
ACCIDENT

Aircraft Type and Registration:	Thruster TST MK1, G-MVBT	
No & Type of Engines:	1 BMW R100 piston engine	
Year of Manufacture:	1988	
Date & Time (UTC):	8 October 2008 at 1308 hrs	
Location:	Close to Chirk Airstrip, near Wrexham, Clwyd	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - 1 (Serious)	Passengers - N/A
Nature of Damage:	Aircraft destroyed	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	52 years	
Commander's Flying Experience:	170 hours (of which 170 were on type) Last 90 days - 0 hours Last 28 days - 0 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

The single-engined aircraft suffered a power loss at 200 ft agl shortly after takeoff. The pilot attempted to return to the airstrip but the aircraft struck a mound short of the strip. The pilot sustained a fractured spine. It was not possible to determine the cause of the power loss with any degree of certainty, but a fuel system problem seemed the most likely cause.

History of the flight

The pilot had refuelled the aircraft and completed his pre-flight and power checks, including a full rpm check and checking both ignition circuits. He took off from Chirk airstrip on a runway heading of approximately 160°. He reported that the wind was light and easterly, and the visibility was around 30 km. At approximately

200 ft agl the engine started to lose power and the pilot immediately commenced a 180° turn back towards the airfield. He noticed that the reading on the fuel pressure gauge had dropped to a "very low level". The engine stopped as he completed the turn and he then became aware that he would not make the airstrip. As the aircraft was now heading towards the A483 road, he elected to turn it away from the carriageway and the aircraft struck a mound of earth short of the road.

The pilot, who was wearing a full harness, switched off the fuel and the electrics before evacuating the aircraft. He sustained a fractured spine from which he was expected to make a good recovery. The aircraft was damaged beyond economic repair.

Engineering investigation

The aircraft's fuel system includes a pre-filter, two automotive electronic fuel pumps installed in parallel, a glass filter and a regulator. All these components were removed and sent to the AAIB for inspection but nothing significant was found. Both fuel pumps and the regulator were functionally tested and operated satisfactorily. It was not possible to recover the engine or other parts of the fuel system for inspection.

The normal procedure was to operate the main pump throughout the flight and the other 'boost' pump for takeoff and landing. On a previous flight a 'surging' problem on the engine was cured by switching on the booster pump, albeit at a significant altitude.

Procedure for Engine Failure After Takeoff (EFATO)

Pilots are taught that height is rapidly lost in turns following an engine failure and that if the failure occurs below 500 ft agl, it is unlikely that the airfield will be

reached on turning back. The guidance is to select a field, preferably within about 30° of the wind, and not to attempt to turn back unless there are no other options (for example being over water or near buildings). Deploying the flaps, issuing a MAYDAY call, and completing the appropriate checks should be made where appropriate and if time permits.

Comments

Given the low fuel pressure reading during the flight, a fuel system problem, possibly due to blockage or fuel contamination, would appear to be the most likely cause of the power loss. However, it was not possible to state this with any degree of confidence.

The pilot's decision to turn back to the airstrip was influenced by the fact that the engine initially had not lost all power. He noted that had the engine failed more abruptly, he would have been forced to choose a field ahead for a forced landing, rather than contemplating turning back.