

AIRPROX REPORT No 2023112

Date: 04 Jun 2023 Time: 1815Z Position: 5123N 00005E Location: 3.5NM NNE Biggin Hill

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	C680	AW169
Operator	Civ Comm	HEMS
Airspace	London FIR	London FIR
Class	G	G
Rules	IFR	VFR
Service	Basic	Basic
Provider	Thames Director	Heathrow Special
Altitude/FL	1800ft	1600ft
Transponder	A, C, S+	A, C, S+
Reported		
Colours	NR	White, teal, grey
Lighting	NR	Nav, anti-col
Conditions	VMC	VMC
Visibility	NR	>10km
Altitude/FL	1800ft	1300ft
Altimeter	NR	QNH
Heading	NR	305°
Speed	140kt	135kt
ACAS/TAS	TCAS II	TCAS II
Alert	None	TA
Separation at CPA		
Reported	200ft V/NR H	200ft V/1.5NM H
Recorded	200ft V/0.6NM H	



THE C680 PILOT reports that they were expecting the ILS approach RW21, circle to land RW03. Shortly before intercepting the localizer, the controller provided some information. They sounded tense, and they couldn't fully understand what they were referring to. When asked for clarification, [the controller] called another aircraft first, before reverting to [the pilot of the C680]. [The controller] asked them whether they had the field in sight, which they confirmed. The controller then informed them about a 'Type-A' medevac helicopter at 1600ft in the proximity of the field, and instructed [the C680 pilot] to break for the circling and not to descend below 1800ft. They spotted the helicopter close to their flightpath and pointed it out to the Pilot Flying. The Pilot Flying didn't spot the helicopter right away (probably because the helicopter was crossing their flightpath from left-to-right), but the traffic felt too close for comfort, and so they took control, disengaged the autopilot, turned the aircraft to the left, away from the helicopter, and informed ATC. As soon as the situation had settled, they gave the controls back to the second-in-command, and they started to clean up the aircraft and climb back to 2000ft, as instructed by ATC. The following approach was uneventful. They cannot recall having received any TCAS warning or having seen the TCAS traffic indicated on the display.

[The pilot of the C680 commented that], medical priority or not, they wonder why the medevac crew chose to cross the instrument approach path at this altitude. ATC seemed to be surprised by the sudden appearance of the helicopter too.

The pilot of the C680 considered that there had been a risk of collision.

THE AW169 PILOT reports that, whilst under a Basic Service from Heathrow Special, they were flying a patient to [a London hospital]. Their routing was direct, taking them to the north of the Biggin Hill ATZ in open airspace and very good VFR. Heathrow Special informed them of the other aircraft, and they had acquired it visually. The flightpath was assessed to take it behind them, thus they kept their track and height steady. At no time did they feel the other aircraft was a threat.

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

THE THAMES CONTROLLER reports that they were working on the LC DIR position, vectoring traffic into Biggin Hill for the ILS RW21, SVFR was split-off. [The C680 pilot] was inbound to Biggin Hill, descended to 1800ft and cleared onto the ILS.

The SVFR controller pointed out [the AW169] routeing through the Biggin Hill final approach, NW towards the SW of the London City control zone. [The Thames controller] passed Traffic Information numerous times, and also attempted to position the inbound [C680] off the approach to route [under their] own navigation for left-hand RW03.

The [AW169] was higher than they would have expected, approximately 1600ft, however still flying below the base of CAS. This meant a 200ft gap between the inbound [C680] and the [AW169]. [The pilot of the C680] then deviated off the approach stating they were head-on to the helicopter. [The Thames controller] re-vectorred [the C680 pilot] for a new approach.

The events described have not been checked for accuracy against the appropriate RT recording.

Factual Background

The weather at Biggin Hill was recorded as follows:

METAR EGKB 041820Z 09009KT 050V120 CAVOK 15/09 Q1024

Analysis and Investigation

CAA ATSI

ATSI has nothing to add to the comprehensive report from NATS Safety Investigations.

NATS Safety Investigations

Summary

The pilot of [the C680] reported via their company that they had experienced an Airprox with a Cat A¹ medical helicopter outside the confines of controlled airspace in the vicinity of Biggin Hill, whilst working the London City Director (LC DIR) . The Closest Point of Approach (CPA) was 0.6NM and 200ft.

Description and Investigation

Information available to the investigation included: CA4114 from the London City Director (LC DIR), ASR from the pilot of [the C680] and radar and RT recordings.

[The C680 pilot] was inbound to Biggin Hill and had been issued with a routeing commensurate with an initial ILS approach to RW21, with a circle-to-land on RW03.

[The AW169] was an air-ambulance operating a Category A medical emergency flight. As per CAP493, these flights are afforded the highest tactical priority by ATC.

The LC DIR controller position was positioned immediately adjacent to the Heathrow SVFR controller (LL SVFR) position in the London Terminal Control operations room and coordination and communication between the two controllers was normally conducted verbally, face-to-face rather than on the telephone.

¹ UKAB Secretariat note: Flight Category 'A' signifies a HEMS flight engaged on an emergency operational task.

The pilot of [the C680] checked-in with the LC DIR at 1807:49 when 26.6NM northeast of Biggin Hill, descending to 4000ft and inside controlled airspace. At 1810:39, [the C680 pilot], who had been issued a heading of 255° towards the RW21 ILS, was issued a descent to 3000ft.

The pilot of [the AW169] checked in with LL SVFR at 1811:20 and requested clearance direct to [a London hospital], northwest of Biggin Hill. [The AW169] was 10NM southeast of Biggin Hill at 1600ft at this time, on the QNH of 1022hPa. The LL SVFR agreed a Basic Service with the pilot. Eighteen seconds later, the LC DIR instructed the pilot of [the C680] to turn onto a heading of 260°.

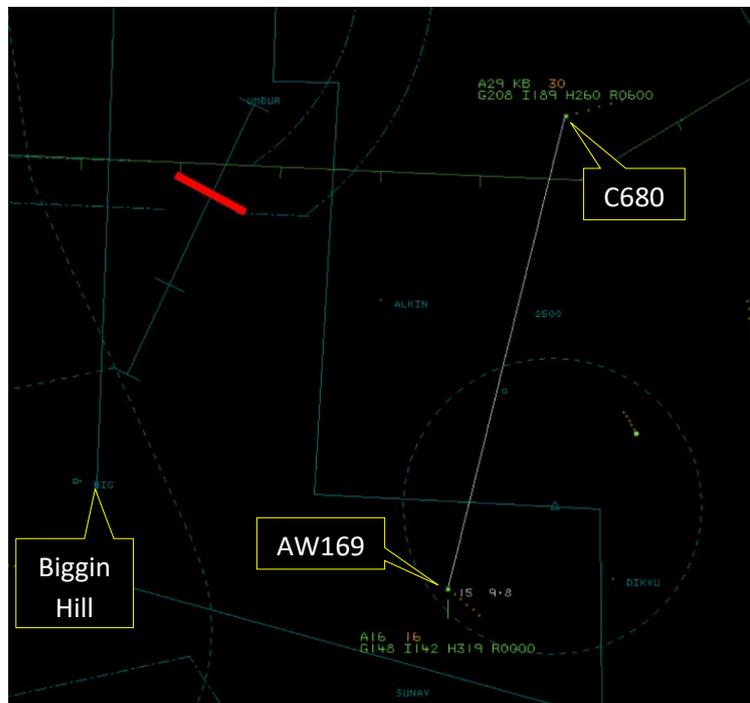


Figure 1 (1812:15). The Biggin Hill 6NM final point is marked in red. This is the point at which [the C680] would vacate controlled airspace.

The LC DIR informed the pilot of [the C680], at 1812:15, “...you’re going to remain inside controlled airspace until a six mile final where radar service will terminate. On this heading establish Runway two one”. The respective positions of [the C680] and [the AW169] at this time are shown in Figure 1.

At 1812:21, LL SVFR cleared the pilot of [the AW169] to route directly to [their destination], VFR, not above 1300ft whilst in controlled airspace. The pilot stated that they would be routeing in close proximity to Biggin Hill and the controller informed them, “They have got a steady stream of arrivals. I’ll call some traffic as you get a little bit closer”.

The LC DIR instructed the pilot of [the C680] to descend to 1800ft and cleared them for the RW21 ILS at 1813:09, with a circle to land for RW03. [The AW169] was 7.3NM south of [the C680] at this time, at 1600ft.

The LL SVFR issued Traffic Information to the pilot of [the AW169] on [the C680] at 1814:15 as follows, “Traffic inbound to Biggin Hill. Right. One o’clock. Range of four miles, he’s at two thousand six hundred feet descending. It’s a business jet”. The pilot of [the AW169] responded that they were visual with the traffic.

The relative locations of each aircraft at that time can be seen in Figure 2 along with the 6NM final mark, shown by a red line.



Figure 2 - 1814:15

At 1814:30 the LC DIR informed the pilot of [the C680]; *“There is Helimed Cat A traffic south of your position by four miles”*, and asked if they were visual with the field. The pilot reported that they were visual with the field. The LC DIR controller then stated, *“Thank you. Can you position left-hand downwind now for Runway 03, the traffic is 400ft below”*. This positioning would have been a right turn for the aircraft. The pilot asked the controller to ‘say again’. Before doing so, however, the LC DIR issued a further descent to another pilot inbound to London City. As they were doing this, [the pilot of the C680] vacated the confines of controlled airspace (at 1814:33) at just under a 6NM final for RW21 and their Radar Control Service therefore terminated with the aircraft now operating under a Basic Service in Class G airspace.

The LL SVFR passed further Traffic Information to the pilot of [the AW169], also in Class G airspace, at 1814:37, *“That traffic was going to be taking the ILS then visually breaking to the right but I think he is now going to go straight into the visual break so he’s right, one o’clock, range two miles but he’ll be moving out to the right shortly”*. The pilot responded that they copied, and they were visual with the traffic. Thirty seconds later, LL SVFR informed the pilot of [the AW169] that the traffic was *“...just two hundred feet above now”* and the pilot responded, *“Visual. He’s going behind us....”*.

[With the C680 now outside controlled airspace], at 1814:53, the LC DIR advised the pilot of [the C680], *“Maintain one thousand eight hundred feet. Traffic is south by two miles, one thousand six hundred feet. Break now to position downwind left-hand”*. The pilot read this back and the controller informed them that the traffic was 200ft below them.

In their ASR, the Captain of [the C680] detailed, *“[ATC] instructed us to break for the circling and not to descend below 1800ft. I spotted the helicopter close to our flightpath and pointed it out to the Pilot Flying. The Pilot Flying didn’t spot the helicopter right away (probably because the helicopter was crossing our flightpath from left to right), but the traffic felt too close for comfort, and so I took control, disengaged the autopilot, turned the aircraft to the left, away from the helicopter”*.

Note: the pilot enacted a left turn, which positioned the aircraft away from the twice-advised positioning for left downwind for RW03.

The LC DIR informed the pilot of [the C680], at 1815:22 that the traffic was, *“...southwest of your position by half a mile”* and the pilot responded, *“Apologies. We were head-on with the helicopter. We deviated to the left. Request vectors for another approach”*. The LC DIR then issued a heading of 100° and a climb to 3000ft to the pilot of [the C680].

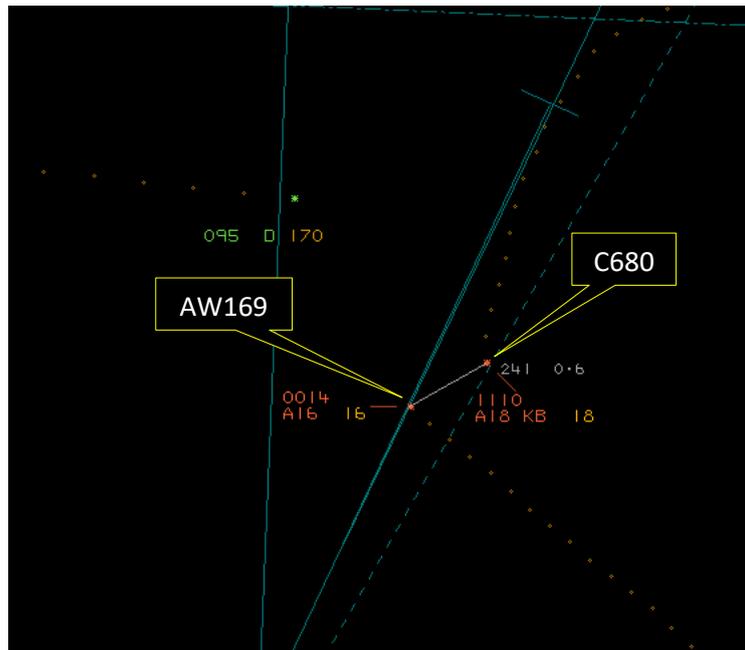


Figure 3. CPA at 1815:30

The CPA between [the AW169] and [the C680] was at 1815:30 and was recorded on multi-track radar as 0.6NM and 200ft as shown in Figure 3. The pilot of [the C680] had commenced a left turn at that time.

The pilot of [the C680] concluded, in their ASR, “I cannot recall having received any TCAS warning or seen the TCAS traffic indicated on the display”. NATS analytical data did not show any TCAS interactions between the two aircraft.

[The AW169 pilot] did not deviate from their track, entered the London City CTR and was issued with a Radar Control Service at 1817:24.

The Unit Competency Manager detailed that [the pilot of the C680] would normally be transferred to Biggin Hill upon vacating controlled airspace, and ‘transfer of comms should have coincided with the [C680 pilot] leaving controlled airspace’. However, it was the opinion of a sector SME that ‘the controller had held onto the [C680] due to them feeling a duty-of-care to both pilots given their proximity to each other’.

Conclusion

The Airprox occurred when [the AW169 pilot], on a Cat A flight in Class G airspace at 1600ft and in receipt of a Basic Service, crossed left-to-right ahead of [the C680 pilot], an IFR arrival into Biggin Hill, also in Class G airspace at 1800ft, and in receipt of a Basic Service. [The C680 pilot] had been positioned onto the RW21 ILS at Biggin Hill prior to being instructed to break off approach and position for left downwind for RW03. The pilot of [the AW169] reported that they were visual with [the C680].

The CPA between [the AW169] and [the C680] occurred at 1815:30 and was recorded on Multi-Track Radar as 0.6NM and 200ft.

The incident was resolved by the pilot of [the C680] breaking off their approach from RW21 and the pilot of [the AW169] continuing towards their destination.

UKAB Secretariat

An analysis of the NATS radar replay was undertaken and both aircraft could be positively identified from Mode S data. The diagram was constructed and the separation at CPA determined from the radar data.

The C680 and AW169 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 AW169 pilot was required to give way to the C680.³

Summary

An Airprox was reported when a C680 and an AW169 flew into proximity 3.5NM north-northeast of Biggin Hill at 1815Z on Sunday 4th June 2023. The C680 pilot had been operating under IFR in VMC, and in receipt of a Basic Service from Thames Radar. The AW169 pilot had been operating under VFR in VMC, in receipt of a Basic Service from Heathrow SVFR.

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 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 first considered the actions of the pilot of the C680. It was understood by members that they had formulated a plan to follow the ILS for RW21 until they had visually acquired Biggin Hill airfield, to commence a turn to join a left-hand downwind leg for RW03 and would subsequently leave controlled airspace. Members were in agreement that the introduction of the AW169 (that was to cross the RW21 extended centreline) into their dynamic plan had required careful consideration. Members agreed that sufficient Traffic Information had been passed to the pilot of the C680, and that it had been passed in plenty of time, for them to have assessed the safest course of action. Notwithstanding, it was surmised by members that the pilot of the C680 may not have fully assimilated the Traffic Information that they had been given regarding the position of the AW169 (**CF2**), and that they had been somewhat startled, and concerned, by its proximity once it had been visually acquired (**CF6**). It was noted that the pilot of the C680 had reported that they had not been aware of an alert from their TCAS. Members agreed that an alert would have been expected given the geometry of the encounter (**CF4**).

It was felt by some members that the priority given to the pilot of the AW169 (in light of their category 'A' flight) by the Heathrow SVFR controller had, perhaps, created an element of uncertainty in the mind of the pilot of the C680 as to their priority with regard to the Rules of the Air in Class G airspace given that they had been converging with the helicopter from the right. Notwithstanding, members commended the decision by the pilot of the C680 to have taken decisive action to increase separation between the aircraft by turning left. Nevertheless, members agreed that a gentle modification of their track earlier in their approach, or to have made a decision to break for the downwind leg for RW03 earlier, may have provided more comfortable separation between the aircraft without the need to abandon their approach to Biggin Hill.

Turning their attention to the actions of the Heathrow SVFR controller, members agreed that sufficient Traffic Information on the C680 had been passed to the pilot of the AW169 that had enabled them to have visually acquired the C680 in plenty of time to have considered their actions. Similarly, members agreed that sufficient, and timely, Traffic Information on the AW169 had been passed to the pilot of the C680 by the Thames controller.

It was noted by members that the NATS radar replay had indicated that an STCA had been triggered by the proximity of the AW169 to the C680 (**CF1**), and some members wondered whether further coordination with the Thames controller by the Heathrow SVFR controller may have been prudent, and that such coordination might have assisted either of the pilots to have passed more comfortably behind the other.

Members next turned their attention to the actions of the pilot of the AW169. Whilst appreciating that they had been operating on a 'Category A' emergency operational task, some members wondered

² (UK) SERA.3205 Proximity.

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

whether the pilot of the AW169 had presumed that they had had priority over all other aircraft, even though they had been aware that the C680 had been converging from their right and, perhaps, had not fully appreciated that their flightpaths may have intersected if neither pilot had taken action. Further, it was noted that the pilot of the AW169 had received a Traffic Alert from their TCAS (**CF3**). Members agreed that the pilot of the AW169 had flown close enough to the C680 to have caused its pilot concern (**CF5**). Some members suggested that it may have been prudent for the pilot of the AW169 to have modified their height or track slightly as they crossed the approach path to Biggin Hill, as it could have been readily anticipated that they might have encountered conflicting traffic, as indeed they had on this occasion, along their chosen track at their chosen altitude.

Concluding their deliberations, members agreed that the pilots had shared an equal responsibility for collision avoidance, and determined that there had been plenty of time for either pilot to have modified their flightpaths to have provided more comfortable separation between the aircraft. It was determined that the pilot of the C680 had been passed sufficient Traffic Information on the AW169 that, had they fully assimilated such information, to have taken a decision to have modified their flightpath earlier may have ameliorated their concern for the proximity of the AW169. Members concluded that safety margins had been reduced, but were in full agreement that there had not been a risk of collision. Risk Category 'C' was assigned to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

2023112				
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
Ground Elements				
• Electronic Warning System Operation and Compliance				
1	Technical	• STCA Warning	An event involving the triggering of a Short Term Conflict Alert (STCA) Warning	
Flight Elements				
• Situational Awareness of the Conflicting Aircraft and Action				
2	Human Factors	• Understanding/Comprehension	Events involving flight crew that did not understand or comprehend a situation or instruction	Pilot did not assimilate conflict information
• Electronic Warning System Operation and Compliance				
3	Contextual	• ACAS/TCAS TA	An event involving a genuine airborne collision avoidance system/traffic alert and collision avoidance system traffic advisory warning triggered	
4	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				
5	Human Factors	• Lack of Individual Risk Perception	Events involving flight crew not fully appreciating the risk of a particular course of action	Pilot flew close enough to cause concern
6	Human Factors	• Perception of Visual Information		Pilot was concerned by the proximity of the other aircraft

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:

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

Flight Elements:

Situational Awareness of the Conflicting Aircraft and Action were assessed as **partially effective** because the pilot of the C680 had not fully assimilated the Traffic Information that they had been passed regarding the AW169.

Airprox Barrier Assessment: 2023112		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 Conflicting Aircraft & 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/Not Assessable</u>	<u>Not Used</u>		
Provision	✓	⚠	✗	●				
Application	✓	⚠	✗	●				
Effectiveness								