



3D mesh by Darksaber



LAMBDA CLASS SHUTTLE



The model is rather hard one, so if You never tried a paper model before, I recommend you visit www.paperstarships.tengun.net, and choose something else for starters. Also, if you don't succeed, don't give up, you can always print out the needed part again (I did it two times). Anyway, good luck, and have fun, because that is the most important, even more important than the final effect.

Materials needed:

- Bristol (thick paper)
- millimeter thick cardboard
- 2 millimeters thick cardboard
- A sharp knife or scalpel (for cutting edges)
- Some good glue –personally I prefer polyurethane glue, also you can use wood adhesive it will hold paper very good too, maybe even better than paper glue. I wouldn't recommend any glue sticks, so use them at your own risk, and don't cry when the model falls apart :P
- Ruler
- Scissors
- Sand-paper

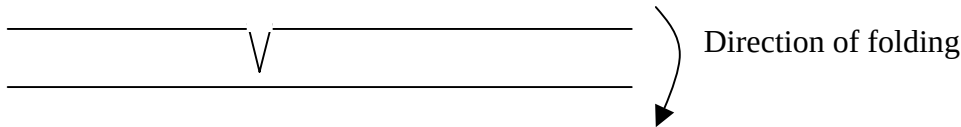
Parts marked with * should be stuck on 1 mm (millimeter) thick cardboard.

Parts marked with ** should be stuck on 2mm thick cardboard.

When there two symmetrical parts at both sides of the model, left one (when looking at the rear side of model) is marked with **l**, while the right one is marked with **r**.

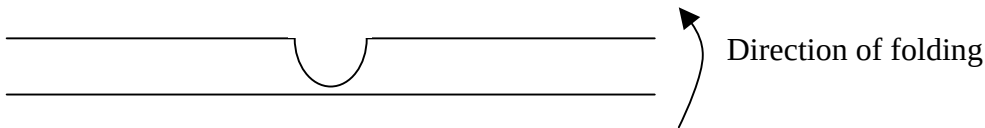
Some Basics:

When you need to fold the part so it is convex (-----), make a shallow cut with the knife along the line, so that paper looks like that:



Then it will easily fold. You have too look out not to cut the part apart however. After a short training You'll figure out the best depth of the cut.

When you need to fold the part so that it is concave (-----), you can either cut it at the other side, which is harder to do, because you don't see lines, or make a dent along the line, for example with a dry pen, so that the paper looks like that:



When You want to achieve cylindrical shape, draw the part across the edge of a table, as shown on the picture:

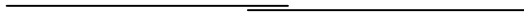


Star-like and comb-like parts, as shown bellow form spherical shapes:

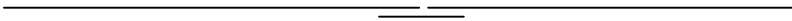


You need to bend their “arms” so they are convex, preferably with method described above, and then glue their edges together. I recommend you cut off all their flaps before doing so.

Sometimes it is best to remove flaps and make Your own from a separate piece of paper. Why? The part, especially a flat one or a side of cylinder glued with “stock” flap looks like this:



While , if You make Your own flap You can achieve a flat even surface like this:

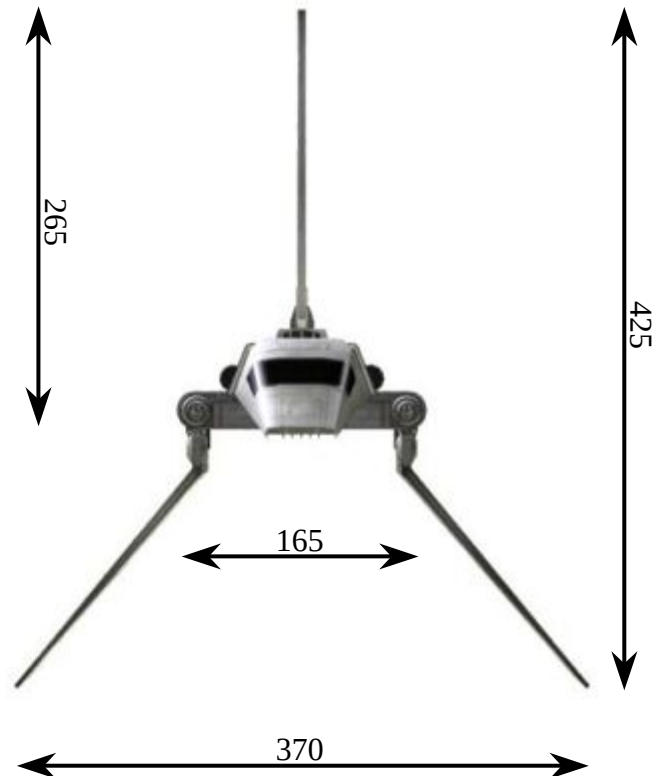


This way You’ll have a way better effect.

Also one of the first rules in this business is: before You apply glue, make sure You won’t regret it – always check if the part fits correctly, if the skeleton bellow it doesn’t need some sandpaper work, etc.

One more thing: be creative – model’s author isn’t always right, he makes mistakes, so if You think that some things could be done other way, maybe easier, they probably can, so don’t be afraid to modify the model. For example, I’ve been making paper models for about eight years now, and I rarely follow instructions in details. I developed my own habits and ways of doing things, and always modify the original concept, so it’s easier to make for me, maybe looks better, or I just do it for fun.

Model dimensions (in millimeters):



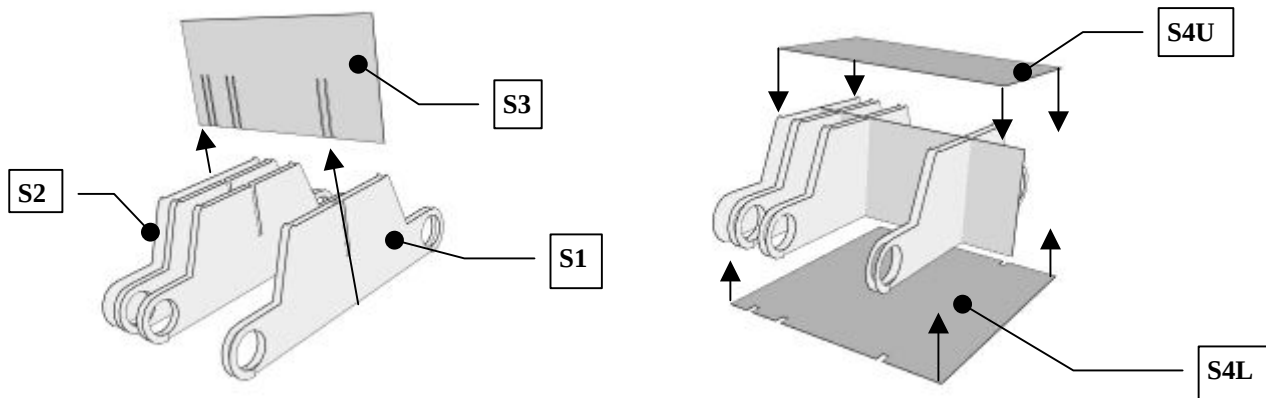
Difficulty rating (Deimos’ scale): 5/10

Important! Before you print your model, note that pages 1 to 10 should be printed on normal thin paper, and then some parts from them should be stuck on thick cardboard.

Okay, let's begin with cutting out parts number **S1**, **S2**, **S3**, **S4L** and **S4U**, in other words, all pages 1, 2 and 3. All of these parts, except number **S3** should be stuck on 1mm cardboard. Part **S3** should be reinforced with 2mm cardboard (or two layers of 1mm cardboard)

Tip: before pasting actual parts on cardboard, try to stick a big piece of paper on it. It may turn out that cardboard will bend. If so, you should change your glue.

After the glue dries, cut out all parts, and assemble them as shown on pictures:



Note that You glue only one part **S2** (of two) to skeleton at this point.

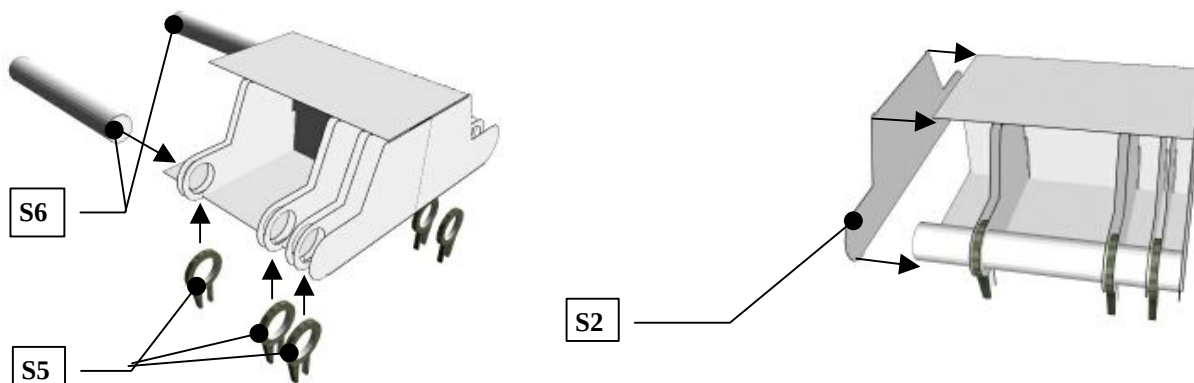
Now cut out all parts marked as **S5** from pages 6 to 10. They are marked with *, so reinforce them with 1 mm cardboard (it can be thinner in this case). The tricky part is to cut them out without damaging them. Scissors won't do the trick here. I recommend You use a scalpel, or a sharp knife to cut the outer edges, and maybe the inner edge too (You have to experiment here)

Tip: If you find it hard to cut out a hole in cardboard-reinforced part, try making perforating the inner edge with a needle (the holes have to be very close to each other). Now it's just a matter of a slight push. Edges may require additional working with sandpaper however.

Roll part **5a** around **S5**. **S5** should be at both front and rear sides of element. Now glue colored parts **5b** to both sides of it.

When You do this, it's time to find **S6** and **S6a**. **S6** is reinforced with cardboard, and will be cylinder's top and bottom lids. **S6a** is on bristol and should be rolled around **S6a**. Make sure that cylinder fits tightly into holes in parts **S1** and **S5**. These part will hold wings in position, so if they are too loose, wings will keep opening even if You don't want them to.

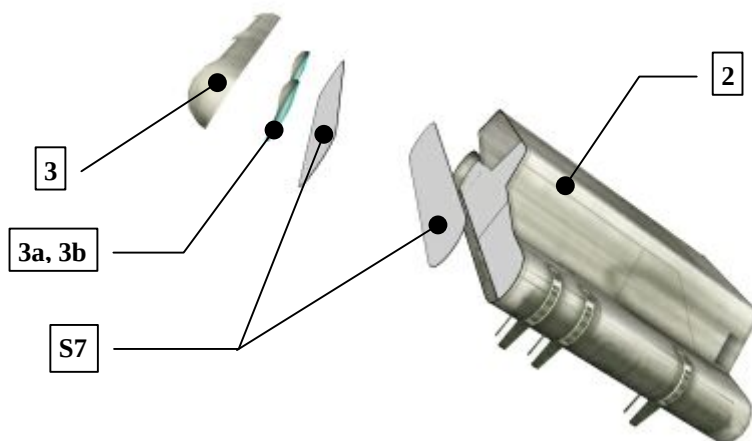
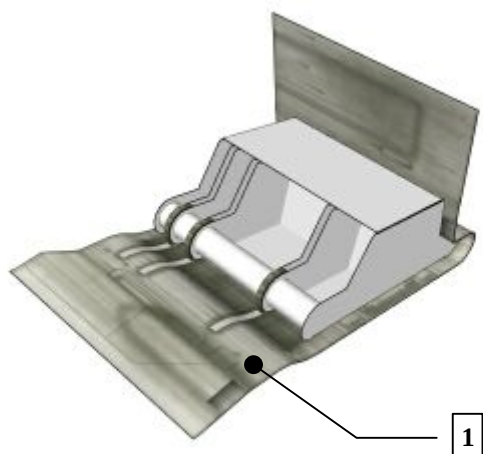
Assembly it all as shown bellow:



Now, that You made hull skeleton, it's time to wrap it with part **1** (p. 11). White boxes in this part should be cut out – this is where the wing joints go. Adjust the entire part to them. Note the part should reach the end of horizontal surface on parts **S1** and **S2**. If it doesn't, use the sandpaper.

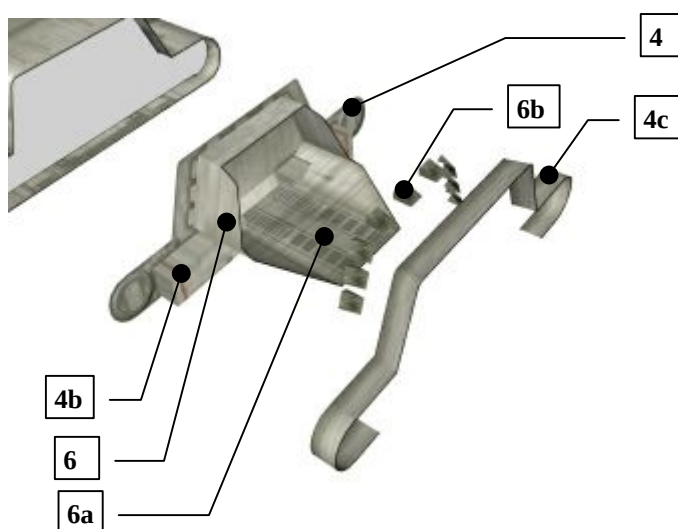
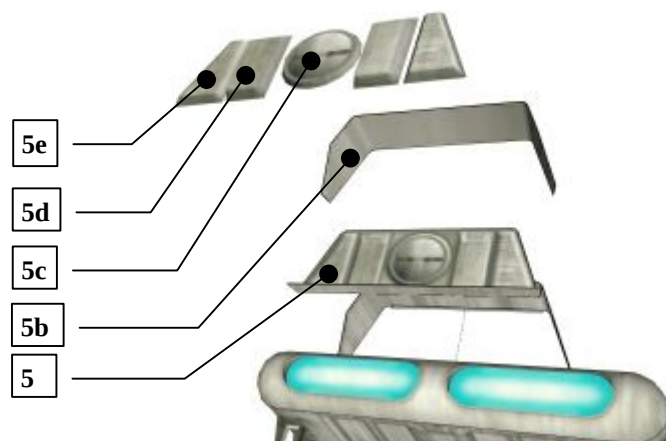
When that is done, put the top in place (part **2**, page 12). Keep in mind that the darker boxes on its sides mark front. Make sure that part **2** is thoroughly glued to **S4U** – it has to hold the upper wing in vertical position.

One more thing: on pictures parts are printed on both sides to make them easier to identify.



With that accomplished, make engine section, using parts: **S6**, **3**, **3a**, **3b**, as shown on picture bellow. One of parts **S6B** goes to the rear side of hull.

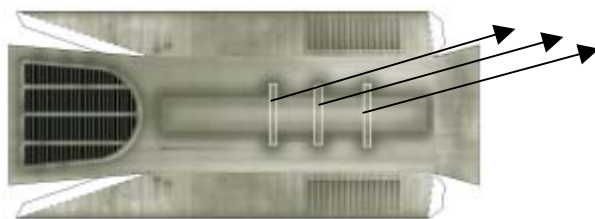
Next, make front and rear sides of hull – front: parts **4**, **4a**, **4b**, **4c**. Printed side of **4c** is inside; rear – parts **5**, **5a**, **5c**, **5d**, **5e**. As above, **5b** is inside. See everything on pictures.



It is good to put pieces of 1mm cardboard to outer flat surfaces of parts **4c** and **5b**.

Also, before wrapping part **4** with **4c** put the “neck” – part **6** and **6a** in place, and glue parts **6b** around it. It is best to do it now, because later access to this area will be harder. Finally, cover holes between parts **2** and **4c** with **4a**, and between **2** and **5b**, with **5a**.

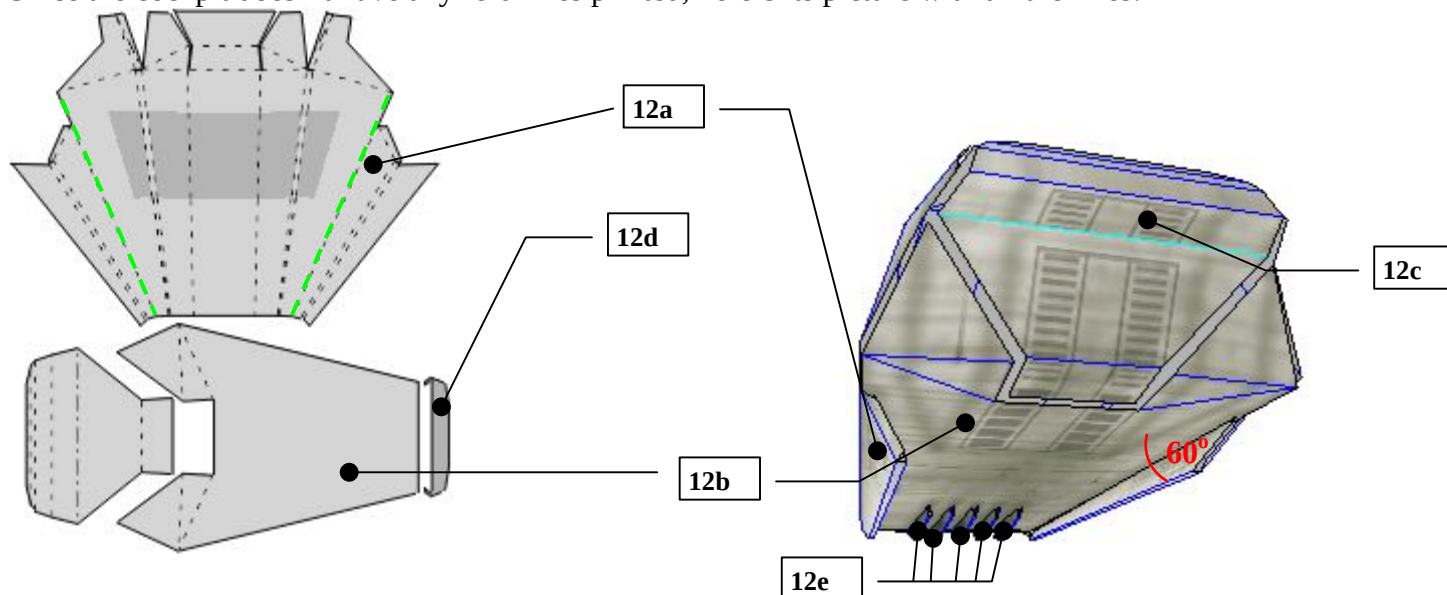
Next, find parts **S8**, **7**, **7a** and **7b**. They will form a box put on top of hull (marked with darker line on part **2**), right under top wing, so make sure it's strong enough. You may reinforce parts **7a** with 1mm cardboard, but cut them so piece of cardboard sticks down, like that:



Remove fields marked with white boxes above from part **7** and glue parts **7a** wrapped with **7b** into these openings and put a lot of glue on the inner side of **7**, to connect it with **7a** thoroughly. Now, glue part **S8** to the lower side of **7** and glue the entire box on the hull.

Congratulations – You now have the hull of Your shuttle.

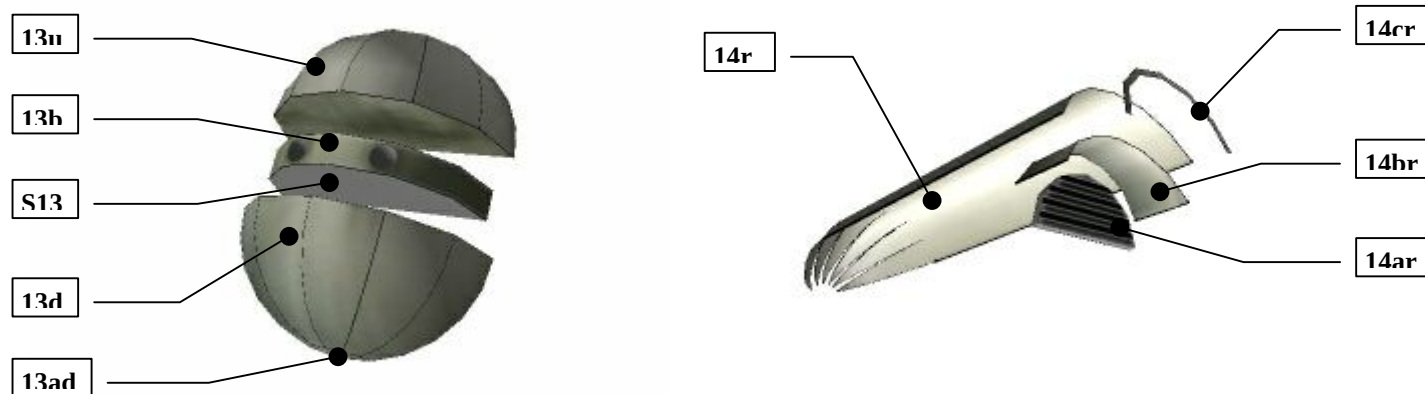
Since the cockpit doesn't have any fold lines printed, here's its picture with all the lines:



Making it should be easy, just try to ignore sides of part **12a** and do everything as it ended on green line. Part **12d** goes to the front. Then fold sides under the cockpit trying to achieve about 50 – 60 degrees angle between them and **12d**. After finishing it, paste it to part **6a**, and use texture for alignment. Be careful not to damage the cockpit during next steps of construction – it is lower than the rest of hull, so better put the model at some stand – even some kind of box should be enough.

It's best to add all the remaining details now, before making "wings, so here we go.

Parts **13au**, **13ad**, **13u**, **13d**, **13b**, **S13** are the rear gun. Form parts **13u** (up) and **13d** (down) into two halves of hemisphere with **13au** and **13ad** on top and bottom sides. Wrap **S13** with **13b** and paste it between hemispheres. Drill two holes in the "trench" and put barrels made from e.g. toothpicks there. Paste the finished turret at the rear of shuttle, to part **5c**. There are two versions of cannon – one with fold line and one without them. I strongly recommend using the second one.

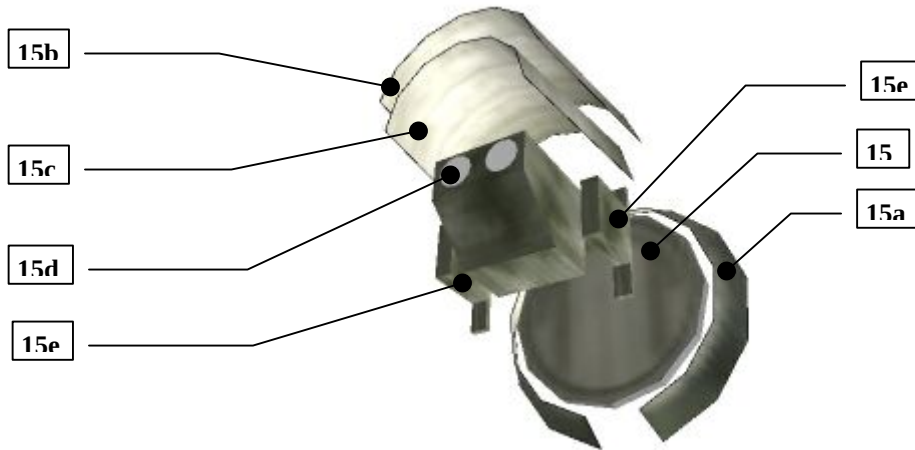


Next, let's make air intake or at least something that looks like it – what for is air intake in space?

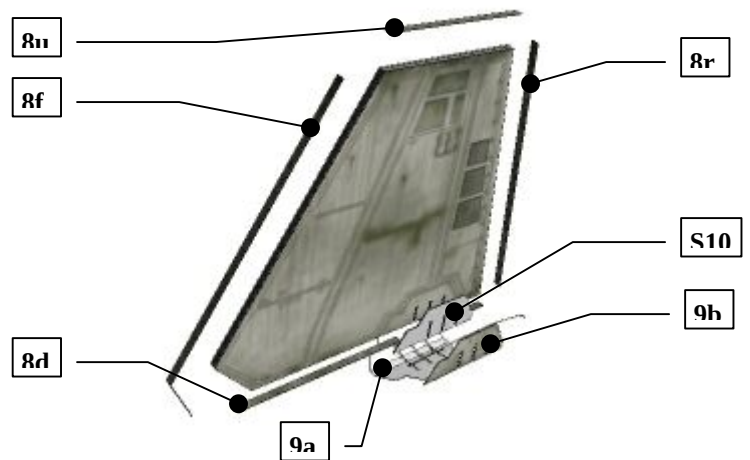
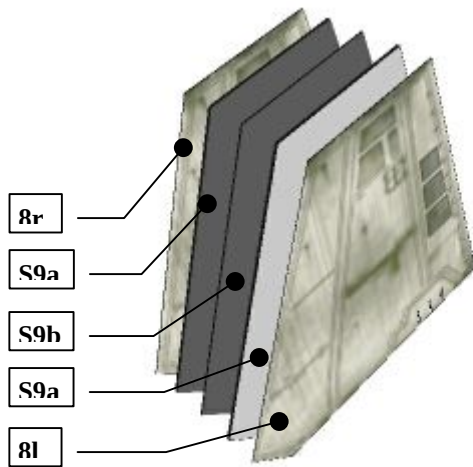
Anyway, There are two of them, Wrap part **14a** reinforced with 1mm cardboard with **14b**, and paste it with **14** with rear part formed into spherical shape. Patch gap between **14** and **14b** with **14c**, or, if there isn't any, just paint front edges after You smooth them a bit with sandpaper.

Front guns are a bit trickier, but if You got that far, You'll handle them without problem too.

Part **15** reinforced with cardboard wrapped with part **15a** form cannon base. Bend parts **15b** and **15c** and paste them together while they are bended. Note that **15b** is the outer side, so it should be convex, **15c** is concave. When pasting them together, it is best to wrap them around some cylindrical shape with diameter similar to **15a**, e.g. marker. Making it look fine is one of two hardest things about this gun. Making box from part **15d** is easy, but the second tricky part is making parts holding the gun in place – **15e** – they're really small. when You do it, glue them to both sides of **15d**, and paste the whole thing a bit bellow middle of **15**. Darker areas on its texture show where **15e** should be. There are two such guns, but they're identical, so don't wonder which one is left and which is right. Finally, place them both on the front side of part **4**. Don't forget to drill holes in part **15d** where white circles are.

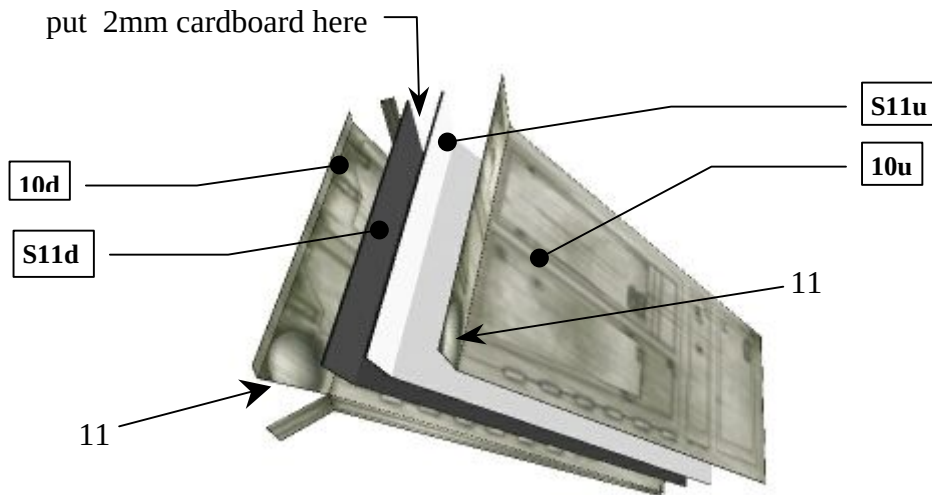


Now, let's make the top "wing". You'll need parts **S9a** and **S9b** (pages 4, 5 and 8) as their skeleton. The only difference between parts "a" and "b" is that "a" (two of them) have to be reinforced with 2mm cardboard, while "b" has to be put on 2mm cardboard. Glue them all together, making sure to align them well. paste parts **8u** (upper), **8d** (down), **8f** (front), and **8r** (rear) on its sides. Lastly, put printed parts **8l** (left), and **8r** (right) on its sides:



Next, paste parts **8u**, **8d**, **8f** and **8r** around the wing, and fold part **9a** around bottom side of it (align it to texture and cuts), after that glue flat surface of **9a** to **S10** and wrap the printed strap from part **9** around **S10**. Do the same for both left and right parts. Finally, put them at the sides of part **9a**, which is now glued to the wing. Printed rectangles near part **9bl** can be used to patch gaps at the front and rear sides of **S10**, right bellow parts **8d**. Make sure that parts **7**, at the top of the hull fit properly into openings in the wing, if so, mount the wing, if not, use the sandpaper.

It's time to make side wings now, or whatever You'd like to call them. Put everything together, as shown bellow, use part **S11X** as reference or wing's angle. I also advice putting a piece of 2mm thick cardboard between upper parts of **S11u** and **S11d**, as indicated by arrow.



Paste parts **11a**, **11b** and **11c** into 4 domes, and put them to places indicated by arrows above. Align them to texture. Parts **11d** are to be folded to boxes and put at the front side of the wing, between domes. Glue wings to their joints, and once again, look at the texture for reference.

All that is left to do now is making cannons as shown on page 1 e.g. from toothpicks and putting them in place – White box shows how much of the cannon should be invisible – put inside part **15d** (front) and **13b** (rear).

Congratulations! You have completed this model – now You can paint it with spray-on wood lacquer or leave as it is. I hope You had fun and are satisfied.

The model is based on slightly modified Darksaber's 3d mesh for X wing Alliance Upgrade Project and unfolded with shareware version of Pepakura designer, it is completely free, so You shouldn't charge any money for it. If You would like to post it at Your site, please contact me before doing so.

Special thanks to:

Darksaber for his superb mesh

Enterprise-E for hosting at www.paperstarships.tengun.net

All the guys at X wing Alliance upgrade project – keep up the good work!

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Feel free to send suggestions and questions, I'll try to answer them.

