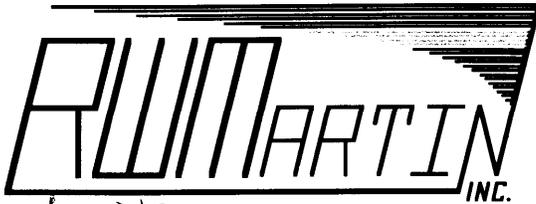


# ORIGINAL



DEPT. OF TRANSPORTATION  
DOCKETS

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July 29, 1999

U.S. Department of Transportation Dockets  
Docket No. FAA-1999-5401-K  
400 Seventh St. S.W.  
Room Plaza 401  
Washington, DC 20590

Reference: Docket No. FAA-1999-5401, Notice No. 99-02

Dear Ladies and Gentlemen,

Please accept the following comments to the Notice of Proposed Rulemaking concerning Aging Airplane Safety as referenced above.

## Background

R.W. Martin, Inc. (RWMI) is an FAA approved repair station (Air Agency Certificate No. JRPR350F) specializing in the major repair, alteration, and heavy maintenance of DeHavilland DHC-6 airplanes. RWMI is recognized as an industry leader, having accomplished well over one hundred (100) DHC-6 fuselage, empennage, and wing engineered repairs, alterations, inspections, and maintenance.

## Clarification

Please note that our experience concerning this issue is related only to the DeHavilland DHC-6 airplane. Though our comments may be applicable to other airplanes, we are specifically providing comment concerning the DeHavilland DHC-6 airplane.

## Comments

1. The DHC-6 was designed as a safe life airplane. Major structural components are replaced on a prescribed flight hour and/or flight cycle basis. These life limits are provided in DeHavilland PSM 1-6-11, "Structural Components Service Life Limits". Currently, Revision 2 dated August 29, 1978 of this document is FAA approved. Document Revision 4 dated August 6, 1996 has been approved by Transport Canada but not approved in the United States. The structural components life limited by this document include the wing box, strut, and FS219 fuselage

lower frame. RWMI has never witnessed a significant fatigue failure of these components prior to the specified life limit. The manufacturer's imposed designed life limits have been experientially validated.

The use of damage tolerance analysis to further assess airplane structure that has been successfully validated through decades of field experience is redundant at best.

2. The DHC-6 is predominantly an all metal, semi-monocoque design, consisting of sheetmetal skin, stringers, and ribs. As noted previously, the manufacturer has identified several components as life limited. The elimination of these components (i.e. wing box, strut, etc.) from further evaluation, leave the fuselage and empennage for further structural fatigue critique. The remaining fatigue critical structure consists of the FS200 upper beam, FS239 fuselage side and lower frames and the empennage stabilizer attachment structure. The FS200 beam and FS239 frames are replaceable. The stabilizer attachment structure is visually inspectable and, in fact, requires manufacturer mandated inspections at continuous intervals. The balance of the structure is not generally considered fatigue critical.

In accordance with the original safe life design basis of the DHC-6, a more appropriate fatigue analysis approach would be the establishment of safe life criteria for these additional components.

3. Bombardier/DeHavilland has issued numerous maintenance/inspection manuals and service bulletins designed for the proper airworthiness maintenance of the DHC-6 airplane. Inspection intervals for structural components established by these manuals have proven to be successful to detect and correct damage. It is of special note, however, that not all manufacturer required DHC-6 inspection documents are required by the FAA. DeHavilland PSM 1-6-5, "Twin Otter Corrosion Prevention Manual", provides a thorough inspection guide for DHC-6 aircraft but is not required in the United States.

The required implementation of existing proven manufacturer inspections and procedures is a more appropriate response to the airworthiness concerns presented than the implementation of new costly programs.

4. Damage tolerance based inspections and procedures may indeed provide an additional tool in the successful airworthy

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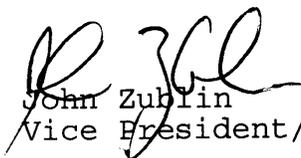
maintenance of DHC-6 airplanes. However, the current safe life based component replacement requirements and inspections have proven successful for over thirty (30) years.

The safe life based requirements should be retained.

Thank you for the opportunity to present our views. Please do not hesitate to contact us with any questions or comments.

Sincerely,

R.W. Martin, Inc.

  
John Zublin  
Vice President/General Manager

JZ/bd