

Stampe SV4C (Modified), G-HJSS

AAIB Bulletin No: 11/2001	Ref: EW/G2001/07/08	Category: 1.3
Aircraft Type and Registration:	Stampe SV4C (Modified), G-HJSS	
No & Type of Engines:	1 Renault 4PO5 piston engine	
Year of Manufacture:	1949	
Date & Time (UTC):	8 July 2001 at 1600 hrs	
Location:	Near Piltdown, East Sussex	
Type of Flight:	Private	
Persons on Board:	Crew - 2	Passengers - None
Injuries:	Crew - None	Passengers N/A
Nature of Damage:	Propeller detached, landed safely in field	
Commander's Licence:	Private Pilots Licence	
Commander's Age:	65 years	
Commander's Flying Experience:	456 hours (of which 425 were on type)	
	Last 90 days - 17 hours	
	Last 28 days - 8 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot and additional inquiries by AAIB	

The aircraft was on a flight from Fenland Airfield, Norfolk, to its base at Shoreham. Whilst over Kent the pilot could smell burning, which he initially thought might emanate from the ground below. Shortly afterwards, both engine tachometers stopped working, which did not particularly alarm either pilot as this is apparently a known problem with the Renault engine when the drive at the rear of the engine vibrates loose.

Although neither pilot saw any visible smoke, the smell of burning persisted and they started to suspect that it was coming from the front of the engine. The engine then lost some power, which could not be overcome by advancing the throttle, and the aircraft descended below 2,000 feet. Suddenly, the pilots heard two bangs in quick succession and saw something fly off the front of the aircraft, which they initially thought might be part of the engine. Fortunately, there was a suitable

field near the aircraft and a successful forced-landing was carried-out, without damage to the aircraft. It was only when the pilots disembarked that they realised that the propeller was missing.

Examination of the Aircraft

The aircraft had suffered no damage during the forced-landing, but the aluminium propeller back-plate had almost melted away and the front of the cowling was scorched. The remains of the six propeller mounting bolts bore signs of varying degrees of distress, including overheating, stretching, bending and fracture. The hub and one blade of the propeller were recovered and showed corresponding overheat burning. The propeller is of wooden construction, faced with glass-fibre and is located by the six attachment bolts. There is no dowel or key arrangement to provide additional location for the propeller.

Discussion

Overheating and burning of wooden propellers is a common indication of a loss of torque of the mounting bolts since, as the propeller becomes loose, friction heating occurs. The maintenance organisation reported that the propeller had been re-fitted to G-HJSS during the previous winter and that they had found a number of cases this summer of loose bolts on various types of aircraft with wooden propellers. This is almost certainly due to shrinkage of the wood as the propeller dries-out and again is a known phenomenon, exacerbated by the extremely wet winter of 2000/2001.

The Poular Flying Association intend to publish an article in *Popular Flying* highlighting the need to check-tighten wooden propeller bolts during the summer and the CAA also intend to publish a similar item in a forthcoming GASIL.