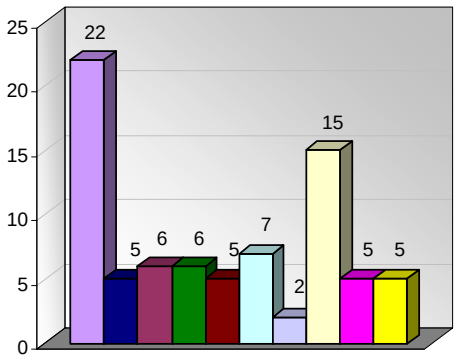
GENERAL AVIATION

CHIRP FEEDBACK

Issue No: 39 Spring 2009

Most frequent GA Issues in CHIRP Reports 12 months to 30 January 2009

We have reviewed our method of analysing GA reports with the aim of providing better information on the reports that we receive. Reports received over the last year have been re-analysed in more detail. The chart shows the ten most frequently reported issues and a more detailed breakdown has been added to the chart legend.



Handling/Operation
Lack of Airmanship - 10, Aircraft Handling - 9, Operation of Equipment - 3.

Communications - External
Between Pilots and ATC - 5.

Loss of Situational Awareness
In the Air - 6.

Aircraft Technical
Systems - 3, Propulsion - 1, Design - 1, Performance - 1.

Air Traffic Management
Level of Service - 2, Procedures/Separation of traffic - 3.

Individual Error
Inadequate Skils/Knowledge - 3, Aircraft Handling - 3, Unsafe action.

Airports
Runway Incursion - 1, Taxiway Obstruction -1.

Procedures
Use by Reporter - 5, Use by Others - 7, Inadequate - 3.

Regulation/Law
Non -compliance - 4.

Near Miss
Air - 2; Ground - 2

ATSOCAS - A REMINDER

AIR TRAFFIC SERVICES OUTSIDE CONTROLLED AIRSPACE WILL CHANGE ON 12 MARCH 2009. FOR DETAILS: http://www.airspacesafety.com/content

REPORTS

WAKE TURBULENCE - BEWARE!

Report Text: I was cruising at around 2,000ft in my motor glider, routing roughly via Faringdon VRP and not talking to anyone, when I was fascinated to see a RAF Nimrod on my left at the same altitude and overtaking me only very gradually, not climbing or descending. I guess he was about one mile away to the North.

Having pulled about one mile ahead of me he began a slow turn to the right and disappeared to the east; not something you see every day, and started me reminiscing about my time in RAF Coastal Command, albeit in the days of the Shackleton.

The tranquillity was suddenly interrupted by the most horrendous crash, just a single bone-jarring one. A quick assessment revealed that I still had two wings, a tailplane and rudder, so my initial thought was that something must have struck (removed?) my undercarriage.

Of course we are all aware of the dangers of wake turbulence when landing or taking off behind something heavy, but rarely encounter it in the Open FIR. No doubt I would have been informed (warned?) if I had bothered to talk to Lyneham or Brize, maybe the danger would have occurred to me had I been more awake (or younger?); however, it is another lesson learned.

CHIRP Comment: **This is a salutary reminder that potentially dangerous wake vortices may be encountered anywhere and can persist for up to 2-3 minutes, particularly in calm wind conditions. [See CAA GA Safety Sense Leaflet No. 15 - Wake Vortex].**

Also, remember that a wake vortex descends slowly with time to between 600 and 1,000 ft behind and below an aircraft. To avoid an encounter ensure that you remain above the other aircraft or establish and maintain adequate lateral separation from the other aircraft.

CAREFULLY PLANNED BUT...

Report Text: The Maximum Take Off Weight (MTOW) on our Jabiru J400 is 700kgs; the actual TOW was 620kgs with a mid range C of G. The factored Mean Sea Level Take Off Distance Required (TODR) at MTOW on short grass is 510m. Our strip is 900m at an elevation of 350ft so there should have been no problem. The surface wind was calm and the grass had been recently cut but not collected. It was also wet. Bearing this in

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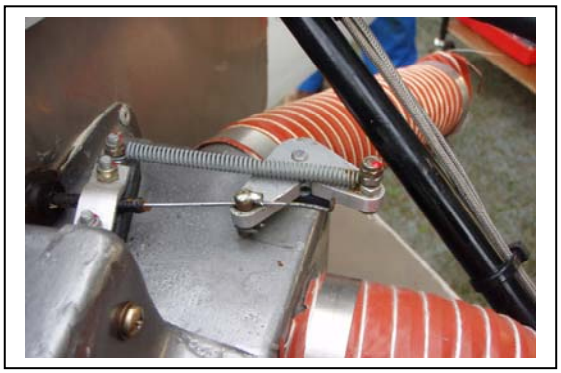
mind I assumed a 60% increment to the TODR i.e. 816m

I completed the Pre-Take Off normal power checks and because the grass was wet, prior to commencing take off, I ran the engine at 2,000 rpm for several minutes with Carburettor Heat ON.

Full throttle RPM seemed normal but the take off run was lengthy and the aircraft slow to accelerate. I put this down to the wet grass and 'floated' the nose gear at 45kts as usual. We eventually became airborne just before my pre-selected abort point and climbed slowly away, too close to the trees for comfort.

I had completed the flight test on this aircraft just days before and had observed a 1,000ft climb time of 62 secs at MTOW so the engine was in good condition (85 hours total running time). I convinced myself that it was the runway surface.

We had only just bought the aircraft and were very inexperienced in its operation but had planned to spend a "hands on" day with the LAA Inspector, during which we would go over everything to do with maintenance. This took place a few days later and during the course of it, we discovered that the soldered attachment of the Carb Heat control Bowden cable had become detached from the sector arm of the hot air intake (see photo). This sector arm has an "over centre spring" which can keep the intake either open or shut. In this case it was permanently open. No danger of icing but a significant drop in power.



We were very lucky. The combination of an unfamiliar aircraft, equipment failure and poor runway surface could easily have resulted in a disaster. In future, I will take more care in observing a significant (even if small) power drop on Carb Heat application. Carb Heat ON can be just as dangerous as Carb Heat OFF.

CHIRP Comment: **In spite of careful pre-flight planning, this experienced pilot was caught out by a lack of experience on type combined with an unusual failure. However, he had calculated a pre-selected point at which to cancel the take off, which would have protected him against attempting to get airborne with a more serious loss of power.**

Remember, you should see a power drop on a pre-flight Carburettor Heat check. Do you know what power drop <u>you</u> should expect; also what would you do if the rpm after the pre-flight check is higher than before? If you don't know, find out; you could avoid a serious accident. [See CAA GA Safety Sense Leaflet 14 - Piston Engine Icing].

MENTORING.....BEWARE!

Report Text: Positioning my aircraft with a friend from my base airfield to a nearby airfield to get fuel, I had a very near miss with a Jodel travelling in the opposite direction. My friend has very little experience in aircraft, so I was allowing her to fly the aircraft.

I was very comfortable with this short 20nm trip having completed it many times (my airfield does not have Av Gas). It was a beautiful late spring day, the air was calm and the end of a busy work day, this trip was great therapy.

Approximately 8nm from our destination, we commenced descent from 2,500ft toward a left base for the easterly runway. I was coaching my passenger whilst trying to point out the airfield to her, which looked different from the last time we had flown together due to the abundant rapeseed crop in full bloom. I was not executing a proper lookout scan and my passenger pointed out a Cessna at our 11 o'clock position heading north. Having seen one aircraft, I believe I thought that no other could be so close. Still trying to point out our destination as we continued heading south, descending at around 300fpm, I glimpsed an aircraft on a reciprocal heading on a steady bearing and slightly below. I immediately took control and climbed the aircraft while applying full power, commencing a shallow left turn to improve my chances of seeing the other aircraft.

It passed directly below and approximately 200 feet separated at crossing. Had I not seen it and not initiated the climb from the shallow descent, I believe the separation at crossing would have been 50 feet or less. There was a high risk of collision. The Jodel did not appear to have seen me either in time or at all as it maintained its course without any attempt to manoeuvre.

Lessons Learned:

1. I treated this frequent trip to get fuel too lightly and allowed complacency to reduce my basic airmanship skills. 20nm or 200nm trips need equally as much concentration to avoid incidents or accidents.
2. I paid too much attention to my passenger and allowed my lookout scan to break down.
3. I was too focussed on showing the location of the airfield to my passenger in a position where most traffic would fly to avoid the ATZ of the destination airfield.
4. I believed (subconsciously) that the first aircraft was the only one in the area as the chances of two in the same area/height/direction was very low.

CHIRP Comment: **A common misconception among GA pilots is that the risk of a collision in the Open FIR is extremely low; in many cases, the funnelling of traffic between and around Controlled Airspace and the use of IFR Reporting Points/VORs can significantly increase the risk of a collision. As the reporter notes, this 'near hit' highlights the dangers that can arise from adopting a complacent attitude to flying.**

It is also worth noting that mentoring a passenger is a form of instruction. Instructor training includes tuition on how to maintain a high standard of airmanship whilst instructing. It is very easy to become distracted and allow your normal vigilance to drop.

USE OF 121.5MHZ

Report Text: En-route from Norfolk to Perth, Scotland. After passing overhead Newcastle the weather changed from CAVOK to broken cloud between 1,000ft to 2,000ft; I climbed to 3000ft to maintain VMC. Between Newcastle and Edinburgh, I obtained the weather for Perth from Scottish Information; this was 300ft and 3000m with sea fog.

I decided to divert to a small airfield southeast of Edinburgh but I had to fly west for about 3 miles to be able to descend in VMC to below the cloud base (there was a large area free of cloud). I told Scottish Information that I was diverting and could they give me a vector to the airfield, as I was unsure of my position. They asked if I was declaring a Pan; I confirmed I was. I was told to Squawk 7700 and call Scottish Centre on 121.50. I climbed to 3000ft, confirmed VMC, 4hours duration, 1 POB, no immediate danger. Scottish Centre gave me my position by which time I had programmed the airfield position into my GPS; this gave my position as 4 1/2 miles from and a heading of 020 to the airfield. I confirmed to Scottish Centre that I had the airfield in sight and subsequently that I was on finals to land; Scottish Centre asked me to copy a phone number to call on landing; I miswrote the number, (I was a bit busy at this time!) but immediately on landing I called a friend at Perth who phoned Scottish Centre and confirmed I had landed safely. As it happened, the weather, which I thought would improve, did not, so I took off and flew all the way back home!

Lessons Learned:

1. I should have ignored the TAF for Perth as soon as I encountered more cloud than expected when overhead Newcastle and should have diverted before cloud cover increased. I have also learnt that when at 800 to 1000ft. just below cloud base horizontal visibility is not good therefore it is difficult to map read.
2. As on this flight always carry lots of fuel. Climb to a safe altitude and take time to review all options.

CHIRP Comment: **Attempting to maintain visual contact with the ground in deteriorating conditions is one of the principal causes of GA fatal accidents. As the reporter notes, if the weather is worse than anticipated/forecast, review your options, climb above the en route safety altitude and make an early decision to divert.**

If you become uncertain of your position or require any assistance, remember that the LATCC/SCATCC Diversion & Distress cells are available on 121.5MhHz. Don't be hesitant to use this important service by declaring PAN or MAYDAY as the circumstances require on the frequency in use or directly on 121.5. SCATCC has requested that pilots flying at reasonable GA cruise altitudes in Scotland consider making a Practice PAN call to provide the D & D controllers with practice.

Two other points: Many commercial aircraft follow the ICAO recommendation [Annex 10, Vol II, Para. 5.2.2.1.] for all aircraft to monitor 121.5; therefore, even if you are at low altitude, it is probable that a call on 121.5 will be heard by another aircraft and relayed. If possible, use the recommended Emergency RTF phraseology [See CAP 413, Section 8].

INSTRUMENT FAILURE

Report Text: The flight was IFR from Northern France to UK with cloud reported at departure airfield as FEW010 BKN020 but with some showers not reported on the ATIS reducing the surface visibility to about 3 Km. The aircraft was a DR400 very well equipped with a full set of IFR kit.

The Standard Instrument Departure was uneventful climbing to FL60. After several minutes in the cruise the Vacuum system indicator fell to zero; being quite a large gauge positioned in the normal "instrument scan" the failure was instantly apparent. As the weather was likely to continue to be IMC I decided to return to the departure airfield as I did not wish to continue the flight IFR on Limited Panel for another one and a half hours. A descent was requested to the Minimum Safe Altitude stating that the reason for the request was a failure of the vacuum pump and as it became apparent that a VFR flight was not possible I requested a return to the airfield.

ATC quickly granted this request and enquired as to the problem and I repeated that I had a vacuum system problem that affected the attitude indication system on the aircraft. At about this time I was able to establish good ground contact, if with only 3-4 Km forward visibility in light rain, and was asked by ATC if I was returning due to the weather, so I repeated the explanation of the technical failure. Very soon afterwards I was cleared onto the down wind leg for the active runway and made an uneventful landing. After clearing the runway I was asked by ATC what was the reason for the return and only then after a brief conversation was I convinced that they fully understood the nature of the problem. At all times ATC were helpful but I was very assertive with my requests for first descent and then a return to the airfield. At no time did I feel that the situation required a PAN or MAYDAY but I was a little concerned that ATC did not fully appreciate the nature of the technical failure.

Lessons Learned: It was quite clear that in this particular situation all the dice were loaded in my favour but I feel that the outcome could have been very different had this happened to a low time pilot in an unfamiliar aircraft. ATC did all that I asked of them but I feel did not fully appreciate the reasons for my sudden return and would have been poorly placed to offer more help to a less experienced aviator. I know that technical communication in another language is difficult but I can't help thinking that an afternoon in the local flying club talking to the instructors about the capabilities and common failures of light aircraft could pay dividends for both pilots and ATC and would benefit air safety in general.

CHIRP Comment: **The reporter is a very experienced pilot, who was confident that he could handle the situation. Notwithstanding this, when attempting to describe a technical failure to an Air Traffic Controller, particularly one whose first language is not English, it is important to use a simple phrase, such as in this case, "Instrument Failure".**

Also, the option of prefixing the request to return with PAN-PAN should not be dismissed lightly, as it will alert the ATC agency to the non-normal situation, even if the

nature of the technical failure is not clearly understood. The initial emergency call can always be downgraded later.

TURBULENCE TECHNIQUE

Report Text: Two friends, one a pilot, and I made a VFR flight to another airfield in a PA28 for lunch. It was a good flying day with excellent visibility, high cloud base and fairly light winds. During the day the wind speed gradually increased as forecast but the return trip was relaxed and enjoyable in excellent conditions. On contacting my home airfield the wind was given as 260 at 15 knots gusting 25 knots. This was only 20 degrees off the runway, so was not a great cause for concern.

However, as we descended through 1,500 feet to join downwind we began to encounter increasing turbulence and at circuit height of 1,000 feet it was significant. I warned my passengers to make sure their seatbelts were tight and to be prepared for the turbulence to be worse on final approach. I also indicated that we might have to go around if the approach was compromised. Mentally, I noted the need to add 5 knots to my approach speeds to allow for the gusting. Descent started as normal on base leg and the turn onto final was in my usual position and height, with the 5 knots added airspeed. As predicted the turbulence now became even worse and I had to work hard to keep the plane straight and level along the runway centre line.

Suddenly the airspeed dropped by more than 10 knots and our rate of descent increased greatly. I promptly increased power to return to the desired airspeed and reduce the rate of descent to regain the glide slope. When we were down to about 150 feet the same thing happened again and I had to repeat my actions to bring us over the airfield perimeter, level at about 50 feet. I decided to keep the speed up and land long since we had ample runway. The landing was uneventful as the turbulence largely disappeared during the flare and touchdown.

By the time we had finished a coffee prior to setting off home I was feeling pretty pleased to have been able to respond to the challenges of that landing and put us down safely. Later, I thought about the incident in more detail and was not so self congratulatory. I now think there were a number of things I could have done that, in retrospect, would have greatly increased the safety margin of that landing.

Lessons Learned: Firstly, I think I should have gone around after the first (and particularly the second) sudden loss of airspeed and height. The turbulence or wind-shear that caused the problems might have eased by the time I came round the second time; at least I would have been mentally prepared to react.

Secondly, I could have considered options outside my routine approach pattern. If I had not been so hung up on where to turn and at what height, and abandoned my usual attempt to 'land on the numbers' it might have occurred to me to use the 1500m hard and dry runway in front of me. If I had made an early decision to land further down the runway, say a quarter of the way down, I would still have had ample distance for the landing roll, even with a bit of extra speed on touchdown. The critical difference would have been a significantly increased height safety margin all the way down the final approach. Any sudden loss of airspeed and height in the latter stages could now be more easily dealt with and if I found myself touching down 100m early it would be on the runway instead of in a field or hedge!

There is a more general lesson, which is to be prepared to think outside your normal routine when trying to deal with a difficult situation. There might be an alternative that would avoid the necessity for urgent corrective reactions and therefore provide a greater safety margin. The only consolation I have in terms of my performance in this particular incident is that in times of stress it is usually difficult to think as clearly as one would like. For that reason I now take time occasionally to give myself theoretical scenarios and try to work out the best solutions, including those 'outside the box'. The instructor I use for periodic refreshers is also good at thinking up these types of problems!

CHIRP Comment: **There are several methods of calculating the gust allowance; some recommend increasing the approach speed by half the gust increment as stated, others the full headwind component of the gust; in this case 10 kts. Also, remember that in the Northern hemisphere a gusting crosswind from the right will increase the crosswind as a result of the wind veering during the gust.**

If you encounter a loss of airspeed on the approach it is important to lower the nose to regain airspeed at the same time increasing power to regain the correct approach path. Once speed has increased, assess whether the safe option would be to continue or to make a go-around and a further approach.

As the reporter notes, when landing on a long runway, consider adjusting your touchdown aiming point in moderate to heavy turbulence. Also, if such conditions are anticipated, consider the option of landing with partial flap since, in many types, this configuration improves lateral control. Finally, remember that you always have the option to divert to another airfield.

A SIMPLE ERROR

Report Text: At ### there is a difference of 10mb between the QNH and the QFE. Knowing this, approaching ### recently to join the circuit in my C182; I added 10mb to the QNH and started to descend to circuit height at about 5 or 6 nm.

It was only when I was alerted by several “visual clues” (such as losing sight of the aerodrome and feeling uncomfortably low!) that I realised my mistake: I had added 10mb instead of subtracting them.

A silly mistake; easily done and easily rectified in good VMC. But what if I had done this at night or in poor visibility?

CHIRP Comment: **The reporter's incorrect setting resulted in a 600ft altimeter error.**

It is vital to remember, particularly when operating from an airfield or strip without current aerodrome information being available, that setting the QFE will always result in a lower altimeter value than QNH in the UK.