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## Spurious cargo smoke/fire alarm, Bombardier CL600-2B19 CRJ200, D-ACHA, April 22, 2006

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**Micro-summary:** This Bombardier CL600 returned to origin following a cargo smoke alarm.

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**Event Date:** 2006-04-22 at 1951 UTC

**Investigative Body:** Aircraft Accident Investigation Board (AAIB), United Kingdom

**Investigative Body's Web Site:** <http://www.aaib.dft.gov.uk/>

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**INCIDENT**

<b>Aircraft Type and Registration:</b>	Bombardier CL600-2B19 CRJ200, D-ACHA	
<b>No &amp; Type of Engines:</b>	2 CF34-3B1 turbofan engines	
<b>Year of Manufacture:</b>	2000	
<b>Date &amp; Time (UTC):</b>	22 April 2006 at 1951 hrs	
<b>Location:</b>	London Heathrow Airport	
<b>Type of Flight:</b>	Public Transport (Passenger)	
<b>Persons on Board:</b>	Crew - 4	Passengers - 50
<b>Injuries:</b>	Crew - None	Passengers - None
<b>Nature of Damage:</b>	None	
<b>Commander's Licence:</b>	Airline Transport Pilot's Licence	
<b>Commander's Age:</b>	32 years	
<b>Commander's Flying Experience:</b>	6,035 hours (of which 3,552 were on type) Last 90 days - 180 hours Last 28 days - 55 hours	
<b>Information Source:</b>	Aircraft Accident Report Form submitted by the pilot and further enquiries by the AAIB	

**Synopsis**

As a result of a cargo smoke warning the aircraft returned to London Heathrow Airport; no evidence of smoke or fire was found and the investigation concluded that the warning had been spurious. There have been a number of similar incidents despite the introduction of a modified cargo smoke detector, which was fitted to this aircraft.

**History of the flight**

The aircraft was on a scheduled flight from London Heathrow to Dusseldorf. Shortly after takeoff, the Engine Indicating and Crew Alerting System (EICAS) gave a 'SMOKE CARGO' warning. The crew carried out the appropriate emergency procedure, declared an emergency and returned to London Heathrow Airport.

After a normal landing the aircraft stopped at the first available runway exit where the Airport Fire and Rescue Services (AFRS) were waiting. They reported no evidence of smoke or fire and so the commander decided not to evacuate the aircraft. Following a search of the cargo hold, no sign of fire or smoke was found and the aircraft was towed to a parking stand where the passengers were disembarked normally.

The investigation concluded that the warning was spurious; probably caused by the smoke detector reacting to dust, condensation or electromagnetic interference. This aircraft had been fitted with a new design of smoke detector, which was intended to reduce its susceptibility to these factors.

The aircraft's cargo smoke detectors and fire bottles were replaced and there have been no further reported problems.

#### **Previous occurrences**

There have been several instances of spurious cargo smoke indications on CRJ200 aircraft. A previous AAIB report, EW/G2005/03/09, published in Bulletin 11/2005, detailed a similar event that occurred to another of the same operator's CRJ200 aircraft, D-ACHH, on 16 March 2005. This report describes the smoke detector and its history of spurious warnings.

Airworthiness Directive TC AD CF-2001-21 was issued in September 2001 mandating the fitment of a new design of unit within 18 months. D-ACHA and

all the subject operator's other CRJ100/200 aircraft have been modified. However, these recent incidents suggest that the new design has not been effective. As a result of the incident to D-ACHH the AAIB wrote to the Transportation Safety Board of Canada (TSB), informing them of the findings. The TSB forwarded the information to Transport Canada and the aircraft manufacturer, Bombardier Aerospace in November 2005. As yet there has been no response from Bombardier.

The operator has incorporated a cleaning task for the cargo smoke detector in the maintenance schedule which is to be performed at C check intervals, every 4,000 flying hours.