

INCIDENT

Aircraft Type and Registration:	DC-9-14, G-BMAI	
No & Type of Engines:	2 Pratt & Whitney JT8D-7A turbofan engines	
Year of Manufacture:	1966	
Date & Time (UTC):	6 May 1994 at 2017 hrs	
Location:	East Midlands Airport, Derbyshire	
Type of Flight:	Public Transport	
Persons on Board:	Crew - 6	Passengers - 74
Injuries:	Crew - None	Passengers - None
Nature of Damage:	Severe damage to right engine compressor	
Commander's Licence:	Airline Transport Pilot's Licence	
Commander's Age:	33 years	
Commander's Flying Experience:	5,850 hours (of which 3,430 were on type) Last 90 days - 160 hours Last 28 days - 60 hours	
Information Source:	AAIB Field Investigation	

History of the flight

The aircraft was operating the return scheduled service from Amsterdam to East Midlands Airport. Previously the aircraft had flown from East Midlands to Jersey and was delayed in Jersey whilst engineers replaced a defective engine driven hydraulic pump on the No 1 engine. Both the Auxiliary Power Unit (APU) and front passenger door airstairs were unserviceable but were permitted to be so under the Minimum Equipment List.

The weather at East Midlands was fine with a light southerly wind, 15 km visibility and scattered cloud at 6,000 feet. At 2017 hrs (37 minutes after sunset) the aircraft landed on Runway 27. As the aircraft passed Hold 'C' the aerodrome controller noticed a 'shower of sparks' emanating from the rear of the aircraft. He immediately initiated emergency action and informed the aircraft crew. The commander, who had noticed a rumbling noise accompanied by vibration which he initially associated with a tyre or wheel bearing problem, brought the aircraft to a halt on the runway. The engine instruments showed

no abnormalities but, as vibration was still apparent, the commander elected to shut down both engines. Because the APU was unserviceable he first made a PA to the passengers informing them that the cabin would be in darkness, illuminated only by the emergency lights, whilst the problem was being investigated.

One minute after landing the Airport Fire Service were in attendance. The fire crew chief made contact with the commander by radio on 121.6 MHz and advised him that particles of hot metal were still coming out of the No 2 (right hand) engine and that an evacuation was advisable. The commander contacted the cabin staff and ordered an evacuation using the forwards doors only. The forward passenger and service doors were fitted with manual inflatable slides which are released from their container when the door is opened. A red inflation handle, attached to the slide at floor level, has to be pulled to initiate inflation. Both slides deployed normally although both cabin crew members reported that the red inflation handles could not be seen in the ambient light conditions and that they were able to locate them only from memory.

Firemen at the scene manned the bottom of the slides to assist the evacuating passengers. Halfway through the evacuation, an off-duty fireman, who was dressed in casual civilian clothes, shouted to the cabin crew by the exits to stop the evacuation since some mobile steps were being brought to the aircraft. The effect of this instruction was to confuse the cabin crew who, although they did not recognise the individual, momentarily stopped the evacuation and informed the commander of the situation. He nevertheless ordered the evacuation to continue. Passengers and crew continued to vacate the aircraft without injury.

Engineering investigation

Subsequent visual inspection of the engine revealed that the first two stages of the compressor had sustained considerable damage. Small amounts of feathers and tissue were recovered from this area and sent to the Ministry of Agriculture Food and Fisheries, Aviation Bird Unit near Guildford. Analysis of these remains revealed that the bird had been a partridge, which has an average weight of about 400 g. A boroscope examination of the engine showed evidence of blade damage to ten of the thirteen stages of the compressor with blade and stator debris being found in the air starter duct. The turbine stages were clear, and no other damage had been sustained by the aircraft.

The Flight Data Recorder (FDR), a Sundstrand Universal Flight Data Recorder and the Collins Cockpit Voice Recorder (CVR) were removed and replayed by the AAIB. Recording had stopped on both recorders as the final engine was shut down and therefore the CVR did not cover the period of the evacuation. There was no indication of the bird ingestion problem on the FDR recording of Engine Pressure Ratio (EPR) prior to the engine shutdown.

A Bird Control Unit (BCU) was operated by East Midlands Airport on a continuous basis. The unit had been operating throughout the day of the incident and had checked the runway and taxiways some 50 minutes before the incident.