

Douglas DC6B, G-SIXC

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Aircraft Type and Registration:	Douglas DC6B, G-SIXC
No & Type of Engines:	4 Pratt & Whitney R2800-CB3 Radial piston engines
Year of Manufacture:	1958
Date & Time (UTC):	3 June 1997 at 2344 hrs
Location:	Coventry Airport
Type of Flight:	Scheduled Freight
Persons on Board:	Crew - 3 - Passengers - None
Injuries:	Crew - None - Passengers - N/A
Nature of Damage:	Wheel separated from aircraft
Commander's Licence:	Airline Transport Pilot's Licence
Commander's Age:	30 years
Commander's Flying Experience:	2,800 hours (of which 1,000 were on type)
Information Source:	AAIB Field Investigation

The aircraft was being used on night parcel operations between Edinburgh and Coventry and had been marshalled in a tight turn onto its parking position on the apron outside the operator's hangar. Following the load change and starting the engines, the aircraft again had to be turned tightly before taxiing out to the runway and taking off from Runway 06.

During the take-off roll, the inboard wheel of the left main landing gear came off its axle and, after crossing the runway centreline, demolished an approach light before running off the artificial scarp at the north eastern edge of the airfield and passing through the top of the boundary fence. It was observed crossing the road, which runs immediately outside the airfield boundary fence, by a van driver who reported the occurrence to the airport. The wheel came to rest in a yard adjacent to the A45, Coventry by-pass.

The crew of the aircraft was informed of the wheel detachment before arriving at their destination where an uneventful landing was made, but with full emergency cover deployed as a precaution. Staff of the operator's maintenance organisation retrieved the wheel. The hubcap, its retaining circlip, wheel nut, head ends of the locking bolts, thrust washer and outer wheel bearing were all found in the vicinity of where the aircraft had been parked.

Examination of the wheel nut showed that it had stripped axially off the threads of the axle, shearing the two locking bolts which are installed to prevent the wheel nut from loosening. This had resulted in the wheel bearing being able to move towards the end of the axle, forcing the hub cap past its retaining ring and then carrying the retaining ring with it as it ran clear of the axle end.

Examination of the wheel nut revealed that, although its thread appeared satisfactory on normal visual inspection, a section cut through the thread revealed that it was severely worn (see Figures 1

& 2). The loads imposed on the wheel bearing during the tight turn as the aircraft left its parking position would have tended to force it towards the axle end.

Wheel nuts are 'on-condition' items and this particular one had been fitted to this aircraft since it was acquired by the operator in 1987. The nut had last been removed and refitted on 27 November 1996 at a routine tyre change. Since that time the aircraft had flown about 500 sectors.

As a result of this incident, the operator has replaced, regardless of condition, all the wheel nuts on its DC-6 aircraft with new nuts and notified the manufacturer of this incident. The manufacturer has reviewed both the Maintenance Manual and Overhaul Manual for the DC6 and found that there are no existing inspection requirements for the wheel nuts and are determining whether such requirements should be added to the manuals.