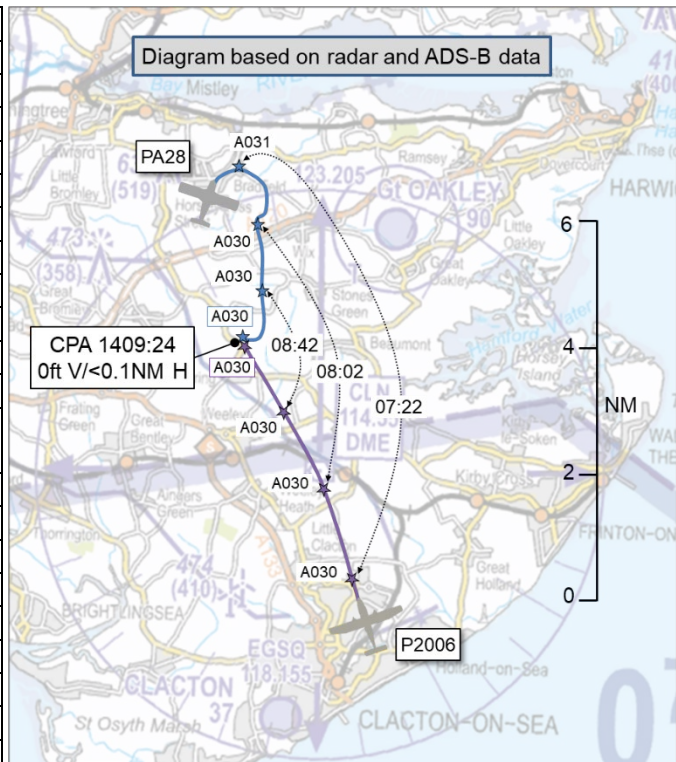


AIRPROX REPORT No 2024176

Date: 27 Jul 2024 Time: 1409Z Position: 5154N 00107E Location: 1NM N Tendring

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	PA28	P2006
Operator	Civ FW	Civ Comm
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Basic	Basic
Provider	Southend Radar	Southend Radar
Altitude/FL	3000ft	3000ft
Transponder	A, C, S	A, C, S
Reported		
Colours	White/Blue	Grey
Lighting	Strobes, beacon & navigation.	Navigation and strobes.
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	3000ft	3000ft
Altimeter	QNH	QNH
Heading	250°	320°
Speed	85kt	120kt
ACAS/TAS	Not fitted	Not fitted
Separation at CPA		
Reported	500ft V/100m H	NK V/NK H
Recorded	0ft V/<0.1NM H	



THE PA28 PILOT reports that they were the instructor conducting an IR(R) training flight in the vicinity of CLN VOR. They were the occupant of the right-hand seat with their student on the left-hand seat beside them. At the time of the occurrence, their student was wearing a ‘hood’ to simulate IMC. The weather [was VMC] and there was no other traffic present in this area. Therefore, only a Basic Service was obtained from Southend Radar. While commencing one of the consecutive ‘rate 1’ turns to the right, they spotted a grey Tecnam P2006 aircraft directly ahead and slightly higher, moving from left-to-right. They judged the distance as 200m ahead and 50ft above. They immediately took control and stopped the turn. The conflicting traffic took no avoiding action and continued on the previous height and heading. A further check [of ADS-B data] showed a 25ft vertical separation and 100m lateral distance at the time when they spotted the aircraft. The aircraft approached from their 10 o'clock position where their view was obstructed by the student sitting beside them. Despite checking for traffic in both directions, they did not spot the other aircraft before the turn commenced.

The pilot assessed the risk of collision as ‘High’.

THE P2006 PILOT reports that this flight was a ferry flight, and that they were flying straight and level, at 3000ft (auto-pilot engaged) following a VFR flight plan route in contact with London Information [they thought]. No traffic was seen by the pilot nor reported by London Information [sic].

THE SOUTHEND RADAR CONTROLLER reports that they were instructing a student ATCO. They believed the incident occurred approximately 25NM northeast of Southend, with both aircraft on a Basic Service. No Traffic Information was passed, and there was no mention of an Airprox on the R/T.

Factual Background

The weather at Southend was recorded as follows:

METAR EGMC 271350Z 28006KT 240V340 CAVOK 22/06 Q1014

Analysis and Investigation

Southend Airport ATC

Whilst investigating this occurrence, the investigator had access to the recorded R/T and surveillance data consisting of the 'at the glass' recordings of the Southend Radar Controller's Working Position (CWP). At the time of the occurrence, Southend Radar was manned by a high-hours trainee controller who was providing an Approach Control Service in combined ('band-boxed') configuration under the supervision of an On-the-Job Training Instructor (OJTI). Traffic and R/T loading were moderate. The timeline was as follows,

1344:01, [the PA28 pilot] called Southend Radar and requested a Basic Service. The Southend Radar controller instructed them to standby.

1346:14, the Southend Radar controller instructed [the PA28 pilot] to pass their message. The pilot reported that they were a PA28, on a local VFR flight from [departure point] via Clacton, at altitude 2000ft on QNH 1014. The controller instructed them to squawk 4575¹, and a Basic Service was agreed.

1349:21, [the P2006 pilot] called Southend Radar. The transmission was readability 1 to 2.

1349:47, [the P2006 pilot] called Southend Radar again, this transmission was also partially unreadable, and was co-incident with the Southend Radar controller co-ordinating other traffic with Southend Tower.

1350:06, the Southend Radar controller instructed [the P2006 pilot] to standby.

1350:31, the Southend Radar controller instructed [the P2006 pilot] to pass their message. The transmission was partially unreadable, the controller advised them that their transmissions were readability two, passed the Southend QNH (1014 hPa), instructed them to squawk 4575 and a Basic Service was agreed.

1352:34, the Southend Radar controller requested [the P2006 pilot] to pass their departure and destination aerodromes. [The P2006 pilot] reported that they were routeing from [their departure and to their destination points]. The controller then asked if they wished to transit Southend's controlled airspace to which the pilot replied that they would be at altitude 3000ft and, therefore, routeing below CAS.

1409:00, according to the recorded surveillance data, the PA28 was on a southerly track, to the north of the Clacton VOR, and their Mode C was indicating altitude 2900ft descending. At this time, the P2006 was in their 12 o'clock position, opposite direction, indicating level at 3100 ft (Figure 1).

¹ Southend Airport conspicuity code.

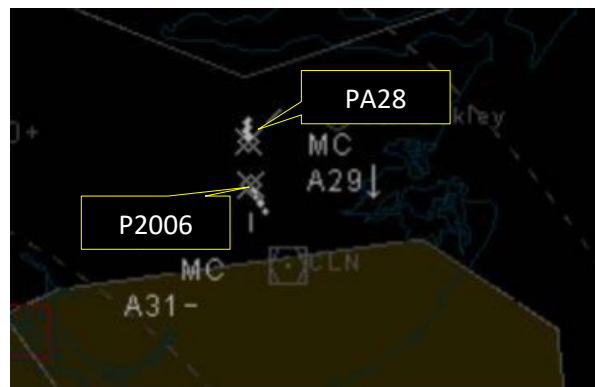


Figure 1 Time 1409:00 Southend Radar

1409:22 (CPA), after the PA28 had commenced a right-hand turn, CPA occurred, with a minimum indicated lateral distance of 0NM and 100ft vertical (Figure 2).



Figure 2 – Time 1409:22 0NM and 100ft

1422:17, the Southend Radar controller instructed [the P2006 pilot] to squawk conspicuity and to free-call their en-route frequency. The pilot's reply was unreadable.

1459:31, [The PA28 pilot] advised that they were changing frequency to [their en-route frequency]. The Southend Radar controller instructed them to squawk conspicuity.

At the time the Airprox occurred, both aircraft were operating in Class G (uncontrolled) airspace. Both aircraft were receiving a Basic Service. The confliction was not detected by the Southend Radar controller, whose workload at the time was moderate, with several other aircraft operating inside and outside controlled airspace.

The CAP 774 – UK Flight Information Services, Chapter 2, Para 2.1 states that:

'A Basic Service is an ATS provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights. This may include weather information, changes of serviceability of facilities, conditions at aerodromes, general airspace activity information, and any other information likely to affect safety. The avoidance of other traffic is solely the pilot's responsibility.

Basic Service relies on the pilot avoiding other traffic, unaided by controllers/ FISOs. It is essential that a pilot receiving this ATS remains alert to the fact that, unlike a Traffic Service and a Deconfliction Service, the provider of a Basic Service is not required to monitor the flight.'

Post-occurrence, the OJTI stated that they only became aware of the Airprox several days after the event, after UKAB notified Southend ATC, and that they had no recollection of it. After the recorded R/T data was reviewed, it was noteworthy that the quality of the [P2006]'s R/T transmissions varied

between readability 1 (unreadable) and readability 2 (readable now and then) while they were in communication with Southend Radar. This may have degraded the situational awareness of other airspace users (including the PA28 [pilot]) in respect of the [P2006]'s routeing and altitude.

An Airprox was reported to Southend ATC by UKAB regarding an occurrence in Class G (uncontrolled) airspace between a PA28 and a [P2006]. The conflict was not detected by the Southend Radar controller and, in this scenario, considering the type of ATS both aircraft were receiving, the pilots involved had equal responsibility for avoiding the other traffic.

UKAB Secretariat

An analysis of the NATS radar replay, ADS-B data and the P2006 pilot's navigation file were undertaken. The closest point of approach that could be detected from the radar data was at 1409:22 (Figure 3) and again, on the next radar sweep at 1409:26 (Figure 4) with the aircraft separated by 0.1NM and co-altitude on both occasions. The radar depiction provided by Southend ATC could not be replicated.

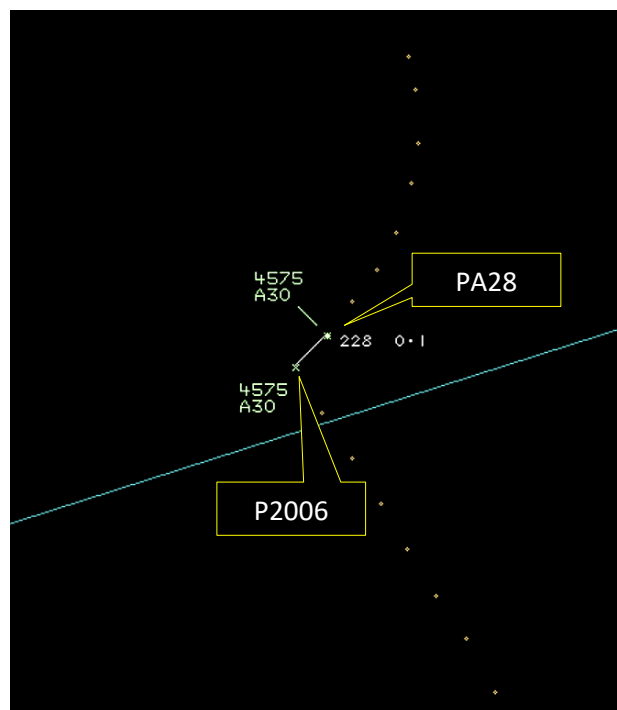


Figure 3 Time 1409:22 0.1NM and 0ft

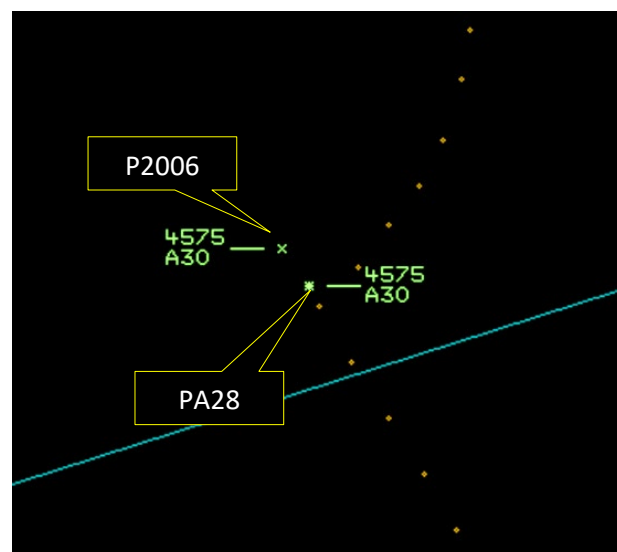


Figure 4 Time 1409:26 0.1NM and 0ft

Analysis of ADS-B data sources matched the radar picture and an interpolation of the aircraft positions between the radar sweeps, with the P2006 position backed up by its navigation file. CPA was assessed to have been at 1409:24 with a separation of less than 0.1NM horizontally and 0ft vertically.

The PA28 and P2006 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.² If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right.³ If the incident geometry is considered as converging then the P2006 pilot was required to give way to the PA28.⁴

Summary

An Airprox was reported when a PA28 and a P2006 flew into proximity 1NM north of Tendring at 1409Z on Saturday 27th July 2024. Both pilots were operating under VFR in VMC and in receipt of a Basic Service from Southend Radar.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, GPS track data for the P2006, 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 PA28 pilot and, considering the flight profile being undertaken (simulated flight in IMC), discussed the opportunity that the instructor had had to utilise a more appropriate level of air traffic service, such as a Traffic Service (**CF2**). Members felt that a Traffic Service would have served to both improve the pilot's situational awareness of their surroundings and demonstrate the effectiveness of such service to their student, although members had also discussed the option of a Deconfliction Service. Members agreed that, as a result, the pilot had had no situational awareness of the relative proximity of the P2006 (**CF3**). The Board noted that the PA28 pilot had been limited to a solo lookout partially obstructed by the student next to them, 'under the hood', whilst providing instrument instruction which, the Board agreed, had distracted them from an effective lookout (**CF4**). It was agreed by members that these factors had led to a late sighting of the P2006 by the PA28 pilot (**CF5**).

Turning their attention to the P2006 pilot, the Board similarly agreed that the pilot could have made use of a Traffic Service (**CF2**), which would have required the Southend controller to have monitored their flight and thus increased the chances of the controller detecting the conflicting aircraft and issuing Traffic Information. Members agreed that with the pilot only in receipt of the Basic Service, and not carrying any form of additional electronic conspicuity equipment that might have alerted them to the presence of other aircraft, they had not had any situational awareness of the presence or position of the PA28 (**CF3**) and, subsequently, had not seen the PA28 (**CF6**).

The Board then discussed the provision of service from the Southend controller and noted that neither the trainee ATCO nor their instructor had spotted the conflict. Acknowledging that the controller had not been required to monitor the flight of either aircraft under the terms of a Basic Service (**CF1**), the Board wished to highlight to pilots the limitations of a Basic Service and the relative advantages of seeking a surveillance-based service to aid with the detection and avoidance of other aircraft.

In reviewing all aspects of the occurrence, members agreed that safety margins had been much reduced below the norm through neither pilot having situational awareness of the presence of the other aircraft and the subsequent the non-sighting of the PA28 by the P2006 pilot and the late sighting of the

² (UK) SERA.3205 Proximity.

³ (UK) SERA.3210 Right-of-way (c)(1) Approaching head-on..

⁴ (UK) SERA.3210 Right-of-way (c)(2) Converging..

P2006 by the PA28 pilot, who had stopped their turn at the last minute to increase their separation and had averted a likely collision. Consequently, the Board assigned Risk Category B to this Airprox (CF7).

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

2024176				
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
Ground Elements				
• Situational Awareness and Action				
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
Flight Elements				
• Tactical Planning and Execution				
2	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				
3	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
• See and Avoid				
4	Human Factors	• Distraction - Job Related	Events where flight crew are distracted for job related reasons	
5	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
6	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				
7	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 Assessment⁵

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 **not used** because the Southend controller was not required to monitor the PA28 and P2006 flights under a Basic Service.

Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because neither the PA28 pilot nor the P2006 pilot had requested a Traffic Service where one was available.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because neither pilot was aware of the presence or position of the other's aircraft.

⁵ The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).

See and Avoid were assessed as **partially effective** because the PA28 pilot had had a late sighting of the P2006 and the P2006 pilot had not seen the PA28.

Airprox Barrier Assessment: 2024176		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 Conflicition & 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:		<u>Full</u>	<u>Partial</u>	<u>None</u>	<u>Not Present/Not Assessable</u>	<u>Not Used</u>		
Provision	✓	⚠	✗	○				
Application	✓	⚠	✗	○				
Effectiveness								