

**AAIB Bulletin No: 8/95**                      **Ref: EW/C95/3/3**                      **Category: 1.3**

**Aircraft Type and Registration:** Cessna 150M, G-BFLN  
**No & Type of Engines:** 1 Rolls-Royce Continental O-200-A piston engine  
**Year of Manufacture:** 1974  
**Date & Time (UTC):** 21 March 1995 at 1130 hrs  
**Location:** Knottingley, West Yorkshire  
**Type of Flight:** Private  
**Persons on Board:** Crew - 1                      Passengers - None  
**Injuries:** Crew - Fatal                      Passengers - N/A  
**Nature of Damage:** Aircraft Destroyed  
**Commander's Licence:** Student Pilot  
**Commander's Age:** 67 years  
**Commander's Flying Experience:** 98 hours (of which 98 were on type)  
Last 90 days - 4 hours  
Last 28 days - 0 hours  
**Information Source:** AAIB Field Investigation

### **History of the flight**

The pilot had started his flying training in August 1991 after retiring from full time employment. At the time of the accident, he had completed most of the required training for the award of a Private Pilot's Licence including the Navigation Flight Test. The accident flight was to have been his qualifying land-away cross country. The pilot was regarded as an average student and his slow progress was as a result of his own training programme rather than any lack of ability.

The pilot was briefed and authorised to fly from his base airfield at Sherburn-in-Elmet to Nottingham and Gamston before returning to Sherburn. The weather for the route was fine with light winds, no low cloud and a well defined horizon both at ground level and at the height at which the exercise was to be flown. The pilot took off from Runway 29 at about 1122 hrs. Sherburn Airfield is located within the RAF Church Fenton Military Air Traffic Zone (MATZ) and pilots departing Sherburn are required to call Church Fenton on the radio as soon as they are airborne. ATC transponders are set to STANDBY while in the Church Fenton MATZ. Consequently, the aircraft was not 'squawking' a

secondary radar response on its departure and neither was any primary return recorded by those radars within range. Thus in the absence of any radar information, the initial track of the aircraft could not be determined. At 1125 hrs the pilot requested permission from Church Fenton to leave the MATZ to the south. His voice was reported to be clear, without sign of anxiety and after some routine exchanges with the Church Fenton controller, he was told to free call RAF Finningly at 1127 hrs.

The first sighting of the aircraft after its departure from Sherburn was at about 1130 hrs when it was seen by a witness in Knottingley, some seven miles south of Sherburn, who stated that it was flying south at about 2,000 feet in a normal manner. The witness took no further notice of the aircraft until his attention was again drawn to it by the increasing loudness of the engine. When the witness looked at the aircraft again, it was flying in a westerly direction at about 1,000 feet in a descending right-hand turn. The turn continued through about 270° before the aircraft impacted the ground on a southerly heading in the centre of Knottingley. The final seconds of the flight were observed by many witnesses who describe, in the main, the aircraft in a descending spiral to the right with the angle of bank increasing and the engine running at high power. From those timings available it was calculated that the aircraft had completed only one orbit prior to impact whereupon it suffered severe disruption and there was an intense ground fire.

No radio calls from the aircraft were heard or recorded by any local air traffic units after the pilot's last call to Church Fenton. However, at about the time of the accident, a person listening to a radio frequency scanner heard an agitated call of "SHERBURN, SHERBURN, SHERBURN" on an unidentified frequency.

### **Engineering investigation**

Examination of the accident site showed that the aircraft had been travelling in a direction of 185°M when it struck an industrial building. The impact caused the separation of both wings and the tail surfaces; both fuel tanks were ruptured and some of this fuel was consumed in an intense ground fire. The damage to the building indicated that, at impact, the aircraft was travelling approximately 25° to 30° below the horizontal and was banked to the right. The degree of disintegration of the airframe and engine indicated a high speed at impact.

The flying control system had been severely disrupted by the crash loads but examination of the wreckage showed that the aircraft had been structurally intact. Almost all the components of the flying control system were identified and the pattern of damage indicated that the controls were intact at impact. The engine had been severely damaged but the propeller hub, which had separated from the engine crankshaft, and the damage to the propeller blades showed that the propeller had been rotating at high speed. The fuel shut-off valve, was found in the ON position and the wing flap actuator, which is electrically signalled and driven, was found in the 'retracted' (that is, 'flaps up') position.

Both of the VHF radios were extensively damaged from the impact and the subsequent fire. However, examination of frequency selector mechanisms of the aircraft's primary radio, a King KX170B, showed a 'Comm' frequency of 126.50 MHz, corresponding to the 'Approach' frequency at RAF Church Fenton. The 'Nav' frequency was 112.8 MHz, corresponding to the VOR beacon at Gamston.

### **Medical aspects**

In 1988 the pilot suffered a heart attack which necessitated hospitalisation and on discharge he was advised to stop the weight training that he had been doing but was cleared to carry on with his running. When, on 3 December 1991, the pilot approached an Authorised Medical Examiner (AME) with a view to obtaining a Class Three medical certificate, he did not inform the AME of his previous heart attack. He also did not declare it at subsequent examinations the last of which was on 30 June 1994. In 1993 he passed an insurance medical conducted by his general practitioner.

A post-mortem examination of the pilot indicated that there was significant natural heart disease present and that disease was enough to cause sudden unexpected death or incapacitation. However, it was not possible to state whether or not a fresh heart attack had caused or contributed to the cause of the accident. No alcohol, carbon monoxide or other foreign substance was detected as a result of toxicology tests.

Following a fatal accident to a Grumman AA5 which was being piloted by a 73 year old man, post-mortem evidence revealed the presence of severe ongoing coronary artery disease (AAIB Bulletin 1/95 refers). Although inconclusive in the determination of the cause of the accident, there was sufficient concern to make the following recommendation to the CAA:

Whilst it is recognised that no system of medical examination will detect all cases of significant heart disease, it is recommended that the Medical Division of the CAA should review the cardiovascular requirements of the medical examination and certification of elderly pilots. The review should consider the current international standards and recommended practices and the proposed JAA medical standards [Safety Recommendation 94-58].

The CAA accepted the recommendation and undertook such a review [FACTOR F4/95 refers]. It was found that the incidence of in-flight incapacitation by pilots in command was low with three such events involving Group A UK Registered aircraft being recorded since 1981. This is out of a pilot population of some 37,000 who have flown more than 6 million hours. The review found that: "Other investigative tests could be introduced in an attempt to reduce still further the cardiac incapacitation

rate, such as exercise electrocardiography and specialised cardiac x-rays (scintigraphy and angiography), but they involve significant costs and themselves are not without risk to the individual undergoing the test. This applies particularly to coronary angiography which is the most accurate investigation for detecting coronary artery disease." The review concluded that : "The CAA Medical Division therefore does not believe more stringent medical requirements or more extensive investigations are at present justified for elderly private pilots, given the extremely low rate of in-flight incapacitations. It will be bound by the JAA requirements (which are slightly more stringent than the current UK standards) when they have been agreed and implemented." Private pilot medical examination and ECG requirements are summarised below.

	ICAO	Current UK	Proposed JAR FCL Part 3 (Medical)
Medical Examination	2 yearly (Standard) annually after age 40 (Recommendation)	5 yearly to age 39 2 yearly age 40-49 annually age 50-69 six monthly age 70 and over	5 yearly to age 29 2 yearly age 30-49 annually age 50-64 six monthly age 65 and over
ECG Requirement	At first examination after age 40 then no less than 5 yearly	At first examination after age 40 4 yearly age 40-49 2 yearly age 50-59 Annually age 60-69 Six monthly age 70 and over	At initial examination two yearly age 40-49 annually age 50-64 Six monthly age 65 and over