

# GASIL



## General Aviation Safety Information Leaflet

[www.caa.co.uk/gasil](http://www.caa.co.uk/gasil)

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### After maintenance

We have in the past reminded pilots of the need to be more particular than usual in their pre-flight checks on the first flight after maintenance has been completed. A recent occurrence report emphasises that point.

It seems the engineers had been interrupted in their work, and two inspection panels were not closed properly; only a few screws had been replaced, and these were standing proud. When the crew arrived to take the aircraft for its first flight after the maintenance, the panels were still loose. However, because they were under the low wing they were not easily seen, and indeed they were not noticed. After take-off, when the airflow caught the panels, they were damaged and one actually came off.



Human beings make mistakes, and the simplest mistake can have serious consequences. Even if we are in a hurry (especially if we are in a hurry), we need to remember that we are all human, and look carefully for things being wrong. Anticipate the human factor, and at the same time remember it could be your mistake next time!

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## Engine failure after take-off - carburettor icing?

A [report](#) in the AAIB's bulletin 2 of 2012 concerns an Emeraude which suffered an engine failure shortly after take-off. Apparently the pilot attributed the failure to carburettor icing building up during a long taxi with temperature of 15 degrees and dew point of 13. SafetySense leaflet 14 "Piston Engine Icing", available like all such leaflets free for download from [www.caa.co.uk/safetysense](http://www.caa.co.uk/safetysense) warns that ice may build up at the low taxiing power settings, and if not removed may cause engine failure after take-off. It gives clear advice on applying hot air for long enough to clear any ice during the pre-take-off power checks, and just prior to take-off if appropriate.

Although the pilot was injured and unable to remember the accident circumstances, the aircraft was photographed in an incipient spin when it struck the ground. The pilot apparently stated that he did not appreciate that when flying at the glide airspeed there would be such a marked difference in the pitch attitude of the aircraft with the engine stopped.

Practising engine failure after take-off drills is an essential part of maintaining handling currency. Most pilots would probably be uncomfortable carrying out such a practice without an instructor on board, so ask for the assistance of an instructor, for which the flight required to revalidate a rating is eminently suitable. We can also practise the handling techniques of converting from climb to glide at height, although we should remember that the attitude change required in such a practice will be less than in the real case of a windmilling or stopped propeller at take-off altitudes.

It is also a good idea to consider our actions in the event of an engine problem during or after take-off immediately before we line up, to give ourselves the best chance of carrying out the actions correctly if the worst happens.

## Emergency ADs

EASA produces [bi-weekly](#) summaries of the ADs they have issued or approved, which are available through their website [www.easa.eu](http://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 Directives have been issued recently by EASA; however, this list is not exhaustive and must not be relied on.

Number	Applicability	Description
<a href="#">EASA 2012-0075-E</a>	<a href="#">SMA SR305-230 Engines</a>	<a href="#">Turbocharger &amp; intercooler hoses</a>

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## Runway designator confusion

In the AAIB's Bulletin 2 of 2012 we [read](#) of the pilot of Taylorcraft who made the classic human factors transposition of the digits of runway designators 13 and 31. The aircraft tipped over when he applied heavy braking in the strong tailwind, and he was seriously injured.

Although runway directions such as 13/31 and 02/20 can be easily transposed, other factors such as misreading a windsock or just interpreting a wind backwards can induce us to make an approach on the wrong runway. We have to be alert to the possibility, but also alert to our environment during the final approach. If the threshold seems to be coming towards us faster than normal, or we are using much less power than usual to maintain the normal glideslope, it may be sensible to fly a go-around and assess why!



## Confirmatory bias

The AAIB's Bulletin 3 of 2012 contains a report into an accident to a Rockwell Commander. It seems that maintenance had been carried out on the right main gear microswitch, and this was the first flight following that. When only 2 green lights appeared after gear selection during the pre-landing checks, the pilot believed that the previous indicator problem had returned, and that all legs had lowered. However, it seems the missing green light was actually that for the nose leg, which had not extended.

If we expect something to be true, it is difficult to convince ourselves that the facts differ from that expectation. We seek every indication that our assumption MIGHT be correct (a missing green light) to confirm that it IS correct, and tend to disregard the information which proves we are wrong (the position of the missing light). As pilots, we must be alert for the possibility we are suffering from this "confirmatory bias", which is a known human factor in aircraft accidents. If we can expect our assumptions to be wrong and act as if they are until we have examined all available evidence in an unbiased manner, we may be able to save ourselves from unwanted consequences.

## Propellers

A [report](#) in the AAIB Bulletin 12 of 2011 concerns a Beagle Pup whose engine burst into life while the pilot was turning the propeller as part of the external pre-flight checks as described in his copy of the aircraft's Flight Manual. Because the throttle was fully open and the mixture fully rich, again in accordance with the written procedure, the aircraft broke free of its tie-downs, clipped the wing of a parked aeroplane, and crashed into an earth embankment.

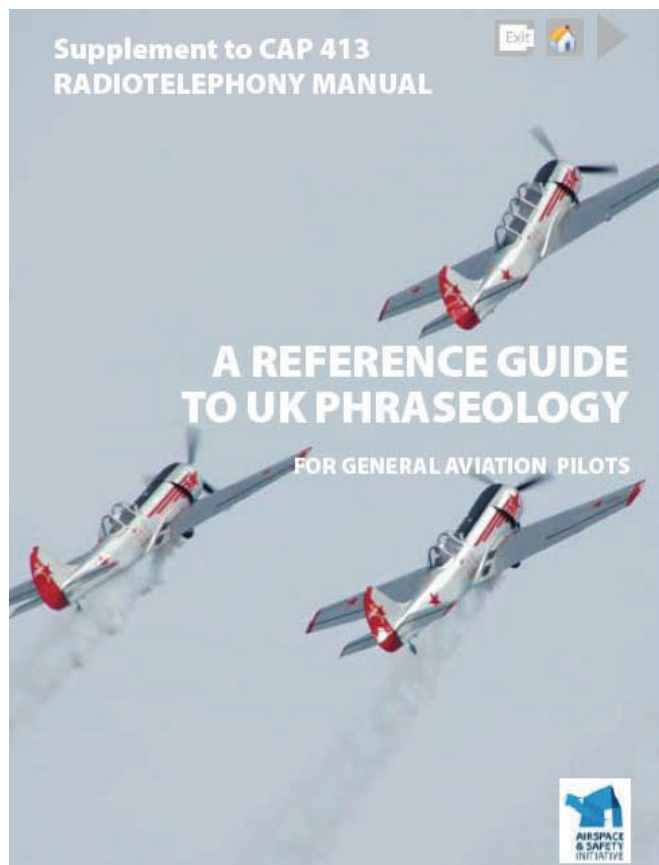
It appears that the ignition switch was actually selected to 'left' despite there being no key in the switch. However, the investigation was particularly concerned with the Flight Manual procedure, and amendments have been made to all Pup Flight Manuals to require an idle throttle setting and mixture to CUTOFF during the pre-flight check.

Nonetheless, the accident should remind us yet again that a piston engine has the capability of springing into life at the slightest provocation. All possible safety measures should be taken, magneto switches must be positively (double) checked, and propellers always be treated as 'live'.

## Know your service

It often seems to happen that pilots trained at, or habitually operating from, aerodromes whose only communications facilities are air-ground radio services, have problems when they visit aerodromes with full air traffic control. Pilots used to making their own decisions about the safety of their aircraft can sometimes forget that other circumstances, beyond what they can see and hear directly, may affect that safety.

However, pilots used to operating at aerodromes where full air traffic control is normally provided may also fall into traps when operating without such a service. Air to Ground Radio Operators frequently find themselves being asked to give permission for pilots to taxi, take-off or land, which of course they are unable to do. Any such requests tend to clutter up the frequency and make it more difficult for others to make appropriate calls in the correct places. There is also the possibility that a pilot who is used to being given permission to move may slip into the dangerous habit of making less careful checks of the position and intentions of other aircraft, because he or she has been accustomed to a Controller making the checks and passing on the important information.



If in doubt about what services are provided by the communications facilities at the aerodrome you intend operating from or visiting, consult CAP 413's multi-media GA [supplement](#), available for download from the CAA's website at [www.caa.co.uk/Cap413](http://www.caa.co.uk/Cap413).

## Freezing

An incident reported during the winter concerned a two-seat glider on an instructional flight. It seems the instructor simulated a launch failure, and the student 'froze' while holding the airbrake lever.

Such student, or sometimes passenger, reactions are usually a complete surprise to the instructor or pilot. Fortunately, in a flying machine, the pilot in command can usually apply power and gain height and time to calm the terrified occupant of the other seat into relaxing and letting go. Little time, however, is usually available to a gliding instructor.

Student 'freezing' is a threat which instructors should always consider and be ready to manage. However, non-instructors may not be as prepared. We should always be ready for the person we are allowing to handle the controls to do something unexpected. However, perhaps the most effective way to reduce the risk of it happening is to ensure we do not place the other occupants in a situation which they are not expecting. Careful briefing, calm explanations, and gentle and progressive demonstrations can do much to minimise the risk.

## Formation flying

Many pilots enjoy flying in the company of others. However, formation flying is a skill which needs careful consideration and briefing, which is the best way of fulfilling the ANO requirement for pilots to have “agreed beforehand”. Formal training in formation flying is available from several commercial providers and some friendly ex-military pilots, and we advise anyone who wishes to fly their aircraft in formation to receive such training.

One of the reasons that military pilots fly in formation is to reduce traffic on radio frequencies. Only the lead pilot needs to talk to air traffic service providers, and messages within the formation can be passed by appropriate hand signals. There is seldom a real need to make calls to others in the same formation, so do not use the excuse of formation training to misuse radio frequencies!

Another known advantage of flying in formation is that only one aircraft need have a serviceable transponder selected to make appropriate transmissions. During busy periods, others in the same formation can concentrate on their flying, keeping their equipment, if fitted, selected to ‘Standby’. However, it may not be generally known that two or more transponders transmitting in close proximity will “garble” (interfere with) each others’ transmissions and present an air traffic controller (or an aircraft fitted with a collision avoidance system) with confusing or sometimes totally false information.



If you are flying in formation with another aircraft, please make sure only one of you has your transponder selected to ALT (or ON if you do not have the altitude function). Unless briefed beforehand, that would normally automatically be the formation leader. It may be convenient (and would probably be ideal) for the others to select the same codes on ‘Standby’ if practicable, in case the leader’s equipment fails or the formation splits, when the individual aircraft should ensure they have ALT selected with the appropriate code unless ATC requests otherwise.

ATC procedures for civilian formation flights are detailed in the UK AIP ENR 1-1-4-11.

## Loss of control on final

The BFU (German AAIB) have recently published their report into a fatal accident in July last year. It seems the pilot of a MTOSport gyroplane was carrying out a series of half-hour local flights with passengers at an aerodrome in hilly countryside. On the fifth flight, when the aircraft was at about 200 feet on the final approach, it was seen to roll suddenly to the right. A subsequent yaw to the right was followed by a near vertical descent onto heathland, destroying the aircraft and killing the occupants.

The report drew particular attention to the aircraft flight handbook and its warnings about the hazards involved in flying close to the aircraft’s limits, especially in slipping flight. It concluded that the pilot had probably reached the limit of control on the flight in question when he encountered turbulence from the trees upwind of the approach path in a crosswind gusting above the flight handbook recommendations.

The investigation also noted that passenger flights appeared to have been advertised for sale on the internet and on the aircraft itself, and questioned the legality of the flights being carried out. It also questioned the relevant experience of the pilot, who had a considerable number of flying hours on aeroplanes but whose experience on gyroplanes was limited.

Whatever aircraft we fly, it is important to be aware of our own and the aircraft’s limitations, to understand why they exist, and to remain within them.

## Reduce the risk of death!

As many readers will be aware, in its current [Safety Plan](#) the CAA has identified “the significant seven” areas in which it feels work should be undertaken to reduce the number of accidents. Although readers may consider several of these seven areas as of greater concern to commercial flying than to what they fly themselves, all have some relevance, and some are particularly relevant, to light aviation. “Controlled flight into terrain” is still a major type of GA fatal accident, but of particular concern is the area of “loss of control”.

As many readers will have gathered, the editor of this magazine has cause to read a considerable number of accident reports from around the world, and many of these concern fatal accidents to light aircraft. While we may refer to an “aircraft accident”, it is important to remember that every accident which causes injury or death involves the suffering of at least one human being, and often a considerable number of family members and friends in addition. It’s not the aircraft we should concern ourselves about, it’s the people!



It does not seem to matter how many articles we publish in GASIL highlighting pilots losing control after take-off, control continues to be lost, and people continue to die or suffer serious injury as a result. Children lose parents, parents lose children, and the suffering continues. Even if the engine fails, there should be no reason for a pilot to lose control after take-off. No distraction should be allowed to interfere with the top priority of flying the aircraft. “Maintain thy airspeed, lest the ground come up and smite thee!”

## Skill and knowledge

These pages frequently contain references to AAIB reports in which the pilot’s skill has proved unequal to the conditions in which he or she was flying. Human beings are not natural aviators; we have to keep learning to improve our chances of survival in an environment which, while offering the most enjoyable experiences, proves itself all too often to be hostile to us.

We can gain knowledge from books. We can improve our skills by adopting a test-pilot attitude and taking incremental small steps from familiar territory towards the unknown. However, learning should not be a lonely experience. There are plenty of instructors who are willing to give their help, if only pilots would ask for it.

Unfortunately, as humans we tend to believe we can exercise skills which we have been taught (and even tested on) previously, without further assistance. We feel slighted when someone suggests we may not be exercising these skills as well as we could, and even more slighted if it is suggested that we need further training. As aviators, we need to overcome that natural defensive attitude, and not only accept but welcome advice and guidance from others. Indeed, we should seek it out!

Not that every person who holds the title of ‘instructor’ is necessarily the best person to help you learn whatever particular skill or information you need, because even they (like all of us) are still learning, and they may not have the particular specialist understanding of your requirements. It is not easy to identify the person who can give you the best value for the necessary cost involved, but other experienced pilots whom you respect should be able to identify suitable ones. On the subject of cost, if you think paying for an instructional flight is expensive, consider the cost (in cash, time and lost flying opportunities) of having an accident!

Members of the Light Aviation Association are fortunate, in that their coaching scheme can provide help to learn all the facets of operating homebuilt or vintage aeroplanes. These, and other ‘post-graduate’ instructors, provide a necessary step beyond the essential but limited training we received to gain our licence. They can help us learn to achieve our aircraft’s potential rather than just fly it, and thereby gain more enjoyment and value from our flying.

## Engine failures in twins

A report in the AAIB's Bulletin 3 of 2012 concerns a PA23 Apache whose pilot noticed an engine failure while carrying out a go-around from the approach to land. The aircraft was subsequently damaged during a forced landing in a field. The investigation considers the possibility that the use of MOGAS contributed to the engine failure, but was unable to determine if that was the case.

However, the accident should remind pilots of twin-engined aeroplanes that they may not always be able to climb away from an engine failure.

[Handling Sense Leaflet 1](#) "Twin piston aeroplanes" is available like all such leaflets through

[www.caa.co.uk/safetySense](http://www.caa.co.uk/safetySense), and gives excellent

advice on the subject, including details of the factors affecting climb performance. It emphasises the need to not only maintain the most efficient single engine climb speed (blue line) but reduce drag as much as possible. Identifying and feathering the propeller of the failed engine can do much to reduce drag, as will raising flap and undercarriage. Unfortunately for the pilot in the report, the engine-driven hydraulic pump was attached to the failed left engine, and he decided that it would be safer to concentrate on a forced landing rather than attempt to pump manually close to the ground.



Unfortunately for the pilot in the report, the engine-driven hydraulic pump was attached to the failed left engine, and he decided that it would be safer to concentrate on a forced landing rather than attempt to pump manually close to the ground.

However we would remind pilots that possible causes of engine failure in piston-engined aeroplanes are fuel loss or fuel contamination. In either of these cases it is possible, or even likely, that all engines will fail. Have you considered recently how to carry out a glide circuit and landing?

## Runway vacated?

A recent occurrence report concerned a microlight which seems to have vacated the runway in use, but then taxied across the grass for a further take-off. Unfortunately, the pilot seems to have taxied towards the runway threshold rather than the taxi-holding point, and in doing so ended up with the wing overhanging the runway itself, causing an approaching aircraft to go-around.

Unusual taxi patterns are normally quite acceptable, but take care to keep well away from active runways.

## Keep it clean, but don't overdo it!

We have often advised pilots of the importance of keeping their aircraft clean. Apart from reducing the incidence of surface corrosion, it makes it easier to spot any minor damage, which might lead to further and deeper corrosion, early. However, we also advise that after washing an aircraft, it is important to ensure that grease and oil necessary for lubrication of moving parts, for example aileron hinges, are not removed, or if they are, that they are immediately replaced.

Many Flight Manuals contain advice on recommended cleaning methods, and if that is not the case the Maintenance Manual may well do. However, it is very tempting, as in the photograph, to use a proprietary pressure washer, especially if you are attempting to wash off salt water a long way from the nearest source of fresh. However, by their very design, pressure washers are very likely to remove oil and grease from hinges and leave water behind. We therefore advise pilots not to use pressure washers, but if they do, have the aircraft re-lubricated immediately afterwards.



## 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](http://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, and checks should be made immediately before flight on the web site or the AIS information line 0500 354802 (+44 208 750 3939 from overseas). Restrictions covering a large area are highlighted in **bold**:



5, 6 May	Abingdon, Oxford
<b>15, 16 May</b>	West Wales (Diamond Jubilee rehearsal)
21 May	RAF Coningsby
22 May	RAF Church Fenton
23 May	Kirton Lindsey, Lincolnshire
25 May	RAF Valley
<b>19 May</b>	South Coast (D036, 037) to RAF Brize Norton (Windsor flypast)
25-27 May	Northampton Sywell (Aeroexpo)
26, 27 May	Southend-on-Sea
27 May	Duxford
28 May	D 307 Donna Nook
2 June	Folkestone
3 June	London area (River pageant)
4 June	London area (Concert)
<b>12-14 June</b>	Waddington to Norfolk & beyond (flypast rehearsal)
<b>16 June</b>	Norfolk sea area to Brize Norton via London (flypast)
15-17 June	RAF Cosford, West Midlands
15-17 June	Cholmondley Castle (South of Manchester)
20, 21 June	Stonehenge, by Boscombe Down
22, 23 June	RNAS Yeovilton
23, 24 June	Lowestoft, Suffolk
25 June - 9 July	London (Wimbledon)

## CAA VFR charts and update service

With the coming of summer (?), we ought to remind readers of the need to carry and use charts containing up-to-date information. The following CAA charts have been issued recently, or are due for issue in the near future.

### ICAO 1:500,000 scale

Southern England and Wales	Edition 38	8 <sup>th</sup> March 2012	(includes Olympic airspace details)
Northern England and Northern Ireland	Edition 35	3 <sup>rd</sup> May 2012	

### ICAO 1:250,000 scale

Sheet 8	England South	Edition	5 <sup>th</sup> April 2012
Sheet 4	The Borders	Edition	31 <sup>st</sup> May 2012

Updates to the various VFR charts are available for free download through the AIS website at [www.ais.org.uk](http://www.ais.org.uk) under the 'VFR Charts' heading. The updates, including those to the applicable frequency cards (which list more frequencies than the charts themselves), are updated every 28 days, and should be consulted as part of flight planning.