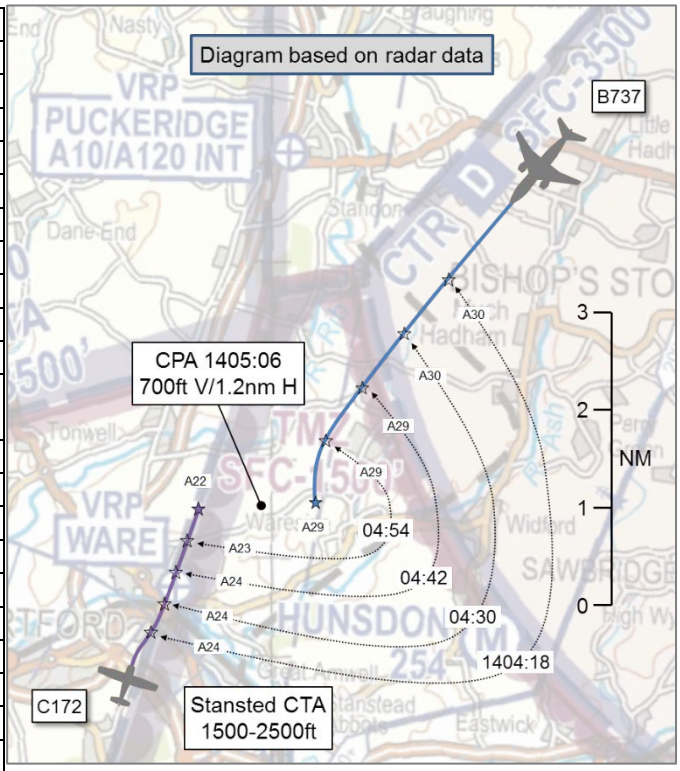
AIRPROX REPORT No 2018178

Date: 13 Jul 2018 Time: 1405Z Position: 5150N 00000W Location: 8nm SW Stansted

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	B737	C172
Operator	CAT	Civ FW
Airspace	CTA	London FIR
Class	D	G
Rules	IFR	VFR
Service	Radar Control	Basic
Provider	Stansted	Southend
Altitude/FL	2900ft	2200ft
Transponder	A,C,S	A,C,S
Reported		
Colours	Company	White, red stripes
Lighting	NK	NK
Conditions	NK	VMC
Visibility	NK	10km
Altitude/FL	3000ft	1500-2000ft
Altimeter	QNH	QNH
Heading	NK	~030°
Speed	NK	~100kt
ACAS/TAS	TCAS II	Not fitted
Alert	TA	N/A
Separation		
Reported	900ft V/~1nm H	Not seen
Recorded	700ft V/1.2nm H	



THE BOEING 737 PILOT reports that he was left-hand downwind to RW04 at Stansted, about to turn base, at 3000ft. He noticed TCAS traffic approximately 3nm ahead, 500ft below. ATC instructed them to turn immediately left onto 180° and then shortly afterwards 120°. The First Officer then saw the aircraft below them (a high-wing light-aircraft), approximately 1nm from them. They received a TCAS TA. ATC reported the aircraft as being at 2100ft and confirmed that they were turning away from it. Once clear of conflict, they were vectored round for a right-hand base onto the ILS. The approach was continued without any further issues. ATC informed them that they would also be filing a report. The light-aircraft had been approximately 1nm from their aircraft.

He assessed the risk of collision as 'Low'.

THE CESSNA 172 PILOT reports that the Airprox was not observed by any of the 3 pilots and there was 'no information' from ATC. The pilot provided a screenshot of their pilot log which shows the aircraft tracking near to the CTA boundary (Figure 1).

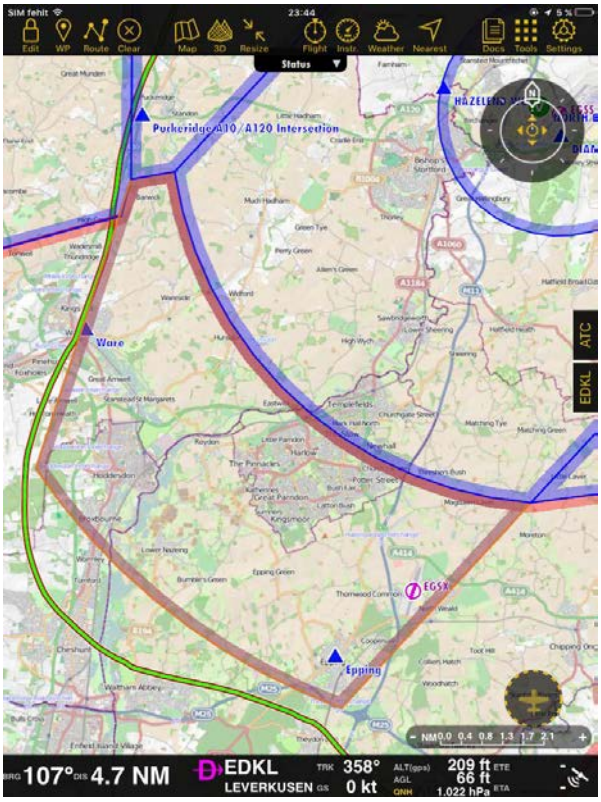


Figure 1 C172 pilot log.

THE STANSTED FIN DIRECTOR reports that he spotted an unknown aircraft showing a squawk of 4575 getting very close to the boundary of Controlled Airspace (CAS) in the southwest CTA for RW04 showing an altitude of 2200ft. This traffic [indicated on radar that it] went into CAS for a brief period and in this time he immediately lost separation with an inbound B737 at 3000ft. He gave avoiding-action left onto 190°, to get the turn instigated ensuring no loss of separation from the inbound aircraft in front, then a hard left 120° turn passing Traffic Information at all times. The B737 pilot said the aircraft was a high-wing aircraft and he did get visual after he had passed Traffic Information.

Factual Background

The weather at Stansted was recorded as follows:

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EGSS 131350Z AUTO VRB03KT 9999 SCT046 25/12 Q1022=
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Analysis and Investigation

CAA ATSI

At 1329:50 the C172 pilot established communication with the Southend Radar controller. The controller instructed the pilot to select SSR code 4575 and a Basic Service was agreed.

At 1400:44, the B737 pilot established communication with the Stansted Final Director whilst routing downwind left in the radar pattern for Stansted.

At 1402:07 (Figure 2), the Stansted Final Director instructed the B737 pilot to descend to 3000ft and reduce their speed to 180kt. This was read back correctly.

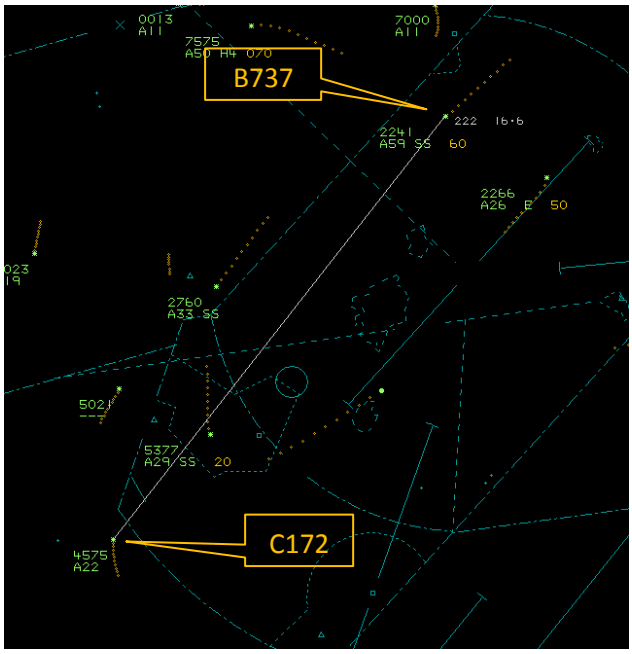


Figure 2 – 1402:07.

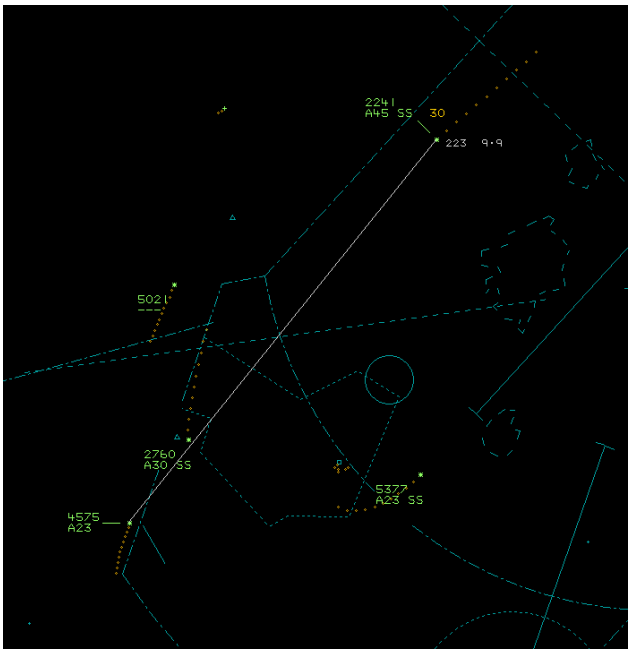


Figure 3 – 1403:23.

At 1403:23 (Figure 3), the Stansted Final Director instructed the B737 pilot to turn left onto a heading of 220° which was read back correctly.

At 1404:31 (Figure 4), the Controller Airspace Infringement Tool (CAIT) activated, and the Stansted Final Director issued an avoiding action instruction to turn left onto a heading of 180°. The pilot reported that the aircraft was visible on TCAS and the controller issued a further instruction to turn onto a heading of 120°.

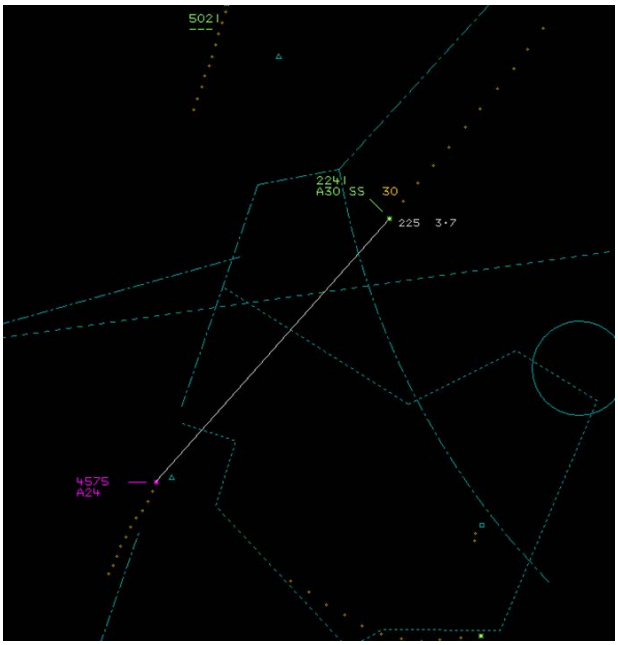


Figure 4 – 1404:31.

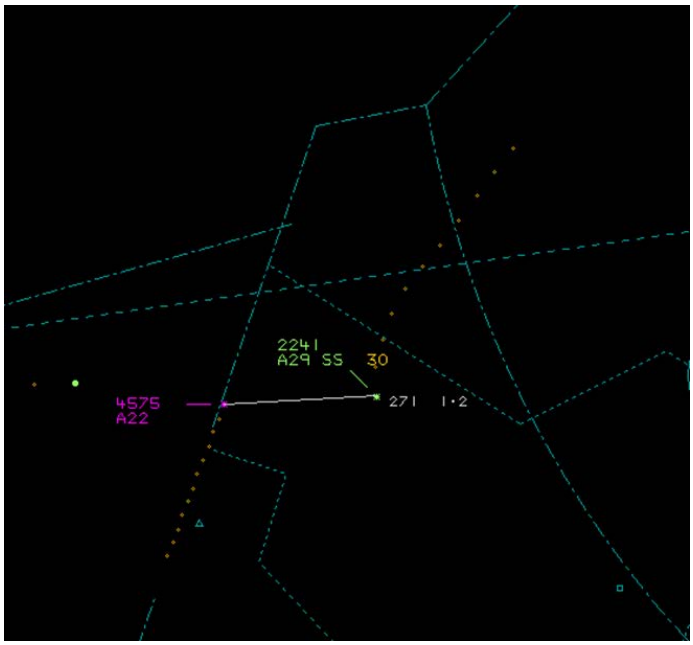


Figure 5 – 1405:06.

CPA occurred between 1405:06 (Figure 5), and 1405:14 (Figure 6), with the aircraft separated by 1.2nm horizontally and 700ft vertically.

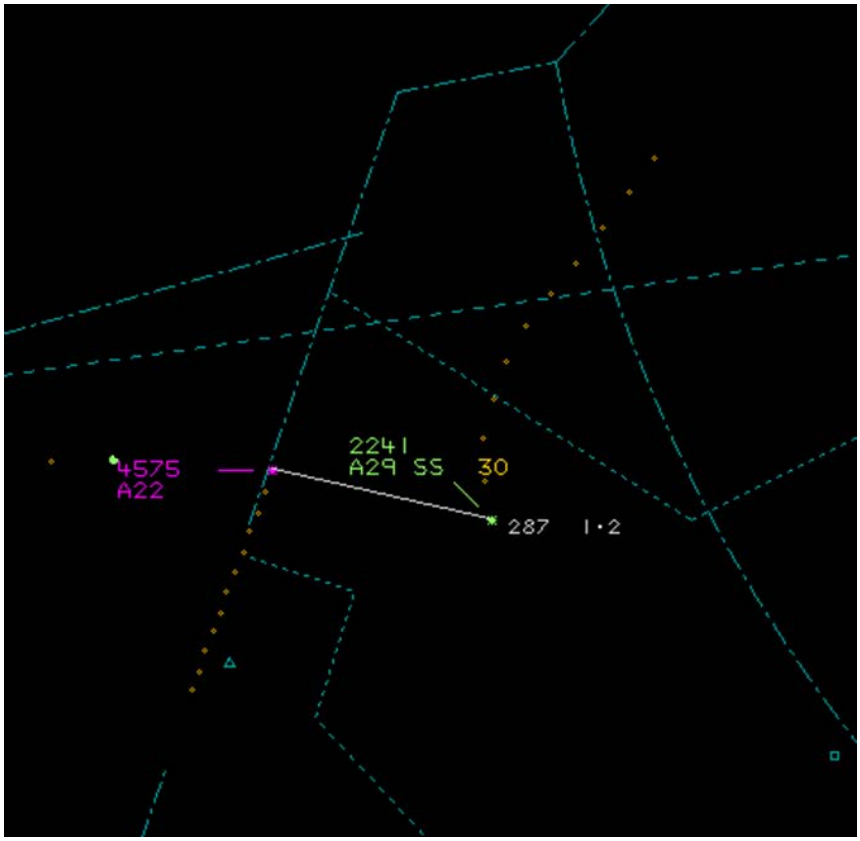


Figure 6 – 1405:14.

At 1405:12 the Stansted Final Director instructed the B737 pilot to maintain 3000ft and informed them they were clear of the traffic.

Radar recordings indicate that the Airprox took place within Class D airspace [base 1500ft].

CAP 493 states:

> If radar derived, or other information, indicates that an aircraft is making an unauthorized penetration of the airspace, is lost, or has experienced radio failure:
>
> *IFR flights shall be given traffic avoidance advice and traffic information shall be passed.*

The Stansted Final Director issued avoiding action as soon as the indicated airspace infringement took place and regained the required separation as soon as possible. The Southend controller was unaware of the infringement at the time, and the C172 was operating under only a Basic Service. No clearance to enter controlled airspace had been issued to the C172.

UKAB Secretariat

The B737 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].

Summary

An Airprox was reported when a B737 and a C172 flew into proximity at 1405hrs on Friday 13th July 2018. The B737 pilot was operating under IFR and the C172 pilot under VFR in VMC. The B737 pilot was in receipt of a Radar Control Service from Stansted and the C172 pilot in receipt of a Basic Service from Southend.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from both pilots, the controller concerned, area radar and RTF recordings and reports from the appropriate ATC and operating authorities.

The Board first considered the actions of the C172 pilot. He was flying northbound around the western side of Stansted's CAS at 2200ft, in receipt of a Basic Service from Southend. Whilst routeing along the western edge of the CTA (base 2500ft), in the vicinity of Ware, the aircraft was close enough to the edge of CAS to indicate on radar that it had entered the CTA and thus activate the Controller Airspace Infringement Tool (CAIT), which displayed an alert on the Stansted Radar controller's display. As a direct result of obtaining this warning, the controller was mandated to employ action to attempt to separate the B737 from the C172 by 3nm horizontally or 3000ft vertically. However, despite issuing an immediate avoiding-action turn, it was not possible to obtain the optimum separation between the aircraft.

The Board held a lengthy discussion about whether the C172 had actually entered CAS or not. The radar photographs of the event show that the aircraft was tracking along the edge of CAS and appeared to enter CAS at 1404:31. However, it was acknowledged that radar video is only specified to be accurate to +/-0.25nm laterally and so the C172 could conceivably have still been outside the CTA. Members noted that in support of this, the C172 pilot's GPS log (nominally accurate to +/- 30m), shows that the aircraft was just to the west of the line delineating the CAS boundary. During the course of the debate, several members commented that they have noted that aircraft are now routeing closer to the boundaries of CAS likely because their GPS navigation equipment is very accurate and they feel emboldened to operate closer to controlled airspace than they might without such equipment. The Board opined that it was probable that the C172 pilot would not have recognised that his routeing would lead to the B737 being given an avoiding-action turn, but that it was not good airmanship, or necessary, to fly so close to a CAS boundary. The Chair commented that, in order to help prevent such incidents, the General Aviation Safety Committee (GASCo) were currently promoting a 'take 2' campaign, where it is suggested that pilots remain at least 2nm horizontally and 200ft vertically from CAS boundaries wherever possible.

[1] SERA.3205 Proximity.

The Board then discussed the cause and risk and agreed that, although it was not possible to positively determine whether the C172 pilot had entered CAS, he had been ill-advised to have flown so close to the CTA boundary. Consequently, it was determined that the Airprox was caused by the C172 pilot flying close enough to the Stansted CTA boundary to cause CAIT to activate. Turning to the risk, the Board were mindful that if the radar had not indicated an incursion and CAIT had therefore not activated, the controller would have been fully justified in continuing the B737 pilot's track without any avoiding-action having deemed that separation existed with the C172 assumed to be outside controlled airspace. Nevertheless, having issued the avoiding action, the controller had further ensured that there was no risk of a collision such that, at the time of the CPA, the aircraft were at a distance of 1.2nm horizontally and 700ft vertically from each other. The Board also noted that the B737 crew had observed the C172 on TCAS and had subsequently obtained visual contact. As a result, the Board agreed that, although safety margins had been reduced due to the indicated incursion, no risk of collision had existed and the incident was accordingly assessed as Category C.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The C172 pilot flew close enough to the Stansted CTA to cause CAIT to activate.

Degree of Risk: C.

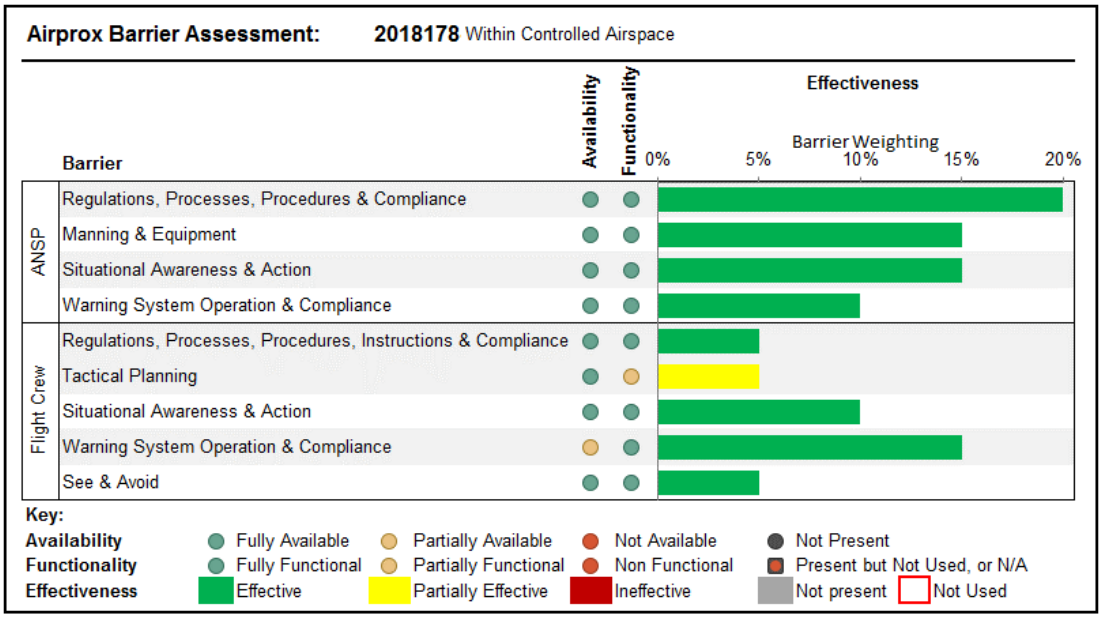
Safety Barrier Assessment[2]

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

Flight Crew:

Tactical Planning was assessed as **partially effective** because the C172 pilot routed too close to the CAS boundary, causing CAIT to activate.

Warning System Operation and Compliance were assessed as **partially available** because only the B737 was equipped with an electronic warning system.



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