THE AUSTRALIAN HOMEBUILT SAILPLANE ASSOCIATION

Volume 1 Issue 1 **June 1996**

EDITORS CORNER

Well people, this will be my last "Editors Corner" after sending out a call for a new editor not so long ago, we now have a new "butt in the chair" so to speak.

Your new editor will be a new member who joined our group at the regatta that was held in January, his name is James Garay from down Melbourne way. He is currently building a Woodstock. James had no hesitation in putting up his hand to take on the editors job, this kind of enthusiasm is very good to see and it's just what we need to keep the show on the road, so he gets a BIG THANKS from me and I'm sure you all feel the same, so my request to you all is to keep sending in reports on what you are doing or not doing, ideas you come up with or good yarns you find to talk about, remember, we are all interested in what you have to say so please help James in his new job and make it easy for him to bring out interesting and informative newsletters for everyone to read and get enthused about and then race out to the shed and stick that up-and-coming flying machine together and get it in the air. I hope he gets lots of mail!!!

I would like to thank all the members who have contributed in so many different ways to help our group slowly but surely grow during the time since I got all fired up to get our group going until now, I have had fun but due to growing commitments elsewhere I can no longer do the editors job. This doesn't mean I'm out of homebuilding, my Woodstock will still get finished one way or another even if it does take a while!...so if anyone still wishes to contact me they can feel free to do so.

Well that's about it for now so I'll hand you over to your new editor, bye for now.

Mark Stanley

Inside This Issue

From your new editor....

You have just been reading the last editors note from our founder Mark Stanley. It was a sad moment for the H.S.A when we all heard that Mark was not able to continue as editor. He has devoted much of his time and effort to get the Association up-and-running that it seemed like a pity to hear that the H.S.A might cease to exist if no one wanted to take over as the newsletters editor....so, here I am.

Mark is still assisting me where he can...thanks Mark!...so together we are producing this newsletter.

This is your newsletter so I will need all your support in the form of letters, articles, contributions, etc., etc. You will note that we have changed the name of our newsletter to "THE AUSTRALIAN HOMEBUILT SAILPLANE ASSOCIATION" so please direct all mail to the editors address below:

James Garay
3 Magnolia Avenue
Kings Park, Victoria, 3021 Australia

We are a small group at the moment but we are growing larger in numbers as new memberships keep pouring in! I have divided the newsletter in various segments where you can lodge your comments.

Mail - your letters with constructive points of view in any topic concerning our association.

Shop Talk - this is your section and a good place for any member projects, ideas, progress news, etc.

Technicalities - the title says it all, any technical aspect on homebuilt sailplanes.

Tips and Hints - will hopefully get a few people to send in ideas on how to fix some problems and good ideas on how to make things easier!

James Garay

Mail Box...

Dear Ed,

I am enclosing a cheque for membership in the "Australian Homebuilt Sailplane Association".

The bank said it was the appropriate exchange rate, if it is more please let me know.

I presently own a Condor Ultralight (a copy of a MX-Quicksilver) and a "Windrose" motor glider.

I fly the ultralight frequently, wind permitting.

I am located in Fallon, Nevada, 60 miles east of Reno on RT.50, we are 4,000 ft up so we get a lot of windy days.

Also we have some of the best wave and thermal soaring in Minden N.V. about 80 miles from where I live, that is near Lake Tahoe.

I have never flown the "Windrose" because I do not have a glider pilot license. I did not build the "Windrose", I bought it finished.

The glider has to be enlarged in the cockpit first. I am a little over 6 feet and weigh 200 lbs. The weight is fine but my shoulders are too wide.

I can get in it but I think it would bother me in a short period of time.

I retired last September and I'm thinking of building a "Carbon Dragon".

I purchased a set of plans, but I have my doubts about the clarity of them for a beginner (old people are cautious, ha, ha!).... Well, I have rambled on too long, as usual (old people ramble too).

Looking forward to your newsletter!.

Respectfully yours,

Jerry L. Conner
800 Sage Lane
Fallon, Nevada, 89406 USA

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Dear Ed,

Gympie Soaring Club wishes to advise that we will be hosting a National Vintage Glider Rally, 13th-19th October, 1996 (Gold Rush 96).

The President and Committee of Gympie Soaring Club have directed me to extent an invitation to all members of the Australian Homebuilt Sailplane Association.

For details please contact Ron Baker, Rally Organiser,
Unit 11, 1 Rock Street Scarborough, Qld, 4020
Tel: (07) 3203-8318.

I can assure you that we intend to give you all a great time!

Check out the programme in the next column for details.

Provisional Programme

Sat 12th	Evening Welcoming BBQ
Sun 13th	Opening of Rally by Gympie S.C. President
(Day 1)	Vintage flying. Evening meal - DIY/BYO
Mon 14th	Vintage Flying - possible cross country task
(Day 2)	Evening meal - Chinese night out
Tue 15th	Vintage flying - possible cross country task
(Day 3)	Evening meal - BYO/DIY
Wed 16th	Day trip to Caloundra Air Museum
Rest Day	Evening meal - Sea food-n-salad
	Live entertainment (Note : GSC Club flying day)
Thu 17th	Vintage flying - possible cross country task
(Day 4)	Evening meal - DIY/BYO
Fri 18th	Vintage gliders dawn to dusk flying
(Day 5)	Evening meal - Gympie pub grub
Sat 19th	Concours d'elegance - trailer event
(Day 6)	Last vintage glider flights
	Formal evening dinner - prize giving
	Live entertainment. End of rally

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Dear Ed,

You might (or might not!) remember we met at the Vintage Regatta at Ararat in January. I meant to ask you about overseas membership of the Australian Homebuilt Sailplane Association but somehow never got round to it. I would be interested in subscribing to your newsletter.

Meanwhile here are a few odds and ends on the Duster and Woodstock which might interest you.

When I left Ararat I went to Dalby where I met up with John Stockwell who I hadn't seen for 18 years and had last touch with. I don't know if you are aware but he has built a Woodstock in the 15th (or so) floor flat in a Hong Kong apartment block! He's getting it approved via the British Gliding Association and it may well have flown now.

I don't know the guy who made the Woodstock described in the accompanying article.

Considering the number of gliders and glider pilots in the UK we aren't too well off for homebuilts - in marked contrast with powered homebuilts.

The only UK homebuilt gliders I've managed to fly are a Gull 3, built in 1992 - only the second one built. The first was built in 1940! The nearest thing like it in handling I can remember was a Hall Cherokee (which I flew in Australia) but it needed far more rudder than anything I've ever come across. The Swallow built in the 60's which I flew in Kenya - it had an enormous ground adjustable tab on one aileron to correct a wing setting defect. I didn't dare stall or spin it.

Looking forward to hearing from you, happy landing!

Terry Gerard
6 Welburn Grove, Ormesby, Middleborough
Cleveland TS7 9BN England

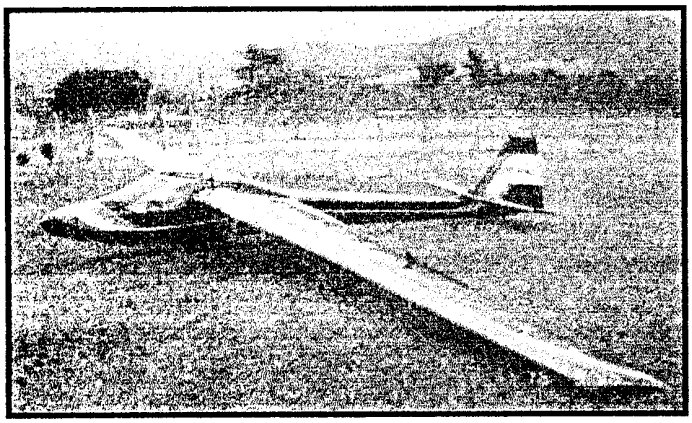
Yes!! we also got letters from the other part of the world (we mean the upside-down one) this time from the President of the United States of America...? no! no! just kidding! from Bruce Carmichael, President of the USA Sailplane Home Builders Association telling us that he recently self published a book that might be of interest to our readers. It covers drag reduction and performance enhancement of model, human powered, ultra-light, sailplanes, racing planes, private and business aircraft primarily through natural laminar flow techniques. This seems like a good book to read, and the review is in this issue.

The Editor

Shop Talk...

Dear Ed,

Apologies for not writing sooner and giving your regular updates on "John's Blue Woody". I guess you looked at the pretty picture before reading so you'll realise that at last she's finished.



She came out of our flat on the 15th floor of our Hong Kong highrise on October 25th at about 3pm which was a bit of an anti climax as a team of non English speaking coolies arrived and after much gesticulating and yards and yards of rope it was heave ho and over the balcony she went in three net packages in quick success. As the first wing went I had a big swig from a convenient whiskey bottle!! (four years work swinging in the wind!) and a few minutes later at ground level and much to my surprise it arrived absolutely undamaged. In quick succession the other wing and then the fuselage arrived to a chorus of "oohs" and "ahhs" from the assembled children who appeared even though it was mid afternoon and they should have been at school. One hour after the removers arrived in my flat we had her snuggled down safely in the hangar at the aviation club and my wife and myself spent the remainder of the evening showing her off to a few friends and celebrating with a bear or two (understatement). I've since learnt these guys are experts in moving grand pianos the same way so my lightweight structures were no problem at all.

Since then I've been busy apart from a gliding holiday at Sunstate Soaring in Dalby QLD which was a near disaster with only two flyable days out of ten due to the torrential rain (I think its all a big conspiracy by him upstairs to turn me into an "alkie").

Back to my Woody, the rigging all went pretty smoothly, with tips only being out of alignment by two inches or so on initial rigging, but tell me, do you know any one who has solved Jim Maupin's riddle on the connection of the spoiler cables??

The only problem, and I think the most difficult part in making the complete glider was firstly the canopy frame making a really good fit and then even more so fitting the perspex. I had purchased a perspex cap from the States and though it would be no problem bending 1/8 perspex as suggested. WRONG. Its too big to warm up properly so I gently bent it. I nearly got it!!! Does anybody want two pieces of funny shaped 1/8" perspex? So, I tried something a lot more flexible and purchased half a sheet (4'x4') of 1/16" Lexan. This went on beautifully and I was really pleased with the end result. However its only 1/16 thick, and I though very susceptible to hangar and trailer rash, so thinking cap on, instead of just a cotton canopy cover I'll make a really good fibreglass canopy cover with a quilting inside. A good thick layer of newspaper, cling film and three layups of fibreglass, great, call it a night and retire to the bar. The next day, remove the cured canopy shell (perfect), remove all the paper etc.

"Oh S...T" The complete canopy was cracked in a thousand pieces. I think it was either the fumes or more likely the heat generated in curing had dried out the water in the Lexan causing stressing and resulting in the 1,000 cracks, each very neatly spaced and about an inch or so long. So attempt number three, successful, but I'm not really pleased as I don't think its up to the overall standard of the glider. But, the fibreglass canopy shell fits beautifully!! Perhaps one winter after she's flown I'll get down to making my fourth canopy.

And then there's the spraying!! Until now my spraying had been limited to using foam spray for shaving (and occasionally using my wife's mousse by mistake) and spraying Christmas tree silver from an aerosol can. As with everything else in homebuilding you learn as you go along, the fuselage was OK and the wings much better, then I got ambitious. A bit of decoration to liven it up, multi coloured lines opening up at the ends, a few drawing slots of masking tape and we started, despite all my preparation I ended up with the little spiders along the edges, but after hours of preparation I'm now quite pleased with the results.

Generally speaking it's been up to Jims plans except for the following:

The tailplane has been made removable according to plans submitted by Mr Davis, and approved by the Australian GFA, but with minor modifications as I am of the opinion that the plans were drawn up after the modification was incorporated!

A Tost release hook has been incorporated, with the release cable going vertical then through a pulley to a release on the instrument panel.

To improve fuselage stiffness, the curved rear fuselage decking has been carried forward to the trailing edge of the wing, resulting in a shorter turtle decking with a slightly greater slope.

Due to the unavailability of suitable douglas fir, aircraft grade spruce has been substituted throughout. This was obtained from Wicks aircraft suppliers.

Minor modifications, non structural, to personalise,

i) Nose cone made from cold moulded ply instead of fibreglass
ii) Fibreglass moulding over tailplane/fin/fuselage join
iii) Instrument panel revised for better leg room (Basic panel of ASI, Altimeter and Cambridge CAVII variometer)
iv) Seat made from 3/8 ply, with no adjustment (fixed for me)
v) Battery box incorporated forward of F15
vi) Pulley mounting brackets redesigned by substituting ½" x ½" solid aluminium bearers instead of tubing
vii) Tow extra pulleys incorporated in rudder circuit at the rear of the fuselage
viii) Extra supports incorporated down the rear fuselage to support elevator cables
ix) Improved sealing between rudder and fin.
x) Two small aluminium pieces incorporated to improve location and holding in place of main wheel which is a 4" Azulite composite wheel to replace "go cart" wheel suggested on plan.
xi) Spoiler actuating cables to modified system at wing root assembly, as I couldn't understand the plans, and every builder of a Woodstock seems to have done it differently.
xii) Elevator and aileron hinges, extruded aluminium hinges substituted for steel hinges shown on plan. Hinge pins locked in position.
xiii) Hand held radio, Delcom installed in a small upholstered hole in the floor on the right hand side of the cockpit.
Canopy increased in height to fit big heads.

I'm quite prepared to send photos and details to any Woodstock builder who cares to write. So when it was finished the final weighing, how can it be so overweight?

The extras I can account for are, and their approximate weights are as follows:

1.	Solid 3/8" ply seat back	2lbs
2.	Cushion	2lbs
3.	Radio	5lbs
4.	Battery installation	10lbs
5.	Tost release	5lbs
6.	Steel work for tail mod	3lbs
7.	Extra fuselage stiffening frame	2lbs
	Total	**29lbs**

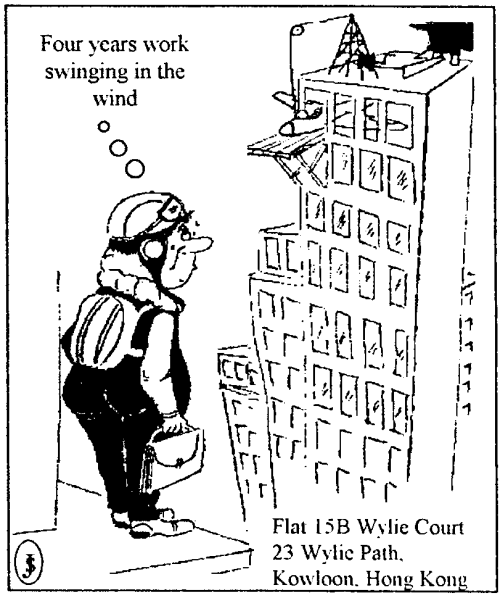
My empty weight including the above comes out at 301.5lb which still leave me overweight by some 37lbs which I can't account for. When I do all my calculations I come out at with a minimum weight of 188lbs and a maximum weight governed by 5g limit of 148.5 lbs!!. Anybody out there have similar problems or a solution?? Out of interest the total man hours involved was 1,850, a little over the 500 to 1,200 quoted by Jim in his sales brochure, but then his pricing was a bit out as well.

As I mentioned previously I've done all the work except for bending, heat treatment and welding of steel and the subsequent cadmium planting which I had done as a favour from a local aeronautical engineering company. Nothing annoys me more than people assuming that it all comes in a ready to assemble cardboard box with a next comprehensive set of instructions, and one of the most common questions I'm asked is "did this come with the kit?". If they only new.

So now its making a big crate to send it home to the UK where I hope it will grace the skies of Derby and Cornwall from July onwards. My crate will double up as the trailer once I'm home and one big advantage of the detachable tail mod is that it all fits in a very neat 20 x 4 ft box which is 4 ½ ft high at one end and 3 ½ ft at the other, all ply, empty weight about 300lbs. I have written to your GFA to enquire if I could do my first flights in Oz, but I guess it's too difficult a question, as at the time of writing this letter I've not received a reply!! (If a copy of your mag goes to the GFA this might provoke a response).

John M. Stockwell

"John's Blue Woody"



BUILDING A WOODSTOCK by Richard Harvey an excerpt from the Sailplane & Gliding Magazine Aug/Sept 1993, kindly provided by Jerry Gerard.

Richard may have spent many leisure hours over four years at his workbench but he has emerged with an impressive new glider costing about £7000.

It all began in August 1985 when my wife's birthday present of a glider flight hooked me forever. On January 14, 1988,

after 66 training flights, I soloed and ten flights later moved on to the Swallow. But standing for hours in the queue for club machines my thoughts turned to a glider of my own. As something of an individualist the syndicate system did not appeal and suitable second-hand gliders proved elusive, so I though "Why not build one?"

After a few weeks searching for suitable designs I found Woodstock in **Jane's All the World's Aircraft** and wrote to Jim Maupin in the USA for further information. A few weeks later a pack arrived which included a photograph of our own Derek Piggott flying a Woodstock in the States. My search was getting warmer and I was not discouraged by Derek's well-meant advice to buy an old wooden glider and spend my time flying it rather than building one. Of course, I didn't listen but, he advised, if build I must it might as well be a Woodstock. So I ordered the plans - all fifteen sheets of them - and asked the BGA if anybody else in the UK was building one, but I was on my own!

After much thought about my self-imposed task, I decided to go ahead under the scrutiny of Stu Hoy of Anglia Sailplanes, a BGA approved inspector.

By now I was committed (perhaps I should have been!).

The next task was to find the right building materials. I had no aviation background and, consequently, no suitable contacts, so back to the S&G advertisements and the telephone - my bill soon began to resemble the National debt. I talked to many people about building materials - plywood, bearings, bolts etc. All were anxious to tackle, even those from whom I was not buying, and their advice was invaluable. My wife Rosemary and I decided to collect as many of the materials as we could and, in consequence, met many interesting and helpful people.

Construction proper began in January, 1988 with the wing spars which my log shows were approved by Stu that May. The wings took a year to build and then the fuselage was started. This was built upside-down and in August 1989 was turned the right way up for the top decking to be fitted. By this time it was possible to sit in the glider and I felt it necessary to do so at least once a day. In fact a considerable amount of time was spent sitting in the embryo cockpit contemplating the future. Prospective builders be warned, such reflection can add considerably to the total building time.

As an ex boat builder with an aversion to glass-fibre I did not enjoy making the nose cone. Lying on the floor up to the armpits in resin I was a low point in the enterprise.

In the summer of 1991 we moved the fuselage to the front garden to fit the wings. Now a glider in the front garden is not a common sight and is included to attract passers by who want to talk - and - talk - and talk. This and the wind and rain slowed the job considerably. Indeed the more the glider appeared to be nearing completion the longer it seemed to take. The basic structure was complete by November, 1991 when Stu and I covered the machine with Ceconite. Litte did I realise that I was still a year from completion.

The newly covered Woodstock now required a trailer, so Rosemary and I popped over to Schofield's to look at second-hand ones after which we decided that we did not like wooden trailers anyway so, you've guessed it, we bought a Schofield kit and made our own. Our son Mark and I towed it home on December 1 and as there was no room for it in the garage we had to build it outside. As usually happens when you have to work outside, the weather decided to be foggy and frosty. Handling cold aluminium sheets was an unpleasant task for my neighbour Ron and me but we completed the job in two weeks. Matching the trailer to its glider proved a laborious and time consuming task.

Mark's boss allowed the use of his spray shop for a weekend, which was long enough to complete the painting. The glider was finished - well almost!

There remained the problems of getting the glider airborne. Stu Hoy weighed it and, of course, it was overweight at 296lb, despite its being considerably lighter than most single-seaters. But the BGA was kind enough to grant us a permit to fly and, on December 12, 1992, the intrepid Jeremy Moore did so.

If you should consider spending four years of your own and your family's life on building a glider then I hope you get the tolerance and support I received from Rosemary. She is the wind beneath my wings.

A test flight by Jeremy Moore...

My first impression was that it seemed so small it must be radio controlled. But looking inside you realise how much care and attention Richard has put into the building and it looks just like a beautiful piece of furniture.

But despite its small size, the cockpit seems roomy and very comfortable. Sitting slightly nervous as I started to roll along the ground on the first test flight I suddenly found my fingers were rather wet. This, we found out later, was because the wheelbox had no top cover and this has since been rectified.

Initially the handling was quite reasonable but the rate of roll was not great for a glider with such short wings. We decided to try taping the ailerons which transformed the handling into one of the crispest, most pleasant gliders I've ever flown.

On one particular flight the thermal conditions were very weak and broken. On joining just above a K-6 in a half knot thermal flying at 35kt, I climbed away in the Woodstock as though the other glider was standing still. I was very surprised that such a light glider should have such good penetration into wind. It seemed quite capable of staying with such gliders as K-6CRS.

The general handling was superb with very docile handling characteristics, especially at low speed. The very simple spoiler arrangement is remarkably effective.

The all round visibility is excellent. In fact, every time I turned my head sideways I almost jumped outside my skin at first because I caught the glimpse of what I thought was an

aeroplane very close behind. It turned out to be the corner of the tailplane.

Generally the glider feels very safe for inexperienced pilots and a lot more fun for the experienced. I believe all credit must be given to Richard for his dedication and unsurpassable workmanship.

Technicalities...

WOOD BASICS by Gary Sunderland

Several people have asked me to provide an introduction to wood aircraft construction methods and a list of available publications on the subject.

The continued popularity of timber as a material in homebuilt aircraft, particularly for ultra-lights and small sailplanes, means that we have a whole new group of people in the sport with a need to this sort of introductory material.

Unfortunately, there is no single publication with all the answers, but a list of selective reading should provide most of the basic knowledge required to tackle a building project.

A good general introduction to aircraft work, which all homebuilders should possess, is the FAA Advisory Circular AC43.13 (formerly CAM-18) "Acceptable Methods, Techniques and Practices - Aircraft Inspection and Repair".

This is available from the US Government Printing Office Washington, DC 20402 and many Technical book shops in Australia.

AC43.13 is a useful general reference for all homebuilders and has excellent material on control systems, fabric covering and weight and balance.

Unfortunately the section dealing with Aircraft Wood Structures leaves a lot to be desired. For example the sanding of plywood is stated to be only a "valuable aid" and hence not "mandatory", as should have been emphasised.

Most of the wood repair schemes shown in AC43.13 are particularly objectionable. Scarf slopes of 10 and 12 to one are definitely to steep. The over use of reinforcing blocks is also a good way to have compression shakes created and hidden in service! The "Wood" repair section is therefore not repeat not recommended for use in wooden aircraft construction and repair.

Another useful reference is the EAA Aircraft publication File Number 1. "Wood" available through the EAA Headquarters and again, from many local technical bookshops and aircraft supply outlets.

The EAA booklet has some good stuff on jigging airframes but unfortunately perpetuates a lot of this mis-information from CAM-18.

A highly recommended sources is the old US Government bulletin ANC-19 "Wood Aircraft Inspection and Fabrication". Probably the best thing ever written on the subject but unfortunately now out of print. However you may be lucky and have a copy available through your state public library service.

The only criticism of this excellent publication is that its very comprehensiveness tends to submerge certain vital information in a mass of detail.

ANC-19 correctly states the minimum scarf slope of 1 in 15 for aeroplanes and recommends breaking the glaze on plywood with No. 3 or No. 4 garnet paper. All good stuff.

The only deficiency is that it contains no section dealing with modern gluing theory. This is understandable because ANC-19 was published in 1951, at the time the theory was being developed.

Another source of good information, aimed more towards the Australian situation, regarding the Gliding Federation of Australia "National Gliding School Lecture Notes". These contain sections dealing with useful topics such as timber and plywood specifications and Australian substitutes, glue types, application and deterioration plus a comprehensive section on modern gluing theory and practice.

These are no longer available, but I hope to revise them in future and issue them from the GFA Office, Essendon Airport, Victoria, as an Advisory Notice (AN).

Some years ago there was a plan for the SAAA to publish and equivalent to the NGS Notes specifically for Australian homebuilders. Nothing has come of this move and this sort of information seems to be as much needed as ever.

This is all theory of course and aircraft woodwork is very much a practical subject. Incidentally, it is nothing like cabinet making and other forms of precision woodwork and aircraft techniques are a lot easier to master.

Every glider builder should as a matter of course, make a "Standard Part" or some sort of test piece for destruction by the Inspector in charge of his project. This process of instruction cannot be obtained from books. You have to get it in the water to learn how to swim!
Nevertheless a certain background in the theory will be a great help in practice and give the builder the understanding and confidence to produce an airworthy structure.

My own painless guide to structural integrity is as follows:

There is no best glue. CASEIN is by far the most forgiving during manufacture but is only recommended for gliders which can be stored in a closed trailer or otherwise out of the weather. Aircraft glide CASEIN is no longer available.

RESORCINOL is recommended for glider spars, and in aeroplanes generally, but monitor the temperature closely. High shrinkage is a problem in using resorcinol for skinning.

EPOXY wood glues are recommended for attaching the skin (no shrinkage) and particularly onto end grain areas such as thick marine-ply ribs and bulkheads. Epoxy wood glues are less sensitive to moisture than ordinary epoxy adhesives but, even so, be very careful to avoid high humidity conditions.

Acid hardening glues like PHENOL, UREA and MELAMINE will deteriorate the adjacent timber with time and consequently are not permitted in Australian aeroplanes.

They have been used in some gliders but are no longer recommended.

Scarf slope should be 15 to one. (16 to one if you still have an inch ruler).

Glider spars should be scarfed 20 to one. More in densified woods like compressed Beech.

Wood structures can be scarf jointed anywhere. No limitations. However this assumes a degree of skill to produce a 100% joint. Some plans indicate certain areas are prohibited, which means the designer assumes the typical builder is not capable of a 100% joint.

The best timber surface for gluing is clean and flat, as produced by a sharp plane.

A plywood surfaces for gluing that have not been prepared as above are to be abraded with garnet paper applied along the grain sufficient to break the surface glaze. This preparation is easily checked by a drop of ink or water.

Wood and plywood may be worked to shape by planes, chisels or garnet paper "sanding boards" as required. Note: do not confuse this "sanding" with the use of fine sandpaper to smooth the final job. Fine sanding applied to a joint will of course load the surface with fine particles and make it unsuitable for gluing.

Use as many clamps on timber as you can get it place, but with softwood blocks to spread the load.

I personally prefer brads to staples, in ply areas. Brads should be steel, so they can be removed easier with bradding strip, and nailed one finger width apart. However if you use and prefer staples and get good results, then fair enough. A webbing strap is useful with staples and makes them easy to remove.

Gusset Blocks should be arranged so as to minimise the area of end gluing present.

Happy Hammering!

Book Review...

Personal Aircraft Drag Reduction by Bruce Carmichael

This 207 page book with 195 illustrations and 239 references contains information on aircraft drag reduction beyond streamlining. Composite materials and other advances now make it possible to obtain large drag reductions due to laminar flow. The book is written with a minimum of formulas to appeal to dedicated aircraft designers, builders and flyers who may not have an engineering education and contains a storehouse of data in written and graphical form.

The first section, giving the history of laminar developments from the beginning to the present time, is followed by engineering data on 13 outstanding existing aircrafts. The wing data section includes; minimum drag, maximum lift, maximum lift/drag ratio, and minimum power factor values for everything from model aircrafts to high speed business aircrafts. High lift flaps are also covered. Unique to this book is a summary of research data on laminar bodies. Low drag tail surface design, component interference drag and cooling drag are treated.

Simplified discussion of drag and performance concepts are followed by a laminar wing optimisation study with and without flaps and a laminar body optimisation study. Suggestions on refinement through flight test and an honest appraisal of laminar aircraft practical problems and available solutions are followed by a conceptual laminar aircraft design study. Some discussion and data for suction stabilised laminar wings and bodies are also included.

The book may be obtained post paid in the U.S. by sending $25 to Bruce Carmichael at 34795 Camino Capistrano, Capistrano Beach, California 92624. The cost is $28 in Canada, $33 in Western Europe and $35 elsewhere.

Members Profile...

In this issue we have an exclusive interview with the new member who joined our group during the last regatta in Ararat.

Your Editor had this exclusive interview after a phone call to him who with modesty obliged to my request.

So!, here we are in front of a cup of coffee in the kitchen of his home.

Paul M. Johnson is happily married to his wife Lyn and has one teenage daughter and two sons. He lives in Werribee which is not far from the city which is where he works.

Paul is building a motor glider "Windrose" one of the many good designs of the late Jim Maupin who sadly passed away not long ago.

I asked Paul, "What made you decide to build a Windrose?"

Paul replied, "Well, as you know I am a member of the Beaufort Gliding Club and I've always been involved with the bug of flying. In 1980, before I started with this project I built an ultra light named "Wingding" and the "Windrose" is very similar. Both have a very strong fuselage section and a central pylon where the wing & motor are attached. I started to build it nine years ago and now it's almost completed. At the moment I'm working on the wings with the help of my good friends, Keith Nolan and Douglas Cameron. The wings are built using two inch thick extruded blue foam. The main spar is made from fibreglass roving and the cover is also made of fibreglass and a safety epoxy resin which I ordered from Aircraft Spruce in the USA. The whole wing takes about 7 gallons of resin. I started the construction in 1987 and when the project is finished it will have taken around 2,000 working man hours."

I then asked Paul, "If someone comes to you wanting to build an aircraft, what advice would you give them?"

Paul replied, "First have a go and see if your are convinced you can do it. Think seriously about the whole project and

be conscious of the fact that it will take a long time to finish. Expect to find errors in the plans, look for ways to improve the design regarding maintenance with the approval of the G.F.A inspector. Seek more information from people with more experience and put the good ideas in to practice.

Building an aircraft is a lot of dreaming and fun, you must have a good place to work in. Building the "Windrose" does not use many tools but you must have the essential basic tool usually found in the D.I.Y tool box. If you find something difficult put your grey matter to work and you will see that with ingenuity you can make the project work.

Last but not least, you have to have a good understandable and supportive wife! I'm a lucky man, aren't I!"

New Members...

We have new members to welcome to the group this time namely.

Bryan Cepack, 2422 Kingsbridge Drive, Dallas Texas, 75050 USA.

John Winckle, PO Box 68 Corrumbin, Gold Coast 4223 QLD, Australia

David Muir, PO Box 956 Lake Stevens, WA 98258 USA.

Terry Gerard, 6 Welburn Grove, Ormesby, Middleborough Cleveland TS-7 - 9BN England.

Jerry L. Conner, 800 Sage Lane, Fallon Nevada 89406 USA.

Doug Vanstan, 33 Franklin Street, Bacchus Marsh, Vic 3340, Australia

Welcome aboard fellows and look forward to a long and mutually satisfactory association.

Magazines/Journals...

If you are interested in early aeroplanes, then you have to read the WW-1 AERO and Skyways published by our cousin in the USA. These two excellent publications are the brain child of Leonard E. Opdycke. Write to him for more information.

Publisher : World War I Aeroplanes, Inc.
15 Crescent Road, Poughkeepsie, NY
12601, USA
Ph: (914) 473 3679

This is fun with "MOBA" & me

by Gary Sunderland

This year I managed the usual eight flights in my "MOBA" for about 30 hours. The yellow beast only gets flown at club camps mostly and seldom at Bacchus Marsh.

MOBA has yet to fly 400 hours total! This year I flew at Stawell a bit (it rained) and at Horsham. I also tried to fly at Ararat. The day looked great, but they were putting the roof on their new hangar!
As usual, the most pleasant flying was four hours at Mount Beauty, soaring Mount Bogong and along the ridges to Falls Creek. Great to be among all those expensive glider in a little homebuilt which only cost me $3,000 total to build.

For contrast I also had a couple of hours soaring in Roger Druce's new Janus CT which cost something like $100,000.

The Janus was very smooth, but not that much better than my beloved MOBA in a thermal, or even between thermals.

Somehow my little yellow glider is so much more fun to fly and operate generally, that I never regret the time taken to build it. Actually I also enjoyed building my own glider, so I really cannot complain about anything.

These days MOBA seems to be flying better than ever. All the teflon bearings are now worn in and very smooth, so the handling is quite nice. Not as good as a Libelle, but then, what is? Talking about nice gliders, on the way back to Melbourne, I called in at Benalla and spied a superb little blue and white homebuilt in a hangar. This was the EP-Z "Super Goose" built some years ago by Allan Higgins in Victoria. Evidently some lucky pilot at Benalla has bought this little beauty. I hope he (or she) has as much enjoyment soaring this little bird as I have in flying mine. We, in A.H.S.A should really spread the message about soaring being for enjoyment, not just spending mega bucks on competitions and record flying. If the GFA really is serious about expanding the membership, surely they should not be concentrating on competition flying and performance coaching quite so much. What about fun flying? How about we all start talking about the enjoyment gained in all aspects of gliding?

On this basis the A.H.S.A should be being promoted by GFA, as we are involved in building "for education and recreation" and the vast majority of GFA members fly for fun, not for records, so they want to hear from us, not the hot shots.

From the Editor...

Sometimes when you say something that is true, somewhere, somebody, will feel the sting especially those who are narrow minded and don't think because they are involved in their own ignorance. Let's see if I can get some feedback on this topic..

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

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