Australian Government
Australian Transport Safety Bureau

Separation issue involving a Bell 206, VH-XJA, and an Airbus A320, VH-VGJ

Sunshine Coast Airport, Queensland, 3 July 2014

ATSB Transport Safety Report
Aviation Occurrence Investigation
AO-2014-125
Final – 3 December 2014

Released in accordance with section 25 of the *Transport Safety Investigation Act 2003*

Publishing information

Published by: Australian Transport Safety Bureau
Postal address: PO Box 967, Civic Square ACT 2608
Office: 62 Northbourne Avenue Canberra, Australian Capital Territory 2601
Telephone: 1800 020 616, from overseas +61 2 6257 4150 (24 hours)
Accident and incident notification: 1800 011 034 (24 hours)
Facsimile: 02 6247 3117, from overseas +61 2 6247 3117
Email: atsbinfo@atsb.gov.au
Internet: www.atsb.gov.au

Addendum

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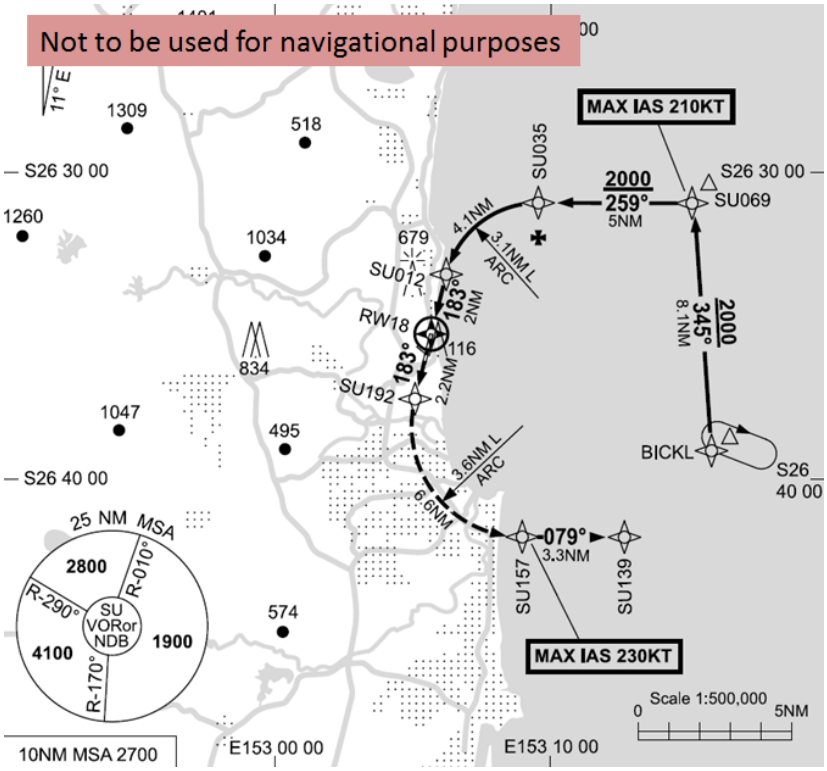
Separation issue involving a Bell 206, VH-XJA, and an Airbus A320, VH-VGJ

What happened

On 3 July 2014, at about 1930 Eastern Standard Time (EST), an instructor and student pilot of a Bell 206 helicopter, registered VH-XJA (XJA), departed Sunshine Coast Airport on a planned flight to Gympie, Queensland. At about 1940, due to low cloud in the area, the instructor elected to return to Sunshine Coast to conduct night circuits and selected the transponder to ALT with the code of 1200[1]. Also at about 1940, the air traffic control (ATC) tower at Sunshine Coast Airport closed in accordance with its published hours of operation.

A Jetstar Airbus A320 aircraft, registered VH-VGJ (VGJ), was inbound from Melbourne, Victoria to Sunshine Coast Airport via the area navigation (RNAV) required navigation performance approach to runway 18 (Figure 1). When about 30 NM from the Sunshine Coast, the first officer, as pilot monitoring (PM),[2] broadcast on the common traffic advisory frequency (CTAF), that they were inbound with an estimated arrival time of 2002 EST. The first officer did not receive any response to the broadcast, and reported that the CTAF was quite busy with a lot of radio broadcasts from other aircraft in the vicinity.

Figure 1: Extract from RNAV-X RWY 18 approach, Sunshine Coast



Source: Airservices Australia

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1 1200 is the standard transponder code used for VFR flights outside controlled airspace.

2 Pilot Flying (PF) and Pilot Monitoring (PM) are 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 aircraft flightpath.

Figure 2: VH-VGJ track via the RNAV-X RWY 18 approach

Source: Operator

When approaching waypoint BICKL (Figure 2) and passing about 4,500 ft on descent, VGJ was cleared by Brisbane Centre ATC to leave controlled airspace and advised that there was no relevant instrument flight rules (IFR) traffic. The crew observed some visual flight rules (VFR) aircraft on the traffic collision avoidance system (TCAS)[3]. Another Jetstar A320 aircraft then broadcast on the Brisbane Centre frequency that they were taxiing at Sunshine Coast Airport and ATC confirmed that the first officer of VGJ had copied that call.

When 10 NM from the runway, approaching SU069 on the RNAV approach, the first officer broadcast on the CTAF that VGJ had left 3,800 ft and was conducting an instrument approach to runway 18, expecting to land at time 2001, but did not include the distance from the runway in the broadcast. He did not receive any reply. The instructor of XJA heard the call from VGJ and, as no distance was given in the broadcast, assumed that the aircraft was then about 15 NM away. He also expected that the crew of VGJ would subsequently broadcast when 10 NM and 5 NM from the runway, and he elected to continue the circuit and monitor the CTAF for those calls.

There were numerous helicopters operating in the area making broadcasts on the CTAF and the first officer of VGJ noted their call-signs and attempted to build a mental picture of where they were located. The other A320 aircraft had entered the runway and was backtracking. The helicopter XJA was then on downwind and the instructor sighted the aircraft taxiing and broadcast that he would extend the downwind leg to remain clear of the aircraft on the runway. The flight crew of the departing aircraft and the first officer of VGJ both broadcast a response acknowledging the pilot of XJA. At that stage, the first officer of VGJ assumed they would not come into conflict with XJA.

When approaching the waypoint SU069, the captain of VGJ became concerned that they had not received any response to their broadcasts and directed the first officer to communicate to the helicopter pilots in the area to determine their location and intentions.

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[3] Traffic collision avoidance system (TCAS) is an aircraft collision avoidance system. It monitors the airspace around an aircraft for other aircraft equipped with a corresponding active transponder and gives warning of possible collision risks.

As VGJ passed waypoint SU035 turning onto final approach, the aircraft, which had been in and out of cloud, became clear of cloud at about 2,500 ft. The captain was concerned about the position of helicopters operating in the area and made a direct call to one helicopter pilot requesting their current position and intention. That helicopter reported operating and remaining in ground effect and not near the runway. The first officer then observed that VGJ was about 400 ft above the normal approach profile and alerted the captain. The captain corrected the flight path.

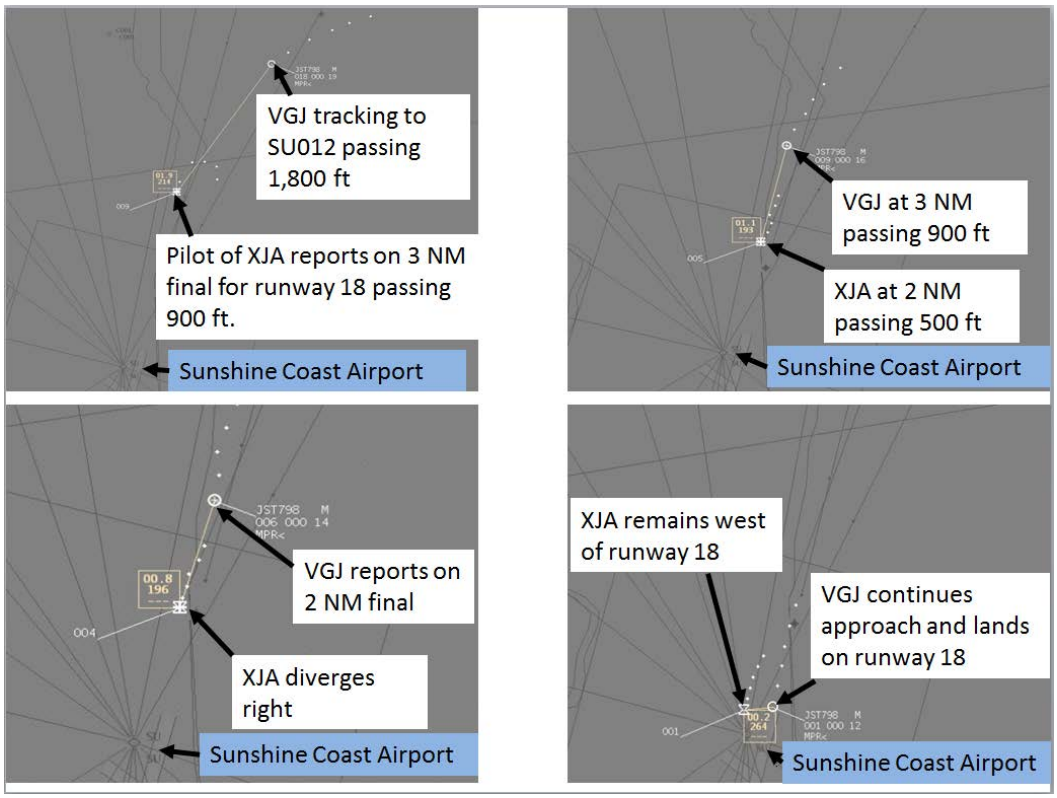
When on a 3 NM final approach, the instructor of XJA broadcast a 3 NM final call, but neither the captain nor the first officer of VGJ reported hearing this call. About 10 seconds later, the crew of the A320 on the runway broadcast rolling on runway 18. About 1 minute after that call, when established on the runway centreline, the first officer of VGJ broadcast stating that they were on a 2 NM final. Hearing this call, the instructor of XJA turned and sighted the landing lights of VGJ close behind, took control of the helicopter from the student, diverged to the right and commenced a climb. He estimated that the aircraft passed about 300 m away.

The crew of VGJ did not receive a TCAS traffic alert (TA)[4] or resolution advisory (RA)[5] or any indication of a loss of separation with another aircraft.[6] The aircraft subsequently landed normally.

Data Review

Radar data provided to the ATSB by Airservices Australia indicated that the two aircraft passed at an altitude of about 200-300 ft with a lateral separation of about 370 m (Figure 3).

Figure 3: Radar data showing relative positions of VH-VGJ and VH-XJA



Source: Airservices Australia

[4] Traffic Collision Avoidance System Traffic Advisory, when a TA is issued, pilots are instructed to initiate a visual search for the traffic causing the TA.

[5] Traffic Collision Avoidance System Resolution Advisory, when an RA is issued pilots are expected to respond immediately to the RA unless doing so would jeopardize the safe operation of the flight.

[6] TCAS RAs were inhibited below 900 ft AGL, all aural alerts were inhibited below 400 ft and when VGJ was below 1,700 ft, all 'intruders' below 380 ft were inhibited.

Safety action

Operator of VH-VGJ

As a result of this occurrence, Jetstar has advised the ATSB that it is taking the following safety actions:

Communication

A 'red' flight standing order (RED FSO)[7] was issued to remind all flight crew of the importance of vigilance when operating at non-controlled aerodromes. The FSO advised flight crew to review the standard procedures and maintain a high level of awareness of other traffic using all possible means. Pilots were reminded to be aware of the inhibition logic of TCAS during approach to land.

Risk analysis and policy review

A risk assessment was conducted on CTAF operations. Scheduling policy and procedures were to be developed to include consideration of controlled versus non-controlled airspace.

Tower hours extension procedures

Criteria for requests of extension to tower hours as well as a formal procedure for submitting the requests are to be developed.

Training

CTAF traffic scenarios are to be included in cyclic training checks for flight crew.

Operator of VH-XJA

The operator of XJA has advised their company pilots when communicating with other aircraft, to reply using their callsign, and to state their location and intentions. This is to assist pilots of other aircraft develop a mental picture of aircraft traffic and identify potential conflicts. The incident was the subject of a safety training day, which provided a learning opportunity for company pilots and students.

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-controlled aerodromes www.atsb.gov.au/safetywatch/safety-around-aeros.aspx.

Research conducted by the ATSB found between 2003 and 2008, 181 occurrences of reduced separation reported, of which 55 were near mid-air collisions. Insufficient communication between pilots and breakdowns in situational awareness were the most common contributors to safety incidents in the vicinity of non-controlled aerodromes.

A review by the ATSB of mid-air collisions between 1961 and 2003 also found that almost 80 per cent of mid-air collisions (29 accidents) occurred in or near the circuit area. *A pilot's guide to staying safety in the vicinity of non-towered aerodromes* is available at www.atsb.gov.au/publications/2008/ar-2008-044(1).aspx.

This incident highlights the importance of using both unalerted and alerted see-and-avoid principles and maintaining a vigilant lookout at all times.

[7] RED FSOs are published to indicate that non-compliance with the procedures may have significant impact on the operation of the aircraft.

General details

Occurrence details

Date and time:	3 July 2014 – 1959 EST	
Occurrence category:	Serious incident	
Primary occurrence type:	Separation issue	
Location:	Sunshine Coast Airport, Queensland	
	Latitude: 26° 36.20' S	Longitude: 153° 05.47' E

Aircraft details

Manufacturer and model:	Airbus A320-232	
Registration:	VH-VGJ	
Operator:	Jetstar Airways	
Serial number:	4460	
Type of operation:	Air transport high capacity – passenger	
Persons on board:	Crew – 6	Passengers – Unknown
Injuries:	Crew – Nil	Passengers – Nil
Damage:	Nil	

Helicopter details

Manufacturer and model:	Bell Helicopter Company 206B	
Registration:	VH-XJA	
Serial number:	3744	
Type of operation:	Flying training – dual	
Persons on board:	Crew – 2	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.