

**Aviation Safety Investigation Report
199500734**

**Hiller Aviation
UH-12E**

13 March 1995

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NOTE: All air safety occurrences reported to the ATSB are categorised and recorded. For a detailed explanation on Category definitions please refer to the ATSB website at www.atsb.gov.au.

The Bureau did not conduct an on scene investigation of this occurrence. The information presented below was obtained from information supplied to the Bureau.

Occurrence Number: 199500734 **Occurrence Type:** Accident
Location: 30km E Taralga
State: NSW **Inv Category:** 4
Date: Monday 13 March 1995
Time: 1500 hours **Time Zone** EST
Highest Injury Level: None

Aircraft Manufacturer: Hiller Aviation
Aircraft Model: UH-12E
Aircraft Registration: VH-HIL **Serial Number:**
Type of Operation: Commercial Aerial Agriculture - Other
Damage to Aircraft: Substantial
Departure Point: Hanworth Station NSW
Departure Time: 1450 EST
Destination: Hanworth Station NSW

Crew Details:

Role	Class of Licence	Hours on Type	Hours Total
Pilot-In-Command	Commercial	45.0	12300

Approved for Release: Wednesday, May 10, 1995

The pilot was positioning the helicopter for the first spray run. As he lowered the collective lever and commenced a turn, he noticed that the rate of descent was higher than usual and that the dual tachometer needles had split. Realising that the engine had lost power, he performed an autorotative descent from less than 100 ft above ground level (agl). During the touchdown on slightly sloping terrain, the right front skid tube broke and the helicopter rolled on to its right side.

During the helicopter retrieval, the engineer estimated that he drained 4 to 5 litres of AVGAS from the helicopter's undamaged fuel tank. The drained fuel was not accurately measured. The pilot's estimate of drained fuel was 6 to 8 litres. No evidence was found of fuel having leaked onto the ground prior to or during the retrieval. The engineer found no evidence of fuel leaks, blockages, water or significant foreign matter in the helicopter's fuel system. His opinion was that the engine lost power due to fuel starvation.

The pilot cannot remember the fuel gauge reading immediately before the accident. The failure occurred about 1.5 minutes after takeoff from the loading base and 34 minutes flight time since the last refuel.

The pilot had refuelled approximately every 30 minutes of flight time during the previous four hours of spraying. After refuelling, he did not dip the tank to measure the fuel accurately. He advised that the last refuel consisted of 60 turns of a rotary hand pump. He believed that every turn of the handle had pumped 0.8 litre into the fuel tank. In his opinion, the fuel gauge reading compared with the estimated amount of fuel pumped into the tank at each refuel.

A warning in the Hiller 12E flight manual states: - "Operating with fuel indicator in the yellow arc during sideward or rearward flight may result in loss of power", because the fuel tank pickup pipe may be exposed and cause the fuel pump to momentarily suck air in lieu of fuel. The helicopter was not flying sideways or rearwards when engine power was lost. The unuseable fuel listed in the flight manual was only 1 litre for normal level flight.

The pilot thought that the engine did not stop completely during the descent but ran down to idle and that it idled very briefly after touchdown because he saw a small post crash fire caused by the drift marker oil, a very light oil, dribbling into the exhaust. Engineers were doubtful that the engine could have run on the ground with the helicopter steeply on its right side with the two carburettor float bowls side uppermost.

The pilot did not dispute that the helicopter appeared to have experienced fuel starvation. However he believed 48 litres of fuel were added at the last refuel before the accident. Since the helicopter had consistently used 60 to 62 litres per hour in recent times and because its tank was not empty at the commencement of the last refuel, in excess of 13 litres of AVGAS should have been in the fuel tank when the power loss occurred.

Several litres of AVGAS have not been accounted for. No evidence was found to indicate that the drum refuelling pump was unserviceable.

It has not been possible to resolve discrepancies in fuel since the accident; nor has any fault been found with the aircraft which may have contributed to the accident.

