No: 4/86 **Ref: EW/G85/12/03**

Aircraft type and registration:	Cessna 182 G-BGTK (light single engined fixed wing aircraft)
Year of Manufacture:	1979
Date and time (GMT):	8 December 1985 at 1530 hrs
Location:	Denham Aerodrome
Type of flight:	Private (pleasure)
Persons on board:	Crew — 1 Passengers — 3
Injuries:	Crew — None Passengers — None
Nature of damage:	Damage to propeller, nose, undercarriage doors, and lower engine cowling
Commander's Licence:	Private Pilot's Licence
Commander's Age:	47 years
Commander's Total Flying Experience:	605 hours (of which 150 were on type)
Information Source:	Aircraft Accident Report Form submitted by the pilot.

The aircraft had been used for a pleasure flight to Southend and return. On the outward flight the pilot was unable to get the landing gear up indication despite repeated cycling of the undercarriage, otherwise the flight was without incident and the landing gear extended normally for landing at Southend. Before returning, the pilot inspected the undercarriage and removed a loose and bent screw which he considered to be fouling the nose undercarriage doors. After take off the undercarriage retracted normally and the "gear up" indication illuminated.

On approach to Denham the nose undercarriage failed to extend despite repeated cycling of the landing gear. Having obtained confirmation from the control tower that the nose undercarriage leg was retracted and its doors closed, and having tried unsuccessfully alternative ways of getting the nose-leg to extend, the pilot landed the aircraft on the grass beside the runway.

Initial examination showed that when the nose undercarriage doors were levered open the nose undercarriage deployed easily and locked down. It was observed that the operating link of the left door was fractured; this failure was later determined to be due to overload.

On subsequent examination, although it was not possible to verify the rigging of the nose gear "up" limit microswitch, the undercarriage system operated properly without the nosewheel doors attached. There was however evidence of fouling between the outboard edges of both nosewheel doors and the angle strip attaching the nosewheel well sidewalls to the lower cowling at about the centre of the doors length. It was established that as a result of the relationship between the undercarriage door hinge line and its outboard edge, the initial movement of the door in the region of the centre hinge is mainly outboard rather than downwards.

Thus if there is a mismatch between the profiles of the undercarriage door and the lower cowling,

particularly in the region of the centre hinge, as there clearly was on this aircraft, it is possible for the outboard edge of the door to become jammed against the angle strip and the edge of the cowling skin. If this were to happen the doors would then prevent the nose undercarriage from extending.

The evidence indicates that this was the most probable cause for the failure of the nose leg to extend.

The Safety Data Analysis Unit of the Civil Aviation Authority has no record of a similar occurrence on this aircraft type.