Hanky Planky Foamie Build Instructions - Ron Gray

Some destructions.

Typical glues for joining foam are UHU POR (you may need a couple of tubes!), Gorilla Glue Clear (takes a long time to dry but is strong), Hot Glue (not good for sheet surfaces and is heavy), PVA etc. I used Gorilla Glue Clear for sticking the wing sheets together, for the balsa fuselage doublers, for sticking the tailplane to the fuselage and for sticking the formers in place. I used Hot Glue for the foam strips and for the top and bottom foam sheeting. CA was used for making the formers.

Look through the 2 build reports with their photographs illustrating how the Hanky Planky Foamie fits together. The following instructions provide a build sequence and some useful tips.

The drawing will help with exact positions of the formers.

1. Make sure that both fuselage sides are identical, sand edges ensuring that the top edges where the wing and tailplane will sit are at 90º.
2. Cut the fuselage side doublers from 3mm balsa (or 1.5mm lite ply). For positioning F1 later, note that the doubler on the right side should be 1.5mm shorter at the front. It is set 4.5mm back from the fuselage front edge where the left side is set back 3mm. Glue the doublers to the inside of the fuselage sides making sure that you have both a left and a right hand side, not 2 of the same! These measurements aren't easy to mark, but if you use a piece of 1.5mm and 3mm scrap balsa it makes positioning easier.
3. If you are going to mount your tail servos in the rear of the fuselage then I would suggest adding some 1.5mm balsa sheet doublers to the rear of the inside of the fuselage sides (finishing at an angle 25mm in front of the tailplane LE).
4. Note that the right hand fuselage side will need to be 1.5mm shorter at the nose to allow for the side thrust angle of the ply motor mount (F1).
5. Make the formers F2 and F3 from 3mm balsa ensuring that they are square!
6. Cut F1 from 3mm ply making sure that there is a cut out at the bottom for the motor wires and to allow cooling air through to the ESC. Mark the C/L for the motor noting the offset dimensions shown on the drawing. Take the motor mount 'cruciform' and mark and drill its mounting holes in F1.
7. Mark the position of F2 & F3 on both fuselage sides and glue them in place on one side, making sure that they are at 90º to the side.
8. Depending on how you are going to attach the battery, rails glued to the fuselage sides may be required to support the battery tray. If so, glue those in place on both fuselage sides now.

9. Glue the foam strips (approx 6mm square) to the fuselage sides at the top and bottom edges, stick them to the side with the formers glued first and then make sure the strips for the opposite side are identical in length as, this way, this will locate the position of F3.

10. Bring the fuselage sides together and glue F2 and F3 in place again making sure that the 2 fuselage sides are square and parallel. I temporarily clamped F1 in place to help make sure everything was aligned.

11. Glue F1 tight against the balsa doublers - so incorporating 2º (approx) of side thrust as shown on the drawing - and trim off the surplus foam at the front, right, side when dry.

12. Glue the top and bottom 6mm Depron sheet to the fuselage pulling the tail of the fuselage sides together as you do so. You will need to chamfer the foam strips to allow the sides to come together but leave a gap in the end of the fuselage for the air to escape. I cut part way through the bottom foam to make it 'bend' over F2 and F3 but it's possibly easier just to cut it! Don't forget to cut out a piece for the battery hatch on the underside. You may consider placing the ESC in the nose section before you completely sheet the nose in as it is a bit fiddly to pass the wires through F1 after (as I found out).

13. The wing is built from the 3 pieces of foam in the 'kit', I have already cut the bottom piece where the spar will be fitted. Glue the pieces together butting together the 2 underside pieces with the CF spar. I used Gorilla Glue Clear for this and weighted the whole thing down overnight until it had thoroughly set. You will notice that there will be a slight (5mm) protrusion of the lower sheet so cut this off and keep it if you need it to fill in any gaps (there shouldn't be any!!!)

14. The tailplane, elevator, fin and rudder need no work other than sanding and fitting to the fuselage. I suggest just rounding the LE and tapering the elevator and rudder with FINE sandpaper.

15. Now onto the sanding. The wing does require quite a bit to get it into some sort of aerofoil section but the thing to remember is that the ailerons are 6mm thick so the wing needs to be sanded down towards the TE so that it ends up the same thickness, 6mm. I used fine sandpaper on a sanding bar. Just be aware that when sanding foam, if too course a grit is used it can 'pull' at the foam. The fuselage edges can be sanded to form a nice round edge as the foam strip you glued in place on the fuselage sides gives scope for quite aggressive sanding. I sanded mine back until I could see the joint between the top and the sides but do not sand the edges where the wing and tailplane fit the fuselage.

16. The wing needs to be held down!! I glued 2 strips of 3mm ply across the fuse, one about 25mm behind F2 and the other 25mm in front of F3. Each of these strips had a hole drilled and tapped for 4mm nylon wing bolts but T nuts are just as good.

17. I covered my Hanky Planky using laminating film and did this before final assembly. I also used the film to create the hinges for the ailerons and the elevator, first sanding the LE of each at a taper to allow the (top hung) surfaces to pivot down. I used plastic hinges for the rudder. Other coverings could be iron on film or brown paper and pva (watered down and applied to the brown paper which is then smoothed down onto the surfaces and a covering film iron applied).

18. Final part of the assembly is to glue the tailplane onto the fuselage making sure that it is level with the fuselage and the wings. Attach the fin ensuring that it is vertical, to help strengthen the joint I used 2 cocktail sticks (see photos in Build Report 2, page 8).

19. Servo installation, I used 9g type servos and cut a pocket right through the wing and held them in place with clear wrapping tape. 2 holes are cut in the rear fuselage on either side (make sure they do not line up with each other!) just in front of the tailplane and these servos I've held in place with a spot of hot glue under each lug. I would suggest that the areas where the control horns go is reinforced, I used some thin (0.75mm) ply.

20. C of G is on the spar for initial flights, control throws elevator +- 10mm, rudder max, ailerons +- 10mm. With these settings it is quite responsive but by all means set yours up the way you want.

And finally, decorate..

This is mine: