

AAIB Bulletin No: 10/94

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Category: 1.3

Aircraft Type and Registration: Cessna F177RG Cardinal, G-AZFP
No & Type of Engines: 1 Lycoming IO-360-A1B6 piston engine
Year of Manufacture: 1971
Date & Time (UTC): 30 April 1994 at 0920 hrs
Location: Stapleford Tawney Airfield, Essex
Type of Flight: Private
Persons on Board: Crew - 1 Passengers - 1
Injuries: Crew - None Passengers - None
Nature of Damage: Bent propeller and nosewheel doors
Commander's Licence: Private Pilot's Licence
Commander's Age: 43 years
Commander's Flying Experience: 2,756 hours (of which 20 were on type)
Last 90 days - 20 hours
Last 28 days - 15 hours
Information Source: Aircraft Accident Report Form submitted by the pilot

The Cessna 177RG has a retractable landing gear system powered by an electrically driven hydraulic pump. The main landing gears share a single hydraulic actuator and there is a separate hydraulic actuator for the nose landing gear. If the electrically powered hydraulic pump fails, the landing gear can be lowered by operating a hand pump. A placard adjacent to the hand pump warns the user that to lock the gear down, the pump must be cycled 40 times. There is a single green light which illuminates when all three gears are locked down and a small external mirror for observing the nose gear leg position.

After takeoff from Stapleford the aircraft climbed with its customary performance but on levelling off it did not accelerate to normal cruising speed. The pilot then noticed that the nose landing gear had not retracted so he re-cycled the landing gear but still the nose gear did not retract. The intended flight was curtailed and the aircraft returned to Stapleford where again the pilot re-cycled the landing gear several times. After failing to obtain a nose landing gear down and locked indication, he decided to lower the gear using the hand pump. No green light was obtained so he declared an emergency on the Stapleford radio frequency and carried out a low pass so that the landing gear could be inspected visually by the aerodrome staff. The gear appeared to be in the normal down position and so the pilot landed on the grass runway. During the landing roll the nose gear collapsed.

The aircraft was recovered to the maintenance company's hangar and placed on jacks. Both the normal and the alternative gear extension systems worked perfectly without any need for adjustments. In his report the pilot stated that the nose gear microswitch must have been fouled in some way which resulted in the electric motor being turned off before the nose gear had locked. He also stated that he did not cycle the hand pump the requisite number of times to lock the gear down and that he did not check the aircraft handbook to establish the required number of cycles.