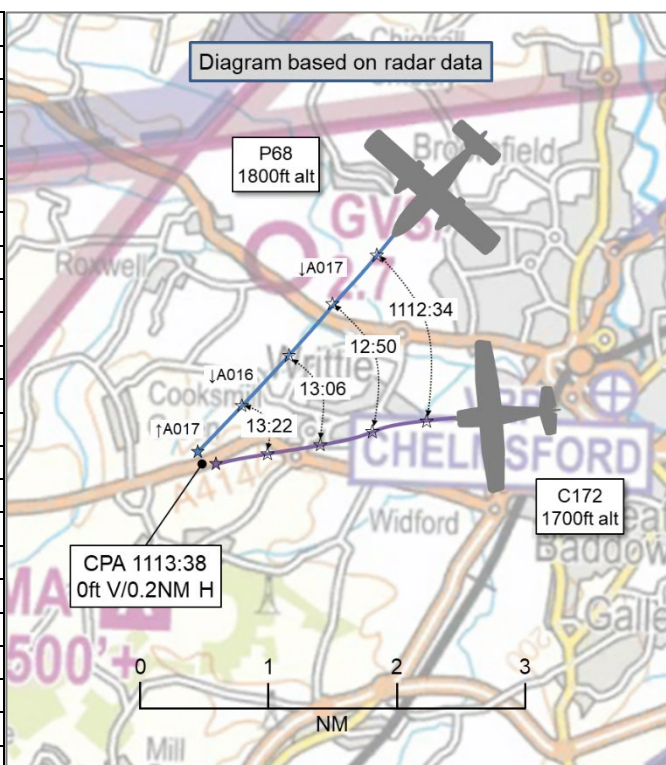


AIRPROX REPORT No 2021020

Date: 30 Mar 2021 Time: 1114Z Position: 5144N 00023E Location: 3NM W of Chelmsford

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	P68	C172
Operator	Civ Comm	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Basic	Listening Out
Provider	Essex Radar	Southend Radar
Altitude/FL	A017	A017
Transponder	A, C, S	A, C, S
Reported		
Colours	White, blue	White, blue
Lighting	Strobes, nav lights	Anti-colls, strobes
Conditions	VMC	VMC
Visibility	'Hazy but good'	>10km
Altitude/FL	1700ft	1800-2000ft
Altimeter	QNH	QNH
Heading	'South-west'	'West'
Speed	125kt	95kt
ACAS/TAS	Not fitted	Not fitted
Separation		
Reported	0ft V/100m H	200ft V/>400m H
Recorded	0ft V/0.2NM H	



THE PARTENAVIA P68 PILOT reports flying on the south-west line of a survey task and following the survey track to best of their ability. Stansted radar had informed them that there was too much traffic to grant a Traffic Service, plus there was a lot of chatter on the frequency. Suddenly, they saw the other aircraft on their left at approximately the same altitude. They told their operator, sitting in the back of the aircraft, that there was traffic at their 9 o'clock. The operator said quite quickly that they had eyes on the traffic. The pilot told them to keep an eye on the other aircraft and let them know if it changed track/heading. The operator then said that the other aircraft was continuing to get closer and the pilot noticed that as well. The pilot was still trying to keep their straight survey line, but the other aircraft came way too close for comfort and they turned away from the survey line. As soon as they turned they think that the other pilot noticed them, because they then turned in the opposite direction. The pilot does not feel like the other pilot was looking for other traffic and so, from the other pilot's perspective, 'they came out of nowhere'. The pilot thought the 'keep right' rule also applies in the UK and, he opined, the other pilot did not uphold that rule in this particular case. The pilot then told their operator that they did not consider it safe to continue the survey task in this area on that day and they returned to base.

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

THE C172 PILOT reports that they were on a licence revalidation flight with an instructor and they had completed PFLs and various manoeuvres to the east of Chelmsford. At the time of the reported Airprox they were returning to [a local airfield] to the west of Chelmsford. They were flying straight and level when they turned towards the instructor and saw the other aircraft at about 400m in their right 3 o'clock, low and overtaking. They turned slightly left to keep the other aircraft in sight, which overtook and carried on towards Stapleford VOR without deviating.

The pilot assessed the risk of collision as 'None'.

THE C172 INSTRUCTOR reports that although they made a deviation to the left to increase the separation from the other aircraft, which was overtaking after it first became visual, they certainly did

not consider it worthy of an Airprox report. From their perspective on the tracks that were being taken, the risk of collision without a significant deviation in height in the very good VFR conditions was negligible to nil. Of course, they cannot comment on what happened before the aircraft was first sighted by [the student].

THE ESSEX RADAR CONTROLLER reports that [the P68] flight was along a NE/SW axis approximately 8NM E of Stansted, and flying from a point near Earls Colne airfield reaching almost the edge of the London/City zone. The pilot reported each time they turned to fly the reciprocal, and at all times was given a Basic Service. The controller also recalls it being a very busy VFR day and advising the pilot to keep a good lookout. They remember the pilot commenting when they were preparing to land for a break that they had had, in their words, a few 'close shaves', and that they may not get airborne again that day. At no time was any mention of an Airprox made on the RT by the pilot.

THE SOUTHEND RADAR CONTROLLER reports that the DIR and RAD frequencies were split. The [C172] was operating in the Hanningfield/Chelmsford area squawking 5050 (Southend listening squawk) and the [P68] was operating in a similar area with an Essex radar squawk. They did not receive any transmissions from [the C172] – the pilot did not request a service. They do not recall seeing a confliction between these two aircraft. They are aware that they have the option to make blind transmissions to aircraft operating on a 5050 squawk where an obvious risk is apparent. On this occasion, as they did not observe a confliction, no blind transmission was made.

Factual Background

The weather at Stansted Airport was recorded as follows:

METAR EGSS 301150Z AUTO 15008KT 9999 NCD 20/07 Q1028=

Analysis and Investigation

NATS Swanwick

[The P68] was tasked on a survey flight to the east of Stansted, outside the Stansted CTA and below the London TMA, whilst receiving a Basic Service from the Stansted Intermediate Director (SS INT). [The P68 pilot] was conducting north-east/south-west reciprocal tracks as part of their survey detail, and RT review indicated that the pilot informed the Stansted INT controller at each occasion their flight turned onto the reciprocal track.

The pilot of [the P68] had initially contacted the SS INT [controller] at **0851:22** and was provided with a Basic Service outside controlled airspace. [The P68] pilot's report stated that the Essex Radar controller was unable to offer a requested Traffic Service outside controlled airspace due to high workload on the sector and frequency. [The P68] pilot proceeded to carry out survey runs.

At **1105:01**, the pilot of [the P68] contacted the SS INT [controller] and stated "*we have had a few close calls, so we were going to give it an hour more, and it's just so much traffic we are going to call it off for today.*" The SS INT [controller] responded "*understood, yes it was extremely busy that last run, it's quieter now so continue with your good look out.*"

The SS INT [controller] subsequently informed the pilot of [the P68] at **1106:19** that their RT workload had decreased and that they could now provide some Traffic Information, and proceeded to provide a traffic report on [a C152] that was on a crossing heading. The SS INT [controller] provided this information, however did not upgrade the level of service provided from a Basic Service. The SS INT [controller] provided further Traffic Information on [a SportCruiser] at **1108:36**; the pilot of [the P68] stated at **1110:07** that they were visual with this traffic.

At **1111:35**, the SS INT [controller] provided further Traffic Information to [the P68 pilot], stating that the previous traffic had just cleared to the right, in [the P68] pilot's 12 o'clock, and that the "*next one is left, ten o'clock, two miles, westbound, indicating one thousand seven hundred feet*" (see Figure 1). This referred traffic was [the C172] (Mode-A code 5050, Southend Listening).

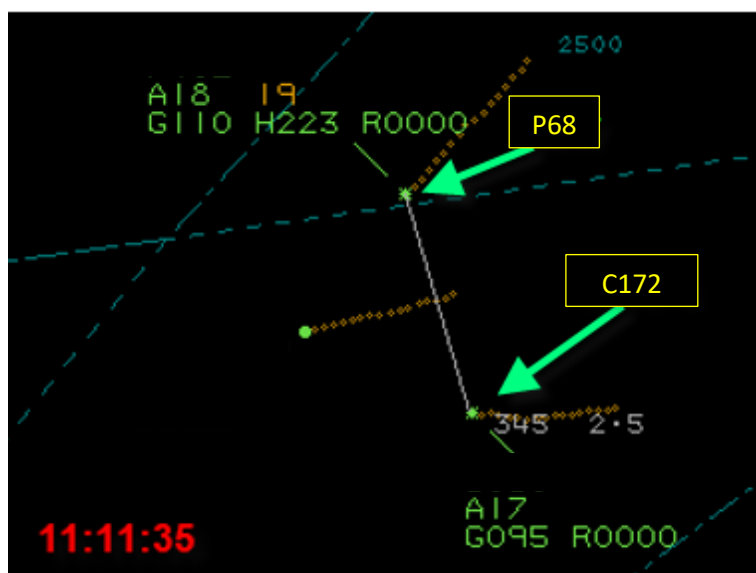


Figure 1

The pilot of [the P68] responded “*I have traffic in sight, thank you*”. As there were two aircraft positions described by the SS INT [controller] in this single transmission, it cannot be determined whether the pilot had both aircraft in sight.

[The C172] continued on a westerly track, maintaining an indicated altitude of 1700ft, whilst [the P68 pilot] maintained their track and altitude of 1800ft on a converging path. At **1111:38**, [the P68] initiated climb for two radar updates. This climb subsequently changed to descent and [the P68] descended to an altitude of 1700ft at **1112:38**, the same altitude as the conflicting traffic.

At **1113:18**, the radar displayed [the P68] descend to an altitude of 1600ft whilst initiating a slight left turn of less than 5°, converging further with [the C172] that was also initiating a gradual left turn onto a south-westerly track. [The P68 pilot] initiated a reciprocal right turn onto the approximate previous track of 224° which was displayed over the following two radar updates, before [the P68] displayed an altitude of 1700ft at **1113:34**. The Airprox report from the pilot of [the P68] stated that at “~200m” the pilot of [the P68] turned right to avoid the conflicting aircraft. Radar data did not correspond with the pilot narrative. Safety Investigations assessed the closest point of approach between [the P68] and [the C172] occurred at **1113:38** and was recorded on the LTC Multi-Track radar as 0.2NM and 0ft (see Figure 2).

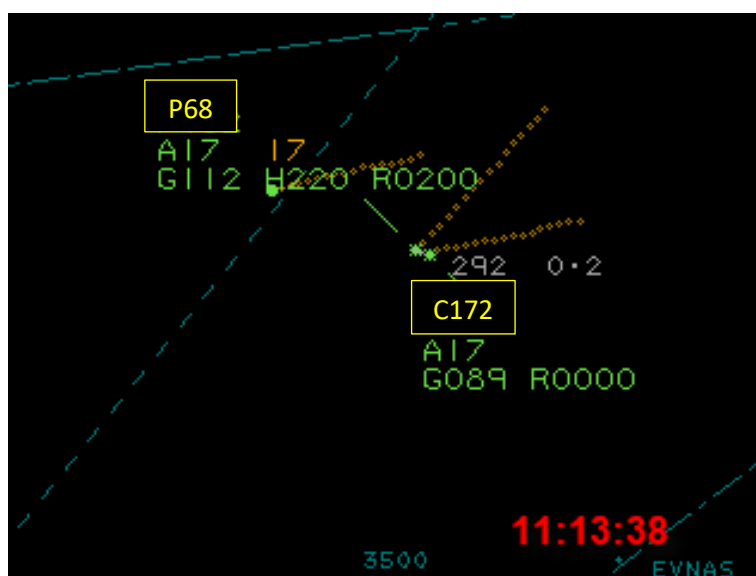


Figure 2

This proximity was maintained on approximate parallel tracks for two further radar updates, prior to **1113:46** when [the P68 pilot] initiated climb to an altitude of 1800ft, and [the C172 pilot] furthered their left turn onto a diverging track. [The P68] continued on a radar derived track of 217°.

This Airprox occurred in Class G Airspace when [the P68] flew into proximity with [the C172]. [The P68 pilot] was in receipt of a Basic Service from Essex Radar. The pilot of [the P68] did not report taking any critical avoidance manoeuvre on the SS INT frequency, and none was evident upon reviewing the radar.

UKAB Secretariat

The P68 and C172 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 C172 pilot was required to give way to the P68.² If the incident geometry is considered as overtaking then the C172 pilot had right of way and the P68 pilot was required to keep out of the way of the other aircraft by altering course to the right.³

Summary

An Airprox was reported when a Partenavia P68 and a C172 flew into proximity 3NM west of Chelmsford at 1114Z on Tuesday 30th March 2021. Both pilots were operating under VFR in VMC, the P68 pilot in receipt of a Basic Service from Essex Radar and the C172 pilot listening-out on the Southend Radar frequency.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, reports from the air traffic controllers involved and reports from the appropriate operating authorities. 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 P68 pilot and noted that they had reported coming close to a number of aircraft on their flight, but had not declared an Airprox on the frequency at the time. Whilst this had made it more difficult to identify the other aircraft involved initially, the more pressing requirement is for the controller to take the details of the Airprox and complete a report whilst the event is still fresh in their mind. The Board wished to remind pilots to declare an Airprox on the frequency in use at the time or, if this is not possible (such as those times when a pilot is not receiving an Air Traffic Service), then as soon as practicable after the event, which can include informing a nearby ATC unit whilst airborne even if that unit was not providing a Service to the pilot.

Concerning the Airprox itself, there was much discussion regarding whether this had been an 'overtaking' or 'converging' situation, and the Board noted that the P68 pilot had considered the 2 aircraft to be converging and therefore the responsibility to give way had rested with the pilot of the C172. However, it was clear to the Board that the P68 had been flying faster than the C172 and, since it was within 70° of the plane of symmetry of the Cessna (see Figure 3), the C172 had had the right-of-way and it had been the responsibility of the P68 pilot to give way to the C172 as they overtook it. Although, in the Board's view, the P68 pilot had mis-appreciated the particular element of SERA that had applied in the early stages of this encounter, members felt that even if it had been the case that the C172 pilot had had to give way to the P68, and therefore the P68 pilot been required to maintain heading and speed, this would not have prevented the P68 pilot from changing their altitude in order to provide

¹ (UK) SERA.3205 Proximity.

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

³ (UK) SERA.3210 Right-of-way (c)(3) Overtaking.

additional vertical separation, particularly since the P68 pilot had had no way of knowing if the C172 pilot had been aware that the P68 was there. Therefore, the Board considered that the P68 pilot not adjusting their altitude on sighting the C172 had been contributory to the Airprox (**CF2**).

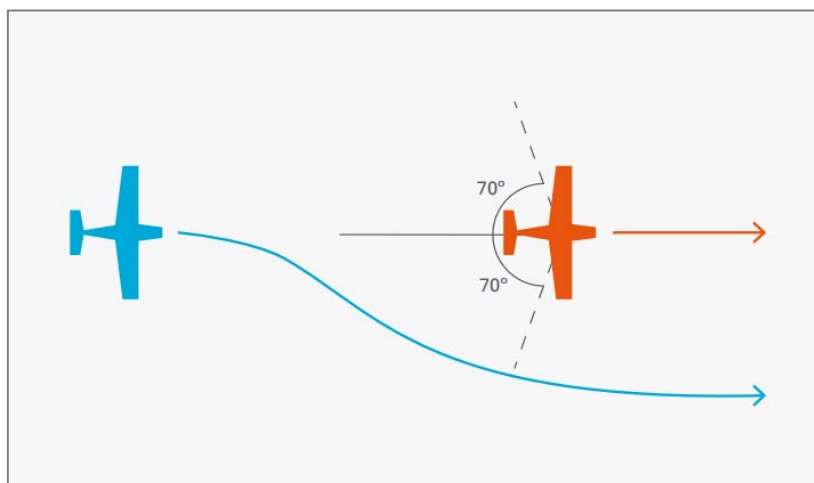


Figure 3⁴

The Board discussed the efficacy of the Situational Awareness barrier and heard from an ATC advisor that the P68 pilot had requested a Traffic Service from the Essex Radar controller some 2hrs prior to the Airprox, but that this level of Service had been refused and a Basic Service offered instead. Whilst this is not uncommon when controllers are busy, the Board wished to highlight that a Refusal of Service can now be reported using a CAA form FCS1522⁵ and encouraged pilots to submit this form for reporting denial of access to airspace, being refused an Air Traffic Service, or being refused the type of Air Traffic Service requested. Mindful of a number of recent Airprox involving aircraft undertaking survey tasks, some members questioned the wisdom of conducting survey flights without additional means of gaining situational awareness (such as electronic conspicuity devices) outside that which may be gained through air traffic control. As it was, the P68 pilot had not had any situational awareness of the presence of the C172 before they saw it (**CF3**), leaving them to rely on the See and Avoid barrier to maintain separation from other aircraft. The Board agreed that, in evaluating the situation as converging and having waited for positive action from the C172 pilot to deconflict the relative flightpaths of the 2 aircraft, the P68 pilot had chosen the incorrect course of action and had been concerned by the proximity of the Cessna (**CF4, CF5**).

Turning to the actions of the C172 pilot, the Board heard from a GA pilot member familiar with the area in which the Airprox took place that, in their view, the C172 pilot had selected the correct frequency for their operating area but some members wondered if they had expected more information from the controller when operating under the provisions of a frequency monitoring code. The Board wished to highlight to pilots that a frequency monitoring code (or 'listening squawk') does not imply that a pilot is receiving an Air Traffic Service – more details of what is, and is not, available to pilots when monitoring a frequency with the specified transponder code selected in their aircraft is available through the Airspace and Safety Initiative website,⁶ wherein a link is provided to a 2-page document that briefly describes what pilots can and, equally importantly, cannot expect from a controller when they are displaying a listening squawk. That said, the Board felt that the C172 pilot may have been better served by requesting a surveillance-based Air Traffic Service from the Southend controller, as they had had no other means of being alerted to the relative proximity of the P68. Similar to the P68 pilot, the C172 pilot had not had any situational awareness of the presence of the P68 (**CF3**), and only saw it as they turned their head towards their instructor who was sat beside them. Members noted that the C172 pilot had been sufficiently concerned by the proximity of the P68 (**CF5**) to initiate a slight turn away from the other aircraft whilst also keeping it in sight.

⁴ Source – [CAP 1535 – The Skyway Code Version 3, dated March 2021](#)

⁵ <https://apply.caa.co.uk/CAAPortal/servlet/SmartForm.html?formCode=fcs1522>

⁶ <https://airspaceand.safety.com/listening-squawks/>

The Board then considered the actions of the controllers involved and quickly agreed that the Southend controller, not having received any transmissions from the C172 pilot, could not have been expected to either notice a conflict or to intervene and pass Traffic Information to the C172 pilot. There then followed a lengthy discussion on the availability and provision of STCA⁷ to the Essex Radar controller. The STCA parameters for the controller had been set to exclude aircraft operating VFR outside controlled airspace and so STCA had not been available to the controller involved with this Airprox (CF1). However, the Board felt that the availability, or otherwise, of STCA to controllers was little understood amongst GA pilots. Controller members with experience of operating with STCA wished to highlight that STCA is a tool designed for use within controlled airspace and is, in general, unsuitable for use in Class G airspace. The parameters that are set for the STCA to generate an alarm within controlled airspace are invariably breached by aircraft operating under VFR within Class G airspace and, therefore, should STCA be employed in this environment then it would likely be generating constant alarms. This would have the effect of desensitizing controllers to genuine alarms and, effectively, negating the positive influence on safety of STCA. In this particular case, STCA had not been available to the controller and the Board considered that, given that the P68 pilot had been operating under a Basic Service, there had been no requirement for the controller to monitor the P68 (albeit the controller had, in fact, passed Traffic Information on the C172 to the P68 pilot shortly after the P68 pilot had sighted the C172).

Finally, the Board considered the risk involved in this event. Members noted that neither pilot had assessed the risk of collision as anything higher than 'Low' and that their respective estimates of horizontal separation were, in fact, less than that measured on the NATS radar replay. Noting this, and also in view of the fact that the C172 pilot had taken action to increase separation immediately on sighting the P68, and that the P68 pilot had monitored the C172 for a period before manoeuvring themselves, members agreed that there had been no risk of collision. However, the Board did consider that safety had been degraded and so assigned a Risk Category C to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2021020			
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
Ground Elements				
• Electronic Warning System Operation and Compliance				
1	Technical	• Conflict Alert System Failure	Conflict Alert System did not function as expected	The Conflict Alert system did not function or was not utilised in this situation
Flight Elements				
• Tactical Planning and Execution				
2	Human Factors	• Insufficient Decision/Plan	Events involving flight crew not making a sufficiently detailed decision or plan to meet the needs of the situation	Inadequate plan adaption
• 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
• See and Avoid				
4	Human Factors	• Incorrect Action Selection	Events involving flight crew performing or choosing the wrong course of action	Pilot flew close enough to cause concern
5	Human Factors	• Lack of Individual Risk Perception	Events involving flight crew not fully appreciating the risk of a particular course of action	Pilot flew close enough to cause concern

⁷ Short Term Conflict Alert.

Degree of Risk: C

Safety Barrier Assessment⁸

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

Ground Elements:

Electronic Warning System Operation and Compliance were assessed as **not used** because the STCA available to the Essex Radar controller is not configured to provide an alarm between the 2 aircraft involved.

Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because, although the P68 pilot perceived that it was for the C172 pilot to give way to their aircraft, they could have altered their altitude in order to provide an element of height separation.

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

Airprox Barrier Assessment: 2021020		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								

⁸ The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).