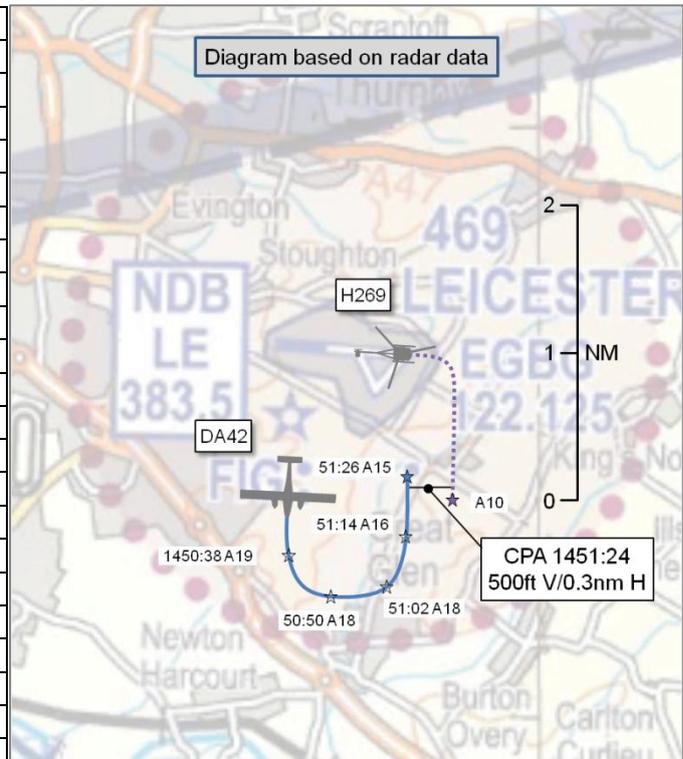


**AIRPROX REPORT No 2015048**

Date: 21 Apr 2015 Time: 1452Z Position: 5235N 00101W Location: Leicester (elevation 469ft)

**PART A: SUMMARY OF INFORMATION REPORTED TO UKAB**

Recorded	Aircraft 1	Aircraft 2
Aircraft	H269	DA42
Operator	Civ Pte	Civ Trg
Airspace	Leicester ATZ	Leicester ATZ
Class	G	G
Rules	VFR	VFR
Service	Air/Ground	Air/Ground
Provider	Leicester	Leicester
Altitude/FL	1000ft	1500ft
Transponder	A/C. Mode S off	A/C/S
<b>Reported</b>		
Colours	White	White/grey
Lighting	NK	Strobes, nav
Conditions	VMC	VMC
Visibility	10km	>10km
Altitude/FL	400ft aal	1000ft aal
Altimeter	QFE (1017hPa)	QNH (1017hPa)
Heading	190°	010°
Speed	60kt	120kt
ACAS/TAS	Not fitted	TCAS I
Alert	N/A	Nil
<b>Separation</b>		
Reported	200ft V/800m H	Not seen
Recorded	500ft V/0.3nm H	



**THE SCHWEIZER/HUGHES 269 (H269) PILOT** reports he was taking off from RW10 for a right-hand circuit at Leicester aerodrome when he heard the DA42 pilot report overhead descending deadside RW10 left-hand. He began a scan for the traffic over his right shoulder and gained visual contact. He assessed that the DA42 pilot was lower than the prescribed circuit, and therefore he levelled at 400ft to maintain vertical separation whilst turning crosswind. Now established on the RW10R crosswind leg, he saw that the DA42 pilot was on the opposite track at a perceived vertical separation of 200ft. Continuing on this track he gave a position report and asked for clarification of the QFE. He had the correct QFE set and extended the crosswind leg to try and avoid the DA42. With horizontal distance reducing to a minimum of 800m, he took evasive manoeuvres turning left. He wondered if the DA42 pilot had set the QNH 1034hPa instead of the QFE 1017hPa. This would equal a distance of 459ft between them.

He assessed the risk of collision as 'Medium'.

**THE DIAMOND DA42 PILOT** reports that he was conducting a navigation exercise with a student. The weather was CAVOK. After departure their route took them to Raunds<sup>1</sup>. He asked the student to divert to Leicester for an overhead join and touch-and-go. The student, who was the handling pilot, changed to Leicester radio and obtained the runway in use (RW10 left-hand circuit), the QNH, and informed them of their intentions. They descended to 1000ft above circuit altitude (2000ft aal). As they approached the ATZ from the direction of Raunds they heard calls from other aircraft on the frequency. One call was from a helicopter pilot that he thought said was ready to lift. They carried out a standard overhead join at this point, flying over the RW28 threshold, holding their altitude to turn left on the liveside and pass the RW10 threshold. On passing onto the deadside, they descended to circuit height. Throughout the join the student made all the normal calls, but Leicester radio did not

<sup>1</sup> Approximately 25nm SE Leicester aerodrome.

reply. He had in his mind the helicopter operating in the circuit on the DA42's deadside at 700ft. He looked out and the student took the descending turn quite wide so he could increase their lookout below. He thought that if a helicopter pilot knew they were joining overhead, as they had stated in their calls, the helicopter pilot would then have a better view looking up against a sky for a fairly large twin as opposed to them looking down against the ground. He also made sure that the student maintained the correct altitude, and checked the altimeter and setting. They levelled off at circuit height on the deadside. Flying level on the deadside, towards the RW28 threshold to join crosswind, he heard a call "[DA42 company C/S] check your QFE". He did not know who was addressing him; it could have been the helicopter pilot. He checked the altimeter and it was set to the correct QNH, they fly on QNH. They joined the circuit and did a touch-and-go. The student reported that he had been visual with the helicopter when descending on the deadside, but he did not see it afterwards. When in the circuit they flew a normal left-hand circuit. When turning onto final he noticed the helicopter was also turning final on a right-hand circuit. There was no risk of collision at this point, and he had visual contact on final approach. Following the touch-and-go they climbed out on track and made a left turn to return to base.

He assessed the risk of collision as 'Low'.

### **Factual Background**

The East Midlands and Birmingham weather was recorded as follows:

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METAR EGNX 211420Z 08007KT 040V120 CAVOK 17/06 Q1035
METAR EGBB 211450Z 02008KT 350V060 CAVOK 17/05 Q1034=
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### **Analysis and Investigation**

#### **CAA ATSI**

Both pilots were using RW10. The UK AIP<sup>2</sup> states that for RW10: fixed-wing aircraft circuits are left-hand at 1000ft (aal) and an overhead join is preferred. Helicopter circuits are right-hand at 700ft (aal). Helicopter circuits are conducted from the helicopter 'H' on the right-hand side of RW10 (larger helicopters may use the runway). The aerodrome elevation is 469ft (equates to 17hPa with 1hPa equal to 27ft). The Air/Ground operator reported being unaware of the Airprox until sometime after the event; he did recall passing the QNH and QFE but nothing else.

Radar recordings showed the DA42 approach Leicester Aerodrome from the south at an altitude of 2500ft. The DA42 pilot positioned overhead and completed a left-hand turn at 2500ft on the north side of the airfield, letting down on the deadside. The H269 was likely on the airfield at this point and below radar coverage. At 1450:39 the DA42 was 1.6nm south-southwest of the airfield indicating an altitude of 1900ft. The DA42 pilot commenced a left turn towards the crosswind leg and at 1451:23 was 1.2nm south of the airfield at an altitude of 1600ft (1131ft aal). (Figure 1.)

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<sup>2</sup> Page AD 2.EGBG-6.

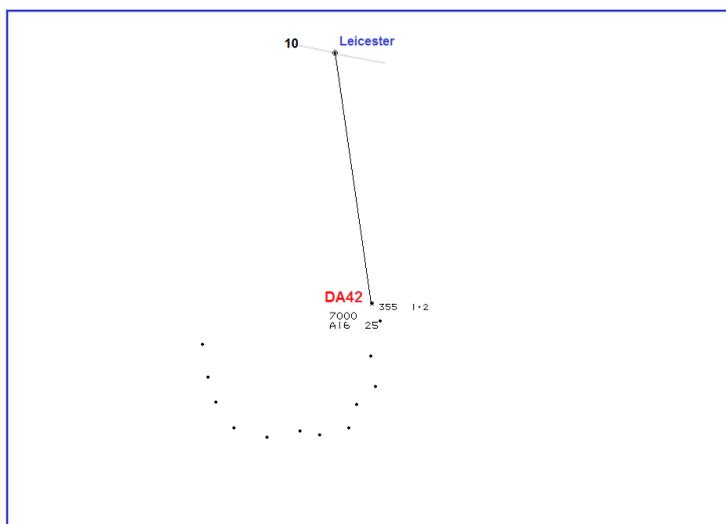


Figure 1 – Swanwick MRT at 1451:23.

At 1451:27 (CPA) the DA42 was at an altitude of 1500ft (1031ft aal) and the H269 appeared on the radar recording in the DA42's 3 o'clock at a range of 0.3nm and 500ft below (531ft aal). (Figure 2.)

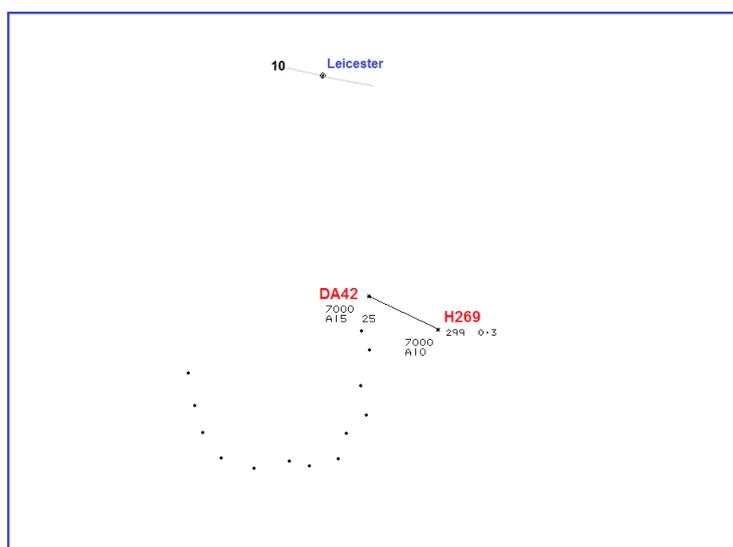


Figure 2 – Swanwick MRT at 1451:27.

The two aircraft continued without further incident.

The DA42 pilot's written report indicated him using QNH and positioning crosswind at 1000ft aal. The radar recording showed this to be correct, and the vertical distance between the two aircraft at CPA was 500ft. The DA42 pilot's written report specified that the QNH was 1017hPa but this was believed to be a typing error.

### UKAB Secretariat

Both pilots shared an equal responsibility for not flying into such proximity as to create a collision hazard<sup>3</sup>. An aircraft operated on or in the vicinity of an aerodrome shall<sup>4</sup>:

- (a) observe other aerodrome traffic for the purpose of avoiding collision;
- (b) conform with or avoid the pattern of traffic formed by other aircraft in operation;

<sup>3</sup> SERA 3205, Proximity.

<sup>4</sup> SERA.3225, Operation on and in the vicinity of an aerodrome.

CAP 413, the UK Radiotelephony Manual, states<sup>5</sup>:

'An Air Ground Communication Services (AGCS) radio station operator is not necessarily able to view any part of the aerodrome or surrounding airspace. Traffic information provided by an AGCS radio station operator is therefore based primarily on reports made by other pilots. Information provided by an AGCS radio station operator may be used to assist a pilot in making decisions, however, the safe conduct of the flight remains the pilot's responsibility'.

The Leicester Aerodrome ATZ, Class G airspace, is a circle, 2nm radius, centred on the longest runway 10/28, from surface to 2000ft aal. Elevation is 469ft.

## Summary

The Airprox occurred within the Class G airspace of the Leicester ATZ, south of the aerodrome. Both pilots were operating on RW10, the H269 pilot in a right-hand circuit and the DA42 pilot joining a left-hand circuit from overhead. The minimum distance between the two aircraft was recorded as 500ft vertically and 0.3nm horizontally.

## **PART B: SUMMARY OF THE BOARD'S DISCUSSIONS**

Information available included reports from the pilots concerned, area radar recordings and a report from CAA ATSI.

The Board first discussed the actions of the pilots. It was apparent from the radar recordings that the DA42 pilot had complied with the local aerodrome operating procedures for joining the fixed-wing left-hand circuit to RW10. He was shown to have been at circuit height (1000ft) as he positioned crosswind before turning downwind. The DA42 had been in this position when the H269 pilot had reported the Airprox. The radar recordings show the H269 had been at a height of 500ft at the time whilst he was on the reciprocal outbound crosswind leg for a right-hand circuit RW10.

The Board noted the RW10 circuit procedure was for fixed-wing aircraft left-hand at 1000ft and helicopters right-hand at 700ft. Some members wondered if this was an appropriate procedure because fixed-wing aircraft pilots on an overhead join descending on their deadside would be on the reciprocal of the helicopter live side which could result in two aircraft flying on reciprocal tracks separated vertically by only 300ft. Other members commented that this was not an unusual occurrence, and was the case at a number of similar aerodromes. They opined that provided that pilots complied with the appropriate height restriction, which was an important consideration, the procedures were safe.

The Board unanimously decided that the cause of the Airprox was a perception by the H269 pilot that the DA42 pilot was below the fixed-wing circuit height thus causing him concern that it might be too close in proximity to his aircraft. Although other visual illusions were discussed, it was considered possible that he may have thought that the DA42 was closer than it actually had been because it is a relatively large aircraft compared to others that operate from Leicester. Nonetheless, radar recordings showed conclusively that the DA42 pilot was maintaining circuit height.

The Board considered that because published circuit procedures were being followed, the Airprox should be categorised as risk Category E, normal procedures and safety parameters pertained.

## **PART C: ASSESSMENT OF CAUSE AND RISK**

Cause: The H269 pilot was concerned by his perceived proximity to the DA42.

Degree of Risk: E.

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<sup>5</sup> Chapter 4, Paragraph 4.138.