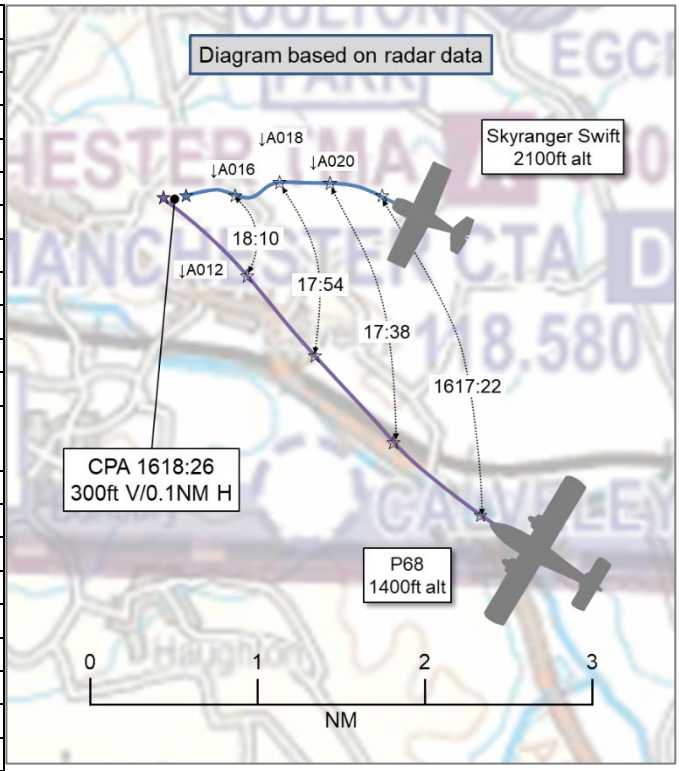
AIRPROX REPORT No 2021018

Date: 30 Mar 2021 Time: 1618Z Position: 5309N 00237W Location: 7NM NW of Crewe

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Skyranger Swift	P68
Operator	Civ FW	Civ Comm
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	None	None
Provider	N/A	N/A
Altitude/FL	FL012	FL009
Transponder	A, C, S	A, C, S
Reported		
Colours	Orange	White/blue
Lighting	Strobes, landing	Nav, anti-coll, strobes
Conditions	VMC	VMC
Visibility	100NM	>10km
Altitude/FL	1175ft	1500ft
Altimeter	NR	NK
Heading	NR	NK
Speed	63kt	120kt
ACAS/TAS	PilotAware	Not fitted
Alert	None	N/A
Separation		
Reported	200ft V/20m H	200ft V/<0.5NM H
Recorded	300ft V/0.1NM H	



THE SKYRANGER SWIFT PILOT reports being on a flight from [a local airfield]. They did not see the other aircraft until it had passed beneath them. They felt that it was very close and very fast in comparison to their own speed. They have since checked on FlightRadar24 and discovered that the other aircraft was 201ft from them at the time. The aircraft, to their knowledge, did not have any warning beacons on and did not show on their SkyDemon at the time (potentially because the aircraft was too low and too fast for it to register). The Swift pilot had ADS-B, was squawking [Mode A] 7000 and had PilotAware fitted (and on) at the time. Their aircraft is bright orange with lights literally all over it. They also had the landing lights on at the time as their intention was to turn and land back down.

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

THE P68 PILOT reports that a light aircraft was spotted in their 1 o'clock position, high (approximately 200-300ft high) and appeared to be descending and converging. They increased their rate of descent to avoid it. The crew was occupied performing other tasks at the time (requesting a Traffic Service from Hawarden [they recalled] and preparing for the re-join/approach).

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

THE HAWARDEN SENIOR AIR TRAFFIC CONTROLLER reports that [the P68 pilot] free-called Hawarden Radar at 1605 advising that they were in the vicinity of Stoke inbound to Liverpool which was closed at that time. The pilot requested a Basic Service. The Hawarden ATCO advised them that they were expecting Liverpool to open in the next 10min and would advise them when they do. At 1608 [the P68 pilot] advised that they were holding over Crewe until Liverpool opened. At 1615 Liverpool advised Hawarden that they were re-opening and it was agreed that [the P68] should be free-called over to Liverpool Radar and so [the P68 pilot] was instructed to free-call Liverpool Radar and left the frequency.

THE LIVERPOOL AIR TRAFFIC SERVICES MANAGER reports that by the time they were informed that their controllers may have been involved, the 30 day retention period for RTF recording had passed. Therefore, the only record of the P68's flight was the Flight Progress Strip, which showed the P68 re-joining the Liverpool CTR at 1628. The airfield was closed until 1615Z.

Factual Background

The weather at Hawarden was recorded as follows:

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METAR EGNR 301620Z 15009KT CAVOK 20/10 Q1024=
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Analysis and Investigation

UKAB Secretariat

Analysis of the NATS radar replay showed both aircraft squawking Mode A 7000 in the 3 minutes leading up to the Airprox. The P68 had previously been displaying a Mode A code allocated as 'Hawarden Airport Conspicuity Code', but this changed to Mode A 7000 at 1615:18 – some 3min 12sec before CPA – with the aircraft separated by 300ft vertically and 5.5NM laterally (see Figure 1 – note that the Skyranger's data is displayed as a flight level whilst the P68's data is displayed as an altitude. The local QNH was 1025, giving a height correction of ~300ft). Both aircraft maintained their respective tracks up until CPA; the P68 at an altitude of 1400ft until ~5sec prior to CPA when it descended to 1200ft and the Skyranger Swift in a continuous gentle descent from 2100ft to 1500ft at CPA (see Figure 2; aircraft data for both aircraft is displayed in flight levels).

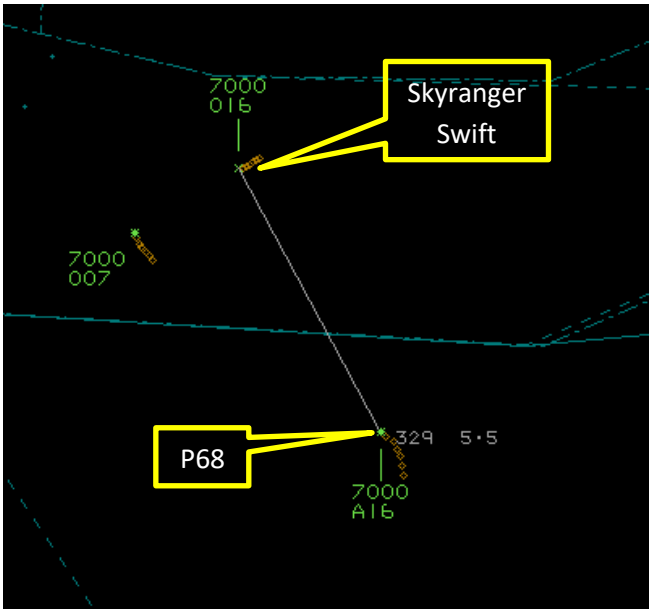


Figure 1 – 1615:18

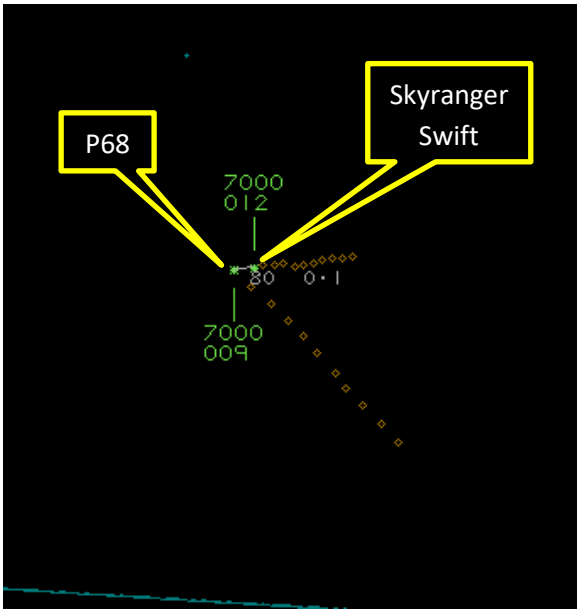


Figure 2 – 1618:26 – CPA

After the aircraft had passed, the P68 climbed to an altitude of 1300ft and at 1618:38 (12sec/3 radar sweeps after CPA) the P68's Mode A code changed to 5050 (see Figure 3), which is allocated as a 'Liverpool Conspicuity' code. It is therefore likely that the P68 pilot was in the process of agreeing an Air Traffic Service with Liverpool as the Airprox occurred, though this could not be confirmed with Liverpool ATC due to delays encountered in obtaining the report from the P68 pilot.

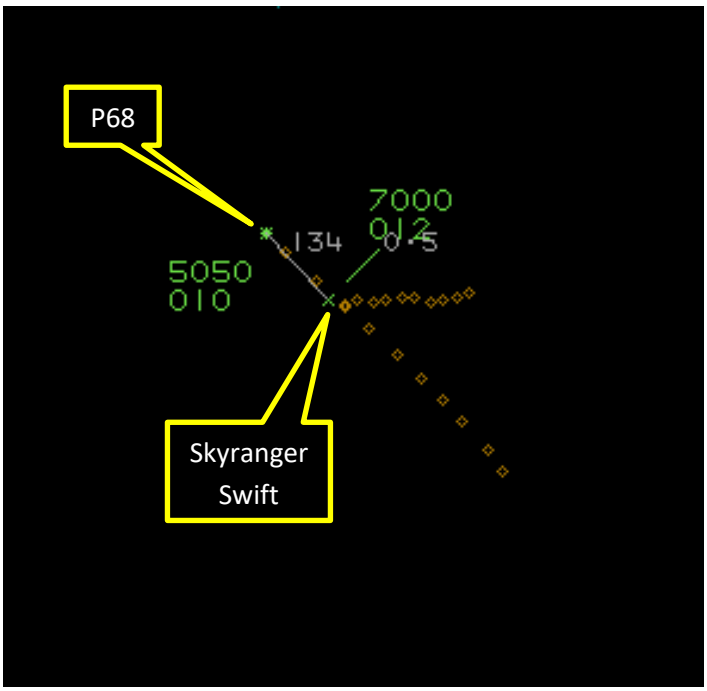


Figure 3 – 1618:38

The Skyranger Swift and Partenavia P68 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 P68 pilot was required to give way to the Skyranger Swift.[2]

Comments

P68 Operating Authority

This involved 2 qualified pilots, plus a camera operator, and the aircraft was not engaged in the survey task at the time of the event. When the crew was interviewed about the incident, they did not believe that the event merited an Airprox report.

Summary

An Airprox was reported when a Skyranger Swift and a Partenavia P68 flew into proximity 7NM NW of Crewe at 1618Z on Tuesday 30th March 2021. Both pilots were operating under VFR in VMC; neither pilot was 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 air traffic controllers mentioned by the pilots (but not 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.

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 considered the actions of the Skyranger Swift pilot and was heartened by the fact that they had been equipped with PilotAware. However, members noted that the various means of electronic

[1] SERA.3205 Proximity.
[2] SERA.3210 Right-of-way (c)(2) Converging.

conspicuity (EC) available do not provide a complete indication of surrounding traffic and so wished to highlight the advantages of also seeking a surveillance-based Air Traffic Service to supplement the information gained from EC equipment and lookout. In this case the Swift pilot had not sought any kind of Air Traffic Service and the PilotAware equipment had not detected the presence of the P68 (**CF2**), so the Swift pilot had not had any situational awareness of its presence (**CF1**). The Board agreed that the first that the Swift pilot knew of the P68 was when they saw it after it had passed under their aircraft's nose, too late for them to take any action to increase separation (**CF3**).

Turning to the actions of the P68 pilot, the Board was disappointed that it had taken so long for the UKAB Secretariat to receive the pilot's report. This had induced delays in contacting the appropriate ATC agencies to the extent that, by the time it could be established the likely agency with whom they were communicating, any RTF recordings were no longer available as the mandatory retention period had passed. This unfortunately limited the Board's understanding of the event.

Members noted that the P68 had not been fitted with any form of EC equipment and this led to a wide-ranging discussion over the commercial considerations of operators conducting survey operations. A member with experience in this area informed the Board that the subject of EC is often discussed by the survey operators but, without a clear regulatory obligation to carry EC equipment, the voluntary fitting of these devices in survey aircraft leads to additional costs for the operator with concomitant commercial considerations in an extremely competitive marketplace. The Board noted that, in the past 2 calendar years, there had been a total of 16 Airprox involving survey aircraft without EC equipment being fitted. In 2019 this represented 4.9% (10/203) of all aircraft-aircraft Airprox and in 2020 (noting that national coronavirus restrictions severely impacted recreational GA activity) this figure was 5.1% (6/118) of all aircraft-aircraft Airprox. Furthermore, in the light of 4 Airprox involving survey aircraft in one month's Board meeting (January 2020 meeting – Airprox 2019201, 2019208, 2019226 and 2019227), the Board had made recommendations concerning the mitigation of survey operation flights to the companies involved and to the CAA. As a result, the CAA agreed to '…*conduct a review of the risk assessments of survey operators, to ensure they meet the requirements of AMC SPO.OP.230(b) and are robust in addressing this risk*.' and the relevant Operating companies agreed to ensure that consideration would be given to further mitigate the MAC risk, including the scheduling of survey tasks to take advantage of surveillance-based Air Traffic Services where available, fitting ACAS to aircraft where possible and viable and, where commercial considerations permit, carrying an extra crewmember to supplement the lookout task.

The Board agreed that, in this case, the P68 pilot had not been in receipt of an Air Traffic Service at the time (albeit the Airprox occurred during the time the P68 pilot was probably contacting Liverpool ATC) and, without any other means of being alerted to the presence of the Skyranger Swift, had had no situational awareness of the Swift's presence (**CF1**). However, members agreed that they had sighted the Swift with sufficient time to take action to improve separation by increasing their rate of descent.

Addressing any ATC aspects of this Airprox, and although there was no involvement from Air Traffic Control in this particular case, the Board wished to thank the Hawarden Senior Air Traffic Controller and the Liverpool Air Traffic Services manager for their contributions in establishing the circumstances surrounding the Airprox. Their participation addressed a number of questions that might have otherwise gone unanswered.

Finally, the Board considered the risk involved in this event. Members noted that the Swift pilot had perceived a high risk of collision but that the P68 pilot had assessed the collision risk as 'low'. The Board felt that this difference was likely due to the Swift pilot not sighting the P68 until it had already passed under the nose of their aircraft and being somewhat surprised by its presence. Conversely, the P68 pilot had sighted the Swift in their 1 o'clock and had had time to formulate a plan to ensure that any risk of collision had been effectively removed. The Board also noted that the CPA as measured from the NATS radars had been 300ft vertically and 0.1NM horizontally. Accordingly, members agreed that safety had been degraded but there had been no actual risk of collision – Risk Category C.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2021018			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Flight Elements			
	• Situational Awareness of the Conflicting Aircraft and Action			
1	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			
2	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			
3	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

Degree of Risk: C

Safety Barrier Assessment[3]

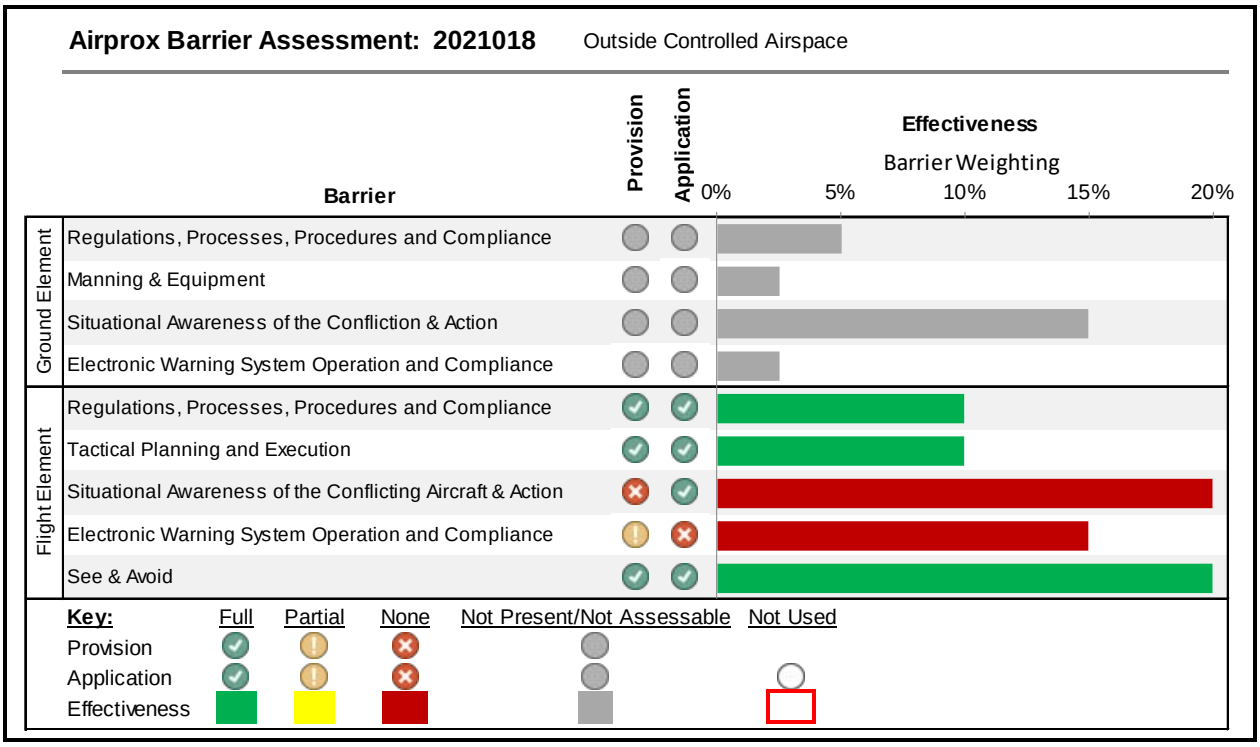
In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

Flight Elements:

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because neither pilot had any situational awareness of the presence of the other aircraft prior to pilot's sighting each other's aircraft.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the PilotAware equipment carried by the Skyranger Swift pilot did not detect the presence of the P68.

[3] 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: 2021018
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 Confliction & 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