**Tail Group Instructions**

1. Build rudder and elevators from 3/16" balsa stock
 1. These parts will be covered as open frames
2. Build vertical fin and horizontal stabilizer from 3/32" balsa stock
 1. Sheet these parts on each side with 1/16" balsa
 2. Once sheeted and sanded, the fin and stabilizer will match the 3/16" thickness of the rudder and elevators
3. All bracing is 3/32" strip stock
4. Radius the leading edge and taper the trailing edge of the tail group parts

Motor Pod Instructions

1. Attach Doublers to outside walls of formers M3 and M4
2. Trap Firewall M2 between formers M3 and M4
 1. These formers set the motor's thrust angles
3. Attach the M2-M4 assembly to Base M1
4. Attach a former M5 to each side of M1
5. Sheet the top of the formers with 1/16" balsa
6. Run the pod struts up through the wing and into the pod
 1. Epoxy the struts into position

The Volmer VJ-22 Sportsman

Volmer Jensen designed the original VJ-22 in 1957, and mated his full-scale prototype the following year. Legend has it that his goal was to combine his love of flying with his interest in scuba diving. Mr. Jensen was still flying his Sportsman thirty years later.

Jensen marketed his design as a homebuilt aircraft. To simplify construction, many parts like the wings came from popular GA aircraft. Both the horizontal stabilizer and the wings were supported with struts. The aircraft was typically fitted with tricycle landing gear using main wheels that pivoted forward to clear the water when in the up position.

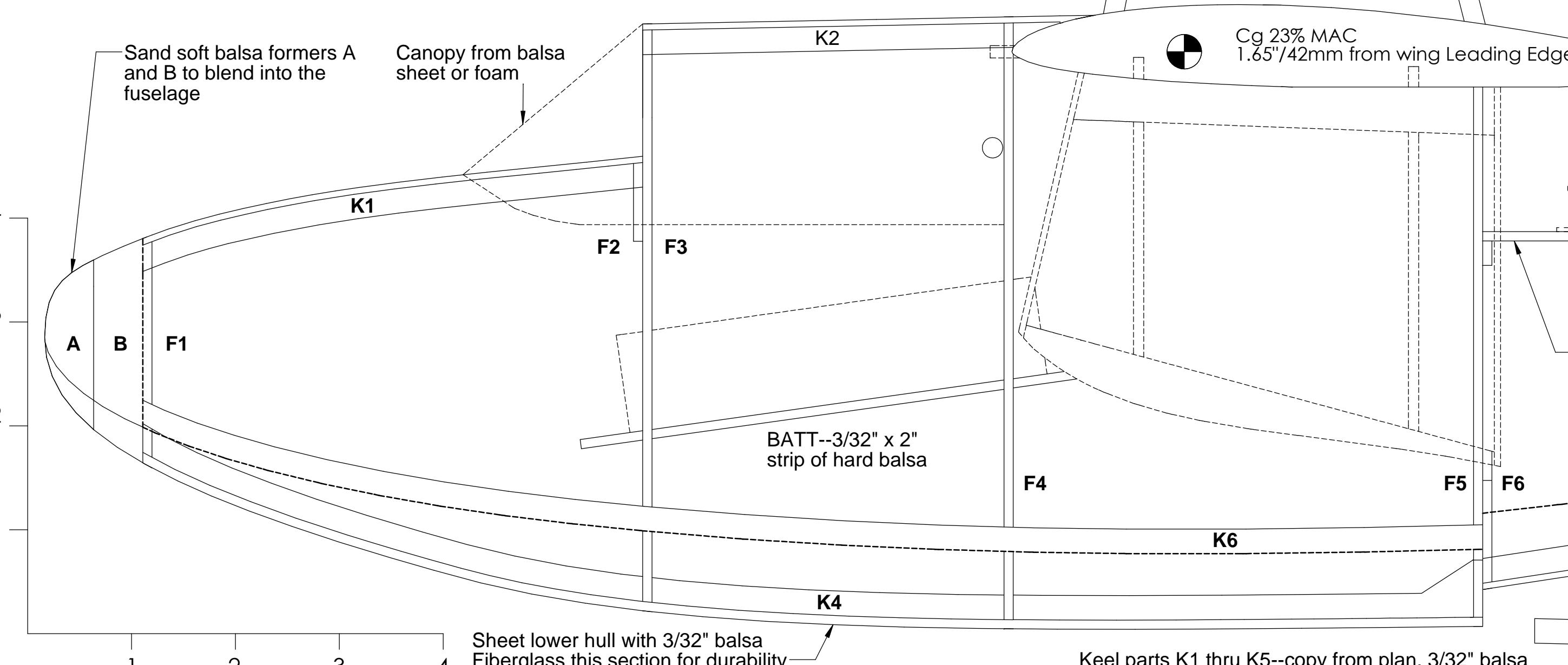
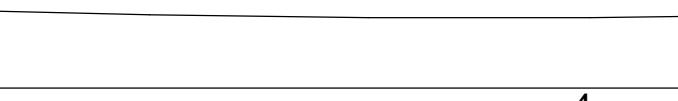
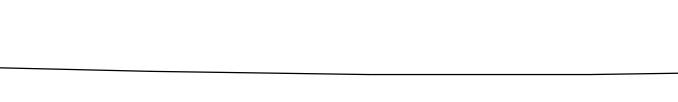
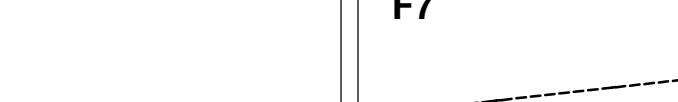
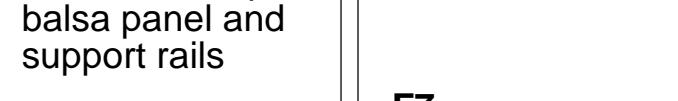
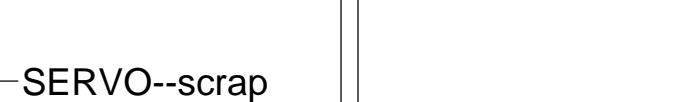
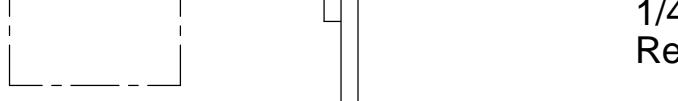
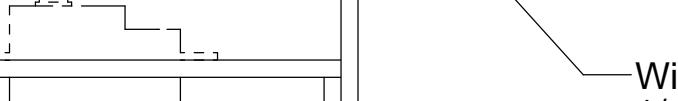
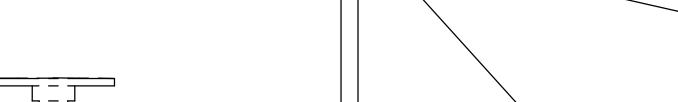
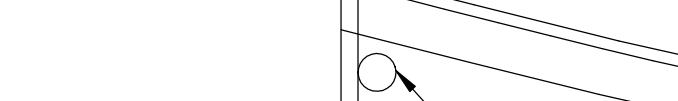
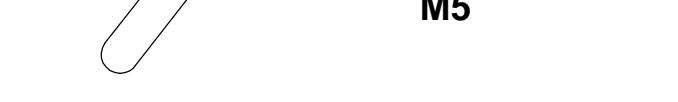
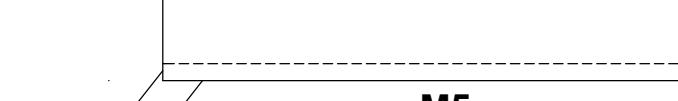
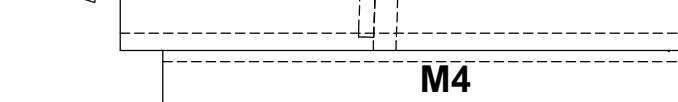
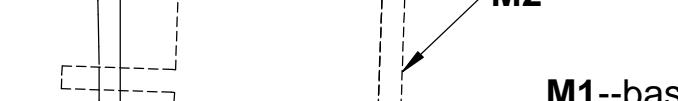
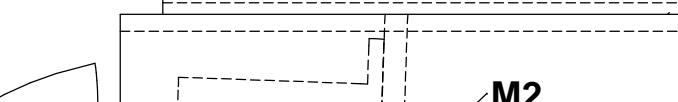
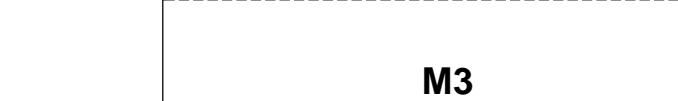
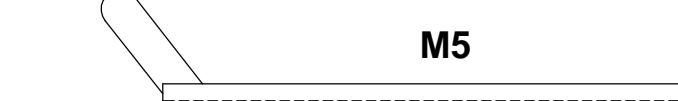
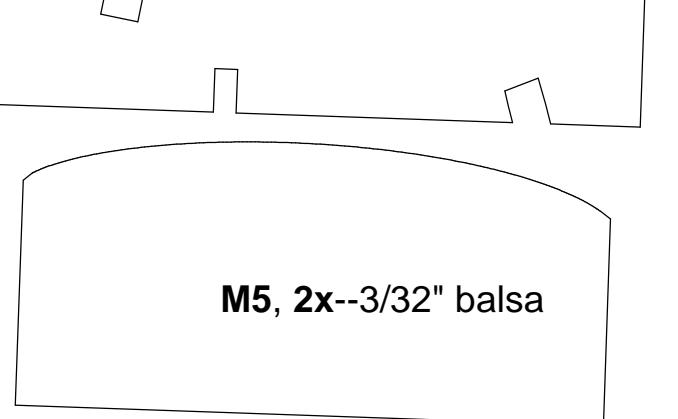
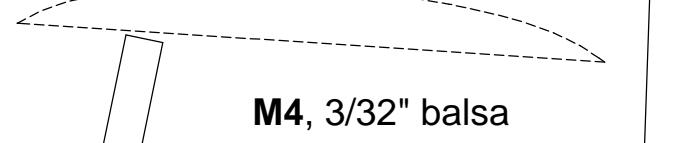
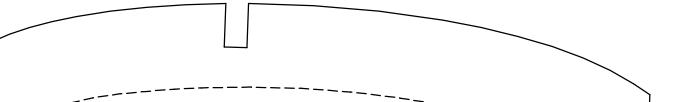
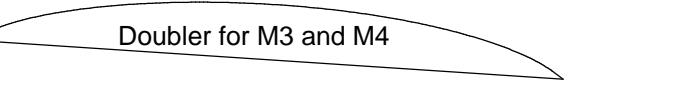
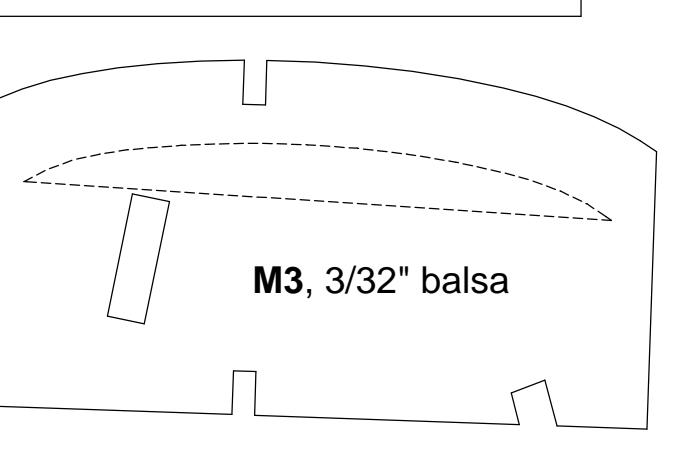
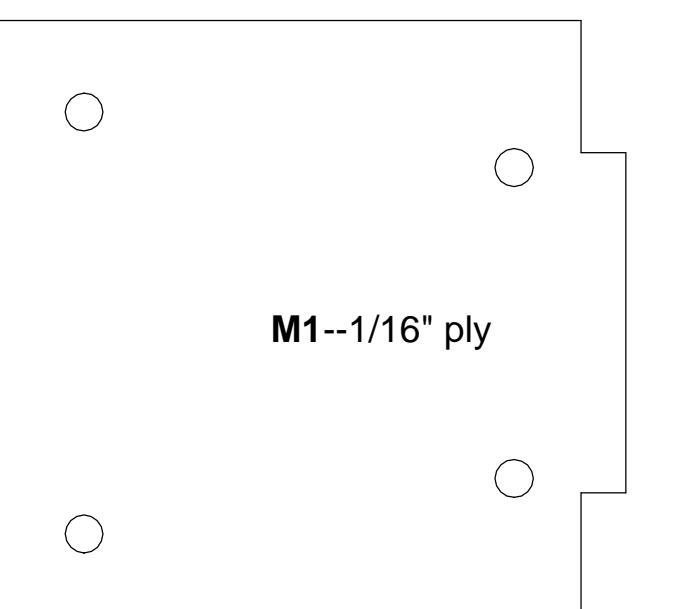
Around 1000 plans have been purchased by builders hoping to own their own amphibian. Not unlike RC modelers, only 10-15% of these projects were completed.

In another parallel with modelers, builders of the full-scale VJ-22 frequently modified the design. Aircraft can be found in both tractor and pusher configurations, with and without landing gear, and with different tail designs including a T-tail.

The Model

Float flying is my favorite RC activity. The goal for this design was to create a simple and durable waterplane that could be cut easily by hand. Unlike my typical stick-and-tissue type designs that are planned from the beginning with laser cutting in mind, this one has no stringers or complex shapes. The whole fuselage is sheeted without complex curves. The wing is held down with rubber bands in the old-school fashion.

A few liberties were taken with Mr. Jensen's design. The rudder was reshaped to function better as a water rudder. I went with the tractor option on my prototype to help keep the Cg forward, but the mount can be reversed. I left off the wheels and struts to keep the build simple, but scale nuts are welcome to add these details in.

**Motor Pod Templates and Assembly**

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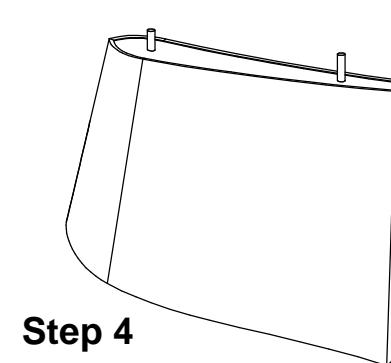
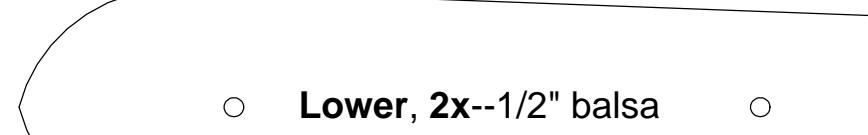
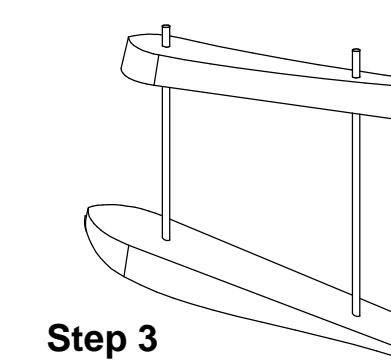
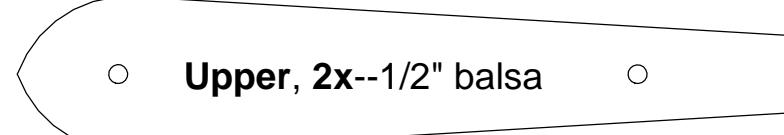
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Wing Instructions

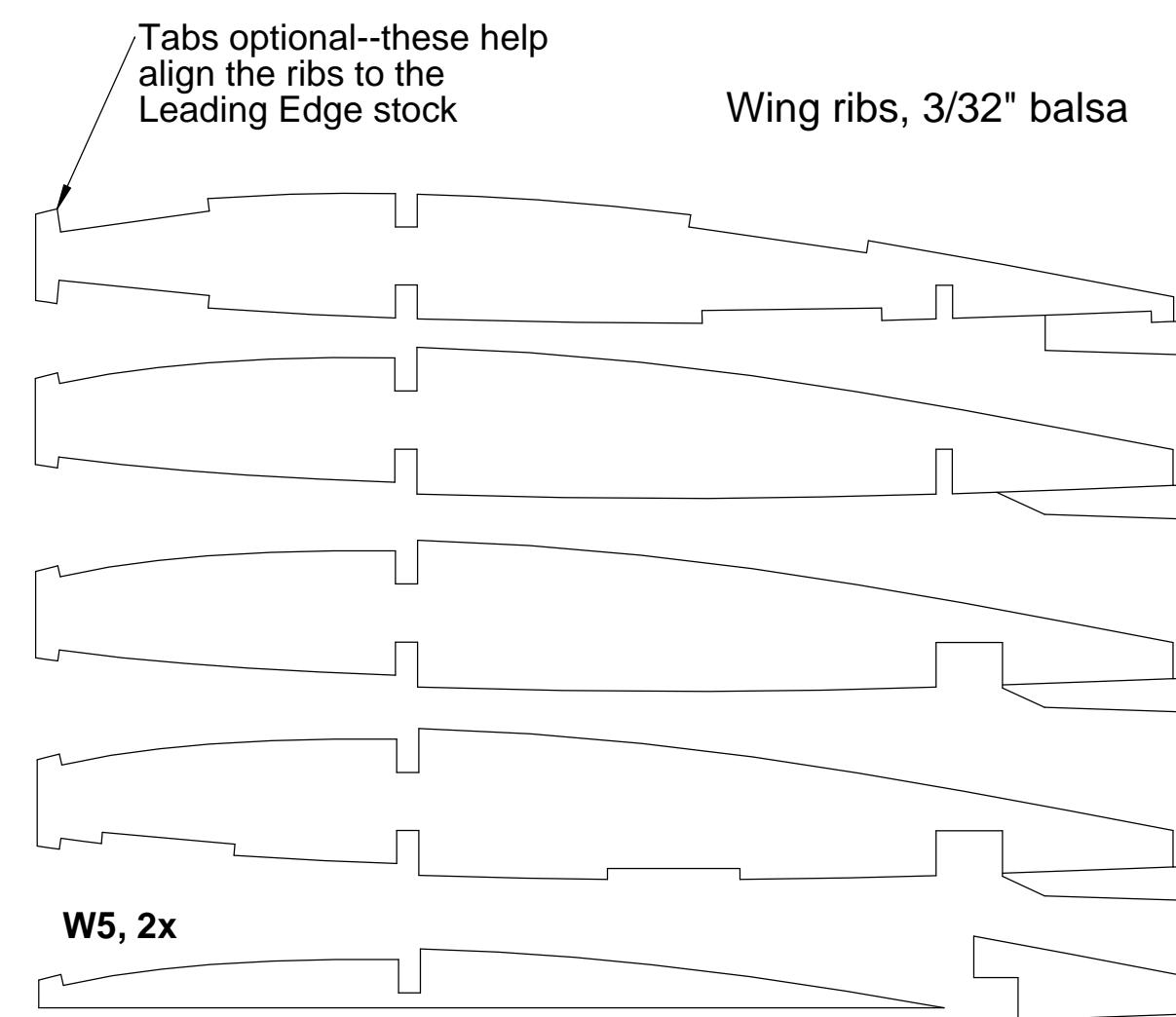
- Shim the Lower Main Spar with 1/16" scrap and pin in place over the plan
- Shimming will allow the sheeting to cover the Lower Main Spar later
- Shim the Rear Spar and A1 with 3/32" scrap and pin in place over plan
- Do not glue A1 to the Rear Spar!
- Glue all Ribs in place
- Add the Upper Main Spar, and Shear Webs
- Mark the notch positions on the 5/8" Leading Edge stock and cut in the notches
- Notch the 3/4" wide Trailing Edge stock
- Glue the Leading and Trailing edge parts into place
- Add the aileron ribs A2
- Epoxy the Top Motor Pad parts into place
 - NOTE: Make sure each Pad is in the right position--if positioned properly, the motor struts will be angled correctly
- Glue the Wing Tip panel to the underside of the wing assembly
- Sheet the upper surfaces where shown with 1/16" balsa
- Unpin the assembly and epoxy the Bottom Motor Pads and Float Pads into place
- Sheet the lower surfaces where shown with 1/16" balsa
- Join the wing halves and fiberglass the joint
- Add a 1/8" Wing Pin

1/8" x 3/16" upper and lower
main spars backed with
vertical grain shear webs5/8" leading edge stock-notch
were shownThe fullscale Volmer had ~1deg dihedral. Add dihedral by tilting the
root wing ribs with gauge below. Finished wing tip at bottom of W5
will be 0.45"/1mm above board with wing root flat against board.Wing Tip panel
outline-cut from
3/32" balsa, attach
below RS and W5**Float Templates**

Float pads, 4x-1/16" ply

Float Instructions

- Cut Upper and Lower formers from templates above
- Shape the top of the Upper and the bottom of the Lower formers as shown on the side view of the fuselage
- Join the Upper and Lower formers with two 1/8" dowels or carbon fiber rods
- Note: the holes in the Lower formers will need to be angled
- Sheet the floats with 1/16" balsa and seal to make water tight

Wing Templates

Wing ribs, 3/32" balsa

