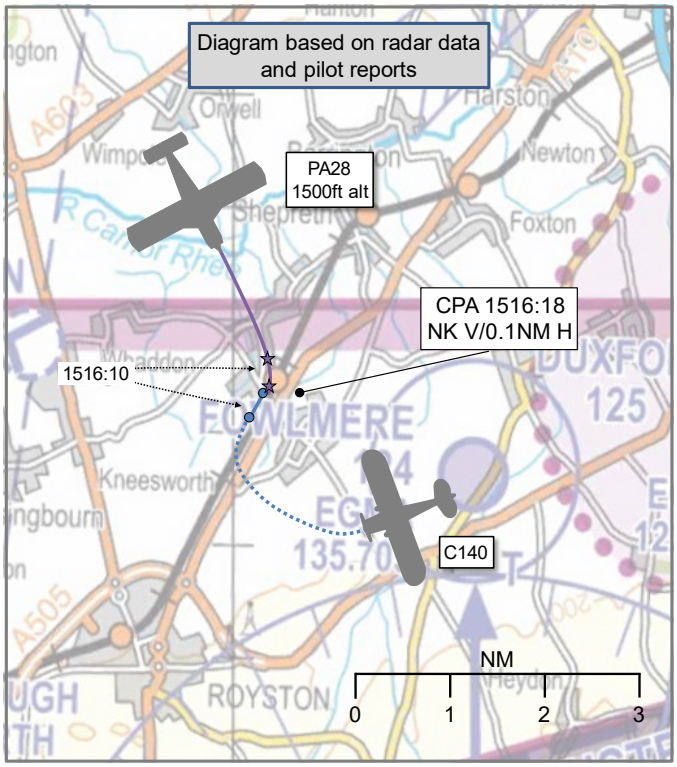
## AIRPROX REPORT No 2023012

Date: 08 Feb 2023 Time: 1516Z Position: 5205N 00000E Location: Fowlmere

## PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

| Recorded | Aircraft 1 | Aircraft 2 |
|---|---|---|
| Aircraft | C140 | PA28 |
| Operator | Civ FW | Civ FW |
| Airspace | London FIR | London FIR |
| Class | G | G |
| Rules | VFR | VFR |
| Service | Listening Out | None[1] |
| Provider | Fowlmere | N/A |
| Altitude/FL | NK | 1500ft |
| Transponder | Not fitted | A, C, S |
| **Reported** | | |
| Colours | Grey | White |
| Lighting | Nav | Beacon, strobe |
| Conditions | VMC | VMC |
| Visibility | 5-10km | 5-10km |
| Altitude/FL | 800ft | 1400ft |
| Altimeter | agl | QNH (1032hPa) |
| Heading | NE | S |
| Speed | 78kt | NK |
| ACAS/TAS | Not fitted | SkyEcho |
| Alert | N/A | None |
| **Separation at CPA** | | |
| Reported | 150ft V/0m H | Not Seen |
| Recorded | NK V/0.1NM H | |




**THE C140 PILOT** reports that, whilst performing circuits at Fowlmere at a circuit height of 800ft agl, they noticed an aircraft about 1NM away, flying towards them without sufficient separation. The other aircraft maintained their heading and height, so they decided to descend a little to ensure they remained clear of the traffic and it flew directly above them. They later found out that the aircraft had flown to Duxford; it could not be heard on Fowlmere or Duxford frequency as it was crossing Fowlmere airfield or before. They were operating on the Fowlmere frequency of 135.705MHz and listening to Duxford on 122.080MHz. Duxford ATC knew about their presence and that they were performing circuits on RW25RH.

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

**THE PA28 PILOT** reports that they had planned to fly solo to [other airfield], thus minimising flying into the hazy afternoon sun outward and on return to Duxford. Departing at 1450 from [other airfield] the visibility west and south was poor while east and north was good. Their planned track was 132°, with the wind 200° 13kt at 2000ft. Using Safety Com on departure from [other airfield] they changed to listening on Cambridge Radar close to Grafham Water. On passing east, clear of Little Gransden and Gransden Lodge, their [EC equipment] indicated an aircraft in front and below them, slightly to their port side, climbing and heading towards them and across track to their starboard side. They decided to initiate a precautionary climb to over 3000ft and maintain heading which would ensure safe separation. Shortly afterwards, they saw an aircraft passing at a safe distance to their starboard side which, they felt, vindicated their decisions although visibility at this altitude was further compromised. They began a descent towards Royston. The need to avoid any potential conflict with the aircraft [showing on their EC equipment] meant that they had maintained a heading placing them further east than was ideal at this point. They gently turned the aircraft to a southerly heading but, opting for safety, decided not to fly directly southwest into the hazy sun while descending. They changed frequency to Duxford. It is normal

[1] The pilot reported receiving an AFIS from Duxford but, in fact, had not called on their frequency at the time of the Airprox.

that Duxford Information advise pilots that Fowlmere is active and to seek out any traffic. They did not recall any specific aircraft being advised to be aware of. Their SkyDemon log indicates that at an altitude of over 1400ft they crossed the western end (RW25RH cross wind) of the Fowlmere circuit. Their aircraft anti-collision lights, radio and instruments were all functioning correctly as was [EC equipment] and SkyDemon. The transponder was set to conspicuity and altitude. At no time did they see another aircraft flying in the vicinity of Royston or Fowlmere, though visibility west and south was improved at the lower altitude. No warning was given to them by Duxford Information of an Airprox either at the time or during the remaining 10min of flight into Duxford. An e-mail from the aircraft owner forwarding the Airprox was the first time they heard about it.

**THE DUXFORD AFISO** reports that no Airprox was reported on the Duxford frequency by either pilot.

## Factual Background

The weather at Cambridge was recorded as follows:

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METAR EGSC 081450Z 19008KT CAVOK 08/M03 Q1032=
METAR EGSC 081520Z 19008KT 170V240 CAVOK 08/M05 Q1032=
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## Analysis and Investigation

### UKAB Secretariat

An analysis of the NATS radar replay was undertaken. The PA28 could be seen on the radar and identified using Mode S information at an indicated altitude of 1500ft (Figure 1).

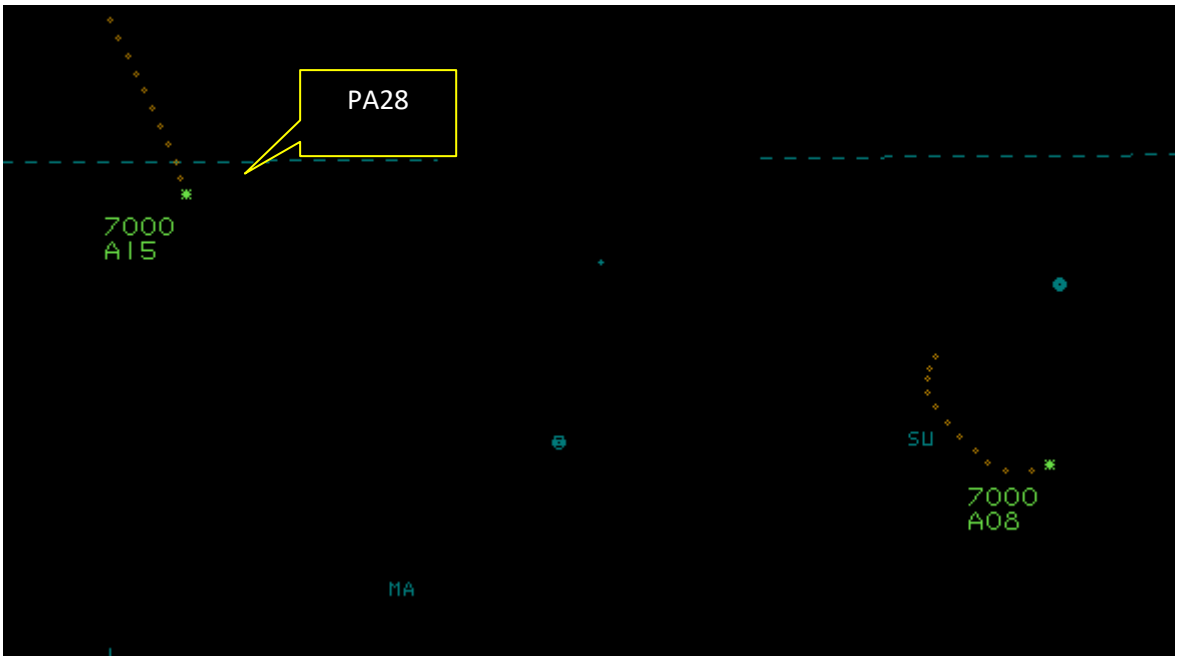



Figure 1 - 1515:53

The C140 could not be positively identified on radar. At 1516:12 a primary-only contact appeared on the radar, south of the PA28 by 0.4NM, see Figure 2.

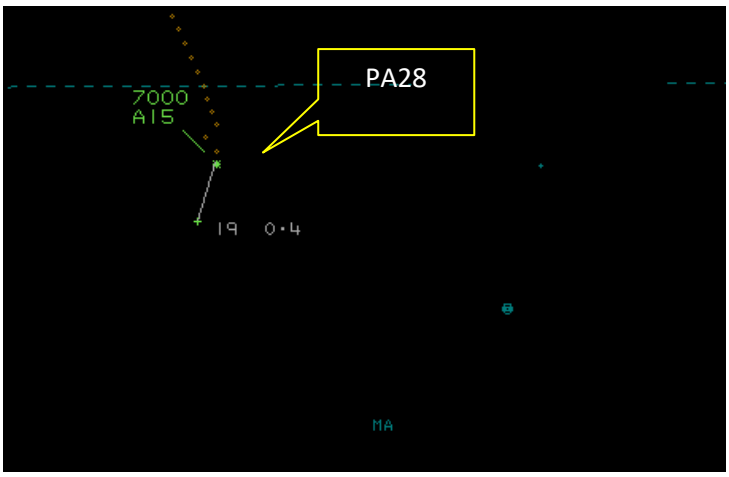



Figure 2 - 1516:10

This primary-only track continued until within 0.1NM of the PA28, which was probably CPA. Assuming the C140 was at 800ft agl, as stated in the pilot report, there was likely to have been in the region of 500ft vertical separation.

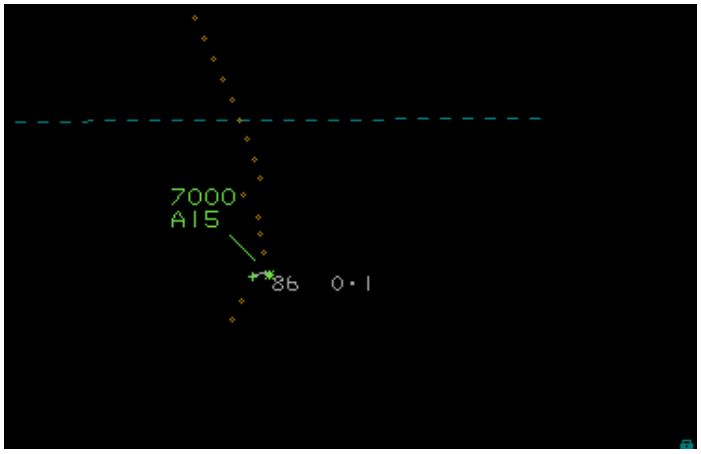



Figure 3 – CPA 1516:18

The primary-only aircraft continued to fly a heading which would indicate that it was downwind in the Fowlmere visual circuit (see Figure 4), turning onto base-leg at around 1518:20.

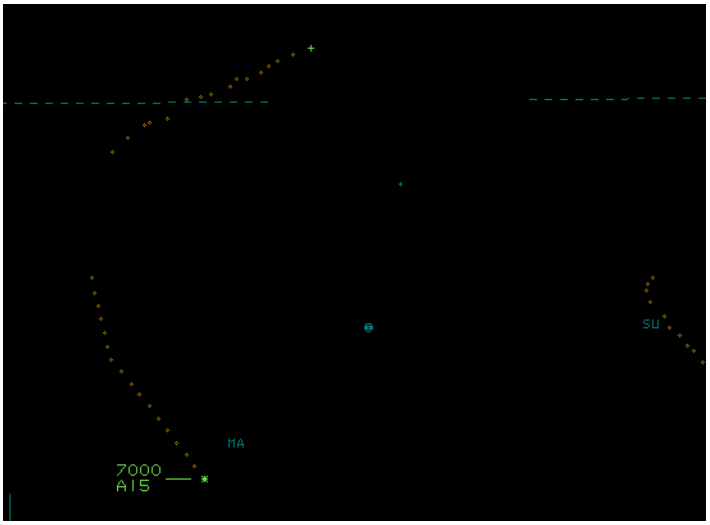



Figure 4 - 1517:42

The C140 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.[2] 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.[3]

**Duxford Occurrence Investigation**

This incident was not known to Duxford until notified by the UKAB Secretariat on 13/02/2023, via email. No report was made to Duxford ATS by either pilot.

The following is gleaned from the R/T recordings, flight progress strips, watch log, a local incident report and interview with the on-duty FISO:

Duxford was active with both left and right-hand circuits on RW24, Fowlmere was using RW25RH.

[PA28 C/S] was being flown by a Duxford-based pilot and had departed earlier in the day for a local flight. Prior to departure they were reminded by the FISO that Fowlmere aerodrome was active. At approximately 1501 [C140 C/S] reported to Duxford Info that they would be conducting circuits at Fowlmere and that they would report when detail complete, this was IAW normal practice.

On rejoin, [PA28 C/S] called for joining info at approximately 1517, reporting abeam Royston, and proceeded to rejoin via the left-hand downwind leg (IAW local procedure). The reported time of the incident, according to the Airprox Board email, was 1515. No report of an Airprox was made by the pilot at any time. The route followed by [PA28 C/S], prior to reporting abeam Royston, was unknown. It appeared that, at the time of the incident, neither aircraft was in receipt of a service from Duxford AFIS.

## Summary

An Airprox was reported when a C140 and a PA28 flew into proximity at Fowlmere at 1516Z on Wednesday 8th February 2023. Both pilots were operating under VFR in VMC, neither pilot in receipt of an ATS.

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

Information available consisted of reports from both pilots and radar photographs. 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 looked at the actions of the C140 pilot. They had been operating in the Fowlmere visual circuit and had checked-in on the Duxford frequency to advise them that the Fowlmere circuit had been active. Unfortunately, the PA28 pilot had not yet called on the Duxford frequency and so the Duxford AFISO could not have provided any Traffic Information on it at this point. Members commented on the fact that the C140 had not been fitted with a transponder (which would have alerted the CWS on the PA28), nor had it had any additional electronic conspicuity equipment which, on this occasion, may have provided some additional information to aid visual acquisition. Without any information from ATC, nor any CWS, the C140 pilot therefore had received no situational awareness that the PA28 had been in the vicinity (**CF1**). The C140 pilot reported that they had become visual with the PA28 at a distance of around 1NM, and had assessed that a slight descent would be enough to keep clear, nevertheless, the C140 pilot had been concerned by the proximity of the PA28 as it had overflown the Fowlmere visual circuit (**CF4**). Whilst it was for pilots to decide on their own requirements for additional equipment according to their needs, the Board wished to highlight to pilots and operators that additional funding has been made available for electronic conspicuity devices through the CAA's Electronic Conspicuity Rebate Scheme, which has been extended until 31st March 2024.[4]

[2] (UK) SERA.3205 Proximity.
[3] (UK) SERA.3225 Operation on and in the Vicinity of an Aerodrome.
[4] https://www.caa.co.uk/general-aviation/aircraft-ownership-and-maintenance/electronic-conspicuity-devices/

Turning to the PA28 pilot, they had reported that flying conditions had been hazy and avoiding traffic at a similar level on the return to Duxford had resulted in them flying a track further east than they had originally intended. Although they had been told that Fowlmere had been active earlier in the day on their outbound flight, at the time of the Airprox they had not yet called Duxford, and so had not received any Traffic Information on the C140. The CWS on the PA28 could not have detected the non-transponding C140 (**CF2**) and so the pilot had not received any situational awareness that the C140 had been in the vicinity (**CF1**). Some members wondered whether the pilot should have chosen to fly at a higher altitude to provide adequate separation from the visual circuit but, given the hazy conditions, they thought that it had been understandable that the pilot had remained at 1500ft. However, they thought that, having decided to maintain 1500ft, the pilot could have called on the Fowlmere frequency if they had realised that their track would have taken them close to the visual circuit or, at the very least, knowing that the frequency was generally monitored by Fowlmere circuit traffic, have called Duxford earlier. In the event, the PA28 pilot had not been visual with the C140 as they had flown over the top of it (**CF3**).

When assessing the risk of collision, the Board took into consideration the reports from both pilots together with the radar data. The C140 had not been fitted with a transponder, therefore its exact height was not known. However, noting that the Fowlmere circuit height was 800ft and the C140 pilot had reported being at that level, with an airfield elevation of 124ft, it was deemed likely that the C140 had been at an approximate altitude of 900ft. The PA28 had been indicating 1500ft on the radar and therefore the Board thought that there had probably been in the region of 500ft separation between the two aircraft. They therefore surmised that the C140 pilot had been startled by the presence of the PA28 overflying the visual circuit and assessed it to be closer than it had actually been. Some members wondered whether this separation meant that the event could be considered to be within normal safety standards and parameters. However, others countered that safety had been degraded because neither pilot had any prior situational awareness that the other had been in the vicinity and the PA28 pilot had not seen the C140 at all. The latter view prevailed, but it was agreed that the separation meant that there had been no risk of collision; Risk Category C.

## PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

| | **2023012** | | | |
|---|---|---|---|---|
| CF | **Factor** | **Description** | **ECCAIRS Amplification** | **UKAB Amplification** |
| | **Flight Elements** | | | |
| | **• Situational Awareness of the Conflicting Aircraft and Action** | | | |
| 1 | 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 |
| | **• Electronic Warning System Operation and Compliance** | | | |
| 2 | 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 |
| | **• See and Avoid** | | | |
| 3 | 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 |
| 4 | Human Factors | • Perception of Visual Information | Events involving flight crew incorrectly perceiving a situation visually and then taking the wrong course of action or path of movement | Pilot was concerned by the proximity of the other aircraft |

Degree of Risk: C.

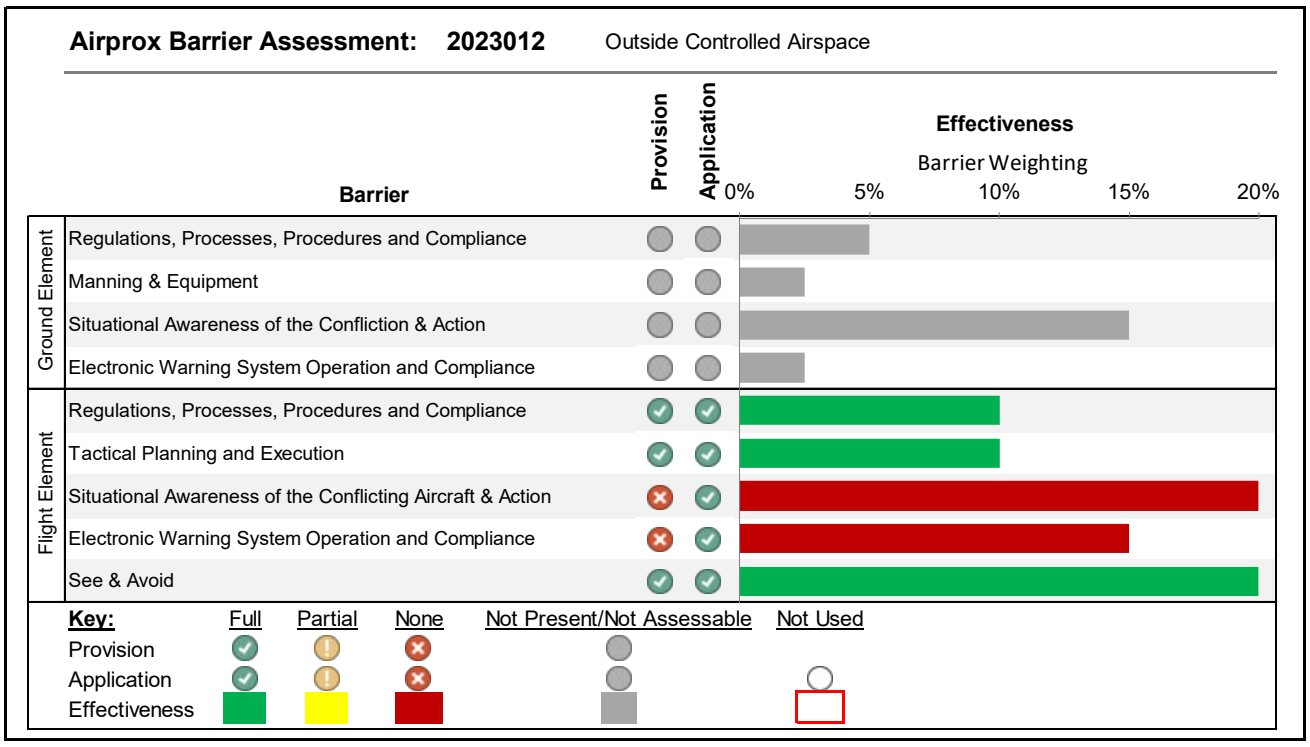
Safety Barrier Assessment[5]

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

**Flight Elements:**

**Situational Awareness of the Conflicting Aircraft and Action** were assessed as **ineffective** because neither pilot had any situational awareness that the other aircraft had been in the vicinity.

**Electronic Warning System Operation and Compliance** were assessed as **ineffective** because the CWS on the PA28 had not been able to detect the C140.




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