

**Aviation Safety Investigation Report
199501467**

**Boeing Co
B747
Israel Aircraft Industries Ltd
Westwind**

17 May 1995

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NOTE: All air safety occurrences reported to the ATSB are categorised and recorded. For a detailed explanation on Category definitions please refer to the ATSB website at www.atsb.gov.au.

The Bureau did not conduct an on scene investigation of this occurrence. The information presented below was obtained from information supplied to the Bureau.

Occurrence Number: 199501467 **Occurrence Type:** Incident
Location: Perth
State: WA **Inv Category:** 4
Date: Wednesday 17 May 1995
Time: 1405 hours **Time Zone** WST
Highest Injury Level: None

Aircraft Manufacturer: Israel Aircraft Industries Ltd
Aircraft Model: 1124A
Aircraft Registration: VH-NGA **Serial Number:** 387
Type of Operation: Charter Passenger
Damage to Aircraft:
Departure Point: Perth WA
Departure Time: 1407 WST
Destination: Telfer WA

Aircraft Manufacturer: Boeing Co
Aircraft Model: 747-400
Aircraft Registration: G-BNLW **Serial Number:**
Type of Operation: Air Transport High Capacity International Passenger
Scheduled
Damage to Aircraft:
Departure Point:
Departure Time:
Destination: Perth WA

Approved for Release: Thursday, December 14, 1995

The duty runways at Perth were 06 and 03 for departures and 03 for arrivals. There were a number of aircraft inbound, including G-BNLW. Only one, VH-NGA, was taxiing for departure when a wind change occurred necessitating a change of runways. Following coordination between the tower, the approach east controller, the approach procedural controller and the flow controller, the duty runways were changed to runway 21 for departures and runways 21 and 24 for arrivals. During this coordination, the flow controller questioned the need for the change, advising that they had a sequence of seven aircraft (being sequenced for runways 03/06).

After the runway change was effected G-BNLW was advised of the change and to expect vectors for an ILS approach to runway 21. G-BNLW was inbound to Perth from the west and at the time of that advice had about 30 track miles to run. The aircraft was under the control of the approach west controller. VH-NGA was permitted to continue taxiing for runway 03, even though the aircraft was at a position where it would have been just as convenient to taxi for runway 21. Shortly afterwards G-BNLW was given a heading change to position for a runway 21 ILS approach and advised there was 25 to 26 track miles to go.

On departure, VH-NGA had planned to track to the southeast and would therefore be under the control of the approach east controller from shortly after take-off. This controller was responsible for separating VH-NGA from G-BNLW on the ILS approach for runway 21. It was his plan to have VH-NGA make an early right turn after takeoff and have the aircraft established on an assigned radar heading (120 deg) prior to the three mile radar separation standard between the two aircraft being infringed.

As G-BNLW got closer, the approach east controller realised that for his plan to work, it was necessary for VH-NGA to get airborne without delay. This was evidenced in transmissions to VH-NGA while still taxiing including requesting "minimum delay due inbound traffic", "will this be a rolling takeoff" and "clear for immediate takeoff". Although the approach east controller intended that VH-NGA make an early right turn, he never communicated this to anyone and therefore it was never communicated to the aircraft. VH-NGA made an intersection departure which further reduced the distance between VH-NGA and G-BNLW.

When VH-NGA became airborne, it was obvious from the radar return that the aircraft was not making an early right turn. The approach west controller was still controlling G-BNLW and he realised there could be a loss of separation between the two aircraft unless some preventive action was taken. At this time G-BNLW was intercepting the runway 21 localiser from a heading of 180 deg and was cleared to descend to 1500 ft.

The approach west controller instructed G-BNLW to continue its right turn onto 290 deg but the response from the pilot was "we're fully established now on the ILS". The controller repeated the instruction but again G-BNLW did not comply. The controller did not tell G-BNLW the reason for his instruction. By this time it was evident that VH-NGA had commenced its right turn so the approach west controller did not persevere any longer in trying to get G-BNLW onto a westerly heading. He then instructed G-BNLW to contact the tower.

Shortly afterwards, VH-NGA contacted the approach east controller airborne and reported ".....right turn 120 climbing 3000 passing 2000". The controller responded asking the aircraft to make a hard right turn. It was estimated that separation between the two aircraft reduced to approximately 1.75 miles with less than 1000 ft vertical separation. The required standard is three miles when there is less than 1000 ft vertical separation.

Analysis

When the change of runways occurred, VH-NGA was taxiing in the vicinity of the terminal. It was not necessary for the aircraft to continue to be processed for a runway 03 departure. Had the aircraft been redirected to runway 21 then this incident would never have occurred.

There was no evidence from the recorded communications or interviews with the controllers involved of any consideration being given to reclearing VH-NGA for a runway 21 departure. It appears that the aircraft was simply permitted to continue taxiing for runway 03. This indicated a lack of consideration/coordination in respect of the departure for VH-NGA.

With VH-NGA processed for a runway 03 departure, the approach east controller accepted responsibility for separation between VH-NGA and G-BNLW. In doing so, he did not then apply any positive measures to ensure that separation was maintained. His plan was simply an expectation that VH-NGA would be on a diverging radar heading before radar separation was lost. This was a misjudgement which made no allowances for anything going wrong such as radio failure or an aircraft malfunction.

When the approach west controller became aware of the deteriorating separation situation between the two aircraft, he issued heading instructions to G-BNLW (ie continue the right turn onto 290 deg) which were meant to maintain separation. However, the intent of the instructions were obviously not understood by the crew of G-BNLW because the aircraft did not comply. This lack of compliance was most probably due to the lack of alerting phraseology (eg due opposite direction traffic continue the right turn onto...) to convey the urgency of the situation.

Factors

The following factors were considered relevant to the development of the incident:

1. A runway change occurred at Perth airport from runways 03 and 06 to runways 21 and 24. As a result an inbound Boeing 747, G-BNLW, was vectored for an ILS approach to runway 21 while a taxiing Westwind, VH-NGA, was allowed to continue for an opposite direction departure from runway 03.
2. Although it would have been a simple matter to redirect VH-NGA for a departure from runway 21, for reasons not determined this was not done.
3. With the decision made to depart VH-NGA from runway 03, the approach east controller, who was responsible for separating that aircraft from G-BNLW, did not take adequate measures to ensure that separation.
4. The approach west controller, who was controlling G-BNLW, saw the loss of separation developing and issued heading instructions to G-BNLW to alleviate the situation. However, because he did not use appropriate phraseology to convey the urgency of the situation, his instructions were not followed by the aircraft.

