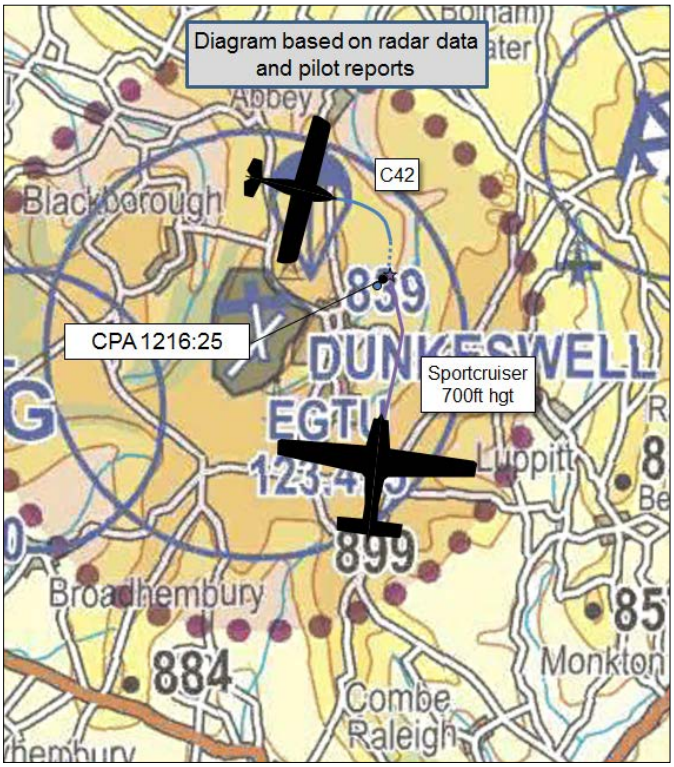
AIRPROX REPORT No 2016230

Date: 20 Oct 2016 Time: 1216Z Position: 5051N 00314W Location: Dunkeswell ATZ

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	C42	Sportcruiser
Operator	Civ Trg	Civ Club
Airspace	Dunkeswell ATZ	Dunkeswell ATZ
Class	G	G
Rules	VFR	VFR
Service	AGCS	AGCS
Provider	Dunkeswell	Dunkeswell
Altitude/FL	NK	700ft hgt
Transponder	Not fitted	On/C
Reported		
Colours	White, Red	White, Blue
Lighting	NK	Strobe, Nav
Conditions	VMC	VMC
Visibility	10km	Poor
Altitude/FL	800ft	600ft
Altimeter	NK	QFE (993hPa)
Heading	170°	NK
Speed	70kt	80kt
ACAS/TAS	Unknown	Not fitted
Alert	Unknown	N/A
Separation		
Reported	30ft V/0nm H	NK
Recorded	NK	



THE C42 PILOT reports that he had completed 3 circuits with his student on RW35R when they heard a call that sounded like 'you are going the wrong way'. An aircraft had called to say that he was using RW04 for operational reasons, the wind was 360º 10kts. He believes that at this time there was a Cessna on right base for RW35R, an aircraft on final for RW04R and a third aircraft holding off. His student called 'Downwind 35 right' and he was trying to explain to the student the position of the other aircraft and why one of them may need to use RW04R. He then looked ahead and saw an aircraft head-on at the same height, about 300m ahead. He pulled hard on the stick to avoid the plane, which passed underneath by about 30ft. He believes that had he not pulled up the aircraft would have collided.

He assessed the risk of collision as 'High'.

THE SPORTCRUISER PILOT reports that he called Dunkeswell for Airfield Information and was informed that it was RW35 right-hand circuit. He announced his intention to join left base for RW35 "looking for circuit traffic". Just after this call another aircraft announced its approach on long final to land on runway 04; there was also a call from a PA28 approaching to join nearby from the east, and another call from a pilot unhappy about the plane approaching RW04 with RW35 also in use. He resolved to stay clear and announced his intention to clear the circuit leaving the aircraft landing on RW04 to it. There was a lot of radio chatter from other aircraft about exactly what the landing RW04 aircraft was up to, but it was clear someone was coming in saying: "I always said I was using RW04", although sometimes he gave a different runway designation further confusing the situation. He could see the aircraft approaching RW04. The cloud was broken but low, and he couldn't climb away, hence flying at 650ft, 150ft below circuit height, and then breaking away to the right (east). At this point, he saw a mainly white, high-wing, single-engined aircraft close by downwind for RW35 and made a further descending turn to the right (east) very conscious of the low cloud and the incoming PA28 from the east. He didn't see the PA28; but eventually joined RH downwind for RW35 and

landed. He heard the Airprox radio call and after landing made a note of events. He opined that this was a classic case of a number of things coming together; his distractions were the RW04 aircraft, the low cloud and the other incoming aircraft.

Factual Background

The weather at Exeter was recorded as follows:

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METAR EGTE 201150Z 01008KT 330V030 9999 FEW030 12/09 Q1023

METAR EGTE 201220Z 36009KT 330V030 9999 FEW015 12/09 Q1023
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Analysis and Investigation

UKAB Secretariat

The C42 and Sportcruiser pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard[1]. An aircraft operated on or in the vicinity of an aerodrome shall conform with or avoid the pattern of traffic formed by other aircraft in operation[2].

The C42 contacts are intermittent on the radar recordings and, at the time of the Airprox, unfortunately the C42 does not display. For its part, the PA28 does not appear to either head in the opposite direction to the circuit direction or close to the C42, and so the only aircraft that displays on the radar recording whose heading, level and position corresponds with the C42 pilot's report is the Sportcruiser (see Figure 1).

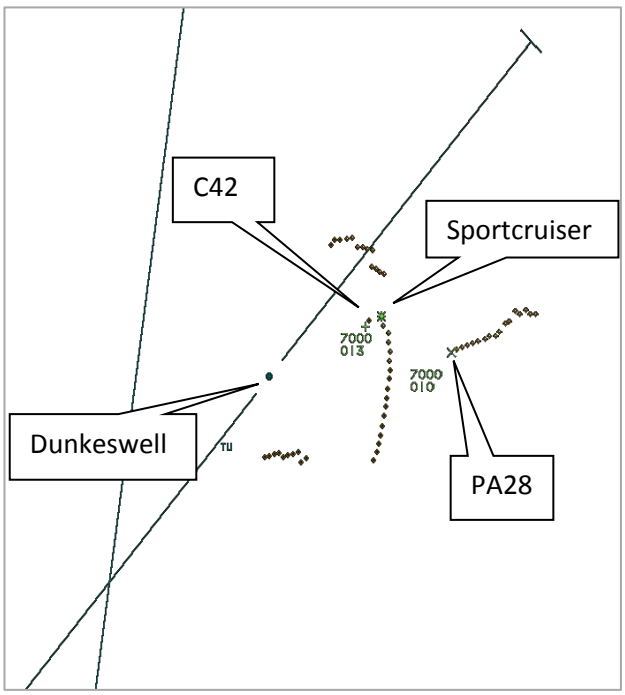


Figure 1: 1216:28

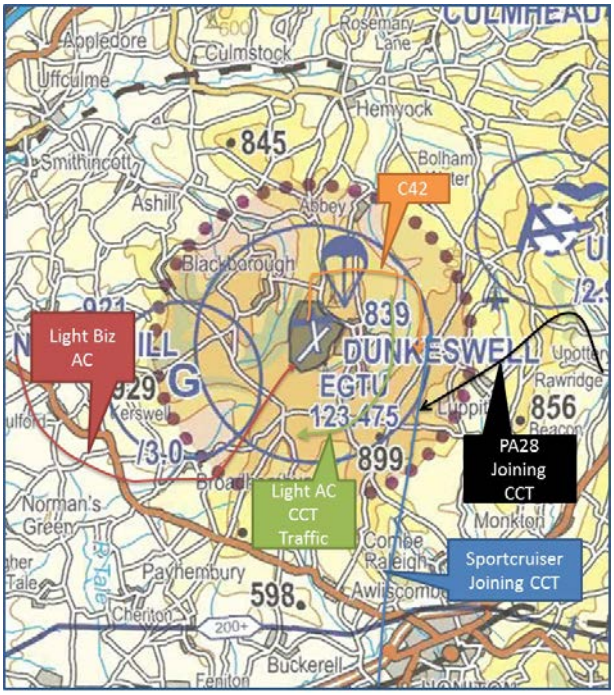


Figure 2: Representative Traffic Situation

Figure 2 provides a representation of the perceived traffic pattern of the various aircraft in and joining the Dunkeswell visual circuit based on radar recordings.

Summary

[1] SERA.3205 Proximity.
[2] SERA.3225 Operation on and in the Vicinity of an Aerodrome.

An Airprox was reported when a C42 and a Sportcruiser flew into proximity at 1216 on Thursday 20th October 2016. Both pilots were operating under VFR in VMC and in receipt of an AGCS from Dunkeswell Radio.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from the pilots of both aircraft and radar photographs/video recordings.

The Board began their discussion by looking at the complexity of the visual circuit. With three aircraft joining and two aircraft already in the visual circuit, members agreed that although mixed runway operations were acceptable due to differing aircraft requirements, this had undoubtedly added to the complexity of the traffic situation. Moreover, with a deteriorating cloudbase restricting the height of joining traffic, members also agreed that this placed even more onus on the joining pilots to ensure that they could safely integrate with the circuit traffic or remain clear until they could do so.

The Board then considered the actions of the C42 pilot. Members were advised that during a phone call with the C42 pilot he had believed that the aircraft that he had had the Airprox with was the PA28. He had seen this aircraft taxying to the parking area after the incident and had opined that this must have been the conflicting traffic. However, radar recordings showed that the PA28, whilst joining in a non-standard manner, had not conflicted with the downwind area of the RWY35 circuit at any time, and that the only aircraft that was flying in the opposite direction to the RWY35 downwind leg was the SportCruiser. Members acknowledged that the C42 pilot was teaching his student circuits at the time of the incident, and that he was busy explaining both circuit procedures and what the other aircraft were doing. Noting also the deteriorating weather conditions, some members wondered whether this had all resulted in a high-workload situation to the detriment of lookout at a critical time. Albeit not expecting the Sportcruiser to fly in the opposite direction downwind, the associated late sighting had resulted in the C42 pilot carrying out emergency avoiding action.

For his part, the Sportcruiser pilot was also in a high-workload situation with multiple joining aircraft, multiple direction runways in use, and deteriorating weather conditions. Although he had made the right decision to exit the circuit area, members agreed that this decision would have been even more appropriate at an earlier stage before he came into proximity with the circuit traffic. Having made a relatively late decision, he was faced with the PA28 and poorer weather to the East, traffic also joining from the Southwest and uncertainty about where aircraft were in the circuit (or even which circuit they were in). Although perhaps easy to decide in hindsight, members agreed that on hearing the multiple radio calls and confusion, the SportCruiser pilot would have been better served to have held away from the visual circuit to the south of Dunkeswell until the situation had settled. Although the report from the SportCruiser pilot gives a lot of detail on the traffic situation, he did not mention the C42 and its track specifically, although he did report encountering a mainly white, high-wing, single-engine aircraft downwind for RWY35 which was assumed to be the C42.

The Board then looked at the safety barriers that were relevant to this Airprox and decided that the following were the key factors:

- **Situational Awareness** was assessed as being only **partially effective** because although the aircraft were on the same frequency, both pilots only had a generic awareness of the other aircraft's position.

- **See and Avoid** was also considered only **partially effective** because although the C42 pilot saw the conflicting aircraft it was a late sighting, and the C42 pilot had to carry out emergency avoiding action. The SportCruiser pilot saw a mainly white, high-wing, single-engine aircraft downwind for RWY35 (which was assumed to be the C42) but could not give an estimate of the range he saw it.

The Board then considered the cause of the incident and members quickly agreed that in pressing on into an uncertain situation with multiple traffic patterns and poor weather, the SportCruiser pilot had not integrated into the pattern of traffic and had subsequently flown into conflict with the C42 downwind. The Board agreed that there were additional factors that contributed to the situation, these were the deteriorating weather that restricted the options for joining traffic and the complexity of the different aircraft types in the visual circuit that resulted in multiple runway usage. Turning to the risk, members noted that the C42 pilot had had to conduct an emergency manoeuvre having seen the Sportcruiser at only 300m ahead. They also noted that he had estimated the separation as only 30ft, and that, in his opinion, had he not pitched up then there would have been a certain collision. Notwithstanding the C42 pilot's comments about his manoeuvre preventing the collision, members opined that at that range he would probably have been unlikely to have materially increased the separation. As a result, the Board quickly agreed that there had been a serious risk of collision in which luck had played a major role; therefore, the Board assessed the risk as Category A.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The SportCruiser pilot did not integrate into the pattern of traffic and flew into conflict with the C42 downwind.

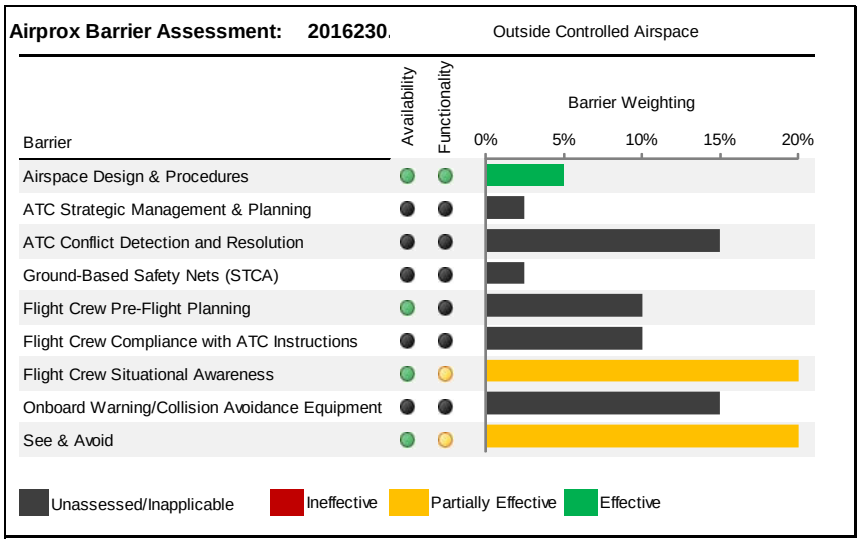
Contributory Factor(s):

1. Deteriorating weather restricted the options for joining traffic.
2. The complexity of the multi-type visual circuits.

Degree of Risk: A.

Barrier Assessment[3]:

Modern safety management processes employ the concept of safety barriers that prevent contributory factors or human errors from developing into accidents. Based on work by EASA, CAA, MAA and UKAB, the following table depicts the barriers associated with preventing mid-air-collisions. The length of each bar represents the barrier's weighting or importance (out of a total of 100%) for the type of airspace in which the Airprox occurred (i.e. Controlled Airspace or Uncontrolled Airspace).[4] The colour of each bar represents the Board's assessment of the effectiveness of the associated barrier in this incident (either Fully Effective, Partially Effective, Ineffective, or Unassessable/Absent). The chart thus illustrates which barriers were effective and how important they were in contributing to collision avoidance in this incident.



[3] The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the UKAB Website

[4] Barrier weighting is subjective and is based on the judgement of a subject matter expert panel of aviators and air traffic controllers who conducted a workshop for the UKAB and CAA on barrier weighting in each designation of airspace.