

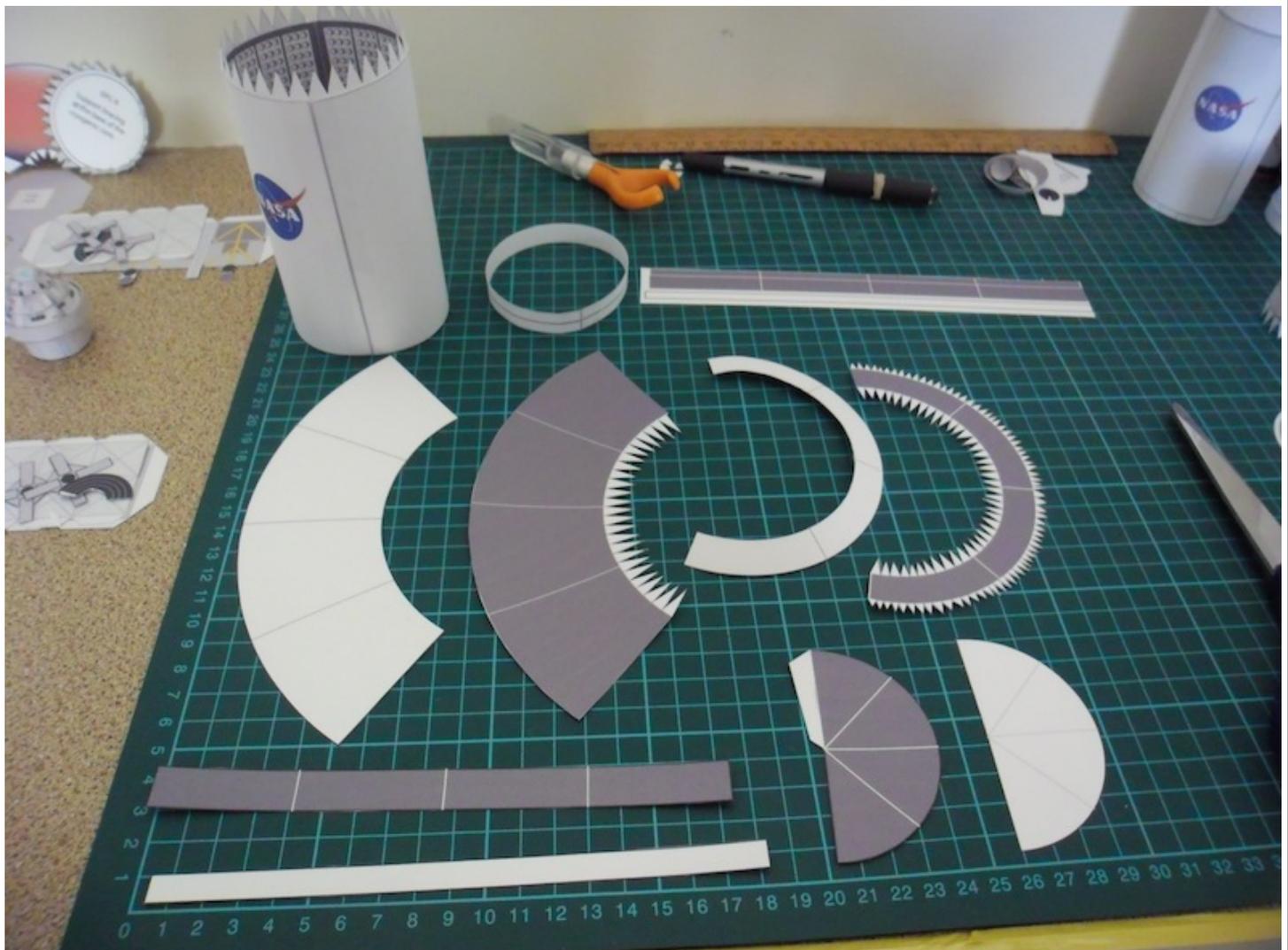
Instruction Manual: Space Launch System

10 metre Payload Fairing

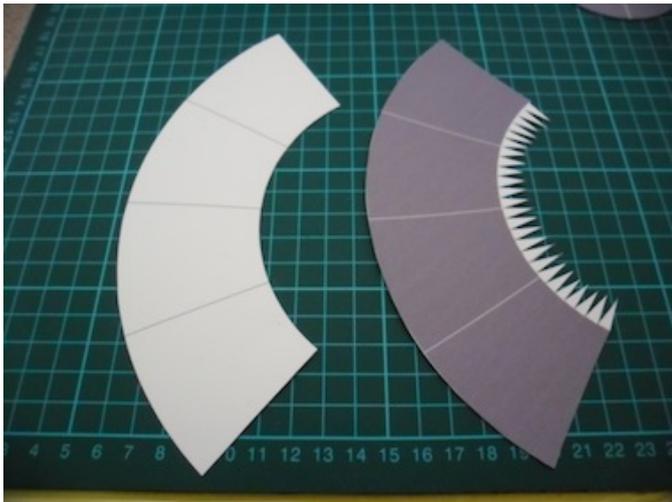
Designer's comments: This model has been designed without the benefit of engineering blueprints. Only publically available conceptual diagrams and illustrations have been used. As a consequence of this, a certain degree of 'artistic licence' has been used to create a model that exhibits at least a modicum of realism.

The assembly of a model should follow a procedure that vaguely resembles the method for cooking a meal; i.e.

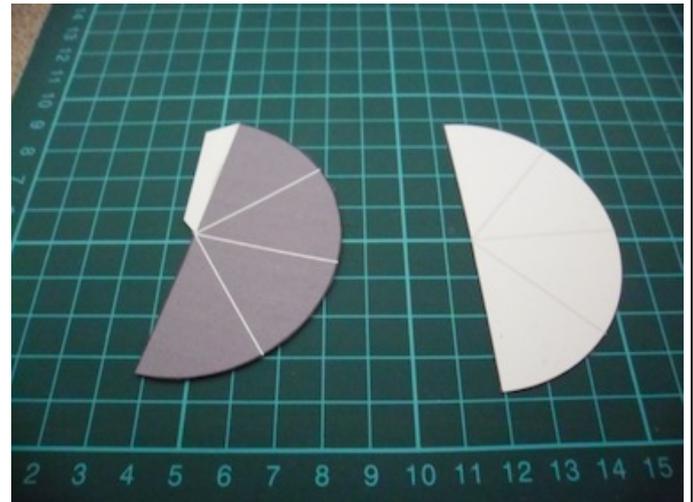
- Prepare a place where you can work, without distractions.
- Get all of your equipment (utensils) out and ready.
- Get all of your parts for the model (ingredients) printed, cut out and ready to start.
- Lastly, try to have a location for your model prepared in advance, so that when it is finished, you will know where to place it.



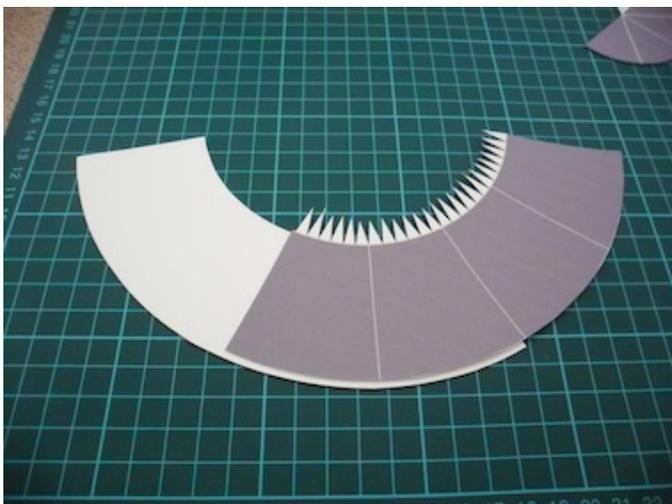
1. These are the parts that you will need to commence the assembly of the 10-metre payload fairing. The pieces necessary for the basic (10 metre diameter) shroud are presented. These pieces are the same for the smaller (8m diameter) shroud – only slightly bigger. The two largest pieces (the cylinder exterior and interior – top-left of the image) can be glued together. The interior acts as a giant 'glue tab' – eliminating the need for a separate tab.



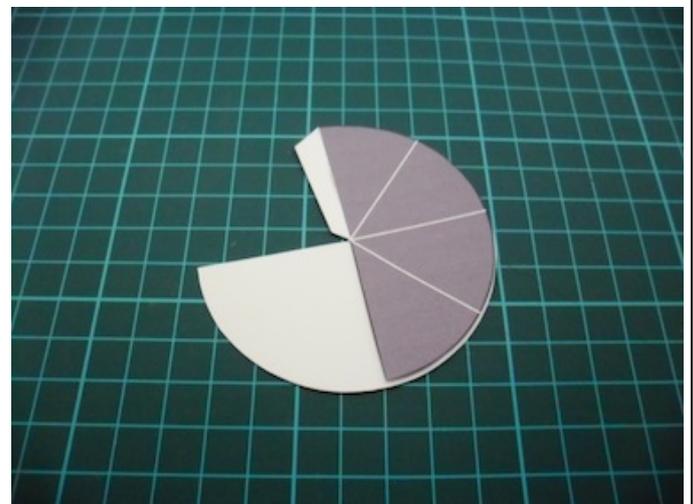
2. The payload shroud interior (right) needs to be glued / sticky-taped together.



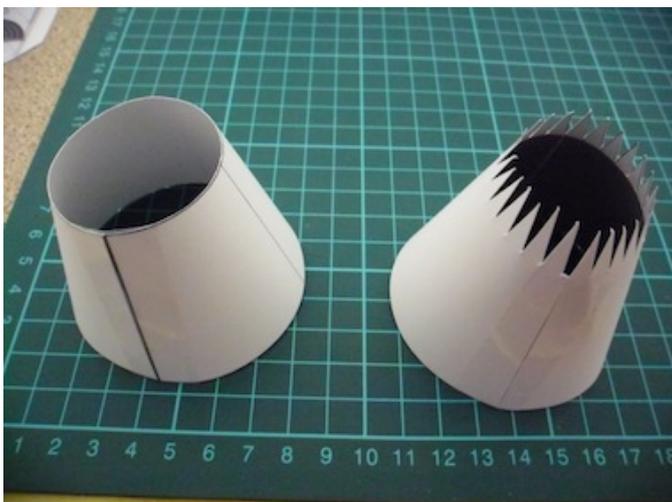
5. These are the two parts of the top cone – the upper-most part of the payload fairing.



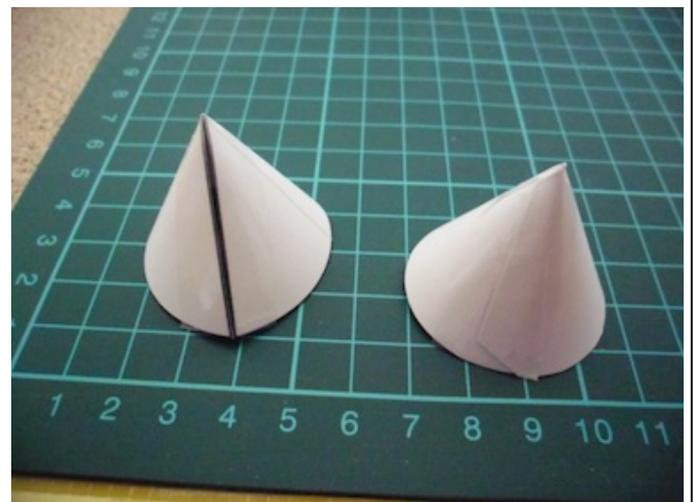
3. Do not do this! The inner section (dark) needs to be glued together and inserted into the cylinder.



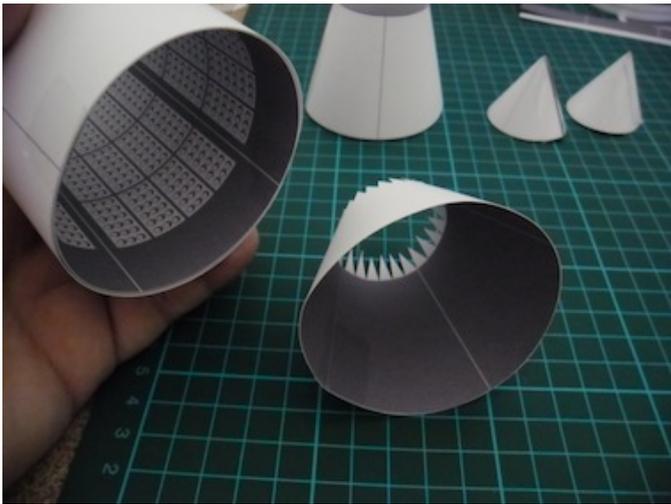
6. Do not do this! The inner section needs to be glued together (see the white glue tab).



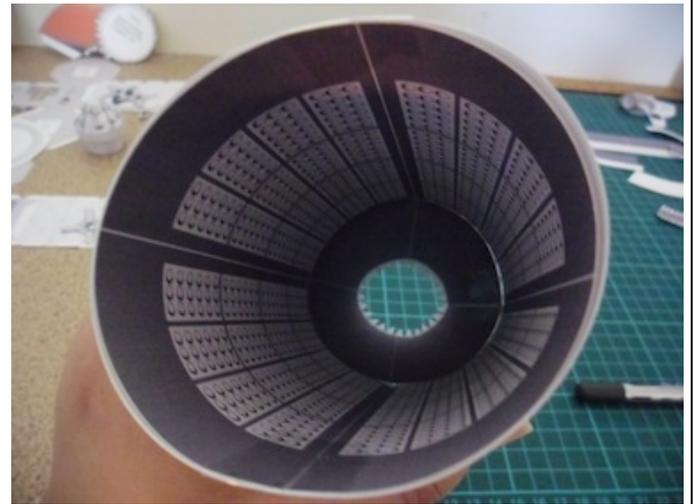
4. If you chose to use sticky tape, then you can independently construct the interior and exterior



7. The inner glue tab (right) needs to be inserted inside the other parts of the payload shroud (see next few images on the next page).



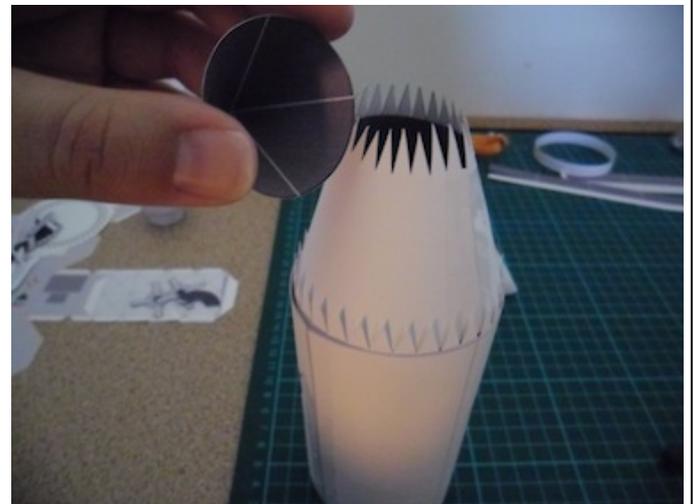
8. The interior section of the payload shroud. The smaller cone needs to be inserted and glued.



11. Looking through (from the base) - this is what the interior should look like.



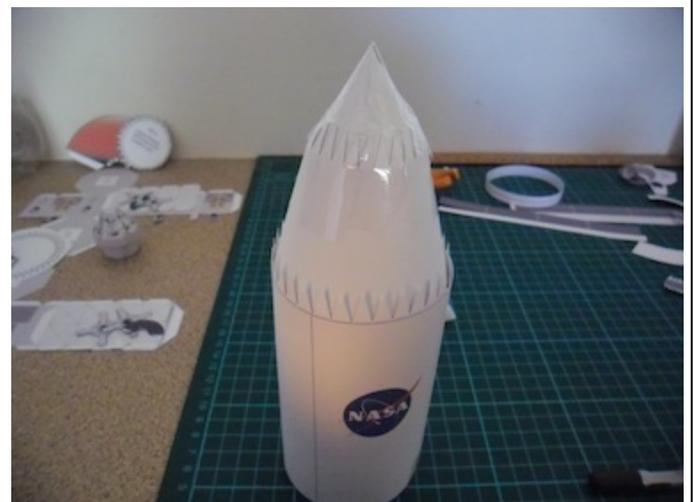
9. Insert the part from the base of the cylindrical section.



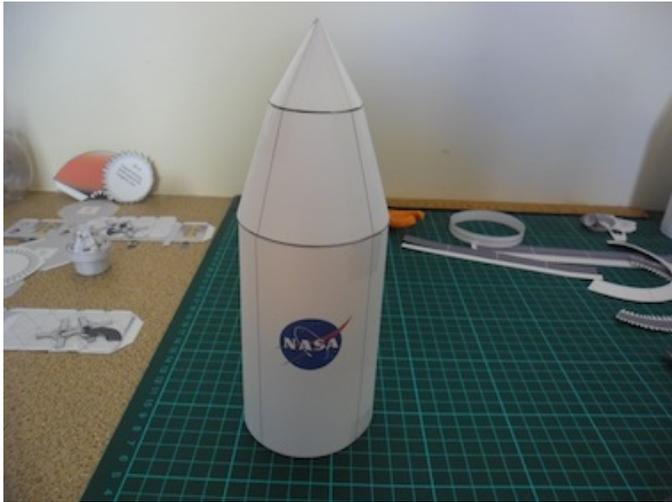
12. Repeat the same procedure with the other [smaller] interior cone.



10. This is what your payload shroud should look like with the cone inserted and glued into position.



13. This is what the shroud should look like with only the interior parts inserted.



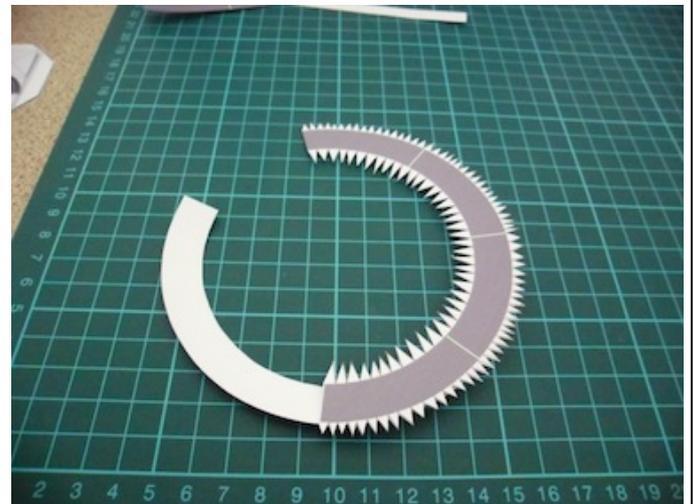
14. This is the finished exterior of the payload shroud...



17. The interior (left) and exterior (right) of the connecting cone.



15. ... and this is the finished interior of the payload shroud.



18. You do need to glue these two parts together as shown...



16. These parts are necessary to create the connection to the SLS core / third stage.



19. ... or you can simply sticky-tape the parts – just like in the above image.



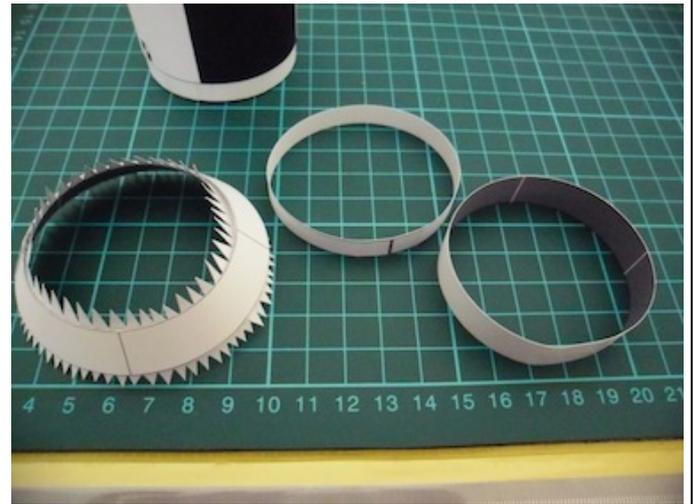
20. Once these two parts are put together, the small triangular glue tabs should be visible at both ends.



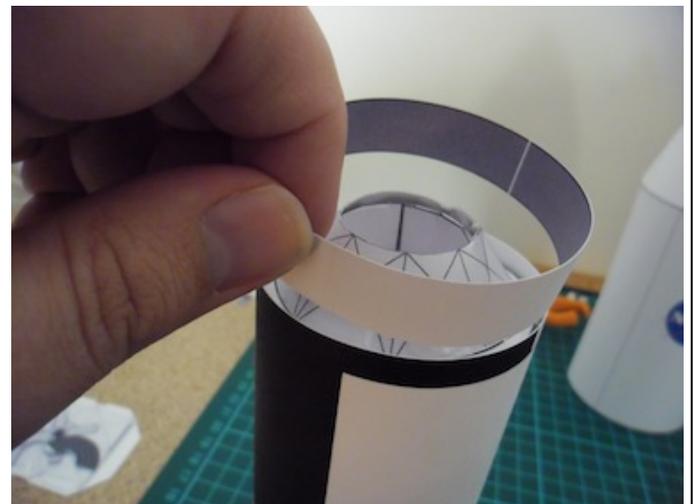
21. These two parts create the connection between the cone and the SLS core / third stage.



22. It would be best to construct the third stage [first] so that the connection cone can be built accurately.



23. The above parts have already been sticky-taped together. If you use glue, then additional care is needed.



24. This part needs to be placed inside the third-stage, to ensure the correct size prior to gluing.



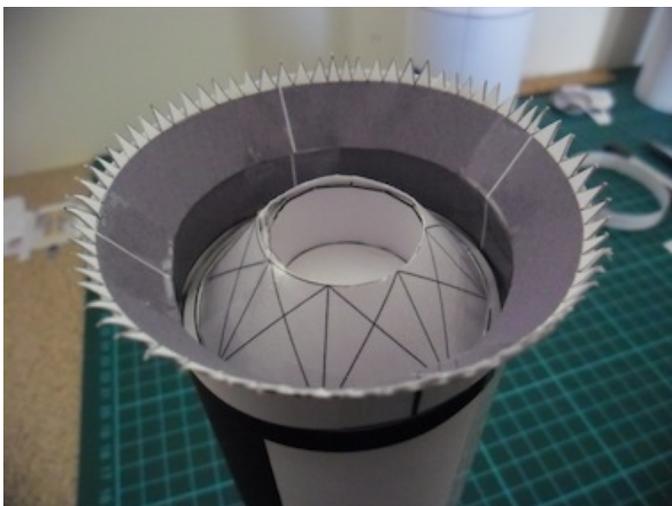
25. Once glued to the connection cone, the band should be aligned so that the white bars are connected (See the above image).



26. This is the connection cone, placed onto the third-stage – testing that everything is correct.



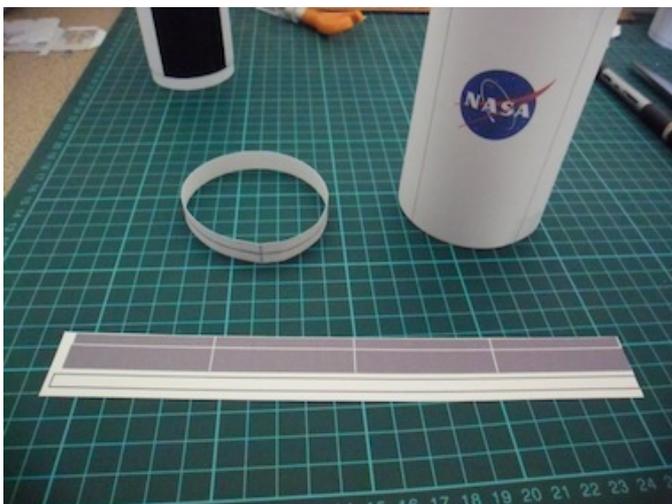
29. These parts (the bars) need to be glued / taped to the interior of the ring and the cylinder.



27. With the cone in position, the payload thrust structure (pretend scaffolding) will still be usable.



30. This band, made into a small cylinder can have the thin grey interior piece glued inside of it.



28. The parts shown above (not yet cut out) are necessary to connect the shroud to the cone.



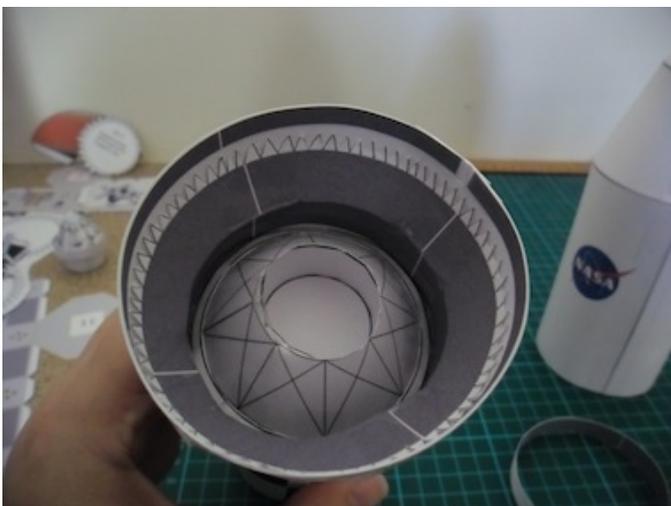
31. This is the connection band, now ready to be glued to the connection cone.



32. Prior to gluing, check to see that the thicker grey band is the correct size (diameter).



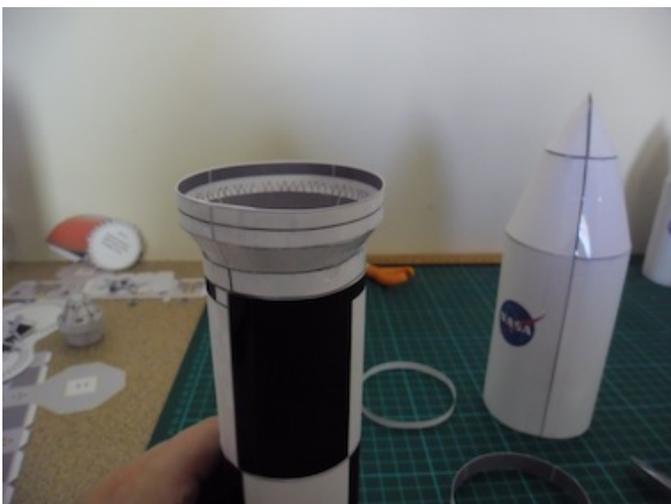
35. The two remaining bands now need to be tested prior to gluing inside the cylinder of the shroud.



33. Once glued into position, the connection cone should look like this (see above).



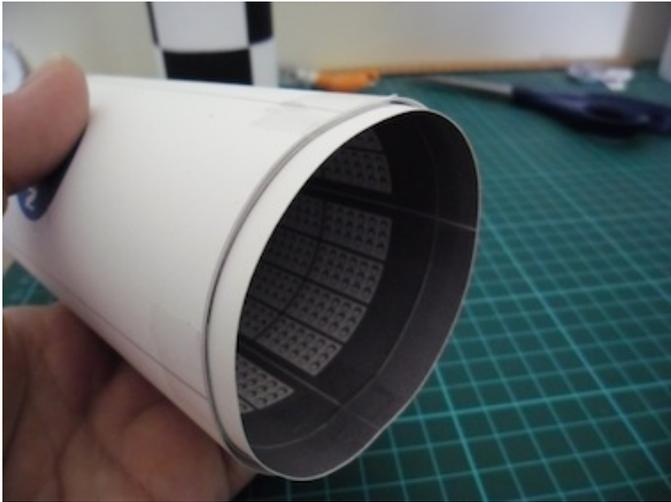
36. Place the [dark] grey band inside the exterior [smaller] white band the check the size of each.



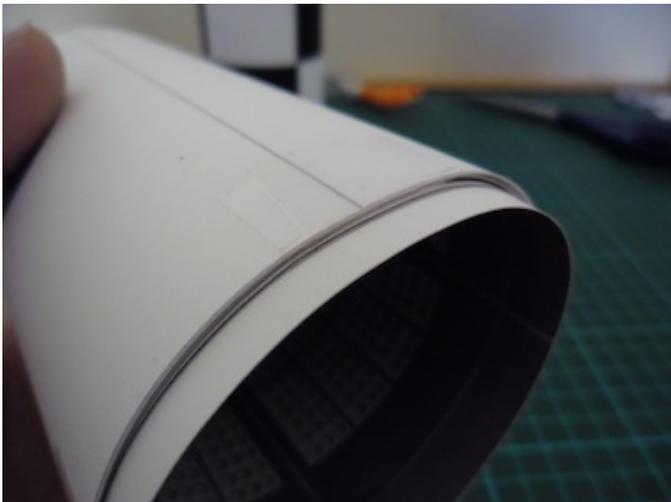
34. Looking from the side, this is what the connection cone should appear to be...



37. Once you are sure that you cutting is accurate, glue the white band to the lowest section of the interior, leaving the band flush (even) with the bottom of the cylinder; i.e. no overhang.



38. Repeat the same procedure with the grey band. This is the completed joint that is used to secure the payload shroud to the SLS core / upper stage.



39. This close-up of the joint shows how the layers of paper provide a “working gap” to allow the joint to link up with the connection cone easily.



40. Once finished, place the payload shroud into position to test the balance of the entire model.



41. This is the completed 10-metre payload shroud.

The upper section (the main cylinder) can be easily removed to allow payloads (other models) to be placed onto the payload scaffolding.