
Wheel well warning on climb, Boeing 737, OY-KKP

Micro-summary: Wheel well warning on climb.

Event Date: 1999-11-16 at 1615 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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Boeing 737, OY-KKP

AAIB Bulletin No: 6/2000

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Category: 1.1

INCIDENT

Aircraft Type and Registration:	Boeing 737, OY-KKP
No & Type of Engines:	2 CFM56 turbofan engines
Year of Manufacture:	1999
Date & Time (UTC):	16 November 1999 at 1615 hrs
Location:	10 nm north of Braso at Flight Level 90
Type of Flight:	Public Transport
Persons on Board:	Crew 6 - Passengers - 63
Injuries:	Crew None - Passengers - None
Nature of Damage:	Emergency evacuation slides damaged
Commander's Licence:	Airline Transport Pilots Licence
Commander's Age:	49 years
Commander's Flying Experience:	12,500 hours (of which 4,500 were on type) Last 90 days - 100 hours Last 28 days - 35 hours

Information Source: Aircraft Accident Report Form submitted by the pilot and technical report from the operator

During the initial climb out of Stansted bound for Copenhagen, at about 5,000 feet at a speed of 320 kt the wheel well fire warning activated. The Non-Normal Checklist was actioned, a MAYDAY declared and a return to Stansted initiated. The fire warning stopped one minute after landing gear extension. The cabin attendants and some passengers reported a burning smell.

After landing, the engine and APU fire extinguishers were used and the commander elected to evacuate the passengers via the cabin doors and slides only, not using the over-wing exits due to the risk of tyre burst and attendant potential for injury. The passengers gathered 200 metres from the aircraft and were taken to the lounge by buses.

The wheel well fire detection system comprises a temperature sensitive loop mounted in the top of the well connected to an Overheat Detection Control Module. A sensed temperature of 205°C or more should be required to trigger the warning. Inspection of the wheel well and brakes did not reveal any evidence of overheat or fire. However, the indicator on the Overheat Detection Control Module confirmed a warning had been activated.

Following ventilation and cleaning of the engine and APU bays new fire bottles were installed and the aircraft was ferried to Copenhagen with the wheel well fire detection system disabled. The escape slides were not installed as they had become damaged during the evacuation.

The Overheat Detection Control Module was replaced and the unit sent for examination but it was returned with no fault found. The wheel well overheat sensing element was also replaced and the system was reactivated. The aircraft was returned to service with no repeat incident. The removed sensing element was examined and initial testing revealed some anomalies. Further testing caused the element to adopt a permanently low resistance, consistent with an overheat warning.

On the landing at Stansted from the previous flight, although the landing weight was not high, maximum braking had been used. The aircraft was then parked for 45 to 50 minutes with the parking brake on following only a short taxi. It would appear that, on the incident flight, the warning activated after landing gear retraction, when the wheel well temperature rose sufficiently to cause the sensing element to generate a warning at a temperature significantly below the design figure of 205°C. As this aircraft had only operated for 29 flight hours from new at the time of incident, the wheel well may have not reached such an elevated temperature previously. This was the operators first experience of a wheel well fire warning on the Boeing 737.

Both the warning and Non-Normal Checklist refer only to a wheel well fire not an overheat and so the operator is to conduct further investigations to:-

- 1 Establish if additional information regarding the cause of a wheel well fire warning could be included in the Non-Normal Checklist, reflecting the fact that the warning can be triggered by an overheat or fire.
- 2 Establish if the Non-Normal Checklist could consider the significance of the warning going off or remaining on following landing gear extension.
- 3 Establish if a burning smell can be sensed at any time in the cabin area over the wing following landing gear retraction, and if so, inform crews accordingly.