No: 1/91 **Ref: EW/G90/10/14** **Category: 1c**

Aircraft Type and Registration:	Piper PA-32R-301, G-BSGO
No & Type of Engines:	1 Lycoming IO-540-K1G5D piston engine
Year of Manufacture:	1980
Date and Time (UTC):	26 October 1990 at 1631 hrs
Location:	Coventry (Baginton) Airport, West Midlands
Type of Flight:	Private
Persons on Board:	Crew - 1 Passengers - None
Injuries:	Crew - Minor Passengers - N/A
Nature of Damage:	Substantial
Commander's Licence:	Private Pilot's Licence with IMC and Night ratings
Commander's Age:	46 years
Commander's Total Flying Experience:	1,530 hours (of which 60 were on type)
Information Source:	Aircraft Accident Report Form submitted by the pilot and report by CAA engineer.

The aircraft was departing from Coventry airport to fly to the pilot's local private airstrip. The pre-flight checks had been performed with no indication that there was anything amiss. Immediately after a full power take-off, when the pilot had selected the landing gear up, at about 250 ft and 115 kt airspeed the engine suffered total power failure. The pilot checked that the electrical fuel pump was on, changed from the left to the right fuel tank and selected landing gear down. He steered gently to the right towards open waste ground and away from a built-up industrial area and a road junction ahead of him.

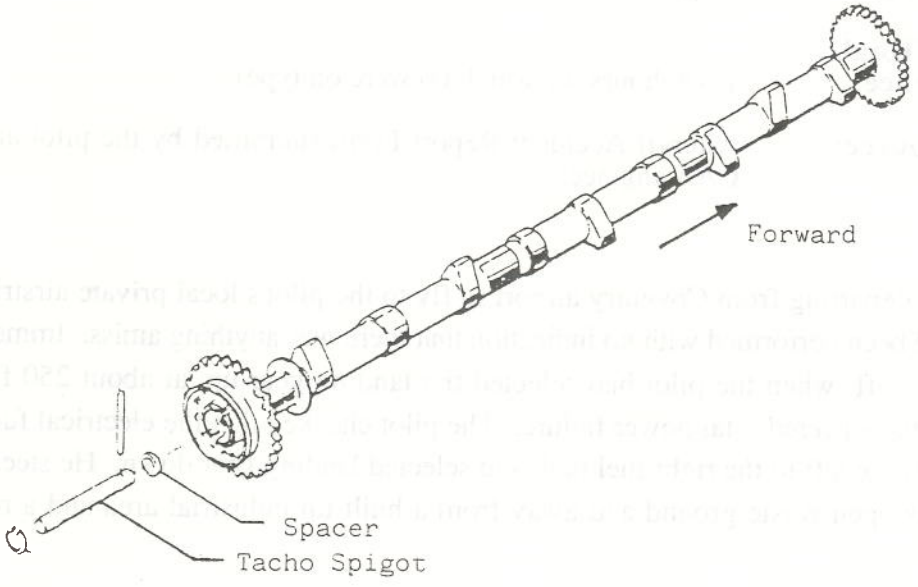
The aircraft landed on a disused tip where young trees were growing, the fuselage coming to rest between two saplings. The lap and diagonal safety harness held on impact but the pilot suffered a blow to the head. He became aware that a rescuer was attempting to open the cabin door but even with the efforts of both pilot and rescuer this could not be achieved because of distortion of the wing root. The rescuer then helped the pilot out of the rear door. There was no fire.

When the engine was stripped down it was found that all but one of the cam followers had suffered damage amounting in some cases to total destruction of the cam follower head. Amongst the debris in the crankcase were found fragments which proved to be parts of a phosphor-bronze spacer (PN

76118) normally located at the aft end of the camshaft supporting the tacho drive spigot. These particles could only have entered the crankcase, once the spacer had fractured and come out of its location, by migrating down the central bore of the hollow camshaft. The largest piece of the spacer was in fact found trapped in a crankcase cavity at the front end of the camshaft to where it had fallen out of the camshaft bore. It seemed most probable that debris from the spacer had found its way between some cams and their followers, damaging the followers and thus creating more debris which progressively damaged other cam followers.

The largest spacer fragment found, which had not migrated into the main crankcase cavities and had thus not been crushed under the cam followers, had however suffered heavy wear and polishing and no indication was found to explain why it had broken up or been released.

The engine had completed 1251 hours since new.



Camshaft and Related Parts