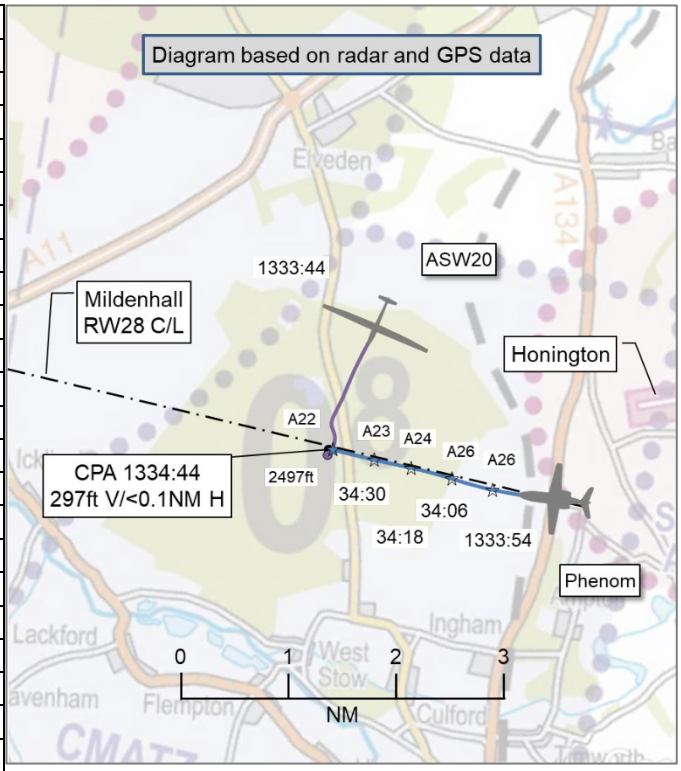
AIRPROX REPORT No 2022092

Date: 27 May 2022 Time: 1335Z Position: 5220N 00040E Location: Kings Forest

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Phenom[1]	ASW20
Operator	HQ Air (Trg)	Civ Gld
Airspace	Mildenhall CMATZ	Mildenhall CMATZ
Class	G	G
Rules	IFR	VFR
Service	ACS	None
Provider	Mildenhall	N/A
Altitude/FL	2200	2497ft
Transponder	A, C, S+	Not fitted
Reported		
Colours	White, blue	White, blue
Lighting	Strobes, nav	Not fitted
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	1900ft	2600ft
Altimeter	QNH (1023hPa)	QFE (NK hPa)
Heading	283°	290°
Speed	130kt	60kt
ACAS/TAS	TCAS II	FLARM
Alert	None	None
Separation at CPA		
Reported	'200ft above'	300ft V/NK H
Recorded	297ft V/<0.1NM H	



THE PHENOM PILOT reports established on the RW28 ILS at Mildenhall at about 6 miles. The aircraft Captain, operating as PM in the right-hand seat, saw a glider which passed directly overhead the aircraft from right-to-left, approximately 200ft above. Nothing was seen on TCAS and no traffic had been reported by Mildenhall. The traffic was notified to Mildenhall and the ILS approach was continued.

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

THE ASW20 PILOT reports on a 300km cross-country attempt. Lakenheath/Mildenhall were NOTAM'd as closed so several gliders took the opportunity to task through the region. Despite good initial progress into the strong wind, wave interference meant that they experienced a lot of sink just after they passed Honington, and had to turn back and stop to circle several times in that area before abandoning the task and heading back to [departure airfield]. While they were manoeuvring in the area, they saw a 'bizjet' after it had passed below (from left-rear to right-front). They were not alarmed as the vertical separation was adequate, although its path suggested there had been little horizontal separation. They estimated the vertical separation at 300ft but that could be inaccurate because they had no familiarity with the aircraft type or size. They did not hear the other aircraft at any stage. The other aircraft did not show any sign of a change in level or heading while it was visible to them.

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

THE MILDENHALL TOWER CONTROLLER reports that [Phenom C/S] was on 5-6 mile final to RW28 when they reported that they had passed 200ft under a glider. The controller relayed the information to Lakenheath Approach Control, who replied that they had not seen a glider on scope and would advise any other arrivals of the report.

[1] Royal Air Force designation for the Embraer EMB-500 Phenom 100.

THE LAKENHEATH RAPCON CONTROLLER reports that [Phenom C/S] was in receipt of a Traffic Service when they were cleared for the approach and switched to Mildenhall Tower at 1333. After reviewing the radar playback, no targets were observed on or near their path as they made their ILS approach to RW28 at Mildenhall.

Factual Background

The weather at Mildenhall was recorded as follows:

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METAR EGUN 271356Z 31012KT 9999 BKN050 17/06 A3022 RMK AO2A SLP237 T01680056=
METAR EGUN 271256Z 30014KT 9999 BKN050 BKN180 17/05 A3022 RMK AO2A SLP237 T01710048=
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The following NOTAM were relevant to Lakenheath:

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U3057/22
Q) EGTT/QFALC/IV/NBO/A/000/999/5225N00034E005
A) EGUL B) FROM: 22/05/26 17:00 TO: 22/05/31 05:00
E) AERODROME CLOSED. FLIGHTS DURING CLOSURE PERIOD MUST HAVE AN
OPERATIONAL NECESSITY OR BE A HIGHER HEADQUARTERS DIRECTED MISSION
AND MUST BE APPROVED BY 48 OPERATIONS GROUP COMMANDER.

U3058/22
Q) EGTT/QSPLT/IV/BO/AE/000/031/5225N00034E005
A) EGUL B) FROM: 22/05/26 17:00 TO: 22/05/31 05:00
E) LAKENHEATH RADAR APPROACH CONTROL ON CALL. CONTACT 48 FIGHTER WING
COMMAND POST.
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The following NOTAM was relevant to Mildenhall:

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U1815/22
Q) EGTT/QFALC/IV/NBO/A/000/999/5222N00029E005
A) EGUN B) FROM: 22/05/26 22:00 TO: 22/05/31 05:00
E) AERODROME CLOSED. FLIGHTS DURING CLOSURE PERIOD MUST BE PRIOR
APPROVED AIRCRAFT, HAVE AN OPERATIONAL NECESSITY OR BE A HIGHER
HEADQUARTERS DIRECTED MISSION AND MUST BE APPROVED BY 100
OPERATIONS GROUP COMMANDER. CONTACT COMMAND POST AT 238-2121 DURING
CLOSURE FOR APPROVAL/PPR REQUESTS. CONTACT AIRFIELD MANAGEMENT
OPERATIONS AT 238-4130 PRIOR TO CLOSURE DATE FOR APPROVAL/PPR
REQUESTS.
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Analysis and Investigation

UKAB Secretariat

The Phenom and ASW20 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.[2] If the incident geometry is considered as converging then the Phenom pilot was required to give way to the ASW20.[3]

The UK AIP ENR 2.2 states:

> '2.1.6 A MATZ is operative when the aerodrome concerned, or in the case of a CMATZ, any one of the aerodromes, is open. Normally, the Controlling Aerodrome ATC Unit for a CMATZ is to remain open while any one of the aerodromes in the CMATZ is open for flying. Alternatively, the Controlling Aerodrome is to delegate overall responsibility to the aerodrome remaining open, including arrangements for operating the CMATZ frequency.'

[2] (UK) SERA.3205 Proximity. MAA RA 2307 paragraphs 1 and 2.
[3] (UK) SERA.3210 Right-of-way (c)(2) Converging. MAA RA 2307 paragraph 12.

2.3.1 A MATZ Penetration Service will be available during the published hours of watch of the respective ATS Units. However, as many units are often open for flying outside normal operating hours, pilots should call for the penetration service irrespective of the hours of watch published. If, outside normal operating hours, no reply is received after two consecutive calls, pilots are advised to proceed with caution.'

Comments

HQ Air Command

This Airprox was subject to a Local Investigation. There was obviously some confusion over the NOTAM from the pilot of the ASW20 due to some ambiguity and confusing language used within the NOTAM, leading them to think that both Lakenheath and Mildenhall were closed. This was proven not to be the case on this occasion and their flight path went through the 'pan handles' of the MATZ of the active runway. Although recognition of a MATZ by civil pilots is not mandatory, they are strongly encouraged to request a MATZ crossing as this will help to improve overall situational awareness. Flying close to an airfield and across the flight path of an active runway can be risky, particularly as it is an intense part of the flight for the pilots on the approach. On this occasion, the wording from the NOTAMs led the ASW20 pilot to believe that it was clear airspace. It is imperative that NOTAMs lead to no ambiguity to assist all aviators reading them.

It was a late spot by the crew of the Phenom as the glider wasn't visible on the ATC radar or their TCAS; thus proving that see and avoid is still essential, even when in the confines of the MATZ. However, the DDH did note 'the absence of a suitable transponder in the glider rendered the Phenom TCAS II system redundant. That said, the glider may have been carrying [other electronic conspicuity devices] and as such I have directed a feasibility study into the fitting of these systems to the Phenom.'

USAFE

Thanks to the Phenom crew reporting the incident on the R/T the ATS staff were able to carry out further checks for traffic and provide generic Traffic Information to other traffic. It is a shame the glider pilot chose not to speak to Lakenheath Radar, as many regularly do when transiting along a similar route. Had they spoken to Lakenheath Radar they would have been offered a non-surveillance Basic Service and relevant Traffic Information could have been passed. The USAF was observing the US holiday, (Memorial Day) with a 4-day weekend (27-30 May). This resulted in operations being limited to those supporting operational missions only. The NOTAMs issued were intended to notify potential arrivals that the aerodromes were closed to routine missions and PPR would only be given to those ordered by higher headquarters. It is recognised that the military terminology included may not have made the intent explicitly clear to other air users. In line with ENR 2.2, para 2.1.6 Lakenheath Radar will always be opened to support the arrival and departure of aircraft to both bases. RAF Mildenhall was operational all day with over 20 movements. USAF welcomes and advises contact with Lakenheath Radar from all civil pilots transiting within 20 miles of RAF Lakenheath and regularly enables gliders safe transit of the RW28 approach at Mildenhall. RAF Mildenhall is operational '24/7 365' and will continue to support daily missions to and from Europe and Africa.

BGA

Pilots must be able to rely on NOTAMs, so it is essential that they are accurate and unambiguous. Self-evidently, the phrase "Aerodrome closed." should not appear in a NOTAM if there may be planned arrivals or departures from that aerodrome during the notified period. Given the volume of NOTAM information that GA pilots need to digest while flight planning, much of which is irrelevant and/or verbose, it is unsurprising that the full import of these NOTAMs was not picked up on.

Civilian pilots are not obliged to inform the Controlling Aerodrome ATC Unit of their intention to enter a MATZ or CMATZ. However, if the ATC Unit is operating then glider pilots who hold the legally-required Flight Radio Telephony Operator's Licence (FRTOL) are advised to do so.

Many military ATC Units have installed low-cost equipment that gives controllers instantaneous SA of nearby gliding activity based on gliders' EC transmissions. The BGA would be happy to advise Lakenheath Radar on this.

Summary

An Airprox was reported when a Phenom and an ASW20 flew into proximity over Kings Forest at 1335Z on Friday 27th May 2022. Both pilots were operating in VMC, the Phenom pilot under IFR in receipt of an Aerodrome Control Service from Mildenhall Tower and the ASW20 pilot under VFR 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, 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 discussed the actions of the glider pilot and were briefed by a gliding member that 8 pilots had flown the task that day, all of whom had read the NOTAMs and who had in fact chosen a task in that direction in the belief that Lakenheath and Mildenhall had been closed and would therefore not have associated traffic. They commented that the glider pilot(s) would likely not have been in that area at all if they had thought that Mildenhall or Lakenheath would have been active. The USAFE advisor briefed the Board that the form of words chosen for NOTAMs U3057/22 and U1815/22 was specific, in that it allowed USAF higher command to make decisions regarding justification and responsibility for flights operating into those aerodromes with much reduced base facilities. Members commented that human factors in aviation were well understood and that, with a plethora of NOTAM for every flight, a NOTAM commencing with the wording 'AERODROME CLOSED.' could result in the remainder of the NOTAM not being read, as was the case in this Airprox. Having said that, members also agreed that the NOTAMs were there to be read, that they did indicate there could be flights while the aerodromes were 'closed' and that apparently all 8 glider pilots had not assimilated that information (**CF5**). An ATC member noted that those bases had, in the past, been informally notified that the NOTAM wording could result in pilots misunderstanding the status of the airfields. After further discussion, the Board agreed that it was not simply a case of USAF accepting the associated risk of misunderstanding, but rather that NOTAM wording was of the utmost importance because their purpose was to help assure the safety of pilots, military and civilian, rather than the efficiency of an administrative procedure (**CF1**). The USAFE advisor resolved to communicate the Airprox Board's concerns to the relevant USAF personnel.

Members discussed the advice in the UK AIP that 'pilots should call for the [MATZ/CMATZ] penetration service irrespective of the hours of watch published' and that 'If, outside normal operating hours, no reply is received after two consecutive calls, pilots are advised to proceed with caution.'. Whilst this was a simple procedure for powered aircraft pilots, members noted that a glider pilot struggling to remain airborne may not have the capacity to communicate as such, assuming they held an FRTOL ['R/T licence'] at all. In this case the Lakenheath controller had not had situational awareness of the glider (**CF3**) and could not have detected the confliction because the glider did not appear on radar (**CF2**). A gliding member volunteered to engage with Lakenheath to appraise them of the advantages of utilising the software and simple hardware associated with the detection on the ground of signals from the EC equipment widely carried on gliders and display of such information, to the mutual benefit of all those concerned. For their part, the glider pilot had not communicated with Lakenheath or Mildenhall (**CF4**) due no doubt to the difficult conditions and, the Board felt, in the most part to the previously discussed human factors. Neither the glider nor Phenom pilots had had situational awareness of the other aircraft (**CF6**) and their EC had been incompatible (**CF7**). The Board noted the HQ Air Command quote that the DDH had 'directed a feasibility study into the fitting of [other electronic conspicuity devices] to the Phenom.' and commended them for doing so. The remaining barrier was see-and-avoid, but neither pilot had seen the other aircraft until at about CPA, effectively a non-sighting (**CF8**). Some members felt that safety had been much reduced but, after further discussion, the Board agreed that, in this case,

separation at CPA was such that, although closer than desirable, there had not been a material risk of collision.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2022092			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Ground Elements			
	• Regulations, Processes, Procedures and Compliance			
1	Organisational	• Aeronautical Information Services	An event involving the provision of Aeronautical Information	
	• Situational Awareness and Action			
2	Human Factors	• Conflict Detection - Not Detected	An event involving Air Navigation Services conflict not being detected.	
3	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			
	• Tactical Planning and Execution			
4	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
5	Human Factors	• Pre-flight briefing and flight preparation	An event involving incorrect, poor or insufficient pre-flight briefing	
	• Situational Awareness of the Conflicting Aircraft and Action			
6	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			
7	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			
8	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[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:

Regulations, Processes, Procedures and Compliance were assessed as **partially effective** because the ambiguous wording of the NOTAMs led the glider pilot(s) to believe there would be no traffic at Lakenheath or Mildenhall.

Situational Awareness of the Confliction and Action were assessed as **ineffective** because the Lakenheath controller could not detect the glider, which did not appear on radar.

Flight Elements:

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

Tactical Planning and Execution were assessed as **partially effective** because the glider pilot(s) did not assimilate the full content and meaning of the relevant NOTAMs.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because neither pilot was aware of the proximity of the other aircraft until sighted.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because each aircraft's EC equipment was incompatible with the other aircraft's.

See and Avoid were assessed as **ineffective** because each pilot saw the other aircraft at about CPA, effectively non-sightings.