

**Aviation Safety Investigation Report
199701405**

**Fokker B.V.
Fellowship
Boeing Co
B737**

01 May 1997

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Occurrence Number: 199701405 **Occurrence Type:** Incident
Location: 24km SE Sydney, Aerodrome
State: NSW **Inv Category:** 4
Date: Thursday 01 May 1997
Time: 0940 hours **Time Zone** EST
Highest Injury Level: None

Aircraft Manufacturer: Boeing Co
Aircraft Model: 737-377
Aircraft Registration: VH-CZC **Serial Number:** 23655
Type of Operation: Air Transport High Capacity Passenger
Damage to Aircraft: Nil
Departure Point: Sydney NSW
Departure Time: 0938 EST
Destination: Coffs Harbour NSW

Aircraft Manufacturer: Fokker B.V.
Aircraft Model: F28 MK 1000
Aircraft Registration: VH-ATG **Serial Number:** 11084
Type of Operation: Non-commercial Civil Aviation Authority
Damage to Aircraft: Nil
Departure Point: Sydney NSW
Departure Time: 0936 EST
Destination: Sydney NSW


Approved for Release: Thursday, August 28, 1997

FACTUAL INFORMATION

The crew of a Fokker Fellowship (F28) aircraft had flight planned to conduct navigation aid calibration of the Sydney runway 16L instrument landing system (ILS). Runways 16L and 16R were nominated for arrivals and departures. The crew received a clearance for a radar departure from runway 16R.

The departures controller's intention was to radar vector the F28 to the east and north of the aerodrome for an intercept of the 16L ILS from the north. The F28 departed from runway 16R, heading 170 degrees, on climb to 3,000 ft. When the F28 was 8 NM south of the aerodrome the departures controller instructed the crew to turn left onto a heading of 120 degrees, to parallel the RWY 16L departure track.

The controller had six aircraft on frequency, with a number of pending departures for both runways. He planned to vector the F28 across the RWY 16L departure track between two B737s departing from runway 16L. The first B737 took off with an instruction to turn left onto a heading of 060 degrees. The F28 was also instructed to turn left heading 060 degrees.



The controller assessed that the F28 could cross the RWY 16L departure track ahead of the second B737, which had also taken off, and instructed the F28 to turn onto a heading of 020 degrees. The crew of the second B737 had earlier been issued with a West Maitland 7 SID, on climb to 5,000 ft. The SID required the aircraft to track 155 degrees until reaching 600 ft, and then to turn left to intercept the 126 degrees radial of the Sydney VHF omni-directional radio range (VOR) navigation aid. The B737 crew were subsequently re-cleared to climb to their planned level of FL210 immediately after departure.

The controller observed the reducing distance between the F28 and the second B737, but believed the B737 would climb above the F28, and that the vertical separation standard of 1,000 ft would be achieved prior to the distance reducing to less than the required lateral standard of 3 NM. However, when the B737 reached 3,000 ft the crew leveled the aircraft to accelerate to 250 kts. As the nose of the B737 was lowered the pilot in command observed the F28 at the 11 o'clock position, at a distance of 1 to 2 NM and slightly below their level.

Just prior to the distance between the aircraft reducing to less than 3 NM, when the vertical separation was 300 ft, the controller instructed the crew of the F28 to turn right onto a heading of 040 degrees. He then instructed the crew of the B737 to turn right onto a heading of 180 degrees. The aircraft passed with less than the minimum vertical and lateral separation standards.

Aircraft departing to the north and east were normally instructed to depart from runway 16L, if that was operationally acceptable. The F28 had been parked overnight at Sydney aerodrome on the tarmac adjacent to the threshold of runway 16R. There was no operational reason for the aircraft not to have used RWY 16L for departure.

ANALYSIS

The controller relied on his understanding of B737 performance to establish vertical separation between that aircraft and the F28. The lack of application of separation assurance techniques provided no alternative means to maintain separation when the B737 was unable to attain the expected altitude.

The controller had a number of aircraft under his control and this aspect should have been a prompt for him to ensure separation was assured between aircraft.

Had a clearance been issued for the F28 to depart from runway 16L it is unlikely that the incident would have occurred.

SIGNIFICANT FACTORS

1. The controller's expectation that the B737 would climb 1,000 ft above the level of the F28 before lateral separation reduced to less than 3 NM.
 2. The controller's lack of application of separation assurance techniques.
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3. The departure of the F28 from runway 16R when runway 16L was available meant that the F28 would have to cross the departure track of runway 16L in order to carry out its intended operation.

