



AIRPROX *Insight*

DIRECTOR UKAB'S MONTHLY UPDATE

November 2019

AIRPROX OF THE MONTH



The TCAS trap

You might think you're far enough away, but appearing to be 'too close' to TCAS-equipped aircraft can cause avoidable problems

During a busy time at Dundee Airport a controller instructed three aircraft to orbit along the downwind leg — one at the start, another halfway and one at the end — while a Cessna Citation made an ILS approach.

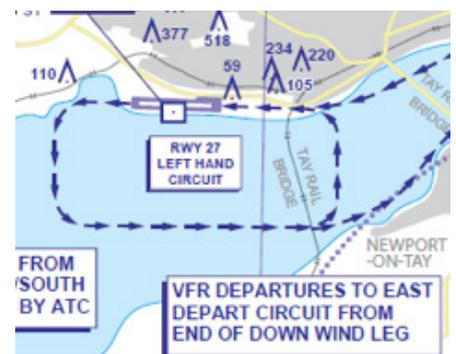
The pilot orbiting at the end of the downwind leg was a solo student in a PA-28 who was probably working hard in the circuit. Those familiar with Dundee will know that the downwind leg goes over the southern end of the Tay railway bridge, which is the recognised cue to turn base-leg (as shown in the diagram).

Unfortunately, the student allowed himself to come too far north and hence too close to the approach path (perhaps influenced by the south bank that narrows towards the approach). Consequently, as they orbited the student ended up pointing towards the Cessna at relatively close-quarters, close enough to trigger its TCAS. As a result, the Cessna pilot received a TCAS Resolution Advisory (RA) which obliged him to go-around.

Although there was no risk of collision in this Category C incident (2019132), it's similar to several we've seen over the years where squawking aircraft have come close to TCAS-equipped aircraft, sometimes with more serious outcomes. It's important to recognise that these sorts of interactions are a result of equipment limitations rather than anyone breaking any rules per se.

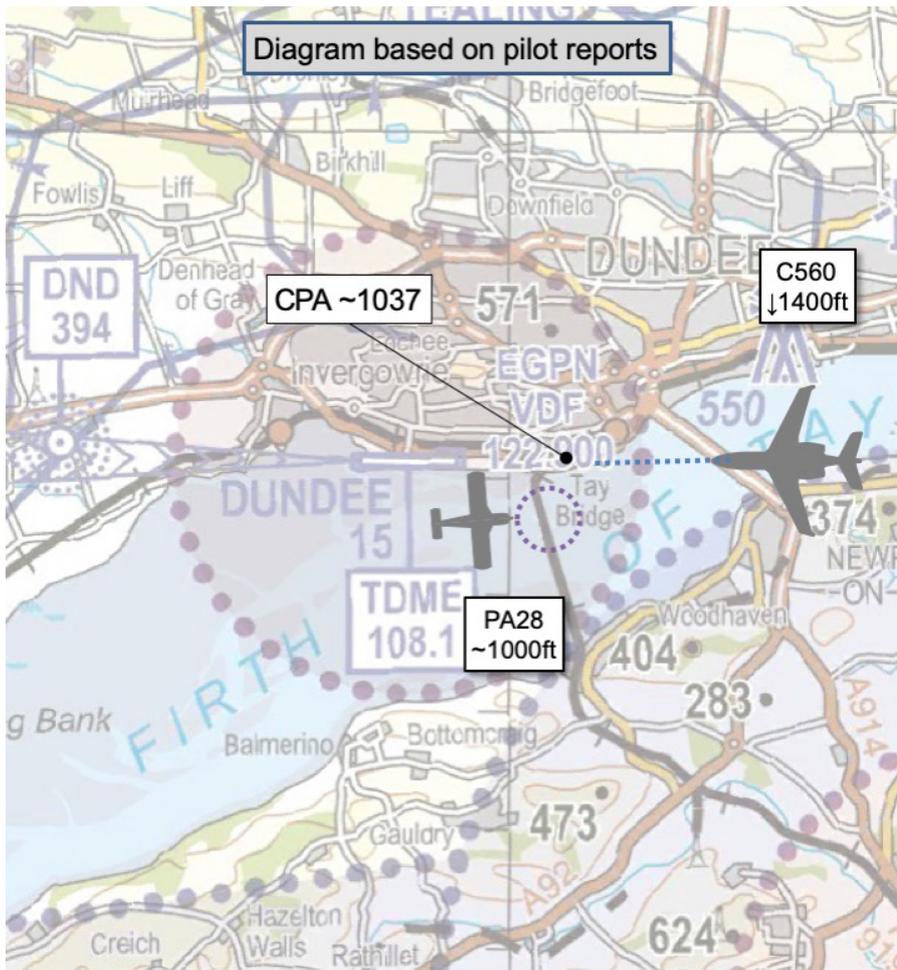
TCAS is designed for IFR conditions where aircraft are usually separated by ATC; its use in mixed IFR-VFR environments can be problematic because there is no standard separation in these circumstances and all that's required of the VFR pilot is that they avoid a collision by a sufficient margin which might easily be within the TCAS envelope.

It is, though, good airmanship to give IFR traffic a wide berth so that you don't cause problems such as this. This time it was just an inconvenience to the Cessna, but in busier airspace it could cause mayhem as large airliners manoeuvre because of TCAS RAs (which the pilots are mandated to follow) and then they and ATC have to



work hard to avoid other airliners as they are slotted back into the radar pattern.

But how much avoidance is enough? Well, TCAS is designed to take into account both the airliner's and your speed and trajectory and modify its alerts accordingly. So, there's no definitive answer but, as the graph (which is for representative speeds of 160kt for the airliner and 90kt for the intruder in the height band 1000ft to 2350ft) shows, a good rule of thumb is to try to avoid coming within 2nm head-on or 0.5-1nm laterally in the circuit area or environs.



it looks as if there will be about 125 or so drone/object reports this year compared to 139 in 2018.

At the Board's September meeting, 36 airprox were reviewed of which 16 were drone or objects. Of the 20 manned aircraft-to-aircraft incidents, five were risk-bearing in Category B (where safety margins were much reduced below the norm through either chance, misjudgement or inaction; or where emergency avoiding action was only taken at the last minute).

Aside from the usual crop of late-/non-sightings (13 cases), this month's manned aircraft-to-aircraft incidents saw a mixed-bag of contributory factors. Sub-optimal controlling or inadequate provision of Traffic Information featured in seven, and less-than-ideal pilot planning or execution/modification of the plan was evident in four.

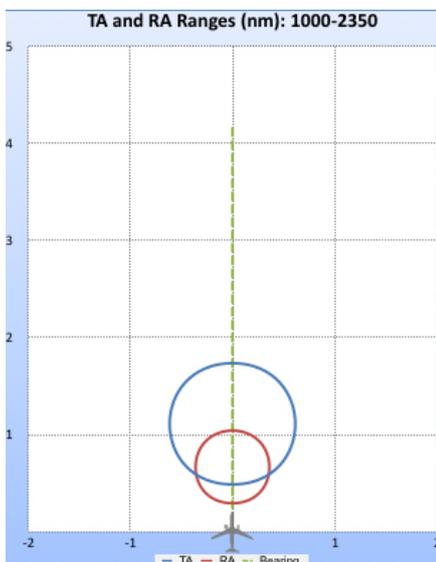
Three Airprox involved inaction by pilots who had received situational awareness, and another three where the pilots had either no situational awareness about the other aircraft or a flawed mental model about what was going on.

Other contributory factors included poor execution of procedures; incompatible collision warning systems or sub-optimal actions on receiving a warning; distraction from lookout; poor communication of intentions and not opting for the most apt air traffic service.

In three incidents the Board couldn't reach a conclusion as to what had occurred due to lack of information or conflicting accounts. One, at Westonzoyland, seemed to indicate that the two flying clubs at the airfield (one at Westonzoyland and one at Middlezoy) had a less than harmonious relationship that the Board felt was risking overall safety. As a result, although not directly a part of the Airprox at issue, the Board made the following recommendation.

AIRPROX Recommendations 2019151

Westonzoyland and Middlezoy airfield managers develop a letter of agreement regarding integration of their operations.



The graph shows a blue circle for the TCAS Traffic Advisory (TA) area which is a warning alert for the airliner pilot to prepare him to manoeuvre; the red circle is the TCAS RA area which is where they are mandated to act, usually by going around if in the circuit area.

Full details of the incident 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

We're continuing to experience our busiest year for manned-aircraft-to-aircraft incidents in recent times and up to mid-October there have been 188 reported incidents, well above the expected five-year average of 156.

There are, however, encouraging signs over drone reporting and the overall reporting rates seem to have reduced compared to last year, so there is room for cautious optimism that the messages about drone use and the associated drone regulations are having an effect.

In previous years there was a definite peak in drone reports in the 1000ft-2000ft height band, but we're now seeing that peak at 2000ft-3000ft which perhaps indicates that the number of people who might have flown their drone up to 1000ft or so by mistake or lack of awareness has reduced. Subject to any last-minute surge, if current drone reporting rates continue

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