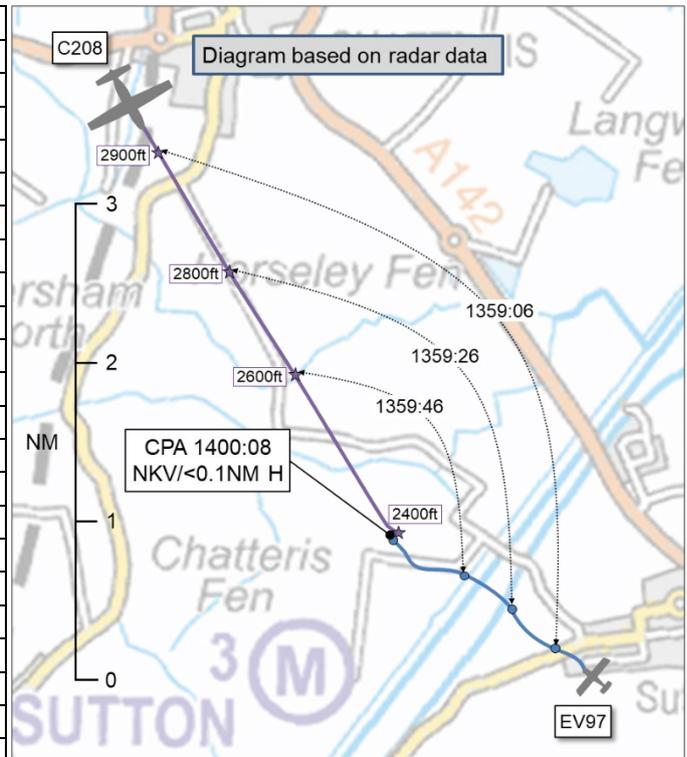


**AIRPROX REPORT No 2024258**

Date: 11 Oct 2024 Time: 1400Z Position: 5224N 00004E Location: ivo Sutton Meadows

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

Recorded	Aircraft 1	Aircraft 2
Aircraft	EV97	C208
Operator	Civ FW	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	None	None <sup>1</sup>
Provider	N/A	N/A
Altitude/FL	NK	2400ft
Transponder	None 'Off'	A, C, S
Reported		
Colours	Silver	White & blue
Lighting	None	Nav, strobes, Indg
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	2200ft	2000ft descending
Altimeter	QNH (1016hPa)	QNH
Heading	280°	140°
Speed	70kt	150kt
ACAS/TAS	Not fitted	TCAS II
Alert	N/A	RA
Separation at CPA		
Reported	20ft V/20m H	50ft V/200ft H
Recorded	NK V/<0.1NM H	



**THE EV97 PILOT** reports they were flying circuits at Sutton Meadows airfield and had climbed out of the circuit in order to practise a standard overhead join. They were in the process of the join and were just crossing to the deadside of RW19 and about to start a descent when the Airprox occurred. The other aircraft was on an almost opposite heading in their one o'clock and slightly higher. They sighted the other aircraft very late and only had time to react with a roll to the left. They believed the pilot of the other aircraft sighted them at the same moment and also started a roll to the left. The other aircraft passed them before they had time to note any details.

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

**THE C208 PILOT** reports they were flying a very regular route for them. They would usually fly approximately direct but may have to avoid [some restricted zones, danger zones], and Chatteris gliding site<sup>2</sup> [they thought]. If avoiding Chatteris, [to the north of Sutton Meadows], they would normally fly to the east and descend through the Mildenhall stub. On this occasion, they had flown to the right of their usual track. They could not remember, but they had either done this because they avoided [a danger zone] to the southwest and continued right of track or because they had recently been flying this route with another pilot who had used the IFR waypoint SIVDA to avoid Chatteris and the Mildenhall MATZ and they may have followed their route. The other pilot referred to was not on board this time. They were on a service from Lakenheath ATC (probably Basic) who suggested they free-call Cambridge ATC because of multiple contacts in the vicinity of Cambridge. [The Lakenheath controller] did not give them a frequency and they believed the first frequency they tried to call was wrong. They were looking down for the frequency when alerted to the presence of the other aircraft by TCAS [they believed]. The pilot reported making a left turn as avoiding action.

<sup>1</sup> The C208 pilot reports that they were changing frequency between Lakenheath and Cambridge FIS.

<sup>2</sup> Chatteris is noted in the UK AIP ENR 5.5 and on the chart as a microlight site with intense parachuting.

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

## Factual Background

The weather at Cambridge Airport was recorded as follows:

METAR EGSC 111350Z 21005KT 180V310 9999 FEW035 10/M01 Q1017

## Analysis and Investigation

### UKAB Secretariat

An analysis of the radar replay was undertaken and the C208 was positively identified using Mode S data. The EV97 was showing as a primary track only and matched the EV97 pilot's reported position and actions. At 1400:06 the aircraft were seen to be 0.1NM apart with the altitude of the EV97 not recorded (Figure 1), after which there were 2 radar sweeps where the EV97 disappeared from the radar replay.

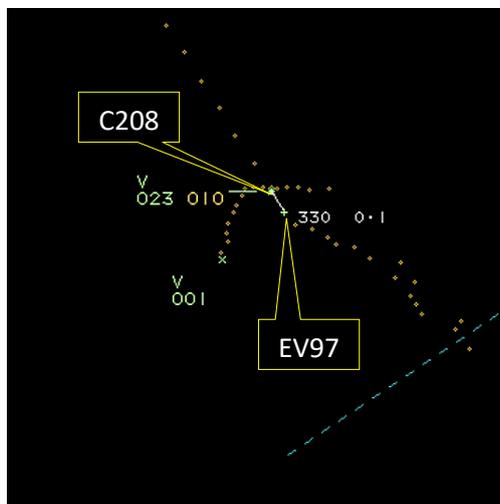


Figure 1 -Time 1400:06 lateral separation 0.1NM

The EV97 reappeared on the radar replay at 1400:18, diverging from the C208 with 0.7NM separation. CPA was assessed by interpolation as occurring at 1400:08 with a lateral separation of less than 0.1NM and vertical separation unknown.

An analysis of ADS-B data sources was undertaken and the C208 flight could be seen using multi-lateration data only, with no historical data available for the EV97. The C208's GPS navigation files aligned with the radar track, but there was no GPS navigation data available for the EV97.

The EV97 and C208 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>3</sup> If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right.<sup>4</sup>

## Summary

An Airprox was reported when an EV97 and a C208 flew into proximity in the vicinity of Sutton Meadows at 1400Z on Friday 11<sup>th</sup> October 2024. The EV97 pilot was operating under VFR in VMC and not in receipt of a FIS; the C208 pilot was operating under VFR in VMC and not in receipt of a FIS because they were changing frequency between Lakenheath and Cambridge.

<sup>3</sup> (UK) SERA.3205 Proximity.

<sup>4</sup> (UK) SERA.3210 Right-of-way (c)(1) Approaching head-on.

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

Information available consisted of reports from both pilots, radar photographs/video recordings and a GPS data track from the C208 pilot. 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.

The Board first considered the actions of the EV97 pilot and members noted that the pilot had not turned their transponder on prior to commencing their flight. Members discussed the importance of the transponder equipment and its role in increasing the visibility of an aircraft, noting that it is a vital tool for safety and not just useful for ATC but also detectable by TCAS in large commercial aircraft and many of the electronic conspicuity devices carried in recreational General Aviation aircraft, providing a significant safety net in the defence against mid-air collision. One member wondered if the pilot had been performing a training flight and mentioned that, had this been the case, the instructor may have missed an important teaching opportunity. Members agreed that the addition of an alternative electronic conspicuity device working complementary to the transponder, with both functioning, would have been helpful as a situational awareness tool and considered that, as the EV97 had not been emitting a transponder signal as required by (UK) SERA.13001(a)<sup>5</sup> (**CF1**), the EV97 pilot's transponder selection had rendered the protection of an electronic warning system barrier ineffective (**CF2, CF4**). Under the circumstances, the Board agreed that the EV97 pilot had had no situational awareness of the presence or position of the C208 (**CF3**) and had sighted the C208 sufficiently late (**CF5**) as to require them to have taken evasive action.

Turning their attention to the actions of the C208 pilot, the Board commended them for their knowledge of the route, although members questioned the wisdom of using an IF reporting point when not in contact with the appropriate ATSU. The Board wished to highlight that not all IFR reporting points are known to all controllers, so their use for VFR flight should be exercised with caution. On discussing the pre-flight planning further, members thought that it may have been prudent for the pilot to have had the expected route frequencies pre-noted before departure, which would have saved them time and avoided the unfortunate distraction of searching for the required frequency. The Board noted that the C208 pilot reported that they had had a TCAS RA which had alerted them to the other aircraft, but members concluded that this could not have been generated by the EV97 as the EV97 pilot had not operated their transponder and, therefore, there had been no equipment that could have interacted with the TCAS. It was also noted that the EV97 had only been detected as a primary return by radar, reinforcing the Board's conclusions with respect to an EC interaction, but it was further noted that another aircraft had also been operating in the circuit at Sutton Meadows, and it had possibly been that aircraft which had caused the alert. The Board therefore agreed that the C208 pilot had had no situational awareness of the presence of the EV97 (**CF3**). Nevertheless, members felt that the alert had been fortuitous, inasmuch as the C208 pilot, reacting to the alert, had sighted the EV97, albeit at a late stage (**CF5**). The Board wished to highlight the importance of maintaining a vigilant lookout, especially while operating in the open FIR and Class G airspace, emphasising that there is a large number of airfields that have no designated airspace.

Concluding their discussions, members agreed that neither of the pilots had had any situational awareness of the presence of the other aircraft. The pilot of the EV97 had not sighted the C208 and the pilot of the C208 had not sighted the EV97 until at or around CPA, whereupon both pilots had initiated an evasive left turn as the most suitable course of action for the event. Members agreed that the separation between the EV97 and C208 had been such that the safety of the aircraft had not been assured and that there had been a risk of collision (**CF6**). Therefore, the Board assigned a Risk Category B to this event.

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<sup>5</sup> (UK) SERA.13001 Operation of an SSR transponder.

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

### Contributory Factors:

	2024258			
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	• Transponder Selection and Usage	An event involving the selection and usage of transponders	
<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>• Electronic Warning System Operation and Compliance</b>				
4	Technical	• ACAS/TCAS System Failure	An event involving the system which provides information to determine aircraft position and is primarily independent of ground installations	Incompatible CWS equipment
<b>• See and Avoid</b>				
5	Human Factors	• Identification/Recognition	Events involving flight crew not fully identifying or recognising the reality of a situation	Late sighting by one or both pilots
<b>• Outcome Events</b>				
6	Contextual	• Near Airborne Collision with Aircraft	An event involving a near collision by an aircraft with an aircraft, balloon, dirigible or other piloted air vehicles	

Degree of Risk: B

### Safety Barrier Assessment<sup>6</sup>

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 **partially effective** because the EV97 pilot had not switched their transponder on in accordance with (UK) SERA.13001(a).

**Tactical Planning and Execution** was assessed as **partially effective** because the EV97 pilot had left the transponder turned off.

**Situational Awareness of the Conflicting Aircraft and Action** were assessed as **ineffective** because neither the EV97 pilot nor the C208 pilot were aware of the other aircraft's presence or position.

**Electronic Warning System Operation and Compliance** were assessed as **ineffective** because the EV97 pilot's transponder selection had not enabled it to be detected by the C208's TCAS.

<sup>6</sup> The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).

**See and Avoid** were assessed as **partially effective** because both the EV97 and C208 pilots only sighted the other's aircraft at a late stage, each taking emergency avoiding action.

<b>Airprox Barrier Assessment: 2024258</b>		Outside Controlled Airspace					
Barrier	Provision	Application	Effectiveness				
			Barrier Weighting				
			0%	5%	10%	15%	20%
Ground Element	Regulations, Processes, Procedures and Compliance	●	●				
	Manning & Equipment	●	●				
	Situational Awareness of the Confliction & Action	●	●				
	Electronic Warning System Operation and Compliance	●	●				
Flight Element	Regulations, Processes, Procedures and Compliance	●	●				
	Tactical Planning and Execution	●	●				
	Situational Awareness of the Conflicting Aircraft & Action	●	●				
	Electronic Warning System Operation and Compliance	●	●				
	See & Avoid	●	●				
<b>Key:</b>		Full	Partial	None	Not Present/Not Assessable	Not Used	
Provision	●	●	●	●	○		
Application	●	●	●	●	○		
Effectiveness	■	■	■	■	■		