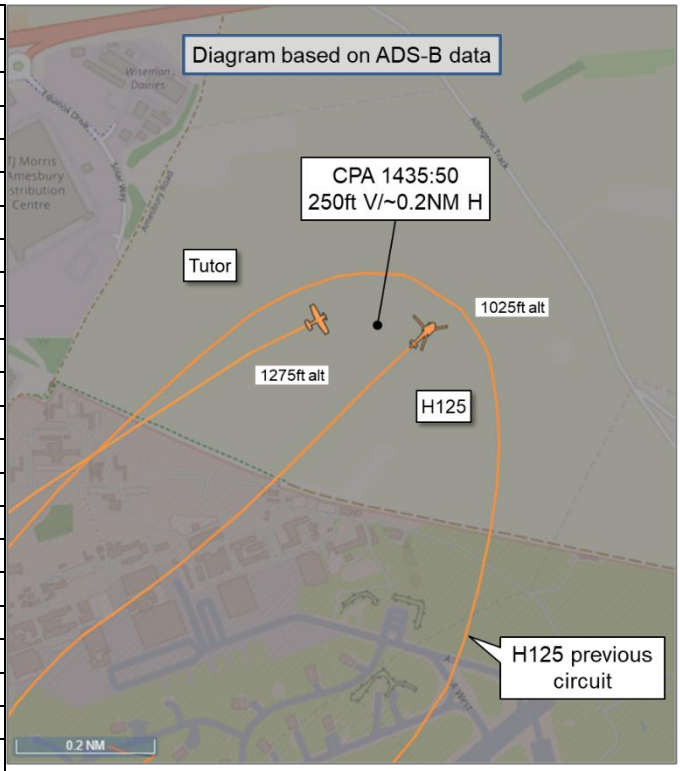
AIRPROX REPORT No 2024206

Date: 13 Aug 2024 Time: 1436Z Position: 5110N 00144W Location: MoD Boscombe Down

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Airbus H125	Grob Tutor
Operator	Civ Comm	HQ Air (Trg)
Airspace	Boscombe ATZ	Boscombe ATZ
Class	G	G
Rules	VFR	VFR
Service	ACS	ACS
Provider	Boscombe Tower	Boscombe Tower
Altitude/FL	1025ft	1275ft
Transponder	A, C, S+	A, C, S+
Reported		
Colours	White, red, blue	White
Lighting	Nav, anti-col, HISL	Beacon, nav
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	500ft	800ft
Altimeter	QFE (995hPa)	NR (NR hPa)
Heading	050°	050°
Speed	65kt	NR
ACAS/TAS	TCAS I	NR
Alert	TA[1]	NR
Separation at CPA		
Reported	'100m approx'	NR
Recorded	250ft V/~0.2NM H	



THE H125 PILOT reports conducting the Avoid Curve exercise of the ETPS RW Long Course with a Student Test Pilot. The sortie was scheduled within the Rotary Wing 'Sole User' period at the airfield, during which Tutor circuits were not permitted but departures and arrivals were permitted at 800ft QFE. The ETPS exercise had been notified to Station Ops as requiring circuit priority due to high workload, the need to set up very accurately on radalt height and airspeed before each throttle chop, and the extensive use of the grass landing strips which conflict with fixed-wing take-offs and landings when the wind [direction] indicates the use of RW05/23 grass. To avoid nuisance audio, which could prevent effective communication during the exercise, the aircraft TAS was muted in accordance with the exercise safety documentation. As this was a student delivery sortie, the Flight Test Instrumentation was recording aircraft data including audio; relevant transcripts of radio calls from subsequent analysis are included in brackets. Following the first landing, departure clearance was requested and received ("[H125 C/S] ready 23 grass", "[H125 C/S] clear for take-off grass, wind 210/11"). No Traffic Information was passed. A few seconds later the Tutor [pilot] called downwind and was approved for the main runway, however, these calls were not heard by either crew of [H125 C/S] ("[Tutor C/S] downwind land, request the main", "[Tutor C/S] main approved, wind 210/11"). Again, no Traffic Information was passed. [H125 C/S] downwind call was made when abeam the threshold of RW23 grass, with no response from ATC. This was noted by the crew but, because they could see the PC21 on its take-off roll and had some distance to run before turning finals, they did not think it was an issue. At the end of the downwind, whilst at 500ft QFE, they heard the Tutor [pilot] call turning finals ("[Tutor C/S] turning finals runway 23"). This was the first time they were aware of the Tutor and, knowing that their finals turn to RW23 descended through the Rotary Wing circuit at 500ft, immediately looked for the Tutor and saw it in the 8 o'clock position at approximately 100-150m on a converging flight path, slightly above and descending. Avoiding action was taken, breaking right and descending rapidly to approximately 100ft QFE before turning left to ensure lateral separation. Both [Tutor C/S] and [H125 C/S] were following

[1] Observed after flight from recorded aircraft data.

procedures in accordance with the Boscombe Down Aerodrome Order Book, as modified by the Duty Holder Advice Note dated 13 Jun 24. Air Notice 101 (now incorporated into Mil AIP, AD2 - EGDM) placed additional restrictions on Tutor traffic to avoid a Clay Shooting Range at Beacon Hill by 300m when below 1100ft QFE; this forces Tutor [pilots] to turn final early and land long on RW23 instead of making an approach to the threshold. In practice, this [results in] a mid-air conflict between Tutors and Rotary Wing [aircraft] when following published procedures. Had the H125 pilot not heard the [Tutor pilot's] final call and initiated avoiding action the probability of mid-air collision would have been very high. Whilst the Tutor [pilot] called that they had lost visual with them after the event, their converging and descending flightpath prior to the H125 pilot's avoiding action indicated that they were not aware of the confliction up to that point. [Tutor C/S] had been passed Traffic Information when joining North Lane for recovery ("Boscombe Tower good afternoon [Tutor C/S] {inaudible} North Lane for RW23 and 995 set", "[Tutor C/S] Boscombe Tower join north side circuits left hand QFE 995 hectopascals got one in north side"), and when reporting at Stonehenge ("[Tutor C/S] at Stonehenge", "[Tutor C/S] just got a Squirrel on the grass and a PC21 holding for departure") but had received no traffic update when joining downwind, and [the H125 crew] were not passed information on joining traffic in their take-off clearance. Extant procedures put both aircraft at the same point in space by design and a very high probability of mid-air collision was only prevented by hearing the finals call, locating the conflicting aircraft very rapidly, and taking avoiding action.

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

THE TUTOR PILOT reports flying an AEF sortie and joining the circuit from Stonehenge. At Stonehenge they made the required call on Tower [frequency] to inform circuit traffic of their position. The cadet had stated they did not feel well, but had not been physically sick, so an expeditious landing was planned. [They were] given Traffic Information on a departing PC21 and a Squirrel ([H125 C/S]) on the grass. [H125 C/S] was cleared for departure as [Tutor C/S] joined downwind at 800ft. [Tutor C/S] was visual with [H125 C/S] as the Squirrel lifted and began to depart upwind. At this point [Tutor C/S] called downwind to land requesting RW23 main; they remained visual with [H125 C/S] which was now positioned inside but paralleling and overtaking them at 500ft. [H125 C/S] then called downwind but was given no Traffic Information about the Tutor ahead, immediately after which [Tutor C/S] called final for RW23 main and was given clearance to land RW23 main. [Tutor C/S] was now approaching the Beacon Hill shooting range (an avoid up to 1100ft) and so began the final turn. They remained visual with [H125 C/S] which was now turning and descending below them, but then lost sight of [it] and so started a go-around climbing to 800ft. [Tutor C/S] then requested a right-hand orbit onto downwind and was cleared by ATC. At this point [H125 C/S] transmitted "That's another Airprox". [Tutor C/S] questioned whether this was against him, to which [H125 C/S] replied yes. [Tutor C/S] stated he did not know why the Airprox had been called but he would discuss it on the ground. OC 2 AEF visited ATC the following morning and listened to the ATC tapes of the incident, which confirmed the accurate chronology of the events reported. Data from [an internet flight tracking website] appeared to show that their recollection of positions and subsequent movement was correct. OC 2 AEF spoke to the Captain of [H125 C/S] on the morning of 14 Aug at approximately 0930 to discuss the event. [H125 C/S] confirmed that in their opinion the Tutor pilot had done nothing wrong, but there had been a breakdown in procedures leading to the event. They confirmed they were fully aware of the Beacon Hill restrictions and the need for the Tutor to turn finals early as dictated by the BDN procedures.

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

THE BOSCOMBE TOWER CONTROLLER reports operating in clear conditions with 2 rotary-wing aircraft (500ft QFE) and one Tutor aircraft (800ft QFE) in the north circuit and one rotary in the south circuit (500ft QFE). The rotary aircraft in the north circuit were making approaches to the RW23 grass strip. They gave clearance to 'land main' to the Tutor [pilot] calling final whilst the rotary-wing aircraft was orbiting north-side at 500ft QFE. The next transmission came from [the Tutor pilot] explaining they were going to orbit because they had lost sight of the [H125] orbiting on the downwind leg. As a result [H125 C/S] called an Airprox because they felt the aircraft had got too close and they had had to manoeuvre away from the Tutor, which [the H125 pilot] explained on frequency. They opined that safety could have been highly compromised if the two [pilots] had lost sight of one another, however, the difference in circuit heights should keep them separate.

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

THE BOSCOMBE SUPERVISOR reports they were not in the VCR at the time of the occurrence, but entered shortly afterwards and were informed of the events by the VCR controller. The tapes for the Tower and Ground frequencies were listened to in order to gain a fuller understanding of what had occurred. The Tutor was inbound to land, [its pilot] called the Tower frequency entering North Lane. They then called to report at Stonehenge and were informed of the traffic in the circuit. The [H125 pilot] then departed from the grass and a PC21 was given clearance to take off from the [main] runway. The Tutor [pilot] then called downwind requesting to land on the main runway, which was approved by the Tower controller. Approximately 1min later the [H125 pilot] called downwind. The Tower controller had Ground frequency selected and responded [to the H125 pilot] on that frequency instead of Tower, which was obviously not heard by the [H125 pilot]. Fifteen seconds later the Tutor [pilot] called final for the main [runway] and was given clearance to land on the main by the Tower controller. Five seconds after receiving the clearance the Tutor [pilot] reported [climbing] to orbit current location because they had lost sight of the [H125]. Twenty seconds later the Tutor [pilot] stated they were visual with the [H125], reported final for the main, and was cleared to land on the main by the Tower controller. Five seconds later the [H125 pilot] reported an Airprox and there followed a discussion between the 2 pilots on frequency about what had occurred. The Supervisor noted that throughout most of the afternoon there had been EOLs to the RW23 grass by up to 2 [H125] aircraft at a time. As the grass is between the 23 main and 23 north runways, neither of these surfaces can be used by other aircraft whilst a [H125] is making an approach to or positioned on the grass. This results in the Tower controller frequently having to orbit, send around and hold off inbound aircraft, significantly increasing their workload.

Factual Background

The weather at Boscombe was recorded as follows:

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METAR EGDM 131450Z 20013KT 9999 FEW040 SCT250 23/12 Q1009 NOSIG RMK BLU BLU=
METAR EGDM 131420Z 20013KT 9999 FEW040 SCT250 23/12 Q1009 NOSIG RMK BLU BLU=
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Analysis and Investigation

Military ATM

An Airprox occurred on 13 Aug 24, within the Boscombe Down visual circuit at approximately 1435UTC. The H125 was conducting an instructional flight as part of the Test Pilot syllabus with a student and instructor. The Tutor was also conducting an instructional flight as part of air experience with a student and instructor. The H125 was operating within the visual circuit, whilst the Tutor was conducting a visual recovery. Both pilots were in receipt of an Aerodrome Service from the Boscombe Down Aerodrome controller.

Utilising occurrence reports and information from the local investigations, outlined below are the key events that preceded the Airprox. With both local radar recordings unavailable and NATS radars unable to display the position of both aircraft, the supporting images are taken from FlightRadar24 to indicate the aircraft's relative positions.

MOD Boscombe Down utilises 3 operating surfaces concurrently for RW05/23: the Main, Grass and North. The North is part of the taxiway, whilst the Grass is situated between the taxiway and runway. Concurrent activities are enabled through 3 circuit heights: Fixed Wing at 1500ft QFE, Light Fixed Wing at 800ft QFE and Rotary Wing at 500ft QFE. Depending on user requirements and other activities, these circuits can be flown in a combination of left-hand and right-hand patterns. In recognition of the complexity of the visual circuits, 'Sole User' periods are established where required to give a specific aircraft type priority use of the visual circuit environment. During the period of the Airprox, Rotary Wing Sole User procedures had been established for the H125, this prevented non-Rotary Wing aircraft conducting circuits but were permitted departures and recoveries through standard integration.

At 1432:03, the Tutor pilot reported established in the north lane for RW23. The Boscombe Down Aerodrome controller approved the downwind join, and informed the Tutor pilot "*1 in north side*", referring to the H125 which was situated on the RW23 Grass.

At 1433:15, iaw local orders, the Tutor pilot reported abeam Stonehenge and the Boscombe Down Aerodrome controller acknowledged the position report with an updated circuit traffic description "*Squirrel on the grass and a PC21 holding for departure*".

At 1434:15, the H125 pilot reported ready for departure from the RW23 Grass, the Boscombe Down Aerodrome controller approved the departure and passed the surface wind.

Figure 1. Estimated relative positions of the H125 and Tutor following the H125's departure.

At 1434:30, the Tutor pilot reported "*downwind to land request the main*"; the Boscombe Down Aerodrome controller approved the request for the use of RW23 Main.

At 1435:23, the H125 [pilot] reported "*downwind 23 grass*", the Boscombe Down Aerodrome controller attempted to acknowledge the position report through passing the surface wind, however, incorrectly transmitted on the Boscombe Down Ground frequency. As the H125 [pilot] was only providing a position report there was no requirement for them to receive an acknowledgment, equally the lack of response did not affect any traffic sequencing actions.

Figure 2. Estimated relative positions of the H125 and Tutor whilst both downwind.

At 1435:56, the Boscombe Down Aerodrome controller provided the Tutor pilot with clearance to land on RW23. The Tutor pilot responded that they had stopped their approach and had entered an orbit due to losing sight of the H125. At 1436:19, the Tutor pilot reported visual with the H125 again and reported they were recommencing their approach to RW23.

A local investigation was conducted by Boscombe Down following the event to identify the Air Traffic Service-related causal/aggravating factors. The outcome of the investigation was a perceived Loss of Safe Separation between two non-co-operating aircraft with no ATS provision-related factors. The requirement to avoid the shooting range located 1km north-east of the RW23 threshold was identified as an aggravating factor given the effect on the Tutor pilot's flight path. Additionally, it was identified that the flying program planning process had insufficiently considered the high-workload of the Test Pilot syllabus serial.

The actions of the Boscombe Down Aerodrome controller were iaw local orders, with relevant Traffic Information in the form of visual circuit positions correctly passed to the Tutor pilot, enabling them to safely integrate into the visual circuit environment. Given that both aircraft were operating on the same frequency there was no requirement for the Boscombe Down Aerodrome controller to provide the H125 pilot with Traffic Information on the Tutor, and equally given they were procedurally separated through the separate circuit heights and patterns there was no requirement for traffic sequencing. Whilst observation of the Aerodrome Monitor may have highlighted to the controller the decreasing lateral separation, occurring as a result of the H125 pilot's extended downwind leg and Tutor pilot's modified final turn, this occurred whilst a separate aircraft was departing and hence required the Boscombe Down Aerodrome controller's attention.

UKAB Secretariat

The H125 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[2]. 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

[2] MAA RA 2307 paragraphs 1 and 2.

operation[3]. The MoD Boscombe Down Aerodrome Order Book (version 13.6 effective at the time of the Airprox) states the following at section 5 EOL Procedures:

> '5.64 RW conducting EOLs to the Grass shall self-sequence behind FW and LFW, which may already have received clearance to use the Main or North. Once they have received clearance to land, they shall not commit to an EOL until the adjacent surfaces are clear of ac.'

Boscombe Down Occurrence Investigation

On the 13th August 2024, [H125 C/S] was crewed by a Test Pilot Student and an experienced Test Pilot Instructor (TPI) from the Empire Test Pilots School flying in accordance with Part ORA of Regulation (EU) No 1178/2011 Part NCC.

[H125 C/S] was conducting Avoid Curve exercises as part of the A3843 Rotary Wing Height Velocity Envelope Module. Weather conditions on the day were good with no cloud below 2000ft, visibility 10km, temperature 22°C, Wind 206° at 12kt.

In accordance with (IAW) DHAN 24-006 QCFO was the priority user at the time of the Airprox.

Also operating in the local area was 6FTS AEF Tutor ([Tutor C/S]) which was crewed by an experienced pilot and an Air Cadet on an air experience flight conducting a 20min air experience sortie.

History of Event

Following the first of several Avoid Curve serials, [H125 C/S] was positioned on the RW23 Grass, rotors turning with the crew carrying out a quick reset, debrief and pre-take-off checks prior to taking off and carrying out the second serial of their sortie. During this time the workload was high with lots of verbal communication between the crew in the cockpit. At this time, there was a Pilatus PC21 lining up to depart on RW23. The [H125 C/S] PIC was also conscious that the PC21 ([PC21 C/S]) was preparing to depart and this could not occur until [their] helicopter had departed.

Around this time (1432:03) Tutor [Tutor C/S] called BDN ATC stating that [they were] established in the north lane and was given permission to "join North side RW23" by ATC.

Shortly after (1433:15) [Tutor C/S] called that [they were] at Stonehenge, ATC acknowledged and provided Traffic Information – "Squirrel on the Grass and PC21 holding for departure". The crew of [H125 C/S] did not recall hearing these radio calls from [Tutor C/S] or ATC. Within the ATC transcript and [H125 C/S] Flight Test Instrumentation there was a record of the transmissions being made.

[H125 C/S] reported "ready on 23 grass" and was shortly after given take-off clearance. They lifted, transitioned, then 40sec later reported "[H125 C/S] downwind 23 grass". The ATC controller was on both Ground and Tower frequencies and responded to [H125 C/S] on the Ground frequency. [H125 C/S] did not receive the ATC transmission.

The pilot of [Tutor C/S] had visually acquired [H125 C/S] whilst it was on the grass and remained visual with [H125 C/S], which was off to [their] right throughout the downwind leg.

Both pilots flew a parallel course downwind, [Tutor C/S] at 800ft and [H125 C/S] at 500ft with a 500ft horizontal displacement. Initially [Tutor C/S] was ahead and would have been in [H125 C/S]'s 10 o'clock, but [H125 C/S] overtook down the inside until, abeam the RW23 threshold, [Tutor C/S] was in [H125 C/S]'s 8'oclock. Up to this point [H125 C/S] was not aware of the Tutor's presence having missed the ATC calls earlier.

[Tutor C/S] had created a mental model and believed that [H125 C/S] was going to be using the RW17/35 grass and would be shortly turning. This mental model was partly derived by the aircraft

[3] MAA RA 2307 paragraph 17.

PIC believing that they had heard [H125 C/S] calling “downwind for 17/35 grass”. Investigators doubled checked the ATC tapes and confirmed this was not the case, however this mental model existed and would have influenced [Tutor C/S]’s decision making.

Abeam the RW23 threshold and rapidly approaching the finals turn point, [Tutor C/S] felt that they were “running out of options”; they made a “Finals” radio call to ATC to prompt [H125 C/S] that they needed to tip in and land on the main runway.

This was the first time [H125 C/S] became aware of [Tutor C/S] being in the circuit with them. After looking out and scanning, [H125 C/S] was surprised to see a Tutor in [their] 8 o’clock position apparently turning towards [them]. The TPI requested for the student pilot to immediately perform a right turn and descent to increase the spacing from [Tutor C/S].

As a result of [H125 C/S]’s evasive manoeuvre, [Tutor C/S], who since establishing in the North Lane had been visual with [H125 C/S], lost sight so initiated their own go-around, climbing to 800ft.

[H125 C/S] transmitted “And err Tower that’ll be another Airprox from [H125 C/S]” on Tower Frequency. There was a radio conversation on the Tower frequency between the two aircraft [pilots]. [Tutor C/S] was confused at the Airprox call as they had been visual with [H125 C/S] since before it lifted from the grass. [Tutor C/S] made the decision to go around and settle [themselves] prior to the next approach and successful landing.

[H125 C/S] continued with their sortie.

Additional Information

The module being flown by [H125 C/S] was very dynamic and placed a high demand on both crew members. An Air Notice was submitted requesting circuit priority in the belief that this would provide adequate deconfliction and allow them priority access to the operating surfaces. However, this was a misconception because “Circuit priority” essentially provided nothing. ATC will control traffic as they see it, sequencing as required to maintain separation and flow.

The activity was raised by ETPS at the Short Cast and Long Cast meetings, where Duty Holders should be able to identify pinch-points in the circuits. However, at the Long Cast and Short Cast, no other Duty Holder raised concerns that could affect their activities on that day. This may have been due to limited understanding of the activity demands.

Conclusion

In the opinion of the investigators, there was a low credible risk of collision between both [H125 C/S] and [Tutor C/S]. As the crew of [Tutor C/S] had been visual with [H125 C/S] from the point of joining the North Lane through to the point the Tutor pilot dipped the wing to start the final turn, called for finals, then lost sight of [H125 C/S], initiating their own go-around to climb to 800ft. When the Tutor [pilot] called finals, [H125 C/S] heard the ATC transmission and this prompted [H125 C/S] to conduct an evasive manoeuvre and declare an Airprox. It is the investigator’s opinion that, as the crew of [Tutor C/S] were visual with [H125 C/S] from when they lifted from the RW23 grass through to when [H125 C/S] declared an Airprox, the credible risk of collision was low. However, this may have been a different interpretation from [H125 C/S] perspective.

The main contributory factor of this occurrence was a high intensity activity being conducted in amongst other traffic and in non-sanitised airspace. Additionally, the capacity required by the sortie compromised the situational awareness of the crew of [H125 C/S]; radio calls were missed, visual lookout was minimal and electronic MAC mitigations were muted. The situation was further exacerbated by the modification of [Tutor C/S] circuit due to Beacon Hill Shooting Range forcing them to turn finals early. All of these factors directly contributed to the circumstances that led to an Airprox being declared.

There were a number of contributory factors that influenced this Airprox, which can be found within additional information paragraphs above.

The Avoid Curve exercises form part of the ETPS Rotary Wing Long Course. The module was initially scheduled to be completed prior to the summer break (July), however, due to aircraft availability and other external factors, the module was delayed. This delay meant that the module now coincided with Air Cadet Tutor Air Experience Flying and the increased sortie levels that [that] brings.

Due to the cockpit workload levels, precision of flying required and the very limited margin for error present during the Avoid Curve exercises, it was normal practice to mute the TAS and [EC device] systems (as detailed in module documentation). From the pilots' perspective, this would remove or severely degrade MAC mitigation.

During this type of activity, the ATO Instructor operates the aircraft close to its limits and then turns the engine off for an Engine Off Landing. This activity requires precision and has a MEDIUM (CATxIMP) level of risk associated with it. Due to the high workload, the TAS is on mute to reduce the likelihood of distraction at critical points within the activity.

Tutor aircraft [Tutor C/S] was on their second sortie having flown a cadet earlier in the day. During this second sortie the Air Cadet became unwell. The aircraft captain did not believe that this influenced any decisions made.

The presence of the Beacon Hill shooting range influenced the shape of the RW23RH light fixed-wing (LFW) circuit pattern with Tutors having to turn finals abeam the threshold and landing long rather than flying the published circuit pattern, overflying the Beacon Hill range and landing on the piano keys. Had the regular circuit pattern been flown, the paths of the [H125 C/S] heading for the RW23 grass and the [Tutor C/S] heading for the RW23 Main would never have bisected.

Direct Causes (DC):

DC1 - Each Individual operator produces and manages their own flying programs which are then raised onto STARS and at Short Cast and Long Cast meetings. However, there is no overarching, knowledgeable, pan DDH/AM coordination or supervision of flying activities at Boscombe Down. Coordination in the style of a Duty Flying Executive would have had more chance of spotting that a high workload/low Situational Awareness (SA) sortie was being carried [out] and that there was potential for conflict within the circuit.

DC2 - Due to the pinch-point created by Tutors turning finals, the likelihood of conflict with rotary operating to the RW23 grass was increased. Prior to the modified LFW circuits, the Tutors would extend further downwind prior to turning finals and, with the rotary circuit operating close-in, there was a very low likelihood of conflict.

DC3 - The Avoid Curve activity is a high workload intensity activity with a student pilot operating the aircraft under supervision of a Test Pilot Instructor. The high crew workload sortie coupled with degraded MAC mitigations was being carried out in a non-sterile area.

DC4 - An Air Notice had been submitted by QCFO requesting circuit priority for the 5th-16th August 2024, the Air Notice was requested for the purpose of Engine Relight sorties. There seemed to be a miscommunication and/or misunderstanding of the term "Priority User" windows. ETPS believed they would have primary access to [the visual circuit] and de-confliction would be mandated for other users. However, ATC controls [pilots] in the circuit and will sequence as required to maintain separation and flow.

Contributing Factors (CF):

CF1 - The vicinity of the Beacon Hill shooting range meant that Tutors were flying a modified RW23RH circuit pattern, with Tutors landing on RW23 commencing their finals turn abeam the

RW23 threshold. During the Avoid Curve activity helicopter [pilots] amend their downwind leg dependant on the serial being flown. This can range from just past the RW23 grass and can extend as far as the RW23 threshold. On this occasion [H125 C/S]'s downwind leg was to the RW23 threshold [which] brought it very close to the path being followed by [Tutor C/S]. Had the Beacon Hill range not been there the Tutor [pilot's] circuit would have extended further downwind, taking [Tutor C/S] well clear of [H125 C/S].

CF2 - The Avoid Curve exercises form part of the ETPS Rotary Wing Long Course. The module was initially scheduled to be completed prior to the summer break (July), however, due to aircraft availability and other external factors, the module was delayed. This delay meant that the module now coincided with Air Cadet Tutor Air Experience Flights, short (20min) sorties with three aircraft operating simultaneously resulting in a higher number of Tutor take-off and landings than normally experienced.

CF3 - The Avoid Curve exercises that [H125 C/S] was conducting are very high workload, dynamic and involve incrementally taking the aircraft to the limits of its performance. With very little margin for error this has the effect of reducing the crew's capacity and situational awareness. This is the most likely reason for the crew missing three situational awareness calls on the ATC [frequency]. Had these calls been heard, it is likely that the crew of [H125 C/S] would have had an awareness that a Tutor was joining via the North Lane.

Comments

HQ Air Command

It seems a breakdown of communication was one of the main factors leading to the declaration of an Airprox. The Tutor pilot was visual with the H125 until the H125 pilot executed an avoidance manoeuvre. Understandably the H125 pilot was startled by the Tutor's presence and took what they believed to be appropriate avoiding action. This manoeuvre caused the Tutor pilot to lose visual and go around but, in doing so, increased separation. A review of Boscombe Down local procedures took place in January 2025, and many measures have been formalised: sanitisation of the visual circuit during high workload training events; improved deconfliction during flight scheduling; clearer description of high workload sorties on the flying programme; review of locations where high workload events can be conducted; clarification of what constitutes a 'priority' in the visual circuit; and relaxation of avoidance criteria for Tutor [aircraft] on the Beacon Hill shooting site. Further discussion on supervisory requirements for the overall flying operation at Boscombe Down is ongoing, which is complicated by the multiple units operating there, each with their own Aviation Duty Holders. Through a combination of these measures, the MAC risk should be mitigated appropriately, but will require continued engagement between all parties to ensure it is both safe and practical.

Summary

An Airprox was reported when an Airbus H125 and a Grob Tutor flew into proximity in the visual circuit at Boscombe Down at 1436Z on Tuesday 13th August 2024. Both pilots were operating under VFR in VMC in receipt of a military Aerodrome Control Service from Boscombe Tower.

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 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.

Members first discussed the pilots' actions and agreed that the Tutor pilot had had sufficient situational awareness of the H125 whereas the H125 crew had had no situational awareness of the Tutor (**CF4**), partly because their highly demanding flight profile had resulted in them not assimilating the Tutor pilot's downwind R/T call (**CF3**) and partly because their TAS had been muted iaw the exercise plan.

Consequently, the H125 crew had been surprised by the presence of the Tutor when they saw it at about CPA and as the Tutor pilot called final, effectively a non-sighting (**CF5**). The H125 crew's late sighting of the Tutor had resulted in avoiding action, partly in the mistaken belief that the Tutor pilot had not seen them. The Tower controller had made the normal calls associated with an aircraft joining the circuit and wondered whether Traffic Information would have been assimilated even if (non-standard) Traffic Information calls had been made. The Board discussed systemic issues and agreed that a root cause of the Airprox was that the ETPS and Tutor AEF activities had occurred at the same time. This had not been the original plan, but the ETPS activity had been delayed such that it had then been concurrent with the Tutor flying. Members felt that, although the activities had originally been deconflicted, the opportunity to deconflict with the now overlapping activities had been missed both at the long term planning stage (**CF1**) and on the day (**CF2**). Members also discussed the circuit patterns and agreed that, whilst vertical separation had been an important safety factor, it could also be asserted that the H125 crew had been positioning for the Avoid Curve exercise, as opposed to flying a visual circuit. Additionally, no doubt in the mistaken belief that their syllabus flight had been afforded deconfliction from other circuit activity, the H125 crew did not self-sequence behind the Tutor (**CF2**) as required by local orders. In sum, it transpired that the H125 exercise had required a higher degree of circuit segregation than had been available on the day. The Board was heartened by the Boscombe Down review of local procedures and the remedial measures that had been formally incorporated into their operating procedures, and was satisfied that this had precluded any need for a formal safety recommendation.

Regarding risk, Board members were unanimous in their opinion that the Tutor pilot had been fully aware of the H125 and that, although the H125 crew had been concerned by its proximity, risk of collision had not been a factor, Risk C.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2024206			
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
	Flight Elements			
	• Tactical Planning and Execution			
2	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			
3	Human Factors	• Monitoring of Communications	Events involving flight crew that did not appropriately monitor communications	
4	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			
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:

Ground Elements:

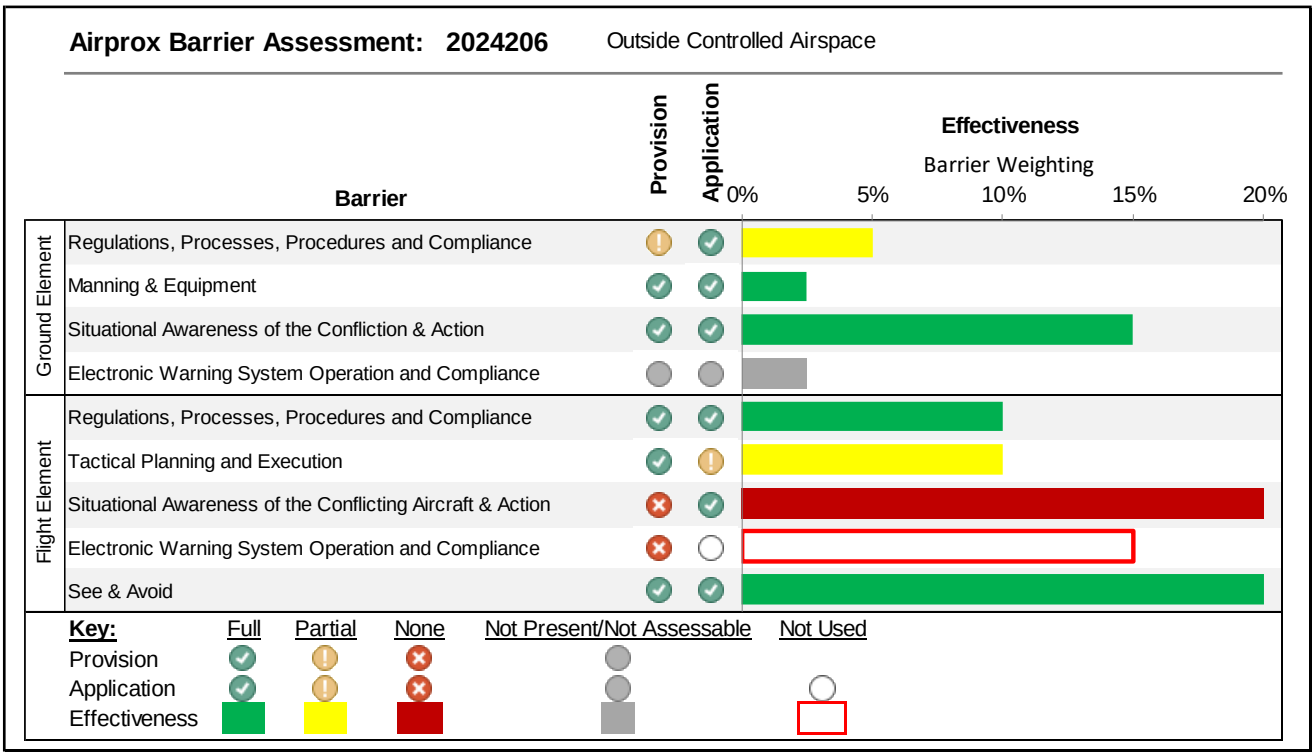
Regulations, Processes, Procedures and Compliance were assessed as **partially effective** because the delay to ETPS activities resulted in an overlap with AEF flying which were not sufficiently deconflicted.

Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because the impact on the delayed ETPS activities was not considered in relation to the planned AEF flying programme.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the H125 crew had had no situational awareness on the joining Tutor and were engaged in a flying task of such intensity that neither assimilated the downwind R/T call from the Tutor pilot.

Electronic Warning System Operation and Compliance were assessed as **not used** because the H125 crew had muted TAS alerts iaw their operating procedures.



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