



Australian Government

Australian Transport Safety Bureau

Runway event involving a Fokker F28, VH-JFB

Williamtown Airport, New South Wales, 26 August 2013

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Addendum

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Runway event involving a Fokker F28, VH-JFB

What happened

On 26 August 2013, at about 1958 Eastern Standard Time,¹ an Alliance Airlines Fokker F28 aircraft, registered VH-JFB, was taxiing at Williamtown Airport on a charter flight to Sydney, New South Wales, under instrument flight rules (IFR).

Last light² had been at 1755 and the crew reported that the night was very dark. The captain, who was designated as the pilot flying, had not previously operated from Williamtown at night and was used to operating from runways with centreline lighting. The crew were aware of a Notice to Airmen (NOTAM)³ that had been issued for Williamtown, stating that the centreline markings on runway 12/30 were faded.

During the taxi, the taxi light positioned under the nose of the aircraft became unserviceable and the crew relied on the landing lights for illumination. One landing light was positioned at the end of each wing and was angled to provide illumination for landing, resulting in no illumination of the area directly in front of the aircraft.

As the captain taxied the aircraft onto the runway 12 threshold, air traffic control (ATC) issued departure instructions and a take-off clearance. The captain then momentarily looked down to confirm that the correct departure heading had been entered into the aircraft's flight management system. As he looked up, he believed he had almost overshot the runway centreline as he observed the threshold markings in front and under the nose of the aircraft, and a line of recessed lights to his left.⁴ The captain determined that the recessed lights were runway centreline lights.

The aircraft was lined up on runway 12. At that time, the captain believed that the aircraft was lined up on the centreline as it was centrally located between two lines of runway edge lights and in the middle of an expanse of concrete.

At 2003, the captain commenced the take-off run. Immediately after, the captain noted that the ground area to the left of the runway centreline lights ahead was a different colour than that on the right. He then realised that he had lined up on the runway edge lights. The captain rejected the take-off and steered the aircraft to the right, toward the actual runway centreline.

A runway inspection was completed, which determined that the aircraft did not depart the paved area. The crew re-taxied and departed for Sydney with no further incident.

Runway 12 threshold



Source: Google earth

¹ Eastern Standard Time (EST) was Coordinated Universal Time (UTC) + 10 hours.

² Last light is the time when the centre of the sun is at an angle of 6° below the horizon following sunset. At this time large objects are not definable but may be seen and the brightest stars are visible under clear atmospheric conditions. Last light can also be referred to as the end of evening civil twilight.

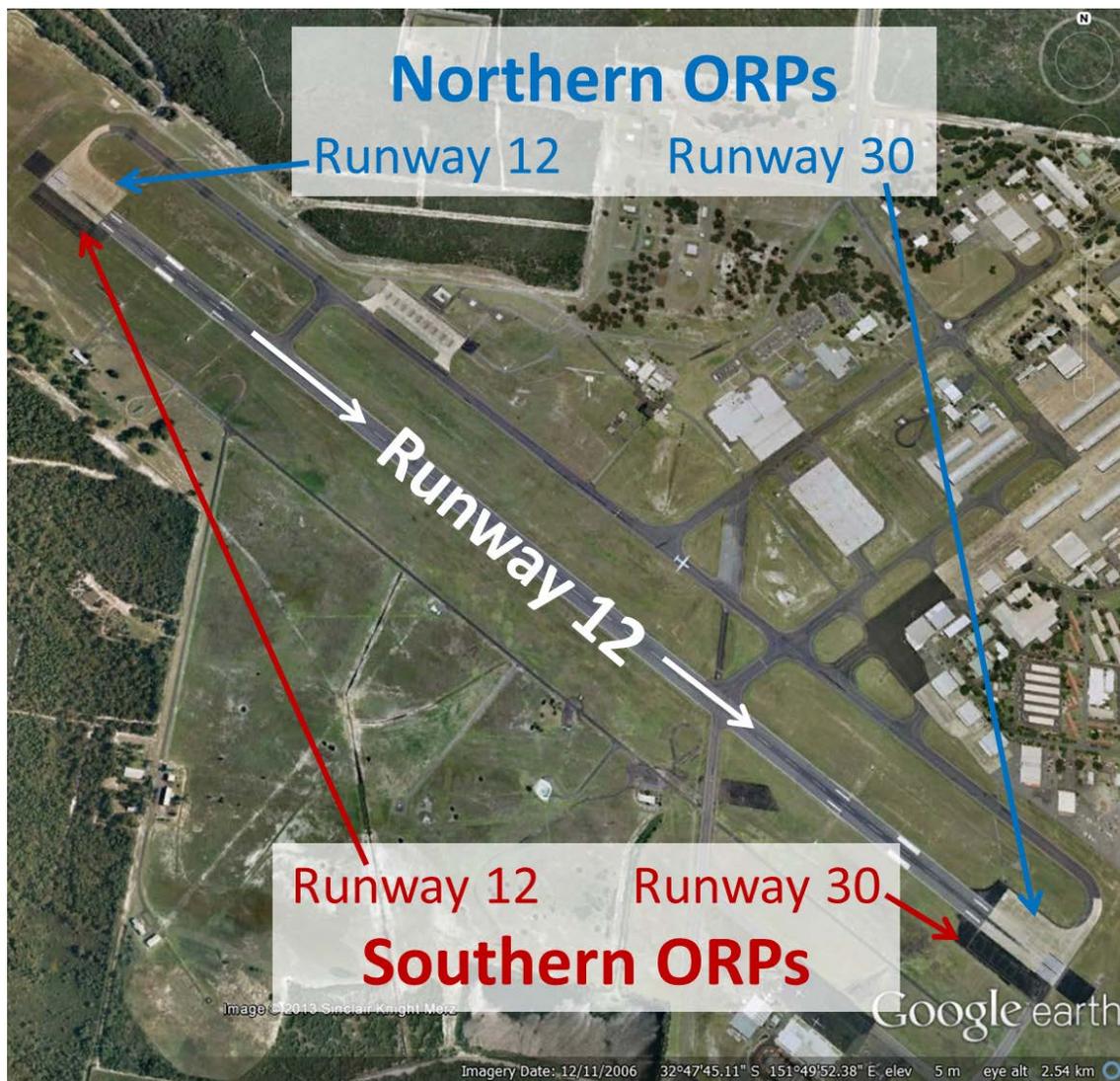
³ A Notice to Airmen (NOTAM) advises personnel concerned with flight operations of information concerning the establishment, condition or change in any aeronautical facility, service, procedure, or hazard, the timely knowledge of which is essential to safe flight.

⁴ The captain reported that, at the time of the incident, the left window was slightly opaque, hampering clear vision.

Williamstown Airport

Williamstown Airport was owned and operated by the Department of Defence, and had one runway aligned 12/30. The runway had an operational readiness platform (ORP) at each end of runway 12/30, on both sides (Figure 1). The ORP was a wide section of tarmac adjacent to the runway threshold, used by military aircraft. The ORPs on the northern side of the runway and both thresholds were concrete; an uneven grey colour. The ORPs on the southern side and the majority of the runway were tarmac, black in colour.

Figure 1: Williamstown Airport showing location and colour of ORPs and runway 12



Source: Google earth

The runway had white runway edge lighting, but was not fitted with runway centreline lighting. For the portion of the runway adjacent to the ORPs, the runway edge lighting was recessed.

The Departure and Approach (DAP) aerodrome chart showed the ORPs on either side of both thresholds, however, the chart did not indicate colour as the DAP only detailed whether a runway was 'sealed' or 'unsealed'. The En Route Supplement Australia (ERSA) further noted that the runway 12/30 surface was both asphalt/bitumen and concrete, while the Jeppesen,⁵ which the crew were referencing for the flight, indicated the surface type was asphalt.

⁵ Jeppesen is an American company that produces aeronautical navigational information and other services.

The photographs below depict the positions of the runway edge lighting and the runway centreline markings in daylight and at night (Figures 2 to 5).

Figure 2: Runway edge in daylight



Source: Department of Defence

Figure 3: Runway edge at night



Source: Department of Defence

Figure 4: Runway centreline in daylight



Source: Department of Defence

Figure 5: Runway centreline at night



Source: Department of Defence

Alliance Airlines investigation

An internal investigation conducted by Alliance Airlines found that the design of the ORP recessed lighting and obscured centreline markings caused visual confusion during the line-up procedure. This was further compounded by an unserviceable aircraft taxi light and the distraction caused by the requirement for the crew to enter the heading issued by ATC as part of the departure instructions at a critical time.

The operator also found that, under the substitution test,⁶ it was reasonable to expect that a similar event could occur again.

⁶ Substitution test – could some well-motivated, equally competent and comparably qualified individual make the same kind of error under the same or very similar circumstances?

Safety action

Whether or not the ATSB identifies safety issues in the course of an investigation, relevant organisations may proactively initiate safety action in order to reduce their safety risk. The ATSB has been advised of the following proactive safety action in response to this occurrence.

Alliance Airlines

As a result of this occurrence, Alliance Airlines has advised the ATSB that they have released an operational notice to crews to increase pilot awareness of ORPs at military airports, including a note that, due to the large expanse of tarmac area at the threshold, a greater risk of misaligned take-offs exist. Additionally, as part of the operator's accident prevention program, a *Take-off Misalignment Hazards* publication has been issued.

Department of Defence

The Department of Defence advised the ATSB that, at the time of the incident, remediation works were planned to address the faded centreline markings. These works consisted of repainting the runway centreline markings and refreshing the taxiway lead-in lines with black contrast lines to highlight the markings. At the time of publication, the remediation works had been completed.

Safety message

In 2010, the ATSB published a research report on the factors influencing misaligned take-offs at night.⁷ The report identified the following eight factors common to misaligned take-offs, both in Australia and internationally:

1. *distraction or divided attention of the flight crew*
2. *confusing runway layout*
3. *displaced threshold or intersection departure*
4. *poor visibility or weather*
5. *ATC clearance/s issued during runway entry*
6. *no runway centreline lighting*
7. *flight crew fatigue*
8. *recessed runway edge lighting.*



To promote awareness, knowledge and action, the ATSB also developed a pilot information card (above) to assist crews in identifying factors that increase the risk of a misaligned take-off.

The ATSB research report AR-2009-033 – *Factors influencing misaligned take-off occurrences at night* is available at www.atsb.gov.au/publications/2009/ar2009033.aspx

The following ATSB investigation reports provide further reading on misaligned take-offs:

- AO-2007-045 – *Ground strike Sydney Kingsford Smith Airport, NSW 13 October 2007 VH-EEB Embraer EMB-120 ER* is available at www.atsb.gov.au/publications/investigation_reports/2007/aair/ao-2007-045.aspx
- AO-2009-007 – *Collision on ground Townsville Aerodrome, Queensland 11 February 2009 VH-SBW Bombardier DHC-8-315* is available at www.atsb.gov.au/publications/investigation_reports/2009/aair/ao-2009-007.aspx
- AO-2012-041 – *Runway excursion, aircraft unknown at Williamtown New South Wales between 19 and 21 March 2012* is available at www.atsb.gov.au/publications/investigation_reports/2012/aair/ao-2012-041.aspx

⁷ www.atsb.gov.au/publications/2009/ar2009033.aspx

General details

Occurrence details

Date and time:	26 August 2013 – 2003 EST	
Occurrence category:	Serious incident	
Primary occurrence type:	Runway event	
Location:	Williamtown Airport, New South Wales	
	Latitude: 32° 47.70' S	Longitude: 151° 50.07' E

Aircraft details

Manufacturer and model:	Fokker B.V. F28 MK 0070	
Registration:	VH-JFB	
Operator:	Alliance Australia	
Serial number:	11521	
Type of operation:	Charter – passenger	
Persons on board:	Crew – 4	Passengers – 4
Injuries:	Crew – Nil	Passengers – Nil
Damage:	None	

About the ATSB

The Australian Transport Safety Bureau (ATSB) is an independent Commonwealth Government statutory agency. The ATSB is governed by a Commission and is entirely separate from transport regulators, policy makers and service providers. The ATSB's function is to improve safety and public confidence in the aviation, marine and rail modes of transport through excellence in: independent investigation of transport accidents and other safety occurrences; safety data recording, analysis and research; and fostering safety awareness, knowledge and action.

The ATSB is responsible for investigating accidents and other transport safety matters involving civil aviation, marine and rail operations in Australia that fall within Commonwealth jurisdiction, as well as participating in overseas investigations involving Australian registered aircraft and ships. A primary concern is the safety of commercial transport, with particular regard to fare-paying passenger operations.

The ATSB performs its functions in accordance with the provisions of the *Transport Safety Investigation Act 2003* and Regulations and, where applicable, relevant international agreements.

The object of a safety investigation is to identify and reduce safety-related risk. ATSB investigations determine and communicate the safety factors related to the transport safety matter being investigated.

It is not a function of the ATSB to apportion blame or determine liability. At the same time, an investigation report must include factual material of sufficient weight to support the analysis and findings. At all times the ATSB endeavours to balance the use of material that could imply adverse comment with the need to properly explain what happened, and why, in a fair and unbiased manner.

About this report

Decisions regarding whether to conduct an investigation, and the scope of an investigation, are based on many factors, including the level of safety benefit likely to be obtained from an investigation. For this occurrence, a limited-scope, fact-gathering investigation was conducted in order to produce a short summary report, and allow for greater industry awareness of potential safety issues and possible safety actions.