THE AUSTRALIAN HOMEBUILT SAILPLANE ASSOCIATION

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Ms Pebbles

G'day! Well here we are again at the end of another year, I do not know what is going on with me but the days seem to be getting shorter and shorter or as some body told me "you are getting old" yeah..! that's the reason! but for a bloke like me with a few decades on my shoulders, I'm doing very well and looking forward to the next Millenium.

I would like to take this opportunity to thank every body who in the past has contributed with the production of this journal, without their help this could not have been possible and one of them is our member Peter Champness who has been writing about foot launch gliders. Thank you Peter!

On the 13th & 14th of November we had our annual technical Symposium at Sportavia Soaring Center, Tocumwal NSW. The venue was very interesting with different guest speakers. Full report by Gary Sunderland somewhere in this issue.

Also I would like to thank those members who wrote giving me encouragement and best wishes with this journal. But do not forget that it is not only my work, I have behind me a very good team whose names are in the left column of this page, they are as I call them the "A.H.S.A" servants.

This journal since I took over the task as Editor, has been printed using the photocopy facilities of GFA and the collaboration of Mrs Sharon and Diana Vistarini. To both of them our sincere thanks!

Sending warmest greetings as Christmas Day draws near to wish you every happiness throughout the coming year. With best wishes at Christmas.

James, Peter, Gary, Mike, Virginia, Eddie, Sergio...& A Happy New Year to you all...

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Presidents Corner from the Oval Office

By Gary Sunderland.

The aim of this publication is to facilitate communication between people who have built, or are building, or who my one day build, a sailplane.

Note that our humble Newsletter, under the influence of James Garay and his crew, continues to improve in quality, to the extent that it is being referred to as our "JOURNAL". Long may it gain in presentation and influence.

A barrier to our exchange of information, views and ideas, are the limits of our understanding of the language. Even for those of us with English as a first language this is increasingly difficult.

In these days the sloppy use of the language is wide spread and popular. For example: "This point in time", which might mean "now" or perhaps something else. Then "ten times less may mean one tenth", or something less ?

Now I have been criticized for being too pedantic about words, but what is the alternative?

Aeronautics is a science, and the misuse of the language, and any misunderstanding of its precise intended meaning, can have catastrophic results.

When a specification states that the minimum temperature during cure is 18 degrees centigrade, then we need to understand and comply with this direction. Safety of flight depends on the correct use of language.

Regretfully much of the language used in popular aviation is misleading, or downright wrong. To quote a few examples in common (miss) usage:

People, who should know better, often refer to the "legal" requirements in aviation. Now you will never hear a professional regulator talk in this manner. When I first joined the old DCA a l ife time ago, we were taught that "legalities" of any situation are left to governments, lawyers, and the courts to determine. The regulators in DCA,CAA,FAA, and CASA will refer to "breaches of the regulations", or similar words.

Why is this important? Well, it turns on that our old "regulations" were never tabled in Parliament, so may never have been "legal" in the strict sense. There are no constitutional powers governing "sport aviation" as such, so any moves to restrict our "homebuilt" sailplane activity would not be "legal" if put to the test in a court of law. A very important point in my view.

Then we often hear and read of homebuilt sailplanes being "certificate" Now a type certification process for a factory built aircraft, even is simple as a glider, is expensive and complex. The paper work, or the "type data package", as it is called is a fairly substantial wad of paper. The lore in the aviation industry is that the weight of paper needs to exceed the weight of the aircraft. This is not actually true, but does contain some truth in the principle.

All of this data is required to ensure the airworthiness of a commercial product in service, whether it is an aeroplane, glider, helicopter, or aircraft engine.

However very few homebuilt sailplanes have been, or are likely to be "certificate" as commercial products. There are a few examples like the Schweizer 1-26 and the "World Class Sailplane" PW-5 which have been fully certificate, to permit both commercial and amateur construction.

The vast majority of our amateur built sailplanes have been "accepted" by various means, far short of "type approval". This system took a lot of time and effort to set up, not just because we had to convince government departments . We also had to persuade our own fellow members of the gliding fraternity that our homebuilt movement was both desirable and workable.

We need to be aware of the various trade-off we make. For example, true home builts accumulate very few flying hours. Therefore we do not need to justify our designs for fatigue and durability. Our normal level of workmanship ensures that the number of defects found in homebuilt gliders is very few.

Despite this there have been a few serious accidents, mainly in the flight test area, so there should be no complacency in final checks and flight testing a new glider.

Incidentally I understand that the new regulations refer to "Experimental Certificates of Airworthiness", which shows that sloppy language has invaded the current CASA staff.

Fairly obviously one purpose of an "Experimental Permit" is to test out a new design, which may eventually be granted a "Type Approval" and "Certificate of Airworthiness". We need to test a prototype to establish its "airworthiness" !!

Fortunately I am now retired so this will no longer affect me directly. Nevertheless I should not neglect to provide one "CRAP" award to this example of official miss use of the language. Lets have less CRAP in our activities.

I would like to express to all our AHSA members my sincere wishes of happiness for this Christmas Season and a happy New Year, in the company of the family.

MAIL BOX

Dear Ed,

Thanks you for the complimentary copy of your newsletter.
The advert text remains unchanged as there is little more con be said other than aircraft grade material is available locally. For information, however, we enclose some data on the Hoop Pine species and an outline of our structure and process.
We are not set up for credit card facilities, so payment should be by cheque or money order. Those individuals close enough to call personally can pay by cash if they wish.. Graham Kevin.

Dear Ed,
It is good to know that you are well after coming back from your trip to Chile, and you are finishing your Woodstock. Well here we are working on the Carbon Dragon. So far I have made studies on :
1 Vertical fin and rudder.
2 Horizontal stabilizer
3 Flaps
4 Ailerons..

At the moment we are making the fuselage molds and building the canopy in acrylic and poly-carbonate material called (VERALITE) I just made a 3.5 m table to start building de empenage and also I am working on the calculus to redesign the aileron-flaps to make it torsion rigid. I will keep you informed. Alejandro Ramirez.

Dear Ed,
I have seen your e-mail address at the GFA Internet site and hope you could be possible source of information for motorized sailplane kits which might be available in Australia at this time, Having built from plans a high performance Ultralight I now wish to move to the sport of gliding/soaring which is where my real interest are.
If you could provide me with any information such as names of available kits within Australia or abroad I would be extremely grateful for your assistance. Being retired I do not have unlimited funds so I am looking at the cheaper end of the market. Finally I have come across (on the Internet) a company in Czechoslovakia called TeST Aircraft who make a motorized sailplane called the TeST-3 Alpin which can be purchased as a kit and looks like it would suit me fine.
Have you any knowledge of this company or particular aircraft? Regards John Everest.

Dear Ed,
Here is my report for the WINDROSE last two flights.
You don't know of anyone with a fan cooled Rotax 447 do you ?.Regards Paul Johnson.

Dear Ed,
Thanks for the good weekend at the Symposium 99 . I would like to know who has plans for the ULF-1 and or is any one building it here in Australia, Thanks. Jim Jensz.

Dear Ed,
A general inquiry asking about motorised Gliders and what kits or plans are available. I have a hutter-17 which I would like to fit a ROTAX 277 too. The motor is very noisy and not as smooth as some others motors. Do you have any plans or general ideas on how to convert to a motor glider. One problem so far encountered is that whilst the HUTTER 17 is over designed is still has weight limit of some 95 kg. Presumable pre war years it was not necessary to consider the glider running off side of a hill with a pilot any heavier than 95 kg. J. Thirlwall.

TECHNICALITIES

PERSPEX

I.C.I. Technical Information
Courtesy J. Ashford

Perspex is the registered trade name for Polymethyl Methacrylate sheets and rods manufactured by I.C.I (Imperial Chemical Industries Limited).

" TENSOL" Cement No 6 (Solvent /Polymer Cement)

METHOD OF USE

The precise technique to be used on any occasion will vary with the particular application. The following step-by- step procedure gives joints at maximum strength and clarity but it need not be followed in details in every instance.

STAGE 1 - MACHINING SURFACES TO BE CEMENTED

The surfaces to be cemented should mate within 0.002 in (0.05mm) and this degree of accuracy can often be achieved without resorting to grinding the surfaces. In this connection, however, it will be appreciated that acrylic sheet is unavoidably subject to some thickness variation not always be possible to produce perfect joints when cementing the untouched cast surfaces of Perspex sheet and this places some limit on the area of surfaces which can be cemented without initial preparation.

STAGE 2 - FIRST STRESS RELIEF OPERATION

The prime object of the stress relief process is to reduce local stress in the material, caused by prior machining or shaping, as they might otherwise lead to crazing within the joint or at adjacent surfaces. In addition, the process dries the Perspex and this reduces both the risk of haze at the joint and the development of crazing.

For successful stress-relief an oven with good temperature control is required, and the best results are obtained when the temperature at any point within the heating enclosure does not vary by more than + or - 2 Celsius degrees from the indicated temperature. *THIS IS MOST EASILY ACHIEVED IN OVENS IN WHICH THE AIR IS CIRCULATED AND THE SOURCE OF HEAT IS REMOTE FROM THE HEATING ENCLOSURE.*. Oven temperatures in the range of 75-85.C.Degrees are generally satisfactory, the lower end of the range being used for shaped material and the upper end, which may be extended to 90 C.Degrees for flat sheet.

Heating times depend upon both thickness and the temperature. Suggested minimum times for each 1/8 in(3.2 mm) thickness are 4 hours at 70 C. Two hours at 80C or one hour at 90C. To avoid re introducing local; stress the articles should be cooled slowly, and this is best done by leaving them in the oven with the source of heat turned off. It is preferable to cool them to room temperature, but they may be removed at higher temperatures up to 60C.

STAGE 3 - CEMENTING OPERATION

Both parts to be cemented are masked where necessary and one of the faces is then coated with cement, care being taken to avoid trapping air within the solution.

The amount of cement used should be sufficient to ensure that on bringing the two faces together excess cement is forced out on to the surrounding masking tape at all points along the perimeter of the joint. Before the surface of the cement has had time to harden at all, the other face should be gently and carefully placed in position. To do this satisfactorily, jigs should be prepared to give accurate location and to prevent slipping after the two surfaces have been brought together. With the second face in position, light clamping pressure (1 to 5 p.s.i.(70-350 gm./sq.cm00 should be evenly applied and maintained.

The joint should be left in the jig for at least 3 hours, after which it may be removed and the masking tape stripped away, but the joints should be left for a further 24 hours before loading or machining.

Where masking tape cannot be used, a soaking technique similar to that used for pure solvent may be employed. Care should, however, be taken to see that the Perspex surface is brought into contact with the pool of cement before the surface of the latter forms a skin. Alternatively, the cement can be applied to the Perspex surface by means of a brush or a suitable dispenser such as a syringe.

STAGE 4 - THE FINAL STRESS RELIEF PROCESS

This process is best carried out with the cemented parts assembled together to form the complete finished article including any retaining metal framing, bolts, or other attachments. The procedure is the same as that set out for Stage 2 and its purpose is to fold:

(1) To purge the joint of as much solvent as possible. Thereby increasing the joint strength materially and reducing any tendency to haziness at the interface; joint strength of the parent material can be obtained.

(2) To relieve stress set up in the material due to fixing attachments, etc

PROPERTIES

Although the bond strength of Perspex jointed with Tensol cement No 6 is adequate for many practical purposes, it is nevertheless considerable lower than the strength of the Perspex itself. When the joint is cured at room temperature, the bond strength develops slowly, and even after 20 days attains values of only just over 2.000 lb/sq.in.(140kg./sq.cm) but with curing at 60C the process is much more rapid and the maximum strength which can be achieved with Tensol cement No 6(about 3.300 lb./sq.in (230kg./sqcm) is reached after 5-8 hours heating.

Joints with Tensol No 6 will retain their bond strength at temperatures up to 55-60 C, but higher temperatures there is a marked reduction in strength. Similarly, on exposure to outside weather or under the action of moisture, the strength of joints will deteriorate and they may fail in about 2 years, or even less under very adverse conditions.

"Tensol" Cement #3 (All acrylic cement)

Tensol cement #3 differs from the other cements for jointing Perspex to itself in that it is supplied as two separate ingredients which have to be mixed together before use. One of these is a fine powder consisting of methyl methacrylate polymer containing a proportion of a photo catalyst, the other is a liquid, stabilised methyl methacrylate monomer. The separate ingredients can be stored in a cool place, say not above 20 C and out of direct sunlight for a year or more, but when mixed the cement can be kept for only two or three weeks, even in air tight containers stored under cool conditions and in the dark. It can be kept for a long period in a refrigerator at about 0 C.

The two components are mixed to form a soft rubbery dough which, after maturing, is placed in position and then hardened either by irradiation with ultraviolet light or by the application of heat. When neither irradiation nor heating is practicable, the cement can be made cold setting by the incorporation of other ingredients into the dough.

The cold setting cement requires no special equipment for it use, and gives satisfactory joints, but because it has short life, it calls for more care in preparation than do those polymerised by heat or irradiation. The cement has good gap filling properties and joints up to ¼ in (6.25 mm) width or more can be easily made. Masking of adjacent areas is sometime an advantage, but generally the joint must be trimmed by machining and polishing after it has hardened.

The two stress relief operations described under Method of use of Tensol cement 36 (stage 2 and 4) are also desirable when Tensol cement #3 is used, but may not always be practicable.

The hardened cement is slightly yellow, and on exposure to the weather may darken to some extent. Apart from this, it has very good weathering properties and can be used outside and in damp conditions with confidence, as its properties approach those of Perspex both as regards strength and resistance to weathering and ageing.

Method of use - Preparation of the cement

The two ingredients supplied are;
1 Tensol cement #3 liquid component.
2 Tensol cement #3 powder component.

For a cold setting cement, two further ingredients are required:
1 Benzoyl peroxide or Lucidol paste
2 Dimethyl paratoluidene.

Mixing

The liquid and powder components can be mixed in varying proportions to give a range of cements from mobile liquids to viscous doughs. The practical limits for most classes of work lie between 90% liquid: 10% powder and 65% liquid:35% powder.
The ratio used in any application depends largely on convenience, always bearing in mind that the thinner the cement, the less will be the gap filling properties and the greater will be the shrinkage on hardening. There is no significant variation of joint strength with mix proportions. *To be continued.*

CARBON SPAR DESIGN

Jim Marske
An excerpt from Sailplane Builder

Editor's Note: In the February 1997 issue of Sailplane Builder, Jim Marske had a very interesting and educational article on his workings with GRAPHLITE, Carbon Fiber Rods. I sent away for information, and was rewarded with a very nice packet. The following is a portion of a paper that came in that packet, the paper is titled Design Guidelines for Rod Reinforced Structure.

The rods are intended for axial loads only. Shear loads in skins or webs can best be reacted by bias oriented fabric or pre-plied tape. In the stringer of Figure 1, each layer of rods is surrounded by a layer of +/- 45 degree unidirectional tape called a bias ply. The bias layer is the shear path to transfer load from a spar web or wing skin to the individual rods. In this approach load is transferred in the plane of the rod layers. The bias plies of the small rod pack extend to each side of the rods to form the sides or web of the hat and to overlap the skin forming the hat flange. The bias plies of the larger rod pack also extend to both sides of the rods to form an additional portion of the hat flange. The sketch in Figure 1 shows how the bias plies form the web and tapered flanges of the hat.

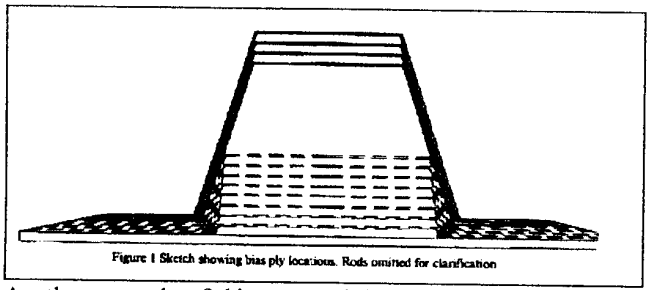


Figure 1 Sketch showing bias ply locations. Rods omitted for clarification

Another example of this approach is shown in Figure 2. This figure shows a cross section of beam used in the roof of a helicopter to span transmission loads to fore and aft bulkheads.

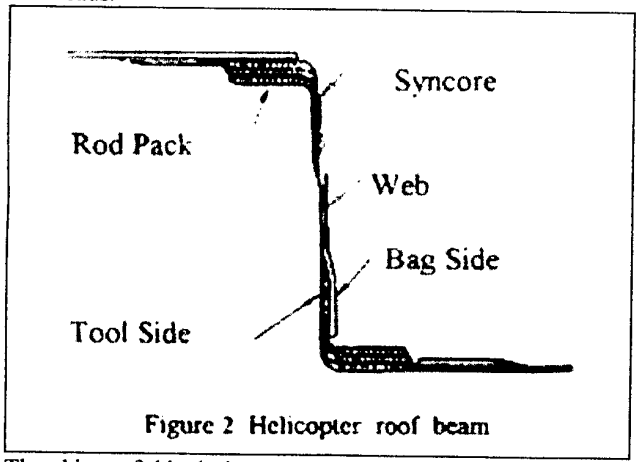


Figure 2 Helicopter roof beam

The object of this design was to form a portion of outer skin, the roof beam and the cabin overhead from a single laminate without reliance on bag side tooling. The skin from the top of the cabin door jamb to the roof beam was made on a surface tooled to the outside mold line. Then the surface folds down forming the web of the roof beam. It folds again becoming the cabin overhead. The rod packs are placed in the corners of the fold for stability. The bias plies extend to each side of the rod pack sufficiently to form around the corner and splice to the web or skin. The web and cabin overhead laminates are pre-assembled in the flat and easily located since no forming is required. The skin plies are also assembled in the flat but mild forming is required to place them on the An alternate approach could eliminate the need for the bias plies by transferring load from a spar web or wing skin through the thickness of the layer of rods. This approach, illustrated in Figure 3, shows a vertical web laminate with flanges tuned out to form a horizontal "H" section.

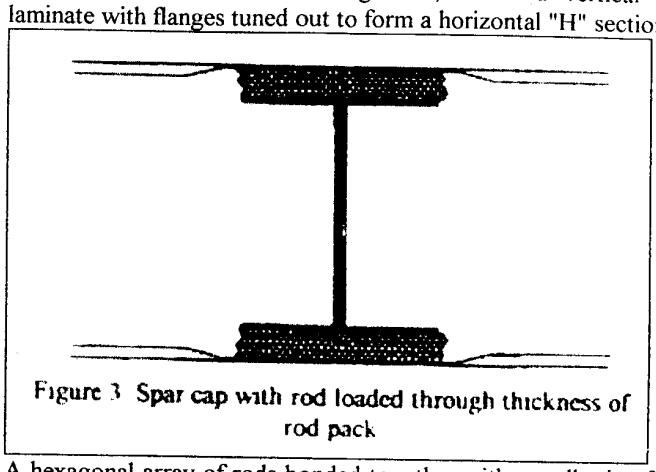


Figure 3 Spar cap with rod loaded through thickness of rod pack

A hexagonal array of rods bonded together with an adhesive form the spar caps which are in turn bonded to the skin. Thus, each rod is loaded from the skin or the web directly through the thickness of the laminate.

Rod Pack Detail Design

Configuration #1, illustrated in Figure 4 is used by Bell helicopter in a US Air Force research program called Design and Manufacturing of a Low cost Composite Wing. It is essentially a square rod array separated by a 0.015 inch thick, IM7 bias ply.

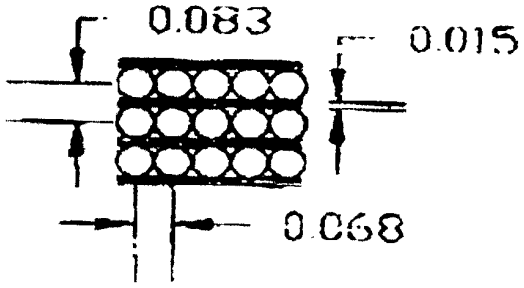


Figure 4 Configuration # 1

The voids between the rods and the bias plies is filled with Syncore, epoxy resin filled with hollow ceramic spheres. The Bell project uses the GRAPHLITE IM, 0.067 inch diameter rod. At first this may appear to be a relatively inefficient use of unidirectional carbon fiber. Closer examination will reveal that the bias material is in the shear path of the skin or web on therefore is fully effective.

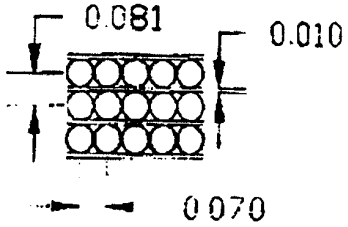


Figure 5 Configuration # 2

This design is suitable for applications involving high shear flow and where axial stiffness is worth the added cost of the rod. No attempt has been made to change from a square array to the more volumetrically efficient hexagonal array because of the difficulty in

locally forming the heavy bias ply. Configuration # 2 shows a similar rod pack but using the GRAPHLITE SM rod and a 10 mil glass fabric for the bias ply. See Figure 11. This a considerably lower cost construction with slightly lower properties. It is applicable to all cost sensitive structures where the premium for maximum stiffness is low and the bias is still in the primary shear load path.

For the approach illustrated in Figure 3, the bias ply would not be in the plane of the shear path and therefore not effective. Configuration #3, Figure 6, illustrates a square array rod pack using the GRAPHLITE SM, 0.073 inch diameter rods but without the bias ply.

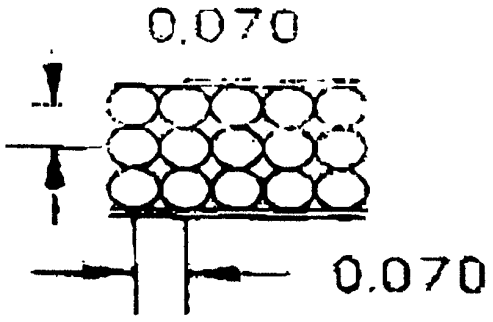


Figure 6 Configuration # 3

This geometry assumes a one mil average space between rods. This can be
in the vertical plane by using a scrim in the rod matrix. This is a lower cost approach yet, but is restricted to applications where the primary shear flow is through the thickness of the layer of rods.

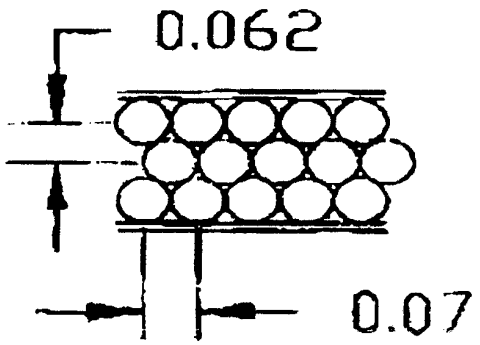


Figure 7 Configuration # 4

Since the bias plies are not required for the concept of Figure # 3, it may be possible to place the rods in a hexagonal array of configuration # 4, as shown in Figure 7. GRAPHLITE SM are also used in this application. This array is the most efficient, volumetrically but requires special effort in placement to assure proper nesting.

WHAT'S NEW?

NEW MEMBERS

We have new members to welcome to the group:

Bill Moyes - 173 Bronte Rd, Waverley, Sydney NSW 2024

John Everest - 6/152 River Terrace, Kangarro Point QLD 4169

John Thirwall - P.O.Box 69, Northbridge NSW 2063

Robert Marriot - P.O Box 194, North Strathfield NSW 2137
WELCOME ABOARD FELLOWS! And we look forward to a long and mutual association.

VICTORIAN SOARING ASSOCIATION

The following names are the RTO Airworthiness for VICTORIA.

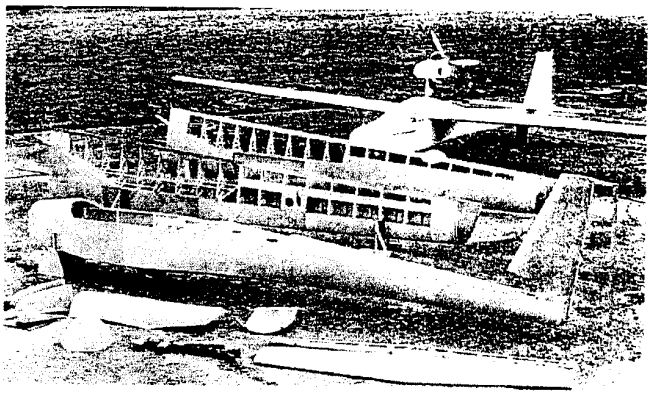
RTO/A (WEST) *Gary Sunderland.70 Underbank Boulevard. Bacchus Marsh Vic. 3340..PH.(03) 5367 5374*

RTO/A.(EAST CENTRE AND TASMANIA). J. *Ashford. 6 Griffith St. Bachus Marsh. VIC.3340. PH. (03) 5367 5774.*

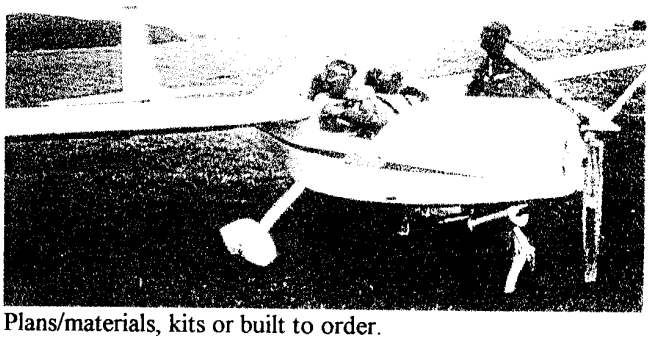
RTO/A.(NORTH ALONG THE RIVER) *Eugene Blunt. 567 Noorla Place. Lavington.NSW. 2641 PH.(02) 6025 4436*

HOME BUILDING IN THE CZECH REPUBLIC

Ultralight flying is burgeoning in the Czech Republic. The Czech Ultralight Association has 10.000 members, with 1.000 ultralight aircraft registered. Prominent among pioneers is Zdenek Teply, who set up his company TeST in 1992 to develop sailplanes, motor gliders and ultralights. His TST- Alpin is all wood powered glider with pod mounted 24 HP UVMV Prague M-115 engine giving a maximum speed of 18o kph and a power off glide ratio of 29: 1. It sells for around A.Dls $ 10.000 ex work, and is also available as pure glider.



TST-6 duo is a two seat version of the single seat TST- Junior motor glider. Useful load is 195 kilos, power a 43 hp UVMV 215, with 18o kph max speed. These designs, and the TST-5 Variant , ultralight, all sharing common components, are available in plans.

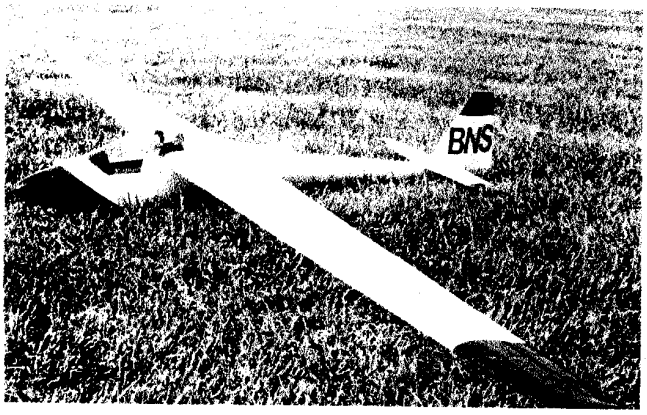


Plans/materials, kits or built to order.

Test is at 5944 01
Velke Mezirici.
Czech Republic.
Tel/Fax: 00 42619 4343. (Zbynek Jaros)

10 NEW "WOODSTOCKS" TO BE BUILT.

By Sir Colin Collyer.



Just a short note about the model Woodstock being built. All ten set of plans were sold. We now have nine building and one still thinking about it, two are ready for covering, two have fuselage and tail finished and are building the wings and the other five vary from " boat stage " up to getting the wing plan out to look at.
I am very happy with the way mine has come together. Wings are very stiff, and light. My servos are all in the fuselage, so bellcranks are used in the wings for both spoilers and ailerons. 2:1 differential via the aileron bellcrank . Major deviation from scale is the wing section (Clark-Y) and wing joining (10 m/m alloy bar) interesting, since the aluminium has gone metric, you can not get 10 m/m inside diameter tube, so we made paper tubes.

Some of us have removable tailplane, so I designed a method with automatic linkage connection s. The elevator horn remains fixed in the fuselage, and the elevator disconnect from it.
In the uncovered state, with radio, batteries and nose weight, my model weights 4.1/2 lbs. So 5 lbs is realistic for the finished model. Another option being considered is to fit a power pod (ala full size) using a electric motor. This would add about a pound but would enable me to fly without winch or aerotow.

As no readers came forward with photos of the color scheme I painted mine as if it were my full size.

On the 23rd of October I flew mine for the first time. It fly's really good , thermals well, loops and ½ Cuban performed on the first flight. Spoilers have no trim change. It is perfect.

Plans will be available next year.

HINTS & TIPS

WHERE CAN I BUY IT?

By Malcolm Bennett.

RESINS, FIBER GLASS AND GLUE

Synthetic Resins P/L Polyester, Epoxy, Fiber Glass & Carbon Fiber. 473-475 Warrigal Rd. Moorabin. Vic 3189. PH. (03) 95556711.

A to Z Solid Solutions. One Stop Plastics. 19 Ardena Crt. Bentleigh East. Vic. PH. (03) 9579 2044.

Resin & Fiber Glass Sales. West System, Epoxies, Fiber Glass, Polyester, Kevlar & Carbon Fiber. 635 Queensberry St. North Melbourne. Vic. Ph. (03) 9329 0111.

EPIGLASS Glue Everdure & Epiglue. From your local Marine Supplier in all states of Australia. (see The Yellow Pages) for the address.

TIMBER & PLYWOOD

Edmund Schneider P/L. Spruce, Birch Ply.
P.O.Box. 1154 Gawler S.A. PH. (08) 85222978

PRO-MARK P/L. Hoop Pine, Hoop Marine Ply.
100 Berry St. Churchill Qld 4305. PH. (07)3812 5122.

PERFECTUS AIRSCREW P/L. Oregon, Spruce.
175 Mason St. Newport. Vic .PH. (03) 93912076

MARINE TIMBERS P/L. Marine & Aircraft Ply in Hoop Pine, Gaboon, Mahogany & Birch. Y 88 Epoxi Glue.
71 Roberts Ave. Mulgrave. Vic 3170. PH. (03) 95460311.

AIRCRAFT SPRUCE & SPECIALTY Co. Aluminium, Steel, Fixings, Resin & Fiber Glass, Wood & Ply,
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ALUMINIUM SERVICES & SUPPLY. Aluminium Tube,Rod, Squares Sheet, Plate. 52 Zillmere Rd.Zillmere QLD. 4034, PH. (07) 32655355.

AVIAQUIP. Aluminium Sheet, Bolts, Rivets,Poly Fiber Covering, Dope or Stits Finishes. 41 Kembla St. Cheltemham Vic. 3192. PH. (03) 95851211.

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CAPRAL ALUMINIUM. Aluminium.
In your Capital City.

HOOP PINE

By Graham Kevin

If you are about to embark on a building program, there are a number of things you need to consider, not the least of which are the material you use. If timber is your chosen medium, you will find the following information useful.

Question. Why use hoop pine?
Answer. It is stronger, less expensive, available locally, available now, order this week and build next week.

SPECIE HOOP PINE

Botanical name: Araucaria cunninghami
Family Name:Araucariaceae.
Local Name: Queensland pine, colonial pine.

TREE DESCRITION AND OCCURRENCE

A large tree attaining 50 metres in height and 1.8 mt stem diameter. It usually has straight cylindrical trunk. The bark in mature trees is rough and dark brown to nearly black in colour. While in young trees it is smooth with a tendency to peel off around the stem circumference. The hoops are apparent when bark is striped from the trunk.
Occurs naturally in drier rainforests from the Hastings River, New Sourh Wales to far north Queensland and in some places as far inland as 300 kilometres. It is also grown in plantations; predominantly in south Queensland. Outside Australia it extend to Papua New Guinea.
Sawn timber of this species is readily available, now predominantly from plantation grown trees.

WOOD APPEARANCE

Colour: The heartwood ranges from pale cream to light yellow-brown with little difference between heartwood and sapwood. Grain. Very fine and even textured. Growth rings usually visible but indistinct.

WOOD PROPERTIES

Density: 560 kilograms per cubic metre at 12 percent moisture content; approximately 1.7 cubic metres of seasoned sawn timber per tonne.

Strength Group: S6 unseasoned; SD5 seasoned.

Stress Grades: F4, F5, F7, F8 (Unseasoned), F7, F8, F11, F14, F17 (Seasoned),when visually stress graded in accordance with AS 2858-1986. Timber Softwood-Visually stress graded for structural purposes.

Shrinkage to 12% MC. 3.8 percent (tangential); 2.5 [percent (radial).

Unit Shrinkage. 0.23 percent(tangential); 0.18% (radial) These values apply to timber reconditioned after seasoning.

Durability: Class 4. Suitable for use in continuously dry situations under cover, well ventilated, clear of the ground and fully protected from the weather and other dampness.

Lyctid Susceptibility: Sapwood is not susceptible to lyctid borer attack. However, in south East Queensland, untreated sapwood of this species requires protection from Queensland Pine Beetle (Calymmanderus incisus) by painting or film finishing, by enclosure within construction (e.g. fully enclosed framing), or by preservative treatment

SHOP TALK

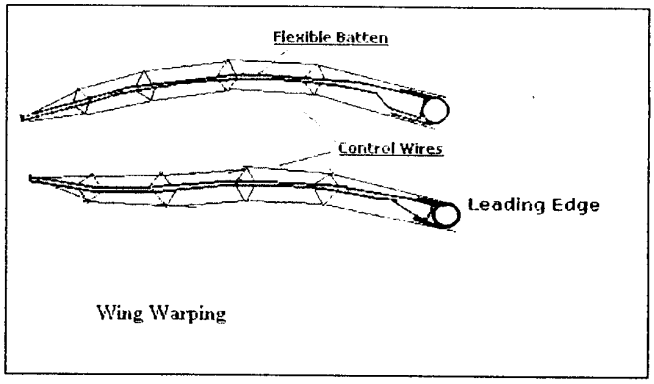
FOOT LAUNCHED GLIDERS

Part 7

Peter Champness

This episode of the foot launched gliders saga was supposed to discuss the highest performance foot launched gliders conceived so far. Most of these have been one off designs and are not available as plans or kits. Unfortunately I am moving house at present and all my references and old magazines have been packed by the removalists, so I don't know where they are. Consequently I will move on and present the final episode instead. This time I will consider possible design features and improvements to foot launched gliders which could broaden their popularity in the future.

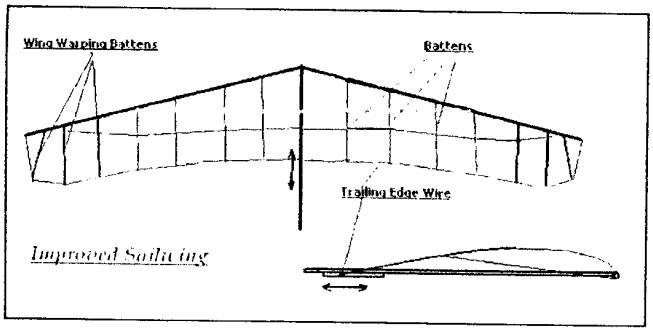
In the last two episodes I have considered the advantages of rigid wing designs because they have relatively high performance compared with flex wing designs. The problem with rigid wings is that they have all the disadvantages of normal gliders such as complicated structure, long construction times, expensive to make and difficult to store and transport. Given the disadvantages it is little wonder that most such designs are one off, if they even get to that stage. Most prospective buyers realise that they are better of to buy a second hand glider of conventional design and enjoy much greater performance for less outlay. Therefore the likely future for foot launched gliders is development of the sailcloth hang-glider which can be folded into a compact package for transport and storage. The very latest such designs are said to have L/D ratios of 17 or 18:1 which matches most rigid wings and exceeds the performance of a Grunau 4. Glider.



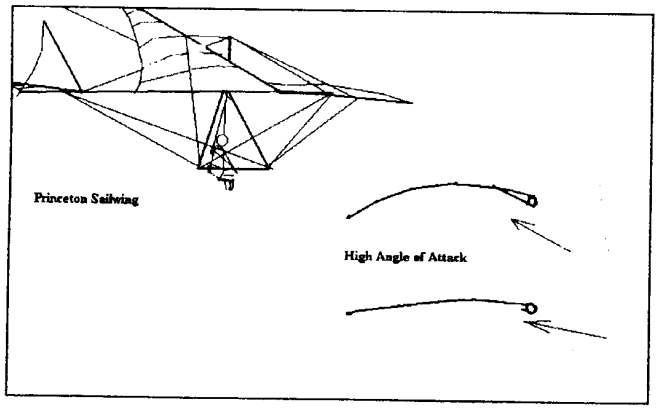
The fundamental feature of a foot launched glider is the ability to launch it by lifting the glider and running down a hill or leaping off a cliff face. Takeoff has its problems and dangers but unfortunately landing are even more difficult. The higher the performance of the glider the greater the landing speed and the greater the probability of misjudgment and injury. It is said that the albatross, the most superb gliding creature in creation, frequently has landing accidents and tumbles when it is forced to land in zero wind conditions. The problem for human pilots is

considerably greater because they are less skilled and have had less practice. A wheel can be added for landing and this can be a useful feature to reduce the possibility of injuries during this critical phase at the end of each flight. A wheel however adds weight and complexity to the design thereby negating the important features of light weight, simplicity and cheapness of construction. The alternative is to reduce the landing speed to acceptable levels for foot landing. This might be achieved by the use of high lift devices such as flaps and slots, variable camber aerofoils or variable wing shapes which increase wing area for slow speed flight.

An interesting idea which appeared in Scientific American years ago was the Princeton Sailwing. I think the designer was Mark Markowski. His idea was a variable camber aerofoil which would automatically adjust to angle of attack and hence airspeed. The sailwing was supported at the leading edge by a spar and at the trailing edge by a tight wire. At high angles of attack the trailing edge wire is drawn forward increasing the camber of the aerofoil for increased lift and drag.



Markowski's sailwing did not catch on , presumably because the rather loose sail was not an efficient aerofoil. The idea however could be improved by controlling the camber with flexible sail battens and modifying the planform of the wing. A comparison would be the difference between a simple dinghy sail and the sail of a high performance C class catamaran. Indeed the sailors have all manner of devices for changing the camber of their sails to adapt to the prevailing conditions and obtain maximum efficiency including tensioning devices at the foot of the sail and at the end of the boom. Sail areas can be reduced by reefing in the sail in very strong conditions. The upper end of dinghy masts are often made more flexible so the they bend in hard gusts and spill wind from the upper end of the sail. None of these ideas have been adopted to sailwings so far to the best of my knowledge.



The improved Sailwing incorporates the following design features: Higher aspect ratio, Tailless wing, Double surface sail over the forward two thirds of the chord to enclose the cross bar, Battens to control the camber, Very tight trailing edge wire (the variable camber is achieved by allowing the wire to slide back and forward in a track on the keel - tensioned by a spring or bungee, Wing tip battens fixed to the leading edge to control washout, Broad wing tips to reduce tip stalls.

Roller reefing is one of the more interesting ideas which might allow the possibility of area increasing flaps to be constructed in a very simple manner. A stay could be added at the trailing edge around which the flap is rolled in the same manner as the forestay of a yacht. The flaps are extended by pulling on a rope attached to the clew of the flap and retracted by a spring which rolls them up again.

Finally the old concept of wing warping devised by the Wright Brothers but subsequently abandoned in favor of hinged control surfaces can easily be added to a flexible surface wing. Rather than twisting the whole wing the trailing edge can be adjusted by flexing the trailing edge of the sailbattens. The sail can still be rolled up after the battens have been removed. The aerodynamic losses associated with the slot of a hinged control surface are eliminated. The control wires do not have to be disconnected when the wing is unrigged.

A TALE OF A TAIL

By Gary Sunderland

Many years ago the late Ken Davies contacted me for assistance. Ken had just started building a WOODSTOCK and was concerned that the fixed tailplane on the original design would prevent storing the aircraft in a normal closed trailer.

Ken had the drawings for a Hutter H-17, as he had built one some years before, and he thought the hardware might be converted to fit the WOODSTOCK.

After recalculating the tail loads, in accordance with FAR Part 23 and the BASIC GLIDER CRITERIA a stress check showed that the H-17 fittings would indeed do the job. A set of drawings were then made up to alter Ken's WOODSTOCK. This was then at the boat stage, so final fits and details could not be precisely determined. However they were good enough for Ken, so we thought that any capable builder would be able to sort out any minor discrepancies.

Being pleased with our work we agreed that the design should be made available to other builders in Australia. I also sent a copy of the modifications drawings and supporting calculations to Jim Maupin for information.

During the intervening years we lost both Ken Davies and Jim Maupin. Ken's Davies Woodstock is now being completed by our genial Editor James Garay, and Jim's Maupin daughter Janice Maupin is now in charge of sales for the many successful Maupin's designs.

Over the years I have had very little feedback from Woodstock builders, apart from an occasional report in a magazine. From these reports I have been able to up date the drawings to remove some problems in dimensions and fits, and the current state of sheet 1 of the drawings is at issue 5.

Any person with a set of the Ken Davies removable tailplane drawings, Sheet 1, before Issue 5 should **DESTROY** these immediately.

If a builder in Australia needs a copy of the drawings, please contact me for a current issue set.
To obtain a copy just write to:

GARY SUNDERLAND
Convenor GFA Design and Development Committee
70 Underbank Blv.
Bacchus Marsh. Vic. 3340

THE Design and Development Committee is an official committee of the GFA charged with providing assistance to GFA officers and members. We recognise the fact that individual members and clubs are usually not able to pay commercial rates for design work, but we have, within the GFA membership, all sorts of technical expertise. The D & D is a self help organisation for GFA members helping other GFA members. For this reason, and for liability considerations, members should not forward their drawings too any other person. If some other individual is interested in the design, then get him to contact me direct.

Unfortunately it is not practical to supply drawings outside Australia. Apart from anything else the postage is to expensive.

The Maupin organisation has been provided with all the current drawings and information, and my hope is that they will be able to supply their own removable tailplane drawings as an optional fit to the standard Woodstock.

So all builders should contact:

JIM MAUPIN Ltd.
24201 Rowel Court.
Tehachapi.CA.93561.
USA.

Please note that the drawings which I provide to GFA members are free of charge. The D&D are not in the business of commercial sales.

At least one set of drawings was reported sold overseas by a member. I think this action was deplorable, unethical and could be dangerous if and when the Maupin organisation themselves they will then control the world wide distribution. At that time there will be no need for any further local modification drawings.

To sum up:
An enclosed trailer is strongly recommended for the storage of your Woodstock, under construction and when completed.

It is possible to arrange for the fixed tailplane of the original design to fit into an enclosed trailer. See our ingenious and multifaceted skilled the Erudite Secretary Peter Raphael for details of his trailer, revised in our journal Volume 2 Issue 5, or get a copy from our Editor James Garay.

If you need drawings for a removable tailplane, check with Janice Maupin in the first instance. Otherwise I can supply local, Australians builders, with current issues of the Ken Davies modification.

PAUL JOHNSON'S "WINDROSE"
Flight Report

Type Windrose **VH-UII**
Test Number 12 & 13

Pilot Paul Johnson
Place Bacchus Marsh **Date 19/10/99**

Gross Weight 350Kg
CG Position

Temperature 14degs C
Air Pressure 1016

Runway 19

Conditions

Cool morning with moderate wind from the South to 10-12 knots. The day started with drizzle as I headed off to the field, and after a short burst of clear weather the day was a constant succession of storm cells with heavy rain, in between which our activity took place.

Modifications

Since the last flight the following modifications were carried out: -

- On the advice of Jack Flood the leading edge of the propeller was again given a rounded leading edge. The advise was that sharp leading edges do not work well at varying angles of attach and hence the takeoff performance will suffer.

- The Rotax 377 was replaced with a Rotax 447 engine. This engine has greater torque and an additional 4 HP. It is a direct replacement requiring no additional modification.

Static Thrust

Static thrust = 120 lbs Engine RPM = 5,850

This was only 150 rpm up on the last flight, not as much as I had hoped. I hoped that the increased RPM would result in better performance at 55kts than on the last flight.

Tale of Woe

As if the weather were not enough to contend with, we managed to puncture the tyre getting the glider fuselage out of the trailer. So leaving the crew to look after the glider, it was off to town for a new tube. Just as we arrived back the sky opened up and not only did the crew get wet but the clear patch of dirt was rapidly turning to mud.

Not without difficulty the wheel was refitted and the wings attached. This was not achieved until after we were forced to sit out and rain and have our lunch in the shelter of our cars.

Flight # 12

After a static thrust check was performed and the disappointment of achieving only an extra 100 – 150 RPM from the new engine was overcome I decided that there was nothing else for it but to give it a go.

This was the first flight where I had a significant head wind and obviously my take off run would be shorter and I would not be able to compare it with previous takeoffs. The only comparison would be in the rate of climb.

After starting the engine it was noticed that the air filter was not fitted. Forgetting the advise of Malcolm Bennet and with an eye on the approaching rain I decided that as there was no dust and I was operating of the sealed strip I would proceed without fitting the filter.

Disappointment as I slowly climbed to 2,200' in 18 minutes. The take off performance seemed ok but climb was still very modest.

I observed that the CHT was 325 degrees C and the EGT was 1050 degrees C both higher than previously, this I put down to the new engine.

Engine Off I found myself in sink of around 4 knots and despite the billowing clouds all around I failed to find lift and arrived back on the deck after a flight of 25 minutes.

Flight # 13

I was keen to do another takeoff and we decided that we should fit the air filter and as another two cells closed in it was decided that I would do a "quick' circuit and hopefully get the Windrose derigged before the rain arrived.

As I crossed the cross strip and was coaxing the craft into the air I was surprised to see the tacho reading a "bee's dick" under 6000 RPM. The climb out was positive in that I seemed to be going up consistently. It was then that I remembered that Malcolm had said that I would need an air filter, that carby opening side on to the air flow doesn't work.

At the point on the previous flight where I was at 100' I was now at 200'. At 1100' and with the rain now between me and the Brisbane ranges (8km away) I turned the engine off and headed for home.

I noted that with the air filter fitted the CHT was lower at just under 300 deg C and the EGT were down below 1000 deg C to 950 degs.

The climb to 1100' feet had taken 5 ½ minutes. As the day was quite unstable it would be foolish to draw too much of a conclusion from this one flight, but it felt more positive than previous flights.
On this flight I again found myself slightly high on final and carried out a sideslip, the Windrose slips very well. The sink with the spoiler open is only 4 ½ knots. The aim is to fit spoilers to the wings next winter.

Where to from here?

I will carry out a further modification to the propeller to achieve 6100 – 6200 Rpm (max HP). At this Rpm the tip speed will be at 250 m/s the point at which the noise and other losses increase markedly and I'm not sure that there is any benefit to be gained.

I have been reading a lot about propellers lately, thanks to some great material from Jed Terry (our pommy aeronautical engineer, glider pilot mate). With only a 35 inch space in which to spin a propeller and with an efficiency of only 38 –40% and a AUW of 780 lbs 200 feet per minute is about all that can be expected.

A few more flights will confirm if the performance of the last flight is repeatable. If it is it will be time to readdress other flight performance characteristics of the glider, like its polar among other things.

My thanks go, as always to my "crew" Keith Nolan and Doug Cameron without whose help and guidance this drawn out project may never have made it to this stage of development.

Both Doug and Keith thought that we had made a significant step forward today and that I should be happy with the results. Perhaps I had dreamed of a more significant improvement from a Rotax 447.
Paul Johnson

RALLY 200. Lake Keepit Soaring Club - Welcome pilots, crew and family of the Vintage Gliding Association and The Australian Homebuilt Sailplane Association 8-15 JANUARY 2000

Location :
The airfield is located in the Lake Keepit State Recreation Park and handy to the shores of the lake where your family/crew can enjoy swimming, boating, fishing, tennis, golf, bushwalking or just lazing in a peaceful setting.. Major towns are Tamworth approx. 50 Km-Gunnedah approx. 35 Km and Manilla approx. 30Km. The Nandewar Range is 70 Km to the North, two small ranges; Carroll and Kelvin are 10 Km to the West with part of the Nandewar range swinging south east towards Manilla.

Outlanding :
Lake Keepit is a irrigation dam and services the large wheat and cotton belt which is your main task area. Outlanding options abound. There are also many local homestead strips.(details are available at the club).

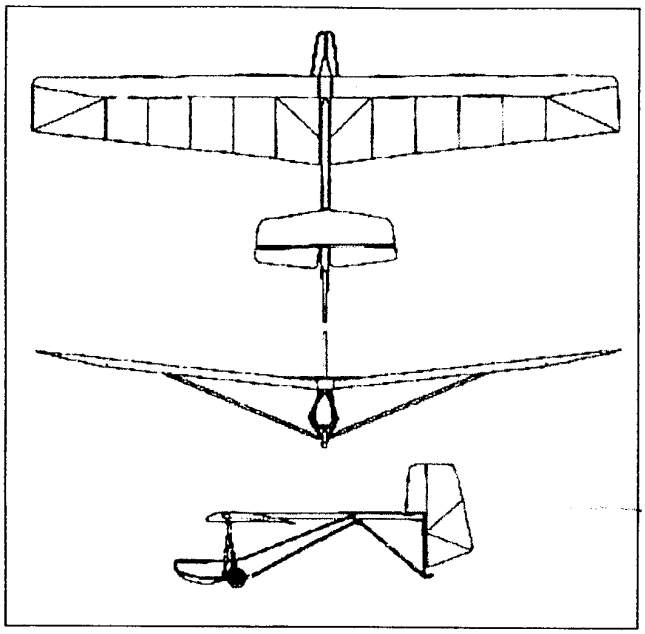
Launching:
Aerotow or winch launching will be available.

Hangarage and Tie Down area :
We do not have any spare hangar space but provide tie down facilities either on cable or using your pegs.

Accommodation :
The Club can offer unpower camp sites for $5.00 per day or new air-conditioned cabins for $20.00 per person twin share. Unfortunately caravans must be parked in the Park Trust camping area besides the lake approx. 3 Km away as this is a condition of our lease.

THE MOUNTAIN GREEN SUPER FLOATER

by Jim Jenz



An Ultralight foot launched sailplane designed and built by Klaus Hill and Larry Hall..

GENERAL DESCRIPTION.

Wing Span: 32 Feet
Area: 132 Sq.FT
Aspect Ratio: 7.35 : 1
Length: 16 Feet
Height: 5'6"
Controls: Elevator and rudder
Weight: 90 LBS
Construction " Fuselage and tail: 6061-T6 Aluminiun tubing, sheet aluminium, Styrofoam
Covering: Polyester (Dacron)
Airfoil: 12% Developed by Designers
L/D 1:14
Sink: 170 FPM. At 260 LBS. Gross weight with no streamlining in front

All joints bolted or riveted. Foot launched, can be landed on wheel. After take off pilot rest feet on tubing directly in front of him. Designed with the possibility of completely enclosing the pilot.

The SUPER FLOATER is one of a continuing series of foot launched flying machines developed by the Mountain Green Group of Morgan. Utah. Combining the features of current low speed aircraft and simple sailplanes, a new generation of personal flight has emerged. The use of modern materials and construction methods combine to produce improved performance with minimum construction time.

An aircraft construction project requires the use of only quality materials and workmanship which is of the highest standard.

The Cherokee sailplane

by Allan Ash

In a number of recent issues of the AHSA Newsletter I've seen an advert from Gary Morgan offering his Cherokee sailplane GLV for sale at what I consider to be a very attractive price. I'm surprised that someone hasn't snapped up this bargain. Perhaps it's because few people know about the Cherokee design and are concerned about buying an unknown type.

Let me provide a little background. I should emphasise that I am not connected in any way with Gary or his sailplane. I just don't like to see a good aircraft being overlooked for want of some information about it.

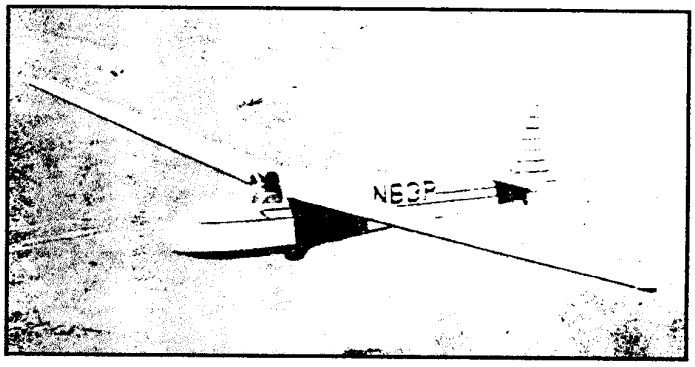
The Cherokee was designed about 1955 by Stan Hall in the USA. Stan should need no introduction to sailplane homebuilders since he is very active in the Homebuilt Sailplane Association in the USA.

In creating the Cherokee, Stan aimed at producing a sailplane of reasonable performance (for its day) that could be built easily and cheaply by amateurs in a normal 20ft garage.

The sailplane has a wooden framework covered with fabric. The two-piece, two spar cantilever wing has a span of40ft (12m), area 125 sq ft, aspect ratio 12.8. The fuselage is 21.5fi (6.5m) long including the rudder. The aerofoil section is Gott. 549, the same as the Olympia. The aircraft has an empty weight of 312lb and accommodates pilots up to 190lb (90kg).

Best glide ratio is quoted as 1:24, min. sink 2.5fps, stall 39mph, max. design speed 128mph, ultimate load factor 8.

Many Cherokees were built in the USA by homebuilders and some of these are still flying there. Stan Hall sold plans and also offered kits in the USA.



In the May 1957 issue of Australian Gliding I published an article and pictures of the Cherokee and as a result of this publicity many Australian glider pilots bought plans and began building the aircraft. As far as I can discover, at least eleven Cherokees were built and successfully flown in Australia. Gary Morgan's machine, GLV was built by Reg Barrington and first flew in 1960.

I have never flown a Cherokee but those who have give it high marks for handling both in the air and on the ground and its performance has been proved by many excellent flights, including participation in a number of Australian Nationals during the 1960s.

Because of the long fuselage and large tail feathers, the Cherokee has good longitudinal stability and good control responses. The Gott. 549 aerofoil provides a smooth, safe stall and there is no tendency to spin unless the pilot induces one.

Both entry and recovery from spins is reported to be rapid and smooth. During early test flights in the USA, one pilot made a 10 turn spin and reported excellent stability throughout.

One of the best flights by a Cherokee in Australia was a 250 miles

(400km) flight by Harry Crossman in GLV in 1972 when he flew from Forbes, NSW, to Benalla, Victoria, in about 7 hours. The actual time in the air was 8 hours 30 minutes and the track distance, via Yarrawonga and Shepparton, was close to 450km!
GLV was used also by Col Halyer to fly from Bathurst to Narromine (100 miles or 160km) in three hours and Maurie Nelmes used the same aircraft to fly his five hours at Bathurst without any worries.

I have no idea how many Cherokees still exist in Australia. My guess is that most are still around, though I don't know of any that are airworthy and still flying. I hope some are.
Back in 1982, Bob McDicken of Sydney rescued a Cherokee, FQU, which was in a very sad state of repair in Queensland.. It was restored to flying condition by Ron Meares and was put back into the air in August 1984. After flying it for some time, Bob sold FQU to a pilot in Queensland but I've heard nothing of its activities since then.
Some 10 years ago, Gary Morgan gave GLV a complete going-over, including a full new fabric covering and repaint. In 1992 he flew it at the Vintage Glider Association's regatta at Ararat, Victoria, and won four of the five contest days that were held. I don't think it has done much flying since then.
Perhaps there are other Cherokees in Australia that need restoring or put to better use than languishing in the back of a hangar or in a cob-webbed trailer. Such restoration could make an interesting project for some homebuilder.

1999 "A.H.S.A" SYMPOSIUM

At The Sportavia Soaring Centre. Briefing room Tocumwal Airfield.N.S.W. 13-14 November.

From left to right - Malcolm Bennett, Jim Jensz, Derek Hasse, Tim Berkes, Dete Hasse, Richard Schlennstedt, Mike Burns, Jim Garay, Gary Sunderland, Paul Johnson.

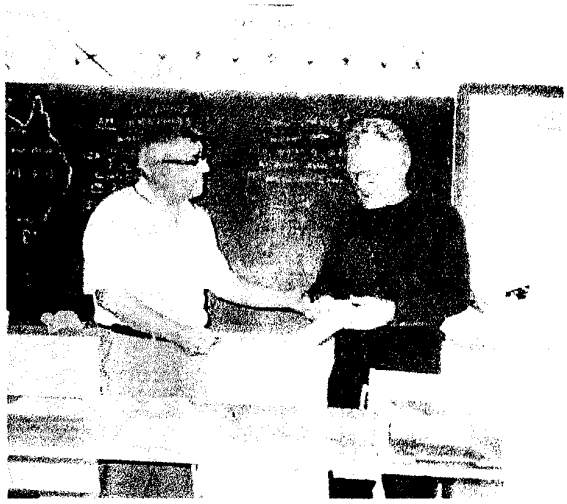
Member attendance was down this year, possibly due to the change of venue. Our thanks to the people at Sportavia for the use of their meeting room and excellent facilities at short notice.

Those who did attend had a feast in store, not just the excellent "WINGS" dinner on Saturday night, but also a varied and interesting series of presentations by members on building and flying their sailplanes.

President Gary Sunderland's opening address kicked of with the failed amalgamation, and our moves to establish contact with kindred spirits within the Hang Glider Federation, which was producing results.

New members and visitors from the HGF were welcomed to the meeting. Gary then went on to present John Ashford's paper on the glider flight envelope. This is of vital importance to all those who design or fly sailplanes.

After lunch Paul Johnson entertained us with stories of his WING DING ultralight adventures, leading on to the building and flying of his Maupin WINDROSE motor glider. At the moment this needs 1000 metres of hard runway and has a modest climb, but, as Paul says;" I am in no hurry" ! Power off handling is excellent and soaring is most enjoyable.



James Garay & Gary Sunderland

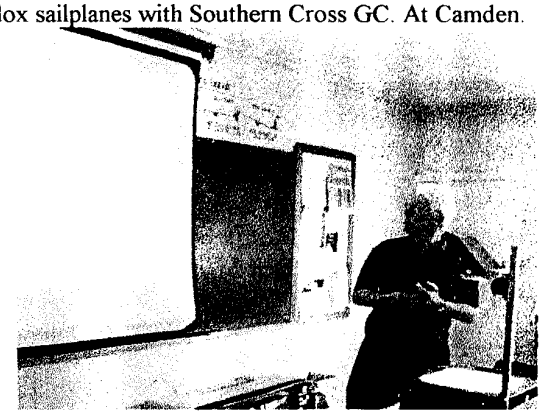
Paul intends to work on improving power trim and approach control as the next steps in his project.

On Sunday Graham Betts flew in from Sydney, not in his CARBON DRAGON but just a Piper SPAM-CAM with a number of friends.

Nevertheless Graham brought videos and lots of photographs of his BEAUTIFUL BETTSY a Maupin CARBON DRAGON built from plans.

This is one of three DRAGONS now flying in NSW. The CARBON DRAGON was originally designed to be foot launched and weighs only 75 K. It is a little over this when fitted with a tow release, seat harness, emergency parachute, and instruments.

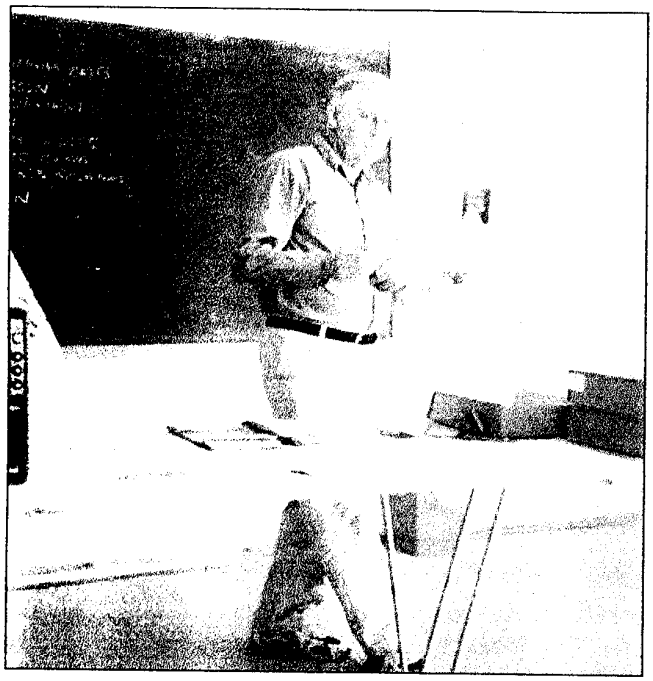
Practical launching is by car tow or aerotow behind a TRIKE, Graham is a HGF member but has some gliding training in orthodox sailplanes with Southern Cross GC. At Camden.



Paul Johnson

With such a low wing loading the stall is only 27 MPH and normal flying is below 50MPH, strong turbulence and winds are to be avoided, as are the slipstream of normal gliding tugs! However the CARBON DRAGON are very suitable for exploring gentle lift in the early morning, or in days which are not considered 'SOARABLE' in orthodox sailplanes.

Graham described the building process, just like a large model aircraft, and his three years of flying his sailplane as having fun



Graham Betts

From this presentation the meeting then held a forum on Ultralight Sailplane operations generally and the CARBON DRAGON in particular. This was a useful exchange of ideas, and the meeting decided to forward the results to the HGF and the GFA for information and any action considered necessary.

After lunch the meeting gathered at Mike Burns workshop nearby, where we inspected Mike's BREGLIEB BG-12 this is in excellent condition after many years of service and is a demonstration of Mike's workmanship and the longevity of modern urethane finishes.

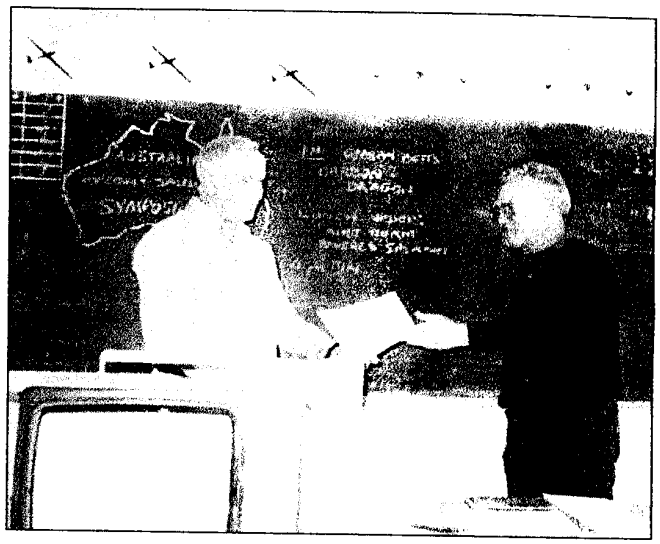
An interesting commercial project on display was a MOTORFALKE SF 25 B/C being re-engined with the Australian JABIRU four cylinder engine, this was at an early stage, but Mike told us that the figures were looking good, with the possibility of a worthwhile improvement in performance.

The highlight of the Symposium was Mike's demonstration ground running of the JET POWERED CAPRONI, two seat, self launching sailplane.

A local group have taken over this project from the old Caproni organisation, and are making many changes, to improve safety and simplify the operation of the Jet Engine.

The big improvement in safety comes in the rare event of an engine failure, when the CAPRONI has full glide performance available. This contrast with current self launchers using propellers, which have very poor performance available until cleaned up.

On the other side of the equation is the current high cost of turbine engines. Mike had news of likely developments in the near future which will see relatively cheap and practical Jet Engines available for small general aviation aeroplanes.



Graham Betts & Gary Sunderland

On this HIGH note the Symposium ended, with much talk of model aircraft Jet Engines, now available at $7000 each, and clean light sailplanes from wood and carbon fibre, light but strong.

All our thanks go to our humble Hon/Treasurer and Editor JAMES GARAY, for organising this year's SYMPOSIUM. As we broke up to go our several ways JAMES was already starting the organisation for the year 2000 meet. This will see at least two WOODSTOCK and a DUSTER flying Already Graham Betts has promised to JIM to bring his CARBON DRAGON and possibly other rigid wing hang gliders are to be demonstrated.

The venue will be chosen so that all the lightweight sailplanes may be operate safely.

The A.H.S.A. look forward to the year 2000 with enthusiasm and excitement for future developments in homebuilt sailplanes.
Gary Sunderland

CASTLE IN THE AIR

By William Wood

During a recent visit to the RAAF Museum at Point Cook near Melbourne I was most interested to see Supermarine Walrus HD 874 under restoration, a fine effort by dedicated craftsmen. This aircraft was the last Walrus to fly with the RAAF, so I was informed, and was recovered from Heard Island in Antarctica where it had been abandoned after a flying incident.

Gazing at the venerable old "Shagbat", as the Walrus was nicknamed, my thought flew back to a time in World War 2 when my cousin Bob was WOP/AG (wireless operator/ airgunner) on a RAF Walrus operating with the Air Sea Rescue Service.

He told of many hairy rescue sorties, of being shot at by trigger happy matelotes from his own navy, necessitating a blistering reply via the Aldis lamp, and of one particular rescue in the Channel in the Summer of 1944.

They had plucked a ditched American flyer from the drink and arranged to put down alongside a USN cruiser. The Walrus had suffered minor damage from either friendly or enemy gunfire thus it was decided to hoist the aircraft on board, unload the American pilot who was in reasonable good nick despite having imbibed several tots of rum, and check the Walrus if O.K. for further operations.

A crane was swung out, Bob then clambered atop the upper centre section, secured the sling cables and the Walrus was hoisted on board. As the pilot and co-pilot alighted in front of gawping members of the ship's company, one of the Americans reverently removed his cap and in awed tones enquired: " Uh, the Wright Brothers I presume?"

Bob vividly recalled his somewhat bemused Pommy skipper exclaiming" "I say, steady on, old chap - we're not that ancient y'know" However, the hospitality shown by the US Navy, he added was quite memorable.

Bob a wiry little Eastender, was a sheet metal worker in Civvy Street and trained as a rigger in the RAF. As we shall see later, his skills with metal, wood and fabric would be put to good use. Hankering for more excitement he remustered as a WOP/AG and certainly got it when he joined the pilots of the aforementioned old amphibious biplane. Incidentally, the Walrus was probably the oldest basic aircraft design to participate in the war and rescued more than 5,000 aircrew around Britain and over 2,500 in the Mediterranean theatre.

The skipper, Percival "Chalky" white, a lanky drop-out from a top public school unflappable and genial of nature, loved his ancient kite. His co-pilot, Charles "Dusty" Miller was a stocky laconic Aussie from Outback Queensland, hard as nails and rock steady in a crisis.

On their last sortie as the wardrew to a close they were bounced by a JU88 and instantly went into a tight defensive circle. Dusty got cracking with the forward Vickers MG while Bob manned the rear gun. The Junkers was taking some pretty accurate pot-shots, holes appeared in the wing fabric and Chalky got a 7.92mm round in his right thigh. Dusty's gun jammed and Bob ran out of ammo, so things stared to look a trifle dicey until a red tailed P51 Mustang hove into sight. The JU88 put up a good fight but gave up the chase after receiving "the full nine yards" of the Mustangs 0.5in ammo. The Walrus crew waved and cheered like billy as the black American pilot gave them the OK sign and then vanished from view at the high rate of knots.
A year after the war ended found Chalky in residence at a large rambling old house on the Sussex Downs in Southern England, close to the site of the pioneering glider launches. His new wife Harriet had inherited the ancient mansion and estate from an eccentric uncle, a student of the feminine form and painter of dubious talent. Dusty had got hitched to a former WAAF and was now ensconced in the nearby seaside resort of Brighton, thus he was a constant visitor to the home on the Downs.

The two men, avid aeromodellers from their youth, hatched plans to build a full sized glider, however, much to their chagrin, Harriet wad dead against the idea, citing her husbands dickey leg and threatening curtailing of the jolly old conjugals if he went ahead with his silly idea.
One evening as she left for her bi-weekly game of Scrabble with local girlfriends, the men, failing to observe the strange gleam in her eyes, stared gloomily into the glowing log fire. Suddenly Chalky leapt to his feet. "Colditz, that's it - bloody Colditz!" he yelled. Dusty, startled out of his reverie, looked up in alarm. "You alright mate?" Chalky grinned. "Couldn't be better, old fruit. Here's the gen. Remember those POW bods at Colditz Castle? Built this glider in the attic, quite undetected, y'know. They were liberated before it flew. Just as well, perhaps - the launch method seemed a trifle dodgy. Follow me!"
Dusty, mystified, tagged after his gungling pal, up a winding staircase, along dusty creaking corridors, finally emerging into what proved to be a huge attic studio, lit by large grimy skylights. Finished and half finished canvases lay against the walls. Dust covered easels and artists bric-a-brac littered the floor. "Struth!" breathed Dusty. "Look at these flamin' nudes!" Chalky laughed. "The old boy certainly had and eye for the ladies. That lass there is now our local Mayor!". He then outlined his idea. "Draw up the plans, work on the glider whenever Harriet is away. Bob Harris married a London scrap merchants daughter and can scrounge all the war surplus stuff we require and provide technical help to boot." Dusty's face lit up. "You beauty" he enthused.
The studio was situated above the old stables a door at the far end of the room gave access to a sizeable granary, which to the men delight possessed a loading platform with pulley beam protruding above the wide opening to the outside world. The glider was to be a basic slab sided, strut braced high wing open cockpit job, nothing fancy. If the project panned out o.k then bigger and better things next time. When the coast was clear Bob delivered the goods in a large trailer and soon the project was under way. Work proceeded a pace at every opportunity. Harriet returned after each outing to find the three men, oddly flushed of face, yarning about old times.

The months went by, Christmas drew near and Dusty became increasingly uneasy. The studio floor creaked ominously. "The place is full of bloody borer!" he warned. Chalky cheerfully reassured him. "Finest English oak, old boy, good for another hundred years!"
Snow began to fall on Christmas eve and Harriet was due to return after a week with her old school mate June. The glider fuselage, now neatly covered, sat on trestles, the mainplanes also covered were stacked against a wall. Bob surveyed his handwork with pride. Doping would be done in the spring. Dusty had taken photos at each stage of construction and now sat the beaming Chalky in the cockpit, stepping back to take a long shot. Meanwhile Bob had nipped downstairs to ferret out a bottle of champers. As the camera clicked there was a sudden loud crack, followed by the dreadful sound of rending timbers. Before Dusty's horrified gaze the fuselage, complete with its startled occupant, disappeared from sight, followed by a dull thud and clouds of choking dust. "Bloody hell!" he gasped and shot off to pick up Bob in the kitchen below. "Chalky's had it mate! To the stables at the double!"

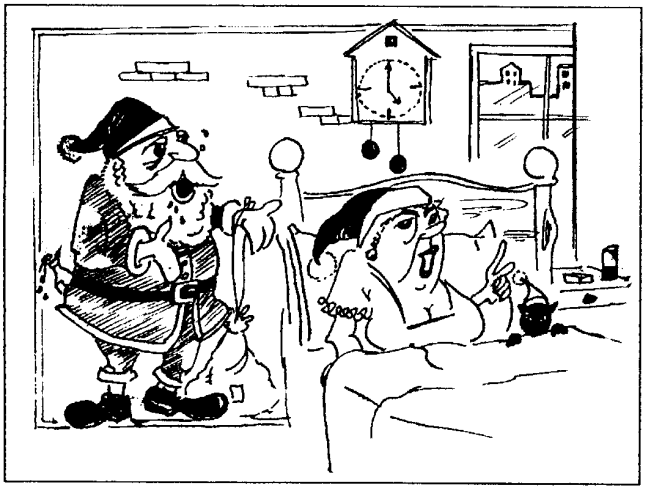
The panting duo arrived at the stables just as Harriet drove up in the old Bentley. "What's going on?" she demanded as the men wrenched open the doors. There before them was the fuselage on the flattened pile of straw with a sheepishly grinning Chalky still in the cockpit. "Seems we've been rumbled old darling", he said.

Hands on hips Harriet glared at him and then softened. "Oh you silly boy - you could have killed yourself!" Bob and Dusty turned to hide their grins.

Later in the big warm kitchen over hot toddies, Harriet said quietly: there was no need for all this, you know. I was organising a surprise for Christmas." She smiled as the three old friends eyes her curiously. "At this very moment" she continued, "sitting in Junes garage are two large cases sent by her husband Jim, a Squadron Leader stationed in Germany." Harriet paused for effect. "It seems he souvenired a nice little Baby from Herr Schneiders factory in Grunau before the Ruskies got there and believe it or not you bunch of nutters, it's all yours!"

Bob was the first to break the stunned silence. "Blimey," he muttered. "What a turn up for the look!" they were still laughing as Christams Day dawned and the country side lay peaceful under a mantle of snow. Soon thoughts would turn to Spring and with it the glorious prospect of silent flight.

SMILE ☺...



"Not only do you come rolling home at 5 A.M, but then try to tell me that you've been flying around the world on a thing pulled by a Reindeer with a red nose, yelling out Ho-Ho-Ho! at the top of your voice, climbing down the chimneys of complete strangers, pigging out on biscuits and glasses of milk, then filling empty panty hose with toys...GIVE ME A BREAK!!!"

A man called the King Brothers Chinese Restaurant for some food: " Hello...King Brothers Restaurant." A man answered.
"Are you Wang-King the Manager ?"
"No...I'm Foo-King, the Chef."
"Sorry... I'll call back when your not busy."

---------OOOOOOO--------

Two Australians in London who were down on their luck saw an advertisement for two footmen at Buckingham Palace. "References essential it said. "That's O.K.", said Col, "We can write them out for each other."
They arrive at Palace and offered the Queen two glowing references." Our servants dress in formal Scottish attire. This means wearing kilts, so drop your trousers while I check your knees."
The Aussies were a little surprised, but they did so. The Queen gave the knees a nod of approval and said, "Okay, now let me see those testimonials."
After they were thrown out of the Palace, Col said "Y' know, if we'd understood the local lingo. I reckon we could've got that job"

Ed's note: *Please - no complaints, if you don't like it...don't read it!*

A LITTLE BIT OF GLIDING IN AUSTRALIA
By Allan Ash

Charles and Len Schultz

Charles Schultz was a master builder an ran a contracting business in Sydney. His youngest son, Len, then only a small child, later became prominent as radio engineer. Len learned to fly in 1929 and in the following 20 years became president and a leading instructor of the Royal Aero Club of New South Wales and an active member of the Sydney Soaring Club.

Harold and Helmsley Jones

A biplane glider, similar to that of the Wright brothers, was designed and built by Harold and Helmsley Jones of Adelaide about 1912. The elevator was mounted in front of the wings and the rudder behind. It had a wing span of 25 feet and chord of 5 feet. Lateral control was achieved by warping the wings and the undercarriage consisted of a pair of wooden skids. The glider made a number of flight, being launched off a greased board from a suitable slope. Altitude reached was rarely more than a couple of feet.

Later, the Jones brothers fitted an engine but the outbreak of war and the enlistment of the brothers in the armed forces brought an end to the project.

Howard and Eric Morris

About 1914, in Bendigo in Central Victoria, two schoolboy brothers, Howard and Eric Morris, built a biplane glider of their own design. It had a span of 26 feet and stood about 8 feet high. The layout followed the usual pattern of the period, with unstaggered biplane wings, and elevator in front and a rudder behind. The broad framework of the fuselage was supported by two bicycle wheels and a tail skid.
The glider flew quite well and both boys made a number of successful flights before their parents decided the activities were dangerous and made them stop. Their enthusiasm was not dampened however, and both Howard and Eric became involved in gliding again in 1929.

Vernon Knowles

Vernon Knowles, the 16 years old son of an Army officer from Marylands, South Australia, designed and built a glider of about 20 feet span in 1910. It was a very small, light, boxkite structure with a conventional tail carried behind on a light booms.

The undercarriage was a pair of light skids. Knowles and his friend flew the glider at Magill without a pilot on several occasions, control being maintained by a pair of runners, grasping lengths of rope attached to the lower wingtips.

Later, the glider was flown by Knowles and several other youths, though its small wing area limited the weight of any prospective pilot.

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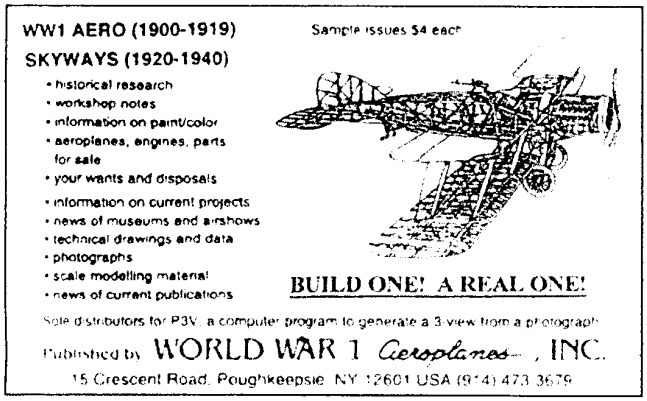

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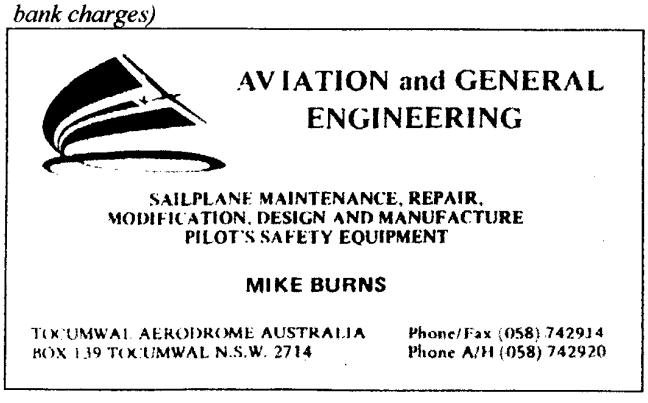

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The Australian Homebuilt Sailplane Association

home Page can be found at:
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Webmaster: Peter Raphael - pete_raph@yahoo.com
This new medium will be used to periodically include new information regarding our association as it comes to hand.

Thus far, it includes:

- A builder's profile- Peter Raphael and Terry Whitford's " Woodstock" VH-HNW and Malcolm Bennet's " MONERAI" VH-HDF. And shortly we will have Paul Johnson's "WINDROSE" VH-UII(Please feel free to send your" profile" for inclusion.
- A list of approved (in Australia) types for home construction.
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