No: 2/85 **Ref: EW/G84/12/06**

Aircraft type and registration:	De Havilland 114 Heron 2D G-ANUO (multi piston engine transport aircraft)
Year of Manufacture:	1954
Date and time (GMT):	27 December 1984 at 2254 hrs
Location:	Liverpool Airport
Type of flight:	Positioning
Persons on board:	Crew — 2 Passengers — None
Injuries:	Crew — None Passengers — None
Nature of damage:	Damage to nose of aircraft
Commander's Licence:	Airline Transport Pilot's Licence
Commander's Age:	30 years
Commander's total flying experience:	4895 hours (of which 525 were on type)
Information Source:	Aircraft Accident Report Form submitted by the pilot; inquiries to the operator, repairer, and maintenance organisation

The aircraft was flying from Fairoaks to Norwich when bad weather caused a diversion, initially to East Midlands and then Manchester. When the landing gear was selected down for landing at Manchester the flight deck indicator lights showed that the nose landing gear was not locked down, and it was ascertained visually from the tower that the nose leg was retracted with its associated doors closed. Landing gear selector lever cycling and use of the emergency landing gear lowering system failed to remedy this situation. The aircraft then diverted to Liverpool in order to leave the Manchester runway open for other weather-diverted traffic, and a landing at Liverpool on Runway 27 was made, with a reported wind of 180/05 kt.

Both inboard engines were shutdown on short finals and the propeller blades feathered and motored horizontal; both outboard propellers were feathered during the flare. After touchdown, as the nose started to lower, master and magneto switches and fuel cocks were selected off. The aircraft came to rest near the runway centreline about 50 yards after the forward fuselage first contacted the runway, and was evacuated without difficulty. There was no fire.

Damage was limited to the nose landing gear leg, fairing and doors, and immediately adjacent fuselage undersurface. The nose leg was pulled down, but would not retract when selected up. During repair it was found that both roller bearings supporting the cross shaft forming the airframe attachment and pivot for the nose landing gear drag strut were very stiff. After their replacement the landing gear retracted and extended normally. Both bearings reportedly showed signs of corrosion and wear. The cross shaft was fitted with a grease nipple but this lubricated the radius arm bearings only, and not the cross shaft support bearings. Maintenance Schedule requirements for the latter were for overhaul at the time of a Check 4, i.e. every 3,000 flying hours, with no calendar time limitation. Records indicated that the last Check 4 had been carried out 2645 flying hours, 9.3 years prior to the accident. The total flying hours accumulated by the bearings since new could not be established.

Inspection of the cross shaft bearings on a similar Heron after the accident revealed slight stiffness, apparently resulting from roller wear allowing the bearing outer race flange to contact the shaft. These bearings had accumulated 1714 flying hours since the last Check 4, 8.6 years previously.