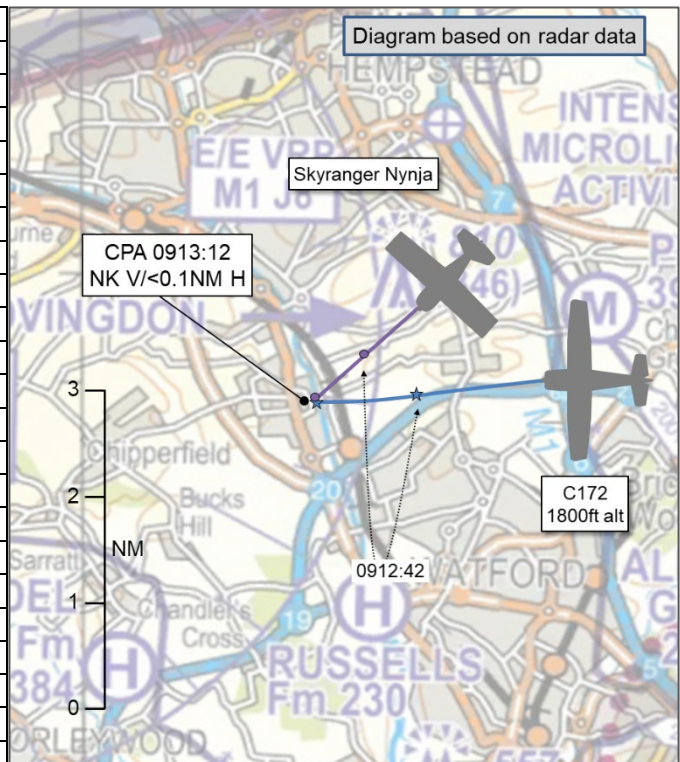


AIRPROX REPORT No 2022112

Date: 22 Jun 2022 Time: 0913Z Position: 5142N 00026W Location: 5NM East BNN VOR

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	C172	Skyranger Nynja
Operator	Civ FW	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Listening Out	None
Provider	Luton Radar	
Altitude/FL	1800ft	
Transponder	A, C, S	Not fitted
Reported		
Colours	White	White
Lighting	Nav, Beacon	Nil
Conditions	VMC	VMC
Visibility	>10km	NR
Altitude/FL	1900ft	1900ft
Altimeter	QNH (1014hPa)	QNH
Heading	265°	NR
Speed	105kt	NR
ACAS/TAS	SkyEcho	Not fitted
Alert	None	N/A
Separation at CPA		
Reported	200ft V/100m H	Not Seen
Recorded	NK V/<0.1NM H	



THE C172 PILOT reports that they were flying on track towards BNN, passing south of Plaistows at 1900ft at the start of the cruise. They first sighted the high-wing [Skyranger] (close enough to clearly read the registration) in the 12 o'clock, passing right-to-left on an estimated heading of 200° and about 200ft below. They estimated that the other aircraft had been on a converging track in their 4 o'clock. No avoiding action was taken as it was too late and no action was seen from the other aircraft. They reported the Airprox to Luton Radar.

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

THE SKYRANGER NYNJA PILOT reports that, after doing multiple circuits at Plaistows Farm with their student, they departed the circuit to the west climbing up to 1900ft QNH (1500ft QFE) heading for Junction 20 on the M25 (Kings Langley) to perform a 180° turn to then head back to Plaistows for a standard overhead join. They remained at the airfield overhead join height of 1500ft QFE during the entire departure and returned to the airfield. Overhead the motorway junction they performed the turn, keeping a good lookout for other traffic, and then proceeded back to Plaistows Farm for an overhead join and landing.

THE LUTON CONTROLLER reports that at 0914, [the C172 pilot] called on frequency and requested that they note the details of an Airprox that the pilot intended to file later that day after they had landed. They advised that they had departed [airfield] for [destination] in a C172 and had had another aircraft, believed to be [Skyranger], pass 50-100ft below them in the vicinity of Plaistows microlight site.

Factual Background

The weather at Luton was recorded as follows:

METAR EGGW 220850Z AUTO 08004KT 010V140 9999 NCD 22/06 Q1014=

Analysis and Investigation

NATS ATSI

Information available to the investigation included:

- CA4114
- Radar and R/T recordings

[C/S] was a Cessna 172 (C172) operating VFR. The pilot was displaying Mode A code 0013, indicating that they were operating outside Luton/Stansted controlled airspace and were monitoring the Luton/Essex Radar frequency. The pilot was not in communication with, or receiving, any service from Luton Radar at the time of the reported Airprox. The pilot of [C172 C/S] reported onto the Luton Intermediate Approach (GW INT) frequency at 0914:00 (all times UTC) stating that they would be reporting an Airprox. The GW INT controller requested that the pilot pass the details, and the following exchange took place at 0914:39.

[C172 C/S] - *Cessna one seven two, VFR from [departure airfield], about two minutes ago, so two miles to the west, one thousand nine hundred, had another aircraft a high-wing pass underneath me about fifty feet, a hundred feet below. Believe the registration [Skyranger C/S] but I will file this evening.*

GW INT - [C172 C/S] *roger and sorry just say again that approximate position where it occurred?*

[C172 C/S] - *Approximately three miles east of my current position so that's probably four miles west of the Bovingdon VOR. Correction, east of the Bovingdon VOR.*

GW INT- *Ok, roughly in the vicinity of Plaistows?**

[C172 C/S]- *Affirm, [C/S]*

The pilot reported that they did not require anything further from the GW INT controller.

*Plaistows microlight site is marked on the eVFR 500K Southern England chart with a note warning of intense microlight activity in the area.

The radar recordings of the event were reviewed. [C172 C/S] was identified by Mode S Hex code, initially displaying Mode-A 7000, changing to 0013 at 0912:42. Mode-C indicated that the aircraft was at 1800ft. A primary return was visible 0.5NM to the north-east of [C172 C/S] on a converging track.



Figure 1: [C172 C/S] and primary return prior to the Airprox.

The closest point of approach occurred at 0913:10 when the primary return merged with [C172 C/S], see Figure 2.

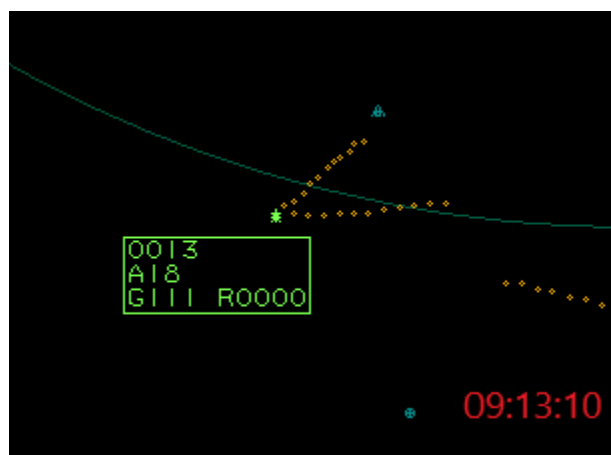


Figure 2: Track of [C172 C/S] estimated to be 270°, primary track estimated 230°.

No Mode-S heading or indicated airspeed were downlinked from the aircraft. The pilot of [C172 C/S] reported that the identity of the other aircraft was believed to be [Skyranger C/S], but it was not possible to confirm this from radar recordings.

On 27th June 2022, Safety Investigations was notified by the UK Airprox Board that they had received an Airprox report from the C172 pilot.

Conclusion

The Airprox occurred when the pilot of [C172 C/S] came into proximity with an aircraft in Class G airspace at an altitude reported by the C172 pilot of 1900ft, with the conflicting aircraft reported to have passed 50-100ft beneath. Neither aircraft was in communication with the GW INT controller at the time of the event, but the pilot of [C172 C/S] was maintaining a listening watch and subsequently reported the Airprox on the frequency.

Closest Point of Approach occurred at 0913:10 and was recorded on Multi-Track Radar as 0.0NM laterally. Vertical separation of 50-100ft was reported by the C172 pilot.

The C172 pilot did not report any actions taken to resolve the situation.

UKAB Secretariat

The C172 and Skyranger Nynja 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 converging then the C172 pilot was required to give way to the Skyranger.² If the incident geometry is considered as overtaking then the Skyranger pilot had right of way and the C172 pilot was required to keep out of the way of the other aircraft by altering course to the right.³

Summary

An Airprox was reported when a C172 and a Skyranger Nynja flew into proximity 5NM east of the BNN VOR at 0913Z on Wednesday 22nd June 2022. Both pilots were operating under VFR in VMC, neither was in receipt of an ATS.

¹ (UK) SERA.3205 Proximity.

² (UK) SERA.3210 Right-of-way (c)(2) Converging.

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

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, a report from the air traffic controller involved and reports from the appropriate operating authorities. 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 C172 pilot. They had been operating without an ATS, choosing instead to listen out on the Luton frequency, but this had not provided them with any situational awareness that the Skyraanger had also been operating in their vicinity (**CF1**). The EC equipment on the C172 could not have detected the non-transponding Skyraanger, further degrading any chance of prior situational awareness for the C172 pilot (**CF2**). Members noted that the Skyraanger had been approaching from the right and would have been difficult for the C172 pilot in the left-hand seat to see: for this reason they advocated weaving when climbing or when flying on a constant heading, both to improve lookout, but also to offer movement and therefore increase the chances of being seen. Furthermore, the difficulty in seeing the Skyraanger would have been worsened because the Skyraanger would have been camouflaged against the backdrop of the ground clutter. The C172 pilot had not seen the Skyraanger until it was in their 12 o'clock, too late to take any action, making this effectively a non-sighting (**CF3**). The Board commended the pilot for reporting the Airprox on frequency because it enabled Luton to preserve the radar data, which greatly enhanced the subsequent analysis.

Turning to the Skyraanger pilot, they had not seen the C172 at all (**CF3**). Members thought that the C172 would have probably been obscured to the Skyraanger pilot, as it had approached from behind; furthermore, once closer, as the C172 had been slightly above, it would also have been obscured by the Skyraanger's high-wing (**CF4**). Again, the Board recommended weaving to overcome any such obscuration. The Skyraanger pilot had not been in receipt of an ATS, nor had the aircraft been fitted with any EC, so again the pilot had not had any situational awareness that the C172 had been in the vicinity (**CF1**). Members noted that whilst it was for pilots to decide on their own requirements for additional EC equipment according to their needs, they wished to highlight that additional funding has been made available for electronic conspicuity devices through the CAA's Electronic Conspicuity Rebate Scheme, which has been extended until 31st March 2023.⁴

When assessing the risk of collision, the Board considered the radar replay, together with the reports from the pilots. Without a transponder, the exact height of the Skyraanger was not known and so the Board did not know the vertical separation between the two aircraft, although the C172 pilot had reported the Skyraanger as 200ft below. Members noted that the Skyraanger pilot had not seen the C172 at all, and the C172 pilot had seen the Skyraanger too late to take any avoiding action, although fortuitously there had been some vertical separation. They therefore agreed that safety had been degraded and there had been a risk of collision (**CF5**), Risk Category B.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2022112			
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			

⁴ <https://www.caa.co.uk/general-aviation/aircraft-ownership-and-maintenance/electronic-conspicuity-devices/>

3	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
4	Contextual	• Visual Impairment	Events involving impairment due to an inability to see properly	One or both aircraft were obscured from the other
• Outcome Events				
5	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 Assessment⁵

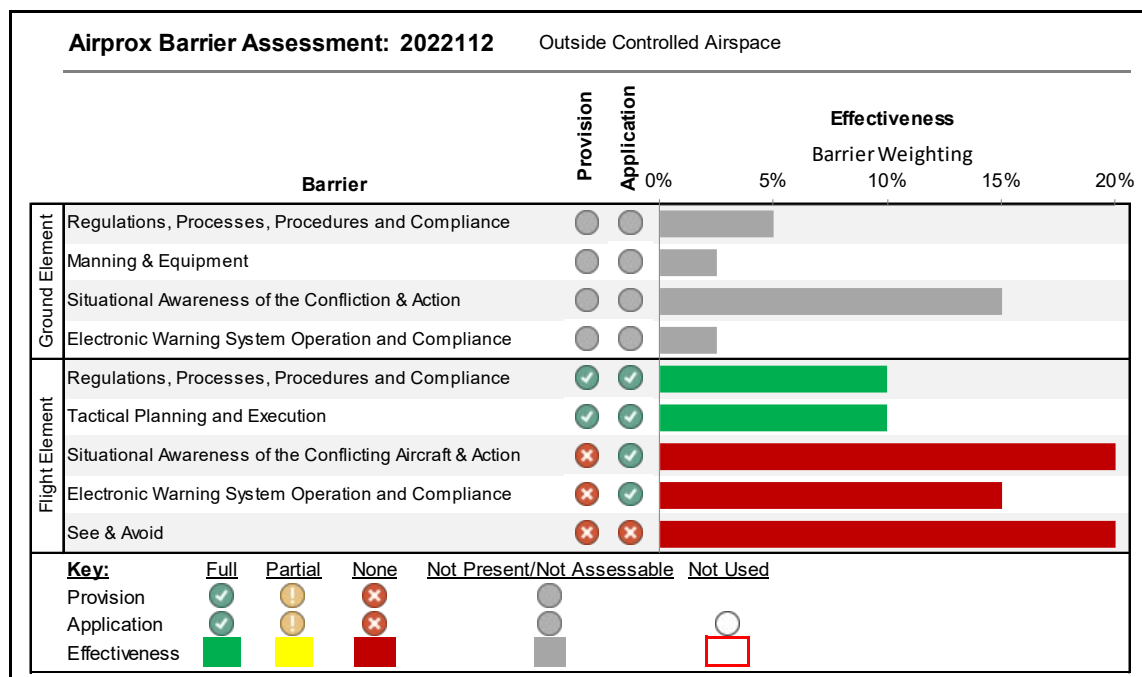
In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

Flight Elements:

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

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the EC equipment on the C172 could not detect the presence of the Skyranger.

See and Avoid were assessed as **ineffective** because it was a non-sighting by the Skyranger pilot and effectively a non-sighting by the C172 pilot.



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