

**Aviation Safety Investigation Report
199602973**

**Boeing Co
B747**

14 September 1996

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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: 199602973 **Occurrence Type:** Incident
Location: 56km E Kushimoto, VOR
State: Other **Inv Category:** 4
Date: Saturday 14 September 1996
Time: 1139 hours **Time Zone:** UTC
Highest Injury Level: None

Aircraft Manufacturer: Boeing Co
Aircraft Model: 747-338
Aircraft Registration: VH-EBT **Serial Number:** 23222
Type of Operation: Air Transport High Capacity Passenger
Damage to Aircraft: Nil
Departure Point: Nagoya
Departure Time:
Destination: Cairns, QLD

Approved for Release: Tuesday, January 14, 1997

FACTUAL INFORMATION

An Australian registered B747-300 (B747) aircraft had departed Nagoya, Japan for Cairns. At approximately 30 NM east of Kushimoto, the crew requested clearance to fly from their present position direct to TAXON (a waypoint on the southern departure track). They were cleared to flight level (FL) 280 direct to TAPOP (a closer waypoint on the same departure track).

Two wide bodied aircraft were passing from west to east ahead of the B747. The first was at FL 290 and the second, approximately 8-10 NM behind, at FL 250. The two aircraft were on an air route that crossed the track of the B747 at approximately 90 degrees. When the B747 was at FL 263, air traffic control advised the crew that there was traffic in their 1 o'clock position at FL 290. The crew sighted an aircraft, but it appeared to be below them. The aircraft's traffic alert and collision avoidance system (TCAS) then displayed traffic 1,100 ft below them. The pilot in command of the Australian B747 reported that this aircraft was descending. However, according to radar evidence, this aircraft remained level at FL 250 and passed below the B747. No other traffic was sighted by the crew. No breakdown of separation occurred.

ANALYSIS

The aircraft that the B747 crew saw was the aircraft at FL 250 and not the aircraft at FL 290 as anticipated. The aircraft at FL 290 had already crossed ahead of the B747 and passed into the 11 o'clock position. The traffic given by the controller to the B747 was incorrect. It is possible that the controller made one of two errors in giving traffic to the B747 crew:

(i) Reversal of the flight levels of the two eastbound aircraft. That is, giving the actual flight level of the first aircraft as that of the second aircraft. If this was the case, the aircraft in the B747 crew's 1 o'clock would have been at FL 250 as reported by them.

(ii) Reversal of the clock code position. Where the 1 o'clock position was transposed with the 11 o'clock position. This may have been related to the mental inversion of the radar screen image required to be performed by the controller to give relevant information to the crew of the B747. The view of the radar screen is north facing, whereas the B747 was heading south and separation had already been achieved between it and the aircraft below. The controller had ensured separation with the aircraft above by requiring the B747 to level out at FL 280. Giving traffic on this aircraft was a safety measure to assist the B747 crew's situational awareness.

There also appeared to be a misunderstanding of the request from the B747 crew as to clearance to the next waypoint. The controller cleared the B747 to TAPOP when the request was direct to TAXON. This misunderstanding was not considered relevant to this occurrence.

The TCAS display reported by the captain of the B747 was due to the type of TCAS on the aircraft. TCAS II with a 604 software update will display a proximity target if the target is currently within 6 NM and 1,200 ft of the TCAS aircraft. There was no traffic advisory given by TCAS but the aircraft was displayed on the screen due to this sensitivity.

SIGNIFICANT FACTOR

Incorrect traffic information was passed to the crew of the B747.

