

**AAIB Bulletin No: 2/93**

**Ref: EW/G92/10/02**

**Category: 1a**

**Aircraft Type and Registration:** Boeing 737-4Q8, G-BPNZ

**No & Type of Engines:** 2 CFM56-3C-1 turbofan engines

**Year of Manufacture:** 1990

**Date & Time (UTC):** 12 October 1992 at 2100 hrs

**Location:** London Gatwick Airport

**Type of Flight:** Public Transport

**Persons on Board:** Crew - 8 Passengers - 167

**Injuries:** Crew - None Passengers - None

**Nature of Damage:** Damage to left main gear door, inboard spoiler, lower wing surface and flaps

**Commander's Licence:** Airline Transport Pilot's Licence

**Commander's Age:** 39 years

**Commander's Flying Experience:** 11,191 hours (of which 5,504 were on type)  
Last 90 days - 206 hours  
Last 28 days - 61 hours

**Information Source:** Aircraft Accident Report Form submitted by the pilot and verbal and written reports from the tyre manufacturer

After an apparently uneventful departure and flight from Heraklion, the aircraft landed at London Gatwick Airport and taxied to the stand where the ground engineer advised the pilot that the lower part of the left main landing gear door was missing. In addition, there was considerable damage to the No 1 tyre, the tread of which was missing. It was apparent that rubber debris from this tyre had caused significant damage to the wing lower surface, left inboard spoiler and flaps. The missing section of door was subsequently found on runway 27 at Gatwick and tread debris, which was later matched to the damaged No 1 tyre, was recovered from runway 09 at Heraklion.

The No 1 tyre carcass, which had remained inflated after the landing, and the recovered tread sections were forwarded to the tyre manufacturer's facility in Holland, where an investigation into the failure was carried out. The tyre details were:-

Size: H40x14.5-19 26 PR 225 mph

Part No: 426K62

Sr No: 92020252 R1 (identified as first retread)

A report issued by the manufacturer at the conclusion of their examination stated that the tyre exhibited evidence of having suffered foreign object damage (FOD), with no signs of poor maintenance in service or of any manufacturing defect. There was clear evidence of localised damage on the tread and this was associated with damage to the top carcass ply. Localised overdeflection of the carcass was also identified in the same area. The tyre, which had been fitted to the wheel on 19 May 1992 and installed on this aircraft on 6 August 1992, was found (after landing) to be some 40 psi below the nominal operating pressure of 218 psi. Subsequent pressure testing at 80 psi revealed leaks to be present from all vent holes at the re-tread interface on the outer side of the tyre, and it was considered that these leaks had caused the tyre pressure to reduce during the four hour flight from Heraklion.

A similar event had occurred on another Boeing 737-400 (G-BSNW) of the same airline on 22 September 1992, following a flight from Larnaca to Newcastle, which involved the same type of tyre. The conclusions in this report on the manufacturer's investigation were that the tyre had been weakened in service, and that the tread had broken loose locally from the top carcass ply due to impact induced FOD, there being clear evidence of a break in the top carcass radial ply. The total tread package had completely separated during take-off due to centrifugal forces during take-off. The tread separation had occurred from the carcass top ply and the re-tread interface had not been involved. The carcass itself was found to be in a sound condition. This tyre was identified as a fourth re-tread.