

**Aviation Safety Investigation Report  
199603284**

**Airbus  
A320  
Cessna Aircraft Company  
Centurion**

**03 October 1996**

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**Occurrence Number:** 199603284                      **Occurrence Type:** Incident  
**Location:** 3km S Darwin, Aerodrome  
**State:** NT    **Inv Category:** 4  
**Date:** Thursday 03 October 1996  
**Time:** 1515 hours                              **Time Zone** EST  
**Highest Injury Level:** None

**Aircraft Manufacturer:** Cessna Aircraft Company  
**Aircraft Model:** 210H  
**Aircraft Registration:** VH-EFB                      **Serial Number:** 21058966  
**Type of Operation:** Charter      Passenger  
**Damage to Aircraft:** Nil  
**Departure Point:** Darwin, NT  
**Departure Time:** 1512 EST  
**Destination:** Daly River Mission

**Aircraft Manufacturer:** Airbus  
**Aircraft Model:** A320-211  
**Aircraft Registration:** VH-HYK                      **Serial Number:** 157  
**Type of Operation:** Air Transport   Domestic High Capacity Passenger  
Scheduled  
**Damage to Aircraft:** Nil  
**Departure Point:** Darwin, NT  
**Departure Time:** 1513 EST  
**Destination:** Adelaide, SA

**Approved for Release:** Thursday, June 5, 1997

#### FACTUAL INFORMATION

Two aircraft were taxiing at Darwin for departure from runway 11. The crew of VH-EFB, a C210, had received an airways clearance to track via the 184 radial of the Darwin Very High Frequency Omni-directional Beacon (VOR) on climb to 8,500 ft. The crew of VH-HYK, an A320, were cleared via the 163 radial of the Darwin VOR.

The weather was quoted as being 2 oktas at 2,500 ft with visibility in excess of 10 km. Tower controllers considered that the cloud had built up to 3 - 4 oktas at the time of the occurrence and most of that was in the southern sector, where the aircraft were due to transit.

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The tower controller obtained departure clearances from the approach radar controller that would allow him to visually separate the aircraft in their respective right turns from the runway heading to their cleared tracks. Radar separation was not expected to occur during this initial stage of flight.

EFB departed and the crew turned the aircraft in accordance with their instructions to intercept the 184 VOR radial, and changed frequency to contact approach radar. The crew of the A320 then became airborne and were instructed to change frequency to approach radar, which they did. As the A320 approached the 163 VOR radial, it disappeared from the view of the tower controller behind, or into, cloud. At this point visual separation could no longer be provided and the approach radar controller could not guarantee radar separation until both aircraft were established on their departure tracks.

The A320 passed marginally through its assigned track before the crew made a corrective adjustment. This track correction occurred at the same time that the tower controller lost sight of the A320 and at a position approximately 5NM south east of the aerodrome.

The approach radar controller, realising that he could not expect to obtain radar separation for a further minute or two, maintained EFB at 3,000 ft and co-ordinated with the tower controller to confirm that he was still providing visual separation. When the reply was negative, the radar controller was unable to apply corrective action before a breakdown in separation occurred. The aircraft came within 2 NM horizontally and 600 ft vertically of each other. The appropriate standard is either 3 NM by radar or 1,000 ft vertically.


## ANALYSIS

The tower controller was inexperienced in the position having only six months service since obtaining his tower rating. The tower and radar controllers had agreed to a course of action that required the tower controller to provide visual separation until a radar standard could be achieved. Because of the relatively close proximity of the departure tracks, this was not expected to occur until the aircraft were approximately 8 - 10 NM from the aerodrome. As the cloud cover was predominantly in this sector, some doubt should have existed as to the ability of the tower controller to guarantee continuous visual contact with both aircraft until a radar separation standard existed.

The fact that the A320 went marginally through the assigned radial did exacerbate the situation. However, this type of minor adjustment is common with the larger aircraft when given turns of this nature and should be considered in any decision regarding separation.

The tower controller was unsure of his responsibilities with regard to providing visual separation and found that the guidance given in the Australian Manual of Air Traffic Services was insufficient. After asking the opinion of several other tower controllers, the investigation team found a general lack of understanding of the application of visual separation principles.

## SIGNIFICANT FACTORS

1. The tower controller did not provide visual separation for the entire period prior to radar separation being achieved.
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2. The tower controller was unsure of his full responsibilities in regard to providing visual separation.

#### SAFETY ACTION

The Bureau of Air Safety Investigation is evaluating aspects of visual separation responsibility and how the subject is addressed in the Manual of Air Traffic Services. Any forthcoming recommendations will be published in the Quarterly Safety Deficiency report.

