UK AIRPROX BOARD

AIRPROX Insight DIGEST

2020-21

UK AIRPROX BOARD

Welcome

UK Airprox Board 2020-21 digest

Rather like the aircraft involved, airprox come in all shapes and sizes. If you've been unfortunate enough to be involved in one you'll probably know how the system operates, but If you haven't you might not know how incidents are studied and conclusions drawn.

So in this magazine I thought it would be interesting to explain more about what the UKAB does but, more importantly, how we do it and why it is applicable to you.

First, perhaps it's best to set the scene with how we go about our business and to talk a little about the safety barriers, which are the weakest and most importantly – what you can do to ensure that your safety barriers are performing for you and not against you.

Finally, to emphasise some of the points we have a selection of Airprox from 2020, some of which include brief summaries of the Board's key points.

So what's behind an Airprox?

How much do you really know about what happens after there's an incident — and how it's investigated?

WHAT WE DO

The sole objective of the UK Airprox Board is to assess reported Airprox in the interests of enhancing air safety. It's not the Board's purpose to apportion blame or liability. To emphasise both the scope of its work and its independence, UKAB is sponsored jointly, and funded equally, by the UK Civil Aviation Authority (CAA) and the UK Military Aviation Authority (MAA).

Our process is complex and involves the collection and collation of lots of information relating to the occurrence in question. Normally there are at least three areas involved – the pilot of the reporting aircraft, the pilot of the other aircraft and the Air Traffic Unit (or units) the pilots were talking to. This is a really important point because the individuals involved only have their own view of what happened and will perhaps draw their own conclusions according to the limited information that they have.

This 'individual perspective' also applies to those agencies who might be conducting an investigation – for example, if an Airprox occurs between two military aircraft receiving an air traffic service from a civilian agency, then the military investigation will only concentrate on the two military aircraft and will not be sighted on a civilian Air Traffic Unit investigation. Equally, the Air Traffic Unit will only be concerned with the ground elements of the occurrence and will not be aware of, or concerned with, the military investigation.

Conversely, if the Airprox was between a military aircraft taking a military Air Traffic Service and a civilian aircraft taking a civilian Air Traffic Service, the military investigation might cover the military air and ground elements, the civilian Air Traffic Unit investigation would concern only the ground elements contribution and the civilian aircraft would have submitted a report (or been asked to submit a report) to us at the UKAB – none of these elements overlap until everything is received by my team at the UKAB. Therefore, the most critical thing we do in the initial part of our process is to 'stitch together' all the information to create a complete picture of the event and present an unbiased overview which we then discuss at the monthly Board meeting.

It's really important to understand that the most immediate benefit accrues to those involved in each Airprox event: pilots and controllers each receive their own full copy of the Board's final report which sets out the combined factual précis of what happened and includes an in-depth summary of the points raised and discussed at the Board. Final reports are disidentified to encourage open and honest reporting and we strive to use straightforward statements on what took place with the emphasis on identifying lessons of benefit to all.

HOW WE DO IT AND WHY IT'S APPLICABLE TO YOU

The Board uses the concept of safety barriers and contributory factors to objectively examine instances of Airprox which means we can focus our outreach in ways most relevant to a particular sector.

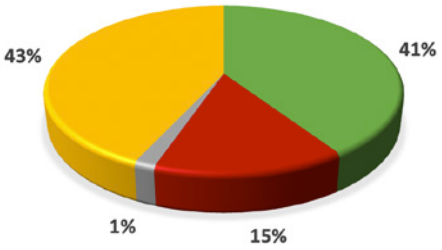
In more detail then:

The elements of each Airprox are broken down and compared to the appropriate barrier using relevant word-pictures that describe the barrier's availability and its function. These assessments are then presented on a chart that displays the weighting of each barrier and how it contributed to the Airprox.

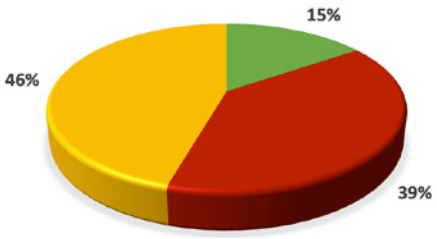
If all the barriers were fully effective, there would not be an Airprox – so by default at least one of the barriers must have performed sub-optimally. Some barriers are easier to mitigate than others, but all of them play a part.

There are nine safety barriers: four for the Ground Elements and five for the Flight Elements. They are shown here in the table which summarises the aggregate performance of each barrier for all of the 2020 Airprox.

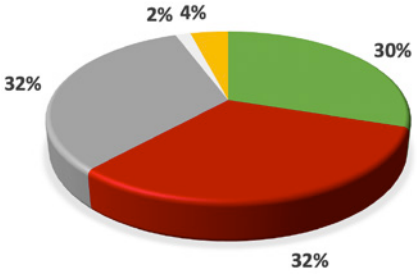
Flight Elements - Tactical Planning and Execution



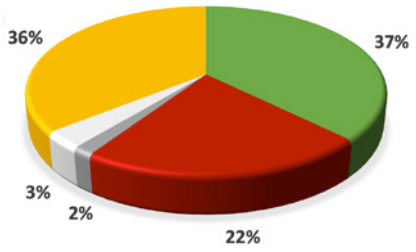
Flight Elements - Situational Awareness and Action



Flight Elements - Electronic Warning System
(Operational/Compliance)



Flight Elements - See and Avoid



Fully Effective | Ineffective | Not Present/Assessable | Not Used | Partially Effective

Barrier Assessment		Effectiveness - Percentage				
		FULL	PARTIAL	INEFF	NOT PRES	NOT USED
Ground Elements	Regulations, Processes, Procedures, and Compliance	67%	11%	2%	18%	1%
	Manning and Equipment	74%	5%	3%	17%	1%
	Situaltional Awareness and Action	22%	15%	20%	20%	24%
	Electronic Warning System Operation and Compliance	7%	0%	1%	89%	4%
Flight Elements	Regulations, Processes, Procedures, and Compliance	70%	16%	11%	2%	0%
	Tactical Planning and Execution	41%	43%	15%	1%	0%
	Situaltional Awareness and Action	15%	46%	39%	0%	0%
	Electronic Warning System Operation and Compliance	30%	4%	32%	32%	2%
	See & Avoid	37%	36%	22%	2%	3%

'In 65% of all Risk Bearing Airprox for 2019 and 2020 the Situational Awareness barrier was Ineffective'

You can see from this table that some barriers perform better than others, but all of them are inter-linked and an improvement in any of them goes one step further towards reducing the numbers of Airprox. The most important one for the Flight Elements is the Situational Awareness barrier.

Firstly, it's important to understand that its performance is influenced by activity before the See & Avoid barrier comes into play and (in Airprox barrier methodology) it can only be influenced in two ways, communication over the radio and by electronic means through your chosen piece of electronic conspicuity equipment.

Communication is captured in the Tactical Planning and Execution barrier, electronic conspicuity is captured in the Electronic Warning System Operation and Compliance barrier.

Let's look at the Tactical Planning and Execution barrier first: you might look at the table and think it does pretty well, but it's this one which can make the most difference to your performance when airborne. It's split into three areas: planning (including Threat & Error Management); execution (covering such things as conforming with the patterns of traffic) and communication (relating to talking to the most appropriate agency, requesting the most appropriate Service and being accurate in your communications).

But why is the Tactical Planning and Execution barrier so important? Every flight starts long before take-off, in fact often the things you can do to augment the barrier performance might start days in advance; for example studying the circuit pattern of an unfamiliar airfield you are intending to visit, or refreshing yourself on the RT procedures for contacting a LARS.

Most importantly this barrier is your golden ticket to releasing capacity in the air. If you have planned thoroughly, studied your route, checked the weather, checked the Notam, identified whom you are best talking to and considered what you would do if anything goes wrong (this list is not exhaustive) then you are significantly better placed to conduct a safe and enjoyable flight. I highly recommend downloading the SkyWay Code and use it as a guide to help you, the Pre-flight planning section is comprehensive and easy to read.

Apart from the obvious benefits of 'getting your head into' the flight, once airborne it's the communication side that most effectively contributes to your Situational Awareness. Simply put, accurate communication, with the most appropriate agency, while taking the most appropriate Service means that the Air Traffic unit knows who, what and where you are and where you are going. This also allows other air users who may be on your frequency and in your vicinity to also know where you are and your intentions. This means you can build up the most accurate mental picture of the complex 3D space around you and those that are in your vicinity can do the same for their own mental model.

Let's move on to the Electronic Warning Systems barrier. This is all about using equipment in your aircraft to help you build that 3-D picture, but it's entirely dependent on your understanding of its limitations.

At its most basic level the equipment can be used simply to let you know that there is another aircraft nearby, while more complex systems will give you instructions to resolve a conflict through executing the manoeuvre which it demands from you. Of course, it's possible to 'steer clear' of indicated conflicting traffic without seeing it and if this is the case then the 'confliction' should never result in an Airprox.

But remember, in Class G airspace we are nearly always talking about Airprox which have occurred in the visual environment – so (in these circumstances) one of the most effective uses of this equipment is to use the information to build your situational awareness to the extent that you can interpret that electronic information in order to cue your lookout. Additionally, it's important to understand that not all pieces of electronic conspicuity equipment, or electronic warning systems are compatible with each other.

With this being the case it's even more important to appreciate that it is only an aid, not the panacea, and understanding what you can and can't pick up is of imperative importance so that you don't become too reliant on its capabilities to maintain your safety – at the end of the day, that's your job. This is the link to the CAA page on electronic conspicuity devices but I thought it useful to include the table (again not exhaustive) from their webpage which provides an overview of compatibility – or interoperability – if you prefer that term.

The final active barrier to Airprox is, of

'The Situational Awareness barrier is NEVER Effective in Risk Bearing Airprox when the Tactical Planning and Execution barrier is either partially effective or ineffective.'

	Which traffic receivers can see them?					
Conspicuity beacons	**ADS-B-in devices (certified)**	**ADS-B in Rx**	**Airborne Collision Awareness Systems (ACAS)**	**Pilot Aware Rosetta (PAW)**	**Power FLARM**	**Sky Echo 2 (SIL-1 Device) CAA CAP 1391 approved**
ADS-B Out transponder certified GPS	YES	YES	YES	YES	YES	YES
ADS-B out transponder uncertified GPS (Surveillance Integrity Level (SIL) 0)	NO*2	Variable*4	YES	YES	YES	YES
Power FLARM	NO	NO	NO	YES*1	YES	YES*3
Pilot Aware Rosetta (PAW)	NO	NO	NO	YES	NO	NO
Sky Echo 2 (SIL-1 Device) CAA CAP 1391 approved	YES	Variable*4	NO	YES	YES	YES
*1) Dependent on proximity to ground infrastructure						
*2) Certified Traffic receivers normally exclude reports from transponders & beacons set to SIL 0						
*3) New development requires a FLARM decode licence and a suitable display						
*4) Transponders or beacons with a non-certified GPS may not be detected by a certified ADS-B in device. Systems with a quality indicator of System Design Assurance (SDA) ≥ 1 can be ''seen' '. In the above table, the term certified means a device that has been tested for meeting EUROCAE/RTCA standards and operates in the aviation spectrum.						

course, the See & Avoid barrier and as it's the final barrier, it has to be the most important one. After all, if you see the other aircraft and avoid it with sufficient separation to either not be in danger of coming into conflict or of causing concern to the other aircraft, then I would never know about it because it is never an Airprox.

This barrier has only been assessed twice as being effective in risk bearing Airprox, and never in those which we determine as Category A. So why bother yourself with all of the above, if the only thing that really matters is if you see and avoid something or not? For me it comes down quite simply to this: do you want to give yourself the best chance of conducting your flight without incident or are you willing to just chance it and see what happens?

If it is the former then you will have taken the time to prepare, consider contingencies, be aware of your own capabilities, be sensitive to the capabilities of others, use everything you possibly can to release your capacity and ultimately be confident in the fact that you have mitigated the risks inherent in flying to the best of your ability.

If it is the latter, despite the obvious hints at complacency and professionalism, you are relying on one thing and one thing alone: lookout - but not just your own lookout, you are relying on the lookout of other pilots as well.

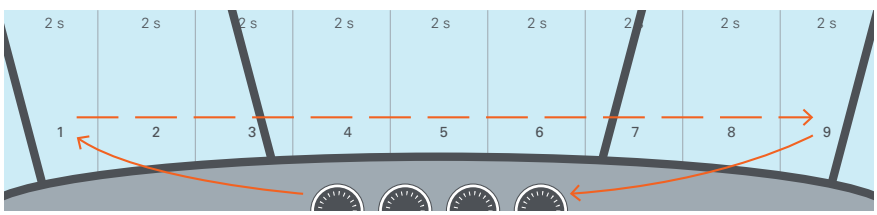
Even if you have passed your recent eye test with flying colours or bought a new pair of glasses we need to constantly remind ourselves that the eye is notoriously unreliable. I think that, as pilots, we all know this, but sometimes we just don't believe it and it is vitally important that we think about our own physiological fallibility and take active steps to help our brains process the trillions of pieces of information that we all take for granted but which allow us to function.

Lookout is an active process, you need to select a direction to look in, pick things to look at that are near and far, allow your brain time to interpret the information by pausing before moving on to look in a different area – quite a complex process really for what most people think is an everyday natural activity which does not require thinking about. Again, there is a very good section on this in the SkyWay Code on page 130 and 131 which is well worth a read and gives some great tips to help you work out which lookout scanning method works best for you.

In summary, I just want to say that although flying is not as dangerous as some activities, it is an inherently risky business. This is partly because there are so many things to consider that don't normally feature in everyday life in the same way: the only important thing about the weather on a normal day may be to decide whether you need a coat or an umbrella. On a flying day it will dictate everything that you do from conducting a cross-country flight to staying in the circuit, to being able to fly at all.

Checking traffic reports for a car journey might or might not be relevant to the journey you are about to undertake in your car – but checking the Notam, routing, airspace and planning who best to talk to is critical for every flight you conduct, regardless of how complex you perceive it to be. On every flight you are dependent to some degree on the actions of others as well your own and are therefore, to some extent, at the mercy of their diligence just as they are at the mercy of yours.

I have chosen the following five Airprox to illustrate some of the points made above – remember, I publish these reports so one can draw on the experiences of others – so that we can all work together to understand the factors driving Airprox so that we can each play our part in increasing awareness and augmenting air safety.



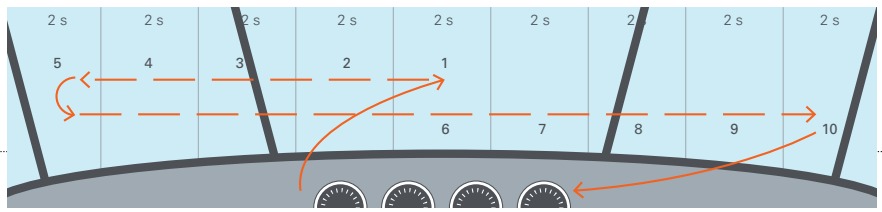


Photo credit: Diamond Aircraft *Photo for illustration purposes only*

AIRPROX OF THE MONTH

Circuit confusion

When it all gets a bit busy and things aren't going quite to plan, if in doubt just ask

Two solo students were flying opposite circuits in Diamond DA40s at Bournemouth when their tracks converged due to a communication misunderstanding.

DA40 (A) was flying a right-hand circuit as DA40 (B) was flying a left-hand one. While the controller was busy with a number of ground movements and other aircraft in the circuit the student in DA40 (A) had a radio problem and, after calling downwind, the controller said they were number two to the other DA40 in the left-hand circuit and to switch to the other radio.

It's possible this distracted the pilot because, although the radio was switched, the pilot then flew a downwind leg that converged onto the base leg. The controller noticed this and queried the positioning; unfortunately the phraseology was ambiguous and the student pilot took it as an instruction and turned onto base leg without being visual with the one ahead.

As always, there were a number of lessons to be drawn from this Category C Airprox (**2019330**); first, there was the age-old problem of distraction for the DA40 (A) pilot with a lot to assimilate in a busy visual circuit (LH and RH at the same time) and the radio issues, but at the end of the day the pilot allowed the downwind track to converge onto the base-leg. The Board frequently sees Airprox where non-standard procedures, or an unusual mix of standard procedures can cause difficulties, especially in situations such as flying in the circuit. Integrating into a busy circuit can be tricky, even if all the aircraft are flying the same circuit profile — you might need to adapt your plan to accommodate people extending, turning early, operating at different heights (such as a glide circuit) or as in this case, flying a

modified downwind heading while flying an opposite-direction pattern.

Here, the converging downwind track was what first concerned the controller, unfortunately the question from ATC was ambiguous (and there is a lesson in there for controllers) in that the DA40 (A) pilot thought the controller gave an instruction to turn inbound, when in fact the controller had asked whether they were turning

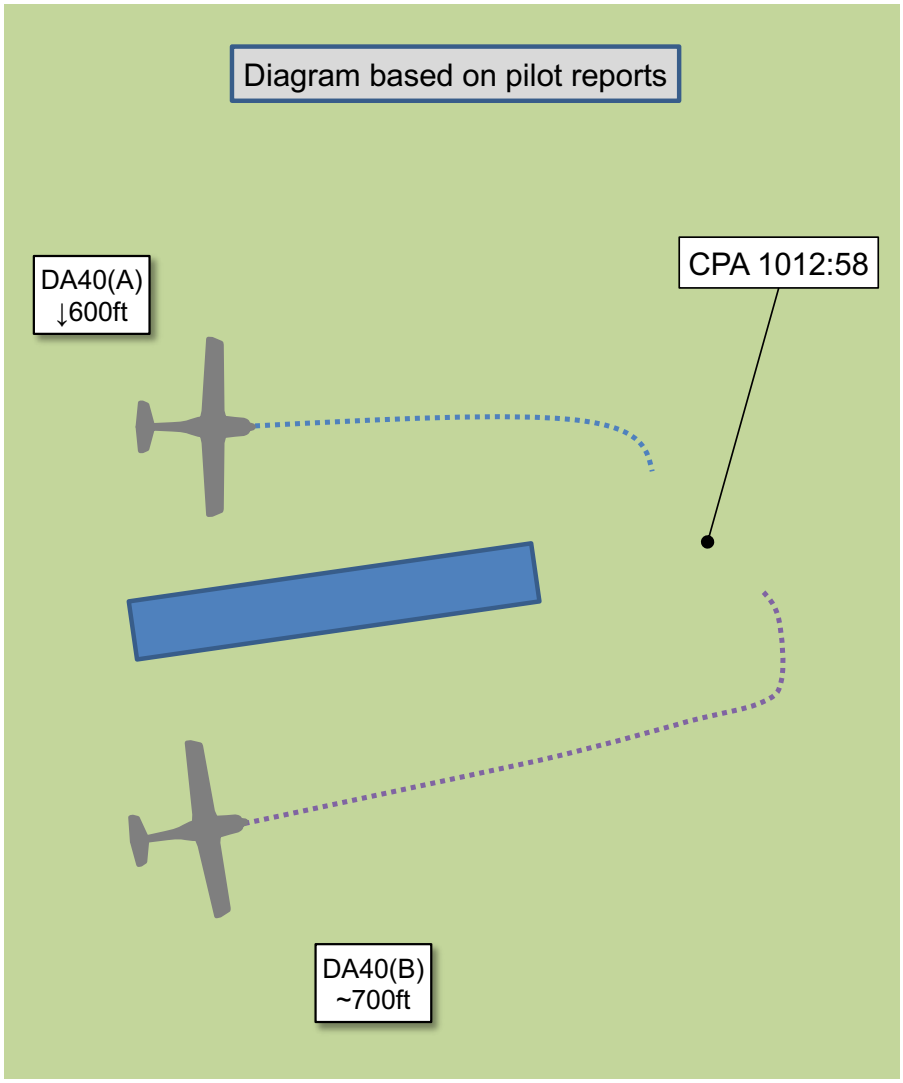
Nevertheless, at that point the pilot knew they were number two to one ahead and should not have turned inbound, especially as they were not visual with the other aircraft. But they thought they were following an ATC instruction — so, what else could they have done? They could have questioned what the controller meant, or at least said that they were not visual, perhaps they could have asked for the exact position of the other aircraft to help them spot it.

The Board recognised that for a student it would have been a difficult decision to question ATC, particularly in a busy circuit; after all, ATC instructions are mandatory in an ATZ. But if it had been an instruction to turn inbound, it would have been prudent to tell the controller that they weren't visual, rather than turn ahead of someone on base-leg.

Even with the best of intentions RT phraseology isn't always standard, and if you aren't sure what a controller means it's better to ask for clarification. Luckily in this case the controller quickly realised what had happened and turned both pilots away from each other.

A final point; DA40 (B) pilot had been operating correctly and the Board assessed there was little more they could have done in the circumstances. However, they had been late getting airborne and their slot in the visual circuit had overrun by 20 minutes. ATC was being helpful in allowing an extension, but by doing so the circuit had become busier that it would otherwise have been. A point to bear in mind, perhaps, if you overrun your allocated circuit time is 'how will it affect others?'.

Full details of this incident (Airprox **2019330**) can be found at the link within this note or at airproxboard.org.uk in the 'Airprox Reports and Analysis' section within the appropriate year and then in the 'Individual Airprox reports' tab.



UKAB MONTHLY ROUND-UP

The UK Airprox Board has continued working throughout the coronavirus pandemic, but we have had to make a few changes. You might have noticed from our website that we are not able to process airprox reports received by fax or post – this is because we are all working from home. Also, we are conducting our Board meetings online which is proving to be an effective forum, although – just like everyone else – we are missing the human interaction that adds so much to our deliberations and discussions.

In September we considered 24 Airprox, including ten SUAS incidents, four of which were considered risk bearing – two were Category A (where providence played a major part) and two were Category B (where safety was much reduced through serendipity, misjudgement, inaction, or late sighting). Of the remaining 14 aircraft-to-aircraft airprox, two were risk bearing in Category B. The details of September's airprox reports will be available soon on our website, so do dip in and read them.

Covid-19 has had a significant effect on the whole aviation community and we have seen airprox numbers reduce in line with flying – it might seem a good thing (which it is), but the proportion of those aircraft-to-aircraft incidents which are risk bearing is still the same. This means that if you are flying and do find yourself in an 'Airprox reportable' position, it is just as likely to be risk-bearing (Category A or B) as it was last year. Just because we know there are fewer aircraft about, doesn't mean becoming complacent with planning, communications or lookout.

While this month's Airprox of the Month is from last year, it highlights issues with planning, communication, distraction and standardisation, and there are other lessons to be learned, too.

AIRPROX OF THE MONTH

Dusting off 'feathers' issues

Photo credit: Alan Wilson (Support your local Air Museum! (HawkeyeUK)) Creative Commons *(Picture for illustrative purposes only)*

There have been a number of airproxes around instrument approach feathers for a variety of reasons, and planning and communication is right up there

A Bombardier Challenger was conducting the ILS procedure for Runway 21 at Cranfield, which involved flying a northerly heading outbound from the NDB and then a right-hand descending turn to capture the localiser when it came into close proximity with a Mooney.

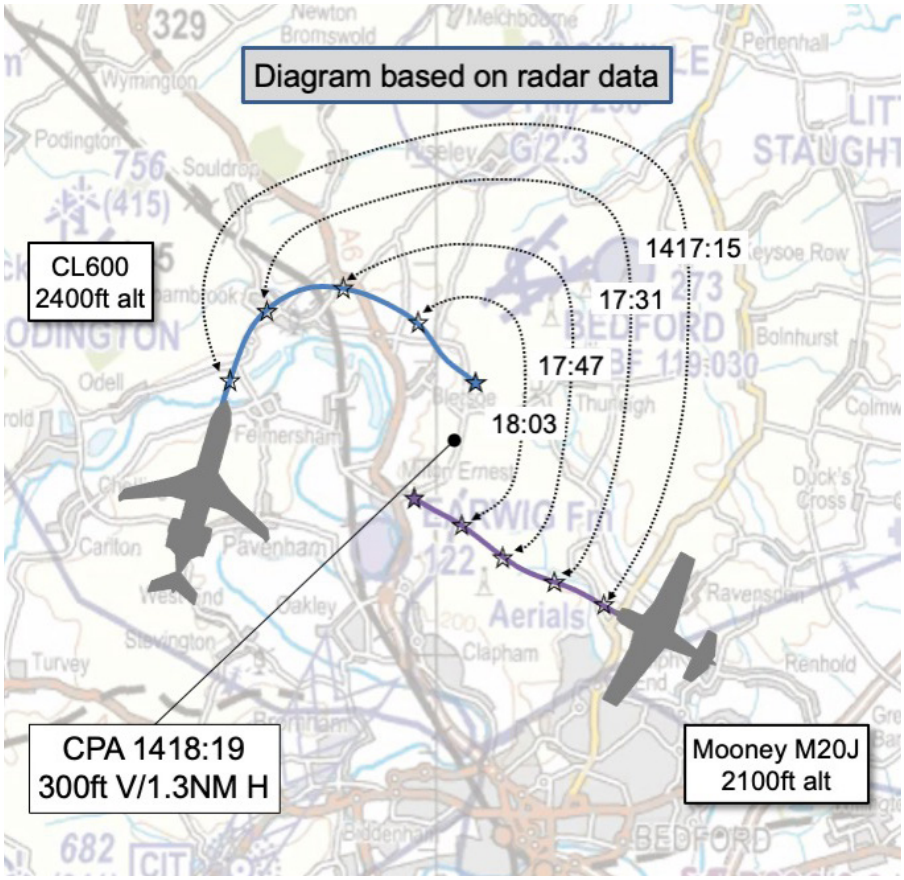
The minimum descent altitude in the portion of the procedure where this Airprox (**2020017**) occurred is 2500ft (and the Challenger pilot did not descend below this altitude). Meanwhile, the Mooney M20J was transiting through the area, its pilot having taken account of the procedure in his pre-flight planning and selecting a track and transit altitude which, he believed, would keep him clear of any traffic on the procedure. However, the pilot didn't call Cranfield as he flew towards the 'feathers', so the controller knew nothing of his presence and couldn't therefore inform the Mooney pilot of the Challenger, nor the Challenger pilot of the Mooney.

The weather was poor at their altitude and both pilots found themselves in intermittent IMC. The Challenger pilot received a TCAS indication of the Mooney during the right-hand descending turn, and took the autopilot out of NAV and into HEADING HOLD mode to steer around the contact. Neither pilot actually saw the other.

Many GA pilots have probably flown close to the 'feathers' of an instrument approach procedure and wondered whether or not they were 'close enough' to need to call the airfield. In this case the Mooney pilot likely thought he had taken enough account of the procedure so didn't need to call; in conversations with the pilot after the Board meeting it also transpired that he thought Cranfield ATC was unmanned at the time.

There's no doubt that time spent in preparation is never time wasted, but perhaps the lesson here is to think about contingencies. What if the weather at the planned transit altitude is unfit? What if a track deviation is necessary which might take the aircraft closer to the procedure or airfield than intended? What if an Air Traffic Service is needed?

Usefully, the frequencies of these airfields are all printed on the VFR charts, so making a note during pre-flight planning of those that might be needed



could well prove beneficial. Letting ATC know you are there not only improves the controller's situational awareness, but it may also improve yours as, even at those airfields without the benefit of a radar picture, information on traffic known to the controller can be passed. I underline known to the controller because, for those controllers without access to radar, this clearly depends on pilots contacting the controller and passing accurate information.

Finally, the Board has seen a number of Airprox over recent years where pilots perhaps did not fully understand what a particular Air Traffic Service does and, just as importantly, does not provide. In this case, the Mooney pilot thought that having a listening squawk on his transponder meant that the controller would alert him to any traffic in his vicinity. This isn't the case; listening squawks are designed to help pilots not to infringe controlled airspace (CAS) and controllers will not normally provide any Traffic Information on traffic outside CAS.

More information on UK Flight Information Services is available in CAP 774 or, in a slightly more 'digestible' format, in CAP 1434 (which also briefly describes the purpose of frequency monitoring codes). A useful leaflet with more information on frequency monitoring codes is also available on the Airspace & Safety Initiative website at the link here.

Full details of the incident (**2020017**) can be found at the link in this note or at airproxboard.org.uk in the 'Airprox Reports and Analysis' section within the appropriate year and then in the 'Individual Airprox reports' tab.

UKAB MONTHLY ROUND-UP

In October we reviewed 25 Airprox, including ten SUAS incidents, five of which were considered to be risk bearing – four were Category A and one was Category B[1]. Of the remaining 15 aircraft-to-aircraft Airprox, five were risk bearing in category B. The details of October's Airprox will be available soon on our website so do dip in and have a read.

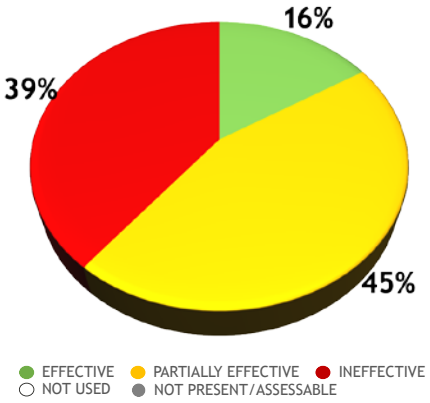
At every board meeting we comprehensively assess each Airprox to evaluate the performance of Safety Barriers. There are nine of these, four for the Ground elements and five for the Flight elements.

The 'strength' of these barriers helps us to understand what is going on in any given situation and helps us identify frequent themes and identify lessons. Each barrier is further broken down into what we call Contributory Factors – and there are up to 24 of these in some Safety Barriers.

The Contributory factors are really important and help us to identify the specifics – for example *'Ineffective communication of intentions'* or *'Understanding/comprehension – Pilot did not assimilate conflict information'.*

The first one applies to the Tactical Planning Barrier, the second one applies to the Situational Awareness Barrier. Both of these are incredibly important as these particular barriers are either partially effective or ineffective in the majority of Airprox. This is a pie chart of the Situational Awareness barrier for the Flight Elements for all 2020 Airprox:

FLIGHT ELEMENTS - SITUATIONAL AWARENESS OF CONFLICTING AIRCRAFT AND ACTION



It tells a really grim story – namely that 84% of the time, pilots are not aware of the others around them. Sometimes this is down to their own actions, and sometimes because of the actions of others. The good news is that you can easily improve your situational awareness, by planning, communicating and having appropriate electronic conspicuity devices fitted in the aircraft.

This month's Airprox of the Month demonstrates the importance of planning and communication – remember, your radio call is somebody else's Situational Awareness.

[1] 2020073,2020079 were categorised A and 2020072, 2020075 were categorised B.

Photo for illustration purposes only: "File:Astir-JPM.jpg" by TSRL (licensed under CC BY-SA 3.0)

AIRPROX OF THE MONTH

How close is too close

It might be legal, but flying near to a glider winch launch site could be a fatal mistake

A Beech 23 pilot receiving a Basic Service from Cardiff ATC was given a direct routing which took him directly overhead Halesland gliding site at an altitude of around 2000ft and close to an Astir glider.

Halesland is marked on the VFR charts with a winch launch height of 2900ft and the airfield has an elevation of 870ft which put the Beech 23 even further into proximity with any potential circuit traffic or winching gliders.

Fortunately, in this case **(Airprox 2020090)** both pilots saw each other and took action. The Beech pilot saw the glider at some distance and turned right to keep clear, meanwhile the Astir pilot was thermalling close to cloudbase at around 2000ft and, after straightening up, saw the Beech and turned right.

In the end the lateral separation was in the region of 0.4nm (comparing the radar replay with the GPS file from the glider) which was why the Board assessed that although safety had been degraded, it was classed as Category C with no risk of collision.

The Board has recently seen a number of Airprox where pilots have flown through, or very close to, the vicinity of glider sites[1].

Such sites in Class G airspace are not protected by any formal airspace and overflight is not prohibited by any regulation; the Board often hears pilots claiming that as there is no protective airspace they have the right to fly close to them, but flying near to a winch launch gliding site clearly introduces a risk, both to the glider on the winch launch and to an aircraft flying through.

An article by the BGA published on UKAB's website notes that pilots should not rely on being able to see a winch launch happening; a glider will go from ground to 1000-1500ft in about 20 seconds and a collision with a winch cable would be likely to be fatal[2].

ATC sometimes remind pilots about glider sites, especially if the glider site is busy and it is in an area where there is also lots of other traffic. Previously Bristol covered this area with a LARS, but this is not the case anymore. Consequently, Cardiff Radar have found that pilots are calling them earlier than they used to, expecting the same information that

they would have received from Bristol. As a result of this Airprox, Cardiff are considering marking Halesland on their Radar map so they can highlight it to pilots more easily. However, it is worth remembering that most ATC Radars will not pick up gliders, so it is difficult for controllers to provide specific information on them. Also, it is worth thinking about the type of service you request from an ATC unit – remember, you should never expect to get Traffic Information from a Basic Service – this is not what this service is designed to provide.

So how much should you avoid a glider site by? There is no set amount, the CAA Skyway Code tells pilots 'You should never overfly a glider site below the specified winch launch altitude'[3]. But in their safety evenings GASCo goes further, recommending that glider sites are given space 2nm laterally (from the edge of the representative 'circle' on the chart) and at least 200ft above the marked winch-launch altitude.

Of course, it is for every pilot to decide their own risk appetite, but next time you are planning your route – think twice about glider sites.

UKAB MONTHLY ROUND-UP

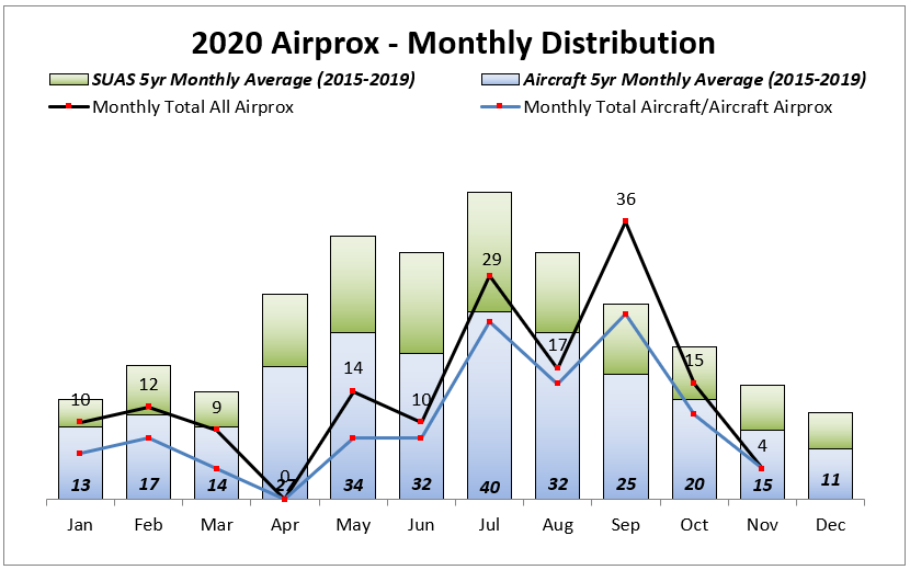
Some 15 aircraft-to-aircraft Airprox were examined this month, one was classified as Category A (separation reduced to the minimum and/or where chance played a major part in events — actual collision risk) and four were Category B (avoiding action may have been taken, but still resulted in safety margins being much reduced below normal — safety not assured).

While the number of Airprox is significantly lower this year because of the Coronovirus pandemic, they are still happening and for the same reasons: Not talking to an Air Traffic Service so reducing everyone's situational awareness; expecting too much from a Basic Service because of a misunderstanding of what that service offers; flying close (vertically or horizontally) to ATZs without understanding how busy they are, and not avoiding glider sites by a sensible margin are all examples of contributory factors to Airprox.

Most of these points can be tackled by placing a healthy emphasis on planning. After all, it's the pilot and those present in the aircraft who have the greatest interest in the flight occurring without incident!

Most Airprox take place in Class G airspace below 3000ft and between GA aircraft — a sector more likely to encounter an Airprox than any other sector, including the military.

The chart above shows five things relating to the planning and execution of a flight which contributed to the risk bearing Airprox discussed this month — think about each one in turn and see if any of them have applied to you in the past. If they have, perhaps take a moment and think about what you can do in the future to prevent them happening again.



1 See also Airprox 2020062, 2020080, 2020083
2 Full article here
3 Skyway Code https://publicapps.caa.co.uk/docs/33/CAP1535_Skyway_Code_V2_INTER.pdf

Photo for illustration purposes only: Brian Barr/Simon Finlay Photography

AIRPROX OF THE MONTH

A bit too close for comfort

It doesn't hurt to give others a wide berth, after all you never know what might happen

A Cabri G2 was on an instructional sortie in the Daventry area at 1800ft when the crew saw a de Havilland Vampire slightly below in their 12 o'clock, crossing right-to-left about 200-300 metres away which was too late for them to react and take avoiding action.

The Vampire was travelling at 240kt at about 1800ft and routing through a familiar area. The pilot saw the Cabri at about 5NM but did not believe it constituted a threat. Because of this they continued their routing and turned where planned. Unfortunately, this brought them to within 0.1nm of the Cabri **(Airprox 2020137)**.

While the Cabri pilot was receiving a Basic Service from Birmingham ATC, the Vampire pilot was listening out on a different frequency with the transponder on standby – this would have meant that even if the Birmingham controller had seen the situation developing, there would have been only a primary radar return with no height information. (Remember, the Birmingham controller was providing a Basic Service – so would have only seen the confliction by chance if they happened to be looking in that area at that specific time.)

Neither aircraft was fitted with an electronic warning system so there was no way for the Cabri pilots (in particular) to have been alerted to the other aircraft by in-cockpit electronic means.

The Board agreed that, because the Vampire pilot saw the Cabri at about 5NM, they had enough time to avoid the Cabri by a greater margin than they did. The Vampire pilot could not have known if the Cabri pilot had seen them or not, so it might have been better to have avoided the Cabri by a larger margin just in case it altered heading or height suddenly.

As they were operating a fast-moving aircraft in class G Airspace the Board also said the Vampire pilot would have been better served by requesting an Air Traffic Service from a suitable radar-equipped unit which could have provided both them

and other airspace users with a greater situational awareness within their sphere of operation.

In conclusion, the Board agreed that the high speed of the Vampire coupled with the late sighting from the Cabri crew meant that safety was not assured and there was a risk of collision, a Risk Category B (safety not assured: aircraft proximity in which the safety of the aircraft may have been compromised).

UKAB MONTHLY ROUND-UP

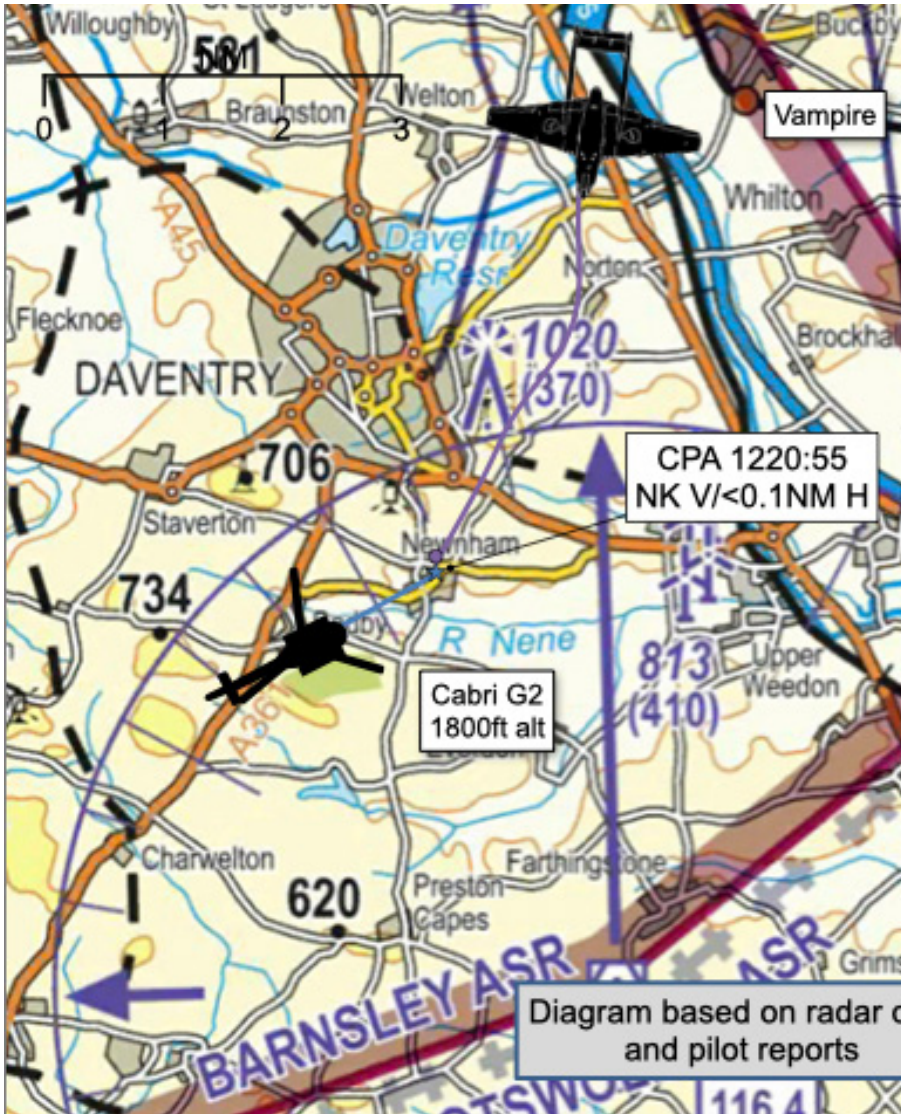
The Board considered 15 incidents at its January meeting, seven were determined to be risk bearing with five in the visual circuit. In all cases, all of the flight elements barriers (which predominantly rely on human factors) were assessed as having been ineffective or partially effective, and the associated Contributory Factors related to planning, communication, lack of situational awareness, poor assimilation of information, and poor lookout.

Importantly, it seemed that the Tactical Planning and Execution Barrier performance was particularly poor. The main observations from the Board drew out the following things:

- Choice of routing, or communication plan (the plan in general)
- Pressing on with original plan even when the situation changes
- Unfamiliarity with procedures at airfields
- Differences of understanding as to where and how to fit into a circuit pattern based on the information available from other pilots and Air Traffic Control
- Not being clear on the radio
- Not talking on the radio or talking to the wrong (or not the best) agency

We are in an unenviable situation at the moment (and have been for some time) where flying is severely restricted or non-existent for many, so when the rules are lifted to allow recreational activity there is an elevated risk; namely that it is really difficult to keep as current as one might be used to, and the fact that everyone is pushed into a small window of opportunity.

This is why it's very important to do everything possible to prepare on the ground: plan; think about what could go wrong; think about who you are going to talk to on the radio; study the procedures at the airfields you are going to – even if it's your home base – and be prepared to encounter others out there who are in the same boat and also potentially a little rusty.



I chose the incident between the Vampire and Cabri for this month's Airprox not only because it's about giving other air users a wide berth, so as not to startle those you might encounter, but also to cater for those times when someone might do something unexpected – in this particular case, the other aircraft did not change course or altitude, but also they did not see the conflicting aircraft and so could easily have made changes as they were completely unaware that the other aircraft was there.

The conflicting aircraft had been visual for a long time and, because of this, did not think that there was any possibility of a collision even though they flew close. But consider this; if that aircraft had manoeuvred unexpectedly, we might not be talking about an Airprox. Never assume that just because you are visual, that they are visual with you…

Finally, I want to take the opportunity to encourage anybody who thinks they have had an Airprox to make a report on the radio (if you are talking to anybody) at the time. You will, of course, still need to file a full report using our website form when you land, but announcing it on the radio means that the Air Traffic Unit will start recording the conditions from their perspective and preserve lots of information which would otherwise be lost; this helps any investigation and ultimately means that we can learn more about what happened and hopefully prevent it from happening again.

AIRPROX OF THE MONTH

If in doubt, just ask

Don't just assume you know who's where and what's happening, if you're not sure (or don't see what you expect to see) then call out

As a Sonaca 200 was re-joining at Blackbushe from the north the visual circuit was fairly busy; two PA-28s and a Cessna 152 were already established in the pattern and a helicopter was operating from the Helicopter Training Area (on the south side and approximately at the mid-point of the runway).

As the Sonaca pilot joined, they were passed Traffic Information by the airfield AFISO informing them of one aircraft on climb-out (the Cessna 152), one on final (the Airprox PA-28(A)) and one on base leg (the second PA-28(B)).

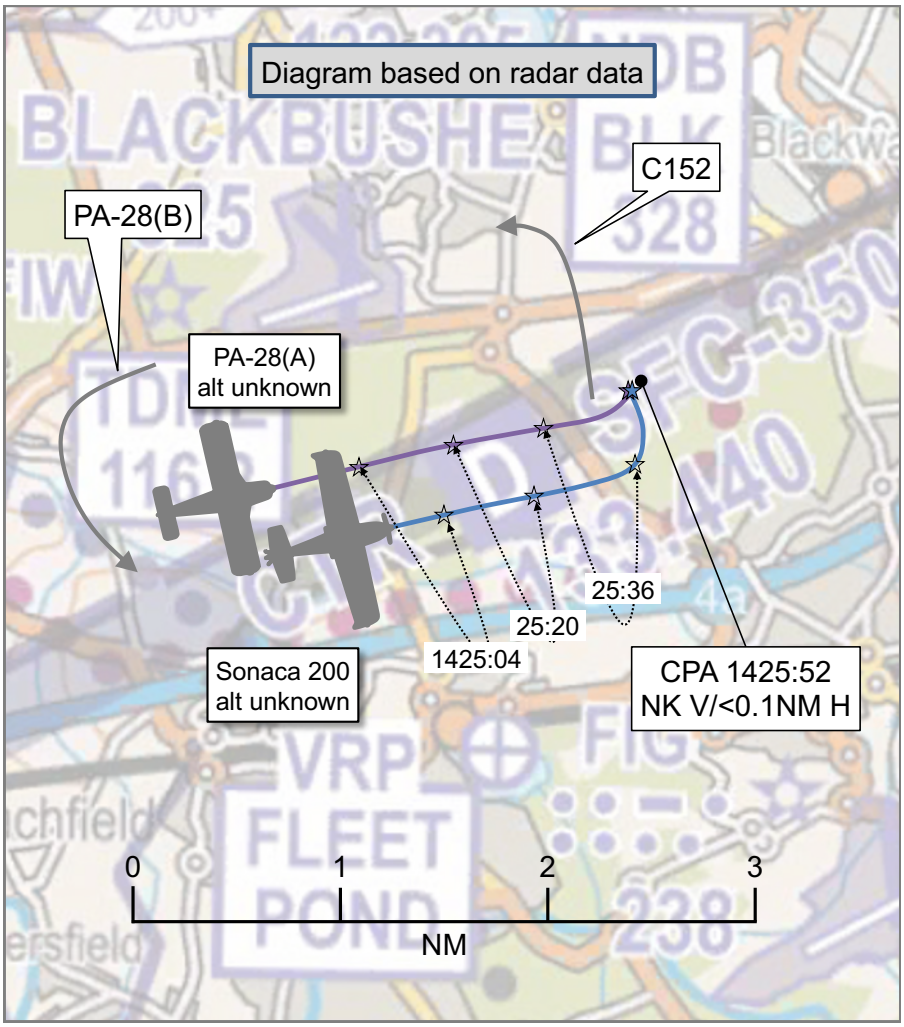
The Sonaca pilot assessed that they would be able to fit into the pattern behind the Cessna 152 and in front of the PA-28(A) on final. However, and crucially, the pilot of the PA-28(A) on final was not passed reciprocal Traffic Information on the Sonaca and had not realised that the Sonaca was joining the circuit in front.

The Sonaca pilot continued the join and positioned downwind at an appropriate spacing from the Cessna ahead. Unfortunately, the PA-28(A) pilot turned from crosswind onto downwind a little tighter than the preceding traffic and ended up with a narrower downwind track than the Cessna and the Sonaca.

The PA-28(A) pilot called downwind before the Sonaca pilot and was told to report final; the Sonaca pilot called downwind immediately after this and was told to report final with one ahead. The Sonaca pilot took this to mean the Cessna 152 which they could see ahead at the end of the downwind leg, assuming that the PA-28(A) pilot had taken adequate spacing behind.

As the Sonaca pilot turned from downwind onto base, they noticed the PA-28(A) pass underneath in a descent; the PA-28(A) pilot hadn't seen the Sonaca and was turning on to base leg at the same time and had initiated a normal descent as part of their normal circuit flying. At this point, the Sonaca pilot announced their intention to go around and the PA-28(A) pilot, becoming aware of the Sonaca's presence for the first time, considered the safest course of action was to continue the approach and land behind the Cessna 152.

Blackbushe is a very busy airfield, with rotary-wing, light-aircraft and often larger business jet traffic on a daily basis. Traffic management in the circuit is further complicated by the recent creation of Farnborough's controlled airspace and the consequent introduction of the Blackbushe Local Flying Area (see UK AIP, Part 3 – Aerodromes, EGLK AD 2.22 Flight Procedures).



Additionally, and due to the busy nature of the multiple circuit patterns, the passage of Traffic Information from the AFISOs is often restricted to the bare minimum out of necessity. In this case, however, the Board felt that there had been an opportunity for the AFISO to have passed Traffic Information to the PA-28(A) pilot on their climb-out or while they were crosswind, which would have prompted the PA-28(A) pilot to look for the Sonaca ahead (or, in this case, on a wider downwind track).

The difficulty for the PA-28(A) and Sonaca pilots in this Category B incident, Airprox 2020156 (safety was not assured: aircraft proximity in which the safety of the aircraft may have been compromised) was recognising that their mental pictures of the circuit traffic were incorrect – the Sonaca pilot thought the PA-28(A) pilot had taken spacing behind them and the PA-28(A) pilot was unaware that the Sonaca was even there. This makes the assistance of an AFISO or controller all the more important.

We all know that VFR separation under a UK FIS is the pilot's responsibility, but that responsibility can only be executed on that which we know to be there or have seen. This Airprox reminds us that assumption can lead to undesirable outcomes. If in doubt – look; if still in doubt (or you don't see what you expect to see) then ASK.

Full details of the incident can be found at the link within this note or at airproxboard.org.uk in the 'Airprox Reports and Analysis' section within the appropriate year and then in the 'Individual Airprox reports' tab.

VERSION 3

UK Civil Aviation Authority

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Blades Aerobatic Display Pilot and former Red Arrow pilot

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