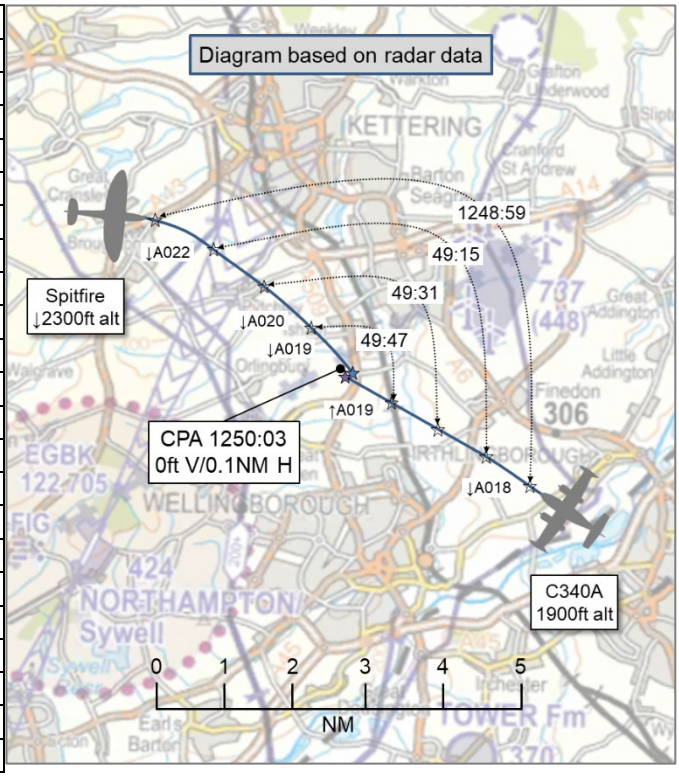
AIRPROX REPORT No 2021220

Date: 28 Oct 2021 Time: 1250Z Position: 5221N 00042W Location: 2NM south of Kettering

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Spitfire T9	C340
Operator	Civ Comm	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Listening Out	None
Provider	Sywell Traffic	N/A
Altitude/FL	1900ft	1900ft
Transponder	A, C, S	A, C, S
Reported		
Colours	Green, grey	White, red, blue
Lighting	Nil	Anti-colls, strobes
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	2100ft	2000ft
Altimeter	QNH (1004 hPa)	QNH (NK hPa)
Heading	140°	NK
Speed	200kt	160kt
ACAS/TAS	Not fitted	Not fitted
Separation at CPA		
Reported	30ft V/100m H	0ft V/0.5NM H
Recorded	0ft V/0.1NM H	



THE SPITFIRE PILOT reports that they were transiting to the south-west [they reported] having just levelled off from a descending turn. Approximately 10sec later, the twin-engine aircraft appeared out to the right, from left-to-right, having been obscured by the nose/engine cowling. The aircraft was instantaneously seen as diverging and therefore no avoiding action was taken on their part. Immediately afterwards, a radio call was made to Sywell Traffic to ask if there was a twin-engine aircraft on frequency – no response was received.

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

THE C340 PILOT reports that the aircraft in question was not seen initially due to its very slim frontal profile. The first indication was as it took avoiding action, presenting its underside. A good lookout was being maintained; however, because the weather that day was blustery, a lot of concentration was being taken up flying the aircraft accurately.

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

Factual Background

The weather at Wittering was recorded as follows:

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METAR EGXT 281250Z AUTO 19020G31KT 9999 BKN023/// 15/10 Q1005=
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Analysis and Investigation

UKAB Secretariat

An analysis of the NATS radar replay was undertaken. Both aircraft were detected by the NATS radars during the Airprox. Initially, the Spitfire had been conducting a right-hand turn and descended from around 4500ft to 2300ft; the C340 was maintaining a track of approximately 300° at an altitude of 1900ft (see Figure 1). The Spitfire then established on a track of approximately 120° and continued its descent, reaching 1900ft approximately 15sec prior to CPA. The C340 maintained track and descended to an altitude of 1800ft approximately 1min prior to CPA, then climbed back to a recorded altitude of 1900ft approximately 5sec prior to CPA. CPA occurred at 1250:03 with a recorded separation of 0ft vertically and 0.1NM horizontally (see Figure 2).

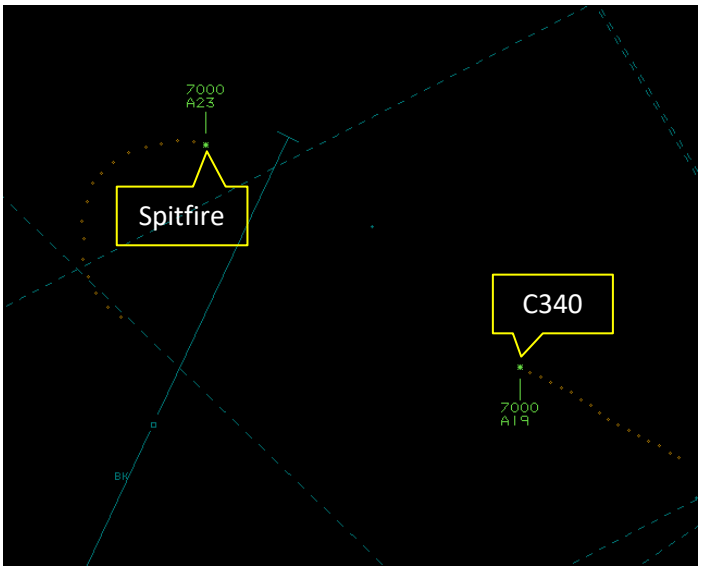


Figure 1 – 1248:59

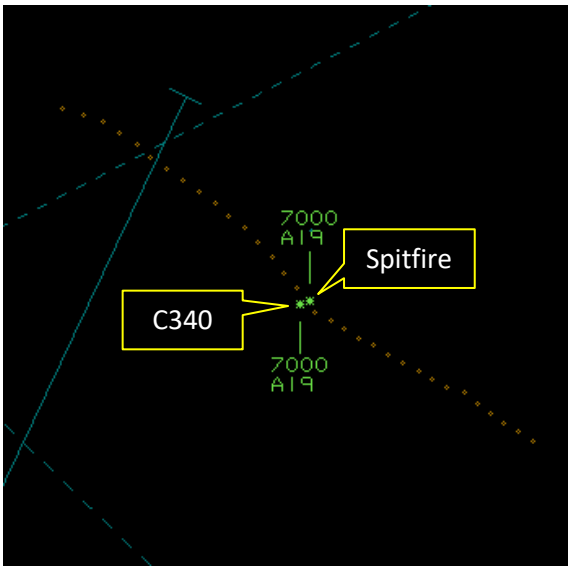


Figure 2 – 1250:03 - CPA

The Spitfire and C340 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.[1] If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right.[2]

Summary

An Airprox was reported when a Spitfire T9 and a Cessna 340 flew into proximity 2NM south of Kettering at 1250Z on Thursday 28th October 2021. Both pilots were operating under VFR in VMC, the Spitfire pilot listening-out on the Sywell Traffic frequency and the Cessna 340 pilot not 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.

The Board first considered the actions of the Spitfire pilot and noted that this Airprox had taken place in an area where there is little-to-no LARS[3] coverage. A military member noted that, although Wittering is not established to provide a LARS, it can sometimes be possible to agree an ATS with Wittering, subject to controller workload. The Board also heard from an ATM advisor that LARS provision throughout the UK is currently under review, but that there is unlikely to be a quick resolution to the known areas of poor LARS coverage. The Board agreed, therefore, that the Spitfire pilot's only realistic

[1] (UK) SERA.3205 Proximity.
[2] (UK) SERA.3210 Right-of-way (c)(1) Approaching head-on.
[3] Lower Airspace Radar Service.

option had been to contact Sywell and listen-out for other traffic that may also have been on the frequency. However, in the event, the Sywell radio frequency had been un-attended and the C340 pilot had not selected the Sywell frequency. The Board also noted that the Spitfire had not been equipped with any form of electronic conspicuity equipment and therefore concluded that the Spitfire pilot had not had any situational awareness of the presence of the C340 (**CF1**). This had left the Spitfire pilot relying on their lookout for the detection of other aircraft. Additionally, members noted that they had been in a right-hand, descending turn prior to the Airprox, and that they had continued their descent once established on a south-easterly heading. This had meant that the C340 would have probably been obscured from the Spitfire pilot's view by the nose of their aircraft and that this had led to the Spitfire pilot not sighting the C340 until it had been too late to take any meaningful action to increase separation (**CF2**, **CF3**).

Turning to the actions of the C340 pilot, the Board noted that they had also not been in receipt of an ATS – for the same reasons stated above – but some members wondered if the pilot may have been better served by listening-out on the Sywell frequency, especially since they had been flying towards the Sywell instrument approach feathers depicted on the VFR chart. Although this may have helped in this case – because the Spitfire pilot had selected the Sywell frequency – the Board considered that this had not been a contributory factor in this Airprox because the C340 pilot could not have received any assistance from Sywell and could not have known that other pilots might have been listening on the frequency. Nonetheless, the Board wished to remind pilots of the note marked on VFR charts that 'Pilots are strongly recommended to contact aerodrome ATSU before flying within 10NM of any aerodrome marked with instrument approach feathers'. Returning to the Airprox itself, the Board noted that the C340 had not been equipped with any electronic conspicuity equipment and therefore had not had any situational awareness of the presence of the Spitfire (**CF1**). This had meant that the C340 pilot had also been relying on their lookout for the detection of other aircraft, and the Board agreed that they had not sighted the Spitfire until it had been too late to manoeuvre to increase separation (**CF2**).

Finally, the Board considered the risk involved in this event. Members noted that the pilots' estimation of lateral separation differed greatly, but also noted that the separation as recorded by the NATS radars was only 0.1NM with no vertical separation. The Board quickly agreed that a risk of collision had existed (**CF4**), but there followed a lengthy discussion on whether or not the aircraft had avoided a collision purely by chance or if the actions of one or both of the pilots had introduced a degree of separation. After further debate, the Board agreed that neither pilot had had the time to materially affect the separation and that providence had played a major part in events. Accordingly, the Board assigned a Risk Category A to this Airprox.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2021220			
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
	• See and Avoid			
2	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
3	Contextual	• Visual Impairment	Events involving impairment due to an inability to see properly	One or both aircraft were obscured from the other
	• Outcome Events			
4	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: A

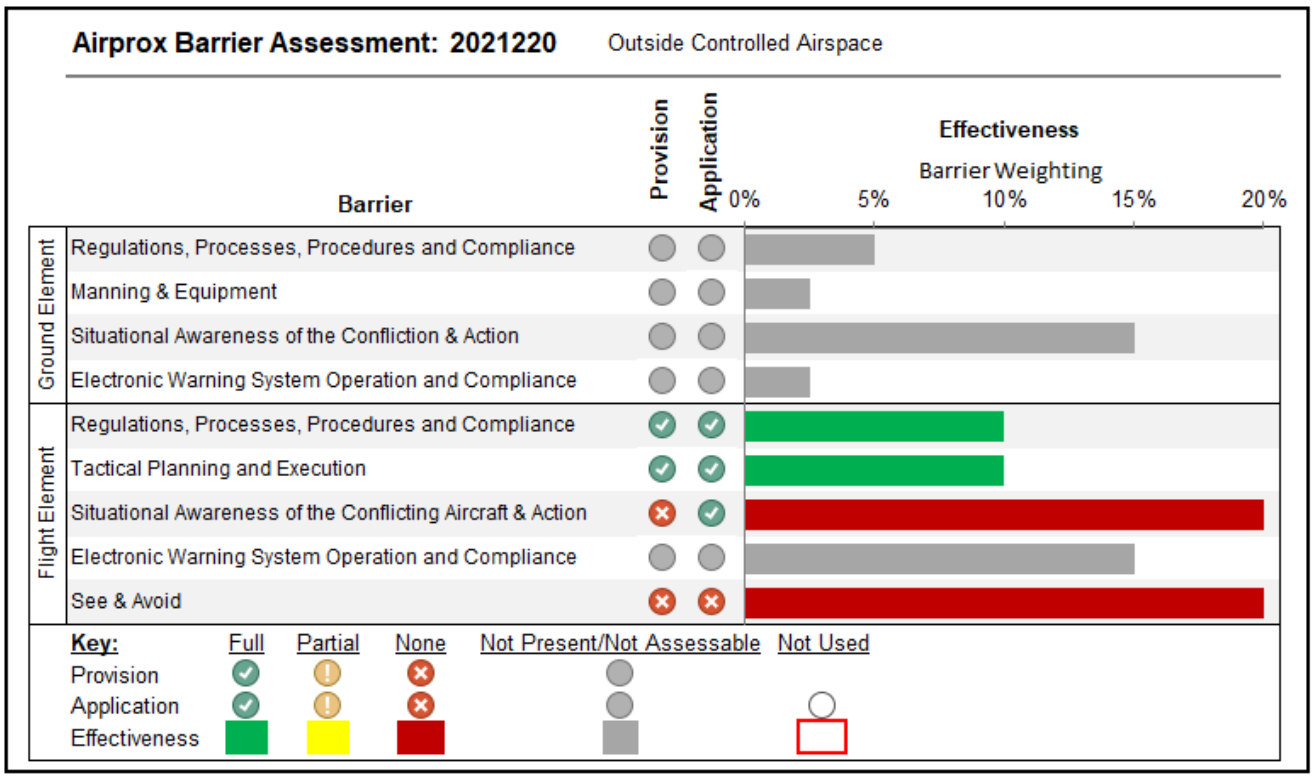
Safety Barrier Assessment[4]

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 regarding the presence of the other aircraft.

See and Avoid were assessed as **ineffective** because neither pilot saw the other aircraft until after CPA and therefore neither was in a position to materially affect the separation.



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