

Australian Ballooning Federation

PILOTS CIRCULAR

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Pilots Circular is produced by the Australian Ballooning Federation Inc., and contains operational and safety information for all Australian balloonists. ABF pilot and student pilot members receive Pilots Circular (and a PC folder) by post as part of their annual membership. PC is also available on the ABF website www.abf.net.au for all to read.

All ABF members – from the newest student to the most experienced pilot – are invited to contribute to PC on issues you feel other pilots may wish to know about, or to raise questions that you would like information about. Thanks to all the pilots around Australia and others who have contributed to this issue.

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Instrument Approach Procedures - ARE YOU LEGAL?

Do you remember the rules?

CAO 95.54 4.2(c) allows for private balloon operations to be conducted outside controlled airspace **within 16km of an aerodrome which has an instrument approach procedure (IAP), provided VHF radio is carried and the appropriate procedures in AIP and VFR Flight Guide are followed.**

AIP ENR 1.2 – 6 allows balloons to operate by day in horizontal visibility of not less than 100m while they are below 500ft AGL, **provided the balloon is at least 10 nautical miles (approx 18.5km) from an aerodrome for which an instrument approach procedure is prescribed.**

Until now it has been fairly easy to identify aerodromes with an IAP, as both aeronautical charts and ERSA show instrument approach nav aids such as NDB, VOR, DME and ILS.

Aerodromes with a new GPS approach

With the advent of GPS there has been a proliferation of GPS Non Precision Approaches (GPS NPA), many of which are for **unlicensed** aerodromes (and a small number of helipads) which have no ground based nav aid, and consequently are not readily identified on aeronautical charts or in ERSA.

A number of these are in areas where balloons fly and where previously the aerodrome did not have an instrument approach procedure. Three examples of this in Victoria are the Lilydale GPS, the Mansfield Helicopter GPS and the Yarrowonga GPS. **Pilots need to recheck whether aerodromes where they plan to fly now have a GPS approach.**

How to be sure if an aerodrome has an instrument approach (of any kind)

The AIP Departure and Approach Procedures (DAP) is the publication which lists all current instrument approaches. If you do not have a hard copy of DAP (and most balloonists would not), it can be viewed on the Airservices Australia website.

- Find on the chart the name of a local aerodrome in your intended flying area.
- Go to www.airservicesaustralia.com.au/pilotcentre/aip.
- Click on 'Departure and Approach Procedures (DAP)'
- Click on 'Aerodrome and Procedure Charts'
- Scroll down the list to look for the aerodrome name. **If the aerodrome is listed, it has an instrument approach procedure, and the rules mentioned above about radio and low visibility apply.**

Note: If the chart or ERSA indicates there is an NDB (non-directional beacon) at or near the aerodrome, but you find the aerodrome is **not** listed in DAP, it is not an approach procedure and the location of an NDB there should not in itself restrict balloon operations. An example of this is Stonefield gliding strip NE of the Barossa Valley in SA which has an NDB nearby.

If you are not sure about a particular aerodrome and do not have access to DAP or the internet, it would be sound practice to assume that any aerodrome marked on a chart could have a GPS approach until you are sure it does not.

In any case it is your responsibility as pilot to ensure that within 10 nautical miles of any aerodrome with an instrument approach you do not operate in conditions of less than 5000 metres visibility, and you remain clear of cloud. Within 16km you should not operate at all unless you carry and use radio.

MA Exams

SA State Rep Steve Kenny has passed the recently revised MA exam – see his account in this issue of Aeronotes. It wasn't all plain sailing – it took two attempts, quite a lot of coaching and a fair bit of swotting as well.

The holder of a CASA Maintenance Authority for balloons can do annual/100 hourly inspections and carry out most repairs. However they cannot do major repairs, which must be done under a Certificate of Approval. And they are not allowed to supervise and sign for someone else's work (though we expect this may change in future regulations for some kinds of maintenance work). You don't have to be a balloon pilot but it certainly helps to know workshop practice, have a good head for regulations, and be familiar with balloons and the latest balloon logbooks. You should also be determined to keep high standards – so your work avoids accidents, and does not contribute to them.

Anyone wanting to take the exam is recommended to contact ABF Operations Manager Ian Hogben, who can give you a copy of the current syllabus and discuss possible arrangements for training. Phone Ian on 0419 858 903 or email madhatter@chariot.com.au. Alternatively you can contact David Chadbourne at CASA on 131 757 – he is based in Adelaide.

OUT OF CONTROL?

A flight story by National Safety Officer Ian Hogben, prepared from a number of recent incident reports.

What a great flight, we have been airborne for an hour plus and it's been just one of those copybook days. Here's the story so far...

Out of bed 0500 to check the weather, looks good, isobars on the map not too close, I guess the upper levels might be a bit quick, but it's cold enough, 4 degrees outside and will drop a bit more by sunrise, should be a good inversion.

We've got a couple of mates to introduce to ballooning and we will meet them on the way down to the paddock, Bill is going to crew for us today, he is experienced, so everything will be easy. I feel pretty confident and with 80 hours PIC under the belt this should be pretty routine.

Our meeting and takeoff point is in an undulating valley which lies roughly 90 degrees to the expected gradient wind. We should be able to fly the drainage wind in the cold decoupled air and have a nice low and slow flight.

We meet and go through all the usual process of briefings, pre-flight checks, inflation etc. and launch a final pibal for good measure. Everybody is hot to go. A final discussion with Bill about direction and flight plan followed by a gentle liftoff in slow air with a 4km/h run downwind. Looks great and our new balloonists are impressed by the beauty.

Just then we realised we were tracking slowly to the next town. Not a problem. Eager to impress the passengers we climb to 1000ft AGL to maintain clearance. Hmm track seems to have pulled around a bit, hmm bit quicker now. Oh well, there goes plan "A", looks like we will fly across the valley over the small range, that shouldn't be a problem, lots of open paddocks behind the range. Gee, GPS says 27 clicks now, but that's OK we will drop into the inversion when we get over to the other side of the town.

Clear of town, now let's drop down a bit and get some slower air, we can do some contour flying, as the ridge is approaching with some rising ground. That will impress them. Wow, it has not slowed down much; this is a hoot, we're hooking along over the contours. That gives the guys a real sensation of speed. Hmm, I really hope the inversion is still there on the other side of the ridge; otherwise this is going to be a quick landing, but that's OK, done it before, no worries. Won't worry the passengers with those details, anyway they'll probably enjoy a screamer. Radio Bill just to confirm he is on the right road over the ridge. Yep, this is what we train for, this is why we fly.

Approaching ridge-top now, she's quickening up a bit, not a problem, just some compression of the wind on the rising ground. Should be great, we are going to skim the ridge top at 40 clicks; that will give them a buzz. Yes watch for curlover, keep it hot and positive, this is a piece of cake! Wow! Over we go, little bit of sink, she's all under control, ground is falling away at a greater rate and the breeze is in our faces. With the voice of knowledge, I tell my new chums that the wind in the face is the balloonist's wish, as it means we are washing off speed. They are impressed.

Hmmm we will settle down now, drop in a bit closer to the ground, slow down and start planning a landing site. Gee, I forgot that it's a bit scrubby out here, still, looks like a few opportunities ahead so no real problems. Slowing to about 15 clicks now, lots of wind in the face, this is going to be a good one.

There's a spot 500m ahead, should be able to skim the scrub and slow right down and drop in for a standup landing. This will impress them. We go through the landing brief again and I tell them I will call "landing positions" on final approach.

Level off, basket 20 ft above the scrub, oops must have over-burned, balloon got light again, OK she's settled again, hmmm still a bit buoyant, no sink, that's OK will vent a bit just as we cross the end of the scrub. I'll just hold it here at this height and soak up the wind in my face, funny, GPS still says 12 clicks?

Oh well, got to break through the inversion I guess, only 100m of scrub to go. Oops dropping a bit quickly, hit both burners, it's not lifting. "LANDING POSITIONS!!"-----
crash,crunch,ouch,thump, Ri-I-I-I-ip!! "Are you all OK?" "Yep" from the passengers, thank goodness for that, hmmm, can't say the same for the envelope! Damn, my pilots are still alright and my gas systems are live, lucky I didn't start a fire or we would have really been in it!

I'm glad no one was hurt, apart from a few bruises and my pride, not to mention some envelope damage and a bit of scrub clearing.

I don't know what went wrong, it just fell out of the sky.

I'm not really game to tell any one about this. I wonder if I can get the envelope repaired by next weekend.

Hope Bill can spot us here; he was expecting a standup landing.

Q. What was happening that the pilot didn't understand?

A. Wind Shear!

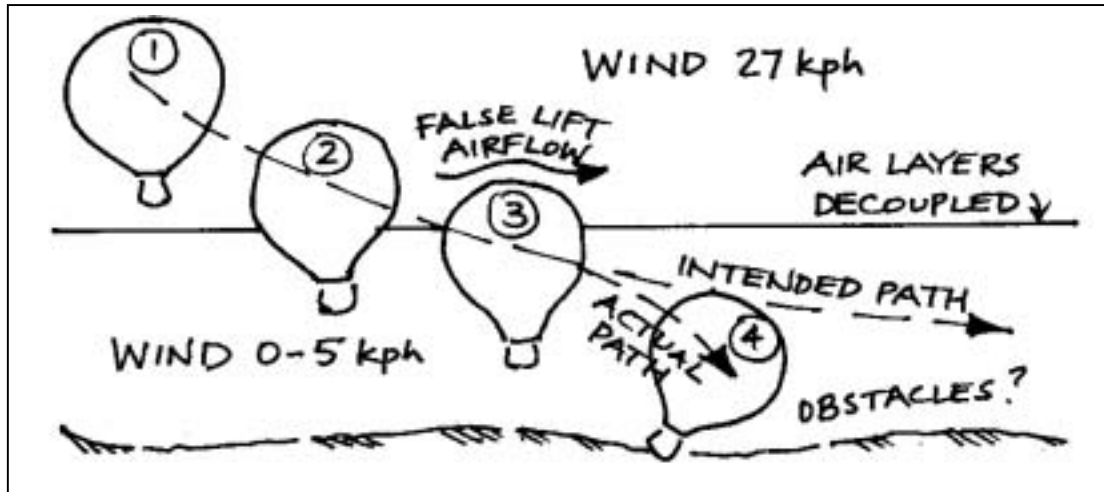
"I don't know what went wrong, it just fell out of the sky".

Has this happened to you? Most of us are well instructed to watch out for false lift on the launch field. But how often do we consider the possibility of false lift in flight?

The lovely mornings with well-defined inversions can produce traps for the unwary. Layers of air with different wind speeds and directions can become 'decoupled' – quite distinctly separated – so that we experience a strong and sudden 'wind shear' (change of wind speed an/or direction) as we climb or descend from one layer into the other. The pilot in the story above was caught by a wind shear in the critical part of the landing approach. If we had been close enough to watch we would probably have seen the leading face of the balloon dished in at position 2 in the diagram (next page). On reaching position 3 the balloon was travelling slower than the air flowing over the crown, which created buoyancy due to false lift, giving the sensation of 'hanging' in the wind change level. Quite different from 'trying to break through the inversion', which is what the pilot in the story imagines is happening. The false lift is distinct from the effect of any inversion layer. The diagram on the next page shows what really happened at the following four stages of the landing approach.

1. Balloon in upper air layer at 27kph. Starts gradual descent towards intended landing area.

2. Basket in 5kph wind, balloon still in 27kph, causing 'wind in the face' effect. Leading side of balloon becomes slightly concave as gradual descent continues.
3. Balloon slowing to 5kph, but faster wind remains over top of balloon causing false lift. Descent is arrested and balloons 'hangs' in apparent equilibrium. The unaware pilot allows the balloon to cool, until it is quite heavy and breaks free of the false lift.
4. Unaware pilot has not maintained heat sufficiently to avoid unplanned ground contact well before the intended landing area.



False lift from a wind shear- and how it can affect your landing

Flying in wind shear

We can often experience wind shear at a height well above the ground without much mischief, provided there are no other balloons nearby. In fact, if recognized at a safe height, it becomes a good opportunity to practice flying in this unstable area of buoyancy. Practising dropping through gently and maintaining control will prepare a pilot to handle the wind shear safely when it occurs close to the ground. **My first instructor frequently said, "breeze in the face, top up burn". I consider this one of the more important little habits to get into.** So, when a continuous breeze is in your face, continue with short maintenance burns to keep the balloon just under natural buoyancy as one would on final approach. This will generally ease the balloon through the transition without any drama and give a reasonable sink rate when clear of the shear.

The trap is, if we are on approach over obstacles, they may not be as friendly as a bit of soft scrub. A power line in the previous story could have been disastrous. Do not commit to low level unless sure of the safety of your approach path. If low-level shear is anticipated it is smart to select a large clear landing area – or if landing space is limited it may be a better option to drop in fairly steeply in a positive descent to nail the desired spot with a firm landing. And in your enthusiasm, don't forget to turn off the pilot lights before you make ground contact.

There may be some other ways of handling this situation, but it is always better to try to predict it, learn to recognise it and fly it with caution.

'Reverse' wind shear

A similar but opposite effect can occur when an inversion is breaking up at ground level, and the lower layer of air is distinctly faster than the air above. False lift can occur, causing the balloon to remain buoyant longer so that it tends to overshoot the intended landing area, even when the pilot has apparently allowed for the faster wind speed. Again it is important to allow extra landing space, and maintain awareness and positive control.

Are You Current?

All ABF Certificate holders

Are you a current financial ABF member? Membership fees are due on 1st January each year – and if not paid by the end of January the membership lapses. If this happens, exercising any of the privileges of an ABF certificate after January 1st becomes invalid, ILLEGAL and almost certainly UNINSURED.

Student Pilots

Remember that when you have passed your flight test and all the exams and are ready to apply for your pilot certificate, the theory exams must have been passed within the preceding 2 years. If you passed an exam more than 2 years ago, you will need to do it again. Within the previous 12 months you must have made at least 3 flights totalling 3 hours and including inflation and deflation. So it pays to stay motivated and complete the training in as short a time as you can reasonably manage. If you have any difficulty finding Instructors or Examiners, you should advise your State Rep, local club or the ABF Operations Manager.

You are entitled to ask your Instructor or Examiner for evidence of their currency. If they are not current (and they may simply have forgotten to renew), any flight time for instruction or flight test you do with them is invalid and will not be counted. **Instructors and students – remember ground instruction is not logged, just airborne time, and most of that time the student must be ‘hands on’.**

Private pilots

Must have flown as pilot in command at least 3 hours and made at least 3 flights including inflation and deflation in the previous 12 months, *OR*

have done a flight check with an ABF Instructor or Examiner in the previous 90 days. (Note that an Instructor can do this check – the requirements for the check are available from the ABF Operations Manager).

Instructors

Are required to remain current as a pilot (see above), *AND*

Must have successfully completed an Instructor check with an ABF Examiner within the preceding 24 months. This must be entered in the Instructor's logbook and signed by the Examiner, and the entry must clearly state the test was for this purpose and the result was a pass. **To complete the renewal a copy of the logbook page must be sent to the ABF Administrator without delay.** An Instructor who has genuine difficulty in arranging a biennial flight check by the due date should contact the ABF Operations Manager *before* becoming overdue.

Examiners

Unless suspended, cancelled or varied, the Examiner Certificate remains current providing the Examiner continues to hold a current Instructor Certificate as above.

Note currency in your diary – and don't leave it to the last minute!