Best Practices Guide for Maintaining Aging General Aviation Airplanes

Endorsed by:

Aircraft Owners and Pilots Association (AOPA)

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Introduction

This document provides owners of aging single-engine airplanes guidance about maintaining the airworthiness of their airplanes. The general aviation (GA) fleet is aging. In 2000, the average age of the nation's 150,000 single-e

Industry and government have worked together to learn more about the effects of aging on aircraft. The focus of their efforts has been on re

Two specific best practices can have a fundamental impact on the way maintenance and inspection is approached for aging airplanes. These are:

Airplane records research
Special attention inspections

Doing either of these helps assess the condition of an airplane. Doing both is needed to thoroughly assess the effects of aging on an airplane and provide a method of monitoring its condition as it continues to age.

Best Practice: Airplane Records Research

Records research is the first step in determining the condition of an aging airplane. The degree of inspection necessary, as well as the determination of what items may have already been inspected, will come from a thorough records research. This research will not only identify certain maintenance and usage characteristics of a particular airplane, it will also expose

The logbook entries should be compared to the physical condition of the airplane. Always ask the question: "Does the logbook reflect what has actually been done to the airplane?" If so, then the owner should have confidence that the logbooks are

E. Special Airworthiness Information Bulletins (SAIB): The FAA issues SAIBs to owners of affected airplane model types, engines, propellers, or appliances such as instruments. An SAIB is not mandatory but provides information regarding an airworthiness concern that is less serious than an uns

can be an early indication of a developing trend of problems. You can access the General Aviation Airworthiness Alerts database at the following FAA website: *http://av-info.faa.gov/* or by clicking the following hotlink: *General Aviation Airworthiness Alerts*.

J. Supplemental Type Certificates (STC): STCs have been developed for many different types of aircraft. These are incorporated to upgrade or improve avionics, systems, engines, gross weight, etc. Design upgrades often have a positive effect with regard to aging issues. A review of the FAA STC database for a specific make and model may reveal design improvements to address an aging issue discovered

Has the airplane been used in a special usage role? A significant amount of time flying at low levels (for example, pipeline patrol or aerial survey) exposes the airframe to more frequent and higher gust loads. This in turn causes additional metal fatigue damage to the wings, empennage, and associated structure. Mountain flying is also a harsher gust environment and therefore more damaging. Operating the airplane w

The checklist form in Appendix 1 lists areas that are critical to the airworthiness of the airplane. It is broken into several categories or airplane areas:

- General
- Avionics
- Controls
- Electrical
- Empennage
- Engine
- Fuel System
- Fuselage
- Instruments
- Landing Gear
- Modifications
- Propeller
- Repairs
- Systems
- Wing

Some of the listed airplane areas are sensitive to calendar ag

discussed earlier. You should give consideration to any harm that could be done in order to inspect an area versus the frequency such inspection is needed. (For instance, repeated removal of fasteners can damage the holes, causing a higher likelihood of cracking. Removal of control surfaces requires re-rigging, which, if not done properly, creates a safety concern.)

Tailoring the checklist form to an individual aircraft model helps the owner keep good

to spend doing maintenance on the airplane rather than spending time trying to figure out the best way to inspect, maintain, or repair the airplane. This will result in an overall improvement in the airworthiness of the airplane. This increase in maintenance efficiency would also benefit the owner of the airplane by lowering the total cost of aircraft ownership.

Ideally, this information would be

Acknowledgements

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Appendix 1

Aging Airplane Inspection & Maintenance Baseline Checklist

Aging Airplane Inspection & Maintenance Basel8ne Checklist for Airplanes Without a Type Specific Checklist

COMPONENT	*SERVICE LETTERS AND/OR ADVISORY MATERIAL*	*DATE LAST*

Aging Airplane Inspection & Ma

Aging Airplane Inspection & Maintenance Baseline Checklist for Airplanes Without a Type Specific Checklist

COMPONENT

Aging Airplane Inspection & Maintenance Baseline Checklist for Airplanes Without a Type Specific Checklist

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COMPONENT	*SERVICE LETTERS AND/OR ADVISORY MATERIAL*	*DATE LAST INSPECTED/ REPLACED*	*FINDINGS/NOTES*
SYSTEMS			
Cabin pressure control accuracy			

Appendix 2 - Example Maintenance & Inspection Checklist

Type Clubs:

National Aeronca Association (NAA)
806 Lockport Rd
P.O. Box 2219
Terre Haute, IN 47802
Phone: (812) 232-1491

Bellanca-Champion Club
P.O. Box 100
Coxsackie, NY 12051-0100
Phone: (518) 731-6800

Additional Manufacturer's Comments:

(Specific information to be entered by aircraft manufacturer)

Type Club Comments and Concerns:

(Specific information to be entered by type clubs)

Note: See appropriate FAA, NTSB, manufacturer, and type club websites for complete and current service related information.

Reference Material: