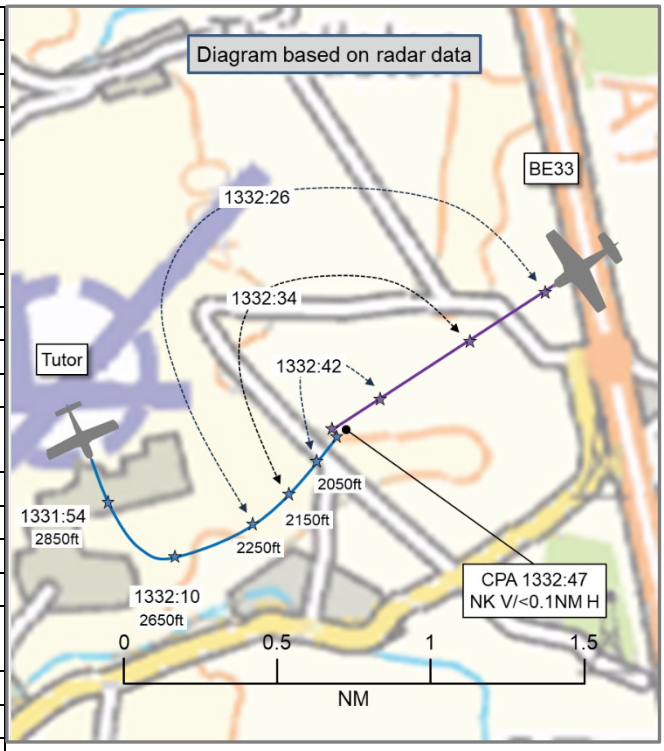
AIRPROX REPORT No 2024237

Date: 17 Sep 2024 Time: 1333Z Position: 5243N 00037W Location: Kendrew Barracks, Rutland

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Tutor	BE33
Operator	HQ Air (Trg)	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Traffic	Listening Out
Provider	Wittering Zone	East Midlands[1]
Altitude/FL	1950ft	NK
Transponder	A, C, S	A, S
Reported		
Colours	White	Red
Lighting	Strobes, landing, navigation	Strobes, beacon
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	1500ft	3000ft
Altimeter	RPS (1028hPa)	QNH (1032hPa)
Heading	Turning left through 040°	300°[2]
Speed	75kt	155kt
ACAS/TAS	TAS	Not fitted
Alert	TA	N/A
Separation at CPA		
Reported	100ft V/100ft H	200ft V/500m H
Recorded	NK V/<0.1NM H	



THE TUTOR PILOT reports to have been at 1500ft during a practice forced landing (utilising the disused runway at Kendrew Barracks as reference). A Traffic Advisory alert sounded in the cockpit with associated display on the TAS. The return did not have a height reference and was at the centre of the display. There had been no ATC warning and no history of returns on the TAS equipment, it appeared as a 'one-off' return. Immediately after the alert they had noticed a low-wing, red, civilian, single engine piston aircraft pass 100ft low and 100ft left (estimated) of their position in the left-hand seat. They could see clearly into the cockpit and passenger windows due to the proximity of the aircraft. It was travelling in the opposite direction to them. The Tutor pilot reported an Airprox on the Wittering Zone frequency and both cockpit occupants kept visual with the other aircraft as it progressed to the WSW maintaining its height. As the Tutor pilot had configured for a left hand PFL they consider there had been a high chance of collision due to their energy state and projected flight path (turning left and descending). After recovery to RAF Wittering they had called Wittering Zone (based at Marham) to confirm the details of the event.

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

THE BE33 PILOT reports that they were asked if they had seen the Grob Tutor and replied that they had clearly seen the aircraft which appeared to be on a reciprocal heading and did not consider it necessary to take avoiding action because there was little risk of collision and visibility was such as to

[1] Pilot displayed an East Midlands monitoring frequency and reports having been in communication with Marham, Lakenheath and Fenland at different times.
[2] Radar replay shows tracking to be ~240°

allow avoiding action to be taken should the other aircraft have significantly changed its height and heading.

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

THE WITTERING CONTROLLER reports that at 1320 they had taken over the Zone position as a screen to allow the current screen to take over Approach. They screened the current trainee on Zone for a further 10min before swapping out trainees to the ETATCC Cdr for training. It had been a very busy radar picture and the handover took a prolonged period of time to carry out relevant traffic and admin calls. Traffic intensity ranged from having 4-6 Tutors on under a Traffic Service with high traffic density in Sectors 3 and 4. On completion of the handover, the new ATCO on position had gone on to call previously called traffic that was applicable to a Tutor operating to the southwest. The confliction being called had been relevant for a risk of collision and the pilot responded as being visual with traffic to the southwest (this had not been the traffic painting on radar at that time). At this point, the trainee had reaffirmed the position of the traffic to which the pilot responded visual. This had taken a large portion of the trainee and the screen's attention due to the high priority. Whilst this was occurring, the screen had noticed and informed the controller of another relevant confliction that would affect the Tutor, (squawking 4572 with no height information). The screen instructed the trainee to call that traffic as their next transmission. The traffic call had been made by the controller at a range of 1NM with the aircraft displaying no height information. In hindsight, the screen felt that they should have intervened faster by transmitting directly over the controller. This would have perhaps provided the pilot with 1NM extra [earlier] situational awareness. The Tutor pilot, shortly after the traffic had passed them, declared an Airprox on frequency (344.600MHz).

Upon notification of the Airprox, the details provided by the Tutor pilot were that the (aircraft squawking 4572) was a red (coloured) aircraft and separation perceived by the pilot had been about 100ft. The Approach controller contacted East Midlands (the squawk allocation owner) for details of the confliction and to inform them that an Airprox was declared. The East Midlands controller informed the Wittering controller that the [pilot of the aircraft squawking] 4572 was visual with a Tutor in the vicinity of Cottesmore however didn't specify when. The [pilot of the] aircraft squawking 4572 appeared to recycle Mode C after they had been informed of the Airprox as height information had then become observable.

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

THE FENLAND AGO reports that they had reviewed their logs, and discussed the matter with the staff on duty at that time, and they have no record or recollection of either aircraft being in contact with them.

THE EAST MIDLANDS CONTROLLER reports that they have no recollection of the event as nothing was reported at the time of the event.

Factual Background

The weather at Wittering Airfield was recorded as follows:

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METAR EGXT 171320Z 03011KT 9999 FEW030 19/09 Q1032 RMK BLU=
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Analysis and Investigation

Military ATM

Utilising occurrence reports and information from the local investigations, outlined below are the key events that preceded the Airprox. Where available they are supported by screenshots to indicate the positions of the relevant aircraft at each stage. Screenshots are taken from Unit radar recordings and present the radar presentation of the Tutor and BE33 available to the Wittering Zone controller.

Prior to the Airprox, the Wittering Zone control position was being handed over between trainee controllers, whilst the instructor remained throughout. On frequency were three Tutors, including the

Airprox Tutor (Tutor 1), all in receipt of a Traffic Service whilst general handling in altitude blocks, along with a single Tutor conducting a low-level navigation sortie in receipt of a Basic Service. As a result of the number of aircraft on frequency and multiple requirements to pass Traffic Information, the controller handover was an elongated process.

Sequence of Events

At 1330:35, the outgoing Wittering Zone controller passed Traffic Information to the pilot of Tutor 2 who had been operating southeast of Wittering. The conflicting traffic had been at a range of 4NM with no height information displayed. Tutor 2 pilot acknowledged the Traffic Information and reported traffic not sighted.

At 1330:51, the outgoing Wittering Zone controller passed Traffic Information to the pilot of Tutor 3 who had been operating south of Wittering. The conflicting traffic was at a range of 4NM with no height information displayed and with a converging profile. Tutor 3 pilot acknowledged the Traffic Information and reported traffic not sighted.

At 1332:02, the outgoing Wittering Zone controller passed further Traffic Information to the pilot of Tutor 3. The conflicting traffic was at a range of 3NM with no height information and with an opposite direction profile. The pilot of Tutor 3 requested the Traffic Information to be repeated, which the outgoing Wittering Zone controller did.

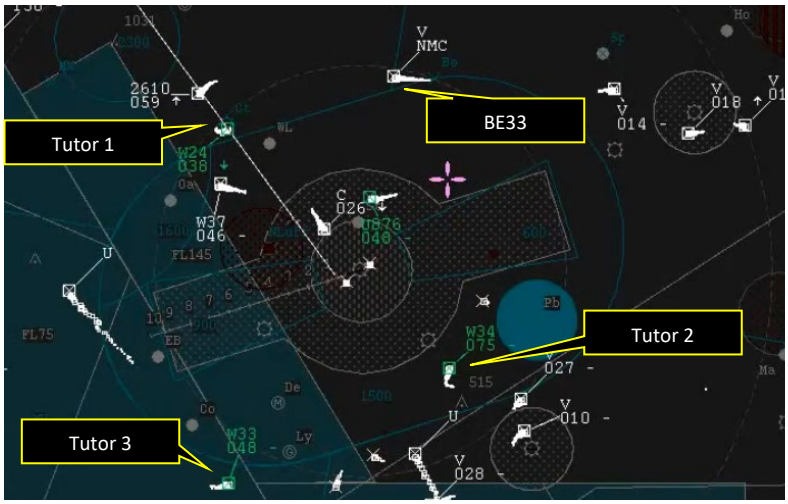


Figure 1 (1332:02). Traffic Information provided to the pilot of Tutor 3.
(Separation: Tutor 1 to BE33 2.9NM)

At 1332:22, the handover of Wittering Zone controllers was completed with the incoming Wittering Zone controller immediately updating the pilot of Tutor 3 on the previously called traffic, now at a range of 1NM with no height information. Tutor 3 pilot reported visual with the traffic.

At 1332:40, the Wittering Zone controller provided Traffic Information to the pilot of Tutor 1; "*traffic northeast 1NM, tracking southwest, faster moving, no height information".* The Tutor 1 pilot did not respond to the Traffic Information call.

Figure 2 (1322:40). Traffic information provided to Tutor 1.
(Separation: 0.7NM)

CPA occurred at 1332:47 and was recorded as 0.1NM with reported 100ft separation.

Local BM Investigation(s)

RAF Marham[3] conducted a local investigation following the event to identify the ATS-related causal/aggravating factors. The investigation found that whilst the Traffic Information provided to the pilot of Tutor 1 had been late, it had been because Tutor 3 had been prioritised for Traffic Information. The profile of the conflicting traffic for Tutor 3 had presented a potential confliction and the Wittering Zone controller had proceeded to update the Traffic Information to [the pilot of] Tutor 3 until a point that they were visual. Once the potential confliction for Tutor 3 was resolved, the controller commenced a traffic scan and immediately provided [the pilot of] Tutor 1 with Traffic Information at the earliest opportunity.

2 Gp BM Analysis

The actions of the Wittering Zone controller, whilst ultimately providing late Traffic Information to the pilot of the Airprox Tutor, were entirely justified in prioritisation of the Traffic Information to the pilot of Tutor 3. The combination of a repeated traffic call and an inability to acquire the traffic visually immediately had resulted in the controller being occupied for longer than they potentially could have been. Without these factors it may have enabled earlier Traffic Information to [the pilot of] Tutor 1 from an early traffic scan. Given the number of aircraft on frequency and the considerable number of aircraft within the AOR that presented conflicting traffic, it may have been beneficial for the Wittering Zone controller to have informed the aircrew to expect reduced Traffic Information due to controller workload. This would have ensured aircrew were aware of the potential for late Traffic Information through prioritisation of other aircraft, as was the case in this scenario.

[3] Wittering Radar is based at RAF Marham as part of the East Terminal Air Traffic Control Centre.

UKAB Secretariat

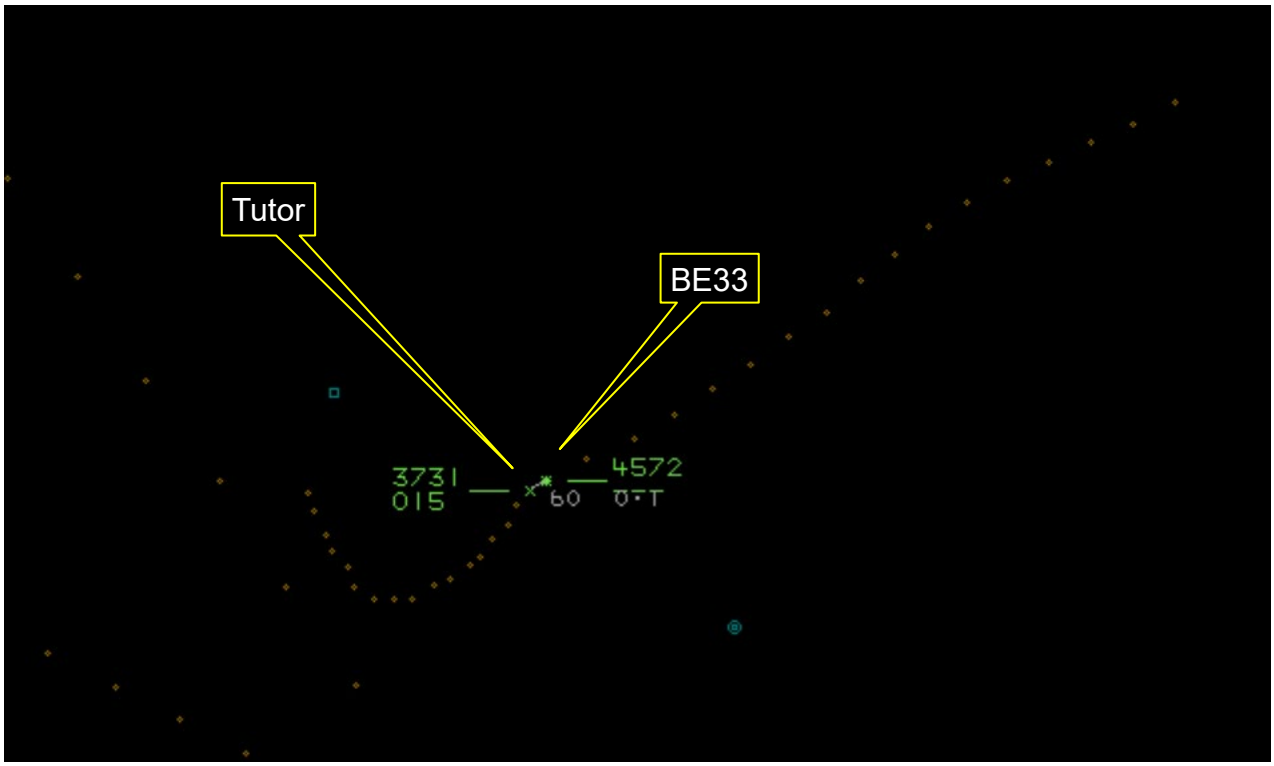


Figure 3: At CPA minus 1sec (1332:46) NK ft V/<0.1NM H

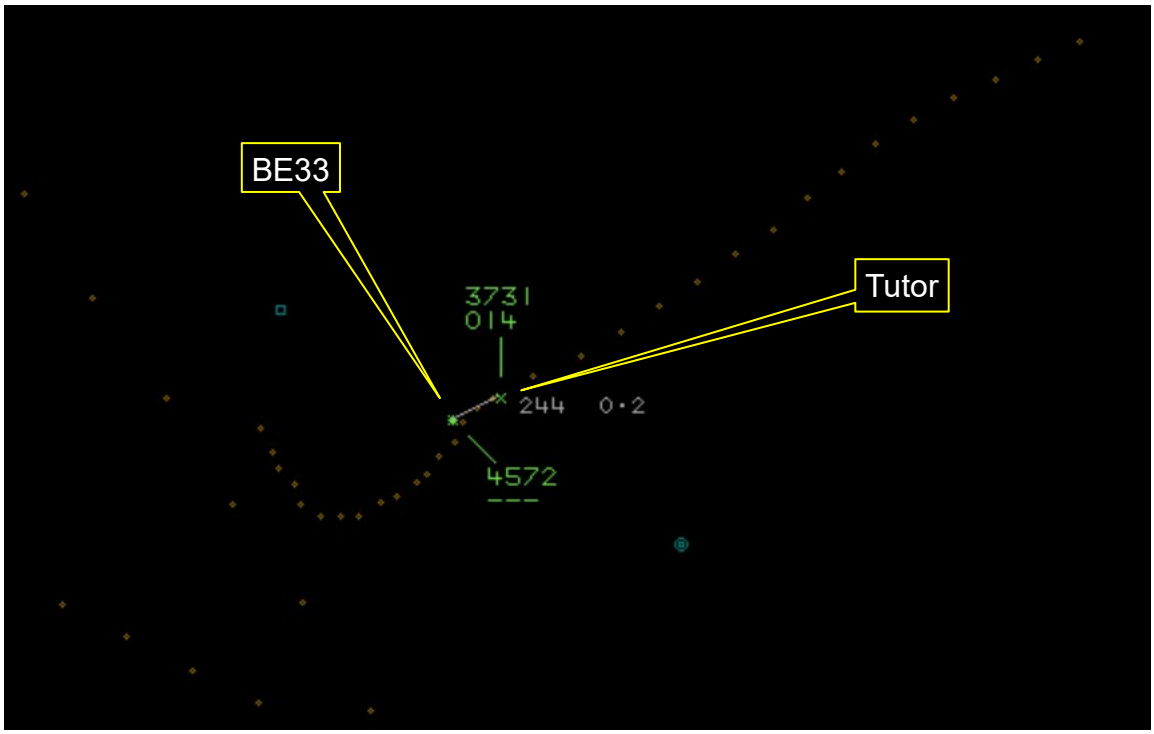


Figure 4: At CPA plus 3sec (1332:50)

The Tutor and BE33 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 head-on or nearly so then both pilots were required to turn to the right.[5]

[4] (UK) SERA.3205 Proximity. MAA RA 2307 paragraphs 1 and 2.
[5] (UK) SERA.3210 Right-of-way (c)(1) Approaching head-on. MAA RA 2307 paragraph 13.

Comments

HQ Air Command

This Airprox highlights some potential barriers to MAC between Class G airspace users. Firstly, the gap in LARS provision caused each aircraft to select a different frequency; Wittering Zone for the Tutor and East Midlands FMC for the BE33. There is an ongoing regulatory challenge here, where frequencies available for deconfliction are spread between non-LARS military radar units, FMC, Low-Level Common and SafetyCom. In the short term this is being addressed through joint military and civilian engagement measures, but in the longer term the CAA Airspace Modernisation Strategy should examine this. The lack of Mode C from the BE33 hindered Situational Awareness and denied a timely avoidance manoeuvre. It is clear that lessons have been identified by Wittering regarding the timeliness of Traffic Information provision to the Tutor. There is a difference of opinion between pilots over the safety of the distance at CPA, but the Tutor pilot's description would suggest this distance was much below the norm. Radar-derived CPA of <0.1NM when only one pilot is visual is a little too close to consider this normal.

AOPA

As stated in the HQ Air Command comment, the provision of LARS in this area is not optimal, which has been pointed out in numerous Airprox in this area. AOPA is heartened to see action is being taken in this respect. Whilst the radar coverage in this area is sub-optimal, AOPA would recommend that interim measures are considered to assist in avoidance of a mid-air collision whilst longer-term proposals are put in place.

Summary

An Airprox was reported when a Tutor and a BE33 flew into proximity at Kendrew Barracks at 1333Z on Tuesday 17th September 2024. The Tutor pilot was operating under VFR in VMC in receipt of a Traffic Service from Wittering Zone and the BE33 pilot was operating under VFR in VMC and had been Listening Out on the East Midlands Radar frequency.

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 firstly discussed the actions of the Tutor pilot, noting that they had been performing Practice Forced Landings at a disused airfield whilst under a Traffic Service with Wittering Zone. The aircraft had been equipped with a TAS which had alerted the pilot to the presence of the BE33 (**CF9**) at a very late stage (**CF8**) and following which the pilot had almost immediately visually acquired the BE33 very close to their position, which the Board considered to have been too close to perform any avoiding manoeuvre and deemed it to have been effectively a non-sighting (**CF11**).

Members moved on to consider the contribution from the BE33 pilot, noting that they had been Listening Out on the East Midlands Radar frequency and utilising their Monitoring Squawk. Members felt that the BE33 pilot could have drawn on the LARS service (**CF6**) provided by East Midlands to enhance their situational awareness when transiting this busy area where a number of Tutors had been operating at the time. The BE33 pilot had not carried EC equipment and that fact, combined with a passive radio service, had denied the BE33 pilot any situational awareness (**CF8**) of the presence of the Airprox Tutor. Following a telephone call between the two respective Air Traffic Units after CPA, the BE33 pilot had confirmed with the East Midlands controller that they had been visual with a Tutor in the area and the Board felt that they may have seen one of the others in the area and had then flown into conflict with the reporting Tutor (**CF10**).

In reviewing the actions of the Wittering controller, members acknowledged that, at the time of the Airprox, there had been a controller changeover with both being trainees, a high level of aircraft operating under a Traffic Service and an OJTI monitoring events. They recognised that the active controller had rightly prioritised the provision of Traffic Information to the pilots of the other 3 Tutors in the area but believed that the OJTI could have offered Traffic Information to the pilot of the Airprox Tutor at an earlier stage (**CF1**) whilst continuing to monitor the trainees. The distraction of having been controlling other Tutors in the area (**CF4**) had led to a late detection of conflict between the Airprox Tutor and the BE33 (**CF3**) and the subsequent late provision of Traffic Information (**CF2**) was partly factored by achieving only generic situational awareness of the BE33 (**CF5**) due to a lack of height information from its transponder.

When discussing the contribution from the East Midlands controller, members noted that the BE33 pilot had displayed a squawk for that unit and had maintained a Listening Watch but that the pilot had made no active communication with them. On telephone contact from Wittering, the East Midlands Controller had made contact with the BE33 pilot and confirmed that they had been visual with a Tutor. At that time, the BE33 pilot had recycled their transponder and it had then shown an altitude readout on radar (**CF7**). Members agreed that the East Midlands controller had done all that they could have in this event.

Concluding their discussion, members turned their attention to the determination of the risk of collision. Members noted that the BE33 pilot had no situational awareness of the presence of the Airprox Tutor before having become visual with a Tutor and had then flown close enough to the Airprox Tutor to cause concern for that pilot and, as the Tutor pilot had received only late EC indications and a very late sighting of the BE33, they felt that safety margins had been reduced much below the norm. Members were in agreement that there had been a risk of collision (**CF12**) and, accordingly, assigned a Risk Category B to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2024237			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Ground Elements			
	• Manning and Equipment			
1	Human Factors	• Recurrent/OJT Instruction or Training	Events involving on the job training of individuals/ personnel	
	• Situational Awareness and Action			
2	Human Factors	• ANS Traffic Information Provision	Provision of ANS traffic information	TI not provided, inaccurate, inadequate, or late
3	Human Factors	• Conflict Detection - Detected Late	An event involving the late detection of a conflict between aircraft	
4	Human Factors	• Task Monitoring	Events involving an individual or a crew/ team not appropriately monitoring their performance of a task	Controller engaged in other tasks
5	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			
6	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
7	Human Factors	• Transponder Selection and Usage	An event involving the selection and usage of transponders	
	• Situational Awareness of the Conflicting Aircraft and Action			
8	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			

9	Contextual	• Other warning system operation	An event involving a genuine warning from an airborne system other than TCAS.	
	• See and Avoid			
10	Contextual	• Loss of Separation	An event involving a loss of separation between aircraft	Pilot flew into conflict
11	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			
12	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 Assessment[6]

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

Ground Elements:

Manning and Equipment were assessed as **partially effective** because the Wittering OJTI could have offered earlier Traffic Information to the Tutor pilot.

Situational Awareness of the Confliction and Action were assessed as **partially effective** because the Wittering controller had only generic situational awareness of the BE33 and, having detected the confliction late, had passed late Traffic Information to the Tutor pilot.

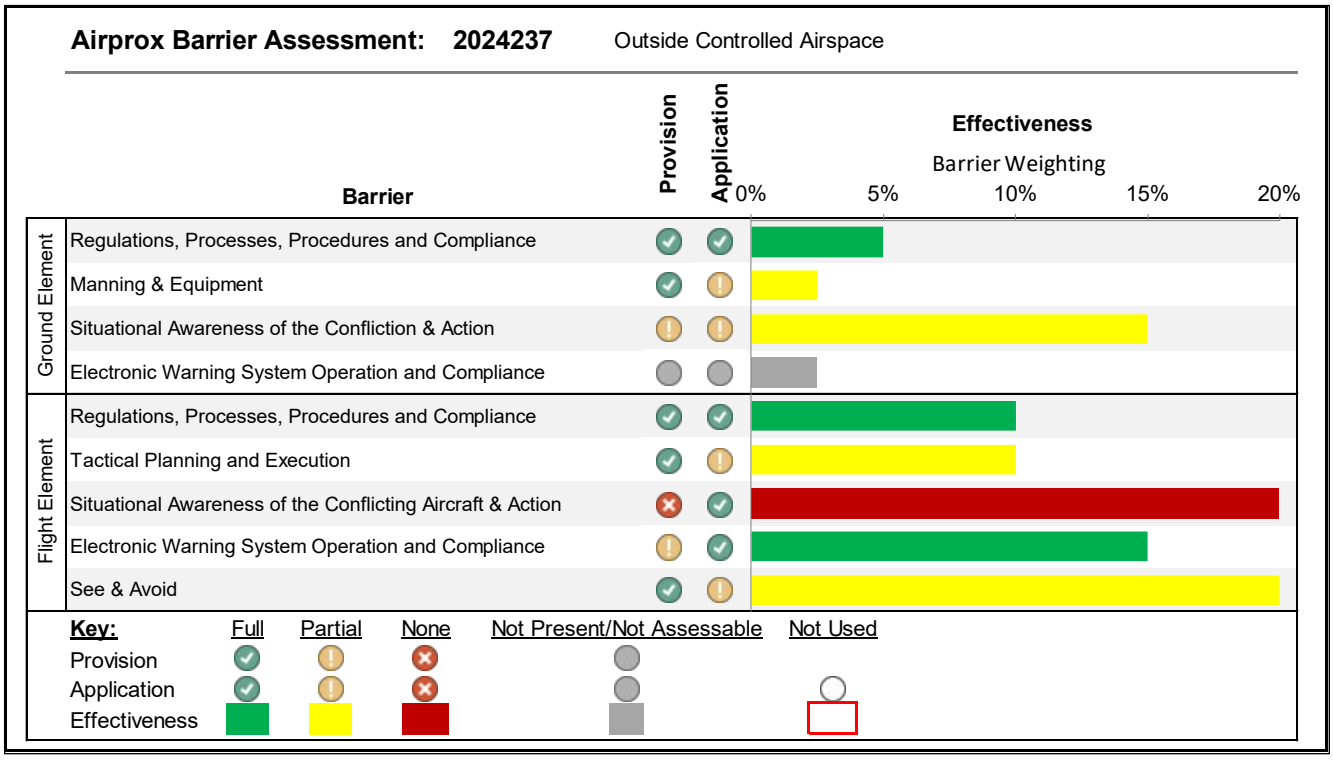
Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because the BE33 pilot could have utilised a Traffic Service from East Midlands LARS.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the Tutor pilot had only late situational awareness of the presence of the BE33 and the BE33 pilot had no situational awareness of the Tutor.

See and Avoid were assessed as **partially effective** because the Tutor pilot had achieved effectively a non-sighting of the BE33 and the BE33 pilot, having visually acquired the Tutor, had flown close enough to cause the Tutor pilot concern.

[6] 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: 2024237
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