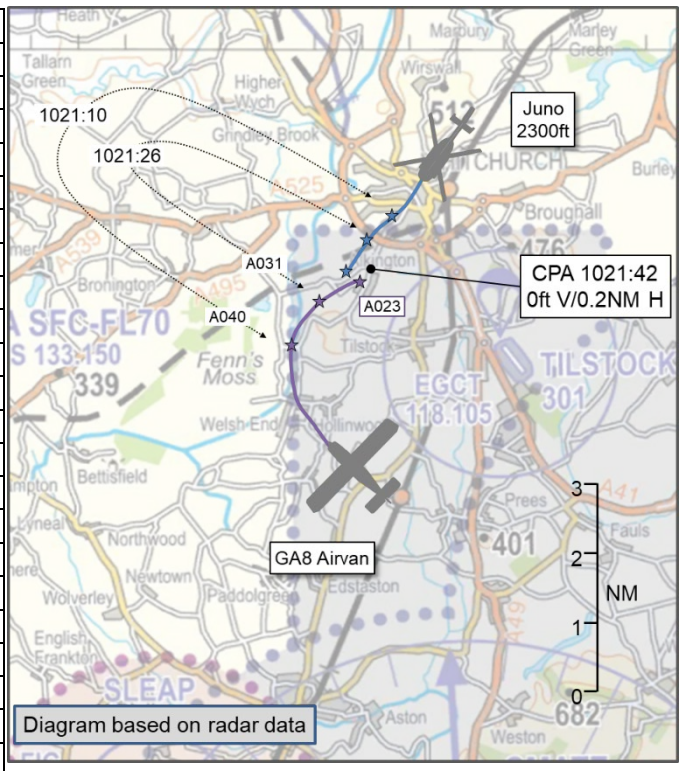
AIRPROX REPORT No 2022202

Date: 26 Aug 2022 Time: 1021Z Position: 5256N 00242W Location: 1.5NM SW Whitchurch

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Juno	GA8 Airvan
Operator	HQ Air (Trg)	Civ FW
Airspace	Shawbury MATZ	Shawbury MATZ
Class	G	G
Rules	IFR	VFR
Service	Traffic	Basic
Provider	Shawbury	Shawbury
Altitude/FL	2300ft	2300ft
Transponder	A, C, S	A, C, S
Reported		
Colours	Black, Yellow	White
Lighting	NK	NK
Conditions	VMC	NK
Visibility	5-10km	NR
Altitude/FL	2000ft	~2000ft
Altimeter	QFE (1010hPa)	NR
Heading	220°	NE
Speed	90kt	NR
ACAS/TAS	TAS	Unknown
Alert	TA	Unknown
Separation at CPA		
Reported	NR V/1-200m H	Not Seen
Recorded	0ft V/0.2NM H	



THE JUNO PILOT reports that they were conducting an IF check sortie. The QHI was aware of the area of operation of the Tilstock aircraft by reports from ATC and from the ATIS that Tilstock parachuting was active. Additionally the QHI was placing extra emphasis on lookout due to primary radar only operations being in force. During vectoring for an approach, several things happened near simultaneously: they were warned that there was an aircraft within 1 mile converging, subsequently asked if deconfliction advice was required and the ACAS also indicated an aircraft in close proximity. The QHI prioritised looking-out over replying to ATC and identified the aircraft, which was pointing directly at them on a converging track. The QHI was able to determine that whilst a collision was not imminent, the fixed-wing aircraft was being piloted in such a way that it would pass extremely close (within 1-200m) down the left-hand side, leaving no margin for error or manoeuvre to the left in the event avoiding action was required in that direction. As a result, the QHI took appropriate avoiding action to the right. The aircraft paths diverged and the QHI maintained 'eyes-on' until the threat was past. The fixed-wing aircraft made no alteration to its flightpath at all during the incident and it is unknown as to whether the pilot became visual with their aircraft at any point. Prior to leaving the Approach frequency the QHI informed the controller that they considered it to be an Airprox event.

The pilot perceived the severity of the incident as 'Medium'.

THE GA8 AIRVAN PILOT reports that it was the fifth load of the day for the aircraft and their second as pilot. Whilst on the descent onto right-base for RW14 at Tilstock, Shawbury Zone called 'traffic believed to be you has traffic southwest, half a mile'. They were descending through around 2000ft and heading northeast. They acknowledged Shawbury Zone and immediately looked to their right but could not see the traffic. Southwest would have put the traffic behind or, depending on height, above the wing, but Shawbury were working primary-only. They continued with a normal join and landed at Tilstock. Prior to the first flight of the day, in accordance with the letter of agreement, Shawbury ATC was notified of their activity and they were communicating with Shawbury Zone whilst outside controlled airspace.

THE SHAWBURY APPROACH CONTROLLER reports that they were conducting an examination on another controller in the Radar Approach/Director discipline. ATC was working with primary radar only due to an ongoing issue with WAM, so there was no height information available to Shawbury ATC. One aircraft was on frequency, being vectored for a PAR recovery, having finished general handling to the north of the airfield. Avoiding Tilstock parachute site, it was lined-up to avoid other traffic that was in the vicinity ready to initiate pre-landing checks. Traffic Information had been passed on the other traffic, the Tilstock aircraft working on the Zone frequency, and the chosen heading ensured a gap would be easily achieved (iaw the requirements under a Traffic Service). Subsequently the other aircraft made a turn to the right and the predict vectors indicated that the perceived gap may no longer have been achieved. The controller passed Traffic Information again and asked if the pilot required deconfliction advice, this was not asked for and subsequently the pilot stated that they were visual with the Tilstock aircraft. Prior to transferring to the PAR controller, they were informed that the pilot would probably file an Airprox.

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

THE SHAWBURY ZONE (LARS) CONTROLLER reports that they were operating with primary radar (STARNG) only. There were multiple aircraft on frequency, including Traffic Service and Basic Service traffic. Their attention was focused on trying to identify an aircraft whose pilot was requesting a Traffic Service which was approximately 15-20 miles north-northeast of Shawbury at a relatively low level. The method of identification being attempted was that via the aircraft's range and bearing from the Shawbury VOR/DME. The aircraft which declared the Airprox was operating with the bandboxed Approach and Director frequency, and it was declared against an aircraft which was operating on the LARS frequency which, during its sortie, had recently carried out a parachute dropping exercise. The aircraft on the LARS frequency was descending on its return to Tilstock, and was under a Basic Service for the duration of its flight, a standard and routine operation. By the time they had been made aware of the Airprox, the radar contacts were diverging. No notification of an Airprox, or flight safety compromises, were made by the pilot of the aircraft returning to Tilstock on the LARS frequency.

THE SHAWBURY SUPERVISOR reports that as a unit they were operating STARNG only. The Approach controller was vectoring a Juno for a PAR from the north, putting it on a southwest heading to avoid Tilstock. Traffic Information was passed on a contact tracking NNW at an appropriate time to the pilot, who was receiving a Traffic Service. It was called again and, when the contact turned east towards the Juno, the pilot was asked if they required deconfliction advice. The other contact was believed to be the para-dropping aircraft operating from Tilstock, which was speaking to Zone under a Basic Service and, as such, had never been identified.

The Zone controller was in the process of identifying another aircraft for a Traffic Service when [the Supervisor] pointed out the potential confliction between the believed to be para-dropping aircraft and the Shawbury rotary, and asked them to call the traffic. The 2 contacts merged and subsequently the Shawbury based rotary pilot said they would be filing an Airprox. As such, they contacted the relevant personnel and then reviewed the incident to see whether they needed to relieve the controllers involved. After reviewing the tapes they were satisfied that the Approach controller's actions were correct. During the review they noticed that the Zone controller had called the traffic in reverse, i.e. the para-dropping aircraft as the Shawbury based rotary. However, due to it being under a Basic Service and operating primary-only, the controller would not have identified or kept track ident on the aircraft. Traffic Information was passed in the correct format as 'traffic believed to be you'.

Factual Background

The weather at Shawbury was recorded as follows:

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METAR EGOS 260950Z 20002KT 9999 FEW024 BKN060 18/11 Q1019 NOSIG RMK BLU BLU=
METAR EGOS 261020Z AUTO 24003KT 9999 FEW031/// BKN058/// 19/10 Q1019=
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The following information is taken from the Shawbury/Tilstock Letter of Agreement:

Agreed Procedures – The Parachute Centre

5. The Parachute Centre will notify parachuting activity planned to occur during RAF Shawbury published LARS hours, to the latter's Air Traffic Control (ATC), as follows:

a. At start of parachuting operations at Tilstock - by telephone, giving at least 10 minutes warning prior to take-off and by either RT or telephone when the activities cease. The notification will include the times, altitudes and aircraft types for the activity.

b. Once airborne, the parachuting a/c will climb to a height not above 1000' Shawbury QFE (the Shawbury QFE can be obtained on the ATIS, Telephone 01939 250351 Ext 7574). It will not climb higher until a definite clearance had been agreed with Shawbury Zone on 133.150 MHz. This is primarily to provide separation between Tilstock departures and Shawbury traffic in the instrument pattern.

c. The parachuting aircraft will monitor Tilstock frequency 118.105 Mhz and Shawbury Zone frequency 133.150 MHz when airborne. If the height of the drop requires the parachute a/c to enter CAS, the parachute a/c will report changing to the appropriate authority on Shawbury Zone. They will then warn Shawbury of an imminent drop with a "2 minutes to drop" call on 133.150. Urgent flight safety messages or requests to suspend/delay dropping will be passed by Shawbury ATC on this frequency.

d. In any continuous period of parachuting, the Parachute Centre will agree to requests for brief cessation to enable RAF Shawbury ATC to recover instrument traffic to Runway 18.

6. The Parachute Centre will use the following arrival and departure procedures for transit flights:

a. **Weekdays/Other Times when LARS Available**

(1) Notify RAF Shawbury ATC by telephone at least 10 minutes before take-off. (Telephone 01939 250351 Ext 7232 announce "Tilstock departure").

(2) If possible remain in VMC and contact Shawbury Zone on 133.150 MHz when airborne, climbing not above 1000ft on Shawbury QFE until in 2-way contact with Shawbury Zone.

(3) After initial contact, or if no contact, turn either right from Runway 33 or left from Runway 15 onto heading 050 degrees, remain in VMC if possible. Thereafter, turn onto desired track as agreed with Shawbury Zone or abeam Audlem.

(4) All recoveries to Tilstock will be agreed by RAF Shawbury ATC on 133.150 MHz.

Further excerpt:

Agreed Procedures – RAF Shawbury

8. RAF Shawbury will:

a. Notify parachuting activity to aircraft receiving a Basic Service.

b. Pass advisory instructions to aircraft receiving a Deconfliction Service or Traffic Service in order to maintain the prescribed separation minima from the notified parachuting area.

c. Notify the Parachute Centre when full flying takes place at RAF Shawbury outside of the normal Monday-Friday 0800-1700(L) hours.

Analysis and Investigation

Military ATM

An Airprox occurred on 26th August 2022 at approximately 1020 UTC, within the Shawbury MATZ, between a Juno helicopter and a GA8 Airvan. The Juno helicopter [pilot] was in receipt of a Traffic Service from Shawbury Approach and the GA8 Airvan [pilot] was in receipt of a Basic Service from the Shawbury LARS controller.

All controllers at RAF Shawbury were operating non-cooperative surveillance only. Short Term Conflict Alert was not available throughout this occurrence.

The Shawbury LARS controller was controlling 8 aircraft with a mixture of Basic and Traffic Services, using range and bearing from Shawbury VOR/DME for identification of aircraft. The GA8 Airvan [pilot] was in receipt of Basic Service and descending on their return to Tilstock paradropping site. Traffic Information on the Juno helicopter was passed to the GA8 Airvan pilot, however they did not report visual.

The Shawbury Approach controller was band-boxing Approach and Director whilst under examination for endorsement. The Juno helicopter [pilot] was under a Traffic Service, having completed their sortie, and receiving vectors for RW18, whilst avoiding Tilstock. Traffic Information was passed to the Juno helicopter [pilot] with the option to take deconfliction advice. The Juno pilot reported visual and subsequently declared an Airprox on frequency.

The Shawbury Supervisor was in the Approach room at the time of the occurrence, with overall situational awareness of the two tracks involved in the occurrence. Although the Supervisor alerted the Shawbury LARS controller of the GA8 Airvan's close proximity to the Juno helicopter, it was not possible for the Shawbury LARS controller to react in a timely manner, due to other traffic requiring identification.

The Local Examining Officer (LEO), who was positioned behind the Shawbury Approach controller, was content that the chosen heading would ensure a gap would be achieved. The Shawbury Approach controller was utilising predict vectors and this indicated the perceived gap would no longer be achieved, however, the appropriate Traffic Information and option for deconfliction was passed to the pilot.

Figures 1-4 show the positions of the Juno helicopter and the GA8 Airvan at relevant times during the Airprox. The screenshots on the left are taken from a replay using the NATS radars which are not utilised by the Shawbury controllers. RAF Shawbury has provided radar replays, as shown on the right, which show what the Approach controller was seeing/doing at the time, however full manipulation of ranges cannot be replicated.

The Shawbury Approach controller passed Traffic Information to the Juno pilot "*Traffic south, southwest four miles tracking northwest no height information*". No Traffic Information was passed to the GA8 pilot (Figure 1).

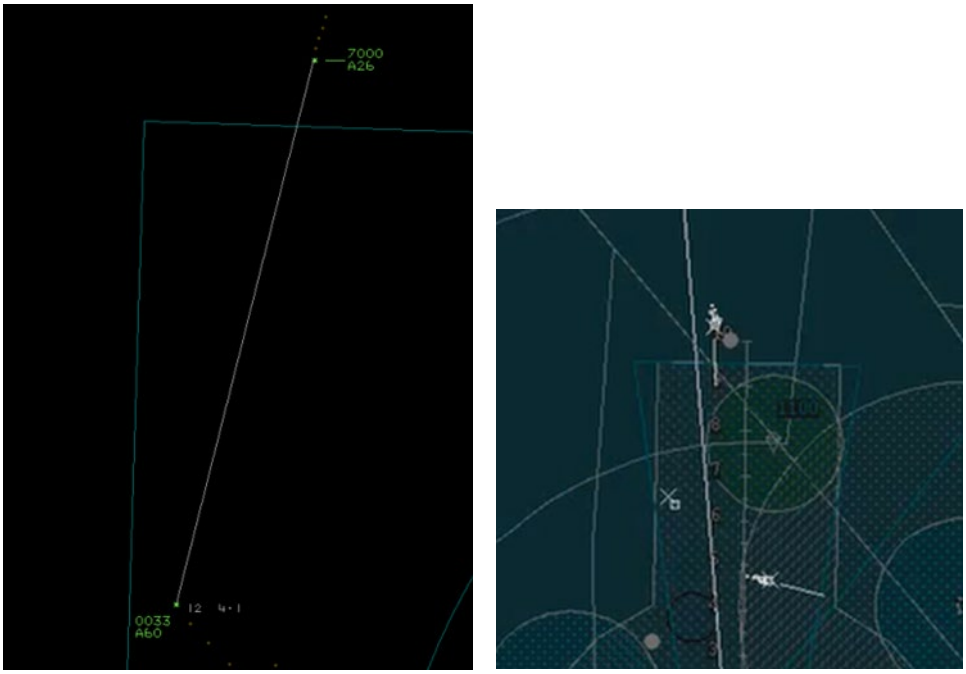


Figure 1: Traffic Information passed to the Juno pilot (squawking 7000) 1020:31.

The Shawbury Approach controller passed additional Traffic Information to the Juno pilot "*Previously called traffic southwest one mile tracking northeast converging no height information, do you require deconfliction advice*". No Traffic Information was passed to the GA8 pilot (Figure 2).

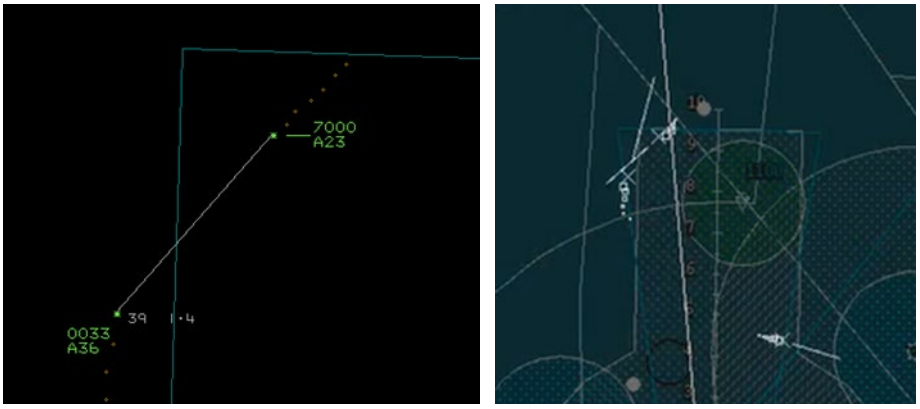


Figure 2: Further Traffic Information passed to the Juno pilot (7000) 10:21:18

The Shawbury LARS controller passed Traffic Information to the GA8 pilot "*Traffic believed to be you has traffic southwest one mile manoeuvring no height information*" (Figure 3).

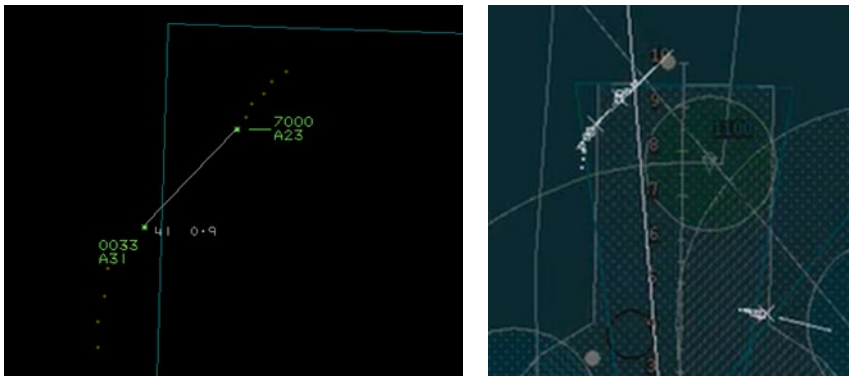


Figure 3: Traffic Information passed to the GA8 (0033) pilot 1021:27.

Figure 4 shows CPA measured at 0.2NM and 200ft.[1] The Shawbury LARS controller requested the altitude passing. The GA8 pilot did not report visual with the Juno helicopter.

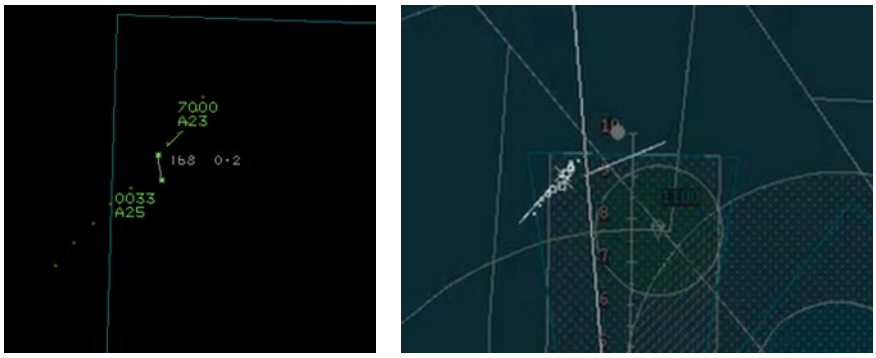


Figure 4: 10:21:38 CPA.

An increased workload due to working non-cooperative surveillance resulted in the Shawbury LARS controller mis-identifying the GA8 aircraft. Although Traffic Information was passed to the GA8 pilot, it was incorrectly passed, which resulted in the pilot looking right, on the understanding the traffic was behind the aircraft.

[1] The following radar sweep indicates the separation as 0ft vertically and 0.2NM horizontally see Figure 5.

The Shawbury Approach controller utilised what equipment they had available to them, with the use of speed vectors, and Traffic Information was accurate throughout, with the option to provide deconfliction advice.

UKAB Secretariat

An analysis of the NATS radar replay was undertaken and on the radar sweep following Figure 4, although the two aircraft had passed one another and were still 0.2NM apart, both indicated the same altitude (2300ft), see Figure 5. This CPA has been used in the diagram at the top of the report.

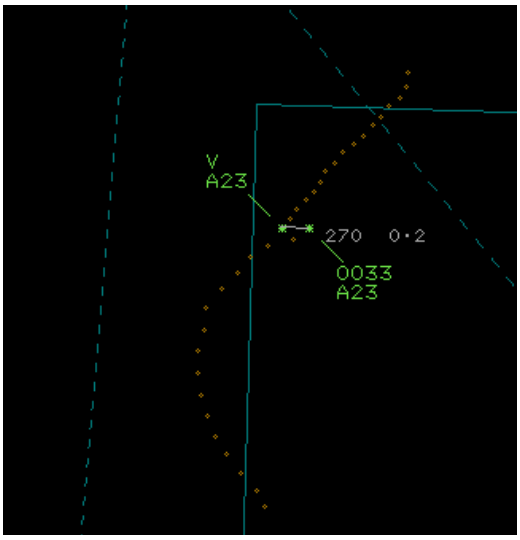


Figure 5: 1021:43

The Juno and GA8 Airvan pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.[2] If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right.[3]

Comments

HQ Air Command

The established procedure to allow for Tilstock parachuting and Shawbury RW18 instrument traffic was undone by a number of factors lining up; the Local Investigation identified 4 contributory factors and 2 recommendations. Operating solely primary radar presented ATC with a more challenging backdrop to their usual operations. The Approach controller had no clear indication that the Airvan traffic was a Tilstock aircraft (they could not see the paradropping squawk) and so an anticipated right turn by the Airvan for Tilstock was not appreciated earlier when setting up the Juno for recovery. The Zone controller was focussed on identifying another aircraft - again made more challenging due to primary-only - and was made aware of the potential confliction by the Supervisor. They made an error on calling the Juno traffic to the Airvan; with incorrect information, the Airvan pilot did not become visual with the Juno. When Shawbury Approach called the Airvan to the Juno, the Juno's ACAS alerted the pilot at the same time and the Juno pilot's actions reduced the risk of collision. Following this Airprox, Shawbury is reviewing the LoA between Shawbury and Tilstock to investigate a better solution for deconflicting Tilstock and Shawbury traffic. In addition they are reviewing the procedures for primary-only operations.

Summary

[2] (UK) SERA.3205 Proximity. MAA RA 2307 paragraphs 1 and 2.
[3] (UK) SERA.3210 Right-of-way (c)(1) Approaching head-on. MAA RA 2307 paragraph 13.

An Airprox was reported when a Juno and an GA8 Airvan flew into proximity 1.5NM southwest of Whitchurch at 1021Z on Friday 26th August 2022. The Juno pilot was operating under IFR in VMC and in receipt of a Traffic Service from Shawbury Approach. The GA8 Airvan pilot was operating under VFR in VMC and in receipt of a Basic Service from Shawbury Zone.

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 looked at the actions of the Juno pilot. They had been receiving a Traffic Service from Shawbury Approach and had been aware that Shawbury was operating with primary-only radar. The pilot had received Traffic Information from ATC when the Airvan had been 4NM away, although the controller had not been able to give any height information at that time. The pilot reported that, at the same time as they received updated Traffic Information from ATC, they also received an alert from their ACAS (**CF9**) and then became visual with the Airvan. They had assessed that there had been separation between the two aircraft, but had been concerned that, had the Airvan made an unexpected manoeuvre, they would have had limited options, so chose to take avoiding action to increase the separation by turning away (**CF11**).

For their part, the Airvan pilot had been paradropping at Tilstock and had been receiving a Basic Service from the Shawbury Zone controller. The pilot reported that they had been aware that Shawbury was operating with primary-only radar, but members wondered whether they were fully aware of the ramifications of this for the controllers, because it meant that Shawbury ATC would have been unaware at which point the paradropping had been completed and the Airvan had begun to descend. On any normal day the controllers would have seen the height of the Airvan descending from their transponder, but they could not detect it without the SSR functioning. The controllers therefore had had no indication that the Airvan pilot had completed their sortie and had been descending back into Tilstock. As a further consequence, the Zone controller had not been able to maintain track ident on the Airvan and so when they had given the pilot Traffic Information on the Juno, they had passed incorrect information on the direction of the Juno, which had made the Airvan pilot believe that the Juno had been to the south-west of them (**CF8**). Having been primed to look in the wrong direction by ATC, the Airvan pilot had not seen the Juno at all (**CF10**).

Turning to the role of ATC, the Board heard that it was not unusual for units to operate primary-only and that they had procedures in place for such occasions. However, operating in such circumstances meant that it became more difficult for ATC to maintain track ident on their aircraft, and so they would be less likely to maintain identification on any Basic Service traffic (**CF3**). It also meant that they had not received any height information on any conflicting traffic (**CF2**) and that the STCA would not have worked in these conditions (**CF7**). The Shawbury Approach controller had been undergoing an examination, and some members wondered whether this meant that the Supervisor would have been less likely to step in to offer advice, because to do so may have resulted in the controller not passing the examination. However, others noted that the LEO, who had been conducting the examination, had been content with the Traffic Information passed by the student. The controllers reported that they had initially assessed that the two tracks would have had enough separation, but that once the Airvan had turned further north-east towards Tilstock it had become apparent that this would no longer have been the case (**CF5**). Some members wondered whether the controller could have gone straight in with deconfliction advice before the updated Traffic Information, but controlling members disagreed with this, opining that having already given Traffic Information on the Airvan, the controller would have been expecting the pilot to ask if they had not been VMC and had required deconfliction advice. However, the Shawbury Zone controller had been busy with another aircraft in a different area to Tilstock, and the Airvan had not been identified, therefore, when the Supervisor prompted the controller to give Traffic information, their inaccurate situational awareness (**CF6**) resulted in them passing incorrect Traffic Information (**CF4**).

Finally, the Board looked at the LoA between Tilstock and Shawbury. They noted that the RAF Shawbury investigation had identified that if the LoA had included the provision that Tilstock pilots should call when the paradropping was complete, this may have alerted the controllers to the fact that the Airvan had been about to descend, in which case Approach could have remained clear of the Tilstock area (**CF1**). Whilst the Board agreed with this analysis, they were disappointed that the LoA had not already been amended some months after the event, and urged RAF Shawbury to rectify this as soon as possible.

When assessing the risk of the Airprox, the Board took into consideration the reports from both pilots and the controllers, together with the radar replay and screenshots from Shawbury's radar. They agreed that the Juno pilot, aided by the alert from their ACAS and information from ATC, had become visual with the Airvan in time to take the appropriate action, and that despite the Airvan pilot not becoming visual with the Juno at all, the Juno pilot's action ensured that, although safety had been degraded, there had been no risk of collision; Risk Category C.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2022202			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Ground Elements			
	• Regulations, Processes, Procedures and Compliance			
1	Organisational	• Aeronautical Information Services	An event involving the provision of Aeronautical Information	The Ground entity's regulations or procedures were inadequate
	• Manning and Equipment			
2	Technical	• Radar Coverage	Radar Coverage	Non-functional or unavailable
	• Situational Awareness and Action			
3	Contextual	• ANS Flight Information Provision	Provision of ANS flight information	The ATCO/FISO was not required to monitor the flight under a Basic Service
4	Human Factors	• ANS Traffic Information Provision	Provision of ANS traffic information	TI not provided, inaccurate, inadequate, or late
5	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	
6	Contextual	• Traffic Management Information Action	An event involving traffic management information actions	The ground element had only generic, late, no or inaccurate Situational Awareness
	• Electronic Warning System Operation and Compliance			
7	Technical	• Conflict Alert System Failure	Conflict Alert System did not function as expected	The Conflict Alert system did not function or was not utilised in this situation
	Flight Elements			
	• Situational Awareness of the Conflicting Aircraft and Action			
8	Contextual	• Situational Awareness and Sensory Events	Events involving a flight crew's awareness and perception of situations	Pilot had no, late, inaccurate or only generic, Situational Awareness
	• Electronic Warning System Operation and Compliance			
9	Contextual	• Other warning system operation	An event involving a genuine warning from an airborne system other than TCAS.	
	• See and Avoid			
10	Human Factors	• Monitoring of Other Aircraft	Events involving flight crew not fully monitoring another aircraft	Non-sighting or effectively a non-sighting by one or both pilots
11	Human Factors	• Perception of Visual Information	Events involving flight crew incorrectly perceiving a situation visually and then taking the wrong course of action or path of movement	Pilot was concerned by the proximity of the other aircraft

Degree of Risk: C.

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:

Ground Elements:

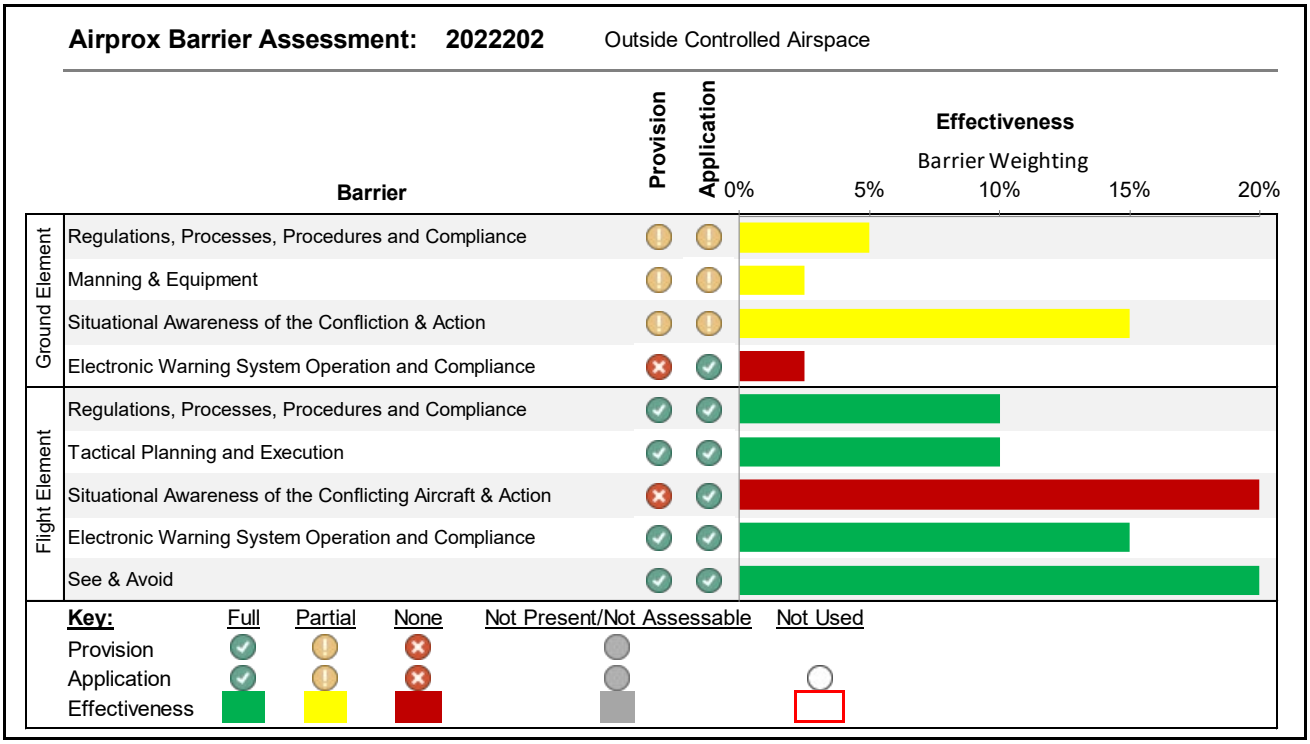
Manning and Equipment were assessed as **partially effective** because ATC was operating with primary radar only.

Situational Awareness of the Confliction and Action were assessed as **ineffective** because the Zone controller had not been able to maintain track identification on the Airvan, had inaccurate situational awareness on the position of the two aircraft and consequently gave inaccurate Traffic Information.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because operating primary radar only meant that the STCA could not be used.

Flight Elements:

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the Airvan pilot was given incorrect Traffic Information on the position of the Juno.



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