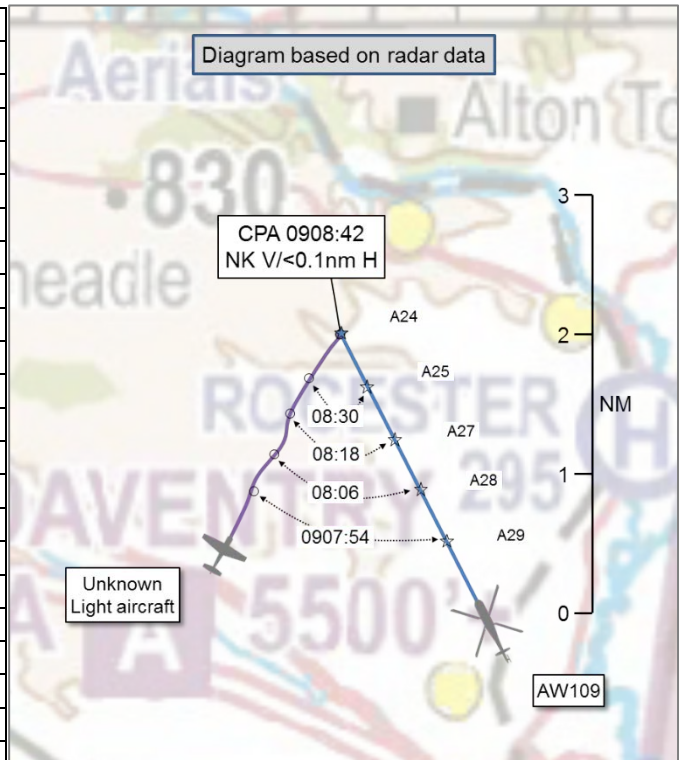


AIRPROX REPORT No 2019045

Date: 26 Mar 2019 Time: 0815Z Position: 5258N 00154W Location: 3nm ESE Cheadle

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	AW109	Light aircraft
Operator	HQ Air (Ops)	Unknown
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	NK
Service	Basic	NK
Provider	Manchester	NK
Altitude/FL	2400ft	NK
Transponder	A, C, S	PSR only
Reported		Not reported
Colours	NK	
Lighting	NK	
Conditions	VMC	
Visibility	20km	
Altitude/FL	2200ft	
Altimeter	QNH (1034hPa)	
Heading	331°	
Speed	145kt	
ACAS/TAS	TAS	
Alert	None	
Separation		
Reported	100ft V/0m H	NK
Recorded	NK V/<0.1nm H	



THE AW109 PILOT reports that he was in transit and had established radio communication with Manchester Radar. He had requested a Traffic Service but they were unable to provide one so he was under a Basic Service. Manchester Radar cleared him to enter controlled airspace at VRP Macclesfield South not above 1500ft QNH. He had started a cruise descent from 2900ft when he saw a low-wing single engine 'Extra 300 type' light aircraft converging in the left 10 o'clock position at a range of about 300m that passed close underneath. He became visual with it again on the right-hand side, now climbing above his level. There was no time to conduct an evasive manoeuvre. The light-aircraft did not appear on the TAS at any point, indicating that it probably wasn't using a transponder. The combination of flying single-pilot in the RHS with a descent profile versus the climb profile of the light-aircraft had, in his opinion, made it very difficult to see the potential confliction until very late.

He assessed the risk of collision as 'Medium'.

THE UNKNOWN LIGHT AIRCRAFT could not be traced.

THE MANCHESTER CONTROLLER reports that while on duty as APP South, he was called by the AW109 pilot, inbound, joining from the south. The flight had been pre-noted to him. He gave a Basic Service due to the altitude of the aircraft. A VFR joining clearance was issued and Traffic Information provided on traffic just south of the zone boundary. This traffic passed well clear and the aircraft entered the zone and was passed to Tower. No other traffic was seen or reported by the pilot.

Factual Background

The weather at Manchester was recorded as follows:

METAR COR EGCC 260920Z AUTO 20004KT 170V240 9999 BKN040 07/04 Q1034 BECMG 30010KT=
 METAR COR EGCC 260850Z AUTO 20004KT 160V220 9999 OVC039 05/04 Q1034 BECMG 30010KT=

Analysis and Investigation

UKAB Secretariat

The AW109 and light-aircraft pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard¹. If the incident geometry is considered as converging then the light aircraft pilot was required to give way to the AW109².

Comments

HQ Air Command

As only one of the aircraft involved had access to CADS, the ability to plan to avoid was not available. The AW109 pilot reports that he had previously been working Birmingham Approach and, after reaching the limits of their surveillance cover, requested a traffic service from Manchester Approach. Manchester was not able to provide a traffic service due to the AW109's altitude and a Basic Service was provided. As the AW109 pilot was shortly due to descend to enter controlled airspace, and not wanting to climb into cloud under a Basic Service (he reports a cloudbase 100' above his altitude), he dismissed climbing to obtain a Traffic Service as a viable option. The conflicting traffic was not called to him by ATC (it is noted that there was no requirement for this) and did not appear on his TAS. This left see-and-avoid as the only barrier available to avoid a collision – unfortunately the conflicting traffic was only spotted at close range. The AW109 pilot regrets not calling the Airprox on frequency at the time of the event.

At the time of writing, it is unfortunate that the details of the conflicting traffic are not available. The evidence would suggest that this aircraft was not communicating with ATC and not using a transponder. Furthermore, from the track displayed on the radar replay it would appear that no avoiding action was taken by this traffic. This Airprox serves as another stark reminder that see-and-avoid can be the only available barrier to avoiding MAC in Class G airspace and illustrates the importance of lookout.

Summary

An Airprox was reported when an AW109 and an unknown light aircraft flew into proximity near Cheadle at 0909Z on Tuesday 26th March 2019. Both pilots were operating in VMC, the AW109 pilot under VFR in receipt of a Basic Service from Manchester.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of a report from the AW109 pilot, radar photographs/video recordings, a report from the air traffic controllers 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.

Members quickly agreed that this incident highlighted the case for Electronic Conspicuity and that it appeared the aircraft had been at risk of collision. The AW109 pilot had requested a Traffic Service but was at a range and altitude from Manchester such that the controller could not provide it (**CF1**). Consequently the AW109 pilot had no situational awareness on the converging light-aircraft (**CF2**) and his TAS could not provide a warning because the light-aircraft was not emitting a secondary response (**CF3**). Described as an 'Extra 300' type by the AW109 pilot, members thought that it would be unusual for a modern aircraft of that type not to be transponder-equipped and so wondered why it was not squawking in accordance with the requirements of SERA.13001. Unfortunately the AW109 pilot, sitting on the right side of the aircraft, did not see the climbing light-aircraft until at a late stage (**CF4**), close to CPA. Finally, the Board noted the HQ Air Command comment regarding reporting of Airprox on

¹ SERA.3205 Proximity. MAA RA 2307 paragraphs 1 and 2.

² SERA.3210 Right-of-way (c)(2) Converging. MAA RA 2307 paragraph 12.

frequency; had the AW109 pilot done so then it may have been possible to detect and follow the unknown aircraft using the Manchester radar and thereby obtain its pilot's perspective of the incident.

Members agreed that the AW109 pilot was no doubt startled by the proximity of the light aircraft, and that his description of it climbing from below his left to above his right as it passed below led them to believe that in this case safety had been much reduced below the norm.

PART C: ASSESSMENT OF CAUSE AND RISK

Contributory Factors:

CF	Factor	Description	Amplification
	Flight Elements		
	• Tactical Planning and Execution		
1	Human Factors	• Communications by Flight Crew with ANS	Controller not able to provide requested ATS
	• Situational Awareness of the Conflicting Aircraft and Action		
2	Contextual	• Situational Awareness and Sensory Events	Pilot had no, or only generic, or late Situational Awareness
	• Electronic Warning System Operation and Compliance		
3	Technical	• ACAS/TCAS System Failure	Incompatible CWS equipment
	• See and Avoid		
4	Human Factors	• Monitoring of Other Aircraft	Late-sighting by one or both pilots

Degree of Risk: B.

Recommendation: Nil.

Safety Barrier Assessment³

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 neither pilot was in receipt of a ATS that would provide SA.

Flight Elements:

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the AW109 pilot did not have SA on the converging light-aircraft and, considering the radar tracks and reported separation at CPA, neither did the unknown light-aircraft pilot.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the light-aircraft did not display SSR and was therefore not detectable by the AW109 TAS.

See and Avoid were assessed as **ineffective** because the AW109 pilot did not see the other aircraft in time to increase separation at CPA, and the unknown aircraft pilot had either not seen the AW109 or, if he had, did not sufficiently give way.

³ 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: 2019045		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:		<u>Full</u>	<u>Partial</u>	<u>None</u>	<u>Not Present</u>	<u>Not Used</u>		
Provision	✓	⚠	✗	●				
Application	✓	⚠	✗	●		○		
Effectiveness	■	■	■	■		□		