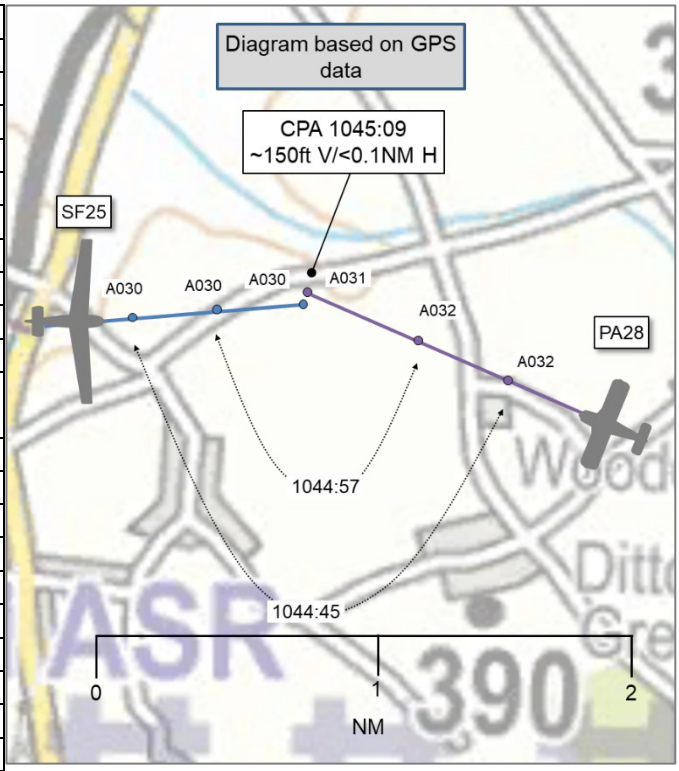
AIRPROX REPORT No 2022082

Date: 15 May 2022 Time: 1045Z Position: 5212N 00024E Location: 1NM S Newmarket

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	SF25	PA28
Operator	Civ FW	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	None[1]	None
Altitude/FL	~3025ft	~3150ft
Transponder	Not fitted	A, C, S
Reported		
Colours	Yellow	White
Lighting	Strobe	Anti-col, Beacon, Strobe, Landing
Conditions	VMC	VMC
Visibility	>10km	5-10km
Altitude/FL	3000ft	3100ft
Altimeter	amsl	QNH
Heading	090°	292°
Speed	70kt	105kt
ACAS/TAS	FLARM	Not fitted
Alert	None	N/A
Separation at CPA		
Reported	200ft V/ 0m H	50-100ft V/200m H
Recorded	150ft V/<0.1NM H	



THE SF25 PILOT reports that they were on a navigation exercise routing via Bury St Edmunds (south, just outside Lakenheath CMATZ) and Lavenham disused aerodrome, clockwise. They passed overhead Cambridge ATZ and the Cambridge ATC was closed and so they did not get a service or updated QNH setting. When they were approximately abeam the A14 and the wind turbines, they changed frequency to Lakenheath radar. They requested a Basic Service. They were asked to squawk but were not transponder fitted, so reported being unable squawk and were told to stand by. At this point they were not sure whether they were identified/provided with any service or not. They assumed they were not identified and not on any service, but later (after the Airprox), Lakenheath Radar asked them to confirm that they were somewhere where they were not, and said that they were unable to identify them and that they would remain on a Basic Service, hence the confusion. The frequency was very busy so they waited as instructed, looking out for traffic. The visibility was approximately 20km but rather murky and the horizon was not clear. Several seconds before the Airprox, they saw the traffic at 12 o'clock head on. Initially they thought it was going to pass above them, but it appeared stationary and became larger at an alarming speed with diminishing vertical separation. By the time they took evasive action it was still above them but very close and seemed to be descending onto them, so they made a sharp diving turn to the right. They did not see the other aircraft take any evasive action. Shortly after the incident, Lakenheath radar requested that they reported their position, and they said they were navigating from Cambridge to Bury abeam Newmarket. It was simply acknowledged with no further reference to anything else.

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

THE PA28 PILOT reports that the flight was carried out as planned and this was a familiar route, the flight was well clear of cloud. Visibility was good but not excellent with some haze. From take-off and for the full duration of the flight, all lights were on. The lights were all working pre-flight and were all

[1] The pilot had called Lakenheath for a Basic Service but had been told to 'stand by'.

working pre-flight on the return trip the same day. Upon leaving [departure airfield] they selected Essex Radar with a listening squawk of 7013. They were intending to request a Basic Service, but decided against this as there was considerable R/T traffic with flights in/out of Stansted with very few breaks in transmissions, and so they maintained a listening watch only. Whilst close to Newmarket Heath and heading roughly west-northwest, the passenger pointed out an aircraft close to them [without any alarm in their voice] and closing. They could see this aircraft for perhaps 2-3sec before it passed below and to their port side. When first sighted, the other aircraft was already on this course and so they did not alter their own course. It was a similar size, single-engine and perhaps orange or red in colour. They didn't recognize the type. The flight continued without incident.

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

THE LAKENHEATH CONTROLLER reports that, at approximately 1044, [SF25 C/S] called Lakenheath Approach for a Basic Service. The aircraft did not have an operational transponder and did not give their position or altitude to Lakenheath. At 1048 [PA28 C/S] called Lakenheath Approach requesting a Basic Service. Due to controller workload with other GA aircraft, skydive operations and inbounds to RAF Mildenhall, the controller did not radar identify [the PA28] until it appeared that [PA28 C/S] and [SF25 C/S] targets had passed. However, they were unable to confirm the exact location of [SF25 C/S], but based on the coordinates provided, this appears to be the situation. Neither pilot reported passing traffic in close proximity to Lakenheath Approach.

Factual Background

The weather at Lakenheath was recorded as follows:

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METAR EGUL 150956Z AUTO 10008KT 9999 FEW100 18/12 A3004 RMK AO2 SLP176 T01750117
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Analysis and Investigation

UKAB Secretariat

Unfortunately the SF25 did not display on the NATS radar replay, however both pilots provided GPS data which enabled the diagram above to be prepared.

The SF25 and PA28 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.[2] If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right.[3] If the incident geometry is considered as converging then the SF25 pilot was required to give way to the PA28.[4]

Occurrence Investigation

NATS Safety Investigations

The PA28 pilot reported listening out on Essex Radar and so NATS undertook a preliminary investigation. It was found that as [PA28 C/S] departed their airfield they changed SSR code to 7013 (Stansted listening code) at 1027:47. The pilot report detailed they were going to request a Basic Service with Essex but decided against it as there was considerable R/T traffic with flights in and out of Stansted, so the pilot decided to maintain a listening watch only.

The Stansted frequency (120.625MHz) was reviewed from 1025:05 (all times UTC) until 1047:57 and [PA28 C/S] did not speak on the R/T and there were no calls from the controller to the PA28. The PA28 changed SSR code from 7013 to 7000 at 1040:58 when it was at position 5210N 00038E. The radar data was reviewed and it was believed that the conflict occurred 3.6NM SE of Newmarket.

[2] (UK) SERA.3205 Proximity.
[3] (UK) SERA.3210 Right-of-way (c)(1) Approaching head-on.
[4] (UK) SERA.3210 Right-of-way (c)(2) Converging.

[PA28 C/S] was observed to select a Lakenheath code some time after the conflict at 1045:50. Given the details above, it would appear that NATS is not a unit of interest in this event.

Summary

An Airprox was reported when an SF25 and a PA28 flew into proximity 1NM south of Newmarket at 1045Z on Sunday 15th May 2022. Both pilots were operating under VFR in VMC, neither in receipt of an ATS.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, GPS log files and reports from the air traffic controllers 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.

The Board first looked at the actions of the SF25 pilot. They had been on a navigational exercise and the pilot had called on the Lakenheath frequency to ask for a Basic Service. Unfortunately, the Lakenheath controller had been busy and the pilot was told to 'stand-by', resulting in the pilot effectively not being in receipt of an ATS. Members thought that there was no doubt that this was in part because the SF25 had not been fitted with a transponder, making it difficult for the controller to identify the aircraft. Some members opined that, without a transponder on the SF25, controllers would struggle to maintain track-ident on it, nor were they required to do so under the provision of a Basic Service, therefore the pilot was highly unlikely to have received any Traffic Information even had they established a Basic Service with the controller prior to the Airprox. The EC equipment fitted in the SF25 could not have detected the transponder in the PA28 (**CF2**) so, without an ATS or an alert from the EC equipment, the pilot had had no prior situational awareness that the PA28 was in the vicinity (**CF1**). With the situational awareness and EC barriers both rendered ineffective, the final mitigation to MAC was see-and-avoid. Fortunately, the SF25 pilot had seen the PA28 in time to take avoiding action, albeit late (**CF3**).

Turning to the PA28 pilot, again they had not been receiving an ATS at the time of the Airprox. Some members opined that it had been a missed opportunity that the pilot had not called Lakenheath immediately on leaving the Essex Radar frequency. Had they called, there was a possibility that the SF25 pilot – also on the Lakenheath frequency – may have heard the call and realised that both aircraft had been in a similar area. As it was, the PA28 pilot had not called ATC until after the Airprox, and because the aircraft had not been fitted with any form of EC either, the pilot had had no prior situational awareness about the SF25 (**CF1**). Some members opined that the motor glider may have been obscured to the PA28 pilot by the low-wing of the PA28 as they approached. In the event, the passenger, and then the pilot, had seen the SF25, probably after the SF25 pilot had taken their avoiding action (**CF3**) and assessed that further avoiding action had not been necessary.

The Board then looked at the role of ATC. They heard from the USAFE advisor to the Board that whilst not a LARS provider, the Lakenheath controllers were happy to provide an ATS in their area, but it had been unfortunate that on this occasion the SF25 pilot had called at a time when the controller had been busy. They noted that establishing a contract of service between the pilot and the controller had become protracted because at first there had been some callsign confusion and then the SF25 pilot had not been able to apply the squawk that had been offered. Furthermore, the controller had also been providing a Traffic Service to other pilots, necessitating that they gave a higher priority to those aircraft.

When determining the risk of collision, the Board was grateful to both pilots for having supplied their GPS log file from their flights, as this had greatly enhanced the Board's understanding of the geometry of the event. They considered that the avoiding action from the SF25 pilot had increased the separation between the two aircraft. However, given the late nature of the avoiding action and the final separation, they agreed that safety had been much reduced; Risk Category B (**CF4**).

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2022082			
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
	• Electronic Warning System Operation and Compliance			
2	Technical	• ACAS/TCAS System Failure	An event involving the system which provides information to determine aircraft position and is primarily independent of ground installations	Incompatible CWS equipment
	• See and Avoid			
3	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
	• 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: B.

Safety Barrier Assessment[5]

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

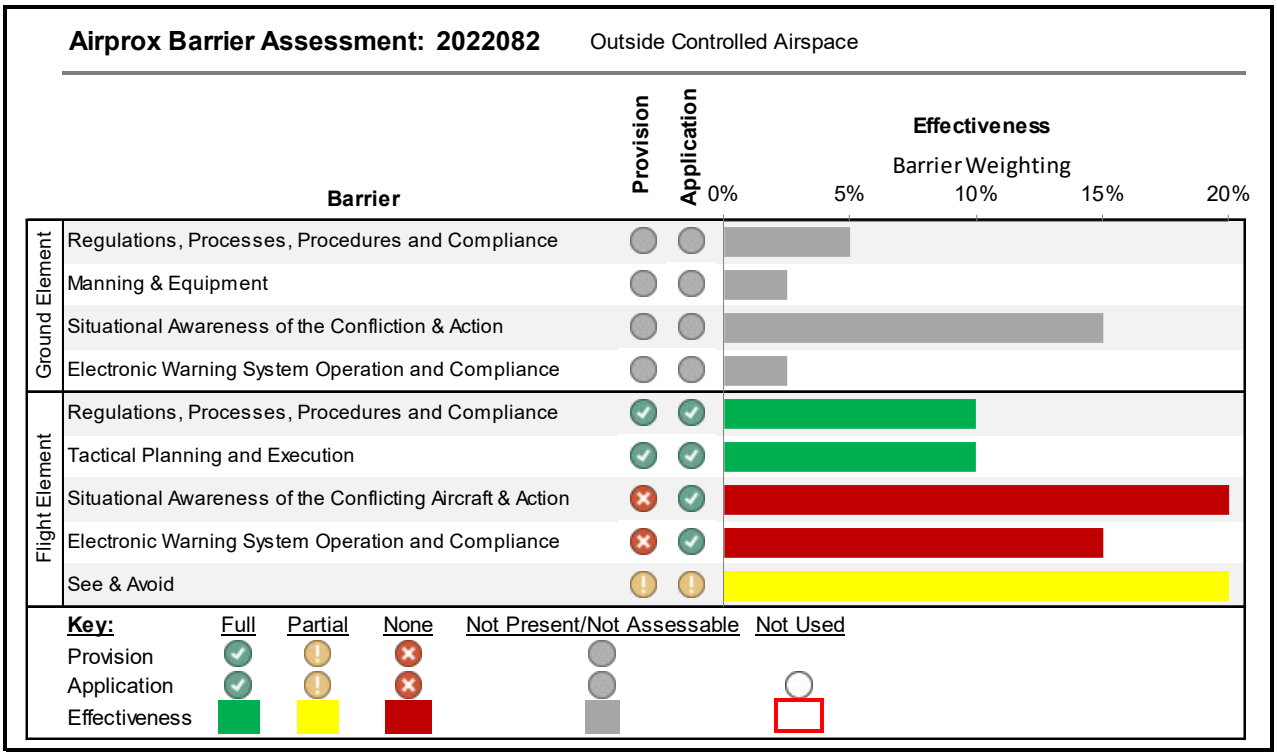
Flight Elements:

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because neither pilot had any prior situational awareness about the other aircraft.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the EC equipment on the SF25 could not detect the PA28.

See and Avoid were assessed as **partially effective** because the SF25 pilot saw the PA28 and took avoiding action, albeit late.

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


Airprox Barrier Assessment: 2022082
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