Acceptable Means of Compliance (AMC) and Guidance Material (GM) to Annex I (Part-21) to UK Regulation (EU) No. 748/2012

The text of the amendment is arranged to show deleted text, new or amended text as shown below:

(a) Text to be deleted is shown ~~struck through~~;

(b) New text is highlighted in grey;

(c) Text to be deleted is shown ~~struck through~~ followed by the replacement text which is highlighted in grey.

d) an ellipsis '[…]' indicates that the rest of the text is unchanged.

GM1 21.A.5 Repair designs and record-keeping

For repair designs, the record-keeping requirement of point 21.A.5 applies to the data described in AMC 21.A.433(a).

AMC1 21.A.7(a) ICA contents

(a) The instructions for continued airworthiness (ICA) should identify the following, in accordance with the applicable certification specifications:

(1) any limitations that are necessary for the continued airworthiness of the product or article;

(2) the means to determine when the product or article has deteriorated to the extent that it is no longer airworthy;

(3) the minimum actions required to restore the airworthiness of the product or article before the limitations (as per point (1)) have been exceeded or before their deterioration (as per point (2)), as an alternative to the withdrawal of the product or article from service.

(4) the identification of standard parts and parts with a negligible safety effect in accordance with 21.A.307.

(b) The ICA should, therefore, include, in accordance with the applicable certification specifications:

(1) any limitations determined through the certification of the product or article, and instructions on how to determine that the limitations have been exceeded;

(2) any inspection, servicing or maintenance actions determined to be necessary by the certification process;

(3) any inspection or troubleshooting actions determined to be necessary to establish the nature of faults and the necessary remedial actions;

(4) sufficient general information on the operation of the product or article to enable the understanding of the instructions in (a)(1) to (a)(3) above.

AMC2 21.A.7(a) Identification of ICA

The instructions for continued airworthiness (ICA) may be provided together with other, additional or optional, maintenance information, as described in point 21.A.6, or in another acceptable format as per GM1 21.A.7(a), with the following conditions:

(a) The information that is necessary for the continued airworthiness is clearly identified (refer to AMC1 21.A.7(b)).

(b) The ICA may reference additional instructions for continued airworthiness in separate publications, where necessary (for example, those produced by suppliers).

If the product ICA reference the use of supplier's data (e.g. component maintenance manual (CMM) or section of it) as the appropriate location for the ICA, those applicable instructions are incorporated by reference and become part of the complete set of the ICA for the product.

(c) Additional or optional maintenance information not considered as ICA but referenced by the design approval holder (DAH) together with the ICA should be evaluated appropriately by the DAH in order to ensure that its use will not compromise the continued airworthiness of the product or article.

(d) If the maintenance data made available by a DAH includes data from an operator (i.e. in order to customise the data for the operator, and created under the authority of the operator), the operator's data should be identified as such, and the DAH is not required to additionally evaluate it.

GM1 21.A.7(a) Scope of ICA, their publication format and typical ICA data

(a) ICA can be published in documents or in a manner other than the traditional understanding of a document — for example, as a series of web pages, or Information Technology (IT) tools, or in a publishing format linked to tasks or data modules rather than pages.

(b) The design approval holder (DAH) can decide — within the framework provided by point 21.A.7 and its acceptable means of compliance and guidance material — to publish the ICA in the most suitable location as part of all the information published to support the airworthiness of an aircraft. Publications typically produced by DAHs (e.g. for the demonstration of compliance with a certification basis established on the basis of CS-25), and which may therefore include ICA, consist of:

— aircraft maintenance manuals (AMMs);

— scheduled maintenance requirements (e.g. MRBRs);

— off-wing component maintenance or overhaul manuals;

— parts catalogues;

— tooling manuals;

— wiring diagram manuals;

— weight and balance manuals;

— electrical loads analyses;

— extended range operations (ETOPS) configuration maintenance programs/plans;

— supplemental structural inspection documentation;

— certification maintenance requirements;

— Airworthiness Limitations items;

— ageing aircraft maintenance requirements;

— fuel tank safety related limitations (e.g. critical design configuration control limitation (CDCCL));

— electrical wiring interconnection system instructions;

— corrosion prevention and control programmes;

— troubleshooting manuals.

Note: The above is only an example of the publications that may contain ICA according to CS-25; the list is not exhaustive, nor does it represent a minimum list of ICA.

(c) The requirement for ICA is not intended to ensure that all products or articles may be restored to an airworthy condition. A certain level of deterioration may require a product or an article to be permanently withdrawn from service, and restoration may not be reasonably achievable. Notwithstanding the above, the existence of an MRBR task other than 'Discard (DS or DIS)' should be a clear indication of the necessity/obligation to produce a corresponding ICA.

Certain deteriorations or levels of deterioration may require specific instructions (e.g. inspection or restoration) that will only be developed and provided on a case-by-case basis, as needed, for a given product or article, and as such, will not be included in the ICA.

In some exceptional cases, product ICA may ultimately instruct the user to contact the DAH in order to define the specific instructions on a case-by-case basis. This typically happens when the definition of generic instructions covering all possible cases is not possible. For example, following an aircraft hard landing, a detailed analysis may have to be carried out by the DAH to determine the specific instructions to be followed, which depends on the touchdown loads, recalculated postflight, based on recorded flight data.

GM2 21.A.7(a) Determination of which supplier data is part of the ICA

Note 1: For the purpose of this GM, the term 'supplier data' also applies to similar types of data when issued directly by the DAH (e.g. component maintenance manuals issued by the DAH).

Note 2: For the purpose of this GM, the term 'supplier data' has to be understood as data coming from the supplier and related to either a full CMM or to part of a CMM.

Note 3: The link between the aircraft ICA and the engine/propeller CMM, as detailed below, is similar to the link between engine/propeller ICA and the CMM of equipment fitted to the engine/propeller.

Note 4: If the supplier is also the DAH (for instance, an engine or propeller manufacturer), then the ICA for these items will be made available by virtue of the DAH obligations as type-certificate holder (TCH) and need not be included in the aircraft ICA.

(a) When determining whether a supplier data is part of the ICA, the following should be considered:

(1) Supplier data related to the Airworthiness Limitations Section (ALS) of the ICA is part of the ICA. A typical CS-25 example is critical design configuration control limitation (CDCCL) items that are included in CMMs.

(2) Supplier data related to instructions on how to accomplish the scheduled maintenance part of the aircraft ICA (such as MRBR) are part of the aircraft ICA. A typical case is the periodical removal of a component to perform a workshop task.

Example: Escape slide removal for restoration in accordance with the supplier data instructions.

(3) Supplier data related to scheduled maintenance on the component should be endorsed by the DAH before becoming part of the aircraft ICA, to define and confirm that the supplier data is applicable and effective.

(4) If the ICA are defined at aircraft level, the following principles apply to the other supplier data that is not related to the ALS nor to scheduled maintenance:

(i) If the supplier data includes a maintenance instruction for an action identified in the aircraft-level ICA, including an engine or propeller, this supplier data should be referenced in the aircraft-level ICA and should be made available like any other ICA.

As an alternative to linking such supplier data to the aircraft-level ICA (e.g. with cross references), it is possible to include the relevant data directly into the aircraft ICA. In such a case, the supplier data is not part of the aircraft ICA since the aircraft ICA already contain all the required information.

(ii) If an aircraft ICA task only requires a replacement task for an engine, propeller, part or appliance (i.e. 'remove and replace' or 'discard') and does not refer to the supplier data for further maintenance of the removed engine, propeller, part or appliance, this means that the aircraft airworthiness may only be maintained by replacement action, and that the supplier data is not part of the ICA for the aircraft. In such cases, the supplier data does not need to be referenced in the aircraft ICA.

Example: If supplier data provides off-aircraft maintenance instructions for an engine, propeller, or other article (i.e. workshop maintenance), then this data may not be considered as part of the complete set of ICA for the aircraft, but may be considered as part of the complete set of ICA for the engine or propeller. However, the procedure for removal from / installation on the aircraft is necessarily part of the aircraft ICA.

(b) However, for the above cases, aircraft-level ICA can provide, as additional or optional maintenance information, the references to the supplier data even if it is not considered part of the ICA. In such cases, it should be made clear that the supplier data references are provided as additional or optional maintenance information and is not part of the product ICA. Besides, it should be ensured that the use of additional or optional maintenance information not considered as ICA but referenced together with the ICA will not compromise the continued airworthiness of the product or article.

(c) For the supplier data identified as part of the ICA, the DAH should:

(1) identify the supplier data that is part of the ICA; this can be achieved either by creating a listing or by any other acceptable means that allow to identify which data is part of the ICA and which data is not part of the ICA (refer to AMC1 21.A.7(b));

(2) just as for any other ICA, ensure the publication of the supplier data;

(3) ensure the accuracy and the adequacy of the technical content of the supplier data (refer to GM No. 1 to 21.A.239(a), point 3.1.5).

AMC3 21.A.7(a) DAH responsibility to check the supplier data which is part of the ICA or referenced with the ICA

The DAH may carry out a complete check of the supplier data, or may choose to rely, in whole or in part, on the supplier's process. In the latter case, the DAH will propose a means to validate the supplier's process. Supplier data may also be issued by the supplier to the DAH under a contract or an arrangement, addressing the following:

(a) the accuracy and the adequacy of the technical documentation, which should be checked through a verification processes (e.g. component workshop verification);

(b) evidence showing that workshop verification was performed should be kept by the supplier and a clear statement should be given in the introduction to the supplier data as a confirmation that component verification is complete;

(c) evidence that the supplier has taken into account all justified feedback and changes to data requested by any person required to use the ICA; typical examples would be the correction of reported errors, or mistakes.

In addition, some validation activities may be decided by the DAH, depending on the articles and the capability level of the supplier.

For articles subject to a UKTSO authorisation, the validation of the supplier's process is not needed. This is also valid for other TSO authorisations (e.g. EASA ETSOs, FAA TSOs) accepted by CAA as stipulated in related bilateral agreements.

GM3 21.A.7(a) Non-ICA supplier data (e.g. component maintenance manuals (CMMs))

(a) Non-ICA supplier data referenced together with the ICA

Supplier data, or parts of the supplier data, which is not considered to be part of the ICA but is additional or optional maintenance information referenced together with the product-level ICA, may be issued by the supplier to the DAH under a contract or an arrangement, using the methodology proposed in AMC3 21.A.7(a).

(b) Other non-ICA supplier data

Non-ICA supplier data, which is not referenced together with the ICA, but which can be used for the maintenance of components approved for installation by the DAH, should be acceptable to the DAH. This non-ICA supplier data may be documented in a list.

AMC1 21.A.7(b) Identification of a complete set of instructions for continued airworthiness (ICA)

The design approval holder (DAH) should identify the complete set of ICA according to point 21.A.7(b) in such a way that the complete set can be:

(a) directly listed in the product TCDS; or

(b) indirectly referenced in the TCDS through other means, which allow the complete list of the ICA to be obtained (e.g. a complete listing of ICA contained in a 'principal manual' or a reference to a DAH's website); or

(c) directly listed in the product STC; or

(d) indirectly referenced in the STC through other means, which allow the obtainment of the complete list of the ICA; or

(e) if direct reference is made to the ICA in the TCDS or the STC, no reference to the revision level of the ICA should be made; in this case, the revision level should be available elsewhere (e.g. on the DAH's website). In certain circumstances it still may be appropriate to reference a specific revision of ICA in the TCDS/STC e.g., a revision to the TCDS/STC which details a design change which introduces or affects CMR/ALS.

For changes to type certificates and repairs, the identification of 'a complete set of the changes to the instructions for continued airworthiness' should be performed by the DAH by a statement to provide this information, or by confirmation that there are no changes to the ICA. This statement can also be made in the accomplishment document (e.g. embodiment instructions).

For products and articles for which the DAH holds a design organisation approval (DOA), the ICA are considered to be issued under the authority of the DOA and, therefore, the approval of the ICA should be made explicit to the reader in accordance with point 21.A.265(h), unless otherwise agreed with CAA.

GM1 21.A.7(b) Other persons required to comply

For the purpose of this GM, 'any other person required to comply' means:

— any independent certifying staff who performs maintenance on a product or article, in accordance with UK Regulation (EU) No 1321/2014, in the framework of a contract (or work order) with the person or organisation responsible for the aircraft continuing airworthiness;

— any maintenance organisation approved to maintain a product or article, in accordance with UK Regulation (EU) No 1321/2014, in the framework of a contract (or work order) with the owner of the engine or article, or the person or organisation responsible for the aircraft continuing airworthiness;

— any organisation approved to manage the aircraft continuing airworthiness in accordance with UK Regulation (EU) No 1321/2014, in the framework of a contract with the aircraft owner or aircraft operator.

GM2 21.A.7(b) ICA — format

ICA can be furnished or made available by various means (including paper copies, electronic documents, or web-based access). Regardless of the format, the design approval holder (DAH) is expected to furnish or make ICA available in a means that is readily accessible for and useable by the owner and any person required to comply with the ICA. Service documents, such as service information letters, may be used for transmitting ICA information and updates.

(a) Formatting standards

Applicants may use the latest ATA, AECMA/ASD or GAMA formatting standards such as:

(1) AeroSpace and Defence Industries Association of Europe (ASD), ASD-S1000D, *International Specification for Technical Publications Utilizing a Common Source Data Base*, version 4 or higher;

(2) the Air Transport Association's (ATA) iSpec 2200, *Information Standards for Aviation Maintenance*, latest edition (ATA is now known as Airlines for America (A4A) but the standard is still listed as ATA); or

(3) General Aviation Manufacturers Association (GAMA) Specification No. 2, *Specification for Manufacturers Maintenance Data*, latest edition.

In regard to scheduled maintenance, applicants may also refer to the glossary of the ATA MSG-3 standard, latest revision, for standardised task definitions and designations.

(b) General considerations

ICA should be easy to read and to follow. All ICA should include a means to identify their applicability (model, type, etc.), and the associated revision status. Refer to sample formats in the Air Transport Association's iSpec 2200, *Information Standards for Aviation Maintenance*, latest edition, or AECMA/ASD standards. There is no requirement for any specific format or arrangement of the ICA in document or documents. However, the specific format selected by the applicant should be used and applied in a uniform manner. Empty pages in a document should contain a statement like 'Intentionally left blank' or similar.

At the beginning of each procedure, the ICA should contain cautions and warnings regarding possible mistakes that can be made when following the instructions.

Abbreviations, acronyms and symbolisation should be either avoided or explained as part of the ICA documentation.

ICA contain units of measurement. Measurements could be, for instance, instrument readings, temperatures, pressures, torque values with tolerances, limits, and ranges when applicable. If the ICA contain units of measurement of a system other than the metric, the ICA should include a conversion to the metric system for each measurement, tolerance, or torque value. A general conversion table alone should not be provided, as it may introduce an additional source of error.

The DAH should use a means to indicate changes to the ICA directly in relation to each item of the information/data of the ICA, e.g. using a vertical change bar in the margin next to the line.

(c) Publication of ICA in multiple documents

DAHs may prepare ICA as a document, or several documents, depending on how much data is necessary to provide a complete set of ICA.

If there are multiple documents, there should be a principal document that describes the general scope of all other documents, in order to provide an overview of the multiple document structure.

According to different standards, the Airworthiness Limitations Section (ALS) needs to be included in the principal document as a dedicated section. However, CAA may also accept a separate Airworthiness Limitations document, when it is at least referenced as such in the principal document.

DAHs who decide to segregate information dedicated to a specific subject from a principal document into a separate document, e.g. 'Fuel Pipe Repair Manual', 'Cable Fabrication Manual', 'Duct Repair Manual' or 'Instrument Display Manual', should declare these documents to be ICA.

DAHs may decide to integrate certain information in a principal document (as, for example, troubleshooting information as part of the aircraft maintenance manual (AMM) instead of a separate troubleshooting manual (TSM)).

(d) Language

ICA should be provided in English.

(e) Electronic media

ICA may be provided in an electronic format (e.g. CDs, via the internet, etc.) instead of paper copies or microfilms (refer to AMC1 21.A.7(b)).

When an electronic format is used, the DAH should consider aspects such as the traceability of updates, keeping previous versions (record-keeping), data security and the obligations of the person(s) or organisation(s) responsible for the aircraft continuing airworthiness, considering that the ICA form the basis of the data used for continuing airworthiness activities.

GM3 21.A.7(b) Approval status of the manual for a component or article

When the ICA refer to a document for a specific component or article, it is possible that this document is used for products from more than one DAH. In such cases, instead of placing approval statements from each DAH in the same manual, it may be more practical to identify the approved status of the relevant document through its inclusion in lists managed by the DAH in accordance with the AMC1 21.A.7(b).

GM4 21.A.7(b) Integration of ICA between products (aircraft, engines, propellers)

The aircraft/engine/propeller type-certificate holder (TCH) should ensure the availability of ICA to allow maintenance of the aircraft, including engines/propellers when installed on the aircraft.

When referring to engine/propeller ICA directly in the aircraft ICA, the aircraft TCH should not perform additional verification and validation. However, the integration and interface aspects between the aircraft and the engine/propeller are still under the responsibility of the aircraft TCH.

If the ICA published by the aircraft TCH include some engine/propeller ICA developed by the engine/propeller TCH, the engine/propeller TCH should make an arrangement with the aircraft TCH setting out engine/propeller TCH and aircraft TCH shared responsibilities with respect to the ICA under point 21.A.7.

This arrangement should:

— define the part of the engine/propeller ICA which is published in the aircraft ICA; and

— address the development, publication and update processes of these ICA, including completeness and timely availability aspects.

The incorporated engine/propeller data content remains under the responsibility of the engine/propeller TCH, and the publication is under the responsibility of the aircraft TCH. Therefore, the aircraft TCH must coordinate with the engine/propeller TCH regarding any modification or alteration of the incorporated data.

AMC1 21.A.7(c) Completeness and timely availability of the ICA

COMPLETENESS AND TIMELY AVAILABILITY OF THE ICA FOR TYPE-CERTIFICATE (TC) AND RESTRICTED TYPE-CERTIFICATE (RTC) APPLICANTS

(a) An applicant may wish to choose among the three options described below. Once the certification programme starts, it may be necessary to modify the initially selected option to accommodate programme changes. All such changes should be coordinated with CAA.

(1) Option 1: Complete ICA are available at the time of the design approval (TC/RTC)

(i) The ICA will be made available at the time of the design approval. This option minimises the risk of incomplete ICA, especially for changes.

(ii) With all ICA available at the time of the design approval, they should also be furnished / made available to the aircraft operator / aircraft owner and made available to any other person required to comply with any of those instructions in accordance with points 21.A.21(c)(4), 21.A.44 and 21.A.7, without using the provision to delay certain parts of the ICA after the entry into service.

(iii) Frequently, there is only a short period of time between the design approval and the entry into service. Nevertheless, applicants/holders may still wish to apply Option 2 or 3 for a part of their ICA as stated below.

(2) Option 2: Complete ICA are available at entry into service (TC/RTC)

If an applicant plans to make part of the ICA available to CAA at entry into service, the following approach is acceptable:

(i) For the ALS, as part of the type design, notwithstanding the selection of Option 2: the applicant submits the ALS for approval prior to the design approval. Any ALS content that is incomplete, not yet demonstrated for compliance, or delayed beyond the design approval, requires to be compensated through an interim limitation to establish compliance within this limitation. The interim limitation is notified to the aircraft operator(s) concerned as a temporary operational limitation in a manner agreed with CAA.

In this context, ALS content is understood as the task method (e.g. a detailed inspection), including its reference, title and applicability, and the associated threshold / interval / life-limit. The accomplishment procedure itself, i.e. how to carry out the task, is usually described in other parts of the ICA (e.g. in the AMM or NDT manual). However, the feasibility study of the accomplishment procedure is required for compliance with specific requirements (e.g. CS 25.611).

(A) This may typically apply when the aircraft structural full-scale fatigue testing required for compliance with the fatigue- and damage-tolerance requirements, considering the expected operational life, will not be completed prior to the type certificate being issued. In this case, a temporary

operational limitation is assigned and stated in the ALS, dependent on the aircraft full-scale fatigue testing progress. The ALS is effectively incomplete beyond this temporary operational limitation, as the required justification and the resulting ICA are not yet available to support the safe operation of the aircraft beyond this limitation.

(B) A TCDS notation is not necessary, since the product is provided with complete ALS content up to the established temporary operational limitation.

(ii) A compliance plan identifying those parts of the ICA that are only to be made available at entry into service is produced, submitted to CAA and agreed between the applicant and CAA prior to the design approval (refer also to (iv) for ICA considered to be necessary at the time of the design approval.

(iii) A commitment is provided to produce, verify and submit (when requested) to CAA the relevant ICA prior to entry into service. This commitment should be provided in a certification document (e.g. the compliance plan) and should also be addressed in a more general manner in a DOA procedure for UK holders/applicants in accordance with points 21.A.239 and 21.A.263. If the respective DOA holder has not previously exercised the practice of delaying the ICA beyond the design approval in order for the DOA to demonstrate this capability in its design assurance system (DAS), the required procedural changes need to be addressed via a significant change to the DAS in accordance with point 21.A.247.

(iv) ICA considered to be necessary at the time of design approval are provided or made available in a format that adequately defines the data. Furthermore, the way the data is presented at the time of the design approval offers the same understanding of the data as in the final published format.

The applicant should agree with the CAA, in a compliance plan, on all ICA necessary at the time of design approval. The CAA investigation may vary from no involvement or evaluating a limited sample of the ICA to performing a thorough review of specific parts of the ICA.

(v) In cases where the CAA has doubts as to whether the applicant/holder can fulfil the applicable requirements of point 21.A.44 to control and support delaying the ICA beyond the design approval, or TC/RTC, and until entry into service, CAA can decide to assign a condition for entry into service for non-ALS ICA.

As a condition for the entry into service, a note should be included in the type certificate data sheet (TCDS) as a result of these pending issues under the ICA paragraph as follows:

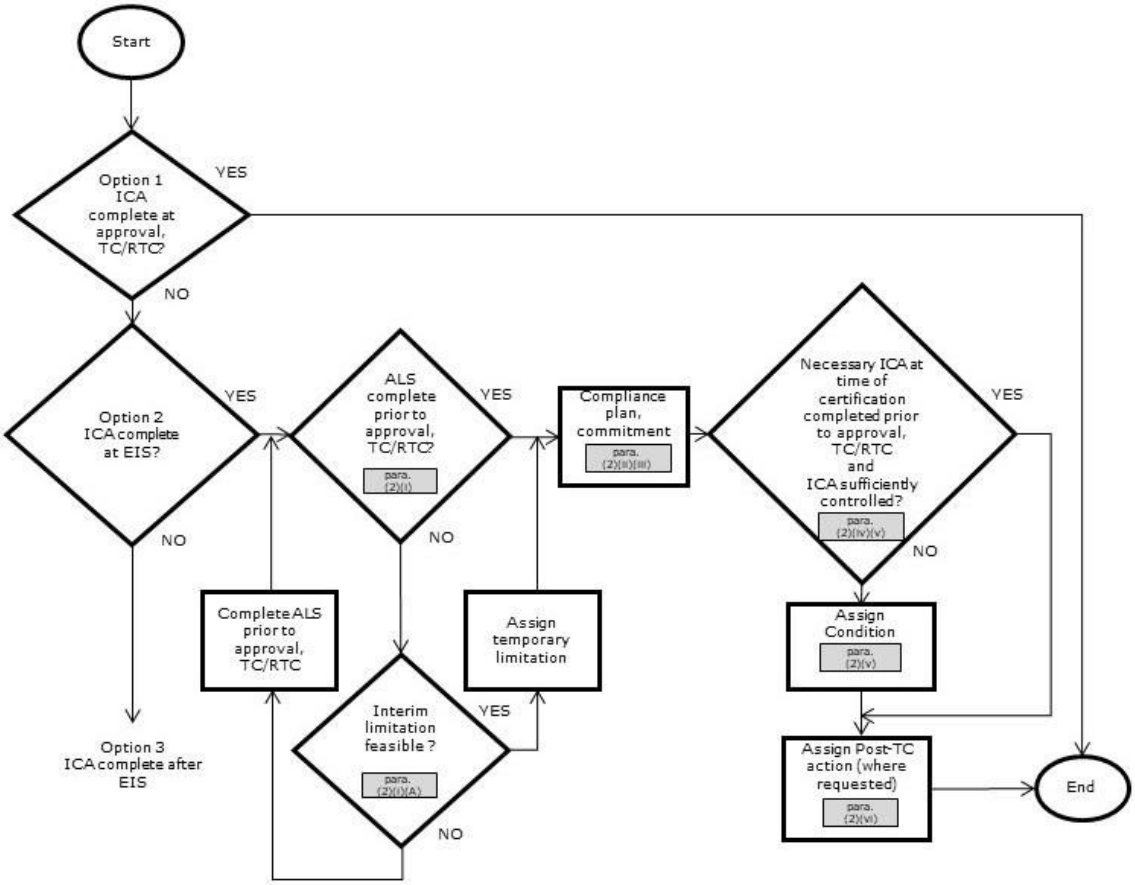
'*Note:* The ICA are not complete. As per point 21.A.7 of UK Regulation (EU) No 748/2012, they must be completed before the entry into service of the aircraft. Contact CAA for information on the status.'

The decision to assign a condition may be based on the applicant's performance, e.g. if the applicant has already demonstrated in previous projects that it provided the complete set of ICA before the entry into service, if the applicant has already experienced difficulties in providing the ICA considered necessary at the time of the design approval, or has previously failed on a different project to meet its commitment to complete the ICA prior to entry into service, or if the applicant/holder has no previous experience with the practice of delaying the ICA beyond the design approval.

(vi) Post-TC action is established together with CAA (if CAA requests such a review) to review the ICA status at entry into service.

(vii) If all ICA are made available to CAA at the time of entry into service, they should also be furnished at this time to the aircraft operator / aircraft owner and made available to any other person(s) required to comply with any of those instructions in accordance with points 21.A.21(c)(4), 21.A.44 and 21.A.7, without using the provision to delay certain parts of the ICA beyond the entry into service. This should be supported as part of the DOA/ADOA procedure.

Flow chart A — 'Completeness of ICA', Option 1 and 2



(3) Option 3: Complete ICA are available after the entry into service (TC/RTC)

As per point 21.A.7(c), certain ICA dealing with the 'overhaul or other forms of heavy maintenance' may be delayed until after the aircraft entry into service. Although there is no definition of what is meant by 'overhaul or other forms of heavy maintenance', the

intention of the rule is to provide flexibility to applicants/holders for long-lead ICA of a scheduled nature.

If an applicant plans to make part of the ICA available only after the entry into service, the following is acceptable for the complete set of ICA:

(i) for the ALS, as it cannot be delayed until after the entry into service, point (i) of Option 2 applies;

(ii) for ICA considered to be necessary at the time of the design approval, point (iv) of Option 2 applies.

(iii) a detailed compliance plan identifying those parts of the ICA that are to be provided prior to and after the entry into service. For ICA made available after the entry into service, the plan should account for when the ICA are needed so that they can be complied with. This approach may only be used for scheduled maintenance accomplishment procedures, where threshold / interval / life-limit requirements of the related scheduled tasks are established. In that respect, the following aspects should be considered:

(A) The majority of the ICA are of an unscheduled nature; therefore, these items should be available at entry into service at the latest.

(B) Consideration should be given to the fact that a number of tasks are used for both scheduled and unscheduled maintenance (e.g. an operational check of a system is planned as a scheduled task at a certain point in time, but is also required as part of the installation procedure to determine the operational status of the system).

(C) For ICA to be made available after entry into service, the detailed plan should contain threshold(s) controlled by the applicant/holder, stating the maximum value in flight hours (FH) / flight cycles (FC) or calendar time (CT), or a combination of them as applicable, by which point in time the delayed ICA should be made available.

(D) This detailed plan should be available prior to the time of the design approval and should be either directly integrated or cross-referenced in a compliance plan.

(E) Information on the format in which the ICA delayed until after entry into service will be made available in time (e.g. regular revisions or temporary revisions (TRs) or service information (SBs, SIL, etc.).

(iv) A procedure/programme that ensures a detailed plan is produced and implemented in the applicant's organisation in order to ensure the timely availability (to the aircraft operator / aircraft owner and to any other person required to comply with any of those instructions and to the CAA, if involved and when requested). For A UK applicant, this should be part of the design organisation approval (DOA) procedure in accordance with points 21.A.239 and 21.A.263.

(v) A commitment is made to produce, verify and provide the relevant ICA in accordance with the detailed plan. This commitment should be provided in a certification document (e.g. a compliance plan) and should also be addressed in a more general manner in a DOA procedure for UK holders/applicants in accordance with points 21.A.239 and 21.A.263. If the respective DOA holder has not previously exercised the practice of delaying the ICA beyond the design approval in order for the DOA to demonstrate this capability in its design assurance system (DAS), the

required procedural changes need to be addressed via a significant change to the DAS in accordance with point 21.A.247.

(vi) In order to ensure that the applicant/holder can meet their obligations as set out in point 21.A.44 to control and support delaying the ICA, CAA may decide:

(A) for ICA delayed until entry into service, to assign a condition/notation for the entry into service to be included in the TCDS as a result of these pending issues under the ICA paragraph, as per point (v) of Option 2;

(B) for ICA delayed until after entry into service, to assign an interim limitation to be published and included in the ALS as a temporary operational limitation, also for non-ALS ICA, to compensate for the delayed ICA; this approach may only be used for scheduled maintenance accomplishment procedures, where task and interval requirements are available.

The decision to assign a condition/limitation may be based on the applicant's performance, e.g. if the applicant has already demonstrated in previous projects that it provided the complete set of ICA before the entry into service, if the applicant had already difficulties in providing the ICA considered necessary at the time of the design approval, or has failed before in a different project to control and support delaying the ICA, or if the applicant/holder has not previously exercised the practice of delaying the ICA beyond the design approval.

(vii) Post-TC action should be established with the CAA to regularly review the ICA status, if the CAA requests such a review, taking into account the DOA oversight

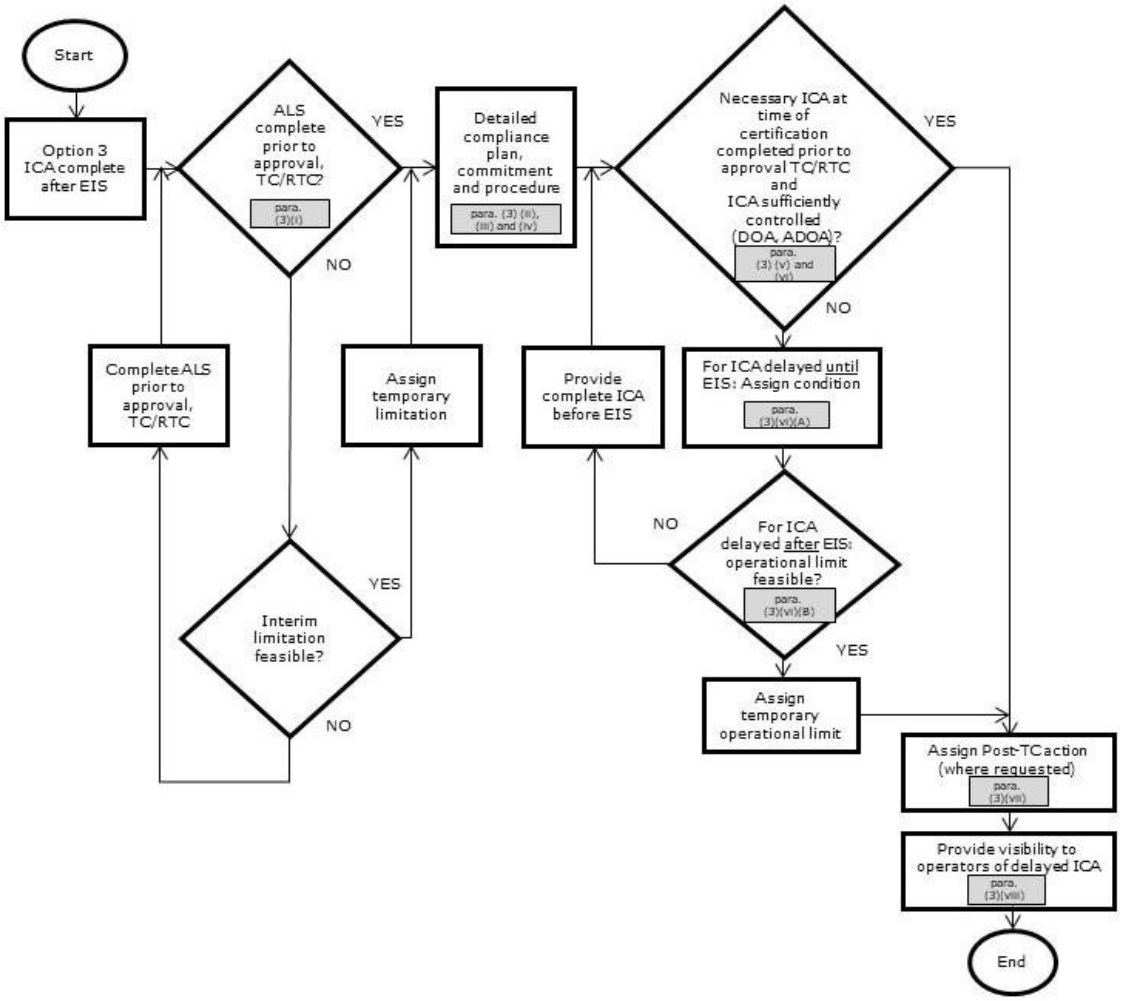
(viii) An applicant/holder should provide visibility, regarding the ICA that are delayed beyond entry into service, to the aircraft operator / aircraft owner and to any other person(s) required to comply with any of those instructions. This can be achieved by providing this information, for example, on a website or in a document, such as an MPD or AMM, preferably in the principal ICA manual. This visibility information is then itself considered to be ICA information.

(ix) It is assumed that for those ICA that are made available to CAA at the time of entry into service, they are also at the same time furnished to the aircraft operator / aircraft owner and made available to any other person(s) required to comply with any of those instructions in accordance with points 21.A.21(c)(4), 21.A.44 and 21.A.7.

This is to satisfy CAA that such a delayed publication will not have an adverse effect on the continuing airworthiness of any individual aircraft.

To allow the timely review and incorporation of a delayed part of the ICA into continuing airworthiness activities and processes (e.g. amendment of the aircraft Maintenance Programme) by the person or organisation responsible for the aircraft continuing airworthiness or for performing maintenance, the CAA considers that the delayed ICA should typically be made available two years before the actual ICA has to be used, when using normal revisions as a format. However, shorter time margins may be acceptable, provided that the format used ensures the prompt notification of the availability of the delayed ICA or the ICA itself, but they should not be less than 1 year before the ICA has to be used.

Flow chart B — 'Completeness of ICA', Option 3



(b) Completeness and timely availability of changes to the ICA (TC/RTC)

Point 21.A.7(d) regulates the distribution of changes to the ICA required from the TC/RTC holder. Those changes to the ICA could result from the design change process (minor and major changes), in-service experience, corrections, and others.

For an UK TC/RTC holder/applicant, a programme showing how changes to the ICA are distributed is part of the respective procedures (e.g. design organisation procedures, or alternative procedures used to demonstrate capabilities). For changes to the ICA triggered by design changes, typically these procedures follow the same principles as those available for TC/RTC, Options 1 to 3, while taking into account the relevant privileges, e.g. that a DOA may approve minor changes in accordance with point 21.A.263(c)(2).

AMC1 21.A.65 Continuing structural integrity programme for aeroplane structures

Type-certificate (TC) or restricted type-certificate (RTC) holders for large aeroplanes should implement a process to ensure the continuing structural integrity of the aeroplane's structures following its entry into service.

For those large aeroplanes subject to point 26.300 of Part-26, compliance with point 21.A.65 of Part 21 is demonstrated by complying with point 26.305 of Part-26 within the timescale indicated therein.

For other large aeroplanes, the process should be established considering the points described below:

(a) Overall objectives

The objective of point 21.A.65 of Part 21 is to ensure that the continuing structural integrity programme remains valid throughout the operational life of the aeroplane and will preclude unsafe levels of fatigue cracking and other forms of structural degradation.

The intent is for (R)TC holders for large aeroplanes to monitor the continued validity of the assumptions upon which the ICA related to the aeroplane structures are based, and to ensure that unsafe levels of fatigue cracking or other structural deterioration will be precluded in service.

To achieve this objective, (R)TC holders are expected to work together with aircraft operators.

The process should apply to all structures whose failure could contribute to a catastrophic failure, and it is not limited to metallic structures or fatigue cracking, but should also encompass composite and hybrid structures and associated failure modes.

(b) Description of the process to maintain the validity of the continuing structural integrity programme

The process to maintain the validity of the continuing structural integrity programme is either continuous with each service finding, or is a regular review following several findings, or a combination of both. It should include the following:

(1) a plan to audit and report to CAA the effectiveness of the continuing structural integrity programme, including the continuing validity of the assumptions upon which it is based, prior to reaching any significant point in the life of the aeroplane;

(2) criteria for summarising findings of fatigue, environmental or accidental damage and their causes, and recording them in a way that allows any potential interaction to be evaluated;

(3) criteria to assess and record the relevance of each potential contributing factor to the finding, including operational usage, fatigue load spectra, environmental conditions, material properties, manufacturing processes and the fatigue- and damage-tolerance analytical methods of analysis and their implementation;

(4) criteria for establishing and revising sampling programmes to supplement the inspections and other procedures established in compliance with the applicable fatigue- and damage-tolerance requirements;

(5) criteria for establishing when structures should be modified, or the inspection programme revised, in the light of in-service damage findings;

(6) sunset criteria: the extent to which the above elements of the process require definition may be tailored to the size of the fleet and its expected useful remaining life.

(7) Additional means of compliance may be found in paragraph 5 and Appendix 5 to AMC 20-20B.

GM1 21.A.90C Stand-alone changes

Changes to the ICA are considered to be stand-alone changes when they are not directly prepared together with a change to the type design. Stand-alone changes to the ICA are usually prepared and issued, for example, for the purpose of making corrections, improvements, to include feedback from users, or to provide alternatives.

Also, when the ICA are completed after the product (or change to the product) was approved, this is considered to be a stand-alone change to the ICA.

When a non-ALS ICA change is triggered by a change to the type design, this does not affect the overall classification of the type certificate change as per point 21.A.91.

Stand-alone changes are usually straightforward changes, and are not considered to require additional work in order to show compliance. However, they must be managed in accordance with a process accepted by CAA under point 21.A.239 or point 21.A.14(b), for discharging the obligation to keep the ICA up to date.

Examples of changes that may require additional activities in order to show compliance are changes to the CDCCL, and EWIS ICA.

Appendix A to GM 21.A.91 Examples of Major Changes per discipline

[…]

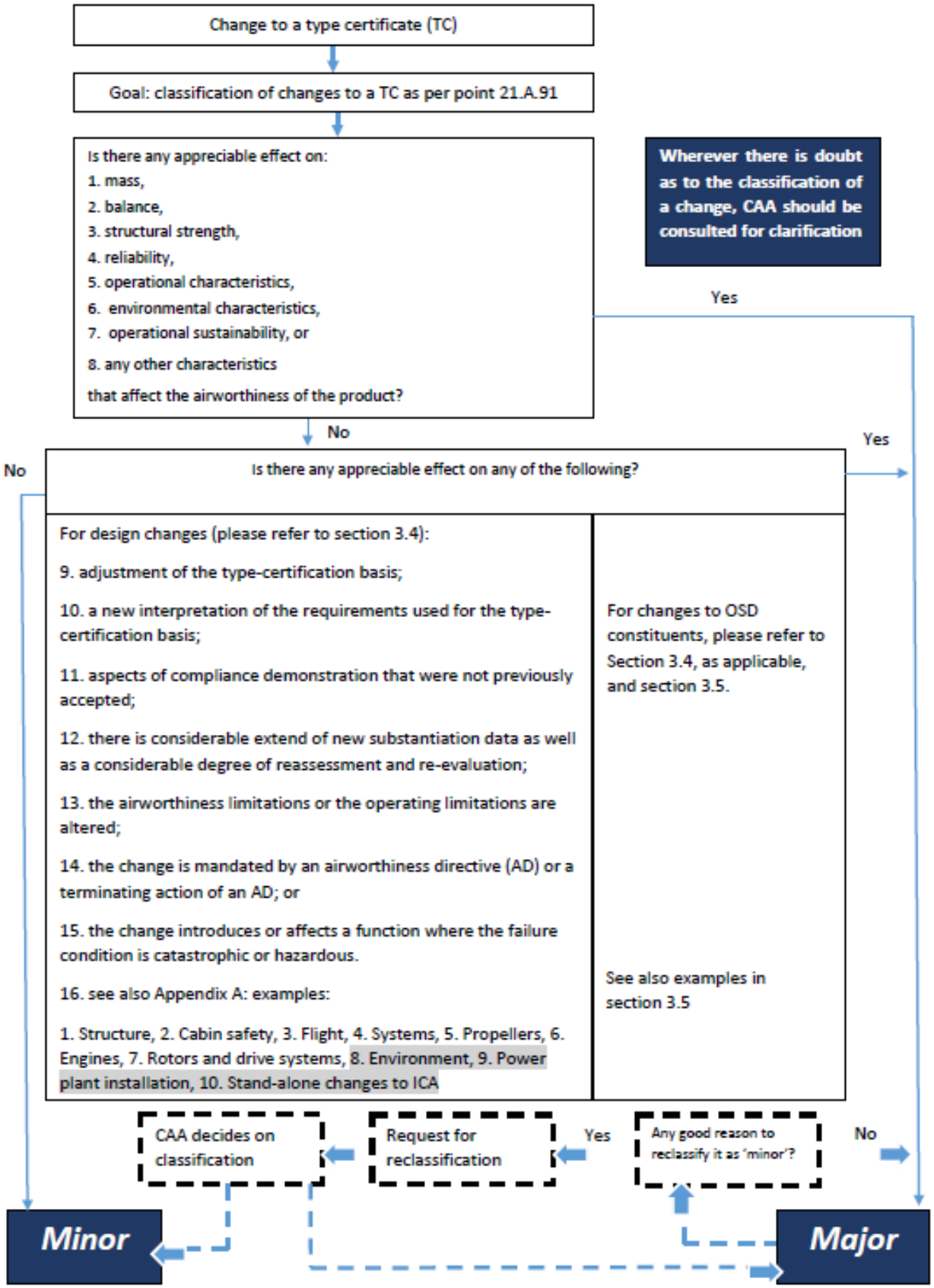
10. Stand-alone changes to non-ALS ICA that require additional work to demonstrate compliance with the applicable certification basis as follows:

(i) changes related to accomplishment instructions (e.g. to the aircraft maintenance manual) related to the CDCCL, or the EWIS ICA, for which the technical content (e.g. gaps, steps) of the procedures is changed;

(ii) the introduction of novel technology for inspection purposes related to an ALS task;

(iii) changes that adversely affect the certification assumptions: e.g. some specific inspection procedures, such as inspection procedures for use after a hard landing, may include a decision-making chart based on the level of exceedance of the load in comparison with the certified limit loads; such criteria, and adverse changes, need to be agreed with CAA.

Classification Process



AMC1 21.A.101(h) Type-certification basis for changes to large aeroplanes subject to point 26.300 of Part-26

Compliance with point 21.A.101(h) is demonstrated through compliance with Amdt 19 to CS 25.571 or subsequent amendments, or with the following:

(a) For turbine-powered large aeroplanes with a certified maximum take-off weight (MTOW) greater than 34 019 kg (75 000 lbs):

(1) For changes that affect or introduce fatigue critical structures susceptible to widespread fatigue damage (WFD), WFD evaluations should substantiate freedom from WFD up to the existing limit of validity (LOV) or a new reduced LOV approved by CAA;

(2) The extension of an existing LOV is a major change.

(3) The extent of the test evidence required in support of the WFD evaluation should be agreed with CAA;

(4) Inspections and other maintenance actions upon which the LOV is dependent are established and submitted to CAA for approval in accordance with point 21.A.7 of Part 21;

(5) AMC 20-20B paragraph 8 contains additional guidance on this subject.

(b) For turbine-powered large aeroplanes certified to carry 30 passengers or more, or with a payload capacity of 3 402 kg (7 500 lbs) or more:

(1) For changes that affect or introduce fatigue critical structures, damage-tolerance evaluations must be performed according to the certification basis of the aeroplane unless it precedes JAR 25.571 Change 7 or 14 CFR §25.571 Amendment 45, in which case the certification basis for the change should be:

(i) JAR 25.571 Change 7 or 14 CFR §25.571 Amendment 45, or later amendments; or

(ii) the specifications used for compliance with the applicable points of Part-26 for the structures affected by the change.

(2) Develop or amend the list of fatigue-critical modified structures (FCMS) as necessary and make it available to aircraft operators as part of the ICA of the change.

(c) For turbine-powered large aeroplanes, the baseline corrosion prevention and control programme is amended or supplemented to address the influence of the change on the effectiveness of the programme, as necessary.

AMC No 2 to 21.A.133(b) and (c) Eligibility – Link between design and production organisations

[…]

Arrangement Sample Form

ARRANGEMENT in accordance with 21.A.133(b) and (c)

<table>
<tr><th>The undersigned agree on the following commitments:</th><th>Relevant interface procedures</th></tr>
<tr><td>The design organisation [NAME] takes responsibility to
— assure correct and timely transfer of up-to-date applicable design data (e.g., drawings, material specifications, dimensional data, processes, surface treatments, shipping conditions, quality requirements, etc.) to the production organisation approval holder [NAME]
— provide visible statement(s) of approved design data.</td><td></td></tr>
<tr><td>The production organisation approval holder [NAME] takes responsibility to
— assist the design organisation [NAME] in dealing with continuing airworthiness matter and for required actions
— assist the design organisation [NAME] in case of products prior to type certification in demonstrating compliance with certification specifications
— develop, where applicable, its own manufacturing data in compliance with the airworthiness data package.</td><td></td></tr>
<tr><td>The design organisation [NAME] and the POA holder [NAME] take joint responsibility to
— deal adequately with production deviations and non-conforming parts in accordance with the applicable procedures of the design organisation and the production organisation approval holder
— achieve adequate configuration control of manufactured parts, to enable the POA holder to make the final determination and identification for conformity.</td><td></td></tr>
<tr><td colspan="2">The scope of production covered by this arrangement is detailed in [DOCUMENT REFERENCE/ATTACHED LIST]</td></tr>
<tr><td colspan="2">[When the design organisation is not the same legal entity as the production organisation approval holder]

Transfer of approved design data:
The TC/STC/UKTSO holder [NAME] acknowledges that the approved design data provided, controlled and modified in accordance with the arrangement are recognised as approved by the CAA and therefore the parts and appliances manufactured in accordance with these data and found in a condition for safe operation may be released certifying that the item was manufactured in conformity to approved design data and is in a condition for safe operation..</td></tr>
<tr><td colspan="2">[When the design organisation is not the same legal entity as the production organisation approval holder]

Direct Delivery Authorisation:
This acknowledgment includes also [OR does not include] the general agreement for direct delivery to end users in order to guarantee continued airworthiness control of the released parts and appliances.</td></tr>
<tr><td>For the [NAME of the design organisation/DOA holder] {DOA/ADOA number]

Date: Signature:

xx.xx.xxxx
[NAME in block letters]</td><td>For the [NAME of the POA holder] {POA number}

Date: Signature:

xx.xx.xxxx
[NAME in block letters]</td></tr>
</table>

GM 21.A.139(b)(1) Quality System – Elements of the quality system

1. The control procedures covering the elements of 21.A.139(b)(1) should document the standards to which the production organisation intends to work.

2. An organisation having a Quality system designed to meet a recognised Standard such as ISO 9001 (relevant to the scope of approval being requested) should expand it to include at least the following additional topics, as appropriate, in order to demonstrate compliance with the requirements of Part 21 Subpart G:

   — Mandatory Occurrence Reporting and continued airworthiness as required by 21.A.165(e)

   — Control of work occasionally performed (outside the POA facility by POA personnel)

   — Co-ordination with the applicant for, or holder of, an approved design as required by 21.A.133(b) and (c) and 21.A.165(g)

   — Issue of certifications within the scope of approval for the privileges of 21.A.163 including where ICT is used in accordance with GM1.21.A.163.

   — Incorporation of airworthiness data in production and inspection data as required in 21.A.133(b) and (c) and 21.A.145(b)

   — When applicable, ground test and/or production flight test of products in accordance with procedures defined by the applicant for, or holder of, the design approval

   — Procedures for traceability including a definition of clear criteria of which items need such traceability. Traceability is defined as a means of establishing the origin of an article by reference to historical records for the purpose of providing evidence of conformity

   — Personnel training and qualification procedures especially for certifying staff as required in 21.A.145(d).

3. An organisation having a quality system designed to meet a recognised aerospace quality standard will still need to ensure compliance with all the requirements of Subpart G of Part 21. In all cases, the CAA will still need to be satisfied that compliance with Part 21 Subpart G is established.

GM 21.A.147(a) Changes to the approved production organisation – Significant changes

1. Changes to be approved by the CAA include:

   — Significant changes to production capacity or methods.

   — Changes in the organisation structure especially those parts of the organisation in charge of quality.

   — A change of the accountable manager or of any other person nominated under 21.A.145(c)(2).

   — Changes in the production or quality systems that may have an important impact on the conformity/airworthiness of each product, part or appliance.e.g.

   - The use of information and communication technologies (ICT) to support the issuance of a CAA Form 1.

   - The use of information and communication technologies (ICT) for performing remote audits.

— Changes in the placement or control of significant sub-contracted work or supplied parts.

2. To ensure that changes do not result in non-compliance with Part 21 Section A Subpart G it is in the interest of both the CAA and the approval holder to establish a relationship and exchange information that will permit the necessary evaluation work to be conducted before the implementation of a change. This relationship should also permit agreement on the need for variation of the terms of approval (ref 21.A.143(a)(9)).

3. Where a change of name or ownership results in the issue of a new approval the investigation will normally take account of the CAA's knowledge and information from the preceding approval.

4. Changes of location are addressed in 21.A.148 and changes of ownership in 21.A.149, change of scope of approval in 21.A.153.

GM1 ~~N°1~~ 21.A.239(a) Design assurance system

[…]

3.1.5 Maintenance and Operating Instructions

(a) Ensuring the preparation and updating of all maintenance and operating/installation instructions (including instructions for continued airworthiness and service~~s~~ bulletins) needed to maintain airworthiness (continuing airworthiness) in accordance with the relevant CSs. For that purpose, the applicant should:

— establish the list of all documents it ~~is~~ produce~~sing~~ to comply with CS 2X.1581 and with the Appendix referred to in CS 2X.1529, CS-E 20/25 or CS-P 30/40;

— establish a system to collect in-service experience to be used for the improvement of the instructions;

— define its procedures and the organisation to produce and issue these documents, under the obligation of point 21.A.265(h); the procedures should cover:

— preparation, including the format and language (available industrial standards can be referred to and used);

— proofreading (checking for clarity, readability, typos, etc.);

— ~~checking~~ verification of technical consistency with the corresponding approved change(s), repair(s) or approved data, including the effectivity, description, effects on airworthiness and environmental protection, especially when limitations are changed;

— ~~checking~~ verification of feasibility in practical applications when relevant and feasible; and

— responsibilities and authorised signatories.

Note: The compliance verification, as described in 3.1.3(b) of this GM, applies to the manuals approved by CAA (aircraft flight manual, the Airworthiness Limitations section of the Instructions for Continued Airworthiness (ICA) and the Certification Maintenance Requirements (CMR) document, where applicable). For the other ICA or other maintenance instructions, the procedure required by 3.1.5(a) provides a sufficient level of verification and does not require specific compliance verification unless, in line with 21.A.90C, additional work to demonstrate compliance is required. In this case, where additional showing of compliance is required, points 21.A.91 to 21.A.109 apply and then the independent checking function of the showings of compliance as per 21.239(b) applies.

(b) In accordance with points 21.A.6, 21.A.7 and, where applicable, 21.A.609 ~~21.A.57, 21.A.61, 21.A.107, 21.A.119, 21.A.120A and 21.A.449~~, ensuring that these documents are ~~provided~~ made available in accordance with point 21.A.7(b)~~to all known operators and all involved authorities~~.

3.1.6 Operational Suitability Data (OSD)

(a) Ensuring the preparation and update~~ing~~ of all OSD in accordance with the relevant CSs. For that purpose, the applicant should:

— establish the list of all the documents it ~~is~~ produces~~ing~~ to comply with CS-MMEL or CS-GEN-MMEL, CS-FCD, CS-CCD, CS-SIMD and CS-MCSD, as applicable;

— define its procedures and the organisation to produce and issue these documents under the obligation of point 21.A.265(h); these procedures should cover the aspects described in 3.1.5(a) above.

(b) In accordance with points 21.A.6 and 21.A.7 ~~21.A.57, 21.A.62, 21.A.108, 21.A.119 and 21.A.120B~~, ensuring that these documents are provided to all affected operators and training organisations and all involved authorities.

AMC1 ~~N°1~~ 21.A.243(a) Data requirements

The handbook should provide the following information for each product covered by the design organisation approval.

[…]

9. A description of the record-keeping system to comply with 21.A.5.~~55 and 21.A.105.~~

[…]

14. A description of the procedures for the establishment and ~~the~~ control of the maintenance and operating instructions (see points 21.A.6, 21.A.7 and, where applicable, 21.A.609.~~57, 21.A.61, 21.A.107, 21.A.119, 21.A.120A and 21.A.449).~~

[…]

16. A description of the procedures for the establishment and ~~the~~ control of the operational suitability data (see 21.A.5~~7~~, 21.A.62, 21.A.108~~, 21.A.119~~ and 21.A.120B).

17. A description of the procedures for the establishment and control of a part or appliance for which the consequences of a non-conformity with its approved design data has a negligible safety effect on the product and which is identified as such by the holder of the design approval in the instructions for continued airworthiness in accordance with 21.A.307 including control of supplied parts. The procedures should also detail the documentation to be issued by the manufacturer including reference to the ICA and any verification activity required to be conducted by the installer.

GM1 21.A.163, 21.A.165 and 21.A.130 Performance of tasks in real time for the issuance of an 'CAA Form 1' for prototype and new parts, appliances and products other than complete aircraft, using information and communication technologies (ICT)

This GM provides technical guidance on the use of remote ICT to support the issuance of an 'CAA Form 1' for prototype and newly produced parts, appliances and products other than complete aircraft.

It is the responsibility of the production organisation to assess whether the use of remote ICT constitutes a suitable alternative to the physical inspection of the part, appliance or product in accordance with the applicable requirements. The production organisation that intends to use the remote ICT for such purposes should first discuss the feasibility aspects with the CAA. A significant change is required in accordance with 21.A.147.

(a) Terminology

In the context of this GM, the following terminology is used:

— 'issue of an CAA Form 1' means the issuance of an CAA Form 1 under Part 21 Subpart G by a certifying staff, raise an CAA Form 1 under Part 21 Subpart F by an authorised person, and the validation of a CAA Form 1 under Part 21 Subpart F by the CAA inspector, except in the case of issuance of a CAA Form 1 for the correction of error(s) on a previously issued certificate and for the recertification of an item from 'prototype' to 'new' provided that the design data has not changed;

— 'authorised staff' means certifying staff as defined in Part 21 Subpart G, and 'authorised person' and 'CAA inspector' as defined in Part 21 Subpart F;

— 'item' means any part, appliance or product other than a complete aircraft;

— 'applicable design data' means non-approved design data for a prototype item and approved design data for a newly produced item;

— 'task' means any inspection, test and/or verification, as described in a documented procedure, which is needed to be performed by an authorised staff before signing an CAA Form 1;

— 'remote ICT' means any real-time video and audio communication tools using information and communication technologies (ICT) whose aim is to enable the performance of the task(s) by the authorised staff from a location different from that where the item is located (on-site).

(b) Regulatory context

The following entities may issue a CAA Form 1 for produced items in order to certify their conformity to the applicable design data and, for new items, their condition for safe operation:

— the holder of a letter of agreement (LoA) that is issued in accordance with Part 21 Subpart F (refer to point 21.A.130(a));

— the CAA in the context of Part 21 Subpart F (refer to point 21.A.130(d));

— the holder of a production organisation approval (POA) in accordance with Part 21 Subpart G (refer to point 21.A.163(c)).

An CAA Form 1 has to be issued by appropriately qualified authorised staff. Part 21 does not require authorised staff to be on-site when issuing an CAA Form 1, nor how the production organisation and the CAA shall determine whether the part/appliance/product other than a complete aircraft conforms to the applicable design data and, for a new item, is in a condition for safe operation. These should be detailed in a documented procedure accepted by the CAA.

Part 21 requires:

— in point 21.A.130(d) that the CAA validate the CAA Form 1 following inspections performed in accordance with 21.B.135(b) if it finds after the inspection that the product, part or appliance conforms to the applicable design data and is in condition for safe operation;

— in point 21.A.165(c) that the POA holder has to determine that:

  — other products, parts or appliances are complete and conform to the approved design data and are in a condition for safe operation before issuing a CAA Form 1;

  — other products, parts or appliances conform to the applicable data before issuing a CAA Form 1.

Typically, compliance with these requirements is ensured through the on-site presence of the authorised staff in order to guarantee they have appropriate access to the item, as needed.

However, compliance with these requirements may be also ensured in certain circumstances, determined as per the considerations described in point (c) below, by remotely conducting the tasks which are needed before the issuance of a CAA Form 1 by the use of remote ICT. The following considerations should be used as guidelines when the on-site presence of the authorised staff is to be replaced by virtual presence, using remote ICT.

(c) The use of remote ICT to support the issuance of a CAA Form 1

Remote ICT may have limitations that could render it unsuitable for some applications. Accordingly, careful consideration and risk management should be applied when determining when to use remote ICT. These considerations, listed below, are however not exhaustive and *should not* be treated as a checklist.

(1) General considerations

- As an overarching principle, it needs to be determined whether the nature of the tasks to be performed by the authorised staff allows the use of remote ICT.
- The facility where the item is located:
  - should be referred to in CAA Form 65 or CAA Form 55, directly or indirectly by reference to the corresponding section of the manual or production organisation exposition (POE); or
  - for a POA, should be a facility from where a POE procedure related to point 21.A.139(b)(1)(xv) authorises the issuance of a CAA Form 1.
- The complexity, novelty and safety criticality of the item to be released with the CAA A Form 1 should be taken into account.
- The level of competence and experience of the personnel in the use of the particular procedures and equipment that will be used to perform the tasks before issuing CAA Form 1.
- Previous experience of the organisation / confidence in the organisation's inspection system / quality system / management system.
- The appropriateness of the inspection and test instruments and/or equipment, especially if used to evaluate qualitative aspects of a product, part or appliance.

(2) Equipment and set-up considerations

- The suitability of video resolution, fidelity, and field of view for the task being performed.
- The need for multiple cameras, imaging systems or microphones, and whether the person that performs or witnesses the tasks can switch between them, or direct them to be switched, and has the possibility to stop the process, ask a question, move the equipment, etc.
- The controllability of viewing direction, zoom, and lighting.
- The appropriateness of audio fidelity for the evaluation being conducted.
- Whether real-time, uninterrupted communication between the person(s) authorised to remotely witness the activity (authorised staff) and the personnel performing it exists at the location where the item is located.
- The need for unique testing devices or equipment (for example, fast-frame cameras, special lighting conditions, sensitive listening devices, mobile phones with cameras for HD video calls).
- Whether personnel have been adequately trained in the proper set-up, validation and use of the technology, tools and/or equipment to be used.
- The need for the recording of audio and video data, as well for its retention or for the retention of other information.

(3) Cybersecurity considerations

There are cases where the facilities where the tasks have to be performed are subject to strict security limitations. When using remote ICT for the tasks needed before issuing an CAA Form 1, it is the responsibility of the organisation to provide an equivalent level of security, therefore the person that is responsible for IT security within the organisation should concur to the ICT technology before proceeding.

(4) Documenting the use of the remote ICT

The documented processes (procedures) developed by the holder of a letter of agreement (LoA) or a POA should be accepted by the CAA, and should describe the following:

— the risk assessment process required to determine the appropriateness of the remote ICT taking into account the above-mentioned considerations;

— the tasks to be performed, including preparation activities, inspections, tests, verifications to be done, personnel involved in the remote ICT activities and their level of competence;

— that it is necessary to guarantee that authorised staff have access to all necessary data (e.g. drawings, schematics, datasheets, etc.) they require in order to determine that the item conforms to the applicable design data, and how this can be ensured;

— how remote ICT will be used in real time (not pre-recorded) so that authorised staff may direct the performance of the tasks as if it were conducted in-person, on-site, with the aid of the equipment or the personnel supporting the activity at the remote location;

— the procedures for conducting a reinspection in case the equipment malfunctions or the process fails to yield acceptable results; a reinspection using remote ICT may be accomplished after correcting the malfunction or process, or by an actual on-site inspection;

— how authorised staff should record and communicate any difficulties or concerns regarding the process so that the organisation can improve its programme;

— how the use of the remote ICT will be documented in the required records; and

— how the organisation’s IT security is ensured throughout the remote ICT process (data protection and intellectual property of the organisation also need to be safeguarded).

GM1 21.A.139, 21.A.157, 21.A.239, 21.A.257, 21.B.120, 21.B.140, 21.B.220, 21.B.235 and 21.B.240 The use of information and communication technologies (ICT) for performing remote audits

This GM provides technical guidance on the use of remote information and communication technologies (ICT) to support:

— competent authorities when overseeing regulated organisations;

— regulated organisations when conducting internal audits / monitoring compliance of their organisation with the relevant requirements, and when evaluating vendors, suppliers and subcontractors.

In the context of this GM:

— 'remote audit' means an audit that is performed with the use of any real-time video and audio communication tools in lieu of the physical presence of the auditor on-site; the specificities of each type of approval / letter of agreement (LoA) need to be considered in addition to the general overview (described below) when applying the 'remote audit' concept;

— 'auditing entity' means the competent authority or organisation that performs the remote audit;

— 'auditee' means the entity being audited/inspected (or the entity audited/inspected by the auditing entity via a remote audit);

It is the responsibility of the auditing entity to assess whether the use of remote ICT constitutes a suitable alternative to the physical presence of an auditor on-site in accordance with the applicable requirements.

The conduct of a remote audit

The auditing entity that decides to conduct a remote audit should describe the remote audit process in its documented procedures and should consider at least the following elements:

— The methodology for the use of remote ICT is sufficiently flexible and non-prescriptive in nature to optimise the conventional audit process.

— Adequate controls are defined and are in place to avoid abuses that could compromise the integrity of the audit process.

— Measures to ensure that the security and confidentiality are maintained throughout the audit activities (data protection and intellectual property of the organisation also need to be safeguarded).

Examples of the use of remote ICT during audits may include but are not limited to:

— meetings by means of teleconference facilities, including audio, video and data sharing;

— assessment of documents and records by means of remote access, in real time;

— recording, in real time during the process, of evidence to document the results of the audit, including non-conformities, by means of exchange of emails or documents, instant pictures, video or/and audio recordings;

— visual (livestream video) and audio access to facilities, stores, equipment, tools, processes, operations, etc.

An agreement between the auditing entity and the auditee should be established when planning a remote audit, which should include the following:

— determining the platform for hosting the audit;

— granting security and/or profile access to the auditor(s);

— testing platform compatibility between the auditing entity and the auditee prior to the audit;

— considering the use of webcams, cameras, drones, etc., when the physical evaluation of an event (product, part, process, etc.) is desired or is necessary;

— establishing an audit plan which will identify how remote ICT will be used and the extent of their use for the audit purposes to optimise their effectiveness and efficiency while maintaining the integrity of the audit process;

— if necessary, time zone acknowledgement and management to coordinate reasonable and mutually agreeable convening times;

— a documented statement of the auditee that they shall ensure full cooperation and provision of the actual and valid data as requested, including ensuring any supplier or subcontractor cooperation, if needed; and

— data protection aspects.

The following equipment and set-up elements should be considered:

— the suitability of video resolution, fidelity, and field of view for the verification being conducted;

— the need for multiple cameras, imaging systems, or microphones, and whether the person that performs the verification can switch between them, or direct them to be switched and has the possibility to stop the process, ask a question, move the equipment, etc.;

— the controllability of viewing direction, zoom, and lighting;

— the appropriateness of audio fidelity for the evaluation being conducted; and

— real-time and uninterrupted communication between the person(s) participating to the remote audit from both locations (on-site and remotely).

When using remote ICT, the auditing entity and the other persons involved (e.g. drone pilots, technical experts) should have the competence and ability to understand and utilise the remote ICT tools employed to achieve the desired results of the audit(s)/assessment(s). The auditing entity should also be aware of the risks and opportunities of the remote ICT used and the impacts they may have on the validity and objectivity of the information gathered.

Audit reports and related records should indicate the extent to which remote ICT have been used in conducting remote audits and the effectiveness of remote ICT in achieving the audit objectives, including any item that it has not been able to be completely reviewed.

GM 21.A.247 Significant changes in the design assurance system

In addition to a change in ownership (see 21.A.249), the following changes to the design assurance system should be considered to be 'significant' to the demonstration of compliance or to the airworthiness, operational suitability or environmental protection of the products:

[…]

3. Procedures

Change to the principles of procedures related to:

— the type certification;

— the classification of changes and repairs as 'major' or 'minor' (21.A.263(c)(1));

— the treatment of major changes and major repairs;

— the approval of the design of minor changes and minor repairs (21.A.263(c)(2));

— the approval of the design of certain major repairs (21.A.435(b) or 21.A.263(c)(5));

— the approval of the conditions under which a permit to fly can be issued (21.A.263(c)(6));

— the issue of a permit to fly (21.A.263(c)(7));

— the approval of certain major changes to a type certificate (21.A.263(c)(8));

— the approval of certain supplemental type certificates (21.A.263(c)(9));

— the approval of certain major changes to certain supplemental type certificates; (21.A.263(c)(9));

— continued airworthiness or continued operational suitability (see 21.A.3);

— the configuration control, when airworthiness, operational suitability or environmental protection is affected;

— the acceptability of design tasks undertaken by partners or subcontractors (21.A.239(c));

— the issue of data and information under the obligation of 21.A.265(h).

— the identification and management of parts for which the consequences of a non-conformity with its approved design data has a negligible safety effect on the product and which is identified as such by the holder of the design approval in the instructions for continued airworthiness. The design approval holder is responsible for parts provided by suppliers and original equipment manufacturers (OEMs).

— the delay of the issue of Instructions for Continued Airworthiness (21.A.7 (ICAs)).

GM 21.A.265(h) Designation of data and information issued under the authority of a design organisation approval (DOA) holder

[…]

4. PROCEDURE

For the information and instructions issued under point 21.A.265(h), the DOA holder should establish a procedure that addresses the following aspects:

— their preparation;

— verification of their technical consistency with the corresponding approved change(s), repair(s) or approved data, including their effectivity, description, effects on airworthiness and environmental protection, especially when limitations are changed;

— verification of their feasibility in practical applications, when relevant and feasible;

— the authorised signatories.

The procedure should include the information or the instructions prepared by suppliers, and declared applicable to its products by the DOA holder.

5. STATEMENT

[…]

AMC1 21.A.307(b)(3) and (b)(4) Verification activities to be conducted on the part or appliance or release documentation prior to installation

To prevent a non-negligible safety effect on the product, due to the installation of a part or appliance referred to in point 21.A.307(b)(3) and (b)(4) that could potentially not conform to its design, the design approval holder (DAH) or CAA may identify in the ICA (in the case of 21.A.307(b)(3)) or in CS-STAN (in the case of 21.A.307(b)(4)) any specific verification activities to be conducted by the installer on the part or appliance before installing it on the product in accordance with UK Regulation (EU) No 1321/2014.

When assessing the safety effect of a part or appliance identified in point 21.A.307(b)(3) or (b)(4), the DAH or CAA should assume that the installer would conduct, in accordance with Regulation (EU) No 1321/2014, any specific verification activities on the part or appliance or release documentation, as identified in the ICA or in CS-STAN.

Example: Information from the DAH contained in the ICA: 'Part XXX-YY must comply with flammability requirement JJJ-KKK'.

GM1 21.A.307(b)(3) and (b)(4) Meaning of 'negligible safety effect'

For the purpose of 21.A.307(b)(3) and (b)(4), when 'a part or appliance for which the consequences of non-conformity to its design has a negligible safety effect when installed on the product' is mentioned, it means that any non-conformity of the part or appliance not identified by the installer that conducted the specific verification activities mentioned in 21.A.307 (c):

(a) for ELA1 and ELA2 aircraft, at worst:

(1) slightly reduces the operational or functional certified capabilities of the aircraft or its safety margins;

(2) causes some physical discomfort to its occupants; and

(3) slightly increases the workload of the flight crew; and

(b) for any other aircraft:

(1) has no effect on the operational or functional certified capabilities of the aircraft, or on its safety margins;

(2) causes no physical discomfort to the occupants; and

(3) has no effect on the flight crew.

GM1 21.A.307(b)(4) Certification specifications referred to in point 21.A.307(b)(4)

The corresponding certification specifications issued by CAA and mentioned in point 21.A.307(b)(4) are the Certification Specifications for Standard Changes and Standard Repairs (CS-STAN).

GM1 21.A.307(b)(5) Equipment exempted from an airworthiness approval in accordance with UK Regulation (EU) No 965/2012

The equipment exempted from an airworthiness approval in accordance with UK Regulation (EU) No 965/2012 that can be installed during maintenance as new equipment on an aircraft under point 21.A.307(b)(5) is the equipment identified in the following points:

— CAT.IDE.A.100(a),

— CAT.IDE.H.100(a),

— NCC.IDE.A.100(b) and (c),

— NCC.IDE.H.100(b) and (c),

— NCO.IDE.A.100(b) and (c),

— NCO.IDE.H.100(b) and (c),

— NCO.IDE.S.100(b) and (c),

— NCO.IDE.B.100(b) and (c),

— SPO.IDE.A.100(b) and (c),

— SPO.IDE.H.100(b) and (c),

— SPO.IDE.S.100(b) and (c), and

— SPO.IDE.B.100(b) and (c)

of UK Regulation (EU) No 965/2012.

GM1 21.A.307(b)(6) Part or appliance that is part of a higher-level assembly

A CAA Form 1 is not required for a part or appliance when that part or appliance is an element of a higher-level assembly for which a CAA Form 1 is not required.

GM1 21.A.307(c) –Acceptable production conformity documentation

A document issued by an OEM or a commercial certificate of conformity issued under an accredited quality system such as ISO 9001 or EN 9100 accepted by the design approval holder is an example of a document issued by the person or organisation that manufactured the part or appliance and which declares the name of the part or appliance, the part number, and the conformity of the part or appliance with its design data, and which contains the issuance date.

AMC 21.A.433 (a) and 21.A.5~~447~~ –Repair design and record-keeping

[…]

AMC1 21.A.433(a)(5) Requirements for the approval of repairs to large aeroplanes subject to point 26.302 of Part-26

For repairs that affect fatigue-critical structures of turbine-powered large aeroplanes certified to carry 30 passengers or more, or with a payload capacity of 3 402 kg (7 500 lbs) or more, damage-tolerance evaluations demonstrate compliance with point 21.A.433(a)(5) when the certification basis used for the repair is:

(a) Amdt 19 to CS 25.571, or subsequent amendments; or

(b) the certification basis of the aeroplane, unless it precedes JAR 25.571 Change 7 or 14 CFR §25.571 Amendment 45, in which case the certification basis for the repair should be:

(1) JAR 25.571 Change 7 or 14 CFR §25.571 Amendment 45, or later amendments; or

(2) the specifications used for compliance with the applicable points of Part-26 for the fatigue-critical structures affected by the repair.

AMC1 21.A.609(c) and (d) Obligations of holders of UKTSO authorisations

In CS-UKTSO, there is no specification related to ICA, neither in Subpart A, nor in each specific UKTSO.

Although a UKTSO article itself typically does not require ICA, the applicable airworthiness standards may require the design approval holder (DAH) or the design approval applicant (DAA) who install a UKTSO article into their product to develop ICA that describe a UKTSO article's installation requirements, within the context of the product, to the extent necessary to ensure the product's continued airworthiness.

In addition, if the DAH or the DAA who install a UKTSO article into their product explicitly uses UKTSO provisions to demonstrate compliance with an installation requirement, they should review all the

maintenance and inspection instructions for the particular UKTSO article when defining the ICA of the product.
It may be necessary for the DAH or the DAA to incorporate these instructions into the ICA of the product to ensure that the UKTSO article continues to satisfy the terms of its UKTSO authorisation after installation.

Any DAH or DAA who wishes to install a UKTSO article should comply with point 21.A.303.

For this, the applicant for a UKTSO authorisation may provide by the time of the application and before the authorisation is issued (in accordance with point 21.A.605) the following:

— instructions that cover periodic maintenance, calibration, and repair for the continued airworthiness of the article, including specific guidance on the limits of wear and damage that would warrant replacement;

— the recommended inspection intervals, which may be affected by storage and operating conditions (i.e. temperature, humidity, etc.).

GM 21.B.55 Record-keeping for design approvals transferred to the CAA

Record-keeping related to design approvals, for which the responsibility is transferred to the CAA, will remain initially with the CAA that has granted the design approvals, but will be at the disposal of the CAA. This GM specifies the administrative documents to be kept for the various kinds of design approvals. It does not repeat the requirements for ~~put on~~ ~~holders of~~ design approvals holders to keep records (ref.: 21.A.55, ~~21.A.105, 21.A.118A(a)(1),~~ ~~21.A.447,~~ 21.A.605).

[…]