Aviation Safety Investigation Report 199602012

British Aerospace Plc BAe 146-300 British Aerospace Plc BAe 146

**29 June 1996** 

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Investigations commenced on or before 30 June 2003, including the publication of reports as a result of those investigations, are authorised by the Executive Director of the Bureau in accordance with Part 2A of the Air Navigation Act 1920.

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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.

199602012	Occurrence Ty	pe: Incident		
50km S Mackay, A	erodrome			
QLD	Inv Category:	4		
Saturday 29 June 19	996			
1029 hours	Time Zone	EST		
None				
British Aerospace	e Plc			
BAe 146-100				
VH-NJY			Serial Number:	E1005
Air Transport D Scheduled	omestic High Capacity Pas	senger		
Nil				
Brisbane QLD				
0914 EST				
Mackay QLD				
British Aerospace	e Plc			
BAe 146-300				
VH-EWS			Serial	E3197
Air Transport D Scheduled Nil Mackay QLD 1027 EST Brisbane QLD	omestic High Capacity Pas	senger	Number:	
	<ul> <li>199602012</li> <li>50km S Mackay, A</li> <li>QLD</li> <li>Saturday 29 June 11</li> <li>1029 hours</li> <li>None</li> <li>British Aerospace</li> <li>BAe 146-100</li> <li>VH-NJY</li> <li>Air Transport D</li> <li>Scheduled</li> <li>Nil</li> <li>Brisbane QLD</li> <li>0914 EST</li> <li>Mackay QLD</li> <li>British Aerospace</li> <li>BAe 146-300</li> <li>VH-EWS</li> <li>Air Transport D</li> <li>Scheduled</li> <li>Nil</li> <li>Mackay QLD</li> <li>1027 EST</li> <li>Brisbane QLD</li> <li>1027 EST</li> <li>Brisbane QLD</li> </ul>	199602012 Occurrence Typ 50km S Mackay, Aerodrome QLD Inv Category: Saturday 29 June 1996 1029 hours Time Zone None British Aerospace Plc BAe 146-100 VH-NJY Air Transport Domestic High Capacity Pas Scheduled Nil Brisbane QLD 0914 EST Mackay QLD British Aerospace Plc BAe 146-300 VH-EWS Air Transport Domestic High Capacity Pas Scheduled Nil British Aerospace Plc BAe 146-300 VH-EWS Air Transport Domestic High Capacity Pas Scheduled Nil Mackay QLD 1027 EST Brisbane QLD	199602012 Occurrence Type: Incident 50km S Mackay, Aerodrome QLD Inv Category: 4 Saturday 29 June 1996 1029 hours Time Zone EST None British Aerospace Plc BAe 146-100 VH-NJY Air Transport Domestic High Capacity Passenger Scheduled Nil British Aerospace Plc BAe 146-300 VH-EWS Air Transport Domestic High Capacity Passenger Scheduled Nil British Aerospace Plc BAe 146-300 VH-EWS Air Transport Domestic High Capacity Passenger Scheduled Nil Mackay QLD 1027 EST Britishane QLD 0917 EST Britishane QLD 1027 EST Britishane QLD	199602012 Occurrence Type: Incident 50km S Mackay, Aerodrome QLD Inv Category: 4 Saturday 29 June 1996 1029 hours Time Zone EST None British Aerospace Plc BAe 146-100 VH-NJY Serial Number: Air Transport Domestic High Capacity Passenger Scheduled Nil Brisbane QLD 0914 EST Mackay QLD British Aerospace Plc Air Transport Domestic High Capacity Passenger Scheduled Nil Brisbane QLD 0914 EST Mackay QLD Air Transport Domestic High Capacity Passenger Scheduled Nil British Aerospace Plc Air Transport Domestic High Capacity Passenger Scheduled Nil British Aerospace Plc Air Transport Domestic High Capacity Passenger Air Transport Domestic High Capacity Passenger Scheduled Nil British Aerospace Plc BAe 146-300 VH-EWS Serial Number:

Approved for Release: Tuesday, October 1, 1996

At 1025 the pilot of VH-NJY contacted Mackay Tower at 30 NM inbound on the 155 degree radial on descent to 6,000 ft. VH-NJY was then cleared to descend to 4,600ft and track via a 5 NM arc to the west of track and then to track overhead for a NDB approach. At 1027, VH-EWS departed Mackay for Brisbane tracking on the 137 degree radial on climb to 10,000 ft. Mackay tower controllers commenced trying to visually observe VH-NJY inbound. This was done by the use of standard issue binoculars. The inbound track of the aircraft is situated over a prominent topographical feature known by tower staff, however, VH-NJY could not be visually acquired at this stage. At 1029, VH-NJY was observed visually at approximately 12 NM and 12-13 degrees east of track. VH-EWS was 6 NM on the 137 degree radial. VH-NJY was instructed to turn left to commence the diversion for the NDB approach.

A traffic alert was not issued to the aircraft, as it was the judgement of both controllers on duty that although the aircraft were found to be closer than normal, a collision risk did not exist. They believed there was approximately a mile laterally between both aircraft, and they were diverging.

Subsequent replay of the radar tape indicated that VH-NJY and VH-EWS passed each other within approximately 0.7 NM laterally and 800 ft vertically.

The Aeronautical Information Publication Australia (AIP) Air Traffic Rules and Services (RAC) 44.4.3 requires aircraft to be navigated by reference to the aid which provides the most precise track guidance, which in Mackay is the Mackay VHF Omni Range (VOR). The pilot in command is required at all times to take positive action to regain track as soon as a deviation from the correct track is recognised.

The VOR tracking tolerance at 10 NM is approximately plus or minus 0.9 NM VH-NJY indicated on radar as being aproximately 2.6 NM off track at 10 NM which is 1.7 NM outside the approved tolerances.

Had this fact been known to air traffic controllers, then corrective action to ensure separation could have been taken.

Mackay tower is not equipped with radar. Radar data from Swampy Ridge radar sensor is processed through the technical facilities at Mackay, enroute to Brisbane centre, but no radar display is provided for tower controllers. VH-NJY was under radar control during the flight until the aircraft was transferred to Mackay tower at 30 NM when radar services were terminated.

The separation technique being used by tower controllers was one of visually monitoring the outbound aircraft on a track that was plotted on a map to be clear of the procedural tolerance, (in this case 5.2 degrees off the VOR radial, plus an additional 1 NM lateral separation buffer), of the inbound aircraft.

No documentary evidence could be found to permit the application of this standard.

The pilot in command (PIC) of VH-NJY was a check captain and the copilot (CP), a first officer, was undergoing command training. The PIC had requested an NDB approach as a training exercise, and had selected the VOR selectors off to simulate their failure. He was aware of VH-EWS departing on the 137 radial and tracking to Gladstone. At 10 NM he noted that the trainee had allowed the aircraft to diverge to the right of the 155 radial. The PIC did not bring this to the attention of the trainee, in order to see if he was going to fly outside tracking tolerances. The PIC said that at no time did the ADF needles indicate the aircraft was any further east than the 150 radial. He was satisfied that the aircraft was well clear of the Hay Point helicopter pad which is located near the 137 radial. He also had VH-EWS in sight passing to the right and was satisfied he was well clear.

In summary, the PIC of VH-NJY was operating outside tracking tolerances and outside the terms of his airways clearance. This was due to deselection of the most accurate navigation aid (the Mackay VOR) to simulate its failure for training purposes.

A non documented separation standard was used by the tower controllers. An instruction has been issued to all Northern District Towers that until a separation standard is developed and approved, outstation staff are to apply only those separation standards that are included in the Manual of Air Traffic Services (MATS).

The radar sector providing enroute control to VH-NJY did not advise the pilot that radar services were terminated when he was handed off to Mackay tower. The District Safety and Quality Management Branch has recommended that radar controllers advise pilots proceeding into procedural tower environments within radar coverage, when radar services are terminated.

Weather conditions were fine, with Mackay under the influence of a high pressure system, QNH 1023, nil cloud, visibility in excess of 10 km, and a light south-easterly wind.