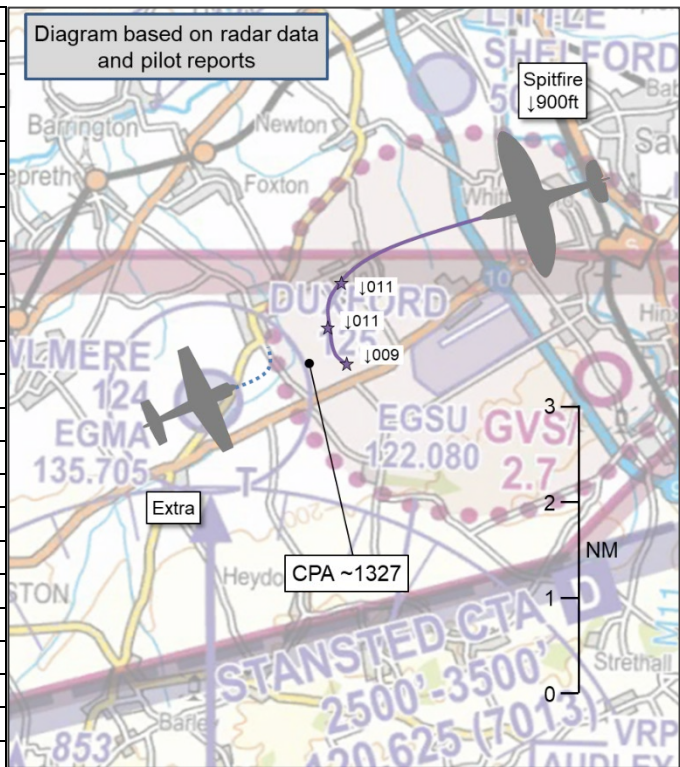


AIRPROX REPORT No 2021096

Date: 23 Jun 2021 Time: 1327Z Position: 5204N 00005E Location: Fowlmere/Duxford

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Extra 200	Spitfire
Operator	Civ FW	Civ FW
Airspace	NK	Duxford ATZ
Class	G	G
Rules	VFR	VFR
Service	AGCS ¹	AFIS
Provider	Fowlmere	Duxford
Altitude/FL	NK	600ft
Transponder	None	A, C, S
Reported		
Colours	White, Red	Brown, Green
Lighting	Nav	NK
Conditions	VMC	VMC
Visibility	>10km	5-10km
Altitude/FL	500ft	1200ft
Altimeter	QFE	NK
Heading	360°	240°
Speed	70kt	140kt
ACAS/TAS	Not fitted	Not fitted
Separation		
Reported	0ft V/100m H	200ft V/1NM H
Recorded	NK	



THE EXTRA 200 PILOT reports² that before departing they made a radio call to Duxford ATC on 122.080 informing them that they would be performing LH circuits RW07 at Fowlmere. Duxford ATC confirmed receiving the information and they changed back to Fowlmere. After take-off and climbing away, they started turning crosswind and suddenly noticed a Spitfire flying straight at them. The Instructor took the controls, dived slightly and turned to the left to avoid a collision. They thought that the pilot of other aircraft probably did not see them at all. After avoiding the Spitfire they noticed that below it, there was another airplane following its track, a C152 which had got lost in the circuit, which basically made two Airproxes at the same time. It was really disturbing as they had informed Duxford ATC about their plans before departure (which were acknowledged). Moreover, Fowlmere and Duxford risk mitigation states that Fowlmere should conduct circuits to the north, and Duxford to the south. Duxford 'fast traffic' (Warbirds) perform northern circuits which puts them on opposite heading to Fowlmere traffic which, the pilot opined, was an utterly bad idea. The C152 that was lost in the circuit was a good example that illustrated how confused and unfamiliar pilots could accidentally follow northern circuits and create a threat both to themselves and to traffic flying in and out from Fowlmere.

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

THE SPITFIRE PILOT reports that they were downwind in a left-hand circuit for RW06. The circuit was very busy with a 'lost' aircraft also left downwind and multiple aircraft in the right-hand circuit. The 'lost' Cessna-type aircraft was in the left-hand circuit, the Spitfire pilot saw it "close in" downwind and, once seen, gave it suitable space. The Spitfire was configured gear down and full flap. They were carrying an 80 year old lady passenger. The Extra was seen for a few seconds and not considered a risk as

¹ The pilot reported a Traffic Service, however Fowlmere is AGO only.

² The Extra pilot also flies a C140 from Fowlmere and initially reported flying in this aircraft, it was some weeks before confirmation of the correct aircraft type could be ascertained.

they made a gentle left-hand turn onto base leg. There was an exchange from the Extra pilot to Duxford ATC and it was obvious by the exchange of words that the Extra pilot had issues with ATC at Duxford.

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

THE DUXFORD AFISO reports that an Extra 200 pilot, on the ground at Fowlmere called on 122.080 to 'pre note' Duxford that they would be departing from RW07. They were given QNH and RW in use at Duxford (RW06 right hand), they then returned to the Fowlmere frequency. Several minutes later the Spitfire called requesting run and break into the RW06 left-hand circuit. In the meantime a Cessna152 (a student) had erroneously joined for RW06 left-hand and had twice reported their position incorrectly. The Spitfire pilot reported downwind with the Cessna in sight. Soon after this the [Extra C/S] called and reported that they had just had "a close encounter" with a Spitfire and indicated that they would contact Duxford by telephone. The Extra pilot did not report the encounter as an Airprox nor did they contact the Tower by telephone later. The Spitfire pilot did not report any encounter with the Extra. As a result this incident was not reported at the time, however, following advice from the senior FISO, the details were recorded from memory in case either pilot reported the incident retrospectively.

Leading up to, during, and post incident, workload was medium to high due to the Cessna pilot reporting their position incorrectly and joining left-hand, as well as other routine traffic. Neither the AFISO nor a second FISO in the tower observed any conflict between the Extra and the Spitfire.

Factual Background

The weather at Stansted was recorded as follows:

METAR EGSS 231320Z AUTO 30005KT 260V030 9999 BKN045 18/08 Q1023=

Analysis and Investigation

CAA ATSI

The Extra pilot reported that they had contacted the Duxford FISO on 122.080 and communicated their intentions to get airborne from Fowlmere RW07 for left-hand circuits. The pilot was advised that the runway in use at Duxford was 06 right-hand. The pilot then returned to the Fowlmere frequency. The pilot reported that they subsequently departed RW07 at Fowlmere and had started the turn onto crosswind, when they encountered the Spitfire, initially on a perpendicular heading and then opposite direction to them. The pilot reported that they had also noticed a C152 below the Spitfire and following the same track as the Spitfire.

The Spitfire pilot reported that they had joined the Duxford visual circuit from the north, with a run and break into the RW06 left-hand circuit, and that the aircraft was downwind with the gear down and full flap when they saw the Extra. The pilot also reported being aware of, and visual with, a lost "Cessna-type aircraft" operating downwind, in a tighter position to the runway than the Spitfire. The pilot was in receipt of a Basic Service from Duxford at the time of the Airprox.

The visual circuit at Duxford was very busy, with aircraft joining, departing and operating in both the left-hand and right-hand circuits. There was also a 'lost' C152 student pilot, who inadvertently flew the right-hand downwind leg for RW06 in the wrong direction, before crossing the upwind end of the runway, and ending up downwind left-hand, below the Spitfire. The Duxford FISO did not see the event unfold.

Note: The Duxford/Fowlmere formal Letter of Agreement (LoA) was not in place at the time of this Airprox.

ATSI had access to reports from the pilots of both aircraft, the Duxford FISO and Senior FISO. The RTF for Fowlmere and Duxford were reviewed for the relevant period. In the interest of brevity, only

the RTF from the aircraft involved has been included in this report. The Area Radar replay was reviewed and the screenshots in this report are taken from the Area Radar replay.

At 1317.03 the student pilot in the C152 (who subsequently became lost), called Duxford requesting joining instructions. The FISO responded, "roger runway in use 06, right-hand pattern, QNH 1023, QFE 1019." The pilot responded, "QNH 1023, runway 06 left-hand". The FISO responded, "negative, the runway in use is 06, right-hand pattern, QNH 1023, QFE 1019." The pilot responded, "06 right-hand, correction." The FISO repeated the QFE value, and the pilot requested the QNH, which was repeated again by the FISO, together with the airfield elevation. The pilot correctly read back the QNH.

At 1320.35 the Extra pilot called Duxford and advised that they were "an Extra 200, 2 POB, on the ground at Fowlmere, taxiing RW07 for aerobatics". The Duxford FISO responded, "roger Duxford runway in use RW06 right-hand, QNH 1023, report leaving the frequency". The Extra pilot responded, "06 right-hand circuit, QNH 1023, switching back to Fowlmere 135.705." (Figure 1)

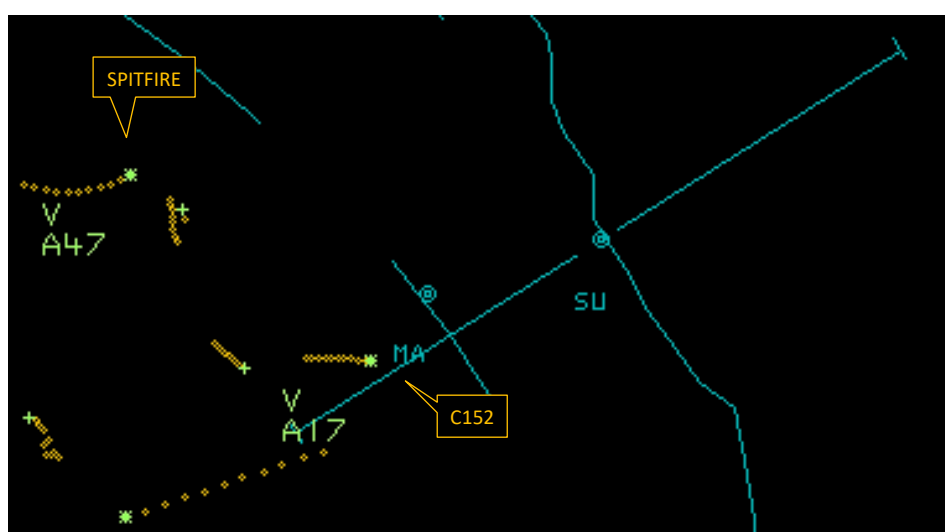


Figure 1: 1320.35

At 1324.29 the Spitfire pilot called Duxford and requested re-join from the north. The FISO responded, "report 30 seconds, 06 right hand pattern, QFE 1019, one Tiger Moth positioning straight in, one Rapide departing." The Spitfire pilot responded, "thank you, call you 30 seconds." The FISO replied, "also a C152 joining from the southwest and one joining from the east." The Spitfire pilot replied, "all copied, and I'll call you 30 seconds out." (Figure 2)

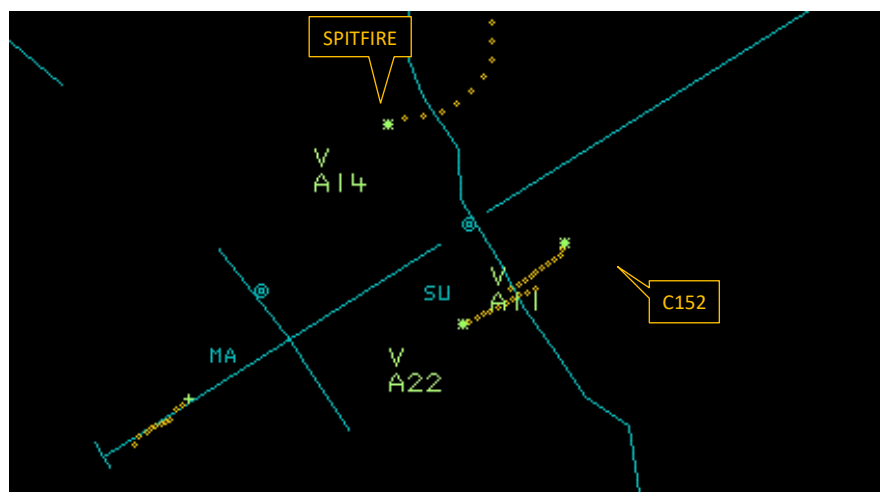


Figure 2: 1324.29

At 1324.42 the FISO advised the Spitfire pilot that the Rapide ahead of them was rolling. The pilot acknowledged. At 1325.51 the C152 student pilot reported, “downwind” and the FISO responded with “report turning right base.” The pilot responded with, “report turning right base, *STUDENT* (callsign).”

At 1326.03 the Spitfire pilot reported, “downwind left-hand outside the Cessna.” The FISO responded with, “roger, report final.” The pilot responded, “three miles, it’ll be for the hard.” The FISO responded, “roger.” (Figure 3)

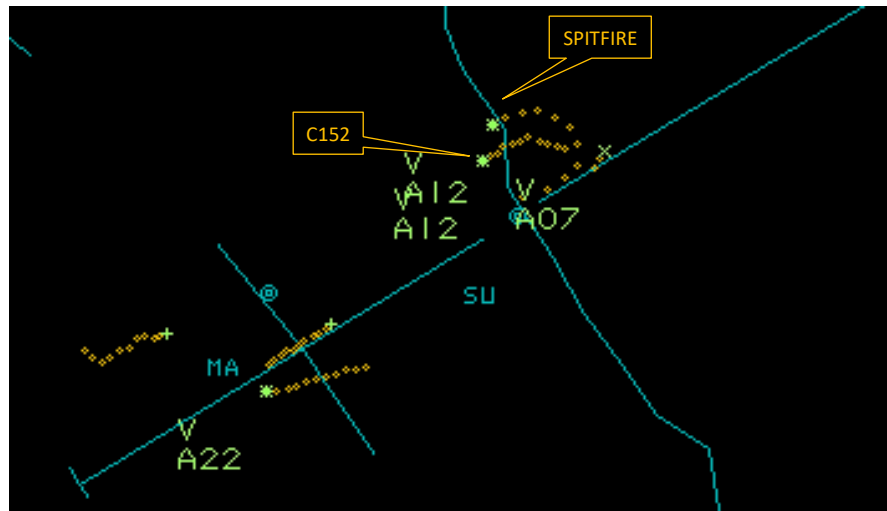


Figure 3: 1326.03

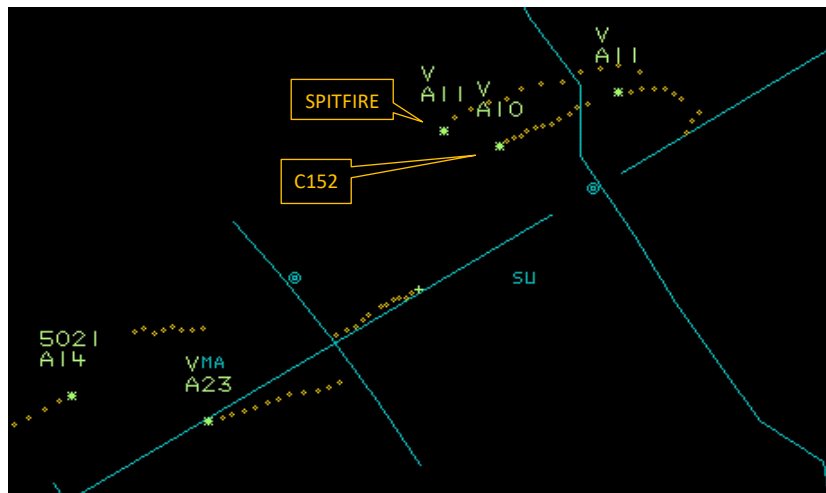


Figure 4: 1326.30 potential CPA (just as Spitfire is turning onto left base RW06 at Duxford and Extra is reported as being crosswind RW07 at Fowlmere)

At 13:27.10 the FISO advised the Spitfire pilot to land at their discretion. (Figure 5)

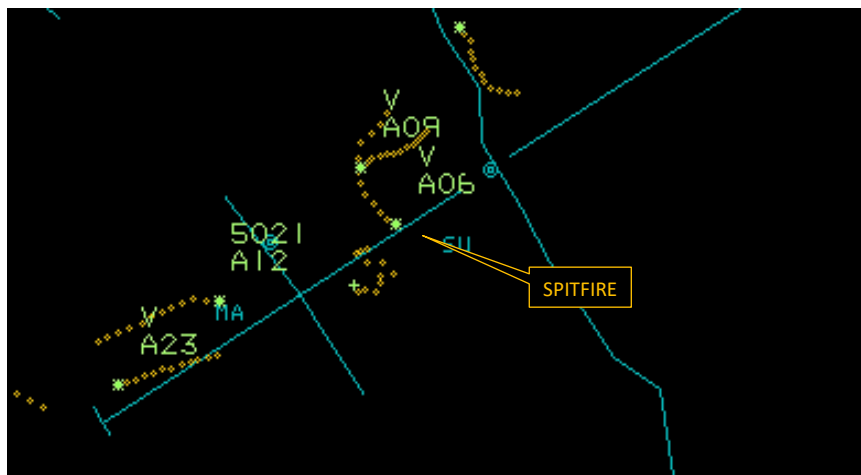


Figure 5:1327.10

The Duxford RTF was constant throughout the period reviewed. The Extra did not display on the Area Radar replay at any time in the lead up to, or after the Airprox had occurred.

The initial report from the Extra pilot was submitted 9 days after the event, and the pilot reported that they were flying in a C140 at the time of the Airprox. This was corrected to the Extra several weeks later, after it had been determined that the above call made to Duxford, had been from the Extra. The pilot reported that they had been getting airborne for visual circuits at Fowlmere.

When the Extra pilot called Duxford on the day of the Airprox, to advise them of their intention to get airborne from Fowlmere, they advised the FISO that they were taxiing for an aerobatic detail, the FISO advised them that the RW06 right-hand pattern was active at Duxford. The Extra pilot reported that they believed that there was an understanding that Fowlmere traffic departing into a left-hand circuit from RW07 would be deconflicted from traffic in the RW06 right-hand pattern at Duxford.

At the time of the above call from the Extra pilot, the Duxford FISO had not yet received the joining request from the Spitfire (this request came just under 4min later) and was therefore unable to issue a warning to the Extra pilot before they switched back to the Fowlmere frequency.

When the Spitfire pilot called to request re-join, the response from the FISO was *“report 30 seconds, 06 right-hand pattern, QFE 1019, one Tiger Moth positioning straight in, one Rapide departing.”* The pilot did not readback the runway in use or the circuit direction. When the pilot subsequently joined the circuit, they completed a run and break into a left-hand visual circuit.

The Duxford General Flying Orders dated March 2021 (updated April 2021) and the Duxford Manual of Flight Information Services allow for the Spitfire aircraft to fly left-hand circuits to RW06, to enable the aircraft to be deconflicted from slower traffic in the right-hand circuit.

The FISO had been passing warnings of visual circuit activity at Fowlmere to the pilots of relevant traffic. Circuit activity at Fowlmere was not passed to the Spitfire pilot. If the FISO expected the Spitfire to join the right-hand circuit they would, therefore, initially, be unlikely to have considered that the Extra and the Spitfire would come into proximity.

When the C152 Student pilot reported downwind, the FISO advised them to report turning right-base and the pilot read back right-base. The pilot was left-hand downwind at this point, meaning that their next expected call would be left-base. The pilot did not query the right-base instruction and the FISO appeared to be unaware of the location of the C152 in the circuit.

The Extra did not display on the Area Radar replay. The reports from the pilots of both aircraft would indicate that the Airprox occurred when the Spitfire pilot started the turn from downwind left-hand, onto left-base for RW06 at Duxford, and the Extra had started the turn onto crosswind, after

departing RW07 at Fowlmere, into a left-hand circuit. The potential CPA at 1326.30 has been approximated with these reported positions in mind.

The late reporting by the pilot of the Extra may potentially have affected their memory of the event, and the exact position of the Extra aircraft could not be established by the investigator at any time. It could not be concluded whether the pilot was flying a left-hand circuit (as per their report) or undertaking aerobatics (as reported to the Duxford FISO), at the time of the Airprox. The CPA time in this report has been established as an approximation of the location of the Extra, based on the pilot having reported as being crosswind in the RW07 left-hand circuit at Fowlmere.

It could not be established whether the FISO understood that the Spitfire would be flying a left-hand circuit, and as such it could not be concluded as to whether a warning of the presence of the Extra should have been issued to the Spitfire pilot.

It could not be established whether the response from the FISO (right-hand pattern), to the joining request from the Spitfire, was intended to be a circuit direction that the Spitfire pilot was expected to fly, or a warning to the Spitfire pilot that the right-hand circuit was active with other aircraft. If it was not a circuit direction to follow, it would have been prudent to have stated on the RTF that the Spitfire would be following a left-hand pattern. Whilst this would not have assisted the Extra pilot, due to them being on a different frequency, it would enhance the situational awareness of other pilots in the circuit and may have been useful to the student pilot in the C152, on this occasion.

A readback from the Spitfire pilot of what they believed their own circuit direction to be would also have enhanced the situational awareness of other traffic in the circuit at Duxford, and may perhaps have alerted the FISO to a potential confliction with Fowlmere traffic.

The FISO was not able to issue a warning to the Extra pilot about the presence of the Spitfire in the RW06 left-hand circuit at Duxford, due to the Extra pilot not being on the Duxford frequency. The Extra pilot reported sighting the Spitfire and taking evasive action and the Spitfire pilot reported having sighted the Extra and considered it not to be a threat.

UKAB Secretariat

The Extra 200 and Spitfire 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 an Extra 200 and a Spitfire flew into proximity between Fowlmere and Duxford at 1327Z on Wednesday 23rd June 2021. Both pilots were operating under VFR in VMC, the Extra pilot in receipt of an ACGS from Fowlmere and the Spitfire pilot in receipt of an AFIS from Duxford.

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 AFISO involved. 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.

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.

When discussing this Airprox, members were briefed that the Fowlmere pilot initially incorrectly reported flying a C140, which could not be matched to the RT and radar data and subsequently a period of time had elapsed before confirmation was received that in fact they were flying the Extra. However, unlike some previously reported Fowlmere Airprox where all details were sparse, on this occasion the AFISO had taken the precaution of writing down the details soon after the event and so the RT data was preserved. Consequently, both the AFISO and the Spitfire pilot had an accurate recollection of the event, furthermore, the Spitfire was transponder equipped, so ensuring that the radar data and the RT data could be used to accurately plot the position of the Spitfire, relative to the RT calls made by the Extra pilot.

Turning to the actions of the Extra pilot, they called on the Duxford frequency in accordance with the extant LoA, to advise the Duxford AFISO that they were getting airborne. This was acknowledged by the AFISO, who told the pilot that Duxford RW06RH was in use. At that stage the Spitfire had not called Duxford and the C152 pilot had not yet flown the incorrect circuit, and the Extra pilot returned to the Fowlmere frequency. The Extra was not fitted with any form of CWS and consequently, the Extra pilot did not have any situational awareness about the Spitfire prior to becoming visual with it (**CF1**). Some members commented that they were surprised that the Extra was not fitted with either a CWS or a transponder. The Extra pilot reported that once airborne, when starting to turn crosswind, they saw the Spitfire in their 12 o'clock 100m away. Members could only surmise that the pilot was surprised to see the Spitfire and consequently assessed it to be closer than it actually was (**CF2**), because the Spitfire's radar track showed it well within the Duxford ATZ and it was assumed that, as the Extra pilot had not asked for permission to enter the Duxford ATZ, they were outside. Members opined that the Extra was a high performance aircraft, in this case being used to teach aerobatics, and therefore turning before the Duxford ATZ was well within its capabilities so they agreed that the assumption that it was outside the ATZ was a realistic one.

There followed some discussion about the integration of the Fowlmere and Duxford visual circuits, members noted that this incident, and others subsequently reported, seemed to indicate a lack of mutual understanding and co-operation between the two airfields. They were heartened to hear that an LoA has since been brokered and hoped that this would prevent future Airprox occurring in similar circumstances.

When looking at the actions of the Spitfire pilot, it was noted that they had not received information from the AFISO about Fowlmere being active, because the AFISO was busy dealing with the C152 student pilot who was flying an incorrect circuit. However, despite not having any situational awareness about the Extra (**CF1**), the Spitfire pilot saw the other aircraft about 1NM away and was content with the separation.

The Board briefly looked at the role of the AFISO, they heard that the RT was very busy at the time of the Airprox, with a number of aircraft calling to join the circuit and the student C152 pilot causing a distraction. The AFISO had acknowledged the Extra pilot and subsequently passed information that Fowlmere was active to other joining pilots, so it was unfortunate that the Spitfire pilot did not receive the information. However, members agreed that had the Spitfire pilot been told that Fowlmere was active, they would not have flown the circuit any differently, therefore this was not considered to be a contributory factor.

In assessing the risk, members took into consideration the reports from both pilots and the radar data available. They agreed that, assuming the Extra pilot was indeed outside the Duxford ATZ, which accorded with the Spitfire pilot's assessment of the separation, there had been no risk of collision and that normal safety standards and procedures had pertained; Risk Category E.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

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	• 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

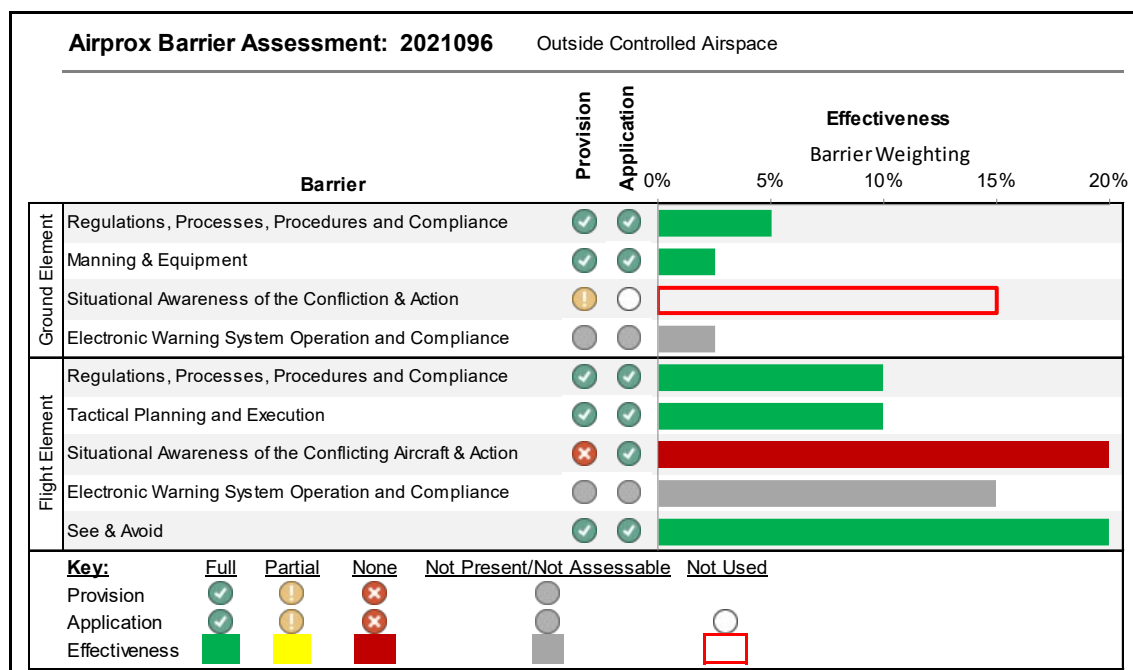
Degree of Risk: E.

Safety Barrier Assessment⁶

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 on the other aircraft prior to becoming visual.



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