Australian Government
Australian Transport Safety Bureau

Runway incursion involving an ATR 72, VH-FVI, and a vehicle

Moranbah Airport, Queensland, 5 March 2014

ATSB Transport Safety Report
Aviation Occurrence Investigation
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Addendum

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What happened

Moranbah Airport

Source: Google earth

On 5 March 2014 at about 1044 Eastern Standard Time (EST), an ATR 72 aircraft, registered VH-FVI (FVI), operated by Virgin Australia Regional Airlines, was about 25 NM southeast of Moranbah, Queensland on descent to the airport.

The captain of FVI, as pilot non-flying, broadcast on the common traffic advisory frequency (CTAF), advising that the aircraft was inbound and planned to conduct a non-directional beacon (NDB) approach, with an estimated arrival time of 1049 overhead the airport. At about 1047, the captain broadcast when 10 NM to the south-east of the airport and tracking to the north-west to conduct an NDB approach. At 1049, the captain broadcast tracking outbound in the approach and that they 'should be turning straight in for a landing runway 16'. At about the same time, another passenger aircraft landed at Moranbah.

At about 1050, following the report of a suspected birdstrike by the aircraft that had just landed, the aerodrome reporting officer (ARO) on duty was in the airport terminal when asked by airport ground staff to conduct a runway inspection. The ARO walked about 200 m to the safety vehicle, which was fitted with a flashing orange beacon, and then drove to the holding point for runway 16/34. At about 1052, the ARO broadcast on the CTAF advising that the vehicle was preparing to enter the runway for a runway inspection. The ARO heard a beep-back, confirming that he had made the call on the correct frequency, but no other response was heard on the CTAF.

The CTAF broadcasts an automatic voice-back response if no calls have been made on the frequency for 5 minutes; otherwise a beep-back is broadcast. The ARO assumed that he received a beep-back rather than a voice-back, due to the calls made by the crew of the aircraft that had just landed.

The ARO then conducted a thorough lookout for aircraft approaching and on the runway with no aircraft sighted. He then broadcast that he was entering the runway and commenced driving north along the runway. When at the northern threshold, the vehicle turned and drove south along the runway with no evidence of a birdstrike found.

The crew of FVI did not hear either broadcast from the ARO. The aircraft was in cloud during the NDB approach, with the cloud base at about 2,600 ft. The aircraft encountered some turbulence on final, with a crosswind of about 12 kt. At about 1055, when at about 20 ft above ground level (AGL), the captain looked up out of the cockpit along the runway and sighted the safety vehicle on the white runway aiming point markings near the far end of the runway. The captain immediately broadcast 'car vacate'. The first officer sighted the orange beacon when at about 10 ft AGL, but was not immediately aware that it indicated the presence of a vehicle on the runway.

When about 100 m from the southern end of the runway, facing south, the ARO heard 'car vacate' broadcast on the CTAF and sighted the aircraft landing on the far end of the runway in the rear-view mirror of the vehicle. The ARO immediately drove the vehicle off the runway and once clear, broadcast that the safety vehicle had now vacated all runways.

Pilot comments

The captain reported that his decision to continue with the landing after he sighted the car when at about 20 ft AGL was based on a quick assessment of the situation: the car was beyond the braking distance required by the aircraft; as the pilot non-flying, he would have to take over control

of the aircraft from the first officer; he would potentially have to conduct a touchdown-go-around; and the car may remain on the runway and the aircraft would then be required to achieve sufficient climb gradient to pass above it. He considered there to be less of a safety risk to proceed with the landing.

The first officer reported that he did not perceive the beacon to represent an immediate threat to the aircraft, and that the aircraft was at about 10 ft AGL, below approach and go-around speeds, with the power levers set to flight idle, and within 1 second of touchdown when he sighted it.

Communications with the ARO

The ARO had a handheld VHF radio and a VHF radio was fitted in the safety vehicle. When in the vehicle, the ARO switched off the handheld radio to avoid interference with the fitted radio. The ARO could alternatively be contacted via mobile phone. The ARO also had a UHF radio which was used to communicate with aerodrome ground staff. All normal communications between flight crew and the ARO are on the CTAF via VHF radio. The ARO reported that inside the terminal building there was a 'black spot' for VHF reception.

The ATSB was provided with the CTAF recordings. Both of the broadcasts made by the ARO included the standard phraseology of prefixing and suffixing each call with 'Traffic Moranbah' to alert aircraft to the location of the caller.

Runway inspections at Moranbah

Runway inspections were conducted every 3 hours from 0700 to 1900 daily and on request by flight crew or when birds were observed in the area.

Discrete CTAF

From May 2014, Moranbah Airport will have a discrete common traffic advisory frequency.

ATSB comment

The ARO was in the airport compound for the duration of the calls broadcast at 25 NM, 10 NM and overhead by FVI, hence he did not have an awareness that the aircraft was in the vicinity. The recording of the CTAF obtained by the ATSB verified all calls made by the crew of FVI and the ARO. The ARO calls were audible but less clear than the aircraft calls, however it could not be determined why the crew of FVI did not hear the ARO broadcasts. There was no requirement for the ARO to maintain a continuous listening watch on the CTAF. Six minutes elapsed between the broadcast from the captain of FVI overhead the aerodrome, to the call to the car to vacate.

Safety message

The ATSB SafetyWatch highlights the broad safety concerns that come out of our investigation findings and from the occurrence data reported to us by industry. One of the safety concerns is safety around non-controlled aerodromes www.atsb.gov.au/safetywatch/safety-around-aeros.aspx.

Research conducted by the ATSB found that, between 2003 and 2008, 32 runway incursions were recorded at non-towered aerodromes. Broadcasting on and monitoring of the CTAF is the key way for pilots to establish situational and traffic awareness. The ATSB *Limitations of the see-and-avoid principle* study found that the effectiveness of a search for other traffic is eight times greater when a radio is used effectively in combination with a visual lookout, than when no radio is used. *A pilot's guide to staying safe in the vicinity of non-towered aerodromes* is available at www.atsb.gov.au/publications/2008/avoidable-1-ar-2008-044(1).aspx.

General details

Occurrence details

Date and time:	5 March 2014 – 1100 EST	
Occurrence category:	Serious incident	
Primary occurrence type:	Runway incursion	
Location:	Moranbah Airport, Queensland	
	Latitude: 22° 03.47' S	Longitude: 148° 04.65' E

Aircraft details

Manufacturer and model:	ATR – GIE Avions de Transport Regional ATR72-212A	
Registration:	VH-FVI	
Operator:	Virgin Australia Regional Airlines	
Serial number:	955	
Type of operation:	Air transport - passenger	
Persons on board:	Crew – 4	Passengers – 45
Injuries:	Crew – Nil	Passengers – Nil
Damage:	Nil	

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.