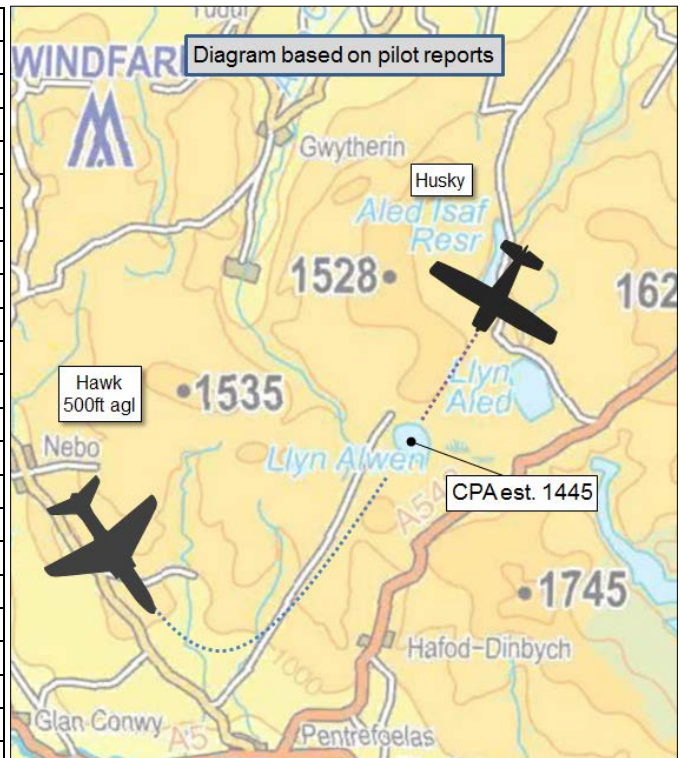


AIRPROX REPORT No 2016262

Date: 30 Nov 2016 Time: 1445Z Position: 5305N 00338W Location: Llyn Alwen

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Hawk	Aviat A1 Husky
Operator	HQ Air (Trg)	Civ Pte
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	None	Basic
Provider		Hawarden
Altitude/FL	NK	
Transponder	A, C, S	
Reported		
Colours		Yellow
Lighting		
Conditions	VMC	VMC
Visibility	30km	
Altitude/FL	500ft	
Altimeter	RPS (1025hPa)	
Heading	North	
Speed	NR	80kts
ACAS/TAS	TCAS I	Not Fitted
Alert	TA	
Separation		
Reported	100ft V/700-1000ft H	2-3nm
Recorded	NK	



THE HAWK PILOT reports that he was on a low-level sortie in Wales. They had let down in the northern plain area and were flying at 500-600ft agl. Their TCAS had had a fail indication as they were in a valley just before the incident, and the instructor was looking away from the direction of travel trying to assess whether the weather was good enough for the next part of the sortie. On looking back in the cockpit he mis-assessed the distance indicated on the TCAS, which actually indicated another aircraft to be 3nm away. As they headed north, a high-wing, yellow light aircraft with floats was spotted making an approach to a lake, they estimated its height to be about 300ft. Avoiding action was taken, by climbing and turning away, and they estimated they achieved between 100-300ft vertical separation, and about 1000ft horizontal separation (this was derived from the HUD display after the event). They climbed to 3000ft and orbited so they could see the other aircraft, it appeared to make an approach to the lake and climb away, making them believe that the other pilot had not seen them because it did not look as though he took avoiding action. The pilot noted that he had checked CADS¹ before he got airborne, and went back to re-check it after the sortie, but there was no information on the other aircraft.

He assessed the risk of collision as 'Medium'.

THE AVIAT A1 HUSKY PILOT was traced some months after the incident and couldn't remember the exact circumstances, although he did recall seeing a Hawk pulling up some distance away and orbiting overhead, he did not believe it was an Airprox. He remembered the aircraft in question pulling up a safe distance away, it was difficult to estimate the exact separation but he thought at least 2-3 miles away. He commented that the weather would have been 'crystal clear' because he

¹ CADS – Centralised Aviation Data Service – a networked military planning and deconfliction software program that indicates any potential conflicts with other military traffic. CADS is not widely accessible to civilian pilots other than those involved in HEMS, Coastguard, NPAS or pipeline inspections.

doesn't fly in poor weather, and he was just enjoying the day, with no set track. He usually receives a Basic Service from Harwarden, and probably was on that day; however, he commented that the service is very sketchy once he gets into North Wales due to the high ground. He noted that the airspace surrounding Llyn Alwen is uncontrolled and employs a "see and be seen" concept, he is aware that it sits within the RAF Valley AIAA and that there are many Hawks operating in that area in the open FIR, but that it is impossible to get any type of radar service due to terrain and distance from ATSU's. Although his aircraft is ADS-B(out) equipped, and is visible to other aircraft with the appropriate equipment, it is not equipped with ADS-B(in) and therefore he was not alerted to the Hawk electronically.

Factual Background

The weather at Valley was recorded as follows:

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METAR EGOV 301550Z 27004KT 9999 SCT030 08/07 Q1033 BLU NOSIG
METAR EGOV 301650Z 30003KT 9999 BKN032 06/06 Q1033 BLU NOSIG
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Analysis and Investigation

UKAB Secretariat

The Hawk and Husky pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard². If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right³.

Comments

HQ Air Command

Due to the nature of this encounter (low-level in north Wales) the only viable barriers to MAC available in this incident were electronic conspicuity and lookout. Although the Hawk pilot's report states that the TCAS had a fail indication, the unit investigation found that the TCAS had recovered from the failure mode (induced by aircraft manoeuvring moments earlier) and indicated the presence of the light aircraft. However, the unverballed TCAS scale change carried out by the front seat pilot (from 20nm scale to 6nm scale) led to the rear seat pilot mis-assessing the range to the contact and he prioritised other elements of his work cycle. The front seat (handling) pilot did not notice the contact on the TCAS display but became visual with the light aircraft and took avoiding action to increase separation. The investigation also found that the visual acquisition of the A1 Husky was likely delayed due to the effective lack of sight-line change between the 2 aircraft.

It is worthy of note that Hawk T2 pilots are encouraged to include the TCAS display in their normal cockpit scan – had the handling pilot noticed the TCAS contact at the same time as the rear seat pilot then it is possible that earlier visual acquisition could have been achieved, or a manoeuvre to increase separation executed sooner. It is also incumbent upon all crews to verbalise changes to display settings that will affect the SA of other crew members.

Summary

An Airprox was reported when a Hawk and an Aviat A1 Husky flew into proximity at 1445 on Wednesday 30th November 2016. Both pilots were operating under VFR in VMC, and not in receipt of an ATS.

² SERA.3205 Proximity.

³ SERA.3210 Right-of-way (c)(1) Approaching head-on.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from the pilots of both aircraft, radar photographs/video and reports from the appropriate operating authorities.

The Board started their discussions by noting that this incident seemed to hinge on the differing perceptions of the pilots involved regarding the separation of the two aircraft. In the case of the Hawk pilot, they were told by a military member that the mis-assessment of TCAS range, as described in the HQ STC comments, indicated that the Instructor in the rear seat thought that the TCAS contact was further away than it actually was. He was then understandably surprised to see the Husky so close. Noting that he had then assessed it was only 1000ft away, members wondered whether this 'surprise factor' had influenced his perception of separation. For his part, the Husky pilot had estimated the separation to be 2-3nm (albeit sometime after the event), and not a significant event at all. Without radar data it was difficult to know for sure, but members thought that the actual separation was probably somewhere between the two estimates.

Although the Hawk pilot mentioned that he had checked CADS, the Board knew from previous Airprox that the Husky pilot would not have been able to use CADS due to access constraints imposed by the military authorities. These constraints were there for security and operational reasons, and only those civilian pilots flying for approved organisations were able to participate in CADS. That being said, civilian pilots could contact the military low-flying cell if they wished and thereby gain situational awareness of how busy any military low-flying area might be. Some members agreed that this was an option but, because Wales was used so extensively for low-flying, they opined that the best the Husky pilot would get was to simply expect to see Hawks and other military aircraft operating in the low-level system at any time, which he did according to his report.

Finally the Board turned to the cause and risk of the Airprox. Both the Husky and the Hawk pilots were entitled to operate where they were, and, as noted by the Husky pilot, neither was likely to get an ATS due to the lack of radar and RT coverage in the area. Although noting the Hawk pilot's perception of range, the Board did not think that this was a late sighting per se, and the cause was quickly agreed to be a simple conflict in Class G airspace, resolved by the Hawk pilot. However, the assessment of risk caused some debate. Some members thought that this incident represented normal operations in Class G, assessing it as Category E. Others thought that there was more to this incident than it just being a benign event. In the end, because the Hawk pilot had been concerned by the proximity of the Husky and had felt the need to take avoiding action, the latter view prevailed and the Board agreed that the Hawk pilot had taken timely and effective action. Accordingly, the risk was assessed as Category C, safety had been degraded but there had been no risk of collision.

PART C: ASSESSMENT OF CAUSE, RISK AND SAFETY BARRIERS

Cause: A conflict in Class G resolved by the Hawk pilot.

Degree of Risk: C.

Safety Barrier Assessment⁴:

The Board decided that the following key safety barriers were contributory in this Airprox:

⁴ 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 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). 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/Inapplicable). The chart thus illustrates which barriers were effective and how important they were in contributing to collision avoidance in this incident. The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).

ATC Conflict Detection and Resolution was **inapplicable** because there was no ATC available.

Flight Crew Situational Awareness was **partially effective** because the Hawk pilot did receive information on the Husky on his TCAS.

Onboard Warning/Collision Avoidance Equipment was **partially effective** because only the Hawk was fitted with the TCAS, and he mistook the range notification.

See and Avoid was **effective**.

