GASIL

General Aviation Safety Information Leaflet

Civil Aviation Authority

www.caa.co.uk/gasil

Issue no. 4 of 2011

Wet wet wet

Showers frequently affect our shores. The AAIB's Bulletin 3 of 2011 includes a report of an accident to a Piper Navajo which was landing on a grass strip. It seems the grass was closely mown and the surface was firm, although there were indications that it recently rained.

SafetySense Leaflet 7 'Aeroplane Performance', available like all such leaflets from www.caa.co.uk/safetysense, includes the advice that the landing distance of an aeroplane on very short wet grass on a firm subsoil may be more than 60% longer than the figures on a hard surface. It seems the Navajo was unable to stop in the distance available. Photographs apparently indicate that the mainwheels were skidding on the wet grass almost throughout the landing roll, and the pilot was unable to prevent the left wing striking the stone wall which lay at the end of the runway.

It is not always possible to receive an accurate report on the runway state from the owner of the strip at which we intend to land. However, as part of our pre-flight planning we need to consider possible problems, and every time we plan to land on grass we need to obtain as much information as possible about the conditions, and consider what we could do if conditions are worse than expected. We know that if we have too much energy on the approach, we should go-around before it is too late. If the aircraft skids just after touchdown, have we enough runway remaining to turn the landing into a touch-and-go? If not, can we afford the risk of breaking our aircraft?

Autopilots and electric trims

We frequently print warnings about potential autopilot or electric trim runaways, and the need for pilots to be continuously alert for problems. They also need to follow all the limitations in the Flight Manual. Recently, a PA30 suffered an undemanded pitch-up on a flight following maintenance. The pilot was apparently able to regain control by reducing power, and subsequently pulled the circuit breakers for the autopilots and the electric trim.

Faults in electric trim systems can produce frightening results, and we advise everyone who flies an aircraft with such a system fitted to ensure they know, and can rapidly select, all possible means of disconnecting electrical power to the system.

Grass surfaces

As spring moves towards what we hope will be a genuine summer, strips and aerodromes with grass runways become more popular destinations. We advise pilots to download and read SafetySense Leaflet 12 'Strip Flying', which is available like all such leaflets from the CAA website www.caa.co.uk/safetysense.

The leaflet gives guidance on the pre-flight planning, and reminds pilots of the need for accuracy in their flying. It recommends that a pilot should consider honing the necessary skills with a flying instructor before attempting to use a runway which has difficult approaches or is shorter than the pilot is used to. However, as has been pointed out recently by an aerodrome owner, there are other skills needed to operate from a grass runway, with which regular users are probably familiar but which a casual visitor might not consider.

The leaflet advises that pilots be ready to go-around from an unsatisfactory approach. You might consider that even though your approach will not lead to a touchdown close to the threshold, the runway is long enough to allow you to stop. Even if the grass is dry and you actually can stop before the hedge, if that stopping requires heavy braking, you may find your wheels digging in to a soft surface. Any tight turns, or indeed any turns at more than a walking pace, are also likely to cause your wheels to dig in.

Although your engine is probably powerful enough to drag your aircraft out of the ruts you have caused, these same ruts will remain as a hazard to subsequent aircraft movements. At best they will reduce the braking area available, and if the ruts subsequently harden, crossing them may cause damage to an aircraft taking off or landing. Treat grass surfaces gently, or they will not be available when you need them!

Editorial office: Flight Operations Inspectorate (General Aviation), attn GASIL Editor, Safety Regulation Group, Civil Aviation Authority, Aviation House, Gatwick Airport South, West Sussex, RH6 0YR.
Telephone +44 (0)1293 573225 Fax +44 (0)1293 573973
e-mail: david.cockburn@caa.co.uk.

Distribution: FOI(GA) Admin, address and fax as above. Telephone +44 (0)1293 573525.

CAA VFR Charts and update service

Listed below are the publication dates of CAA charts issued recently, and those due for issue in the near future.

ICAO 1:500,000 scale

Southern England and Wales	Edition 37	10 March 2011
Northern England and Northern Ireland	Edition 34	5 May 2011

ICAO 1:250,000 scale

Sheet 8	England South	Edition 15	7 April 2011
Sheet 5	Central England and Wales	Edition 9	2 June 2011

As we have previously advised would be the case, responsibility for the VFR charts "updates" pages has passed to NATS. The updates are now available for download through the AIS website at www.ais.org.uk under the 'VFR Charts' heading. As with the NOTAM pages, users will require a username and password to log in, but there remains no charge for this service.

The updates, including the applicable frequency cards, are updated every 28 days, and should be consulted as part of flight planning.

GPS distraction

SafetySense Leaflet 25, available like all such leaflets from www.caa.co.uk/safetysense, includes advice for the safe use of GPS. As in previous GASIL articles, it includes the advice to set up your GPS before flight, rather than risk becoming distracted during the flight.

A report in the AAIB's Bulletin 3 of 2011 describes what seems to have been the consequence of failing to follow that advice. It appears the pilot of a tailwheel aeroplane collided with another stationary aircraft while taxiing to the holding position during a fly-in.

Our logbooks list the times of flight as starting when the aircraft first moves for the purpose of taking off, and ends when it comes to a stop after landing. Don't let yourself be distracted during any phase of flight!

Controlled Airspace (Temporary)

As explained in the UK AIP at ENR 1.1.4, subparagraph 4.2.1, Temporary Class D Controlled Airspace (CAS-T) may be established to encompass any portion of the track and flight level of a Royal aircraft that lies outside of permanent Class A, C and D Airspace. Temporary Control Zones and Control Areas may also be established around airfields used for the departure or arrival of a Royal Flight.

The establishment of such airspace will be by NOTAM, possibly at relatively short notice, and pilots are reminded they can use the AIS Freephone number 0500 354802 to check for any notifications since their most recent check on the AIS website www.ais.org.uk.

Flight in Class D airspace, including CAS-T, is subject to clearance by the notified Air Traffic Control Unit. If approaching the airspace boundary in flight, that clearance may be obtained by radio. If your aerodrome is within a Temporary Control Zone, it may be obtained by telephone, BEFORE take-off.

Risk management

All sectors of aviation, including General Aviation, are being encouraged to incorporate 'Safety Management Systems' into their operations. Those who have been involved with business management are probably quite familiar with the concept, but to ordinary recreational pilots the expression is likely to be treated as 'management-speak' and 'too difficult'.

However, it shouldn't be, because it's something we should actually be doing all the time! As accident reports, GASIL articles and our own experience tell us, there are many risks in flying. The PPL syllabus introduces us to the concept of managing safety, for example when we practise the actions following engine failure after take-off. We all know that such a failure is a hazard which is present every time we take off. There is a risk that we may be injured or killed if we cannot make a safe landing afterwards. That risk depends on two things: how likely the event is to happen and how serious an effect it will have. We can, and almost certainly do, either consciously or subconsciously, take account of both the effect and the likelihood, and decide whether we are prepared to accept the risk as it stands.

If we are, we go ahead. If not, we either cancel the flight, or try to do something about it. If we can reduce the likelihood of it happening, we reduce the overall risk. If we can reduce (mitigate) the effect of the failure, that will also reduce the overall risk. Doing either or both is 'risk management'.

We could perhaps reduce the risk of the hazard occurring by careful engine handling and conscientious maintenance. Some mitigation may be achieved by altering our climb-out pattern to make more suitable landing fields available, or perhaps something technical such as fitting airbags into the aircraft (if such a modification is approved). We can also prepare ourselves for the eventuality by briefing ourselves before take-off on the action we would take were it to happen.

However, successfully managing the risk of recognised hazards is only part of the battle. If we do not know what the risks are, we cannot manage them. To have any real chance of achieving an acceptable level of safety, we have to consciously seek out and identify hazards, and then work to manage the attendant risks. While the engine failure after take-off hazard may be obvious, there is also a hazard associated with a door coming open in a similar situation. If we are unaware of the existence of that hazard, we cannot manage the risk, and may be distracted enough to lose control of our aircraft while attempting to close it, as others have done.

Managing safety involves several steps. First we need to identify what hazards we may encounter. Second, we need to assess the risk by considering its likelihood and its effect. Taking both the likelihood and the effect into consideration (effectively multiplying two factors together), the third stage is to decide whether to accept the risk. If the risk is unacceptable and we still wish to continue, the fourth stage is to identify a 'mitigating strategy' to reduce either the likelihood or the effect. Having done that, we need to go back to stage two and continue until the risk is at an acceptable level.

An organisation requires a Safety Management System to carry out all these steps. However, a pilot's brain has to do this all the time!

Hazard identification in flying comes from training and experience. It also requires careful consideration beforehand. As the expression goes; "when you are surrounded by crocodiles, it is difficult to remember that your original task was to drain the swamp". Pre-flight preparation ought to involve not only how you are going to carry out the flight as you planned it, but what hazards you may meet along the way and how you intend mitigating the risk from these potential hazards. The forecaster says that cloudbase may come as low as 1,500 feet amsl. If your planned track takes you across some high ground with an elevation of 800 feet, the forecast conditions may sound acceptable. But what if the cloudbase falls lower than forecast (after all, the forecast ignores anything which has a less than 30% chance of happening). Have you considered what you can do to remain safe? Don't just leave it at "I'll turn back" but consider exactly when you should make that turn, in which direction, and where you should go next.

There are many other hazard situations which we might encounter. An engine failure may occur at any time. Does your route take you over unlandable terrain at the height you expect to fly? A re-plan with an extra turning point to remain over landable country mitigates the risk. So does being aware of the wind direction into which you would have to land in the event of an engine failure.

We cannot mention every eventuality in this article. Nor can we expect to foresee every possible hazard. However, the more risks we can consider before we encounter them, the less likely they are to kill us.

A twist on fuel checking

We frequently remind readers of the importance of checking the fuel in their aircraft for water and other contaminants. Having examined the sample, a pilot may then be confronted with the problem of disposing of it. Few aerodromes have dedicated disposal facilities, and many are concerned about environmental damage. Tarmac can be damaged by aviation fuel.

Fortunately, our fuel is not often contaminated, and if we are certain the sample is pure fuel, we have the option of pouring it back into the tank from which it came. However, placing any object near an open filler cap presents its own hazards. In cold weather such as we experienced in December, objects may slip from cold fingers. How do you get a fuel sampler such as the one illustrated (originally taken to illustrate water contamination) out of your fuel tank once it has slipped in and disappeared from view?

Without wishing to embarrass the pilot concerned, this incident was happily resolved by an engineer employing a magnet to drag the metal screwdriver part of the sampler along the bottom of the aluminium skin of the wing to a position where tongs could lift it out of the filler. Even more fortunately, the retrieved sampler was complete.

Frequency changes

When given instructions to change frequency, for example from Approach to Tower, it is always possible that a slip or lapse results in the pilot selecting an incorrect frequency. It may be the controller has misquoted the new frequency, or the pilot has misheard it, or he has just selected the wrong numbers or even the wrong radio box. Prior planning should reduce the likelihood of such errors, but cannot prevent it completely. It can happen to anyone.

Whatever the reason for a pilot being unable to make two-way radio contact on a frequency to which he has just changed, he must not just blunder along regardless. A basic check through the selections to ensure that we are actually transmitting and receiving (with an appropriate volume control position) on the frequency we thought we should be communicating on might solve the problem. If not, the correct action is to return to the previous frequency and ask to have the new one repeated, or a new frequency allocated. What a pilot must NOT do is to carry out an action which requires positive air traffic clearance without obtaining that clearance. A mis-dialled radio frequency is no excuse for entering controlled airspace without clearance. A recent incident of a PA28 landing on a runway without clearance could have been much more serious than it actually was.

Wing fire

Several aircraft types have electrical flap actuators. One consequence of an electrical failure in such types may be the need to make a flapless approach and landing, as apparently happened recently to the pilot of a Cessna 172.

A recent incident to a Cessna 152 highlights another possible, but fortunately rare, consequence. It seems that the power supply cable to the flap motor had deteriorated, possibly because of a combination of insufficiently secured wiring and continual movement of the actuator. A short circuit developed, the flaps retracted, and a small fire developed inside the wing, fortunately while the aircraft was taxiing, not flying.

Handling heavy aircraft

The report concerning a gyrocopter accident in the AAIB's Bulletin 2 of 2011 has value for every type of GA aircraft. It seems the pilot had already completed two solo circuits when he was joined by a friend whom he intended to take on a local flight.

After becoming airborne with his passenger, the pilot levelled the aircraft at about 10 feet above the runway but was unable to accelerate to normal climb speed. He climbed to clear a row of trees beyond the end of the runway, but this resulted in the aircraft having insufficient airspeed to maintain level flight and it landed heavily in a field.

According to the report, the pilot candidly admitted that he had little experience of operating the aircraft at close to its maximum weight. Once airborne, he was unable to accelerate the aircraft out of its high drag condition.

During training and familiarisation flights, aircraft are often flown at weights considerably below the maximum take-off weight authorised, and pilots become used to performance and handling characteristics which may change considerably at higher weights. Students should be introduced to operating at maximum weight during their training, and pilots undertaking familiarisation flights in new aircraft types are advised to make their first high-weight flights in good weather and from a long runway.

The European GA Safety Team (EGAST) have produced an English subtitled version of a short video on the subject of flight on the wrong side of the drag curve, and the possible results of attempting to climb too slowly. This, together with other useful safety material including a multimedia guide to the ICAO communications procedures used throughout Europe, is available from the EGAST website www.easa.europa.eu/essi/EGAST.

Emergency ADs

EASA produces bi-weekly summaries of the ADs they have issued or approved, which are available through their website www.easa.eu. Foreign-issued (non-EU) Airworthiness Directives are also available through the same site, as are details of all recent EASA approved Airworthiness Directives. CAA ADs for UK manufactured aircraft which have not yet been incorporated in CAP 747 can be found on the CAA website http://www.caa.co.uk/ads.

We are aware that the following Emergency Airworthiness Directive has been issued recently by EASA; however, this list is not exhaustive and must not be relied on.

Number	Applicability	Description
EASA 2011-0067-E	Rotax 912 and 914 engines	Magneto flywheel hub washer

Mandatory Permit Directives

The following Mandatory Permit Directives (MPDs) have recently been issued by the CAA. Compliance is mandatory for applicable aircraft operating on a UK CAA Permit to Fly. MPDs can be found at www.caa.co.uk/mpds and will remain on the website available for download until they are published in CAP 661, Mandatory Permit Directives, which is published twice a year in January and July and can be found at www.caa.co.uk/cap661.

Owners of aircraft with Permits to Fly and their Continued Airworthiness Managers should register to receive automatic e-mail notification when a new MPD is added to the website, through www.caa.co.uk/subscription > New User Subscription Registration, and choose the 'Safety Critical Information' category.

Number	Applicability	Description
Emergency 2011-002	Dyn'Aero MCR-01	Structure corrosion
Emergency 2011-003	Rotax 912 and 914 engines	Magneto flywheel hub washer

Ownership

An AAIB report has just been published covering a microlight aircraft that ditched in the sea off Kent. This particular incident highlighted a situation that can occur when a registered owner of an aircraft fails to notify the CAA that they have sold their aircraft. In this case the person shown as the registered owner had sold the aircraft some months earlier but neither he, nor the new owner, had advised the CAA of the change. If the search and rescue services are involved they may use the registered owner as their initial point of contact during operations; if the information on the Register is incorrect this could lead to delay or unnecessary stress for the person mistakenly contacted.

When a UK Registered aircraft changes ownership there is legal obligation on both the seller and the buyer to notify the CAA. In the case of the seller, the requirement is to advise the CAA immediately, but the buyer has up to 28 days to make their application. Some owners give their Certificate of Registration to the new owner and rely on them to forward the information to the CAA; however, this approach leaves the seller vulnerable to the situation outlined earlier. If the seller passes the Certificate of Registration to the new owner they must notify the CAA independently by completing a *Notice of change of details on a UK Registered Aircraft Form* which is available on the CAA website at www.caa.co.uk/formCA71. The buyer needs to complete an application form CA1 www.caa.co.uk/formCA1. Both forms can be completed online but must then be printed and signed, the completed forms can then be posted, faxed or scanned and e-mailed to the CAA Aircraft Registration Section.

The *Notice of change of details on a UK Registered Aircraft Form* can also be used to notify the CAA of an address change or to request de-registration.

To check if your aircraft is registered correctly please enter your aircraft registration into the CAA G-INFO register database at www.caa.co.uk/ginfo.

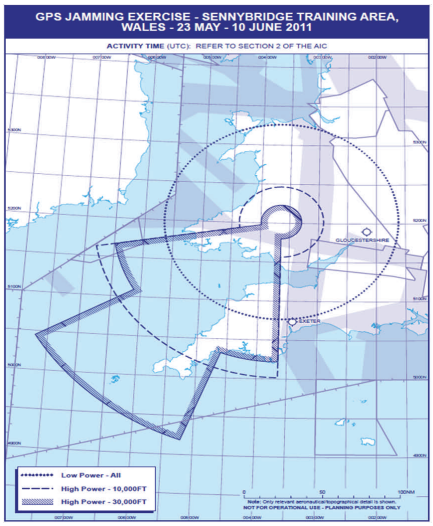
If you have any queries please contact the Aircraft Registration Section

Aircraft Registration Section
CAA House
45-59 Kingsway
LONDON
WC2B 6TE

Tel: +44 (0)20 7453 6666
Fax: +44 (0)20 7453 6670
E-mail: aircraft.reg@caa.co.uk

GPS Jamming

As announced in AIC P027/2011, the MoD will carry out GPS jamming in the Sennybridge training area between 23 May and 10 June. Most jamming will be at low power, with occasional high powered jamming at dates and times to be announced in NOTAMs. As can seen in the attached map, interference is possible over a considerable area, especially to the South and West of the training area. Although GPS should not be used as a primary means of navigation, pilots are reminded of the importance of checking NOTAMs through www.ais.org.uk.



Ground resonance

A report in the AAIB's Bulletin 3 of 2011 concerns a Schweizer 269 which was extensively damaged when the pilot attempted to take off after suffering what seemed to be ground resonance while landing. The report was inconclusive as to the cause of the resonance, but reminds pilots of the importance of correctly performing the external check of the landing gear before flight.

It also draws attention to advice given to pilots who might experience such ground resonance. If the RPM is sufficient for flight, the advice is to apply full power and take off immediately. However, if RPM is insufficient, the throttle should be closed and the blades placed in low pitch.

Transponder altitude errors

Several recent incidents have involved Mode C transponders apparently indicating incorrect altitudes to controllers of Controlled Airspace, resulting in unnecessary avoiding action by airliners. We continue to advise that Mode C should be selected whenever possible; however, we also advise pilots to have their altitude readout checked by radar controllers whenever possible and at frequent intervals. A controller may do this without a request from you; he may say: "check your altitude" or "check your level", which is not an accusation that you are at the wrong one, but a request for you to tell the controller what your altimeter is indicating at the time. It is also useful if you tell the controller the pressure you have set. If your Mode C readout is within 200 feet of the figure you have announced, the transponder altitude readout is regarded as correct.

Such a check is particularly important if you intend flying under or in the vicinity of Controlled Airspace, and even more important if the transponder has a history of faults in the altitude transmissions.

Air Displays and Restrictions of Flying

Many flying displays and other events this summer will be subject to Restrictions of Flying, as detailed (usually with maps) in Mauve AICs. Reminders, usually referring to these AICs, will be given in NOTAMs, together with details of other displays, and all are available through the AIS website www.ais.org.uk, which is where all AICs can be found free of charge. Displays and other major events taking place over the next few months of which we are already aware are listed below, but others are likely to appear in NOTAMs at short notice:

22 May	Duxford
28/29 May	Southend
30 May	Podington (Santa Pod)
30 May — 12 June	Isle of Man (TT Races)
7-11 June	Eastern England (Queen's Birthday)
10-12 June	Cosford
11 June	Rye
12 June	Welshpool
17-19 June	Kemble
18 June	Cranleigh
19 June	Margate
20/21 June	Stonehenge
22-27 June	Glastonbury
24 June	Leith (Edinburgh)
25 June	Lossiemouth
30 June — 2 July	Chichester (Goodwood)
4 July	Feltwell
5 July	Isle of Man
7-18 July	Fairford (RIAT)
8-10 July	Silverstone
9 July	Yeovilton
9/10 July	Duxford
9/10 July	Swansea
12 July	Greenock
14 July	Shrivenham
15 July	Shawbury
20 July	Culdrose
21 July	Cranwell
22 July	Silverstone
22 July	Wittering
23 July	Lyme Regis
23/24 July	Southport
23/24 July	Windermere
30/31 July	Sunderland
11/12 August	Lowestoft
11-14 August	Eastbourne
18-21 August	Bournemouth
19 August	Duxford
20/21 August	Shoreham
3/4 September	Duxford
17/18 September	Kemble
16 October	Duxford