No: 1/90 **Ref: EW/G89/09/10** **Category: 1c**

Aircraft Type and Registration:	Stampe SV4A G-BHYI
No & Type of Engines:	1 Renault/Snecma 4P05 piston engine
Year of Manufacture:	1945/46
Date and Time (UTC):	24 September 1989 at 1800 hrs
Location:	White Waltham, Berkshire
Type of Flight:	Private
Persons on Board:	Crew - 1 Passengers - 1
Injuries:	Crew - None Passengers - None
Nature of Damage:	Substantially damaged during forced landing
Commander's Licence:	Private Pilot's Licence
Commander's Age:	43 years
Commander's Total Flying Experience:	263 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot and AAIB examination of engine

Whilst on a local flight from White Waltham airfield the pilot experienced rough running of the engine accompanied by a high indicated oil temperature. He transmitted a Mayday call and decided to carry out a precautionary landing. Unfortunately, following a successful touchdown in the selected field, the aircraft struck an iron fence that had previously not been visible to the pilot. The aircraft then turned over and was substantially damaged, although the pilot and passenger escaped injury.

Subsequent examination of the engine revealed that the edge of No 3 piston crown had been eroded, and the associated debris had caused considerable scoring on the cylinder walls. Additionally, there was minor scoring on the big end bearing shells and some metal pick-up on the main bearings, especially the No 5 (*ie* rearmost) bearing, which was the bearing immediately downstream of the pressure oil pump. There was little debris in the oil filter.

Whilst the cause of this piston damage was not immediately apparent, it was noted that the top compression ring did not move freely in its groove due to the presence of oil combustion products. This indicated that the oil control ring may have become ineffective and allowed oil to pass into the combustion chamber. It is probable that the seized compression ring allowed combustion gases to blow past the piston, causing hot spots on the edge of the crown and also heating up the oil in the crankcase.

The maintenance organisation which stripped the engine commented that they had observed similar features on a number of engines of this type after they had achieved approximately 200 hours subsequent to their last overhaul. The subject engine had run 269 hours since overhaul.

It was also established that the ignition timing of both magnetos was 12° advanced from the correct setting, although it was not possible to establish whether this had also contributed to the engine problems.