Aviation Safety Investigation Report 199701503

Boeing Co
B767
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B767

09 May 1997

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Aviation Safety Investigation Report

199701503

Occurrence Number:	199701503	**Occurrence Type:**	Incident
Location:	172km SW Lord Howe Island, Non Directional Beacon		
State:	Other	**Inv Category:**	4
Date:	Friday 09 May 1997		
Time:	1025 hours	**Time Zone**	EST
Highest Injury Level:	None		

Aircraft Manufacturer:	Boeing Co		
Aircraft Model:	767-338ER		
Aircraft Registration:	VH-OGG	**Serial Number:**	24929
Type of Operation:	Air Transport High Capacity International Passenger Scheduled		
Damage to Aircraft:	Nil		
Departure Point:	Brisbane Qld		
Departure Time:	0938 EST		
Destination:	Christchurch New Zealand		

Aircraft Manufacturer:	Boeing Co		
Aircraft Model:	767		
Aircraft Registration:	D-QFJC	**Serial Number:**	
Type of Operation:	Air Transport High Capacity International Passenger Scheduled		
Damage to Aircraft:	Nil		
Departure Point:	Nadi Fiji		
Departure Time:	0658 EST		
Destination:	Sydney NSW		

Approved for Release: Tuesday, July 21, 1998

FACTUAL INFORMATION

The Australian-registered Boeing 767 (B767) had departed Brisbane on a flight to Christchurch, New Zealand and had passed the reporting point STUDA (30.18S 155.17E) at 1006 EST. The crew were maintaining the aircraft at flight level (FL) 370 on air route L503.

The foreign-registered B767 had departed Nadi, Fiji on a flight to Sydney and had passed Lord Howe Island at 1009 EST. The crew were maintaining the aircraft at FL390 on air route B450, which crossed the track of the Australian B767 approximately 90 NM south west of Lord Howe Island.

Both aircraft were under the jurisdiction of Brisbane Air Traffic Control Sector 8. After receiving the foreign registered B767's position report at Lord Howe Island, the controller was required to forward the time estimate for the aircraft's next position report to Sydney approach control. This communication was to be carried out via a link that requires the receiving controller to depress a switch, indicated by a flashing light on the control console, in order for conversation to commence. On this occasion the Sydney controller was busy and it took almost seven minutes for the link to be opened.

There were five aircraft en-route from Australian airports to New Zealand that were under the control of the Brisbane controller. The flight times and disposition of these flights were such that several traffic separation conflictions would arise in Auckland's sector of responsibility unless corrective action was taken. At 1015, the Brisbane controller coordinated various matters with the Auckland controller and proposed some solutions which he could initiate to assist the Auckland controller in preventing the traffic conflicts. In particular, he suggested that the Australian B767 should climb to the non-standard FL390 and another aircraft climb to the non-standard FL350. The Auckland controller stated that he would consider these, and other, options before further coordination with the Brisbane controller.

At 1017, the crew of the Australian B767 requested a climb to FL390 due to turbulence. Although this was a non-standard level for eastbound flights, it did offer an immediate solution to four of the five prospective traffic conflictions. The Brisbane controller decided to approve the climb after discussing the issue briefly with the Auckland controller during a second coordination exchange, but without carrying out appropriate checks for lateral separation between the aircraft where air routes B450 and L503 intersect.

Just prior to approving the Australian B767's climb, the Sydney approach controller responded to the Brisbane controller's earlier attempt to coordinate details of the foreign B767. By this time the Brisbane controller could not recall the reason for initiating the call and the two controllers terminated the conversation without completing the intended task. The climb was approved at 1018.

At 1021, the Brisbane controller realised that he had not carried out all the required checks to ensure separation before approving the change in flight level. Although he did not make a specific scan of his flight progress strips, he was uneasy about the decision and elected to cancel the climb approval. He issued instructions for the crew of the Australian B767 to descend back to FL370.

The crew were passing FL385 on climb when they saw the other B767 some 25NM ahead and passing from left to right. They did not receive a warning from the traffic alert and collision avoidance system (TCAS).

The analysis of the radar recording was unable to establish the separation distance as both aircraft were outside radar coverage at the crossing point. Extrapolation of the last observed radar data for the Australian aircraft and the first observed radar data for the foreign aircraft, indicates that they passed with at least 25NM horizontal separation. However, as no procedural standard had been achieved, there was a breakdown of separation standards.

The Brisbane controller was working Sector 8 Radar and Sector 8 Ocean at the time of the occurrence. Together these two sectors form the Oceanic group. Workload was light to moderate during the period surrounding this occurrence. A team leader was rostered on duty but was conducting tasks outside the immediate work area at the time of the occurrence. Another controller was also rostered for duty on the Ocean group but was taking a rest break.

ANALYSIS

The Brisbane Sector 8 controller approved a change in flight level for the Australian B767 without carrying out the required checks for possible conflicts. This action may have been a result of the controller focussing his attention on resolving potential conflicts for the Auckland controller.

More specifically, the controller's omission occurred at a highly automised, skill-based level of performance. Following the Australian B767 crew's request to go to the non-standard FL390, a controller should normally undertake the following actions:

1. Check the flight strips and ensure there was no potential conflictions.
2. Communicate with relevant controllers to obtain approval for a non-standard flight level.
3. Approve or disapprove the change in flight level.

In this particular case, the controller had already discussed the possibility of a higher level for the B767 with the Auckland controller shortly before the flight crew requested the level change. When the Brisbane controller received the request, there would have been a strong, natural tendency to immediately provide this information to Auckland and therefore continue the previous conversation. Indeed, by continuing the conversation in a subsequent coordination call to Auckland just 2 minutes after the first contact, the controller had commenced his response to the B767 flight crew's request for a change in flight level. However, he had started the task at the second step in the sequence and omitted checking the other flight strips for potential conflictions.

As the request for the level change was due to turbulence, the controller may have felt some urgency to respond to the request. In addition, the Brisbane controller's awareness of the foreign B767 may have been reduced in the period prior to the occurrence. Firstly, the Sydney controller did not initially respond to the Brisbane controller's attempt to pass coordination for that aircraft. Secondly, the controller's attention was focussed on the other aircraft under his control during his discussions with the Auckland controller.

Skill-based errors, such as the one involved in this occurrence occur when a person performs a familiar task in an environment which is slightly different to that which is normal. In this case the difference was that the Brisbane and Auckland controllers were discussing a level change shortly before it was requested by the Australian B767 crew.

Skill based tasks are usually performed semi-automatically, with a low awareness of the actions taken by the individual. Reducing the incidence of such errors can be difficult due to this low level of awareness at which skill-based behaviour is performed. Airservices Australia will soon be introducing The Advanced Australian Air Traffic System (TAAATS). This new system will involve significant changes to the way many air traffic control tasks are performed. For procedural enroute controllers, a notable change will be the introduction of a display which gives a plan position indication for aircraft in their area of responsibility. This change will probably make the detection of potential traffic conflicts easier.

The likelihood of detecting and correcting such skill based errors before their consequences are significant could be improved through the introduction of an automatic conflict alert. Such an alert is currently being considered for radar tracks in TAAATS but not for other tracks. An alternative defence is the presence of other controllers to supervise or support a controller. Although there was provision for other controllers to be on duty, this defence was not present at the time of this occurrence.

SIGNIFICANT FACTORS

1. The Brisbane Sector 8 controller approved a change in flight level without carrying out the required separation calculations.

2. The Brisbane Sector 8 controller was attempting to solve future separation conflicts and may have been distracted from the immediate task.

SAFETY ACTION

As a result of this and several other occurrences, the Bureau of Air Safety Investigation (BASI) examined issues associated with Airservices Australia's operation of teams in air traffic services. This examination resulted in BASI issuing the following Safety Advisory Notice to Airservices Australia on 27 January 1998:

Safety Advisory Notice SAN 970137

Airservices Australia should take note of the safety deficiencies detailed by this document and take appropriate action.

The safety deficiencies referred to in the document were:

1. an undesirably low level of operational support provided by experienced controllers, including team leaders and other full performance controllers, to controllers working in operational positions.

2. an inappropriately low level of emphasis on team development activities, such as the provision of team leader training and support, and the regular provision of team days with structured learning content for team members.

3. performance evaluation systems for team leaders that do not ensure relevant team leader performance areas are measured, and also do not ensure that any degradation in a team leader's proficiency on operational positions will be detected.

4. an inappropriately low level of training and development for many controllers on human factors issues, particularly those associated with inter-controller coordination and communication.