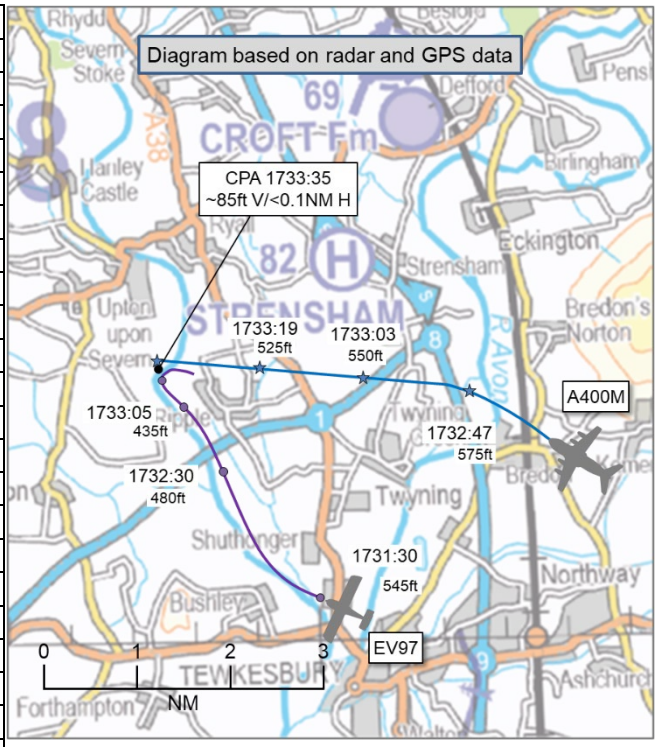
AIRPROX REPORT No 2024207

Date: 14 Aug 2024 Time: 1734Z Position: 5202N 00212W Location: 3NM northwest of Tewkesbury

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	A400M	EV97
Operator	HQ Air (Ops)	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Listening Out	None
Provider	Low Level Common	N/A
Altitude/FL	500ft	~415ft
Transponder	A, C, S	Not fitted
Reported		
Colours	Grey	Silver
Lighting	NR	Nil
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	250ft AGL	520ft
Altimeter	QNH (1016hPa)	QFE
Heading	270°	330°
Speed	270kt	70kt
ACAS/TAS	TCAS II	PilotAware
Alert	None	Unknown
Separation at CPA		
Reported	100ft V/0.5NM H	50ft V/250m H
Recorded	~85ft V/<0.1NM H	



THE A400M PILOT reports that shortly after entering low-level to the north of Gloucester ATZ heading west they had called Gloucester App on 128.555MHz to give an information call of their intention to route north abeam the field at low-level. ATC informed them that there was no traffic in their vicinity and all aircraft under Gloucester control had been inside the Gloucester ATZ. Shortly after heading west at 270kts between 250-300ft AGL the A400M Captain, the non-handling pilot, saw a light civil aircraft pass within 0.5NM, on a reciprocal heading, approximately 100ft below their flight path. The aircraft was spotted passing briefly in their 9 o'clock, before going behind the wing and out of sight. The aircraft was white with blue markings and appeared to be flying 100ft below their flight path. No avoiding action was taken as the aircraft was only spotted as it passed abeam and below. At the time of the incident there had been 5 personnel on the flight deck. 3 pilots and 2 x ALMs. The Captain was the only person to observe the aircraft, because the civil aircraft would have been behind the aircraft instruments for all other crew members. No TCAS indications were observed at any time and no information calls were heard on 130.490MHz. Before walking for the sortie, no CADS conflictions were observed in this area, or late warnings notified. The A400M was on time on its CADS routeing with no known traffic in the area. This report highlights that comprehensive lookout is always required. Although no avoiding action was needed in this instance, there would have been time to react if the aircraft vectors had resulted in a closure.

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

THE EV97 PILOT reports that they had been in level final (but low-level at ~580ft) cruise heading north-northwest from Tewkesbury following (approximately) the river Severn direction with the intention of joining circuit height and landing back at [destination airfield]. They observed a large RAF aircraft on their right (heading west), they believe it passed Bredon Hill on the north side at a similar low-level height although they had been above the horizon so was slightly higher, they appeared potentially to be on a converging path. The aircraft was approximately 3-4km away. The EV97 pilot assessed the

situation for a few seconds (probably around 3sec) and decided to break immediately right and descend to increase separation, they continued turning right so [they] could observe the other aircraft pass well clear. Once verified [that] the other aircraft had been well clear, they adjusted their height back to approximately 580ft and continued north. They did not encounter any wake or turbulence from the other aircraft. At this point they decided not to land straight away (as originally planned), and flew north around the local area for a further approximately 20min before landing back at [destination airfield]. No [specific] planning regarding potential Airprox concerns or hotspots [had been undertaken], but the route the RAF aircraft took was considered not a normal regular route for this type of aircraft. However, the EV97 pilot notes that they are familiar with this type of aircraft very occasionally passing through this area at this type of altitude but from other directions. They had been listening on SafetyCom (135.480MHz) and had been planning to join [destination airfield] circuit for landing. They [recall that] they had made clear and positive avoidance action and believed there was no further concern. The EV97 pilot notes that with respect to their EC equipment they cannot confirm if the [EC equipment] volume was on. They did not have their display screen with them during the flight as they had been on a local flight.

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

THE GLOUCESTER CONTROLLER reports that Gloucester ATSU was made aware of this Airprox by the Captain of the A400M the following day. They advised that they had already left the Gloucester frequency at the time of the Airprox. As the aircraft was not on their frequency, it was in Class G airspace and Gloucester did not speak to any aircraft that could potentially have been the other aircraft, they were not intending to file an MOR or carry out an investigation.

Factual Background

The weather at Gloucester Airport was recorded as follows:

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METAR EGBJ 141720Z 00000KT 9999 FEW022 SCT045 20/16 Q1016=
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Analysis and Investigation

UKAB Secretariat

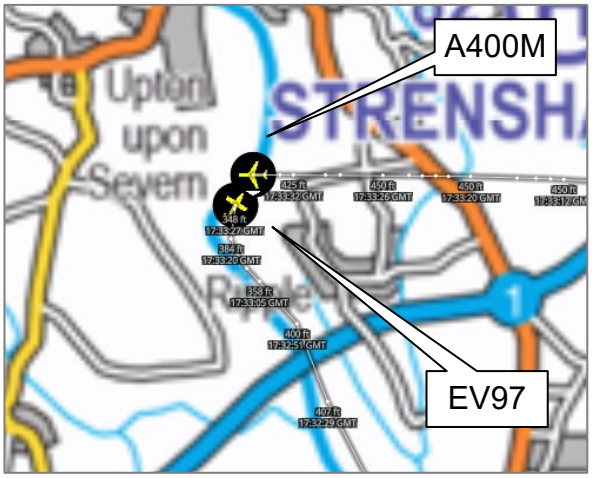


Fig 1: Airspace Analyser Tool derived – A400M timed at 1733:35. EV97 timed at 1733:29.

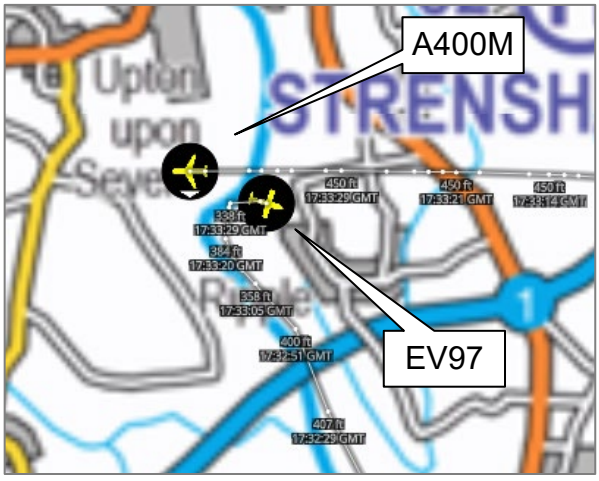


Fig 2: Airspace Analyser Tool picture – A400M timed at 1733:39. EV97 timed at 1733:40.

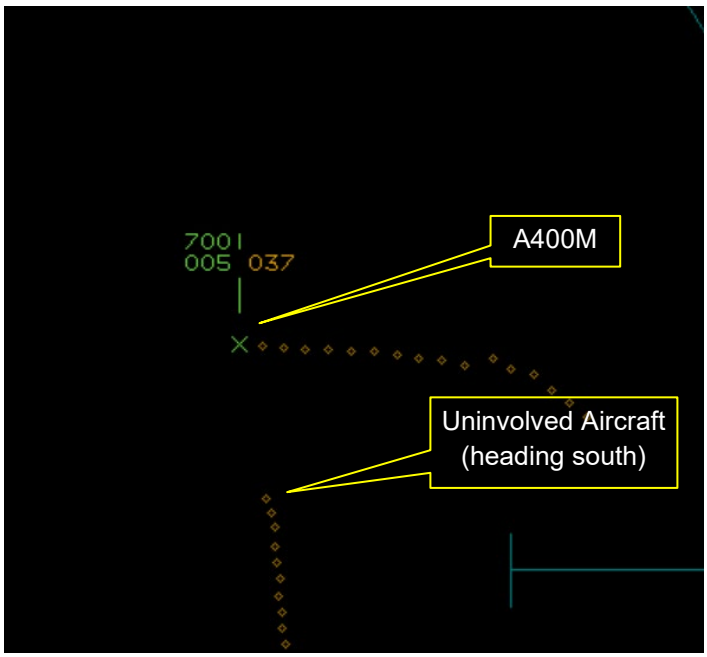


Figure 3: At CPA – 1733:35 A400M only.

As the EV97 had not been equipped with a transponder and did not show on radar, even as a primary track, it was tracked utilising the CAA's Airspace Analyser Tool. Figures 1 and 2 above show the respective flightpaths of both aircraft. Altitudes have been derived from both radar and GPS with the minimum separation therefore being noted as ~85ft. The diagram at page 1 was constructed by combining radar and GPS sources.

The A400M and EV97 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 EV97 pilot was required to give way to the A400M.[2]

Comments

HQ Air Command

RAF aircrew strive for the best situational awareness possible on other traffic when operating at low-level. In this case the Brize Norton LARS coverage was at its limit, hence Gloucester was a sensible unit to call for local Traffic Information. In areas of reduced LARS coverage, Low-Level Common (130.490MHz) is the best frequency for deconfliction, as described in the AIP. A drawback of this system is that some aircraft may be operating from small airfields on SafetyCom (135.480MHz) in the same area that military low-flying aircraft operate on Low Level Common. Due to chart clutter, it isn't practical to display all light-aircraft airfields on the VFR and military low-flying charts. Thus, it is possible in some circumstances that military pilots will be unaware of light-aircraft operating from very small airfields on SafetyCom within the low-flying system. In this case, other barriers such as electronic conspicuity and visual lookout can be extremely useful. It is unfortunate that, despite several crew conducting visual lookout, the A400M captain only saw the EV97 as it passed and any meaningful avoiding action was impossible. Fortunately the EV97 pilot saw the A400M and took avoiding action. The RAF continues to publicise the possibility of such encounters and highlights the need for a good visual lookout scan at all times, to complement timely radio calls when operating in the low-flying system.

AOPA

In this case there are two mitigations for mid-air collision avoidance, firstly, lookout which worked; secondly electronic conspicuity which was ineffective. Until the Department for Transport announces

[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.

a common standard of electronic conspicuity, this equipment will not inter-operate, thereby degrading the safety function of it having been fitted.

Summary

An Airprox was reported when an A400M and an EV97 flew into proximity 3NM northwest of Tewkesbury at 1734Z on Wednesday 14th August 2024. Both pilots were operating under VFR in VMC and neither pilot was in receipt of a Flight Information Service.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, GPS data, 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 firstly considered the actions of the A400M pilot. They noted the nature of the flight and that they had made an information call to Gloucester as they had passed to determine traffic status and alert others to their passage. Having made that call, they had switched to the Low-Level Common frequency to maintain as far as reasonably possible situational awareness of other traffic in the area. Members felt that this, combined with their active transponder and collision alerting system had been their best options for low-level in an area of limited LARS availability. Despite their equipage level, the A400M crew had not received any electronic emissions from the EV97 (**CF2**) nor heard any radio calls, leaving the pilot with no situational awareness of the presence of the EV97 (**CF1**). The A400M pilot reports having visually acquired the EV97 only at the point where it had passed to their 9 o'clock, heading in the opposite direction (**CF4**). Members acknowledged that the A400M crew had had their lookout partly obscured (**CF5**) by instrument panels despite having 5 crew members on the flight deck.

Turning to the EV97, the Board praised the pilot for maintaining a good lookout and, having achieved a late sighting of the A400M (**CF3**), then performing an avoidance manoeuvre to maintain separation between the 2 aircraft. Despite carrying a popular EC unit common to many General Aviation users, they had not enabled a suitable warning mechanism from that unit and had therefore been unable to receive any indications of the presence of the A400M (**CF2**) and, as they had been Listening Out on the SafetyCom frequency due to the number of minor airfields in the area, had not received any radio calls from the passing A400M. This had resulted in the EV97 pilot not having any situational awareness of the presence of the A400M (**CF1**).

The Board wished to remind all of the increased likelihood of encounters with military aircraft when operating at lower levels. They also added that, even if flying local sorties, make every effort to equip as highly as possible and utilise active air traffic services if available to enable greater situational awareness.

Concluding the discussion, members considered the early sighting of the A400M by the EV97 pilot and that the actions taken by that pilot had ensured adequate separation between the two aircraft. Members were in agreement that as a result of that avoiding action, safety had been degraded but there had not been a risk of collision. The Board assigned Risk Category C to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2024207			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Flight Elements			
	• Situational Awareness of the Conflicting Aircraft and Action			
1	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			

2	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			
3	Human Factors	• Identification/ Recognition	Events involving flight crew not fully identifying or recognising the reality of a situation	Late sighting by one or both pilots
4	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
5	Contextual	• Visual Impairment	Events involving impairment due to an inability to see properly	One or both aircraft were obscured from the other

Degree of Risk: C.

Safety Barrier Assessment[3]

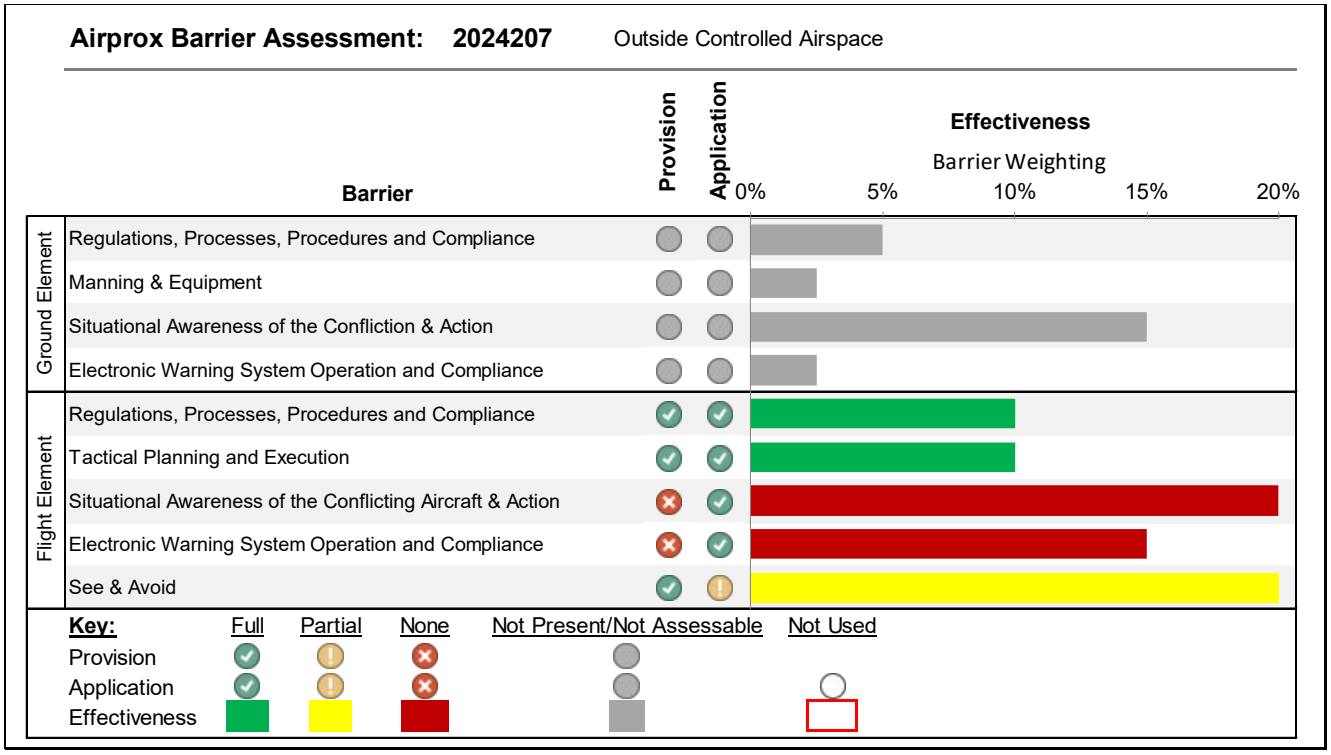
In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

Flight Elements:

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because neither pilot had any situational awareness of the presence of the other aircraft until sighted.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because neither aircraft had been able to detect electronic emissions from the other.

See and Avoid were assessed as **partially effective** because the A400M pilot had not seen the EV97 before CPA and the EV97 pilot had achieved only a late sighting of the A400M.



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