

AIRPROX REPORT No 2021115

Date: 16 Jul 2021 Time: 1540Z Position: 5209N 00003E Location: 7NM SW Cambridge airport

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Spitfire	Extra 200
Operator	Civ FW	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Listening Out ¹	Listening Out ¹
Provider	Duxford	Fowlmere
Altitude/FL	NK	NK
Transponder	Not fitted	NK ²
Reported		
Colours	Green, brown	White, red
Lighting	Nil	Nav, strobe
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	1700-2500ft	NK
Altimeter	NK	QNH (NK hPa)
Heading	'N/A'	335°
Speed	140-200kt	120kt
ACAS/TAS	Not fitted	Not fitted
Separation at CPA		
Reported	0ft V/35ft H	100ft V/>100m H
Recorded	NK V/NK H	



THE SPITFIRE PILOT reports carrying out a formation practice detail with another Spitfire. They had a 5min break during the flight and arranged to meet over a landmark to rejoin and make the slot time for a practice overhead Duxford. The Spitfire pilot was orbiting left hand with 15° of bank at 2000ft at around 170mph and talking to the other Spitfire pilot about the rejoin when they saw an Extra orbiting below at about 1500ft. They decided to clear the area, flew northwest and resumed the turn for the rejoin. The Extra followed so the Spitfire pilot accelerated to a speed it could not match and resumed another orbit at the original location. They told the other Spitfire pilot to keep away because they were being harassed by another aircraft and could not guarantee where it was. The Extra persisted to orbit in close proximity and on some occasions appeared to try to get very close. The Spitfire pilot made a point of always turning slowly away from it; they did not break sharply in case the other pilot foolishly thought they wanted their attention and followed. Eventually the Spitfire pilot accelerated again to get away and thought he had flown away. The wingman witnessed this from a distance. After resuming another left hand orbit the Extra appeared in the 7 o'clock very close and closing. The registration was clearly visible and separation reduced to about 35ft. The Spitfire pilot considered breaking sharply away to the right but realised the Extra would probably follow and they would be unable to see him. The Spitfire pilot had no idea whether the Extra pilot was competent to fly formation so gestured unmistakably at them and the passenger that they wanted them to leave. This was ignored and the Extra pilot maintained position for a full 180° turn. At this point the Spitfire pilot was extremely tense, and furious at the Extra pilot's behaviour. The Spitfire pilot broke sharply away and accelerated, this being the only way to get away. They looked around but couldn't see the Extra and asked the wingman to join while being very careful to lookout for the Extra. They returned to the field, late for the notified practice time, and had to hold for 5min before commencing the practice. The Spitfire pilot could sense that they had been affected by the experience, cut the flight short and landed. The ground crew commented that the Spitfire pilot appeared visibly shaken by what had happened. After they had discussed the event with the wingman, the Spitfire pilot telephoned the [Extra operating company] and was put in contact with the Extra pilot. The Spitfire

¹ Reported as in receipt of an AFIS and AGCS respectively but the distance from the airfields made such services moot.
² Reported as Modes A, C and S on but PSR only seen on the radar replay.

pilot made it clear that they were livid at the Extra pilot's behaviour. The Extra pilot informed them that they didn't often see Spitfires and thought it would be "fun to have a close look". They seemed unconcerned that they had broken up the formation practice and didn't seem to think that forming on aircraft uninvited without any form of briefing or proof of training or ability was a problem. They said they saw the gestures, but failed to break away.

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

THE EA200 PILOT reports that they departed from [home base] for a local aerobatic flight. Through previous contact with Duxford ATC they had been informed that there were two single-seat Spitfires and one two-seat Spitfire operating to the northwest of Duxford. After departure from [home base], clearing the circuit from the crosswind leg of RW07LH, they remained with [home base] Radio, still monitoring Duxford ATC, maintaining north-northwest heading, leaving plenty of room for two Spitfires that they had in sight at the time, climbing towards 2500ft on the QNH. 5NM north of [home base] they noticed another Spitfire coming closer to them from the north, which was about 5NM away on roughly an opposite heading, slightly higher with about 500m separation. After passing each other, maintaining passing traffic and the other two Spitfires in sight, they made a left hand turn to look around and 'to have better reconnaissance in situation'. They noticed that the Spitfire that passed them was also turning, making a much bigger radius and being already far away from them. They continued the turn until they made approximately two full circles, all the time maintaining not less than 500m separation, as the other traffic was much faster than them. At this time the Spitfire slowed down, matching their speed, and moved a little bit closer, but still maintained a good separation (more than 100m and flying the same direction). The Spitfire pilot executed a series of wing rocks and they returned to their original heading, flying towards the north-northwest. The 2 occupants of the Extra did not hear any RT between the Spitfires and Duxford ATC at any stage, and presumed that they had been on a different frequency.

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

Factual Background

The weather at Cambridge was recorded as follows:

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METAR EGSC 161550Z 02010KT CAVOK 25/12 Q1027=
METAR EGSC 161520Z 03011KT CAVOK 25/12 Q1027=
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Analysis and Investigation

UKAB Secretariat

The Spitfire and EA200 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard³. Aircraft shall not be flown in formation except by pre-arrangement among the pilots-in-command of the aircraft taking part in the flight⁴.

Summary

An Airprox was reported when a Spitfire and an Extra 200 flew into proximity 7NM southwest of Cambridge airport at about 1540Z on Friday 16th July 2021. Both pilots were operating under VFR in VMC, neither in receipt of a FIS.

³ (UK) SERA.3205 Proximity.

⁴ (UK) SERA.3515 Formation flights.

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.

Board members first discussed the radar replay and expressed their surprise that both the Spitfire and the Extra 200 appeared as primary only returns. It was the Board's understanding that both aircraft are fitted with an SSR transponder; it was unfortunate that both were unserviceable on the day.

Turning to the pilot's actions, it was clear that the EA200 pilot had closed to a position that the Spitfire pilot regarded as being in formation. The lack of a secondary radar track meant that the Board was not able to show definitively that the EA200 pilot had done so and, considering recent friction between the 2 pilots' operating bases, members were guarded about being perceived as siding with one or other of the pilots involved. However, the Board did agree that the Spitfire pilot's narrative clearly indicated they had had to take action (**CF6**) to move away from the EA200 (**CF5**). Consequently, members agreed that the EA200 pilot must have closed to a range that could be considered as being in formation (and certainly was if they were flying with reference to the Spitfire, but that was not reported). To do so without prior agreement, planning or briefing (**CF1, CF2, CF3**), or even to give the appearance of doing so, was considered to be ill-judged at best although members thought the Spitfire pilot may also have been able to take more positive action to leave the area (**CF2**), in much the same way as their wingman was not in the area. Members noted that an EA200 has a maximum of 32 litres of useable fuel when conducting aerobatics and is therefore range limited. Neither pilot was in receipt of a surveillance based FIS and neither aircraft was fitted with EC equipment, hence neither pilot had prior situational awareness of the other aircraft's proximity (**CF4**). Turning to risk of collision; members agreed that although the situation was highly undesirable and presented a high degree of potential risk, in the event, each pilot was visual with the other aircraft, the Spitfire pilot was able to move away from the EA200 and the EA200 pilot also moved away eventually. The Board felt that there was no risk of collision but that normal procedures had not been complied with and safety had been degraded.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2021115			
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
Flight Elements				
• Regulations, Processes, Procedures and Compliance				
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
• Tactical Planning and Execution				
2	Human Factors	• Insufficient Decision/Plan	Events involving flight crew not making a sufficiently detailed decision or plan to meet the needs of the situation	Inadequate plan adaption
3	Human Factors	• Pre-flight briefing and flight preparation	An event involving incorrect, poor or insufficient pre-flight briefing	
• Situational Awareness of the Conflicting Aircraft and Action				
4	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				
5	Human Factors	• Lack of Individual Risk Perception	Events involving flight crew not fully appreciating the risk of a particular course of action	Pilot flew close enough to cause concern
6	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.

Recommendation: Nil.

Safety Barrier Assessment⁵

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 **ineffective** because the EA200 pilot closed to a position that may be considered as formation flying.

Tactical Planning and Execution was assessed as **ineffective** because the EA200 pilot closed to an inappropriate range from the Spitfire and the Spitfire pilot did not take more positive action to leave the area.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because neither pilot had SA on the position of the other aircraft until sighted.

See and Avoid were assessed as **partially effective** because the Spitfire pilot was able to take avoiding action.

		Barrier		Effectiveness Barrier Weighting				
		Provision	Application	0%	5%	10%	15%	20%
Ground Element	Regulations, Processes, Procedures and Compliance	○	○					
	Manning & Equipment	○	○					
	Situational Awareness of the Conflicting Aircraft & 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	●	⚠					
Key:		Full	Partial	None	Not Present/Not Assessable	Not Used		
Provision	●	⚠	⊗	○				
Application	●	⚠	⊗	○	○			
Effectiveness	■	■	■	■	□			

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