

**Aircraft Type and Registration:** Scheibe SF25E Super Falke, G-FHAS

**No & Type of Engines:** 1 Limbach SL 1700-EAI piston engine

**Year of Manufacture:** 1981

**Date & Time (UTC):** 15 June 1995 at 1400 hrs

**Location:** Burn Airfield, Selby, North Yorkshire

**Type of Flight:** Private (Training)

**Persons on Board:** Crew - 2                      Passengers - None

**Injuries:** Crew - None                      Passengers - N/A

**Nature of Damage:** Right wing; adjacent fuselage; propeller, cowling and left wingtip damaged

**Commander's Licence:** Self Launch Motor Glider's Licence

**Commander's Age:** 57 years

**Commander's Flying Experience:** 1490 hours (of which 900 were on type) plus 1,500 gliding  
Last 90 days - 50 hours  
Last 28 days - 25 hours

**Information Source:** Aircraft Accident Report Form submitted by the pilot, BGA accident report form, telephone enquiries to pilot and repair organisation

Following a normal start up and power checks for the first flight of the day, the aircraft took off from Runway 07 at Burn Airfield for a dual instructional flight, with the student handling. The initial stages of the climbout were entirely normal but as the aircraft approached the upwind end of the runway, at about 150 feet agl, the instructor noticed that the engine RPM was falling and immediately took control from the student. The engine had by this time reduced to idle RPM and the instructor tried closing and re-opening throttle, which brought about an improvement. However, the RPM almost immediately fell back to idle again, and so he decided to concentrate on making a forced landing.

The instructor felt that an attempted landing directly ahead was not viable due to the presence of a railway embankment, power lines, and a road. Having lowered the nose, he therefore initiated a turn to the right in an attempt to land on the cross Runway 19, which at Burn intersects Runway 07 close to its upwind end. At that time, the far end of Runway 19 was being used for the parking of cars and gliders. Because of the crosswind and the distraction caused by these obstructions, the aircraft drifted

too far to the west in relation to Runway 19, and had overflowed it before the instructor was able to correct his heading. Having started to turn back towards Runway 19 again, he found increasing difficulty in controlling the heading and abandoned further attempts in order to concentrate on the touchdown, which was accomplished in a sugar beet field adjoining the western side of Runway 19.

Having touched down without incident, it then became apparent that the aircraft was rolling towards a large drain access cover which stood proud of the ground surface by approximate 60 cm, and the aircraft was yawed to the left so as to avoid a head-on collision. The resulting impact occurred on the starboard side of the nose and right wing, causing extensive damage. The cockpit area was undamaged, however, and neither occupant was injured. The engine continued to run at idle RPM throughout the accident.

A witness, who was standing close to the parked cars and gliders at the far end of Runway 19, described an initial 45° banked turn until the aircraft was heading approximately 30° west of Runway 19 and had crossed about 100 feet beyond it, whereupon the right turn was rapidly reversed to a left turn, and the aircraft sank rapidly with the wings being levelled just before contacting the ground. Having considered the events subsequently in some depth, the instructor was of the opinion that his difficulty in maintaining directional control may have been because by that stage the aircraft was stalled, or partially stalled, although he did not appreciate this at the time.

The instructor was familiar with the Limbach installation on the Falke, including the design of the carburettor induction system which includes a carburettor heat system and an induction air temperature gauge. He estimates the temperature and dewpoint at the time of the accident as 12°C and 4°C respectively, and whilst these fall within the range known to cause a risk of serious icing at cruise power on carburettor-equipped engines in general, he is satisfied from long experience of this aircraft that the induction air temperature during climbout would have been well above that likely to have caused associated icing.

The aircraft was subsequently recovered to a maintenance and repair organisation, where the instructor examined the engine and fuel system in detail. He found that fuel was present in the tank and was free of contaminants (including water), and that the condition of the tank itself was good. Fuel was found in the fuel lines as far as the diaphragm-type mechanical fuel pump, and clean fuel was present in the carburettor bowl. However, very little fuel was present in the line between the pump and carburettor. The fuel lines were free of obstruction, and cutting open the rubber hose section of the fuel line at intervals along its length revealed no deterioration internally. The engine was subsequently dispatched to a specialist engine overhaul agency for inspection, but no defects have been found to date which could explain the power loss. The engine is yet to be re-installed in the repaired airframe. If further relevant facts come to light at that stage, or subsequently, these will be published as an AAIB Bulletin addendum.

Approximately two years previously, this same aircraft suffered a similar power loss, which on that occasion occurred at altitude, allowing the flight to be completed *normally* as a glider. The symptoms on that occasion were very similar, ie a sudden fall in RPM to idle, with temporary recovery if the throttle was closed and then re-opened, but otherwise continuing to run albeit only at idle power. During extensive investigations on the ground subsequently, it was found possible to reproduce the symptoms. It was also found by experimentation that if the engine was allowed to idle for three or four minutes following power loss, with the throttle closed, power could then be restored by opening the throttle again. However, this recovery lasted only a relatively short time before the power fell back to idle again. Detailed inspection of the carburettor and fuel system failed to identify the cause of the problem and the malfunction was still present when the aircraft fuel system and engine fuel pump were bypassed with a jury-rigged fuel tank and electrical fuel pump. The fault suddenly disappeared, whilst investigations were still progress, and did not reappear until the occasion of this accident.