The wind is ready for sanding to it's symmetrical airfoil shape. Leave the center section flat to help final incidence alignment. A razor plane is really handy to get the basic airfoil. Then sand to close to final with 80 grit and finish sand with 220 then 400grit.

Covering – In the past I had tried several methods of adding glass cloth to wings with not much success. After reading Wayne Trivin's description of using a wing press I decided to try it. The procedure turned out to be one of the most satisfying things I've done. The press insures several things, the wing comes out straight, some of the excess resin is squeezed out, and the final finish is much smoother and very easy to finish eliminating several hours of tedious sanding. I think this one step contributed greatly to the rapid construction of these airplanes.

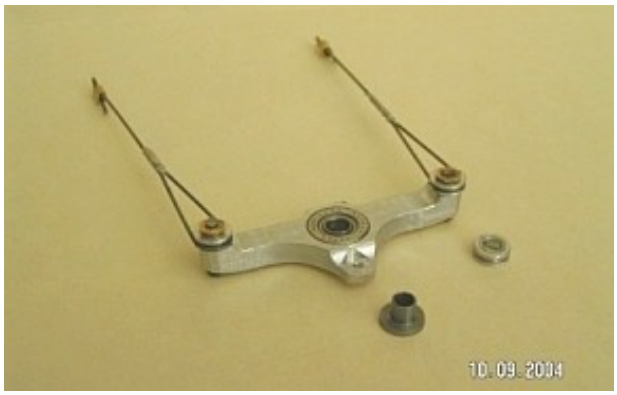
Wing press – The press is made of two ¾" thick melamine faced shelf boards. A series of 6" long ¼" threaded rods 6" apart are installed on the perimeter of the boards, then two inch thick polyurethane foam is glued to each board. A short afternoon spent building the press yields something to be added to your shop inventory. I made two presses, one 40" long for wings and a shorter one 18" long for stabilizers. I cover the surface of the foam with wax paper to help prevent any excess epoxy sticking to the foam.

Use of the press – Both the wing and stabilizer/elevator use the same procedure. After final shaping and sanding of the surface I cover it using materials and procedures of "How to Vacuum Bag Foam Core Wings" downloaded from the CTS website. . I don't have a vacuum bag setup but using one would give even better finish results than I get without it. I do use the Nylon bag and parting wax as recommended. The wing and tail assembly are covered with 1-1/2 – 2oz fiberglass cloth and West Systems 105 epoxy resin and 206 hardener from CST. After layup the bagged assembly is put into the press and the bolts around the edge tightened down. Initial pressure to allow pulling down the bolts is applied by a 200 pound weight, me, kneeling on the press while installing the securing nuts and washers. After an overnight cure the assembly is removed from the press and is ready for trimming & final sanding without the lumps and bumps associated with not using the press technique, a real time saver.

Stabilizer - Cut the panels to size then edge glue per the plans on a flat surface. Tack glue the basswood strips on the hinge line. Once the basswood outlines are installed the stabilizer is ready for sanding to it's symmetrical airfoil shape. Leave the center section flat to help final incidence alignment. A razor plane is really handy to get the basic airfoil then sand to close to final with 80 grit and finish sand with 220 then 400grit. After the sanding is complete, separate the elevator in one piece from the stabilizer then radius the hinge line. The sanded elev and stab are then covered with 1-1/2 oz cloth using the wing press technique. Fabricate the horn from .063 wire, solder the bushing into the eye. After removal from the press trim the cloth and sand. Drill the elevator and notch it's leading edge for the horn. Use slow set epoxy glue to secure the horn to the elevator. The center piece will be cut out after installation in the fuselage. The sewn figure 8 hinges will also be done after full assembly. Set the stab/elevator aside until completion of the wing.

Bellcrank installation – NEMESIS - When the wing assembly is removed from the press and the excess glass trimmed off, the wing is ready for installation of the bellcrank, leadouts, and leadout guide. Cutout the 1/16 "plywood bellcrank plates. Trace around their outlines in the proper location on the top and bottom of the wing, then rout a 1/16 deep pocket for the plates. Rout the bellcrank clearance pocket completely through the wing. Rout the cutouts for line connection in the inboard lower surface of the wing.

The bellcrank in STPRNTR is mounted below the wing. The bellcrank's leadout standoffs move them to align with the center of the wing.



Bellcrank preparation - Bend up the leadout extensions from .032 wire using round nose pliers. Avoid any sharp bends in the leadouts. The line connectors are part of the leadouts, eliminating putting something else inside the wing. I haven't had any problems with leadout failure using this system on several airplanes. I pull tested a typical assembly using control line wire with AMA recommended wire end construction. I added weight till failure. The line broke before there was any indication of yielding in the leadout. Using an R/C E-Z pushrod connector drilled out for 3/32" dia wire install it in the inner hole on the bellcrank then shorten the pushrod arm of the bellcrank. The connector will protrude from the bottom of the wing and allow attachment of the pushrod after the wing is in the airplane. The pushrod will be soldered to the connector after installation in the fuselage and the bellcrank and elevator are aligned to neutral.

Leadout guide – The leadout guide is made to allow installation of lines with their ends finished. It incorporates a "grouper". Two pieces of 3/32" alum are bolted together with button head allen screws then the assembly is drilled and tapped 2-56 on the parting line. Rout a pocket in the inboard tip of the wing for the guide, then epoxy glue one half in place. Reinforce the cutout in the wing surface with a piece of .007 x .5 CF strip cutout for the other half of the guide. Rout a slot in the inboard wing tip to allow the lines to pass through. The ½" long grouper spring is made by winding .015 diameter music wire on a .032 diameter mandrel. The control lines are passed through the spring before the end grommets are installed. After the lines are installed in the wing the two halves of the guide are bolted together retaining the spring. Don't forget the CF reinforcement. Although the flight loads are very low, a pit stop catch can rip the guide out of the wing, I did it once! The grouper spring should be installed with the inboard end flush with the guide plates. The lines separate at this point and will bind up if the spring protrudes into the wing any farther.

Fuselage- The fuselage construction takes a little more time to accomplish, but it yields the benefit of being able to control it's thickness (weight).