



OFFICE OF THE CHIEF COMMISSIONER

AIC Head Office,
Level 1, NAGIA Haus, Portion 81, Morea Toba Rd, 6 Mile
PO Box 1709, Boroko 111
National Capital District
Papua New Guinea

Telephone : (675) 323 2911
Facsimile : (675) 323 2139
Email : hnamani@aic.gov.pg

Safety recommendation: AIC 21-RO2/20-2001

Addressed to: Sunstate Airlines (QLD) Pty Ltd

Date Issued: 30 June 2021

Investigation link: AIC 20-2001

Action Status: Issued

Introduction

On 16 March 2020 at 03:43 UTC (13:43 local time), the Civil Aviation Safety Authority of PNG (CASA PNG) notified the PNG AIC via email of a serious incident which occurred on the same date, involving a Bombardier DHC-8-402 aircraft, registered VH-QOE, owned by Qantas Airways Limited and operated by Sunstate Airlines (QLD) Pty Ltd. The AIC immediately commenced an investigation, and the appointment of an Investigator-In-Charge (IIC) in accordance with PNG Legislation, Civil Aviation Act 2000(As Amended) and ICAO Annex 13 standards and dispatched a team of investigators to perform on-site activities.

Occurrence

On 16 March 2020, at about 11:29 local, the flight crew of a Bombardier DHC-8-402, registered VH-QOE, owned by Qantas Airways Ltd and operated by Sunstate Airlines (QLD) Pty Ltd enroute from Jacksons International Airport, Port Moresby, Papua New Guinea to Cairns International Airport, Queensland, Australia on a scheduled passenger flight, declared a PAN as a result of an in-flight smoke/fumes event.

The flight crew identified an unusual smell entering the cockpit which intensified as the aircraft continued climbing. After passing 10,000 ft, the cabin crew confirmed that the unusual smell extended to the cabin. At 11:28:23 the flight crew commenced the QRH procedure for "*Smoke (Warning Light) or Fuselage Fire, Smoke or Fumes*" by actioning its *RECALL ACTIONS* items, donning their oxygen masks, and broadcasting a PAN, to then request ATC for a return to Port Moresby.

Moresby Radar instructed the crew to track to Jacksons International Airport and plan for an approach to land on runway 32R.

As soon as the aircraft was established on the approach at about 4,000 ft, the smoke alarm in the toilet activated. The crew continued the approach and requested for ARFF to be available upon landing. The control tower then notified the ARFF and a team was sent to a stand by position at taxiway Golf to assist the aircraft as necessary.

The aircraft landed at 11:47:08. After completing the landing roll, the flight crew called the cabin crew to check on the status of the smoke and condition of the passengers. The cabin crew confirmed that the smoke was still present in the cabin and passengers were having trouble breathing.

After exiting the runway, the flight crew stopped the aircraft and shut down the engines at taxiway Foxtrot. The cabin crew conducted a precautionary disembarkation with the assistance of ARFF who were accompanying the aircraft by then. Passengers were later transported to the airport terminal.

There were 12 persons on board the aircraft: 2 flight crew, 2 cabin crew and 8 passengers. No injuries were reported.

The fumes/smoke event occurred due to burning oil in the No.2 engine. The oil was found to have leaked from a fractured No.3 bearing carbon seal element.

Safety deficiency description

The investigation determined that even when the Qantas Link *Aircrew Emergency Procedure Manual and Operations Manual* clearly specifies that fumes caused by oil contaminated bleed air have been described as having a strong odour similar to 'dirty socks', the cabin crew did not make the right association between the odour and its origin. As the emergency procedures applicable for smoke and fumes in the cabin and in the cockpit ultimately require landing as soon as possible, if the cabin crew had identified correctly the origin of the odour and reported it when they initially perceived it, the flight crew would have had more time available for decision making and, possibly, a chance to cancel the flight even before take-off.

The crew identified that the fumes/smoke was entering through the bleed system, however, they were unable to identify whether it was associated with the No.1 (left) or No.2 (right) engine. The investigation could not identify any abnormal parameters from the FDR associated with operation of either engine for the flight and emergency. The No.2 engine, the actual source of fume/smoke, was operating within the normal parameters. This indicated that the cockpit engine gauge readings gave no reasonable abnormal readings that would have helped the crew to positively identify that the fumes/smoke were entering from the No.2 engine.

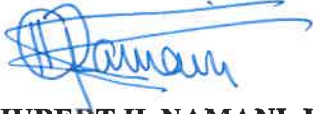
Additionally, at the onset of the emergency, the flight crew carried out the *QRH* specific procedure for "*Bleed Source or Air Conditioning Suspected*". The procedure initially requires turning *Bleed Air 1* off, and then to wait up to one minute for improvement. As the issue was in effect associated to *Bleed Air 2*, there was no improvement. Under these conditions, the flight crew is expected, as per the procedure, to turn *Bleed Air 1* back on and then to turn *Bleed Air 2* off, and subsequently to wait up to one minute for improvement. However, the PIC decided not to turn *Bleed Air 1* back on, which in the end caused that the flight crew was not able to isolate the origin of the fault to continue with the applicable steps required by the checklist to avoid unnecessary effects on safety.

Recommendation number AIC 21-R02/20-2001 to Sunstate Airlines (QLD) Pty Ltd

The PNG Accident Investigation Commission recommends that Sunstate Limited ensure that its flight and cabin crews are fully aware of the relevant information relating to unusual odours that can be indications of potential sources of smoke/fumes in the cabin and the applicable company procedures in place, to timely and adequately identify, report and react to such conditions, facilitating the adequate administration of the inflight operation.

Action Requested

The AIC requests that Sunstate Airlines (QLD) Pty Ltd note recommendation AIC 21-R02/20-2001, and provide a response to the AIC within 90 days, but no later than 28 September 2021, and explain including evidence how Sunstate Airlines (QLD) Pty Ltd has addressed the safety deficiency identified in the safety recommendation.



HUBERT H. NAMANI, LLB
Chief Commissioner

30 June 2021

Sunstate Airlines (QLD) Pty Ltd response

On 09 August 2021, The Sunstate Airlines (QLD) Pty Ltd informed the PNG AIC of its safety action to address the safety deficiency identified in the Safety Recommendation AIC 21-R02/21-200. The Sunstate Airlines (QLD) Pty Ltd provided their planned safety action implementation.

PNG AIC assessment of Sunstate Airlines (QLD) Pty Ltd response

The PNG AIC has assessed the response provided by Sunstate Airlines (QLD) Pty Ltd and acknowledges that the Safety Recommendation was accepted.

The PNG AIC assigns Sunstate Airlines (QLD) Pty Ltd response as satisfactory. The AIC notes that Sunstate Airlines (QLD) Pty Ltd intends to include smoke/fume event in its next cyclic training for Flight Crew commencing later in 2021 and to use smoke/fume event as a case study in the annual 'CAO 20.11 Emergency Procedures Training' commencing in September 2021.

The PNG AIC shall assess evidence of planned action when provided by Sunstate Airlines (QLD) Pty Ltd and reassign the status of the recommendation as appropriate.

The AIC has recorded the Status of the Recommendation: **MONITOR**



HUBERT H. NAMANI, LLB
Chief Commissioner

14 October 2021

Sunstate Airlines (QLD) Pty Ltd response

On 03 March 2022, The Sunstate Airlines (QLD) Pty Ltd informed the PNG AIC of its safety action progress in relation to Safety Recommendation AIC 21-R02/20-2001. The Sunstate Airlines (QLD) Pty Ltd also provided evidence of implementation of their planned safety action.

PNG AIC assessment of Sunstate Airlines (QLD) Pty Ltd response

The AIC acknowledges the progressive updates provided by Sunstate Airlines in regard to Safety Recommendation AIC 21-R02/20-2001.

The AIC has assessed the response provided by Sunstate Airlines (QLD) Pty Ltd along with the evidence provided and takes note of the evidence showing actions taken.

The AIC is satisfied that appropriate safety action addressing the safety recommendation has been taken. The AIC assigns Sunstate Airlines (QLD) Pty Ltd response as *satisfactory*.

The AIC has recorded the **Status of the Recommendation: CLOSED**



Captain Aria Bouraga, MBE
Acting Chief Commissioner

31 March 2022