

ACCIDENT

Aircraft Type and Registration:	Jabiru SK, G-JABA	
No & Type of Engines:	1 Jabiru Aircraft Pty 2200A piston engine	
Year of Manufacture:	2000	
Date & Time (UTC):	22 June 2010 at 1920 hrs	
Location:	1 mile west of Whiterashes Airstrip, Aberdeenshire	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Damage to nose leg, left landing gear, wing and propeller	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	55 years	
Commander's Flying Experience:	188 hours (of which 20 were on type) Last 90 days - 4 hours Last 28 days - 4 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot and further enquiries by the AAIB	

Synopsis

The aircraft suffered an engine failure following power reduction whilst on the downwind leg of a circuit. The pilot carried out a forced landing in a crop field, during which the aircraft sustained damage but the pilot was uninjured.

History of the flight

The Jabiru SK is a high-wing, single-engine two-seat kit aircraft and G-JABA was operating under a UK Permit to Fly. After completing pre-takeoff checks, the pilot departed from Whiterashes Airstrip with approximately two hours of fuel on board (34 litres), with the intention of practising circuits. On the downwind leg of the initial circuit the pilot reduced engine power to approximately

2,000 rpm. As the pilot was running through the pre-landing checks, but before carburettor heat was applied, the engine hesitated briefly before stopping.

The pilot trimmed the aircraft for best glide speed but assessed that he was too low to land safely back on the airstrip and decided instead to make a forced landing in a crop field approximately 1 nm west of the airstrip. During the approach to the field the pilot attempted to restart the engine by turning the electric fuel pump on and engaging the starter, but the engine did not start. The field the aircraft landed in was rough beneath the crop and the aircraft sustained damage to the nose leg and left main landing gear, propeller and left wingtip.

Meteorology

An aftercast provided by the Met Office for the accident location estimated that the surface conditions were temperature +18°C, dewpoint +14°C and the surface wind 340° at 5 kt.

The conditions for 1,000 ft altitude at the accident location were estimated as temperature +18°C, dewpoint +10°C and wind 250° at 5 to 10 kt.

From the carburettor icing chart (Figure 1) it can be seen that the conditions at the surface and at 1,000 ft altitude were favourable for ‘moderate icing – cruise power’ and ‘serious icing – descent power’.

Examination of the engine

The day following the accident the engine was examined by the pilot and fuel was observed in the carburettor float chamber. The engine turned freely and the ignition system functioned normally. There had been no fuel leak and sufficient fuel to conduct the flight remained in the main fuel tank.

A subsequent strip inspection of the engine did not reveal any defects that would have contributed to the engine failure.

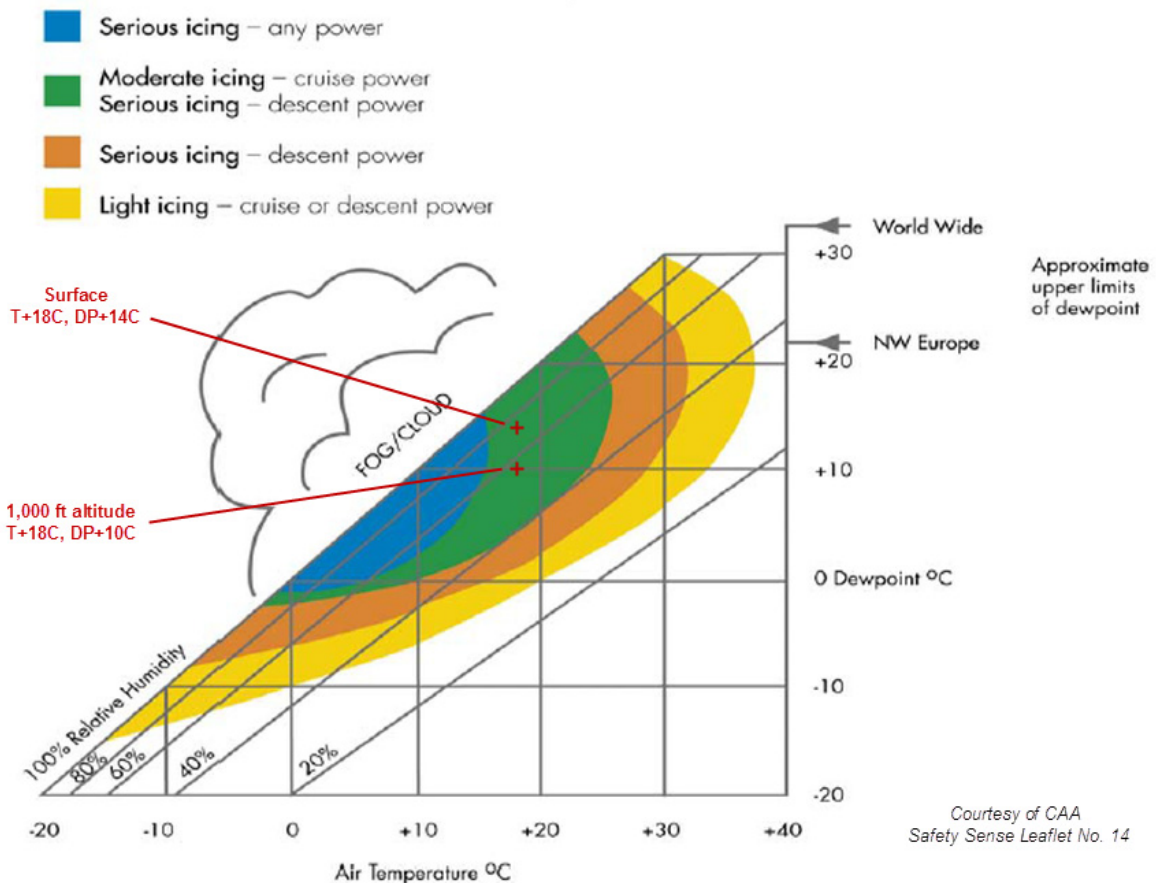


Figure 1
Carburettor icing chart

Piston engine icing

The CAA's Safety Sense Leaflet 14, '*Piston Engine Icing*' (available from www.caa.co.uk/safetysense) provides useful information to pilots on the hazards of piston engine icing. Section 6 'General Practices', subsection (i) states:

'Unless necessary, the continuous use of hot air at high power settings should be avoided. However, carburettor heat should be applied early enough before descent to warm the intake, and should remain fully applied during that descent, as the engine is more susceptible to carb icing at low power settings.'

And in section 7 'Pilot Procedures', subsection (k):

*'Downwind
Ensure that the downwind check includes the cruise carburettor heat check at paragraph 6(i) above. If you select and leave the heat on, speed or altitude will reduce on the downwind leg unless you have added some power beforehand.'*

Discussion

The prevailing meteorological conditions at the time of the accident were favourable for the formation of serious carburettor icing at descent power settings. Lack of application of carburettor heat and subsequent carburettor icing were the most likely causes of the engine failure.

A contributory factor in the accident itself was the presence of crop in the field selected for the subsequent forced landing, which obscured the field's underlying rough surface condition.