

GASIL



General Aviation Safety Information Leaflet

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Issue no. 7 of 2011

If you've got it, use it!

Recently the pilot of a motor glider joined the circuit at his home base. Having seen two gliders soaring above the airfield, he broadcast his intention to land on the into-wind runway on the club frequency. After turning final, he was disconcerted to see that one of the previously soaring gliders was approaching to land on the same runway but from the opposite direction, up the gentle slope. He flew a go-around, announcing the fact. Once established at circuit height he was again disconcerted to meet the other previously soaring glider flying into wind parallel to the runway at the same altitude.

A direct call to all gliders on the frequency resulted in routine calls subsequently being made by the second glider. Radio frequencies at 25 kHz spacing are scarce; a dedicated or shared frequency is only allocated for safety purposes, and there is no point in having it if it is not used! If no ground station is answering calls, make calls to "xxx traffic". If no dedicated or shared frequency is allocated, make the appropriate joining call on SafetyCom 135.475 MHz and listen for anyone else entering the pattern.

Studies have shown that the most likely place for a mid-air collision is in the circuit pattern. We should use every assistance possible to avoid other aircraft. "Look out and Listen out" is the traditional mantra, but it only works if everyone is making the standard calls in the standard places! If unsure of what calls to make and where, [CAP 413](#) and its [GA supplement 3](#) are available through www.caa.co.uk/publications and can remind you.

If you've got it, use it!.....	01	Thunderstorms.....	05
Fuel cocks	02	Full and free movement?	06
Caveat Emptor	02	A picture tells	06
Olympics airspace	03	Grease	06
Collision avoidance rules	03	Autopilot	07
Air displays and restrictions of flying....	04	Mandatory Permit Directives	07
Bounced landings	04	Emergency ADs	07
Out of wind approaches	04	... Maybe less than a thousand words! ...	08
Oil replenishment.....	05	Putting it together	08

Fuel cocks

A reader has expressed concern that if a fuel cock is left in one position for a long time, it may become difficult to move when needed, for example to shut the engine down in the event of a fire. He therefore recommends selecting the fuel cock to OFF after every engine shutdown, with the reminder that, as written in every Flight Manual, it must be selected ON, or to an appropriate tank, before engine start.

We would expect the fuel cock to be exercised at least during routine maintenance, which could be thought to prevent it seizing up. However, many Flight Manuals do state that the cock should be set to OFF after flight, in which case that procedure ought to be followed. The action of operating the cock before and after flight should also familiarise the pilot with its position and the actions required in the event that an emergency drill requires it.

The writer was specifically referring to Cessna 150/152 types. If the fuel cock is selected ON in such types, or to BOTH on 172s or similar, and the aircraft is parked on a slight slope, gravity is likely to induce a flow from the high tank to a lower one, and possibly out through that tank's vent pipe.



Readers who remember an incident reported several years ago will not be surprised that we would however advocate caution if a pilot or operator decides to change an established procedure. Human factors suggest that pilots who are not used to changing the fuel cock selection may 'see' the cock in the ON position they expect it.

Caveat Emptor

We have in the past advised anyone who wishes to purchase a second-hand aircraft to ensure that they have the potential purchase checked out by a qualified engineer before parting with cash. We also advise that at an early stage in the proceedings the intending purchaser consults G-INFO and the CAA's Aircraft Registration Section to ensure the advertiser really does own the aircraft and that no outstanding mortgage exists.

Fortunately for a Canadian would-be helicopter owner, he did exactly that, even though he had been shown what appeared to be the UK Certificate of Registration. He was therefore able to avoid a scam which wanted him to pay a deposit for a helicopter which belonged to someone else, who had no intention of selling it and no knowledge of the advertisement! The Certificate was a forgery.

This is apparently not the only instance of someone advertising an aircraft for sale without being the legal owner. If you are tempted by an advertisement, beware and make careful checks before parting with any money.

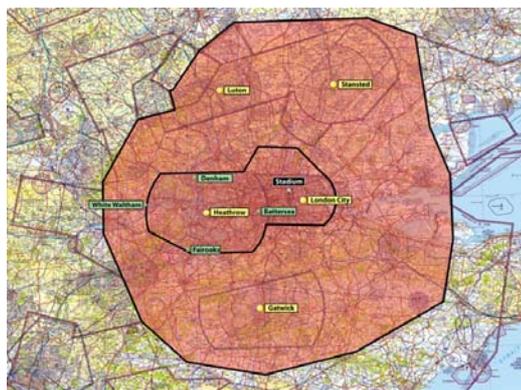
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Olympics airspace

In case readers are not already aware, the proposed airspace restrictions around London during next year's Olympic and Paralympic Games have been amended by the Government. Further information is on the ASI website www.airspacesafety.com/olympics.



Collision avoidance rules

SafetySense leaflet [13](#), available like all such leaflets free for download from www.caa.co.uk/safetysense, is entitled 'Collision Avoidance'. Like many other publications, it emphasises the need to minimise time spent looking inside the cockpit. It advises careful scanning around the aircraft in 'saccades', holding the eyes still for more than a second to allow them to focus as they progressively search sectors of about 10 degrees around the most likely directions of collision hazards.

Like most other similar documents, the leaflet assumes that once a pilot has spotted another aircraft which appears to be on a collision course with his own, he will follow the correct action to prevent such a collision occurring. The necessary actions are laid down in the Rules of the Air Regulations 2007, and provided everyone follows them correctly they will achieve their aim. The Rules are contained in [CAP 393](#), available free for download from the CAA's web site at www.caa.co.uk/CAP393

However, despite the fact that the Rules of the Air are by far the most important part of any course of study for a pilot's licence, some qualified pilots seem to be unaware of them, or how to apply them. Even determining who has the right of way is sometimes forgotten. It seems relatively easy to remember that in a converging situation, flying machines give way to airships, which give way to gliders which in turn give way to balloons. However, when two similar types converge, knowledge of the Rules seems to be less widespread. Not only do some pilots who should give way just not do so, but instances continue to occur when a pilot seeing another aircraft through the left side of his windscreen believes he should give way and starts to take avoiding action as soon as he sees it.



Rule 8(5) states that the aircraft with right of way should maintain its course and speed (nothing said about altitude) and that is so that the aircraft which has to give way can take simple avoiding action, as it must. If both aircraft start to manoeuvre, it confuses the situation and can lead to the very collision the Rules are intended to prevent. Of course, if the aircraft which ought to give way doesn't, nothing absolves the commanders of all aircraft involved from doing all they can to prevent a collision. The one with right of way has to do something, and it is logical that the pilot keeps the other aircraft in sight in case it suddenly makes a move. Descending to pass under the aircraft which should have given way is probably the best way to do this. Perhaps to allow such last-minute manoeuvring to be performed safely, Rule 8(4) forbids the aircraft which is supposed to give way from passing over or under the other one, another Rule which is not always complied with.

There is a saying that 'Rules are written for the guidance of wise man and the obedience of fools'. That is not true when it comes to the Rules of the Air; no one who disobeys them should be considered wise!

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:

11 August	Marham	27 August	Chester
11/12 August	Lowestoft	28 August	Diss (Norfolk)
11-14 August	Eastbourne	28/29 August	Dunsfold
14 August	Bristol	29 August	Hoylake (Wirral)
15 August	Whitby	29 August	Uffington (S of Faringdon)
17 August	Cromer	2 September	Linton on Ouse
17 August	Weymouth	2 September	Chatsworth (Derbyshire)
18 August	Dawlish (Devon)	2-4 September	Portrush (NI)
18 August	Fowey (Cornwall)	2-4 September	Northampton Sywell (LAA rally)
18-21 August	Bournemouth	3/4 September	Duxford
19 August	Duxford	9/10 Sep	Leuchars
19-22 August	Weston Park (near Cosford)	11 September	Morecambe
20/21 August	Shoreham	15 September	Pangbourne
20 August - 3 Sep	Isle of Man	17/18 Sep	Kemble
24 August	Torbay	19 September	South Shields
25/26 August	Clacton	22-29 Sep	Duxford (Helitech)
26 August	Dartmouth	16 October	Duxford

Bounced landings

In the previous issue we commented on a report by a student that he had never been taught the correct technique for recovering from a bounced landing. The AAIB's Bulletin 6 of 2011 contains a [report](#) into an accident where the student apparently failed to adopt the correct bounce recovery technique and attempted to land the aircraft again, during which attempt the nosewheel collapsed.

The instructor on board noted that he should have been more prepared to intervene, but may have been influenced by the student seeming to have considerable previous experience. Other instructors have been similarly caught out - never relax!

Out of wind approaches

The AAIB's Bulletin 6 of 2011 contains a [report](#) on a Twin Squirrel which was making an approach to a hill-top landing site. The investigation determined that an error of judgement or perception led the pilot to attempt a downwind approach, during which he lost control. A combination of human factors was thought to have contributed to the accident.

When concentrating hard on another aspect of a flight, whether challenging conditions or an in-flight emergency, it is easy for a pilot to make a snap judgement about the wind direction. That wind direction, and specifically its direction relative to the aircraft's current heading, is the most important piece of information the pilot needs if they expect to make a landing in the near future. Time spent making sure of the wind direction is not wasted, even in a serious emergency situation.

Oil replenishment

Topping up the oil in an engine may be an awkward process. In order to prevent spillage, most of us use cardboard funnels, but certain filler systems are positioned in such a way that even that may not avoid all spills. Some motor oil bottles are sold with plastic tubes which can be fitted to the cap, so that the oil can be poured into the engine rather than around it. These may not be found on aircraft oil, but surely it seems a useful idea to transfer the tubes to our own oil bottles, or to the outlet of our oil pump?

However, as with many good ideas, there is a possible downside to the idea. We are grateful to the reader who reported that some three hours after the pilot had topped up his oil, he realised that the tube he kept for oil replenishment was missing. It had to be inside the engine, and the engineers stripped the engine to find it. Luckily it was found in the oil chest still in one piece, partially wedged in the scavenge suction pipe, and was recovered intact.



Thunderstorms

Summer in the UK has been described as “three days of sunshine followed by a thunderstorm”. While the number of sunny days may be contentious, thunderstorms do indeed occur quite frequently during the summer months, so it may once again be timely to remind pilots of the hazards such phenomena present to aviators. AIC [P 056/2010](#) ‘The effect of thunderstorms and associated turbulence on aircraft operations’ is an excellent source of general information about thunderstorms and many of their associated hazards.

The AIC contains advice in the event of unavoidable flight in the vicinity of (and inside) a thunderstorm. However, the advice is mainly directly related to commercial operations which may have valid reasons for being there. For those on private or training flights in light aircraft, the best advice remains to stay well away from ANY cloud if thunderstorms are forecast. The hazards, as many pilots have experienced in the past, are considerable, and a cumulonimbus cloud can be hidden from view by other types. Do not treat thunderstorms lightly.

As a reminder, the hazards within a thunderstorm (cumulonimbus) cloud include severe turbulence, icing and downdraughts, together with hailstones and heavy rain. All of these hazards, with the exception of airframe icing, also exist when flying underneath a cumulonimbus cloud, the base of which is likely to be very low. There is also a high probability of stratus forming in precipitation at an even lower altitude.

As most pilots are aware, wind shear and microbursts may be expected in the immediate area below the cloud. However, the surface wind direction and speed are likely to be subject to rapid change many miles away from the cloud itself. This unexpected wind change has proved a factor in many light aircraft landing accidents, sometimes during forced landings into fields but often at strips and other aerodromes.



Although lightning strikes to light aircraft may be rare, they can have serious consequences, even if the aircraft is apparently adequately bonded. Navigation aids and instruments, including modern electronic displays, can be affected by static electricity.

Finally, thunderstorm cells can and do develop extremely rapidly and spread horizontally much faster than the gradient wind. The AIC advises us to avoid them by at least 10 miles whenever possible.

Full and free movement?

The AAIB's Bulletin 4 of 2011 includes a [report](#) on an accident to a homebuilt Jabiru aircraft which suffered a jammed rudder control on landing, causing it to leave the runway surface and turn over, injuring the occupants. The jam had apparently occurred as a result of insufficient clearance between the leading edge of the rudder and the trailing edge of the fin. The report notes that appropriate airworthiness action for this particular aircraft type has been taken by the manufacturer, the State of Design, the UK LAA and the CAA, who issued Emergency MPD 2010-010.

Although jamming of aircraft control surfaces is not common in flight, it can have catastrophic consequences. As the AAIB report points out, aerodynamic or inertial loads can distort aircraft skin during flight, and any possibility of such distortion causing a control jam should be avoided. A check that controls all move freely over their full range of movement should be carried out before every flight, and not just when sitting in the cockpit. Between routine maintenance inspections, a pilot would hope to detect a potential similar jam by physically inspecting and moving the control surfaces during the walk-round, noting the gaps between parts as they move, and assessing the risk of a jam occurring. Unfortunately, in many aircraft, a check of full movement of the rudder controls can normally only be carried out while taxiing, so the visual inspection should consider the potential for jamming through minimal clearances, evidence of prior damage or distortion.

A picture tells

Careful study of the photograph should allow readers to see that the paint on the handle has been removed, perhaps worn away. Many will probably come to their own conclusions, but details as to how this came about, and the further possibly surprising implications, can be found on the last page.



Grease

In the AAIB's Bulletin 5 of 2011 we read a [report](#) on a Bombardier Dash 8 which suffered undercarriage problems. Although the aircraft landed safely, the source of the problem was found to be a grease nipple which had become detached and jammed in a downlock actuator. Subsequently, many of the operator's aircraft were found to have nipples missing, although perhaps because of an excess of grease around the nipple locations these had apparently not been previously identified.

The main part of the report is concerned with engineering matters. However, when the Aerodrome Fire and Rescue Service attempted to fit the undercarriage ground locks, they had difficulty finding the correct locations. Even after the aircrew had consulted the Flight Manual to assist them, the locks were incorrectly positioned. If we fly an aircraft with retractable gear, do we know where the ground locks are kept, and where they ought to be positioned?

Autopilot

The BEA (French AAIB) has recently released their report into a fatal accident to a US-registered Cirrus 22 which occurred in 2008. The aircraft descended very rapidly into the sea after an apparent loss of control while descending to follow a Special VFR clearance some 50 minutes after sunset. The report notes that conditions did not allow the aircraft to comply with the Visual Flight Rules it was required to.

The investigation was unable to determine why control was lost, but draws attention to the aircraft's never exceed speed, V_{NE} . The radar map enclosed with the report suggests that the aircraft was flying close to that speed before and during its cleared descent. The investigation concludes that the autopilot was almost certainly engaged prior to the loss of control, and points out that the cloud and darkness would have given the pilot no external visual references to assist in regaining control once the autopilot had disengaged.



File photo

An autopilot can be very useful in assisting a pilot to maintain his desired flight profile. However, it is vital that, like all aircraft systems, the pilot is totally familiar with it. He must understand its limitations and operate the aircraft within them, and always be ready to regain control manually if it disengages unexpectedly. We are aware that some pilots are content to fly without visual references or instrument qualifications, relying on the autopilot to control their aircraft. The hazards of doing so should be obvious.

Mandatory Permit Directives

The following Mandatory Permit Directive (MPD) has recently been issued by the CAA. Compliance is mandatory for applicable aircraft operating on a UK CAA Permit to Fly. [MPDs](http://www.caa.co.uk/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
2011-006-E	Rotorsport UK MTO-3, MTOSport, Calidus	Rotor blade life limit

Emergency ADs

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

We are not aware of any recently issued Emergency Airworthiness Directives since the last GASIL; however, readers should monitor the above sources.

. . . . maybe less than a thousand words!

Because of runway work at its home base, the club's Cessna 152 had been taken by two members to a neighbouring aerodrome, where they took turns to fly it while the works took place. The neighbouring club had kindly agreed it could be parked in their hangar, and on the Monday morning one of the pilots arrived at the hangar to fly it back to its home aerodrome. Further runway work was due to take place, so the aircraft had to return home within a fairly short time bracket. The pilot thought he had allowed sufficient time to prepare the flight and the aeroplane for the trip.

Unfortunately, although the pilot believed he had asked for the 152 to be parked at the front of the hangar, it was right at the back, so he had to move several other aircraft out of the way in order to extract his own. Having re-stacked the hangar he carried out the Check A, during which he discovered that there was very little fuel in one of the tanks. He therefore re-attached the towbar and pulled the aircraft to the bowser. After hand-pumping sufficient fuel into the tank, there was very little time remaining before his bracket closed, so the engine was started and the aircraft taxied to the runway as quickly as possible.

Shortly after take-off, which seemed completely uneventful, the pilot changed frequency to his home base, whose air traffic controller informed him that he seemed to have taken off with the towbar still attached to the nosewheel. The towbar was reportedly still attached as he joined the traffic pattern and landed, again apparently uneventfully. It was still attached when the aircraft was brought to a halt, although the paint and several microns of metal had been worn through from contact with the concrete runways and taxiways.

As previously reported in these pages, similar incidents have resulted in considerable damage to engine and propeller when the towbar came into contact with rough ground or gaps in concrete paving. However, in this case the inspecting engineer was extremely surprised and pleased to note that neither the towbar nor the propeller showed any signs of having contacted each other. The only indications on the aeroplane were barely imperceptible scuff marks on the nosewheel tyre from the spring on the towbar.

The circumstances leading up to the incident are not unusual, indeed they could be a case study on any Human Factors training course, and we thank the pilot for his honest report. As he himself noted, he should have stopped rushing and re-planned his trip for a later arrival time, even if it caused him and the club inconvenience.

Putting it together

A [report](#) in the AAIB's Bulletin 5 of 2011 concerns a fatal accident to a glider which was incorrectly assembled during rigging prior to flight. The wing attachment fitting was damaged during the rigging process resulting in the main wing spar joint not being properly secured. In this particular type of wing attachment system, it was not possible for the rigging team to positively confirm complete assembly. As a result the wings separated from the glider during a winch launch. Hopefully, glider pilots will already be aware of the report and the recommendations from the AAIB and the BGA.

Many gliders are kept in trailers and rigged before flight, and such rigging is regarded as a normal part of the pre-flight preparation. However, as the investigation concluded, errors in assembly can have catastrophic consequences. It is not unknown for club members to experience difficulties when rigging a glider which is normally kept fully assembled, and the temptation to apply force can be overwhelming. However, it must be resisted!

Although the wing attachment system employed by this glider is fitted to only a few types, the general principle when assembling major structural components is valid for many others. Helicopters and Gyroplanes have folding rotors, and several aeroplanes can fold their wings. Aircraft assembly is an engineering process. We must not only take care when carrying it out, but as when working on aircraft controls we should seek an independent check by someone who has not been involved in the process but who understands the particular system. Even after that independent check, pre-flight vital actions should include as positive a check as possible that the rigging is intact.