Advisory Circular

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NIGERIA CIVIL AVIATION AUTHORITY

PROPER USAGE OF PARTS REMOVED FROM AN AIRCRAFT NO LONGER IN SERVICE OR PARTS RECOVERED FROM AN AIRCRAFT INVOLVED IN AN ACCIDENT

1.0 PURPOSE

This Advisory Circular (AC) is issued to provide guidance and information on the proper usage of aircraft parts removed from an aircraft no longer in service or parts recovered from an aircraft involved in an accident, and are intended to be returned to service.

1.1 INTRODUCTION

In the aviation industry, owners of aircraft parts may be involved in the usage of parts removed from an aircraft no longer in service or parts recovered from an aircraft involved in an accident. This AC provides information and guidance to persons and organisations involved in the maintenance, distribution, sale or control of such aircraft parts. The need to ensure that parts installed on an aircraft meet the design specification and are serviceable is self-evident. The installation of any part failing to meet the intended design requirements degrades those requirements, leading to a degradation of airworthiness.

2.0 REFERENCES.

1) Part 5 and Part 6 of the Nigeria Civil Aviation Regulations.
2) ICAO Annex 6, Part 1, 8.2
3) ICAO Annex 6, Part 3, Section II, 6.2
4) ICAO Doc 9760, Airworthiness Manual, Part III, Chapter 4:4.5

3.0 GUIDANCE AND PROCEDURES

3.1 PARTS REMOVED FROM AN AIRCRAFT NO LONGER IN SERVICE.

3.1.1 Aircraft withdrawn from service are often used as a source of spare parts, a process sometimes described as "parting out". These parts, although serviceable at the time the aircraft was placed in storage, may have been affected adversely by storage conditions, including especially environmental factors, or by the length of storage.

3.1.2. The records for the aircraft and its parts prior to the aircraft being placed into storage will need to be researched in order to ascertain the previous maintenance history, and MCAI (Mandatory Continuing Airworthiness Information), modification and repair status of the parts being removed. Any unusual events immediately prior to storage, e.g. heavy landings or lightning strikes, will also have to be considered when deciding on the serviceability of the parts being removed.

3.1.3. It is important that the part removal process be planned and controlled in a manner as close as possible to that adopted for routine maintenance tasks on in-service aircraft. The following points in particular should be considered:

a. adequate access equipment should be provided;

b. the means by which part is removed should be in accordance with the maintenance data (e.g. maintenance manual), using the tooling specified;

c. if conducted in the open, disassembly should cease during inclement weather;

d. all work should be carried out by appropriately qualified maintenance personnel;

e. all open connections should be blanked;

f. a protected and enclosed quarantine storage area for the parts being removed should be provided in the immediate vicinity of the work area; and

g. normal maintenance documentary controls should be used, e.g. the use of work sheets or cards to record component removals, and identification labels to show serviceability status.

3.1.4. An assessment for condition and eventual return to service of each removed parts will need to be conducted by a suitably approved organization. The extent of the work necessary before the part is returned to service may, depending on the factors noted in 3.1.1, range from a simple external visual inspection to a complete overhaul.

a. Check for satisfactory conditions, in particular for damage, corrosion, and compliance with any manufacturers maintenance instructions.

b. Part life (TBO / Retirements life / Shelf life) is not exceeded.

c. Previous maintenance history can be verified from the records, and particularly for serialized component, maintenance history card must be available.
d. Modification standards, including status of SB and AD compliance can be determined.
e. Does not associate with any known defect or involvement in incidents, accidents, heavy landing or lightning strikes. Under no circumstances, part is release to service if it has been subjected to extreme of stress, temperature or immersion which could affect its operation.

f. Does not carry any outstanding maintenance action.

g. An acceptance test should be available for all components that are subjected to acceptance testing after manufacturing or maintenance, as appropriate

3.1.5. Parts removed from serviceable aircraft or aircraft on storage that comply with manufacturer's recommended storage procedures and satisfy requirements specified in paragraph 3.1.4 should be acceptable for return to service. The part must be properly identified, tagged and adequate entries must be made on the Component History card (for serialized parts) or Log Book with the following:

a. detail description of the part,

b. actions taken in determining the status of the part as serviceable,

c. list of applicable SB, AD or repair carried out (if applicable).

d. reference to work card or worksheets or any incoming document,

e. aircraft from which the part is removed,

f. detail life used (for life limited parts, being any combination of fatigue, overhaul or storage life)

g. who carried out the certification and date and the organization,

3. 1.6. Parts originated from aircraft which do not comply to manufacturer's recommended storage procedure, even if it satisfy the requirements specified in paragraph 3.1.4, does not automatically qualify for return to service. Internal condition and degradation to internal parts may not be visible through visual inspection. Manufacturers' recommendations must be satisfied before returning to service.

3.1.7. Parts removed from aircraft which has doubtful maintenance records, must undergo recertification to meet the manufacturers recommendations before returning to service.

3.1.8 All Operators are to ensure that procedures for proper usage of parts removed from an aircraft no longer in service are properly documented in their Organization's Maintenance Control Manual (MCM)/ Maintenance Procedures Manual (MPM) as applicable.

3.1.9 All Operators are to ensure that procedures for storage of aircraft parts and supplies are properly documented in their Organization's Maintenance Control Manual (MCM) / Maintenance Procedures Manual (MPM) as applicable.

3.2 PARTS RECOVERED FROM AN AIRCRAFT INVOLVED IN ACCIDENTS

3.2.1. When an aircraft has been involved in an accident, the title to the salvage may pass from the insured owner to the other person (e.g. aircraft insurers) and this salvage may be offered for sale either complete or as separate aircraft item in an “as is, where is” condition. Though such items may not manifest any visual evidence of damage, distortion or change of characteristics, a serious airworthiness hazard could result from their use if special precautions are not taken. While some items may be totally unaffected by the accident or incident which caused the aircraft to be declared as salvage, it is essential to obtain clear evidence that this is the case. If such evidence cannot be obtained, the item shall not be returned to service.

3.2.2. Before overhaul and reinstallation can be considered, all such items must therefore be subject to competent assessment and inspection in the light of adequate knowledge of the circumstances of the accident, subsequent storage and transport conditions, and with evidence of previous operational history obtained from valid airworthiness records. Confirmation of this assessment in the form of an airworthiness release is essential.

3.2.3. In particular, if a crash load is sufficient to take any part above its proof strength, residual strains may remain which could reduce the effective strength of the item or otherwise impair its functions. Loads higher than this may cause the item to crack, with an even more dangerous potential. Further, a reduction in strength may be caused by virtue of the change of a material’s characteristics following overheat from a fire. It is therefore of the utmost importance to establish that the item is neither cracked, distorted or overheated. The degree of distortion may be difficult to assess if the precise original dimensions are not known, in which case there is no option but to reject the item. Any suggestion of overheating would be cause for a laboratory investigation into significant change of material properties.

3.2.4 All Operators are to ensure that procedures for proper usage of parts recovered from an aircraft involved in an accident are properly documented in their Organization's Maintenance Control Manual (MCM)/ Maintenance Procedures Manual (MPM) as applicable.