



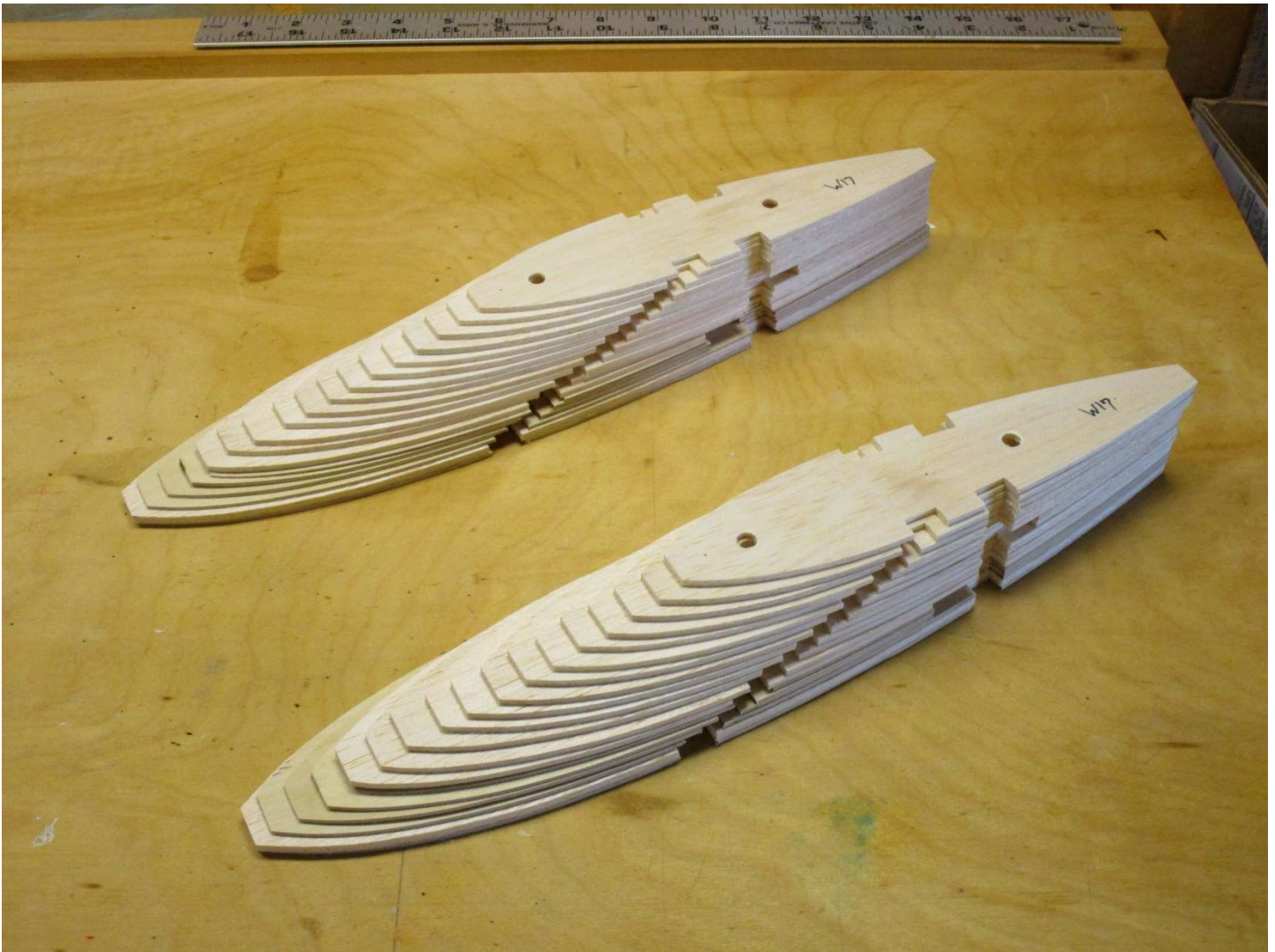
Simla Build Description

A Model Aviation Article got me interested in scratch building the Simla, so I ordered the plans through the AMA Plans Service.

The Simla was RC pioneer and legend Ed “Kaz” Kazmirski’s boldest and most ambitious design. In 1965 the Simla was a giant leap into the unknown world of large-scale RC Aerobatics (Pattern) airplanes, decades before big models would be commonplace. The Simla was an experimental, one-of-a-kind effort employing out-of-the-box thinking at a time when aircraft design was as much intuition as scientific. It featured adjustable high-, mid-, and low-wing positions; adjustable dihedral and stabilizer incidence; and, best of all, an early form of plug-in wings in an era when dowels and rubber bands were holding all other models’ wings on.



Having the full-size plan, I go through and determine all the materials I'll need to make the build. Once I had worked up a complete wood and material list (which I have in an Excel spreadsheet if anyone needs a copy), any balsa sticks and sheets, basswood, and plywood needed are ordered from Balsa USA. I then started the build with the wings. The first picture below shows all the wing ribs (a total of 18 per side), and being a tapered wing, there are no two ribs on a side that are the same size. With this being a fully symmetrical airfoil, I had to build up a wing jig, which I found on the web in an old RCM magazine. The second picture below shows the left-wing ribs installed upside down on the jig rods. The wing half is 48 inches long and will have a full span aileron.



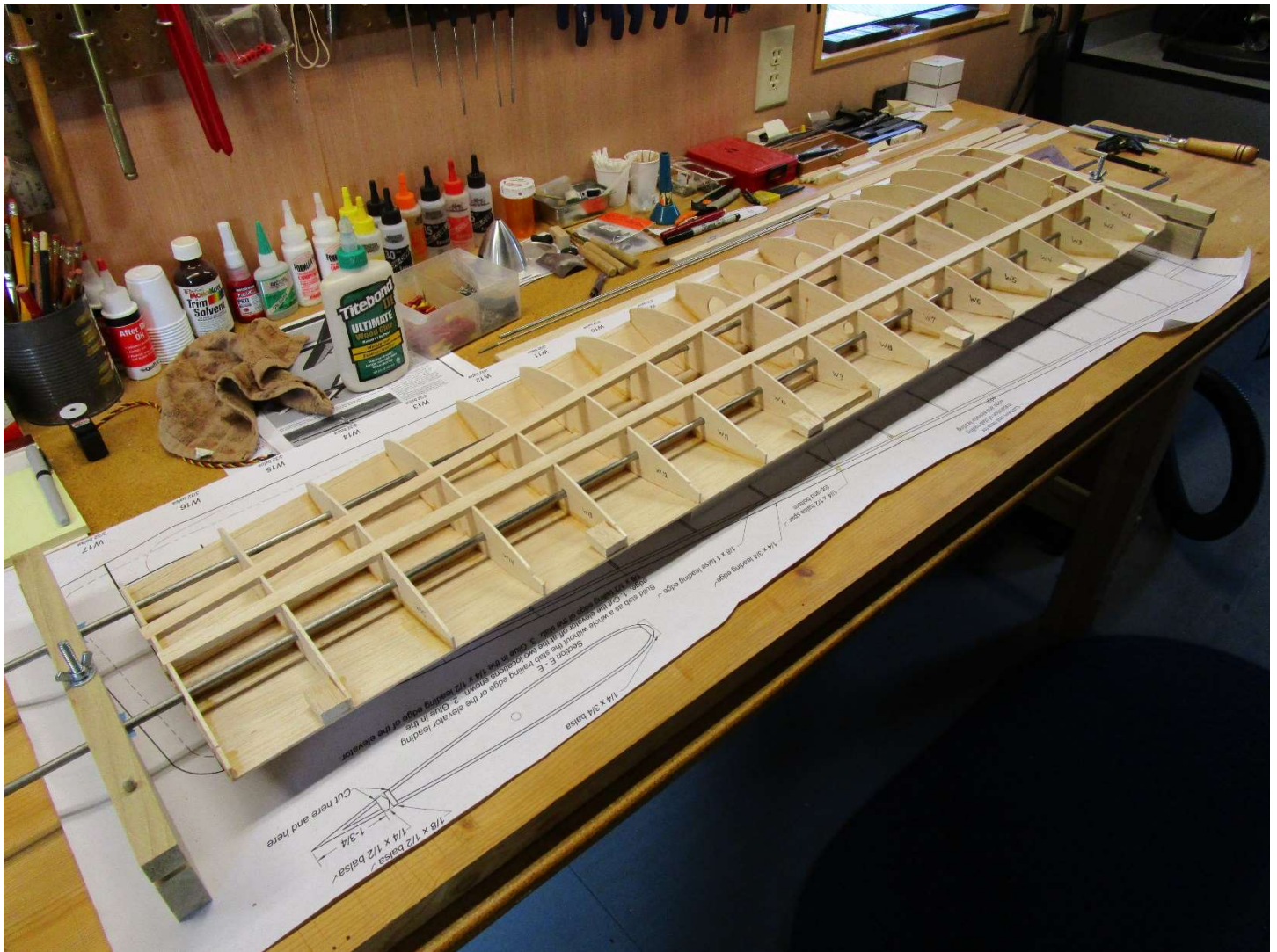


W17 3:32 Balise
W16 3:02 Balise
W15 3:02 Balise
W14 3:03 Balise
W13 3:04 Balise
W12 3:05 Balise
W11 3:06 Balise
W10 3:07 Balise
W9 3:08 Balise
W8 3:09 Balise
W7 3:10 Balise
W6 3:11 Balise
W5 3:12 Balise
W4 3:13 Balise
W3 3:14 Balise
W2 3:15 Balise
W1 3:16 Balise

Section E-E
1. Give in the
2. Give in the
3. Give in the
4. Give in the

Cut here and here

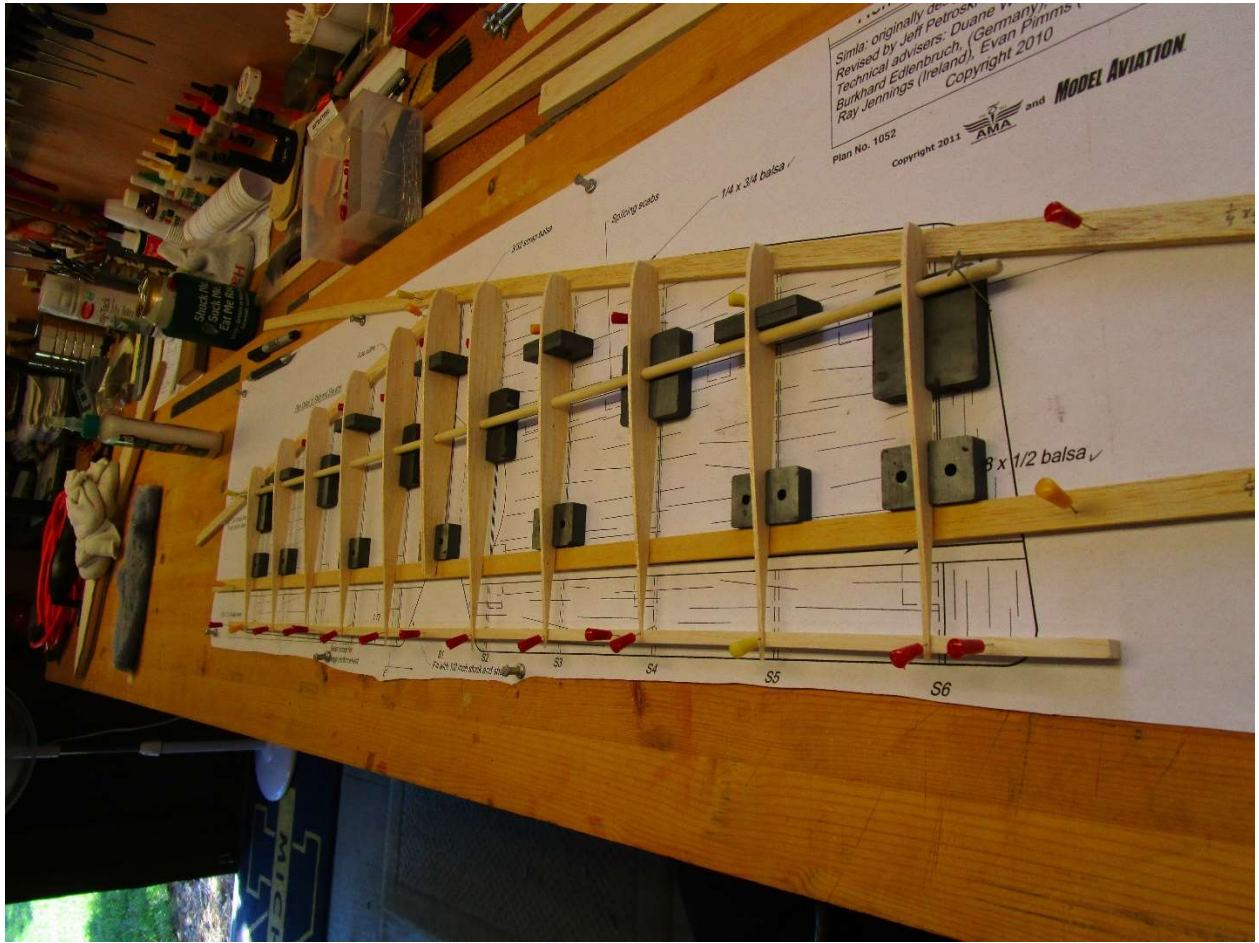
Once the ribs are glued to the bottom spars and the main landing gear mounting block is installed, the entire bottom surface gets sheeted in balsa, and when that dries the wing is turned over in the jig (pictured below). Balsa blocks are installed along the back edge for the aileron hinges, upper spars are glued to all the ribs, a cord is run through the servo wire holes, and then the wing top gets fully sheeted. The second picture below shows the left wing fully sheeted, MLG mounting block uncovered, and aileron hatch opening cut out. The full span aileron makes for a lot of control surface. You can also see the alignment pegs that go into the side of the fuselage. The wings are mated to the fuselage using a 1-inch carbon fiber tube that runs through the first four ribs of each wing, and 1/4-inch steel wing mounting bolts.



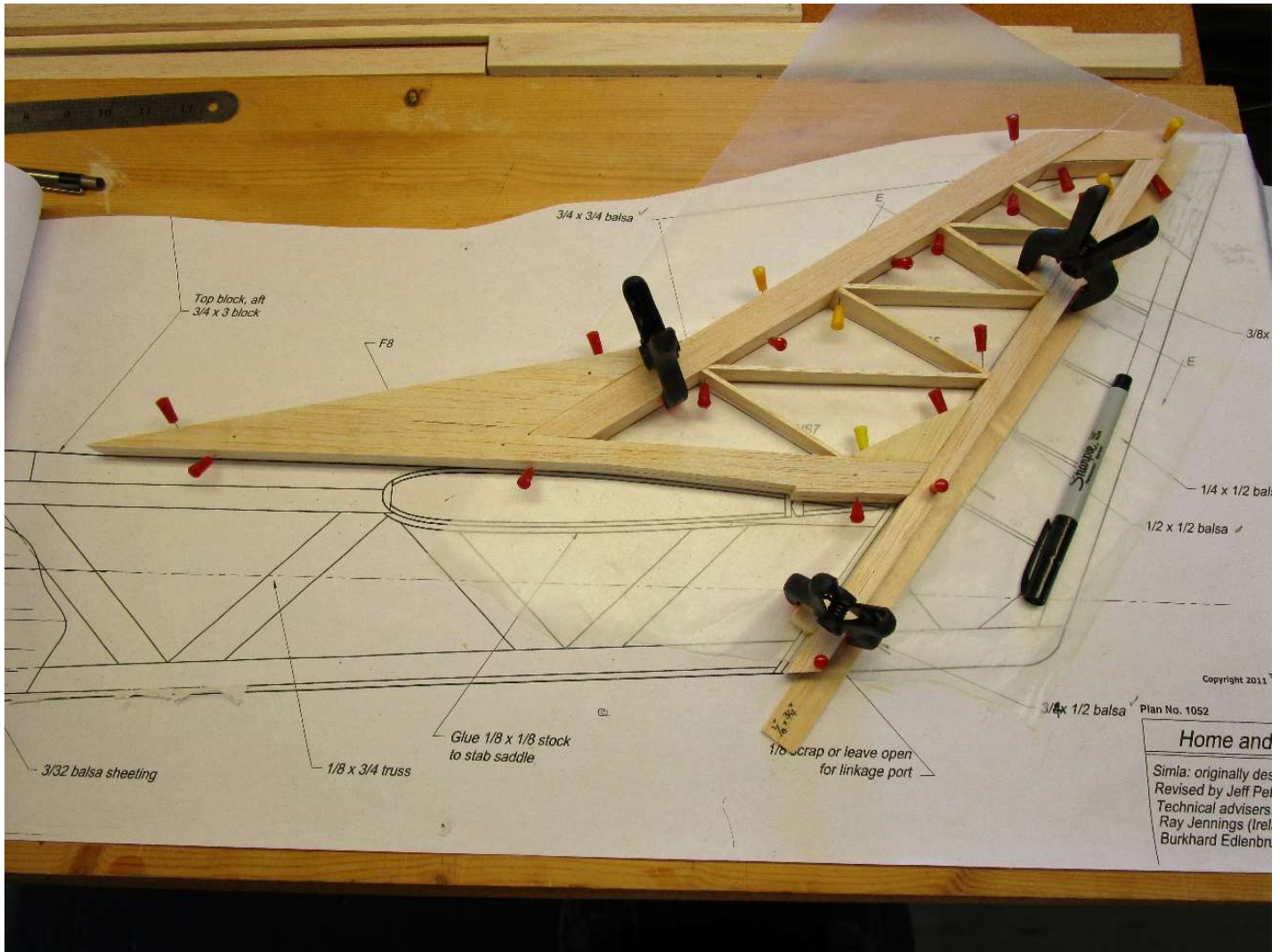


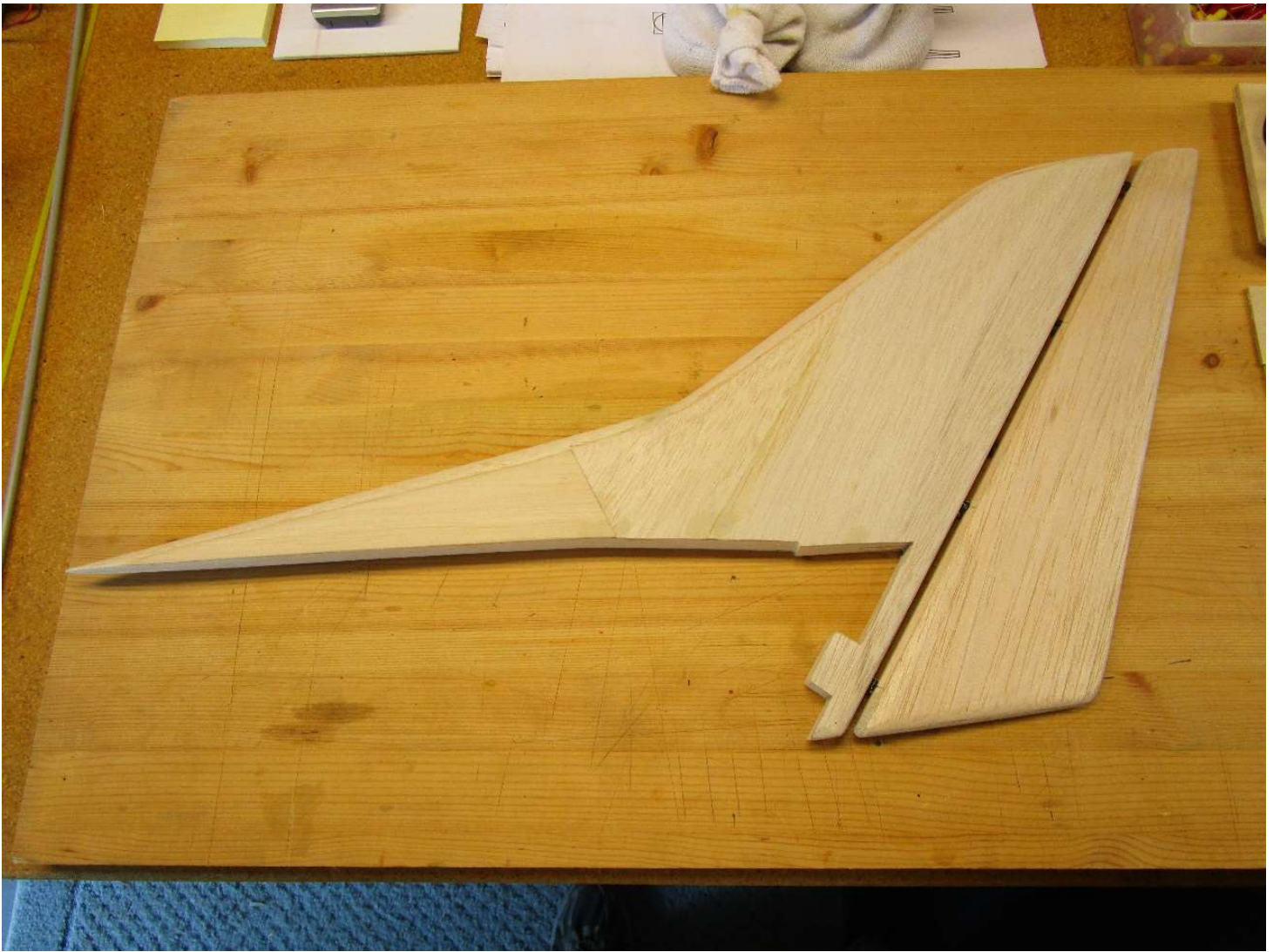
With this complete, accomplish the same steps for the right wing. Install the balsa block wing tips and sand to shape. Sand the entire surface using 220 grit to prep the wings for covering. Let's move on to the tail surfaces.

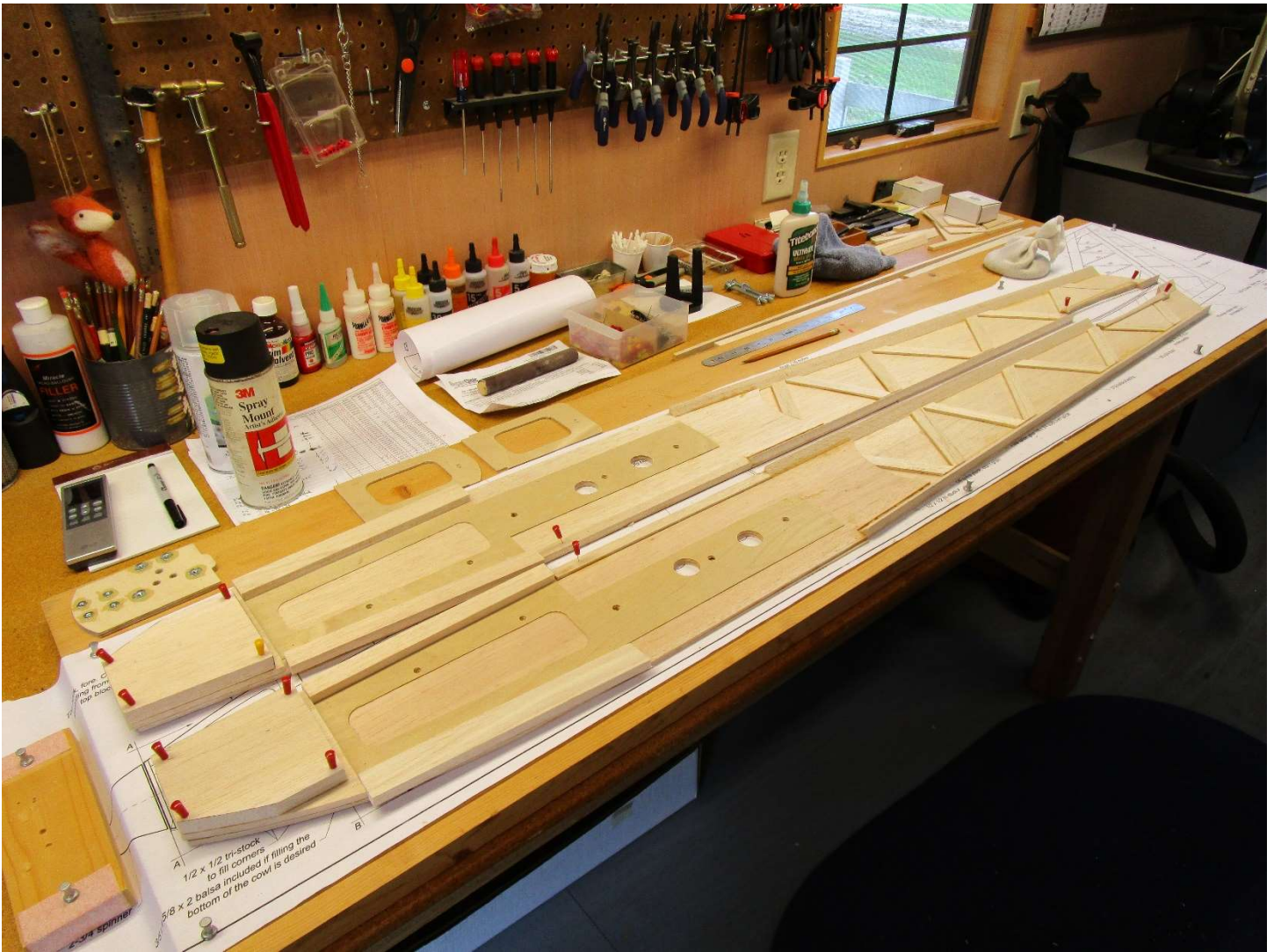
The first picture below shows the horizontal stab and elevator build over the plan. Being a fully symmetrical airfoil, the ribs must be shimmed at the front and back edges. I use a wood dowel and small strong magnets to hold the ribs in place while I glue the balsa sheeting. The stab and elevator are built as a single piece, and once covered on both sides with balsa sheeting the elevator is cut free from the stab. The second picture below shows the completed horizontal stab and elevator with tip blocks installed.



Next came the vertical stab and rudder. The first picture below shows the initial build over the plan. Both surfaces are built up, sanded to the required curved shape on both sides, and then fully sheeted with balsa. The second picture below shows them covered, sanded, and ready for covering.







Here you can see the two fuselage sides in build-up over the plan. These are built using balsa sheeting that is then covered on the inside with a plywood doubler for the strength needed in the wing area and the nose. You can also see the firewall laying on the bench with all motor mount and nose landing gear assembly blind nuts installed. Also note the plywood fuselage formers that go between the two sides. Large balsa blocks are required at the nose because they are then sanded down on the outside to obtain the streamline shape required to match the prop spinner diameter. Other large balsa blocks are used along the top of the fuselage.



This picture shows the fuselage fully assembled with engine cut-out and the outside sanded down to get the required overall shape needed. A large hatch is placed in the bottom of the fuselage to obtain access to all the radio gear, servos, fuel tank, receiver battery, and wing mounting screws.



Initial test fit of the wings and horizontal stab are made to check over fitting prior to covering. I also accomplished a total up fit check with engine, MLG, NLG, and vertical tail installed to establish the amount of weight I need to put in a wingtip for proper lateral balancing.

The final pictures below show the completed Simla. I used an O.S. 95 2-stroke for power. With an overall wingspan of 102 inches and nose to tail length of nearly 6 feet, this is one big airplane. For those of you that have seen her fly, she goes where you point her, and flies great.

