

AIRPROX REPORT No 2020146

Date: 11 Oct 2020 Time: ~1528Z Position: 5056N 00222W Location: Vicinity of Henstridge airfield

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	AW169	PA28
Operator	HEMS	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Listening Out	Listening Out
Provider	London Info	Henstridge Radio
Altitude/FL	900ft ¹	Not Recorded
Transponder	A, C, S	Not Recorded ²
Reported		
Colours	Yellow, green	Blue, white
Lighting	Strobe, anti-coll, nav, landing lights	Nav lights
Conditions	VMC	VMC
Visibility	>10km	10km
Altitude/FL	1300ft	800ft
Altimeter	QNH (1022hPa)	QFE
Heading	180°	060°
Speed	100kt	90kt
ACAS/TAS	TCAS II	Not fitted
Alert	None	N/A
Separation		
Reported	20ft V/0m H	75ft V/75m H
Recorded	NK V/NK H	

Insufficient data to produce a diagram

THE AW169 PILOT reports that the aircraft was straight-and-level at 1300ft, 100kts IAS (increasing) and heading south from Henstridge airfield in transit to a HEMS task (the 4th of their shift). Prior to departure, they had announced their intention to depart to the south as part of their 'start-up' call and, as part of their 'lifting' call, also announced the type of departure that they would be conducting – on this occasion a RW24 departure. The airspace had been busy all day with numerous light aircraft in the area, and they had elected to fly with strobe and landing lights in addition to the normal nav/anti-col configuration throughout the day. An aircraft (believed to be a PA28, white with light blue markings) was observed to go under the aircraft at approximately 20-50ft travelling from the 2 o'clock position to the 8 o'clock. In this brief moment, the PIC made a snatch rear input into the cyclic before resuming straight-and-level flight; no avoiding action by the other aircraft was witnessed. There were no TCAS indications associated with the aircraft; the TCAS had been identifying aircraft accurately throughout the day (7 previous sectors) with no faults or spurious contacts. After the aircraft passed, the TCAS continued to identify other aircraft accurately but the subject PA28 remained unidentified on the TCAS MFD. The PIC confirmed a safe flight configuration and the crew discussed the incident immediately to identify if they were fit and able to continue with the task. The crew agreed to continue and the aircraft was assessed as serviceable after assessing the Power Plant MFD page, checking control responses and checking that the TCAS was functioning correctly (identified another aircraft accurately). On return to the HEMS base, the crew debriefed extensively in order to identify if there were any actions that could have prevented this incident occurring. Crews employ a strict eyes in/eyes out protocol to ensure cockpit management distraction is minimized. The direction from which the aircraft approached coincides with

¹ Derived from the GPS data supplied by the AW169 pilot.

² The pilot reported Transponder Modes A and C but, as the Airprox occurred at circuit height, the aircraft was too low to be detected by the NATS radars.

the position of the main window frame spar and could have hidden the aircraft approaching if it was on a constant bearing.

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

THE PA28 PILOT reports that they had re-joined the airfield from the west – for a standard downwind join – and were established downwind in the circuit for RW24LH. They called downwind 24LH and heard the helimed pilot make their 'lifting' call immediately afterwards on the RT. The helimed aircraft was only seen at the last second, behind and above them.

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

Factual Background

The weather at Yeovilton was recorded as follows:

METAR EGDY 111350Z AUTO 33011KT 9999 FEW036/// BKN050/// 14/06 Q1026=
METAR EGDY 111450Z AUTO 36010KT 9999 BKN050/// 14/06 Q1026=

Analysis and Investigation

UKAB Secretariat

A Henstridge airfield representative responded to UKAB enquiries and confirmed that the Air/Ground Radio position at Henstridge was not active at the time of the Airprox. Furthermore, it was also established that the AW169 pilot did not contact the London FISO to request a Service at any time during the flight.

Analysis of the NATS radar replay was undertaken; neither aircraft was detected by radar at or around the reported time of the Airprox. However, the AW169 pilot provided a GPS log of their flights on that day and the PA28 pilot provided the UKAB with a pictorial representation of their position in the circuit (see Figure 1).

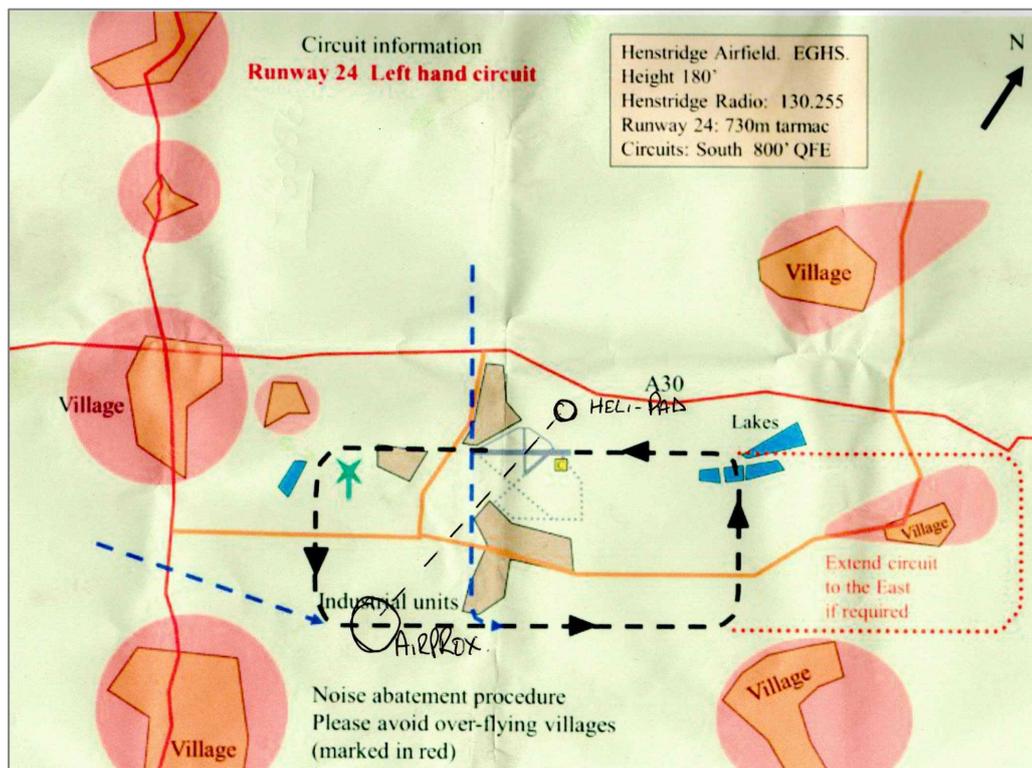


Figure 1

The AW169 crew had recorded the position of the Airprox using 2 different sources of navigational equipment – this position was recorded as N5055.46 W00222.22 which placed the aircraft approximately 3.4NM south of Henstridge airfield. The PA28 pilot reported joining the airfield from the west, positioning between the villages of Henstridge and Stalbridge to establish directly onto the downwind leg. The approximate positions of each pilot's report of the Airprox location are shown in Figure 2.

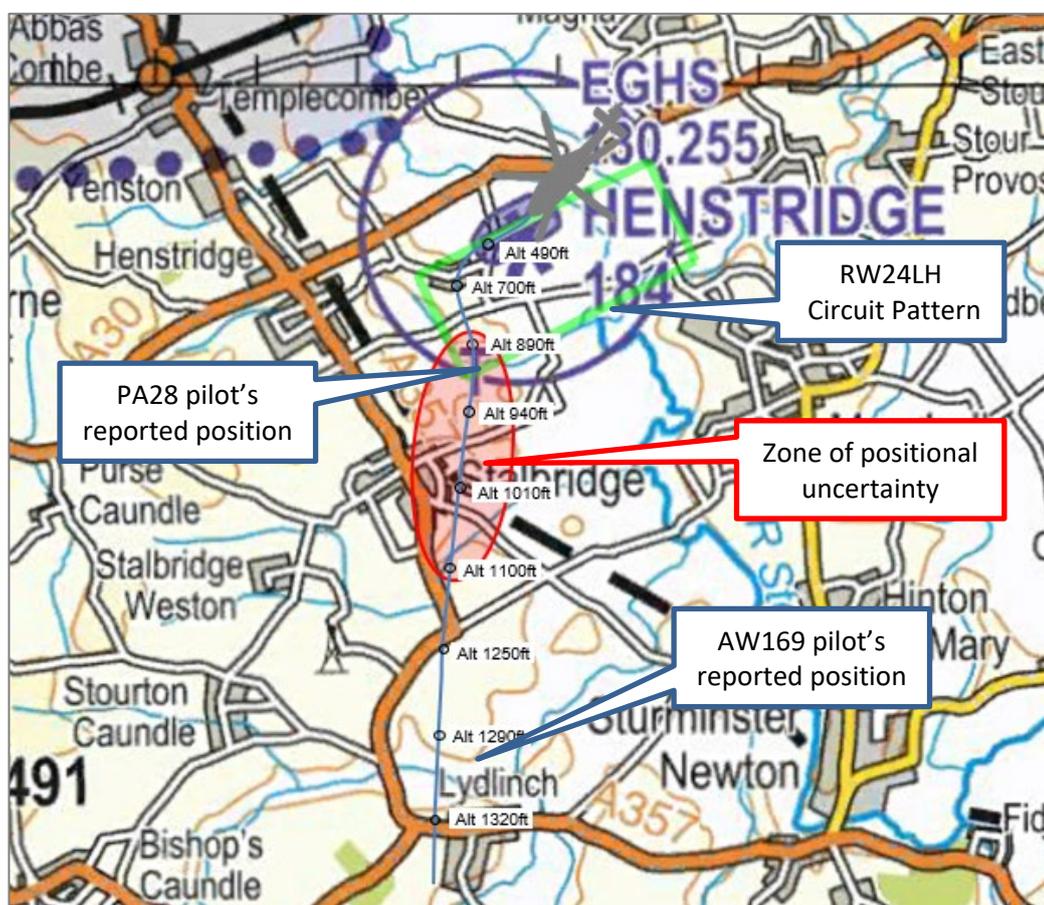


Figure 2

The reported positions of the Airprox from both pilots differed by approximately 2.5NM. However, from the GPS data provided, the AW169 pilot's reported altitude of 1300ft was coherent with their reported position of the event. Without any recorded data for the PA28, it has not been possible to establish the true location of the Airprox. The pilots' reports were consistent in that they both reported the AW169 as passing above the PA28 – of note, the AW169's altitude as it crossed the published downwind track of the Henstridge RW24LH circuit was recorded at 915ft (~730ft aal), and the AW169 reached an altitude of 1010ft (~835ft aal – slightly above the published Henstridge circuit height) when slightly to the SE of Stalbridge. There is, therefore, a zone of uncertainty as to the true location of the Airprox (as depicted in Figure 2).

The AW169 and PA28 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.³ If the incident geometry is considered as converging then the AW169 pilot was required to give way to the PA28.⁴ 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.⁵

³ SERA.3205 Proximity.

⁴ SERA.3210 Right-of-way (c)(2) Converging.

⁵ SERA.3225 Operation on and in the Vicinity of an Aerodrome.

Summary

An Airprox was reported when an AW169 and a PA28 flew into proximity in the vicinity of Henstridge airfield at approximately 1528Z on Sunday 11th October 2020. Both pilots were operating under VFR in VMC, the AW169 pilot reports listening out on the London Information frequency and the PA28 pilot reports listening out on the [unmanned] Henstridge Radio frequency.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots and GPS log file data supplied by the helicopter pilot. 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.

Due to the exceptional circumstances presented by the coronavirus pandemic, this incident was assessed as part of a 'virtual' UK Airprox Board meeting where members provided a combination of written contributions and dial-in/VTC comments.

The Board started by discussing the incoherencies in the 2 pilots' reports in terms of the position of the Airprox. Although there was a difference of approximately 2.5NM in the reported position of the Airprox from each pilot, the reports were consistent in that both pilots reported the helicopter passing above the PA28. This consistent reporting of relative position indicates either that event took place further south than that which was reported by the PA28 pilot (if the PA28 pilot was at 800ft aal) or the event took place in the circuit pattern with the PA28 being lower than circuit height. This uncertainty made it impossible to evaluate if any regulatory or planning barriers had been compromised.

The Board then considered the actions of the AW169 pilot and heard from a helicopter pilot member that, in their view, the AW169 pilot had most likely come close to over-torquing the aircraft during their reactive manoeuvre to avoid the PA28, indicated by their checking the Power Plant MFD page post-event. They went on to add that this in itself indicated that this had been a close encounter. Members discussed the pilot's reported position of the Airprox compared to that of the PA28 pilot and agreed that, without any recorded data on the position of the PA28, it could not be established exactly where the Airprox had taken place. That said, the data supplied by the AW169 pilot showed that they had departed from the airfield and crossed the downwind leg of the published circuit only slightly below the fixed-wing circuit altitude; members felt that it may be useful for the AW169's operating authority and the airfield operator to review the helicopter departure procedures, but the Board stopped short of making a Safety Recommendation in this regard. It was clear to the Board – from the reports of both pilots involved – that the AW169 pilot had made a 'lifting' call, but the exact timing of this call this could not be confirmed through RTF recordings and so the Board wondered if the PA28 pilot's recollection of the 'lifting' call being made after their 'downwind' call had been accurate. The Board also discussed whether or not the AW169 pilot had been aware of the presence of the PA28 as they departed and concluded that they had either not assimilated or not heard the PA28 pilot's downwind call. Furthermore, there had been no indication of the presence of the PA28 on the AW169's TCAS II equipment and so the Board agreed that the AW169 pilot had not, therefore, had any situational awareness of the PA28's position relative to that of their own aircraft (**CF1**, **CF2**). This had left the pilot with only the See and Avoid barrier to employ, and members postulated that the PA28 had probably been hidden from their view to some degree by the main window frame spar (**CF3**) and that this had contributed to them not sighting the PA28 until it had been too late to materially increase the separation between the 2 aircraft (**CF5**).

Turning to the actions of the PA28 pilot, the Board agreed that they had had generic situational awareness of the AW169 lifting, but had either not received any information regarding the helicopter pilot's intended departure profile or had not assimilated that information (**CF1**). While there was no criticism of the PA28 pilot's actions and reported radio calls, some members felt that, on hearing the AW169 pilot's 'lifting' call, it may have been useful for the PA28 pilot to have reiterated their position in the circuit to aid the AW169 pilot's situational awareness. Some members questioned why the TCAS II equipment on-board the AW169 had not detected the transponder transmissions from the PA28; unfortunately, the low altitude at which this incident took place meant that the lack of observed secondary surveillance data on the radar replay had been inconclusive but, given that the PA28 pilot

had reported that their transponder had been selected on, the Board felt that the lack of expected warning from the AW169's TCAS II had been contributory to the Airprox (**CF2**). Furthermore, and irrespective of the precise location of the Airprox, members considered that the geometry of the encounter had probably meant that the AW169 had been hidden from the PA28 pilot's view under their left wing (**CF3**) and so they had not seen the helicopter climbing towards their position until it had passed above and behind them (**CF5**).

Finally, the Board considered the risk involved in this encounter. In the absence of any recorded data from the PA28, members had to rely on the information provided by the pilots; the Board noted that the AW169 pilot had considered the risk of collision as 'High' and estimated a vertical separation of 20ft, while the PA28 pilot had considered the collision risk as 'Medium' with slightly more vertical separation (75ft). It was clear to the Board that, although there was a difference in perspectives from the pilots, whatever the separation actually had been, that which had been present had been by chance and that neither pilot had materially affected CPA. Consequently, members concluded that a serious risk of collision had existed (**CF4**) and that it had been entirely providential that the 2 aircraft had not collided; Risk Category A.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

2020146			
CF	Factor	Description	Amplification
Flight Elements			
• Situational Awareness of the Conflicting Aircraft and Action			
1	Contextual	• Situational Awareness and Sensory Events	The pilot had generic, late or no Situational Awareness
• Electronic Warning System Operation and Compliance			
2	Technical	• ACAS/TCAS System Failure	CWS did not alert as expected
• See and Avoid			
3	Contextual	• Poor Visibility Encounter	One or both aircraft were obscured from the other
4	Contextual	• Near Airborne Collision with Aircraft, Balloon, Dirigible or Other Piloted Air Vehicle	Piloted air vehicle
5	Human Factors	• Monitoring of Other Aircraft	Non-sighting or effectively a non-sighting by one or both pilots

Degree of Risk: A

Safety Barrier Assessment⁶

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

Flight Elements:

Situational Awareness of the Conflicting Aircraft and Action were assessed as **partially effective** because the AW169 pilot had no prior knowledge of the presence of the PA28, and the PA28 pilot had only generic situational awareness that the AW169 was departing Henstridge airfield.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the TCAS II equipment fitted to the AW169 did not detect the presence of the PA28.

See and Avoid were assessed as **ineffective** because neither pilot saw the other aircraft in time to materially increase separation.

⁶ 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: 2020146		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/Not Assessable</u>	<u>Not Used</u>		
Provision	●	⚠	✘	●				
Application	●	⚠	✘	●	○			
Effectiveness	■	■	■	■	□			