GASIL

General Aviation Safety Information Leaflet

www.caa.co.uk/gasil

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Recreational drugs

A report in the AAIB's bulletin 11 of 2009 included comment from a toxicologist which should be noted by any pilot who might consider taking so-called 'recreational' drugs. The report concluded that the pilot in the fatal accident had probably taken cannabis, although not immediately before the flight. The toxicologist warned that "The drug can have a detrimental effect on psychomotor control long after it has ceased to exert any of the euphoric effects for which it is taken and long after the user perceives that there is any effect".

All recreational drugs have unpredictable and often prolonged adverse effects on a pilot's ability to fly safely. Taking recreational drugs and flying don't mix.

Volcanic ash

Hopefully, the recent eruption in Iceland will have ceased to cause concern when this is published. However, whether that is the case or not, the CAA has published guidance on the subject of volcanic ash to aircraft owners, operators and engineers in AIRCOM 2010/07, and further guidance to pilots and operators in FODCOMs. All of these are available on their web site www.caa.co.uk. FODCOM 13 of 2010 is specifically intended for General Aviation pilots and operators.

If it's all getting too difficult . . .

A report in the AAIB's Bulletin 3 of 2009 concerns a RAF 2000 Gyroplane. The report concludes that the aircraft's rotor contacted the propeller and rudder during a descent close to the V_{NE} which had been imposed for handling considerations. There are aspects to this accident which are relevant to all types of aviation, and we recommend this report, even more than most, as material for reading and discussion.

The report suggests that a long cold flight and impending darkness may have been a factor in this accident. We have reminded pilots in the past that, although official night may not begin until 30 minutes after sunset, weather conditions may preclude safe visual flight some time before that. This is likely to be especially true if the pilot has no illumination for the flight instruments.

However, it is probably more important for us to repeat the mantra that when things are starting to look difficult, a pilot should take positive action to land safely, even if that means a precautionary landing in a field. A helicopter or autogyro has the ability to land in almost any field, so many pilots of such aircraft may feel they can push on beyond what an aeroplane pilot would consider prudent. However, that ability should not be regarded as an excuse to fly in unsuitable conditions, but as a safety fall-back which must be adopted AS SOON AS things are starting to look difficult.

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 email notification when a new MPD is added to the website, through www.caa.co.uk > Publications > Subscriptions > New User Subscription Registration, and choose the 'Safety Critical Information' category.

2002-009R2	Yak 50	Airframe life limitation
2010-002	Portable fire extinguishers	HALON 1211 extinguishers
2010-003	Aerotechnik EV-97 Eurostar	Airspeed limits & wing spar caps

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 (01293) 573225 Fax (01293) 573973 e-mail: david.cockburn@caa.co.uk.

Distribution: FOI(GA) Admin, address and fax as above. Telephone (01293) 573525.

Aware?

The Airspace Safety Initiative, a joint effort including MOD, NATS and the CAA, are pleased to note that many examples of the 'Aware' GPS device produced for and publicised by NATS, have already been purchased by pilots. Undoubtedly, if a pilot can identify his or her current position, that has a huge potential advantage for everyone.

The knowledge of one's position relative to controlled airspace is the primary aim of the device. However, since the background map is a normal CAA chart, with a projection of the aircraft's current track for the next 10 minutes at 2 minute intervals, a pilot can visualise his position and what he should be able to see ahead in relation to high ground and possible diversion aerodromes. All of that information can improve situational awareness, and thus safety.

Nevertheless, we need to remember that human beings can upset the most laudable of intentions. Spending time looking at an instrument (or, of course, a chart) inside the cockpit may detract from the lookout which is essential in our busy skies, unless the pilot has trained himself or herself to minimise that time. Furthermore, no matter what information is available in or around an aircraft, it is the pilot who has to recognise that the information is significant, interpret it, and decide how to use it. Human factors suggest that each of these stages contains the potential for human error.

A high workload, or distractions inside or outside the cockpit, can prevent a pilot recognising the significance of being warned that controlled airspace is near. One only has to think of the reported instances of pilots 'missing' loud undercarriage warnings screaming in their ears and landing wheels-up to realise that this is a distinct possibility. Interpreting the information can be similarly affected, but correct interpretation also requires a familiarity with chart symbology, and understanding of the aircraft's orientation. I may be close to controlled airspace, but is my future track or altitude actually going to put me inside, or am I going to remain outside? And how rapidly do I need to act? Do I have a higher priority right now, for example avoiding cloud or maintaining a safe airspeed?

And having interpreted the information, the pilot has to decide how to react. However, while a turn away from the potential infringement ought to prevent it occurring, it is possible that the new track may be leading the aircraft into another hazard, either immediately or in the future. There may be additional, possibly more restrictive, controlled or notified airspace ahead. Turning towards high ground may be building up problems in the future, and turning back along track will use fuel.

And finally, we must never think that possessing the 'Aware', or any other, device, in itself protects us from ourselves. Electronic devices can reassure us that we are doing the right thing, or warn us that we are doing the wrong thing, but there is no substitute for proper planning before flight, backed up by looking well ahead and identifying navigation features we have planned to see.

Soft ground

A report in last month's Occurrence Digest concerns a DA42 which became stuck in soft ground. It seems that when the pilot attempted to power out of the situation, both propellers contacted the ground, damaging the blades and shock loading the engines.

While it is often tempting to try to use the engines to drag our aircraft out of a sticky situation, there are limits to the amount of assistance we should ask from our engines. The incident highlights the hazard to an aeroplane with low propeller clearance, but others also require careful handling, particularly taildraggers with a high thrust line.

Safety devices and flight tests

A report from the BFU (German AAIB) concerns an accident to an ultralight aeroplane which was undergoing a test flight. As on an increasing number of modern microlight aircraft, a rescue parachute system was fitted. The symbol illustrated has been adopted to indicate the area through which such a parachute will be ejected if it is operated.

The investigation concluded that the aircraft was being flown by a pilot with low experience, on type and in general. It seems the aircraft's slow flight characteristics in the landing configuration were being explored at a height of less than 1000 feet. A sudden application of full power produced a rolling moment for which the pilot did not compensate, and the aircraft entered a spin. The rescue parachute was operated, but at too low a height to deploy completely, and the pilot and his accompanying observer were killed.

CAA Comment

Within the UK, the in-flight testing of an aircraft's handling qualities is controlled by requirements issued by EASA and the CAA and usually by organisations that are approved for such activity. Where appropriate, the LAA or BMAA may supervise such activity for aircraft that fall under their respective remits. Exploring the edges of an aircraft's flight envelope in particular, for example the first few flights after aircraft build, is not something to be taken lightly; such test flying would only be undertaken by experienced pilots who have been approved to conduct the flying to a formal test plan.

An aircraft in service will also undergo periodic check flights to ensure that system operation, which can only or best be checked in flight, or the aircraft's in service performance continue to be acceptable. Despite such check flights being arguably more routine in nature than true test flying pilots carrying out such activity need to remain aware of the aircraft's potential to do something different. An in-depth briefing and consideration of the potential consequences of a system failure during such flights is time well spent.

With any 'last-ditch' safety device fitted to the aircraft, such as an ejection seat or ballistic parachute, it is vital to know its limitations, and ensure it is operated in conditions which give it a chance to be successful. Having the option to use such a device should not tempt the pilot to operate the aircraft with any less caution than if he did not have it. Conversely it should prompt the pilot to consider making any manoeuvres well above whatever parameters (height and/or speed) would be required for the device to work properly.

Know your hazards

In issue 2 of 2009 we highlighted areas where gliders might be expected and where consequently the risks of colliding with one would be increased. In the last issue we reminded everyone that air traffic of all descriptions can be expected to be increased where 'funnels' occur in available airspace.

To continue with our theme of avoiding collisions, we should remind pilots that certain types of aircraft can be found using flight paths different from the traditional light aeroplane 'norm'. A large number of aerobatic aeroplanes climb rapidly and steeply after take-off, as do helicopters and many microlight aeroplanes, which should encourage others to pay particular attention when in the vicinity of their published operating sites.

At the other end of the flight, aircraft can be found not only using different circuit patterns, but also a variety of final approach angles. Many light twins, like most airliners, may follow an approach path of 3 degrees, but most light aeroplanes follow a slightly steeper one, maybe 4 or 5 degrees. However, a glide approach will be steeper, and helicopters carrying out autorotation practices may approach almost vertically. Even a normal approach in a glider, a helicopter or a gyroplane will usually be steeper than any light aeroplane, so when searching for possible collision hazards on the final approach we need to search areas of the sky well outside our own planned approach path.

Emergency ADs

EASA produces bi-weekly summaries of the ADs they have issued or approved, which are available through their web site 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 web site www.caa.co.uk/ADS.

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

Number	Applicability	Description
EASA 2010-0043-R1E	Eurocopter AS 332	Hydraulic pumps
EASA 2010-0059-E	Agusta A119	Tail rotor gearbox assembly
EASA 2010-0064-E	Eurocopter AS 365, SA 365, 366	Fuselage cracking
EASA 2010-0068-E	Turbomeca Makila 2A, 2A1 engines	Digital engine control unit
EASA 2010-0078-E	Eurocopter EC 120 B	Emergency switch wiring
EASA 2010-0082-E	Eurocopter AS 350, 355	Tail gearbox control lever

Danger Areas

Danger Areas are exactly that. They are areas where activity takes place which is a danger to us, the aviators who might wish to fly there. Their dimensions are published on charts and in the AIP, where the times of activity of the 'permanent' danger areas can also be found. Other areas are activated by NOTAM, as are extensions to the normal times or dimensions of 'permanent' areas.

If a pilot does not know or cannot remember when a particular area is 'active', an air traffic service unit may be able to advise at what time the activity has been published. This Danger Area Activity Information Service is available for those Danger Areas marked with "**§**" by units with frequencies listed on the charts, and also by telephone for those marked with "**¶**".

In addition, there may be a Danger Area Crossing Service available for certain areas. These will be marked with "†", which indicates that pilots may be able to talk to the person controlling the dangerous activity, who in certain circumstances may be able to allow an aircraft to cross the area at a particular time. However, we stress that if crossing clearance cannot be obtained, or if there is no reply on the listed frequency, pilots must NOT assume that it is safe to cross. If in doubt – STAY OUT!

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. Displays and other major events taking place over the next 2 months of which we are already aware are:

16 May	Duxford	
28 May	Cranwell	
30/31 May	Southend	
31 May	Podington, Northants	
6 June	Perth	
8-10 & 12 June	South East of England	Queens Birthday Flypast and rehearsals
11-13 June	Cosford	
12 June	Worthing	
19/20 June	Kemble	
20 June	Margate	
20-21 June	Stonehenge	
26/27 June	Biggin Hill	
27 June	Whitehaven	
2/3 July	Goodwood	
3/4 July	Waddington	
10 July	Yeovilton	
10-11 July	Duxford	
11 July	Silverstone, Northants	

The perils of propellers

The Occurrence Digest sent out with the last GASIL contained a report that an aircraft owner was apparently injured while his propeller was being swung. The report suggests that the engine was normally difficult to start, but on this occasion it fired on the first swing.

All too frequently we hear of instances when someone has been killed or seriously injured when they came into contact with a moving propeller or rotor blade. Hopefully we do our best to ensure that such an accident does not happen to us, or to anyone whom we can influence.

An accident reported in the December Bulletin from the BFU (German AAIB) highlights the hazards posed by a propeller, even when it appears to be static. While only limited details of the incident have been published, it seems the pilot had experienced difficulties in starting his aeroplane and requested assistance from the local engineering organisation. After the aircraft's external power relay had proved faulty, the power lead was connected directly to the aircraft battery. Meanwhile, it seems an engineering trainee had approached the aircraft from the front while the cowling was open. When the engine burst into life, the propeller apparently struck him, causing his death.

Silence isn't always golden

Our article with the above title in issue 2 of 2010 generated a few responses. One reader encapsulated most of the responses by writing:

Can I suggest that turning the radio down, rather than off, can very easily lead to people transmitting with the volume down, having forgotten that it was turned down. This can cause total frustration for those on the receiving end with continuous calls of "XYZ do you read?" from this idiot who cannot hear the response. I believe it is better to turn the radio off as this prevents inadvertent transmissions with the volume down and it is but a matter of a flicking one switch to put it back on! For those of us with only batteries it also saves battery life!

While we can agree with the writer's sentiments, in this case we have obviously not been totally clear with our advice. We did not intend to advocate turning the volume down completely, but to a low level which still allows the pilot to detect that it is selected to "quiet".

Strops

It seems a SA350 Squirrel recently lost its underslung load when the strop failed. According to the report, the strop had been left exposed to the elements over a long period, reducing its tensile strength.

The operator apparently now requires new strops to be fitted for future lifts. However, it stresses the need for anything used in flight to be of a suitable quality, even if not required to be approved as an aircraft part.

Hot days

The report in the AAIB's bulletin 2 of 2010 about an accident to an Auster draws attention to the fact that although the elevation of the take-off aerodrome was 267 feet, the density altitude at the time and day in question was some 1000 feet higher. The report suggests that this would have resulted in reduction of performance from that which the pilot might have expected.

While last winter was reportedly colder than normal, it is likely that as summer approaches, hot weather will be experienced on at least a few days. SafetySense leaflet 7 "Aeroplane performance" available like all such leaflets free for download from www.caa.co.uk/safetysense, gives factors to be applied to an aircraft's basic performance figures in different conditions. For example, it notes that an increase in surface temperature (which would produce an increase in 'density altitude') of 10 degrees above the 'standard' temperature of +15 C is likely to result in an increase of 10% in the take-off distance required. UK summer temperatures of 35 degrees Celsius are not unknown, and would result in a further 10% increase in distance over that increased distance. Make the take-off calculations before flight!

However, as we frequently advise, other factors such as technique and aircraft serviceability may reduce your aeroplanes' performance even further. We should always select a point at which we can check our acceleration, and if we have not achieved sufficient airspeed (perhaps 2/3 of our rotate speed by a point 1/3 of the way along the take-off run) we should stop while we still can, and investigate why the aircraft has failed to accelerate.

CAA VFR Charts

These are the publication dates of CAA charts issued recently and due in the near future.

ICAO 1:500,000 scale

Northern England and Northern Ireland	Edition 33	6th May 2010

ICAO 1:250,000 scale

Sheet 8	England South	Edition 14	8th April 2010
Sheet 4	The Borders	Edition 7	3rd June 2010

The VFR charts "updates" pages, currently on www.caa.co.uk/charts, are updated every 28 days. These pages should be consulted as part of flight planning.

Silverstone

Helicopter pilots should note that the procedures for entering the RA(T) and the ATZ at Silverstone during the period of the British Grand Prix (9th to 11th July 2010) have changed from previous years. Details are contained in FODCOM 15 of 2010, and include the need for private pilots to not only attend the pilot briefing on 5th July, but also a practice day at Bicester on 11th May.