

Ebon Hawk

Papercraft Instructions

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These are the instructions for the Ebon Hawk model (I had hoped that much was obvious by now but it never hurts to be clear). If you somehow managed to get this file but not the model itself, it is currently available from the link above if you look through my gallery for 'Ebon hawk model PDF'; the model is a 4MB download. I apologise in advance for my overuse of parenthesis.

With the exception of a few, very small, edits the external appearance of this model is identical to the ship in both Knights of the Old Republic games. Where I have made edits it was just to make the model easier to build (or possible to build in the case of problems with the mesh). I added a significant amount of internal support and re-structured the mesh into sections so that each section would be largely self-supporting and can be built a section at a time. The finished model is fairly robust (won't survive a prolonged attack by either Malik's forces or someone sitting on it though) and is self-supporting on its own landing gear or, if you wish to, you can suspend it from the ceiling or even run around your house making pewpewpew sounds (like me).

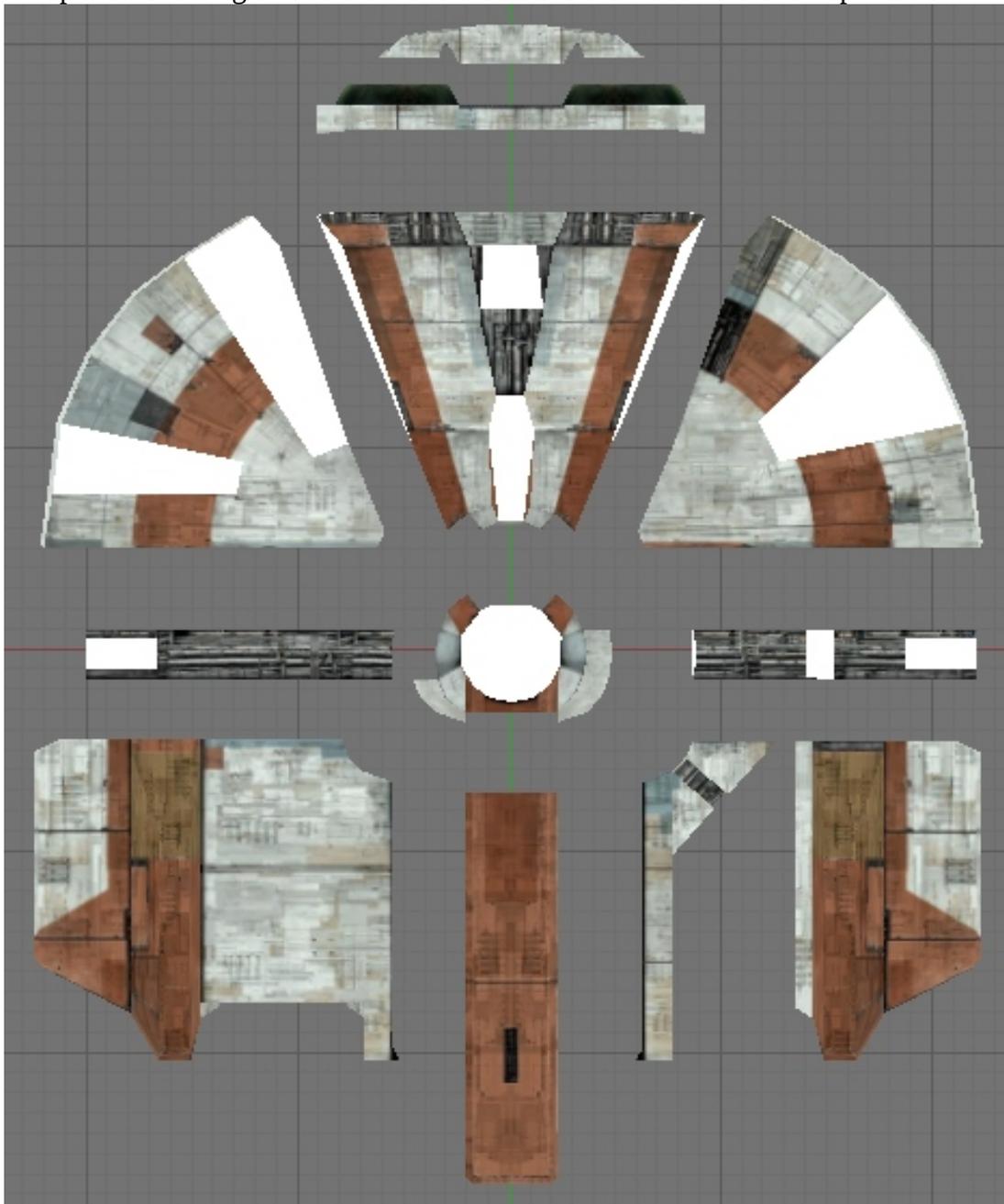
Due to the complexity of the model, I advise you to carefully examine each page and the pictures to ensure you are familiar with how each part is constructed. Test-fitting is always a good idea as is taking a breather if building this stops being enjoyable; the model will be ready for you any time you wish to make it, your sanity may not. That being said, the model is mostly composed of relatively easily built sections, the finer detail parts (gun barrels and landing struts) can be replaced with suitably painted cocktail sticks or something else of the appropriate diameter if attempting to make the paper parts proves problematic.

Being on the right-hand side of the Atlantic, all of my units are in metric; I'm not sure exactly what the US equivalent weights are for 220GSM and 160GSM card is so you might have to inquire at your local stationary shop (or google it, I guess). If you've looked at the template you'll notice that the pages with 'detail' bits are marked '160GSM suggested'. These parts are either non-load bearing i.e. they are not responsible for the structural soundness of the model, or are too small to be made (easily - I'm sure it's possible) from 220GSM card. In these instructions you'll see that 160GSM card was used for the landing-gear struts but they are reinforced.

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Figure 1: Top view showing an overview of the sections the model is broken up into.



The main hull is broken up into thirteen segments. Figure 1 shows twelve with the thirteenth being on the belly below the turret mount. The model layout is arranged so that complete sections are found on one or more sequential pages (for simplicity). If you have a look at the pages you'll note that each section is labelled and I started from the back and built forward, for the most part.

Have a look at Figures 2 through 4 to familiarise yourself with how the model is broken up, it may be useful to refer to them later when you are attaching sections together.

Figure 2: Perspective views of the model sections

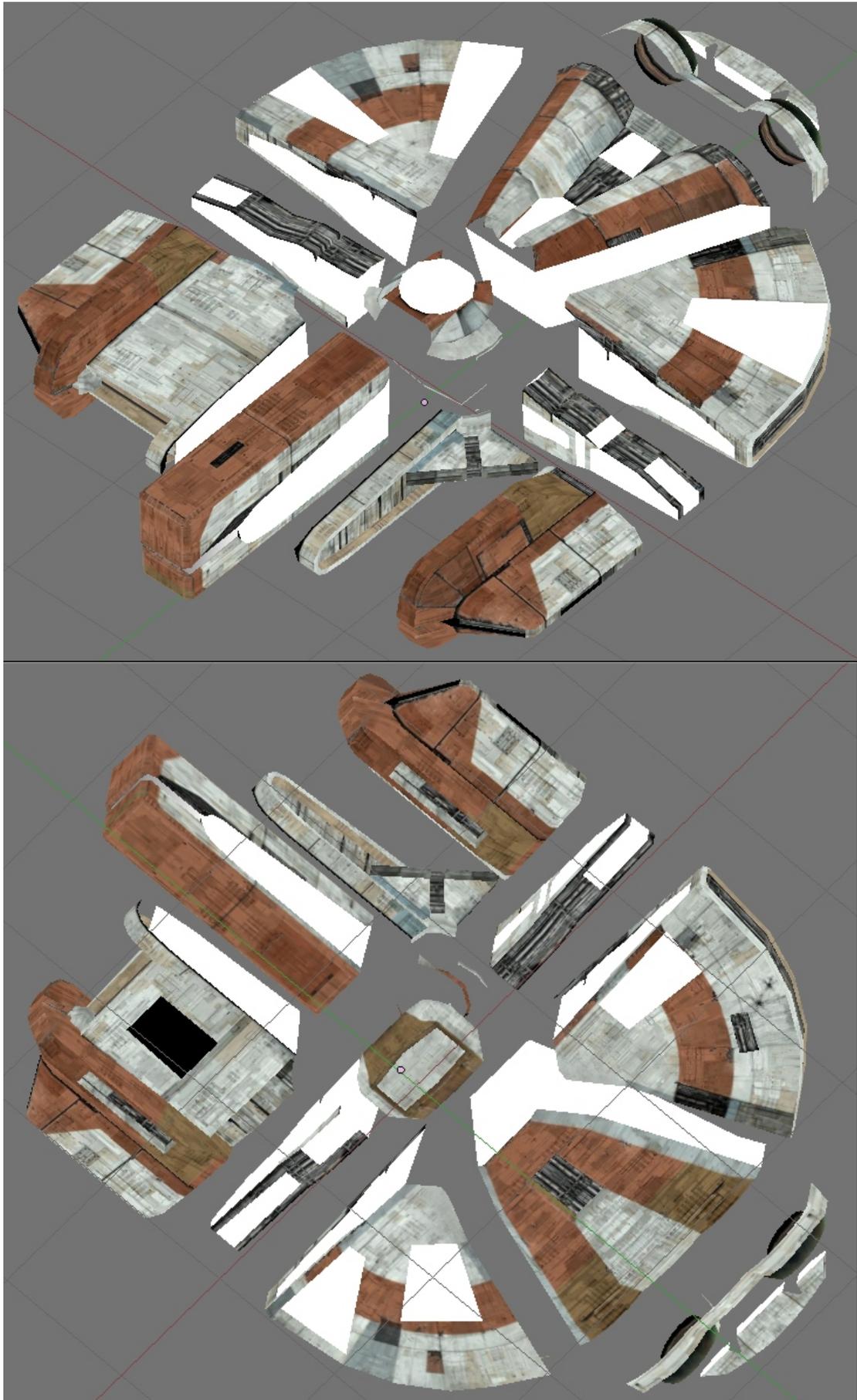


Figure 3: Side views of the model sections

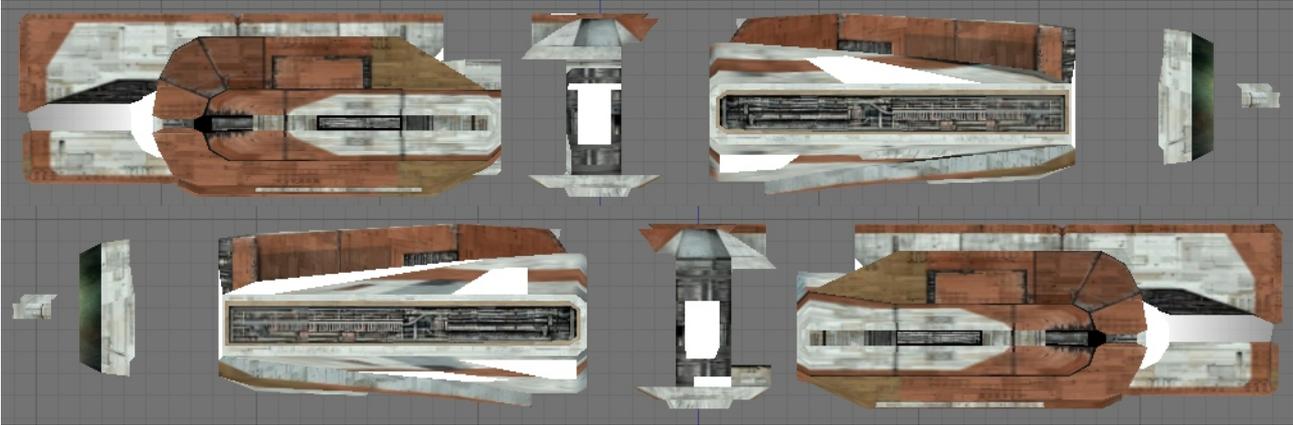


Figure 4: Front and back views of the model sections



Model construction:

Model template page 1: Cut the parts from sheets 1 and 2, glue the two brown/grey parts together taking note of the slight angling of the grey-centre area in Figure 5 below. The small, dark-grey part is glued in as shown (Figure 6 should clarify the location). Fold and glue the large, white part as shown being careful to note the position of the angled grey strips.

Figure 5: Engine underside detail



Figure 6: Engine underside, internal view.

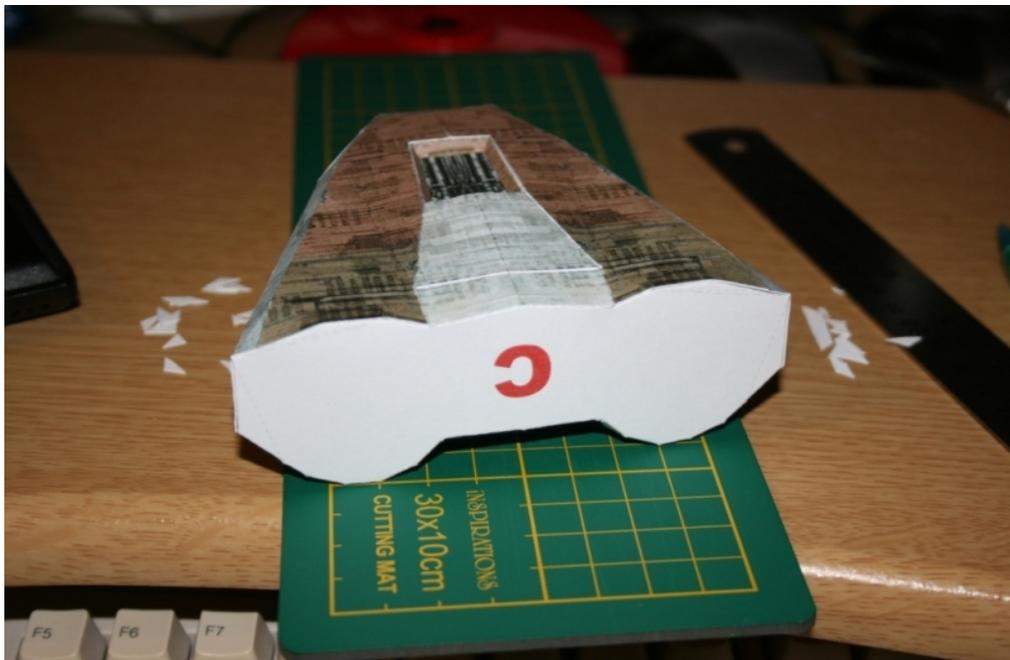


Model template page 2: Glue on the large white part labelled C as shown in Figure 7, be sure to note how to position the grey section in Figure 8. It is folded over and glued into the gap at the bottom of the picture in Figure 6.

Figure 7: Position of the engine-outlet mount. Top.



Figure 8: Engine-outlet mount. Bottom view.



Cut out and fold the part shown in Figure 9 as illustrated. Do not glue the two small grey rectangles at the right side of the image at this point. Attaching parts 1 and 2 on this sheet will be easier when the top is completed.

Figure 9: Spine running between the engines.

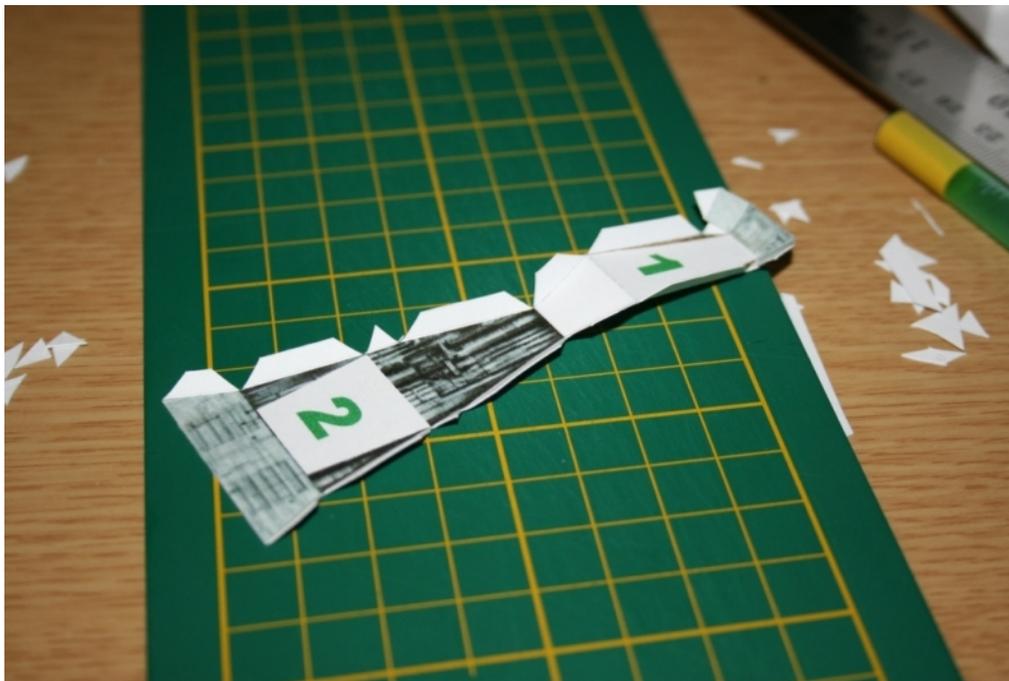
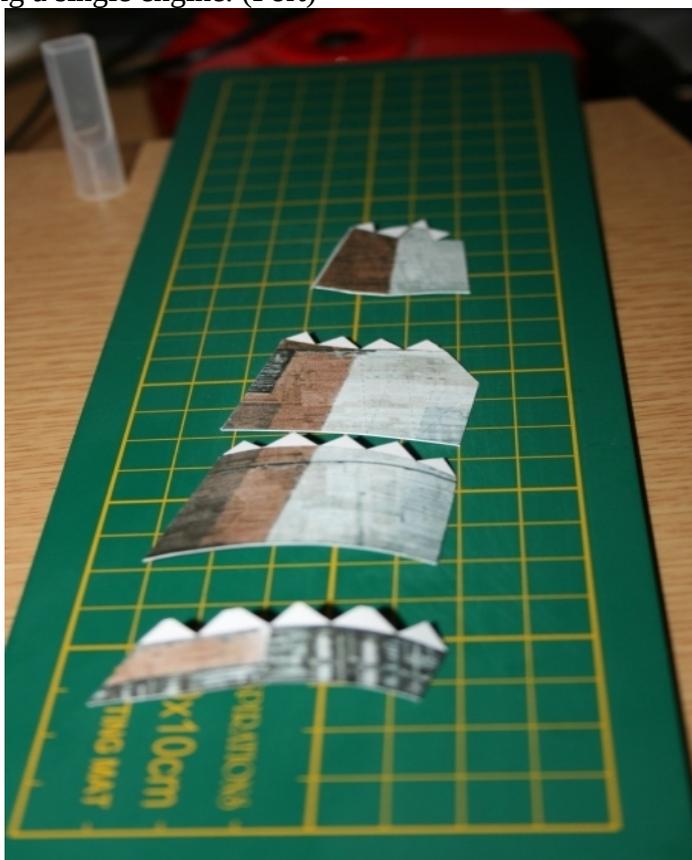


Figure 10: Parts forming a single engine. (Port)



Take the parts shown in Figure 10, curve them and glue to form the completed engine as seen in Figure 11. The starboard engine is completed in the same fashion (Figure 12). Use the photos to guide you in the curvature of each engine. (Alternatively, if you wish, you can simply fold along the lines marked on the parts).

Figure 11: Completed port engine.



Figure 12: Port and starboard engines.

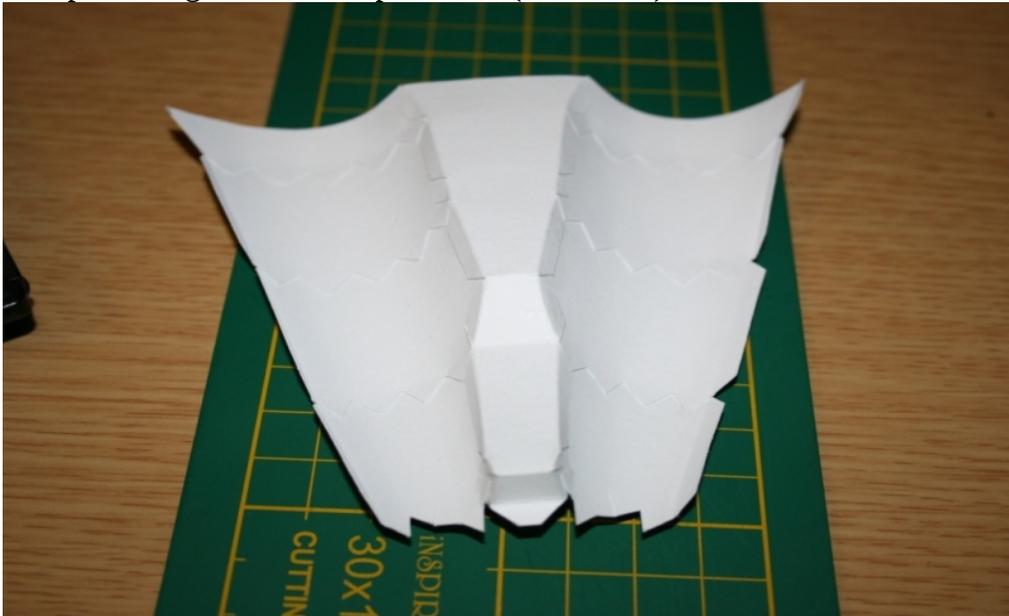


Glue the two engine parts to the spine shown in Figure 9 as shown in Figure 13. Note that parts 1 and 2 from **model template page 2** have been added at this point. Figure 14 shows the tab detail on the underside. Both engines will tend to flatten out whilst construction is progressing, don't worry though as gluing them to the rest of the engine section will hold them in shape.

Figure 13: Completed engine-section top-surface.



Figure 14: Completed engine-section top-surface. (Underside).



Glue the complete assembly shown in Figures 13 and 14 to the assembly illustrated in Figures 7/8. Start from one side and glue 'across' the part with the red 'C' to the other side. The complete engine assembly should be as shown in Figures 15 and 16 below. Note that the top section in Figure 16 should 'float' as is suggested in the image.

Figure 15: Completed engine assembly. (Rear view).



Figure 16: Completed engine assembly. (Front view).



Model template page 3: Gluing the parts together for the top and bottom surfaces shown in Figures 17 and 18 will introduce a small amount of convex curvature to each surface, this is intentional. Note that the panels on **model template page 4** are not glued on at this point as it is better to complete the entire top, bottom and sides of these sections first.

Figure 17: Starboard hangar, upper-surface.



Figure 18: Starboard hangar, upper & lower surfaces.

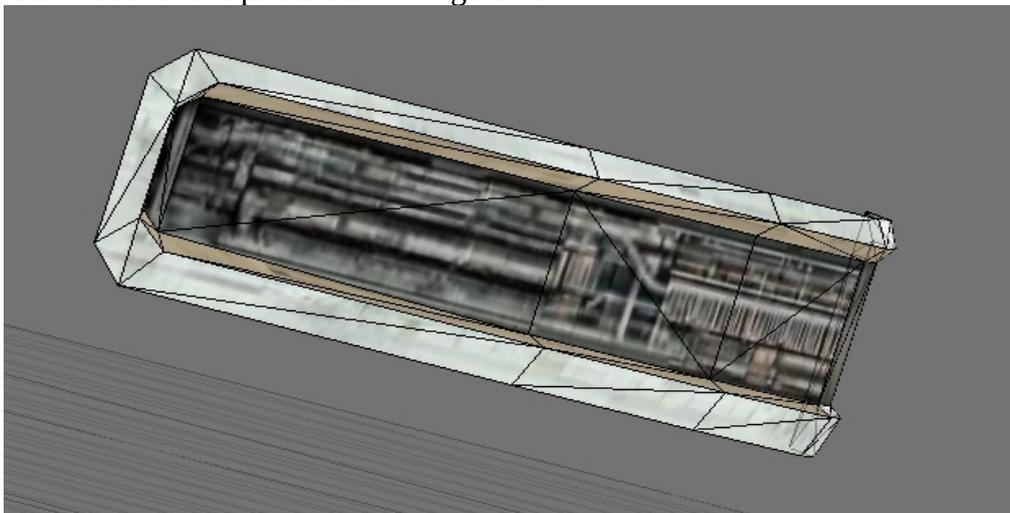


Model template page 6: The part shown in Figure 19 is less intimidating than it looks. The tabs glued to the back of the dark grey area will hold the shape quite well if aligned correctly. Note in Figure 20 that the brown area forms a small lip and the light grey border is angled back. Reinforcing the ends is a good idea before the part is glued to the rest of the section.

Figure 19: Completed edge; note the curvature and small lip.



Figure 20: CGI model of the part shown in Figure 19.



The complete starboard section composes of the parts built earlier (Figure 18) and the part marked with a large, red D on **model template page 6** with the curved part shown in Figure 19 above. Glue the 'front' (marked D) and the side to the top, make sure you note that the bevelled rather than the straight end of the curved section matches the angled strip at the front of parts shown in Figure 18. You can use the end of a steel ruler to press the tabs down inside when you're gluing the bottom on, this results in a uniform bond and a tidy edge. The result should be as shown in Figure 21. Glue the top edge tabs on this assembly along the white line on the engine section. Ensure you get a really good bond here and allow it to set properly.

Figure 21: Completed rear starboard assembly



Figure 22: The rear starboard assembly glued to the engine assembly.



The paper will want to move slightly when you glue the rear flap and bottom flaps on, just make sure you follow the edge of the engine section and use a ruler to press down on the flaps for a good bond. (They can be a bit awkward to reach) – Figure 23. When completed cut panels 3, 4, 5 & 6 from **model template page 4** and attach them to the marked spaces - use the gap at the front of the model and the steel ruler to ensure the surface doesn't 'pop' in. If it does simply put your finger or a pen in and pop it back out again. Figure 24 shows the top panels in place.

Figure 23: Bottom and rear flaps of the starboard section glued to the engine section. The rear tab of the starboard assembly should be flush with the rear of the engine assembly but you may note that there's a small ~1mm offset which was due to misalignment when gluing.

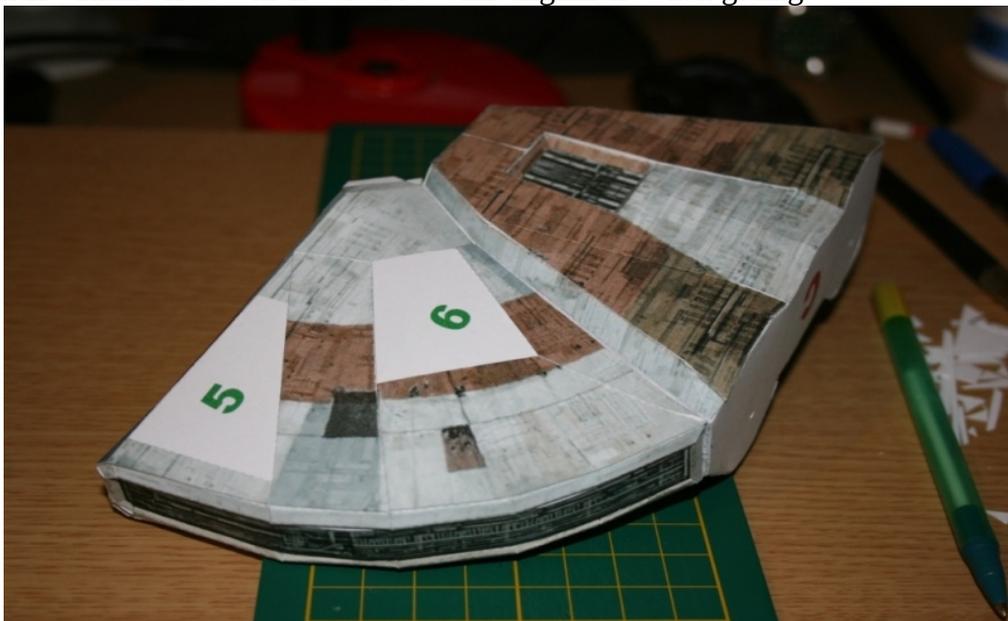


Figure 24: Panels glued in position.

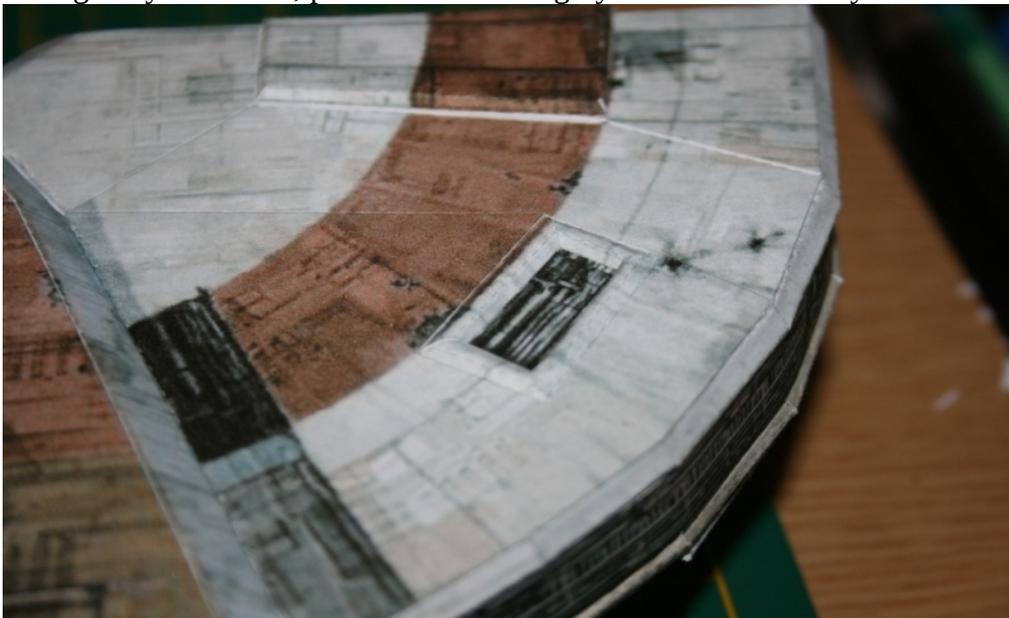


Figure 25 - The port storage-bay is built in an identical (but mirrored, obviously) fashion to the starboard hangar. The only thing you should be aware of is the panel in the centre of Figure 26 (**model template page 4 – part 9**) which passes through the bottom panel and, as such, is glued on the reverse side. Build this part **PRIOR** to gluing the storage-bay together. Attachment to the engine section is done in the same way as with the port hangar.

Figure 25: Port storage-bay attached to the engine section.



Figure 26: Storage-bay underside, panel 9 is the dark grey area surrounded by the curved frame.



Model template page 7: The engine outlets (Figure 27) are the first potentially difficult section; patience and perseverance will avoid frustration. Cut the two grey sections marked with a red F at the top of the page and glue them as shown in Figure 28. The paper will want to naturally arc at this point, don't worry too much about it. You may notice that the tab placement has been modified from the prototype photos that will follow, this was done to make construction much easier but may throw you a little if you're not wary of this.

Figure 27: 3D view of the engine outlets. Use as reference when building this segment of the model.

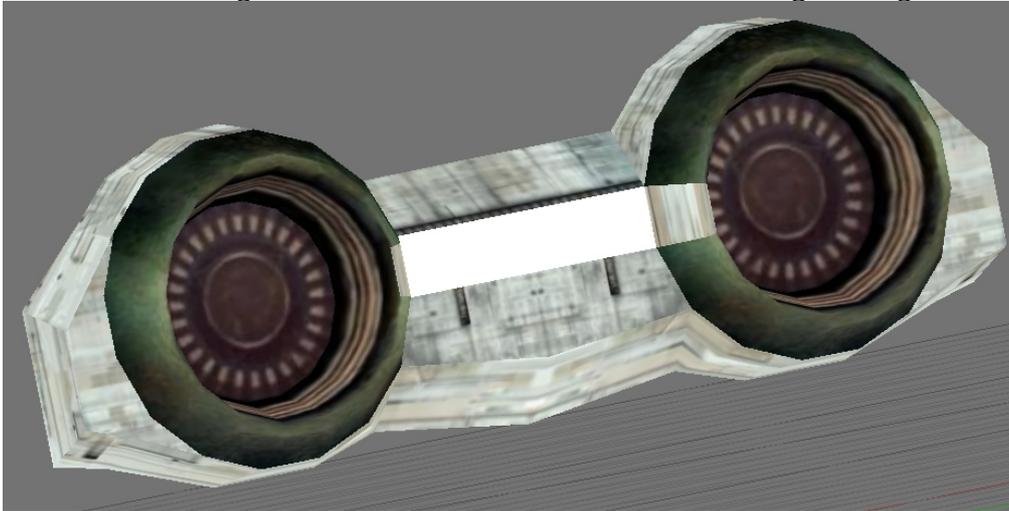
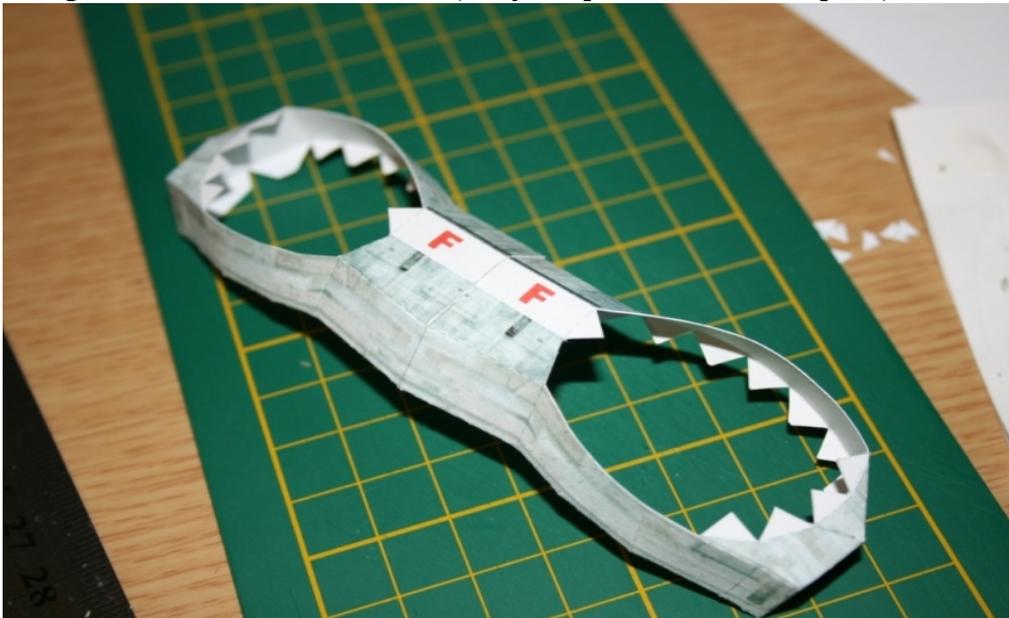


Figure 28: The main body of the engine outlets. Note the absence of tabs around the circumference of where the engine nozzles will be attached. (They are present on the template).



Building the internal engine nozzle shown in Figure 29 is quite straightforward; the textures are slightly off-centre so a tab was left to correctly align the internal and external parts of the engine nozzle. Care should be taken when building the external part of each nozzle (Figure 30), particularly the ring which needs accurate scoring and folding of tabs to ensure that the whole nozzle fits together properly.

Figure 29: Engine nozzle – internal.



Figure 30: Engine nozzle - external



You'll note that there is a grey strip on the external surface of each engine nozzle; as you can see in Figure 31 this aligns with the white strip on the main body of the engine outlets. You should also be aware that the left hand side of **model template page 7** is the left nozzle and that switching the left and right when attaching them may cause problems. Figure 32 shows the end result.

Figure 31: Completed engine nozzle in place. (Slight warping due to paper flexing)

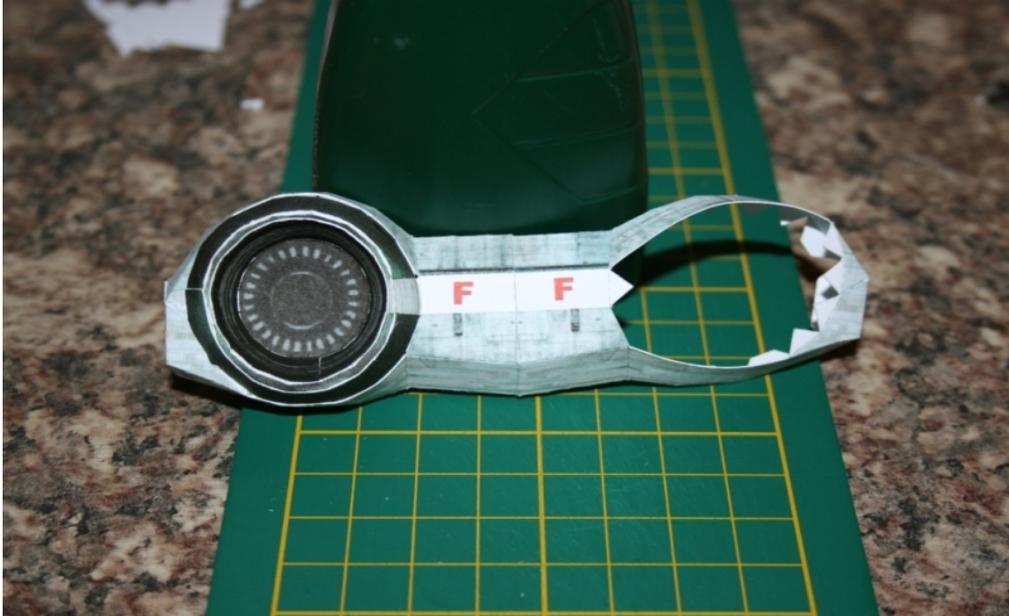
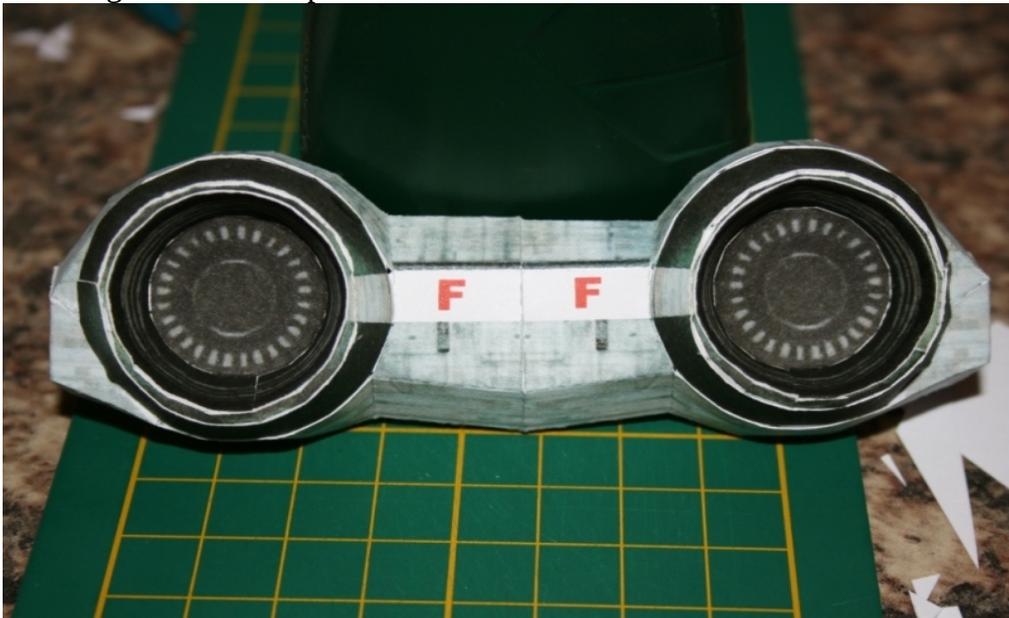


Figure 32: Both engine nozzles in place.



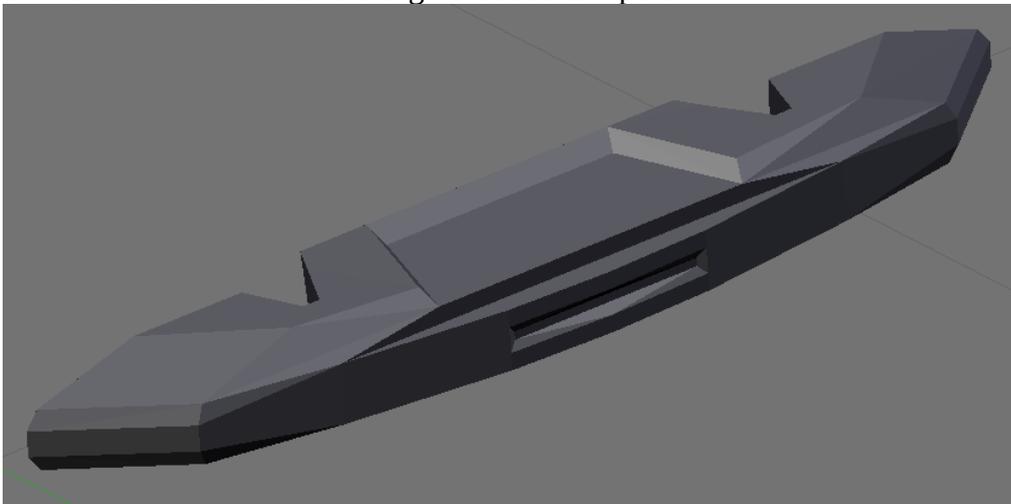
Use the edge of the engine section to correctly align the engine outlets, working from one side to the other works well here. When completed, your model should resemble Figure 33.

A 'bumper' (for lack of a better description) covers part of the engine outlets; this is composed of five parts (those found at the bottom of **model template page 7**) and is somewhat tricky to build. Figure 34 gives a clearer picture of the shape of the bumper than a textured picture and should be used as reference.

Figure 33: Engine outlets attached to the engines



Figure 34: 3D non-textured view of the engine-outlet 'bumper'.

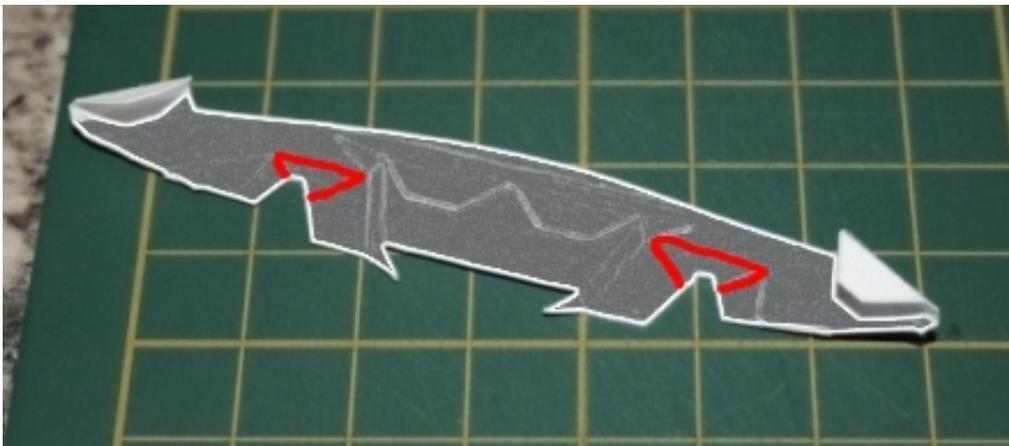


Examine **model template page 7**, below the nozzle parts are five light-grey parts; three on the left and two on the right. The sub-assembly illustrated in Figure 35&36 is composed of the top and middle parts on the left side of the page. Scrutinise Figure 34 and identify how the top is indented and the 90 degree valley fold above the rectangular indentation denoted by the contrasting dark-grey and light-grey strips. Accurate scoring is a must here. You might notice that tabs overlap the cut-out areas in Figure 36 (high-lighted in red); wait until the glue has dried and cut the tabs to the same profile as the cut-outs as shown.

Figure 35: Upper surface of the bumper.



Figure 36: Underside of upper surface of bumper. (NB. Photo colours have been modified for clarity)



Cut the two parts on the right side of **model template page 7** and trim the tabs as in Figure 37. The smaller section forms the rectangular indentation visible in Figure 34&38. Four, very small incisions are made on the darker lines; these lines are small and could be mistaken for fold lines so they have been high-lighted in red in the inset image in Figure 37. Mountain-fold the tabs on this part and valley-fold the lines marked in green then glue it onto the reverse side of the larger part. The curvature of the part is not evident in Figure 38; Figure 1 illustrates this better.

Figure 37: Section of the bumper. Inset image shows cut (red) and fold (green) lines.

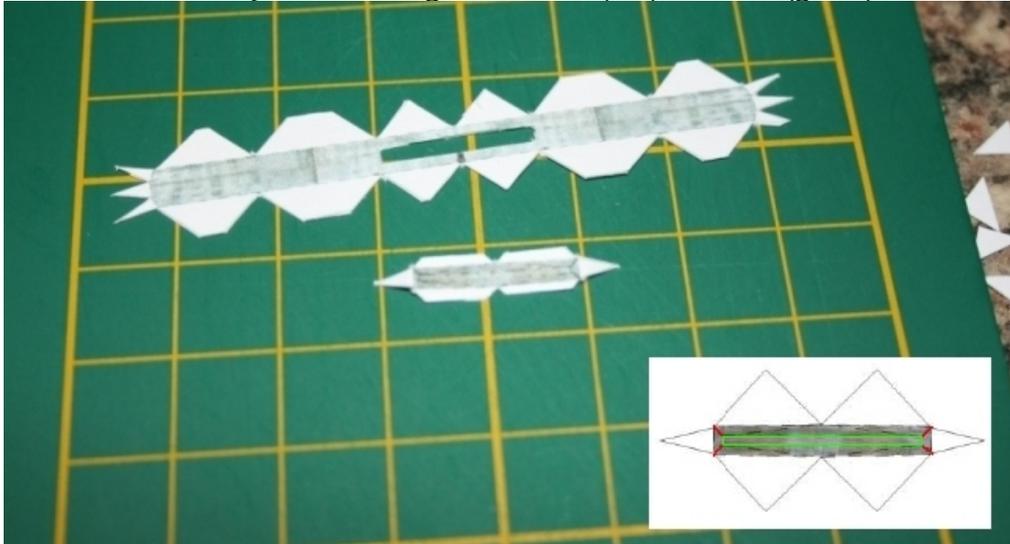
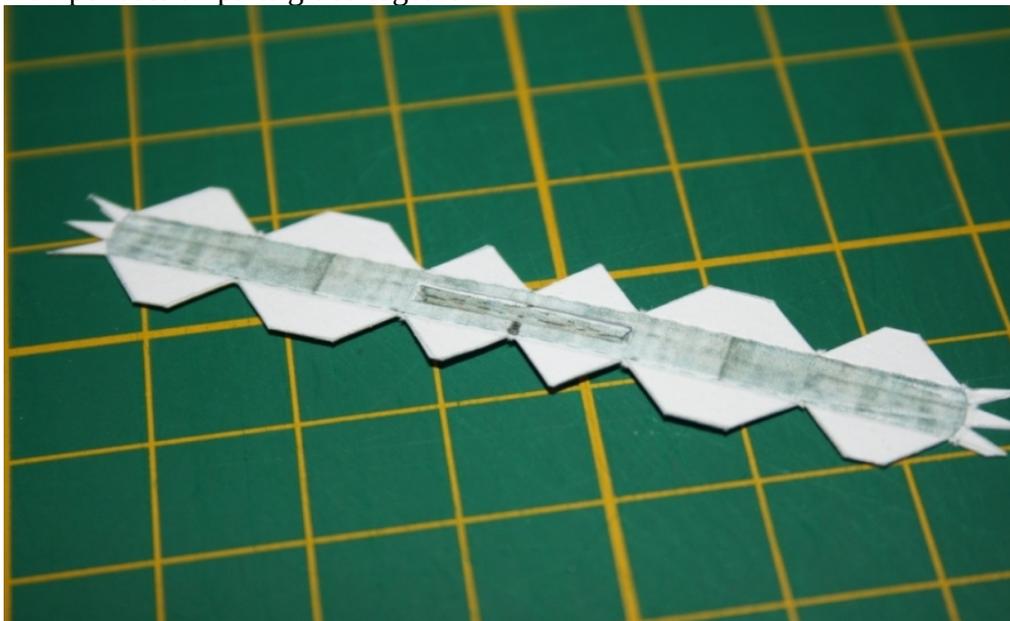


Figure 38: Bumper section parts glued together.

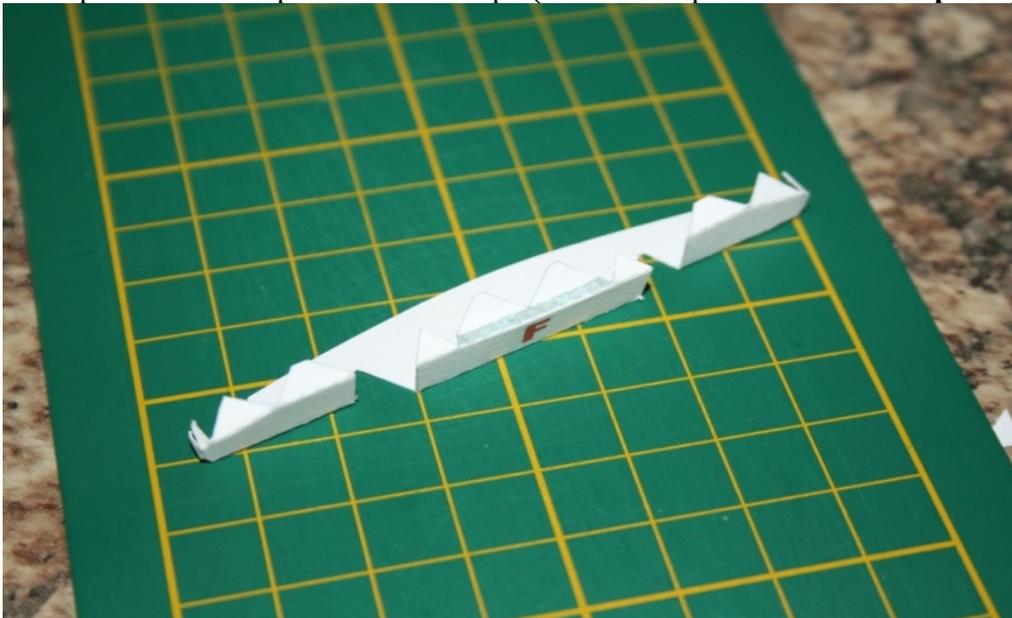


Glue the sub-section from Figure 38 along the front edge of the sub-section in Figure 35 as shown in Figure 39. Cut the bottom left part on **model template page 7** and fold it as illustrated in Figure 40.

Figure 39: Bumper parts constructed in Figures 35&38 glued together. (Tabs are down to allow the part to be angled for the photo, they are folded under as with the other tabs along that edge).



Figure 40: Final part of the bumper folded to shape (bottom left part on **model template page 7**)



Glue the final part (Figure 40) to the rest of the assembly (Figure 39). Start in the middle, top edge before gluing each side. Don't glue the underside yet (you can notice this hanging down, unattached in Figure 41). When the glue has dried you should then move on to glue the bottom edge, make sure you use this opportunity to ensure that the bumper is not warped along its length. Figure 42 shows the completed bumper; check that the 'v' shaped gaps are not fouled by tabs (trim them if necessary).

Figure 41: The final part being attached to the rest of the bumper,

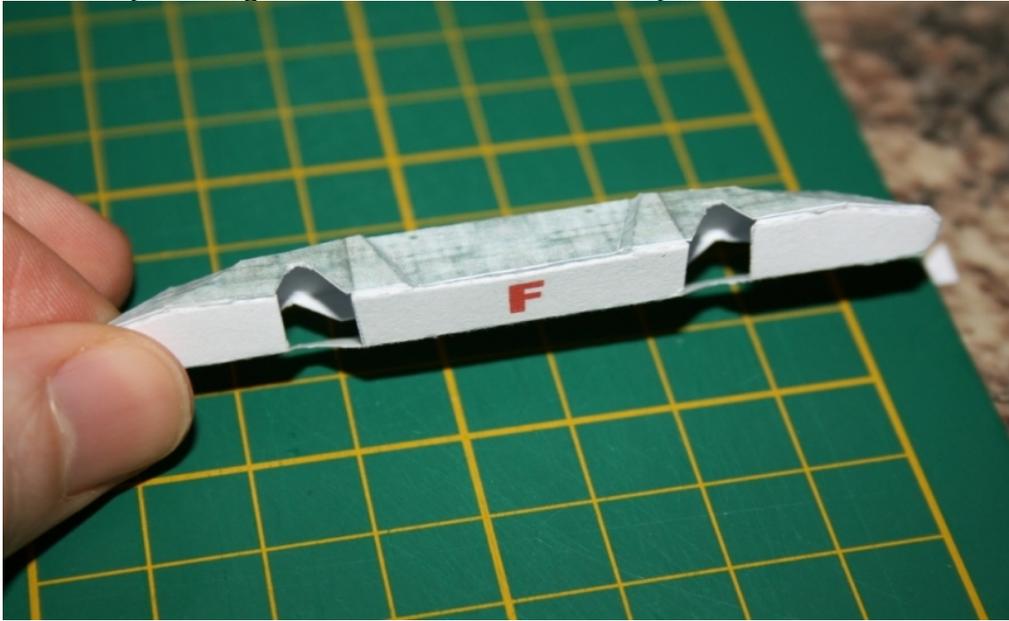


Figure 42: The finished bumper.



Glue the bumper face marked with a red F to the similarly labelled engine outlets. Some test-fitting and a small amount of trimming of the aforementioned 'v' shaped apertures on the bumper was required to get a tidy fit (Figure 43).

All being well you should now have something that is hopefully very similar to Figure 44.

Figure 43: The bumper in place.



Figure 44: An overview of the completed sections at this point.



Starboard Bulkhead:

Model template page 8: Apologies, this sheet may be erroneously labelled 'Port Bulkhead' but the red labels that show attachment to an adjoining section of the model are correct. This part is quite straightforward, some of the score lines are difficult to see so use the side profiles (marked D and F) to identify where the score/fold lines are. The narrow end is not squared i.e. it is wedge-shaped rather than perfectly rectangular. Use Figures 45 and 46 for reference and keep a sharp eye on the fold-line locations.

Figure 45: Starboard bulkhead – top view.

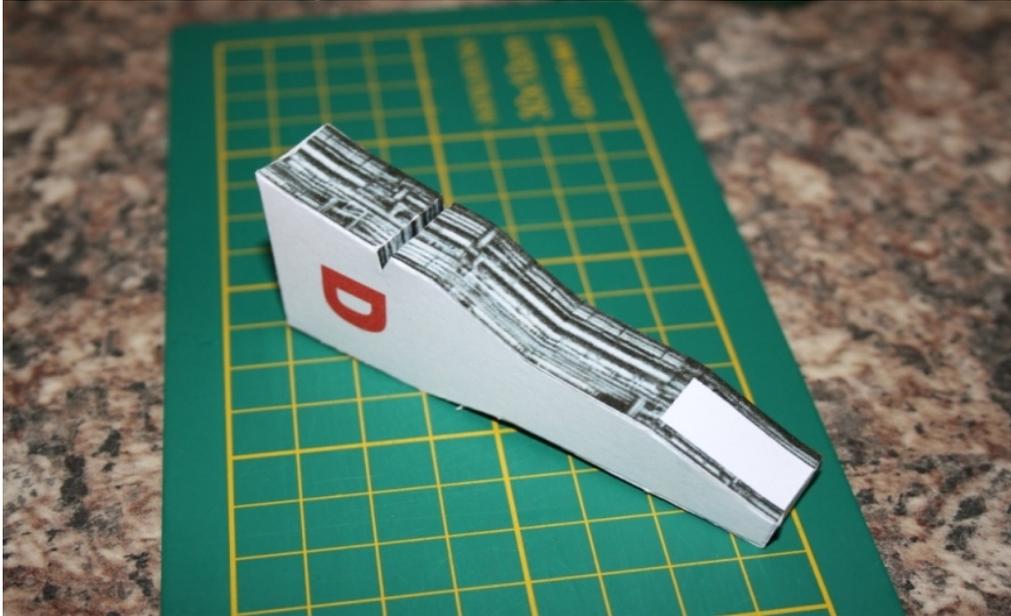


Figure 46: Starboard bulkhead – bottom view



Port Bulkhead: (Possibly incorrectly named on the model template).

Model template page 9: This is a slightly more challenging part to construct as there are a few small bevelled edges which can be seen in Figure 47. As with the starboard bulkhead, the fold lines can be hard to see on the dark-grey areas though the tabs should guide you. Figure 48 shows the finished article.

Figure 47: 3d model of the port bulkhead, the textured version is inset for clarification.

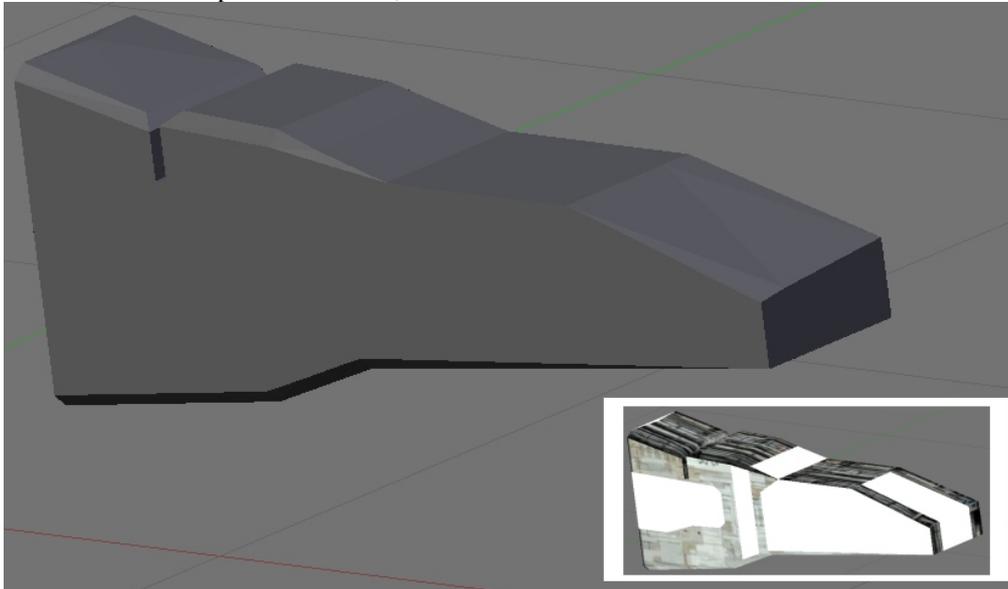


Figure 48: The port bulkhead.



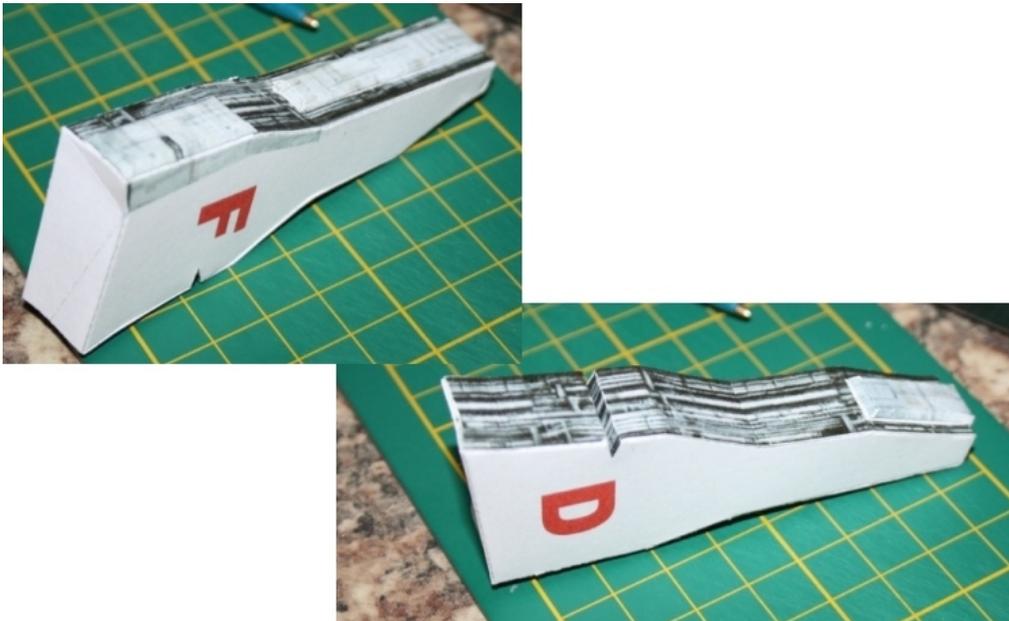
Figure 49 shows the underside and opposite side of Figure 48. Note that this side has no bevelling.

Cut the panels from **model template page 8** and attach them to the starboard bulkhead as shown in Figure 50. Part 11 wraps around the end as you can see in the figure.

Figure 49: Underside of the port bulkhead.



Figure 50: Panel detail on the starboard bulkhead



Panels 12 through 14 are attached in the same manner as those on the starboard bulkhead; refer to Figure 51 if necessary. The only 'interesting' panel is 14 which has a small lip around the edge, Figure 52 should give you an idea of this though scoring the fold-lines will take a little care.

Figure 51: Panel detail on port bulkhead.

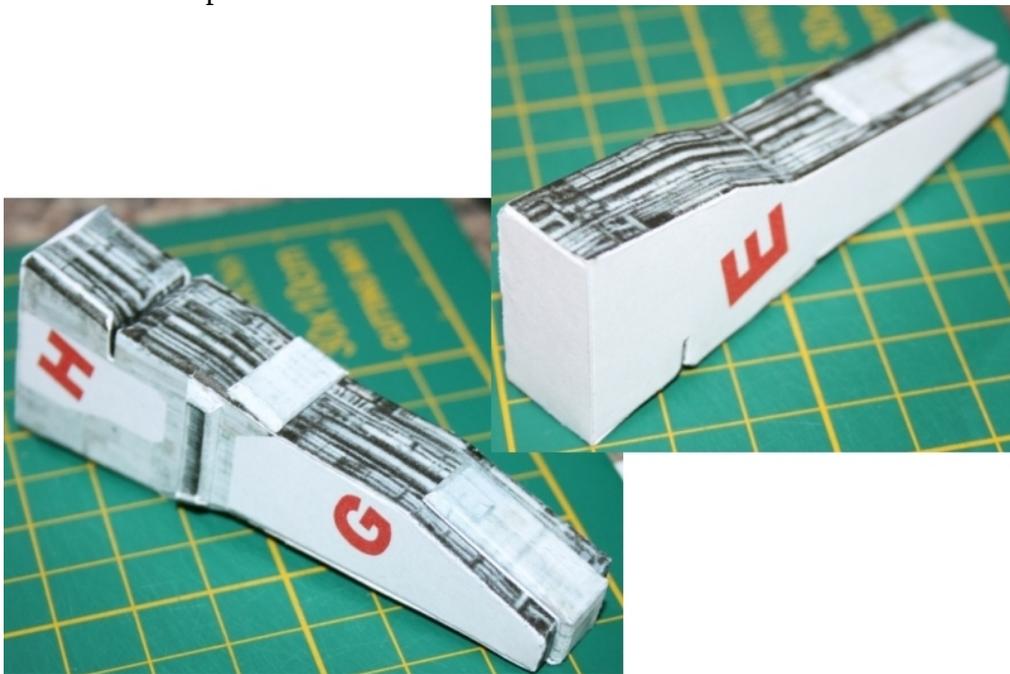


Figure 52: 3D model of panel 14.



Glue both bulkheads to the rear sections using the appropriate labelled surfaces as a guide. The texturing on the rear section will align with the bulkheads (see Figure 53). Make sure you use the gaps in the model to apply pressure between the bulkheads and the rear sections to get a good, even bond.

Figure 53: Bulkheads glued in position.



Model template page 10: Cut the two grey sections on the left-side of the page and attach the smaller to the larger part as shown in Figure 54. You may be asking yourself why I didn't create this as one part; the surface is almost, but not exactly, flat. Construct the parts as shown in Figure 55 and 56.

Figure 54: Attachment point for the grey sections. Red lines show where they should align.

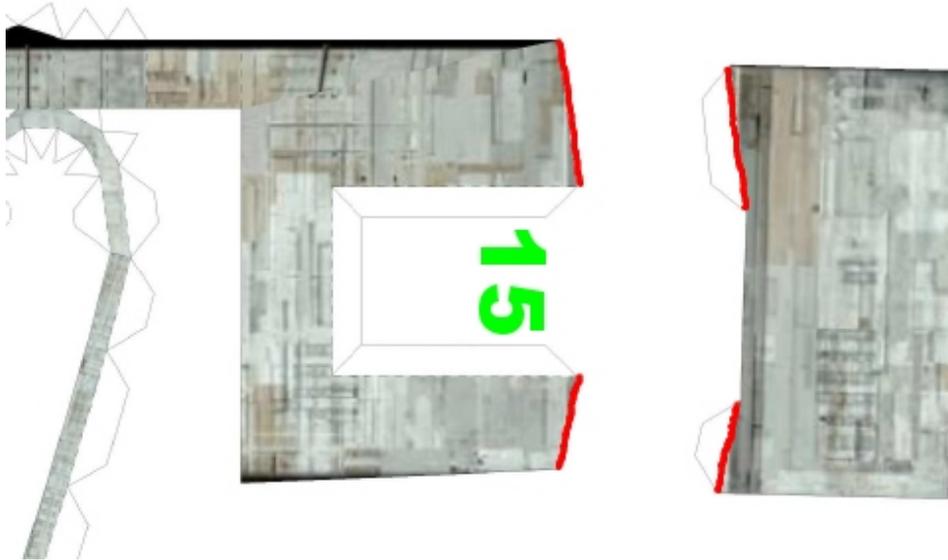


Figure 55: Sections folded and glued into shape.



The aperture shown in in Figures 55/56 is the exit of the hangar which is the black section marked 15 (Figure 57).

Figure 56: Another view of the parts shown in figure 55.

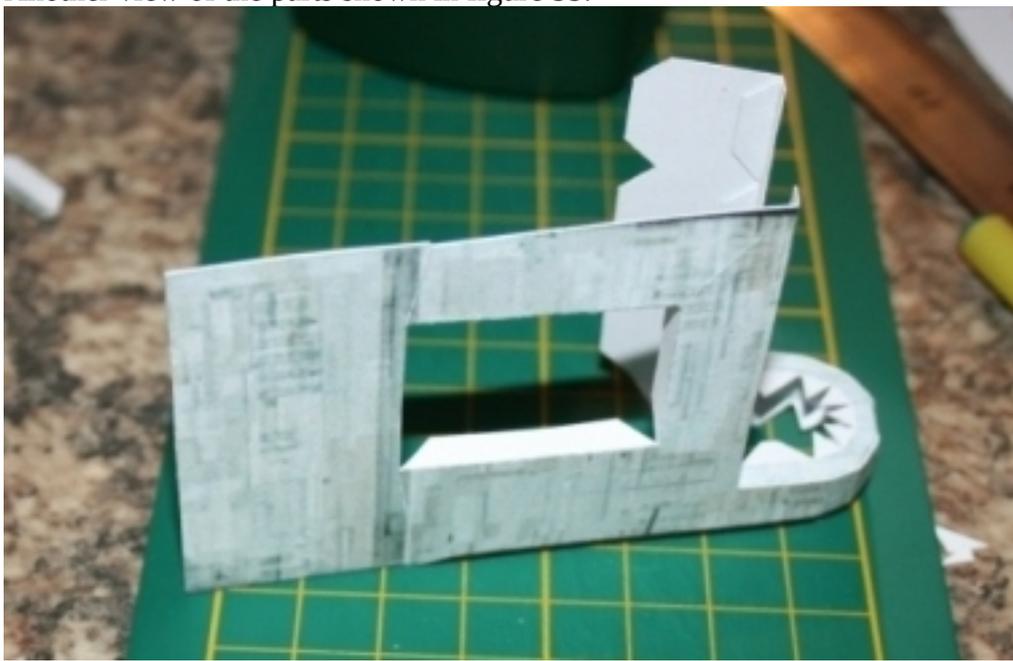
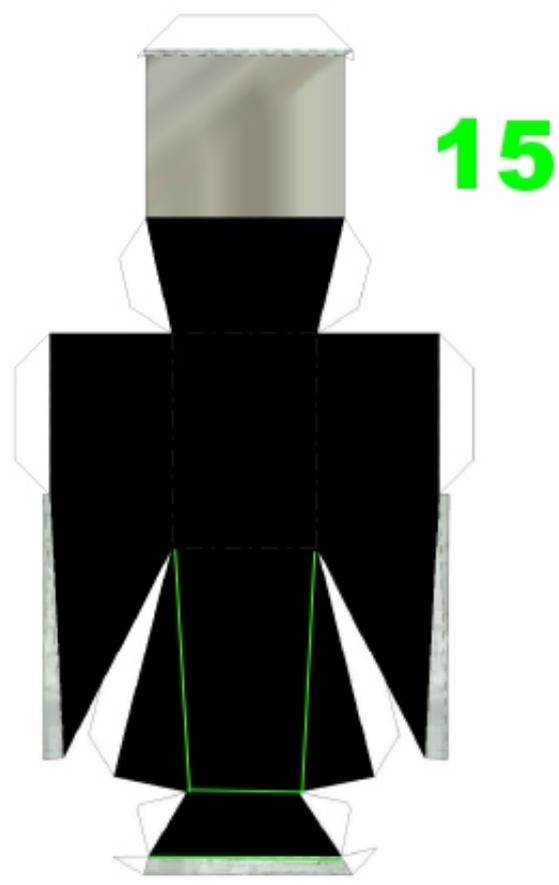


Figure 57: Hangar section; green lines denote the additional fold lines.

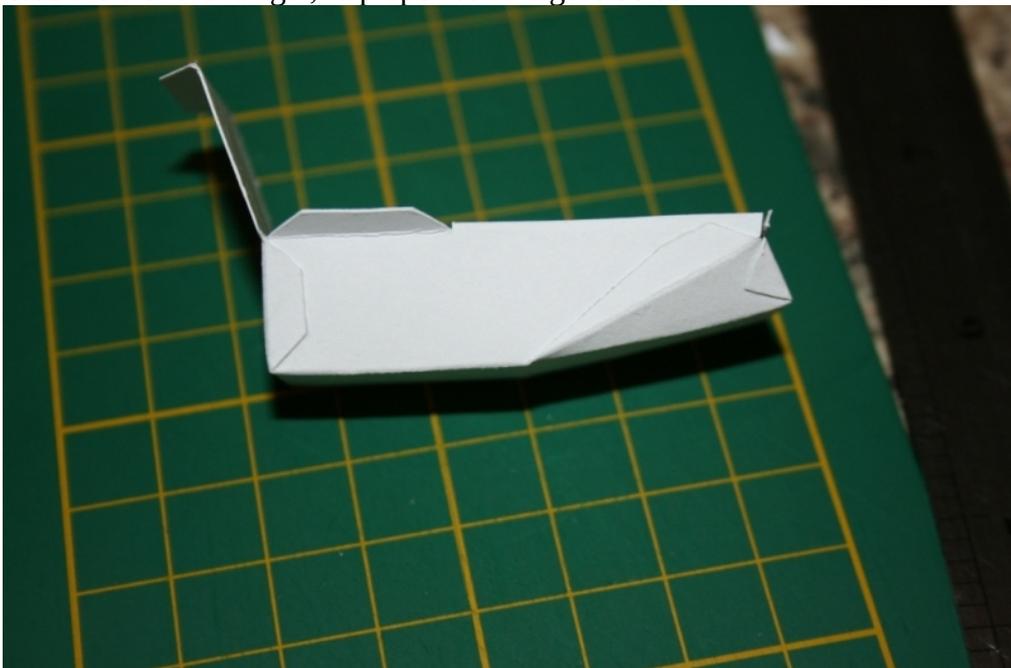


Construct the hangar as shown in Figures 58, 59, 60 and 61.

Figure 58: Hangar from above, perspective view (the grey area has been left open at the back for clarity).



Figure 59: Side view of the hangar, flap open as in Figure 58 above.

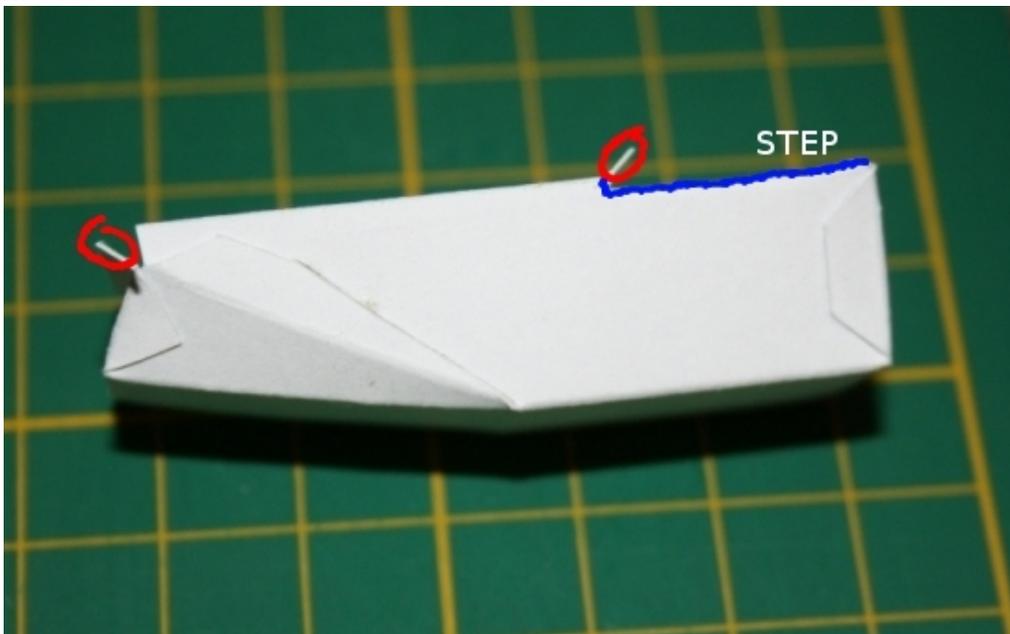


Note that there is a flap left 'floating', i.e. disconnected at the front of the hangar (Figure 61). It's easier to glue this down when fitting it to the rest of the section. Also note that the rear of the hangar is not glued directly to the internal surface of the parts shown in Figure 54. Note the 'step' in figure 61

Figure 60: Completed hangar, perspective view.



Figure 61: Completed hangar, side view. Floating flaps described above circled in red, step shown with blue line.



Before the hangar can be attached you must first decide on if you want a functional or non-functional ramp. If you want a functional ramp follow the next set of instructions, otherwise simply skip this bit, glue in the hangar and glue the ramp statically into the hangar. The ramp parts are on **model template page 16**.

Fold the square part of the ramp, cut a small slot in it and feed through a thin piece of paper as shown in Figure 62 and 63. Note the slot is on the edge of the darker-grey surface! Glue the paper down but NOT the opposite edge of this section.

Figure 62: First section of ramp.

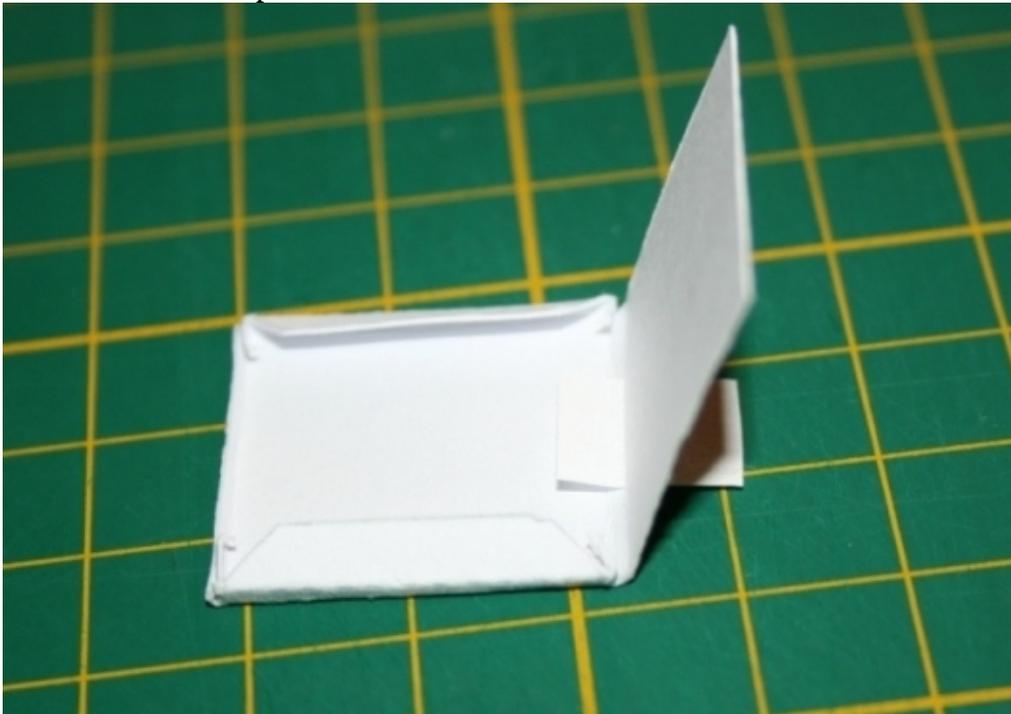
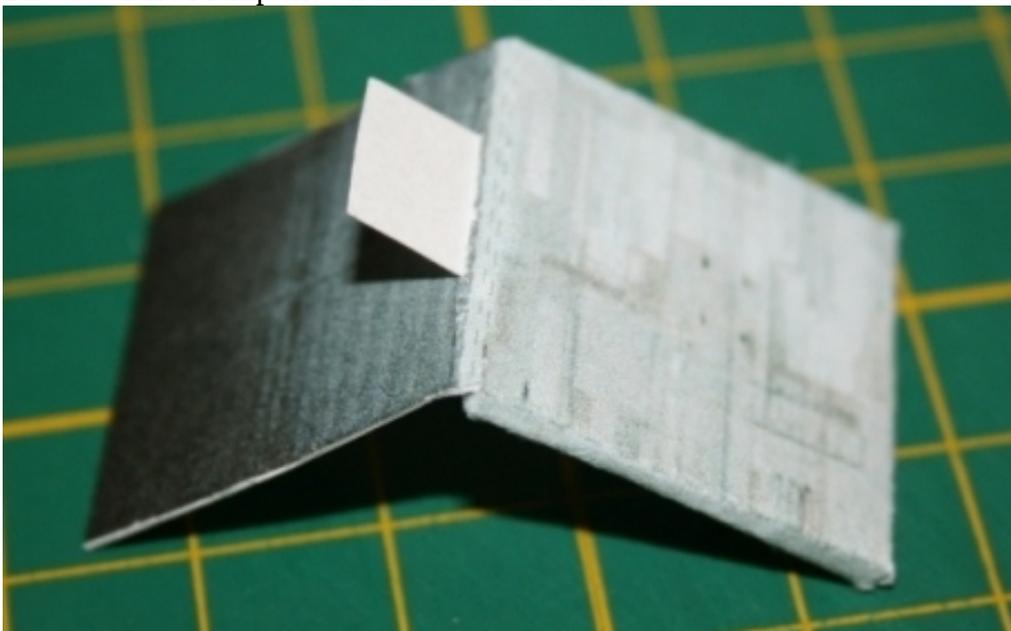


Figure 63: First section of ramp shown from the other side.



Glue the wedge shaped area of the ramp together making sure to attach it to the square section shown in Figures 62 & 63 using the paper you left jutting out. Another piece of paper is needed to connect the completed ramp to the hangar. The paper should act as a set of hinges which allow you to fold the ramp and to move it into and out of the hangar. The completed ramp is shown in figure 64 and attached in figure 65.

Figure 64: Completed ramp. Note the orientation of the square section and the unattached paper hinge.

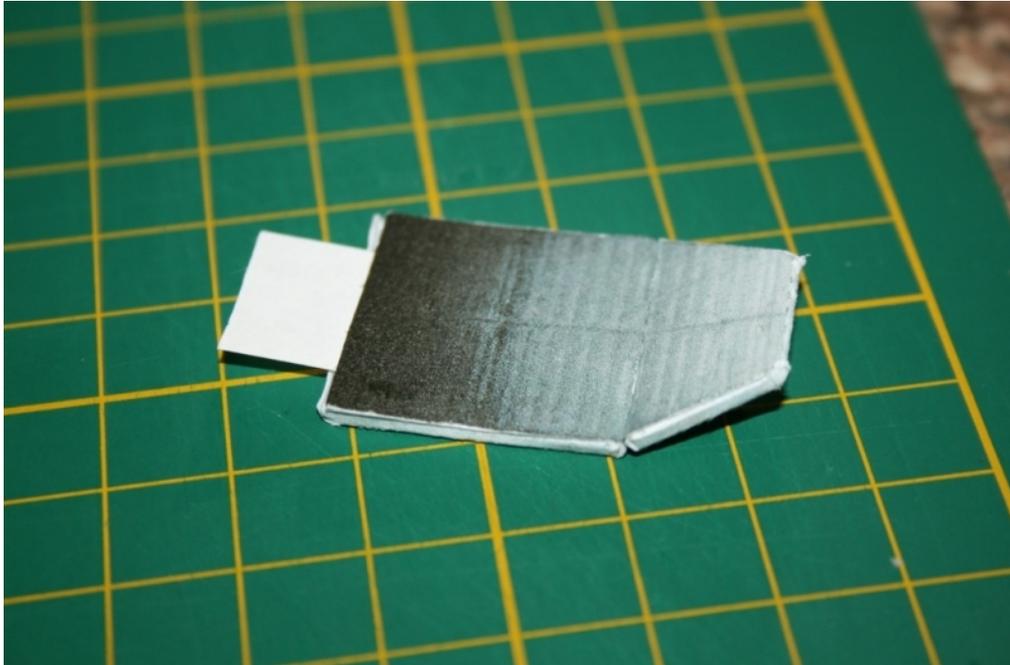
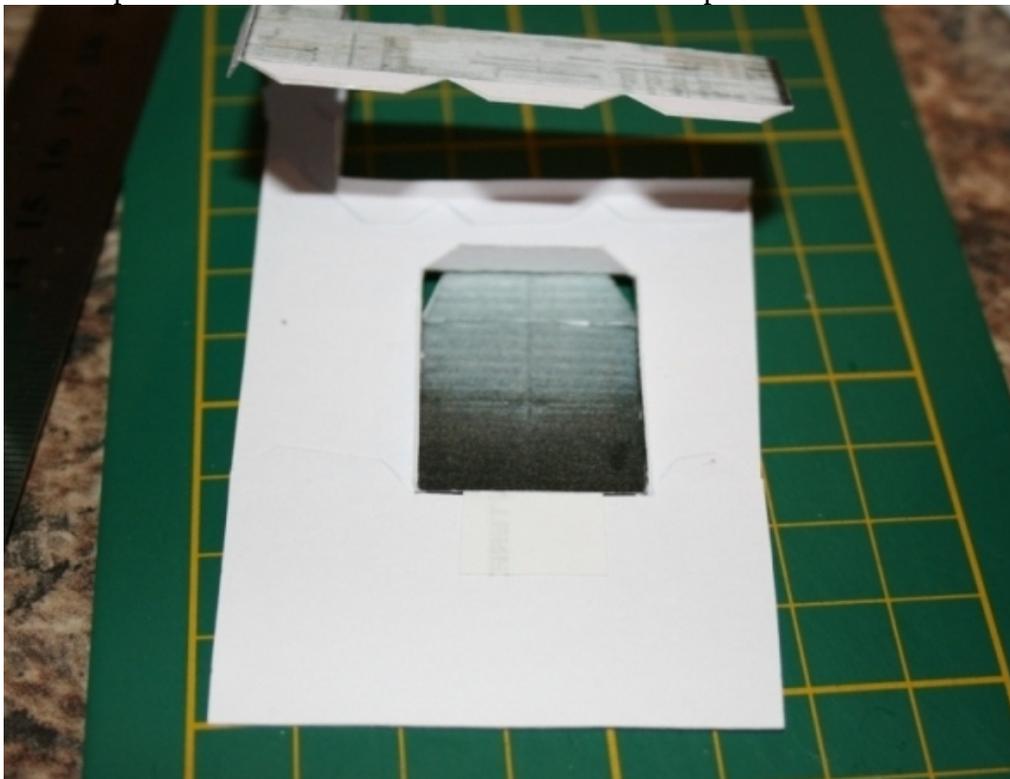


Figure 65: The ramp attached. Note that it sits underneath in this photo.



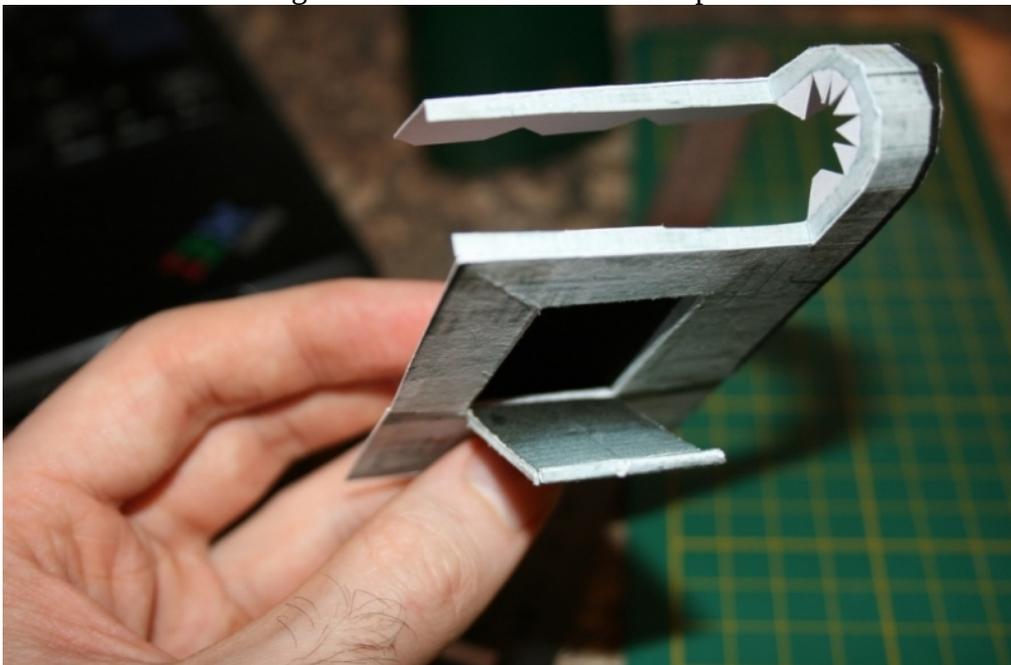
When the ramp is retracted, the wedge section fits inside the hangar (Figure 66). You can now glue on the hangar and should have something like what is shown in Figure 67 (you might not have a not-to-be-stated-overtly brand of laptop though...).

If you managed to build the ramp (it's not terribly difficult) then feel no embarrassment at making venting noises as you raise and lower it.

Figure 66: Ramp in retracted position.



Figure 67: Inside view of the hangar and the under-surface. Ramp is down.



The next section is what could probably be called a radiator or vent and is composed of the parts shown in Figure 68 which can be found on **model template page 11**. The right-most part should be cut and glued according to Figure 69.

Figure 68: Radiator component parts.

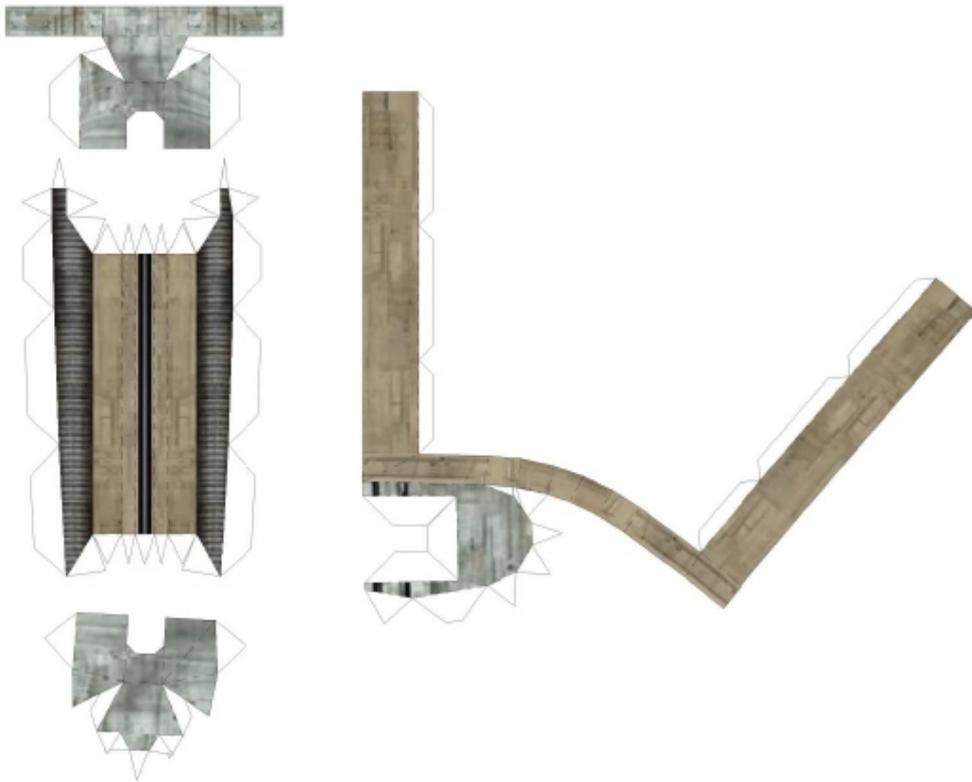


Figure 69: Right-side and 'surround' of the radiator/vent.



Glue the radiator ends, score and fold the radiator to shape (Figure 70). Note the tabs and the shape of each end of the radiator. Figure 71 shows the smaller of the two ends attached.

Figure 70: Radiator ends assembled and radiator folded to shape.

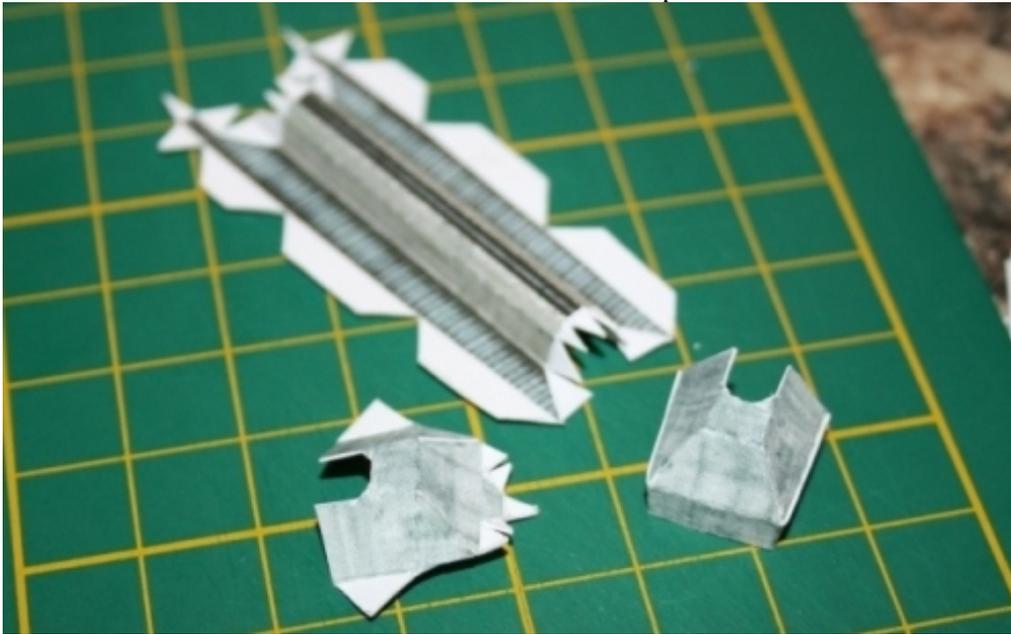
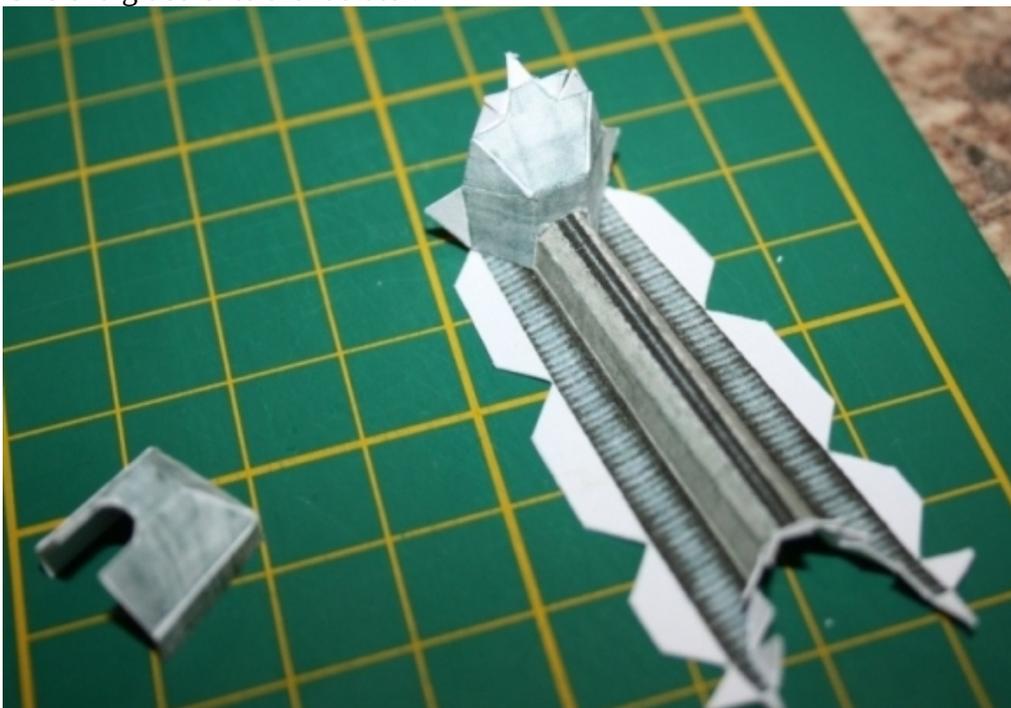


Figure 71: One end glued onto the radiator.



Next, attach the other end to the radiator, there are a lot of tabs but just take your time and glue them down sequentially. You should end up with the assembly identical to that in Figure 72. Take the part from Figure 69 and attach it to the radiator as illustrated in Figure 73.

Figure 72: Radiator with both ends attached.

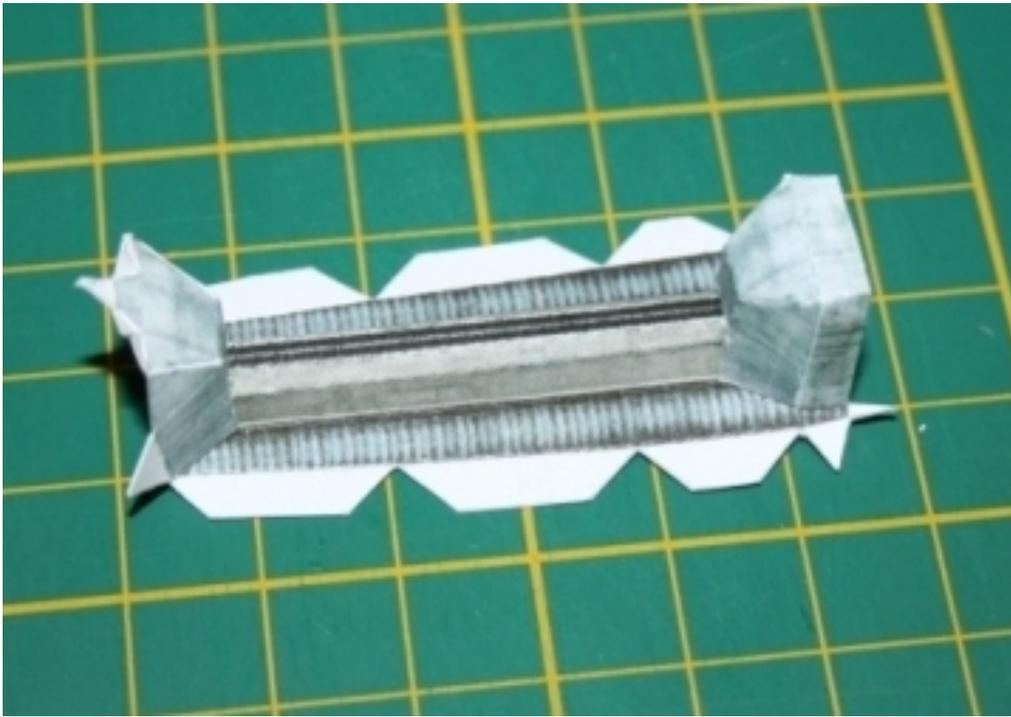


Figure 73: Radiator with surround.



Glue the finished radiator into the section shown in Figures 55/56, it should be obvious how it fits into the aforementioned section (Figure 74).

Figure 74: Radiator attached to main assembly.



TODO: Rebuild this section and re-photo (not possible presently due to time constraints).

As the model was prototyped it became obvious that some parts were not laid out in the most build-friendly way so they were modified and checked. As such, the instructions for the next sub-section uses a few photographs of the *original* parts before they were optimised. These are labelled for clarity, some of them are flipped photographs of the other forward section as parts of it are built in an identical fashion to those of the current side you're working on. This side uses the optimised parts and build-method. Everything will be labelled for clarity but bear the above in mind if the photos don't completely match.

First, an overview of how the whole section should look when finished, note again that some of the join-lines that you see here are NOT representative of the finished version. Check out Figures 75 through 77.

Figure 75: Top view of completed section.

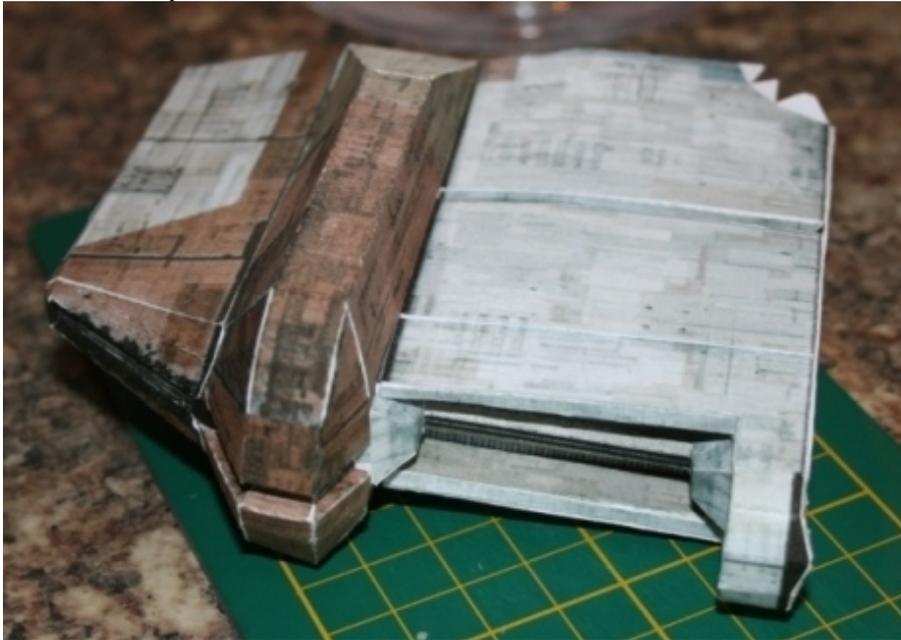


Figure 76: Front view of completed section.

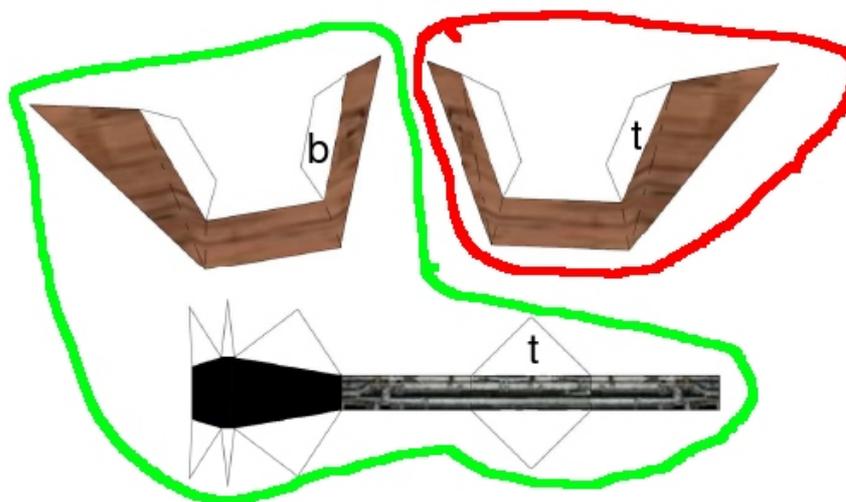


Figure 77: Bottom view of completed section.



Start by collecting the parts shown in Figure 78 from **pages 11 and 12**. 't' and 'b' denote top and bottom.

Figure 78: Montage of parts required for next step.



Assemble the parts as shown in Figure 79. Remember that the parts shown are effectively mirrored from what you should have, follow the labels and mark them on the white-side for reference. The result should look like Figure 80.

Figure 79: Two views of partially completed grille.

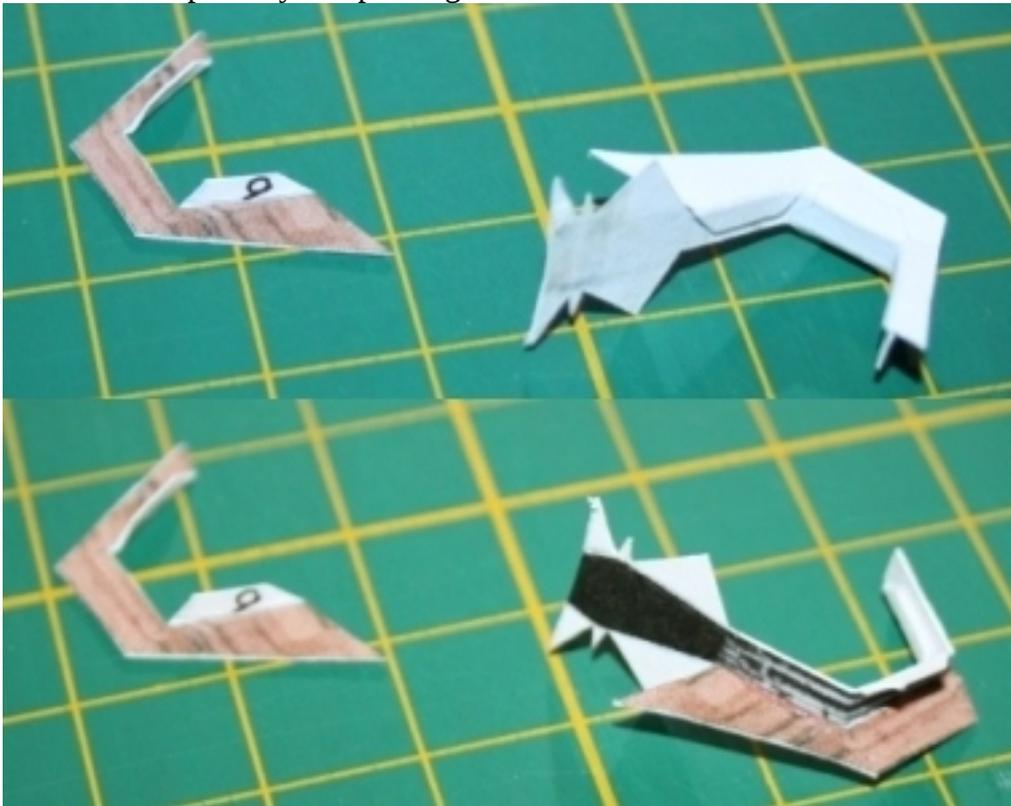


Figure 80: Completed grille.

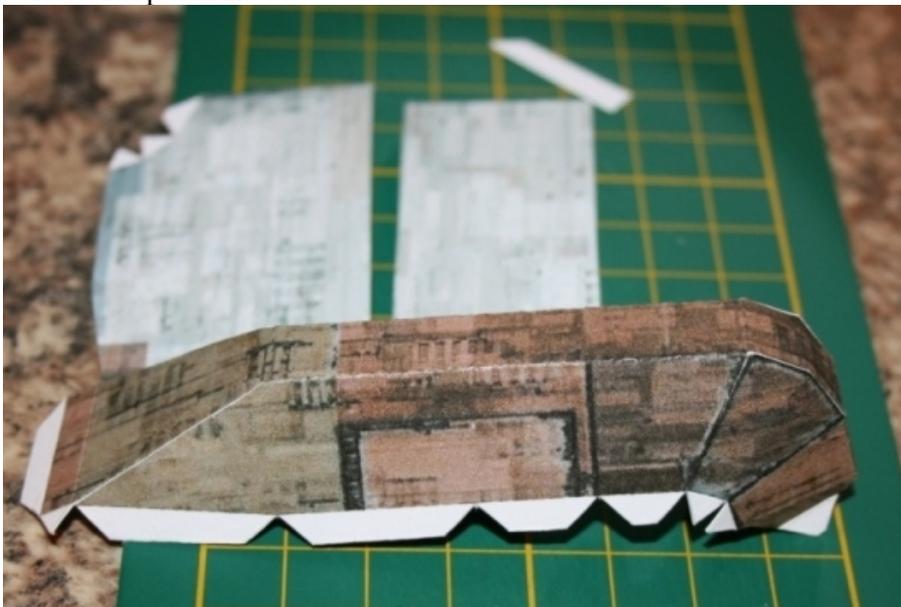


Cut the top bulkhead section from page 11 and fold and glue as shown in Figures 81 and 82 below. Note that the tabs, particularly at the front (Figure 81: bottom. Figure 82: Bottom right), will not be on the completed part.

Figure 81: Top view of bulkhead.



Figure 82: Side view of top bulkhead.



Cut the thin, inverted, V-shaped section from **page 10**. Fold and attach between the grey sections (Figure 83). When completed it forms a small V-shaped channel. Cut and glue the small section shown in figure 84 from **page 11**, glue it along the edge using the colours as a guide.

Figure 83: V-shaped section highlighted inside the red line.

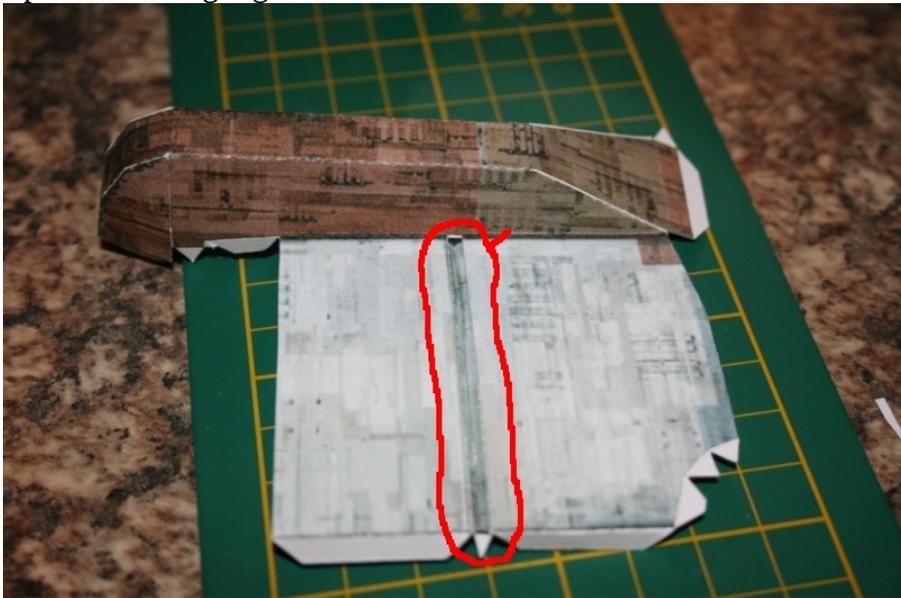
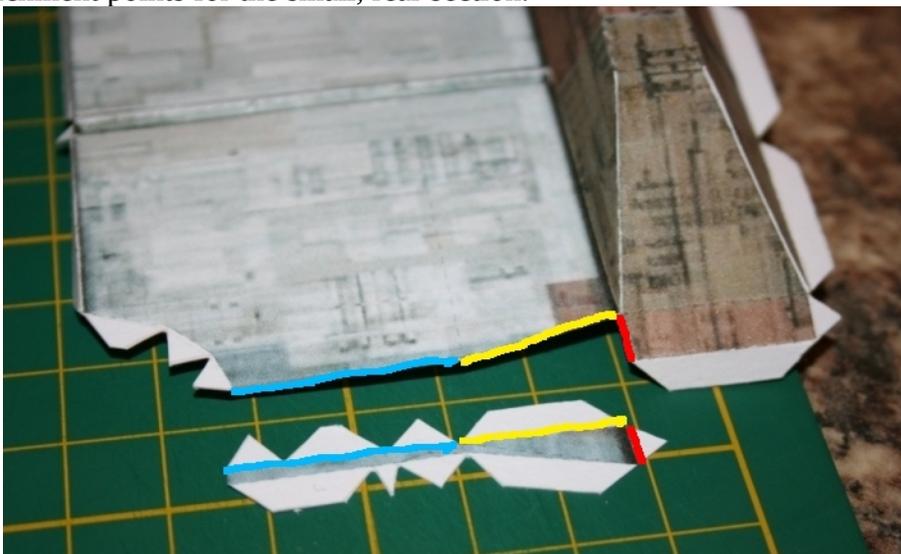


Figure 84: Attachment points for the small, rear section.



Cut the bottom bulkhead section from **page 12** (parts marked **17**) and construct according to Figures 85 and 86.

Figure 85: Bottom bulkhead from the front.



Figure 86: Bottom bulkhead from the rear.



The landing-gear bay is on **page 12**, marked with a small **17**. Figure 87 shows how it should be attached to the bulkhead. The 'fin' is constructed from three parts, two are marked **16**, the final part is just to the right of the largest part. Take a look at Figure 88, construction should be obvious.

Figure 87: landing-gear bay in place.



Figure 88: Side of the bay, note how part **16** is indented.



Figure 89 should clarify the indented parts. Figure 90 shows it attached to the upper bulk-head.

Figure 89: Model view of the fin from the front aspect. Part 16 is labelled.

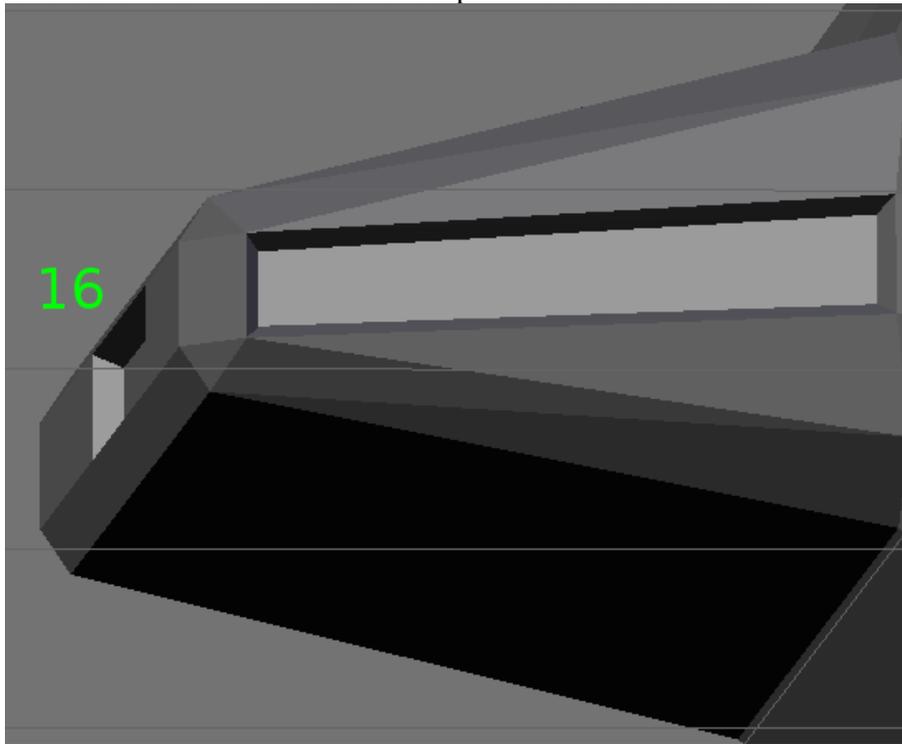
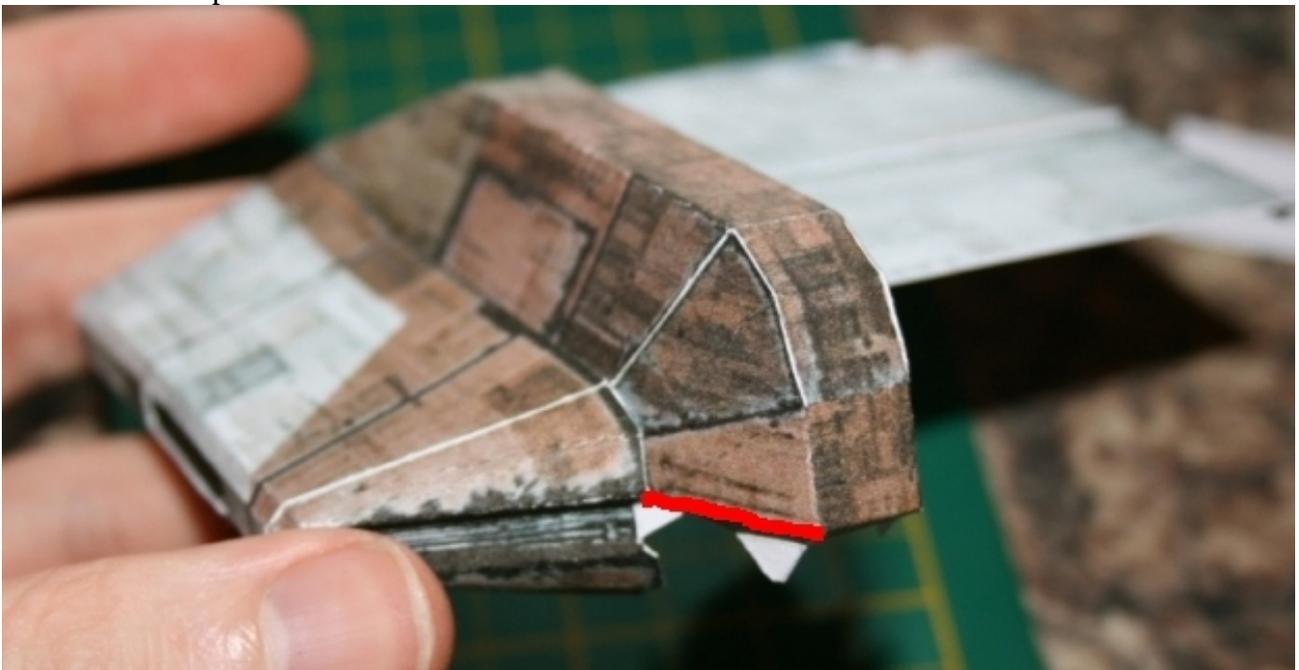


Figure 90: Fin attached to upper bulkhead. Note that the area shown below the red line is not there on the fixed template.



Glue the part built in Figure 80 to the front-underside of the assembly shown in Figure 90. If you look back at Figure 76 you can see that this area was previously incorporated into other parts and was less tidy. Figure 91 shows the completed parts from the port-side forward section so you can see the results of the new layout. Remember that you're currently working on the starboard side, don't get confused.

All of the parts built thus far, with the exception of the hangar, should resemble Figure 92 when assembled.

Figure 91: The port-side forward section. The area of interest is circled in red.

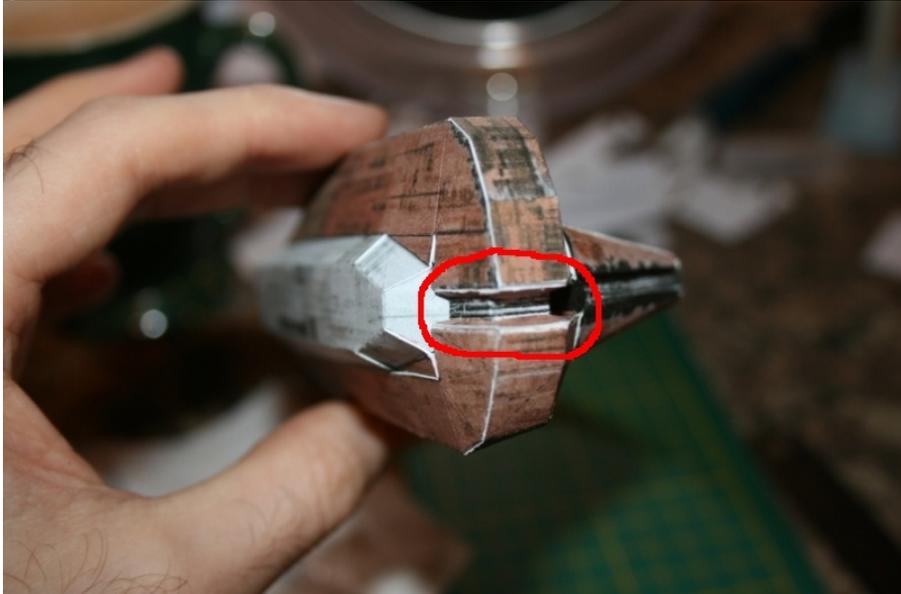


Figure 92: Underside, fin, grille and topside shown from the rear.



On **page 10** you'll find the part shown in Figure 93. It's a bit of a tricky one to locate so have a look at Figure 94 and 95 for guidance. Attach it to the hangar section (Figure 74).

Figure 93: Side support as shown on the model template.

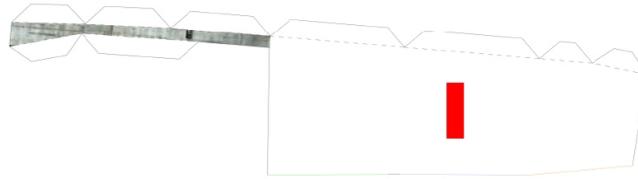


Figure 94: Starboard hangar from below. Part shown in Figure 93 is highlighted in purple.

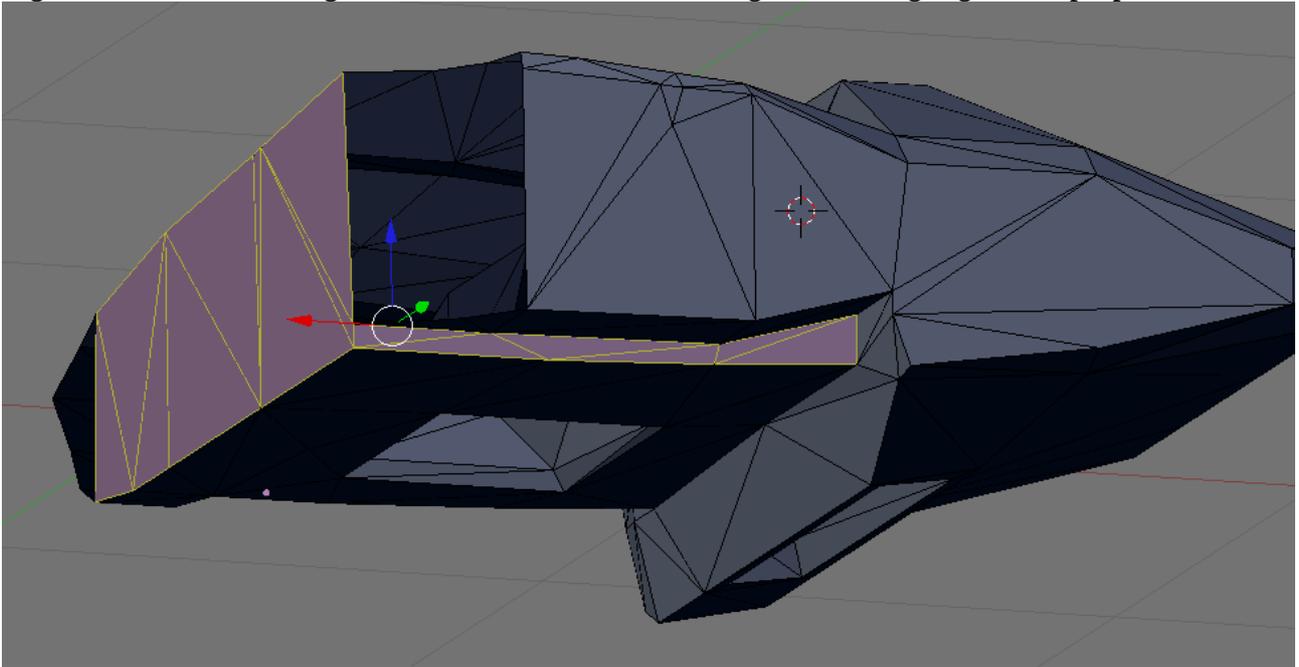


Figure 95: Alternative view of starboard hangar. Part shown in Figure 93 is highlighted in pink.

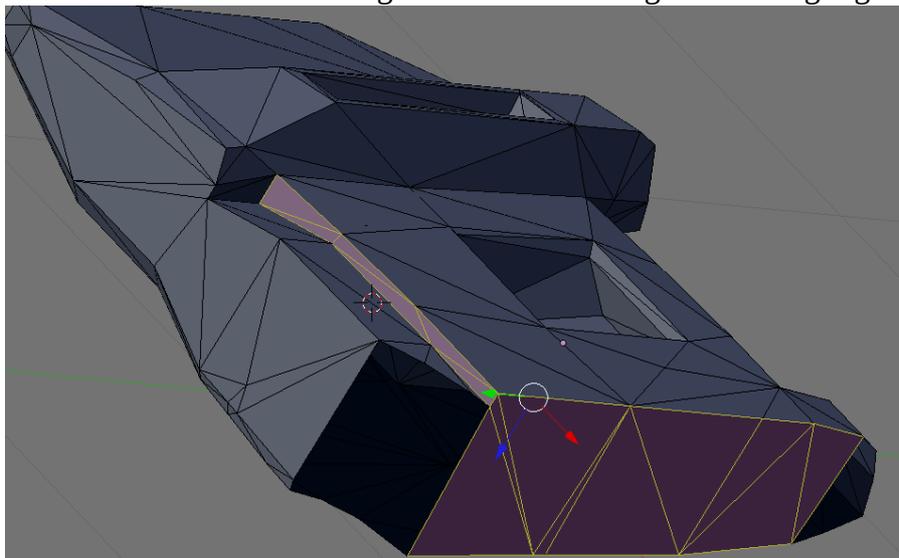
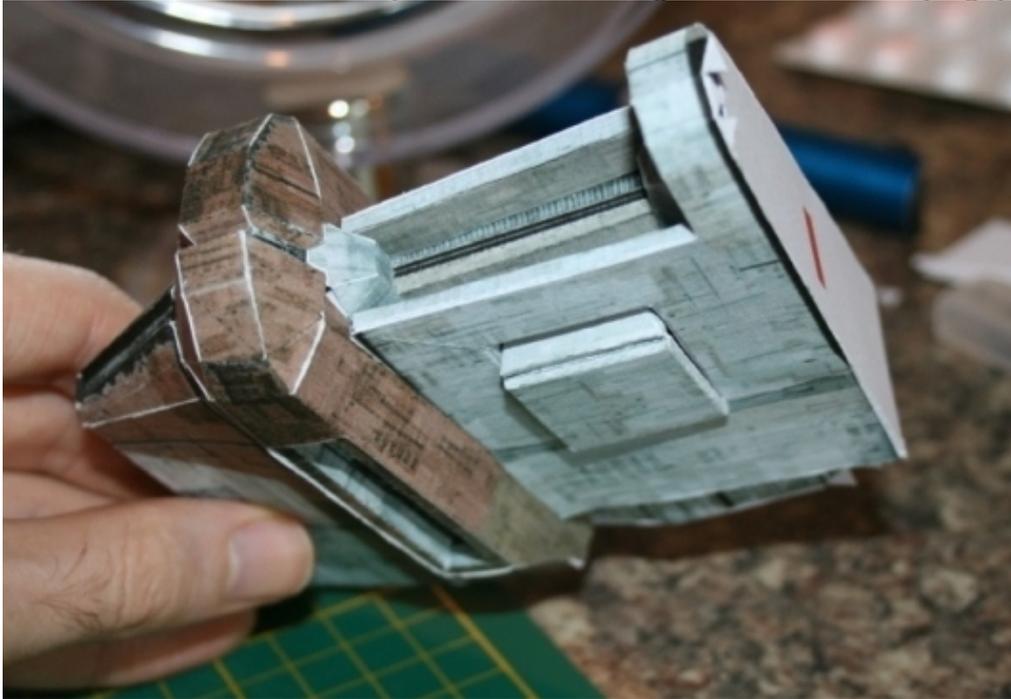


Figure 96 shows the completed starboard section. You can see some tabs loose at this point, they are attached to other sections later.

Figure 96: Front/bottom view of the completed starboard hangar entrance and sleeping quarters.



END TODO

Model template page 14: The cockpit is one of the simplest parts to construct. Figures 97 and 98 show the bevelled, box-like nature of this part.

Figure 97: Wire-frame, CG view of the cockpit from the front perspective.

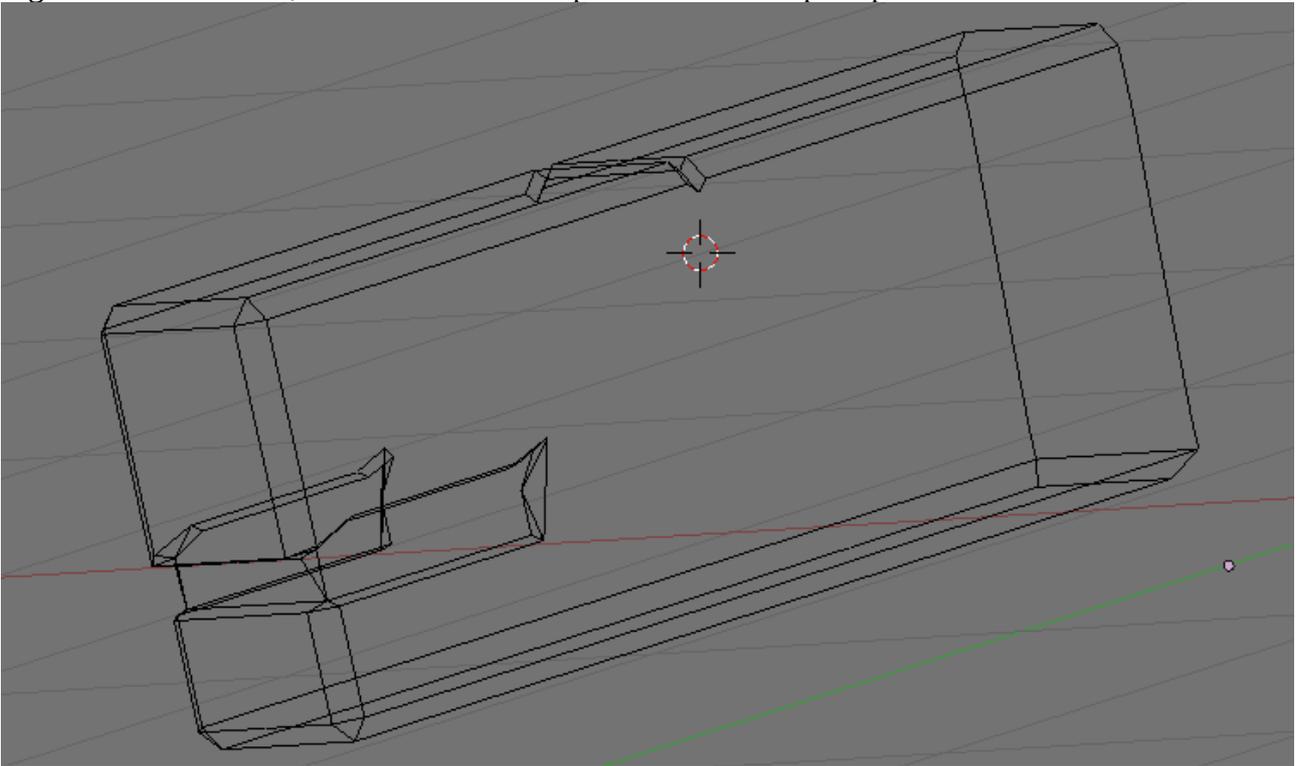
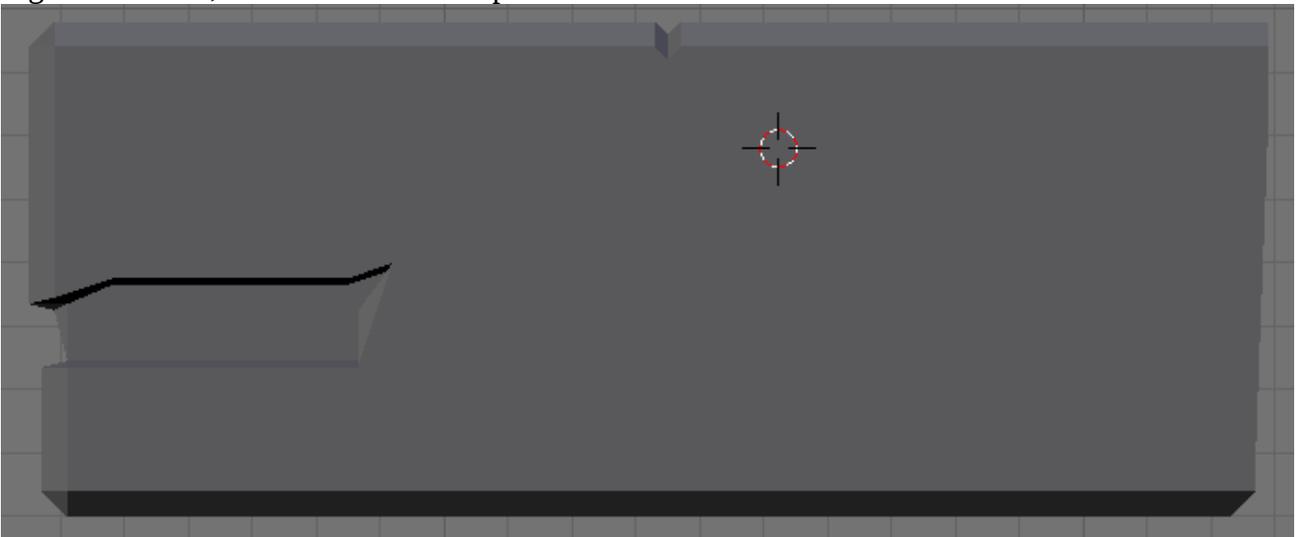


Figure 98: Solid, CG view of the cockpit from the side.



Cut the large section from **page 14**; this constitutes the top, sides and the upper-front section of the cockpit. There will be a small gap on the top surface (Figure 100), this is the indentation shown in Figures 97 and 98.

Figure 99: Cockpit area front perspective view.

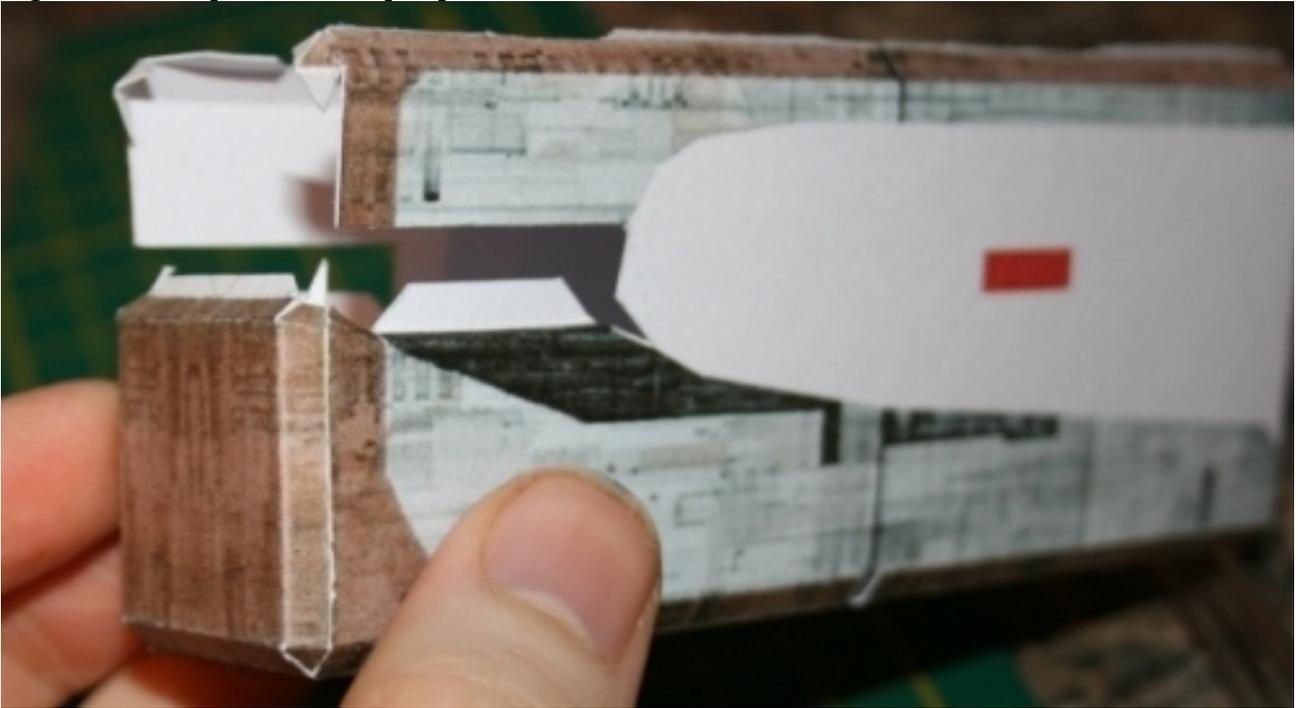


Figure 100: Location of indent.



Use the two small sections on **page 14** to build the indented channel as shown in Figure 101, you may have to trim the tabs a bit between the two sections. Match the shape of the channel to its location and attach (Figure 102).

Figure 101: Indent section.



Figure 102: Complete indent.



Cut the long section from the right-hand side of **page 14** it forms the bottom and rear of the cockpit. Attach as shown in Figures 103 and 104. Note that the window - shown glued in at these images - should be attached last.

Figure 103: Finished cockpit front perspective.



Figure 104: Finished cockpit rear perspective.



Figure 105 should illustrate the lip around the window, use this image, Figure 97 and Figure 98 as a guide. Attach the completed cockpit to the hangar section (Figure 106).

Figure 105: Front cockpit area showing detail around the window.

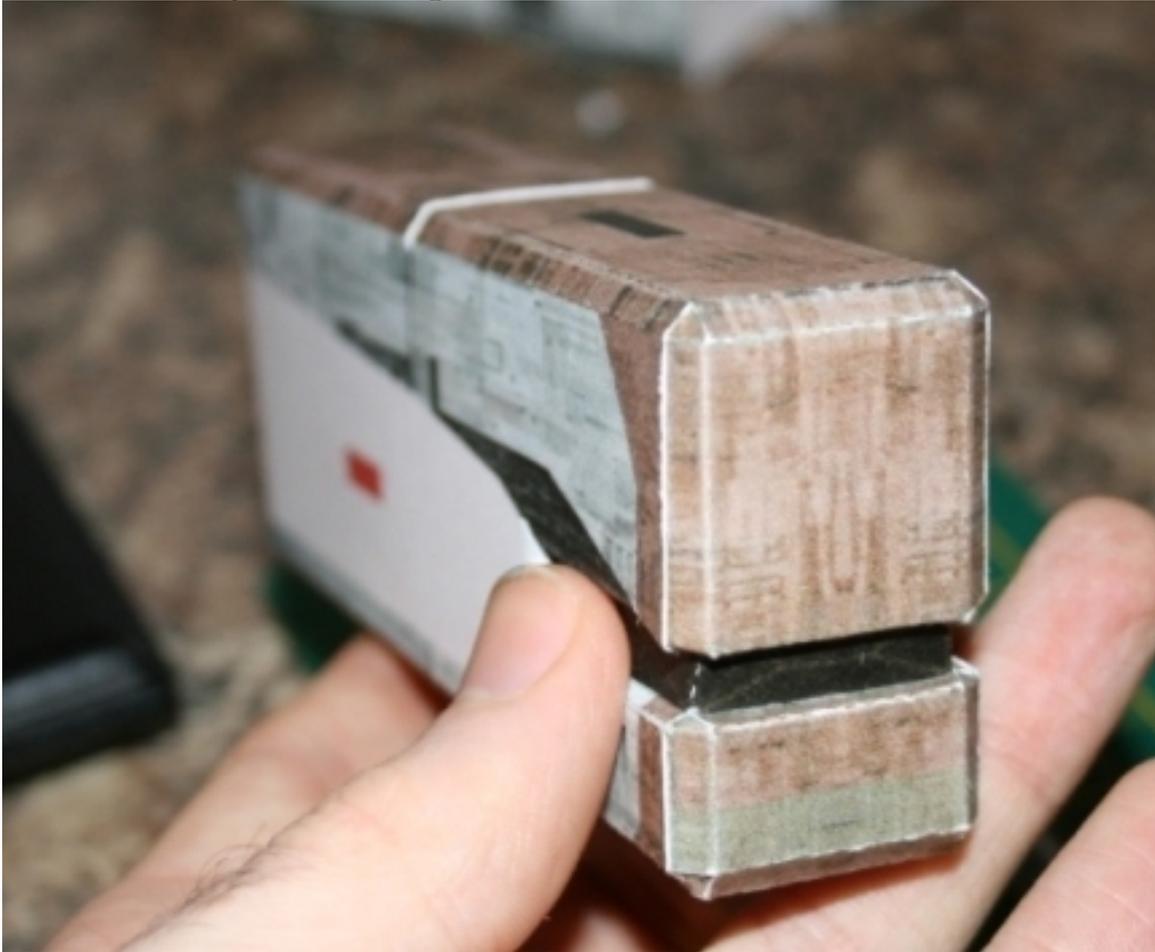


Figure 106: Cockpit attached to the hangar section.



To aid in attaching the cockpit to the hangar you can cut a hole in the rear of the cockpit (Figure 107) and press from inside against the matching surface on the hangar. As you may have guessed, the white areas remain unseen but try to keep the hole small as tabs from the turret and other sections attach here. Figure 108 shows another view of the hangar and cockpit for illustration of what the join looks like from the underside.

Figure 107: Hole cut in the rear of the cockpit, note the aperture on the hangar section which aids in attachment of the two sections.

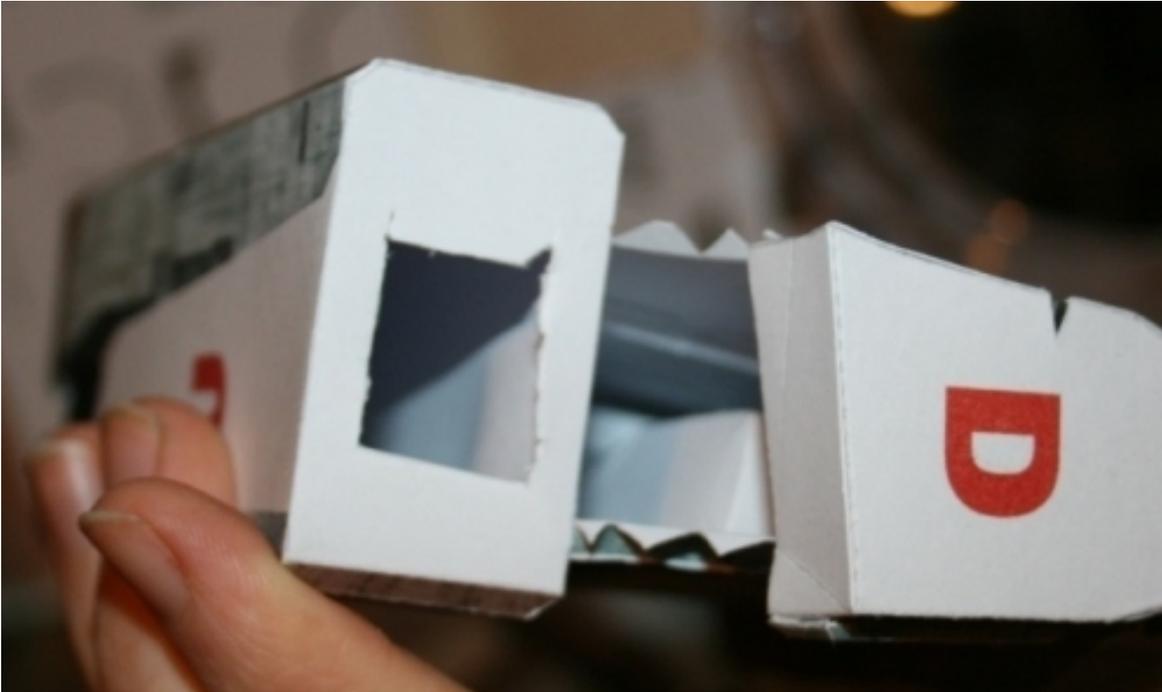
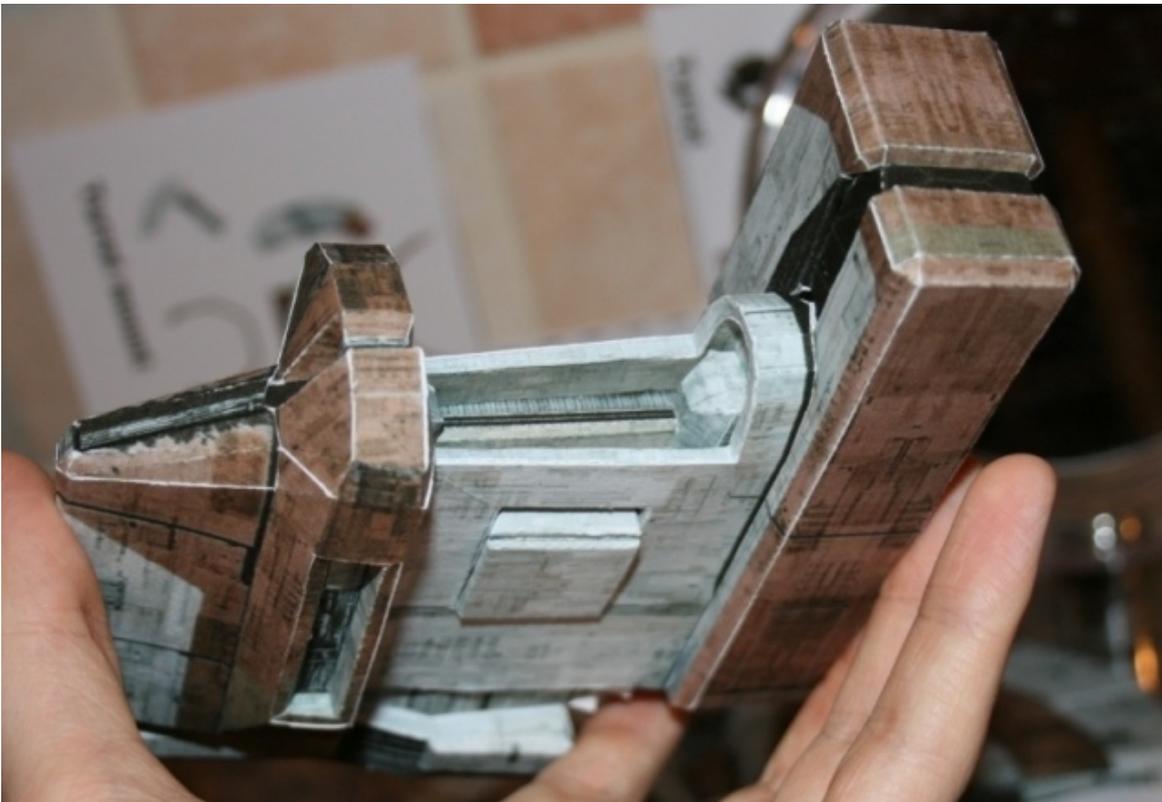


Figure 108: Underside view of attached sections.



You can now attach the rear section (Figure 53) to the above section (Figure 108) at this point if you wish as illustrated by Figure 109 as it allows alignment of the following parts. Alternatively, you can build the rest of the front sections which may allow you to tweak placement later. The sharp-eyed amongst you may note that the bulkhead is not attached at this point as I wanted to ensure I could make minor alignment fixes if necessary. I used small bits of double-sided tape to test-fit parts.

Figure 109:



Now to revisit the port rack previously shown in Figure 91. Instructions for this part and the photographs match. All parts are on **page 10** of the model template. So, in an effort to make you feel Deja-vu, start with the parts shown in Figure 110; I have fiendishly used the same image as in Figure 78 for convenience, just remember that the parts are identical but mirrored. Use Figures 79 and 80 as a guide to to build this part (Figure 111).

Figure 110: Parts required to build the assembly shown in Figure 111 (mirrored).

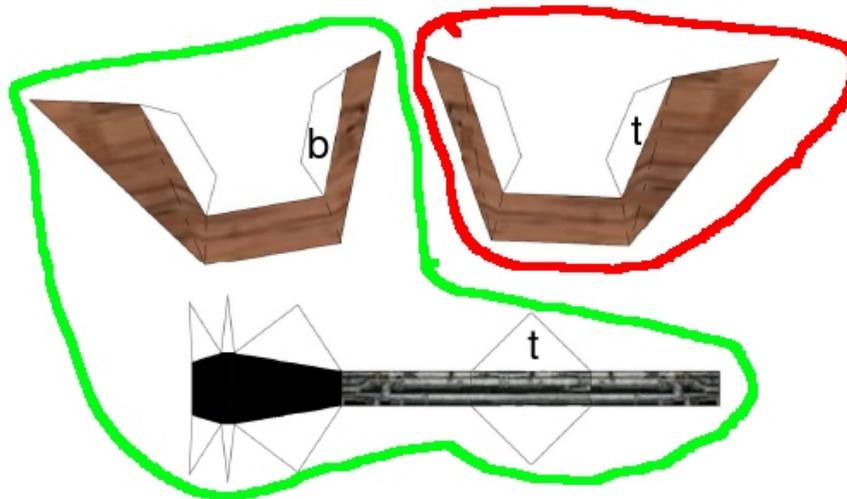


Figure 111: Completed grille.

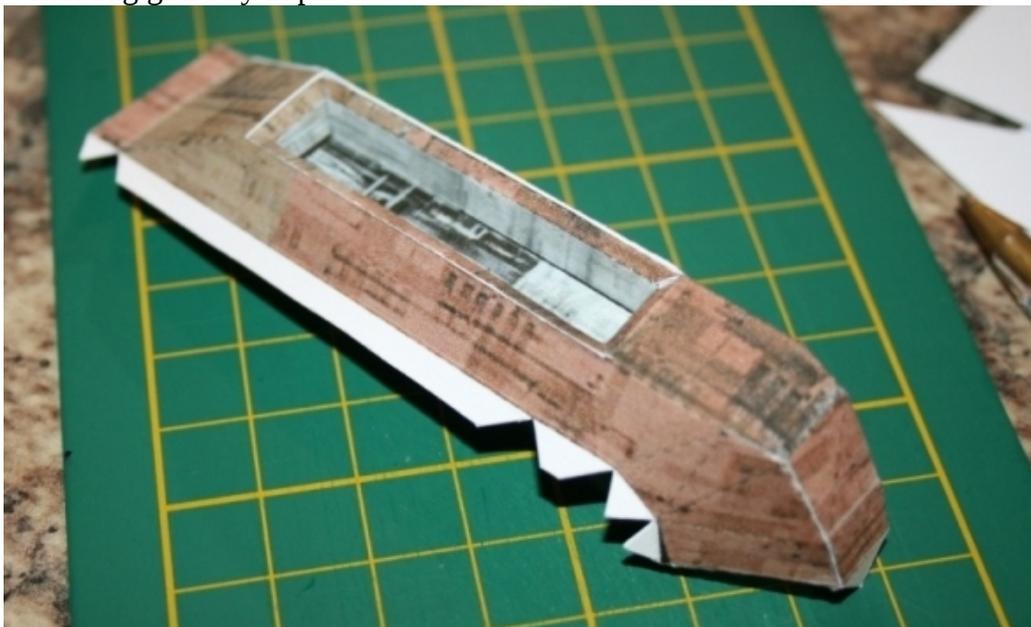


Cut the underside rack and landing gear bay parts marked 19 and assemble as shown in Figures 112 and 113. It is a good idea to let the glue on the parts dry completely before attaching the landing-gear bay as paper thickness makes the fit somewhat tight. On side of the landing gear bay is slightly longer than the other so test-fit and label them with a pencil.

Figure 112: Port rack landing gear bay.



Figure 113: Landing gear bay in place.



Attach the grille to the lower rack as shown in Figure 114. Now cut the top section of the port rack from the template, construction should be quite obvious, use Figure 115 as a guide to its shape and attachment.

Figure 114: Grille attached to the lower rack.

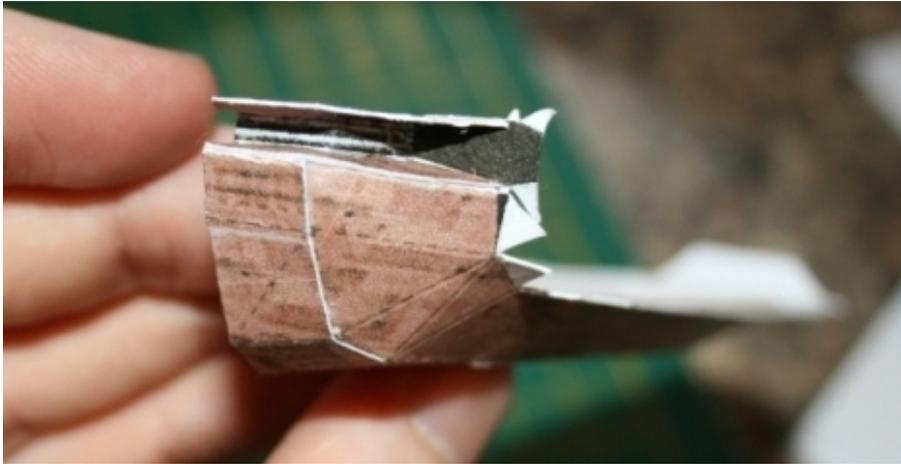
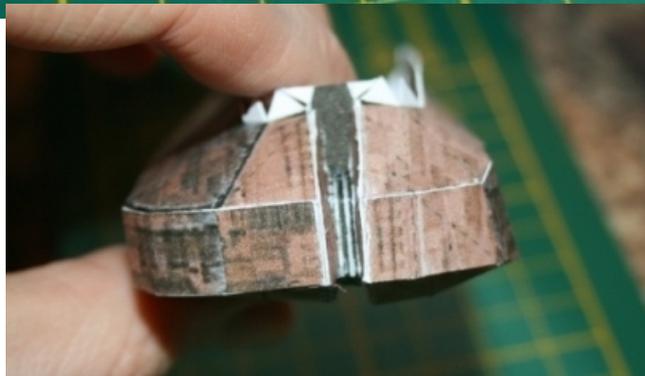


Figure 115: Top section of the rack completed and attached.

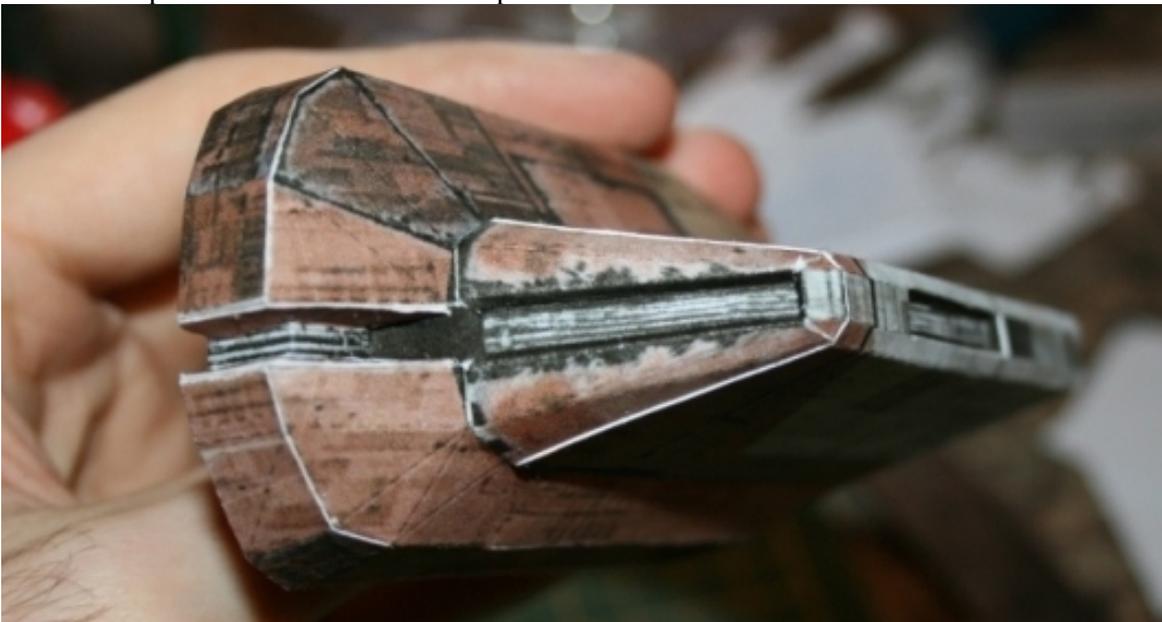


Use Figure 88 and 89 to guide you in constructing the fin shown attached in Figures 116 and 117; the port and starboard fins are mirrored. The attachment line should be quite obvious; it is best to work from the front tabs and move backwards.

Figure 116: Front view of the port rack with attached fin.



Figure 117: Perspective frontal view of the port rack with attached fin.



Cut the section shown in Figure 118 from **page 13** of the model template. This part is the inner section that joins the top and bottom of the port rack. Figure 119 shows it attached to the rest of the assembly.

Figure 118: Medial port-rack section

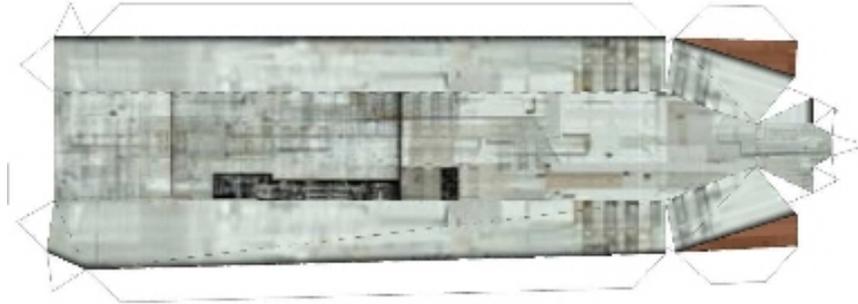
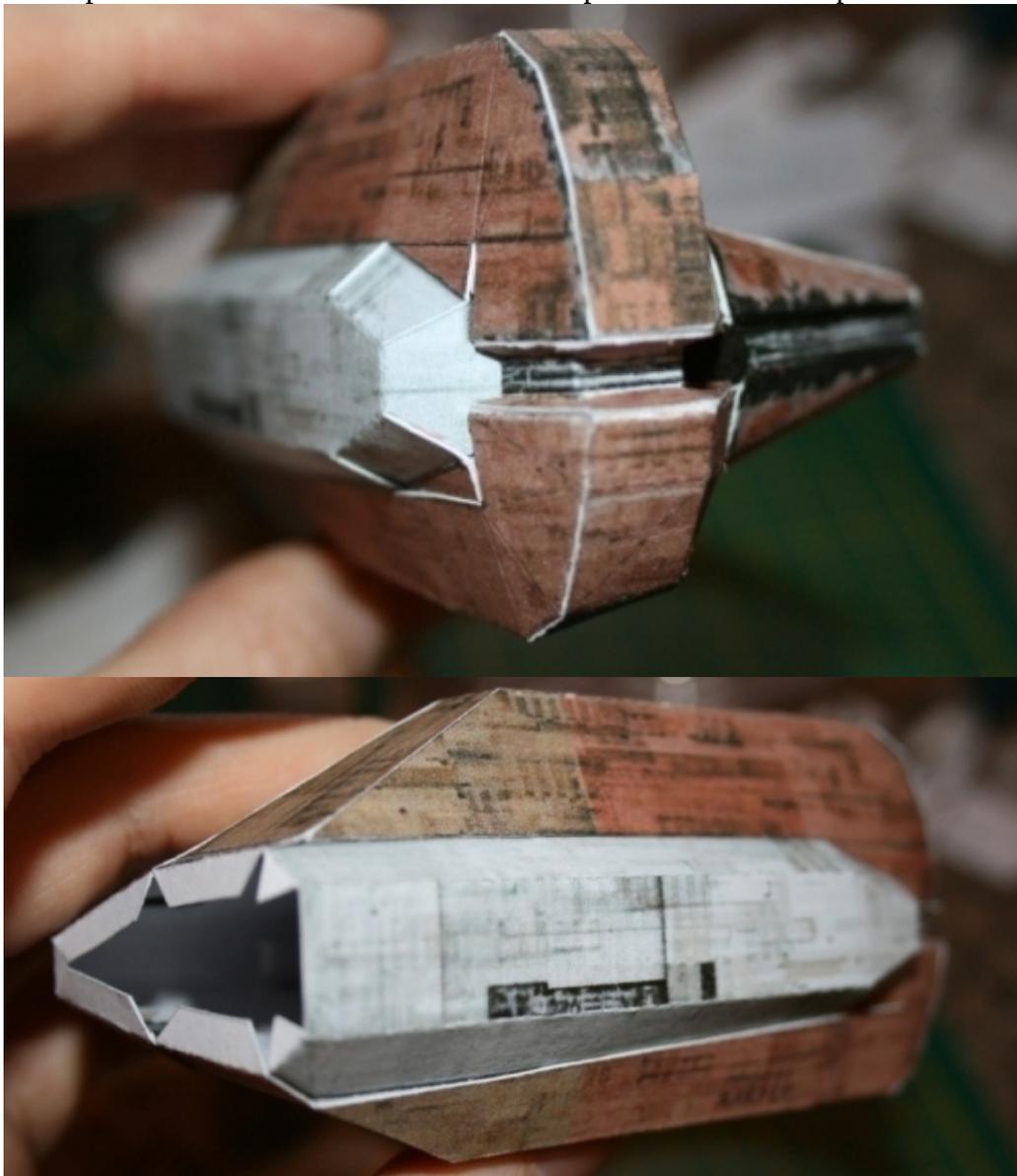


Figure 119: Perspective front and rear views of the completed and attached port rack section.



Before you attach the back of the port rack section it is advisable to reinforce the section. A few layers of 220gsm card glued together are sufficient, consider Figure 120 below. Make sure that it's long enough to bend over each end so that the reinforcing spacer can be securely glued inside (Figure 121). This will ensure that the section doesn't pancake or warp, particularly if you want to display the model on the landing-gear.

Figure 120: Back of the port rack section (top left) and reinforcing spacer.

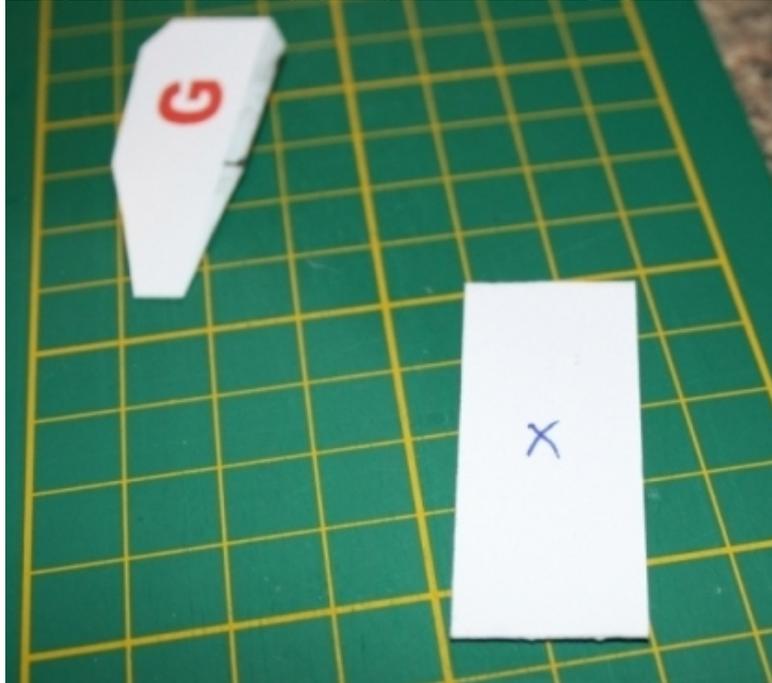
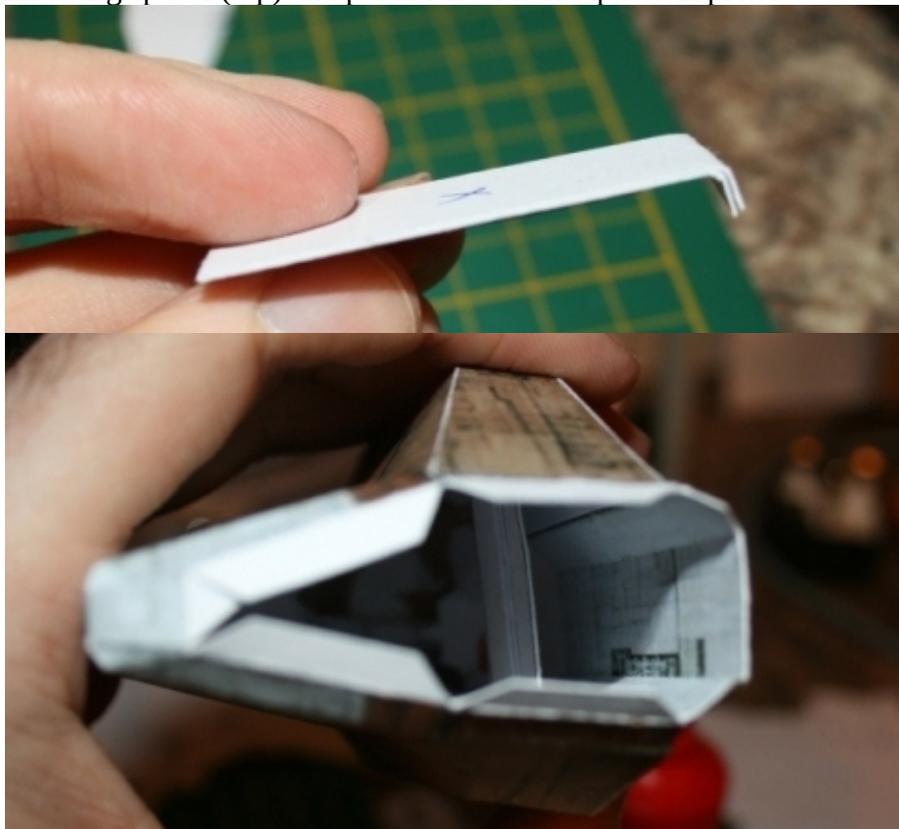


Figure 121: Reinforcing spacer (top) and port-rack with the spacer in place.



To complete the port rack, glue the back part on as illustrated in Figure 122.

Figure 122: Completed port-rack with back-section in place.



Onto that weird U shaped section that adorns the port side of the cockpit area. All of these parts can be found on **Page 15** of the model template. After cutting the part on the left hand side of the page out (shown in Figure 123) glue the long strip around the U shaped section as illustrated. Figure 124 shows the inset section which is composed of the long, slightly bent brown strip at the bottom-right of Page 15 and the top-right part. Note that part of the white background is left in – the line seems to have disappeared in the template. Be sure to cut the section out and retain this area.

Figure 123: 'U' shaped section

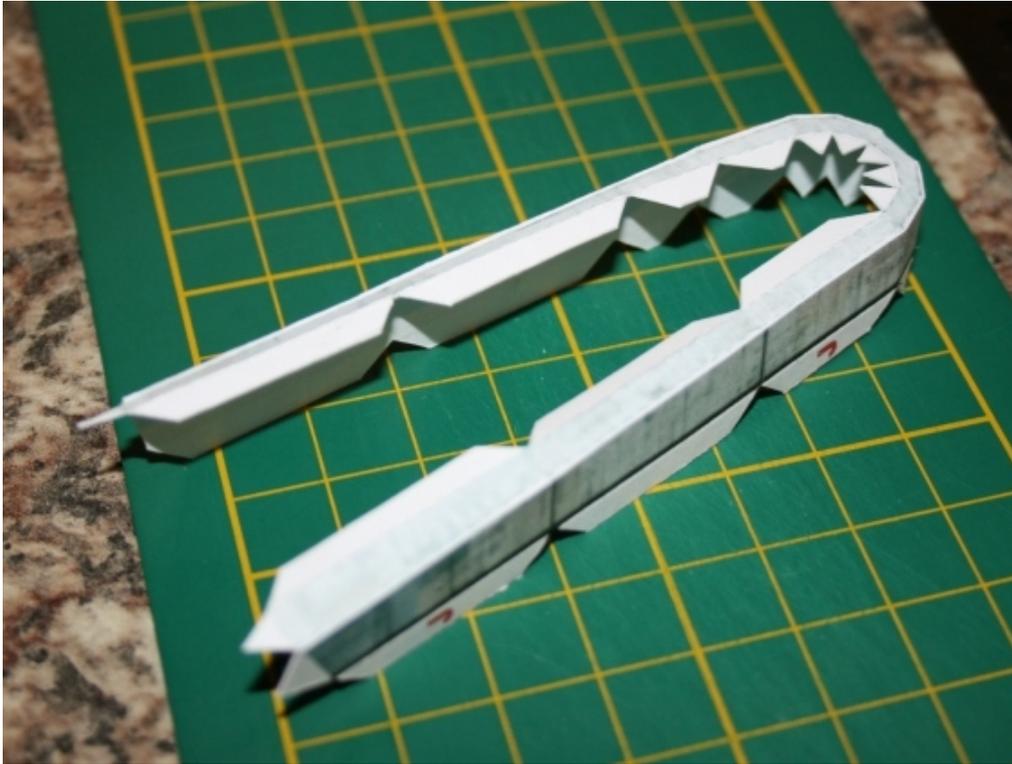
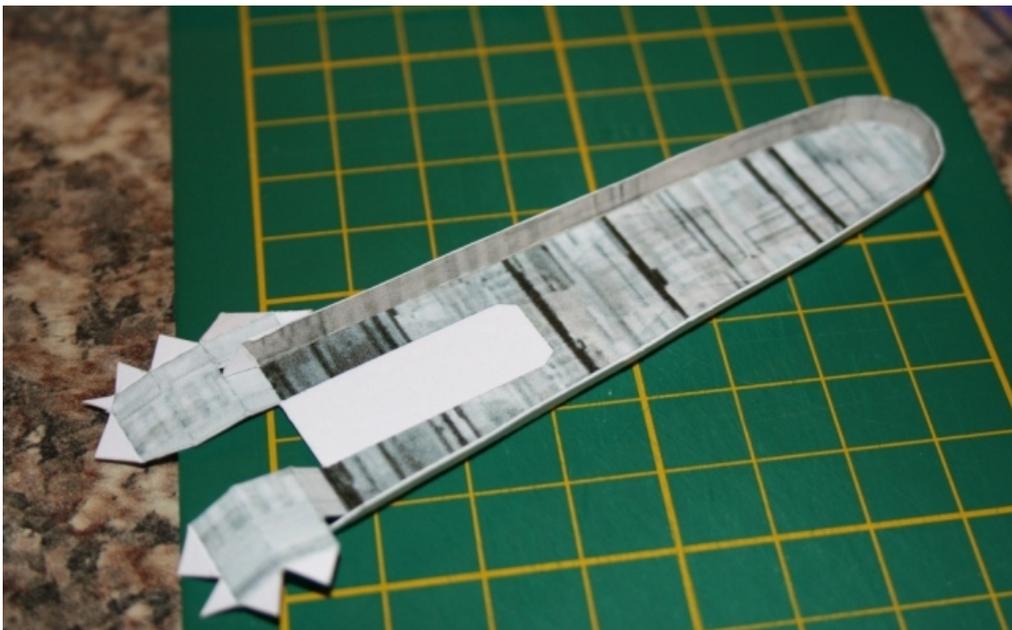


Figure 124: Inset section. Notice grey areas in bottom right of picture are unattached.



Glue the inset section (Figure 124) into the preceding part. The result should be as shown in Figures 125 and 126.

Figure 125: Inset section glued in place.

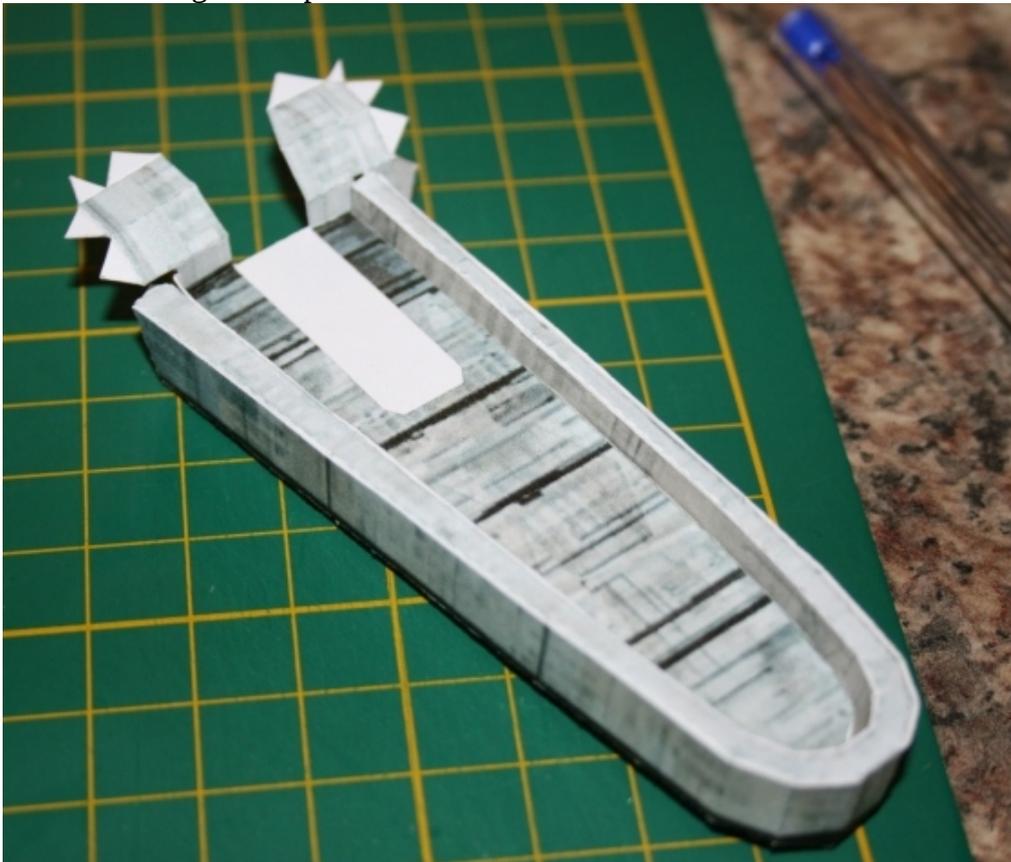


Figure 126: Inset section glued in place – from the bottom.



The wedge shaped part that attaches between the part above (Figure 125) and the port bulkhead is next. These four parts are found on the bottom left of **Page 15**. Figure 127 and 128 show its shape. The V shaped sections are highlighted in the mesh views below.

Figure 127: Wedge from the top – inserted section highlighted.

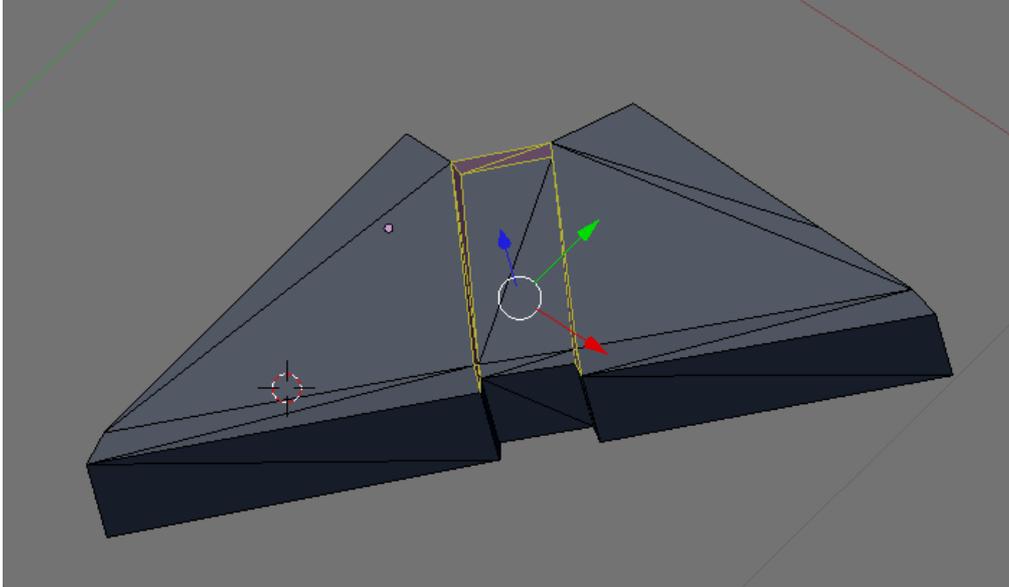
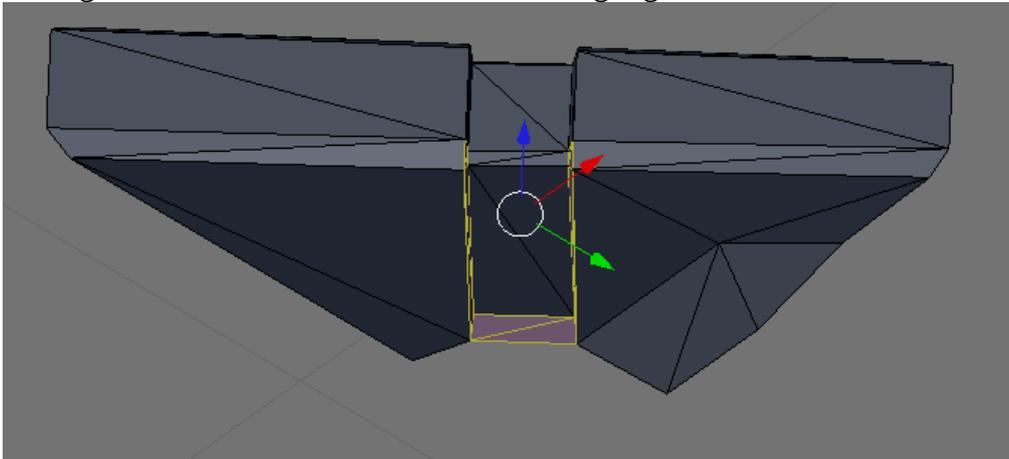


Figure 128: Wedge from the bottom – inserted section highlighted.



As well as the V sections there's a small grey section (Figure 129). Note that it's not flush and juts down a little when folded and glued into place. Figure 130 shows the completed wedge glued in place. The grey, unattached flaps described in Figure 124 can be attached around the appropriate edges of the wedge.

Figure 129: Wedge from the bottom – inserted section highlighted.

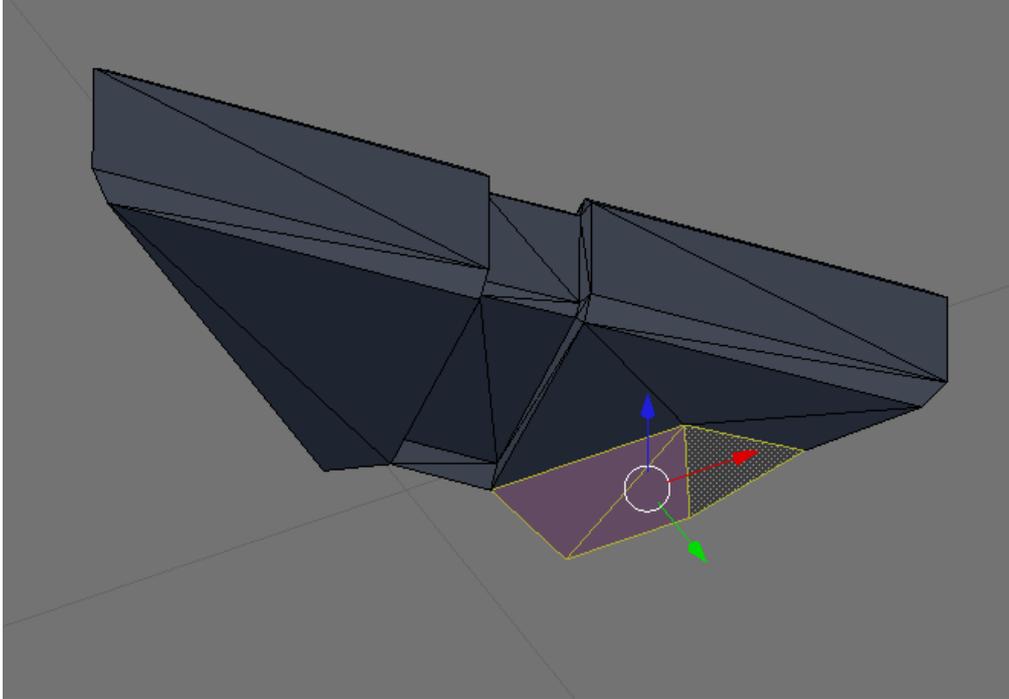


Figure 130: The completed wedge glued in place.



Figure 131 shows the model so far with the completed part in place, match the edges of the wedge with the white gap on the bulkhead. Whilst it is shown unattached, you can also glue the port bunk/landing-gear assembly at this point to the area on the bulkhead marked **G**.

Figure 131: The model so far.



Page 16 has parts for the turret mount and the 'belly'. Working on the top first is recommended; the turret mount contains more intricate tabs, internal access aids attachment. Have a look at Figure 131 which describes the overall shape. Figure 132 shows the construction of the top of this section. The U-shaped strip edges the polygonal top (**A**), when folded and glued into place it forms the under-hanging lip you see on the top-right of Figure 131. The highlighted part (pink) in the mesh in figure 132 corresponds to the part marked **B**. You may need to trim tabs.

Figure 131: Turret-mount (clockwise from top-left) perspective front, port-side, rear starboard perspective, rear port perspective.

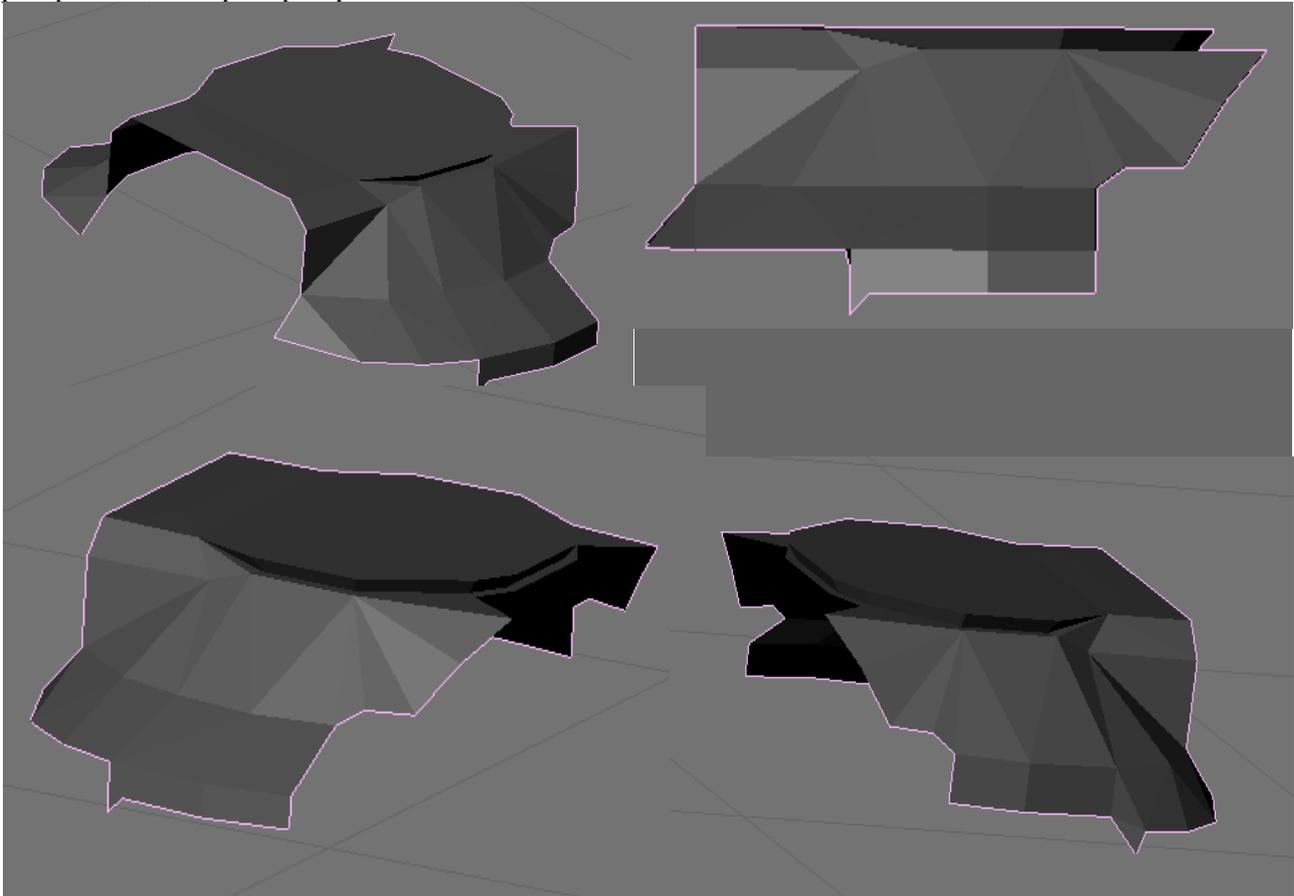


Figure 132: Turret top – parts (L). Mesh (R top). Complete (R bottom).

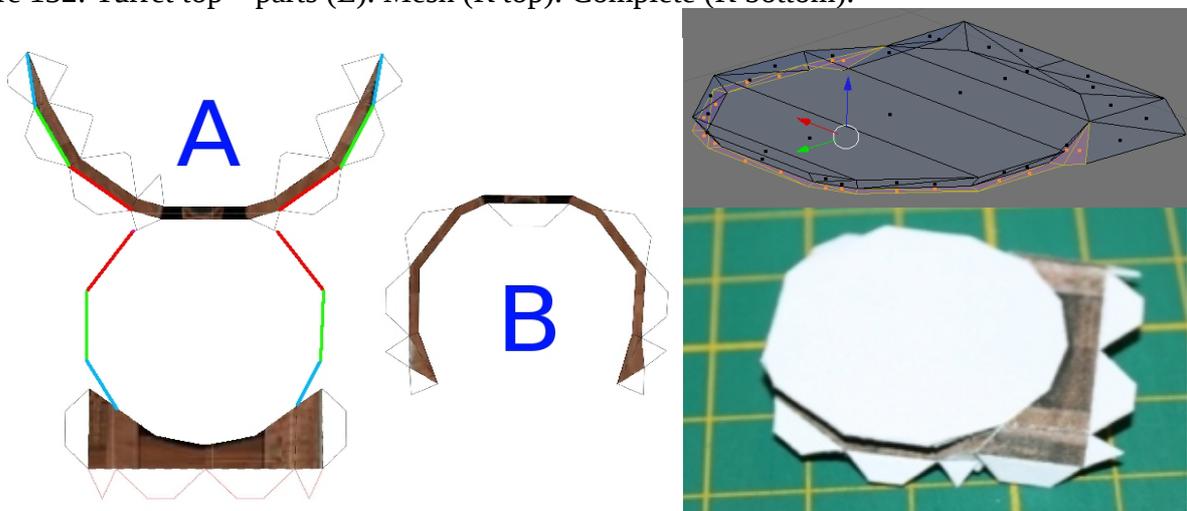


Figure 133 shows how flat this part is, in this image the rear flaps of part **A** are not glued to the terminating parts of **B**. Time to add the sides. Figure 134 shows the upper-side parts of the turret mount, the right-hand side of the image shows part **D** attached to the rest of this assembly. Figure 135 shows both sides attached.

Figure 133: Side view of the part shown in the previous photo. Note that part **B** glues up along the bottom edge of part **A**.



Figure 134: Side parts (L). Part **D** attached (R).

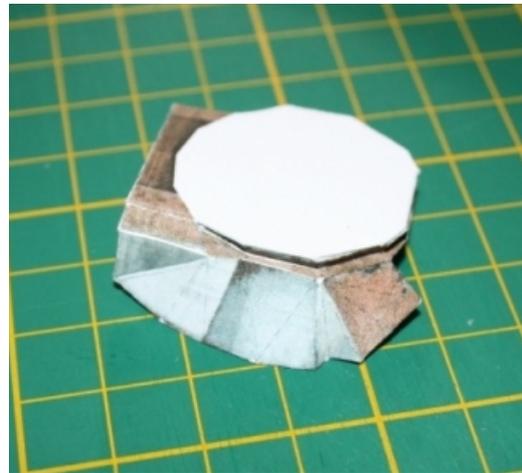
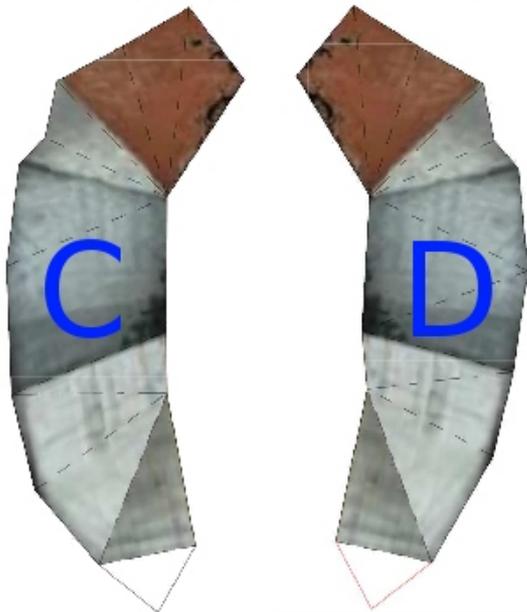
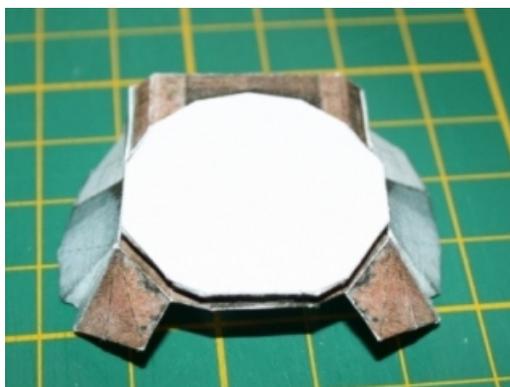


Figure 135: Part **C** attached.



Next is the lower parts of the turret mount. Both sides have a lower section Figure 136 illustrates the parts involved. **F** is the port side, **E** is the starboard. **E** has a bit of a weird attachment – see the lower right of the image in Figure 137.

Figure 136: Lower section **F** added to the port section of the turret mount.

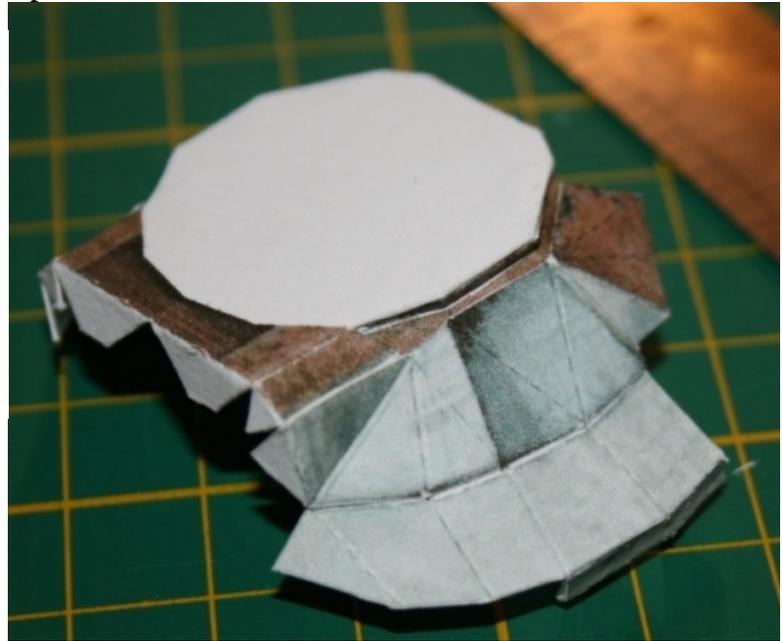
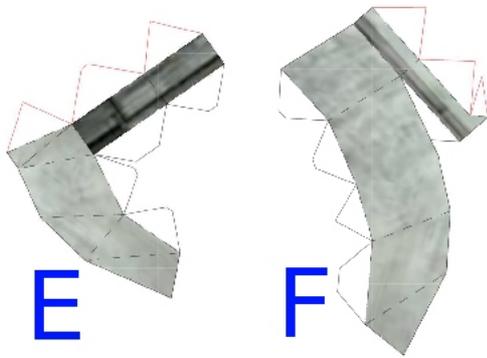
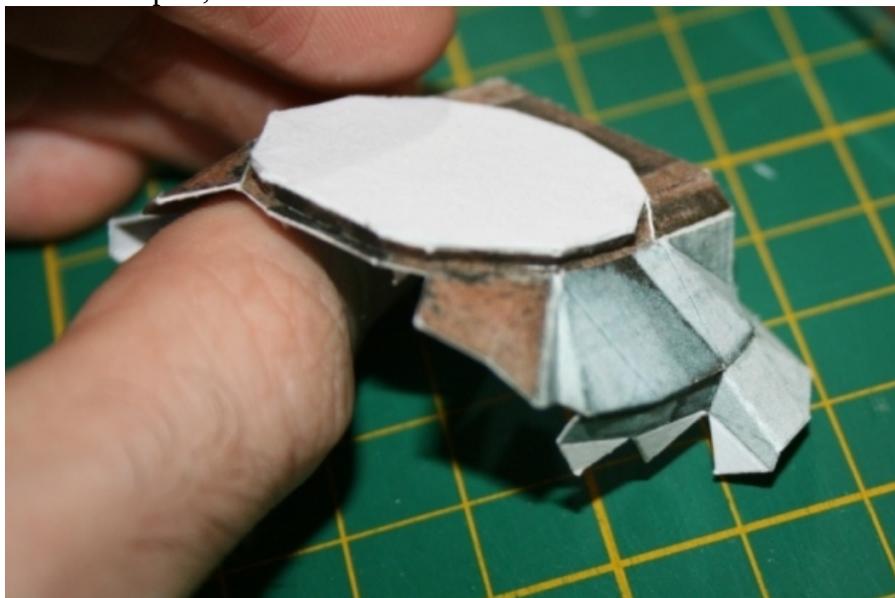


Figure 137: The starboard part, note the 'indent' where the turret-mount fits the rest of the model.



Attach the completed turret mount to the rest of the model as shown in Figure 138 (remarkable floating mechanism not included in model). You'll be able to access the tabs on the underside through the bottom of the model. Take your time fitting the part. Onto the belly of the beast (sorry). Take a look at Figure 139 for guidance as to how the main parts of the belly fit together. Follow the coloured lines in Figure 140 to fit the rest of the parts on the periphery.

Figure 138: Model with turret mount attached.



Figure 139: Underside parts, exterior (L) and interior (R).

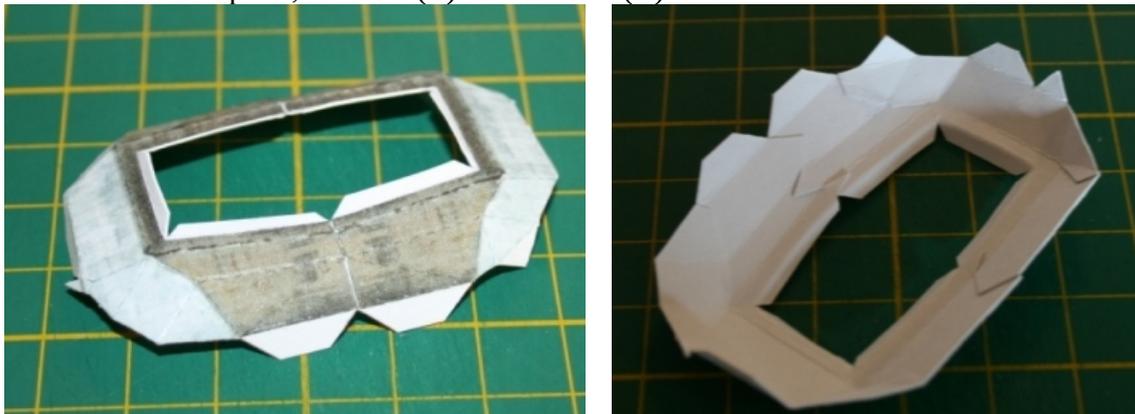
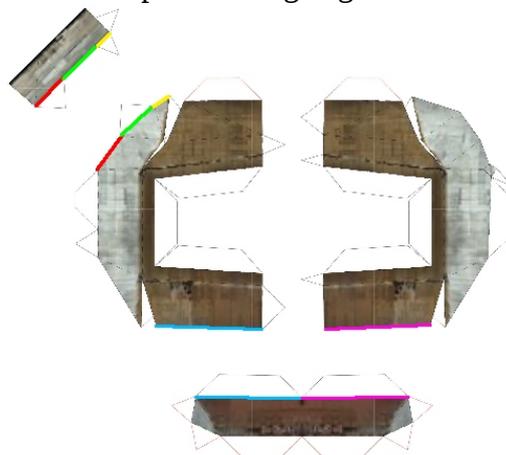


Figure 140: Underside parts - attachment points along edges shown coloured.



Build the grey section as shown in Figure 141 and attach it to the rest of the assembly. With the parts you connected in figure 140 you should now have a complete belly section. Only connect the tab illustrated in Figure 142, there's an important reason for holding off on finishing immediately.

Figure 141: Final belly parts (L). Constructed (R).



Figure 142: Initial attachment point on the underside of the model.



A good suggestion would be to reinforce the heck out of the model at this point as closing the underside will prevent access. I added a few pieces of really stiff card ensuring that the model is, and will remain, correctly aligned; you can get some idea by examining Figures 143 and 144.

Figure 143: Internal view showing added reinforcement.

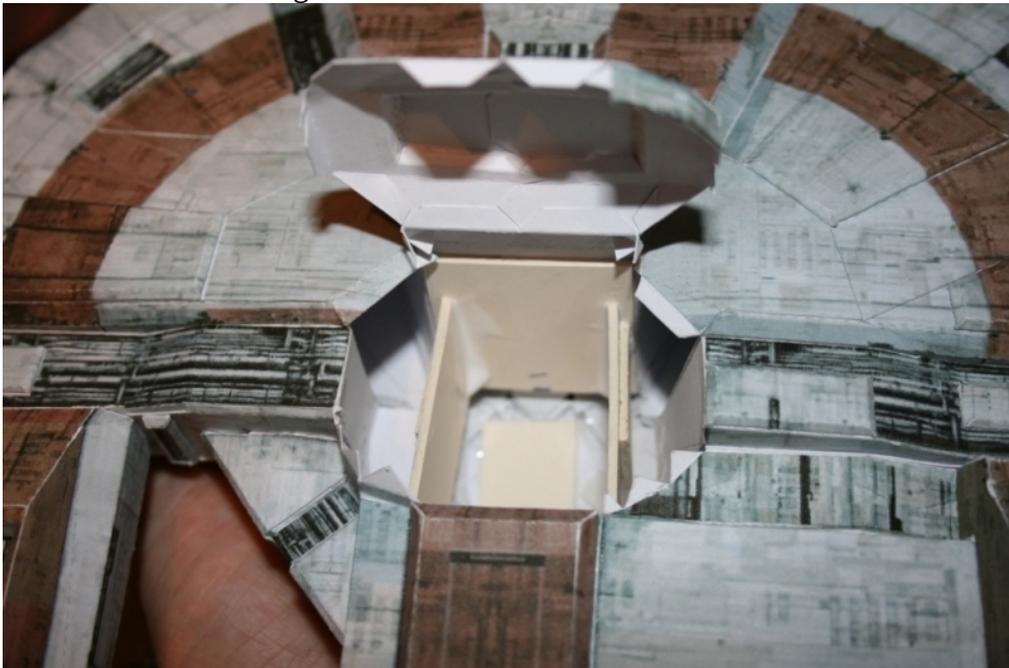
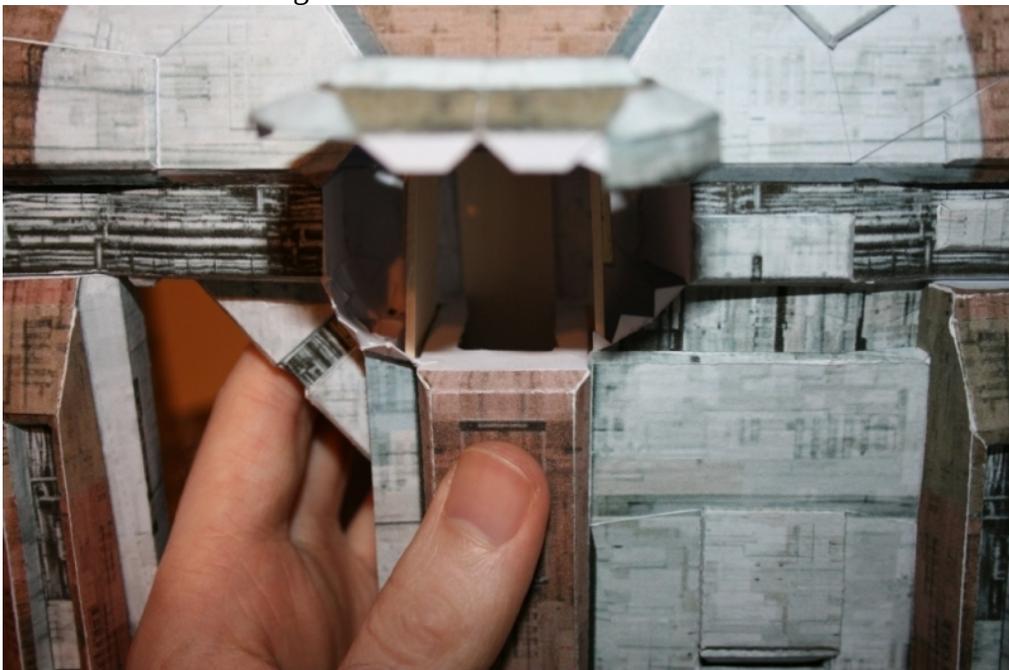


Figure 144: Internal view showing reinforcement.



Now you can glue down the remaining tabs on the belly of the model (Figure 145). We're on the home stretch. With all those Sith fighters flying around it would be prudent to add the guns next. **Page 18** has all the parts for the ship's armament. Start by cutting the turret parts out. The two black parts are where the dual cannons fit – take a look at Figure 146. There's a small lip around the lower edge which will become important when you build the body of the turret.

Figure 145: Completed belly section.



Figure 146: Gun wells. Mesh – highlighted in purple (L). Exterior (Top R). Interior (Bottom R).

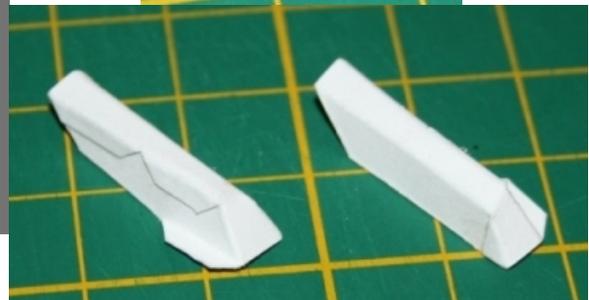
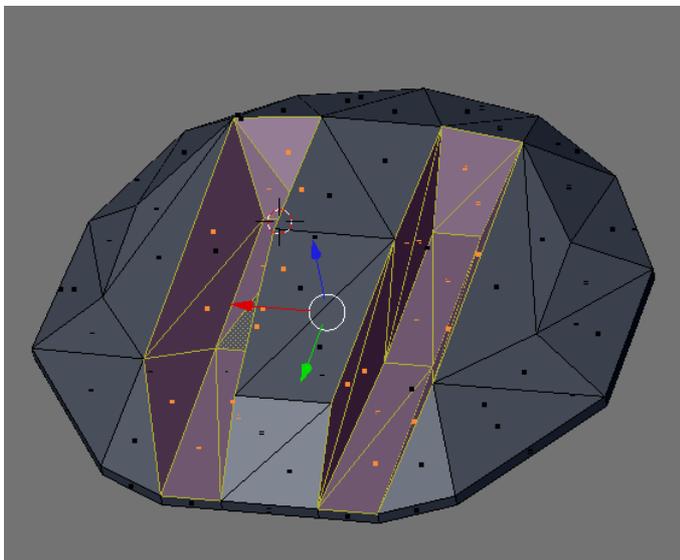


Figure 147 shows the body of the turret with colour coded edges. I suggest that you join the sections marked denoted > and < first. Notice that the tabs here are very small, reinforce the inside with some tape or small strips of card. Also, the lip around the bottom has tiny gaps between the edges – these are indicated by red arrows in Figure 148. Simply cut these out and when you glue the larger tabs down they will help to retain the turret's shape. Finally, the tabs on the cannon wells (see Figure 146, top R) correspond to the red lines. You will have to trim the tabs marked with an asterisk to ensure the cannon-wells fit.

Figure 147: Turret part with colour-coded edges.

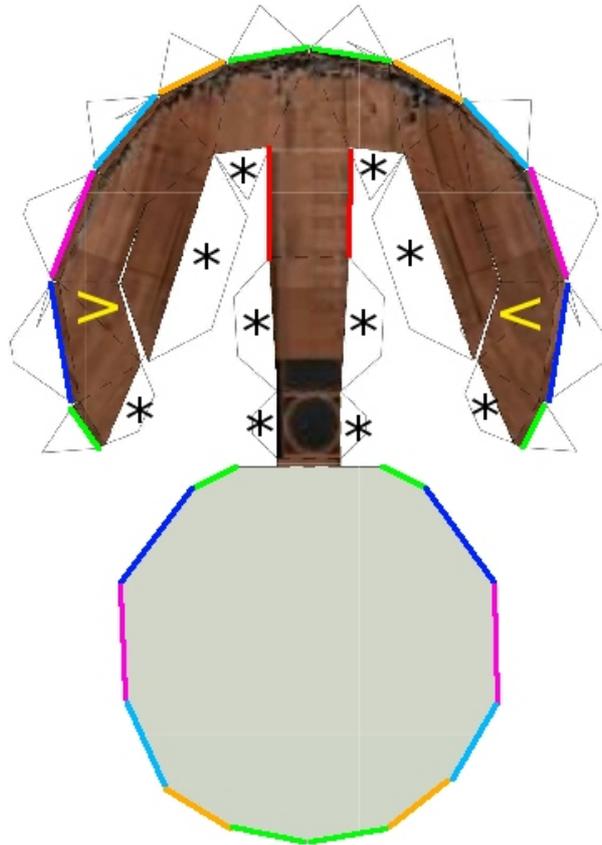
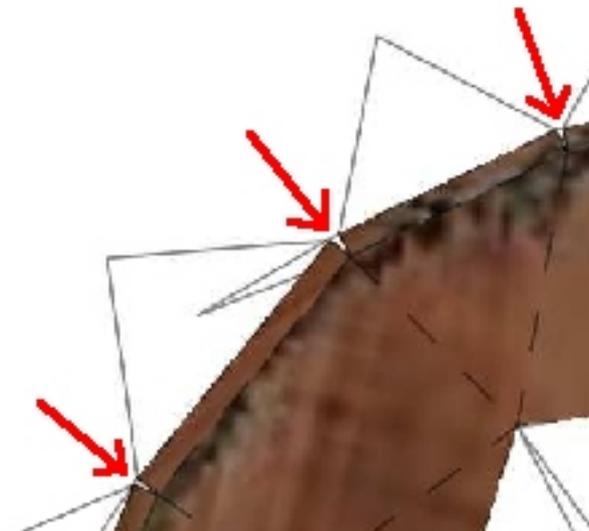


Figure 148:



Glue the cannon-wells into the turret body (Figure 149). The process of building the cannon-barrels is pretty much identical for all of the guns so I'll illustrate how one is built and you can repeat for the rest. Each single barrel is pretty small so take your time with it. Figure 150 shows the parts for one barrel.

Figure 149:



Figure 150: Cannon-barrel parts cut out. L to R: 'Nozzle', barrel and body.

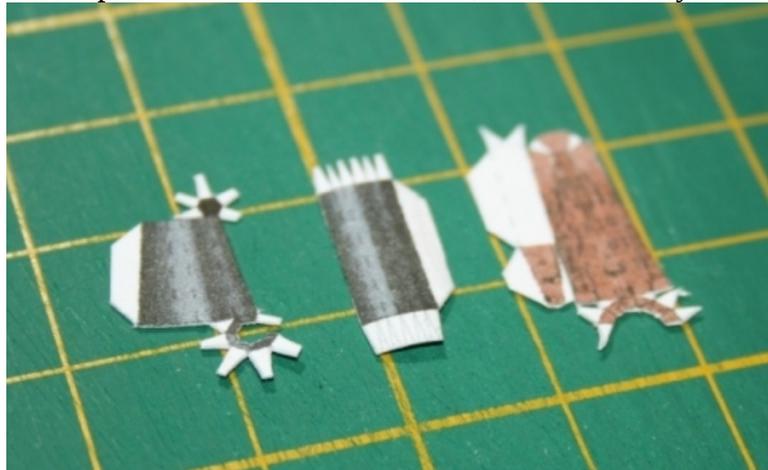


Figure 151 is a montage of various views of the cannon-body, you can see it's quite a complicated shape but when you build it the part will be tiny and won't retain all of the detail of the shape. To see how it looks when you do build it take a look at Figure 152. You can see that it's pretty cylindrical. Don't be afraid to sacrifice some of those tiny little tabs as they're more likely to get in the way. The main tabs are sufficient to hold the part's shape. You should be able to form the conical end of this part relatively easily. I used a toothpick to retain the circular aperture the barrel fits in to.

Figure 151: Cannon Body: Front perspective (L), top (top R), side/bottom (middle R), rear perspective (lower R).

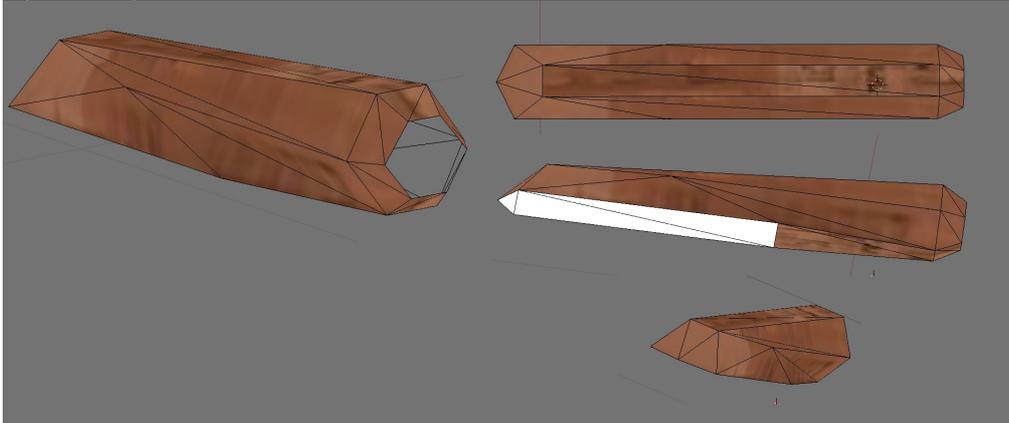


Figure 152: A complete (top) and incomplete (bottom) cannon-body.



The cannon-barrel is simply a cylinder, form it around a large needle or something similar then pinch the tabs at one end into a conical shape, apply a little glue and insert it into the cannon-body as shown in Figure 153. Making the nozzle of the cannon can be made easier by sacrificing the area shown highlighted in purple (Figure 154). I found it to look good without this part. When adding the nozzle without the part previously described, gently flatten the nozzle a little to form an oval end to it, put some glue onto the barrel and hold the nozzle until it's attached. You should be able to see the nozzle shape from Figure 155 below. Rinse and repeat for the rest of the cannon-barrels; there are six in total – two on the turret and two each on the port and starboard guns.

Figure 153: Cannon-barrel glued into the cannon-body.



Figure 154: Mesh view of cannon nozzle. Front is to the left of the image.

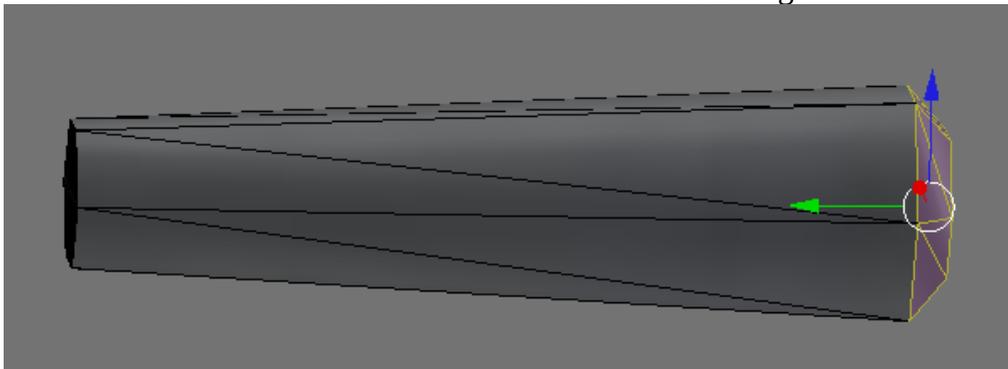


Figure 155: Completed cannon.



Glue both of the bases of the turret cannons into the cannon-wells (Figure 156) then glue the turret in place on the model – the game usually has the turret facing aft as shown in Figure 157. Bear in mind that you can add magnets or some other attachment method allowing the turret to be rotated if you wish. You now have permission to go, “pew pew pew”, whilst making fly-by noises.

Figure 156: Completed turret with both cannons attached.



Figure 157: Turret shown glued in place.



The port and starboard guns are mirror-images of each other. Building them is quite straightforward though you should pay attention to the colours in figure 158. The spacer is effectively a wedge-shaped cuboid but note that there are certain lines on the body that are not connected. The unconnected tabs overlap and are where the cannon-barrels are glued on, you can see this in Figure 159.

Figure 158: Guns: Spacer (top) and body (bottom).

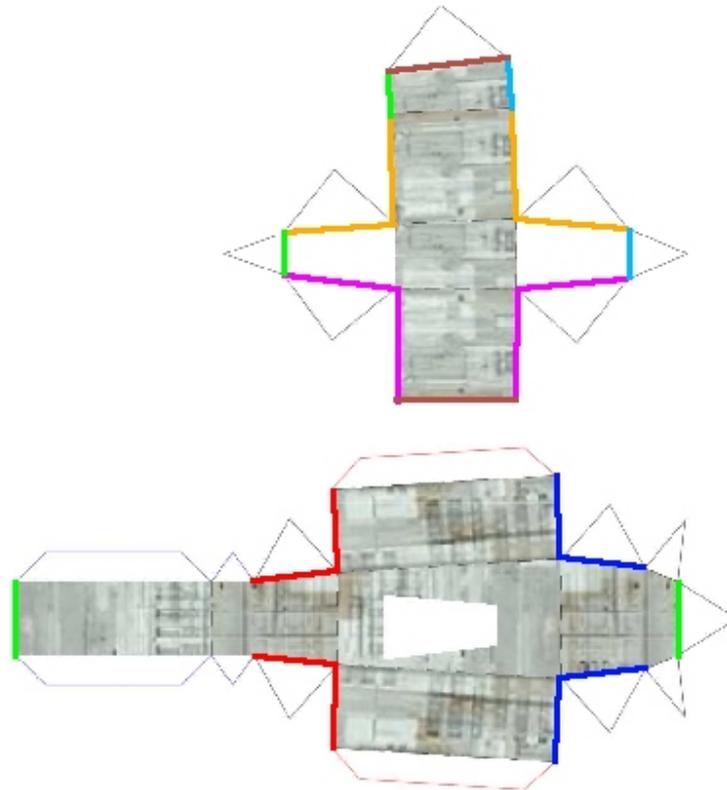


Figure 159: Starboard and port gun-bodies with attached spacers. Note the white areas where cannons attach.



A quick reminder of the cannon build with some extra detail in Figure 160; the attachment point on these cannons is on the side of the body rather than the bottom but the build process is effectively identical. Figure 161 shows a part-completed gun. It may be worthwhile to add something to the inside of the cannon as it's quite fragile and, being on the side of the model is a prime target to get accidentally caught on something. Once complete you can attach the gun to the model (Figure 162).

Figure 160: Cannon build montage.



Figure 161: Cannon glued in place.

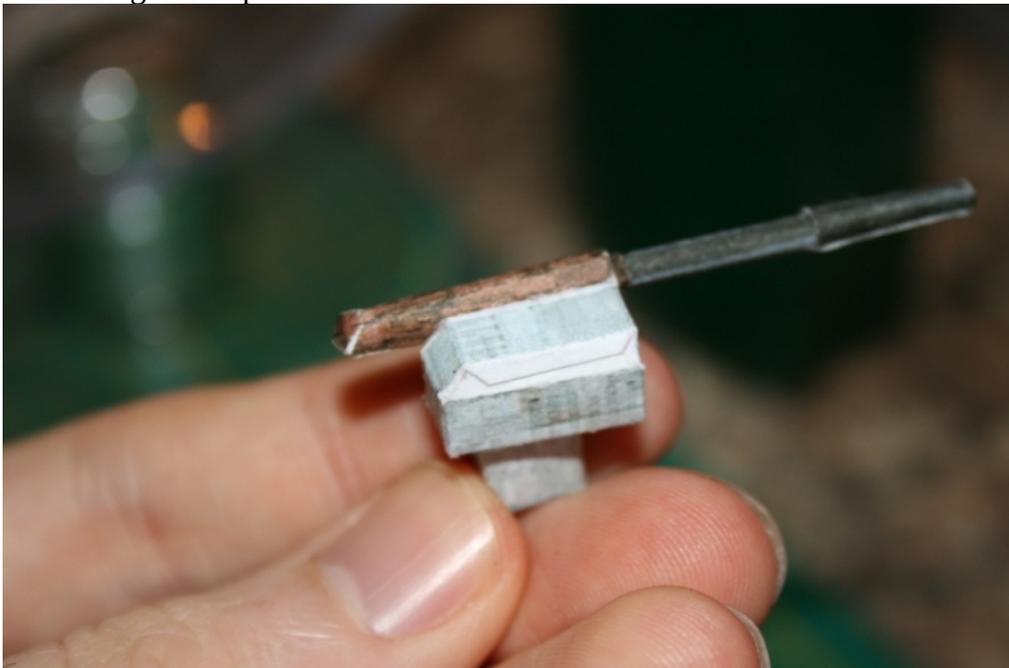


Figure 162: Gun glued in place.

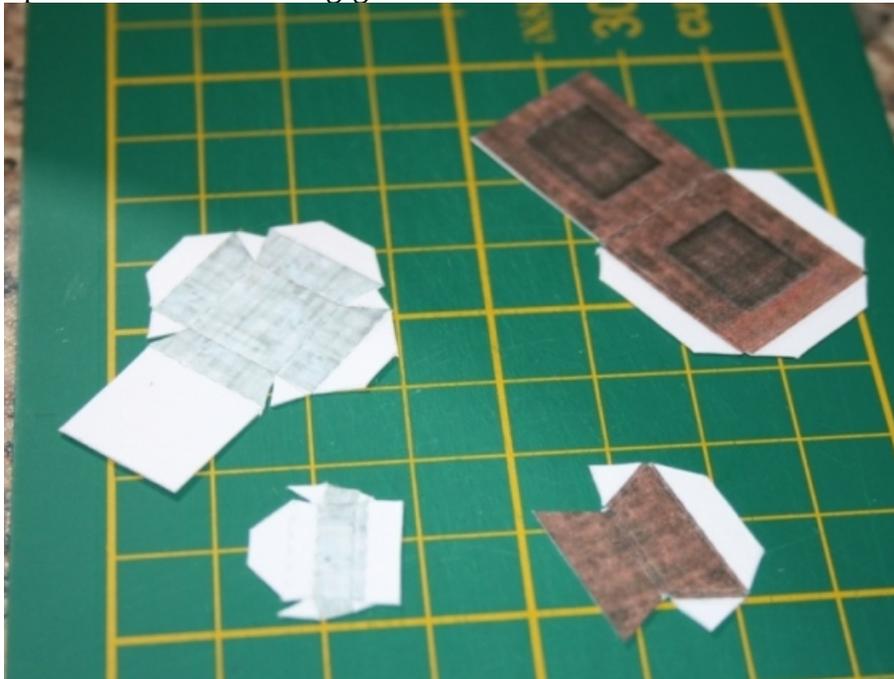


If you're happy with the model as is then I offer you congratulations, you now have a fully armed and (mostly) operational ship. If you want to complete the landing gear then follow on... The landing gear is pretty straightforward – each one is a series of four attached cuboids as shown in Figure 163. The parts required for the rear landing-gear are shown in Figure 164.

Figure 163: The landing-gear (minus struts).



Figure 164: The parts for the rear landing-gear.



Make the two parts shown in Figure 165 first. Run a line of glue along the edge of the rectangular part and hold the front flap against it until the glue sets; you may want to prop it against something until it sets. Run another line of glue along the join to ensure the parts keep their position. Next are the parts shown in Figure 166. Figure 167 shows the similar process for the front gear.

Figure 165: Landing-gear parts.

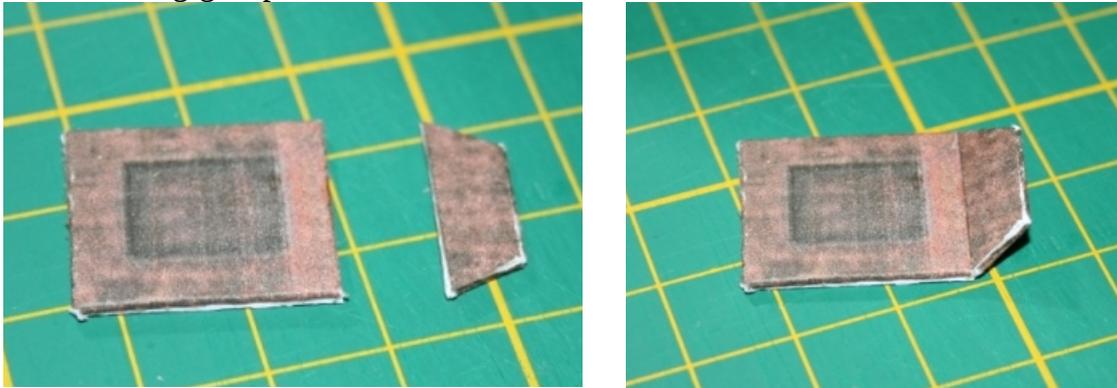


Figure 166: Landing-gear parts (L) and complete (R).



Figure 167: Build process for the front two landing feet.



If you want to display the model 'flying' then glue the landing gear into the bays on the bottom of the hull. Otherwise, on to the struts: The landing-gear struts are easy to make but some alignment is required to ensure the ship sits level. Figure 168 shows a finished front-pad. You can see that there are pins in the struts. Given the weight of the model in relation to the size of the struts it's worth adding these. If you take a look at the model parts (**Page 17**) there are four struts for both the front struts, and three for the rear strut. Wrap the narrower section around the pin and glue it, then wrap the bottom edge of the wider section around the top of the narrower (Figure 169). Once they are set pour glue into the top of the top section – when set, it's very stiff.

Figure 168: Completed front landing-gear struts.

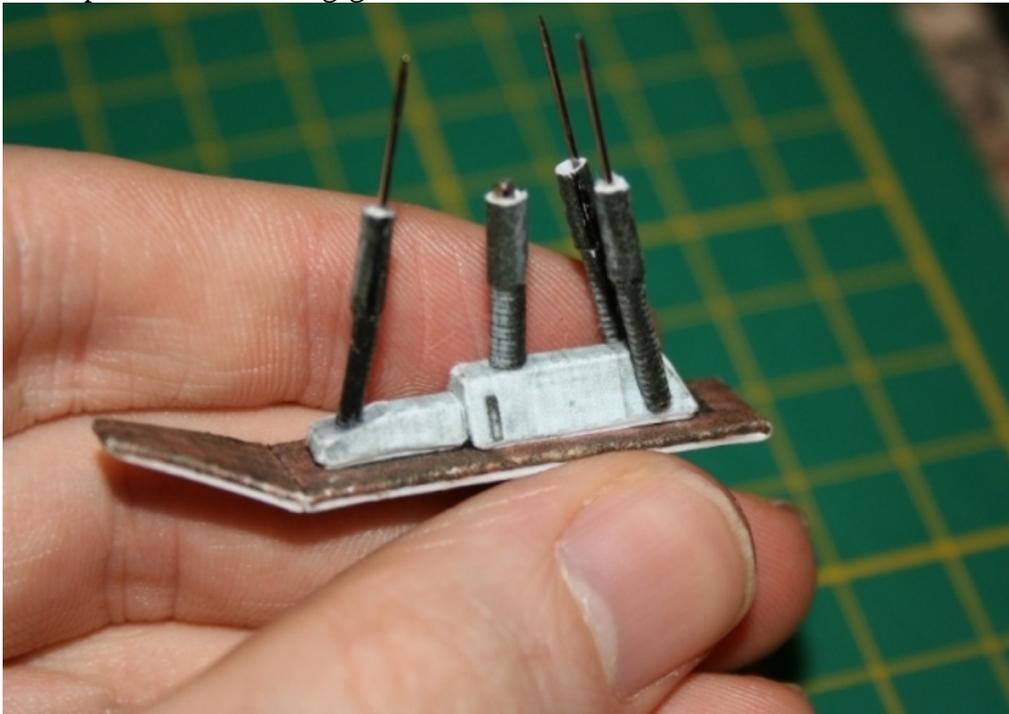


Figure 169: Landing gear strut construction around a pin (L) and heavy-duty paper-clip (R).



Use Figures 170 and 171 to align the struts accurately. Notice that from the front the struts are 90 degrees to the horizontal and parallel to each other. The struts on the model actually clip through the hull so you'll have to trim them using the blue lines as a guide. There's an advantage to using pins here: You can use them to perforate the bottom of the hull - the angle of the struts will allow the gear to stay in place without permanent attachment.

Figure 170: Mesh view of the front landing gear. Blue line denotes the trim line to allow the model to remain level.

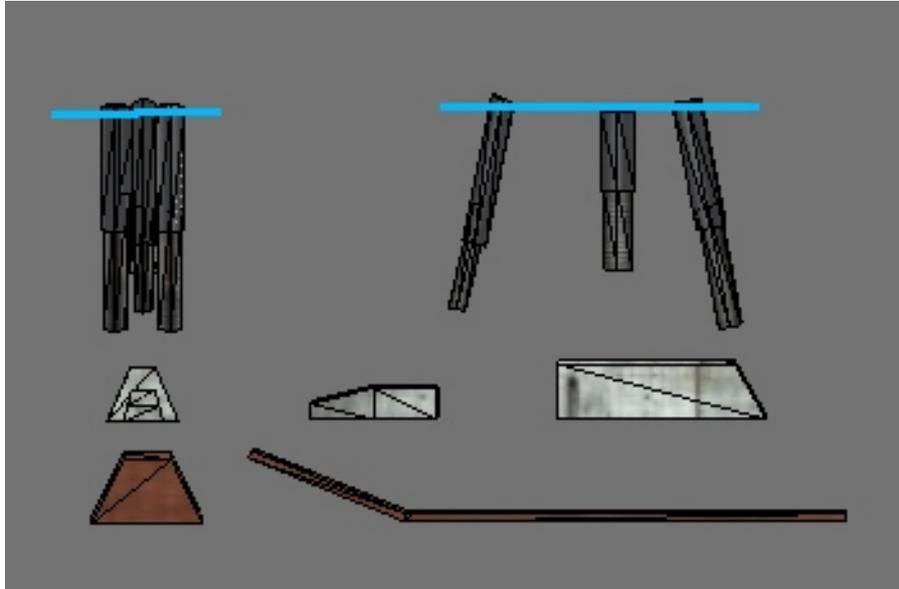
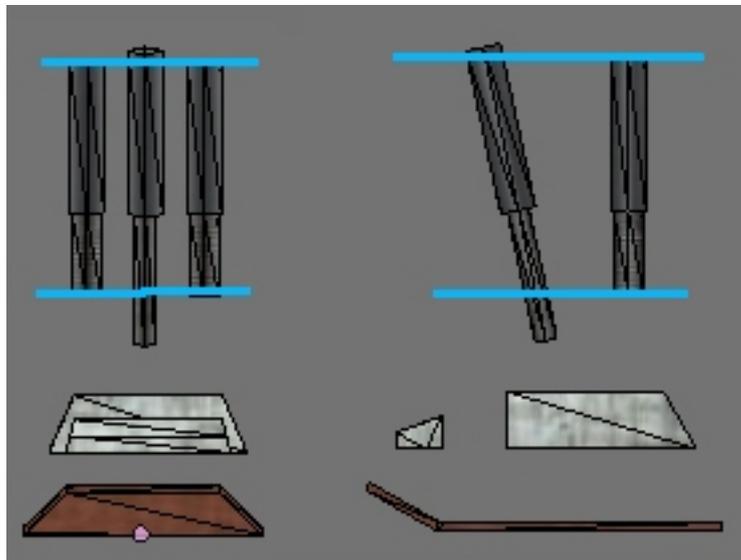
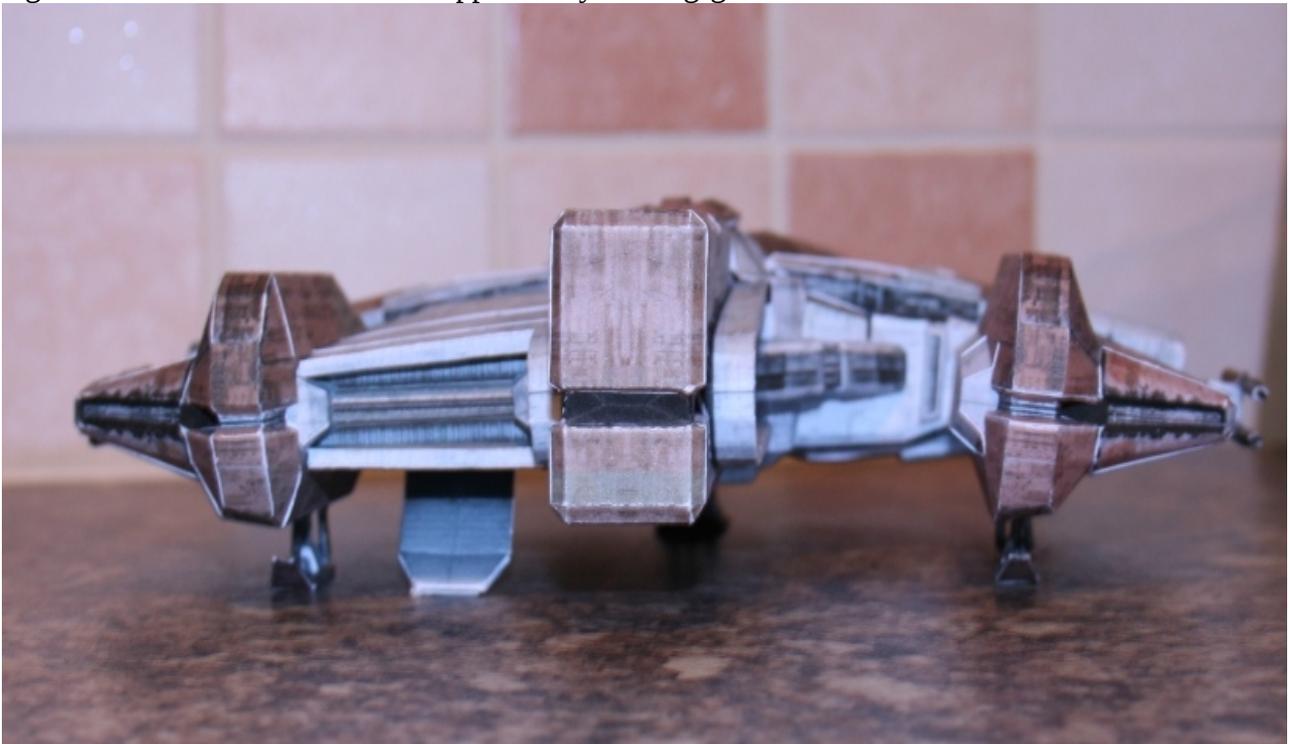


Figure 171: Mesh view of the rear landing gear. Blue line denotes the trim line to allow the model to remain level.



You'll want to trim the front struts first to ensure the model is level from port to starboard. When you're happy with this work on the rear struts to level the model from fore to aft. The end result should be something like that shown in Figure 172.

Figure 172: Front view of model supported by landing-gear.



...and with that you're now the proud owner of a top-of-the-line smuggler ship. Congratulations and thanks for building the model. Please contact me if you do and show me photos.



Time to go save/wreck the galaxy (edit to reflect current Force alignment).
- Martinus.