

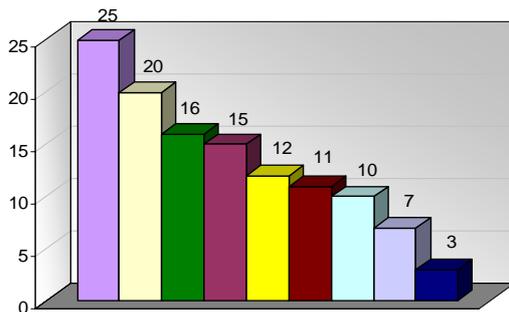
CHIRP FEEDBACK

Issue No: 33

Autumn 2007

EDITORIAL

Most frequent GA Issues Reported
12 months to July 2007



- Handling/Operation**
Airmanship, Handling of A/c, Operation of Equipment
- Procedures**
Use by Reporter, Use by Others, Adequacy
- Aircraft Technical**
Propulsion, Design, Systems
- Situational Awareness**
In the Air
- Near Miss**
Airprox, Near Collision with Terrain, Loss of Separation
- Air Traffic Management**
Level of Service, Separation
- Communications - External**
With ATC
- Maintenance**
Standards/Workmanship, Base
- Ground Handling**
Loading, Refuelling, Cargo, Servicing

WHAT'S IN THIS ISSUE?

	Page
Prop Swinging	1
Fixation	1
A Chastening Aerobatic Experience	2
Pressure Vertigo.....	2
Inadvertent Fuel Tank Selection	3
Excessive Play in PA28 Stabilator Bearings	3
Restricted Visibility	3
Visual Flight Rules (1) & (2).....	4
Contacting CHIRP	Bottom of this Page

Number of Reports since the Last Issue: 11

Report Topics Have Included:

- Distractions during taxi.
- Low level military overflights of airstrip
- Close encounters in visual circuit.
- Seat failed to lock correctly.
- Control restriction during aerobatics.
- Inadequate pre-flight planning.
- Encounter with thunderstorm.

REPORTS

PROP SWINGING

Report Text: Recently, I observed a propeller swinging procedure which I considered to be very casual and potentially dangerous. On enquiring, the participants admitted they had received no formal instruction and had not attended any course in engine starting.

Also, I am concerned about the lack of insurance cover for personnel that may be involved in starting accidents.

CHIRP Comment: **Hand swinging procedures and the correct technique for swinging a propeller are areas of training that are often neglected. Proper training appropriate to your aircraft type is most important and might avoid a serious/fatal incident.**

Also, does your insurance cover a hand-swinging incident involving yourself or, if relevant, a third party who assists you in starting?

FIXATION

Report Text: Upon vacating the runway after landing, my attention was drawn to the loose surface state of the taxiway, which suggested the presence of potholes.

Taxiing slowly (thank goodness), I was so engrossed in examining the surface to avoid possible propeller damage that I allowed the aircraft's left wingtip to collide with one of a number of a wooden posts supporting a barbed-wire fence.

The collision turned the aircraft towards the fence and forward motion was arrested when the outer leading edge came up against a second post.

The aircraft came to rest with all wheels still on the taxiway.

Damage:

Broken port navigation light, chipped wingtip fairing and a vertical dent approx 1cm-deep in the wing leading edge

Lessons:

1. Do not allow yourself to fixate on a single task to the exclusion of all else.

A General Aviation Safety Newsletter

from **CHIRP** the Confidential Human Factors Incident Reporting Programme

2. Be aware that passage on a taxiway does not automatically imply full obstacle clearance. If in any doubt - stop the aircraft until you are happy to proceed.

CHIRP Comment: This report is a good example of how easy it is to allow yourself to focus on one potential threat and, as a result, not remain aware of other 'gotchas'. As the reporter notes, if you have doubts about the surface, stop and/or seek assistance, such as requesting a marshaller.

One further point, if your aircraft suffers apparent superficial damage, always have the damage inspected by a qualified engineer before flying again to ensure that no unseen structural damage has been incurred that could affect the aircraft's structural integrity.

A CHASTENING AEROBATIC EXPERIENCE

Report Text: Completing a short aerobatic sequence in a Chipmunk with a slow roll to the right I found I was unable to move the control column left to return to level flight. The aircraft continued rolling - no associated bang or indication of any structural failure. The control column could be moved only slightly left with a full-strength two-handed pull.

I reduced power slightly and applied left rudder. Aircraft attitude held initially, and with considerable difficulty, in a 20 degree angle of bank right turn. I was then able, with further steady application of two-handed force to reach approximately wings level and to reduce the rudder input.

I called ATC indicating an immediate return to land with a control restriction. I assessed the situation at 80kts - the control column could now be held central but could not be moved left of centre. Unable to turn left, I made (gentle) right turns to position for a long straight-in approach. I elected not to extend flap and to maintain slightly higher than normal airspeed until the flare. After vacating the runway I found I was still unable to move the control column more than 2 inches left of centre.

Following shutdown, an inspection of the rear cockpit revealed that the seat assembly (substantial semi-rigid black rectangular seat cushion and flexible back) had slid out from under the (fastened) harness and caused the obstruction. The aircraft had been flown dual on the previous sortie and a 'running-change' carried out, during which the rear harness had been secured for solo flight in the normal way. The ex-RAF Chipmunks which I have flown previously have a 5-point harness. This particular aircraft is an ex foreign-military Chipmunk and is equipped with 4-point harnesses; this lacks the 'crotch strap' which, it is now clear, would have prevented the seat assembly from becoming a dangerous loose article.

This was a very chastening experience. I and other experienced (ex-RAF) Chipmunk pilots who fly this aircraft have been surprised to discover this particular 'gotcha'. Obviously, we will now make it standard practice to remove the rear seat assembly when flown solo rather than just secure it with the harness. I am aware that other civil-registered Chipmunks operate with 4-point harnesses and, since this incident, at least one pilot has assured me that it is practice in his group to remove the seat for this reason.

I believe it is worth publicising this report for the benefit of any other Chipmunk operators who may not be aware of this.

CHIRP Comment: The reporter handled this difficult situation extremely well but was fortunate that the extent of the obstruction permitted him to retain sufficient aileron control to make a safe landing. Regrettably, this has not been the case in several other recent GA accidents in which a loose article has restricted/jammed a control circuit.

A very good human factors lesson to be drawn from this incident is that very experienced pilots on the type incorrectly assumed that the 'standard practice' for securing the rear seat assembly would suffice for a four-point harness. A good general rule is never to fly an aircraft with a removable seat assembly/cushion left in an unoccupied cockpit. Also, if you plan to carry out aerobatics, make a positive check yourself for potential loose articles; it takes an extra few minutes but could save your life.

PRESSURE VERTIGO

Report Text: I was interested to read the report in Air Transport FEEDBACK regarding the problems engineers experienced with equalising the pressure on their ears during ground pressurisation maintenance checks.

A few years ago as a pilot for a skydiving centre I was subject to descent rates of up to 2,500fpm in an unpressurised aircraft up to 10 hrs a day. This was not normally a problem.

On one occasion however, I had just recovered from a head cold, I felt fit and could clear my ears so I was happy to fly. On the descent from 10,000ft with an average descent rate of 2,000ft/min, I levelled off at 1,000ft to decelerate to approach speed. As I levelled off I felt pressure on my ears so I pinched my nose and blew. This popped both my ears but I completely lost my sense of balance. I was fully visual but had strong rolling and pitching sensations.

I transferred to instruments, relying on my recently completed IR training to overcome the problem, and advanced the throttle for a go around. The sensations subsided within a few seconds however, and I was still in an acceptable position for continuing so I landed without incident.

I'm sure that many of us have experienced the 'leans' in IFR at some point, but even in good VMC it was difficult to fly with one's inner ear upset.

Yet another 'fit to fly' lesson I suppose!

CHIRP Comment: Flying with cold symptoms or whilst taking medication for a cold can expose you to a number of additional physical risks, such as a blockage of a sinus or the middle ear, and thus should be avoided. The onset of these conditions can be exacerbated by high rates of descent.

The middle ear is susceptible to acceleration errors: many Instrument Rated pilots will have experienced the effect of a conflict between the instrument indications and the vestibular information received by the brain, sometimes referred to as the 'leans'. A similar sense of disorientation can occur when clearing a pressure differential in the middle ear even in visual flight, as described in this report. Either situation can be

extremely disconcerting and in some circumstances potentially dangerous; therefore, it is vitally important to recognise the problem and to rely solely on visual/instrument information.

INADVERTENT FUEL TANK SELECTION

Report Text: On the return flight from visiting another gliding club, a round-trip of 1 hour 45 minutes, I checked that the fuel fed satisfactorily from the port wing tank when about 5 minutes from joining the circuit. I did this as a precaution because I was unsure of the content of the main fuselage tank, and I knew that I had at least 30 minutes fuel in each wing tank.

The reason I was unsure of the main tank contents was that although our fuel log said I had fuel in the main tank for just 2hrs, the indications of the main tank gauge had given me the impression that another partner had filled the main tank and not entered it in the fuel log. In any case I had total fuel for 3 hours flight. The wing tanks had been checked visually before departure and the contents tallied with the gauge indications. The main tank does not have any possibility of a visual check.

On carrying out my fuel checks I somehow re-selected the main tank. On short final the engine stopped giving power and the propeller wind-milled. I immediately reselected the port tank and also reset only one stage of the flap to give a better glide angle. Fortunately, the engine power returned just in time to avert a complete disaster, as I was not going to reach the boundary fence without power.

On reflection I still cannot understand why I did not leave the fuel on the left tank. But it must have been the effect of thinking that the main tank must have been refuelled to full before I got the aircraft out of the hangar.

CHIRP Comment: Whilst it is possible that the reporter assumed that the main tank contents were as indicated, there is another possible explanation. Many well-practised actions undertaken by relatively experienced pilots are completed by what is known as a 'motor action' where the action is automatic and requires little or no conscious thought - a good everyday example is the way in which an experienced driver changes gear when driving a car.

One of the problems associated with this form of human behaviour is that if a conscious change is made from a well-established behaviour pattern or checklist sequence, such as deciding to change the tank from that normally selected prior to landing, it is important to guard against an automatic re-selection during the pre-landing checks, as a result of a motor action response. One way of avoiding this type of error is to remember the following sequence: consciously check the relevant limitation/ indication (LIMITATION) - make the relevant selection (SELECTION) - and confirm correct operation (OPERATION).

EXCESSIVE PLAY IN PA28 STABILATOR BEARINGS

Report Text: Following a private flight on a PA28 aircraft belonging to a club at which I have been teaching I made an approach and landing in pretty much perfect weather conditions. I'm very current on type and also very familiar with the airfield, so I was rather surprised

and a little embarrassed that I contrived to flare and land rather awkwardly - but put it down to over-confidence and not paying sufficient attention.

I was due to teach two days later and, when I arrived, I was informed by another instructor that the aircraft in question had gone tech, because the stabilator bearings were giving a lot of movement fore and aft and side-to-side when the stabilator was checked during a pre-flight check.

Apparently, most pilots are taught only to move the stabilator up and down during pre-flight checks and so loose bearings do go unnoticed. I myself was definitely never taught to check for horizontal movement and I've spoken with other PPLs and instructors since and no-one had any idea that this could be an issue (which backs up what the senior instructor was saying).

Perhaps this knowledge needs to be made a little more widespread, given that the PA28 is probably the most popular 4-seat aircraft in the UK?

CHIRP Comment: All bearings experience wear; therefore, it is good practice on all aircraft types for bearings in all control circuits to be checked for free movement and excessive clearance in all planes. If you are in any doubt about tolerances on the type that you fly, have them checked.

RESTRICTED VISIBILITY

Report Text: I was due to undertake a Flight Instructor Test with a FIE to renew my instructional privileges after a period of medical enforced inactivity, having regained my licence some time previously. I arranged to use a ### based Cessna 152, for the flight.

On arrival at the aircraft, I did a normal pre-flight check and noted only that the landing light was inoperative.

On entering the aircraft, I thought that the windscreen was dirty but was told that the lack of clarity was age-related. I would describe the visibility though the screen as impaired or foggy, but at that stage it was enough to commence the flight.

During the flight, as the sun lowered towards the westerly horizon, I found great difficulty in seeing in that direction due to the scattering of light, so much that I was unable to discern my position in the circuit pattern and would have been unable to see any conflicting traffic.

There is obviously a cost/benefit equation on the maintenance of older GA types and after the event I was informed that replacing a Cessna 152 windscreen is in the order of £1,000.

CHIRP Comment: Any significant degradation in the transparency of a windscreen though the accumulation of dirt, multiple scratches and/or ageing will significantly impair visibility through the screen when looking into sun particularly at low declination angles. Simply cleaning a windscreen both inside and outside may result in a big improvement and advanced polymer polishes are also now available; however, if you are in doubt as to whether the screen condition will permit an adequate lookout to be maintained throughout the intended flight, don't fly the aircraft.

VISUAL FLIGHT RULES (1)

Report Text: I hold an NPPL (M) with flexwing and 3-axis rating and have been flying for several years, amassing around 300 hours. On this day I was flying my own 3-axis machine, one of two microlights that had departed from a small private strip. I was flying through the gap between two relatively busy airfields. At the time of the incident I was focused on trying to visually acquire my friend's flexwing as he was some distance ahead of me. To aid this we were making brief calls on 129.825.

Not long after I passed the extended centreline of one of the airfields at about 2,500', my peripheral vision picked something up. Looking left, I was somewhat disconcerted to see what appeared to be a Boeing 757 type airliner approximately perhaps 4-500 metres away from me, at my level. It was obviously climbing and it was immediately apparent that there was no risk of collision; however, I descended steeply by 500', convinced that somehow I must have 'bust' into Controlled Airspace. Both my GPS and latest edition 1:500,000 chart confirmed that this was not the case and that technically I had done nothing wrong.

I should know better though. Normally I am in the habit of calling up airfields as I approach, just to let them know I'm in their vicinity and find out what traffic they have that may affect me - this time I ignored my usual practice in order to concentrate on locating my friend's aircraft. There is no doubt in my mind that this had the potential to be a serious accident. In future I will ensure that I do contact approaching airfields, or at the very least, if the frequency is too busy to break in, I will maintain a listening watch. I still don't know if the airliner crew saw me and I wait with some trepidation for the next Airprox Board report.

Moral of the story - communicate if possible, or at least listen out if not. I learned a very valuable lesson from this incident - don't let something similar happen to you through complacency. Not only will you always lose in an argument with an airliner, but you may be putting other people's lives at risk too.

CHIRP Comment: Three points are worth highlighting in relation to this report:

1. As the reporter concluded, the safe option would have been to have contacted the airfield advising ATC of position and intention, or to have listened out on the relevant ATC RT frequency.
2. The frequency 129.825 MHz is allocated to the British Microlight Aircraft Association (BMAA) and thence to clubs for the purpose of air/ground communications; the BMAA strongly discourages use of this frequency for air-to-air communications.
3. When flying in company with one or more other aircraft, the BMAA recommends that pilots fly sufficiently far apart to permit all pilots to carry out their own lookout and navigation.

VISUAL FLIGHT RULES (2)

Report Text: Fighting a 30 knot head wind in a Cessna 150 in Class G airspace, airspeed 85-90 knots ground speed around 60 knots, routing east - west north of Cranfield and working Cranfield Approach, I was aware of traffic doing IFR approach work into Cranfield. The track took me just south of Bedford and I was flying at 2,300 feet on the Cranfield QNH.

I was given traffic information about a twin turboprop following an IFR procedure reported level at 2,500 feet. Visibility was approximately 25 to 30k. I saw the twin turboprop out of my left window; the aircraft was heading directly towards me with its landing light on. I had reported my level and position on a regular basis at the request of Cranfield Approach, and the traffic information had been passed to the twin turboprop. I expected the aircraft to turn slightly to the right and pass behind me. I observed it for a couple of seconds and no avoiding action was taken.

Given the speed of the other aircraft I had few options; turning right was not an option as the twin turboprop was much faster than my C150; turning left would result in a head-on collision; going up into the path of an aircraft reported to be higher was also not an option, so I descended and lost sight of the other aircraft, then I heard on the radio - "that Cessna was 50 feet below, that Cessna was 50 feet below".

I could not see the other aircraft and am unable to comment on the proximity of it. I was subsequently asked to transmit for DF and informed that I was now clear of the approach area. The other aircraft was outbound from Cranfield and as such was not actually on the approach path printed on the chart.

I think that I should have descended earlier to maintain a 500 foot minimum separation or should perhaps have reacted sooner, albeit that it was my right of way, bearing in mind that the twin turboprop was following an IFR procedure and the crew may be more focused on instruments than outside the window. When following IFR procedures in VMC, the crew should observe the 'See and avoid' principle and this was not apparent on the day.

The principle learning point for me is that the IFR letdown area is a dangerous place to be and contact with ATC is essential. Keep a good lookout when in the vicinity of a published approach path and be prepared to take prompt action.

CHIRP Comment: The airspace in the vicinity of Cranfield is a known area of congestion and intensive instrument flying training takes place up to 10 nm radius in Class G airspace. Whenever possible, pilots should plan to avoid flying close to the area of instrument approaches or, if unable to avoid should contact ATC, as the reporter did.

In circumstances similar to those described in this report, the best course of action is to vary your altitude. If this is not possible, take avoiding action in sufficient time to avoid a close encounter and to maintain visual contact with the other aircraft, even if you have the right-of-way under the Rules of the Air. Notify ATC of the action that you are taking.

The report should also be a reminder to all instrument rated pilots of the requirement for a safety pilot to maintain a lookout when practising IFR approaches in Visual Meteorological Conditions and that the Rules of the Air continue to apply in such a case.

Finally, both this and the previous incident could be classified as Airprox incidents. Remember, the Airprox Board investigates incidents to establish cause and not to allocate blame.
