AIRPROX Insight
DIGEST
2018-19

UK AIRPROX BOARD

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AIRPROX Insight
DIRECTOR UKAB'S MONTHLY UPDATE
March 2018

AIRPROX OF THE MONTH

Dropping in downwind

If you don't know who's where in the circuit for whatever reason, it might be time to call off your plans and have a rethink

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It's all about focus

Aviate, Navigate, Communicate – an unexpected technical problem might not in reality be too bad, but getting distracted by it might be

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AIRPROX Insight
DIRECTOR UKAB'S MONTHLY UPDATE
December 2018

AIRPROX OF THE MONTH

Down the line

You might think it's okay to fly right along the boundary of busy airspace, but wise people don't and here's why

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UK AIRPROX BOARD

AIRPROX Insight
DIRECTOR UKAB'S MONTHLY UPDATE
February 2019

AIRPROX OF THE MONTH

Location, location, location

Are you absolutely sure you are where you've said you are?
If not it can lead to heart-stopping moments — and not just for you

Welcome to the UK Airprox Board 2018-19 digest

Last year I started the monthly 'Airprox Insight' formal newsletters after each Airprox Board meeting to give some background information about that month's overall Airprox assessments and reflect on one of the incidents that I chose as my 'Airprox of the Month'. The aim was to offer some thoughts on what went right or wrong so that we could all learn from the sometimes-unfortunate encounters of others and thereby add to our own bank of knowledge without having to have the experience ourselves. Having received a few comments and thoughts in return as a result, I thought that it'd be an idea to compile a selection of these monthly missives for wider distribution to those who might not have seen them.

As ever, our intent is simply to enhance air safety; these incidents are not selected to embarrass or point fingers at anyone so if you do recognise yourself (or someone else) involved in an incident then please take the lessons away in the spirit in which they are intended. From the very start of my time at the Airprox Board I have been humbled by the altruistic willingness of those involved in incidents to pass on their occasionally less than glorious experiences to the benefit of others. I'm hugely grateful to all of you who have done this, and also my highly experienced Board members who willingly give up their time for free to review the incidents and offer their wise thoughts. I genuinely hope that we have made a difference over the last year: it'll all have been worth it even if just one person's life has been saved by reading and thinking about how to avoid a mid-air collision from one of our reports. So, within this compilation are 8 of the newsletters from the past 12 months. The themes I've chosen represent the most common areas we see in Airprox reporting – integrating into the visual circuit; inaction after gaining situational awareness; communicating intentions clearly; the value of electronic conspicuity; sequencing in the visual circuit; giving controlled airspace a margin; accuracy of pilot reports; and avoiding task focus. They're in no particular order of importance, and I don't profess to offer any golden-bullet solutions, but I hope at least that they're thought-provoking and act as a starter-for-ten for those tea-bar conversations.

Safe flying!

Steve Forward
Director UK Airprox Board

2018 Airprox Safety Barriers

190 aircraft-to-aircraft incidents were assessed using safety barriers in 2018; of the 9 available safety barriers, the performance of the 6 most relevant was as below.

Interpreting these charts provides some perspectives that are well worth reflecting on when analysing our own personal performances. Although ATC may not have been available in 21% of incidents, it was available in 29% but not in a way that could assist. Whilst some of these may be because A/G Operators can't give Traffic Information for example, there were many incidents where a pilot could have asked for a Traffic Service from ATC but chose a Basic Service instead. Pilot compliance with procedures was ineffective in 28% of incidents – perhaps time to brush up on those circuit procedures for example to make sure you know what you're doing (and especially during the joins). Tactical planning doesn't stop once you've got into the cockpit, the 44% of incidents where it was only partially effective included many where pilots didn't modify their plan when things changed (press-on-it is) or didn't have a Plan B. We all know that see-and-avoid is an imperfect barrier, and the failings of the human eye in an aviation context are well documented (see our 2018 magazine for some thoughts!). So, time to brush up on your lookout scan techniques and make sure you don't become pre-occupied with in-cockpit tasks – remember the 80:20 rule for lookout.
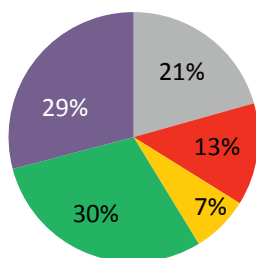
But for me, the stand-out theme that influences them all is the availability of Situational Awareness. Although we do see too many instances of inaction when pilots have information about another aircraft, overall, if a pilot has that awareness then most people will do something to either resolve the conflict or at least make their own presence known (like rocking the wings or banking to expose a greater planform to the other aircraft). In this respect, it's no coincidence that the percentage of incidents (69%) where collision warning systems were either absent of ineffective (mostly due to incompatibility) is almost identical to the percentage of times that SA was partially or fully ineffective (70%). Increasingly affordable collision warning systems are now available, and for about the price of a couple of tanks of fuel some hugely valuable SA can be gained from them about other aircraft in the area. They're not infallible and can only function if suitably compatible systems are detected, but they might just make the difference when all the other barriers are not performing well.

Mid-Air Collision Safety Barriers

The 9 mid-air collision safety barriers used by the Airprox Board are based on the EASA/CAA barriers as follows.

1. *Regulations, Processes & Procedures*
2. *ATC Manning & Equipment*
3. *ATC SA & Action*
4. *TC Warning Systems*
5. *Pilot Regulations, Processes & Procedures*
6. *Pilot Tactical Planning & Execution*
7. *Pilot SA & Action*
8. *Collision Warning Systems*
9. *See-and-Avoid*

ATC SA & Action

21% / 13% / 7% / 30% / 29%

Pilot Regs, Processes, Procedures & Compliance
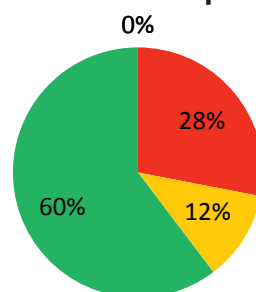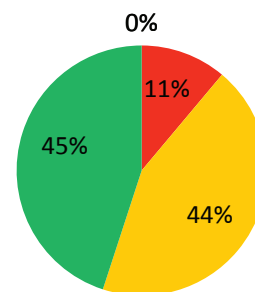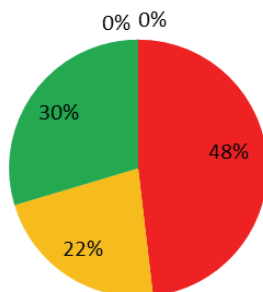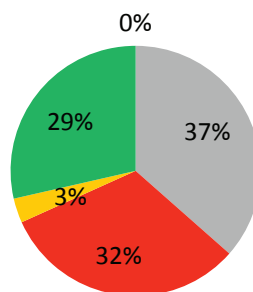
0% / 28% / 12% / 60%

Pilot Tactical Planning

0% / 11% / 44% / 45%

Barrier
- Absent
- Ineff
- Partly Eff
- Fully Eff
- Not Used

Pilot SA & Action

0% 0% / 48% / 22% / 30%

Collision Warning Systems

0% / 37% / 32% / 3% / 29%

See & Avoid

0% / 3% / 17% / 39% / 40%
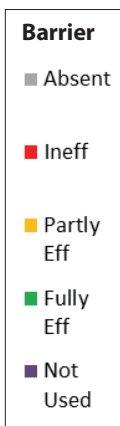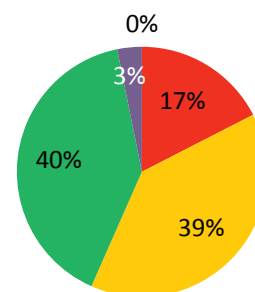
Dropping in **downwind**

If you don't know who's where in the circuit for whatever reason, it might be time to call off your plans and have a rethink

S mart motorcyclists tend to think ahead and ride defensively, and a healthy dash of both of those in flying never goes amiss — after all, as in motorcycling where another driver might not be aware of you, the same can be true in flying.

Take the case of the C152 and C172 which came into conflict at Cumbernauld (Airprox 2017231). The 172 pilot was joining from the south to practice a forced landing while the 152 was already in the circuit and just turning downwind.

Although the 172 pilot tried repeatedly to get a picture of the traffic from the air-ground operator, lack of effective communication between the two of them meant that in the end he only assimilated

that the circuit was active. Although he stated his intentions to join 'high left-hand downwind for a glide-in', he hadn't been able to establish where all the other aircraft were before descending during the downwind leg in front of the 152.

Meanwhile, the 152 pilot (one of two 152s in the circuit) couldn't get his downwind call in due to the high volume of transmissions. As a result, the 172 didn't have that form of situational awareness on the 152 either.

So, what to do? Ultimately, the Board concluded that the 172 pilot would have been better advised to have either held off or remained above the circuit until he had positively established where all the circuit traffic was and could then integrate effectively.

That said, they also wondered whether the 152 pilot might have been more proactive in generating more separation on the 172 given that he had seen him descending ahead and had more situational awareness than the first pilot — essentially, defensive flying as in defensive motorcycle riding.

Some members questioned whether the air-ground radio operator could have been more forthcoming, but you can't expect any form of Traffic Information from an air-ground operator other than information based on calls made to them by other pilots; they might not even be in a position where they can see the airfield, although in this case the operator was in the Tower.

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

Flying in the circuit should be one of the most regimented and predictable of activities a pilot conducts, yet we have seen all sorts of ad hoc profiles and much 'pressing-on' when situational awareness had not been achieved.

There is a recurring problem with the conduct of overhead joins, with many pilots either appearing not to understand them or being unable to perform them correctly.

Particular problems have been: poor situational awareness when joining, operating within, or departing the visual circuit; failing to follow standard joining procedures; joining the circuit downwind, crosswind or base leg rather than from an overhead join when the circuit was busy; failing to clearly pass intentions; poor integration, sequencing or separation

Diagram based on radar data and pilot reports
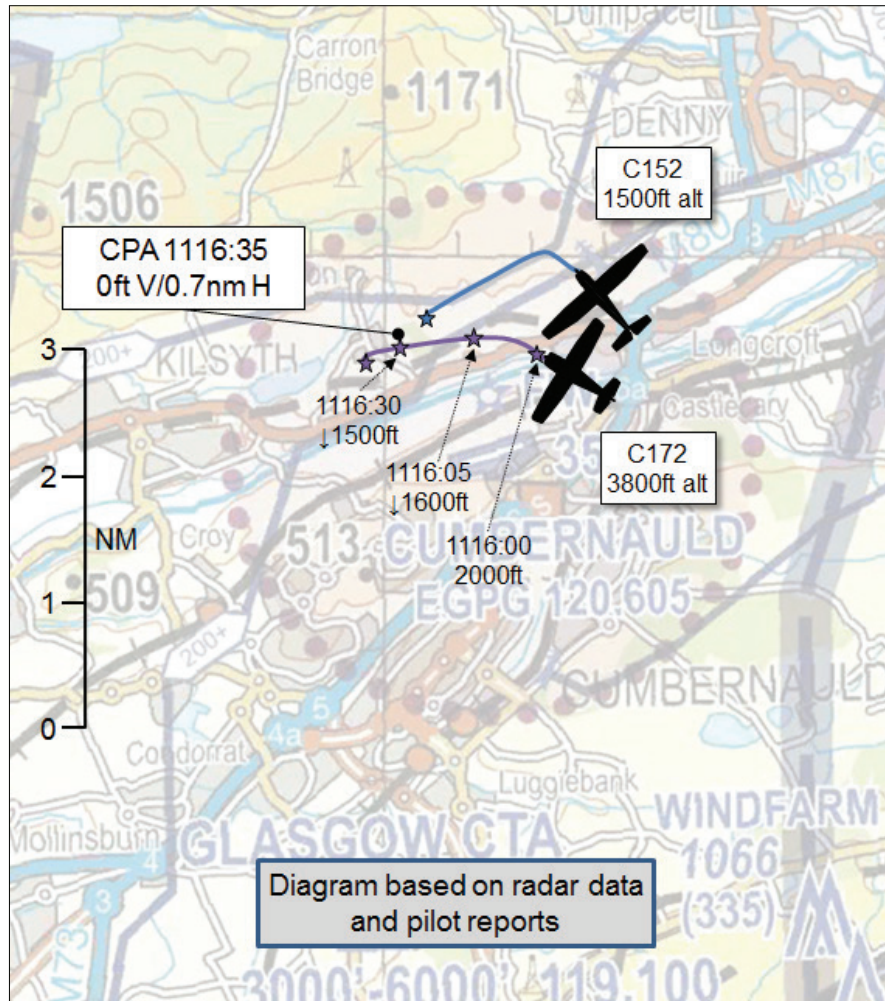
with other aircraft already in the circuit; a general lack of consideration/awareness of those already within the visual and instrument patterns; becoming task-focused to the detriment of lookout; assumption of 'protection' when within an ATZ; and lack of awareness of the nuances/limitations of the various levels of control at airfields (ATC vs AFISO vs AGCS).

You can read more in 'The Blue Book' on our website at: http://www.airproxboard.org.uk/Reports-and-analysis/Annual-Airprox-summary-reports/ as Blue Book 32 (a right riveting read even if I say so myself…).

Overall during its February 2018 meeting, the Board assessed 21 incidents of which 19 were aircraft-to-aircraft, with eight assessed as having a definite risk of collision (all Category B (safety was much reduced due to serendipity, misjudgement, inaction, or late sighting).

There was a mixed-bag of themes, but many incidents came about because pilots or controllers did not think ahead or sufficiently anticipate. Five were caused by poor communications or misheard transmissions which led to a conflict developing through inadequate integration with other aircraft.

Five others involved either poor appreciation of controlled airspace (two were unauthorised penetrations of controlled airspace) or poor selection of air traffic services which denied appropriate assistance from ATC.

Pressing-on in poor weather, inaction on receipt of Traffic Information, or simply flying too close to another aircraft accounted for five other incidents. Finally, there were four involving late sightings with other aircraft, most of which were not squawking and therefore not detectable by either ATC or the other aircraft's TAS (when fitted).

Hopefully, pilots are now aware of the introduction of SERA 13001 last October which says that transponders if fitted must be switched on whether the aircraft is in, or outside, controlled airspace to help alert ATC and other aircraft to their presence.

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Do something **positive**

A 'close' fly-by might be okay with you, but what about the other pilot?

Unusually, this month's Airprox of the Month features two incidents, both involving a degree of inaction when sighting, or becoming aware of, another aircraft.

In the first (Airprox 2017269) a PA-28 had left Shoreham 'to the north' (but actually to the north-west) and was caught up by an SR22 which also departed to the north-west a few minutes later.

The SR22 pilot received TCAS indications and then saw the PA-28 about 1.5nm ahead as he overtook; although closer than desirable, he judged he had enough separation to pass above the PA-28 by about 100ft. However, the Airprox Board thought this was too close and it would have been better for the SR22 to have had greater lateral separation to the right as he passed by.

In the second case (Airprox 2017266) an Agusta Westland AW139 and CAP10 met head-on at Beachy Head.

This was slightly less clear-cut than the first incident. The CAP10 pilot had the sun behind him and saw the AW139 early enough to judge that there was enough separation. The AW139 pilot, meanwhile, was looking into sun and received TCAS indications on the CAP10 head-on just

THE UK'S AIRPROX SAFETY MAGAZINE

CPA 1251:35
100ft V/<0.1nm H

PA28
2200ft alt

SR22
2300ft alt

Diagram based on radar data
and pilot reports

AW139
500ft

CPA ~1422

CAP10

Diagram based on radar data
and pilot reports
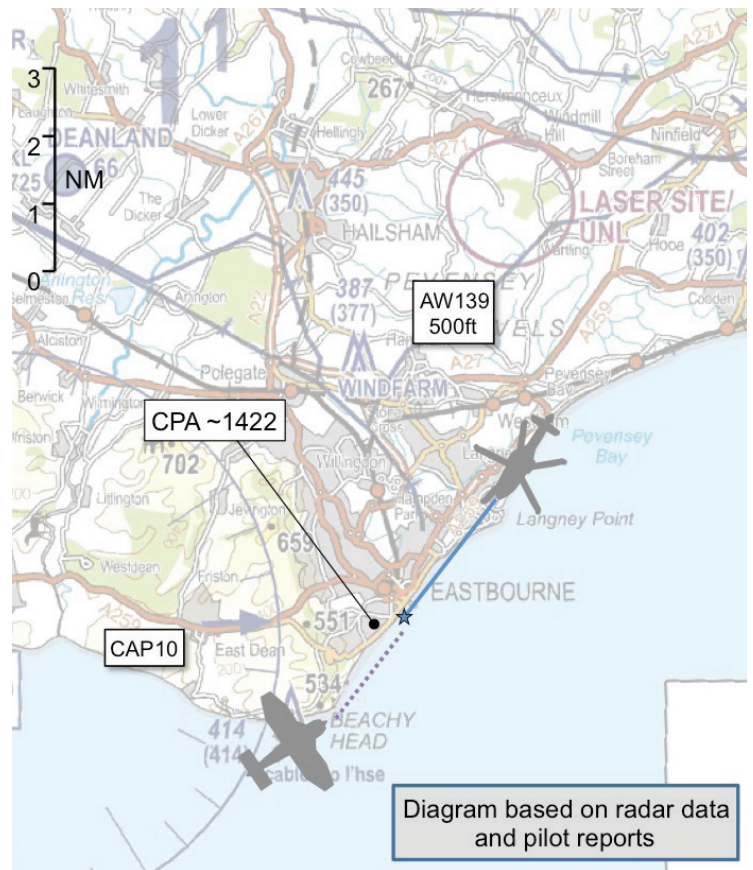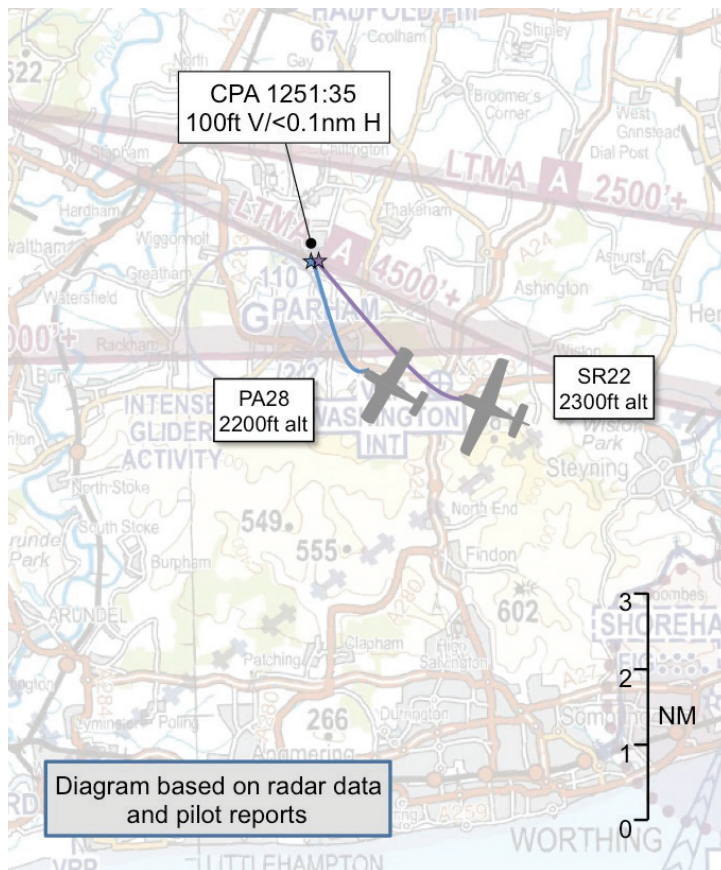
below and focused his lookout ahead, but only saw the CAP10 at the last moment too close for his comfort.

The Board thought that it would have been better for the AW139 pilot to have immediately increased his height when receiving TCAS indications of the CAP10 ahead rather than just focusing his lookout.

This incident also raised the issue of the 'right-hand-rule' on line-features (the coast). Although now not formally part of SERA, the right-hand-rule is still recommended by the CAA, and the Board thought that the AW139 pilot could usefully have anticipated that other pilots might be using the rule as they routed along the coast in the other direction.

Both cases demonstrate that positive action should be taken when detecting an unfolding conflict, and pilots shouldn't assume that others will be as comfortable with the separation as they might be.

The other pilot might not be aware of your aircraft until the last moment (especially when being overtaken) and so the onus is on everyone to avoid others by a margin of separation that they themselves would wish if the roles were reversed.

Full details of both incidents can be found 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 Airprox Board assessed 19 incidents during its March 2018 meeting of which 13 were aircraft-to-aircraft, with three assessed as having a definite risk of collision; there was one Category A where providence played a major part, and two Category B where safety was much reduced due to serendipity, misjudgement, inaction, or late sighting.

The main themes were five examples of poor tactical planning (both pre-flight and/or not updating the plan in flight when circumstances changed); four incidents of inaction or flying too close to another aircraft that had otherwise been seen in good time; four incidents where lack of communications between pilots, or a failure to assimilate traffic information, meant that the pilots flew into conflict; four examples of poor controllership decisions; four incidents where pilots were simply concerned by the presence of other aircraft that were subsequently assessed as probably being within normal

safety standards, and three involving late sightings by the pilots involved.

The Board made three recommendations during the meeting: one that 'The British Gliding Association considers recommending fitting transponders to tug aircraft' following a Typhoon and tug/glider incident where the Typhoon pilot and ATC were not aware of the tug/glider combo's presence because they did not appear on radar.

Secondly, 'USAFE-UK (United States Air Forces in Europe, UK) consider promulgation of North Sea helicopter activity to F15 crews' following an incident where a helicopter crew were concerned by an F15 at low-level over the North Sea.

Thirdly, 'USAFE-UK review rate of climb standard operating procedures once above safety altitude after a low-level abort' as a result of an F15 and Tucano that came into conflict when a pair of F15s had to abort from low-level through cloud near Linton-on-Ouse and their rapid rate of climb meant that their SSR transmissions were hidden from ATC's view as they exceeded

10,000 fpm climb rate.

It's **good** to **talk**

And it can help if you're on the same wavelength

How do you select the right Air Traffic Service in busy airspace? Here's a case in point (Airprox 2017280) in which a Chipmunk and Cessna 172 on different frequencies came very close to each other near Luton.

The Chipmunk pilot was in a straight-and-level cruise and looking at a ground feature to his left. After about 15 seconds he looked ahead and saw the Cessna flying slightly lower in the opposite direction. He

made a hard pull-up and the C172 passed below without appearing to take any avoiding action. The pilot assessed the risk of collision as 'high' and said he had not been closer to another aircraft, apart from in formation, in 40 years of professional flying.

For his part, the C172 instructor said he was in a straight-and-level cruise with a student when he noticed an approaching aircraft at 1 o'clock, which he could see was

going to pass to the right and above. He assessed that there was no risk of collision, but was not comfortable with its proximity so took control, lowered the nose, reduced altitude by 200ft and turned slightly to the left.

As the other aircraft passed by he noticed that its pilot turned to his left. The instructor pointed out the aircraft to the student and they later discussed the importance of the constant 'Lookout,

Diagram based on radar data

DHC1
1900ft alt

Third aircraft

Luton C/L

A20
A20
A20
A19
A19

54:51   54:39
54:27

NM 1254:15

CPA 1255:01
100ft V/<0.1nm H

C172

Attitude, Instruments' workflow. The instructor said that at the time of the manoeuvre the other aircraft was far enough away that he could not observe any minor detail, such as colour, type or registration. He could only see a darkish, single-engine, low-wing aircraft.

Because it was at a distance, the vertical separation was increased and there was no risk of collision, he did not deem it to be a reportable Airprox, so didn't report it to Farnborough North. In fact, the Board determined that the C172 had not seen the Chipmunk but a different aircraft further away just prior to the incident with the Chipmunk.
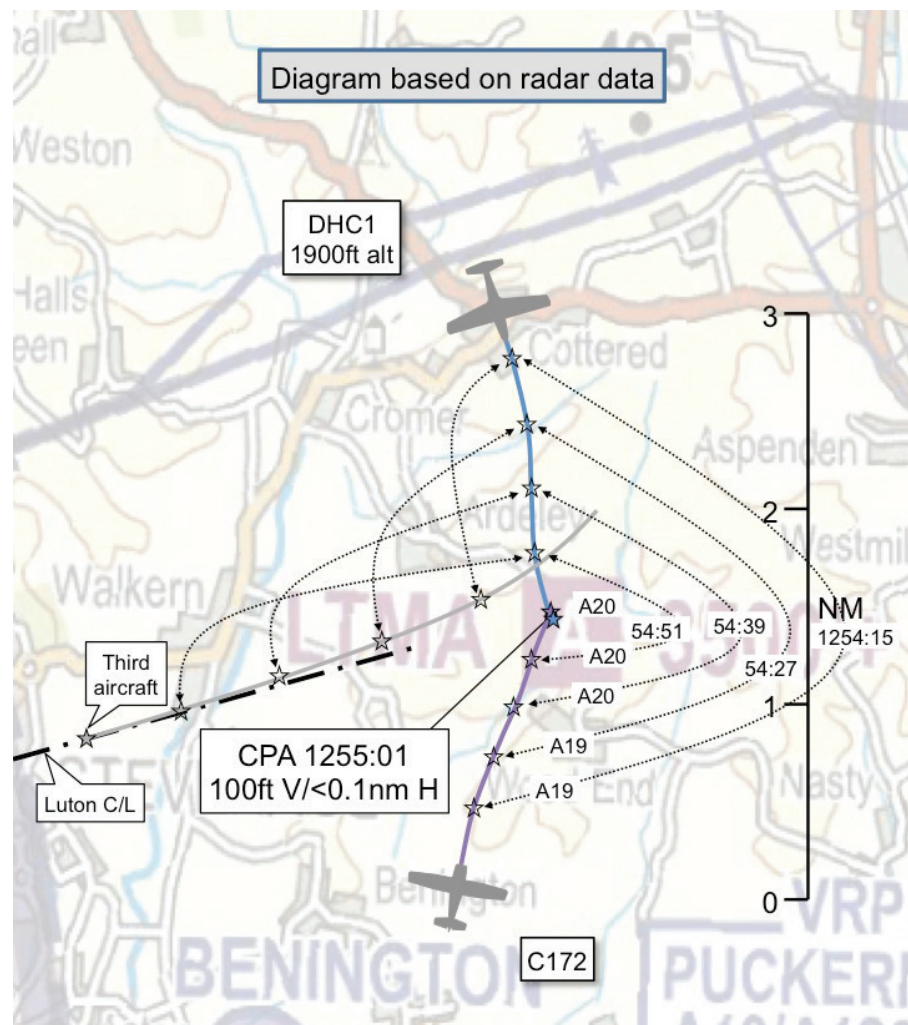
The C172 was under only a Basic Service with Farnborough LARS, while the Chipmunk was on Luton's Listening Squawk frequency; if they had been on the same frequency there was a chance they might have been aware of each other and, even better, if they had used a Traffic Service then they would have received specific information.

This raises the old conundrum of whether Farnborough LARS could have given a service if they were busy, the very time that you really want one. The C172 pilot may not have asked for a Traffic Service because he was instructing, or might have thought that he wouldn't be likely to get a service – but if you don't ask, you definitely won't.

The Chipmunk pilot's decision to 'listen out' with Luton meant there was little possibility of him obtaining Traffic Information while doing so because it's only intended as a means of warning about nearby airspace that he might be about to infringe, not about other aircraft he might be in conflict with.

The Board acknowledged there were many factors in managing each sortie, and there was a balance to be made between using Frequency Monitoring Codes and LARS; nevertheless, in conditions of less than ideal visibility, or for sorties involving a high workload or activities which might detract from an effective lookout (such as an air test or aerobatics), it was well worth requesting a Traffic Service if possible.

Full details can be found 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

During its April 2018 meeting, the Airprox Board assessed 25 incidents of which 19 were aircraft-to-aircraft, with nine assessed as having a definite risk of collision (two were Category A where providence played a major part, and seven were Category B where safety was much reduced due to serendipity, misjudgement, inaction, or late sighting).

The dominant themes were poor/incomplete planning by pilots who should have been able to avoid the resulting situation by applying more thought to their routing or actions (11 incidents); poor/incomplete situational awareness (also in 11 events) probably resulting from the former lack of planning in some cases; nine involving late- or non-sightings; pilots not fully following procedures in six incidents; in four events there was poor integration by pilots and/or controllers; and three where pilots could have asked for a better Air Traffic /Service (i.e. a Traffic Service) in busy airspace.

The Board made three GA-related recommendations during the meeting: 1) 'Lee-on-Solent to include information in their AIP entry to highlight the possibility of glider traffic crossing the centreline and the existence of a glider landing strip on the north-western side of the main runway' as a result of a glider crossing in front of a DA40 on finals; 2) 'The Avon Hang Gliding & Paragliding Club and SPTA Ops to refresh their LoA to cover usage of the Bratton launch site and how that information is conveyed.' after a Hawk pilot flew through a number of paragliders that he didn't know were there; and 3) 'HQ Air Command review the radio procedures for CGS operations from Syerston.' when a tug/glider combination climbing to 6000ft encountered a PA-38 orbiting at 3,000ft that was talking to East Midlands. ■

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Clash in the
climb-out

**However hard you look, it can still be a tricky
time to spot what might be coming your way**

A Citabria pilot was getting into the air from a private strip near Bromyard, not far from Worcester, and trying to ensure a good lookout by lowering the nose regularly as he climbed. But, despite this, he still didn't see an R44, which was probably a small stationary target in his peripheral field of view, approaching on the beam.

For his part, the R44's pilot would probably have been looking down onto a dark background and didn't see the Citabria climbing up until they were very close. Both saw each other at the last moment and had to take emergency evasive action.

Neither aircraft in the incident (Airprox 2018036) was fitted with a collision warning system and, because both were using transponders, the Board felt it worth emphasising that the increasingly affordable systems now available could have helped.

It's not for me to promote any particular system, but they're becoming increasingly affordable and interoperable so, for the price of a couple of tanks of fuel, it'd be well worth thinking about investing for just such eventualities when circumstances conspire to render see-and-avoid a fairly poor barrier to collisions – an alert in either aircraft here would have helped immensely by allowing at least one of the pilots to take earlier action.

Full details of the incident can be found 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

During its May meeting, the Board assessed 26 incidents of which16 were aircraft-to-aircraft, with five having a definite risk of collision (two were Category A where providence played a major part, and three were Category B where safety was much reduced through to serendipity, misjudgement, inaction, or late sighting).

The dominant theme concerned nine cases of poor choice of airspace or poor integration with others, including a couple where pilots flew over promulgated and active glider/microlight sites.

Poor choice of airspace is an emotive topic, although all the cases involved pilots flying in airspace in which they were entitled to operate, a little more thought for how their activities may have impacted on others might have avoided the conflicts.

Poor communication in the air, or less-than-good liaison between neighbouring
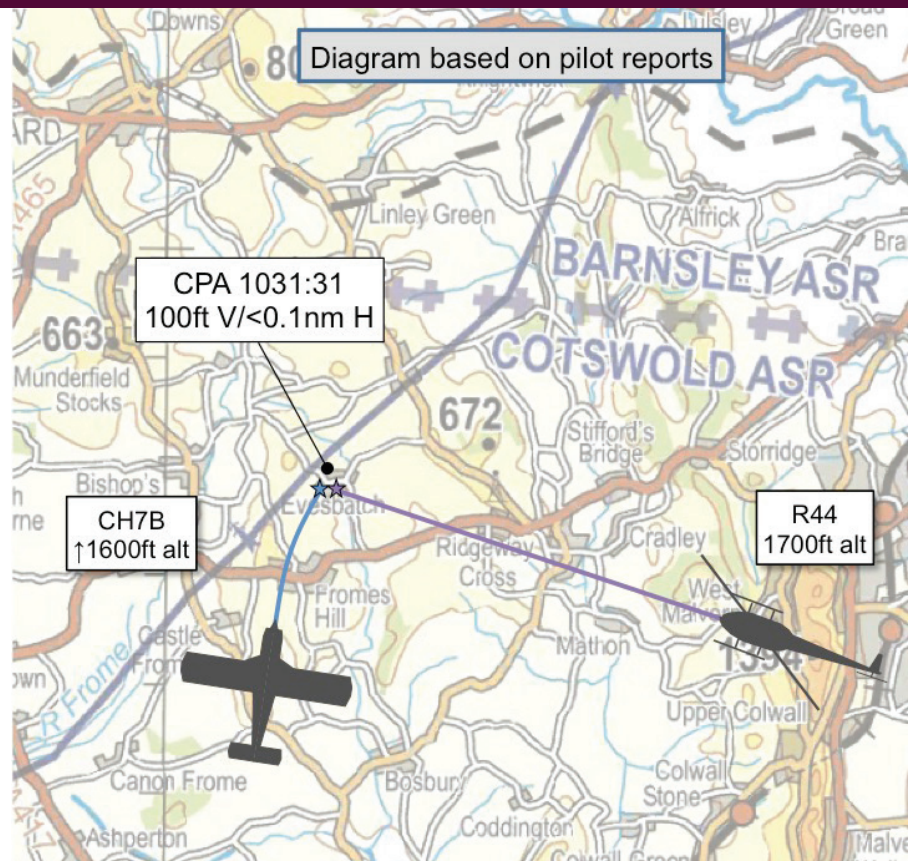
units, featured in six incidents; non/late-sightings accounted for six others and inaction or flying too close to other aircraft was seen in five. Three incidents involved TCAS resolution advisory events caused by flight vectors impinging on the TCAS envelopes of larger aircraft.

Of the six non/late-sightings, three were associated with a lack of transponder transmissions from one or both aircraft which, if selected on, might have assisted ATC in providing Traffic Information, or allowed other collision warning-equipped aircraft to detect the other aircraft well before they came into proximity.

SERA 13001 came into force in UK in October 2017 mandating that, if fitted and serviceable, transponders must be switched on with all modes selected. A straw-poll of GA Board members revealed that in their experience two-thirds of pilots they either instructed or interacted with, including other instructors, did not know that transponder selection was now mandatory.

Although this requirement was highlighted in SkyWise by the CAA when it came into force, it seems that much of the GA community is still not aware of the change, hence an associated Board recommendation that the CAA consider further publication and education efforts about it.

The Board also recommended that RAF Benson and local airfields engage in liaison to improve co-ordination of activities. This resulted from a CAP231 pilot from White Waltham conducting aerobatics in one of their 'aeros boxes' that happens to be about 10nm on finals to RAF Benson's runway 01.

Normally it's not an issue with prevailing south-westerly winds, however on this day the easterly wind meant that the Puma pilot was conducting a TACAN hold and approach to 01. Although both pilots saw each other, it seems that neither really knew of the other's operating intentions and so they ended up in proximity.

Both pilots were entitled to operate where they did, but a bit more co-ordination would have eased the problem, especially if the CAP231 pilot had been able to make a call to Benson ATC to let them know his intentions.

The Regional Airspace User Working Groups (RAUWG) run by the military units are a brilliant way for pilots and clubs to engage with each other and the military to exchange information about such things as aeros boxes etc, so I highly recommend asking your local military ATC when they are holding the next one and going along to participate (and also enjoy the usual free lunch that's included!). ■

Diagram based on pilot reports

CPA 1031:31
100ft V/<0.1nm H

CH7B
↑1600ft alt

R44
1700ft alt

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Whose right is it anyway?

Who should give way – aircraft joining straight-in or those in the circuit? The answer isn't straight-forward and hinges on who calls finals first

Take this situation at Tatenhill where a Piper Cherokee Six was turning base from downwind while a PA-28 was conducting a straight-in join and they came into conflict on finals (Airprox 2018092).

Although there could be no firm conclusions about who called first on the radio due to a lack of R/T recordings, the situation worsened as both pilots continued on believing that the other would either be behind them or give way.

On the one hand the PA-28 pilot was required to conform with the traffic already in the visual circuit, one of which was the Cherokee, but on the other hand the Cherokee pilot was required to give way to traffic 'in the final stages of an approach to land', which included the PA-28 heading straight-in.

The Board agreed that, routinely, those joining straight-in should only do so if they can integrate effectively with those already in the visual circuit, and cautioned pilots about assuming priority simply because they have called a straight-in approach.

Equally, if in the circuit and another pilot does join straight-in then it may be that they've done so for good reason so discretion may be the better part of valour — give them room and, if necessary, go around early and talk about it later over tea.

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

Diagram based on radar data

PA-32
1200ft alt

1307:34   07:46   07:58   08:10   A014

A007

A008

A010   A009

A011

Blithfield
Reservoir

PA-28

CPA 1308:22
700ft V/<0.1nm H

0   1   2   3

NM
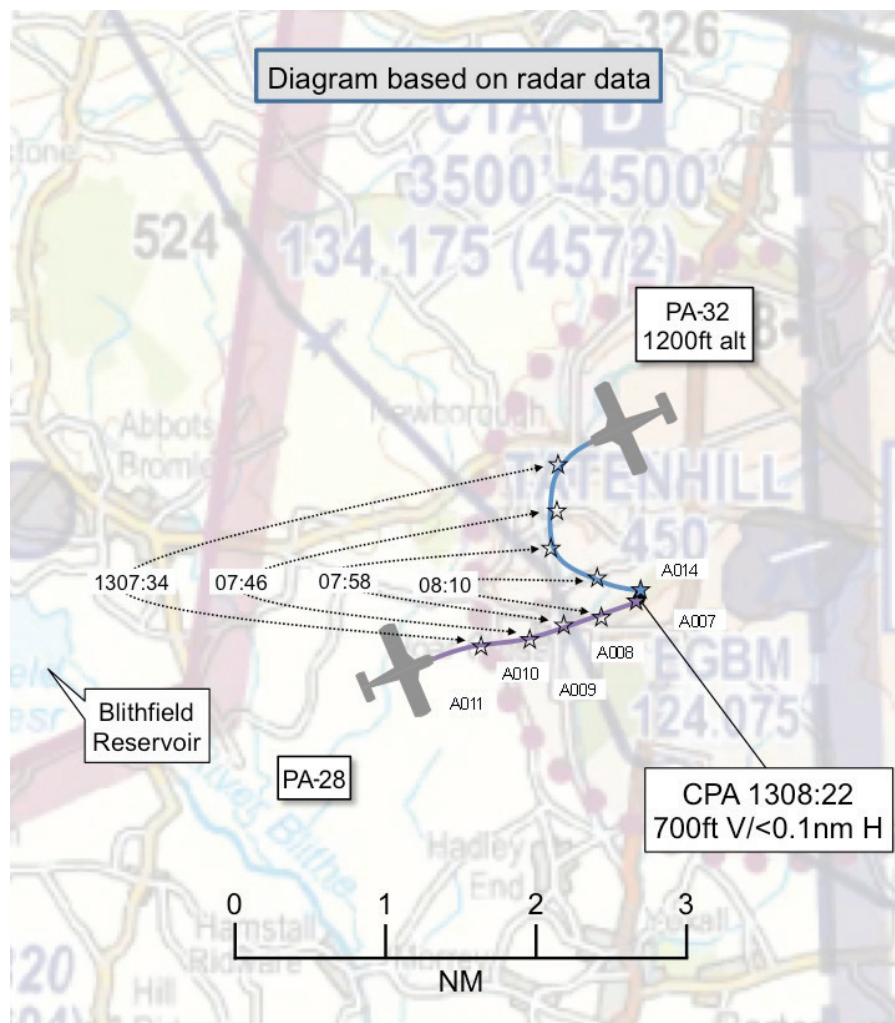
UKAB MONTHLY ROUND-UP

During its September 2018 meeting the Board assessed 31 incidents — 18 were aircraft-to-aircraft, with six having a definite risk of collision (two were Category A where providence played a major part, and four were Category B in which safety was much reduced as a result of serendipity, misjudgement, inaction, or late sighting).

The number of aircraft-to-aircraft reports so far this year sits just above the expected five-year cumulative average at 146 but, at 112 incidents, drone/SUAS reports have now already reached 2017's levels with just over a quarter of the year still to go.

This month's incidents were mostly GA-biased, reflecting the fact that we are now processing Airprox from the summer months when GA flying increases. The two dominant themes were sub-optimal planning and integration with other aircraft (nine incidents), and seven occurrences of late- or non-sightings.

For the former, poor visual circuit planning and execution predominated, with pilots either not thinking ahead, not properly planning their integration, or not following circuit procedures. For the latter, an increase in late- and non-sightings is typical in the summer months as the airspace becomes busier and emphasises the need for pilots to prioritise a robust and effective lookout over in-cockpit tasks (the 80:20 rule - with 80% of the time looking out of the cockpit).

There were three incidents where inaction resulted in aircraft needlessly coming close to each other. One was a failure to give way, while in the other two instances pilots assumed the other had seen them and would give way which, given the eye's performance limitations, is an inappropriate assumption. ATS non-availability or sub-optimal application also featured in three other incidents, with controller workload being cited as contributory in two.

The Board made three recommendations:

Airprox 2018090 North Weald provide advice to pilots concerning the potential for confliction with the Stapleford visual circuit.

Airprox 2018092 Tatenhill update their AIP entry to remove ambiguity from the join procedure.

Airprox 2018101 D&D transmit on all transmitters and on 121.5MHz.

The first of these recommendations stemmed from an incident where a Diamond DA42 was conducting an asymmetric approach to Runway 02 at North Weald. This requires the aircraft to fly close to the Stapleford ATZ boundary to the South.

Stapleford was on Runway 03LH and a PA-28 was turning downwind just outside the ATZ (following the promulgated Stapleford circuit pattern). They came head-to-head and the DA42 pilot had to turn right, into the Stapleford ATZ, to avoid the Piper.

The Board commented that this seemed to be a built-in potential confliction point between the two airfield patterns and discussed whether Stapleford might be better off conducting RH circuits to Runway 03.

It also thought that the North Weald A/G operator might at least provide a warning about potential Stapleford visual circuit traffic to pilots intending to approach North Weald Runway 02 from long-finals.

The second recommendation resulted from the Tatenhill Airprox of the Month incident. Although not specifically germane to the incident, the Board noticed that Tatenhill's AIP joining procedures were somewhat ambiguous.

The final recommendation came out of an incident where a military aircraft unwittingly flew through a search and rescue temporary danger area because the crew was already at low-level and hadn't heard the promulgating transmission from Distress & Diversion.

The Board commented that D&D's procedure of only transmitting on antennas local to the TDA meant it was unlikely that aircraft at longer range would hear the transmission; it also commented that civil pilots would also be unaware because D&D only transmits details of TDAs on UHF Guard.

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Down the line

You might think it's okay to fly right along the boundary of busy airspace, but wise people don't and here's why

A Boeing 737 had to be re-routed after a Cessna 172 pilot using a GPS-based navigation application flew right along the boundary of Stansted CTA.

Stansted radar indicated that the 172 had infringed the zone and flashed an alert to the controller who had no option but to vector the 737 away from the 'infringing' threat with the consequent loss of separation and disruption to the 737 at a critical stage of flight as its pilot reacted to the controller's avoiding-action call.

Not only was there a potential extra cost to the jet's operator if it had had to go-around, the subsequent re-routing of other aircraft in the radar pattern to accommodate the deviating B737 also caused extra workload to the controller.

This incident was very disappointing and wholly avoidable. Although the Cessna was technically probably outside controlled airspace, pilots should be aware that specified radar accuracy is only +/- 0.1nm (+/- 185m) and so, although a GPS (which has +/- 30m accuracy) might confirm that you are outside controlled airspace, the radar may well show you as being inside if you are very close to the line. That's what happened in this case.

The message is clear, don't be tempted to fly close to controlled airspace just because you have a GPS – I doubt very much that the 172 pilot would have flown the same route if he was using a traditional map and stopwatch: even with GPS, the risk of an infringement and a potential interview 'with no coffee' at the CAA should have encouraged a greater margin.

GASCo has been highlighting the need to give controlled airspace as wide a berth as possible this year. They have adopted the 'Take 2' strategy (gasco.org.uk/flight-safety-information/take-two) which advocates ensuring a 2nm/200ft buffer whenever possible. Not only does this serve to help preserve your licence, but it's also a simple courtesy to controllers and pilots operating in controlled airspace.

Full details of the incident can be found via this link Airprox 2018178 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

Thirty-seven Airprox were reviewed at the Board's November meeting, 18 of which were drone/SUAS incidents. Of the 19 aircraft-to-aircraft incidents, nine were thought to have a definite risk of collision (all Category B, where the aircraft avoided collision by serendipity or safety was assessed as having been much reduced through misjudgement, inaction, or late/non-sighting).

The overall number of reported aircraft-to-aircraft Airprox incidents this year is just above the expected five-year average of 168. In contrast, there have now been 128 reported drone/SUAS incidents, already exceeding 2017's levels (113).

This month's predominant themes were late-/non-sightings (12 incidents) and sub-optimal tactical planning (11 incidents). It might sound obvious, but many of the late-/non-sighting incidents would have been avoided by better situational awareness in one or both aircraft.

The point is, though, that in many of these Airprox the pilots either chose not to use, were not able to use, or did not assimilate information that was available to them from external sources (air traffic control or a collision warning system, for example).

Although they aren't a panacea for all Airprox, fitting a compatible electronic conspicuity and collision warning system would have brought such information directly into the cockpit to great effect. It's no coincidence that in the Airprox safety barrier assessment for 2018 so far, 69% of incidents this year have involved aircraft where collision warning systems were either not installed or not compatible with the equipment in the other aircraft; in contrast, when such systems were installed and compatible, they provided a fully effective barrier for the remaining 30% of Airprox.

With regard to the tactical planning theme (which includes airborne execution of the plan), associated incidents ranged from seeming failure to properly review NOTAMs or take them into account, lack of familiarity with procedures, poor pre-flight planning and in-flight execution, and not flying with appropriate consideration for others. Sub-optimal ATS selection, not

Diagram based on radar data

CPA 1405:06
700ft V/1.2nm H

Stansted CTA
1500-2500ft
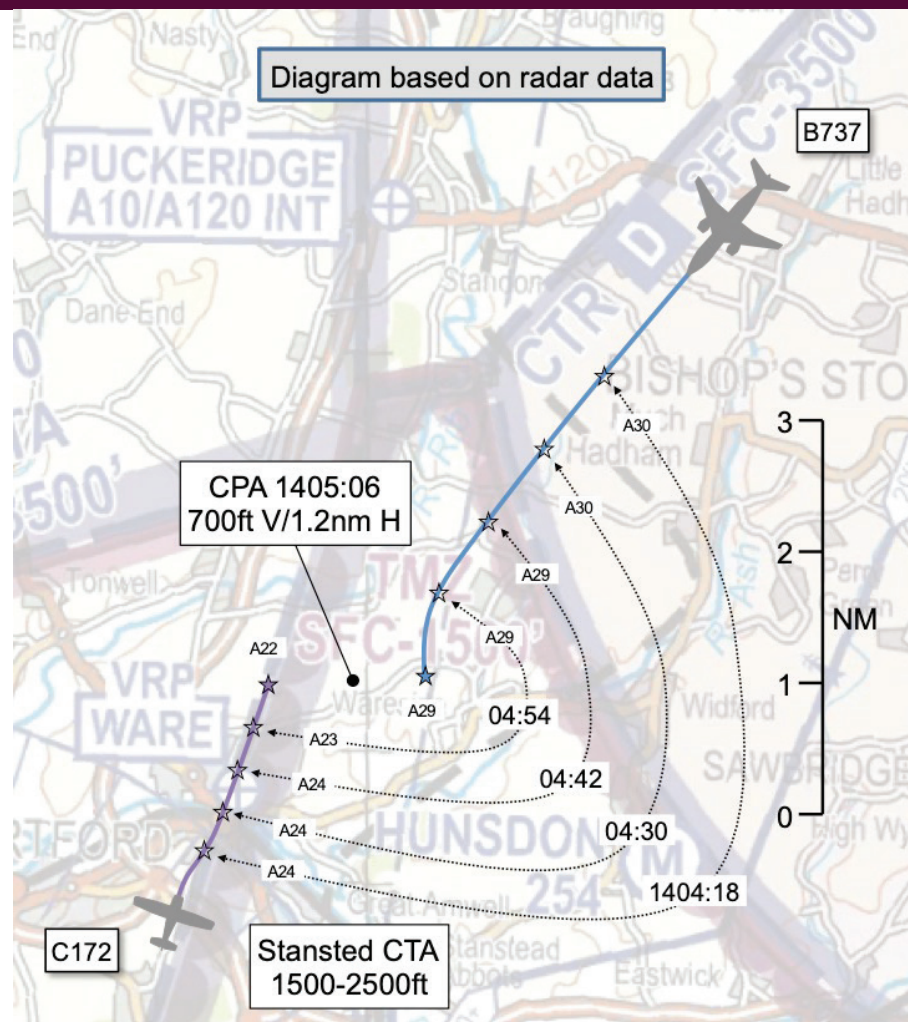
calling ATC, or ambiguous calls to ATC accounted for 4 incidents; inaction was evident in five events; and distraction or task-focus to the detriment of lookout was discernible in three incidents.

The Board made four recommendations, the first two stemmed from **Airprox 2018151** where a PA-31 leaving Lasham climbed through a stack of gliders thermalling nearby. Lasham has a procedure for departing powered-aircraft that involves them keeping below 1000ft until 5nm from the airfield but this is not widely promulgated and the PA-31 pilot did not know about it.

The third recommendation came out of an incident where a pair of low-level Tornados encountered a drone conducting a survey at 300-400ft (**Airprox 2018160**). The height band 250-400ft is an overlapping segment of airspace for drone and military fast-jet low-flying and the Board felt it would be beneficial if the military could look at introducing some way for at least commercial drone operators to be able to notify their operations to military pilots intending to low-fly.

The final recommendation involved a co-ordination error between two formations at the Fairford airshow when a formation of

nine Typhoons ran in for their flypast before the previous display had ended (**Airprox 2018182**).

AIRPROX RECOMMENDATIONS
2018151
1. That Lasham Gliding Society ensure that their powered aircraft departure procedures are promulgated to all pilots using the airfield.
2. The PA31 operating company ensure that their pilots are aware of the Lasham powered aircraft departure procedures.

2018160
HQ Air Command pursue the use of a system for notification of commercial drone operations to pilots operating in the UK Low Flying System.

2018182
The CAA and MAA remind FDDs of their responsibility to proactively direct activities in the display to ensure deconfliction. ■

Location, location, location

Are you absolutely sure you are where you've said you are?
If not it can lead to heart-stopping moments — and not just for you

There's a different bit of a theme that's cropped up in recent Airprox, the need for accuracy in passing information to Air Traffic Control. Two incidents, among others, highlighted this — a close encounter involving a Jetstream and a TB10 (Airprox 2018211) and another between a DHC-6 and a PA-28 (Airprox 2018221).

As with most incidents there were multiple factors at play, but it was notable that in both of these the pilots of the GA aircraft had passed inaccurate information that both ATCs (neither of which had radar) then used as they formulated a subsequently flawed plan.

In the first incident, the TB10 pilot initially told Wick he was 10nm south of the field (heading north) when in fact he was 20nm away; this led to the controller thinking the TB10 would easily be through the Jetstream's southerly climb-out lane as it departed, when in fact the TB10 was still a factor.

In the second Airprox, the PA-28 pilot gave a time estimate of five or six minutes to arrival at Land's End, but actually arrived only about two minutes later. In the meantime, the controller had cleared the DHC-6 to left-base ahead, and both he and the DHC-6 pilot were concerned when the PA-28 then joined right-base.

Acknowledging that an estimate is just that, if it subsequently becomes obvious that it's wrong then update ATC so that they can modify their plans accordingly. Fortunately, in both these incidents the commercial aircraft became visual with the other aircraft as they closed on each other and so more serious incidents were averted; however, heartbeats could have been saved both in the commercial cockpits and ATC if an accurate update had been made.

The need for accuracy in passing information to ATC is axiomatic; if unsure of your position, be up-front with ATC so that everyone understands that there is uncertainty and they can then factor that into their plans. Ultimately, no information is better than wrong information.

Diagram based on radar data

Airprox 2018211

Diagram based on pilot reports

Airprox 2018221
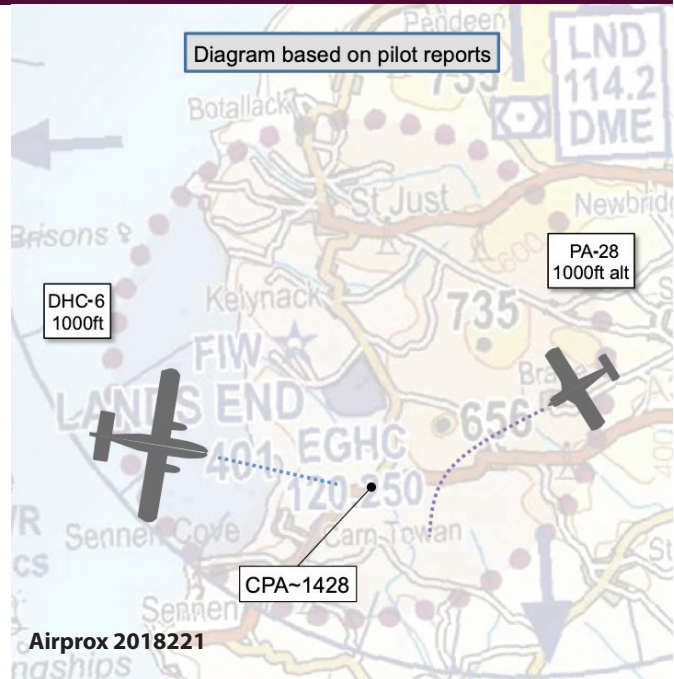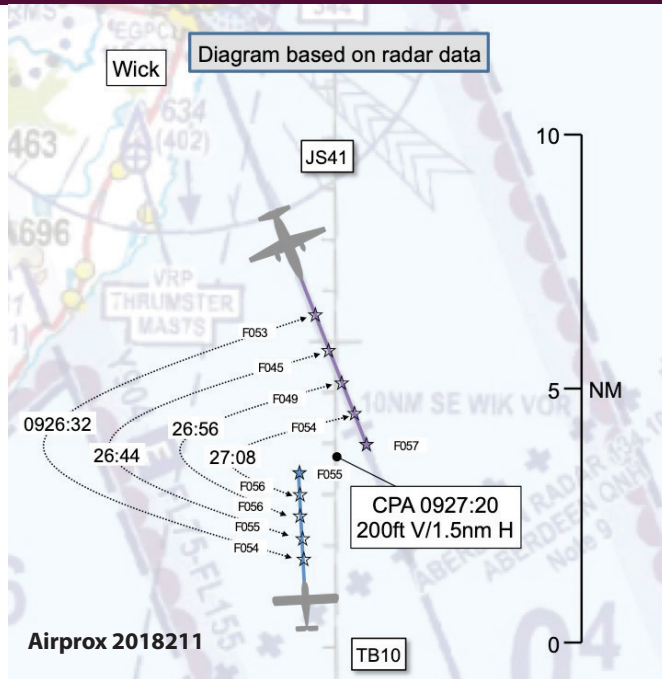
At the Board's January meeting 31 Airprox were reviewed, 11 of which were drone/sUAS incidents. Of the 20 aircraft-to-aircraft incidents, eight were risk-bearing (one was Category A where providence played a major part, and seven were Category B, where safety was much reduced through serendipity, misjudgement, inaction, or late sighting).

Subject to any further late submissions, there were 181 aircraft-to-aircraft incidents in 2018, slightly above the expected five-year average of 177. In contrast, there were 138 reported sUAS incidents, considerably more than 2017's 113.

This month's predominant theme was poor planning and execution by pilots (15 cases). Alongside this there were execution errors such as inattention to airspace (including two infringements and one level-bust); failure to integrate with or avoid aircraft in the visual circuit; inaction on sighting other conflicting aircraft; or flying closer than desirable to airfields.

The next most common theme was late- or non-sightings (ten incidents) which resulted in pilots either not taking any avoiding action at all because they didn't see the other aircraft, or only being able to take emergency avoiding action in response to seeing it at the last moment.

Late-/non-sightings are common during the busy summer months when there is more density of GA traffic in the see-and-avoid Class G airspace, and most of this month's reports were from flights that took place in August last year so the prevalence of this cause is unsurprising.

Although not a theme as such, there were four incidents this month where flawed situational awareness led to pilots placing themselves in circumstances where there was a conflict. These included a lost student pilot flying through an ATZ, an Airprox in a visual circuit where both pilots and ATC had flawed situational awareness due to busy R/T, missed calls and dual transmissions, and the two Airprox mentioned in the Airprox of the month where pilots gave inaccurate position reports to ATC.

The Board made five recommendations during its meeting:

AIRPROX RECOMMENDATIONS
2018162
Lasham and Farnborough liaise to discuss mutual operations

2018205
The CAA consider the inclusion of GPS based navigation in the PPL syllabus

2018216
1. The CAA review certification and licensing requirements for paramotor activities
2. BHPA publicise this incident

2018232
Boscombe and Thruxton to review their LoA

The first recommendation stemmed from Airprox 2018162 where a B737 and an ASK 13 training glider came into proximity near Farnborough/Lasham. The Board is well aware there are ongoing discussions about airspace in the area but, nonetheless, it felt that Farnborough and Lasham could still benefit each other by maintaining a healthy dialogue about day-to-day operations.

The second recommendation reflected an Airprox in which a student pilot was unable to work out how to use the GPS-based navigation system. Although there were other factors to consider, the Board felt it was high time that GPS navigation systems and techniques were introduced into the PPL syllabus.

The next two recommendations came from an incident where a paramotor pilot flew into controlled airspace. Although the paramotor pilot's skill level could not be determined because he could not be traced, it seemed there was a risk that, given the ease with which paramotors can be operated without any oversight by others, the CAA might benefit all by conducting a review of their licensing to ensure that, much as with upcoming drone regulation, there was a minimum requirement for at least some level of aviation knowledge.

The final recommendation was something of a niche concern regarding how pilots should depart Thruxton without causing concern to IFR aircraft on the approach to Boscombe Down.

Full details of the incidents can be found at airproxboard.org.uk in the 'Airprox Reports and Analysis' section within the appropriate year and then in the 'Individual Airprox reports' tab. ■

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KEITH WILSON/SFB PHOTOGRAPHIC

It's all about focus

Aviate, Navigate, Communicate – an unexpected technical problem might not in reality be too bad, but getting distracted by it might be

As a Piper Twin Comanche was climbing out of Blackbushe the passenger-side door sprang open when both catches failed, unsurprisingly causing a certain amount of alarm in the cockpit. Sensibly, the pilot and passenger decided to return to land as soon as possible.

They ended up flying a crosswind join into the visual circuit but, much distracted by the open door, the pilot allowed the aircraft to descend 300ft or so, nearing the single-engine circuit height. Unfortunately, a PA-28 was approaching downwind at the same time following a touch-and-go.

The Comanche pilot had been given Traffic Information on the PA-28 but, distracted by the door issue, lost situational awareness and sight of the PA-28 as he turned downwind. For his part, an instructor in the PA-28 heard the Comanche returning with a door problem, but also heard it being given traffic information about him.

Expecting the Comanche to integrate and avoid him, the PA-28 pilot continued his circuit believing that the Comanche's door problem was not a significant issue that required any change to his own intentions.

Unfortunately, it seems the student in the PA-28 compounded the Comanche pilot's inattention to height by also inadvertently climbing above the single-engine circuit height. Both aircraft were now at much the same height as they started the downwind leg and the PA-28 student suddenly saw the Comanche about 50ft above and descending.

A couple of things spring to mind regarding this Category A incident (**Airprox 2018273**). Board members said that although an open door might sound alarming, the airflow meant that it wouldn't open fully and so it shouldn't be that much of an issue. The important things are not to become distracted from the 'Aviate' task (which intrinsically includes lookout and attention to height), and not to be afraid to communicate clearly any emergency situations in plain language.

In this incident the Comanche pilot was reluctant to declare a PAN, even when prompted by the AFISO. Had he done so, the PA-28 pilot would likely have afforded him clear priority during his join and would probably even have extended upwind to allow the Comanche plenty of room to join and land without getting in his way.

Diagram based on radar data and pilot reports

PA-30

PA-28 ↑1300ft alt

CPA 0909:26
NK V/<0.1nm H

Pilots might sometimes be a little too proud to declare emergencies, but there's no shame in doing so. Nobody is going to admonish a pilot who seeks help by declaring a PAN and asks for priority as they deal with a problem, and it immeasurably increases the situational awareness of all others on frequency so that they can either get out of the way or at least modify their intentions accordingly.

For the PA-28 instructor, the lesson is probably not to assume that other pilots are as competent, current or coping as well as he might. Hearing that the Comanche was returning with a door problem, and although he probably thought nothing of this himself, the other aircraft commander might not be as unflustered and, as in this case, might make a few errors under pressure. It's a fine line, but it might have been wise to just extend upwind anyway and to have defensively avoided the Comanche with the 'minor' problem.

Full details of the incidents can be found at the links 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

After a busy start to the year, March appears to have been quieter with the board reviewing 27 Airprox at its monthly meeting; eight were drone/sUAS incidents and 19 aircraft-to-aircraft. Three of the latter were assessed as risk-bearing (two were Category A, where providence played a major part, and one was Category B, where safety was much reduced through serendipity, misjudgement, inaction, or late sighting).

Overall, the numbers of aircraft-to-aircraft incidents for 2019 are now tracking the expected five-year average (25 actual vs 25 expected), but sUAS incidents are again well above expectations (18 actual vs nine expected).

This month's predominant theme again involved poor procedures, procedures not being followed, or poor tactical planning and execution by pilots (ten cases).

These incidents concerned, inter alia, lack of awareness of NOTAM; flying too close to airfields or through their approach path without talking to ATC; not flying the published circuit track or height; not complying with instructions; and ambiguous information that may
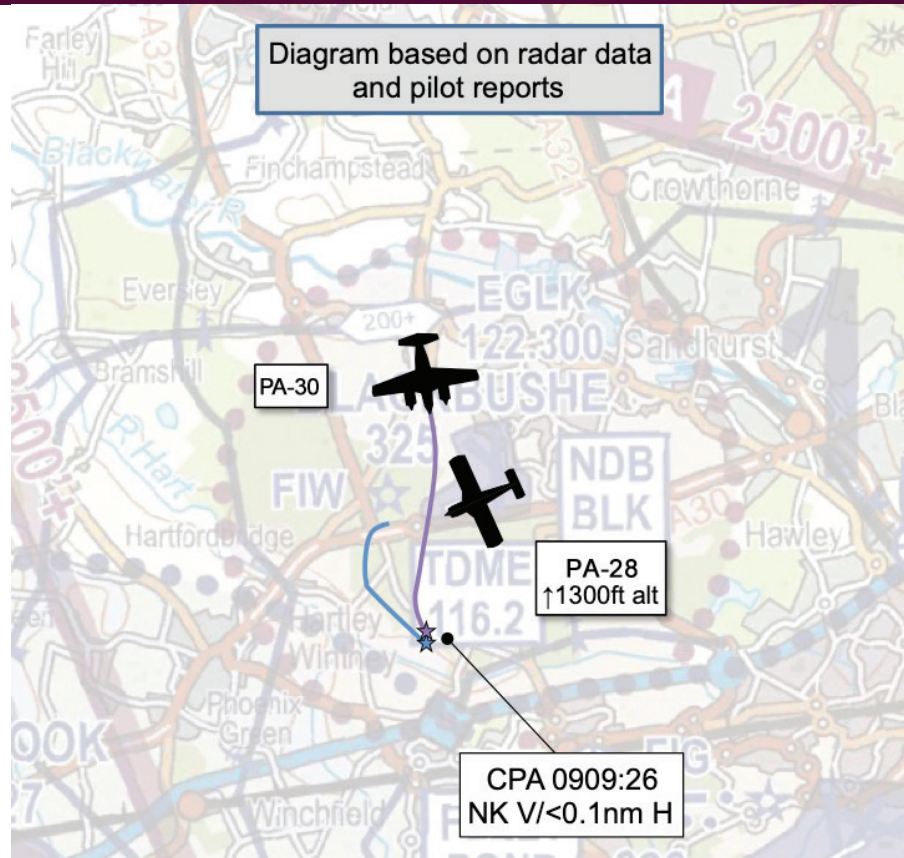
have mislead pilots in their planning and execution of their flight.

The usual crop of late- and non-sightings were evident in seven incidents, while inaction on sighting another aircraft was evident in three Airprox, and distraction from lookout featured in three others.

Controllership and inaccurate or insufficient Traffic Information was evident in six incidents; although recognising that the provision of Traffic Information is highly dependent on controller workload, had the pilots received timely information then it's likely they would have been able to avoid the associated conflicts.

One incident where a pair of military Hawk aircraft encountered a glider caused much discussion in the Board meeting about the procedures for the use (or not) of FLARM information by ATC. Although the incident occurred well above the ATZ/MATZ, the ATC unit had a FLARM display in the tower although this was being fed from the Glidernet website.

Latency in the Glidernet feed is a well-known issue, and for that reason controllers are rightly limited in what they can use the information for. In essence, they can refer to the display to provide corroborating information to what they see on their radar, but are not permitted to routinely use the information in its own right for detailed traffic information and avoidance purposes unless they have first seen a primary return from the glider.

In this incident, there was no primary return on the radar and so, although situational awareness might have been available in the tower, the controller was not himself able to access it for procedural reasons. While their procedures make a certain amount of sense for feeds with internet latency, things have moved on and, if FLARM, ADS-B or similar system receivers are installed that directly feed the displays, latency is much less of an issue.

Accepting that there are regulatory issues with using such unassured data, the Board felt that the time was right for the CAA and MAA to look again at how controllers might incorporate alternative sources of (unassured) GPS-based traffic information into their procedures, especially when in some circumstances this information may in fact be more accurate and available than radar-derived information.

The Board made a recommendation about this as below.

2018266
The CAA and MAA review the regulations and procedures pertaining to ATC use of 'unassured data' such as FLARM for the provision of Traffic Information. ■

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