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**Australian Transport Safety Bureau**

# Taxiing collision involving Boeing 717, VH-NXN, and Fokker 100, VH-NHF

Paraburdoo Airport, Western Australia, 5 October 2016

**ATSB Transport Safety Report**  
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**Addendum**

Page	Change	Date

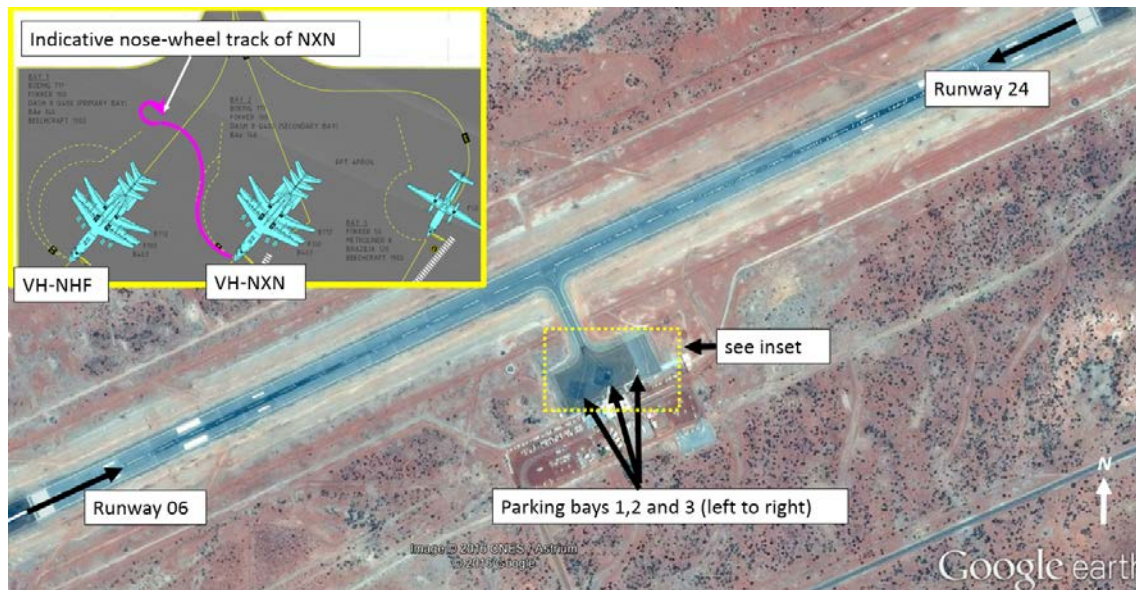
# Taxiing collision involving Boeing 717, VH-NXN, and Fokker 100, VH-NHF

## What happened

On 5 October 2016, at about 1600 Western Standard Time (WST), a Boeing 717 (B717) aircraft, registered VH-NXN (NXN), was being operated by Cobham Aviation Services as QantasLink, on a scheduled passenger flight from Paraburdoo Airport to Perth, Western Australia. On board were the captain, first officer, three cabin crewmembers and 115 passengers.

The aircraft had been parked on Bay 2 facing south-west towards the terminal building, and the flight crew planned to depart from runway 24 (Figure 1). The captain commenced taxiing, turning the aircraft around to the right in accordance with the normal taxi procedure. As the aircraft turned, the captain sighted a company B717 aircraft about to land on runway 06. The captain quickly assessed that due to limited apron space at Paraburdoo, they needed to taxi behind a Network Aviation Fokker F28 MK 0100 (F100) aircraft, registered VH-NHF (NHF), which was parked on Bay 1, also facing the terminal, to allow the inbound B717 room to pass and taxi to Bay 2, which they had just vacated.

**Figure 1: Paraburdoo Airport showing runways and parking bays**



Source: Google earth and aircraft operator – annotated by ATSB

After starting a left turn to taxi behind the F100, the captain was not confident there was sufficient clearance between the two aircraft, and asked the first officer to request a member of ground staff to come out as a ‘wing walker’.

An engineer for Network Aviation, who had been working on the F100, observed NXN taxiing. As NXN deviated from the painted taxi line, the engineer became concerned about the proximity of its left wingtip to the tail of the parked F100. As a result, as NXN taxied forward, the engineer checked the clearance between its wingtip and tail of the F100, and gave the captain the ‘thumbs up’ signal to indicate the aircraft was clear.<sup>1</sup> The captain assumed therefore that the aircraft was

<sup>1</sup> The NXN company operations manual stated that the thumbs up signal means you are clear to proceed.

clear and continued taxiing around the back of the F100, then turned the aircraft sharply around to the right (Figure 1 insert). The aim was to leave enough room for the inbound B717 to taxi past, and then continue onto the taxiway once they were clear.

The engineer had expected NXN to taxi towards the runway rather than turning around the back of the F100. The engineer immediately assessed that the horizontal stabilisers of the two aircraft may collide, and tried to signal the captain to stop, but was near the wing of the aircraft and no longer in the captain's sight. The engineer ran towards the front of the aircraft and waved to the captain to stop. The captain braked heavily. The crew did not feel a collision. Some hours later, it was determined that the horizontal stabiliser of NXN had slid under that of NHF, scraping the surface, and both aircraft sustained minor damage (Figure 2). The passengers and crew of NXN were not injured and no one was on board NHF.

**Figure 2: Horizontal stabiliser of NXN under that of NHF**



Source: Cobham Aviation Services

### ***Airport facilities***

Paraburdoo Airport had one taxiway from the runway to the apron area. There were three parking bays, but only two were suitable for F100 and B717 aircraft. Bay 1 was occupied by the F100, NHF, and NXN had been parked on Bay 2. It was also not possible for a B717 to turn around on the runway except at the thresholds due to pavement restrictions.

### ***Captain comments***

#### ***Awareness of inbound aircraft***

NXN was a few minutes late for their scheduled departure and the inbound B717 arrived several minutes earlier than scheduled. There was no procedure for the aircraft operator to notify pilots of the potential for multiple aircraft (from that company) to be at Paraburdoo at the same time.

The captain (and first officer) of NXN reported that they did not hear the inbound or final calls from the crew of the inbound B717. This may have been because at about the time of the inbound calls, the crew of NXN were resolving loadsheet issues with ground staff.

The captain commented that the ground staff were busy due to the arriving B717, and did not alert the crew of NXN to its imminent arrival. Furthermore, a wing walker was not at the parking bay when NXN started taxiing, which was the normal procedure.

The crew of NXN reported that they were not aware of the arriving B717 until they commenced taxiing. While the inbound aircraft had landed on runway 06, the conditions necessitated a departure from runway 24 for NXN.

***Non-normal taxi manoeuvre***

The captain reported that they would normally conduct a right turn out of the parking bay and taxi the aircraft directly onto the taxiway leading to the runway. This was what the crew were expecting to do until they sighted the inbound B717, landing in the opposite direction to their planned take-off direction.

When the captain of NXN saw the other B717 about to land on runway 06, they thought they were going to be ‘boxed in’ and formulated a plan in ‘about 10 seconds’ for the two B717s to pass on the apron area. The captain needed to formulate a plan with limited time available due to parking space constraints and noting that B717-size aircraft could only conduct 180° turns at the runway thresholds. The captain assessed that the only way they could pass the incoming B717 was to taxi behind the parked F100.

The captain later realised that they could have taxied to the runway 06 threshold, turned there, and taxied back to the runway 24 threshold, but that would have added about 2 km to their taxi and therefore increased fuel required.

***Engineer comments***

The engineer gave the ‘thumbs up’ having assessed that the wingtip of NXN would not collide with the (tail of the) F100, but did not expect the captain to continue taxiing around the parked aircraft. The engineer was only trying to ensure the aircraft did not collide having assessed the potential for a collision. They had not intended to act as a ‘wing walker’, did not know what the captain’s intentions were, and had no means of communicating with the captain other than by hand signals.

By the time the engineer assessed that there was insufficient clearance between the horizontal stabilisers of the two aircraft, they were no longer in sight of the captain. The horizontal stabiliser of NXN slid under that of the F100 before the engineer was able to signal the captain to stop.

***Ground crew resources***

The flight crew could not visually confirm the relative position of the two aircraft due to the limited view from the flight deck. Ground handling agent staff would normally have been available to assist the crew, but their attention had shifted to management of the inbound company aircraft. The first officer was about to request a wing walker from the ground staff, when the engineer appeared and signalled the captain.

The crew would have considered the use of ground vehicles if they had been available, but there was no infrastructure such as a tug or tow bar available at Paraburdoo.

**Safety analysis**

Due to the inbound aircraft and tarmac constraints, the flight crew assessed that a non-standard taxi manoeuvre was necessary to allow the two B717 aircraft to pass.

There was no wing walker in position on the tarmac to provide the crew with a more timely warning of the proximity of the tail to the tail of the F100, and with whom the crew could communicate to discuss their intentions. The crew were about to request a wing walker because the captain was not certain they would be clear of the F100, when the engineer from another company appeared.

Although the engineer used a standard hand signal, the crew interpreted the ‘thumbs up’ to mean that both the wing tip and tail were clear. The crew had not communicated with the engineer until the engineer gave the signal.

The engineer did not anticipate the sharp right turn of the aircraft after it had apparently passed the F100. The engineer was not in a position to warn the crew about the position of the tail once the sharp right turn had commenced.

## Findings

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

- The crew was unaware of the inbound company B717 until after taxi had commenced, then taxied on a non-standard path to accommodate entry of that aircraft onto the tarmac.
- A ground handling agent wing walker was not in place to assist the crew as they taxied.
- The inability to communicate verbally with the non-company engineer resulted in the crew interpreting the engineer's thumbs up signal as meaning the entire aircraft was clear of the parked aircraft.

## General details

### Occurrence details

Date and time:	5 October 2016 – 1630 WST	
Occurrence category:	Incident	
Primary occurrence type:	Taxiing collision	
Location:	Paraburdoo Airport, Western Australia	
	Latitude: 23° 10.27' S	Longitude: 117° 44.72' E

### Aircraft details: VH-NXN

Manufacturer and model:	The Boeing Company 717	
Registration:	VH-NXN	
Operator:	National Jet Systems (Cobham Aviation Services) as QantasLink	
Serial number:	55095	
Type of operation:	Air transport high capacity – Passenger	
Persons on board:	Crew – 5	Passengers – 115
Injuries:	Crew – 0	Passengers – 0
Aircraft damage:	Minor	

### Aircraft details: VH-NHF

Manufacturer and model:	Fokker Aircraft BV F28	
Registration:	VH-NHF	
Operator:	Network Aviation	
Serial number:	11458	
Type of operation:	Air transport high capacity – Passenger	
Persons on board:	Crew – 0	Passengers – 0
Injuries:	Crew – 0	Passengers – 0
Aircraft damage:	Minor	

## 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.