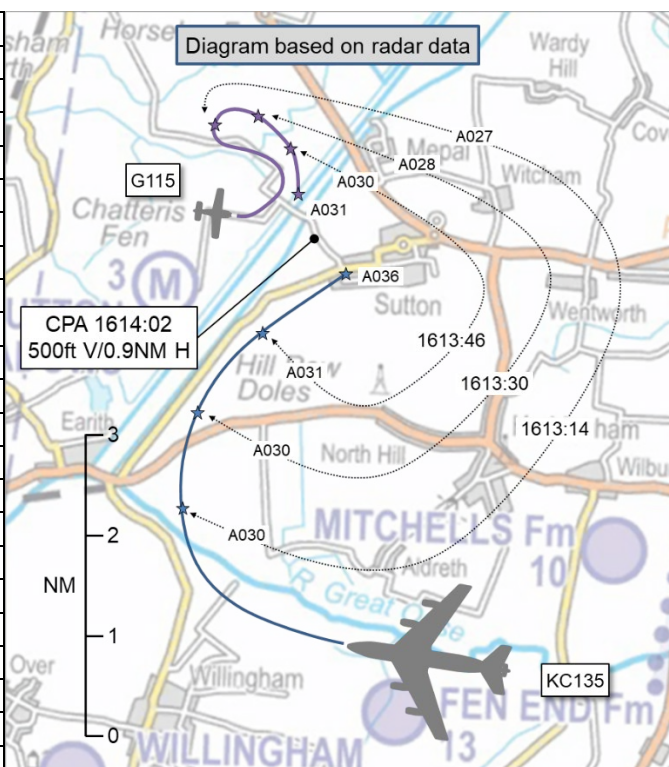


**AIRPROX REPORT No 2023097**

Date: 23 May 2023 Time: 1614Z Position: 5223N 00007E Location: 5NM W Ely

**PART A: SUMMARY OF INFORMATION REPORTED TO UKAB**

Recorded	Aircraft 1	Aircraft 2
Aircraft	KC135	G115
Operator	Foreign Mil	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	IFR	VFR
Service	Traffic	Listening Out
Provider	Lakenheath Appr	Fowlmere Radio
Altitude/FL	3600ft	3100ft
Transponder	A, C, S+	A, C, S
<b>Reported</b>		
Colours	Grey	White
Lighting	Nav	"yes"
Conditions	IMC	VMC
Visibility	<5km	>10km
Altitude/FL	3000ft	4000ft
Altimeter	QNH	QNH
Heading	280°	200°
Speed	200kt	105kt
ACAS/TAS	TCAS II	Not fitted
Alert	RA	N/A
<b>Separation at CPA</b>		
Reported	<500ft V/<2NM H	0ft V/1NM H
Recorded	500ft V/0.9NM H	



**THE KC135 PILOT** reports that they were flying radar vectors from the south to the IAF (IRDAB), and then to the ILS for RW10 at Mildenhall under a Traffic Service from Lakenheath Approach. They were on a downwind heading at 3000ft when Lakenheath Approach notified them of traffic approximately 700ft, high, type unknown. They had 3 crew members with eyes outside. They could not see the traffic but they found them on TCAS. ATC passed further information that the traffic was circling, possibly aerobatic. Weather conditions were: scattered cloud at 3000ft, and there was a cloud in front of them at approximately 4NM that may have been obscuring the traffic. They proceeded on the downwind-leg and saw the traffic on TCAS descend to 500ft above and still descending. [Approximately a minute-and-a-half later], ATC directed [the pilot of the KC135] to climb to 4000ft to avoid it. The co-pilot began the climb with the autopilot, and then they got a TCAS 'CLIMB, CLIMB' RA. They climbed to 4300ft before the RA advised 'Clear of conflict,' although they were still not visual with the traffic. The extra climb threw-off their descent profile for the approach so they flexed to a low approach and came back-around. ATC accommodated with short vectors to keep them clear of the traffic again, but then the traffic turned sharply back into their flight path and they had to be vectored farther away before they could come in for the approach.

[The pilot of the KC135 opines that] they feel like there was a risk of collision, and that the safety of the aircraft was compromised, mainly because of the RA and their non-sighting.

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

**THE G115 PILOT** reports that they were flying in an area southwest of Sutton to practise various aerobatic exercises. This is an area which is above the canals, with plenty of open space to reduce possibility of nuisance complaints. This airspace is not restricted and they were flying at an average height of 4000ft, squawking 7000 and below the cloud layer. They were about to head to [their destination] at approximately 1605, when they noticed a large military aircraft on their port-side, 11

o'clock position, approximately 1NM range, heading in the opposite direction and the same height as them. In terms of distance, they regarded there was sufficient safety margin, but adjusted their heading slightly to starboard and [the KC135] passed around 800m or more to their port-side and appeared to be turning slightly to their starboard. [The G115 pilot] wing-waggled to acknowledge that they had seen it. [The G115 pilot asks that], as they often see a number of gliders in this area, and there is the microlight field at Sutton Meadows, would it be acceptable for them to use the Mildenhall frequency in future to alert the [military] that they are operating in this area?

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

**THE LAKENHEATH CONTROLLER** reports that [the pilot of the KC135] was being vectored for the ILS into Mildenhall. [The pilot of the G115] wasn't communicating with Lakenheath, but appeared to be circling at 2400ft near the final approach fix (IRDAB) for Mildenhall. Traffic was issued to [the pilot of the KC135] multiple times, at 10NM out, 4NM out and 3NM out, who picked up the aircraft on TCAS. [The pilot of the KC135] was issued vectors to avoid [the G115]. Two miles out from IRDAB, [the pilot of the G115] began to climb and turn directly into the path of the now descending KC135. [The pilot of the KC135] was issued a climb to 4000ft due to the potential collision with the light fixed-wing aircraft. The aircraft came within 1NM of each other, and less than 200ft [they recall].

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

**THE LAKENHEATH CHIEF CONTROLLER** reports that [KC135 callsign] was being radar-vectored (under a Traffic Service) south of Mildenhall for an ILS approach to RW10 at Mildenhall. There was a civil aircraft orbiting over IRDAB (12DME west of Mildenhall on final). At 1611:35, the controller issued Traffic Information when [the pilot of the KC135] was 10NM away from the civil aircraft. They were not in communication with the civil aircraft. At 1612:30, the controller issued vectors to avoid the aircraft (as [the pilot of the KC135] reported not being visual), to a shorter final. The civil aircraft turned erratically back towards Mildenhall and climbed, placing them in a direct confliction with the [KC135]. The controller issued more vectors to avoid at 1613:18, when they were 3NM apart, with Traffic Information and, at 1613:36, issued a climb to 4000ft for [the pilot of the KC135] to avoid an imminent situation.

## Factual Background

The weather at Mildenhall was recorded as follows:

```
METAR EGUN 231555Z 04007KT 9999 FEW050 SCT180 BKN250 18/07 A3030 RMK A02A SLP264 T01760073  
$
```

## Analysis and Investigation

### UKAB Secretariat

An analysis of the NATS radar replay was undertaken and both aircraft could be positively identified from Mode S data (see Figure 1).

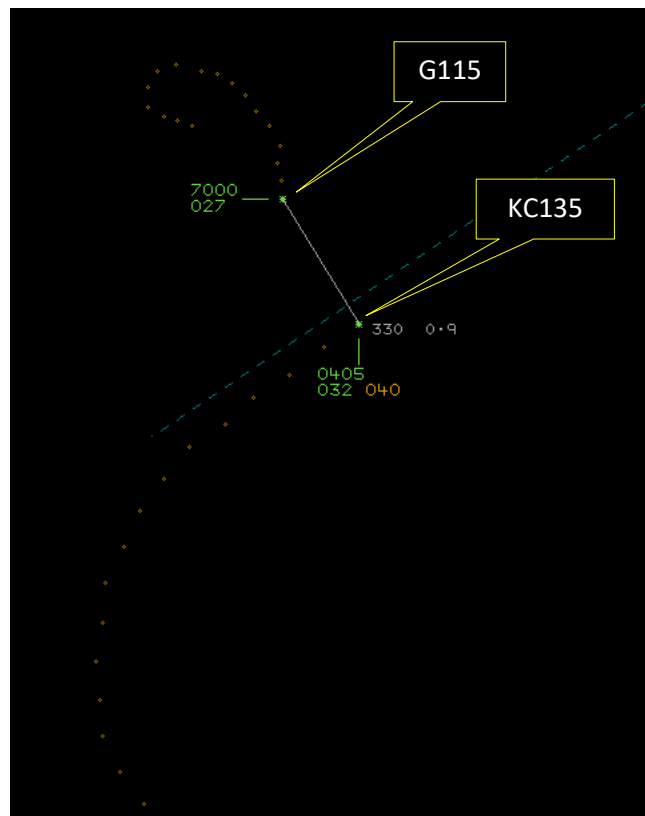


Figure 1 – CPA at 1614:02

The KC135 and G115 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.<sup>1</sup> If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right.<sup>2</sup> If the incident geometry is considered as converging then the G115 pilot was required to give way to the KC135.<sup>3</sup>

## Comments

### USAFE

This occurrence developed very quickly but was handled appropriately by both the ATC staff and the crew involved. The crew were locally-based and are well briefed on Class G operations in the terminal area. The RW10 approach, joining via the south, results in a fairly close-in joining procedure due to the proximity of controlled airspace. It is standard procedure for the controllers to descend pilots and to vector them onto a downwind-leg prior to vectors to the IAF.

As is common with aerobatic operations, the flight path of [the G115] was unpredictable. As such, the controller had to constantly update their plan after the traffic was reported as not sighted by the KC135 crew, which resulted in deconfliction advice in the form of multiple turns followed by a climb to maintain safe separation against the non-cooperative traffic.

Overall, normal safety parameters pertained due to the effective control instructions and the TCAS RA. It was noted that the aircraft was not squawking the aerobatic conspicuity code which may have assisted the controller. Despite having no prior contact with [the G115 pilot], the controller [attempted] to establish contact by using the Mode S callsign displayed on the radar.

Following the report, the operator of [the G115] was contacted, who was very receptive and understanding, and the instrument procedures in the area were discussed. The approach plate was

<sup>1</sup> (UK) SERA.3205 Proximity. MAA RA 2307 paragraphs 1 and 2.

<sup>2</sup> (UK) SERA.3210 Right-of-way (c)(1) Approaching head-on. MAA RA 2307 paragraph 13.

<sup>3</sup> (UK) SERA.3210 Right-of-way (c)(2) Converging. MAA RA 2307 paragraph 12.

sent to them and they reported that they would consider the information when briefing pilots in that operating area.

RAF Lakenheath Approach Control is happy to provide UK FIS to traffic in the area (VHF 128.900MHz). Heavy IFR traffic does operate outside the bounds of the CMATZ, in addition to high-energy manoeuvres/parachuting and lights-out operations at times.

## **AOPA**

This Airprox shows the importance of communicating with the appropriate Air Traffic Service Unit when executing high energy manoeuvres. A Traffic Service within a block of airspace could have been utilised which would have allowed situational awareness for all parties. Similarly, the use of the aerobatic conspicuity squawk, 7004, would have been beneficial.

## **Summary**

An Airprox was reported when a KC135 and a G115 flew into proximity 5NM west of Ely at 1614Z on Tuesday 23<sup>rd</sup> May 2023. The KC135 pilot was operating under IFR in IMC, in receipt of a Traffic Service from Lakenheath Approach, the G115 pilot was operating under VFR in VMC, listening out on the Fowlmere Radio frequency.

## **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.

The Board first considered the actions of the pilot of the KC135. Members noted that they had been in receipt of a Traffic Service and had been operating in intermittent IMC. It was agreed that the pilot had had situational awareness of the presence of the G115 on account of the several instances of Traffic Information that had been passed to them by the Lakenheath controller. The pilot of the KC135 had also been alerted to a potential conflict by a Resolution Advisory (RA) from their TCAS. Members appreciated that the pilot of the KC135 had been concerned by the proximity of the G115, and surmised that their concern had been exacerbated for the other aircraft had not been visually acquired.

Turning their attention to the actions of the pilot of the G115, members commended the consideration that had been given to minimise noise disruption on the ground. However, members noted that the location chosen (near to a MATZ stub) had been an area where it might have been reasonable to have expected to have encountered military traffic on an approach to Mildenhall. As such, members were in agreement that to have maintained a listening watch on the Fowlmere frequency had not been the most prudent choice. Members noted that the pilot of the G115 had not had situational awareness of the presence of the KC135 until it had been visually acquired, and that it may have been to the benefit of the situational awareness of both pilots, and indeed to any other pilots in the area, if contact had been made with Lakenheath Approach Control on the CMATZ frequency shown on VFR navigational charts. The use of an 'aerobatic squawk' was pondered and, although it was agreed that the Lakenheath controller had already been aware of the presence of the G115, and had noted that the G115 pilot appeared to have been performing aerobatics, it was suggested that the use of the dedicated aerobatic squawk (7004) may have provided some confirmation for the controller.

Summarising their deliberations, members were in agreement that the Lakenheath controller had provided sufficient Traffic Information and, ultimately, vectors to the pilot of the KC135 so that they had remained clear of a conflict. It was further agreed that the pilot of the G115 had acquired the KC135 in plenty of time to have considered the safest course of action, and commended their manoeuvre to have increased separation. As such, members were satisfied that normal safety standards had pertained and that there had been no risk of collision. Risk Category E was assigned. Members agreed on the following contributory factors:

- CF1.** The pilot of the G115 had not contacted the most appropriate Air Navigation Service Provider (ANSP).
- CF2.** The pilot of the G115 had not had situational awareness of the presence of the KC135 until it had been visually acquired.
- CF3.** The pilot of the KC135 had been concerned by the proximity of the G115.
- CF4.** The TCAS equipment fitted to the KC135 had provided a Resolution Advisory to the pilot.
- CF5.** The pilot of the KC135 had not visually acquired the G115.

### **PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK**

#### Contributory Factors:

2023097				
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
<b>Flight Elements</b>				
<b>• Tactical Planning and Execution</b>				
1	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
<b>• Situational Awareness of the Conflicting Aircraft and Action</b>				
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
3	Human Factors	• Unnecessary Action	Events involving flight crew performing an action that was not required	Pilot was concerned by the proximity of the other aircraft
<b>• Electronic Warning System Operation and Compliance</b>				
4	Contextual	• ACAS/TCAS RA	An event involving a genuine airborne collision avoidance system/traffic alert and collision avoidance system resolution advisory warning triggered	
<b>• See and Avoid</b>				
5	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: E.

#### Safety Barrier Assessment<sup>4</sup>

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 pilot of the G115 had not contacted the most appropriate ANSP.

**Situational Awareness of the Conflicting Aircraft and Action** were assessed as **ineffective** because the pilot of the G115 had not had situational awareness of the presence of the KC135 until it had been visually acquired.

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

<b>Airprox Barrier Assessment: 2023097</b>		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	✓	✓				
<b>Key:</b>		Full	Partial	None	Not Present/Not Assessable	Not Used	
Provision	✓	!	✗	●			
Application	✓	!	✗	●	○		
Effectiveness							