



Australian Government

Australian Transport Safety Bureau

Separation issue involving Airbus A320, VH-VQG, and Aero Commander 500, VH-UJS

near Sunshine Coast Airport, Queensland, on 4 November 2019

ATSB Transport Safety Report
Aviation Occurrence Investigation
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Addendum

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Safety summary

What happened

On the morning of 4 November 2019, an Airbus A320-200 aircraft, registered VH-VQG (VQG), was operating a scheduled passenger flight from Sydney, New South Wales, to Sunshine Coast, Queensland (Qld). As the aircraft was on final approach to land, a proximity event occurred with an Aero Commander 500 aircraft, registered VH-UJS (UJS), which was departing Sunshine Coast Airport on the reciprocal runway. The two aircraft paths converged, until the pilot of UJS conducted a right turn and increased the separation between them. The flight crew of VQG continued the approach and UJS continued to Maryborough, Qld, without further incident. The time of the incident was outside the operating hours of Sunshine Coast Airport air traffic control tower and it was therefore operating as a non-controlled aerodrome.

What the ATSB found

The ATSB found that important radio broadcasts made on the common traffic advisory frequency (CTAF) were not heard by the flight crew of VQG and the pilot of UJS regarding each other's position and intention. These included the inbound broadcasts made by VQG and the take-off broadcast made by UJS. In addition, the flight crew of VQG determined the most suitable runway based on the radio-transmitted aerodrome weather information service. However, this was either recorded incorrectly or heard incorrectly such that the chosen runway was the less favourable of the two options for the wind direction. This resulted in the aircraft approaching the opposite runway to other aircraft at the time. Finally, the pilot of the departing aircraft did not confirm the location and intention of the inbound aircraft prior to commencing take-off, as it was assumed the inbound aircraft would use the most suitable runway for the conditions.

Safety message

When operating in uncontrolled airspace and around non-towered aerodromes, it is important to ensure that the location and intention of surrounding traffic is well understood and communicated prior to commencing take-off or landing.

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-controlled aerodromes](#). The ATSB SafetyWatch page provides information and resources about staying safe around non-controlled aerodromes. In addition, the ATSB booklet [A pilot's guide to staying safe in the vicinity of non-controlled aerodromes](#) outlines many of the common problems that occur at non-controlled aerodromes, and offers useful strategies to keep yourself and other pilots safe.

The [Civil Aviation Safety Authority](#) has also produced a resource booklet 'be heard, be seen, be safe' which is in relation to radio procedures in uncontrolled airspace, and highlights that radios must always be used in conjunction with a safe 'see-and-avoid' procedure.

The occurrence

What happened

On the morning of 4 November 2019, the flight crew of an Airbus A320-200 aircraft, registered VH-VQG (VQG) and operated by Jetstar Airways, were conducting a scheduled passenger flight from Sydney, New South Wales, to Sunshine Coast, Queensland (Qld).

Prior to commencing the descent, both flight crewmembers of VQG independently listened to the Aerodrome Weather Information Service (AWIS) for Sunshine Coast Airport. Both reported hearing that the wind was from 230° (Magnetic) at 6 or 7 kt and recorded it on the take-off and landing data card. Based on those wind conditions, they assessed that runway 18 would be the most suitable runway for landing as it was the most into wind. The flight crew noted that the wind direction from the AWIS differed from the aerodrome forecast and routine aerodrome weather report¹ they had obtained prior to the flight, which was 340° True (329° Magnetic), but assessed that was reasonable for a coastal aerodrome. The flight crew then calculated the landing data using their electronic flight bag² software. In accordance with normal procedures, they assessed that for the aircraft landing weight and runway length available they could safely land with a tailwind of up to 10 kt if necessary.

At 0622 Eastern Standard Time (EST),³ the flight crew of VQG contacted Brisbane Centre air traffic control (ATC) to advise that they were on descent to flight level 130⁴ and on approach to Sunshine Coast Airport. As this was outside Sunshine Coast ATC Tower operating hours, the airspace was Class G (uncontrolled) and pilots of aircraft in the vicinity of the airport were communicating on the common traffic advisory frequency (CTAF).⁵ Pilots conducting flights under the instrument flight rules (IFR) were also required to report to Brisbane Centre on a different frequency. Brisbane Centre provided a traffic information service to IFR flights about other conflicting IFR aircraft and observed (known) visual flight rules flights. Therefore, the VQG flight crew had one radio on the CTAF and another on the Brisbane Centre frequency, which allowed them to hear both frequencies.

At about 0625, the first officer (FO) who was the pilot monitoring (PM),⁶ broadcast on the CTAF stating they were 30 NM south of the field, at an altitude of 10,500 ft and were tracking for a left circuit for runway 18⁷ with an estimated arrival time of 0636 at Sunshine Coast. About 2 minutes later the PM made a similar broadcast on the CTAF, with updated altitude and position, again stating their intention to land on runway 18. During that time, the flight crew of VQG were also communicating with the pilot of another aircraft operating to the south of Sunshine Coast Airport who agreed to hold to the south of the field until VQG had landed.

A few minutes later, at about 0631, the PM made a third broadcast on the CTAF stating their altitude, position and intention to land on runway 18.

¹ METAR: a routine aerodrome weather report issued at routine times, hourly or half-hourly.

² Electronic flight bag: an electronic information management device that helps the flight crew perform flight management tasks more easily and efficiently.

³ Eastern Standard Time (EST): Coordinated Universal Time (UTC) + 10 hours.

⁴ Flight level: at altitudes above 10,000 ft in Australia, an aircraft's height above mean sea level is referred to as a flight level (FL). FL 130 equates to 13,000 ft.

⁵ Common Traffic Advisory Frequency (CTAF): A designated frequency on which pilots make positional broadcasts when operating in the vicinity of non-controlled aerodromes.

⁶ Pilot Flying (PF) and Pilot Monitoring (PM): procedurally assigned roles with specifically assigned duties at specific stages of a flight. The PF does most of the flying, except in defined circumstances; such as planning for descent, approach and landing. The PM carries out support duties and monitors the PF's actions and the aircraft's flight path.

⁷ Runway number: the number represents the magnetic heading of the runway. Runway 18 at Sunshine Coast Airport was on a heading of 183°.

About 25 seconds later, the pilot of an Aero Commander 500 aircraft, registered VH-UJS (UJS) and operated by General Aviation Maintenance as a freight charter flight, broadcast on the CTAF that he was taxiing for runway 36 at Sunshine Coast Airport. The planned flight was from Sunshine Coast to Maryborough, Qld. Shortly after, the pilot of UJS also contacted Brisbane Centre stating that UJS was taxiing for runway 36. Brisbane Centre responded, advising of the inbound aircraft (VQG) that was turning onto final for approach from the north-east, 'landing about 36'.⁸ Brisbane Centre did not stipulate the runway being used by VQG, nor were they required to. The pilot of UJS later reported that he had observed other aircraft using runway 36 while he was refuelling at Sunshine Coast Airport, and that it usually takes him around 3 minutes on average from start up with his radios on, to being airborne.

At about the same time, the PM of VQG was communicating on the CTAF with the pilot of an aircraft (VH-XTU) to the north of the airport, which was identified by the flight crew of VQG as a potential conflict as per the operator's 'Ten, Ten, One' rule.⁹ Also at that time, Brisbane Centre was attempting to contact VQG flight crew, regarding the taxiing call made by UJS, however contact was delayed as VQG was communicating on the CTAF with VH-XTU.

On entering the runway, the pilot of UJS visually checked to the south where he believed VQG was approaching from. After not visually sighting VQG, the pilot of UJS commenced take-off without making direct contact with VQG on the CTAF and confirming their location, making a 'rolling' (for take-off) broadcast on the CTAF at 06:33:30.

As this broadcast was being made, Brisbane Centre was still attempting to contact VQG, and the flight crew of VQG later reported not hearing the take-off broadcast made by UJS. After the communication with Brisbane Centre was established and finished, a different aircraft broadcast on the CTAF for about 20 seconds.

Once that broadcast finished, the PM of VQG broadcast on the CTAF that they were on final approach¹⁰ for runway 18 and asked the pilot of UJS if he was holding short of the runway. The pilot of UJS responded that they were airborne, had VQG sighted and would track to VQG's left (make a right turn). Table 1 shows a summary of the relevant radio broadcasts made on the CTAF and Brisbane Centre frequencies.

Table 1: Summary of the relevant CTAF and Brisbane Centre (shaded) radio broadcasts made by the pilots of aircraft VH-VQG and VH-UJS

Time	Frequency	Summary
0625:36	CTAF	VH-VQG first inbound broadcast
0627:11	CTAF	VH-VQG second inbound broadcast
0631:28	CTAF	VH-VQG third inbound broadcast
0631:53	CTAF	VH-UJS makes taxiing broadcast at Sunshine Coast airport
0632:24	Brisbane Centre	VH-UJS makes taxiing call, Centre informs them of inbound VH-VQG 'turning onto final for approach' 'about 8 miles north-east' 'landing about 36'
0632:45 – 0633:18	CTAF	VH-VQG coordinating with VH-XTU, who was on the runway 18 Zulu approach. VH-XTU advised that they would be breaking off at the final approach fix for a circuit.
0632:58	Brisbane Centre	Centre informs VH-VQG of VH-UJS taxiing
0633:30	CTAF	VH-UJS makes 'rolling' broadcast from runway 36

⁸ This was referring to a time of 0636 rather than a runway.

⁹ This rule states that traffic is a potential conflict if it is, or will be, within ten minutes of a common position/track/area, ten nautical miles laterally of current/intended track and/or, one thousand feet vertically of current or intended altitude.

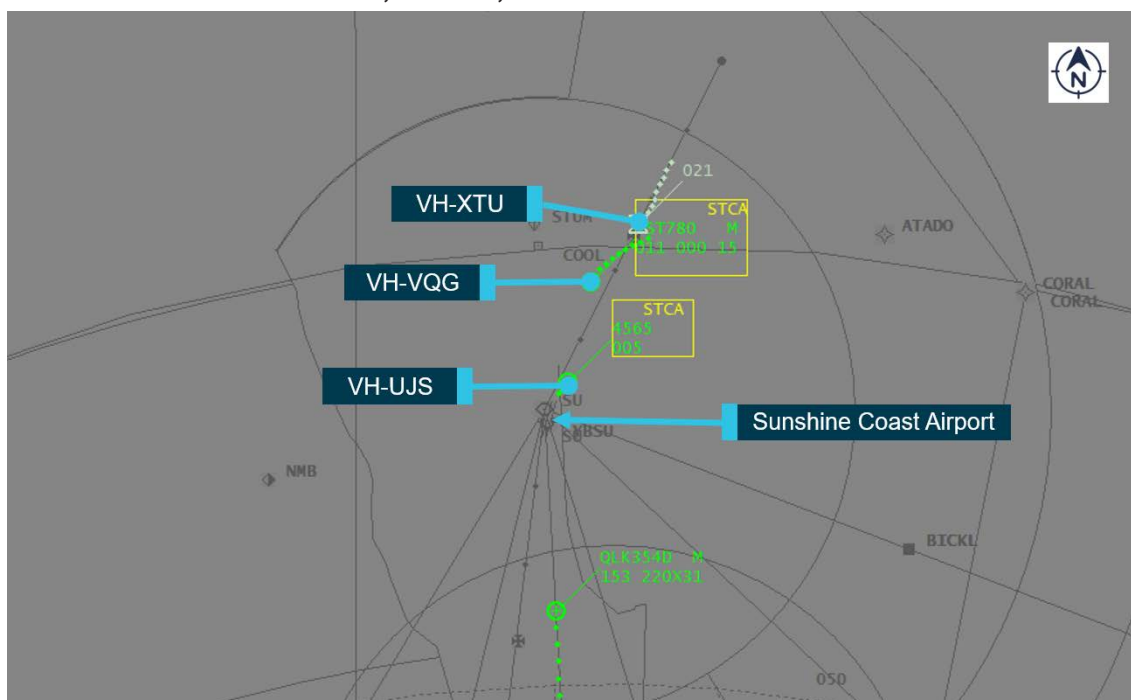
¹⁰ The flight crew of VQG noted that once on final approach they noted a tailwind, however, as it was within tolerances they continued with the approach.

0633:30	Brisbane Centre	Centre attempts to contact VH-VQG
0633:38	Brisbane Centre	Centre attempts to contact VH-VQG
0633:40	Brisbane Centre	VH-VQG responds they are communicating with VH-XTU on CTAF, Centre confirms they are also aware of VH-UJS, and VH-VQG responds 'affirm'
0634:06	CTAF	Another aircraft is broadcasting their position and intention
0634:35	CTAF	VH-VQG broadcasts they are turning 5 mile final runway 18 and queries if VH-UJS is holding short of the runway
0634:48	CTAF	VH-UJS responds 'negative, airborne' and that he had VH-VQG sighted and would track to their (VH-VQG's) left

Source: Airservices Australia and AvData, summarised by the ATSB

Within seconds, a short-term conflict alert (STCA) for the two aircraft was presented on the Brisbane Centre display (Figure 1). The two aircraft passed each other with a recorded separation of 0.7 NM horizontally and 265 ft vertically.

Figure 1: The position of the aircraft in the area in relation to Sunshine Coast Airport, and the alerts that were displayed to Brisbane Centre for the two aircraft VH-UJS and VH-VQG. The aircraft to the north, VH-XTU, is also shown.



Source: Airservices Australia, annotated by the ATSB

The flight crew of VQG discussed conducting a missed approach as a result of the proximity event. However, they assessed it was safer to continue with the approach due to the other aircraft in the area that they had already de-conflicted with, and although there was a tailwind, it was assessed as within tolerance. At about 0637, VQG landed at Sunshine Coast Airport and UJS continued to Maryborough without further incident.

In this occurrence, VQG was fitted with a functional traffic collision avoidance system (TCAS).¹¹ However, it was inhibited (as a standard) such that when the aircraft was on descent and below

¹¹ A traffic collision avoidance system (TCAS) is designed to independently alert flight crews to possible conflicting traffic. It identifies a three-dimensional airspace around appropriately equipped aircraft based on the closure rate of other transponder-equipped traffic. If a potential conflict meets defined vertical and horizontal parameters, the TCAS generates a visual and aural alert.

900 ft the system did not generate a resolution advisory (RA)¹² or an aural alert and all traffic, including UJS, was marked as a traffic advisory only.

Safety analysis

The pilots from both aircraft did not hear some of the important radio broadcasts made by the other aircraft regarding their location and intention and did not establish direct communications with each other until after UJS was airborne. The pilot of UJS likely did not have his radio on at the time the flight crew of VQG made their inbound radio broadcasts, therefore missing the opportunity to understand that they were intending on landing on runway 18. There was about 97 seconds between the taxi and take-off broadcasts made by UJS, reducing the amount of time available to determine the location and intention of VQG. The flight crew of VQG did not hear the rolling broadcast made by the pilot of UJS, which occurred at the same time as Brisbane Centre was contacting VQG on the Centre frequency.

It was noted that the flight crew of VQG recorded the aerodrome wind direction as 230° (Magnetic) when planning their approach. However, local aerodrome wind direction was reported as 329° (Magnetic). It is unknown if the flight crew of VQG misheard the airport weather information recording or if the recording was incorrect, as a copy of the recording was unable to be obtained. The incorrect wind information obtained or understood by the flight crew of VQG led them to plan their approach on the least favourable runway for the wind direction at the time, and in conflict with other aircraft operating in and out of the airport.

The pilot of UJS believed that VQG would be landing on runway 36, as it was the most suitable for the wind conditions at the time and other aircraft operating at the airport had been using runway 36. This resulted in the pilot of UJS relying on unalerted see and avoid, to de-conflict with the inbound VQG. This occurred after UJS became airborne and the reciprocal trajectory of VQG was observed.

Findings

From the evidence available, the following findings are made with respect to the separation issue between two aircraft, VH-UJS and VH-VQG, where VH-UJS took off from runway 36 while VH-VQG was landing on opposing runway 18, resulting in reciprocal paths for the two aircraft before the pilot of VH-UJS conducted a right turn to increase separation from VH-VQG.

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

- Important radio broadcasts on the CTAF were not heard by the flight crew of VH-VQG and the pilot of VH-UJS regarding each other's positions and intentions, leading to them continuing to use reciprocal runways.
- The flight crew of VH-VQG assessed runway 18 as the most into wind runway based on information obtained from the aerodrome weather information service, however this information was either recorded incorrectly or heard incorrectly such that runway 36 was instead more favourable. This resulted in the aircraft approaching the opposite runway to what was being used by other aircraft at the time.
- The pilot of VH-UJS commenced take-off without confirming the location and intention of VH-VQG, assuming that they would be landing on runway 36, which had been used by previous landing and departing aircraft.

¹² Resolution advisory (RA): a manoeuvre, or a manoeuvre restriction, calculated by an airborne collision avoidance system (ACAS) to avoid a collision. Pilots are expected to respond immediately to an RA unless doing so would jeopardize the safe operation of the flight.

General details

Occurrence details

Date and time:	04 November 2019 – 0635 EST	
Occurrence category:	Incident	
Primary occurrence type:	Separation issue	
Location:	Sunshine Coast Airport, Queensland	
	Latitude: 26° 36.231' S	Longitude: 153° 5.398' E

Aircraft 1 details

Manufacturer and model:	Airbus A320-232	
Registration:	VH-VQG	
Operator:	Jetstar Airways	
Serial number:	2787	
Type of operation:	Air Transport High Capacity - Passenger	
Departure:	Sydney Airport, New South Wales	
Destination:	Sunshine Coast Airport, Queensland	
Aircraft damage:	None	

Aircraft 2 details

Manufacturer and model:	Aero Commander 500-S	
Registration:	VH-UJS	
Operator:	General Aviation Maintenance	
Serial number:	1797	
Type of operation:	Charter – Freight	
Departure:	Sunshine Coast Airport, Queensland	
Destination:	Maryborough Airport, Queensland	
Persons on board:	Crew – 1	Passengers – 0
Aircraft damage:	None	

About the ATSB

The 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; 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 the ATSB's 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.

Purpose of safety investigations

The object of a safety investigation is to identify and reduce safety-related risk. ATSB investigations determine and communicate the 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.