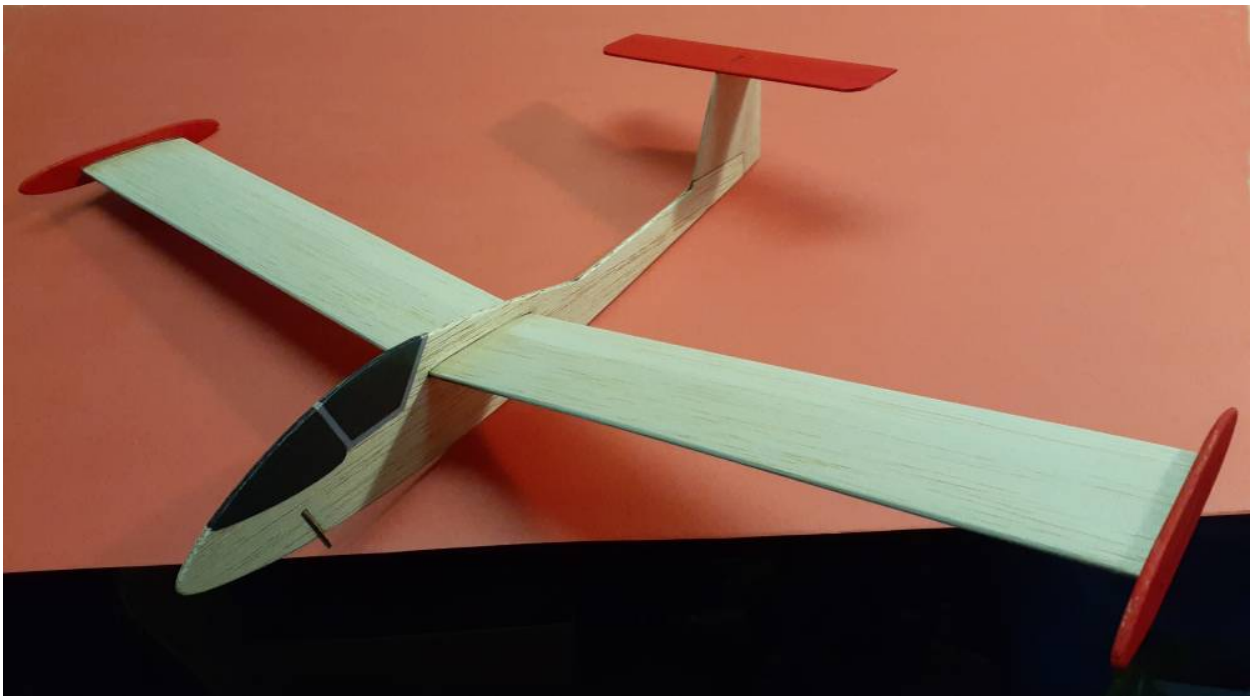
McALLISTER MODELS & DESIGN

”Caprioni C22J” Catapult Glider



Catapult launched gliders are great fun!
This simple profile scale glider can be hand thrown to fly in your backyard or go to a larger space and use the included catapult to launch this jet high and fast! Careful adjustments are the way to get the best out of a catapult glider. That will teach you trimming skills, which is a vital part of the fun and enjoyment of flying model aircraft.

Follow the separate instructions for how to assemble the included catapult.

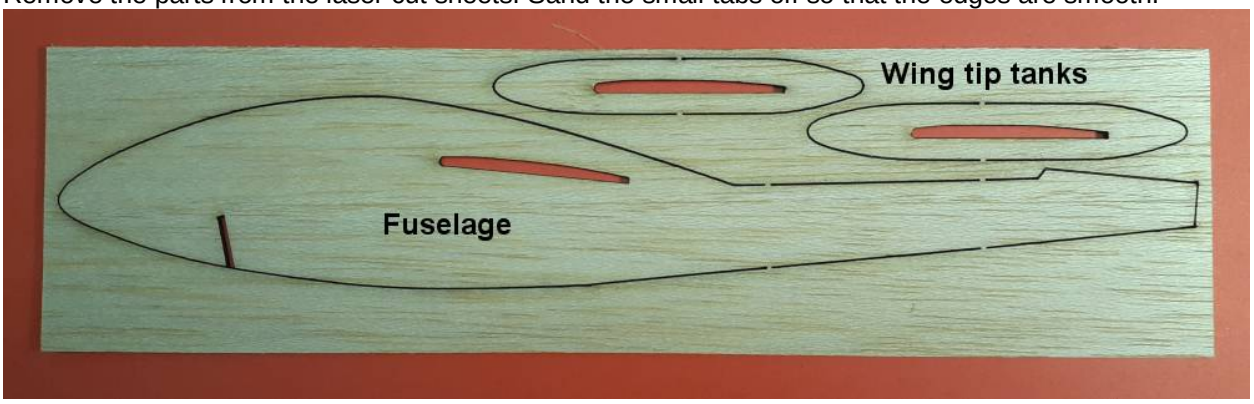
If you have any questions, please contact us at
mcallistermodels@gmail.com

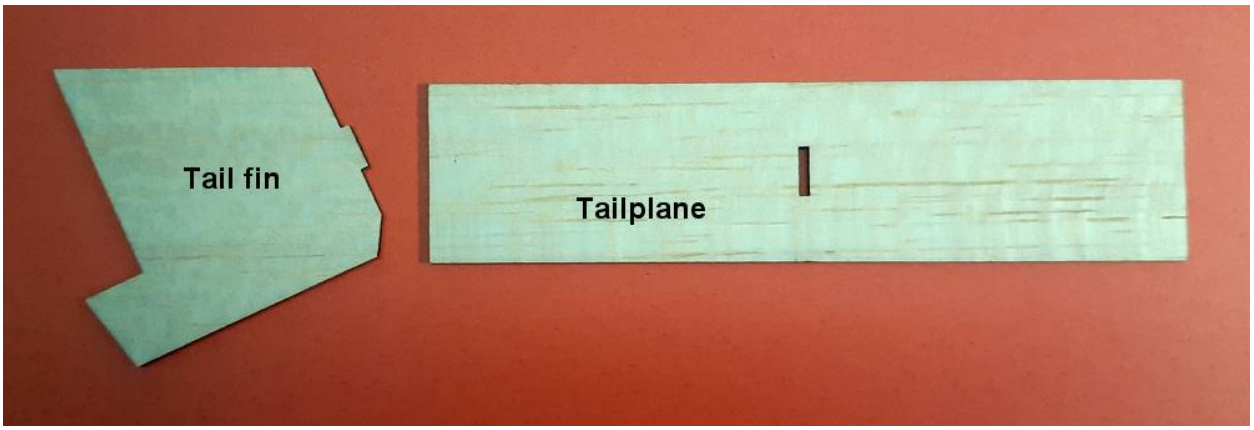
Building Instructions

BEFORE YOU BEGIN
This model glider can be built using superglue, a waterproof wood glue like Titebond II, or balsa cement. Some parts will require sanding to fit. A useful tool is a two-sided nail file, or you can glue medium and fine sandpaper to each side of a straight stick.
A sharp craft knife can be used to remove the laser cut parts from the sheets. Adult supervision is highly recommended when using sharp tools and superglue.

PREPARATION

Remove the parts from the laser cut sheets. Sand the small tabs off so that the edges are smooth.



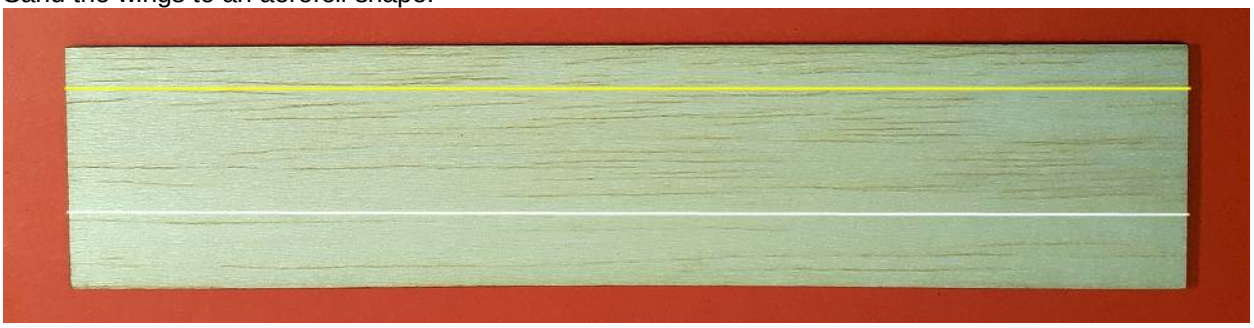


CONSTRUCTION

You can build two versions of this jet from the kit. The C22J prototype had a curved wing tip and no tip mounted fuel tanks. To build that version use the wings as they are supplied.

The later version of the aircraft had the tip fuel tanks. To build that version cut the wing tip as shown below. Measure 8-5/8" (219mm) from the wing root to where you will make the cut. Make sure that the cut is at 90 degrees to the leading edge of the wing.

Sand the wings to an aerofoil shape.



Take your sanding stick and sand the top front edge of the wing in a curve down to the bottom edge. Start this about 3/8" (9mm) back from the front edge (yellow line). Then round the bottom corner of the front edge. Do this along the whole length of one wing panel.

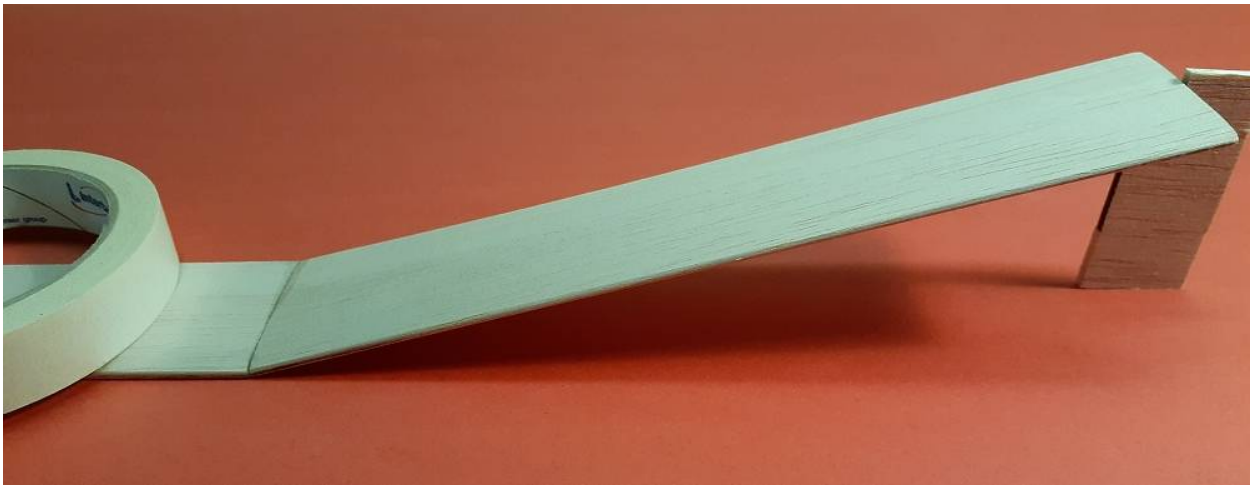
Next sand the top rear edge from a line which runs about 1/2" (12mm) from the trailing edge of the wing (white line). Sand this area fairly flat until the trailing edge is a little less than 1/16" (1.5mm) thick. Then sand the angle at the white line to make a smooth surface. The area where the rear wing fillet is needs to be sanded down to the same thickness as the rest of the wing rear edge. See below.

Aim for a shape like this at the wing tip.

Repeat the process for the other wing. Make sure that you are making both a RIGHT wing and a LEFT wing panel.

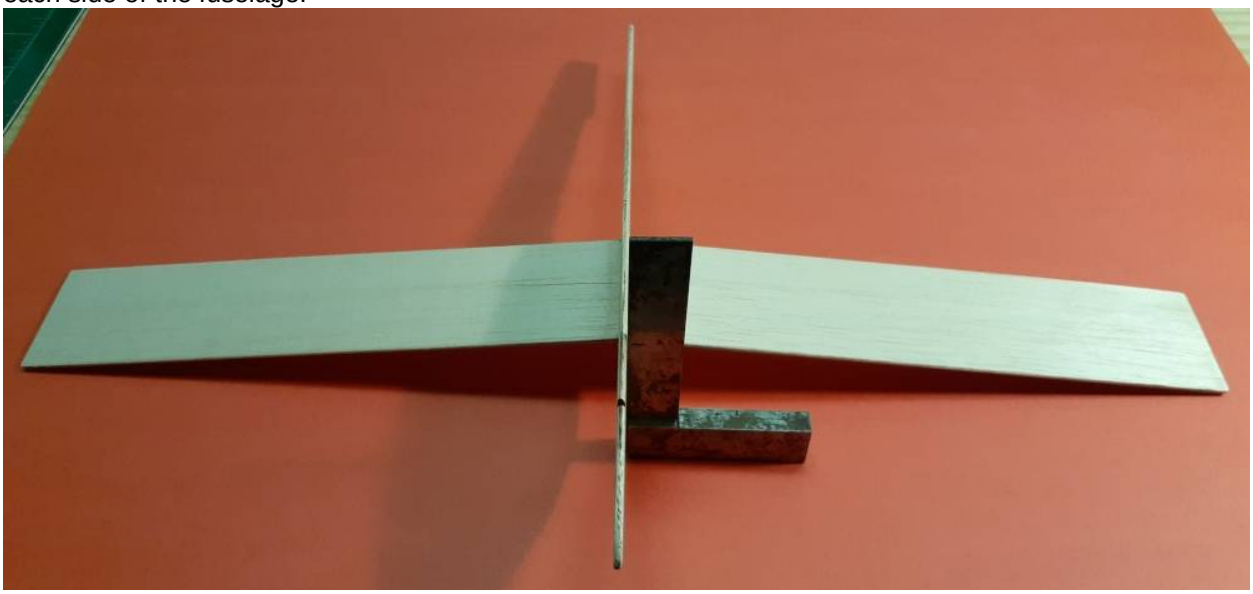
Join the two wing panels. First the center of each wing needs to be angled. Prop the wing tip up 1” (25mm) with the center of the wing just over the edge of a board. Use the sanding stick held vertical to make an angle for the joint. Do this on both wings.

Next put one wing flat on your board. Prop the other wing tip up 2” (50mm). Once you are satisfied with the alignment, apply glue and leave to dry. A handy tip is to stick a strip of packaging tape to your board and make the glue joint over that.

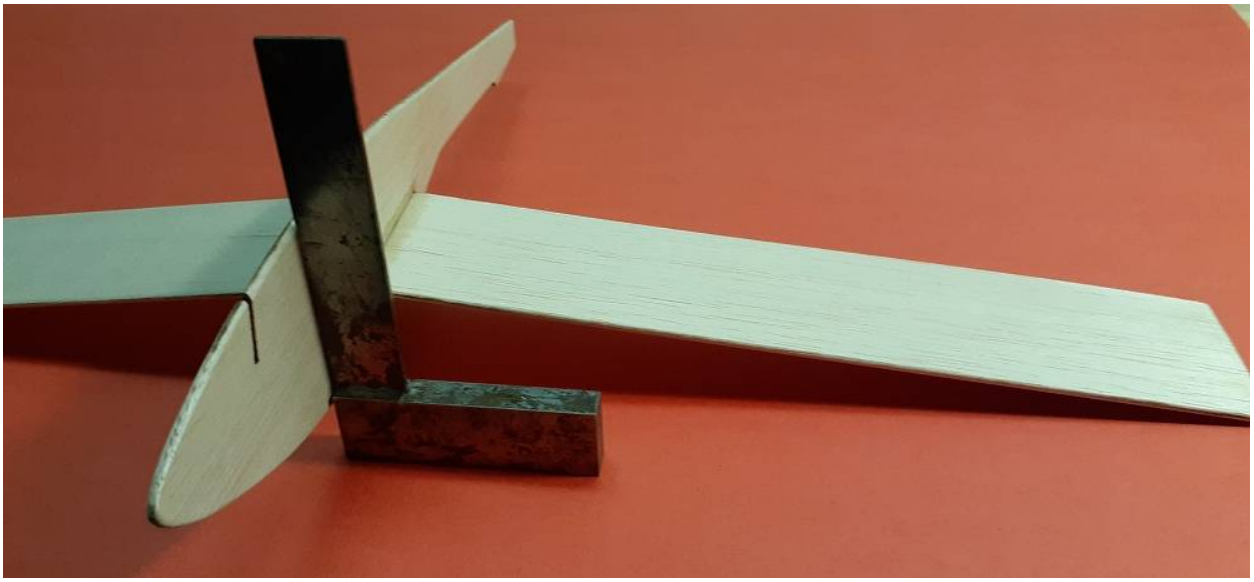


Slide the wing into the slot in the fuselage. You may have to sand the bottom of the wing joint so that it fits into the wing slot. Check that the wing join is directly down the center line of the fuselage. Adjust the wing slot with sandpaper to get a good but not too tight fit.

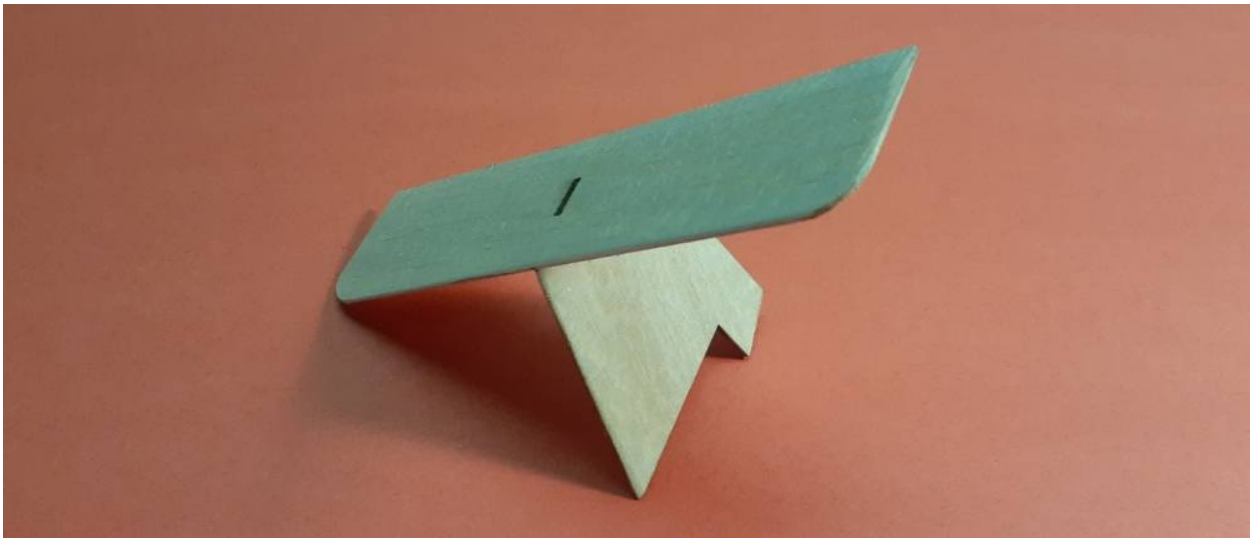
Look from the front of the fuselage; the wings should be positioned so that they are at the same angle on each side of the fuselage.



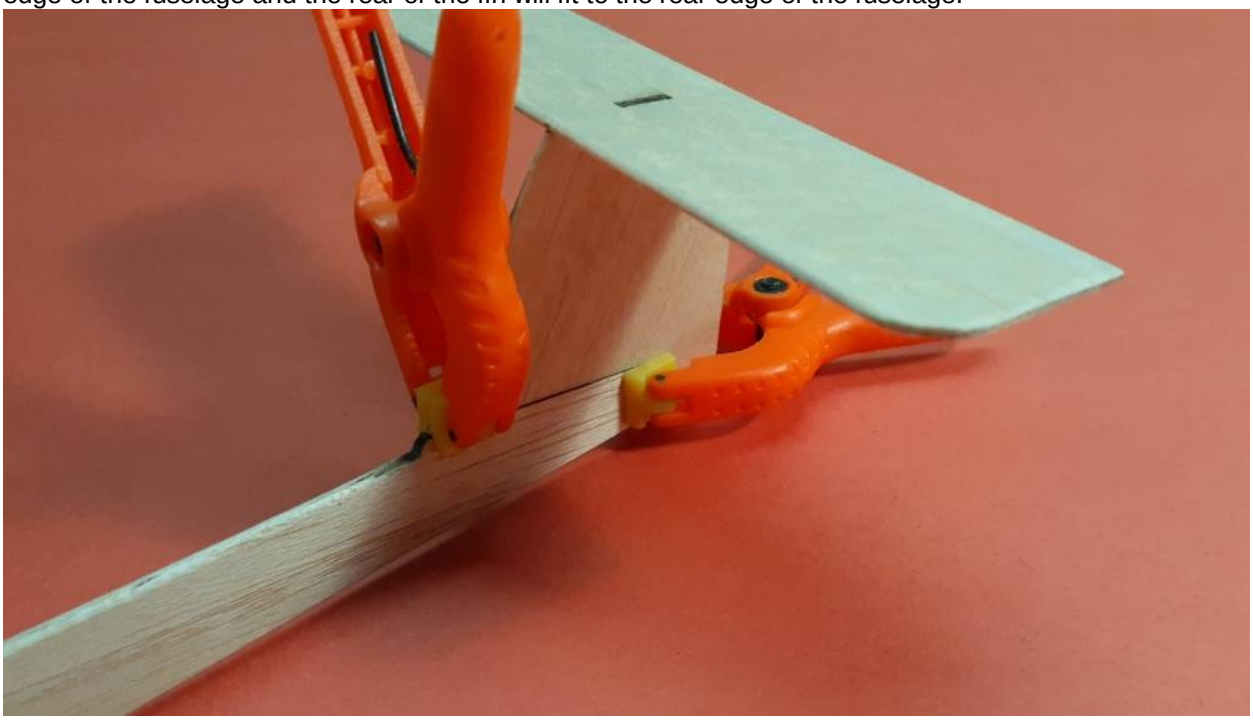
To check this, you can set the fuselage and wing inverted on a flat surface. Use a right angle to set the fuselage vertical. When satisfied with the alignment, run thin superglue along each side of the joint to glue the wing in place. Glue on the top surface when the glue is set.



Slot the tailplane onto the tab on the tail fin. Set the pieces on your building board and use a right angle to get the fin at 90 degrees to the tailplane. Glue in place with superglue.

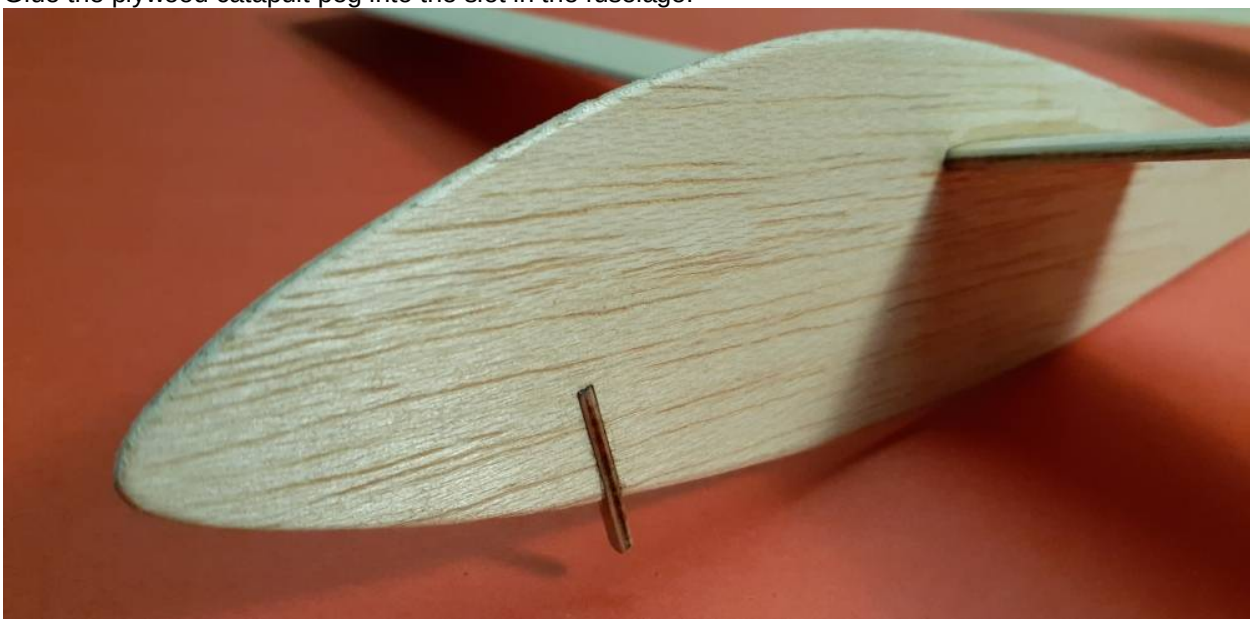


Position the tailplane and fin on the rear of the fuselage. The top edge of the tail fin will align with the top edge of the fuselage and the rear of the fin will fit to the rear edge of the fuselage.

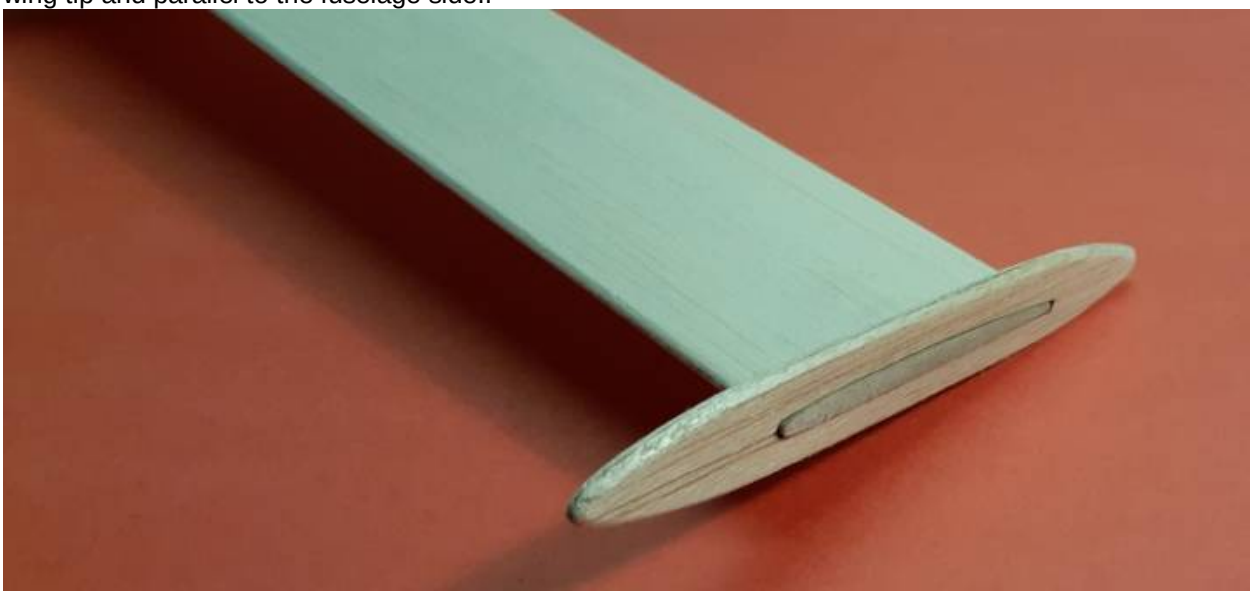


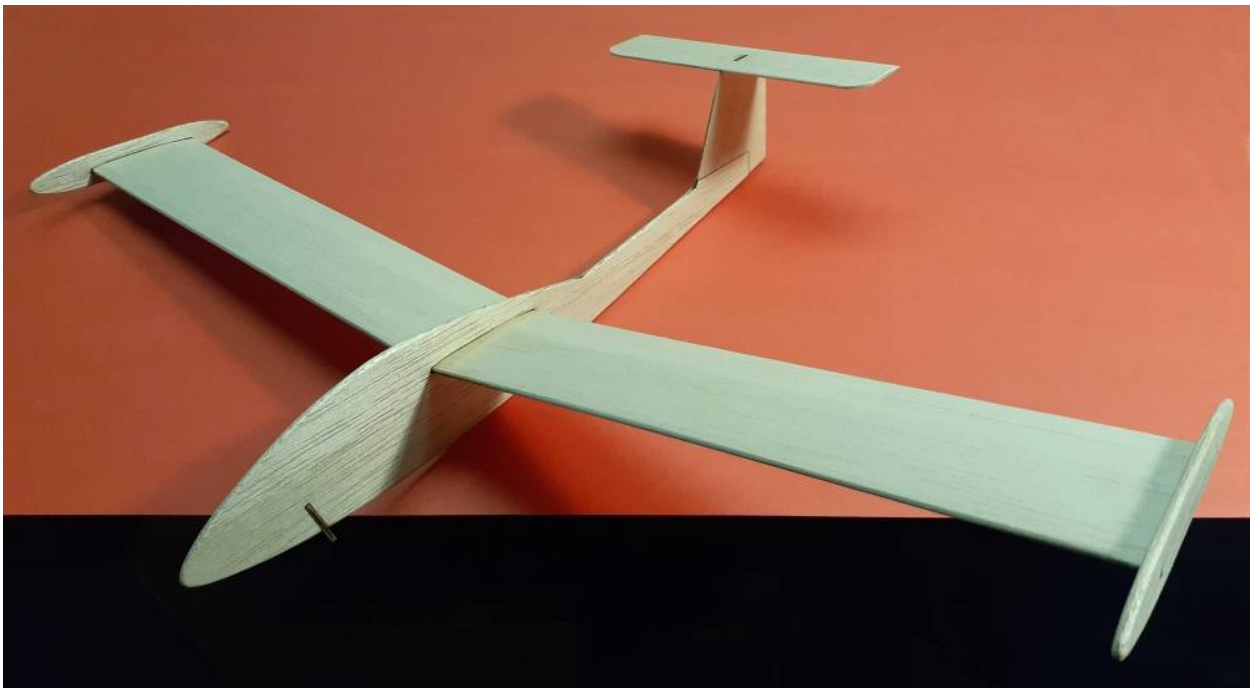
You can use small spring clamps to hold the tail fin in position. When you are satisfied with the fit, glue the assembly onto the fuselage. Make sure that the fin is vertical and exactly in line with the fuselage center line.

Glue the plywood catapult peg into the slot in the fuselage.



If you are building the version with the wing tip mounted fuel tanks, add them next. The wing tip tanks slot onto the end of each wing. When gluing in place make sure that each is exactly in line with the end of the wing tip and parallel to the fuselage side..

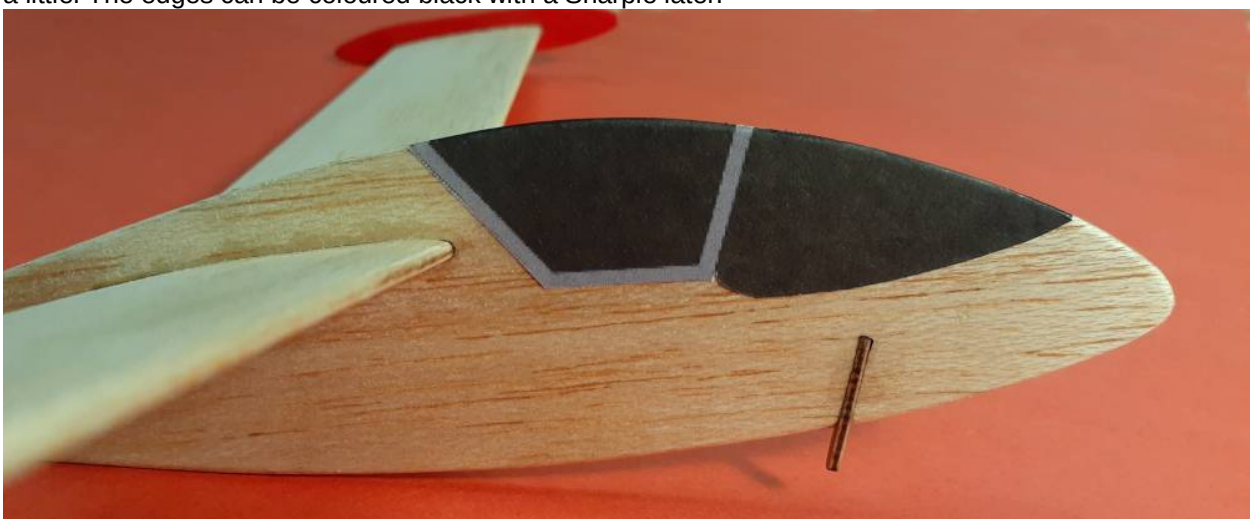




FINISHING

Using fine sandpaper, smooth all of the surfaces. You can fly the model as it is without further finishing but avoid wet conditions. One thin coat of Zinsser Shellac (Traditional Finish & Sealer) will harden the balsa wood and provide a degree of water resistance. Sand very lightly after coating.

The paper cockpit details should be carefully cut out with small scissors or a sharp new blade. Look at the photo for location and make a small pencil mark to help with alignment. Stay away from the curved edge a little. The edges can be coloured black with a Sharpie later.



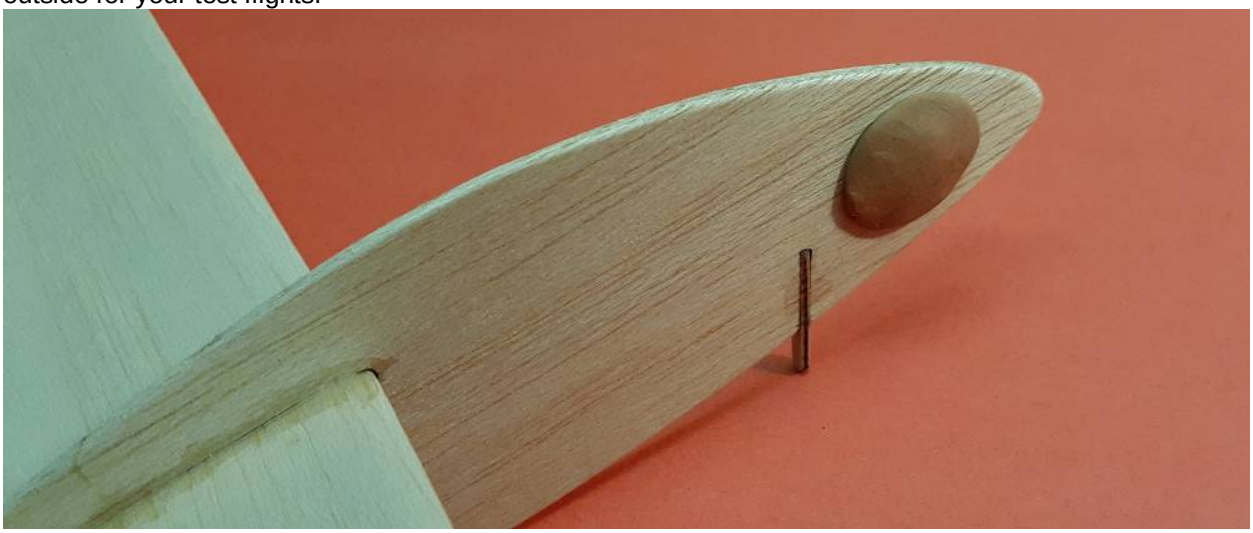
Spray the back of one of the paper pieces with Elmers Spray Adhesive or use a glue stick. (Liquid glues may make the ink run). Glue one side in place and press it down firmly. Repeat for the other side making sure that they align with each other. If you are using the Italian roundels, apply them in the same manner. Lightly brush a thin coat of Shellac over the paper decals to protect them.

Other details and color can be painted on using craft acrylic. Use the paint without thinning and apply it thinly. This is a fun and effective way to add color to your model. Look online for color scheme ideas.

Test Flights

The glider will need some nose weight to balance properly in flight. Use a small amout of modelling clay (pea sized) as a starting point.

The initial balance point should be 1” (25mm) back from the leading edge of the wing. Choose a calm day outside for your test flights.



Throw the glider with the wings level and the nose slightly down. Try to throw it just fast enough for it to glide away from you steadily. If the model dives downwards, remove a little clay. If the model climbs and then dives (stalling), add a little more clay. Aim for a slow glide with a nice smooth flight.

For throw launching you can try tilting the model to the right (if you are right handed) and give it a hard throw pointing upward at about 20 degrees. Keep adjusting your throw and nose weight until you get some nice glides.

Catapult Flights

Warning: Never point a catapult model at, or near, anyone when launching. The glider will be going fast from the launch so be very careful!

Catapult launched gliders are tricky to fly but great fun, too. For the first catapult launches use just one of the 1/8” rubber loops. Hold the catapult in your left hand (do the same if left handed). Hook the rubber loop onto the glider. Pull the glider back, tilt it about 40 degrees to the right and point upwards about 30 degrees. Holding the catapult still, let go of the glider.

The jet will arch up and to the right, hopefully the wings will level and it will glide down. Watch which way it turns. After several tries add a very small amount of modelling clay to the left wing tip. This is to try to make the glider go into a gentle left turn as it slows down after the launch.

Another trimming tool you can try is to cut a small rectangle (1/2” x 1/4") of thin card. Crease it slightly in the middle and glue it to the bottom of the rudder on the left side. This is a rudder trim tab and is used to help make the glider go into a left turn at the top of a stronger catapult launch.

To get the best out of any catapult glider we can recommend searching “catapult launch gliders” on YouTube. Have fun!