



Australian Government

Australian Transport Safety Bureau

Runway incursion involving a Piper PA-31, VH-KLS and a vehicle

Port Hedland Airport, Western Australia, 27 May 2013

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Addendum

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Runway incursion involving a Piper PA-31, VH-KLS and a vehicle

What happened

On 27 May 2013 at 1512 Western Standard Time,¹ the pilot of a Piper PA-31 aircraft, registered VH-KLS (KLS), taxied for departure from runway 32 at Port Hedland for a flight to Karratha, Western Australia. The pilot made the necessary common traffic advisory frequency (CTAF) broadcast.

At about 1517, an aviation rescue and fire fighting (ARFF) vehicle that had been operating on the eastern side of the airport entered taxiway Bravo to return to the fire station on the western side. The fire crew made a CTAF broadcast at 1518, stating that they intended to cross runway 32 from taxiway Alpha. Hearing no response to the broadcast and seeing no aircraft on the runway, the fire vehicle crossed runway 32.

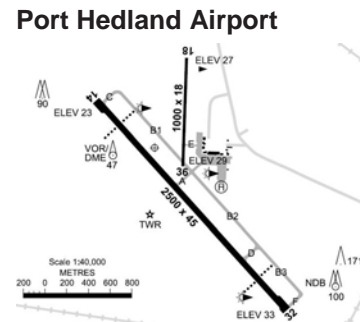
The pilot of KLS taxied onto the threshold of runway 32 and commenced the take-off roll and the pilot reported making the required CTAF broadcasts. At about 1518, as KLS became airborne, the pilot observed the fire vehicle crossing the runway about 500 m ahead (Figure 1). As the aircraft was airborne, the pilot assessed the safest action was to continue the takeoff and the aircraft passed over the intersection between runway 32 and taxiway Alpha between 300 and 400 ft above ground level. By the time KLS crossed the intersection the fire vehicle was clear of the runway.

The crew of the fire vehicle had not heard any CTAF broadcasts from KLS nor did they see the aircraft when they scanned the runway prior to crossing, possibly due to heat haze. The pilot of KLS had not heard the CTAF broadcast made by the crew of the fire vehicle.

Aerodrome frequency response unit

Some non-towered aerodromes² have a facility known as an aerodrome frequency response unit (AFRU)³ installed. The purpose of an AFRU is to provide an automatic response to CTAF broadcasts to indicate to an operator that the correct radio frequency had been selected and to confirm the operation of the radio's transmitter and receiver, and the volume setting.

If a broadcast has not been made on the CTAF in the preceding 5 minutes, the AFRU will respond to the next transmission over 2 seconds in length with a voice identification, for example, 'Port Hedland CTAF'. If a broadcast has been made in the previous 5 minutes, a 300 millisecond tone or 'beep' is broadcast by the AFRU.



Source: Airservices Australia

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

² A non-towered aerodrome is an aerodrome at which 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.

³ See Aeronautical Information Publication GEN 3.4 paragraph 3.4.

Figure 1: Port Hedland Airport showing the path of VH-KLS (green) and the fire vehicle (yellow)



Source: Google earth

CTAF recordings

The ATSB examined recordings of the transmissions broadcast on the Port Hedland CTAF. That examination revealed that between 1512 and 1521, a number of transmissions were made by the pilot of KLS and the crew of the fire vehicle. However, broadcasts reported by the pilot of KLS to have been made near the runway 32 threshold were not recorded.

The recordings showed that, following the taxi broadcast by the pilot of KLS, the ARFU voice identification was heard, indicating that no broadcasts had been made on the CTAF in the preceding 5 minutes. Following the broadcast by the crew of the fire vehicle, a 'beep' was heard, indicating that a broadcast had been made on the CTAF within the preceding 5 minutes.

Aviation rescue and fire fighting service

At the time of the incident, the Port Hedland ARFF service was in 'setup mode' in preparation for approval by the regulator. The crew of the fire vehicle were using a portable radio as the radio mounted in the vehicle had not been programmed to the correct frequency. An investigation by the Aircservices Australia determined that the transmission power of the portable radios was lower than the radios mounted in the vehicle. The investigation also noted that a radio dead zone⁴ may exist in the vicinity of the runway 32 threshold.

⁴ Dead zone – an area within range of a radio transmitter in which the signal is not received.

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.

Airservices Australia

As a result of this occurrence, the Airservices Australia has advised the ATSB that they intend to take the following safety actions:

- Will release a national operational safety note advising ARFF operators of the efficient use of aviation radio communications when driving on an airfield.
- Will undertake a comprehensive review of aviation radio coverage at Port Hedland as part of radio commissioning works. Any identified radio coverage deficiencies will be monitored by the service provider until resolution.

Safety message

As well as the intended purpose of an AFRU, the voice identification and 'beep' features can provide those that operate on a CTAF with an awareness of other operators. If the crew of the fire vehicle had been aware of the difference in AFRU responses, they may have delayed crossing runway 32 and made another broadcast on the CTAF to identify the operator that had broadcast within the preceding 5 minutes.

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. Two reports relating to safety concerns around non-towered aerodromes, *Safety in the vicinity of non-towered aerodromes* and *A pilot's guide to staying safe in the vicinity of non-towered aerodromes*, are available at [www.atsb.gov.au/publications/2008/ar-2008-044\(2\).aspx](http://www.atsb.gov.au/publications/2008/ar-2008-044(2).aspx)



General details

Occurrence details

Date and time:	27 May 2013 – 1520 WST	
Occurrence category:	Incident	
Primary occurrence type:	Runway incursion	
Location:	Port Hedland Airport, Western Australia	
	Latitude: 20° 22.67' S	Longitude: 118° 37.58' E

Aircraft details

Manufacturer and model:	Piper Aircraft Corporation PA-31	
Registration:	VH-KLS	
Type of operation:	Aerial work – test and ferry	
Persons on board:	Crew – 1	Passengers – Nil
Injuries:	Crew – Nil	Passengers – Nil
Damage:	Nil	

Airport fire vehicle details

Registration:	Tender 1	
Type of operation:	Aviation rescue and fire fighting	
Persons on board:	Crew – 2	Passengers – Nil
Injuries:	Crew – 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.