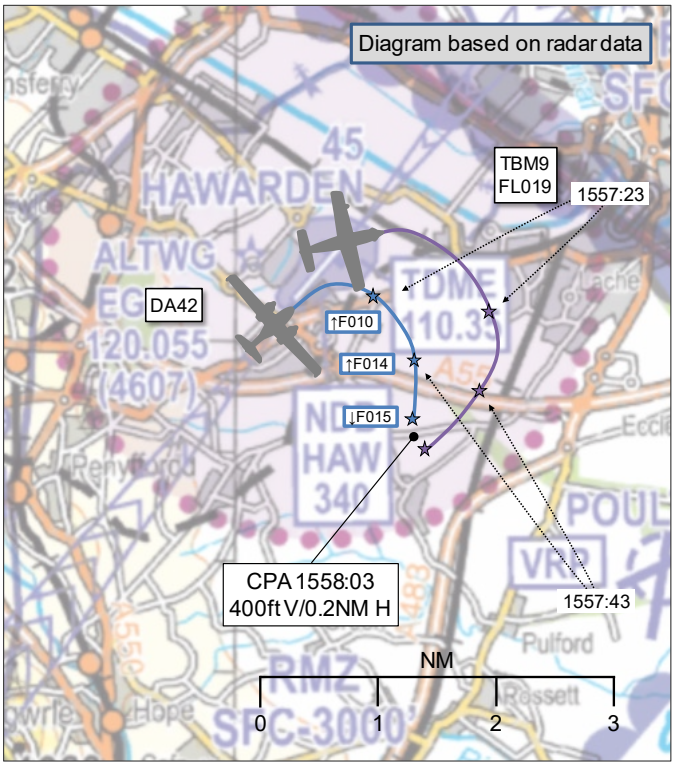
AIRPROX REPORT No 2024296

Date: 11 Dec 2024 Time: 1558Z Position: 5309N 00257W Location: 1NM SE Hawarden

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	DA42	TBM9
Operator	Civ FW	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	IFR	IFR
Service	Traffic	Traffic
Provider	Hawarden	Hawarden
Altitude/FL	FL015	FL019
Transponder	A, C, S+	A, C, S+
Reported		
Colours	White, Blue	White, Grey
Lighting	Strobes, Nav, Landing, Taxy	Nav, Strobes
Conditions	VMC	VMC
Visibility	5-10km	NR
Altitude/FL	2300ft	NR
Altimeter	QNH (1033hPa)	QNH
Heading	Turning to 150°	NK
Speed	102kt	NK
ACAS/TAS	SkyEcho	Not fitted
Alert	None	N/A
Separation at CPA		
Reported	2-300ft V/0.25NM H	Not Seen
Recorded	400ft V/0.2NM H	



THE DA42 PILOT reports that they were conducting a training flight for a student's Instrument Rating. They routed to Hawarden in an airway for a radar-vectored ILS. The student's workload was high during the approach and they needed supervision to manage the descent and approach. The Instructor was first made aware of the other aircraft, which had conducted an approach before them, as they were about 4NM final on the ILS. The TBM was on the missed approach/hold entry for the HAW NDB and they believed it had been given a hold altitude of 2500ft. They acquired the traffic visually and called traffic in sight and continued the approach. They subsequently became distracted by managing the student's approach and, whilst they were aware the other aircraft was establishing in the Hold, they were unaware that their missed approach would bring them into conflict with the TBM and had also lost their mental picture of their own position relative to the TBM or its position in the hold at Hawarden. On the go-around they followed the missed approach instructions, which were right turn to the SWB VOR climb 2400ft. The student hadn't correctly set this navigation up in the G1000. Whilst the student flew the aircraft, the instructor was head in the cockpit, programming the student's navigation to give accurate guidance to the beacon. This took about 15-20sec, during which time the student was climbing at 100kts and turning to the rough heading that the instructor had from their nav log, to navigate to the SWB, but they needed a more accurate nav solution to follow. Once this was correctly set up and the student was following this guidance, the instructor resumed scanning for traffic and sighted the TBM aircraft in their 11 o'clock at about ½ NM. They instructed the student to level off and made them aware of the traffic. The student then became visual with it and they held their heading as the TBM passed through their 12 o'clock at roughly 1/3-1/4NM, 2-300ft above them. They received no traffic warning from either the fitted TAS system on the DA42, the [CWS] which was running on ForeFlight on their iPad, or an additional traffic update from the radar controller. Whilst this was all conducted in VMC, the cloudbase was only 2-300ft above the traffic in the Hold, with a darkening sky, which made visually acquiring the other aircraft challenging. They were not expecting the TBM to be in the position that it was, along their climbout.

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

THE TBM9 PILOT reports that their flight was for an FAA instrument proficiency check, and they were on an IFR flightplan and under positive ATC control for the whole time. Both crew members had a vague recollection of a DA42 being in the circuit at Hawarden, but neither of them saw anything that they considered to be an Airprox and could not offer any further details.

THE HAWARDEN CONTROLLER reports that their admin workload during the week had been high; attending important external meetings, completing an important investigation and writing reports. The unit was short on ATCOs and, even though they had admin to complete, they were still on the roster as an ATCO and controlled when required. They took over the watch at 1530 as another ATCO's shift had ended. Their workload was high in the APS position with the aircraft on frequency and also co-ordination taking place with Liverpool. The TBM9 was established in the HAW at 2500ft and [the controller] was waiting to hear back from Liverpool on clearance to enter controlled airspace at 3100ft to commence the procedural approach RW04. The DA42 had been vectored for an ILS approach RW04 and had been asked their intentions after the low-approach. The pilot had requested a right turn to SWB, IFR. They issued an IFR clearance prior to the low-approach "right turn, on track to SWB climbing 2400ft". This was read back correctly. The decision to climb to 2400ft was due to it being sector safe in the south-east sector and also to ensure the DA42 remained outside Manchester CTA2, which is to the east of Hawarden, with the base being 2500ft. Both aircraft were on Traffic Services and their obligation was to inform both aircraft about each other, which they did. [The DA42 pilot] reported visual with [the TBM9]. Whilst this was taking place, their manager had entered the room and was talking to them about a meeting that had taken place the previous day, and also asking how they were getting on with the investigation. They were trying to have a conversation with the manager, however, they were also receiving multiple calls from aircraft, so they told their manager that they would speak to them when they had unplugged. They were not aware of the Airprox that occurred until later on that evening when the pilot of the DA42 rang the tower to inform them that they would be filing one.

Factual Background

The weather at Hawarden was recorded as follows:

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METAR EGNR 111550Z 08003KT 050V110 9999 BKN024 06/01 Q1035=
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An extract from the Hawarden Instrument Approach Chart for RW04 is published in the UK AIP as follows:

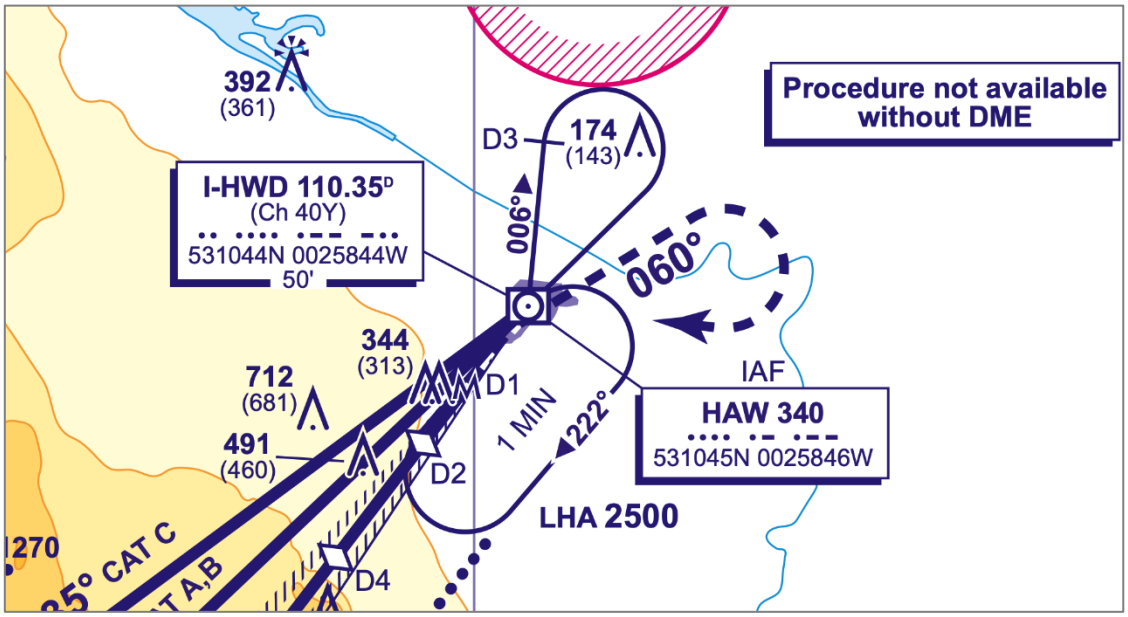

Figure 1: Hawarden Hold position

Analysis and Investigation

Hawarden Unit Investigation

Sequence of Events

RW04 was in use. [TBM9 C/S] was issued with a low-approach instruction to then make a right turn to establish in the HAW, climbing to 2500ft. [DA42 C/S] was being vectored for an ILS approach to RW04.

1548:26 – [DA42 C/S] requested missed approach instructions, informing the APS ATCO that they would like to route via Shawbury and depart to [destination].
1548:35 – [DA42 C/S] told to standby by the APS ATCO.
1548:39 – APS ATCO informed the ADI ATCO that the TBM9 was approaching 2NM on the ILS RW04.
1548:41 – ADI ATCO passed the low-approach clearance to the APS ATCO for [TBM9 C/S], the APS ATCO read it back correctly.
1548:46 – APS ATCO issued low-approach instruction to [TBM9 C/S], the pilot read it back correctly.

- The aircraft was issued with a low-approach clearance before reaching a range of 2NM in accordance with MATS Part 1 procedures. (Section 3: Chapter 2: Page 6).
- No Traffic Information was passed on circuit traffic.

1548:57 – The APS ATCO instructed [DA42 C/S] to turn left heading 080° to establish on the localiser, the pilot read it back correctly.

- This was a standard heading to close the localiser from the left (west) for RW04.

1549:10 – The APS ATCO asked whether [DA42 C/S] was looking to depart VFR or IFR, the pilot responded with IFR.

- The APS ATCO asked this to determine what type of clearance to issue.

1549:16 – The APS ATCO requested [DA42]'s routeing on departure, the pilot replied "*via the Shawbury overhead then to [destination]*".

- The pilot had already told the APS ATCO their preferred routeing less than one minute previously.

1549:27 – The APS ATCO passed climbout instructions to [the DA42 pilot]. The pilot confirmed that they were looking for an IFR clearance back to [destination] via the Shawbury overhead. The APS ATCO issued a "*right turn towards the SWB climbing to altitude 2400ft*". This instruction was read back correctly by the pilot.

- A clearance to 2400ft to aircraft departing to the south-east is standard as this is the lowest altitude available to ensure the aircraft is flying at the sector safe altitude.
- 2400ft also kept the aircraft clear of Manchester CTA2 to the east-northeast of Hawarden. This is Class D airspace of which the base of controlled airspace is 2500ft.

1549:44 – The APS ATCO instructed [DA42 C/S] to descend to altitude 3100ft, the pilot read this back correctly.

- 3100ft is the sector safe altitude to the southwest of Hawarden when vectoring for the ILS RW04.

1551:14 – The APS ATCO questioned [the TBM9 pilot] to confirm that they were stopping their climb at altitude 2500ft.

- The aircraft was not re-identified, but the APS ATCO questioned the Mode C readout. Note: the aircraft had previously been identified before carrying out a low-approach.

1551:24 – The APS ATCO asked [TBM9 pilot] to squawk ident.

- This is a standard method used to identify aircraft.

1551:48 – The APS ATCO informed the ADI ATCO that [DA42 C/S] was at 9NM for a low-approach to depart.
1551:52 – [TBM9 C/S] was re-identified, provided with a Traffic Service, passed the QNH 1035hPa and asked to report established in the HAW. The pilot read this back correctly.
1552:06 – The APS ATCO instructed [the TBM9 pilot] to reset their squawk to 0431, the pilot read this back.

- the APS ATCO could have used this as a way of re-identifying the aircraft instead of asking the pilot to squawk ident.
- The aircraft was previously on an ORCAM squawk. The APS ATCO changed the squawk to a discrete Hawarden squawk.

1553:36 – The APS ATCO passed Traffic Information to [DA42 pilot] on [the TBM9] '*established shortly in the HAW altitude 2500ft a TBM9*'.

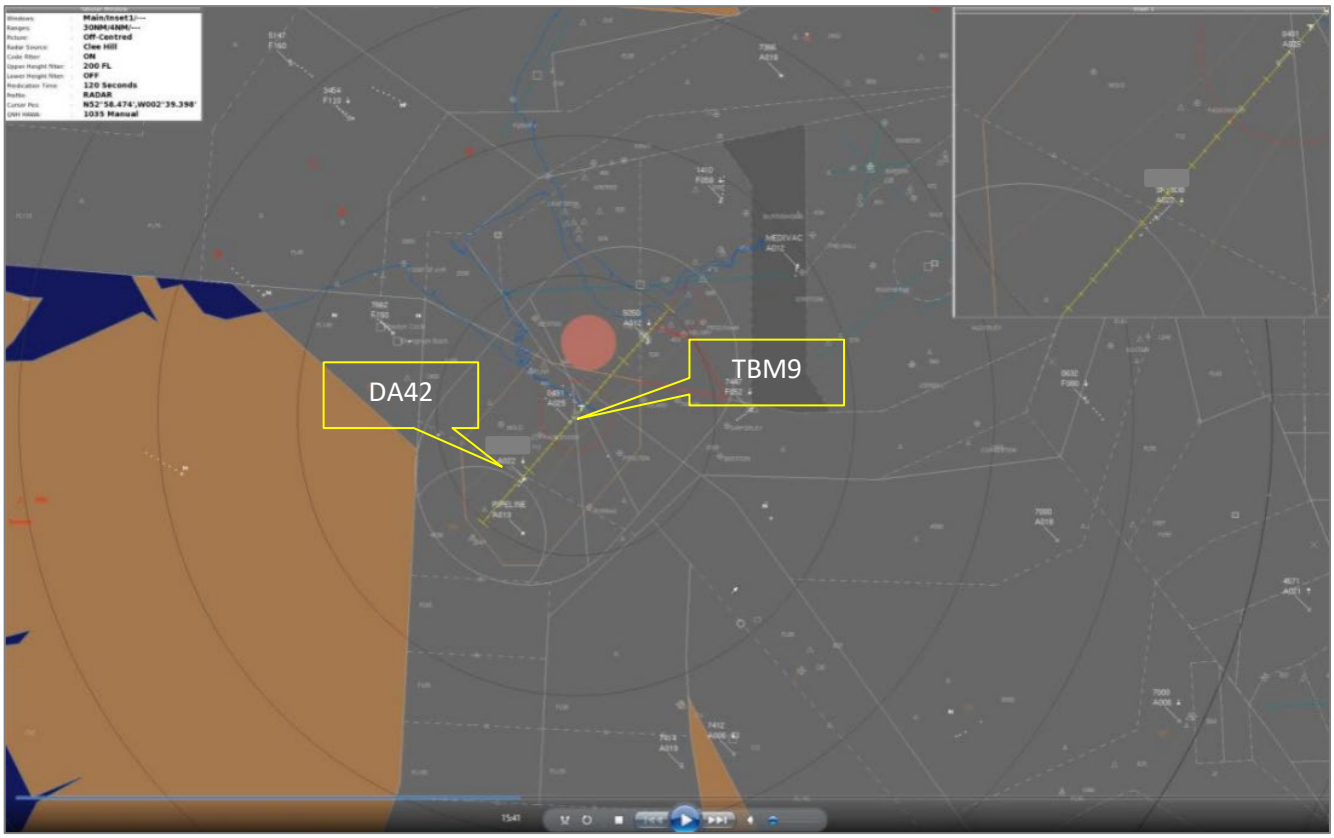

Figure 2 – Taken from the Hawarden radar replay, Traffic Information passed to DA42 pilot on the TBM9 (0431 squawk in the HAW 2500ft)

1553:46 – [DA42 pilot] reported '*traffic in sight*'.
1553:49 – The APS ATCO informed the ADI ATCO that the HAW was active with [the TBM9].
1553:51 – [TBM9 pilot] reported established in the HAW.
1553:54 – The APS ATCO asked [the TBM9 pilot] whether they were looking to fly the full or alternate procedure to RW04, pilot requested the full procedure. The APS ATCO asked the pilot to report commencing the final hold.

- The full procedural approach to RW04 requires co-ordination into Manchester CTA2 and Liverpool airspace because the aircraft will fly a 'teardrop' to the north of Hawarden before going beacon outbound.

1554:13 – The APS ATCO passed Traffic Information to [TBM9 pilot] on [the DA42] '*traffic's a DA42 err established on the ILS runway 04 just approaching 4 miles 1800ft descending and will be low approaching to depart southeast*'.

- Traffic Information had now been passed to both pilots, [TBM9 pilot] had not reported visual with the DA42.

1554:39 – APS ATCO phoned Liverpool Radar and informed them that the HAW was active with [the TBM9] at altitude 2500ft and requested altitude 3100ft. Liverpool Radar told the APS ATCO they had one aircraft (2007 squawk) heading 210° climbing to 3000ft and once that aircraft had vacated that altitude, the APS ATCO could have 3100ft in the HAW. The APS ATCO informed Liverpool Radar that the [TBM9] required one further hold and would then be looking to go outbound for the full procedure for RW04.

- Hawarden are to inform Liverpool when the HAW is becoming active and at what altitude, as per the standing Letter of Agreement.
- Note: Liverpool Airspace was not co-ordinated at this point for the full procedure.

1555:16 – The ADI ATCO passed the low-approach clearance to APS ATCO for [DA42 C/S], APS ATCO read this back correctly.
1555:22 – The APS ATCO passed the low-approach instruction to the DA42, the pilot read this back correctly.
1555:54 – Liverpool APS ATCO phoned back to inform the APS ATCO that 3100ft in the HAW was now subject to another southbound Liverpool departure (5262 squawk), heading 210° climbing to altitude 3000ft. Liverpool Radar told the APS ATCO that once this aircraft had vacated that altitude, the APS ATCO could have 3100ft in the HAW.
1556:17 – The ADI ATCO informed the APS ATCO that an aircraft in the circuit was looking to depart to the east for general handling for 10min after the next touch and go. The APS ATCO acknowledged this.
1557:22 – [TBM9 pilot] informed APS ATCO they were over the HAW commencing the final hold. The APS ATCO acknowledged this and instructed the pilot to "*remain in the HAW until advised, I do have co-ordination into controlled airspace I just to get err wait for an aircraft to get airborne from Liverpool and then I will give you further climb*". The pilot acknowledged this.
1557:35 – [DA42 C/S] was in the go-around, turning right to track southeast-bound climbing to altitude 2400ft.
1558:03 – Point of closest confliction [vertically]. [DA42 C/S] indicated 2200ft on Mode C, [TBM9 C/S] established in the HAW and reported at 2500ft – Mode C readout supported this. Neither pilot raised any concern on the frequency at the time.

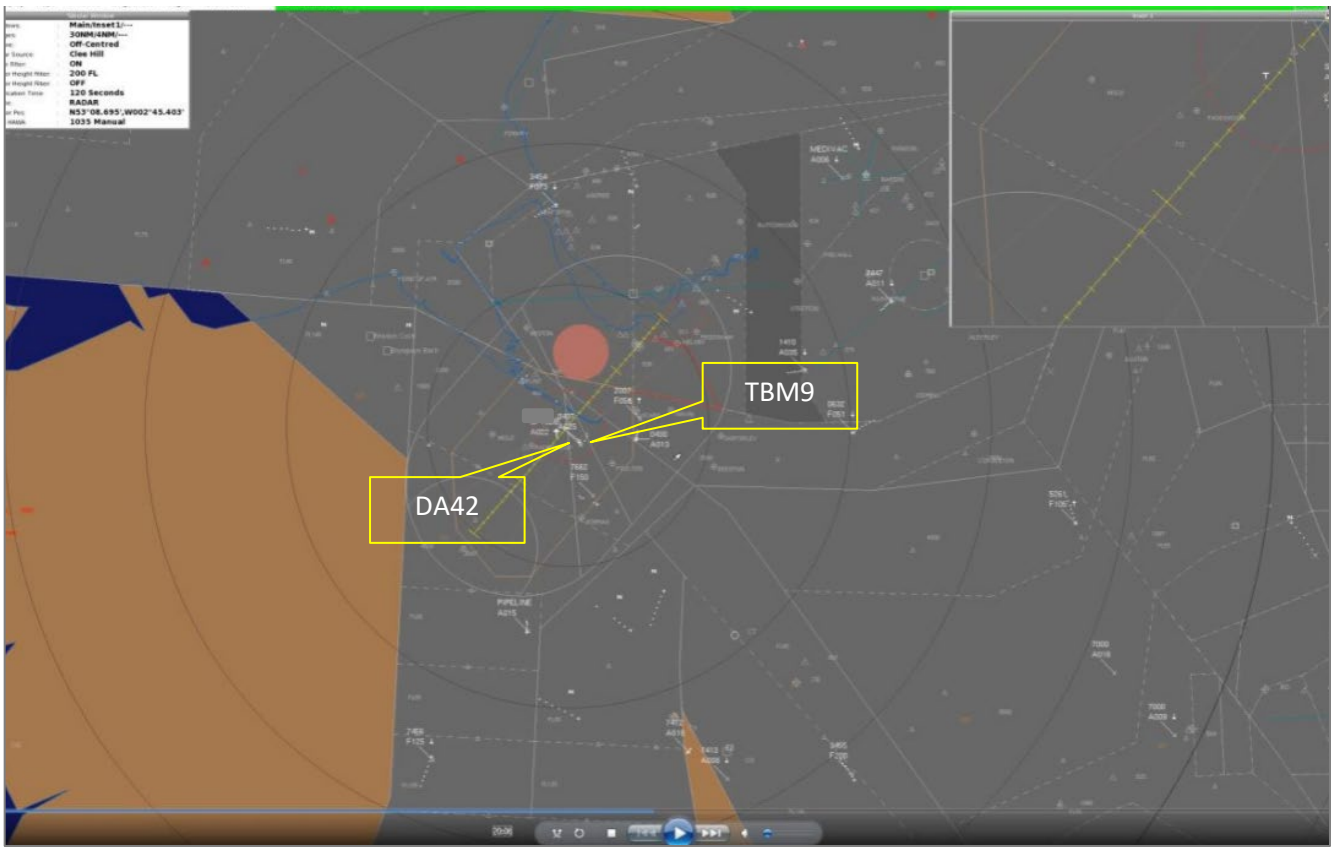

Figure 3 – CPA 1558:03

1558:22 – The APS ATCO instructed [DA42 C/S] to reset squawk to 0432 for identification. [The DA42] was identified and provided with a Traffic Service

Causal Factor 1

APS ATCO issued climbout instructions that placed the DA42 in potential confliction with the TBM9.

- Standard practice for aircraft departing to the southeast IFR to climb to altitude 2400ft to remain sector safe and clear of Manchester CTA2.
- Standard holding altitude in the HAW hold is 2500ft unless otherwise coordinated.

Contributory Factor 1

APS ATCO Holding at 2500ft in the HAW.

- When conducting procedural approaches to RW04, aircraft are usually held in the HAW at either 2900ft or 3100ft subject to coordination with Liverpool Radar. As per the Letter of Agreement with Liverpool and MATS Part 2: Section 4: Chapter 2: 7.3.5:

  > Hawarden will initially plan to hold aircraft in the HAW at 2500ft until traffic information has been passed to Liverpool. Once Liverpool have been notified, Hawarden may hold at 2900ft and when the aircraft is ready to go HAW outbound, Hawarden request to climb to 3100ft in the HAW with Liverpool.

Contributory Factor 2

The DA42 pilot lost visual contact with TBM9.

- Pilot workload – Student incorrectly inputted information into aircraft navigation equipment (G1000) requiring the instructor to reprogramme the system. This took approximately 15-20

seconds where the instructor was “heads in the cockpit” resulting in a loss of visual contact with the TBM9. There was no request from pilot for traffic update.
- The position of the DA42 after conducting the low-approach to RW04, placed the aircraft directly below the TBM9 which had just become established in the HAW at 2500ft. This could potentially increase the risk of the pilot losing visual contact with the TBM9.

Contributory Factor 3

ATSOCAS Rules for operating in Class G Airspace.

- Under the rules for ATSOCAS there is no requirement to provide standard separation on a holding facility situated in Class G airspace. Separation is dependant upon the type of service being provided, regardless of flight rules. Due to the close proximity of both Class A/Class D airspace and the sector safe altitudes surrounding Hawarden, ATCOs issue IFR clearances to the southeast at 2400ft to initially remain 100ft below Manchester CTA2.
- Both aircraft involved in the Airprox were being provided with a Traffic Service from the APS ATCO with [the DA42 pilot] established on a 6NM final reporting visual with [the TBM9]. However, when [the DA42 pilot] conducted the low approach to depart southeast, no update was passed on the position of [the TBM9] established in the HAW at 2500ft. Although the APS ATCO had met the requirements of providing a Traffic Service under ATSOCAS (Air Traffic Service Outside Controlled Airspace), an update on the close proximity of the HAW traffic could have been provided.

Ancillary Factor

APS ATCO was potentially distracted by a conversation with another person in the room.

- Radar recording showing labels being repositioned for a clearer picture of the traffic situation demonstrated the APS ATCO was continually monitoring the radar screen.

Root Cause

Current procedures allow for aircraft to hold in the HAW with aircraft landing and departing. Separation is dependent upon the type of ATSOCAS that is being provided to each individual aircraft, regardless of flight rules.

Recommendation
Use of the HAW suspended for training but remains in place for aircraft requiring to fly a missed approach and for aircraft operating in accordance with radio fail procedures - pending review. Hawarden to conduct Safety Review of HAW procedures and consider the following:

- Holding facilities outside controlled airspace.
- Holding at the lowest altitude/level available.
- Is standard separation required?
- Should it be used for training purposes?

Conclusion

The DA42 was established on the ILS RW04 at 6NM when the APS ATCO passed Traffic Information on the TBM9 establishing in the HAW at 2500ft. Although the pilot reported visual at the time, no further Traffic Information was passed, even when the APS ATCO would have observed the position of the two aircraft after the DA42 had conducted the low-approach and was routeing southeast-bound, climbing to altitude 2400ft. Both aircraft were being provided with a Traffic Service, however, the APS ATCO had a duty of care to prevent any possible confliction.

APS ATCO was led to believe that the pilot of the DA42 was still visual with the TBM9 and had not been told otherwise. After the pilot became distracted with issues in the cockpit and lost visual

contact with the TBM9, the pilot should have requested an update on the traffic established in the HAW.

The TBM9 was established in the HAW at 2500ft. The aircraft was to fly an approach to RW04, so would have needed to climb to at least 2900ft before going beacon outbound, as per procedures. Although the APS ATCO requested 3100ft and a clearance into controlled airspace for the TBM9, it was subject to two southbound Liverpool departures. The APS ATCO could have informed the Liverpool APS ATCO whilst on this phone call that the TBM9 would be climbing to 2900ft. Although climbing to 2900ft would not have provided standard separation (which was not required as both aircraft were operating in Class G [airspace] under a Traffic Service) against the DA42 departing, 500ft separation would have decreased the risk of collision.

CAA ATSI

ATSI has the following comments to make as a result of conferring with the unit's CAA ATM Inspector:

The challenge for Hawarden is that the lowest level for the procedure (3100ft) places it inside Liverpool controlled airspace and so a clearance from Liverpool has to be obtained first, therefore the TBM9 was just above the lowest terrain safe level (2400ft) prior to a clearance to enter controlled airspace being obtained.

The DA42's go-around instructions also included a climb to the minimum safe sector altitude of 2400ft.

There is no facility to hold an aircraft at Hawarden at a level that provides appropriate separation from aircraft climbing out with co-ordination with Liverpool.

Whilst the controller was providing a Traffic Service to both aircraft, and initial reciprocal Traffic Information was passed, this information was not updated when the DA42 went around.

In issuing both aircraft a climb to the same level in the same area, the controller was contributing to the confliction and also not fulfilling their Duty of Care.

One option available to the controller would have been to have the TBM9 extend the outbound leg of their hold or place it on a vector to take it away from the potential climbout area of the DA42.

The unit has been reminded by the CAA of the following:

· CAP493 – Section 1 Chapter 3 - Separation Standards, Paragraph 8C.1 which states: *When aircraft are being held in flight, the appropriate vertical separation shall be provided between holding and en-route aircraft while such en-route aircraft are within 5 minutes flying time of the holding aircraft's flight path except where it is published in MATS Part 2 that lateral separation is deemed to exist.*

· CAP774 – Traffic Service Para 3.6 which states: *When providing headings/levels for the purpose of positioning and/or sequencing or as navigational assistance, the controller should take into account traffic in the immediate vicinity based on the aircraft's relative speeds and closure rates, so that a risk of collision is not knowingly introduced by the instructions passed.*

· CAP774 - Appendix A – Duty of Care.

UKAB Secretariat

Analysis of the NATS radar replay was undertaken and both aircraft could be identified using Mode S data. Although the Hawarden radar indicated a separation of 300ft, the NATS radar replay indicated at separation of 200ft at a range of 0.4NM, but the DA42 then descended to give 400ft separation at CPA and this was used for the diagram at the top of the report.

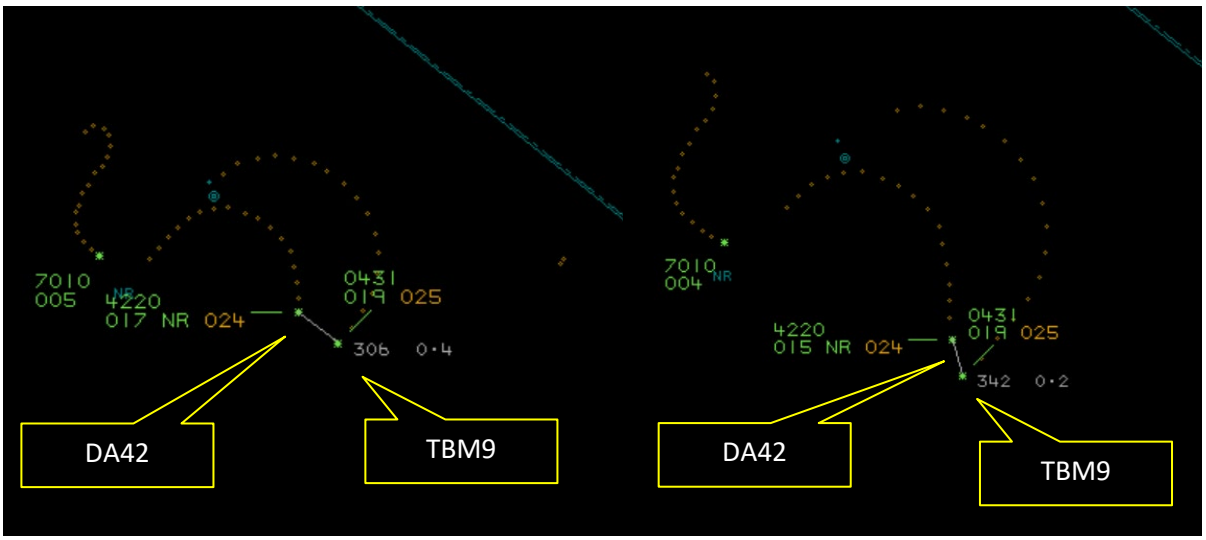

Figure 4 – 1557:55

Figure 5 - 1558:03
CPA using NATS radar replay

The DA42 and TBM9 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 TBM9 pilot was required to give way to the DA42.[2]

Summary

An Airprox was reported when a DA42 and a TBM9 flew into proximity 1NM southeast Hawarden at 1558Z on Wednesday 11th December 2024. The DA42 pilot was operating under IFR in VMC in receipt of a Traffic Service from Hawarden APS and the TBM9 pilot was operating under IFR in VMC also in receipt of a Traffic Service from Hawarden APS.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, a report from the air traffic controller involved and a report from the appropriate operating authority. 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 DA42 pilot. Members noted that the pilot had been making an approach to Hawarden prior to their climbout and transit southbound. The Instructor reported that the student had not set up the navigation equipment for the return journey (**CF5**) and so the Instructor then had been required to spend time setting a route which, members agreed, had become a distraction (**CF10**). Some members opined that the pilot would have been better placed asking for vectors from the controller and then setting the equipment in slow-time, once level, rather than at a point when the student had been busy (**CF7**). The Board noted that the pilots had been given Traffic Information on the TBM9 whilst still on the approach, but by the time they had been climbing out, they had lost the situational awareness on the position of the TBM9 (**CF8**). Members thought that, whilst ideally the controller would have updated the Traffic Information, the pilot could have asked for an update at any point (**CF6**). Indeed, some members opined that the pilot should have asked for a Deconfliction Service given the description of the weather conditions and the distraction of re-programming the nav equipment, however, ATC would not have been able to provide a Deconfliction Service until the aircraft had been at 2400ft or above, and so on this occasion it was not thought to have been a contributory factor. Members would have expected the CWS on the DA42 to have alerted to the TBM9, but the DA42 pilot had reported that no such alert had been received (**CF9**). Once visual with the TBM9, the DA42

[1] (UK) SERA.3205 Proximity.
[2] (UK) SERA.3210 Right-of-way (c)(2) Converging.

pilot had taken action to increase the separation, but had been concerned by the proximity of the TBM9 crossing ahead (**CF11**).

Turning to the actions of the TBM9 pilot, again members were told that the pilot had received Traffic Information on the DA42 some time before the Airprox (**CF8**), and once again members thought that, given the elapsed time since the information had been passed, the pilot could have asked for an update on the position of the traffic (**CF6**). Some members expressed surprise that the TBM9 had not been fitted with any form of CWS, noting that it might have provided a warning that the DA42 had been approaching their position. Members agreed that the crew would have been concentrating on the Hold pattern and procedures, potentially to the detriment of their lookout, and thought that the pilot had probably seen the DA42 after the other aircraft had levelled off below them and therefore had not been worried by the separation. Members opined that, had the TBM9 pilot seen the DA42 as it had been climbing up towards them, they may have been more concerned by its proximity.

When looking at the role of ATC, members were told that both pilots had been receiving a Traffic Service, under which the controller had not been required to provide separation, only to pass Traffic Information. The controller had passed Traffic Information to both pilots, although only the DA42 pilot had reported visual. However, members thought that, given that the Traffic Information had been passed when the DA42 had been on finals, and the terms of a Traffic Service state that Traffic Information should be updated should the risk of collision continue to exist, the controller should have updated this Traffic Information once the DA42 had been climbing out (**CF2**). Whilst members agreed that the airspace around Hawarden had been constrained, with the controller required to co-ordinate with Liverpool in order to use the full extent of the HAW Hold, still members thought that the controller could have done more to mitigate the risk, perhaps by climbing the TBM9 to 2900ft (the highest level available to the controller) or by telling the DA42 pilot to maintain runway heading initially. Although the controller had not been required to have provided separation between the two aircraft, still, controller instructions should not knowingly introduce a collision risk (**CF1**), and members opined that the climbout instructions to the DA42, by instructing the pilot to turn on track and climb to 2400ft, both towards the TBM9 and only 100ft below it, had introduced such a risk (**CF4**). Members agreed that it was difficult to judge to what extent the conversation within the ACR had provided a distraction to the controller, and noted that the Hawarden investigation had concluded that the controller had been maintaining a watchful eye on the radar screen, nevertheless, controlling members highlighted that admin conversations should never be conducted when controlling, because of the distraction risk, and concluded that it must have had some effect on this occasion (**CF3**).

When assessing the risk, members considered the reports from both pilots and the controller, together with the investigation report and the radar replay. Members thought that the controller instructions, lack of updated Traffic Information and distraction for both the controller and the pilots, meant that safety had been degraded. However, the actions taken by the DA42 pilot, in levelling off, had ensured that there had been no risk of collision and so members unanimously agreed that this event had been risk category C.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2024296			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Ground Elements			
	• Regulations, Processes, Procedures and Compliance			
1	Human Factors	• ATM Regulatory Deviation	An event involving a deviation from an Air Traffic Management Regulation.	Regulations and/or procedures not fully complied with
	• Situational Awareness and Action			
2	Human Factors	• ANS Traffic Information Provision	Provision of ANS traffic information	TI not provided, inaccurate, inadequate, or late
3	Human Factors	• Task Monitoring	Events involving an individual or a crew/ team not appropriately	Controller engaged in other tasks

			monitoring their performance of a task	
4	Human Factors	• Traffic Management Information Provision	An event involving traffic management information provision	The ANS instructions contributed to the Airprox
	Flight Elements			
	• Tactical Planning and Execution			
5	Human Factors	• Pre-flight briefing and flight preparation	An event involving incorrect, poor or insufficient pre-flight briefing	
	• Situational Awareness of the Conflicting Aircraft and Action			
6	Human Factors	• Lack of Communication	Events involving flight crew that did not communicate enough - not enough communication	Pilot did not request additional information
7	Human Factors	• Mentoring	Events involving the mentoring of an individual	
8	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			
9	Human Factors	• Response to Warning System	An event involving the incorrect response of flight crew following the operation of an aircraft warning system	CWS misinterpreted, not optimally actioned or CWS alert expected but none reported
	• See and Avoid			
10	Human Factors	• Distraction - Job Related	Events where flight crew are distracted for job related reasons	
11	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.

Safety Barrier Assessment[3]

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 Harwarden controller should have taken into consideration the position of the TBM9 into the hold when issuing climb-out instructions to the DA42 pilot.

Situational Awareness of the Confliction and Action were assessed as **ineffective** because the climbout instruction to the DA42 pilot had put the two aircraft into confliction. Furthermore, the controller had not updated the Traffic Information once the DA42 had completed their approach.

Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because the nav equipment on the DA42 had not been correctly set up for the return route.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **partially effective** because the instructor in the DA42 had been distracted by setting up the nav equipment and had lost situational awareness on the TBM9. The TBM9 pilot had received Traffic Information

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

some time before the incident, but either pilot could have asked for updated information from the controller.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the CWS on the DA42 would have been expected to alert to the TBM9, but none was reported.