



# Notice of Proposed Amendment 2018-01

## Instructions for continued airworthiness

RMT.0252 (MDM.056)

### EXECUTIVE SUMMARY

The objective of this Notice of Proposed Amendment (NPA) is to mitigate the risks linked to the uncertainty of the status of instructions for continued airworthiness (ICA) and therefore to avoid there being too much room for interpretation in the rules and standards, leading to differences and possible safety risks .

This NPA proposes to amend Annex I (Part 21) of Regulation (EU) No 748/2012 to clarify that ICA are part of the type certificate (TC), and to develop the related acceptable means of compliance (AMC) and guidance material (GM). It also merges the requirements related to record keeping, manuals and ICA in the various subparts into a single requirement for each of these aspects in Subpart A (new points 21.A.5, 6 and 7).

The proposed changes are expected to improve the harmonisation of ICA among the design approval holders (DAHs) in relation to the identification, approval, formatting and availability of ICA to the end users.

<b>Action area:</b>	Manufacturers	<b>Rulemaking group:</b>	Yes
<b>Affected rules:</b>	Part 21 and related AMC/GM	<b>Rulemaking Procedure:</b>	Standard
<b>Affected stakeholders:</b>	DAHs and manufacturers		
<b>Driver:</b>	Level playing field		
<b>Impact assessment:</b>	Light		

• EASA rulemaking process milestones



15.5.2013 (first issue of ToR)	29.1.2018	2018/Q3	2019/Q3	2019/Q3
20.6.2016 (ToR Issue 5)				



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## 1. About this NPA

### 1.1. How this NPA was developed

The European Aviation Safety Agency (EASA) developed this NPA in line with Regulation (EC) No 216/2008<sup>1</sup> (hereinafter referred to as the 'Basic Regulation') and the Rulemaking Procedure<sup>2</sup>. This rulemaking activity is included in the EASA 5-year Rulemaking Programme<sup>3</sup> under rulemaking task (RMT).0252 (MDM.056). The text of this NPA has been developed by EASA based on the input of the Rulemaking Group (RMG) RMT.052 (MDM.056). It is hereby submitted to all interested parties<sup>4</sup> for consultation.

### 1.2. How to comment on this NPA

Please submit your comments using the automated **Comment-Response Tool (CRT)** available at <http://hub.easa.europa.eu/crt/><sup>5</sup>.

The deadline for submission of comments is **30 April 2018**.

### 1.3. The next steps

Following the closing of the public commenting period, EASA will review all comments and perform a focused consultation which will consist of one or more meetings of the RMG.

Based on the comments received, EASA will develop an opinion containing the proposed amendments to Regulation (EU) No 748/2012<sup>6</sup>. The opinion will be submitted to the European Commission, which will use it as a technical basis in order to prepare an EU regulation.

Following the adoption of the regulation, EASA will issue a decision containing the related AMC/GM.

The comments received and the EASA responses will be reflected in a comment-response document (CRD). The CRD will be annexed to the opinion.

<sup>1</sup> Regulation (EC) No 216/2008 of the European Parliament and of the Council of 20 February 2008 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency, and repealing Council Directive 91/670/EEC, Regulation (EC) No 1592/2002 and Directive 2004/36/EC (OJ L 79, 19.3.2008, p. 1) (<http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1467719701894&uri=CELEX:32008R0216>).

<sup>2</sup> EASA is bound to follow a structured rulemaking process as required by Article 52(1) of Regulation (EC) No 216/2008. Such a process has been adopted by the EASA Management Board (MB) and is referred to as the 'Rulemaking Procedure'. See MB Decision No 18-2015 of 15 December 2015 replacing Decision 01/2012 concerning the procedure to be applied by EASA for the issuing of opinions, certification specifications and guidance material (<http://www.easa.europa.eu/the-agency/management-board/decisions/easa-mb-decision-18-2015-rulemaking-procedure>).

<sup>3</sup> <http://easa.europa.eu/rulemaking/annual-programme-and-planning.php>

<sup>4</sup> In accordance with Article 52 of Regulation (EC) No 216/2008 and Articles 6(3) and 7) of the Rulemaking Procedure.

<sup>5</sup> In case of technical problems, please contact the CRT webmaster ([crt@easa.europa.eu](mailto:crt@easa.europa.eu)).

<sup>6</sup> Commission Regulation (EU) No 748/2012 of 3 August 2012 laying down implementing rules for the airworthiness and environmental certification of aircraft and related products, parts and appliances, as well as for the certification of design and production organisations (OJ L 224, 21.8.2012, p.1-85) (<http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1473415871666&uri=CELEX:32012R0748>)



## 2. In summary — why and what

### 2.1. Why we need to change the rules — issue/rationale

Instructions for continued airworthiness (ICA) have to be produced by design approval holders (DAHs) as part of the product/part certification which, if properly implemented, should ensure that the product/part remains airworthy during its intended life.

Experience has shown that there is too much room for interpretation in the current rules and standards, leading to differences and possible safety risks. It appears that different type certificate (TC) holders have different interpretations of what is a complete set of ICA and to what level they are required to control the data that constitutes the ICA. The consequence is that maintenance organisations may not have all the necessary data to perform the maintenance in the correct way, which can lead to them using unapproved methods.

The aim of this proposal is to clarify the status of ICA in order to improve the continuing airworthiness of all aircraft within the scope of the Basic Regulation, and therefore to improve safety.

#### Related safety issues

The following safety recommendations (SRs) addressed to EASA from aircraft accident investigation report(s) published by the designated safety investigation authority<sup>7</sup>, were considered during this RMT:

- SR ICLD-2013-001: Boeing 757-200 TF-FIJ, Icelandair, 85 NM south-south-east of London Gatwick Airport on June 4, 2009. (Smoke in the flight deck and the cabin was followed by an engine shut down and an emergency landing because a maintenance action from a component maintenance manual (CMM) had not been performed)
- SR UNKG-2007-004: Piper PA-28R-201T G-JMTT, near 9 NM south of Oban Airport, Argyll (Scotland) on April 9, 2007. (The aircraft crashed after a loss of control in instrument meteorological conditions with a defective vacuum pump because its required maintenance actions had not been performed).

This NPA addresses both of these SRs by proposing revised GM, which states that DAHs should systematically review the initial maintenance recommendations provided by suppliers and consider them whether they are applicable and effective. This review also includes European Technical Standard Order (ETSO) articles where the DAH or design approval applicant (DAA) may have to incorporate certain maintenance instructions into the product's ICA in order to ensure that the ETSO article continues to satisfy the terms of its ETSO authorisation after installation.

### 2.2. What we want to achieve — objectives

The overall objectives of the EASA system are defined in Article 2 of the Basic Regulation. This proposal will contribute to the achievement of the overall objectives by addressing the issues outlined in Section 2.1.

The specific objective of this RMT is to establish clear requirements and responsibilities for all parties involved in the production of ICA, their approval and their implementation.

<sup>7</sup> Regulation (EU) No 996/2010 of the European Parliament and of the Council of 20 October 2010 on the investigation and prevention of accidents and incidents in civil aviation and repealing Directive 94/56/EC (OJ L295, 12.11.2010, p.35) <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32010R0996>

The aspects to review are, among others:

- the definition and identification of ICA (to be provided during the certification process), including the determination of the relationship between ICA and the maintenance information for ETSO articles;
- the completeness of ICA (during the certification process) provided by the DAH upon delivery of the product or issuance of the first airworthiness certificate;
- the certification of ICA by the competent authority (during the certification process);
- the availability of ICA for any person required to comply with them;
- the acceptance/approval of ICA by organisations other than the certification authority; and
- updates of ICA throughout the life of the products.

### 2.3. How we want to achieve it — overview of the proposals

The main change to Part 21 introduced by this proposal is to clearly place ICA as part of the TC (point 21.A.41).

The related GM for the scope, availability, publication format, supplier's data, integration between products, of ICA will improve the implementation by the end users.

Furthermore, the current Part 21 duplicates the requirements for manuals, instructions for continued airworthiness and record-keeping for each category of certificates or approvals: it is therefore proposed to create a single requirement for each of these aspects (new points 21.A.5, 6 and 7).

#### Question for stakeholders

Do you consider that grouping all requirements related to record keeping, manuals and ICAs for holders of design approvals and ETSO authorisations in Subpart A will improve the consistency of Part -21 and the way it is being applied?

Is it sufficiently clear that these provisions do not apply to record keeping for production organisations, permit to fly holders, competent authorities (except for design approvals transferred to EASA)?

### 2.4. What are the expected benefits and drawbacks of the proposals?

The expected benefits and drawbacks of the proposal are the following. By clarifying the status of ICA as part of the TC, their identification and their control by the design organisation and/or EASA will be improved. The new GM, for their format and their link with supplier's documentation, will increase the consistency of ICA between manufacturers. Therefore, the implementation of ICA by the end-users will be improved .

The main drawbacks of this proposal are the need for manufacturers to update the development processes of some ICA; in addition, this proposal will potentially create dis-harmonisation with the US.

For the full impact assessment of the alternative options, please refer to Chapter 4.



### 3. Proposed amendments and rationale in detail

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

- deleted text is ~~struck through~~;
- new or amended text is highlighted in grey;
- an ellipsis '[...]' indicates that the rest of the text is unchanged.

#### 3.1. Draft regulation (Draft EASA opinion)

##### Changes to Annex I (Part 21) to Commission Regulation (EU) No 748/2012

1. The following points 21.A.5 to 21.A.7 are inserted

##### **21.A.5 Record keeping for holders of design approvals and ETSO authorisations**

All relevant design information and supporting documentation, drawings and test reports, including inspection records for the specimen and prototype or article tested, shall be held by the holder of a type certificate, restricted type certificate, supplemental type certificate, design change or repair design approval or an ETSO authorisation at the disposal of the Agency and shall be retained in order to provide the information necessary to ensure the continued airworthiness, continued validity of the operational suitability data and continued compliance with the applicable environmental protection requirements of the product or the article.

##### **21.A.6 Manuals**

The holder of a type certificate, restricted type certificate, supplemental type certificate, design change or repair design approval or an ETSO authorisation shall produce, maintain and update master copies of all manuals or variations in the manuals required by the applicable type certification basis, the applicable operational suitability data certification basis and the environmental protection requirements for the product or article, and provide copies, on request, to the Agency.

##### **21.A.7 Instructions for continued airworthiness**

- (a) Instructions for continued airworthiness are the instructions and information that are necessary for the continued airworthiness of the aircraft, engine, propeller, parts and appliances, which must be developed or referenced by the design approval holder in accordance with the applicable certification basis.
- (b) The holder of a type certificate, restricted type certificate, supplemental type certificate, design change or repair design approval shall furnish at least one set of complete instructions for continued airworthiness to each known owner of one or more products upon its delivery or upon the issuance of the first certificate of airworthiness for the affected aircraft, whichever occurs later, and thereafter make those instructions available on request to any other person required to comply with any of the terms of those instructions.
- (c) The type certificate or restricted type certificate holder may delay the availability of a portion of the instructions for continued airworthiness, dealing with overhaul or other forms of heavy maintenance, until after the product or modified product has entered into service, but shall make those instructions available before the product or modified product requires such overhaul or heavy maintenance.

(d) Changes to the instructions for continued airworthiness as established in accordance with (b) shall be made available to all known operators of the product affected by the change and shall be made available on request to any person required to comply with any of the terms of those changes to the instructions. The holder of a type certificate, restricted type certificate, supplemental type certificate, design change or repair design approval shall submit to the Agency a document describing the process for how changes to the instructions for continued airworthiness are made available in order to comply with the first sentence.

2. Point 21.A.41 is amended as follows

#### **21.A.41 Type-certificate**

The type-certificate and restricted type-certificate shall include the type design, the operating limitations, the instructions for continued airworthiness, the type-certificate data sheet for airworthiness and emissions, the applicable type-certification basis, and environmental protection requirements with which the Agency records compliance, and any other conditions or limitations prescribed for the product in the applicable certification specifications and environmental protection requirements. The aircraft type certificate and restricted type-certificate, in addition, shall both include the applicable operational suitability data certification basis, the operational suitability data and the type-certificate data sheet for noise. The engine type-certificate data sheet shall include the record of emission compliance.

3. Point 21.A.44 is amended as follows

#### **21.A.44 Obligations of the holder**

Each holder of a type-certificate or restricted type-certificate shall:

(a) undertake the obligations laid down in points 21.A.3A, 21.A.3B, 21.A.4, 21.A.55, 21.A.657, 21.A.761 and 21.A.62; and, for this purpose, shall continue to meet the qualification requirements for eligibility under point 21.A.14; and

[...]

4. Points 21.A.55, 21.A.57 and 21.A.61 are deleted

#### **~~21.A.55 Record keeping~~**

~~All relevant design information, drawings and test reports, including inspection records for the product tested, shall be held by the type-certificate or restricted type-certificate holder at the disposal of the Agency and shall be retained in order to provide the information necessary to ensure the continued airworthiness, continued validity of the operational suitability data and compliance with applicable environmental protection requirements of the product.~~

#### **~~21.A.57 Manuals~~**

~~The holder of a type-certificate or restricted type-certificate shall produce, maintain and update master copies of all manuals required by the applicable type-certification basis, the applicable operational suitability data certification basis and environmental protection requirements for the product, and provide copies, on request, to the Agency.~~

**~~21.A.61 Instructions for continued airworthiness~~**

~~(a) The holder of the type certificate or restricted type certificate shall furnish at least one set of complete instructions for continued airworthiness, comprising descriptive data and accomplishment instructions prepared in accordance with the applicable type certification basis, to each known owner of one or more aircraft, engine or propeller upon its delivery or upon issue of the first certificate of airworthiness for the affected aircraft, whichever occurs later and thereafter make those instructions available on request to any other person required to comply with any of the terms of those instructions. The availability of some manual or portion of the instructions for continued airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight hours/cycles. (b) In addition, changes to the instructions for continued airworthiness shall be made available to all known operators of the product and shall be made available on request to any person required to comply with any of those instructions. A programme showing how changes to the instructions for continued airworthiness are distributed shall be submitted to the Agency.~~

5. The following point 21.A.90C is inserted

**21.A.90C Stand-alone changes to ICA**

- (a) Stand-alone changes to instructions for continued airworthiness are changes that are not directly prepared together with a change to the type design.
- (b) Stand-alone changes to instructions for continued airworthiness can only be made by the holder of the design approval for which those instructions have been established.
- (c) For stand-alone changes to instructions for continued airworthiness that:
- do not affect the airworthiness limitations section of the instructions for continued airworthiness, or
  - do not require additional work to demonstrate compliance with the certification basis,
- points 21.A.91 to 21.A.109 are not applicable. The stand-alone changes to instructions for continued airworthiness will be approved by the holder of the design approval under a procedure agreed with the Agency.

6. Points 21.A.105 and 21.A.107 are deleted

**~~21.A.105 Record-keeping~~**

~~For each change, all relevant design information, drawings and test reports, including inspection records for the changed product tested, shall be held by the applicant at the disposal of the Agency and shall be retained in order to provide the information necessary to ensure the continued airworthiness, continued validity of the operational suitability data and compliance with applicable environmental protection requirements of the changed product. [Regulation (EU) No 69/2014, 27.01.2014]~~

**~~21.A.107 Instructions for continued airworthiness~~**

~~(a) The holder of a minor change approval to type certificate shall furnish at least one set of the associated variations, if any, to the instructions for continued airworthiness of the product on which the minor change is to be installed, prepared in accordance with the applicable type certification basis,~~



~~to each known owner of one or more aircraft, engine, or propeller incorporating the minor change, upon its delivery, or upon issuance of the first certificate of airworthiness for the affected aircraft, whichever occurs later, and thereafter make those variations in instructions available, on request, to any other person required to comply with any of the terms of those instructions.~~

~~(b) In addition, changes to those variations of the instructions for continued airworthiness shall be made available to all known operators of a product incorporating the minor change and shall be made available, on request, to any person required to comply with any of those instructions.~~

7. Point 21.A.109 is amended as follows

#### **21.A.109 Obligations and EPA marking**

The holder of a minor change approval to a type certificate shall:

(a) undertake the obligations laid down in points 21.A.4, 21.A.105, 21.A.107 and 21.A.108; and  
[...]

8. Point 21.A.118A is amended as follows

#### **21.A.118A Obligations and EPA marking**

Each holder of a supplemental type-certificate shall:

(a) undertake the obligations:

1. laid down in points 21.A.3A, 21.A.3B, 21.A.4, 21.A.105, 21.A.7, 21.A.119, 21.A.120A and 21.A.120B;

[...]

9. Points 21.A.119 and 21.A.120A are deleted

#### **~~21.A.119 Manuals~~**

~~The holder of a supplemental type-certificate shall produce, maintain, and update master copies of variations in the manuals required by the applicable type certification basis, the applicable operational suitability data certification basis and environmental protection requirements for the product, necessary to cover the changes introduced under the supplemental type certificate, and furnish copies of these manuals to the Agency on request. [Regulation (EU) No 69/2014, 27.01.2014]~~

#### **~~21.A.120A Instructions for continued airworthiness~~**

~~(a) The holder of the supplemental type certificate for an aircraft, engine, or propeller, shall furnish at least one set of the associated variations to the instructions for continued airworthiness, prepared in accordance with the applicable type certification basis, to each known owner of one or more aircraft, engine, or propeller incorporating the features of the supplemental type certificate, upon its delivery, or upon issuance of the first certificate of airworthiness for the affected aircraft, whichever occurs later, and thereafter make those variations in instructions available, on request, to any other person required to comply with any of the terms of those instructions. Availability of some manual or portion of the variations to the instructions for continued airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed until after the product has~~

entered into service, but shall be available before any of the products reaches the relevant age or flight hours/cycles.

(b) In addition, changes to those variations of the instructions for continued airworthiness shall be made available to all known operators of a product incorporating the supplemental type certificate and shall be made available, on request, to any person required to comply with any of those instructions. A programme showing how changes to the variations to the instructions for continued airworthiness are distributed shall be submitted to the Agency.

10. Point 21.A.265 is amended as follows

**21.A.265 Obligations of the holder<sup>8</sup>**

The holder of a design organisation approval shall:

[...]

(h) designate data and information issued under the authority of the approved design organisation within the scope of its terms of approval as established by EASA with the following statement: 'The technical content of this document is approved. It is issued under the authority of the DOA ref. EASA. 21J.[XXXX]. If the issued data and information is part of the instructions for continued airworthiness for a product, the holder of the design organisation approval shall add the following statement: 'This document is part of the ICA for product [yyyy]'.

11. Points 21.A.447 and 21.A.449 are deleted

**~~21.A.447 Record-keeping~~**

~~For each repair, all relevant design information, drawings, test reports, instructions and limitations possibly issued in accordance with point 21.A.443, justification for classification and evidence of the design approval, shall:~~

~~(a) be held by the repair design approval holder at the disposal of the Agency; and~~

~~(b) be retained by the repair design approval holder in order to provide the information necessary to ensure the continued airworthiness of the repaired products, parts or appliances.~~

**~~21.A.449 Instructions for continued airworthiness~~**

~~(a) The holder of the repair design approval shall furnish at least one complete set of those changes to the instructions for continued airworthiness which result from the design of the repair, comprising descriptive data and accomplishment instructions prepared in accordance with the applicable requirements, to each operator of aircraft incorporating the repair. The repaired product, part or appliance may be released into service before the changes to those instructions have been completed, but this shall be for a limited service period, and in agreement with the Agency. Those changes to the instructions shall be made available on request to any other person required to comply with any of the terms of those changes to the instructions. The availability of some manual or portion of the changes to the instructions for continued airworthiness, dealing with overhaul or~~

<sup>8</sup> This amendment is based on the proposed text of this GM as in EASA's NPA 2017-20 'Embodiment of level of involvement acceptable means of compliance and guidance material to Part-21' (<https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2017-20>)

~~other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight hours/cycles.~~

~~(b) If updates to those changes to the instructions for continued airworthiness are issued by the holder of the repair design approval after the repair has been first approved, these updates shall be furnished to each operator and shall be made available on request to any other person required to comply with any of the terms of those changes to the instructions. A programme showing how updates to the changes to the instructions for continued airworthiness are distributed shall be submitted to the Agency.~~

12. Point 21.A.451 is amended as follows

#### **21.A.451 Obligations and EPA marking**

(a) Each holder of a major repair design approval shall:

1. undertake the obligations:

(i) laid down in points 21.A.3A, 21.A.3B, 21.A.4, 21.A.5, 21.A.7, 21.A.439, 21.A.441, and 21.A.443, ~~21.A.447 and 21.A.449~~;

(ii) implicit in the collaboration with the type-certificate, supplemental type-certificate and with the APU ETSO authorisation holder under point 21.A.433 (b), as appropriate.

2. specify the marking, including EPA letters, in accordance with point 21.A.804(a).

(b) Except for type-certificate holders or APU authorisation holders for which point 21.A.44 applies, the holder of a minor repair design approval shall:

1. undertake the obligations laid down in points 21.A.4, 21.A.5447 and 21.A.7449; and

2. specify the marking, including EPA letters, in accordance with point 21.A.804(a).

13. Point 21.A.609 is amended as follows

#### **21.A.609 Obligations of holders of ETSO authorisations**

The holder of an ETSO authorisation under this Subpart shall:

(a) manufacture each article in accordance with Subpart G or Subpart F that ensures that each completed article conforms to its design data and is safe for installation;

(b) prepare and maintain, for each model of each article for which an ETSO authorisation has been issued, a current file of complete technical data and records in accordance with point 21.A.5613;

[...]

14. Point 21.A.613 is deleted

#### **~~21.A.613 Record keeping~~**

~~Further to the record-keeping requirements appropriate to or associated with the quality system, all relevant design information, drawings and test reports, including inspection records for the article tested, shall be held at the disposal of the Agency and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the article and of the type-certificated product in which it is fitted.~~

### 3.2. Draft acceptable means of compliance and guidance material (Draft EASA decision)

#### Changes to AMC/GM to Annex I (Part 21) to Commission Regulation (EU) No 748/2012

1. New GM 21.A.5 is added

##### **GM 21.A.5 Record keeping in cases of repair designs**

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

2. New AMC No 1 to 21.A.7(a) is added:

##### **AMC No. 1 to 21.A.7(a) Contents of ICA**

(1) The instructions for continued airworthiness should identify:

1.1 any limitations necessary for the continued airworthiness of the product or article;

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

1.3 any actions required to restore the product or article to an airworthy state before points 1.1 or 1.2 have been exceeded, as an alternative to the withdrawal of the product or article from service.

(2) The instructions for continued airworthiness should therefore include:

2.1 any limitations determined through the certification of the product, and instructions on how to determine that these limits have been exceeded.

2.2 any inspection, servicing or maintenance actions determined to be necessary by the certification process.

2.3 any inspection or troubleshooting actions determined to be necessary to establish the nature of faults and the necessary remedial actions.

2.4) sufficient general information on the operation of the product to enable an understanding of the instructions in 1.1 to 1.3 of paragraph (1) above.

3. New AMC No 2 to 21.A.7(a) is added

##### **AMC No. 2 to 21.A.7(a) Identification of ICA**

The instructions for continued airworthiness may be provided in the documents containing other, additional or optional, maintenance information, as described in point 21.A.6, or in another acceptable format as per GM 21.A.7, with the following provisions:

1) the information necessary for continued airworthiness is clearly identified (refer to AMC 21.A.7 (b)).

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

If the product ICA references the use of a supplier's data (e.g. CMM or section) 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.

- 3) Additional or optional maintenance information not considered as ICA but published 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.
- 4) 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.

4. New GM No 1, 2, 3 and 4 to 21.A.7(a) are added

**GM No 1 to 21.A.7(a) Scope of ICA, their publication format and typical ICA data**

- 1) ICA can be published in documents or in a manner that is outside the traditional understanding of a document, for example, as a series of web pages, or in a publishing format linked to tasks or data modules rather than pages.
- 2) The data containing the instructions itself is the ICA, not any particular type of publication. The 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 within all the information published to support the airworthiness of the aircraft. Publications typically created 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;
- Service Bulletins;
- Electrical Loads Analyses;
- Extended Range Operations (ETOPS) Configuration Maintenance Programs/Plans;
- Supplemental Structural Inspection Documentation;
- Certification Maintenance Requirements;
- Airworthiness Limitations Items;
- Aging Aircraft Maintenance Requirements;
- Fuel tank safety related limitations (e.g. CDCCL);
- Electrical Wiring Interconnection System instructions;
- Corrosion Prevention and Control Programmes.

Note: This is only an example of the publications that may contain ICA according to CS-25; this list is not supposed to be exhaustive, nor is it a minimum list of ICA.

- 3) The requirement for Instructions for Continued Airworthiness 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 removed from service, and restoration may not be reasonably achievable.

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, and as such, will initially not be included in the ICA.

In some exceptional cases, ICA for the product 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 practical. 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.

### **GM No 2 to 21.A.7(a) Determination of which supplier's data are part of ICA**

Note 1: In this GM, the term 'supplier's 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: In this GM the term 'supplier's data' has to be understood as supplier's data (e.g. a full CMM) or part of a supplier's data (e.g. 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.

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

- supplier's data related to the Airworthiness Limitations Section (ALS) of the ICA are part of the ICA. A typical CS-25 example is Critical Design Configuration Control Limitation (CDCCL) items that are included in CMMs.
- supplier's 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 functional check in a workshop. Example: fire extinguisher removal for hydrostatic test: this test is performed in a workshop in accordance with the supplier's data instructions.
- supplier's data related to scheduled maintenance on the component should be endorsed by the DAH before becoming part of the aircraft ICA.
- if the ICA is defined at aircraft level, the following principles apply to the other supplier's data that is not related to ALS and not related to scheduled maintenance:
  - a. if the supplier's data includes a maintenance instruction for an action identified in the aircraft-level ICA, including an engine or propeller, this supplier's 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's 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's data is not part of the aircraft ICA since the aircraft ICA contains all the required information. Another alternative is to develop the relevant data so it is included directly into the aircraft ICA.
  - b. if an aircraft level maintenance action is a replacement action for the engine, propeller, part or appliance ('remove and replace' or 'discard') and does not refer to the supplier's data for necessary airworthiness actions, the aircraft's airworthiness

can be maintained by replacement action, and the supplier's data are not part of the ICA for the aircraft. In such cases, the supplier's data does not need to be referenced in the aircraft ICA. Example: if supplier's data is required to perform off-aircraft maintenance on an engine, propeller, or other article (i.e. workshop maintenance), then this data is not considered as part of the complete set of ICA for the aircraft. However the removal/installation part of the procedure is part of the aircraft ICA.

2) However, for the above cases, the aircraft level ICA can provide, as additional or optional maintenance information, the references of the supplier's data even if it is not considered as part of the ICA. In such cases, it should be made clear that the supplier's data is provided as additional or optional maintenance information and is not part of the aircraft ICA.

3) For the supplier's data identified as part of the ICA, the DAH should:

- a. identify the supplier's data that is part of the ICA; this can be achieved either by creating a listing or by any other acceptable means that allows which data is part of the ICA and which is not to be identified (refer to AMC 21.A.7(b));
- b. ensure the publication of the supplier's data just as for any other ICA;
- c. ensure the accuracy and the adequacy of the technical content of the supplier's data. (Refer to GM No.1 to 21.A.239 (a) 3.1.5).

#### **AMC No. 3 to 21.A.7(a) DAH responsibility to check the Supplier's data.**

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

- the accuracy and the adequacy of the technical documentation, which should be checked through verification processes (e.g. component workshop verification);
- evidence showing that workshop verification was performed should be kept by supplier and a clear statement should be given in the introduction to the supplier's data as a confirmation that component verification is complete;
- 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.

When a DAH takes credit for an ETSO authorisation for the certification of its product, then the validation of the suppliers' process is not needed.

#### **GM No 3 to 21.A.7(a) Non-ICA supplier's data (e.g. Component Maintenance Manuals) referenced or published as additional information in the same repository as the ICA**

Supplier's data, or parts of the supplier's data, which are not considered to be part of the ICA but are referenced as additional or optional maintenance information in the product level ICA, may be issued by the supplier under contract or arrangement to the DAH using the methodology proposed in GM No.1 to 21.A.239 (a) 3.1.5.



5. New AMC 21.A.7(b) is added**AMC 21.A.7(b) Identification of the complete set of instructions for continued airworthiness**

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

- directly listed in the product TCDS; or
- indirectly referenced in the TCDS through other means, which allow the complete list of 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
- directly listed in the product STC; or
- indirectly referenced in the STC through other means which allow to get the complete list of ICA; or
- directly referenced in the DDP for the articles approved under ETSO.

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).

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

For products and articles where the design approval holder holds a design organisation approval (DOA), the ICA are considered to be issued under the authority of the DOA, and therefore each document containing ICA should be marked as approved in accordance with point 21.A.265 (h).

6. New GM No 1, 2, 3 and 4 to 21.A.7(b) are added**GM No 1 to 21.A.7(b) Other persons required to comply**

'Any other person required to comply' means:

- any independent certifying staff who perform maintenance on an aircraft or component, which is covered by Regulation (EU) No 1321/2014, in the frame of a contract (or work order) with the owner or a Continuing Airworthiness Management Organisation (CAMO).
- any maintenance organisation approved to maintain an aircraft or component, which is covered by Regulation (EU) No 1321/2014, in the frame of a contract (or work order) with the owner or CAMO.
- any CAMO approved to manage the continuing airworthiness or the maintenance programme of an aircraft which is covered by Regulation (EU) No 1321/2014, when instructed by the owner/operator (through e.g. the contract with the owner/operator).

**GM No 2 to 21.A.7(b) Format of ICA**

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 available the ICA 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 bulletins, may be used for transmitting ICA information and updates.



### 1) Formatting standards

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

- 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;
- the Air Transport Association's (ATA) iSpec 2200, Information Standards for Aviation Maintenance, latest edition (ATA is now Airlines for America (A4A) but the standard is still listed as ATA); or
- General Aviation Manufacturers Association (GAMA) Specification No. 2, Specification for Manufacturers Maintenance Data, latest edition.

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

### 2) General considerations

The ICA should be easy to read and to follow. All ICA should have a method of identifying their applicability (model, type, etc.), of recording updates to their content and a list of effective pages. 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 applying the procedure.

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

The ICA contain units of measurements. These measurements could be, for instance, instrument readings, temperatures, pressures, tolerances, limits, or torque values. If the ICA contain US standard measurements, the ICA should include a conversion to the metric measurement 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 applicant should use a means to indicate changes directly in relation to each item of information / data of the ICA, e.g. using a vertical change bar in the margin next to the line.

### 3) 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 complete 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. The principal document is the one used for day-to-day maintenance of the product.

In general, it is recommended that the principal document is the document used for maintenance, e.g. Aircraft Maintenance Manual (AMM), Rotorcraft Maintenance Manual (RMM), Engine Maintenance Manual (EMM), etc. The type of product will determine the assignment of the principal document.

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

A DAH who decides 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 e.g. troubleshooting information as part of the aircraft maintenance manual (AMM) instead of a separate troubleshooting manual (TSM)).

#### 4) Language

The ICA should be presented in one of the official language(s) of the European Union acceptable to the competent authority.

Note: ICA in English (simplified technical English, as e.g. in accordance with ASD Specification STE100) will generally be acceptable to the authorities competent for continuing airworthiness, in and outside of the EU. In certain countries, such as the USA, English is required for ICA.

#### 5) 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 the AMC 21.A.7(b))

When an electronic format is used, the DAH needs to consider aspects such as the traceability of updates, keeping previous versions (record keeping), data security and the possibility for the operator / owner to comply with the relevant operational requirements in updating their maintenance data or aircraft maintenance program, as ICA form the basis for the maintenance data and aircraft maintenance program. Furthermore, there will usually be a need for the operator /owner to update the maintenance data or aircraft maintenance program to introduce changes such as STCs, repairs, etc.

#### **GM No. 3 to 21.A.7(b) Approval status of the manual for an article**

In cases where ICA are contained within a document for a specific article, it is possible that the article and its document may be used in products for more than one DOA holder. In such cases, instead of placing approval statements from each DOA holder 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 DOA holders in accordance with the AMC to 21.A.7 (a).

#### **GM No 4 to 21.A.7(b) Integration of ICA between products (aircraft, engine, propeller)**

The aircraft/engine/propeller TCH should ensure the availability of the ICA to allow maintenance of the aircraft, including the engine/propeller 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 to properly discharge its responsibilities under point 21.A.7 for its ICA. This arrangement should:

- define the part of the engine/propeller ICA which are 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.

7. New AMC 21.A.7(c) is added

**AMC 21.A.7(c) Completeness and timely availability of ICA**

- 1) Completeness and timely availability of ICA for type certificate (TC) and restricted type certificate (RTC) applicants/holders

An applicant may wish to choose between the three options described below. Once the certification programme starts, it may be necessary to modify the initially selected option to accommodate program changes. All such changes shall be coordinated with the Agency.

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

- a) ICA will be made available at the time of the design approval. This option minimises the risk of incomplete ICA, especially for changes.
- b) With all ICA available at the time of the design approval, they should also be furnished/made available to the operator/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 with 21.A.7, without using the provision to delay certain parts of the ICA beyond the entry into service.
- c) Frequently, there is only a short 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.

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

If the applicant plans for a part of the ICA to be available to the Agency at entry into service, the following approach is acceptable:

- a) 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, or delayed beyond the design approval, requires to be compensated through an interim limitation to establish compliance within this limitation. The interim limitation is to be published and included in the ALS as a temporary operational limit.

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, 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).

1. This typically may 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 limit 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 limit, as the required justification and the resulting ICA are not yet available to support operation beyond this limitation.

2. A TCDS notation is not necessary, since the product is provided with complete ALS content up to the established temporary operational limit.

b) A compliance plan identifying those parts of the ICA that are only to be provided at entry into service is produced, submitted and agreed between the applicant and EASA prior to the design approval (refer also to para. d) for ICA considered to be necessary at the time of the design approval.

c) A commitment is provided to produce, verify and submit (when requested) to EASA, the relevant ICA prior to the 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 EU 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 their 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.

d) 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 Agency, in a compliance plan, on all ICA necessary at the time of design approval. The Agency 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.

e) In cases where the Agency has doubts that the applicant/holder can meet the applicable obligations of point 21.A.44 to control and support delaying the ICA beyond design approval, or TC/RTC, and until entry into service, the Agency can decide to assign a condition for entry into service for non-ALS ICA.

As a condition for 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:

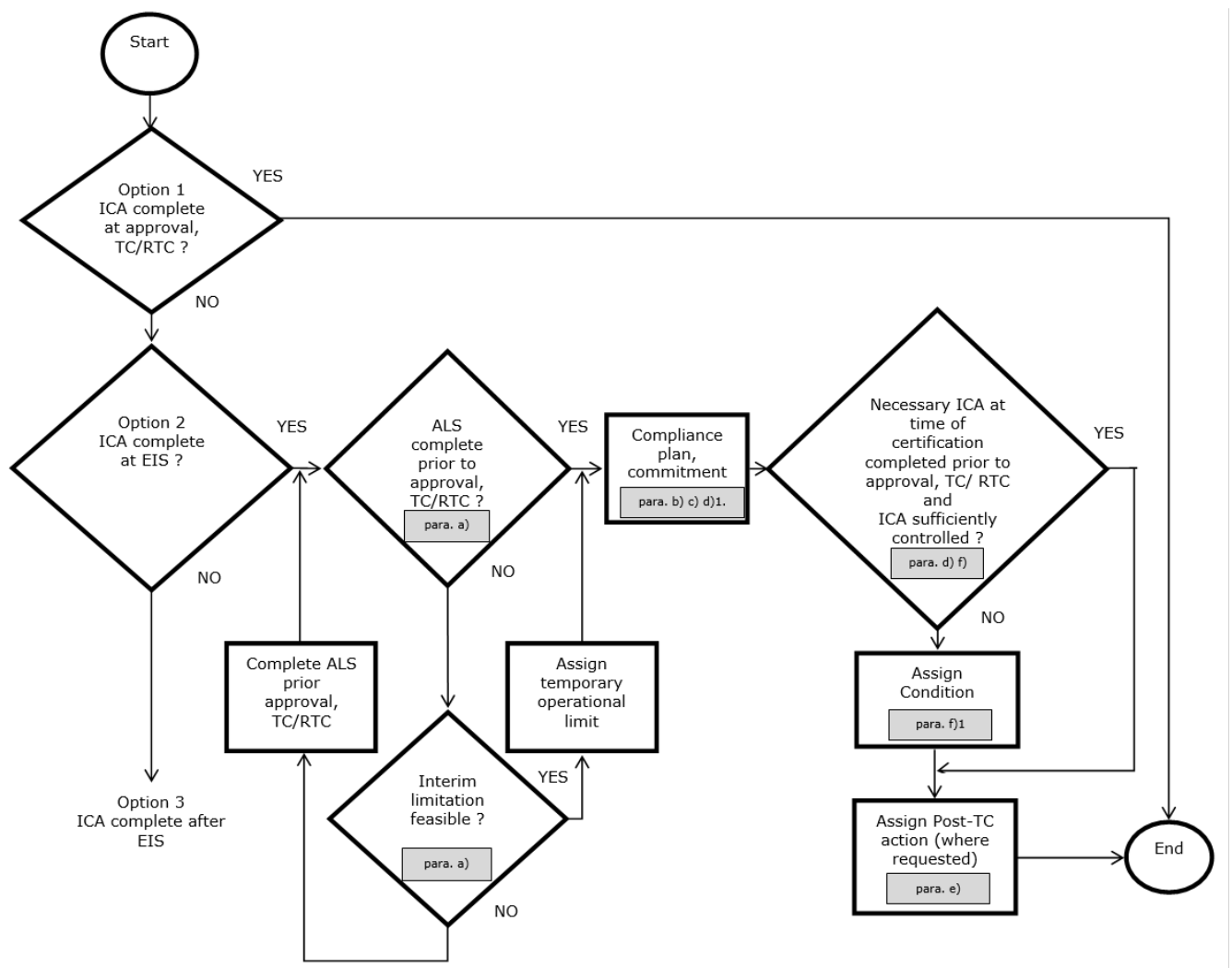
'Note: ICA are not complete: as per Regulation (EC) No 748/2012, point 21.A.7, they must be completed before the entry into service of the aircraft. Contact the Agency for information on the status.'

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 they 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 time of design approval, or has previously failed on a different project to meet his commitment to complete 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.

f) A post-TC action is established with the Agency to review the ICA status at entry into service (when the Agency requests such a review).

g) If all the ICA are available to the Agency at the time of entry into service, they should also be furnished at this time to the operator/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 beyond the entry into service. For an EU holder/applicant, this should be supported as part of the DOA/ADOA procedure.

Flowchart A, 'Completeness of ICA', Option 1 and 2



**Option 3 - Complete ICA available after entry into service (TC/RTC)**

Point 21.A.7(c) contains a provision that certain ICA dealing with the 'overhaul or other forms of heavy maintenance' may be delayed until after the entry into service. Although there is no definition of what is meant by the 'overhaul or other forms of heavy maintenance', the intention of the rule is to provide flexibility to the applicants/holders for long lead ICA of a scheduled nature.

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

- a) for the ALS, as it cannot be delayed until after the entry into service, paragraph (a) of option 2 applies;
- b) for ICA considered to be necessary at the time of design approval, paragraph (d) of option 2 applies.
- c) a detailed compliance plan identifying those parts of the ICA that are to be provided prior to and after 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:
  1. The majority of the ICA are of an unscheduled nature, therefore these items should be available at entry into service at the latest.
  2. Consideration should be given to the fact that a number of tasks are used both for scheduled maintenance and for 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).
  3. 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 as applicable, by which point the delayed ICA should be made available.
  4. This detailed plan should be available prior to the time of design approval and should be either directly integrated or cross-referenced in a compliance plan.
  5. Information on the format in which the ICA delayed until after entry into service will be made available on time (e.g. regular Revisions or Temporary Revisions (TRs) or service information (SBs, SIL, etc.).
- d) A written procedure/programme that ensures a detailed plan is produced and is implemented in the applicant's organisation in order to ensure the timely availability (to the operator/owner and any other person required to comply with any of those instructions and to the Agency, if involved and when requested). For an EU holder/applicant, this should be part of the design organisation approval (DOA) procedure in accordance with points 21.A.239 and 21.A.263.
- e) A commitment is provided 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 EU

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 their 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.

f) 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, EASA may decide:

1. 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 paragraph (e) 1. of Option 2;
2. 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 limit, 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 they provided the complete set of ICA before the entry into service, if the applicant had already had difficulties in providing the ICA considered necessary at time of design approval, or has failed before on 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.

g) A post-TC action should be established with the Agency to regularly review the ICA status, if the Agency requests such a review, taking into account the DOA oversight activities.

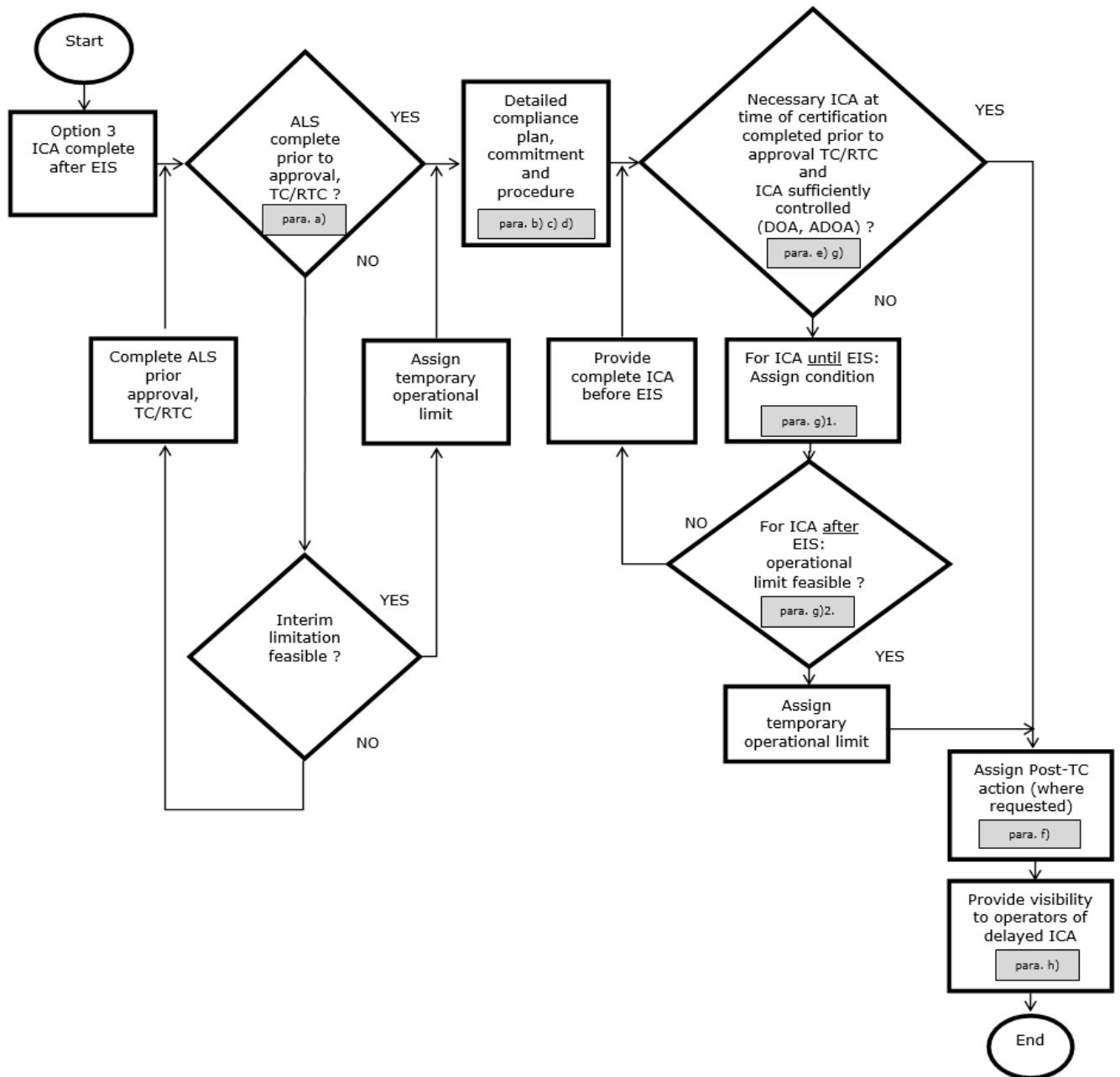
h) An applicant/holder should provide visibility, regarding the ICA that are delayed beyond entry into service, to the operator/owner and any other person required to comply with any of those instructions. This can be achieved by providing this information e.g. on a website or in a document, such as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

i) It is assumed that for those ICA that are available to the Agency at the time of entry into service, they are also at the same time furnished to the operator/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.

This is in order to satisfy the Agency 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 by the owner/operator (and any other person required to comply with any of the terms of those instructions), the Agency 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.

Flowchart B, 'Completeness of ICA', Option 3





## 2) Completeness and timely availability of changes to 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 ICA could result from the design change process (minor and major changes), service experience, corrections and others.

For an EU TC/RTC holder/applicant, a programme showing how changes to ICA are distributed is part of the respective procedures (e.g. design organisation procedures, or alternative procedures used to demonstrate capabilities). For changes to 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.

## 8. AMC 21.A.14(b) is amended as follows

### **AMC 21.A.14(b) Alternative procedures**

[...]

#### 4.4 Statement

The information and instructions should contain a statement showing Agency approval:

- 'The technical content of this document is produced in accordance with alternative procedures to those in the DOA, as agreed by EASA (No. EASA.APxyz) and it refers to EASA approved [TC][STC][ETSOA] ref. No. xxx.'

## 9. New GM 21.A.90C is added:

### **GM 21.A.90C Stand-alone change**

A change to ICA is considered to be a stand-alone change when it is not directly prepared together with a change to the type design. Stand-alone changes to ICA are usually prepared and issued, for example, for the purposes 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 variation 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 the Agency 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.

10. Appendix A to GM 21A.91 is amended as follows

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

[...]

**10. Airworthiness Limitations Section**

Changes that adversely affect the already published limitation(s) or introduce a new limitation not associated with a physical change to the product, as follows:

- (i) a reduction in the life limit of more than x%,
- (ii) a reduction in the inspection threshold or interval of more than x %,
- (iii) the introduction of a new life limit or a new CDCCL,
- (iv) the introduction of a CMR item (e.g. the introduction of CCMR into the ALS following MRB task re-assessment).

11. 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, when changing the technical content (e.g. gaps, steps) of the procedures,
- (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 the Agency.

11. GM No. 1 to 21.A.239(a) is amended as follows

**GM No. 1 to 21.A.239(a) Design assurance system**

[...]

**3.1.5 Maintenance Instructions for continued airworthiness and Operating Instructions**

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

- establish the list of all documents it is producing to comply with the Appendix referred to in CS 23.1529, CS 25.1529, CS 27.1529, CS 29.1529, CS-E 20, CS-E 25, CS-P 30, or CS-P 40 (NPA P-3);
- define their procedures and organisation to produce and issue these documents, in accordance with using where applicable and so elected 21.A.2653 (he)(3) obligation/privilege. These should cover:

- preparation, including the format and language (available industrial standards can be referred to and used);
  - proofreading (checking for clarity, readability, typos, etc.);
  - verification of 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 feasibility in practical applications; and responsibilities and authorised signatories.
- b. In accordance with 21.A.6, 21.A.7~~57~~, 21.A.61, 21.A.107, 21.A.119, 21.A.120A and 21.A.449~~609~~ (where applicable)] ensuring that these documents are provided to all affected operators and all involved authorities.

### 3.1.6 Operational Suitability Data

- a. Ensuring the preparation and updating of all operational suitability data in accordance with relevant CS. For that purpose, the applicant should:
- establish the list of all documents it is producing to comply with CS-MMEL or CS-GEN-MMEL, CS-FCD, CS-CCD, CS-SIMD and CS-MCSD as applicable;
  - define procedures and organisation to produce and issue these documents, using where applicable and so elected 21.A.263(c)(3) privilege.
- b. In accordance with 21.A.6, 21.A.62, 21.A.108, 21.A.119 and 21.A.120B~~21.A.7~~, ensuring that these documents are provided to all affected operators and training organisations and all involved authorities.

[...]

## 12. AMC No. 1 to 21.A.243(a) is amended as follows

### **AMC No. 1 to 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.555 and 21.A.105.

[...]

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

13. GM 21.A.265(h) is amended as follows

**GM 21.A.265(h) Designation of data and information issued under the authority of a design organisation approval (DOA) holder<sup>9</sup>**

[...]

#### 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 of those items:

- a. their preparation,
- b. 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,
- c. verification of their feasibility in practical applications,
- d. the authorised signatories.

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

#### 5. STATEMENT

[...]

14. AMC 21.A.433(a) and 21.A.447 is amended as follows

**AMC 21.A.433 (a) and 21.A.5447 Repair design and record keeping**

[...]

15. New AMC 21.A.609(c)(d) is added

**AMC 21.A.609 (c) and (d) Obligations of holders of ETSO authorisations**

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

Although an ETSO article itself typically does not require ICA, the applicable airworthiness standards may require the installing design approval holder (DAH) or design approval applicant (DAA) to develop ICA that describe an ETSO article's installation requirements, within the context of the product, to the extent necessary to ensure the product's continuing airworthiness.

In addition, if an installing DAH or DAA explicitly uses ETSO provisions to demonstrate compliance with an installation requirement, they should review all the maintenance and inspection instructions for the ETSO article when defining the ICA of the product.

It may be necessary for the DAH or DAA to incorporate these instructions into the ICA of the product to ensure that the ETSO article continues to satisfy the terms of its ETSO after installation.

Any DAH who wishes to install an ETSO article should comply with point 21.A.303.

<sup>9</sup> This amendment is based on the proposed text of this GM as in EASA's NPA 2017-20 'Embodiment of level of involvement acceptable means of compliance and guidance material to Part-21' (<https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2017-20>)

For this, the applicant for an ETSO authorisation may provide by the time of 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 and service life, which may be affected by storage and operating conditions (i.e. temperature, humidity, etc.).

16. GM 21.B.55 is amended as follows

**GM 21.B.55 Record keeping for design approvals transferred to the Agency**

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

[...]



## 4. Impact assessment (IA)

### 4.1. What is the issue

ICA have to be produced by DAHs as part of the product/article certification which, if properly implemented, should ensure that the product/article remains airworthy during its intended life.

There are several important questions:

- what are the contents of the ICA?
- what is the level of EASA verification and or approval of the ICA?
- when do the ICA need to be available?
- to whom should the ICA be made available?
- how are the ICA used by operators / maintenance organisations?
- are there any possible other issues that have not yet been identified?

The answers to these questions are already contained in the relevant certification specifications, and in Part 21, in Part-M and in Part-145. However, experience has shown that there is much room for interpretation in the current rules and standards, leading to differences and possible safety risks. It appears that different TC holders have different interpretations of what a complete set of ICA is and to what level they are required to control the data that constitutes the ICA. The consequence is that maintenance organisations may not have all the necessary data to perform the maintenance in the correct way, which can lead to them using unapproved methods.

In addition, there was a specific request from the RMG to emphasise and clarify the obligation for supplemental type certificate (STC) holders/applicants to produce and make available ICA for the changed product.

Furthermore, industry representatives pointed out that the requirements related to instructions for continued airworthiness, as well as to manuals and record-keeping, are duplicated in various sections under different Subparts of Part 21.

#### 4.1.1. Safety risk assessment

As the status of ICA (their scope, approval/verification, format, availability) is unclear with the current Part 21 and related GM, potential safety risks exist due to possible misinterpretation of the implementing rules and airworthiness codes.

These risks have been identified in the investigations of two accidents, which lead to the following safety recommendations being addressed to EASA:

- SR ICLD-2013-001: Boeing 757-200 TF-FIJ, Icelandair, 85 NM south-south-east of London Gatwick Airport on June 4, 2009.

Smoke on the flight deck and in the cabin was followed by an engine shut down and an emergency landing because a maintenance action from a component maintenance manual (CMM) had not been performed.

A safety recommendation asked for guiding rules to be set for airframe and engine manufacturers such that maintenance planning documents (MPDs) and engine maintenance manuals (EMMs) clearly include recommended maintenance information from the CMM of subcomponents.



- SR UNKG-2007-004: Piper PA-28R-201T G-JMTT, near 9 NM south of Oban Airport, Argyll (Scotland) on April 9, 2007

The aircraft crashed after a loss of control in instrument meteorological conditions due to a defective vacuum pump because its maintenance had not been performed.

A safety recommendation asked EASA to comply with vacuum pump maintenance and replacement requirements to ensure that aircraft fitted with vacuum-driven attitude indicators can be safely operated in instrument meteorological conditions when aircraft are certified to do so.

This NPA addresses both of these safety recommendations by proposing revised GM, according to which the DAH should systematically review the initial maintenance recommendations provided by suppliers and consider whether they are applicable and effective. This review also includes ETSO articles where DAHs or DAAs may have to incorporate certain maintenance instructions into the ICA of a product, to ensure that the ETSO article continues to satisfy the terms of its ETSO authorisation after installation.

#### 4.1.2. Who is affected

The following stakeholders are affected:

producers of ICA	<ul style="list-style-type: none"> <li>— TC holders and applicants,</li> <li>— STC holders and applicants,</li> <li>— Minor change approval holders and applicants,</li> <li>— Repair design approval holders and applicants,</li> <li>— ETSO authorisation holders and applicants,</li> <li>— suppliers of components to the above approval holders</li> </ul>
users of ICA	<ul style="list-style-type: none"> <li>— owners/operators,</li> <li>— maintenance organisations</li> </ul>
authorities	<ul style="list-style-type: none"> <li>— national aviation authorities,</li> <li>— EASA</li> </ul>

#### 4.1.3. How could the issue/problem evolve

If the regulatory framework is not changed, maintenance organisations may not have all the necessary data to perform maintenance in the correct way, which can lead to them using unapproved methods, as identified by the two SRs.

Another risk is that a continued airworthiness management organisation does not have all the applicable maintenance requirements to develop the aircraft maintenance programme

#### 4.2. What we want to achieve

The operational objectives of this proposal are to clarify the status of ICA versus type certificates and the consequences on their identification, approval and/or level of verification.



### 4.3. How it could be achieved — options

To clarify the status of ICA, the following options were discussed:

Option 1: similar to operational suitability data (OSD) - ICA would be approved under (as a part of) a TC. All changes to ICA are considered as changes to a TC and need to be processed in accordance with Part 21, Subpart D.

Option 2: ICA would be included in the TC but with a 'special treatment' as ICA are an obligation for a design approval holder (DAH).

Option 2a: existing technical verification processes would be strengthened. Non-airworthiness limitation section (ALS) changes to ICA would not need to be classified and approved in accordance with Part 21, Subpart D.

Option 2b: Part 21 Subpart D would be partially applicable for Non-ALS ICA.

Option 3: only the airworthiness limitation section (ALS) would be part of the TC, Non-ALS ICA would not be included in a TC – the technical verification process would be strengthened for Non-ALS ICA.

Option 4: no clarification on the ICA status as part of the TC or not, but only the technical verification process would be strengthened.

### 4.4. What are the impacts

#### 4.4.1. Safety impact

Options 1 and 2 (a and b) would clarify the status of ICA as part of a TC: it is expected that they will improve the quality and consistency of ICA.

Clarification of the questions listed in Section 4.1 would contribute to ensuring that the ICA are complete, checked properly by authorities, available to those who have to use them, and also that they are used properly. This is expected to lead to better control of the continuing airworthiness of all aircraft within the scope of EASA and therefore it is expected to be beneficial in increasing safety .

Option 3 and 4 would keep the current situation where ICA between various manufacturers are not identified as such, leading to some maintenance actions not being performed.

#### 4.4.2. Environmental impact

No environmental impact is anticipated. Compliance with ICA should also ensure continued compliance with the environmental requirements.

#### 4.4.3. Social impact

All options would increase the need for qualified staff in ICA producers' organisations as a result of this task: however, options 1 and 2 would require more involvement from design organisation approval holders.

#### 4.4.4. Economic impact

The strengthening of the technical verification of ICA would require additional resources from ICA producers, mainly for options 1 and 2. Also, the outcome for all options would be that ICA should be made available to more parties than they are today, and also that the ICA would include all component maintenance manuals, thus increasing their cost of distribution.





#### 4.4.5. General Aviation and proportionality issues

Options 1 and 2 would provide benefits to General Aviation stakeholders because of the clarification of the ICA status and their availability.

### 4.5. Conclusion

#### 4.5.1. Comparison of options

Option 1 is the most consistent with Part 21 principles and justifies how the Maintenance Review Board (MRB) process could be explained as it is currently performed by EASA. However, it would require additional functions for ICA in the approval process (CVE and OoA) and additional process steps would be needed (e.g. certification programme). Furthermore, it would raise dis-harmonisation with the Federal Aviation Administration (FAA).

Option 2a raises no dis-harmonisation with the FAA and would cause a relatively small change in current industry practices. However, there is no consistency with the current Part 21, especially with the recently implemented OSD rule changes, and the MRB process cannot be explained.

Option 2b is partially consistent with the current Part 21 principles and the MRB process could be explained. However, it would require additional functions for ICA in the approval process (CVE and OoA) but with a limited impact compared to option 1 and additional process steps would be needed (e.g. certification programme); furthermore, the new regulatory differences would have to be addressed in the FAA/EASA Technical Implementation Procedures (TIP) of the US/EU Bilateral Aviation Safety Agreement (BASA).

Option 3 raises no dis-harmonisation with the FAA and requires relatively small changes to current industry practices. However, there is no consistency in Part 21, especially with the recently implemented OSD rule changes. Non-ALS ICA are not considered to be included in TC. The MRB process cannot be explained.

Option 4 would not clarify the status of ICA versus a TC, but it would require additional verification functions from design holders.

During the review of the options by the RMG, option 2b was identified as the favourite option of most of the members of the working group, as it:

- clarifies the status of ICA as part of a TC, which options 3 and 4 do not,
- justifies the MRB process as currently supported and monitored by EASA,
- relies on companies with design organisation approvals to manage the development of most CA; and
- allows the management of changes to ICA following a process that is simpler than that of option 1.

The main dissenting views were due to the dis-harmonisation with FAA and the fact that this option is not fully consistent with Part 21 principles.

#### 4.5.2. Option chosen

EASA reviewed the proposal from the RMG and its dissenting views, and decided to propose option 2b.



#### 4.6. Monitoring and evaluation

This RMT on the update of Part 21 and the related GM on ICA is a result of EASA's monitoring and evaluation activities.

EASA continuously monitors the implementation of Part 21, the AMC and GM through feedback from stakeholders and via the EASA advisory bodies.

Various tools will be used to further monitor the present proposal, e.g. surveys to collect data on the level of consistency and coherence of ICA requirements.

In addition, Part 21 will be subject to an evaluation, which is already planned in EASA's European Plan for Aviation Safety (EPAS). The evaluation should assess the production of ICA by DAHs if the above mentioned monitoring results show a need to do so.



## 5. Proposed actions to support implementation

The implementation of this proposal will be supported by the following actions:

- focused communication for advisory body meeting(s) (TeB, STeB); and
- detailed explanation with clarification and indicated hints on the EASA web pages.



## 6. References

### 6.1. Affected regulations

Commission Regulation (EU) No 748/2012 of 3 August 2012 laying down implementing rules for the airworthiness and environmental certification of aircraft and related products, parts and appliances, as well as for the certification of design and production organisations

### 6.2. Affected decisions

Decision N°2012/020/R of the Executive Director of the Agency of 30th October 2012 on acceptable means of compliance and guidance material for the airworthiness and the environmental certification of aircraft and related products, parts and appliances, as well as for the certification of design and production organisations ('AMC and GM to Part 21')

### 6.3. Other reference documents

- Safety Recommendation ICLD-2013-001: Boeing 757-200 TF-FIJ, Icelandair, 85 NM south-south-east of London Gatwick Airport on June 4, 2009.
- Safety Recommendation UNKG-2007-004: Piper PA-28R-201T G-JMTT, near 9 NM south of Oban Airport, Argyll (Scotland) on April 9, 2007



## 7. Appendix

N/a

