THE AUSTRALIAN HOMEBUILT SAILPLANE

Editor: James Garay

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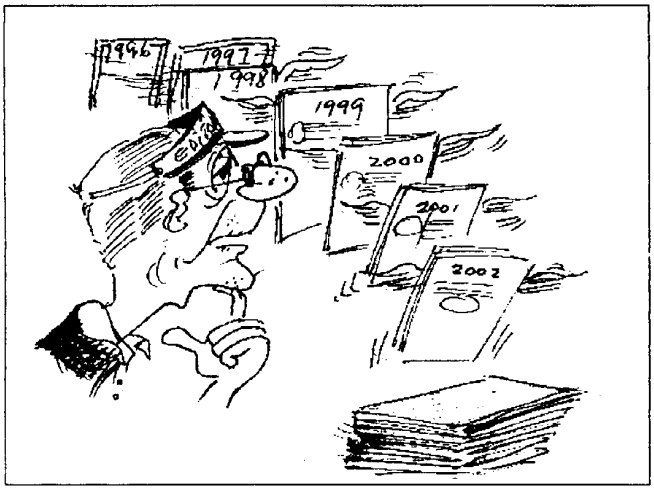


Editorial March 2002

Here I am again, with this issue I complete my sixth year as Editor of the AHS journal. However, I feel the time has come to tell you that I am very concerned about some letters I have received criticizing the content of the newsletter. I trust you will excuse my transgressions of spelling and grammatical correctness for as most of you will know, English is not my native tongue. I am sure I could achieve a higher degree of correctness in the Spanish, Italian or French languages, however, I doubt that you dear reader would find the content as interesting as you now do.

Therefore until I am deposed of my position as Editor I will continue in my own inimitable style. It is not possible for me to please everybody and I guess, those that I can't will vote with their feet and move on.

The most controversial area of the publication is the jokes and I would be very happy to accept contributions of a humorous nature that the readership feel would be more suitable for reproduction in the magazine. I am happy to accept any positive criticisms that are supported by positive action.

In this issue there is an honest dialogue between pilots in relation to pilot relief systems. While it is presented with some candor and humor it is a serious subject and much is there to be learned. "

Wise Men learn from the mistakes of others, fools learn from their own".

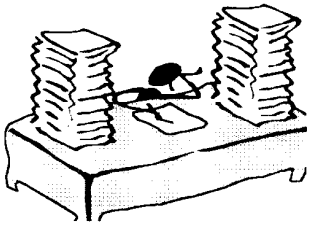
This is the last issue of your annual subscription, renewals are due now and it is very hard for me to ask you for your support, because we rely on you the subscriber. You will find the renewal form at the back of this issue. Please return it with your remittance as soon as possible to ensure the ongoing receipt of this humble magazine.

I take this opportunity to thank all of those who are behind me; I am not going to mention any names because they all know who they are.

Happy building.

James Garay.

A.H.S. Editor.



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Inside This Issue

MAIL BOX

G'Day James.

Please find enclosed cheque for my subscription. Do you have any new of some other blokes who are building or designing their own glider? Jim Jenz.

Dear Jim.

I don't know what literary gem you expected from me but here is my humble attempt to comply with your request.
Its hoped you have been getting more hours up in your Woodstock; it is a real fun machine.

All the best for now until I catch up with you again at the Marsh or else where. Regards. Doug Lyon.

Dear James.

I have just read and enjoyed the December issue of the AHS newsletter. You are doing a splendid job on this project.

I was delighted to read of the successful test flying of the Woody-roo. It must be great for you to spend time flying the sailplane instead of building it. I hope you are able to spend many happy hours soaring it to your heart's content. Yours for the continued growth of fun-soaring. Allan Ash.

Dear James.

Thanks for the information you gave me the other day re my Woodstock.

I must say that your charge of " two pages for the March issue of the A.H.S newsletter " is a bit steep but you have got me and I have to oblige. I will get a quote from you next time before you answer my questions. Regards Alan Bradley.

Ed's Note. Thank you very much Alan for the article about your Woodstock construction. It is somewhere in this issue,

TECHNICALITIES

CANOPY MATERIALS.

The canopy is the eye of the glider as it is on any aircraft and great care should be exercised to ensure that it is maintained in good condition at all times. There are three good reasons for this:

(a) The high cost of the component.
(b) When perspex (normally used for making canopies) is not properly maintained at regular intervals it will get into a state where it is impossible to restore it to its original condition.
(c) Canopies which are not maintained at regular intervals are a safety hazard.

MATERIAL USED.

The name "Perspex" is often used to describe all transparent plastics as it is most commonly used in Australia for aircraft work.

However Celulose Acetate sheet and mouldings are sometimes used under diferents trade names Rhodiod", "Novellon" and others,made to specifications F.56.

Methyl Methacrylate, which is made to specification D,T.D.339 under the trade name "Perspex" and "Plexiglas" has several advantages over Celulose Acetate.
Both materials are readily moulded to shape after softening by the application of heat.
The detailed treatment of the two types is different and they can be identified as follows:

	Methyl Methacrylate	Celulose Acetate	Remarks
Markings	D.T.D 339	F.56	Stamped in corner of sheet, in addition to trade name
Colour	Colourless	Tinted Green Pink or Blue	When seen edgewise
Rapping	Ringing Note	Dull Note	Only reliable by comparison
Burning	Clear flame, will burn downwards	Smoky flame, will not burn downwards	Use a small strip

Others materials such as celluloid, Vinyl Sheet and Oriented Polystyrene, are sometimes used in sheet form but will not be considered further here.

CLEANING AND CARE.

Canopy materials are prone to damage, They are easily scratched and are affected by paint, dope, dope solvent and their vapours. A good habit is to keep canopies covered when not in use with a flannelette cover.

Canopies are best cleaned with water, using a little soap or detergent and a clean cloth, free from grit.

If painting or doping operations are to be carried out, clear vision panels should be removed or protected inside and out with a fresh tissue paper cover, using soft soap as an adhesive.

The canopy is usually attached to its frame by countersunk screws. These should be left fairly loose to allow for the considerable expansion and contraction of the plastic sheet. If the screws are tightened and the canopy taken out into the sun the stresses due to expansion will result in a crack. In particular " Perspex " is a rather brittle material and if no attempt is made at repair the small crack will continue to grow and result in a major failure.

REPAIR OF CANOPIES.

The crack may then be "welded" by continuously painting in a solvent with a small brush. Alternatively a "dam " con be made with plasticine to hold the solvent. Use Ethylene dichloride with Perspex and Acetone with cellulose Acetate sheet.

For larger repairs it will be necessary to " Vee " out the break and fill with glue. Reinforcing patches may also be required, Perspex glue can be made by dissolving Perspex chips in Ethelyn-Dichloride or Glacial Acetic Acid.

Cellulose Acetate can be repaired with ordinary model (hobby) cement.

For major repairs, such as a canopy completely broken in two, there are commercial firms which do this work. In this case the canopy is heat welded in a machine.

POLISHING.

To remove the marks of repair or accidental scratches it will be necessary to polish the canopy. Start on the repair with " Wet and Dry " cutting paper to 600 grade. Then buff with "Brown Tripoli ", then " White tripoli " and finish off with " Repo No. 2 " car polish, toothpaste or " Brasso ".

Alternatively a polishing kit may be used available from auto accessory store.

Use a linen pad as a buff, working in a circular motion with the hand. If a machine buff is used, care is necessary to avoid overheating of the Perspex.

It is most important to use a trial panel before starting on the canopy to develop a technique and avoid using too coarse buffing compound than is necessary.

FITTING A NEW CANOPY.

If a replacement canopy moulding is obtained from the manufacturer this will have to befitted to the frame. Canopy mouldings vary slightly in shape and if they are forced onto the frame the resulting stresses might result in a crack. Therefore it is necessary to soften the moulding with heat and deform it to the shape of the frame.

This is best done with the canopy frame mounted on the glider, in the case of a light frame such as used on the "Kookaburra". Obtain the best fit possible and start attaching with screws at the rear, working on both sides towards the front, using 1/32" clearance drill size.

An ordinary single bar electric radiator is a convenient source of heat. When applying heat to an area the remainder of the canopy can be shielded with a piece of plywood.

If this is not done there is a chance of distortion in the shape of the canopy. Such distortion should be minimized to ensure the clearest possible vision.
After forming the canopy it is most important to allow the perspex to cool and contract before proceeding.

WHAT'S NEW?

MANQUE (Condor) ULTRALIGHT GLIDER.

Progress is being made on the Manque glider,- being constructed by Alejandro Ramirez Pineiro and a group of builders in Chile.

They are at the point of defining kit and sub-kits and anticipate having a better knowledge of the pricing. They are also modifying the website, check it out at <www.manque-aircraft.com>

No wing modifications are planned for the prototype #2 at this point.

LEADING EDGES:
Carbon fiber/PVC foam sandwich, constructed in one piece.
MAIN SPAR
Carbon fiber/PVC foam/plywood, one piece

REAR SPAR:
Carbon fiber/PVC foam/plywood, one piece

RIBS (FRONT MAIN SPAR):
Carbon fiber/PVC foam-only 3, root ,tip and water tank closing

RIBS 9 BEHIND MAIN SPAR):
Plywood/spruce

AILERONS:
carbon/PVC foam with 4 internal ribs.

FLAPS:
Carbon/PVC foam with 4 internal ribs.

FUSELAGE:
Fuselage pod skins: Fiberglass/PVC foam

BULHHEADS/FLOORS:
Fiberglass/PVC foam/ plywood (including boom ribs)

SEAT:
Carbon fiber/honeycomb/kevlar.

BOOM:
Carbon fiber skins

VERTICAL STABILIZER/RUDDER:
Foam core with carbon fiber skins.

HORIZONTAL STABILIZER/ELEVATOR:
Foam core with carbon fiber skins

VERTICAL AND HORIZONTAL SPARS:
Carbon fiber/PVC foam/plywood

Modifications planned for prototype #2. Note: Plywood is used to hold metal fittings only.

-All skins and bulkheads made with carbon fiber/PVC foam
-Increase the boom diameter and use a circular section instead of elliptical

-Boom and vertical stabilizer made in one piece (two half skins from mold)
-Horizontal stabilized made in mold with carbon fabric/PVC foam.

HINTS & TIPS

BATTERY CHARGER.

By Peter Champness

The sealed lead acid battery in my glider lasted only one flight after I bought the glider, then went fatally flat and never worked again. This was the second time that one of my batteries had had a very short life. I wondered why and found out that lead acid batteries like to be fully charged all the time. A quick way to ruin a battery is to let it go flat and leave it in that condition.

I was wondering what sort of a charger to get which would not be too expensive. It occurred to me that the battery charger in the car (alternator) is adjusted to keep the car battery fully charged. Since it takes me about two hours to drive to Bendigo and the same on the way back, I thought that if I could wire into the car charging circuit I could charge the battery before I got home and top it up on the drive out to the gliding club next time.

This turned out to be quite a simple matter. The cigarette lighter is designed for moderately high currents so if I could get a plug for the lighter socket I could connect my glider battery. Dick Smith sells the plugs for about $1:50. The more expensive plugs have screw connectors for the wires but the cheap ones work just as well if you have a soldering iron to make the connections. The center pin is the positive terminal. The system has worked well and the battery stays fully charged.

I am told that batteries can occasionally explode when being charged so it is a good idea to use long leads and keep the battery in the boot (more difficult if you don't have a fold down rear seat). Also don't smoke in the car if you are sharing the cabin with the charging battery as some hydrogen gas is released which can cause the explosion.

It is fairly easy to damage the electrics of your car if you get the wiring the wrong way round. The second time out I connected the alligator clips to the battery the wrong way. The fuse blew, which is easily replaced. Unfortunately on my car the radio shares the same fuse as the cigarette lighter. After a while I noticed that the radio didn't work and about one hours drive later I figured out what had happened. I put in a new fuse, which fixed the cigarette lighter, but radio still doesn't work. The radio has a security code which has to be entered each time the power is disconnected. This discourages thieves from taking the radio. Unfortunately I don't know the code!

Disclaimer: This is not what I advise you to do. The battery vendor does not recommend this method of charging the battery

STORAGE CONTAINERS

I collect lots of junk in my garage in the expectation that it might come in handy someday. When someday comes I can never find the bits I want because they have been hidden by other junk. The answer is probably to put everything away in boxes and carefully label the boxes so that everything is in its proper place. That would take a lot more time than I have got.

I have found that the plastic containers which Chinese takeaway food comes in make very handy storage containers. My wife likes to throw them all out but I forage around in the bin and find them all again. They can get a bit messy in the bin but with a quick wash they are just as good as new! The plastic containers are a very good size for small collections of screws. bolts etc and can also hold small assemblies. When the lid is on they are quite watertight and the lid won't fall off accidentally and let everything spill out. They stack well so they can be piled up on the bench or shelf without taking up too much room. What is more, because they are made of clear plastic the contents can be seen from the outside without taking the lid off.

Comments on SLA Batteries.

By Peter Raphael " The Erudite"

Peter Champness has written an interesting article on his solution for maintaining a charge on his Sealed Lead Acid (SLA) Battery. I thought it would be appropriate to add some facts related to these batteries to dispel some of the more common myths.
SLA batteries are thus named due to the fact that the cells are effectively sealed to the atmosphere and the electrolyte is absorbed into the plates and the separator material. Therefore damage to the case will generally not lead to a significant loss of corrosive electrolyte. However this does not mean that they should be treated with any less care than a conventional car battery.

. These characteristics make the battery safe and suitable for use in gliders, however they do have specific requirements to ensure their longevity and safe use. The 12volt 6.5 Ah cell is probably the most popular cell for this purpose and it is towards this that I will direct my comments. These cells can be used in any position although due to the possibility of overcharge, charging should not be done upside down

As with the conventional Lead Acid battery, in the latter stages of charging gas generation occurs. In the gelcell this gas is produced at the positive plate and is absorbed at the negative plate. However, if the charging current exceeds the specified value then it is possible that this cannot all be absorbed by reaction. In this event the internal pressure will rise along with the possibility of the safety vents opening to allow gas to escape. This effectively equates to a loss of electrolyte and consequently a loss of capacity and therefore should be avoided at all costs. Fortunately, the most common method used, constant voltage charging, is an effective and safe method of charging the battery. While most cells will have printed on them the appropriate charge voltage range a 14.7v +/- 0.2v charge at 20 – 25c ambient should result in a full charge within 18 hours. Current should also be limited to 0.4CA or 400mA per Ampere Hour of battery capacity. Peters' use of his car battery and its nominal charging range probably go a long way to meeting these requirements, however as the car battery reaches a state

of charge the alternator voltage will reduce to less than optimum for charging the SLA Battery. I would recommend some judicious monitoring of voltages and currents to confirm that the conditions defined above are met, if you wish to adopt this method of charging. Due to the more delicate nature and requirements of these cells the automotive charger is not a suitable substitute, but with additional circuitry can often form the basis of an effective SLA charger.

For general use there are a range of simple or complex chargers or charging circuits in kit form available from Electronics stores. My personal unit is the Silicon Chip August 1992 design based on the Unitrode UC3908 intelligent charger chip that automatically switches to one of three charging modes, main, trickle and float, along with applying temperature compensation This kit can charge 6 and 12 volt cells in a number of capacities up to 10 Ah

A word on the life of these cells. Manufactures indicate that approximately 200 cycles at 100% discharge and up to 1200 cycles at 30% discharge can be expected, with a 'float' life of about 3 ~ 5 years. Self discharge is relatively low at around 50% in 12 months at 25c , each 10 degree fall in this value will double this time. Obviously these states are dependant on the conditions of use, however I do know that the 4Ah battery that I use in my Woody was taken out of service in an alarm system many years ago and bears indications of a test date at some time in its life, of 1990 . This battery is still providing effective service today! In summary , keep it charged , keep it cool, be kind to it and your SLA Battery should last you a long time.

Some general characteristics based on the Panasonic LCR 12V6.5P

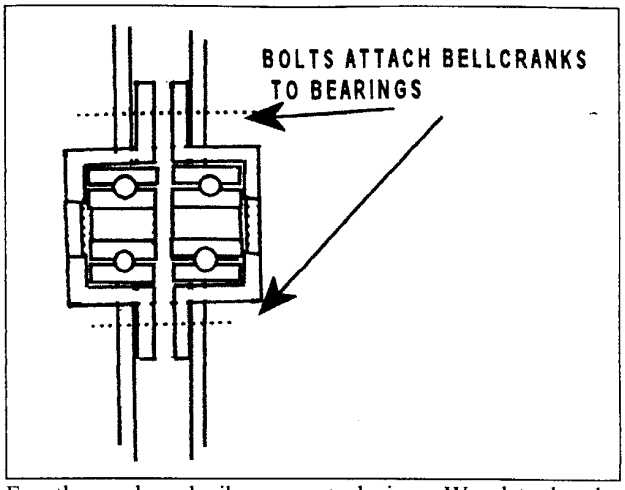
Voltage	12v
Capacity	6.5Ah at 20 hour rate 4Ah at 1 hour rate
Self Discharge	82% after 6 months 64% after 12 months
Max Discharge Current	80A (continuous)
Cyclic Charge (const. volts)	14.5 ~ 14.9v @ 25c
Float Charge (const. volts)	13.5 ~13.8v @ 25c

BELLCRANKS AND CANOPY.

By Malcolm Bennett.

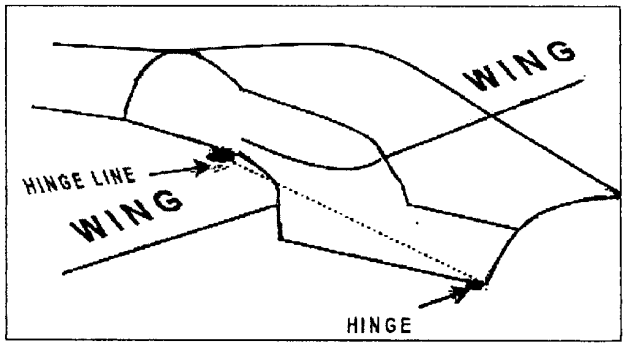
Cost saving is in mind of the average homebuilder. Here is one idea that can save you considerable dollars if you have a lathe or a friend with one that you can use.

Bellcranks in aircraft are usually mounted on a double row flanged ball race. This bearing now costs $200 each if obtained from any of the bearing or aero supply houses. Now with a little cunning and time a unit to do the same job can be made for $8 for 2 x 6 mm sealed ball races. Plus, you need to turn up in the lathe a flanged cup for each race that when fitted face to face does the same job. Total cost Bearings $8 plus scrap aluminium $1-2 total.$10.



For the push rod aileron controls in a Woodstock where 4 bellcranks are in the wings plus the crank in the fuselage this can come to a tidy sum. Enough for 10 sheets of ply to form D noses with.

Another thought to make operation of the aircraft easier when on the field. Change the canopy to a side hinge unit rather than lift off with its problems to fit and remove by yourself in the aircraft after landing.



The canopy can be hinged if the hinge line is through the front corner and the top of the wing with the hinge line off set say 20mm out from the face of the canopy. This allows the section of the canopy that wraps around the front edge of the wing to lift away and rotate as the canopy is opened.

Sketches above show bellcrank bearing housing and hinging of canopy.

Canopy hinging can save you a canopy on a windy day as the hinging means that the canopy is attached to the aircraft and not free to blow off or fall over when taken off for you to get out on landing.

Peter Raphael has lost one canopy to wind, which lifted off the fuse landing upside down and exploding in all directions. Think about it, a bit more work now makes life easier thereafte

SHOP TALK

TO PEE OR NOT TO PEE

THAT IS THE QUESTION !

The following thread was taken from the internet newsgroup rec.aviation.soaring in answer to a question that faces all pilots from time to time.

Original posted question
I am sure this has been covered but I am fairly new and am not sure where to get info so here goes.

I have the pee system hooked up and routed to my landing gear--I have a tee in it with a clamp that I can "blow out" when there is urine in the line--the tee being hooked to an external catheter. My question is--When do you hook up this contraption? Hard to do in the air while thermalling--Don't want to hook it up on the ground while waiting for tow--Don't want to walk around with a tube sticking out of zipper!! I am truly perplexed as to what to do and what others do. Any serious responses would be greatly appreciated--no cracks about giving myself a BJ with the "blow out" tube!!
TangoMike24

Reply

I discretely put on the external catheter and zip up before I get in the ship. Once in the ship, I hook up to a latex junction tubing using the connector set sold by Tim at Wings and Wheels (www.wingsandwheels.com) . The latex tubing is flexible enough to handle routing in the pants. No point in hanging out as that leads to sunburn and funny looking reflections in the canopy.
Jim
N483SZ

Just dangle it out the clear view...I always hate it when I bang against the rudder though. A 1 Gallon Ziplock bag also works pretty good too.

Is that why you're in perpetual left yaw?

Jim
N483SZ

New canopies filter 90% of the UV out and your d**k gets no sunburn. But I use the same system a long time already, it works well and I never had a leak. A good thing is to have a manual valve in the tube, between bag and the self gluing condom - just for safety, because the bag might be higher than the tube/body connection.
CH

I've tried both systems, ziplocks and catheter/tubes. Wrestling with trying to pee uphill into a bag never quite worked for me. The seating attitude is a problem, for psychologically releasing the floodgates and the logistics of positioning the bag and flying simutaneously.
So the catheter seems to the best solution, but my problem is with the adhesive on the catheter. The first time I put on one of those Freedom catheters I just about had a nervous breakdown because it was attached with such enthusiasm. I gave up and used a ziplock that time. Surely that sticky stuff must have been invented by the devil himself. It seems a close relative of duct tape. The structural integrity of the catheter and adhesive approaches the structural integrity of my johnson: not a good combination. I've also ordered alternate brands from Rochester Medical. etc. from www.allegromedical.com Same problem. Can anyone say whether the damn things are easier to remove after a few hours of flight?

jk

The catheter with the foam tape makes an excellent Pubic Hair remover.

JF

Usually they are easier to remove after several hours.... However, that may still not be satisfactory.

What I do is to carefully unroll the catheter onto my thumb, and, as the adhesive starts to become exposed, I sprinkle baby powder all around it.
Once the adhesive is coated, you can roll it back up in order to "install" it. The powder takes the bite (ouch!) out of removal. If you are worried about not having enough stickiness to keep it on while peeing, just wrap your hand around yourself and the catheter while peeing. An advantage is that you can grab the catheter/tube connection between your thumb and forefinger to make sure that it doesn't come loose under pressure as well.

ALERT! There is an expensive brand of catheters that is supposed to be much easier to install. However, they are very short and intended to adhere just to the head of the penis. DO NOT EVEN THINK OF USING THESE!!!!!!! WOW!
I still haven't recovered from that one! I think they use some sort of epoxy as adhesive!

Larry Goddard
"01" USA

Boy, does this thread bring back some horrible memories! My first experience with Freedom Cath was frightening. Upon returning from my first flight using one, all the tugging and rolling and pulling brought tears to my eyes long before I was free of it's grip. After repeating the same maneuver the following weekend (thinking that perhaps the week before had seen a defective product) I learned to dust *myself* with powder before making the drive to the glider port. By the time I had completed my pre-flight preparations, just enough powder remained to make post-flight catheter removal bearable. (that's bearable...not pleasurable).
Best wishes for safe soaring, and painless removal,
Graham
Libelle H301B

My first attempt at a pee system was to hook up a catheter directly to a fitting right under the seat on my Jantar, which worked pretty well until I inspected my undercarriage and discovered just how corrosive urine is. About this time there was an article in Soaring that said that if you run the tube back to the gear door, when you lower the gear, it gets the pee away from the plane and not on it. It also said that if you put a T in the line, you could blow the remaining pee out of the tube keeping it from becoming incredibly foul. Sounded good to me , so I hooked it all up and tested it on the ground by pouring water through it and it worked fine, so up I went. I waited until I really had to go, of course, lowered the gear, and let'er rip. Well the pee started coming out of my blow tube and getting all over me. You know how hard it is to stop once you get going, so in haste, I pinched the tube off which caused the catheter to start filling like a water balloon. I then stuck the blow tube out the vent, blowing hot piss out all over my wings and tail. I figured that the exit tube had some kind of blockage in it so maybe I could fix it by blowing on it. The tube was still filled with pee, so I pulled it back in, wiped it off as good as I could and blew. This forced all the pee in the tube back into the catheter and again blew it up like a balloon. Not think again I took the tube out of my mouth which then covered me with a shower of pee right in the face. I can honestly say that it just doesn't taste all that bad. I have fixed the problem and it works fine now. I am very happy to hear about the powdered pecker procedure though. I think the catheter is the safest way to go, no fumbling with anything during the flight.

Fly safe, Gary

The trick is to put an on-off valve in the T so it doesn't back flow. I hunted high and low, and finally went to a lawnmower repair place and bought a fuel on/off valve for about $6. No luck with fish stores or plumbing stores.

Jim
N483SZ

The problem ended up being that I ran the tube under my seatpan, when I sat in the glider it crushed the tube. I fixed it by running the tube down the side. I just pinch off the proper tube when I go now.

I've always been intrigued with the pee systems ideas of using catheters and hoses or going the bags and kotex route. After hearing all this chatter I'm feeling much better about my simple-minded system. I've never had the glue problem (OUCH) or the messy baggie problems or the pee on the plane problems mentioned. I've also not said openly (online anyway) what I do as some might be offended or grossed out. I take a wide mouth plastic bottle filled with fresh water to prevent dehydration and thirst along the way. I always empty my bladder before taking off and rarely need to pee again until after the water bottle is emptied (I have had to chug down the last few drops once in awhile if mother nature brings
on the pressure sooner than expected). The water bottle then serves as my bladder relief reservoir. Later the bottle is emptied and washed out with soap and put in the dish washer to be sure it is clean enough to use again for both purposes. And, yes, there's a lid. The more reclined the plane's seating arrangement, the less applicable this method would be. But, I do fly a 1-35. One of my criteria for a good day is to leave with clear liquid and return hours later with yellow.
Secrets of the sport...
David Pilati

I will relate an event that a rather well known pilot had with his pee system, he used the trusty ziplock bag and soon after he got his new glider (at the time) he did his usual trick and dropped it out the clearvue, the bag clipped the leading edge and emptied the contents out the underside of the wing.
The a/c in question was an ASW17 ,the 17 uses a naca intake for the cockpit air located under wing /fuse junction ,the pilot received a "golden shower" from his cockpit air vent. He fortunately had a good sense of humour so everybody at the bar afterwards was treated with a story on how it happened.
gary

Well, there is another way to handle the " I Got to Pee problem. I simply take my hand off the flap control handle and open my canopy vent window. Then, I slowly reel my privates out the open canopy vent window and relieve myself. This procedure works great if you have FLAPS. For those who fly standard class this may not work since we 15 meter pilots don't know what these guys do with their left hand when flying. Thats the good news, the bad is cleaning the glider after your pee flight. If this procedure does not work for you, then you may have another problem.
Consult your transplant surgeon!

I recall the tale of another 1-26 pilot in our club who installed a "pilot relief" system that involved having the tube exit just in front of the main wheel, he attached his external catheter to the tube whilst sitting in the glider and waiting to be pushed onto the flight line. Now you may have seen this coming, with hind site (which is always 20-20) so should he... as the glider was being pushed forward, the end of the tube got under the main wheel and was being pulled quite rapidly (and with some force) under the glider... catheter adhesive being quite strong and new connectors being difficult to part, especially under tension.... well, you get the picture - I'm told his screams could be heard for quite a distance.
Hmm... I wonder if he even needs a long thin tube any more?

David Brunner

I just use three regular freeze-bags...simple as that... cathether and stuff seems painful =(
Just have the bags ready, and when the time is up, just pull it out and do your business, and then throw the bag out in the air.

/Mange

1.When you're hung like a church mouse, it's hard to get the pee into the bags. I am semi-reclined in my Jantar so I end up having to pee uphill.
2.The catheters are very easy and give me that extra length I've always longed for. I hook up to a long tube that I run out the gear doors. When you are in a large gaggle it's nice not to have to do anything more than lower the gear. (caution: do not follow too close if you see me flying with the gear down.)
3.I strongly disagree with throwing plastic bags or any other non-biodegradable stuff out the window.

Mange Lindvall

In prep for my silver/gold duration flight, I opted for the condom/tube/bag combo. While walking across the runway with my glider, the bag proceeds to fall out of my shorts and is dangling at my ankles, still attached at the other end. Well, here I am a few minutes later, sitting in my glider trying to reattach the business end which had half way pulled loose and all of a sudden I looked up to see some woman I've never seen before walking toward me across the runway with a big grin on her face (standard class glider, left hand free, head looking down--you finish the caption).
After this fiasco, I opted for the ziplok bag stuffed with kotex after having it recommended by a friend who swore by it (this relief method, after my experience, is now unofficially named for him among a few other club members). 4 hours into the flight, the bag's saturated and 3/4 full of fluid. When working to seal it, the freaking tab pulls off and I'm left with an almost full OPEN bag of pee in my lap to manage with over an hour to go in the duration flight. How wonderful! I somehow managed to keep the bag from spilling even through the landing. My official observer did comment, as I exited my glider, that I was not a pretty site.

Jim Hammond, N129SS
Huntsville Soaring Club

Placing a disposable diaper (toddler size) in a zip lockbag provides a great collection system. Fluid is bound in the diaper and if the bag is torn, the fluid loss is miniscule. My problem is the shrinkage of my plumbing during cold flights. This past January 31, on a eight hour mission (five soaring) with OAT <30F and solid overcast, shrinkage was almost complete! Need to rig an electric sock.
* Sent from RemarQ

Presumably you didn't have your penis in the tube while it was freezing? Could have been shall we say awkward when you landed and waited for it to defrost...

I think he was referring to his member when he said "shrinkage of my plumbing."

MY FIRST FLY IN JIM'S WOODSTOCK.

By Douglas Lyon.

After Jim's first flight in his new glider I was asked "Would you like to fly my glider"; however to encourage Jim to get more time up in his Woody-Roo to compensate for all his building time I did not accept.

On the next occasion Jims Woody-Roo was brought out I helped to assemble it and afterwards was asked " Would you like to fly my glider after me?" This time the offer was accepted but it was not to be.

While moving the glider back to the launch point after Jim's flight it was felt that it was somewhat harder to push than usual and it was found that the light plastic tailwheel had collapsed.

This was a result of Jim's weight saving efforts to minimise the tail end weight increase arising from the modification designed by Gary Sunderland to make the tailplane and elevatoir removable instead of the integral arrangement of the original design. I persuade jim to replace the fragile and fractured tailwheel with a solid nylon or polyurethane wheel of the same diameter and maximum width and not worry about the few extra grams weight.

On the next outing Jim was still concerned about the extra 36 grams (I think) of the new tailwheel, but on my assurance "She'll be right Jim, "off he went. After landing the previous offer was renewed so I prepared to fly Jim's glider, The first item noted was that my weight was at minimum cockpit load so it was suggested that I should wear a parachute. The cockpit is quite roomy for a small glider even when wearing a parachute but when the canopy was put in place it weighed heavily on my mind so the parachute was dispensed with so when all was ready we were hooked on behind the Super Cub and off we went.

Handling on tow presented no problems, controls were well coordinated and light and visibility over the nose is excellent. I was not overly optimistic as conditions had been overcast all day with very little sunlight through over the airfield although there were clearer skies about 15 Km. to the south. However at 1500 ft. on tow a surge was felt so released from tow into 1.5 m/s lift circling at 40 knots and with a bit of repositioning this increased to 3 m/s. But core diameter was small and in trying to stay within airspeed was reduced to30 knots at which a slight tail buffet was felt but with no tendency for wing drop.

Circling at 35 knots height limit over the airfield was soon reached and it was decided to fly upwind towards the sunny area but it was soon found that increasing speed to 60 knots was a good way to lose height in a hurry. So adopting a more conservative approach the ground below SLOWLY moved rearwards and thinks "maybe this is not the glider to try for a 1000 km" so settled for some enjoyable local flying appreciating the ability to utilise even the smallest areas of lift.

After a while I noticed that gliders on the ground were moved towards the hangars so decided with some reluctance, to land and as usual flew into a good thermal on downwind which was dutifully ignored. On approach the spoilers were effective but not overly powerful and no problems with the landing resulted. Flight time had been an enjoyable one hour and so became the 37th type I have flown and one of the most enjoyable.

It was particularly pleasing since when the Woodstock design was considered for suitability for amateur construction in Australia I was impressed with the better standard of engineering detail compared with some earlier U>S.A.designs and in particular with not adopting the built in wing centre section with duplication of wing fittings faily common with an earlier design.

I am also grateful for Jim Garay giving me the pleasure of flying his delightful little glider.

ALAN BRADLEY'S WOODSTOCK

The project state of my "Woody" is that the fuselage is out of it's jig at boat stage with intercostals fitted but removable for cutting of control openings etc. At this stage I have about 10 mins cockpit time.

The spars for fin, rudder, stabilizer and elevator are complete ready for shear webs etc.
Incidentally, I decided to laminate these instead of cutting from solid douglas fir blank as per the construction notes. Why the extra work? Well, I am having trouble getting suitable timber. I obtained suitable quarter cut timber for the fuselage longerons, and another piece of 100 x 50 about 5m long which was clear for about 3 m, just long enough for the tail feather spars etc., and the caps for the aileron false spars etc. The only problem was that the annular rings ran at 45 degrees. And so I had to re cut it which only gave me suitable size timber if I laminated the spars. Anyway it's done and looks good.

Incidentally, I've had a lot of fun testing my selected timber having made up rigs for testing in bending, compression and shear. I must say that I was delighted at the consistency of results. My initial bending tests were done with the test pieces supported as a "cantilever" and then I read that better results are obtained if a rig is made up to test with the pieces " simply supported". One end rests on a knife edge and the other end on a roller support, this works very well.

Back to the fuselage. Because of a tail heavy tendency, it was recommended by several people that the pilot be moved 100mm forward. This I have done by extending the fuselage by 100mm between the main bulkhead and the back of the pilot. The lines change a bit but not enough to need to alter the bulkhead patterns. Information which I had got from the "net" suggests there is a problem with a couple of the bulkheads in the cockpit area. Perhaps the extension overcomes this apparent problem.

Malcolm Bennett pointed out to me that buckling was most likely to occur in the side skins between bulkheads 110 and 79 just behind the wing. He suggested that what is effectively a lightweight ladder be built between these bulkheads along the line of the curvature change to overcome this problem. It worked well. Prior to fitting this section I adopted a similar process on all of the rear fuselage skins by temporarily fastening to the panels midway and parallel between the top and bottom ailerons a piece of 19 x19 timber. This ensured the curvature remains constant between each bulkhead and facilitates an even glue line on the longerons.

Where do I go from here? Well, I have a problem. In about 6 weeks I will need to bring our boat back from the river Murray and it normally lives in my workshop taking up nearly all of one half. My present thoughts are to concentrate on completing and fitting the tail surfaces and controls and then hoist the fuselage into all that marvelous space 2 ½ meters above the floor. I will then have room to work on the wings.

A little bit of Australian gliding history. Launching by wire

Part 3 - Car Towing

by Allan Ash

Launching sailplanes by car towing has some advantages and some disadvantages when compared with winch launching. For a club, the disadvantages usually outweigh the advantages, but for a small group or an individual sailplane owner who wants to operate independently and make relatively few launches, there is a lot to be said for car towing.

One big advantage of car towing is that the turnaround time per launch is considerably reduced so it provides more launches each hour, which may well suit a club involved in short training flights or needing to launch a lot of aircraft in a short time, such as at a competition.

Another advantage is the versatility of the towing vehicle

which can also serve to pull gliders and trailers around the airfield or retrieve aircraft that have outlanded. The one vehicle does it all.

On the other hand, a tow car requires a smooth runway, or at least a reasonably smooth stretch of airfield, otherwise the car will be shaken to pieces in a short space of time.

Fuel consumption of a tow car is understandably much higher than that of a winch, or even the combined consumption of a winch and cable retrieving vehicle. The wear on tyres, brakes, gearbox and other parts is also higher.

In addition, if the car is to be fully utilised, it will need to be both roadworthy, registered and insured. All these costs must be borne in mind, though it is still possible fox' the tow car to be an economical investment for.

It will be obvious that a tow car will need a shorter length of wire than a winch and it will also need a quick-release mechanism at the car end.

Ideally, a tow car needs a crew of two, one to drive and one to watch the sailplane during the launch,. inform the driver of any need to alter the towing speed and, if necessary, to operate the tow release.

If at all possible, the entire launch, from start to finish, should be done without changing gear, or with only one, very fast, change. A relatively light sailplane, combined with any wind strength, should allow the whole launch to be carried out in second gear..

Changing gear during the launch could result in a brief slackening of the wire which, at least, will alarm the pilot and at worst will force the pilot to release the wire because of the loss of airspeed. A heavier aircraft might require a start in first gear, especially in a light wind, but the change to second should not be made until the sailplane has reached a safe height, say 200 feet or more.

Any change in gear must be made as rapidly as possible to maintain the launching speed. It must be remembered that the sailplane is creating a strong backward pull on the tow car and as soon as the clutch is depressed to change gear the sailplane will cause the car to reduce speed.

Ideally. the tow car should have a manual gear change. If an automatic change is used, the control lever' should be placed in the required gear, not in "drive", to prevent the gear being changed automatically at an inappropriate moment. The car driver must always be in control of the gear changing function.

For the glider pilot, the launch will be almost the same as a winch launch, except perhaps for a slightly longer ground run resulting from a slower initial acceleration. The wingtip runner should realise he will have to run a little further before releasing the wing, and the pilot should be prepared for the possibility of a wing-drop, especially if the wind strength is low.

As for the winch launch, thc initial part of the car tow should be made at full throttle until the sailplane is safely airborne, and then smoothly adjusted to suit the sailplane's required climbing speed. The car driver should be aware that the car with the sailplane on tow will not initially accelerate at anything like its pace without the aircraft.

If the wire breaks, or the sailplane is released in an emergency, from either end of the wire, at an altitude so low that the pilot must land straight ahead, the car driver must either accelerate to keep ahead of the sailplane or else turn well off the runway to leave it clear for the landing.

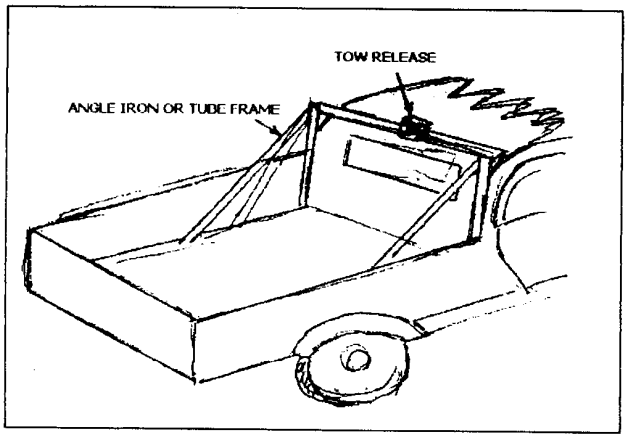
In such a circumstance, the pilot must be careful not to land on the wire, which might tangle with the aircraft or damage it in some way. Of course, as in any emergency, the pilot must immediately release the launching wire and ensure a safe airspeed is maintained for the landing.

As mentioned earlier, a sailplane being launched exerts a strong pull against the tow car. In the beginning of the launch the pull is horizontally backwards but as the launch proceeds the pull becomes more if the launching wire is attached to the rear of the car, this upward force tends to lift the rear end of has been known to reduce the weight of the car on its rear wheels, causing them to slip, thus reducing the speed and the airspeed the sailplane.

To overcome this wheel-slip, tow cars are sometimes weighted at the rear with ballast. I have known such ballast to comprise drums of water, boxes of stones, bags of sand or earth or, on one occasion, a large log of wood.

The tow hook at the car end needs to be bolted securely to a strong part of the car. If it is attached to the light bodywork, the pull of the sailplane will soon distort and damage the cm panels. For this reason, the best vehicle for towing is a commercial utility truck with a strong chassis. The tow hook can be bolted to the rem- end of the chassis, perhaps to the central tow bar-.

Ideally, the pull of the cable should not be on the rear end of the vehicle, but in the centre, between the front and rear axles. One tow car I saw was a Ford 100 utility truck with a special frame bolted to the chassis midway between the two axles. The frame formed an inverted U, located just behind the cabin and had the tow hook bolted centrally. (see illustration)



In most conditions, a car launch will provide about the same height as a winch launch. For the pilot there is little difference between the results. It probably boils down to a choice between the economy of the winch and the convenience of the tow car. For a club, the winch has perhaps the advantage but for the independent private owner, the car tow could be the better choice.

NEXT ISSUE -- Launching into thermals.

VICTORIA

The Gliding Club of Victoria

The Gliding Club of Victoria was formed at a meeting in the Ambassadors Café in Melbourne on 27 September 1929. Chairman of the meeting was Flight Lieutenant Ray Garrett, an officer in the RAAF Reserve, employed by the Larkin Aircraft Company. Ray Garrett was elected president of the club and Charles Gordon became honorary secretary.

The club acquired its first glider in August 1930. It was a privately-built Zogling which was officially named Falcon by the wife of Air Commodore R. Williams at a ceremony at Essendon aerodrome. The glider was so heavy that it soon acquired the name of The Brick. The test flight was made by Ray Garrett and during the next few months it was flown by most of the members, many of whom were power pilots. All launches were by bungy.

The activities of those first twelve months were accompanied by many perils and surprises.

One pilot successfully took off and climbed to about 20 feet on the impetus of the bungy launch but, when faced with the need to land, he lost his nerve and jumped from the Zogling when it was about five feet above the earth. Neither the glider nor the pilot was hurt seriously.

A young woman was placed on the seat one day and given instructions about how to fly. It was impressed upon her that, if she held the stick firmly and didn't move it about, the glider would take off and land by itself. Full of faith in her advisers she allowed herself to be launched, but she must have moved the stick back as the Zogling went into a steep climb and began to loop. The pilot fell from her seat and sustained serious injuries from her contact with the ground. Damage to the glider was only minor.

From this incident came two results. One was the club insisted that, in future, pilots must be strapped to the glider. The other was that women pilots were banned from the club. It was some years before this latter decision was abandoned. Despite these mishaps, the club continued to grow and by the end of 1930 had about 250 members.

This influx of trainees led the club to seek a second glider and tenders were called among the aircraft firms in Victoria for a suitable machine. The successful tenderer was Shaw Aviation Company which was based at the aerodrome at Port Melbourne. The company offered to build a Rhon Ranger primary from drawings published in an American magazine.

When it was test-flown by Ray Garrett at Tower Hill it was found to be nose- heavy; but when a flat-iron was wired to the rear of the fuselage the balance was perfect. With an empty weight of only 118 pounds, the Rhon Ranger was considerably lighter than the Zogling, and this made it better for slope soaring. However, it also meant that it lacked penetration (the ability to make headway against the wind). One day, while being flown by Ham Hervey, a commercial pilot employed by Shaw Aviation Company, it drifted backwards out of the slope lift and ran into a parked car. Its light weight earned it the name *The Skeleton.*

Sources: H.E. Hervey, Ken Davies, Geoff Richardson, Aircraft magazine.

Tower Hill, near Koroit

Tower Hill was a large saucer-shaped crater, enclosing at that time some 1700 acres of soft, springy turf, with some areas of mud and water. Around the perimeter of the crater, steep ridges rose 300 to 500 feet to provide excellent slope lift. In the centre of the crater, a couple of low hills marked the lips of a long-extinct volcano.

The large area of soft ground provided an excellent training field for gliding and for several years it was a popular site for gliding clubs from nearby districts and even from as far away as Geelong and Melbourne. Much later, local authorities flooded the crater to create a lake, the site unsuitable for gliding today.

The Warrnambool Gliding Club

The Warrnambool Gliding Club started in 1930, mainly at the instigation of a local garage proprietor, Perce Parker. One of the members was Ted Palmer, a mechanic who worked at Parker's garage, and others were John Newman, Arthur Payton and Perce Jones.

The club bought a new Zogling primary glider from Percy Pratt and staged an 'opening day' at Tower Hill, where Pratt was invited to demonstrate gliding to the local people.

An estimated 4000 people came from Warrnambool, Koroit, Port Fairy and other places, cramming local roads with parked cars. The demonstration took place in a paddock on the eastern edge of the saucer and provided spectators with an excellent view of the flying.

The wind was too light for soaring but the initial bungy launch gave Percy Pratt the opportunity to show the visitors how easy it was to fly and how much control the pilot could exercise over his mount. He was able to make several turns before landing the Zogling at the foot of the slope.

By the time the glider was returned to the launching point, the wind had increased a little and on the next flight Pratt was able to make several beats along the slope, almost scraping a wing along the grass at times, but making an impressive showing before being forced to land at the bottom again after a total of

ten minutes. A third launch and a similar brief soaring flight completed the day's activities but left the crowd well satisfied.

On Sunday morning there was a strong north west breeze and Pratt was able to soar the Zogling for an hour and 35 minutes to set a new Australian duration record for gliders. At times he achieved what was described as 'considerable altitude' and demonstrated the manoeuvrability of the Zogling.

After gaining height, Pratt swooped down occasionally to whistle across the heads of the spectators at speeds of 50 and 60 miles an hour.

During the afternoon, three more flights were made. One of these was with a passenger clinging to the pilot's back while crouched among the vertical posts of the fuselage. Altogether, the weekend's activities were most successful and ensured that the club got off to a good start.

After the opening demonstration in the Zogling, Percy Pratt provided the Warrnambool Gliding Club with an explanation of how the controls operated and then left the club to progress by itself, under the guidance of Fred Allchurch, a World War I fighter pilot with no gliding experience. Using a bungy cord for launching, the club began flying at Hopkins Point, near Colac, where there were gentle slopes more suitable for training.

After a couple of hair-raising launches in which the pilots experienced abrupt dives, the members decided that learning to glide could be dangerous. Taking the Zogling to a nearby hill top, they mounted it on the universal joint from a car tailshaft which was bolted to a short post embedded into the ground. This allowed trainees to balance the glider in the wind, pivoting in all three planes and gaining valuable experience in handling the controls. After some practice they went back to bungy launching and made better progress.

As the bungy became worn through friction on the rough ground, it was inclined to snap at awkward moments. If it snapped close to the glider, the length of stretched rubber snaked forward to lash the crew who were usually prostrate on the ground as a result of the sudden removal of tension. If it snapped close to the crew, the bungy would curl back and scourge the glider and its unfortunate pilot, often smashing plywood and fabric and tearing the pilot's clothes while inflicting painful bruises. For a while the pilots took to wearing leather leggings but sometimes even these were torn by the flailing rubber rope. Needless to say, bungy launching lost its popularity and the original 30 members in the club quickly dwindled to about five.

Sometimes the members would scour the countryside and nearby towns to raise a launching crew but as reports of the dangers involved became widely known, the club found itself not only without members but also without friends.

To overcome the lack of a crew, the club began stretching the bungy with a car. The rubber rope was laid out in front of the glider and attached to the rear of the car. At a distance in front of the car equal to the length of the bungy, a peg was driven into the ground and the car was driven forward to this point while a couple of members hung onto the tail section of the Zogling. When the rubber rope was stretched to twice its length, the car driver sounded his horn as a signal to those holding the glider to let go, then, as the Zogling leaped forward, the car accelerated to add more stretch to the bungy. This provided a launch to 20 or 30 feet altitude, resulting in flights of many seconds duration.

Before long, a length of rope was substituted for the ever-breaking bungy and the club progressed to car towing as a regular form of launching. As a rule, the Zogling reached about 800 feet on the launch which was usually, though by no means always, enough for a quick circuit of the field. One day, Ted Palmer thought he would try something new. As he released the tow rope at the top of the launch he pulled the stick back to zoom higher on the excess speed, then peeled off into a stall-turn. By the time the Zogling regained airspeed it was almost on the ground, so a down wind landing followed. This trick was gradually perfected so that it was not quite so dangerous and before long several other members were trying it. They always got away with it, which says something for the capabilities of primary gliders.

As the economic depression of the 1930s deepened, some of the club's members found themselves unemployed and broke, but the club continued to operate. Those who had money paid the expenses and those who hadn't flew without charge. This system of operation was practiced in many gliding clubs of that period.

During 1931 the club moved back to Tower Hill where the members were able to progress to slope soaring in the Zogling. To protect the glider, the club built a rough shed on the top of one of the slopes, from which it was easy to move the glider into position for a launch into a soaring wind. They were surprised to turn up to fly one day to find that some unknown person had stolen the building, leaving only the Zogling, sitting forlornly alone on the hilltop.

Late in 1931 the Warrnambool and Koroit clubs combined to form the Tower Hill Gliding Club. To add to their two primaries the club bought the Lark from Larkins and members carried out a lot of slope soaring in all three machines at Tower Hill. Heights to 1000 feet were obtained in the Lark and on several occasions short out-and-return 'cross country' flights were made in it, using slope lift. A lonely four-mile stretch of dirt road near Tower Hill was sometimes turned into an improvised runway to allow the primaries to be car-towed to 600-800 feet for circuits.

In the first year of operation, the new club carried out over 1500 flights without a serious accident and without injury to any member. Later in 1933, however, the club suffered a serious setback which can probably be blamed on lack of proper instructional supervision. A trainee pilot, a priest named Father John Ryan, had reached the stage of carrying out circuits in the primaries and was then allowed to fly the Lark. On his first launch in the advanced ma chine, he reached about 800 feet and began a circuit, but he allowed the speed to fall off. The Lark stalled, did one turn of a spin then struck the ground violently. The unfortunate Father Ryan lost a couple of teeth and gained some bruises but the Lark was wrecked.

The crash demoralised many of the members and flying became sporadic, then ceased altogether. The loss of the Lark, reinforced by the economic austerity of the Depression, led to the club just fading away. Some of the members, like John Newman, Percy Parker and Ted Palmer, later took up power flying and the latter two returned to gliding during the 1950s to share ownership of a Fauvel AV-36 for several years.

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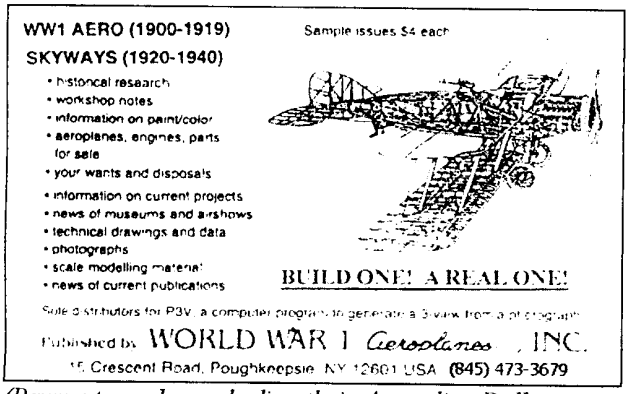

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