AIRPROX REPORT No 2021024

Date: 16 Apr 2021 Time: 1531Z Position: 5136N 00131W Location: 3NM W of Wantage

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	AW139	Ventus 2cT
Operator	Civ Comm	Civ Gld
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Traffic	None
Provider	Brize Radar	N/A
Altitude/FL	3400ft	3310ft[1]
Transponder	A, C, S	Not fitted
Reported		
Colours	Silver	White
Lighting	Position, strobes	None
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	3500ft	3500ft
Altimeter	QNH (1030hPa)	QNH
Heading	260°	'Northeast'
Speed	140kt	50kt
ACAS/TAS	SkyEcho 2	FLARM
Alert	None	None
Separation		
Reported	0ft V/80m H	200ft V/0.6NM H
Recorded	~100ft V/0.3NM H[2]	

THE AW139 PILOT reports that, whilst on a VFR cruise transit in Class G airspace, the co-pilot (PM) spotted what initially looked like a large bird ahead at the same level. They then quickly identified it as a glider and advised an avoiding turn to the left. The PF's eyes were momentarily inside looking at their instruments. By the time the PF looked up and saw the glider, the PM had correctly started to initiate an avoiding turn to the left. The glider passed down the right-hand side at the same level and a range of approximately 80m. The crew was unsure if the glider took any avoiding action. Although they were under a Traffic Service, the glider was not identified by Brize Radar. They were also equipped with a standalone SkyEcho 2 device acting as a FLARM receiver; however, no alert was triggered. They had only recently acquired the Sky Echo 2 device and had also purchased the additional SkyDemon subscription. As it was one of the first flights with this equipment, they were still experimenting with the positioning of the device as the supplied bracket did not allow it to be vertically mounted as recommended in the instruction manual (they have since purchased a new bracket which allows this). In their view, the SkyEcho 2 performance does seem to be rather hit and miss, perhaps due to interference from the structure and electronics of their aircraft.

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

THE VENTUS GLIDER PILOT reports being on a cross-county glider flight on a leg from Chard to Oxford. They were climbing in a thermal approximately 5km SE of Swindon when they saw a helicopter around at least 1km away, slightly above and to the ESE of their location. The helicopter was making a turn towards the SE. After seeing the helicopter turning further away from their location they continued to climb before gliding toward Oxford.

[1] Derived from the Ventus glider pilot's GPS log file.
[2] Recorded separation taken from 2 different data sources – NATS radar data on the AW139 and GPS data on the Ventus glider.

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

THE BRIZE RADAR CONTROLLER reports that they took over LARS at approximately 1525Z on Friday 16 Apr 21 and [the AW139] had just come on frequency for a Traffic Service. At this time they had 8 aircraft on frequency, with [the AW139] being the only Traffic Service aircraft. This traffic routed east-to-west, routing approximately 15 miles south of Brize Norton. To their knowledge, all traffic that was relevant was called, including 2-3 tracks that were in a cluster to the south of Brize – including height information for those with Mode C – with the pilot calling visual with at least one of these, from their recollection. As [the AW139] then tracked further west, the pilot enquired if there was anything to their 11 o'clock. There was a track operating on a Basic Service – a Citabria Aurora. They called this traffic to [the AW139 pilot] again as its altitude was indicating similar to that of [the AW139]. The pilot stated that they were routing to the south of the aircraft as it looked as if they were conducting aerobatics. The controller then informed [the Citabria] over frequency that they should operate no further south of their position to deconflict with [the AW139], although they received no reply. With no further traffic to affect, [the AW139 pilot] was then put on a listening squawk for Bristol and sent en-route, before asking that, if there was high glider activity around the Swindon/Shrivenham area, if the controller had any further traffic tracking through this area.

The controller perceived the severity of the incident as 'Low'.

THE BRIZE SUPERVISOR reports that, as this was not reported on frequency, they were unaware of the details until now and as such have nothing further to add to this report.

Factual Background

The weather at Brize Norton was recorded as follows:

```
METAR EGVN 161520Z 05008KT 9999 FEW041 BKN050 09/M01 Q1030 NOSIG RMK BLU BLU=
METAR EGVN 161550Z 07007KT 9999 FEW042 BKN050 09/M01 Q1030 NOSIG RMK BLU BLU=
```

Analysis and Investigation

Military ATM

The AW139 was flying east-to-west to the south of Brize Norton in receipt of a Traffic Service from the Brize Norton LARS Controller. The pilot reported that the co-pilot observed what they initially thought to be a large bird before recognising it as a glider and advised the pilot of an avoiding tun to the left. The pilot reported that they had been momentarily 'heads down' in the cockpit checking the instruments and the co-pilot had initiated the required turn. They received no Traffic Information from Brize and, although they had a SkyEcho 2 acting as a FLARM receiver, they did not receive an alert. Separation was reported as 0ft vertically and circa 80m horizontally.

The glider was conducting a cross-country flight between Chard and Oxford, climbing in a thermal, and was not in receipt on an ATS. They observed the AW139 approximately 1NM away and slightly above making a turn towards the SE. After seeing the AW139 turn away from their location they continued with their climb. Separation was reported as 200ft vertically and 0.6NM horizontally.

The Brize Norton LARS controller was working 8 speaking units, which was the maximum number of aircraft on frequency allowed by their Local Order Book. All aircraft except the AW139 were under a Basic Service, with the AW139 being provided a Traffic Service. Multiple sets of Traffic Information were given to the AW139 pilot during their transit before and after the Airprox, however, no Traffic Information was passed on the glider. The Brize Norton controller was attempting to gain landline communications with Boscombe Down at the time of the Airprox.

Figures 1 & 2 show the positions of the AW139 and the glider at relevant times during the Airprox. The screenshots are taken from a replay using the NATS radars, which are not utilised by Brize Norton, therefore may not be entirely representative of the picture available to the Brize Norton controller.

Approximately 20sec prior to CPA the glider first appeared on the radar screen and it was only on the next radar sweep that it was identifiable as an aircraft presenting a primary radar return only. Around 40sec before the glider first appeared on the radar screen, the Brize Norton controller informed another aircraft they would try to get hold of Boscombe Down on the landline to help the pilot who was struggling to make contact. Separation was measured at 0.9NM horizontally and unknown vertically.

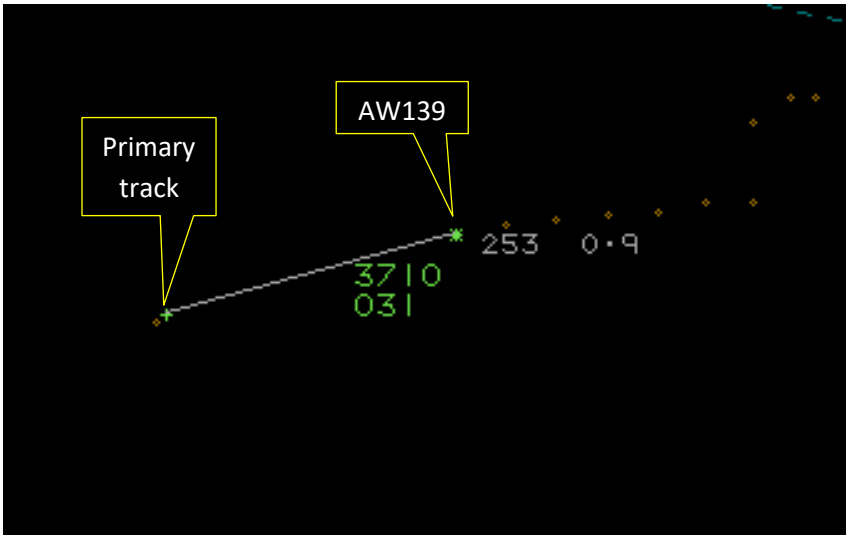


Figure 1 – Glider first appears as a track on radar

CPA occurred 18 sec later. The Brize Norton controller is believed to have still been attempting to contact Boscombe Down and no Traffic Information was passed. Separation was measured at 0.1NM horizontally and unknown vertically.

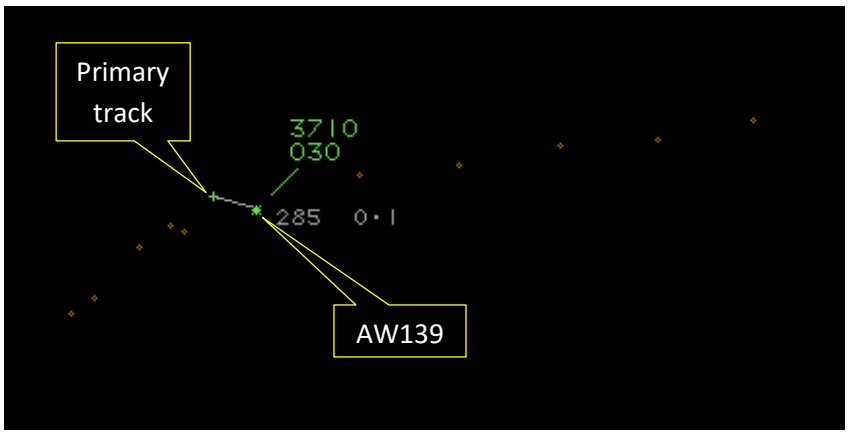


Figure 2 – Radar CPA

The Brize Norton LARS controller's workload could be considered high with 8 speaking units on frequency, although it did not appear that it was particularly complex as most were in receipt of a Basic Service. The RT was fairly steady prior to and after the incident however, it was quiet immediately before and during. If a primary radar return had been displayed on the Brize controller's radar screen, it is likely that the controller was distracted trying to gain communications with Boscombe Down and did not witness the glider appear on the screen as, up to that point, their Traffic Information had been good. It is unknown why the controller did not request the Supervisor to gain communications with Boscombe Down, especially with the number of aircraft that they had on frequency. Unfortunately, the AW139 pilot did not advise the Brize Controller of the glider sighting which would have drawn their attention back to the radar screen and allowed Traffic Information to be passed. Additionally, the lack of RT communications from the glider did not allow the controller or other airspace users to have an appreciation of their location.

UKAB Secretariat

The Ventus glider pilot supplied the UKAB with the GPS log file of their flight. This gave a marginally different representation of the Ventus glider's track than that of the NATS primary radar recording. Due to the unstable nature of the primary track from the NATS radar (as can be seen in Figure 2) the UKAB Secretariat compared the GPS track data from the Ventus glider pilot's log file with the NATS radar track data of the AW139. Albeit this comparison is from 2 different data sources, both were stable and the Ventus glider's track was therefore not subject to potential radar processing anomalies of the primary-only radar track. In view of this, the CPA given in the data block on page 1 of this report (~100ft V and 0.3NM H) differs from that measured on the NATS radar and presented in the Military ATM investigation at Figure 2. The Military ATM investigation did not have access to the Ventus glider pilot's GPS data.

The AW139 and Ventus glider pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.[3] If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right.[4] If the incident geometry is considered as converging then the AW139 pilot was required to give way to the Ventus glider.[5]

Comments

BGA

It is pleasing to read that the AW139 was monitoring FLARM data via their SkyEcho, albeit that it did not alert on this occasion.

Summary

An Airprox was reported when an AW139 and a Ventus glider flew into proximity 3NM W of Wantage at 1531Z on Friday 16th April 2021. Both pilots were operating under VFR in VMC; the AW139 pilot was in receipt of a Traffic Service from Brize Radar and the Ventus glider pilot was not in receipt of an Air Traffic Service.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, a report from the air traffic controller involved and a report from the appropriate operating authority. 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.

Due to the exceptional circumstances presented by the coronavirus pandemic, this incident was assessed as part of a 'virtual' UK Airprox Board meeting where members provided a combination of written contributions and dial-in/VTC comments.

The Board first considered the actions of the AW139 pilot and much of the ensuing conversation centred around the electronic conspicuity device – namely the SkyEcho 2 – that had recently been fitted to the aircraft. A helicopter pilot member with experience of operating with this particular device fitted in helicopters suggested that it can often be difficult to find the optimum mounting position in the cockpit to give the device the best chance of detecting compatible devices. Additionally, and although this was not the case in this particular event, the Board wished to highlight to pilots that, even with a device capable of detecting FLARM (such as had been the case here), many aircraft navigation applications that can display 'intruder' aircraft require specific activation of the FLARM capability and the Board encouraged pilots to check that their navigation equipment has this particular function enabled. In this case, the SkyEcho 2/navigation solution combination available to the helicopter pilot should have

[3] (UK) SERA.3205 Proximity.
[4] (UK) SERA.3210 Right-of-way (c)(1) Approaching head-on.
[5] (UK) SERA.3210 Right-of-way (c)(2) Converging.

displayed the FLARM-equipped glider but had not (**CF4**). This, coupled with the absence of any Traffic Information from the Brize Radar controller, had meant that the AW139 pilot had not had any situational awareness of the approaching Ventus glider (**CF2**). Therefore, the only barrier available to the AW139 pilot was the See and Avoid barrier and, when the PM spotted the glider and given that the Ventus has a 60ft wingspan, members considered that the helicopter crew may have mis-appreciated the range of the glider but was nonetheless concerned enough by the glider's proximity for the PM to initiate a turn away from it (**CF5**).

Turning to the actions of the Ventus glider pilot, the Board noted that the aircraft had been equipped with FLARM but that this particular device was incapable of detecting either the transponder or the SkyEcho 2 carried by the AW139 (**CF3**). Furthermore, the Board felt it unlikely that a surveillance-based Air Traffic Service would have been of much benefit to the glider pilot, since their aircraft was only intermittently detected by the NATS radars and may not have been detected at all by the radar that the Brize controller had been using. The glider pilot had not, therefore, had any situational awareness of the approaching helicopter (**CF2**) but, in the Board's view, had seen the approaching helicopter with sufficient time to judge that there had been no threat of a collision.

The Board then considered the actions of the Brize Radar controller and agreed that there was little that they could have done to warn the AW139 pilot of the presence of the glider. The Board felt that, in all likelihood, the glider had either not been displayed to the Brize controller or had only been displayed briefly or intermittently. Given that the controller had been passing Traffic Information to the AW139 pilot up to this point, the Board considered that, had the controller seen a primary contact in the vicinity of the helicopter, they would have passed information to the helicopter pilot. Therefore, the Board concluded that the Brize controller had not had any situational awareness of the presence and proximity to the AW139 of the glider, and that this had been a contributory factor (**CF1**).

Finally, the Board considered the risk involved in this event. Members noted that the pilots' respective estimations on minimum horizontal separation differed greatly, but that the separation measured by the UKAB Secretariat essentially fell halfway between the 2 estimates. Therefore, with the information available, the Board concluded that there had been no risk of collision in this encounter and that normal safety standards and parameters for VFR flight in Class G airspace had pertained. Accordingly, a Risk Category E was assigned to this Airprox.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2021024			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Ground Elements			
	• Situational Awareness and Action			
1	Contextual	• Traffic Management Information Action	An event involving traffic management information actions	The ground element had only generic, late or no Situational Awareness
	Flight Elements			
	• Situational Awareness of the Conflicting Aircraft and Action			
2	Contextual	• Situational Awareness and Sensory Events	Events involving a flight crew's awareness and perception of situations	Pilot had no, late or only generic, Situational Awareness
	• Electronic Warning System Operation and Compliance			
3	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
4	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
	• See and Avoid			

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: E

Safety Barrier Assessment[6]

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

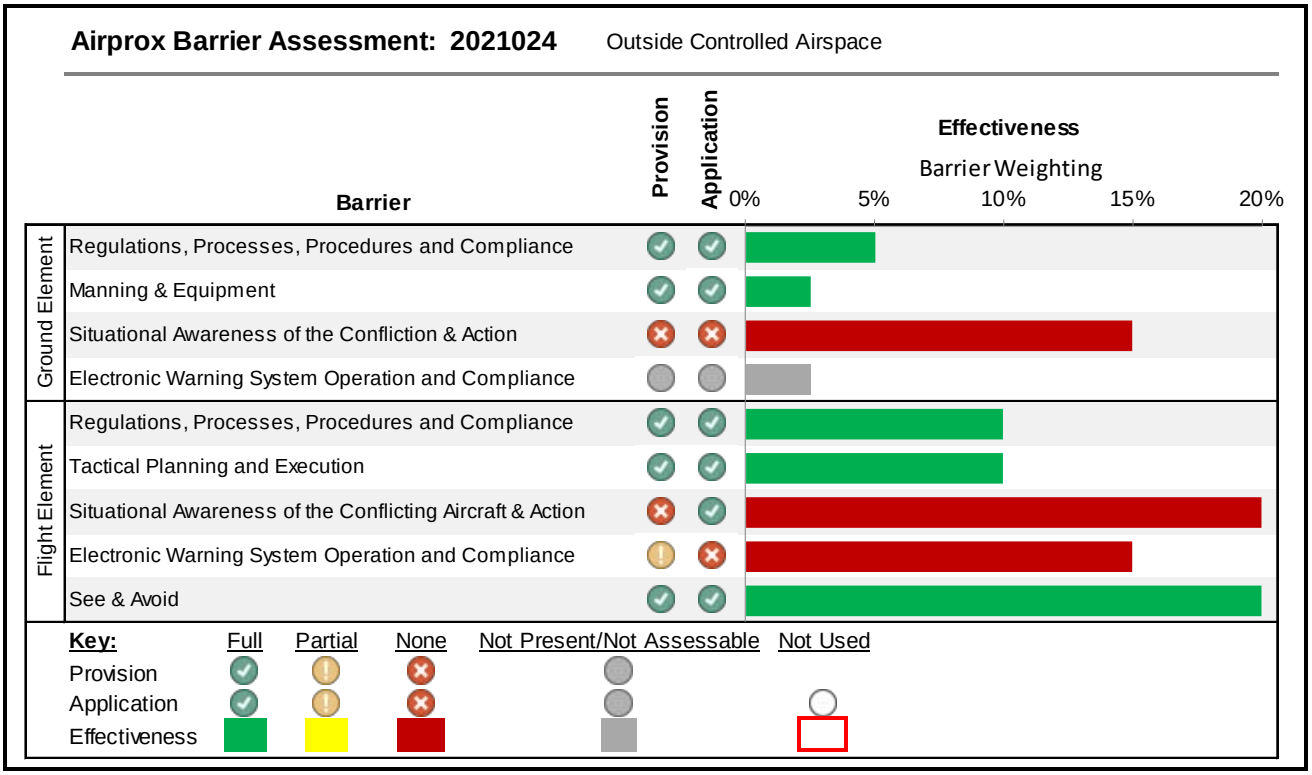
Ground Elements:

Situational Awareness of the Confliction and Action were assessed as **ineffective** because the Brize Radar controller had no situational awareness of the presence of the Ventus glider or of its proximity to the AW139.

Flight Elements:

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because neither pilot had any situational awareness of the presence of the other aircraft.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the SkyEcho 2 equipment on the AW139 did not detect the FLARM on the Ventus glider, and the FLARM on the Ventus glider could not detect the presence of the AW139.



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