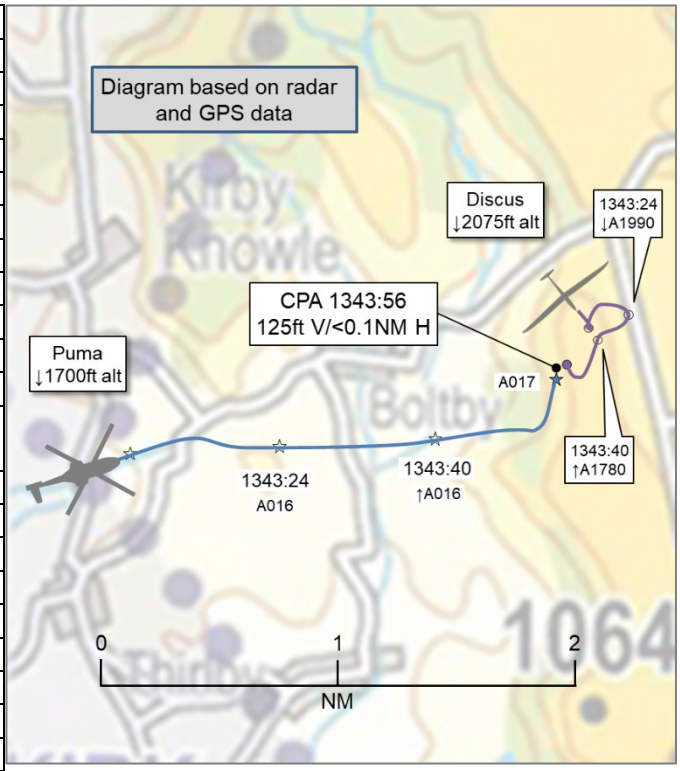
AIRPROX REPORT No 2022010

Date: 10 Feb 2022 Time: 1344Z Position: 5416N 00113W Location: 2.5NM N Sutton Bank

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Puma	Discus
Operator	HQ JHC	Civ Gld
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Basic	Listening Out
Provider	Leeming Approach	Sutton Bank
Altitude/FL	1700ft	1825ft
Transponder	A, C, S	Not fitted
Reported		
Colours	Green	White
Lighting	Nav, Strobe, Landing	None
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	1500FT	1700ft
Altimeter	QNH (1022hPa)	QNH (NK hPa)
Heading	090°	270°
Speed	NR	60kt
ACAS/TAS	TAS	FLARM
Alert	None	None
Separation at CPA		
Reported	NR V/75m H	200ft V/100m H
Recorded	125ft V/<0.1NM H	



THE PUMA PILOT reports that whilst transiting from [departure airfield] to [destination airfield] at 1500ft AMSL, a traffic contact was passed to them by Leeming approach in their 11 o'clock, passing left-to-right at a similar altitude. The contact was quickly identified as a glider and avoiding action was taken to the left to pass behind it. Once in the left-hand turn, a second glider, trailing the first at approximately 400m, was identified and the turn was tightened to approximately 45° of bank to avoid it. Once in this tightened turn, the second glider then turned right directly towards them and an immediate descent was initiated to avoid it. The perceived distance of the glider at its closest point (overhead) was approximately 75-100m. It is their opinion that the glider pilot had not seen them at all and only became aware there had been an Airprox after they subsequently reported it to Leeming Approach. During this event their TAS (which functioned perfectly during the rest of the sortie) did not pick the gliders up once which, they believe, was due to them either not having a transponder fitted or they had it turned off. The event was reported and sortie continued.

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

THE DISCUS PILOT reports that the ridge north of Sutton Bank was producing good lift with up to 6 gliders [in the area] at any time. They had just sampled a thermal which had taken them behind the ridge in the strong (30kt) wind. As they headed west back to the ridge lift, they saw a helicopter about 3-4NM away on a reciprocal heading, climbing slowly. They did not turn away from the helicopter when they first saw it as they were in sinking air, about 300m behind the ridge, about 700-800ft agl, and were battling into a very strong wind and they needed to get back to the rising air at the ridge on the most direct track to avoid having to land in a field. On reaching the ridge lift, they turned left to increase separation. At that point they suspect the helicopter pilot saw them and also turned slightly left. As it passed, they reversed the turn to continue northwards along the ridge. The helicopter resumed an easterly track. [The glider pilot notes that] the glider would have been very difficult to see head on, but

much easier when they turned and presented the wing planform, which they suspect is when the helicopter pilot saw them. [They suggest that] perhaps the helicopter pilot might wish to avoid working ridges close to gliding clubs in future.

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

THE LEEMING APPROACH CONTROLLER reports that a Puma departed RAF Leeming, VFR to the east. A Basic Service was agreed, the air system was identified using a discrete mode A SSR code and the Mode C was subsequently verified. On leaving the MATZ the local RPS was issued. Traffic was called to the east, 1NM, manoeuvring no height information, a possible glider. A few minutes later the Puma pilot passed details of an Airprox over the radio. Shortly afterwards a glider pilot (Glider c/s) called the LARS VHF frequency stating that if the air system reporting the Airprox was a Puma, then they were [the glider] involved but didn't feel that safety was compromised. [The controller believes that] the glider pilot must have been operating a listening watch of the local LARS frequency and made two-way comms after the incident.

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

THE LEEMING SUPERVISOR reports that they were in the ACR at the time of the incident. The controller had called timely Traffic Information to the Puma pilot who was operating close to a known glider site under a Basic Service.

Factual Background

The weather at RAF Topcliffe was recorded as follows:

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METAR EGXZ 101350Z AUTO 25016KT 9999 SCT033/// 07/00 Q1017
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Analysis and Investigation

Puma Operating Organisation Investigation

As part of the investigation the event was discussed with the Puma captain (also handling pilot) and a review of the GPX trace was undertaken.

The sequence of events was found to be as reported. Although the GPX file showed minor variation in the reported altitudes and sequence of turns (i.e. inputs), the lag on the system and the unverified nature of the information makes it advisory only. Regardless, none of the GPX data contradicts or changes the narrative of events to any significance.

Findings

The lack of transponder (or lack of signal) on the glider removed some of the more effective barriers to MAC, the TAS fitted to the Puma only detects transponding aircraft and the ATC service could have given more accurate information on transponding aircraft. The timely Traffic Information from the Leeming Approach controller assisted with the initial lookout of the crew, their lookout then detected the second aircraft and timely reactions appear to have prevented further reduced safe separation or worse. Gliding aircraft are a known and common hazard to military aircraft, maintaining a good lookout is key to prevent a loss of safe separation, however ATC, TAS and known areas of activity can assist the lookout process and reduce overall likelihood.

The technical fit of civilian aircraft is outwith service control however, this does serve as a timely reminder of the need for effective lookout and, where possible (although not always an option) route planning to avoid known areas of gliding or civilian activity.

It is not the remit of this investigation to determine the reasoning behind the actions of a civilian aircraft. However the turn towards traffic of the second aircraft greatly increased the likelihood of a

loss of safe separation, if this was done whilst unaware of the Puma's relative position then the lack of situational awareness would be a contributory factor.

Military ATM

An Airprox occurred on 10 Feb 22 at approximately 1345 UTC, in the Vale of York between a Puma and a Glider. The Puma pilot was in receipt of a Basic Service from Leeming Approach and the Glider pilot was not in receipt of a service.

The Leeming Approach controller was providing a Basic Service to the Puma pilot as they departed from Leeming on a VFR departure to the east. Upon leaving the MATZ the Puma pilot was given the regional pressure setting which was followed by Traffic Information on an aircraft that was manoeuvring with no height information. The Puma pilot reported visual, reporting the Airprox shortly afterwards.

The Leeming Supervisor was in the approach control room at the time of the Airprox and reported that the Puma was operating close to a known glider site and that Traffic Information which was passed had been timely.

The Glider was not detected by the NATS radars therefore, there are no screenshots of the Airprox provided. The Glider was detected by the Leeming radar as Traffic Information was passed however, there is no ability to replay the radar data. Additionally, it was reported by ATC that the Glider was not displaying on their situational awareness tool limiting the availability of information for the controller.

Traffic Information was provided by the Leeming Approach controller that enabled the Puma pilot to become visual with the Glider. Traffic Information was not passed on the second glider as this was not detected by the Leeming radar therefore the controller was unaware of its presence. The Glider was not displaying on the additional Situational Awareness tool in use in Leeming ATC however the Glider pilot was listening to the Leeming frequencies, although this was unknown to the controller at the time.

UKAB Secretariat

The Puma and Discus 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 Puma pilot was required to give way to the Discus.[3]

Comments

JHC

This Airprox continues to highlight the importance of crew lookout as the last barrier against MAC, especially when operating in airspace with other users which do not have a fitted transponder. The Puma initiated avoiding action once visual with the primary contact which was called by Leeming ATC, believed to be a glider. The Airprox was against a Glider which was operating independently behind the glider called by Leeming, of which the crew was unaware when they initiated their turn. As the gliders weren't receiving an ATS from Leeming (only listening watch), ATC would have been unaware that there had been two gliders, which might have alerted further lookout to spot the Glider behind. It is noted that the ATM report mentions a situational awareness tool (SATCO Leeming confirmed this is Glidernet) also wasn't showing the Glider activity.

[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.
[3] (UK) SERA.3210 Right-of-way (c)(2) Converging. MAA RA 2307 paragraph 12.

BGA

When westerly winds exceed 15kts, the western edge of the North York Moors between Sutton Bank Airfield and Boltby Forest becomes very busy with gliders exploiting "ridge lift" (see red line on Figure 1). At these times up to 15 gliders continuously fly along this 4NM ridge line, typically below 1500ft agl; other traffic transiting the area can greatly reduce the chance of conflict with gliders by diverting around it, or passing over above 1500ft agl.

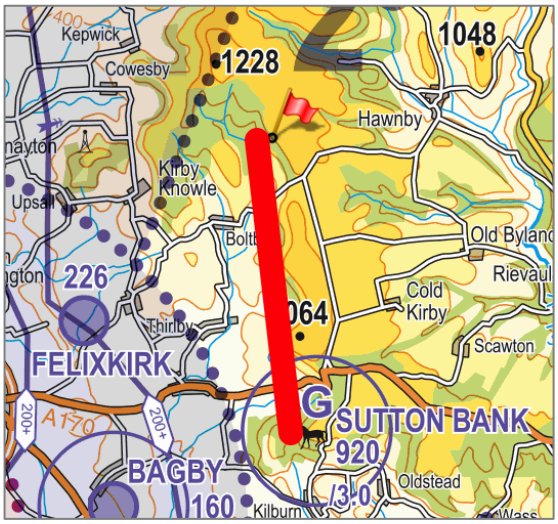


Figure 1

The high wind speeds, narrow band of rising air and ridge-soaring gliders' low flying height constrain the manoeuvres they can make to avoid other traffic if they are to remain airborne. In this incident the glider pilot sighted the Puma well before CPA, but the glider's height and position behind the ridge prevented its pilot taking early avoiding action. The Puma pilot's late sighting of the glider, coupled with the glider pilot's manoeuvre to both remain in rising air and keep the Puma in sight, caused the Puma pilot some anxiety. Mutually-compatible Electronic Conspicuity equipment in both aircraft could have given the helicopter pilot earlier warning of the glider's presence, and the opportunity to take the early avoiding action that the glider pilot could not.

The Leeming controller is to be commended for passing timely Traffic Information to the Puma crew on the primary contact that turned out to be the first glider. However, fibreglass gliders' primary radar return is notoriously faint, so it's not surprising that the second (Airprox) glider did not register on the controller's radar. It's very encouraging that Leeming uses an auxiliary (non-radar) tool to give controllers situational awareness of gliders; it would be useful to understand why it did not show the Airprox glider in this incident.

Summary

An Airprox was reported when a Puma and a Discus flew into proximity 2.5NM north of Sutton Bank at 1344Z on Thursday 10th February 2022. Both pilots were operating under VFR in VMC, the Puma pilot in receipt of a Basic Service from Leeming Approach and the Discus pilot not in receipt of an ATS.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

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

The Board first considered the actions of the Puma pilot and members were encouraged that, after becoming visual with the first glider, the pilot had maintained a diligent lookout, visually acquiring the second glider however, the puma pilot had become concerned by its proximity when they saw it turn

toward their position (**CF6**). Members discussed whether the Puma pilot had utilised any additional resources during their pre-flight planning to check for glider activity and a Military member stated that that is standard practice however, due to the time that had elapsed between the start of the sortie and the Airprox, it is likely that any information obtained would have been out of date. A glider pilot member commented that the ridge area to the north of Sutton Bank can be a popular gliding area is conditions such as these. Members noted that, although the pilot had received Traffic Information, that had related to the first glider and, combined with the fact that the EC equipment that had been carried on the Puma had been incompatible with that of the glider (**CF4**), the Board concluded that the Puma pilot had had no prior awareness of the presence of the glider (**CF3**).

Members next discussed the actions of the Discus pilot and a glider pilot member presented the board with a detailed explanation of the area of usable lift generated by the ridge in that location, following which members agreed that it had been reasonable for the Discus pilot to manoeuvre towards the lift which had taken them initially toward the Puma. Members went on to discuss the Discus pilot's turn toward the Puma, which had been made after the glider pilot had seen the Puma pilot turn away, and members agreed that, although this manoeuvre had not created a collision risk, it had caused some concern to the Puma pilot (**CF5**). Members again noted that the EC equipment that had been carried by the Discus pilot had been incompatible with the equipment on the Puma (**CF4**), which had contributed to the Discus pilot not being aware of the presence of the Puma prior to sighting it (**CF3**).

The Board then examined the involvement of Leeming approach and were extremely encouraged that, although it had related to a different aircraft, they had passed Traffic Information to the Puma pilot when they had been under a Basic Service. A Military ATC member stated that Leeming do have an additional situational awareness tool available to them however, on this occasion the Discus had not been detected, resulting in the controller having no awareness of its presence (**CF2**) and leaving them unable to detect the conflict (**CF1**).

Finally, the Board considered the risk involved in this Airprox. Members noted that the pilots of both of the aircraft had had no prior awareness of the presence of the other and that, although both aircraft had been carrying EC equipment, this had been unable to detect the other aircraft. However, both pilots had become visual with the other aircraft early enough to enable them to have taken effective avoiding action and, although safety had been degraded, members were satisfied that there had been no risk of collision. Consequently, the Board assigned a Risk Category C to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2022010			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Ground Elements			
	• Situational Awareness and Action			
1	Human Factors	• Conflict Detection - Not Detected	An event involving Air Navigation Services conflict not being detected.	
2	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			
3	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			
4	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			

5	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
6	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 Assessment[4]

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, as the Glider had not been detected by the equipment at RAF Leeming, the controller had had no awareness of its presence.

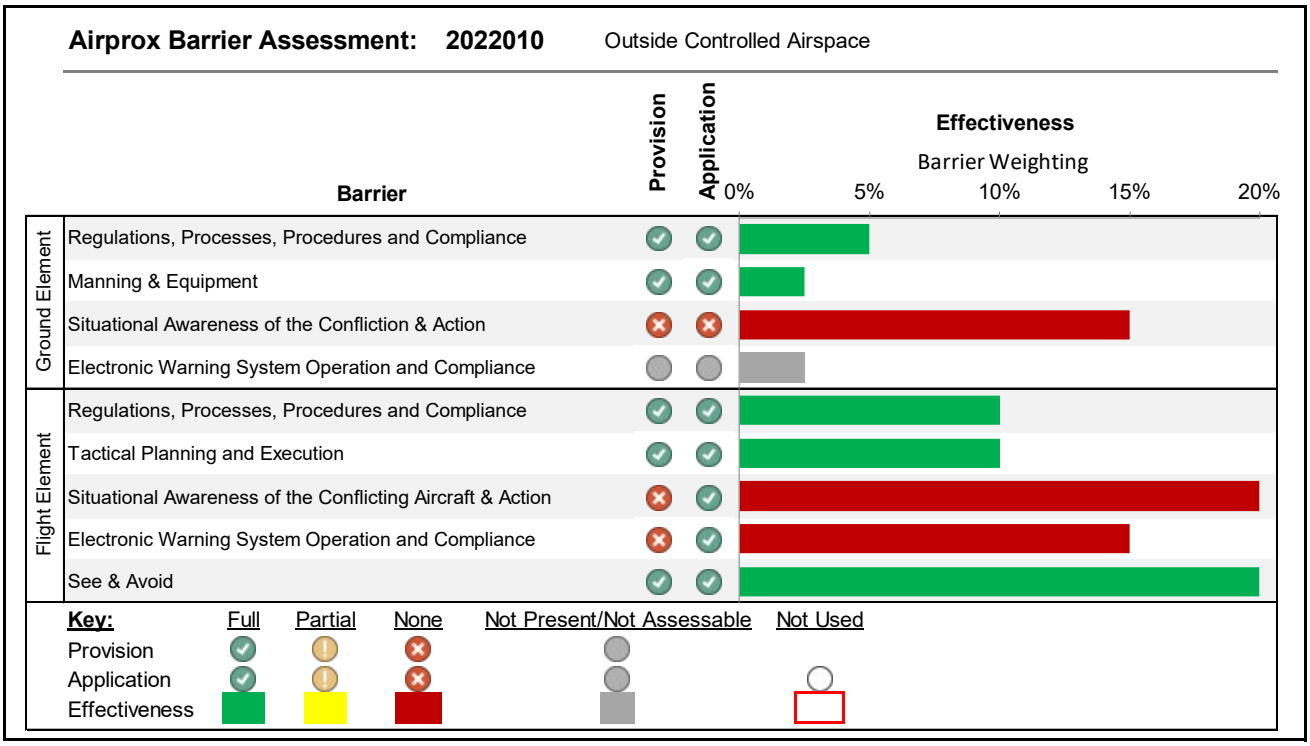
Flight Elements:

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because neither pilot had been aware of the presence of the other aircraft prior to sighting it.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the EC equipment that had been carried on each of the aircraft had been incompatible with the equipment on the other.

Follow this link to the CAAs webpage on Electronic Conspicuity Devices, guidance material and compatibility table:
https://www.caa.co.uk/General-aviation/Aircraft-ownership-and-maintenance/Electronic-Conspicuity-devices

[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: 2022010
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 Confliction & 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