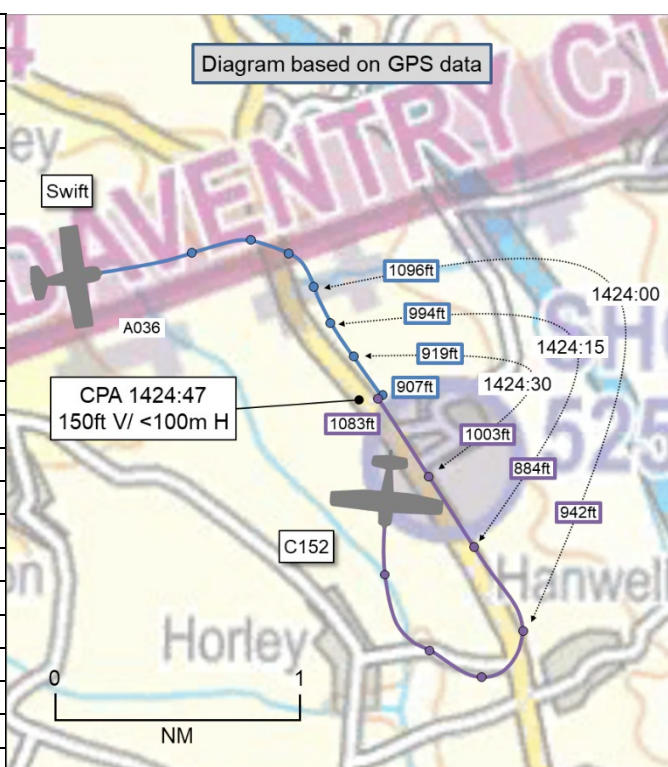


AIRPROX REPORT No 2022256

Date: 29 Oct 2022 Time: 1425Z Position: 5206N 00123W Location: Shotteswell

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Skyranger Swift	C152
Operator	Civ FW	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Listening Out	Listening Out
Provider	SafetyCom	SafetyCom
Altitude/FL	907ft	1083ft
Transponder	A, C, S	A, S
Reported		
Colours	Red, white	Red, white
Lighting	None	Strobes
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	400ft	500ft
Altimeter	QNH (1011hPa)	QNH (1009hPa)
Heading	150°	330°
Speed	50kt	60kt
ACAS/TAS	Not fitted	TAS
Alert	N/A	None
Separation at CPA		
Reported	0ft V/50m H	100ft V/0m H
Recorded	150ft V/ <100m H	



THE SWIFT PILOT reports that they had taken off from [departure airfield], broadcasting intentions on SafetyCom 135.480MHz. They had also earlier called nearby Shenington by telephone who confirmed they were active, so they had 129.980MHz, [a Common Glider Field Frequency], as a secondary frequency. The wind was southerly and around 8-10 knots. They spoke to, and reported positions to, Shenington over the next hour as they were in their vicinity. At approximately 1420, they commenced [an approach] to Shotteswell from the west, switching frequency to the airfield SafetyCom 135.480MHz. Their intention had been to turn onto a long final for RW15. They broadcasted their approach and landing intentions on SafetyCom at 5NM out, 2NM out, and turning onto finals as per normal. They heard transmissions from several stations, including Bidford and as far away as Sackville Farm. Established on finals for RW15, at least 1NM out, they configured for landing, selected one stage of flaps and slowed the aircraft down. The approach was normal and the aspect was good. At a height of around 400ft (altitude 900ft) at around 1425 and a distance to the threshold of RW15 of no more than a few hundred yards, they were astonished to suddenly see a high-wing aircraft nose high, climbing, flying fast (with a tailwind) on a directly reciprocal heading (i.e. 330° and at the same height). Their instant reaction was that it must have either just taken off on RW33 or had performed a 'fly-by' at low height on RW33. They immediately broadcast on 135.480MHz, "to the aircraft climbing out of 33, [Swift callsign] on finals to 15 straight ahead". No response was received. As [the Swift pilot] was already descending, and the aircraft coming towards them was ascending, they pulled back the engine power to accelerate their descent. The other aircraft passed above them by about 200ft slightly to their right, turning in what appeared to be a climbing left turn. It was easily identifiable as a Cessna with registration [C152 callsign]. They continued their approach, and landed normally. Shortly afterwards, they [traced] and spoke to the pilot concerned who was apologetic and explained that they had been instructing a student with a PFL. [The C152 pilot] stated that the first time they had seen [the Swift] was when it passed below them. [The Swift pilot] made it very clear that conducting a PFL a short distance upwind of the threshold of an active runway was not sensible and that they found it difficult to understand why

an aircraft would be climbing away from a PFL with a tailwind. [The Swift pilot] informed [the C152 pilot] that they would be filing an Airprox and this must not happen again.

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

THE C152 PILOT reports that they had been operating in and around the Banbury area with a student. Whilst operating in the vicinity of Shotteswell, they were listening out on 135.480MHz and squawking 7000. They wanted to see their student demonstrate a PFL. As this was the first one that [the student] would have done since April 2022, they allowed them to practice this simulated emergency on an actual grass airstrip rather than a farmer's field. The last wind report they had got from a reporting airfield was [Birmingham Airport] at 1350. The wind was 150/09. The orientation of Shotteswell's runway is 15/33. They closed the throttle practically overhead the field, whereby their student went straight into the assessment of the situation and started completing the vital actions. Although the wind favoured RW15 with the strong (upper) southerly wind, their student opted to keep upwind, with the strip to the left. This meant a tailwind on final to RW33. However, given the wind speed and direction from the Birmingham Airport METAR, they considered this acceptable given that they were not actually landing. In terms of threat-and-error management, they saw no activity on Shotteswell and they were listening out on 135.480MHz. The frequency was not that busy and they cannot say that they heard any traffic referencing Shotteswell. That's not to say that the [pilot of the traffic that they had conflicted with] hadn't made calls, just that they hadn't heard them. They had lights on and had decided to go around at around 300-400ft. After wings-level and fully configured for landing, they asked their student to go around. Whilst in the climb-out, the [Swift] passed very close underneath them. There had been no time for avoiding action. They opine that a contributory factor had been that they had been monitoring their student performing a PFL.

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

Factual Background

The weather at Birmingham was recorded as follows:

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METAR EGBB 291420Z 15009KT 9999 SCT023 20/16 Q1009
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Analysis and Investigation

UKAB Secretariat

An analysis of the NATS radar replay was undertaken and the C152 was identified in the vicinity of Shotteswell from Mode S data. The radar returns suffered from jitter and were considered unusable to plot the position of the C152 accurately. Mode C data for the C152 was not available throughout the radar recording. The Swift was not observed on radar at the time of CPA (see Figure 1).

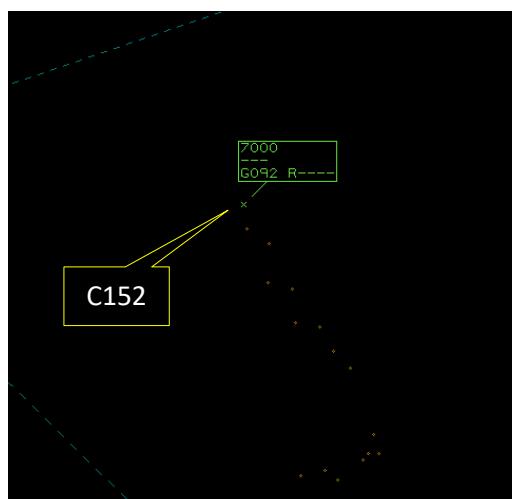


Figure 1 – CPA at 1424:47

Both pilots kindly supplied GPS track data from their respective flights and it is with that data that the diagram was constructed and the CPA assessed.

The Swift and C152 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 When the aircraft carries serviceable Mode C equipment, the pilot shall continuously operate this mode unless otherwise dictated by ATC.³

Summary

An Airprox was reported when a Swift and a C152 flew into proximity at Shotteswell at 1425Z on Saturday 29th October 2022. Both pilots were operating under VFR in VMC, listening-out on the SafetyCom frequency.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports and GPS track data 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 considered the actions of the pilot of the Swift and were heartened that they had maintained radio contact with nearby airfields on their route and had made regular position calls. To have made a call on the SafetyCom frequency well in advance of their approach to Shotteswell was also considered to have been good practice. Then, having transmitted their intentions and having heard no other pilots on the frequency, the pilot of the Swift had continued their approach to RW15. Noting that the Swift had not been fitted with an additional Electronic Conspicuity (EC) device, members determined that the pilot of the Swift had not had any situational awareness of the presence of the C152 (**CF5**). Some members wondered why the C152, which had been in the overhead at Shotteswell, and had subsequently descended through a similar level to the pilot of the Swift, had not been sighted. It was suggested that there had been some presumption that, having not received any response to their calls on the radio, there had not been any conflicting traffic. Members wished to highlight the importance of maintaining an effective lookout, particularly when approaching smaller airfields where the likelihood of encountering an aircraft that is not fitted with a radio may be greater. Notwithstanding, it was appreciated that there had been a considerable startle-factor to have seen an aircraft on a reciprocal track. Members noted that the immediate reaction of the pilot of the Swift on sighting the C152 had been to transmit a call and, therefore, members concluded that if time had allowed for such a call, that emergency avoiding action had not been necessary. Members were in agreement that to have visually acquired the C152 as it had been in a climb over the runway constituted a late sighting (**CF8**).

The discussion turned to consider the actions of the pilot of the C152. It was noted that the Swift had been visually acquired as it had passed underneath them. Members were in agreement that it had effectively been a non-sighting as there had been no time for the pilot of the C152 to have taken any avoiding action (**CF9**). Members wondered why the Swift had not been sighted sooner, a question to which they returned later in their discussions.

Members next noted that each pilot had turned onto the final approach leg of their respective runway headings, albeit on the same landing strip, within a few seconds of each other. Consequently, the discussion turned to the nature of the pattern of traffic at Shotteswell. Some members suggested that it had been the pilot of the C152 that had formed the pattern of traffic when, having flown through the overhead at a height that might reasonably be expected would constitute an overhead join, had conducted a descending left-hand turn to position for RW33. Indeed, whilst the pilot of the C152 had been in the overhead, the pilot of the Swift had been over 2NM away. It was further suggested that this

¹ (UK) SERA.3205 Proximity.

² (UK) SERA.3225 Operation on and in the Vicinity of an Aerodrome.

³ (UK) SERA.13010 Pressure-altitude-derived information.

would have been the manner in which a pilot of an aircraft that was not fitted with a radio might have joined to land. Other members suggested that it had been the pilot of the Swift that had formed the pattern of traffic when, in the absence of any other pilot having stated their intentions on the SafetyCom frequency that may have conflicted, had called their position and intention to land at Shotteswell when they had been 5NM away.

Notwithstanding these individual views, members were in agreement that it had been the responsibility of both pilots to have integrated with each other, but that that had not happened in this instance (**CF2**). Further, for the pilots to have been able to have integrated successfully and, given that the C152 had been equipped with a working radio, members wished to emphasise the imperative of communicating intentions, making timely and accurate position reports, assimilating any information received from other pilots in the vicinity and maintaining a thorough and effective lookout. Members agreed that these elements constituted several significant barriers for the avoidance of a mid-air collision.

The discussion continued and the wind conditions were considered. Members acknowledged that there may have been some training benefit for the student to have continued their approach to RW33 inasmuch as it might have demonstrated the effect of a tailwind on particular manoeuvres and the aircraft performance. However, some members commented that it may have been prudent to have conducted such a demonstration away from an active airfield. In this instance, and with a 9kt wind reported nearby that had favoured RW15, members agreed that to have made an approach to RW33 had been at odds with normal aviation practice. Again, members emphasised that, had the pilot of the C152, or indeed their student, communicated their intention to approach RW33, the conflict may have been averted (**CF1**).

The use of the SafetyCom frequency was discussed further, and members agreed that it had been an appropriate frequency for both pilots to have used. It was noted that the pilot of the C152 had tuned their radio to the SafetyCom frequency but had not heard, or had not assimilated information from, the broadcasts made by the pilot of the Swift (**CF4**, **CF6**). It was also noted that the EC equipment fitted to the C152 had not provided an alert to the presence of the Swift although such an alert would have been expected (**CF7**). Consequently, the pilot of the C152 had not had any situational awareness that the Swift had been nearby until it had been visually acquired at the point of CPA (**CF5**). Returning to their thoughts on why the Swift had not been sighted sooner, members were encouraged that the pilot of the C152 had identified that a contributory factor in this incident had been that their attention had been focussed on monitoring their student performing a PFL. Members agreed, and added that the appropriate use of the radio, both in monitoring the frequency and in transmitting intentions, and a thorough and effective lookout had been essential, but elements of these had been missing at the critical moment in this instructional flight (**CF3**).

Concluding their deliberations, and in determining the risk, members were in agreement that normal safety margins had been reduced to much below the norm and that there had been a risk of collision. It had been largely by chance that the separation at CPA had not been closer and, as such, the Board assigned Risk Category B to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2022256			
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
	Flight Elements			
	• Tactical Planning and Execution			
1	Human Factors	• Accuracy of Communication	Events involving flight crew using inaccurate communication - wrong or incomplete information provided	Ineffective communication of intentions
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	Human Factors	• Mentoring	Events involving the mentoring of an individual	
4	Human Factors	• Monitoring of Communications	Events involving flight crew that did not appropriately monitor communications	
5	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
6	Human Factors	• Understanding/Comprehension	Events involving flight crew that did not understand or comprehend a situation or instruction	Pilot did not assimilate conflict information
• Electronic Warning System Operation and Compliance				
7	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				
8	Human Factors	• Identification/Recognition	Events involving flight crew not fully identifying or recognising the reality of a situation	Late sighting by one or both pilots
9	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
• Outcome Events				
10	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 Assessment⁴

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

Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because neither of the approaching aircraft had integrated into a pattern of traffic.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the pilot of the C152 had been distracted from assimilating information regarding a potential conflict.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the EC equipment fitted to the C152 would have been expected to have detected the presence of the Swift but no alert was reported.

See and Avoid were assessed as **partially effective** because the pilot of the C152 had not sighted the Swift until the moment of CPA.

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

Airprox Barrier Assessment: 2022256

Outside Controlled Airspace

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