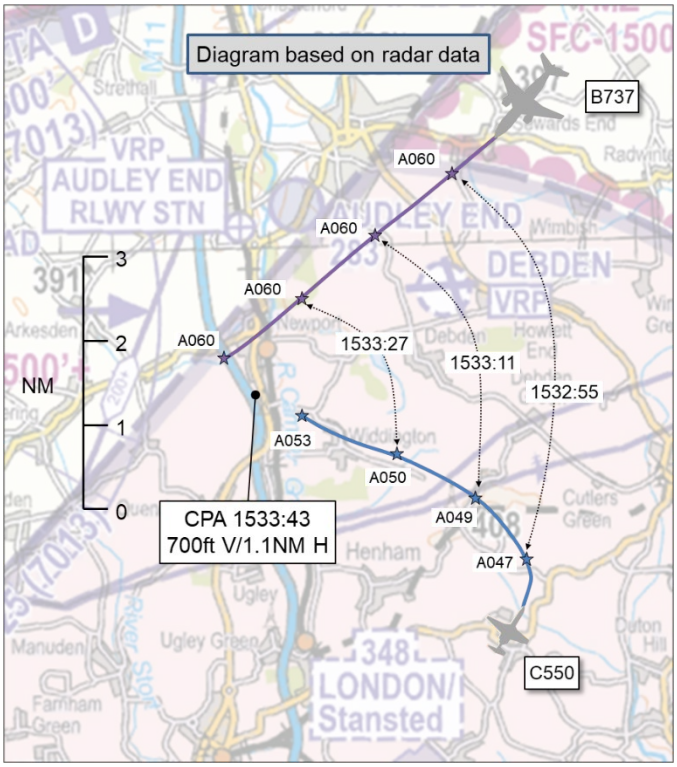
AIRPROX REPORT No 2024105

Date: 31 May 2024 Time: 1534Z Position: 5158N 00013E Location: 5NM NNW of Stansted

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	C550	B737
Operator	Civ Comm	CAT
Airspace	London TMA	London TMA
Class	A	A
Rules	IFR	IFR
Service	Radar Control	Radar Control
Provider	Stansted FIN	Stansted FIN
Altitude/FL	5300ft	6000ft
Transponder	A, C, S	A, C, S
Reported		
Colours	White/Blue	Blue/White
Lighting	Nav, strobes, bcn	Nav, bcn, landing
Conditions	IMC	VMC
Visibility	'0km'	NR
Altitude/FL	5000ft	NK
Altimeter	QNH (1020hPa)	NK
Heading	300°	NK
Speed	220kt	NK
ACAS/TAS	TCAS II	TCAS II
Alert	TA	None
Separation at CPA		
Reported	1000ft V/5NM H	NK V/NK H
Recorded	700ft V/1.1NM H	



THE STANSTED RADAR CONTROLLER reports that the [C550] departed Stansted on a NUGBO departure climbing to 5000ft on the standard instrument departure. They were instructed to maintain 5000ft and fly heading 325°. The aircraft was observed climbing to 5300ft under the [B737] which was at 6000ft. Avoiding action was given to [the C550 pilot to turn] onto a heading of 360° and maintain 5000ft.

The [C550] returned to 5000ft and was returned to the departure track.

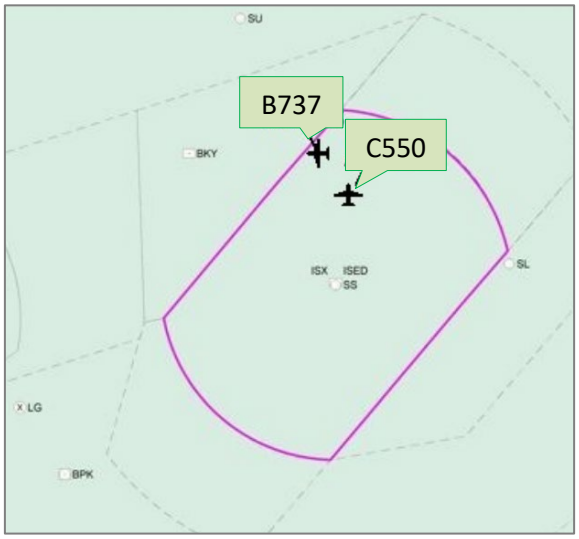


Figure 1 – Stansted Event Map Image.

THE C550 PILOT reports that they made their departure without [using the] autopilot. They continued their climb to 5000ft QNH on a radar heading, and they [overshot their cleared] altitude for about 3sec by a maximum of 150ft. They had a TCAS Traffic Advisory alert with traffic above them. ATC confirmed for them to maintain 5000ft.

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

THE B737 PILOT reports [that they were requested to file this report by the company Safety Manager, and that] as the incident happened more than a month ago they did not recall any details. [They commented that] normally at the position of the Airprox [as reported to them] they would be radar-vectored by Stansted Radar or Stansted Director and kept high on the vertical profile. On left-hand downwind they would generally be given a heading of 225° and descent from 6000ft to 3000ft to be level at BKP VOR at 9NM. This manoeuvre on the B737 usually demands usage of flaps 5 with speed brakes in a flight detent. The rate of descent would get up to 2500ft/min. On RW04 with NUGBO or UTAVA standard instrument departures (SID) in use at Stansted at the same time as aircraft are on departure from Stansted [and are] in a climb, [they remembered] two occasions when they could recall getting a TCAS Traffic Advisory, but not on this particular event.

Factual Background

The weather at Stansted was recorded as follows:

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METAR EGSS 311520Z AUTO 35014KT 4500 -DZ BKN007 OVC016 12/11 Q1020
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The NUGBO Standard Instrument Departure (SID):

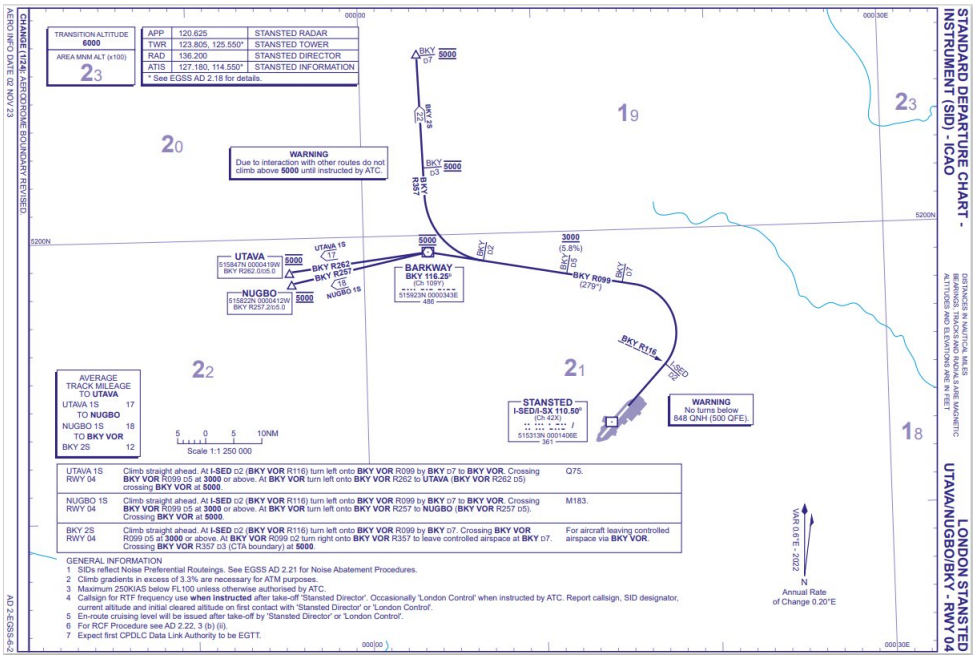

Figure 2 – Stansted NUGBO Standard Instrument Departure RW04

Analysis and Investigation

NATS Safety Investigations

A [C550] departed Stansted on a NUGBO1S SID (Figure 2) climbing to 5000ft. The Stansted Final Director observed [the C550] climb to 5300ft below [the B737] maintaining 6000ft resulting in a loss of separation. The controller issued avoiding action to the pilot of [the C550] and instructed them to maintain 5000ft; [The C550 pilot] had already initiated descent to, and subsequently maintained, 5000ft.

Information available to the investigation included reports from the Stansted Final Director, the initial watch management investigation report, radar and R/T recordings, and the [C550] pilot report.

The Mode C of [the C550] indicated that the aircraft levelled at 5000ft at 1533:15, maintaining that altitude for the following three radar updates.

At 1533:31 [the C550] was observed to climb to 5100ft resulting in an immediate loss of separation with [the B737] crossing ahead maintaining 6000ft.

A high-level short term conflict alert (STCA) activated at 1533:41 and minimum separation was recorded at 1533:43 as 1NM and 700ft where 3NM or 1000ft was required.

Due to other traffic on frequency, the controller was not able to broadcast until 1533:47 at which time they issued an avoiding action heading of 360° to the pilot of [the C550] and instructed them to maintain 5000ft. By the time the pilot had read back this instruction [the C550] had descended to 5000ft and vertical separation had been regained, therefore Traffic Information, and avoiding action for [the B737] was not required. The pilot provided a report to NATS Safety Investigations and highlighted that they had also submitted the event to UKAB as an Airprox. The pilot stated in their event report that they had departed Stansted "*without an autopilot* {sic}", and that they had taken lesson-learning forward to engage the autopilot at the earliest opportunity after departure to mitigate high workload. The pilot did not make reference to reporting an Airprox on frequency.

Separation minima were eroded at 1533:31 and minimum separation occurred at 1533:43 and was recorded on multi-track radar as 1.0NM and 700ft. The loss of separation occurred when the pilot of [the C550] climbed without instruction to 5300ft eroding vertical separation with [the B737] crossing above maintaining 6000ft.

The incident was resolved by [the C550 pilot] descending back to 5000ft, with the controller issuing avoiding action and confirmation of cleared level at the earliest opportunity on frequency.

UKAB Secretariat

An analysis of the NATS radar replay was undertaken, where both aircraft were identified using Mode S data and were visible throughout. The initial erosion of separation was recorded at 1533:34 (Figure 3).

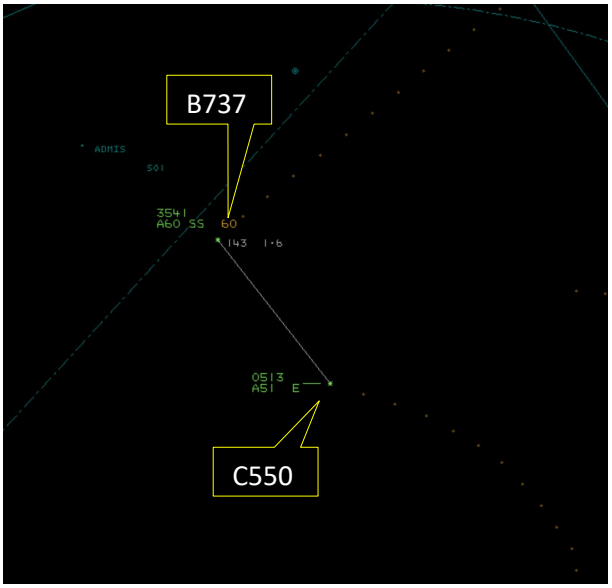

Figure 3 – Time 1533:34 Initial loss of separation.

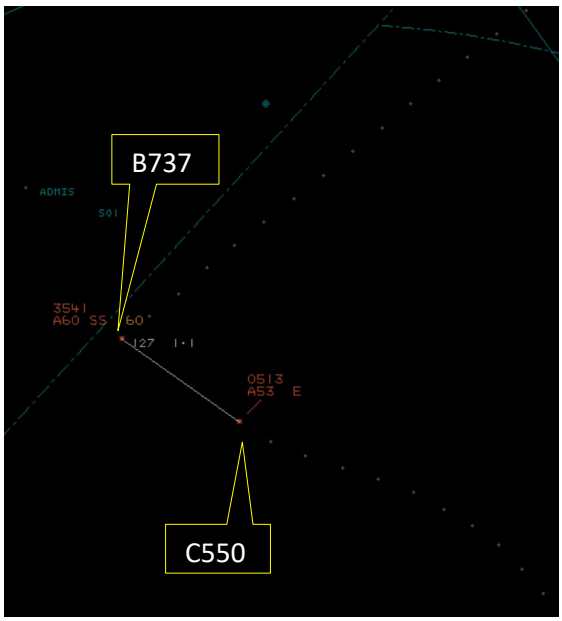

Figure 4 – Time 1533:43 separation at CPA 1.1NM 700ft

CPA was determined as 1533:43 with 1.1NM horizontal and 700ft vertical separation (Figure 4).

The C550 and B737 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 C550 pilot was required to give way to the B737.[2]

Summary

An Airprox was reported when a C550 and a B737 flew into proximity 5NM NNW of Stansted at 1534Z on Friday 31st May 2024. Both the C550 and B737 pilots were operating under IFR in IMC and in receipt of a Radar Control Service from Stansted Final Director.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, 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 looked at the Stansted Radar controller's actions and noted that they had provided the departing C550 crew with a heading and reminder to maintain their cleared level of 5000ft as an avoiding action due to the C550's continued climb to 5300ft which had caused a short term conflict alert with the B737 (**CF1**). Members recognised that the controller would normally have dealt with this type of interaction several times within an hour of controlling in this particular position, and appreciated that the controller had taken the correct course of action in a timely manner. The Board went on to discuss whether the controller could have been aware that the C550 crew had not selected their altitude on autopilot, although this was determined not to have been the case and not pertinent to the situation from the controller's perspective.

Looking into the actions of the C550 crew, members wondered why they had decided not to select the autopilot in a busy commercial environment. The Board speculated that the crew may have been training, or practising a hand flown departure, but considered that the action had been unwise and that they had consequently not executed their departure as cleared by the controller (**CF2**, **CF3**). Members felt that the C550 crew had left many questions unanswered regarding their standard operating

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

procedures (SOPs), whether they had had a sterile cockpit and why the Pilot Monitoring had not intervened prior to the deviation from their departure clearance. The Board further noted that the crew's height transgression had resulted in a TCAS TA (**CF5**), and that they had not successfully maintained the required separation from the crossing B737 (**CF6**).

The Board went on to briefly discuss the actions of the B737 crew, whom they acknowledged had no specific awareness of the departures in progress at Stansted (**CF4**), and had continued their flight in the normal manner with no memory of any Traffic Advisories (TAs) on their TCAS for that flight.

In concluding their discussion, members agreed that on this occasion neither the pilot of the C550 nor the pilot of the B737 were able to see the other's aircraft due to cloud obscuration (**CF7**) and that the electronic warning systems of both the C550 and Stansted Radar controller had provided alerts that had led to successful avoidance manoeuvres. The Board determined that safety margins had been reduced but, ultimately, there had not been a risk of collision and as such assigned Risk Category C to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2024105			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Ground Elements			
	• Electronic Warning System Operation and Compliance			
1	Technical	• STCA Warning	An event involving the triggering of a Short Term Conflict Alert (STCA) Warning	
	Flight Elements			
	• Regulations, Processes, Procedures and Compliance			
2	Human Factors	• Flight Crew ATC Clearance Deviation	An event involving a deviation from an air traffic control clearance.	
	• Tactical Planning and Execution			
3	Human Factors	• Action Performed Incorrectly	Events involving flight crew performing the selected action incorrectly	Incorrect or ineffective execution
	• Situational Awareness of the Conflicting Aircraft and Action			
4	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
	• Electronic Warning System Operation and Compliance			
5	Contextual	• ACAS/TCAS TA	An event involving a genuine airborne collision avoidance system/traffic alert and collision avoidance system traffic advisory warning triggered	
	• See and Avoid			
6	Human Factors	• Separation Minima Infringement	A situation in which prescribed separation minima were not maintained between aircraft.	
7	Contextual	• Visual Impairment	Events involving impairment due to an inability to see properly	One or both aircraft were obscured from the other

Degree of Risk: C.

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:

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

Flight Elements:

Regulations, Processes, Procedures and Compliance were assessed as **partially effective** because the C550 pilot had passed through their cleared level.

Tactical Planning and Execution was assessed as **ineffective** because the C550 crew had not adequately monitored the climb whilst flying the departure without the aid of the autopilot.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the B737 pilot had had no awareness of the departures in progress whilst being vectored by the Stansted controller.

See and Avoid were assessed as **not used** because neither the C550 pilot nor the B737 pilot could see the other's aircraft due to obscuration of cloud.