

ACCIDENT

Aircraft Type and Registration:	Cessna 150M, G-BOVS	
No & Type of Engines:	1 Continental O-200-A piston engine	
Category:	1.3	
Year of Manufacture:	1976	
Date & Time (UTC):	6 August 2005 at 1125 hrs	
Location:	Near Rumney, north east of Cardiff, S Glamorgan, Wales	
Type of Flight:	Training	
Persons on Board:	Crew - 2	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Damage to nosewheel, engine cowling and left wing: insurance total loss	
Commander's Licence:	Commercial Pilot's Licence	
Commander's Age:	35 years	
Commander's Flying Experience:	473 hours (of which 69 were on type) Last 90 days - 214 hours Last 28 days - 81 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

At the conclusion of a trial lesson, the instructor was returning to Cardiff Airport at 1,400 ft on the published Cardiff Docks arrival when the engine started to vibrate. The vibration was slight to begin with but became rapidly worse and, after checking carburettor heat and magnetos, the pilot transmitted a PAN call to Cardiff Radar, turning the aircraft away from the bay area towards fields to the north-east of Cardiff as he expected to make a precautionary landing.

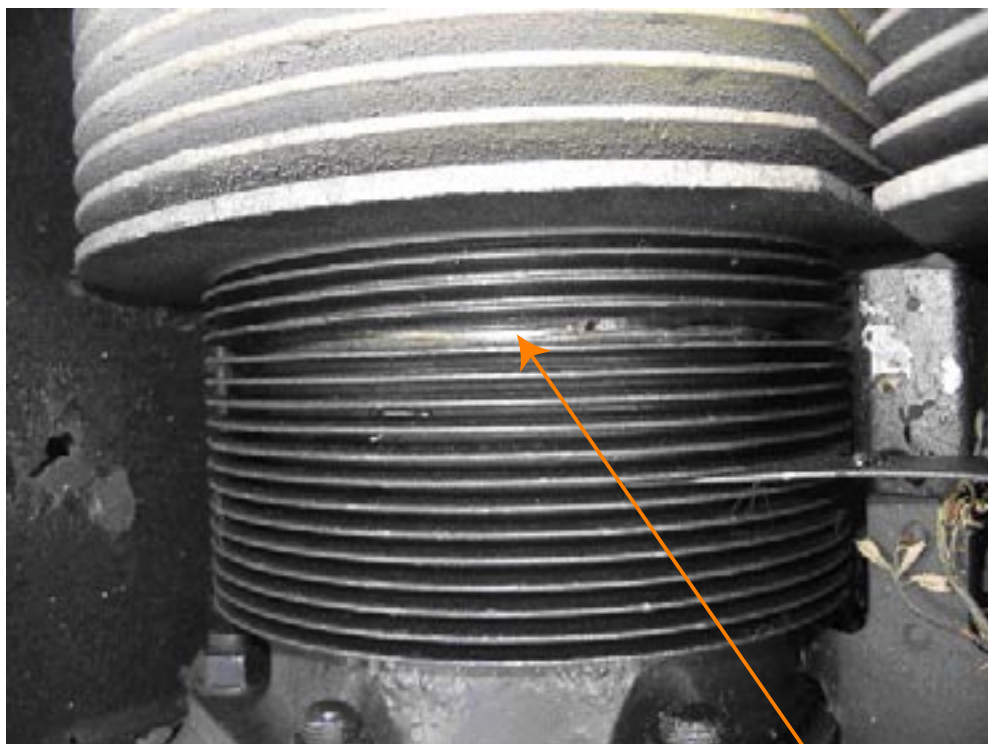
The vibration became severe, accompanied by a loud mechanical banging sound and the airspeed was decreasing, so the pilot reduced engine rpm and sought the nearest suitable field, transmitting a MAYDAY

call before concentrating on the landing. The aircraft was landed in a grass field and touchdown was made at minimum airspeed with 40° flap selected. The grass was wet and, despite application of the wheel brakes, the aircraft over-ran the field boundary, passing through brambles and a wire fence. The left wing struck a fence post, turning the aircraft through 90° before it came to rest on a minor road with the nose landing gear collapsed. The instructor and student vacated the aircraft normally and without injury.

Subsequent engineering examination of the aircraft found that the No 2 engine cylinder had a large circumferential crack around the base of the fins (see Figure 1). The

AAIB has not performed a metallurgical examination of this failure but, from discussions with the maintenance organisation, it was almost certainly due to metal fatigue originating in corrosion pitting on the outer surface of the cylinder at the base of the fins. This is a known problem with parts which have a long calendar history and/or very low utilisation. Interrogation of the CAA's Mandatory Occurrence Report database showed that they had been notified of 18 cases of cracking and/or

separation of cylinders over the last ten years, occurring to several different makes and models of engine but all sharing similar construction and layout. The date of original manufacture of the subject cylinder is not known, but it was recorded as being fitted to this engine in August 1996 and had run 1,570 hours since that time. The standard of the cylinder itself suggested that it was of a considerably earlier manufacturing date.



Circumferential
crack

Figure 1
Circumferential failure in cooling fin root