

**BULLETIN ADDENDUM**

<b>Aircraft Type and Registration:</b>	Reims Cessna F172P Skyhawk, G-BITM
<b>Date &amp; Time (UTC):</b>	27 September 2014 at 1330 hrs
<b>Location:</b>	Near Warrington, Cheshire
<b>Information Source:</b>	Aircraft Accident Report Form submitted by the pilot and additional information from an engineering inspection report

**AAIB Bulletin No 2/2015, page 44 refers**

The aircraft suffered a sudden and significant loss of engine power during the cruise portion of the flight. The pilot identified a field for a forced landing, but the aircraft struck trees at its near boundary and stalled, dropping into the field of intended landing.

An engineering inspection of the engine revealed that the number 3 cylinder rocker cover had been punctured from the inside outwards by the inlet valve rocker arm. From the lack of impact deformations on the rocker cover, it was concluded that the damage occurred before the final accident sequence.

When the engine core was disassembled, it was found that the number 3 cylinder inlet valve had dropped into the cylinder. On removing the induction system, a piece of broken valve head was found within the tube that led to the number 1 cylinder induction valve, partially blocking the tube. This piece of material had been forced out through the broken number 3 inlet valve prior to being drawn into the number 1 cylinder inlet tube. The removal of the number 3 cylinder revealed severe damage to the top of the piston, along with severe damage to the inlet valve.

Detailed inspection of the number 3 cylinder and the dropped valve confirmed that the upper valve spring retainer had fractured in half, causing the valve to drop into the cylinder and contact the piston. This caused the valve head to fracture into three large pieces. One of the pieces stayed attached to the valve stem, the second became jammed within the valve seat in the cylinder head, and the third was found within the induction tube of the number 1 cylinder. Other smaller pieces were observed to have been liberated from the valve, some of which were most likely to have been drawn into the number 2 cylinder, causing damage to the piston before being ejected through the exhaust system.

The loss of engine power was thus attributed to the failure of the upper spring retainer of the number 3 cylinder inlet valve, which led to the valve dropping into the cylinder. With one cylinder compromised, there would have been a significant loss of power which, along with partial blocking of the number 1 cylinder induction system and minor impact damage to the number 2 piston, would have meant that there was insufficient power for sustained flight.