Australian Government
Australian Transport Safety Bureau

Wheels up landing involving Beech A36, VH-SQI

Kumarina Roadhouse airstrip, Western Australia, 12 November 2012

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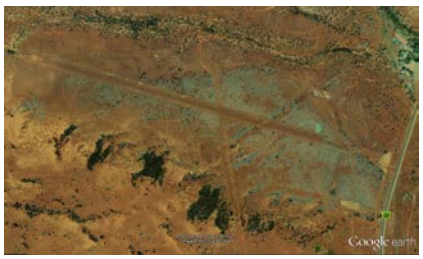

Source: Google earth

What happened

On 12 November 2012, a Beech A36 aircraft, registered VH-SQI (SQI), was conducting a fire inspection flight. On board were the pilot and one passenger.

At about 0525 Western Standard Time[1], the aircraft departed Meekatharra, Western Australia for Kumarina, where SQI conducted a 45 minute flight to observe nearby fires. At about 0850, the pilot and passenger prepared to depart Kumarina for further inspection of fires in the area. During the take-off run, the forward cabin door, located next to the passenger, opened and the pilot elected to continue the take-off. The passenger was slightly alarmed by the door opening, but the pilot reassured him that it was fine and that they would return and land.

The pilot elected to conduct a tighter and lower than normal circuit to expedite the landing, and decided to leave the aircraft in the take-off configuration to reduce his workload. He did however decide to retract the landing gear. During the shorter circuit, the pilot focused on locating a communications tower located north of the runway within the circuit area. The pilot commented that he felt overloaded and did not conduct his normal downwind and pre-landing checks as he believed the aircraft was already configured.

During the flare[2], the pilot realised he had not done his pre-landing checks and had forgotten to lower the landing gear. The aircraft landed with the wheels up and skidded to a halt about 200 m down the runway. The pilot and passenger were uninjured, however the aircraft was substantially damaged.

Neither the pilot nor passenger reported hearing the landing gear warning horn. The pilot stated this may have been due to the noise from the open door and his focus on flying the aircraft.

Pilot comments

This was the pilot's first flight into Kumarina, however he stated he had been well briefed on the local area by his company Chief Pilot.

The pilot reported briefing his passenger on emergency procedures and the door locking procedure on the previous sectors. On the accident flight, he watched the passenger close and lock the door, and checked it before take-off. He also reported that the aircraft type familiarisation training included practice with the door being opened during take-off and he was aware of the difficulty and danger of attempting to close the door in flight.

In addition, the pilot reported that the following factors may have contributed to the accident:

- **Fatigue:** The pilot had flown a scenic flight in a fixed gear aircraft in the morning the day before the accident and then departed on the charter in SQI later that afternoon. Due to approaching last light, they had overnighted in Meekathara. The pilot commenced duty at 0400 on the accident day, and reported some level of fatigue throughout the day.

[1] Western Standard Time (WST) was Coordinated Universal Time (UTC) + 8 hours
[2] Final nose-up pitch of landing aeroplane to reduce rate of descent close to zero at touchdown

- **Workload:** The pilot commented that the workload of handling an abnormal situation, his concern about the passenger, a potential obstruction in the circuit, and his decision to rush the circuit all contributed to him not realising until the flare that he had neglected his downwind and final pre-landing checks. These checks include lowering and confirming the position of the landing gear.

Figure 1: VH-SQI

Source: Pilot

Safety message

Transport Canada and the Transportation Safety Board of Canada have conducted research which found a number of aircraft accidents occurred after a cabin, baggage or other compartment door opened in flight or during takeoff in small twin (eg Cessna 404) and single engine aircraft (eg A36). In particular, the research indicated that all 33 aircraft in the study were capable of controlled flight with the door open. However "the distraction, pre-occupation, channelized attention, panic, etc. associated with a door opening in flight apparently affected 17 of the accident pilots to such an extent that aircraft control was significantly degraded." This degradation led to outcomes such as stalling, landing hard or with the gear up, flying into an object or the ground and loss of control while attempting to close the door. In 11 of these 17 accidents, the pilot-in-command had over 500 hours total flying time.

Most small aircraft which feature in these statistics do not have either a secondary door latch or any "door open" warning device to alert the pilot. For this reason the report encourages operators to prepare pilots for these types of events with a pre-determined plan of action. It also recommends adequate training be introduced at the ab-initio level of pilot training, and be included in recurrent training opportunities.

Transport Canada and Transport Safety Board research and recommendations regarding in-flight opening of doors on small aircraft can be found at:

- www.tc.gc.ca/eng/civilaviation/opssvs/air-tsb-1993-a92p0191-a92p0191_synopsis-524.htm
- www.tc.gc.ca/eng/civilaviation/opssvs/air-tsb-1993-a92p0191-a92p0191_p2-558.htm

In light of this research, CASA produced the following Airworthiness Bulletin:

- www.casa.gov.au/wcmswr/_assets/main/airworth/awb/52/002.pdf

The ATSB research report *Dangerous Distraction* examined the effect of distractions in aviation accidents and incidents from 1997 – 2004. Sources of distraction included flight management tasks, external objects and people on board the aircraft.

- The report identified 18 (7.3%) of the 247 occurrences in the study where having persons of board contributed to pilot distraction.

- External events including objects on the ground, contributed to pilot distraction in 6 (2.4%) occurrences.

The report is available at:

- www.atsb.gov.au/publications/2005/distraction_report.aspx

General details

Registration:	VH-SQI	
Manufacturer and model:	Beech Aircraft Corporation A36	
Type of operation:	Aerial Work – Fire Spotting	
Occurrence category:	Accident	
Primary occurrence type:	Wheels up landing	
Location:	Kumarina Roadhouse airstrip, Western Australia	
	Latitude: S 24° 42.726'	Longitude: E 119° 35.886'
Persons on board:	Crew – 1	Passengers – 1
Injuries:	Crew – Nil	Passengers – Nil
Damage:	Substantial	

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.