



The CAA Accident Prevention Leaflet

Issue no 6 of 2010

Last minute checks

During the recent disruption caused by the volcanic eruption in Iceland, it became clear that some pilots were unaware of the latest information on the subject. On at least one occasion, the pilot claimed that he had completed his pre-flight planning the evening before, and was unable to gain access to the internet to update on the morning of the flight.

Not all of us can gain internet access at all times, and for that reason NATS provide the freephone numbers illustrated below for last minute pre-flight information. It's not just for Red Arrows displays - use it!



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Brakes?

In the AAIB's Bulletin 5 of 2010 we read of a [Piper Seneca](#) which was being taxied away from the pumps by an instructor sitting in the right seat. Unfortunately, unlike the 2 other similar aircraft in the school's fleet, this particular aeroplane had no toe brakes in the right pilot's position, and the aircraft was damaged when its propeller contacted a parked vehicle.

Especially in the case of older aircraft types, differences often exist between apparently identical aircraft.

These differences may be, as in this case, in the availability of brakes or the method of applying them. Switches may go up for ON or up for OFF. Apparently identical instruments may be operated by suction or electricity, which may not appear to present too much of a hazard to VFR pilots, but there may be different information presented on the instrument face, and airspeed indications presented in miles per hour instead of knots have contributed to at least one fatal accident.

Even if we do not consider these constitute a need for formal 'differences training', they do require 'familiarisation' training. Before starting the engine we need to ensure we are aware of these differences and any likely consequences.



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Coasts

The coastline of the United Kingdom is spectacular in many places, and pilots and passengers enjoy flying within sight of it. If we are following the coastline, Rule 16 of the Rules of the Air Regulations 2007 require us to keep the coastline on our left, but there are other matters we should consider. As detailed in SafetySense leaflet 21 "Ditching", available like all such leaflets from the CAA web site www.caa.co.uk/safetysense, we advise the wearing of life preservers, and carriage of 406 MHz Emergency Locator Transmitters (ELTs) or Personal Locator Beacons (PLBs), when flying out of gliding range of land.

However, as described in AIC 57/2007 (Pink 118), available like all AICs on the AIS web site www.ais.org.uk, we should also consider the likelihood of meeting birds, a great number of which nest along the cliffs and dunes of our coasts. The risk of a birdstrike when near the coast is high, but reduces with height and time in the hazard area, and for that reason military pilots cross coastlines as close to right angles as possible, at an altitude well above their normal low flying height. Such measures also reduce the effect that aircraft have

on breeding, feeding, or nesting birds, and we advise that civilian pilots adopt similar measures whenever possible, especially as slow flying machines seem to cause particular disturbance.

Several particularly sensitive areas are listed in the UKAIP and marked on CAA charts, but other areas such as Norfolk have particularly large bird populations, and concentrations of birds may be found along our whole coastline. If we cross the coast at right angles, at a height more than 1500 feet above the land, we should minimise the risks to ourselves and to the birds.



File photo

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 and the FAA, however this list is not exhaustive and must not be relied on.

Number	Applicability	Description
EASA 2010-0101-E	Arriel 1 series engines	Gas generator turbine disc
EASA 2010-0108-E	PW-6U sailplanes	Horizontal stabilizer rear attachment
EASA 2010-0111-E	Thielert TAE 125 engines	Clutch assembly
EASA 2010-0117-E	Eurocopter AS 332	Main rotor servocontrols
EASA 2010-0116-E	Eurocopter AS365N3, EC155, SA366	Main gearbox oil low pressure switch
EASA 2010-0119-E	L 13 Blanik sailplanes	Main spar & aerobatics prohibition
EASA 2010-0121-E	Tecnam P2006T	Stabilator trim actuator

Pressure settings - the transition

A recent airspace infringement has highlighted that some pilots may be unsure about what pressure to set on their altimeter, especially when near controlled airspace. Hopefully we know that setting the QNH on the altimeter means that the instrument will indicate our altitude above mean sea level, which we can compare with the elevations marked on our chart to ensure we have a safe gap between ourselves and any obstacles. Depending on the weather situation, that QNH will probably change only gradually over time and distance from whichever aerodrome gave us the information.

We might meet QFE if we call a military aerodrome for a service, perhaps for a MATZ or ATZ crossing. With QFE set, our altimeter indicates our height above that aerodrome only. Once away from that aerodrome we should reset QNH. Military aerodromes may also ask us to set the Regional Pressure Setting (RPS), which is the lowest QNH that the Met office expects within a large area over the next 2 hours. That RPS, sometimes confusingly and incorrectly called the 'regional QNH' gives an extra margin of clearance above obstacles, because our altimeter now indicates lower, perhaps considerably lower, than our true altitude. However, if we now fly under controlled airspace, we will be higher than the altimeter indicates, perhaps

inside the CAS we are trying to fly beneath, so again we should set QNH as soon as we no longer receive a service from the military controller.

The Standard pressure setting (SPS) is 1013 HectoPascals (or millibars - they're both the same). To avoid collisions, aircraft following the Instrument Flight Rules all fly with this setting on their altimeters so that they can avoid each other vertically, no matter what the actual pressure on the surface below. When climbing, they change the settings on their altimeters from QNH to SPS as they climb through the published 'Transition Altitude'. When descending they set QNH again before descending below the 'Transition Level', which is the lowest Flight Level above the Transition Altitude and varies with the weather situation.

Transition Altitude in UK airspace is 3000 feet unless in or under a piece of Controlled Airspace with a different Transition Altitude published in the UK AIP. While we can find the AIP on the AIS web site www.ais.org.uk, there is no need for us to search there to work out when to change from QNH to SPS. If the map shows the base of controlled airspace as an altitude, for example 3500 feet, the Transition Altitude is that or higher, and we must retain QNH as a pressure setting when flying below it. If the base is shown as a Flight Level, then the transition altitude is 3000 feet, and we should set SPS if we intend avoiding it while flying above that altitude. Of course, some may prefer to leave QNH on the altimeter and make the mathematical calculations of 30 feet per HectoPascal, but we suggest that is highly likely to lead to errors. However, you will need to know your altitude again, so if you cannot leave QNH set on a spare altimeter (some aircraft have them), make sure you have written it down in an obvious place before changing to 1013!



Avoidance manoeuvres

The article entitled 'Collision Avoidance' in GASIL 3 of 2010 prompted a microlight instructor to write, emphasising the need for additional energy when carrying out a manoeuvre such as a steep turn to avoid another aircraft. While we hope we are all aware of the need for such additional energy, human factors indicate that we may forget that 'need for speed' when confronted with a real risk of collision.

Our correspondent, like many instructors, suggests that we should associate the steep turn with the need to make avoidance manoeuvres. He also recommends frequent

practices of the exercise, not only to maintain an adequate level of skill, but also as a reminder to maintain adequate manoeuvring speed until settled on the final approach.



Gear, gear

Occurrence reports continue to include instances of aircraft landing with the undercarriage in an unsafe condition. While some have engineering causes, others are the result of the pilot's failure to select the undercarriage down.

We have frequently repeated the advice from the CAA Flight Examiners that on the final approach in a complex aircraft type the pilot should always carry out a final "reds, blues, greens, cleared to land" check (mixture, propeller pitch, undercarriage). Indeed, such a final check can be of value for every pilot, because a good habit learnt early tends to stick. Another good habit is to check any other available indications,

especially if the primary indicators are difficult to see in particular light conditions, or are in unusual positions.

Unfortunately, whatever means of indication are fitted, human factors suggest that pilots will continue to make slips and lapses, and aircraft will continue to land with the gear left unintentionally retracted. However, it seems that such gear-up landings may be more likely after relatively short flights requiring high levels of concentration, such as aerobatics. If you intend carrying out such a flight, we suggest you include the reminder for a careful check of the gear indications as part of your pre-flight brief and risk assessment.



Stay off the runway!

Hopefully, all our readers are aware of the potential dangers of crossing the taxi-holding point onto a runway without ensuring that (a) you have confirmed that there is nothing in sight on or approaching that runway, and (b) you have obtained whatever positive clearance is needed

However, mistakes are made, often by pilots



Wind awareness

The AAIB's Bulletin 5 of 2010 includes a [report](#) into an accident to an Agusta 109 which was approaching to land at a private site. According to the report, the aircraft was just below maximum weight, and as the aircraft descended below 100 feet agl, the rate of descent increased. The commander was apparently unable to stop the descent before the helicopter struck the ground heavily, followed by a bounce and rotation through 250 degrees before it landed again. Damage was caused to the landing gear and tail assembly.

The report includes the pilot's belief that he had entered a vortex ring state at a late stage of the approach, as a result of flying a normal approach at high aircraft mass and low airspeed with a slight tailwind. The report suggests that it may be possible to effect a successful recovery if a large

amount of power is applied early, or if the collective is lowered and forward speed increased, but that altitude is required for the recovery manoeuvre to be successful. AIC P 020/2010 gives further information on Vortex Ring. In addition to the possible vortex ring hazard highlighted in the accident report, demanding a large amount of torque in a hover, or with low forward speed, in a tailwind may result in loss of tail rotor effectiveness, especially if the wind is quartering through the tail rotor. Convection may change the local wind direction from that forecast, but if no local wind indication (wind sleeve or smoke) is available, landing into the forecast wind is unlikely to result in a strong tailwind. In any case, always be ready to go-around early if things start looking or feeling wrong.

Autopilots

In the past we have reminded pilots that an engaged autopilot, or electric trim, may restrict the pilot's ability to make control movements. We have also noted that an autopilot may remain fully or partially engaged even when the appropriate selection has been made. A recent incident to a S76 helicopter appears to be the result of such a lack of disengagement. We need to be sure we know all the methods of disengaging an autopilot, including knowing where to find the appropriate circuit breaker.

Thunderstorms

Since summer in the UK tends to bring thunderstorms, it may be timely to remind pilots of the related hazards. The AIC P 019/2010 "The effect of thunderstorms and associated turbulence on aircraft operations" has recently been published and 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 even inside) a thunderstorm. However, this advice is mainly directly related to commercial operations which may have valid reasons for doing so. 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, because the hazards, as we have seen many times, are considerable.

The hazards within a thunderstorm (cumulonimbus) cloud include severe turbulence, icing and downdraughts, together with hailstones and heavy rain. Apart from airframe icing, all of these hazards also exist when flying underneath a cumulonimbus cloud, the base of which is

likely to be very low, with the probability of stratus forming at an even lower altitude. Wind shear and microbursts may be found in the immediate area below the cloud, and the surface wind direction and speed are likely to be subject to rapid change many miles away from the cloud itself, a factor in many reported landing accidents. Lightning strikes to light aircraft may be rare, but can have serious consequences, and instruments, including modern electronic displays, can be affected by static electricity.

Thunderstorm cells can develop extremely rapidly and spread horizontally much faster than the gradient wind. As the AIC states on the front page, do not treat thunderstorms lightly, and avoid them by at least 10 miles whenever possible.



Is it clear?

A [report](#) in the AAIB's Bulletin 4 of 2010 concerns a serious incident on a runway at an aerodrome with neither Air Traffic Control nor FISO. The aerodrome's runway has a considerable slope, and publications, including the UKAIP, warn that landings and take-offs may take place in opposite directions on the same runway.

It seems that a visiting aeroplane taxied onto the runway to take off in the same direction it had previously landed, but in doing so came very close to another aeroplane which had just touched down in the opposite direction. Although both

aircraft had made radio calls, it appears there was a problem with the radio of the taxiing aircraft.

The hazard is not confined to aerodromes with sloping runways. Similar incidents and accidents have been reported previously at other aerodromes, and the incident highlights the need to make absolutely sure that the runway and its approaches are clear in both directions before entering it at any time. It should also remind us that, as mentioned in recent articles, a lack of response from a radio does not mean that the transmission has been sent!

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 month or so of which we are already aware are listed below, but others are likely to appear in NOTAMs at short notice:

9-11 July	Silverstone & Turweston
10 July	Yeovilton
10-11 July	Duxford
15 July	Shrivenham (between Brize Norton and Lyneham)
12-26 July	Farnborough
14-19 July	Fairford
22 July	Beltring, Kent (10nm SW of DET VOR)
23 July	Wittering
23 -25 July	Farnborough
25 July	Sunderland
5 August	Scampton
6 August	Cowes, Isle of Wight
7 August	Swanage, Southampton
7 August	Newcastle, Northern Ireland
8 August	Rhyl
8 August	Blackpool
9 August	Scampton
11 August	Minehead, Somerset
11 August	Falmouth, Cornwall
12-13 August	Lowestoft
12-15 August	Eastbourne
15 August	Bristol
16 August	Weston-Super-Mare
18 August	Cromer
18 August	Weymouth
19 August	Dawlish, Devon
19 August	Fowey, Cornwall
20-22 August	Bournemouth
22 August	Silverstone



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GPS CD

A CD guide to navigating with GPS has just been released for GA pilots by the CAA through the Airspace & Safety Initiative (ASI). The disc aims to highlight the benefits as well as the limitations of using GPS technology as a navigational aid. It explains how GPS works and the dangers of over reliance on it. The Guide is available to download from the ASI website, www.airspacesafety.com, and the free CD is available from press.office@caa.co.uk.

Word for the month (and always)

If you can't see the ground beyond the hill ahead, don't fly over it!