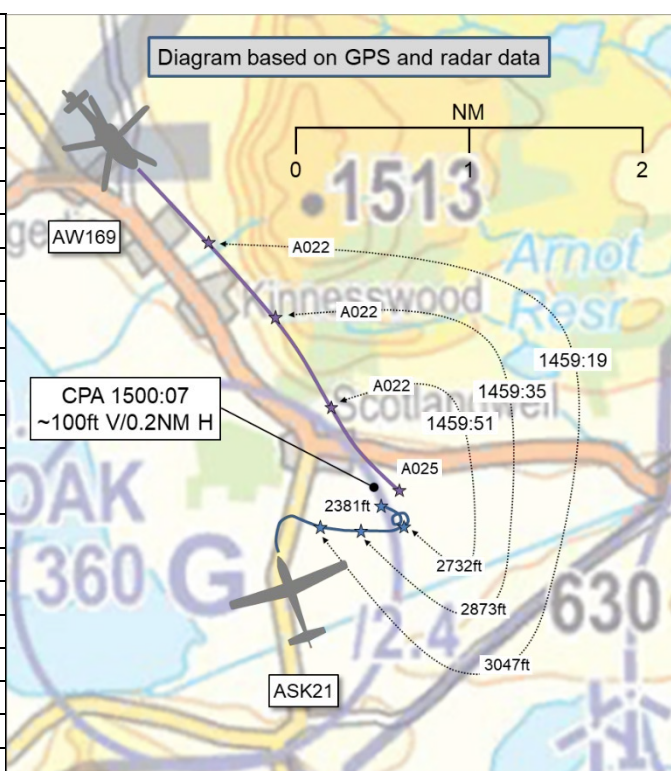


AIRPROX REPORT No 2023061

Date: 20 Apr 2023 Time: 1500Z Position: 5612N 00318W Location: 1NM E Portmoak

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	ASK21	AW169
Operator	Civ Gld	Civ Comm
Airspace	Scottish FIR	Scottish FIR
Class	G	G
Rules	VFR	VFR
Service	Listening Out	Basic
Provider	Portmoak Traffic	Scottish Information
Altitude/FL	2381ft	2500ft
Transponder	Not fitted	A, C, S+
Reported		
Colours	White, red	Blue, white
Lighting	None	Nav, beacon
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	1800ft	2200ft
Altimeter	QFE (1020hPa)	QNH (NK hPa)
Heading	360°	143°
Speed	60kt	120kt
ACAS/TAS	FLARM	TCAS II
Alert	None	None
Separation at CPA		
Reported	150ft V/0.25NM H	300ft V/0.6NM H
Recorded	~100ft V/0.2NM H	



THE ASK21 PILOT reports that towards the end of a training flight in a two seat glider, they were carrying out a demonstration of increased 'g' in the turn. They were approximately 1800ft on the Portmoak QFE, within 1NM northeast of Portmoak Airfield, completing a tight, left-hand turn at 60kt. Upon looking in the direction in which they intended to roll-out, and as they started to relax the back pressure on the stick and roll right, they noticed a large object in their 10 o'clock, slightly high. Within a second they had identified that it was moving quite quickly towards their general location and paused their recovery back to wings-level. Another second later, they had identified it as a largeish helicopter [that had] rolled approximately 10° to its left, and estimated that it would pass by their right-hand side approximately 150ft above them. By the time this had happened, the [ASK21 pilot] was pointing roughly westward and was rolling right through wings-level [they recall]. They continued to roll to the right, beyond wings-level, in order to maintain visual contact with the helicopter as they were already aware of three other gliders within 2NM of their vicinity. The helicopter appeared to manoeuvre by rolling right and [the ASK21 pilot's] assumption had been that the [helicopter pilot] had seen them and was taking steps to gently avoid getting any closer than necessary to at least one other glider. The helicopter continued south-southeast towards the western edge of the Fife Parachute Drop Zone and onwards out of sight. The rest of [the ASK21 pilot's] flight was uneventful and they recovered back to Portmoak Airfield. With hindsight, and the luxury of being back on the ground and having time to re-visit the Airprox, they estimate that if they had not seen the helicopter when they did, and had continued to roll towards wings-level, they may have passed directly underneath [the helicopter] and the risk of collision may have been high.

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

THE AW169 PILOT reports that they had departed [their departure site and had routed] east of the Edinburgh CTR and under the CTA, between D550B and D512B. They were talking with Scottish Information on 119.875MHz. Fifteen minutes after lifting, they had visually identified Portmoak gliding

site some 3NM ahead. At that stage, they were at 2200ft and, a short while later, they observed three gliders ahead in their 11 o'clock, 12:30 and 1:30 at an estimated range of 1.5NM. They initiated a climb to pass clear of the gliders, and this topped out at 2600ft. One of the gliders that was traveling east, now in their 12 o'clock and estimated at 1NM, then initiated a left turn towards [the AW169]. After a pause, the glider [pilot] then began a series of steep, left-hand descending turns. Had the glider pilot looked left, in the direction of the turn, they would have seen [the AW169]. There was no point where a collision might have taken place. The [glider] was at an estimated range of 0.6NM/1km, approximately 300ft below and [the AW169 pilot] was visual throughout.

[The pilot of the AW169 opines that] that [the glider pilot] was eyes-in during their left turn manoeuvre and, when they looked up, they were surprised to see another aircraft with the possible assumption that the opposing aircraft, the [AW169], had also just become visual with them. In this instance, [that would have been] an incorrect assumption and, as already stated, [the AW169 pilot] was visual throughout.

While on the ground at [their destination], [the pilot of the AW169] was informed by Ops that the glider pilot was intending to file an Airprox. On completion of the flight, they called the number given and subsequently spoke to the glider pilot concerned. Having reassured them that they had fully identified the gliding site at Portmoak prior to transiting their area, and were visual with three gliders in that vicinity, there was no further mention of the Airprox from the [glider] pilot and [the pilot of the AW169] genuinely believed the matter to have been understood (which is why they had not filed an Airprox - because they did not believe there to have been one). [The pilot of the AW169 reportedly] learnt from a member of the Portmoak Gliding Club that there is a bias to file Airprox reports to raise awareness of their presence in that area.

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

THE SCOTTISH INFORMATION FISO reports that the [pilot of the AW169] had checked-in on frequency at 1444 [and had provided their routeing], to remain clear of controlled airspace to the east of the Edinburgh zone. Edinburgh was informed of the pilot's intentions in case they had required to contact them, and these intentions were again confirmed with the pilot. The position was handed-over for a break at approximately 1502, at which point the pilot was believed to be east of the Edinburgh CTR. At no point during [the AW169 pilot's] time with them on frequency did the pilot make any mention of an Airprox.

The events described have not been checked for accuracy against the appropriate radar and RT recordings.

Factual Background

The weather at Edinburgh was recorded as follows:

METAR EGPB 201450Z 06014KT CAVOK 11/04 Q1029

Analysis and Investigation

NATS SAFETY INVESTIGATIONS

Information available to the investigation included the CA4114 from the Scottish FISO, additional information supplied by Prestwick Centre Ops Supervisor, radar and RT recordings, third-party ADS-B/[EC device] data (unverified).

[The AW169 pilot] had departed [from their departure site] and had requested a Basic Service from Scottish Information at 1444:38. The pilot stated that they would be routeing to the east of the Edinburgh Control Zone, remaining clear of controlled airspace. The Scottish FISO requested confirmation of their position and level. The pilot was instructed to select Mode A code 7401 and a Basic Service was agreed.

[The AW169] appeared on radar at 1451:00 indicating altitude 1800ft at a range of 17.9NM from

Portmoak. The Scottish Information FISO had no responsibility to monitor [the AW169] and was not able to provide a surveillance service. No further transmissions were broadcast to, or received from, the pilot of [the AW169] until 1458:30.

Portmoak gliding site is marked on the Scotland 1:500k VFR chart with a winch launch height of 2400ft and contact frequency of 129.980MHz. Following a review of the radar replay, between 1452:14 and 1455:32, a number of sporadic primary radar returns could be observed in the vicinity of Portmoak. From 1455:32 onwards no radar returns could be observed in the vicinity of Portmoak.

At 1457:25, at a distance of 5NM from Portmoak, [the AW169] was indicating altitude 1800ft on a track that would pass approximately 1NM to the east of Portmoak.

At a range of 3.5NM from Portmoak, [the AW169] was observed to climb to 2200ft as indicated by Mode C. At 1458:30, the FISO asked the pilot of [the AW169] if they intended to route under the Edinburgh stub outside controlled airspace. The pilot confirmed this was their intention. The FISO then informed the pilot that they had spoken to Edinburgh Radar, and that [the pilot of the AW169] was able to stay on the Scottish Information frequency as long as they remained clear of controlled airspace. This was acknowledged by the pilot.

The aircraft was subsequently observed to pass 0.8NM to the east of Portmoak at 2200ft indicated on Mode C. At 1500:00, [the AW169] initiated a climb to 2600ft while 0.9NM abeam Portmoak, before descending back to 2400ft. No primary radar returns were visible on radar in the vicinity of Portmoak during the time that [the AW169] transited the area.

A subsequent review of third-party, unverified, ADS-B and [EC device] information from Flightradar24, indicated that there may have been three gliders in the vicinity at the time [the pilot of the AW169] passed Portmoak, including [the ASK21]. [The pilot of the ASK21] did not receive a service from Scottish Information at any time and was therefore unknown traffic to the FISO.

The pilot of [the AW169] did not make any reference to an Airprox or conflict on the Scottish Information frequency, and the FISO was only made aware of the potential Airprox by the Ops Supervisor, via Edinburgh Radar, later in the day.

UKAB Secretariat

An analysis of the NATS radar replay was undertaken and the AW169 could be positively identified from Mode S data. No aircraft were observed on radar in the vicinity of the AW169 at the time of CPA (see Figure 1). The ASK21 pilot kindly supplied GPS track data for their flight. It was by combining these separate data sources that the CPA was determined and the diagram constructed.

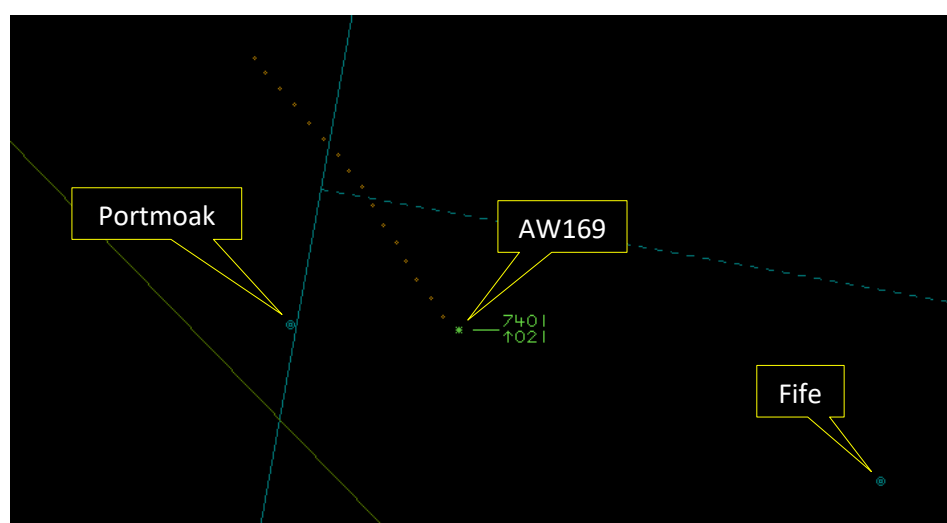


Figure 1 – CPA at 1500:07

The ASK21 and AW169 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 If the incident geometry is considered as converging then the AW169 pilot was required to give way to the ASK21.³

Comments

BGA

Portmoak is a busy gliding site, with gliders potentially being launched by winch or aerotow. The maximum winch launch altitude is 2360ft AMSL (notified in AIP ENR 5.5), and a greater density of gliders may be expected in nearby Class G airspace at any time during daylight hours, and any altitude up to the base of the overlying controlled airspace.

The glider turned through approximately 480° in 16sec, a rate of 30°/sec at a bank angle of 60°. When the glider pilot initiated the turn, the helicopter would have been in their 8 o'clock position, about 500ft below, at a range of about 0.8NM, and therefore obscured by the glider's port wing. A continuous steep turn is flown by reference to the visual horizon, which also facilitates lookout. However, the glider pilot must look for aircraft approaching head-on from every direction, and although continuously turning facilitates 360° lookout, it also leaves the pilot unsighted in any specific direction for about half the time.

The AW169 pilot is to be commended for their awareness of Portmoak gliding site, and their good lookout. As in this case, gliders operating within 10NM of Portmoak below 3000ft AAL usually monitor VHF channel 129.980MHz (as notified on CAA charts and in AIP ENR 5.5). If transiting nearby, a brief broadcast call using 'Unattended Aerodrome' phraseology (CAP 413 §4.162 et seq) could increase everyone's situational awareness and help avoid conflicts.

Summary

An Airprox was reported when an ASK21 and an AW169 flew into proximity 1NM east of Portmoak at 1500Z on Thursday 20th April 2023. Both pilots were operating under VFR in VMC, the ASK21 pilot not in receipt of an ATS and the AW169 pilot in receipt of a Basic Service from Scottish Information.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

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

The Board first considered the actions of the pilot of the ASK21. A member with particular knowledge of gliding operations explained that Portmoak is known as the busiest gliding site in Scotland, and that the highest density of glider pilots operating in Scotland may be encountered in the local area. The member continued and, noting that the pilot of the ASK21 had carried out a demonstration of increased 'g' in the turn, explained that the turns would have been conducted by visual reference to the horizon, and calculated that the rate of turn had been approximately 30°/sec. Consequently, the time available for the pilot to have maintained an effective visual scan in any particular direction had been limited. As such, members wished to emphasise that a thorough and effective lookout before having embarked on such a demonstration would have been of paramount importance. Members noted that the ASK21 had been fitted with additional EC equipment, but that it would not have been expected to have detected the presence of the AW169 (**CF5**). It was agreed that the pilot of the ASK21 had not had situational

¹ (UK) SERA.3205 Proximity.

² (UK) SERA.3210 Right-of-way (c)(1) Approaching head-on.

³ (UK) SERA.3210 Right-of-way (c)(2) Converging.

awareness of the AW169 (CF4), and members appreciated that, once it had been visually acquired, the separation between the aircraft had been such that it had caused the ASK21 pilot concern (CF7).

Turning their attention to the actions of the pilot of the AW169, members pondered the choice of route through the area. Noting the high ground to the northeast of Portmoak airfield, the airfield itself and the parachute drop-zone to the east near Fife, members appreciated that an appropriate route had required very careful consideration. Given the weather conditions and the density of glider traffic on the day in question, members were in agreement that the dynamic plan to traverse the area had not been satisfactorily adapted to meet the prevailing situation (CF3), and that it may have been more prudent to have avoided Portmoak by a greater margin, both laterally and vertically.

Members next noted that the pilot of the AW169 had been in receipt of a Basic Service from Scottish Information. It was agreed that the Scottish Information FISO had not been required to have monitored the flight under the terms of a Basic Service (CF1). In addition, it was noted that the pilot of the AW169 had not attempted to announce their presence by broadcasting their intentions on the Portmoak Traffic frequency. Whilst it was suggested that a surveillance service may not have been able to have detected individual gliders in the area, members felt that the pilot of the AW169 may have been better served, generally, under a Traffic Service. Consequently, it was concluded that the AW169 pilot had not contacted the most appropriate ATS provider for their transit past Portmoak glider site(CF2).

In consideration of the additional EC equipment fitted to the AW169, members agreed that it would not have been expected to have detected the presence of the ASK21 (CF5). Determining that the pilot of the AW169 had had generic situational awareness of gliding activity at Portmoak (CF4), and had subsequently visually acquired the ASK21, members agreed that they had flown close enough to the ASK21 to have caused its pilot concern (CF6).

Concluding their deliberations, members were satisfied that there had not been a risk of collision. However, members were in agreement that, as neither pilot had had specific situational awareness of the presence of the other, and that the separation at CPA had been sufficiently close to have caused concern, safety margins had been degraded. As such, the Board assigned Risk Category C to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2023061			
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
Ground Elements				
• Situational Awareness and Action				
1	Contextual	• ANS Flight Information Provision	Provision of ANS flight information	The ATCO/FISO was not required to monitor the flight under a Basic Service
Flight Elements				
• Tactical Planning and Execution				
2	Human Factors	• Communications by Flight Crew with ANS	An event related to the communications between the flight crew and the air navigation service.	Pilot did not request appropriate ATS service or communicate with appropriate provider
3	Human Factors	• Insufficient Decision/Plan	Events involving flight crew not making a sufficiently detailed decision or plan to meet the needs of the situation	Inadequate plan adaption
• Situational Awareness of the Conflicting Aircraft and Action				
4	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				
5	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

• See and Avoid				
6	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
7	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: C.

Safety Barrier Assessment⁴

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 **not used** because the Scottish FISO had not been required to have monitored the flight under the terms of a Basic Service.

Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because the pilot of the AW169 had not adapted their dynamic plan sufficiently to have met the needs of the situation.

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 AW169 until it had been visually acquired.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the EC equipment fitted to each aircraft would not have been expected to have detected the presence of the other aircraft.

⁴ The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).

Airprox Barrier Assessment: 2023061 Outside Controlled Airspace

Barrier		Provision	Application	Effectiveness				
				Barrier Weighting				
				0%	5%	10%	15%	20%
Ground Element	Regulations, Processes, Procedures and Compliance	✓	✓					
	Manning & Equipment	✓	✓					
	Situational Awareness of the Conflicition & Action	✗	○					
	Electronic Warning System Operation and Compliance	●	●					
Flight Element	Regulations, Processes, Procedures and Compliance	✓	✓					
	Tactical Planning and Execution	✓	!					
	Situational Awareness of the Conflicting Aircraft & Action	✗	✓					
	Electronic Warning System Operation and Compliance	✗	✓					
	See & Avoid	✓	✓					
Key:		Full	Partial	None	Not Present/Not Assessable	Not Used		
Provision	✓	!	✗	●				
Application	✓	!	✗	●	○			
Effectiveness								