

ACCIDENT

Aircraft Type and Registration:	Pitts S-1S, G-BOXH	
No & Type of Engines:	1 Lycoming O-360-A4A piston engine	
Year of Manufacture:	1974	
Date & Time (UTC):	10 December 2006 at 1120 hrs	
Location:	Near to Drayton level crossing, southeast of Goodwood	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Severe damage to lower right wing and landing gear, engine, propeller, fin and rudder	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	31 years	
Commander's Flying Experience:	215.25 hours (of which 8.83 were on type) Last 90 days - 7.92 hours Last 28 days - 0.75 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot, and follow-up telephone inquiries to pilot	

Synopsis

The pilot carried out a forced landing in the correct attitude and at the correct speed into a ploughed field, following a loss of power thought to have been caused by carburettor icing. Nevertheless, the aircraft flipped over and came to rest inverted. There was no fire. The pilot was uninjured but could not escape from the cockpit. The crew of a Robinson R22 helicopter was in the area and became aware of the accident. They promptly landed close to the aircraft and were able to lift the tail of G-BOXH high enough for the pilot to crawl clear.

History of the flight

Having departed Goodwood for a familiarisation flight in the local area, and having successfully flown a series of basic aerobatic manoeuvres that included loops and rolls, the pilot carried out two spins. On completion of the second of these, the engine started coughing so she selected carburettor heat. Subsequently, with cold air restored, the engine ran normally.

As a precaution, the flight was abandoned with the intention of returning to Goodwood. En-route, at an altitude of about 2,500ft, the engine started misfiring again and carburettor heat was re-applied. This time, the misfire continued and the pilot advised Goodwood that she was returning with engine trouble. The engine then

recovered and returned to full power, but subsequently started to misfire again and stopped as the aircraft was passing approximately 1,000 ft. Having decided against further attempts to restore power, a forced landing was executed into a ploughed field and, although the aircraft touched down in the proper attitude and at the correct airspeed, it nosed over and came to rest inverted.

The cockpit space was not significantly compromised during the accident and the pilot was uninjured. However, the side of the cockpit was so close to the ground that she was unable to extricate herself. Very shortly afterwards, the pilots of an R44 helicopter routing through the area, landed to render assistance and, by lifting the aircraft's tail, they were able to increase the ground clearance sufficiently for her to crawl clear.

The pilot of G-BOXH expressed the opinion that the engine failure was most probably caused by carburettor icing. Data from the Met Office indicated that the air temperature and dew point in the Goodwood area at

the relevant time were +9.5°C and +5°C respectively, conditions which are conducive to serious carburettor icing at any power setting. After the event, the pilot was unable to recall how long she had left the carburettor heat in the HOT position, or whether it had been in the HOT or COLD position at the time when the engine stopped.

The extent of carburettor icing can be difficult to assess in flight. Under conditions of severe icing, it is possible for the application of carburettor heat to restore smooth running before all of the accumulated ice in the carburettor has fully dissipated. If the carburettor heat control is prematurely returned to the COLD position, it is possible for a new amalgam of ice to build up rapidly, which could result, ultimately, in engine stoppage. CAA Safety Sense Leaflet 14b, accessible via the UK CAA website (http://www.caa.co.uk/docs/33/SRG_GAD_WEBSSL14/PDF) provides general information on the subject of carburettor and induction icing, and practical advice on dealing with this problem.