

**Aviation Safety Investigation Report
199600645**

**British Aerospace Plc
BAe 146-300
British Aerospace Plc
BAe 146-200-11**

22 February 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: 199600645	Occurrence Type: Incident
Location: 93km E Ayers Rock, Aerodrome	
State: NT	Inv Category: 4
Date: Thursday 22 February 1996	
Time: 1255 hours	Time Zone: CST
Highest Injury Level: None	

Aircraft Manufacturer: British Aerospace Plc		
Aircraft Model: BAe 146-200-11		
Aircraft Registration: VH-JJW	Serial Number:	E2110
Type of Operation: Air Transport Domestic High Capacity Passenger Scheduled		
Damage to Aircraft: Nil		
Departure Point: Alice Springs NT		
Destination: Ayers Rock NT		

Aircraft Manufacturer: British Aerospace Plc		
Aircraft Model: BAe 146-300		
Aircraft Registration: VH-NJN	Serial Number:	E3217
Type of Operation: Air Transport Domestic High Capacity Passenger Scheduled		
Damage to Aircraft: Nil		
Departure Point: Cairns, Qld.		
Destination: Ayers Rock, NT.		

Approved for Release: Friday, October 4, 1996

FACTUAL INFORMATION

A BAe146 (VH-NJN) was maintaining flight level (FL) 280 on a flight from Cairns, Qld to Ayers Rock, NT. The crew reported over Alice Springs at 1236 CST with an estimate for Ayers Rock of 1312.

A second BAe146 (VH-JJW) departed Alice Springs at 1237 for Ayers Rock, and climbed to FL240.

Both aircraft were under the control of Melbourne air traffic control (ATC) sector 5 which was staffed by a trainee under the supervision of a team leader. The aircraft were subject to procedural control procedures.

The trainee controller coordinated the two aircraft positions with flight service, giving the estimated times of arrival (ETA) at Ayers Rock as 1312 for NJN, and 1318 for JJW. An error was made in the time of arrival for JJW in that the trainee incorrectly added the flight plan time intervals. The correct estimate was 1316. This error was not detected by the team leader.

When both aircraft were on the control frequency, the trainee checked their respective DME distances, this resulted in NJN being 22 NM ahead of JJW. As the aircraft were of the same type, a suitable standard (15 NM) had been established to allow the descent of NJN through the level of JJW.

At 1253, the crew of NJN requested descent. This was approved by Melbourne control and the aircraft commenced descent at 1255. At 1256, the crew established contact with flight service and advised their ETA as 1311.

At 1259, the crew of JJW requested descent. This was approved by Melbourne control and descent was commenced at 1302. At 1303, the crew contacted flight service and advised their ETA as 1312. The flight service officer then passed traffic information on three aircraft, including NJN, to the crew of JJW.

The flight service officer also passed traffic information on JJW to the crew of NJN who then transferred to the Mandatory Broadcast Zone (MBZ) frequency.

Shortly after, the crew of JJW also changed to the MBZ frequency and commenced a DME check with the crew of NJN. This resulted in the aircraft being 12 NM apart while JJW was passing FL180. Based on this information, the crew believed that NJN passed through their flight level in controlled airspace with only 12 - 14 NM separation and therefore a breakdown in separation had occurred.

As the aircraft approached Ayers Rock, in the MBZ, a pilot initiated distance check revealed that the aircraft had reduced the separation to 4 NM. Both aircraft landed without further incident.

ANALYSIS

Air Traffic Control

The two minute error made by the trainee in the ETA for JJW at Ayers Rock was not considered to be a factor in this occurrence because the flight service officer passed traffic information based on the pilot reports not the ATC estimates and the DME check was independent of the ETA.

The controller established a correct separation standard (15 DME) for aircraft of the same type and issued control instructions appropriate to the circumstances. It is probable that the correct distance for this standard was maintained throughout the period of flight within controlled airspace.

The flight progress strips that the controllers had for reference did not differentiate between the various series of BAe146 aircraft. Additionally, the Manual of Air Traffic Services only published some of the various profile speeds for the BAe146 series of aircraft and these were displayed in the radar control section, not specifically in the procedural control sections.

Flight Service

The flight service officer provided traffic information in a correct manner appropriate to the circumstances.

Aircrews

Both crews acted in accordance with ATC instructions and operated their aircraft within company profiles.

Flight Plans

The flight plan held by the crew of JJW varied to that held by ATC in that the ETA Ayers Rock on the crew's plan was 1312 and on the ATC plan was 1316. The reason for this discrepancy was that ATC took the overall block time provided by the flight plan and had their computer calculate the ETA at each reporting point based on the various distances from one point to the next. As the company provided a two minute manoeuvring time at the departure and destination aerodromes, a four minute difference existed between the times provided to ATC in the flight plan and the time the pilot held in the cockpit. The pilot based his reporting calculations on the time of departure and had, therefore, already accounted for the two minute manoeuvre prior to advising his actual departure time to ATC. ATC then added the computer generated time intervals to this reported time of departure and the erroneous situation was complete.

Aircraft Performance

ATC reference data for the BAe146 aircraft indicated that there was a similarity of performance between the operating profiles of the various series of BAe146 aircraft operated by all companies. This was not the case, as the operating profiles indicated that a difference of up to .08 Mach can exist while two aircraft are on descent.

This performance differential could lead to a degradation in certain separation standards such as the 15 DME standard used in this case.

Additionally, the reference material was only contained in the radar sections of the Manual of Air Traffic Services.

SIGNIFICANT FACTOR

The air traffic controllers had insufficient information to indicate that significant closing between aircraft may occur.

SAFETY ACTION

As a result of the investigation the following action was taken:

Local ATS management introduced an amendment to the Manual of Air Traffic Services (MATS) Local Instructions which specifies the full range of performance options for BAe146 series aircraft.

Airservices Australia has undertaken to amend MATS to ensure that the information on BAe146 aircraft is adequately displayed for controller reference.

Airservices Australia and the operating company of JJW are consulting over the format for flight plan submission so that both parties understand the requirements and operating methods of the other. This process should ensure that controllers and aircrew have the same initial information on which to base their operational requirements.

