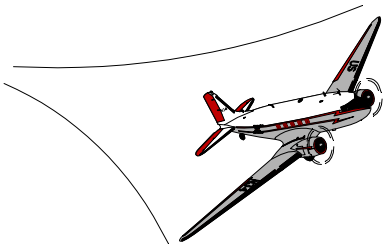
SPECIAL AIRWORTHINESS INFORMATION BULLETIN



U.S. Department
of Transportation
Federal Aviation Administration

REGULATORY SUPPORT DIVISION
P.O. BOX 26460
OKLAHOMA CITY, OKLAHOMA 73125-0460

No. NE-00-05
October 27, 1999

SAIB's are posted on the internet at http://av-info.faa.gov

This is issued for informational purposes only and any recommendation for corrective action is not mandatory.

Applicability: *All owners and operators of Textron Lycoming Division, AVCO Corporation (Textron Lycoming) O-235, O-320, IO-320, O-360, AEIO-360, HIO-360, HO-360, IO-360, LIO-360, LO-360, AEIO-540, IO-540, LTIO-540, O-540, and TIO-540 series reciprocating engines. These engines are installed on but not limited to reciprocating-engine powered aircraft manufactured by Aerospatiale, American Champion, Bellanca, Cessna, The New Piper Aircraft Company, Beech, Maule, Mooney, and Schweizer 269 series helicopters. Reference to Textron Lycoming Service Bulletin (SB) No. 540 dated October 11, 1999.*

Introduction:

This Special Airworthiness Information Bulletin (SAIB) is prompted by reports of two incidents in which Textron Lycoming valve seats dropped into the engine. One incident was on an IO-540-AC1A5 engine with 3.3 hours time-in-service (TIS) and the other was on an IO-540-K1F5 engine during a production test. Investigations into those incidents revealed that certain lot numbers of cylinders, part numbers (P/N's) 16A22541, LW-12416, LW-12427, LW-12966, LW-12988, LW-13870, LW-15318, LW-16703, LW-12993, 16A19516, 74218, and 75215 may have been manufactured with standard size valve seats installed in cylinders machined for oversized valve seat. Textron Lycoming and their cylinder supplier have purged their stock and determined that eight cylinders remain unaccounted for, with possible standard valve seats installed in cylinders machined for oversized valve seat. The investigations also indicated that engine thermal cycles could cause the standard size valve seat that is installed in a cylinder machined for an oversize valve seat to drop into the engine. This condition, if not corrected, could result in an intake or exhaust valve seat to drop into the cylinder resulting in possible loss of power or engine shutdown and possible loss of control of the aircraft.

Textron Lycoming has issued SB No. 540, dated October 11, 1999, which lists the engine models, cylinder P/N's, cylinder lot numbers of cylinders that may be affected and describes procedures for determining if there is a standard size valve seat installed in an oversize valve seat port.

It has been determined that a failure would manifest itself prior to 10 hours if this condition exists in applicable cylinders. As a result, cylinders, which have accumulated a total of 10 hours of operation or more, or cylinders with the lot code highlighted in black are not subject to this inspection, regardless if lot codes are listed in SB No. 540.

NOTE: Cylinders from the suspect lots that have been inspected at the factory can be identified by the lot code highlighted with permanent black ink, and are not subject to further inspection.

Recommendations:

To prevent an intake or exhaust valve seat from dropping into the cylinder resulting in possible rough running engine, loss of power or engine shutdown and possible loss of control of the aircraft, accomplish the following:

(a) Inspect maintenance records to determine if the engine was manufactured or overhauled between June 25, 1999, and September 24, 1999, or if any cylinder was replaced or overhauled between June 25,

1999, and September 24, 1999. The maintenance records check may be performed by the owner/operator holding at least a private pilot's certificate to determine the following:

(1) If the engine was not manufactured or overhauled by Textron Lycoming between June 25, 1999, and September 24, 1999, and if no cylinder was replaced with a cylinder with a P/N and lot number specified in Textron Lycoming SB No. 540, this SAIB does not apply and no further action is required.

(2) If the engine was manufactured or overhauled by Textron Lycoming between June 25, 1999, and September 24, 1999, or if a cylinder was replaced with a cylinder with a P/N and lot number specified in Textron Lycoming SB No. 540, this SAIB does apply and the FAA recommends compliance with SB No. 540.

(i) If the cylinder has 10 hours or more TIS, no further action is required, since this failure would manifest itself prior to 10 hours TIS.

(ii) If the cylinder has less than 10 hours TIS, the FAA recommends inspecting the cylinder for lot number and valve seat information in accordance with Textron Lycoming SB No. 540.

(iii) Uninstalled cylinders supplied by Textron Lycoming or their suppliers, between June 25, 1999, and September 24, 1999, should be inspected in accordance with Textron Lycoming SB No. 540, prior to installation on an engine.

FOR FURTHER INFORMATION CONTACT:

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