

Boeing 747-400, JA 8071

AAIB Bulletin No: 6/2001 **Ref:** EW/C2001/01/09 **Category:** 1.1

Aircraft Type and Registration: Boeing 747-400, JA 8071

No & Type of Engines: 4 CF6-80C2B1F Turbofan engines

Year of Manufacture: 1989

Date & Time (UTC): 10 January 2001 at 1846 hrs

Location: Runway 09R London Heathrow Airport

Type of Flight: Public Transport

Persons on Board: Crew - 18 - Passengers - 294

Nature of Damage: Substantial tyre and lower fuselage damage

Commander's Licence: Airline Transport Pilots Licence

Commander's Age: 56 years

Commander's Flying Experience: 13,563 hours (of which 2,992 were on type)

Last 90 days - 121 hours

Last 28 days - 29 hours

Information Source: Air Accident Report Form submitted by the pilot and enquiries by AAIB

History of the flight

The aircraft, was operating a scheduled service from London Heathrow to Kansai Airport, Japan. It departed Stand M26 at 1822 hrs and taxied to Runway 09R for departure. The weather was fine with a visibility of more than 10km, broken cloud at 2,000 feet, surface wind of 0450°/15kt and a temperature of +6°C.

The aircraft took off at 1846 hrs at a take off weight of 810,000 lb. During the take off roll, after V₁ but before rotate speed, the crew heard a loud bang with associated vibration. The take off was continued and just after the landing gear had been retracted the crew noticed an Engine Indicating and Crew Alerting System (EICAS) message for 'tyre pressure'. Further investigation of the landing gear system revealed that the left body gear right forward tyre pressure was zero. The remaining tyre pressures were normal.

The crew contacted their company who in turn asked Heathrow ATC for an inspection of the runway. At 1918 hrs Runway 09R was closed and an inspection carried out by the Airfield Operation Safety Unit (AOSU). However, the flight crew received no further information from ATC in response to their original request. Therefore, with no other abnormal flight deck

indications, the crew elected to continue their flight to Japan where they landed without further incident. After landing a large metallic piece (14 cm x 8 cm) of runway light fitting was found embedded in the lower fuselage. The following damage was also noted:

Left body gear right forward tyre burst

Right body gear left aft tyre damaged

Left body gear inboard strut damaged and door rod broken

APU duct support bracket in wheel well damaged and associated APU duct dented

Lower fuselage body fairing damaged with a crack in a body fairing support frame

Aft cargo door skin dented

Hydraulic return line in wheel well dented

After the occurrence the tyre manufacturer reported on the damage to the left body gear right forward tyre. They found that a 'foreign object' approximately 17 cm in length had penetrated 12 of the 18 plies of the tyre at the shoulder rib area causing the carcass cords to break due to shear force.

Airfield procedures

ATC carried out a routine runway inspection of Runway 09R between 1554 hrs and 1617 hrs on the day of the occurrence. The runway was inspected again at 1918 hrs as a result of the report from the crew of JA 8071. Initial inspection identified that one of the flush mounted green turn off light fittings, located close to the runway centre line, and its associated seating ring were missing from Block 81. On further inspection an amount of debris from the disintegrated fitting together with tyre debris was found and removed. The hole left by the light fitting was temporarily repaired and the runway re-opened by 1942 hrs. A more durable repair was carried out that night.

The initial response by the AOSU team was to focus on the serviceability of the runway rather than the report by the crew. The possibility of other light fittings having failed was not considered and no formal feedback to ATC was given. ATC, however, considered that their communication to AOSU was sufficiently clear to prompt a positive feedback. The result was that information regarding the broken runway light and the repair to the runway were passed to ATC but no positive reporting on the presence of tyre debris or missing parts of the seating ring were transmitted to the crew of JA 8071.

After the damage had been discovered on the aircraft's arrival in Japan the operator notified the airport operator. On the morning following the occurrence another international airline notified the airport that one of their aircraft, having departed from Heathrow at 1829 hrs on the previous day had arrived in Hong Kong with damage to two wheels and the landing gear.

Follow up action by the airport operator

The parent company of the airport operator conducted an investigation. They examined every aspect surrounding the occurrence, including communication procedures, the design, inspection and maintenance of light fittings and monitoring procedures. Other airports within the group and the Airport Operators Association were informed of the occurrence.