

ACCIDENT

| | | |
|--|---|-------------------|
| Aircraft Type and Registration: | Spitfire Mk 26 (80% scale replica), G-CENI | |
| No & Type of Engines: | 1 Jabiru 5100A piston engine | |
| Year of Manufacture: | 2007 (Serial no: PFA 324-14102) | |
| Date & Time (UTC): | 18 July 2015 at 1207 hrs | |
| Location: | Peterborough Sibson Airport, Cambridgeshire | |
| Type of Flight: | Private | |
| Persons on Board: | Crew - 1 | Passengers - None |
| Injuries: | Crew - None | Passengers - N/A |
| Nature of Damage: | Propeller broken, engine shock-loaded, firewall distorted, damage to flaps and fuselage underside | |
| Commander's Licence: | Private Pilot's Licence | |
| Commander's Age: | 47 years | |
| Commander's Flying Experience: | 388 hours (of which 26 were on type) Last 90 days - 8 hours Last 28 days - 3 hours | |
| Information Source: | Aircraft Accident Report Form submitted by the pilot | |

Summary

While preparing for landing, the pilot was unable to extend the left landing gear. After a number of attempts to rectify the situation, the pilot made a successful 'wheels-up' landing. Investigation indicated that the difficulty in extending the gear had been due to a combination of a stuck microswitch and a slightly bent gear leg.

Circumstances of the accident

Following a flight from Sibson to Peterborough Connington earlier in the day, the aircraft departed for the return flight. After takeoff the landing gear was retracted, with all indications appearing normal. On joining downwind in the Sibson circuit the aircraft was slowed to within the gear deployment arc on the airspeed indicator and the pilot switched the cockpit panel switches (one for each main gear) to the DOWN position. He noticed a green light on the left gear indicator (indicating DOWN), although the mechanical indicator on the left wing showed the gear was still in the UP position. The pilot then operated both gear levers to deploy the landing gear in the normal way. The right indicator light turned red, indicating the gear was travelling, and the left remained green. On completing the cycle, a check of the wing indicators showed that the right gear was now down but the left gear had remained up. The pilot called Sibson tower, requesting a go-around and a visual check of the landing gear; the tower confirmed that the right gear was down but the

left was still retracted. The pilot then retracted the right gear and departed to the south of the airfield, where numerous recycling attempts, using positive 'g', were made to try to assist the gear to deploy, but to no avail. A second pass by the Sibson tower confirmed that there was no change.

During the second climb-out, the pilot observed that the engine oil temperature was high, most probably due to prolonged operation at a relatively low airspeed. He dealt with this by increasing the power and departing to the south once again to bring the oil temperature down. He also informed Sibson of his intention to deploy the emergency gear release system. Accordingly, he pulled the emergency release cable for the left gear but the leg failed to deploy, with the wing indicator still showing the UP position.

The pilot considered his options for an emergency landing and decided to return to Sibson, where, after further gear recycling attempts and another flypast, he confirmed that nothing had changed. He circled the aircraft in the vicinity of the airfield, burning off fuel, while he awaited for the emergency services to get into position. During this time he formulated his approach and landing plan, opting for the use of power and flaps, which he considered were appropriate for the thermal and gusty conditions on Runway 24L. Following one more low level go-around to select a landing spot and assess the condition of the grass runway, the pilot retracted the cockpit canopy and made his approach at around 55 kt, reducing to 45 kt. The aircraft touched down on the stall and stopped after a ground-slide of around 10 m. The pilot, who was uninjured, turned off the fuel and battery master switch before exiting the aircraft.

Aircraft description

The Spitfire Mk 26 is a conventionally configured low-wing monoplane which is an 80% scale replica of the wartime fighter. The aircraft is manufactured in kit form in Australia for construction by amateurs and is administered in the UK by the Light Aircraft Association (LAA).

The two main landing gear legs are independently raised and lowered by means of electrically powered rams and are locked up and down by locking pins operated by Teleflex-type cables. Emergency lowering is by means of a pull-cable that withdraws a securing pin, which, when removed, allows the spring-loaded operating 'ram to gear leg' connecting pin to be ejected; after this ejection, gear extension occurs by a combination of gravity and spring assistance.

Electrical control of each left and right system is achieved by a panel-mounted, three-position switch: UP, DOWN and neutral. UP and DOWN microswitches control the current direction to the motors. Thus an UP selection is made by moving the switches to the UP position, which arms the system; these are independent systems and, while it is usual to operate the landing gears simultaneously, they can be operated separately if desired. Two levers (again, one for each system) on the left side of the cockpit are then moved rearward, which, via the Teleflex cables, disengage a locking pin on each side, which in turn allow a microswitch to complete a circuit to enable the motor to retract the gear. When the leg reaches its retracted position, the other microswitch stops the motor. The lever can then be moved forward to

re-engage the lock pin, and the gear switches would be returned to the neutral position. The gear is lowered by a similar process: each switch is moved to the DOWN position and the lock levers moved forward which, via the UP microswitches, allow the motors to extend the gears until electrical power is removed by activation of the DOWN microswitches.

The investigation

The subsequent investigation discovered that the left landing gear DOWN microswitch had become stuck so that it could not complete the electrical circuit (when the lock lever was moved) to enable the motor to extend the gear.

Examination of the left landing gear system revealed that there was a degree of residual tension such that, after removing the connecting pin by pulling the emergency handle, the gear did not move under gravitational and spring forces. One turn on a rod end was enough to relieve the tension and enable the emergency system to operate as designed. Whilst it was originally thought that this condition was the result of incorrect rigging, it was subsequently found that the leg was slightly bent, possibly as a result of a previous heavy landing or excessive side load. This had caused the wheel to press against the underside of the wing skin, thus generating the tension in the system.

The LAA have asked all owners of this aircraft type to conduct drop tests of the emergency landing gear system with the aircraft supported on jacks. The LAA also commented that the main gear legs supplied with later Mk 26 aircraft kits are more robust than those of earlier examples. In fact the Mk 26 kit is no longer available, having been replaced by a 90% scale version, the Mk 26B.

The September issue of the LAA's magazine '*Light Aviation*' carried an illustrated article on this accident.