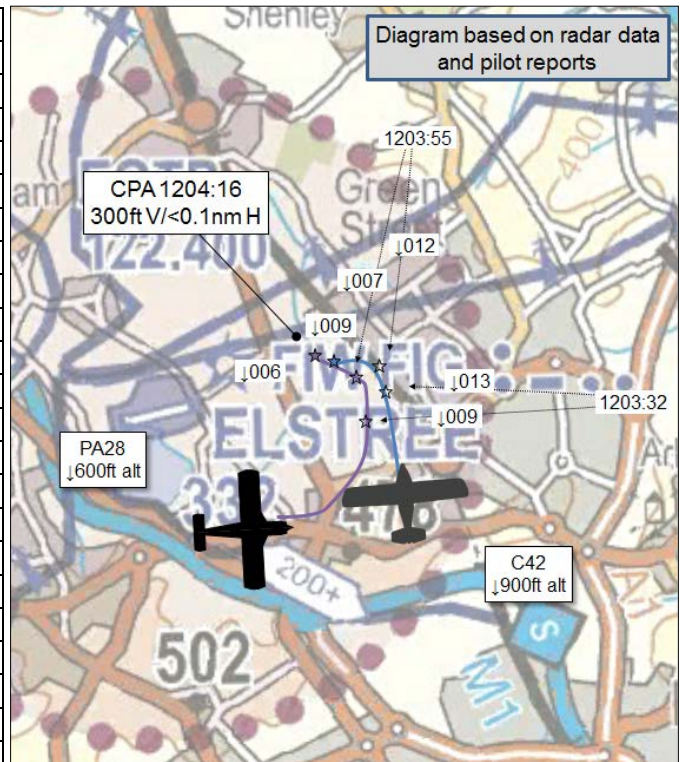


**AIRPROX REPORT No 2017158**

Date: 14 Jul 2017 Time: 1204Z Position: 5139N 00017W Location: Elstree

**PART A: SUMMARY OF INFORMATION REPORTED TO UKAB**

Recorded	Aircraft 1	Aircraft 2
Aircraft	C42	PA28
Operator	Civ Trg	Civ Pte
Airspace	Elstree ATZ	Elstree ATZ
Class	G	G
Rules	VFR	VFR
Service	AGCS	AGCS
Provider	Elstree	Elstree
Altitude/FL	900ft	600ft
Transponder	A, C, S	A, C
<b>Reported</b>		
Colours	White, Red	White, Blue
Lighting		
Conditions	VMC	VMC
Visibility	>10km	
Altitude/FL	800ft	1000ft
Altimeter	QFE (1008hPa)	QFE
Heading	350°	080°
Speed	60kt	95kt
ACAS/TAS	Not fitted	Not fitted
<b>Separation</b>		
Reported	100ft V/10m H	NR
Recorded	300ft V/0.1nm H	



**THE C42 PILOT** reports that he was conducting a circuit training session with a student. Upon commencing the base-to-final turn, the student noticed another aircraft almost directly below them by about 100ft; he delayed his final turn and initiated a go-around. The aircraft had initially been behind them in the circuit and had overtaken from beneath during the base-leg turn. The other pilot seemed confused over the RT when they told him on the radio that he had overtaken them from below, so they assumed he had not seen them.

He assessed the risk of collision as 'Medium'.

**THE PA28 PILOT** reports that he had just arrived at Elstree from the W and entered a standard overhead join. He descended deadside to cross the up-wind end of the runway at 1000ft to fit in with standard circuit traffic. He was in communication with Elstree tower throughout. He believed he had conducted a standard overhead join and had identified the other traffic ahead of him. After completing pre-landing checks downwind, he reached the end of the downwind leg and saw an aircraft high in the 1 o'clock, which he believed to be approaching the ATZ from the SE on an overhead join so he entered left-base beneath it. Base and final legs were carried out without incident, although he was subjected to a lot of unhappy RT throughout, which didn't help at the most critical stage of flight. He noted it was possible that he had mis-identified the traffic in the circuit ahead from the position reports on a busy frequency, but he remained convinced that because the aircraft was in view, maintaining separation was never at risk, the other aircraft was higher than their circuit altitude of 1000ft and appeared to be from a position outside the circuit.

He assessed the risk of collision as 'None'.

## Factual Background

The weather at Heathrow was recorded as follows:

METAR COR EGLL 141150Z AUTO 31008KT 270V350 9999 OVC039 19/08 Q1020 NOSIG=

## UKAB Secretariat

Radar analysis using NATS area radars shows the two aircraft joining the Elstree circuit (Figure 1) and completing overhead joins. The C42 flies a wider turn to the south, whilst the PA28 makes a tight descending turn to the south, Figure 2. Altitudes are QNH on the radar replay.

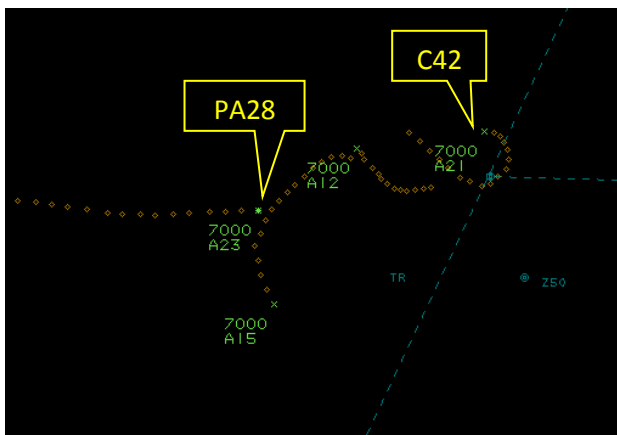


Figure 1 - 1159:44

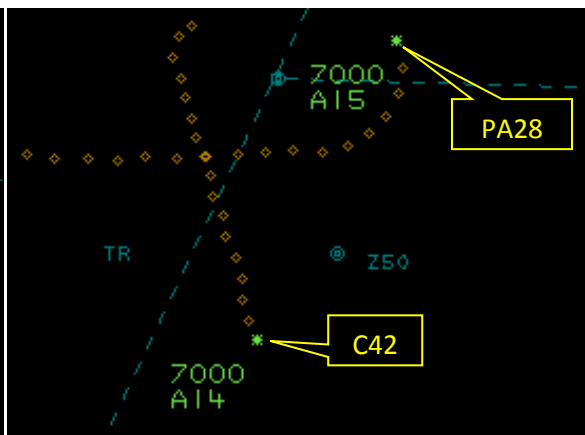


Figure 2 - 1201:09

By 1202:16, Figure 3, the PA28 has turned crosswind still descending. The C42 is at a similar height to the SE of the airfield. At Figure 4, the PA28 is indicating downwind at 1000ft QNH (approx 6-700ft QFE) with the C42 to the NE at 1400ft (approx 1000-1100ft QFE). The two aircraft continue to converge on base leg until CPA (Figures 5 and 6).

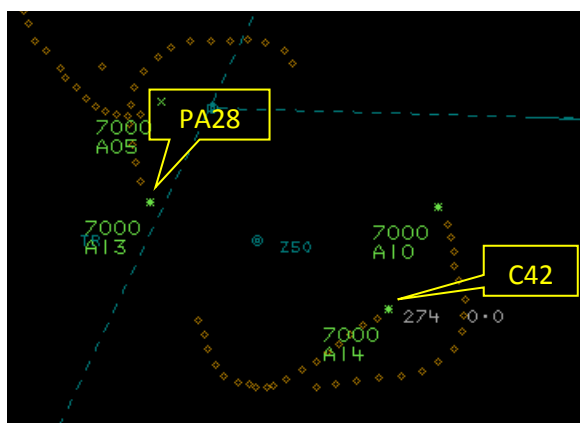


Figure 3 - 1202:16

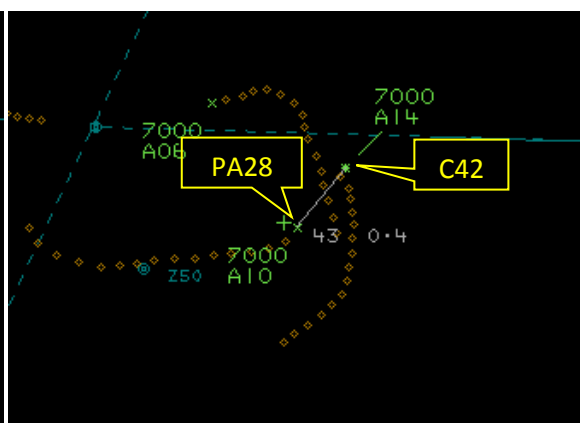


Figure 4 - 1203:19

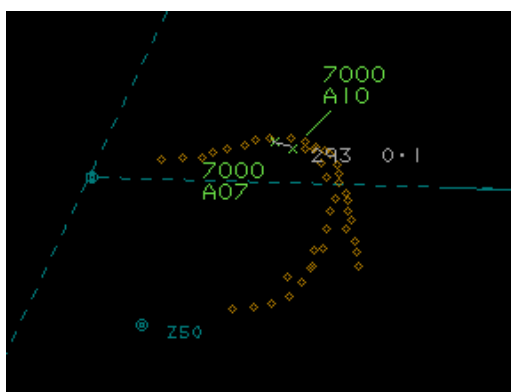


Figure 5 - 1204:04

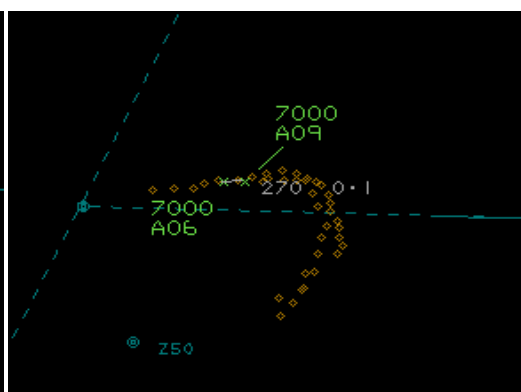


Figure 6 - CPA 1204:16

The C42 and PA28 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard<sup>1</sup>. 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<sup>2</sup>.

## Summary

An Airprox was reported when a C42 and a PA28 flew into proximity in the Elstree visual circuit at 1204 on Friday 14<sup>th</sup> July 2017. Both pilots were operating under VFR in VMC.

## **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 first discussed the actions of the C42 pilot. Noting that he was instructing a student, they commented that his circuit was slightly wide, but not unusually so given that this was a training sortie where student flying parameters may not be precise (indeed the aircraft ahead of him flew a similar profile). Notwithstanding, members thought it should have been obvious to anyone joining that he was in the visual circuit. Having made the correct downwind calls, and heard the other pilot make his calls, the C42 pilot knew that the PA28 was behind him, but was surprised to see the other aircraft overtake from behind and below when he was on base leg; members noted that he had been able to take avoiding action by commencing a go-around.

For his part, members noted that the PA28 pilot had joined the visual circuit via an overhead join but wondered whether he had properly assimilated the positions of everyone else in the circuit whilst still in the overhead, as the procedure intends. As it was, it was clear that he had joined the circuit without assimilating the C42 pilot's RT calls, and did not realise that there was two aircraft ahead of him downwind, not one. Although noting that the C42 was slightly wide in his circuit, the Board thought that, nevertheless, he should have realised it was in the circuit and were surprised that he thought it was joining overhead. The CAA standard overhead join (also published on the Elstree website) states that joining aircraft should be 1000ft above circuit height, which was in fact how the PA28 had joined. Noting that he was at about 6-700ft downwind, some members wondered whether the PA28 pilot had inadvertently flown at 1000ft downwind on the QNH, and that this was why he thought that the C42 was high. They thought his impression was probably exacerbated because he also commenced his descent early, whilst still in the late downwind position just prior to turning base, making the C42 seem even higher than it was.

The Board quickly determined that the cause of the Airprox had been that the PA28 pilot did not integrate with the C42 in the visual circuit, and thought it contributory that he had not assimilated the C42's position in the circuit. That said, the Board noted that the PA28 pilot had been visual with the C42 throughout (even though he hadn't registered that it was in the visual circuit), and, even though he then allowed himself to fly closer than desirable to the C42, would presumably not have flown into collision. Accordingly, the Board determined that there was no risk of collision; risk Category C.

## **PART C: ASSESSMENT OF CAUSE AND RISK**

Cause: The PA28 pilot did not integrate with the C42 ahead in the visual circuit.

Contributory Factor: The PA28 pilot did not assimilate the C42's position in the visual circuit.

Degree of Risk: C.

<sup>1</sup> SERA.3205 Proximity.

<sup>2</sup> SERA.3225 Operation on and in the Vicinity of an Aerodrome.

Safety Barrier Assessment<sup>3</sup>

In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

**Flight Crew**

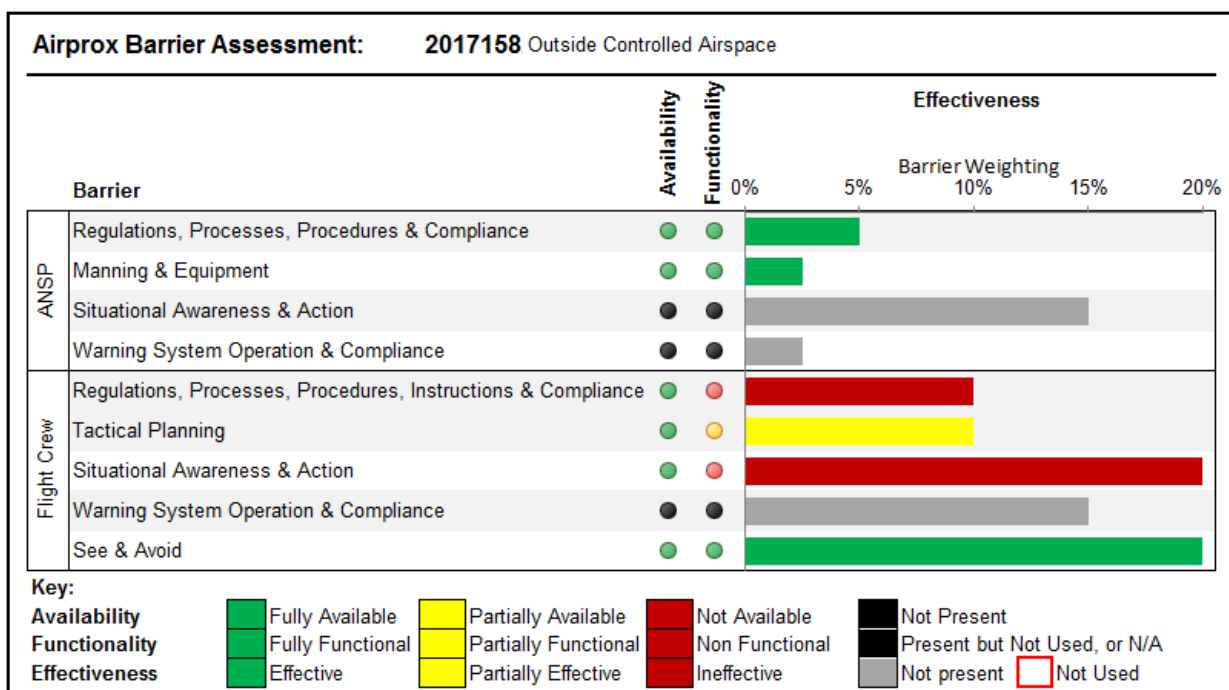
**Regulations, Processes, Procedures, Instructions & Compliance** was assessed as **ineffective** because the PA28 pilot did not fully integrate into the visual circuit.

**Tactical Planning** was assessed as **partially effective** because the PA28 pilot descended early prior to turning onto base.

**Situational Awareness & Action** was assessed as **ineffective** because the PA28 pilot did not assimilate the position of the C42 through its pilot’s RT calls.

**Warning System Operation and Compliance** was assessed as **not present**; neither aircraft was fitted with a CWS.

**See and Avoid** was assessed as **fully effective**; the PA28 pilot was visual with the C42 throughout.



<sup>3</sup> The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).