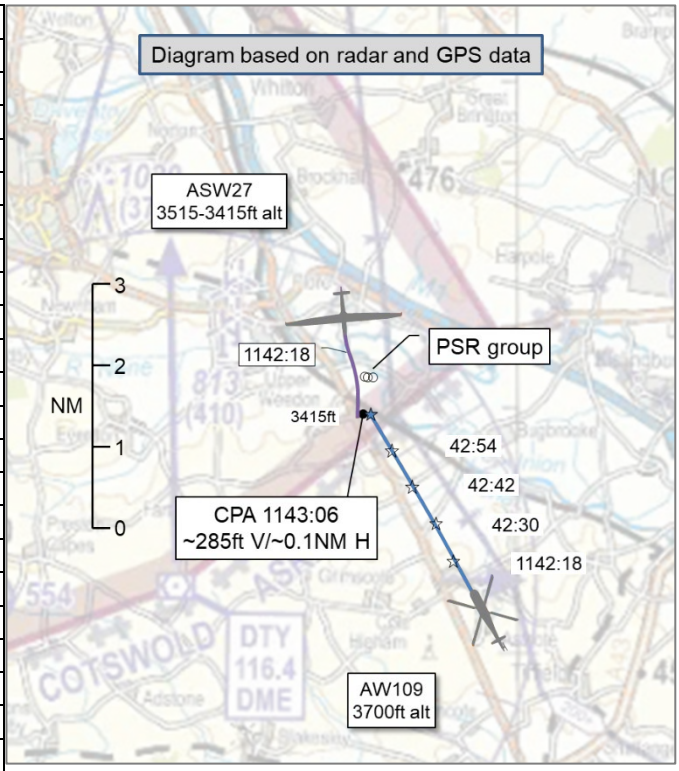
AIRPROX REPORT No 2022104

Date: 14 Jun 2022 Time: 1143Z Position: 5213N 00103W Location: Church Stowe

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	AW109	ASW27
Operator	HQ Air (Ops)	Civ Gld
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Traffic	None
Provider	Luton Radar	N/A
Altitude/FL	3700ft	3415ft
Transponder	A, C, S+	Not fitted
Reported		
Colours	White, red	White
Lighting	NK	Not fitted
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	3700ft	3400
Altimeter	QNH (1020hPa)	QNH (NK hPa)
Heading	330°	180°
Speed	145kt	70kt
ACAS/TAS	TAS	PowerFLARM
Alert	None	Information
Separation at CPA		
Reported	~100ft V/~50m H	300ft V/500m H
Recorded	~285ft V/~0.1NM H	



THE AW109 PILOT reports they had chosen to cruise at 3700ft to lessen the chance of Airprox, when a glider passed underneath, head-to-head with a slight right-to-left trajectory. The glider was not sighted by the pilot or the LHS occupant, who had been briefed to keep their 'eyes peeled' for other aircraft, until it was underneath and slightly to the left of their aircraft. It was seen by both occupants at the same time, through the left-hand side transparencies. At that point it was too late to manoeuvre because the threat had essentially already passed. They were in receipt of a Traffic Service from Luton Radar, reduced with the caveat 'late or no warning of traffic due to performance of radar and/or controller workload', or words to that effect, they thought. No warning was given about the glider by ATC and the glider did not appear on their Traffic Advisory System, which only detects transponding aircraft. The Airprox was reported to Luton Radar immediately.

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

THE ASW27 PILOT reports that they were on a cross-country flight, cruising in a straight slow descent between thermals, when they received 'non-directional ADS-B information' with a target at a range of 3km. They visually acquired a helicopter at a fairly late stage (at a range of about 1km in the 12 o'clock position) and decided no avoiding action was required.

The pilot assessed the risk of collision as 'None'.

THE LUTON CONTROLLER reports that the AW109 was handed over to Luton Radar and given a Traffic Service and transit through Luton Zone. A call had been made to East Midlands Radar for a radar handover, and several traffic contacts called while in the vicinity of DTY. A call was made on a late contact which appeared in the 12 o'clock as primary only, with no height information. The pilot stated that it was a glider which passed about 100ft below, in the opposite direction, and that they would file an Airprox. No further contact was seen with the glider, and the AW109 was passed to East Midlands Radar.

Factual Background

The weather at Cranfield was recorded as follows:

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METAR EGTC 141150Z 16007KT 120V200 9999 FEW046 20/09 Q1021=
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Analysis and Investigation

UKAB Secretariat

The AW109 and ASW27 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 head-on or nearly so then both pilots were required to turn to the right.[2]

NATS Ltd Unit Investigation

1. Executive summary

[AW109 C/S], an A109 was on a Traffic Service and tracking to the north of the Luton zone. The controller had passed several traffic contacts whilst in the vicinity of DTY. Traffic Information was passed on a late 'pop-up' primary only contact that appeared in the 12 o'clock of [AW109 C/S]. The pilot stated that it was a glider that passed approximately 100ft below, opposite direction and that they would be filing an Airprox.

2. Description of the event

The pilot of [AW109 C/S], an Agusta A109 helicopter routeing from [departure] to [destination], reported onto the Luton Approach frequency at 1128:09 (all times UTC), on transfer from Northolt stating "Traffic Service." A Traffic Service was agreed with the Luton Approach controller (GW INT). A VFR transit clearance of the south-western portion of the Luton zone was then issued.

Following a brief zone transit, the pilot was advised they would be tracking in vicinity of Dunstable Downs and the passing of related traffic would not be possible as the gliders did not show up on radar. [AW109 C/S] was subsequently operating outside the confines of controlled airspace, indicating 3000ft on Mode C and displaying Mode A [code] in the vicinity of Milton Keynes, tracking north-northwest towards Daventry.

The Luton Approach controller (GW INT) initially passed Traffic Information to [AW109 C/S] at 1138:40 on non-event traffic that the pilot of [AW109 C/S] reported in sight. At 1139:32 the pilot of [AW109 C/S] reported clear of the traffic and that they were resuming climb to altitude 3700ft. The GW INT acknowledged the call from [AW109 C/S] and informed them that there was "…*no other traffic seen to affect at the moment*." There were no radar returns displayed for approximately the next 15 miles ahead of [AW109 C/S] at this time.

As [AW109 C/S] was approaching abeam DTY at 1142:20, the GW INT passed further Traffic Information on traffic not related to this event:

1142:20 GW INT: "[AW109 C/S] *traffic twelve 'clock, two miles opposite direction indicating eight hundred below*."

1142:28 AW109: "[AW109 C/S] *I've just got it in sight now, er, many thanks*."

The GW INT then transmitted to commercial aircraft on frequency being vectored for approach to Luton.

[1] (UK) SERA.3205 Proximity. MAA RA 2307 paragraphs 1 and 2.
[2] (UK) SERA.3210 Right-of-way (c)(1) Approaching head-on. MAA RA 2307 paragraph 13.

At 1142:50 a primary return appeared on radar directly ahead of [AW109 C/S] at a range of approximately 1.2NM. The GW INT was still passing an instruction to commercial traffic on approach to Luton.

As soon as the commercial traffic had finished their readback, the GW INT passed Traffic Information at 1143:04 to [AW109 C/S] on the primary radar return.

1143:04 GW INT: "[AW109 C/S] *there's primary traffic right one o'clock half a mile now it's just disappeared again off radar with no height*."

1143:11 AW109: "[AW109 C/S] *yeah he's er, a glider, it was a late spot on a glider he was probably about one hundred feet below, potentially an Airprox* {unintelligible} *report when we land*."

The primary return did not appear consistently with the respective tracks coming into close proximity.

1143:23 GW INT: "[AW109 C/S], *er, okey-doke, I'll make a note of that then, sorry that only just appeared on the radar*."

1143:28 AW109: "*Oh no, not your fault at all, erm, didn't transpond and they're pretty stealthy on radar,* [AW109 C/S]."

A primary return subsequently appeared 1NM behind [AW109 C/S] appearing to match the track of the previously observed return. Given the pilot description of the event and glider trajectory it was assumed this return was the event glider.

3. Investigation

Information available to the investigation included:

- CA4114 from Luton Radar controller (GW INT)
- NATS4118 from TC Watch Supervisor
- Radar and R/T recordings
- Defence Air Safety Occurrence Report (DASOR) from pilot of [AW109 C/S]

[AW109 C/S] was [on a flight] from [departure] to [destination]. The flight had initially worked Northolt Radar before being transferred to Luton Radar, to transit the Luton zone.

A review of RT and radar replay showed that the GW INT provided timely and accurate Traffic Information to [AW109 C/S] on relevant traffic observed on radar.

At the time the primary return first appeared on radar, the GW INT was mid RT exchange with a commercial aircraft being vectored for approach to Luton. The GW INT passed accurate Traffic Information to the pilot of [AW109 C/S] at the earliest possible opportunity with limited resolution available, due to the late 'pop-up' nature of the return, and the proximity of [AW109 C/S] to it.

The pilot of [AW109 C/S] reported that they became visual with the glider at the same time as a passenger in the left-hand seat who had been briefed to 'keep their eyes peeled.' They became visual with the glider through the left-hand transparencies when the glider was underneath and slightly to the left of the aircraft. The pilot reported that it was too late to manoeuvre as the glider had already passed, and that it was not transponding, so it did not show on their Traffic Advisory System (TAS). Due to the small time delay in radar processing it is likely that the pilot and left-hand seat passenger of [AW109 C/S], and the GW INT, became aware of the glider at the same time.

4. Conclusions

The pilot of [AW109 C/S] reported an Airprox after coming into close proximity with an unknown glider that passed approximately 100ft below the aircraft, flying in the opposite direction.

The glider was not transponding therefore it did not show on the Traffic Advisory System fitted to [AW109 C/S], and only showed at very short notice as a primary return on the GW INT's radar.

Appropriate Traffic Information was expeditiously passed by the GW INT, however both the pilot of [AW109 C/S] and the GW INT reported there was no further action that could be taken due to the late-sighting of the glider, both visually and on the NATS radar.

Comments

HQ Air Command

This Airprox was subject to a Local Investigation. The pilot had taken many conscious decisions to reduce the risk of Mid-Air Collision (MAC) during this sortie: a cruising height was chosen which they perceived would lessen the threat of MAC with another air user; the pilot had obtained a Traffic Service from Luton (albeit, only a reduced service was achieved) and the left-hand seat passenger had been briefed to augment the lookout. Despite these decisions, and the A109 having TAS, an Airprox still occurred and was close enough to cause considerable concern to both the pilot and left-hand seat occupant. This incident and the subsequent investigation has highlighted an absent barrier to MAC for this fleet, namely the lack of compatible electronic conspicuity (EC) equipment for acquiring the equipment that is most prevalent among glider pilots. It is heartening to hear that [other EC equipment] was identified as an appropriate mitigation against non-squawking traffic and has now been sourced for this fleet as an ADS-B and [common glider] EC solution. The glider pilot spotted the A109 at 1km but decided that there was enough separation; therefore, they maintained their current course. Whilst the glider pilot was satisfied with the separation, the A109 pilot was not sighted with them at this point; when they were seen at or just after CPA, there was considerable startle factor. This may explain why the A109 pilot felt separation was significantly closer than in reality. This incident also serves as a timely reminder of the potential difficulty in spotting gliders; it was a good visibility day and, viewed from the A109, the glider was out of sun.

BGA

It's encouraging that the glider's EC equipment detected the helicopter and gave the glider pilot about 25 seconds warning of its presence, albeit with no direction information.

Because the AW109 is the larger aircraft, was above the glider pilot's horizon, and the glider pilot had been warned of its presence, it isn't surprising that the glider pilot visually acquired the helicopter a few seconds before the helicopter crew saw the glider.

Summary

An Airprox was reported when an AW109 and an ASW27 flew into proximity near Church Stowe at 1143Z on Tuesday 14th June 2022. Both pilots were operating under VFR in VMC, the AW109 pilot in receipt of a reduced Traffic Service from Luton Radar and the ASW27 pilot not in receipt of a FIS.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, GPS data for the ASW27, 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.

Members first discussed the AW109 pilot's actions and agreed that they had used all the mitigations available to them to reduce the risk of mid-air collision, other than climbing to a higher altitude and remaining within controlled airspace for as long as their routing could allow. The Luton controller had provided a full Traffic Service (not restricted, just with the limitation of not being able to report on 'non-transponding' gliders operating in the vicinity of Dunstable Downs gliding site). The ASW27 was not radar significant so the Luton controller had not been able to detect it (**CF4**) until at a late stage (**CF2**)

and had been in any case in conversation with another pilot just before CPA (**CF3**). They had used what information they had had available in the time available and had passed Traffic Information to the AW109 pilot, albeit at about CPA (**CF1**). Due to the limitations of the situation they could not have done so earlier. The ASW27 pilot had received a TAS warning (**CF7**), albeit bearing-less, and hence had had at least generic SA of the approaching AW109 (**CF5**). This had been sufficient for them to increase their lookout scan and they had seen the AW109 'at a fairly late stage' (**CF8**). Despite this, the ASW27 pilot had been able to assimilate the AW109's relative trajectory and assess that their current flight path would have taken them safely clear of the helicopter. For their part, the AW109 had not been equipped with EC equipment that was compatible with the glider's (**CF6**) and the crew had not had any situational awareness of the approaching ASW27 (**CF5**). They had seen the glider at about CPA, effectively a non-sighting (**CF10**), and had no doubt been startled by its proximity. They were not to know that the ASW27 pilot had seen them and had assessed that there had been no risk of collision. Members recalled previous Airprox involving gliders and noted that, due to the nature of thermalling flight, the gliding community is used to operating in close proximity to other gliders. Members agreed that although this might be the case in gliding, it was not usual for powered aircraft to operate in close proximity and that the glider pilot could have changed course or descended in order to afford the AW109 pilot a degree of separation that would have been more appropriate. In the event, although there had not been a risk of collision because the ASW27 pilot had been visual with the AW109 in time to take avoiding action if necessary, they had flown close enough to the AW109 to cause concern (**CF9**).

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2022104			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Ground Elements			
	• Situational Awareness and Action			
1	Human Factors	• ANS Traffic Information Provision	Provision of ANS traffic information	TI not provided, inaccurate, inadequate, or late
2	Human Factors	• Conflict Detection - Detected Late	An event involving the late detection of a conflict between aircraft	
3	Contextual	• Frequency Congestion	An event involving frequency congestion that reduces the effectiveness of communications	
4	Contextual	• Traffic Management Information Action	An event involving traffic management information actions	The ground element had only generic, late, no or inaccurate Situational Awareness
	Flight Elements			
	• Situational Awareness of the Conflicting Aircraft and Action			
5	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			
6	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
7	Contextual	• Other warning system operation	An event involving a genuine warning from an airborne system other than TCAS.	
	• See and Avoid			
8	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
9	Human Factors	• Lack of Individual Risk Perception	Events involving flight crew not fully appreciating the risk of a particular course of action	Pilot flew close enough to cause concern
10	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

Degree of Risk: C.

Safety Barrier Assessment[3]

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

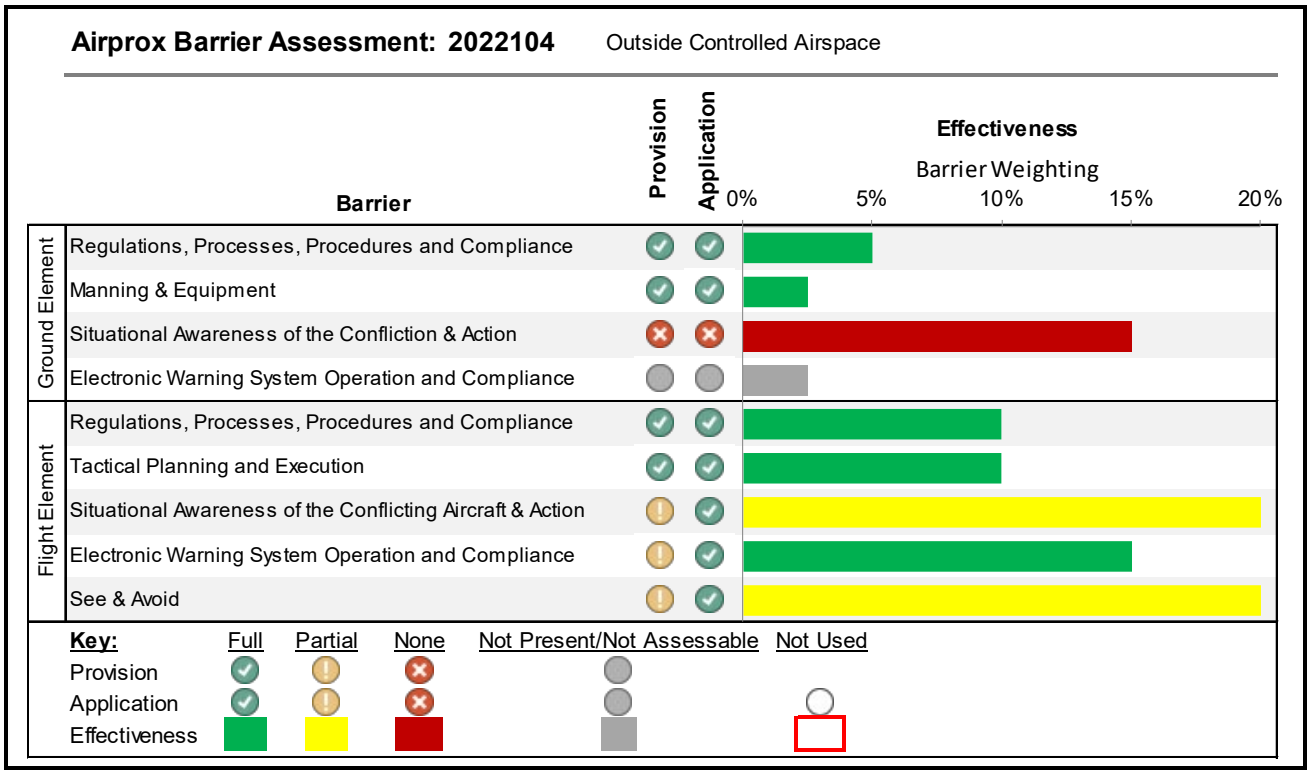
Ground Elements:

Situational Awareness of the Confliction and Action were assessed as **ineffective** because the Luton controller only had late primary returns, was in contact with another pilot at the time and did not have the opportunity to pass Traffic Information until at about CPA.

Flight Elements:

Situational Awareness of the Conflicting Aircraft and Action were assessed as **partially effective** because the ASW27 pilot's EC equipment alerted them to the proximity of another aircraft, albeit without a bearing, but the AW109 pilot's TAS was not compatible and hence could not alert.

See and Avoid were assessed as **partially effective** because the AW109 pilot did not see the ASW27 until at about CPA and the ASW27 pilot saw the AW109 'at a fairly late stage'.



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