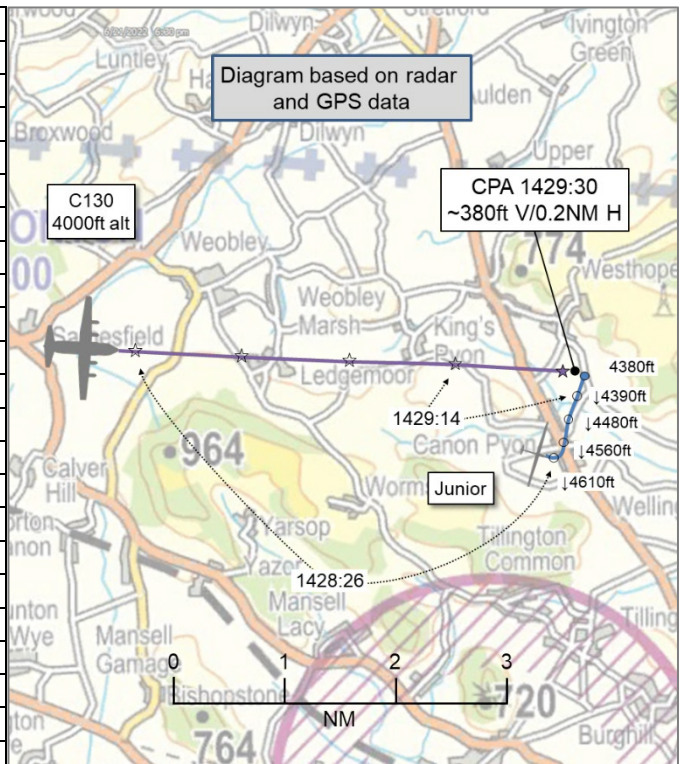


**AIRPROX REPORT No 2022111**

Date: 21 Jun 2022 Time: 1430Z Position: 5209N 00247W Location: 5.5NM NNW Hereford

**PART A: SUMMARY OF INFORMATION REPORTED TO UKAB**

Recorded	Aircraft 1	Aircraft 2
Aircraft	SZD Junior	C130
Operator	Civ Gld	HQ Air (Ops)
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	None	None
Provider	N/A	N/A
Altitude/FL	4380ft	4000ft
Transponder	Not fitted	A, C, S+
<b>Reported</b>		
Colours	White	NR
Lighting	None	Strobe, Nav, Taxi
Conditions	VMC	VMC
Visibility	5-10km	NR
Altitude/FL	4196ft	NK
Altimeter	QNH (1018hPa)	NK (NK hPa)
Heading	NR	NK
Speed	50kt	NK
ACAS/TAS	PowerFLARM	TCAS II
Alert	None	None
<b>Separation at CPA</b>		
Reported	10ft V/0m H	Not Seen
Recorded	~380ft V/0.2NM H	



**THE JUNIOR PILOT** reports that they were on a cross country flight. They had just turned at their turning point and were headed in a northerly direction. They saw wisps [of cloud] in the ‘blue gap’ between Hereford and Leominster and so headed towards them for more lift. They were flying in a routine manner with no distractions or extra workload. As they looked to the left, they spotted the other aircraft headed on a course toward them – the other aircraft’s airspeed was significantly higher than their own. As they saw the other aircraft, they instinctively pulled up. The other aircraft continued straight and level underneath them. They heard the aircraft only after they had seen it. It was very close, they remember seeing what appeared to be either a refuelling tube or the pitot on top.

The pilot assessed the risk of collision as ‘High’.

**THE C130 PILOT** reports that the crew did not perceive a threat of collision with another aircraft at any point during their sortie.

**Factual Background**

The weather at Gloucester was recorded as follows:

METAR EGBJ 211420Z 34004KT 270V050 CAVOK 24/10 Q1013

**Analysis and Investigation**

**UKAB Secretariat**

An analysis of the NATS radar replay was undertaken and the C130 was detected and identified using Mode S data. The Junior was not detected on the radar replay however the pilot was able to provide a GPS data file to the UKAB Secretariat detailing their flight.

Brize Radar was contacted to establish whether the C130 pilot had been in receipt of a service from them at the time of the event and they confirmed that their flight progress strips recorded that the pilot had contacted them at 1432, approximately 2min after the Airprox had occurred.

Radar and GPS data have been combined to produce the diagram and to measure CPA however, as a result of combining differing data sources, the vertical separation has been recorded as an approximation.

The Junior and C130 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.<sup>1</sup> If the incident geometry is considered as converging then the C130 pilot was required to give way to the Junior.<sup>2</sup>

## **Occurrence Investigation**

### **C130 operating organisation**

The C130 operating organisation carried out an investigation of this event and concluded that the pilot did not perceive any threat of collision with any traffic during the sortie.

## **Comments**

### **HQ Air Command**

This event was subject to a Local Investigation. The sortie was routine training and was not considered a high workload sortie. Whilst the crew observed gliders during their sortie, no particular glider was considered a threat; it is possible that they did not see the glider involved. It is not standard operating procedure to check GliderNet or a similar tool prior to the sortie as the crew will walk to the aircraft an hour before take-off and flight profiles usually cover a vast area of the country over 3-4 hours. As the glider was not equipped with a transponder, the C130's TCAS was blind to it. See and avoid remained the only barrier to MAC in this instance; it is fortunate that the glider pilot spotted the C130 in time to manoeuvre.

### **BGA**

It's concerning that the glider's EC apparently did not warn its pilot of the C130's proximity, based on the latter's Mode S+ transmissions. It would be helpful to understand why this barrier did not function.

## **Summary**

An Airprox was reported when a SZD Junior and a C130 flew into proximity 5.5NM north-northwest of Hereford at 1430Z on Tuesday 21<sup>st</sup> June 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, radar photographs/video recordings, GPS data 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 discussed the actions of the SZD Junior pilot and a glider pilot member highlighted that once they had completed their turn on to the north-northeast heading, the C130 would have been on a constant relative bearing to them, and members agreed that this would have made early visual acquisition of it more difficult. The Board was encouraged that the SZD Junior pilot had been carrying

<sup>1</sup> (UK) SERA.3205 Proximity. MAA RA 2307 paragraphs 1 and 2.

<sup>2</sup> (UK) SERA.3210 Right-of-way (c)(2) Converging. MAA RA 2307 paragraph 12.

EC equipment which would have been expected to detect the equipment carried by the C130 crew, however the SZD Junior pilot reported receiving no alert (**CF3**). Members discussed whether the SZD Junior pilot had had any prior awareness of the C130 and noted that, as the SZD Junior pilot reported that they had become visual with the C130 before they had heard it, and they had received no alert from their EC regarding its presence, the SZD Junior pilot had not had any awareness of the C130 prior to sighting it (**CF1**). A military pilot member stated that the size and shape of the C130 can make it particularly difficult to estimate its range, especially when, as had been the case in this Airprox, a pilot is undertaking a manoeuvre such as pitching up, and members agreed that the SZD Junior pilot had been concerned by the presence of the C130 (**CF5**), having felt the need to pitch up to ensure adequate separation.

Next, members considered the actions of the C130 pilot and noted that the EC equipment had been incompatible with, and therefore unable to detect, the EC equipment carried by the SZD Junior pilot (**CF2**). A discussion followed regarding whether the C130 crew could have built early situational awareness by checking a web-based airborne glider position information site prior to departure however, a military advisor informed the Board that the type of sortie undertaken by military aircraft such as the C130 often last for a number of hours, following which members agreed that this information would quickly go out of date. Members went on to agree that the C130 crew had not had any awareness of the presence of the SZD Junior (**CF1**) and that they had not become visual with it at any stage (**CF4**).

Finally, the Board considered the collision risk involved in this Airprox. Members agreed that neither pilot had had any awareness of the presence of the other aircraft, and that the C130 pilot had not become visual with the SZD Junior. However, the SZD Junior pilot had become visual with the C130 early enough to enable them to take action to increase separation and, although safety had been degraded, members were satisfied that there had been no risk of collision. Consequently, the Board assigned a Risk Category C to this event.

## **PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK**

### Contributory Factors:

2022111				
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
<b>Flight Elements</b>				
<b>• Situational Awareness of the Conflicting Aircraft and Action</b>				
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
<b>• Electronic Warning System Operation and Compliance</b>				
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
3	Human Factors	• Response to Warning System	An event involving the incorrect response of flight crew following the operation of an aircraft warning system	CWS misinterpreted, not optimally actioned or CWS alert expected but none reported
<b>• See and Avoid</b>				
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	Human Factors	• Perception of Visual Information	Events involving flight crew incorrectly perceiving a situation visually and then taking the wrong course of action or path of movement	Pilot was concerned by the proximity of the other aircraft

Degree of Risk: C

### Safety Barrier Assessment<sup>3</sup>

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

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 had any prior awareness of the presence of the other aircraft.

**Electronic Warning System Operation and Compliance** were assessed as **ineffective** because the EC equipment carried by the SZD Junior pilot should have been capable of detecting the transponder on the C130 however, no alert was reported, and the TCAS II equipment on-board the C-130 could not detect the non-transponding glider.

Airprox Barrier Assessment: 2022111		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 Conflicting Aircraft & 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	●	●					
<b>Key:</b>								
	Full	Partial	None	Not Present/Not Assessable	Not Used			
Provision	●	●	⊗	●				
Application	●	●	⊗	●	○			
Effectiveness	■	■	■	■	□			