

Executive Summary

GE367 Occurrence Investigation

On July 24, 2016, TransAsia Airways (TNA) scheduled passenger flight GE367, an Airbus A320-200 aircraft, registered B-22317, around 1452 Taipei local time departed from Taichung/ Ching-Chuan-Kang Airport (RMQ) to Macau International Airport (MFM), with two flight crew, six cabin crew and 99 passengers, totally 107 persons on board. After take off when the aircraft was climbing over Magong, a water heater in the rear galley (G5) emanated smoke with burnt odor. The cabin crew immediately turned off the related galley power, disposed the suspected area with a fire extinguisher, and then pulled all the relevant galley equipment circuit breakers. After the flight crew confirmed that there were no more safety concerns, they decided to continue flying to the destination. Flight GE367 landed safely without further incident at 1604 in Macau International Airport.

According to the Aviation Occurrence Investigation Act of Republic of China (ROC) and the content of Annex 13 to the Convention on International Civil Aviation, the Aviation Safety Council (ASC) an independent aviation occurrence investigation agency, was responsible for conducting the investigation. The investigation team also included members from CAA (Civil Aeronautics Administration, Taiwan), BEA (Bureau d'Enquêtes et d'Analyses, France), Airbus company, DSB (Dutch Safety Board), B/E Aerospace (The Netherlands), and TransAsia Airways.

The occurrence water heater was shipped to the manufacturer, B/E Aerospace (The Netherland), for detailed test and inspection. The Council

received the manufacturer's investigation report of the water heater provided by DSB in January, 2017. The draft 'Final Report' of the occurrence investigation was completed in March 2017. In accordance with the procedures, it was reviewed at ASC's 55th Council Meeting on March 28, 2017 and then sent to relevant organizations and authorities for comments. After comments were collected and integrated, the Final Report was reviewed and approved by ASC's 58th Council Meeting on June 27, 2017. The Final Report was published on July 17, 2017.

There are six findings from the Final Report, and one Safety Action taken from a related organization.

I - Findings as the result of this investigation

Findings Related to Probable Causes

The water heater emanating smoke was primarily caused by the thin external conductors of the water heater printed circuit board (PCB) resulting in a higher resistance and heat generation, and manually correction of the misaligned Faston connectors after wave soldering process may make flawed connection. The combination of higher resistance and flawed connection could have made the PCB accumulating high temperature then resulting in heat damage and smoke under normal operation.

Findings Related to Risk

None.

Other Findings

1. The flight crew were certified and qualified in accordance with the

Civil Aeronautics Administration (CAA) regulations.

2. The aircraft's certificate of airworthiness and registration were current at time of the occurrence. The occurrence aircraft was dispatched at Taichung/ Ching-Chuan-Kang airport with no known defects. The compliance status of airworthiness directives and service bulletins met related regulations.
3. During the period when being servicing in TransAsia or prior to the TransAsia, the shop-in reason of the water heater was for testing and recertification, rather than malfunction. This water heater event should not have any relevance with the water heater maintenance.
4. The emergency reactions of the cabin crew and the flight crew on this water heater smoke event complied with related company requirements.
5. After confirming the rear galley smoke condition being under controlled and all aspects of safety concerns including diversion airports being considered, the flight crew decided to continue the flight to the destination. The decision was not inadequate.

II 、 Safety Action Accomplished

B/E Aerospace inc. the Netherlands

The water heater manufacturer, B/E Aerospace Inc., released a service information letter, No. H0212-25-0245, on February 28, 2017, with title of "*ADDITIONAL INSPECTION INSTRUCTION FOR POWER MODULE ASSEMBLY*". The letter indicated if the bad contact occurred at some specific connectors on power module assembly, this could cause arcing and possible overheating. All applicable units including the occurrence water heater type DR4101, the power module assembly must be examined at the next available shop visit. If the discolored

marks are found, the power module must be replaced according to component maintenance manual.