

Notes for Tweeplica scratch build.

I am adding a few notes that came to mind after I had finished off the plans and had them committed to disk.

I suspect anyone building the Tweeplica will have their own ideas and techniques, but I thought some of the following would help clarify.

When I build fuselages, I generally cut out the profile and then laminate from the firewall to just behind the wing with either 1/64th inch or 1/32nd inch aircraft ply. This seems to give the best compromise of light weight and strength. One thing to be sure is to round the back edge. Do not cut the doubler off square as it will create a stress point and if it breaks, that will be the place. When laminating, I mix up enough epoxy to cover the area, then spread it out with a plastic putty knife. Leave just enough epoxy behind to lightly coat the plywood, then lay the doubler on the balsa side and weight down until it sets. Use 20 or 30 minute epoxy (or longer) to have enough time to work it. Remember epoxy = heavy! I would also recommend using 1/4 inch square balsa from the wing plate back on the bottom for a little more strength. I did not show that on the plans.

I plan on using an access hatch for the fuel tank since I went with a two piece wing. I don't think I would build a two piece wing again for the 40 size or smaller. Just not worth the effort. In the case of a single piece wing, you either want to build the tank into the fuse as it is constructed, or make a cutout in the former in front of the wing large enough for tank insertion and removal.

For construction sequence, I would recommend the tail feathers first, wing second, and fuse last. When constructing the fuse, I would make the wing cut out in the fuse side (only the airfoil shape traced from the completed wing) then I would (and will) build the fuse, leaving off the bottom sheeting on the belly pan, then slide the wing into place. At this point, I would center the wing in all directions using the thrust line shown (actually not the true thrust line, more like a datum line) to make sure the center line of the engine, wing, and stab are all parallel. Then glue the bottom of the fuse to the wing sheeting, with maybe a couple of small triangle braces from wing sheet to fuse side for stability. Add the formers at the back of the wing and the bottom sheeting, then cut the wing and belly pan loose. I think this method will keep everything tight and straight.

For the wing, I recommend 1/16 inch vertical shear webbing between the spars at least out one bay past the center sheeting. Probably would not hurt to go all the way to the end. (I did on mine) I used hardwood for spars given the fun we have with these aircraft and would recommend you do the same. The molded leading edge is easy to do and I think is easier to do than trying to wrap and glue it in the traditional methods. Check the November 2008 issue of Model Aviation for a how to. This is an old method of making strong balsa parts. The ammonia bath softens the balsa making it very easy to form, yet retains its strength after drying. I used a 5 foot piece of 1 inch electrical PVC conduit to get the proper radius. I screwed the PVC to the center of the edge of a piece of 2 X 4 lumber then used blue painter's masking tape to hold it in position until dry.

When you cut the tape loose the balsa holds its shape. The 1 inch PVC has a matching radius for the wing LE. I suggest using a piece of 4 inch wide 1/16 inch balsa. Put the center of your balsa sheet on the center of the PVC pipe and tape it down. After it is dry, I took another piece of 1/16th inch balsa and edge glued it to one side of the formed leading edge. After that glue dries, I attached to the wing. Very easy to do. I just holds itself on. I trimmed the added piece to the back of the spar, then after slipping the assemble onto the wing, I glued the back edge of the assembly to the spar, then holding in place flowed CA along each rib all around the rib. Then I added the extension on the short side of the formed edge back to the spar. By leaving off one piece of the extension, you have good access to glue the sheeting and formed edge without having to hurry or use glue bottle extensions. Actually is quicker and easier to do than to explain.

I would suggest some reinforcement on the dowel plate in the leading edge of the wing, and also maybe making the two center ribs of 3/16 inch balsa for strength at the attachment point.

Cut out pieces of 1/16 plywood with holes to fit your servos and glue one at each wing servo location on the bottom of the sheeting and do the same for the servos for the elevator and rudder if you are mounting the servos in the tail.

Outside of the above, build and enjoy. The plans were scanned at 300 dpi so enlarging up to 2 or 2 ½ times size will not lose resolution. (I may be making a 2X size later in the winter, and maybe even a 66% parkflyer???)

Feel free to PM or email me or holler on the thread if you have any questions. I'll be glad to offer any advice I can.

Later
Bob