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1. PURPOSE

A. ECAR 5.6.1.6 (c) requires that all materials used in those parts of an aircraft which are essential for its safe operation shall conform to approved specifications. This Advisory Circular provides information and guidance to the Ethiopia aviation community of establishing the authenticity and serviceability of aircraft parts. This AC gives in detail the means to use aircraft parts removed from unserviceable aircrafts and disposal of scrapped parts.

B. 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.

C. It is essential that for the purposes of continuing airworthiness a system of control exists which ensures that only parts meeting the approved design data applicable to a particular aircraft are installed on that aircraft. This AC is in conformance with Volume II Part B of the ICAO Document 9760 – Airworthiness Manual and provides guidance for the establishment of such a system.

2. BACKGROUND

A. Parts and materials may be deemed scrap or salvageable once determined unserviceable or ineligible for installation on an aircraft, aircraft engine, or aircraft propeller. In some cases, it has been common practice to dispose of scrapped parts and materials by selling, discarding, or transferring the items. There have been some instances when these items have been discovered for sale or found in the active parts inventories of the aviation community. Misrepresentation of the status of parts and materials, and the practice of making such items appear serviceable, could result in their use on a certificated aircraft, aircraft engine, or aircraft propeller. A lack of proper industry controls may result in a part being copied or repaired and reintroduced into the market as an approved part.

B. A lack of proper industry controls may result in a part being copied or repaired and reintroduced into the market as an approved part. Use of such parts can have serious safety implications and liabilities for the manufacturer, aircraft operator, or repair facility. The use of an effective system to control scrap or salvageable parts and materials will reduce the potential for these items being distributed or sold as serviceable products.

B. Definitions

(1) Approved parts

An approved part is one meeting approved design data applicable to that part and which has been manufactured and subsequently maintained in accordance with the requirements of the State of Design, Manufacture or Registry, as applicable.

Note. — Parts approved pursuant to 1) above are eligible for installation on a specific aircraft if and only if they also meet the approved design data applicable to the particular aircraft they are to be installed on. For example, a seat designed and approved for 9 g forward loads is not eligible for installation on an aircraft which is required to have a seat that is dynamically tested for 16 g. Standard parts such as fasteners are considered as approved parts when they are in accordance with an approved or accepted standard and when referenced in the type design of the particular aircraft.

(2) Unapproved parts:

Parts not meeting the criteria described in 1) above are considered to be unapproved. Unapproved parts also include those parts improperly returned to service, for example:

a) Parts supplied directly to the user by a subcontractor not entitled to do so;

b) Parts maintained or approved for return to service by a person or

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organization not approved to do so;
c) Parts not maintained in accordance with the requirements of the applicable approved data; and
d) Parts having reached their life limit, including, if applicable, any shelf-life limit.

The airworthiness of an aeronautical product containing unapproved parts is questionable because the parts type design and quality are unknown. Positive identification of unproved parts is often difficult, due to the similarity of unapproved parts characteristics to those of approved parts. The ECAA-AC-AWS007 provides information and guidance to the Ethiopia organizations, particularly approved maintenance organizations and operators, for detecting suspected unapproved parts and reporting them to the ECAA.

(3) Scrap parts.

Parts the owner has decided to dispose of because he/she considers them to be of relatively little value and unusable for any other reason. Scrap parts may be considered in different categories:

(a) Parts which have no value except for the base material;
(b) Parts that are typically used in safety critical aviation applications and may have future use in non-aviation applications;
(c) Parts that are typically used in aviation applications that have relatively low safety impacts if they fail; and
(d) Parts whose misuse in aviation poses an insignificant safety risk.

3. SUPPORTING DOCUMENTATION

A. A documentation process providing written evidence of the acceptability of a part is an essential element of any system designed to ensure that only approved parts are installed on an aircraft. Such a process is intended to provide all relevant

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information, concerning the part to which it refers, sufficient to enable a potential installer to readily ascertain its status.

B. Such documents (for example the FAA Form 8130-3, JAA Form One and the **ECAA FORM:AWS007**) will contain information relating to: the authority under which it is issued; reference identification for the purposes of traceability; name, address and approval reference of the issuing organization; Work order, contract or invoice number; quantity, description, part number and, if applicable, serial number of the part; relevant information concerning any life limitations, compliance or non-compliance with any airworthiness directives, etc.;

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(5) Quantity, description, part number and, if applicable, serial number of the part;
(6) Relevant information concerning any life limitations, compliance or non-compliance with any airworthiness directives, etc.
(7) The signature and approval reference of the person issuing the document; and
(8) Whether the part is new or used.

C. Any part not accompanied by the appropriate documentation would be considered to be unapproved.

4. PARTS STORAGE AND DISTRIBUTORS

A. It is recognized that organization involved in storage and distribution of parts have a significant influence over the control of unapproved parts. Such organizations have an established commercial role of stocking or obtaining parts, often at short notice.

B. In airworthiness terms, the parts supplier's role is simply that of a holder of a part and its supporting data for a limited period, the part and data being passed in their

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entirety to the purchaser. The most effective control is exercised by the purchaser of the parts by ensuring that the part is correct and that the documentation truly reflects the status of the part. Further, the installer purchasing only from those suppliers having a known satisfactory record provides assurance.

5. PARTS REMOVED FROM AN AIRCRAFT NO LONGER IN SERVICE

A. 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.

B. 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.

C. Aviation Safety Inspectors in coordination with the operator are to make sure that part removal process is planned and controlled in the same manner as for routine maintenance work. The following points in particular should be considered:

(1) The means by which the part is removed should be in accordance with the normal maintenance data (e.g. maintenance manuals, job cards, etc.), using the tooling specified;
(2) Adequate access equipment should be provided;
(3) The removal takes place in a hangar or if in the open, disassembly ceased during inclement weather.
(4) If conducted in the open, disassembly should cease during inclement weather;
(5) All work should be carried out by appropriately qualified maintenance

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personnel who shall tag and endorse all removed item.

(6) All open connections should be blanked; and

(7) A protected and enclosed quarantine storage area for the parts being removed should be provided in the immediate vicinity of the work area.

(8) Documentary evidence of an assessment for condition by qualified personnel or organization depending on the scope of work necessary before the part is returned to service (simple external visual inspection, bench test or complete overhaul.

D. Ensure that an assessment for condition and eventual return to service of each removed part will 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 subparagraph C, range from a simple external visual inspection to a complete overhaul.

6. PARTS RECOVERED FROM AIRCRAFT INVOLVED IN ACCIDENTS

A. When an aircraft has been involved in an accident, the title to the salvage may pass from the insured owner to other persons (e.g. aircraft insurers); this salvage may be offered for sale either complete or as separate aircraft items in an "as is, where is" condition. 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 may not be returned to service.

B. 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.

C. 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 of course crack the item, with an even more dangerous potential. Further, a reduction in strength may

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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.

7. DISPOSAL OF SCRAPPED PARTS

A. The disposal of scrapped aircraft parts and materials in order to prevent the possibility of such parts and materials being misrepresented and sold as serviceable at a later date is of important to aviation industry.

B. Caution should be exercised to ensure that the following types, parts and materials are disposed of in a controlled manner that does not allow them to be returned to service.

(1) Parts with non-repairable defects (whether visible or not to the naked eyes).
(2) Parts that are not within the specification and cannot be brought into conformity with the applicable specifications
(3) Parts and materials for which further rework cannot make them eligible for recertification
(4) Parts subjected to unacceptable modifications or rework that is irreversible
(5) Life-limited parts that have reached or exceeded their life limit or have missing or incomplete records.
(6) Parts that cannot be returned to an airworthy condition (for whatever reason)
(7) Principal structural elements removed from high cycle aircraft for which conformity cannot be accomplished.

C. Scrapped parts should always be segregated from serviceable parts, and when eventually disposed of, should be mutilated or clearly and permanently marked. This should be accomplished in such a manner that the parts become unusable for

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their original intended use and unable to be reworked or camouflaged to provide the appearance of being serviceable.

D. When scrapped parts are disposed of for legitimate non-flight uses, such as training and education aids, research and development, or for non-aviation applications, mutilation is often not appropriate. In such cases the parts should be permanently marked indicating that they are not serviceable; alternatively, the original part number or data plate information can be removed or a record kept of the disposition of the parts.

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