

**ACCIDENT**

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|--|---|-------------------|
| <b>Aircraft Type and Registration:</b> | Mooney M20J, N201YK   |                   |
| <b>No &amp; Type of Engines:</b>       | 1 Lycoming IO360 A3B6D piston engine  |                   |
| <b>Year of Manufacture:</b>            | 1978  |                   |
| <b>Date &amp; Time (UTC):</b>          | 13 August 2005 at 1517 hrs  |                   |
| <b>Location:</b>                       | Dirleton, East Lothian  |                   |
| <b>Type of Flight:</b>                 | Private   |                   |
| <b>Persons on Board:</b>               | Crew - 1  | Passengers - None |
| <b>Injuries:</b>                       | Crew - None   | Passengers - N/A  |
| <b>Nature of Damage:</b>               | Damage to engine  |                   |
| <b>Commander's Licence:</b>            | Airline Transport Pilot's Licence   |                   |
| <b>Commander's Age:</b>                | 56 years  |                   |
| <b>Commander's Flying Experience:</b>  | 12,000 hours (of which 25 were on type)<br>Last 90 days - 85 hours<br>Last 28 days - 24 hours |                   |
| <b>Information Source:</b>             | Aircraft Accident Report Form submitted by the pilot, and AAIB enquiries                      |                   |

**Synopsis**

During a local flight the engine began to run roughly and then emitted smoke. The pilot turned towards his departure airfield but before he reached it, the engine stopped overhead a large field, leading to a forced landing in that field with no damage to the airframe. The AAIB wanted to examine the engine but was unable to do so because it was sent to the USA. The cause of the engine failure has not been determined.

**History of flight**

The pilot, who was also the owner of the aircraft, reported that during a local flight from Archerfield, the engine began to run roughly. He turned the aircraft back

towards Archerfield and while approaching the airfield he overflew a large adjacent field, which coincidentally was proposed as a future airstrip and which was therefore suitable for a forced landing. At about this time the engine failed completely, with smoke coming from the engine compartment and a smell of smoke in the cockpit. The pilot deployed the flaps and landing gear, and carried out a successful forced landing in the field, touching down more than halfway into it and stopping in about 170 m, close to the end. He had selected the magnetos and battery master switch to off shortly before touchdown.

**Engine failure assesment**

The initial assessment of the engine failure by the pilot was that it had experienced a loss of oil contents as a result of a hole in the crankcase. The oil level had been satisfactory during the pre-flight inspection carried out by the pilot. Other information received by the AAIB indicated that an internal failure had occurred causing the crankshaft to fail and a connecting rod to penetrate the crankcase.

The AAIB considered that an examination of the engine was required, and contacted the pilot with a view to arranging for it, together with the engine log book, to be sent to the AAIB facility at Farnborough, where a metallurgical examination would be arranged. Unfortunately, due to a misunderstanding, the engine was subsequently shipped to a supplier in the USA. The

owner has requested that a copy of the supplier's report be forwarded to the AAIB. To date, the AAIB has been unable to trace or contact the named US supplier. Should their report be forthcoming, it is unlikely to contain the required information in the necessary depth to allow a considered judgement to be made as to whether further safety issues concerning this engine type exist.

Additional information received by the AAIB indicated that the aircraft had been laid up for about three years. It had subsequently received an annual inspection and been flown for a small number of hours between that time and the accident. There was no record, in the engine log books, of any of the necessary preventive maintenance, such as inhibiting or periodic ground running, having been done during the period the aircraft was laid up and this could lead to possible reasons for the engine failure.