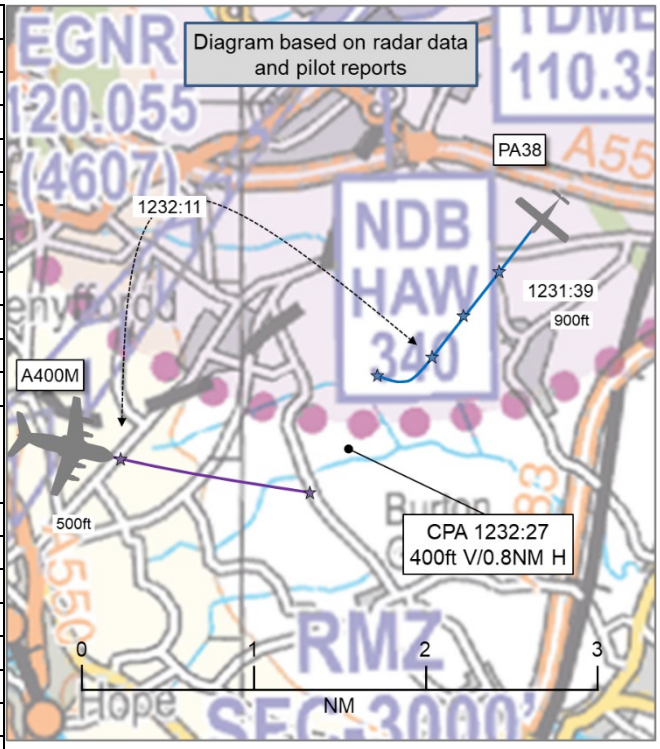
AIRPROX REPORT No 2024113

Date: 06 Jun 2024 Time: 1232Z Position: 5307N 00258W Location: 3NM South of Hawarden

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	PA38	A400M
Operator	Civ FW	HQ Air (Ops)
Airspace	Hawarden ATZ	London FIR
Class	G	G
Rules	VFR	VFR
Service	ACS	Basic
Provider	Hawarden Tower	Hawarden Radar
Altitude/FL	900ft	500ft
Transponder	A, C, S	A, C, S+
Reported		
Colours	Maroon, white	Grey
Lighting	Landing, anti-coll, navigation	Land/Taxy, nav, anti-coll, HISL, strobes, beacon
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	1000ft	300ft
Altimeter	QFE (1017hPa)	Rad Alt
Heading	220°	085°
Speed	90kt	270kt
ACAS/TAS	PilotAware	TCAS II
Alert	None	None
Separation at CPA		
Reported	400ft V/0.5NM H	300ft V/1.0NMH
Recorded	400ft V/0.8NM H	



THE PA38 PILOT reports that they had been conducting a training flight teaching a circuit detail with a student. During this time, they had heard an aircraft call Tower with the callsign [A400M callsign] stating that they would be transiting south of the airfield. The PA38 pilot reports that they had not caught what altitude or direction they had been flying but had assumed they would be transiting a reasonable distance from the airfield. During the downwind leg the PA38 pilot recalls that they had been instructed to report final number 2 to a light-aircraft that had been on the ILS at around 5NM final. After checks were completed the pilot reports that the main task had been to look for number 1 and then decide what to do if they had not become visual - either request to extend downwind or orbit left. It had been at this point that they had been startled to see the A400M ahead and below passing right-to-left about to pass under their left wing. As the PA38 pilot had not known their exact intentions, and being such a large aircraft below them, especially as the PA38 had been only at 1000ft, they were forced to make a right turn to base leg to avoid, bearing in mind that the PA38 pilot had still not been visual with the aircraft on final approach. The PA38 pilot reports that 'luckily enough they had become visual once they had rolled level, though a bit closer than they had wished'. The PA38 pilot reported to ATC the position of the A400M and the received response had been that it was remaining outside the ATZ. The PA38 pilot does not recall ATC passing any Traffic Information about it.

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

THE A400M PILOT reports that, during a military low-flying [task], they had routed north in the low ground from Corwen to Ruthin, attempting contact with Hawarden. In the vicinity of Ruthin, a turn onto approximately 090° was made whilst continuing to attempt contact with Hawarden Tower. It had been assumed that, due to their low height, radio contact was being blocked by terrain. Once crossing the high ground, contact was established with position, callsign and aircraft type and they were instructed

to contact Hawarden Radar. A light-aircraft was observed to the left of their aircraft (approximately 10 o'clock position) on approach with TCAS contact having been achieved previously. A further light-aircraft was seen higher and further away, also to the left, as the cruise had continued. No avoiding action was deemed necessary and no TCAS TA was received. The pilot reports having initially chosen the frequency listed on the military 1:500,000 Low Flying Chart (LFC), which had been Hawarden Tower. Once contact had been achieved, a switch to Hawarden Radar had been instructed.

The A400M pilot later added that, on 6th June 24, they had been the captain of [A400M callsign], an A400M tasked with a low flying training sortie including […]. The route of the low-level flight at 250ft MSD had been through Wales, north up the Ruthin Valley (west of the Clwydian Range) to then cross east to the Midlands via the area of Class G airspace to the south of Hawarden Airfield, using the bi-directional west-to-east flow arrow to the south of Hawarden which, in the direction being flown, required users to be not above 500ft MSD. It was noted that Hawarden had an RMZ area associated with it and contact had been planned using the frequency published on the Day LFC, 124.955MHz.

Contact had been attempted several times while in the Ruthin Valley to no avail (potentially due to [A400M callsign] low height). Contact had finally been achieved when cresting the Clwydian Range. At this point, following the passing of the details of their flight, the A400M pilot had been instructed to change to Hawarden Radar on frequency 120.055MHz. Once this frequency change had been effected, the [A400M callsign] flight details were communicated. TCAS on the A400M flight deck indicated two contacts in the vicinity of Hawarden and visual contact had been established with them. It had been assessed by the handling pilot that no avoiding action had been required to maintain safe separation with this traffic and a TA had not been triggered at any stage. There had been both a lateral (~1NM) and vertical (~300ft) deconfliction reported by TCAS. The flight had been continued eastbound, complying with the requirements of the flow system and an en-route frequency change carried out.

On landing, the A400M's crew had been requested to contact Hawarden ATC and the crew was informed that an Airprox had been submitted by one of the aircraft in the circuit. The online Airprox response had been submitted as soon as it was received on 23rd June 24. No Airprox report was submitted by the crew of the A400M because they did not assess that an Airprox had occurred due to the visual deconfliction that was maintained at all times, backed up by the lack of TCAS TA.

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

THE HAWARDEN CONTROLLER reports that an A400M [callsign] had free-called Hawarden Tower at 1230 reporting 6NM southwest transiting eastbound low-level squawking 7001. The ADI ATCO passed Traffic Information on an [uninvolved aircraft] inbound on an instrument approach to RW04 and instructed the [A400M] pilot to free-call Hawarden Radar as per the correct procedure. On contact with APS ATCO, the A400M pilot reported visual with the instrument traffic [uninvolved with the Airprox] in their 12 o'clock at 1NM. The A400M then routed 3NM south of Hawarden and had been passed Traffic Information on the right-hand circuit to RW04 active with 2 light-aircraft, the pilot reported indicating 600ft on the QNH. The PA38 had been late downwind in the circuit and had taken a sharp right turn to avoid the A400M and the pilot [had noted that they] would be filing an Airprox against the A400M.

Factual Background

The weather at Hawarden was recorded as follows:

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METAR EGNR 061220Z 32009KT 290V360 9999 SCT020 SCT036 15/07 Q1018=
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Analysis and Investigation

Hawarden Investigation

The circuit had been active RW04RH with one aircraft at the start of the downwind leg and the PA38 at the end of the downwind leg. A third aircraft had been established on ILS RW04. […] The PA38 pilot had been instructed to report final number 2 and advised to orbit at the end of the downwind

leg as required. The A400M pilot had free-called Hawarden Tower frequency at 1230 reporting passing just to the south of the ATZ 6NM west of Hawarden transiting eastbound. The aircraft had been observed to be wearing a low-level squawk 7001. The ADI ATCO passed Traffic Information on an [uninvolved aircraft] established on the ILS and instructed the A400M pilot to free-call Hawarden Radar as per the correct procedure to transit through the Hawarden RMZ.

When the A400M pilot had established 2-way communication with the APS ATCO, the pilot reported visual with an [uninvolved] aircraft '12 o'clock at 1NM'. The A400M had then been observed to track north-east bound and transit 3NM south of Hawarden. The APS ATCO informed the pilot that the right-hand visual circuit had been active RW04 with 2 light-aircraft. The PA38 had been late downwind in the visual circuit and took a sharp right turn to avoid the A400M. The PA38 pilot filed an Airprox report.

Conclusion

The A400M pilot had incorrectly entered the RMZ as they had not established two-way communication before entering, as per the standard procedures, and had not been wearing the listening squawk 4607. If either of these two requirements had been met, then the A400M would not have infringed the RMZ. The reason why two-way communication had not been established could be due to several factors:

- The pilot stated that they had attempted to contact the unit as they had been aware of the RMZ, however they had said that the frequency that was displayed on their moving map in the cockpit was the Tower frequency, which is who they had contacted. This delayed the ability to be able to pass accurate Traffic Information to the A400M pilot on ILS and circuit traffic.

- The aircraft had been flying low-level and, due to high ground between the aircraft's position and the unit, the radio coverage was affected.

- The pilot had not been aware of the procedures related to the listening squawk, and if 4607 had been selected prior to entering the RMZ then the infringement would not have occurred.

The Airprox occurred due to the pilot not establishing two-way communication prior to entering the RMZ. If the pilot had established two-way communication with the APS ATCO, then detailed Traffic Information to the pilot would have been given on both the ILS traffic for RW04, along with the circuit traffic [the PA38]. This Traffic Information would have increased the A400M pilot's awareness of the current traffic situation and it would also have allowed the ILS traffic to be given information on the A400M aircraft and ensured that the PA38 pilot had known about the A400M. It is evident that the awareness of the RMZ procedures had been incorrect on the 'moving map' that the pilot of the A400M had been using as the pilot stated that the Tower frequency had been displayed as opposed to the Radar frequency, and if the correct briefing had taken place prior to the flight then the pilot would have been aware of the correct procedures relating to the RMZ.

The safety cell has confirmed that "the A400Ms at Brize Norton are equipped with digital mapping to which the Hawarden RMZ is correctly displayed on the maps". They noted that there was potential for oversight as the crew can select several layers of mapping, depending on what part of the mission they are flying, which correlates with the pilot's statement that the RMZ is displayed on the maps. The safety cell did explain that "the mapping does not state what the rules and regulations are for conducting a flight within the RMZ and that pilots should self-brief on their route prior to departure".

The A400M pilot did state that they had been aware of the RMZ however the Tower frequency was contacted as opposed to the Radar frequency. The area and altitude of the A400M when this call had been made could potentially be a black spot for radio communication which could explain why the two-way communication with the Tower frequency did not occur until the A400M had been within the dimensions of the RMZ.

Causes

[…] The A400M and PA38 pilots were not passed Traffic Information on each other until late due to the A400M pilot having incorrectly contacted the Tower frequency as opposed to the Radar frequency.

[…] The call had been made to the Tower frequency low-level and potentially in a black spot for radio communication.

[…] The A400M pilot had not been fully aware of the procedures related to the Hawarden RMZ due to not correctly briefing prior to the flight as conducted.

[…] The A400M pilot should have called the radar frequency as per the correct procedure which would have resulted in the correct procedures being followed for the RMZ and the infringement not occurring and potentially not the Airprox either.

[…]

UKAB Secretariat

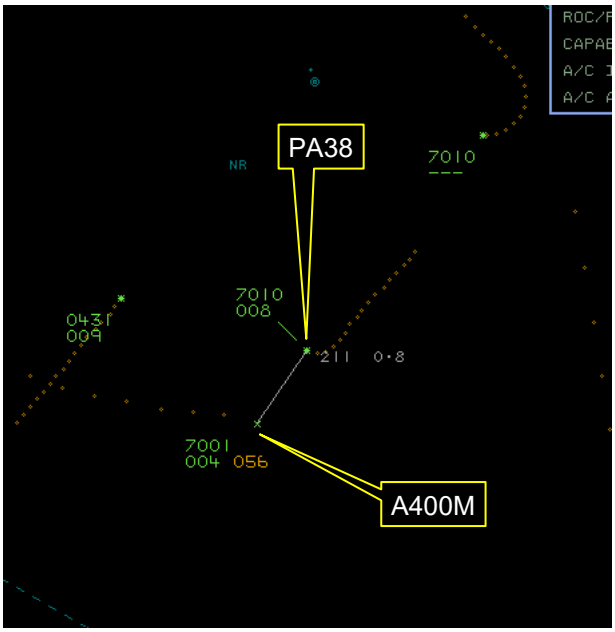

Figure 1: CPA at 1232:27 400ft V/0.8NM H

The UK AIP entry for Hawarden includes the following information regarding operations within the RMZ:

3 RADIO MANDATORY ZONE (RMZ)

For flight within the RMZ aircraft commanders must comply with one of the following:

a. *Establish satisfactory two-way RTF communication with and pass pertinent flight details to Hawarden Radar (120.055MHz)[1] prior to entering the RMZ. Maintain two-way communication with Hawarden Radar whilst operating inside the RMZ, unless otherwise instructed.*
b. *Display the Hawarden Frequency Monitoring Code (FMC) (*4607) with Mode C as detailed below and in ENR 1.6 paragraph 2.6, UK SSR Code Allocation Plan, and monitor Hawarden Radar (120.055MHz) prior to entering and whilst inside the RMZ. Pilots must maintain a listening watch and establish two-way RTF communication, if directed, whilst operating inside the RMZ.*

[1] The 1:500,000 UK Low-flying chart for this area includes a contact frequency of 124.955MHz (Hawarden Tower).

Selection of the FMC does not imply receipt of an ATC service and pilots remain responsible for navigation, separation, terrain clearance, and are expected to remain outside of Controlled Airspace at all times.

When a pilot leaves the RMZ they should deselect the FMC.

[…]

The A400M pilot had not established two-way communication with Hawarden Radar on frequency 120.055MHz (part a. above), or displayed the squawk 4607 and monitored Hawarden Radar on frequency 120.055MHz (part b. above) prior to entry into the Hawarden RMZ.

The PA28 and A400M 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]

Comments

HQ Air Command

This was subject to a Local Investigation which found that, whilst there was no risk of collision, the PA38 pilot had been concerned by the presence of the A400M routeing to the south of the Hawarden ATZ. The A400M crew had been visual with the PA38, assessed there to have been sufficient separation and that no avoiding action had been required. The investigation found that the military low flying charts have the Hawarden Tower frequency annotated and a request for change has been made for the Radar frequency to be displayed. The A400M pilot had been aware of the RMZ but not of the correct procedures for entering; crews have been reminded that the AIP should be consulted for relevant details.

AOPA

It is unfortunate that the A400M mapping system did not show the correct frequency, when added to their lack of alerts in the different electronic conspicuity systems, this had led to a loss of situational awareness for all. Pilots can always ask for more information to clarify what is going on.

Summary

An Airprox was reported when a PA38 and an A400M flew into proximity 3NM south of Hawarden at 1232Z on Thursday 6th June 2024. Both pilots were operating under VFR in VMC, the PA38 pilot in receipt of an Aerodrome Control Service from Hawarden Tower and the A400M pilot in receipt of a Basic Service from Hawarden Radar.

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 firstly discussed the actions of the PA38 pilot, noting the nature of their flight, the Air Traffic Service they were subject to and that they had carried electronic conspicuity equipment. They recognised that the pilot had become aware of the A400M due to the initial call made by that pilot on the Tower frequency, rather than the (correct) Radar frequency, but accepted that their attention had then been focussed on the circuit pattern and specifically the traffic that had been approaching via the ILS. Members considered that the decision by the PA38 pilot to turn right had demonstrated solid Threat

[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.

and Error Management and had been triggered by the potential 'startle factor' of having seen a very large aircraft crossing their path and had been made despite the knowledge that there had been instrument traffic inbound to Hawarden which they had fortunately then identified, although closer to them than ideal. Members felt that there had been little alternative open to the PA38 pilot.

Turning to the contribution by the A400M pilot, they agreed that their pre-flight planning had not picked-up the frequency error on the military chart, and that their initial call to Hawarden Tower had generated internal communications within the Hawarden Air Traffic operation, but that the A400M pilot believed that they had fulfilled the appropriate requirements for RMZ entry and that the call had raised the situational awareness, albeit generic, of the PA38 to the passage of the A400M to the south of the airfield. Members discussed the communications difficulties for military traffic (operating at lower levels than other users) when approaching through the higher terrain to the west and wondered whether more could have been done to enable earlier 2-way communication.

In reviewing the actions of the Hawarden controllers, members noted the positive contribution both by Tower and Radar controllers, successfully passing Traffic Information to the A400M pilot regarding the inbound ILS traffic but that they had perhaps missed the opportunity to follow that with Tower controller-issued Traffic Information regarding the A400M for those operating within the Hawarden circuit, including the PA38.

Members wished to note that an important clarification in this case is that an Airprox is not filed 'against' another operator, more that they are submitted to highlight a situation that a pilot believed to have been uncomfortable and deserving of investigation. The Airprox Board reviews such submissions from a non-blame perspective and aims only to discover which Barriers did or did not work and highlights learning for all in similar situations.

In conclusion, members agreed that, although the A400M pilot had entered the RMZ via an initial call to the wrong frequency, they had ultimately established 2-way contact with Hawarden and made their presence known and there had been a missed opportunity to pass that gained situational awareness to the PA38 pilot from that initial contact, the separation between the aircraft had been such that normal safety standards and margins had pertained. Members were satisfied that there had not been a risk of collision and assigned Risk Category E to this event.

Members agreed on the following contributory factors:

CF1: Traffic Information had not been passed by the Hawarden controller to the pilot of the PA38.

CF2: The A400M pilot did not conform with the RMZ entry procedures.

CF3: The A400M pilot had made their initial call for RMZ entry on the wrong frequency.

CF4: The wrong RMZ contact frequency had been printed on the military chart.

CF5: The A400M pilot had not referred to the AIP in pre-flight planning with respect to the RMZ entry procedures.

CF6: The PA38 pilot had only generic situational awareness of the presence of the A400M.

CF7: The PA38 pilot had been concerned by the proximity of the A400M.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2024113			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Ground Elements			
	• Situational Awareness and Action			
1	Human Factors	• ANS Traffic Information Provision	Provision of ANS traffic information	TI not provided, inaccurate, inadequate, or late
	Flight Elements			
	• Regulations, Processes, Procedures and Compliance			
2	Human Factors	• Use of policy/Procedures	Events involving the use of the relevant policy or procedures by flight crew	Regulations and/or procedures not complied with
	• Tactical Planning and Execution			
3	Human Factors	• Accuracy of Communication	Events involving flight crew using inaccurate communication - wrong or incomplete information provided	Ineffective communication of intentions
4	Organisational	• Flight Planning Information Sources	An event involving incorrect flight planning sources during the preparation for a flight.	
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	Contextual	• Situational Awareness and Sensory Events	Events involving a flight crew's awareness and perception of situations	Pilot had no, late, inaccurate or only generic, Situational Awareness
	• See and Avoid			
7	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: E.

Safety Barrier Assessment[4]

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

Ground Elements:

Situational Awareness of the Confliction and Action were assessed as **partially effective** because the Hawarden controller had not passed Traffic Information to the PA38 pilot of the proximity of the A400M.

Flight Elements:

Regulations, Processes, Procedures and Compliance were assessed as **partially effective** because the A400M pilot had not complied with the Hawarden RMZ entry procedures.

Tactical Planning and Execution was assessed as **ineffective** because in their pre-flight planning the A400M pilot had not confirmed the correct entry procedures for the Hawarden RMZ.

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

Situational Awareness of the Conflicting Aircraft and Action were assessed as **partially effective** because the PA38 pilot had only generic situational awareness of the proximity of the A400M.