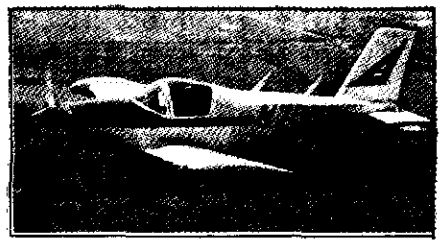
Pat Jansen

PL-1 & 2 Newsletter



NUMBER .59 SUMMER 1978

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ALFRED BARTELL, 1153 E. 168th St., Cleveland, Ohio 44110 has decided to extend the fuselage on his plan; therefore he is offering his fuselage longerons FOR SALE. The set from the baggage section to the tail section is $70.00.

Al is interest in corresponding with someone who has installed a control wheel instead of a stick. If you can assist him please write directly to him. You might also forward the info. to the newsletter.

Al offered a juicy tidbit of news. Mr. Pio in California has equipped his plane with retracts.

Al is progressing well with his project. He has completed the fuselage and the tail surfaces and is starting on the fuselage.

MIKE BOEENSTRUM, P. O. Box 180, Dorgaevelle, New Zealand
8-5-78
I am shortly going to send for the plans and have just sent inquiring about extrusion kits, windshield, fuel tanks etc. Our import year begins July 1st and I'm hoping to be ready to send for these items shortly after that date. My project will be a 5 year one since I'm a dairy farmer (120 cows) and don't get a lot of spare time but once I get going I'll be hard to hold back. A close friend Aurther Ireland, is presently building one and making a beautiful job. He lives only 50 miles from us so should be very helpful.

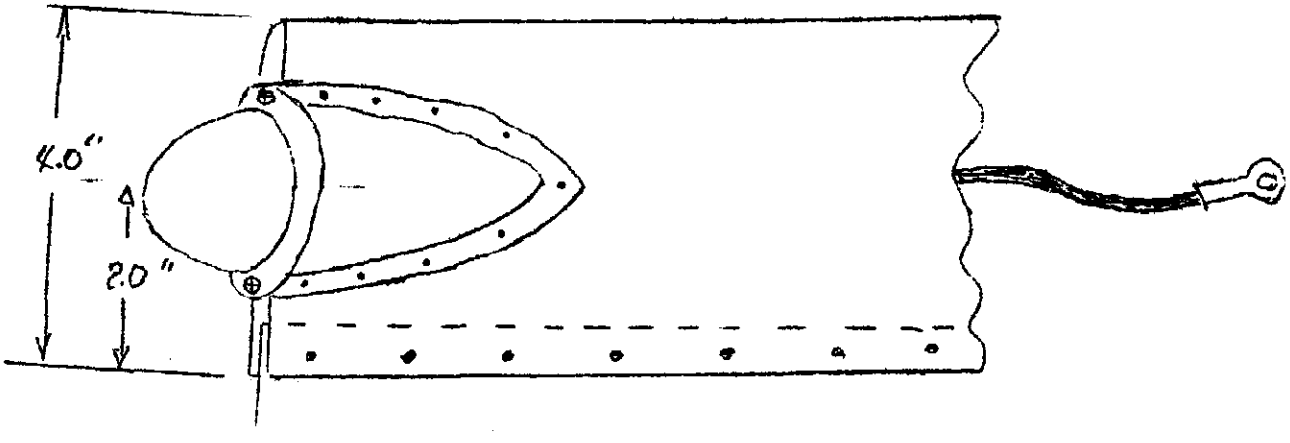
DUANE SEYMOUR, 892 Catalind Dr., Newport News VA 23602
Shares the following letter written 11 April 1978
Dear Dave,
In my last letter, I said I'd write some words of wisdom on the pieces of the tail feathers I've completed. Not sure the following is wisdom - you'll have to decide that.

RUDDER: 2-20-002. Please refer to 20-002-9. If you want a prime example for a sheetmetal class, this part is excellent. Get the right angles, joggle, tabs, etc. and you will know how to make all the other sheetmetal parts on the bird, but you do need access

to a good brake; preferably, in this case, a small box or pan brake, as they are easier to use with small parts. I've forgotten the sequence of which bend should be made 1st, 2nd, 3rd, etc., but do remember I tried four or five times with pieces of scrap before getting it right. You'll have to bend the tabs on the bottom, that rivet to the -11 bellcrank, by sliding a block whittled to shape inside the torque box. I used a pine 2 X 4.

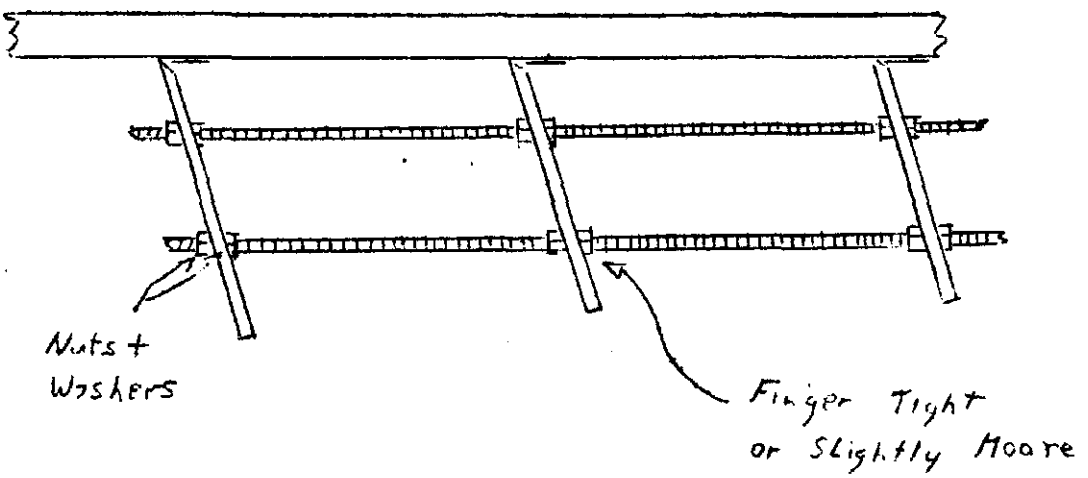
-3 spar was made on a full size brake, but the lightening holes were cut out first. The curve in the sides and the .25 flanges were bent over a 2 X 4 whittled to shape. When finished, the spar was slightly bent but not enough to worry about. However, after making the lightening hole stiffener flanges, it was badly bowed. To straighten it to within reasonable tolerances, I had to flute the .25 flanges. If I were to make another spar, I'd try flanging the lightening holes to the outside instead of inside as shown on the drawing.

-21 fairing is a puzzle to me as I made three before a decent fit resulted, and I'm not sure why. One of the Newsletters says to cut the metal oversizem "C" clamp the two bottom edges together, then press in the taper by hand with a board. Fine, no problem - until I riveted the darn things to the -7 and -15 ribs and -23 fairing. Afterwards the trailing edge was bowed. However, everything looked ok when cleco'd together prior to riveting. After the second failure, I decided to try something different by putting the tail light on this fairing first. I made the below assembly and riveted it to the trailing edge first. By doing this, it keeps the trailing edge from moving. The rib rivet holes were picked up after the tail light was riveted. You could make this fairing out of fiberglass if you wanted to.



Rudder assembly requires the ribs to be positioned 80° from the spar, and according to Pazmany's construction manual, no jig is required as the skin is bent in a sheetmetal brake, "C" clamped in position (to what I don't know), ribs outlined with a felt tip pen (how do you hold the rib at 80° while doing this?), skin holes drilled undersize, then skin reinstalled and after checking to insure the rib is under the holes, rib and skin are drilled through full size. I was unsuccessful in "C" clamping the skin to anything such that the skin wouldn't twist out from under, or move, under the

clamps when the skin is peeled back to mark rib position. Ribs move all over the place as there is nothing to hold them. My solution was to buy two long threaded rods and 16 nuts at the local hardware store. The rods fit through the rib tooling holes and a nut on each side tightened up against the rib will hold it in position. Takes a while to thread the rods through the ribs and run the nuts down, but can be speeded up by chucking the rod in a variable speed drill, then borrowing the neighborhood kids to hang onto the nuts so they'll thread down the rod in each rib bay, i.e.



After doing this, it's much easier to hold and mark the rib outline. Predrill the skin but don't try drilling through the skin and rib flanges together. The .016 rib flange is too thin and will bend away from the drill bit (even if sharp) when pressing down, particularly on the trailing edge of theribs.

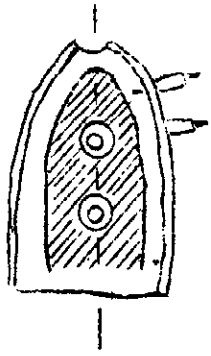
Instead of universal head hard riveting theskin to the ribs, that requires some special bucking tools plus the -25 tapered tubes, I decided to flush rivet using aircraft type blind fasteners. Only precaution is to offset the very last trailing edge rivets so that the part of the blind fastener that sticks inside won't hit the opposite one. You might have to make yourself a countersink die out of an old file or something to dimple these last two holes in the ribs as I did.

VERTICAL FIN: 2-20-001. This assembly may be a snap for someone who has built an aircraft before, but wasn't for me. While I'm a Field Service type for McDonnell Aircraft Co., I've never done this kind of thing which was one of the reasons for building my own.

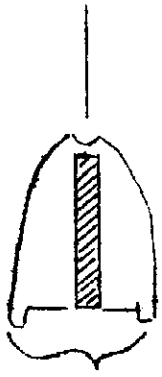
No problem making the parts, but some assembling. Forgot who I bought them from years ago, but someone else made the ribs which were slightly bowed plus the flanges were underbent. To bend the flanges to match the skin contour, I had to flute between rivets. This bowed the ribs worse which gave me the most trouble later on.

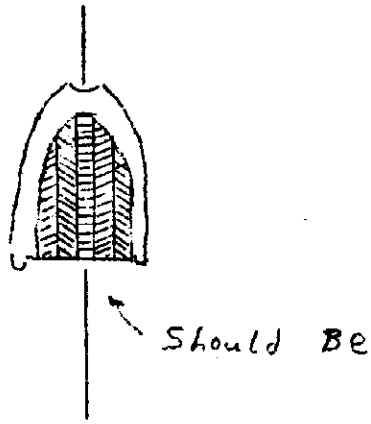
I built the assembly jig shown in the construction manual. To

attach the ribs in position, I bolted them to each 2 X 4 using a rib shaped piece of 1" pine inside the flanges. Had to in order to force the ribs straight. Make sure you make the pine block small enough to clear the ends of the cleco fasteners, i.e.



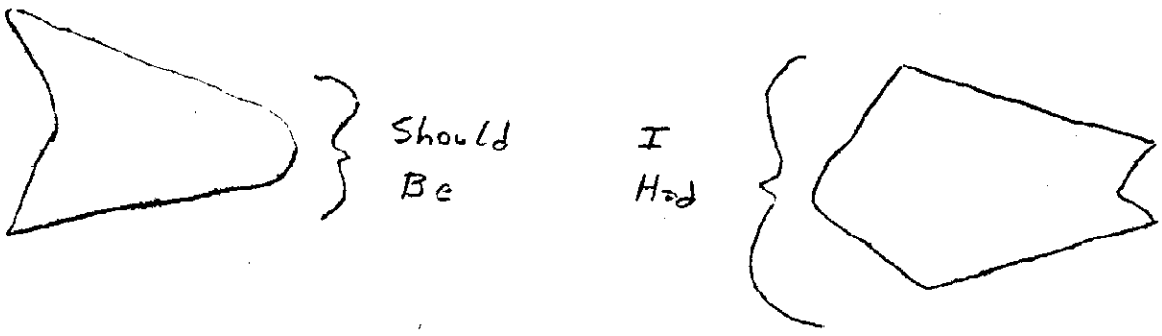
Also, recommend doubling up the 2 X 4 standoffs to back up the entire rib. I didn't, resulting in a twist in the -13 rib on the aft end., i.e., my jig standoff looked like this





Unfortunately, this twist wasn't noticed until after the skin was riveted and the assembly removed from the jig. I had to shim the spar and the rib in order to attach them plus keep the -27 bracket straight.

My first try at the skin was a disaster. I knew it would not be a rectangle in the flat pattern, but I got the angles backwards.



This mistake was a blessing in disguise because I'd used .016 instead of the required .025. Second try, I decided to make a stiff paper oversize template first. Paper was draped over a cutdown broom handle, to make the leading edge, then skin outline drawn on the paper, cut out oversize skin, then bent using my homemade brake, shown in Paz's construction manual. Now that the skin fit reasonably well, the next problem was to drill and dimple the rivet holes.

Because of the problems I had with the rudder rib flanges bending, I decided to try a different technique on the fin by drilling (whitney punching) the rib rivet holes first, then use a hole finder and template to pickup the holes. A template was made out of medium thickness plastic sheet down to the last two holes I could reach with the hole finder. Punch these two holes in the template, cleco in place, then drill through the plastic over the rib rivet holes. Put the skin back on, clamp/strap/tape the skin down to the ribs as tight as possible, then pick up the rivet holes you can reach with a hole finder. Cleck your template in place, take a big glub of beer, and drill the skin holes and cleco as you go. I didn't drill all the holes in one rib at a time, but skipped back and forth to keep skin from creeping.

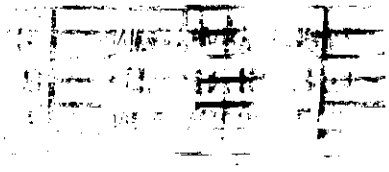
STABILATOR: 20-003. I'm not far enough along on this item to have recommendations. Most of the parts have been made or purchased. Still undecided on whether or not to predrill the rib flanges, but probably will. Looks like the jig will require more work than the stabilator.

Hope the above helps you.

FROM THE EDITOR.

Errol and I are looking forward to spending the first week-end at the Oshkosh fly-in. Several PL-2's should be there for us to admire. He is hoping to complete his project in time for the Texas EAA fly-in at Kerrville on September 15. The engine installation and cowling have been his special concerns for the last several months. Forming the cowling took much longer than he had anticipated. This week he installed the air temperature gauge and completed the canopy latch. Soon he will glue the plexiglass to the canopy frame.

Please let us know how you are coming along with your projects. The newsletter relies on reader response so please drop us a line.



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