

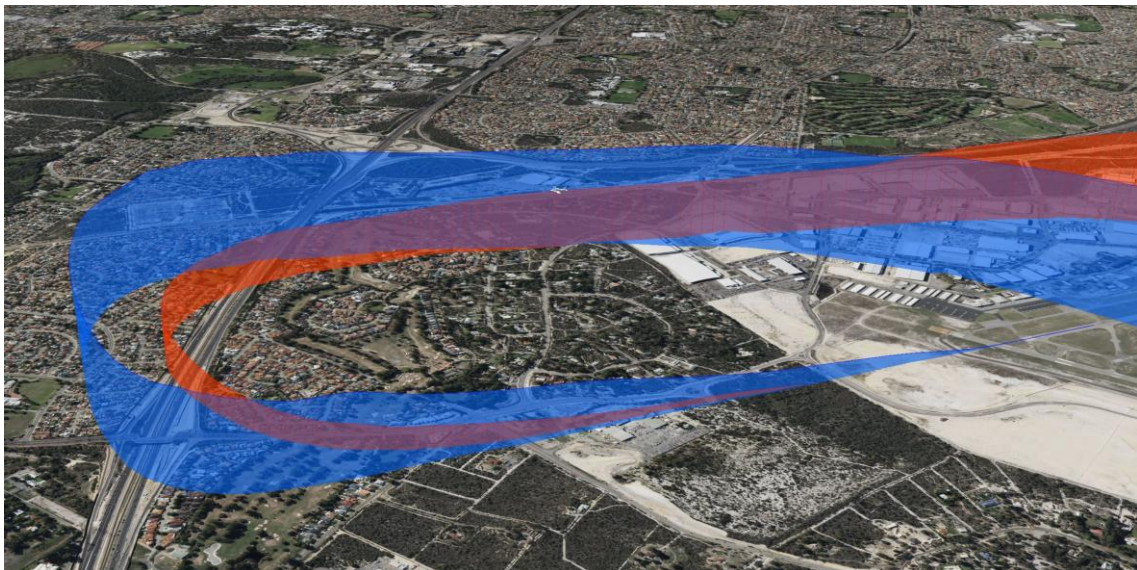


Australian Government

Australian Transport Safety Bureau

Separation occurrence involving Piper PA-44, VH-KZJ, and Cessna 172, VH-ZER

Near Jandakot Airport, Western Australia, on 12 June 2025



ATSB Transport Safety Report

Aviation Occurrence Investigation (Defined)

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Investigation summary

What happened

On 12 June 2025, a student pilot conducting a solo navigation flight in a Piper PA-44 was returning to Jandakot Airport, Western Australia, at the same time a Cessna 172 was approaching the airport from the training area. Air traffic control (ATC) directed the pilot of the faster PA-44 to overtake the C172 as they approached the circuit area. However, the PA-44 did not pass the C172 prior to joining the circuit and, consequently, ATC amended their instruction to the pilot of the PA-44, instructing them to 'follow the Cessna' and instructed the C172 pilot to join downwind and land first.

Despite that instruction, the pilot of the PA-44 continued to overtake the C172 as per the previous instruction, by accelerating, descending and turning inside the C172.

What the ATSB found

The ATSB found that the PA-44 pilot did not identify the final part of the amended instruction to 'follow the Cessna', likely due to receiving an unexpected cockpit traffic alert at the time the approach clearance was issued. Consequently, the PA-44 pilot passed the C172 as per the original clearance, resulting in reduced separation between the 2 aircraft.

The ATSB also found that, although a key element of the revised approach clearance, the pilot's incomplete readback was not corrected by the controller as the Manual of Air Traffic Services did not explicitly require sequencing instructions to be read back. This was a missed opportunity to resolve the situation and, more generally, provided no assurance that this safety-critical aspect had been correctly understood.

What has been done as a result

Following the incident, the operator of both aircraft completed a presentation to students regarding compliance with ATC instructions and conducted a flight with the incident pilot to assure circuit rejoin procedures and to regain their confidence. Similar flights were also conducted with other student pilots at the company. Additionally, the operator and Airservices have engaged to better understand the challenges with student training at Jandakot.

In addition, Airservices Australia advised that the Air Traffic Management Standards and Senior Air Traffic Services Specialists conducted a review, and will investigate a change to Manual of Air Traffic Services 9.2.2.13.2 and the respective Aeronautical Information Publication reference (GEN 3.4 – 37) to include the instruction 'follow' in the list of items requiring readback.

Safety message

This incident highlights the importance of ensuring that all parties have an accurate situational understanding, especially when plans change. Sequencing of aircraft is a safety critical component of assuring separation and needs to be unambiguous for all. For flight crew, they should seek confirmation from controllers if they are unsure of what is required of them or if the picture doesn't look right. Similarly, if there is any doubt, ATC should confirm that pilots have a correct understanding of sequencing requirements.

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The occurrence

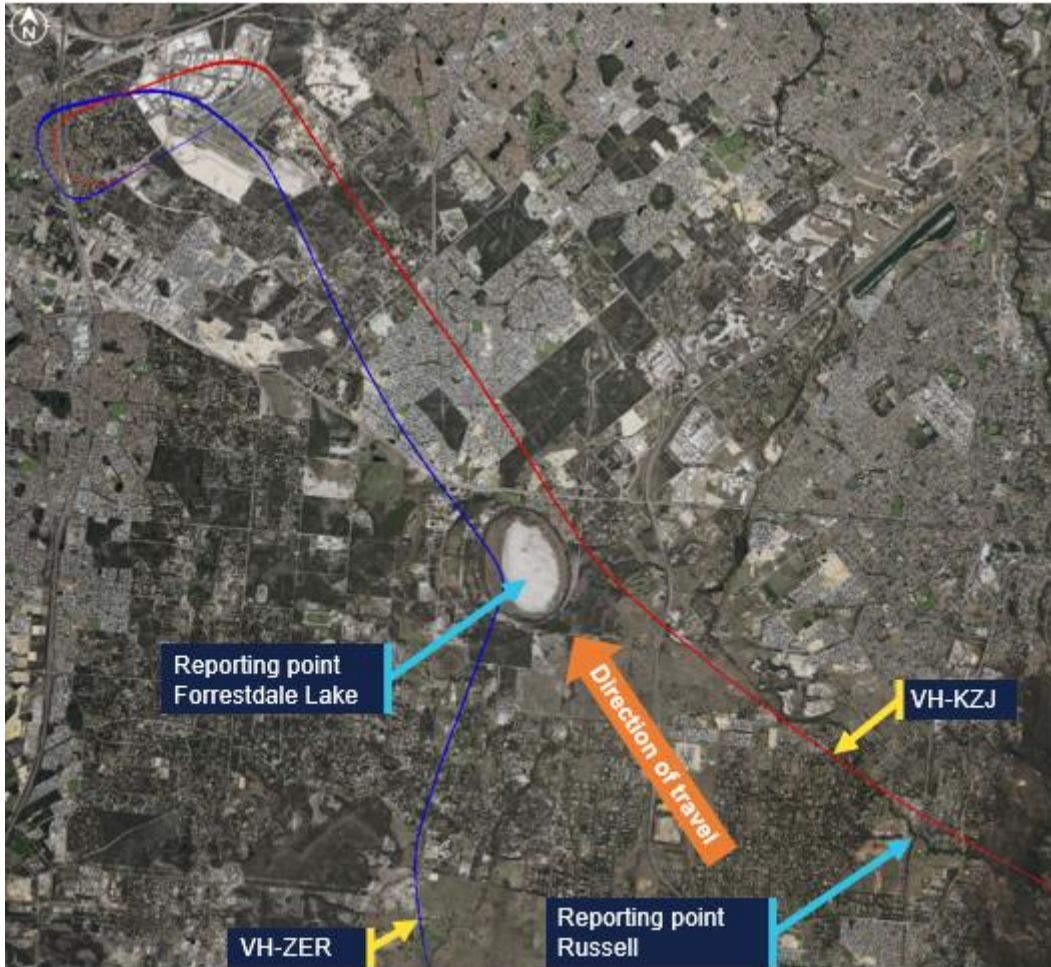
At 1124 local time on 12 June 2025, a pilot conducting a navigation flight in a Piper Aircraft Inc. PA-44-180 (PA-44) aircraft, registered VH-KZJ, was inbound to the circuit area at Jandakot Airport, Western Australia. The flight was the third solo flight for the pilot in a twin-engine aircraft, and their first time operating VH-KZJ. At the same time, a Cessna 172 (C172) aircraft, registered VH-ZER, was also inbound to Jandakot Airport, with an instructor and student on board after conducting a training flight.

The runway in use at Jandakot was 06L¹ and local procedures required aircraft to contact air traffic control (ATC) at specified approach points (in this instance Oakford and Russell) then track to Forrestdale Lake. From there, aircraft were to fly overhead the airport at 1,500 ft above mean seal level (AMSL) towards the north and join the circuit as directed by Jandakot Tower (Figure 1).

As the PA-44 was passing the inbound reporting point Russell, ATC passed traffic information on the C172 inbound to the circuit area via the Forrestdale Lake inbound reporting point (Figure 1). With the PA-44 being the faster aircraft, ATC instructed the PA-44 pilot to overtake the C172 on the right which was acknowledged by the PA-44 pilot by a callsign response. The pilot then reported at Forrestdale Lake with the C172 in sight. Both aircraft were at 1,500 ft.

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.

Figure 1: Aircraft inbound tracks



Source: Google Earth with flight radar tracking, annotated by the ATSB

Despite the ATC instruction to overtake the C172, the pilot in the PA-44 reduced the engine power to circuit power, which resulted in the aircraft slowing down. As such, the PA-44 did not overtake the C172 prior to joining the downwind leg of the circuit.²

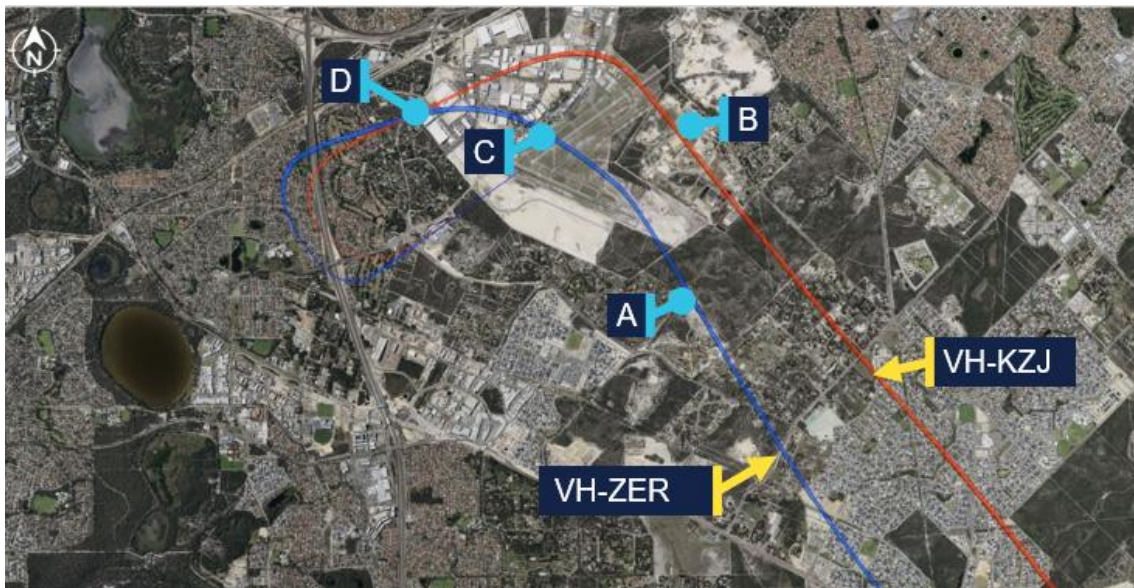
Observing that the PA-44 had not overtaken the C172 as they had anticipated, the controller changed their sequencing plan to have the C172 land first. The table below details the exchange between the pilots and controller and Figure 2 shows where these calls were in relation to the flight paths.

² The leg of the circuit pattern where the aircraft is flying parallel to the runway but opposite to the direction of landing.

Table 1: Communication

	Time	From	To	Transcript
A	1127:55	Controller	C172	ZER make a left turn, join late downwind RWY 06L maintain 1,500
		C172	Controller	Take a left turn join late downwind 06L and maintain 1,500 ZER
B	1128:13	Controller	PA-44	KZJ join downwind from that heading, cleared visual approach and follow the Cessna out to your left joining late downwind, high mid downwind
	1128:20	PA-44	Controller	Join downwind clear, 06L, cleared visual approach KZJ
C	1128:28	Controller	C172	ZER cleared visual approach you're number one
		C172	Controller	Cleared visual approach, number one ZER
D	1128:58	Controller	C172	ZER that twin has cut you off they're low in your 12 o'clock
		C172	Controller	Yeah we've got the company twin, we'll make number two to them ZER
		Controller	C172	ZER thanks

Figure 2: Aircraft track with ATC clearances



Source: Google Earth with flight radar tracking, annotated by the ATSB

The pilot in the PA-44 reported that, as ATC was issuing its approach clearance, the traffic advisory system (TAS) in the aircraft began audibly alerting. The pilot later advised they were not familiar with the TAS and had never heard the audible alert before. They reported that as their attention was focused on the alert, they did not hear the sequencing part of the instruction to ‘follow the Cessna’. As such, they did not repeat this part of the instruction during the readback of their clearance and believed they were still cleared to pass the C172.

They further advised they had always previously been required to read back the complete sequencing instruction and as they were not prompted for any further readback on this occasion, did not consider that they had not heard the instruction correctly.

The PA-44 continued to overtake the C172 on downwind by descending and accelerating, and then turning inside the C172. The pilot recalled that they thought the sight picture of the close overtake 'did look a bit odd', but did not consider questioning the controller.

The instructor in the C172 was also an instructor of the pilot in the PA-44. When hearing their student's interactions with ATC, they were concerned that the pilot may not have understood the intention of ATC. As such the instructor ensured they maintained visual contact with the PA-44 throughout the sequence.

Both pilots reported that they could see the other aircraft for the duration of the incident.

Context

Pilot details

The pilot of the Piper Aircraft PA-44 held a private pilot licence (aeroplane) and had a class 1 aviation medical certificate. They were undergoing training to obtain their commercial pilot licence (aeroplane) and had a total of 128 hours of flying experience, of which 22 were on the PA-44. They had flown 37 hours in the previous 90 days.

The instructor of the Cessna Aircraft Company 172 (C172) held a commercial pilot licence (aeroplane) with a class 1 aviation medical certificate. They held an instructor and instrument flight rating. They had a total of 1,200 hours of flying experience, of which 390 were on the C172. They had flown 155 hours in the previous 90 days.

Aircraft details

The Piper Aircraft Inc PA-44-180 is 4-seat, low-wing, retractable-undercarriage aircraft with 2 piston engines. VH-KZJ was equipped with the Garmin G1000 avionics suite and optional traffic advisory system (TAS).

The Cessna Aircraft Company 172S is a 4-seat, high-wing, fixed-undercarriage aircraft with one piston engine.

Training

The operator advised that VH-KZJ was the only aircraft in its fleet fitted with the optional traffic advisory system (TAS) with the avionics suite (G1000) and it does not provide formal syllabus training on the TAS. A general awareness was provided during a dual flight, where the TAS system test was conducted as part of the PA-44 (G1000) Normal Checklist – After Start Checklist.

Provision of separation in Class D airspace

In accordance with Aeronautical Information Publication Enroute 1.4-13 as both aircraft were operating under Visual Flight Rules (VFR) in Class D airspace there was no requirement for Air Traffic Control (ATC) to provide separation.

Readback requirements

Airservices [Safety net – operating in Class D airspace](#) highlighted the importance of correct readbacks from pilots to prevent frequency congestion. As part of this guidance, it referred pilots to Aeronautical Information Publication (AIP) General (GEN) 3.4.

AIP GEN 3.4 6.6 *General Phrases* provided the following phraseology when a pilot was assigned and required to maintain separation with a sighted aircraft:

when a pilot is assigned and required to maintain separation with a sighted aircraft ATC are to use the phrase FOLLOW (*or* MAINTAIN OWN SEPARATION WITH [AND PASS BEHIND]) (*aircraft type or identification*) [*instructions or restrictions*].

Manual of Air Traffic Services (MATS) pilot readback requirements stated:

Obtain a readback in sufficient detail that clearly indicates a pilot's understanding of and compliance with all ATC clearances, including conditional clearances, instructions and information which are transmitted by voice.

MATS further stated that readback discrepancies must be immediately corrected by the controller.

The controller later advised that the 'follow the' instruction was not required to be read back as part of the [key elements] readback requirements in MATS (Figure 3), and therefore there was no reason to correct the incomplete readback.

Airservices Australia later confirmed it does not require 'follow the' type instructions to be read back.

Figure 3: Manual of air traffic services

9.2.2.13	Pilot readback	Obtain a readback in sufficient detail that clearly indicates pilot's understanding of and compliance with all ATC clearances, including conditional clearances, instructions and information which are transmitted by voice.
9.2.2.13.1	ATC route clearance	Obtain a readback of an ATC route clearance in its entirety, as well as any amendments.
9.2.2.13.2	Key elements	<p>Obtain a readback of the key elements of the following ATC clearances, instructions and information:</p> <ul style="list-style-type: none"> a) en route holding instructions; b) any route and runway-holding position specified in a taxi clearance; c) any clearances or instructions to hold short of, enter, land on, line up on, wait, take-off from, cross, taxi or backtrack on, any runway or HLS; d) an assigned runway or HLS; e) any approach clearance; f) altimeter settings directed to specific aircraft, radio and radio navaid frequency instructions; g) SSR codes and data link logon codes; and h) level instructions, direction of turn, heading and speed instructions. <p>Note: <i>Pilots are not required to read back an expectation of the runway to be used.</i></p>
9.2.2.13.3	Readback discrepancies	Correct readback discrepancies immediately.

Safety analysis

When the air traffic controller identified that the PA-44 had not overtaken the C172 as expected, they amended the PA-44 pilot's approach clearance to require them to follow it as the second aircraft in the landing sequence. However, when the amended clearance was issued, the pilot's attention was focused on the aural alert from the traffic advisory system and they did not identify the final part of the instruction to 'follow the Cessna'. Consequently, and despite recognising that the sight picture was 'looking a bit odd', the PA-44 pilot passed the C172 as per the original clearance, resulting in reduced separation between the 2 aircraft.

Contributing factor

The PA-44 pilot did not identify the final part of the amended instruction to 'follow the Cessna'. Consequently, the PA-44 pilot passed the C172 as per the original clearance, resulting in reduced separation between the 2 aircraft.

Having missed the requirement in the amended clearance to follow the C172, the PA-44 pilot did not include the sequencing information in their readback. Although this was a key element of the revised approach clearance, the pilot's incomplete readback was not corrected by the controller as they considered that the pilot was not required to read back that instruction. This was a missed opportunity to resolve the situation.

Contributing factor

Although a key element of the revised approach clearance, the pilot's incomplete readback was not corrected by the controller as they considered that the pilot was not required to read back the 'follow the Cessna' instruction.

Safe circuit pattern operation relies on all the involved pilots having a common understanding of the aircraft sequence. Additionally, overarching guidance in the Manual of Air Traffic Services (MATS) required controllers to 'obtain a readback of sufficient detail that clearly indicates pilots' understanding of and compliance with all ATC clearances.' Despite that, MATS did not explicitly require sequencing instructions to be read back as a 'Key element' of the approach clearance, providing no assurance that this safety-critical aspect had been correctly understood.

Contributing factor

The Manual of Air Traffic Services did not explicitly state that sequencing instructions were required to be read back by a pilot, providing no assurance that this safety-critical aspect had been correctly understood. (Safety issue)

Finally, the situation awareness maintained by the instructor in the C172 ensured that adequate separation was maintained between the 2 aircraft as the situation developed, possibly preventing a more serious outcome.

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.

Safety issues are highlighted in bold to emphasise their importance. A safety issue is a safety factor that (a) can reasonably be regarded as having the potential to adversely affect the safety of future operations, and (b) is a characteristic of an organisation or a system, rather than a characteristic of a specific individual, or characteristic of an operating environment at a specific point in time.

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 separation occurrence involving Piper PA-44, VH-KZJ, and Cessna 172, VH-ZER, near Jandakot Airport, Western Australia, on 12 June 2025.

Contributing factors

- The PA-44 pilot did not identify the final part of the amended instruction to ‘follow the Cessna’. Consequently, the PA-44 pilot passed the C172 as per the original clearance, resulting in reduced separation between the 2 aircraft.
- Although a key element of the revised approach clearance, the pilot’s incomplete readback was not corrected by the controller as they considered that the pilot was not required to read back the ‘follow the Cessna’ instruction.
- **The Manual of Air Traffic Services did not explicitly state that sequencing instructions were required to be read back by a pilot, providing no assurance that this safety-critical aspect had been correctly understood.** (Safety issue)

Safety issues and actions

Central to the ATSB’s investigation of transport safety matters is the early identification of safety issues. The ATSB expects relevant organisations will address all safety issues an investigation identifies.

Depending on the level of risk of a safety issue, the extent of corrective action taken by the relevant organisation(s), or the desirability of directing a broad safety message to the aviation industry, the ATSB may issue a formal safety recommendation or safety advisory notice as part of the final report.

All of the directly involved parties were provided with a draft report and invited to provide submissions. As part of that process, each organisation was asked to communicate what safety actions, if any, they had carried out or were planning to carry out in relation to each safety issue relevant to their organisation.

The initial public version of these safety issues and actions are provided separately on the ATSB website, to facilitate monitoring by interested parties. Where relevant, the safety issues and actions will be updated on the ATSB website as further information about safety action comes to hand.

Readback requirements

Safety issue description

The Manual of Air Traffic Services did not explicitly state that sequencing instructions were required to be read back by a pilot, providing no assurance that this safety-critical aspect had been correctly understood.

Issue number:	AO-2025-033-SI-01
Issue owner:	Airservices Australia
Transport function:	General aviation / Aviation: Airspace management
Current issue status:	Open – Safety action pending.
Issue status justification:	To be advised

Response by Airservices Australia

Airservices Australia advised that the Air Traffic Management Standards and Senior Air Traffic Services Specialists conducted a review, and will investigate a change to Manual of Air Traffic Services (MATS) 9.2.2.13.2 and the respective Aeronautical Information Publication (AIP) reference (GEN 3.4 – 37) to include the instruction ‘follow’ in the list of items requiring readback.

ATSB comment

The ATSB welcomes the changes that Airservices Australia proposes to make to MATS and the AIP. As no timeframe for this change was provided, the ATSB will monitor this safety issue until the changes are made.

General details

Occurrence details

Date and time:	12 June 2025, 1128 Western Standard Time
Occurrence class:	Incident
Occurrence categories:	Separation issue, Operational non-compliance
Location:	Near Jandakot Airport
	Latitude: 32.0947° S, Longitude: 115.8632° E

Aircraft 1 details

Manufacturer and model:	Piper Aircraft, Inc. PA-44-180
Registration:	VH-KZJ
Operator:	Airflite Pty Ltd
Serial number:	4496462
Type of operation:	Part 91 General operating and flight rules-Part 142 - training
Activity:	General aviation / Recreational-Instructional flying-Instructional flying - solo
Departure:	Jandakot Airport, Western Australia
Destination:	Jandakot Airport, Western Australia
Persons on board:	Crew - 1 Passengers 0
Injuries:	None
Aircraft damage:	None

Aircraft 2 details

Manufacturer and model:	Cessna Aircraft Company 172S
Registration:	VH-ZER
Operator:	Airflite Pty Ltd
Serial number:	172S10855
Type of operation:	Part 91 General operating and flight rules-Part 142 - training
Activity:	General aviation / Recreational-Instructional flying-Instructional flying - dual
Departure:	Jandakot Airport, Western Australia
Destination:	Jandakot Airport, Western Australia
Persons on board:	Crew - 2 Passengers - 0
Injuries:	None
Aircraft damage:	None

Glossary

AIP	Aeronautical information publication
AMSL	Above mean sea level
ATC	Air traffic control
MATS	Manual of Air Traffic Services
TAS	Traffic Advisory System
VFR	Visual Flight Rules

Sources and submissions

Sources of information

The sources of information during the investigation included:

- the pilots of both aircraft
- the air traffic controller
- Airservices Australia
- ADS-B data for both aircraft
- the operator of both aircraft.

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:

- pilots of both aircraft
- the air traffic controller
- Airservices Australia
- the operator
- Civil Aviation Safety Authority.

Submissions were received from:

- the air traffic controller
- Airservices Australia
- the operator.

The submissions were reviewed and, where considered appropriate, the text of the report was amended accordingly.

About the ATSB

The **Australian Transport Safety Bureau** is the national transport safety investigator. Established by the *Transport Safety Investigation Act 2003* (TSI Act), the ATSB is an independent statutory agency of the Australian Government and is governed by a Commission. The ATSB is entirely separate from transport regulators, policy makers and service providers.

The ATSB's function is to improve transport safety in aviation, rail and shipping through:

- the independent investigation of transport accidents and other safety occurrences
- safety data recording, analysis, and research
- influencing safety action.

The ATSB prioritises investigations that have the potential to deliver the greatest public benefit through improvements to transport safety.

The ATSB performs its functions in accordance with the provisions of the *Transport Safety Investigation Act 2003* and Regulations and, where applicable, international agreements.

Purpose of safety investigations

The objective of a safety investigation is to enhance transport safety through:

- identifying safety issues and facilitating safety action to address those issues
- providing information about occurrences and their associated safety factors to facilitate learning within the transport industry.

It is not a function of the ATSB to apportion blame or provide a means for determining 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.

The ATSB does not investigate for the purpose of taking administrative, regulatory or criminal action.

About ATSB reports

ATSB investigation final reports are organised with regard to international standards or instruments, as applicable, and with ATSB procedures and guidelines.

Reports 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.

An explanation of ATSB terminology used in this report is available on the [ATSB website](#).