

ACCIDENT

Aircraft Type and Registration:	Monnett Moni, G-INOW	
No & Type of Engines:	1 KEF 107 piston engine	
Year of Manufacture:	1985	
Date & Time (UTC):	3 July 2011 at 0957 hrs	
Location:	Sandown Airport, Isle of Wight	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Damage to nose and main landing gear, canopy, left wing spar and left inner wing	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	52 years	
Commander's Flying Experience:	276 hours (of which 19 were on type) Last 90 days - 18 hours Last 28 days - 8 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot and additional AAIB inquiries	

Synopsis

Shortly after lifting off the runway, the engine lost power such that the aircraft was unable to gain height. The pilot turned the aircraft to the left in order to avoid obstacles ahead but, as the engine continued to lose power, the aircraft lost altitude and eventually stalled into marshy ground from a height of around 6 ft. No definitive explanation for the engine power loss was found, although accumulations of miscellaneous debris in the fuel system may have restricted the fuel flow at takeoff power.

History of the flight

The pilot had planned a local flight and had conducted the normal pre-flight checks and engine power check. The aircraft took off on Runway 05, with the engine developing full power. Takeoff speed was around 55 mph and the pilot levelled the aircraft at a height of 6-10 ft above the runway in order to accelerate to the climb speed of 70 mph. However, as the aircraft started to climb, there was a sudden loss of engine power, followed by a loss of airspeed. The pilot lowered the nose to maintain approximately 60 mph, but realised that he was not going to be able to clear some trees that bordered a golf course beyond the end of the runway. He therefore turned the aircraft to the left, with the

engine running at low rpm, and briefly considered returning to the airfield. By now however, the aircraft had descended to a low level and there were more trees ahead. The pilot tried moving the throttle control in an attempt to make the engine pick up, but to no avail. Shortly afterwards, the engine stopped completely and the aircraft stalled into marshy ground from a height of around 6 ft. The impact angle was reported to be around 20° and the aircraft came to an immediate halt. This resulted in the pilot hitting his head on the canopy, which broke into pieces, causing minor facial injuries.

After switching off the fuel and electrics the pilot vacated the aircraft without difficulty. He then called the Sandown tower by mobile phone to inform them that he was safe, although the emergency services had already been alerted.

Subsequent investigation

The KEF is a two-stroke engine and the pilot mixed the two-stroke oil with motor fuel transported in plastic jerry cans prior to refuelling the aircraft.

Some weeks after the accident the pilot examined the engine and found no evidence of a mechanical failure. However, upon inspecting the fuel system he noted that the fuel filter element contained some visible debris. He then inspected the fuel tank, which was made from aluminium, and observed a small amount of brown/black residue lying at the bottom. However,

there was a more significant accumulation of the residue on the wire mesh filter at the fuel tank outlet. He sent a sample of the residue, together with the filter, to the AAIB for subsequent laboratory analysis.

It was apparent that there was no significant oily deposit in the filter, which suggested that there was little likelihood of incomplete fuel/oil mixing. The laboratory report detailed the debris types found as a result of scanning electron microscope (SEM). Much of the debris consisted of fine, off-white to black particles, including organic and fluorocarbon material. In addition there were some black rubber particles, including chlorinated rubber. The remainder consisted of small amounts of unidentified fibrous matter, paint or sealant particles and a few metallic particles. It is likely that there was no single origin for the debris, with the rubber particles being typical of seals or 'O' rings and fuel tubing, the organic matter possibly originating from the jerry cans and the metallic debris coming from the fuel tanks and associated fittings.

The analysis of the debris did not reveal the cause of the engine failure. Whilst the nature of the debris was typical of that found in fuel systems, it is possible that accumulations of it in the tank outlet screen and in the filter, either singly or in combination, caused a restriction in the fuel flow such that it may have resulted in fuel starvation at takeoff power.