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Australian Transport Safety Bureau

Near collision involving B200 Kingair VH-SBM, and Piper Saratoga, VH-XKS

Normanton Airport, Queensland, 4 March 2104

ATSB Transport Safety Report
Aviation Occurrence Investigation
AO-2014-039
Final – 3 September 2014

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

Publishing information

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Addendum

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Near collision involving a B200 Kingair VH-SBM, and a Piper Saratoga, VH-XKS

What happened

On 4 March 2014, at about 0809 EST, a Piper Saratoga aircraft, registered VH-XKS (XKS), departed Mareeba Airport on a private flight to Normanton Airport, Queensland. The direct flight was planned under the visual flight rules, and the pilot was the sole person on board.

The Saratoga was fitted with two very high frequency (VHF) radio systems: Comm 1, which was available through the Garmin 300 GPS; and Comm 2, a KX165 Nav/Comm set. The pilot broadcast his taxiing, backtracking and departure calls at Mareeba, using Comm 2¹. The aircraft remained outside controlled airspace (OCTA) for the flight, but the pilot continued to maintain a listening watch on the relevant area frequencies. At about 11.5 NM from Normanton, the pilot used Comm 2 to broadcast on the local common traffic advisory frequency (CTAF), and advised that XKS was inbound. At Normanton, he positioned XKS to overfly the runway and join the circuit on crosswind for runway 14 (Figure 1).

Piper Saratoga, VH-XKS



Source: Craig Murray: Airliners.net

At about the same time, an Beech 200 Kingair aircraft, registered VH-SBM (SBM) was inbound to Normanton from nearby Karumba, under the instrument flight rules (IFR)² from the north-west. This charter flight had two flight crew and one passenger on board. The crew made all required broadcasts when departing Karumba, and also when inbound to Normanton. They were advised by Brisbane Centre that there was no reported IFR traffic in the area. The pilot of a VFR Piper Navajo, also inbound to Normanton, responded to the crew of SBM's broadcast, and advised them that his aircraft was due at Normanton about five minutes after SBM.

After obtaining the Normanton automatic weather information service (AWIS³) information, which reported the wind at Normanton as predominantly crosswind, the crew elected to make a straight in approach to runway 14 (Figure 1). With about 10 NM to run, and at 3,000 ft, SBM was established on the approach. At 5 NM with the aircraft configured for landing, and all external lighting operating, including landing lights and strobes, the pilot made another broadcast on the Normanton CTAF. At 3 NM from the runway threshold he again broadcast on the CTAF. He received AFRU beepbacks⁴ for both of these calls.

Descending through 800 ft, the PIC was looking at the flap lever and decided to delay taking the last stage of flap for another few seconds, when he noticed movement in his left periphery below him. He then saw the Saratoga in a left turn onto final for runway 14. The Saratoga was partly

¹ It is common for aircraft to have two VHF radios fitted. They are known as Comm 1 and Comm 2, and a combination of either or both radios can be selected by the pilot. Often this requires moving a rotating selector switch and also making a push button selection.

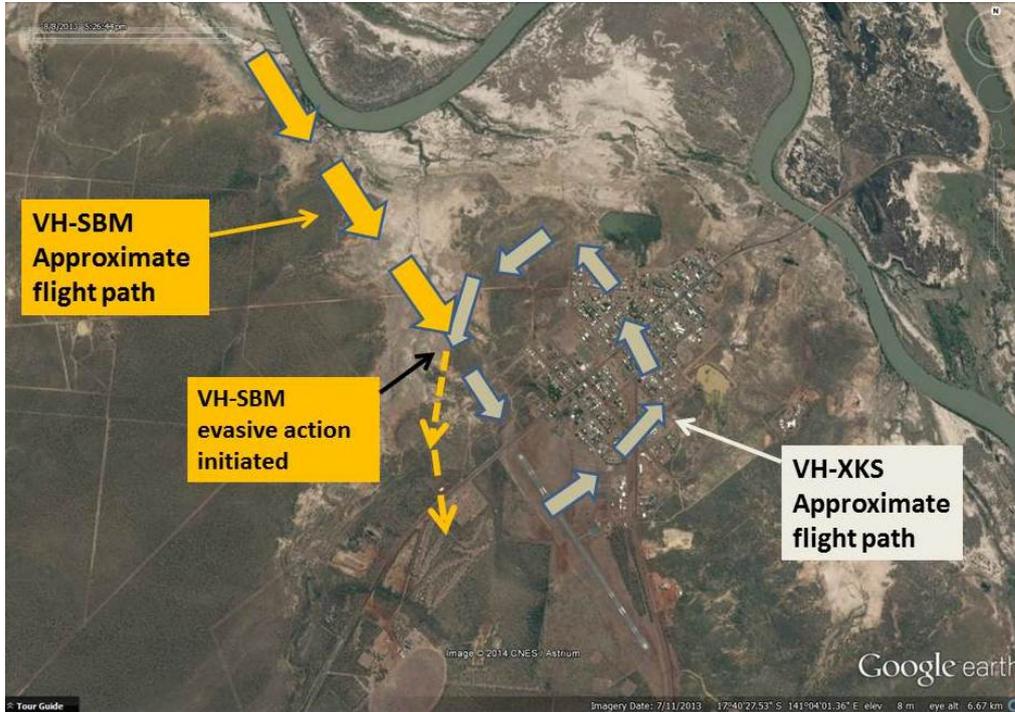
² Instrument flight rules permit an aircraft to operate in instrument meteorological conditions (IMC), which have much lower weather minimums than visual flight rules.

³ The aerodrome weather information service (AWIS) provides actual weather conditions, via telephone or radio broadcast, from Bureau of Meteorology automatic weather stations.

⁴ To assist pilot's awareness of inadvertent selection of an incorrect VHF frequency when operating into non-towered aerodromes, an Aerodrome Frequency Response Unit may be installed. An AFRU will provide an automatic response when pilots transmit on the CTAF for the aerodrome at which it is installed. AIP Gen 3.4 para 3.4.1

obscured by SBM’s engine nacelles, but was on a converging track about 50 ft below, and less than 50 m laterally.

Figure 1: Flight paths approaching RWY 14 at Normanton



Source: Google earth

Given the rate of descent and airspeed of the Kingair, the pilot quickly assessed that, without immediate evasive action, a collision was imminent. He initiated a climbing right turn, keeping the Saratoga in sight. He was aware that the Navajo that was approaching from the south was also due in the circuit, so he called the pilot of that aircraft to and advise of the conflict and his new intentions. He tried to make contact with the pilot of the Saratoga, but did not receive a response.

The Saratoga landed on runway 14. The Navajo, followed by the Kingair, subsequently landed on runway 32.

VH-SBM: Pilot experience and comments

The pilot in command had about 4,750 hours total time with over 2,000 hours on the Kingair. He also held the position of Fleet Captain and Check and Training Captain on this aircraft type for his company.

He reported it was the movement of the Saratoga turning onto final approach which caught his eye, as the aircraft’s fawn colour (see inset) blended in with the muddy flood waters that were widespread around Normanton at the time.

VH-SBM: Pilot in command, recollection of events

- After landing, he and his co-pilot approached the pilot of XKS.
- They asked the pilot of XKS if he was aware of the near collision, and were advised he was not.
- The pilot of XKS advised the crew of SBM this was his first flight in the aircraft, and he was not familiar with the radio set up in it.
- The pilot of XKS was apologetic in regard to incident, and accepted assistance offered by the crew to sort out his radio issues; he made no mention of a radio failure. He advised that once the aircraft was refuelled he was departing for Borroloola.

- The pilot of XKS advised the crew of SBM he had joined at 1500 ft overhead Normanton to check the windsock. When the pilot in command of SBM advised him the weather information was available on the AWIS on 133.1 MHz, he seemed unfamiliar with AWIS installations and their capability.
- The transponder in XKS was not set to 7600, and Comm 2 was on an incorrect frequency. Comm 1 was selected on the audio panel but the G300 GPS unit was switched off. The pilot of XKS revealed the GPS had not been turned on for the flight from Mareeba.
- The pilot of XKS insisted that Nav2/Com 2 was in fact Com 1 and Com 2. The PIC of SBM explained the differences between the frequency ranges, and physically proved that Nav 2 could not be Comm 2.
- After about 20 minutes of troubleshooting, and making numerous test calls between XKS and SBM, Comm 1 was found to be operating correctly. It appeared the only issue was that it had not been selected during the flight from Mareeba. However Comm 2 did have a fault, it was transmitting but not receiving.
- The pilot of XKS did not appear to understand the principle of operation of an AFRU or the importance of listening for a beepback.

VH-SBM: Co-pilot comments

The co-pilot was also involved in assisting the pilot of XKS with the radio issues. He concurs with all the comments the Pilot in Command has made above. He also felt the PIC of XKS did not understand the avionics set up in the aircraft, nor was he aware of the AFRU or AWIS capabilities.

VH-XKS: Pilot experience and comments

The pilot had almost 4,000 flying hours, including rotary wing time. Much of this flight experience had been gained in Papua New Guinea.

At no time during the approach into Normanton did he sight SBM, and due to the radio issues was not aware of any other traffic. He advised that all external lighting, including navigation and strobe lights were on during the circuit entry and approach and landing.

His last flight had been two weeks prior, and he had been quite sick in the intervening period. He had not flown this aircraft before, except in the circuit at Mareeba.

VH-XKS: Pilot in command recollection of events

- He reported he was aware Comm 2 had failed when he first called on the Normanton CTAF.
- After checking the frequency, volume and selector switches, he unsuccessfully tried to broadcast several more times.
- He then attempted to broadcast on Comm 1, but was not successful, and thought it had been affected by the Comm 2 failure.
- He maintained an altitude of 1,500 ft over the airfield, before joining a left circuit for runway 14 and elected to fly a standard circuit due to the radio failure.
- He had no time to troubleshoot any further, as he needed to land due to fuel requirements.
- He reported that he did however, as per radio failure procedures, check the Visual Flight Guide (VFG)⁵ and selected code 7600 on the transponder, and continued to transmit blind⁶ all required radio calls, in case it was possible for another station to hear him.

⁵ Visual Flight Rules Guide is available online on the CASA website. Section 5 – Emergency procedures includes radio failure procedures

⁶ Part of radio failure procedures. Pilot continues to transmit all calls on the radio in case the radio failure is isolated to the receiver not the transmitter.

CTAF recordings

The ATSB obtained the CTAF recordings from both Mareeba and Normanton and established that the pilot of XKS had made all the mandatory calls on the Mareeba CTAF, but there were no transmissions from this aircraft on the Normanton CTAF. The crew of SBM had made all mandatory calls at both Karumba and Normanton.

VH-XKS – Comm 2

The ATSB contacted the radio technician who repaired Comm 2, and confirmed that it had failed. It required a replacement capacitor. In his opinion there would be no link between the unserviceability of Comm 2 and the operation of Comm 1.

Safety Message

Pre-flight preparation is an essential part of safe flying operations. This incident highlights the importance of reviewing all available information appropriate to the intended operation, including having a thorough knowledge of aircraft systems.

The Civil Aviation Authority *Flight Planning Kit*, available at <http://shop.casa.gov.au/> provides resources to assist pilots in flight planning.

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.



An ATSB research report identified over 200 occurrences between 2003 and 2008 where pilots flying within 10NM of a non-towered aerodrome may not have been broadcasting or maintaining a continuous listening watch on the CTAF. This included instances of where the incorrect radio frequency had been selected, the radio volume had been turned down, there was faulty radio equipment, pilots had not made broadcasts, or as a result of distractions.

Broadcasting and monitoring the CTAF, and maintaining a good lookout are useful strategies to improve safety at non-towered aerodromes. The publication, *Staying safe in the vicinity of non-towered aerodromes*, is available from the ATSB website at [www.atsb.gov.au/publications/2--8/ar-2008-044\(1\).aspx](http://www.atsb.gov.au/publications/2--8/ar-2008-044(1).aspx)

General details

Occurrence details

Date and time:	4 March 2014 – 0956 EST	
Occurrence category:	Serious incident	
Primary occurrence type:	Near collision	
Location:	Normanton Airport, Queensland	
	Latitude: 17° 41.10' S	Longitude: 141° 04.22' E

Aircraft details: VH-SBM

Manufacturer and model:	Beechcraft Aircraft Corporation B200	
Registration:	VH-SBM	
Serial number:	BB-964	
Type of operation:	Charter - Passenger	
Persons on board:	Crew – 2	Passengers – 1
Injuries:	Crew – Nil	Passengers – Nil
Damage:	None	

Aircraft details: VH-XKS

Manufacturer and model:	PA-32R-301T	
Registration:	VH-XKS	
Serial number:	32R-8629001	
Type of operation:	Private	
Persons on board:	Crew – 1	Passengers – Nil
Injuries:	Crew – Nil	Passengers – Nil
Damage:	None	

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.