

# Piper PA-28-140, G-BIHG, 18 May 2002 at 1410 hrs

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| <b>AAIB Bulletin No:</b> 8/2002        | <b>Ref:</b> EW/G2002/05/09  | <b>Category:</b> 1.3 |
| <b>Aircraft Type and Registration:</b> | Piper PA-28-140, G-BIHG   |                      |
| <b>No &amp; Type of Engines:</b>       | 1 Lycoming O-320-E2A piston engine  |                      |
| <b>Year of Manufacture:</b>            | 1969  |                      |
| <b>Date &amp; Time (UTC):</b>          | 18 May 2002 at 1410 hrs   |                      |
| <b>Location:</b>                       | 12 nm west of the Brecon VOR  |                      |
| <b>Type of Flight:</b>                 | Private   |                      |
| <b>Persons on Board:</b>               | Crew - 1  | Passengers - 2       |
| <b>Injuries:</b>                       | Crew - None   | Passengers - None    |
| <b>Nature of Damage:</b>               | Aircraft destroyed  |                      |
| <b>Commander's Licence:</b>            | Private Pilots Licence  |                      |
| <b>Commander's Age:</b>                | 49 years  |                      |
| <b>Commander's Flying Experience:</b>  | 1,250 hours (of which 20 were on type)  |                      |
|  | Last 90 days - 5 hours  |                      |
|  | Last 28 days - 3 hours  |                      |
| <b>Information Source:</b>             | Aircraft Accident Report Form submitted by the pilot and his passengers and other enquiries by the AAIB |                      |

## History of the flight

The pilot and his two passengers, both of whom were qualified pilots, were flying from Shobdon to North Weald, Essex. The en-route weather however deteriorated such that they decided to fly to Swansea instead, landing at 1200 hrs. They decided to return to Shobdon after lunch. Prior to the return flight the pilot checked the meteorological forecast and planned the route with the assistance of a flying instructor based at Swansea.

The aircraft took off at 1405 hrs, climbed to 1,500 feet and turned towards the east. The intention was to follow the coast towards Cardiff and then fly on a north-easterly track to Shobdon. At about the time the pilot contacted Cardiff ATC it became apparent that cloud to the north would probably prevent the aircraft from following the intended route. The pilot however, who was not qualified to fly in IMC, initiated the turn onto a north-easterly track whilst maintaining visual contact with the

ground; the intention being to return to Swansea if conditions deteriorated further. During the turn the aircraft entered cloud and despite continuing the turn the pilot was unable to regain visual contact with the ground. He contacted Cardiff ATC stating that he was unsure of his position. The radar controller allocated the aircraft a transponder code and eventually identified it approximately 15 nm west of the Brecon VOR. When the pilot confirmed that he could accept a frequency change he was transferred to a dedicated frequency to be controlled by another controller at Cardiff. This controller requested a further transmission "for DF": to allow him to use his direction finding equipment to establish the aircraft's radial from Cardiff. Once he had this information he advised the aircraft to climb to 4,000 feet on the Cardiff QNH of 1014 mb: 4,000 feet was the relevant minimum safe altitude. Cardiff ATC also informed the Distress and Diversion (D&D) cell at the London Air Traffic Control Centre (LATCC) that they were dealing with an aircraft that was lost and in cloud.

When radio communications between the aircraft and the Cardiff controller became intermittent another aircraft in the area was used to provide assistance relaying instructions to the pilot who was advised again to "maintain 4,000 feet on the QNH of 1014 mb and head south over the water". The pilot selected the carburettor heat control to fully hot and commenced the climb. He then encountered significant problems controlling the aircraft, which was intermittently 'pitching and rolling in a violent manner'. During these manoeuvres the pilot and his passengers recalled that the stall warning light illuminated and later the airspeed was noted to be very high. The pilot believed that the violent aircraft motions were caused by turbulence.

The aircraft briefly broke cloud at an altitude of about 2,000 feet where the pilot found himself to be in a small valley. In order to continue the climb however he had to once again enter cloud. The violent pitch and roll motions recommenced as the aircraft climbed through 3,200 feet. At about this stage the radar controller observed erratic behaviour of the aircraft's primary radar return. Moments later the pilot reported that the aircraft was in a rapid descent. He and his passengers then perceived an increase in 'g' loading and both the pilot and the passenger occupying the front right seat pulled back on the control column. The aircraft broke out of cloud above a wooded mountain side and struck the trees; the passenger in the rear seat later recalled that the indicated speed at impact was 40 mph. The accident site was at an altitude of 1,770 feet.

The aircraft occupants survived the impact. The pilot selected the fuel and electrics to OFF and eventually vacated the aircraft once the passenger in the right seat had managed to force open the door which had been held closed by dense foliage. The pilot and his passengers then moved away from the aircraft and operated their locator beacon which transmitted on 121.5 Mhz. The passengers also used their mobile telephones to contact the local emergency services and the control tower at Cardiff, although they did encounter some problems with telephone reception in the area.

## **Search and rescue**

The Distress and Diversion (D&D) cell was informed at 1420 hrs when radio communication with the aircraft was lost. A Sea King search and rescue helicopter from RAF Chivenor was tasked and was airborne at 1431 hrs. An air ambulance helicopter from Swansea and a police helicopter were also tasked separately to attend the accident site. The D&D cell, however, were concerned for the safety of the three helicopters operating in close proximity in low visibility and advised the police helicopter to leave the scene. The Sea King helicopter arrived at the crash site at 1456 hrs, approximately 20 minutes after the locator beacon had been operated. The pilot and his passengers were airlifted to a hospital in Swansea where it was confirmed that they had received only minor

injuries. Throughout the search and rescue phase radio communications at low level were difficult. Other civil and military aircraft in the area at the time however provided valuable assistance by relaying radio transmissions.

## **Meteorological situation**

The synoptic situation at 1200 hrs on 18 May 2002 showed a slightly unstable, south-westerly airflow over south Wales. A trough line was positioned from Strumble Head to Plymouth, moving north-east at about 20 kt. The visibility was generally 20-25 km reducing to 15 km in light rain. The cloud was scattered stratus with a base of 1,000 feet and tops of 1,300 feet, broken strato-cumulus with a base of 1,500 feet and tops around 5,000 feet. The wind gradient was as follows:

| Altitude (ft) | Wind Velocity (° true/kt) |
|---------------|---------------------------|
| Surface       | 240 / 18 gusting 25       |
| 1,000         | 260 / 25                  |
| 2,000         | 270 / 30                  |
| 5,000         | 270 / 20                  |

Detailed examination of radio sonde ascents and radar pictures provided no evidence of strong convection in the area that could have given rise to up or downdrafts. However, the gradient wind at 2,000 ft of 270°/30 kt, in conjunction with the local topography, could have generated significant low level turbulence.

## **Conclusion**

The pilot and his passengers were extremely lucky to survive this event. The pilot inadvertently flew into cloud and even though he carried out a turn to retrace his track and exit the cloud he was unable to regain visual contact with the ground. He then became unsure of his position. ATC, initially unable to identify the aircraft on radar, instructed the pilot to climb to the minimum safe altitude of 4,000 feet. This reinforced the only safe option that was available to the pilot. He was in an area of undulating high terrain where the cloud base was below the hill tops. Any descent could have led to an impact with the surface and a climb through cloud, for a pilot without an IMC rating, would have been a daunting prospect. Turbulence and the pilot's unfamiliarity with instrument flying then led to periods when the aircraft was probably out of control, exceeding its recommended maximum speed or flying at or close to the stall.

It must be considered extremely fortunate that, whilst attempting to recover from a manoeuvre where 'g' forces on the aircraft were increasing, the pilot and front seat passenger manipulated the controls such that the aircraft hit the tree tops at the point of stall or very close to its minimum flying speed. This low speed impact combined with the forgiving nature of the foliage were therefore major contributory factors in the survival of the occupants.

*(This report has been compiled from a very comprehensive, frank and open account written by the pilot and his passengers)*