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## 1. OBJECTIVE

The objectives of this procedure are to define:

- 1.1 The processes and responsibilities for approving the minimum scheduled tasking/interval requirements for derivative or newly type-certificated (TC) aircraft and powerplants by CAAI Engineering Department personnel. Those minimum Requirements are referred as the Maintenance Review Board Report (MRBR), the Maintenance Type Board Report (MTBR) or the Original Equipment Manufacturer (OEM)/type-certificate holder's (TCH) Recommended Maintenance Procedures. After initial CAAI approval, the report will become a dynamic report for each TCH; that is, a document subject to periodic revision based on new or changed analysis or requirements.
  
- 1.2 The standardized guidelines for the development, implementation, and updating of CAAI-approved minimum scheduled maintenance/inspection requirements, which should be used by manufacturers/TCH holders to show compliance with relevant Israel Air Navigation Law and Air Navigation Regulations (ANR) (Procedures for Documentation of Aircraft and Aircraft Parts), 1977 (equivalent to 14CFR parts 23, 25, 27 and 29 section 1529, as well as related Appendices, and part 26).

This procedure describes procedures for typical projects. Unusual or complex projects may require deviations from these procedures. Early and frequent coordination with the CAAI is critical on all projects. (unless exceptions that meet the intent of this procedure are documented and then approved/accepted in an OEM/TCH Policy and Procedures Handbook (PPH))

Note: After CAAI approval, the requirements become a basis upon which operators develop their own individual maintenance programs. The approval of each operator's individual maintenance program is performed by the appropriate local aviation authority. In Israel, approving Israeli-registered operators' maintenance programmes is performed by CAAI flight standards division in accordance with Regulation 131 of the ANR (Operation of Aircraft and Rules of Flight, 1981)

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## 2. GENERAL

3.1 This procedure formalizes policies and procedures relating to the approval of the OEM/TCH minimum scheduled tasking/interval requirements as issued in the MRBR/MTBR or OEM/TCH Recommended maintenance procedures documents by the CAAI Engineering Department.

3.2 Purpose of an MRBR. Industry and regulatory authorities generate an MRBR as a coordinated effort of achieving timely compliance with the applicable certification regulatory requirements and the minimum scheduled maintenance requirements. An MRBR contains the minimum scheduled tasking/interval requirements for a particular aircraft and on-wing engine maintenance programs.

Note: Do not confuse the MRBR requirements with an operator maintenance program. After CAAI approval, the requirements become a base or framework around which each operator can develop its own individual aircraft maintenance program.

An operators' program performance is the responsibility of the operator, with oversight by the local regulatory authority.

3.3 Use of the MSG Analysis Process.

The latest version of the ATA MSG analysis process and procedures for the development of an MRBR for all new aircraft or engines shall be used. For development of derivative designs (amended TC), the applicant should apply the most current version of MSG-3 logic to those systems or structures that have changed. Reapplication for a TC after an expired TC application requires using the most recent version of the MSG logic process.

Note: Each OEM/TCH is responsible for supporting the regulatory requirements for their MSG-2 aircraft.

2.4 MRB APPLICABILITY.

2.4.1. The MRB process should be used for:

- (1) Transport category airplanes designed to carry 10 or more people or having a maximum weight of 33,000 lb or more
- (2) Transport category "A" helicopters, or

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#### 2.4.2. Optional Uses of the MRB Process.

Additionally, an MRB may be used for any aircraft by choice of the Original Equipment Manufacturer (OEM)/type-certificate holder (TCH).

### 2.5 MRBR PROPOSAL DELIVERY SCHEDULE

The OEM/TCH may concurrently build the MRBRP. Portions of the MRBRP may be submitted for consideration when the design is frozen and applicable minimum scheduled tasking/interval requirements have become mature and complete. This will improve the quality of the proposal by reducing discrepancies at the end of the process. The OEM/TCH Policy and Procedures Handbook (PPH) must be approved by the Industry Steering Committee (ISC) and accepted by the MRB chairperson before the start of any WG meetings. Delivery of all WG data packages and documents to the regulatory authorities should be 30 calendar-days before scheduled meetings. Delivery of the final MRBR proposal and any supporting documents to the MRB chairperson should be 90 calendar-days before expected approval of the document.

### 2.6 VALIDATION OF ASSOCIATED MAINTENANCE PROCEDURES

The OEM/TCH must develop internal instructions and guidelines to enable the validation of all maintenance procedures written to support MRBR tasks, and then the OEM/TCH must validate them. The objective of the validation is to ensure that the procedure can be performed as written and that the procedure meets the intent of the MRBR task. At minimum, the OEM/TCH must make available a completed aircraft and the necessary qualified maintenance personnel where and when requested by the CAAI. The OEM/TCH must demonstrate to the CAAI that Failure Effect Category (FEC) 5 and 8 safety tasks can be adequately performed and that the procedure meets the intent of the MRB task (For FEC definitions see Air Transport Association (ATA) Maintenance Steering Group (MSG-3), Airline/Manufacturer Maintenance Program Development Document). Additional tasks may be validated at CAAI's discretion.

### 2.7 CMR's.

2.7.1. During aircraft design certification and concurrent with the MRB process, leading up to the type certification process, the OEM/TCH should perform a System Safety Assessment in accordance with part 23, § 23.1309; part 25, § 25.1309; part 27, § 27.1309; and part 29, § 29.1309. The analysis is intended to detect any safety-significant latent failures that would, in combination with one or more other specific failures or events, result in a hazardous or catastrophic condition. This system safety assessment leads to a design decision to create Candidate Certification Maintenance Requirements (CCMR).

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Note: For further information regarding this subject, refer to CAAI procedure ENG. 1.4.041.

2.7.2. If a CCMR may be satisfied by an MSG-3 task, the following limitations apply:

(1) Only MSG-3 Category 5 and 8 tasks may take credit for a CCMR.

(2) If certification transfers a CCMR to the ISC based on a balancing MRB task, the ISC manages that task from that point forward.

### 3. Referenced Material and Forms

#### 3.1 Reference

- CAAI Procedure ENG 1.4.41 Certification Maintenance Requirements,
- Regulation 1 of the ANR (Procedures for Documentation of Aircraft and Aircraft Parts), 1977,
- Regulation 131 of the ANR (Operation of Aircraft and Rules of Flight), 1981,
- 14CFR parts 23, 25, 27 and 29 sections 1309 and 1529,
- 14CFR Part 26.
- CAAI Aircraft Certification Procedure ENG 1.4.029 Type Certification.
- CAAI Aircraft Certification Procedure ENG 1.4.012 Instructions for Continued Airworthiness.
- Air Transport Association (ATA) Maintenance Steering Group (MSG-3), Airline/Manufacturer Maintenance Program Development Document.
- FAA AC 121-22C Maintenance Review Boards, Maintenance type Boards, and OEM/TCH Recommended Maintenance Procedures,
- FAA AC 120-17B Maintenance Control by Reliability Methods,
- FAA AC 25.1309-1A System Design and Analysis
- FAA Order 8110.4B Type Certification (Chapter 7),
- FAA Order 8110.54A Instructions for Continued Airworthiness Responsibilities, Requirements and Contents.

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- EASA IMRBPB Issue Paper 044 MRB Check Interval Escalations.

### 3.2 Forms

- None

## 4. Process

### 4.1 Work Flow Maintenance Program and MRB Activities

The flow diagram (Figure 1-1) shows the relevant activities and analyses which are essential for the preparation of the MRB Document for the aircraft.

The following text provides a brief description of the individual tasks and functions. The figures placed in brackets in the text, relate to the number of the respective box on the flow diagram.

### 4.2 Preparatory Work

The relevant maintenance and repair data is checked and analyzed by the Maintenance Working Groups (MWGs), from all available design and equipment data and documents (1), from the valid certification requirements (2), as well as from the information and data of an operational scenario (3) representative of the aircraft, for correctness and applicability.

The data stated and evaluated for the equipment from equipment manufacturers, is then classified (4) for systems as Maintenance Significant Items (MSI) and for the structure as Structure Significant Items (SSI).

This classification must be repeatedly revised after the submittal of the analysis results or system changes/modifications.

For the non-significant items, simplified global procedures shall be applied. The Zonal Inspection (9) is considered a global procedure.

The individual analyses are then planned according to the network-plan method with data relating to responsibility, implementation periods and completion schedules.

### 4.3 Failure Mode, Effects and Criticality Analysis

With the FMECA (6) the systems and subsystems are subjected to a functional analysis, in which all failure modes of all components are examined regarding their respective effect on the higher level Subsystem/System/Aircraft function.

This will determine the severity classification of the failure - whether it can be detected, or whether it remains hidden, and which action should be taken or equipment used in order to detect the failure.

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The FMECA will be carried out at an early phase of the system development, in order to facilitate and reduce costs of any required redesign changes. In conjunction with the MSG-3 Logic-Analysis (7) the FMECA (6) must be considered to be the most important analysis-type within the Maintenance Program, because from the results of this analysis, the necessary preventive maintenance tasks and the most important and most frequent failure-types and their frequencies can be obtained.

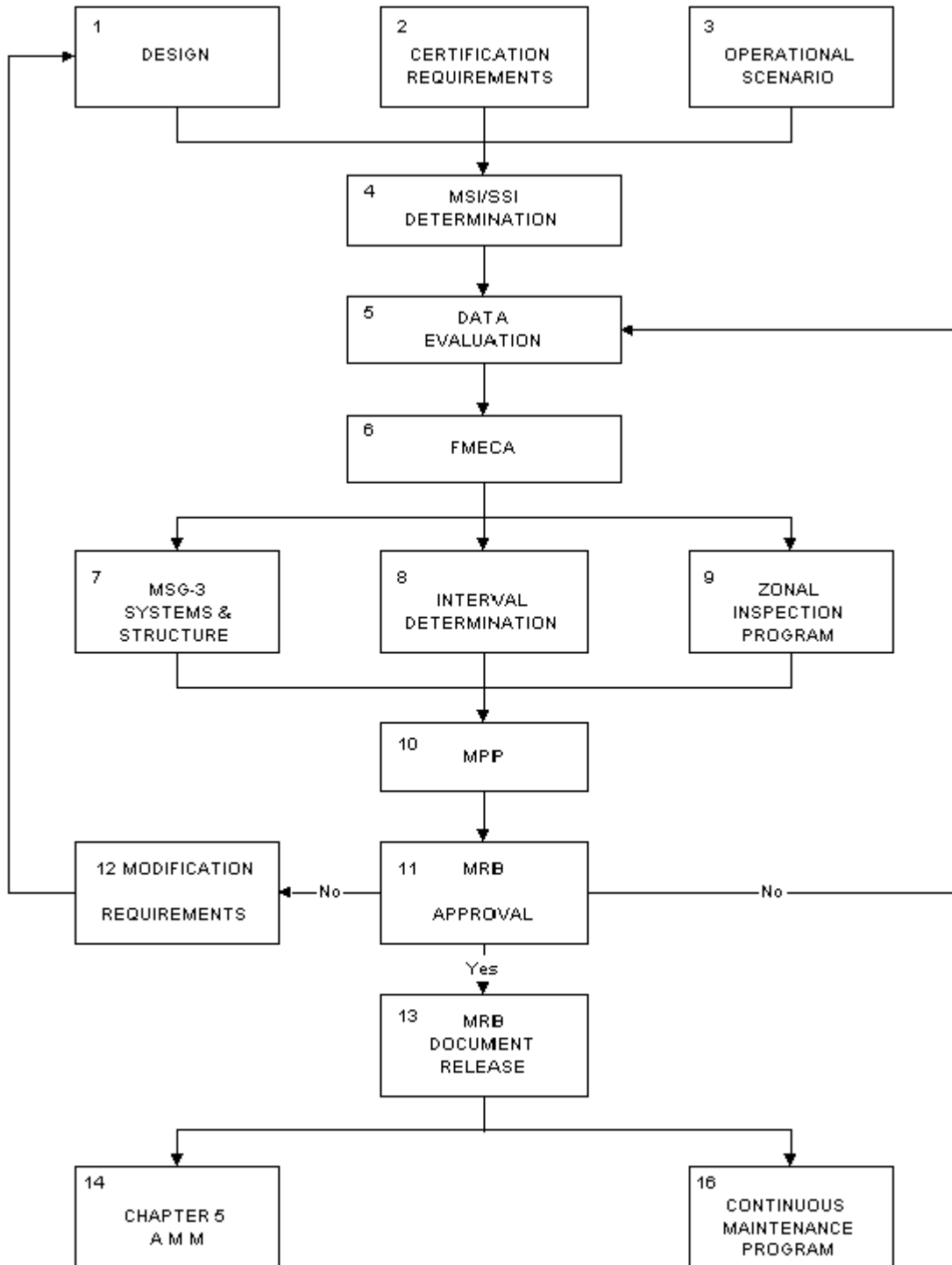


Figure 1-1 Flow Diagram - Maintenance Program and MRB Activities

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#### 4.4 MSG-3 Analyses

The MSG-3 analyses (7,8,9) serve for the determination of all preventive maintenance task requirements according to type and frequency. The inputs for these analyses are the information gained from the results of the FMECA (6).

##### 4.4.1. Systems and Structure

An essential characteristic of the procedure is logic analysis (7) which must be strictly adhered to. For the systems there are questions and answers/decisions and for the structure there are ratings and combinations of ratings which lead straight to rational and technically founded decisions regarding the necessity and type of preventive maintenance. System failures are classified according to safety and/or economy.

##### 4.4.2. Interval Determination

The type of the necessary preventive maintenance task is determined using the MSG-3 Logic Analysis (7), the frequency of the task must be determined separately (8).

For this purpose there are no general analytic procedures which can be applied for all component types. It must be decided for each case whether the frequency determinations should be based on:

- a. Tests and technical analysis.
- b. Manufacturers data or vendor requirements.
- c. Customer requirements.
- d. Experience gained with comparable or identical components and subsystems.
- e. "Best engineering estimates".
- f. CAAI requirements.

The Preventive Maintenance intervals shall be determined by the Maintenance Working Groups and approved by the MRB.

For task interval evolution/optimization process refer to IMPLEMENTATION AND OPTIMIZATION OF TASKING INTERVALS in this procedure.

**4.4.3. Zonal Inspection.** Zonal inspection (9) means that at regular and defined schedules a zone (e.g. installation area between the frames) is subjected to a visual inspection, during which the "items" installed in this area such as equipment, pipes, wiring are all inspected for security, leakage, abrasion etc., and the structure is inspected for surface protection, deformation, contamination and corrosion.

The inspections are arranged to cover all zones within a time period to be in conjunction with system inspections and structure inspections, see (7) and (8), there is no area on the aircraft which remains uncovered, and therefore there can be no condition which can remain undetected for a period extended enough to allow potentially hazardous deterioration to develop.



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4.4.4. **Working Group Organization.** The MSG-3 Analysis (7,8,9) is carried out in three different Maintenance Working Groups (MWG). Each MWG is assigned specific systems.

#### 4.5 Maintenance Program Proposal (MPP) and MRB Document

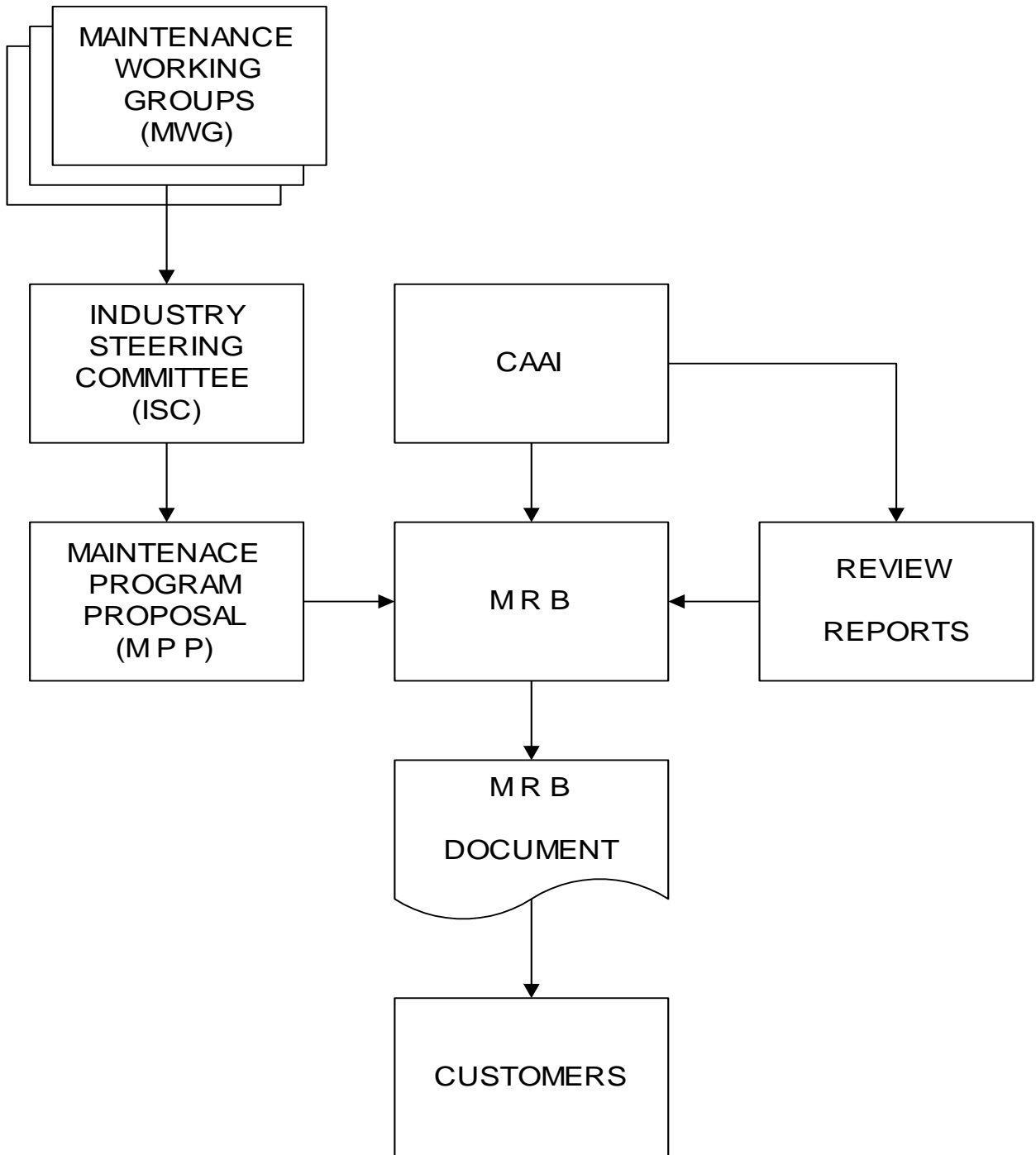
- a) The preventive maintenance task requirements which are prepared by the Maintenance Working Groups are submitted to the Industry Steering Committee (ISC) for evaluation.
  - b) The Industry Steering Committee (ISC) submits the Maintenance Program Proposal as prepared by the WG's (MPP) (10) to the MRB for review and approval (11).
  - c) After incorporation of the necessary modification requirements (12) and approval by the MRB, the MRB Document (13) is ready for release. The content and format of the MRBR is detailed in MAINTENANCE REVIEW BOARD REPORT (MRBR) REVISIONS, FORMAT, AND CONTENT in this procedure. The approval of the MRBR is detailed in MAINTENANCE REVIEW BOARD REPORT (MRBR) APPROVAL.
  - d) The approved MRB Document is the basis for Chapter 5 "Time Limits and Maintenance Checks" of the Aircraft Maintenance Manual (AMM) (14).
  - e) Upon request from a customer, a Continuous (Phased) Maintenance Program (CMP) (16) is developed from the "Standard Maintenance Program", which is tailored to his specific operation scenario and to his operation schedule.
- Note: The SMP/CMP is submitted to the relevant CAAI PMI (Supervision Branch).

#### 4.6 Organization

The organization (see Figure 2-1) that will develop the Aircraft initial preventive maintenance program consists of the following:

- a. Maintenance Review Board (MRB) established by the CAAI to approve the work.
- b. Industry Steering Committee (ISC) to direct the work.
- c. Maintenance Working Groups (MWG) to develop the requirements.

The general organization of the MRB process is shown on the following chart. The responsibilities of the groups are explained in following paragraphs.



Working Groups and Documents

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## 5. CAAI PARTICIPATION

### 5.1 ISRAELI ORIGINAL EQUIPMENT MANUFACTURER (OEM)/TYPE-CERTIFICATE HOLDER (TCH).

The OEM/TCH formally notifies the CAAI Engineering Department manager of its intention to develop a Maintenance Review Board Report (MRBR) proposal.

- a) Assigning a Maintenance Review Board (MRB) Chairperson. The CAAI Airworthiness Department manager will assign a qualified individual as MRB chairperson to manage the specific MRB process for the CAAI. The MRB chairperson selects and manages additional MRB members. Through the appropriate CAAI Department manager, the MRB chairperson will formally invite experienced and qualified CAAI working group (WG) advisors to participate in each WG. Acceptance to participate is considered a commitment for the duration of the project.
- b) Notification of MRB Composition. The MRB chairperson will provide formal written notification to the Aircraft Airworthiness manager of the MRB's composition.  
Note: The CAAI MRB chairperson is also responsible for coordination on all issues of concern with CAAI certification with the appropriate project manager and engineering staff.
- c) Assignment of MRB Members. The MRB chairperson will assign an CAAI MRB member to each WG. The MRB chairperson may assign additional CAAI advisors to each WG if necessary.

### 5.2 FOREIGN OEM/TCH.

- a) MRB Chairperson for Certification of Foreign Aircraft.

During the certification process of a foreign-manufactured aircraft, the applicant will apply to the CAAI Engineering Department manager to request CAAI participation . The CAAI Engineering Department manager will assign a qualified CAAI MRB chairperson who will perform the duties as the CAAI representative on the international MRB/Industry Steering Committee (ISC).

- b) Responsibilities of CAAI MRB Chairperson.
  - (1) The CAAI MRB chairperson is the counterpart to the international MRB chairperson in all matters concerning MRB activities and Maintenance Steering Group (MSG) processes. The MRB chairperson is the sole authority regarding CAAI requirements. The chairperson also provides the collective input from all CAAI WG advisors regarding WG

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activities. The primary duty is to ensure compliance with the applicable Israeli ANR. Also, to the extent possible, the chairperson should ensure standardization and harmonization of the domestic and foreign MRB activities within the international MRB process.

- (2) Regarding all issues of concern, the CAAI MRB chairperson is also responsible for coordination with the CAAI certification project manager and engineering staff.
- (3) The CAAI WG advisors provide assistance and guidance to WG members regarding the Policy and Procedures Handbook (PPH), the latest version of the MSG process, CAAI policy, and regulatory requirements. The CAAI advisors report directly to the CAAI MRB chairperson on all matters regarding assigned WG activities, actions, results, and controversial issues.

### 5.3 MRB.

#### a) MRB Personnel.

The MRB supports the development of an industry MRBR proposal containing the minimum scheduled tasking/interval requirements for a newly CAAI type-certificated (TC) or derivative aircraft and its engines. The membership of the MRB should include engineering representatives and qualified airworthiness inspectors, as deemed appropriate by the MRB chairperson.

#### b) MRB Chairperson Functions.

The MRB chairperson will initiate the development of an MRB, obtaining a complete schedule of all MSG process activities from the OEM/TCH. The MRB chairperson assigns MRB members or other qualified CAAI personnel to work as advisors to each applicable industry WG. It is also the responsibility of the MRB chairperson to perform the functions identified in the PPH, including the following:

- (1) Determine the number and type of qualified CAAI personnel that are necessary, and assign them to their respective WG by specialty (e.g., systems, engines, avionics, structures, zonal, Lighting/High Intensity Radiated Field (L/HIRF)).
- (2) Provide the ISC chairperson with a list of CAAI personnel names, affiliations, and assignments, and changes in personnel as they occur.
- (3) At the discretion of the MRB chairperson, invite the ISC chairperson or other persons to the MRB meetings, as needed to discuss specific issues.
- (4) Invite other regulatory authorities, in coordination with the Engineering Department manager and the OEM/TCH, to participate in the MRB; coordinate the activities with regulatory authorities through their representatives.

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- (5) Obtain letters of confirmation between the CAAI and each participating regulatory authority.
- (6) Inform the ISC chairperson of all participating regulatory authorities.
- (7) Establish and maintain a file of all MRB proceedings in the MRB historical file.
- (8) Establish the extent of other regulatory authority participation and assignment as WG advisors.
- (9) Keep other regulatory authorities informed regarding any changes to MRB policy and procedures before and during the MRB process.
- (10) Accept the ISC approved PPH, following review by all participating regulatory authorities, within 30 calendar-days of receipt.
- (11) Coordinate all MRB activities and associated matters with the ISC chairperson.
- (12) Ensure that the OEM/TCH provides the necessary aircraft familiarization/technical training, including MSG training, to all MRB members and WG advisors. Ensure that the training requirements are stated in the PPH for both CAAI and non-CAAI personnel. Validate that the training provided is adequate, and, if not, advise the OEM/TCH as to required revisions.
- (13) Schedule the MRB meeting before attendance of ISC meetings, as required.
- (14) Attend all ISC meetings, and be prepared to address any previous open issues that develop during WG or ISC meetings.
- (15) Ensure that the appropriate CAAI and other regulatory authorities attend WG meetings.
- (16) Ensure the participation of CAAI personnel assigned to the MRB.
- (17) Offer information, guidance, and assistance to the ISC and each WG regarding regulatory requirements, PPH, compliance and process management, MSG noncompliance, and other related issues.
- (18) Review reports from previous ISC meetings (if applicable) and from the WG members with regard to open issues or concerns.
- (19) Provide oversight of the OEM/TCH validation of maintenance tasks.
- (20) Discuss potential problem areas of controversy with other regulatory authority participants and decide if CAAI Maintenance Review Board Policy Board (MRBPB) guidance is needed. If required, draft an appropriate issue paper for submittal to the MRBPB for resolution.
- (21) Discuss items of new technological development and issues not previously addressed in the MSG-3 document with the CAAI MRBPB and International Maintenance Review Board Policy Board (IMRBPB).
- (22) Remain aware of the current status of IMRBPB and CAAI MRBPB issues and communicate these changes to the MRB and ISC for consideration for implementation into the OEM/TCH program.
- (23) Approve the MRBR, and revisions, in accordance with established MRBR revision procedures.

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c) MRB Members.

MRB members perform the following functions:

- (1) Provide guidance and feedback to the CAAI WG advisors and WG members.
- (2) Direct CAAI WG advisors in assigned WGs regarding compliance with the PPH and current regulatory and policy requirements.
- (3) Attend MRB meetings to review and discuss all significant quality problems and open issues, as required.
- (4) Attend ISC meetings, as invited by the ISC chairperson to support regulatory and policy requirements.
- (5) Attend WG meetings to review and discuss all significant quality problems and open issues, as required. Ensure that the WG follows the MSG process and PPH guidelines. Report any deviations from the MSG process or from approved PPH procedures to the MRB chairperson.
- (6) Review technical data, MSG analysis, and PPH revisions provided by the OEM/TCH before each WG meeting, as required. The OEM/TCH must provide and deliver the data 30 calendar-days before each meeting.
- (7) Provide oversight of the OEM/TCH validation of the associated maintenance procedures.
- (8) Review WG meeting minutes and provide progress reports to the MRB chairperson within 2 weeks after each WG meeting, but no later than the next scheduled ISC meeting. This review will contain an assessment of WG activities, including a notification of any controversy, potential problem areas, or issues affecting the MSG process.
- (9) Provide the MRB chairperson with highlights, including minimum scheduled tasking/interval requirements and any unresolved WG concerns or issues.

d) CAAI Maintenance WG Advisors.

A CAAI WG advisor is any person assigned to the WG by the MRB chairperson to provide assistance or technical guidance to that WG, and may or may not be a member of the MRB. This person may be in addition to the MRB member assigned to that WG. CAAI WG advisors perform the following functions:

- (1) Attend WG meetings and provide technical information, assistance, and guidance to the WG members.
- (2) Attend MRB meetings if required by the MRB chairperson.
- (3) Act as an MRB member for the WG when required by the MRB chairperson. Perform all the functions of an MRB member while acting as an MRB member.

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#### 5.4 REPRESENTATIVES OF FOREIGN NATIONAL AVIATION AUTHORITIES (NAA).

Foreign NAA representatives should perform the following functions:

- (1) Participate in the MRB, ISC, and/or WG activities, as provided by the letter of confirmation between the relevant foreign regulatory authority and the CAAI.
- (2) Attend ISC meetings by invitation from the ISC chairperson and with the concurrence of the MRB chairperson.
- (3) Notify the ISC chairperson, via the MRB chairperson, of any relevant national regulatory differences before compiling the MRBR proposal.
- (4) Acknowledge approval of the MRBR in the manner outlined in the letter of confirmation and in the PPH.
- (5) Review WG meeting minutes and provide to the MRB chairperson an assessment or notification of controversial or potential problem areas before the next scheduled ISC meeting.

NOTE: If the participation of multiple regulatory authorities is necessary, do so with common standards and joint authority representation.

NOTE: When the lack of personnel or other factors limit the role of the host authority, the MRB chairperson may seek more involvement of other regulatory authorities as MRB members/WG advisors.

NOTE: Use generic terminology when dealing with various regulatory operating rule requirements (e.g., “regulations or other national regulatory requirements”).



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## 6. INDUSTRY PARTICIPATION

### 6.1 INDUSTRY STEERING COMMITTEE (ISC).

The Original Equipment Manufacturer (OEM)/type-certificate holder (TCH) will work with the expected participating operators of the aircraft, the engine OEM/TCH, and other product vendors to form an ISC to address the minimum scheduled tasking/interval requirements for the aircraft and engines. Representatives from aircraft, engine, propeller, and appliance manufacturers and intended operators normally comprise the ISC. Representatives of maintenance organizations may also be part of the ISC, subject to coordination with the Maintenance Review Board (MRB) chairperson. The ISC is chaired by the OEM/TCH. The ISC chairperson will work with the CAAI MRB chairperson. The MRB chairperson is responsible for coordinating with other participating regulatory authorities. The ISC chairperson is responsible for:

- (1) Developing and establishing a Policy and Procedures Handbook (PPH) for the development of the Maintenance Review Board Report (MRBR) proposal.
- (2) Directing the activities of the working groups (WG) and preparing the MRBR.

Under the direction of the selected ISC chairperson, the ISC will perform the functions in the PPH, as listed in subparagraph 6.2 of this procedure. The information that should be included in the PPH should be agreed between the ISC and MRB Chairpersons. (Refer to Appendix "C" for a typical PPH Format)

### 6.2. ISC FUNCTIONS.

The ISC will perform the following functions:

- (1) Approve the PPH and forward it to the MRB chairperson for review and acceptance. During the MRB PPH review process, the CAAI MRB chairperson will direct comments to the OEM/TCH. The ISC must approve the initial PPH and all subsequent revisions; the CAAI must accept the initial PPH before any WG meetings can begin.
- (2) Determine the number and type of each WG that will be necessary and then organize and manage those groups. The ISC should ensure that a representative number of operators attend each WG meeting. The ISC goal should be a minimum of three operators.
- (3) Provide the MRB chairperson with a list of the number and types of each WG, the name and affiliation of each member, and any subsequent personnel changes.



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- (4) Arrange for required technical/MSG training for all ISC and WG members.
- (5) Invite the MRB chairperson and selected MRB members to ISC meetings.
- (6) Invite other regulatory authorities to ISC and WG meetings, with concurrence and coordination of the MRB chairperson.
- (7) Attend ISC meetings. ISC chairpersons/co-chairpersons may attend internal MRB meetings when invited by the MRB chairperson.
- (8) Review and accept all final WG analyses and presentations, returning those that are unacceptable to the WG.
- (9) Establish a tracking system for issues that are identified from WG analyses and resolve all open actions.
- (10) Provide complete and accurate meeting minutes for all ISC and WG meetings. Establish a method of distributing and tracking all meeting minutes.
- (11) Establish a tracking system to ensure resolution of all maintenance issues and open action items or concerns. Document and resolve all maintenance issues and open action items or provide a plan for closure before presenting an MRBR proposal to the MRB chairperson.
- (12) Provide to the appropriate MRB members all supporting technical data/analysis for the proposed MRBR.
- (13) Review and provide comments on proposed MRBR.

### 6.3. MSG WG's.

Appropriate representatives of the OEM/TCH (aircraft/engine), vendors, operators, maintenance organizations and regulatory authorities must comprise WG's. An industry representative will chair the WG; he or she is selected by the WG and accepted by the ISC. WG responsibilities include the following functions:

- (1) Develop minimum scheduled tasking/interval requirements for new or derivative aircraft/engines using the latest revision of the MSG process and the latest approved PPH.
- (2) Establish sampling requirements when an analysis determines that such sampling is applicable and effective in the identification of failure causes.

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These failures could have an adverse effect on the continued airworthiness or safety of the aircraft.

- (3) Produce meeting minutes for each WG activity.

#### 6.4. OEM/TCH FUNCTIONS.

The OEM/TCH will perform the following functions:

- (a) Develop and prepare a draft PPH for ISC approval.
- (b) Provide required technical/MSG training for all ISC and WG members and regulatory authorities before holding the first WG meeting.
- (c) Provide the ISC with a comprehensive candidate Maintenance Significant Items (MSI) and Structural Significant Items (SSI) list and a list of the items precluded from the candidate MSI/SSI list before beginning any ISC/WG meeting.
- (d). Arrange for the required attendance of the appropriate OEM/TCH design personnel at each ISC/WG meeting.
- (e) Provide WG members with current technical data to support the analysis of each MSI, SSI, and zones of the aircraft for analysis by each WG. The data are required 30 days before the ISC/WG meeting.
- (f) Arrange for technical support and access to the aircraft, appropriate OEM/TCH, and/or vendor facility, as required for the development of analysis and tasks.
- (g) During each ISC/MRB meeting, provide the ISC/MRB and appropriate WG members, with an updated report of all airworthiness limitation items (ALI), Certification Maintenance Requirements (CMR), and design changes that impact the MSG-3 analysis.
- (h) Ensure that the OEM/TCH manuals contain information and procedures for accomplishing all on-aircraft systems/structures/zonal tasks covered in the MRBR.
- (i) Participate in all ISC and WG activities in support of the development of the MRBR.
- (j) Record all ISC and WG activity and discussion in meeting minutes, and record unresolved open actions/open issues in a formal ongoing action list or report.
- (k) Provide the MRB chairperson a copy of all supporting technical data/analysis for the proposed MRBR at the conclusion of the project.
- (l) Submit the MRBR proposal to the MRB chairperson at least 90 calendar-days before scheduled approval.

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- (m) When the OEM/TCH conducts sampling and analytical inspections of the aircraft, powerplant, or systems/components on an opportunity basis, the OEM/TCH will provide timely notification to the MRB chairperson (or representative) regarding the time and location of the inspection to permit MRB chairperson (or representative) participation. When the attendance of the MRB Chairperson (or representative) is not possible, the OEM/TCH must provide a copy of the complete inspection report to the MRB chairperson.

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## 7. MAINTENANCE REVIEW BOARD REPORT (MRBR) APPROVAL

### 7.1 General

The MRBR is generated as an expeditious means of complying in part with the maintenance instruction requirements of Appendix H to 14CFR part 25. It is a means, in part, of developing Instructions for Continued Airworthiness, as required by 14CFR section 25.1529 (Refer to CAAI Procedure ENG 1.4.012)

An MRBR contains the initial minimum scheduled maintenance/inspection requirements for a particular transport category aircraft and on-wing engine program, but does not establish off-wing engine maintenance programs required by the regulations. It should be developed in accordance with these guidelines and is not to be confused with, or thought of, as a maintenance program. After approval by the CAAI, the requirements become a base or framework around which each air carrier develops its own individual maintenance program.

Although maintenance programs vary widely from one air carrier to another, the initial requirements for a particular type of aircraft will be the same for all. An air carrier's total maintenance program (methods used to implement these requirements) must be approved by the local supervising authority through operations specifications.

The aircraft manufacturer has the responsibility for printing and distribution of the MRB Report. As a general recommendation to meet CAAI requirements (and for operator convenience) the entire MRB Report might be included in Chapter 5 of the AMM or referred to an appropriate Document.

### 7.2 INITIAL MRBR APPROVAL PROCESS.

#### A. MRBR Proposal.

The Industry Steering Committee (ISC) chairperson forwards the MRBR proposal to the Original Equipment Manufacturer (OEM)/type-certificate holder (TCH)'s representative(s) and may invite the OEM/TCH to discuss the comments or findings. The OEM/TCH must present the ISC-proposed MRBR, as recommended, to CAAI for review as part of the instructions for continued airworthiness (ICA). Following ISC final review, the OEM/TCH submits a formal letter and the MRBR proposal to the Maintenance Review Board (MRB) chairperson for review and approval.

Normally, the entire CAAI approval process occurs within 90 calendar-days, unless corrections are required. Approval by foreign regulatory authorities will normally occur concurrently with CAAI approval. The OEM/TCH is responsible for publishing and distributing the initial and revised MRBR and any supporting documents in a format acceptable to CAAI.

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**B. Non-Approval Process of the proposed MRBR or Revision.**

The manufacturer shall coordinate non-approval of either the MRBR or revision with the MRB Chairperson, so that the ISC Chairperson may be notified in writing of such action. The non-approval letter shall include the specific reason(s) for the non-approval, and suggested guidance to make the MRBR proposal or revision approval.

**7.3 FOREIGN NATIONAL AVIATION AUTHORITY (NAA) APPROVAL OF THE MRBR.** There may be a need to identify national regulatory differences that are not compatible with, acceptable to, or applicable to all regulatory authorities. In this case, use an appendix to or specified section of the MRBR to list these differences, with the respective regulatory authority approving each difference .If CAAI is the validating authority for a foreign MRB, then a separate appendix to or specified section of the MRBR will identify regulatory differences.

**7.4 MRBR IMPLEMENTATION.**

Operators of the aircraft type should implement the initial MRBR in accordance with established procedures. The MRBR requirements are not an operator maintenance program. After CAAI approval, the requirements become a baseline or framework around which each operator can develop its own individual aircraft maintenance program. Aircraft/engine design and performance help form the MRBR requirements. The oversight of an operator’s program is the responsibility of the local regulatory authority. MRBR revisions are encouraged but are not mandatory inclusions in an operator’s approved maintenance program.

CAAI recommends that the operator’s program incorporate MRBR revisions associated with type design changes. The local regulatory authority must approve and/or accept all maintenance program revisions.

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## 8. MAINTENANCE REVIEW BOARD REPORT (MRBR) REVISIONS, FORMAT, AND CONTENT

### 8.1 MRBR ANNUAL REVIEW.

To ensure the MRBR is an up-to-date, dynamic document, the Original Equipment Manufacturer (OEM)/type-certificate holder (TCH), Industry Steering Committee (ISC), and the Maintenance Review Board (MRB) chairperson should annually conduct a joint MRBR review to determine any need for revision. The MRB chairperson should document results of these reviews for inclusion in the MRB historical file.

A. Proposed Changes. If needed, the OEM/TCH, ISC and MRB will convene to evaluate any proposed changes. Submit all proposed changes with supporting data to the MRB chairperson. Approval or disapproval of the proposed changes will be processed in the same manner as outlined for the MRBR approval/disapproval process.

B. Multiple Approvals. If more than one regulatory authority approves an MRBR, each approving authority will evaluate proposed changes before approval by the CAAI. If CAAI is the validating authority, the MRB chairperson will provide a letter of confirmation to the host National Aviation Authority (NAA).

### 8.2 TEMPORARY REVISIONS.

If temporary revisions are needed, the OEM/TCH, ISC and MRB will convene in a timely manner to evaluate proposed changes. Submit all proposed changes with supporting data to the MRB chairperson. Temporary revisions should be processed expeditiously, but in the same manner as outlined for the MRBR approval/non-approval process. Specifically identify and incorporate all temporary revisions during the next MRBR review process. If the need for a temporary revision arises while CAAI is reviewing an MRBR revision proposal, the MRB chairperson should review the temporary revision and decide if it should be incorporated in the major revision (which would require that the major revision be returned to the OEM/TCH for incorporation) or may be incorporated during the next major revision cycle.

### 8.3 RECOMMENDATIONS FOR COMPLETING THE REPORT.

Each MRBR should be entitled, "Maintenance Review Board Report (MRBR) OEM name, aircraft model #," and, at minimum, should contain the following, as appropriate:

- a. Title Page.(Containing the title of the MRBR and the report number, if any).
- b. Table of Contents.

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c. Approval Page. Containing the following statements:

- (1) “This report outlines the minimum scheduled tasking/interval requirements to be used in the development of an airworthiness maintenance/inspection program for the airframe, engines, systems and components of the (aircraft make, model, and series (M/M/S)).”
- (2) “The requirements in this report have been developed using (the current MSG revision or an alternative procedure, as agreed upon by the Certifying Authority, ISC, or WG).”
- (3) “The Regulatory Authority hereby approves that this report be used on the applicable -certificated air carriers (and/or certificated operators) of the (aircraft M/M/S) aircraft.” (Insert page for each foreign regulatory authority approval, as applicable.)

d. Record of Revisions.

e. Summary of Changes.

f. List of Effective Pages (LEP). Including the revision status and corresponding dates.

g. ISC/MRB Personnel Listing. Both a list of those persons who initially developed the MRBR and a current listing of personnel serving on the ISC/MRB should be provided (including their organizational affiliations and the capacity in which they serve).

h. The MRBR Preamble. The following information should be included in the preamble of each MRB report: “This report outlines the minimum scheduled tasking/interval requirements to be used in the development of a maintenance/inspection program for the airframe, engines (on-aircraft), systems, components, and appliances. These MRBR requirements are a basis from which each operator develops its own maintenance/inspection program.”

i. Acronyms. Define all acronyms in the MRBR. Appendix 1, Acronym/Abbreviation Listing for the Maintenance Review Board Report (MRBR), contains a reference list of acronyms that may appear in the MRBR, but this list is not comprehensive or complete.

j. Definitions. Include definitions of technical terms in the MRBR. Whenever possible, use industry-accepted definitions, such as those found in the Air Transport Association of America’s (ATA) latest version of the MSG document and the Common Support Data Dictionary (CSDD).

k. Applicability. The MRBR must identify the specific aircraft M/M/S. New options/modifications that cause changes to the MSG analysis will be added to the MRBR.

l. Analysis of Maintenance Significant Items (MSI) and Structural Significant Items (SSI). Analyze all MSIs and SSIs and select intervals without regard for established inspections. If a task is determined to be a safety task or applicable cost-effective task, select the appropriate tasking interval.



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m. Checks and Intervals. Once the analysis of the tasks is complete, the OEM/TCH may choose to group tasks into checks performed at various intervals.

- (1) The MRBR will provide guidance regarding the means to optimize the minimum scheduled tasking/interval requirements to a level higher than that provided by initial requirements in the MRBR. This guidance will be unique to the aircraft model.
  - (2) Optimization guidance should consider the content of similar checks or other related inspections and their repetitive intervals. A determined series or sequence of specified checks or other related inspections must be completed and the resultant data found satisfactory before optimization of that type of check/inspection. Include in this section of the MRBR the description, type of checks/inspections, and their intervals.
- n. Maintenance Requirement Rules. Include the following general requirements in the MRBR:
- (1) The OEM/TCH optimization procedures of the MRBR, as described in the OEM/TCH Policy and Procedures Handbook (PPH).
  - (2) That an operator's maintenance/inspection program, based on the MRBR, can then be escalated, based on satisfactory substantiation by the operator and review and approval by its appropriate regulatory authority, or in accordance with the operator's approved reliability program by its corresponding Authority.
  - (3) That task interval parameters expressed in the MRBR may be converted to an individual operator's desired units, provided that this conversion does not result in the operator exceeding the initial requirements of the MRBR.
  - (4) That the use of nondestructive inspection (NDI) methods, such as X-ray, ultrasonic, eddy current, and radioisotope, or alternative processes that the manufacturer approves, can provide an alternative to the methods this report prescribes. Each operator should notify its regulatory authority of the use of an acceptable alternative method.

NOTE: Within this report, the terms "check" and "inspection" are not intended to imply a level of skill required to accomplish a task.

- (5) That life-limited items must be retired in accordance with the limits established in the engine or aircraft Type Certificate Data Sheets (TCDS) or the airworthiness limitations section (ALS) of the engine or aircraft OEM/TCH instructions for continued airworthiness (ICA).
- (6) A provision that, after the accumulation of industry service experience, either the ISC or MRB chairperson may request changes to the requirements of this MRBR.



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- (7) A restriction that Failure Effect Category (FEC) 5 or 8 safety tasks cannot be deleted or escalated without the approval of the MRB chairperson. Additionally, those Category 5 and 8 tasks involving either fuel tank safety (FTS) or the electrical wiring interconnection system (EWIS)/enhanced zonal analysis procedure (EZAP) programs may not be deleted or escalated without approval from the regulatory authority.
- o. System/Powerplant Requirement Rules. CAAI recommends that the following requirements be addressed in the system/powerplant requirement rules section of the MRBR.
- (1) A statement that MSG-3 logic (specifying the revision) was used to develop an on-aircraft minimum scheduled tasking/interval requirement. With the exception of life-limited items, this process does not normally include detailed shop maintenance procedures.
  - (2) That the OEM/TCH provides a listing of identified candidate MSIs as the start of the analysis process. Those identified MSIs for which no task was selected must be included as part of the MRBR.
  - (3) A requirement that each candidate MSI that the OEM/TCH identifies is subjected to MSG analysis. This process results in the identification of maintenance tasks that are contained in this report. Provide a listing, or other record, as specified in the PPH, for MSIs with no tasks identified.
- p. Structural Program Rules. The OEM/TCH develops structural inspection requirement rules to meet the inspection requirements for damage-tolerance (DT). The types of damage considered during structural requirement development are Environmental Deterioration (ED) (corrosion, stress corrosion), Accidental Damage (AD), and fatigue damage (FD). Some forms of ED are age-related; therefore, calendar intervals control inspections for this type of deterioration. The required structural requirements section incorporates these calendar inspections, plus the requirements for detecting other types of ED, AD, and FD. The structural requirement rules section of the MRBR recommends the following contents:
- (1) All aircraft in an operator's fleet, or group of operators' fleets, are subject to the provisions of this report. These requirements include external and internal inspections; structural sampling and age-exploration programs; corrosion prevention and control programs; and additional supplemental structural inspections that may be required for fatigue-related items. The initial check intervals for the Structural Inspection Program (SIP) may be expressed in terms of calendar time, flight cycles, or flight-hours. Do not optimize a repeat inspection interval until at least one aircraft in an operator's fleet or group of

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operators' fleets has been inspected within the initially defined interval listed in the MRBR.

- (2) All changes to structural inspection items listed in the ALS require local regulatory authority engineering approval. Structural inspection limitations listed in the OEM/TCH's ALS will be referenced in an MRBR appendix by document number.
  - (3) The Structural Program should include requirements to maintain composite structural details, elements, or assemblies whose failure could affect the structural integrity necessary for the safety of the aircraft. These requirements should take into account that composite structures may be damaged by accidental impact or aging deterioration, and that those composite structures degrade in a different way than metallic structures. Composite structure will be analyzed to create minimum initial scheduled maintenance/inspection requirements. All structural items will be categorized as either an SSI or an "Other Structure." (The SSI/Principal Structural Elements (PSE) list is provided by the OEM/TCH in a separate specified document.)
  - (4) SSIs must not be confused with PSEs (as defined in 14CFR section 25.571); however, the SSIs must address all PSEs.
- q. Zonal Program Rules. The Zonal Inspection Program (ZIP) provides for the consolidation of a number of General Visual Inspection (GVI) tasks for each zone. A zonal inspection may include GVI tasks derived from MSI and SSI lists. An MSI/SSI task that is in the ZIP must be cross-referenced with supporting documentation and located in the appendix of the MRBR, indicating that an MSI/SSI is being accomplished by one or more zonal tasks. Likewise, the zonal item must be cross-referenced as an MSI/SSI task to ensure content and accountability. Include the following contents of the Zonal Procedure Rules section of the MRBR:

NOTE: FEC 5 or 8 safety tasks are not candidates for zonal requirements.

- (1) The ZIP contains a series of GVI tasks generated from standard zonal analysis procedures. Detailed inspection (DET) and Special Detailed Inspection (SDI) are not to be contained in the ZIP. Zonal inspection requirements apply only to zones.
- (2) The ZIP contains GVI tasks derived from EZAPs as well as standard zonal analysis procedures.
  - (a) Identify zones that both contain electrical wiring and may contain combustible material. For those zones, perform an enhanced zonal analysis that permits the identification of stand-alone inspection tasks that allow appropriate attention to be given to deterioration of installed wiring and EWISs.
  - (b) EWIS tasks derived during the EZAP process will be identified as GVI, DET, or restoration (RS) tasks. The ZIP will not contain

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stand-alone EWIS tasks. These special, dedicated tasks reside in ATA 20 of the Systems/Powerplant section of the MRBR, and do not have an FEC.

- (c) Uniquely identify all EZAP-derived stand-alone tasks as GVI, DET, or RST in the EZAP analysis for traceability during future changes. This prevents inadvertent deletion or escalation of an EZAP-derived stand-alone task without proper consideration of the risk basis for the task and its interval. All escalations must go through the appropriate Regulatory Authority office.
- (d) The latest version of the MSG analysis develops Lightning/High Intensity Radiated Field (L/HIRF) tasks. The ZIP will not contain stand-alone L/HIRF tasks. These special, dedicated tasks should reside in a separate section of the MRBR. Uniquely identify all L/HIRF tasks.

- (3) Access to zones should be easy to accomplish and should not require the use of special tools. Normally, the inspection aids include a flashlight and/or inspection mirror. Inspect the entire visible contents of the zone for obvious damage, security of installation, and general condition, including corrosion and leaks. Refer to the latest version of the MSG document for a definition of GVI.
- (4) The following zones do not contain system installations but receive adequate surveillance from other maintenance or structural inspections tasks. Accordingly, the inspection requirements in the ZIP do not specify these zones. (Insert listing of the zones not specified in the ZIP or in other document as specified.) (Insert aircraft zone diagram sheets or in other document as specified.)

r. Appendices. The following is a list of possible appendices that may apply to MRBRs.

- Identification of aircraft zones.
- Extended Operations (ETOPS) requirements.
- All acronyms/abbreviations used in the MRBR.
- Definitions of specific terms, processes, and inspections identified in the MRBR.
- NAA Requirements. An appendix (or appendices), as needed, for each regulatory authority will identify national differences, as mandated by the respective authorities (and approved or accepted by them).
- Other items, as applicable.

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## 9. MAINTENANCE TYPE BOARDS (MTB) PROCESS

### 9.1 GENERAL.

The MTB process permits type certificate (TC) applicants to develop minimum scheduled tasking/interval requirements when air operators are not available to participate in the process. The MTB and Maintenance Review Board (MRB) processes are similar, except that with the MTB process, there is limited or no operator participation. MTB maintenance instructions are developed using current Air Transport Association of America (ATA) Maintenance Steering Group (MSG) analytic logic. The minimum scheduled tasking/interval requirements are published as manufacturer recommendations.

### 9.2 MTB PROCESS APPLICABILITY.

The MTB process applies to airplanes originally TC'd for nine or fewer passengers and less than 33,000 lb maximum weight, or helicopters originally TC'd for nine or fewer passengers or less than 20,000 lb maximum weight. Original Equipment Manufacturers (OEM)/type-certificate holders (TCH) for these aircraft also have the option of using the MRB process.

- a. Where Israel Is the State of Design (CAAI is the primary type certification authority): the applicant who is seeking a TC for a new or a derivative aircraft for which this chapter is applicable may develop their scheduled maintenance instructions in accordance with an MTB or request that CAAI convene an MRB.
- b. Where Israel Is Not the State of Design. For A foreign applicant who is applying for an CAAI TC for a new or a derivative aircraft for which this chapter is applicable, CAAI will discuss the process by which the scheduled maintenance instructions will be developed and how CAAI may accept that process.
- c. Analytic Logic Used for Scheduled Maintenance Task Development. Use the most current version of the MSG logic when initiating a new MTB. Electrical wiring interconnection system (EWIS)/enhanced zonal analysis procedure (EZAP) analysis may be necessary if applicable by certification rule.

### 9.3 MTB AUDIT PROCESS.

- a. Audit of the Completed Analytical Process.  
OEM/TCHs of TC'd aircraft for which a Maintenance Type Board Report (MTBR) has been developed must maintain records of the analysis performed in a manner such that CAAI may conduct an audit of the complete initial analytic process, and any subsequent analytic process that has led to an amendment of the MTBR.

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b. Validation of associated maintenance procedures.

The OEM/TCH must develop internal instructions and guidelines to enable the validation of all maintenance procedures written to support MTBR tasks, and subsequently validate these procedures. The objective of the validation is to ensure that the procedure can be performed and that the procedure meets the intent of the MTBR task. Where and when requested by CAAI, the OEM/TCH must make available a complete aircraft and the necessary qualified maintenance personnel to demonstrate to CAAI that Failure Effect Category (FEC) 5 and 8 safety tasks, at minimum, can be adequately performed and that the procedure meets the intent of the MTBR task. Additional tasks may be validated at CAAI's discretion.

9.4 MTBR.

a. General.

The MTBR contains the minimum scheduled tasking/interval requirements necessary for a transport category aircraft. MTBRs are dynamic documents that must be reviewed annually to ensure that they reflect the current lessons learned from aircraft operational experience. In this manner, the continuing airworthiness of an aircraft fleet is ensured, and only those tasks that are applicable and effective are performed.

b. MTBR Review and Approval.

The OEM/TCH applicant is responsible for developing a proposed MTBR and presenting it to CAAI for approval. The MTBR format and content criteria should be aligned with the criteria used for the Maintenance Review Board Report (MRBR) (as found in previous MAINTENANCE REVIEW BOARD REPORT (MRBR) REVISIONS, FORMAT, AND CONTENT in this procedure), Maintenance Review Board Report (MRBR) Revisions, Format, and Content. Once approved, the OEM/TCH holder publishes the MTBR as part of the aircraft's instructions for continued airworthiness (ICA). It is a means of complying, in part, with the maintenance instruction requirements of 14CFR part 25, appendix H, and part 29, appendix A, as required by sections 25.1529 and 29.1529 respectively. CAAI must approve the MTBR, as well as subsequent changes, before it is made available for use by operators.

NOTE: MTBR tasks will be identified as such in the ICA and can only be changed through the MTB process.

c. Disapproval of Proposed MTBRs or MTBR Revisions.

The MTB chairperson will notify the OEM/TCH in writing regarding the disapproval of initial or revised MTBR. The disapproval letter will include the specific reason(s) for the disapproval.

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d. Publication of the MTBR.

When an MTBR has been CAAI approved, the OEM/TCH will publish it as part of the ICA for the aircraft.

d. MTBR Annual Review.

- (1) The MTBR is intended to be an up-to-date document, therefore, the OEM/TCH and the MTB chairperson should conduct a joint review, at least annually, to determine the need for revisions. Results of these reviews are to be documented by the MTB chairperson for inclusion in the MTB historical file.
- (2) The OEM/TCH and the MTB will convene and evaluate proposed changes to the MTBR. Proposed changes and their supporting data are submitted to the MTB chairperson. Approval or disapproval of the proposed changes must be processed in the same manner as outlined for the initial MTBR approval/disapproval. Any changes to the MTBR must follow the optimization process in IMPLEMENTATION AND OPTIMIZATION OF TASKING INTERVALS in this procedure

9.5.POLICY AND PROCEDURES HANDBOOK (PPH).

The OEM/TCH must develop an internal Policy and Procedures Document or Handbook for the purpose of managing the MTB process. CAAI recommends that the format and content of the PPH outline be adopted for the MTB process is as in Appendix C to this procedure. The OEM/TCH should present a copy of the PPH to the MTB chairperson for CAAI review and acceptance before beginning task development. All participants in the MTB process are to use the PPH as the standard to conduct the MTB process. The information lists in Appendix C is expected in each PPH for the successful latest version of MSG process and development of an MRBR.

9.6 OEM/TCH REPRESENTATIVES.

Representatives of the OEM/TCH who are engaged in performing the analysis for an MTB process must meet the following criteria:

- a. Experience. Representatives must have relevant maintenance engineering experience on an equivalent aircraft type, system, or component.
- b. Training. Representatives must have undergone training in the analytic logic process to be used.

9.7 CAAI RESPONSIBILITIES.

When the OEM/TCH formally notifies CAAI of the intention to develop an MTB proposal, CAAI engineering department manager will assign an MTB



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chairperson. The MTB chairperson selects MTB members/working group (WG) advisors.

a. MTB Chairperson. The MTB chairperson is responsible for performing the following functions:

- (1) Determine the number and type of CAAI personnel that are necessary, and create the MTB.
- (2) Provide the OEM/TCH with the names of CAAI MTB personnel, their affiliations and assignments, and changes, if they occur.
- (3) Establish and maintain a file of all MTB proceedings for the MTB historical file.
- (4) Establish the extent of regulatory authority participation, and assignment of WG advisors.
- (5) Ensure that the OEM/TCH provides the necessary aircraft familiarization/technical training, including MSG training, to all MTB members and WG advisors. Ensure that the training requirements are stated in the PPH for both CAAI and non-CAAI personnel. Validate that the training provided is adequate and, if not, advise the OEM/TCH as to needed revisions.
- (6) Attend steering committee meetings.
- (7) Offer advice to the steering committee and the WGs.
- (8) Provide oversight of the OEM/TCH validation of the associated maintenance procedures.
- (9) Review reports from previous steering committee meetings (if applicable) and from the WG members.
- (10) Approve the original and revised MTBRs.

b. MTB Members. MTB members are expected to have relevant and sufficient experience and training. In addition, the MTB members are expected to perform the following functions:

- (1) Attend WG meetings and provide guidance to the WG members.
- (2) Review WG meeting minutes and provide progress reports to the MTB chairperson before the next scheduled steering committee meeting. This review will contain an assessment of WG activities, including a notification of any controversy or potential problem areas.
- (3) Attend steering committee meetings, as invited by the MTB chairperson, in coordination with the OEM/TCH.
- (4) Attend MTB meetings.
- (5) Provide oversight of the OEM/TCH validation of associated maintenance procedures.

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## **10. OEM/TCH RECOMMENDED MAINTENANCE PROCESS**

### 10.1 GENERAL.

OEM/TCHs of airplanes that are less than 12,500 lb or helicopters that are to be type-certificated (TC) in the normal category and are less than 7,000 lb may develop their scheduled tasking/interval requirements in accordance with OEM/TCH internal processes. The OEM/TCH must meet the requirements of CAAI procedure ENG 1.4.12 Continued Airworthiness, in addition to the following requirements. OEM/TCHs for these aircraft have the option of using the Maintenance Type Board (MTB) process or Maintenance Review Board (MRB) process.

### 10.2 RECOMMENDED MAINTENANCE PROCESS APPLICABILITY.

#### a. Israel Is the State of Design

CAAI is the primary type certification authority, and the OEM/TCH who is applying for a TC for a new or a derivative aircraft for which this chapter is applicable may develop its scheduled maintenance instructions in accordance with a recommended maintenance process accepted by CAAI.

#### b. Israel Is Not the State of Design.

For a foreign applicant who is applying for an CAAI TC for a new or a derivative aircraft for which this chapter is applicable, CAAI will define the process by which the scheduled maintenance instructions will be developed and how CAAI will accept that process.

### 10.3 RECOMMENDED MAINTENANCE PROCESS AUDITS.

a. Audit of the Completed Analytical Process. All OEM/TCHs must maintain records of the analysis performed to develop their scheduled maintenance instructions. OEM/TCHs must keep the records in such a manner that CAAI may readily audit the analytic process and any subsequent analytic processes that may lead to amendment of the minimum scheduled tasking/interval requirements.

b. Validation of the Associated Maintenance Procedures. The OEM/TCH must develop internal instructions and guidelines to enable the validation of all maintenance procedures written to support scheduled maintenance tasks; the OEM/TCH must then validate those maintenance procedures. The objective of the validation is to ensure that it is possible to perform the procedure and that the procedure meets the intent of the scheduled maintenance instruction. Where and when requested by CAAI, the OEM/TCH must make available a completed aircraft and the necessary qualified maintenance personnel to demonstrate to CAAI that any particular maintenance procedure can be



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adequately performed and that the procedure meets the intent of the scheduled maintenance task.

#### 10.4 SCHEDULED MAINTENANCE INSTRUCTION.

##### a. Scheduled Maintenance Instruction Review and Approval by CAAI.

The instructions for continued airworthiness (ICA), as published by the OEM/TCH, must contain a statement for the scheduled maintenance instruction development that states that the scheduled maintenance instructions and their associated procedures have been reviewed and approved for use to the operators, and must identify any limitations applicable when implementing the instructions.

##### b. Scheduled Maintenance Instruction Publication.

The OEM/TCH must publish the scheduled maintenance instructions as part of the aircraft's ICA. It is the responsibility of the OEM/TCH to issue amendments to the ICA as required.

##### c. Scheduled Maintenance Instruction Development.

As a dynamic document, before CAAI acceptance of the scheduled maintenance instructions as part of the aircraft's OEM/TCH process, the OEM/TCH must develop an auditable system for continued analysis of all tasks included within the maintenance instructions. As part of the continuing analysis system, the OEM/TCH should address the following:

- (1) A system for receiving reports from operators, related to the adequacy of tasks, failures, failure frequencies, and the consequences of each failure.
- (2) An age exploration system for the continuous evaluation of age condition information for the substantiation of current task intervals and for the adjustment of task intervals.
- (3) A system for controlling the addition of new scheduled tasks to ensure that they are applicable and effective.
- (4) A system for the periodic evaluation of all tasks in the program to eliminate those that are no longer applicable and effective.
- (5) A system for evaluating unanticipated problems and determining the appropriate action.

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## **11. MAINTENANCE REVIEW BOARD REPORT (MRBR)/MAINTENANCE TYPE BOARD REPORT (MTBR) LOW-UTILIZATION MAINTENANCE REQUIREMENTS**

### 11.1 GENERAL.

A logic based process is necessary to ensure that minimum scheduled tasking/interval requirements are met for low-utilization aircraft. This will ensure early detection of deterioration in areas that are sensitive to time rather than cycles or flight-hours.

### 11.2 APPLICABILITY.

These requirements apply to aircraft that have an MRBR or an MTBR or have been analyzed under the Maintenance Steering Group (MSG) to define the minimum scheduled tasking/interval requirements.

### 11.3 REQUIREMENTS.

The OEM/TCH should specify utilization parameters in its Policy and Procedures Handbook (PPH)/MRBR/MTBR. The intervals for tasks identified in the MRBR/MTBR are based on normal utilization. Operators operating outside the parameters listed in the PPH/MRBR/MTBR should consider the application and employment of a utilization program based on alternate criteria. Tasking requirements will be addressed on a task-by-task basis to ensure the proper utilization parameters.

#### A. MSG Logic.

When the aircraft has been analyzed using MSG logic, it is not necessary to revisit the analysis before applying the proper low-utilization parameter for a task.

#### B. Operations outside the PPH.

The OEM/TCH is responsible for developing a set of recommendations for operations outside the PPH utilization parameters. This should be a stand-alone program, and not a supplement to the MRBR/MTBR.

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## 12. IMPLEMENTATION AND OPTIMIZATION OF TASKING INTERVALS

### 12.1. INTRODUCTION.

The following is the procedure for developing and assessing proposals for changes to the MRBR that will be submitted to CAAI approval by OEM/TCH or MRB/ISC members who are involved with the evolution/optimization of tasks in an initial/current Maintenance Review Board Report (MRBR) .

- A. The initial MRBR for any new aircraft is developed 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.
- B. 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, they include both threshold and repeat values.

NOTE: If this procedure is not followed, the OEM/TCH will be limited to no more than 10 percent escalation with approved data. Further escalation is not allowed until a task is repeated and sufficient data is available.

### 12.2 TASK INTERVAL EVOLUTION/OPTIMIZATION.

The following guidelines will be followed by CAAI Personnel in reviewing OEM/TCH task interval evolution/optimization.

NOTE: Additional guidance for The OEM/TCH evolution/optimization process may be found in FAA AC 121-22.

NOTE: The guidelines can be defined in an "MRB check intervals escalations" Issue Paper (e.g. EASA IMRBPB Generic Issue Paper IP 044).

#### a) OEM/TCH Data Collection System.

The OEM/TCH should have a system in place that allows for the collection of data generated during an operator's task accomplishment, for delivery to the OEM/TCH and entry in a standardized format into their data collection system. The OEM data collection system should have a data communication process/facility that also includes:

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A data storage infrastructure (electronic, manual, etc.), and

A data management system (revision control, access control, etc.).

b) MRBR/TCH Utilization of a Standardized Format.

MRBR task evolution/optimization must be based on worldwide representative samples that span the operating environment and age groupings of the aircraft. The OEM/TCH must utilize in-service data in a standardized format (Airlines for America (A4A) SPEC 2000 digital format or equivalent), to ensure data quality and integrity.

c) OEM must demonstrate that the collection or conversion of the operator's data occurs in SPEC 2000 format or equivalent. An equivalent format may be acceptable if the following requirements are met:

- All operators use a standard format when submitting data to ensure data integrity.
- The data should be in electronic format.
- The data elements have clear definitions to facilitate an analysis comparison.
- The required data fields are available to support statistical analysis and engineering evaluation.
- The design of the data attributes is based on SPEC 2000 definitions.
- The operators must incorporate the formats/templates they use for in-service data collection into the PPH.

d) OEM/TCH must have a data quality system in place. The system should be able to:

- Validate incoming data to ensure that data format/content conforms to the standard.
- Generate quality control (QC) and audit reports and take corrective actions, as necessary.
- Original data should remain unchanged throughout the process.
- Be accessible as needed.

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e) The data collected and used by the OEM/TCH regarding evolution/optimization must include the following information:

- Number of tasks accomplished.
- Interval of tasks findings applied.
- Component data (shop findings, no-fault-found removals and failures), if available.
- Current aircraft utilization (flight hours, cycles, calendar-days, as applicable).
- Unscheduled maintenance findings, as applicable.
- Scheduled maintenance findings:
  - Routine maintenance tasks that generate no findings.
  - Routine maintenance tasks that generate findings.
- Unrelated significant findings, if applicable.
- Four digit A4A code, if available.
- The aircraft serial number .

f) To the extent possible, the OEM/TCH should capture consecutive task check data to assess reliability of aircraft systems, components, or structural elements related to the MRBR task. This requirement may be applied to lower interval tasks. Evaluate in-service data from both scheduled and unscheduled maintenance findings related to the intent of the Maintenance Steering Group - 3rd Task Force (MSG-3). Link scheduled maintenance findings and in-service findings to appropriate MRBR tasks, as applicable.

Review unscheduled maintenance findings, and the resulting corrective actions captured from pilot reports and maintenance reports, as applicable.

Operators should capture significant non-routine write-ups generated in the course of an unrelated maintenance task, if applicable.

g) MRB optimization should be on a task-by-task basis. Each OEM must develop a statistical analysis methodology that is acceptable to the CAAI.

Intervals, tasks, and procedures such as airworthiness limitations and Certification Maintenance Requirements (CMR) are type certification

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requirements and may not be optimized or deleted. Reference AC 25.1309-1A, System Design and Analysis.

Risk management (RM) should be the basis for interval evolution/optimization. RM is the systematic application of management policies, procedures, and practices to the tasks of identifying, analyzing, evaluating, treating, and monitoring risk.

MRBR task interval optimization has its basis in principles that reflect the criticality of airplane systems and components, identified during MSG-3 analysis. Failure Effect Categories (FEC) should be accounted for during the analysis.

Task deletion, addition, or modification of intent requires new/revised/amended MSG-3 analysis.

The intervals of potential failure finding tasks (i.e., those looking for degradation) should be between the point at which a potential failure becomes detectable and the point at which it degrades into a functional failure. Assess consecutive task accomplishments to show that failures can not occur before the new initial interval.

OEM statistical methods must be able to determine the right amount of data is available to provide a 95 percent confidence level.

In a data-driven statistical decision making process, the level of confidence is the basis for the determination of data sample size. Confidence level refers to the likelihood that the overall fleet performance lies within the range specified by the sample fleet performance. The confidence level is usually expressed as a percentage. For example, a 95 percent confidence level implies that the probability that the fleet parameter lies within the confidence interval is 0.95.

For a given confidence level, data size may vary depending on the fleet size and variability of in-service data.

The basis of MRB task evolution must be in-service data collected from a representative sample of older as well as newer aircraft (i.e., aircraft age) incorporating current production standards and modifications. The analysis report should summarize the fleet age representation.

Geographical or Operational Environment Representation, as appropriate, in-service data collected from a representative sample which spans statistically significant operating environments as the basis for MRB task interval adjustments.

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MRB task interval adjustments should be performed only after accumulating sufficient service experience since entry into service.

OEM/TCH must develop and implement a statistical analysis system to provide justification that a 95 percent level of confidence exists for the evolution/optimization exercise on a task-by-task basis. (exceptions should be approved only on a case by case basis.).

- h) OEM/TCH must develop and implement internal quality procedures to review and validate MRBR revision process as defined in the PPH. OEM/TCH will develop and implement an internal process to validate evolved MRBR revised tasks and/or intervals or to demonstrate that an equivalent written internal process already exists to the same intent.

The OEM/TCH applicant must notify CAAI in writing of his/her intent to begin an evolution/optimization process. This will be in the form of official correspondence as defined in the PPH.

CAAI will respond, in writing, to the OEM/TCH of their intent to participate in the evolution/optimization exercise for a given fleet or model. OEM/TCH must provide further details and procedure clarifications in the PPH. Each OEM/TCH may adopt the same evolution/optimization processes for all ISC/MRB PPH, and for all models, as demonstrated and accepted by CAAI. The PPH is a living document; a response must be given within 60 days after ISC acceptance/OEM submission. Where applicable, the MRB/ISC must coordinate and approve PPH revisions.

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## APPENDIX A

### ACRONYM/ABBREVIATION LISTING FOR THE MAINTENANCE REVIEW BOARD REPORT (MRBR)

The following is a recommended listing of acronyms and abbreviations that may be contained in each MRBR.

Advisory Circular	AC
Aircraft Certification Office	ACO
Accidental Damage	AD
Accidental Damage Rating	ADR
Aircraft Evaluation Group	AEG
Age Exploration Program	AEP
Aramid Fiber Reinforced Plastic	AFRP
Flight Standards Services	AFS
Airworthiness Limitation Item	ALI
Airworthiness Limitation Section	ALS
Aircraft Maintenance Manual	AMM
Alternative Method of Compliance	AMOC
Air Transport Association of America, Inc.	ATA
Boston-AEG, Engines, Propellers	BOS-AEG
Civil Airworthiness Authority	CAA
Canadian Airworthiness Manual	CAM
Code of Federal Regulations	CFR
Carbon Fiber Reinforced Plastic	CFRP
Certification Maintenance Coordination Committee	CMCC
Component Maintenance Manual	CMM
Certificate Management Office	CMO
Certification Maintenance Requirement	CMR
Corrosion Program	CP
Corrosion Prevention and Control Program	CPCP
Design Authority Holder	DAH
Detailed Inspection	DET
Dallas Ft. Worth-AEG, Rotorcraft	DFW-AEG
Discard	DIS
Design Service Objective	DSO
Design Tolerance Assessment	DTA
Damage-Tolerance Rating	DTR
Daily	DY



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Enhanced Airworthiness Program for Airplane Systems	EAPAS
European Aviation Safety Agency	EASA
Engine Certification Office	ECO
Environmental Deterioration	ED
Environmental Deterioration Rating	EDR
Engine Indicating and Crew Alerting System	EICAS
Extended Range Operations	EROPS
Extended Operations	ETOPS
Electrical Wiring Interconnection System	EWIS
Enhanced Zonal Analysis Procedure	EZAP
Federal Aviation Administration	FAA
Federal Aviation Regulation	FAR
Functional Check	FC
Functional Check	FCK
Fatigue Damage	FD
Failure Effect Category	FEC
Flight-Hours	FH
Flight	FLT
Failure Mode and Effects Analysis	FMEA
Flight Operations Evaluation Board	FOEB
Flight Standards District Office	FSDO
Fuel Tank Safety	FTS
Glass Fiber Reinforced Plastic	GFRP
General Visual	GV
General Visual Inspection	GVI
High Intensity Radiated Fields	HIRF
Instructions for Continued Airworthiness	ICA
International Civil Aviation Organization	ICAO
International Maintenance Review Board Policy Board	IMRBPB
Issue Paper	IP
Industry Steering Committee	ISC
Joint Aviation Authority	JAA
Joint Airworthiness Requirement	JAR
Joint Operations Evaluation Board	JOEB
Long Beach-AEG, Transport Aircraft	LGB-AEG
Lightning/High Intensity Radiated Field	L/HIRF
Lubrication Task	LU
Maintenance Engineering Analysis	MEA
Minimum Equipment List	MEL

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Manufacturer	MFG
Kansas City-AEG, Small Airplane	MKC-AEG
Master Minimum Equipment List	MMEL
Maintenance Planning Data Document	MPD
Maintenance Program Industry Group	MPIG
Maintenance Program Proposal	MPP
Maintenance Review Board	MRB
Maintenance Review Board Policy Board	MRBPB
Maintenance Review Board Report	MRBR
Maintenance Steering Committee	MSC
Maintenance Steering Group - 1st Task Force	MSG-1
Maintenance Steering Group - 2nd Task Force	MSG-2
Maintenance Steering Group - 3rd Task Force	MSG-3
Maintenance Significant Item	MSI
Maintenance Type Board	MTB
Mean Time Between Failure	MTBF
Maintenance Type Board Report	MTBR
Mean Time Between Unscheduled Removal	MTBUR
Maintenance Working Group	MWG
National Aviation Authority	NAA
Nondestructive Inspection	NDI
Nondestructive Test	NDT
Original Equipment Manufacturer	OEM
Operational Check	OPC
Principal Inspector	PI
Proposed Master Minimum Equipment List	PMMEL
Policy and Procedures Handbook	PPH
Principal Structural Element	PSE
Radiated Frequency	RF
Remove and Install	R/I
Recommended Maintenance Process	RMP
Restoration	RS
Restoration	RST
Statistical Analysis Tasking Optimization	SATO
Special Detailed Inspection	SDI
Seattle-AEG, Transport Aircraft	SEA-AEG
Special Federal Aviation Regulation	SFAR
Supplemental Inspection Document	SID
Structural Inspection Procedure	SIP
System Safety Assessment	SSA
Structural Significant Item	SSI

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Supplemental Structural Inspection Document	SSID
Structures Working Group	STWG
Service Task	SVC
Structures Working Group	SWG
To Be Determined	TBD
Type Certificate Data Sheet	TCDS
Type-Certificate Holder	TCH
Ultraviolet	UV
Visual Check	VC
Visual Check	VCK
Working Group	WG
Zonal Analysis	ZA
Zonal Inspection Program	ZIP
Zonal Working Group	ZLWG
Zonal Working Group	ZWG

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## APPENDIX B

### EVOLUTION/OPTIMIZATION DEFINITIONS

- a. Confidence Level. The likelihood that the overall fleet performance lies within the range range specified by the sample fleet performance. The confidence level is usually expressed as a percentage.
- b. Evolution/Optimization. Tasks performed by the manipulation of data, as a means to ensure continued applicability and effectiveness of the task, while improving the integrity of the process.
- c. Line Maintenance. Routine check, inspection, and malfunction rectification performed en-route and at base stations during transit, turn-around, or night stop.
- d. Nonmetallics. Any structural material made from fibrous or laminated components bonded together by a medium. Materials such as graphite epoxy, boron epoxy, fiberglass, kevlar epoxy, acrylics, and the like are nonmetallics. Nonmetallics include adhesives used to join other metallic or nonmetallic structural materials.
- e. Non-Routine Task. A task is non-routine when it is not a planned/scheduled task coming from the operator's/manufacturer's maintenance program.
- f. Pilot Report (PIREP). Suspected or known malfunctions or unsatisfactory conditions that are entered by the flightcrew into the aircraft log and require maintenance action.
- g. Risk Management (RM). The systematic application of management policies, procedures, and practices to the tasks of identifying, analyzing, evaluating, treating, and monitoring risk.
- h. Safety Management. The application of engineering and management principles, criteria, and techniques to optimize safety. It is an integrated and comprehensive engineering effort.
- i. Structural Significant Item (SSI). Any detail, element, or assembly that contributes significantly to carrying flight, ground, pressure, or control loads, and whose failure could affect the structural integrity necessary for the safety of the aircraft. (SSI should not be confused with a PSE (Principal Structural Element))

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- j. **Unscheduled Maintenance.** Maintenance performed to restore an item to a satisfactory condition by correcting a known or suspected malfunction and/or defect.

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## APPENDIX C

### POLICY AND PROCEDURES HANDBOOK (PPH) FORMAT

This appendix intends to provide standardized and harmonized policy towards the development of a PPH for a new product. It is encouraged that all industry applicants' PPH documents be developed containing the same basic data and information, as applicable, to provide for a complete, consistent, and quality process. It is not required that existing PPHs be revised to meet these standards.

Regulatory authorities and industry experience have indicated that the following information is expected in each PPH, as applicable, for the successful latest version of the Maintenance Steering Group (MSG) process and development of a Maintenance Review Board Report (MRBR).

#### SCHEDULED MAINTENANCE

#### DEVELOPMENT

##### Contents of PPH

I Approval and Acceptance Letters or Signature Page

II Record of Revisions

III List of Effective Pages (LEP)

IV History of changes

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List of Tables Highlights of Significant PPH Changes

### **1. Introduction**

1.1. Purpose

1.2. Background

1.3. Scope and Objective

1.4. Regulatory Requirements

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- 1.5. MSG Guidelines
- 1.6. Revision Process Policy
- 1.7. Temporary Revision Process
- 1.8. Program Organization & Program Work Schedule
- 1.9. Main Principles and Design Standards
- 1.10. Aircraft Utilization Assumptions
- 1.11. Establishing Task Intervals (Frequencies)
  - 1.11.1. System and Powerplant Task Interval Determination
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  - 1.11.3. Structural Task Interval Determination
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    - 1.11.4.5. Evaluation Criteria
    - 1.11.4.6. Lubrication Tasks
    - 1.11.4.7. Servicing Tasks
    - 1.11.4.8. Operational Check
    - 1.11.4.9. Inspection Tasks (General Visual, Detailed, Special Detailed)
    - 1.11.4.10. Functional Check
    - 1.11.4.11. Restoration or Discard
    - 1.11.4.12. Structure/Zonal Inspections
    - 1.11.4.13. Task Interval Review Report
- 1.12. IMRBPB Check Interval Escalation Issue Paper Evolution/Optimization Guidelines

## **2. Organization and Administration**

- 2.1. Industry Participation
  - 2.1.1. General
  - 2.1.2. Intellectual Property Management



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- 2.1.3. Communications, Internal and External
- 2.1.4. Industry Steering Committee (ISC)
- 2.1.5. Working Groups (WG)
- 2.1.6. Original Equipment Manufacturer (OEM)/Type-Certificate Holder (TCH)
- 2.1.7. Partners, Suppliers, and Vendors
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Appendix A Air Transport Association of America (ATA) Latest Version of MSG Document (Currently Applied Revision).

Appendix B PPH Acronyms and Abbreviations

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