No: 6/88 **Ref: EW/C1066** **Category: 1a**

Aircraft Type and Registration:	BAC One-Eleven Series 528, G-AXLL
No & Type of Engines:	2 Rolls-Royce Spey 512-14 DW turbofan engines
Year of Manufacture:	1969
Date and Time (UTC):	17 April 1988 at 1155 hrs
Location:	London/Gatwick Airport
Type of Flight:	Scheduled passenger
Persons on Board:	Crew - 5 Passengers - 99
Injuries:	Crew - None Passengers - None
Nature of Damage:	One main-wheel tyre destroyed. Damage to hydraulic brake-lines and fixed door on right main landing gear; loss of No 2 hydraulic system pressure. Minor damage to under-surfaces of fuselage and right inboard flap
Commander's Licence:	Airline Transport Pilot's Licence
Commander's Age:	58 years
Commander's Total Flying Experience:	12,900 hours (of which approximately 5000 were on type)
Information Source:	AAIB Field Investigation

The aircraft took off from Gatwick for Paris at 1155 hrs. Just as the aircraft was rotated for take-off the crew experienced a severe vibration, which ceased as the aircraft left the ground. As soon as a positive rate of climb was indicated, the landing gear was retracted. The ATC watch manager saw something fall from the aircraft's right main landing gear and, at the same time, another controller heard a bang. When this information was passed to the aircraft, the commander said that he would like to return and land. A warning of the possibility of rubber on the runway was passed to a landing aircraft, and this radio message was heard by the commander of G-AXLL, confirming his impression that a tyre had either burst or lost its tread during the take-off. At the same time he saw that the pressure of the No 2 hydraulic system was falling.

At 1158 hrs ATC declared a full emergency and closed the runway for inspection and clearance of the tyre debris; the runway was reopened at 1203 hrs. Meanwhile, the commander, who had declined to land immediately, accepted vectors to the holding pattern at Mayfield where he could assess the condition of the aircraft, inform the passengers and brief the cabin crew. Once in the hold, he checked

the operation of the flaps and landing gear and left them down to increase fuel consumption and further reduce weight for landing. Some 20 minutes later, after clearing the waiting inbound traffic, ATC gave G-AXLL clearance to approach and land.

For landing there was a slight crosswind from the left which helped the commander to reduce the load on the right main landing gear, and the aircraft landed without further incident. Brakes were applied at approximately 80 kts and, although the aircraft tended to pull to the left, it remained controllable and the commander was able to taxy clear of the runway. The airport emergency services followed the aircraft down the runway and, when it stopped, reported its external condition to the captain. No hazard to the passengers was apparent, and they were disembarked normally to waiting coaches.

On examination, it became apparent that the inboard tyre on the right main landing gear had burst and that the damage to the hydraulic brake lines and the under-surfaces of the fuselage and inboard flap had been caused by flailing of the retread section. The pattern of the failure and the distribution of the pieces of tyre along the runway indicated that the initial tyre-burst had occurred about half-way along the take-off ground roll and had resulted from damage caused by a foreign object encountered on the taxyway or on the runway; after the tyre-burst the retread section had progressively become detached from the remaining carcass of the tyre.