

**Aviation Safety Investigation Report
199202704**

**Boeing Co
B737**

31 March 1992

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Occurrence Number: 199202704 **Occurrence Type:** Incident
Location: 50km SE Townsville
State: QLD **Inv Category:** 3
Date: Tuesday 31 March 1992
Time: 1530 hours **Time Zone:** EST
Highest Injury Level: None

Aircraft: Boeing Co
Manufacturer:
Aircraft Model: 737-376
Aircraft Registration: VH-TAF **Serial Number:** 23477
Type of Operation: Air Transport Domestic High Capacity Passenger
Scheduled
Damage to Aircraft: Nil
Departure Point: Brisbane QLD
Departure Time:
Destination: Cairns QLD

Approved for Release: Tuesday, August 6, 1996

Sequence of events:

The workload on the Arrivals sector at the time had been low with a number of aircraft on frequency but little radio work or co-ordination to conduct.

Two Boeing 737s, VH-TAI and VH-CZF, inbound from Brisbane via route T53 were cleared to descend by the Arrivals controller, TAI to Flight Level 220 (FL220) and CZF to FL330. TAI was also cleared to track direct for a 16 NM final for runway 01.

Another B737, TAF, was overflying Townsville en route from Brisbane to Cairns, initially maintaining FL350. Prior to reaching the area controlled by Townsville Approach the crew was instructed to operate the aircraft's transponder on a discrete code to indicate to the Approach controller that it was overflying. Normally, when aircraft are about 35 NM north of Townsville and this system is in use, pilots are instructed to select their normal transponder code. They are then handed off to Cairns radar and later instructed to contact Cairns Control.

The radar system in use at the time was not capable of presenting information to facilitate aircraft identification on the radar screen so the controller had to maintain a plastic indicator (known as a "shrimp boat") to indicate each particular aircraft.

The over-flying aircraft was instructed to change to normal transponder code and was cleared to descend to FL210 in accordance with normal procedures. However, the hand-off to Cairns was not conducted and the investigation could not determine how accurately the "shrimp boat" position was maintained. The Cairns controller subsequently queried the position of TAF and the aircraft was then handed off between controllers.

About this time, a C130 aircraft departed Townsville for Amberley along an outbound track of 155 degrees and climbing to FL210. The Arrivals controller did not generate a "shrimp boat" for the C130 at that time although this was his normal practice. When the C130 had reached about 30 NM south of Townsville, the other aircraft inbound from Brisbane, TAI and CZF, were entering the lower portion of the radar screen at about 85 NM from Townsville and coming under the control of the Arrivals controller. Both aircraft were close together and conducting a stepped descent that had been arranged with a previous controller. That controller had advised the Arrivals controller that he had limited the descent of TAI to FL220 due to the C130 climbing to FL210. This level had been recorded on the flight strip being used by the Arrivals controller for TAI.

In order to identify both aircraft the controller instructed the crew of TAI to select their transponder to standby. This aircraft was slowly diverging from CZF and tracking direct to a 16 NM final position to the south of Townsville. The "shrimp boat" for the over-flying aircraft, TAF, was incorrectly moved to the screen indication (radar paint) for TAI, while another "shrimp boat" for CZF was created. After a report by TAI, CZF was cleared to a new level. No entry was made on the flight strip.

After identifying CZF, the controller wanted TAI to display its normal transponder code in order to identify that aircraft. He incorrectly addressed his transmission to TAF, whose pilot acknowledged and added the information that he was approaching FL210. The aircraft was cleared to descend to 9,000 ft and the Townsville QNH was given. A frequency change instruction was issued to another aircraft and the Cairns controller advised that he had not yet heard from TAF. By that time TAF was no longer painting on the Townsville radar screen. The Arrivals controller instructed TAF to call Cairns Control and passed the correct frequency. Shortly after this instruction, because the aircraft he was observing as TAF had not displayed the correct transponder code, the controller again instructed TAF to select its normal transponder code and to use the "ident" facility.

The Cairns controller again contacted the Townsville Arrivals controller to ask why TAF had been given descent to 9,000 ft in Cairns' airspace. It was at this time that the Arrivals controller realised that he had confused callsign's of the two aircraft. He then advised TAI to select its discrete transponder code and "ident".

Prior to this time, the Approach controller had wanted to hand the C130 off to the Arrivals controller. On looking across the room he realised that the Arrivals controller was busy attempting to identify two aircraft. The second Arrivals controller was also returning to the console and was aware that the controller was involved with talking to aircraft and conducting co-ordination simultaneously. He began to configure the console for two- controller operation. The Approach controller elected to retain control of the C130 until he was satisfied that the other controller could accept the aircraft. He was aware that the inbound track of TAI would pass close to the outbound track of the C130.

As soon as the Arrivals controller had obtained a transponder return, and without advising the crew of TAI that their aircraft was identified, he cleared the aircraft to descend to 9,000 ft. As there was adequate radar separation between TAI and CZF, he also cleared CZF to descend to 9,000 ft. The Approach controller overheard this clearance given to CZF and went to the radar screen and pointed at the C130 return. He was waved away by the Arrivals controller. The Approach controller and the new Arrivals controller co-ordinated rapidly and directed the C130 to maintain FL170 and TAI to maintain FL180. Shortly afterwards the pilot of TAI reported that he had just passed a C130. The strips for TAI and CZF did not reflect the levels to which both aircraft had been cleared.

CONCLUSION:

Findings

1. While attempting to resolve the traffic situation, the Arrivals controller confused the callsigns of TAF and TAI.
2. After identifying TAI and CZF on radar, the Arrivals controller cleared both aircraft to descend to 9,000 ft causing a loss of separation standards between the climbing C130 and TAI.

Significant factors

1. The controller did not follow local procedures to ensure that aircraft were correctly identified on the radar screen.
2. The controller became confused and lost perception of the air traffic situation.