

Investigation Report

Identification

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| Type of Occurrence: | Incident |
| Date: | 18 July 2012 |
| Location: | En route |
| Aircraft: | Airplane |
| Manufacturer / Model: | Boeing / 757-223 |
| Injuries to Persons: | None |
| Damage: | None |
| Other Damage: | None |
| Information Source: | Investigation by BFU |
| State File Number: | BFU TX008-12 |

Factual Information

During a passenger flight from Reykjavik-Keflavik, Iceland, to Frankfurt/Main, Germany, members of the cabin crew suffered health problems during cruise flight. All cabin crew members continued their duty until the end of the flight. Pilots and passengers were not affected.

History of the Flight

The airplane was on a flight from Reykjavik to Frankfurt with seven crew members and 132 passengers on board.

The Pilot in Command (PIC) stated that about one hour after take-off during cruise flight in Flight Level (FL) 390 the purser had informed him that most of the cabin crew members experienced health problems such as headaches, dizziness and sweating while they had been serving the passengers. In order to increase the fresh air supply in the cabin the pilots shut off the right recirculation fan. After the PIC had discussed the situation with the maintenance control centre, the recirculation fan was switched on again and the flight was to be continued in a lower flight altitude. Therefore, the pilot conducted a descent to initially FL350 and then FL310 to reduce the cabin altitude from 7,000 ft to about 4,000 ft. The cockpit indications of cabin pressure, air conditioning and all other systems had been inconspicuous. After the cabin crew members had been supplied with some oxygen either in the cockpit or the galley area they felt much better. The PIC and the cabin crew discussed the situation and the PIC decided to continue the flight to the airport of destination.

During the descent to Frankfurt as the airplane had briefly levelled off in FL200 and the engine thrust had been increased, the cabin crew reported strong symptoms such as dizziness, headaches, blue lips and fingers and numbness in the legs. The PIC then decided to inform the controller via radio and ask for a priority approach.

After the PIC had visited the lavatory he talked briefly with three flight attendants in the aisle of the forward galley. During this conversation all four had experienced dizziness for 1 - 2 seconds. The PIC returned to the cockpit and no longer experienced any symptoms.

At 1255 hrs¹ the airplane landed in Frankfurt without further incidents.

The Cockpit Voice Recorder (CVR) recording showed that about 40 minutes prior to the landing a male person had entered the cockpit and reported that he and several other cabin crew members had suddenly experienced health problems. The pilots decided to disengage the right air conditioning pack and the right recirculation fan. Twenty minutes prior to the landing the cabin crew once again reported that suddenly everyone felt much worse. The PIC said that at that time the engine thrust had been increased and he would ask for a priority approach.

After the landing the crew members sought medical treatment.

¹ All times local, unless otherwise stated.

Aircraft Information

The Boeing 757-223 is a twin-engine transport aircraft.

Manufacturer: Boeing
Type: 757-223
Manufacturer's Serial
Number (MSN): 25295
Year of manufacture: 1992
Engines: Rolls-Royce RB211-535E4B

The aircraft had a valid Icelandic certificate of registration and was operated by an Icelandic operator.

Meteorological Information

At the time of the incident it was daylight and visual meteorological conditions prevailed.

Flight Recorder

The aircraft was equipped with a Flight Data Recorder (FDR) and a Cockpit Voice Recorder (CVR).

The CVR Fairchild FA 2100 was seized and read out at the BFU. The Icelandic aircraft accident investigation authority helped to prepare a transcript and translation of the recording.

Wreckage and Impact Information

The airplane was examined at a maintenance organisation. Among other things, the following was determined:

The controller BITE tests determined no problems with the controller of the left and right air conditioning pack and the cabin pressure controller.

The Aerotracer equipment did not show any traces of smoke or engine oil or smell during engine test runs of both engines.

The system tests of the cabin pressure controller were negative.

The test Pack High Flow Inhibit was conducted for both packs. The test result for the left pack was negative. The right pack could not be put into High Flow.

1.13 Medical and Pathological Information

Shortly after the landing the BFU had telephone contact with the PIC. Once he had described the incident he was advised to seek medical treatment for himself and the entire crew and to have blood tests done. The pilot stated he has no knowledge of any abnormalities found during these examinations.

The airport personnel stated passengers did not accept the offer to seek medical help after the landing. None of the passengers had reported any health problems.

Fire

There was no fire.

Additional Information

The aircraft manufacturer Boeing said to the operator one day after the incident that in the past similar problems had occurred in airplanes of the same type which were attributed to restricted airflow in the cabin in particular in the aft part of the cabin. In those cases the restricted airflow had been caused by foreign objects in the air conditioning system.

Analysis

The CVR recordings of the conversation between the purser and the pilots show that the cabin crew members promptly informed the pilots about their health problems. The reasons being the intensity of the felt problems and that all cabin crew members were affected. It cannot be excluded that similar occurrences have happened in the past and, therefore, played a part here. The BFU is of the opinion that both, the documented prompt report to the pilots and the fact that several persons unanimously described the symptoms, indicates that there was a problem with the cabin air during the flight.

The cabin crew members described symptoms such as blue lips and dizziness which could indicate a lack of oxygen. Even though all seven cabin crew members were affected, neither the two pilots in the cockpit nor the passengers had any adverse effects. One possible explanation could be the increased oxygen demand of the cabin crew due to them moving around the cabin whereas passengers and flight crew were seated.

The PIC stated that the results of the medical examinations performed after the flight, were all negative.

Due to the fact that all crew members were able to continue their duty until the end of the flight, the BFU does not classify the occurrence as "Serious Incident" since none of the crew members suffered from incapacitation.

After the landing in Frankfurt measurements inside the airplane were undertaken but did not reveal any evidence that the cabin air was contaminated.

Conclusions

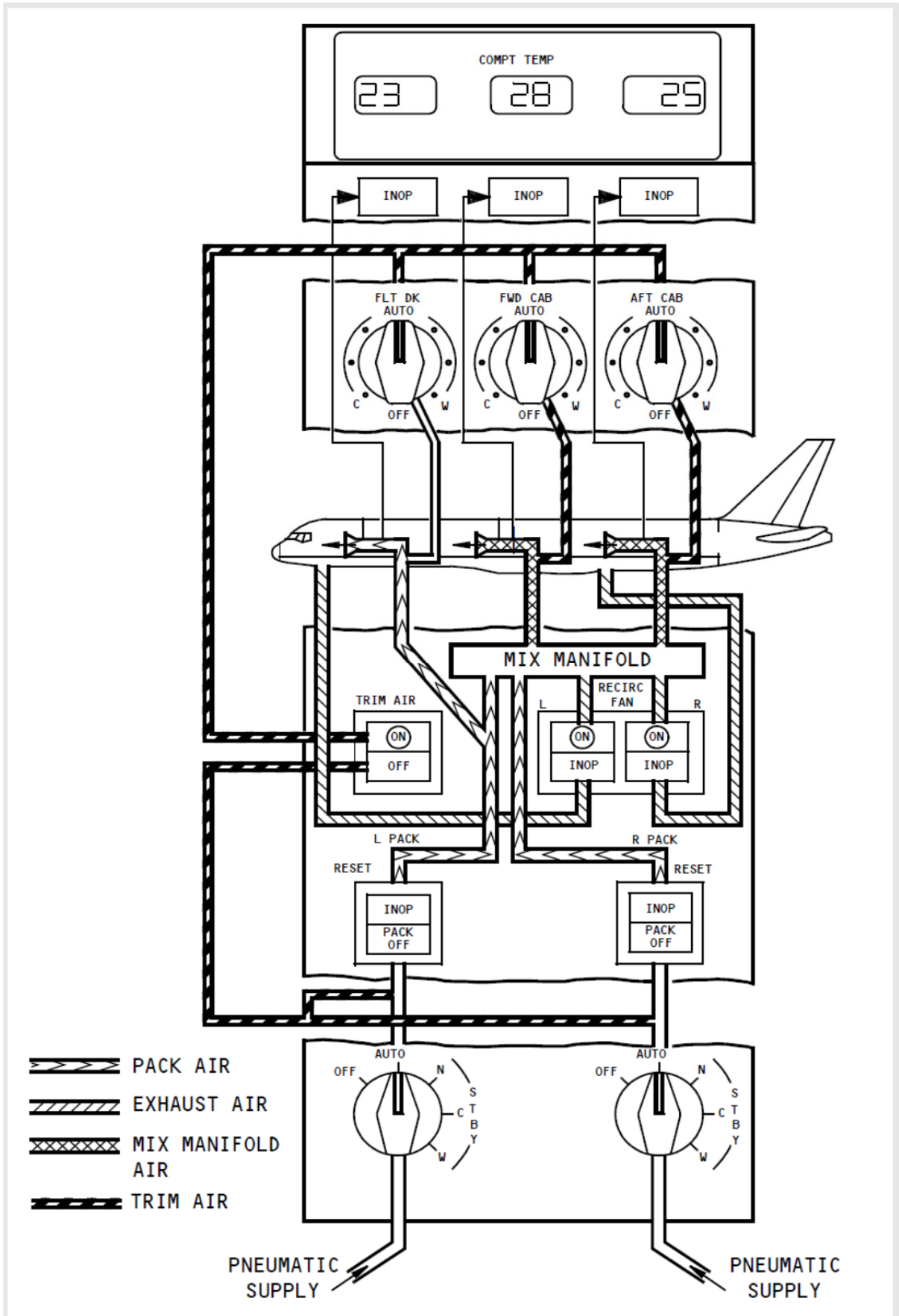
During cruise flight the cabin crew members suffered health problems probably caused by lack of oxygen.

Investigator in charge: Jens Friedemann

Braunschweig: 14 March 2013

Appendices

Schematic diagram of the air conditioning system



Schematic diagram of the air conditioning system - 7 -

(Source: Boeing)

This investigation was conducted in accordance with the regulation (EU) No. 996/2010 of the European Parliament and of the Council of 20 October 2010 on the investigation and prevention of accidents and incidents in civil aviation and the Federal German Law relating to the investigation of accidents and incidents associated with the operation of civil aircraft (*Flugunfall-Untersuchungs-Gesetz - FIUUG*) of 26 August 1998.

The sole objective of the investigation is to prevent future accidents and incidents. The investigation does not seek to ascertain blame or apportion legal liability for any claims that may arise.

This document is a translation of the German Investigation Report. Although every effort was made for the translation to be accurate, in the event of any discrepancies the original German document is the authentic version.

Published by:

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