Australian Government
Australian Transport Safety Bureau

Runway incursion between a Fairchild SA227, VH-WBA and a vehicle

Leinster aerodrome, Western Australia, 14 January 2013

ATSB Transport Safety Report
Aviation Occurrence Investigation
AO-2013-015
Final – 29 May 2013

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

Publishing information

Published by: Australian Transport Safety Bureau
Postal address: PO Box 967, Civic Square ACT 2608
Office: 62 Northbourne Avenue Canberra, Australian Capital Territory 2601
Telephone: 1800 020 616, from overseas +61 2 6257 4150 (24 hours)
Accident and incident notification: 1800 011 034 (24 hours)
Facsimile: 02 6247 3117, from overseas +61 2 6247 3117
Email: atsbinfo@atsb.gov.au
Internet: www.atsb.gov.au

Addendum

Page	Change	Date

Runway incursion between a Fairchild SA227, VH-WBA and a vehicle

What happened

On 14 January 2013, a Skippers Fairchild SA227 aircraft, registered VH-WBA (WBA), was being operated on a scheduled passenger flight to Leinster aerodrome, Western Australia, with two crew and six passengers onboard.

At about 1045 Western Standard Time,[1] the aerodrome reporting officer (ARO), who was a qualified electrician, arrived at Leinster aerodrome to continue a works order that required the levelling of the runway lights. The ARO went to the terminal office to retrieve a hand held radio and then drove onto the taxiway. Before entering the runway, he made a broadcast on the Leinster common traffic advisory frequency (CTAF) using the hand held radio, indicating he was entering runway 10/28. The ARO reported that he received the voice identification of 'Leinster aerodrome' from the aerodrome frequency response unit (AFRU).[2] He proceeded to the end of runway 28 and commenced work. As the temperature was above 40°C, the ARO positioned the vehicle on the edge of the runway to provide some shade from the sun while he worked on the runway light (Figure 1).

Figure 1: Vehicle location on runway

Source: Aerodrome operator

At about 1100, when at top-of-descent, the crew of WBA obtained the weather from the Leinster aerodrome weather information service and briefed to join a 5 NM final for runway 10. The crew contacted their passenger services agent at the aerodrome on a company radio frequency and

[1] Western Standard Time (WST) was Coordinated Universal Time (UTC) + 8 hours.

[2] AFRU: A facility installed at certain non-towered aerodromes that provides an automatic response to pilots when transmitting on the CTAF. The AFRU indicates to the pilot that the correct radio frequency has been selected and confirms the operation of the aircraft's transmitter, receiver and volume setting. The pilot will receive either a voice identification, for example 'Leinster aerodrome CTAF', or a 300 millisecond tone or 'beep'.

the agent indicated that the runway was clear.[3] When at 30 NM, the crew broadcast an inbound call on the CTAF[4] advising of their intentions.

At the same time, the ARO only heard the AFRU voice identification of 'Leinster aerodrome'. He stopped work and looked and listened for an aircraft. As he could not see or hear an aircraft operating in the area, he assumed that it was an aircraft at a nearby aerodrome that used the same CTAF frequency and continued working.

The crew of WBA positioned the aircraft on a 5 NM final and reported making the required broadcasts on the CTAF.

During the landing, at about 1113, the first officer observed something on the runway near the end of runway 28, and commented to the captain that it might be a vehicle. At the same time, the ARO looked up and observed the landing lights of an aircraft coming in to land on runway 10. The crew reported that the heat haze coming off the runway made it difficult to identify that the object was a vehicle. The crew expedited the aircraft's deceleration and when they got closer, they could see that it was a vehicle positioned on the right side of the runway. The ARO reported that the aircraft appeared to stop before the taxiway that was located about halfway along the runway and he thought that the aircraft would take the taxiway to the terminal. The crew made a broadcast on the CTAF in an attempt to contact the vehicle driver, but no response was received. The ARO reported that this was the first radio transmission that he heard from the aircraft, but it was unintelligible. The ARO moved his tools and the vehicle clear of the runway.

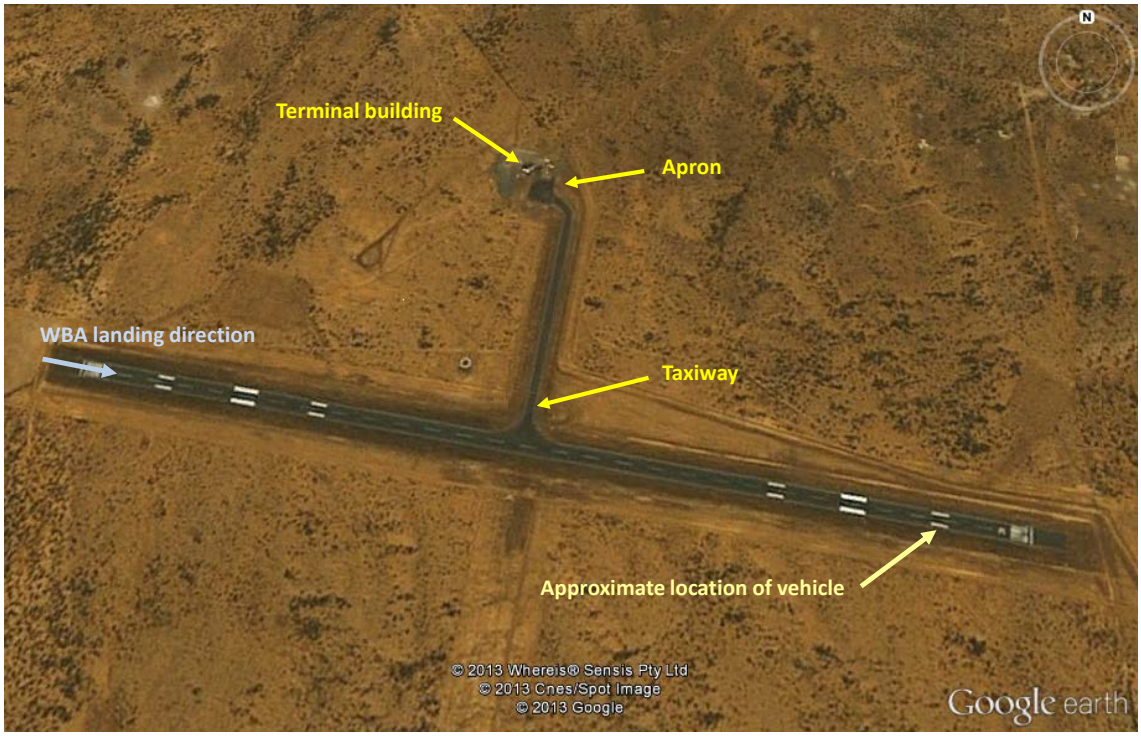
The crew of WBA taxied past the vehicle and used the turning node at the end of the runway to turn around. The aircraft was then taxied back along the runway to the taxiway that led to the terminal (Figure 2). The crew made a broadcast on the CTAF again to contact the vehicle driver, but did not receive a response. The ARO reported that he heard the radio transmission, but it was unintelligible. The crew continued to the terminal and after shutting down, they made another broadcast on the CTAF, with no response received.

---

[3] The agent, who provided passenger services, was normally informed by the aerodrome reporting officer (ARO) if work was being carried out on the runway.

[4] The crew reported that they had confirmed that they had selected the correct frequency that was contained in the ERSA and on the Leinster aerodrome data card.

Figure 2: Location of vehicle on the runway



Source: Google earth

The ARO reported that he heard the broadcast on the CTAF after WBA was shut down, but again it was unintelligible. The ARO completed the works and made a broadcast advising he was exiting the runway.

The crew of WBA reported that they had made all the appropriate broadcasts on the correct frequency, however, no response to the calls were received. The passenger services agent had reportedly heard the crew's broadcasts on a radio located in the terminal office, but was not aware that runway works were in progress at the time.

Aerodrome reporting officer (ARO) comments

The ARO provided the following comments regarding the incident:

- all radio transmissions received on the handheld radio were unintelligible, apart from the AFRU voice identification of 'Leinster aerodrome'.
- due to the wind direction, which was north-easterly, he was unable to hear the aircraft until it taxied past.
- when conducting maintenance on the runway lights, he would normally park the vehicle off the runway, but as the temperature was above 40 °C, he had used the vehicle to shelter from the sun.
- in general, when he hears the AFRU respond, but there is no accompanying radio broadcast, it is normally an aircraft operating at nearby aerodromes, which use the same frequency as the Leinster aerodrome CTAF.

Pilot comments

The crew reported that the heat haze coming off the runway affected their visibility and it wasn't until they had touched down that they could see something was there, although they could not

identify it was a vehicle until they were closer. The crew also reported that there was no Notice to Airmen (NOTAM)[5] issued for the works on the runway.

Aerodrome operator investigation

The aerodrome operator conducted an internal investigation into the incident and determined the following:

- the works order had been scheduled at the same time aircraft were planned to arrive and depart.
- no defects with the hand-held radio or AFRU system were found. However, the operator stated that the the operation of the hand-held radio may have been affected by the heat.
- the vehicle was located near the first touchdown marker on runway 28, which was about 160 m from the runway end.There were five surrounding aerodromes that used the same CTAF frequency as Leinster.
- the aerodrome operator determined that a NOTAM was not required as the requirements of Manual Of Standards (MOS) 139 10.10.3 *Time-Limited Works* were met:

  > 10.10.3.3: A person must not commence time-limited works that require more than 10 minutes to restore normal safety standards to the movement area and remove obstacles, unless a NOTAM has been issued not less than 24 hours before the commencement, giving the date and time of commencement and the time required to restore normal safety standards.

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.

Skippers Aviation

As a result of this occurrence, Skippers Aviation has advised the ATSB that they are taking the following safety actions:

- **Flight crew training**: Continual education of all crews to maintain a vigilant lookout, especially when operating at non-towered aerodromes.[6]

Aerodrome operator

As a result of this occurrence, the aerodrome operator has advised the ATSB that they are taking the following safety actions:

Aerodrome reporting officer (ARO) training

All AROs are to be provided with practical training on communicating with aircraft personnel.

Leinster aerodrome procedures

- a sign is to be used to advise terminal and ground/apron staff that an ARO is airside[7]
- utilise a pre-recorded message on the AFRU to advise pilots that an ARO is airside
- scheduled aerodrome works to take into account known flight schedules

---

[5] 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.

[6] A non-towered aerodrome is an aerodrome at which air traffic control (ATC) is not operating, this includes: an aerodrome that is always in Class G airspace; an aerodrome with a control tower, but no ATC service is currently provided, or an aerodrome that would normally have ATC services, but is presently unavailable.

[7] Airside is all parts of the aerodrome containing aircraft.

- all aerodrome work notifications are to include a note for ARO's to check with ground crew for any known aircraft movements for the day
- known flight schedules are to be displayed in the airport terminal building and the ARO office
- all aerodrome works are to be approved by the aerodrome manager.

Leinster aerodrome equipment

- installation of a very high frequency (VHF) radio with an external speaker into two ARO vehicles
- aerodrome CTAF/AFRU radios to be regularly inspected, ensuring that they are functioning correctly.

Safety message

The risk of runway incursions and other separation events can be minimised through good communication. This incident shows the importance of communication and ensuring that the systems exist to minimise the likelihood of communication break downs. Effective communication between each of the parts of the aviation system, along with robust systems in place to support the individuals, is essential for safe operations. It also demonstrates the difficulties with having multiple aerodromes operating on the same frequency, highlighting the need for all radio users to remain vigilant and treat all AFRU transmissions with attention. Furthermore, it highlights the benefits of utilising the full functionality of the AFRU system to enhance pilot awareness of operations at an aerodrome.

Broadcasting on and monitoring the CTAF, and maintaining a good lookout is the key way for users to establish situation and traffic awareness when operating at non-towered aerodromes. The following publication: provides additional information on operating at non-towered aerodromes:

- A pilot's guide to staying safe in the vicinity of non-towered aerodrome www.atsb.gov.au/publications/2008/ar-2008-044(2).aspx
- Operations at non-towered aerodromes www.casa.gov.au/wcmswr/_assets/main/pilots/download/nta_booklet.pdf
- Civil Aviation Advisory Publication (CAAP) 166-1(1) Operations in the vicinity of non-towered (non-controlled) aerodromes www.casa.gov.au/wcmswr/_assets/main/download/caaps/ops/166-1.pdf

General details

Occurrence details

Occurrence category:	Incident	
Primary occurrence type:	Runway incursion	
Location:	Leinster aerodrome, Western Australia	
	Latitude: 27° 50.60' S	Longitude: 120° 42.20' E

VH-WBA

Manufacturer and model:	Fairchild Industries Inc. SA227-DC	
Registration:	VH-WBA	
Operator:	Skippers Aviation	
Type of operation:	Air transport - low capacity	
Persons on board:	Crew – 2	Passengers – 6
Injuries:	Crew – Nil	Passengers – Nil
Damage:	Nil	

Vehicle

Manufacturer and model:	Vehicle	
Registration:	LV580	
Persons on board:	Driver – 1	Passengers – 0
Injuries:	Driver – Nil	Passengers – Nil
Damage:	Nil	

About the ATSB

The Australian Transport Safety Bureau (ATSB) is an independent Commonwealth Government statutory agency. The Bureau 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.