



**Australian Government**

**Australian Transport Safety Bureau**

# Partial crew incapacitation – Raytheon B200, VH-MSH

10 NM SW of Williamtown Airport, New South Wales – 5 August 2012

**ATSB Transport Safety Report**  
Aviation Occurrence Investigation  
AO-2012-100  
Final

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# Partial pilot incapacitation – Raytheon B200, VH-MSH

AO-2012-100

## What happened

On 5 August 2012, at about 1400 Eastern Standard Time<sup>1</sup>, an aeromedical pilot arrived at Sydney Airport, New South Wales to commence the 1400-2200 shift. At that time, the pilot reported that he was feeling tired and elected to have a 45 minutes sleep, after which he stated he felt fine.

The pilot and a flight nurse were then tasked with transporting a patient from Port Macquarie, New South Wales to Sydney. While preparing the Raytheon B200 aircraft, registered VH-MSH, for the flight, the nurse reported that the pilot did not appear his usual self. The nurse asked the pilot how he was feeling and she recalled that he initially stated that he felt 'average', but soon after, said he felt 'okay'. The pilot reported that he was feeling emotionally drained at the time due to personal circumstances, although he felt physically fine prior to departing.

The flight departed Sydney at about 1600.

During the climb, the pilot reported that he began to feel unwell, experiencing abdominal pain and nausea. When overhead Newcastle, at about flight level (FL)<sup>2</sup> 210, the pilot's condition worsened and he requested a sick bag from the nurse. The nurse also noticed that the pilot appeared pale in colour and suggested that he don his crew oxygen mask, which he did. The nurse then confirmed that the aircraft's cabin pressure was normal, placed a pulse oximeter on the pilot to monitor his heart rate<sup>3</sup>, and provided him with a drink. The pilot reported that his condition improved.

While they were positioned about 10 NM to the south-west of Williamtown Airport, the pilot elected to return to Sydney. The pilot reported that he was feeling better at the time, and they were only 60 NM from Sydney<sup>4</sup>.

At about 1624, the pilot advised air traffic control (ATC) that they were returning to Sydney. Air traffic control asked if operations were normal, to which the pilot replied he was feeling unwell. The pilot reported that he did not see a requirement to broadcast a 'PAN'<sup>5</sup> call as his condition had improved. At about the same time, the nurse contacted the aeromedical operations centre via satellite phone to advise them of the situation.

At about 1628, ATC advised the pilot that Williamtown was closer if conditions were urgent. The pilot replied 'understood' and elected to continue to Sydney.

During the descent, passing through 6,000-7,000 ft, the pilot removed his oxygen mask. Soon after, when about 10-15 NM from Sydney, the pilot reported that he began to feel unwell again.



Source: *Federal Aviation Administration*

<sup>1</sup> Eastern Standard Time (EST) was Coordinated Universal Time (UTC) + 10 hours.

<sup>2</sup> 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 210 equates to 21,000 ft.

<sup>3</sup> Pulse oximeter: A medical device that monitors an individual's oxygen levels and pulse rate. The nurse reported that the pilot's heart rate was considered normal.

<sup>4</sup> A diversion to Williamtown would have required the pilot to conduct a fast descent from FL210, which he believed would not have been operationally ideal.

<sup>5</sup> An internationally recognised radio call announcing an urgency condition which concerns the safety of an aircraft or its occupants but where the flight crew does not require immediate assistance.

At about 1647, the aircraft landed at Sydney.

After shutdown, the pilot became physically ill. He remained in the aircraft for about 10 minutes before moving inside the medical provider's facilities to lie down. He was assessed by medical personnel, who conducted an electrocardiogram (ECG)<sup>6</sup> and tested his blood pressure and sugar levels, which were reported as normal. The pilot rested for several hours before being transported home.

The pilot recovered from the illness about 1 week later. It was determined that he most likely suffered viral gastroenteritis.

### ***Communications***

Internal communications between the pilot and nurse were through the aircraft's intercom system, while external communications for the rear of the aircraft could be supplied through the copilot's communication system. The nurse stated that she could hear radio calls made by the pilot to ATC, but was unable to hear broadcasts made by ATC as the copilot's communication system was not turned on at the time. This reduced her awareness of the situation and her ability to confirm operations were normal.

### ***Pilot comments***

The pilot provided the following information regarding the incident and his personal history:

- The incident shift was initially intended for training on a new aircraft system, however, the aircraft was unavailable. The operator's check and training pilot, who was to carry out the training, offered to conduct the return flight to Port Macquarie on behalf of the pilot if he felt unwell. However, as the pilot felt much better after having a 45 minute sleep, he elected to conduct the flight.
- His current roster was not standard due to the scheduled training. He had worked from 1600 to midnight on 3 August and 1600 to 2200 on 4 August, and then travelled 1.5 hours to his home afterwards. The pilot stated that this was fatiguing.
- His quality of sleep for the previous three nights was 'average'.
- He had been experiencing a fair amount of stress as a result of his personal circumstances.

### ***Flight nurse comments***

The nurse indicated that the provision of crew resource management (CRM) training would have assisted in developing a suitable plan of action if the pilot's condition had worsened. Furthermore, the nurse commented that, it would have been beneficial to receive training on using the aircraft's communication system and talking to ATC, in the event of pilot incapacitation.

## **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.

### ***Medical provider***

As a result of this occurrence, the medical provider has advised the ATSB that they have requested the aircraft operator accelerate the provision of CRM training for flight nurses and include the activation of the copilot's communication system as part of that training.

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<sup>6</sup> ECG is a diagnostic tool that is used to assess the electrical and muscular functions of the heart.

## Aircraft operator

As a result of this occurrence, the aircraft operator has advised the ATSB that they have taken the following safety actions:

- Issued a memo reminding all pilots to ensure that the radios on the copilot's communication panel are turned on at all times to allow medical staff to monitor communications, in particular, during an emergency.
- Scheduled CRM training for November 2012.
- Reminded all pilots of their responsibilities with regard to fitness to fly. This will be further highlighted in the next edition of the operator's *Flight Safety Newsletter* and during the CRM training.

## Safety message

Incapacitation may be subtle, or sudden, partial or complete; it may be due to the effects of a pre-existing medical condition, the development of an acute medical condition, or some physiological event.

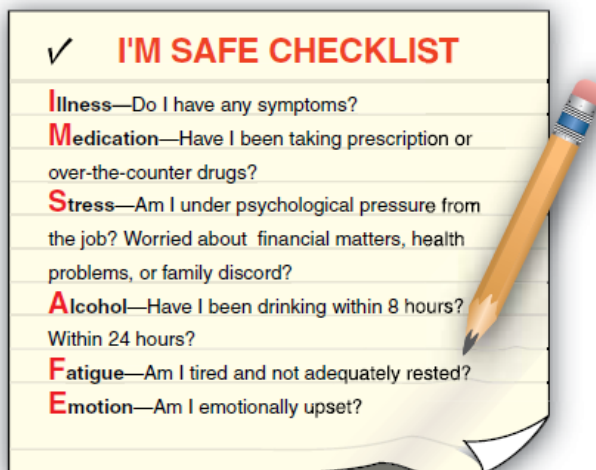
Research published by the ATSB determined that the majority of pilot incapacitation events between 1 January 1975 and 31 March 2006 did not involve a chronic or pre-existing medical condition. That is, they were largely unforeseeable events.

However, while pilots conduct a pre-flight inspection of their aircraft to determine airworthiness, this incident highlights the importance of pilots also assessing their own well being. Tools such as the 'I'm safe checklist' allows pilots to determine if they are physically and mentally prepared for a flight by asking a number of questions relating to illness, medication, stress, alcohol, fatigue and eating (Figure 1). This checklist was also published in the aircraft operator's January 2011 *Flight Safety Newsletter*.

The following publications provide additional information on pilot incapacitation and the 'I'm safe checklist':

- Pilot Incapacitation: Analysis of Medical Conditions Affecting Pilots Involved in Accidents and Incident – 1 January 1975 to 31 March 2006 [www.atsb.gov.au/media/29965/b20060170.pdf](http://www.atsb.gov.au/media/29965/b20060170.pdf)
- Federal Aviation Administration Risk Management Handbook [www.faa.gov/library/manuals/aviation/media/FAA-H-8083-2.pdf](http://www.faa.gov/library/manuals/aviation/media/FAA-H-8083-2.pdf)
- I.M S.A.F.E. Checklist [www.ampl.ma/attachements/publication/509.pdf](http://www.ampl.ma/attachements/publication/509.pdf)

Figure 1: I'M SAFE checklist



Source: Federal Aviation Administration (United States)

## Aircraft details

Manufacturer and model:	Raytheon Aircraft Company B200	
Registration:	VH-MSH	
Type of operation:	Aerial work	
Location:	10NM SW of Williamtown Airport, New South Wales	
Occurrence type:	Crew incapacitation (partial)	
Persons on board:	Crew – 1	Passengers – 1
Injuries:	Crew – Nil	Passengers – Nil
Damage:	Nil	

## 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.