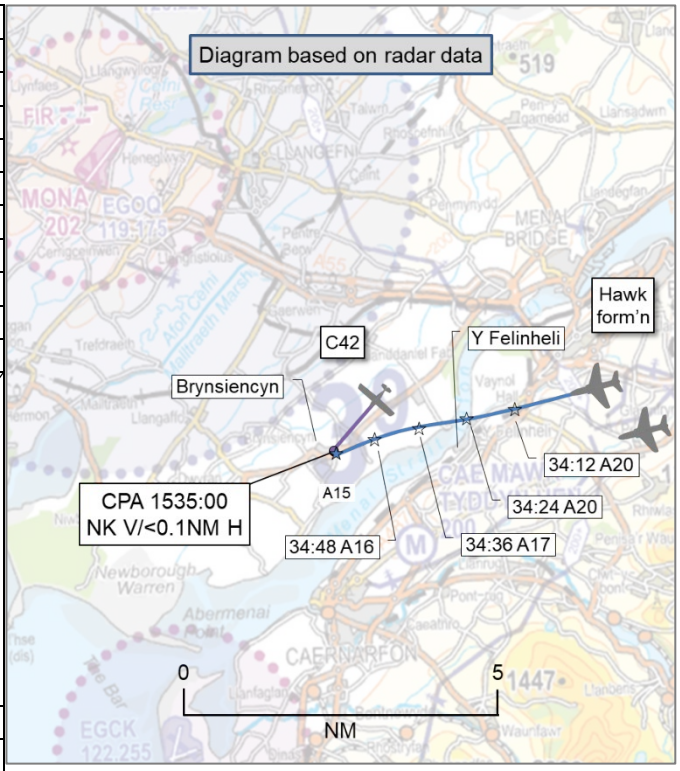
# AIRPROX REPORT No 2025009

Date: 30 Jan 2025 Time: 1535Z Position: 5311N 00417W Location: ivo Brynsiencyn

## PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

| Recorded | Aircraft 1 | Aircraft 2 |
|---|---|---|
| Aircraft | Hawk | C42 |
| Operator | HQ Air (Trg) | Civ FW |
| Airspace | London FIR | London FIR |
| Class | G | G |
| Rules | VFR | VFR |
| Service | Traffic | None |
| Provider | Valley Approach | N/A |
| Altitude/FL | 1500ft | NK |
| Transponder | A, C, S | None |
| **Reported** | | Not Reported |
| Colours | Black | |
| Lighting | HISL, nav, nose | |
| Conditions | VMC | |
| Visibility | >10km | |
| Altitude/FL | 2000ft | |
| Altimeter | QFE (1021hPa) | |
| Heading | 280° | |
| Speed | 300kt | |
| ACAS/TAS | TCAS II | |
| Alert | None | |
| **Separation at CPA** | | |
| Reported | 150ft V/50m H | NK |
| Recorded | NK V/<0.1NM H | |




**THE HAWK PILOT** reports leading a 2-ship formation on a syllabus sortie. Following an exit from low-level via the A5 pass at Bethesda, they contacted Valley Approach. On climbing to height 2000ft they were informed of non-cooperating traffic (non-squawking, non-talking) ivo Menai Straits. At 1532:54, ATC informed them that the traffic was 'south west, no height information'; at this point, they were looking for, but not visual with, the traffic. Of note, RAF Valley Flying Order Book (FOB) recommends a climb to height 2500ft over the Menai Straits following a low level exit, however, due to cloud, this was not possible. Furthermore, civilian traffic transiting the Menai Straits is encouraged to fly at 1500ft. Turning on to a westerly heading to intercept a VFR straight-in approach (SIA) to runway 31RH, they elected to maintain height whilst looking for the traffic. At 1533:26, ATC informed them the traffic was 'south west, 4 miles, no height information'. They elected to track progress, slow from 300kts to 190kts and start a slow descent, ready to configure for the SIA. Whilst continually looking for the traffic, at 1534:07 ATC informed them 'traffic 12 o'clock, 2 miles, no height information, passing right-to-left'. At this point they elected to stop descent and, as none of the formation members were visual with the traffic, elected to start a gentle turn to the south, trying to create sight-line rate and minimise the height variable. Upon starting the gentle turn they became visual with the traffic at a range of about ½NM, which coincided with the pilot of the No.2 Hawk also becoming visual and, concurrently with them calling 'visual' intra-cockpit, called 'come left', at 1534:40. They elected to pass above and in front of the aforementioned traffic, 116sec after first contacting ATC. The formation was positioned for a SIA and recovered with no further incident. Unfortunately, due to the [other pilot] neither talking, nor squawking, [their aircraft] did not show on TCAS and post mission analysis did not provide any additional detail. The traffic was outside the HUD field of view and ATC could not provide any further information. Of note, crew recollection estimated a height separation of approximately 150ft and lateral separation of approximately 100ft. During the in-brief, ATC, who were aware of the incident, and the Executive Flying Supervisor were informed of the Airprox. Furthermore, ATC contacted Caernarfon Aerodrome and enquired as to who was operating the aircraft in question. Information received from Caernarfon indicated that the aircraft was not local to Caernarfon.

Lessons identified:

1) Civilian Traffic.
   a. Civilian [pilots], operating ivo RAF Valley, are encouraged to contact RAF Valley ATC. In this instance with no Mode C, this would have gone some way to more accurately understanding their height profile and accurate 3D location.
   b. It is highly unusual for civilian traffic, from Caernarfon, to be operating 'feet dry' over Anglesey. Furthermore, rules of the air dictate, when following a line feature (the Menai Straits in this instance), aircraft must fly to the right of the feature. This traffic was recovering to Caernarfon and (perhaps) should have flown south of the Menai Straits (iaw 'right-hand rule').
   c. Civilian traffic, in the Menai Straits, is encouraged to operate at or below 1500ft. They (incorrectly) assumed this traffic would be adhering to this local 'agreement'. They would recommend, to all crews, should this instance (or something similar) occur again, it is worth considering a 'Deconfliction Service', thereby ensuring greater separation is achieved.

2) VFR recoveries. This serves as a timely reminder that, when operating within Class G airspace, not all users will utilise all means available to mitigate against LoSS. Furthermore, not all civilian users afford a MATZ the respect it deserves. A multitude of sensors, including the mk-1 eyeball and ATC did not fully mitigate against this incident.

3) Slow moving traffic. As a result, slow moving GA traffic invokes little sight-line rate and, coupled with its size, can be extremely difficult to see. In this instance, manoeuvring the formation resulted in an increase in sight-line rate and resulted in the formation achieving visual identification.

Stay vigilant! As the weather improves, we will experience an increase in GA traffic, not all will be as professional as military operators and not all will have the systems/experience/expertise to mitigate against LoSS.

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

**THE C42 PILOT**: The C42 pilot could not be contacted.

**THE VALLEY APPROACH CONTROLLER** reports they were screening a first tourist trainee. A pair of Hawks pulled out of the A5 pass and free-called [Approach]. Mona was active with circuit traffic. Caernarfon appeared to have circuit traffic. A slow moving [radar] contact in the vicinity of Y Felinheli was called to the formation on first contact. Airfield details were then passed. Traffic was called again as the formation began to position for a visual recovery to Valley. The intentions of the formation were being communicated at that time. Traffic was then called a 3rd time as the conflicting traffic was now in the 12 o'clock position and approximately 2NM away, relative to the formation, with no height information available. Shortly after, they heard on frequency "come left, left". They assumed at this point that the formation had become visual with the traffic and had to avoid. They did not interrogate the pilot at that time as they did not want to increase workload. Whilst this event was developing they, as the screen, asked the radar controller if they were speaking to [the pilot of] a non-transponder-equipped [aircraft] in the Menai strait, southwest bound. They were not. Furthermore, due to the position of the recovering formation and the other traffic [in the vicinity], they and the trainee discussed possible options as a deconfliction plan. This could have been a "suggest heading (likely southwest) to avoid". This wasn't communicated as they felt that constant updates of the conflicting traffic were adequate, as they had no altitude reference from the non-squawking aircraft. They were conscious that the recovering formation was below the Safety Minimum Altitude Chart (SMAC) and a turn was not an ideal option as it may push them further into the high ground. If altitude data was available from the conflicting [aircraft] and a definite risk of collision was apparent, deconfliction advice would have been suggested.

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

**THE VALLEY SUPERVISOR** reports being situated within the [radar room]. They had been conducting several administrative tasks on the telephone leading up to the Airprox. They were asked by the Radar Trainer to select the [Approach] frequency as they had de-selected it temporarily due to speaking to

external agencies. They looked at the radar screen and saw a Hawk formation transiting down the Menai Strait for a visual Straight-In approach. There was an [aircraft] [radar] contact slightly north, abeam Y Felinheli, [whose pilot] was not speaking to the unit. Traffic Information was passed to the recovering formation as they were heading towards the contact which had no height information. The last Traffic Information call was soon followed by a 'left, left, left' call from one of the aircrew. The radar returns at this stage did merge. The formation soon after reported visual and changing to [Tower frequency]. As they did not see the full event in its entirety they elected to replay it in [the recording software] to improve their overall SA. Caernarfon ATC was also asked as to the callsign of the joining traffic. They informed the Duty Pilot that the formation had come into close proximity with a non-squawking aircraft and, although Airprox had not been declared on frequency, they passed all the pertinent information that they had.

## Factual Background

The weather at RAF Valley was recorded as follows:

```
METAR EGOV 301550Z 24009KT 9999 FEW024 07/03 Q1022 NOSIG RMK BLU BLU=
METAR EGOV 301520Z AUTO 24011KT //// ///////// 07/03 Q1022=
```

## Analysis and Investigation

### Military ATM

An Airprox occurred on 30 Jan 25, 1km north of the Menai Straits at 1535 UTC. The Hawk was part of a formation of 2 aircraft conducting an exit from low-level via the A5 pass and in receipt of a Traffic Service from Valley Approach. The C42 [pilot] was conducting a VFR flight and not in receipt of an Air Traffic Service.

Utilising occurrence reports and information from the local investigations, 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. Screenshots are taken from Unit radar recordings and therefore present the actual radar presentation of both aircraft available to the Valley Approach controller.

Low-Level exits via the A5 pass are a standard procedure with the following guidance provided within the RAF Valley Flying Order Book:

> Low-level from the north or east. Aircraft recovering at low-level from the north or east should avoid EGR322, the Mona MATZ (if active) and the RIFA (if active). Aircraft recovering from the A5 pass should start to climb before reaching the quarry by Bethesda and should be cognisant of the possibility of rotary traffic crossing the valley at 100 ft or 1000 ft, particularly at the Mountain Rescue Team (MRT) pick up point (N53 07.65 W003 58.83) and transiting to and from the MFTA up to 500 ft MSD. The Menai Strait should be crossed at 2500 ft RPS unless forced lower by weather. Civilian traffic in the Menai Strait will be encouraged to fly at or below 1500 ft RPS and their geographic position, if known, will be passed to aircraft recovering via the A5 by ATC.

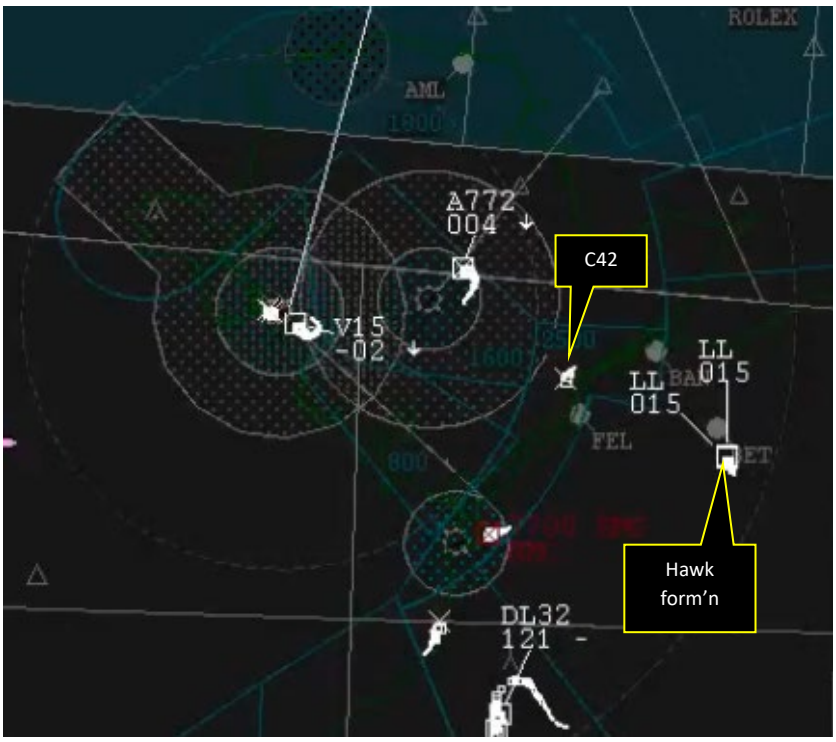



Figure 1 (1532:52). Generic Traffic Information provided to the Hawk formation.

At 1532:45, the Hawk formation contacted Valley Approach. As per the Flying Order Book the Valley Approach controller responded with generic Traffic Information regarding Menai Strait traffic "*Traffic Felinheli north 1 mile, tracking southwest, slow moving, no height information*". The Hawk formation acknowledged the Traffic Information with "*not sighted*" and then proceeded to provide their pre-assigned Mode 3A code along with intentions for a visual recovery.

At 1533:09, the Valley Approach controller identified the Hawk formation and issued a Traffic Service. This was acknowledged by the Hawk formation who also requested approval for a 2000ft transit, "*are you happy for us to maintain height 2000ft*", aware that the Flying Order Book suggests crossings of the Menai Strait should be conducted at 2500ft where possible.

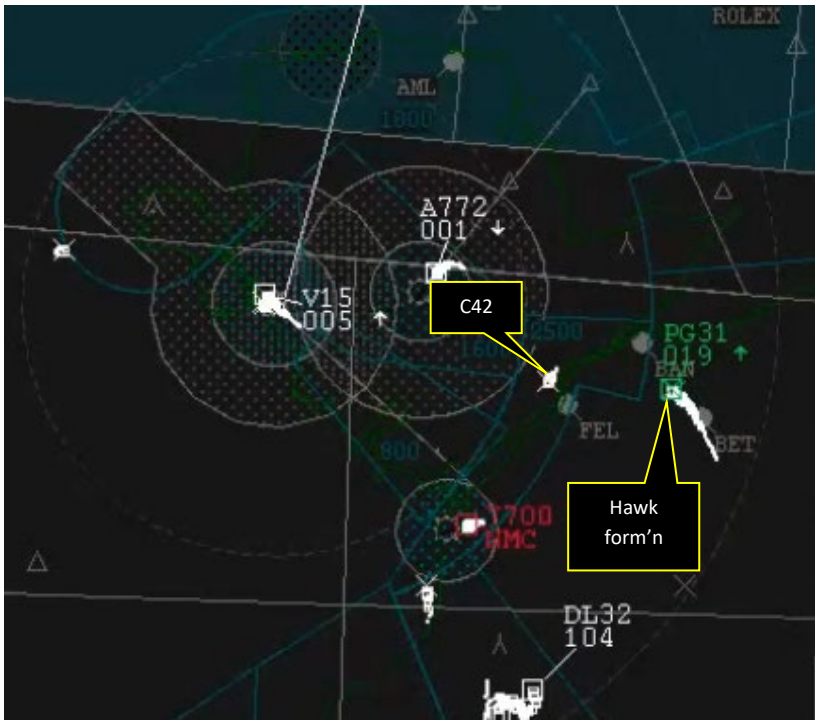



Figure 2 (15:33:24). Updated Traffic Information provided to the Hawk formation.

The Valley Approach controller approved the 2000ft transit and followed this with updated Traffic Information at 1533:24, "*previously called traffic west 4 miles tracking southwest, slow moving, no height information*". Again, the Hawk formation report "*not sighted*".

Following the Hawk formation informing the Valley Approach controller of their intention to position for a visual straight-in approach, they were cleared "own navigation taking your own terrain clearance, report turning inbound" at 1533:51.


Figure 3 (1534:04). Updated Traffic Information provided to the Hawk formation.

At 1534:04, updated Traffic Information was passed, "*previously called traffic 12'o'clock, 2 miles, crossing right left ahead slow moving*", with the Hawk formation reporting "*not sighted*". At 1534:45, the Hawk formation report visual with the traffic.

CPA was recorded at 1535:00 with 0.0NM horizontal separation, whilst vertical assessment by the Hawk [pilot] was 150ft.

A local investigation was conducted by Valley following the event to identify the ATS-related causal/aggravating factors. The investigation found there were no ATS provision-related factors, and that the Valley Approach controller acted iaw the Traffic Service provision. Traffic Information provision was deemed appropriate with the initial generic information and then subsequent updates. It was recognised that the complicating factors of the Hawk formation being below the Terrain Safe Level and the geographical position between the high ground and active Mona MATZ limited any opportunity to provide an advisory turn.

The actions of the Valley Approach controller were assessed to have been suitable throughout and iaw the Traffic Service provision. Traffic Information was provided at a relevant stage throughout with accurate descriptions. As outlined in the Valley investigation, provision of an advisory turn was challenging and ultimately it was not requested by the Hawk formation [pilots and] therefore the actions of the Valley Approach controller to continue providing Traffic Information were entirely suitable.

**UKAB Secretariat**

The Hawk formation and C42 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.[1] If the incident geometry is considered as converging then the Hawk pilot was required to give way to the C42.[2] If the incident geometry is considered as overtaking then the C42 pilot had right of way and the Hawk pilot was required to keep out of the way of the other aircraft by altering course to the right.[3]

The requirement to fly to the right of a line feature, the so-called 'right-hand rule', was revoked from civilian regulation by the adoption of The Rules of the Air Regulations 2015, which came into force on 30th April 2015. The latest edition of the UK CAA publication Skyway Code contains the following guidance:[4]

> 'There was previously a requirement in the UK Rules of the Air that if following a line feature such as a road, railway or coastline, you must fly to the right of that feature.
>
> This is no longer a mandatory rule, however it is still considered good practice, particularly if following the coast.'

Issue 10 of the Military Aviation Authority (MAA) Regulatory Article (RA)2307 (Rules of the Air) states as follows:[5]

> 'The handling pilot of an Aircraft which is flying within the UK in sight of the ground and following a road, railway, canal or coastline, or any other landmarks, is recommended to keep such a line of landmarks on their left, except where promulgated locally or when acting upon instructions given by the appropriate ATC unit.'

Caernarfon aerodrome promulgates the following flight procedure:[6]

> The aerodrome is in the vicinity of the Valley MATZ. Civil aircraft are to fly at 1500 FT or below (Holyhead QNH) in the Menai Straits area.

**Occurrence Investigation**

The RAF Valley Occurrence Investigation found the following outcome, cause, causal factor and observations:

Outcome: The reporting [aircraft] passed in close proximity to the civilian traffic.

Cause: The cause of the LoSS was the decision to continue inbound towards RAF Valley.
All RAF Valley aircrew are to be made aware of this DASOR, which should serve as a discussion point in the next squadron [flight safety] meetings. Specifically, it is a reminder of how quickly Menai Strait traffic can become a factor, and the importance of speaking to ATC at the earliest opportunity when exiting the A5 Pass. It is also requested that a poster is distributed to the squadrons, highlighting the issue and thereby raising awareness.

Causal Factor: It is likely that the reporting pilot's mental model was that the conflicting traffic was well below [their] current altitude, but the lowered recovery height due to weather likely compressed this height difference.

Observations: Even a visual recovery to Valley from the A5 Pass on a nice day can quickly create problems. The Menai Straits are often busy with light civilian aircraft: the vast majority speak to

[1] (UK) SERA.3205 Proximity. MAA RA 2307 paragraphs 1 and 2.
[2] (UK) SERA.3210 Right-of-way (c)(2) Converging. MAA RA 2307 paragraph 12.
[3] (UK) SERA.3210 Right-of-way (c)(3) Overtaking. MAA RA 2307 paragraph 14.
[4] CAP1532 (The Skyway Code) version 4 dated 28th November 2023, Essential Rules of the Air, page 63.
[5] Paragraph 84 (Right-Hand Traffic Rule), published 29th September 2023.
[6] UP AIP EGCK AD 2.22 Flight Procedures.

Valley ATC and/or liaise with Caernarfon airfield. In this case, though, several cheese holes [sic] aligned:

1. A cloudbase of circa 2200ft resulted in a lower recovery height for the formation.
2. The civilian [pilot] was apparently not using [their] fitted transponder.
3. The civilian [pilot] was not speaking to Valley ATC, nor had three-way liaison taken place between that [pilot], Valley ATC and Caernarfon.
4. Task focus on leading a formation with a trainee on the wing for a visual straight in approach.

It is likely that if even one of the above was different, the LoSS would have been more distant and the probability of a collision reduced substantially further.

The information provided by the Approach controller was timely, proactive and accurate, especially given that [they] had only a primary return to work with on the civilian traffic.

The established FOB procedures for recovery from the A5 Pass would seem to be sufficient, and they did not make the situation any less safe. A Deconfliction Service is always a possibility for when one cannot guarantee safe separation based on SA alone.

DDH/AM Comment: All parties in this incident seem to have acted as expected but a formation of Hawk aircraft spotted [visually] the non-transponding civilian traffic quite late and their avoiding action took them a little closer to it than was comfortable. The Hawk formation would have been in 'Fighting Wing' at 250ft in the 'A5 Pass', initiating a climb to 2500ft at Bethesda to start recovery to RW31 at RAF Valley (requiring a transit [east to west] of the Menai Strait before turning right onto 'long final', descending to 1500ft QFE. It would have been impracticable for the formation to gather into echelon to allow an IMC [below SALT] climb on exit of the 'A5 Pass' then subsequent re-position for recovery given that they would have been on or around fuel minima that is routine for FJ ops within this context. To ensure an efficient recovery positioning for a Straight-In-Approach to RW31 at RAF Valley, remaining VMC below the cloud and speaking with Valley Approach whilst using other sensors such as TCAS and lookout should provide sufficient mitigation against LoSS ‘non-coop’ whilst enabling the formation to achieve their training aims and recover safely to base. In this case, the unfortunate position of the non-transponding civilian traffic meant that it did not appear on TCAS and, due to speed and angle off nose, did not have sufficient movement in the canopy for the Hawk crews to pick it up until at a late stage. We have reflected on the recovery procedures written in the RAF Valley Flying Order Book and ATC has considered this through the substitution test. Whilst, with hindsight, other actions could have been taken, we have not identified any immediate change to procedures being required. However, we welcome the independent investigation by the Airprox Board and will consider the outcome.

## Comments

### HQ Air Command

RAF Valley conducted a thorough and professional Local Investigation into this Airprox. The published de-confliction procedure was followed by the Hawk pilot with appropriate consideration for cloud. The C42 pilot may have been following the CAA’s Skyway Code guidance to fly to the right of line features such as the coast, also reflected as guidance in RA2307. The Caernarfon entry into the AIP states aircraft ‘are to fly at 1500ft or below in the Menai Straits area,’ but the Valley DAM wording of ‘encouraged to fly at or below 1500ft’ is perhaps more realistic. This logic also applies to encouragement of civilian pilot communication with RAF Valley in or near the MATZ, as there is no legal obligation to do so. RAF Valley has a productive Regional Airspace Users’ Working Group to promote MAC risk mitigations such as those listed above. A strong relationship with Caernarfon is evident, but some pilots think compliance with the law is all that’s required. The RAF tries to engage with them and take best advantage of all means to share airspace responsibly. It can’t be assumed that all aircraft will follow local procedures. Visual acquisition and manoeuvre iaw the Rules of the Air (in this case, right of way) still apply. It’s also reassuring in this report to see

both pilot and controller analysis of Traffic vs Deconfliction Service and the merits of both to mitigate MAC.

## Summary

An Airprox was reported when a Hawk formation and a C42 flew into proximity near Brynsiencyn at 1535Z on Thursday 30th January 2025. Both pilots were operating in VMC, the Hawk pilot under VFR in receipt of a Traffic Service from Valley Approach and the C42 pilot most likely under VFR but not in receipt of a FIS.

## PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of a report from the Hawk 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.

The Board first discussed the pilots' actions and underlying regulation. Members agreed that the geometry of closure was such that it had been for the overtaking Hawk formation to have given way to the C42, but that a light-aircraft pilot operating close to a busy fast-jet airfield should make R/T contact for the mutual benefit of all parties which, in this case, the C42 pilot had not done (**CF1**). This, coupled with the lack of EC with which to alert the Hawk TCAS (**CF4**) and absence of SSR transponder-derived altitude, resulted in a situation where the Hawk formation had had only generic situational awareness on the C42 (**CF2**). The Board noted that, in their opinion, the C42 pilot had correctly flown to the right of the Menai Strait line feature. The Board commended the RAF Valley controller for their early and continued provision of Traffic Information and agreed that, with high ground to the southeast and the RAF Mona MATZ to the northwest, they had been limited in the action they could have taken. Having received Traffic Information, members felt that the Hawk pilot may not have fully assimilated the conflict information (**CF3**) or that the C42 may have been flying at or below 1500ft, iaw the Caernarfon AIP entry and RAF Valley DAM, as they had descended from 2000ft on exiting the A5 Pass to 1500ft at CPA. The Hawk pilot's visual sighting had occurred at a late stage (**CF5**) and that, coupled with the estimated separation and overtake speed, prompted the Board members to agree that in this case safety had been much reduced, Risk B (**CF6**).

The Board also agreed that whilst the 'letter of the law' had required the Hawk formation to have given way to the C42, the C42 pilot had elected to conduct their flight without taking the precautions that should be expected when operating close to a military aerodrome with fast-jet traffic, namely R/T contact to notify their route and intentions and an SSR transponder to enable interaction with other aircrafts' TCAS or TAS, either of which could have resolved this situation before exposing all the pilots involved to an increased risk of collision.

## PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

| | **2025009** | | | |
|---|---|---|---|---|
| CF | **Factor** | **Description** | **ECCAIRS Amplification** | **UKAB Amplification** |
| | **Flight Elements** | | | |
| | **• Tactical Planning and Execution** | | | |
| 1 | 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 |
| | **• 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 | Technical | • ACAS/TCAS System Failure | An event involving the system which provides information to determine aircraft position and is primarily independent of ground installations | Incompatible CWS equipment |
| | **• See and Avoid** | | | |
| 5 | 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 |
| | **• Outcome Events** | | | |
| 6 | Contextual | • Near Airborne Collision with Aircraft | An event involving a near collision by an aircraft with an aircraft, balloon, dirigible or other piloted air vehicles | |

Degree of Risk: B.

Safety Barrier Assessment[7]

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 the C42 pilot did not request an appropriate FIS or communicate their intentions with RAF Valley.

**Situational Awareness of the Conflicting Aircraft and Action** were assessed as **partially effective** because the Hawk crews only had generic situational awareness on the C42 (with no altitude information) and did not assimilate that the unknown contact would likely be at or about 1500ft given the weather and information promulgated in the Caernarfon aerodrome AIP entry and RAF Valley DAM.

**Electronic Warning System Operation and Compliance** were assessed as **ineffective** because there were no emissions form the C42 that were compatible with the Hawk TCAS.

**See and Avoid** were assessed as **partially effective** because the Hawk pilots saw the C42 at a late stage.

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

**Airprox Barrier Assessment: 2025009** Outside Controlled Airspace