

**Aviation Safety Investigation Report  
199401495**

**Boeing Co  
B747**

**04 June 1994**

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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).**

**Occurrence Number:** 199401495                      **Occurrence Type:** Incident  
**Location:** 50km SW Sydney  
**State:** NSW    **Inv Category:** 3  
**Date:** Saturday 04 June 1994  
**Time:** 1452 hours                                      **Time Zone** EST  
**Highest Injury Level:** None

**Aircraft** Boeing Co  
**Manufacturer:**  
**Aircraft Model:** 747-438  
**Aircraft Registration:** VH-OJQ    **Serial** 25546  
**Number:**

**Type of Operation:** Air Transport High Capacity International Passenger  
Scheduled  
**Damage to Aircraft:** Nil  
**Departure Point:** Melbourne VIC  
**Departure Time:**  
**Destination:** Sydney NSW

**Crew Details:**

Role	Class of Licence	Hours on	
		Type	Hours Total
Pilot-In-Command	ATPL	2169.0	9708
Co-Pilot/1st Officer	ATPL	2110.4	7992

**Approved for Release:** Tuesday, December 5, 1995

**CIRCUMSTANCES**

The aircraft was cruising at FL370, with the pilot in command as the handling pilot. At 150 DME Sydney, the crew were informed of a runway change and to expect a landing on runway 07. The aircraft commenced descent to Sydney at 137 DME, with an initial clearance to FL210. Several minutes after the aircraft left FL370, Sydney Control requested that its speed be increased to maximum to facilitate traffic sequencing.

Further descent clearances were issued to the aircraft until, approaching 7,000 ft at about 35 DME Sydney, it was transferred to Sydney Approach and cleared for further descent to 3,000 ft. The lower limit of controlled airspace on the cleared route between 35 DME Sydney and 22 DME Sydney is 4,000 ft. The aircraft continued to descend at maximum descent speed, leaving controlled airspace at 28 DME. As a result, the aircraft infringed a flying-training danger area before re-entering controlled airspace at 22 DME. A review of recorded radar data indicated that it did not conflict with any other aircraft whilst outside controlled airspace.

During the descent, the crew did not monitor the position of the aircraft in relation to the lower limit of controlled airspace. However, the pilot in command had been monitoring the altitude of the aircraft in relation to published lowest safe altitudes to ensure the aircraft remained safely above terrain. The flight crew believed air traffic clearances not only provided separation from other aircraft, but also ensured the aircraft remained within controlled airspace.

The approach controller, in issuing a clearance for the aircraft to descend from 7,000 to 3,000 ft, did not consider the relationship of the descent path to the lower limit of controlled airspace, as he considered that to be a pilot responsibility. Moreover, he did not notice that it had descended below controlled airspace until the aircraft had levelled at 3,000 ft at about 24 NM from Sydney. As there were no radar returns in the vicinity of the aircraft, and as the aircraft had only 2 NM to run before re-entry, the controller did not warn the crew of their position.

At the time of the occurrence, Aeronautical Information Publication Operations CLT-2, para. 14.9 stated that it was a pilot responsibility to ensure the aircraft remained in controlled airspace during descent. Although ATC clearances were aimed at keeping an aircraft in controlled airspace during descent, there was no definite requirement that they do so.

#### Significant Factors

1. Instructions regarding the issue of airways clearances contained in the Manual of Air Traffic Services were deficient in that they did not specify that a descent clearance should ensure that aircraft would remain within controlled airspace.
2. The flight crew had the false expectation that the airways clearance would ensure the aircraft remained in controlled airspace.
3. The flight crew did not monitor the position of the aircraft in relation to the lower limit of controlled airspace.

#### SAFETY ACTION

As a result of this investigation the Bureau issued Interim Recommendation IR940164 to the Civil Aviation Authority. It stated:

The Bureau of Air Safety Investigation recommends that the Civil Aviation Authority develop procedures that will ensure that where an aircraft has planned flight in CTA, ATC shall issue instructions that maintain that aircraft in CTA, unless the pilot specifically requests alternative processing.

The CAA response was received on 9 September 1994. It stated:

"I refer to Air Safety Interim Recommendation IR940164 regarding aircraft in controlled airspace.

Following ATS advice of the two incidents on 4 June 1994 when [...] aircraft descended OCTA en route to Sydney, ATS and DASR specialists agreed that new procedures, which require ATC to issue clearances providing CTA protection for flights planning to remain in controlled airspace, would be introduced.

On 17 June, Regional ATS AIC, Descent Clearances and Control Area Protection, implemented the following amended procedures:

MATS 8-3-2 Level Assignment in Approach Sequence.

Except where the provision of Visual Approach Procedures or Instrument Approaches apply, unless otherwise requested by the pilot, level assignment an arriving aircraft shall provide the appropriate vertical buffer with the base of the control area.

MATS 9-1-2 Level Assignment in an Arrival Sequence.

Unless otherwise requested by the pilot, level assignment for an arriving aircraft shall provide the appropriate vertical buffer with the base of control area.

These amendments were incorporated into MATS via Amendment List No 10, dated 18 August 1994.

The AIP references will remain unaltered as, although there are new ATC procedures, it is the ultimate responsibility of the pilot in command to ensure that the aircraft is operated in accordance with safety requirements. A general issue AIC will be issued shortly to advise all pilots of the amendments and reiterate their responsibilities."

The Bureau has accepted this response.