

No: 3/92

Ref: EW/G91/11/04

Category: 1b

Aircraft Type and Registration: Cessna 340, N592GC

No & Type of Engines: 2 Continental TSIO-520-NB piston engines

Year of Manufacture: 1972

Date & Time (UTC): 16 November 1991 at 1450 hrs

Location: Bournemouth International Airport, Christchurch, Dorset

Type of Flight: Private

Persons on Board: Crew - 1 Passengers - None

Injuries: Crew - None Passengers - N/A

Nature of Damage: Slight damage to under wing skin, flaps and aileron, right hand propeller blades and hub

Commander's Licence: Private Pilot's Licence with Instrument and Night ratings

Commander's Age: 38 years

Commander's Flying Experience: 632 hours (of which 31 were on type)

Information Source: Aircraft Accident Report Form submitted by the pilot and inspection of the components by an AAIB Engineer

When the landing gear was selected 'DOWN' on a visual approach the red 'GEAR UNLOCKED' light remained on. Two passes were made past the tower who reported that the right hand main leg appeared to have extended through only 45 degrees. Two attempts were made to recycle the gear and observation from the ground suggested that the right hand leg had then fully deployed. The 'GEAR UNLOCKED' light remained on.

The pilot elected to make a gear down landing - anticipating the collapse of the right hand gear. Touchdown was fairly gentle, but it was immediately apparent that the right hand leg had not locked down. The aircraft slewed gently to the right onto the grass and came to rest on the right hand wing tip, 20 yards from the pre-positioned fire and rescue vehicles. The right main gear down lock assembly had failed at the bellcrank (see Fig 1 to 3).

The movement of the main gear is controlled by an actuator linkage joining the two legs, and the failure of the bellcrank allowed both legs to move independently. The linkage also operates; the gear doors,

the side brace and the lock strut, and works at a great mechanical disadvantage whereby frictional forces in the bearings can cause large stresses in the bellcrank.

The failure had initiated in fatigue and was followed by an overload failure, most probably during the first 'DOWN' selection. Frictional forces in the leg and attaching mechanisms were found to be excessively high, particularly at the door operating rod which had a seized spherical bearing. Additionally, when the replacement bellcrank was fitted, the down lock strut was difficult to operate and required the side brace lock link to be shortened. It was not possible to determine whether the excessive forces experienced with the new bellcrank before adjustment would have occurred when the operating mechanism was fitted with the old bellcrank.

The aircraft had recently been brought to the UK from the United States and was being operated under FAA regulations.



Fig 1 Failed Bellcrank



Fig 2 Area of Fatigue Damage

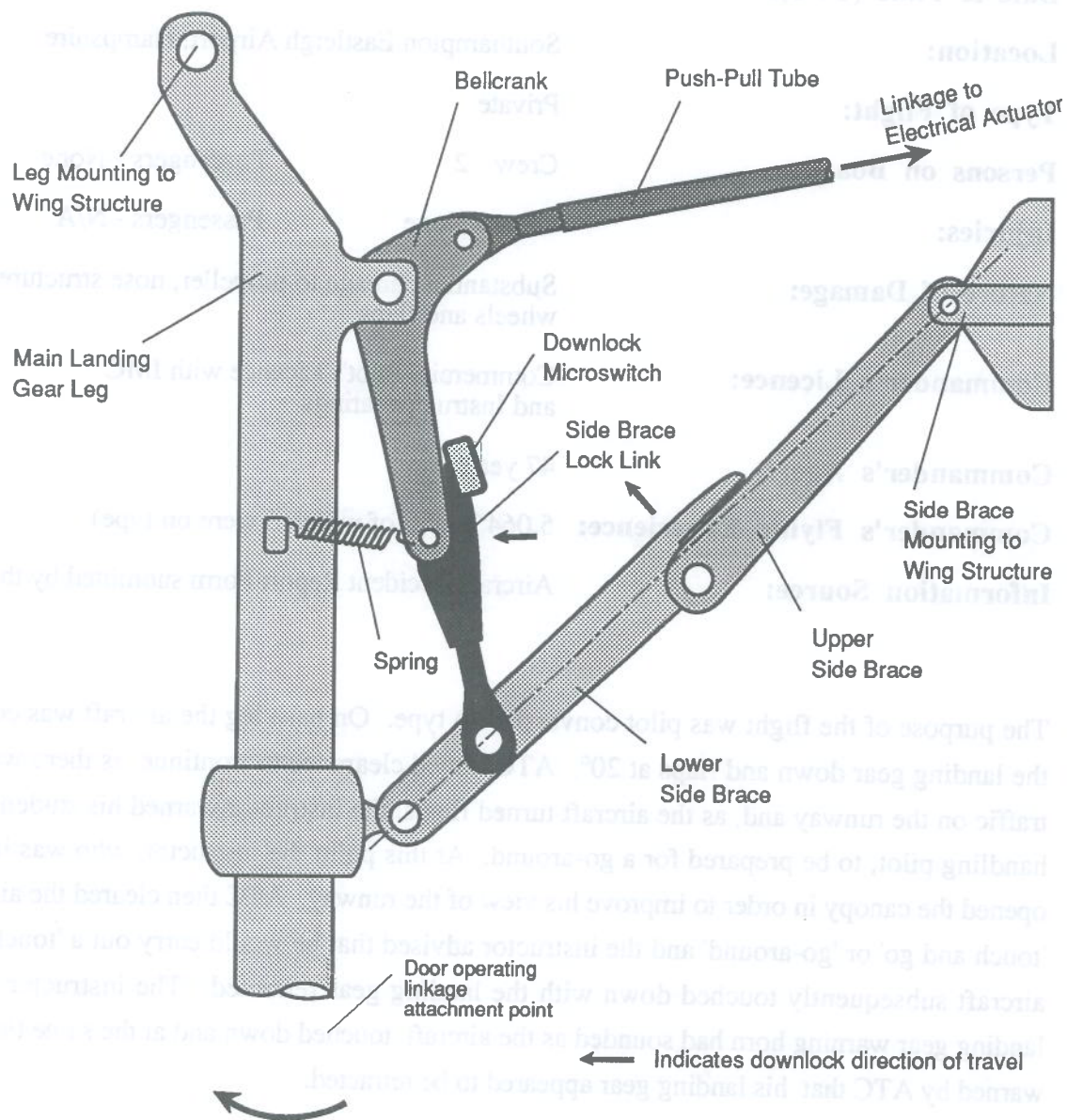


FIG 3 - MAIN LANDING GEAR SIDESTAY SCHEMATIC