

Pierre Robin HR100/210, G-BBPW

AAIB Bulletin No: 12/98 **Ref:** EW/G98/08/35 **Category:** 1.3

Aircraft Type and Registration: Pierre Robin HR100/210, G-BBPW

No & Type of Engines: 1 Continental IO-360-D piston engine

Year of Manufacture: 1973

Date & Time (UTC): 24 August 1998 at 1440 hrs

Location: Field just west of Kemble Airfield

Type of Flight: Private

Persons on Board: Crew -1 - Passengers - 1

Injuries: Crew - None - Passengers - None

Nature of Damage: Landing gear broken away, lower fuselage and wings damaged, propeller bent

Commander's Licence: Private Pilot's Licence

Commander's Age: 68 years

Commander's Flying Experience: 1,029 hours (of which 40 were on type)
Last 90 days - 40 hours
Last 28 days - 0 hours

Information Source: Aircraft Accident Report Form submitted by the pilot and telephone inquiries to repair agency

Before commencing the flight, which was being undertaken for a Certificate of Airworthiness air test following a 'Star' Annual Inspection, the pilot had taken about half-an-hour to conduct his pre-flight checks. He then taxied the aircraft to the fuel bowser where he uplifted a total of 50 gallons of Avgas to bring the total fuel contents to 64 gallons, the volume required to bring the aircraft up to the required weight for the air test. The engine was re-started from the left main tank and, after about 10 minutes of taxiing, the engine power checks were carried out satisfactorily. After lining up on Runway 27, the take off was commenced with the left main tank still selected. The initial acceleration was satisfactory and the take off proceeded normally, with no abnormal temperature or pressure indications observed on the engine gauges and with an indicated fuel flow of about 14 gallons per hour. However when the aircraft had climbed to some 400 feet agl, the engine suddenly lost power.

The pilot checked that both magnetos were selected, that the fuel selector was set to 'left main' and that the fuel mixture was set to 'rich'. However upon checking the fuel flow, the pilot noted a reading of less than 6 gallons per hour, compared to the 14 gallons per hour observed earlier in the climb. He briefly switched the electric fuel pump to 'emergency' but this had no obvious effect and since the aircraft had by that stage passed the upwind end of the runway, he abandoned further attempts to restore power in order to concentrate on the impending forced landing. Since most of the fields in the area had been recently ploughed, he selected the nearest unploughed field for the forced landing. The aircraft landed fairly heavily in a level attitude, but due to excess speed it then ran through a low stone wall, which caused detachment of the landing gear, before coming to rest on its underside some 30 metres into an adjoining field. Despite a substantial leakage of fuel from the damaged wings there was no fire and both occupants, who were uninjured, were able to evacuate from the aircraft.

The Annual Inspection had not involved any invasive work on the fuel system, apart from a check of the fuel strainer. Subsequent inspection of the aircraft by the repair organisation confirmed that the fuel selector had been set to the left main tank and that the electric fuel pump was set to the 'take off' position. The engine could be turned by hand and no disconnections or abnormalities were evident within the engine compartment. The fuel tank outlets and vents were all clear; the drive to the mechanical fuel pump was intact; and the electric fuel pump delivered a flow of approximately 53 imperial gallons per hour when tested; the fuel filter was clean. However, the fuel system pipework below the cockpit floor had been disrupted during the impact with the wall and the strainer had been torn from its pipe connections.

The repair agency was unable to offer any definitive explanation for the loss of power but suggested that fuel vapour 'locking' within the fuel lines, associated with extended taxiing prior to the take off, may have been a factor. The air temperature at the time was reported to have been +20°C.