

**Concerning Changes to EASA Part 145 Related to Annex II to ED Decision
2019/009/R**

**New Requirements Procedures and Obligations related to Stores, Material
and Logistic Activities with an EASA Part 145 Organisation**

Review by Steve Bentley CEO of Sofema Aviation Services www.sassofia.com

Concerning

Acceptable Means of Compliance (AMC) and Guidance Material (GM) to Annex II
(Part-145) to Commission Regulation (EU) No 1321/2014 Issue 2 — Amendment 2

When is a new AMC & Guidance driven requirement effective from?

***Unless stated otherwise they are effective from the day they are issued,
however a reasonable amount of time is required (and expected) to
accommodate the changes typically organisations should focus on making
the necessary changes within a period of 3 to 6 months would be normally
acceptable. Ultimately it should be agreed with your competent authority.***

AMC1 145.A.42(a)(i) Components

EASA FORM 1 OR EQUIVALENT

A document equivalent to an EASA Form 1 may be:

- (a) a release document issued by an organisation under the terms of a bilateral agreement signed by the European Union;
- (b) a release document issued by an organisation approved under the terms of a JAA bilateral agreement until superseded by the corresponding agreement signed by the European Union;
- (c) a JAA Form One issued prior to 28 November 2004 by a JAR 145 organisation approved by a JAA Full Member State;
- (d) in the case of new aircraft components that were released from manufacturing prior to the Part 21 compliance date, the component should be accompanied by a JAA Form One issued by a JAR 21 organisation approved by a JAA Full Member State and within the JAA mutual recognition system;
- (e) a JAA Form One issued prior to 28 September 2005 by a production organisation approved by a competent authority in accordance with its national regulations.

The following GM1 145.A.42(a)(ii) is added:

GM1 145.A.42(a)(ii) Components -UNSERVICEABLE COMPONENTS

(a) The organisation should ensure the proper identification of any unserviceable components. The unserviceable status of the component should be clearly

declared on a tag together with the component identification data and any information that is useful to define actions that are necessary to be taken. Such information should state, as applicable, in-service times, maintenance status, preservation status, failures, defects or malfunctions reported or detected, exposure to adverse environmental conditions, and whether the component is installed on an aircraft that was involved in an accident or incident. Means should be provided to prevent unintentional separation of this tag from the component.

Action – Review Unserviceable tags for compliance & effectiveness of affixation – review procedure for completion of Unserviceable TAG for conformity with the above requirement.

(b) Unserviceable components should typically undergo maintenance due to:

- (1) expiry of the service life limit as defined in the aircraft maintenance programme;
- (2) non-compliance with the applicable airworthiness directives and other continuing airworthiness requirements mandated by the Agency;
- (3) absence of the necessary information to determine the airworthiness status or eligibility for installation;
- (4) evidence of defects or malfunctions; or
- (5) being installed on an aircraft that was involved in an incident or accident likely to affect the component's serviceability.

Action – Review procedure for completion for conformity with the above requirement.

The following AMC1 145.A.42(a)(iii) is added:

AMC1 145.A.42(a)(iii) Components UNSALVAGEABLE COMPONENTS

The following types of components should typically be classified as unsalvageable:

- (a) components with non-repairable defects, whether visible or not to the naked eye;
- (b) components that do not meet design specifications, and cannot be brought into conformity with such specifications;
- (c) components subjected to unacceptable modification or rework that is irreversible;
- (d) certified life-limited parts that have reached or exceeded their certified life limits, or have missing or incomplete records;
- (e) components whose airworthy condition cannot be restored due to exposure to extreme forces, heat or adverse environmental conditions;
- (f) components for which conformity with an applicable airworthiness directive cannot be accomplished;
- (g) components for which maintenance records and/or traceability to the manufacturer cannot be retrieved.

Action – Review procedure for completion for conformity with the above requirement.

The following AMC1 145.A.42(a)(iv) is added:

AMC1 145.A.42(a)(iv) Components STANDARD PARTS

(a) Standard parts are parts that are manufactured in complete compliance with an established industry, Agency, competent authority or other government specification which includes design, manufacturing, test and acceptance criteria, and uniform identification requirements.

The specification should include all the information that is necessary to produce and verify conformity of the part. It should be published so that any party may manufacture the part. Examples of specifications are National Aerospace Standards (NAS), Army-Navy Aeronautical Standard (AN), Society of Automotive Engineers (SAE), SAE Sematec, Joint Electron Device Engineering Council, Joint Electron Tube Engineering Council, and American National Standards Institute (ANSI), EN Specifications, etc.

(b) To designate a part as a standard part, the TC holder may issue a standard parts manual accepted by the competent authority of the original TC holder or may make reference in the parts catalogue to the specification to be met by the standard part. Documentation that accompanies standard parts should clearly relate to the particular parts and contain a conformity statement plus both the manufacturing and supplier source. Some materials are subject to special conditions, such as storage conditions or life limitation, etc., and this should be included in the documentation and/or the material's packaging.

(c) An EASA Form 1 or equivalent is not normally issued and, therefore, none should be expected.

The following AMC2 145.A.42(a)(iv) is added:

AMC2 145.A.42(a)(iv) Components STANDARD PARTS

For sailplanes and powered sailplanes, non-required instruments and/or equipment that are certified under the provision of CS 22.1301(b), if those instruments or equipment, when installed, functioning, functioning improperly or not functioning at all, do not in themselves, or by their effect upon the sailplane and its operation, constitute a safety hazard.

‘Required’ in the term ‘non-required’, as used above, means required by the applicable airworthiness code (CS 22.1303, 22.1305 and 22.1307) or required by the relevant regulations for air operations and the applicable Rules of the Air or as required by air traffic management (e.g. a transponder in certain controlled airspace). Examples of non-required equipment which can be considered to be

standard parts may be electrical variometers, bank/slip indicators ball-type, total energy probes, capacity bottles (for variometers), final glide calculators, navigation computers, data logger/barograph/turnpoint camera, bug wipers and anti-collision systems.

Note - Equipment which must be approved in accordance with the airworthiness code shall comply with the applicable ETSO or equivalent and it is not considered to be a standard part (e.g.oxygen equipment).

The following AMC1 145.A.42(a)(v) is added:

AMC1 145.A.42(a)(v) Components – MATERIAL

- (a) Consumable material is any material which is only used once, such as lubricants, cements, compounds, paints, chemical dyes and sealants, etc.
- (b) Raw material is any material that requires further work to make it into a component part of the aircraft, such as metal, plastic, wood, fabric, etc.
- (c) Material both raw and consumable should only be accepted when satisfied that it is to the required specification. To be satisfied, the material and/or its packaging should be marked with the applicable specification and, where appropriate, the batch number.
- (d) Documentation that accompanies all materials should clearly relate to the particular material and contain a conformity statement plus both the manufacturing and supplier source. Some materials are subject to special conditions, such as storage conditions or life limitation, etc., and this should be included in the documentation and/or the material's packaging.
- (e) An EASA Form 1 or equivalent should not be issued for such materials and, therefore, none should be expected. The material specification is normally identified in the (S)TC holder's data except in the case where the Agency or the competent authority has agreed otherwise.

The following AMC1 145.A.42(b)(i) is added:

AMC1 145.A.42(b)(i) Components - ACCEPTANCE OF COMPONENTS FOR INSTALLATION

(a) The procedures for the acceptance of components, standard parts and materials should have the objective of ensuring that the components, standard parts and materials are in satisfactory condition and meet the organisation's requirements. These procedures should be based upon incoming inspections which include:

- (1) physical inspection of the components, standard parts and materials;
- (2) review of the accompanying documentation and data, which should be acceptable in accordance with 145.A.42(a).

(b) For the acceptance of components, standard parts and materials from suppliers, the above procedures should include supplier evaluation procedures.

The following GM1 145.A.42(b)(i) is added:

GM1 145.A.42(b)(i) Components - INCOMING PHYSICAL INSPECTION

- (a) To ensure that components, standard parts and materials are in satisfactory condition, the organisation should perform incoming physical inspections.
- (b) The incoming physical inspection should be performed before the component is installed on the aircraft.
- (c) The following list, although not exhaustive, contains typical checks to be performed:

(1) verify the general condition of the components and their packaging in relation to damages that could affect their integrity;

(2) verify that the shelf life of the component has not expired;

(3) verify that items are received in the appropriate package in respect of the type of the component: e.g. correct ATA 300 or electrostatic sensitive devices packaging, when necessary;

(4) verify that the component has all plugs and caps appropriately installed to prevent damage or internal contamination. Care should be taken when tape is used to cover electrical connections or fluid fittings/openings because adhesive residues can insulate electrical connections and contaminate hydraulic or fuel units.

(d) Items (fasteners, etc.) purchased in batches should be supplied in a package. The packaging should state the applicable specification/standard, part number, batch number, and the quantity of the items. The documentation that accompanies the material should contain the applicable specification/standard, part number, batch number, supplied quantity, and the manufacturing sources. If the material is acquired from different batches, acceptance documentation for each batch should be provided.

The following GM2 145.A.42(b)(i) is added:

GM2 145.A.42(b)(i) Components - EXAMPLES OF SUPPLIERS

A supplier could be any source that provides components, standard parts or materials to be used for maintenance. Possible sources could be: Part-145 organisations, Part 21 Subpart G organisations, operators, stockist, distributors, brokers, aircraft owners/lessees, etc.

The following GM3 145.A.42(b)(i) is added:

GM3 145.A.42(b)(i) Components - SUPPLIER EVALUATION

(a) The following elements should be considered for the initial and recurrent evaluation of a supplier's quality system to ensure that the component and/or material is supplied in satisfactory condition:

- (1) availability of appropriate up-to-date regulations, specifications (such as component handling/storage data) and standards;
- (2) standards and procedures for the training of personnel and competency assessment;
- (3) procedures for shelf-life control;
- (4) procedures for handling of electrostatic sensitive devices;
- (5) procedures for identifying the source from which components and materials were received;
- (6) purchasing procedures that identify documentation to accompany components and materials for subsequent use by approved Part-145 maintenance organisations;
- (7) procedures for incoming inspection of components and materials;
- (8) procedures for control of measuring equipment that provide for appropriate storage, usage, and for calibration when such equipment is required;
- (9) procedures to ensure appropriate storage conditions for components and materials that are adequate to protect the components and materials from damage and/or deterioration. Such procedures should comply with the manufacturers' recommendations and relevant standards;
- (10) procedures for adequate packing and shipping of components and materials to protect them from damage and deterioration, including procedures for proper shipping of dangerous goods (e.g. ICAO and ATA specifications);
- (11) procedures for detecting and reporting of suspected unapproved components;
- (12) procedures for handling unsalvageable components in accordance with applicable regulations and standards;
- (13) procedures for batch splitting or redistribution of lots and handling of the related documents;
- (14) procedures for notifying purchasers of any components that have been shipped and have later been identified as not conforming to the applicable technical data or standard;
- (15) procedures for recall control to ensure that components and materials shipped can be traced and recalled if necessary;
- (16) procedures for monitoring the effectiveness of the quality system.

Action to review your current Supplier Evaluation System & Process to determine full compliance with the above

(b) Suppliers which are certified to officially recognised standards that have a quality system that includes the elements specified in (a) may be acceptable; such standards include:

- (1) EN/AS9120 and listed in the OASIS database;
- (2) ASA-100;
- (3) EASO 2012;
- (4) FAA AC 00-56.

The use of such suppliers does not exempt the organisation from its obligations under 145.A.42 to ensure that supplied components and materials are in satisfactory condition and meet the applicable criteria of 145.A.42.

(c) Supplier evaluation may depend on different factors, such as the type of component, whether or not the supplier is the manufacturer of the component, the TC holder or a maintenance organisation, or even specific circumstances such as aircraft on ground. This evaluation may be limited to a questionnaire from the Part-145 organisation to its suppliers, a desktop evaluation of the supplier's procedures or an on-site audit, if deemed necessary.

The following GM1 145.A.42(b)(ii) is added:

GM1 145.A.42(b)(ii) Components

INSTALLATION OF COMPONENTS

Components, standard parts and materials should only be installed when they are specified in the applicable maintenance data. This could include parts catalogue (IPC), service bulletins (SBs), aircraft maintenance manual (AMM), component maintenance manual (CMM) etc. So, the installation of a component, standard part or material can only be done after checking the applicable maintenance data. This check should ensure that the part number, modification status, limitations, etc., of the component, standard part or material are the ones specified in the applicable maintenance data of the particular aircraft or component (i.e. IPC, SB, AMM, CMM, etc.) where the component, standard part or material is going to be installed. The organisation should establish procedures to ensure that this check is performed before installation.

The following AMC1 145.A.42(b)(iii) is added:

AMC1 145.A.42(b)(iii) Components - FABRICATION OF PARTS FOR INSTALLATION

- (a) The agreement of the competent authority on the fabrication of parts by the approved maintenance organisation should be formalised through the approval of a detailed procedure in the Maintenance Organisation Exposition (MOE). This AMC contains principles and conditions to be taken into account for the preparation of an acceptable procedure.
- (b) Fabrication, inspection, assembly and test should be clearly within the technical and procedural capability of the organisation.
- (c) All necessary data to fabricate the part should be approved either by the Agency or the type certificate (TC) holder, or Part 21 design organisation approval holder, or supplemental type

certificate (STC) holder.

(d) Items that are fabricated by an organisation approved under Part-145 may only be used by that organisation in the course of overhaul, maintenance, modifications, or repair of aircraft or components, performing work at its own facilities. The permission to fabricate does not constitute approval for manufacture, or to supply externally, and the parts do not qualify for EASA Form 1 certification.

Note This prohibition also applies to the bulk transfer of surplus inventory, in that locally fabricated parts are physically segregated and excluded from any delivery certification.

(e) Fabrication of parts, modification kits, etc., for onward supply and/or sale may not be conducted by an organisation that is approved under Part-145.

(f) The data specified in (c) may include repair procedures that involve the fabrication of parts. Where the data on such parts is sufficient to facilitate fabrication, the parts may be fabricated by an organisation that is approved under Part-145. Care should be taken to ensure that the data include details of part numbering, dimensions, materials, processes, and any special manufacturing techniques, special raw material specification and/or incoming inspection requirement, and that the approved organisation has the necessary capability to fabricate those parts.

That capability should be defined by way of exposition content.

Where special processes or inspection procedures are defined in the approved data which are not available at the organisation, the organisation cannot fabricate the part unless the TC/STC holder gives an approved alternative.

(g) Examples of fabrication within the scope of a Part-145 approval may include but are not limited to the following:

- (1) fabrication of bushes, sleeves and shims;
- (2) fabrication of secondary structural elements and skin panels;
- (3) fabrication of control cables;
- (4) fabrication of flexible and rigid pipes;
- (5) fabrication of electrical cable looms and assemblies;
- (6) formed or machined sheet metal panels for repairs.

All the above-mentioned fabricated parts should be in accordance with the data provided in the overhaul or repair manuals, modification schemes and service bulletins, drawings, or should be otherwise approved by the competent authority.

Note: It is not acceptable to fabricate any item to pattern unless an engineering drawing of the item is produced which includes any necessary fabrication process and which is acceptable to the competent authority.

(h) Where a TC holder or an approved production organisation is prepared to make available complete data which is not referred to in the aircraft manuals or service bulletins but provides manufacturing drawings for items specified in parts lists, the fabrication of these items is not considered to be within the scope of an approval unless agreed otherwise by the competent authority in accordance with a procedure specified in the exposition.

(i) Inspection and identification

Any locally fabricated part should be subject to inspection before, separately, and preferably independently from any inspection of its installation. The inspection should establish full compliance with the relevant manufacturing data, and the part

should be unambiguously identified as fit for use by stating conformity to the approved data. Adequate records should be maintained of all such fabrication processes including heat treatment and final inspections.

All parts, except those that do not have enough space, should carry a part number which clearly relates it to the manufacturing/inspection data. In addition to the part's number, the organisation's identity should be marked on the part for traceability purposes.

Annex II to ED Decision 2019/009/R

AMC1 145.A.42(c) Components - SEGREGATION OF COMPONENTS

(a) Unserviceable components should be identified and stored in a secure location that is under the control of the maintenance organisation until a decision is made on the future status of such components. The organisation that declared the component to be unserviceable may transfer its custody after identifying it as unserviceable to the aircraft owner provided that such transfer is reflected in the aircraft logbook, or engine logbook, or component logbook.

(b) 'Secure location under the control of an approved maintenance organisation' refers to a secure location whose security is the responsibility of the approved maintenance organisation. This may include facilities that are established by the organisation at locations different from the main maintenance facilities. These locations should be identified in the relevant procedures of the organisation.

(c) In the case of unsalvageable components, the organisation should:

- (1) retain such component in the secure location referred to in paragraph (b);
- (2) arrange for the component to be mutilated in a manner that ensures that they are beyond economic salvage or repair before disposing it; or
- (3) mark the component indicating that it is unsalvageable, when in agreement with the component owner, the component is 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. Alternatively to marking, the original part number or data plate information can be removed or a record kept of the disposal of the components.

The following GM1 145.A.42(c)(i) is added:

GM1 145.A.42(c)(i) Components - MUTILATION OF COMPONENTS

(a) Mutilation should be accomplished in such a manner that the components become permanently unusable for their originally intended use. Mutilated components should not be able to be reworked or camouflaged to provide the appearance of being serviceable, such as by re plating, shortening and rethreading long bolts, welding, straightening, machining, cleaning, polishing, or repainting.

(b) Mutilation may be accomplished by one or a combination of the following procedures:

- (1) grinding;

- (2) burning;
 - (3) removal of a major lug or other integral feature;
 - (4) permanent distortion of parts;
 - (5) cutting a hole with cutting torch or saw;
 - (6) melting;
 - (7) sawing into many small pieces; and
 - (8) any other method accepted by the competent authority.
- (c) The following procedures are examples of mutilation that are often less successful because they may not be consistently effective:
- (1) stamping or vibro-etching;
 - (2) spraying with paint;
 - (3) small distortions, incisions, or hammer marks;
 - (4) identification by tags or markings;
 - (5) drilling small holes; and
 - (6) sawing in two pieces only.