



Australian Government

Australian Transport Safety Bureau

Runway incursion involving Fokker F28 MK 100, and vehicle

Perth Airport, Western Australia on 19 October 2016

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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

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Addendum

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Runway incursion involving Fokker F28 MK 100, and vehicle

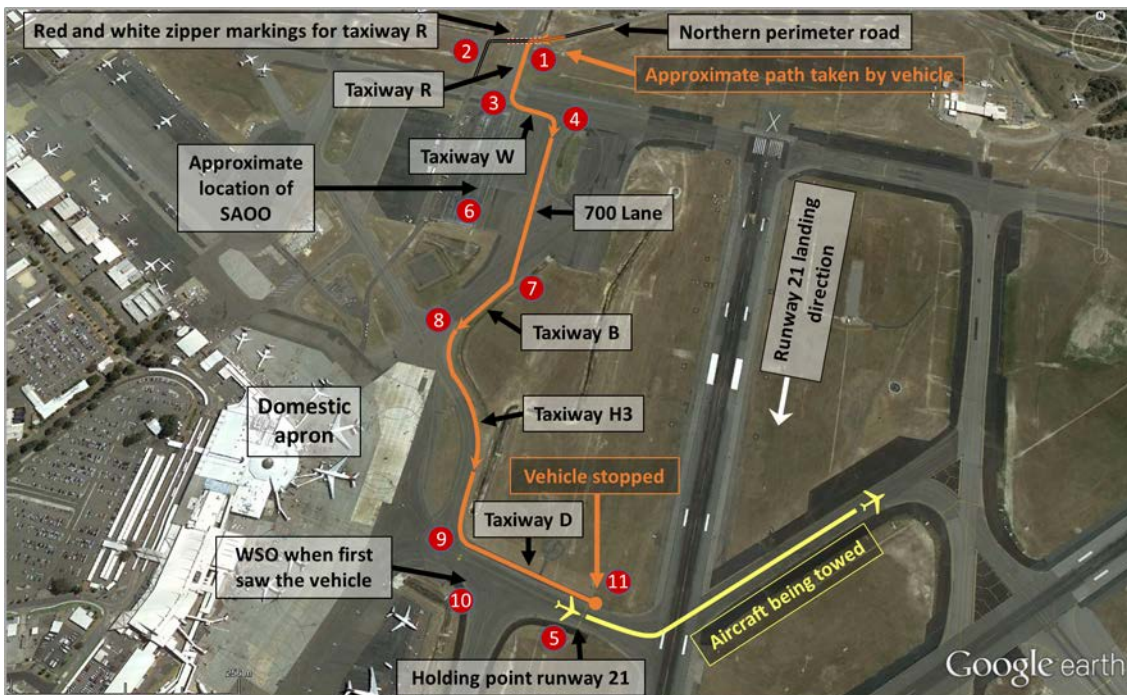
What happened

On 19 October 2016, at about 1037 Western Standard Time (WST), a vehicle was travelling along the northern perimeter road at Perth Airport, Western Australia. The vehicle had a driver and three passengers who were going to conduct a customs inspection on an aircraft, which was scheduled to depart Australia.

The driver had been advised that the aircraft would be parked on the international apron in preparation for the inspection. When the vehicle arrived at the international apron, the aircraft was not there, so the driver decided to show the other passengers some different areas of the airport while they waited for the aircraft to arrive.

As they drove towards the domestic apron, an area unfamiliar to the driver, the driver observed the aircraft that they were to meet, stationary in a position different to what was expected. They thought the aircraft was on the domestic apron, and instead of continuing along the northern perimeter road to the domestic apron, the driver turned left (Figure 1 item 1) and crossed the red and white zipper markings¹ that denote the road is crossing taxiway R (Figure 2). About another 50 m past taxiway R, was a left turn (item 2) for vehicles to access the domestic apron.

Figure 1: Airport map showing the path of the vehicle



Source: Google earth, modified by the ATSB

¹ Unless directly involved in the servicing of an aircraft on a bay, vehicles must use the marked roadways for traversing the apron. Where white edge lines of the road turn into red and white chequered markings (referred to as zippers), denotes an active taxiway. The driver must stay clear of this part of the roadway when aircraft are using the taxiway. At taxiway R there were stop signs where vehicles must stop and check for aircraft before proceeding across the taxiway following the road.

Figure 2: Photo showing stop sign and red and white zipper markings that denote a taxiway like that for taxiway R



Source: Airport operator

Rather than being parked as assumed by the driver, the aircraft was actually being towed in company with two safety vehicles and was stationary at taxiway D holding point, waiting for clearance to cross-runway 21. The vehicle then turned left onto taxiway W (item 3) and then right onto the 700 lane (item 4). At about 1038, the surface movement controller (SMC) cleared the aircraft that was being towed (item 5), to cross runway 21. At about the same time, a senior airport operations officer (SAOO), who was in a vehicle and parked near the 700 lane (item 6), noticed the vehicle traveling along the 700 lane but was not able to identify it. The vehicle turned right onto taxiway B (item 7) and then left onto taxiway H3 (item 8).

At about 1040, the tower air traffic controller cleared a Fokker Aircraft F28 MK 100 aircraft (Fokker 100) that was on final approach, to land on runway 21.

At about the same time, the SAOO contacted the SMC to determine the identity of the vehicle that was just turning onto taxiway D (item 9). The SMC advised that they assumed that the vehicle was associated with works being conducted at the intersection of taxiways A and D. The vehicle was not fitted with a transponder. A transponder was not required for operating in the non-maneuvring area of the airport, but the vehicle was displayed intermittently on the surface movement control system.²

A work safety officer (WSO), who was supervising a work site at the intersection of taxiways A and D heard this exchange and observed the vehicle in the rear-view mirror (item 10). They turned their vehicle around, and followed the unidentified vehicle that was traveling along the paved edge of taxiway D, towards the runway 21 holding point. As the vehicle should not have been there and did not appear to be stopping, the WSO used their vehicle's siren, horn and loudspeaker to alert the driver, and informed them that they were about to enter the runway and to stop immediately.

The vehicle passed over the holding point for runway 21 before it stopped. The vehicle stopped about two to three car lengths past the holding point (item 11). The WSO stopped about 5 m before the holding point and over the loudspeaker instructed the driver to go no further and to turn around. The WSO also advised the SMC that they were talking with the driver. The vehicle had stopped about 20 m before the white gable markers that denote the runway strip. The vehicle did

² The [Advance Surface Movement Guidance and Control System \(A-SMGCS\)](#) uses data sent from aircraft and ground vehicles fitted with a transponder. This data is displayed pictorially on a screen in front of the surface movement controller in the tower, showing the position of aircraft and ground vehicles on a map of the airport. Those vehicles that are not fitted with a transponder are detected with the surface movement radar and their position is shown on the same screen. The A-SMGCS did not generate an alert, as the vehicle did not enter the runway strip.

a hard right turn and crossed back over the holding point at about 10:41:05 (Figure 3). About 3 seconds later, the Fokker 100 aircraft that had just landed on runway 21, passed the vehicle position. At this time, the estimated distance between the vehicle and the Fokker 100 was about 100 m. The crew of the Fokker 100 did not notice the vehicle.

Figure 3: Location of Fokker 100 aircraft landing on runway 21 and vehicle as it crossed back over the taxiway delta holding point for runway 21



Source: Airport operator, modified by ATSB

Vehicle driver comment

The vehicle driver indicated that the three passengers were new to the airside area of Perth Airport and they had used the delay to show the passengers the charter area that was on the same side of the airport as the domestic terminal. As they were traveling back to the international terminal, the driver saw, in the distance, the aircraft that they were to meet. The driver indicated that they were not familiar with the domestic area of the airport where the incident occurred, and they were focused on the aircraft that they needed to meet to complete their job, which also had time constraints.

The driver reported that as they approached the runway, they had stopped to allow the landing aircraft to pass before they saw the flashing lights of the WSO vehicle.

The driver reported that during the training to obtain the authority to drive airside (ADA), they would take every opportunity to gain more experience but would generally go to the same places.

The vehicle was not fitted with a VHF radio to communicate on or hear any of the air traffic control frequencies, nor was it required to be, as it was only authorised to travel on the perimeter road and apron areas.

The driver advised that there was no airport map or airside driving manual located in the vehicle.

Work safety officer comment

The WSO advised that the vehicle did not seem to be slowing down as they crossed the holding point and only seemed to start to slow when the WSO commenced calling on the loudspeaker.

The driver seemed confused and was focused on getting to the aircraft to complete their inspection, rather than where they were on the airport.

Airport operator comment

The airport operator conducted an investigation into the incident and determined that:

- The vehicle was not fitted with a transponder, as the vehicle was not permitted to access the airport manoeuvring area.

- The vehicle driver was issued with a category 2 authority to drive airside (ADA) in April 2016, which included approval to drive on all aprons and roadways but was not permitted on any taxiways or runways.
- The actions of the vehicle driver in leaving the marked perimeter roadway, traversing several taxiways and then crossing a marked runway holding point, were the actions of an individual confused with their location on the airport.
- The lost procedures for Perth Airport are promulgated in the airport driver-training programme and the Airside drivers pocketbook.

Safety analysis

The driver observed the aircraft they were scheduled to inspect and thought they were stationary on the domestic apron. They did not realise that the aircraft was being towed and was stopped at the holding point for runway 21. The driver entered the taxiways without a clearance and without having authorisation to do so. They became confused and crossed the holding point for runway 21. The WSO used their vehicle's siren, horn, and loudspeaker to alert the driver, and informed them that they were about to enter the runway and to stop immediately.

The driver was focused on completing a time critical activity in an area of the airport that they were not familiar with. These probably combined to affect the driver's ability to recognise that the aircraft they were to meet was being towed and stationary on a taxiway and not parked on the apron. The driver also did not identify that they had turned off the perimeter road and traversed several taxiways before crossing a holding point and entering an active runway.

Findings

These findings should not be read as apportioning blame or liability to any particular organisation or individual.

- The driver incorrectly assumed that the aircraft was parked on the domestic apron and in an effort to save time, entered several taxiways without the required approval and authorisation.
- The driver was confused with their location, as they were unfamiliar with that area of the airport, and continued traveling down taxiway D and crossed the holding point for runway 21 before the WSO stopped the vehicle.

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.

Airport operator

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

- A review of the zipper markings will be conducted in areas where taxiways cross roadways to provide an enhanced level of identification to airside drivers.
- The incident and lessons regarding airfield familiarity, lost procedures and general situational awareness will be communicated in an incident alert.
- Explore the option to implement an authority to drive airside (ADA) 'zoning system', to include a review of all organisations and their requirement to access different areas of the airport.
- Review the system of ADA categories to determine if there is scope to implement a system that controls the access of particular organisations to prevent them from entering areas that they do not have a requirement to regularly access.

Safety message

The International Civil Aviation Organisation (ICAO) has identified runway safety as one of its priorities and has been working with countries and aviation organisations globally to reduce runway safety accidents. ICAO has developed a runway safety [website](#), which offers a range of information and products to assist the aviation community to improve runway safety.

In addition, ICAO has published a [Manual on the Prevention of Runway Incursions Doc 9870 AN/463](#) and this is available from the ICAO website. The manual includes information on the prevention of runway incursions. The manual discusses that deficiencies in design, training, technology, procedures, regulations and human performance can result in a system break down and safety being compromised. It is important in a complex and dynamic airport environment that all people working in that environment remain vigilant, maintain open communications, and use the systems in place to minimise the risk of a system break down.

Additional information on runway safety is also available from the Airservices Australia webpage [Runway safety](#).

In addition, Airservices Australia has published a guide for airside drivers, [The Airside Drivers Guide to Runway Safety](#), which focuses on four aspects of operating safely on an aerodrome:

1. planning your aerodrome operation
2. aerodrome procedures
3. communications
4. aerodrome markings, signs and lights.

General details

Occurrence details

Date and time:	19 October 2016– 1041 WST	
Occurrence category:	Incident	
Primary occurrence type:	Runway incursion	
Location:	Perth Airport, Western Australia	
	Latitude: S 31° 56.42' S	Longitude: 115° 58.02' E

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 operations involving the travelling public.

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.