

## **APPROVAL FOR MODIFICATIONS OR REPAIRS**

### **1. Applicability**

- 1.1 This Notice specifies the information and procedures for all Myanmar Registered aircraft to obtain the written approval of Modification or Repair of an aircraft or aircraft component and ensuring that the aircraft can be returned to service in accordance with approved data.
- 1.2 This Notice is also intended to apply all types of aircraft for which a Type Certificate or equivalent document has been issued and includes all components of these aircraft (such as engines, propellers and equipments).
- 1.3 No person may operate Myanmar Registered aircraft or installs equipment or part of aircraft etc, with Modification and Repair which has not been grant the approval from Myanmar DCA.

### **2. Terminology**

- 2.1 *Modification*; A Modification to an aeronautical product means a change to the type design which is not a repair.
- 2.1.1 *Major Modifications*. A major modification means a type design change not list in the aircraft, aircraft engine or propeller specifications that might appreciable affect the mass, balance, structural strength, performance, power plant operation, flight characteristics, noise, fuel venting or other characteristics affecting the airworthiness of the product, or that will be embodied in the product using non-standard practices.
- 2.1.2 *Minor Modification*; A minor modification means a modification other than a major modification.
- 2.2 *Repair*; A repair to an aeronautical product means a design change intended to restore it to an airworthy condition after it has been damage or subject to wear.
- 2.2.1 *Major Repair*; A major repair means a design change which is intended to restore an aeronautical product to an airworthy condition where the damage being repaired might appreciably affect the structure strength, performance, power plant operation, flight characteristics, or other qualities affecting airworthiness or environmental characteristics, or that will be embodied in the product using non-standard practices.
- 2.2.2 *Minor Repair*; A minor repair means a repair other than a major repair.

Note: Classification of Major and Minor Modification/Repair are described in Appendix to this Notice.

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### 3. **Approved Data**

Data that can be used to substantiate Major Repairs/Major Modifications, derived from but not limited to the following:-

- Type Certificate Data
- Supplemental Type Certificate (STC) data, provided that it specifically applies to the item being Repaired/Altered
- Airworthiness Directives (AD)
- Airframe, engine, propeller manufacturer's "DCA-approved" maintenance manuals or instructions.
- Component Manufacturer's Manuals or instructions, unless specifically not approved by the DCA or resulting in an alternation to the airframe, engine, and/or propeller.
- Major Repair or Modification/Alternation form, when the specified data has been previously approved.
- Structure Repair Manual (SRM), only as a source of approved data for a major repair, when it is a State of Design approved document.
- Repair data, issued by a DCA delegated/accepted engineering authority holder.
- Service Bulletin and Letters or similar documents which are specifically approved by the state of Manufacturer.
- FAA Advisory Circular 43-13-1, Acceptable Methods, Techniques, and Practices, Aircraft Inspection and Repair, as amended.

### 4. **Modifications**

4.1 If the Modification/Repair does not conform to details already shown in the Manufacturer's Manual, the applicant may be requested to show evidence that the Design office of the Manufacturer has approved the proposed Modification/ Repair and the following activities are also required to be performed by, or on behalf, the applicant;

4.1.1 At an early stage of the design of a Modification brief particulars shall be provided to the DCA, so that the Modification may be classified. The information should include :

- (a) Title, Modification number, issue number, aircraft type and serial number.
- (b) Applicant's name, company name and signature.
- (c) Concise description of modification.
- (d) Certification basis.
- (e) List of removed equipment.
- (f) List of installed equipment including equipment approval details.
- (g) Details of standard parts such as relays, annunciators and switches used, and details of cable specifications.

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- (h) Equipment cooling requirements.
- (i) Lighting requirements.
- (j) Power supplies details of circuit breakers/fuses including ratings and locations.
- (k) Modification effects on other systems including non radio.
- (l) Compliance with aircraft certification basis and possible effect of modification on certification basis.
- (m) Interference considerations electro-magnetic compatibility and high intensity radiated field.
- (n) Drawing listing.
- (o) Details of ground tests including compass swing, interference checks, bonding checks.
- (p) Details and methods of compliance with relevant mandatory modifications and inspections as notified in Department of Civil Aviation Notices.
- (q) Aerial position details, substantiation of position and mounting details.
- (r) Details of placards.
- (s) Details of required air tests.
- (t) Limitations or special conditions or exemptions.
- (u) Electrical load analysis.
- (v) Details of weight change calculation and statement.
- (w) Proposed changes to maintenance schedule/programme and details of any continued airworthiness maintenance required.
- (x) Flight Manual changes.
- (y) Master Minimum Equipment List if applicable.

4.1.2 A Modification will be classified as Major or Minor according to the nature and extent of the investigation in connection with its approval. Appendix to this notices contain guidance to assist in determining whether a particular modification is Major or Minor.

- (a) Modifications shall be classified as Major or Minor by:
  - (i) the DCA; or
  - (ii) Design Organization of Type Certificate Holder (or) Design Organization approved by State of Design.
  - (iii) an appropriately approved Design Organization under a procedure agreed with the DCA.
- (b) Modification shall be approved by:
  - (i) the DCA if the Modification is classified as Major;
  - (ii) either DCA or an Appropriately Approved Design Organization, if the Modification is classified as minor.

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- 4.1.3 All modifications, excepting those which are agreed by the DCA to be of such a nature that airworthiness is not affected, shall be approved through the modification procedures of an appropriately approved Design Organization, or in some circumstances, by the DCA. The design organization approval holder shall ensure the aircraft is specifically guarded against dangerous features by complying with the appropriate airworthiness requirements. If not, the design approval of the modification may be withheld by the DCA.
- 4.1.4 The applicant shall have sound knowledge of the design principles embodied in the aircraft type being modified or repaired. If not, the applicant shall apply through the medium of an organization approved by DCA for the purpose that the proposed modification is such that the design of the aircraft, when modified, complies with:
- (a) The Requirements in force at the time the aircraft type was originally certificated. To comply with the approval basis recorded in the Type Certificate Data Sheet or equivalent document issued or accepted by the DCA for the aeronautical product being modified or repaired would normally be deemed appropriate for:
    - (i) a change that the DCA finds not to be in the significant classification;
    - (ii) those areas, systems, components, equipment and appliances that are not affected by the change; or
    - (iii) those areas, systems, components, equipment and appliances that are affected by the change, provided the DCA finds that compliance with the latest amendment to the standard would be impractical or would not contribute materially to the level of safety; and

*Note: Application for major modification shall be supported by type certificate holder.*

- (b) The applicant may be required to comply with the applicable Design Standards in effect on the date of application for any design change that the DCA classifies as being significant.
- (c) The requirement for a new type certificate when there is a substantial change i.e. a product level design change which is so extensive that a substantially complete investigation of compliance with applicable requirements is required. A new design derived from an existing aeronautical product design and proposed either by the original manufacturer, or as a modification to the product by someone other than the original manufacturer, may therefore require a new Type Certificate.

Where the applicant elects to show compliance to a later amendment of the applicable design standard than that required by the DCA, compliance is required with the entire amendment to the extent that it relates to the modification for which approval is sought. In particular, partial compliance with later amendments,

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resulting in an alleviation of standards without compliance with related compensatory amendments, will not be approved.

The applicant shall, when making these statements, further ensure that the modification is compatible with all defined aircraft build standards for which the modification is to be incorporated, or that any incompatibilities are identified.

- 4.1.5 All relevant design information, drawings and test reports shall be held at the disposal of the DCA. No such design records shall be destroyed without authorization from the DCA.
- 4.1.6 Each design drawing shall bear a descriptive title, drawing number, issue number and date of issue. All alterations to drawings shall be made in accordance with a drawing amendment system such as will ensure amendment to design records.
- 4.1.7 Immediately an alteration is made to a drawing, whether the alteration is permanent or temporary, the drawing shall be identified with a new issue number and date. Where an alteration affects the interchangeability of any item in any way, a new part number shall be issued such as to avoid confusion with the original item.
- 4.1.8 Modification documents shall bear a modification reference number, issue number and date, a description of the modification, together with a list of parts and assemblies affected by the modification and, where necessary, drawings giving particulars of the parts before and after modification.
- 4.1.9 Where modifications affect unit interchangeability, or are of such an extent as to require amendment of approval documents or any documents associated with the C of A, a separate type or designation reference shall be allocated to the modified unit.
- 4.1.10 Where modifications affect or impinge upon the content of the Approved Maintenance Planning Document (MPD), Flight Manual, Weight & Balance Manual and Master Minimum Equipment List (MMEL), applicants will be required to ensure that notification of these effects is provided to the DCA so that the necessary action can be taken to revise the relevant Manuals.
- 4.1.11 Where a flight test is necessary; it shall comply with the procedures set out in approved flight test schedule
- 4.1.12 Minor Modifications; When the design of a modification, classified as Minor, is undertaken by other than an appropriately Approved Design Organization the DCA will signify approval by forwarding a copy of DCA Form CA159 to the applicant.

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### 5.-Modification Record

- 5.1 When the design of a modification is undertaken by an appropriately Approved Design Organization, a record of the following particulars shall be prepared and kept:
- (a) Aircraft type.
  - (b) Title and brief description of modification.
  - (c) Modification reference number.
  - (d) Modification class.
  - (e) Airworthiness Approval Note number (in the case of a Major Modification).
  - (f) Reference to the associated Flight Manual amendment number.
  - (g) Reference to the associated Maintenance, Overhaul and Repair Manuals, Crew Manual and Maintenance Schedule amendment numbers.
  - (h) Reference to the associated MMEL revision (if appropriate).
- 5.2 The Civil Modification Record shall be made available to Department of Civil Aviation for examination

### 6. Repairs

- 6.1 Where a repair is not specified in an Overhaul or Repair Manual applicable to the aircraft type concerned, then such a repair will require the approval of the Department of Civil Aviation and will be classified Minor or Major in the same manner as a modification and will be subject to the procedures laid down in paragraph 4 above.
- 6.2 Where a Repair Scheme is prepared by the manufacturer of the aircraft, engine or component this will be acceptable to the DCA.
- 6.3 Where a Repair Scheme is prepared by an organization not approved by the DCA, other than the manufacturer, then the approval of the DCA must be sought.
7. The applicant wants to apply the design of a Modification or Repair of an aircraft or aircraft component by using the application of **CA Form158** and **CA Form159** with require proof documents.

**Criteria for the Classification of Major and Minor Modifications and Repairs**

1. General

The following criteria outline the decisions needed in assessing a Modification or Repair as Major or Minor. For each issue, it must be determined whether or not the proposed change will have other than a negligible effect. The questions require "Yes" or "No" responses. An affirmative answer to any individual question indicates that the Modification or Repair should be classified as major. The examples and tests listed are for illustration only and not intended to be all encompassing.

2. Criteria

2.1 General

Is the change being accomplished as an alternative means of compliance with an airworthiness directive or equivalent?

2.2 Mass and Balance

- (a) Does the change involve a revision in the approved mass limitations or center of gravity range limits?
- (b) Does the change require the installation of ballast or use of other methods to maintain the center of gravity within the approved limits?

2.3 Operational Characteristics

Does the change involve alterations to the configuration of the aircraft which may:

- (a) increase drag;
- (b) alter the thrust or power;
- (c) affect stability or controllability;
- (d) induce flutter or vibration; or
- (e) alter the stalling characteristics to an extent which necessitates analysis or test?

2.4 Structural strength

- (a) Does the change involve a principal component of the aircraft structure such as a frame, stringer, rib, spar or stressed skin?
- (b) Does the change involve a structural element which is addressed as part of a damage tolerance of fatigue/fail-safe evaluation?
- (c) Is a pressure vessel penetration or change involved?
- (d) Does the change involve the installation of an item of mass necessitating structural re-evaluation?
- (e) Does the change involve the installation or alteration of a containment or restraint system intended for the stowage of items of significant mass?
- (f) Does the change involve repairs or modifications to the load-bearing structure of seats, harnesses or their means of attachment or any other occupant restraint equipment?

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(g) Does the change involve the substitution of materials?

2.5 Power-plant operation

Does the change significantly affect the power-plant or propeller or their accessories?

2.6 Other qualities affecting airworthiness

(a) Does the change involve equipment for which there is no performance standard which has been approved or accepted by the airworthiness authority?

(b) Does the change affect the probability of failure conditions that could impair or preclude continued safe flight or landing?

(c) Does the change affect the pilot's visibility or impair the pilot's capability to control the aircraft?

(d) Does the change involve alterations to the interior arrangement or cabin materials?

(e) Does the change involve systems for cabin pressurization or the provision of breathing oxygen?

(f) Does the change involve flight controls or an autopilot?

(g) Does the change involve critical or essential components of the electrical system such as generators, alternators, inverters, batteries, distribution buses, or bus protection and control devices?

(h) Does the change affect instruments or indicators or their subsystems that provide navigation information?

(i) Does the change affect instruments, indicators or their subsystems that provide essential or critical information concerning the aircraft status?

(j) Does the change affect a regulated placard?

(k) Does the change affect any approved information contained in the flight manual or equivalent document?

(l) Does the change affect reliability characteristics?

2.7 Other qualities affecting environmental characteristics,

Does the change alter the aircraft noise, fuel venting or exhaust emission characteristics?

2.8 Non-standard practices,

Does the change involve practices or techniques which are novel or unproven in the proposed application?



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***NOTICE***

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. A modification must be compatible with all previous modifications to assure continued conformity with the applicable airworthiness requirements.

**12. Description of Work Accomplished**

(If more space is required, attach additional sheets. Identify each page with aircraft nationality and registration mark and date work completed)

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<b>Minor Modification / Repair Application &amp; Approval</b>		Myanmar
		DCA use only
		Office Ref;
1.Owner/Operator;	2.Address;	
3.Aircraft Type; (Mark, Model, Serial No. )	4. Nationality & Registration Mark;	5.C of A No;
6.Nature of Modification/Repair (Unit identification )		
7.Classified as; <input type="checkbox"/> Minor		
<b>8.Comformity Statement</b>		
A. Organization Address	B. Kind of Licence/ organization	C. Certificate/Licence No;
	Licenced (AME) B <sub>1</sub> <input type="checkbox"/> B <sub>2</sub> <input type="checkbox"/> or Other .....	For an AMO include the appropriate rating for the major repair or modification;
	Approved Maint; Organization (AMO) <input type="checkbox"/>	
	Manufacturer <input type="checkbox"/>	
<p><b>D.</b> I certify that the repair/ modification made to the unit(s) identified in the item 6 above and described in the attachments hereto have been made in accordance with Myanmar Aircraft and that the information furnished herein is true and correct to the best of my knowledge.</p> <p style="text-align: center;"> Authorized person .....                      Organization                      .....  Signature                      .....                      Date                      ..... </p>		
<b>For DCA Used Only</b>		
<b>9. Approval for Released to Service</b>		
Pursuant to the authority given persons specified below the unit(s) identified in the item 6 was inspected in the manner prescribed by the DCA and is <input type="checkbox"/> Approved <input type="checkbox"/> Rejected		
by DCA Authorized person ; Signature ..... Name ..... Designation ..... Date .....		

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