



AIRCRAFT OWNERS AND PILOTS ASSOCIATION

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November 30, 2007

Mr. Marv Nuss
Small Airplane Directorate
Continued Operations Safety Branch
ACE-113
901 Locust Street, Room 301
Kansas City, MO 64106

Dear Mr. Nuss:

Re: Draft Advisory Circular Titled *Fatigue Management Programs for Airplanes with Demonstrated Risk of Catastrophic Failure Due To Fatigue*

The Aircraft Owners and Pilots Association (AOPA), representing more than 414,000 members or two-thirds of the nation's general aviation pilots, submits the following comments to the Federal Aviation Administration's (FAA) Draft Advisory Circular (AC) titled Fatigue Management Programs for Airplanes with Demonstrated Risk of Catastrophic Failure Due To Fatigue released for comment.

AOPA supports the FAA's efforts to establish protocols outlining the continued airworthiness options for aircraft when structural fatigue is a concern. This draft AC clearly outlines the options available under a fatigue management program (FMP) and clearly states that an FMP is one of many options available to address a fatigue related issue.

AOPA Opposes Broad-Based Fleet-Wide Airworthiness Directives to Address Fatigue Related Issues

While the intent of this draft AC is clear, AOPA wants to ensure that the FAA is aware of the industry's ongoing efforts to educate the general aviation (GA) community about fatigue related issues. AOPA also wants to ensure that the FAA does not apply or approve broad-based fleet-wide airworthiness directives (ADs) to address fatigue related issues when these issues may, in reality, be limited to a very small number of aircraft based on how they were used, flown, and maintained.

“Aging Aircraft” Background

Fatigue is a major component of the maintenance and aircraft structural concerns surrounding “aging aircraft” issues. All aircraft accumulate stress and fatigue over their lifetime. Stress and fatigue can be accumulated during everyday flight or during activities that place additional stress on the aircraft like flight instruction and aerobatics. Aircraft used in the specific activities just listed, or similar activities, can undergo additional stresses and accumulate more fatigue than aircraft owned and operated by a single individual for the purpose of personal flight. After years of repeated stress has accumulated on an airframe the likelihood of fatigue related maintenance

issues may increase for some aircraft.

AOPA understands the dramatic and catastrophic failure that fatigue can cause. Recent examples of fatigue resulting in in-flight break-ups of aircraft include the Chalks Airline crash and three in-flight wing separations on the T-34. All of these aircraft were involved in flight operations that put additional stress on the aircraft for a prolonged period of time. The aircraft involved in the Chalks accident operated in and out of seaplane bases and completed multiple take off and landing cycles a day and the T-34 aircraft were all used in mock combat flights.

Outgoing Industry Education and Research Efforts

This year at AOPA's Expo in Hartford Connecticut AOPA released a free online course titled *Aging Aircraft* that discusses the issues surrounding fatigue and introduces the general aviation community to the need to properly maintain the aircraft structure; a concept that is relatively new in the general aviation community. *Since its release in October of this year well over 7,000 people have complete the hour-long course.*

In addition to the continued promotion of the free online course, AOPA will be running an article in the February edition of *Pilot* magazine, the most widely read aviation magazine in the world, discussing aging aircraft, fatigue, and the steps necessary to maintain continued airworthiness of aircraft.

Other industry initiated and funded efforts to proactively address fatigue issues in aircraft include the American Bonanza Society's (ABS) spar Web study. The goal of this multi-phased study is to determine an engineering basis for the continuation of existing ADs that outline a crack monitoring and stop-drilling program on the front spar carry-through structure of the Bonanza and Baron. Initial results on the computer modeling and flight tests are scheduled for completion this year.

Both of these initiatives have included wide industry and FAA input and coordination. These examples highlight industry's active involvement with this issue and our commitment to ensure the continued airworthiness of the general aviation fleet.

Draft Advisory Circular Overview

This advisory circular provides guidance on developing and implementing a fatigue management program (FMP) on aircraft certificated under 14 CFR part 23 (small aircraft) and part 25 (transport category aircraft) and predecessor regulations. An FMP is *one* acceptable means, but not the only means, which can be used to address an unsafe condition after the FAA has determined an aircraft, has a demonstrated risk of catastrophic failure caused by fatigue. An FMP may include damage-tolerance based inspections or a part replacement/modification program to mitigate the risk of failure due to fatigue. An AD may require an FMP or an FMP may be used as the basis for an alternate means of compliance to an AD.

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AOPA appreciates the FAA's effort to document and publish one acceptable way that fatigue related structural issues could be addressed. The FAA needs to understand that, at least for the general aviation (GA) community, the resources and expertise required to perform some of the analyses listed in the FMP are still developing. The FAA might have to provide specific guidance and deliverables to the GA community on a case specific basis as safety issues that could be addressed via an FMP arise.

In addition, AOPA strongly encourages the FAA to look at how aircraft have been used prior to the onset of fatigue related safety concerns. In some cases fatigue issues may be a result of how the aircraft was flown and operated and not caused by a fleet-wide design feature. To the extent possible the FAA should narrow any future fatigue related safety actions to the aircraft most susceptible to catastrophic fatigue failure. This may lead the FAA to break out aircraft by usage when discussing future safety actions. The FAA has issued ADs based on a combination of aircraft usage and known fatigue safety issues in the past and AOPA would encourage the FAA to target future fatigue related issues similarly. AOPA stands ready to assist the FAA, where possible, to find the appropriate level of aircraft impacted by a safety issue.

Summary

AOPA looks forward to continued industry involvement, education, and research in this issue. AOPA challenges the FAA to consider the role that specific use patterns and maintenance practices play on fatigue related safety issues before requiring fleet-wide ADs to address safety issues that may be exacerbated by aircraft use, and not caused by a type design feature.

Sincerely,



Leisha Bell
Manager
Regulatory Affairs