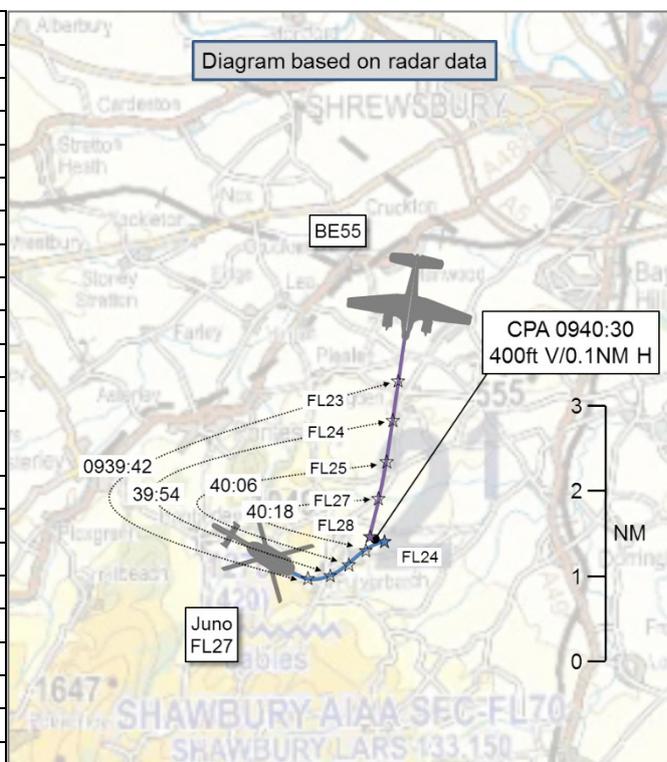


AIRPROX REPORT No 2020095

Date: 10 Aug 2020 Time: 0941Z Position: 5238N 00250W Location: 15NM SW Shawbury

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Juno	BE55
Operator	HQ Air (Trg)	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	IFR	VFR
Service	Traffic	Basic
Provider	Shawbury Radar	Shawbury LARS
Altitude/FL	FL24	FL28
Transponder	A, C, S	A, C, S
Reported		
Colours	Black, yellow	White
Lighting	HISLs, nav	Strobes, nav, beacon
Conditions	VMC	VMC
Visibility	7km	>10km
Altitude/FL	2500ft	2500ft
Altimeter	QFE (1007hPa)	QNH (NK hPa)
Heading	060°	190°
Speed	90kt	150kt
ACAS/TAS	TCAS II	Not fitted
Alert	TA	N/A
Separation		
Reported	200ft V/200ft H	Not seen
Recorded	400ft V/0.1NM H	



THE JUNO INSTRUCTOR reports being vectored for a PAR to RW36 when the Shawbury Approach controller alerted them to an aircraft north by 3 miles, tracking south at 300ft below and climbing. The trainee was on instruments and replied to approach controller "looking". ACAS then reported "Aircraft 10 o'clock, less than 1 mile." The aircraft in question was initially obscured by the door frame but when sighted it was apparent they were at the same level and their paths would become dangerously close if track was maintained. The Instructor took control and began a rapid descent, informing Approach of the avoiding action manoeuvre. The other aircraft tracked above from the 10 to 4 o'clock and did not appear to take any avoiding action. The Instructor noted that Shawbury Approach was extremely busy during this time and, due to the potential dangers of non-Shawbury traffic, Shawbury Zone frequency was monitored as well. At the time the incident took place, the controller was transmitting to another aircraft.

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

THE BE55 PILOT reports that he was in the climb having left the departure airfield. Nothing was reported by the controller and the reporting helicopter was not seen. The BE55 pilot noted that he was using a VHF radio, the Juno was using a UHF radio and that mixing aircraft in the same airspace who cannot hear each other is a problem.

THE U/T SHAWBURY RADAR CONTROLLER reports that they had had 4 aircraft on Stud 9 (in the radar training circuit, one of which was speechless) and [the Juno] on Stud 10 in IF box D [an IF training area]. The Juno was to the southwest of Shawbury by approx. 15NM and was under a Traffic Service. Traffic Information was passed regarding the conflicting traffic. The Juno pilot reported visual and "descending to avoid". Once clear, the pilot said "returning to 2500ft, that aircraft made no attempt to avoid us".

THE SHAWBURY RADAR SCREEN CONTROLLER reports sitting behind a U/T controller, bandboxing Approach and Director. At the time, the Screen controller believed they had 4 or 5 aircraft on frequency. The Juno called complete in IF Box D and was routed for a RW36 arrival. Whilst routing in, affecting traffic was called and the Juno pilot became visual with the Basic Service aircraft [the BE55], showing as 300ft below. The Basic Service aircraft then appeared to climb fast paced as the Mode C dropped off. The Juno pilot then informed them that he was descending to avoid the aircraft, and that the Basic Service aircraft had taken no action to avoid him. The Mode C re-appeared on the Basic Service aircraft which was then 100ft above the Juno.

THE SHAWBURY LARS CONTROLLER reports they could not recall a lot of detail from the day. Traffic levels were low at the time with a Traffic Service aircraft transiting to the northeast which was being monitored to make sure it was maintaining outside controlled airspace. It was during this time that the Screen controller, sat behind the U/T Approach controller made the LARS controller aware of the Airprox and asked if [the BE55 pilot] was visual with [the Juno]. Unfortunately, [the BE55] climb was not noticed so Traffic Information was not passed.

THE SHAWBURY SUPERVISOR reports being located in another room and therefore did not witness the occurrence.

Factual Background

The weather at Shawbury was recorded as follows:

METAR EGOS 100950Z 05006KT CAVOK 21/16 Q1016 NOSIG RMK BLU BLU=

Analysis and Investigation

Military ATM

An Airprox occurred on 10 Aug 20 at approximately 0940 UTC, 15NM SSW of RAF Shawbury between a Beech 55 and a Juno. The Juno was receiving a Traffic Service from Shawbury Approach and the Beech 55 was receiving a Basic Service from Shawbury LARS.

The Trainee Approach controller was controlling 3 other Air Systems in the radar training circuit, one of which was 'Speechless' with one other operating in an IF box over two frequencies. The Juno was in the radar training circuit and was being vectored for a PAR approach. The aircraft was turned onto base leg on an initial heading of 090° which was altered to 060°. Traffic Information was passed on the Beech 55 after the updated heading change. Between the initial turn to 090° and the Traffic Information being passed the controller ascertained the type of approach and intentions of the Speechless Air System.

The Shawbury LARS controllers was providing a service to 2 other Air Systems one of which was reported to be under a Traffic Service. The Beech 55 requested a Basic Service which was given. No Traffic Information was passed to the Beech 55 as the controller reported that their attention was focused on the Traffic Service Air System due to their proximity to controlled airspace.

Figures 1-5 show the positions of the Juno and the Beech 55 at relevant times in the lead up to and during the Airprox. The screen shots are taken from a replay using the NATS Radars, which are not utilised by Shawbury controllers, therefore, may not be entirely representative of the picture available to the Shawbury controllers.

The Beech 55 was transiting to the west of the Shawbury MATZ. The Juno was late downwind in the radar training circuit and turned onto a heading of 090°, separation at this point was 3.6NM and 800ft.

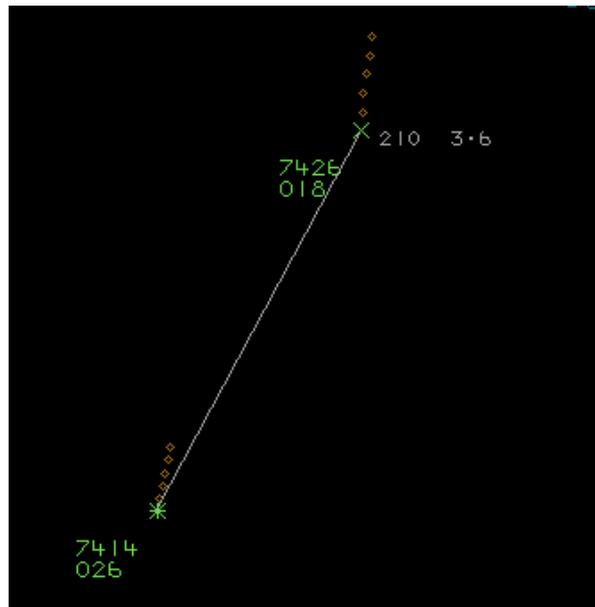


Figure 1: Juno turned to a heading of 090°.

Nineteen seconds later the controller gave the Juno a further turn to 060°. Separation at this point had decreased to 3.4NM and 700ft.

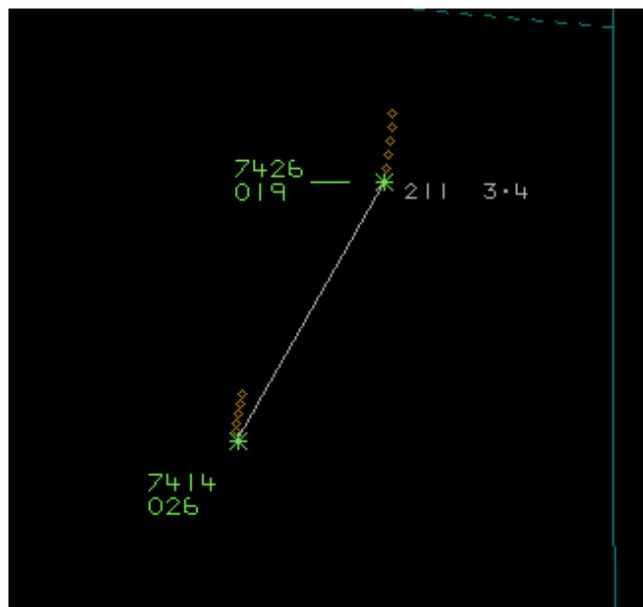


Figure 2: Juno turned to a heading of 060°.

Traffic Information was passed to the Juno 40sec after the heading change to 060°. Separation decreased to 2NM and 300ft.

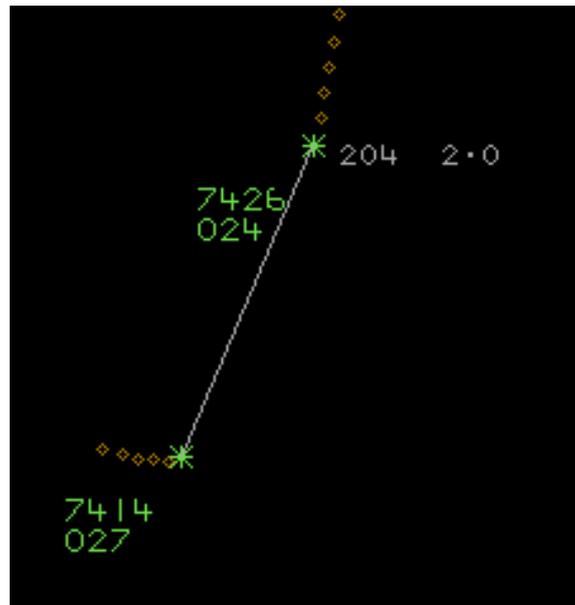


Figure 3: Traffic Information passed to the Juno.

A further fourteen seconds elapsed before the Juno reported visual with the Beech 55. Separation decreased to 1.1NM and 200ft.

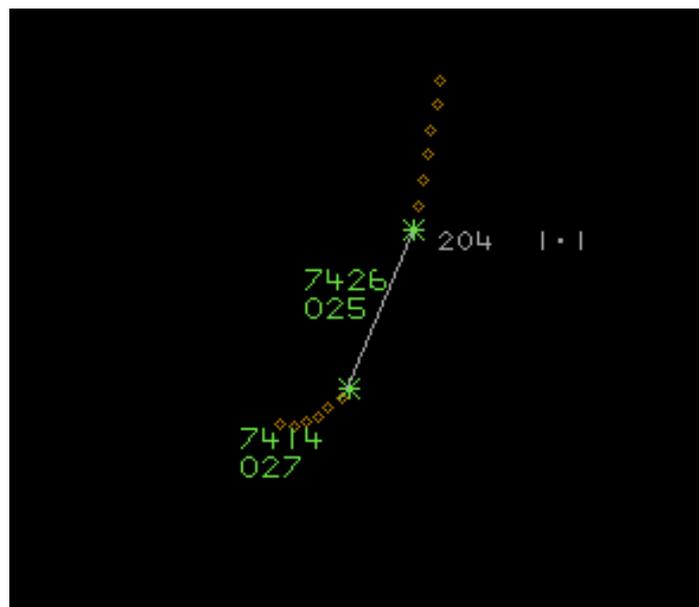


Figure 4: Juno reports visual with the Beech 55.

Nine seconds after the Juno reported visual, they report that they were descending. CPA was measured at 0.1NM and 400ft.

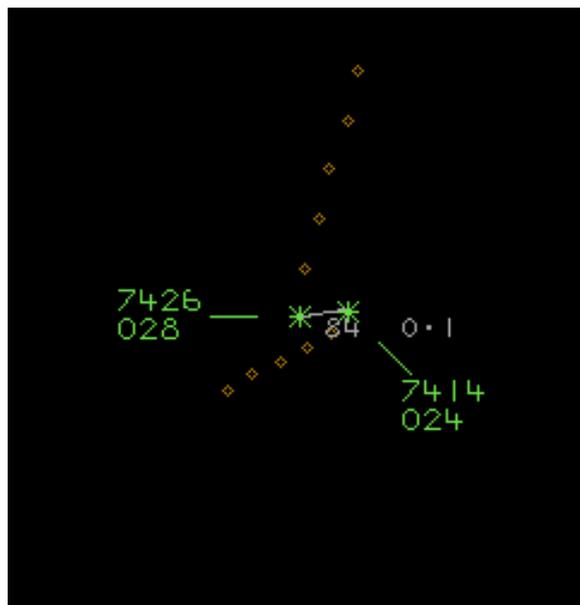


Figure 5: CPA.

The Shawbury Approach controller was busy with multiple Air Systems operating in the radar training circuit and whilst the Traffic Information ultimately helped the Juno pilot become visual with the Beech 55, it was passed later than would be expected. Furthermore, the Approach controller initial base leg turn combined with their updated turn vectored the Juno into conflict with the Beech 55. However, that is only the impression given on the NATS radar replay and may not have been a true representation of what the controller saw on their radar screen. It is unclear as to whether the climbing Beech 55 was not sighted by the Approach controller or if they had misjudged the speed and track. The Shawbury LARS controller was distracted with a Traffic Service Air System and their proximity to controlled airspace however, as the Beech 55 was under a Basic Service the LARS controller was not required to monitor the track. The Beech 55 Pilot raised concerns over operating on a VHF frequency whereby the Juno was operating on a UHF frequency. Due to the different natures of flight, one in the radar training circuit and one on a LARS transit, with different controllers the frequency split did not play a factor in this instance.

UKAB Secretariat

The Juno and BE55 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 converging then the BE55 pilot was required to give way to the Juno.²

RAF Shawbury Local Investigation

The RAF Shawbury Local Investigation found that the cause was a natural operating hazard and that ATC and ACAS had warned the Juno pilot [of the converging BE55], with a contributory factor that one of the Juno pilots was flying on instruments which reduced the options for lookout.

Comments

HQ Air Command

Although each pilot was working a different frequency, the Juno pilot was monitoring the Shawbury LARS frequency on which the BE55 had previously called – albeit, 3 minutes before the Airprox occurred. This call, if it was assimilated, may not have provided enough information to cause the Juno pilot concern. The BE55 was called to the Juno pilot by Shawbury Approach and the Juno

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.

pilot's lookout was further informed by a TAS alert helping them to visually acquire the BE55. The Juno pilot then took timely avoiding action to ensure the loss of separation was not further eroded.

Although it may appear that the Juno was vectored into conflict with the BE55, the investigation into this Airprox did not uncover whether the Shawbury Approach controller did not see the conflict developing or whether they did not assimilate it before giving turn instructions to the Juno pilot. An element of distraction likely caused the Shawbury LARS controller not to notice the conflict, although the BE55 was on a Basic Service and they were not required to pass traffic information. This Airprox serves to highlight the importance of utilising all available information to build situational awareness and make timely action to avoid a mid-air collision. The Juno pilot is commended for their actions, especially as they would have been busy monitoring the student pilot and had their lookout obscured by the aircraft doorframe.

Summary

An Airprox was reported when a Juno helicopter and a BE55 flew into proximity 15NM SSW of Shawbury at 0941Z on Monday 10th August 2020. Both pilots were operating in VMC, the Juno pilot under IFR in receipt of a Traffic Service from Shawbury Approach and the BE55 pilot under VFR in receipt of a Basic Service from Shawbury 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.

Due to the exceptional circumstances presented by the coronavirus pandemic, this incident was assessed as part of a 'virtual' UK Airprox Board meeting where members provided a combination of written contributions and dial-in/VTC comments.

The Board first discussed the circumstances leading up to the Airprox. The BE55 pilot had departed from a local airfield on a southbound track and had established a Basic Service with the Shawbury LARS controller. The Juno pilot was operating in the radar pattern under radar vectors from a U/T radar controller with a screen controller positioned to provide guidance and monitoring. Members agreed that the Juno had been vectored towards the BE55 track but that there was some 800ft vertical separation when the initial vector on to east was given to the Juno pilot. However, the BE55 pilot had started to climb when the Juno was given a further vector left to heading 060° and the 2 aircraft came into conflict. Controller members felt that the reducing vertical separation at the time the second vector was given was such that the U/T controller had vectored the Juno in to conflict (**CF1, CF5**), which neither the U/T or screen controllers appeared to have initially detected (**CF2, CF3**). The conflict was then detected but not until 40sec after the second vector had been passed, when Traffic Information was passed to the Juno pilot (**CF4**). Members acknowledged that the Shawbury radar picture was obtained from a different feed than that used to produce the NATS Ltd radar screenshots used by the Board and that the Shawbury traffic depiction may not have been the same. However, it was felt that this was a matter that only the Shawbury Investigation could address. The Board noted from R/T transcript that the BE55 pilot had stated on initial contact that he was level at 1000ft and would be climbing to 4000ft. Members discussed whether the LARS controller should have notified the U/T radar and screen controllers of the BE55 pilot's stated intention to climb to 4000ft (**CF7**) or have requested that the BE55 pilot notify the controller at the point they intended to climb. Unfortunately, the LARS controller then became busy with other Traffic Service aircraft (**CF6**) and did not detect when the BE55 pilot start to climb. Turning to the pilots, the Juno Instructor received Traffic Information and a TCAS alert (**CF9**) which helped him to see the approaching BE55, but this was at a late stage (**CF11**) by which time he had to take emergency avoiding action. The BE55 pilot did not see the Juno at all (**CF10**) which the Board felt resulted in an Airprox where safety had been much reduced, a risk B.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISKContributory Factors:

2020095			
CF	Factor	Description	Amplification
Ground Elements			
• Regulations, Processes, Procedures and Compliance			
1	Human Factors	• ATM Regulatory Deviation	Regulations and/or procedures not complied with
• Manning and Equipment			
2	Human Factors	• Mentoring	
• Situational Awareness and Action			
3	Human Factors	• Conflict Detection - Detected Late	
4	Human Factors	• ANS Traffic Information Provision	TI not provided, inaccurate, inadequate, or late
5	Human Factors	• Separation Provision	The ANS instructions contributed to the Airprox
6	Human Factors	• Distraction - Job Related	Controller engaged in other tasks
7	Human Factors	• ATM Coordination	
Flight Elements			
• Situational Awareness of the Conflicting Aircraft and Action			
8	Contextual	• Situational Awareness and Sensory Events	Pilot had no, late or only generic, Situational Awareness
• Electronic Warning System Operation and Compliance			
9	Contextual	• ACAS/TCAS TA	
• See and Avoid			
10	Human Factors	• Monitoring of Other Aircraft	Non-sighting or effectively a non-sighting by one or both pilots
11	Human Factors	• Monitoring of Other Aircraft	Late-sighting by one or both pilots

Degree of Risk: B.

Recommendation: Nil.

Safety Barrier Assessment³

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 U/T controller vectored the Juno towards the BE55 whose pilot had already notified the LARS controller of their intention to climb.

Manning and Equipment were assessed as **partially effective** because the Screen controller did not intervene.

Situational Awareness of the Conflication and Action were assessed as **partially effective** because Traffic Information was passed at a late stage.

³ The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).

Flight Elements:

See and Avoid were assessed as **partially effective** because the BE55 pilot did not see the Juno and the Juno pilot was only able to take avoiding action at a late stage.

				Airprox Barrier Assessment: 2020095					Outside Controlled Airspace				
		Barrier		Provision	Application	Effectiveness							
						Barrier Weighting							
						0%	5%	10%	15%	20%			
Ground Element	Regulations, Processes, Procedures and Compliance	✓	!	50%									
	Manning & Equipment	✓	!	25%									
	Situational Awareness of the Confliction & Action	✓	!	15%									
	Electronic Warning System Operation and Compliance	○	○	5%									
Flight Element	Regulations, Processes, Procedures and Compliance	✓	✓	10%									
	Tactical Planning and Execution	✓	✓	10%									
	Situational Awareness of the Conflicting Aircraft & Action	✓	✓	20%									
	Electronic Warning System Operation and Compliance	!	✓	15%									
	See & Avoid	!	!	20%									
Key:		<u>Full</u>	<u>Partial</u>	<u>None</u>	<u>Not Present/Not Assessable</u>	<u>Not Used</u>							
Provision	✓	!	✗	○									
Application	✓	!	✗	○									
Effectiveness	■	■	■	■	□								