



**AIRCRAFT OWNERS AND PILOTS ASSOCIATION**

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April 7, 2006

Mr. Norman Perenson  
Aerospace Engineer  
Federal Aviation Administration  
Engine and Propeller Directorate  
New York Aircraft Certification Office  
1600 Stewart Avenue, Suite 410  
Westbury, NY 11590

RE: Airworthiness Concern Sheet – Lycoming Service Bulletin No. 569; Engine Crankshaft Retirement

Dear Mr. Perenson:

The Aircraft Owners and Pilots Association (AOPA), representing over 408,000 members, requests that the Federal Aviation Administration (FAA) refrain from taking further airworthiness action on certain Lycoming engines identified in Airworthiness Concern Sheet (ACS) dated March 2, 2006, unless the arbitrary three-year crankshaft retirement time is removed, and until the FAA in coordination with Lycoming can provide an alternative inspection procedure that would prevent the premature forced retirement of thousands of serviceable crankshafts.

To retire over 5,000 crankshafts as outlined in Lycoming Service Bulletin (SB) No. 569 is unconscionable given that there is no engineering data or clearly defined safety concern to support such action. AOPA does not believe this action is in accordance with good risk management practices. Also, the wholesale replacement of these crankshafts is unwarranted and an unacceptable expense to aircraft owners.

AOPA conducted a survey in response to this ACS to assess the financial impact of SB No. 569 on the owners of affected engines. Our survey shows a significant economic impact directly attributed to the SB's requirement that certain Lycoming engine crankshafts be retired within three years. ***AOPA estimates the cost to owners of complying with SB No. 569 at about \$32,000,000.***

AOPA polled several maintenance shops and based on their input, we calculated the average cost for labor to remove the engine, install the crankshaft kit and reinstall the engine to be about \$6,000 per engine plus \$2,000 to purchase the crankshaft kit.

Based on the above cost information, the survey data, and the FAA's estimate of 4,350 affected engines; we determined the following financial impact to aircraft owners.

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1. Approximate percentage of engines that will undergo engine overhaul or separation of the crankcase within three years and therefore only incur the additional \$2,000 kit expense.

11% or 499 engines at a cost to owners of about \$998,000.

2. Approximate percentage of engines that will undergo engine overhaul or separation of the crankcase within the next six years.

23% or 981 engines at a cost to owners of about \$7,848,000.

3. Approximate percentage of engines that will undergo engine overhaul or separation of the crankcase within the next 12 years.

37% or 1,608 engines at a cost to owners of about \$12,864,000.

4. Approximate percentage of engines that will undergo engine overhaul or separation of the crankcase beyond 12 years.

29% or 1,262 engines at a cost to owners of about \$10,096,00.

The survey has a 95% level of confidence with a +/-3.94 error margin based on a sample size of 541 in a population of 4,350.

Based on the lack of failures within this population of crankshafts, and to mitigate the impact on the owners and operators, AOPA asks that the requirement to forcibly retire and replace affected crankshafts be changed to coincide with the next engine overhaul or crankcase separation regardless of calendar time. Given that there is no engineering or field data to show that an unsafe condition exists with the crankshafts targeted by SB No. 569 and that based on discussions with the FAA and Lycoming, the three-year calendar retirement time is arbitrary, this seems like a prudent approach to resolving the issue. Lycoming officials readily admit that none of the crankshafts in the group affected by SB No. 569 have experienced a failure, and that the decision to retire these crankshafts within three years is based solely on "the collective wisdom of Lycoming and the FAA given the prior history of hammer-forged crankshafts."

AOPA believes that the history of hammer-forged crankshafts alone is not sufficient reason to retire thousands of crankshafts. How does the FAA and Lycoming know with any degree of certainty that this particular group of crankshafts suffers from the same manufacturing defects as the ones previously addressed through ADs where there were known failures? It is possible that the crankshafts targeted for retirement under SB No. 569 were properly forged and are in fact in perfectly good condition.

AOPA also believes that the FAA could inadvertently introduce an unsafe condition by requiring the teardown and reassembly of perfectly good operating engines long before overhaul becomes

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necessary. As an alternative to possibly having to retire thousands of trouble-free crankshafts prematurely, AOPA recommends that the FAA work with Lycoming to develop an inspection procedure similar to that outlined in AD 2002-19-03 for certain Lycoming -540 series engines, where Lycoming personnel would take a small core sample from the propeller flange for examination to determine if the crankshaft is indeed defective and in need of replacement. Any subjective concern that the FAA and Lycoming may have about these engines would be better addressed through an inspection program to identify only defective crankshafts and to prevent the unnecessary replacement of serviceable crankshafts.

Eliminating the arbitrary three-year calendar retirement requirement and allowing for an alternative inspection procedure would better align with effective risk management practices, and significantly mitigate the financial impact on affected aircraft owners.

Thank you for the opportunity to comment on this ACS and we look forward to continue working with the FAA on this important issue.

Sincerely,



Luis Gutierrez

Director

Regulatory and Certification Policy

cc: Fran Favara, Manager, FAA Engine and Propeller Directorate  
Anthony Gallo, Manager, FAA Airframe & Propulsion Branch, New York ACO