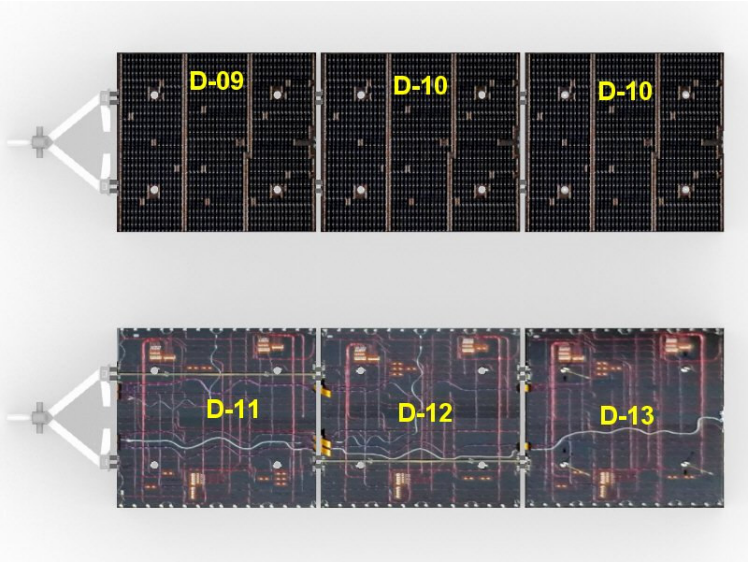


Top of fuel tanks is fixed on the service module.

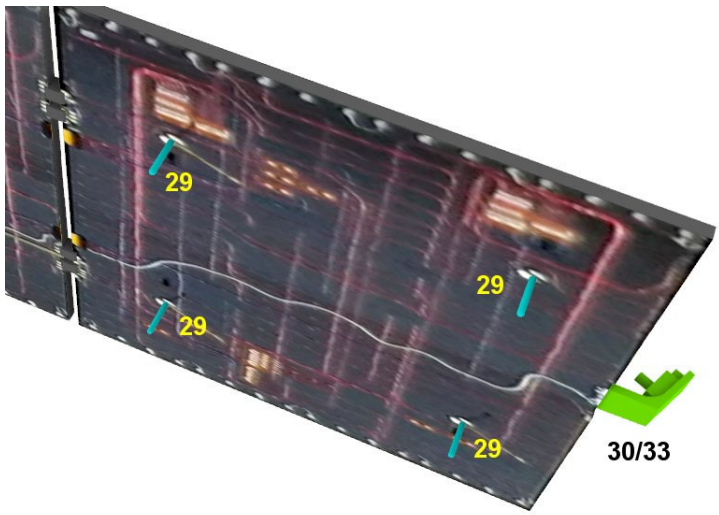




The solar panels can made in two versions (1 mm thick on the left and 1.5 mm on the right). For the 1.5 mm panels the wire is 69 mm long. For these parts is is better to use a FDM printer and glue each part with Araldite.

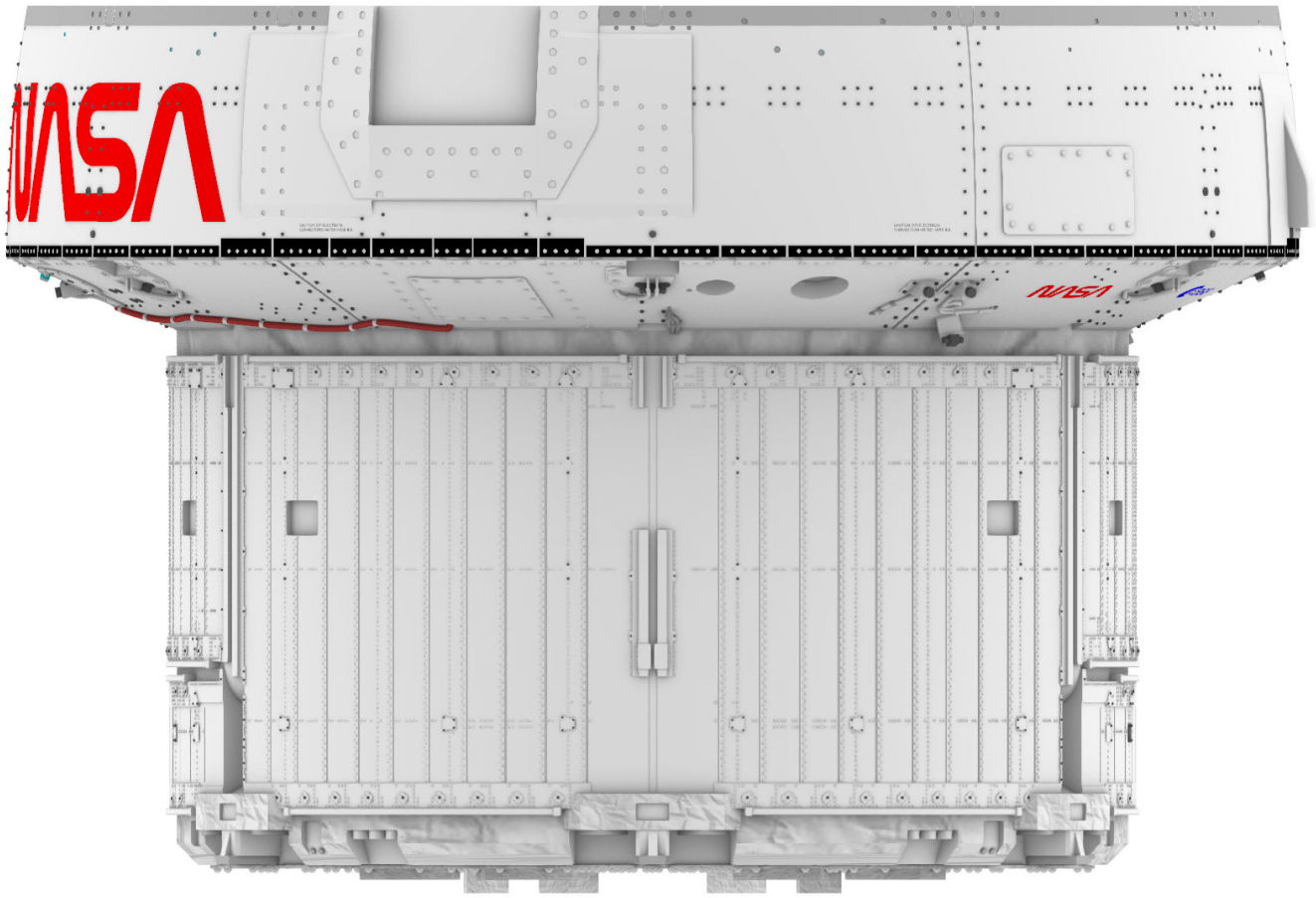


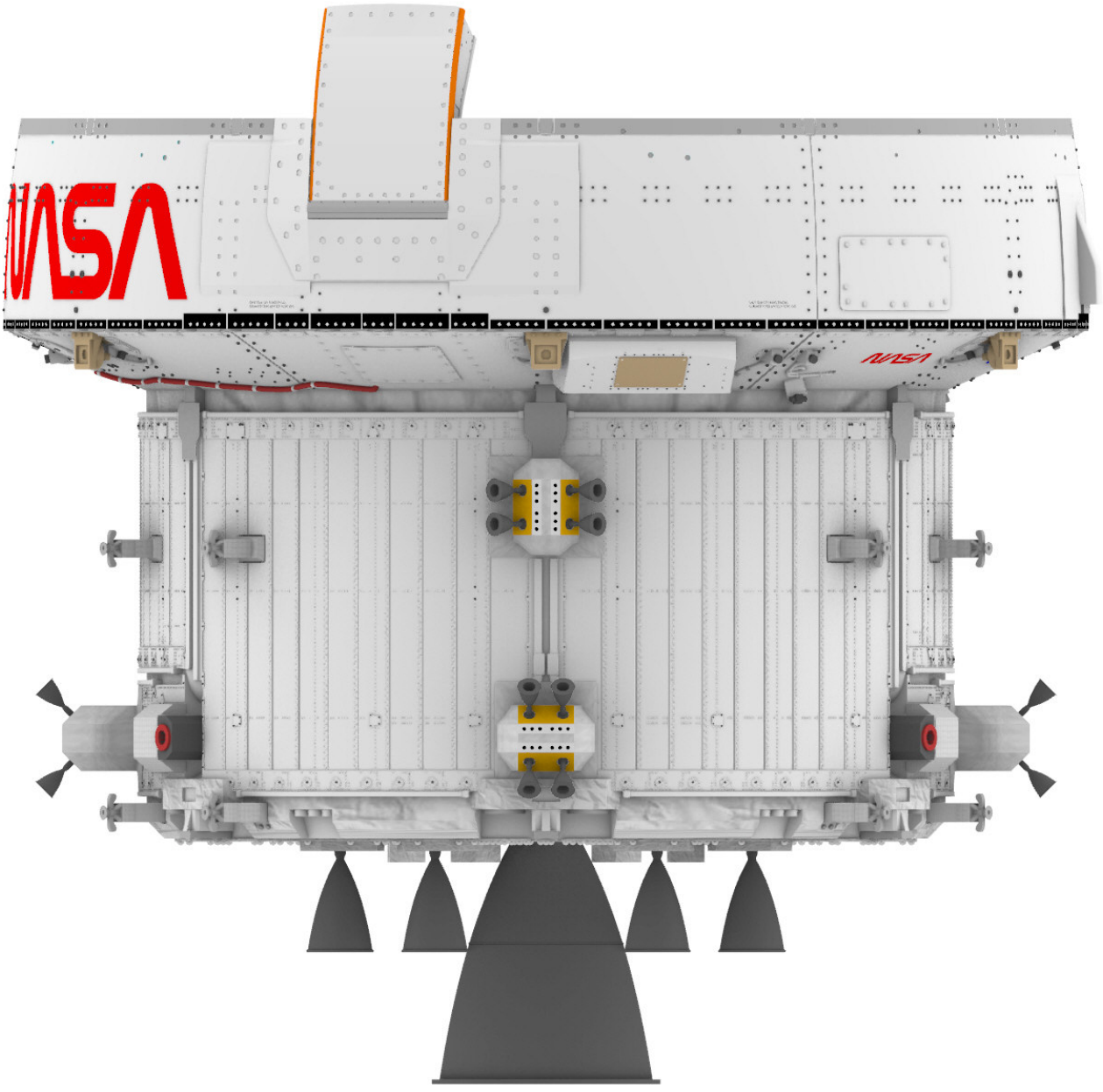
Decals to be applied on the solar panels. D-09 and D-10 are covered with gloss varnish, D-11 to D13 with mat varnish.



Cameras 30 are used for the 1 mm solar panels and cameras 33 for the 1.5 mm solar panels.

Completed Service Module.


NASA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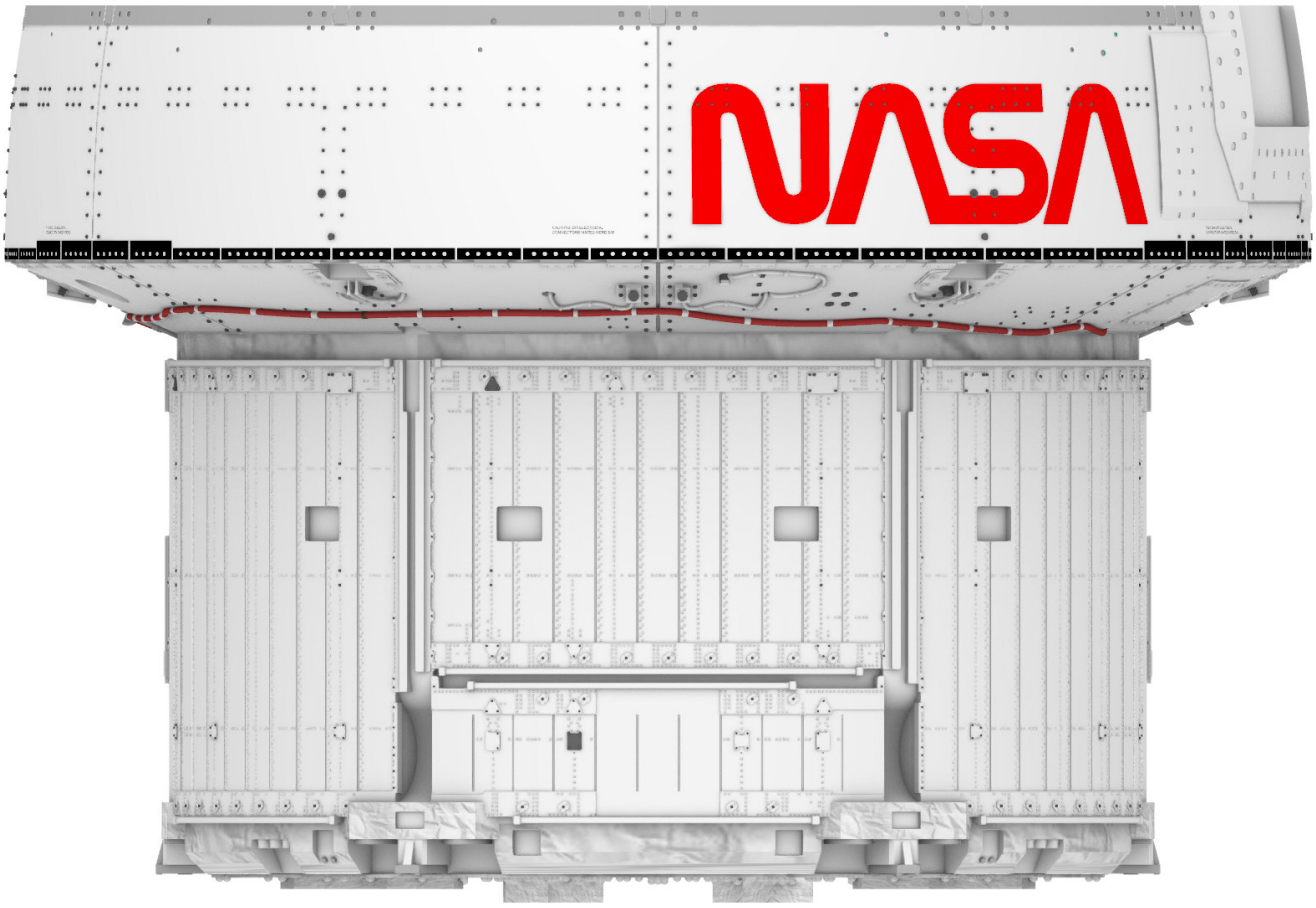
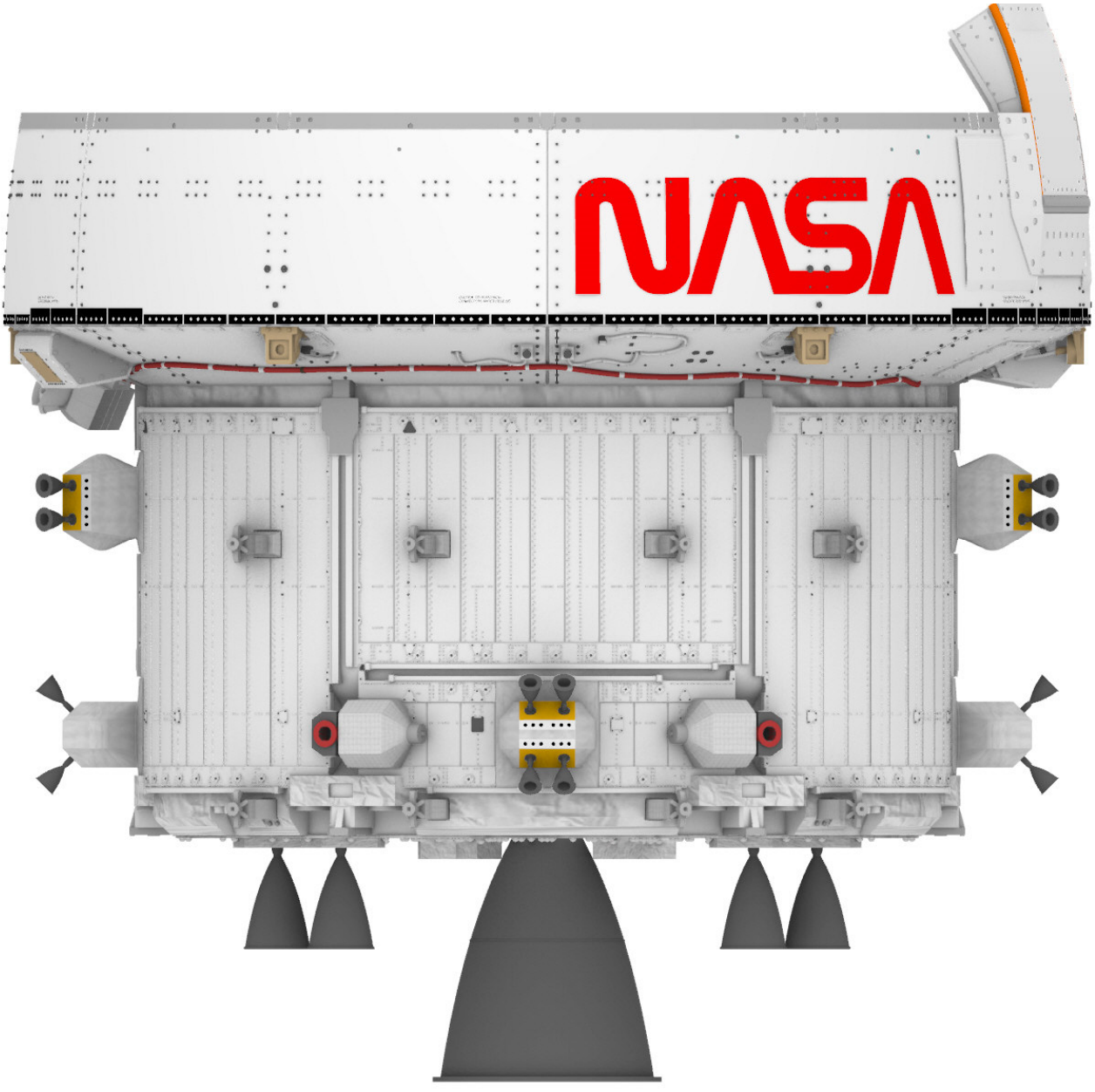

NASA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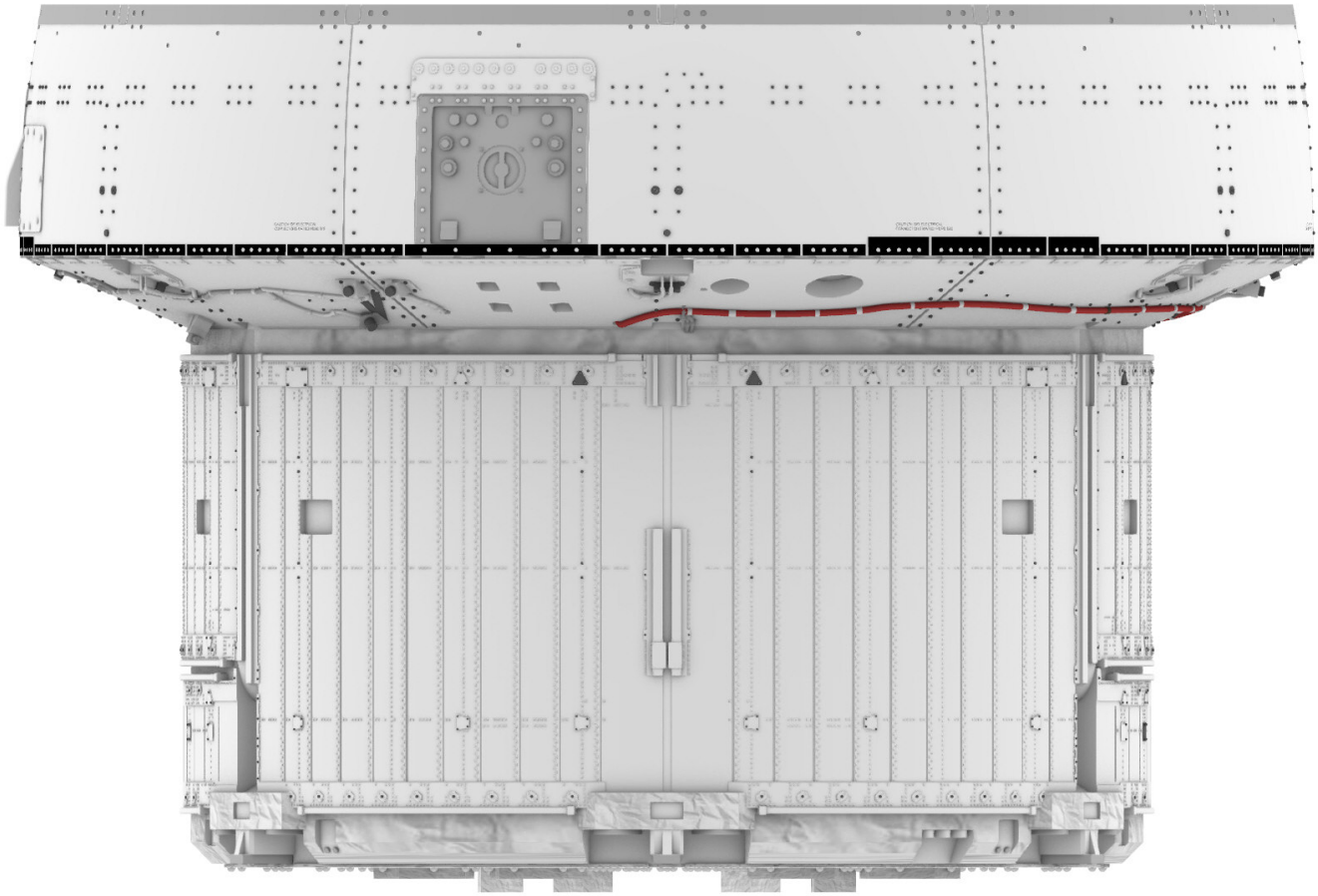
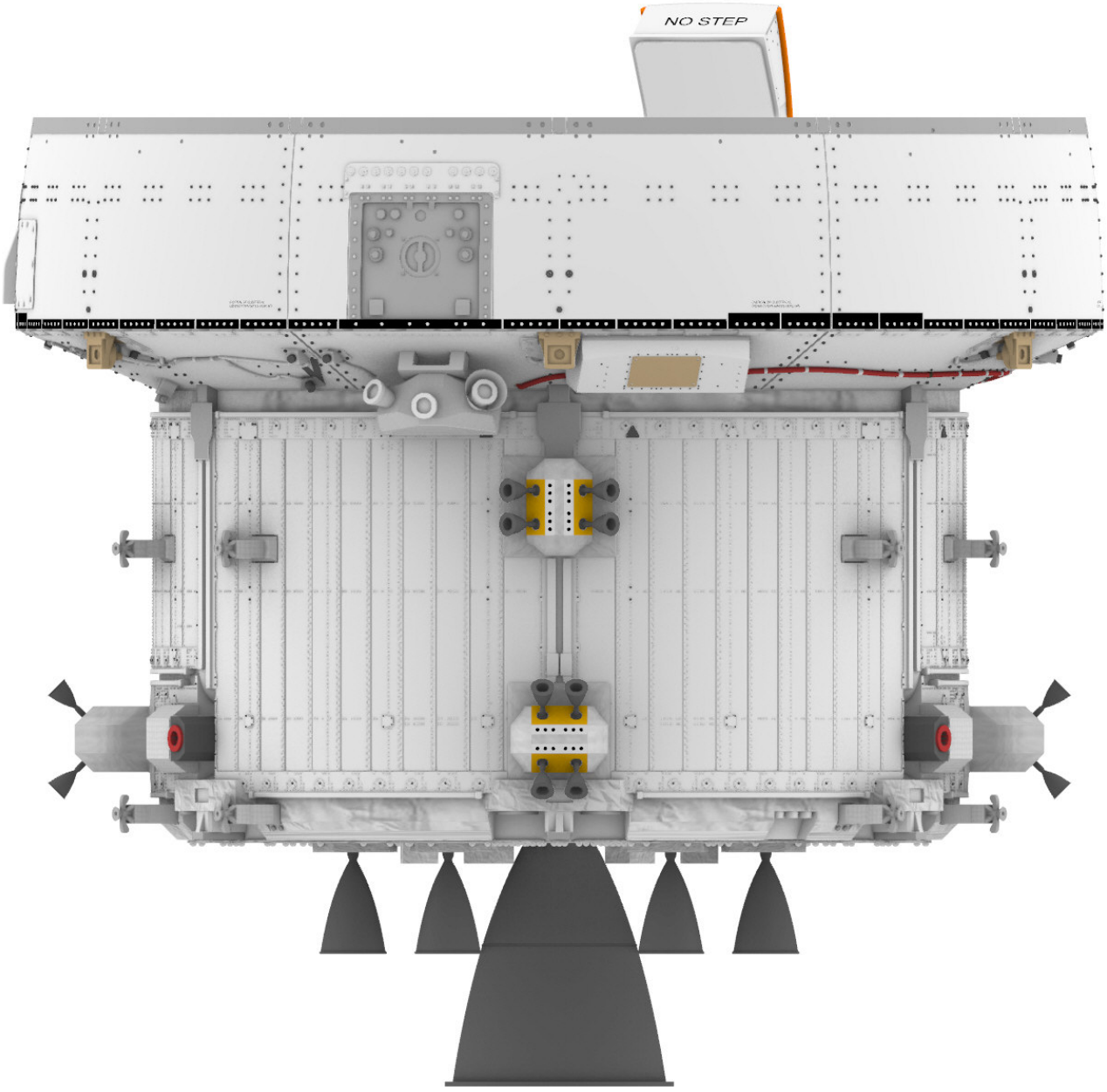
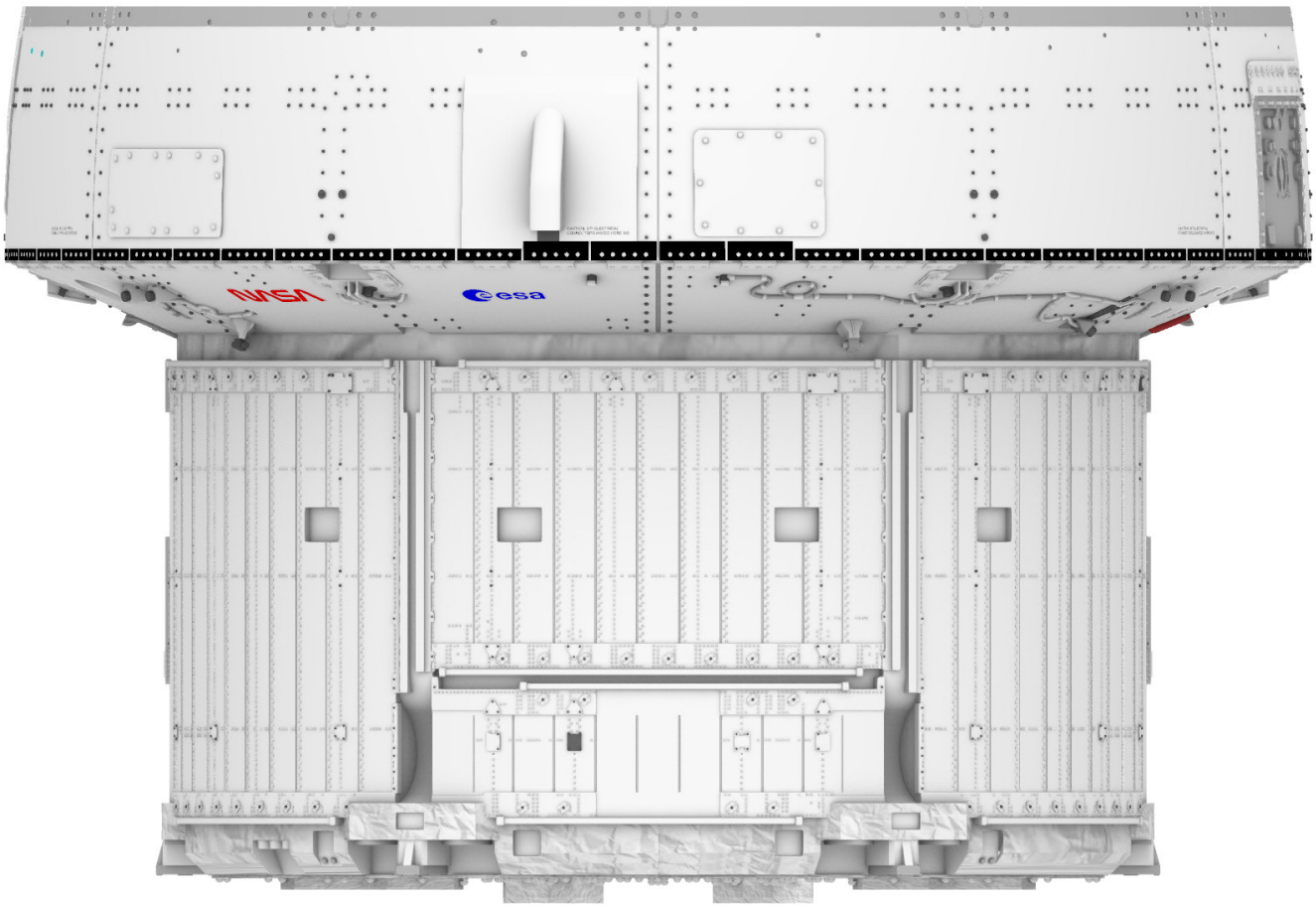
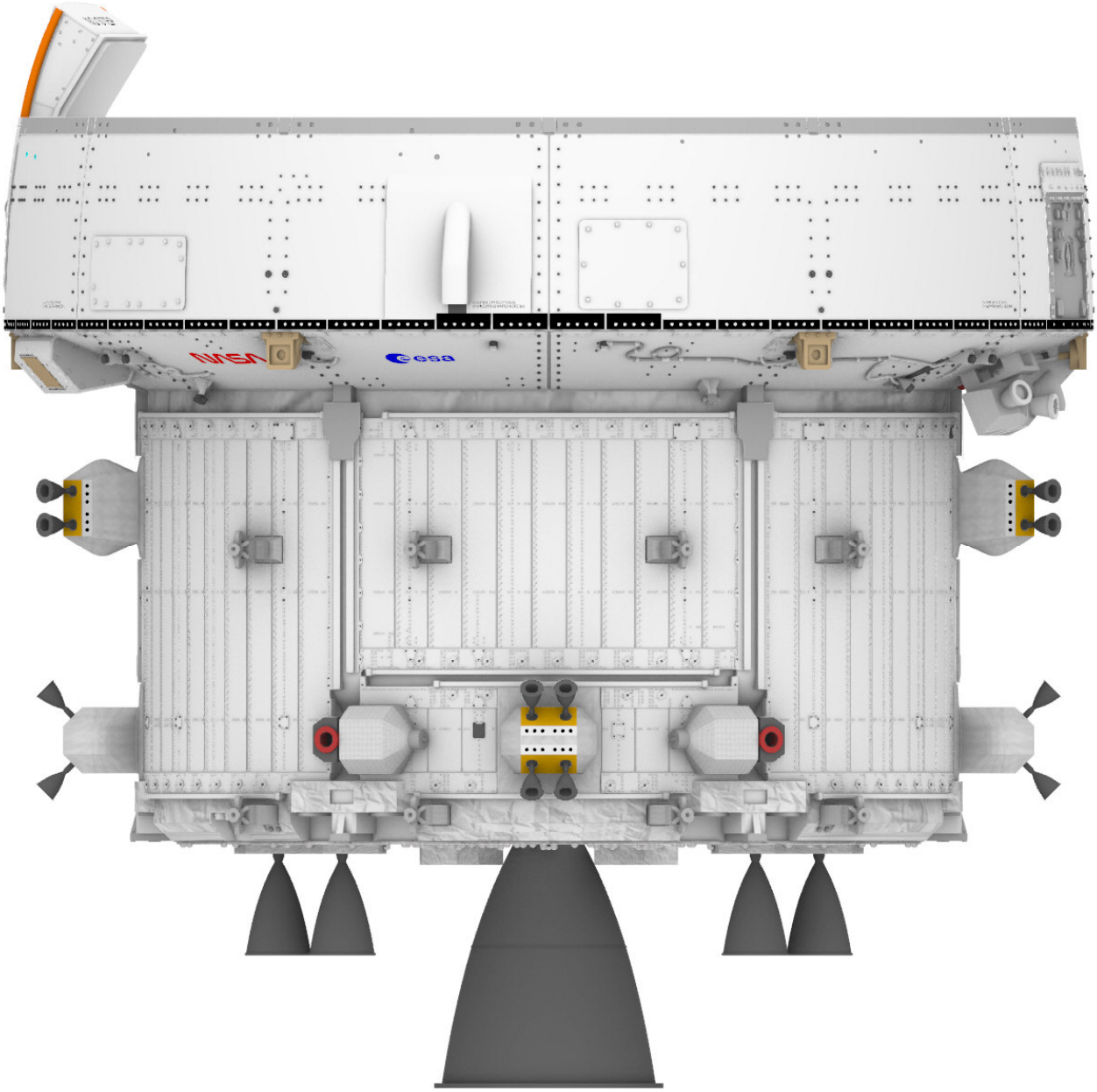



NO STEP


NASA
esa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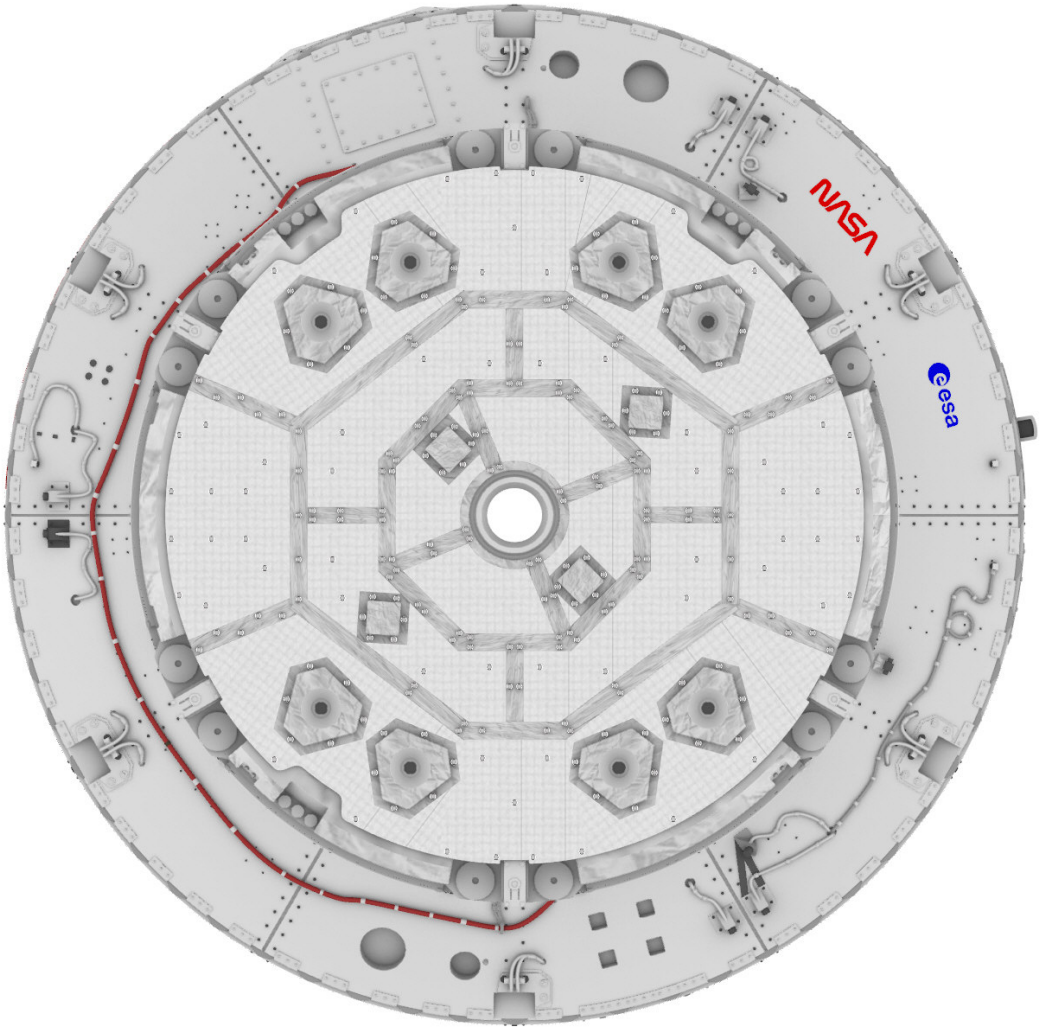
esa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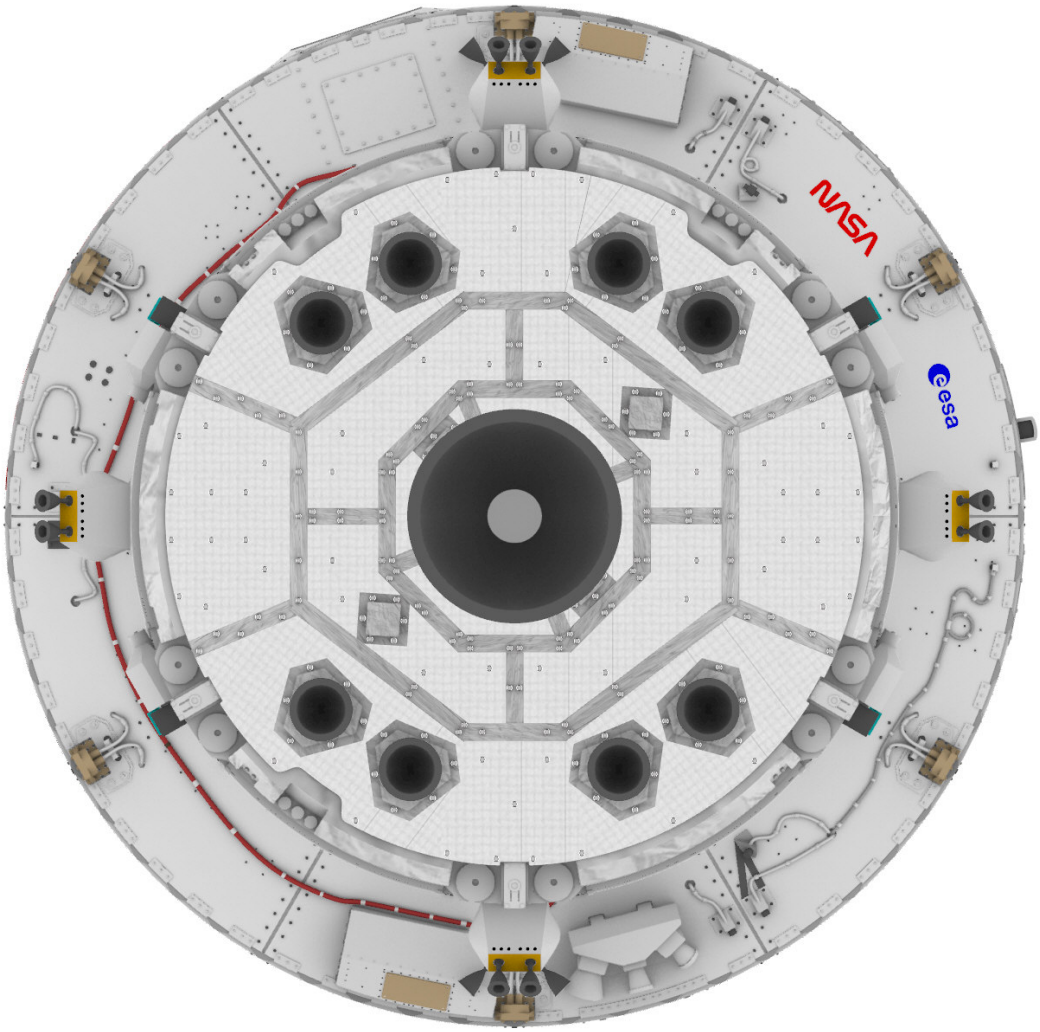
esa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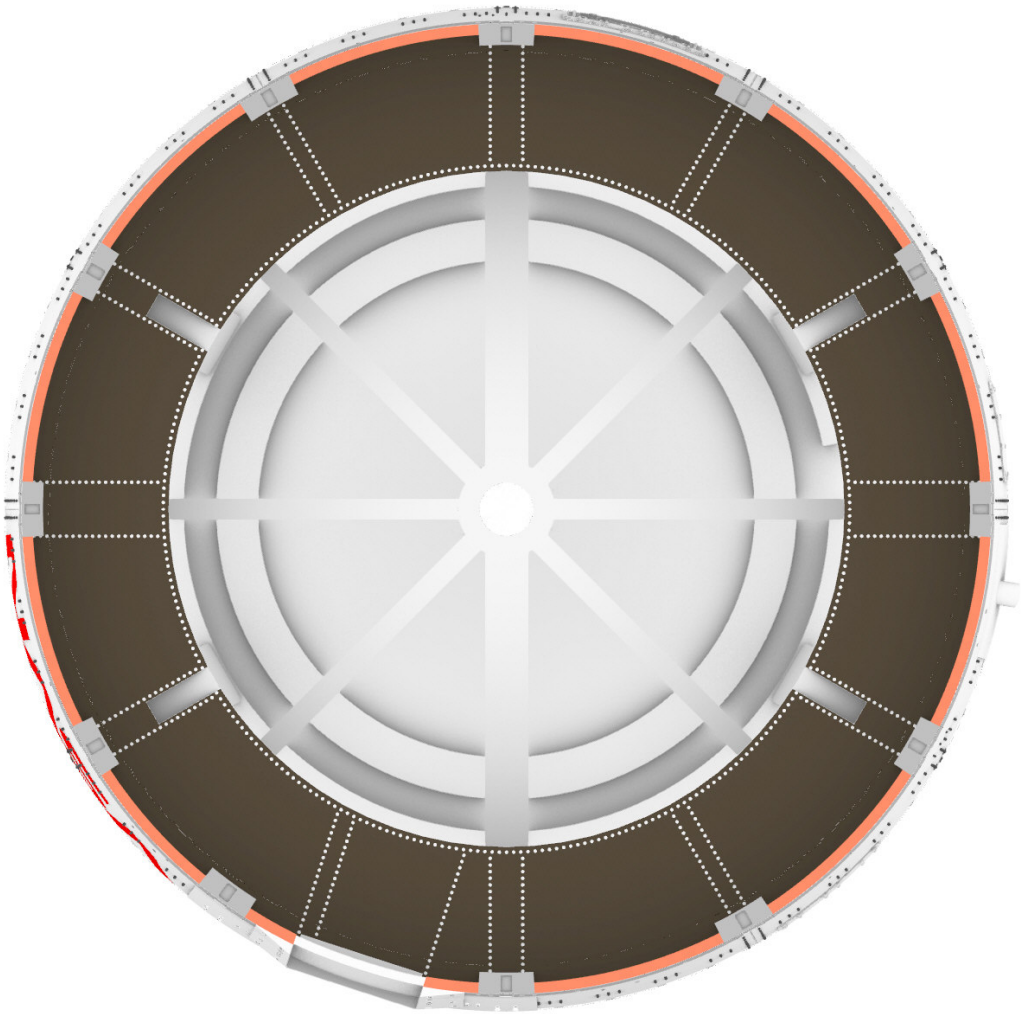
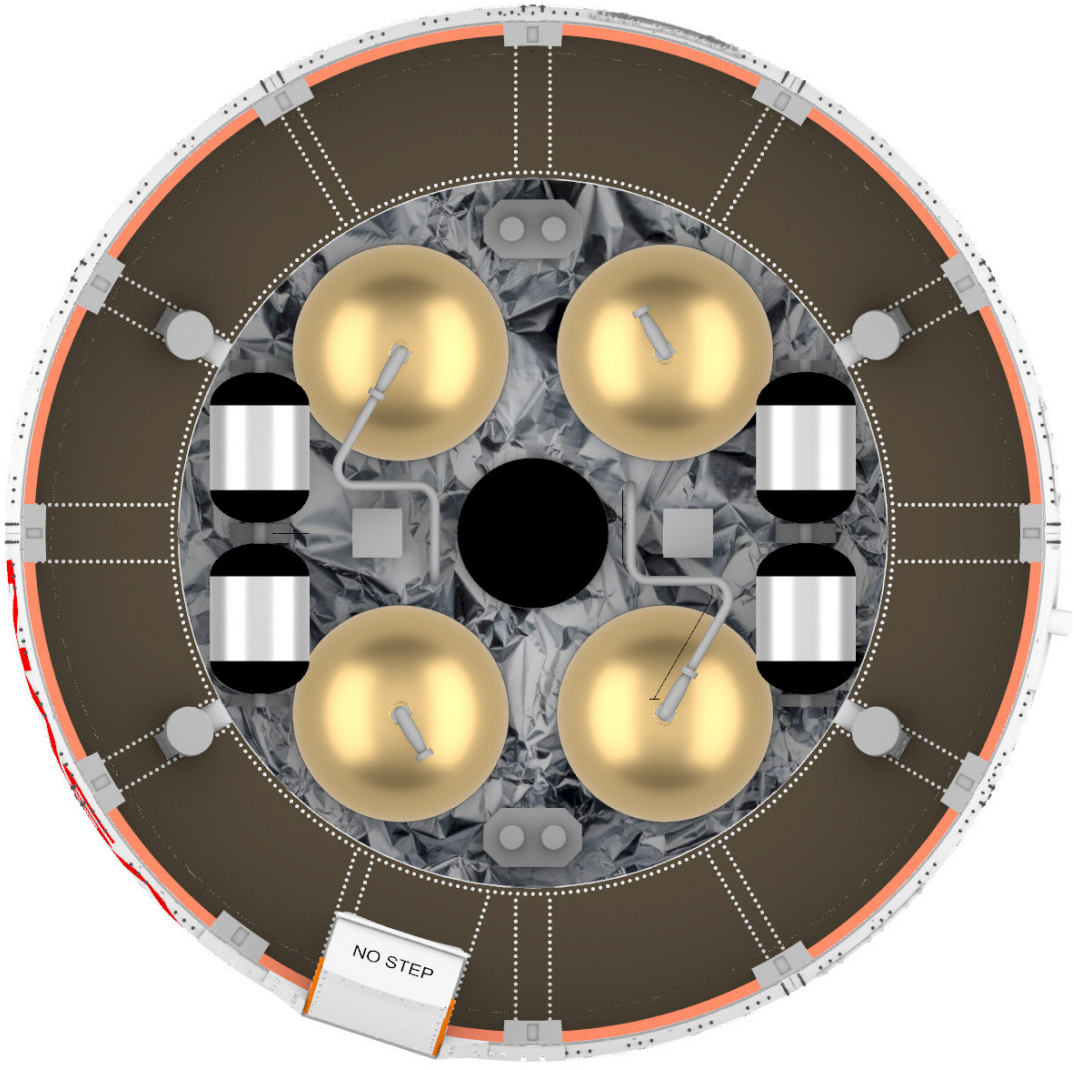
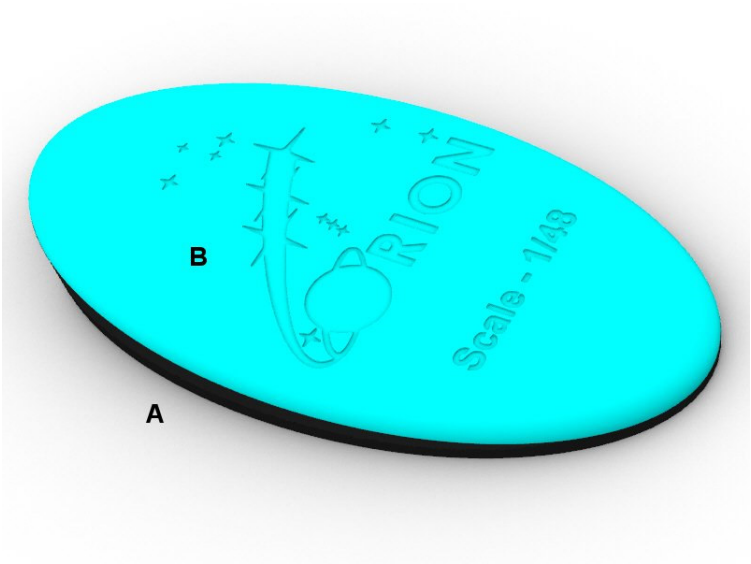
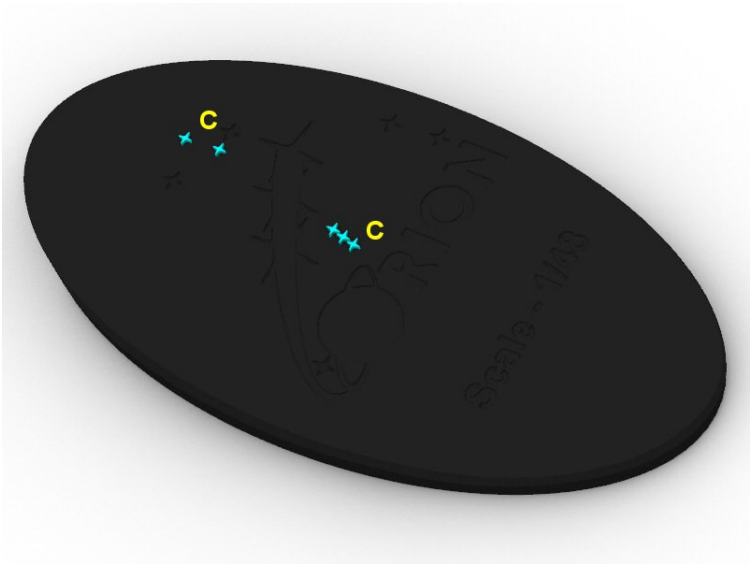


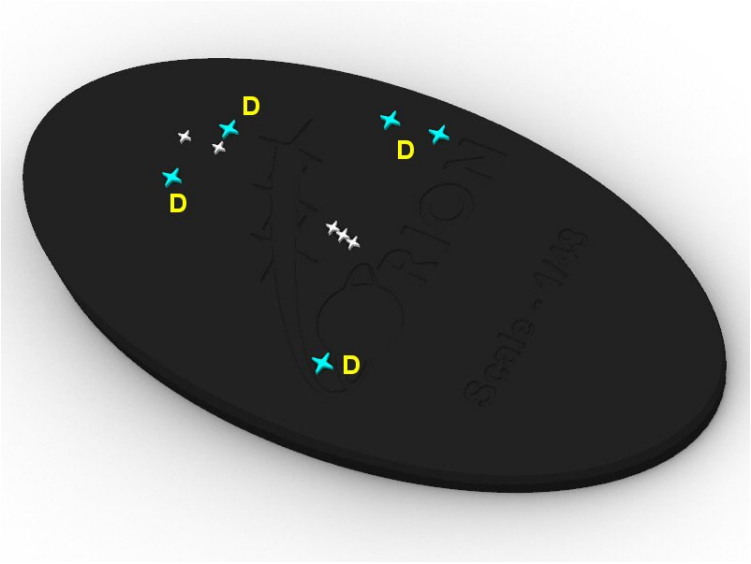

NO STEP

ORION

stand


B
A
ORION
Scale - 1/48


C
C
ORION
Scale - 1/48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ORION
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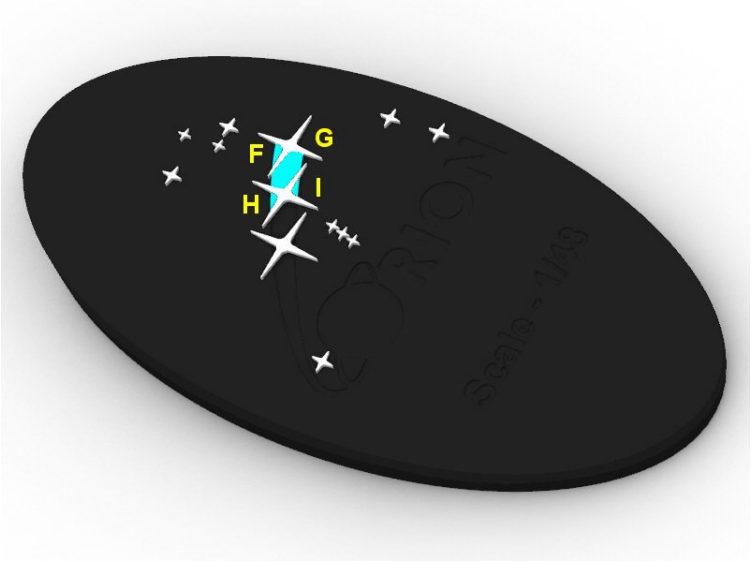
E
ORION
Scale - 1/48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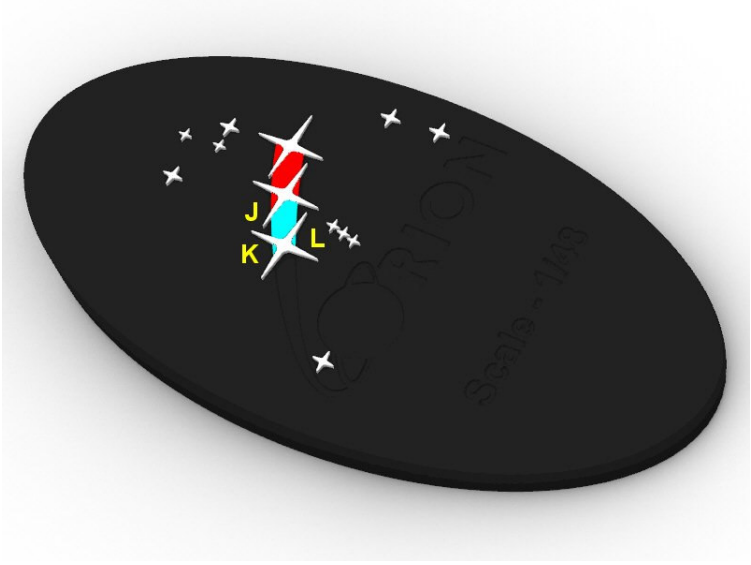
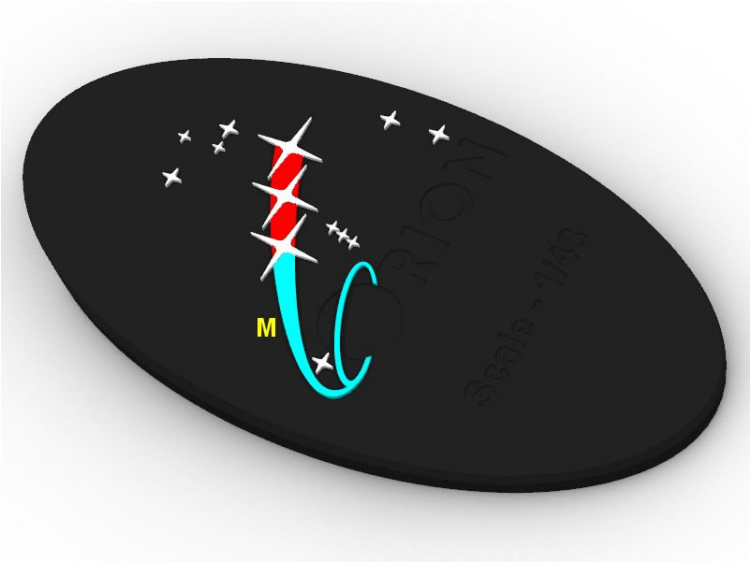
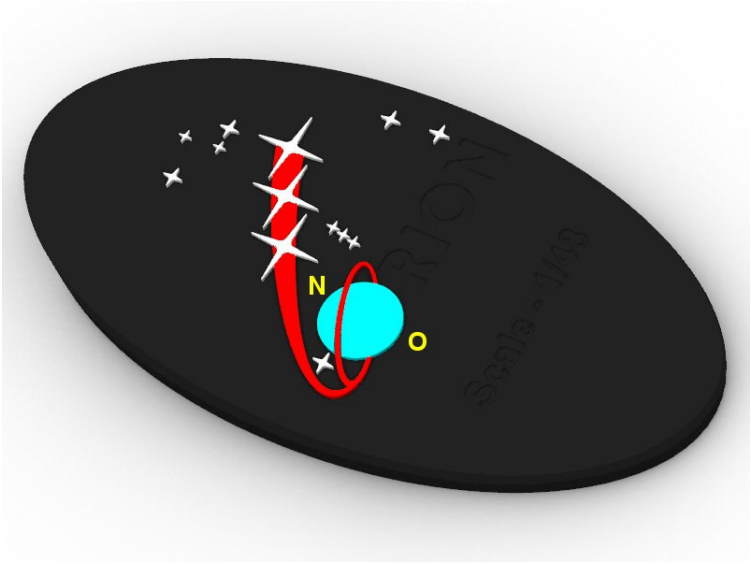
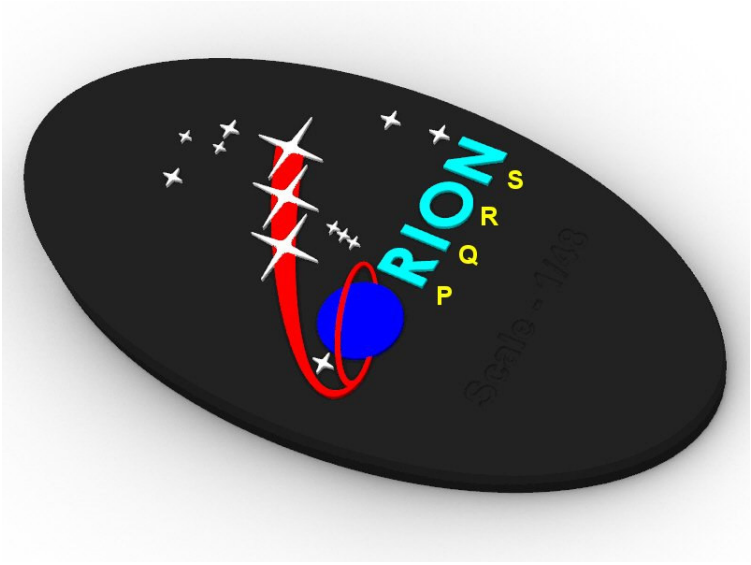
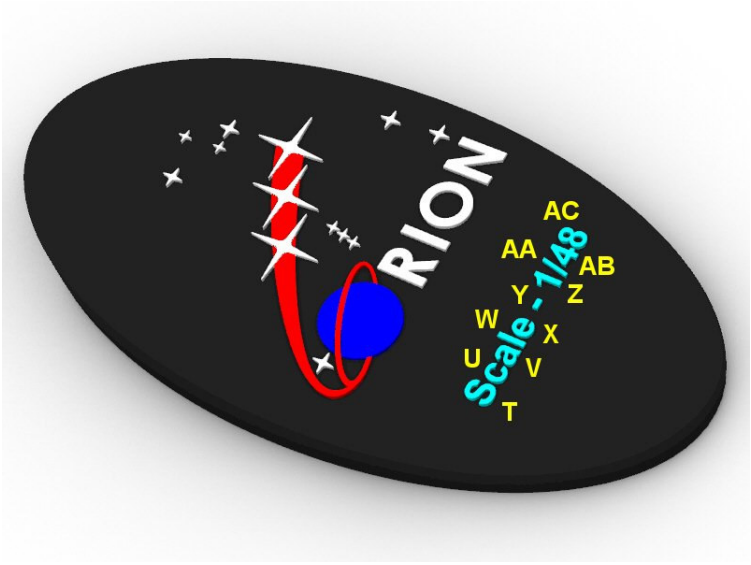
G
H
I
ORION
Scale - 1/48

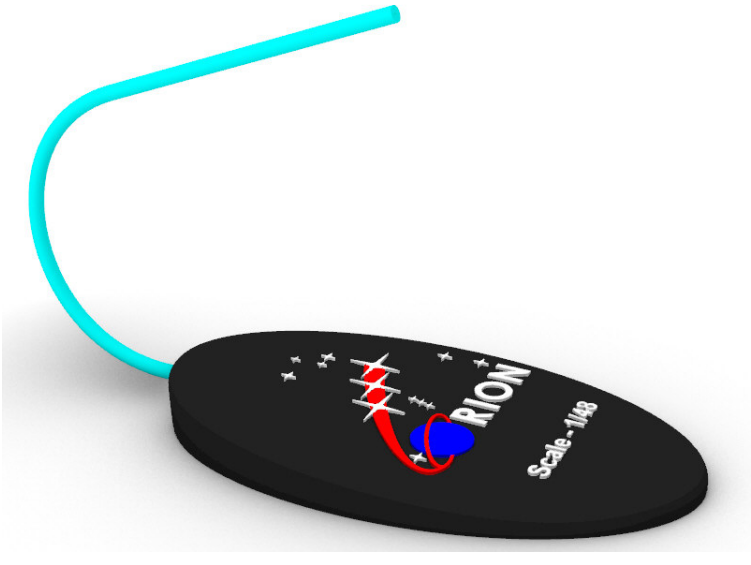

J
K
L
ORION
Scale - 1/48







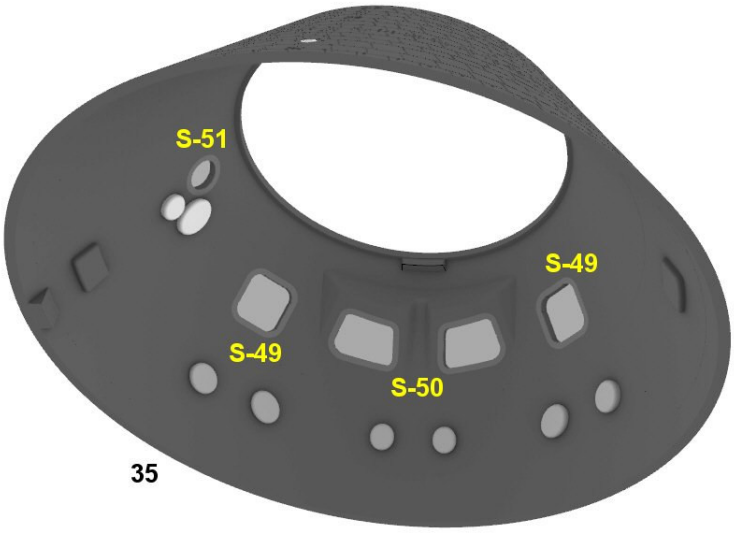




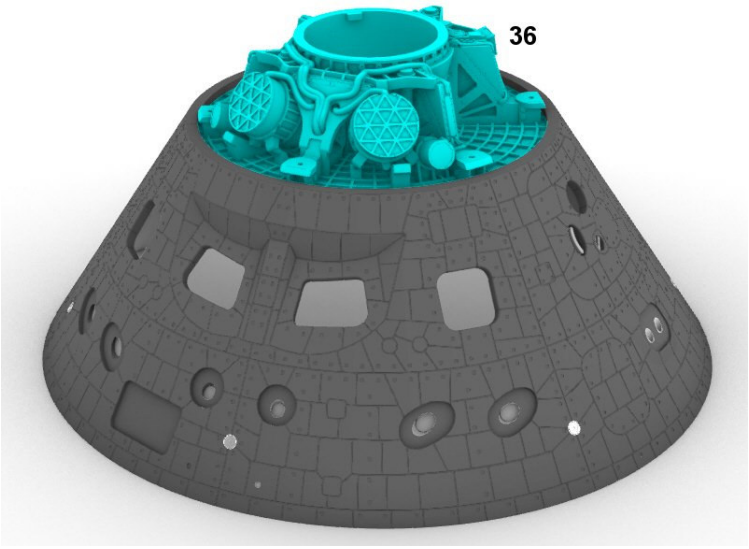
Refer to to the **Stand** file for a pattern you can use for the 6 mm diameter rod.

ORION

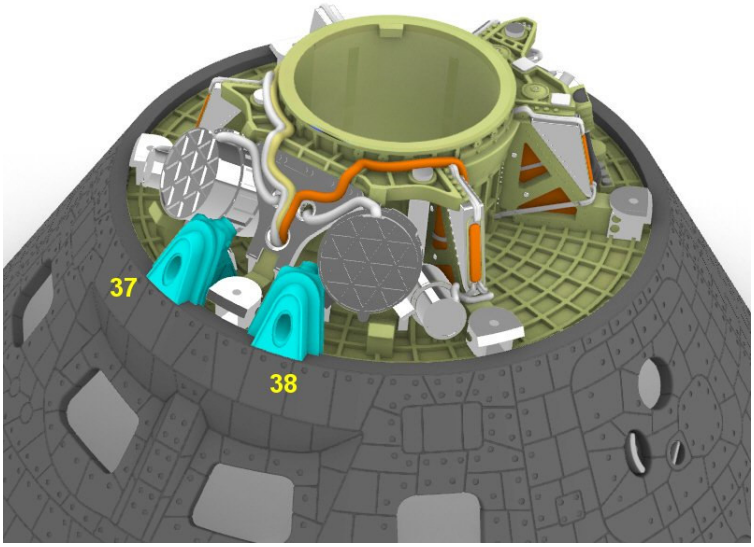
Crew Module



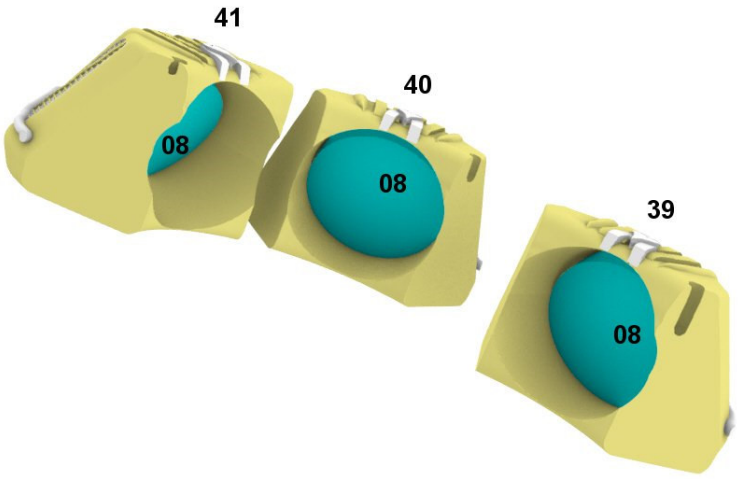
Using the pattern sheet you need to cut transparent plastic parts and fix them inside the main shell to simulate the windows.



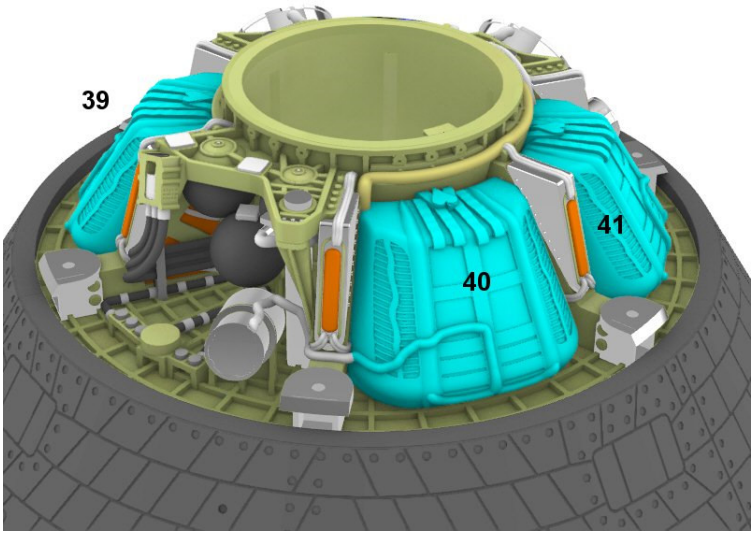
The main parachute section is now fixed inside the main shell.



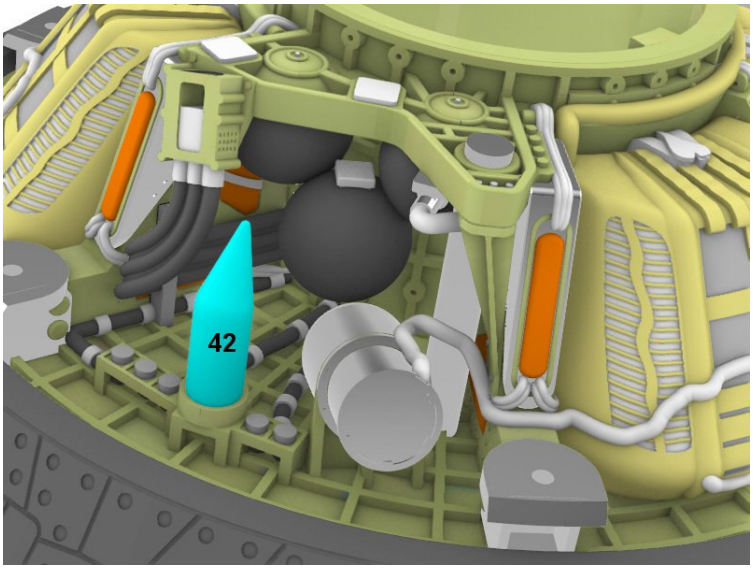
Fix the two pitch thrusters 37 and 38 on the parachute section and the main shell.



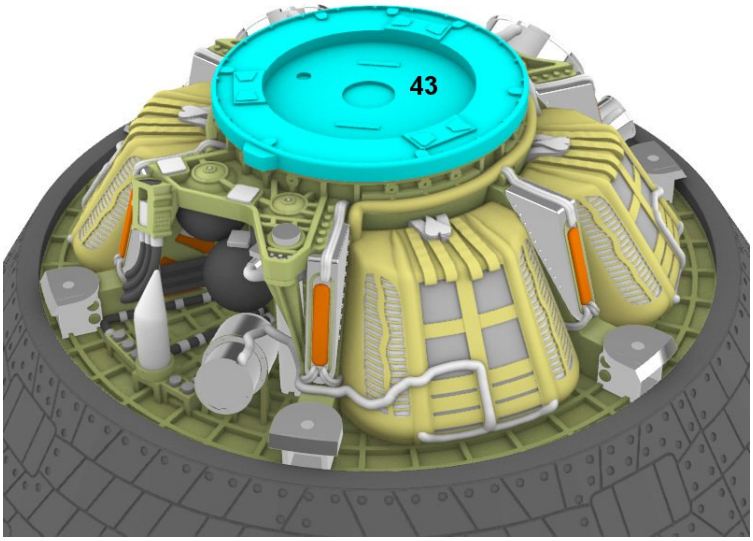
Since the parachute shell will be removable you need to fix magnets inside the parachutes. The magnets are 10 mm wide and 2 mm thick (see http://tinyurl.com/bdfysrwy).



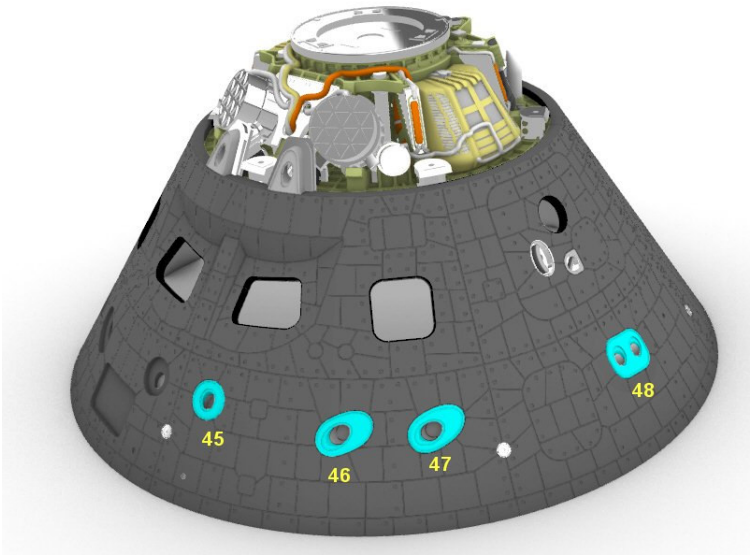
Parachutes are now fixed on the parachute section.



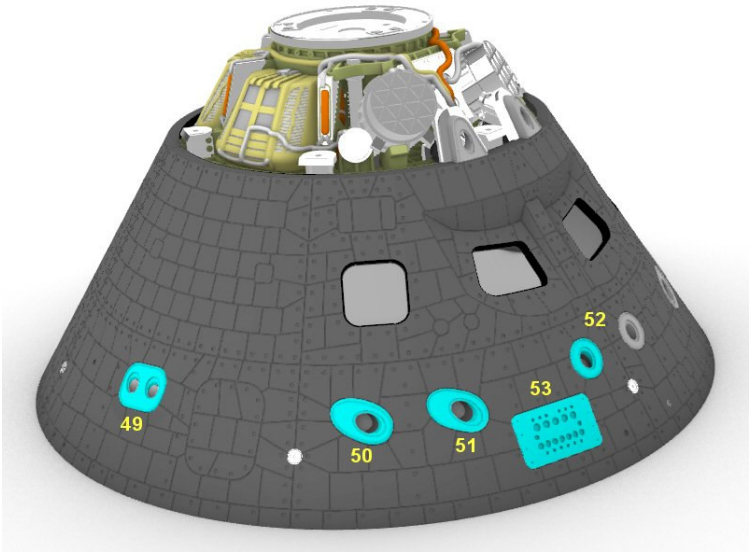
Fix the recovery beacon.



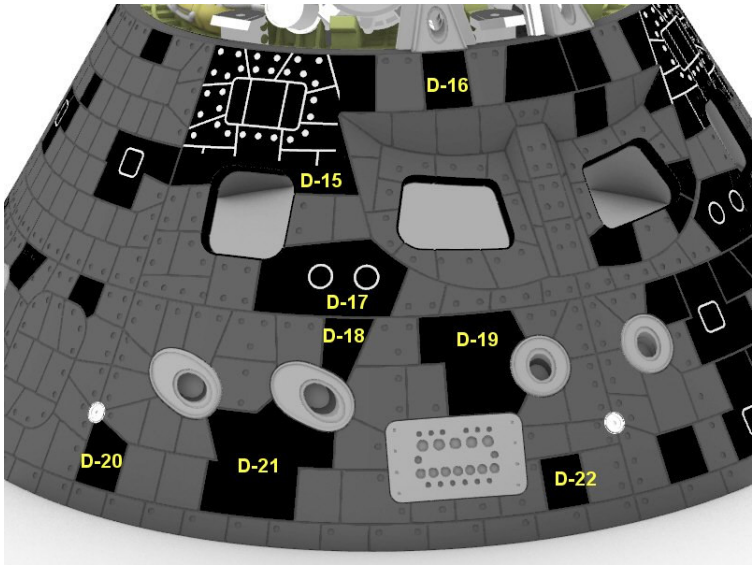
The upper hatch is now fixed on the parachute section.

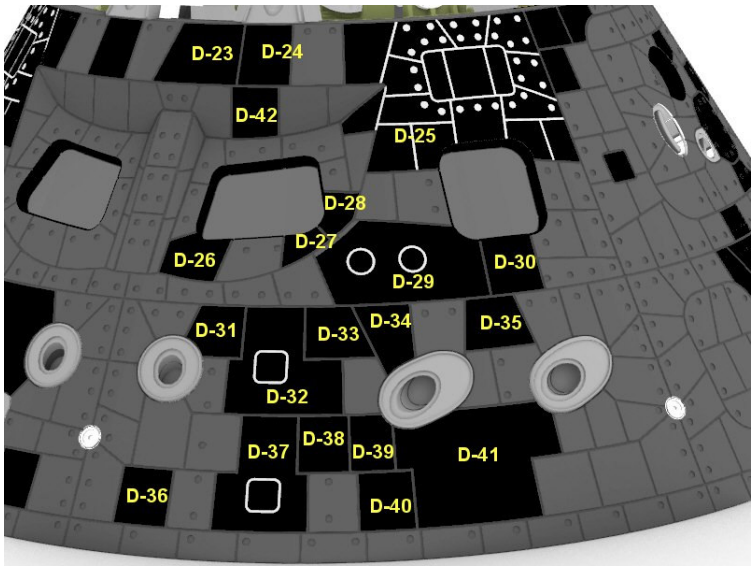


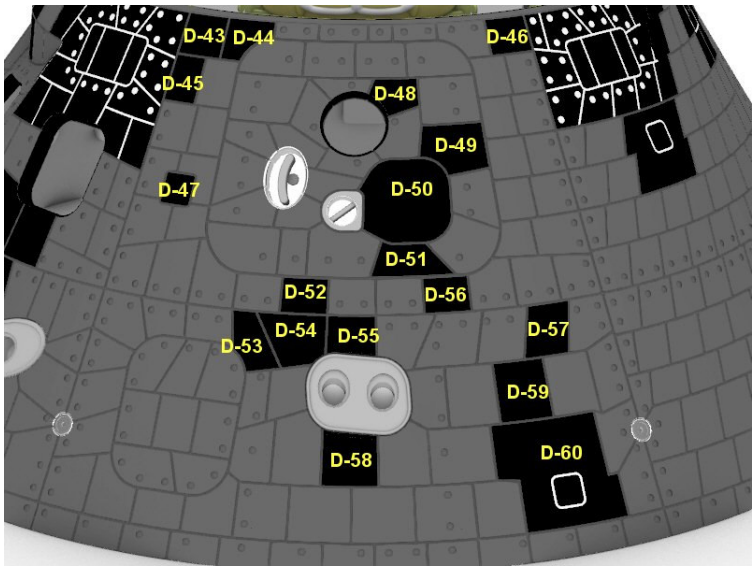
The pitch thruster (45), roll thrusters (46, 47) and yaw thrusters (48) are fixed on the main shell of the crew compartment.



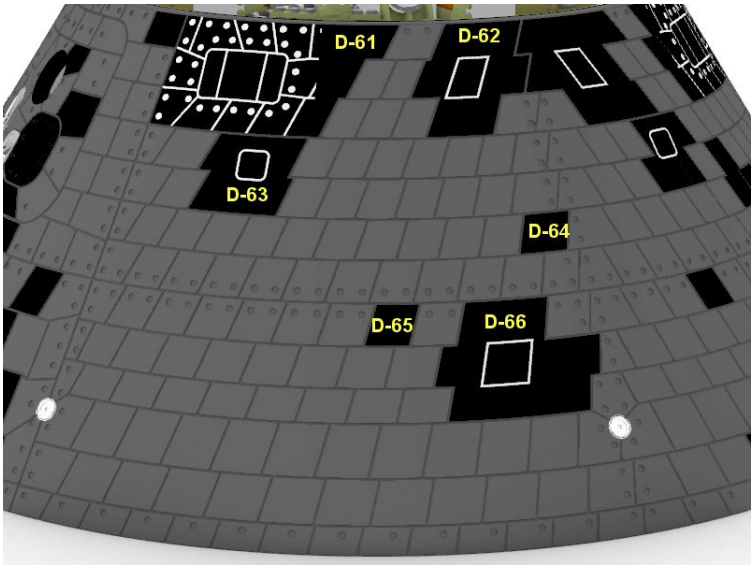
The yaw thrusters (49), roll thrusters (50, 51), umbilical plate (53) and pitch thruster (52) are fixed on the main shell of the crew compartment.

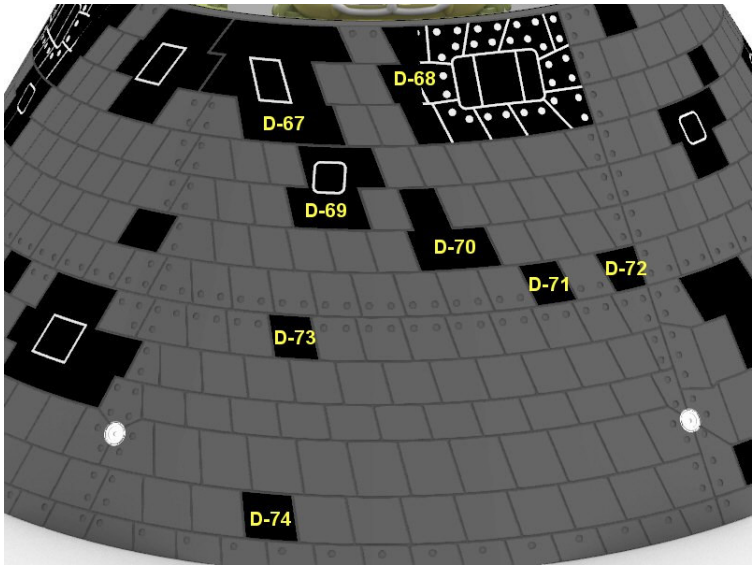




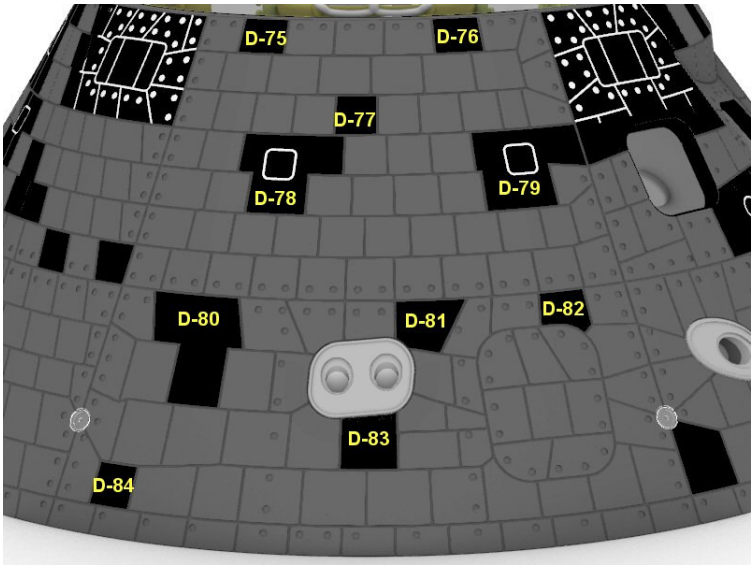


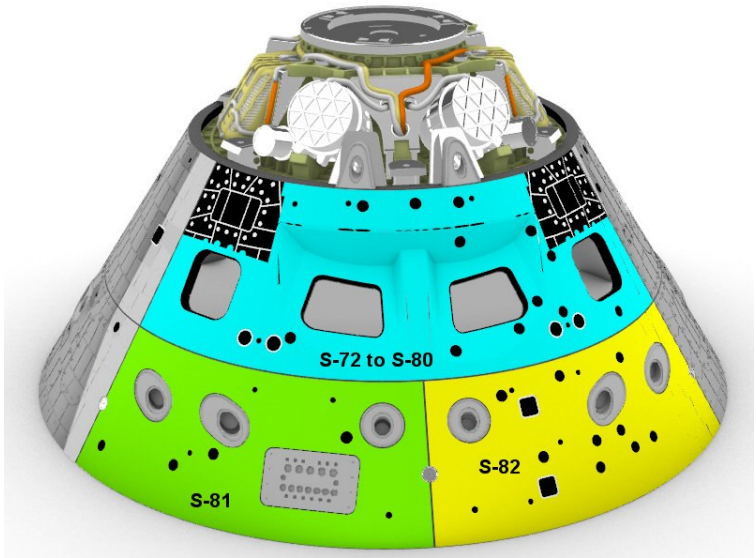
The Crew compartment shell will eventually be covered with chrome Bare-Metal foil however as some tiles will be visible you can either paint the shell in mat black or apply decals D-15 to D-84.



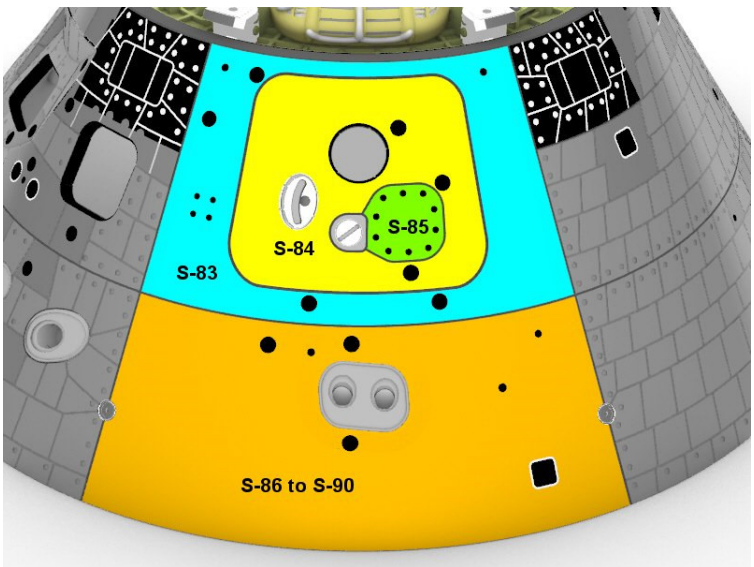


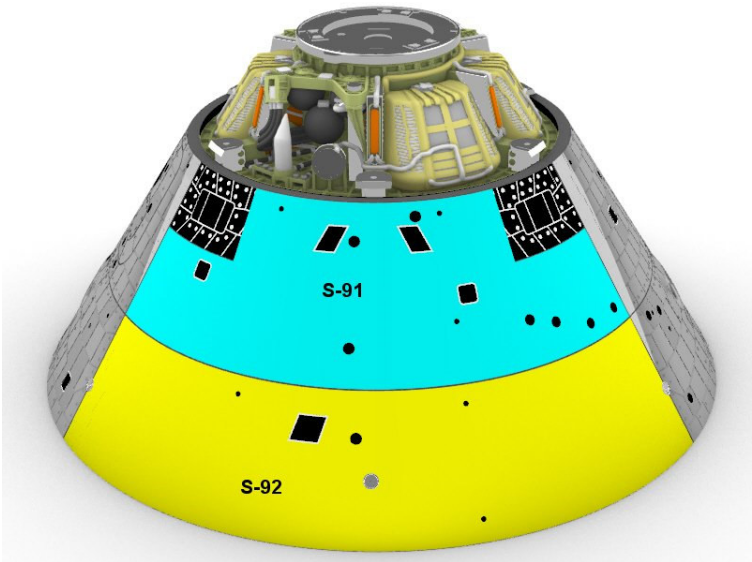
The Crew compartment shell will eventually be covered with chrome Bare-Metal foil however as some tiles will be visible you can either paint the shell in mat black or apply decals D-15 to D-84.

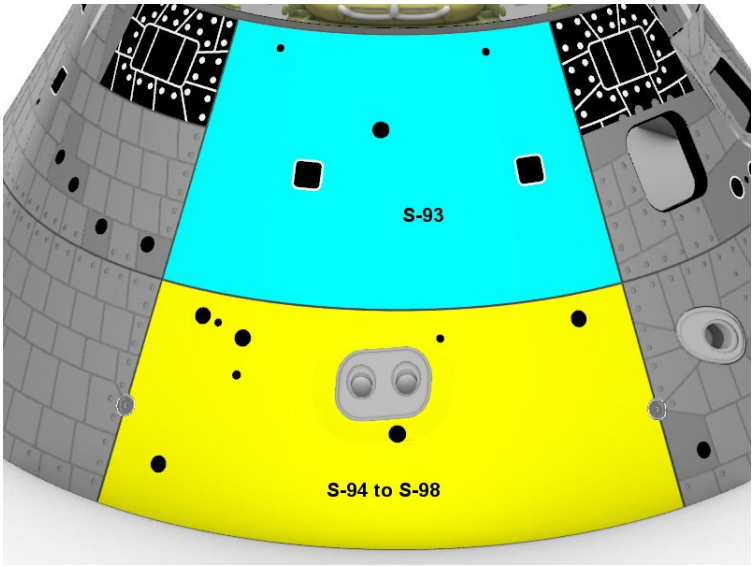




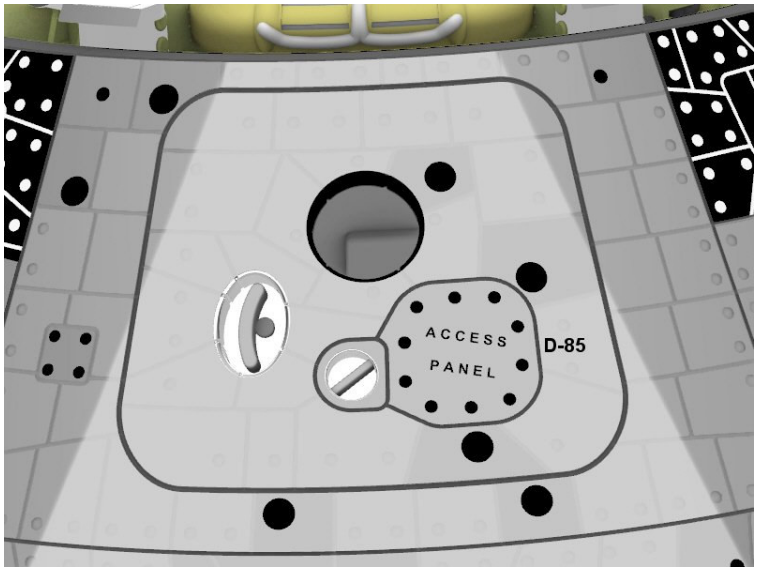
The Crew compartment shell are now covered with chrome Bare-Metal foil using patterns S-72 to S-98.



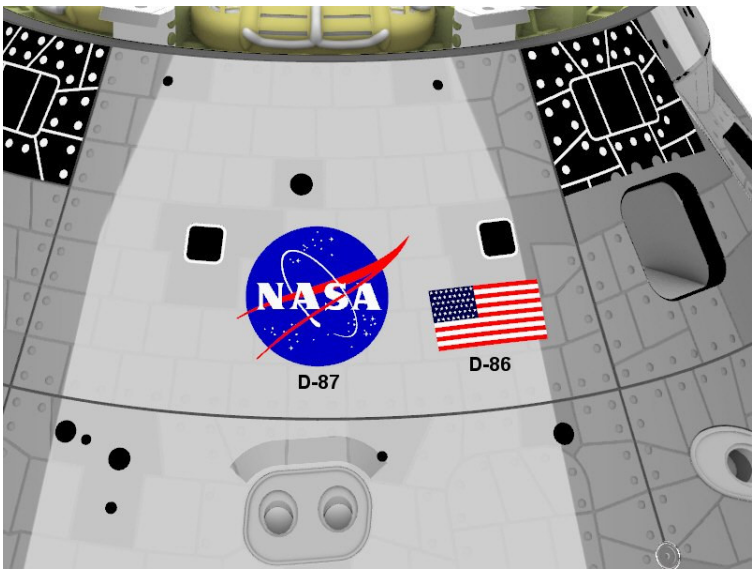


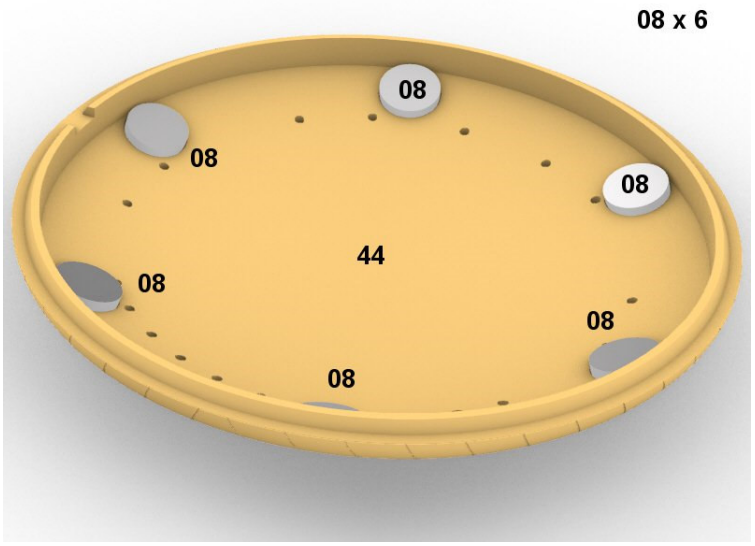


The Crew compartment shell are now covered with chrome Bare-Metal foil using patterns S-72 to S-98.

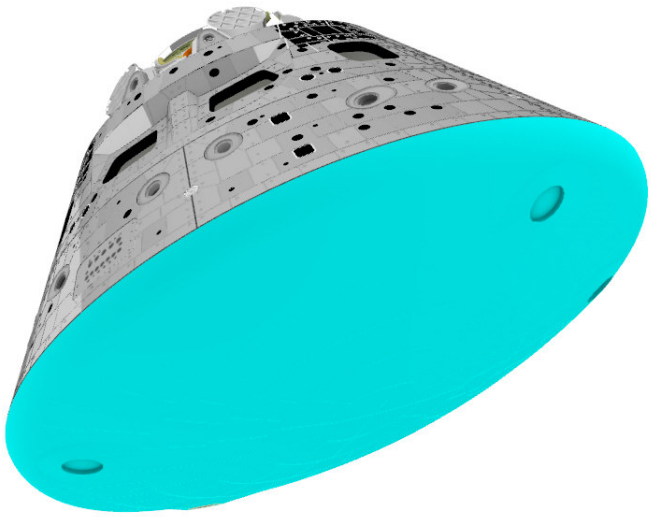


Final decals are applied on the crew compartment shell.

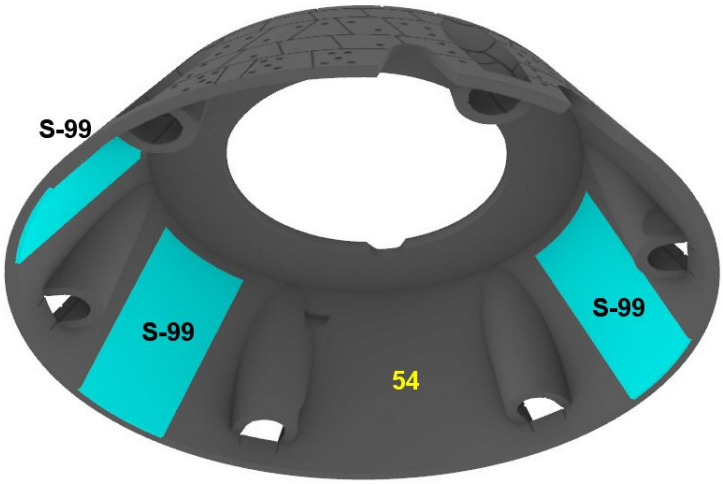


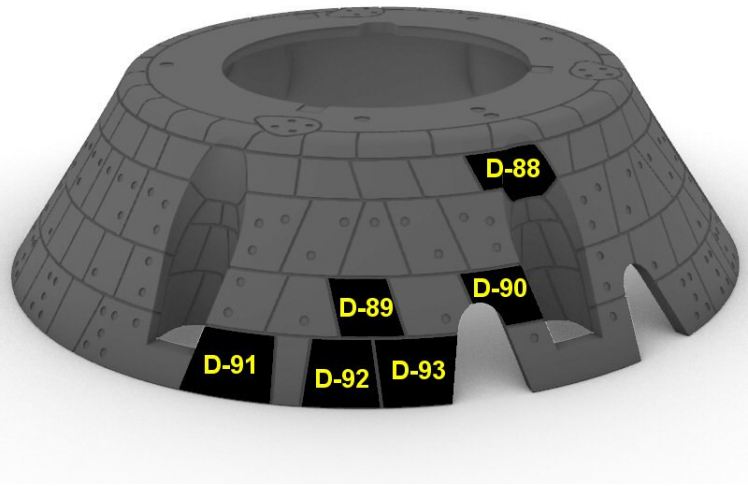


Since the crew compartment will be removable you need to fix magnets inside the heat shield. You have first to install the heat shield on its 4 supports on the SM and then fix the magnets which will take the correct magnetic orientation. The magnets are 10 mm wide and 2 mm thick (see http://tinyurl.com/bdfysrwy).

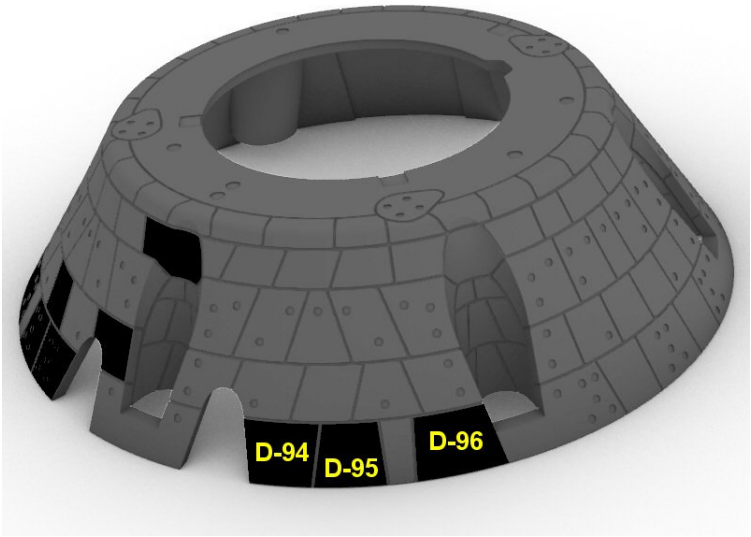


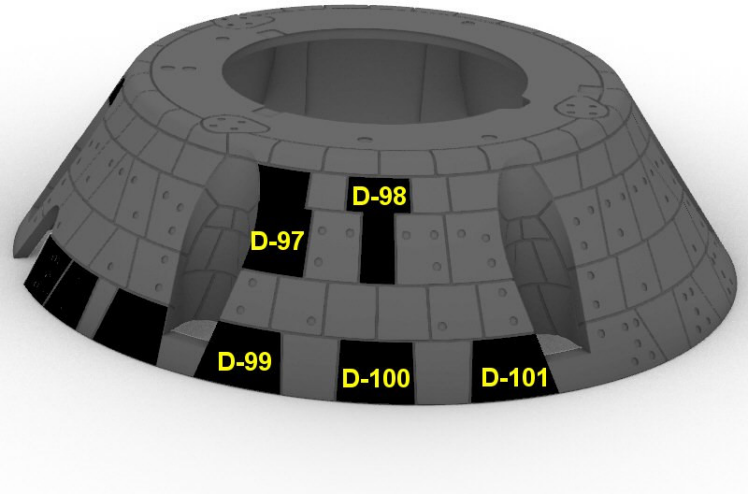
Using Patterns S-52 to S-71 the heat shield is covered with chrome Bare-Metal foil.



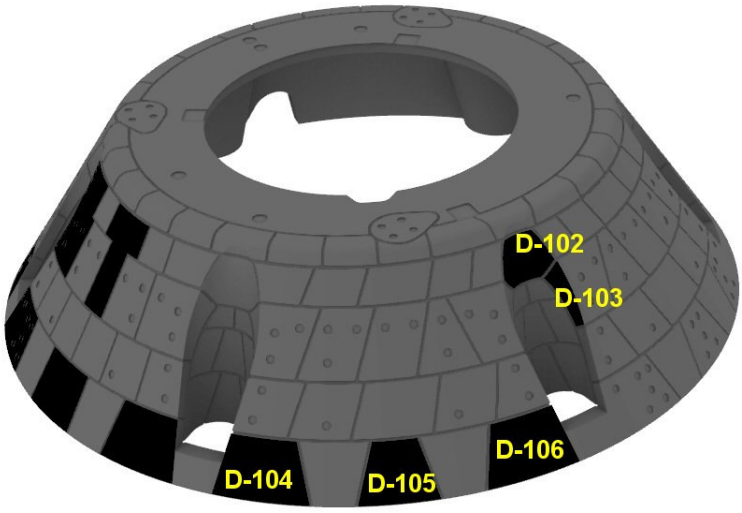


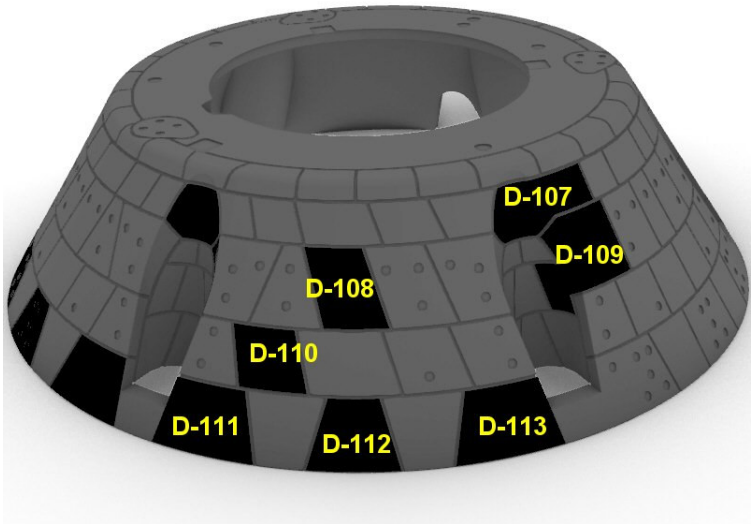
Pattern S-99 will help to cut metal rectangles in a tin can. Make sure the can is made of iron so a magnet will work on it.

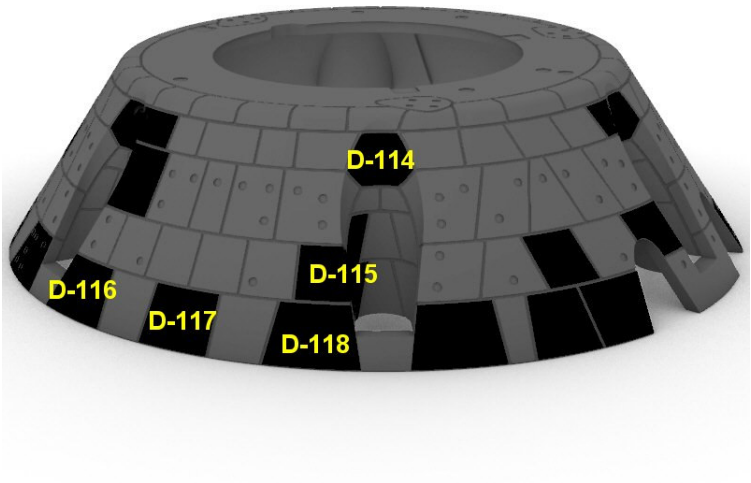


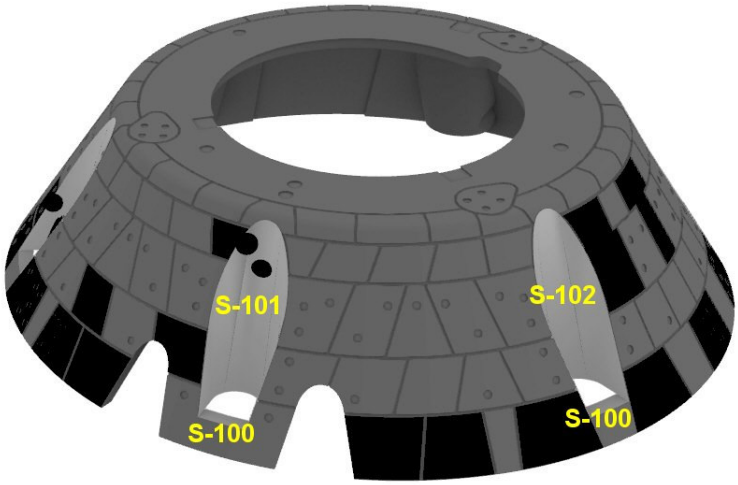


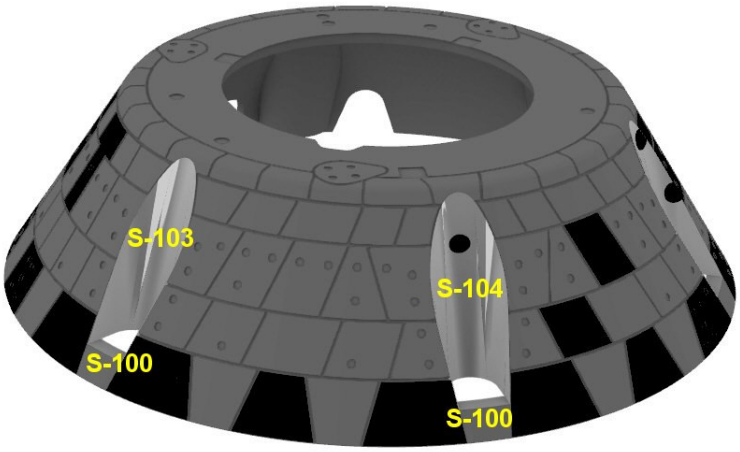
The parachute shell will eventually be covered with chrome Bare-Metal foil however as some tiles will be visible you can either paint the shell in mat black or apply decals D-88 to D-118.

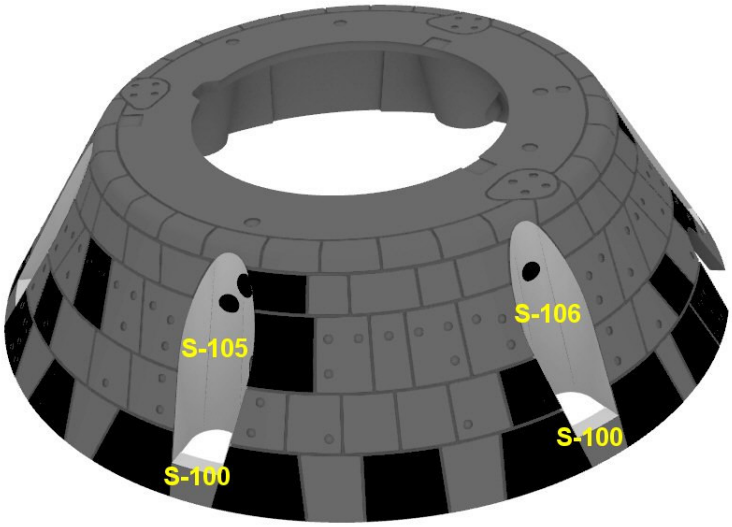




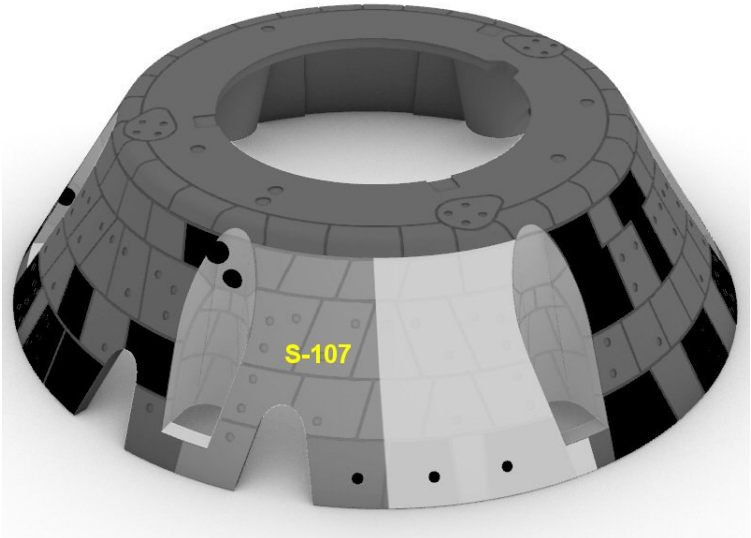


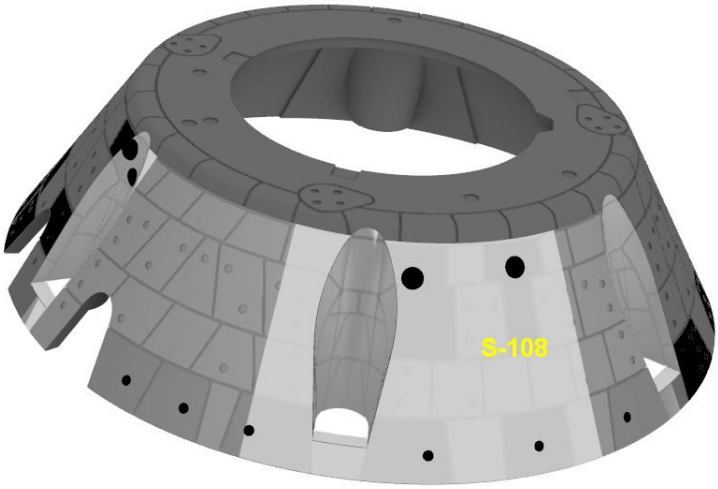


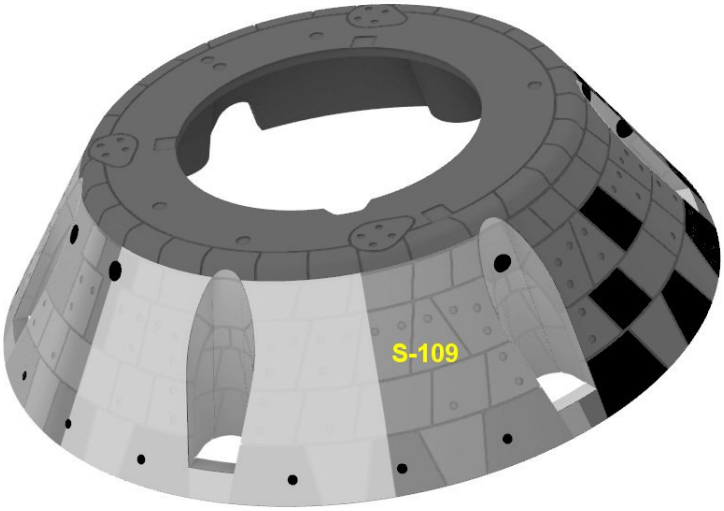


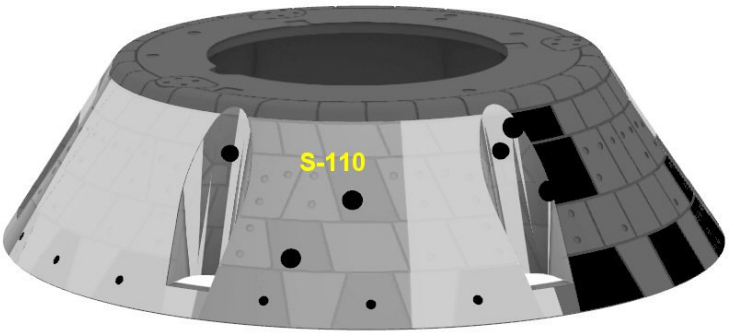


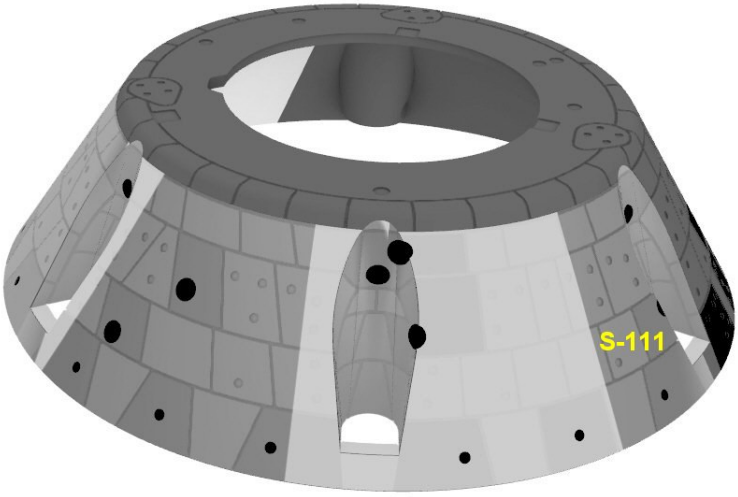
The parachute compartment shell is now covered with chrome Bare-Metal foil using patterns S-100 to S-115.

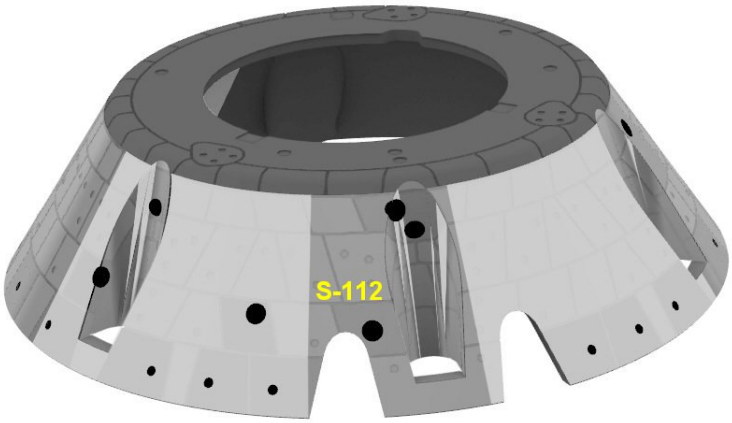




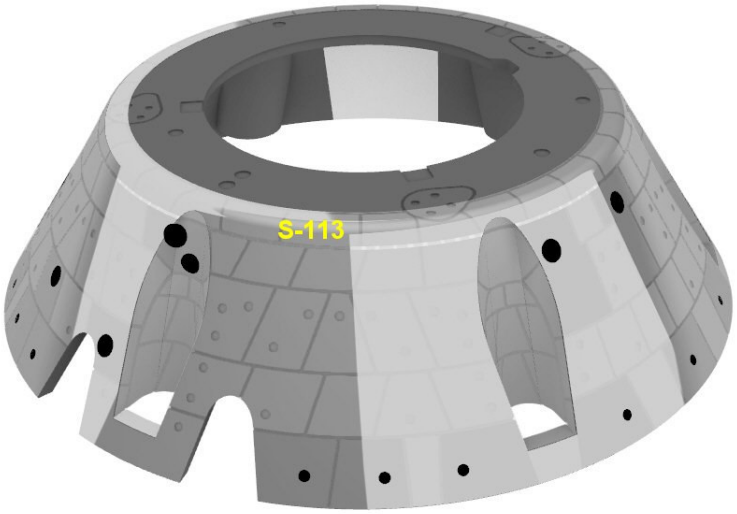


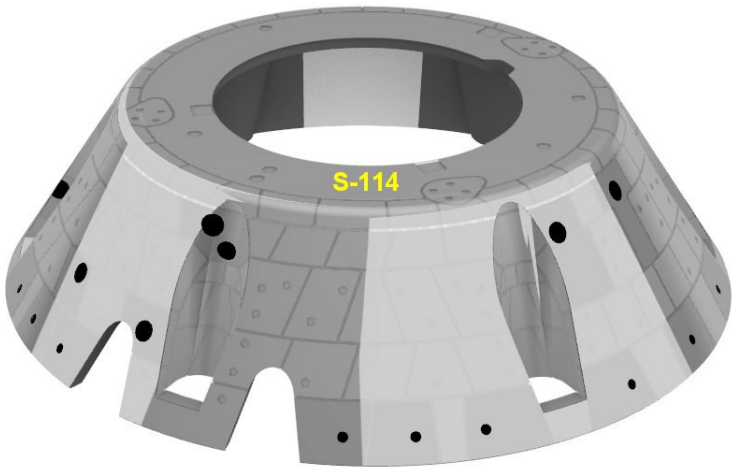


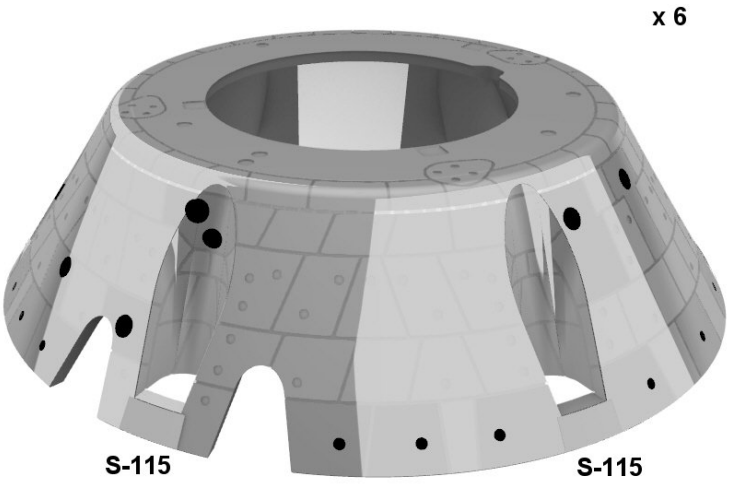


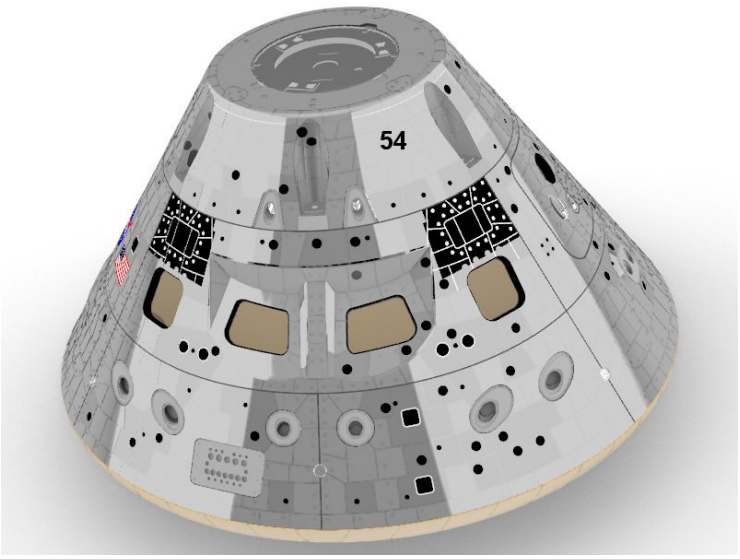


The parachute compartment shell is now covered with chrome Bare-Metal foil using patterns S-100 to S-115.









The crew module is now complete with the addition of the parachute shell.

Representation of the final model, you can use fishing line to secure the solar arrays.