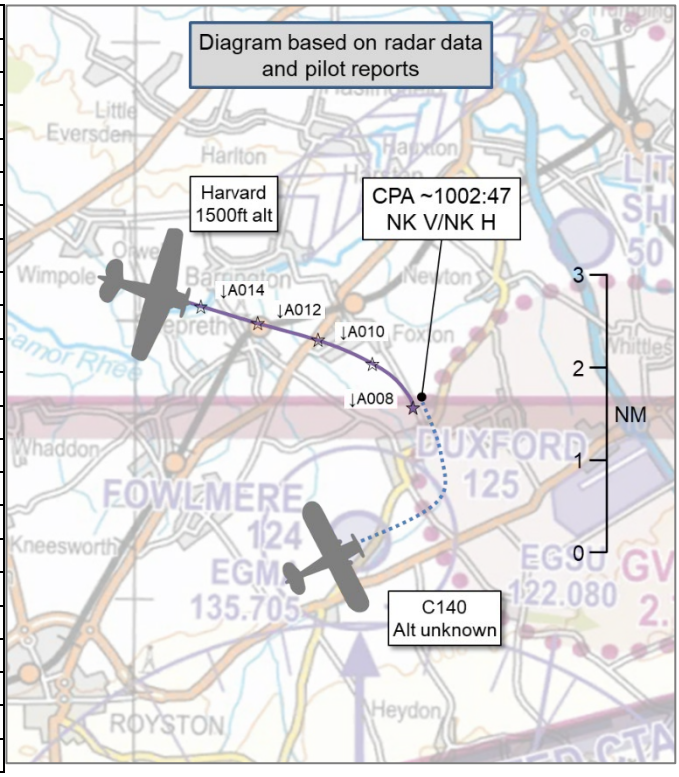
AIRPROX REPORT No 2021098

Date: 26 Jun 2021 Time: ~1003Z Position: 5206N 00005E Location: Fowlmere/Duxford circuits

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	C140	Harvard
Operator	Civ FW	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	None	AFIS
Provider	N/A	Duxford Information
Altitude/FL	NK	A008
Transponder	Not fitted	A, C, S
Reported		
Colours	Silver	Silver, yellow
Lighting	Navigation lights	None
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	600ft	NK
Altimeter	QFE	QNH
Heading	360°	NK
Speed	70kt	NK
ACAS/TAS	Not fitted	Not fitted
Separation		
Reported	0ft V/100m H	NK V/NK H
Recorded	NK V/NK H	



THE C140 PILOT reports that, before walking to the aircraft, they called Duxford ATC by telephone to inform them about planned circuit training on RW07LH at Fowlmere, also stating that they would make radio contact to confirm after getting airborne (due bad radio reception on the ground). This was all acknowledged by Duxford ATC. They took-off and called Duxford ATC, who acknowledged their information call and, just after turning crosswind, they noticed a Harvard approaching them on their left (inside the circuit) at the same height, opposite direction and quite close. It was not visible to them previously due to their flying a high-wing aircraft. They did not take any actions apart from monitoring the Harvard's movements.

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

THE HARVARD PILOT reports that they do not particularly recollect any Airprox, so any information given is on the basis of the other aircraft's Airprox form. From their logbook, they note that their 'on blocks' time for that particular flight was 1010, so at 1006 [the reported time of the Airprox] it is highly likely that they were on approach to Duxford RW06 and therefore would have probably concentrated their lookout on the Duxford circuit and approach. If they had noticed any other aircraft, it is also unlikely that they would have registered them as warranting an Airprox.

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

THE DUXFORD SENIOR AFISO reports that there were no reports to Duxford from anyone concerning this Airprox report and they have been unable to find any reference on the RTF recordings. Neither of the duty AFISOs have any knowledge of any incident or Airprox.

Factual Background

The weather at Stansted Airport was recorded as follows:

```
METAR EGSS 260950Z AUTO 10005KT 030V170 9999 BKN017 BKN026 19/14 Q1018=
METAR EGSS 261020Z AUTO 06006KT 9999 BKN024 BKN029 BKN049 18/13 Q1018=
```

Analysis and Investigation

UKAB Secretariat

An analysis of the NATS radar replay was undertaken, utilising the Stansted 10cm resolution radar, which showed the Harvard approaching Duxford from the NW. The Harvard could be seen descending as the pilot positioned for the reported re-join to Duxford RW06. At 1002:23, a primary contact appeared for a single sweep of the radar in a position that could be associated with the reported position of the C140 after take-off (see Figure 1); however, it cannot be verified that this single radar return was the C140.

The Harvard continued to descend on a course inbound to Duxford but no further primary radar contacts that could have been the C140 were displayed. CPA is estimated to have occurred at approximately 1002:47 (see Figure 2).

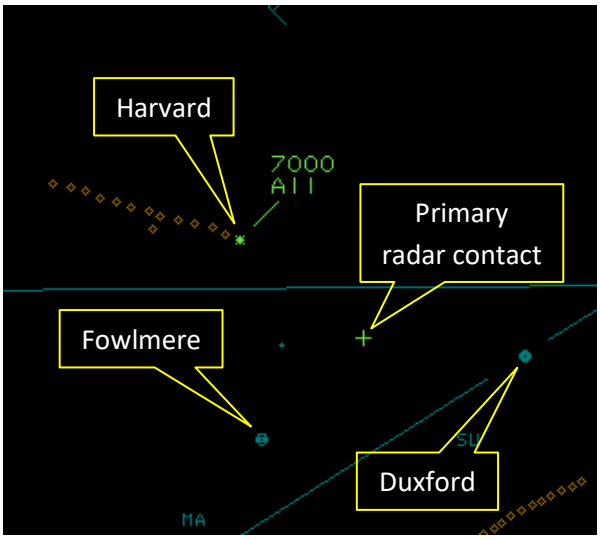


Figure 1 – 1002:23

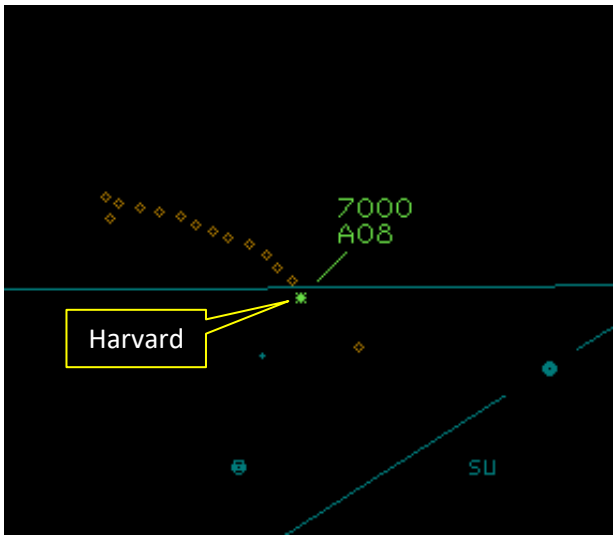


Figure 2 – 1002:47 – CPA

Duxford circuit patterns are defined in the Duxford General Flying Orders, available through the IWM Duxford Information For Pilots web page.[1] The circuit pattern diagram and an illustration of the noise sensitive areas from this document are reproduced at Figures 3 and 4 respectively. Additionally, the Airfield Letter of Agreement Between IWM Duxford and Fowlmere is reproduced in the same document and states (*inter alia*) that:

> *Fowlmere airfield's circuit direction for RWY07/25 is to the north and aircraft will normally operate on the Fowlmere Air Ground frequency 135.705MHz.*

It also states that:

> *Aircraft arriving/departing Fowlmere will contact Duxford Information 122.080MHz for traffic information.*

[1] https://www.iwm.org.uk/visits/iwm-duxford/pilots

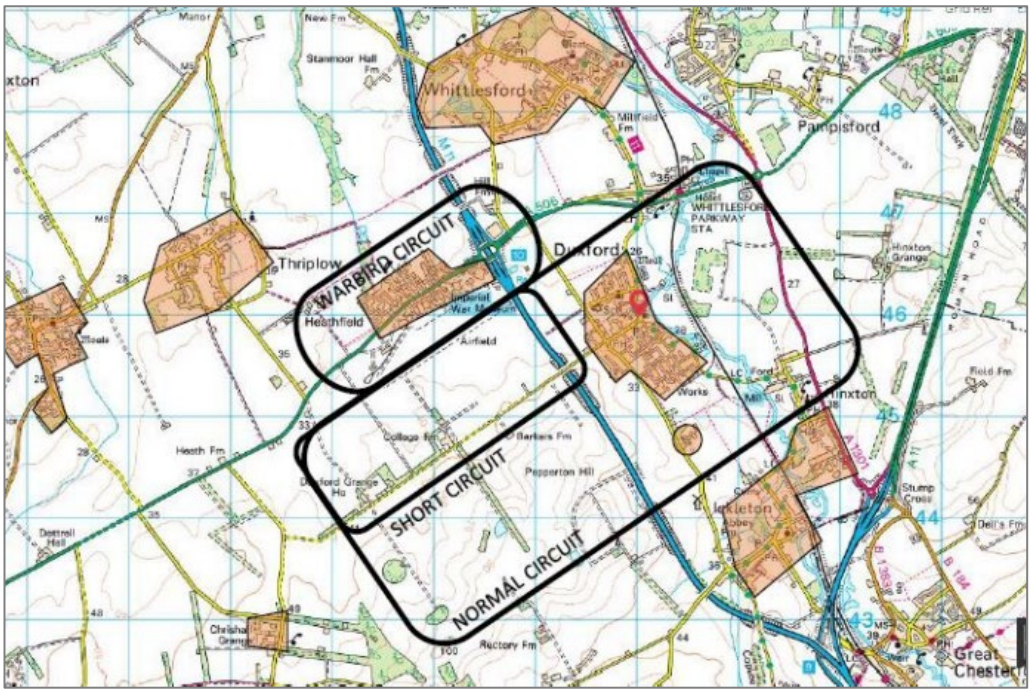


Figure 3 – Duxford Circuit Patterns

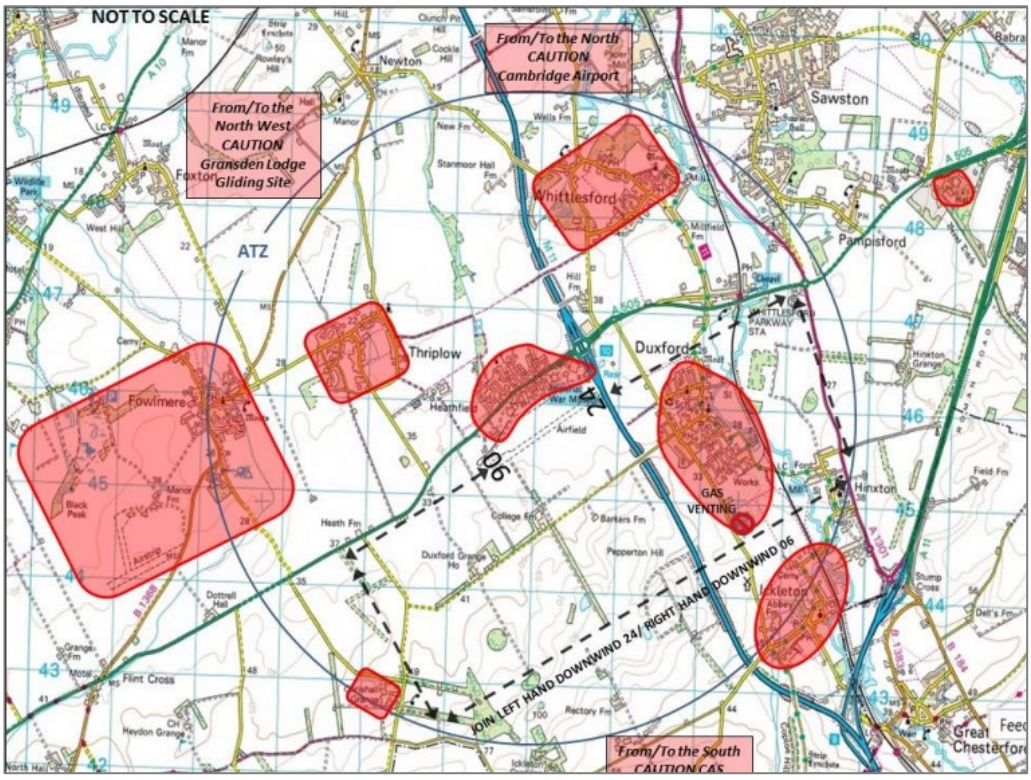


Figure 4 – Duxford Noise Sensitive Areas

At the time of preparing this report, the Fowlmere pilots' information web page[2] is publishing the following information for departing aircraft (it is not known if this was in force at the time of the Airprox):

[2] https://fowlmereairfield.com/pilots-information

Call Fowlmere Radio (135.705) for radio check, if there is no response make position and intention reports as you taxi and enter the runway to backtrack.

Prior to departure on Runway 07 call Duxford Information (122.080) to inform them you are "Departing runway 07 at Fowlmere" and remain on their frequency until clear of their ATZ.

Please use V_Y (best rate of climb speed) to circuit height on departure. Maintain a good lookout as there may be aircraft practising aerobatic routines over and around Duxford.

The C140 and Harvard pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.[3] If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right.[4] 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.[5]

Summary

An Airprox was reported when a C140 and a Harvard flew into proximity in the Duxford and Fowlmere circuits at approximately 1003Z on Saturday 26th June 2021. Both pilots were operating under VFR in VMC, the C140 pilot was not in receipt of an ATS and the Harvard pilot was in receipt of an Aerodrome Flight Information Service from Duxford Information.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings and a report from the Duxford Senior AFISO. 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 visual circuit patterns at the 2 airfields and heard from a GA pilot member that the Duxford and Fowlmere circuit patterns are constructed to minimise the likelihood of aircraft in the circuit for one airfield 'interfering' with aircraft in the circuit of the other. To that end, circuits at Fowlmere are flown to the north of RW07/25 whilst circuits at Duxford are flown to the south of RW06/24. However, to avoid complications with aircraft of vastly differing speeds in the visual circuit at Duxford, the Warbird circuit at Duxford is flown to the north of the main RW. The Board agreed that these local operating procedures could lead to the possibility of aircraft departing RW07 at Fowlmere encountering Warbirds recovering to Duxford RW06 from the northwest.

The Board then considered the actions of the C140 pilot. Members noted that they had reported contacting Duxford on the radio shortly after take-off but had not mentioned receiving any Traffic Information from the Duxford AFISO regarding the joining Harvard. Furthermore, there was nothing in the Duxford Senior AFISO's report to suggest that Traffic Information had been passed. The Board was disappointed that the RTF recordings were unavailable for verification of this point because it could not be positively established whether the C140 pilot had obtained '…*information from the flight information centre to enable the flight to be conducted safely within the aerodrome traffic zone*.'[6] and it was therefore not possible for the Board to assess the performance of the Flight Elements Regulations, Processes, Procedures and Compliance barrier. Notwithstanding, the Board agreed that the C140 pilot had not had any situational awareness of the presence of the Harvard (**CF1**). This had left the C140 pilot relying on their lookout to detect any aircraft inbound to Duxford from the northwest, and the Board agreed that the pilot's lookout in the direction of the approaching Harvard had been hindered by the high-wing configuration of their aircraft (**CF3**) which, in turn, had led to the pilot of the C140 sighting the Harvard at a late stage (**CF2**).

[3] (UK) SERA.3205 Proximity.
[4] (UK) SERA.3210 Right-of-way (c)(1) Approaching head-on.
[5] (UK) SERA.3225 Operation on and in the Vicinity of an Aerodrome.
[6] In accordance with The Rules of the Air Regulations 2015, Rule 11.

Turning to the actions of the Harvard pilot, the Board noted that they did not particularly recall the event in question and that, if they had seen the C140, they would not have considered the relative proximity to have warranted an Airprox report. Members noted that the C140 pilot had not declared an Airprox on the Duxford frequency, not reported an Airprox on landing and had submitted their Airprox report to the UKAB 5 days after the event took place; after tracing action had been carried out, the Harvard pilot was first informed of their possible involvement 5 days later – some 10 days after the event itself. The Board wished to remind all pilots of the importance of prompt reporting, and preferably on the radio at the time of the event, so that appropriate reporting actions can be taken and appropriate records (including the memory of others involved) preserved. Returning to the Airprox itself, the Board once again lamented the lack of a RTF recording but nevertheless agreed that, since there was no report of Traffic Information being passed to either pilot, then the Harvard pilot had most likely not had any situational awareness of the presence of the C140 (**CF1**). There then followed a discussion regarding whether or not the Harvard pilot had sighted the C140 and thought no further of it, or if they had simply not seen the C140; using the information available, the Board was unable to determine the efficacy of the See and Avoid barrier as it related to the Harvard pilot.

The Board then briefly discussed the role of supplementary electronic conspicuity (EC) equipment in this Airprox. It was noted that neither aircraft had been fitted with any additional EC equipment; indeed, the C140 was reported as not having a transponder fitted either. The Board again wished to highlight the advantages of carrying a functioning SSR transponder as this equipment interacts with many other types of airborne alerting systems. Furthermore, members also wished to encourage pilots to consider fitting additional means of gaining situational awareness of other aircraft as, having the opportunity to absorb supplementary information, as long as the user is confident in its use (capabilities *and* limitations), can greatly increase the chances of visually acquiring aircraft that might be a threat to one's own aircraft.

Finally, the Board considered the risk involved in this event. Members noted that there was no data available for the ground track of the C140 and that the Harvard pilot did not recall seeing the C140, so members had only the C140 pilot's estimation of separation available to them. The Board also noted that the C140 pilot had not considered the geometry as warranting any action on their part to manoeuvre to increase separation. However, due to the lack of recorded data or estimation of separation from the Harvard pilot, members concluded that there was insufficient data for an assessment of risk to be made; Risk Category D.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2021098			
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 or only generic, Situational Awareness
	• See and Avoid			
2	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
3	Contextual	• Visual Impairment	Events involving impairment due to an inability to see properly	One or both aircraft were obscured from the other

Degree of Risk: D

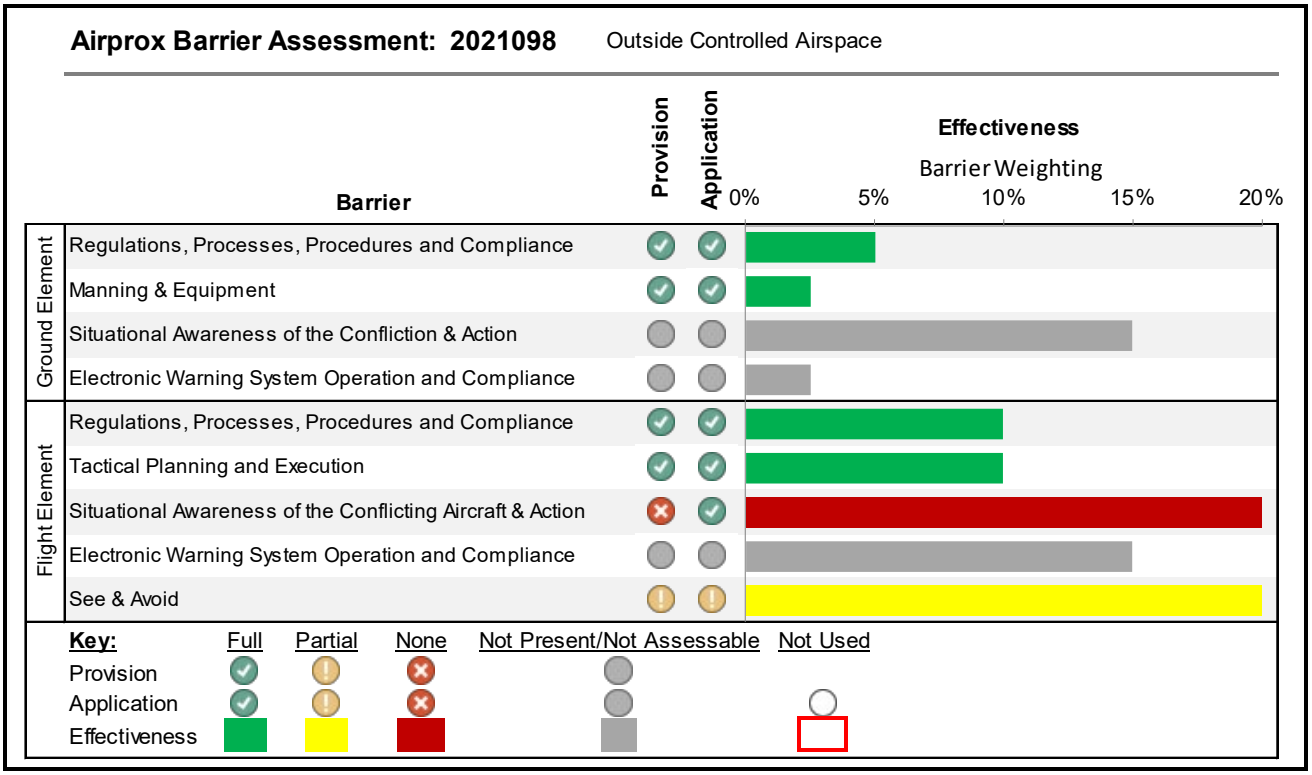
Safety Barrier Assessment[7]

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 awareness of the presence of the other aircraft prior to actually sighting it.

See and Avoid were assessed as **partially effective** because the C140 pilot's view of the direction from which the Harvard was approaching was obscured by the high wing configuration of their aircraft, leading to a late sighting of the Harvard.



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