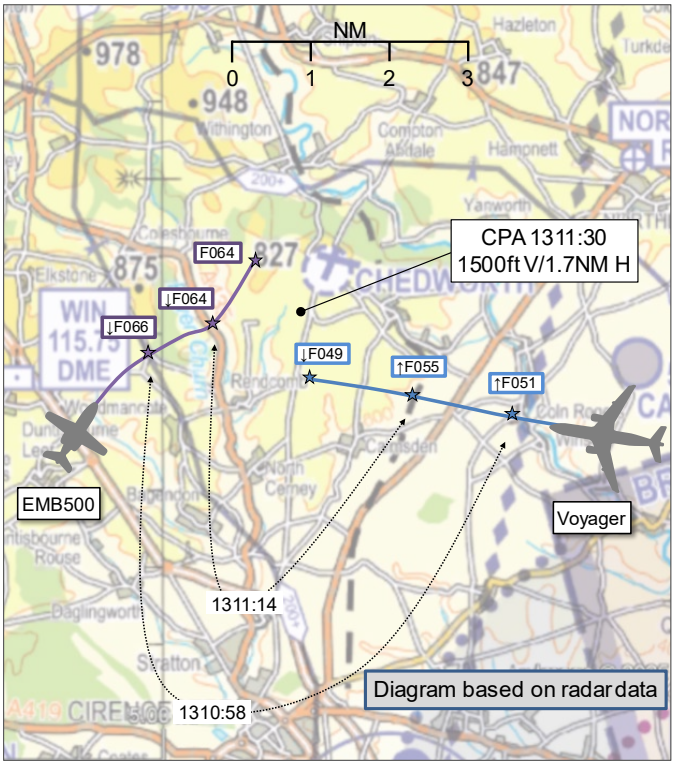
AIRPROX REPORT No 2024289

Date: 13 Nov 2024 Time: 1312Z Position: 5148N 00157W Location: IVO Chedworth

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Voyager	EMB500
Operator	HQ Air (Ops)	Civ Comm
Airspace	London FIR	London FIR
Class	G	G
Rules	IFR	IFR
Service	Traffic	Deconfliction
Provider	Brize Approach	Brize LARS
Altitude/FL	FL049	FL064
Transponder	A, C, S+	A, C, S+
Reported		
Colours	Grey	White
Lighting	Landing, Strobes, Nav, Beacon	'Standard'
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	FL58	FL65
Altimeter	SPS	SPS
Heading	280°	060°
Speed	250kt	210kt
ACAS/TAS	TCAS II	TCAS II
Alert	RA	RA
Separation at CPA		
Reported	800ft V/5NM H	Not Seen
Recorded	1500ft V/1.7NM H	



THE VOYAGER PILOT reports that, after a delay in getting out to the aircraft due to a late bus, and a prolonged start procedure caused by an inoperative APU, the flight took off slightly later than planned but still with enough time to comfortably make the first refuelling bracket in AARA 8. The take-off was uneventful. The aircraft was climbed to acceleration height, cleaned up routinely and, due to the good weather, the crew elected to take a Traffic Service from Brize Approach. After accelerating, the initially low height restriction of 3000ft given by ATC was removed, and the aircraft proceeded along the SID (NAXAT - Lichfield) climbing now to FL100. On approaching 3000ft QNH, the altimeters were set to the 'Standard' and the crew was given Traffic Information on an aircraft approximately 10 miles in the 2 o'clock position at a similar level. The crew took a moment to look for this traffic but, although it was monitored on TCAS, it was not sighted. Regardless, it was quickly climbed past and ceased to be an issue. Traffic Information was then passed on another aircraft approximately 3000ft above in the 12 o'clock, routing left-to-right at a range of around 10 miles. This traffic was monitored on TCAS and visually acquired. The PF elected to reduce the rate of climb to minimum permissible in IFR, but before the aircraft settled at the selected rate, the TCAS put out a TA: 'Traffic, Traffic.' The correct actions were carried out by the PF. ATC then gave further information on the traffic and suggested a left turn if the crew was not visual with it. The crew was visual with the traffic, but before a plan was formulated to increase the separation beyond what was already going to be accomplished, the TCAS put out an RA; initially 'Level Off' and then 'Descend, Descend.' Manual control was taken by the PF, the RA was correctly followed and ATC was informed accordingly. After the TCAS put out 'Clear of Conflict', the crew resumed the SID and carried on with the rest of the flight.

On reflection, this TCAS RA could have been avoided with a more sympathetic approach by the PF to pursuing IFR separation, even when in good VMC, and with prompter avoiding action. Despite the fact that the flight was on a SID, there was nothing to prevent an intermediate level off or heading change being carried out to ensure greater separation.

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

THE EMB500 PILOT reports that they had completed two arrivals over the two days, both times ATC was unsatisfactory. [The day before this Airprox] RNAV 09 Gloucester ATC seemed unsure of where the procedure started and were very slow in clearing them, needing several prompts. [On the day of the Airprox] the RNAV 27 resulted in another TCAS RA, with one of the Voyagers from Brize climbing out, although this was Brize's fault rather than Gloucester's. Brize also seemed unaware of where the procedures started and asked them to descend in a distance not possible. It felt like there was little communication and understanding between Gloucester and Brize. On both arrivals they were told to Squawk 7000, further reducing ATC's awareness of their position.

THE EMB500 SAFETY OFFICER reports that an ASR was filed by the crew and a company investigation conducted including discussions with crew members and Manager ATS at Gloucester Airport. Radar tracks were downloaded, including SSR from FlightRadar 24, to ascertain the sequence of events. [The EMB500 crew] was receiving a Deconfliction Service from Brize Radar when the event occurred and was being vectored toward an instrument approach at Gloucester. At 1310 [the crew] was given a radar track of 060° which placed the aircraft on a 45° crossing track to the outbound A330 Voyager. [The EMB500] was descending at 210kt IAS with a descent rate of 1280fpm. The crew was not advised of the outbound aircraft until approximately 5-10sec prior to the TCAS RA, at which point they were given a left turn of approximately 30° to avoid the opposing Voyager aircraft. The First Officer obtained visual contact with the opposing aircraft during this left turn. The TCAS CLIMB RA was received at 1311 and the crew followed the command, climbing at approximately 600fpm. The Voyager was presumably cleared to FL080 on the NAXAT SID, on a crossing track (approximate heading 280°) and appears to have been flying at 300kts, passing 5500ft, and climbing at 2400fpm at the time of the TCAS RA. They obviously received a TCAS descent, pitching down to descend at approximately 1900fpm before being clear of conflict.

THE BRIZE APPROACH CONTROLLER reports that they were working [Voyager C/S] outbound on the Lichfield SID and also an A400 inbound to Brize. The conflicting aircraft [EMB500 C/S] that prompted the TCAS RA was an airways leaver working Brize LARS with Deconfliction Service. The Brize LARS controller had coordinated their traffic by agreeing to avoid [the Voyager] by 3NM. Traffic Information was passed to the Voyager pilot when [the EMB500] was 12 o'clock 7NM, crossing left-to-right approximately 4000ft above. When it became evident that [the EMB500] was turning towards [the Voyager] still descending, Traffic Information was passed again (12 o'clock, 4NM, approximately 1000ft above) and they suggested that the Voyager pilot stop climb if not visual with the other aircraft. As they were completing the transmission, the TCAS alert could be heard and then the crew reported the RA.

THE BRIZE LARS CONTROLLER reports that an airways leaver, [EMB500 C/S], had been prenoted to Brize from Sector 23 inbound to Gloucester. Upon calling on the Brize Radar frequency, the trainee established that [the EMB500 pilot] required a Deconfliction Service outside CAS and instructed a descent to FL60 in order to leave CAS. They were aware that Brize Approach had a departure from RW25 [Voyager C/S] that would route towards NAXAT causing a potential confliction, and therefore instructed the trainee to stop descent FL80 with the intention to coordinate vertical separation with the Approach controller. The ATC Supervisor identified both tracks to them and instructed them to laterally separate by 3NM at which point they instructed the trainee to take further descent. They asked the Supervisor to prenote Gloucester to which they confirmed an RNP to RW27 via REKLO. They did not notice at the time, however, that the trainee passed this to [EMB500 C/S] who turned towards REKLO and into confliction as [Voyager C/S] climbed towards NAXAT. Once confliction became apparent, they instructed the trainee to issue an avoiding action turn to the north, following which they were advised by the pilot they had incurred a TCAS RA, as had the pilot of the Voyager. The aircraft were separated by approximately 1-2NM laterally, and probably 800ft vertically resulting in a loss of Deconfliction minima.

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

THE BRIZE SUPERVISOR reports that they co-ordinated by proxy with the Brize Approach controller to 3NM to allow the LARS UT controller and Instructor freedom to control the EMB500 in accordance with their terms of service. They prenoted to Gloucester and read back their controller's instructions over the landline; they did not hear the UT controller issue the instruction which they [the Supervisor] were reading back to Gloucester of 'own navigation via REKLO in the descent FL40'. Once they saw the EMB500 making its turn to the northeast, both they, and the screen controller, intervened to tell the UT to issue an avoiding action turn in order to avoid the climbing Brize departure. Once the aircraft took the turn, standard separation was achieved at the earliest opportunity.

Factual Background

The weather at Brize was recorded as follows:

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METAR EGVN 131250Z 34007KT 9999 FEW018 BKN250 10/06 Q1036 NOSIG RMK BLU BLU=
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Analysis and Investigation

Military ATM

At 1308:01, the EMB500 contacted Brize Norton Radar reporting in the descent to FL110 and routeing to Gloucester whilst requesting an RNP approach to RW27 at Gloucester for REKLO. The Brize Norton Radar controller instructed the EMB500 to continue as cleared with further descent to FL60, whilst also establishing that a Deconfliction Service would be required upon exit from controlled airspace.
At 1308:41, aware of the Voyager departure from Brize Norton RW25 and the conflicting profiles of the EMB500 and Voyager, the Brize Norton Radar controller instructed the EMB500 [pilot] to stop descent FL80. This was acknowledged by the EMB500 crew. Facilitated by the Brize Norton Supervisor, co-ordination was then agreed between the Brize Norton Approach and Radar controllers to maintain 3NM separation between the EMB500 and Voyager.

The Voyager had initially been restricted on departure to 3000ft Brize Norton QNH due to crossing traffic, however this had since been removed and the Voyager was established in the climb to FL100.
As the Voyager passed 3000ft, Traffic Information was provided by the Brize Norton Approach controller on traffic in their 2 o'clock, 10 miles similar altitude and further traffic, the EMB500, in their 12 o'clock, 10 miles, 3000ft above, crossing left-to-right ahead. The Voyager crew first monitored the EMB500 before then visually acquiring it.

At 1309:18, on behalf of the Brize Norton Radar controller, the Brize Norton Supervisor contacted Gloucester to inform them of the EMB500's position and request for the RNP via REKLO. Gloucester approved the EMB500 a direct route to REKLO in the descent to FL40 for the RNP.

At 1309:44, the Brize Norton Radar controller cleared the EMB500 "*route direct REKLO descent FL40*", which was acknowledged by the EMB500 crew.

At 1310:22, to provide vertical separation from traffic to the west of the EMB500, the Brize Norton Radar controller instructed the EMB500 to stop descent FL50. This was acknowledged by the EMB500 crew along with a request to confirm the altitude of the traffic.

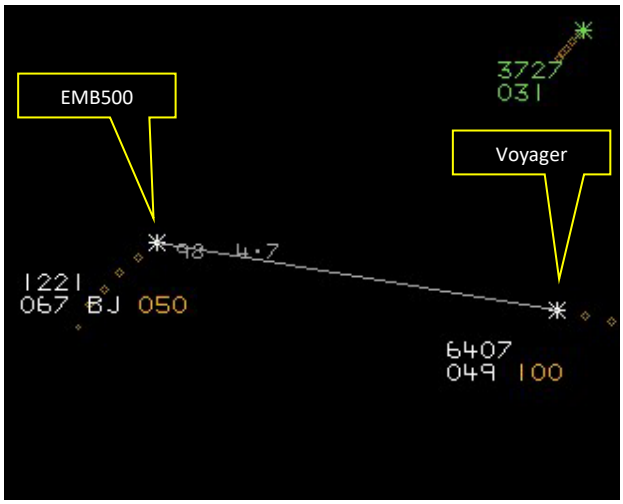


Figure 1 (1310:53). Avoiding Action issued to the EMB500.

At 1310:47, a Short-Term Conflict Alert regarding the EMB500 and Voyager was displayed to the Brize Norton Radar and Approach controllers. This coincided with the Brize Norton Approach controller providing updated Traffic Information to the Voyager [pilot] regarding the EMB500. Whilst, at 1310:53, the Brize Norton Radar controller, following intervention by the OJTI and Supervisor, issued the EMB500 [pilot] "*avoiding action turn left immediately heading 360°*", which was acknowledged immediately along with reporting the TCAS RA by the EMB500 crew.

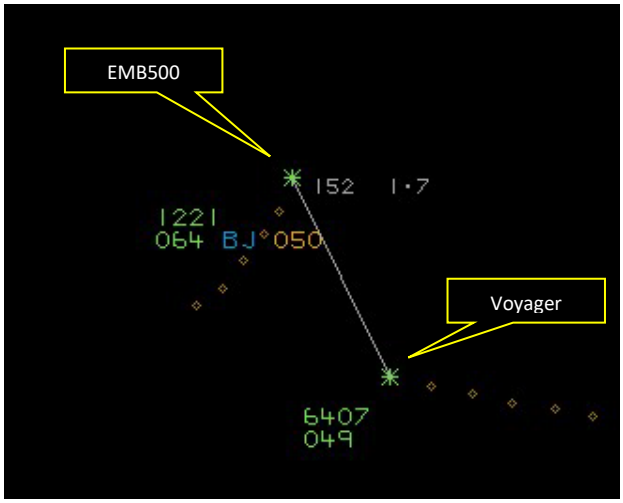


Figure 2 (1311:32). CPA.

CPA occurred at 1311:32 and was recorded as 1.7NM and 1500ft separation.

Local BM Investigation

A local investigation was conducted by Brize Norton following the event to identify the ATS-related causal/aggravating factors. The outcome was identified as a loss of the required deconfliction minima for the EMB500, that occurred as a result of the Brize Norton Radar controller issuing the EMB500 with a clearance for REKLO that did not deconflict from the Voyager's departure profile. The lateral coordination was agreed based upon the EMB500's routeing at the time, which was direct Gloucester, and therefore would provide sufficient separation. In approving the EMB500 to REKLO, this turned the EMB500 onto a north-east heading, towards the Voyager. The intervention from the Brize Norton Supervisor and OJTI regarding the avoiding action was assessed as timely. However, as stated by the OJTI, the initial approval to REKLO was missed, believed to be because of the monitoring of the phone call between the Brize Norton Supervisor and Gloucester.

2 Gp BM Analysis

The initial lateral co-ordination provided a suitable plan that enabled flexibility in both the departure of the Voyager and the EMB500's approach. However, the effect of changing the EMB500's route from direct Gloucester, to REKLO, as a result of passing the approach clearance, was not fully assessed by the Brize Norton Radar trainee. As this was passed at the same period as the landline call with Gloucester was being monitored, it is understandable how the OJTI did not immediately identify what had been issued. On recognising the EMB500's turn, timely intervention through avoiding action prevented further diminishment of the required separation minima. The Brize Norton Approach controller ensured the Voyager [pilot] had both initial and updated Traffic Information iaw the Traffic Service being provided, which enabled the crew to gain, and maintain, visual sight of the EMB500 throughout.

UKAB Secretariat

The Voyager and EMB500 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 converging then the EMB500 pilot was required to give way to the Voyager.[2]

Comments

HQ Air Command

The Voyager pilot was visual with the EMB500 throughout as well as monitoring the aircraft on TCAS. The pilot elected to reduce the rate of climb, but this wasn't sufficient to prevent a TCAS confliction. A TCAS RA was received and followed correctly by the Voyager pilot. The Voyager pilot acknowledged that more prompt actions could have helped with both lateral and vertical separation and possibly prevented a TCAS RA occurring.

Summary

An Airprox was reported when a Voyager and an EMB500 flew into proximity in the vicinity of Chedworth at 1312Z on Wednesday 13th November 2024. The Voyager pilot was operating under IFR in VMC in receipt of a Traffic Service from Brize Approach and the EMB500 pilot was operating under IFR in VMC in receipt of a Deconfliction Service from Brize LARS.

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 considered the actions of the Voyager pilot. They had been climbing out from Brize Norton and had been in receipt of a Traffic Service from Brize Approach. They had received Traffic Information from the controller about the EMB500, could see it on their TCAS and had slowed their rate of climb accordingly. However, when the EMB500 had turned towards REKLO, it had triggered the TCAS RA on the Voyager (**CF10**), causing the crew to become concerned by the proximity of the other aircraft (**CF9**).

For their part, the EMB500 crew had been leaving controlled airspace to undertake an RNP approach to Gloucester but, as Gloucester does not have radar, had been receiving a Deconfliction Service from Brize LARS. Once the crew had received the clearance to route direct REKLO, they turned as instructed. The Brize controller had then issued avoiding action with a turn onto 360°, which had been the first time that the crew had received any indication that the Voyager would affect them (**CF8**). Shortly afterwards they too received a TCAS RA (**CF10**) which they followed.

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

Turning to the role that ATC had to play, members were informed that the controllers had realised fairly early on that there had been a potential for the outbound Voyager to have conflicted with the EMB500 descending inbound to Gloucester. So, to allow both aircraft to continue with their climb/descent, the Supervisor had effected coordination between the controllers for the LARS controller to maintain the EMB500 3NM apart from the Voyager (the minimum lateral separation required under a Deconfliction Service). The EMB500 pilot had not been given Traffic Information on the Voyager (**CF3**), probably because the controller had not thought they would be affected by it. The Supervisor had then called Gloucester to obtain the clearance for the EMB500. For training purposes, in order to hear what was being asked of Gloucester, the OJTI and trainee had listened in on the telephone call, and when the trainee had heard the clearance to route direct to REKLO, they had repeated this to the EMB500 crew. Members were told by a military advisor that RNP approaches were still new to military controllers and until recently had not been taught in initial training. Consequently, the trainee in the LARS position had not realised when reading the clearance 'direct REKLO' that the crew would have immediately taken that as permission to turn, rather than waiting for the controller to issue further instructions for them to turn at a later point in time (**CF1**). Furthermore, because the OJTI had been listening in on the telephone call, they had not immediately realised that the trainee had broadcast the clearance to the aircraft (**CF2**). Once the EMB500 crew had received the instruction to route direct to REKLO, they had turned, and members agreed that the passing of this clearance had meant that the controller's instructions had contributed to the Airprox (**CF6**). Only once the OJTI had noticed the turn, had they instructed the trainee to issue avoiding action for the EMB500 pilot to turn onto 360°, which members considered a late resolution of the conflict (**CF5**). Furthermore, the initial turn by the EMB500 meant that the co-ordination to remain 3NM clear from the Voyager had been broken, with final lateral separation measured at 1.7NM (although by that stage action by the crews in following the TCAS RAs had increased the vertical separation to 1500ft) (**CF4**). Additionally, the trajectory of the two aircraft had triggered the Brize STCA (**CF7**).

When assessing the risk of the Airprox, members considered the reports from both pilots and controllers, together with the radar replay photographs and the investigation reports. Members quickly agreed that the final separation between the two aircraft had been such that no risk of collision existed. However, members then discussed whether safety had been degraded, with some members pointing out that Brize had been controlling both aircraft and yet co-ordination to remain 3NM apart, required for the EMB500 under the terms of a Deconfliction Service, had been broken and that because both aircraft had received TCAS RAs and the STCA had alerted, normal safety standards could not be considered to have pertained. Others countered that this event had happened in Class G airspace, which TCAS was not designed to operate within, and that the avoiding action given by the controllers, together with the reaction to the TCAS RAs by the crews, had resulted in adequate separation. In the end a vote was conducted and, by a small majority, the Board agreed that normal safety standards for operations in Class G airspace had pertained; Risk Category E.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2024289			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Ground Elements			
	• Regulations, Processes, Procedures and Compliance			
1	Human Factors	• ATM Regulatory Deviation	An event involving a deviation from an Air Traffic Management Regulation.	Regulations and/or procedures not fully complied with
	• Manning and Equipment			
2	Human Factors	• Recurrent/OJT Instruction or Training	Events involving on the job training of individuals/ personnel	
	• Situational Awareness and Action			
3	Human Factors	• ANS Traffic Information Provision	Provision of ANS traffic information	TI not provided, inaccurate, inadequate, or late

4	Human Factors	• ATM Coordination	Coordination related issues (external as well as internal)	
5	Human Factors	• Conflict Resolution - Provided Late	An event involving the late provision of conflict resolution	
6	Human Factors	• Traffic Management Information Provision	An event involving traffic management information provision	The ANS instructions contributed to the Airprox
	• Electronic Warning System Operation and Compliance			
7	Technical	• STCA Warning	An event involving the triggering of a Short Term Conflict Alert (STCA) Warning	
	Flight Elements			
	• 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
9	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
	• Electronic Warning System Operation and Compliance			
10	Contextual	• ACAS/TCAS RA	An event involving a genuine airborne collision avoidance system/traffic alert and collision avoidance system resolution advisory warning triggered	

Degree of Risk: E.

Safety Barrier Assessment[3]

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, despite being co-ordinated to remain 3NM clear of the Voyager, the EMB500 was given a clearance to route direct to REKLO, which had broken that co-ordination.

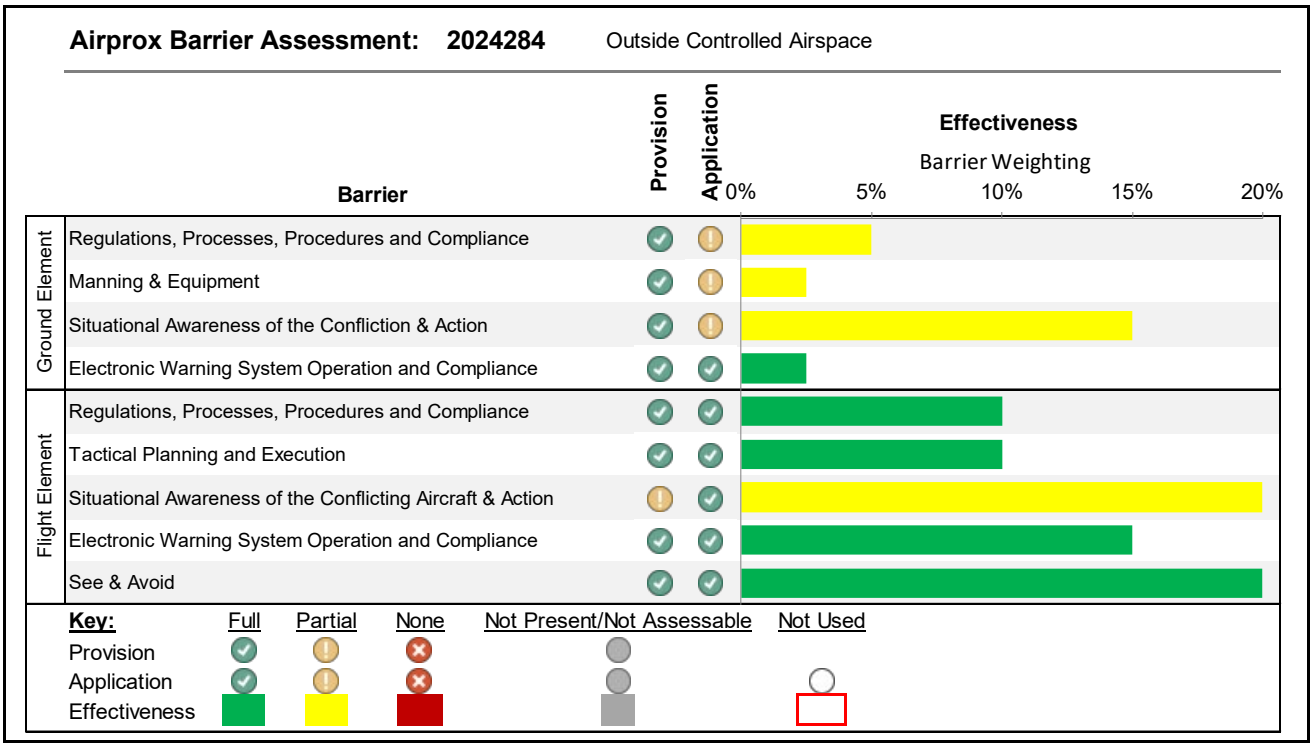
Manning and Equipment were assessed as **partially effective** because the OJTI had not initially heard the trainee issue the clearance to the EMB500.

Situational Awareness of the Confliction and Action were assessed as **partially effective** because the EMB500 crew had not been provided with Traffic Information on the Voyager and the instruction to turn towards REKLO had broken the agreed co-ordination and contributed towards the Airprox. Additionally, the resolution to the conflict had been issued late.

Flight Elements:

Situational Awareness of the Conflicting Aircraft and Action were assessed as **partially effective** because the EMB500 crew had received late situational awareness on the Voyager and the Voyager crew had been concerned by the proximity of the EMB500 on their TCAS.

[3] 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: 2024284
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