

SERIOUS INCIDENT

Aircraft Type and Registration:	DHC-8-402 Dash 8, G-JECI
No & Type of Engines:	2 Pratt & Whitney Canada PW150A turboprop engines
Year of Manufacture:	2005 (Serial no: 4105)
Date & Time (UTC):	30 December 2014 at 1748 hrs
Location:	On approach to Belfast City Airport
Type of Flight:	Commercial Air Transport (Passenger)
Persons on Board:	Crew - 4 Passengers - 69
Injuries:	Crew - None Passengers - None
Nature of Damage:	None
Commander's Licence:	Airline Transport Pilot's Licence
Commander's Age:	36 years
Commander's Flying Experience:	9,250 hours (of which 9,000 were on type) Last 90 days - 131 hours Last 28 days - 82 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot, occurrence reports by the aircraft operator and ATC, and aircraft technical data

Synopsis

As the aircraft descended towards its destination, the flight crew received a number of SMOKE warnings relating to the aft baggage compartment; there were no signs of smoke or fumes in the passenger or crew compartments. The crew brought the aircraft to a stop on the runway after landing and all occupants vacated the aircraft expeditiously. There was no evidence of fire or smoke damage, but an examination of components in the fire detection system revealed corrosion on a smoke detector connection pin. This was identified as the probable cause of the smoke warnings.

History of the flight

The aircraft was being operated on a scheduled passenger service between Southampton Airport and Belfast City Airport. There were 69 passengers and 4 crew on board. As the aircraft descended through FL150, the SMOKE¹ caption illuminated briefly on the flight deck Caution and Warning Panel.

The commander directed the first officer to don his oxygen mask. As the first officer did so, the SMOKE warning reappeared. The commander made a PAN-PAN call to alert ATC

Footnote

¹ The SMOKE caption indicated that smoke was sensed in the forward or aft baggage compartment.

to the situation, and warned the cabin crew that a potential emergency situation existed. Shortly afterwards, the first officer noticed the EXTG (Extinguisher) light had illuminated in the SMOKE/EXTG switchlight related to the aft baggage compartment. The flight crew completed the appropriate actions, during which the switchlight was pressed, discharging fire extinguishant into the compartment.

The commander made a MAYDAY call and requested expeditious routing. He also informed the senior cabin crew member of the situation and instructed her to secure the cabin. She told the commander at this time that there was no smoke present in the passenger cabin. Communications between crew members were made difficult by the fact that both flight deck crew were wearing oxygen masks by this time.

The SMOKE warning extinguished. With the cabin secure, the commander briefed the senior cabin crew member, warning her that a passenger evacuation after landing was a possibility but also emphasising the need to await a positive command in case the situation changed. Then, shortly before landing, the SMOKE warning reoccurred, although again without any visible smoke in the cabin or flight deck. On short finals, believing that the Airport Fire and Rescue Service may have had a better view of the baggage compartment door, the commander tried to contact them on frequency 121.6 MHz but received no response. He brought the aircraft to a stop on the runway after landing and shut down the engines. The crew were informed by ATC that there were no external signs of smoke or fire. With this information, and with no signs of smoke in the cabin, the commander ordered a rapid disembarkation².

The aircraft had been dispatched on the flight with unserviceabilities affecting the public address (PA) system; the system was unserviceable at the senior cabin crew member's station and the emergency system was also unserviceable. This meant that the rapid disembarkation PA had to be given from the aft cabin crew station, with the senior cabin crew member using a megaphone to inform and control the disembarkation from her station forward. Dispatch in this condition was permitted under the regulations governing the flight, and the crew had earlier discussed the implications for just such an occurrence. The rapid disembarkation was successful and there were no reported injuries.

Subsequent examination of the aircraft by the operator's engineering department showed no evidence of fire or smoke damage. No fault could be found with the fire detection system, although the smoke detectors and fire detection control amplifier were changed as a precautionary measure. A strip examination of the smoke detectors identified corrosion on one of the electrical connector pins. Similar examination of the fire detection control amplifier revealed no defects.

The corrosion on the connector pin was identified as the probable cause of the indications reported by the flight crew. The aircraft operator shared its findings with the aircraft

Footnote

² A rapid disembarkation is a recognised procedure to clear the aircraft of passengers and crew in as short a time as possible without resorting to a full evacuation. Normal entry/exit doors and steps are used.

manufacturer's own investigation and raised the possibility of routine maintenance care of the smoke detector connections being included in the aircraft's scheduled maintenance programme.