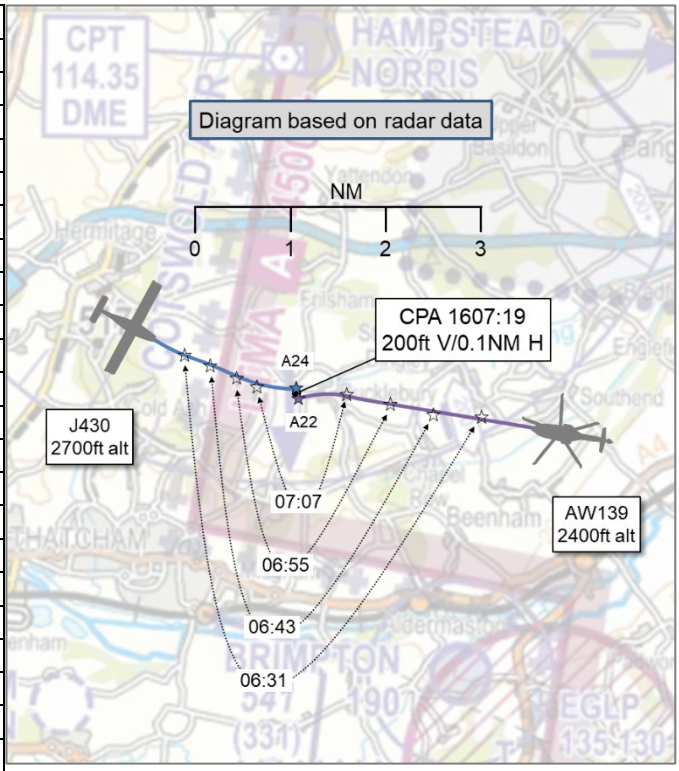
AIRPROX REPORT No 2022060

Date: 27 Apr 2022 Time: 1607Z Position: 5126N 00113W Location: Bucklebury

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Jabiru J430	AW139
Operator	Civ FW	Civ Helo
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Listening Out	Traffic Service
Provider	Farnborough	Farnborough
Altitude/FL	2400ft	2200ft
Transponder	A, C, S+	A, C, S+
Reported		
Colours	White	Grey
Lighting	Strobes	Position, strobe
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	2600ft	2400ft
Altimeter	QNH (1027hPa)	QNH (1027hPa)
Heading	108°	270°
Speed	100kt	140kt
ACAS/TAS	Not fitted	TCAS II
Alert	N/A	RA
Separation at CPA		
Reported	0ft V/150m H	100ft V/0.5NM H
Recorded	200ft V/0.1NM (185m) H	



THE JABIRU PILOT reports flying a solo navigation flight. PilotAware was not carried because this was a chart/stopwatch navigation exercise. Conditions were good with skies overcast at 3500ft and good visibility. They had completed a heading and altitude check just prior to Beenham when, in a routine scan of airspace ahead, they observed a light almost directly ahead which they judged to be a threat. They immediately turned left on to north because the approaching light was marginally to the right. They also rapidly descended by about 300ft to increase clearance from the oncoming aircraft. The aircraft (a helicopter with multiple windows) appeared to see them at the point they made the manoeuvre and mirrored the left turn away. The aircraft passed right-side to right-side in close proximity. They did not call on the Farnborough frequency to report because they were about to speak to the destination airfield and needed to manage their workload at that point.

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

THE AW139 PILOT reports that after identifying TCAS "non threat" symbology at around 7 miles, the crew endeavoured to obtain visual contact. With the approaching aircraft at around 4 miles, the pilot flying (PF) made visual contact, followed by the pilot monitoring (PM). The PF instructed the PM to select HDG mode so the PF could initiate a turn to the south to increase separation. Whilst in this turn, the crew observed a TCAS TA and aural warning of "Traffic Traffic". Both crew confirmed verbally that they had continued visual contact with the approaching aircraft. This aircraft then started a descent towards their level and an RA followed soon after, with the command "Descend Descend". The PF complied with the symbology on the VSI and put the aircraft into a steep descent. The other aircraft passed to their right by about ½ mile. The PF recovered the aircraft back to its previous altitude and track.

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

THE FARNBOROUGH CONTROLLER reports that at 1606, when the AW139 was southeast of CPT, they called unknown traffic 12 o'clock at 3NM, opposite direction indicating 300ft above. The aircraft were 1NM apart, still 300ft apart, when the pilot of another aircraft called, to whom they then spoke. The AW139 and the unknown aircraft passed 200ft apart, at a position 4NM south of CPT.

Factual Background

The weather at Farnborough was recorded as follows:

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METAR EGLF 271620Z AUTO 06011KT 030V090 9999 OVC038 11/01 Q1027=
METAR EGLF 271550Z 05013KT 9999 BKN039 11/01 Q1027=
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Analysis and Investigation

UKAB Secretariat

The Jabiru and AW139 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.[1] If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right.[2]

At the altitude of this Airprox, TCAS II algorithms will generate a TCAS RA if traffic is assessed to pass within 0.2NM, within 600ft vertically and within 15sec.[3]

NATS Unit Investigation

The controller was operating a band-boxed sector of Farnborough LARS West and Zone. Medium traffic. [The AW139] had been transiting the sector under a Traffic Service squawking 0431.

At 1606:18 Traffic Information was called on the aircraft in question "[AW139 C/S] *traffic 12 o clock, 3NM opposite direction 300ft above*." The pilot replied "[AW139 C/S]". The range and bearing were accurate and at this time [the AW139] was indicating 2400ft and the unknown aircraft, squawking 4572, was indicating 2700ft.

At 1607:04 [another aircraft] called up to check in on frequency and to request a Farnborough Zone transit. The pilot blocked the frequency for approximately 23sec. During this time, at 1607:17, [the AW139] and an aircraft squawking 4572 passed 0.17NM and 100ft apart.

Figure 1 – 1607:19

[1] (UK) SERA.3205 Proximity.
[2] (UK) SERA.3210 Right-of-way (c)(1) Approaching head-on.
[3] EUROCONTROL ACAS II Guide, Edition 4.1, dated 25th March 2022, Section 10.2.3.3 Threat Declaration.

No reference to an Airprox was mentioned on frequency and both aircraft continued en-route.

Transcript:

1606:18 – RAD ATCO	[AW139 C/S], *traffic 12 o clock, 3 miles, opposite direction, indicating 300 feet above, just manoeuvring*.
1606:24 – [AW139]	[AW139 C/S]
1606:59 – [Other aircraft]	*Good afternoon Farnborough, helicopter* [C/S]
1607:03 – RAD ATCO	[C/S] *Farnborough Radar hello, pass your message*.
1607:06 – [Other aircraft]	[Type] *helicopter out of a private site at Banbury, on route to Goodwood Chichester, just passing the M4 now, 2000 feet, 1027. Requesting a Basic Service and a transit through the zone just to the west of Odiham's ATZ*.
1607:23 – RAD ATCO	[C/S] *squawk 0433, QNH 1027, Basic Service*
1607:29 – [Other aircraft]	*0433, 1027, Basic Service*, [C/S]
1607:51 – RAD ATCO	[C/S], *MATZ transit approved, they are gliding at Lasham*
1607:55 – [Other aircraft]	*MATZ transit approved and that's Lasham gliding confirm*?
1607:59 – RAD ATCO	*Affirm*
1608:00 – [Other aircraft]	[C/S]

Investigation:
The RT and radar replays were reviewed in conjunction with the CA4114/NATS4118. Traffic Information was passed to [the AW139 pilot] accurately and in a timely manner. In this situation the traffic could not be updated as the frequency was blocked by another aircraft.

CAP 774 Chapter 3: Traffic Service

> *'3.5 The controller shall pass traffic information on relevant traffic, and shall update the traffic information if it continues to constitute a definite hazard.'*

No further investigation possible, investigation closed.

Conclusions:
[The AW139 pilot] was passed accurate Traffic Information by the ATCO, it is not clear why they took no action to avoid the other aircraft.

Summary

An Airprox was reported when a Jabiru J430 and an AW139 helicopter flew into proximity near Bucklebury at 1607Z on Wednesday 27th April 2022. Both pilots were operating under VFR in VMC, the Jabiru pilot listening-out on the Farnborough Radar frequency, not in receipt of a FIS, and the AW139 pilot in receipt of a Traffic Service from Farnborough LARS.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, reports from the air traffic controllers 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 events leading up to the Airprox and agreed that the AW139 crew had received information sufficient to provide full situational awareness of the converging head-on Jabiru. The Farnborough controller did not have STCA available on the Airprox aircraft (**CF1**) and had provided Traffic Information at a separation of 3NM, but by that time the AW139 crew had already had TCAS II information to appraise them of the Jabiru's relative position and converging track (reported at 7NM), and they reported gaining visual contact with the Jabiru at a range of 4NM. The Board agreed that the AW139 crew's subsequent inaction (**CF3**), despite full situational awareness, had resulted in the aircraft

converging to a degree that both pilots had had to take avoiding action (**CF4**, **CF8**). For their part, the Jabiru pilot had had no situational awareness of the converging AW139 (**CF5**) and had only seen it at a late stage (**CF7**) (Board members noted the efficacy of the AW139 lighting in allowing the Jabiru pilot to gain visual contact). It was unfortunate that the Jabiru pilot had descended towards the AW139's level during their avoiding turn to the left, thereby – to a degree – decreasing separation at CPA, but at the same time the AW139 crew had also been manoeuvring away, downwards and to the left, in response to their TCAS RA (**CF6**). The Board commented that a chart/stopwatch navigation exercise did not preclude the Jabiru pilot from using their electronic conspicuity device and that this, along with a service from Farnborough, rather than just listening-out, could have greatly increased their situational awareness for the better. [Post-Board Note: The Jabiru pilot contacted UKAB after receiving the draft report and pointed out that they were flying a QXC as part of the PPL(A) syllabus and therefore that they were not permitted to use their GPS map device. This device was also used to display EC derived aircraft tracks and so they also did not have access to that information. The Board reconsidered and agreed that the Flight Elements Regulations, Processes, Procedures and Compliance barrier had been partially effective because the pilot had not been permitted to use the device that displayed other traffic (**CF2**). A GA Board member observed that use of a GPS map is permitted for some of the PPL(A) Skill Test but that, anecdotally, this was not understood by some examiners and consequently some flying schools did not allow its use. Director UKAB resolved to raise the matter with the CAA]. Members noted that the AW139 crew had not used the correct R/T phraseology, in that they had not responded to the Farnborough controller's Traffic Information with information as to whether the traffic had been sighted or not. Members also agreed that the AW139 crew, operating in receipt of a Traffic Service, should have informed the Farnborough controller of their TCAS RA event and, subsequently, when they had been 'Clear of Conflict' (the UK Airprox Board CAA advisor resolved to contact the editor of CAP413 to ensure the text made clear the wide scope under which a TCAS RA should be declared – not just under an ATS in CAS – and to avoid any contradiction between TCAS RA policy and the MATS Part 1).

Turning to risk, several members expressed their opinion that the separation at CPA, along with both aircraft's dynamic manoeuvring, had been such that safety had been much reduced. The disparity between the AW139 crew's perception of lateral separation at CPA and that ascertained by radar replay also caused some members to question whether they had lost sight of the Jabiru during their avoiding manoeuvre. However, after further discussion, the majority of members felt that the combined actions of both pilots had resulted in a situation where the risk of collision had been averted. All members agreed that an earlier small heading change by the AW139 crew could have averted the incident entirely.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2022060			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Ground Elements			
	• Electronic Warning System Operation and Compliance			
1	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			
	• Regulations, Processes, Procedures and Compliance			
2	Organisational	• Flight Operations Documentation and Publications	Flight Operations Documentation and Publications	Inadequate regulations or procedures
	• Tactical Planning and Execution			
3	Human Factors	• Late Decision/Plan	Events involving flight crew making a decision too late to meet the needs of the situation	
	• Situational Awareness of the Conflicting Aircraft and Action			
4	Human Factors	• Lack of Action	Events involving flight crew not taking any action at all when they should have done so	Pilot flew close enough to cause concern despite Situational Awareness

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
	• Electronic Warning System Operation and Compliance			
6	Contextual	• ACAS/TCAS RA	An event involving a genuine airborne collision avoidance system/traffic alert and collision avoidance system resolution advisory warning triggered	
	• See and Avoid			
7	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
8	Human Factors	• Incorrect Action Selection	Events involving flight crew performing or choosing the wrong course of action	Pilot flew close enough to cause concern

Degree of Risk: C.

Safety Barrier Assessment[4]

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

Flight Elements:

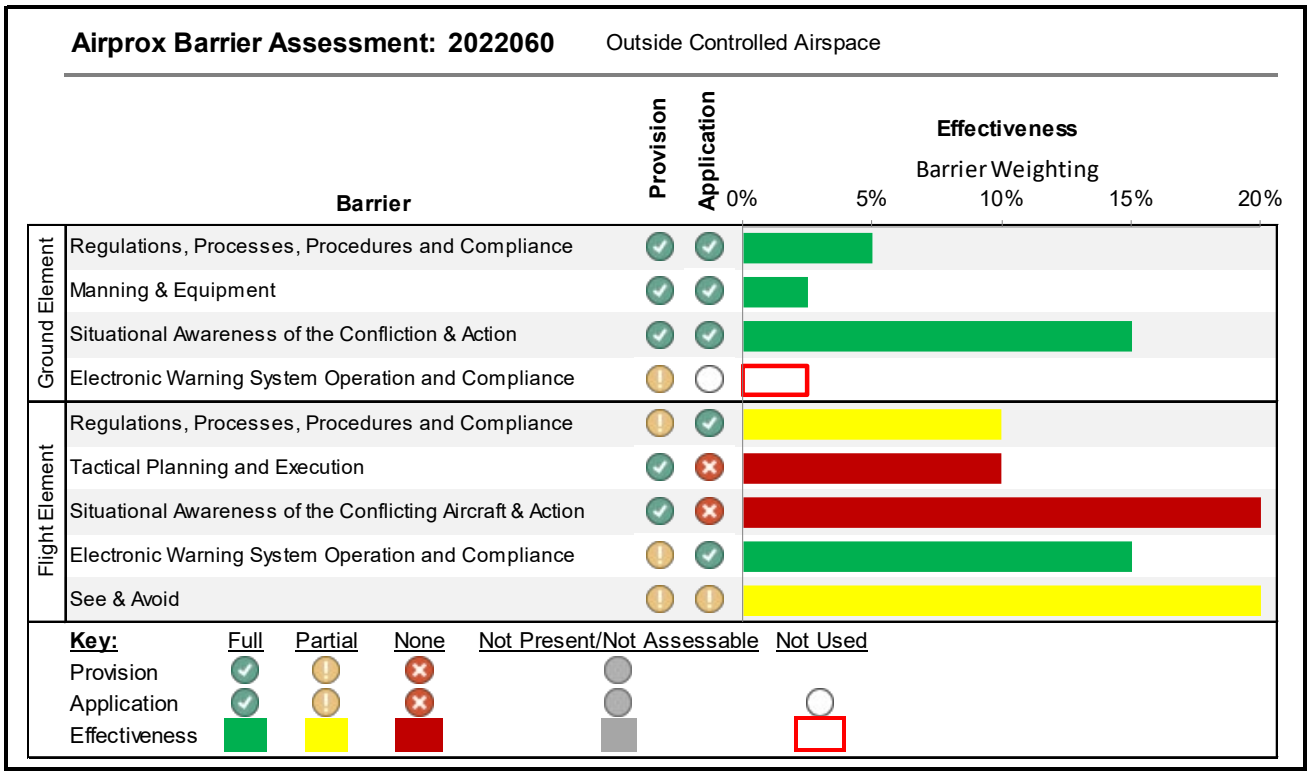
Regulations, Processes, Procedures and Compliance were assessed as **partially effective** because the Jabiru pilot was not permitted to take their GPS map device and, consequently, their means of EC display.

Tactical Planning and Execution was assessed as **ineffective** because the Jabiru pilot did not use their electronic conspicuity device and the AW139 crew continued on a converging track despite situational awareness.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the Jabiru pilot had no situational awareness of the approaching AW139 and the AW139 crew flew close enough to cause concern to both pilots despite their situational awareness.

See and Avoid were assessed as **partially effective** because the AW139 crew took late avoiding action and the Jabiru pilot saw the approaching helicopter at a late stage and descended towards it in their avoiding turn.

[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: 2022060
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