

**AAIB Bulletin No:** 10/93

**Ref:** EW/G93/08/36

**Category:** 1.3

**Aircraft Type and Registration:** DH82A Tiger Moth, G-AJTW

**No & Type of Engines:** 1 De Havilland Gipsy Major 1 piston engine

**Year of Manufacture:** 1938

**Date & Time (UTC):** 28 August 1993 at 1138 hrs

**Location:** Tibenham Airfield, Norfolk

**Type of Flight:** Private

**Persons on Board:** Crew - 1                      Passengers - 1

**Injuries:** Crew - None                      Passengers - None

**Nature of Damage:** Damage to propeller, cowlings, landing gear and wings

**Commander's Licence:** Private Pilot's Licence

**Commander's Age:** 46 years

**Commander's Flying Experience:** 517 hours (of which 435 were on type)  
Last 90 days - 48 hours  
Last 28 days - 20 hours

**Information Source:** Aircraft Accident Report Form submitted by the pilot and  
AAIB telephone enquiries

The pilot reported that the aircraft was taken out of its hangar shortly before the flight and that no problems were observed during the pre-flight checks. The power checks were normal. The aircraft held for Runway 03 for a while, and the pilot reported that with this type of aircraft it is impractical to repeat the power check, as chocks are required. The take-off run, acceleration and climb to about 150 feet agl were normal, and the engine was running evenly at full power. While still over the runway the engine faltered momentarily and then picked up to run smoothly at full power for about 20 seconds.. A left turn was then initiated during which the engine suddenly, and completely, lost power. A flat stubble field was selected for the landing during which the left landing gear leg collapsed, causing the aircraft to turn over. The propeller had ceased rotation before the forced landing. The pilot and passenger were uninjured.

Subsequent inspection found that although the engine was undamaged, it could not be run due to the propeller damage. Detailed examination of the fuel system, magnetos, spark plugs and the engine in general showed no defect of any kind, except that it was not possible to confirm that there was sufficient fuel in the carburettor as the design of this results in the loss of some fuel

when it is dismantled. No water, contamination or other deficiency was found. The compressions were checked and were found satisfactory.

The surface temperature and dew point for the day, 19°C and 13°C, were such that that carburettor induction icing could have occurred, however the system is such that hot air is always in use and the pilot felt that the performance during the take off and initial climb was inconsistent with carburettor icing and also inconsistent with plug fouling as a cause. In his opinion, the least unlikely cause was intermittent fuel supply arising from the use of mogas. The reported surface temperature may have been sufficient to allow vapour to form in the fuel lines, given the greater volatility associated with mogas and the lack of consistency of the specification of such fuel. Unfortunately the fuel remaining was not available for analysis, however in the recent past the fuels laboratory has advised that the specification of motor fuels varies widely without notice.

The pilot stated that the magnetos and carburettor were being sent for overhaul but that he intended to change from mogas to 100LL Avgas. This will require a modification to the series one bronze cylinder heads to insert steel exhaust valve seat inserts and new valve guides, as this engine was designed to run on 87 octane fuel.