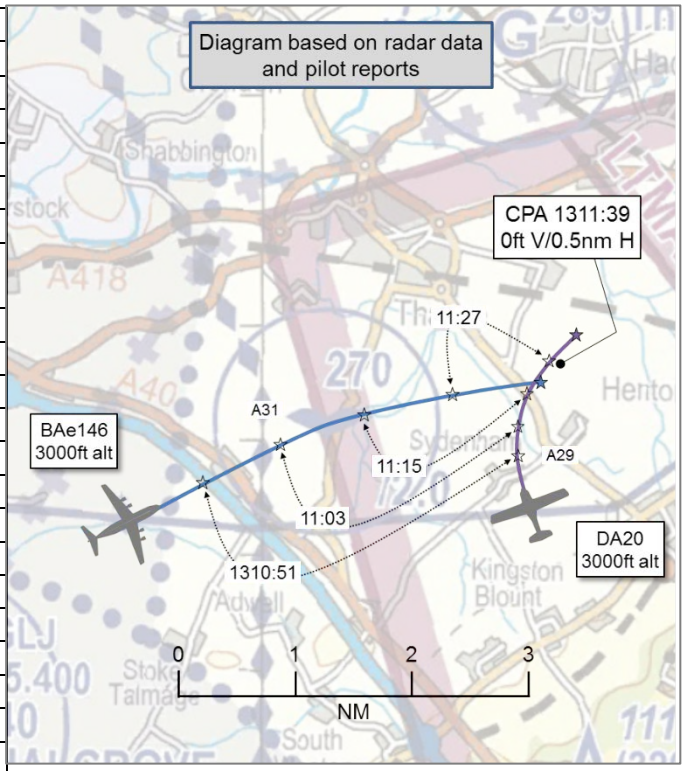
AIRPROX REPORT No 2018289

Date: 24 Sep 2018 Time: 1312Z Position: 5144N 00056W Location: 7nm NE Benson

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	BAe 146	DA20
Operator	HQ Air (Ops)	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	IFR	VFR
Service	Traffic	Basic
Provider	Benson	Farnborough LARS
Altitude/FL	3100ft	3000ft
Transponder	A,C,S	A,C,S
Reported		
Colours	Grey	White/blue
Lighting	Strobes, beacon	NK
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	3000ft	1600ft
Altimeter	QNH (1036hPa)	NK
Heading	080°	NK
Speed	210kt	NK
ACAS/TAS	TCAS II	Not fitted
Alert	RA	N/A
Separation		
Reported	800m H	Not seen
Recorded	0ft V/0.5nm H	



THE BAE146 PILOT reports that whilst in the transit from RAF Benson to RAF Northolt at 3000ft, ATC passed details of proximate traffic. A Tutor [actually the DA20] was subsequently visually acquired around 5nm away, tracking away in a similar direction. At 210kt, the crew's estimate was that they had about 90kt overtake on the DA20. They maintained visual contact with the aircraft and, because they were visual and there was no chance of loss of safe separation, they elected to maintain level flight after receiving a TCAS RA, opting instead to manoeuvre visually to the right to stay clear of the DA20. Once clear, they continued to RAF Northolt. The BAe146 pilot commented that he believed that he had seen another aircraft, possibly a glider (therefore not on TCAS) below their level shortly before the TCAS RA. As a result, it was his view that to have complied with the RA may have prejudiced safety; therefore, he maintained level and avoided laterally. This was not a decision taken lightly; complying with a RA was an 'Immediate Action' task in the BAe146 and should be followed by all pilots unless doing so would jeopardise the safety of the aircraft. He thanked the Approach Controller for his assistance during such a high work-load phase of flight and recommended that, due to the busy airspace in the area (including glider sites to the north and east), all BAe146 departures from RAF Benson should join Controlled Airspace via the Compton SID as expeditiously as possible.

He assessed the risk of collision as 'Low'.

THE DIAMOND DA20 PILOT reports that he was in receipt of a Basic Service from Farnborough LARS. He did not see the other aircraft and was not notified by Farnborough.

THE BENSON APPROACH RADAR CONTROLLER reports that the BAe146 departed from Benson on an IFR profile, under a Traffic Service. When approximately 5nm to the NE of Benson, conflicting traffic was called at a range of 5nm, operating to the north of Wycombe airfield. At this point it appeared that the conflicting traffic would pass behind the BAe146 with approximately 400ft vertical separation.

As the aircraft tracked closer to each other he gave Traffic Information again, and it became clear that they were now converging and co-level. Because he was not aware that the BAe146 pilot was visual with the conflicting traffic, he suggested a 20° turn to the right to avoid. The TCAS RA was not declared on RT but details of it were passed by landline once the crew had landed. It later became apparent that an incident with a glider occurred at the same time. The glider was not showing on radar and therefore completely unknown to him. It is worth noting that radar coverage to the east of Benson is a known issue due to the topography of the local area. It is standard procedure to reduce Traffic Information in this area due to limited surveillance coverage; however, he could not recall if he did.

He perceived the severity of the incident as 'Medium'.

THE BENSON SUPERVISOR reports that because they were informed of the intention to file this as an Airprox a while after the incident he was unable to recall any details about it or expand on the reports already submitted.

THE FARNBOROUGH LARS NORTH CONTROLLER reports that he was only informed that an Airprox had been filed about 7 weeks after it had occurred. Due to the time elapsed he had no recollection of it.

Factual Background

The weather at Benson was recorded as follows:

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METAR EGUB 241250Z 35007KT 9999 FEW040 SCT250 14/03 Q1038 BLU NOSIG=
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Analysis and Investigation

Military ATM

The BAe146 was conducting a training sortie from Benson to Northolt as part of the preparations for the 2019 'Northolt Bolthole'. The DA20 was on a transit flight. Shortly after departure form Benson, the BAe146 pilot turned right toward Northolt and was passed Traffic Information on the DA20 on 4 occasions. Following the third piece of Traffic Information, the Benson Approach controller ascertained that the BAe146 pilot was not visual with the DA20 and offered a turn to ensure separation. The BAe 146 pilot reported receiving a TCAS RA but, because the Captain had seen a glider below their level shortly beforehand, the TCAS RA was not followed.

This incident was initially reported to Benson as a TCAS RA and was not classified as an Airprox until a month later on 26 Oct 2018, therefore the recollection from all parties was limited.

Figures 1-5 show the positions of the BAe 146 and the DA20 at relevant times in the lead up to and during the Airprox. The screen shots are taken from a replay using the Heathrow 10 Radar, which is not utilised by Benson, therefore is not representative of the picture available to the controllers.

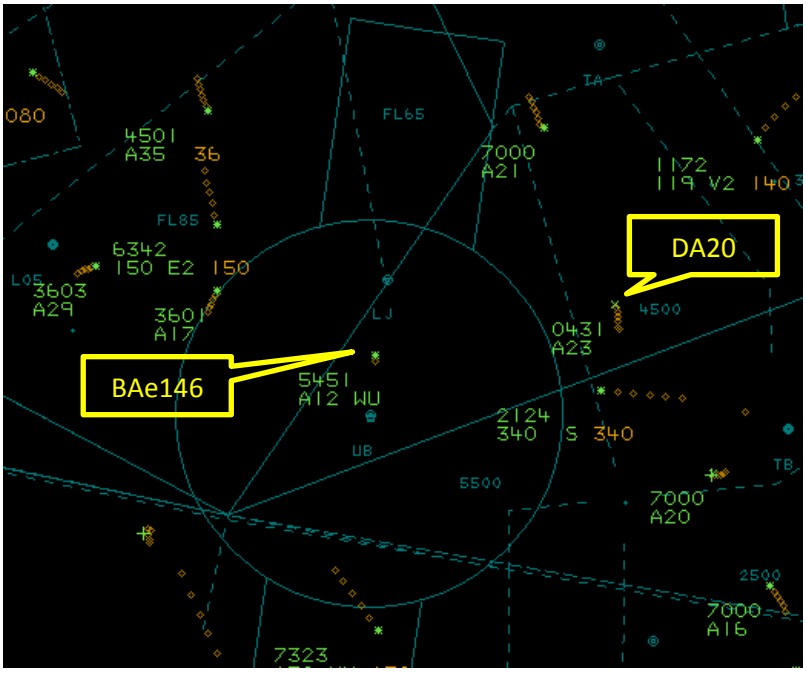


Figure 1.

At Figure 1, the BAe146 can be seen departing Benson initially on a northerly heading. The DA20 (initial Squawk 0431) was 7nm east of Benson, tracking north indicating 2300ft.

As the BAe 146 pilot commenced a right turn (Figure 2), Traffic Information was passed on two tracks to the east of Benson, one of which was the DA20 (now Squawking 5022).

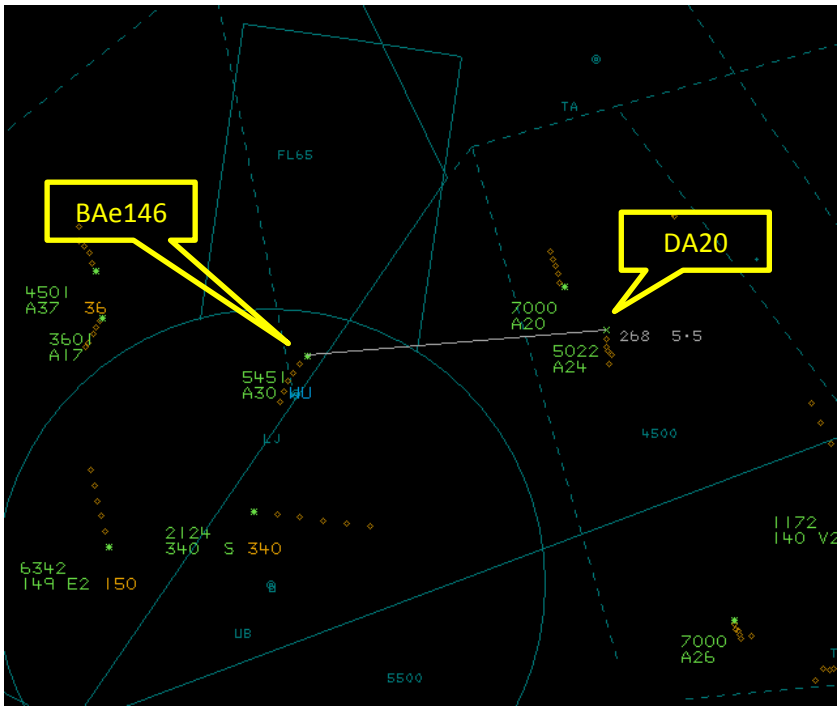


Figure 2.

Approximately 30sec after this initial call (Figure 3), the Traffic Information was updated following a climb by the DA20 pilot.

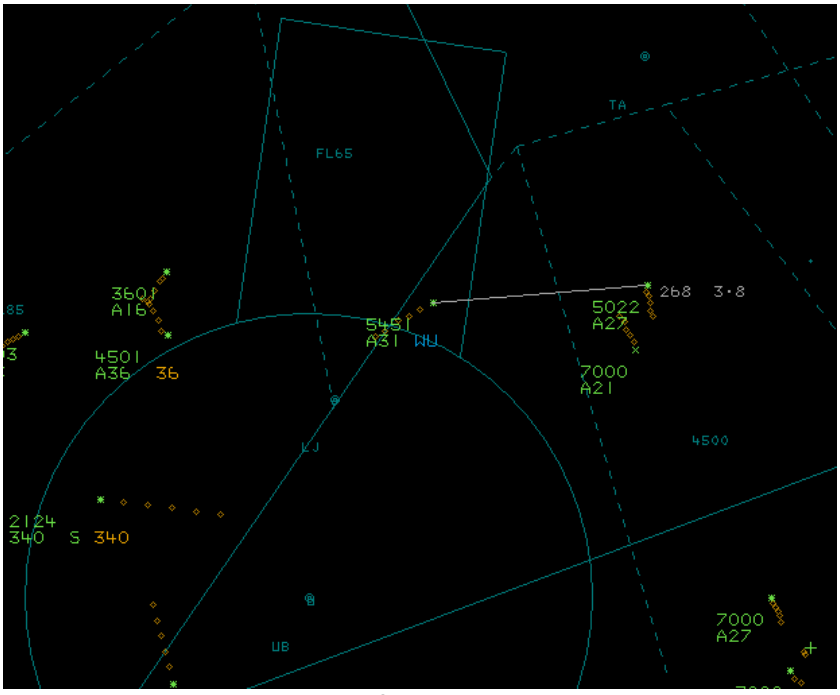


Figure 3.

Traffic Information was passed for third time 25sec later (Figure 3) during which the controller attempted to ascertain if the BAe146 pilot was visual with the DA20. Once confirmed that the BAe146 was not

visual, the controller suggested a turn to the right which would allow the BAe146 to pass behind the DA20. This turn was accepted by the BAe146 pilot (Figure 4).

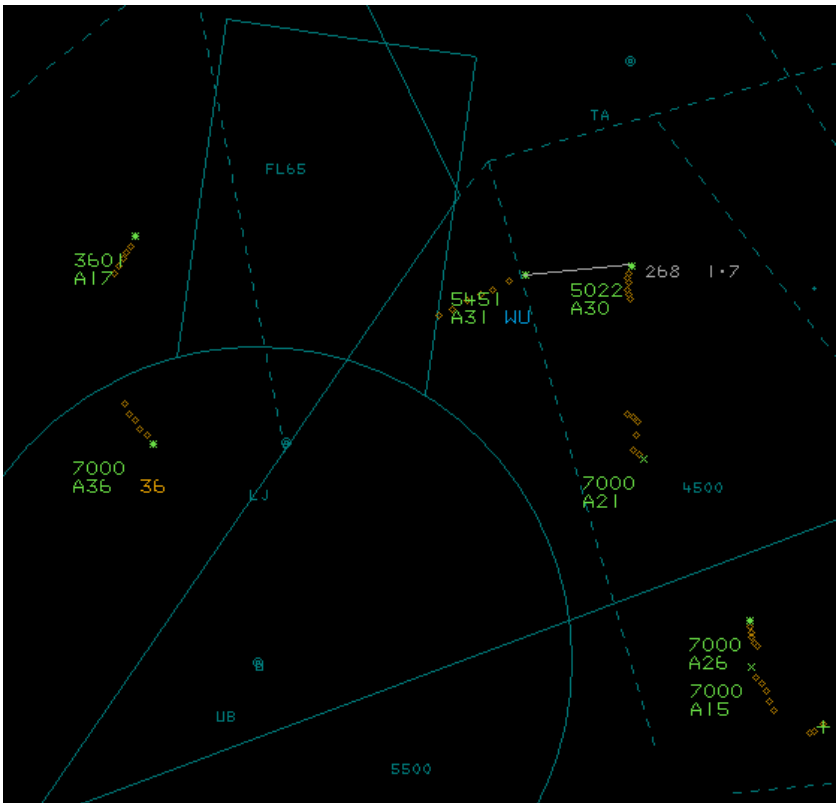


Figure 4.

Traffic Information was passed for a final time 15sec after the suggested turn, with CPA occurring some 9sec after this (Figure 5). CPA was measured at 0.5nm with no vertical separation.

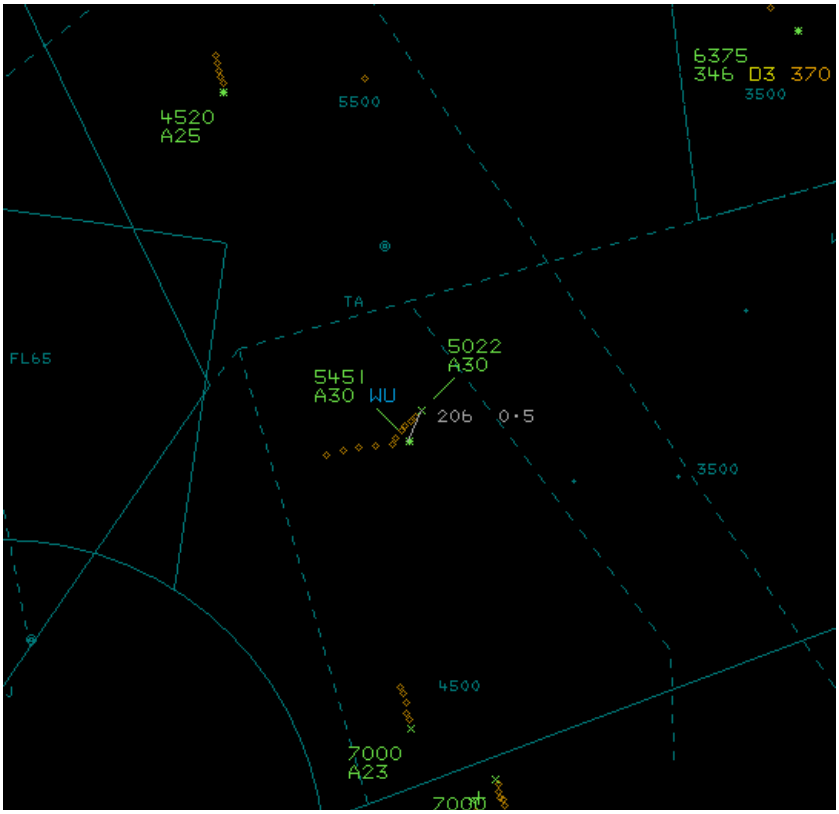


Figure 5 – CPA.

This investigation was hampered by the late notification of the Airprox resulting in mixed accounts of the situation. Analysis of the Benson tape transcript and radar replay show that accurate Traffic Information was passed to the BAe146 pilot on 4 occasions. Having ascertained that the BAe146 pilot was not visual with the DA20, the Benson Approach Controller offered a suggested turn to break the confliction. Although controllers are not required to provide deconfliction advice under the terms of a Traffic Service, this act probably decreased the potential severity of this incident.

UKAB Secretariat

The BAe146 and DA20 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard[1]. Because the incident geometry is considered as converging then the BAe 146 pilot was required to give way to the DA40[2].

Occurrence Investigation

Subsequent to the Airprox, a meeting was held at Swanwick between Benson ATC, NATS and the BAe146 Sqn. The following procedure was agreed for aircraft departing from Benson: The Westcott SID shall be utilised for all BAe146 Sqn aircraft departures that are to join CAS. All flight plans should initially route to WCO; however, airborne aircraft may be tactically routed elsewhere due to GA traffic levels around WCO and then only with prior coordination with NATS controllers. The CPT SID has been deemed unsuitable due to both the climb gradient required and potential conflicts with London TMA arrivals and departures.

Comments

HQ Air Command

Given that the BAe146 task required a transit in Class G airspace, the plan-to-avoid barrier was not available. Whilst the DA20 pilot was under a Basic Service and was not provided with Traffic Information, the BAe146 crew had selected a Traffic Service which caused Traffic Information on the DA20 to be passed to them. This led to the BAe 146 pilot visually acquiring the DA20 at about 5nm. The BAe146 crew maintained visual contact and progressed towards the DA20, and overtook, co-altitude, with 0.5nm separation. The controller was unaware that the BAe146 crew was visual with the DA20 and suggested a turn to avoid, before the BAe146 overtook the DA20. They are commended for doing so. A descent by the BAe146 crew, advised by a TCAS RA, was wisely not carried out due to concerns that doing so would place them in greater proximity to another aircraft (possibly a glider) which was seen shortly before the RA. This re-enforces the importance of lookout in building overall SA and optimising decision making with regard to collision avoidance. BAe 146 are due to be based at RAF Benson temporarily from April 2019, this Airprox has been considered as part of the wider discussion about how best to integrate the aircraft.

Summary

An Airprox was reported when a BAe 146 and a DA20 flew into proximity in the Class G airspace east of RAF Benson at 1312hrs on Monday 24th September 2018. The BAe146 pilot was operating under IFR in VMC, the DA20 was operating under VFR in VMC. The BAe146 pilot was in receipt of a Traffic Service from Benson and the DA20 pilot was in receipt of a Basic Service from Farnborough LARS.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots and controllers concerned, area radar and RTF recordings and reports from the appropriate ATC and operating authorities.

[1] SERA.3205 Proximity. MAA RA 2307 paragraphs 1 and 2.
[2] SERA.3210 Right-of-way (c)(2) Converging. MAA RA 2307 paragraph 12.

The Board were disappointed that the Airprox had not been reported until about 1 month after the event. Because of this delay, valuable information was no longer available and the recollections of the incident by the Farnborough controller and the DA20 pilot were greatly reduced. Notwithstanding, members agreed that the incident was relatively straight-forward and they were content that they had enough information with which to make an assessment.

The Board first discussed the actions of the BAe146 pilot. The Board noted that he had positioned from Northolt to Benson on a training sortie, in advance of the BAe146 squadron being based at Benson whilst work took place on Northolt's runway. It was expected that the runway would be closed for about 6 months in 2019. The Airprox occurred on the BAe146's return flight to Northolt whilst it was transiting at 3000ft in Class G airspace under IFR in receipt of a Traffic Service from Benson. Military pilot members commented that, being based at Northolt and predominantly operating in controlled airspace, the crew would have had limited recent experience of operating outside CAS in the UK. Given the limited ability to ensure a robust lookout from the BAe146 cockpit, the crew had sensibly opted for a Traffic Service and had been passed accurate Traffic Information on 4 occasions by the Benson controller. Although there was an element of uncertainty about when the BAe146 pilot had seen the DA20 (his report said 5nm, but the controller report and R/T transcript indicated that he had not reported visual until about 2nm), it was clear that he had seen it early enough to change course in a timely and effective manner in accordance with normal rules-of-the-air procedures. That he had not enacted a TCAS RA was considered justified by the Board given that he had concerns for another possibly non-transponding aircraft that was below him and which he might have come into conflict with if he had followed the RA. Both Military and Civil pilot members agreed that, in the circumstances, not descending was the correct procedure, especially because the aircraft was operating outside CAS. SERA[3] states, relative to receiving an RA, that: 'In the event of an ACAS RA, pilots shall: (1) respond immediately by following the RA, as indicated, unless doing so would jeopardise the safety of the aircraft. It adds that 'nothing in the procedures specified in SERA.11014 should prevent pilots-in-command from exercising their best judgement and full authority in the choice of the best course of action to resolve a traffic conflict or avert a potential collision.

The Board commended the actions of the Benson controller in passing accurate Traffic Information on 4 occasions, together with a suggested turn for the pilot, whom he believed was not visual with the DA20 at the time. Although this action exceeded the requirements of a Traffic Service, it met the duty of care criteria that supersedes the associated definition of service.

Turning to the cause and risk, even though the BAe146 pilot had not complied with his RA for understandable reasons, he had seen and avoided the DA20 without having to take any emergency avoiding action. The Board considered this to be entirely within the bounds of normal operations in Class G airspace and therefore classified the incident as a sighting report. Although members re-iterated that the generation of a TCAS RA should not be considered routine, the parameters of TCAS algorithms were such that an encounter with an aircraft fitted with TCAS in Class G airspace could easily generate an alert even when adequate visual separation had been achieved. Consequently, it was considered that normal safety standards had pertained (risk Category E).

The Board was heartened to hear that the departure procedures for the BAe146 from Benson have been widely discussed following this Airprox and, with agreement of the parties involved, the aircraft will generally enter CAS at WCO. However, it was reiterated that before entering the protection of controlled airspace pilots must keep a good look-out for other traffic in what is extremely busy airspace, used by many various types of aircraft.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A Sighting Report.

Degree of Risk: E.

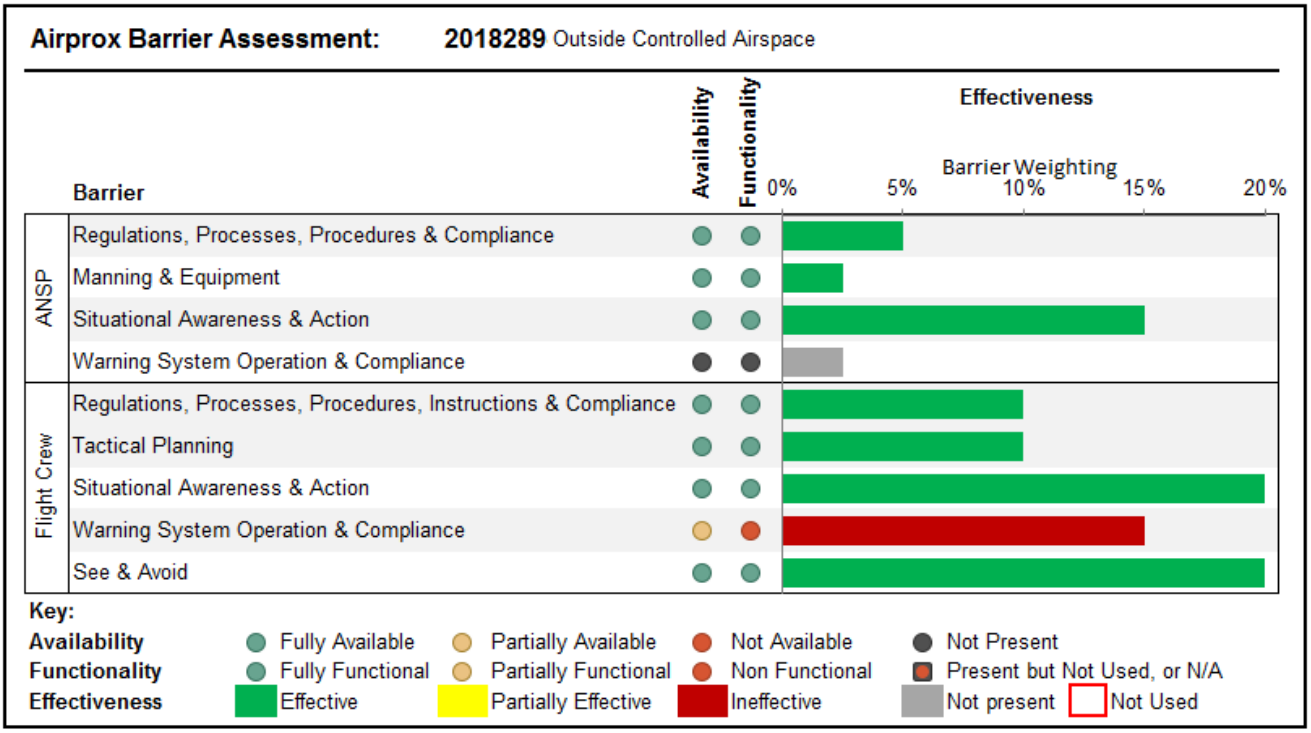
[3] SERA.11014, ACAS Resolution Advisory (RA), Paragraph b.

Safety Barrier Assessment[4]

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

Flight Crew:

Warning System Operation and Compliance was assessed as **partially available** because only the BAe146 was equipped with an electronic warning system. The barrier was assessed as **ineffective overall** because the BAe146 pilot decided not to act on his TCAS RA because he had seen non-squawking glider traffic below his aircraft at the time. This was not a reflection on the pilot's decision *per se*, but simply a recognition that, in accordance with SERA.11014, pilots must use their best judgement and full authority in their choice of the best course of action to resolve a traffic conflict or avert a potential collision. As a result, the barrier itself had been ineffective in this Class G environment but the TCAS itself had provided useful situational awareness in support of the fully effective 'Situational Awareness and Action' barrier.



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