AIRPROX REPORT No 2022265

Date: 18 Nov 2022 Time: 1125Z Position: 5221N 00057W Location: 5.5NM WNW Sywell airfield

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	P149	AC11
Operator	Civ FW	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Listening Out	Listening Out
Provider	Birmingham Approach	Sywell & Turweston
Altitude/FL	2200ft	2300ft
Transponder	A, C, S	A, C, S
Reported		
Colours	Green	White, Red
Lighting	Strobes, Landing	Strobes, Beacon
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	2200ft	2700ft
Altimeter	QNH (1001hPa)	QNH (999hPa)
Heading	310°	180°
Speed	120kt	130kt
ACAS/TAS	Not fitted	PilotAware
Alert	N/A	Information
Separation at CPA		
Reported	0ft V/200m H	0ft V/50m H
Recorded	100ft V/<0.1NM H	

THE P149 PILOT reports that they leant forward to change the radio frequency and saw other the aircraft immediately perform a hard left turn and go behind them. The other aircraft was at their 2:30 position, just in front of the wing leading edge and slightly low. Their view was obscured by their passenger and canopy arch while sat in their normal position.

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

THE AC11 PILOT reports that they were flying on a route that they fly approximately every 1-2 weeks. They route via UPDUK direct to BENSU as this keeps them away from the glider stacks which appear around Husbands Bosworth, and places them to the west of any Pitsford Water and Sywell traffic. They were using SkyDemon on a phone which is mounted on the bottom left of their windscreen and forms part of their visual scan. Backup navigation was the route in a GNS430W, with reference to the HSI. SkyDemon was also running on their iPad on their kneeboard. SkyDemon is linked to their [EC equipment] and traffic is shown graphically on the phone alongside aural alerts in their headset via Bluetooth. The visibility was generally good with scattered cloud at around 4000ft. The sun was low in the sky, bright, and significantly reducing visibility just to the left of their heading in the upper half of the windscreen. This reduction in visibility was more than simply glare, the sun was illuminating an otherwise invisible haze in the lower atmosphere. Approximately 10min into the flight, approaching Brixworth, they started to receive a bearing-less alert of an aircraft in close proximity (a Red Ring Alert) from [their EC equipment] with a relative altitude of -100ft. This type of alert comes from an aircraft fitted with a Mode C or S transponder only and relies on direct detection from the aircraft without the ability to multilaterate its position. Having received this alert they concentrated their scan and, about 10sec later, became visual with the P149 travelling from left-to-right, about 10° left of their 12 o'clock position, in the lower half of their windscreen. The P149 was emerging from the halo of poor visibility around the sun. About 2sec later they initiated a left turn at a high angle of bank, approximately 45° and, once past

the P149, [the recall that they] made a climbing right turn to pass above and behind the other aircraft and return to their original course. They did not observe any change in heading or height from the P149. They cannot accurately state the minimum distance from the other aircraft but, at closest point, would estimate about 50m or 150ft, and they were close enough to [observe some of the registration]. They understand that as they were to the right of the P149 they should have expected them to take avoiding action, however, at the point they initiated avoiding action, the other aircraft was entering their 12 o'clock position and had not reacted so they elected to pass behind them.

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

Factual Background

The weather at Cranfield was recorded as follows:

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METAR EGTC 181120Z 26014KT 9999 FEW026 11/06 Q1000
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Analysis and Investigation

UKAB Secretariat

An analysis of the NATS radar replay was undertaken and both aircraft were detected and identified using Mode S data. The radar recorded both aircraft flying straight and level until CPA, which occurred at 1125:27. After CPA, the P149 pilot continued to maintain their heading and altitude. The left turn avoiding action that the AC11 pilot reported taking was recorded on the radar 2 sweeps, 8sec, after CPA.

The P149 and AC11 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 P149 pilot was required to give way to the AC11.[2]

Summary

An Airprox was reported when a P149 and an AC11 flew into proximity at 5.5NM west-northwest of Sywell airfield at 1125Z on Friday 18th November 2022. Both pilots were operating under VFR in VMC, neither pilot in receipt of an ATS.

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.

The Board first considered the actions of the P149 pilot and a GA pilot member, familiar with the P149 aircraft type, stated that the P149 had a long nose which can, on occasion, obscure the pilot's lookout. When examining the geometry of the event, the Board determined that the structure had probably not obscured the pilot's view, however, the canopy arch and the passenger had restricted their view (**CF5**). The Board noted that the P149 pilot had been listening-out on the Birmingham Approach frequency. A discussion followed during which members agreed that, although listening to a frequency might offer some relevant information to a pilot, this would be limited and likely often not relevant to the pilot in question. Whilst acknowledging that there is no requirement to do so, the Board agreed that obtaining a service would prove more beneficial to a pilot, especially if a surveillance-based service is available. A GA pilot member informed the Board that, although the event happened in a locality where there is no notified LARS provision, other ATSUs may provide a service, should the pilot request it. Moving on to EC, the Board noted that the P149 pilot had not been utilising any additional equipment which, on this occasion, may have provided some additional information to aid visual acquisition. The Board

[1] (UK) SERA.3205 Proximity.
[2] (UK) SERA.3210 Right-of-way (c)(2) Converging.

agreed that the P149 pilot had not had any awareness of the presence of the AC11 (**CF1**), nor had they become visual with it in time to have enabled them to have taken any effective avoiding action (**CF4**). Members appreciated that it was for pilots to decide on their own requirements for additional equipment according to their needs and the Board wished to highlight to pilots 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 2024.[3]

Next, members discussed the actions of the AC11 pilot, again noting that, although they had been utilising their RT equipment well and monitoring two frequencies, they had not been in receipt of an ATS. However, members were encouraged that the pilot had been utilising additional EC equipment and that this equipment had given a bearing-less alert to the presence of the P149 (**CF2**), therefore giving the AC11 pilot a generic awareness of the presence of the P149 (**CF1**). Although the EC alert that the AC11 pilot had received had aided their visual acquisition of the P149, members agreed that this had been at a later than optimum point (**CF3**), leaving the AC11 pilot with time to take emergency avoiding action only.

Finally, in assessing the risk of collision, the Board agreed that although the AC11 pilot had been carrying EC equipment, the alert that had been issued regarding the presence of the P149 had been at a later than optimum time. Members commented that, as the P149 pilot had not had any prior awareness of the presence of the other aircraft, and the AC11 pilot had only had late, generic awareness, lookout had been the primary barrier against mid-air collision. Whilst the AC11 pilot had become visual with the P149, this had been at a later than optimum stage, allowing time for emergency avoiding action only, and at the point at which the P149 pilot had visually acquired the AC11, it had been too late for effective avoiding action. Members agreed that, in this case, safety had not been assured and that there had been a risk of collision (**CF6**). Accordingly, the Board assigned a Risk Category B to this Airprox.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2022265			
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	Contextual	• Other warning system operation	An event involving a genuine warning from an airborne system other than TCAS.	
	• 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
4	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
5	Contextual	• Visual Impairment	Events involving impairment due to an inability to see properly	One or both aircraft were obscured from the other
	• Outcome Events			
6	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

[3] https://www.caa.co.uk/general-aviation/aircraft-ownership-and-maintenance/electronic-conspicuity-devices/

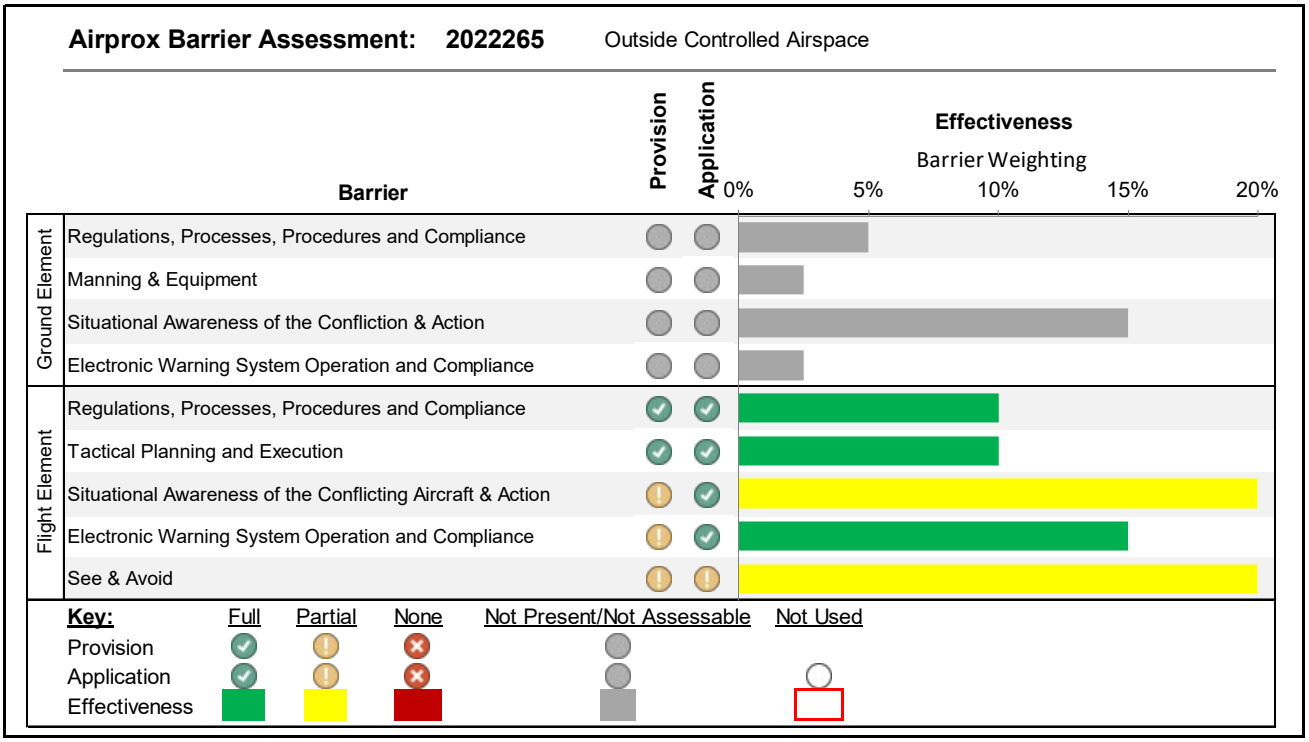
Safety Barrier Assessment[4]

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

Flight Elements:

Situational Awareness of the Conflicting Aircraft and Action were assessed as **partially effective** because, although the P149 pilot had not had any awareness of the presence of the AC11 prior to sighting it, the EC equipment carried by the AC11 pilot had given them a generic awareness of the presence of the P149.

See and Avoid were assessed as **partially effective** because the AC11 pilot had visually acquired the P149 in sufficient time to have enabled them to have taken emergency avoiding action, however, at the time at which the P149 pilot had become visual with the AC11, it had been too late for them to have taken any effective avoiding action.



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