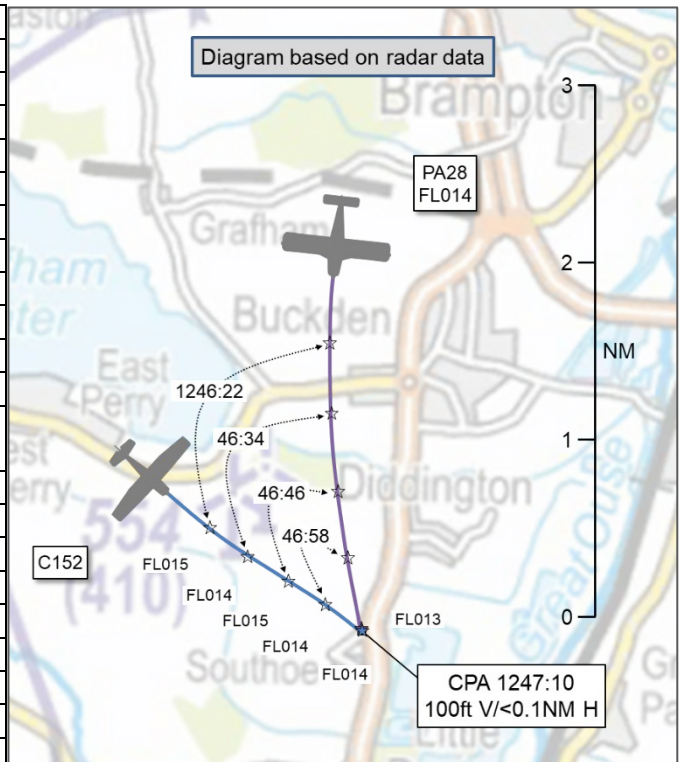


**AIRPROX REPORT No 2022022**

Date: 06 Mar 2022 Time: 1247Z Position: 5216N 00015W Location: Grafham Water

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

Recorded	Aircraft 1	Aircraft 2
Aircraft	C152	PA28
Operator	Civ FW	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	None	Listening Out
Provider	N/A	Luton
Altitude/FL	FL014	FL013
Transponder	A, C, S	A, C
<b>Reported</b>		
Colours	White, Blue	White, Red
Lighting	Beacon, strobe, Landing	Strobes, Nav
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	1400ft	1900ft
Altimeter	QNH	QNH (1032hPa)
Heading	123°	180°
Speed	85kt	115kt
ACAS/TAS	Not fitted	Not fitted
<b>Separation at CPA</b>		
Reported	0ft V/NK H	200ft V/ NK H
Recorded	100ft V/<0.1NM H	



**THE C152 PILOT** reports that they were conducting a PPL lesson, exercise 4.2, with a student. The cloudbase was approximately 2300ft and the altimeter was set on the ground as there was no ATIS information available. They were operating out of Cambridge, however at the weekend, they operate with an out-of-hours exemption so there is no ATC. Consequently, they report on the Cambridge frequency to communicate with other traffic operating in and around Cambridge. They had been operating around Grafham Water and were heading back towards Cambridge, the student was handling the aircraft, maintaining straight and level and practicing trimming the aircraft. The instructor was maintaining a good lookout and then saw, in their 8/9 o'clock position, a high-wing aircraft [they believed] in close proximity, at the same level. It was too close for them to react, fortunately the other pilot had seen them and descended, passing below and behind them. At the time, it was difficult to determine actual distance of the aircraft.

The pilot assessed the risk of collision as 'Medium'.

**THE PA28 PILOT** reports that they were on a cross-country flight. When near Grafham Water, they noticed an aircraft at similar altitude in their 10 o'clock (sic) passing right-to-left. They kept the aircraft in sight at all times, and since the other aircraft was not changing course, they decided to descend while maintaining visual contact. It seemed like the other aircraft did not see them, as no change of course was taken by the Cessna.

The pilot assessed the risk of collision as 'None'.

**Factual Background**

The weather at Luton was recorded as follows:

METAR EGGW 061220Z AUTO 05015KT 9999 BKN037 OVC044 05/01 Q1029=

## Analysis and Investigation

### UKAB Secretariat

An analysis of the NATS radar replay was undertaken. Neither pilot was receiving an ATS, the C152 was squawking 7000 (converted to 'V' on the radar replay) and the PA28 pilot was listening out on the Luton frequently and was therefore displaying the Luton frequency monitoring code of 0013. At Figure 1 the two aircraft were 6.5NM apart, the C152 was heading east and indicating FL012, and the PA28 was on a southerly heading, indicating FL014. The two tracks continued to close until 1245:31 (Figure 2) when the C152 turned onto a south-easterly heading at FL015.

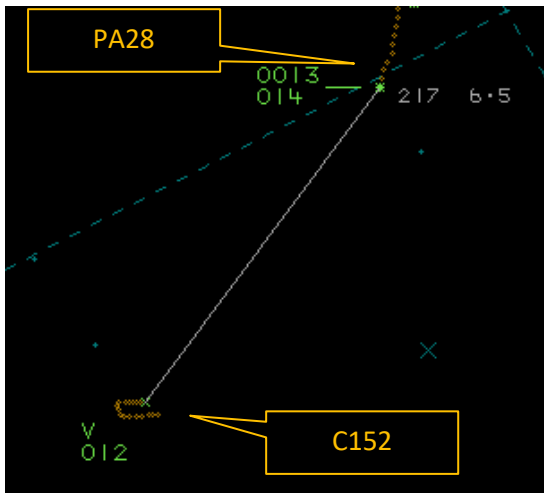


Figure 1 - 1244:07

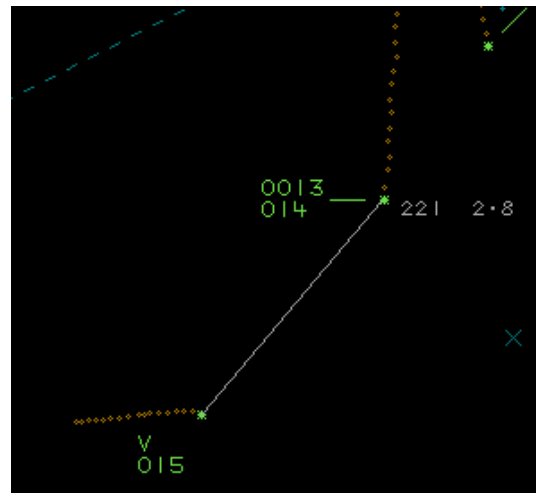


Figure 2 - 1245:31

Again the two aircraft continued and at 1246:53 (Figure 4) were 0.4NM apart with an indicated 100ft separation. The PA28 descended to FL013 shortly afterwards and CPA occurred at 1247:10 (Figure 5) with a radar indicated 100ft and <0.1NM separation.

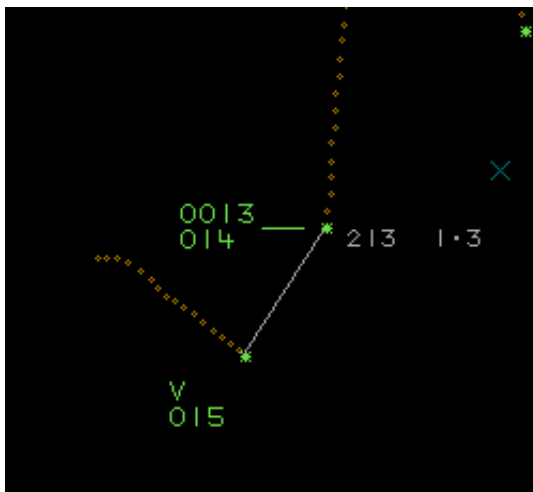


Figure 3 - 1246:22

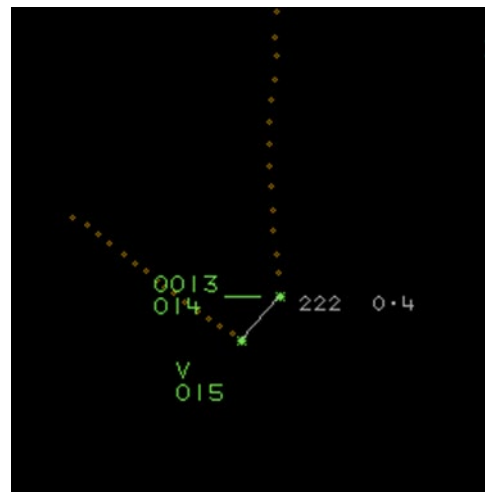


Figure 4 - 1246:53

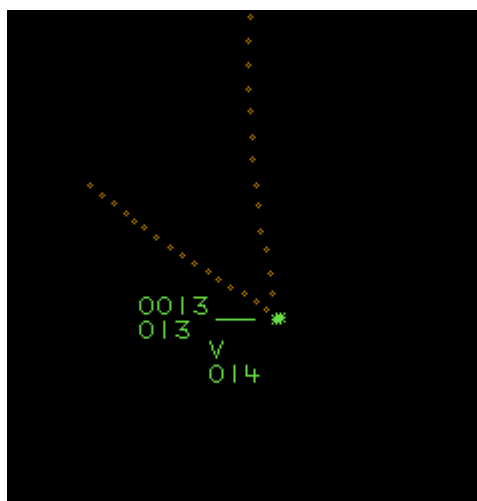


Figure 5 – CPA 1247:10

The C152 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 converging then the PA28 pilot was required to give way to the C152.<sup>2</sup> If the incident geometry is considered as overtaking then the C152 pilot had right of way and the PA28 pilot was required to keep out of the way of the other aircraft by altering course to the right.<sup>3</sup>

## Summary

An Airprox was reported when a C152 and a PA28 flew into proximity at Grafham Water at 1247Z on Sunday 6<sup>th</sup> March 2022. Both pilots were operating under VFR in VMC, neither were in receipt of an ATS.

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

Information available consisted of reports from both pilots and radar photographs/video recordings. Relevant contributory factors mentioned during the Board's discussions are highlighted within the text in bold, with the numbers referring to the Contributory Factors table displayed in Part C.

Members first discussed the actions of the C152 pilot. They noted that they were operating without an ATS; because Cambridge were closed and there was not any other obvious LARS provider in the area, they had resorted to listening out on the Cambridge frequency. Whilst this would have provided information on other Cambridge-based aircraft, it was unlikely to be the frequency of choice for anyone transiting through the area, and, as happened, would not provide any information on the PA28. Without any CWS either, the pilot did not have any prior situational awareness that the PA28 was in the vicinity (**CF3**). The PA28 was on a constant relative bearing to the C152 and as such would have been difficult to see, further compounded by the high-wing of the C152 restricting lookout. In the event, the C152 pilot saw the PA28 in their 8-9 o'clock, too late to take any avoiding action, making this effectively a non-sighting by the C152 pilot (**CF5**).

Turning to the PA28 pilot, they had the same ATS problem in that there was no LARS provider in the area and so they had chosen to listen out on the Luton frequency with a frequency monitoring code (FMC). Whilst the PA28 pilot did not indicate that they were under the illusion that this provided any kind of ATS, still members wanted to highlight to all pilots that a FMC was to help controllers to monitor airspace infringements and would not provide any Traffic Information. Consequently, the PA28 pilot also had no prior situational awareness that the C152 was in the vicinity (**CF3**). Again, the C152 was on a constant relative bearing to the PA28 and the low-wing of the PA28 also had the potential to reduce the ability to see the conflicting traffic. The PA28 pilot reported becoming visual at range, however, with

<sup>1</sup> (UK) SERA.3205 Proximity.

<sup>2</sup> (UK) SERA.3210 Right-of-way (c)(2) Converging.

<sup>3</sup> (UK) SERA.3210 Right-of-way (c)(3) Overtaking.

the C152 on the right, it was for the PA28 pilot to give way to it. By continuing on course, members thought that the PA28 pilot had not given way sufficiently early (**CF1**), but instead had continued on track and into proximity with the C152 (**CF2**). Although members understood that the pilot had wanted to keep the C152 in sight, still they thought that a small heading change at range to ensure they went behind the C152, or an early descent to increase the vertical separation further, was preferable to continuing into such close proximity, noting that without knowing the other pilot's intentions there was always the danger that the other pilot would manoeuvre unexpectedly reducing the separation still further. In not taking early enough action, members thought that the PA28 pilot had flown close enough to cause the C152 pilot concern (**CF4**).

Members noted that neither aircraft was fitted with any additional electronic conspicuity equipment, which on this occasion may have provided some additional information to aid visual acquisition. It was for pilots to decide on their own requirements for additional equipment according to their needs and the Board wished to highlight to pilots that additional funding has been made available for electronic conspicuity devices through the CAA's Electronic Conspicuity Rebate Scheme, which has been extended until 31<sup>st</sup> March 2023.<sup>4</sup>

In determining the risk, members took into consideration the radar screenshots together with the reports from both pilots. They agreed that because the PA28 pilot had been visual with the C152, there had been no risk of collision, however, they felt that the separation was such that safety had been degraded and accordingly assessed the Airprox as Risk Category C.

## **PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK**

### Contributory Factors:

	2022022			
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
<b>Flight Elements</b>				
<b>• Regulations, Processes, Procedures and Compliance</b>				
1	Human Factors	• Use of policy/Procedures	Events involving the use of the relevant policy or procedures by flight crew	Regulations and/or procedures not complied with
<b>• Tactical Planning and Execution</b>				
2	Human Factors	• Insufficient Decision/Plan	Events involving flight crew not making a sufficiently detailed decision or plan to meet the needs of the situation	Inadequate plan adaption
<b>• Situational Awareness of the Conflicting Aircraft and Action</b>				
3	Contextual	• Situational Awareness and Sensory Events	Events involving a flight crew's awareness and perception of situations	Pilot had no, late, inaccurate or only generic, Situational Awareness
<b>• See and Avoid</b>				
4	Human Factors	• Lack of Individual Risk Perception	Events involving flight crew not fully appreciating the risk of a particular course of action	Pilot flew close enough to cause concern
5	Human Factors	• Monitoring of Other Aircraft	Events involving flight crew not fully monitoring another aircraft	Non-sighting or effectively a non-sighting by one or both pilots

Degree of Risk: C.

### Safety Barrier Assessment<sup>5</sup>

<sup>4</sup> <https://www.caa.co.uk/general-aviation/aircraft-ownership-and-maintenance/electronic-conspicuity-devices/>

<sup>5</sup> The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).

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

**Flight Elements:**

**Regulations, Processes, Procedures and Compliance** were assessed as **ineffective** because the PA28 pilot flew into such proximity as to create a collision hazard.

**Tactical Planning and Execution** was assessed as **ineffective** because the PA28 pilot did not adapt their plan to ensure adequate separation from the C152.

**Situational Awareness of the Conflicting Aircraft and Action** were assessed as **ineffective** because neither pilot had any prior situational awareness on the other.

**See and Avoid** were assessed as **partially effective** because it was effectively a non-sighting by the C152 pilot and although the PA28 pilot was visual with the C152, their avoiding action was considered insufficient.

