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LUBRICATION & SERVICING TASK ESCALATION

- Inconsistency by local approval
- Lack of guidance in IMPS & IP44
- No path forward for program evolution



MPIG OPEN ISSUE

MANAGEMENT OF LUBRICATION & SERVICING TASK FOR EVOLUTION

The ISC stated that a request to escalated the Lubrication of the Passenger Door (External) hinge pin was declined.

EXAMPLE of some of the detail provided in the request document below :

In-Service History Summary

- Service Bulletin Modification - passenger door latching mechanism - Introduce permanently lubricated ball bearing assemblies To improve maintainability
- Service Bulletin Modification - passenger door - to eliminate potential jamming of door outer handle during closing
- Door Components (related to task) removals data over 10 years span:
- Hinge - Component Part Number XXXXXXXXXX (3 removals)
- Tension Fitting - Component Part Number XXXXXX (11 removals)
- Cam - Component Part Number XXXXXX (2 removals)
- Cam - Component Part Number XXXXXXXXXX (no removals)
- Pull in mechanism - Component Part Number XXXXXXXX (2 removals)



EXAMPLE CONTINUED:

XXXX/ XXXXXX has equivalent task XXXXXX at 1000 flight hours, with similar parts and similar lubrication materials with the exception of the main door attachment hinge XXXXX where grease is used in lieu of oil.

Average Time Between Failures 108,476 **MRB Task FEC = 6**

Detail

Hinge - Component Part Number 600-31916-3, -11, -15

Type of joint - Partial Rotation approx 100 deg.

Rotations per flight - 4

Material - Aluminum

Lubricant - Oil

It was concluded this task assessment did not meet the IP44 requirements and could not be adjusted, even under the approval by engineering.



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MPIG Open Issue

Management of Lubrication & Servicing Task for evolution

MPIG is seeking input from the IMRBPB on the concept and consideration on CIP which would provide guidance to enable proficient effective direction to manage these type of task.

Addressing this issue will remove the inconstancy and disadvantages created by the current situation.

The next slides provide the current relative guidance statements:

IMPS Statements relative to Evolution/Optimization

8.0 Evolution/Optimization of Task Intervals

8.1 Refer to Appendix 3 of this document for evolution and optimization guidelines.

The following framework is provided as guidance within which proposals to amend the MRBR shall be developed and assessed



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IP44 Statements relative to Evolution/Optimization

IP44 Evolution

1.0 Introduction

The guidance in this document is intended for use by those Original Equipment Manufacturer/TC Holder (OEM/TCH) and Maintenance Review Board (MRB)/Industry Steering Committee (ISC) members who are involved with the evolution/optimization of tasks in a current MRB Report (MRBR). This **guidance shall** be applied for evolution / optimization activities where no official correspondence has been forwarded to the airworthiness authorities or for activities to be finalized (MRBR proposal / MPP submittal) after April 2009. The following framework is **provided as guidance** within which proposals to amend the MRBR shall be developed and assessed.

The initial MRB report for any new aircraft is developed essentially in the absence of actual in-service experience. **As a result, the tendency is to be conservative in the decision-making process.** As service experience is accumulated, task intervals (thresholds/repeats) should be adjusted to reflect the results of actual in-service data.



IP44 Statements relative to Evolution/Optimization

Interval Evolution / Optimization should **be based on risk management**. Risk Management is the systematic application of management policies, procedures and practices to the tasks of identifying, analyzing, evaluating, treating and monitoring risk.

5.7 Failure effect category considerations

MRBR task interval optimization is based on **principles that reflect the criticality** of airplane systems, components, identified during MSG-3 analysis. Failure Effect Categories should be accounted for during the analysis.

7.6 Servicing Tasks

Scheduled servicing (e.g., lubrication /oil replenishment) task data will not normally result in reported related findings. For these tasks, Engineering assessment and analysis is the **primary method** to be used to support an evolution / optimization. The engineering assessment must take into account the negative long-term effects (e.g., corrosion) resulting from inappropriate servicing intervals.



CONSIDERATIONS FOR A PATH FORWARD

The initial program is always conservative where lubrication and servicing are bound by the initial conservative interval framework.

These tasks intervals are many times chosen for alignment with other generated tasks in zonal or systems.

Some of these tasks are simple and basic AMM procedures by the application of a standard practices spray film or applied grease.

Some of these task relate to internal mechanisms, while others relate to external. (i.e., exterior door hinges)

Some of these areas are inspected or checked during other task developed from zonal or systems.

CONSIDERATIONS FOR A PATH FORWARD

- The FEC is only suggested as a consideration in the analysis of IP44, where it should be a more formal significant consideration. (i.e., TR hinge joints where the TR is typically FEC 6, service panel doors, etc.)
- The MMEL impact is not considered (i.e., TR is typically on the MMEL, with no credit for aircraft performance)
- Lubrication material have change and improved, while some are no longer available being replaced by more resilient products.
- New aircraft are developed with initial interval frameworks with larger parameters, while still sustaining design feature of previous models.
- Others.....



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SUMMARY:

This inadequacy has been in place at the start of MSG-3 development and deployment. IP 44, 7.6 Servicing Tasks use the language of “Engineering assessment and analysis is the primary method to be used to support an evolution / optimization”. This only infers the possibility of another method, however as there is no understanding as to what would be another method the MRB Chairs are frozen by the lack of guidance to make a risk decision.

In comment some operators and TCH’s tend not to want to share successful methods achieved with the local NAA representatives, as it does reflect a competitive advantage. However, our goal is to provide guidance how to comprehensively manage the MRBR’s for the MRB and ISC’s in a harmonized manner.

MPIG’s request is for input as to a direction to improve this situation. What would be the path forward to enable comprehensive improvement?