Aviation Safety Investigation Report 199701514

Airbus
A320
Boeing Co
B737-400

09 May 1997

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Aviation Safety Investigation Report

199701514

Occurrence Number:	199701514	**Occurrence Type:**	Incident
Location:	65km SSE Darwin, VOR		
State:	NT	**Inv Category:**	4
Date:	Friday 09 May 1997		
Time:	1430 hours	**Time Zone**	CST
Highest Injury Level:	None		

Aircraft Manufacturer:	Airbus		
Aircraft Model:	A320-211		
Aircraft Registration:	VH-HYX	**Serial Number:**	288
Type of Operation:	Air Transport Domestic High Capacity Passenger Scheduled		
Damage to Aircraft:	Nil		
Departure Point:	Darwin NT		
Departure Time:			
Destination:	Alice Springs NT		

Aircraft Manufacturer:	Boeing Co		
Aircraft Model:	737-476		
Aircraft Registration:	VH-TJY	**Serial Number:**	28151
Type of Operation:	Air Transport Domestic High Capacity Passenger Scheduled		
Damage to Aircraft:	Nil		
Departure Point:	Unknown		
Departure Time:			
Destination:	Darwin NT		

Approved for Release: Monday, July 13, 1998

FACTUAL INFORMATION

The crew of an instrument flight rules (IFR) Boeing 737 (B737) had been cleared to descend to flight level (FL) 120 while tracking inbound to Darwin. The aircraft was tracking via the 163 radial of the very high frequency omni-directional radio range (VOR) navigation aid. The crew had transferred from Brisbane En Route Control to Darwin Approach Radar Control at approximately 60 NM from Darwin.

An IFR Airbus Industrie A320 had departed Darwin for Alice Springs and was tracking via the 163 VOR radial on climb to FL370. The approach radar controller was busy with aircraft operating predominantly within 20 NM of Darwin aerodrome and did not recognise the potential for conflict between the aircraft.

When the B737 was approximately 45 NM from Darwin, the approach radar controller was alerted to the conflict with the A320 by another controller. The approach radar controller instructed the crews of both aircraft, in separate transmissions, to turn right 30 degrees. In the first transmission, the B737 crew did not understand the instruction and the approach radar controller had to repeat the instruction. Subsequently, the aircraft passed with less than 1,000 ft vertical separation and 2.4 NM lateral separation. The required minimum separation standard was either 3 NM laterally or 1,000 ft vertically. There was a breakdown of separation.

B737 crew

The B737 was fitted with a traffic alert and collision avoidance system (TCAS) and consequently, the crew was aware of the approaching A320. They were prepared to comply with any avoiding instructions expected from the approach radar controller. However, the initial instruction was given very quickly and was difficult to understand, and the crew had to ask the controller to repeat the transmission.

Radar display

The approach radar controller was responsible for managing the airspace encompassed by a circle with a radius of 50 NM, centred on Darwin. The approach controller used a main radar display with the range set to 50 NM and a smaller secondary display window with the range set to 100 NM. The main display was primarily used to separate and manage aircraft close to Darwin while the smaller window was used for the management of aircraft that were further than 50 NM from Darwin.

To avoid clutter on the display, the radar display labels on the secondary window were suppressed for all aircraft within 30 NM of Darwin. Just prior to the occurrence, the A320 would have been displayed on the main display with a full label and on the secondary window without a label. The B737 would have been displayed on the secondary window with a full label.

Approach radar controller

The approach controller was busy with aircraft conducting practice instrument approaches at Darwin and other arriving and departing aircraft. The controller was using flight progress strips and radar to manage aircraft in the area of responsibility.

The Brisbane sector 11 controller advised the approach radar controller of the radar identification of the B737 and the assigned level of FL120 when the aircraft was 68 NM from Darwin. The approach controller reported the departure of the A320 to the sector 11 controller during the same coordination exchange. Neither controller remarked on a need to coordinate a separation procedure for the aircraft.

Coordination

The approach coordinator advised the sector 11 controller when the A320 taxied for departure. The approach coordination controller and the sector 11 controller did not recognise the potential for conflict between the B737 and the A320. There were no specific procedures to ensure that Brisbane and Darwin controllers coordinated separation procedures for aircraft that were likely to pass near the boundary of the respective areas of responsibility.

Generally, the approach coordinator would have alerted the approach radar controller to the potential for conflict before a taxiing aircraft departed. The investigation did not ascertain why the approach coordination controller did not advise the approach radar controller of the situation.

ANALYSIS

It is probable that due to the busy nature of the traffic environment at the time, both the approach coordinator controller and the approach radar controller became so fixated on the coordination and separation of aircraft close to Darwin that they were unable to comprehend the developing conflict. This aspect is further supported by the fact that the approach radar controller did not appreciate the potential conflict when the B737 was handed off from Brisbane and the departure time for the A320 was advised to Brisbane, in the same coordination exchange.

The display of the radar tracks and labels for the aircraft on separate windows would have constrained the approach radar controller's ability to develop an appreciation of the potential conflict. However, flight progress strips were available and if they were scanned regularly by the approach radar controller, they should have provided a prompt for that controller.

The aircraft passed at a position approximately 35 NM south-south-east of Darwin, which was well within Darwin's area of responsibility. Consequently, while the coordination of a procedure for the separation of the aircraft between Brisbane and Darwin Air Traffic Control would have assisted in the occurrence, it was not considered to be a significant factor.

SIGNIFICANT FACTORS

1. The approach coordination controller did not warn the approach radar controller of the potential conflict between the aircraft.

2. The approach radar controller's attention was diverted from scanning the flight progress strips for potential conflicts.

SAFETY ACTION

Local action

Darwin and Brisbane Air Traffic Control have developed a Manual of Air Traffic Services Supplementary Procedure which requires controllers to coordinate a separation procedure for aircraft that may conflict in the area between 40 NM and 80 NM from Darwin.

Additionally, Darwin Air Traffic Control has established an arrival position to reduce approach radar controller workload.