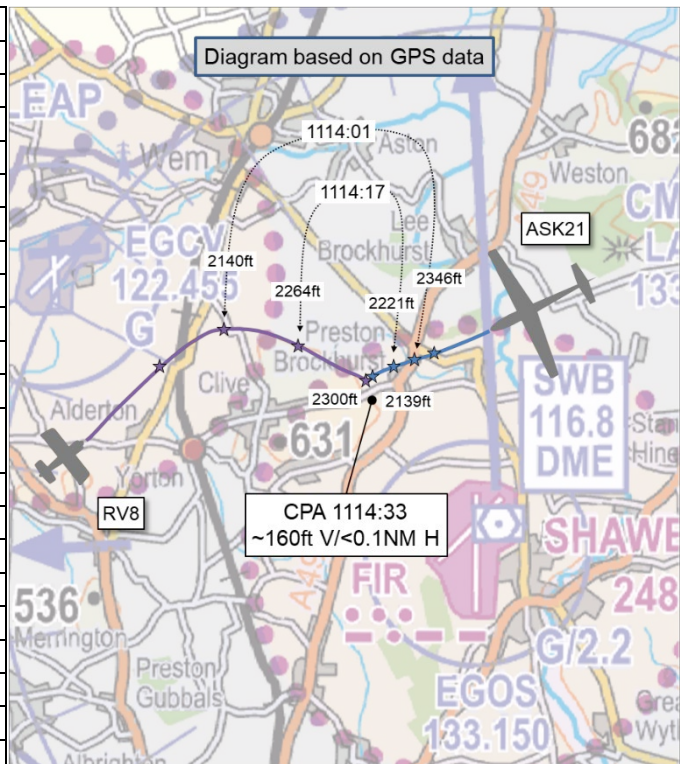


AIRPROX REPORT No 2023139

Date: 24 Jun 2023 Time: 1115Z Position: 5249N 00242W Location: 1.5NM NW Shawbury

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	ASK21	RV8
Operator	Civ Gl'd	Civ FW
Airspace	Shawbury ATZ	London FIR
Class	G	G
Rules	VFR	VFR
Service	None	None
Provider	Shawbury Gliders	Shawbury Gliders
Altitude/FL	2139ft	2300ft
Transponder	Not fitted	A, S ¹
Reported		
Colours	White, orange	White, red
Lighting	NR	Strobe, landing, nav
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	1800ft	2400ft
Altimeter	QFE (1018hPa)	QNH (1022hPa)
Heading	NR	140°
Speed	NR	140kt
ACAS/TAS	FLARM, SkyEcho	SkyEcho
Alert	N/A ²	None
Separation at CPA		
Reported	50ft V/0m H	250ft V/100m H
Recorded	~160ft V/<0.1NM H	



THE ASK21 PILOT reports that, when returning to join the circuit, they encountered a fixed-wing, single-engine aircraft at the same level in their 2 o'clock position. They had to push the stick forward to avoid a collision. The other aircraft did not appear to manoeuvre, and passed approximately 50ft above them.

This Airprox was also reported to Slep by the pilot of the tug aircraft.

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

THE RV8 PILOT reports that there had been a wasp in their cockpit that had been a massive distraction, just before the glider was seen during the climb-out from Slep. Their original intention had been to climb to 3000ft and to have avoided the Shawbury ATZ altogether. They had become distracted and, seeing that they were above the ATZ and were 'wings level', had assumed the aircraft was in a safe attitude. The presence of an angry wasp, which had stung them on the face, had drawn all of their attention. During the encounter, they had focused on remaining 'wings level' and not getting stung again. They saw the glider pass under their left wing at a reasonable distance, and heard the glider pilot on frequency. Having felt terrible about their eventual position relative to the Shawbury ATZ, they contacted Shawbury by telephone immediately on landing.

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

¹ No Mode-C altitude was observed from the RV8 on the NATS radar replay.

² The ASK21 had not been equipped with a display on which an alert from the EC equipment may have been seen.

Factual Background

The weather at Shawbury was recorded as follows:

METAR EGOS 241120Z AUTO 23008KT 9999 FEW027/// BKN039/// 23/17 Q1022

Analysis and Investigation

Sleep Airfield Manager reports that the [pilot of the RV8] took-off at approximately 1100 and left the Sleep frequency around 5min later, after departing from the downwind leg. At approximately 1120, the pilot of a glider-tug came onto Sleep Radio to report an Airprox. It is not recorded what was said exactly, other than calmly informing Sleep of an Airprox. Shawbury Gliders was then telephoned to discuss the event.

RAFGSA Air Safety

Both pilots were interviewed, the radar traces provided by RAF Shawbury were reviewed, and the [Shawbury Gliders] RT transcript analysed.

The [ASK21] was launched by aerotow from Shawbury from RW23 and, after some limited soaring, the pilot returned to join the circuit. The sortie had been a training flight for the pilot in the front seat with an instructor in the rear seat. When they had been over Grinshill, inside the Shawbury ATZ, they noticed a powered aircraft, [the RV8], co-altitude in the 2 o'clock position. The instructor took control by moving the stick forward and passed beneath the powered aircraft. The instructor believed they passed about 50ft below the powered aircraft with it slightly in front of them. The glider was equipped with [an EC device commonly used by glider pilots and an EC device that had been transmitting an ADS-B signal]. Both devices were turned-on and appeared to be functioning correctly. The pilot reported the Airprox to Shawbury Gliders. The RAF Shawbury Gliding tug pilot, airborne in the vicinity, also reported the Airprox to Sleep Radio on 122.455MHz.

The pilot of [the RV8] reports that, on departure from Sleep, they had discovered a wasp in the cockpit that they had tried to shoo away but it had stung them on the face. During this episode they [apparently] strayed into the Shawbury ATZ and got close to [the ASK21]. [The pilot of the RV8] reported seeing the glider pass below them by 150ft.³ [The RV8] had been equipped with a Mode-C transponder which was turned on. It was also equipped with [an EC device that had been transmitting ADS-B-out], and ADS-B-in had been displayed on a tablet using SkyDemon. The pilot of the RV8 [reportedly] acknowledged that they had strayed into the Shawbury ATZ but was under attack from the wasp and just wanted to get back to their home airfield. From the radar replays, the pilot of the RV8 [appeared to have] flown through the Shawbury ATZ as they climbed out from Sleep, en-route to [their destination airfield]. The two aircraft merged on the radar replay. The RT transcript shows that [the pilot of the RV8] did not contact Shawbury Gliders on 133.150MHz.

UKAB Secretariat

An analysis of the NATS radar replay was undertaken. The RV8 could be positively identified from Mode-S data but no Mode-C data was observed on the radar replay. A primary-only return could be observed in the vicinity of the RV8 for a couple of radar sweeps but it could not be positively identified.

Both pilots kindly supplied GPS track data for their respective flights. It was by combining the separate data sources that the diagram was constructed and the separation at CPA determined. It was further determined that the pilot of the RV8 had not entered the Shawbury ATZ, having passed over the ATZ lateral boundary at approximately 2283ft QNH.

Screenshots from the Shawbury VCR radar replay are shown below.

³ The pilot of the RV8 reported to UKAB that the minimum vertical separation from the ASK21 had been 250ft.

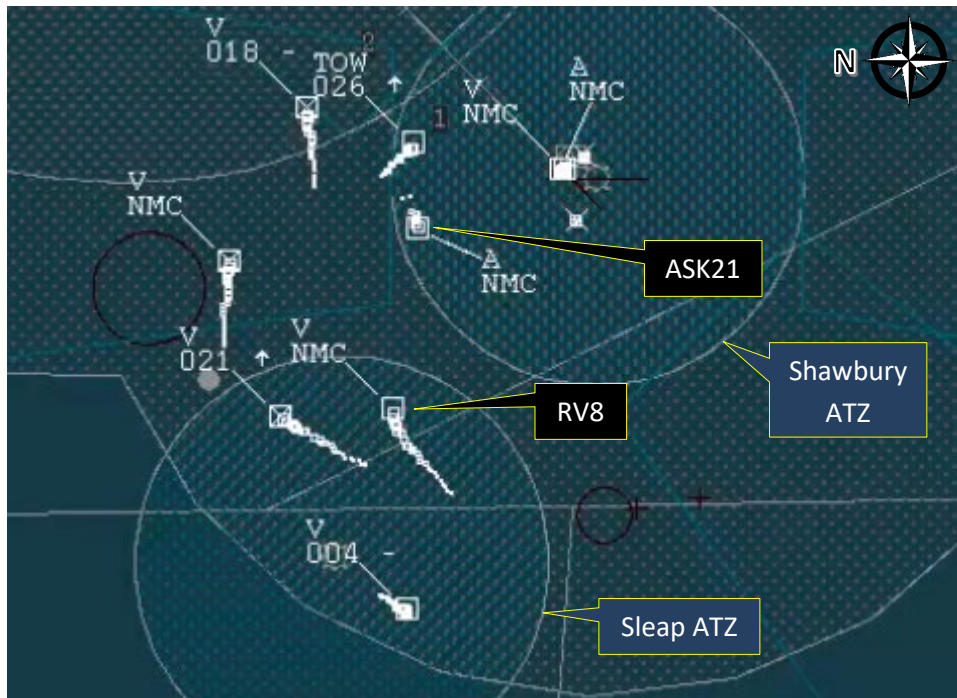


Figure 1 - 1114:01

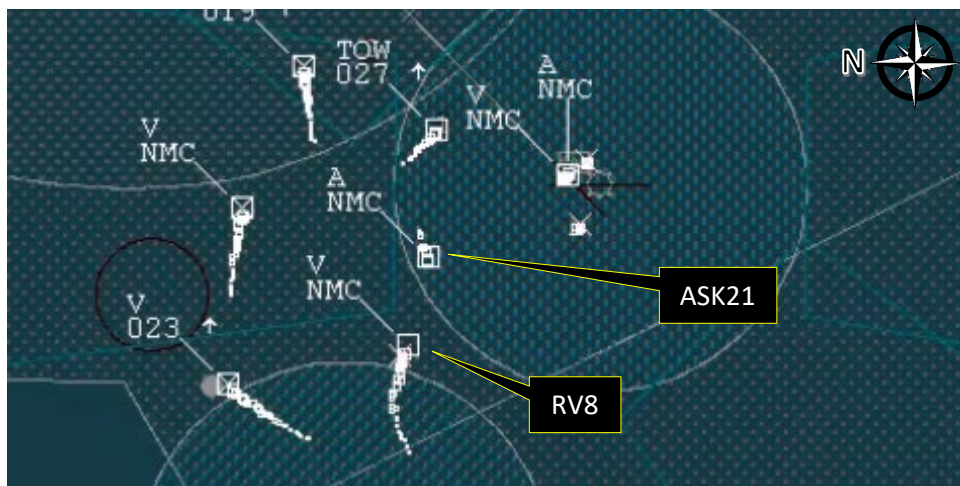


Figure 2 - 1114:17

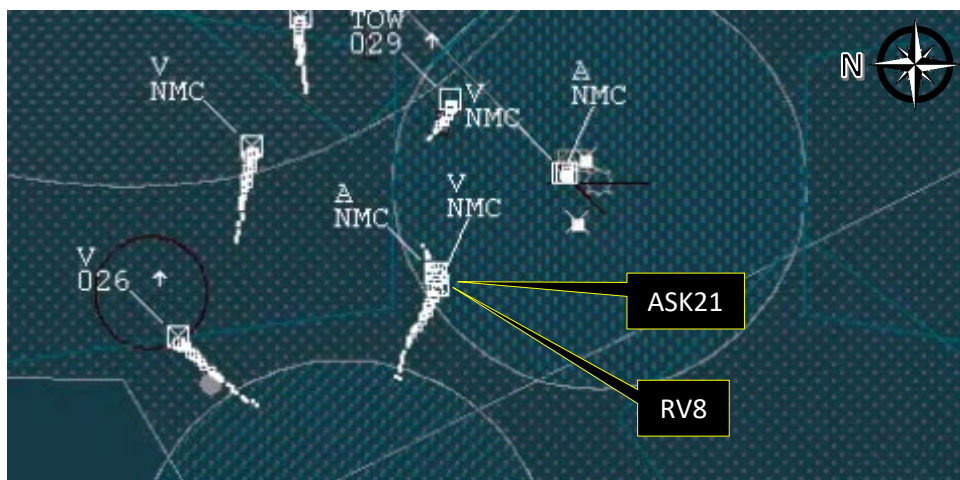


Figure 3 - CPA at 1114:33

The ASK21 and RV8 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.⁴ If the incident geometry is considered as converging then the RV8 pilot was required to give way to the ASK21.⁵

Comments

AOPA

Whilst flying, the ability to manage the many threats to safety must always be considered, the essentials of Aviate, Navigate, Communicate still remain paramount followed by a subsequent plan for any issues. In this case, whilst dealing with an issue, the added safety factor of having additional EC wasn't effective. A successful outcome was achieved for which all should be commended.

BGA

Both the ASK21 and the RV8 carried CAP1391 low-power ADS-B units made by the same manufacturer, and which transmit and receive ADS-B signals. However, the ADS-B unit carried by the ASK21 was not connected to a user interface, so was not capable of warning the pilot of the RV8's proximity. Software to connect low-cost, gliding-specific EFB equipment to this brand of ADS-B unit via the GDL90 wireless protocol is starting to become available, and the ASK21 operator may wish to investigate deploying it. Meanwhile, the ADS-B unit in the RV8 was connected to a popular GA EFB application, but the pilot does not report having received a warning from it. It would be useful to understand why this barrier did not function.

Summary

An Airprox was reported when an ASK21 and an RV8 flew into proximity 1.5NM NW of Shawbury at 1115Z on Saturday 24th June 2023. Both pilots were operating under VFR in VMC, listening out on the Shawbury Gliders frequency.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of a report and GPS track data from both pilots, radar photographs/video recordings, a report from the manager of Sleep airfield and 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.

The Board first considered the actions of the pilot of the ASK21. A member with particular knowledge of gliding operations explained that, anecdotally, there had been an increase in the number of glider pilots that have equipped their aircraft with ADS-B-out units, albeit without displays, to be used in the capacity as a conspicuity 'beacon'. Commenting that the move was most welcome, the member also wished to remind pilots that a system installed in such a manner would obviously not alert the pilot to the proximity of another aircraft. Members wished to highlight that it remains the responsibility of a pilot to maintain a very thorough and effective lookout, particularly in busy areas in Class G airspace and the ATZ environment.

Turning their attention to the circumstances of this particular encounter, which had occurred on a Saturday, members noted that the Shawbury ATZ had been active but that there had been no ATS available to pilots. This, members agreed, had emphasised the imperative for vigilance. Members noted that the pilot of the ASK21 had entered the ATZ, and had positioned their glider to join the circuit, when they had visually acquired the RV8. It was appreciated that it had been somewhat surprising to have seen an aircraft turning towards their position at a similar altitude. Additionally, members agreed that the EC equipment fitted to the ASK21 (that had not been connected to a display, in a configuration previously discussed) would not have alerted the pilot to the presence of the RV8 even though the RV8

⁴ (UK) SERA.3205 Proximity.

⁵ (UK) SERA.3210 Right-of-way (c)(2) Converging.

had been fitted with an EC device from the same manufacturer (**CF3**). As such, members agreed that the pilot of the ASK21 had not had situational awareness of the proximity of the RV8 until it had been visually acquired (**CF2**). Notwithstanding, members commended the pilot of the ASK21 for their quick reaction to have taken avoiding action to increase separation, although concluded that the RV8 had been visually acquired late (**CF6**).

Members next turned their attention to the actions of the pilot of the RV8 and noted that they had formulated a plan to avoid the Shawbury ATZ. It was therefore apparent that they had held generic situational awareness of the presence of gliding activity at Shawbury (**CF2**) and, presumably, had tuned their radio to the Shawbury Gliders frequency in order to glean further situational awareness. However, members were in full agreement that the presence of a wasp in the cockpit had presented a very serious distraction (**CF5**) and that the situation had required very careful consideration. Members concluded that the distraction caused by the wasp had been so considerable that the RV8 pilot's initial plan had not been executed as intended (**CF1**).

Members reviewed the analysis of the GPS track data which showed that the RV8 had not entered the Shawbury ATZ. Some members suggested that to have remained outside the ATZ, given that the pilot's attention had been significantly diverted, had been remarkably fortuitous. In consideration of the additional EC equipment fitted to the RV8, and the apparent compatibility with the EC equipment fitted to the ASK21, members wondered why an alert to the presence of the ASK21 had not been reported when such an alert would have been expected (**CF4**). It was suggested that an alert may indeed have been triggered but that it may have been missed by the pilot of the RV8 due to the distraction caused by the wasp. The matter of the distraction arose again when members noted that the pilot of the RV8 had not visually acquired the ASK21 until the moment of CPA. Members agreed that the ASK21 had been visually acquired too late for the pilot of the RV8 to have taken any action, and that that effectively constituted a non-sighting (**CF7**).

Concluding their discussion, members were in agreement that the presence of a wasp in the cockpit of the RV8 had caused such a distraction that safety margins had been eroded much below the norm. Neither pilot had had specific situational awareness of the presence of the other and members agreed that there had been a risk of collision (**CF8**). Members were in agreement that it had been the last-minute avoiding action by the pilot of the ASK21 that had increased the separation between the aircraft. As such, the Board assigned Risk Category B to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

2023139				
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
Flight Elements				
• Tactical Planning and Execution				
1	Human Factors	• Action Performed Incorrectly	Events involving flight crew performing the selected action incorrectly	Incorrect or ineffective execution
• 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, inaccurate 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	• Distraction - Job Related	Events where flight crew are distracted for job related reasons	

6	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
7	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
• Outcome Events				
8	Contextual	• Near Airborne Collision with Aircraft	An event involving a near collision by an aircraft with an aircraft, balloon, dirigible or other piloted air vehicles	

Degree of Risk: B.

Safety Barrier Assessment⁶

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

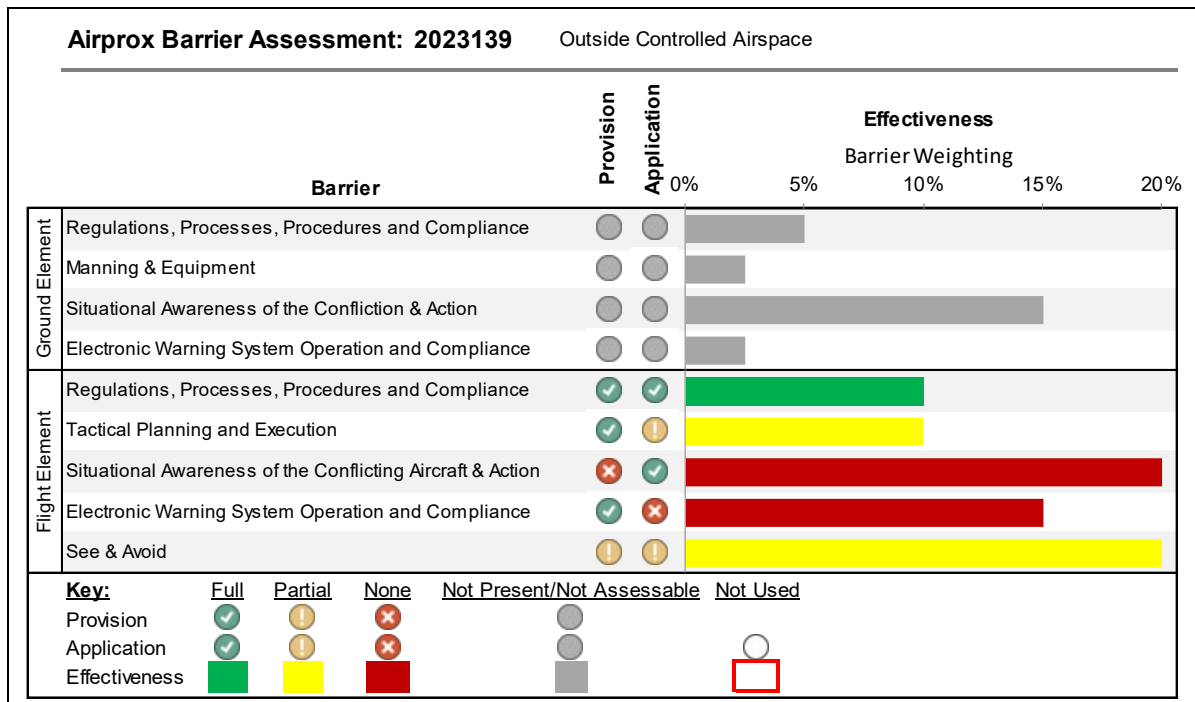
Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because the RV8 pilot’s initial plan had not been executed as intended.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the pilot of the ASK21 had not had situational awareness of the presence of the RV8 until it had been visually acquired.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the EC equipment fitted to the ASK21 would not have been expected to have detected the presence of the RV8. The EC equipment fitted to the RV8 would have been expected to have detected the ASK21 but no alert was reported.

See and Avoid were assessed as **partially effective** because the pilot of the RV8 had not visually acquired the ASK21 until the moment of CPA.



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