

ACCIDENT

Aircraft Type and Registration:	Piper PA-28-140 Cherokee, G-AVGD
No & Type of Engines:	1 Lycoming O-320-E2A piston engine
Year of Manufacture:	1967
Date & Time (UTC):	16 September 2007 at 1040 hrs
Location:	1.75 miles west of Deanland Airfield, Sussex
Type of Flight:	Commercial Air Transport (Passenger)
Persons on Board:	Crew - 1 Passengers - 1
Injuries:	Crew - 1 (Minor) Passengers - 1 (Minor)
Nature of Damage:	Wings separated from fuselage
Commander's Licence:	Private Pilot's Licence
Commander's Age:	66 years
Commander's Flying Experience:	1,150 hours (of which N/K were on type) Last 90 days - 42 hours Last 28 days - 15 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot

Synopsis

After turning onto the base leg at Deanland, the engine failed to respond to throttle inputs despite the use of carburettor heat. The aircraft made a forced landing in a field, losing its wings as it passed through a hedge. The probable cause of the incident was thought to be carburettor icing. After a recent cable replacement, the carburettor heat control protruded from the instrument panel by more than 25 mm in the cold position. This probably prevented the air valve from reaching its fully hot position before the control reached its maximum travel, thus limiting its ability to prevent the formation or removal of ice within the carburettor.

History of the flight

The aircraft had recently been repaired following an accident in September 2006. The commander, a qualified instructor, had planned to carry out a flight with a recently requalified pilot to familiarise him with the use of the aircraft's navigation equipment.

The aircraft had flown from Cranfield to Deanland, and joined the circuit. After turning onto base leg, the pilot attempted to increase the engine power in order to control the rate of descent, but there was no response to the throttle movement. The instructor then took control of the aircraft, switched fuel tanks, confirmed that the electric fuel pump had been switched on and that the carburettor heat had been selected to hot, but the engine remained unresponsive. The instructor transmitted a

'MAYDAY' and carried out a forced landing in a field approximately 750 metres to the north east of the runway. During the landing, the aircraft passed through a hedge where the wings separated from the fuselage. Both of the occupants received minor injuries but were able to leave the aircraft unaided prior to the arrival of the airfield fire service vehicle and a police helicopter.

The commander reported that, in his opinion, the most probable cause of the incident was carburettor icing. Established carburettor icing charts (CAA General Aviation Safety Sense leaflet No 14, 'Piston Engine Icing') indicated that the reported weather conditions at the time of the accident of temperature +15°C and a dew point of +11°C, were conducive to the formation of carburettor icing at cruise and descent power settings.

The carburettor heat control cable had been replaced during the aircraft's rebuild. However, this control protruded more than 25 mm from the instrument panel when in the cold position. This had been brought to the attention of the engineering organisation but had not been rectified at the time of the accident. When rigged in this manner, it may have been possible for the carburettor

heat control to reach its maximum travel before the air valve reached the fully hot position, limiting its ability to prevent the formation or removal of, ice within the carburettor.

Safety Sense Leaflet 14 contains the following advice about carburettor icing:

'Recognition and General Practices.....

- f) Always use **full** heat whenever the carb heat is applied: partial hot air should only be used if an intake temperature gauge is fitted and only then if specifically recommended in the approved Flight Manual or Pilots Operating Handbook.*

Pilot Procedures

- a) Maintenance*

Periodically check the carb heating system and controls for proper condition and operation.....'