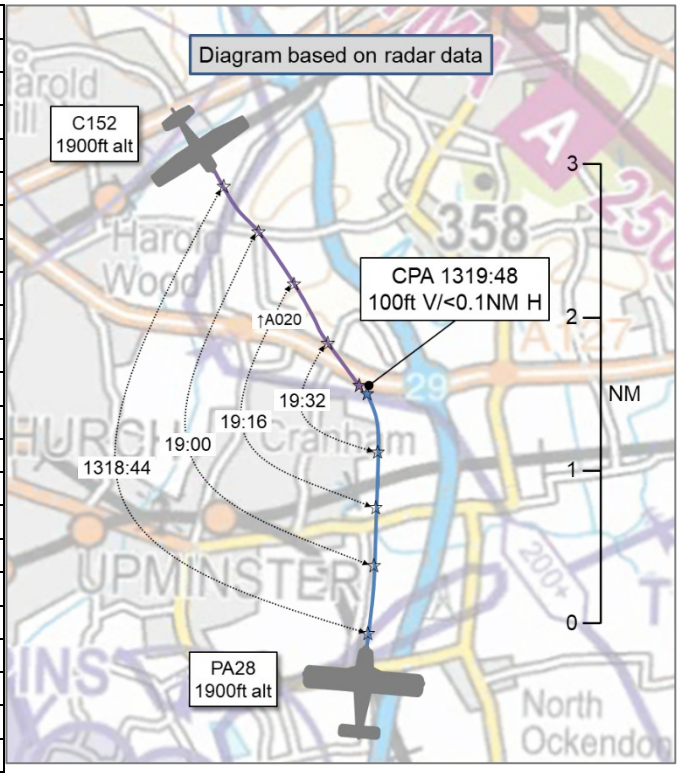
AIRPROX REPORT No 2021159

Date: 24 Aug 2021 Time: 1320Z Position: 5134N 00017E Location: Upminster

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	PA28	C152
Operator	Civ FW	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	None	Listening Out
Provider	N/A	Southend Radar
Altitude/FL	A019	A020
Transponder	A, C, S	A, C, S
Reported		
Colours	White, yellow	White, red
Lighting	Strobes	Beacon
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	1800ft	2000ft
Altimeter	QNH (1030hPa)	QNH (NK hPa)
Heading	020°	180°
Speed	NK	95kt
ACAS/TAS	Not fitted	Not fitted
Separation at CPA		
Reported	150ft V/0.25NM H	NR V/NR H
Recorded	100ft V/<0.1NM H	



THE PA28 PILOT reports that the Biggin Approach [controller] had suggested changing to Farnborough North but, a few days earlier, that service had not been available, so they tuned to Thames Radar. That channel was quiet, so they changed to Southend Radar, but didn't ask for a service – Southend seemed quite busy and they were about to turn away from their area. Approaching their turning point, they set up the radio for Stansted Approach, intending to take a listening squawk. They looked-out and saw the Cessna very close (within approximately 1NM), probably about to pass left-to-right, so they started a descent and turned right to increase separation. They saw no indication that the Cessna [pilot] had seen them. VRPs are choke points, and the QE2 bridge is in an area where pilots can tune to several units – Farnborough, Thames, Southend and Stansted – which can add to workload, and changing frequency certainly distracted them from lookout [on this occasion].

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

THE C152 PILOT reports conducting a trial lesson, routing via the QE2 Bridge. It is a fairly busy section of airspace and they believe Southend was not offering any LARS due to shortage of staff. However, they were on [the Southend Radar] frequency of 130.780MHz and maintained a listening squawk of 5050. They heard nothing on the radio. Close to the QE2 [bridge] they saw a PA28 coming straight at them – they did not see the aircraft before due to the ground clutter. It was fairly close – they estimate less than a mile – however both aircraft took corrective action and turned the appropriate way for avoidance.

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

THE SOUTHEND ATC WATCH SUPERVISOR reports that the RT and radar recordings were impounded and reviewed. They can confirm that neither [the PA28 pilot] nor [the C152 pilot] contacted Southend for a service during the duration of either flight. Both aircraft were squawking 7000 and not in communication with Southend or displaying the Southend FMC and thus indicating they may have been monitoring the frequency.

Factual Background

The weather at London City and Southend Airports was recorded as follows:

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METAR EGLC 241320Z AUTO 10011KT 9999 FEW044 22/12 Q1029=
METAR EGMC 241320Z 08015KT 9999 FEW030 21/13 Q1029=
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Analysis and Investigation

UKAB Secretariat

An analysis of the NATS radar replay was conducted. Both aircraft were detected by the NATS radars; the PA28 was tracking northbound at a consistent altitude of 1900ft and the C152 was tracking south-eastbound at 1900ft initially, climbing to 2000ft approximately 30sec prior to CPA. At 1319:40 (approximately 10sec prior to CPA) the PA28 pilot initiated a slight left turn, which altered the geometry between the 2 aircraft from converging to head-on. Radar CPA occurred at 1319:48 with a recorded separation of 100ft vertically and 0.1NM horizontally. However, there was no track deviation detected from either aircraft after radar CPA (see Figure 2) and so actual CPA is assessed to have occurred between radar sweeps and is therefore estimated to be <0.1NM horizontally and 100ft vertically.

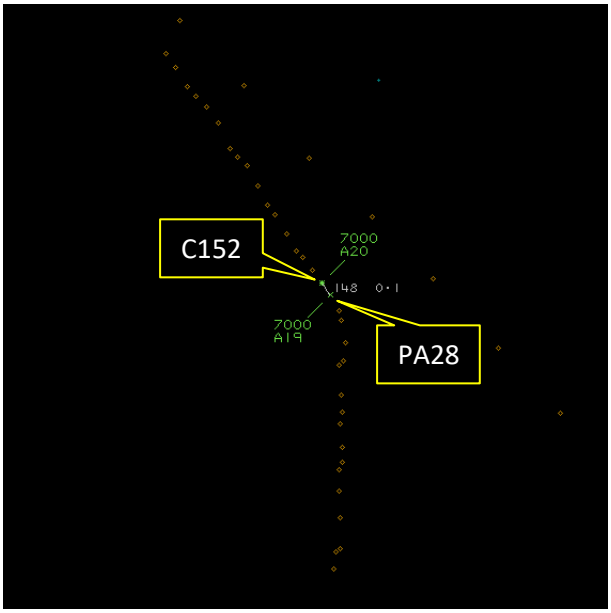


Figure 1 – 1319:48 – radar CPA

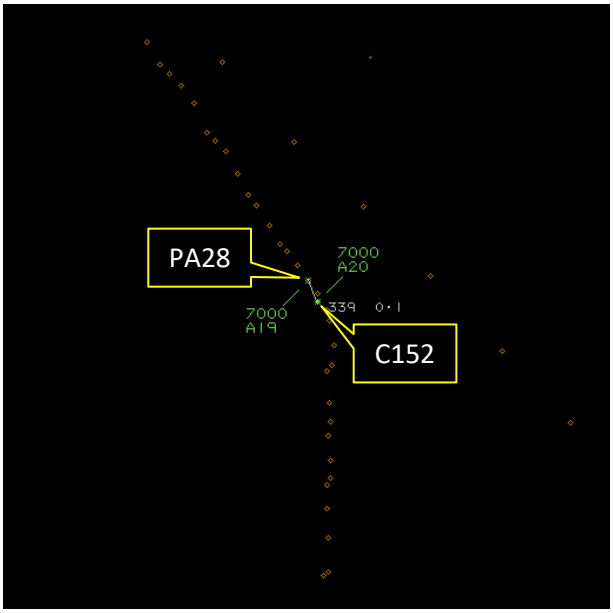


Figure 2 – 1319:52 – tracks crossed

The PA28 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] If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right.[2] If the incident geometry is considered as converging then the C152 pilot was required to give way to the PA28.[3]

Summary

An Airprox was reported when a PA28 and a C152 flew into proximity overhead Upminster at 1320Z on Tuesday 24th August 2021. Both pilots were operating under VFR in VMC; the PA28 pilot was not in receipt of an ATS and the C152 pilot was listening out on the Southend Radar frequency but not squawking the Southend FMC at the time.

[1] (UK) SERA.3205 Proximity.
[2] (UK) SERA.3210 Right-of-way (c)(1) Approaching head-on.
[3] (UK) SERA.3210 Right-of-way (c)(2) Converging.

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 PA28 pilot and heard from a GA pilot member that, although there are indeed a number of ATSUs that a pilot could contact when transiting through the area in which the Airprox took place, it is in fact part of the Farnborough LARS North area of responsibility. To that end, pilot's should be contacting Farnborough LARS to request an appropriate type of UK FIS, and the Board's recommendation is that this should be a surveillance-based (ie Traffic or Deconfliction) Service. There then followed a lengthy discussion on the likelihood of a Farnborough LARS controller being able to provide a surveillance-based Service to pilots on the LARS frequency – indeed, the Board noted the PA28 pilot's reported reluctance to contact Farnborough on the day of the Airprox due to previous experience. Members agreed that, anecdotally, this was becoming increasingly common and wished to remind pilots to report via the form FCS1522[4] whenever they have been unable to secure the requested type of ATS. Only through reporting will sufficient data be gathered to demonstrate the extent of a perceived issue and, hopefully, provide enough evidence for change to be effected. Returning to the Airprox itself, members noted that both aircraft had been detected by the NATS radars and so agreed that an opportunity for the PA28 pilot to be alerted to the presence of the C152 had been lost (**CF1**) and, therefore, the PA28 pilot had not had any situational awareness of the presence of the C152 (**CF2**). Members also noted that the PA28 pilot had reported becoming distracted by conducting multiple frequency changes (**CF3**), which had had a detrimental effect on their lookout and thus when they did sight the C152 flying in the opposite direction they had become concerned by its proximity (**CF4**).

The Board then considered the actions of the C152 pilot and members quickly agreed that many of the points they had made regarding the PA28 pilot's communications with an appropriate agency had been equally applicable to the C152 pilot. The Board noted that the C152 pilot recalled having set the Southend Radar Frequency Monitoring Code on their transponder, but no evidence of this could be found on the radar recordings (both aircraft involved in the Airprox were displaying the conspicuity code of 7000 in the moments leading up to the Airprox). Additionally, it was not clear to the Board if the C152 pilot considered that setting an FMC and selecting the appropriate frequency conferred some level of ATS from the ATSU concerned, and members wished to highlight that the monitoring of an air traffic control frequency – with the associated FMC – in no way constitutes any level of service provision from the controller; more information on FMCs and their purpose is available from the Airspace and Safety Initiative website.[5] Returning to the Airprox itself, the Board agreed that, because the C152 pilot had not sought an ATS in this particularly busy piece of airspace – in a similar vein to the PA28 pilot's decision not to agree an ATS – a controller had not then been in a position to alert the C152 pilot to the presence of the PA28 (**CF1**). The Board also noted that neither aircraft had been carrying any additional electronic conspicuity equipment that might have alerted either pilot to the presence of the other aircraft and so the C152 pilot had not had any situational awareness of the presence of the PA28 (**CF2**). Once again, this had left the pilot relying on the See and Avoid barrier to detect potential threats to their aircraft and, when the sighted the PA28 travelling in the opposite direction they had been concerned by its proximity (**CF4**).

Finally, the Board considered the risk involved in this Airprox. Members noted that both pilots had independently assessed the risk of collision to be 'Medium' and that neither of the pilots' reports had described a situation that had been particularly alarming to either of them. The Board also noted, however, that the separation recorded by the NATS radars had shown <0.1NM of lateral separation

[4] https://applications.caa.co.uk/CAAPortal/servlet/SmartForm.html?formCode=fcs1522
[5] https://airspacesafety.com/listening-squawks/

and 100ft of vertical separation which, some members opined, showed that this encounter had carried a degree of risk of collision. Some members felt that the measured radar separation should govern the degree of risk assigned, while others – particularly controller members – contended that the radar picture is 'smoothed' and that this can often disguise short-term manoeuvres of aircraft such as were described here by the pilots of both aircraft. After some further debate, during which time the Board could not reach agreement over the level of risk, Director UKAB put it to the vote and the Board concluded by 11 votes to 2 that a Risk Category C (safety degraded but not risk of collision) be assigned to this Airprox.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2021159			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Flight Elements			
	• Tactical Planning and Execution			
1	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
	• Situational Awareness of the Conflicting Aircraft and Action			
2	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			
3	Human Factors	• Distraction - Job Related	Events where flight crew are distracted for job related reasons	
4	Human Factors	• Perception of Visual Information	Events involving flight crew incorrectly perceiving a situation visually and then taking the wrong course of action or path of movement	Pilot was concerned by the proximity of the other aircraft

Degree of Risk: C

Safety Barrier Assessment[6]

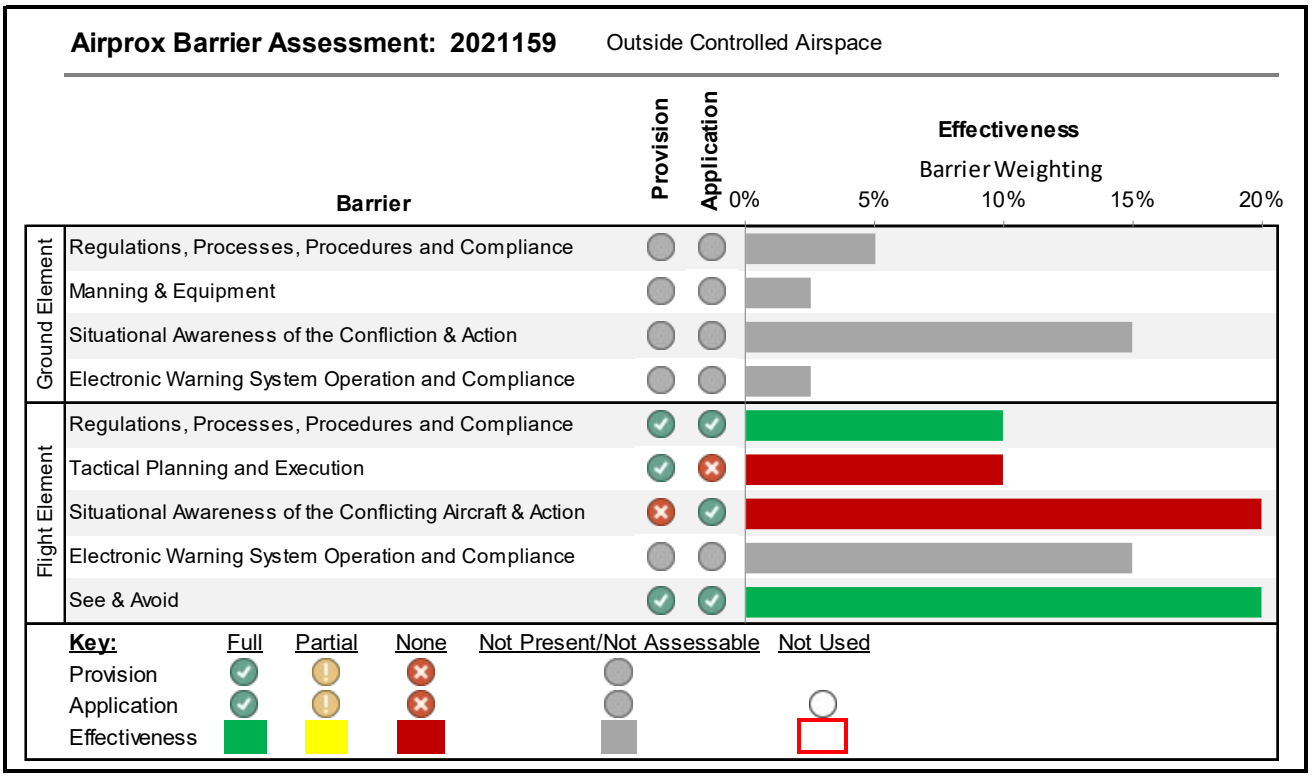
In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

Flight Elements:

Tactical Planning and Execution was assessed as **ineffective** because neither pilot had sought an Air Traffic Service, thus denying an opportunity for a controller to assist with the detection of aircraft that may have been a factor to their respective flights.

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.

[6] 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: 2021159
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