

International Maintenance Review Board Policy Board (IMRBPB)
Issue Paper (IP)

Initial Date: 28/Apr/2017

IP Number: IP164

Revision / Date: R0 / 28/Apr/2017

Title: Structural Analysis for Landing Gear

Submitter: EASA, MRB Section

Applies To:	
MSG-3 Vol 1	X
MSG-3 Vol 2	X
IMPS	

Issue:

Even if MSG-3 requires to assess Landing Gear as an SSI (paragraphs 1-3-2 and 2-4-1) and therefore Corrosion Prevention and Control Programme CPCP applies (paragraph 2-4-2.5), reporting of in service issues is not always properly covered.

Problem:

Some items such as Landing Gears meet both MSI and SSI definitions. Unlike Systems analysis, the Structural analyses of Landing Gear items are not always properly considered. There are still existing MRB Rs which do not identify any CPCP requirements for Landing Gear items and which contain the overhaul of the LDG in the Systems Section.

In addition, in some cases, LDG SSIs have been properly selected but the ED/CPCP analyses result in GVIs which have been transferred to the Zonal Section without identifying them as CPCP requirements.

To consolidate all LDG related maintenance requirements in the Systems Section of the MRBR, some TCHs use the following ATA MSG-3 provisions:

1-3-2. Working Groups

*NOTE: If separate Working Groups are constituted, means of cooperation need to be established to assess items that **fall into both SSI and MSI definitions (landing gear, doors, etc.)**. If similar tasks are developed in the separate working groups, **coordination between the working groups must occur to avoid task duplication** (e.g., a reference to the other working group's task can be inserted in the analysis).*

However, in-service corrosion findings cannot be properly addressed when LDG tasks are consolidated in the Systems and Powerplant Maintenance Requirements Section. Indeed, a function might still be working whereas the corrosion level already exceeds CPCP requirements.

This situation entails the following issues:

- The Landing Gear overhaul content and interval is generally validated by means of a sampling program. The LDG sampling results are then reviewed in order to make recommendations for the TBO interval and for possible changes to the maintenance inspections. Therefore, corrosion findings exceeding level 1 should be considered for their possible impact on the TBO interval.
- As in-service corrosion findings are not properly covered by any ED/CPCP requirements, they might be not adequately analysed and the monitoring of the CPCP objective is jeopardized.

Recommendation (including Implementation):

IP Template Rev 5, dated 28/04/2017

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To ensure that corrosion findings are properly reported and assessed for possible impact on the baseline program, the “Note” of Chapter 1-3-2 should be amended as follows:

NOTE: If separate Working Groups are constituted, means of cooperation need to be established to assess items that fall into both SSI and MSI definitions (landing gear, doors, etc.). If similar tasks are developed in the separate working groups, coordination between the working groups must occur to avoid task duplication (e.g., a reference to the other working group’s task can be inserted in the analysis). However, when assessing the duplication of tasks, the intent of the tasks should be carefully considered in order to ensure that the expected degradations will be detected in timely manner and that the monitoring and reporting of in-service issues is properly addressed.

In addition, Chapter 2-4-2.5 Corrosion Prevention and Control Programs (CPCP) should better formalize that any CPCP requirements need to be identified in the MRB R even if the requirement has been transferred to another Section than the Structure Section of the MRB R.

A Corrosion Prevention and Control Program should be established to maintain the aircraft's resistance to corrosion as a result of systematic (e.g. age related) deterioration through chemical and/or environmental interaction. This Program applies to damage tolerant and safe-life structures

The program is expected to allow control of the corrosion on the aircraft to Corrosion Level 1 or better. The CPCP should be based on the ED analysis, assuming an aircraft operated in a typical environment. If corrosion is found to exceed Level 1 at any inspection time, the corrosion control program for the affected area must be reviewed by the operator with the objective to ensure Corrosion Level 1 or better.

Special care should be taken to ensure that tasks which cover CPCP requirements are properly identified in the MRB R, including those transferred or consolidated in a different section than the Structure Section.

Further, it is recommended that a retroactive application of this IP is needed to identify landing gear Safe Life Items in existing programmes to prevent any airworthiness issues.

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IMRBPB Position:

Date: 28/Apr/2017

Position: IMRBPB agrees to CIP EASA 2017-02 with the changes implemented at the IMRBPB Meeting 2017, which becomes IP164

Date:

Position:

Status of Issue Paper and date:

Active 28/Apr/2017

Recommendation for implementation:

IP164 will be included into the next revision of the MSG-3 document

Retroactive: YES

Considering the need to meet the CPCP objectives for all the primary structure including landing gear Safe Life items and the need to properly address the deterioration due to corrosion found either in-service or at the opportunity of a sampling program, a retroactive application of this IP is needed to ensure the identification of landing gear Safe Life items in existing programmes containing CPCP, to prevent any airworthiness issues.

Important Note: The IMRBPB IPs are not policy. An IP only becomes policy when the IP is adopted into the processes of the appropriate National Aviation Authority. However, before formal adoption, the IP content may be incorporated by the MRB applicant on a voluntary basis with the agreement of all parties as detailed in the program PPH.