



Australian Government

Australian Transport Safety Bureau

Runway incursion involving Beech Aircraft Corp. 58, VH-NSK

Bankstown Airport, New South Wales, on 26 October 2021

ATSB Transport Safety Report

Aviation Occurrence Investigation (Short)

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Addendum

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Safety summary

What happened

On the 26 October 2021, a Beech Aircraft Corp. 58, registered VH-NSK, operated by Little Wings Limited, was prepared for a private flight from Bankstown Airport, New South Wales. The purpose of the flight was to test the stall warning system following maintenance. The pilot was the sole person on board.

The aircraft was cleared to enter and line up on runway 29 right (29R) however, the pilot crossed the runway and entered occupied runway 29 centre (29C) without a clearance. As the pilot was cleared to take-off, the controller identified the error and instructed the pilot to hold position on the runway. At the same time, the pilot detected an Embraer 190, which was conducting high power engine runs on the upwind end of runway 29C and did not commence the take-off.

What the ATSB found

The ATSB found that the pilot typically departed Bankstown from the centre runway, under the instrument flight rules procedures. This likely created an expectation that they were using this runway, despite reading back the correct runway to the controller. This resulted in them crossing runway 29R and entering runway 29C without a clearance.

Additionally, while the air traffic controller watched the aircraft enter 29R, due to subsequent focused attention on two helicopters in the vicinity of the airport, they did not identify its continued movement on to the occupied runway 29C.

Safety message

This incident illustrates the importance of pilots focusing on the specific instructions given by air traffic controllers. In 2012, the United States Federal Aviation Administration Safety Team (FAAS Team) released notice NOT4214 [Pilot safety tip – Expectation bias](#) stating that ‘analysis of runway incursion data shows that expectation bias is one of the most common causal factors for pilot deviations’.

The notice went on to say that pilots ‘need to understand that expectation bias often affects the verbal transmission of information. When issued instructions by air traffic control, pilots should “focus on listening and repeat to yourself exactly what is said in your head — and then apply that information actively”.’

Runway incursions remain an ongoing safety concern globally. In October 2016, Airservices Australia released [A pilot’s guide to Runway Safety](#). This guide focused on seven important areas in surface operations and identified safety measures to help reduce the errors that lead to runway incursions. In addition, Airservices Australia have released specific guidance for pilots flying at Bankstown Airport [Tips for flying at Bankstown](#), along with tips for flying at other metropolitan airports: [Moorabbin](#), [Parafield](#), [Jandakot](#) and [Archerfield](#).

The investigation

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 investigation was conducted in order to produce a short investigation report, and allow for greater industry awareness of findings that affect safety and potential learning opportunities.

The occurrence

On the morning of 26 October 2021, a Beech Aircraft Corp. 58, registered VH-NSK and operated by Little Wings Ltd, was prepared for a private flight under the visual flight rules (VFR) from Bankstown Airport, New South Wales (Figure 1). The purpose of the flight was to test the aircraft's stall warning system following maintenance. The pilot was the sole person on board.

Figure 1: VH-NSK



Source: JETPHOTOS, Gavin Louis, modified by the ATSB

The operator had requested that the pilot conduct the test flight prior to conducting an instrument flight rules (IFR) flight, later that day. The pilot advised that they had not flown under the VFR or to the Bankstown training area for over 40 years. As such, they prepared themselves by researching the airspace around Bankstown Airport and revising the procedures for the flight test.

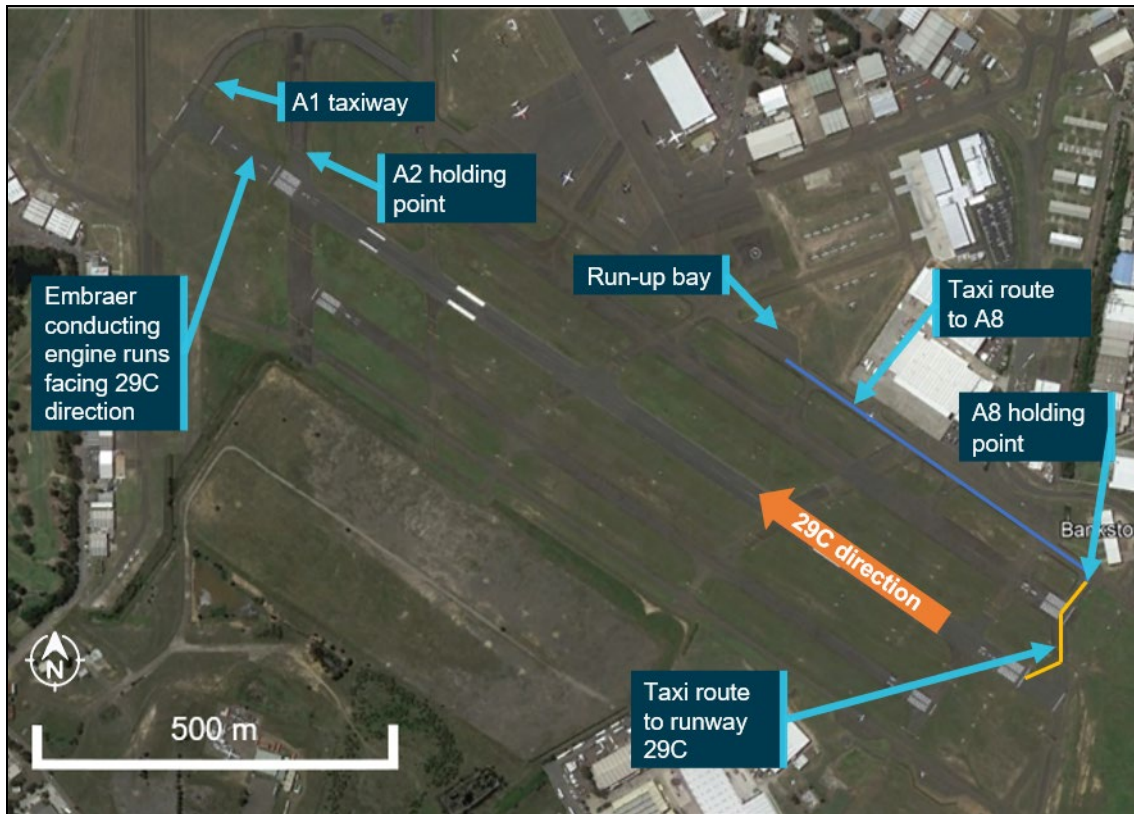
The next morning, the pilot conducted their normal pre-flight checks and started the engines. As the pilot taxied across the apron, they contacted the Bankstown surface movement controller (SMC), to obtain their taxi clearance. The SMC instructed them to taxi to holding point A8 for runway 29R¹ (Figure 2). This clearance automatically included an approval for the aircraft to enter a run-up bay to conduct the pre-flight engine checks and then taxi to the runway holding point. The pilot was not aware of this and advised the SMC that they needed to taxi to the run-up bay, which the SMC advised they were cleared to do. During this exchange, the pilot advised the SMC that they had not been to the Bankstown training area for over 40 years.

As the pilot was conducting their engine checks in the run-up bay, the crew of an Embraer 190 (Embraer) requested, and received, clearance to taxi to holding point A2 (Figure 2), the upwind end of runway 29C, to conduct high power engine runs for maintenance purposes.

¹ Runway number: the number represents the magnetic heading of the runway. The runway identification may include L, R or C as required for left, right or centre.

When the pilot of NSK completed their checks in the run-up bay, they clarified with SMC that they were approved to taxi to holding point A8. The SMC confirmed they were approved and instructed them to contact Bankstown Tower at the holding point.

Figure 2: Bankstown Airport showing the route NSK took to the holding point



Source: Google Earth, annotated by ATSB

At 1114, the crew of the Embraer contacted Bankstown Tower and was cleared to enter runway 29C.

On reaching holding point A8, the pilot of NSK changed frequency to Bankstown Tower. At 1117, they contacted the Tower controller and advised they were 'on A8 holding short of runway 29R ready for an upwind departure'. The Tower controller instructed them to hold position.

At 1118, the Tower controller instructed 'NSK runway 29R line up and wait'. The pilot read back 'line up and wait right NSK'. The Tower controller advised that aircraft would initially taxi along the same path if they were crossing runway 29R or lining up on that runway to depart.

After watching NSK commence taxiing, the Tower controller directed their attention to two helicopters. One helicopter was operating north of Bankstown Airport, with a second departing to the north. The Tower controller passed traffic information to both helicopter pilots, to assist them to identify each other. During the period the Tower controller's attention was diverted, NSK crossed runway 29R, then entered and lined up on runway 29C.

At 1119:23, after the helicopter pilots advised they had each other sighted, the Tower controller instructed 'NSK runway right clear for take-off'. As they were finishing the instruction, they detected that NSK was on 29C and immediately instructed 'NSK hold position, hold position you are lined up on Centre, hold position'. The controller then instructed NSK to 'Stop, hold position'. At 1119:35 the controller again instructed 'NSK Stop, hold position' and 5 seconds later stated 'NSK Stop, stop, stop, hold position'.

At this time, the Bankstown tower frequency had at least one occasion, where a pilot over transmitted while the controller was broadcasting on the radio.

The pilot of NSK advised that as they were turning to line up on the runway, the controller cleared them to take-off. They immediately detected an Embraer at the other end of the runway and reported they advised the controller that there was a jet on the runway and they would hold position, however this was not heard by the controller. This was likely the over transmission on the frequency. At 1119:42 the pilot of NSK read back 'NSK Stop, stop, stop, holding position'.

At 1121, after giving instructions to a number of other aircraft in the area, the controller instructed the pilot of NSK to hold short of runway 29R. The pilot of NSK responded by stating 'I am holding at the threshold 29'. The controller then advised 'NSK you are currently lined up on 29C hence why I told you to hold position. Vacate to the right and hold short of runway 29R'. NSK responded 'Roger, vacating to the right hold short of 29R, NSK'.

The Embraer completed their engine runs and exited the runway onto taxiway A1, taxiing around runway 29R (Figure 2).

The controller then cleared NSK to enter and take off from runway 29R. The pilot advised they observed the Embraer taxiing at the end of the runway, but they were unsure if the Embraer was on the runway or was on the taxi way behind the runway. They advised that they waited until the Embraer had cleared the take-off overrun, before commencing the departure. The test flight and return to Bankstown were conducted without issue.

Context

Pilot

The pilot held an Air Transport Pilot's Licence (Aeroplane) with over 23,500 hours of aeronautical experience.

They were volunteering their time to fly for the operator while they were stood down from an airline which had reduced international flights due to COVID 19 restrictions. The pilot had been flying the Beech Aircraft Corp. 58 regularly on IFR flights for the previous 18 months, with their most recent flight being circuits on the night before the incident.

They advised that they felt uncomfortable doing a VFR flight to the training area due to the different procedures and had never departed from runway 29R prior to that day. They reported that they thought the controller had instructed them to use runway 29C and had no recollection of reading back 29R.

They advised they had slept well and were fit and healthy.

Air traffic controller

The controller had almost 20 years experience, with around 14 years at Bankstown Airport. They advised they were feeling 'fine' at the time, having received their normal amount of sleep over the previous days. They had been operating as the tower controller for about 15 minutes prior to the occurrence and advised that they did not consider the workload to be high.

Bankstown Airspace

Bankstown Airport uses Class D airspace procedures. It has three parallel runways aligned in the 29/11 direction (Figure 2). When runway 29 was the operational runway:

- runway 29R was used for departing and arriving VFR aircraft
- 29C was used for departing and arriving IFR aircraft and overflow if 29R was busy
- 29L was used mainly for circuits.

When the airport was busy, 29L was controlled by one controller and 29 R and C were controlled by a second controller. When it was quiet, a single controller controlled all three runways.

On this morning, the tower controller was controlling all three runways. There were two aircraft in the circuit area, two aircraft inbound, a helicopter operating north of the airport and another helicopter departing to the north.

Safety analysis

The experienced pilot had been conducting IFR flights for the operator on a regular basis over the previous 18 months. On these flights, they had only conducted IFR departures using the centre runway. This most likely led to them having an expectation they were going to depart from runway 29C. According to [Skybrary Flight crew expectation bias](#):

Expectation bias occurs when a pilot hears or sees something that he or she expects to hear or see rather than what actually may be occurring. That expectation often is driven by experience or repetition. For example, if a pilot is regularly cleared to cross a particular runway during operations at a familiar aerodrome, he/she may come to “expect” the clearance. This could cause a potentially dangerous situation if on a particular day, the pilot actually is instructed not to cross the runway in question due to another aircraft landing or taking off.

Despite confirming the instruction to line up and wait on runway 29R, the pilot reported no recollection of this. It is likely the pilot was thinking ahead to conducting the VFR departure, narrowing their focus to their actions after the departure. Consequently, their attention was probably not on the clearance to enter the runway, rather reverting to what they had done previously.

The controller had no indication from the pilot’s readback that the pilot had a different understanding of what was instructed. Therefore, when the aircraft commenced taxiing as expected, they diverted their attention to other tasks.

Both the pilot and the controller detected an issue and stopped the departure prior to the aircraft commencing the take-off run, although at this stage the pilot was still unaware they were not on their cleared runway.

The air traffic control system is dependent on radio communication which requires both pilots and controllers to clearly and accurately articulate what they are doing. An analysis of runway incursion data conducted by the United States Federal Aviation Administration Safety Team in 2012, found that expectation bias is one of the most common contributing factors to pilots deviating from a clearance instruction.

Findings

ATSB investigation report findings focus on safety factors (that is, events and conditions that increase risk). Safety factors include ‘contributing factors’ and ‘other factors that increased risk’ (that is, factors that did not meet the definition of a contributing factor for this occurrence but were still considered important to include in the report for the purpose of increasing awareness and enhancing safety). In addition ‘other findings’ may be included to provide important information about topics other than safety factors.

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

From the evidence available, the following findings are made with respect to the runway incursion involving Beech Aircraft Corp. 58, VH-NSK at Bankstown Airport, New South Wales, on 26 October 2021.

Contributing factors

- Despite correctly acknowledging the clearance to enter and line up on runway 29R, the pilot crossed runway 29R and entered runway 29C without a clearance, probably due to expectation bias associated with previous operation only from 29C.

- The controller watched VH-NSK enter 29R however, due to subsequent focused attention on two helicopters in the vicinity of the airport, they did not identify its continued movement on to the occupied runway 29C.

Sources and submissions

Sources of information

The sources of information during the investigation included the:

- pilot
- controller
- Airservices Australia

References

SKYbrary, [Flight crew expectation bias](#)

Federal Aviation Administration (FAA) Safety Team 2012, [Pilot Safety Tip – Expectation Bias](#)
Notice number NOT4214, September 2012

Submissions

Under section 26 of the *Transport Safety Investigation Act 2003*, the ATSB may provide a draft report, on a confidential basis, to any person whom the ATSB considers appropriate. That section allows a person receiving a draft report to make submissions to the ATSB about the draft report.

A draft of this report was provided to the following directly involved parties:

- pilot
- controller
- Airservices Australia
- Little Wings Limited

No submissions were received.

General details

Occurrence details

Date and time:	26 October 2021 – 1149 EST	
Occurrence class:	Incident	
Occurrence categories:	Runway Incursion	
Location:	Bankstown Airport, New South Wales	
	Latitude: 33° 55.47' S	Longitude: 150° 59.3' E

Aircraft details

Manufacturer and model:	Beech Aircraft Corp. 58	
Registration:	VH-NSK	
Operator:	Little Wings Limited	
Serial number:	TH-106	
Type of operation:	Private – test and ferry	
Activity:	General aviation – test flight	
Departure:	Bankstown Airport, New South Wales	
Destination:	Bankstown Airport, New South Wales	
Persons on board:	Crew – 1	Passengers – 0
Injuries:	Crew – Nil	Passengers – N/A
Aircraft damage:	None	