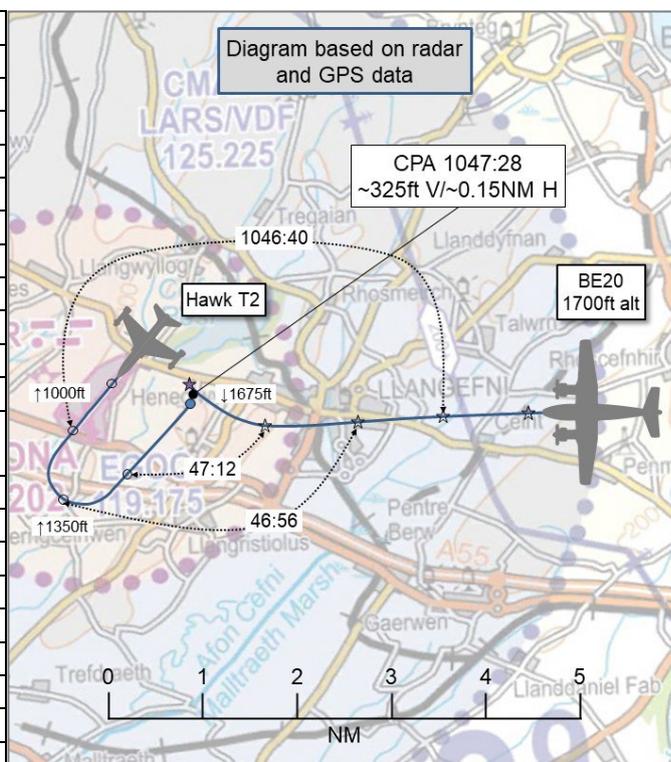


AIRPROX REPORT No 2021202

Date: 04 Oct 2021 Time: 1047Z Position: 5316N 00421W Location: Mona visual circuit

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

| Recorded | Aircraft 1 | Aircraft 2 |
|-------------------|---------------------------|--------------------------|
| Aircraft | Hawk T2 | BE20 |
| Operator | HQ Air (Trg) | Civ Comm |
| Airspace | Mona ATZ | Mona ATZ |
| Class | G | G |
| Rules | VFR | VFR |
| Service | ACS | Traffic |
| Provider | Mona Tower | Valley Director |
| Altitude/FL | 1350ft | 1675ft |
| Transponder | Not detected ¹ | A, C, S |
| Reported | | |
| Colours | Black | White, blue |
| Lighting | HISLs, nav, nose light | Nav, strobes, anti-colls |
| Conditions | VMC | VMC |
| Visibility | NR | >10km |
| Altitude/FL | 1000ft | 1500ft |
| Altimeter | QFE (996hPa) | QNH (1002hPa) |
| Heading | 040° | 267° |
| Speed | NR | 180kt |
| ACAS/TAS | TCAS I | TAS |
| Alert | TA | Information |
| Separation at CPA | | |
| Reported | 200ft V/300m H | Not Seen |
| Recorded | ~325ft V/~0.15NM H | |



THE HAWK PILOT reports that the front-cockpit student pilot had just taken control and rolled out of the upwind turn in the RAF Mona circuit. The Tower controller passed Traffic Information stating the calibrator aircraft was passing east-west at 1500ft. TCAS showed an intruder alert, at +02, with associated “traffic, traffic” audio. The front-cockpit pilot responded to the Tower controller with “*traffic not sighted*” and continued with the approach checks. The rear-cockpit pilot asked for confirmation of the calibrator’s height due to the reported +02 from TCAS. During the approach checks, the calibrator aircraft suddenly bloomed on the right-hand side of the aircraft, appearing co-level. The rear-cockpit pilot took control and immediately entered a right-hand avoiding turn as the calibrator passed directly ahead of the aircraft. Upon watching the tapes, it was noted that, at the point the rear-cockpit pilot took control, their height was 920ft in the HUD, with TCAS reporting the conflict +02. The calibrator appeared very slightly above the horizon, but not the 1500ft they were expecting from the Tower controller’s report.

On speaking to the ATC Supervisor once landed, it was explained that the calibrator was told to be at 1500ft QNH, and the Hawk pilot was on the Mona QFE, with a difference of 10hPa [they recalled]. Assuming both aircraft were at the exact height intended, there was only a planned separation of 200ft. The ATC Supervisor informed them that the calibrator was meant to remain outside 10NM from Valley, but had continued.

Following the pass, the calibrator entered a right-hand turn and, as the Hawk pilot intended to go around at circuit height, their intentions were requested. The response was that the calibrator was inbound to

¹ It is known that the Hawk T2 was carrying a serviceable transponder, but the transponder returns were not detected by the NATS radars at the time of the Airprox.

Valley, but in reality the aircraft departed the Mona circuit to the northeast. The Mona Tower controller was informed of the intent to submit an Airprox, and the sortie was continued.

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

THE BE20 PILOT reports that they were carrying out radar evaluation trials of the Valley STAR NG radar on behalf of RAF Valley working the 087°(T) radial at 1500ft QNH from the radar overhead between 28NM and 8NM from the overhead in receipt of a Traffic Service. These trials are all pre-noted and booked weeks in advance with all of the relevant agencies. As they were inbound on the calibration radial, they were informed by Valley Radar of Hawk traffic in the vicinity of RAF Mona. They had this traffic on the TAS fitted to the aircraft but were also keeping a very good lookout. The traffic was not seen visually before they turned outbound again at 8NM but was on the TAS showing between 300ft and 400ft below at 2 miles. The rest of the calibration runs were carried out without incident. The BE20 pilot was unaware of any Airprox filed until they received an email on the 7th October. At no time were they concerned as to the proximity of the other aircraft, otherwise they would have broken-off the run and turned south to avoid it. The Hawk traffic was working UHF with Valley [they thought] and they were working VHF, so they do not know if their details were passed to the Hawk pilot or not. All of the runs and altitudes were at the disposal of ATC at all times.

The pilot assessed the risk of collision as 'None'.

THE MONA TOWER CONTROLLER reports that they had one Hawk in the circuit and one pre-noted inbound. As the Hawk in the circuit was turning upwind, they received a phone call and were passed Traffic Information on a calibrator aircraft. At the time of the call, the aircraft was 5 miles away from Mona heading directly toward the airfield. They were told it was at 1500ft QNH 1003hPa and would be turning away within the next 2 track miles and, as such, the aircraft stayed with Valley Director. The Mona Tower controller broadcast on the Mona Tower frequency "MATZ crosser, crossing east-to-west at 1500ft". The pilot of the aircraft in the circuit reported "not visual" and the controller was unable to see it from the Tower. They then began passing Traffic Information when [The Hawk pilot] asked them to confirm the height of the calibrator aircraft. The calibrator appeared from behind a cloud and [the Hawk] turned right to avoid and the pilot informed them of the intent to submit an Airprox report. Mona's QFE was 996hPa, so a vertical separation of 290ft should have been present. The calibrator continued its path across the RW22 threshold before initiating a right-hand turn back across the approach lane.

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

THE VALLEY DIRECTOR INSTRUCTOR CONTROLLER reports that they were the instructor training a U/T controller in the Director position. There was a calibrator aircraft on frequency inbound on its first run at 1500ft on the Valley QNH 1003hPa. It was proceeding westbound from the Llandudno area towards the 8 mile point from Valley, which was just inside the Mona MATZ. There were a couple of LARS transits to affect it, around the Menai Strait area, for which Traffic Information was passed accordingly. As it approached the Mona MATZ boundary, the pilot of the calibrator aircraft asked whether a right or left turn outbound was required, and a right turn was approved to keep it outside the Mona circuit. The instructor believed that this was the run complete and expected the calibrator aircraft to start to turn outbound. As it carried on westbound, they instructed the U/T controller to phone Mona and pass Traffic Information to them, albeit later than usual due to the controller passing Traffic Information to the pilot of the calibrator aircraft on the Menai Strait traffic. The Mona circuit was active with their QFE 996hPa. The Traffic Information was passed and it was stated to the Mona controller that the calibrator aircraft was at 1500ft on Valley QNH 1003hPa. The instructor had already calculated the altimetry and knew that there should be 290ft between the Mona circuit height and the calibrator aircraft. It was decided to keep the calibrator on the Director frequency and the circuit traffic was called to the pilot of the calibrator aircraft twice, with them acknowledging it. It then ran inbound to approximately 5.5 miles from Valley before initiating a right turn outbound, which placed it around the downwind leg area of the Mona circuit. At no point did the pilot of the calibrator aircraft call an Airprox. However, shortly after the incident the Mona controller rang the Supervisor informing them that the pilot of the Hawk in the circuit at Mona had declared an Airprox with the calibrator aircraft.

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

THE VALLEY DIRECTOR TRAINEE CONTROLLER reports that they had a calibrator aircraft on frequency which was inbound on its first run at 1500ft on the Valley QNH 1003hPa. It was due to proceed until 8NM from Valley before turning away to complete another run. There were multiple tracks in the Menai Strait which the controller called to the calibrator pilot. The pilot then asked them whether a left- or right-turn outbound was required and the controller told them to do a right turn. Their instructor then prompted them to call Mona to pass Traffic Information as the calibrator would be coming close to the Mona MATZ. They told the Mona controller the position of the calibrator along with its intentions. The Mona circuit was active with a single Hawk which the controller called to the calibrator. Their instructor told them they had done the altimetry and had worked out that there would be 290ft separation between the aircraft. The calibrator continued to fly towards the Mona circuit despite the controllers being told they would be turning away at the 8NM point. They called the single Hawk in the circuit to the calibrator pilot again which they acknowledged. The calibrator turned outbound passing through the downwind leg of the Mona circuit. The Supervisor informed the controllers that the pilot of the Hawk in the circuit had declared an Airprox against the calibrator.

THE VALLEY SUPERVISOR reports that they were present in the ACR at the time of the incident. The summary provided is an accurate account of what happened and they have nothing further to add.

Factual Background

The weather at RAF Valley was recorded as follows:

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METAR EGOV 041050Z 23016KT 9999 FEW028 BKN200 14/08 Q1003 NOSIG RMK BLU BLU=
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Analysis and Investigation

Military ATM

The Valley Director controller was under instruction at the time of the Airprox with the BE20 and another Hawk under their control, both in receipt of a Traffic Service. The other Hawk was being vectored for a PAR to Valley and the BE20 appeared to be under their own navigation conducting calibration runs. The trainee Director controller passed Traffic Information on conflicting LARS tracks prior to providing the Mona ADC with Traffic Information relating to the BE20.

The Mona ADC had a single Hawk in the visual circuit with another pre-noted inbound and reported that, as the Hawk was turning upwind, they received Traffic Information from Valley Director regarding the BE20 which was 5NM away and tracking directly towards the airfield. They were advised that the BE20 would be turning away in the following 2 track miles therefore, the BE20 would remain on the Valley Director frequency. Traffic Information was passed to the Hawk pilot in the visual circuit stating that the BE20 was transiting at 1500ft inbound to Valley, which was acknowledged, and the height was queried by the Hawk pilot.

Figures 1 – 4 show the positions of the BE20 at relevant times during the Airprox. The Hawk could not be seen on the NATS radars either just before or during the Airprox. The screenshots are taken from a replay using the NATS radars which are not utilised by Valley or Mona ATC, therefore, may not be entirely representative of the picture available to the Valley or Mona controllers.

The Valley Director controller informed the BE20 pilot that there was a single Hawk in the Mona circuit 53 seconds after the last set of Traffic Information was passed regarding other conflicting traffic in the Menai Strait. Separation from the Mona overhead was 6.9NM (Figure 1).

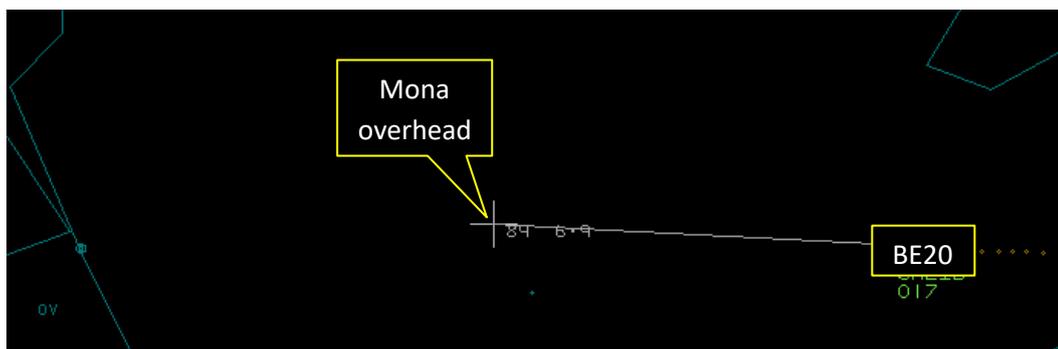


Figure 1 – BE20 informed that there was a Hawk in the Mona circuit.

One minute and 21sec later the BE20 pilot queried whether they would need a left- or a right-hand turn out, during which the controller passed another control instruction to the other Hawk. The Valley Director controller confirmed they require a right-hand turn. Immediately following this, the Valley Director controller passed Traffic Information to the Mona ADC. Separation decreased to 5.4NM from the Mona overhead (Figure 2).

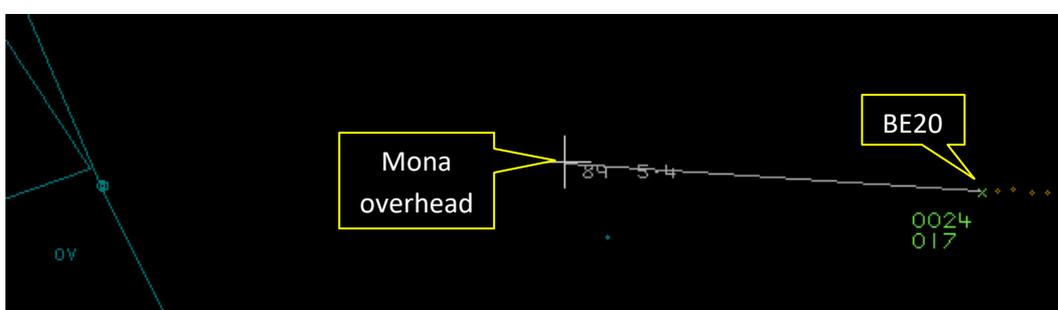


Figure 2 – The Valley Director controller confirmed the intended turn out.

The Mona ADC informed the Hawk pilot of the MATZ crosser, stating that there was “*one aircraft transiting from east-to-west, at height 1500ft, calibrator aircraft inbound to Valley*”. Five seconds after the Mona ADC began to pass Traffic Information to the Hawk pilot, the Valley Director controller provided the BE20 pilot with updated Traffic Information, stating “*traffic west, 2 miles, tracking east, indicating 300 feet below, Hawk, in Mona circuit*”. This was acknowledged by the BE20 pilot and they confirmed they were in the right-hand turn outbound. The Hawk pilot questioned the height of the BE20 which was confirmed as 1500ft, this was corrected by the Hawk pilot who stated that the BE20 was at 1000ft. Separation decreased to 2.4NM from the Mona overhead when the initial Traffic Information was passed to the Hawk pilot (Figure 3).

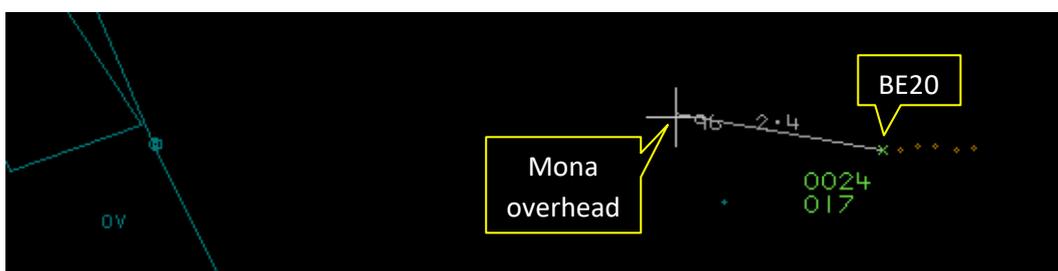


Figure 3 – MATZ crosser information passed to the Hawk pilot.

As the Hawk did not appear on the radar replay, a CPA could not be determined; however, the minimum separation from the Mona overhead was measured as 0.8NM. This distance from RAF Valley was 6.5NM (Figure 4).



Figure 4 – CPA to Mona overhead.

The Valley Director instructor highlighted that Traffic Information to Mona had been later than expected due to the trainee passing Traffic Information on other conflicting tracks in the vicinity. What is unclear from the investigation is why the BE20 pilot was delayed in their turn, the result of which put the BE20 through the downwind leg of the Mona circuit. It is also unclear as to why the BE20 pilot was not hastened to turn outbound when it was evident that they had exceeded beyond the expected turning point. It was not clear from the reports as to why the Valley Director controller was operating on the assumption that the BE20 pilot would be turning outbound at 8NM, although this could have been pre-briefed prior to commencement of the calibration runs.

Although the investigation stipulates that the BE20 pilot was given clearance to penetrate the MATZ by 2NM this was not relayed to the pilot by the Valley Director controller. Whilst civilian aircraft do not require permission to penetrate a MATZ, the lack restriction or positive confirmation on the given tape transcript meant that the BE20 pilot was only restricted by the direction of their turn out.

The Mona ADC did not provide accurate Traffic Information to the Hawk pilot in the visual circuit. Whilst the height of 1500ft was accurate, the Mona ADC did not pass a pressure datum on which the BE20 pilot was operating, although it is unclear from the investigation as to whether this would have been beneficial to the pilot at the time. Potentially, due to their proximity, it would have been better for the Mona ADC to provide the Hawk pilot with the transit height based on their own pressure datum which would have highlighted that there would only be 290ft separation, rather than the potentially expected 500ft separation.

Calibration runs are an unusual occurrence, and it is unknown what the ATC Supervisor was doing to support the trainee Director controller, especially with the conflicting traffic surrounding the BE20, the proximity the flight would take to the Mona circuit and the fact that the Director controller was also vectoring another aircraft for a precision approach.

UKAB Secretariat

GPS logs were used by the UKAB Secretariat to both construct the diagram and determine the CPA. The time stamps from the GPS logs at CPA do not exactly align and so some interpolation of aircraft tracks and altitudes between data points was used to determine the time and separation.

The Hawk T2 and BE20 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 operation.³

Occurrence Investigation

A summary of the RAF Valley investigation is provided below:

² (UK) SERA.3205 Proximity. MAA RA 2307 paragraphs 1 and 2.

³ (UK) SERA.3225 Operation on and in the Vicinity of an Aerodrome. MAA RA 2307 paragraph 17.

Review of Summary and comments added for all 3 related DASORs. Spoken to the Calibrator Aircrew. Spoken to ATC personnel. Review of ATC training procedures and orders. Review of the [Calibrator operator's] Safety occurrence report.

Comments

DDH/AM

On this occasion, the sum of multiple factors led to a loss of safe separation. The Calibrator aircraft penetrated the MATZ 1NM further than anticipated. The Director [controller] was not precise when communicating with the Mona ADC to state the Calibrator's pressure setting and hence anticipated vertical separation. The Director Trainer (screen) [controller] did not intervene in sufficient time to prevent erosion of separation. Both [pilots] had the conflicting traffic appropriately called to them, albeit late for the Hawk, however atmospheric conditions led to a late visual acquisition by the Hawk crew. The Hawk TCAS functioned as designed.

To prevent recurrence, ATC Standards will ensure that Calibrator briefing and clearances will be accurately recorded and communicated. ATC Standards will ensure, through the Standards Bulletin and ongoing training, that the potential for pressure setting/separation confusion between QNH/QFE traffic is understood and mitigated. Trainer instructions have been updated to include positive intervention instructions and guidance. With these measures in place, I am satisfied that a recurrence of this and similar scenarios is improbable.

HQ Air Command

This Airprox was subject to a Local Investigation, which made 2 recommendations:

Recommendation 1: Pressure setting/separation between QNH/QFE traffic; ATC Standards is to ensure, through the ATC Standards Bulletin and ongoing training, that the potential for pressure setting/separation confusion between QNH/QFE traffic is understood and mitigated.

Recommendation 2: Calibrator Profiles; ATC Standards is to ensure that all Calibrator briefings and clearances are accurately recorded and communicated.

Several barriers were weakened, both airborne and within ATC, culminating in an Airprox with only a few hundred feet separation. However, it is heartening to read that the RAF Valley Delivery Duty Holder is satisfied that the recommendations, coupled with the investigation, will hopefully make reoccurrence of this and similar scenarios improbable. Fortunately, the Traffic Alert Systems fitted to both aircraft worked as advertised and, although a late spot, the Hawk pilot was able to get visual with the Calibrator, ensuring no risk of collision.

Summary

An Airprox was reported when a Hawk T2 and a BE20 flew into proximity in the Mona visual circuit at 1047Z on Monday 4th October 2021. Both pilots were operating under VFR in VMC, the Hawk pilot in receipt of an Aerodrome Control Service from Mona Tower and the BE20 pilot in receipt of a Traffic Service from Valley Director.

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 first considered the actions of the Hawk pilot and quickly agreed that there had been little more that they could have done to prevent the Airprox. Members noted that the Hawk pilot had been passed Traffic Information on the BE20 by the Mona controller, but that information had stated that the

BE20 had been at '*height 1500ft*', which had not been the case. Additionally, the Hawk pilot had received an indication on their EC equipment (**CF10**) which displayed a height difference that had been different to that passed by the Mona controller. Therefore, the Board agreed that the Hawk pilot's situational awareness regarding the BE20 had been, at best, generic (**CF9**). Members discussed that lookout is an essential part of circuit flying and commended the Hawk crew for both questioning the height of the BE20 with the Mona controller and attempting to acquire the aircraft visually in challenging weather conditions. The Board agreed that, on sighting the BE20, the Hawk instructor had been sufficiently concerned by its proximity (**CF13**) to take control from the student and to manoeuvre to increase separation.

Turning to the actions of the BE20 pilot, the Board noted that they had been conducting radar calibration trials and had been in receipt of a Traffic Service from the Valley Director trainee controller. Members discussed whether or not the BE20 pilot had intended to progress as close to Valley as they had on the occasion leading to the Airprox, and there then followed a discussion on whether or not the BE20 pilot had been cleared into the Mona ATZ. The Board was disappointed that this had not been established in the unit investigation and that the 'run plan' had not been available to the Board [UKAB Note: documentation was supplied to the UKAB Secretariat post-Board meeting, but the runs specified in the document did not resemble the flight parameters of the BE20 at the time of the Airprox]. Given the Valley controller's assumption that the BE20 would have been turning outbound prior to penetration of the Mona ATZ, the Board concluded that the BE20 pilot had not had permission to enter the Mona ATZ and that this had been contributory to the Airprox (**CF7**), although it was unclear to members if the BE20 pilot had assumed that they had an implicit clearance to enter the ATZ and so the Board was unable to assess the effectiveness of the Flight Elements Rules, Regulations and Procedures barrier in this regard. Members noted that, as the BE20 pilot had flown closer than anticipated to the Mona circuit, the Valley controller had passed Traffic Information to them on the Hawk in the Mona circuit, but that this Traffic Information had only been passed some 20sec before CPA and had been too late for the BE20 pilot to take any action, although members also noted that the BE20 pilot had had a contact on their TAS (**CF11**) which had already provided them with generic situational awareness (**CF9**) regarding the relative position of the Hawk. The Board also agreed that, once inside the ATZ, the Beech pilot had neither conformed with nor avoided the pattern formed by the Hawk in the visual circuit and that this had also contributed to the Airprox (**CF8**), and that this had probably been due to the BE20 pilot not sighting the Hawk at any stage (**CF12**).

The Board then discussed the actions of the controllers involved and there followed a lengthy discussion on the roles of the OJTI and Supervisor in this event. ATC members considered that the trainee Director controller had been working reasonably hard and had clearly been passing regular Traffic Information to the BE20 pilot. However, controller members were unanimous that the Menai Strait traffic had been far less of a priority in the moments leading up to CPA than the Hawk traffic, and the Board agreed that the OJTI had not interjected to re-prioritise the traffic calls for the trainee controller (**CF2**). Furthermore, a military controller advisor informed the Board that the Supervisor's responsibilities include providing support to controllers when the traffic situation demands, and the Board felt that this had been just such an occasion where the Supervisor could have been asked for, or offered, more support to the Director controller (**CF1**). The Board agreed that the Valley Director controller had been working on the assumption that the BE20 pilot would turn away from Mona prior to penetration of the MATZ, and that this assumption, and therefore the controller's inaccurate mental model, had been contributory to the Airprox (**CF5**, **CF6**). This had led to a late and rushed passage of Traffic Information from the Valley controller to the Mona ADC (**CF4**) when they observed the BE20 tracking further west than anticipated, which had subsequently led the Mona controller to being given inaccurate situational awareness by the Valley controller (**CF6**) and then passing late and inaccurate (in altitude) Traffic Information to the Hawk pilot (**CF3**). The Board then went on to discuss the role of the 2 aircraft involved operating on different pressure datums. The majority of Board members, including some military pilots, considered that the Hawk operating on the Mona QFE and the BE20 operating on the Valley QNH had been a significant pre-condition for human error to occur. Although the controllers' plans had been that the aircraft would always have been laterally separated, this had transpired not to be the case and the altitude separation between the aircraft had been more by providence than design. Many Board members remember the time when civil aviation in the UK transitioned from QFE to QNH; indeed, some current and former military pilots associated with the Board recall that they operate(d) throughout the world on QNH and

that QFE only became a consideration in the UK. The Board was reminded that a recommendation had been made some years earlier that the military reconsider its decision to operate on QFE in the environs of military airfields, but that this had been rejected. In this case, the Board felt that one aircraft operating on QFE with another in close lateral proximity operating on QNH had been a significant factor in the Airprox and so resolved to recommend that *'The MAA re-examines the safety implications at military airfields of aircraft operating in the visual circuit on QFE.'*

Finally, the Board considered the risk involved in this event. Members took into account the Hawk pilot's estimation of separation and assessment of the risk of collision as 'medium', and noted that the BE20 pilot had not seen the Hawk. Furthermore, recorded GPS data for the Hawk and radar data for the BE20 had been available to the Board and had enabled the separation between the aircraft to be measured. Given the recorded separation, and the fact that the Hawk pilot had sighted the BE20 in time to react to its presence and manoeuvre to increase separation, the Board concluded that, although safety had been degraded, there had been no risk of collision. Accordingly, the Board assigned a Risk Category C to this Airprox.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

| 2021202 | | | | |
|---|---------------|--|---|---|
| CF | Factor | Description | ECCAIRS Amplification | UKAB Amplification |
| Ground Elements | | | | |
| • Manning and Equipment | | | | |
| 1 | Human Factors | • ATM Leadership and Supervision | An event related to the leadership and supervision of ATM activities. | |
| 2 | Human Factors | • Recurrent/OJT Instruction or Training | Events involving on the job training of individuals/ personnel | |
| • Situational Awareness and Action | | | | |
| 3 | Human Factors | • ANS Traffic Information Provision | Provision of ANS traffic information | TI not provided, inaccurate, inadequate, or late |
| 4 | Human Factors | • ATM Coordination | Coordination related issues (external as well as internal) | |
| 5 | Human Factors | • Expectation/Assumption | Events involving an individual or a crew/team acting on the basis of expectation or assumptions of a situation that is different from the reality | |
| 6 | Contextual | • Traffic Management Information Action | An event involving traffic management information actions | The ground element had only generic, late, no or inaccurate Situational Awareness |
| Flight Elements | | | | |
| • Tactical Planning and Execution | | | | |
| 7 | Human Factors | • Action Performed Incorrectly | Events involving flight crew performing the selected action incorrectly | Incorrect or ineffective execution |
| 8 | Human Factors | • Monitoring of Environment | Events involving flight crew not to appropriately monitoring the environment | Did not avoid/conform with the pattern of traffic already formed |
| • Situational Awareness of the Conflicting Aircraft and Action | | | | |
| 9 | 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 |
| • Electronic Warning System Operation and Compliance | | | | |
| 10 | Contextual | • ACAS/TCAS TA | An event involving a genuine airborne collision avoidance system/traffic alert and collision avoidance system traffic advisory warning triggered | |
| 11 | Contextual | • Other warning system operation | An event involving a genuine warning from an airborne system other than TCAS. | |
| • See and Avoid | | | | |

| | | | | |
|----|---------------|------------------------------------|---|--|
| 12 | 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 |
| 13 | Human Factors | • Perception of Visual Information | Events involving flight crew incorrectly perceiving a situation visually and then taking the wrong course of action or path of movement | Pilot was concerned by the proximity of the other aircraft |

Degree of Risk: C

Recommendation: The MAA re-examines the safety implications at military airfields of aircraft operating in the visual circuit on QFE.

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:

Manning and Equipment were assessed as **partially effective** because neither the OJTI nor the ATC Supervisor interjected when it became apparent that the BE20 would penetrate the Mona ATZ.

Situational Awareness of the Confliction and Action were assessed as **partially effective** because the Valley Director controller expected the BE20 to turn away prior to penetration of the Mona ATZ and the Traffic Information passed between the Valley Director and Mona controllers was unclear regarding the relative altitudes of the 2 aircraft.

Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because the BE20 pilot penetrated the Mona ATZ and subsequently did not avoid the pattern of traffic formed by the Hawk in the Mona visual circuit.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **partially effective** because the Hawk pilot was not fully aware of the intentions or the height of the BE20, and the BE20 pilot did not receive accurate Traffic Information on the Hawk.

⁴ 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: 2021202 | | Outside Controlled Airspace | | Effectiveness | | | | |
|--|--|-----------------------------|--------------------|--------------------------|-----------------------------------|-----------------|-----|-----|
| Barrier | | Provision | Application | Barrier Weighting | | | | |
| | | | | 0% | 5% | 10% | 15% | 20% |
| Ground Element | Regulations, Processes, Procedures and Compliance | ✔ | ✔ | | | | | |
| | Manning & Equipment | ✔ | ⚠ | | | | | |
| | Situational Awareness of the Confliction & Action | ⚠ | ⚠ | | | | | |
| | Electronic Warning System Operation and Compliance | ⊘ | ⊘ | | | | | |
| Flight Element | Regulations, Processes, Procedures and Compliance | ⊘ | ⊘ | | | | | |
| | Tactical Planning and Execution | ✔ | ⚠ | | | | | |
| | Situational Awareness of the Conflicting Aircraft & Action | ⚠ | ✔ | | | | | |
| | Electronic Warning System Operation and Compliance | ✔ | ✔ | | | | | |
| | See & Avoid | ✔ | ✔ | | | | | |
| Key: | | <u>Full</u> | <u>Partial</u> | <u>None</u> | <u>Not Present/Not Assessable</u> | <u>Not Used</u> | | |
| Provision | ✔ | ⚠ | ✘ | ⊘ | | | | |
| Application | ✔ | ⚠ | ✘ | ⊘ | ○ | | | |
| Effectiveness | ■ | ■ | ■ | ■ | □ | | | |