

Wood Carving Basics for Scale Models

by David P Andersen



It's been said that there is a perfectly carved elephant inside every bar of soap. All you have to do is remove what's not part of it. For model parts it's even simpler.

Wheel pants, air scoops, wing filets, tail cones, manifolds, nose bowls, wing tips, static props and various fairings for scale airplanes are typically carved from balsa or hardwood. They can be attached to the airplane, or they can be used to make molds from which fiberglass parts can be drawn, or plastic parts can be vacuum formed, or they can be covered with a thick layer of glass cloth and the balsa removed (the so-called "lost wax" method). They can even be laser-scanned and 3D printed.

Here are the hand tools you will need: a razor plane, wood gouge, sandpaper, sanding tubes, a hobby knife and sharp blades, and a sanding drum.



We start with drawings and photos of the part. Typically this is the procedure:

1. Attach or draw the top view and side view and maybe the front view onto a block of balsa wood.
2. Cut out one view with a scroll saw or band saw.
3. Spot-glue the parts back together so it can be run thru the saw again.
4. Cut out the other view.
5. Break apart.
6. Round the edges per the photos of the full-size.

Here are some examples...

Nose Cone:



Draw the top and side views on the block. Cut the side view with a band saw or scroll saw.



Spot-glue it back.



Cut the top view and break apart.



Discard the scraps.



Glue it to the nose.

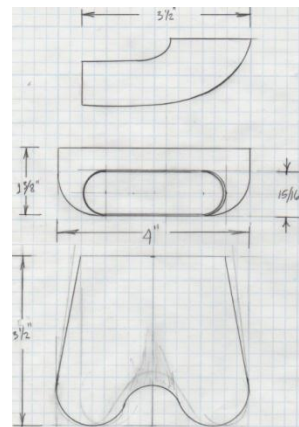


Round the edges with a razor plane, sand smooth.

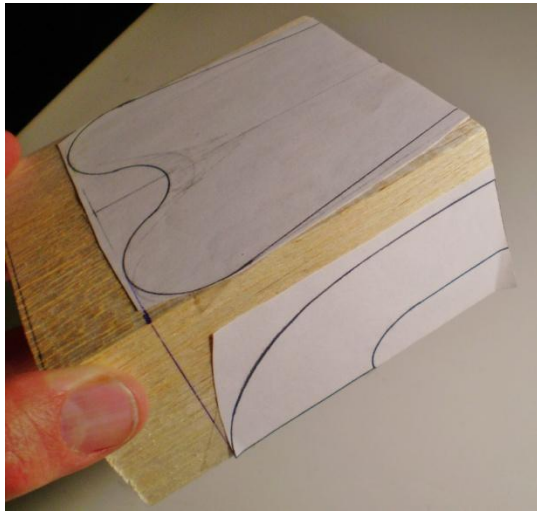


Almost eady for flight.

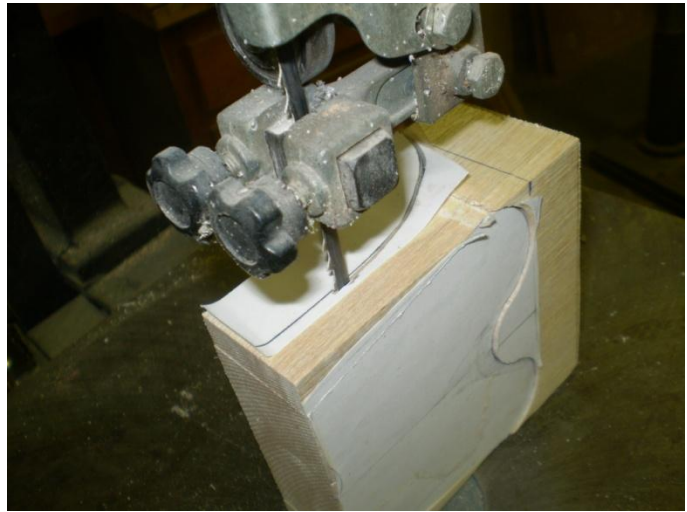
Carburetor Air Scoop:



Start with a photo of the full size air scoop and a 3-view drawing.



Attach top and side views.



Cut top view, spot glue together, cut side view.



Break apart. Discard the scraps.



Round the edges with an X-Acto knife and sanding tube per the full-size photo.



If you cut your thumb, put a bandage on it and continue working.
Cover the scoop with glass cloth and hollow the intake.

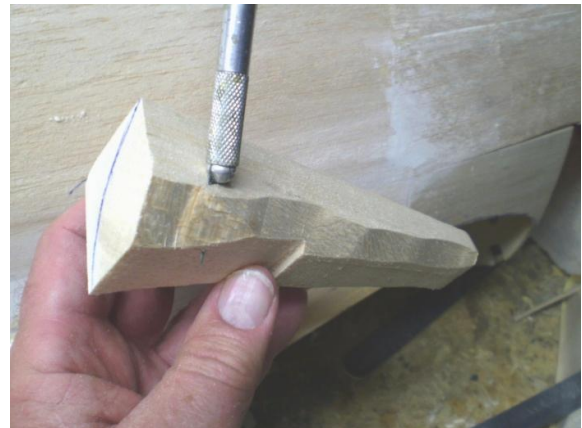


Or coat it with 3 layers of medium fiberglass cloth and remove the balsa. Or use it as a plug to make a mold and then pull a fiberglass part from the mold. Or laser scan and 3D print.

Carved balsa, molded fiberglass and 3D printed versions.

Wing Filet:

The forward parts of wing filets are sometimes too sharply curved to be bent from balsa sheet or plywood, so we carve them from balsa.

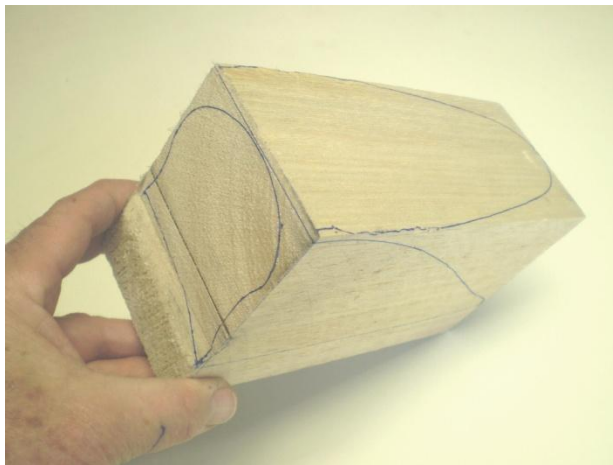


Cut a balsa block to fit the wing fileet (right side shown). Remove and rough carve. Glue it in place with the wing attached (left side shown).

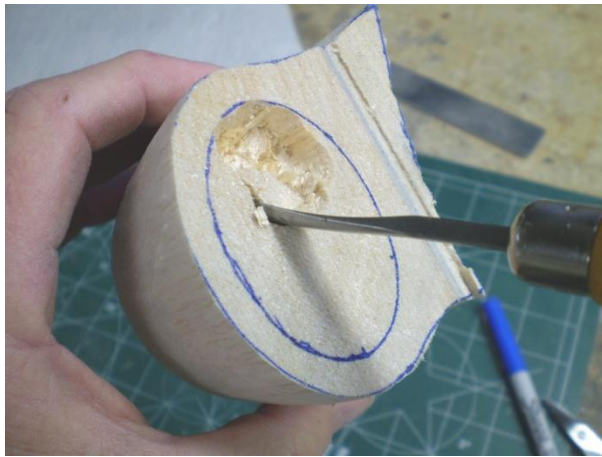


Then trim to final shape with a wood carving gouge. Finish with sandpaper while fantasizing how the plane will perform a slow flyby.

Supercharger Intake:



Draw front, side and top views on a balsa block. Cut the side views and tack-glue one side back, then cut the top view and break apart. Round the edges with a razor plane, X-acto knife, wood carving gauge and sandpaper using the front view as a guide. Wrapping sandpaper around a dowel works well for concave curves.



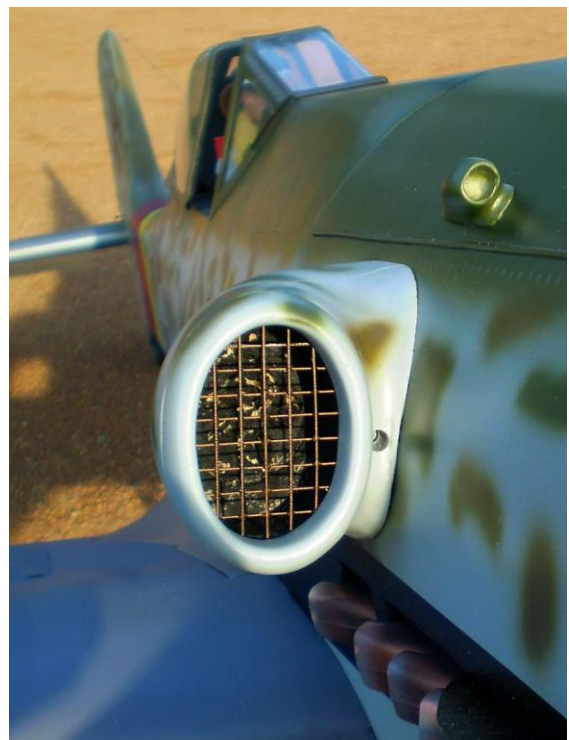
Hollow out the front with a woodcarving gauge and smooth the inside with a drum sander mounted in a drill press. Complete the outside with a sanding pad.



Tape sandpaper to the fuselage in the supercharger's location. Hold the supercharger in place and rub it back and forth to fit it to the curved surface. Cover the supercharger with one piece of fiberglass cloth and resin.

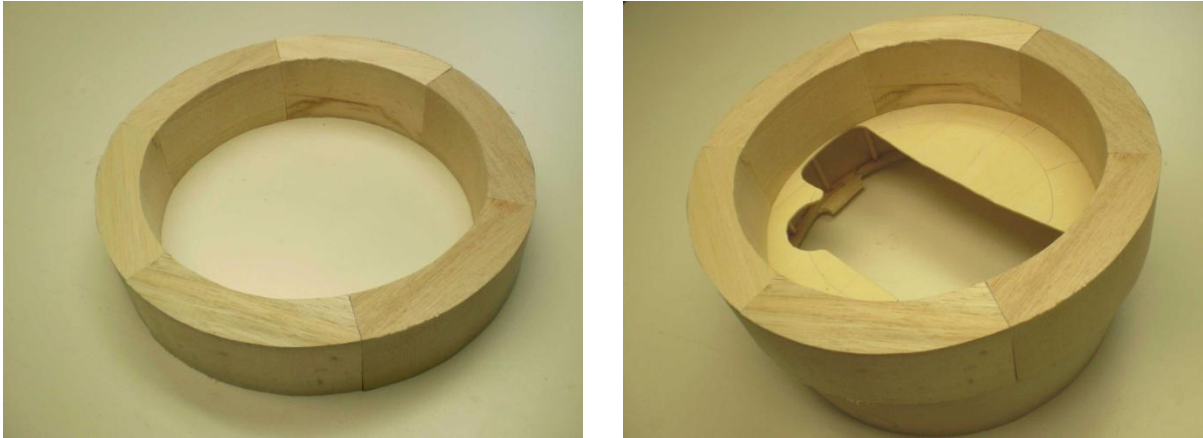


Add a grill and carved balsa ring. Paint before attaching to the fuselage.



Nose Bowl:

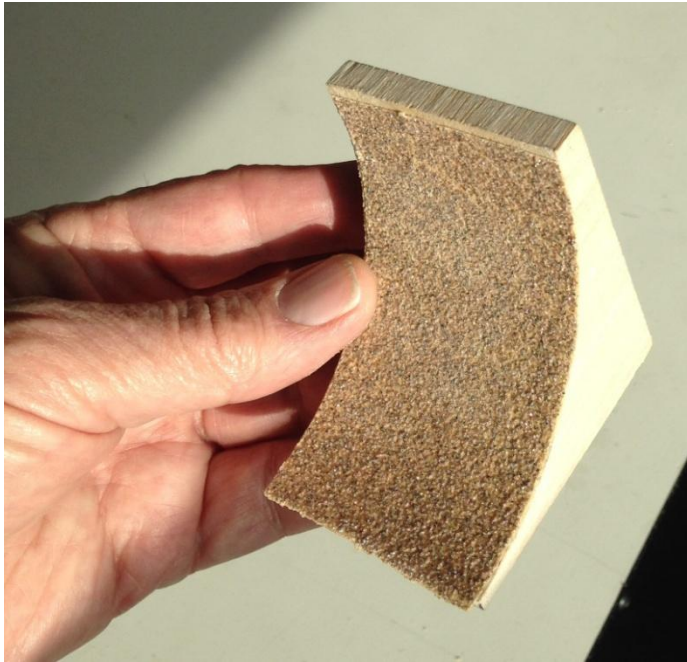
Perhaps it might be better to use a slow-turning lathe or potter's wheel to carve a nose bowl for a radial engine airplane. But such tools are not typically in the average modeler's work shop and some cowls are not round (e.g., P-47, Howard Pete) so we use this more manual method.



Assemble a slightly oversized nose bowl ring from at least 4 pieces of balsa. Trim it to fit the cowl but don't attach it yet.



Rough-shape the nose bowl with a razor plane and a template traced from the plans.



Cut a curved sanding block to the same shape as the nose bowl template. Glue 60-grit sandpaper to the curved surface. Sand the nose bowl to final shape



while testing with the nose bowl template.

Then wind it up and let it go!

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