S3/2001 - Douglas (Boeing) MD-83, EC-FXI

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Aircraft Type and Registration:	Douglas (Boeing) MD-83, EC-FXI	
Serial Number:	49630	
Year of Manufacture:	1989	
Date & Time (UTC):	10th May 2001 at 1232 hrs	
Location:	Liverpool Airport, UK	
Type of Flight:	Public Transport (Passenger)	
Persons on Board:	Crew - 6	Passengers - 45
Injuries:	Crew - none	Passengers - none
Nature of Damage:	Major damage to right wing flaps, slats and skin, punctures in fuselage skin, some ingestion damage to the right engine	
Commander's Licence:	Airline Transport Pilot's Licence	
Commander's Flying Experience:	4,990 hours (of which 4,015were on type)	
Information Source:	AAIB Field Investigation	

The aircraft was engaged on a holiday charter and was landing at Liverpool Airport after a flight from Palma, Majorca. An automatic landing on Runway 27 was carried out with the first officer being the pilot flying. Initial data from the aircraft's Flight Recorders showed that the right Main Landing Gear

(MLG) failed immediately upon touchdown. The aircraft slid along the runway and came to a halt some 1,600 metres further on, resting on its right flaps, slats and wingtip. An emergency evacuation was carried out. There were no serious injuries and there was no fire.

Examination of the aircraft showed that the right MLG strut cylinder had fractured below the attachment trunnions, releasing the wheels/axle assembly back into the flaps and wing/fuselage fairing. The lower portion of the failed cylinder remained attached only by the sidestay. A closer inspection revealed the presence of an anomaly on the forward outer surface of the cylinder fracture, which subsequent examination identified as a fatigue crack measuring approximately 3.5mm long and 1.1mm deep.

The location and overall size of the crack appears similar to the one which caused failure of a MLG on another MD-83 aircraft, registration G-DEVR, on 27 April 1995 at Manchester Airport, UK. As a result of the Manchester accident (reported in AAIB report 1/97), the FAA ordered mandatory modification to the aircraft's braking system and also a one-time Non-Destructive Evaluation (NDE) inspection of the critical area.

The AAIB is concerned that the measures put in place following the accident to G-DEVR, have failed to prevent what appears to be a similar accident. The AAIB is aware of a further case of MLG failure due to a similar mechanism, occurring to an aircraft of the same type with a Chinese operator in April 1997.

Examination of the fractured component from EC-FXI, the maintenance records of the aircraft and the conduct of the flight is continuing but, pending the outcome of these investigations, the AAIB made the following Safety Recommendation:-

Safety Recommendation No.2001-54

The Federal Aviation Authority and the Boeing Commercial Airplane Group urgently review the continued airworthiness of the MD-83 MLG strut. In particular, the need for repeat inspection of the strut in the critical area be considered and the ability of the mandated NDE inspection to detect embryonic fatigue cracks in the material, given the small critical crack size, should be re-assessed.

The Chief Inspector of Air Accidents has ordered a Formal Investigation of this accident.