

## Piper PA-28-151, G-BOSP

**AAIB Bulletin No:** 10/2000    **Ref:** EW//C99/10/3    **Category:** 1.3

**Aircraft Type and Registration:** Piper PA-28-151, G-BOSP

**No & Type of Engines:** 1 Lycoming O-320-E3D piston engine

**Year of Manufacture:** 1975

**Date & Time (UTC):** 4 October 1999 at approximately 1135 hours

**Location:** Clacton Airfield

**Type of Flight:** Private

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

**Injuries:** Crew - 1 (Serious), 1 (Minor) - Passengers - N/A

**Nature of Damage:** Aircraft destroyed

**Commander's Licence:** Private Pilot's Licence

**Commander's Age:** 48 years

**Commander's Flying Experience:** 173 hours of which 15 were on type  
Last 90 days - 18 hours  
Last 28 days - 5 hours

**Information Source:** AAIB Field Investigation

### History of the flight

The accident occurred on landing at Clacton Airfield when the aircraft bounced after landing and then veered to the left of the runway heading before striking a fence and some trees. Both pilots were injured in the crash.

The two pilots had regularly flown together over the past 15 months had hired the aircraft. Their normal routine was to alternate the flying legs so that one flew the aircraft whilst the other operated the radio and completed the navigation. On this particular day they had planned to fly from Shoreham, Sussex to Clacton, and then on to Andrewsfield and Stapleford before returning to Shoreham. Both pilots had previously flown PA-28 type aircraft but neither had flown this particular aircraft. The pilot for the first leg had held a Private Pilot's Licence (PPL) since August 1997 and had a total of 175 hours flying experience. The other pilot had held a PPL since 1989 and had a total of 515 hours of which 68 hours were on type.

Prior to the flight, the pilots had checked the airfield details for Clacton. They had made particular note of the short field length, the obstructions on approach and the footpath across the runway. They had also telephoned Clacton from Shoreham and obtained the current weather conditions. They were informed that the runway in use was Runway 36, and that the surface wind was 330°/10 to 5 kt. The handling pilot for the first leg was familiar with short field landings having practised one during the previous week. Prior to the flight, the aircraft was refuelled to full.

On the flight to Clacton the handling pilot was in the left seat whilst the other pilot, in the right seat, managed the navigation and RT. The flight to Clacton was uneventful except that it was turbulent at times. Clacton airfield was clearly identified from some way off because of the excellent visibility. Clacton radio informed the pilots that Runway 36 was in use but neither pilot can recall the details of the surface wind but it was gusty during the approach. There was no other traffic in the circuit at the time and the downwind leg was joined at a height of 1,500 feet. It was extended a little to lose the extra height and the aircraft was turned on to the final approach at approximately 1,000 feet. At about 500 feet the handling pilot can remember being on the runway centreline and a little low on the glide path. He remembers adding power to arrest the rate of descent. He cannot then remember anything else until being helped out of the aircraft after the subsequent crash. The other pilot cannot remember any details of the approach and subsequent landing except that he recalls the handling pilot asking for assistance just before going into the trees.

Another pilot was on the ground at Clacton preparing his aircraft for flight when he saw the G-BOSP approach and he stopped to watch. He noticed immediately that the aircraft was to the left of the runway centreline. He saw it land heavily on both wheels, with the wings level, before bouncing back into the air. He then heard a significant increase in engine power as though the pilot was initiating a go around. Although his own aircraft, trees and bushes obstructed his view of the landing aircraft he next heard sound of an impact. He was sure that the engine power remained high until the impact.

### **Examination of the accident site**

The aircraft had come to rest at the bottom of a bank surrounding a pond, about 50 metres west of the centreline of the runway at Clacton (heading 002°M) and about halfway along its length. The wire-fenced top edge of the bank, at airfield level, was approximately parallel to the runway and covered by small trees. There was evidence, in the form of mainwheel tracks, that the aircraft had approached the fence on a final track of about 257°M. The track of the left mainwheel faded out before the point at which the aircraft's left wingtip began to cut through the upper branches of the trees and the left mainwheel struck the fence. The evidence of many very sharp cuts in the trees on the bank indicated that the aircraft had then begun to yaw rapidly to the left, with the propeller cutting through the small branches. It had been brought to a halt by striking near the base of a substantial tree.

When the aircraft struck this tree it had yawed more than 90° to the left, although its track had not been significantly changed. The main impact had been lateral, on the right hand side at the engine firewall, with the aircraft pitched about 45° nose down. The aircraft had subsided into a more level attitude after coming to a halt. The collision with the tree had caused substantial crushing damage to the entry door and right side of the cabin and distorted the cabin roof to the left. As found the flaps appeared to be retracted and all control surfaces still attached. The aircraft was removed from the accident site, without the need for any dismantling, and taken to the maintenance facility on the airfield for examination.

An examination was made of the grass surface in and around the touchdown area of Runway 36, where the witness had indicated that he had seen the aircraft land. This had revealed only one set of wheel marks which were consistent with the dimensions of the PA 28 landing gear and these were very close to the left edge of the runway. The main wheels had contacted the ground about 3 metres from the runway end marking. The distribution of the main wheel imprints indicated that the aircraft had been virtually level in roll, and the distance between the main and nose wheel contact points indicated that touchdown of the nosewheel had been virtually simultaneous with that of the mains.

From the initial touchdown points, wheel tracks ran for a distance of about 8 metres on a heading of 354°M before fading out, indicating that the aircraft had become airborne again. The aircraft then appeared to have sustained the track which it had immediately after touchdown for about 200 metres until wheel tracks, which were consistent with the geometry of the PA 28 main wheels, reappeared and continued to the point where the aircraft had struck the fence.

### **Examination of the aircraft**

Examination of the aircraft showed that all the structural damage and distortions were consistent with having been made during the aircraft's passage through the trees on the bank. There was no evidence of any components having separated from the aircraft before it struck the fence. No evidence of pre-impact failure of the flying controls was found; the elevator trim was established to have been slightly nose up from neutral. Examination of the flap mechanism showed that this was in the 'clean', flaps up, position and showed no evidence of pre-impact malfunction; nor of the ratchet mechanism being forced to this position by impact forces was observed.

The main landing gear was relatively intact and, on both, the wheels were still free to turn. The right brake was still operable but a disruption of the left brake line, caused by a structural distortion had rendered that brake inoperable. The nose landing gear had been severely disrupted during the final impact sequence.

A considerable quantity of fuel was present in both tanks and the selector was set to 'Right' tank. When the engine was turned the engine driven pump was observed to deliver fuel. As found, the fuel mixture control was close to the 'Idle Cut-off' position although the throttle was almost fully open and the cold air source selected. Although there was not much damage to the leading edges of either propeller blade, the cuts made in the tree branches, through which the aircraft had passed, indicated that the engine was developing considerable power at that time.

### **Meteorological data**

The actual meteorological conditions are not recorded at Clacton. The recorded meteorological data at Stansted, which lies 40 nm to the west of Clacton, at 1120 hrs was: surface wind 330°/11 kt, visibility greater than 10 km, cloud scattered at 2,200 feet, temperature +10°C, dewpoint +6°C, QNH 1015 mb. At Southend, which is 23 nm to the south-west, the recorded data at 1150 hrs was: surface wind 320°/11 kt, visibility greater than 10 km, cloud scattered at 3,200 feet, temperature +13°C, dewpoint +5°C, QNH 1015 mb. The pilot who witnessed the approach and landing described the weather as clear, dry and sunny with an estimated surface wind of 330°/5 to 8 kt.

### **Summary**

The evidence indicated that the aircraft landed sufficiently heavily at the extreme left side of the start of Runway 36 to leave clearly discernible wheel marks. It appears to have bounced immediately back into the air and the application of a considerable amount of increased power was heard. The evidence of the wheel tracks reappearing after approximately 200 metres and running to the point at which the aircraft struck the trees on the bank, indicated that the aircraft never properly regained flying speed.

There was no evidence to indicate that the engine was not capable of developing sufficient power, although the conditions were conducive to carburettor icing if heated air had not been selected during the approach. There was no direct evidence of the use of flap during the approach to land, although the evidence from the post crash examination showed that no flap was applied at the time the aircraft struck the trees. No reason has been found as to why the aircraft landed on a track which was about 8° to the west of runway heading nor why the track had not been brought round to the runway heading.