

GASIL



General Aviation Safety Information Leaflet

www.caa.co.uk/gasil

Issue no. 11 of 2012

The final GASIL

This is the last issue of GASIL the CAA's Safety Regulation Group will produce as such. Other means of promoting our safety messages will take over. We live in a different world to that which existed when my predecessor John Thorpe was able to convince the CAA's senior management that the information it received from incident and accident reports should be used not just to inform, but also to provide advice to, pilots, engineers and others involved in General Aviation. John, I take my hat off to you, and to all the others who have been involved in producing this magazine over the years. You have contributed vastly to the safety of GA not only in this country, but throughout Europe and beyond.

Technology has moved on since those early days. It is much easier for a pilot to find the information needed to make sensible risk assessments about the safety of an intended flight. However, with information so freely available, and published by anyone with access to the web or social media, we must consider carefully whether all the advice available should actually be followed. Before changing the way you were taught to fly, consult the information published by Regulators (CAA, EASA) or those official organisations supported by them, for example GASCo, ASI, EGAST or EHEST. However, even official information can be accused of providing 'information overload'. We must make a conscious effort to ensure we obtain all the relevant information, and use it sensibly in our pre-flight planning.

Goodbye, thank you for reading (and occasionally writing) over the years and remember:

Proper Pre-flight Planning Prevents Pathetically Poor Performance!

The Final Gasil	01	Protection from heavy landings	06
Motor glider with retractable engine	02	Elevator connections	06
Charts and databases	02	Propeller kick-back	06
Heading indications	03	Frequencies	07
'Keep your speed up'	03	GPS databases	07
Head on	03	PPR	07
Relax ... Don't do it!	04	Foreign object damage	08
Relax ... Don't do it! (cont)	05	Emergency ADs	08
Licence validity	05	Mandatory Permit Directive	08
Circuit crosswind joins	05		

Motor glider with retractable engine

According to a report by the BFU (German AIB), the pilot of a Ventus CM was flying in a competition when he apparently was unable to find any more usable upcurrents. Witnesses reported seeing the aircraft at low height and hearing attempts being made to start the extended engine. They then apparently saw the aircraft enter a spin from a left turn at a height of about 70 feet. The pilot was killed and the aircraft destroyed.



The reason for the engine failing to start was attributed to the failure either the fuel cock failing, or the pilot failing to select it ON. In any case, starting an engine in flight requires concentration, and usually considerable height. The accident aircraft's barograph (altitude recorder) indicated a height loss of 285 metres (900 feet) in the last 30 seconds of flight.

Extending a retractable engine normally increases drag by a considerable amount, the starting procedure is not always simple, and the stress of the situation can easily lead to the pilot making slips and errors. The pilot should always assume that the engine will fail to start, and maintain a safe landing area at all times. Following previous fatal accidents, the British Gliding Association have produced [guidance](#) material on the subject, with which all pilots of such aircraft should be familiar. To expand on that advice, we suggest that the pilot should ignore the engine as soon as, if not before, the aircraft descends below a height of 1,000 feet above ground, and concentrate on landing in whatever configuration the aircraft is in at that time.

The BFU have produced a [report on motor gliders](#) with retractable engines, which reinforces the BGA's advice and is available in German on their web-site www.bfu-web.de.

Charts and databases

We have in the past reminded pilots of the need to plan and fly using up-to-date charts which are produced by the State's official chart provider. Out-of date charts, or even ostensibly up-to-date charts produced by commercial companies, may not include all the information necessary for safe flight. The same applies, of course, to GPS databases.

If a pilot enters controlled airspace without clearance, the fact that the airspace is not marked on the chart he is using, or on his GPS display, is no excuse for his breaking the law. Indeed, it could be argued that using an out-of-date chart demonstrates a disregard for that law which aggravates the offence. Always plan and fly with an up-to-date official chart, and check the VFR Charts update [section](#) of the AIS website www.ais.org.uk regularly for amendments.

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: FOP Admin, address as above. E-mail: fop.admin@caa.co.uk
Telephone +44 (0)1293 573516.

Content: CAA staff comment and deductions are based on available information. The authenticity of the contents, or the absence of errors and omissions, cannot be guaranteed. Nothing in GASIL relieves any pilot, operator or engineer of his/her duty to ascertain and comply with ALL applicable regulations and formal documents.

Heading indications

In a report in the AAIB's Bulletin 10 of 2012, we read of a Piaggio P180 whose crew seemed to the air traffic controller to be flying incorrect headings. The incident was attributed to incorrect operational procedures, but other instances of incorrect heading indications have occurred, often without any obvious indication to the pilot that a problem existed.

Those of us whose aircraft are equipped with primary heading indicators (usually an HSI) fed by their own magnetic sensors may have become unaccustomed to making frequent cross-checks with their magnetic compass. We may even forget to check that the instrument is still slaved to its magnetic sensor. As the reported serious incident and others of which we have recently become aware demonstrate, an HSI indication is not infallible. As with any other instrument, it is advisable to cross-check its indications before you rely on them.



Having written the previous paragraphs, we have become aware of a particularly inaccurate HSI indication. This was apparently traced to a portable electronic device which it seems had been placed, inadvertently switched on, in part of the cockpit where its transmissions were interfering with magnetic field being detected by the HSI's magnetic sensor. A reminder to us all that mobile telephones and other similar transmitting devices should be switched off before flight!

'Keep your speed up'

A report in the AAIB's Bulletin 10 of 2012 relates to a student pilot in a Grob 115. It seems the student had completed a first solo flight, and having landed was requested by the air traffic controller to "keep your speed up" and vacate the runway at a particular taxiway, with 2 aircraft landing behind. As the student approached the taxiway turnoff, the aircraft was travelling too fast to make the turn safely. It ran off the paved surface and collided with taxiway designation boards before coming to a halt.

As the report makes clear, Air Traffic Services instructions warn controllers of the need to exercise caution when passing non-standard instructions to student pilots. However, everyone is human, and humans can make mistakes. We recommend that instructors ensure they have prepared students for possibly unsuitable instructions from ATC, and the action to take. As CAP 413 reminds us, the phrase "unable comply" is available for possible use in such situations.

Head on

Occasionally we hear of pilots in the final stage of the approach to land being confronted by another aeroplane taking off towards them. While 'overhead' joins and correct radio use can reduce the risk of it taking place, these tend to rely on both parties following the correct procedures. Since we know there are pilots who do not, it is worth considering how such an event might occur, and taking particular care if we are flying in these circumstances.



It is highly unlikely, although not unheard of, that it would happen if the wind favours the use of a particular runway for both take-off and landing. In calm or crosswind conditions, however, or if the runway slopes to require opposite direction take-offs and landings, the hazard is more likely. When considering our arrival or departure at a strip in such conditions, we need to think about the possibility and improve our chances of avoiding a collision, or the need for violent avoiding action.

If we follow the correct procedures on the ground and in the air we can at least give ourselves a chance to identify the other aircraft early. In addition, a careful lookout is essential, especially towards the areas of greatest danger, such as the threshold and on the approach. Consider using landing lights to make yourself more obvious to another pilot. However, as in most areas of safety, the most important factor is probably time. Do not rush to take-off or land; better late than dead on time!

Relax Don't do it!

Don't try and stop unless

- You can before the end
- You've touched down early enough AND
- You're at the right speed

Put on full power and go around again

Don't continue the approach to land unless . . .

- The gear is down
- The flaps are set correctly
- The runway is clear
- The approach is stable
- The speed is correct
- The aircraft is in trim AND
- There's space from the aircraft in front

Go around and set things up again

Don't start the approach unless

- You are aiming for the correct runway
- The runway is long enough for the conditions
- The runway is fit to land on AND
- The wind is inside your limits

Fly to your diversion - you do have one?

Don't descend into the traffic pattern unless

- You know what runway to use
- You have worked out the circuit direction
- You can see all the other traffic AND
- You can fit in with everyone else

Stay above the pattern until you can

Don't start that manoeuvre unless

- The aircraft can do it
- You have prepared for it before start-up
- You know what to do if it goes wrong
- You have enough height if it goes wrong AND
- There's nobody in the way

Stick to what you know

Don't fly over there unless

- You can see where you're going
- You can get back safely AND
- You can land somewhere if the engine quits

Stay where you can

Don't go into cloud unless

- The aircraft can do it
- The pilot is trained & current AND
- You can get up & back down again safely

Stay where the weather is good

Don't take-off unless

- You've got enough fuel for the trip
 - There's enough room to do so
 - You can get back down again
 - You have a back-up landing field if things go wrong
 - You've decided where to put it if the engine quits
 - The runway and climb out are clear AND
 - You know what to grab if your seat moves back
- Stay on the ground

Don't start the engine unless

- You have studied your route and the weather forecast
 - You are prepared for any new manoeuvres
 - You know your safety options
 - Your aircraft is fully serviceable
 - You're fit to fly & current AND
 - You've put the brakes on
- Sit and listen to the experts

Don't go to the airfield unless

- You're prepared to learn
- Take up something else

Licence validity

It has become apparent that the introduction of the 5 year JAR PPL which superseded the non-expiring UK licence continues to catch pilots out. There have been several instances reported recently of pilots flying as pilot-in-command with an expired licence, including some which resulted in action by the CAA's Aviation Regulation Enforcement Department. In some cases the ratings contained in the licence were apparently kept up-to-date, but without a valid licence to which the ratings can be attached, a rating is irrelevant.

It is not suggested that pilots are deliberately breaking the law. However, if you do not have a valid licence, you not only risk legal action being taken against you, but there could be serious consequences in the event of an accident which requires an insurance claim, especially if other persons are involved.

Hopefully with the advent of non-expiring EU Part-FCL licences the risk of missing renewal dates will reduce. However, it would seem a good idea for us all to have a good look at our licences and take note of all the renewal dates!

Circuit crosswind joins

Pilots may choose, or Air Traffic Controllers may give clearance for them, to 'join crosswind for runway. . . .' That should be understood to mean that the aircraft should position itself over the upwind end of the runway in use, tracking at 90 degrees to the runway. The position it would then be in would be the one it would have reached if the pilot had completed the full 'overhead join' procedure as shown in the poster available free for download from the CAA's web site www.caa.co.uk/safetysense.

However, since such a join procedure limits the time available for a pilot to identify all other traffic in the circuit pattern, the procedure should be used with care, as indeed should a 'downwind' join. Before committing himself to a crosswind join, the pilot should be particularly careful to avoid traffic descending on the dead side of the full 'overhead join' procedure, because the crosswind joiner is likely to be hidden from the other pilot's view. Once committed to the crosswind join, the pilot should be keeping watch for aircraft already in the traffic pattern approaching the position for the 'downwind' call, ready to give way to any such aircraft. He should also bear in mind that an aircraft climbing from a take-off or go-around will appear from below and may not be easily visible against the background.

Protection from heavy landings

Glider pilots, especially instructors, know about the damage that can be caused to human backs by heavy landings. They also know that soft cushions on seats tend to aggravate any possible injuries from sudden vertical decelerations. To minimise such injuries, they are encouraged to fit cushions containing special energy-absorbing visco-elastic foam. This has the property that if it is compressed slowly, it will yield. However, if compressed rapidly it acts almost as if it is rigid and will strongly resist giving way.



Powered aircraft pilots might also wish consider the damage that might occur to the backs of pilots and passengers in the event of a heavy landing. Where space in the cockpit and airworthiness considerations allow, visco-elastic foam cushions similar to those recommended by the BGA should be considered if a pilot feels at risk of injury in such a situation. The AAIB have suggested that gyroplane pilots may find such cushions particularly useful, and the CAA has suggested including such material in future gyroplane design.

However, we need to be aware that, as in the case of most helicopters, the aircraft's structure may have already been designed to minimise personal injury. Adding other layers of absorbency, even the minimal absorbency of visco-elastic foam, may affect the way the structure deforms in a crash, so we should consult a qualified engineer before fitting such material. It should be noted that any seat cushions which are original aircraft equipment form part of the aircraft structure. Replacing these, or adding extra cushions to increase comfort or visibility may also affect the way the structure absorbs energy in a crash.

In addition, particular care should be taken to ensure that the seat cushions are suitably secured and restrained in order to prevent potential obstruction/interference with flying controls, or damage to the propeller or other rotating parts.

Elevator connections

In a report from the BFU (German AAIB) we read of a Pik 20D sailplane which took off on aerotow behind a tug aeroplane. According to the report, the glider pilot was unable to prevent his aircraft climbing rapidly, so he realised he had no elevator control. He released the tow rope and used his airbrakes in an attempt to control the aircraft's pitch attitude and rate of descent, but he was seriously injured in the subsequent uncontrolled landing.



The pilot had rigged the aircraft some 3 hours earlier, but after the wings had been attached he connected the remainder of the parts himself. He recognised that he had forgotten to attach the elevator connection. He did not obtain an independent check of the assembly of the aircraft or its controls.

The safety of aircraft which are designed to be rigged and de-rigged as a matter of routine, such as sailplanes, relies on careful attention being paid to the rigging process. Human factors suggest that even the most conscientious person can make slips and errors. A check, by a qualified person who has not been involved in the rigging process, that the rigging has been carried out completely, is the accepted way to guard against such slips and errors. Then before take-off, the 'full and free' control check should be carried out while another person provides some resistance to movement. If for some reason an independent check is impossible, then the pilot must carry out those checks himself as a totally separate operation from the rigging process.

Propeller kick-back

Those who read the Occurrence Digest distributed with the last issue will have noticed the ground crew member whose hand was struck when the propeller of the aircraft he was 'sucking in' prior to start kicked back. It should serve as a reminder to everyone that a propeller must always be considered 'live'. However for those of us who do have to touch a propeller, let alone attempt to swing it, we must always treat it with extreme suspicion, and expect it to do whatever we least want it to do.

Frequencies

VHF communications frequencies are allocated to radio stations around the country. Some frequencies are allocated to groups of users, such as glider or microlight pilots. While licensed aerodromes and some others have their frequencies published on CAA charts, it is often only possible to know that a particular strip uses a particular frequency by referring to the aerodrome web site or to a commercial publication.

SafetyCom (135.475 MHz) is available for use by pilots arriving at aerodromes without an allocated frequency, and should be used in accordance with the specific procedures described in CAP 413. However, if a pilot who intends visiting a strip does not know that it has an allocated frequency, it is possible for an arriving pilot to make calls on SafetyCom, while another is using the allocated frequency, each unaware of the other. Never arrive at a strip without consulting the most up-to-date information.

However, it is quite possible that the published information available to arriving pilots may not be as up-to-date as we would wish. Frequencies may be changed, and if unused or unwanted they can be withdrawn and re-allocated before web sites or commercial publications have been amended. Unless a specific pre-flight briefing has been obtained from the aerodrome owner or operator by telephone, it is possible that an arriving pilot may make calls on the previously published frequency while the local pilots are using the new one, or SafetyCom if the dedicated frequency has been withdrawn. An 'overhead' join should allow you more time to see circuit traffic that you cannot hear, but don't risk nasty surprises, such as an aircraft taking off towards you as you approach. Telephone for that briefing!

GPS databases

Apparently some readers are still not convinced that the CAA supports the use of satellite navigation systems in aircraft. Recent GASIL articles have hopefully dispelled that misconception, but since we are the Safety Regulation Group we have to take into account the limitations of the system itself and those of the equipment carried in most GA aircraft. Only equipment certified for use as part of an integrated navigation system with its attendant back-ups can be considered safe for use as the primary means of navigation, and even then the databases provided for these systems have to be up-to-date and themselves certified for such use.



Most of us use our Satnav as we should, as a welcome and extremely useful back-up aid on a flight which has been properly planned and flown using either visual or traditional radio navigation techniques. Of course we first need to understand our equipment and its capabilities, for which we recommend obtaining advice from a suitable instructor using the RIN's GPS training syllabus, obtainable through www.rin.org.uk > SIGS > GANG > resources. Thereafter, having a display to which we can refer occasionally, and which indicates that we are flying as planned, provides confidence and more time to look out for other aircraft and anticipate possible problems ahead.

However, just like the commercial pilots with an integrated navigation system, if our database is out-of-date, perhaps even by a few days, there is no guarantee that the position so accurately indicated on our equipment display is actually where we ought to be! Hence we emphasise that our support for the use of GPS depends on planning being carried out on a current official chart, and NOTAMs being studied before

PPR

A report in the [AAIB's Bulletin 10](#) of 2012 concerns a PA28 Dakota which overran the runway on which he had landed. Among other factors identified in the pilot's report, it was noted that he had not telephoned his intended landing site himself, but had asked a colleague to obtain the prior permission which the aerodrome required. He was therefore unable to obtain a specific briefing and confirm the suitability of the runway for his aircraft.

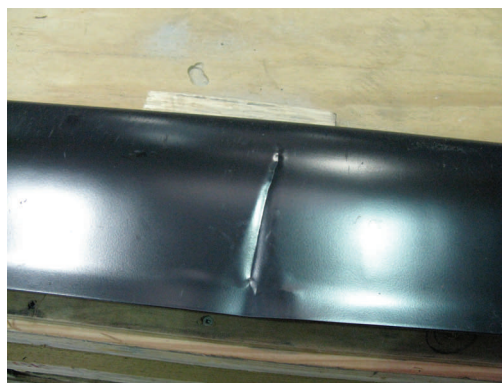
He had, it seems, attempted to not only land on a runway which was too short for his aircraft, but he had attempted to follow what he thought were the published procedures and given himself very little time or space for his final approach.

As we've said many times, it's always worth telephoning ahead, even if prior permission is not mandatory.

Foreign Object Damage

A Robinson R-22 was parked recently with its rotors running when the plastic can shown in the first photograph blew into the blade tip, as indicated by the scratch marks on the blade tip shown in the same photograph. The scratch marks appear relatively minor, such that they may even have tempted a pilot into thinking that they could be removed by a quick polish, after which the aircraft could be operated as normal.

However, as in many cases when an impact has occurred to an extremity such as a blade or wing tip, the more serious effects of the impact actually manifested themselves elsewhere. The second picture shows the effect on one of the rotor blades some distance in from the tip. That is why it is important that any impact is followed by a detailed inspection of all possibly affected parts as recommended by the manufacturer, including in the case of a helicopter the engine, main gearbox and drive train.



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 Directives have been issued recently by EASA; however, this list is not exhaustive and must not be relied on.

Number	Applicability	Description
EASA 2012-0250-E	AS332, EC 225	Main gear box vertical shaft
EASA 2012-0257-E	AS350, AS355	Tail rotor laminated half-bearings

Mandatory Permit Directive

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 can be found at www.caa.co.uk/mpds. 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 > Publications > Subscriptions > New User Subscription Registration, and choose the 'Safety Critical Information' category.

MPD 2012-005E	Pegasus Quik series	Sail reinforcement – additional test
----------------------	----------------------------	---