

AIRPROX REPORT No 2021093

Date: 24 Jun 2021 Time: 1442Z Position: 5142N 00146W Location: Brize Norton

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Atlas	PA28
Operator	HQ Air (Ops)	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	IFR	IFR
Service	Traffic	Traffic
Provider	Brize	Brize
Altitude/FL	5500ft	4900ft
Transponder	A, C, S	A, C, S
Reported		
Colours	NR	White
Lighting	Strobes, HISLs, Nav	Strobes
Conditions	VMC	VMC
Visibility	NR	5-10km
Altitude/FL	5700ft	5000ft
Altimeter	QNH (1021hPa)	QNH (1021hPa)
Heading	278°	120°
Speed	180kt	100kt
ACAS/TAS	TCAS II	Not fitted
Alert	RA	N/A
Separation		
Reported	700ft V/0m H	500ft V/0m H
Recorded	600ft V/0.1NM H	



THE ATLAS PILOT reports that they were the PF of the Atlas joining the holding procedure at the IAF for TAC/ILS RW25 (RAF Brize Norton). They were initially cleared to join the hold descending to 5800ft but as they approached the hold, they were re-cleared to descend to altitude 2800ft whilst maintaining the hold. As they turned onto the outbound leg of the hold the Brize Director ordered them to stop descent immediately. The PF pressed ALT on the auto-pilot panel to level the aircraft, which captured an altitude of 5700ft. They then had a TCAS TA annunciate so they called "TCAS, I HAVE CONTROL" placing their hand on the sidestick in preparation for an escalation of the conflict. Shortly after this they received a TCAS RA of "MONITOR VERTICAL SPEED." The PM radioed that they were complying with a TCAS RA and focused on supporting the PF and lookout. The PM and the Air Loadmaster both acquired visual contact with a light aircraft flying towards them at 700ft below their level (displayed on TCAS). Their aircraft announced, "CLEAR OF CONFLICT" and they informed ATC as such. The rest of the sortie was continued without further incident.

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

THE PA28 PILOT reports they were overflying Brize CTR. They had climbed from altitude 3000ft to 5000ft before reaching the CTR on a southeast track as Brize were busy and they were uncertain of gaining CTR clearance before the boundary (CTR up to 3500ft). The aircraft was first seen at 1-2km, above and at 11 o'clock with no risk of collision. However, they were surprised that Brize Radar, who were probably in contact with the other aircraft (on UHF presumably) made no mention of it before or after it was in their aircraft's proximity.

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

THE BRIZE APPROACH CONTROLLER reports that the Atlas was handed over from Swanwick(Mil) at FL100 having left the Daventry corridor requesting own navigation for the IAF. [Atlas C/S] was given

a descent to 2800ft (1021hPa) and own navigation to the IAF. Brize had been operating on RW07 for several days and the controller was cognitively expecting the Atlas to turn left into the 07 hold, turning away from the conflicting traffic which wouldn't have been a factor. Upon seeing the Atlas turn right and realising their error, the Atlas was told to stop descent and the conflicting traffic was called. The Atlas stopped descent and then called TCAS RA reporting to be 700ft above the traffic and shortly after called visual with the traffic. Once clear of traffic the Atlas was given further descent and own navigation to the IAF.

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

THE BRIZE LARS CONTROLLER noted that this was a retrospective DASOR following an Airprox involving an aircraft on their frequency (LARS). This incident was approximately 3 weeks ago, as such they were trying to recall the details from memory. They took over the LARS position, receiving a handover from the previous controller. In the handover they were given the details that a Traffic Service aircraft, [PA28 C/S] was climbing to 5000ft, to route over the western side of Brize controlled airspace tracking southeast. Shortly after the handover they focussed their attention on another aircraft requesting to route into the Fairford MATZ and ATZ which were both active at the time and under the control of Fairford tower. They contacted the BZN Approach controller and then Fairford Tower to request permission to enter the ATZ. Fairford then ceded control of their MATZ and ATZ to BZN and they therefore gained the required approval to enter this airspace. They recalled that the PA28 had had Traffic Information reduced from the left due to the limits of surveillance cover as it routed within 10NM of the Brize Norton Primary Radar overhead. By the time they had permission for the Fairford ATZ transit they noticed an ongoing conversation about a TCAS RA that had happened further down the Approach Room, the PA28 was by this time clear of BZN airspace and tracking southeast. They did not recall noticing or calling traffic to affect the PA28's route.

THE BRIZE SUPERVISOR reports they were undertaking administrative tasks in the ACR so did not observe the lead up to the incident. On hearing the "stop descent" instruction they checked the radar screen and inquired upon the Atlas's type of service. They were happy that the Atlas was receiving a Traffic Service, traffic was called at 5NM and there was no risk of collision having stopped descent.

Factual Background

The weather at Brize was recorded as follows:

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METAR EGVN 241420Z 29005KT 9999 SCT017 OVC023 18/14 Q1021 BECMG FEW018 BKN025 RMK
WHT BECMG BLU=
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Analysis and Investigation

Military ATM

The Atlas was joining the hold at the IAF for a TAC-ILS approach to RW25 in the descent to 5800ft in receipt of a Traffic Service from Brize Approach. On approaching the hold, they were given further descent to 2800ft whilst maintaining in the hold. As they turned onto the outbound leg, they were instructed to stop descent immediately by the Brize controller at which point the pilot stopped the descent which was followed by a TCAS TA. This was followed by a TCAS RA which was complied with and the crew were able to gain visual contact with the PA28. Separation was reported to be 700ft vertical and 0ft horizontal.

The PA28 was conducting a training flight and was in receipt of a Traffic Service from Brize LARS. They had initially requested to transit the CTR at 3000ft however, as the clearance was not forthcoming, they opted to climb to 5000ft to transit above the CTR. They reported that no Traffic Information regarding the Atlas was passed to them before or after the event and separation was reported as 500ft vertical and 0ft horizontal although the Atlas was first seen at 1-2km.

The Brize Approach controller was under training at the time of the incident and had been bandboxing with Approach, Director and Zone frequencies due to the low volume of traffic. They

gave the Atlas a descent to 2800ft and own navigation to the Initial Approach Fix and as Brize had previously been using RW07, they expected the Atlas to turn left. Upon seeing the Atlas turn right they instructed them to stop descent and Traffic Information was passed. No further information was passed to either the aircraft or the LARS controller and subsequently the Atlas had a TCAS RA. In the lead up to the incident the Brize Approach controller was controlling three speaking units, the Atlas and two others on a Basic Service who required CTR transits.

The Brize LARS controller was controlling up to three aircraft with the PA28 in receipt of a Traffic Service. During the lead up to the incident the LARS controller was engaged twice with an external agency discussing a potential handover which was protracted due to confusion about where the aircraft was routing to. The PA28 had their Traffic Information reduced due to the limits of surveillance cover and the radar position was handed over to another controller approximately two minutes prior to the Airprox. No Traffic Information was passed to the PA28 regarding the Atlas and no Traffic Information was passed to the Approach controller regarding the location of the transit either.

The Supervisor was conducting administrative tasks with in the ACR however, did not witness the lead up to the Airprox although did report that they were content that as the Atlas was receiving a Traffic Service with a stopped descent and as Traffic Information had been passed there was no further action required.

Figures 1-6 show the positions of the Atlas and the PA28 at relevant times during the Airprox. The screen shots are taken from a replay using the NATS Radars, which are not utilised by Brize Norton, therefore, may not be entirely representative of the picture available to the Brize Norton controllers. The Approach controller had given the Atlas descent to 2800ft 20sec prior to the PA28 having their Traffic Information reduced due to surveillance cover by the LARS controller. The PA28 had already been approved to climb to 5000ft to avoid the CTR. Separation was 8.3NM and 4600ft (Figure 1).

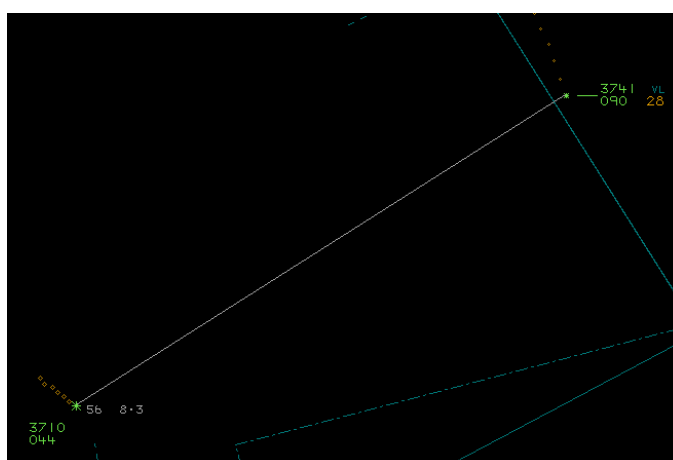


Figure 1:

The Atlas in the descent to 2800ft and the PA28 in the climb to 5000ft.

Fifty-nine seconds after the further descent was given the Atlas was advised that they would be required to fly one hold due to traffic at Oxford. The Approach controller had also had another aircraft freecall on the Zone frequency for transit of the CTR. During this period the LARS controller was engaged in a call with an external agency. Separation decreased to 7.2NM and 3000ft (Figure 2).

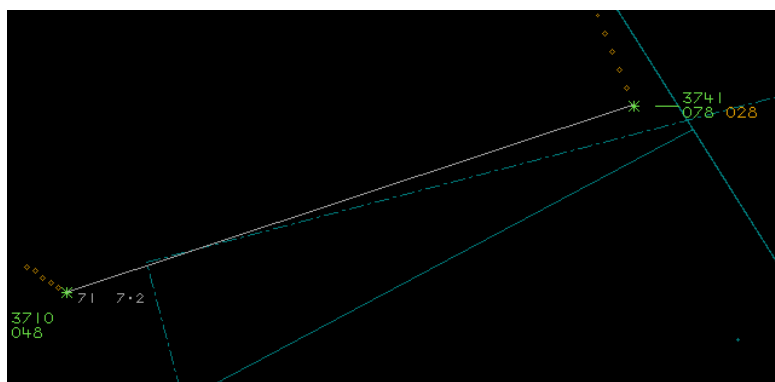


Figure 2:

Atlas advised they will be required to enter the Hold due to Oxford Traffic.

Forty-nine seconds later the LARS position had been handed over to a new controller. Separation decreased to 6.6NM and 1700ft (Figure 3).

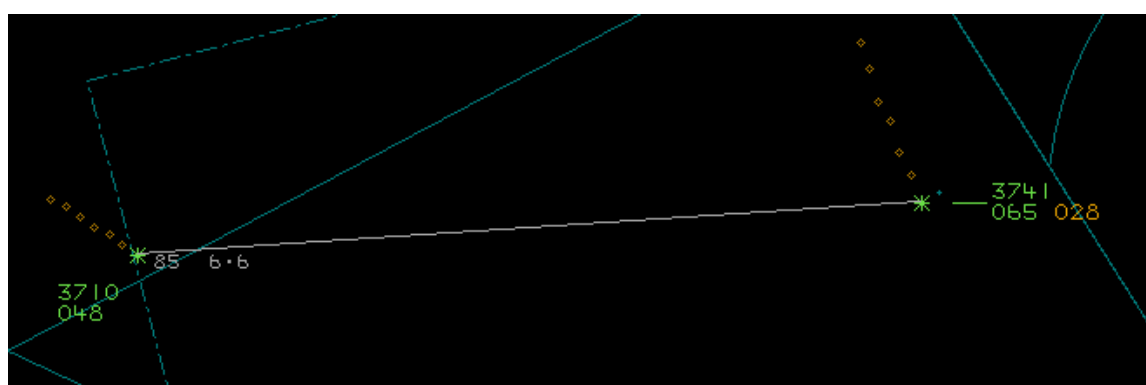


Figure 3:

LARS position handover complete.

The Approach controller, realizing that the Atlas had turned right when they incorrectly expected it to turn left, issued a stop descent instruction and passed Traffic Information on the PA28 to the Atlas pilot. Twenty-six seconds later the Approach controller rang the Zone controller to hand over the Zone tasking. Separation decreased to 5.6NM and 900ft.

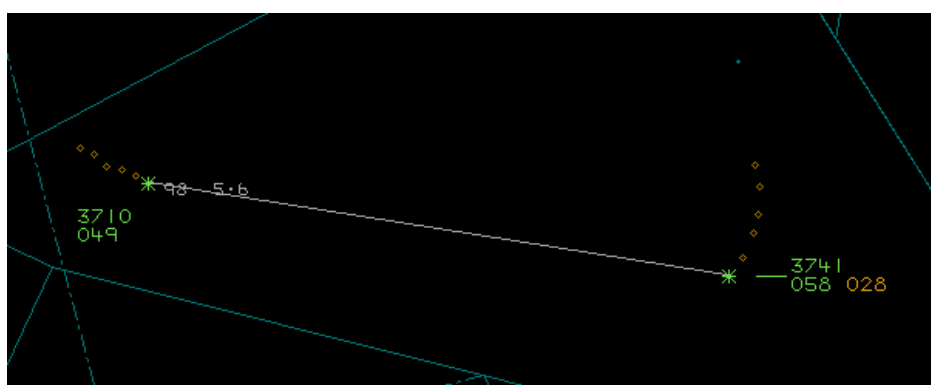


Figure 4:

Atlas given a stop descent instruction and passed Traffic Information.

Forty-five seconds after the stop descent instruction and Traffic Information had been passed, the Atlas crew received a TCAS RA and reported visual with the PA28. The Approach controller acknowledged the TCAS RA and advised the Atlas pilot to report when ready for vectors. Separation decreased to 2NM and 600ft (Figure 5).

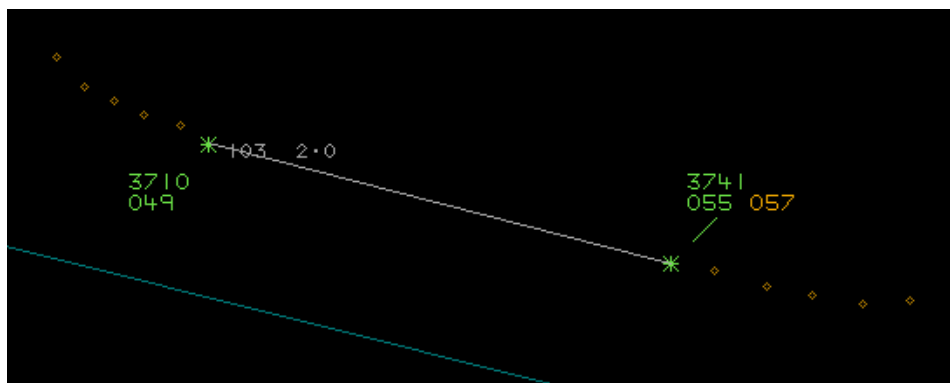


Figure 5:
The Atlas reported a TCAS RA.

Twelve seconds after the Atlas pilot reported a TCAS RA the Approach controller answered the land line to the LARS controller who passed Traffic Information on another aircraft. CPA occurred during the final stages of the phone call and separation was measured at 0.1NM and 600ft.

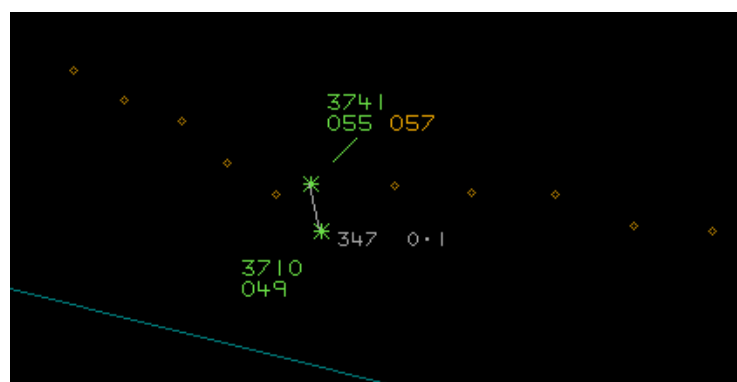


Figure 6: CPA.

It was recognised that cognitive errors can be made, especially considering Brize had been operating on the previous RW in the days before the Airprox, and the controller was under training at the time of the incident. The unit was trying to reduce the task on the trainee by opening the Radar console however, this was delayed slightly as the only other Radar qualified controller was being employed in the LARS position. Once the LARS task was handed over the controller was able to take on the responsibility for the Radar task. The Approach controller correctly stopped the descent on the Atlas owing to its proximity to the PA28 passing accurate Traffic Information. The Instructor should have identified the confliction and given prompts to the trainee to understand their plan which would have highlighted the error in their expected flow of traffic. However, there was no report raised or comment from the Instructor therefore, it cannot be determined whether the confliction was identified by the Instructor or not.

As reported by the PA28 pilot there was no Traffic Information passed on the confliction between the PA28 and the Atlas. Whilst the PA28 had been informed that their Traffic Information was limited they should have still been passed Traffic Information on the Atlas. However, the controller was passing Traffic Information to the Approach Controller on an unrelated aircraft.

Had the Supervisor been actively monitoring the traffic situation rather than conducting administrative tasking they should have been able to identify the confliction and ensure that both controllers had passed adequate Traffic Information in a timely manner.

Unit Investigation

The summary of the Brize Unit Investigation is reproduced below:

Invest is done. A mistake was spotted and corrective action taken. Correct intervention action taken by the screen. 700ft of separation was attained outside CAS while under Traffic Service. There is no reason to change any processes within ATC.

UKAB Secretariat

The Atlas and PA28 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 If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right.²

Comments

HQ Air Command

This Airprox was subject to a Local Investigation. The controller of the Atlas was a under training at the time. After operating on the opposite runway for several days prior, made a cognitive error in assuming which way the aircraft would turn in the hold while descending. Confirmation bias can be very hard to overcome, particularly with little experience to fall back on. The screen controller did well to spot the mistake and initiate the stop descent. This direction and the TCAS prevented the Atlas from descending onto the PA28 and gave the crew an opportunity to become visual.

Distraction, coupled with the workload steadily increasing, meant that Traffic Information was not forthcoming to the PA28 or the Atlas. With training in progress and the increasing complexity of the air picture, the Supervisor could have been providing more oversight. Ultimately, the distances were such that there was no risk of collision; however, controllers should guard against confirmation bias to prevent a similar situation from developing again.

Summary

An Airprox was reported when an Atlas and a PA28 flew into proximity overhead Brize Norton at 1442Z on Thursday 24th June 2021. Both pilots were operating under IFR in VMC, the Atlas pilot in receipt of a Traffic Service from Brize App and the PA28 pilot in receipt of a Traffic Service from Brize LARS.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, reports from the air traffic controllers involved and reports from the appropriate operating authorities. 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 discussed the actions of the Atlas pilot. They noted that when the controller issued the stop descent instruction, they provided Traffic Information on the PA28. Members thought that following this, the pilot would have been able to see the PA28 on the TCAS even prior to the TCAS TA and that they had the opportunity to break the confliction before the situation resulted in the TCAS RA (**CF10**). As it was, despite having situational awareness about its presence, the Atlas crew continued on heading and at the same altitude until they crossed 600ft above the PA28 (**CF11**). Members thought that the crew were obviously concerned by the approaching traffic and could have requested more information from ATC in order to better understand what the conflicting traffic was doing (**CF12**). The Atlas pilot was receiving a Traffic Service and as such was able to change heading by notifying ATC of their intentions, but without needing prior permission from ATC, however they could have also asked for a climb to increase the separation. A long discussion followed about air traffic services in Class G and whether pilots used to flying in CAS became totally reliant on ATC, when in fact, under a Traffic Service, responsibility for separation still rested with the pilot. Members also wondered whether the Atlas crew were waiting for the TCAS to resolve the situation, and whilst this was the purpose of the TCAS within CAS, in the uncontrolled environment of Class G where other aircraft were not fitted with TCAS and

¹ (UK) SERA.3205 Proximity. MAA RA 2307 paragraphs 1 and 2.

² (UK) SERA.3210 Right-of-way (c)(1) Approaching head-on. MAA RA 2307 paragraph 13.

may not be receiving an ATS, it became less effective. In this event, the TCAS provided a TA and then an RA as expected (**CF14, CF15**).

Briefly looking at the actions of the PA28 pilot, members thought that there was very little more they could have done in the circumstances. Realising that Brize ATC were busy, they had elected to climb above the CTR because a clearance to cross was not forthcoming. They were receiving a Traffic Service but did not receive Traffic Information on the Atlas and so had no prior situational awareness that it was approaching until they became visual with it (**CF13**). They reported seeing the Atlas at 1-2km away and being comfortable with the separation.

Turning to Brize ATC, the Board discussed at length the supervision within the ACR. The Supervisor reported being engaged in Admin tasks but did not specify what they were, nevertheless, they had decided to split the previously banded tasks of the Approach controller and controllers were changing positions within the room. Controlling members noted that this was always a tricky time as new controllers rushed to get into position and everyone was faced with a new scenario and as such required close supervision. Members thought that, because both aircraft involved in the Airprox were receiving a service from controllers in the same room, supervision had been lacking (**CF2**). Furthermore the Approach controller was under training which meant that there was an OJTI³ sitting behind the trainee, the Brize investigation was not clear whether the OJTI or the trainee had first issued the 'stop descent' instruction, but members thought that the OJTI should have been more aware of the situation and, had they been asking questions of the trainee, would have realised that they thought the Atlas would turn the other way. Regardless, members thought that the OJTI should have seen the developing situation and intervened to stop the descent earlier. Furthermore, the OJTI should have been aware that the PA28 was receiving a service from Brize LARS and yet made no attempt to contact the LARS controller, and so members agreed that mentoring had also been sub-optimal (**CF3**). The trainee Approach controller reported expecting that the Atlas would turn left instead of right (**CF7**) and as a consequence did not detect the conflict with the PA28 until the Atlas was already turning towards it in the descent (**CF5, CF9**). Once the descent of the Atlas had been stopped, the controllers appeared happy with the 600ft separation and members noted that this was not the only occasion recently when Brize ATC had had an Airprox between very large aircraft and light GA aircraft, with some members opining that 500/600ft separation, although common for military controllers, was not enough in these circumstances given the possibility of turbulence for the light aircraft. The LARS controller had just taken over the controlling position and was providing a Traffic Service to the PA28, however, they became embroiled in other controlling tasks and landline conversations (**CF8**) and did not detect the developing conflict (**CF6**) and so did not provide Traffic information to the PA28 pilot (**CF1, CF4**).

The Board then briefly discussed the investigation conducted by Brize Norton, they were disappointed that it had not drawn out certain aspects of the event, focussing instead on the mistake by the Approach controller. Indeed a report from the LARS controller had not been forthcoming until pressed by the UKAB secretariat. The Board would have liked to have seen more information about the decisions made by the Atlas crew and the supervisory aspects of the ATC ACR.

Finally, when determining the risk, the Board took into consideration the reports from both pilots and that of the controllers involved, together with the radar screenshots. Although they had not been given Traffic Information, the PA28 pilot had been visual with the Atlas. ATC had issued a stop descent instruction to the Atlas pilot and the TCAS in the Atlas had alerted to prompt the crew not to descend further. Therefore, the Board quickly agreed that, although safety had been degraded, there had been no risk of collision; Risk Category C.

³ On-the-job training instructor

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK**Contributory Factors:**

	2021093			
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
Ground Elements				
• Regulations, Processes, Procedures and Compliance				
1	Human Factors	• ATM Regulatory Deviation	An event involving a deviation from an Air Traffic Management Regulation.	Regulations and/or procedures not fully complied with
• Manning and Equipment				
2	Human Factors	• ATM Leadership and Supervision	An event related to the leadership and supervision of ATM activities.	
3	Human Factors	• Recurrent/OJT Instruction or Training	Events involving on the job training of individuals/ personnel	
• Situational Awareness and Action				
4	Human Factors	• ANS Traffic Information Provision	Provision of ANS traffic information	TI not provided, inaccurate, inadequate, or late
5	Human Factors	• Conflict Detection - Detected Late	An event involving the late detection of a conflict between aircraft	
6	Human Factors	• Conflict Detection - Not Detected	An event involving Air Navigation Services conflict not being detected.	
7	Human Factors	• Expectation/Assumption	Events involving an individual or a crew/ team acting on the basis of expectation or assumptions of a situation that is different from the reality	
8	Human Factors	• Task Monitoring	Events involving an individual or a crew/ team not appropriately monitoring their performance of a task	Controller engaged in other tasks
9	Human Factors	• Traffic Management Information Provision	An event involving traffic management information provision	The ANS instructions contributed to the Airprox
Flight Elements				
• Tactical Planning and Execution				
10	Human Factors	• No Decision/Plan	Events involving flight crew not making any decision at all	
• Situational Awareness of the Conflicting Aircraft and Action				
11	Human Factors	• Lack of Action	Events involving flight crew not taking any action at all when they should have done so	Pilot flew close enough to cause concern despite Situational Awareness
12	Human Factors	• Lack of Communication	Events involving flight crew that did not communicate enough - not enough communication	Pilot did not request additional information
13	Contextual	• Situational Awareness and Sensory Events	Events involving a flight crew's awareness and perception of situations	Pilot had no, late or only generic, Situational Awareness
• Electronic Warning System Operation and Compliance				
14	Contextual	• ACAS/TCAS RA	An event involving a genuine airborne collision avoidance system/traffic alert and collision avoidance system resolution advisory warning triggered	
15	Contextual	• ACAS/TCAS TA	An event involving a genuine airborne collision avoidance system/traffic alert and collision avoidance system traffic advisory warning triggered	

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:

Regulations, Processes, Procedures and Compliance were assessed as **partially effective** because the LARS controller did not provide the PA28 with Traffic Information.

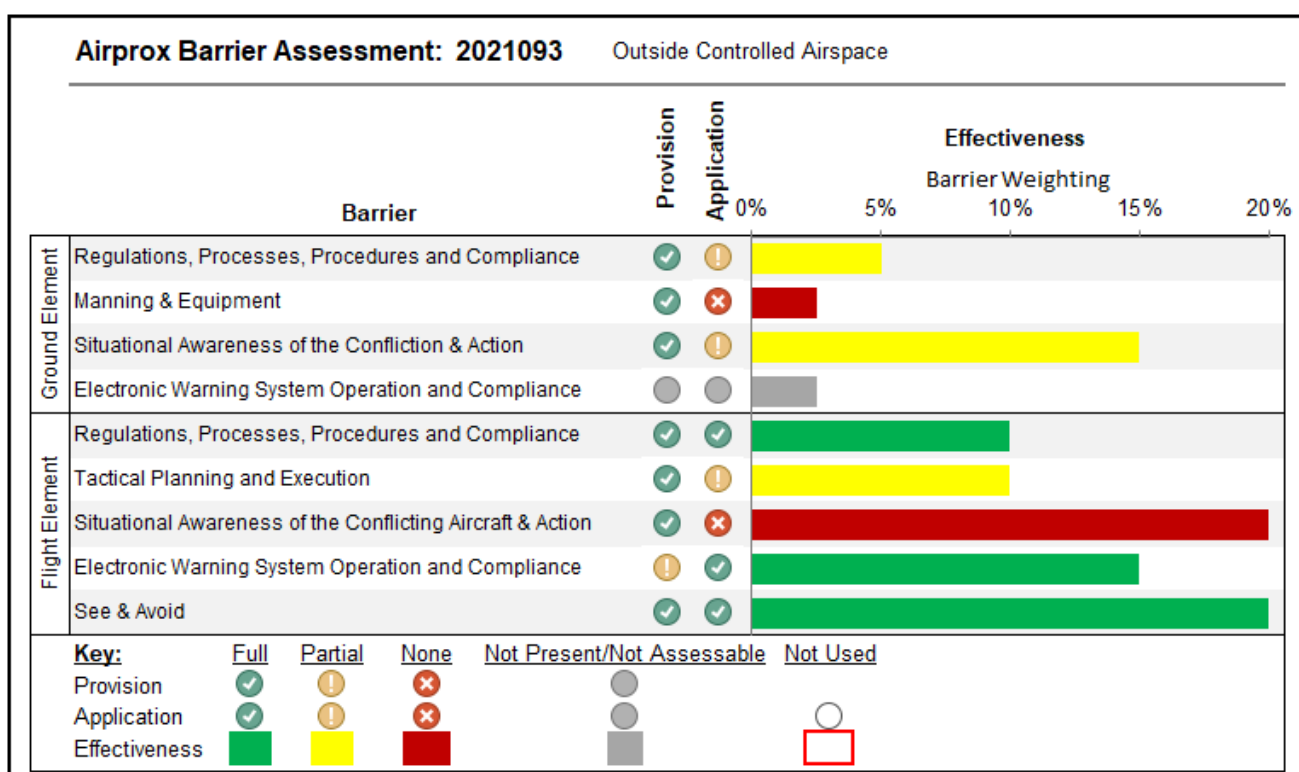
Manning and Equipment were assessed as **ineffective** because neither the screen controller nor the Supervisor interjected early enough to prevent the Airprox occurring.

Situational Awareness of the Confliction and Action were assessed as **partially effective** because the LARS controller did not provide Traffic Information to the PA28 pilot and was not aware of the incident.

Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because the Atlas pilot did not update their plan after receiving Traffic Information from ATC.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the PA28 pilot did not have any situational awareness about the Atlas and the Atlas pilot continued towards the PA28 despite situational awareness.



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