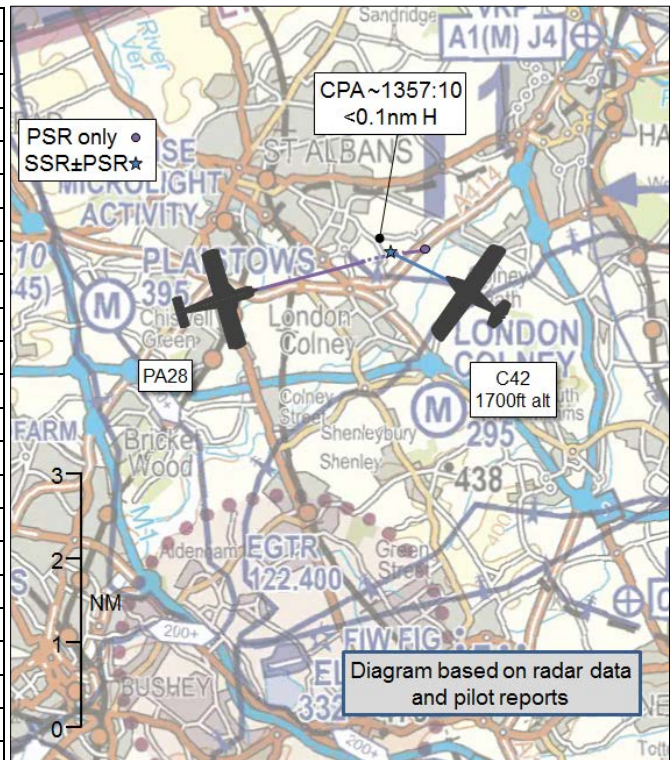


**AIRPROX REPORT No 2017098**

Date: 31 May 2017 Time: 1350Z Position: 5144N 00017W Location: 1nm SSE St Albans

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

Recorded	Aircraft 1	Aircraft 2
Aircraft	C42	PA28
Operator	Civ Trg	Civ Pte
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Basic	None
Provider	Elstree	
Altitude/FL	1700ft	NK
Transponder	A, C, S	A, C
Reported		
Colours	White, Red	White, Red
Lighting	Nil	Nav
Conditions	VMC	VMC
Visibility	>10km	20nm
Altitude/FL	1600ft	1850ft
Altimeter	QNH (1022hPa)	QNH (1014hPa)
Heading	280°	070°
Speed	50kt	105kt
ACAS/TAS	Not fitted	Not fitted
Separation		
Reported	30ft V/0m H	100ft V/200m H
Recorded	NK V/>0.1nm H	



**THE C42 PILOT** reports that he was in a gentle descent, with a nose-high attitude on a slow-flying exercise. The student was flying the aircraft and, due to the nature of the exercise, the instructor had his hands following the controls. He saw an aircraft approaching them from the 1130 position and only about 30ft above them. He took control and increased the rate of descent; the other aircraft flew directly over them about 5 seconds later.

He assessed the risk of collision as 'High'.

**THE PA28 PILOT** reports that he was flying straight-and-level, and was almost overhead the M25, below controlled airspace at a height of just under 2000ft. He saw another aircraft in his 1 o'clock at a distance of about 500m, which he judged from the silhouette to be heading in the opposite direction 100-200ft below. The other aircraft appeared to be dark red, but he didn't get a good look as it passed below and on the starboard side. At the time he didn't think anything of it because he believed it was not at the same level, and noted that the area was something of a choke point for light-aircraft and he often saw other aircraft within a few hundred metres of his own here without needing to take emergency avoidance.

He assessed the risk of collision as 'Medium'.

**THE FARNBOROUGH LARS W CONTROLLER** reports that he had been giving a Basic Service to the PA28; however, as it transited north he tried to transfer the pilot to Farnborough LARS N but he did not respond to any calls. In the Elstree area, the squawk changed to 7000 and so assumed the pilot had gone en-route. There were no transmissions from him and no Airprox report on frequency.

**Factual Background**

The weather at Heathrow was recorded as follows:

METAR COR EGLL 311350Z AUTO VRB04KT 9999 SCT035 22/13 Q1022 NOSIG=

## Analysis and Investigation

### CAA ATSI

The Airprox was reported by the C42 pilot when it came into proximity with a PA28 approximately 4nm north of Elstree. The C42 was in receipt of a Basic Service from Elstree. The PA28 had been in receipt of a Basic Service from Farnborough LARS West but had left the frequency at the time of the Airprox.

The C42 was on a local training flight from Elstree and had been operating to the north east. The PA28 pilot had called Farnborough LARS west at approximately 1337:00 and a Basic Service was agreed. At 1352:18 the Farnborough LARS West controller called the PA28 to transfer it to Farnborough LARS North. There was no reply and over the next 4 minutes the controller made another 3 attempts to raise the PA28 but without success. Figure 1 depicts the traffic situation at 1356:01 (PA28 code 0433, C42 code 7000).

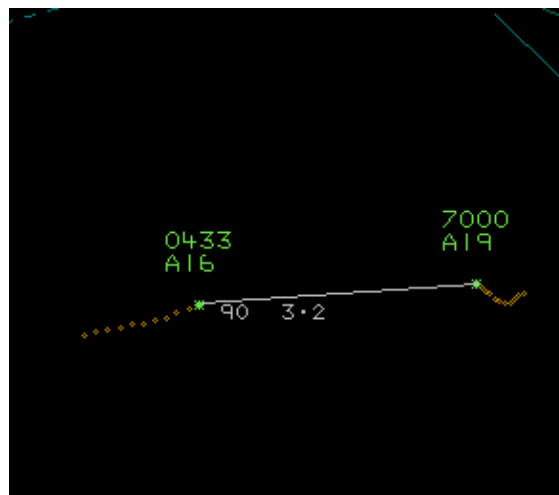


Figure 1 – 1356:01

At 1356:42 the PA28 faded to a primary radar-only target. CPA occurred at 1357:11. The lateral distance was measured at 0.1nm but because the aircraft were on opposing tracks it is possible that this distance became less prior to the next radar sweep when the contacts had passed each other. There was no height information so it is not possible to establish the vertical distance between them.

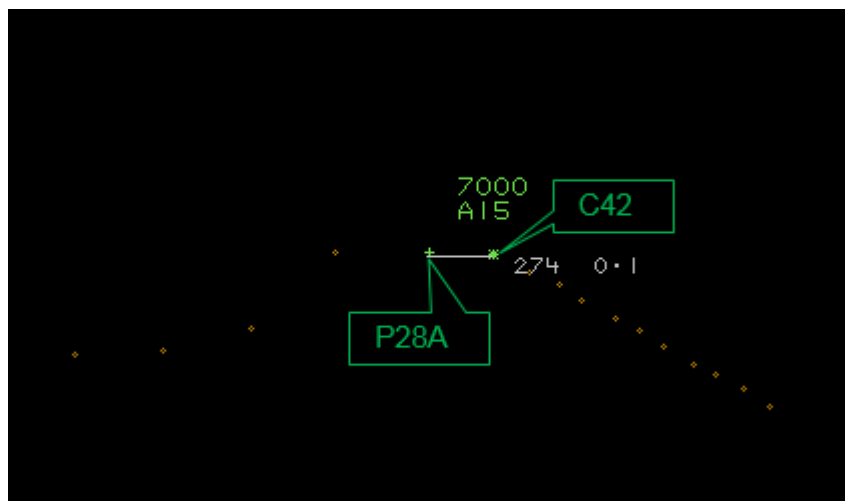


Figure 2 – CPA 1357:11

The Aerodrome FISO at Elstree was providing a Basic Service without the use of surveillance equipment. Under a Basic Service a controller is not required to monitor a flight and pilots remain responsible for their own collision avoidance.

### **UKAB Secretariat**

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>. If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right.

### **Summary**

An Airprox was reported when a C42 and a PA28 flew into proximity at 1350 on Wednesday 31<sup>st</sup> May 2017. Both pilots were operating under VFR in VMC, and neither were in receipt of an ATS.

### **PART B: SUMMARY OF THE BOARD'S DISCUSSIONS**

Information available consisted of reports from the pilots of both aircraft, transcripts of the relevant RT frequencies, radar photographs/video recordings, reports from the air traffic controllers involved and reports from the appropriate ATC and operating authorities.

The Board first looked at the actions of the C42 pilot. He was listening out with Elstree and receiving a Basic Service, although because Elstree don't have any radar they would not have been able to provide Traffic Information on the PA28, or on anything else that wasn't on their frequency. Noting that Plaistows was a known choke point and busy piece of airspace, the Board wondered whether he would have been better served calling Farnborough, who may have been able to provide a Traffic Service, or least Basic Service, and where he might then have heard other aircraft in the area on frequency. He saw the PA28 fairly late, but managed to take avoiding action by descending. The Mode C on the PA28 had dropped out of radar cover at CPA and so the exact separation was not known; however, the PA28 had been showing level at 1600ft for some time before it dropped off the radar and therefore it was thought likely that he remained at that level meaning that the two aircraft probably had around 100ft separation. Members wondered whether the C42 pilot, startled by the appearance of the PA28, might have perceived it to be closer than it was.

Similarly, the PA28 pilot had left the Farnborough frequency and was also operating in a busy piece of airspace without an ATS. He saw the C42 and estimated that it was 200ft below him and so did not think that avoiding action was necessary. GA members thought that he could have been more positive with his action at this point, and ensured more separation by either a climb or change in direction rather than simply pass overhead and accept around 100ft separation. The Board reiterated that, firstly, pilots should be mindful that other's risk appetite may not be the same as their own, and, secondly, that they had no way of knowing the other pilot's intentions which may have been to pull up at that point. As a result, pilots should ensure as much separation as possible when encountering other aircraft rather than just squeezing past. The Board also noted that neither aircraft was fitted with any form of collision warning system; without any suitable ATS, this left only see-and-avoid as a collision avoidance barrier when low-cost electronic conspicuity systems such as PilotAware and others were becoming increasingly affordable and would likely have provided an alert in this case.

In looking at the cause of the Airprox, it was quickly agreed that the incident had been a late sighting by both pilots. In determining the risk, the Board thought that although the PA28 pilot had seen the C42 about 500m ahead, safety had been much reduced below the norm and that the avoiding action taken by the C42 pilot had materially increased the separation; Category B.

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

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

Cause: A late sighting by both pilots.

Degree of Risk: B.

Safety Barrier Assessment<sup>2</sup>

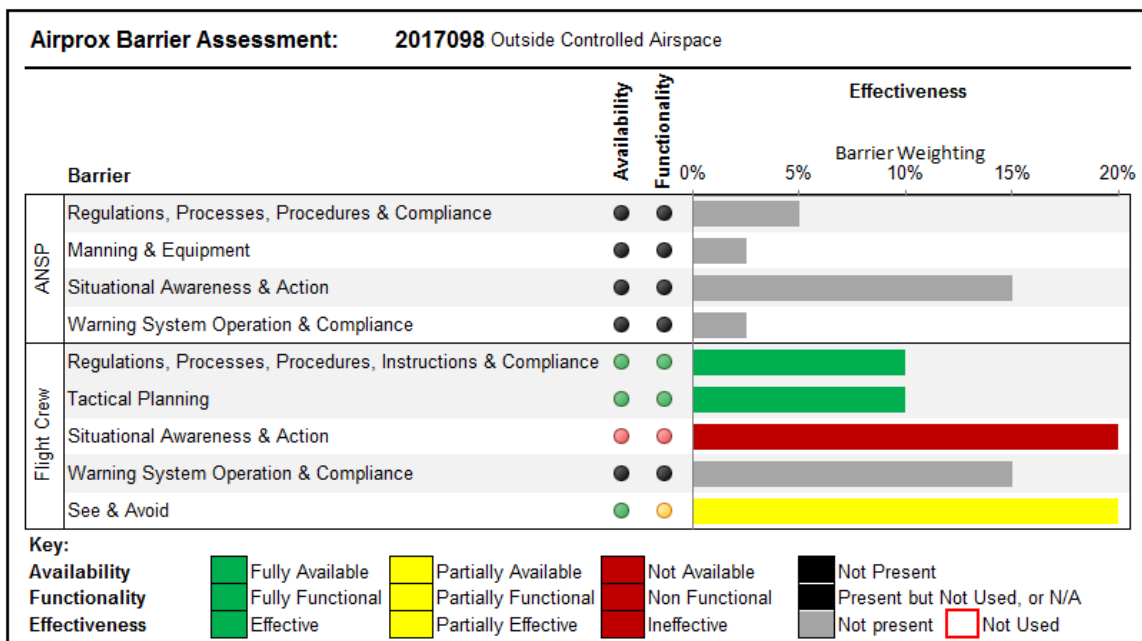
In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

**Flight Crew**

**Situational Awareness & Action** was assessed as ineffective because neither pilot had any information on the other, either from ATC or from CWS.

**Warning System Operation and Compliance** was assessed as not present, neither aircraft was fitted with one.

**See and Avoid** was assessed as partially effective, the C42 pilot took avoiding action, albeit later than ideal.



<sup>2</sup> The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](http://www.ukab.co.uk).