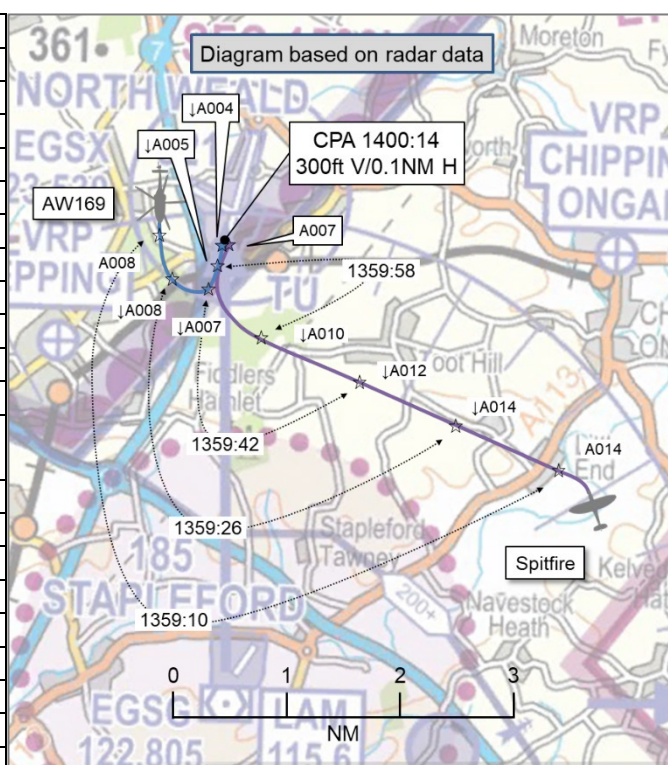


AIRPROX REPORT No 2022131

Date: 09 Jul 2022 Time: 1400Z Position: 5143N 00009E Location: North Weald

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	AW169	Spitfire
Operator	HEMS	Civ Comm
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	AGCS	AGCS
Provider	North Weald Radio	North Weald Radio
Altitude/FL	400ft	700ft
Transponder	A, C, S+	A, C, S
Reported		
Colours	Green, Grey, Yellow	Grey, Green
Lighting	Anti-col, Nav, Strobe, Landing	Nil
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	80ft	800
Altimeter	QNH (1029hPa)	QNH (NR hPa)
Heading	020°	020°
Speed	55kt	180kt
ACAS/TAS	TCAS II	Not fitted
Alert	None	N/A
Separation at CPA		
Reported	100ft V/30m H	200ft V/150m H
Recorded	300ft V/0.1NM H	



THE AW169 PILOT reports that they [were inbound so] contacted North Weald Radio and were told by the Air/Ground operator that there was no reported traffic. Observing TCAS and a visual scan of the airfield this appeared to be correct, although they never take this for granted. They joined the circuit downwind making the appropriate calls and, on turning from left-base to final RW02, they observed no traffic and heard none on the radio. They called final and were given the wind. At approximately 80ft, just prior to their landing decision point, both they and the PF, in the left seat, noticed a large shadow across the cockpit and then a low-level Spitfire came into view, following a track approximately 30m east of them, between them and the tower, approximately 100ft above them. This took them by surprise as they had not been informed by the Air/Ground operator that there was other traffic. [They recall that] there were no radio transmissions from the Spitfire aircraft with position reporting, there was no electronic transponder information observed on TCAS and they had not observed any traffic locally whilst manoeuvring in the circuit. As far as they were aware, the Spitfire pilot was conducting an experience flight and performing a 'run & break' style manoeuvre, without communicating on the airfield frequency, and in very close proximity to landing helicopter traffic, seemingly below 500ft, without the intention of landing. There was a NOTAM in existence for increased aerial activity and, when asked, the Air/Ground operator confirmed that the Spitfire was on frequency. The [Spitfire] pilot then commenced position reporting and landed shortly after [the AW169]. They are unsure if there was a danger of collision, they did not see the Spitfire until it was past them. As there were no radio calls [that they recall], they were unsure whether the pilot knew they were making an approach. [They feel that] if they had needed to go around or change their course for any reason, the separation given to them by the Spitfire pilot would have been significantly reduced.

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

THE SPITFIRE PILOT reports that they had joined following the agreed and established joining procedure for Spitfire operations at North Weald and were aware of, and in visual contact with, the AW169 making an approach. The joining and circuit procedures had been communicated to all operators at North Weald. As well as having two Air/Ground operators in the VCR when Spitfire operations are taking place, the Spitfire operator also had a Duty Safety Officer who has A/G radio communication, whose role it was to monitor the safety of the Spitfire operations. None of these three individuals made any comment or observations at the time. They therefore conclude that there was no risk of collision and that safe separation was maintained. No concerns were raised at the time by the AW169 pilot and no attempt has been made to establish contact and discuss any issues that they may have had.

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

THE NORTH WEALD A/G RADIO OPERATOR reports that the following details are reported with reference to RT Recordings, ADS-B playback and CCTV.

The RT transcripts below use the times taken from the recorder. These are about 4 minutes ahead of the correct time. No other aircraft were on frequency, in the circuit, or transmitting during this playback.

On the day, RW02 was in use with a left-hand circuit. Spitfire activity was NOTAM'd to be taking place to the east of North Weald with run and breaks on recovery into a right-hand circuit.

The Airprox occurred whilst the [AW169] helicopter was recovering from the west via a left-hand circuit and the Spitfire was recovering from the east via a run and break into a right-hand circuit.

Transcript time	Approximate time [UKAB corrected]	Agency	Detail.
1400:43	1356:43	AW169	[AW169 c/s], back in, just at Harlow.
1400:48	1356:48	AGO	Runway 02 the QNH 1030. No reported traffic
1400:48	1356:48	AW169	02 1030 copied [AW169 c/s]
1402:04	1358:04	AW169	[AW169 c/s] join downwind left, runway 02
1402:19	1358:19	Spitfire	North Weald Radio [Spitfire c/s] approach Ongar from the south to re-join for 02, 1030
1402:28	1358:28	AGO	02 1030
1403:12	1359:12	AW169	[AW169 c/s] left base to final for 02
1403:15	1359:15	AGO	(Unintelligible. Probably a wind report.)
1403:20	1359:20	AW169	Roger
1404:12	1400:12	AW169	North Weald [AW169 c/s] is the Spitfire on frequency?
1404:12	1400:12	AGO	Unintelligible. From memory they said "affirm".
1404:41	1400:41	Spitfire	[Spitfire c/s] right-hand downwind runway 02 left.
1405:39	1401:39	Spitfire	[Spitfire c/s] final with the gear down.

Following the transmission “*is the Spitfire on frequency*” they saw the [AW169] helicopter in a low hover above the hard runway and about to vacate RW02 to the west, along the disused runway. The Spitfire was ahead of the helicopter having overflown it doing a run-and-break along the grass to the east side of RW02. At the time they estimated [the Spitfire’s] height to have been about 400ft above ground level.

The ADS-B re-run showed the Spitfire’s level to have been between 225ft and 250ft during the run-and-break. This is based on 1013hPa. The pressure at the time was 1030hPa which equates to an altitude of between 701ft and 726ft QNH (assuming 1mb = 28ft), or between 381ft and 406ft above aerodrome elevation (320ft).

The CCTV shows the AW169 helicopter on left-base and final and into the low-hover. The Spitfire came into the picture as it turned right into the run-and-break and could clearly be seen to overtake the helicopter, which was on final, and pass on its right side above the grass, immediately to the east of the runway. There was a noticeable height difference.

Factual Background

The weather at Stansted was recorded as follows:

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EGSS 091350Z AUTO 35007KT 280V030 9999 NCD 24/10 Q1030
EGSS 091420Z AUTO 01007KT 290V070 9999 NCD 24/10 Q1030
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NOTAM

(H4824/22 NOTAMN

Q) EGTT/QWELW/IV/BO /AW/000/015/5144N00009E006

A) EGSX B) 2207070700 C) 2207101800

D) 0700-1800

E) INCREASED AERIAL ACTIVITY WI 5NM 514330N 0000925E (NORTH WEALD AD, ESSEX). OPPOSITE CIRCUITS BEING USED BY UP TO 2 SPITFIRES AT NORTH WEALD AD INCLUDING RUN AND BREAKS AND FORMATION PLEASURE FLIGHTS TO THE EAST. FOR INFO 123.530MHZ / 01992 564200.

2022-076-0379/AS1

F) SFC G) 1500FT AMSL)

Analysis and Investigation

UKAB Secretariat

An analysis of the NATS radar replay was undertaken and cross-referenced with the RT information provided by the North Weald AGO, which more closely align following the application of a 4min correction to the RT timings, as suggested by the AGO.

Although the timing of transmissions is approximate, the sequence of calls is correct, and it can be seen that prior to joining, the AW169 pilot was told by the AGO that there was no reported traffic. A short time later, the AW169 crew announced their intention to join downwind left RW02 and immediately after this transmission the Spitfire pilot transmitted, stating that they were re-joining from the south. The next exchange commenced with the transmission made by the AW169 pilot announcing that they were ‘left base to final 02’. The transmission by the AW169 pilot asking whether the Spitfire was on frequency is believed to have been made after the Airprox.

The North Weald pilot’s self-briefing pack, available on their website,¹ states under ‘Joining procedures’ that; “Run and breaks are permitted when the circuit is clear of other aircraft not below 500 feet agl.”

¹ <https://www.eppingforestdc.gov.uk/northweald/wp-content/uploads/sites/6/2021/04/NWA-Pilots-Self-Briefing-Pack.pdf>

The AW169 and Spitfire 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 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.³

Summary

An Airprox was reported when an AW169 and a Spitfire flew into proximity at North Weald at 1400Z on Saturday 9th July 2022. Both pilots were operating under VFR in VMC, both in receipt of an AGCS from North Weald Radio.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings and a report from the Air/Ground Operator involved. 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 AW169 pilot and agreed when a civil helicopter pilot stated they had operated in line with normal joining procedures, however, it appeared that they had not heard the transmissions of the Spitfire pilot and therefore had not had any understanding that the Spitfire had been inbound (**CF4**). Members noted that the AW169 pilot had not reported any alert from their EC system relating to the inbound Spitfire (**CF5**), however agreed that the NOTAM detailing the Spitfire operation would have given the AW169 pilot a generic awareness of its presence (**CF3**). The Board appreciated that the sudden appearance of the Spitfire's shadow to the AW169 pilot whilst in a critical phase of flight would have come as a surprise, leading them to be concerned by its proximity (**CF7**).

Next, members discussed the actions of the Spitfire pilot and noted that, although they had called prior to their re-join, they had made no further radio calls or position reports until after they had completed their run and break. The Board appreciated the reasons why the Spitfire pilot had elected to complete a run and break manoeuvre, however members noted that the North Weald pilot's self-briefing pack states that run and breaks should not be completed below 500ft AGL and, although members acknowledged that there can be errors in transponder-derived altitudes, the Spitfire was recorded at a Mode C altitude of 700ft, which was corroborated by the AGO's report (approximately 400ft AGL) (**CF1**, **CF2**). The Board was encouraged that there had been additional personnel in the VCR and a duty safety officer in place during the Spitfire operation but members wondered what their specific roles had been. Members were satisfied that the Spitfire pilot had been visual with the AW169 throughout their approach and run and break manoeuvre, although agreed that they had flown close enough to the AW169 to cause its pilot some concern (**CF6**).

The Board then considered the actions of the Air/Ground operator and acknowledged that they are only able to pass information on to pilots however, members noted that when the Spitfire pilot called for re-join, the Air/Ground Operator had not made them aware of the AW169, nor the AW169 pilot aware of the recovering Spitfire.

Finally, the Board considered the risk involved in this Airprox. Members noted that the pilot of the AW169 had not had any awareness of the presence of the Spitfire, nor had they become visual with it prior to CPA. The Spitfire pilot had been visual with the AW169 throughout, however, the run-and-break manoeuvre that they executed had not been in accordance with local procedures. Therefore, the Board agreed that safety had been degraded, but members were satisfied that there had been no risk of collision. Consequently, the Board assigned a Risk Category C to this event.

² (UK) SERA.3205 Proximity.

³ (UK) SERA.3225 Operation on and in the Vicinity of an Aerodrome.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2022131			
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
Flight Elements				
• Regulations, Processes, Procedures and Compliance				
1	Human Factors	• Use of policy/Procedures	Events involving the use of the relevant policy or procedures by flight crew	Regulations and/or procedures not complied with
• Tactical Planning and Execution				
2	Human Factors	• Action Performed Incorrectly	Events involving flight crew performing the selected action incorrectly	Incorrect or ineffective execution
• Situational Awareness of the Conflicting Aircraft and Action				
3	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
4	Human Factors	• Understanding/Comprehension	Events involving flight crew that did not understand or comprehend a situation or instruction	
• Electronic Warning System Operation and Compliance				
5	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				
6	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
7	Human Factors	• Perception of Visual Information	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 Assessment⁴

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 both pilots were operating with an Air Ground Communications Service and, as such, the Air Ground Operator can only pass information to pilots.

Flight Elements:

Regulations, Processes, Procedures and Compliance were assessed as **partially effective** because the run and break executed by the Spitfire pilot was below the minimum height stated in the North Weald pilot's self-briefing pack.

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

Tactical Planning and Execution was assessed as **partially effective** because the run and break executed by the Spitfire pilot was below the minimum height stated in the North Weald pilot’s self-briefing pack.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **partially effective** because the AW169 pilot had only had generic awareness of the Spitfire operation and had not assimilated that the Spitfire had been joining at the time.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because there had been no EC alert reported by the AW169 pilot.

Airprox Barrier Assessment: 2022131		Outside Controlled Airspace		Effectiveness				
Barrier		Provision	Application	Barrier Weighting				
				0%	5%	10%	15%	20%
Ground Element	Regulations, Processes, Procedures and Compliance	✓	✓					
	Manning & Equipment	✓	✓					
	Situational Awareness of the Conflication & 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								