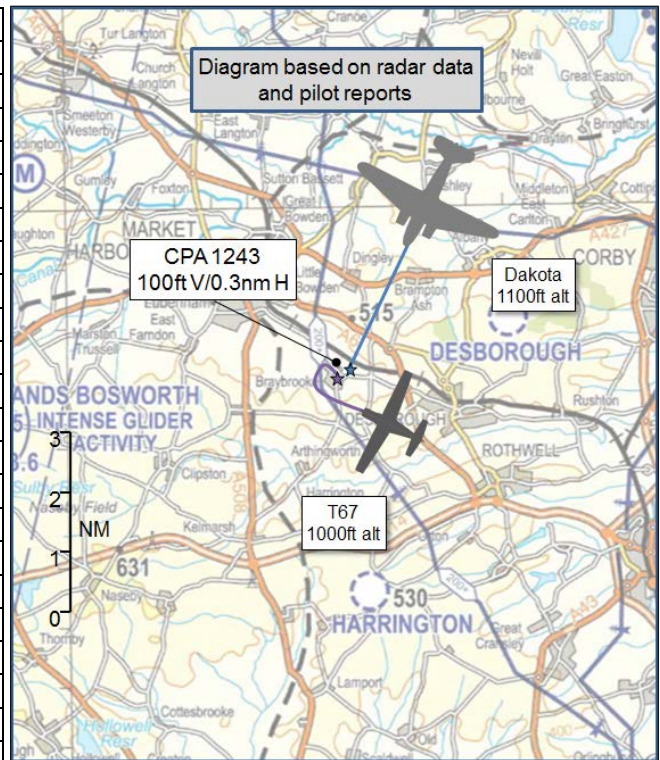


**AIRPROX REPORT No 2016084**

Date: 22 May 2016 Time: 1243Z Position: 5227N 00052W Location: 2nm SE Market Harborough

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

Recorded	Aircraft 1	Aircraft 2
Aircraft	Dakota	T67 Firefly
Operator	HQ Air (Ops)	Civ Club
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	None	None
Altitude/FL	1100ft	1000ft
Transponder	A, C	A, C
<b>Reported</b>		
Colours	Green	White
Lighting	NK	Strobes
Conditions	VMC	VMC
Visibility	>10km	10km
Altitude/FL	500ft MSD	1000ft
Altimeter	RPS (1005hPa)	QNH
Heading	200°	082°
Speed	130kt	90kt
ACAS/TAS	PowerFLARM	Not fitted
Alert	None	N/A
<b>Separation</b>		
Reported	0ft V/0.25nm H	Not Seen
Recorded	100ft V/0.3nm H	



**THE DAKOTA PILOT** reports that he was transiting to an event in Reading at 500ft MSD. He was not receiving a radar service because he had been unable to achieve two-way comms with Brize. He was 2nm south-east of Market Harborough when he saw a blue-and-white, low-winged light aircraft, thought to be a Piper, in his 2 o'clock about 0.25nm away. It was in a right-hand banking turn, and so he took avoiding action by banking left. No Mode C contact was seen on his aircraft's P-FLARM system.

He assessed the risk of collision as 'Low'.

**THE T67 PILOT** reports that he was on a navigation exercise, routing to Braybrooke (approx 2nm SE Market Harborough). It was an uneventful flight and, at Braybrooke, he conducted 3 right-hand orbits at 1000ft prior to reversing track back to his base. Neither the pilot nor the passenger saw the other aircraft.

**Factual Background**

The weather at East Midlands was recorded as follows:

METAR EGNX 221220Z 26007KT 9999 BKN048 17/09 Q1007=

## Analysis and Investigation

### UKAB Secretariat

The following screen shots were taken from the NATS Area Radar recordings and show the closing geometry of the two aircraft prior to the Airprox. The white cross indicates the position of Braybrooke. At Figure 1, the aircraft are 2.9nm apart, with the T67 indicating 1200ft amsl and the Dakota 1000ft amsl. At Figure 2, the T67 pilot has just started to commence his right-hand orbit, and the two aircraft are 1.2nm apart; the T67 has descended to 1000ft amsl and the Dakota has climbed slightly to 1100ft amsl.

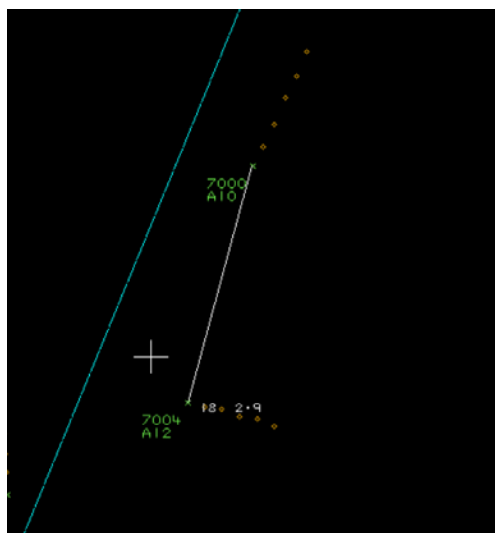


Figure 1: 1041:31

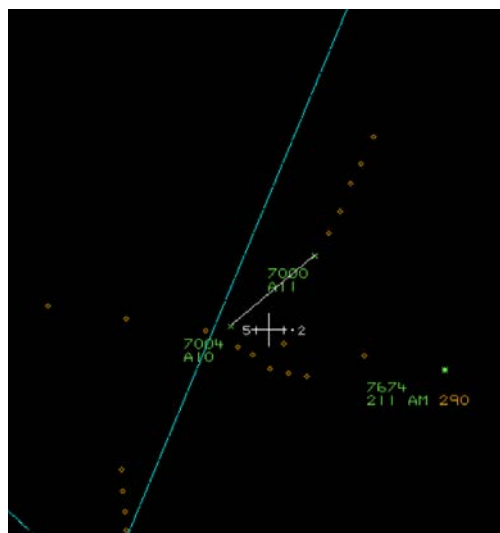


Figure 2 : 1042:10

The Dakota and T67 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard<sup>1</sup>. If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right<sup>2</sup>.

## Comments

### HQ Air Command

In the Class G airspace environment the acknowledged barriers to MAC available to non-cooperating aircraft are: an appropriate Air Traffic Service (ATS); compatible CWS; and lookout. Neither aircraft involved in this incident, which took place on a Sunday, was in receipt of an ATS – the nearest unit available to provide a LARS was Brize Norton and the location of the incident is at the very extremes of the Brize Norton radar and radio coverage. Furthermore, the Dakota's transit altitude was specifically chosen to avoid exposure to the more crowded height bands above, where a significant amount of GA traffic is known to operate at weekends. It is therefore debateable whether the provision of an ATS is actually germane to this Airprox.

Both aircraft were fitted with transponders and were visible on secondary radar. Additionally, the Dakota was equipped with P-FLARM which should have detected the presence of the Firefly – it remains unclear as to why the Firefly did not appear on the Dakota's P-FLARM display because the equipment was deemed to be serviceable both throughout and after the mission.

The final barrier remains lookout, and this was effective in that the Dakota pilot saw the Firefly, albeit late, and took action to increase separation.

<sup>1</sup> SERA.3205 Proximity.

<sup>2</sup> SERA.3210 Right-of-way (c)(1) Approaching head-on.

## Summary

An Airprox was reported when a Dakota and a T67 flew into proximity at 1243 on Sunday 22<sup>nd</sup> May 2016. Both pilots were operating under VFR in VMC; neither pilot was in receipt of an ATS.

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

Information available consisted of reports from the pilots of both aircraft, radar recordings, and a report from the appropriate operating authority.

The Board first looked at the actions of the Dakota pilot. The military member commented that although some might question why the Dakota pilot was flying at this level (approximately 500ft agl), this was because the Dakota crew were trying to minimise the risk of an encounter with the majority of GA traffic that generally flew between 1000-3000ft. His flight profile of flypasts at various locations in relatively close proximity at 500ft would have seen him constantly climbing and descending through the potential 1000-3000ft GA band if he was to transit at a higher altitude between flypasts. Members noted that a LARS service was difficult to come by at the weekend, (the incident took place on a Sunday), and that in this particular area there was a gap in radar coverage between LARS units; although the Dakota pilot had tried to call Brize for a service, he was still too low and too far away for them to hear him. The Board then discussed why his P-FLARM hadn't activated, and were informed that the aircraft's P-FLARM had been tested later by the engineers and was found to be serviceable; the T67 was squawking as could be seen on the radar; therefore, assuming the P-FLARM was set up correctly in the cockpit, there seemed to be no reason why the T67 SSR shouldn't have been seen by the P-FLARM. In the end, the Board commented that it was look-out that had saved the day; although the pilot had spotted the T67 later than ideal, he had seen it in time to take effective avoiding action.

For his part, members noted that the T67 pilot (or his passenger) didn't see the Dakota at all. In mitigation, the Board noted that the Dakota was initially lower than the T67, and green in colour, which would have meant the T67 pilot was looking down on something with little contrast to the background and therefore difficult to initially spot; the Dakota may also have been obscured to the T67 pilot in the latter stages of the incident due to obscuration by the left wing as the T67 orbited right. That being said, the Board wondered whether the T67 instructor and his student might also have become task focused in looking for their navigational turning point such that their look-out had perhaps degraded as a result. In discussing ways in which pilots can mitigate the risk of mid-air-collision, and noting that radar coverage in the area was sparse, GA members recommended that GA pilots consider purchasing TAS systems (which have come down in price recently); in this instance, a TAS should have provided an audible warning to the pilot, which may have cued his lookout accordingly.

Turning to the cause of the Airprox, the Board quickly agreed that this had been a late sighting by the Dakota pilot and a non-sighting by the T67 pilot. The risk was assessed as Category C, timely and effective action had been taken by the Dakota pilot to prevent the aircraft coming into close proximity.

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

Cause: A late sighting by the Dakota pilot and a non-sighting by the T67 pilot.

Degree of Risk: C.