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**AIRWORTHINESS**

**MAINTENANCE**

**APPROVAL OF MODIFICATIONS OR REPAIRS TO AIRCRAFT**

1. General
  - 1.1. Part 43.02.16 of the NAMCARs, 2020, as amended, prescribes the conditions under which aircraft may be modified or repaired.
  - 1.2. A repair approved by the competent authority of the country in which the airframe, engine or equipment was constructed is also approved in Namibia in accordance with Regulation Part 43.02.16). This means that a repair done strictly in accordance with Federal Aviation Administration Advisory Circular AC 43.13-1 may be made on aircraft of United States origin without further reference to NCAA.
  - 1.3. Significant variations of an approved modification or repair are not permitted without the prior written approval of the Executive Director.
  - 1.4. A modification or repair not approved in accordance with Regulations Part 43.02.16 of the NAMCAR's must be approved in writing by the Executive Director before the aircraft on which it is done is again flown; Except that such test flights as the Executive Director may require in accordance with NAMCAR's may be done.

NOTE:

- 1) Modifications done in accordance with USA "Supplemental Type Certificates" (STC's) on aircraft of United States origin are not automatically approved for incorporation in Namibian registered aircraft unless appropriate certificates have been granted to the manufacturers of the airframe, engine or equipment concerned. In this respect the applicant must obtain full particulars including drawings and instructions from the holder of the STC and submit copies of these to NCAA with his application for approval of the modification on FSS-AIR-FORM023/18.
- 1.5. Whenever an airframe, engine or item of equipment is modified or repaired the required logbook entry must quote a reference which clearly identifies the approval of the modification or repair (i.e. bulletin or modification number, manual reference, etc.)

NOTE:

- 1) A modification means an alteration to an aircraft (including its components, engines, propellers, radio installations, accessories, instruments, equipment and their installation) and includes changes in the type of components, engines, propellers, radio stations, accessories, instruments and equipment.
  - 2) Major modification means a modification not listed in the aircraft, aircraft engine, or propeller specifications:
    - a. Which may appreciably affect mass, balance, structural strength, performance, power plant operations, flight characteristics, or other qualities affecting airworthiness; or
    - b. Which is not done according to accepted practices or cannot be done by elementary operations;
  - 3) Major repair means a repair -
    - a. Which, if improperly done, may appreciably affect mass, balance, structural strength, performance, power plant operation, flight characteristics, or other qualities affecting airworthiness; or
    - b. Which is not done according to accepted practices or cannot be done by elementary operations;
- 1.6. Whenever a modification for which a modification number has been issued is implemented or any major repairs, major modifications or changes of equipment are made, a Certificate of Release to Service ( C R S ) o r a Certificate Relating to Maintenance of an Aircraft (CRMA) must be completed in triplicate. The original must be posted in the relevant aircraft logbook, one copy forwarded to the NCAA within 48 hours of the work being certified and the remaining copy retained for record purposes. With regard to avionics refer to Appendix A and supplement to Appendix "A".
- 1.7. When completing paragraph 2 of the CRS which is prescribed in NAMCATS – GMR, Annexure B, a full description of the work carried out must be given quoting part numbers of parts replaced, and in addition serial numbers of components or equipment installed, must be provided.
- 1.8. Whenever any changes to an aircraft are introduced which will alter the empty mass of the aircraft the Mass and Balance data Form must be updated and if any equipment is removed or installed the equipment list must be updated accordingly.
2. Modifications and repairs which require approval by the Executive Director
- 2.1. All modifications and repairs except as indicated in subparagraph 2.2, which affect or are likely to affect the serviceability of the aircraft or the safety of its occupants or of other persons or property, require approval by the Executive Director and this means that:
- 2.1.1. any modification which may cause an appreciable change in weight, balance, structural strength, performance, power plant operation, flight characteristics or any other qualities affecting airworthiness;
  - 2.1.2. Any modification which is not done in accordance with common practice or which cannot be performed by elementary operations;

- 2.1.3. any modification that entails the fabrication of structures, or the installation of a flight director, flight control system or any modification which necessitates an amendment to the flight manual;
  - 2.1.4. any repair which, if improperly accomplished, will adversely affect the structural strength, performance, flight characteristics, power plant operations or any other qualities affecting airworthiness; and
  - 2.1.5. any repair which is not accomplished in accordance with common practices, or which cannot be performed by means of elementary operations, must be approved, by the Executive Director.
3. Modifications and repairs which do not require approval by the Executive Director
- 3.1. Modifications or repairs which do not require approval by the Executive Director in accordance with paragraphs 2 and 3 may be done by licensed aircraft maintenance organisations or licensed aircraft maintenance engineers without prior reference to the Executive Director, but such modifications and repairs must be recorded in the appropriate logbook and correctly certified as soon as they have been done.
  - 3.2. Examples of modifications and repairs which do not require approval by the Executive Director:
    - 3.2.1. Airframe modifications
      - a. The installation or removal of equipment when such installation or removal is done in accordance with approved requirements.
      - b. The replacement of an instrument by one of another type but designed to serve the same purpose and with a range adequate for the aircraft type concerned. Markings (colour coding) to be the same. (Refer to AIC A07/2024).
      - c. Changes of a minor nature or structural and non-structural elements for the purpose of improving the service life or reducing maintenance costs.
      - d. The installation of radio communication and navigation aid equipment where such equipment is installed in the standard locations provided and does not entail the fabrication of mounting structures.
    - 3.2.2. Power Plant modifications
      - a. Alterations to supporting brackets or braces of the power plant which do not adversely affect the structural integrity of such parts.
      - b. Changes to the cowling which does not affect engine cooling, such as alterations to mounting bracket attachments.
    - 3.2.3. Propeller modifications
      - a. Initial installation of an approved type of propeller spinner.
      - b. Minor changes to the basic design of, or the relocating of brackets or braces of the propeller controls.
      - c. Minor changes to the basic design of propeller control rods or cables.
    - 3.2.4. Airframe repairs
      - a. Non-structural members: Minor repairs to non-structural members which will not affect the airworthiness of an aircraft, such as: cowlings, wing and control-surfaces fairings, electrical installations and windshields.

- b. Tanks: Patching and repairing of leaks in non-integral (neoprene type) fuel, oil, hydraulic and de-icer fluid tanks.
- c. Ribs, leading and trailing edges: The repair of not more than two adjacent wing or control-surface ribs of conventional type (wood or metal) of leading edges of wing and control surfaces between two adjacent wing or control-surface ribs, or of trailing edges of wings, control surfaces and flaps.
- d. Fabric and ceconite covering: Patching of fabric and ceconite involving replacement of fabric covering of surfaces when such replacement is of an area not greater than that required for a repair over two adjacent ribs.
- e. Metal or plywood stressed covering: The patching of holes in metal or plywood stressed covering not exceeding 6 inches in any direction when ribs, stringers, bulkheads and reinforcements are not directly affected.

3.2.5. Power plant repairs. Repairs to minor or non-structural parts of the plant.

3.2.6. Propeller repairs

- a. Repairing dents, cuts, scars, scratches, nicks and leading edge pitting of aluminium blades provided removal or treatment does not materially affect the strength, mass, balance or performance of the propeller.
- b. Repairing dents, cuts, scars, scratches, nicks and small cracks parallel to the grain of wooden propellers.
- c. Refinishing of wooden propellers.

NOTE:

- 1) For the purpose of certification, the modifications and repairs referred to in subparagraphs 3.2.1 to 3.2.6 or any similar modifications or repairs, shall be regarded as minor modifications and minor repairs.
4. Procedures for obtaining approval of modifications or repairs
- 4.1. Licensed aircraft maintenance organisations, licensed aircraft maintenance engineers and aircraft owners who want to have a modification or repair scheme approved are advised to consult the NCAA at an early stage in the development of the modification or repair in order that any requirements which the modification or repair will have to meet, are known in good time.
  - 4.2. Application for approval of a modification or repair must be submitted to the Executive Director on FSS-AIR-FORM023/18 & in duplicate, together with two copies each of such information, calculations, reports on tests, drawings or photographs, wiring diagrams and proof of effectiveness or airworthiness which will enable the Executive Director to properly assess the proposal.
  - 4.3. It is obviously in the interest of all concerned to use manufacturer's modifications and repairs whenever possible.
  - 4.4. A modification or repair scheme is normally approved by the return to the applicant of one copy of FSS-AIR-FORM023/18 suitably endorsed, one copy each of the drawing and other documents as well as an official letter from the NCAA. Any conditions, to which the approval is subject, will be endorsed on the letter.