No: 6/86 **Ref: 1b**

Aircraft type and registration:	Piper PA34-200T G-BFLH
No & Type of Engines	2 Continental TS10-360E piston engines
Year of Manufacture:	1977
Date and time (GMT):	12 May 1986 at 1240 hrs
Location:	Coventry Airfield
Type of flight:	Training
Persons on board:	Crew — 2 Passengers — 1
Injuries:	Crew — None Passengers — None
Nature of damage:	Damage to nose leg and landing gear doors, nose fairing, both propellers. Engines subject to shock test.
Commander's Licence:	Commercial Pilot'sLicence
Commander's Age:	46 years
Commander's total flying experience:	8225 hours (of which 1907 were on type)
Information Source:	Aircraft Accident Report Form submitted by the pilot.

The aircraft had just completed a flapless landing when, as the nose landing gear made contact with the runway, it collapsed in a rearwards direction. The aircraft settled onto its nose and both propellers struck the ground. The aircraft came to rest on the grass to the right of the runway where it was quickly shut down and vacated. There were no injuries or fire.

The attendant fire crew subsequently recovered two halves of a broken bolt from the runway, in the region where the aircraft had touched down.

Initial examination of the aircraft revealed this bolt to be the upper drag link to nose leg pivot bolt, the failure of which had allowed the leg to rotate aftwards under the influence of drag loads.

Close examination of the $^{3}/_{8}$ inch diameter × 3 inch long bolt, revealed it to have failed in reverse bending fatigue, the fracture surface being almost entirely affected by the fatigue.

The surface of the bolt shank exhibited signs of pitting, with many of these pits containing a layer of cadmium plating, and both fatigue origins were though to be centered on such pits.

This bolt had been fitted from new, the aircraft having logged some 2900 hours during that time. The number of landings was not known but as this aircraft was mostly employed in the training role the best estimate was given as 3000.

The operator of this aircraft has inspected other aircraft in the fleet and, as a precaution, has replaced all such bolts from aircraft in excess of 2000 airframe hours. Three of these bolts, with airframe times around 2500/2600 hours, have also been examined and, although no fatigue cracks have been detected, all exhibited signs of pitting and some surface irregularities below the cadmium layer.

The Civil Aviation Authority have been provided with full details of the failure.