Australian Government
Australian Transport Safety Bureau

Aircraft proximity event between a Cessna 172, VH-NUU and a Beech F33A, VH-ZBZ

Archerfield Airport, Queensland, 7 October 2013

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Aviation Occurrence Investigation
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Addendum

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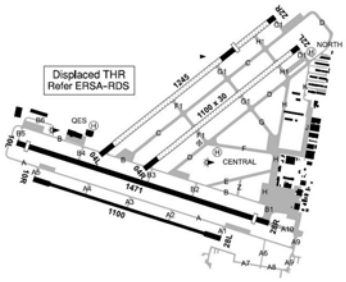
Aircraft proximity event between a Cessna 172, VH-NUU and a Beech F33A, VH-ZBZ

What happened

On 7 October 2013, at about 1830 Eastern Standard Time (EST),[1] the pilot of a Cessna 172 aircraft, registered VH-NUU (NUU), commenced night circuits at Archerfield Airport, Queensland, where common traffic advisory frequency (CTAF) procedures were in place.[2] He reported that there were also four other aircraft and a helicopter conducting night circuits at the time. The active runway was runway 10.

Archerfield Airport



Source: Airservices Australia

The pilot of NUU reported that the aircraft in the circuit were flying a 'modified' circuit with a longer downwind leg due to a strong tailwind and were flying a slower, larger circuit to make allowance for a helicopter that had been conducting stop-and-go circuits.

At about 1850, the pilot of a Beech F33A aircraft, registered VH-ZBZ (ZBZ), was conducting a private flight from Hervey Bay to Archerfield. While on descent to Archerfield, prior to leaving controlled airspace, the pilot of ZBZ was advised by Brisbane air traffic control that there were four or five aircraft in the circuit area.

At about 1856, ZBZ joined the circuit between an aircraft on downwind and another on upwind (Figure 1). The pilot reported that, after turning onto downwind, he had the aircraft in front of him (NUU) sighted also on downwind and so he extended the downwind leg to maintain separation with NUU.

At about 1857 (Figure 2), the pilot of NUU broadcast that he was turning onto base and about 20 seconds later the pilot of ZBZ also broadcast that he was turning onto base for runway 10.

At about 1858 (Figure 3), the pilot of ZBZ commenced turning onto final and then broadcast that he was established on final. He reported that, at that time, he had sighted an aircraft well ahead on late final and believed it was NUU. The pilot of NUU immediately broadcast that he was also on final.

At about 1859 (Figure 4), the pilot of ZBZ saw NUU below his aircraft. The pilot of ZBZ conducted a go-around and NUU continued the approach.

Airservices Australia surveillance data indicated that the vertical separation reduced to 300 ft.

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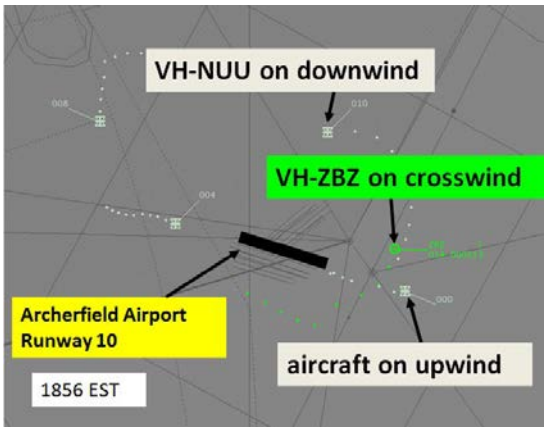
1 Eastern Standard Time (EST) was Coordinated Universal Time (UTC) + 10 hours.

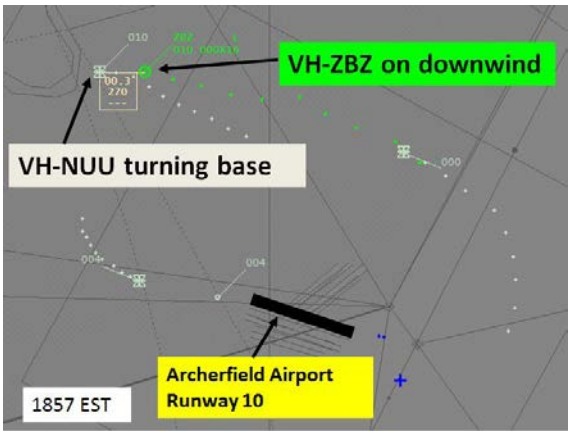
2 Archerfield Tower provides air traffic services within Class D airspace during tower hours. Outside tower hours the airspace becomes Class G and common traffic advisory frequency (CTAF) procedures apply.

Figure 1: Aircraft positions at 1856



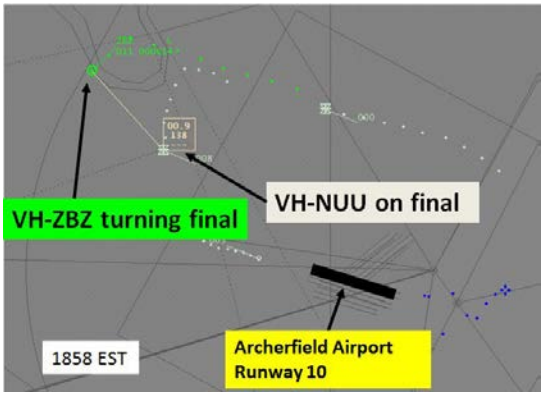
Source: Airservices Australia

Figure 2: Aircraft positions at 1857



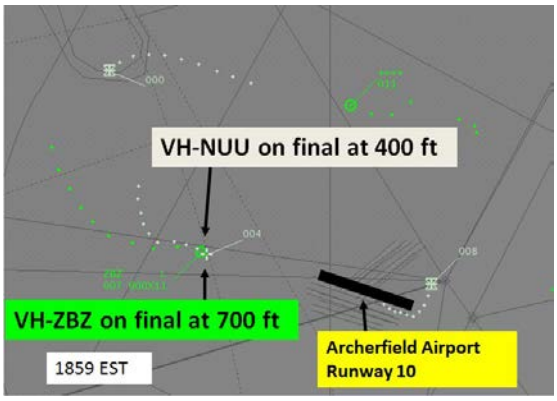
Source: Airservices Australia

Figure 3: Aircraft positions at 1858



Source: Airservices Australia

Figure 4: Aircraft positions at 1859



Source: Airservices Australia

Pilot comments (VH-ZBZ)

The pilot of ZBZ provided the following comments:

- After turning base, he sighted an aircraft in front of NUU on late final and mistook it for NUU.
- NUU had descended lower than ZBZ on base and he was looking along his projected glidepath. NUU was not where he had expected it to be.
- As NUU was below ZBZ's approach path, the aircraft was difficult to see due to the lights from the residential area below.
- NUU appeared to diverge to the left on final and he thought it was a helicopter approaching to land on the taxiway to the left of runway 10, as had occurred on previous occasions.

Pilot comments (VH-NUU)

The pilot of NUU provided the following comments:

- There were five company aircraft in the circuit conducting solo circuits. There was a duty instructor on the ground, who had conducted a safety briefing prior to the flight.
- Having the Archerfield air traffic control tower active when multiple aircraft were conducting night circuits would assist in providing separation between aircraft in the circuit and arriving aircraft.
- A helicopter conducting circuits had been doing stop-and-go landings. All the other aircraft slowed down and extended the downwind leg of the circuit to maintain their position in the circuit relative to the helicopter.

Airservices Australia comments

Airservices Australia advised the ATSB that hours of operation at non-continuous air traffic control towers are determined following a review of traffic levels outside of tower hours. The review process considers air traffic levels outside tower hours of operation utilising information gained from the airport owner, local flying organisations and statistical analysis.

Airservices has not identified any consistent traffic trends indicating that a change to the air traffic controller hours at Archerfield Airport is required.

Safety message

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. One of the safety concerns is safety around non-towered aerodromes www.atsb.gov.au/safetywatch/safety-around-aeros.aspx.

Between 2003 and 2008, 709 occurrences in the vicinity of non-towered aerodromes were reported to the ATSB, of which 181 involved reduced separation between aircraft. Thirty-two incidents involved aircraft coming close to each other when both were on final approach. Research conducted by the ATSB also found that there was a higher risk of mid-air collisions when aircraft come too close to each other on final approach or base leg. *A pilot's guide to staying safe in the vicinity of non-towered aerodromes* is available on the ATSB website at www.atsb.gov.au/publications/2008/ar-2008-044(1).aspx.

In addition, the Civil Aviation Safety Authority Civil Aviation Advisory Publication (CAAP) 166-1(1), states that most collisions occur on downwind or final approach and that night circuits require increased vigilance. Good height and speed control to maintain separation is essential. The turn onto final should be completed by not less than 500 ft above aerodrome elevation to allow time to ensure the runway is clear for landing and for the aircraft to be stabilised for the approach and landing. The CAAP is available at www.casa.gov.au/wcmswr/_assets/main/download/caaps/ops/166-1.pdf.

Maintaining a vigilant lookout at all times and standardisation of the circuit pattern is important for safe operations in the vicinity of non-towered aerodromes.

General details

Occurrence details

Date and time:	7 October 2013 – 1855 EST	
Occurrence category:	Serious incident	
Primary occurrence type:	Airprox	
Location:	Archerfield Airport, Queensland	
	Latitude: 27° 34.22' S	Longitude: 153° 00.48' E

Aircraft details: VH-NUU

Manufacturer and model:	Cessna Aircraft Company 172R	
Registration:	VH-NUU	
Serial number:	17280366	
Type of operation:	Flying training - solo	
Persons on board:	Crew – 1	Passengers – Nil
Injuries:	Crew – Nil	Passengers – Nil
Damage:	Nil	

Aircraft details: VH-ZBZ

Manufacturer and model:	Beech Aircraft Corporation F33A	
Registration:	VH-ZBZ	
Serial number:	CE-1200	
Type of operation:	Private	
Persons on board:	Crew – 1	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 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 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.