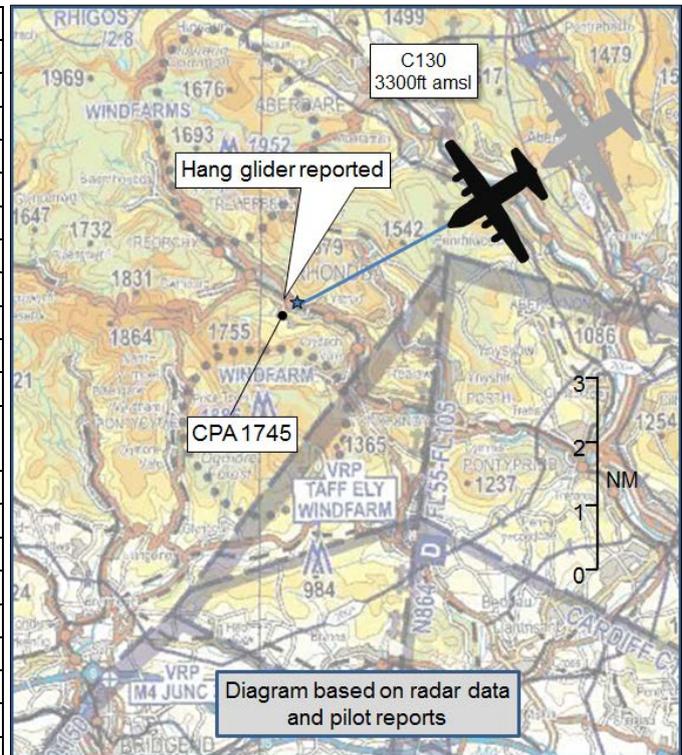


AIRPROX REPORT No 2016200

Date: 14 Sep 2016 Time: 1745Z Position: 5138N 00328W Location: NW Pontypridd

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	C130	Hang glider
Operator	HQ Air (Ops)	Unknown
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	
Service	Traffic	
Provider	Cardiff	
Altitude/FL		
Transponder	A, C, S	
Reported		
Colours	Green	
Lighting	Nav, Wing-tip taxi lights	
Conditions	VMC	
Visibility	>10km	
Altitude/FL	3300ft	
Altimeter	NK (1012hPa)	
Heading	270°	
Speed	230kt	
ACAS/TAS	TCAS II	
Alert	None	
Separation		
Reported	3-400ftV/0.25nm H	
Recorded		NK



THE C130 PILOT reports he was the lead aircraft in formation of 2 x C130s, they were tracking west and conducting a stepped descent into low-level in trail formation. There was a low sun ahead and a powered hang glider appeared out of the sun approximately 0.7nm ahead. The pilot descended and broadcast the hazard to the trailing aircraft. The hang glider passed to the right and 3-400ft above.

He assessed the risk of collision as 'Medium'.

THE HANG GLIDER PILOT could not be traced.

THE CARDIFF CONTROLLER reports he was controlling the C130 formation under a Traffic Service, nothing was observed on radar on which to pass Traffic Information and he was not aware of the Airprox until the lead pilot telephoned later that evening to inform him about it. The hang glider was not on frequency.

Factual Background

The weather at Cardiff was recorded as follows:

METAR EGFF 141720Z AUTO 13007KT 9999 NCD 20/16 Q1011

Analysis and Investigation

UKAB Secretariat

The C130 and hang glider pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard¹. The C130 pilot was required to give way to the hang glider², which he did.

Occurrence Investigation

NATS conducted an investigation and concluded that there had been an intermittent primary-only contact in the vicinity of the reported Airprox before the C130s were in the area; however, it was not moving and it was, not unreasonably, interpreted as radar clutter. It had faded from radar by the time the C130s reached it. The controller had passed Traffic Information on another primary-only track in the area of a known grass-strip situated 17nm NW Cardiff.

Comments

HQ Air Command

The use of a CWS, an appropriate ATS, and lookout are the primary barriers when operating in Class G Airspace. The fact that the powered hang glider was not painting on radar and was not on frequency negates the use of ATS as a barrier. It is probable that the powered hang glider involved in this incident was not fitted with a transponder, placing further emphasis on lookout to remain clear of other aircraft, which was ultimately how the powered hang glider was detected and avoided by the Hercules, despite the powered hang glider being into sun. The absence of a report from the powered hang glider pilot may indicate that the Hercules was either unseen or that the powered hang glider pilot was content with the separation.

BHPA

In the opinion of the BHPA, at the reported distances it would be impossible to tell the difference between an unpowered and a powered hang glider, so with the C130 pilot positively identifying a powered aircraft then [in their opinion] this can only have been a microlight. Regardless of the aircraft type, until there is viable electronic conspicuity (EC) equipment, see and avoid reports such as this will continue to be part of normal Class G operations. The BHPA continues to actively work within the CAA's Electronic Conspicuity Working Group towards viable EC becoming available to its members.

Summary

An Airprox was reported when a C130 and a hang glider flew into proximity at 1745 on Wednesday 14th September 2016. The C130 pilot was operating under VFR in VMC, and in receipt of a Traffic Service from Cardiff. The hang glider pilot could not be traced.

¹ SERA.3205 Proximity.

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

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from the C130 pilot, radar photographs/video recordings, reports from the air traffic controllers involved and reports from the appropriate ATC and operating authorities.

The Board first looked at the actions of the C130 pilot. He was receiving an appropriate ATS in his Traffic Service from Cardiff but, noting that the Cardiff controller could not see the hang glider on his radar and there had been no reports of it operating in that position from any other source, the Board agreed with the NATS investigation that there was no information that the controller could have given. As commented by the BHPA, members noted that the C130 was fitted with TCAS but, without electronic conspicuity of its own, the hang glider was invisible to both the TCAS and ATC. This left see-and-avoid as the final barrier, and the Board commended the C130 pilot for his sharp lookout and therefore seeing the hang glider with enough time to take timely avoiding action.

Turning to the hang glider pilot, without his report the Board did not know whether he had seen the C130 and was happy with the separation, or had not seen it at all. The Board noted that powered hang gliders could launch from just about anywhere, without the need for a runway or airfield of any description. Although this was their appeal to many people, it made knowing where they might be operating difficult for other airspace users. As a result, although both aircraft were entitled to operate in the airspace, the C130 pilot had no way of planning in advance to avoid the hang glider. Some members commented that without any form of electronic conspicuity (EC) mandated in Class G airspace, incidents like this would continue to happen as ultra-light aircraft such as gliders, hang gliders and micro-lights became more popular. A discussion about the merits of EC ensued, and advocates opined that it would at least allow other airspace users to have knowledge of the presence of such aircraft through traffic alerting systems. However, it was agreed that until a cheap, easy to install or portable option emerged that included good battery life, then widespread adoption was unlikely.

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

- **ATC Conflict Detection and Resolution**, was judged to be **ineffective** because the Cardiff controller could not see the hang glider on his radar and so was unable to provide Traffic Information on this occasion.
- **Flight Situational Awareness**, the C130 crew had no way of knowing that the hang glider would be there, so situational awareness was judged to be **ineffective**.
- **Onboard Warning/Collision Avoidance Equipment**, although fitted with TCAS, the C130 crew were not given a warning about the hang glider because it did not have a transponder, again making this barrier **ineffective**.
- **See and Avoid** was **effective** because the C130 crew saw the hang glider early and were therefore able to take timely avoiding action.

In discussing the cause of the Airprox, the Board quickly agreed that, in the absence of any report from the hang glider pilot, the incident was probably best described as the C130 pilot being concerned by the proximity of the powered hang glider. Notwithstanding, they agreed that timely and effective avoiding action had been taken by the C130 pilot, and so they assessed the risk as Category C.

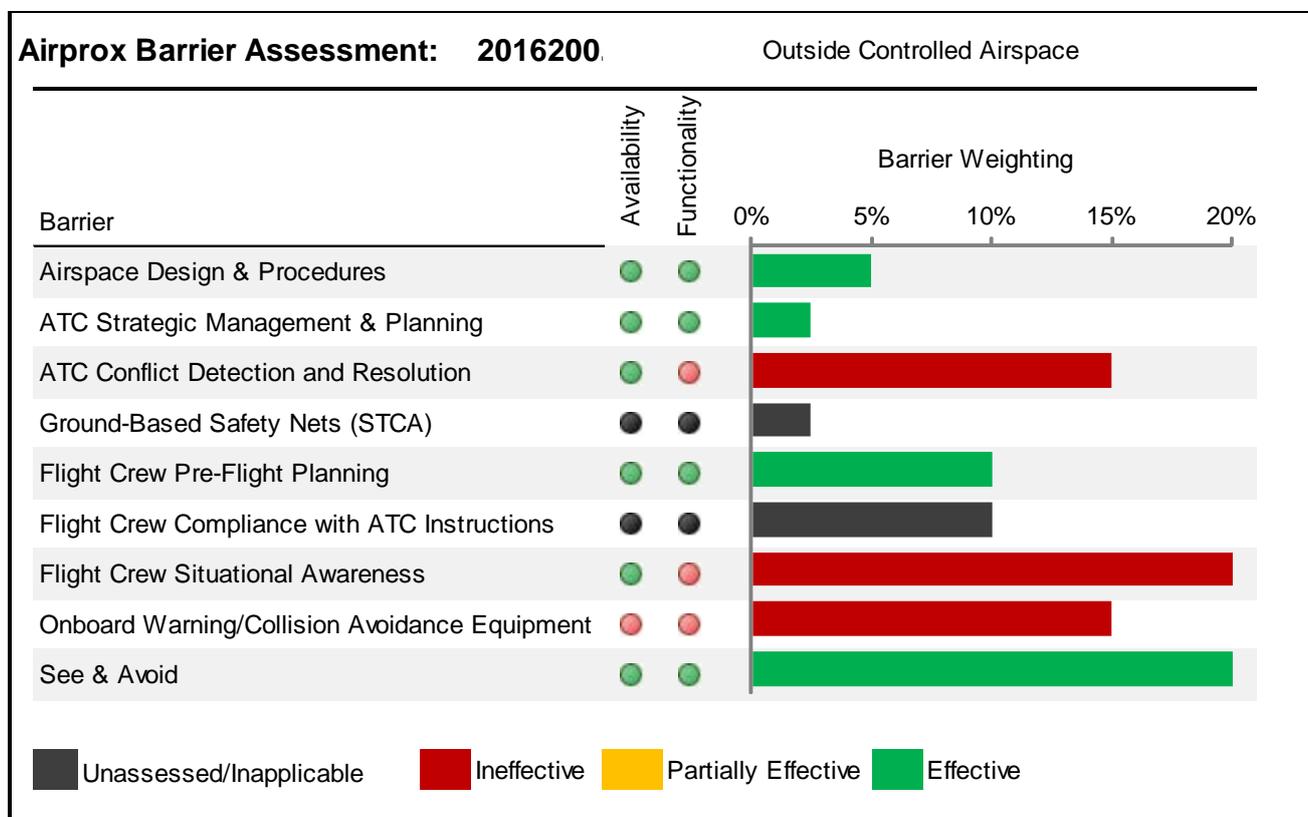
PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The C130 pilot was concerned by the proximity of the Powered Hang Glider.

Degree of Risk: C.

Barrier Assessment³:

Modern safety management processes employ the concept of safety barriers that prevent contributory factors or human errors from developing into accidents. Based on work by EASA, CAA, MAA and UKAB, the following table depicts the barriers associated with preventing mid-air-collisions. The length of each bar represents the barrier's weighting or importance (out of a total of 100%) for the type of airspace in which the Airprox occurred (i.e. Controlled Airspace or Uncontrolled Airspace).⁴ The colour of each bar represents the Board's assessment of the effectiveness of the associated barrier in this incident (either Fully Effective, Partially Effective, Ineffective, or Unassessable/Absent). The chart thus illustrates which barriers were effective and how important they were in contributing to collision avoidance in this incident.



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

⁴ Barrier weighting is subjective and is based on the judgement of a subject matter expert panel of aviators and air traffic controllers who conducted a workshop for the UKAB and CAA on barrier weighting in each designation of airspace.