Australian Government
Australian Transport Safety Bureau

Wheels-down water landing involving Cessna U206F floatplane VH-UBI

Corio Bay, Vic. | 22 January 2013

Investigation

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Addendum

Page	Change	Date

Safety summary

What happened

VH-UBI

Source: Aircraft operator

At about 1440 Eastern Daylight-saving Time on 22 January 2013, the pilot of a Cessna U206F amphibious aircraft, registered VH-UBI, was conducting a seaplane joy flight from Corio Bay, Victoria with two passengers on board. During the flight the pilot refuelled the aircraft at Barwon Heads Airport, necessitating the use of the landing wheels. On the return trip the pilot detoured for local sightseeing before heading back to Corio Bay for a water landing. On touchdown, the aircraft pitched over and came to rest inverted. The pilot assisted the two passengers to evacuate the aircraft before rescue vessels arrived. All three occupants sustained minor injuries. The aircraft was substantially damaged.

What the ATSB found

The ATSB found that the pilot was distracted during the departure from Barwon Heads and as a result did not retract the landing wheels during the after take-off checks. The investigation also determined that on returning to Corio Bay, the pilot shortened the approach due to perceived time pressure and did not complete the normal downwind and short final checks. In not completing those checks, the pilot reduced the likelihood of identifying that the landing wheels were still extended. Such events where individuals forget to carry out an action due to distractions are not uncommon and are described as skill-based lapses.

Safety message

This accident is a reminder for pilots and operators that human error can occur at any time, and highlights the importance of managing operational pressures and avoiding distractions. The need to follow procedures and complete checklists diligently is also reinforced. Effective application of threat and error, and distraction management principles can reduce risk.

The operator’s requirement for passengers to wear life jackets throughout the flight enhanced the survivability of the passengers.

Contents

The occurrence

The information presented below, including any analysis of that information, was prepared principally from information supplied to the Australian Transport Safety Bureau (ATSB).

On 22 January 2013, at about 1440 Eastern Daylight-saving Time,[1] a Cessna U206F amphibious aircraft, registered VH-UBI, took off for a joy flight from Corio Bay, Victoria with the pilot and two passengers on board. One passenger sat in the front right seat while the other was seated in the right of the second row of seats.

The pilot, having already completed a number of flights that morning, decided to refuel the aircraft at Barwon Heads Airport during the flight. On approaching Barwon Heads, the landing gear wheels were extended for a non-water landing and the passengers were briefed that they would have to exit the aircraft for the refuelling. While at Barwon Heads, the pilot received a phone call from the operator advising that another group of passengers were waiting at Corio Bay for a flight. After reboarding the passengers, the pilot lined up the aircraft for take-off and made the necessary radio broadcasts. A transmission was received from a helicopter advising they were travelling westbound, coastal at an altitude of 500 ft. As the pilot could see the helicopter and assessed there was no conflict, the take-off was commenced. At about 200 ft during the initial climb, the pilot advised the passengers that they may be able to see the helicopter out the windows.

On the return flight to Corio Bay, the pilot offered to detour over the Simonds stadium, which the passengers accepted (Figure 1). The pilot had requested and been given clearance by air traffic control (ATC) to enter Avalon airspace prior to the detour and, cognisant that more clients were waiting for a flight, was conscious of the time. During the detour, the pilot was made aware by ATC of another helicopter that was waiting to depart from Corio Bay.

Figure 1: VH-UBI approximate flight path

Source: Google Earth, modified by the ATSB

[1] Eastern Daylight-saving Time (EDT) was Coordinated Universal Time (UTC) + 11 hours.

On approaching the bay, the pilot was focused on alighting in a timely manner to facilitate the departure of the helicopter. As the aircraft flew over the bay, it was lower than normal at about 800 ft (usually at 1,500 ft). During the final approach the pilot noticed that the boats anchored in the bay were aligned on a south-easterly heading while the water surface was showing a north-easterly wind. Having been told by the operator during training to use boat headings as an indication of wind direction, the pilot adjusted the approach to line up with the boats.

The aircraft's airspeed was reduced and the passengers briefed for the alighting. On touchdown, the aircraft immediately pitched forward and became inverted on the water. The pilot reported being upside down, suspended by the seatbelt and seeing water through the windscreen. The passengers were both conscious but the passenger who was seated in the second row on the right of the aircraft had been thrown forward out of his seat and was slumped on the front seat passenger.

As the aircraft was predominantly above water level, the pilot was able to kick the front left door open and drag the second row passenger out before the cabin started to fill with water through the door opening. Returning to the cabin, the pilot saw the front passenger still seated with their seatbelt secured. The passenger's head was submerged in the increasing water level within the cabin. The pilot released the seatbelt and removed the passenger from the aircraft. Once both passengers were at the water surface, the pilot proceeded to assist them by fitting and inflating their life jackets, which were tied around their waists, and directed them to a position between the aircraft's floats. As the aircraft settled in the water suspended by its floats, the pilot noticed that the aircraft's landing wheels were extended (Figure 2).

Figure 2: VH-UBI post-accident with the wheels extended

Source: Victoria Water Police

A number of boats approached the aircraft to offer assistance, but were too big to pull alongside the aircraft and safely retrieve the pilot and passengers. Soon after, a smaller fishing boat picked up the passengers and pilot and took them to shore. After an initial medical assessment by paramedics at the wharf, the passengers and pilot were taken to hospital. They reported sustaining minor injuries in the form of cuts and bruising and the effects of shock. The aircraft was substantially damaged (Figure 3).

Figure 3: VH-UBI damage

Source: Aircraft operator

Context

Personnel information

The pilot held a Commercial Pilot (Aeroplane) License, with the appropriate ratings and endorsements for conducting amphibious operations in the Cessna U206F aircraft. He had accrued 1,355 hours total flying experience with 80 hours amphibious experience on the aircraft type. The pilot had been with the operator for about 4 weeks. The pilot had undertaken previous seaplane flying with another operator on a Cessna U206E about 9 months prior to the accident.

The pilot held a valid Class 1 Medical Certificate and he considered that fatigue and illness were not factors in the accident.

Operational information

Seaplane training

The pilot completed a special design feature endorsement for float alighting gear with the operator in December 2011 at the same location in Corio Bay, which included about 12 hours of training. On commencing flying duties with the operator in January 2013, the pilot undertook a further 16 hours dual flying with the operator.

Landing gear checks

All of the pilot's seaplane experience was in amphibious aircraft with retractable wheels. The landing gear indication in those aircraft was four green lights when the landing wheels were extended and four blue lights when the landing wheels were retracted. The pilot reported being taught to use the following mnemonic as a memory jogger: '4 blue lights, landing on the water, water is blue – 4 green lights landing on the grass, grass is green', while pointing to the lights and checking the manual indicator on the left float. This was normally done during the pre-landing check and again during the short final check.

Ground-to-air communications

The operator did not have direct ground-to-air radio communication with the pilot, but had adopted the practice of calling the pilot on a mobile phone to relay information. To minimise disruption from noise during mobile phone communication, earphones were issued to the pilot. The practice had been undertaken informally with no policy or procedures for the use of the mobile phone or the earphones.

The operator, who was waiting for the aircraft's return at the pier, observed the aircraft on approach with the landing gear extended and tried to call the pilot on the mobile phone but was unsuccessful. The pilot was unaware of the mobile phone calls. The pilot reported that the ear phones were normally worn during flight; however, he had removed them during the refuel at Barwon Heads and had not replaced them for the return flight.

By the time the operator realised the pilot was not going to respond to the phone call there was insufficient time to contact ATC to relay an alert to the pilot.

Aircraft information

General

The Cessna U206F aircraft, serial number U20602051, was manufactured in the United States in 1973 and was first registered in Australia on 24 June 1999. It had accrued 20,077 hours total time in service (TTIS) at the time of the accident. The aircraft was used for charter and joy flight operations and was maintained in accordance with the *Civil Aviation Regulation (CAR)*

1988 Schedule 5 system of maintenance. The aircraft had a valid maintenance release and was reported by the pilot to be operating normally at the time of the accident.

Landing gear

Both of the U206 amphibious aircraft types flown by the pilot were fitted with the same manufactured floats, of the same displacement and contained retractable wheels; however, the method of actuating the wheels varied between the aircraft, but that variation was not a factor in this accident. As the extension of the wheels for ground landing was not an abnormal situation, no audible alert was provided when the wheels were extended.

Survivability

Life jackets

The passengers reported that prior to boarding the aircraft for the flight they were given a detailed safety briefing and provided with life jackets. The life jackets were packed to form a pouch that was tied around the passenger's waists and were to be worn at all times while on board.

To use the life jacket in an emergency required the pouch flap to be opened and for the jacket to be pulled out and placed over the user's head. The jacket contained a pressure canister for inflation, which was operated by pulling a toggle under the front of the jacket. An additional manual inflation tube for further inflation was also fitted.

During the safety briefing, it was explained that in the event of a water emergency, the passengers were to exit the aircraft under the direction of the pilot, to place the life jacket over the head once on the water surface and to then inflate it by pulling the toggle. The passengers reported that they were briefed not to place the jacket over their head or to inflate it while in the aircraft. The requirement to not inflate the jackets inside the aircraft reduced the risk of being trapped inside the submerged cabin.

After the aircraft pitched over and came to rest upside down, the passengers did not put their life jackets over their heads or attempt to inflate them, after exiting the aircraft. On noticing this, the pilot proceeded to put the passengers' life jackets over their heads and to inflate the jackets.

One of the passengers later commented that the life jackets were ineffective until inflated and suggested they be inflated in the aircraft to assist with rapid escape to the surface: contrary to the briefed procedure. This indicated that, despite the safety briefing, the passenger had not understood the procedure.

The Civil Aviation Order (CAO) 20.11 *Emergency & life saving equipment & passenger control in emergencies* required amphibious aircraft and float planes to carry life jackets. The life jackets were required to be readily accessible to each occupant and, in the case of passengers, within easy reach of their seats.

In July 2012, the Civil Aviation Safety Authority released a draft of the proposed Civil Aviation Safety Regulation (CASR) Part 135 for operations involving passenger and cargo operations in small aeroplanes. Part 135.665 *Equipment for flights over water—life jackets: seaplanes and amphibians* is planned to require all persons on board (other than infants) to wear an inflatable life jacket when the aeroplane is taking off from, or landing on water. In response to an ATSB request for an update on the progress of CASR Part 135, on 12 November 2013 the Civil Aviation Safety Authority (CASA) advised that:

> The draft CASR Part 135 has been returned from Office of Parliamentary Counsel and is being reviewed by CASA. At the present time (and subject to the outcome of the external review of the regulatory reform program) CASA expects Part 135 to be made (or become law) in the first quarter of 2014, and come into effect in the first quarter of 2015. This will align with the normal Aeronautical Information Regulation and Control cycle for the notification of aeronautical information changes. The period between the Part being made and having effect will allow for implementation planning and education programs.

Seatbelts

The aircraft was fitted with lap sash seatbelts on the pilot and passenger seats. The pilot reported physically checking the seatbelt had been correctly fitted to the rear seat passenger before departing Corio Bay and again before departing Barwon Heads. The pilot also stated he made an announcement prior to landing for seatbelts to be securely fitted as there was a possibility of a bumpy landing on the water.

During the impact with water, the passenger seated in the second row became free of his seat and was thrown over the forward seat where the other passenger was sitting. The passenger could not recall if the seatbelt had been secured when leaving Barwon Heads, nor could he recall if he had released the seatbelt during the return leg or just prior to touchdown.

On recovery of the aircraft following the accident, an insurance assessment of the damage was carried out by a maintenance organisation during which the aircraft interior was stripped. As a result the seatbelts were removed without annotation as to where they had been fitted. The seatbelts were not identified as being defective upon removal; however, an accurate assessment of the under-load function and serviceability of the seatbelt installed at the rear passenger's seat location was not undertaken as part of that assessment.

Pilot emergency training

The pilot reported having completed and being current in accordance with the requirements of CAO 20.11 *Emergency and lifesaving equipment and passenger control in emergencies*. The pilot had also previously completed wet drills that demonstrated competence in using the emergency equipment while physically in the water, but had not been required to apply that knowledge prior to the accident.

Similar occurrences

A review of the ATSB occurrence database for the period January 2003 to July 2013 revealed about 200 landing gear-related occurrences, including this occurrence. Nearly half of these involved unintentional incorrect landing gear configuration during landing, while most of the others involved mechanical failures with the landing gear. From the occurrences reported, 10 were related to water operations, of which seven were failure to extend wheels when landing on the ground and three were failures to retract the wheels when conducting water operations.

Tests and research

Seaplane survivability

Research into aircraft ditchings and the associated survivability aspects identified that typically only 10 to 15 per cent of people involved in ditchings are able to carry out the necessary actions to exit the ditched aircraft effectively, with a further 10 to 15 per cent unable to act due to extreme stress. Of the remaining survivors, who themselves may be stunned or shocked to varying degrees, most are able to exit their aircraft successfully if they are well trained and have rehearsed for such an event.[2]

The Transportation Safety Board of Canada (TSB) report into a seaplane loss of control and collision with water in 2012[3] noted that occupants of seaplanes have a greater likelihood of drowning in a sinking aircraft if they are unconscious, this condition usually being the result of

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[2] Brooks, C. J., MacDonald, C. V., Donati, L. & Taber, J. T., (2008). Civilian Helicopter Accidents into Water: Analysis of 46 Cases, 1979-2006, *Aviation, Space, and Environmental Medicine*, 79(10), 935-940.

[3] Transportation Safety Board of Canada, (2013). *Aviation Investigation Report, Loss of Control and Collision with Water, Cochrane Air Service de Havilland DHC-2 Mk.1, C-FGBF, Lillabelle Lake, Ontario, 25 May 2012* (Report No. A12O0071).

head trauma. If restrained and protected during the impact sequence, the likelihood of aircraft occupants remaining conscious increases, significantly improving their chance of successfully exiting a sinking aircraft.

An earlier safety study by the TSB of survivability in seaplane accidents found that wearing upper torso restraints significantly reduced the risk of serious injury or death.[4] This finding was reinforced in a United States Federal Aviation Administration study of 649 accidents in Alaska between 2004 and 2009.[5]

Threats and errors

In 2009, the ATSB conducted a survey in support of research report *AR-2006-156(2) Perceived threats, errors and safety in aerial work and low capacity air transport operation*. The report listed the most common threats to operations, and errors made by pilots, as perceived by flight instructors, check-and-training pilots, chief pilots and line pilots during aerial work and low capacity air transport operations. The aim of the report was to provide a snapshot of the perceived threats and errors, along with ratings of safety deficiencies, and to offer some suggestions in how to deal with these threats and errors.

The report categorised the threats into nine classifications. Distraction was captured within the 'other threat' classification, which was perceived to be amongst the lowest threat rating and represented 1 per cent of threats encountered. The report identified that operational pressure was considered the second highest threat to low capacity air transport pilots. The report also looked at internal threats and found that lack of pilot skill, knowledge or experience were the most commonly observed internal threats as identified by the survey respondents. Other internal threats included fatigue, personal stress and medical conditions.

Procedural errors were the most commonly identified error by respondents from both low capacity air transport and aerial work. Proficiency and operational decision errors were the least often observed; however, these were considered the most difficult for pilots to manage.

When looking at more specific error types, the report showed that procedural checklist errors, such as performing the wrong checklist or missing a checklist item, was the most commonly encountered error type for pilots in aerial work and the second most common error for low capacity air transport respondents. The full report is available from the ATSB website at www.atsb.gov.au.

Pilot distraction

In 2006, the ATSB published aviation research report B2004/0324 titled *Dangerous distraction: An examination of accidents and incidents involving pilot distraction in Australia between 1997 and 2004* (also available at www.atsb.gov.au). This study revealed that for the period analysed there were over 500 occurrences attributed to distraction. The report highlighted that distraction can affect pilots operating in any type of organisation, from small regional operations to large commercial airlines, and that distractions can arise unexpectedly, during periods of high or low workload, or during any phase of the flight. In essence, no pilot is immune to distraction.

The study proposed that airline operators and pilots would benefit from a system of distraction management. Suggestions for minimising the risk of distraction included:

- Pilots exercising discretion in engaging in conversation with other people on board the aircraft, particularly during pre-flight checks and critical phases of flight.

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[4] Transportation Safety Board of Canada, (1994). *A Safety Study of Survivability in Seaplane Accidents* (Report No. SA9401).

[5] Federal Aviation Administration, Aviation Safety Alaskan Region, (2010). *Fatal and Serious Injury Accidents in Alaska, A Retrospective of the years 2004 through 2009 with Special Emphasis on Post Crash survival*.

- If commercially viable, commercial general aviation pilots leaving the right front seat vacant to minimise conversation with passengers.
- Pilots considering the deferral of ancillary tasks (such as paperwork) to low-workload phases of flight, but being aware that distractions can also occur when monitoring or conducting routine tasks.
- In accordance with previous research, operators considering minimising the number of procedural items that can be performed at an undefined time during a particular phase of flight (Loukopoulos, Dismukes, & Barshi, 2003).
- If a checklist is interrupted, pilots considering returning to the beginning of the checklist to reduce the potential for error.

Safety analysis

Introduction

While conducting a seaplane joy flight from Corio Bay, Geelong, Victoria with two passengers on board, the pilot decided to refuel the aircraft at Barwon Heads Airport, which necessitated the extension of the landing wheels. On the return trip to Corio Bay, the pilot detoured for some local sightseeing before heading back to Corio Bay and did not retract the landing wheels. During the touchdown on the water, the aircraft pitched over and came to rest inverted.

This analysis will examine the factors that contributed to the pilot not retracting the landing wheels and being unaware that they remained extended. It will also consider the survivability and safety aspects of the occurrence and the effectiveness of the safety equipment and the operator's procedures.

Operational considerations

Water operations experience

The pilot had about 80 hours experience in water operations. All of that experience was obtained on amphibious aircraft with retractable landing wheels, so the necessity to extend and retract the wheels in support of land- and water-based operations would have been well-rehearsed. Switching between water and land operations was not uncommon for the pilot, having conducted refuelling operations at Barwon Heads Airport about 15 times over the previous 21 days.

Checks

The pilot reported that the position of the landing wheels was checked by memory during the pre-landing and short final checks. This was supported by the use of mnemonics such as 'four blue lights, landing on the water, water is blue and four green lights landing on the grass, grass is green'. The landing wheel position check was reinforced by the physical action of pointing to the lights and checking the manual indicator on the left float. The use of mnemonics in support of checklist items is common in these types of operations and increases the likelihood of their recall and accurate completion.

Operational distractions and perceptions of pressure

The pilot encountered a number of distractions during the flight that increased the risk that the pilot would not identify that the landing wheels were extended. These included:

- During the take-off from Barwon Heads the pilot highlighted the location of a helicopter to the passengers at a time when the after take-off checks were normally conducted.
- After air traffic control (ATC) cleared the pilot to enter Avalon controlled airspace for the approach to Corio Bay, he conducted a detour during which he was advised that another aircraft was awaiting immediate departure from the bay. The pilot hastened his return to the alighting area in an attempt to limit any delay to the other aircraft.
- On short final for the landing, the pilot became focussed on an apparent surface wind discrepancy because of contradictory visual indicators between the surface wind lines and the moored boat headings.

The above distractions and operational pressures perceived by the pilot led to the after take-off, pre-landing and short final landing checks being incomplete. These types of skill based lapses[6]

[6] Lapses are missed actions and omissions due to lapses of memory and/or attention, or because the necessary action was forgotten.

are common and, during the occurrence flight, resulted in the opportunity to verify the landing wheel position being missed on three separate occasions.

Previous ATSB research highlights situations in which distractions can occur, including under low or high workload and as a result of passenger interactions. That research suggests that distraction risk can be minimised by pilots:

- exercising discretion in engaging in conversation with other people on board their aircraft, particularly during pre-flight checks and critical phases of flight
- if commercially viable, leaving the right front seat vacant to minimise conversation with passengers
- when a checklist is interrupted, considering returning to the beginning of the checklist to reduce the potential for error.

Communication

The operator had adopted the practice of calling its pilots on a mobile phone to relay relevant operational information and, in order to overcome ambient cockpit noise issues, earphones were supplied to pilots. The pilot reported wearing the earphones normally but that after completing the refuelling activity at Barwon Heads the earphones were not worn. This resulted in the operator's attempts to contact the pilot by phone being unsuccessful.

The use of mobile phone for alerting in an emergency situation proved an ineffective defence in this accident. Where there is an expectation that ancillary equipment would be used as part of operations, supporting policy and procedures have the potential to increase the likelihood of its appropriate use. In this instance, it could be expected that if such policies and procedures had been in place, the pilot would have been required to wear the earphones during the flight. Conversely, where there are no specific policies or procedures, the use of standard transmission methods such as ground-to-air radio or via ATC would be a more reliable method of contacting the pilot, particularly during emergency situations.

In the event, the operator's attempts to contact the pilot by mobile phone were ineffective due to the pilot not wearing his earphones. There was insufficient time for the operator to then contact the pilot through ATC.

Survivability

The operator had appropriate safety procedures. The passengers received a safety brief prior to boarding the aircraft and were provided with belt-pouch type life jackets which were worn throughout the flight.

The passengers' inability to fit and inflate their life jackets was probably due to confusion, fear and extreme stress during the event. These factors also contributed to the front seat passenger not releasing their seatbelt as water entered the cabin. This was consistent with the findings of research into aircraft ditchings and the associated survivability aspects in the case of extreme occupant stress. The pilot acted quickly and decisively to evacuate the passengers from the submerged aircraft and assisted them to fit and inflate their life jackets in a timely fashion. The pilot's actions, likely due to his training, were a significant factor in enhancing the passengers' survivability.

Although not currently mandated, the operator's practice of requiring occupants to wear belt-pouch life jackets ensured that each passenger already had a life jacket secured around their waist when the accident occurred. This resulted in the passengers not having to search for, locate and retrieve their life jacket before exiting the inverted aircraft, as would have been the case if the life jackets were only within easy reach as presently required by Civil Aviation Order 20.11. Civil Aviation Safety Regulation 135.665 *Equipment for flights over water—life jackets: seaplanes and amphibians* will, when implemented, require float plane passengers to wear life jackets for all water take-offs and landings. This implementation is anticipated in the first quarter of calendar

year 2015 and could be expected to enhance the likelihood of passengers successfully exiting ditched aircraft.

It could not be determined why the second row passenger was thrown forward over the front seat and the ATSB was unable to determine whether the seatbelt was secured or not at the time of the accident. The removal of the seatbelts from the aircraft before appropriate examination and functional testing could be conducted also prevented an accurate assessment of their serviceability during the accident.

Findings

From the evidence available, the following findings are made with respect to the wheels-down water landing involving Cessna U206F floatplane, registration VH-UBI, at Corio Bay, Victoria on 22 January 2013 and should not be read as apportioning blame or liability to any particular organisation or individual.

Contributing factors

- The pilot experienced a number of distractions during the flight, resulting in him forgetting to complete the after take-off, pre-landing and short final landing checks.
- The pilot did not retract the land wheels prior to alighting at Corio Bay.
- Communication between the pilot and operator preceding the accident was ineffective in alerting the pilot that the landing wheels were extended.

Other factors that increase risk

- The second row passenger was not restrained at impact, but it was not possible to determine if they were wearing a seatbelt at that time.

Other findings

- The pilot's actions during the evacuation and the operator's requirement for passengers to wear life jackets throughout the flight enhanced the survivability of the passengers.

General details

Occurrence details

Date and time:	22 January 2013 – 1540 EDT	
Occurrence category:	Accident	
Primary occurrence type:	Incorrect configuration	
Type of operation:	Charter/joy flight	
Location:	Corio Bay, Victoria	
	Latitude: 38° 07.63' S	Longitude: 144° 23.63' E

Aircraft details

Manufacturer and model:	Cessna U206F	
Registration:	VH-UBI	
Serial number:	U20602051	
Type of operation:	Charter/joy flight	
Persons on board:	Crew – 1	Passengers – 2
Injuries:	Crew – 1 minor	Passengers – 2 minor
Damage:	Substantial	

Sources and submissions

Sources of information

The sources of information during the investigation included the:

- pilot
- passengers
- aircraft operator.

References

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Submissions

Under Part 4, Division 2 (Investigation Reports), Section 26 of the *Transport Safety Investigation Act 2003* (the Act), the Australian Transport Safety Bureau (ATSB) may provide a draft report, on a confidential basis, to any person whom the ATSB considers appropriate. Section 26 (1) (a) of the Act allows a person receiving a draft report to make submissions to the ATSB about the draft report.

A draft of this report was provided to the aircraft operator, the Civil Aviation Safety Authority, the Victoria Police and the pilot. A submission was received from the aircraft operator. The submission was reviewed and where considered appropriate, the text of the report was amended accordingly.

Australian Transport Safety Bureau

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; 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.

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.

Developing safety action

Central to the ATSB's investigation of transport safety matters is the early identification of safety issues in the transport environment. The ATSB prefers to encourage the relevant organisation(s) to initiate proactive safety action that addresses safety issues. Nevertheless, the ATSB may use its power to make a formal safety recommendation either during or at the end of an investigation, depending on the level of risk associated with a safety issue and the extent of corrective action undertaken by the relevant organisation.

When safety recommendations are issued, they focus on clearly describing the safety issue of concern, rather than providing instructions or opinions on a preferred method of corrective action. As with equivalent overseas organisations, the ATSB has no power to enforce the implementation of its recommendations. It is a matter for the body to which an ATSB recommendation is directed to assess the costs and benefits of any particular means of addressing a safety issue.

When the ATSB issues a safety recommendation to a person, organisation or agency, they must provide a written response within 90 days. That response must indicate whether they accept the recommendation, any reasons for not accepting part or all of the recommendation, and details of any proposed safety action to give effect to the recommendation.

The ATSB can also issue safety advisory notices suggesting that an organisation or an industry sector consider a safety issue and take action where it believes it appropriate. There is no requirement for a formal response to an advisory notice, although the ATSB will publish any response it receives.

Australian Transport Safety Bureau

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Investigation

ATSB Transport Safety Report
Aviation Occurrence Investigation

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