

# COLOSSUS II

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AT LONG LAST GOOD RUBBER IS BACK, AND HERE'S A DESIGN TO CELEBRATE ITS RETURN

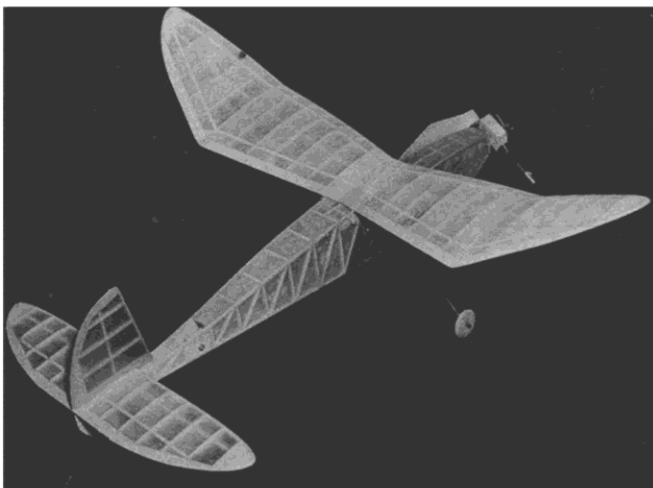
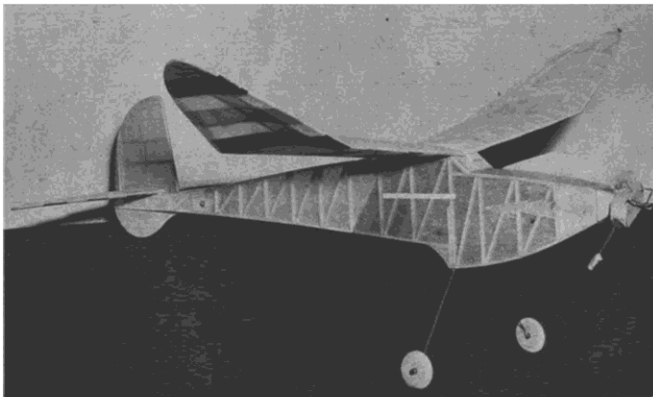
**T**HAT whirring sound you hear is the rubber-power model builder winding up his crate after a lapse of too many years. Yep, T-56 rubber is back, in carloads, so let's try a rubber job.

Colossus I was designed, built, and flown early in 1946, when rubber was both scarce and poor in quality. Its performance was slightly spectacular, and since the return of good rubber, even more so.

Let's start with the fuselage. One eighth square is used entirely. The use of cross braces to form triangles in the two sides adds tremendously to the strength, and will prevent folding of longerons under impact or heavy winding. The weight increase is negligible; in fact, with this or any other job, it is better to build the required weight into the ship, in the form of structural bracing, than to add it in the form of clay, lead shot, or other dead weight.

The nose section and rear dowel section are planked with one sixteenth balsa, or pine, if obtainable, and the side body former, at the landing gear station, is made up of one eighth sheet. Plank brace for wing hook with one eighth by one quarter.

When the two sides are thoroughly dry, sand well on both sides,



● The butterfly wing with deep undercamber provides a fast climb and slow sinking speed. Cross bracing adds strength with little weight.

using a very fine sandpaper. This will take off superfluous cement and give an even base for papering later. Do not use a coarse sandpaper, for although it does a faster job, it rips out many of the needed wood fibers, thus greatly weakening the structure of the wood.

The fuselage structure is completed by adding the crosspieces at top and bottom. Four one-eighth sheet formers are used at top of fuselage at wing location, to match dihedral of center of wing. Top and bottom of nose section are planked the same as sides, with one-sixteenth.

The curved step behind landing gear station can be planked with one-eighth soft balsa, and sanded well for a clean job. Install landing gear. Put on one-and-three-quarter-inch diameter wheels. Again sand the entire fuselage, and round the corners well. The front wing hook is next installed. It is a good idea to fit and finish the nose block now, as the finish sanding can be done right on the plane, without rubbing off paper. Be sure the fuselage lines up and is perfectly square in cross section.

The fuselage is now ready for papering. Use a bright, easy-to-see color. Avoid white or light blue, as the plane is lost to sight too easily. Use either Silkspan, or double cover with Jap tissue, crossgrained. Spray with water, and, after drying, apply one coat of clear dope. Allow to dry one hour, sand lightly with superfine wet-dry paper, and apply another coat of clear dope. Use a fairly thin dope, with sufficient plasticiser (castor oil is O. K.) to give a glossy, blush-free finish. More than two coats of dope will cause the paper to become too brittle, resulting in cracking on impact, such as in tough landing, etc. Now install back wing hook.

Since the bottom or under rudder is an integral part of the fuselage, it is best to make it and cement it on. It is made of medium hard one-eighth balsa, sanded to a nice, streamlined edge, and doped. The fuselage is now completed, with the addition of the back wing hook.

Drill out the nose block with an .070 drill, making hole to give one degree downthrust, and two degrees right thrust. Insert one eyelet in front and one at back of block. Bend hook, and be sure to use a Jasco Bearing between prop and nose block. This adds many r.p.m.'s to the prop, by helping to overcome friction. Use the conventional tensioner and positioner. If care is taken to install this simple mechanism correctly, no elastic band is ever needed to hold nose block in. Many a contest has been lost because a sloppy job on nose block and tensioner has allowed the prop, nose block, and half the motor to pop out after the power run. This usually results in a grade A spiral dive and crack-up.

Use a single-bladed folding prop, swinging a fifteen-inch-diameter circle. Twenty strands of one-eighth-inch rubber, with six inches of slack will do the trick nicely. Lube motor with equal parts of green soap and glycerine. Beware of colored castor oil lube. It's murder on the rubber. The motor is held in at the rear of fuselage by a quarter-inch-diameter dowel.

Pre-wind all rubber motors before using in ship. Stretch well, and pre-wind by stages from three hundred turns to eight hundred. Always store motors in a cool, absolutely dark place. Light ruins the thin rubber.

The wing is a polyhedral butterfly, with a deep undercamber. This undercamber results in a slow forward speed on power and glide, but a fast climb and slow sinking speed. The low power in relation to the one-hundred-and-sixty-five square (Turn to page 100)

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inches of wing area is proof of the efficiency of this rib design.

The leading edge is one-eighth square, as is the front bottom spar. The remaining bottom spar and two top spars are one-eighth by one-sixteenth laid on the flat. The trailing edge is one-eighth by one-half. Tips are one-eighth sheet, as are the gussets. The ribs are all one-sixteenth sheet, and are plotted from rib number eight, which is the longest. Since even little Joe Blow, age six and seven-eighths can plot ribs, let's not bore each other with that detail.

After putting in dihedral, one inch and a quarter at the first break, and three and a half inches at the tips, sand wing thoroughly, and cover with single thickness of Jap tissue, and dope two coats of clear same as fuselage.

The rudder is built up of one-eighth-square leading edge, and the rest of the outline is of one-eighth sheet. The three horizontal cross members of one sixteenth by one eighth are cemented in, then the one vertical member. Next, three more horizontal members are cemented over this, to give an air-foil section, resulting in a natural right hand turn. Hinge rudder at rear with milk bottle cap wire, and single cover rudder and dope same as fuselage.

Stab is made with lifting section, as shown in rudder detail. The stab is identical in construction with wing. Cover stab, dope per fuselage, and cement to fuselage as shown on plan. Cement rudder to stab and everything is all set.

Now for flying. Fasten wing to fuselage and test-glide. Do not throw ship into a stall; rather, push ship from you, aiming at a spot on the ground twenty feet in front of you.

The design is such that Colossus is balanced very nicely, and only slight adjustment on stab trimming tab, plus proper right turn, will give a long, flat glide to the right.

Now put in two hundred turns and hand-launch. Power flight should be to the right in approximately hundred-foot circles. Any stall must be killed off by increasing the down-thrust. Add one hundred turns on each succeeding flight, until a maximum of seven to eight hundred turns are packed in.

This ship will climb fast, with a slow forward speed, and a tail-high attitude.

We've told you how to build and fly the Colossus, but now that it's going out of sight, it seems we forgot something! Oh yes, we didn't caution you to put your name and address on the plane!

**WATCH FOR THE NEW AIR TRAILS**