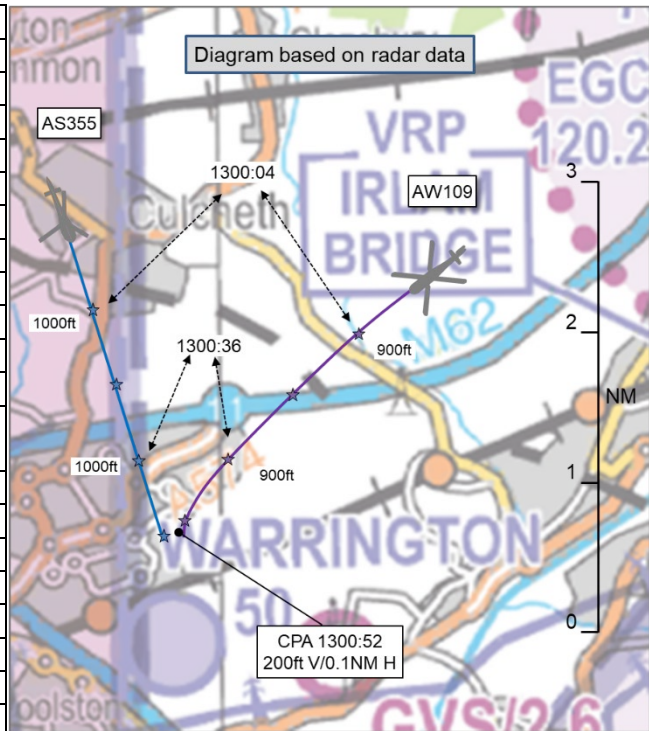


AIRPROX REPORT No 2024092

Date: 17 May 2024 Time: 1301Z Position: 5325N 00230W Location: 5NM SW of Barton

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	AS355	AW109
Operator	Civ Comm	Civ Comm
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	IFR
Service	Basic	Listening Out
Provider	Manchester Radar	Manchester Radar
Altitude/FL	1100ft	900ft
Transponder	A, C, S	A, C, S
Reported		
Colours	Grey, black	White, grey
Lighting	Anti-coll, position	Anti-coll, navigation
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	1000ft	951ft
Altimeter	QNH (1010hPa)	QNH (1010hPa)
Heading	~160°	212°
Speed	~110kt	141kt
ACAS/TAS	TAS	Not fitted
Alert	None	N/A
Separation at CPA		
Reported	0ft V/~0.1NM H	300ft V/0.4NM H
Recorded	200ft V/0.1NM H	



THE AS355 PILOT reports that, returning to base after completing a job, they had entered the northside of the Manchester Low Level Route (MLLR) with a zone transit clearance from Manchester Radar (118.580MHz) to fly west of Knutsford not above 1300ft with a Manchester squawk code. From the point they had entered the MLLR they were given a Radar Control Service and had then set a direct course to fly west of Knutsford maintaining their level at 1000ft on the QNH of 1010hPa. Their course took them over a very small section of class G airspace (by Thelwall Viaduct VRP) as they had gone from the low-level corridor into the Manchester CTR. At this point they were looking out of the right-hand window of the aircraft and, as they scanned around and looked left, they noticed an AW109 very close (same level) and converging on their left-hand side. The moment the AS355 pilot had noticed the AW109 it had entered a sharp left turn in what appeared to be avoiding action. By the time the AS355 pilot had processed this and placed their hands on the controls (as autopilot was engaged at that point), they assessed the AW109 pilot's avoiding actions to be moving themselves well clear of the AS355's flightpath and so [elected to] remain on the current flightpath. The AW109 had been close enough to read the registration of [AW109 registration] and recalled having seen it elsewhere before. The AS355 pilot believed that the AW109 pilot hadn't seen them until the point they took avoiding action as rules of the air would have meant they should have altered course to pass clear behind. Just after the AW109 turned clear away, the AS355 pilot had only then been passed Traffic Information by Manchester Radar at which point the AS355 pilot reported the Airprox to the controller. The only form of traffic awareness that they report having had onboard was an inbuilt TAS system which [they note] is usually pretty good at alerting [to] nearby traffic. The pilot recalls that they had noticed that throughout the day the TAS hadn't been indicating any traffic that they could visually see and would have expected to see on the TAS screen. On a previous leg they had turned the system off and on again to see if it would improve but it hadn't. Despite being turned on as normal, the moments before and after the Airprox event, they had no visual or audio alerts from the TAS as would normally be expected. Despite the Airprox event occurring, the AS355 pilot had been planning to flag the TAS to maintenance after returning to base.

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

THE AW109 PILOT reports that they were departing [...] after refuelling and heading towards [destination airfield] via the Manchester Low Level Route. They had just changed from [...] frequency and squawk and it was their intention to use the MLLR whilst maintaining a listening watch when they had seen the AS355 relatively late as its closing angle had been behind the pilot's door frame. The AW109 pilot chose to turn away, to the left, and flew a complete 360° turn to [put themselves] behind the other aircraft. The AW109 pilot reports that their aircraft hadn't been fitted with any traffic alerting system. Manchester Radar gave the pilot of the AS355 a traffic call as the AW109 had been in the left turn. The pilot of the AS355 stated on frequency that they were going to file an Airprox. Although on a listening out frequency and squawk, the AW109 pilot stated to Manchester Radar that they had seen the AS355 in time.

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

THE MANCHESTER SOUTH CONTROLLER reports that they had been operating as Approach South when [AS355 C/S] had requested a CTR transit from the northwest of Manchester to [destination]. The controller issued a squawk of 7351 and stated that they could only offer a Basic Service at their low-level. The controller issued a zone transit which [they note] would have included transit of the Manchester Low Level Route and so had stated that it would be a Radar Control Service inside the MLLR before issuing a warning that there could be VFR traffic operating that is unknown to ATC. This was acknowledged. Around 1300 the controller saw a 7366 squawk routeing southwest from [...] routeing into conflict with [AS355 C/S] and issued Traffic Information. The pilot of the AS355 reported that they had been visual before later stating that they would file an Airprox report. At the point of conflict, the route taken by [AS355 C/S] had taken the aircraft back outside the MLLR and just into the Barton Low Flying Area (CTA 5). The 7366 squawk [AW109 C/S] called on frequency a short while later to state that they had been visual with [the AS355] and had turned away.

THE BARTON AFISO reports that they were notified of an Airprox involving two helicopters near Thelwall Viaduct on the 17th of May 2024 at around 1300. The AFISO on duty at the time of the Airprox had not been made aware of the event [at the time]. Only one pilot had spoken with Barton Information (the AW109 pilot) as they had departed from [...], the AS355 pilot did not speak to Barton Information.

Investigation: RT – The AW109 departed [...] at 1257 and at 1300 the PIC advised they would change to 118.580MHz and squawk 7366. The AFISO had acknowledged. Neither helicopter showed-up on the Flight Information Display (FID).

Factual Background

The weather at Manchester was recorded as follows:

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METAR COR EGCC 171250Z AUTO 24004KT 210V290 9999 SCT032 20/12 Q1010 NOSIG=
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Analysis and Investigation

NATS Investigation

The AS355 pilot reported an Airprox with the AW109 outside controlled airspace in the vicinity of Thelwell Viaduct VRP. The AS355 pilot had been provided with a Basic Service by Manchester Radar. The AW109 pilot had been monitoring Manchester Radar and advised that they had believed it had not been an Airprox as they had the AS355 in sight at all times and had taken action to avoid.

At the time of the event the controller had been working IFR traffic [alongside the event described in the] abbreviated transcript below. Only RT in relation to the Airprox report has been included in the transcript.

Transcript:

1255:00 [AS355 C/S] contacted Manchester Radar in the Adlington Area requesting a zone transit to [...]. They were issued with squawk 7351.

1255:58 [AS355 C/S] had been identified using squawk ident and provided with a Basic Service outside controlled airspace due to their low level. They had then been given a clearance to transit Manchester airspace routing initially west of the M6, west of Knutsford to Chelford not above 1500ft VFR.

1256:57 APS: “[AS355 C/S] *in just over 2 miles you will be entering the low-level route, and it will be a radar control service however just be advised there may be VFR aircraft operating in the low-level route not known to Air Traffic*”.

1257:06 [AS355 C/S]: “*Copy radar control in 2 and the unknown [AS355 C/S]*”.

APS had continued vectoring IFR aircraft.

1300:35 [AS355 C/S] left the low-level corridor into class G uncontrolled airspace.

1300:45 APS: “[AS355 C/S] *you have probably already seen it before I’ve called it but there is traffic just converging on your left-hand side very similar level outbound from [...]*”.

1300:56 [AS355 C/S]: “*He is right next to me [AS355 C/S]*”.

[...].

1300:58 APS: “*Sorry for the late call*”.

1301:01 [AS355 C/S]: “*Its fine [AS355 C/S]*”.

1301:12 APS: “[AS355 C/S] *just also keep a look out further to the east of that return there is a very faint primary return it might be a microlight it might just be clutter about 3 o’clock now sorry 9 o’clock range of a mile*”.

1301:24 [AS355 C/S]: “[AS355 C/S] *visual with the microlight and I am going to have to report that as an Airprox [AS355 C/S]*”.

1301:33 APS: “[AS355 C/S] *understood*”.

1302:12 [AW109 C/S]: “*Manchester Radar its [AW109 C/S]*”.

1302:12 APS had just commenced outbound phone call and hung up.

1302:16 APS: “*sorry last station say again the callsign*”.

1302:19 [AW109 C/S] “*Its [AW109 C/S]*”.

1302:20 APS: [AW109 C/S] *hello pass your message*.

1302:21 [AW109 C/S] “*just for the information sir on the Airprox we were visual with the AS355, we did a left orbit to avoid so we’ve got no issue with that*”.

1302:30 APS: “[AW109 C/S] *that’s understood thanks, is that you 7366 squawk southbound now in the low-level route?*”

1302:37 [AW109 C/S] “*Affirm that’s correct sir*”.

1302:40 APS “[AW109 C/S] *that’s understood thanks, [AS355 C/S] did you copy all that for your information?*”

1302:45 [AS355 C/S] *"Yeah I did copy that, I'm afraid my XXXX (unreadable) wasn't showing any traffic around me [AS355 C/S]"*.

1302:50 APS: *that's ok nope fine it's just for your information and I'll obviously file something from my side as well just based on your comments there.*

1302:59 [AS355 C/S] *"yeah roger that's fine, I'm happy there was no immediate danger there but it will still have to be an Airprox [AS355 C/S]"*.

1303:05 APS: *"Roger"*.

The Airprox happened outside controlled airspace whilst [AS355 C/S] had been provided with a Basic Service from Manchester Radar having just transited the Manchester Low Level Corridor and given clearance into Manchester CTR. [AW109 C/S] squawking 7366 had been listening out on the Manchester Radar frequency. From the RT replay it would appear that [AW109 C/S] had not believed it to be an Airprox as they advised on the RT they had [AS355 C/S] in sight and had carried out a left-hand orbit to avoid them. [AS355 C/S] advised that they believed it had been an Airprox.

The Initial Unit Investigation by the on-duty Watch Manager described that the [AS355 C/S] pilot phoned in post-incident and advised that their onboard [TAS] had not been functioning correctly. They advised that the AW109 had not shown on their [TAS] even though they had a squawk selected. [TAS] system error appeared to not have shown an aircraft close-in to them. [AS355 C/S] had also advised that they could clearly see the registration on the aircraft when the Airprox had occurred.

It is important to note that the AW109 had not been formally identified using the Mode S Radar tool or allocated a discrete squawk. There had been no confirmation received that [AW109 registration] had been [AW109 C/S], however it had been assumed it was as [AW109 C/S] had made themselves known on the frequency to dispute the Airprox, alongside their approximate location and 7366 squawk.

There are opposing opinions obtained from the investigation. [AW109 C/S] pilot had not believed this to be an Airprox as they had [AS355 C/S] in sight. [AS355 C/S] pilot had believed that it had been an Airprox. There is no evidence in the investigation to indicate or suggest that either pilot operated in a way that caused the Airprox to have happened so no causal factors had been recorded. The UK Airprox Board definition¹ is "An Airprox is a situation in which, in the opinion of a pilot or air traffic services personnel, the distance between aircraft as well as their relative positions and speed have been such that the safety of the aircraft involved may have been compromised." From the investigation there is no way to conclude whether an Airprox took place or not as it is based on opinion not a specific measurable action or outcome.

There is evidence that [AS355 C/S] had equipment onboard that had not been functioning as expected, it cannot be concluded with certainty as to whether this would or would have not prevented the Airprox from occurring so has been categorised [by NATS] as an Aggravating Factor not Causal.

UKAB Secretariat

¹ ICAO definition ICAO Doc 4444 PANS-ATM

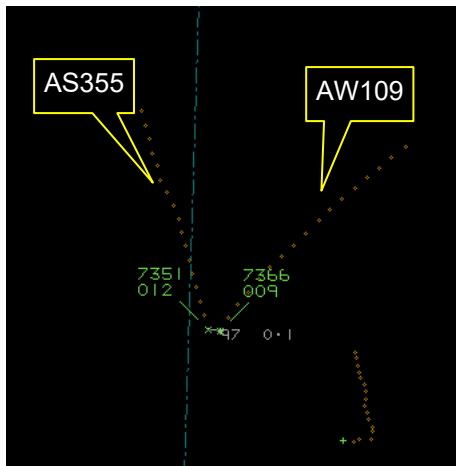


Figure 1 : CPA minus 2sec - 1300:50

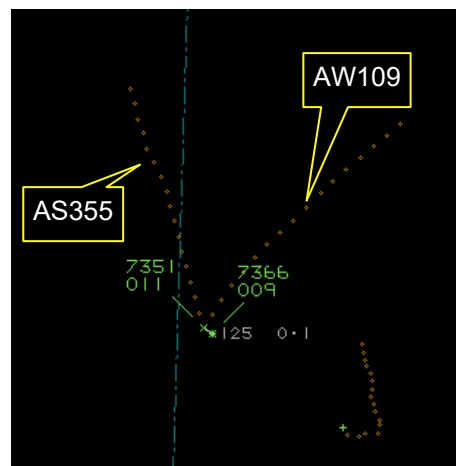


Figure 2 : CPA plus 2sec - 1300:54

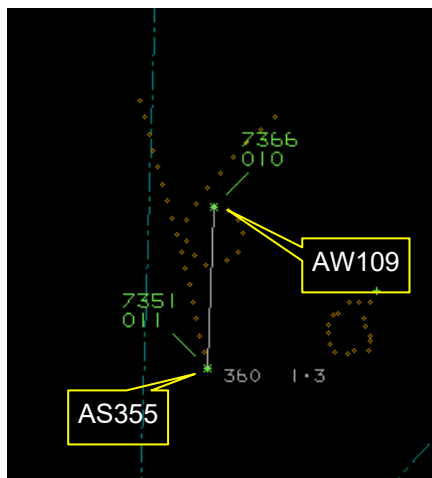


Figure 3: CPA plus 28 sec - 1301:30

Both aircraft were tracked on radar and identified using Mode S data. CPA – 200ft V/0.1NM H – occurred between the images shown at figures 1 and 2. Figure 3 shows the nature of the avoiding action taken by the AW109 pilot to generate lateral spacing. The Airprox had occurred approximately 16sec after the AS355 pilot had left controlled airspace.

The AS355 and AW109 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 If the incident geometry is considered as converging then the AW109 pilot was required to give way to the AS355.³

Summary

An Airprox was reported when an AS355 and an AW109 flew into proximity 5NM southwest of Barton at 1301Z on Friday 17th May 2024. The AS355 pilot was operating under IFR in VMC and in receipt of a Basic Service from Manchester Radar and the AW109 pilot was operating under VFR in VMC and Listening Out on the Manchester Radar frequency.

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.

² (UK) SERA.3205 Proximity.

³ (UK) SERA.3210 Right-of-way (c)(2) Converging.

Members firstly considered the actions of the AS355 pilot, noting that they had been subject to a Radar Control Service whilst within the Manchester CTR and had received generic Traffic Information regarding the potential for VFR traffic inside the Manchester Low Level Route (MLLR) as they had approached the Class G airspace outside the MLLR, but nothing specific regarding the AW109. The Board noted positively that the AS355 pilot had carried active electronic conspicuity equipment to improve their situational awareness but that it had become unreliable through the course of the day and had been reported as such on completion of the day's flying. Although the AW109 pilot had not carried electronic conspicuity equipment, that carried by the AS355 pilot would under normal circumstances have been expected to register emissions from the AW109's transponder and would likely have enabled situational awareness for the AS355 pilot (CF5). As the AS355 pilot had effectively not sighted the AW109 before the event (CF7), members felt that there had been little more the AS355 pilot could have done in this event.

Turning to the actions of the AW109 pilot, members had been disappointed that they had not been carrying electronic conspicuity equipment, observing that this could have helped to build situational awareness in this case. The Board continues to actively encourage all operators to consider the carriage and utilisation of such equipment. Members noted that the AW109 pilot had switched to the same Manchester Radar frequency as utilised by the AS355 pilot and had intended to maintain a listening watch. The AW109 pilot reported as having achieved a late sighting of the AS355 due to physical constraints of their cockpit frame and had immediately initiated a left-hand orbit to generate separation (CF6). The Board felt that, had the AW109 pilot initiated a right turn and slow-down at that point, they would likely have passed safely behind the AS355 and the Airprox would have been avoided. However, they supported the rapid and positive action taken once the AW109 pilot had achieved the late sighting of the AS355.

Members attributed a lack of situational awareness due to inactive electronic conspicuity equipment and the passing of late Traffic Information as a key contributing factor in this event (CF4).

In considering the actions of the Manchester controller, members accepted that the AS355 pilot had been under a Radar Control Service whilst in the controlled airspace and had been switched to a Basic Service as they had transitioned into Class G airspace. They noted that the controller had passed generic Traffic Information regarding possible VFR traffic as the AS355 pilot had passed through the Manchester Low Level Route and accepted that the Airprox event, although having happened outside the MLLR, had been only approximately 16sec after the AS355 had been switched to a Basic Service as they had entered Class G airspace. Members felt that as the normal procedures for a Radar Control Service are to aim for Traffic Information of other aircraft by a range of 5NM, the opportunity to pass such had been missed (CF1) and likely reflected a late detection of that conflict (CF2). Members noted that Traffic Information had ultimately been passed to the AS355 pilot apparently coincidental with the pilot having achieved visual contact as the AW109 pilot had initiated their avoiding action. Members had challenged the lack of an EWS STCA alert and noted that in this case the squawks utilised are excluded from that aspect of the controller's toolbox (CF3).

Concluding their discussion, members summarised their thoughts. It was agreed that although the AS355 pilot been provided with a Basic Service at the time of CPA, and therefore the controller had not been required to monitor the flight, they had been subject to a Radar Control Service only 16sec prior to that and the opportunity to have passed Traffic Information had been missed at that point. Fortunately, the AW109 pilot had gained visual contact enabling avoiding action and members therefore agreed that safety margins had been reduced below the norm but that avoiding action had averted the risk of collision. As such, the Board assigned Risk Category C to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2024092			
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
2	Human Factors	• Conflict Detection - Detected Late	An event involving the late detection of a conflict between aircraft	
• Electronic Warning System Operation and Compliance				
3	Technical	• Conflict Alert System Failure	Conflict Alert System did not function as expected	The Conflict Alert system did not function or was not utilised in this situation
Flight Elements				
• Situational Awareness of the Conflicting Aircraft and Action				
4	Contextual	• Situational Awareness and Sensory Events	Events involving a flight crew's awareness and perception of situations	Pilot had no, late, inaccurate or only generic, Situational Awareness
• Electronic Warning System Operation and Compliance				
5	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				
6	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
7	Human Factors	• Monitoring of Other Aircraft	Events involving flight crew not fully monitoring another aircraft	Non-sighting or effectively a non-sighting by one or both pilots

Degree of Risk: C.

Safety Barrier 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:

Situational Awareness of the Confliction and Action were assessed as **ineffective** because the Manchester controller had detected the conflict late and had not provided Traffic Information to the AS355 pilot whilst inside controlled airspace.

Electronic Warning System Operation and Compliance were assessed as **not used** because the conflict alert system was not utilised in this situation.

Flight Elements:

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because neither the AS355 nor the AW109 pilots had any situational awareness of the presence of the other aircraft.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the electronic conspicuity equipment carried by the AS355 did not detect the electronic emissions from the AW109.

See and Avoid were assessed as **partially effective** because the AS355 pilot had effectively achieved a non-sighting of the AW109 and the AW109 pilot had achieved visual contact with the AS355 only at a late stage.

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: 2024092		Outside Controlled Airspace						
Barrier		Provision	Application	Effectiveness				
				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:		Full	Partial	None	Not Present/Not Assessable	Not Used		
Provision	✓	!	✗	●				
Application	✓	!	✗	●	○			
Effectiveness								