

# Technical Guidance Material for Authenticity and Serviceability of Aircraft Parts

**SUBJECT: Authenticity and Serviceability of aircraft parts**

**Previous Revision: 07 December 2016**  
**Effective Date: 19 January 2023**

## Contents

<b>I. PURPOSE.....</b>	<b>2</b>
<b>II. DEFINITION.....</b>	<b>2</b>
<b>III. REGULATED SOURCES .....</b>	<b>3</b>
<b>IV. AIM OF THE TECHNICAL PUBLICATION .....</b>	<b>3</b>
<b>V. REFERENCES MATERIAL .....</b>	<b>3</b>
<b>VI. BACKGROUND.....</b>	<b>3</b>
<b>VII. APPROVED PARTS.....</b>	<b>4</b>
<b>VIII. UNAPPROVED PARTS.....</b>	<b>4</b>
<b>IX. SUPPORTING DOCUMENTATION.....</b>	<b>4</b>
<b>X. CERTIFICATION AND TRACEABILITY REQUIREMENTS BY PART CONDITION AND DESCRIPTION.....</b>	<b>5</b>
<b>XI. PRECAUTIONS TO PREVENT THE INADVERTENT ACCEPTANCE OF UNAPPROVED PARTS.....</b>	<b>6</b>
<b>XII. UNAPPROVED PARTS REPORTING .....</b>	<b>7</b>
<b>XIII. PARTS STOCKISTS AND DISTRIBUTORS.....</b>	<b>7</b>
<b>XIV. PARTS REMOVED FROM AN AIRCRAFT NO LONGER IN SERVICE .....</b>	<b>7</b>
<b>XV. PARTS RECOVERED FROM AIRCRAFT INVOLVED IN ACCIDENTS.....</b>	<b>8</b>
<b>XVI. DISPOSAL OF SCRAPPED PARTS.....</b>	<b>8</b>

## I. PURPOSE

The purpose of this publication is to provide guidance on the acceptance of aircraft parts and components so that responsibilities, under the applicable Civil Aviation Act (Act 13 of 2009) Part 21 and 43 of Civil Aviation Regulations of 2011 as amended read together with the Technical Standards, may be satisfied in a manner acceptable to the Director.

## II. DEFINITION

When the following terms are used in this guidance document, they have the meanings shown. These definitions are found in Civil Aviation Act, Civil Aviation regulations and ICAO Annexes 6, 7, 8 and 16. Some of these definitions have been restated herein for ease of reference as well as to express the SACAA's view on them. The additional definitions not stated in other documents are for the sole use of this document and further to express the SACAA's view on them.

*Aeronautical product* – Any aircraft, aircraft engine, aircraft propeller or a part to be installed thereon.

*Airworthiness Directive* – Regulatory document which identifies aeronautical products in which an unsafe condition exists, and where the condition is likely to exist or develop in other aeronautical products of the same type design. It prescribes mandatory corrective actions to be taken or the conditions or limitations under which the aeronautical products may continue to be operated. The AD is the common form of mandatory continuing airworthiness information.

*Airworthiness Standards* – Detailed and comprehensive design and safety criteria applicable to the category of the aeronautical product (aircraft, engine and propeller) that satisfy, at a minimum, the applicable standards of Annex 8. (Adopted in CATS 21)

*Airworthy* – The status of an aircraft, engine, propeller or part when it conforms to its approved design and is in a condition for safe operation.

*Continuing airworthiness* – Set of processes by which an aircraft, engine, propeller or part complies with the applicable airworthiness requirements and remains in a condition for safe operation throughout its operating life.

*Maintenance* – The performance of tasks required to ensure the continuing airworthiness of an aircraft, including any one or combination of overhaul, inspection, replacement, defect rectification, and the embodiment of a modification or a repair.

*Maintenance release* – A document which contains a certification confirming that the maintenance work to which it relates has been completed in a satisfactory manner, either in accordance with the approved data and the procedures described in the maintenance organization's procedures manual or under an equivalent system.

*Instructions for continuing airworthiness ("ICA")* - A set of descriptive data, maintenance planning and accomplishment instructions, developed by a design approval holder in accordance with the certification basis for the aeronautical product. The ICAs provide air operators with the necessary information to develop their own maintenance programme and also for approved maintenance organizations to establish the accomplishment instructions.

*Life-limited part* – Any part for which a mandatory replacement limit (in hours, cycles or calendar time) is specified in the type design, the mandatory continuing airworthiness information or instructions for continuing airworthiness. These parts must be permanently removed from service on or before this limit is reached.

*Repair* – The restoration of an aeronautical product to an airworthy condition as defined by the appropriate airworthiness requirements.

*State of Design* – The State having jurisdiction over the organization responsible for the type design.

*State of Manufacture* – The State having jurisdiction over the organization responsible for the final assembly of the aircraft.

*State of Registry* – The State on whose register the aircraft is entered.

*State of the Operator* - The State in which the operator's principal place of business is located or, if there is no such place of business, the operator's permanent residence.

### **III. REGULATED SOURCES**

1. OEM & Manufacturing Organizations: Original Equipment Manufacturers (OEMs) that are the Manufacturing Organization or Production Approval Holders issued in terms of Part 21.
2. Approved Maintenance Organization's: South African Part 145 approved organization, whose capability allows them to perform specific maintenance and to issue an Authorized Release Certificate (CA 21-19)

### **IV. AIM OF THE TECHNICAL PUBLICATION**

This publication provides guidance to persons issuing the Certificate of Release to Service for the installation of components, or for organisations sourcing such components for incorporation into parts or assemblies for release for an aircraft which South Africa is a State of Registration.

### **V. REFERENCES MATERIAL**

- Civil Aviation Act;
- South African Civil Aviation Regulations as amended Part 1; 21; 43; 140 and 145  
Read together with Technical Standards
- ICAO SARPS Annex 6
- ICAO Annex 7
- ICAO Annex 8
- ICAO Doc 9760

### **VI. BACKGROUND**

1. The need to ensure that parts or components installed on an aircraft meet the design specification and are serviceable is self-evident. The installation of any part or component failing to meet the intended design requirements degrades those requirements, leading to a degradation of airworthiness.

2. 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.

## VII. APPROVED PARTS

1. An approved part is one whose design has been found to be acceptable to the State of Design, whose proper manufacture has been approved by the State of Manufacture, and that has been found to be in a condition for safe operation by the State of Registry.

**Note.-** *Parts approved pursuant to 6.1 are eligible for installation on a specific aircraft if, and only if, they also meet the approved design data applicable to the particular aircraft on which they are to be installed. For example, a seat designed and approved for 9g forward loads is not eligible for installation on an aircraft which is required to have a seat that is dynamically tested for 16g.*

2. Standard parts such as fasteners are considered as approved parts when they are in compliance with a national- or industry-accepted standard and when referenced in the type design of the particular aircraft.

## VIII. UNAPPROVED PARTS

Parts not meeting the criteria described in 6.1 and 6.2 are considered to be unapproved. Any part not supported by the required documentation {see 8 below) would also be considered to be unapproved.

Unapproved parts also include those parts improperly returned to service, for example:

- a) parts supplied directly to the end user by a contractor without direct ship authority from the design approval holder and the State of Manufacture to do so;
- b) parts maintained or approved for return to service by a person or organization not approved to do so;
- c) parts not maintained in accordance with the requirements of the applicable approved data; and
- d) parts having reaching their life limit, including, if applicable, any shelf-life limit.

## IX. SUPPORTING DOCUMENTATION

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

### A. SUCH DOCUMENTS WILL CONTAIN INFORMATION RELATING TO:

- a) the authority under which it is issued;
- b) reference identification for the purposes of traceability;
- c) name, address and approval reference of the issuing organization;
- d) work order, contract or invoice number;
- e) quantity, description, part number and, if applicable, serial number of the part;
- f) relevant information concerning any life limitations, including in-service history records;
- g) the signature and approval reference of the person issuing the document; and
- h) whether the part is new or used.

## **X. CERTIFICATION AND TRACEABILITY REQUIREMENTS BY PART CONDITION AND DESCRIPTION**

### **A. NEW PART**

- (a) The original certification from the OEM.
- (b) Appropriate documentation shall include one or a combination of the following:  
Authorized Release Certificate:
  - i. JAA FORM 1 issued before 28 November 2004)
  - ii. EASA FORM 1
  - iii. FAA 8130-3
  - iv. Transport Canada (TCCA) FORM 1
  - v. Transport Canada (TCCA) FORM 24-00078(issued before Dec 30,2008)
  - vi. ANAC Form SEGVOO 003
  - vii. A release document issued by an organization under the terms of a bilateral agreement signed by the South African Government-refer to CAR 21.10.1
  - viii. Correct Form CA21-19 to be used by an SACAA approved AMORG

### **B. NEW SURPLUS (UNUSED)**

- (a) Certification & traceability back to a Regulated Source stating that the material is new.
- (b) Appropriate documentation may include one or a combination of the following:
  - I. JAA FORM 1 (issued before 28 November 2004}
  - II. EASA FORM 1 III. FAA 8130-3
  - IV. Transport Canada (TCCA) FORM 1
  - V. Transport Canada (TCCA) FORM 24-00078(issued before Dec 30,2008}
  - VI. ANAC Form SEGVOO 003
  - VII. A release document issued by an organization under the terms of a bilateral agreement signed by the South African Government-refer to CAR 21.10.1
  - VIII. Correct Form CA21-19 to be used by an SACAA approved AMORG or AMO ( An ARC is regarded as a traceability document as it is issued by an AMORG

### **C. OVERHAULED, REPAIRED, INSPECTED OR MODIFIED**

- a} Certification & traceability which can be tracked back to the last operator and/or Regulated Source, including a non-incident & non-military statement;
- b) Original material certification form that meets the requirements of ATA Spec 106 or other industry accepted certification stating the part is in the same condition as listed on the Authorized Release Certificate
- c} The original CA21-19,FAA Form 8130-3, JAA Form 1(issued before 28 November 2004}, EASA Form 1 or TCCA Form 1 issued by approved maintenance facility that is approved to perform the repair by the Director or relevant airworthiness regulatory authority;
- d} Details of work performed or teardown report, including Service Bulletins (SB} number, Modification number or Airworthiness Directives (AD}, with revision number and date;
- e} Name of the service manual and/or part number or ATA chapter reference used to perform the repair and the revision level and revision date of the manual; and,

f} Any repairs incorporated into the part must be those repairs listed in the OEM's service, repair or overhaul manual. SACAA approved repairs scheme numbers must be listed in Box 13 of the Authorized Release Certificate along with the Revision number of date. Copies of the repair scheme explanation

#### D. REPAIRABLE/AS-IS or AS REMOVED MATERIAL

- a) Certification & traceability back to last operator and/or Regulated Source including a non-incident/non- military use statement; and,
- b) Original material certification form that meets the requirements of ATA Spec 106 or other industry accepted certification stating the part is repairable, as-is, where is, or as removed.

c} In the event the certification and/or traceability is incorrect, missing or altered, or if the condition of the part is not in accordance with the condition stated on the certification or the condition as stated the part(s) will be rejected.

d) The Authorized Release Certificate must specify all ADs that are represented as having been accomplished, including the AD number(s), AD amendment number(s), and date(s) and method(s) of compliance;

#### E. CERTIFICATION REQUIREMENTS FOR LIFE LIMITED PARTS

All life limited parts must meet the documentation and certification requirements the following additional requirements :

- a) A non incident statement from the last operator.
- b) Each life limited part shall be accompanied by a document, produced at the time the part was removed from the engine, module or aircraft (as the case may be), detailing the manufacturer's part number, serial number, current total time and current total cycles. The document shall also include the serial number, total time, total cycles, and model number of the next higher assembly, aircraft or engine (as the case may be), and must be signed by an authorized representative of the company that prepared it;
- c) In the event that the part was installed on more than one engine or aircraft, the requirements of the above paragraph must be met, plus disk sheets or log book entries with the manufacturer's part number and serial number of the part, plus the serial numbers and model numbers of all engines or airplanes that the part was installed on. All such sources of information (maintenance release tags, disk removal installation sheets, log book entries, etc) must accurately trace the history of all life limited parts back to new;
- d) Complete history of all vendor/manufacturer/repair facility modifications to life limited parts relative to any service bulletins and/or airworthiness directives which affects part number, life limit or re-inspection requirements; and,
- e) For all life limited parts (new or used), one or a combination of the following is required; CA21-19,FAA Form 8130-3, JAA Form 1, EASA Form 1 or TCCA Form 1.

### **XI. PRECAUTIONS TO PREVENT THE INADVERTENT ACCEPTANCE OF UNAPPROVED PARTS**

1. Documentary evidence of compliance with an approved process will not in itself provide a guarantee against the installation of unapproved parts if the original supplier of such parts knowingly provides false information or otherwise sets out to deceive .
2. It is always necessary to have secondary defences in place designed to give early warning of unapproved parts prior to their release for installation. The primary defence in such cases is a strong,

well-informed and alert parts ordering and receiving system which, through auditing and reports, establishes a satisfactory level of confidence in its parts suppliers and which:

- a) ensures a continual correlation between parts ordered and parts received;
- b) is alert to any unauthorized alterations to supporting documentation and to any inability of the supplier to supply the required documentation;
- c) is aware if a quoted price for the part is significantly lower than that quoted by other suppliers;
- d) is aware that delivery times are significantly shorter than those quoted by other suppliers; and
- e) is aware of parts packaging methods used by approved parts manufacturers , maintenance organizations and distributors, and can detect deviations from these methods.

3. Organizations, particularly approved maintenance organizations and operators, should ensure that all those staff who have routine contact with parts, especially including buyers, stores staff , mechanics and certifying staff, are fully aware of the dangers posed by unapproved parts and also the likely sources. Ample warnings should be given to such staff about accessing any unapproved parts database. Approved maintenance organizations and operators will also need to ensure that their parts suppliers are fully integrated into the reporting network, and audits will be necessary among staff at intervals to ensure that all remain vigilant to the problem.

## **XII. UNAPPROVED PARTS REPORTING**

1. Defect Reporting Systems used by end users to report to type certificate holders and regulatory agencies are intended to provide widespread warning of the detection of unapproved parts so that operators of similar equipment can be made aware as soon as possible. In an event of the likely random appearance of unapproved parts, please report complete Form CA43-06 or CA43-15 and submit such forms to the SACM.
2. At any time a part is deemed to be suspect, it and any accompanying documentation should be quarantined immediately and held until the processing of the reports by SACM is completed and satisfied that the evidence is no longer required or until the authenticity of the part has been established.
3. Some reports of suspected unapproved parts will eventually turn out to be false as further information becomes available in the form of supporting documentation.

## **XIII. PARTS STOCKISTS AND DISTRIBUTORS**

1. It is recognized that parts stockists and distributors have a significant influence over preventing the use of unapproved parts. Such organizations have an established commercial role of stocking or obtaining parts, often at short notice.
2. 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 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 assurance is provided by the installer purchasing only from those suppliers having a known satisfactory record.
3. Parts distributors may also break down large orders of identical parts into smaller lots for shipment to end users. In this case they should provide documentation that the parts came from the original large order and either issue a second set of airworthiness documentation, or attach a copy of the original airworthiness documentation.

## **XIV. PARTS REMOVED FROM AN AIRCRAFT NO LONGER IN SERVICE**

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.

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 Mandatory continuing airworthiness information(MCAI), 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. 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. the means by which the part is removed should be in accordance with the normal maintenance data(e.g. maintenance manuals), using the tooling specified;
  - b. adequate access equipment should be provided;
  - 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 label identification to show serviceability status.
4. An assessment for condition and eventual return to service of each removed part 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 14.1, range from a simple external visual inspection to a complete overhaul.


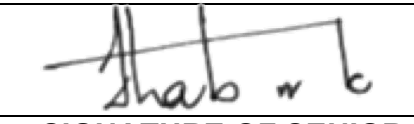
## **XV. PARTS RECOVERED FROM AIRCRAFT INVOLVED IN ACCIDENTS**


1. When an aircraft has been involved in an accident, the title to the salvage may pass from the insured aircraft 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.***
2. Before overhaul and reinstallation can be considered, all such items must therefore be subject to airworthiness 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. 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 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 not 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.

## **XVI. DISPOSAL OF SCRAPPED PARTS**



1. Those responsible for the disposal of scrapped aircraft parts and materials should consider the possibility of such parts and materials being misrepresented and sold as serviceable at a later date. Caution should be exercised to ensure that the following types of parts and materials are disposed of in a controlled manner that does not allow them to be returned to service:
  - a. parts with non-repairable defects, whether visible or not to the naked eye;
  - b. parts that are not within the specifications set forth by the approved design and cannot be brought into conformity with applicable specifications;
  - c. parts and materials for which further processing or rework cannot make them eligible for certification under an approved system;
  - d. parts subjected to unacceptable modifications or rework that is irreversible;
  - e. life-limited parts that have reached or exceeded their life limits, or have permanently missing or incomplete records;
  - f. parts that cannot be returned to an airworthy condition due to exposure to extreme forces or heat (see 14); and
  - g. principal structural elements removed from a high-cycle aircraft for which conformity cannot be accomplished by complying with the mandatory requirements applicable to ageing aircraft.
2. Scrapping of parts and materials may not be appropriate in certain cases when there is an on-going evaluation process to determine whether a part or material may be restored to an airworthy condition. Examples of these cases include the extension of life limits, the re-establishment of in-service history records, or the approval of new repair methods and technologies. In these cases, such parts should be segregated from serviceable parts until the decision has been made as to whether these parts can be restored to an airworthy condition, or be scrapped.
3. 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 their original intended use and unable to be reworked or camouflaged to provide the appearance of being serviceable.
4. 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.

<b>DEVELOPED BY:</b>		
	<b>Richard Mafahla</b>	<b>19 January 2023</b>
<b>SIGNATURE OF MANAGER: AIRCRAFT MAINTENANCE ORGANIZATION</b>	<b>NAME IN BLOCK LETTERS</b>	<b>DATE</b>
<b>REVIEWED &amp; VALIDATED BY:</b>		
	<b>Lobang Thabantso</b>	<b>20 January 2023</b>
<b>SIGNATURE OF SENIOR MANAGER:</b>	<b>NAME IN BLOCK LETTERS</b>	<b>DATE</b>

<b>AIRWORTHINESS</b>		
<b>APPROVED BY:</b>		
<p>p.p. </p>	<b>Simon Segwabe</b>	<b>20 January 2023</b>
<b>SIGNATURE OF EXECUTIVE MANAGER: AIRCRAFT SAFETY OPERATIONS</b>	<b>NAME IN BLOCK LETTERS</b>	<b>DATE</b>

**END**