

ACCIDENT

Aircraft Type and Registration:	Aeronca 7AC Champion, G-BVCS	
No & Type of Engines:	1 Continental A65-8 piston engine	
Year of Manufacture:	1946	
Date & Time (UTC):	6 August 2006 at 1350 hrs	
Location:	Leicester Airport, Leicestershire	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers – N/A
Nature of Damage:	Underside of engine cowls and main landing gear	
Commander's Licence:	National Private Pilot's Licence	
Commander's Age:	69 years	
Commander's Flying Experience:	282 hours (of which 50 were on type) Last 90 days - 23 hours Last 28 days - 9 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot and further enquires by the AAIB	

Synopsis

After takeoff, at approximately 100 ft aal, the aircraft's engine partially lost power. In response, the pilot retarded the throttle slightly before opening it fully. Full power was regained and the climb was continued. However, at approximately 300 ft aal the engine lost all power and stopped. The pilot flew a forced landing into a crop of wheat on the airfield. During the landing roll the aircraft's main landing gear collapsed.

History of the flight

The pilot reported that he was planning a local area navigation flight from Leicester Airport followed by visual circuits. Runway 28 was in use and its asphalt surface was dry. He added that the wind was from 330°

at less than 5 kt, the visibility was 25 km and there was scattered cloud at 4,000 ft aal. The air temperature was 27°C and the dew point was 14°C.

After completing a water test of the fuel in the aircraft's tanks, using the under wing fuel drains, the pilot refuelled the tanks to full. He then completed his pre-flight checks, started the engine and taxied out to the holding point for Runway 28 where the carburettor heat and magnetos checks were completed satisfactorily before takeoff.

After an uneventful full power takeoff, at approximately 100 ft aal, the engine started to lose power without any signs of misfiring or rough running. The pilot

momentarily retarded the throttle to about 60% power before fully opening it. The engine responded and full power was regained. He continued with a slow climbing turn and planned to land on Runway 10 because the wind was calm. Just after rolling out of the turn, the engine lost all power and stopped.

Having insufficient height to reach Runway 10, the pilot elected to land in a field of wheat straight ahead, short of and to the right of Runway 10. After touching down the aircraft rolled for approximately 60 ft during which the main landing gear collapsed. After coming to a stop the uninjured pilot selected the fuel selector, magnetos and radio to off before vacating the aircraft.

The pilot thought one reason for the engine failure may have been fuel starvation due to the high nose attitude after takeoff.

Carburettor icing

When the temperature and dew point are plotted on the Carburettor Icing chart in Safety Sense Leaflet 14 found in LASORS, their intersection falls within the '*serious icing – descent power*' area on the 50% humidity line. However, because the engine was at full throttle during the takeoff run, carburettor icing was unlikely. Additionally the pilot had carried out a satisfactory test of the carburettor heat for 30 seconds prior to takeoff. Had there been any ice present before takeoff it was likely to have melted during this test.

Engineering inspection

After the accident the repair agency inspected and tested the aircraft's engine and fuel system. This work revealed no pre-existing damage and no mechanical reason for the engine failure. The aircraft's magnetos were subsequently sent to an independent maintenance organisation for testing. Under test one magneto stopped when it reached operating temperature due to leaking insulation and the other showed signs of failure before stopping.

At the time of this report there was still some incomplete work. This includes the results of the full engine test which will be completed once the engine is re-installed on the airframe.

Discussion

The test results of the aircraft's engine, fuel system and magnetos, and discussion with the repair agency, suggest that the most probable cause of the engine failure was a double magneto failure. Given the high ambient temperature it is likely that the magnetos achieved a high operating temperature soon after takeoff and then failed in quick succession. The initial power reduction could be attributed to one of the magnetos showing signs of failure, as it achieved a high operating temperature, before they both subsequently failed.