



Issue Paper (IP)

IP Number: CIP EASA 2024-01

Initial Date (DD/MMM/YYYY):

Revision - Date (DD/MMM/YYYY):

Effective Date (DD/MMM/YYYY):

Retroactivity (Y/N): N

Title:	Escalation of tasks with multiple usage parameters
Submitter:	EASA

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

Issue:

IP 44 only mentions *intervals* for escalation/optimisation, but does not discuss usage parameters. Different OEM have developed differing policies how to handle dual/multiple usage parameters leading to unharmonized approaches.

Problem:

Utilisation of aircraft may differ significantly between different operators.

While IP44 requires that "*MRBR task Evolution / Optimization shall be based on worldwide representative samples that span the operating environment and age groupings of the aircraft*" it does not discuss a representative utilisation of the sample, so while it would not be acceptable if only young aircraft or only aircraft operated in moderate climate are used in the data sample. there would be no restriction to only use high utilisation aircraft or only aircraft used on short flights within the utilisation window of the according MRBR.

Although packaging has been removed and the letter check concept been deleted from MSG-3, still many OEM keep dual/multiple usage parameter tasks at a fixed ratio between the UP, applying different policies (e.g. using the maximum utilisation to define the ratio).

As real life operation rarely matches the assumptions made in the PPH, IP44 sample data will rarely include data where the elapsed interval of the task counted for different UP matches the ratio used for the initial MRBR tasks. On the contrary, very often a vast majority of task represented by the data of the sample will follow only one predominant usage parameter that drove the task performance, while the elapsed interval counted in the other usage parameter(s) shows large scatter and does not make use of the full interval.

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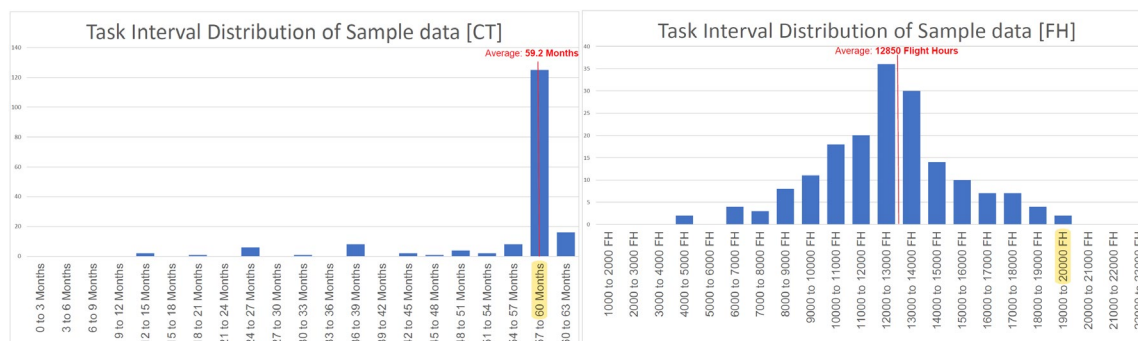
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As an arbitrary example, a 5 Year / 20.000 FH task may show the following in-service performance data:



This means practically no operator did utilize the aircraft for 4000 FH/Year, in average the operators only flew the aircraft for about 2600 FH/Year, performing the task in average at 59.2 Months (4.93 Years) or 12.850 FH.

If the finding rate (assumed for this example) would support a 65% escalation based on the approved calculation method, this means the task could be escalated to convenient 8 Years / 96 Months (maximum 97.7 Months would have been possible), it would however not support to escalate the task as well to 32.000 FH (still 4000 FH/Year), as this would not be a supported 65%, but in fact a 150% escalation not justified by the finding data. An escalation from the elapsed 12.850 FH by 65% to 21.200 FH would be possible, but not practical.

So purely based on data, the 5 Yr / 20.000 FH task could be escalated to 8 Yr / 20.000 FH, the data collected will not support an escalation of the FH interval, as the fleet was only utilized 2600 FH/year and hence the sample data can not support an escalation with a higher utilisation purely based on the finding rate and statistical analysis.

However, as IP44 states "*Statistical analysis should be supported and validated by engineering judgment*", different possible escalation limits may be established for the same finding rate, if for example deterioration with usage is expected to increase linearly, while deterioration with age is expected to be progressive, this may allow (for the example above) an escalation of the CT interval by 65% and the FH interval by 90% supporting a 24.000 FH interval or a 5 Yr / 24.000 FH task.

In any case, justification of the new interval has to be provided for each usage parameter individually, this may also mean by individual means.



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Recommendation (including Implementation):

Amend IMPS Appendix 3 (IP 44) as follows:

1.0 Introduction

[...]

The OEM/TCH Evolution/Optimization process does not assume any operational control over an operator's maintenance program.

Note: When intervals are stated in this document it includes both threshold and repeat values and applies to all usage parameters in which they are expressed individually.

3.0 Policy Description

[...]

All information's related to continue airworthiness should be reviewed (AD, SB, In-service reports/letters, modifications/repairs, etc.)

MRBR task Evolution / Optimization shall be based on worldwide representative samples that span the operating environment, utilisation (within the MRBR window) and age groupings of the aircraft.

Interval Evolution / Optimization should be based on risk management. [...]

5.4 Interval of Tasks findings applied

Actual task interval of each participating operator shall be captured and evaluated.

For tasks with multiple usage parameters, the assessment has to be performed individually considering the utilization of each participating operator.

Note: The actual intervals may vary between operators and may be different from MRBR requirement.

The impact of these variations shall be assessed and accounted

8.1 Working Group Activity

Interval Recommendation to the ISC (e.g. Increase, decrease, remain the same, introduction of new task, or task deletion).

MRB task intervals can be escalated based on the results of in-service experience.

In addition, tasks should be de-escalated when in-service data supports interval reductions.

For tasks with multiple usage parameters each of those should be assessed individually.

Task may also be deleted when it is determined that the task is ineffective or the failure mode for which the task was selected never developed due to effective design provisions.

If significant escalation of FH/FC tasks is possible, the need to introduce additional calendar time intervals to cover aging and aircraft with lower utilization within the MRBR window should be evaluated.



International MRB Policy Board

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Task deletion, addition, or modification of intent or usage parameter(s) requires new/revised/amended MSG-3 analysis. However, complete re-analysis of the MSG-3 package is not required. Any decision together with justification shall be recorded and traceable in the associated MSG-3 analysis. Applicability and effectiveness criteria as specified in MSG-3 shall be observed.

IMRBPB Position:

Date:

Position:

**Recommendation for
Implementation:**

**Status of the Issue
Paper:**

<input type="checkbox"/>
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Active

Incorporated in MSG-3 / IMPS (with details)

Archived