

ACCIDENT

Aircraft Type and Registration:	Denney Kitfox, G-BSSF	
No & Type of Engines:	1 Rotax 582 piston engine	
Year of Manufacture:	1997	
Date & Time (UTC):	30 June 2008 at 2015 hrs	
Location:	Near Humberside Airfield, Lincolnshire	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - 1
Injuries:	Crew - None	Passengers - None
Nature of Damage:	One propeller blade broken; damage to the lower engine cowling, fin/rudder and tailplane	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	38 years	
Commander's Flying Experience:	134 hours (of which 70 were on type) Last 90 days - 33 hours Last 28 days - 12 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

The pilot was on a local area flight and elected to perform a Practice Forced Landing (PFL) in an area normally used for that exercise. Having successfully completed the PFL the aircraft entered a climb, during which the engine stopped. The pilot carried out a forced landing, but shortly after touchdown the aircraft nosed over and came to rest inverted in standing crops.

History of the flight

The pilot had planned to carry out a one-hour local flight which comprised a navigation exercise and a PFL before returning to Northmoor Airfield. The pre-flight inspection and preparations were completed

and the aircraft departed at 1939 hrs. The engine performed normally during the climb and in the cruise at 2,000ft.

The weather was good with a light south-westerly surface wind; the wind at 2,00 ft was from 240° at 12 kt. The visibility was in excess of 10 km with scattered cloud at 4,000 ft; the surface temperature was 21°C, the dew point 8°C and the QNH was 1020 hPa.

Having completed his navigation exercise, the pilot headed towards Northmore Airfield maintaining 2,000 ft and advised air traffic control (ATC) of his intentions. He selected an area normally used for PFLs and having

completed the appropriate checks he closed the throttle. The aircraft descended normally with the engine at idle; during the descent the pilot advanced the throttle on three occasions to prevent excessive engine cooling. Having completed a satisfactory PFL approach the pilot applied power and the aircraft climbed away. At about 700 ft, the engine stopped suddenly and began to run very roughly. The engine rpm became erratic and a severe banging was heard; the loss of power was such that level flight could not be maintained. The pilot confirmed that both the magnetos and engine coolant temperature were normal. He attempted to regain power by pumping the throttle but the engine then stopped. The pilot adopted the gliding attitude and transmitted a MAYDAY call.

All the fields available within gliding distance were covered in crops and the pilot selected the largest field for the forced landing. He selected 5° of flap, as recommended, and adopted the landing attitude when just above the crops, in order to reduce groundspeed. The aircraft touched down and, after some 14 metres of ground roll, it nosed over and came to rest inverted. The cereal crop, which was 2-3 ft in height, cushioned the impact and both the pilot and passenger exited through the pilot's door; neither occupant was injured. The pilot switched off the master switch and magnetos and closed all three fuel cocks before using his mobile telephone to advise ATC of their situation.

In his report the pilot pointed out that he regularly conducts PFLs. He also reported that in February 2008, he had flown a successful forced landing following an engine stoppage in flight due to a piston seizure caused by a failure of the lubricating oil injection pump

mechanism. The 'top end' of the engine had been rebuilt with new pistons and rebored cylinders and had since operated successfully for 42 hours.

Following the accident on 30 June 2008, it was established that the engine contained the normal level of oil and that the fuel tanks still contained in excess of two hours of fuel. Examination of the engine revealed that the crankshaft had failed approximately halfway along its length, in the vicinity of the rotary valve shaft drive gear. The engine had been manufactured in 1990 and had been operated in the aircraft for a total of 519 hours.

The engine manufacturer's maintenance schedule specifies that after 300 hours of operation, or five years, the engine should undergo a general overhaul by an authorised distributor or service centre. This overhaul includes replacement of the crankshaft with a new assembly. The owner was aware of the overhaul requirement and advised that he was operating the engine 'on condition' in consultation with an engineer reportedly qualified on this engine type. The owner was particularly concerned with monitoring bearing wear, as he believed this was the most critical aspect for continued operation.

The engine manufacturer's documentation contains several references to the importance of following the maintenance schedule to avoid engine problems. Based on the available data and discussions with the engine manufacturer's UK agent, this failure is consistent with the service life and history of the engine.