

**AAIB Bulletin No:** 4/94

**Ref:** EW/G93/09/07

**Category:** 1.1

**Aircraft Type and Registration:** Boeing 767-336, G-BNWS

**No & Type of Engines:** 2 Rolls-Royce RB211-524H turbofan engines

**Year of Manufacture:** 1992

**Date & Time (UTC):** 9 September 1993 at 1451 hrs

**Location:** London Heathrow Airport

**Type of Flight:** Public Transport

**Persons on Board:** Crew - 11                      Passengers - N/K

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

**Nature of Damage:** Damage to right main landing gear and brake components

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

**Commander's Age:** 48 years

**Commander's Flying Experience:** 9,907 hours (of which 36 were on type)  
Last 90 days - 101 hours  
Last 28 days - 49 hours

**Information Source:** Aircraft Accident Report Form submitted by the pilot

This incident is similar to that involving Boeing 767-3366, G-BNWX, at London Heathrow Airport on 17 September 1993.

The commander was the handling pilot for the takeoff on Runway 27R with a surface wind of 180°/17 kt. Shortly after confirming take-off power, the first officer checked his ASI, expecting to see the speed approaching 80 kt. Noting no airspeed indication he informed the commander of the ASI failure, and the commander carried out the rejected take-off actions; the maximum speed noted on the commander's ASI was approximately 95 kt. As the throttles were restarted to idle, automatic braking was initiated and the aircraft pulled to the left; the commander easily corrected this pull and then disconnected the autobrake. Reverse thrust was maintained until a safe stop was assured. After clearing the runway, the commander was advised by ATC that the aircraft brakes were smoking; the AFS were quickly on the scene and advised the crew that there was a leak of hydraulic fluid from the right landing gear. Within the cockpit the crew noted a decrease on the hydraulic contents gauge and selected the right system hydraulic pumps to 'OFF'. Concurrent with these actions the aircraft was prepared for an emergency evacuation, but the commander was maintaining a close liaison with the

Fire Chief and an emergency evacuation was not considered necessary. The passengers were subsequently disembarked using normal steps.

The accompanying figure shows the brake components of the 767 main landing gear. The torque loads from each brake assembly are reacted by the brake reaction rod, which is attached to the torque arm of the piston housing by the brake attachment pin. This pin is retained within the brake piston housing by a single cross bolt. The brake rod centre bolt acts as a pivot pin, securing the forked ends of the fore-and-aft brake reaction rods to a fork lug at the lower end of the inner cylinder of the landing gear leg.

Examination of the right main landing gear leg after the incident to G-BNWS showed that the brake reaction rods at both outboard wheels (No 4 forward and No 8 aft) had separated from their respective brake piston housings. This had resulted in the No 4 and No 8 brake assemblies ceasing to act as brakes and rotating, instead, with their respective wheels, rupturing the hydraulic lines and damaging the brake housings and the brake reaction rods. The separation of the brake reaction rods from the brake piston housings had resulted from the withdrawal of the brake attachment pins from their respective lugs and, from the mechanical damage to these components, this appeared to have followed the failure of the cross bolts in the No 4 and No 8 brake assemblies. However, despite a search none of these pieces of cross bolt were found around the runway.

The incident to G-BNWS, and the later incident to G-BNWX (17 September 1993, also at London Heathrow), are part of a series of mechanical incidents within the Boeing 767-300 fleet involving those aircraft with carbon brake packs. These events are described more closely in the adjacent report on the incident to G-BNWX.