

**Aviation Safety Investigation Report  
199504306**

**British Aerospace Plc  
BAe-125-700B**

**19 December 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](http://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:** 199504306                      **Occurrence Type:** Incident  
**Location:** Telfer, Aerodrome  
**State:** WA    **Inv Category:** 4  
**Date:** Tuesday 19 December 1995  
**Time:** 2140 hours                      **Time Zone** WST  
**Highest Injury Level:** None

**Aircraft Manufacturer:** British Aerospace Plc  
**Aircraft Model:** BAe-125-700B  
**Aircraft Registration:** VH-JFT                      **Serial Number:** 257064  
**Type of Operation:** Miscellaneous Ferry  
**Damage to Aircraft:** Nil  
**Departure Point:** Essendon VIC  
**Departure Time:** 1531 WST  
**Destination:** Broome WA

**Crew Details:**

<b>Role</b>	<b>Class of Licence</b>	<b>Hours on Type</b>	<b>Hours Total</b>
Pilot-In-Command	Foreign	2000.0	2800

**Approved for Release:** Monday, February 5, 1996

The flight was the first leg of a ferry flight from Australia to the United Kingdom. After passing Adelaide the crew were advised of a change in the weather, because of a cyclone, which meant that their planned destination required an alternate. They elected to change their destination to Broome and re-planned the flight to track via overhead Ayres Rock. Navigation for the flight was being conducted by reference to a global navigation system (GNS).

The crew did not attempt to confirm their Ayres Rock position by checking the Alice Springs navigation aids. Instead they relied solely on the GNS readout. The GNS positions were not checked on the Ayres Rock - Broome leg because of a lack of ground based navigation aids. Approaching Broome, as indicated by the GNS, the crew attempted to obtain a cross-check from the navigation aids at Curtin but were unable to obtain any useful information. The crew were also unable to obtain any information from the Broome navigation aids.

The pilot-in-command commenced an instrument descent into Broome using GNS information only. He became concerned after the aircraft had descended to 2,400 ft above mean sea level and the crew could not see the ground, the radio altimeter was indicating the aircraft was only 600 ft above ground level and they were unable to contact anyone using the VHF radio. The pilot-in-command declared an emergency, indicating that he was unsure of his position and that he had 30 min fuel remaining, before climbing the aircraft to 6,000 ft. During the next 45 min the crew, with the assistance of air traffic services and another aircraft, attempted to establish the aircraft's position without success. Eventually a passenger, using a portable global position system receiver which was held against a cabin window, was able to establish that the aircraft was 79 NM north of Telfer. Air traffic services activated the lights at Telfer aerodrome and the aircraft landed there with limited fuel remaining 65 min after the aircraft's original estimate for Broome.

An investigation determined that the planning and conduct of the flight was deficient in a number of areas and that these contributed to the occurrence. Some of the more significant areas were crew compliment, approval and use of global navigation systems and the continued operation of a jet aircraft at low level in a critical fuel situation.

The aircraft was certified for two pilot operation with both pilots endorsed on type. The co-pilot was not endorsed on type, he was not familiar with the aircraft's GNS equipment and had not been trained in its use.

It was considered likely that inaccurate information was inadvertently entered into the GNS after the decision to change the route and destination was made. As the pilot-in-command did not have a standard checking procedure for changes to GNS information, and the co-pilot was unfamiliar with the system, the errors went undetected.

The pilot-in-command's acceptance of GNS information only for route tracking and descent, when some ground aids were available to cross check the information, indicated a lack of understanding of the use of defences to improve the level of aviation safety and of Australian requirements for the use of GNS as the sole means of navigation.

The crew's inability to establish contact with a ground based navigation aids and VHF radio stations after the descent was probably a function of the aircraft's altitude and distance from them. In addition operations at low level in jet aircraft are inefficient as far as fuel usage is concerned. In remaining at low level for over 45 min the pilot-in-command exhibited a lack of understanding of communication and aircraft operational limitations.

