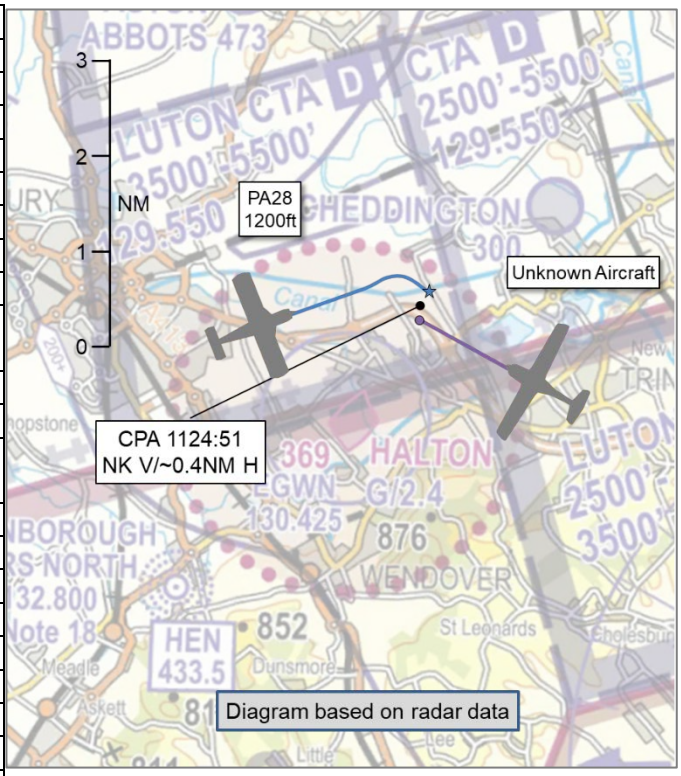
AIRPROX REPORT No 2021070

Date: 05 Jun 2021 Time: 1124Z Position: 5147N 00044W Location: Halton

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	PA28	Unknown
Operator	Civ FW	Unknown
Airspace	Halton ATZ	Halton ATZ
Class	G	G
Rules	VFR	NK
Service	AGCS	Unknown
Provider	Halton	
Altitude/FL	1200ft	NK
Transponder	A, C, S	Not showing on radar
Reported		
Colours	White, Maroon	White
Lighting	Landing, Strobes, Nav, Beacon	
Conditions	VMC	
Visibility	>10km	
Altitude/FL	1400ft	
Altimeter	QNH (1025hPa)	
Heading	75°	
Speed	97kt	
ACAS/TAS	SkyEcho 2	Unknown
Alert	None	Unknown
Separation		
Reported	100ft V/400m H	NK
Recorded	NK V/~0.4NM H	



THE PA28 PILOT reports that on re-joining Halton from the South, they heard a C152 on climb-out so elected to fit in by joining right downwind runway 25RH (standard re-join procedure at Halton). Halton was operating conjoint gliding and powered flying. Gliders use LH and powered use RH circuits, (powered ops to the north of the field), therefore there is no deadside. They gained visual contact with the C152 when entering ATZ early downwind, 1.2NM ahead. Downwind checks were completed before mid-downwind. On entering base turn they heard a transmission from the C152 pilot advising of an aircraft tracking opposite direction on base leg, which cued their lookout. The intruder aircraft was immediately spotted, initially heading towards them, but it started a climbing left turn almost immediately. At this time they applied forward pressure to increase vertical separation. It was not an emergency change of level, but the minimal vertical separation was uncomfortable. No change of heading was required as the aircraft had passed through their 12 o'clock.

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

THE UNKNOWN AIRCRAFT could not be traced.

THE AIRFIELD MANAGER reports that they were supervising flying operations on RW25 (RH circuit for powered aircraft, LH circuit for winch-launched gliders). The PA28 was downwind and a C152 on base when the latter called "traffic entering zone". They acquired visual with the unannounced traffic (possibly a white DA40) and called "traffic flying the reciprocal path of downwind leg". It was likely to oppose the PA28 at around 1200ft and so they advised all to "be prepared to go around". They believed that [PA28 C/S] took positive avoiding action whilst [C152 C/S] committed to 'go-around' though in their estimation it would have been more appropriate to land and full stop rather than meet up again with the errant traffic which had not yet left the zone. The unannounced traffic was not showing on FLARM and they were unable to refer to FlightRadar24 in time to locate the aircraft. They telephoned Luton ATC

who in turn provided a number for NATS Swanwick, who advised that the unannounced traffic was probably VFR and not talking to Luton and at this time they could not help any further.

Factual Background

The weather at Luton was recorded as follows:

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METAR EGGW 051120Z AUTO 28005KT 240V340 9999 SCT038 19/10 Q1024=
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Analysis and Investigation

UKAB Secretariat

The unknown aircraft could not be traced, throughout it was visible on the NATS radars as a primary only track. It first appeared on radar at 1059z in the vicinity of Epping forest. After the Airprox it tracked WNW and disappeared from radar about 5min later. At Figure 1 the primary only unknown aircraft can be seen in close proximity to a C152 in the Halton circuit. By 1124:44 (Figure 2) the track had continued into proximity with the PA28 on a base leg. The radar track then 'jittered' and so the exact separation could not be measured below 0.4NM, although it is possible that the two aircraft were closer together than this.

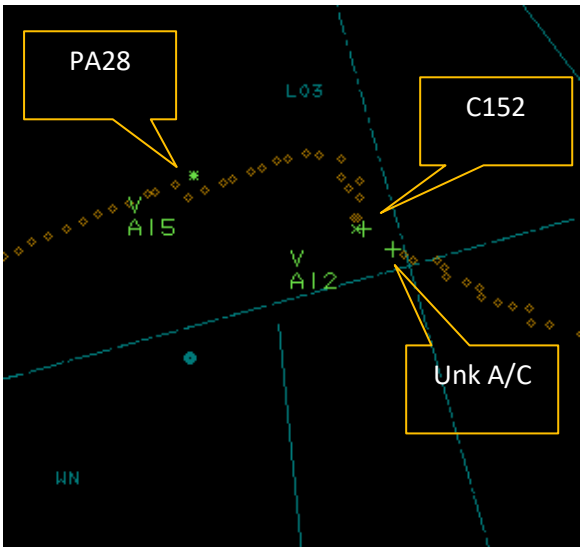

Figure 1: 1124:09

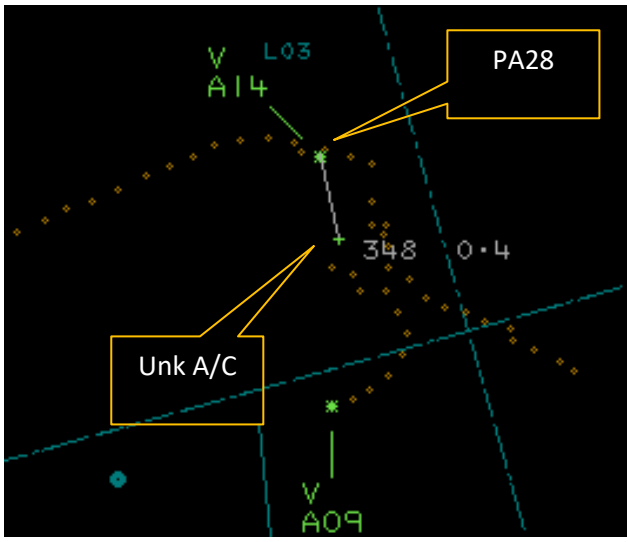

Figure 2: 1124:44

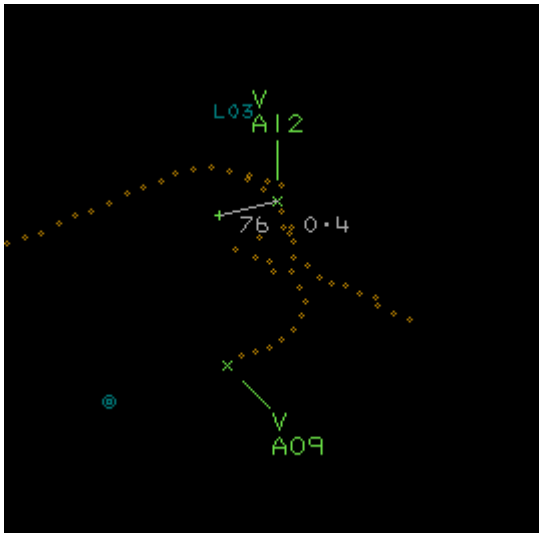

Figure 3: CPA 1124:51

The PA28 and unknown aircraft 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] An aircraft operated on or in the vicinity of an aerodrome shall conform with or avoid the pattern of traffic formed by other aircraft in operation.[2] Rules of the Air 2015 Article 11 Flights within aerodrome traffic zones, states:

> An aircraft must not fly, take off or land within the aerodrome traffic zone of an aerodrome unless the commander of the aircraft has complied with paragraph…. (5), as appropriate.
>
> (5) If there is no flight information centre at the aerodrome the commander must obtain information from the air/ground communication service to enable the flight to be conducted safely within the aerodrome traffic zone.
>
> (6) The commander of an aircraft flying within the aerodrome traffic zone of an aerodrome must—
>
> (a) cause a continuous watch to be maintained on the appropriate radio frequency notified for communications at the aerodrome; or
>
> (b If this is not possible, cause a watch to be kept for such instructions as may be issued by visual means; and
>
> (c) if the aircraft is fitted with means of communication by radio with the ground, communicate the aircraft's position and height to the air traffic control unit, the flight information centre or the air/ground communications service unit at the aerodrome (as the case may be) on entering the aerodrome traffic zone and immediately prior to leaving it.

Summary

An Airprox was reported when a PA28 and an unknown aircraft flew into proximity at Halton at 1124Z on Saturday 5th June 2021. The PA28 pilot was operating under VFR in VMC, and in receipt of a AGCS from Halton. The unknown aircraft could not be traced.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, reports from the air traffic controllers 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.

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 a combination of written contributions and dial-in/VTC comments.

The Board first looked at the actions of the PA28 pilot. They were entering base when they heard the call from the C152 pilot ahead that an unknown aircraft was within the ATZ and heading their way[3]. The other aircraft was not on the Halton frequency and, because it was not squawking, the SkyEcho2 in the PA28 did not detect it either, therefore prior to receiving the warning from the C152 pilot, the PA28 pilot had no knowledge that it was in the vicinity (**CF4**, **CF5**). Once cued to look for the other aircraft, the PA28 pilot was able to spot it and take the appropriate avoiding action. Members noted that the incident highlighted the need to continually keep up the look-out scan, even when in the visual circuit.

When discussing the actions of the unknown aircraft pilot, members were at a loss to know what the pilot was doing in flying directly through the Halton ATZ and into conflict with traffic in the circuit (**CF1**, **CF2**). They could only assume that the pilot had not suitably planned or was lost, nevertheless it was incumbent on them to remain clear of the ATZ and in flying as they did, they did not avoid or conform with Halton's pattern of traffic (**CF3**). By not calling Halton or any of the other obvious ATC units close by, it was assumed that the pilot had no knowledge that the Halton circuit traffic was there (**CF4**). However, the aircraft had already had one close encounter with the C152 ahead in the circuit, and that pilot reported that the unknown aircraft had appeared to take avoiding action, then turn back onto track, which then put it into conflict with the PA28, so members wondered whether the pilot realised that they were within the ATZ. It was not known whether the aircraft was fitted with a transponder, whether it was broken, or turned off intentionally, although members speculated that the aircraft was identified as a DA40 type, which was usually well equipped and would almost certainly had had a transponder fitted.

[1] (UK) SERA.3205 Proximity.
[2] (UK) SERA.3225 Operation on and in the Vicinity of an Aerodrome.
[3] See Airprox 2021069

Whatever the reason, because the transponder was not switched on the SkyEcho2 in the PA28 could not detect it and thus rendered the electronic conspicuity barrier ineffective (**CF5**). The PA28 pilot reported that the aircraft appeared to take avoiding action with a climbing left turn away from them, so members believed that the pilot was probably visual with the PA28 (**CF6**).

When determining the risk of the Airprox, members agreed that this incident was different to the earlier Airprox with the C152, in that the PA28 pilot had had more warning that the unknown aircraft was approaching, enabling the pilot to take action. They therefore agreed that although safety had been degraded, the subsequent action meant that there had been no risk of collision; Risk Category C.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2021070			
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	• Airspace Infringement	An event involving an infringement / unauthorized penetration of a controlled or restricted airspace.	Eg ATZ (regulated airspace)
3	Human Factors	• Monitoring of Environment	Events involving flight crew not to appropriately monitoring the environment	Did not avoid/conform with the pattern of traffic already formed
	• 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
	• Electronic Warning System Operation and Compliance			
5	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			
6	Human Factors	• Incorrect Action Selection	Events involving flight crew performing or choosing the wrong course of action	Pilot flew close enough to cause concern

Degree of Risk: C.

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:

Regulations, Processes, Procedures and Compliance were assessed as **ineffective** because the unknown aircraft flew through the ATZ and into conflict with the circuit traffic.

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

Tactical Planning and Execution was assessed as **ineffective** because the unknown aircraft flew through the promulgated and active ATZ.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the PA28 pilot did not have any situational awareness that the unknown aircraft was approaching.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the SkyEcho2 in the PA28 could not detect the non-squawking unknown aircraft.