

No: 2/91

Ref: EW/G90/09/04

Category: 1c

Aircraft Type and Registration: Piper PA-28-161, G-BSFK

No & Type of Engines: 1 Lycoming O-320-D3G piston engine

Year of Manufacture: 1985

Date and Time (UTC): 7 September 1990 at 1016 hrs

Location: Perth Aerodrome, Scone, Scotland

Type of flight: Private (training)

Persons on Board: Crew - 1 Passengers - None

Injuries: Crew - None Passengers - N/A

Nature of Damage: Damage to right main landing gear, right flap and leading edge of stabilator

Commander's Licence: Student Pilot

Commander's Age: 20 years

Commander's Total Flying Experience: 101 hours (of which 10 were on type)

Information Source: Aircraft Accident Report Form submitted by the pilot

A student pilot had been flying the aircraft on a solo general handling exercise and had returned to the airfield circuit to carry out a series of 'touch and go' landings. As the aircraft lifted off from the first of these, the pilot heard a 'knock' on the right side of the aircraft and very shortly afterwards he was informed by ATC that his right main landing wheel had fallen off.

The student was advised by his instructor, over the RT frequency, to perform a slow approach and landing on the into-wind grass runway and to hold the right wing up as long as possible. The student executed the advised procedure sufficiently skilfully to prevent any further major damage. The only significant airframe damage suffered was as a result of the wheel and oleo piston having struck the flap and stabilator as it separated from the aircraft.

Inspection revealed that the lower torque link retaining bolt on the right main landing gear (see fig.1) had come out of engagement, permitting the oleo piston to come out of the cylinder as the oleo extended after take-off. The bolt was recovered and a subsequent metallurgical examination revealed that it had suffered a double fatigue failure through the threaded portion of the bolt in the region of the base of the retaining nut. Both fatigue cracks had origins in the base of the thread form and had progressed about halfway across the section, the final part of the failure being overload (See fig.2).

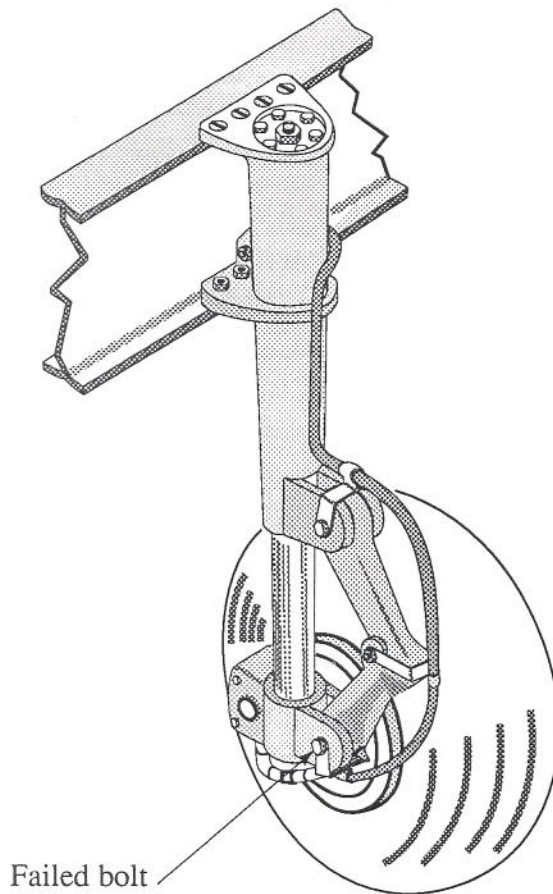


Figure 1
PA 28 Main Landing Gear Leg

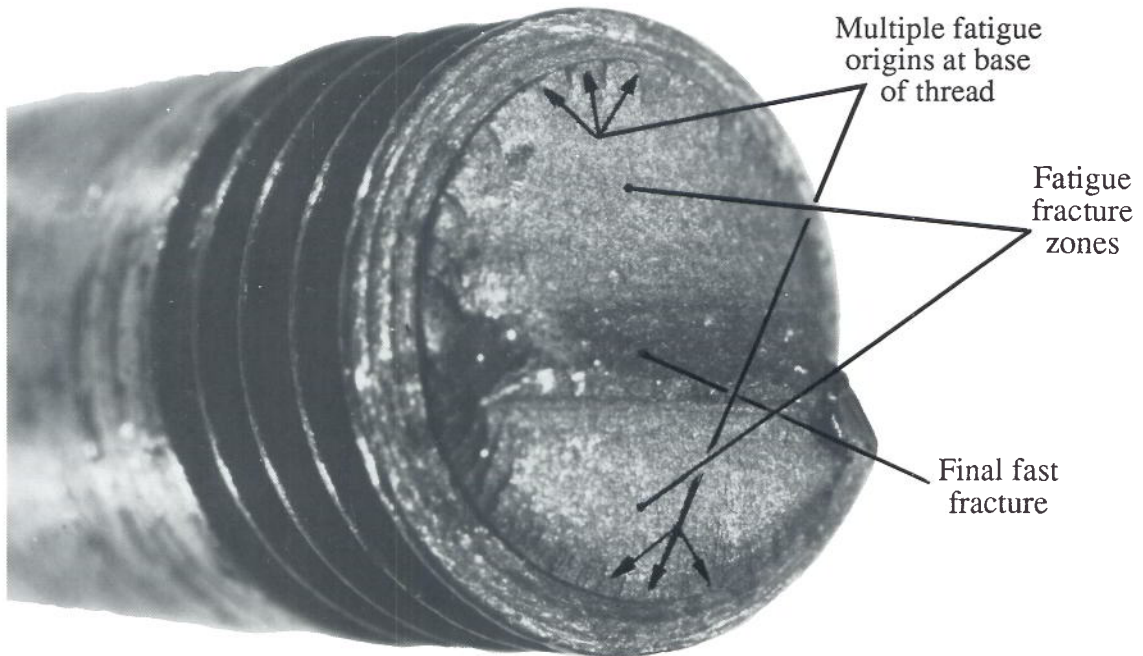


Figure 2 Fracture through threaded part of bolt.