

No: 3/92

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Category: 1c

**Aircraft Type and Registration:** Cessna P210N, G-BTLK

**No & Type of Engines:** 1 Continental TSIO-520-P piston engine

**Year of Manufacture:** 1979

**Date & Time (UTC):** 16 December 1991 at 2117 hrs

**Location:** Goodwood airfield, Chichester, West Sussex

**Type of Flight:** Private

**Persons on Board:** Crew - 1 Passengers - None

**Injuries:** Crew - Fatal Passengers - N/A

**Nature of Damage:** Aircraft destroyed by fire

**Commander's Licence:** CAA Private Pilot's Licence with IMC rating and, although not applicable to this flight, an FAA Private Pilot's Licence with Instrument rating

**Commander's Age:** 34 years

**Commander's Flying Experience:** 1,235 hours (of which 330 were on type)

**Information Source:** AAIB Field Investigation

### History of the flight

On the day of the accident the pilot owner of the aircraft flew from Goodwood airfield, where his aircraft was based, to Randers airfield in Denmark, arriving there at 1000 hrs. He had planned an 0645 hrs take-off and, although his departure was not witnessed, this time accords with his arrival at Randers after a Customs and Immigration stop at the nearby Tirstrup airfield. When his business in Denmark was concluded, he returned to Randers airfield and obtained the meteorological data for a flight to Mannheim in Germany. However, having gone to the aircraft to collect his diary, he changed his mind and filed an IFR flightplan for Goodwood. This flight, through notified airspace and at night, exceeded the privileges of his pilot's licence, as laid down in the Air Navigation Order Schedule 8, Part A, paras 1(d) and 1(e). Furthermore, although they were offered to him, he did not collect the weather reports and forecasts for his new destination and nominated alternate, Southampton. Both airfields were published as being out of operating hours at his ETA and each gave an estimated visibility considerably less than that required for the landing aids available.

Having uplifted 225 litres of fuel, the aircraft took off at 1750 hrs and the flight from Randers, via Vesta, Eelde, Pampas, Blusy and Lydd to the Goodwood VOR was uneventful. Goodwood ATC had been opened specially for this arrival and, having established communications with the aircraft, passed the weather as: “..THE UNOFFICIAL OBSERVATION .. 500 METRES IN FOG .. MODERATE RAIN.. QNH 1019..QFE 1015.. SURFACE WIND CALM”. This was acknowledged by the pilot, who stated that he would make an IFR (VOR) approach and was so cleared. The runway lights and APAPIS were on full brightness and the VOR approach to runway 32 at Goodwood allows a Minimum Descent Height of 550 feet with a visibility of 1500 metres.

The arrival and subsequent approaches made by the aircraft were recorded by Ventnor Radar, which also provided an altitude readout. Radar altitude readouts, which are slaved to a pressure setting of 1013 mb and show only the nearest hundred feet, are therefore subject to a correction of plus or minus 50 feet. In order to give the aircraft’s pressure height above the airfield, another +60 feet must be added for the QFE of 1015 mb. The altitudes quoted hereafter are those displayed by radar and are uncorrected.

The pilot was cleared to report over the VOR at 2500 feet and did so at 2058 hrs, executing a full VOR let-down to 200 feet, followed by a go-around from a missed approach at 2106 hrs. The aircraft then climbed and turned to pass the VOR outbound at a height of 1600 feet, which was maintained to the base turn.

The radar plot shows that from the completion of the base turn, which the pilot called at 2111 hrs, the aircraft descended to 100 feet at 3 nm from the airfield and then maintained about 200 feet until 2115 hrs when, crossing the airfield, the pilot reported “I’VE GOT THE AIRFIELD IN SIGHT” (and will) “TRY TO MAKE A VISUAL APPROACH FROM HERE”. One minute later, the pilot acknowledged clearance to land on runway 32 and this was his final transmission.

Neither the SATCO, who was standing by the open door of the tower nor the attendant off-duty airfield fire officer (AFO) saw the aircraft at any time, but they both heard its engine running “sweetly” prior to a loud thump, followed by silence. However, the radar recording showed the aircraft at 400 feet performing a very tight circuit almost within the airfield boundary, before contact was lost at 2116 hrs and 8 seconds, when the aircraft was on a base leg.

The AFO got into his car and drove towards the threshold of runway 32 but, in the horizontal visibility, which he estimated to be about 100 metres, he didn’t see the fire until he was about half way there. The wreckage was situated on the runway near to the threshold. As soon as he did see it, he returned to the hangar to get the airfield Land Rover with foam tender and returned to the site with two

passers-by, where they were able to extinguish the fire with AFFF (foam) agent. He states that the fire was very severe, centred around and behind the front bulkhead, and that only when the fire was out was he able to see that the pilot was still in the aircraft. Despite the fog, all three emergency services attended the accident within 15 minutes of their respective callouts.

### **Examination of Wreckage**

The aircraft had struck the ground just within the motor-racing track which encircles the airfield, on a heading of 355°M and with about 3° of right yaw. The initial ground marks showed that it had been pitched moderately nose-down with the wings level and were consistent with a fairly steep full flap final approach attitude with no indications of flare. It was clear that the impact almost simultaneously detached the nose and left main landing gears and collapsed the right gear whilst fracturing the engine mountings. The aircraft continued to slide on its belly, crossing the south-eastern edge of grass runway 32 sterile area before coming to a halt, after some 88 metres total ground slide, close to the northern edge of the area. The sterile area mentioned was delineated by red lights and was 176 metres long to the displaced threshold at which point the runway edge lights changed to white.

It was apparent that the aircraft came to rest in a substantially intact condition but with the aft fuselage crippled and the outboard section of the right wing buckled downwards due to the high vertical impact loads. The engine mountings had also broken and the engine had been dragged along with the airframe by its accessory attachments and controls. The lower fuselage appeared to have suffered somewhat more mechanical damage on the right-hand side in the area of the engine firewall than the left side and it was in the former area that the ensuing fire had been most severe. It was noted that the area below each forward footwell there was a small fuel reservoir tank with associated piping and that the right tank had been consumed by fire or damaged beyond recognition. The left side of the cabin seemed mechanically undamaged although the control wheel and instrument panel bore signs of impact with the pilot. The fire had developed in the right footwell area and spread to the cabin furnishings such that the overall impression was one of a largely internal fire which had not spread externally to the wing fuel tanks despite being of sufficient intensity to melt the main wing spar above the cabin. It was further noted that the left wing, being the lower as the aircraft sat, still contained about 10 gallons of fuel but that the right wing had drained completely through the ruptured or burnt feed pipes. All the exit doors were found in the latched position and it was evident that the pilot had made no attempt to evacuate the aircraft. Inspection of their mechanism indicated that they would have functioned normally.

No pre-existing mechanical or structural defects were found during inspection of the aircraft and the propeller bore signs of significant rotation at impact. Examination of the flap actuator confirmed that

full flap had been selected prior to impact and examination of the main altimeter barometric subscale showed a reading of 1019 mb. The aircraft possessed a current Certificate of Airworthiness and its technical documentation was in order.

### **Survival aspects**

Post mortem evidence suggests that the pilot was rendered unconscious by the initial impact and did not, therefore, unfasten his safety harness after the accident. However, the post impact position of the lapstrap, in a heat induced fold-set on top of the seat squab, together with the lack of burn or sooting marks on the portion covered by the seat occupant, strongly suggest that it was not being worn at the time of impact. Although nothing of the diagonal upper torso harness strap was found, it cannot be fastened without the lapstrap being used and the likelihood that it was not worn is supported by the manner in which the injuries to the pilot were incurred.

Excepting possible difficulties of escape occasioned by the fire, all the evidence suggests that, with proper use of the safety harness provided, this accident was survivable.