

The Julie Bird 7 Rocket-Glider

The slide-wing concept has proven itself and its reliability in the NAR competition rocket-glider events. Basically, the ejection charge of the motor burns through a thread which releases the wing to slide forward from its boost position near the tail to a forward position for glide. A rubber bands pulls the wing forward on the fuselage.

The Julie Bird 7 is simple enough for a novice to build and fly successfully while at the same time giving the experienced modeler the performance necessary for good contest showings.

Construction is straightforward.

Cut the wings from 3/32-inch sheet balsa and sand them to an airfoil cross section. Glue the two wing halves together with a dihedral of 1-1/16" under each wing tip. While this is drying, cut the horizontal stabilizer and the vertical stabilizer from 1/16-inch sheet balsa and round the leading and trailing edges with sandpaper.

The fuselage is made from a piece of spruce 1/8" x 3/16" x 10-11/16". Glue the horizontal stab and the vertical stab to the aft end of the fuselage.

Fabricate the sliding box for the wing from four pieces of 1/32" plywood, each 3/16" x 2-7/16". Glue them into a box as shown in Section A-A of the drawing. Then glue the sliding box to the wing root. Reinforce all **external** joints of the sliding box with epoxy for additional strength.

Slide the wing and sliding box onto the spruce boom. It should slide easily back and forth on the boom. Sand the boom slightly to make the box slide easily if it does not do so at first.

The Julie Bird 7 was designed to use mini-engines. Therefore, the pod body should be made of a piece of Estes BT-5 tubing, or equivalent, 2 inches long. The pod nose is balsa; either carve it yourself or modify a small **balsa** nose cone to fit. Cut two side notches in the shoulder of the balsa nose as shown in the V notch detail. Cut two openings in the side of the pod tube as shown for ejection gases to escape and so that you can thread the release string through easily.

Glue the nose to the body. An engine hook is optional, or you can use tape to secure your motor. The pylon is made from 1/8" x 5/16" spruce and glued to the pod body as shown. When the pod is complete and dry, glue it to the front end of the spruce boom. *Make sure the wing and sliding box are mounted on the boom before gluing the pod in place!*

Make three wire loops, A, B, and C from a paper clip and form as shown in Section A-A. Epoxy these to the locations shown.

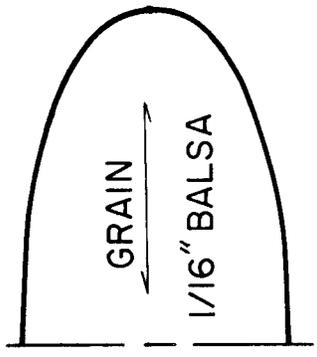
Glue a 1-1/4" long launch lug to the left side of the pylon-fuselage joint on the pod.

Attach a light-weight rubber band between wire loops A and B so that the wing and sliding box are held forward against the rear end of the pylon.

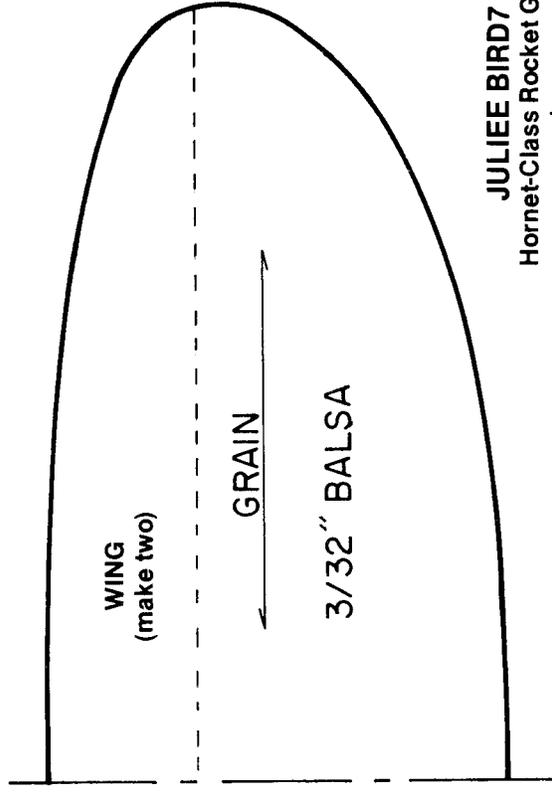
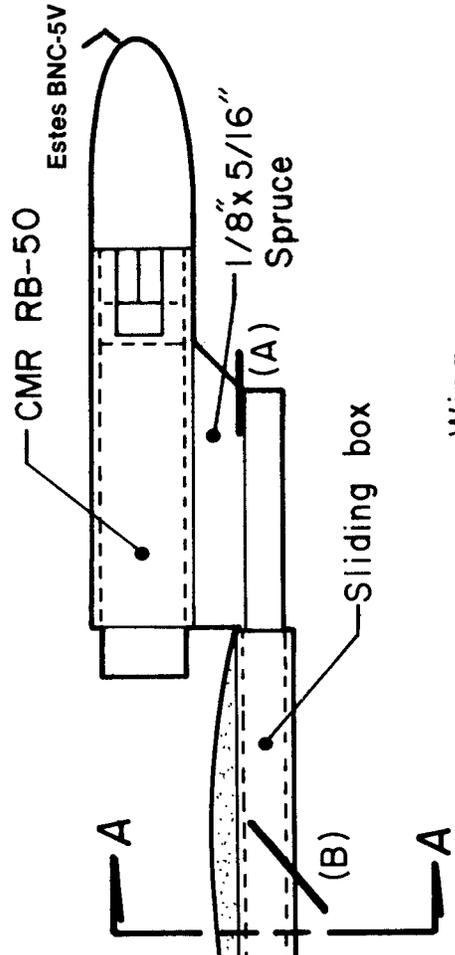
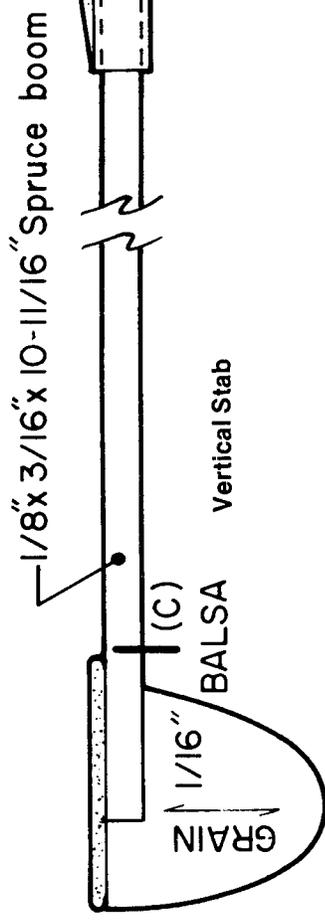
The Julie Bird 7 must be trimmed for glide with an expended engine casing in place. Add small increments of plasticene clay to either the rear end of the stab-rudder assembly to correct for nose-heavy diving tendencies, or to the balsa nose to correct for tail-heavy stalling tendencies.

To rig for flight, push the wing and sliding box to the full rearward position on the boom and hold it there so that the rubber band does not snap it forward. Securely tie one end of a piece of thread to wire loop A. Draw the loose end of the thread through the exhaust gas vents from left to right. Bring the thread rearward and pass it through wire loop C from back to front, then tie securely with no slack to wire loop B. The thread holds the wing in the rearward position for boost. When the ejection charge goes off, the thread is burned through, releasing the wing so that the rubber band pulls it forward into glide position.

The Julie Bird 7 was designed to fly with 1/2A3-2T engines.

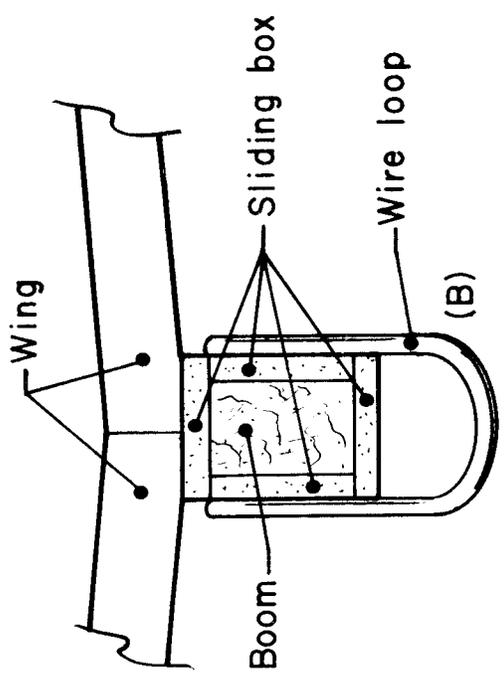


Horizontal Stab (one side pattern, use to make both sides from one piece)

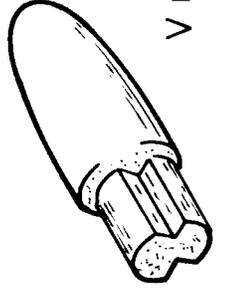


WING (make two)

3/32" BALS



SLIDING BOX SECTION A A



V notch detail

JULIEE BIRD7
 Hornet-Class Rocket Glider
 by
 Paul D. Vandall
 Drawn by Ron Rock