

No: 5/89

Ref: EW/G89/03/01

Category: 1b

Aircraft Type and Registration: Cessna 404 Titan ST-AWD

No & Type of Engines: 2 Teledyne Continental GTSIO 520 M2B Piston Engines

Year of Manufacture: 1981

Date and Time (UTC): 3 March 1989 at 1420 hrs

Location: Stansted Airport

Type of Flight: Test Flight

Persons on Board: Crew - 2 Passengers - None

Injuries: Crew - None Passengers - N/A

Nature of Damage: Damage to right propeller and engine

Commander's Licence: Sudanese CPL with instrument rating

Commander's Age: 36 Years

Commander's Total Flying Experience: 10,371 hours (of which 2520 were on type)

Information Source: Aircraft Accident Report Form submitted by the pilot, and AAIB telephone enquires

The purpose of this flight was to check that the defects from a previous C of A renewal air test had been cleared prior to acceptance of the aircraft on behalf of the owners, and a ferry flight back to the Sudan. According to the pilot, one of the previous defects was that the "RH main gear green light stays on - 4 attempts to retract"

During the air test, the cockpit indications from the landing gear 'locked down' and 'unsafe' lights were normal during two landing gear operation cycles. At the completion of the flight the aircraft made an approach with "three greens" showing but, following a normal touchdown, the right wing lowered and the right propeller struck the runway. The aircraft was brought to a halt without loss of directional control. Prior to shutting down, the pilot noticed that the three "gear down and locked" green lights were still showing. External examination revealed that a partial collapse of the right main landing gear had occurred, but with no obvious mechanical failure apparent.

Each main landing gear on this aircraft is operated by a hydraulic jack, which incorporates an internal lock. This lock mechanically engages as the landing gear reaches the fully extended position, and on retraction is unlocked by the application of hydraulic pressure. On the side of this actuator is a microswitch which, via a plunger, senses the fully extended position and in doing so provides two signals. One illuminates the appropriate green light in the cockpit and the other, in conjunction with similar switches on the other two legs, signals the hydraulic pump to stop operating. The circuitry is

such that as the landing gear extends, the last of the three legs to reach the down and locked position is effectively the one which signals the pump to stop.

The right landing gear actuator, which was found in the partially retracted position, was sent to an overhaul agency for strip examination. This revealed that the switch operating plunger was jammed by corrosion products.

In this case it would appear that the right leg was the last to deploy and, with the switch operating plunger stuck in the landing gear down and locked position, a false signal was sent to the pump control circuit. Therefore, as the second of the three legs locked down, the pump was signalled to stop, cutting off pressure to the right landing gear actuator before it had time to lock down, but with the appropriate green light in the cockpit signalled to illuminate.

On 17 March 1989, Cessna issued a Service Newsletter, No SNL89-3, addressing the problem of moisture contamination affecting this mechanism, and which details a method of sealing the switch assembly on installation.