THE AUSTRALIAN HOMEBUILT SAILPLANE ASSOCIATION

Volume 2 Issue 5 **June 1997**

Hello everybody!...

Welcome once again to our quarterly newsletter. With this issue we are commemorating the Sixtieth anniversary of The Golden Eagle and on this occasion I have the privilege to present Allan Ash who will be making the introduction. Half of this journal is going to be dedicated to The Golden Eagle.

I also have to thank Alan and Ian Patching for their CO-operation with the articles and Gary Sunderland for the photos... thanks guys!

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Peter Raphael is helping me as CO-editor and he will continue to be in charge of the distribution. Our cousin from U.S.A, Clint Brooks has sent a floppy disk with past articles on the Woodstock Builders Forum which appeared in Sailplane Builder. Thanks again Clint!

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In the last issue we were invaded by the GREMLINS headquarters wherein several mistakes and errors made their appearance in the form of spelling and grammatical errors. I appreciate your phone calls and suggestions to avoid this situation in further issues. It appears that we have a great number of proof readers putting their hand up. To all of them goes my thanks for the concern. Now that I have Peter Raphael the journal will pass several stages of proof reading before it goes into circulation.

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Also I have to mention that this journal is printed using the Gliding Federation of Australia printing facilities and I have to express my sincere thanks to Mrs Pat Kedge for her deference to us.

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We are trying to attract some advertisements to help finance the journal, at the present time it being covered just by the subscriptions of our members, the main expenditure being the postage.

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Once again, please be advised that I am not returning any phone calls for messages left on my answering machine. Please send me a S.A.S.E (*self addressed, stamped envelope*) if you would like a reply. These day's besides working on this newsletter and playing with my planes I enjoy a little rest & relaxation, so if you really need to speak with me please try and ring at a reasonable time, say maybe during office hours?

That's all for now folks,

James Garay.

EXTRA, EXTRA, GOLDEN EAGLE SUPPLEMENT!!

Inside This Issue ☞
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MAIL BOX

Dear Ed
To da editor. From passt Edditor Mark Stanley. High James. How-arr-yew? eye am juz fine. Eye fought eye will right yew a leter to congradyewlate yew on de top jobb yew arr doin widd da newzleter, earrspesilalle widd da topp job yew dew widd da spellin.

Wen eye was edditor eeye hadd lotts of complantes bout my spellingg. They wood say eye shood gett sumwun too prooff reed it befoor eye sent it oot in the newzletter. Presebly, eye coodn't see wat they were on abbout. After all, eye hav no drama reedin this so why shood anywun complane?, or nott be abble to reed wot' eye right?

Anyay, keep up do topp jop, yoor spellin iz reelly fantazticc, eye addmitt too beein a bit jellos. Yorz is AA wun, no drama, topp stuf , if sumwunn complanes, plez tell them ta rallk to me, eye will asure them yoor newzletter is top stuf.

Keep up do grate job yew arr doin, an best regards. *Mark Stanley.*

Ed's note: No comment.

Dear Ed,
It was good to see you at Christmas and others I have moved workshop and I am renting space in a hangar at Camdem Aerodrome. The fuselage is now laid up in the mold and next week I start fitting it out. It has been a bit slow so far this year as I have moved all of my work shop. The engine mount parts are almost there but my welder is a bit slow. Enclosed my membership form and cheque for A.$ 15.00. *Gary Morgan*

Dear Ed,
Please find cheque for A $ 15.00 for 1997. Would you like more on the ULF-1.GFA did a fairly long article on it several years ago in Australian Gliding. Every effort should be made to contact the Australians who bought plans to find out how they fared and if any are or have flown there.

I personally have difficulty accepting that any plane can be built in 100 hours. Most builders would waste that much time thinking about it. *John Winckle*

Dear Ed,
It's great to see something like this getting going! Who can afford the $100,000, plus fancy sailplanes these days? And who wants to have L/Ds in the 40s???

Please find enclosed a cheque to the value of $15 for my subscription for one year, also some plans I have of some light weight gliders!!

PS. I got your newsletter Volume 1 Issue 4 from John Biggs who is a good friend of mine. *Jim Jensz*

Dear Ed
Enclosed is cheque for my annual subscription. Please note that there has been a slight change of address:
J.J. Hancock. P.O.Box 136.South Tamworth 2340 N.S.W.

Dear Ed
Here is some material for you to work with. Perhaps you should have a note reminding readers of the old saying "never believe what you hear and only half what you read". We are relying heavily on memory for some dates and events. However, Geoff agrees with everything and I do not think there are too many left to disagree. Regards, *Alan Patching*

Dear Ed
Our son is emigrating to Brisbane in June and we plan to follow him on retirement in February 1998. So my "Blue Woody" will hopefully come out from the United Kingdom as the most traveled Woodstock. If any body has any "Woody" queries my e-mail is **Stockwel@navigator.com** (note only one L). Phone: HK 27704131, Fax: HK 27704131. All the best. *John Stockwell.*

Ed's note: John we think that you should come to Melbourne where the action is (just a suggestion!)

Dear Ed
Thanks for the copy of AHSA. Last year I purchased an ULF 1 almost fully built with an open trailer and parachute. However whilst the standard of construction is very good and the glue joints are sound the previous owner builder allowed water to get into the wings with the result that the ailerons are badly damaged and will have to be rebuilt. Some other water damage has occurred with the wings and at this stage I am not sure whether I will have to rebuild the wings. My plan is to complete the fuselage, rudder, and horizontal stabilizer before commencing work on the wings. Gunter Zeigler of the Whyalla Gliding Club will examining the glider during construction and I hope to get it registered as a glider.

The fuselage, rudder, and horizontal stabilizer appear sound. In constructing the horizontal stabilizer the builder did not follow the plans and I will have to take the D nose off the horizontal stabilizer to strengthen the front spar as per plans.

The original glue used on the glider was resorcinol. However when I rebuild any of the parts I want to use a glue like Epicraft Epoxy Glue (EEG). What I would like to know is where to obtain information on glues, whether EEG is compatible with resorcinol. The article in the last copy of AHSA did not say where the glue could be purchased, or its cost etc.

I have written to Dieter Reich to find out what strengthening is being carried out on the ULF 1 to allow it to be winch launched. I do not think that as presently designed that it would be safe to winch launch the ULF 1.

I will keep you posted on the progress of the ULF 1. Yours in gliding, *John Harris*

MORE ON J. HARRIS' ULF 1

(excerpt from Vintage Times Newsletter)

I have purchased a virtually complete ULF 1 from Peter Buckley of the Wollongong Club. I am hoping to get it onto the Gliding Register. I need to cover it with a light dacron as the existing cover of some type of linen is unsuitable. I intend to strip it back, repair some damage, paint all the metal fittings and possibly have it flying within three months; usually as things happen it will take me double this time to finish off the project. I am really pleased as

I expected that I would be working for 1000 hours plus building it.

The glider comes complete with a full set of plans, a chest parachute, an ASI and a cosim vario, plus a frame to carry the glider that mount on a 6 x 4 trailer, which has a long towbar to carry the glider.

Being foot launched I need grassy hills to launch from with suitable fields below to land on if I can not soar. I will possibly fly down at Lochiel initially, however would also like to fly from the large sand ridges to the north of Port Augusta.

I am hoping to get a photo onto the cover of Australian Gliding when I commence gliding in it. *John M. Harris.*

Ed's note: "EPIGLASS" products should be available from any hardware store or marine supplies. You can write to "EPIGLASS" (Australia) Limited. 9 Birmingham Avenue VILLAWOOD, N.S.W 2163 Telephone 02 9754 1311 Facsimile 02 9754 1354

Dear Ed
Firstly, thanks for a great Newsletter. To some extent I understand the workload involved in producing it, from personal experience on a smaller scale. So please excuse my whinge about membership fees.

I joined AHSA late last year, and received a June 96 Issue 1. Vol. 1. Then this year 97 Issue 4 Vol 1. Two issues? and I am then due to pay for another year, seems like a mistake to me. Hope to hear from you soon. *Rod Dash*

Ed's note: Yes, Rod as you said it was a mistake, please accept our apologies. The Gremlins invaded our distribution system.

Dear Ed
Enclosed is my latest Woodstock article for use in your Newsletter. I have also made copies of prior articles which are on disk. I did not include photos for the earlier articles but perhaps this can be obtained from Dan Armstrong or Bill Poole in already digitized form, which would speed things along for you. It certainly is worth a try, in fact they could probably give you the entire article already formatted and you can throw away what I have given you!

I am interested in doing an article on the removable horizontal stabilizer modification. Perhaps some of your members would be interested in contributing some photos of the removable stabilizer on their Woodstocks. Gary Sunderland has offered the modification drawings to Janice Maupin and I hope to get a copy from her. A lot of builders in this country would be interested in that option as I think the prospect of a bulky trailer is a turn-off for some.

I hear you have taken over on a Woodstock project yourself. Let us know how it goes...Best of luck, and good soaring! *Clint Brooks*

Ed's note: I've already sent the drawings for the removable horizontal stabilizer modification and in this issue you will find an article on Peter Raphael's trailer.

TECHNICALITIES

WATERJET PROFILE CUTTING: ***AN EXCITING NEW PROCESS WITH ASTOUNDING RESULTS***

No single cutting method, neither plasma, laser, nor sawing or machining can provide all the functions and abilities of abrasive Waterjet cutting. When ultra-high pressure water is combined with abrasive particles, a unique new cutting process is created that gives truly astonishing results.

Metals like aluminium, stainless steel, brass and tool steels can be easily cut with precision and without hard-to-remove melt burrs typical of thermal processes, in thicknesses to 100 mm!

Non metals like plastic, glass, granite and marble can be cut just as well. Composites like carbon fibre can be cut with a quality that satisfies the exacting requirements of the aero-space industry.

WATERJET DYNAMICS have the latest computerized waterjet cutting equipment combined with the expertise to take on the most difficult and complex work.

SPECIFICATIONS
Large Bed capacity of 2.7m x 7.0m.
Accuracy to +/- 0.1 mm
Full CAD facilities including DXF (Autocad) and IGES.
Digitizing facilities for samples, templates or artwork.

MATERIALS
Aluminium, Brass, Bronze, Carbon Fibre, Ceramics, Circuit Board, Copper, Fibreglass, Gasket Materials, Glass, Granite, Laminates, Marble, Plastics, Plywood, Polycarbonate, PVC, Rubber, Stainless Steel, Steel and Titanium.

SERVICES
20 years of engineering experience suction-lift equipment for large sheets. More than 120 letter fonts for all signage work.
No tooling cost, ideal for prototype work.
Free consultation: Fax your plans or specifications for our quote.
Service throughout Australia, New Zealand and South East Asia.

WATERJET DYNAMICS
6 Saligna Drive
Tullamarine, Vic 3043
Phone: 9335 1739
Fax: 9335 1741

GLUE COMPATIBILITY
By Gary Sunderland

A builder has requested advice as to whether epoxy glues, EPICRAFT epoxy in this case, may be used for repairs to a resorcinol glued structure.

The short answer is that there are no compatibility problems in using any of the modern aircraft glues. Epoxy may be used near resorcinol, and vice- versa

In fact any of the modern glues may safely be used for repairs to old gliders built with casein,phenol, urea, or any of the other, older types of adhesives.

We did have a problem, many years ago, due to the incompatibility between casein glue, which has a lime or alkaline base, and the acid hardening glues like urea, phenol and melamine. This problem has fortunately gone away, as those old glues are no longer used for repairing aircraft structures.

WHAT'S NEW!

Plans Available for the ULF 1

A plan pack consisting of a complete set of 30 blueprints, a cutaway drawing construction and flight manual (all in English) is available from the designer and prototype builder at the following address:

Dieter Reich
Anechostrasse 16
D81827 Munchen 82
West Germany

Cost as of this writing was DM. 460

1. Payment must be made by cashier cheque or international money order. No personal or company cheque will be accepted.

2. For airmail shipment write to the designer first asking for the correct amount. Telefax 089 439 414.

NEW MEMBERS

We have new members to welcome to the group. They are:

James Jensz - R.M.B. 5100 Wangaratta. Vic. 3678
John Ashford - 6 Griffith St. Bacchus Marsh. Vic. 3340
Gerry Downs - P.O. Box 273 Vermont Vic. 3133.
Dominic Lowe- 42 Albert St. East Melbourne .Vic.3002.
Welcome aboard fellows! We look forward to a long and mutually satisfactory association.

BOOK REVIEW

"GLIDERS FOR ALL SEASONS" By David Craddock

Recently we acquired this book directly from David for the simple purpose of reviewing it. If you are interested in Aviation History in Australia, and gliding, this book is a must.

This is a fourth volume published by David and shows a chronology of Australian designed gliders, the period covered in this volume is from 1937 to 1950 covering the efforts and determination of those local designers and builders pioneers in Australia.

Some of the sailplanes shown in the book are still on the register such as Pelican 2.

Gliders for all season is in A4 format and has 73 pages and you can get one only from the author, A$ 20.00 per copy.

David Craddock.
78 Kent St. Epping. N.S.W.2121.

Others books from the series are:

Volume 1 1868-1918 WOOD WIRE AND CALICO
" 2 1919-1930 PRIMARIES OMNIGENOUS
" 3 1931-1936 MOSTLY SAILPLANES

HINTS & TIPS

THE SPLICE OF LIFE

Jointing of ply sheet in aircraft construction can be as important as hinted at above. If the joins don't stay together the project comes apart and you with it if in the air.

Splicing either ply or solid timber depends on the correct splice angle for the glue line to develop the full strength of the material concerned. This not only is true of ply and timber but joins in fibreglass as well.

Timber splices require 15:1 splice angles. That is the width of the splice is 15 times the thickness.

To achieve this in ply sheets the quickest method is to set out your glue line. Over the fuselage frame or wing rib, mark back the width of the splice and trim the sheet edge to the line over a nice flat, square edged backing board, well fixed in position on your work table. Lay the ply sheet with the edge flush with the edge of the board. Install a couple of staples to fix the sheet in place and with a good sharp wood plane set very fine, proceed to plane the angle of the joint onto the ply. The plane should be used at 45° to the edge of the sheet thereby peeling fine shavings from the veneers without tearing the grain. Proceed until the glue line is to a feather edge at the back of the sheet and exactly to your pencil line indicating the width of the joint. The glue lines between veneers should be equal distances apart and parallel to the edge. This indicates a nice flat gluing face without a round in the surface.

The planed splice area can be sanded with a sanding stick to make sure the jointing face is flat and clean before gluing. When this is done on the sheets to be joined which have previously been dowel pinned in place before marking out it means that the feather edges are precisely in line with the top and bottom of the sheets being joined.

So when glued and stapled in position there will be no step in face levels of the sheets.

Off cut ply strips with wax paper under, should be used to clamp the joint lines with wire staples approximately 30 mm apart. These spread the load and enables a good squeeze out and joint thickness of the glue line.

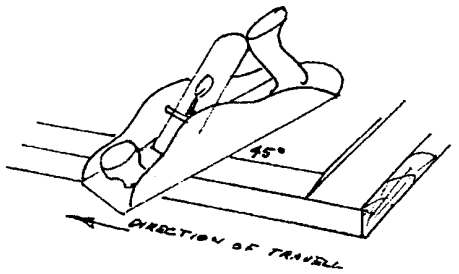
If you are sheeting a double taper wing the joint line will not be a straight line but the same technique can be used. The only difference is the ply has to be moved several times so that the edge of the sheet is supported right to the edge when planing to obtain a flat face for the glue line.

If wing skins are the items being joined and you can not get at the inside of the ply after application you must mark out the glue lines, seal the areas between with a compatible moisture sealant to the glue as the sealer will wick along the grain partly into the glue areas. So if gluing with epoxy use a thinned epoxy as the sealant. Say "Epicraft" epoxy glue and sealer. Don't use shellac or polyurethane and expect the glue line to be good as glues do not stick over these materials. Either could be used on sheet etc., after the gluing is complete if accessible however.

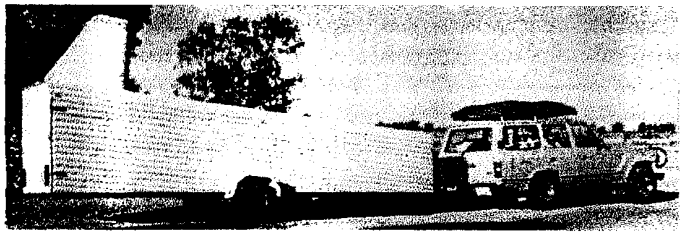
Your plane should have a small mouth, a good hardened blade and be finely honed. This will ensure a nice fine shaving and no tearing of the veneers when used at 45° to direction of travel.

Have a go and see how easy and quick this method is compared to sanding splices.

Best of luck. **Malcolm Bennett**



PETER RAPHAEL'S TRAILER



Jim has asked me to write an article on the construction of the trailer for the Woodstock. While everybody's ideas, resources and regulations will determine their own requirements in this regard the following ideas and methods may help in some small way. As we had elected from the outset to construct our Woody with the fixed tailplane we were aware that trailer design would require a good deal of thought.

Using the 3 view drawing supplied on the Plan Set I constructed a crude three dimensional model of the aircraft and used this to assess a variety of layouts, the emphasis being on the economy of space and satisfying road transport regulations. It was obvious from the beginning that transportation of the fuselage on its side would be the most acceptable arrangement as, like a fin box, half of the elevator could be accommodated outside the basic boundaries of the trailer and still maintain a fairly conventional appearance. Much of what I will describe can be explained by referring to the accompanying drawings

Once the overall dimensions had been settled upon,these being determined by the overall length of the wings, height of the elevator and width of the rudder plus sufficient clearance for save manoeuvering, the frame construction could begin. My base frame was constructed from 4 lengths of 25x1.6mm Rectangular Hollow Section steel joined ladder style with the same material. The bows are 20x1.6mm RHS with the radiused corners being cold formed over a homemade (of course!) square tube bender. These are positioned at the junctions of the crossmembers at, in this case, 1100mm centres. The 'fin' box was constructed as a separate unit and welded on top of the bows before cutting these away.

In the interests of economy and to complement the monocoque style of construction the frame was clad in a high tensile colorbond roofing sheet of a square corrugated profile (Spandek 700), this being obtained in suitable lengths to avoid transverse joins. The floor was installed first, inside the frame and notched out around the bows. The top and sides were clad commencing with a centre roof sheet, this avoided a lap on the radius of the roof and fixes the position of the bows in all planes. These sheets were "pop" riveted to the bows in each valley with 5/32 inch rivets and at 150 mm intervals with 1/8 inch rivets on the longitudinal joins. Silicon sealant is applied under each rivet and under all laps. As this trailer was build with a taper the side corrugations would "run out" along the lower edge, because of this a 25mm aluminium angle was inserted between the frame and the cladding and any voids sealed with silicone.

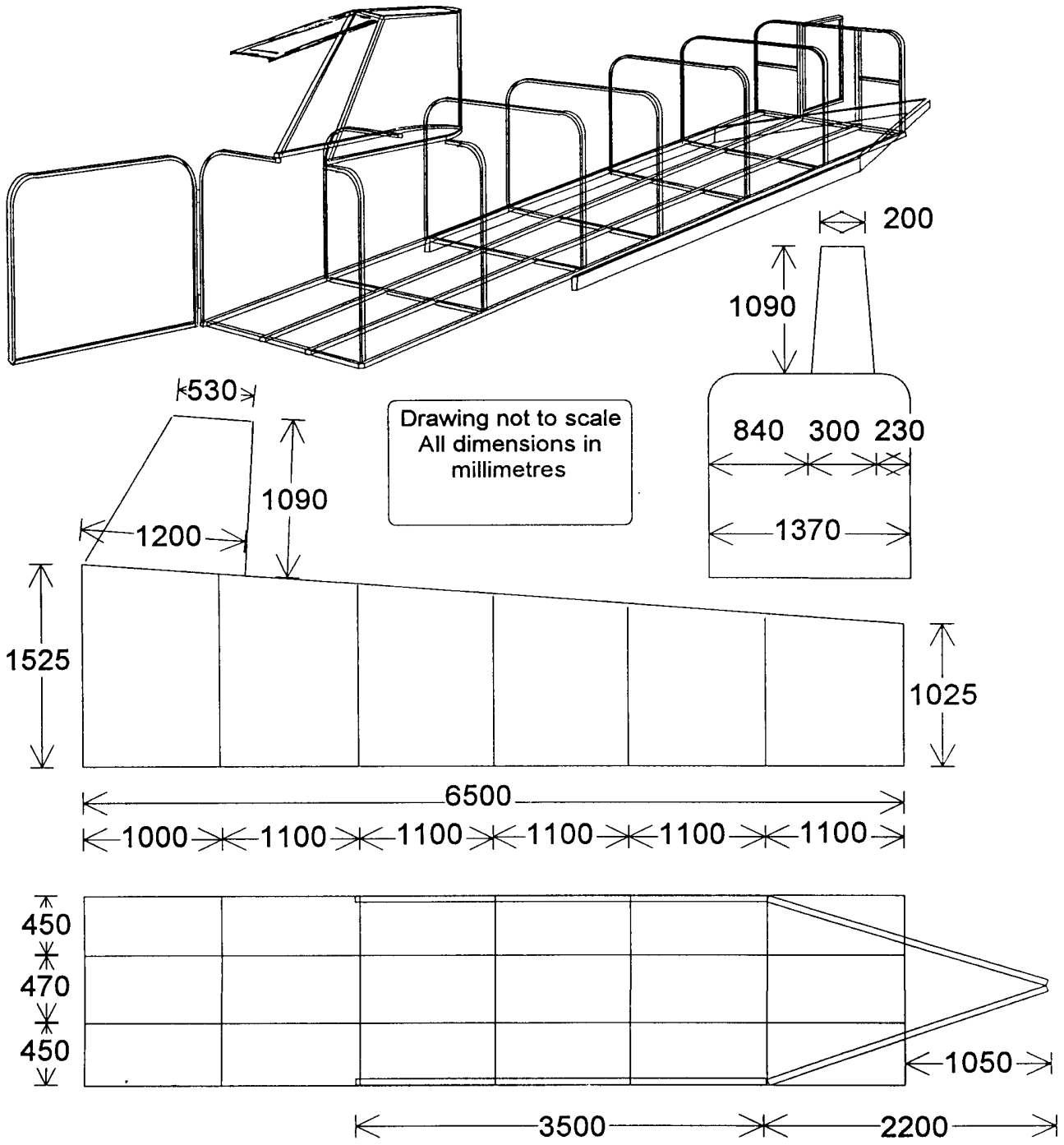
The "fin" is clad in plain colorbond sheet as are the front panels while the back and front doors and the back flap on the fin are clad in exterior plywood.

The axle, hubs, springs, hitch and mudguards were all obtained from a trailer parts supplier. Often the range of associated minor hardware carried by these sources, such as spring hangers and hitch mounting plates, hardly makes their fabrication warranted. This trailer uses a custom width, straight axle with 14 inch Holden rims and 25mm lowering blocks installed to reduce the ride height. An inner guard was fitted to the mudguards which are then bolted to the sides of the trailer.

To support the running gear and provide a drawbar a subframe of 35x 60x3mm RHS is installed under the shell and this distributes the loads into the relatively delicate structure. To determine the location of the axle a pipe was placed under the subframe and the whole lot rolled back and forward to establish a point of balance, the axle was then placed behind this point to provide positive drawbar loads.

Much has been written about what is considered to be the correct load at the hitch and I won't profess to be an expert in this matter, but will defer to experience. In this instance either laden or unladen the front of the trailer is still capable of being lifted by one person although it is certainly heavier in the former condition. Towing under a variety of loads, speeds and road conditions including high crosswinds has not brought to light any unfavorable handling characteristics of the unit despite its unusual profile.

At this point we have a big empty box, ideal for storing all those aeroplane bits cluttering up the workshop. In the next edition I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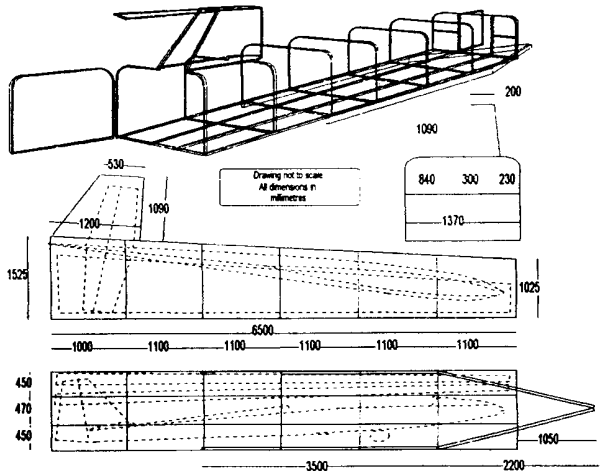
will begin to detail the fittings used to load and secure the glider inside this trailer.



SHOP TALK

TALKING ABOUT AUSTRALIAN HOOP PINE PLYWOOD By Gary Sunderland

Following on from your notes on the Woodstock, printed in the Newsletter of The Australian Homebuilt Sailplane Association, you asked about Australian Hoop Pine plywood.

At one time Hoop Pine was made to a Marine (Structural) specifications, similar to USA marine Fir plywood. This is unfortunately no longer made here, and nowadays all the Hoop Pine Plywood is made into non-structural " decorative " ply for the furniture trade. This looks good from the outside, with quality veneers used, but the core veneer is most likely full of defects.

The adhesive is also probably urea, rather than the phenolic which is used in most marine ply.

On the general subject of timber and plywood substitutions in the Woodstock I would offer the following advise:

1. Builders should follow the designers drawings and specifications where ever possible. The designer put a lot of thought and effort into the selection and detail design of the structure and seemingly small change may have unforseen effects, which are not obvious to others. (***Motto*** - Fools go where angels fear to tread!)

2. If you are forced to make a substitution, obtain engineering specialist advice before ordering materials (Motto. More haste means less speed)

3. Use only specification materials. In the USA and Australia the builder can select out the materials, as an alternative to obtaining an airworthiness tag or release. However the builder should(must ! for safety) work to an aeronautical specification for inspection to obtain airworthy materials.

4. *WOODSTOCK MAINSPAR*
   Douglas Fir should be available readily in the USA and Australia. The best, straight grain material used to be made into ladders! . The marine supplies should have good quality timber.

   In Europe an excellent quality substitute is " Kiefer" (In Germany) or Polish Pine (A.K.A. Pinus Silvestris)

5. *LONGERONS AND SECONDARY STRUCTURE*
   Aircraft Spruce may be used as a substitute, provided it can be increased in dimensions approximately 20%. Spruce is slightly lighter and weaker than Douglas Fir (UCS= 5000 psi. cf D.Fir UCS= 7000 psi) Note that substituting Spruce into Spars would require a lot of analysis and possibly re-design.

   Once again Kiefer could be used as a direct substitute, without any change to dimensions.

6. *MARINE PLY BULKHEADS,RIBS AND FORMS*
   Unfortunately USA marine ply (Fir or Mahogany) is not available in Australia. Australian Coachwood Marine Ply is an approved substitute.

   In Europe Gaboon (African Mahogany) aircraft ply used to be available and would be an ideal substitute. Unfortunately Birch plywood is so much heavier (and stronger) that the weight increase is prohibitive (not just the weight, but also the disposition)

7. *BIRCH PLY SKINS*
   Finnish Birch Plywood is readily available in aircraft grades "GL-1" and " GL-2 all over the world I believe (Note: Do not confuse with a non-structural Finnish birch-plywood marked "Grade II" or "III".

Note: for Australian readers - I have copies of some timber specifications which are available to any builder who needs to select and grade wood for constructing their glider.

Ed's note: Write direct to Gary enclosing a large S.A.S. E. (self addressed - stamped envelope)

WOODSTOCK BUILDERS FORUM

By Clint Brooks

Let me start this article by welcoming the Australian Homebuilt Sailplane Association to the Forum, as this column is now being published in their newsletter too. We all hope to hear from Woodstock enthusiasts down under, and encourage them to send photos and information to be shared in the Forum column. We all have problems in obtaining suitable materials and such, and resources in both countries can be identified for all builders.

It's now early winter in southern California, and once again we're having a lot of rainy weather. The Woodstock project is creeping along, with all the activity taking place on the fuselage and it's various installations.

After removing the fuselage from the jig, I began assembly of the vertical fin and rudder. When I fabricated the vertical fin doubler

that is bonded into the fuselage, I created templates for the fin and rudder spars, which were utilized to lay out the contours on vertical grained D.F. that was machined down to 3/8 thick. The 3/32 birch ply shear webs were also laid out to the templates, I ran the surface grain of the birch ply normal to the spar centerlines. The spar cutouts were laid out and removed using a variable speed saber saw and fine tooth blade for a clean, non-splintering cut. These interior cutouts were finish sanded using a 1" diameter sanding drum in the drill press. I left 1/16" extra on the interior cutout profile to allow the bevel that is cut into the spar edge to result in a 5/8" wide section at the aft side of the spar cutouts. Do a pre-fit of the fin spar blank to the fuselage and the spar doubler before laying out the cutout areas, just to be sure that you will match the area of the fuselage with the 3/32" side skins projecting aft of the fin doubler, and also the existing radiuses area in the doubler. I leveled the tail end of the fuselage by using the aft edge of the upper side of the stabilizer as a datum, being it is a straight line the entire span. I made some jack stand extensions using 1 1/2" PVC pipe with a 'tee' fitting pressed onto one end. These are used in conjunction with automotive jack stands, and simply slide in where the stock jack stand piece fits. These are positioned about half way out on the horizontal stab, at the aft spar edge, and a large clamp is applied over the stab spar and into the 'tee' fitting, and lightly clamped to hold the extensions against the bottom of the stab. I cut the extensions such that the opposite ends are about an inch from the floor, and to level you make a couple of tapered wood shims and wedge them together under the extensions to adjust the vertical axis up or down, depending on what your level shows. One of the setups is used on either side; correct them until the level is the same on both sides of the ship. Now you can use a plumb bob to gauge the vertical location of the fin spar. I marked where the spar centerline should be at the tip end, and held the plumb bob string on this mark while pre-fitting the spar blank to the fin doubler. Make sure to denote which side of the spar is forward, so you don't bond the shear web on the forward side, and have to turn the spar around 180 degrees for bonding to the doubler, as this will throw off all measurements and pre-fitting to the existing fuselage structure, and possibly result in the spar being something other than 90 degrees to the stabilizer. I worked the bottom edge of the spar to match the doubler and side skins with minimum gaps, but left the area above the fuselage longerons a little heavy for cleanup after bonding the shear web on. At this point, establish the rib stations on the forward spar face. During pre-fitting, I established a vertical centerline based on the plumb bob string, and hinge locations were established based on this. The spar width is still a little heavy relative to the rib profile at each station, and this gets cleaned off a little before bonding the spar assembly to the doubler. The hinge holes were pilot drilled with the rudder and fin spar blanks clamped together, to assure coordination at these points. I glued the shear webs on after this.

After the shear webs were bonded, I glued on all the rib blocking to make assembly slots for the ribs, which worked well on the horizontal stabilizer assembly. With the fuselage still being held in the leveled position, I bonded the spar to the doubler and projecting fuselage side skins, checking my plumb line as I applied clamps. Now you have a flexible spar sticking up, to which you will need to attach the ribs and the L.E. cap.

Be very careful at this point, to make the L.E. cap and ribs fit together to the spar with no pre-load, as this will tend to bow the fin spar either forward or aft, depending on the mismatching joints, and you will have an unacceptable condition relative to the hinge line. The spar must be as straight as possible in the unrestrained condition after assembly. I clamped a strip of 3/4" thick plywood, about 1 1/2" wide, on edge to the spar, to hold it flat during pre-fit of the ribs and L.E. cap, and bonding of same. I made my L.E. stock from vertical grained D.F., which was made up of three pieces laminated together in such a way that the slot for the center stab rib was formed, rather than trying to cut a slot in one piece of stock. This was left heavy on both ends to allow tailoring during pre-fit.

I used my glued up 90 degree 'knees' left from the stabilizer assembly to position the ribs to the spar face. The ribs were inserted into the slots formed by the blocking, and the knees positioned against the spar face and rib, then clamped to both to stabilize. A straight stick was used against the L.E. of the ribs, from root to tip, to obtain the bevel angle required on the nose of all the ribs to match the L.E. cap.

I removed and carefully sanded the leading edge of each rib to this angle using the bench disc sander, and checked against my dummy L.E. cap to assure proper fit. Satisfied with this, I used the L.E. cap blank to project the forward and aft surface intersections of the cap onto the upper stabilizer skin, which is to be cut out to allow the L.E. cap to project through the stabilizer to the lower longerons. Obviously this is not a problem if you are building per the instruction manual, you will need to fit your stab skins around the L.E. cap later. I laid out the rough profile of the L.E. cap based on the width of the ribs at the L.E. joint, using the width of the first rib as a constant section down through the stab to where the cap is joined to the lower longerons. Don't trim off any more of the cap profile until the lower end is fitted over the stab and against the lower longerons.

Based on this width, I finished the projection of the cap sides onto the stab skin upper surface, and cut a window into the skin using a tiny circular saw blade mounted on my Dremel tool. Radius the corners of the window to prevent cracks from starting there. My first fit was not perfect, and I gradually had to elongate the window to allow the cap to project through the stab and rest properly against the rib ends (remember: no pre-load!). Once this was achieved, the bottom end of the cap was cut at the proper angle with the lower longerons, having obtained the actual angle using an adjustable protractor. I cut the end of the cap down until the slot over the center stab rib is seated directly above the rib. Now go back and establish the width of the remaining cap profile using the rib noses as gauges. Remove the cap, and cut the stock profile down to within 1/16" of nominal profile. I found that my L.E. stock kept warping as I removed material, so leave a little extra to allow cleanup should some slight bowing occur.

I laminated a block of D.F. scrap to obtain the front and rear blocking for the L.E. cap at the lower longerons. I made the blocks to fill the entire width of the lower longerons and up onto the side skins, although I don't think that much width is necessary, in hindsight. You could probably make the blocking the same width as the L.E. cap, although the drawings don't specify anything in this regard. I bonded the aft block to the longerons and side skins first, with the L.E. cap positioned to gauge the location, using T-88 to fill gaps. I just positioned the block and let the epoxy cure, as I couldn't get any clamping arrangement to work. After this was complete, the L.E. cap was bonded against the aft block and longerons, with the forward block wedged

against it, coated with epoxy. The slot over the stab center rib was coated with T-88, as well as the area of the rib in contact with the slot. A filler piece from the bottom of the stab rib to the lower longeron was pre-fitted and bonded in after the L.E. cap was set in place.

At this point, the elevator will need to be in place, as once the fin ribs are bonded, there is no way to either install or remove the elevator from the empennage. You can remove the hinge pins and turn it up or down a little bit, which will help during covering, but this would appear to be a moment of truth in your efforts. I would go ahead and finish seal any areas of the elevator that will be hard to access later, and install the control horn.

With the elevator committed to it's final resting place, proceed with bonding the fin ribs into place. I kept my straight stock clamped to the fin spar as done during pre-fit, and the temporary support knees in place. The ribs were bonded to the fin spar and L.E. cap, being careful to observe for interference fits that would contribute to pre-loaded conditions.

I left the blocking on the rib L.E. off until after the glue had cured on the initial bonds. The blocks were then pre-fitted and bonded, including the ones at the top of the fin spar to the close-out rib. After all the blocking was glued in, sanding and planing commenced, with the attendant sweating and awkward positions, again inspiring thoughts of ready to fly airplanes. It doesn't take too long on this kind of substructure, really.

There is blocking to be installed between the L.E. cap and sta 182.25, although the drawings don't specify how these are to be oriented. I'm assuming these to be bonded in a transverse direction where possible, although I haven't installed them yet.

I have the slightly elongated hole in the stab upper skin to deal with, but I think the process of building the stab separate from the fuselage worked out O.K., as I thought this part would be the hardest thing to achieve. I plan to fit a 1mm patch around the L.E. cap penetration to close out the area, with the edges of the patch feathered into the existing stab surface. By the time I get a small fillet in place around this junction, the patch will hopefully be imperceptible in the final finish.

Build-up of the rudder was done pretty much as I did the elevator assembly, with the spar bond assembly clamped to the table top to keep it flat. I left the outboard end of the spar a little long, and didn't bond the tip rib on until I had mounted the rudder frame to the fin using the actual hinges, and shimmed 1/8" from the fin close-out rib to gap the rudder tip rib correctly, which was then bonded to the rudder frame while clamped to the fin close-out rib with shim in place.

I have no idea where to obtain the rudder hinges shown on the drawing. I believe DSK used to produce a Woodstock kit, as well as the Duster and BG-12 sailplanes, and these same hinges appear on those aircraft as well. I had two sets custom machined, although this may prove to be somewhat price. I have the second set available if you wish to purchase them, although they are not cadmium plated yet. If you wish to purchase them, let me know, and I'll get you a price with cad plating. If there is enough interest, I can get more made, although it would be nice to know if there would be enough demand to fabricate 20 or so sets, which might result in a slightly cheaper price. Please write to me if you are seriously interested in purchasing the rudder hinges.

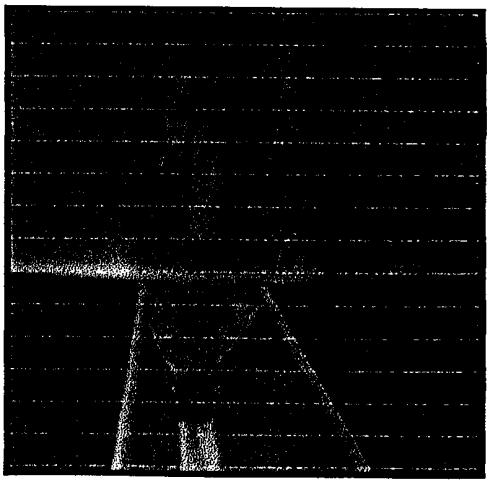
After the rudder frame is aligned and complete, check the faired condition with the fin substructure, and sand to shape using sanding boards. Install hinge doublers, control horn block, diagonal braces, horn, etc. and it is ready to cap with 1mm plywood. I made complete skins and cut out the windows to end up with rib caps, as this seemed quicker than piecing all the strips together as done on the elevator.

That's a wrap for now. Next time I will discuss routing control cables, intercostals, etc. that have become the stumbling blocks of progress on this project.

I am pleased to say that Anderson International Trading in Tustin, CA does indeed stock 1mm birch plywood, although they don't mention it in their price list. It's sold as 60" x 60" sheets, priced the same as the 1.5 mm stock. B&D International in Washington state also supplies this size, so getting some shouldn't present too much of a problem now. I bought two sheets to cover the fin and rudder, but I think two sheets will probably cover the turtledeck in addition to the fin and rudder. Again, Anderson International Trading,1171 N. Tustin Ave, Anaheim, CA 92807-1736, 800-454-6270 or FAX 714-666-0709 and B & D International,1711 S. Center St., Tacoma, WA 98409, 800-222-7853. The two companies are actually sister companies, both started by the people who run Anderson. Check them out, they are very pro-sailplane, as VSA builders utilize their materials quite often too.

Also, the Myers Woodstock is for sale at a very reasonable price. It has been sitting in the trailer (covered and ventilated) at Hemet-Ryan airport for the last couple of years, but looks to be in great shape, although the fabric will probably need replacement in a few years. I wish I could pick it up, but it can't be for now. If you want a flight ready Woodstock, with all accessories, contact Travis Williams at Steve's Soaring Service,909-658-3992 or FAX 909-925-1872, and get the details. At least you won't have to do all that sanding!

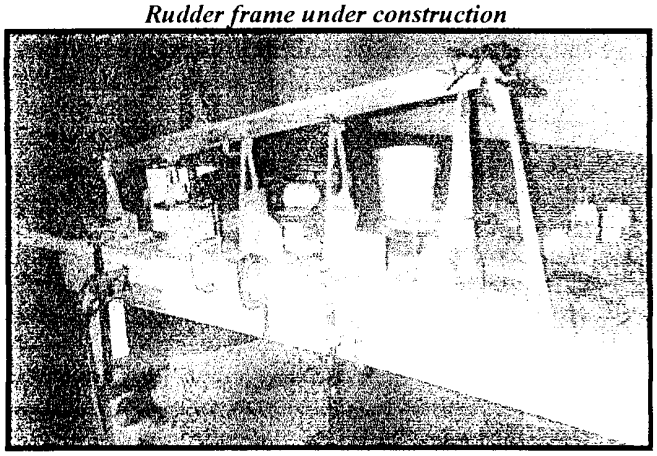
Photo captions



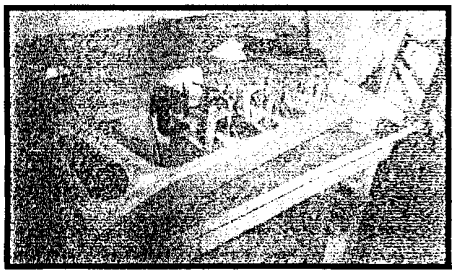
View of L.E. cap and blocking to lower longerons.

Fin substructure sanded and ready for foam ribs and other detail

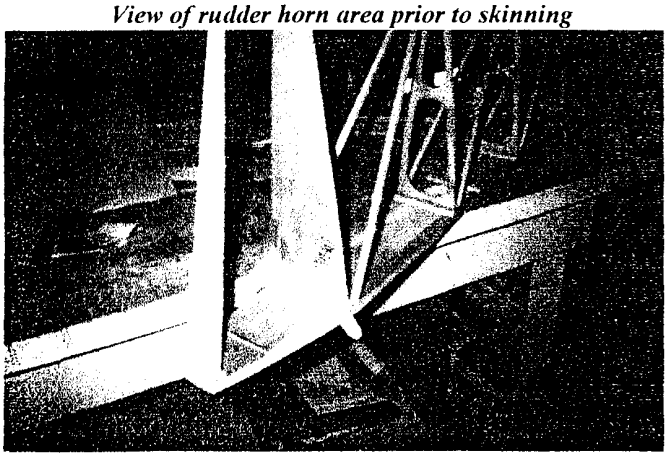
Rudder frame under construction



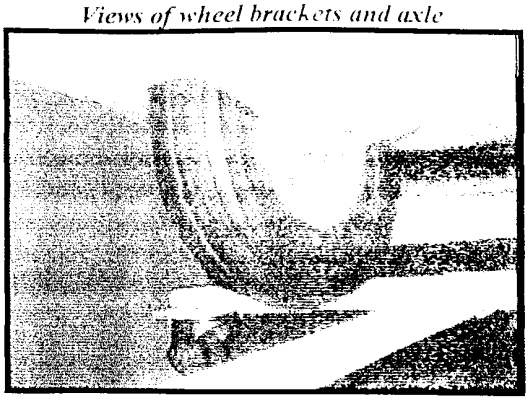
Bonding rudder cap/skin in place. Support the frame carefully so weight of clamps won't induce warping!



View of rudder horn area prior to skinning



Views of wheel brackets and axle



Azusa 5" dia. wheel assy with 11-4 x 5.0 tire (800 lb./8 ply) and axle assembly

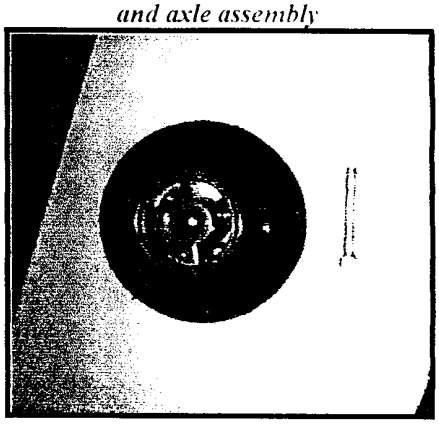


Fig. 1 Axle drawing available from author-send S A S E with return postage for 11 x 17 copy

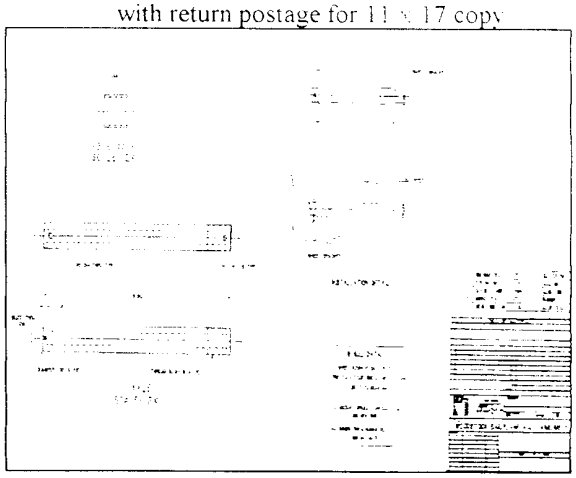
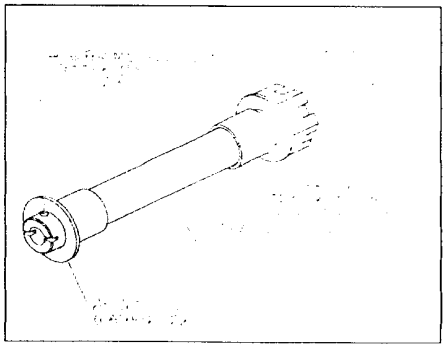


Fig. 2 Axle components as utilized by author on his Woodstock



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All correspondence to:
James Garay
3 Magnolia Avenue
Kings Park, Victoria, 3021 Australia

THE GOLDEN EAGLE

Sixtieth Anniversary

Volume 2 Issue 5 June 1997

Welcome to the Golden Eagle's Sixtieth Anniversary!

On September 26th September 97 we are celebrating the 60th Anniversary of The Golden Eagle and this extra issue of A.H.S.A. is dedicated to this event.
For this humble amanuensis is a great privilege to count in this opportunity with the collaboration of Allan Ash one of the most well known Aviation Journalist.

Allan Ash became interested in gliding in 1942. He spent three years helping to build a glider, then taught himself to fly it. As secretary of the New South Wales Gliding Association, he helped re-establish the sport of gliding and soaring After World War 2. He also served a term as secretary of the Gliding Federation of Australia.

He was co-founder of Australian Gliding magazine in 1951 and edited it for its first ten years. Then in 1981 he resumed the editor's seat and continues to produce the monthly magazine, which is now one of the leading Journals in the world.

As an aviation journalist, he has visited many of the gliding clubs operating in Australia, flown with many of them and written about their activities in newspapers and magazines in Australia. North America, Britain and several European countries.

This special issue have been compiled with the help of a lot of people. I have been fortunate to have the co-operation of Alan and Ian Patching in supplying information and photographs. Also thanks goes to Gary Sunderland for the original drawings and to the servants of A.H.S.A. Peter,Virginia,Eddy,Sergio for the extra work involved in the production of this supplement.

James Garay.

It All Started With Homebuilders....

By Allan Ash

The sport of gliding was established by homebuilders back in the 1920s through the work of individuals and of groups at universities and technical colleges who designed, built, flew and developed all of the early gliders and sailplanes. Most of this home-building took place in Europe.

Then during the 1930s the growth of the sport was sufficient for a few of the designers and builders of Homebuilt sailplanes to turn professional, mostly building single gliders to order. By the late 1940s gliding had grown sufficiently to allow quite a few people to set up businesses designing and building sailplanes.

The increased standard of design and the mass production techniques soon allowed these manufacturers to dominate the market and it was not long before some excellent designs were available to anyone who wanted to buy them.

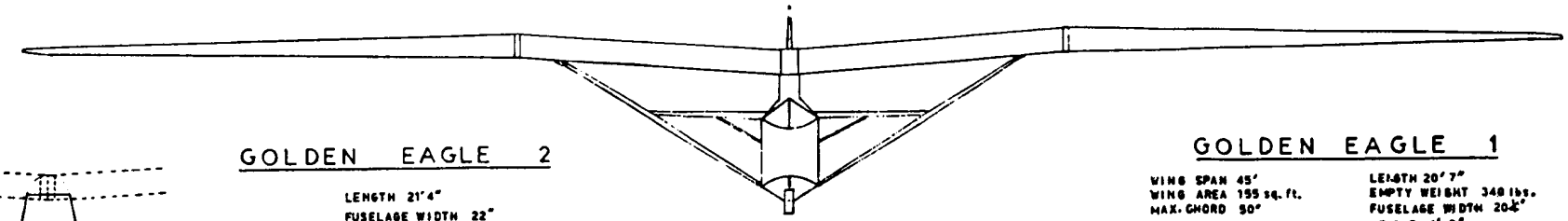
Yet despite the ready availability of these advanced designs from commercial firms, there were always those who chose to design and build their own sailplanes, many of which incorporated some interesting features.

In Australia in the early 1930s there were no commercial builders of gliders other than Percy Pratt's production of small number of Zogling primaries.

Among the amateur builders in Melbourne at that time was a young teenager named Geoff Richardson.

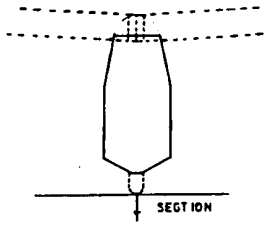
After building a Zogling during 1930-32, Geoff turned his thoughts to a more advanced machine, capable of soaring. He created a design which he called Golden Eagle. Though resulting from his study of the latest German designs, the Golden Eagle was not simply a copy of any existing sailplane, but was a new concept created by the young Australian.

Construction began in 1934 and was completed in 1937. The design proved successful and Geoff generously allowed other pilots to fly his creation in order to extend their experience. Such generosity has always been a notable feature of the home-



GOLDEN EAGLE 2

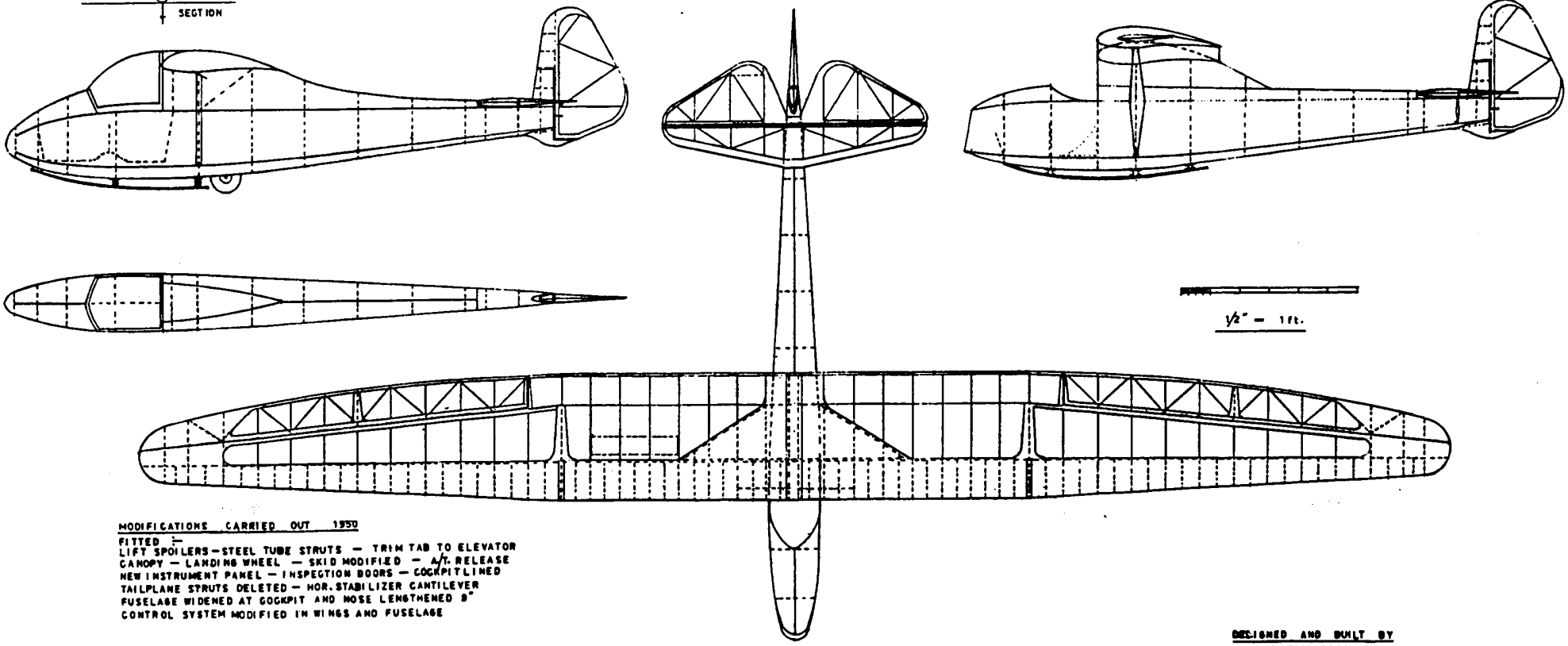
LENGTH 21'4"
FUSELAGE WIDTH 22"
EMPTY WEIGHT 400 lbs.
STALLING SPEED 31 m.p.h.
WING LOADING 3·75 3·87 lbs. s.ft.
L/D 21



GOLDEN EAGLE 1

WING SPAN 45'
WING AREA 155 sq. ft.
MAX. CHORD 50"
ASPECT RATIO 13·4
WING SECTIONS
PARALLEL PORTION 6.535
TIP CLARK Y.H.

LENGTH 20'7"
EMPTY WEIGHT 348 lbs.
FUSELAGE WIDTH 20½"
HEIGHT 4' 6"
WING LOADING 3·35 – 3·5 lbs. s.ft.
STALLING SPEED 28 m.p.h.
L/D 18 MIN. SINK 35" sec.



½" = 1 ft.

MODIFICATIONS CARRIED OUT 1950

FITTED :–
LIFT SPOILERS – STEEL TUBE STRUTS – TRIM TAB TO ELEVATOR
CANOPY – LANDING WHEEL – SKID MODIFIED – A/T. RELEASE
NEW INSTRUMENT PANEL – INSPECTION DOORS – COCKPIT LINED
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FUSELAGE WIDENED AT COCKPIT AND NOSE LENGTHENED 9"
CONTROL SYSTEM MODIFIED IN WINGS AND FUSELAGE

DESIGNED AND BUILT BY
H. G. RICHARDSON
DESIGN COMMENCED 1934

FIRST FLIGHT
26th SEPTEMBER 1937

building fraternity in Australia (and probably in other countries as well)
Today's glider pilots are offered a wide range of really first-class professionally- built sailplanes of amazing performance, yet there are still those who choose to build and fly their own design or the design of other talented people This stems, I feel, from the fact that owning and flying a sleek sailplane is only part of the satisfaction to be gained from the sport Of gliding.

An additional thing is to know that this beautiful bird is the result of one's own skills and careful craftsmanship. The pride of ownership shares the days with pride of successfully accomplishing a time-consuming, expensive and skilled task.

As you read something of the history of Geoff Richardson's Golden Eagle, you should remember that, as the oldest airworthy sailplane in Australia and one of the oldest in the world, it has outlived many professionally-built craft

This is not only a credit to the original builder but also to those many skilled and devoted people who have cared for the aircraft during its 60 years of active flying life.

Who knows? The aircraft you are currently building, or have recently completed, may live as long as the Eagle- perhaps longer ! Only time will tell. It is certainly a goal to aim at.

~~~~~~~~~~~~~~~~

Golden Eagle. The Designer And Builder

By Alan Patching.

Harry Geoffrey (Geoff) Richardson was born in 1914 at Canterbury (Melbourne), and became interested in aviation at the age of 10 when he began to build model aeroplanes.

Following his Technical education at the Brighton Technical School in 1929 (where he starter the Elster Model Aero Club) he built his first Primary glider. This was a slightly modified Zoegling from a drawing in Popular Hobbies, and was finished in 1032

That year Geoff became an early member of the Melbourne Gliding Club (previously and again later called the Gliding Club of Victoria) which flew at Coode Island, home of Larkin Aircraft Supply Co, Pty. Ltd.

Here he flew gliders and powered aircraft, and repaired gliders. Stories of these escapades would fill a book.

At the end of 1932 he was instrumental in having towing releases fitted back from the nose to give greater launch heights.

He realized that if gliding was to progress in Australia then pilots needed to have machines with higher performance, so in1934 started on the design of a sailplane.

The only textbook available was SAILPLANES Their Design, Construction and Pilotage by Latimer Needham, published in 1932.

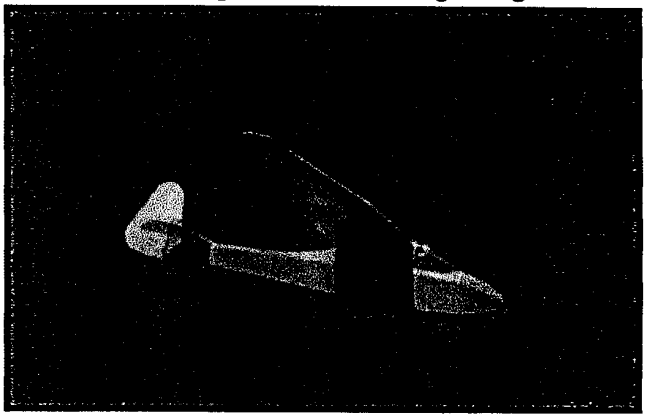
After building the entire fuselage and tailplane in 1934 he visited the University of Sydney gliding camp at Ingleburn during Easter 1935, and saw his first sailplane a Willow Wren. On returning to Melbourne he was so dissatisfied with his own glider that he scraped the whole project.

He then designed and built the Golden Eagle 1.
He continued with the usual activities associated with running a gliding club, such as Instructing, becoming President, writing the Articles of Association and the Constitution, repairing pranged gliders of which there was no shortage in those days, and doing some flying as well. Along with Les Williams he built the first Winch in Victoria after seeing a winch in Queensland. They demonstrated winch launching to the GCV at Beveridge in February 1938. This started Dick Duckworth on the building of many very successful winches, used by a number of club in Victoria. Geoff became involved with Jack and Bill Iggulden in 1938, and they eventually approached the HERON Primary group to join forces and form the Victorian Motorless Flight Group (VMFG) in 1944.

Once again he played a major role in the club looking after all the Maintenance, Instructing, Committee activities, and running a course on glider construction at the RMIT.

In 1950 he completed a rebuild of the forward portion of the fuselage of the Golden Eagle modifying it extensively to improve the seating and fit a canopy.

Geoff tried to get the Club to move on two-seater gliders for training, even offering to build one of his own designs. Three view drawings of these along with the Golden Eagle are given in Vols.



The Golden Eagle in flight

3 & 4 of David Craddock's publications. Mostly Sailplanes and Gliders for all Seasons: The club then decided to obtain a Slingsby T-31 kit from England which Geoff proceeded to build, modifying it with the addition of Spoilers. These were supplied as a kit and became a standard feature on later versions from Slingsby.

The then Department of Civil Aviation decided to bring gliding under their control in 1949, and looked very closely at our method of operating and control. They found that Geo. already had an excellent Airworthiness system in place for Daily and Annual inspections of gliders, unlike the flying training side of Operations. This required them to give Exemptions from the Regulations for Operations, while they unfortunately were able to grant Delegations for Airworthiness, bringing gliding into the Civil Air Regulations.
~~~~~~~~~~~~~~~~

Geoff has always been a source of information on all aspects of gliding, and is currently providing valuable assistance in the 60 year inspection and recovering of the Golden Eagle.

Golden Eagle. Summary Of Flying History

By Alan Patching

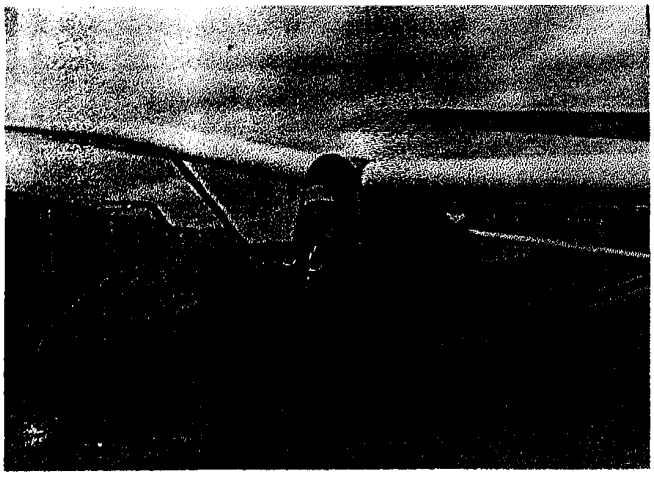
Design of the glider was done in 1934, and construction began in 1935 at Geoff's family home in Brighton, where he had built the primary. First flight was on 26 September 1937 at Laverton. Victoria, when the following six pilots flew the glider: Geoff Richardson, Eric Mc Geehan, Ron Roberts, Ken Davies and Dick Duckworth.

Geoff flew the glider wherever the GCV were operating, with flights being made at Laverton, and Beveridge (Mount Fraser).

In October 1938 he joined with the Iggulden brothers and some others to form a roving Group to fly at various sites such as Ashburton, Reservoir, Essendon, Mordialloc and Mount Martha. The Igguldens later built a mobile winch on the Buick car chassis. Prior to this they had bolted a drum to a back wheel.

The Eagle was flown during the first Interstate meet held on the Belmont Common, Geelong, at Christmas 1939. Eleven gliders were present, including the Slingby Gull 1 from the Sydney Soaring Club.

During World War 2 there was no flying from mid 1940 until the start of 1943, since everyone was rather occupied with the war effort



Alan Patching in the Golden Eagle

Following formation of the VMFG in 1944, a number of pilots were allowed to fly the glider. In 1947 Geoff decided to modify the fuselage replacing the open cockpit, and it was then sold to the

During 1963 the club decided to sell the glider, and its future looked very uncertain, since one prospective buyer wished to fit an engine. However the late John Wallis came to the rescue and purchase the glider and made it available to the Beaufort Gliding Club.

By this time it had amassed a total of 3510 flights for 587 hours.

Beaufort used the glider until the end of 1971, increasing the number of flights to 4268 and the hours to 823. After sitting in the trailer for almost 4 years I took on the task of keeping it airworthy so it would be preserved as part of our gliding heritage.

The only way to keep an aircraft airworthy is to fly it, however I decided to restrict the occasions to Vintage Rallies, Air Shows, and special events such as Club Birthdays. SO IT HAS TRAVELLED AROUND Australia in its 50 years old trailer to Lochiel, Waikerie, Blanchestown, Temora, and many Victorian clubs.

At the end of the celebration held at Bacchus Marsh for the 50 anniversary of the first flight I was given the glider by Betty Wallis, with the undertaking that it will not be sold and will eventually reside in a gliding museum.

The glider now has a total of 4409 flights and 941 hours. The records unfortunately also do not show what Badge flights have been made, however a number of pilots have made height and duration flights and even 300 km distance.

In 1955 it was obvious that the fabric needed replacing, especially since it was over 25 years since the Beaufort members had recovered the glider!!!

Of course the big decision was: is the glider still airworthy? After all it was now 60 years since Geoff had mixed his own Casein glue, using a formulae found in a Swiss publication in the library of the Royal Victorian Aero Club.

I was fortunate to have two excellent assistants : Geoff Richardson designer and builder and Jim Fullarton who got me into gliding helping him build the Heron Primary glider.

Apart from some obvious water damage the structure looked OK , and gussets were still firmly attached. Then we found a manufacturing error!! For 60 years the Eagle has been flying without a block under one of the hinges in the aileron box spar. This provided us with the opportunity to remove plywood from spruce. THE GLUE IS STILL STRONGER THAN THE WOOD.

Even Gerry Downs commented that there are gliders flying that are in worse shape than the Golden Eagle. The glider has been recovered using the Stits scheme, and is receiving the final coat of paint.

As may be expected there is a restriction on who flies the glider because it is nothing like a modern glider in some respects. The ground run is extremely short, it rather leaps into the air, an since it mainly launched on the belly hook it requires a lot of forward stick. However it is easily controlled with balanced ailerons and elevator. The rudder is heavier and slightly overbalanced. As may be expected the speed range is small-mainly because the glide angle gets rather steep and the noise level gets louder as the speed increases. The trim is quite effective and it is easily trimmed out over the current speed range from 40 mph stall to 90 mph maximum. The landing approach is very easily controlled with the spoilers, and spot landings are a pleasure.

Nowadays the glider is restricted to steep turns, spins and side slips, only because we wish to keep it flying as long as possible.

Prang And Rebuild

By Alan Patching

Often pilots say Is not the" Eagle like Grand dad's axe? " and the answer is NO.

The wings are virtually the same as when they were built, as is the empennage, however the fuselage has been modified forward of the main bulkhead. The first significant damage occurred in 1940 when Geoff was trying to land at Ashburton and some spectators had wandered into his landing area. To avoid them he had to land in among small trees inflicting some damage to the leading edge of the right wing.

Prior to this Jack Iggulden had brought back some Tea-Tree leaves in the left leading edge of the tailplane at Mordialloc in 1938. There were no further incidents until a landing accident by Hugh Fry at Mordialloc in 1947.

Geoff decided to make some improvements while doing the repairs. Golden Eagle-1 had a bath tub nose with a small windshield, wooden wing and tailplane struts, and a landing skid. The forward portion of the fuselage was redesigned to include a blown canopy, and a more comfortable seat shape. The Tailplane struts were removed after modifying the attachment fittings.

A wheel was fitted and the landing skid shortened.

There were also a number of changes to the control system:

Ailerons chain drive replaced by cables. Spoilers were fitted to the upper surface of the wings. Elevator mass balanced. Trim tab installed in the Port elevator, activated by an ex-Mustang trim wheel in the cockpit, and an ex- Boomerang screw jack in the rear fuselage.

Top hinged, adjustable rudder pedals were fitted. A standard size Ottfur release was fitted for winching, leaving the small Richardson one for aerotowing.

Unfortunately the Log Book does not contain all the necessary information to give dates, but during its time with the VMFG there were at least two landing incidents when repairs were made to the nose of the fuselage. The first time Ian Thompson outlanded in a small cow paddock ion the Kiewa Valley, and then Don Brown landed in thistles at the end of a 300 km flight from Tocumwal, just prior to the first Nationals in 1956. Both repairs were done by Harry Schneider at Parafield.

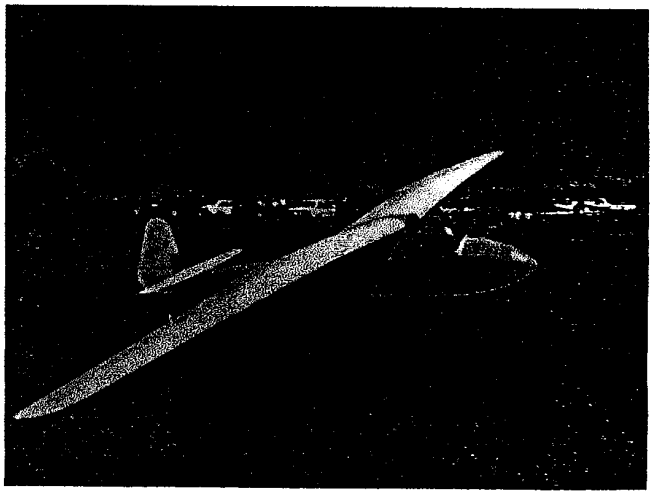
Replacement of the skid was a frequent action, and I had jigs for the T-31, ES-52, and Eagle at home, and we spent many evenings making new skids. The wooden wing struts had been replaced with streamlined steel tubing in 1955, as this was considered to be more appropriate for the club usage.

In 1960 because the Civil Aviation Authority was so opposed to glued wooden structures we decided to Proof Load the wing.

Ted Hurst built a dummy fuselage at the Igguldens factory, and the Aeronautical Research Laboratories agreed to make their facilities available. Club members and officers of the DCA loaded the wings with shot bags one evening, and it successfully withstood the limit loads of 4.0 g CP Forward and 5.0 g CP Back. However because it was, and still is the oldest sailplane flying, it was downgraded from semi-aerobatics to normal category.

During service with the Beaufort Club there was no damage, however the glider was completely recovered in 1970, and Doug Lyon fitted larger spoilers.

The next major over haul was the inspection in 1987 after 50 years of flying. During storage in the trailer water had entered the



The Golden Eagle nesting

main spar through a breather hole on the rear face, and left through the front web. This was only found after cutting an inspection hole in the forward section of the root rib. Access was gained through the lower surface of the leading edge, and the damage was found to be confined solely to the web between the two vertical members.

The casein glue was in perfect condition. Root end fittings were removed along with the wing attachment fittings on the fuselage, and were found to be in good condition, however the same could not be said for the cadmium plated bolts. There were some broken nose ribs near the root end of both wings, most likely caused by lifting the glider.

The only thing I have heard about the Golden Eagle that could be considered bad was its lack of penetration into anything other than a good tailwind..

As all of my single-seat flying had been done in aircraft with performance better than 32:1, stepping into a glider with a glide ratio of no more than 18:1 was a big step , backwards

I was reassured with the knowledge that many people had flown the Golden Eagle before me, and it its only accident had resulted in the nose being reset into its present form. It is amazing what they could do with ply-wood surgery in those days.

After negotiating the parachute and entry into the cockpit, my size being the main problem here, I found the seating to be different, to say the least

Sitting bolt upright, it was only possible to be comfortable for a couple of minutes. (I will always regard people who have flown in this seating position for longer than 5 hours as true masochists.)

Then again ,perhaps we have become a lot softer in our attitudes to gliding in general over the years, and these people should be regarded as the true enthusiasts.

In the cockpit, all controls fell neatly into place and very easy to reach and operate. After familiarizing myself with the layout I was ready for more advice. As I was to be launched by aerotow, the main concern was the location of the release hook, in the CG position. Even with my weight I was briefed to keep the stick well forward once airborne to counter the tendency to assume a winch launch attitude.

This is only natural, as the glider was designed when no aerotowing was done in Australia. My secret belief is that the Golden Eagle has done so many winch launches that she figures that this is the only way to launch. All talking done, it was now time to go.

On tow I found the glider stable and although a large amount of forward stick was necessary, it wasn't too extreme. Release was normal.
As the glider slowed down after release I found it remarkable easy to fly. It was almost gentle to handle, with big control surfaces to give plenty of feel.

I found a thermal and up we went, just like its feathered namesake. After gaining plenty of height it was now time to set off and se just how far we could go. That question was answered quickly. At an indicated 50 mph into wind, (I was briefed not to go to far downwind), combined with some reasonable sink, I was soon down low and looking for more lift.

Finding the next thermal in time, and beginning to climb, I was rapidly throwing all the up-to-date theories (like 1000 feet to 1 mile and flying faster in sink) out the canopy window, and replacing them with new (old?) theories like 3000 feet to 1 mile and if you strike sink turn around and find the last thermal.

I was beginning to see why not many people have flown the Golden Eagle on long distance flights. To those who have, I dips me lid .

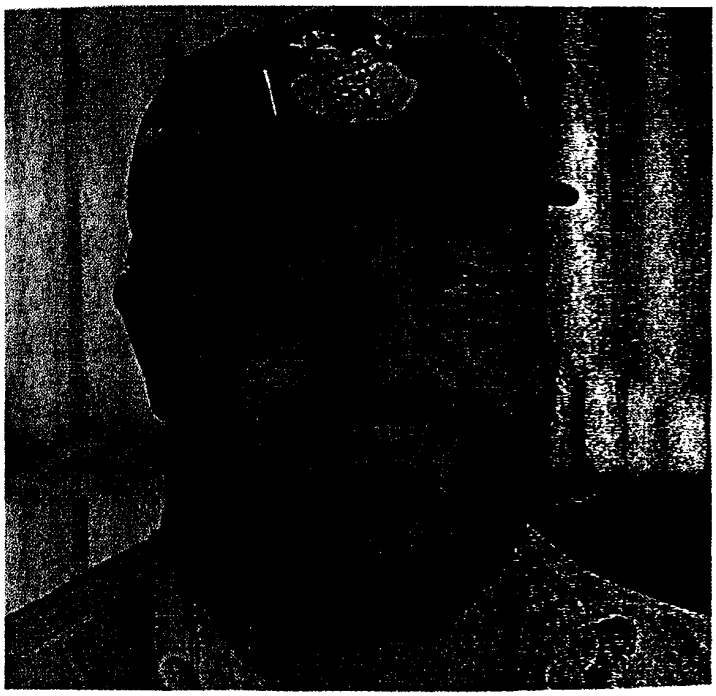
After spending 90% of a 2.1/2 hours flight going in circles and my backside well past the numb stage, it was time to go down.

No problem here. Just find sink, speed up and descend like an elevator. The circuit was interesting. None of this easy setting up of circuit plan and do it, usually using airbrakes on base to get down; no way. I had an overwhelming desire to keep crabbing towards the field on down wind. For those of you who don't know Blanchetown, the areas adjoining the field aren't all that conducive to landing short, or next to it, so I was being extra careful.

Turning final I was pleased to find myself well positioned, just inside the boundary fence. Touch down, with the help of a good head wind, was the slowest I've ever done and it gave me the feeling that I could have got out and walked it on the ground. Getting out was difficult and it took some time to straighten up to normal again. This give me time to reflect on my first ride in the Golden Eagle, and to realize how good she is.

It also gave time to think about the people who have flown her over the years, people like the Igguldens, Reids, Ron Roberts, Rupert Brown, Alan Patching and many more; also Geoff Richardson who build her, and John Wallis.

I feel now some of the thrill they would have experienced the first time they flew her and I feel part of their fellowship.



Ian Patching