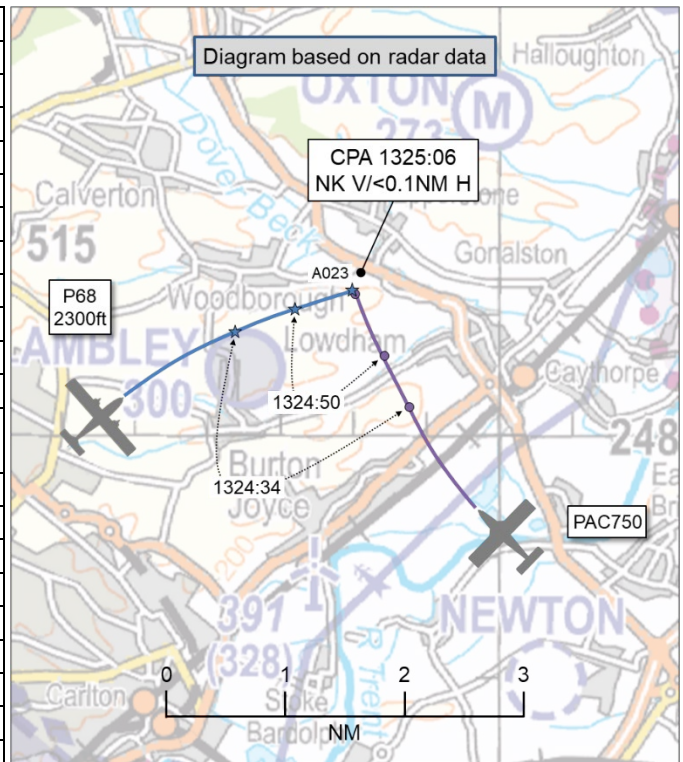


**AIRPROX REPORT No 2024130**

Date: 19 Jun 2024 Time: 1325Z Position: 5301N 00102W Location: 4.5NM W Syerston

**PART A: SUMMARY OF INFORMATION REPORTED TO UKAB**

Recorded	Aircraft 1	Aircraft 2
Aircraft	P68	PAC750
Operator	NPAS	Civ Comm
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Basic	None
Provider	East Midlands Radar	N/A
Altitude/FL	2300ft	NK
Transponder	A, C, S+	"off"
<b>Reported</b>		
Colours	Yellow, blue	Blue, yellow
Lighting	Landing, taxi, nav, strobes	Strobe
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	2300ft	2000ft
Altimeter	QNH (1023hPa)	QNH
Heading	050°	"NW"
Speed	110kt	140kt
ACAS/TAS	TCAS II	Not fitted
Alert	None	N/A
<b>Separation at CPA</b>		
Reported	<100ft V/0m H	200ft V/0.5NM H
Recorded	NK V/<0.1NM H	



**THE P68 PILOT** reports that they were transiting to a tasking when they had an Airprox event with a GA aircraft that was, seemingly, not fitted with a transponder. They were outside controlled airspace, 5NM west-northwest of Syerston in the climb to altitude 2500ft, under a Basic Service from East Midlands Radar and maintaining a listening watch on Syerston Radio (mindful of the gliding activity).

Passing 2300ft, a single-engine black-and-yellow aircraft approached their 1 o'clock position (pilot's blindspot) and appeared to pass extremely closely underneath the nose of their aircraft without deviation. There were no TCAS aural alerts or visual cues on the PFD TCAS display, which was set to an 8NM radius from the aircraft. The Tactical Flight Officer (TFO) subsequently observed no trace of the aircraft from ADS-B data. They disconnected the autopilot and maintained the climb.

They didn't inform ATC as the incident occurred outside controlled airspace and, as the other aircraft didn't appear to be transponder-equipped, only a primary trace may have been visible to ATC without any other relevant information. In hindsight, a call to ATC post-event and the request of a Traffic Service in the first instance may have been a better choice. It may not, however, have assisted them in this particular scenario.

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

**THE PAC750 PILOT** reports that, by the time they saw the [P68], maintaining their heading had taken them clear.

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

**THE EAST MIDLANDS CONTROLLER** reports that, at 1325, [the pilot of the P68] encountered an Airprox 5NM west-northwest of Syerston with an unknown aircraft. The Airprox was not reported to East Midlands ATC at the time.

## Factual Background

The weather at East Midlands was recorded as follows:

METAR EGNX 191320Z 12005KT 020V180 9999 SCT036 17/08 Q1023

## Analysis and Investigation

### East Midlands Airport Unit Investigation

Timeline:

- 1316:45 [The P68] was airborne. Saltby, Langar, Syerston were all active.
- 1319:03 [The pilot of the P68] contacted East Midlands Airport (EMA) Radar "*just leaving the zone towards the north on track to Newark, requesting a Basic Service outside controlled airspace*".
- 1319:15 EMA Radar controller acknowledged and issued a Basic Service.
- 1323:45 A primary-only radar contact appeared 5NM SE of [the P68] tracking NW, no height showed on radar.

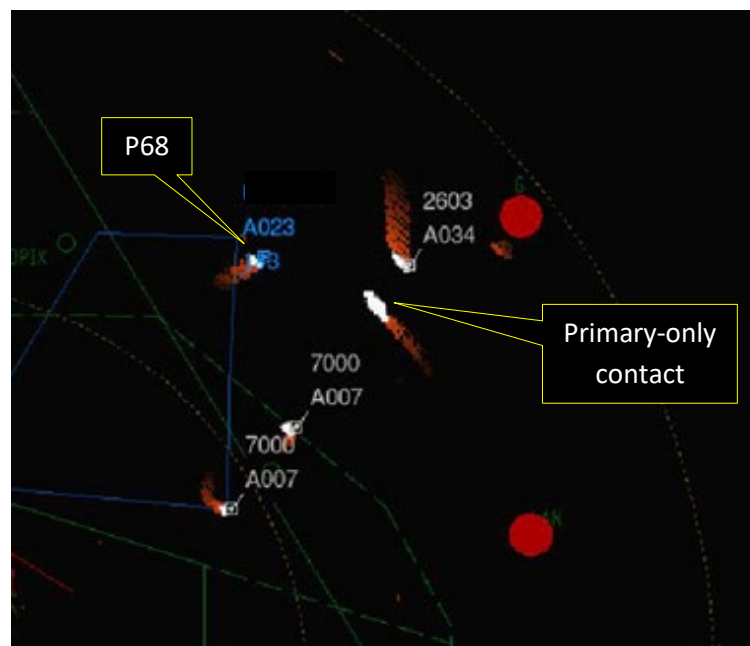


Figure 1 – Aircraft positions at 1324:06

- 1324:51 [The P68], at altitude 2300ft, converged with the primary-only contact. No height information showed on radar for the primary contact.

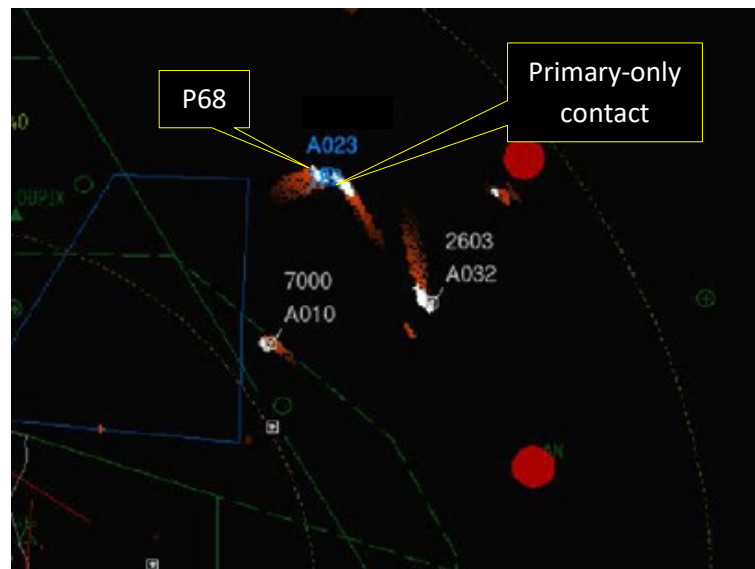


Figure 2 – Aircraft positions at 1324:51

1325:30 [The P68] continued north-east bound and the primary contact continued north-west bound. No report of an Airprox was transmitted to EMA Radar.

#### Findings:

At the time of the Airprox, [the pilot of the P68] was in receipt of a Basic Service only from EMA Radar. There was no requirement to have passed any surveillance-based Traffic Information to the pilot.

As [the pilot of the P68] continued in the vicinity of Syerston, a primary contact could be seen converging with [the P68]. No Traffic Information was passed, none was required to be passed and the controller was busy with other tasks. No mention of an Airprox was made to EMA ATC at the time.

#### Investigation Summary:

At 1324:51, [the P68] at altitude 2300ft converged with a primary-only contact. No height information was showing on radar for the primary contact.

[The pilot of the P68] was under a Basic Service, therefore there had been no requirement to pass Traffic Information.

The aircraft involved in the Airprox showed as primary-only, therefore there was no height information available on radar. The Radar ATCO would not have known what level the converging primary contact was at.

The Radar ATCO was also working other traffic, including vectoring traffic for an ILS RW09 and working a transit aircraft against departures.

#### UKAB Secretariat

An analysis of the NATS radar replay was undertaken and the P68 could be positively identified from Mode S data (Figure 3). The PAC750 could be identified by reference to the pilot's narrative report.

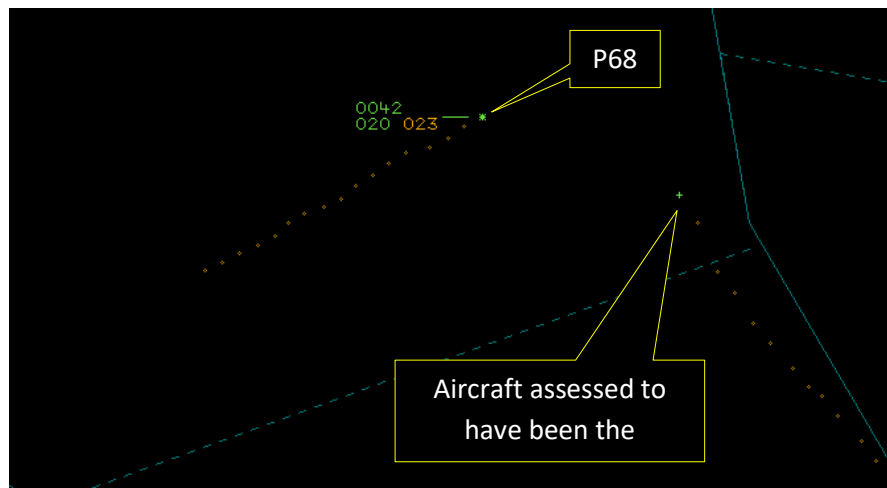


Figure 3 – Aircraft positions at 1324:38

The P68 was depicted on the radar replay as having been at Flight Levels and a suitable correction was made to determine its altitude. The P68 and PAC750 were observed on the radar replay to have been converging at 1325:02 (Figure 4). Due to radar performance, the precise moment of CPA was not observed but has been assessed to have occurred at 1325:06.

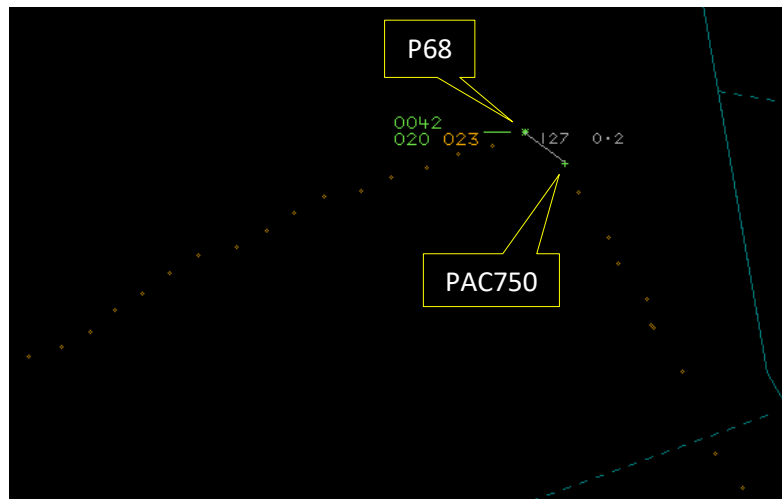


Figure 4 – Aircraft positions at 1325:02 (4sec before CPA)

The diagram was constructed and the horizontal separation at CPA estimated from the radar data. The vertical separation at CPA could not be determined.

The P68 and PAC750 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.<sup>1</sup> If the incident geometry is considered as converging then the P68 pilot was required to give way to the PAC750.<sup>2</sup> When an aircraft carries a serviceable SSR transponder, the pilot shall operate the transponder at all times during flight, regardless of whether the aircraft is within or outside airspace where SSR is used for ATS purposes.<sup>3</sup>

## Summary

An Airprox was reported when a P68 and a PAC750 flew into proximity 4.5NM west of Syerston at 1325Z on Wednesday 19<sup>th</sup> June 2024. Both pilots were operating under VFR in VMC, the P68 pilot in receipt of a Basic Service from East Midlands Radar and the PAC750 pilot not in receipt of an ATS.

<sup>1</sup> (UK) SERA.3205 Proximity.

<sup>2</sup> (UK) SERA.3210 Right-of-way (c)(2) Converging.

<sup>3</sup> (UK) SERA.13001 Operation of an SSR transponder

## **PART B: SUMMARY OF THE BOARD'S DISCUSSIONS**

Information available consisted of reports from both pilots, radar photographs/video recordings, a report from the air traffic controller involved and a report from the appropriate operating authority. 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 P68 and members noted that they had been in receipt of a Basic Service from the East Midlands Radar controller. It was agreed by members that, under the terms of a Basic Service, the pilot of the P68 would not have expected to have been passed Traffic Information. As such, members agreed that it may have been prudent to have requested a higher level of service (**CF3**). It was noted that the TCAS fitted to the P68 had been rendered incompatible with the transponder fitted to the PAC750 as the transponder had been switched off (**CF6**). Consequently, it was agreed that the pilot of the P68 had not had situational awareness of the presence of the PAC750 (**CF5**) until it had been visually acquired moments before CPA. Members agreed that the PAC750 had been sighted late (**CF7**) but noted that the P68 pilot had had time to have disconnected the autopilot and had maintained their climb.

Turning their attention to the actions of the pilot of the PAC750, members were surprised that they had conducted their flight in an aircraft fitted with a transponder but had not switched it on (**CF4**). It was agreed by members that they had not complied with the applicable regulation concerning the use of a transponder (**CF2**) and, in having switched it off, had denied other pilots and controllers' situational awareness that EC interactions with the transponder may have provided. Furthermore, members also noted that the PAC750 had not been fitted with an additional EC device which may have provided the PAC750 pilot some situational awareness of traffic in the area. Further still, members also noted that the pilot of the PAC750 had not been in receipt of an ATS and agreed that it would have been particularly prudent to have requested a surveillance-based service for the duration of their flight (**CF3**). Indeed, as a consequence of the three preceding points, members were in agreement that the pilot of the PAC750 had denied themselves an opportunity to have garnered any situational awareness and agreed that they had not been aware of the P68 in the vicinity until it had been visually acquired at the moment of CPA (**CF5**). As such, members agreed that that effectively constituted a non-sighting (**CF8**). One member with knowledge of the PAC750 explained that the long nose of the aircraft may have hindered the pilot's lookout. Other members countered that the P68 had approached from the pilot's side of the PAC750. Also, that it had appeared that the P68 had been above the PAC750 and would, therefore, not have been obscured from the pilot's view. Members were keen to emphasise the imperative of maintaining a thorough and effective lookout, particularly in a scenario where other barriers to a mid-air collision had been absent.

Members next turned their attention to the actions of the East Midlands Radar controller and it was noted that they had provided the pilot of the P68 with a Basic Service. A member with particular knowledge of ATC operations commented that, as the P68 had recently left controlled airspace (and therefore had been validated and verified), there may have been an opportunity for the East Midlands Radar controller to have passed Traffic Information to the pilot of the P68 on the primary-only contact ahead of them. It was acknowledged that the controller had not been required to have monitored the flight of the P68 under the terms of a Basic Service (**CF1**), and the PAC750 would have appeared on the controller's radar screen as a primary-only contact with no height information. However, had the controller had capacity at that moment to have noticed the primary-only contact apparently converging with the P68, the passage of generic Traffic Information or a generic caution on a contact ahead may have provided the pilot of the P68 with enough time to have taken more effective avoiding action.

Concluding their discussion, members summarised their thoughts. It was agreed that the pilot of the PAC750 had not been in receipt of an ATS, had not fitted their aircraft with an additional EC device and that the consequence of not operating their transponder had been far-reaching. Indeed, members surmised that these conditions had, very likely, prevented the pilot of the P68 from gaining situational awareness of the presence of the PAC750 and had hindered the situational awareness of the East Midlands Radar controller. Members agreed that safety margins had been reduced such that the safety

of the aircraft involved had not been assured. Members concluded that there had been a risk of collision (CF9). It was agreed that it had been the late sighting of the PAC750 by the pilot of the P68, and their subsequent avoiding action, that may have prevented this encounter from ending with a far more serious outcome. The Board assigned Risk Category B to this event.

## **PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK**

### Contributory Factors:

	2024130			
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
<b>Ground Elements</b>				
<b>• Situational Awareness and Action</b>				
1	Contextual	• ANS Flight Information Provision	Provision of ANS flight information	The ATCO/FISO was not required to monitor the flight under a Basic Service
<b>Flight Elements</b>				
<b>• Regulations, Processes, Procedures and Compliance</b>				
2	Human Factors	• Use of policy/Procedures	Events involving the use of the relevant policy or procedures by flight crew	Regulations and/or procedures not complied with
<b>• Tactical Planning and Execution</b>				
3	Human Factors	• Communications by Flight Crew with ANS	An event related to the communications between the flight crew and the air navigation service.	Pilot did not request appropriate ATS service or communicate with appropriate provider
4	Human Factors	• Transponder Selection and Usage	An event involving the selection and usage of transponders	
<b>• Situational Awareness of the Conflicting Aircraft and Action</b>				
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
<b>• Electronic Warning System Operation and Compliance</b>				
6	Technical	• ACAS/TCAS System Failure	An event involving the system which provides information to determine aircraft position and is primarily independent of ground installations	Incompatible CWS equipment
<b>• See and Avoid</b>				
7	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
8	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
<b>• Outcome Events</b>				
9	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<sup>4</sup>

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

### **Ground Elements:**

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

**Situational Awareness of the Confliction and Action** were assessed as **not used** because the East Midlands Radar controller had not been required to monitor the flight of the P68 under the terms of a Basic Service.

**Flight Elements:**

**Regulations, Processes, Procedures and Compliance** were assessed as **partially effective** because the pilot of the PAC750 had not operated the transponder fitted to the PAC750.

**Tactical Planning and Execution** was assessed as **ineffective** because it may have been prudent for the pilot of the PAC750 to have been in receipt of an ATS.

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

**Electronic Warning System Operation and Compliance** were assessed as **ineffective** because the TCAS II fitted to the P68 had been rendered incompatible with the transponder fitted to the PAC750 given that it had been switched off by the PAC750 pilot.

**See and Avoid** were assessed as **partially effective** because the pilot of the PAC750 had not visually acquired the P68 until the moment of CPA.

Airprox Barrier Assessment: 2024130		Outside Controlled Airspace		Effectiveness				
Barrier		Provision	Application	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	!	!					
<b>Key:</b>		<u>Full</u>	<u>Partial</u>	<u>None</u>	<u>Not Present/Not Assessable</u>	<u>Not Used</u>		
Provision	✓	!	✗	●				
Application	✓	!	✗	●	○			
Effectiveness								