
Pressurization failure, Boeing 737-436, G-DOCR, 26 June 1996

Micro-summary: This Boeing 737-436 experienced a pressurization controller failure on climb, resulting in a diversion.

Event Date: 1996-06-26 at 0650 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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AAIB Bulletin No: 11/96 Ref: EW/C96/6/8 Category: 1.1

Aircraft Type and Registration:	Boeing 737-436, G-DOCR
No & Type of Engines:	2 CFM56-3C1 turbofan engines
Year of Manufacture:	1992
Date & Time (UTC):	26 June 1996 at 0650 hrs
Location:	Near Copenhagen, Denmark
Type of Flight:	Public Transport
Persons on Board:	Crew - 7 - Passengers - 136
Injuries:	Crew - None - Passengers - None
Nature of Damage:	None
Commander's Licence:	Airline Transport Pilot's Licence
Commander's Age:	52 years
Commander's Flying Experience:	17,000 hours (of which 4,500 were on type) Last 90 days - 200 hours Last 28 days - 70 hours
Information Source:	AAIB Field Investigation

The aircraft was operating a scheduled passenger service from Copenhagen to London Gatwick Airport. About six minutes after departure from Copenhagen, the flight crew noted that the cabin pressurisation system (AUTO mode) was producing a fluctuating cabin rate of climb. On passing FL150, in order to reduce the amount of fluctuation, the STANDBY system rate selector was set at the minimum (DECR) setting and the pressurisation mode selector switched to STBY. At this point, all cabin pressure was lost and the cabin altitude warning horn began to sound, indicating that the cabin altitude had exceeded 10,000 feet. Immediate reselection of AUTO mode had no effect. The flight crew donned their oxygen masks, advised ATC of the situation and initiated a rapid descent to FL100, in accordance with the operator's Quick Reference Handbook (QRH). The passenger oxygen system automatically deployed the masks in the cabin, this system being designed to operate at a cabin altitude of 14,000 feet.

Once level at FL100, the flight crew found that selection of AUTO mode regained control of the cabin pressure. Reselection of STBY mode again caused the cabin altitude to increase rapidly, so the controller was left in AUTO. A further climb was initiated to FL150 but the fault recurred.

Another rapid descent was initiated, this time to FL90. The aircraft then returned to land uneventfully at Copenhagen. During the second rapid descent, the commander's Electronic Attitude Director Indicator (EADI) blanked completely. A subsequent attempt to start the APU in flight was unsuccessful and after a short period the EADI returned to normal.

Engineering investigation at Copenhagen indicated that the Pressure Controller was defective. A replacement controller was fitted and the oxygen masks restowed. The aircraft was then flown back to Gatwick unpressurised at FL80, in accordance with the operator's Despatch Deviation Manual.

On further investigation, it was found that the AC operated Outflow Valve was slow in operation. This unit was also changed. The fluctuations in AUTO mode were due to a defective AC actuator switch on the Outflow Valve. The problems experienced in STANDBY mode were as a result of a failed PC2 transducer in the Pressure Controller, which caused a climb demand to be signalled continuously while selected to STANDBY mode.

Neither defect is common and the transducer failure had not previously been encountered by the operator. The aircraft's pressurisation system operated normally after replacement of the two faulty units. The electrical faults with the EADI and APU start were not considered to be related to the failures in the pressurisation system and no fault was subsequently found with either system.