

ACCIDENT

Aircraft Type and Registration:	Taylor Monoplane, G-BEYW	
No & Type of Engines:	1 Volkswagen 1834 piston engine	
Year of Manufacture:	1984 (Serial no: PFA 055-10279)	
Date & Time (UTC):	15 August 2016 at 1201 hrs	
Location:	Manchester Barton Airport	
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:	Not established	
Commander's Age:	Not established	
Commander's Flying Experience:	Not established	
Information Source:	AAIB enquiries	

Synopsis

The aircraft collided with trees while the pilot was attempting to execute a forced landing in a field outside the airport boundary, following a loss of engine power during takeoff. The pilot suffered serious injuries in the accident. The reason for the loss of power was not established.

History of the flight

Witnesses reported that the aircraft engine seemed to lose power at about 100 ft while taking off from Runway 08R at Manchester Barton Airport. The pilot attempted to execute a forced landing, turning slightly left from the runway heading to avoid a built-up area. However, the aircraft collided with trees during the final stages of the approach to a field and crashed in a wooded area, just outside the airport perimeter fence. The aircraft became lodged in the trees, trapping the pilot who required assistance from firefighters to exit the wreckage. The pilot sustained serious but not life-threatening injuries in the accident, but his health subsequently deteriorated after suffering post-operative complications. The aircraft was destroyed in the impact.

A video recording of the takeoff showed the aircraft initially climb and then descend and level off, before continuing a shallow climb and turning left towards trees as it reached the end of the runway. The video ended as the aircraft was turning left from the runway heading, at which point the engine tone was still audible on the recording.

At the time of the accident the aircraft was undergoing an annual test flight for the renewal of the Certificate of Validity for its Permit to Fly. The flight had been logged with Air Traffic

Control as a test flight. As the previous Certificate of Validity had expired, the aircraft was being flown under a Permit Flight Release Certificate which had been 'signed off' by an LAA Inspector. The LAA Inspector reported that pilot was in good spirits prior to the flight.

Prior to the test flight the pilot had undertaken some maintenance on the aircraft's engine. This included removal of the four cylinder heads in order to re-seal the pushrod tubes. This work had been inspected by the LAA Inspector and engine ground runs had been conducted, before authorising the test flight.

The pilot had originally planned to conduct the test flight a few days prior to the accident flight. However, he had instead spent that day carrying out maintenance on the aircraft and conducting multiple ground runs and fast taxi tests. Personnel at the airfield were aware that the pilot had been experiencing engine problems with the aircraft. The pilot had not informed, nor sought assistance from, his LAA Inspector when it became apparent that the engine was not performing well.

Aircraft and engine examination

The engine and firewall had detached from the aircraft during the impact. The fibreglass fuel tank had also detached from the airframe and been ruptured. The engine and fuel system were subsequently moved to a workshop for examination by the LAA Inspector.

During this examination it was noted that both wooden propeller blades had broken off at the hub, indicating that the engine had been developing at least some power at impact. After removing some components that had been damaged during the impact, the engine rotated freely, exhibiting good compression on all cylinders and valve operation was observed to be normal.

No anomalies were noted with the spark plugs, ignition timing or operation of the magnetos, when tested. The carburettor float chamber was clean and free from contamination, but contained no trace of fuel. The float valve operated normally, no inlet restrictions were noted and the carburettor jets were free from blockage. The LAA Inspector considered that the locking wire on the carburettor fuel inlet may have been altered. During the recent inspection for issue of the Permit to Fly the wire locking on the carburettor had been replaced by a professional, and its appearance post-accident was not consistent with this.

When the engine had been moved to the workshop, a large amount of oil was released from the crankcase breather, which suggested that the engine may have lain upside down at some point following the accident, possibly accounting for the lack of fuel in the carburettor.

There was no fuel remaining in the fuel tank, any fuel having likely leaked out due to the damage sustained in the accident. There were no other anomalies observed with the various components of the fuel system and the fuel pump operated satisfactorily when tested.

Discussion

Witness evidence indicated that the aircraft's engine had not been performing well in the days prior to the accident flight; however, the pilot did not discuss these issues with his LAA

Inspector prior to conducting the test flight. It was not established what maintenance activity had recently been performed on the engine by the pilot, however there was some evidence that the maintenance activity may have involved accessing the carburettor fuel inlet. The pilot was not able to assist the AAIB with its enquiries. A post-accident examination of the engine and fuel system by an LAA Inspector did not reveal any anomalies which could have accounted for the loss of power during takeoff. Carburettor icing or fuel vaporisation, which can occur when using MoGAS, could not be ruled out.