AAIB Bulletin No: 11/93 **Ref: EW/G93/08/25** **Category: 2.3**

Aircraft Type and Registration:	Hiller UH-12E, G-DMCH
No & Type of Engines:	1 Lycoming VO-540-C2A piston engine
Year of Manufacture:	1981
Date & Time (UTC):	21 August 1993 at 1210 hrs
Location:	Hallbeck Farm, near Millom, Cumbria
Type of Flight:	Aerial work
Persons on Board:	Crew - 1 Passengers - None
Injuries:	Crew - Minor Passengers - N/A
Nature of Damage:	Helicopter destroyed in post-accident fire
Commander's Licence:	Commercial Pilot's Licence (Helicopters & Gyroplanes)
Commander's Age:	68 years
Commander's Flying Experience:	14,779 hours (of which 3,811 were on type) Last 90 days - 36 hours Last 28 days - 36 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot and AAIB telephone enquiries

The helicopter was being used to spray bracken to improve access for sheep-grazing. The pilot had just sprayed, without incident, four of the five strips detailed for one sortie and noted that 20 US gallons of fuel remained. As the last strip needed to be sprayed travelling uphill, the pilot entered a shallow dive in order to be able to use the 'zoom' effect, exchanging speed for height up the slope: he notes that, up to this point, no abnormalities had been experienced in the helicopter's handling, performance or instrument readings.

The pilot reports that the airspeed decay was rapid during this last run and that, completing the swath, he was about to 'break' to the left with full power when two loud successive bangs were heard from the engine with immediate, and seemingly total, power loss. These bangs were also heard clearly by personnel at the landing pad, about 200 yards away at the foot of the hill. To avoid a run-on landing straight ahead, which he was certain would result in a roll-over, the pilot turned into a gully to the right where the stream bed was flatter than the hill-side.

In the event, with insufficient residual rotor RPM to cushion the landing, the helicopter landed heavily in the stream bed, collapsing the landing skid support. Severe damage was caused by main rotor blade contact with the sides of the gully, fracturing the rotor mast, and the helicopter fell on its side. As the transmission system was disrupted and the engine load reduced, the pilot reports that the engine came back to life and oversped. The sound of this overspeed was also heard by the other witnesses.

The pilot found himself wedged in the wreckage for a few seconds but was then able to break free and crawl through the shattered bubble transparency, after releasing his harness and turning off the magnetos. At this point there was already an intense fire around the top of the engine. Although the ground crew and farm workers arrived swiftly with emergency equipment, it was not possible to extinguish the flames and the helicopter was destroyed.

From a simple external inspection of the engine, there was no clear reason for the power failure. The pilot suggests the possibility of gradual and insidious ice build-up in the carburettor, followed by a sudden and massive release. To support this, the helicopter had a minor history of unreliable and fluctuating CAT (carburettor air temperature) readings and, recently, had appeared to be requiring larger amounts of carburettor heat control than is normal for this type.