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SECRETARY	Garry Fancy	
TREASURER	Don Kernohan	
PROGRAM CONVENOR	Ted Slack	
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NEXT MEETING

The next meeting will be held at 8.00 p.m. September 20th at the War Museum. Anyone not showing up for this meeting will be volunteered to serve on a committee.

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FROM THE PRESIDENT

Well, here we are facing the fall and winter seasons again and, hopefully, renewed interest in Chapter meetings and activities. I guess it is reasonable to conclude that too many delightful summer time activities obviate holding Chapter meetings during the summer months. The July and August meetings were not too well attended. But, then, who wants to attend a meeting on a warm summer evening when he could be enjoying a pleasant flight.

With the fall season must come the thoughts of Chapter executive elections. As you may remember, we conceded that, unless specifically volunteering, a retiring executive member would be given a two year moratorium before his name could be resubmitted for election. This means that a new slate of Chapter Officers must be drawn from the membership. The question is, who wishes to serve the Chapter in an executive position? Let me know of those who will volunteer their services, and I will ensure their names go to nomination. Remember, a willing volunteer beats a railroader! Don't be bashful, Grange can't do it all the time. Elections are expected for the October meeting with handover at the end of the year.

On the basis of preliminary work carried out by Ted Slack, your executive will come to grips with the Chapter constitution before leaving office. Hopefully, we should have some good pictures of Oshkosh '74 to show in the forthcoming months - we had enough members with cameras there!

I hope you all had a pleasant aviation summer, and let's see everyone out for September '74.

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BUILDING THE FUSELAGE - TUBE TYPE

Gary Fancy has put together a short piece on building a steel tube fuselage. Gary has built two so far and can probably be considered our local expert.

1. One problem which may confront the neophyte rag and tube aircraft builder is the layout and construction of the fuselage; in other words, how do I translate those marks on that piece of paper into the structure that is going to support me, the engine, wings and tail up in the wild blue yonder and thereafter sustain the occasional not-so-greasy landing.

2. Actually, the fuselage can be the easiest part of the aircraft to construct. Anyone who has ever built the old balsa and tissue paper model aircraft already knows the steps which are:

- a. build a jig on a flat board
- b. construct the two sides on this jig
- c. fasten these sides together with the cross-members

3. The jig is constructed as follows. Obtain a sheet of 4'x8' rough plywood three-quarters inch thick. This is cut and added to as necessary to give the depth and length necessary to be slightly larger than the fuselage sides. The pieces can be joined or held together with 2x4 underneath running the length of the jig or by butt joints using plywood for a doubler. Add pieces the same thickness as the doubler where necessary to make the jig level (see fig 1). Next layout the centre lines of the top and bottom longerons on the plywood using a soft pencil. If the longerons are straight, or with one or two bends, a taut string will assist to layout the straight lines. Now draw in the centre lines of the truss members as per plans, making sure that the center lines intersect at the clusters (see fig 2). Now cut about 50-100 small blocks approximately 1" x 2" x 3/4". These are nailed to the jig to hold the tubing in place (see fig 3). Lay the tubing for the top and bottom longerons directly over the lines drawn on the jig and nail some of the small blocks in appropriate locations to hold the longerons in place. Now nail in four small blocks to hold each truss member in location. Again, make sure that the centre lines of the tubing intersect at clusters. The jig is now built and the two sides can be constructed, one after another, in this jig.

4. At this point it may be wise to double check with the plans to ensure your dimensions are correct. Some people cut out the jig where the joints are to be welded but this is only necessary if you are going to complete welding of each side in the jig. If you plan to tack the structure together before welding don't bother with the cut-outs. This brings up the interesting point of whether you should completely weld each side prior to welding in the cross members or tack the complete structure and then weld the clusters. Personally, I prefer to tack the structure together and then weld in the clusters. If tacked you can always make some minor changes if necessary. It puts less heat into the longerons, hence less distortion. It is quicker and if welded properly almost as strong. The Fokker aircraft company proved in the 1930's that the cluster joints are generally of much more than necessary strength and tubing will fail in compression or buckling long before the clusters fail. If you plan to inhibit the tubing, it may be desirable to drill holes in the longerons at the clusters so that all tubes can be oiled from the rear (or front) of the longerons.

5. Now prepare yourself for some cutting, grinding, filing and fitting. The truss members that butt the longerons at 90° or nearly so are the easiest to fit. You can use a hack saw, circular cut-off saw, grinder or a pair of aviation tin snips to fit the tubing, or a combination of the above. Be sure to draw a line down the tubing prior to fitting or otherwise indicate cuts in the same plane, otherwise your cuts at the top and bottom will not line up (i.e. it will appear as though you have to "twist" the tube to make it fit exactly at the top and bottom.) Cut the longer truss members first, because, if you should cut one a little too short you can always recut it to fit a shorter section. The tubing should fit as close as possible, any gaps less than 1/16" are quite acceptable. 1/8" gaps can easily be filled but remember the bigger the gap, the more the metal shrinks on cooling and the greater the distortion. When both sides are finished, cut the perpendicular top and bottom cross-members the required length.

If the fuselage sides are parallel to each other for a distance, cut all these cross-members to exactly the same distance, trill the fuselage up on a flat surface and tack in the cross members. Turnbuckles will be helpful to square the fuselage. If the longerons are now to be bent in to the tail, heat at the appropriate spots and bend in, one side at a time, reheating as necessary, until the longerons at the tail match exactly. Verify that they meet at the centre with a string drawn down the centre line of the fuselage and tack the longerons at the tail. Now cut and fit the remaining cross-members and angle-members, and your fuselage structure is complete and clusters ready for welding. Don't throw away the jig for the fuselage sides. It can be used for the tail, landing gear, and other components if necessary. Incidentally, the average time to weld a cluster (5 tubes 7/8" dia into a 1" dia longeron) is 40 minutes. This is by a skilled, conscientious welder.

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#### TRADE TABLE

We would like to try something this month and see how it goes. If you have anything aviation oriented you would like to sell, bring it to this month's meeting and put it on the table with your name and a price attached. If anyone thinks they could use it you have a deal.

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#### FOR SALE

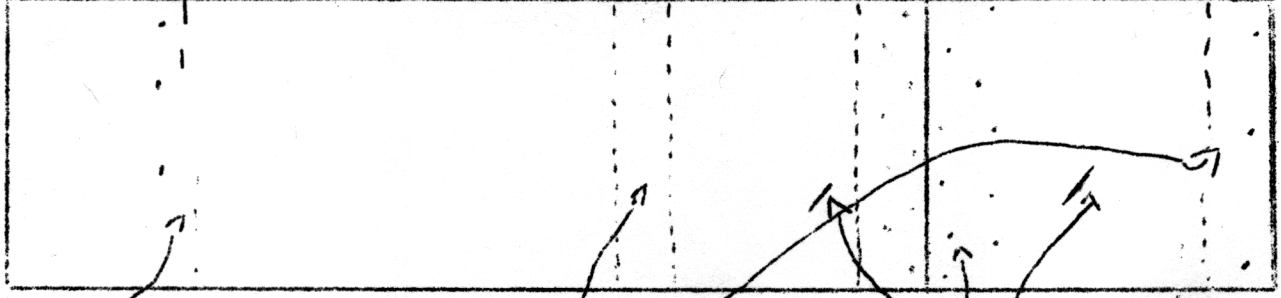
Nova Star VHF Transceiver with Omni, new transistorized power supply. \$135.  
Contact Lionel Robidoux, 731-5814.

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#### WANTED

2 square feet of .063 2024 aluminum. Contact Al Ryan, Smiths Falls, 283-1442.

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3/4" Plywood Spacers  
 Figure 1  
 3/4" PLYWOOD JIG  
 3/4" Plywood splice (if necessary)

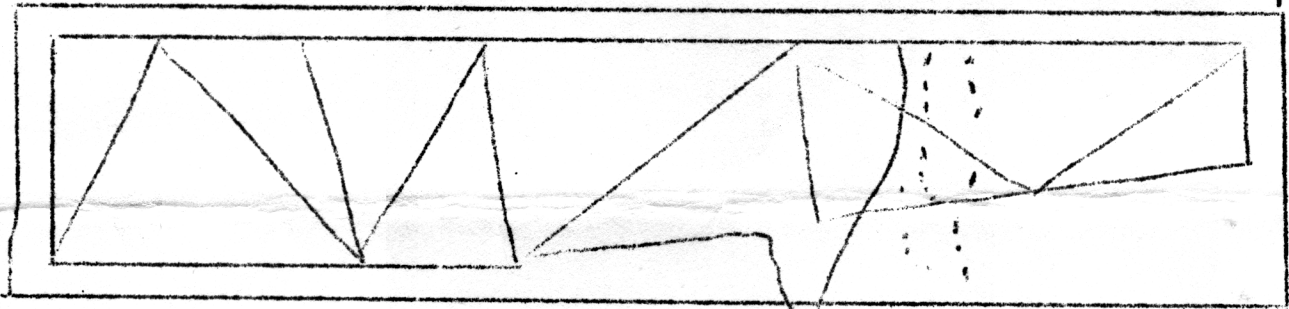


Figure 2 USE TAUT STRING TO LAY OUT LONGERONS

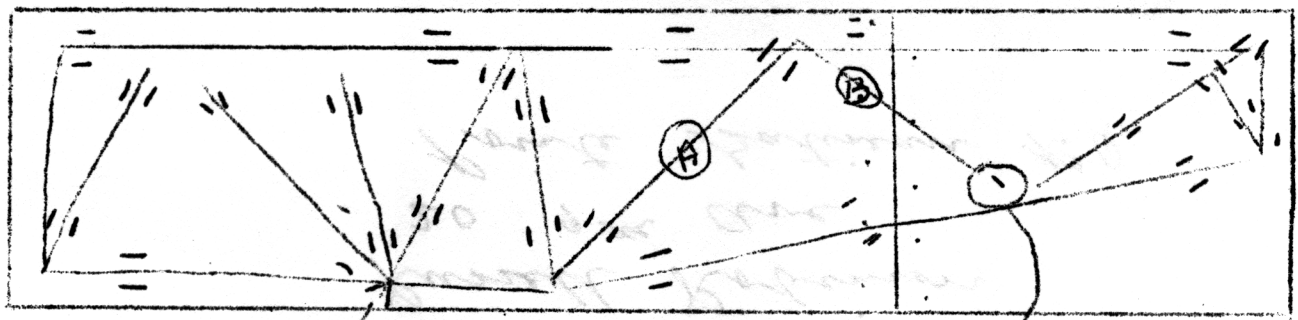
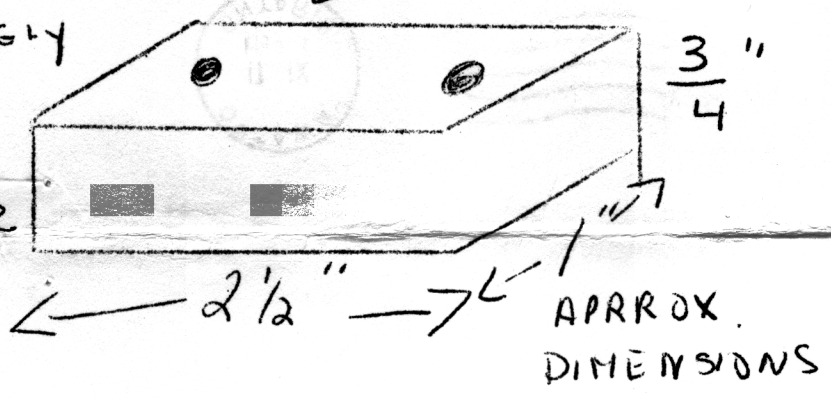
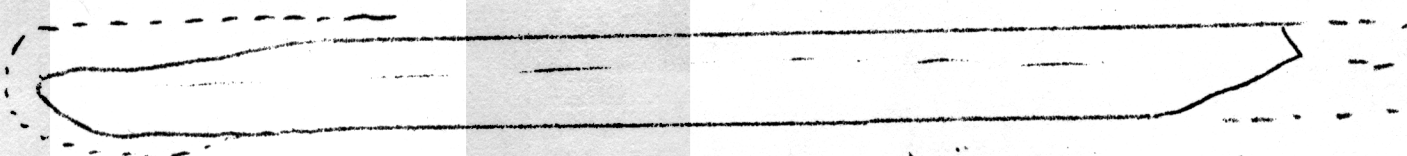


Figure 3

Ensure & intersect  
 TUBING SHOULD FIT SNUGLY  
 Between Blocks  
 CUT (A) BEFORE (B)  
 Because (A) IS LONGER  
 THAN (B)

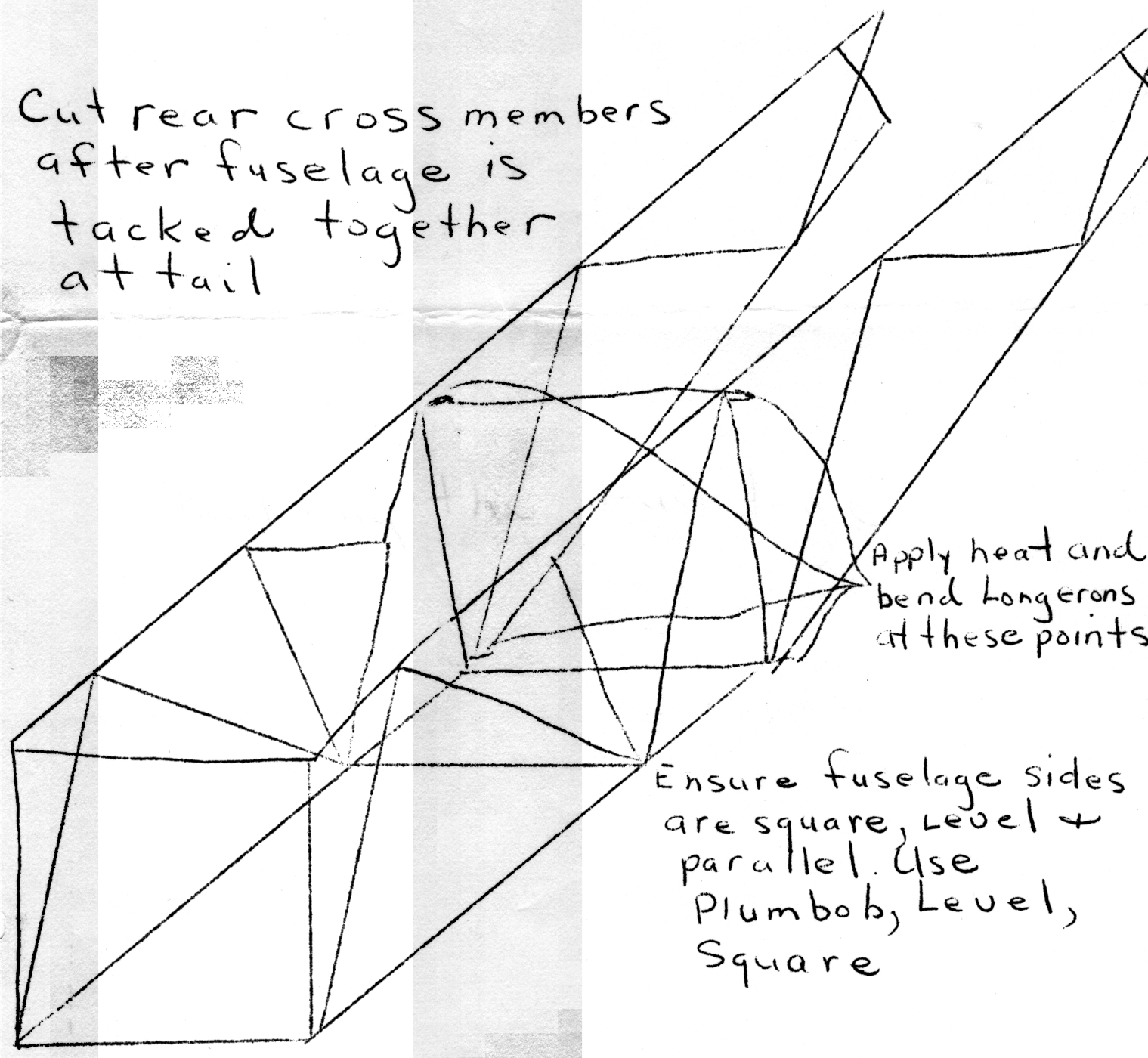


BUILDING THE JIG



Mark centreline on tubing prior to cutting to ensure cuts are in same plane

Cut rear cross members after fuselage is tacked together at tail



Apply heat and bend longerons at these points

Ensure fuselage sides are square, level + parallel. Use Plumbob, Level, Square