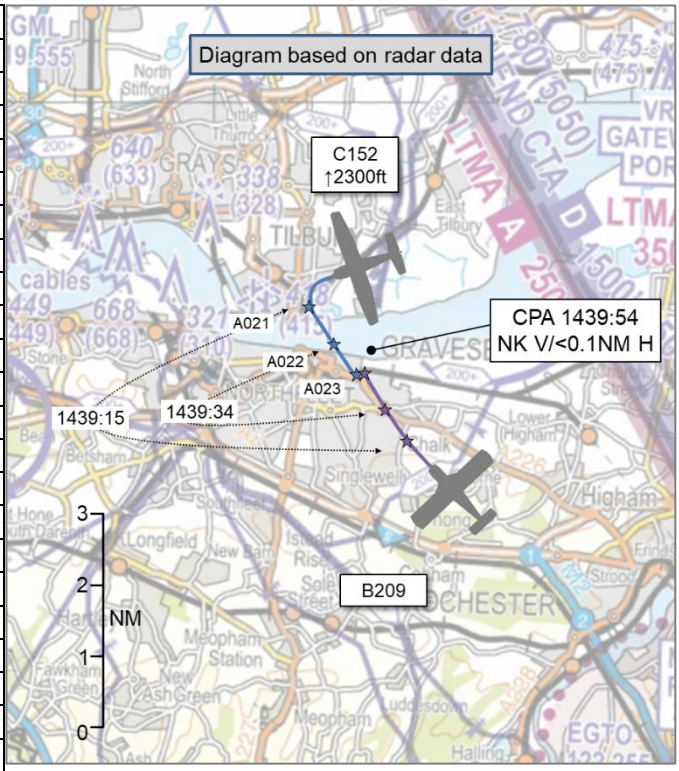
AIRPROX REPORT No 2021029

Date: 20 Apr 2021 Time: 1440Z Position: 5126N 00022E Location: Gravesend

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	C152	B209
Operator	Civ FW	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Basic	None
Provider	Southend Director	
Altitude/FL	2300ft	NK
Transponder	A, C, S	A
Reported		
Colours	White	Red, White
Lighting	Beacon, Strobes	Anti-cols
Conditions	VMC	VMC
Visibility	5-10km	NR
Altitude/FL	2300ft	2300ft
Altimeter	QNH (1017hPa)	QNH (1017hPa)
Heading	110°	320°
Speed	95kt	100kt
ACAS/TAS	TAS	Not fitted
Alert	None	N/A
Separation		
Reported	0ft V/20-30ft H	20-30ft V/300ft H
Recorded	NK V/<0.1NM H	



THE C152 PILOT reports that the purpose of the sortie was to conduct refresher training for a PPL re Class D zone transit. This was completed resulting in the C152 travelling west-bound through Southend Class D along the Thames, turning left at Tilbury towards Rochester. The opposite direction traffic was not sighted in time for any avoidance and passed extremely close at the same altitude quickly. The C152 is fitted with ADS-B in/out through the Garmin suite, displayed on GTN650 and Garmin Pilot App. Afterwards the Southend Director acknowledged the traffic and informed them that the other aircraft was not transmitting any height information to radar. Although the pilot didn't consider the incident to be any individual's fault, they opined that if the other aircraft had been fitted with appropriate Mode C transponder, or even ADS-B transmissions, this Airprox would have not occurred. Radar may have picked up the two aircraft on a collision course (notwithstanding Basic Service limitations) or the Garmin suite would have given them a TRAFFIC warning and information.

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

THE B209 PILOT reports that they were level at approximately 2300ft on a steady heading towards the NE corner of the London City zone. They were between frequencies having just worked Rochester Information. They were "heads down" switching on the electric fuel pump and changing fuel tanks. When they looked up they saw the C152 appear in the 1130 position and pass very close down their left-hand side. They noted that they maintained their usual high situational awareness/good lookout during the flight, which is always busy in this area with aircraft transiting east and north of the London CTZ and beneath the LTMA, but it was particularly busy post lockdown. Pilotaware is fitted to the aircraft, but it didn't connect to SkyDemon prior to departure, after 3 attempts to connect they departed without it working.

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

THE SOUTHEND CONTROLLER reports that the C152 was receiving a Basic Service when the pilot reported getting close to another aircraft, reported as a Bolkow Monsun. On hearing the call, the controller checked the radar display and saw another aircraft in the area which was not displaying Mode C. No Traffic Information had been passed.

Factual Background

The weather at Southend was recorded as follows:

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METAR EGMC 201420Z 09008KT 9999 FEW020 13/07 Q1017=
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Analysis and Investigation

Southend Investigation

A timeline filtered for details relevant to the Airprox is as follows:

At 1419:27 the C152 pilot first called Southend RAD and requested a zone transit. They were issued with a squawk and provided with a Basic Service at 3000ft.

At 1421:51 the C152 was asked to orbit outside CAS at 3000ft and then transferred to the DIR frequency.

At 1423:03 the pilot called DIR and was given clearance to cross via Sheerness to Tilbury at 2400ft, the readback of the clearance was correct and the controller reiterated that the pilot should advise if they were unable to comply with VFR. Pilot 2, possibly the instructor, requested that they maintain 3000ft until at Sheerness and then descend along the Thames to Tilbury to 2300ft, remaining outside the LTMA. This was approved by the DIR. The DIR was also sequencing 3 other aircraft inbound to Southend and continued to issue instructions to them. The C152 entered CAS at 1425, the DIR did not change the type of service but at that time issued a closing heading to an aircraft on vectors for the ILS, followed by missed approach instructions to another aircraft. At 1427 the B209 first appeared on the Southend radar 25NM south of Southend, squawking 7000 with no height information. From 1428 to 1434 the controller continued to issue vectors to the inbound aircraft and co-ordinate with other controllers. At 1436 one of the pilots on frequency requested a descent due to sea mist, which was approved.

At 1436:38 the C152 left CAS indicating 2200ft, and was given a Basic Service, the B209 was 5NM south of their position, Figure 1. At this time the controller called the TWR controller with co-ordination for inbound traffic.

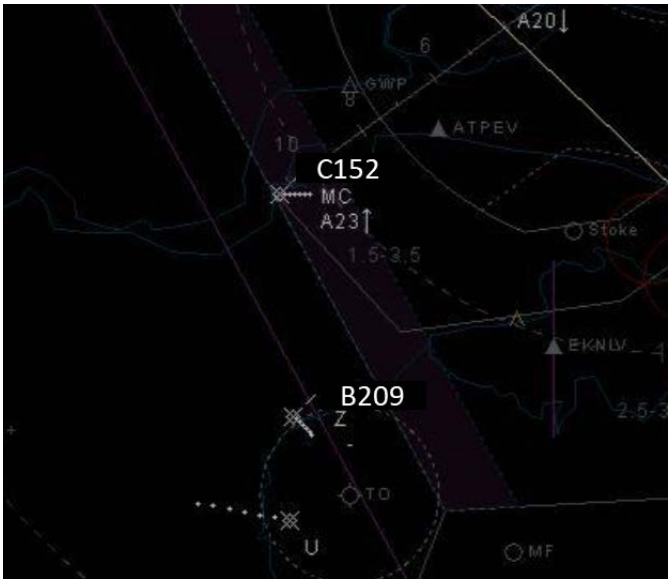

Figure 1

At 1439:45 the C152 turned at Tilbury onto a southeast heading, indicating 2300ft. The B209 was 0.5NM away, still with no height information, Figure 2.

Figure 2

At 1439:58 the contacts merged, Figure 3. Another pilot called on the frequency, which was acknowledged by the DIR and at 1440:10 the C152 pilot reported the Airprox "*And [C/S] we've just had a near miss with a north- bound head to head please, we're at two thousand three hundred feet travelling in the opposite direction probably about twenty foot away.*" This was acknowledged by the controller. At 1440.30 the C152 pilot continued: "*Err I'm not sure if he's squawking anything but I think it's a Monsun, orange colour*." The DIR replied "*Roger, he's showing no height information*."

Figure 3

Upon leaving CAS, the C152 pilot had accepted a Basic Service. The pilot, operating in Class G airspace, was therefore responsible for their own look-out and safety. Controllers are under no obligation to pass Traffic Information to pilots operating under a Basic Service in Class G, but are urged to where an obvious risk of collision exists. However, on this occasion this did not happen. In de-brief the DIR OJTI stated that they were SRATCO compliant and fully rested. They stated that

at no point did they observe the conflicting traffic. It is possible that without Mode C information, the potential for a confliction was subconsciously filtered out. Additionally, the OJTI was discussing various other points with the student, mostly regarding the instrument traffic which was a priority. They stated that had they seen the opposite direction traffic, they would have passed Traffic Information with no height information. They also discussed the fact that they had retained the aircraft rather than transferring back to RAD. It is common practice at Southend for DIR to retain aircraft operating locally under a Basic Service. In this case, the aircraft only had a short distance left to fly back to its destination. It was therefore not unreasonable for DIR to retain control.

Although the Southend METAR indicated good weather, there was evidence from another pilot that some mist was forming over the Thames estuary, which was affecting their ability to maintain ground contact. It is not known how/whether this could have impacted in-flight visibility at the point the two aircraft reportedly came within 20ft of each other.

In conclusion, an Airprox was reported by pilot flying under a Basic Service from Southend DIR, operating in Class G. The conflicting aircraft was unknown and not transponding Mode C. Evidence from the reporting pilot and recordings indicate opposing traffic was at the same level. It is not known whether either pilot took avoiding action, and to what extent it was effective in improving any lateral distance. It is not known whether the pilot of the unknown aircraft observed [the C152]. Information from another aircraft suggested that in-flight visibility may have been reduced due to mist over the estuary. The potential confliction went un-noticed by Southend DIR - no Traffic Information was passed as the OJTIs attention was elsewhere. With no height displayed, the potential risk of confliction would not have been immediately apparent to controller, even if they had spotted the traffic.

UKAB Secretariat

CAP 493 Section 1, Chapter 1, Paragraph 3.2 requires that where air traffic service units provide both flight information service and air traffic control service, the provision of air traffic control service shall have precedence over the provision of flight information service, whenever the provision of air traffic control service so requires (SERA.9001 (c)).

CAP 774 states the following:

> Given that the provider of a Basic Service is not required to monitor the flight, pilots should not expect any form of traffic information from a controller/FISO. A pilot who considers that he requires a regular flow of specific traffic information shall request a Traffic Service.

The C152 and B209 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]

Summary

An Airprox was reported when a C152 and a B209 flew into proximity in the vicinity of Gravesend at 1440Z on Tuesday 20th April 2021. Both pilots were operating under VFR in VMC, the C152 pilot was in receipt of a Basic Service from Southend DIR and the B209 pilot was not receipt of an ATS.

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 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.

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

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 looked at the actions of the C152 pilot. They had crossed through Southend's CTA and had been given a Basic Service on leaving CAS. Members pointed out that it was a busy piece of airspace and wondered whether the pilot could have asked the controller to upgrade the service to a Traffic Service in order to receive Traffic Information on any traffic to affect. Controlling members noted that the controller would have put the pilot back under the same type of service that they were receiving prior to entering CAS, so the onus would have been on the pilot to change the type of service if required. Members noted that the pilot did not receive any Traffic Information from ATC, or from their Garmin so they did not have any situational awareness on the B209 prior to becoming visual with it (**CF2**). They couldn't say why the Garmin had not given any information on the Mode A on the B209 and some wondered whether it was to do with the age of the transponder on the B209, but acknowledged that it could also been due to aerial blanking (**CF3**). The C152 pilot turned overhead Tilbury and at the start of the turn the B209 was in the region of 2.5NM away, but by the time the turn was complete there was only 1NM separation and members highlighted the need to conduct a thorough lookout prior to turning. In the end the pilot saw the B209 very late; too late to take any avoiding action to materially change the separation (**CF5**).

Turning to the B209 pilot, they reported being preoccupied by looking into the cockpit to change fuel tanks (**CF4**). Members commented that pilots should break up tasks requiring time looking into the cockpit by punctuating them with look-out in between individual actions, in order to spend as little time as possible looking inside the cockpit. The B209 pilot was not receiving an ATS at the time of the Airprox, and although members agreed with the need to call Rochester as they transited overhead, they thought that once clear, a call to Southend ATC may have meant that they received Traffic Information on the C152 or at the very least provided other pilots in the area with generic information from any calls on the RT. Without an ATS or any EWS the pilot did not have any situational awareness on the C152 (**CF2**) and saw the other aircraft too late to take any action (**CF5**).

The Board then turned to the actions of the Southend controller, they were providing a Basic Service to the C152 as well as vectoring aircraft inbound and so members thought it was understandable that they had focused their attention elsewhere. Nevertheless, the B209 was displayed on the radar albeit without Mode C, and the conflict was not detected (**CF1**) and although Traffic Information was not generally a part of the Basic Service, had the controller detected a definite risk of collision the unit noted that they would have been expected to provide Traffic Information. Although members understood that by keeping the C152 on the DIR frequency the pilot was saved a frequency change, by doing so they denied them any situational awareness of other traffic in the area that may have called on the RAD frequency, that said, in this particular case given that the B209 pilot had not called Southend, it would not have made any difference.

Finally, when assessing the risk of collision, the Board discussed that neither pilot had prior situational awareness about the other, and neither had seen the other in time to take any avoiding action. Although the vertical separation was not available from the radar, both pilots reported a similar amount of vertical separation and both described a close encounter. Therefore, the Board concluded that the separation had been reduced to the bare minimum and there had been a serious risk of collision. Risk Category A (**CF6**).

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2021029			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Ground Elements			
	• Situational Awareness and Action			
1	Human Factors	• Conflict Detection - Not Detected	An event involving Air Navigation Services conflict not being detected.	
	Flight Elements			
	• 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
	• Electronic Warning System Operation and Compliance			
3	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			
4	Human Factors	• Distraction - Job Related	Events where flight crew are distracted for job related reasons	
5	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
	• Outcome Events			
6	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: A.

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:

Ground Elements:

Situational Awareness of the Confliction and Action were assessed as **ineffective** because the controller was busy with inbound traffic and did not see the conflict occur.

Flight Elements:

[3] 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 Conflicting Aircraft and Action were assessed as **ineffective** because neither pilot had any situational awareness that the other was in the vicinity.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the TAS on the C152 did not detect the B209.

See and Avoid were assessed as **ineffective** because neither pilot saw the other in time to take avoiding action.