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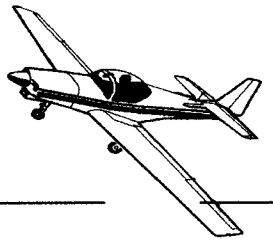

Information Bulletin

I.B. No: 033

Aircraft Type: T67A, T67B, T67C, T67M, T67M-MkII, T67M200, T67M260 and T67M260-T3A

Title: **SPARK PLUG FOULING**

In higher than normal ambient temperatures, spark plug fouling has been reported from one of the major T67 M260 operators. This Information Bulletin gives guidance on engine operation and spark plug selection in order to alleviate this problem. Although the reported problems occurred on the M260 variant, this guidance is equally applicable to all T67 variants with Lycoming powerplants.

Spark plug fouling will normally exhibit itself as a rough running engine and is usually caused by either oil or lead deposits collecting on the plug electrodes, shorting them out. Obviously both forms of fouling have a very detrimental effect on engine performance, however lead fouling is the most common variety and this will be dealt with in this Information Bulletin.

Tetra Ethyl Lead (TEL) is added to aviation fuels in order to raise its octane rating, which when burnt in the cylinder produces lead oxide. AVGAS 100LL contains around 5 times the amount of TEL that old leaded automotive fuels used to. It is this lead oxide that causes plug fouling, so in order to eliminate this undesirable characteristic a scavenging agent, ethylene dibromide, is added. Ethylene dibromide changes the lead oxide into lead bromide, which is a volatile gas above 200 to 250°C and hence exits the engine with the exhaust gases.

In order for the lead scavenging agent to work, the combustion temperature needs to be relatively high. If the temperatures are too low, lead oxides deposits will collect in the cylinder and on the spark plugs. So the key to eliminating plug fouling is to keep the combustion temperatures to a reasonably high level. This can be achieved by following the advice below:

1. Avoid prolonged operation at idle speeds.

2. Utilise proper leaning technique. By leaning the mixture the combustion temperature rises and activates the lead-scavenging agent.

3. When shutting down the engine allow the engine temperatures to settle by running at 1000rpm and then run at 1800 rpm for 15 to 20 seconds. Then shut down using the mixture control.

4. If plug fouling is experienced, use of the REM40E or REM37-BY plug (as applicable) should be employed in lieu of the standard REM38E unit, as these have electrodes that are less likely to suffer from fouling.

Please refer to Lycoming Service Instruction No. 1042X for list of approved plugs for use with your engine.

If rough running is still apparent having followed these recommendations, it is likely that the fault could lie somewhere else.

Approved by: For and on behalf of SLINGSBY AVIATION LIMITED	Date: 23/12/03	Issue 1
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