AIRCRAFT CERTIFICATION PROCEDURES
MATERIAL REVIEW BOARD

CAAI MANUFACTURING DIRECTIVE
MFG 1.4.507

1. Objective

1.1 This directive contains direction and guidance to be used by CAAI Manufacturing Inspectors or Engineering personals.

1.2 The purpose of this directive is to define:

1.2.1 CAAI's role in assessing and approving MRB reports.

1.2.2 CAAI's follow-up activity to the manufacturer's disposition Recommendations.

1.3 This directive is used whenever a nonconformance detected between the product / part and the CAAI approved design.

2. General

2.1 Regulatory Requirements

Israeli Air Navigation Regulations – Certification procedures for products and parts - require from each manufacturer to establish a Material Review Board which will evaluate nonconformance detected during production, and recommend disposition and corrective actions:

2.1.1 Chapter six: Production under T.C. only – Para 44(a) (1) Equivalent to APIS FAR 21.125 (a)(1).

2.1.2 Chapter seven: Production Certificate – Para 53(a) (4) equivalent to FAR 21.143 (a)(4).

2.1.3 Chapter fourteen: Approved Aeronautical Part Authorization – Para 124(3) equivalent to FAR 21.137 And FAR 21.603.

2.2 General Information

Material Review Board is a method of control, evaluate, and disposition of any product/part thereof which does not conform to CAAI approved design.

2.2.1 If the manufacturer's facility is a different establishment from the design approval holder facility (TC, STC, APA holder), the QA inspector of the manufacturer will contact the Design Approval holder for MRB disposition, as agreed in the license agreement. The responsibility for the discrepancy correction throughout the MRB process is the Design Approval holder's.

2.3 Definitions

2.3.1 **Nonconformance**
Nonconformance is any deviation from design, drawing, Work specification, process specification.

2.3.2 **Class I Nonconformance**
Class I Nonconformance is classified as **"Major Nonconformance"** which may have appreciable effect on the weight, balance, structural strength, reliability, operational characteristics or other characteristics affecting the airworthiness of the product, but does not change the type design.

2.3.3 **Class II Nonconformance**
Class II Nonconformance is classified as **"Minor Nonconformance"** which deviation does not affect any of Class I criteria.

2.3.4 **Use "As Is"**
Use "As Is" as manufacturer's recommendation to accept a nonconformance without further rework.

2.3.5 **Rework**
Rework is Minimize product deviation by an approved process (Engineering Order or equivalent) specifically prepared for rework of a deviation to an acceptable extent, even if the reworked product will not fully conform

2.3.6 **Repair**
Repair is to a Standard Repair Procedure Engineering Order

2.3.7 **Scrap**
Scrap is when a product is economically non-recoverable or non-recoverable by rework

2.3.8 **Disposition Instruction**
Disposition Instruction is the act of dealing conclusively with the nonconforming product as recommended by the MRB Board.

3. Reference Material, Forms & Job-Aids

3.1. Reference Material

3.2. Forms:

3.2.1. Material Review Board Rejection Form: 1.4.507A

3.3. Job-Aids

4. Process

Material Review Board disposition recommendations must be presented to CAAI for review and approval:

4.1 Minor nonconformance (Class II), may be approved by the manufacturer. CAAI manufacturing inspectors shall only verify the correctness of the classification

4.2 Material Review Board disposition recommendation authority may not be delegated to the production approval holder's subcontractor without having established specific procedures, instructions and limitations, and having coordinated these procedures with CAAI.

Production Approval Holders are accountable for any MRB functions when delegated to their suppliers and subcontractors, therefore disposition of any nonconformance, regardless of where they occur, are the responsibility of the PAH.

4.3 CAAI manufacturing inspectors are the leader of the MRB Process at CAAI. Their activities are supported by CAAI engineering branch, as required.

4.4 Nonconforming materials/components must be controlled by the Production Approval Holder from presentation to the MRB through final MRB disposition.
MRB control may be accomplished through segregation (physical or electronic), marking, or tagging, etc. in a manner to preclude inadvertent release, or release by non-MRB personnel.

CAAI manufacturing inspector should verify as a minimum:

4.4.1 Completion of all necessary MRB documents, by MRB personnel approved by PAH, prior to physical release of products/ parts from MRB control.

4.4.2 Identification of MRB items sent to manufacturing areas for:

4.4.2.1 Rework or repair to preclude subsequent release without MRB approval.

4.4.2.2 Continued processing and re inspection of the non conformance after subsequent operations, to ensure re inspection of the specified characteristic.

4.5 NONCONFORMANCE REQUIRING MAJOR CHANGE TO CAAI APPROVED TYPE DESIGN

Parts/products may not be “Accepted as is” when the nonconformance requires a major change to CAAI approved type design**.**

4.6 MUTILATION OF SCRAPPED PARTS/PRODUCTS

Parts/products that are disposed as “scrapped” should be immediately mutilated and removed from the production area.

4.6.1 Mutilation should be accomplished in such a manner that the parts become unusable for their original intended use.
Mutilated parts should not be able to be reworked or camouflaged to provide the appearance of being serviceable.

4.6.2 Mutilation may be accomplished by one or a combination of the following procedures, but is not limited to:

4.6.2.1 Grinding.
4.6.2.2 Burning.
4.6.2.3 Removal of a major lug or other integral feature.
4.6.2.4 Permanent distortion of parts.
4.6.2.5 Cutting a hole with cutting torch or saw.
4.6.2.6 Melting.
4.6.2.7 Sawing into many small pieces.

4.7 REVIEWING AND APPROVAL OF MRB REPORTS.

CAAI Manufacturing Branch shall review MRB reports, only subsequent to them having been approved by the manufacturer's MRB, and prior to the product being reworked or repaired (if so recommended by the MRB) or accepted for use in the "As Is" condition. Refer to paragraph 4.5.

Review and approval of an MRB report is a THREE-PHASED process, shared by CAAI manufacturing inspectors, and engineering branch.

4.8 PHASE ONE - PRELIMINARY REVIEW

Class I - MRB report

4.8.1 Each Class I MRB report presented for CAAI for review and approval shall be checked by CAAI manufacturing inspector who shall verify that:

4.8.1.1 Complete identification and marking of the nonconforming product has been conducted.

4.8.1.2 Completion of all necessary documents, including all required signatures of MRB personnel, Content of material review records, including, as a minimum, part number, quantity, data, adequate description of nonconformance (including identification as major or minor change), disposition, and authorized approval has been conducted.

4.8.1.3 Cause for nonconformance has been isolated.

4.8.1.4 Disposition instructions are noted on the report.

4.8.1.5 Corrective measures are initiated and being taken for products previously produced that may have been affected by the same deviation.

4.8.2 In case that any item of 4.8.1 above does not meet the requirements, CAAI inspector fills "Material Review Board Rejection Form" and return the MRB with the rejection form to manufacturer QA representative.

4.8.3 The revised/updated/corrected MRB Report should be presented to CAAI Manufacturing Inspector with "resubmit" stamp.

4.8.4 Whenever the CAAI manufacturing inspector finds the items 4.8.1 meet the requirements,
he shall mark that report by adding his name and date, and proceed to phase two and three (4.9 and 4.10).

4.8.5 In any doubt or when the disposition recommendations are questionable CAAI manufacturing inspector will forward the MRB report for acceptance to the CAAI assigned specialized engineer.

Class II - MRB report

CAAI manufacturing inspector, in addition to Class I activities above will randomly verify that the manufacturer has correctly classified “Minor Deviations” as Class II nonconformance and where manufacturer’s classification is questionable, return that report to the manufacturer’s quality assurance representative for reassessment, and if required, for reprocessing.

4.9 PHASE TWO - REVIEW BY CAAI ENGINEERING BRANCH

CAAI engineering branch reviews Class I nonconformance “disposition instructions” for compliance with CAAI approved data, adds its signature on the report noting "Accepted".
In case of "Not Accepted" the engineer fills "Material Review Board Rejection Form" and returns the report with the filled up forms to the manufacturing inspector.

CAAI Manufacturing Inspector will forward those documents to the manufacturer's quality assurance representative.

The reply on MRB rejection form with "Manufacturer's Remarks" or revised/updated/corrected MRB Report with "resubmit" stamp should be presented to specialized engineer throe CAAI Manufacturing Inspector.

CAAI engineers must be aware that disposition of Class I nonconformance which are “Major Changes” to the CAAI approved type design, may be “accepted as is” only after the “Major Change” has been approved by CAAI as a change to the CAAI approved type design.

SAMPLE OF ENGINEERING ACCEPTENCE

CAAI ENGINEERING ACCEPTED

Sign:
Date:

_____

4.10 PHASE THREE - MANUFACTURING INSPECTOR FINAL PROCESSING

Following MRB with "Accepted" disposition instructions returned by specialized engineer to CAAI manufacturing inspector, CAAI manufacturing inspector completes his MRB "activity register" by stamping front page and adding "Date of Approval" and his signature.
Following all above, the manufacturing inspector will forwards that report to the product manufacturers Quality Assurance representative.

SAMPLE OF CAAI APPROVAL

CAAI APPROVED

Sign:
Date:

4.11 SUMMARY FUNCTIONS OF PROCESSING AN M.R.B.

4.11.1 Nonconformance is detected: This may be at any point of the production, including at an inspection point. The nonconformance may be discovered by inspection, production, or other personnel.

4.11.2 The nonconformance is documented per the Production Approval Holder "PAH" procedures and becomes part of the inspection and manufacturing records for the affected product.

4.11.3 The nonconforming product is marked, segregated or otherwise controlled to prevent its re-entering into the stream of production without disposition or special controls. The PAH's procedures should specify the methods used.

4.11.4 The situation is referred to the Materials Review Board for disposition recommendation. The means for review, concurrence, and disposition should be specified in the PAH's procedures.
The PAH's Engineering and Quality Assurance/ Inspection, or any other PAH's specialist as required, must concur with the disposition recommendation.

4.11.5 Four standard "disposition recommendations" are: SCRAP, REWORK (to approved data), REPAIR (to some specific data), or USE AS IS. The recommendation should include specific requirements to carry out re inspection of the product.

4.11.6 Dispositions that are a result of minor changes are approved by the PAH under its CAAI approved procedures.
These dispositions should be reviewed by CAAI for accurate major/minor classification and technical aspects.

4.11.7 Dispositions that are a result of major changes must be approved by CAAI prior to the part leaving the PAH's quality system. This means prior to airworthiness certification of aircraft.
All changes must be approved by CAAI prior to shipment or delivery of the product to the customer.

4.11.8 Material Review Board reports are part of the production and inspection records of the product, and should be identified and maintained as such.
Dispositions recommendations are the only records of design changes that result from MRB activity, and must be retained by the manufacturer and included in product's paperwork when delivered to customer.

CAAI REMARKS / הערות מפקח ר.ת.א.

4.11.9 MRB procedures must include corrective action process, to prevent recurrence.

NAME ___ שם SIGN. חתימה DATE ___ תאריך

5. Task Outcomes

MANUFACTURER'S REMARKS / תשובות הגורם המטפל

5.1 The end result of the process

5.1.1 Approval or disapproval of MRB activities

5.2 Future Activities

5.2.1 Follow up on the elimination of the discrepancies

NAME שם SIGN. חתימה DATE תאריך