

General

January 25, 2001

In Reply Refer To: 940-01-01-317

Document Management System (DMS)
US Department of Transportation
Room Plaza Level 401
400 Seventh Street SW
Washington, DC 20590-0001

Subject: Safe Disposition of Life-Limited Aircraft Parts

Reference: Docket Number FAA-2000-8017

Dear Sir or Madam:

Raytheon Aircraft Company (RAC) wishes to comment on the Notice of Proposed Rulemaking (NPRM) on "Safe Disposition of Life-Limited Aircraft Parts," published in the Federal Register on October 2, 2000. Headings in *Italics* represent headings found in the NPRM.

Expected Costs

FAA addressed the expected costs of complying with the proposed rule. However, FAA did not address the costs to be incurred by the manufacturer who must provide detailed marking instructions (14 CFR Part 45.14) for any life limited part to reflect its life status. This cost and change process will be significant for each manufacturer. The total cost will be dependent on the number of life limited parts that must be addressed.

Aircraft manufacturers already have drawings that provide instructions on how their production facility or suppliers are to mark life limited parts (per 14 CFR Part 45.14, current rule). This information is not available to operators or maintenance facilities in any service information document. The manufacturer's existing information for identifying life-limited parts does not address life status. To comply with this proposed rule change, the manufacturer must:

- 1) Evaluate each life limited part of each airplane model to determine whether the life status can be recorded on the part (space availability, part integrity preservation, or if a need exists to record the life status – i.e. is part always discarded.)
- 2) Make the necessary drawing changes to add marking requirements for "life status" recordation on life limited parts.
- 3) Implement the changes into production.
- 4) Make the necessary changes to the Airworthiness Limitations Section (for each model) of the Maintenance Manual to specify marking instructions.

To accomplish all the changes necessary (as outlined in 1 through 4 above) to comply with this rule change, RAC requests an effective date of 180 days after the publishing date.

§43.10 (a)

RAC requests that FAA define when the hours and cycles start when determining life status. Is it when the aircraft is licensed (receives its first standard airworthiness certificate) or when the aircraft is first flown (under a production certificate)? These hours or cycles may be significant for a first of a type aircraft. This guidance is needed to ensure the accurate recordation of hours and cycles, and to ensure that each manufacturer, operator or repair/alteration facility establish the start point in the same manner. This definition should be included in the life status definition under *§43.10 (a)*.

§43.10 (b)

The rule states, "After [the effective date of the final rule] each person who removes a life-limited part from a type-certificated product must ensure that the part is controlled using one of the methods in paragraphs (b)(1) through (6) of this section. Does FAA mean a "licensed aircraft" or "an aircraft with a standard airworthiness certificate," rather than a type certificated product? The term "type certificated product" is too ambiguous.

§45.14

RAC requests that § 45.14 be revised as follows (bold is suggested text, struck text is deleted text):

"Each person who produces a part for which a replacement time **or removal time for inspection or overhaul** ~~inspection interval or related procedure~~ is specified in the Airworthiness Limitations section"

Justification: Under damage tolerance evaluations, which are required for 14 CFR Part 25 aircraft primary structures and for Part 23 primary composite structures, very few structural parts will be identified as replacement life parts because damage tolerance evaluations for most parts are based on fracture mechanics and flaw growth analyses and/or tests. But all primary structure will likely be identified with an inspection threshold and interval. This will include such parts as pressure cabins and wings with many individual locations specified for inspection.

Many modern airframe primary structures involve very large monolithic parts such as machined wing skins, composite stabilizer skins, and even one piece pressure cabins. It is inappropriate to address these large integral (not removable) parts in the same manner as parts that are routinely removed for inspection or replacement.

The origin of 14 CFR Part 45.14 (notice NPRM 67-44) addressed rotorcraft fatigue sensitive parts which are removed for replacement or inspection. In all aircraft, many critical parts are removed for overhaul after which the primary castings, forgings, etc., which may form the body of such parts, are returned to service; these include landing gears, pumps, actuators, and gear boxes. Also, there are certain parts for which it is beneficial to remove and inspect at extended intervals, even though there is no indication of limitation based on flaw growth analyses and or tests. These parts include bolts loaded in shear which are not typically prone to fatigue cracking, but which may suffer from galling, pitting, and corrosion after extended service.

The present and proposed version of 14 CFR Part 45.14 inhibits the establishment of precautionary inspections on small parts and unnecessarily imposes an economic penalty when damage tolerance based inspections are identified for large non-removable parts. Therefore, RAC recommends the rewording noted above to clarify and focus the intent.

Sincerely yours,

RAYTHEON AIRCRAFT COMPANY

Original signed by *D. Collins* for

A. C. Jackson, Director
Product Design Assurance & FAA Liaison

ACJ:DMW