

AERONAUTICAL CIRCULAR CIVIL AVIATION AUTHORITY – MACAO, CHINA

SUBJECT:

The Acceptance of Aircraft Components

EFFECTIVE DATE:

10 March 2025

CANCELLATION:

This Aeronautical Circular (AC) supersedes AC No. AC/AW/002R05 dated 15 December 2015.

GENERAL:

The President of Civil Aviation Authority – Macao, China, in exercise of his power under Article 35 of the Statutes of Civil Aviation Authority approved by the Decree-Law 10/91/M and paragraph 89 of the Air Navigation Regulation of Macao (ANRM) establishes this AC.

1 Introduction

- 1.1 The purpose of this AC is to provide guidance on the acceptance of aircraft components to persons issuing the Certificate of Release to Service (CRS) for the installation of components, or for organisations sourcing such components, so that responsibilities under the ANRM, may be satisfied in a manner acceptable to the Civil Aviation Authority – Macao, China (AACM).
- 1.2 This AC is applicable to components intended for installation in a Macao registered aircraft.
- 1.3 A component received in accordance with this AC should also have its eligibility for an individual aircraft established by the end user, considering applicable Mandatory Continuing Airworthiness Information (MCAI) from Macao and the State of Design, and other relevant Aircraft Technical Publications.

- 1.4 The ANRM prescribes that an aircraft registered in Macao, for which a Certificate of Airworthiness is in force, shall not fly unless a Certificate of Release to Service (CRS) has been issued in accordance the ANRM if the aircraft or any part of the aircraft or of such of its equipment as is necessary for the airworthiness of the aircraft, has been overhauled, repaired, replaced, modified, maintained, or has been inspected as provided in the ANRM, as the case may be.

Note: The ANRM also requires a CRS to be issued for radio and certain specified equipment.

- 1.5 The ANRM further prescribes that the CRS will certified that the overhaul, repair, replacement, modification or maintenance, as the case may be, has been carried out in a manner and with material of a type approved by the AACM either generally or in relation to a class of aircraft or the particular aircraft. The CRS shall identify the task to which it relates and shall include particulars of the work done. The foregoing requirements also apply to the inspection specified in an approved maintenance schedule and mandatory inspection.

- 1.6 Where an aircraft component is replaced with a newly manufactured (unused) component, the Authorised Release Certificate issued with the component by the manufacturer may form the basis for the issue of the required CRS and, therefore, the fitness of a correctly identified component to be installed on an aircraft.

Note: Acceptance of Authorised Release Document under this AC does not constitute the approval of design data. Modification or repairs that consist of design approval recorded on the Authorised Release Document are subject to approval by the AACM under the MAR-1 Airworthiness Procedures No. AP5.

2 Definitions

For the purpose of this AC the following definitions apply:

- (a) **Aircraft Component** means any engine, propeller, part or appliance.
- (b) **Parts and Appliances** shall mean any instrument, equipment, mechanism, part, apparatus, appurtenance or accessory, including communications equipment, that is used or intended to be used in operating or controlling an aircraft in flight and is installed in or attached to the aircraft. It shall include parts of an airframe, engine, or propeller.
- (c) **Product** shall mean an aircraft, engine or propeller.

- (d) **Standard Parts.** A part is considered as a standard part where it is designated as such by the design approval holder (DAH) responsible for the product, part or appliance in which the part is intended to be used.

In order to be considered a standard part, all design, manufacturing, inspection data and marking requirements necessary to demonstrate conformance of that part shall be in the public domain and published as part of a national or international specification.

Note: Parts which are the subject of specific product or equipment approvals such as technical standard orders (TSO), joint technical standard orders (JTSO) or joint parts approval (JPA) are not considered as standard parts.

When designating a standard part, the DAH should ensure that the effect on the design of any manufacturing tolerances within the specification are fully taken into account in the intended application. If it is found necessary to apply additional qualification or selection criteria over and above the published specification in order to satisfy the intended design requirements (such as enhanced levels of inspection, burn-in, or environmental tests etc.) then the DAH should allocate its own part number reference and such parts cannot be considered as standard parts.

- (e) **Critical Part** means a part for which the failure analysis shows that hazardous effects, or worse, are not to occur at a rate in excess of extremely remote. This can also include parts for which a replacement time, inspection interval, or related procedure is specified in the Airworthiness Limitations section of the manufacturer's maintenance manual or Instructions for Continued Airworthiness.
- (f) **Non-required Equipment** means equipment not required for type certification or by the operating rules or whose improper functioning would not reduce safety.
- (g) **Permanent** means an item of equipment not defined as a Portable Electronic Device (PED) and that is not designed to be installed or removed by flight crew, and would typically require maintenance action for installation or removal.
- (h) **Specification.** A specification would typically consist of a drawing and/or DDP (Declaration of Design and Performance). The DDP would identify any limitations for the equipment installation. The source control drawing would show the part, labelling and the supplier.

3 Requirements

- 3.1 Authorised Release Document is required for any aircraft component which is to be installed in an aircraft, except that it is not required for standard parts as defined in paragraph 2 (d).
- 3.2 Unless otherwise specified, Authorised Release Document shall be in accordance with the particular National Aviation Authority (NAA) requirements and completed in English
- 3.3 The following organisations are considered to be acceptable sources for aircraft components when certifying work within the scope of their approval or authorisation.
- 3.4 **Newly Manufactured Components (Exclude Parts Manufacturer Approval Components)**
- (a) Any organisation approved by the AACM with an appropriate approval in accordance with Part III of ANRM which releases the aircraft component on the Authorised Release Certificate, AACM Form One.
 - (b) Organisations located in Canada and appropriately approved under Transport Canada (TC) with TCCA Form One (previously Form 24-0078).
 - (c) Organisation located either in or outside the European Union and approved under EASA Part 21, with EASA Form 1 issued under the terms of their respective Approval.
 - (d) Organisation approved under JAR-21 with JAA Form One issued before 28 September 2005.
 - (e) Organisations located in the United States of America (USA) and appropriately approved by the Federal Aviation Administration (FAA), which arranges for the release of aircraft component on FAA Form 8130-3 Authorised Release Certificate / Airworthiness Approval Tag. Further information regarding the use of FAA Form 8130-3 is contained in FAA Order 8130.21H or later revisions.
 - (f) Some aircraft components may be manufactured by organisations that do not fall within the foregoing group classifications. Where the organisation is the original manufacturer, the AACM may accept such aircraft components without the foregoing release documentation, subject to the organisation being under the control of the aircraft, engine or propeller Type Certificate holder and authorised by the Primary NAA

for that particular purpose at the time that the component was manufactured.

Note: The Primary NAA is that of the country of the Type Certificate holder.

3.5 Parts Manufacturer Approval (PMA) Components

- (a) The position of the AACM regarding FAA-PMA (Parts Manufacturer Approval of FAR 21.303) parts is that an operator can accept all non-critical PMA components and all PMA 'license' components (i.e. with the permission of the Design Holder to make the part) using an appropriate FAA 8130-3 release and without further conditions being imposed. Other critical PMA components may be accepted with an appropriate Form 8130-3 release, providing that they are for fitment to an aircraft, engine or propeller where the FAA is the authority of the State of Design, or with prior authorisation from the AACM, where the PMA component is manufactured with the permission of the Type Certificate / Supplemental Type Certificate holder.
- (b) Organisations approved by the Civil Aviation Administration of China (CAAC) under CCAR-21, which arranges for the release of PMA parts by CAAC Form AAC-038.

The AACM allows operators to accept all CAAC PMA components for the use on a Macao registered aircraft. All those CAAC PMA components shall carry an appropriate CAAC Form AAC-038 release.

- (c) Organisations approved by the Civil Aviation Department, Hong Kong, China (HKCAD), under HKAR-21 Subpart K, which arranges for the release of PMA components by Authorised Release Certificate, CAD Form One.

The AACM allows operators to accept all Hong Kong PMA components for the use on a Macao registered aircraft. All those Hong Kong PMA components shall carry an appropriate CAD Form One release.

3.6 Maintained (Used) Components

- (a) Any organisation approved by the AACM with an appropriate approval in Rating 'B' and/or 'C' in accordance with Part III of ANRM and/or MAR-145 which releases the aircraft component on the Authorised Release Certificate, AACM Form One (see MAR-145) for aircraft components which have been maintained.

- (b) Any Organisation appropriately approved by the NAA of any member of the JAA where the NAA has complied with JAA requirements for the grant of JAR-145 approval and the NAA procedures have been the subject of a satisfactory audit by the JAA Maintenance Standardisation Team (MAST), and with the Authorised Release Certificate, JAA Form One, issued before 28 November 2004.
- (c) Organisations located either in or outside the European Union and approved under EASA Part 145, with EASA Form 1 issued under the terms of their Approval.
- (d) Any repair station appropriately certificated under FAR Part 145 located in the USA, or not in the USA but accepted by the AACM, which releases the aircraft component on the FAA Form 8130-3 Authorised Release Certificate / Airworthiness Approval Tag.

All repair stations certificated under FAR Part 145 located not in the USA and accepted by the AACM are listed in Appendix 1 of this AC. The acceptance for those repair station will be terminated on the date specifying on the table respectively.

Request for the AACM acceptance or extension on the existing acceptance for any repair station certificated under FAR Part 145 located not in the USA will have to make to the AACM in writing and substantiate with supporting documents.

- (e) Any organisation recognised under the Cooperation Arrangement on Joint Maintenance Management between CAAC, HKCAD and AACM (detailed in AC No. AC/AW/035) and appropriately approved in the aircraft component rating(s).

All aircraft components shall be released on an Authorised Release Document. The Authorised Release Document from recognised organisations approved by CAAC should be Form AAC-038 and the document may be completed in Chinese. The Authorised Release Document from recognised organisations approved by HKCAD should be CAD Form One.

- (f) Organisations located in Canada and appropriately approved under Transport Canada (TC) with TCCA Form One (previously Form 24-0078).
- (g) Some aircraft components may be maintained by organisations that do not fall within the foregoing group classifications. Where the organisation is also the original manufacturer, the AACM may accept such aircraft components without the foregoing release documentation,

subject to the organisation being under the control of the aircraft or engine or propeller Type Certificate holder and is authorised by the Primary NAA for that particular purpose at the time that the component was maintained.

Note: The Primary NAA is that of the country of the Type Certificate holder.

4 Aircraft components obtained from another Operator or Maintenance Organisation

- 4.1 When an aircraft is grounded at a location other than the main line station or main maintenance base due to the non-availability of an aircraft component with the appropriate release certificate, it is permissible to temporarily fit an aircraft component without the appropriate release certificate for a maximum of 30 flight hours or until the aircraft first returns to the main line station or main maintenance base, whichever is the sooner, subject to the aircraft operator agreement and said component having a suitable serviceable tag but otherwise in compliance with Air Operator Certificate requirements and all other MAR-145 requirements. Such aircraft components shall be removed by the specified time unless an appropriate release certificate has been obtained in the meantime.
- 4.2 Aircraft components from the above sources which are then sold surplus to requirements shall be accompanied by the original certification documentation and maintenance records, as appropriate.

5 Confirmation on the reference to the Regulatory Authority and Authorisation

The AACM is aware that some Distributors are using a release form which is almost identical to the Authorised Release Certificate, JAA/EASA Form One / FAA 8130-3 / AACM Form One, but omitting the reference to the Regulatory Authority and Authorisation. Such documents are not acceptable alternatives to the JAA/EASA Form One / FAA 8130-3 / AACM Form One.

6 The Need for Authorised Release Documents for Commercial Off the Shelf Equipment:

- 6.1 ANRM Paragraph 12(6) requires that all equipment installed or carried on an aircraft is installed/stowed, maintained and adjusted such that it is not a source of danger in itself or will impair the airworthiness of the aircraft or any other equipment or service necessary for the safety of the aircraft.

The following identifies AACM policy to be applied by those organisations for which the AACM are responsible.

6.2 Permanently installed Equipment

- (a) Paragraph 2 (b) of this AC defines parts and appliances (i.e. items of equipment). It includes those items intended to be used in operating or controlling the aircraft. For the purposes of the release of commercial off-the-shelf (COTS) 'industry supply' equipment, those items defined as 'no hazard' which are not used in operating or controlling the aircraft are considered to be excluded and therefore an Authorised Release Certificate is not necessary. A Certificate of Conformity is an acceptable means to support the identification of an item's authenticity.

In consideration of whether this paragraph applies in this respect, the non-applicable 'no hazard' item shall not:

- have any unsafe operating modes;
- have any unsafe failure modes (structural, electrical, system interface etc.);
- have any influence on the aerodynamics or flight characteristics or capabilities of the aircraft;
- be used to satisfy any airworthiness/certification or operational requirement.

Such non-required equipment could include items such as DVD players or role/ mission equipment (not required for the safe operation of the aircraft) and may be approved for use within a permanent installation on a no hazard, no credit basis. The design organisation shall substantiate the no hazard determination of the item as part of its approved design data for its installation.

The design organisation will also provide instructions for the continued airworthiness (ICA) of the equipment. This will constitute approved data that will detail the requirements for the installation, removal, test, and maintenance of the equipment. The ICA will also provide a means for an aircraft maintenance organisation to ensure that the equipment conforms to the expected design standard and that its no hazard status is retained.

- (b) Items of equipment that are predominantly based upon COTS articles that are not excluded as described in paragraph 6.2 (a) may also be approved for aircraft use within a permanent installation, if it can be demonstrated during certification that the equipment complies with the applicable airworthiness and environmental requirements. Such equipment requires authorised release certification for installation.

The design organisation will also provide instructions for the continued airworthiness (ICA) of the equipment. This will constitute approved data that will detail the requirements for the installation, removal, test, maintenance and repair of the equipment. Compliance with the approved maintenance instructions will enable an appropriately approved maintenance organisation to release the maintained/repaired equipment, on an authorised release certification with the relevant block completed, as a repaired item.

It is recognised that the expertise to repair some COTS equipment will exist only within the equipment manufacturer's organisation. It is therefore necessary for the (aviation) approved maintenance organisation to ensure effective sub-contract oversight of the equipment manufacturer conducting such repair/maintenance activity, as required by MAR-145 Paragraph 145.75. It is expected that the approved maintenance organisation will establish that the repaired equipment meets the design-organisation-approved standard on return from sub-contract repair, prior to completion of the Authorised Release Certificate.

6.3 Portable 'Attached' Equipment

- (a) In the case where equipment is 'attached' or 'docked', but not permanently installed, an assessment will be required by the design organisation to determine by test that the equipment does not present a hazard to the aircraft. This may include, but is not limited to, electromagnetic emissions and battery safety. Guidance exists for equipment in the following applications:

- Electronic Flight Bag (EFB): AC No. AC/OPS/029 /
JAA TGL No 36
- Use of PEDs Aboard Aircraft: AC No. AC/OPS/032 /
FAA AC-91.21-1D
- Use of Electrically Powered Medical Equipment on Aircraft: CAAIP Leaflet 25-20

Unmodified COTS portable equipment (e.g. laptop, or MP3 player/Ipod) that is to be used on an aircraft is not eligible for Authorised Release Certificate release.

The modification for the attachment/docking to the aircraft would be subject to the normal MAR-1 AP5 (Modification and Repair of Aircraft) approval process.

6.4 Portable Equipment / Portable Electronic devices (PEDs)

- (a) A portable electronic device is one that operates from internal batteries or is plugged into an electrical supply (e.g. power outlet) designed for that purpose on the aircraft. Any item that is permanently connected into the aircraft is not a portable electronic device.
- (b) As with the portable 'attached' equipment, PEDs are not eligible for Authorised Release Certificate. ANRM Paragraph 12(6) still applies and there is further guidance available in AC No. AC/OPS/032.
- (c) For commercial operations, operators shall ensure that the use of PEDs cannot adversely affect the performance of the aircraft's systems and equipment

6.5 Software Considerations

- (a) For field Loadable Software (FLS) or Data Field Loadable Data (DFLD) files that are not required to meet a specific airworthiness or operational requirement /regulation or certification specification, a Certificate of Conformity is sufficient.

7 Distributors

- 7.1 Although aircraft component distributors provide a useful service to the aviation industry they are not required to be approved by the AACM, cannot raise Authorised Release Documents and cannot be required to possess the necessary technical expertise to establish the status of aircraft components. It therefore follows that for all components received, the end user should request from the distributor the associated Authorised Release Document raised by an appropriately approved organisation as described above.

Where a distributor does not want to pass the document of the component to a potential buyer, being another distributor, it is acceptable for the documentation of the original distributor to be endorsed:

'Authorised Release Documentation of the aircraft component is on file, Ref. No. # # # # and will be made available to the end user upon request from that end user.'

Upon request of the end user the distributor should transmit the original documentation to allow the end user to establish the components

acceptability prior to installation. In all cases it is the responsibility of the end user to obtain the appropriate Authorised Release Documentation and establish the acceptability of the component.

Note: Where more than one component appears on the Authorised Release Document and the components are to be distributed separately a certified true copy of the Authorised Release Document is acceptable for transmittal to the end user. It should be made clear which entries on the copy of the Authorised Release Document relate to the supplied components.

- END -