

Coaching Corner...

Position precision

Proper prior preparation prevents pitifully poor performance. By PCS
Head of Training, **David Cockburn**

Last month we considered preparing ourselves for possible deteriorating weather. But what about contingency planning when it comes to airspace, particularly if one becomes 'temporarily unsure of position'? A recent CAA *Skywise* communication tells the unfortunate story of a pilot who had done everything right in terms of his pre-flight navigational planning, but then infringed controlled airspace after misidentifying a navigational feature and changing heading too early.

Similar mistakes have probably happened to all of us, it certainly has to me more than once, but fortunately with less embarrassing outcomes. I'd like to express my thanks to our CEO, Steve Slater, for suggesting the main features of this article.

1. Electronic aids

Aerial navigation is considered by many these days as being pretty easy, almost to a man most pilots have some form of GPS-based technology to show them the way, with tablet-based moving maps probably being the most popular piece of kit.

If we load our plan into a navigational device, a glance at the display will give us confidence that we are following that plan. Even if we do not load the route, a moving map can still provide good positional awareness, although we need to understand what it is telling us, and an up-to-date database is pretty essential unless we can relate everything directly to our chart. This is as important for local flights that are not planned as deliberate cross-countries, but which have resulted far too often in airspace infringements – instructional flights are especially vulnerable. In the worst case, even a mobile phone can provide some positional awareness from its map software if absolutely necessary.

However, over-dependence on an electronic device also comes with the risk that these wonderful devices may 'die' at the most inopportune moment, or that glare may prevent us reading the display. Even if we have loaded our route on a dedicated Sat Nav, we should keep an up-to-date manual 'Plog' record of headings, waypoints and timings on a kneepad, and/or written on our chart. That not only provides a contingency back-up but should also provide additional situational awareness to help us avoid trouble in the first place.

Of prime importance however, whether using electronic technology or a chart, is the planning of the route itself.

2. The Plan – 'Take2'

The consequences of inadvertently entering controlled airspace are serious, so we need to do our best to avoid that, and we should start at the planning stage. It may seem obvious that if our route takes us a long way away from controlled airspace, we are less likely to infringe it. However, in the UK's congested airspace we are seldom any great distance from a potential infringement. The Roman Army had a policy that their roads had to be straight and at the same time keep to high ground, which were conflicting requirements in many parts of the UK. As GA pilots planning our route, we have a similar conundrum. We need to avoid notified airspace, and at the same time make our navigation easy by using features which are difficult to misidentify.

When routing near controlled (or any notified) airspace, the risk of unintentional infringement is demonstrably reduced when pilots plan to remain clear of the horizontal and vertical boundaries of the airspace by a suitable distance that's appropriate for them, their aircraft and the prevailing conditions.

The 'Take2' concept is easy to understand and great as a starting point, but we should not try to stick to it literally. I contend that planning to fly only 200ft below controlled airspace does not allow enough space for a pilot to safely avoid it. Convective updraughts can cause even the most competent light aircraft pilot to gain 200ft of altitude very rapidly, and a pilot concentrating on preventing that altitude gain is unlikely to be able to give the necessary attention to collision avoidance. I suggest we should aim for a vertical gap of at least 400ft, if that is a feasible option.

Planning to avoid notified airspace horizontally by passing to the side of it at a distance of two nautical miles should give us a relatively safe margin for error, but it only takes a matter of a minute or so to cover that distance and become an infringer if we head directly at it. Any plan which routes us directly towards notified airspace before turning really requires a greater margin than two nm to give time to realise a mistake in the event that we miss our turning point. We also need to manage the threat of misidentifying a waypoint and turning early towards airspace we had originally planned to miss.

Perhaps, if our next turn will be to the left after passing some notified airspace, we could consider leaving a greater gap on our left than on our right, even if there is a hazard on that side also?

Sadly, in the UK, it is often not possible to keep

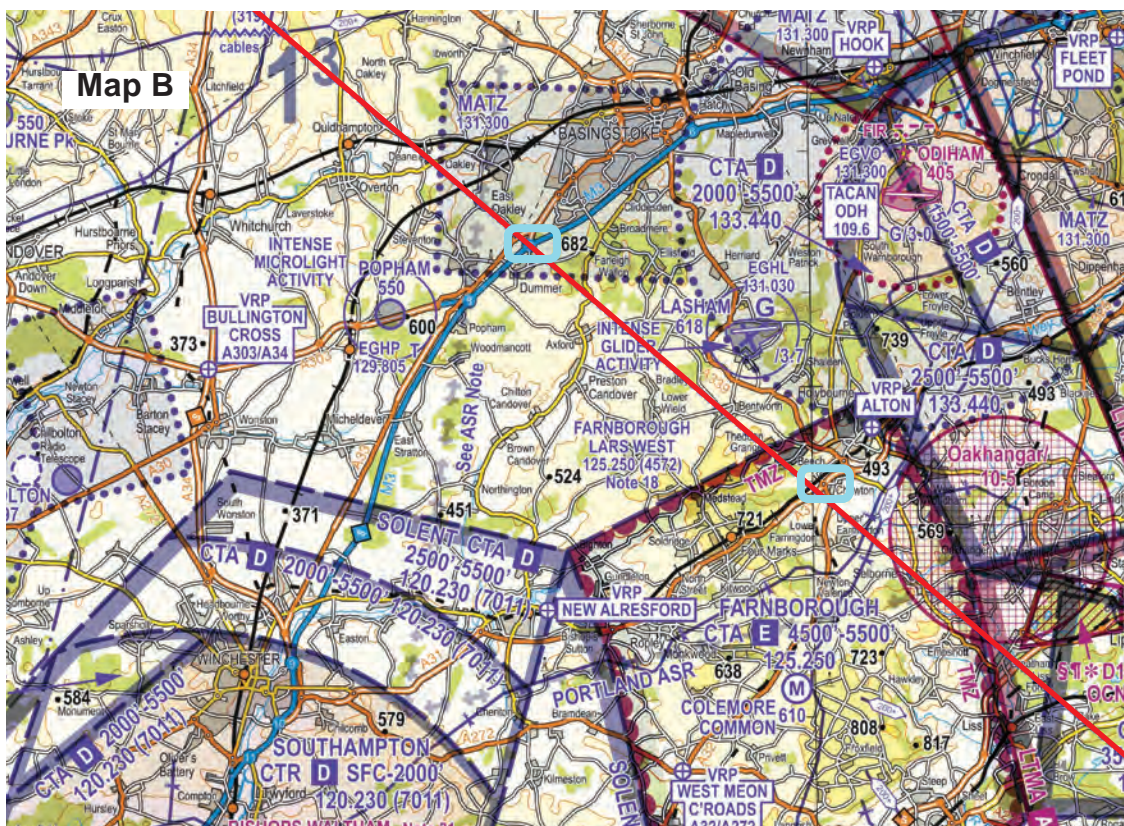


even two miles away from every piece of notified airspace without increasing the risk in other ways.

However, we should also be trying to reduce the risk of misidentifying a waypoint in other ways. Studying the chart (an up-to-date one of course!) may seem an obvious solution, but trying to identify small details can actually be counterproductive, and not only because it reduces time available for collision avoidance. Keeping things simple makes life easier, so I plan to fly in a few long straight lines if I can (see Map A). I may need to work at my navigation for a short while, but once I have sorted out the heading which gives me the track which I need, and confirmed my ground speed, I can continue knowing my plan will work out. Constantly changing direction leads to confusion and increases the risk of error.

I always try to select relatively unique and easily seen features as my waypoints and try to describe them to myself (and my passengers) as I expect to see them, both before take-off and while looking for them in the air. On Map B for example: 'A town with a dual carriageway bypass before it (Alton) – I want to be a mile left of the left edge of the town, left of a roundabout on the bypass to be sure I avoid the gliding site (Lasham)'. My next waypoint may be: 'A bigger town again on my right (Basingstoke) – I want to cross a motorway where a dual carriageway leaves it, passing left of a village beyond it (East Oakley)'. If I can see I am travelling towards the main feature of my next waypoint ahead (ideally about 10 miles away) before passing the previous one, I can feel pretty confident that I am going to remain close to my planned track.

Choosing such waypoints is not always easy, but I usually try to adjust my route to include some good ones by selecting an easily identified 'start point' away from my take-off airfield. I may also add an extra turning point to my direct route to provide better



Above There is less risk of infringing if you plan to fly as straight a route as possible. **Photo: Crown copyright**

Left Select waypoints with several identifying ground features so they are as unambiguous as possible. **Photo: Crown copyright.**

features to use as waypoints, if the change of direction is less than 30° I won't sacrifice much time or fuel.

Unfortunately, the 1:500,000 charts have so much information marked on them that useful visual features are often obscured by essential airspace descriptions and boundary markings, aerodrome or navaid frequencies, or VRP names.

The 1:250,000 charts tend to have more space to see ground features (partly because they do not include airspace above 5,000ft), so I usually refer to one of them during my pre-flight planning. If my ground speeds are below 90kt and I'm remaining below about 4,000ft, I'll navigate using a suitably folded quarter million chart in the air as well, but I always also carry, and refer to, a current half million.

At higher speeds, or for longer journeys, managing a larger scale chart in the cockpit becomes awkward and I just have to try to remember what details are hidden under the marking on the 1:500,000 chart.

3. Get the strength of the ATIS around you

At the planning stage, we should note all the frequencies which might be useful, and check Notam to make sure they are available (we did check for navigation warnings as well, didn't we?). Although there is no requirement to use our radio outside controlled or specified airspace, it is good sense to take advantage of facilities which are available. If the ATC unit which controls the airspace we are passing knows we are there and what we intend doing, it gives the controller confidence that his instrument traffic is safe. It also means if the controller sees us getting close to controlled airspace, he can advise us how best to stay outside.

Unfortunately, often once airborne, the frequencies are very busy, and we can't get a word in edgeways. In that case we can select the 'listening squawk' to let the controller know where we are and that we intend staying outside their airspace, giving them the opportunity to warn us if we get too close.

I know it can seem daunting to talk to a controller, who it is easy to think must be some kind of superhero. To a VFR pilot's ear, it is almost impossible to understand the phraseology used between controllers and the airliners being controlled, mainly because it comes out so rapidly. How could we possibly understand, or make ourselves understood to such giants of the airwaves? Well, first of all, the controllers are trying to keep us safe, so they want to hear from us. We don't need to use airliner code – we just need to speak clearly and say what we need to, following the basic principles we learnt for our RT licence (you can refresh yourself via CAP 413).

Secondly, if we don't try, we never will! If you don't feel confident to try yourself, there are Coaches out there who are more than willing to help you gain confidence in communicating with air traffic services.

4. What if it all goes wrong?

Whether we misidentify a turning point, or realise we have been steering the wrong heading, or discover our heading indicator is faulty, at some stage we may start to think we are not where we should be.

'Uncertain of position' is the phrase, and we should not be shy about using it, especially if we have any reason to believe we are in the vicinity of controlled airspace.

Our aircraft may well be presenting a hazard to others, so we need to make those others aware of that fact, so we should select 0030 with ALT on the transponder, if we have one. We have an urgent message to transmit concerning the safety of an aircraft (even if we don't know what aircraft that is) so make it: 'PAN PAN, PAN PAN, PAN PAN, (*your own callsign*), uncertain of position near controlled airspace'. If we are in contact with the airspace controlling authority, or even if just listening with the appropriate transponder code selected, break in on that frequency.

If the controller is not expecting us to be there, select 121.5 MHz and make the urgency call to London Centre on that. The format of the message is of course part of the RT licence test, but no controller is interested in the format – only the information.

We may not have a radio, or it may have failed, or it may just be taking time to establish communication with ATC. We need to minimise the hazard we present, so we should turn away from the likely position of the notified airspace as soon as we realise we may be heading for an infringement. It sounds logical, but it's hard to do in the heat of the moment. If we have no idea where the notified airspace is, it might be better to hold our existing heading or perhaps retrace our steps, flying a reciprocal heading to our previously noted waypoint on the plog. If we were tracking towards controlled airspace, a clearly defined turn away might also reduce a worried controller's blood pressure!

REVALIDATING RATINGS

It's good to see that the CAA has issued further ORS4 exemptions (1484 and 1485) to extend the period in which we can revalidate our ratings with a little less experience than the ANO normally requires. These exemptions are now available until 31 July 2021.

However, we need to stress that these exemptions do not extend the validity period of the ratings themselves. The expiry date written on the ratings page of the licence is the date by which the examiner, or Instructor, using FCL 945 privileges, must have signed it in order to revalidate the rating. If the rating cannot be signed by that expiry date, the rating must be renewed by passing a General Skills Test (GST) for the NPPL or a Licence Proficiency Check (LPC) for the PPL.

LAPL holders who have not completed the LAPL validity requirements may renew by passing a LPC, or regain the requirement under the supervision of a flying instructor, and of course that includes our Coaches.

CAA MEDICAL ISSUES

It appears that several pilots and AMEs have experienced issues while using the CAA's new 'Cellma' medical service, which was introduced on 29 March 2021. Consequently, and in order to provide continued service, we understand that the CAA is allowing AMEs to continue to use paper forms to complete medical examinations and issue medical certificates.

However, this facility only exists where pilots and applicants have completed the process for obtaining a CAA Customer Service portal account but find themselves unable to access the records system. ■