

*Lesson Learned from the Aging Structures Program*

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- The Aging Structures Program successes can be attributed in large part to "the three-legged-stool" concept.
  - Regulators
  - Airlines
  - OEM's
  - All working toward a common goal.
- Design data coupled with airline service experience and regulatory input made the program a success.

- Have a clear idea of the issue/problem and what is intended to be accomplished.
  - What are the expectations?
  - Expectations and accomplishments may change due to external drivers.
    - What you expect may not be what you get.
    - Be prepared for redirection.
- Secure management commitment for the necessary resources - people and dollars.
  - FAA and industry.
- FAA's requirements are clearly identified to all involved parties.
  - Airlines/owners/ lessors/repair stations other "FAA Lines of Business."
    - Tasking statements, issue papers, memorandums etc.
    - Remember, drafts are only that!! Don't accept as policy or guidance until final.

- Establish balanced working groups for issue/problem being addressed.
  - Does working group understand tasking.
  - Right mix of disciplines, engineering, maintenance, inspection.
  - Small working groups good — large unmanageable.
- Establish a schedule that is practical and includes sanity checks.
  - Anticipate schedule slippage.
  - Build in some flexibility to the schedule.
- Be sure that required inspection or program implementation can physically be done.
  - May have to "beta test" and validate.
  - Will inspection or programs reliably yield desired results?

- Don't "wait for" or expect "perfection."
  - Products developed to support regulatory actions only need to be good enough.
    - Advisory circulars
    - Type design holders' documents
    - Technical reports
- Increased maintenance, and new maintenance requirements should be considered the normal cost of aging.
- The type design holder and the airlines at the beginning of the design process should acknowledge the need for additional effective maintenance tasks as the airplane ages.
- At some point, it may be necessary to acknowledge that continued airworthiness can't be ensured by more "normal maintenance" (i.e. WFD).

- **USE OF AIRWORTHINESS DIRECTIVES TO ADDRESS AGING ISSUES WHEN:**
  - An unsafe condition exist in a product; and
  - That condition is likely to exist or develop in other products of the same type design.
- Reliance on AD's to address foreseeable aging issues is a poor strategy.
  - It is inherently reactive.
  - It's inefficient.
  - For the FAA in developing AD's
    - For the industry in having to respond by adjusting maintenance programs and rescheduling maintenance.
- While AD's should be used to address an "existing unsafe condition", the FAA, type design holders and airlines have to do a better job of anticipating and addressing aging issues.

- **In sum: The complexity and enormity of the "Aging Structures Program" forced an extraordinary fusion of partnership, voluntary initiatives, and finally, compliance with jointly developed rules and guidance...**

**Does this provide us a model for our Aging Systems Challenges?**

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