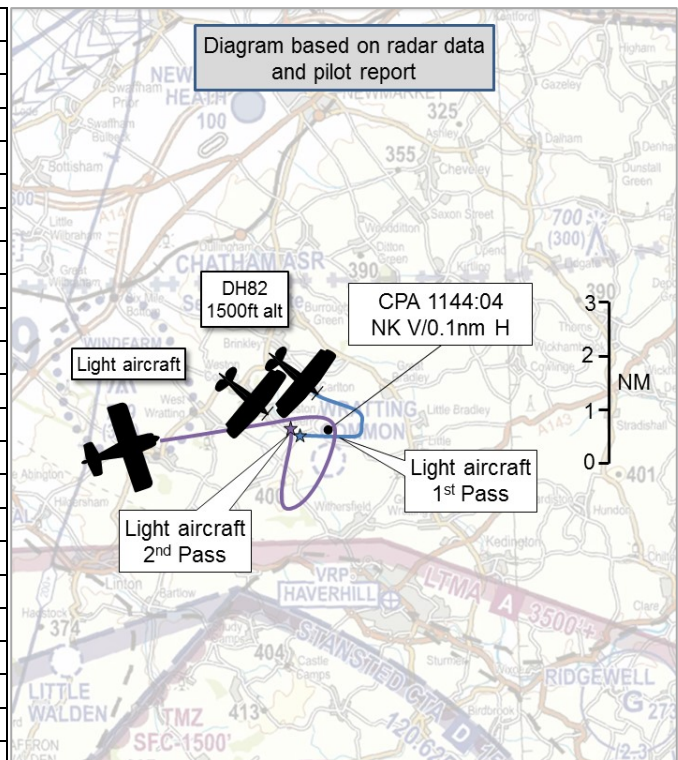


## AIRPROX REPORT No 2017276

Date: 16 Dec 2017 Time: 1144Z Position: 5207N 00024E Location: Wrating Common

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

Recorded	Aircraft 1	Aircraft 2
Aircraft	DH82 x 2	Light-aircraft
Operator	Civ Club	Unknown
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	NK
Service	Basic	
Provider	Cambridge	
Altitude/FL	1500ft	NK
Transponder	A, C, S	State/Modes
<b>Reported</b>		
Colours	Yellow, Silver	Blue
Lighting	None	NK
Conditions	VMC	
Visibility	>10km	
Altitude/FL	1500ft	
Altimeter	QNH (1017hPa)	
Heading	300°	
Speed	70kt	
ACAS/TAS	Not fitted	
<b>Separation</b>		
Reported	0ft V/30m H	NK
Recorded	NK V/0.1nm H	



**THE DH82 PILOT** reports that he was conducting a formation training flight with a second DH82. Both aircraft departed Cambridge in formation towards a windfarm 5nm SE of Cambridge and then on to the disused Wrating Common airfield. The aircraft had turned to return to Cambridge at which time he was formatting on the other DH82, echelon right. The other aircraft, he thought possibly a Vans RV6 or RV9, came from behind the formation and joined echelon left for several minutes. He spotted the other aircraft approximately 100ft to the left and rear of the formation and attempted to wave it away while easing out to give the other DH82 room to manoeuvre. They did not receive any TI from Cambridge regarding the other aircraft he thought. The other aircraft then dived and broke away going unsighted under the formation. The DH82 formation had just changed leader to the other DH82, so both pilots were busy re-establishing close formation and setting up to re-join Cambridge circuit for a formation landing. A verbal report was given by telephone after landing to Cambridge ATC.

He assessed the risk of collision as 'High'.

**THE LIGHT-AIRCRAFT PILOT** could not be traced.

**THE CAMBRIDGE CONTROLLER** reports that he received a phone call at approximately 12:30 informing him that the pilot of one of the DH82s that he was providing a service to earlier wished to report an Airprox. He spoke to the pilot on the phone, who informed him that he was part of a formation of 2 DH82 aircraft and, whilst recovering to Cambridge, saw a blue aircraft, possibly an RV6 or RV9, which formed on them at approximately 100ft to the left of the lead aircraft. He confirmed that he had passed Traffic Information to them on a P68 but they confirmed that they had that aircraft in sight and it was not that aircraft. The DH82 pilot informed him that the light-aircraft broke away from the formation and descended unsighted. The DH82 pilot described it as "a deliberate action". The DH82 formation were under a Basic Service with him on Cambridge Radar but, although transponder equipped, could not change their squawk to a Cambridge squawk and thus were not identified. He was not informed of the incident on the radio at the time so did not attempt to flight-follow the aircraft involved.

## Factual Background

The weather at Cambridge was recorded as follows:

METAR EGSC 161120Z 28007KT CAVOK 03/M02 Q1017

## Analysis and Investigation

### CAA ATSI

At 1046:15 the unknown aircraft (U/I) [light-aircraft] is first visible on radar in the approximate vicinity of Nayland airfield. No SSR is visible at this point. (Figure 1).

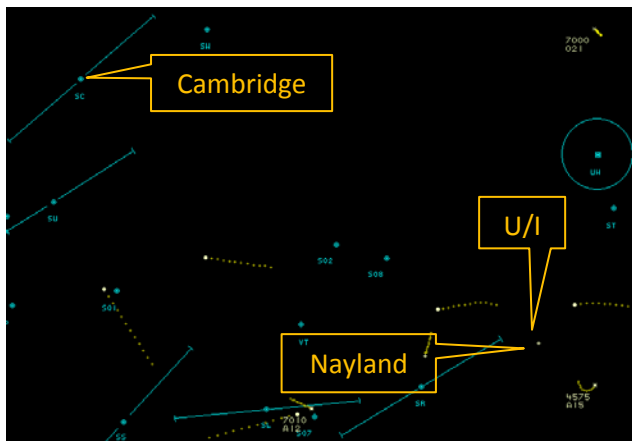


Figure 1 – 1046:15

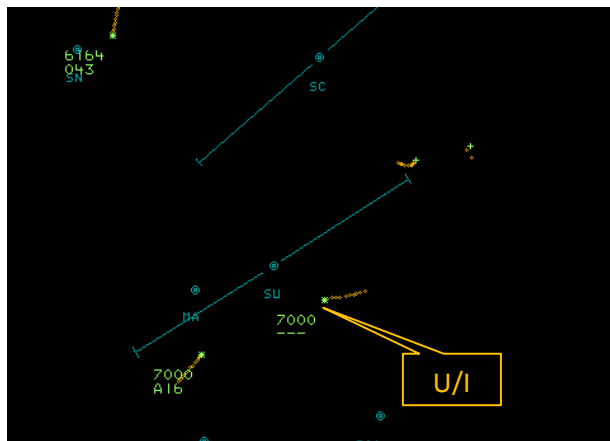


Figure 2 – 1100:08

The unknown aircraft was tracking west at 1100:08 (Figure 2). It then proceeded on its flight to approximately 15nm west of Luton before tracking back to the east.

The formation of two DH82 are first visible on radar at 1135:31. The unknown aircraft was approaching from the west (Figure 3).

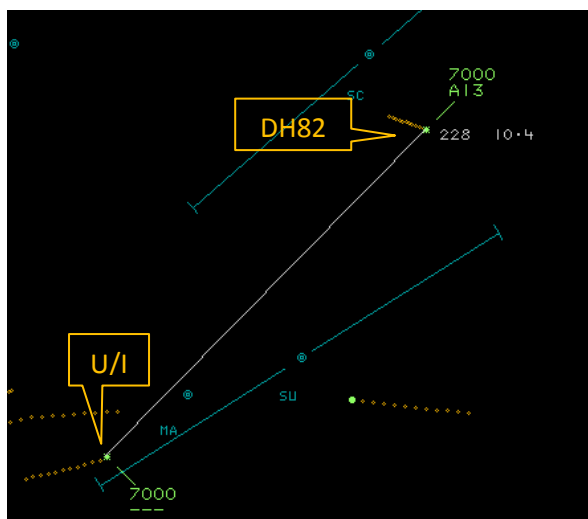


Figure 3 – 1135:31

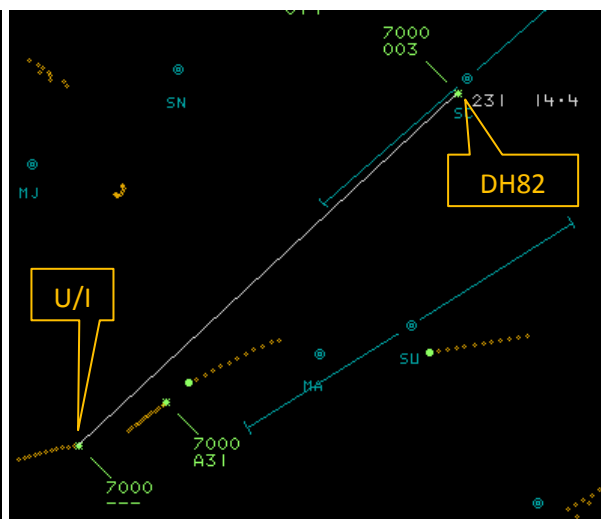


Figure 4 – 1137:31

At 1137:31 (Figure 4) the DH82 formation checked in on frequency with Cambridge Radar and were provided with a Basic Service and issued a squawk of 6161.

At 1138:52 the radar controller asked the DH82 lead aircraft to confirm they were not above 2000ft and passed Traffic Information on departing traffic to the east. They acknowledged the traffic information and advised the controller that they were not transponder equipped.

At 1143:27 (Figure 5), the Cambridge controller passed Traffic Information to the DH82 formation on the unknown aircraft.

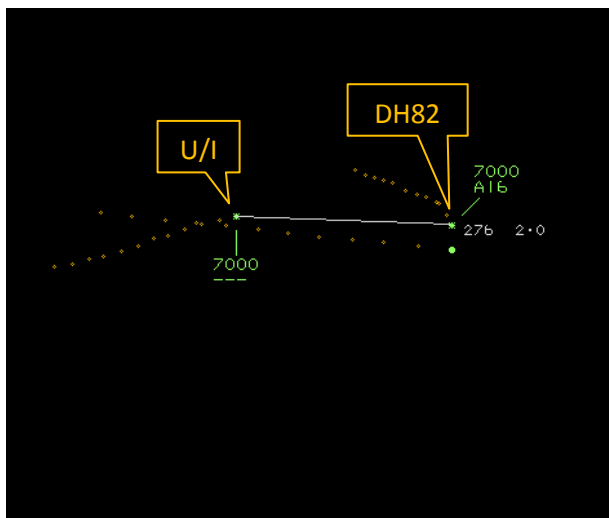


Figure 5 – 1143:27

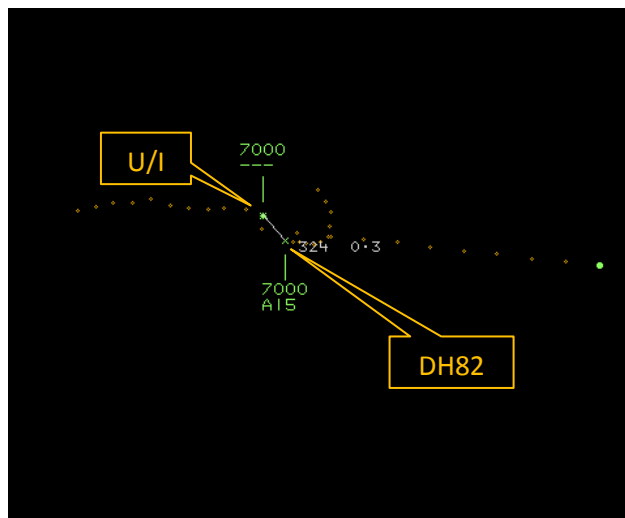


Figure 6 – 1144:00

The controller tried to contact the DH82 formation again at 1143:41 with no reply. At 1144:00 (Figure 6), the DH82 lead aircraft acknowledged the Traffic Information on the unknown aircraft and apologised for not replying. The controller stated to the DH82 formation that they had no level restriction but were to remain outside controlled airspace.

The first CPA occurred at 1144:07 (Figure 7) with 0.1nm between the unknown aircraft and the DH82 formation.

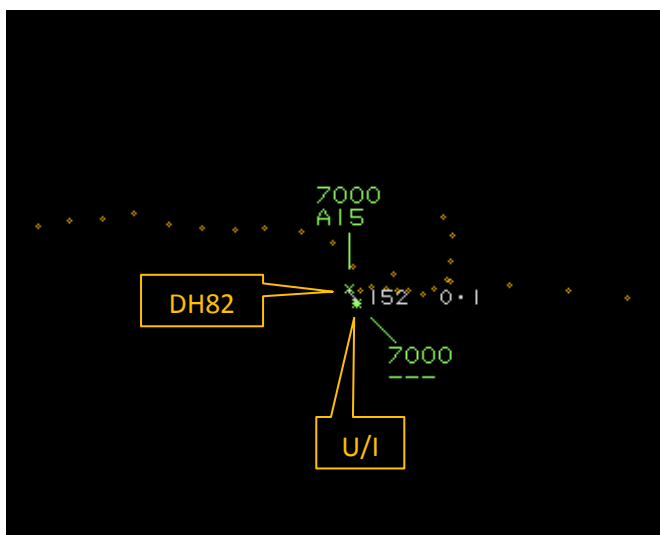


Figure 7 – 1144:07

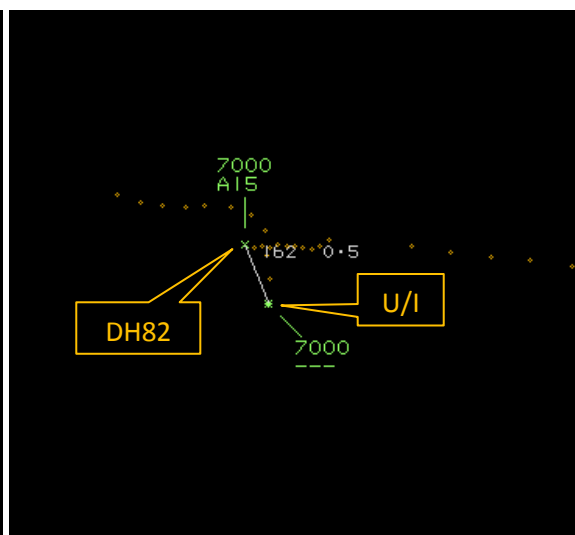


Figure 8 – 1144:11

The unknown aircraft then tracked to the south before turning back to close with the DH82 formation again (Figures 8 – 12).

At 1144:20 The DH82 leader asked the controller to repeat the last transmission. The controller repeated that there was no level restriction but to remain outside controlled airspace and passed traffic information on another aircraft approaching them from the east.

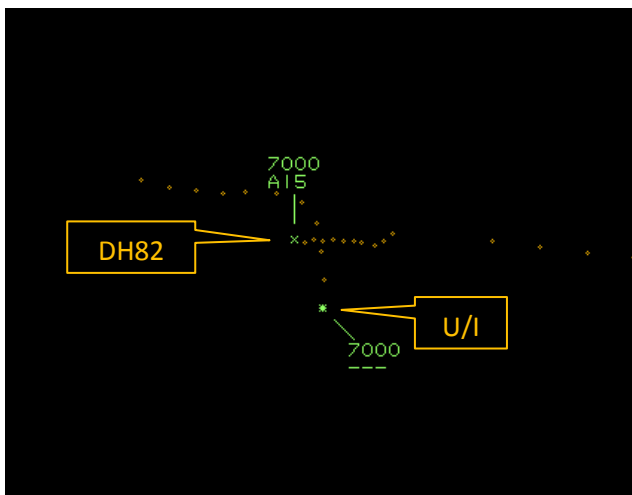


Figure 9 – 1144:17

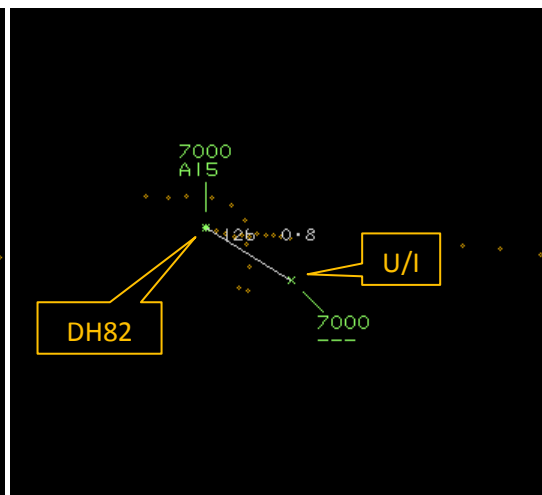


Figure 10 – 1144:24

The second CPA took place at 1144:35 with the unknown aircraft 0.1nm laterally from the DH82 formation (Figure 11). At 1144:37 there was a broken transmission from the DH82 leader containing a reference to remaining outside of controlled airspace but the rest of the transmission was either clipped or unreadable.

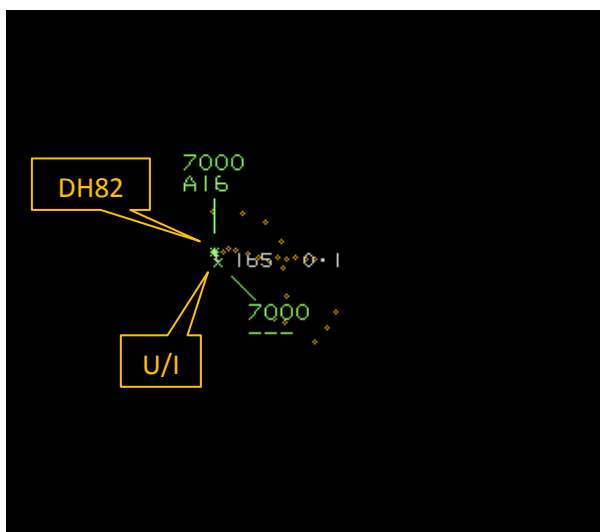


Figure 11 – 1144:35

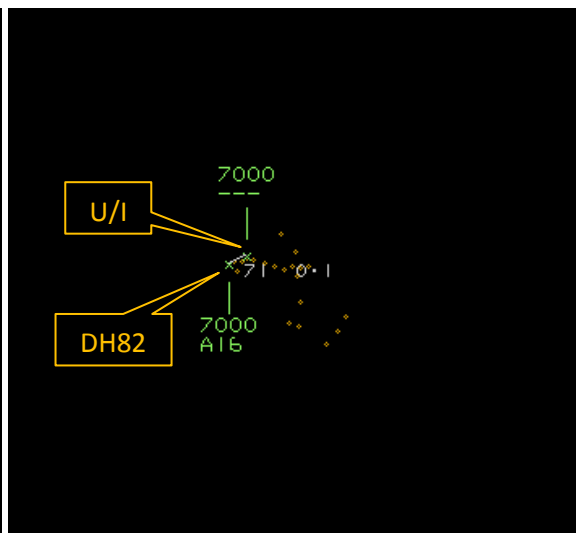


Figure 12 - 1144:40

The unknown aircraft tracked south at 1145:19 and disappeared from radar at 1145:33.

At the time of the Airprox the formation of DH82 aircraft was operating in Class G airspace under a Basic Service. Traffic information was given on the unknown aircraft as it approached the formation at speed which improved the situational awareness of the formation. However, under the terms of a Basic Service, whether Traffic Information has been provided or not, the pilot remains responsible for collision avoidance without assistance from the controller.

### UKAB Secretariat

The DH82 formation and light-aircraft 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 overtaking then the DH82 pilot had right of way and the light-aircraft pilot was required to keep out of the way of the other aircraft by altering course to the right<sup>2</sup>. Aircraft shall

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

<sup>2</sup> SERA.3210 Right-of-way (c)(3) Overtaking.

not be flown in formation except by pre-arrangement among the pilots-in-command of the aircraft taking part in the flight<sup>3</sup>.

## Summary

An Airprox was reported when a DH82 formation and a light-aircraft flew into proximity at 1144hrs on Saturday 16<sup>th</sup> December 2017. The DH82 pilots were operating under VFR in VMC and in receipt of a Basic Service from Cambridge. The light-aircraft pilot could not be traced.

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

Information available consisted of reports from the DH82 pilot, transcripts of the relevant R/T frequencies, radar photographs/video recordings, reports from the air traffic controllers involved and reports from the appropriate ATC and operating authorities.

The Board began by looking at the actions of the light-aircraft pilot. The radar replay shows the light-aircraft initially approaching the DH82 formation, flying past and then returning towards, but it does not appear to stabilise in their proximity for longer than about 30 seconds (and certainly not for the several minutes that the DH82 pilot recalled), before it fades from the radar, presumably as it descended and flew away to the south. Notwithstanding, the Board agreed that even a short time in proximity was an extremely unwise manoeuvre by the light-aircraft pilot given that he could not know the intentions of the DH82 formation pilots and may have impeded their flight. Some members opined that perhaps the light-aircraft pilot was flying towards the DH82 formation to look at the vintage aircraft in formation out of curiosity rather than trying to join the formation. The radar replay showed that the light-aircraft came within 0.1nm (about 180m) of the DH82 formation but radar resolution is not such that any specific separation can be determined below this.

The Board noted that the DH82 formation were under only a Basic Service at the time with Cambridge, but that, nonetheless, they had received good and timely Traffic Information from the controller. Members commended the controller for his pro-active information but commented that it was only by good fortune that he had the spare capacity to do so. Being somewhat unwieldy in manoeuvrability, they opined that the DH82 formation would have been better placed in specifically asking for a Traffic Service, which would then have offered more certainty of receiving Traffic Information, especially given that they were operating in an area that is normally busy on a weekend in good conditions and that they would be working harder than they would normally as they formed and focused their attention on each other's aircraft.

The Board then looked at the cause of the Airprox. Although they could not substantiate from the radar pictures whether the light-aircraft pilot had actually formed on the DH82s, they quickly agreed that the radar separation and manoeuvring of the unknown light-aircraft pilot indicated that he had certainly flown close enough to cause the DH82 pilot concern. Turning to the risk, the Board agreed that without a report from the light-aircraft pilot it was difficult to determine why he flew past the DH82 formation twice, and whether he was visual with them at all times (and therefore presumably unlikely to place himself at a collision-risk). Notwithstanding the inadvisability of doing so, the Board therefore reluctantly agreed that they had insufficient information to assess the risk, and determined that the event was best described as risk Category D.

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

Cause: The light-aircraft flew close enough to cause the DH82 pilot concern.

Degree of Risk: D.

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<sup>3</sup> SERA. 3135 Formation flights.

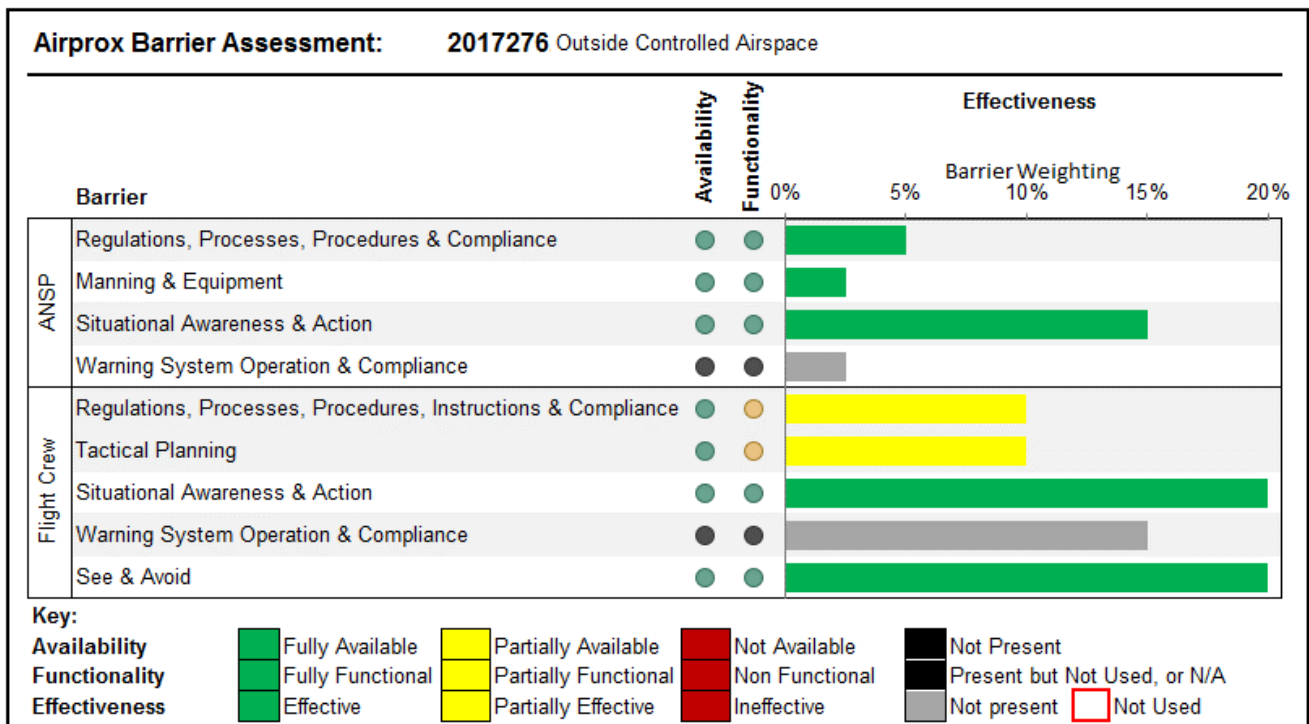
Safety Barrier Assessment<sup>4</sup>

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

**Flight Crew:**

**Regulations, Processes, Procedures, Instructions and Compliance** were assessed as **partially effective** because the unknown light-aircraft pilot had flown close enough to the DH82 formation to give the DH82 pilots the impression that he was trying to formate on the formation.

**Tactical Planning** was assessed as **partially effective** because the DH82 formation were operating under a Basic Service; although they did receive Traffic Information in this instance, they would have been better advised to have requested a Traffic Service.



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