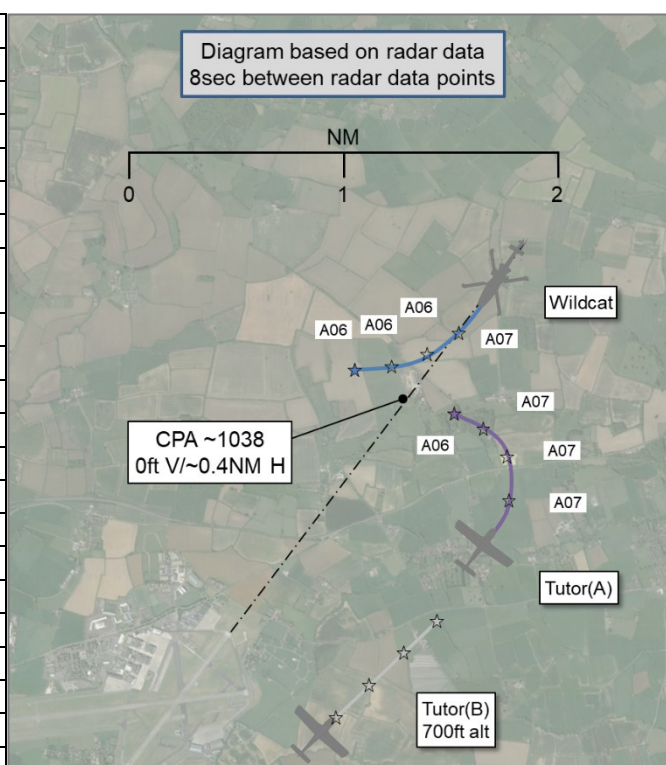


AIRPROX REPORT No 2022237

Date: 06 Oct 2022 Time: ~1038Z Position: 5102N 00237W Location: 1.5NM NE RNAS Yeovilton

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

| Recorded | Aircraft 1 | Aircraft 2 |
|--------------------------|--------------------|-----------------|
| Aircraft | Wildcat | Tutor(A) |
| Operator | RN | RN |
| Airspace | Yeovilton MATZ | Yeovilton MATZ |
| Class | G | G |
| Rules | VFR | VFR |
| Service | Traffic | ACS |
| Provider | Yeovilton Talkdown | Yeovilton Tower |
| Altitude/FL | ~600ft | ~600ft |
| Transponder | A, C, S+ | NK |
| Reported | | |
| Colours | Two-tone grey | White |
| Lighting | HISL | NK |
| Conditions | VMC | VMC |
| Visibility | >10km | >10km |
| Altitude/FL | NK | NK |
| Altimeter | QNH (NK hPa) | NK (NK hPa) |
| Heading | 220° | NK |
| Speed | NK | NK |
| ACAS/TAS | NK | TAS |
| Alert | Not reported | Not reported |
| Separation at CPA | | |
| Reported | 0ft V/200-400yd H | 0ft V/NK H |
| Recorded | 0ft V/~0.4NM H | |



THE WILDCAT AIRCRAFT COMMANDER reports conducting a PAR to RW22 at RNAS Yeovilton at the end of a CTR navigation sortie. At 3NM, the aircraft was directed to continue by the Talkdown controller. At about 2NM, the aircraft was told to break off the approach and that there were 'two ahead'. As the aircraft commenced a turn to the right, the aircraft commander (sat in the instructor/jump seat [in the rear of the aircraft]) looked to their left and saw a Grob Tutor in about the 8 to half-past 8 position at the same height, about 200-400yd and closing. This was unexpected as the call from ATC had been that there were two ahead. At this stage the aircraft commander decided to call an Airprox because they considered that safety had been compromised.

The aircraft commander perceived the severity of the incident as 'Medium'.

THE TUTOR(A) INSTRUCTOR reports they had just returned from an instructional sortie, joining the visual circuit via Initial for RW22. At the downwind position they gave the standard call stating their intention to land. ATC informed them that there was instrument traffic on an approach to RW22 at approximately 6 miles, but that they had priority (No 1) in the circuit to land. During the final turn, just before rolling out on the extended centreline, they saw a Wildcat helicopter to the right, same altitude but on the deadside. There was no immediate conflict as there was sufficient safe separation and they were offset and flying on the deadside. At that moment the Wildcat turned away to the northwest (they assumed they had just seen them) and was instructed by ATC to hold at Podimore. They continued the approach and landed.

The pilot perceived the severity of the incident as Low.

THE YEOVILTON TOWER CONTROLLER (ADC) reports they had two Tutors in the visual circuit conducting grading sorties [Tutor(A) C/S] and [Tutor(B) C/S]. Leading up to the event, they had an internal 6NM call from PAR for [Wildcat C/S] on a PAR for RW22 to land. They rebroadcast this on the

Tower frequency. Looking at where the Tutors were (the visual circuit traffic having priority) the short circuit for RW22 and the grading sorties, the controller had decided early they would have priority over [Wildcat C/S]. [Tutor(A) C/S] called downwind to land. [Tutor(B) C/S] called downwind to low approach and go-round. They then had the 4NM call from PAR for [Wildcat C/S]. They broadcast this on [the Tower frequency] and informed [Tutor(A) C/S] they would be ahead of the radar traffic, purely for their planning and SA. [Tutor(A) C/S] called finals and was cleared to land. They then had the 3NM call from PAR to request a clearance. They opted to pass a 'continue' to allow them to get the most out of the approach instead of a straight break-off. They then had the 2.25NM clearance request from PAR. They passed 'break-off the approach 2 ahead'. [Wildcat C/S] then called that they were breaking off the approach and declared an Airprox.

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

THE YEOVILTON SUPERVISOR reports that the previous 15-20min had been quite busy with Tutor 'Grading' circuits and non-standard R/T calls, necessitating liaison with the squadron for clarification. There were 2 Tutors in the visual circuit for RW22 (the shorter runway) and a Wildcat on PAR. As the 4NM call came to ADC, they noted the position of the first Tutor downwind. The ADC broadcast the 4NM call and then told the downwind Tutor pilot that they were ahead for the runway. The Supervisor questioned the controller on the decision and was happy with the explanation, namely that the Tutors were conducting Grading (early sorties) and that, as the recovery state was 'Visual', the circuit traffic had priority. At 3NM, the ADC continued the PAR traffic in order to give the Wildcat maximum training benefit of the approach. The Tutor pilot called finals and was given a clearance. At 2.25NM the PAR controller requested a clearance and the ADC issued a 'break-off 2 ahead'. One Tutor was on finals turn and the other downwind. The Wildcat pilot came onto the Tower frequency and immediately declared an Airprox. At this stage the Supervisor was unsure as to which aircraft could have been in conflict.

Factual Background

The weather at Yeovilton was recorded as follows:

```
METAR EGDY 061150Z 23009KT 9999 FEW030 SCT035 17/10 Q1029 NOSIG RMK BLU BLU=
METAR EGDY 061120Z 25009KT 9999 SCT030 // // // // // 17/10 Q1029 RMK BLU=
```

Relevant extracts from the RNAS Yeovilton Defence Aerodrome Manual (DAM) were provided as follows:

501.6 Break Off Procedure.

In the event of a rotary wing being broken off from its PAR/SRA/ILS to the duty runway, the pilot will be instructed to carry out the following actions:

- a. *If not visual with the airfield- Execute Missed Approach Procedure. (See para 501.7 below).*
- b. *If visual with the airfield- Fly through or join deadside, not above 500ft QFE and call Yeovil Tower for further instructions. This is a VFR procedure and pilots should keep a particularly good lookout for other aircraft operating within the circuit and deadside. (See para 601.4 regarding the limits of the deadside.)*

603.3 Integration of Visual Circuit and Instrument Traffic.

The Aerodrome Controller shall determine the landing sequence of all aircraft to ensure the safe integration of visual circuit and instrument traffic. In determining the sequence, the Aerodrome Controller will, where possible, adhere to the following guidance.

- a. *When PAR recoveries are in force, aircraft on instrument approach have priority over visual circuit traffic. Visual circuit traffic may be instructed to make themselves number 2 to the instrument traffic. Aircrew may elect to alter their visual circuit to accommodate the higher priority traffic or go around.*
- b. *To aid expedition or in the interests of safety the aerodrome controller may choose not to conform to the priorities laid down in para A.*

603.4 Visual Circuit Capacity and Priorities.

There are not normally to be more than 4 aircraft in the visual circuit, except with command approval (this does not include IFR/VFR departures/recoveries/approaches). Visual circuit capacity at night is reduced to a maximum of **three** air systems. In order to achieve maximum training value during busy periods, the following procedures are to be followed:

a. Priority within the visual circuit is to be applied as follows where it is safe to do so and does not override standard ATC procedures:

- (1) Solo fixed wing students.
- (2) QFIs conducting syllabus training/IRIs conducting tests.
- (3) QHIs conducting syllabus training.
- (4) All other flights

b. Priorities within the visual circuit will continue as laid down as above, but it should be noted by all that Flying Grading/EFT courses are more sensitive to prioritised use of the visual circuit. 727 operations also have a greater imperative for into-wind runway use i.a.w. their crosswind limitations.

Analysis and Investigation

UKAB Secretariat

The Wildcat and Tutor 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 An aircraft operated on or in the vicinity of an aerodrome shall conform with or avoid the pattern of traffic formed by other aircraft in operation.²

Neither aircraft appeared on the NATS Ltd area radar replay at the time of the Airprox, however, RNAS Yeovilton supplied a manually recorded replay of the Yeovilton area radar (see Figure 1), from which the Part A diagram was assembled. Timings were not shown on the Yeovilton recording; the time at CPA was estimated from the Tower R/T transcript.



Figure 1: CPA

¹ MAA RA 2307 paragraphs 1 and 2.

² MAA RA 2307 paragraph 17.

The Airprox Board process was completed after the May 2023 Board meeting, but several relevant and previously unknown factors were identified once the draft report had been issued. Consequently, Yeovilton undertook a second investigation, which is reproduced below, after the Summary section.

Yeovilton Occurrence Investigation

The RNAS Yeovilton investigation determined the outcome, cause and one causal factor as follows:

Outcome: The aircraft commander of [Wildcat C/S] deemed that separation between themselves and the Grob Tutor was degraded enough to declare an Airprox.

Cause: When [Wildcat C/S] was told to break off the approach for "two ahead" the perception from the aircrew was that the other traffic was ahead spatially. This was not the case as the traffic was actually ahead of them "on the procedure". Having spoken to the Yeovilton DATCO there is no legal requirement to give the aircraft a further traffic call, however, they believed that it would be considered normal for a controller to break them off and give the aircrew an amplifying traffic call. Due to the lack of traffic call, the crew of [Wildcat C/S] had degraded SA of a potential hazard.

Causal Factor: The DATCO at the time of the investigation believed that most controllers would have given the amplifying traffic call. It may not have happened on this occasion due to experience or high workload. Aircrew have been made aware that this can happen so there is no need for any further action.

Comments

Navy HQ

A local DASOR investigation was conducted and led by 825 NAS, supported by ATC and 727 NAS.

The Yeovilton Aerodrome Controller (ADC) and Talkdown Controller correctly discharged their duties in accordance with national and local procedures and regulations. An additional, more detailed Traffic Information call may have increased the Wildcat pilot's situational awareness to aid them in becoming visual with the Tutor(s) sooner.

The standard broadcasting of Traffic Information to circuit traffic by the ADC, coupled with effective aircrew lookout, enabled the Tutor pilot to become visual with the Wildcat in ample time to ensure there was no risk of mid-air collision. Despite different situational awareness, the Wildcat pilot's effective lookout provided sufficient time to maintain safe separation against the Tutor in VMC.

Summary

An Airprox was reported when a Wildcat and a Tutor flew into proximity at RNAS Yeovilton at about 1038Z on Thursday 6th October 2022. Both pilots were operating under VFR in VMC, the Wildcat pilot in receipt of a Traffic Service from Yeovilton Talkdown and the Tutor pilot in receipt of an ACS from Yeovilton Tower.

Second Yeovilton Occurrence Investigation

INTRODUCTION

An Airprox occurred at RNAS Yeovilton (VL) between an RN Wildcat from [Wildcat squadron] and a Tutor from [Tutor squadron]. The incident was the subject of 3 DASORs from [Wildcat squadron], [Tutor squadron] and VL ATC with the [Wildcat squadron] report designated as the Prime DASOR.

The publication of the UK Airprox Board's draft report prompted concern from VL ATC that the facts of the original situation had not been correctly represented. Subsequently, the UK Airprox Board decided to revisit this incident on completion of a further Local Investigation [LI]. Of particular concern was the fact that the original investigation had not involved the 2 key ATC personnel who were on duty at the time or gathered sufficient detail from the pilot of the Wildcat.

AIM

There are 3 key aims of this follow up Local Investigation:

- a. To ensure that all personnel involved in the incident have had the chance to give their thoughts and opinions.
- b. To identify any shortfalls in understanding, training and procedures and recommend effective corrective action.
- c. To ensure that Aircrew and Airspace are as safe as reasonably practicable.

INITIAL INVESTIGATION

Due to a change of personnel and a backlog of DASORs, the LI into the Airprox took place 2½ months after the event. This was of some concern as it made it harder to access the individuals involved and memories had faded. The Investigator made efforts to gather all of the relevant information but did miss some significant detail.

In particular the DATCO and Tower controllers on the day were not spoken to in person and the radar trace was not viewed.

The initial investigation referred to the experience level and workload of the controllers, which appears to have been supposition by someone without the facts at hand. This investigation found that, far from being a cause for concern, the team on the day were highly competent and very experienced.

This sort of incident is routinely investigated by the reporting Unit; with hindsight, an independent LI from outside the squadron may have provided more insight.

FOLLOW UP INVESTIGATION

The pilot of the Wildcat was interviewed in person and the other 2 members of the crew were interviewed by telephone.

The Duty ATC Controller (DATCO) as well as the Tower Controller (ADC) were interviewed in person. They had previously provided their written responses to the draft Airprox report.

The Aircraft Commander of the Tutor was also interviewed in person.

A significant amount of time had passed since the incident and it was clear that some memories had faded. However, the original documentation was available and a thorough understanding of the situation has been gained.

The Investigation did not attempt to trawl back through every detail of the original investigation and those DASORs stand as contemporaneous documents. This investigation focused on the key themes that had not been thoroughly examined.

- a. Separation
- b. Situational Awareness
- c. PAR & Break Off Procedure

d. Fuel State

SEPARATION

Of the many people who were interviewed, all but one were of the opinion that no Risk of Collision had existed. However, the investigation concluded that the separation between the 2 [aircraft] had become reduced unnecessarily.

SITUATIONAL AWARENESS

At 2¼ miles the Wildcat [pilot] was told to break-off the approach "2 ahead". The 2 senior members of the Wildcat crew, both Observers, took this to mean that there were 2 aircraft physically in front of them, whereas in reality the "2 ahead" were ahead in terms of priority for use of the runway. The nearer Tutor was indeed late downwind/turning final and so not directly in front of the Wildcat.

The Wildcat pilot was in visual contact with the Tutor throughout and assessed that there was no risk of collision.

PROCEDURE

The PAR procedure was followed correctly by the ATC team. Extra information beyond that required is often passed when the situation demands it. In this situation, the Wildcat pilot knew that they were entering the deadside of an active circuit under VFR and it was their own obligation to identify traffic.

The standard range to terminate the PAR is 3 miles if there is no expectation of a landing clearance. However, at the request of flying units, it is normal practice to continue to the 2-mile point, to maximize the training benefit to aircrew. While this is widely understood, on this occasion it moved the Wildcat closer to the airfield, reducing the available space between the Wildcat breaking off the approach and the visual circuit [traffic].

The break-off call was made at 2 miles, at which point the Wildcat [pilot was] obliged to enter the deadside and fly at 500[ft]. However, the radar trace clearly [showed] that the Wildcat [pilot] remained on the centreline for approximately another mile.

The [Wildcat] pilot had successfully completed the Instrument Flying phase of [their] training and was flying as a single pilot. However, [they were] relatively inexperienced and, at the time of the incident, were unclear exactly what was required of [them] at the point of breaking off the approach.

Having broken into the deadside, the Wildcat [pilot] was then instructed to go to "Podimore", a local VFR Hold Point. [Their] track over the ground gave the Tower controller concern that [they were] unfamiliar with the procedure. While this was after the Airprox CPA and not wholly relevant, it added to the impression that the aircrew were in an unfamiliar situation.

One of the factors considered when sequencing circuit and instrument traffic is the overall priority decided by the Station. In this case, grading sorties in the Tutor are prioritized ahead of routine Wildcat ops. While the investigation concluded that this did not contribute to the Airprox, it is worth considering whether this adds extra workload to a busy situation.

FUEL STATE

When the Wildcat [pilot] was instructed to hold at Podimore, they replied that they did not have enough fuel to do so and were then given clearance to land.

There was concern that the low fuel state of the Wildcat had been a factor in them continuing down the centreline. However, the Wildcat crew [were] clear that this was not the case. They certainly did not have the fuel to hold for an extended period of time but did have enough fuel to enter the [visual] circuit.

It became apparent that there is a lack of understanding by ATC about the fuel management within a Wildcat aircraft. These aircraft will routinely return to Yeovilton at or near to Minimum Landing Allowance (MLA) and not call for a fuel-priority landing.

CONCLUSION

This investigation into the Airprox considered there to be a negligible risk of collision due to the Wildcat pilot maintaining visual contact with the Tutor throughout. However, it did conclude that the separation between the 2 air systems had been reduced unnecessarily. It highlighted a potential lack of procedural knowledge in Wildcat student pilots as well as the need for increased liaison between flying units and Air Traffic Control.

CAUSE

Failure of the Wildcat [pilot] to correctly follow the break-off procedure as instructed.

CAUSAL FACTOR

Misunderstanding of the correct procedure by the Wildcat pilot.

CONTRIBUTORY FACTOR

Low experience level of the Wildcat pilot.

Continuing the PAR in to 2 miles.

OBSERVATIONS

ATC is unaware that Wildcat aircraft will routinely return at or near MLA.

Having pre-set Station circuit priorities adds extra work to an already busy environment.

RECOMMENDATIONS

ATC should consider conducting a safety assessment on the process of integrating PAR traffic into the visual circuit.

Where practicable, a Local Investigation into an Airprox should not be conducted by the unit directly involved in the event.

Local Investigations into significant events such as an Airprox must be conducted within 7 days, iaw BR767 NAO 1410.

Key Station stakeholders should review the validity of pre-set landing priorities.

[Wildcat Force] and VL Air Dept should liaise to discuss the significance of routinely returning at or near MLA.

[Wildcat Force] must ensure all aircrew have a full understanding of break-off procedures.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from the Wildcat aircraft commander (Observer), Tutor pilot, radar photographs/video recordings, a report from the air traffic controller 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.

[UKAB Note: The Board first discussed this Airprox at the May 2023 Board meeting. The draft report prompted a response from Yeovilton ATC that resulted in an additional Yeovilton Occurrence Investigation which established additional facts pertinent to the Airprox.]

In their May 2023 discussion, Board members were concerned that the Wildcat and Tutor pilots had each seen the other aircraft at a late stage, at least in part because, in their opinion, the approach procedure did not allow for sufficient situational awareness of circuit traffic to be passed to the pilot on the instrument approach. However, the second Yeovilton Occurrence Investigation established that the Wildcat pilot had been visual with Tutor(A) 'throughout'. The Board agreed that in these circumstances, although the Wildcat pilot had had only generic situational awareness (**CF3**) and the Tutor(A) pilot had seen the Wildcat at a late stage (**CF4**), there had been no risk of collision. However, members reiterated their concern regarding the integration of instrument approach traffic into the visual circuit: in this case, the approach was being conducted in VMC and the weather conditions were such that the recovery state was 'Visual', with 2 Tutor aircraft in the visual circuit. The Board considered that the design of the visual circuit is such that, even under an Aerodrome Control Service, the ultimate barrier to mid-air collision is visual deconfliction by the pilots involved. Pilots can only visually deconflict from one another if they are visual with the other aircraft within the circuit. A threat therefore arises if the pilot on an IAP does not gain visual contact with circuit traffic before arriving in the vicinity of the visual circuit. This threat can be managed by imparting sufficient situational awareness that the IAP pilot or circuit traffic pilots or both are able to visually acquire each other and, if visual acquisition is not achieved, by routing the IAP pilot such that they remain clear of circuit traffic. Members expressed their concern that current airfield regulations may be inadequate (**CF1**) in that the broadcast of generic Traffic Information to the IAP pilot could be insufficient or too late to establish the required situational awareness (**CF2**) to achieve visual contact before entering the visual circuit. The Board considered whether to make a formal recommendation but noted the first recommendation of the Second Yeovilton Occurrence Investigation and agreed that RNAS Yeovilton had the situation in hand.

Finally, members noted that the initial Airprox DASOR had not included the essential information that the Wildcat pilot had been visual with Tutor(A) 'throughout'. This omission had resulted in a considerable amount of nugatory effort on the part of the several agencies involved and the avoidable delay of the final Airprox report by 2 months. The Board emphasised that in order to complete the correct and timely analysis of an Airprox event, as complete a picture as practical is required and that, in the case of Airprox involving military aircraft, the Local Investigation must be conducted within the timescale mandated under military regulation. In that regard the Board were heartened by the Second Yeovilton Occurrence Investigation recommendations.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

| CF | Factor | Description | ECCAIRS Amplification | UKAB Amplification |
|---|----------------|-------------------------------------|--|---|
| Ground Elements | | | | |
| • Regulations, Processes, Procedures and Compliance | | | | |
| 1 | Organisational | • Aeronautical Information Services | An event involving the provision of Aeronautical Information | The Ground entity's regulations or procedures were inadequate |
| • Situational Awareness and Action | | | | |
| 2 | Human Factors | • ANS Traffic Information Provision | Provision of ANS traffic information | TI not provided, inaccurate, inadequate, or late |
| Flight Elements | | | | |
| • Situational Awareness of the Conflicting Aircraft and Action | | | | |

| | | | | |
|-----------------|---------------|--|--|---|
| 3 | 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 |
| • See and Avoid | | | | |
| 4 | 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 |

Degree of Risk: C.

Safety Barrier Assessment³

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

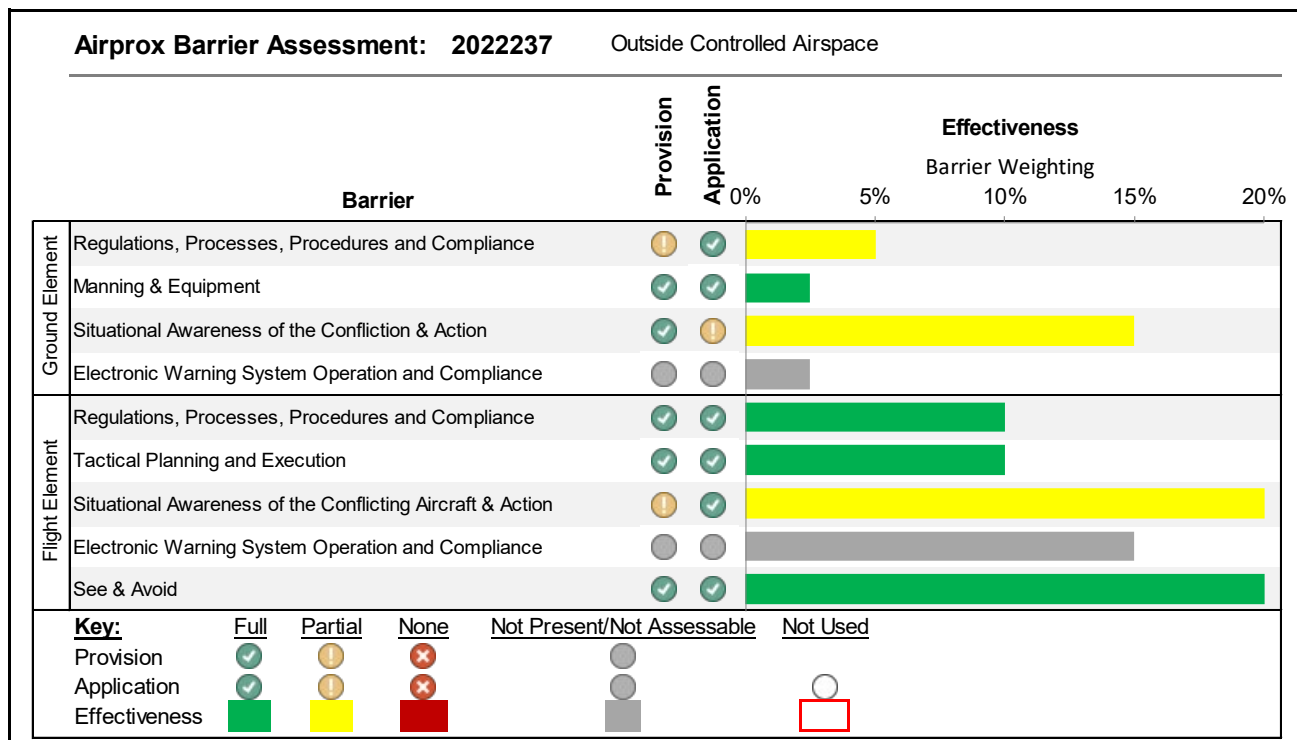
Ground Elements:

Regulations, Processes, Procedures and Compliance were assessed as **partially effective** because visual deconfliction is required in the visual circuit but pilots of aircraft arriving on an IAP are only afforded specific Traffic Information at or beyond the break-off point, thereby limiting situational awareness and visual acquisition.

Situational Awareness of the Confliction and Action were assessed as **partially effective** because the Wildcat pilot was given generic and late Traffic Information (iaw ATM rules).

Flight Elements:

Situational Awareness of the Conflicting Aircraft and Action were assessed as **partially effective** because the Wildcat pilot had generic and late Traffic Information (iaw ATM rules).



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