

UNI GLIDING

A PUBLICATION OF THE ADELAIDE UNIVERSITY GLIDING CLUB
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WORDS OF WISDOM FROM YOUR EDITOR

Welcome to yet another brilliant AUGC Uni Gliding. This edition is being brought to you without those brilliant pictures from Gillian because Gillian has other commitments (ie exams and essays) that have to be written about now. Chances are that you yourself have a few exams as well and it will be several weeks before we see you on field. By that time you should see a new (well different) glider at Lochiel.

Our new (well different) glider should be ideal for those people who have gone solo in the year and do not yet have the experience to fly our Phoebus. Of course if you haven't flown yet or not since March you are still welcome to come to Lochiel and learn to fly. The summer vacation is ideal to start training or maybe pick up where you left off. At the present monment the Adelaide University Gliding Club owns four gliders two twin seaters and two single seaters.

Current plans are for one twin and the Phoebus single seater to explore the countryside and complete flights of several hundred kilometers each weekend. If you are even remotely interested in such challenging adventures ring up Martyn (see later) or any other committee member and ask about Gliding.

Adelaide University Gliding club is very concerned about the lack of suitable training aircraft. Currently Harry Schieder has developed a suitable aircraft called a Platypus. I think the advantages of an AUSTRALIAN BUILT AUSTRALIAN DESIGNED AND AUSTRALIAN SUPPORTED GLIDER are to numerous to list here. Because of the unsuitability and cost/performance of overseas gliders the club feels that we should encourage GFA to promote development on AUSTRALIAN TWO SEATER TRAINING GLIDERS.

At present there is no policy for GFA to support such projects. There is a referendum to change this. There are several ways that GFA could support the project but at present it does nothing. WE NEED TO SHOW THE GFA COUNCIL THAT WE BELIEVE THIS IS THE BEST OPORTUNITY TO PROMOTE GLIDING IN AUSTRALIA.

P. J. Clarke.

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!*** PRESIDENTS REPORT ***!
!=====!

Lots of news! But first, congratulations to everybody who has gone Solo (NICK SPENCER), achieved their C badge (TOM MELVILLE, DAVID TEAGLE), Silver C (STEVEN WERE, NEIL BOROKY), 5 hour flights (DICK TEMPLE), gone cross-country etc (The Phoebus flew 150Km's last weekend), conversions (Martin Roberts to YB (giggle)) etc etc.

All three aircraft have been flying (simultaneously) for some time now, and have been logging many hours, much to the treasurers delight. And now, after countless meetings with every faction of the Sports Association, our loan has come through! As a result, as well as our beloved Bocian, beautiful Bergfalke and fantastic Phoebus, (and the wretched winch), our fleet has swelled its ranks with the (wait for it, drum roll.....)

AMAZING ARROW (november foxtrot) !!!!!!!!!!!!!

This aircraft is a single seater aircraft of wood and fabric construction, built by Harry Shneider back in 1963. It was owned by our club back in its early days, but an unfortunate incident on the ridge in 1981 wrote it off (as far as the insurance company was concerned) and the bits were bought by Lin Jarvis from Balaklava. The aircraft was rebuilt, and a twenty yearly inspection carried out. The aircraft logged only twenty or thirty hours before Lin ran out of time to fly it, and has been sitting in the back of a hangar at Balaklava for the last two years.

AUGC has purchased the aircraft and trailer for \$4300.

The aircraft appears to be in excellent condition, and will be moved to Lochiel this Saturday. It requires a CofA inspection, and should hopefully be in the air by early December.

The Arrow has a 13m, one-piece wing and a trailer which makes the winch look like a Swiss Watch, and is apparently somewhat painful to rig and de-rig. However it is an extremely easy and forgiving aircraft to fly, ideal for first single seater conversions after only a few hours solo. Its performance is pretty poor (glide 24:1) but will thermal over a warm pasty. The aircraft should give us an ideal fleet- two training aircraft, a basic first single seater and a high performance single seater.

- Other News- The End of Year BBQ. at Redmonds (details elsewhere)
- The bathroom in the clubhouse is progressing well
 - The Phoebus will be leased to Waikerie for two weeks early January for a fixed rate of \$700, weekdays only
 - The shed kit for West Beach has arrived and will be put up in December, giving us inspection facilities in Adelaide at last!
 - AUGC competition, January long weekend
 - Diff for new winch stripped, cleaned and painted, brake cylinders being reconditioned

Exams will be over soon (good luck!) so if you haven't made it to Lochiel yet, come up and give it a go!

DAVID CONWAY



NEW PHONE CONTACT IS MARTYN ROBERTS 356 6946

Phone Martyn on thursday nights between 8-10pm.

BONUS FLYING

Yes some of our new Instructors have such enthusiasm that they want to **FLY MIDWEEK** during the **UNIVERSITY VACATION**. For further information please ring Martyn on thursday between 8-10pm.

Several members are heading off to the Mildura Competitions from the 6 to the 12 of December. If anyone else is interested then please contact one of the competition crew. Mark Raftery, Andrew McGrath, David Tegal, Barry Lenny, Stephen Were, Martyn Roberts, Niel Boroky.

Good News

**NICK SPENCER
DAVID TEGAL** have gone solo

MARTYN ROBERTS had a successful conversion to the Phoebus

D. TEGAL, T. MELVILE, N. SPENCER flights over one hour for C

**DICK TEMPLE
STEVEN WERE** have both completed flights over 50km for their Silver C

Club projects in progress
ADELAIDE
Inspection shed - ASAP after exams
Certificate of Airworthiness - Bergfalke

PHOTO'S !

The Septic Tank being built.....

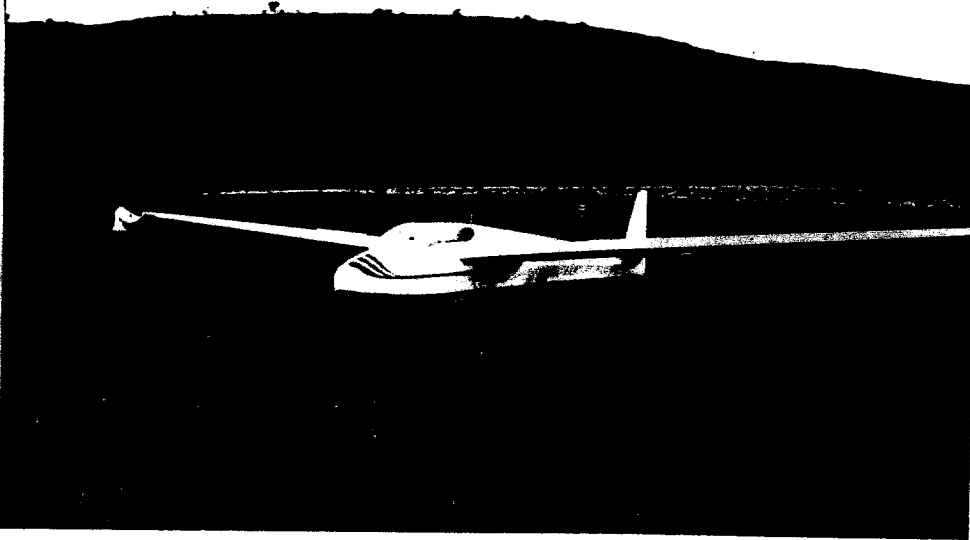


The big test :



CAPTION CONTEST :

WHAT IS MARIK RAFTERY
SAYING, AS THE LOO IS
FINISHED FOR THE FIRST



HA - HA - HA
HA - HA - HA

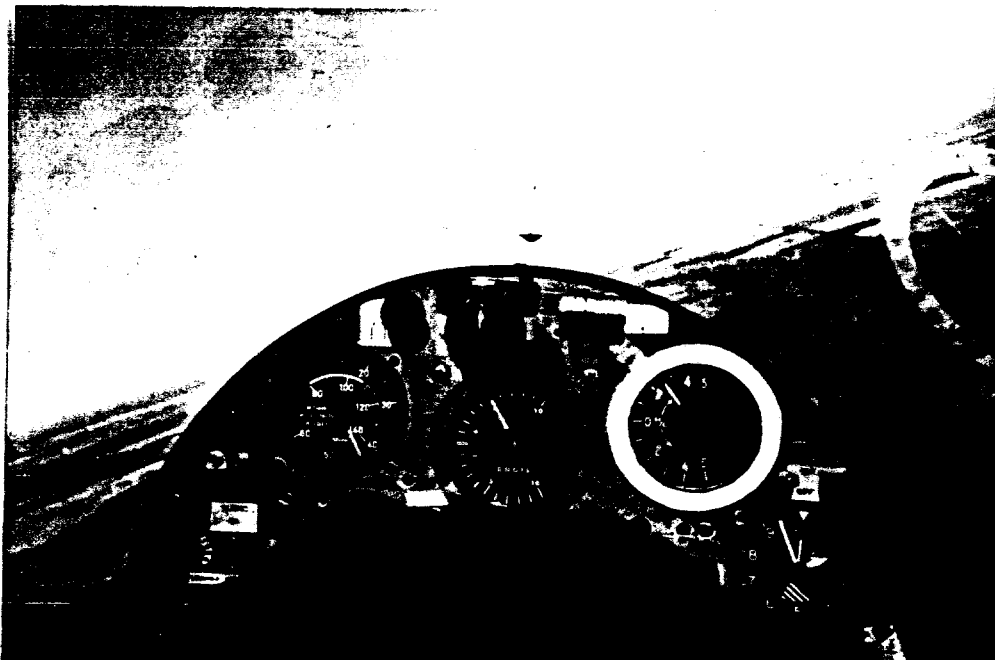
ANDREW
M'GRATH

+ Dave Teagle
OUTLAND THE BEA
one paddock from here
while flying the vic



Another satisfied
customer of
'CONWAY'S PASSENGER
RIDES LTD'

* Book early -
limited positions Av
(subject to minimum
entry requirements
ie female



The Phoenix c
Waikare last
Summer.

THE CLAYTONS HIGH ALTITUDE FLIGHT

Notes from a recent flight:

Obtain Oxygen Mask / Bone Dome

Climb aboard with 7 others and 2 flight attendants.

Sit down in No. 4 seat / Plug in Oxygen & Communications.

Check Oxygen Pressure / Regulator etc.

Test Communications.

Close hatches / Takeoff.

Mask On / Oxygen On - Normal ^{Rate}. Have to get used to this oxygen equipment before we get too high.

Rapid Climb to 10,000 / level Off.

Remove Mask

Recommence climb at 1000 / minute.

11,000

12,000

13,000

14,000

15,000

Face Tingling / Bit light Headed / Bone Dome must be made of lead.

16,000

17,000

18,000 - level off

1 minute at 18,000 - things don't appear to be changing.

2 minutes at 18,000 - Still got tingling face & light head but some of the weight seems to have gone from the bone dome.

3 minutes at 18,000 - Have to think about which is rate of climb and which is altimeter.

4 minutes at 18,000 - Seems a bit like the effect of $\frac{1}{2}$ a bottle of good port.

5 minutes at 18,000 - No further change.

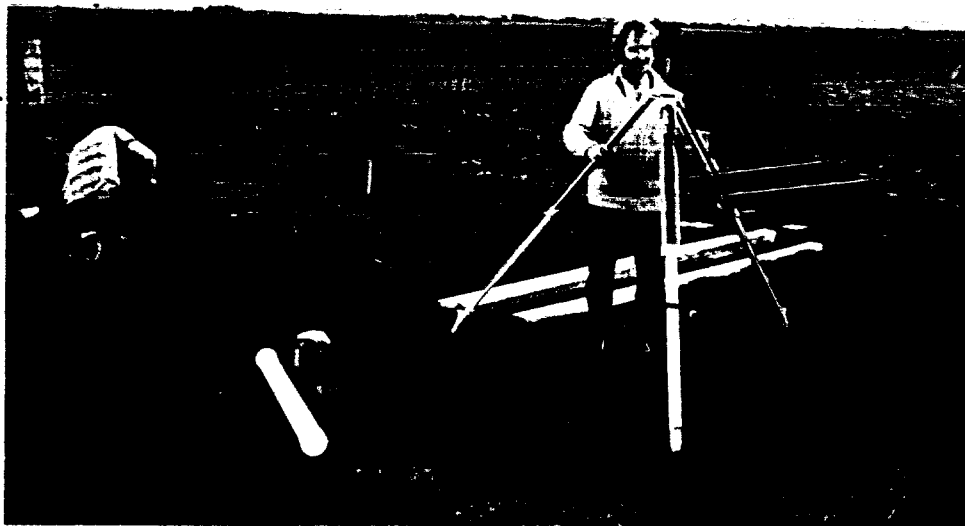
THE CLUB-HOUSE!



An old photo of the toilet/shower area in the clubhouse - its almost finished now.

THE TEE-HANGAR! (or 'REDMOND'S ERECTION')

\$\$\$
 \$\$\$
 AVE



← Redmond plays with the gadget that ensures the hangar is a very accurate way!



← Proof loading the hangar!

P.S. Martyn's cut himself in half with the saw!



Des Stagg spends a lot of time up in the air. He flies gliders for a hobby and is lucky enough to do it as part of his job as well.

But these days Stagg is contemplating the finer points of gliding from the earthbound perspective of the heavy structures laboratory at the Royal Melbourne Institute of Technology. He is commissioning a test rig for a study which could lead to radical changes in the regulations governing the use of fibreglass gliders in Australia.

Stagg, a lecturer in aeronautical engineering, is project manager of the investigation which aims to provide evidence from which to calculate the safe fatigue life of fibreglass gliders.

The project is the first full-scale investigation of fatigue behavior in these gliders under Australian conditions. It also has important international implications, since very little testing of this nature has been carried out anywhere in the world.

The results will be of particular interest to glider owners in Australia who may be disadvantaged by current regulations on glider life. These regulations, set by the Gliding Federation of Australia on the recommendations of the European manufacturers, limit the life of a fibreglass glider to 3000 flying hours, with provision for extension to 6000h subject to visual inspection at 1000h intervals.

The 3000h limit is calculated on the assumption that gliders will fly about 200h a year for 15 years. But in Australia, where the warmer climate allows a much longer soaring season than in Europe, pilots can notch up 3000h in less than 5 years. This means Australians must replace their gliders – worth about \$50,000 each – more often than Europeans.

According to Stagg, the European limits are somewhat arbitrary, based on 10-20 years as a reasonable economic life but without full-scale technical substantiation. This, he says, is a procedure which would not be permitted in Australian military or civil aviation industries.

“Without a well-based test program to identify critical fatigue areas and establish effective crack detection and evaluation techniques,” he said, “it is impossible to know for sure whether the gliders are safe up to 6000h – much less whether they are unsafe after that.”

He hopes the RMIT project will prove not only that the prescribed life is safe, but also that it can be extended, possibly with new periodic inspection procedures.

The GFA believes 10,000h is an appropriate minimum life for a sporting glider.

The \$300,000 project is being sponsored by the GFA, the Federal Department of Aviation and RMIT's department of civil and aeronautical engineering. It involves 4 engineers, apart

from Stagg, including project director Dr Alf Payne and flight operations manager Robert Dorning, an international competition glider pilot.

The project's first phase, now almost complete, has been mainly devoted to collecting flight data from a Janus B Sailplane made by Schempp-Hirth in West Germany. The data was analysed on a Cyber computer and is being put together into a representative load model which will govern the movement of the test rig's hydraulic loading jack.

The second phase, due to begin shortly, is the actual testing program. A pair of Janus wings – a new left one supplied by Schempp-Hirth, and a damaged right one repaired by the GFA – will be tested to destruction in the rig which simulates the loads a glider is subjected to in flight.

The researchers will monitor the deterioration via 300 electric resistance strain gauges on and inside the wings, repairing faults as they arise and monitoring the repairs as well.

Stagg's department bought the 2-seater Janus 7 years ago to use in teaching students about flight. It has an 18.2m wingspan and originally weighed 370kg, but for the past 3 years it has carried an additional 25-30kg of instruments and electronic equipment for gathering flight data.

The instrumentation consists of strain gauges at 5 points on the upper and lower spar flanges, strain-gauge amplifiers, vertical and lateral accelerometers, a fatigue meter, wing-spar temperature sensors, static and pitot pressure transducers, a flap-position indicator and an artificial horizon.

RMIT observers flew in the back seat of the glider for more than 200h to record about 60h of flight load data. Flight conditions varied widely, ranging from cross-country competitions with top-ranking pilots to training runs where inexperienced pilots practised turns, spins, loops, taxiing, take-offs and landings.

They also recorded data for landings and take-offs in rough airfields and paddocks as well as for aerobatic displays, which impose particularly severe loads on aircraft. Fatigue meters were also installed in several other gliders around Australia.

To simplify testing, the researchers combined the data from all the conditions sampled by Janus into one representative fatigue spectrum. Based on this spectrum a number of “typical” flight sequences has been developed. These will be programmed into a control unit and then applied by the test rig.

RMIT engineers designed the rig and test program in consultation with the Aviation Department and the GFA.

The rig's steel framework, 5.9m high, leaves very little room to spare in the heavy structures laboratory.

The framework supports the 2 wings where they would

It's that time of the year again
 Bringing out those classic gliding stories.
 Polish your trophies.
 Dust of your photographs.

Unlease your appetite at the

AUGC END OF YEAR BARBAQUE.

THE PLACE

13 REDMOND ST COLLINSWOOD

THE DATE

2 December

THE TIME

7:30pm

The Cost \$5.00. (Meat, Salad Provided)
 BYO Drinks

normally join the glider body. It also supports a hydraulic loading jack and control valves and 2 whiffle-tree lever systems which distribute the loads to wooden loading frames clamped on to the wings. The whiffle trees are connected to the jack by steel cables going over large pulleys.

The jack can apply both upward (positive) and downward (negative) loads. A hydraulic pump supplies fluid power and a sophisticated hydraulic interface console developed at RMIT applies the load to the rig.

After commissioning and fine-tuning, the test rig will go into action, eventually building up to 2 overlapping 8h shifts each day. The wings will be subjected to forces equivalent to those they would experience at accelerations as high as +6g and as low as -2.5g (where g is gravitational acceleration).

Initial static testing has shown wing-tip deflection is likely to be 280mm/g, giving 1.68m at +6g.

Plans are for load cycles amounting to the equivalent of 15,000 flight hours to be applied by the end of this year, and 30,000 by the end of 1987. The 300 strain gauges should enable the research team to construct a detailed picture of what happens

Inspections will be carried out visually, with ultrasonic equipment and with a 3m-long fibre-optic intrascope. Experimental methods based on acoustic emissions and vibration analysis will also be tried out.

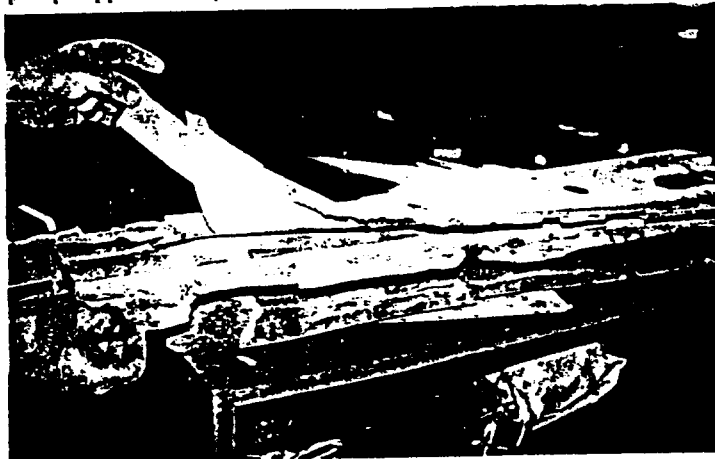
The team hopes to develop, in conjunction with the GFA, reliable standard inspection procedures for the GFA's 650 inspectors to use. This is particularly important for gliders

which have been repaired after accidents, as very little is known about the effect of repairs on fatigue.

"We also expect to gain a large amount of other useful knowledge about gliders and about fibreglass construction generally," Stagg said.

"For example, we will be able to gauge the accuracy of our mathematical model for stress analysis of fibre-glass."

Glider pilots and airworthiness authorities both here and overseas are awaiting the results of



This fibreglass specimen, part of the wrecked glider from which the damaged wing in the RMIT test rig came, is being used for detailed stress analysis

the project with interest. However, Stagg points out that the work has wider implications for other types of gliders and the aircraft industry generally. The information it provides should be valuable in developing fatigue inspection procedures for other

Masks back on

Five Afterburners / Rapid ascent to 25,000 ft. / level out.

All O.K. ? - Thumbs up.

1 to 4 remove your mask. Write down 1000 and keep subtracting 7 from the number.

1000, 993, 886, 879, 872, 865, 858, 851, (getting hard) 844, 837, 830, 823
(What's a hundred here or there anyway?)

1 minute

Arithmetic getting awful slow

light head

Bone dome doesn't seem heavy now.

2 minutes

Tingling in the hands

2 minutes 30 sec.

Tingling in the face

Can't write straight

3 minutes

Bit like the effect of 2 bottles of scotch

3 minutes 30 sec

No. 4 - Put your mask back on!

Fumble, Fumble - on.

Check oxygen - Select 100%.

See the lights just got brighter / Everybody else is still there.

Regain composure / Select normal oxygen.

Now its 5 to 7⁵ turn without oxygen.

Descend 4,000 ft/min to 12,000 with occasional levelling off while passengers sort out their ears.

Descend 2,000 ft/min. down to mother earth.

The above "flight" took place in the Hyperbaric chamber at Edinburgh airbase during an Aviation Passenger Medical course presented by the RAA

I would like to thank the airforce for this opportunity to experience the effects of Hypoxia under safe controlled conditions.

REDMOND QUINN.

QUIT KNOTTING MY ROPE

I went Gliding yesterday. This afternoon I spent about 20 minutes with a marlin spike removing 5 mean tight knots from my towing rope. (It's the orange rope with rings spliced in one end and a loop on the other).

Now I don't mind my rope being used all day and I don't mind fair wear and tear. Getting knots in the rope in the first place, then allowing them to remain there and tighten *BUGS ME*.

I suspect the knots develop from the practice I've noticed lately of coiling the rope on the ground behind the car between uses rather than leaving it laid straight out. Leave it laid out. (Not across the strip Please).

While on the topic of ropes make sure there isn't one tied on the back of the car before you reverse.

Since I'm having a gripe I've got a couple more :

- The rubbish bin is beside the hanger. NOT in my CAR *I'm sure every body who has taken their car to Lochiel feels the same..ed*
- If you can't drive a manual without slipping the clutch don't drive mine. *ditto above remark .. ed*

Moral of all the above is treat other people's property and club property with respect when on field.

REDMOND QUINN