

No: 8/91

Ref: EW/G91/03/05

Category: 1b

Aircraft Type and Registration: Beech 200 (Serial no. BB 828), G-SWFT

No & Type of Engines: 2 Pratt & Whitney PT6A-41 turboprop engines

Year of Manufacture: 1981

Date & Time (UTC): 13 March 1991 at 1305 hrs

Location: Biggin Hill Airport, Kent

Type of Flight: Commercial

Persons on Board: Crew - 3 Passengers - None

Injuries: Crew - None Passengers - N/A

Nature of Damage: Flaps, main undercarriage mechanisms, starboard propeller, fuselage underside.

Commander's Licence: Commercial Pilot's Licence with Instrument and Instructor ratings

Commander's Age: 28 years

Commander's Flying Experience: 1,674 hours (of which 794 were on type)

Information Source: Aircraft Accident Report Form submitted by the pilot-in-command, detailed inspection by AAIB engineering inspector and telephone enquiries.

History of the Flight

The aircraft, being flown by the co-pilot from the left hand seat, made a visual approach to runway 21 at Biggin Hill. The weather was fine with a surface wind of 120°/10 kts. Both pilots report that, prior to landing, they confirmed "THREE GREENS" and the aircraft made a normal landing. After a short time however, the aircraft sank to the right and rear before it settled onto the runway with its main landing gear collapsed. The commander immediately took control, held the nose of the aircraft up and shut down both engines. The aircraft came to rest slightly to the right of the runway centreline. The Aerodrome / Approach controller observed the collapse of the landing gear and sounded the crash alarm but the aircraft occupants were uninjured and were able to leave the aircraft via the emergency exit.

Engineering examination

For airport operational reasons, the aircraft had been removed to a hangar shortly after the accident. Examination of the two main-undercarriage drag braces confirmed that they had been subjected to considerable loading whilst in the partly extended but unlocked position, causing the loading to be transferred to the actuators rather than passing through the normal load paths. In the case of the starboard unit, the actuator was found to have separated from its forward mounting and been forced into the collector tank, causing a major leakage together with fracturing of the torque tube drive from the operating motor. The actuator on the port unit suffered failure of its attachment to the drag brace. These failures were both consistent with the effect of the initial load being applied to the main wheels whilst the landing gears were between the locked-up and locked-down positions. The actuators are being examined by their US manufacturer and a further report is awaited.

Checks on the functioning of the gear warning system and the gear handle baulk arrangements revealed no evidence of any operating defect.

The operator reported that the aircraft had recently completed maintenance checks that had included overhaul of the landing gear. Since then it had made 11 successful landings, seven of them on the day prior to the accident as part of a crew type conversion check flight (1179).

Landing gear warning system

The Aircraft Flight Manual contains the following description:

"The landing gear warning system is provided to warn the pilot that the landing gear is not down and locked during specific flight regimes. Various warning modes result, depending upon the position of the flaps.

SERIALS BB-453 AND AFTER, BL-1 AND AFTER

With the FLAPS in UP or APPROACH position and either or both power levers retarded below a certain power level, the warning horn will sound intermittently and the landing gear switch handle will illuminate. The horn can be silenced by pressing the WARNING HORN SILENCE button adjacent to the landing gear switch handle; the lights in the landing gear switch handle cannot be cancelled. The landing gear warning system will be rearmed if the power lever(s) are advanced sufficiently.

With the FLAPS BEYOND APPROACH position, the warning horn and the landing gear switch handle lights will be activated regardless of the power settings, and neither can be cancelled."

Aircraft Type and Registration	No. & Type of Flight
Boeing Stearman #1340 - N1425	1
Year of Manufacture:	1920
Date & Time (UTC):	14 May 1991, 18:00 hrs
Location:	Wendover, Utah
Type of Flight:	Private
Person on Board:	1
Injuries:	None
Nature of Damage:	Minor damage to wing leading edge and propeller
Commander's License:	Private Pilot License
Commander's Age:	41 years
Commander's Flying Experience:	200 hours with 18 hours in Stearman
Information Source:	Accident Investigation

The aircraft had flown a total of 10 hours during the year ending 1990. It was last flown on 14 May 1991, near Hartsfield, Georgia. The aircraft was a single-engine, high-wing, open-cockpit, biplane. It was a 1920 model Stearman, serial number 1340, registered N1425. The aircraft was flown on 14 May 1991, when the owner collected it from North Woods, where it had been stored since 1975. The aircraft was flown to Kingsport, near Oxford, Mississippi, where it was stored until 1987. The aircraft was then flown to Wendover, Utah, where it was stored until 1991. The aircraft was flown on 14 May 1991, when the owner collected it from North Woods, where it had been stored since 1975. The aircraft was flown to Kingsport, near Oxford, Mississippi, where it was stored until 1987. The aircraft was then flown to Wendover, Utah, where it was stored until 1991.