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# Operational non-compliance

## 17km ENE Melbourne Airport, Victoria

### 7 June 2011

#### Abstract

At 2102 Eastern Standard Time on 7 June 2011, an Airbus A320 aircraft, registered VH-VNG and operated by Tiger Airways, was on an approach to runway 27 at Melbourne Airport, Victoria. Air traffic control (ATC) had cleared the flight crew of the aircraft to descend to 2,500 ft. Shortly after, the aircraft's track was seen on the ATC radar to descend to 2,000 ft. ATC notified the flight crew, who climbed the aircraft to 2,500 ft, continued the approach and landed.

The investigation is continuing.

#### FACTUAL INFORMATION

*The information contained in this preliminary report is derived from initial investigation of the occurrence. Readers are cautioned that there is the possibility that new evidence may become available that alters the circumstances as depicted in the report.*

#### Sequence of events

On 7 June 2011, an Airbus A320 aircraft, registered VH-VNG and operated by Tiger Airways, was conducting a flight from Brisbane, Queensland to Melbourne, Victoria. While in the cruise, the flight crew was cleared by air traffic control (ATC) to conduct an ARBEY ONE ALPHA arrival to land on runway 27 at Melbourne Airport (Appendix A).

About 10 minutes before commencing the descent, the pilot in command, who was operating as the flying pilot (PF), handed control of the

aircraft to the copilot, who was operating as the monitoring pilot (PM).<sup>1</sup> That handover was in accordance with the operator's standard operating procedures.

The PF reported that he then referred to the relevant instrument navigation charts, including the ARBEY ONE ALPHA arrival chart, that were supplied by Jeppesen in paper format. Using those charts for reference, the PF entered the arrival, approach and landing procedures into the flight management guidance and envelope system (FMGS)<sup>2</sup> via the Multifunction Control and Display Unit (MCDU)<sup>3</sup>. The FGMS calculated the approach path, drawing on information from its internal navigation database.

The PF then briefed the PM on the planned approach by reading out the details of the approach from the MCDU, and the PM checked those details against the paper format approach charts. The flight crew did not notice that the documented arrival procedure had a lowest

1 PF and PM are procedurally assigned roles with specifically assigned duties at specific stages of a flight. The PF does most of the flying, except in defined circumstances; such as planning for descent, approach and landing.

2 The FMGS provides aircraft navigation, lateral and vertical guidance and aircraft performance functions along a pre-planned route that has been previously entered into the system by the flight crew.

3 The MCDU is the interface that the flight crew uses to insert flight planning details into the aircraft's flight management guidance computers and that displays various flight information.

descent altitude of 2,500 ft, while the data from the FGMS's navigational database that was displayed on the MCDU had a lowest descent altitude of 2,000 ft. Once the briefing was complete, the PF resumed control of the aircraft.

At 2042 Eastern Standard Time<sup>4</sup>, the crew commenced a descent from flight level (FL) 380<sup>5</sup> to FL 250. The flight crew were subsequently cleared to continue descent to 9,000 ft, 6,000ft, 4,000 ft and 2,500 ft.

The aircraft stopped descending at 2,500 ft, shortly before turning from downwind to base on the arrival procedure. The PF reported that, as the aircraft was turning from downwind to base, he checked the planned altitude for descent by looking at the displayed information on the MCDU. The PF observed that the planned altitude was displayed as 2,000 ft on the MCDU, and set that altitude on the flight control unit (FCU)<sup>6</sup> to descend the aircraft to 2,000 ft. The PF notified the PM by calling 'two thousand' and the PM confirmed that the altitude was set to 2,000 ft.

As the aircraft descended from 2,500 ft to 2,000 ft between waypoint PAULA and the Epping locator, the PM queried the altitude that was set on the FCU. The PF verified that altitude by referring to the displayed altitude in the MCDU. The aircraft was approaching 2,000 ft, when ATC advised the flight crew that they should be at 2,500 ft and instructed them to climb to 2,500 ft.

The flight crew climbed the aircraft to 2,500 ft and continued the approach and landed on runway 27.

## Navigational database

The FMGS included two copies of a commercial navigational database. The database was updated

on a 28-day cycle as a part of normal scheduled maintenance. The investigation established that the navigational database that was current for the flight included a lowest descent altitude for the Melbourne ARBEY ONE ALPHA runway 27 arrival of 2,000ft.

## FURTHER INVESTIGATION

The investigation is continuing and will include the:

- analysis of recorded flight data
- analysis of recorded air traffic control data
- examination of the operator's procedures
- investigation of the data integrity management system for the navigational database.

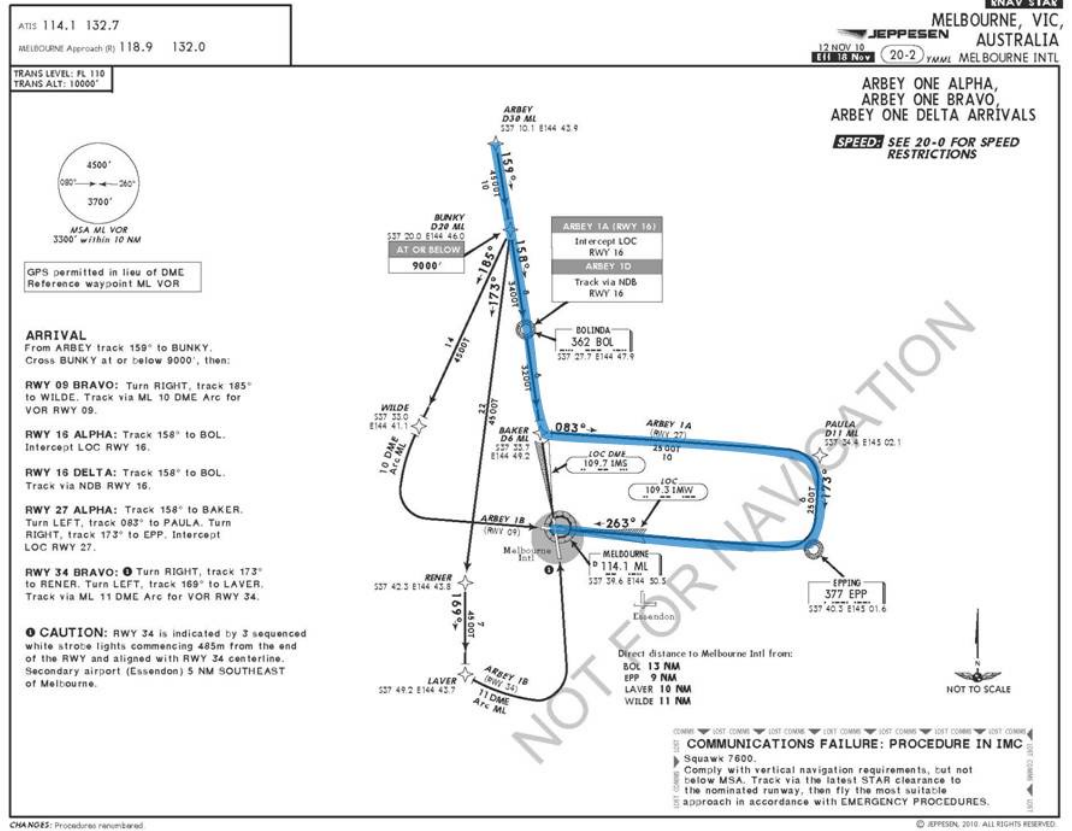
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4 The 24-hour clock is used in this report to describe the local time of day, Eastern Standard Time (EST), as particular events occurred. Eastern Standard Time was Coordinated Universal Time (UTC) + 10hours.

5 Level of constant atmospheric pressure related to the datum of 1013.25 hectopascals, expressed in hundreds of feet. FL380 equates to 38,000 ft above mean sea level (AMSL).

6 The FCU is located on the glareshield in front of the flight crew and allows the crew to make short-term inputs into the FMGS.

# APPENDIX A: MELBOURNE ARBEY ONE ALPHA ARRIVAL<sup>7</sup>



7 Reproduced courtesy of Jeppesen.