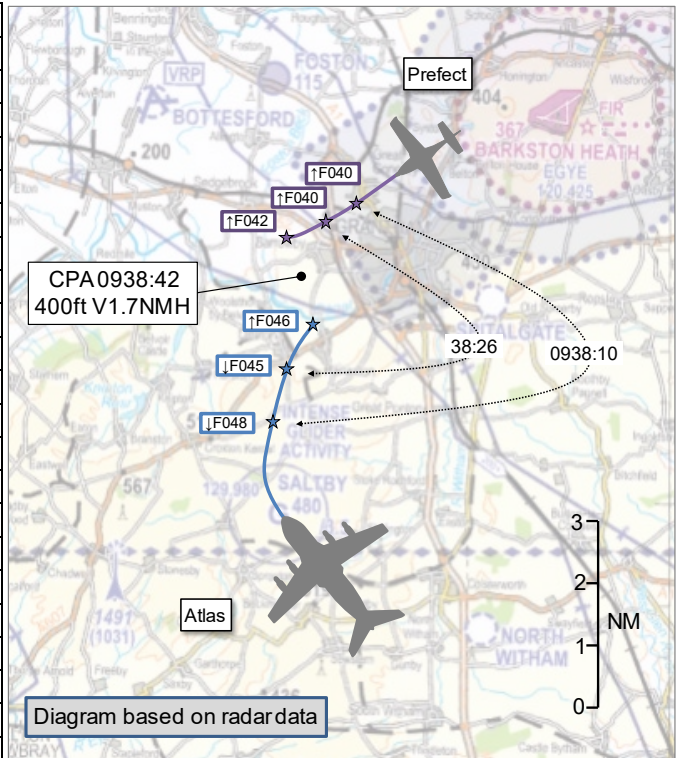


AIRPROX REPORT No 2024062

Date: 24 Apr 2024 Time: 0939Z Position: 5254N 00042W Location: IVO Grantham

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

| Recorded | Aircraft 1 | Aircraft 2 |
|-------------------|-----------------|---------------|
| Aircraft | Atlas | Prefect |
| Operator | HQ Air (Ops) | HQ Air (Trg) |
| Airspace | London FIR | London FIR |
| Class | G | G |
| Rules | IFR | IFR |
| Service | Traffic | Traffic |
| Provider | Waddington Dir | Cranwell Deps |
| Altitude/FL | FL046 | FL042 |
| Transponder | A, C, S+ | A, C, S+ |
| Reported | | |
| Colours | Grey | White, Blue |
| Lighting | NR | Strobes, Nav |
| Conditions | VMC | VMC |
| Visibility | NR | >10km |
| Altitude/FL | 4600ft | FL042 |
| Altimeter | QNH | SPS |
| Heading | 340° | 328° |
| Speed | 220kt | NK |
| ACAS/TAS | TCAS II | TAS |
| Alert | TA | Information |
| Separation at CPA | | |
| Reported | Not Seen | Unknown |
| Recorded | 400ft V/1.7NM H | |



THE ATLAS PILOT reports that, approaching HULBU, a point on the RNP approach for RW02 at Waddington, they were at 4800ft Waddington QNH taking vectors for the approach. A TCAS contact, not under control of Waddington ATC, emerged 3NM ahead (north) of them, below and climbing towards them. They were VMC, with solid cloud below and ahead, tops approximately 4000-4500ft. They were cleared descent to 3800ft in the direction of the traffic. At 4600ft they elected to level off, with the traffic now indicating 300ft below and 2NM north, still closing. Waddington Radar informed them that the traffic was GAT not under their control. As TCAS gave them a Traffic Advisory, the PF took control as per SOP. At 1NM and 300ft vertical separation (and still closing towards them) they initiated a sharp right turn to avoid a conflict. Once clear of the contact they informed ATC and carried on with vectors for the approach. They did not make visual contact with the TCAS contact. They opined that the other aircraft was almost certainly in cloud; 4 personnel on their flight deck were looking out for the other aircraft as they descended towards cloud, but no-one saw it. Avoiding action was taken in order to maintain safe separation before a TCAS RA occurred, especially as they were unsure of the manoeuvres being carried out by the other aircraft.

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

THE PREFECT PILOT reports that, during an IF sortie with a trainee, on a MID 6 departure with a Traffic Service and having taken-off from Barkston Heath RW28, the controller made two traffic calls regarding an Atlas on instrument approach to Waddington, which was not seen. They were in VMC (and stayed VMC at all times) but the cloud distribution was such that the Atlas could not be seen. It became clear that their tracks were converging as the MID departure went on. At FL42 the Instructor took control and levelled-off and opened to the right at the same time, to then descend. A few seconds after they took control, the TAS alerted and, after a few seconds, they reversed the turn to the left. The Atlas was never seen. The sortie was then continued. The pilot noted that they were surprised that ATC

did not give any instructions to maintain separation of two IFR tracks, regardless of being under a Traffic Service.

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

THE WADDINGTON DIRECTOR reports that they were the Unit Examiner conducting an Endorsement Check on a first tourist candidate in the Waddington Director position. [Atlas C/S] under a Traffic Service was handed over by Swanwick Mil, with traffic around 5 miles away and 1000ft below already being called. The aircraft came on frequency and a turn was offered to avoid the conflicting traffic, which the pilot accepted, and a descent was given to FL50. The pilot wanted an RNP approach, and the candidate opted to route the aircraft via HULBU and gave the pilot own navigation to HULBU. A descent was given to 3800ft Waddington QNH 1017hPa. A Barkston Heath MATZ crossing was requested but was denied by Cranwell Approach due to outbound traffic from Barkston. The candidate, due to exam conditions, was initially hesitant and did not change the RNP waypoint or the aircraft's heading and confirmed what the outbound traffic was climbing to. The traffic was then called, before 5 miles, to the Atlas pilot. As the traffic was getting nearer, the candidate asked the pilot if they wanted to stop the descent, which the pilot opted to do, and reported stopping descent at 4700ft QNH. The traffic was approaching 2 and a half miles, and the candidate called the traffic again and told the pilot to turn right 20° to avoid the conflicting traffic. They [the examiner] believed that the two aircraft did not come closer than 2NM to each other. They did not intervene as the traffic was called by the candidate, and called a second time and with an instruction to avoid. At no point did they feel that the two aircraft would collide. After the session they debriefed the scenario and discussed what could have been better in terms of positive control and to call Cranwell earlier and, if a Barkston MATZ crossing is denied, a turn to northwest and to route via EDPAZ should be the normal procedure and would have probably avoided this scenario.

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

THE CRANWELL DEPARTURES CONTROLLER reports that at the time of the occurrence they were providing a Traffic Service to 3 aircraft: a Phenom conducting GH in the vicinity of Wittering (WIT) between FL080-FL120, a Prefect released from Barkston Heath (BKH) with no restriction to general handling in sector 1 (which is NW of BKH), and a formation was concurrently released from Cranwell. While the Phenom was general handling above WIT at FL100 they provided the pilot with a traffic call notifying them of an Atlas at FL110 that was south by approximately 8 miles, tracking north, the type was ascertained by verbally asking Waddington prior to the traffic call. At this point they did not ask for the intentions of the Atlas, at that moment they believed it was a transit and were not expecting the Atlas to fly a profile towards the BKH stub. They then had a Prefect that had departed BKH on a MID 6 departure, they had provided the Prefect pilot with a traffic call on the position of the Atlas, it had been delivered with sufficient time, but the pilot was not visual. At this point the Atlas was continuing a descent towards the Prefect; as the Atlas tracked closer while continually descending, they called it again. During this time, they had a formation calling on climb-out on a separate VHF frequency which they identified. The Prefect pilot then requested own navigation, they instructed the pilot to maintain runway track until the Atlas had passed behind the Prefect. At this point, they thought this was a suitable course of action as they did not want to introduce a turn into the path of the Atlas. The Atlas subsequently turned away to the east clear of conflict whilst the Prefect turned to west under its own navigation with no further incident.

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

THE CRANWELL SUPERVISOR reports that at the time of this scenario there was a UT Approach controller with an OJTI and a Cranwell/Barkston Deps controller in position. Traffic levels were medium intensity with Barkston Heath using RW28RH and Cranwell changing from RW01LH to RW26. Call for release for departures was in place to control the workload of the Deps controller with multiple prenotes received. As per SOPs, both the Sup and Approach can release departures from both airfields and they were allowing the UT App controller to make the decisions on the release calls. They were not aware of the telephone conversation from Waddington Director to Cranwell App requesting a Barkston stub crossing and the subsequent negotiation between the two controllers. Having noticed the Prefect

departing Barkston on the MID 6 departure, they advised the Cranwell Deps controller of the MID 6 departure profile. They were content with the Traffic Information that was passed by the Deps controller and the south-westerly track that the Prefect was flying was taking it away from the Atlas. When the Prefect pilot asked for own navigation, they were again content that the Prefect would remain clear of the Atlas, advising the Deps controller that they could allow the Prefect to continue on own navigation, which they believed would be to the northwest.

Factual Background

The weather at Cranwell was recorded as follows:

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METAR EGYD 240920Z 35014KT 9999 SCT023 BKN052 06/01 Q1017 TEMPO SCT025 RMK WHT TEMPO  
BLU=
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Analysis and Investigation

Military ATM

An Airprox occurred on 24 Apr 24 at around 0940 UTC, approximately 20NM southwest of RAF Waddington. The Atlas pilot was conducting a RNP approach to RW02 RAF Waddington, in receipt of a Traffic Service from the Waddington Director controller. The Prefect was conducting a MID 6 departure from RAF Barkston Heath, in receipt of a Traffic Service from the Cranwell Departures controller.

Utilising occurrence reports and information from the local investigation, 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. With the exception of the CPA image, the screenshots are taken from Unit radar recordings and present the radar presentation of the aircraft available to both the controller and Supervisor. Separation data is derived from the NATS radar data.

The Waddington Director controller was under examination for the award of the Director endorsement at the time of the Airprox. The Atlas was the only aircraft in receipt of a service. Prior to the departure of the Prefect, the Cranwell Departures controller was already providing a service to 3 aircraft conducting departures from both RAF Cranwell and RAF Barkston Heath.

Sequence of Events

At 0933:17, the Waddington Director controller identified the Atlas, issued an initial descent to FL50 and applied a Traffic Service. To facilitate the descent against traffic operating in the vicinity, the Atlas pilot was issued a heading of 330°.

At 0936:36, the Waddington Director controller provided the aerodrome information and instructed the Atlas pilot to descend to altitude 3800ft (QNH 1017hPa) iaw the RNP procedure.

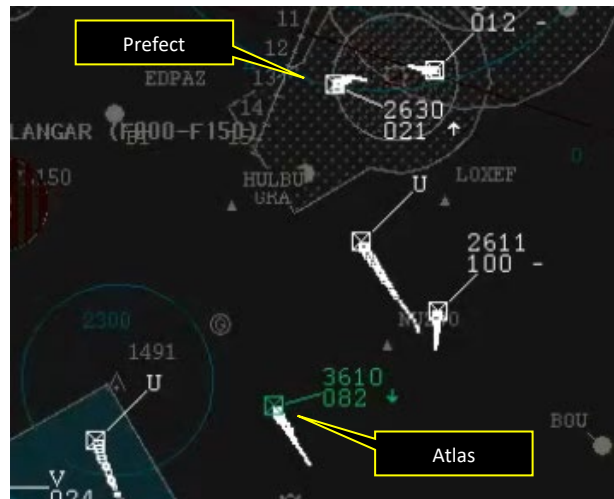


Figure 1 (0936:54): Atlas pilot issued own navigation for HULBU.
(Separation: 10.6NM and 6400ft)

At 0936:54, the Atlas pilot was provided own navigation for the HULBU reporting point and requested to report at the Initial Approach Fix by the Waddington Director controller.

At 0936:55, the Prefect pilot called the Cranwell Departures controller, departing Barkston Heath via a MID 6 and requested a Traffic Service. The Cranwell Departures controller identified the Prefect, approved the MID 6 departure and applied a Traffic Service.

At 0937:07, the Waddington Director controller contacted the Cranwell Approach controller both to provide Traffic Information regarding the Atlas, and to request a Barkston Heath stub crossing to facilitate the RNP procedure. The Cranwell Approach controller denied the Barkston Heath stub crossing, pointing out the Prefect departing to the west. The Waddington Director controller requested the Prefect pilot's intentions, in particular 'what they are climbing to?'

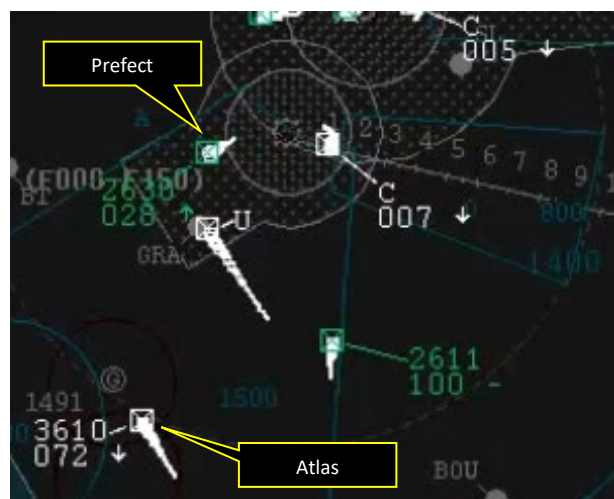


Figure 2 (0937:17): Traffic Information provided to the Prefect pilot on the Atlas.
(Separation: 9NM and 4800ft)

At 0937:17, the Cranwell Departures controller provided Traffic Information to the Prefect pilot on the Atlas. "Traffic south southwest, seven miles, tracking north west, indicating four thousand feet above descending, Atlas into Waddington's radar pattern". The Prefect pilot acknowledged the Traffic Information responding, "not sighted".



Figure 3 (0937:55): Traffic Information provided to the Atlas pilot on the Prefect. (Separation: 6NM and 1800ft)

Whilst still on the landline to the Cranwell Approach controller, at 0937:55 the Waddington Director controller provided Traffic Information to the Atlas pilot on the Prefect and offered an option to stop the descent. *“Traffic north north-east, five miles, tracking south-west, indicating One Thousand Two Hundred feet below, climbing, would you like to stop your descent?”* The Atlas pilot elected to stop the descent at altitude 4700ft.

At 0937:58, a Short-Term Conflict Alert was displayed to both the Waddington Director controller and Cranwell Departures controller.

At 0938:06, the Cranwell Approach controller, still on the landline, informed the Waddington Director controller that if they kept the Atlas to the south, then they would be able to approve the Barkston Heath Stub crossing once the Prefect had departed.

Simultaneously, at 0938:06, the Cranwell Departures controller provided updated Traffic Information to the Prefect pilot on the Atlas. *“Traffic er south southwest, three miles, tracking north northwest 500ft above descending, A four hundred”*. The Prefect pilot acknowledged the Traffic Information again responding, *“not sighted”*, but also that they were *“own navigation”* indicating MID 6 complete.

The Cranwell Departures controller, responding to the own navigation statement, instructed the Prefect pilot to maintain current track for traffic avoidance. *“Maintain er current er track, there’s er traffic south er one and a half miles tracking northeast indicating similar altitude”*.



Figure 4 (0938:25): Traffic Avoidance right-hand turn offered to the Atlas pilot. (Separation: 3.3NM and 300ft)

At 0938:25, the Waddington Director controller offered a right-hand turn for traffic avoidance. *“if you take a right turn heading ... Twenty degrees to maintain clear of that traffic”*. The Atlas pilot had already initiated a right-hand turn in response to a TCAS TA on the Prefect.

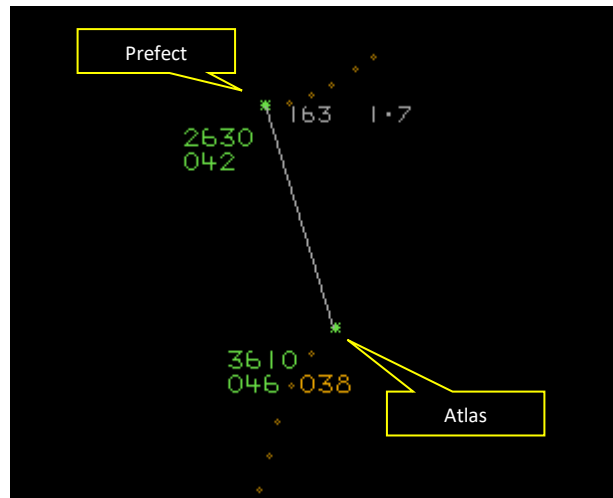


Figure 5 (09:38:43). CPA.

CPA occurred at 0938:43 and was recorded as 1.7NM and 400ft separation.

Local BM Investigation

The local investigation conducted by RAF Coningsby¹ identified the event outcome as a perceived loss of safe separation between two non-cooperating aircraft. Several BM-related causal/aggravating factors were identified, with recommendations identified where suitable:

- a. A confliction developed between the Atlas RNP procedure and Prefect MID departure, due to a lack of understanding/appreciation between the Waddington and Cranwell radar banks of the interacting procedures. This led to them not fully appreciating the conflicting nature.
 - i. Recommendation initiated for improved internal cross-bank training regarding appreciation of interacting procedures.

2 Gp BM Analysis

The Cranwell Departures controller fulfilled the duties of the Traffic Service that was requested by the Prefect pilot. Traffic Information was timely and accurate throughout, with suitable updates. Whilst a stop climb was not issued, this was due to the fact the Prefect was departing VFR iaw the MID and no instructed level to climb to, therefore the Prefect pilot could elect to stop climb at any point. The Cranwell Departures controller correctly identified the potential impact of the Prefect commencing own navigation on completion of the MID and their instruction to maintain current track aided in increasing the separation between the two aircraft.

The Waddington Director controller's decision to clear the Atlas for the RNP approach, before ascertaining the status of the Barkston Heath Stub crossing and establishing a traffic deconfliction plan for the Barkston Heath departures, laid the foundation for the Airprox event. Whilst still resolvable from this position, it inevitably positioned the Atlas both laterally and vertically in a way that decreased separation and subsequently decreased any time for resolutions. The initial Traffic Information provided, whilst accurate, was then supported with a suggestion of stopping a descent. Although this appeared to resolve the lack of vertical separation it was not based upon known information regarding the Prefect. Firstly, the Prefect departure profile was unknown to the Waddington Director controller but, even if it had been known, the MID 6 profile enabled an initial climb to FL50 before a final climb to FL100; both of which would have passed through the stopped

¹ Cranwell Radar is part of the Lincs TATCC located at RAF Coningsby and supported by the Coningsby Station Safety Cell.

Atlas descent at 4700ft (QNH 1017). The suggested right-hand turn, whilst suitable, was ultimately too late as the Atlas pilot had initiated a turn in response to the TCAS TA presented to them.

Overall, the Airprox event was allowed to develop through a lack of positive control from the Waddington Director controller. Whilst providing Traffic Information on the Prefect to the Atlas they did not adequately assess how the cleared profile of the RNP was interacting with the Barkston Heath departing Prefect.

UKAB Secretariat

The Atlas and Prefect 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 Atlas pilot was required to give way to the Prefect.³

Occurrence Investigation

Brize Norton Investigation

The following causal factors were attributed:

Neither controller had a full understanding of the procedure each other's aircraft were conducting and its expected profile.

The Waddington Dir was under examination, which introduced an added element of stress and pressure to the controlling session.

Both pilots were under a Traffic service and in Class G airspace, and received timely Traffic Information that was repeatedly updated. Neither elected to adjust the service they were under despite not being visual.

SA was degraded by the controllers being unable to fully inform each other of heights etc as other pilots were calling for an ATS. A decision was then made by Waddington Dir to instigate a turn to deconflict rather than wait for a response.

The pilots were prevented from getting visual with each other because of cloud.

Comments

HQ Air Command

This was subject to a local investigation which found that, whilst both aircraft were controlled iaw the regulations and local procedures, a confliction developed between the Prefect departing Barkston Heath and an Atlas inbound to Waddington on an RNP approach. Neither the Waddington nor the Cranwell controller had a full understanding of the other aircraft's procedure, their expected profiles and how they would interact with each other. The recommendation from this investigation aims to improve awareness of the impact of various procedures on other controlling units. The investigation also highlighted a possible issue around aircrew selecting the most appropriate service. Instrument procedures in Class G airspace do not offer aircrew protection; aircrew should consider upgrading to a Deconfliction Service early if in doubt.

Summary

An Airprox was reported when an Atlas and a Prefect flew into proximity in the vicinity of Grantham at 0939Z on Wednesday 24th April 2024. Both pilots were operating under IFR in intermittent VMC, the

² MAA RA 2307 paragraphes 1 and 2.

³ MAA RA 2307 paragraph 12.

Atlas pilot in receipt of a Traffic Service from Waddington Director and the Prefect pilot in receipt of a Traffic Service from Cranwell Departures.

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 discussed the actions of both pilots and those of the controllers. They noted that both pilots had received information from their CWS and had also received Traffic Information from their respective controller. However, the controllers had not clearly communicated the intentions of their aircraft to each other sufficiently, so that the Cranwell controller had not initially been aware that the Atlas had been inbound to Waddington and the Waddington controller had not been aware that the Prefect had been on an unrestricted departure climb to FL100. That being said, members were satisfied that subsequent actions had meant that there had been sufficient separation between the aircraft and that there had been no risk of collision. It was therefore agreed that normal safety parameters had pertained and, as such, the Board assigned Risk Category E to this event. Members agreed on the following contributory factors and outcomes (detailed in Part C):

CF1: The Cranwell and Waddington controllers had not sufficiently communicated the intentions of their respective aircraft.

CF2: The STCA had been activated.

CF3: The pilots could have requested a Deconfliction Service.

CF4: The Atlas pilot had received a TCAS TA.

CF5: The Prefect pilot had received information on the Atlas from their TAS.

CF6: Both aircraft had been obscured from each other by cloud.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

| 2024062 | | | | |
|---|---------------|--|--|--|
| CF | Factor | Description | ECCAIRS Amplification | UKAB Amplification |
| Ground Elements | | | | |
| • Situational Awareness and Action | | | | |
| 1 | Human Factors | • ATM Coordination | Coordination related issues (external as well as internal) | |
| • Electronic Warning System Operation and Compliance | | | | |
| 2 | Technical | • STCA Warning | An event involving the triggering of a Short-Term Conflict Alert (STCA) Warning | |
| Flight Elements | | | | |
| • Tactical Planning and Execution | | | | |
| 3 | 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 |
| • Electronic Warning System Operation and Compliance | | | | |
| 4 | Contextual | • ACAS/TCAS TA | An event involving a genuine airborne collision avoidance system/traffic alert and collision avoidance system traffic advisory warning triggered | |
| 5 | Contextual | • Other warning system operation | An event involving a genuine warning from an airborne system other than TCAS. | |

| | | | | |
|-----------------|------------|---------------------|---|---|
| • See and Avoid | | | | |
| 6 | 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: E.

Safety Barrier Assessment⁴

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

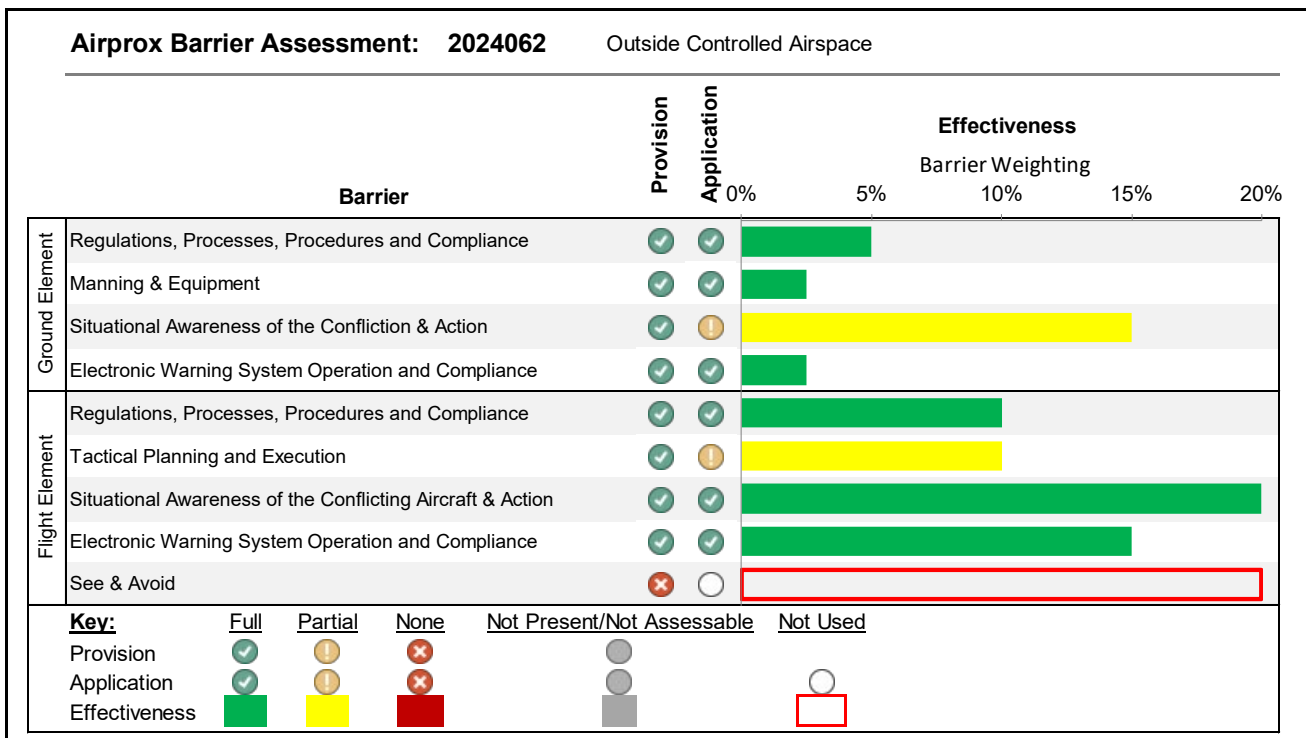
Ground Elements:

Situational Awareness of the Confliction and Action were assessed as **partially effective** because the Cranwell and Waddington controllers had not communicated clearly, so that neither controller fully understood the intentions of the other.

Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because, given the prevailing weather conditions, the pilots could have requested a Deconfliction Service.

See and Avoid were assessed as **not used** because the aircraft had been obscured from each other by cloud.



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