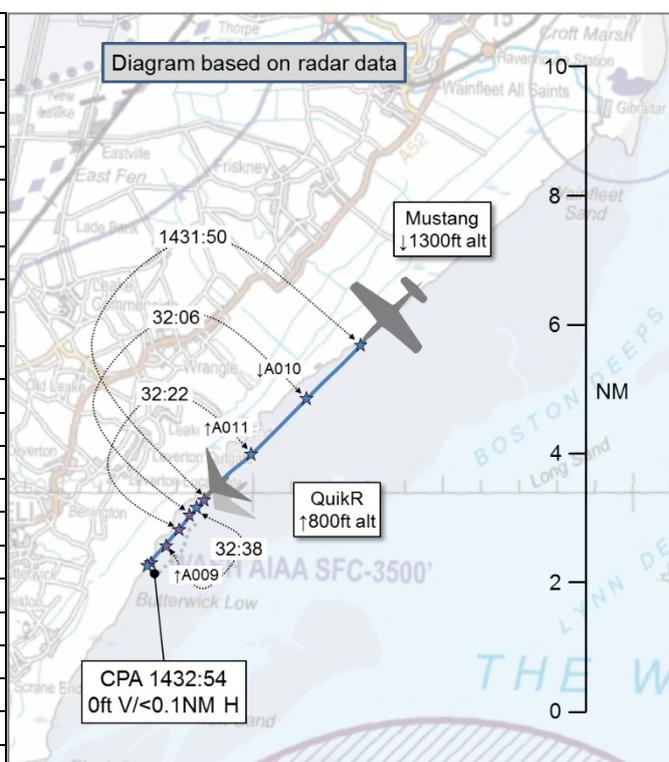


AIRPROX REPORT No 2020045

Date: 30 May 2020 Time: 1433Z Position: 5259N 00007E Location: 4NM E of Boston

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	P51D Mustang	QuikR microlight
Operator	Civ FW	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Basic	None
Provider	London Info	
Altitude/FL	1100ft	1100ft
Transponder	A, C, S	A, C, S
Reported		
Colours	NR	Black/yellow/white
Lighting	NR	None
Conditions	VMC	VMC
Visibility	>10Km	15NM
Altitude/FL	1200ft	1400ft
Altimeter	QNH (1023hPa)	QNH
Heading	200°	211°
Speed	230kt	66kt
ACAS/TAS	Not fitted	PilotAware
Alert	N/A	None
Separation		
Reported	0ft V/35m H	50ft V/50m H
Recorded	0ft V/<0.1NM H	



THE MUSTANG PILOT reports that they were flying along the coast, straight and level, when they sighted a weight-shift microlight just forward of the engine cowling, slightly to their left and at a distance of about 100m with no height separation; it was too late to take any avoiding action. The aircraft's track was parallel to their own and they could see that the pilot of the microlight was wearing a black flight suit and helmet. They believe that the microlight pilot was unaware of their presence and, once alongside, they noticed a second microlight approximately 70m to their left.

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

THE QUIKR PILOT reports that they were flying along the coast towards their destination airfield. There were no unusual circumstances when, suddenly, a Mustang passed close by. There was not time to take any avoiding action as the other aircraft came up from behind at high speed and they received no indication of the other aircraft on their PilotAware. They have flown in this area on a few occasions and always keep a good lookout as it is an AIAA. They did not report the Airprox on the radio as they were unsure of the procedure for doing so.

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

THE LONDON FISO reports that the Mustang pilot initially reported on frequency at 1402Z. The aircraft was routing down the east coast and the pilot reported south of Boston town at 1435Z. They wished to file an air-miss. The FISO asked them to confirm if they wanted to file an Airprox report and requested their altitude and information on the other aircraft etc. The Mustang pilot reported that there were 2 microlights to the east of Boston, one of which passed on their right-hand side [UKAB note: the microlight actually passed down the left-hand side of the Mustang] approximately 100m away at 1000ft at 1432Z. The microlights were not believed to be on frequency and the Mustang pilot gave no other details or identifying marks of the other aircraft involved; nothing matching the description and location given was known to be in receipt of a Service from London FIS at that time. It was difficult to hear the

Mustang pilot clearly when they made the Airprox report, and initially the FISO thought it was due the aircraft type. However, in hindsight there is the possibility that the pilot had remained on the FIS North frequency and not changed to the FIS East frequency. They tried to make contact with the pilot again at 1453Z but did not receive a response.

Factual Background

The weather at Coningsby was recorded as follows:

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METAR EGXC 301350Z 07013KT 9999 FEW045 20/10 Q1024 RMK BLU=
METAR EGXC 301450Z 08015KT CAVOK 21/08 Q1024 RMK BLU=
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Analysis and Investigation

NATS Swanwick

The pilot of the reporting aircraft was in receipt of a Basic Service from London FIS and therefore the avoidance of other traffic was solely the pilot's responsibility. No other traffic in the vicinity was known to the FIS Officer at the time of the event.

UKAB Secretariat

A report was received from the second microlight pilot that was flying in company with the Airprox microlight. The pilot's account substantiated the report of the Airprox microlight pilot and did not provide any additional information; to avoid repetition it has not, therefore, been included in this report.

A review of the NATS radar replay was conducted. Although neither of the aircraft involved showed on primary radar, the aircraft were consistently tracked on secondary radar and thus an accurate plot of the aircraft's relative positions and a measurement of CPA were possible.

At 1431:50, the Mustang could be seen paralleling the coastline directly behind the QuikR microlight at a range of 3.5NM; the aircraft were separated by 500ft at this point (Figure 1). The Mustang then continued on the same track, descending to FL009 (1100ft altitude) at 1432:14 (Figure 2); the pilot then maintained this altitude until CPA.

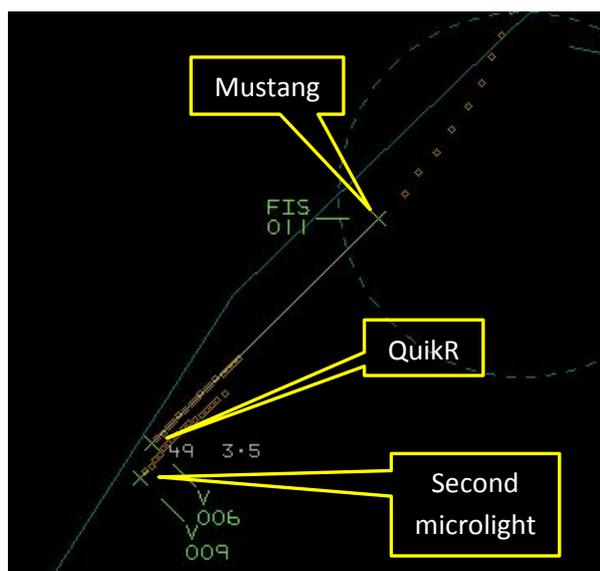


Figure 1 - 1431:50

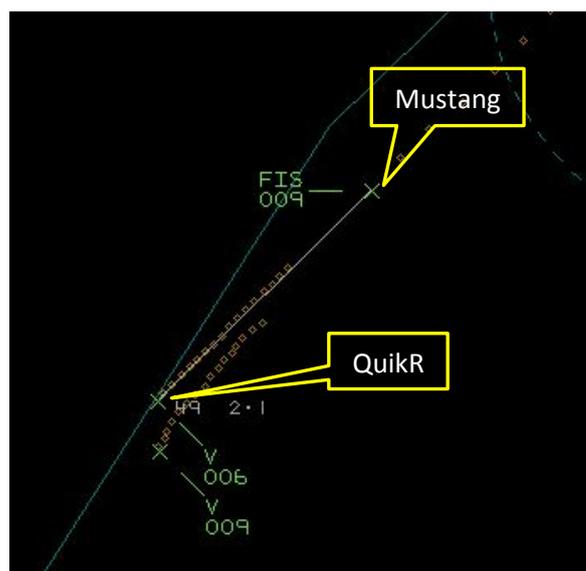


Figure 2 – 1432:14

At 1432:34, the QuikR pilot commenced a gradual climb (Figure 3); the Mustang was 1NM behind and 200ft above the microlight at this time. The QuikR pilot continued the climb and CPA occurred

some 20sec later and between radar sweeps; the closest radar-measurable separation occurred at 1432:54 and was measured at <0.1NM with no vertical separation (Figure 4).

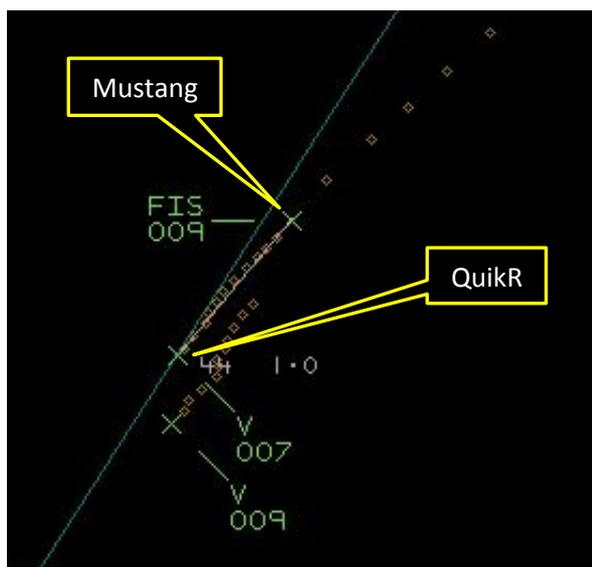


Figure 3 – 1432:34

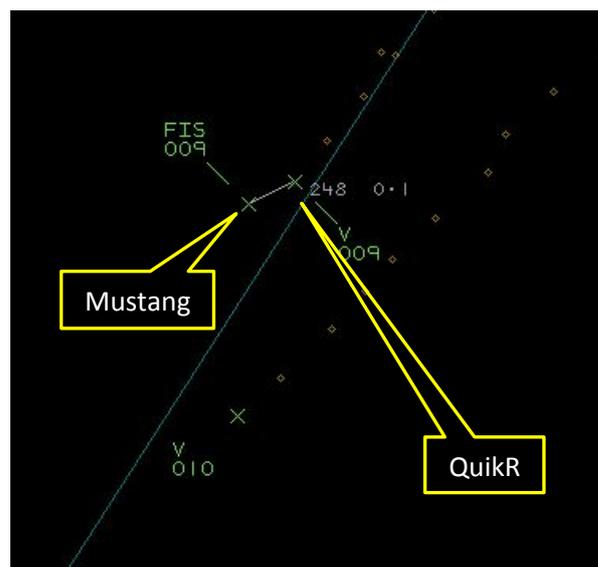


Figure 4 - CPA

The Mustang and QuikR 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 overtaking then the QuikR pilot had right of way and the Mustang pilot was required to keep out of the way of the other aircraft by altering course to the right.²

Summary

An Airprox was reported when a P51 Mustang and a QuikR microlight flew into proximity 4NM to the east of Boston at 1433Z on Saturday 30th May 2020. Both pilots were operating under VFR in VMC; the Mustang pilot was in receipt of a Basic Service from London Information and the QuikR pilot was not in receipt of an ATS.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from the pilots of both aircraft, a report from the microlight pilot flying 'in company' with the QuickR pilot, radar photographs/video recordings, a report from the Flight Information Services Officer involved and a report from the ATC operating authority. 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.

Due to the exceptional circumstances presented by the coronavirus pandemic, this incident was assessed as part of a 'virtual' UK Airprox Board meeting where members provided dial-in/VTC comments. Although not all Board members were present for the entirety of the meeting and, as a result, the usual wide-ranging discussions involving all Board members were more limited, sufficient engagement was achieved to enable a formal assessment to be agreed along with the following associated comments.

The Board was encouraged to hear that both the pilot of the QuikR and their associate flying in the other microlight had fitted transponders to their aircraft; this equipment undoubtedly improves the radar conspicuity of those aircraft to which it is fitted. That said, members wondered why the pilots had elected not to seek either a surveillance-based Air Traffic Service (notwithstanding this event had occurred at the weekend when the availability of LARS is more limited than at other times) or at least a non-

¹ SERA.3205 Proximity.

² SERA.3210 Right-of-way (c)(3) Overtaking.

surveillance-based Service from London Information (**CF3, CF4**). Noting that the London FISOs do not use surveillance equipment in the delivery of a Basic Service and are not required to monitor aircraft under the terms of a that Service (**CF1**), a controller member felt that, had the QuikR pilot contacted London Information, then there would have been a potential opportunity for the FISO to pass generic Traffic Information to the QuikR pilot in relation to the Mustang and *vice versa*. As it was, the microlights were not known to the London FISO (**CF2**) and, therefore, this opportunity had been missed and neither the pilot of the QuikR nor the Mustang pilot had been aware of the presence of the other aircraft (**CF5**). Additionally, the Board could not establish why the PilotAware equipment carried on the QuikR did not alert its pilot to the presence of the Mustang (**CF6**), and wondered if perhaps the limited number of options for mounting the aerial in such a small aircraft may have meant that the aerial had been blanked to the transponder signals from the Mustang.

The Mustang pilot had agreed a Basic Service from London Information but, as previously mentioned, the London FISO had been unaware of the presence of the microlights so had not been in a position to warn the Mustang pilot. The Board noted that the Mustang has a long nose (when compared to other GA aircraft) and considered that this may have hindered the pilot's ability to see the microlights dead-ahead of, and slightly below, his aircraft; furthermore, the Mustang had approached the microlights from directly behind and above the QuikR which, in turn, members felt may also have hindered the QuikR pilot's ability to sight the Mustang (**CF7, CF9**). The Board wished to highlight the importance of weaving slightly during climbs and descents in order to fully clear the intended flightpath.

Turning to the risk involved in this Airprox, members were unanimous that this had been an extremely close encounter (**CF8**) that had clearly alarmed both the pilots involved. The Board considered that at least 3 barriers to mid-air collision had been ineffective and that neither pilot had had the opportunity to take any action to increase separation until the aircraft had passed each other. Consequently, members agreed that providence had played a major part in events and that a serious risk of collision had existed. Accordingly, they assigned a Risk Category A to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

2020045			
CF	Factor	Description	Amplification
Ground Elements			
• Situational Awareness and Action			
1	Contextual	• ANS Flight Information Provision	Not required to monitor the aircraft under the agreed service
2	Contextual	• Situational Awareness and Sensory Events	The controller had only generic, late or no Situational Awareness
Flight Elements			
• Tactical Planning and Execution			
3	Human Factors	• Flight Planning and Preparation	
4	Human Factors	• Communications by Flight Crew with ANS	Pilot did not communicate with appropriate ATS provider
• Situational Awareness of the Conflicting Aircraft and Action			
5	Contextual	• Situational Awareness and Sensory Events	Pilot had no, late or only generic, Situational Awareness
• Electronic Warning System Operation and Compliance			
6	Technical	• ACAS/TCAS System Failure	CWS did not alert as expected
• See and Avoid			
7	Contextual	• Poor Visibility Encounter	One or both aircraft were obscured from the other
8	Contextual	• Near Airborne Collision with Aircraft, Balloon, Dirigible or Other Piloted Air Vehicle	Piloted air vehicle
9	Human Factors	• Monitoring of Other Aircraft	Non-sighting or effectively a non-sighting by one or both pilots

Degree of Risk: A

Safety Barrier Assessment³

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

Ground Elements:

Situational Awareness of the Confliction and Action were assessed as **not used** because the London FISO was unable to monitor the aircraft given the participation in the Service (the QuikR pilot had not sought a Service from the London FISO).

Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because the microlight pilot had planned to conduct his transit without requesting an Air Traffic or Flight Information Service.

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.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the PilotAware equipment on-board the microlight did not detect the presence of the Mustang.

See and Avoid were assessed as **ineffective** because neither pilot saw the other aircraft in time to materially increase separation.

Airprox Barrier Assessment: 2020045		Outside Controlled Airspace						
Barrier	Provision	Application	Effectiveness					
			Barrier Weighting					
			0%	5%	10%	15%	20%	
Ground Element	Regulations, Processes, Procedures and Compliance	✓	✓					
	Manning & Equipment	✓	✓					
	Situational Awareness of the Confliction & 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								

³ The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).