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Removable Structural Components Industry Guidelines

Revision 2015.1



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Removable Structural Component Task Group

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Chapter 1. Background

Inspection, repair, modification, and regular maintenance tasks are essential elements in maintaining the structural integrity and safety of aircraft. Many of these maintenance actions are mandated by the regulatory authorities and are based on utilization. For the purpose of this document, utilization is defined as flight cycles, flight hours or calendar time.

Historically, except for life-limited parts, the maintenance actions of most structure have been controlled at an airframe utilization level. Some structural components, referred to as Removable Structural Components (RSCs), may be routinely transferred between aircraft resulting in a different utilization profile than the airframe the RSC is installed on. Recently released regulations have highlighted the need to identify and control RSCs with mandated maintenance actions. These regulations include, but are not limited to, the Aging Airplane Safety Rule (AASR) and a Federal Aviation Administration (FAA) requirement for at least one Original Equipment Manufacturer (OEM) to add notes to the Airworthiness Limitations Section (ALS) of the Instructions for Continued Airworthiness (ICA).

The Airworthiness Assurance Working Group (AAWG) agreed to take the action to develop industry guidance for identifying and controlling RSCs. Under the direction of the AAWG, multiple industry working groups were formed to understand the issues and develop best practices. This document contains guidelines developed by:

- Operators
- Design Approval Holders (DAH)
- Maintenance, Repair & Overhaul (MRO) Organizations
- Airlines for America (A4A)
- Industry experts from the AAWG
- Regulatory Authorities

Chapter 2. Introduction

The RSC task group met with industry leaders to identify issues that had significant regulatory and/or economic implications. Their input was focused on four areas:

- Identification of RSCs
- RSC Control / Maintenance
- Tracking of RSCs
- Transfer of RSCs

Guidance and best practices were developed for each section to assist in the understanding and resolution of significant issues. These best practices are the foundation of this RSC guidance document.

Chapter 3. Purpose

This guidance document was developed to assist in controlling and/or tracking certain maintenance requirements on RSCs such as:

- Airworthiness Directives (ADs)
- Major repairs/alterations
- Showing compliance for Damage Tolerance (DT) requirements, including Widespread Fatigue Damage (WFD), and as applicable, maintenance actions for repairs made on Fatigue Critical Structure (FCS)
- DT Supplement Structural Inspections (SSI) as required on Principal Structural Elements (PSE)
- In addition, the use of this guidance across the industry will:
 - o Increase the awareness and safety of RSCs.
 - o Provide improved and more consistent identification and control of RSCs across the industry.
 - o Provide methods to collect, retain, and transfer RSC maintenance and utilization data.
 - o Allow for more efficient exchange of RSCs across operators, MROs and parts suppliers.
 - o Increase the economic value of used RSCs.
 - o Reduce costs associated with the implementation and maintenance of programs used to identify and control RSCs.

The following guidelines are neither mandatory nor regulatory in nature. They contain best practices and do not define a single methodology for establishing a RSC tracking and control program.

Chapter 4. Identification of RSCs

Inspection, repair, modification, and regular maintenance tasks are essential elements in maintaining the structural integrity and safety of aircraft. Many of these maintenance actions are mandated by the regulatory authorities and are based on utilization (flight cycles, flight hours or calendar time). Historically, except for life-limited parts, the maintenance actions required on airframe structure have typically been controlled from an airframe utilization level. However, some structural components may be routinely transferred between aircraft resulting in a different utilization profile than the airframe it is installed on.

4.1 Purpose for Identification of RSCs

Historically, tracking of safe-life/life-limited parts has been well developed, and processes have been incorporated into various sections of United States (US) Regulations, FAA Advisory circulars, and DAH service information documents. However, the FAA changed the certification basis of PSEs from safe-life or fail-safe, to safe-life or damage-tolerant. The damage tolerance maintenance based programs were further enhanced by AASR (Title 14 Code of Federal Regulations (CFR) Part 26 Subpart E, 14 CFR § 121.1109 and 14 CFR § 129.109). Airplane specific record requirements were mandated per regulatory requirements. Most non-US aviation regulatory agencies have similar requirements. For further reference see Appendix A2 of this document.

Operators of large commercial airplanes are required to maintain accurate records including, but not limited to:

- Time since last overhaul of all structural components required to be overhauled on a specific time basis.
- Current inspection status, including the time since last inspection under the inspection program which the airplane is maintained.
- Current status of applicable airworthiness directives.
- List of major structural alterations.
- Report of major structural repairs and current inspection status of those repairs.

The purpose of this document is to provide the industry with recommendations to assist in addressing inspection, record keeping requirements and maintenance actions on structural parts (other than life-limited parts for which industry policies already exist) which may be typically interchanged between different airplanes by operators.

4.2 Identification of RSC List

- The following flowchart illustrates a process DAHs can use to develop a baseline RSC list and how operators can tailor the starting baseline to develop their RSC list.

