Australian Government
Australian Transport Safety Bureau

Publication Date: 25 November 2008 ISBN 978-1-921490-85-9

ATSB TRANSPORT SAFETY REPORT
Aviation Occurrence Investigation AO-2008-064
Preliminary

Operational-Warning device – Alice Springs Airport – 18 September 2008

Australian Transport Safety Bureau
PO Box 967, Civic Square ACT 2608
Australia
1800 621 372
www.atsb.gov.au

Released in accordance with section 25 of the *Transport Safety Investigation Act 2003*

Abstract

On 18 September 2008, a Boeing Company 717–200 aircraft, registered VH-NXE, was being operated on a scheduled passenger service from Cairns, Qld, to Alice Springs, NT, with six crew and 70 passengers. During a visual approach to runway 30 at Alice Springs Airport, the pilot in command reported that the aircraft stick shaker momentarily activated during the final turn to the runway. The crew completed the landing and taxied the aircraft to the terminal without further incident.

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 18 September 2008, a Boeing Company 717–200 (717) aircraft, registered VH-NXE (NXE), was being operated on a scheduled passenger service from Cairns, Qld, to Alice Springs, NT, with six crew and 70 passengers. During a visual approach to runway 30 at Alice Springs Airport, the pilot in command (PIC) reported that the aircraft stick shaker momentarily activated on two occasions during the final turn to the runway. (Figure 1)

The flight crew consisted of the (PIC) and copilot. The PIC was the handling pilot for the descent, approach and landing at Alice Springs, and the copilot was the monitoring pilot.

The crew had received a weather briefing prior to their departure from Cairns. The Alice Springs area was forecast to have high temperatures and moderate turbulence for their arrival.

The flight had proceeded without incident from Cairns and the crew had been cleared by Air Traffic Control (ATC) to descend from the cruising altitude to an intermediate altitude of 6,500 ft for traffic separation purposes, before being cleared for the approach to Alice Springs Airport.

The automated terminal information service (ATIS)[1] at Alice Springs Airport stated that a visual approach onto runway 30 could be expected. The temperature was 35° C with moderate turbulence.

Approaching Alice Springs Airport, ATC instructed the flight crew to descend to and maintain 6,500 ft due to an aircraft departing Alice Springs. To provide aircraft separation, ATC instructed the departing aircraft to climb to and maintain 5,500 ft.

ATC asked the flight crew of NXE to report sighting the departing aircraft so that a further descent clearance could be approved. The flight crew did not sight the aircraft and were required to maintain 6,500 ft, resulting in the aircraft being above the normal descent profile. When NXE was 10 NM (19 km) from the airport and clear of the departing traffic, ATC authorised the flight crew to conduct a visual approach to runway 30.

Information from the aircraft's quick access recorder (QAR) indicated that the aircraft

1 The automated terminal information service is a continuous broadcast of recorded non-control aerodrome information used to improve controller effectiveness and relieve radio congestion.

descended from 6,500 ft above mean sea level (AMSL) at 10 NM from the airport with a computed air speed of approximately 250 knots at 1307:12 Central Standard Time[2] .

The handling pilot disconnected the autopilot and autothrottle and turned the aircraft to the left to position the aircraft onto the downwind leg for a right turn onto the final approach for the runway. The flaps and landing gear had been extended and the speed was reducing to the flight management computer's calculated approach speed for landing.

During the right turn to position the aircraft onto the final leg of the approach, the QAR indicated the computed airspeed was below the calculated approach speed for approximately seven seconds to a maximum value of approximately six kts (Figure 2). It was during this time, at 1309:32 when, at a bank angle of 30 degrees, that the stick shaker[3] activated momentarily. In response to this warning, the handling pilot moved the thrust levers forward and reduced the back pressure on the control column. It was at this time the handling pilot identified the autothrottle was not engaged and re-engaged it.

Five seconds after the first stick shaker activation, the stick shaker momentarily activated again. The handling pilot again reduced the back pressure on the control column and the stick shaker stopped.

At 1310:09, the aircraft was 500 ft above ground level (AGL), and aligned with the runway direction and established within the operator's parameters for a 'stabilised approach' with a descent rate of not more than 1,000 feet per minute.

The fight crew completed the approach and landing and taxied the aircraft to the terminal without further incident.

2 The 24-hour clock is used in this report to describe the local time of day, Central Standard Time (CST), as particular events occurred. Central Standard Time was Coordinated Universal Time (UTC) + 9.5 hours.

3 Stick shaker is a stall warning system which alerts the pilots of an approaching stall condition. The stall warnings are generated by computers with inputs from the angle of attack, the flap and slat configuration, g loading and horizontal stabiliser position which applies a rapid vibration to the control column.

Pilot's primary flight display

The pilot's primary flight display shows the red checker column that moves vertically on the left of the display and graphically displays the margin between the stick shaker activation speed and the current airspeed (Figure 3). When the top of the red checker column reaches the current airspeed indication, the stick shaker will activate. The margin between the current airspeed and the stick shaker speed is dynamic and is continuously displayed throughout the flight and while manoeuvring to land.

FLIGHT RECORDERS

The aircraft's QAR data was downloaded and sent to the Australian Transport Safety Bureau's (ATSB) recorder facility in Canberra for analysis. The Flight Data Recorder (FDR) and Cockpit Voice Recorder (CVR) data from the incident flight had been over-written and was therefore unavailable to the investigation.

PERSONNEL INFORMATION

The PIC held an Airline Transport Pilot Licence (Aeroplane), was type rated on the 717, held a current medical certificate, and had approximately 10,000 hours total flight experience including approximately 1,000 hours on the 717.

The copilot held an Airline Transport Pilot Licence (Aeroplane), was type rated on the 717, held a current medical certificate, and had approximately 3,800 hours total flight experience including 470 hours on the 717.

FURTHER INVESTIGATION

The investigation is continuing and will include an examination of:

- aircraft computed approach speeds
- flight crew operating procedures
- operator crew training
- ATC procedures
- analysis of recorded data
- analysis of weather.

Table 1: Aircraft information

Aircraft model	Boeing 717-200
Serial number	55063
Date of manufacture	September 2000
Certificate of Registration	Valid, issued 20 June 2007
Certificate of Airworthiness	Valid, issued 25 July 2005
Total airframe hours and cycles	19,985.38 hours, 15,062 cycles

Figure 1: Aircraft final approach path

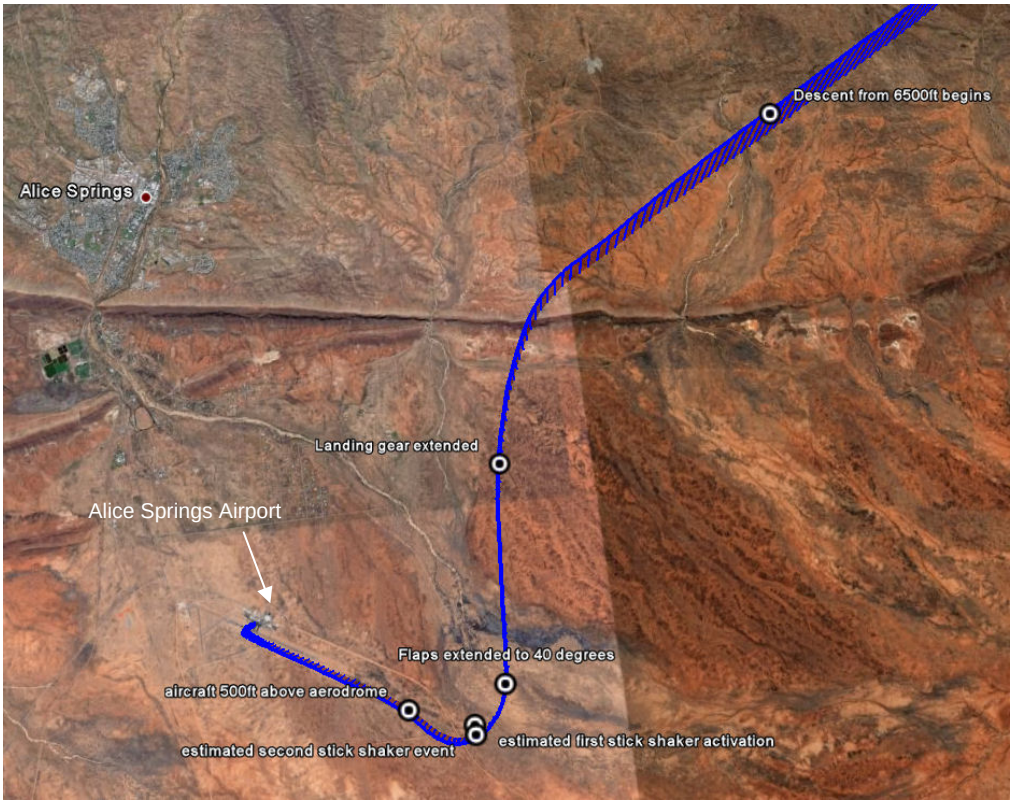


Figure 2: FDR airspeed and stall warning

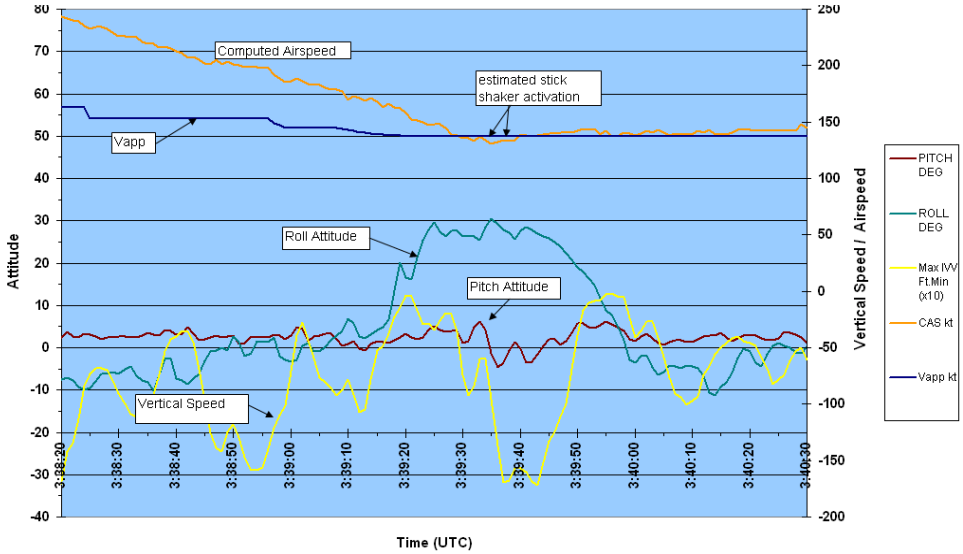
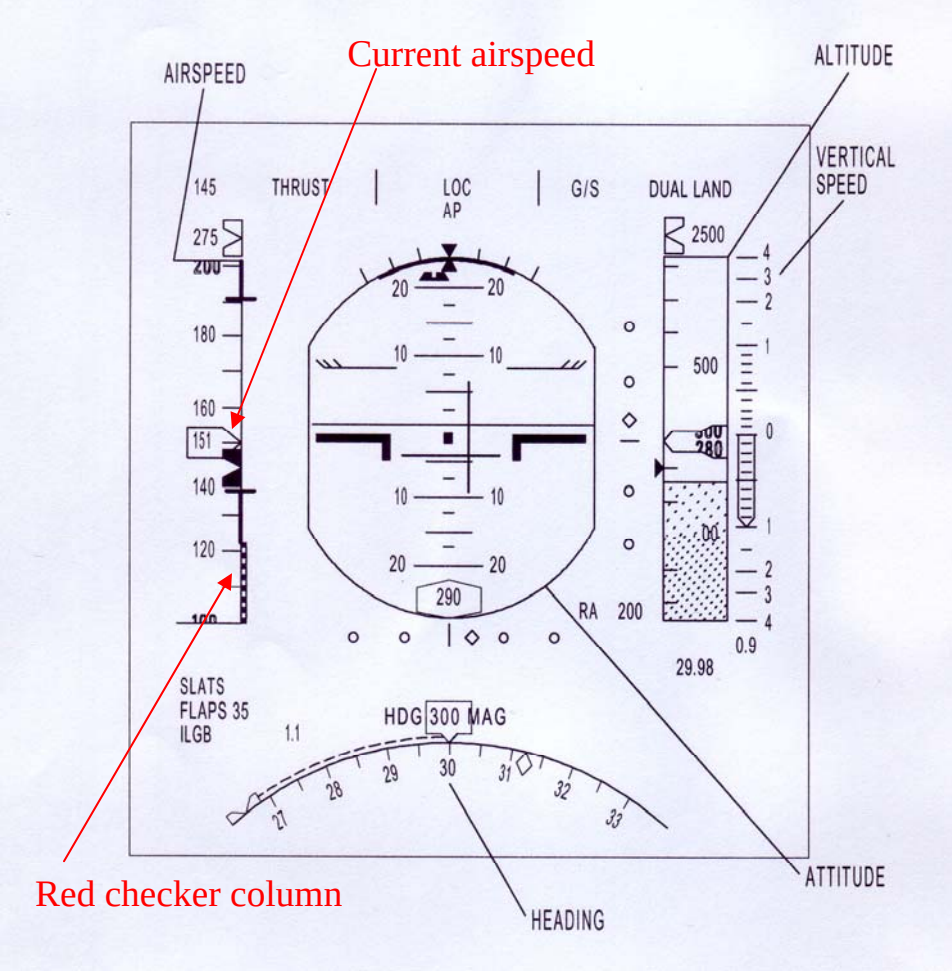


Figure 3: Pilots primary flight display



Acknowledgements

Google Earth (Figure 1)

Boeing Commercial Aircraft (Figure 3)