



Issue Paper (IP)

IP Number: 213

Initial Date (DD/MMM/YYYY): 17/May/2024

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Retroactivity (Y/N): N

Title:	Clarifications on the policy for “off-wing” restoration tasks
Submitter:	EASA

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

Issue:

MSG-3 is not giving much information about consolidation of different tasks into an off-aircraft restoration task and identification of the scope of such tasks.

2-3-7.9: *“This paragraph applies to on-aircraft tasks only. Descriptions for off-aircraft restoration tasks may identify different task types.”*

Glossary: *“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.”*

Glossary: *“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”*

All three statements are fully correct, however they leave a lot of room for interpretation resulting in several different approaches by different manufacturers, and are often not in line with the according ICA (e.g. CMMs) and maintenance documentation resulting in many issues at operators and their regulatory authorities.

Especially the “may” statement in 2-3-7.9 did create some confusion.

Problem:

1. Tasks that are not restoring published as Restoration task

Such tasks, for example a series of checks and inspections published as restoration, result in the issue, that an operator sends a unit to the workshop for restoration, and receives it in return with a release certificate (e.g. EASA Form 1, FAA 8130-3 Form) stating the unit is “tested”, so formally it does not meet the MRBR requirement to restore it, so it should not be installed on the aircraft and the according aircraft level task should not be signed off. There are repeated cases of discussion between operators and authorities about such issues.

Only for overhaul tasks (e.g. “Restoration (overhaul) of the pressure regulator”) with the scope clearly defined in the ICA there is no such issue and the release certificate can state “overhauled” in line with the MRBR task.

There are two subcategories in this group of tasks:

1a. Tasks newly developed that are published as Restoration task



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There are manufacturers that per PPH call all off-aircraft tasks automatically RST, regardless the actual work scope.

Example: *Any task (servicing, functional check, operation check...) that requires the removal of the component must be classified as Restoration. The description of the Restoration must describe what actions will be performed at the shop level.*

Currently there are many existing MRBR tasks where the task procedure differs from the task title. For example, a series of off-aircraft checks is published as restoration task although nothing is restored.

It should be clear from MSG-3 Table 2-3-7.1 and paragraph 2-3-8.4, that restoration tasks and checks/inspections are selected and scheduled through different criteria, therefore it is important to use the actual task type(s), as it is later on described in the ICA, performed and stated on the release certificate, already during the MSG-3 analysis.

It is also beneficial to specify the correct task types for such restoration tasks using a terminology that is in line with the ICA and the release certificate, for example: “restoration (off-aircraft testing) of the CVR” (Checks according to MSG-3 are tests in most CMM).

1b. Tasks already existing analysed and selected as restoration task

For many standard equipment parts are already existing when the aircraft is designed and the CMM with all tasks is already existing as well at the time the MSG-3 analysis is performed.

For such equipment often restoration tasks are selected through a level 2 analysis, although the according CMM tasks are just a series of tests and inspections and there is no restoration described in the vendors manuals.

2. Task procedure preventing Restoration

ATA Standards for CMM format do include the statement:

*“Place a NOTE at the beginning of this Pageblock [Disassembly] that refers to Testing and Fault Isolation for establishing the condition of the component or most probable cause of detected malfunction(s) to determine extent of disassembly required. **Disassembly should only be performed to the extent necessary to access any faulty subassembly.**”*

This statement has been created for restoration tasks that result from in-service failure or failed inspections/checks and is contradicting scheduled overhaul tasks where the need for full disassembly is already determined through the MSG-3 analysis and should not be interfered with at ICA level.

Accordingly there are many CMMs that include even more specific wording, which states, for the disassembly step of an overhaul, that before performing a disassembly the unit should be



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tested and, if it performs satisfactory, it should not be disassembled (or not be disassembled completely).

Example: *DISSASSEMBLY*

1. General

A. Prior to disassembly, carefully read all instructions applicable to the item of equipment undergoing maintenance.

B. Test each unit in accordance with the procedures in TESTING AND FAULT ISOLATION (Page Block 1000). [...] That will determine the extent of disassembly required to effect necessary repairs without complete teardown of the unit.

Procedures

A. Regulator Check

...

(3) If the regulator satisfies the functional requirements of TESTING AND FAULT ISOLATION (Page Block 1000), it is not necessary to disassemble the regulator for overhaul.

NOTE:

When a regulator passes all tests it is ready for assembly to cylinder.

If a regulator does not pass a test, disassembly and overhaul of the regulator is required.

This results in MRBR RST tasks, that in fact are just off-aircraft checks. If the unit passes the check, it will be returned to service unchanged in line with approved ICA.

As shown in this example, an MRB task *Restoration (Overhaul) of the pressure regulator* will start with a functional check according to the CMM, and the regulator will **not be restored** if it passes this check, it will be installed back to the cylinder per CMM. The real task that has been selected as applicable and effective during L2 analysis will never be performed.

Additionally the task interval has been selected using the wrong philosophy (see 2-3-8.4). RST intervals are based on age or time a degradation needs to grow from new/restored to an age most units survive while Inspection/Check intervals are based on the much shorter PtoF interval, or time a degradation needs to grow from detectable level to failure).

It is absolutely acceptable to have MRBR checks that for practical reason are performed off-aircraft and typically involve rotating the part. However, **these tasks should not be called or analysed as “restoration” tasks**, as in fact they do not return the item to a specific standard but do only *determine if one or more functions of an item performs within specified limits or determine that an item is fulfilling its intended purpose*.

If it is clear that a formal restoration task is in fact only a check (and as *all available Vendor Recommendations should be fully considered, discussed in the MWG meetings, and accepted*



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only if they are applicable and effective according to MSG-3 criteria, this should be clear to the WG), then only this check should be selected as MRBR task in line with the according applicability and effectiveness criteria and interval selection.

This is the same philosophy as applied for on-aircraft tasks, the MRBR just contains checks or inspections and if those fail, the AMM will give the required correction tasks. The only difference is that the according tasks are in a CMM for off-aircraft tasks.

Recommendation (including Implementation):

The practice of consolidating several tasks into an off-aircraft task and defining the task type as “restoration” as mentioned in 2-3-7.9 is not the method preferred. It is more favourable to select those tasks individually and to link them by a note as stated in IP 144.

Only for overhaul tasks with the scope clearly defined in the ICA a consolidation of subtasks into a single restoration task is acceptable.

The following important aspects need to be addressed:

- For single RST tasks directly selected through Level 2 question 5C/6C/7C/8D/9D and already existing (e.g. in a Vendor CMM) the scope of the tasks must be known to the working group at a level of detail that allows to assess whether *they are applicable and effective according to MSG-3 criteria*, i.e. that a restoration task indeed returns the item to a specified standard and does not only confirms its airworthy condition, that the task is not only a check or inspection or a series of such.
- The task as published in the MRBR must be in line with the scope of the off-aircraft ICA, this includes the task title.
- Tasks where the vendor ICA include a “check first and do not restore if within limits” procedure, should not be selected as restoration task, but as off-aircraft check/inspection driving the restoration only in case the check/inspection fails (same MSG-3 philosophy as for on-aircraft tasks, see above example where CMM clearly requires overhaul if the test fails, selecting the test task is the minimum maintenance requirement driving the restoration if required).
- For newly developed consolidated RST tasks, all subtasks (or groups of similar subtasks as applicable) must be analysed in an individual level 2 analysis according to the correct criteria for applicability and effectiveness in line with Table 2-3-7.1 and scheduled in line with chapter paragraph 2-3-8.4 according to the task type (i.e. an SDI performed during an overhaul must be analysed as INSPECTION, not as RESTORATION). If subtasks are not applicable and effective according to MSG-3 criteria, they should not be selected as minimum maintenance requirement.
- *The scope of each assigned restoration task has to be specified* at a level of detail that allows to clearly link it to the different task types that have been consolidated into a single RST task, if it differs from a complete overhaul. The *may* statement of 2-3-7.9 refers to a deviation from the rule “*Task consolidation is normally not acceptable*”, not to the need to *identify the different task types*;



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Manufacturers should establish PPH policies that align selected wording for off-aircraft task titles and description as much as possible with wording used in the ICA and the regulation for the authorise release certificates (EASA Form 1, FAA 8130-3 Form etc. as applicable) to avoid ambiguity or conflicts.

Typical off-aircraft tasks with a dedicated and clearly specified scope could be for example

Restoration (battery discard and test) of the ELT	Consolidation of different task types into an off-aircraft restoration task, literally in line with 2-3-7.9
Restoration (off-aircraft calibration) of the pressure regulator	A real restoration task that returns the item to a specific standard
Restoration (overhaul) of the hydraulic isolation valve	If the scope of the overhaul is clearly defined in the ICA, no further details required in the task description
Functional check (off-aircraft capacity test) of the emergency lighting battery	An off-aircraft task that is not a restoration and does not return the item to a specified standard

The following task descriptions however should be avoided

Restoration of the trim actuator	Scope of the restoration not specified although required by 2-3-7.5
Restoration (overhaul) of the pressure regulator	If in fact the regulator is just functionally checked per CMM (pressure, flow rate), but not restored
Restoration (overhaul) of ELT	If nothing is disassembled or inspected, just the battery discarded, and the ELT operationally checked

Implementation:

MSG-3 Revision 2022.1, Volume 1 and 2

- Amend the VR statement in Chapter 2-3-2
- Add a note to the L2 Restoration Chapter 2-3-7.5

2-3-2. Analysis Procedure

[...]

Tasks and intervals required in the scheduled maintenance are identified using the procedures set forth herein. Both the economic and safety related tasks are included so as to produce initial scheduled maintenance tasks/intervals.



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All available Vendor Recommendations (VR) should be fully considered, discussed in the MWG meetings, and accepted only if they are applicable and effective according to MSG-3 criteria [and the VR associated procedures are in line with the intent of the MSG-3 task\(s\)](#).

Prior to applying the MSG-3 logic diagram to an item, a preliminary work sheet will be completed that clearly defines the MSI, its function(s), functional failure(s), failure effect(s), Failure Cause(s) and any additional data pertinent to the item; e.g., ATA chapter reference, fleet applicability, manufacturer's part number, a brief description of the item, expected failure rate, hidden functions, need to be on M.E.L., redundancy (may be unit, system or system management), AHM capability (including certification considerations), parameters and outputs (data generated), etc. This work sheet is to be designed to meet the user's requirements and will be included as part of the total MSG-3 documentation for the item.

2-3-7. Task Development (Second Level)

[...]

5. Restoration (All Categories)

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.

[Tasks are not to be selected as restoration solely on the basis that they are performed off-aircraft. Tasks that are indeed providing restoration to an item are only to be selected in this step.](#)

[A single restoration task may include maintenance instructions to determine the required level of restoration. The scope of the MSG-3 restoration task selection shall not be influenced by these maintenance instructions.](#)

5.1. Applicability Criteria

The item must show functional degradation characteristics at an identifiable age and a large proportion of units must survive to that age. It must be possible to restore the item to a specific standard of failure resistance.

Note: [By applying the second level of the MSG-3 logic diagram it should already have been assessed whether an Inspection/Functional Check can timely detect the functional degradation characteristics. The task procedure for a Restoration should therefore not start with an Inspection/Check that stops the restoration in case the item does not show functional degradation. If such a situation is encountered, the according Inspection/Check should be reassessed under bullet 4: Inspection/Functional Check \(All Categories\)](#)



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5.1. Effectiveness Criteria - Safety

The task must reduce the risk of failure to assure safe operation.

Appendix A. Glossary

off-aircraft

Refers to the conditions, where a part/component (e.g., battery, ELT, sensor, landing gear, valve, etc.) would need to be removed from the aircraft to perform the MSG-3 task.



International MRB Policy Board

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IMRBPB Position:	
Date:	17 May 2024
Position:	Agreed, closed in 2024 meeting as IP 213
Recommendation for Implementation:	As per effective date

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