Australian Government
Australian Transport Safety Bureau

Aircraft proximity event between Beech 1900, VH-EMK and Airparts FU-24, VH-HVP

Jabiru, Northern Territory, 5 October 2012

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Aircraft proximity event between Beech 1900, VH-EMK and Airparts FU-24, VH-HVP

What happened

Jabiru airport

Source: Google Earth

On 5 October 2012, a Beech 1900 aircraft, registered VH-EMK (EMK), departed Darwin on a charter passenger flight to Jabiru, Northern Territory. The first officer (FO) was designated as the pilot flying.

At top of descent, the crew broadcast a call on the Brisbane Centre frequency advising that they were 40 NM to the west of Jabiru, leaving FL150[1], with an estimated time of arrival (ETA) for the circuit at 0654 Central Standard Time[2]. Brisbane Centre air traffic control advised of nil traffic for the descent.

At about 30 NM, the crew broadcast a call on the Jabiru common traffic advisory frequency (CTAF) advising they were inbound, with an ETA of 0654. The crew reported receiving the voice identification from the aerodrome frequency response unit (AFRU)[3]. The crew reported that no other broadcasts on the CTAF were heard.

When at about 15 NM, the crew broadcast a second inbound call on the CTAF advising they were tracking for a 5 NM final and would be established at 0654. With the traffic alert and collision avoidance system (TCAS) set to 15 NM, the crew continued to monitor the TCAS, with no traffic observed.

During the approach to runway 09, the crew observed a 'glint' on the runway. At the time, the Captain believed it may have been from a car operating on a road near the runway or an aerodrome officer completing a runway inspection, so he continued the approach.

Shortly after, at about 5 NM, the crew broadcast a call advising they were established on final for runway 09. They had not heard any other broadcasts on the CTAF since receiving their own inbound response from the AFRU. They again checked the TCAS, with no traffic observed.

About 3NM from Jabiru, the Captain believed he may have observed something on the runway and broadcast a further call advising they were established on final.

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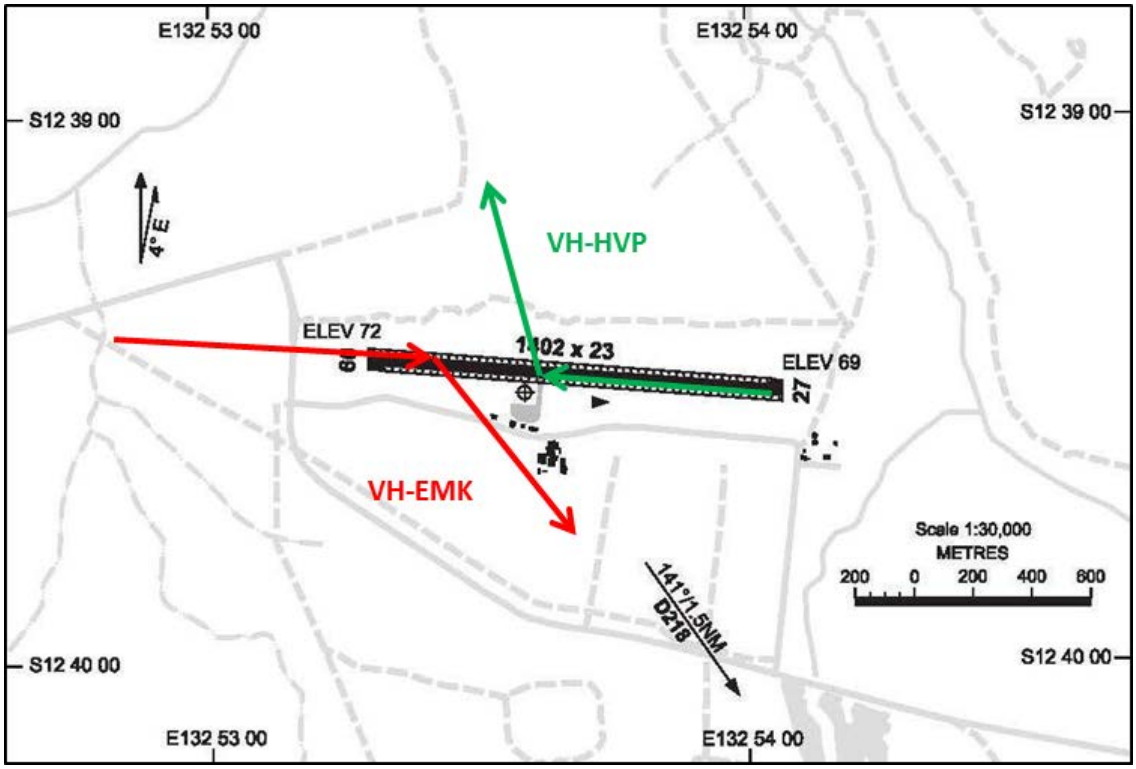
1 At altitudes above 10,000 ft in Australia, an aircraft's height above mean sea level is referred to as a flight level (FL). FL 150 equates to 15,000 ft.

2 Central Standard Time (CST) was Coordinated Universal Time (UTC) + 9.5 hours.

3 Aerodrome frequency response unit (AFRU) is a VHF transceiver which provides an automatic response when the pilot transmits on the traffic frequency (normally CTAF) for a particular aerodrome.

Figure 1: Approximate aircraft positions



Source: *Airservices Australia*

Airparts FU-24, VH-HVP

At about 0645, an Airparts FU-24 aircraft, registered VH-HVP (HVP), was being prepared for an aerial survey flight in the Jabiru area. During pre-flight preparations, the pilot turned the aircraft's radio on and selected standby on the transponder[4].

Shortly after, the pilot broadcast on the CTAF advising that he was taxiing for runway 27. At that time, the pilot heard a broadcast from the crew of EMK advising they would be established on a 5 NM final at 0654. The pilot of HVP determined that he would have 4 minutes to depart, before EMK was reported to be established on final.

The pilot looked for traffic prior to entering the runway, with none sighted. The pilot broadcast a call advising he was entering and backtracking runway 27 and selected 'ALT'[5] on the transponder. The pilot reported that he did not receive any response to his broadcast and consequently believed there was no conflict with EMK.

The incident

At about 0652, the pilot of HVP estimated that EMK would be about 8-10 NM from the airport, and elected to commence the take-off.

When at about 1 NM inbound, the crew of EMK observed HVP taking-off on runway 27, directly opposite to their approach path. The Captain immediately called for a go-around, which the FO initiated. The FO took avoiding action by manoeuvring the aircraft to the right.

At the same time, the pilot of HVP observed EMK on final for runway 09, at about 500 ft. The pilot decided to continue the take-off as he did not want to remain on the runway if the crew of EMK had not sighted HVP.

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4 Transponder- is a form of Secondary Surveillance Radar (SSR) which emits an identifying signal to ATC.

5 The ALT key of the transponder which relays aircraft altitude information (Mode C) to ATC.

After take-off, at about 50 ft, the pilot of HVP turned the aircraft to the right to maintain separation with EMK. Immediately after, the pilot observed EMK in a climbing right turn.

Following the incident, the crew of EMK attempted to contact HVP on three occasions, but received no reply and HVP was not observed on the TCAS display. The pilot of HVP heard a broadcast from the crew of EMK and attempted to respond, but then realised that his radio was only receiving broadcasts and not transmitting.

The crew of EMK and HVP reported different assessments as to the minimum separation of the two aircraft. It appears that separation reduced to about 300 ft vertically and 200-250 m laterally.

VH-HVP radio selection

The aircraft's communication system consisted of a very high frequency (VHF) radio, a high frequency (HF) radio, and a satellite phone. One radio selector switch was used to activate each system. The pilot of HVP reported using the satellite phone the previous day. When changing the selection back to VHF, he inadvertently placed the selector in between the VHF and HF radio. The pilot further stated that he did not confirm the radio selection during his pre-flight checks.

VH-HVP transponder

The crew of EMK reported that HVP was not observed on the TCAS. When HVP was last operated in controlled airspace, the transponder was reported to be unserviceable and was repaired during HVP's last scheduled maintenance service. The PIC reported the transponder was confirmed as operational when it was checked following the incident.

Safety action

Whether or not the ATSB identifies safety issues in the course of an investigation, relevant organisations may proactively initiate safety action in order to reduce their safety risk. The ATSB has been advised of the following proactive safety action in response to this occurrence.

Operator of VH-HVP

As a result of this report, the operator of VH-HVP has undertaken the following actions:

- provided all pilots with copies of the ATSB publications listed in the safety message below, and
- has arranged for all pilots to re-visit company Standard Operating Procedures on radio transmissions and low-level survey flying.

Safety message

The practice of see-and-avoid has long been recognised as the primary method for minimising the risk of collision when flying in visual meteorological conditions; it is considered a crucial element of a pilot's situation awareness. An ATSB research report titled '*Limitations of the See-and-Avoid Principle*' showed that, when searching for traffic, alerted see-and-avoid (when a radio is used in combination with a visual lookout) is eight times more effective than un-alerted see-and-avoid (when no radio is used). However, pilots should be mindful that the absence of a traffic broadcast does not necessarily mean the absence of traffic. Pilots should remain vigilant and employ both un-alerted and alerted see-and-avoid principles to ensure the greatest level of traffic awareness is achieved.

This incident demonstrates the importance of checking the serviceability of radio equipment prior to flight. In particular, the use of available resources such as AFRU for ensuring the radio is transmitting. Carriage and use of radio is a mandatory requirement at all registered, certified and military non-towered aerodromes (CAR 166).

The following ATSB publications provide additional information:

- Safety Watch: Safety around non-towered aerodromes
  www.atsb.gov.au/safetywatch/safety-around-aeros.aspx
- Safety in the vicinity of non-towered aerodromes
  www.atsb.gov.au/publications/2008/ar-2008-044(2).aspx
- A pilot's guide to staying safe in the vicinity of non-towered aerodromes
  www.atsb.gov.au/publications/2008/ar-2008-044(1).aspx
- Limitations of the See-and-Avoid Principle
  www.atsb.gov.au/publications/1991/limit_see_avoid.aspx

General details

Occurrence details

Occurrence category:	Serious incident	
Primary occurrence type:	Airprox	
Location:	Jabiru Airport, Northern Territory	
	Latitude: S 12° 39.50'	Longitude: E 132° 53.58'

VH-EMK

Manufacturer and model:	Beechcraft Aircraft Corporation 1900C	
Registration:	VH-EMK	
Operator:	Vincent Aviation	
Type of operation:	Charter	
Persons on board:	Crew – 2	Passengers – 1
Injuries:	Crew – Nil	Passengers – Nil
Damage:	None	

VH-HVP

Manufacturer and model:	Airparts NZ LTD FU-24-954	
Registration:	VH-HVP	
Type of operation:	Aerial survey	
Persons on board:	Crew – 1	Passengers – 0
Injuries:	Crew – Nil	Passengers – Nil
Damage:	None	

About the ATSB

The Australian Transport Safety Bureau (ATSB) is an independent Commonwealth Government statutory agency. The Bureau 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.