

No: 14/83

Ref: EW/G 83/08/22

Aircraft type and registration:	Druine D31 Turbulent G-AWMR (light, single engined fixed wing aircraft)	
Year of manufacture:	1970	
Date and time (GMT):	14 August 1983 at 1150 hrs	
Location:	Farm field 2 m North of Hemel Hempstead	
Type of flight:	Private (pleasure)	
Persons on board:	Crew — 1	Passengers — Nil
Injuries:	Crew — None	Passengers — N/A
Nature of damage:	Damage to propeller and engine cowlings; fin post broken and winscreen smashed; rear cockpit bulkhead dislocated	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	29 years	
Commander's total flying experience:	116 hours (of which 29 were on type)	

Whilst in cruising flight between Booker and a private airstrip near Stevenage a loud banging noise was heard from the engine, followed by a significant loss of power. Although the engine continued to run, the pilot found he could not maintain height and so he selected a grass field for a forced landing. During the approach to the field, a series of single strand electric fences running across the line of flight became apparent. The remaining engine power was sufficient to enable the aircraft to reach the overshoot area, which was a ploughed field, but, after a smooth touchdown, the aircraft settled into the earth and nosed over onto its back.

Subsequent investigation revealed that the input shaft of the port magneto had sheared. The duplex chain, which drives both magnetos from the crankshaft, had whipped violently, causing it to jump to the outer of the dual cogs driving the starboard magneto. At the same time, it had evidently jumped one or more teeth on the magneto cog, thereby altering the ignition timing of the engine.

The port magneto was fitted with an impulse device, which resulted in the input shaft being longer than that of the basic magneto. Thus the shaft would suffer increased bending stresses in the event of overtightening the duplex chain. It is understood that a forthcoming issue of the PFA Magazine will carry an article on the dangers of overtightening timing chains, together with a recommendation as to the inadvisability of fitting an impulse device to the Lucas SR4 magneto.