

## DH82A Tiger Moth, G-ANMV

**AAIB Bulletin No:** 11/2000    **Ref:** EW/G2000/09/09    **Category:** 1.3

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

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

**Year of Manufacture:** Not Known

**Date & Time (UTC):** 10 September 2000 at 1316 hrs

**Location:** Aston, near Henley-on-Thames

**Type of Flight:** Public Transport (Pleasure Flights)

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

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

**Nature of Damage:** Substantial

**Commander's Licence:** Airline Transport Pilot's Licence with Instructor Rating

**Commander's Age:** 38 years

**Commander's Flying Experience:** 7,200 hours (of which 56 hours were on type)  
Last 90 days - 106 hours  
Last 28 days - 22 hours

**Information Source:** Aircraft Accident Report Form submitted by the pilot and enquiries of the aircraft maintenance organisation

Having completed 20 minutes of a planned 30 minutes pleasure flight, the passenger indicated that he would like to experience some aerobatics. As with previous flights that day, some basic aerobatic manoeuvres were flown including loops, barrel rolls and wing-overs. The final manoeuvre was initiated at 2,000 feet and consisted of pitching the nose up to 80 degrees from level flight at 100 kt, then at low airspeed with the engine running at full power the aircraft was yawed to the right using full right rudder. During the yaw the throttle was smoothly retarded. The aircraft then entered a steep dive when the engine 'coughed', as on all previous flights, and initially continued to windmill as the airspeed increased. However, unlike the previous flights the engine did not pick up and continue to run. The dive was continued in an attempt to keep the propeller windmilling but it stopped turning after about 3 seconds. As the aircraft does not have a starter, a forced landing was inevitable.

The aircraft was leveled off at approximately 1,000 feet and slowed to the best glide speed of 55 kt. A field was chosen and a MAYDAY call transmitted on the Wycombe Air Park frequency giving the aircraft position. A series of steep 'S' turns were executed in order to stay at the eastern edge of the chosen field. Alignment with the into wind axis of the field was achieved when the aircraft was

at about 70 feet. The aircraft was flared with the wings level but on touchdown the main landing gear collapsed. The aircraft initially slid along the ground and then pitched over at low speed coming to a halt inverted.

There was no indication of fuel leaking and the passenger was instructed to remain in his harness and not move. The pilot released his harness and then checked the passenger for injuries. The passenger had suffered a cut above his left eye and was experiencing back pain but had full use of his limbs. Due to a risk of fire, the passenger was supported and released from his harness with the help of a member of the public, then moved to a safe distance from the aircraft. The accident was attended by air ambulance and police helicopters along with the other emergency services.

The pilot reported that he had successfully flown the same manoeuvre as that during which the engine stopped at least ten times since the engine's overhaul, including on the three flights immediately preceding the accident. On each of those occasions the propeller had continued to windmill.

The engine had been installed in the aircraft in February 2000 after overhaul and had operated for 67 hours during which time there had been no recorded defects.

The Tiger Moth aircraft, Gipsy major engine combination does not have an inverted fuel system and it is possible during aerobatic manoeuvres to starve the engine of fuel such that it will stop running. Such a condition combined with low airspeed can stop the engine propeller combination from turning and with a recently overhauled engine with relatively high compressions it may be impossible to restart the engine using airflow.

Following recovery of the aircraft it was established that fuel remained in the fuel tank, the fuel filters were clear, the carburettor jets were clear, the magnetos and spark plugs were serviceable and examination of the engine did not reveal any defects which would have caused the engine to stop.