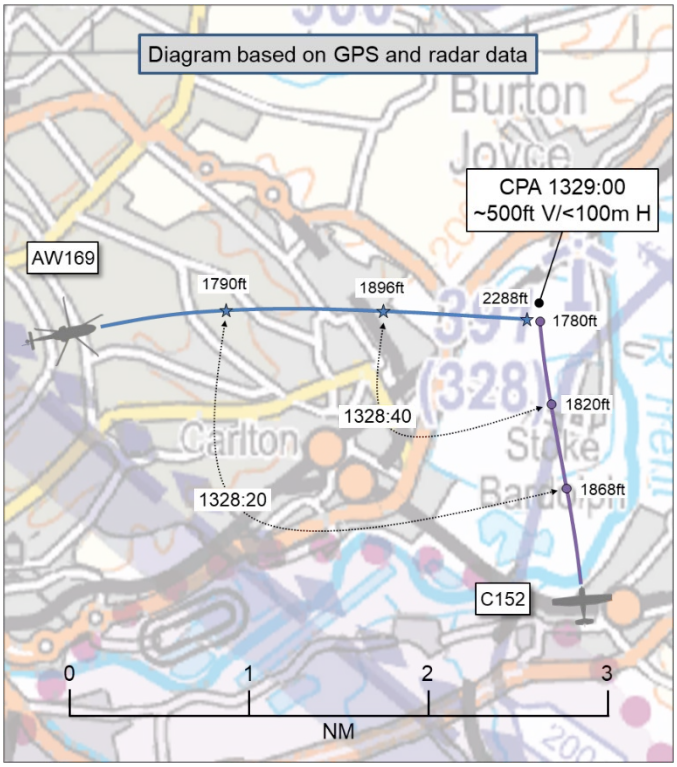
AIRPROX REPORT No 2024301

Date: 29 Dec 2024 Time: 1329Z Position: 5258N 00103W Location: 3.5NM NNE Nottingham

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	AW169	C152
Operator	HEMS	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Traffic	AGCS
Provider	East Midlands Radar	Nottingham Radio
Altitude/FL	2288ft	1780ft
Transponder	A, C, S+	A, C[1]
Reported		
Colours	Yellow	White
Lighting	Position, nav, strobe	Beacon
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	2300ft	1700ft
Altimeter	QNH (1026hPa)	QNH
Heading	090°	350°
Speed	130kt	90kt
ACAS/TAS	TCAS II	Not fitted
Alert	RA	N/A
Separation at CPA		
Reported	300ft V/100m H	300ft V/"*minimal*" H
Recorded	~500ft V/<100m H	



THE AW169 PILOT reports that they departed [a tasking location] near Nottingham en-route to their base. Their intention was to join at EDPAZ in the vicinity of Grantham, to practice a coupled-up approach to RW02 at RAF Waddington, then to break-off and land at their base (situated within the Waddington ATZ but outside the airfield fence). The initial FMS programming was all conducted on the ground prior to departure. Initially, a Basic Service was requested from East Midlands Radar on departure, however, a Traffic Service was subsequently requested as there had been potential to go into cloud at the level of EDPAZ. East Midlands Radar acknowledged a Traffic Service, but also declared limited coverage. East Midlands Radar appeared to be quite busy at the time. Tollerton Radio [Nottingham Radio] was dialled up on the second radio and was also being monitored. The AW169 upper modes were engaged (Alt Acquire, IAS and Heading) to allow them to clear the area between Tollerton and Syerston and continue climbing towards EDPAZ as the joining point. Their next plan would have been to engage Nav mode once clear of that area, however, the Airprox happened before that.

Prior to the Airprox, the East Midlands Radar controller reported a contact on a northerly heading. This was not seen by them or the Pilot Monitoring and the only contact they recall on TCAS was to the north of them 200ft above. They do not recollect any other TCAS contacts close by to cause potential conflict. A few seconds later, a Resolution Advisory ordered them to "Climb, Climb" and a red traffic warning appeared on their PFD. They deselected the upper modes by pressing Attitude Hold (ATT) and climbed to carry out corrective action. The Pilot Monitoring recalled hearing "Traffic, Traffic" immediately before the "Climb, Climb" order and had looked out to see if they could spot the aircraft. However, [the AW169 Pilot Handling] just remembered hearing "Climb, Climb" and seeing a red traffic warning on the PFD. It all happened within a 5-10sec period. Shortly afterwards, they saw a white SEP high-wing aircraft appear in the footwell window crossing from right-to-left in what they believed to have been a climbing

[1] At the moment of CPA, the C152 appeared on the NATS radar replay as a primary-only contact. However, the East Midlands Radar replay displayed the C152 as having transponded Modes A and C.

attitude (from south-to-north). The Airprox took place at approximately 1330 outside controlled airspace in Class G airspace to the north of Nottingham aerodrome whilst climbing towards EDPAZ. The weather at the time was: visibility in excess of 10km, wind 240/25kt, cloud cover was broken but this was at around 2600-2700ft altitude. The Resolution Advisory was initially reported to East Midlands Radar and Nottingham aerodrome after landing.

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

THE C152 PILOT reports that they had departed the Nottingham ATZ and established straight-and-level flight in a northerly direction towards Netherthorpe at about 1700ft QNH. Approximately 2 miles north of the Nottingham ATZ, they identified a yellow helicopter approaching from the left flying in an easterly direction above their altitude. Following several seconds of monitoring, they concluded [it had been on] a converging path. They monitored the helicopter closely and expected it to make a turn to the right and pass behind them, however, the helicopter maintained straight-and-level flight and passed overhead. [The pilot of the C152] ensured that their altitude would guarantee vertical separation.

[The pilot of the C152 opined that the] aircraft was approaching from the left and above. As they were on the right of the helicopter, they had expected the helicopter pilot to make a turn to the right and pass behind them, however, they maintained straight-and-level flight. They monitored the helicopter closely to ensure vertical separation and to pass underneath.

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

THE EAST MIDLANDS RADAR CONTROLLER reports that the pilot of [the AW169] telephoned to inform East Midlands Airport (EMA) ATC that they received a TCAS RA on their flight earlier in the day. No report was made on frequency. The [AW169] was routeing from Nottingham [area] to RAF Waddington and had freecalled EMA LARS initially for a Basic Service but a request was made to upgrade to a Traffic Service and to climb to 2800ft. The controller identified the aircraft and agreed the Traffic Service. Traffic Information was passed on conflicting traffic, [the C152], and updated when closer. This is the aircraft that caused the TCAS RA and it was operating VFR in Class G airspace. The pilot of [the AW169] called 'visual' after the second report of Traffic Information.

THE NOTTINGHAM AIR/GROUND RADIO OPERATOR reports that they were notified of this Airprox via a telephone call from the [pilot of the AW169] well after the incident had occurred. On the telephone call, they were told by the pilot of [the AW169] that they came into very close proximity with another aircraft, appearing to have recently departed from Nottingham Airport. [The pilot of the AW169] also said they were under a Traffic Service provided by East Midlands Radar and, [reportedly], that they did not receive Traffic Information on the other aircraft involved. The traffic had not appeared on their onboard TCAS system and it appeared as though the pilot of the other aircraft involved did not see [the AW169] at any point.

[The Nottingham AGO] did not hear anything on the radio, or via telephone, about the Airprox, and did not see the Airprox occur. Therefore, they cannot confirm that the second aircraft involved was [the C152].

Factual Background

The weather at East Midlands Airport was recorded as follows:

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METAR EGNX 291320Z 23013KT 9999 FEW013 09/06 Q1027
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Analysis and Investigation

East Midlands Airport Investigation

Timeline:

1325:56 AW169 C/S: "*East Midlands Radar, [AW169 C/S], Basic Service.*"

1326:07 Radar: "*[AW169 C/S] East Midlands, pass your message*."

1326:15 AW169 C/S: "*[AW169 C/S], we're just in from [takeoff area], routeing back towards Waddington, 4 on board, just passing 900 on 1028, QNH, Basic Service please*."

1326:26 Radar: "*[AW169 C/S], Basic Service, QNH 1027, report changing en-route*."

1326:29 AW169 C/S: "*1027, QNH, that's copied, [AW169 C/S]*."

1326:31 Radar: "*Sorry your destination again?*"

1326:34 AW169 C/S: "*To Waddington, [AW169 C/S]*."

1327:36 AW169 C/S: "*And, East Midlands Radar, [AW169 C/S], we're just going to climb to 2800ft on 1027 and if possible get a traffic service?*"

1328:04 Radar: "*[AW169 C/S], roger squawk Ident*."

1328:08 AW169 C/S: "*And ident you have, [AW169 C/S]*."

1328:12 Radar: "*[AW169 C/S] you're identified, Traffic Service, reduced from all around due to poor radar performance, traffic south-east, 2 miles northbound, indicating 200ft above, unverified*."

Figure 1

1328:20 AW169 C/S: "*Er looking for traffic, that's all copied, [AW169 C/S], Traffic Service*."

1328:34 Radar: "*[AW169 C/S], previously reported traffic, right 1 o'clock, 1 mile, right - left, indicating 100 feet above*."

The AW169 C/S indicated A018, the converging 7000 squawk indicated A020

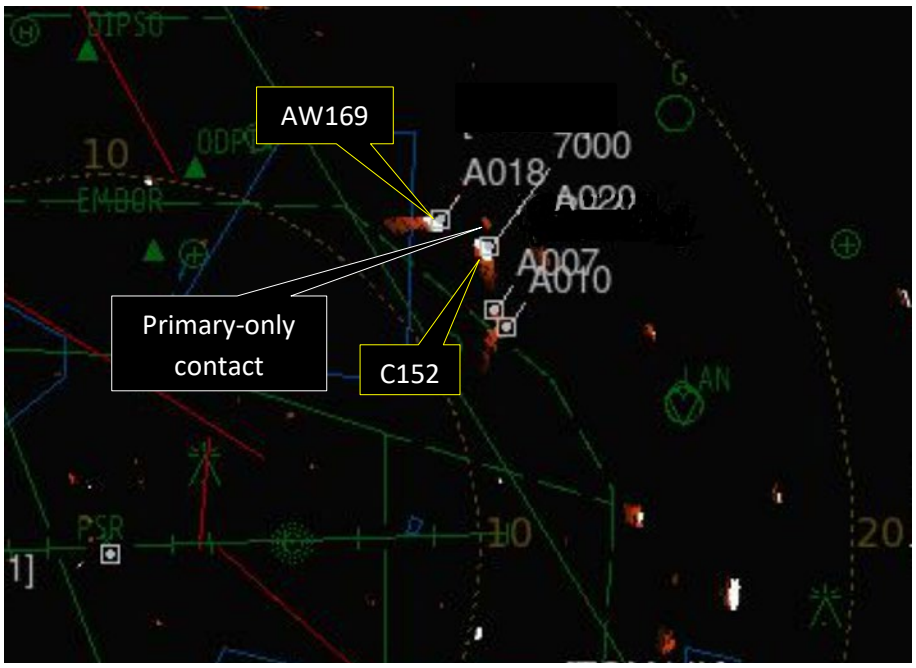


Figure 2

1328:46 AW169 C/S: "*Er visual with that traffic and we are above that traffic, traffic*."

(There was, potentially, a primary-only contact in the AW169 pilot's 12 o'clock, no height showing).

1328:51 Radar: "*Yep, just passing through your 12 now*."

The AW169 C/S and 7000 squawks converged. Other labels also merged. AW169 C/S indicated A023 and the 7000 squawk at A020.

Figure 3

AW169 C/S climbed to 2500ft with the other contact tracking northbound.

1332:21 AW169 C/S: "*[AW169 C/S], we're happy to continue with er Cranwell gliding site and er continue en-route, thanks for the service.*"

1332:30 Radar: "*[AW169 C/S] roger, squawk conspicuity, Radar service terminates, good day.*"

1332:33 AW169 C/S: "*Bye for now*."

The primary contact could be seen tracking north-bound, no height information.

Findings:

Following a departure from Nottingham [area], [The pilot of the AW169] called EMA for a Basic Service, a request was made later to upgrade to a Traffic Service.

EMA RAD identified [the AW169] and a Traffic Service was duly provided. Traffic Information on conflicting traffic was passed, and the pilot of [the AW169] reported visual with the conflicting traffic following a second updated call from EMA RAD.

AW169 C/S continued north-east bound to Waddington, and left the frequency a short time later. No mention was made of a TCAS RA at that time.

Around ten days later, EMA was notified that an Airprox had been filed regarding this event. Again, at that time, no mention had been made to EMA Radar about a potential Airprox.

Investigation summary:

[The AW169], using MLAT, could be seen lifting from Nottingham from low level. [The pilot of the AW169] initially requested a Basic Service and then climbed and requested an upgrade to a Traffic Service and reported climbing to 2800ft.

Radar identified [the AW169] with squawk ident and issued a Traffic Service with reduced Traffic Information from all around due to poor radar performance. Radar immediately issued Traffic Information on an unknown aircraft, [the C152], squawking 7000, initially it was indicating 200ft above, tracking south-to-north. [The pilot of the AW169] reported visual with the traffic on the second call of Traffic Information when it was indicating 100ft above. The aircraft converged and indicated A020 (2000ft), both contacts then appeared to diverge. [The pilot of the AW169] climbed to 2800ft.

MLAT does not show the 7000 squawk callsign/registration. Radar was not in contact with the pilot of this aircraft. The aircraft tracked north.

[The pilot of the AW169] did not mention the TCAS RA on the radio and went en-route with a freecall to Cranwell. The TCAS RA is believed to have been for the aircraft that [the pilot of the AW169] had been twice issued Traffic Information about and with which they had reported visual. [The pilot of the AW169] later phoned ATC to report a TCAS RA.

Points to note: Radar was controlling with MLAT displayed. At 1328:34, the screenshot showed that, at the time Traffic Information was issued on the 7000 squawk indicating 100ft above, there was also a potential primary-only contact in the [AW169 pilot's] 12 o'clock: a faint contact with no height information. There were also labels that merged on the radar screen to the south of the AW169, particularly [an uninvolved PA28].

Conclusion:

Correct ATC actions were followed throughout. A Traffic Service was provided by EMA Radar, with updated Traffic Information passed on conflicting traffic. The pilot of [the AW169] reported visual with the conflicting aircraft and continued en-route to Waddington. No mention was made of a TCAS RA or an Airprox at that time to EMA Radar.

UKAB Secretariat

An analysis of the NATS radar replay was undertaken and the AW169 could be positively identified from Mode S data (Figure 4). Both pilots kindly supplied GPS track data for their respective flights. The track of the C152 correlated to a primary-only return on the NATS radar replay.

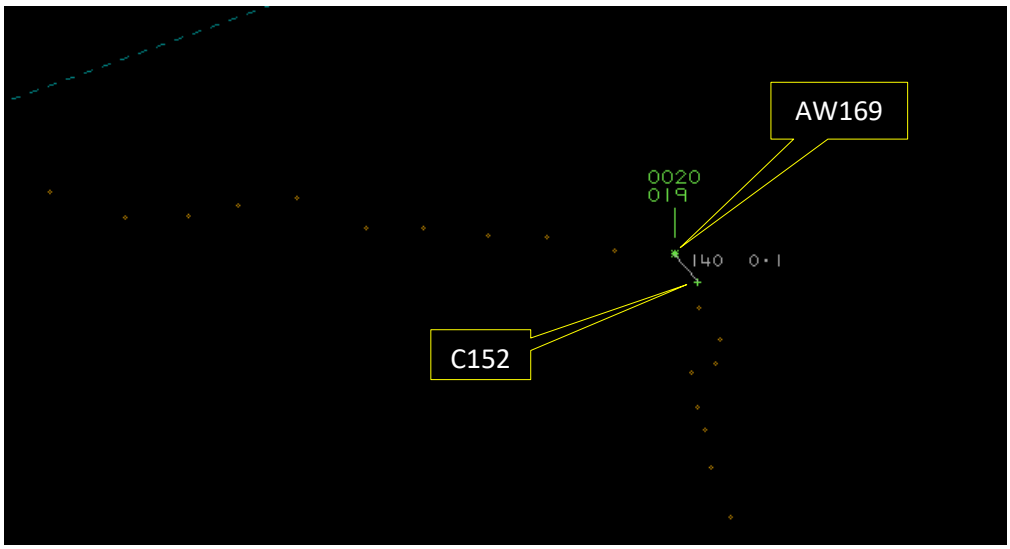


Figure 4

The AW169 and C152 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 AW169 pilot was required to give way to the C152.[3]

Summary

An Airprox was reported when an AW169 and a C152 flew into proximity 3.5NM north-northeast of Nottingham at 1329Z on Sunday 29th December 2024. The AW169 pilot was operating under VFR in VMC in receipt of a Traffic Service from East Midlands Radar and the C152 pilot was operating under VFR in VMC in receipt of an AGCS from Nottingham Radio.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, GPS track data for the flights of both aircraft, reports from the AGO and 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 AW169. Members noted that they had requested to upgrade from a Basic Service to a Traffic Service and agreed that that had been a wise decision given the congested nature of the airspace that they had intended to transit. Members noted that the pilot of the AW169 had elected to commence a climb to 2800ft and had subsequently been informed by the East Midlands Radar controller of traffic to their south-east, 2NM away, tracking northbound and indicating 200ft above. Members noted that the pilot of the AW169 had responded to the controller that they were "*looking*" but also noted that they had continued to climb. Members felt that it may have been prudent to have reduced their rate of climb (at least until the traffic had been sighted) and agreed that the pilot of the AW169 had not adapted their dynamic plan sufficiently in consideration of the unsighted traffic (**CF1**).

Members noted that there had been three aircraft, approximately in a line, that had been tracking northwards at that time. The C152 had been the northernmost of the three. The pilot of the AW169 had subsequently declared that they had gained visual contact with the traffic that had been called (the C152) when it had been at 1NM but members noted that the Traffic Information had referred to traffic that had been above them by 100ft. It was therefore surmised by members that the pilot of the AW169 had not sighted the C152 (given that they had stated that they had been "*above that traffic*") and that they had actually acquired the second aircraft in the group travelling northwards which had been

[2] (UK) SERA.3205 Proximity.
[3] (UK) SERA.3210 Right-of-way (c)(2) Converging.

approximately 1100ft below them. Members concluded that the pilot of the AW169 had not assimilated the conflict information passed to them (**CF3**), had mis-identified the C152 and had inadvertently continued to climb towards it. However, members agreed that the TCAS fitted to the AW169 had alerted to the proximity of the C152 and had presented a Resolution Advisory (**CF4**) which had been subsequently actioned. Members noted that the C152 was sighted at the moment of CPA and agreed that that effectively constituted a non-sighting (**CF5**).

Members next considered the actions of the pilot of the C152. It was noted that they had tuned their radio to the Nottingham Radio frequency and members agreed that they had not had situational awareness of the presence of the AW169 (**CF2**). Members suggested that the carriage of additional EC equipment may have assisted the pilot with their awareness of the traffic situation. It was noted that the pilot of the C152 had sighted the AW169 and had considered that their tracks had been converging. Members recalled SERA regulation 3210 whereby "When two aircraft are converging at approximately the same level, the aircraft that has the other on its right shall give way". In this particular case, members noted that the pilot of the C152 had expected the AW169 pilot to have turned right to have passed behind them. Members recalled further wording of the regulation, that "The aircraft that has the right-of-way shall maintain its heading and speed" and agreed that the pilot of the C152 had used the vertical plane to ensure separation.

Members next turned their attention to the actions of the East Midlands Radar controller and noted that, despite having declared poor performance of the radar, they had been able to have passed Traffic Information on the C152 to the pilot of the AW169. Some members suggested that there had been an opportunity for the East Midlands Radar controller to have deduced that the pilot of the AW169 had mis-identified the traffic (given that the AW169 pilot had responded that they had been "*above that traffic*") when the Mode C readouts for the aircraft had indicated that that had not been the case. Other members countered that inaccuracy in the Mode C returns, or a delay in the representation of the aircraft on the radar display, may have obfuscated the aircraft's respective vertical positions. Notwithstanding, other members suggested that it may have been beneficial to the situational awareness of the AW169 pilot if information on the other aircraft in the 'line of traffic' had also been passed and that that may have highlighted the AW169 pilot's error in identifying the conflicting aircraft.

Concluding their discussion, members were in agreement that, although the pilot of the C152 had not had situational awareness of the presence of the AW169, they had sighted it at distance and the pilot of the AW169 had reacted correctly to the TCAS RA that they had received. Members noted that significant vertical separation between the aircraft had been achieved and that a risk of collision had been averted. However, overall, members agreed that safety margins had been degraded and assigned Risk Category C to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2024301			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Flight Elements			
	• Tactical Planning and Execution			
1	Human Factors	• Insufficient Decision/Plan	Events involving flight crew not making a sufficiently detailed decision or plan to meet the needs of the situation	Inadequate plan adaption
	• Situational Awareness of the Conflicting Aircraft and Action			
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	• Understanding/ Comprehension	Events involving flight crew that did not understand or comprehend a situation or instruction	Pilot did not assimilate conflict information
	• Electronic Warning System Operation and Compliance			

4	Contextual	• ACAS/TCAS RA	An event involving a genuine airborne collision avoidance system/traffic alert and collision avoidance system resolution advisory warning triggered	
	• See and Avoid			
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: C.

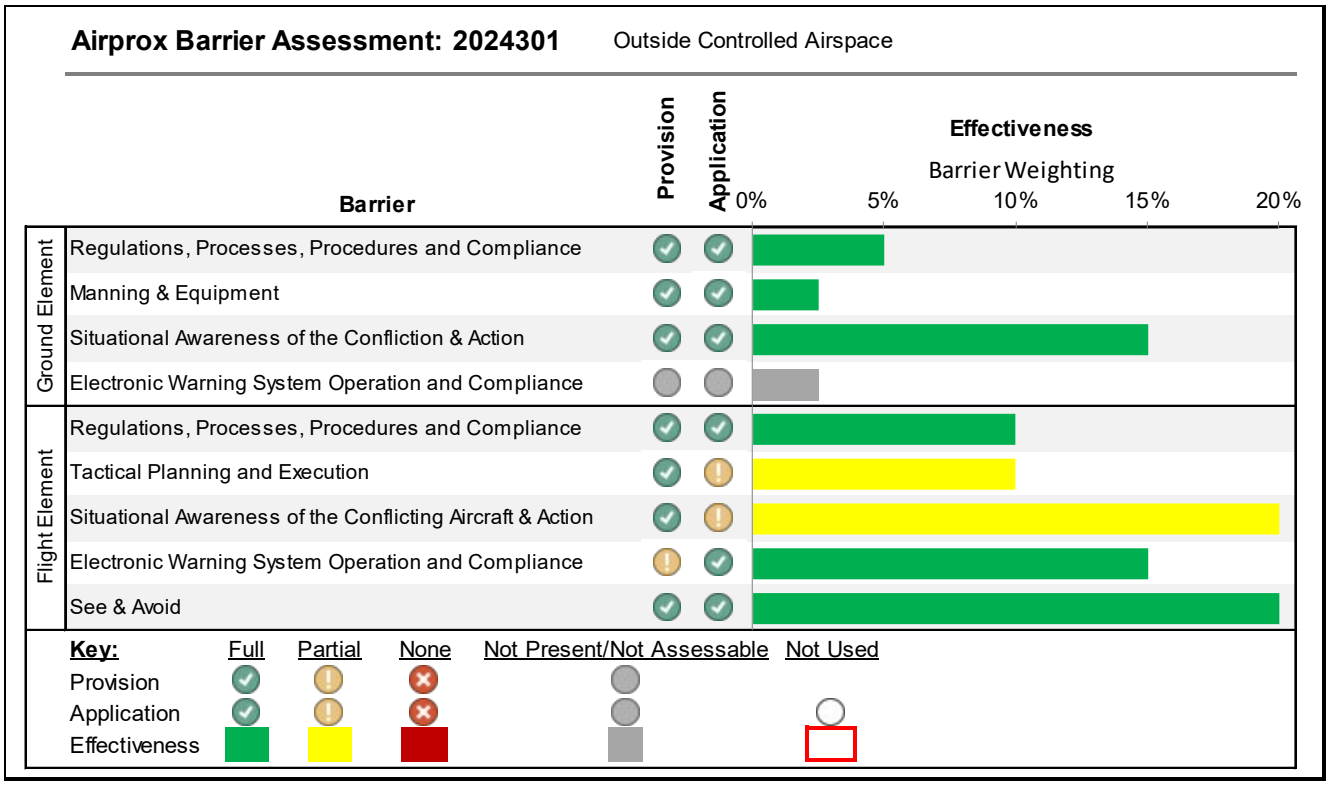
Safety Barrier Assessment[4]

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

Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because, having received Traffic Information on an aircraft at a higher altitude, the pilot of the AW169 had continued to climb.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **partially effective** because the pilot of the C152 had not had situational awareness of the presence of the AW169.



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