Leaflet B-110 The Acceptance of Aircraft Components

1 Purpose

The purpose of this Leaflet is to provide guidance on the acceptance of aircraft components, so that responsibilities under the applicable Commission Regulations, the Air Navigation Order (ANO) and BCAR Section A, Chapter A8 may be satisfied in a manner acceptable to the CAA. This Leaflet 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 under a Production Organisation Approval.

2 Applicability

2.1 This Leaflet is applicable to aircraft which remain subject to national legislation as defined in Articles 1(2) and 4(4) of Regulation (EC) No. 216/2008 (i.e. non-EASA aircraft as specified in Annex II or aircraft engaged in military, customs, police or similar services). This Leaflet applies to components intended for installation in aircraft, or for incorporation into assemblies produced under a UK national Production Organisation Approval in accordance with BCAR Section A, Chapter A8.

2.2 Aircraft not defined as above are subject to Regulation (EC) No. 1702/2003, incorporating Part 21, and Regulation (EC) No. 2042/2003, incorporating Part-145. Aircraft that are subject to Article 1(1) of Regulation (EC) No. 216/2008 shall comply with Regulation (EC) No. 1702/2003, incorporating Part 21 and Regulation (EC) No. 2042/2003, incorporating Part 145 and Part M, as applicable. The European Aviation Safety Agency is therefore responsible for guidance regarding these aircraft (EASA aircraft). The information in this Leaflet is, however, relevant to these aircraft and is intended as guidance for the UK aviation industry supplementing the information available from EASA (www.easa.europa.eu).

2.3 A component received in accordance with this Leaflet should also have its eligibility for an individual aircraft established by the end user, considering applicable UK Mandatory Requirements for Airworthiness (CAP 747) and other relevant Aircraft Technical Publications.

3 Definitions

3.1 For the purpose of this Leaflet 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 must 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 National Equipment Approvals, grandfathered in accordance with the provisions of paragraph 13 of Article 2 of Regulation (EC) No. 1702/2003, Technical Standard Orders (TSO), Joint Technical Standard Orders (JTSO) or European Technical Standard Orders (ETSO) 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.

4 Authorised Release Document

This 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 3.1 d).

4.1 When received from a manufacturing source approved to Part-21, the Authorised Release Document will be an EASA Form 1 issued under the terms of that Approval. Prior to 28 September 2004 the Authorised Release Document used by an organisation holding an appropriate JAR-21 Subpart G approval was a JAA Form 1, after 28 September 2004 these organisations should have transitioned to Part 21 and now be using the EASA Form 1.

4.2 Prior to 28th September 2005 the Authorised Release Document used by an organisation holding an appropriate CAA BCAR A8-1 or A8-2 Approval or approved to national rules by an EU member state or Norway, Iceland or Switzerland, would have been a JAA Form 1 issued under the terms of that Approval with the following statement in Block 13: "This certificate has been issued under ……(reference to the issuing NAA national rules applicable)".

4.3 Products, parts or appliances, for aircraft which remain subject to UK national legislation as defined in Articles 1(2) and 4(4) of Regulation (EC) No. 216/2008 (non-EASA aircraft), may be released by an appropriately approved organisation on a UK

CAA Approved Certificate. CAAIP Leaflet B-30 gives further guidance regarding the use of a UK CAA Approved Certificate.

4.4 When received from a manufacturing source appropriately approved by the Federal Aviation Administration (FAA), which arranges for the release of the aircraft component, the Authorised Release Document will be FAA Form 8130-3, Authorised Release Certificate/Airworthiness Approval Tag for aircraft engines, propellers and all other new components including APUs.

Further information regarding the use of FAA Form 8130-3 is contained in FAA Order 8130.21. As a result of the Common Release Certificate project between the JAA, FAA and Transport Canada, it has been accepted that inclusion of the word "Export" is not necessary on each authority's respective forms. Inclusion of the word "Export" in Block 13 of a Form 8130-3 remains as an option to meet any existing bilateral agreement commitments.

Where a Form 8130-3 has been raised under previous revisions of the FAA Order then an export statement is still required. The current issue of the Form may be recognised by its revision - Form 8130-3 (6-01).

Form 8130-3 certifying conformity to the Export requirements of a specific country other than within the EU is not acceptable. Receiving organisations should ensure that where there are export requirements specific to the UK, these have been satisfied.

4.5 The CAA position regarding FAA-PMA parts is set out in EASA Decision No.2007/003/C which can be found at:

http://www.easa.europa.eu/ws_prod/g/rg_agency_desc_main.php.

4.6 The acceptance of components from outside the EU is dependent upon formal arrangements being in place between EASA and the Airworthiness Authority of the exporting country. In addition to the information in this Leaflet further detail of such arrangements may be found on the EASA website (http://www.easa.europa.eu/home/index.html) under the 'International Cooperation – Working Arrangements' section.

For aircraft which remain subject to national legislation, as defined Articles 1(2) and 4(4) of Regulation (EC) No. 216/2008, contact chiefsurveyorsoffice@caa.co.uk for further information regarding components not covered by the paragraphs above.

4.7 **The Need for Authorised Release Documents for Commercial Off the Shelf Equipment**

4.7.1 UK ANO Article 38(5) 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.

4.7.2 Part 21A.307 requires that no part or appliance (except a standard part), shall be eligible for installation in a type-certificated product unless it is accompanied by an authorised release certificate (EASA Form 1).

GM21A.133(a) identifies that manufacturers or providers of parts identified in the product support documentation as 'industry supply' or 'no hazard', will not be considered eligible for production organisation approval, therefore authorised release documents are not available for such parts. As the manufacturer is unable to release equipment on an EASA Form 1, an alternative means of release must be sought.

The following identifies UK CAA policy to be applied by those organisations for which the CAA are responsible, whether they are approved under National Rules (BCAR A8 and the ANO) or Part 21.

The European Aviation Safety Agency is aware of this guidance material and it may be subject to change in light of revisions to the requirements and/or guidance material.

NOTE: For non-EASA aircraft as defined by Annex II of Regulation (EC) No. 216/2008 the principles of the following should also be applied.

4.7.3 Permanently Installed Equipment

4.7.3.1 Article 3(d) of Regulation (EC) No. 216/2008 defines those parts and appliances (i.e. items of equipment) that are subject to Part 21 design and production and Part 145 maintenance requirements. 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 EASA Form 1 release certification is not necessary. A Certificate of Conformity is an acceptable means to support the identification of an item's authenticity

In consideration of whether the Regulation applies in this respect, the non-applicable 'no hazard' item must 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 approved design organisation (DOA) must substantiate the no hazard determination of the item as part of its approved design data for its installation.

The DOA 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.

4.7.3.2 Items of equipment that are predominantly based upon COTS articles that are not excluded as described in paragraph 4.7.3.1 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. Eligibility for release on an EASA Form 1 as a 'manufactured' part by the approved production organisation (POA) could be achieved using the following process:

The DOA would typically produce a *specification* for the equipment, which is part of the approved installation data at aircraft level i.a.w. Part 21. This specification typically:

- prescribes an inspection process to ensure that the commercially sourced base equipment conforms to the expected design standard;

- takes due account of any potentially unsafe operating or failure modes of the base equipment and provides design change and/or test solutions to mitigate them; and
- identifies a new part marking scheme for the finished equipment.

The application of the specification to the COTS equipment effectively modifies the article, providing a means to release it on an EASA Form 1 as a manufactured item.

The DOA 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 EASA Form 1 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 145.A.75. It is expected that the approved maintenance organisation will establish that the repaired equipment meets the DOA-approved standard on return from sub-contract repair, prior to completion of the EASA Form 1 release certification.

4.7.4 **Portable 'Attached' Equipment**

In the case where equipment is 'attached' or 'docked', but not permanently installed, an assessment will be required by the Design Organisation (DOA) 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): JAA TGL No 36
- Use of PEDs Aboard Aircraft: FAA AC-91.21-1B
- 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 Form 1 release. Part 21 Guidance Material GM21A.133 states that the manufacturer of parts identified as no hazard or industry supply are not at present eligible for Production Organisation Approval. A POA cannot normally release such an item on an EASA Form 1 as they will not normally have evidence of complete conformity to applicable design data (i.e. all of the specification data needed to manufacture and test the item as issued by a DOA holder) and therefore could not claim to have manufactured the part. In order to release on an EASA Form 1 the POA would also be required to assess the equipment manufacturer as a subcontractor and show that they were in complete control of the equipment manufacture.

The design of the attachment/docking method to the aircraft would be subject to the normal Part 21 design and change (modification) approval process.

4.7.5 **Portable Equipment/ Portable Electronic Devices (PEDs)**

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.

As with the portable 'attached' equipment, PEDs are not eligible for EASA Form 1 release. ANO Article 38(5) still applies and there is further guidance available in AIC 1/2004 (Pink 62).

For commercial operations, EU OPS 1.110 and JAR OPS 3.110 also require operators to ensure that the use of PEDs cannot adversely affect the performance of the aircraft's systems and equipment.

4.7.6 **Software Considerations**

In accordance with CAAIP Leaflet 100-10 paragraph 3.2, 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 (e.g. CS-25), a Certificate of Conformity is sufficient.

5 Distributors

Although aircraft component distributors provide a useful service to the aviation industry they are not required to be approved by the CAA, 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 component's documents to a potential buyer, being another distributor, it is acceptable for the original distributor's documentation 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 component's 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.