

GASIL



General Aviation Safety Information Leaflet

www.caa.co.uk/gasil

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WAT's that?

A [report](#) in the AAIB's bulletin 5 of 2012 includes a statement that "the operator's chief pilot, the incident pilot, and some of the operator's other pilots were not aware of the WAT chart in the aircraft's Flight Manual". While we would not expect all our readers to understand the acronym, it may be appropriate to explain why it is important.

WAT is an expression frequently used in commercial aviation and stands for "Weight, Altitude, and Temperature", all of which have an effect on aeroplane performance. Most aircraft used for public transport will have graphs in either their Flight or Operations Manual to illustrate exactly how these factors affect at least the aircraft's take-off and landing performance. A multi-engine public transport aeroplane must be able to climb away from the ground with one engine inoperative. Although the aircraft's Certificate of Airworthiness may state a maximum take-off mass authorised, at high altitudes (aerodrome elevations) and temperatures, the remaining engine(s) may not be able to provide enough power to climb safely. A pilot must reduce weight until that climb is possible.

[SafetySense leaflet 7](#) "Aeroplane Performance", available like all such leaflets free for download from www.caa.co.uk/safetysense, explains all the factors which affect the take-off and landing performance of a light aeroplane, and the relative effect of each factor. As any one of Weight, Altitude, and Temperature increase, so does the take-off (and landing distance). WAT's a problem if any of them are higher than usual!



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Unwell passenger

An incident in April's Occurrence Listing concerns a Grob 115 which apparently infringed Controlled Airspace because the pilot was distracted by an unwell passenger. We frequently warn pilots of the possibility of distraction, and remind them of the need to concentrate on flying the aircraft. **Aviate, navigate then communicate** are the priorities.

However, even if we disregard any official "duty of care" for our passengers, as human beings we are naturally concerned for their welfare. That care has to come after the above three priorities, but just like the priorities themselves, it is usually possible to integrate them. Trim the aircraft (or engage autopilot if you are fortunate enough to have one), point it in a safe direction and if necessary advise the ATSU that you have a problem, please standby. That should take little time, and you can then attend to any passenger whose illness appears without warning.

Having said that, being covered by the contents of your passenger's stomach can be particularly distracting, and we should try to avoid such a situation. Most passengers hesitate to tell the pilot that they are starting to feel uncomfortable, despite being told to do so in a pre-flight brief. However, as pilots we can, and should, be alert for early signs of passenger discomfort. A passenger who falls quiet, swallows frequently, clenches fists, or generally seems to be losing interest in the flight, is starting to feel unwell. Fresh air can assist, and if the passenger can select it, and find the sick bag "just in case" while the pilot attends to the priorities, any distraction can be minimised.

The PPL training syllabus does not usually include much information on passenger care. [SafetySense leaflet 2](#) "Care of Passengers" is available like all such leaflets free for download from the CAA web site www.caa.co.uk/safetysense. It should be required reading for every pilot who exercises the privileges of their licence by taking passengers; if you haven't read it recently, we recommend you do so!

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

Number	Applicability	Description
EASA 2012-0097R1-E	Rotax 912	Fuel pump pressure side hose
EASA 2012-0108-E	Eurocopter SA365, AS365	Fuselage frame 9
EASA 2012-0115-E	Eurocopter AS332, EC225	Main gear box bevel gear vertical shaft

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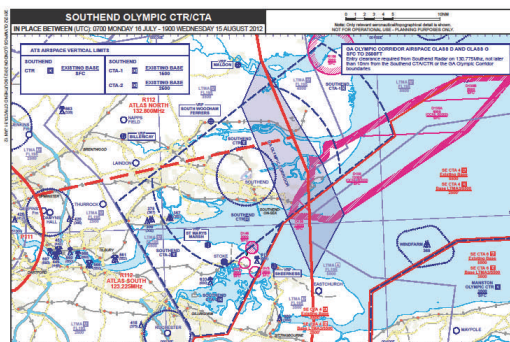
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Olympic Airspace

We wish to remind pilots that the temporary Restricted airspace in the South-East of England and around other Olympic venues comes into effect on **14th July**. It is important to note that, in addition to the general procedures for flight within the Restricted airspace, the procedures for operating at aerodromes within but close to the boundaries of the Prohibited and restricted airspace are specific to the individual aerodromes, and must be strictly adhered to.

Pilots should also note that extensive areas of Olympic Temporary Controlled Airspace [CAS(T)] come into effect in SE England between **16th July and 15th August**. Guidance on operating in the Class G airspace adjacent to the Restricted/Prohibited Zones and CAS(T) is provided at: <http://olympics.airspacesafety.com/class-g-safety>.



Although much information has been published for some time, there have been recent changes, and many of those affecting South East England are detailed in AIC Y 086/2012. Amongst these is the introduction of a VFR corridor through D138. This allows aircraft to fly across the Eastern part of the Southend CTR/CTA and D138 just inside the Restricted Area, but only if they have obtained positive clearance from Southend ATC.

Pilots are reminded that the latest information can be found through the website www.airspacesafety.com/olympics, but that in addition AICs and NOTAMs must be consulted before flight.

Fuel problem?

A recent report from the BFU (German AAIB) concerns a PA-28 which was returning to its base aerodrome from a cross-country flight. That flight had been to an aerodrome where the owner normally filled the fuel tanks, but on this occasion the aircraft had turned back close to its destination because of poor weather in the vicinity.

According to the report, the engine seems to have failed shortly before landing at the home aerodrome, probably as a result of the selected fuel tank running dry at a low height. There appears to have been insufficient time for the pilot to carry out the necessary drills and use the fuel in the other tank to restart the engine, and the aircraft was destroyed and the pilot killed when it collided with trees in the restricted uncongested area available between settlements.



The report includes reference to the inaccuracy of light aeroplane fuel gauges, and the need for careful monitoring of fuel contents and consumption. This is especially important when operating close to the unusable fuel level, as may be the case if a diversion (which hopefully has been planned for!) is needed from a planned refuelling flight.

A diversion when fuel is short is an emergency situation. The pilot may consider he does not need to declare it as such to an air traffic service unit, although we recommend it. However, he ought to adapt his flying as if an engine failure is more likely than under normal circumstances. The greater the height above the surface we cruise at, the more chance we have of making a safe forced landing, and the more time we have to change tanks if one runs dry. A “precautionary forced landing pattern” at our diversion aerodrome, or at least an overhead join followed by a glide circuit, should be considered as a suitable way of managing the threat of an imminent engine failure.

Circuit procedure

As described in Rule 12 of the Rules of the Air Regulations 2007, a flying machine, glider or airship flying in the vicinity of what the commander ought reasonably to know to be an aerodrome is required to conform with the pattern formed by other aircraft intending to land there, or keep clear of the airspace in which the pattern is formed. [SafetySense leaflet 6](#), available like all such leaflets through www.caa.co.uk/safetysense, describes procedures for arrival at an aerodrome and the subsequent circuit pattern, which is also described on the safety [poster](#) “Standard Overhead Join” available from the same address. Following these procedures makes compliance with the Rules of the Air Regulations a relatively simple affair.

The basic procedures do not only apply to licensed aerodromes. They are intended to maximise safety at any aerodrome, including strips and even glider sites, although care should be taken not to take the expression ‘overhead join’ literally, as it actually involves flying around the aerodrome rather than over it.

Sometimes, a large number of aircraft decide, or are forced, to land within a short time interval. This may be a result of the aerodrome approaching its published closing time, or gliders returning when soaring conditions cease. The large number of potential collision threats make it particularly important that the correct procedures are followed in these circumstances.

Without the presence of other aircraft, there will be no established pattern, so no need to follow it. However, interfering with the flight of other aircraft, for example circling on the established downwind leg, turning inside another aircraft on final, or pushing into the circuit and forcing another to manoeuvre to avoid you, is not only bad airmanship and uncivilised behaviour, but likely to be contrary to the Rules of the Air Regulations and therefore illegal.

Gusts and hilly countryside

Although the UK is not generally regarded as mountainous, the ground elevation across the country varies considerably, and there are many areas where the landscape effectively rules the weather. Most pilots are aware of the hazards associated with flying over high ground, such as low cloud, valley winds and turbulence.

However, as described in AIC [82/2008](#) (Pink 148) “Flight over and in the vicinity of high ground”, orographic effects (those caused by hills) can extend a considerable distance downwind of high ground. As local pilots are usually well aware, aerodromes in flat countryside to the lee of a range of hills such as the Pennines can be affected by considerable variations in wind speed as a wave system set up by the wind over the hills changes its characteristics, sometimes very suddenly.



We should be aware of the wind at levels above our planned flying altitude. If the surface wind at an aerodrome downwind, even some distance downwind, of hilly countryside, is reported as considerably less than the forecast 2000 foot wind, we need to be prepared for a sudden increase in wind strength with the associated wind shear and turbulence. The same should apply if ‘mtw’ (mountain wave) appears in the area forecast. Always obtain an aviation area forecast before flying, and study it carefully.

Aircraft with low inertia are particularly at risk of turbulence and wind shear, so in general the lighter your aircraft the more likely the hazard is to affect you. We need to know our own limitations and those of our aircraft, and fly within them. In addition, we should always know where we can find an aerodrome with more suitable conditions, and be prepared to divert to it.

Competition stress?

An accident reported in the New Zealand CAA's magazine 'Vector' involved a glider which was taking part in the National Gliding Championships. During the last stage of a competition flight, the aircraft was seen to turn sharply to the left and descend out of sight behind a stand of trees. A short time later, rescue personnel found the glider, which had been destroyed by ground impact, with its fatally injured pilot. The investigation determined that the pilot was probably influenced by the pressures of competition and lost control of the glider during a downwind low level turn while trying to gain additional height.

Competition flying can often influence pilots to increase the level of risk they are prepared to take in their flying. Indeed, it has been said that the thrill of flying with that increased risk level is an active encouragement for pilots to enter competitions. However, part of the preparation which a competition pilot should make is to decide exactly what additional risks he or she is prepared to take, such as how much lower to attempt a thermal turn than under normal circumstances. Once airborne, we must remain within whatever risk parameters we have previously assessed as acceptable, and not allow the pressure to finish a competition task to over-ride it.

Short strips and wind

Pilots are occasionally presented with variable surface winds, especially in convective conditions. The thermals beloved of glider pilots, rain showers and the thunderstorms we continue to remind everyone to stay well away from, can all cause considerable changes in the surface wind affecting our landing runway.

The 'overhead join' as published in [SafetySense leaflet 6](#) and its own poster, both available from www.caa.co.uk, gives an opportunity to study the windsock, if available, before joining the traffic pattern. However, the direction that the windsock is pointing may not be easily identifiable. If the runway is relatively short, landing with a tailwind may not allow us to stop in the distance available, so identifying such a tailwind is important. We have in the past suggested using experience to determine whether groundspeed seems higher than normal and therefore a go-around is called for, and that is still the case.



However, technology moves on. Many pilots keep a GPS set in their field of view. Several of these instruments can be set up before joining the pattern to give prominence to the aircraft's groundspeed. If, for example, the groundspeed displayed on the downwind leg is less than our indicated airspeed, that would warn of a likely tailwind on final and suggest an early and safe go-around.

Flights with an instructor

It is possible to re-validate certain ratings, such as Single Engine Piston, by experience, provided the pilot has completed a certain number of hours and landings and has flown with an instructor during the requisite period. Although there is no mandatory requirement for the content of that flight with an instructor, [TrainingCom 1/2006](#) provides some guidance, and the instructor has to be satisfied that the pilot is safe to continue flying.

The briefing or debriefing for that flight should also be an opportunity for the instructor to update the pilot on 'hot topics' such as how the Olympic Airspace restrictions affect him, and where to find and how to use the 'listening squawks'. GASIL, or Flight Safety Bulletin articles can provide discussion topics, as can AAIB reports. Indeed, discussion with instructors on such matters should not be restricted to a two year gap - instructors have a lot of knowledge, why not use it?

Helping hands

Many of the reports reaching the CAA tend to describe things going wrong. Unfortunately, some of these reports involve people showing little regard for others, either on the ground or in the air, and we are sure these reports cause dismay to all our readers.

It was therefore with pleasure that we are able to report one example of excellent service from the staff at a certain aerodrome. It seems a refuelling operator noticed a glimmer of light from inside a parked twin-engined aeroplane and realised that an internal light had been left on. Knowing that the pilot was not expected to return for some time, and that the take-off was scheduled to be early in the morning, he reported the light to the aerodrome operator. The operator was able to call on a flight instructor, who was able to gain access and switch off the offending light. He was also able to start an engine to re-charge the battery while the local maintenance organisation was still available to guard against the possibility that the morning's engine start might be unsuccessful.

We are sure that most other aerodromes and their staff provide an equally good service, with no recognition. We just hope that pilots appreciate it when they receive it.

Know your aircraft

An accident [report](#) in the AAIB's Bulletin 5 of 2012 concerns a gyroplane whose pilot seems to have experienced problems holding his aircraft static while the pre-rotator accelerated his rotors to normal flying speed. According to the report, he decided to move the cyclic control aft in an attempt to increase rotor speed, but the disc appears to have flapped back into contact with the rudder and propeller.

Unlike a helicopter where the rotor is driven by the engines, the gyroplane relies upon airflow through the rotor to maintain rotor speed. On the ground, particularly during the run up of the rotor prior to take-off the rotor may not have sufficient rigidity at low revolutions to avoid striking the tail of the aircraft if aft cyclic is applied.

Gyroplane take-offs may not be as simple as those of an aeroplane, but whatever we fly, we must know the limitations of our aircraft, and avoid exceeding them.

Student pilots

One recommendation from an AAIB [report](#) in the [AAIB's bulletin 7](#) of 2007 into a fatal accident was that the CAA instigated the use of a suitable prefix for use in civil radiotelephony to signify a student pilot flying solo.

Accordingly, CAP413 - Radiotelephony Manual, now contains information regarding the use of the callsign prefix "STUDENT", which is to be used by solo students when first making radio contact with an ATSU, for example "STUDENT GOLF ALFA BRAVO CHARLIE DELTA". It also describes the way in which controllers should respond. Once the initial call has been acknowledged, the "STUDENT" prefix should not be used again until the student contacts another agency, unless he or she feels they are being asked to do something with which they are unfamiliar.

CAP 413 also states that, although intended primarily for use by ab initio students, the prefix shall also be used in other circumstances. As an example, if the holder of a valid licence is returning to flying practice after a significant absence and is undergoing renewal training involving solo flight conducted as a student under the supervision of a flight instructor.

Recent information from the UK Airprox Board suggests that the use of the prefix is not as widespread as was intended. Instructors are encouraged to ensure their students are aware of the prefix and use it every time they make initial contact with an ATSU when solo. Its use not only makes the limited experience in the cockpit apparent to ATC, but to other aircraft using the frequency.

Turn to avoid

A Traffic Service from an Air Traffic Control Unit, if available, can assist pilots considerably, especially when visibility is restricted by haze or precipitation. However, as [SafetySense leaflet 8](#), available like all such leaflets free for download from www.caa.co.uk/safetysense, emphasises, the information given is only intended to guide pilots as to where to look for possibly conflicting traffic. It is up to the pilot to take whatever avoiding action he or she deems appropriate to avoid a collision.

If the controller has an indication of the altitude of the conflicting traffic, which is easily provided by a transponder giving altitude information (Mode C), we, as the pilot receiving the information, can take early action in accordance with the Rules of the Air, even before we can actually see the traffic itself. However, the three dimensional nature of flight means that reported traffic at an unknown altitude is quite likely to be no threat to the safe operation of our own aircraft, so we should probably restrict our actions to increasing the attention paid during our lookout scan to the direction from which the other aircraft is approaching.

However, it would be sensible, if the reported confliction continued to approach our aircraft and remained invisible, to assess what avoiding action would be necessary if it suddenly appeared at our own altitude as a real collision risk. In the case of a possible head-on collision, or indeed any case in which it was our responsibility to give way, that would involve an alteration of course to the right. For that reason, military pilots are taught to make 'emergency breaks' to the right, and most instructors prepare their students for 'avoidance' steep turns in the same direction.



If we do not prepare ourselves, we must be confident that we can take the correct avoiding action at very short notice. Rules of the Air are written to avoid collisions. If we turn the wrong way, when the other pilot takes his correct avoiding action we should both be turning into the same part of the sky. We would be much more likely to cause a collision than avoid it!

Frequency Monitoring Codes

For some time, it has been possible for pilots flying close to but outside Controlled Airspace to inform the controlling authority that they are monitoring the published radio frequency by selecting Mode C (or Mode A if unable to transmit altitude information) with a dedicated 'conspicuity' code on their transponder. Recently, Code 2677 was allocated for use when monitoring Leeds Bradford Radar frequency, which is currently 133.125 MHz.

From 28 June 2012, Code 4572 may be used when monitoring East Midlands Approach frequency, which is currently 134.175 MHz. In addition, during the period 2nd July to 15 August, the period of the Farnborough RA(T) and the Olympics CAS(T), aircraft operating in the Farnborough (West) area who are unable or unwilling to receive an air traffic service, may select Code 5047 while monitoring frequency 125.250 MHz.

The current list of frequency monitoring codes/radio frequencies is as follows:

Belfast Aldergrove	7045	128.500 MHz
Birmingham	0010	118.050 MHz
Doncaster Sheffield	6170	126.225 MHz
East Midlands	4572	134.175 MHz
Gatwick/London City	0012	126.825 MHz(LGW); 132.700 MHz(LCY)
Leeds Bradford	2672	133.125 MHz
Luton/ Stansted	0013	129.550 MHz(LTN); 120.635 MHz (STD)
Manchester	7366	118.575 MHz
Southampton/Bournemouth	0011	120.225 MHz (SOU); 119.475 MHz (BOH)

Air Displays and Restrictions of Flying

Many flying displays and other events, including those for the Olympic Games, will be subject to Restrictions of Flying this summer, as detailed (usually with maps) in Mauve AICs. Reminders, usually referring to these AICs, may be given in NOTAMs, as will 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, 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:

2-16 July	Farnborough Air Show
13 Jul - 8 Sep	Weymouth area (Olympic sailing)
20 July	RAF Valley
21 July	Rhyl
21, 22 July	Sunderland
23 July	Weston Super Mare
25 Jul - 9 Aug	Coventry (Olympics)
25 Jul - 3 Aug	Hampden Park, Glasgow (Olympics)
25 Jul - 10 Aug	Millennium Stadium Cardiff (Olympics)
26 Jul - 4 Aug	St James Park, Newcastle (Olympics)
26 Jul - 7 Aug	Old Trafford, Manchester (Olympics)
28 July	East Fortune
28, 29 July	Area Southwest of London CTR (Olympic cycle race)
29 July	Lyme Regis
29 July	Swanage
29 Jul - 2 Aug	Broxbourne, North of P114 (Olympics)
9-12 August	Eastbourne
11,12 August	Hadleigh Farm, Southend (Olympics)
15 Aug - 4 Sep	Egham, London CTR (Olympics)
17-20 August	Weston Park, by RAF Cosford, West Midlands
18 August	Portsmouth
26, 27 August	Dunsfold, Surrey
30 Aug- 2 Sep	Bournemouth
31 Aug - 2 Sep	Windsor, London CTR (Olympics)
31 Aug- 2 Sep	Northampton Sywell
5-8 September	Brands Hatch (Olympics)
8, 9 September	Duxford
8,9 September	Southport
14 October	Duxford

In addition, as part of the Olympic Airspace changes, which are detailed on www.olympics.airspacesafety.com, the London Restricted Zone EGR112 and Prohibited Zone EGP111 are active between **14 July and 15 August**, and the slightly smaller EGP114 is active between **15 August and 12 September**. Pilots should also note that there are extensive areas of Olympic CAS(T) active in SE England between **16 July and 15 August**. Guidance on operating in the Class G airspace adjacent to the Restricted/Prohibited Zones and CAS(T) is provided at: <http://olympics.airspacesafety.com/class-g-safety>.

121.5

A recent CAA Information Notice has been published on the subject of the use of 121.5 MHz during the period of the Olympic Games until 13 September. The Notice asks pilots to minimise the use of the frequency for Training Fixes or Practice Pans wherever possible.

However, there is no intention to restrict its use when an aircraft is in difficulties and the pilot requires assistance. Indeed, pilots are actively encouraged to call PAN PAN and ask for navigation assistance as soon as they suspect they may have entered, or be about to enter, Controlled or Restricted airspace. If the pilot does not have instant access to the control frequency of the airspace in question, 121.5 is the frequency to use.

