Uni Gliding November, 1989

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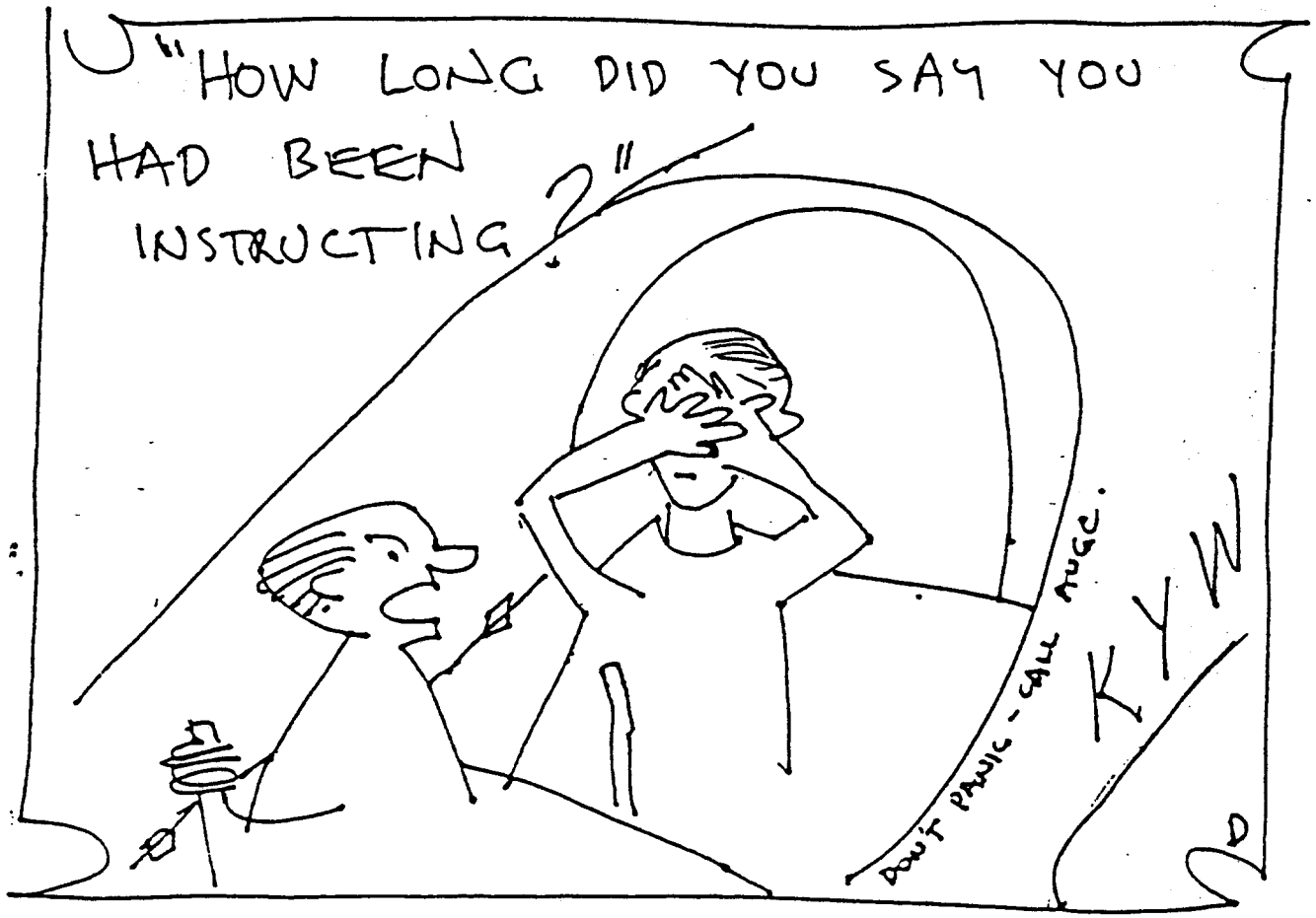
AUGC Gets New Instructors !



An official publication of the Adelaide University Gliding Club

The Control Column

Gosh, it's December already; time for the November issue of 'Uni Gliding' then, I suppose.

The big news is, of course, that the steady decrease in the number of instructors has been arrested. And we have two new ones. Congratulations, go to **David Teagle** and **Cathy Conway**, for passing their bastard's (oops, I mean Assistant Instructor's) examination. **Peter Temple** was prevented by exams from from finishing the course but he will be having the operation soon.

This doesn't help increase the number of flying days immediately, because one of Redmond, Dennis or David will still have to be on field until the new chums have had their instructors upgrade course and become Qualified Flying Instructors.

My stocks of articles and stuff is starting to run a bit low now, so this is your chance to be creative and submit something and be forever enshrined in the annals of AUGC. Anything that seems relevant to the club or to aviation is appropriate. (I even stooped so low as to put a picture of a stinkwing on last month's cover).

I've got along rather well over the past few months with stuff from Andrew McGrath (and this month is no exception with Andrew's warts-and-all description of circuit flying) but that stuff is about to come to an end.

The appearance of the new winch is imminent. David's labour of love only needs some tidying up and some cable and we will have a new toy to play with. Just in time too, because the old winch has been particularly cantankerous of late, having problems with the fuel, the steering, the drum selector and the general performance of both engines.

May all your thermals be centrable

Peter Cassidy.

Circuit Theory

by an Electrical Engineer

When we decide to land, there are a number of conditions that must be satisfied before we can land safely.

1. We must have a clear idea of exactly where we want to land; it is certainly not sufficient simply to arrive at the ground in the general area desired.

2. We must have a clear idea of the direction in which we wish to land. The landing should be made as closely into the wind as possible. (Crosswinds mean crabbing is necessary, and, if incorrectly dealt with, may damage the landing gear; control of the glider after landing may well be hampered by weathercocking or wind under one wing may push the other to the ground. Tailwinds mean high groundspeed at landing and early loss of control.)

3. The area in which we wish to land must be free of obstacles (e.g. cars, gliders, sheep, long grass, people, trees, fence posts, etc., etc.) for obvious reasons, and must be suitable for landing on (e.g. not water).

4. We must have a clear idea of the speed at which we are flying and the speed at which we must land. Too fast and airbrakes will not dissipate our energy fast enough and landing is much more difficult (there is a risk of ballooning etc.) and we will overshoot our intended landing point. Too slow and we risk stalling, spinning, undershooting or running out of elevator power for the round out. The aircraft should be trimmed for the speed desired at landing, to reduce pilot workload.

5. We must not have to make any course or speed corrections close to the ground (the stall speed comes up, the pilot is distracted from the round out, the sink rate increases, there is a risk of contacting the ground with the wingtip etc.). Similarly, if we can avoid it, we should not adjust the divebrakes or flaps while close to the ground.

6. Our approach path must also be free of obstacles.

7. In an aircraft with a retractable undercart, the undercart should be **down** and **locked**. With flaps, the flaps should be in the landing position.

8. We must arrive at the point we have decided upon, at the speed we have decided upon, in the direction we have decided upon, with the control and undercart settings we have decided upon.

9. As many options as possible at any time for altering the landing should be kept open, in case any conditions change (e.g. a car appears on the strip).

If these conditions are met, the actual landing of the aircraft is very easy and imposes little stress on the pilot.

ing and getting onto the base leg, and ensuring that all safety conditions are met.

We can have a good look at our landing area and approach path by flying past the landing area a fair way off to the side (if we fly over our intended landing spot we can see everything but it, so that's why we're over to one side). While doing this, in a fairly relaxed fashion, we can localize our landing point, and extrapolate our final approach back from this, and make an estimate of the position of

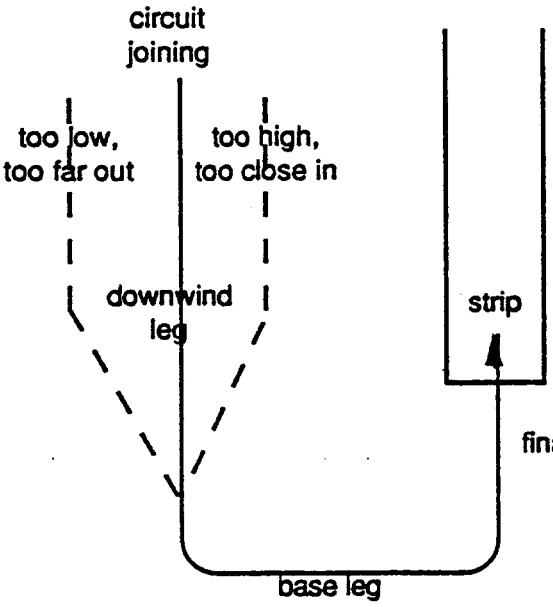


Diagram 3

the base leg required to take the glider from its present path to the final approach. Keeping in mind that the base leg should be long enough to allow us to correct for any errors of alignment (due to judgement, or because of flying through unexpected lift or sink), and thinking of how high we are now, we can fly either in towards the landing point (to shorten the base leg, if we would otherwise be too low) or away, if we are too high and our base leg too short (see diagram 3).

This line of flight is known as the 'downwind' leg of the circuit.

While the pilot is flying the downwind leg, he has time to set landing flap (if required), lower undercart (if required) and to set his speed and trim for landing.

The overall size of the circuit depends on the height and position of the glider on downwind leg, as this depends on the intersections of downwind, base and final.

So now we have designed a logical and practical system for ensuring many of the conditions for a safe landing. But some of the conditions need to be thought about long before the downwind leg.

We will look at this now, and follow a glider around the circuit as an illustration.

Before the circuit is even approached, the pilot must know the area in which he wishes to land, based on wind speed and direction, ground slope, obstacles and so on. He should decide on which side of the landing area he should make his downwind and base legs: this decision based on obstacles, wind speed and direction, other traffic and so on. He should select an area of the sky as a circuit joining area from which to start a downwind, and he should begin looking for obstacles. All this should be decided even before leaving the ground, but the pilot should be prepared to change his plans at any time as circumstances demand.

The pilot should arrange his flight so that by the time he has reached circuit-joining height, he is in the circuit-joining area, continually on the alert for changed conditions. He starts flying downwind, and has joined the circuit. While flying straight and level, he will notice any drift due to wind, and can, if necessary, modify his plans to cope with it.

He automatically remembers the FUST check, the pre-landing check, drummed into him in training: Flaps set for landing, Undercart down and locked, Speed set to that required for landing, and Trim for that speed.

He pinpoints his landing point, the aiming point at the end of the final approach glide slope, and relates it to his actual touchdown point and end of roll. He searches the ground for any obstacles, and mentally draws the line of his final approach back into the sky. He imagines his own flight path and connects it to the final with a base leg. If the angles look wrong, the base leg too long, too short, too high, too low, then he adjusts his flight path, the downwind leg, immediately to correct things. (This is where experience counts.)

As he reaches the intersection of his base and downwind, he turns onto base and immediately begins reassessing the situation. He continues monitoring the wind by his drift, checking that his landing site and anticipated flight path are clear of obstacles, and checking that he is going to intercept the final approach where he wants. Corrective action is taken, and plans are altered as required. He puts his left hand on the airbrake lever already, so that he will not suddenly have to search for it after turning onto final. If he finds himself too high on base leg, he may choose to wash off height with airbrake instead of moving out.

Now he is approaching the line of the airstrip: his final approach. He times the turn so as to complete it just as reaching the approach path: if this turn was mistimed, he uses decisive movements to rapidly align himself correctly. Airbrake is applied so as to bring the aircraft's glide slope to match the pre-designed final approach: the aiming point is now used as such, with the airbrake set so as to cause the aircraft to fly towards this point. The speed has not been altered since downwind leg. Airbrakes are adjusted to maintain the aiming point if lift, sink or windshear are encountered.

The pilot now knows exactly where he is landing.

He knows there are no obstacles on the ground.

He is travelling at the ideal landing speed.

He need not make any major corrections to his flight path.

He is landing in a direction he has thought about and is happy with.

There are no obstacles to snatch him from the sky.

His wheel is down and locked, his flaps are set for landing.

All he has to do is round out, hold off, and roll to a stop.

Next Month — Modified Circuits

Information

Club Contact Numbers

President	David Conway	294 4828
Secretary	Peter Temple	344 8156
Treasurer	Terry Gould	381 2072
Social Convenor	Agata Jarbin	336 8131
Club contact	**Matthew Nicholls**	**297 0078**
Newsletter editor	Peter Cassidy	356 3382
Chief Flying Instructor	Redmond Quinn	344 5331
Lochiel airfield		(088) 26 2203

So you want to fly this weekend?

Then ring the club contact person between 8.00 pm and 10.00 pm on Thursday nights, so that he can organise car pools, instructors etc.

Meet at the Caltex service station on Port Wakefield Road, Bolivar (just past the WhiteHorse Inn and the caravan park, on the left) at 7:30 am. Or, if you can't get transport that far, get to the Uni footbridge at 7:00 am. Someone should arrive to pick you up before 7:15, if you have rung the contact person to tell him that you will be there.

Price List

Flying time:

Twin seaters	15¢ per minute
Single seaters	20¢ per minute
Launch	$2.00

Membership:

Students	$5.00 per year
Non-students	$50.00 per year

Flying and launch costs are double for non-members. Air experience flights are charged at members' rates.