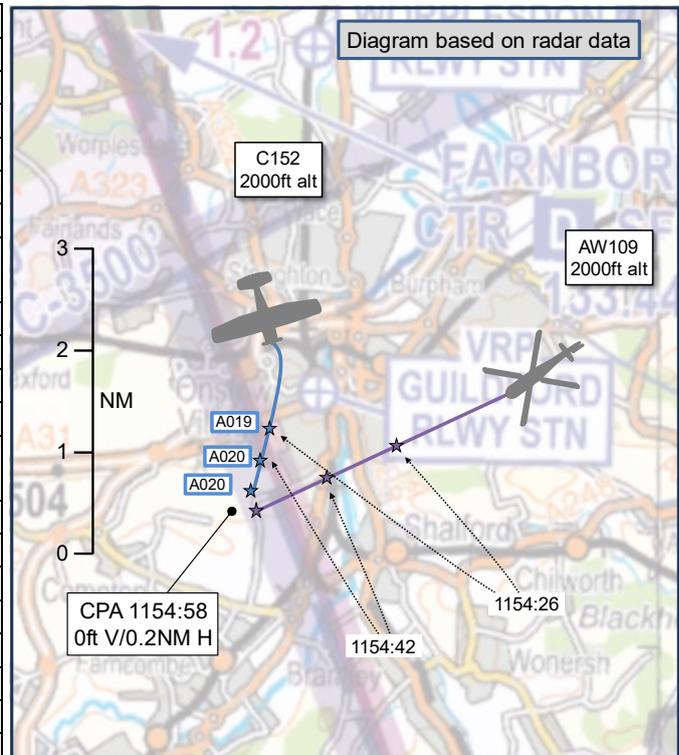


**AIRPROX REPORT No 2023131**

Date: 23 Jun 2023 Time: 1155Z Position: 5113N 00035W Location: 1.1NM SSW Guildford VRP

**PART A: SUMMARY OF INFORMATION REPORTED TO UKAB**

Recorded	Aircraft 1	Aircraft 2
Aircraft	C152	AW109
Operator	Civ FW	Civ Comm
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Basic	Listening Out
Provider	Farnborough LARS W	Farnborough LARS W
Altitude/FL	2000ft	2000ft
Transponder	A, C	A, C, S+
<b>Reported</b>		
Colours	White	Dark Blue
Lighting	Beacon, Nav, Landing	Landing
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	2000ft	2000ft
Altimeter	QNH (1024hPa)	QNH
Heading	195°	225°
Speed	95kt	150kt
ACAS/TAS	SkyEcho	TAS
Alert	None	Information
<b>Separation at CPA</b>		
Reported	50ft V/0.1NM H	0ft V/0.25NM H
Recorded	0ft V/0.2NM H	



**THE C152 PILOT** reports they had just departed [departure airfield] and were routing via Guildford and Midhurst Town. They were speaking to Farnborough LARS under a Basic Service. The controller sounded overworked and did not ask for their details, immediately providing a Basic Service. Approximately 1min later, a helicopter was seen at [their] 10-11 o'clock [position], not more than 50ft below, tracking left-to-right. It was on a converging track and at what may have been the same level. Farnborough LARS advised that the aircraft was not working their frequency. Their research on FlightRadar24 showed and confirmed the aircraft they saw. It was on a well-established track and had been for a long period of time. It would have been coming from their 7-8 o'clock position (a blind-spot in a C152) and was not sighted sooner. From the A109 [pilot's] point of view, they [the C152] should have been in their 1-2 o'clock. Although, according to aviation law, they had right of way, an evasive left and climbing turn was needed. Furthermore, their climb was limited as they were already at 2000ft and controlled airspace above was close to Farnborough CTA at 2000ft and London TMA at 2500ft. They could not turn right as that would have increased the risk of collision and also taken them towards the Farnborough CTR. No Traffic Information was provided as duty of care where there was a clear indication of risk of collision, and no Traffic was observed on [their EC]. For a busy day and good weather day [the frequency] appeared to be 'band-boxed' with Farnborough's busy CAS transit frequency - this may have also been a contributing factor to the controller's incredibly high workload. As an experienced flight instructor, their capacity was generally good and lookout was also good, however, they deemed the risk of collision to have been medium to high in this case. The helicopter did not alter their heading or altitude in any way, and they feared that they did not have them in sight.

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

**THE AW109 PILOT** reports that, after leaving their [departure point], they changed to Farnborough Radar for a VFR CTR transit, however [the Farnborough controller] seemed very busy with IFR inbound

[traffic] so they elected to route via Guildford and Alton VRPs remaining outside in Class G airspace and try Farnborough LARS for a Traffic Service. The controller had a high workload and they were unable to get a call in to request a service, so they continued with a listening watch and intending to make a call as soon as an opportunity arose. The conditions were daylight, VFR with good visibility, and they were operating with a 2<sup>nd</sup> pilot onboard and a working Traffic Alerting System (TAS). Around the Guildford area, heading on a southwest track at 2000ft, TAS showed an aircraft in their 11 o'clock position at 2NM and 200ft below, so they started focusing their visual scan in that direction. They elected not to change heading as TAS isn't always accurate and they thought it best to focus on looking out and identifying the threat. The TAS showed the aircraft move across to the 1 o'clock position whilst climbing to the same level as them. They then spotted what looked like a high-winged Cessna, visually less than 1/4NM in the 1 o'clock position heading south-southwest at the same altitude but slow moving, but there was no risk of collision. It was too late to turn right to pass behind the other aircraft and changing altitude risked losing sight of them. They overtook the other aircraft keeping them on their right. They then heard the other pilot report the Airprox to Farnborough LARS. It was a busy day with lots of aircraft about, especially around pinch-points areas such as Guildford and Alton VRPs where aircraft have to route around controlled airspace. [They opined that] the workload is high in these areas, particularly without the protection of a Traffic Service, but they continued to mitigate the risks as best they could using the see-and-avoid method and Traffic Alerting Systems where available.

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

**THE FARNBOROUGH CONTROLLER** reports they were working a busy west and zone sector. A C152 pilot was on a Basic Service when they called up asking if the traffic passing them at the same level, on a westerly track, was on frequency. They 'ungarbled' the labels and saw a 7000 squawk diverging from the C152. They advised the pilot that the aircraft was not on frequency. This occurred on the downwind leg for RW24 and an inbound aircraft was also over flying at the time. The pilot reported that they would be filing an Airprox, as it was 'very close'. They acknowledged the call. The pilot advised it was a helicopter, probably an AW109.

## **Factual Background**

The weather at Farnborough was recorded as follows:

METAR EGLF 231150Z AUTO 26009KT 220V320 9999 NCD 24/12 Q1024

## **Analysis and Investigation**

### **FARNBOROUGH NATS INVESTIGATION**

The LARS West and Zone [frequencies were] band boxed. The C152 pilot was on frequency with a London Farnborough squawk 0450 allocated, operating VFR on a Basic Service with Mode C indicating altitude 2000ft overhead Guildford VRP tracking southbound.

At 1154 a radar return squawking 7000 could be observed converging with [the C152] crossing left-to-right and indicating altitude 2000ft Mode C, unverified. Mode C of [the C152] could be observed climbing to altitude 2300ft (Figure 1).



Figure 1

At the time, the radar controller was instructing a pilot for a Zone transit to remain to the east of Farnborough due to IFR departing traffic and their attention was on the London Farnborough overhead.



Figure 2



Figure 3

The contacts merged at the same altitude

The controller was not required to monitor the C152 or pass specific Traffic Information under the auspices of the Basic Service [UKAB note: unless a definite risk of collision exists and is detected by the controller]; accordingly, no Traffic Information was passed because the controller's attention was elsewhere at this time.

Thirty seconds later, the C152 pilot asked the controller whether an aircraft in their 2 o'clock was on frequency. The radar return was garbling with the 7000 squawk and another inbound aircraft, so the controller separated the labels and replied that the aircraft was not on frequency. The C152 pilot then reported that they wished to file an Airprox as the aircraft came quite close. This was acknowledged by the controller and the controller took the details provided by the C152 pilot.

The radar return was not interrogated by the controller at the time of the Airprox, so it was not possible to ascertain whether Mode S data was available. Tracing action was subsequently carried out via radar replay and at 1205 the 7000 squawk was observed converting to a Boscombe squawk 2650. Due to Boscombe having ceased radar operations by the time tracing action could be facilitated, it had not been possible [for Farnborough] to establish the aircraft's identity.

### UKAB Secretariat

An analysis of the NATS radar replay was undertaken, the C152 could be identified with the Farnborough squawk and the AW109 could be positively identified from Mode S data. The C152 was on an approximate southerly heading and the AW109 was on a south-westerly heading, however, another non-airprox aircraft was also on a reciprocal heading to the AW109 at a similar level and it was undoubtedly this aircraft that the AW109 pilot reported seeing on their TAS in their

11 o'clock, see Figure 4. This unknown aircraft passed 0.7NM to the south of the AW109 (Figure 5).

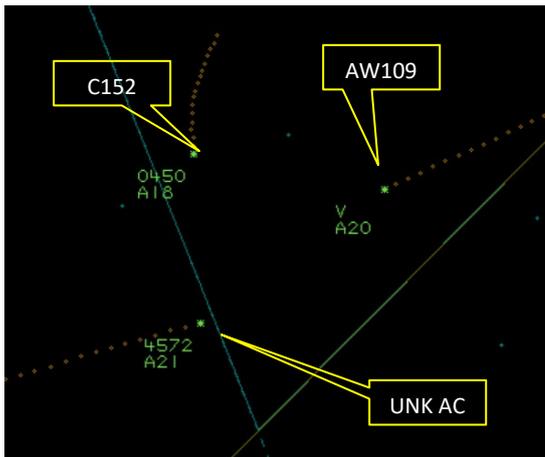


Figure 4

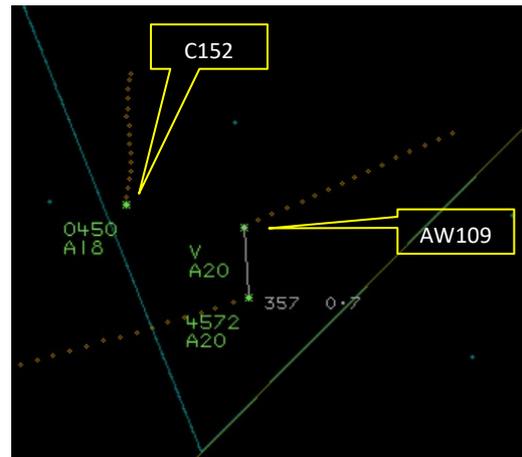


Figure 5

CPA between the C152 and the AW109 occurred at 1154:59, see Figure 6.

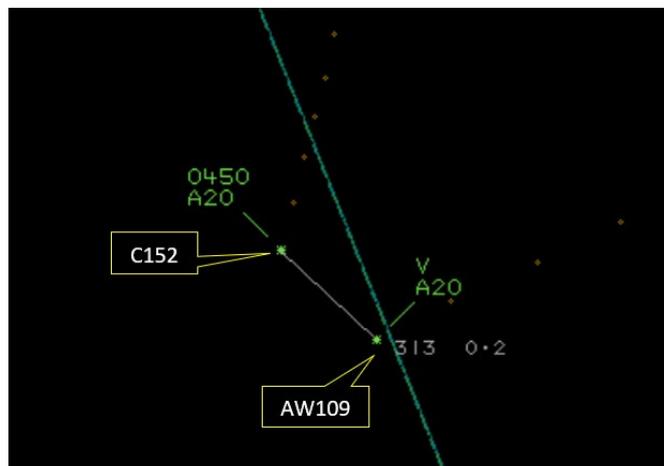


Figure 6 – 1154:59 CPA

The C152 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.<sup>1</sup> If the incident geometry is considered as converging then the AW109 pilot was required to give way to the C152.<sup>2</sup> If the incident geometry is considered as overtaking then the C152 pilot had right of way and the AW109 pilot was required to keep out of the way of the other aircraft by altering course to the right.<sup>3</sup>

## Summary

An Airprox was reported when a C152 and an AW109 flew into proximity in the vicinity of Guildford Railway Station VRP at 1155Z on Friday 23<sup>rd</sup> June 2023. Both pilots were operating under VFR in VMC, the C152 pilot in receipt of a Basic Service from Farnborough LARS and the AW109 pilot listening out on Farnborough LARS frequency without being in receipt of an ATS.

## PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs, a report from the air traffic controller involved and reports from the appropriate operating authorities. Relevant contributory

<sup>1</sup> (UK) SERA.3205 Proximity.

<sup>2</sup> (UK) SERA.3210 Right-of-way (c)(2).

<sup>3</sup> (UK) SERA.3210 Right-of-way (c)(3).

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 looked at the actions of the C152 pilot, and noted that from the pilot's report that it appeared that they had reported being assigned a Basic Service by Farnborough ATC, without being asked which the type of service they had required. Having been provided with a Basic Service, the C152 pilot had been unlikely to receive any Traffic Information from the controller and, noting that this area was renowned for being busy, members thought the pilot perhaps could have requested a Traffic Service. The Board wished to highlight to pilots that if they were refused the request for an ATS or denied access to airspace, they should report this via a CAA FCS1522 form on landing; it is only by receiving such data that the CAA can assess how often pilots are refused the type of service that they request. Members would have expected the CWS on the C152 to have alerted to the Mode S on the AW109, but no such alert had been reported (**CF7**). The Board agreed that, without any information from ATC, or from the CWS, the C152 pilot had received no prior situational awareness that the AW109 had been in the vicinity (**CF5**). The AW109 had been approaching from behind the C152 and so the C152 pilot had seen the other aircraft late (**CF8**), which had probably startled them; consequently, they had been concerned by its proximity (**CF9**).

For their part, the AW109 pilot had not been able to get onto the Farnborough frequency to ask for an ATS at all. Members considered whether there may have been any better options for the pilot to receive an ATS, but acknowledged that the pilot had probably been hoping to find a gap in the Farnborough RT in order to request a service, and may have been able to receive some situational awareness from other pilots calling on the frequency, albeit limited. As it happened, the C152 pilot had not been able to pass their details to the controller and so the AW109 pilot had not received any situational awareness from the frequency. The TAS on board the AW109 had given the pilot information on another aircraft, which members felt had perhaps focused the crew's attention in that direction, so that the information on the C152 had been received late (**CF5**, **CF6**). Members with helicopter experience noted that the C152 may have been in a blind-spot to the AW109 pilot when at range due to the airframe coaming. Having seen the C152 late (**CF8**), the AW109 pilot had been able to assess that there had been adequate separation and elected to continue on track. Whilst some members articulated that pilots should aim to pass with enough separation not to startle the other pilot, others countered that 0.2NM could be considered to be adequate separation.

Members opined that for both pilots, when operating in such a busy area with known pinch points and controlled airspace above, choosing an unusual height at which to transit was often a good idea to build in some separation, rather than transiting at whole thousands of feet.

The Board then looked at Farnborough ATC and was informed by a NATS advisor that the frequency had been busy because, amongst other issues, another pilot had not followed ATC instructions and so had been taking the controller's attention. The build-up of pilots waiting to call the controller meant that, at the time, at least two other pilots had been requested to 'stand-by' meaning that the controller had been aware that there were pilots attempting to call, but that they had been too busy to take such calls (**CF3**). Some members questioned whether Farnborough could have split out the LARS and Zone frequencies to provide more capacity, and a long discussion followed about the funding that units were allocated to provide a LARS, which did not cover the cost of a controller. Nevertheless, members thought that splitting the task out and opening another console could have reduced the RT loading on the frequency and enabled the AW109 pilot to make their call (**CF1**). That being said, the controller had been providing a Basic Service to the C152 pilot and, as such, had not been required to monitor the flight on the radar (**CF2**). Members questioned why the STCA had not alerted the controller to the proximity of the two aircraft and it was explained that the STCA would only alert to the transponder codes that were used for Traffic or Deconfliction services. Therefore, with the AW109 on a 7000 squawk and the C152 on a squawk assigned to a Basic Service, the STCA would not alert (**CF4**).

UKAB Secretariat Note: The following information was received from NATS post the February meeting:

Having liaised with the unit, there were a number of extenuating factors that exacerbated the R/T congestion at the time of the event that were not captured through the unit report or UKAB summary.

It was detailed there were three zone crossers already on frequency which is normal practice, however one of the crossing aircraft deviated from clearance which required the controller to issue multiple RT calls to that aircraft and inform the tower what was happening. This workload was very high for a period as the priority was obviously the safety of all traffic in the vicinity including the aircraft which was not adhering to the clearance.

This meant 'standby' was issued to new transit clearance and service requests. Unlike managed sector airspace, Farnborough has no way of predicting demand (for example TLPD<sup>4</sup> which shows predicted IFR traffic that have filed flightplans through airways) and requests from LARS traffic, therefore have to manage load tactically. Ultimately, had the existing zone crossing traffic not deviated and generated significant workload, Farnborough stated they would have been expecting to provide a service to the next aircraft in line with the pilot request.

When determining the risk, the Board took into consideration the reports from both pilots, that of the controller, together with the radar screenshots and the Farnborough investigation report. The C152 pilot had been startled by the sudden appearance of the AW109, but had taken avoiding action. Meanwhile the AW109 pilot had also seen the C152 late, but had assessed the separation as such that they had not needed to take avoiding action. A small minority of members thought that the late sighting by both pilots indication a risk of collision, however the majority of members disagreed, countering that that had been sufficient time for both pilots to have taken action, or to have assessed that no action had been necessary and that with a final separation of 0.2NM, there had been no risk of collision. The latter view prevailed; Risk Category C.

## **PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK**

### Contributory Factors:

	2023131			
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
<b>Ground Elements</b>				
<b>• Manning and Equipment</b>				
1	Organisational	• ATM Staffing and Scheduling	An event related to the planning and scheduling of ATM personnel	
<b>• Situational Awareness and Action</b>				
2	Contextual	• ANS Flight Information Provision	Provision of ANS flight information	The ATCO/FISO was not required to monitor the flight under a Basic Service
3	Contextual	• Frequency Congestion	An event involving frequency congestion that reduces the effectiveness of communications	
<b>• Electronic Warning System Operation and Compliance</b>				
4	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
<b>Flight Elements</b>				
<b>• Situational Awareness of the Conflicting Aircraft and Action</b>				
5	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
<b>• Electronic Warning System Operation and Compliance</b>				
6	Contextual	• Other warning system operation	An event involving a genuine warning from an airborne system other than TCAS.	
7	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
<b>• See and Avoid</b>				
8	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

<sup>4</sup> Traffic Load Prediction Device.

9	Human Factors	<ul style="list-style-type: none"> <li>Perception of Visual Information</li> </ul>	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<sup>5</sup>

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 the Farnborough LARS West and Zone frequencies had been band-boxed, causing the frequencies to be so busy that the AW109 pilot had not been able to request an ATS.

**Situational Awareness of the Confliction and Action** were assessed as **not used** because the Farnborough controller had not been required to monitor the C152 on a Basic Service.

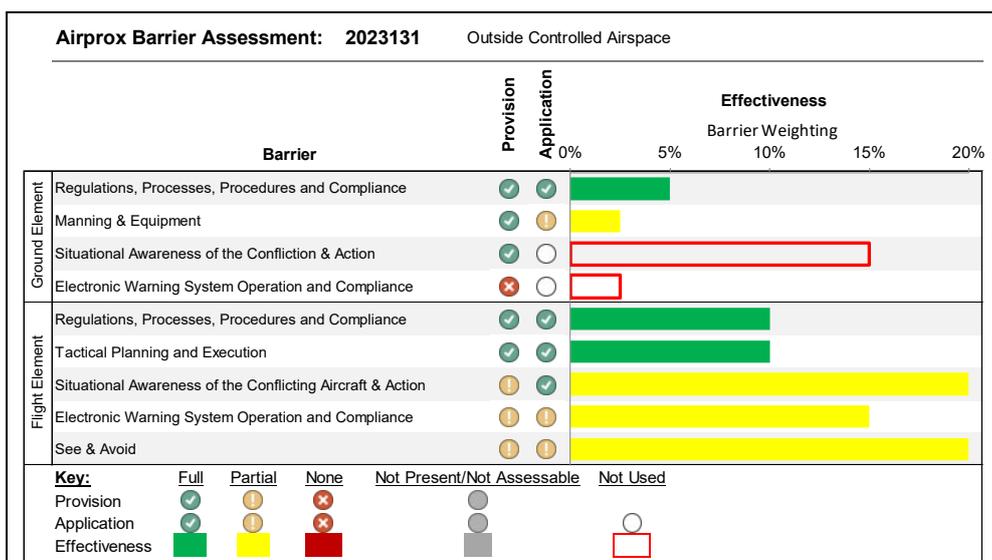
**Electronic Warning System Operation and Compliance** were assessed as **not used** because the transponder codes displayed by the 2 aircraft were outside the select frame of the STCA.

**Flight Elements:**

**Situational Awareness of the Conflicting Aircraft and Action** were assessed as **partially effective** because the AW109 pilot had received late information on the C152 from their TAS, and the C152 pilot had no situational awareness about the AW109.

**Electronic Warning System Operation and Compliance** were assessed as **partially effective** because the TAS on the AW109 alerted to the C152 late and, although it would have been expected that the CWS on the C152 would have detected the AW109, no alert had been reported.

**See and Avoid** were assessed as **partially effective** because, although it had been a late sighting by the AW109 pilot, they had time to assess that they considered the separation to be adequate.



<sup>5</sup> The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).