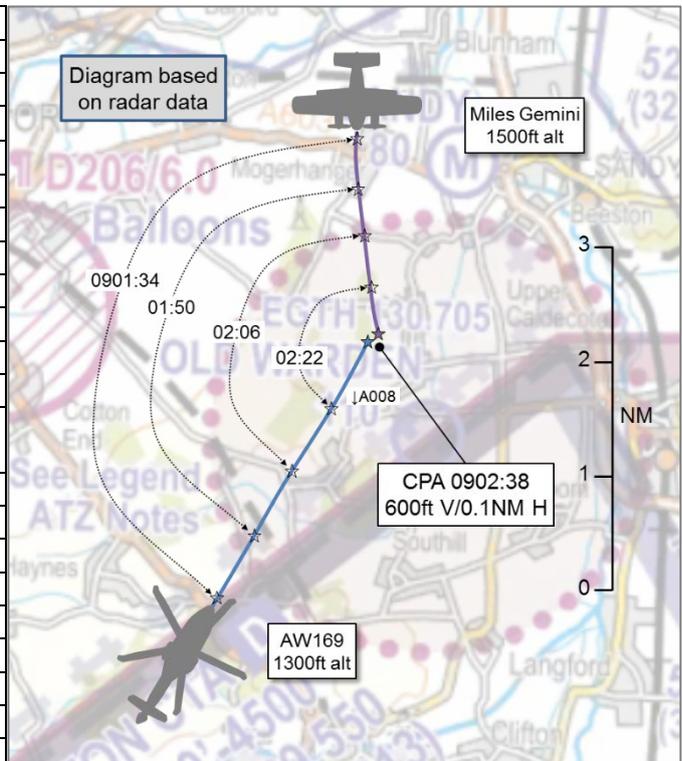


AIRPROX REPORT No 2020078

Date: 24 Jul 2020 Time: 0903Z Position: 5206N 00020W Location: 1NM NW Old Warden

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	AW169	Miles Gemini
Operator	HEMS	Civ FW
Airspace	London FIR ¹	London FIR ¹
Class	G	G
Rules	VFR	IFR
Service	Basic	Basic
Provider	Luton INT ²	London Info
Altitude/FL	800ft	1400ft
Transponder	A, C, S	A, C, S
Reported		
Colours	Orange/white	Silver
Lighting	HISLs, anti-colls, nav, landing lights	NR
Conditions	VMC	VMC
Visibility	>10Km	5Km
Altitude/FL	1300ft	1400ft
Altimeter	QNH	QNH
Heading	030°	170°
Speed	130kt	100kt
ACAS/TAS	TCAS II	Not fitted
Alert	RA	N/A
Separation		
Reported	800ft V/800m H	Not Seen
Recorded	600ft V/0.1NM H	



THE AW169 PILOT reports that they were transiting back to their destination through the Old Warden ATZ and had good 2-way communications with the Tower. They noticed a TCAS contact approaching and on a near reciprocal heading; they acquired it visually and, as they watched it, they could see that a conflict was emerging. They decided to initiate a rapid descent by lowering the collective lever to a low torque setting and achieving a rate-of-descent (RoD) >2000ft/min. Within a few seconds, a TCAS RA annunciated recommending a RoD of 2100ft/min. They maintained this RoD until approximately 500ft agl before climbing away. They informed the ‘controller’ who, during the manoeuvre, had received a call from the other aircraft requesting an overhead join. They informed the ‘controller’ of their avoiding action and the ‘controller’ replied that they had only seen the other aircraft due to their noting the helicopter’s rapid descent. The other aircraft had thus, he proffered, entered the ATZ without calling the ‘controller’.¹

The pilot assessed the risk of collision as ‘High’.

THE MILES GEMINI PILOT reports being en-route to Old Warden for their Display Authorisation reevaluation. A Basic Service was required and they received no Traffic Information. They were late changing to Old Warden Radio due to the ATS frequency being busy and were not expecting any RT from Old Warden as they had been told that it was not manned. They sighted another aircraft in the vicinity of Old Warden (a yellow Kitfox LSA travelling 400ft right-to-left) but did not see the helicopter.

¹ The Old Warden ATZ was not active at the time of the Airprox.

² The AW169 pilot reported being in receipt of a Basic Service from Shuttleworth; however, the Old Warden AFISO confirmed (from the flight strip) that, although the AW169 pilot did communicate with them, no ATS had been agreed.

THE LUTON INTERMEDIATE CONTROLLER reports that they were providing a Basic Service to the AW169 pilot but did not notice the Airprox.

THE OLD WARDEN AFISO reports that they opened the watch at 0830Z. The ATZ was inactive at the time – it was NOTAM'd as being active on that day from 1000Z to 1230Z. The AW169 pilot came onto frequency at 0900Z when close to the overhead of the airfield; no ATS was agreed and they left the frequency at 0901Z. The Gemini is noted as landing at Old Warden at 0908Z and the AFISO recalls agreeing a Basic Service with the pilot; they do not recall the time at which the Gemini pilot first contacted them.

THE LONDON FISO reports that the Gemini pilot was flying to Old Warden and was abeam Fenland when they called on the frequency at 0838Z. They took the pilot's details and issued them with a squawk and confirmed a Basic Service. At 0844Z, they called the Gemini pilot back requesting their estimated arrival time at Old Warden, to which they stated 1000 local (0900Z); the FISO then issued them with the London QNH. At 0902:16Z, the pilot requested to leave their frequency to transfer to Old Warden Radio. The call was garbled, so they called back establishing that it was indeed the Gemini pilot requesting to leave frequency. The pilot confirmed this, so the FISO instructed them to squawk 7000 and free-call Old Warden. The pilot read this back correctly and their last contact was 0902:40Z. The FISO was subsequently made aware of an Airprox between the Gemini and a helimed which occurred at 0902Z. They had no known traffic at any time in the vicinity.

Factual Background

The weather at Cranfield was recorded as follows:

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METAR EGTC 240850Z 25007KT 9999 FEW011 FEW013 SCT017 BKN047 18/15 Q1013=
METAR EGTC 240920Z 24006KT 9999 FEW016 SCT023 BKN043 18/15 Q1013=
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A NOTAM regarding the activation of the Old Warden ATZ was issued as follows:

Q) EGGT/QAZCA/IV/NBO/AE/000/022/5205N00019W002	L3494/20
B) FROM: 20/07/24 10:00 C) TO: 20/07/24 12:30	
E) OLD WARDEN ATZ ACTIVE. AFIS OPR ON 130.705MHZ.	

Analysis and Investigation

UKAB Secretariat

Analysis of the NATS radar replay revealed that both aircraft involved in the Airprox were consistently tracked on both primary and secondary surveillance radars; thus an accurate plot of the aircraft's relative positions and a measurement of CPA were possible.

In the moments leading up to the Airprox, the AW169 pilot was maintaining a north-north-easterly track at an altitude of 1300ft and the Miles Gemini pilot was maintaining a southerly track at an altitude of 1500ft. At 0901:38, a EuroFox crossed the nose of the Miles Gemini at a range of 0.3NM and 500ft above – this is the aircraft referred to as a 'Kitfox' in the Miles Gemini pilot's report and is not the subject of the Airprox (see Figure 1). After passing behind and below the EuroFox, the Gemini pilot continued inbound to Old Warden; it is notable that, although the AFISO had opened the Watch at Old Warden, the Old Warden ATZ was not active at this time. Both pilots continued on their respective tracks, maintaining altitude, until 0902:26, when the AW169 pilot commenced a descent from 1300ft (see Figure 2). This descent continued beyond CPA, eventually reaching an altitude of 600ft (~500ft agl) before the AW169 pilot initiated a climb.

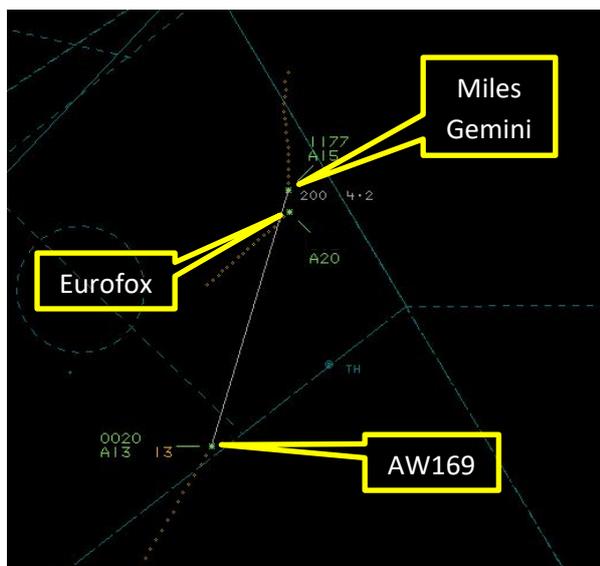


Figure 1 – 0901:38

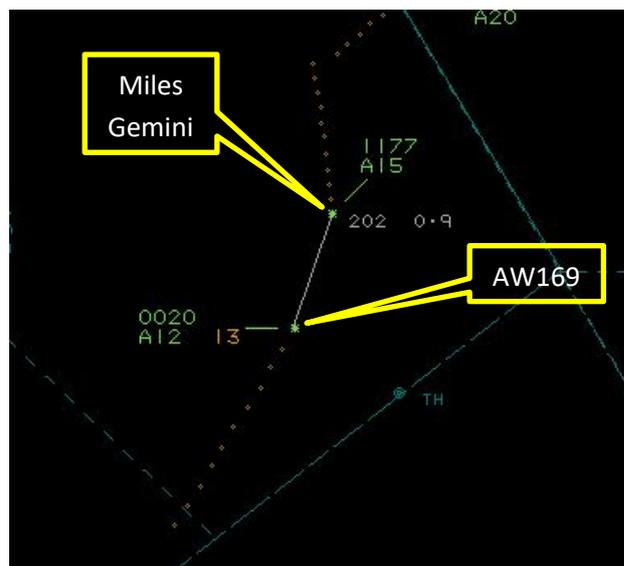


Figure 2 – 0902:26

From the radar analysis and the AW169 pilot's account, it appears that the AW169 pilot manoeuvred their aircraft in the vertical plane when there was approximately 0.9NM of lateral separation and 200ft of vertical separation between their aircraft and the Miles Gemini. This had the effect of increasing the overall distance between the 2 aircraft to 0.1NM lateral and 600ft vertical separation at CPA (see Figure 3).

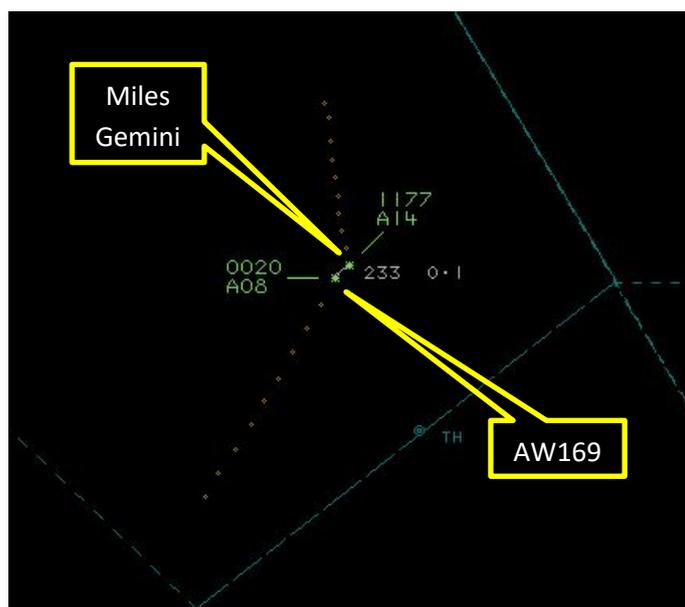


Figure 3 – 0902:38 – CPA

The AW169 and Miles Gemini 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 head-on or nearly so then both pilots were required to turn to the right.⁴ If the incident geometry is considered as converging then the Miles Gemini pilot was required to give way to the AW169.⁵

³ SERA.3205 Proximity.

⁴ SERA.3210 Right-of-way (c)(1) Approaching head-on.

⁵ SERA.3210 Right-of-way (c)(2) Converging.

Summary

An Airprox was reported when an AW169 and a Miles Gemini flew into proximity 1NM NW of Old Warden airfield at 0903Z on Friday 24th July 2020. The AW169 pilot was operating under VFR in VMC, the Miles Gemini pilot was operating under IFR in VMC. The AW169 pilot was in receipt of a Basic Service from Luton Intermediate and the Miles Gemini pilot in receipt of a Basic Service from London Information.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from the pilots of both aircraft, transcripts of the relevant RT frequencies, radar photographs/video recordings, reports from the air traffic controllers involved and reports from the appropriate ATC and 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.

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 dial-in/VTC comments.

The Board first considered the actions of the AW169 pilot and wondered if they had been aware that the Old Warden ATZ had not been active at the time of the Airprox. Unfortunately, RT recordings had not been available so it had been impossible to determine if the pilot had called because they believed the ATZ to be active (and therefore would have needed the AFISO's permission to enter it) or simply as a courtesy call on the off-chance that the Tower had been manned. In any event, the AFISO had not had any information pertaining to the presence of the Gemini and so could not have informed the AW169 pilot accordingly. This had left only the TCAS on-board the AW169 to provide the pilot with situational awareness of the presence of the Gemini, which had not been precise enough for the AW169 pilot to act upon (**CF4**). Members agreed, however, that the TCAS target had permitted the AW169 pilot to become visual with the Miles Gemini and then assess that a conflict had been developing, at which time they had taken avoiding action coincident with the annunciation of a TCAS RA (**CF5**).

The Board next considered the actions of the Miles Gemini pilot. Members noted that the reason that the Miles Gemini pilot had contacted the Old Warden frequency much later than would normally be expected had been due to an extremely busy London Information frequency, and the Miles Gemini pilot had not had the opportunity to announce their intentions to leave the frequency any sooner than they had. The Board heard from an Area ATC member, who informed members that it is not uncommon in Scotland for the FISOs on the Scottish Information frequency to find that they are unable to speak to pilots; in these cases it is commonplace for the pilot to inform the next agency that they had not had the opportunity to sign off from the previous frequency. In this case, members agreed that had been one possible course of action for the Miles Gemini pilot or, equally, he could have perhaps orbited at greater range from the Old Warden airfield while he attempted to sign off the London frequency and then contact the Old Warden frequency (**CF2**). The Board agreed that the most pressing task for the Miles Gemini pilot at the time had been to switch to the Old Warden frequency so that an orderly arrival could have been conducted (**CF3**). As it was, the Miles Gemini pilot had no situational awareness of the presence of the AW169 (**CF4**) and so had had to rely solely on their lookout to detect the other aircraft which, by their own admission, they had not seen (**CF6**).

The Board then briefly considered the actions of the Luton Intermediate controller and the Old Warden AFISO. It was noted that this Airprox took place just as the Old Warden AFISO was opening the Watch, and that no Service had been agreed with either pilot prior to the Airprox occurring. The only other possible opportunity for the AW169 pilot to have been warned of the presence of the Miles Gemini was from the Luton Intermediate controller, but they had not been required to monitor the AW169 (**CF1**).

Turning to the risk involved in this encounter, the Board took into account the AW169 pilot's reported assessment of separation and collision risk (they reported the collision risk as 'High') and also the fact that the Miles Gemini pilot never saw the helicopter. However, in determining the actual risk of collision it was clear to the Board that a combination of action taken on the part of the AW169 pilot, and the

coincident TCAS RA that they then followed, had served ensure a vertical separation of 600ft (as measured on the NATS radar) and to remove any collision risk. Therefore members agreed that, although safety had been degraded, this had not been a risk-bearing event. Accordingly, members awarded a Risk Category C to this Airprox.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2020078		
CF	Factor	Description	Amplification
	Ground Elements		
	• Situational Awareness and Action		
1	Contextual	• ANS Flight Information Provision	Not required to monitor the aircraft under the agreed service
	Flight Elements		
	• Tactical Planning and Execution		
2	Human Factors	• Insufficient Decision/Plan	Inadequate plan adaption
3	Human Factors	• Accuracy of Communication	Ineffective communication of intentions
	• Situational Awareness of the Conflicting Aircraft and Action		
4	Contextual	• Situational Awareness and Sensory Events	Pilot had no, late or only generic, Situational Awareness
	• Electronic Warning System Operation and Compliance		
5	Contextual	• ACAS/TCAS RA	
	• See and Avoid		
6	Human Factors	• Monitoring of Other Aircraft	Non-sighting or effectively a non-sighting by one or both pilots

Degree of Risk: C

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:

Ground Elements:

Situational Awareness of the Confliction and Action were assessed as **not used** because neither the Luton Intermediate controller nor the London FISO were required to monitor their respective aircraft under the agreed Service.

Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because the Miles Gemini pilot was unable to leave the London Information frequency early enough to be able to communicate his intentions on the Old Warden frequency.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **partially effective** because the Miles Gemini pilot was unaware of the presence of the AW169, and the AW169 pilot only had generic situational awareness of the Miles Gemini from their on-board TCAS equipment.

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: 2020078 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	■	■	■	■	□			