THE AIR EXPERIENCE INSTRUCTOR RATING (AEI)

Purpose

The Air Experience Instructor rating is an authorisation issued to pilots in command of Air Experience flights carrying persons who may not be members of the Gliding Federation of Australia. It is assumed that such visitors to a gliding club have an interest in the sport of gliding and wish to experience it before committing themselves to membership. Therefore it is also assumed that some instruction, albeit limited, will take place in the course of an Air Experience flight, in the interests of letting the visitor "have a go" at the controls.

This document is also suitable as guidance for the 'passenger awareness briefing' required for attaining a Level 1 Passenger Rating.

Prerequisites for AEI Rating

- At least 50 hours experience. Power pilots may count 10% of their power hours towards this requirement, provided they have a minimum of 10 hours gliding.
- At least a C Certificate.
- The pilot must be thoroughly conversant with flight rules and procedures and free of basic flying faults.

Privileges and limitations for AEI

- The Air Experience Instructor rating limits the pilot solely to the conduct of Air Experience flights.
- The Air Experience Instructor must carry out all launches, circuits, approaches and landings and is not authorised to permit another person on the controls below 800ft AGL.

Prerequisite for Level 1 Passenger Rating

- C Certificate
- Briefed and checked on Passenger Awareness
- Logbook endorsed by CFI for the carriage of private passengers, subject to direct authorisation by duty instructor on each passenger-carrying flight or group of flights

Privileges of Level 1 Passenger Rating

- A private flight is a flight carried out on behalf of the pilot alone and specifically not acting as the agent or on the behalf of a gliding club or organization. As a consequence of this, it is a requirement that the pilot pay at least his/her equal share of the costs of the flight.
- Handover of control to passenger not permitted;
- The endorsement is valid for carrying passengers in a particular glider type if the pilot has carried out at lease 3 take-offs and landings in similar two-seat glider types within the previous 90 days, either as a pilot-in-command or with an instructor.

Training
The training for an Air Experience Instructor rating shall be carried out by the club CFI or a suitable experienced Level 2 Instructor delegated by the CFI.

The syllabus of training is as follows:-

- Stalling and spinning sequences in accordance with Part 2 of the Instructors Handbook and emphasising the recognition of the symptoms of an accidental spin.
- All relevant launch emergencies
- Accurate circuits, approaches and landings without reference to the altimeter.
- Running out of height in the circuit.
- Flying a tandem two-seater from the rear seat.
- Correct handover/takeover procedure.
- Demonstrating basic effects of controls
- Talking while flying - basic conversational patter.
- Passenger awareness briefing, including coping with such reactions as sickness, fear, etc., in accordance with the Air Experience chapter in Part 2 of the Instructors Handbook.
- Pre-flight briefing and post-flight debriefing of passengers.

AIR EXPERIENCE

THE CONDUCT OF AIR EXPERIENCE FLIGHTS

Introduction
This section on air experience flying is quite long and detailed. No apology is made for this; indeed it serves to reinforce the importance of proper and considerate handling of people who are experiencing their first flight in a glider. None of it can afford to be ignored.

There are two important things to realise when entering the world of air-experience flying.

1. You are now responsible for someone else in the glider as well as yourself.
This means that the relatively carefree attitudes which you may have got used to in solo flying are now not appropriate. For example, you probably have never had to work to a deadline before. You have chosen your takeoff time and planned accordingly, slowly getting your glider ready and launching when conditions are right.

Now you may be thrust into quite a different scene. There may be three or four people waiting for air-experience flights and you are one of the pilots chosen to take them. You will have pressures on you that you may never have experienced before, pressures which must be resisted if you are to avoid such pitfalls as rushed or

interrupted checks or being distracted by people holding social conversations around the cockpit.

2. You must realise it is their first flight, not yours at their expense. The impressions you give during that first flight are extremely important - you can sign up a new member or turn that person off gliding for life. In this sense your responsibility is at least equal to the instructor who takes a student through the later training sequences - a student who does not get on with a particular instructor will find another instructor, whereas a newcomer having an unpleasant experience on the first flight will probably not even take another flight. He may be lost forever.

Think back to your first flight in a glider and how you were treated by the person who took you up. It will probably help quite a lot in your handling of air experience flights.

Confidence

It may seem an obvious thing to say, but you must be confident of your own ability to fly safely and accurately. Not only this, you must convey this confidence to the other person, especially if you do not know each other. Put yourself in the other person's place - you have come here of your own volition to be exhilarated, but at the back of your mind is the thought *"I hope nothing goes wrong".* What you really want is to get down again safely and if you enjoy it immensely, so much the better. You are introduced to someone (a good pilot you hope) about whom you know nothing, and he says such things as "*I haven't flown one of these gliders for ages"* or *"I hope the rope doesn't break".* This may be an exaggeration, but if you had any sense you would be off like a shot or you might sit through the entire flight petrified. Loose talk, even if intended as a joke, can get you off to a really bad start. What you want to hear is that things will **not** go wrong, or if they do that your pilot will be able to cope with them in a trained, professional way. You will want to hear him say things like *"Rope breaks are very rare, but if we do have one, we will land in one of those paddocks over there. Or, if we're high enough, we'll land back on the airfield".*

Note the "will" and not "might" or "maybe" and the fact that your pilot is making decisions and preparing for any eventuality. You think to yourself "I can trust this person with my life" because that is in fact what you are doing. Let your passenger know beyond doubt that you are going to look after him by being positive and decisive. Also remember that, like surgeons, air-experience pilots do not have the word "oops" in their vocabulary.

Obviously this confidence must be based on actual ability.

Early sensations

Most people on their first flights will experience fairly vivid sensations of positive and negative 'G' and of slip or skid, though they probably will not know what they are called or why they happen. The fact that they do not know why these sensations happen is likely to make them even more vivid.

The fact is that the person on his first glider flight, unless experienced in some other form of flying, has spent almost all his life at one 'G' and now finds that, not only

does he lean over every time you turn, but also gets pushed into the seat. Then, no sooner has he adapted to this extra body weight, you come out of the turn and he feels light-headed going back to one 'G'. It may be very disconcerting and the person may be convinced that he will never make a pilot because he has not got the constitution for it. The moral should be obvious; be honest and tell the person what to expect before you fly. Don't lay it on too thick, there is no point in erecting unnecessary obstacles to a person's enjoyment, but tell him that everyone has these sensations and he will become accustomed to them when his eyes have learned to discern the small attitude changes that cause them.

Avoid unnecessary jargon. Use of words like "attitude" and "high and low G" are useless without explanation. Better to use familiar and everyday expressions, like "that hump-back bridge feeling" or "that sensation you get at the bottom of the slope on the big dipper". The person will know immediately what you are talking about and what to expect. It is also something you can reinforce when airborne and you fly through a down-gust causing low 'G' "Did you feel that? Remember that hump-back bridge feeling 1 talked about before take-off ... etc?" It is reassuring to your charge to know that you also felt something not altogether pleasant.

A very small percentage of people never really adapt to low 'G' sensations (low 'G' being defined as less than one 'G'), even though they can tolerate an increase in positive 'G'. Such people become extremely concerned, even agitated, when they experience low 'G' and it is worth keep a careful eye on all air experience passengers for any sign of this trouble. If you detect an abnormal sensitivity to low 'G', cut the flight short if the air is rough and discuss the matter with them on the ground.

Pre-flight briefing

The essence of a good briefing is just that; keep it brief. The accent should be on the things that will directly concern your potential new member, like what to expect from the flight and how to enjoy it.

Unless interest is shown in the controls or instruments, do not volunteer lengthy explanations. Short and simple are the watchwords. Once aboard and the harness is comfortably secure, give a concise briefing about the new environment for the next few minutes. For example:

"As you can see, we have a control stick here (point) and some pedals on the floor (point). I will be using these all the time to control the glider, so please keep clear of them until I say so - I'm sure you would like to have a go when we get up there".

"Your harness is nice and snug so you won't need to hang on to anything. However, if you feel you do want something to hold onto, use this here (point to the appropriate place on your glider type). Please don't touch this yellow knob or the red handle here (explain why). The only other important control is this blue lever here (point) which works the airbrakes. You may see me moving that as we come in to land. You've got some instruments here which tell our height, speed and whether we are going up or down, but don't worry about them, I have the same set of instruments in front of me. Much better to keep your attention outside and enjoy the view".

"I'm now about to commence a pre-flight cockpit check to ensure that everything is in order before we take off"'.

Apart from explaining about the sensations, something like this is all that you need say. Obviously amplify your descriptions if you are asked, but don't get bogged down by intricate details of how and why everything works. Don't be evasive, but keep your explanations brief and untechnical.

Bear in mind that the technical knowledge you possess has been assimilated over several years. If you try to impart all this knowledge in a few minutes (quite a common error, even for experienced instructors), the newcomer may well think you are a superman for being able to operate all those knobs and levers at once and read all the instruments at the same time. He may not come back as a student if he thinks it will all be too complicated for a mere mortal such as himself. Therefore, be brief and truthful, but untechnical and reassuring.

Patter

You will find that, after a few flights, you will start developing your own patter. The aim here is not to tell you exactly what to say, but to give a few hints on how and when to say it.

You might find it difficult at first, but try to keep a steady and even conversation going. This is important for two reasons;

- an even (not monotonous) speech will be more reassuring than a sudden high-pitched babble when, for example, the cable has just broken;
- the two-way talk will give you an insight into how the person is coping with three-axis motion, as well as making him feel more than just nose-ballast.

Talk about what you like, but make it interesting. For example, on tow you might talk about the gliding club, the aerodrome, the local area, in fact anything that is different from his everyday life and therefore interesting. Get the person involved in the conversation; although he does not know how to fly the glider, he can talk.

The other important part of good patter, and therefore good introductory flying, is to keep the other person informed about the flight; for example warning him before each manoeuvre and, if need be, what to expect. Almost every sensation will be new, tell him before it happens.

A couple of examples:

(i) On coming off tow. *"Any moment now I'm going to bung off tow and do a right-hand turn".* The elements are there and it is truthful, but "bunging off" is at best meaningless and may even suggest a violent manoeuvre.

Compare that with *"Any moment now - I'll tell you when - I shall be releasing the towrope and when it has gone I will bank the glider over gently to the right. The rope will leave us with a bit of a jolt, which is quite normal. OK, I'm releasing now".*

See the difference? The newcomer is prepared for everything he is going to feel whether he is sitting through a right-hand turn or not.

(ii) On preparing to land. *"Well, we're down to 800ft and it's about time we got ourselves established on the downwind leg of the circuit. I'll try to get us down by the aerotow point, but it might be tricky in this crosswind. I'm increasing speed and retrimming onto the downwind leg now. There may be a wind-gradient on finals. Turning onto finals now and open the brakes. 55 knots and going well . . . "* etc.

All good stuff and quite truthful. Read it through again, see where it went wrong and try to think what you would say. There is a bit too much technical jargon and not enough confidence comes across that the pilot is really capable. Try this version.

"We're getting lower now and it is time to prepare for landing (getting nicely positioned on the downwind leg). What I'm doing at the moment is getting us positioned so that we will land on that grass strip at the end of the airfield where the tug aircraft is just landing. See it, down there on the left? We need extra speed for a safe approach to land, so any moment now I'm going to lower the nose slightly - you will feel that hump-back bridge sensation as I do it and you will also notice the air noise get louder (Lowers nose and retrims). One more turn and we will be lined up for a landing just to the right of the line of gliders. We've still got plenty of height, so I'm going to start to use the airbrakes. It might look like we're going to dive into the ground, but we won't, gliders usually approach quite steeply to land . . . " etc.

The difference in this version is that the pilot is adjusting his own thoughts to what the other person can understand, pre-empting any apprehension and certainly not mentioning his own thoughts of downwind legs, crosswinds and wind-gradients. Saying the right things is often simply not saying the wrong things.

Adverse reactions

Apart from the rather unlikely event of flying somebody who is acutely low 'G' sensitive, the main problem you may encounter is airsickness.

Although it is true that some people are prone to any sort of motion sickness, a large proportion of sickness on early flights can be attributed to extended circling, unnecessarily violent manoeuvring and inaccurate flying by the pilot.

The general rule is therefore no aerobatics, no steep turns and no dolphin flying. It is also a good idea to limit thermal turns to less than about three in a row, as continuous circling is likely to disorientate the newcomer. Be careful how much bank you use too - keep the turns rather more shallow than you would use if you were by yourself. Naturally you should be keeping your conversation going, but if the other person is quiet or unresponsive, especially if the head is tucked down and looking inside the cockpit, suspect that you have a potentially airsick person on your hands. Do <u>not</u> ask *"Ere, mate, you feelin' crook?" or* you will find out the messy way. Try *"If you're happy, we'll go in and land now, I'm sure someone else is waiting for the glider".* It may not be strictly truthful, but it should at least provoke a response. Or you could try .. *"How are you managing, feeling OK?"* If the reply gives you any cause for doubt, it is time to head back. The main thing is to keep his attention outside the cockpit from the start. Not only will he gain very little knowledge or enjoyment from staring at the instruments, his lack of visual awareness of the glider's motion will make all his sensations much more vivid and alarming. Try it yourself on your next

flight - do a gentle pushover (low 'G') looking at the horizon then do the same manoeuvre looking down at the stick. That is what your hapless victim will feel.

Letting the other person fly - AEI rating only
Showing someone the effects of the controls and how they are used to manoeuvre the glider is really a job for a fully-trained instructor. However, with a little training and practice, you will be able to show them the basic effects of the three controls and how they affect the motion of the glider. The Air Experience Instructor is not authorised to go beyond this very superficial introduction to the effects of controls and must not allow the other person on the controls at all below 800 feet AGL.

Some do's and don'ts
DO reassure your charge and understand his feelings.

DO use analogies whenever you can to explain something; this is more effective than the technical truth. Car analogies are useful as most people drive. For example rough road equals turbulence in the air.

DO keep there attention outside the cockpit, get them to help with lookout, make them feel useful.

DO warn the person before you are going to do something.

DO fly smoothly.

DO, if you can, fly your friends first. They already know you and probably trust you. You will already have overcome the biggest hurdle.

DO NOT do aerobatics.

DO NOT spend a long time continuously circling.

DO NOT do steep turns, but . . .

DO NOT compromise safety, inasmuch as you may have to turn steeply to avoid collision or do a well-banked turn onto final approach.

DO NOT apologise. For example, do not say *"What a sloppy turn I did there"* or *"what a terrible take-off"*. This person has trusted you with his life and does not want to hear things like that from you.

DO NOT use loose talk. Example above. Think what you want to say and imagine how it will be received before you say it.

DO NOT fly air experience flights in rough conditions and think very carefully about flying them in the middle of very hot summer days.

Flight safety in Air Experience Flying

In air experience flying, you have the safety of someone else to consider, as well as your own. Nowhere is this more important than in the circuit. What is to you, the pilot, a perfectly safe and controlled "running out of height" situation might come across to the other person as an emergency with things getting rapidly out of control. Even more so if you have already told him where you are going to land and then say you won't be able to make it. Although you should always fly safely, the margins should be increased when you have someone else to consider as well.

Finally, introducing other people to your sport can be very rewarding. You will find it almost like learning to fly all over again and it will certainly add another dimension to your gliding. However, don't collect a rating for the sake of having another piece of paper. In order to give your best to prospective new members, you should genuinely want to do that. Once you have the rating, use it as often as you can. Not only will staying current help your flying to be safer and more accurate, you will be giving much better value for money.

Finally, always remember whose flight it is!

Patter for control demonstrations

Patter	Remarks, teaching points
Elevator	
Now I will show you how the controls work, first the elevator	Start the demonstration with the glider in the normal flying attitude, remind trainee of stability
Follow through on the stick with your right hand	
Look ahead over the nose and look at the position of the nose on the horizon, or the amount of ground in view. Note the position of the nose.	
It remains constant, this is the normal gliding attitude	
Now as I ease the stick forward notice the nose go down, notice the nose goes below the normal flying attitude, Notice the wind noise increase as does the speed.	Not too much, about 10-15knots speed change. Demonstration must be obvious but not enough to disconcert trainee
If we wish to raise the nose we ease the stick back, the nose rises, there is less ground in view and the noise and speed decrease We are now in another attitude.	From now on avoid reference to stick movement, nose position and raise/lower nose should be used with reference to the normal flying attitude.
Now I ease forward on the stick and will return the glider to the normal flying attitude	
Would you like to try for yourself? You have control	Allow the trainee to lower and raise the nose several times and always return to the normal flying attitude.
I have control	Remind the trainee to let go of the stick and respond to handover.

Ailerons	
Now I will show you the effect of the ailerons and how we bank the glider.	The trainee should have been briefed on these Jargon words (aileron and bank).
Look ahead and see that the cockpit edge is symmetrical with the horizon, The wings are level, note the position of the nose on the horizon with wings level	If not convinced have the trainee look at the wingtips but do not use this as a primary reference
If the wings were not level then the view ahead will look like this…….	
Look at the left wingtip; see the wing go down when I move the stick to the left.	Bank the glider using coordinated controls but don't allow it to turn more than about 20 degrees off original heading
It continues to go down until I centralise the stick	Aim to achieve a bank angle of about 30degrees at a roll rate which is easily noticeable. Centralise is not strictly correct but used in the interests of brevity.
The glider is now banked and I need to apply a slight back pressure on the stick	Introducing the need to coordinate elevator with aileron
To raise the wing I move the stick to the right and centralise it when the wings are level	
As the wings come level I relax the back pressure to maintain the correct attitude	Consolidating the need to coordinate elevator with aileron
Now you try, you have control	
Rudder	
The rudder is a balancing control to help make us turn, I will use the rudder	Allow the trainee to fly straight and level keeping the wings level and nose in the normal flying attitude whilst the instructor uses the rudder. Can then be talked through turns with instructor using rudder