



Issue Paper (IP)

IP Number: CIP MPIG 2023-05

Initial Date: 14/FEB/2024

Revision / Date: Rev. 1 / 25/FEB/2025)

Effective Date (DD/MMM/YYYY):

Retroactivity (N/N:)N

Title:	Latent use of the term “Overhaul”
Submitter:	MPIG

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

Issue:

The word “overhaul” is currently used in two paragraphs within the current revision of MSG-3 document. In each case, the adjective “complete” is used to define the *scope* of the “overhaul”, which leads to unnecessary confusion for the MSG-3 Industry Working Groups, IWG, and the ISC during ICA MRBR task development, as overhaul is not an MSG-3 task type. Additionally, there is no definition for the word “overhaul” in the glossary to aid in delineating a partial “overhaul” from a complete “overhaul” related to task intent or its relationship to a “restoration” task.

The schedule maintenance development process transitioned from MSG-2 to MSG-3 completely eliminating the hard time philosophy and the maintenance methodology of “overhaul”, as a maintenance practice to mitigate functional failures. The use of the word “overhaul” in regulatory language more often refers to the state or condition of a Technical Standard Order (TSO) compliant component or when stating conformity of a component to approved design data as “Overhauled” for the issuance of an “authorised release certificate” (i.e. EASA Form 1, FAA 8130) and not the detail of the scope of work performed. The more targeted approach of using a “restoration” task was adopted within MSG-3 to remove ambiguity related to the scope of work referred to as an “overhaul”.

In a manner that creates more confusion, the use of the wording “complete overhaul” can lead to the assumption that “complete overhaul” would explicitly ensure the compliance with an MRBR task and its intent for the purpose of continued airworthiness unless verified per IMPS section 3.7 and detail requirements during task selection.

2-3-7 Task Development (Second Level)

5. Restoration (All Categories)

QUESTION 5C, 6C, 7C, 8D, & 9D. IS A RESTORATION TASK TO REDUCE FAILURE RATE APPLICABLE AND EFFECTIVE?

Since Restoration may vary from cleaning or replacement of single parts up to a complete overhaul, the scope of each assigned restoration task has to be specified.

Restoration

That work necessary to return the item to a specific standard. Restoration may vary from cleaning or replacement of single parts up to a complete overhaul.



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Problem:

Historically, aerospace component suppliers/vendors and component maintainer entities used the term “overhaul” to describe the scope of work performed on a component and the resulting condition (e.g., overhauled part/component). Typically, the scope of work is not related to the aircraft platform the component is installed on, nor the functional contributions to the aircraft system. The scope of technical work can vary to achieve recertification for the purpose of TSO requirements or to establish compliance with approved design data as determined by the supplier/vendor and component maintainer entities for any installation. Additionally, MSG-3 logic has not historically been used by the suppliers/vendors to develop their TSO ICA requirements to meet certification.

There are current requirements defined by several CAA’s for Instructions for Continued Airworthiness (ICA) to achieve aircraft certification. In example FAA Title 14 CFR 25.1529 Appendix H has language referring to what ICA’s must be provided to the aircraft owner per FAA Title 14 CFR 21.50 as below:

(b) Maintenance Instructions Para (1.) ...The recommended overhaul periods and necessary cross references to the Airworthiness Limitations section of the manual must also be included. In addition, the applicant must include an inspection program that includes the frequency and extent of the inspections necessary to provide for the continued airworthiness of the airplane.

The two sentences above require that if defined “overhaul” periods are required for certification they must be provided, along with the inspection program and frequency and extent of the inspection. MSG-3 does not develop or define “overhaul” periods, as the task is not applicable or effective per the MSG-3 document. MSG-3 meets aircraft CAA certification requirements by defining a “restoration” task to mitigate a failure cause within a function of a system, with no additional work related to the TSO “overhaul” document requirements. There is certainly the possibility that a MSG-3 “restoration” task may meet all the requirements of an “overhaul” document for the TSO compliance work scope, however an “overhaul” may not always ensure compliance with LRU MSG-3 “restoration” tasks in the MRBR unless the WG confirmed that the activity conducted in the “overhaul” instructions meets the intent of the selected restoration task.

It is still recognized the use and intent of the word “overhaul” is purposeful within the aerospace industry with respect to other maintenance program development methodologies, applications and regulatory language.



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The supplier/vendor maintenance documents are typically titled “Overhaul Manual” whereas the aircraft TCH/OEM has no control over the complete scope of the maintenance procedural instructions contained in these manuals. This can result in the assumption by the operator that the MRBR task(s) requirements are met by the “Overhaul Manual”. Currently the term usage of “Overhaul Manual” is largely a legacy situation as component suppliers/vendors now more often title their maintenance documents as Component Maintenance Manuals, CMM. It is common today not to have component “overhaul” manuals, instead replaced by CMM specific technical maintenance procedures for the purpose of authorised release to service.

Today “overhauls” are not a requirement for “aircraft” certification, in example many engines are sustained in a continuous airworthiness condition under MSG-3 methods by the task intent related to periodic checks, inspections and performance indicators to the flight crew. The major shop visits are then driven by limitations on rotating thermal cycled parts.

The acronym CMM is used in two locations (see below) in the MSG-3 document, one of which is located in the Glossary Vendor Recommendation definition.

Vendor

Recommendation (VR)

Maintenance instructions, including supporting data, provided by the OEM of materials, parts, appliances or components. VR may include for example recommended inspection intervals, periodic maintenance, calibration and testing procedures, installation instructions, or service life. VRs may be contained in various types of source documents such as TSOs and CMMs.

2-6. Lightning/High Intensity Radiated Field (L/HIRF) Analysis Procedure

1. L/HIRF protection relies on both external and internal L/HIRF protection components.

- a. Line Replaceable Unit (LRU) Internal L/HIRF Protection Components

L/HIRF protection features are incorporated inside the LRU. Protection devices such as filter pin connectors, discrete filter capacitors and transient protection devices (tranzorbs) are installed within LRUs on one or more of the LRU interface circuits.

Application of MSG-3 logic for LRU internal protection features is not required. For LRUs whose failure could have an adverse effect on safety, the aircraft manufacturer will work with the LRU manufacturer to confirm that the LRU manufacturer’s maintenance philosophy will ensure the continued effectiveness of L/HIRF protective features. This maintenance philosophy could include specific LRU CMM procedures or other data acceptable to regulatory authorities to conclude that the L/HIRF protection devices continue to perform their intended functions.

Due to the legacy methodology and content of “Overhaul Manuals” being focused on TSO requirements, it can be confusing and difficult for the IWG, ISC and CAAs to discuss “restoration” task(s) intent relating to the supplier/vendor “overhaul” ICA’s which might or might not be applicable and equivalent for MRBR tasks compliance.

To further the concern legacy nomenclature and verbiage is at times used during the MSG-3/MRB process referencing “overhaul” even when it is not defined within MSG-3 as a task type. This creates more confusion and difficulty when completing task summary data sheet requirements, per 2-1-2, 3. Method for Scheduled Maintenance Development for the purpose of task intent. This situation can lead to reduced analysis precision and continuing during the task development process as a result of the wording “complete overhaul” in two locations in the MSG-3 document, as noted in the Issue statement above.



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Additionally, there are occurrences where the “restoration” task is equated as an “overhaul” to manage the failure cause(s) during ISC/WG. This has implied that any component/part/item removed from the aircraft for a TCH MRBR ICA maintenance action would be classified as “restoration” by “overhaul”, implied or literal. This is incorrect as the component/part/item removed may be to complete a functional check of a sensor, discard of battery (i.e., ELT), etc.

Recommendation (including Implementation):

MSG-3 next revision, replace the text as indicated below in two locations, 1.) Chapter 2-3-7 para. 5 and 2.) Glossary:

Chapter 2-3-7 para. 5 below:

Current text:

5. Restoration (All Categories)

QUESTION 5C, 6C, 7C, 8D, & 9D. IS A RESTORATION TASK TO REDUCE FAILURE RATE APPLICABLE AND EFFECTIVE?

~~Since Restoration may vary from cleaning or replacement of single parts up to a complete overhaul, the scope of each assigned restoration task has to be specified.~~

Replace with:

Since Restoration may vary from cleaning, replating, and/or replacement of single or multiple component parts, or other maintenance actions the scope of each assigned restoration task has to be specified. The scope is defined to meet the requirements of 2-1-2 paragraph 3. “Method for Scheduled Maintenance Development”. A “restoration” task(s) may meet the requirements of a component (i.e., LRU) “overhaul”.

Glossary change below:

Current text:

Restoration

~~That work necessary to return the item to a specific standard. Restoration may vary from cleaning or replacement of single parts up to a complete overhaul.~~

Replace with:

Restoration: That work necessary to return the item to a specific standard of failure resistance. Task(s) scope may vary from cleaning, replating, and/or replacement of single or multiple line replaceable unit component parts, or other maintenance actions to meet task intent of task selected to mitigate the failure cause.



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IMRBPB Position:	
Date:	
Position:	
Recommendation for Implementation:	

Status of the Issue Paper:	<input type="checkbox"/>	Active
	<input type="checkbox"/>	Incorporated in MSG-3 / IMPS (with details)
	<input type="checkbox"/>	Archived