



**Australian Government**

**Australian Transport Safety Bureau**

# Fumes event involving Bombardier DHC-8, VH-SBB

near Adelaide Airport, South Australia, 10 November 2016

**ATSB Transport Safety Report**  
Aviation Occurrence Investigation  
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#### **Addendum**

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# Fumes event involving Bombardier DHC-8, VH-SBB

## What happened

At about 0936 Central Daylight-saving Time (CDT) on 10 November 2016, a QantasLink Bombardier DHC-8-315 aircraft, registered VH-SBB (SBB), was on approach to Adelaide Airport South Australia. Two flight crew, two cabin crew and 43 passengers were on board the regular public transport flight.

At this time, the flight crew contacted air traffic control and informed the approach controller that they were at 9,000 ft. Soon after, the first officer, who was the pilot flying,<sup>1</sup> noticed that the captain's electronic attitude director indicator (EADI) screen had gone blank. The flight crew conducted the display failure checklist. As the captain turned the EADI screen off, they noticed the screen return to normal for about five seconds and then the entire screen pulsed on and off, before returning to a blank state.

The flight crew were then cleared to descend by air traffic control and at about 6,000 ft they noticed a faint electrical smell. They were not able to identify the source of the smell, but suspected that it originated from the failed EADI screen.

The cabin crew had prepared the cabin for landing and all passengers and the two cabin crew were seated. The flight crew contacted the cabin crew through the aircraft's intercom and informed them that there was a smell in the cockpit. The cabin crew reported that they had not identified any unusual smells where they were seated at the rear of the aircraft.

The flight crew were cleared by air traffic control to conduct a visual approach for a landing on runway 12.

The flight crew determined that the smell was getting worse and conducted their phase one-memory checklist items for a fuselage fire or smoke. Both flight crew fitted their oxygen masks and smoke goggles and turned off the air-conditioning recirculation fans for the flight deck and the cabin.

One of the cabin crew went to the forward area of the cabin and could smell an electrical smell that did not go past row one and reported this to the flight crew. At this stage, the flight crew informed them that they were using their supplemental oxygen.

At about 0943, the flight crew made a PAN PAN<sup>2</sup> call to air traffic control and advised that they had an instrument failure and electrical smell. As the aircraft was already established on approach for runway 12 they were cleared to land by air traffic control. As the electrical smell was increasing in intensity, the flight crew advised the tower controller that they would require emergency services on standby.

The aircraft landed, taxied onto taxiway E and stopped just past the holding point clear of runway 12 (Figure 1). The first officer made an alert announcement through the aircraft's public announcement (PA) system that informed the passengers to remain seated and await further instructions. The PA also signalled to the cabin crew that there was an abnormal situation that may require an emergency or precautionary evacuation. The flight crew contacted one of the cabin crew using the intercom and the cabin crew informed them that the smell in the cabin was

<sup>1</sup> Pilot Flying (PF) and Pilot Monitoring (PM): procedurally assigned roles with specifically assigned duties at specific stages of a flight. The PF does most of the flying, except in defined circumstances; such as planning for descent, approach and landing. The PM carries out support duties and monitors the PF's actions and the aircraft's flight path.

<sup>2</sup> PAN PAN: 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.

getting stronger and that there were no other issues in the cabin. The flight crew contacted the ground controller at about 0950 to inform them that they would be conducting an evacuation at their position on the taxiway. They then conducted the precautionary disembarkation checklist. When the engine propellers had stopped, the captain made the precautionary disembarkation PA. The cabin crew at the front of the aircraft opened the main entry door and directed the passengers towards the airport safety officers that were located on the grassed area near the taxiway. The first officer disembarked the aircraft after the twelfth passenger and also directed the passengers to the grass area where the airport safety officers were located.

**Figure 1: SBB parked on taxiway E after the crew and passengers had disembarked**



Source: Airport operator

When all passengers had disembarked, the captain and cabin crew disembarked the aircraft with their emergency equipment. The captain briefed the airport fire fighters about the nature of the fumes. The fire fighters informed the captain that no toxic fumes or hot spots were detected although they were able to smell the strong electrical smell.

There were no injuries as a result of the occurrence and the aircraft was not damaged.

***Captain’s comment***

The captain reported practicing emergency procedures about four months prior to the occurrence when conducting simulator training. They commented how valuable that training was to be prepared for this type of occurrence. The captain indicated that the operator provided different tools for different situations. In this emergency, the captain reported using the GRADE model (gather information, review information, analyse alternatives, decide and evaluate the outcome of the action) and that it was helpful to evaluate the situation and decisions to ensure that there was a safe outcome.

The captain indicated that there were no issues with the communication between the flight crew and the cabin crew and that everyone worked together well.

***Cabin crew comment***

A member of the cabin crew reported that before the disembarkation, the passengers remained seated and calm. Most passengers followed the instructions to leave everything with only 2 or 3 people taking small bags from the aircraft. They advised that everything went smoothly, in accordance with their training and that they worked well as a team.

### **Aircraft operator comment**

The aircraft operator reported that the electronic attitude director indicator (EADI) had failed. The fumes were caused by damage to a circuit card assembly due to a blown resistor on the video driver. There was no damage to any other aircraft parts or components.

### **Findings**

These findings should not be read as apportioning blame or liability to any particular organisation or individual.

- The captain’s electronic attitude director indicator (EADI) failed, resulting in fumes in the aircraft.
- As a result of the fumes in the aircraft, the crew reduced the potential risk to the aircraft occupants by conducting a precautionary disembarkation onto a taxiway.

### **Safety message**

Many factors come into play when pilots make decisions in the aviation environment. There are many different models and tools that pilots can use for effective decision making, such as GRADE, as was used by the captain in this event. The models involve a systematic approach to decision making, to consistently determine the best course of action in response to a given situation.

An understanding of the decision-making process provides a pilot with a foundation for developing aeronautical decision-making skills. Some situations require a pilot to respond immediately using established procedures, with little time for detailed analysis. These decisions are based upon training, experience, and recognition. Other situations require a more reflective response, where greater analysis is necessary.

Additional information is provided in the following publication:

US Federal Aviation Administration (FAA), [Pilot’s handbook of aeronautical knowledge](#), Chapter 2: *Aeronautical decision-making*, available from the FAA website.

### **General details**

#### **Occurrence details**

Date and time:	10 November 2016 – 0940 CDT	
Occurrence category:	Incident	
Primary occurrence type:	Fumes	
Location:	near Adelaide Airport, South Australia	
	Latitude: 34° 56.70'S	Longitude: 138° 31.83' E

#### **Aircraft details – VH-SBB**

Manufacturer and model:	Bombardier Inc	
Registration:	VH-SBB	
Operator:	Eastern Australia Airlines trading as QantasLink	
Serial number:	539	
Type of operation:	Air transport high capacity - passenger	
Persons on board:	Crew – 4	Passengers – 43
Injuries:	Crew – 0	Passengers – 0
Aircraft damage:	Nil	

## 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 operations involving the travelling public.

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.