

McDonnell Douglas DC-10-10, G-DPSP

AAIB Bulletin No: 4/2004	Ref: EW/G2003/08/47	Category: 1.1
INCIDENT		
Aircraft Type and Registration:	McDonnell Douglas DC-10-10, G-DPSP	
No & Type of Engines:	3 General Electric CF6-6D1A turbofan engines	
Year of Manufacture:	1979	
Date & Time (UTC):	29 August 2003 at 0125 hrs	
Location:	Manchester Airport, Manchester	
Type of Flight:	Public Transport (Passenger)	
Persons on Board:	Crew - 13	Passengers - 377
Injuries:	Crew - None	Passengers - None
Nature of Damage:	Dents and missing paint on underside of wing and landing gear	
Commander's Licence:	Airline Transport Pilot's Licence	
Commander's Age:	59 years	
Commander's Flying Experience:	25,000 hours (of which 9,000 were on type)	
	Last 90 days - 150 hours	
	Last 28 days - 30 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot, incident and technical reports and AAIB enquiries	

The aircraft landed at Manchester after an uneventful flight from Lanzarote whereupon the crew were advised by ATC that debris had been found on the runway. After the passengers disembarked the aircraft ground engineers discovered that the No 8 main wheel tyre, although still inflated, had shed its tread. Additionally some minor damage to the wing in the vicinity of the right main landing gear was discovered, including a hole in a honeycomb access panel. ATC at Lanzarote were subsequently asked to check their runway, but no feedback information was received.

The tyre was returned to the manufacturer for investigation. The investigation report stated that the tyre had thrown most of its tread and some of the outer casing of one sidewall had also separated. This separation was visible between some of the casing plies. The inner liner was also wrinkled and an air needle inspection revealed an inner liner leak.

The manufacturer concluded that premature fatigue or over-deflection had caused an inner liner leak, allowing nitrogen to enter the casing at a rate faster than it could be vented. The subsequent build up

in pressure either caused or inflated a separation between the plies. When the separation became large enough the forces acting on the tyre caused the tread to separate. The tyre was at R04 (4th retread) when it failed. Shearography of the tread at the last retread did not show any anomaly and bead to bead shearography was not due to be carried out until the tyre was retreaded at the end of its R04 life.

The tyre manufacturer intends to conduct bead to bead shearography at the third retread to check if other tyres are developing fatigue in the sidewalls before R04. They also commented in their report that it is necessary to scrap the 'mating' tyre in such cases, as it will have sustained damage due to overload.