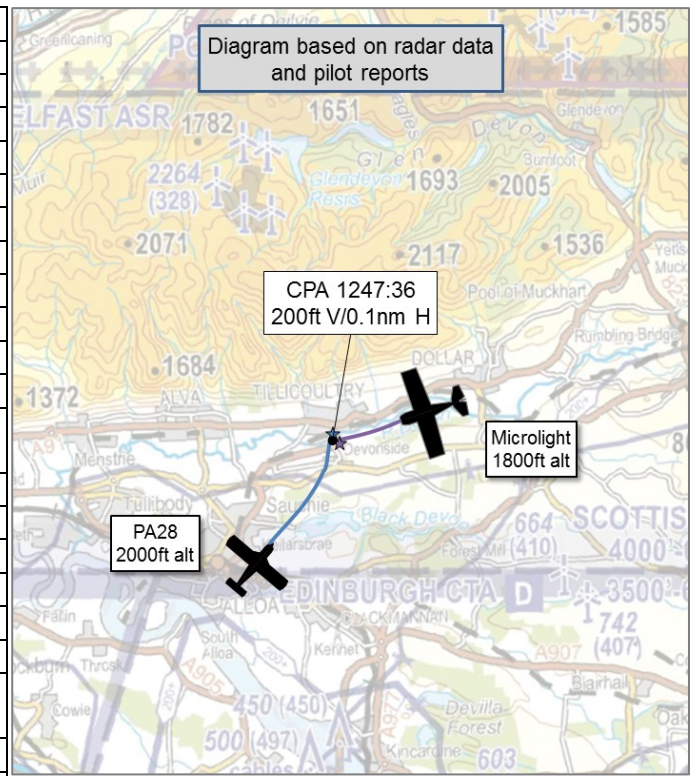


AIRPROX REPORT No 2019198

Date: 12 Jul 2019 Time: 1247Z Position: 5608N 00344W Location: Tillicoultry

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	PA28	Skyranger Swift
Operator	Civ FW	Civ FW
Airspace	Scottish FIR	Scottish FIR
Class	G	G
Rules	VFR	VFR
Service	None	None
Provider	N/A	N/A
Altitude/FL	2000ft	1800ft
Transponder	A, C	A, C
Reported		
Colours	White, Blue	White, Blue
Lighting	Strobe, Nav, Landing	Nav, Strobe
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	1800ft	1700ft
Altimeter	QNH (1014hPa)	QNH
Heading	033°	253°
Speed	98kt	70kt
ACAS/TAS	Not fitted	PilotAware with ADSB Out
Alert	N/A	Not reported
Separation		
Reported	0ft V/60m H	50ft V/300m H
Recorded	200ft V/0.1nm H	



THE PA28 PILOT reports that he was the instructor flying with a student on a Navigation exercise from Cumbernauld to Dundee. On the leg from Denny to Tillicoultry, they changed frequency to Scottish Information¹. Whilst flying northerly towards Tillicoultry using the town as an identifiable feature, the instructor was observing his student's Navigation techniques. Both pilot and student then looked up and saw a Microlight in their 2 o'clock position, heading westwards at the same altitude at a distance of less than 200ft. The microlight was heading towards the PA28. The microlight took avoiding action by completing a steep turn to the left, southwards, and passed behind the PA28. The instructor listened on frequency for any aircraft calls but heard nothing. He then composed himself and called Scottish information to report the Airprox. The instructor asked Scottish if they were aware of any traffic in the Tillicoultry area within the last 3 or 4 mins, to which they replied 'No'. The instructor then stated he would file an Airprox and completed his flight to Dundee.

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

THE SKYRANGER SWIFT MICROLIGHT PILOT reports that it was only his 2nd flight of the day so he was still alert and fresh and flying the same route as the morning. The student was practicing straight and level flight, so no huge workload and he was pretty much just monitoring his accuracy and keeping a lookout, tracking to the south of the Ochil hills towards Stirling. He encouraged the student to lookout and he also started a lookout scan to the starboard side. As he scanned the area between the wing leading edge and the nose of the aircraft he sighted the PA28 about 30° off his nose at a range of about 1000m. He took command of the aircraft and made a steep turn 45° to port. He kept an eye on the other aircraft and, when he was passing abeam at a distance of about 300m, he turned 45° back to starboard and regained his track. The other aircraft took no avoiding action which led him to believe the pilot

¹ The PA28 pilot was not in contact with Scottish Information until after CPA.

hadn't seen them. The Ochil hills is a busy area with many aircraft following the range of hills east or west, he always avoids the usual 1500ft or 2000ft heights and cruises somewhere in the middle keeping a good lookout. In poor visibility or low cloud-base days he also leaves the forward-facing landing lights on, but they were not on during this flight.

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

THE SCOTTISH FISO reports that at 1248Z the pilot of a PA28 called him requesting a Basic Service. The aircraft reported 2nm East of Tillicoultry (East of Stirling) at 1500ft VFR. A Basic Service was given. Shortly afterwards the instructor on board called to report coming very close to a Microlight Aircraft overhead Tillicoultry at 1247Z and 1800ft; the PA28 instructor advised him that he would be filing an Airprox report. The PA28 instructor asked if he had been working aircraft in that area but, to his knowledge, he had not been at that time.

Factual Background

The weather at Edinburgh was recorded as follows:

METAR EGPB 121250Z 26006KT 220V320 9999 FEW032 22/15 Q1014

Analysis and Investigation

NATS Investigation Summary

The PA28 pilot was receiving a Basic Service in Class G airspace from the Scottish FIR FISO, when they reported an Airprox with a microlight aircraft whose presence was unknown to the FISO, and which was identified as [Microlight C/S provided] during the investigation. The Airprox took place prior to the PA28 pilot calling the FISO for a service.

UKAB Secretariat

The PA28 and Skyranger Swift pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard². If the incident geometry is considered as converging then the PA28 pilot was required to give way to the Skyranger Swift³.

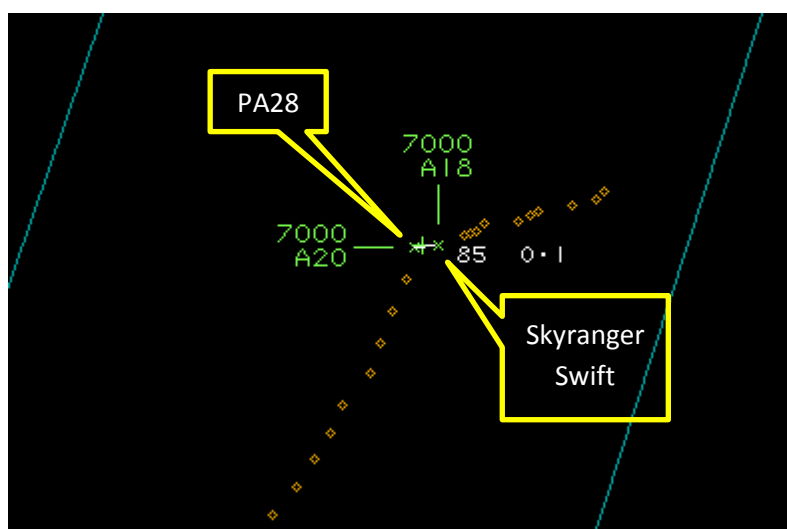


Figure 1: CPA at 1247:33

² SERA.3205 Proximity.

³ SERA.3210 Right-of-way (c)(2) Converging.

Summary

An Airprox was reported when a PA28 and a Skyranger Swift flew into proximity near Tillicoultry at 1247hrs on Friday 12th July 2019. Both pilots were operating under VFR in VMC, neither in receipt of an air traffic service.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings and reports from the FISO involved. 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 began by looking at the actions of the PA28 pilots. Members noted that the PA28 instructor and student were both focused 'heads-in' to the cockpit just prior to the incident and only saw the Skyranger after the Skyranger pilot had taken avoiding action to avoid the PA28 (**CF4**). Members agreed that this highlighted the importance of dividing the time when carrying out in-cockpit tasks with frequent spells of external lookout scan, especially when monitoring a student whose capacity might otherwise be sapped by simply operating the aircraft. Given the lack of available surveillance options in that area, some members also commented on the value of collision warning systems in providing situational awareness during such flights. Increasingly affordable (with some available for the price of a couple of tanks of fuel), flying clubs and companies could hugely reduce the risk of mid-air collisions by installing such systems to aid their instructors and customers. Finally, members noted that the PA28 instructor had contacted Scottish Information after the incident to report the Airprox, and the Board members commend him for this act, which had aided in the collation of material and comments regarding the incident.

Turning to the actions of the Skyranger pilot, some members wondered why, if he had seen the PA28 at 1000m as stated in his report (about 10secs before CPA), he had not been able to achieve a greater separation at CPA. Although they agreed that the PA28 pilot was required to give way, and that there may have been an element of the Skyranger pilot waiting to see if he would do so, they wondered whether the Skyranger pilot had actually seen the PA28 closer than he had estimated. Regardless, the Board agreed that the coincidental 200ft height separation and the Skyranger pilot's avoiding actions had ensured that the aircraft did not collide. Noting that the Skyranger had both a Transponder and an Electronic Warning System fitted, members wondered why the system had not alerted him to the proximity of the PA28 (**CF3**); some members wondered whether this was due to installation/aerial blanking, and recalled that with portable systems the location and orientation of the aerial was quite critical to ensuring effective performance.

Neither pilot was receiving a service and therefore could not receive any information regarding the other aircraft (**CF2**). Whilst members were mindful of the scarcity of LARS coverage around the area, they wondered if either pilot had considered using the Low-Level VHF Common frequency to inform other pilots of their position, height and routing to increase the situational awareness of others in the area (**CF1**). Regardless, the Board members agreed that both would have been better served by receiving at least a Basic Service from Scottish Information whereupon they would likely have received position updates from other aircraft, which might have improved their situational awareness.

Turning to the risk, members agreed that although it had been a very late sighting by the PA28 pilot, the Skyranger pilot had seen the PA28 early enough to be able to carry out a timely and effective avoiding manoeuvre which, combined with the 200ft vertical separation between them, led the Board to agree that although safety had been reduced because the aircraft were closer than desirable, there had been no risk of collision; risk Category C.

PART C: ASSESSMENT OF CONTRIBUTORY FACTOR(S) AND RISK

Contributory Factor(s):

2019198			
CF	Factor	Description	Amplification
Flight Elements			
• Tactical Planning and Execution			
1	Human Factors	• Communications by Flight Crew with ANS	Appropriate ATS not requested by pilot
• Situational Awareness of the Conflicting Aircraft and Action			
2	Contextual	• Situational Awareness and Sensory Events	Generic, late, no or incorrect Situational Awareness
• Electronic Warning System Operation and Compliance			
3	Human Factors	• Interpretation of Automation or Flight Deck Information	CWS alert expected but none reported
• See and Avoid			
4	Human Factors	• Monitoring of Other Aircraft	Non-sighting or effectively a non-sighting by one or both pilots

Degree of Risk: C.

Safety Barrier Assessment⁴

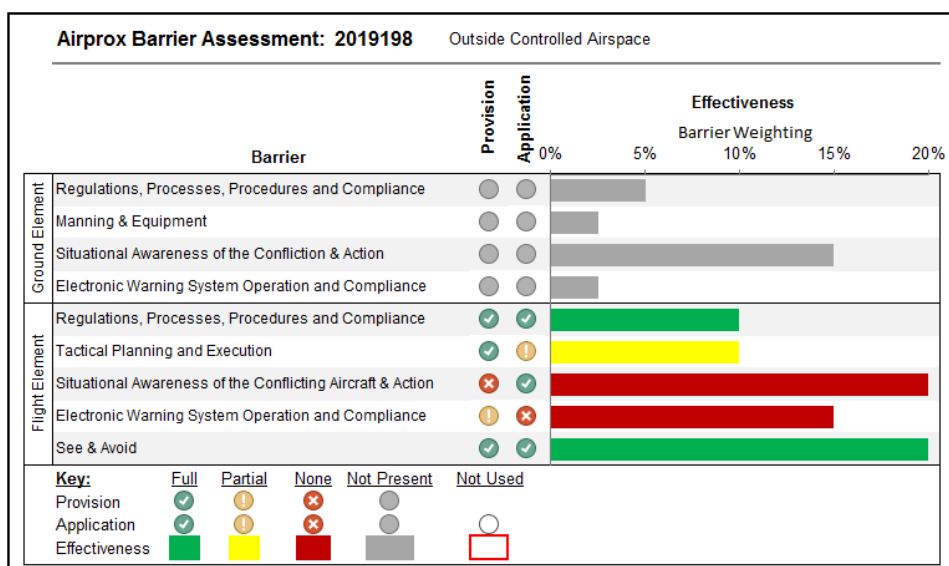
In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

Flight Elements:

Tactical Planning was assessed as **partially effective** because neither pilot was in communication with a suitable Air Traffic Agency.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because neither pilot had any situational awareness of the other aircraft.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the Skyranger Swift pilot did not report an alert from his PilotAware, which would have been expected.



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