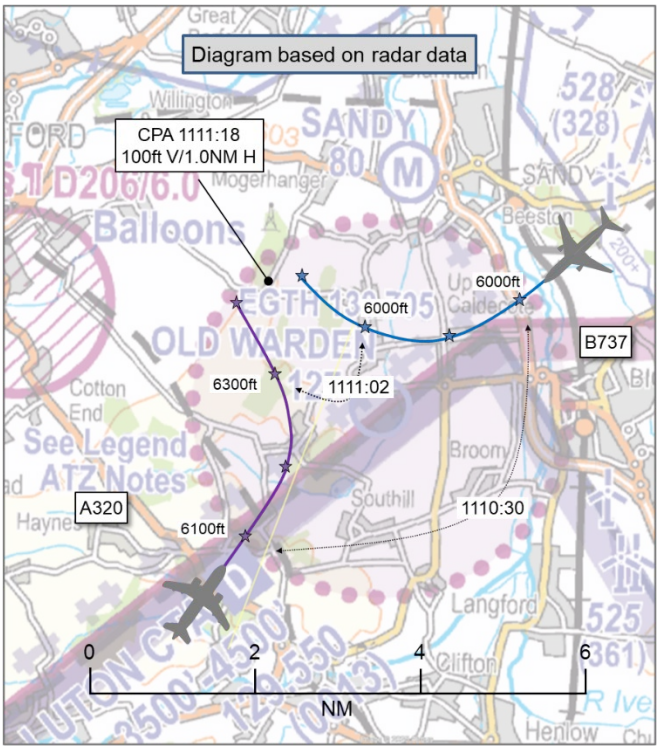
AIRPROX REPORT No 2024269

Date: 05 Oct 2024 Time: 1111Z Position: 5206N 00021W Location:14NM north of Luton Airport

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	B737	A320
Operator	CAT	CAT
Airspace	London TMA	London TMA
Class	A	A
Rules	IFR	IFR
Service	Radar Control	Radar Control
Provider	Luton Approach	TC North West
Altitude/FL	6100ft	6200ft
Transponder	A, C, S+	A, C, S+
Reported		
Colours	Company	Company
Lighting	Standard	Standard
Conditions	VMC	VMC
Altitude/FL	6000ft	6000ft
Altimeter	QNH	QNH
Heading	230°	NR
Speed	220kt	NR
ACAS/TAS	TCAS II	TCAS II
Alert	RA	RA
Separation at CPA		
Reported	0ft V/NK H	0ft V/NK H
Recorded	100ft V/1.0NM H	



THE B737 PILOT reports that they had been at 6000ft on radar vectors downwind for RW07 LTN. At approximately 1110, ATC advised them to take immediate avoiding action with a right turn heading of 360°. On commencement of the turn they noticed a [company branded] aircraft coming from the south which had also started turning to the right in their direction, this triggered a TCAS RA. The B737 pilot reports that they descended approximately 300ft before returning to [their] assigned altitude. The RA lasted for approximately 8sec and, once clear of conflict, they had returned to 6000ft and completed a 360° [turn] back onto a left downwind for RW07.

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

THE A320 PILOT reports that during descent towards LTN they had been given vectors towards a downwind left-hand for RW07, taking them through the overhead from the south. They were handed over to London on frequency 119.780MHz, who descended them to altitude 6000ft on the QNH on a northerly heading […]. In a position where they would expect to turn downwind, the controller gave [them] "*Heading 065°, that heading to Luton 129.550MHz*". At this point the FO [who had been PF] started a right turn, but briefly queried the heading. The aircraft Captain (as PM) had asked the controller on 119.780MHz "*confirm the heading. Are you sure you want us to turn right?*" To which the controller said "*heading 070°*". An air of uncertainty was detected by [the crew] that the controller hadn't been sure. After a brief pause and standby, the controller gave them avoiding action heading 325°. The FO disconnected the autopilot and rolled the aircraft to the left, which was then followed by a TCAS "Traffic" then quickly followed by an RA "climb". As the FO had been hand flying they followed the TCAS flight director commands and kept in the green. The Captain observed a [company branded] aircraft, at the same level and on a converging heading with its lateral separation unknown, making a banked turn to the right. [A] new controller had then cleared them to FL080 and heading 310°. The AP was re-engaged. They had then been clear of the conflict, level at FL080 and handed over to LTN radar who had vectored them towards approach.

THE LUTON APPROACH CONTROLLER reports that they were working [the B737] inbound to Luton at 6000ft downwind for RW07. [The A320] had been coordinated over the top of Luton DWLH 6A. The Luton Approach controller observed the heading 065° appear on the strip for [the A320] which would turn it towards [the B737]. The controller called TMA NW to check the aircraft was turning onto that heading, and when they confirmed [the Luton controller] hung up the phone to give avoiding action to the B737 pilot, turning right heading 360°. The Luton controller then called back TMA NW to tell them they had given avoiding action with a right turn but had noticed when they had finished speaking the phone had hung up again. With TMA N ringing back, the Luton controller answered and told them that [the B737] was turning right heading 360°. [The A320] had been turned left so the Luton controller had given [the B737 pilot] a further right turn, to which the B737 pilot advised that they had a TCAS RA to which the Luton controller had replied "*roger"*. When the aircraft were no longer in conflict, the Luton controller reports that they had been relieved from the position.

THE TC NORTHWEST CONTROLLER reports that they had been working as the NW DEPS/BNN controller. They had just taken over from the outgoing controller. [The A320] was a Luton inbound which had been set up for a [RW07] downwind left-hand (DWLH) and was pointing towards the overhead. On taking over there was a Luton RODNI getting airborne which had already been coordinated at FL160 to CAP and a Stansted (SS) NUGBO. Levels were traded between the RODNI departure and the Luton inbound and headings set up to deconflict with the RODNI routeing to the north due to traffic inbound BNN. The SS NUGBO was put on a heading to take it inside the Luton RODNI. In [the TC North West controller's] head, the A320 had been going downwind right-hand (DWRH). The majority of Luton releases for easterlies are WCO so the positioning had led them into thinking it was going DWRH. Once the level changes had been completed, the TC North West controller turned the aircraft to the right and transferred it to Luton INT. A few seconds later the pilot returned back to the frequency and queried the heading and [the TC North West controller] had [then] given it a further turn at which point the Luton phone line called. They asked what heading it was going onto and the TC North West controller confirmed the heading. They advised that Luton was [operating] on easterlies. The TC North West controller gave the pilot avoiding action heading 325° and passed traffic [information]. Shortly after that, the pilot had transmitted "*TCAS RA"* at which point the TC North West controller had said "*roger"*. The pilot reported clear of the traffic at which point they were given a further turn and a climb to FL80.

Factual Background

The weather at Luton Airport was recorded as follows:

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METAR EGGW 051050Z AUTO 15010KT 120V180 9999 FEW025 14/09 Q1015=
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Analysis and Investigation

NATS Safety Investigation

Summary

The A320 was descending to 6000ft under the control of the TC North West controller when it was turned right, instead of the anticipated left, to be positioned downwind left-hand for Luton. This turn placed the A320 into direct confliction with the B737 which was maintaining 6000ft under the control of the Luton Approach controller. Both controllers provided avoiding action turns to the north which, instead of resolving the situation, had prolonged the confliction with separation eroding and both pilots reporting a TCAS Resolution Advisory (RA) which resolved any risk of collision.

Description of the event

TC NorthWest (TC NW) were operating in a bandboxed configuration with the TC NW Departures & BNN positions combined. The Luton Intermediate and Final Director positions were also in a bandboxed configuration (GW INT). The A320 had been coordinated to be positioned via overhead the Luton airfield for downwind left hand (DWLH) to RW07 at Luton. There had then been a controller handover of the TC NW position at 1105 and the A320 had been the first Luton inbound that the incoming TC NW controller had positioned into the sequence that day. The B737 had also been

inbound to Luton on an extended downwind leg, maintaining 6000ft in contact with the GW INT controller. The A320 pilot had previously been instructed to descend to 6000ft, and at 1109:40 the TC NW controller had issued the pilot with a right turn onto 065°, as though to position for a right-hand downwind leg for Luton RW25, together with a frequency change to the GW INT frequency. This turn onto a heading of 065° had placed the A320 into direct confliction with the B737. The pilot of the A320 had readback the heading and frequency correctly, however a short time later had requested "*just re-confirm that heading you want*". The TC NW controller responded, "*make your heading zero seven five now Luton one two nine five five … zero ah just stay with me actually*". During this transmission the GW INT controller had observed the heading of 065° displayed on the EXCDS strip and telephoned the TC NW controller to query. The TC NW controller answered the telephone call immediately on conclusion of the transmission, at 1110:08, and confirmed the heading displayed on the strip had been that which had been issued and asked, "*where do you want him*". The GW INT controller had responded that "*it's easterlies*", and TC NW controller replied, "*ah sorry, sorry*". A low-level Short Term Conflict Alert (STCA) had activated during the telephone call, at 1110:12. The GW INT controller terminated the call at 1110:16 and immediately issued the pilot of the B737 with an avoiding action right turn onto a heading of 360°. Coincident with this, the TC NW controller had instructed the pilot of the A320 to "*turn left please left heading three two five*". The GW INT controller subsequently passed Traffic Information to the pilot of the B737. The pilot of the A320 read the heading instruction back correctly. Immediately prior to the end of the pilot's transmission, the aircraft's TCAS could be heard annunciating "Traffic". The TC NW controller initiated a further telephone call to the GW INT controller at 1110:24 with the call connecting at 1110:27 as the GW INT controller had been completing the Traffic Information transmission to the pilot of the B737, coincident with a high level STCA activating. On completion of the Traffic Information, the GW INT controller had continued with "*I've go*.." at which point the call terminated and the TC NW controller re-issued the left turn onto heading 325°, now as avoiding action.[1]

The TC NW controller had then telephoned the GW INT controller who answered the telephone call, at 1110:36 with "*Luton I've gone right*…", to which the TC NW controller responded, "*I've gone 325*°". The GW INT controller had replied "*OK I'll keep going right*". The GW INT controller had then, at 1110:42, instructed the pilot of the B737 to continue the right turn onto a heading of 045° and passed updated Traffic Information. Coincident with this, the TC NW controller had begun a transmission to the pilot of the A320 however this had crossed with a transmission from the pilot of the A320, at 1110:43, reporting a TCAS RA. This A320 TCAS report had still been readable and the TC NW controller responded that the pilot should report back under their control and passed Traffic Information. Separation minima were eroded during this transmission, at 1110:46. The pilot of the B737 had read back the GW INT controller's instruction to continue the turn onto 045° at 1110:49 and added that they had received a TCAS RA, which the GW INT controller acknowledged. The pilot of the A320 had then reported clear of conflict and added "*I think it was a [company aircraft] in our one o'clock*". After this, the pilot of the B737 had requested confirmation of the assigned heading at 1110:56, which had been duly passed. The TC NW controller had then issued a further left turn onto a heading of 310° to the pilot of the A320.

At 1111:12, the GW INT controller passed updated Traffic Information to the pilot of the B737 and four seconds later the pilot had responded, "*we have the traffic*". Minimum separation occurred at 1111:18 and was recorded on the Multi-Track system as 1.0NM and 100ft where 3.0NM or 1000ft were required. The TC NW controller had issued climb to FL80 to the pilot of the A320 at 1111:23 and a subsequent further left turn onto a heading of 230° to reposition for left hand downwind. Lateral separation was restored at 1111:54 as the pilot of the A320 had read back the turn instruction.

Investigation Key Findings

The runway in use at Luton had been 07 and inbound aircraft on approach, including the B737 on a downwind heading at 6000ft, were under the control of the GW INT controller. The A320 had been

[1] The GW INT controller reported during interview they had initiated this telephone call; it was assessed that both controllers had pressed the respective direct dial buttons on the VCCS panel in quick succession and the GW INT controller had answered the TC NW controller's call prior to the line ringing on their end.

given a shortcut by the previous TC NW controller which bypassed the STAR and positioned the aircraft in a location which would have been appropriate for an approach to either runway.

On the day of the event the majority of Luton inbound aircraft following the same arrival route as the A320 (37 aircraft) had received a direct routeing.

The previous TC NW controller had coordinated downwind left-hand for RW07 at Luton for the A320 with the GW INT controller, but this had not been written on the EXCDS strip.

After taking a handover of the sector, the incoming TC NW controller had held an incorrect mental model and, believing they were positioning the A320 for RW25, had instructed the pilot to turn right, towards the B737.

Avoiding action was issued to the pilots of the A320 and the B737 by each controller but as the direction of this had not been complementary, with both turned onto northerly headings, the conflict between the two aircraft had been prolonged and not resolved effectively.

The pilots of both aircraft received and actioned TCAS RAs before separation had been eroded, and this had fundamentally resolved the risk of collision in this event.

The TC NW Deps and BNN sectors were being operated in a bandboxed configuration as TC NW. TC North East had also been operated in a bandboxed configuration with no coordinator in situ for either sector at the time of the event, therefore two positions were required on TC North. Review of staffing lists and Operational Position Monitoring (OPM) data detailed staff were available to either split the sectors or for a coordinator to be available.

From the NATS 4118 - 'Runway orientation is mixed, with Stansted on westerlies and Luton and Heathrow on easterlies. Both the NW sector and the Luton sector are bandboxed'.

Frequency occupation analysis of the TC NW position at the time indicated an R/T loading of between 40 and 50 seconds per minute at the time of the incident.

The previous TC NW controller had sent an electronic coordination offer to GW INT at 1054:09 to coordinate the A320. The coordination sent had been '*descending to 6000ft, released at FL80'*, and was accepted by the GW INT controller at 1054:51. The pilot of the A320 was in communication with the TC NE controller prior to transfer to TC NW, the TC NE controller issued the pilot of the A320 with a heading of 345° and informed them that it had been "*vectors over the top, downwind left for runway zero seven at Luton*", which was acknowledged by the pilot. Both the previous TC NW controller and the GW INT controller had reported during interview that the A320 had been coordinated DWLH, however this had not been marked on the strips as part of the coordination conditions, and not in accordance with procedure.

The TC NW controller stated during interview that they had taken a full handover from the previous controller […], which had included runway configuration. Both the NW controller and previous NW controller stated that the handover had included the plan for the A320 and conflictions with both a Luton departure, which had been coordinated for further climb with TC Capital, and a Stansted departure, which required level changes. The controller recalled that, at the time, they believed they had a 'full picture' and therefore good situational awareness. They reported that the workload had been above average due to some complexity involving the Luton and Stansted departures, and a para-dropping aircraft which was also airborne from Hinton-in-the-Hedges, however they had felt relaxed and not under any pressure. They set up headings and issued the relative climbs and descents for the aircraft and stated that in their mental model they were waiting for the level change between the A320 and [a] Luton RODNI departure before turning the A320 right, however the right turn had been for a DWRH traffic pattern for RW25. The TC NW controller was operating with an incorrect mental model that the runway in use at Luton was RW25.

The GW INT controller reported during interview that they observed the heading of 065° on the strip for the A320 and had initially believed it to be an error, possibly that the heading should have been

265° and had telephoned the TC NW controller to clarify. When it was confirmed that 065° was the heading issued, the GW INT controller pointed out that it had been easterlies and terminated the telephone call to immediately issue avoiding action to the pilot of the B737. They added that they turned right as, without coordination or information otherwise, this had been the standard direction to turn. They further detailed that the A320 had just started their right turn, so to go right seemed logical, and added that going right was their natural reaction and they hadn't given the direction of turn much thought. As previously detailed, the TC NW controller had had an incorrect mental model when they had answered the telephone call from the GW INT controller. The TC NW controller reported during interview that they observed that the B737 was not where they were expecting it to be and so, when confirming the heading of 065°, had asked the GW INT controller where they wanted the aircraft to be positioned. When the GW INT controller pointed out that they were operating on easterlies, the TC NW controller reported that they had issued the left turn onto 325° to effectively re-position the aircraft onto the correct downwind heading to integrate it into the traffic pattern as opposed to definitive conflict avoidance. They stated that they had seen that the airspace in that direction of turn had been clear, whilst there had been a Stansted departure climbing out to the south, so they had issued the left turn. The turn onto 325° was re-issued by the TC NW controller as avoiding action one second after the STCA activation changed to high level. Although avoiding action was passed by both controllers, the issued headings did not complement each other, resulting in both aircraft turning to the north and prolonging the confliction. The telephone call between the two controllers at 1110:36 established that the aircraft were both turning to the north. At this time the A320 pilot had reversed the right turn and was now in the left turn onto heading 325°. On the conclusion of this telephone call the GW INT controller had issued a further right turn to the pilot of the B737 whilst the NW DEPS controller began the crossed transmission with the pilot of the A320 reporting a TCAS RA.

The pilot of the A320 reported on the R/T at 1110:43, that they had received a TCAS RA, whilst the pilot of the B737 informed the GW INT controller that they had received a TCAS RA during a read back to the previous continue turn instruction from the controller at 1110:49. Separation minima had been eroded at 1110:46. The pilot of the A320 reported "clear of conflict" at 1110:53. The pilot of the B737 did not report 'clear of conflict', however they had requested confirmation of the last heading instruction at 1110:56, indicating that they were able to continue with ATC instructions. Both pilots also reported that they had acquired visual contact with their respective traffic with minimum separation occurring at 1111:18.

Causal Factors

The pilot of the A320 had been issued a shortcut to their STAR routeing which took the aircraft into the TC NW sector, which it would not have entered on the flight planned route. The shortcut issued had been routine to the controllers concerned and direct routeings were issued to the majority of flights on the same STAR routeing on the day of the event.

The shortcut issued to the A320 pilot meant that aircraft required deconflicting from a Luton RODNI departure which had been coordinated above the standing agreement level. Both the shortcut and climb above standing agreement levels are routinely issued by TC NW controllers in order to reduce complexity and reduce congestion in other sectors.

Both the previous TC NW controller and GW INT controller stated that the A320 had been coordinated DWLH, however this had not been recorded on the EXCDS strip.

The TC NW controller took over the position and received a full handover including runways in use and traffic situation, however, they did not fully assimilate this information and had been left with an incorrect mental model of the landing runway.

There had been no visual cues to the NW controller, either on the radar or from any controller tools, showing the runway in use at Luton to assist in correcting their mental model.

The TC NW controller had issued a right turn to the pilot of the A320 to take them onto a downwind heading for the incorrect runway.

The GW INT controller had observed the heading displayed on the EXCDS strip and telephoned the TC NW controller to confirm.

Upon confirmation that the heading issued had been as displayed, the TC NW controller was informed that the landing runway was easterly and both controllers had then taken corrective action. However, both aircraft had been turned towards the same direction, prolonging the situation and producing a worse geometry than if the turns had been complementary.

The pilots of both the A320 and the B737 had received TCAS RAs and reported that they had visual contact with the other.

UKAB Secretariat

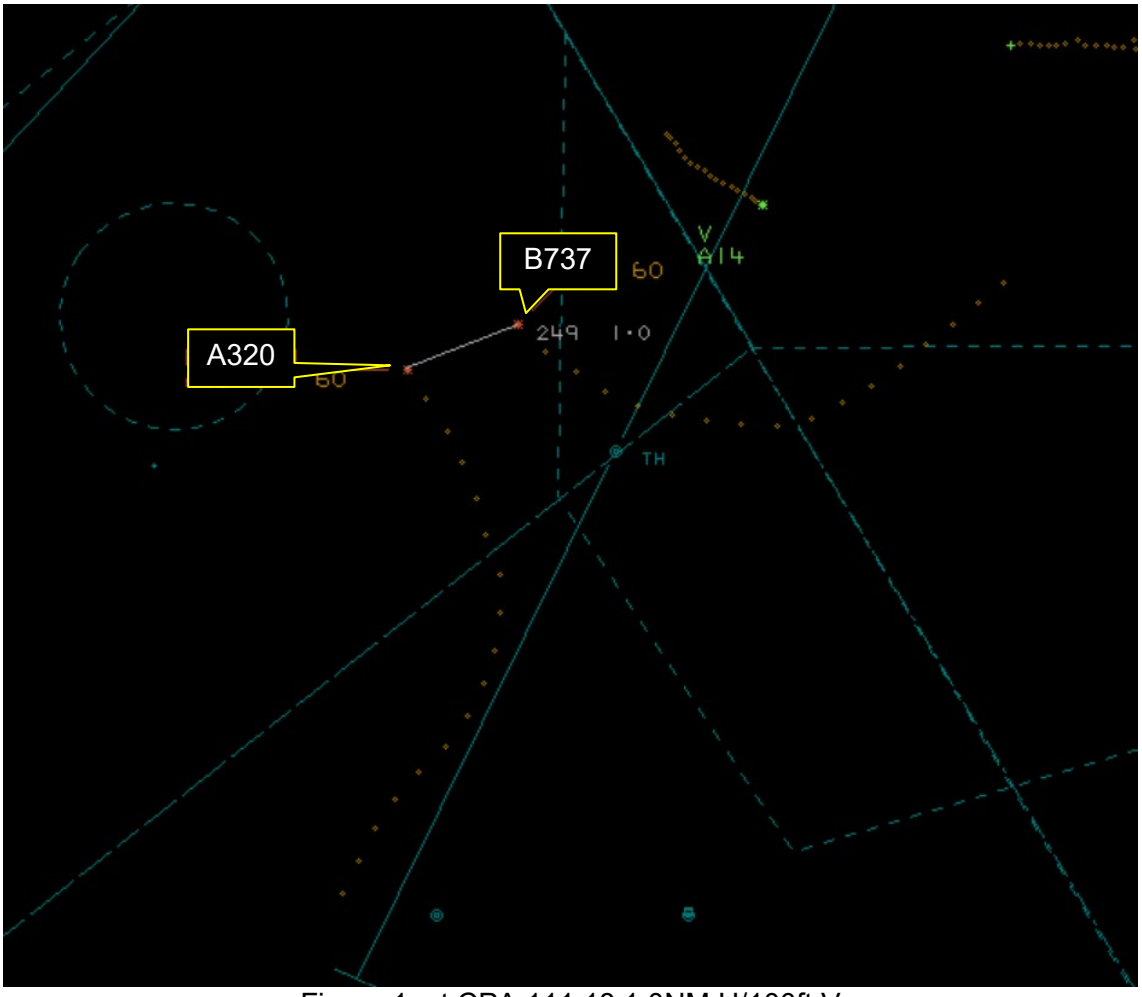


Figure 1: at CPA 111:18 1.0NM H/100ft V

Figure 2: Airspace Analyser extract taken at CPA 1111:18

The B737 and A320 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]

Summary

An Airprox was reported when a B737 and an A320 flew into proximity 14NM north of Luton Airport at 1111Z on Saturday 5th October 2024. Both pilots were operating under IFR in VMC with the B737 pilot in receipt of a Radar Control Service from Luton Approach and the A320 pilot in receipt of a Radar Control Service from TC North West.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, ADS-B track data, 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.

The Board firstly discussed the role played by the pilot of the B737, noting that they had been vectored by the Luton Approach controller from the north for a downwind join to RW07 at LTN and had received an avoiding action turn followed by a TCAS RA (**CF9**) which they had actioned. The Board also noted that they had gained visual acquisition with the A320 and had been concerned by the proximity of the other aircraft (**CF8**).

[2] (UK) SERA.3205 Proximity.

Turning to the actions of the A320 pilot, members noted that they had been vectored from the south also for a downwind join to RW07 at LTN and had been given a heading change together with a frequency change. The Board noted that the pilot had challenged the heading and noted a degree of uncertainty in the response from the TC NW controller before then being given an avoiding action turn which they had followed and which had been accompanied by a TCAS RA (**CF9**) which they had actioned. Members also noted that they had gained visual acquisition with the B737 and had been concerned by the proximity of the other aircraft (**CF8**).

Board members believed that both pilots had acted and challenged appropriately and could have done little more in this case.

In reviewing the actions of the Luton Approach controller, the Board noted that the controller had been working the B737 and had descended the aircraft aiming to establish it through the overhead at 6000ft for an approach to RW07. As the aircraft had approached its cleared altitude, the controller had noticed that the A320 pilot had been instructed to turn onto a conflicting heading which the Luton controller had then challenged and, following confirmation, had issued avoiding instructions to the pilot of the B737. Members recognised that there had been a significant degradation of the Luton Approach controller's level of confidence in the instructions given to the A320 pilot and agreed that the avoidance action taken had been appropriate.

Board members moved to discuss the actions of the TC NW controller. They noted that the controller had taken over in that role approximately 10min previously and that there had been other aircraft on both departure and recovery that had added to the traffic mix at the time. On passing a heading instruction to the pilot of the A320 and frequency change, the pilot had challenged that heading coincident with a telephone call from the Luton Approach controller. That call had confirmed that Luton had been working on RW07 which had disrupted the TC NW controller's situational awareness (**CF6**) which had been built on the belief that the active arrival runway at Luton had been RW25 (**CF1**, **CF4**). The Board noted that a high-level STCA had triggered at the same time as this telephone exchange (**CF7**).

Members noted from the NATS safety investigation that both TC NW and Luton Approach had been operating in a bandboxed configuration and wondered if additional resource may have identified the confusion within the TC NW controller's mental picture as they had settled into their work. The Board members opined that the communication between the 2 controller units had been unclear and compounded by an incomplete telephone connection (**CF2**) leading to the provision of a sub-standard conflict resolution (**CF3**) and inadequate separation provision (**CF5**).

Concluding their discussion, members noted that the both the B737 and A320 pilots had maintained communication with their respective air traffic controller, gained visual with the other aircraft and had received and actioned TCAS Resolution Advisory indications which had ultimately enabled clear separation between their aircraft. Members felt that although safety had been degraded, there had been no risk of collision and assigned Risk Category C to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2024269			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Ground Elements			
	• Regulations, Processes, Procedures and Compliance			
1	Human Factors	• ATM Regulatory Deviation	An event involving a deviation from an Air Traffic Management Regulation.	Regulations and/or procedures not fully complied with
	• Situational Awareness and Action			
2	Human Factors	• ATM Coordination	Coordination related issues (external as well as internal)	
3	Human Factors	• Conflict Resolution-Inadequate	An event involving the inadequate provision of conflict resolution	

4	Human Factors	• Inappropriate Clearance	An event involving the provision of an inappropriate clearance that led to an unsafe situation	
5	Human Factors	• Separation Provision	An event involving Air Navigation Services separation provision.	
6	Contextual	• Traffic Management Information Action	An event involving traffic management information actions	The ground element had only generic, late, no or inaccurate Situational Awareness
	• Electronic Warning System Operation and Compliance			
7	Technical	• STCA Warning	An event involving the triggering of a Short Term Conflict Alert (STCA) Warning	
	Flight Elements			
	• Situational Awareness of the Conflicting Aircraft and Action			
8	Human Factors	• Unnecessary Action	Events involving flight crew performing an action that was not required	Pilot was concerned by the proximity of the other aircraft
	• Electronic Warning System Operation and Compliance			
9	Contextual	• ACAS/TCAS RA	An event involving a genuine airborne collision avoidance system/traffic alert and collision avoidance system resolution advisory warning triggered	

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:

Ground Elements:

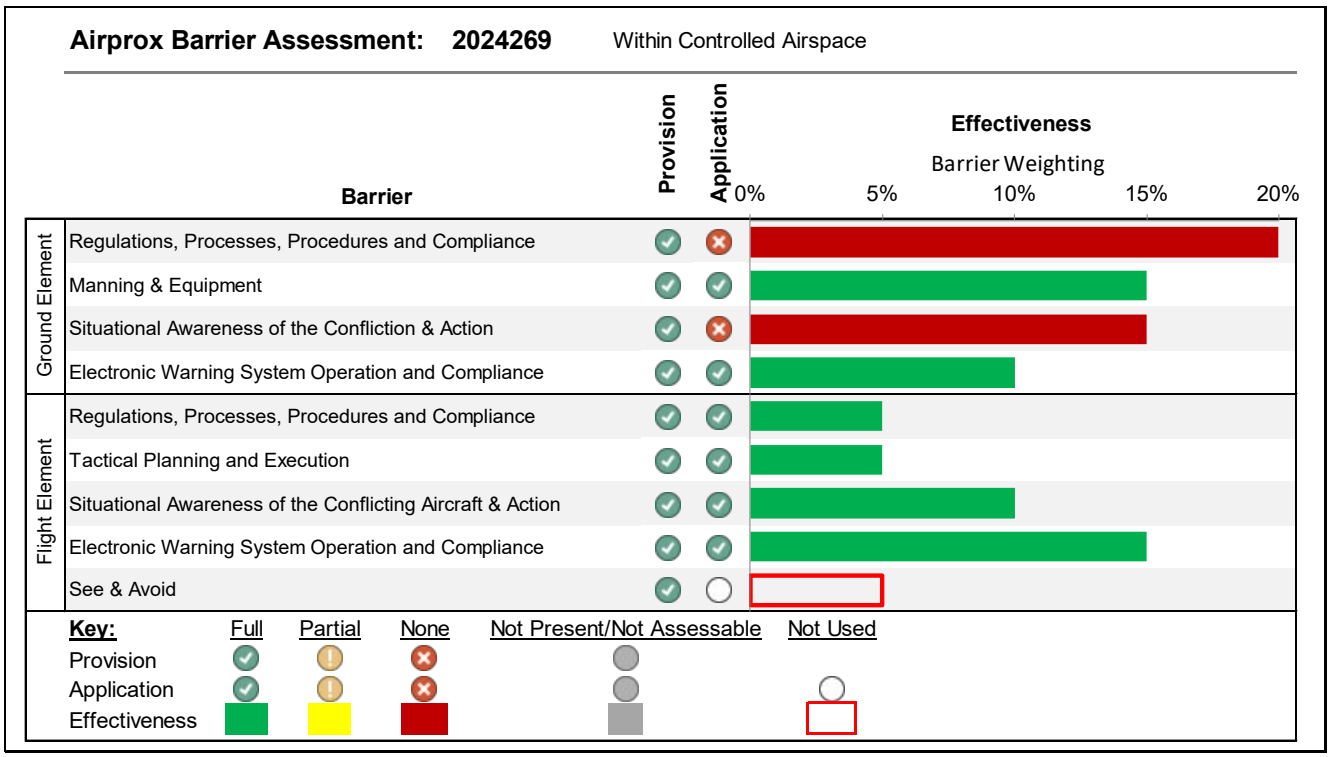
Regulations, Processes, Procedures and Compliance were assessed as **ineffective** because the TC NW controller had positioned the A320 for an incorrect runway direction.

Situational Awareness of the Confliction and Action were assessed as **ineffective** because an incorrect mental model held by the TC NW controller had led to coordination issues between themselves and the Luton Approach controller which, in turn, had generated inadequate conflict resolution, an incorrect clearance for the A320 pilot and led to a reduced separation between the A320 and the B737.

Flight Elements:

See and Avoid were assessed as **not used** because both pilots had been operating under a Radar Control Service.

[3] 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: 2024269
Within 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