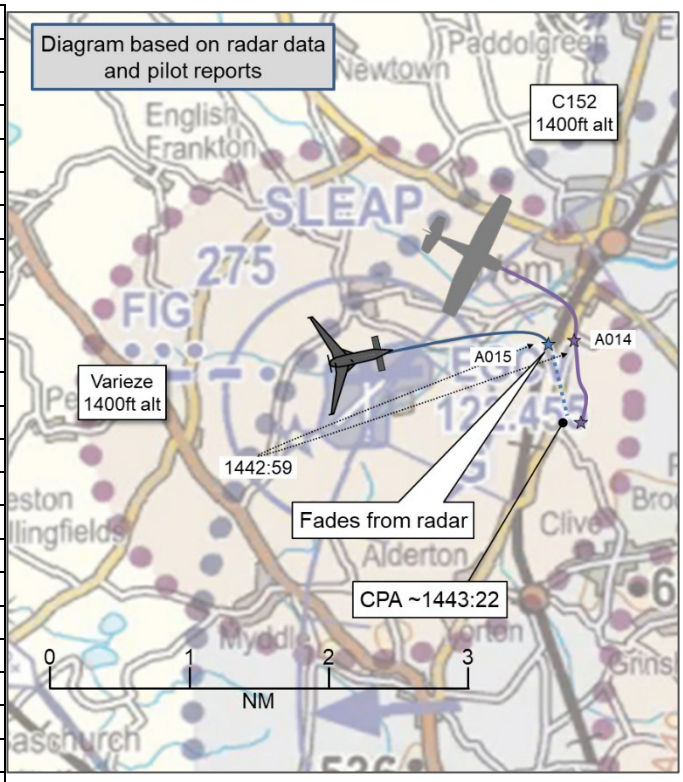
AIRPROX REPORT No 2021117

Date: 16 Jul 2021 Time: 1443Z Position: 5250N 00244W Location: Sleap

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	C152	Varieze
Operator	Civ FW	Civ FW
Airspace	Sleap ATZ	Sleap ATZ
Class	G	G
Rules	VFR	VFR
Service	AGCS	AGCS
Provider	N/A	N/A
Altitude/FL	1400ft	NK
Transponder	A, C, S	A, C
Reported		
Colours	Blue, White	White
Lighting	Beacon, Strobes	Landing
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	1000ft	1000ft
Altimeter	QFE (1018hPa)	QFE (1019hPa)
Heading	180°	'variable'
Speed	85kt	95kt
ACAS/TAS	PilotAware	PilotAware
Alert	None	None
Separation		
Reported	10ft V/100ft H	Not Seen
Recorded	NK	



THE C152 PILOT reports that they were conducting a circuit detail with a student pilot using RW36 with a right-hand circuit at Sleap. They were flying downwind just abeam the upwind end of the runway and about to make downwind call, when they spotted the Varieze just in front of their starboard wing leading edge. It appeared to be turning right onto downwind leg, (the other pilot was joining the circuit from a local flight and had made a standard join). They manoeuvred their aircraft to the left and descended a little to increase speed. They estimated they had flown left between 100-200yds and turned right onto downwind leg again. The Varieze was then seen apparently flying straight towards the C152. They immediately commenced a steep left turn descending once again, this time through 360° (the Shawbury ATZ was now very adjacent) and back on to the downwind leg positioning about 1NM behind the Varieze. Their student was shaken up by the experience and became poorly positioned on to final subsequently had to go around. After landing they made contact with the pilot of the Varieze who said they had not seen the C152 in the circuit. In the circuit was also a PA28 behind them. The PA28 pilot confirmed they had observed the C152's avoiding action but had not seen the Varieze.

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

THE VARIEZE PILOT reports that they were returning to Sleap with another a Diamond Star DA40 which was well ahead as they approached Sleap. When approaching the ATZ from the south they would normally check to determine the level of circuit traffic and if they considered it to be very low, then would normally elect to join on long finals for RW36 but would also announce on the radio that they would give way to any circuit traffic. However, on this day they were aware that there was traffic final and base leg so they chose to announce that they would do an overhead join for RW36RH. When entering the Sleap ATZ they changed course slightly to carry out a partial overhead approach from the south west and they called "[C/S] descending onto the dead-side from the south-west for runway 36R" As they were in the decent they could see what appeared to be a low-wing aircraft climbing out on RW36 well below and calculated that they would be well ahead of it when they reached the downwind joining point. Before

they reached the point where they were about to turn downwind they did not see any aircraft to affect them and turned 90° right onto the downwind leg. Shortly after making this turn they called "[C/S] downwind to land RW36 Right" and heard someone call "Aircraft that has just turned downwind, you have just made me take evasive action to avoid hitting you" (or words to that effect). They apologised to the other pilot and said that they hadn't seen or heard any position calls from them. They continued on the downwind leg. They turned finals for RW36 and called "[C/S] Finals to land 36" " but as they were approaching the runway threshold heard a PA28 pilot call finals 36 but immediately after heard the pilot of [C152 C/S] exchange a few words with this pilot and they appeared to be disputing who had the right of way. After landing they drove down to the Tower and had a reasonably amicable discussion with the PIC Instructor who had been instructing a student in the C152. They admitted that they hadn't seen the C152 but did mention that the other pilot had an advantage as they should have been more aware of the Varieze position, if they had heard the descending dead-side call. They estimated that the C152 position at the time of their call would have been well along the crosswind leg at the time and noted that they had a very bright LED nose landing light switched on permanently. During this conversation outside the clubhouse the pilot of [PA28 C/S] joined in briefly and they recalled that pilot saying that they were visual with the Airprox. This was somewhat confusing because it was the PA28 pilot that called finals first when the Varieze was over the threshold. Prior to that, they did not recall hearing a downwind call. The Varieze aircraft is equipped with the latest version of PilotAware and it was switched on and they were squawking 7000 with Mode C. They would normally pick up any other aircraft with PilotAware or be given a close proximity warning with aircraft that had a Mode C/S transponder switched on but the only aircraft they recalled seeing whilst in the circuit was [DA40 C/S].

THE SHROPSHIRE AERO CLUB reports that Sleap operates with an AGO only and as the pilots are required to identify themselves on the radio, and did so, no action was taken by the AGO on this occasion.

Factual Background

The weather at Shawbury was recorded as follows:

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METAR EGOS 161420Z 34008KT 9999 FEW030 SCT040 24/17 Q1028 NOSIG RMK BLU BLU=
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Analysis and Investigation

UKAB Secretariat

Analysis of the NATS radar data showed the two aircraft as they positioned prior to the Airprox, unfortunately the Airprox itself was not visible on the radar. The C152 could be identified on the radar using Mode S data, the Varieze was not Mode S equipped but was identified using pilots' reports. At 1441:36 (Figure 1) the Varieze could be seen on the radar joining from the south as described by the pilot. The C152 was to the north of the airfield, climbing back into the circuit. At Figure 2 the Varieze was crosswind and the C152 was approaching downwind, both aircraft were indicating 1400ft altitude (radar indicated QNH 1026).

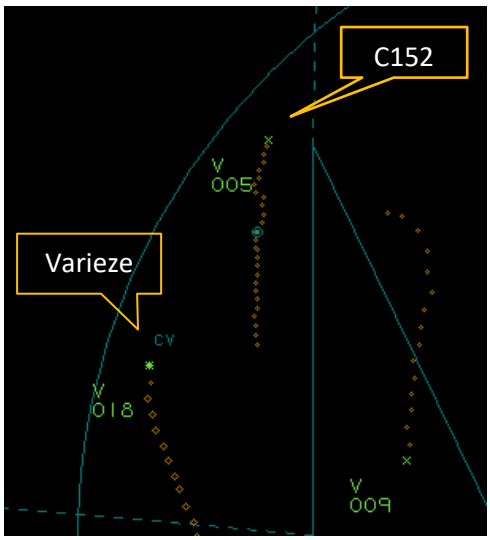

Figure 1:1441:36

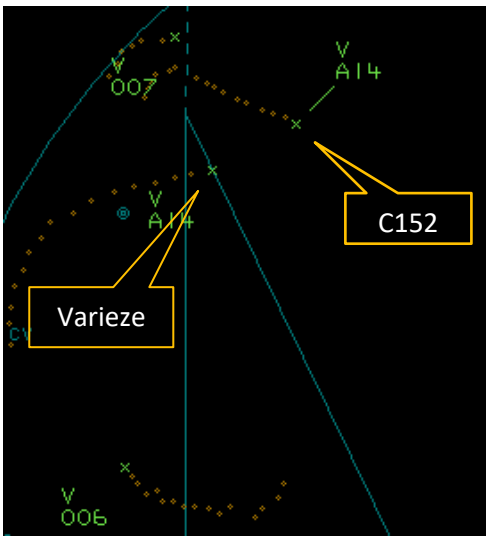

Figure 2:1442:41

The two aircraft continued on track, closing to a separation of 200ft and 0.3NM (Figure 3), however on the next radar sweep the radar track of the C152 was subject to 'jitter', possibly because the C152 had taken the first set of avoiding action as described in their report. By the following sweep the Varieze had faded from radar (Figure 4).

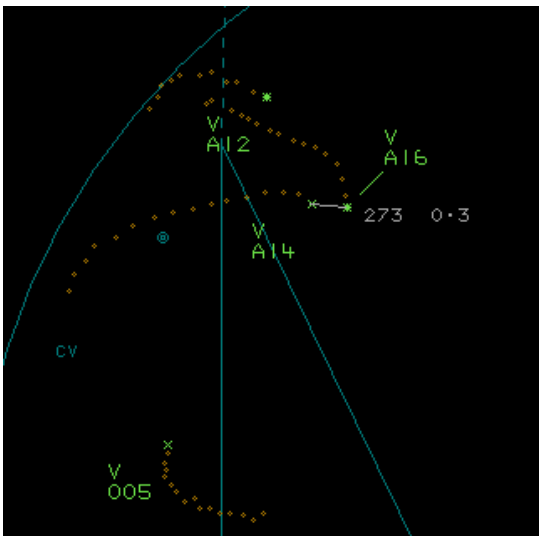

Figure 3: 1442:57

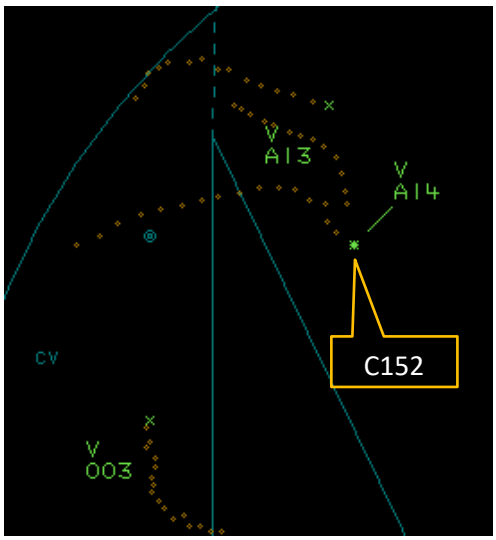

Figure 4: 1443:10

The C152 continued on track for a while before manoeuvring at 1443:45 (Figure 5), at which point the radar track of the C152 jittered again, but the C152 appeared to make a 360° turn, therefore it is likely that the Airprox occurred at this time. The Varieze could not be seen again until 1444:04 at which point an SSR-only track appeared ahead of the C152, this track continued to make an approach and was therefore likely to have been the Varieze reappearing on radar (Figure 6).

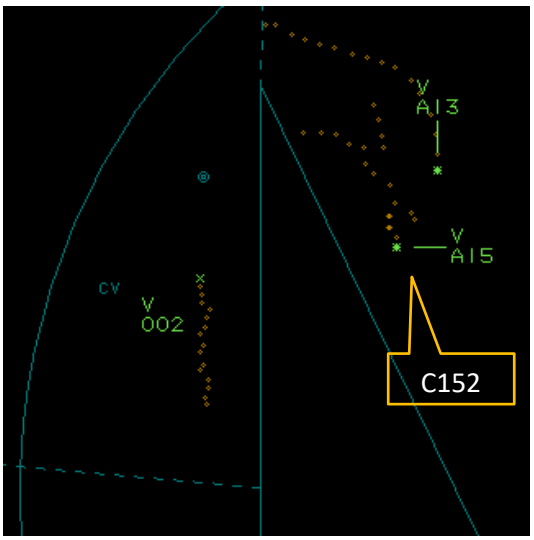

Figure 5:1443:45

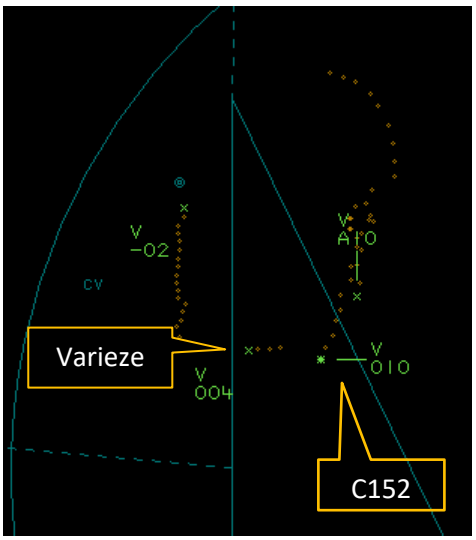

Figure 6:1444:15

The Sleap AIP entry states:

> Fixed wing aircraft to arrive using a standard 2000 ft QFE overhead join into the fixed wing circuit.

The C152 and Varieze 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] An aircraft operated on or in the vicinity of an aerodrome shall conform with or avoid the pattern of traffic formed by other aircraft in operation.[2]

Summary

An Airprox was reported when a C152 and a Varieze flew into proximity in the Sleap visual circuit at around 1443Z on Friday 16th July 2021. Both pilots were operating under VFR in VMC, neither pilot was in receipt of an ATS.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots and radar photographs/video recordings. 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 C152 pilot. Members noted that this was an instructional visual circuit flight and commented that this generally requires a high degree of instructional input and consequently a high cockpit workload, therefore they commended the C152 pilot for not becoming distracted and seeing the Varieze in time to take action. The pilot had heard the Varieze calling to join and so could rightly have expected it to fit in around the circuit already formed by the C152. Having taken action once to avoid the Varieze, as they continued downwind they were concerned by the proximity of the other aircraft (**CF6**), decided to take further avoiding action and this time performed a 360° orbit in order to remain clear. Noting that both aircraft were fitted with a PilotAware, members could not say why neither alerted (**CF4**).

Turning to the Varieze pilot, they had called on the frequency to announce their intention to join in the overhead. However, members noted that rather than flying into the overhead at 2000ft and using the descent to ensure that they had visual contact with all circuit traffic, the pilot performed an abbreviated join, descending deadside and turning crosswind at circuit height (**CF1**). In doing so, they may not have allowed enough time to hear any circuit calls, visually assess the situation from above and consequently ensure that they were aware of the relative positions and intentions of all aircraft in the pattern. As they

[1] (UK) SERA.3205 Proximity.
[2] (UK) SERA.3225 Operation on and in the Vicinity of an Aerodrome.

turned crosswind they reported seeing an aircraft climbing out, which members thought was probably the PA28 behind the C152, but did not have any situational awareness that the C152 was approaching downwind (**CF3**). Without knowing that the C152 was there, the pilot was not able to conform with the visual circuit pattern of traffic (**CF2**) and in fact did not see the C152 at all and were not aware that the other pilot had taken avoiding action until they called on the frequency (**CF5**).

Finally, in assessing the risk, members took into consideration both pilots reports and the radar data available. It was unfortunate that the actual Airprox had not been captured by the radar, but members were content that they had enough information to assess the risk. Given that the Varieze pilot did not see the C152 at all they quickly agreed that safety had been much reduced; Risk Category B (**CF7**).

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2021117			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Flight Elements			
	• Tactical Planning and Execution			
1	Human Factors	• Action Performed Incorrectly	Events involving flight crew performing the selected action incorrectly	Incorrect or ineffective execution
2	Human Factors	• Monitoring of Environment	Events involving flight crew not to appropriately monitoring the environment	Did not avoid/conform with the pattern of traffic already formed
	• Situational Awareness of the Conflicting Aircraft and Action			
3	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			
4	Human Factors	• Response to Warning System	An event involving the incorrect response of flight crew following the operation of an aircraft warning system	CWS misinterpreted, not optimally actioned or CWS alert expected but none reported
	• See and Avoid			
5	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
6	Human Factors	• Perception of Visual Information		Pilot was concerned by the proximity of the other aircraft
x	**• Outcome Events**			
7	Contextual	• Near Airborne Collision with Aircraft	An event involving a near collision by an aircraft with an aircraft, balloon, dirigible or other piloted air vehicles	

Degree of Risk: B.

Safety Barrier Assessment[3]

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

[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:

Tactical Planning and Execution was assessed as **partially effective** because the Varieze pilot did not use the overhead join to identify the position of the circuit traffic and did not conform with other circuit traffic.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **partially effective** because the Varieze pilot was not aware of the C152.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because both aircraft were equipped with PilotAware, but it did not alert.

See and Avoid were assessed as **partially effective** because although the C152 took avoiding action, the Varieze pilot did not see the C152.