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European Aviation Safety Agency
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RE: Comments on Notice of Proposed Amendment, NPA 2018-01, Instructions for Continued Airworthiness.

Dear Ladies and Gentlemen:

The Aeronautical Repair Station Association (ARSA) submits the following consolidated comments to the above-referenced Notice of Proposed Amendment issued by the European Aviation Safety Agency (EASA). Specific portions of this document have been posted in their appropriate location using EASA's Comment Response Tool (CRT). For ease of reference this document was also uploaded to the CRT.

Summary

Although NPA 2018-01 includes positive measures, it falls significantly short of what is needed to ensure continued airworthiness and address the longstanding disconnect between the design and maintenance rules. The NPA leaves continuing airworthiness management organizations (CAMO) and component maintenance providers in a regulatory "no man's land." These organizations are required to possess and follow manufacturer manuals but have no regulatory support to obtain them.

ARSA supports standardizing ICA practices and enhancing the agency's control over ICA by clearly making them part of a product's type certificate. The proposed rules, acceptable means of compliance (AMC) and guidance material (GM) establish general principles that would apply to all design approval holders (DAH) and work in conjunction with the specific ICA requirements in the applicable certification specifications (CS).

For example, the proposal would require the ICA to include actions necessary to restore the product or article to an airworthy condition before its limitations are exceeded or it becomes unairworthy, as an alternative to withdrawing the product or article from service. It correctly recognizes that not all articles must have maintenance instructions if restoration to an airworthy condition is not realistically achievable, i.e., beyond economic repair.

Contrary to the requirement imposed on maintenance providers, instructions for shop maintenance would only be ICA in three situations: (1) when their use was required to comply with an airworthiness limitation or any other requirement of the certification

process (as is the case today), (2) when the *product's* ICA contains “scheduled” maintenance recommendations, and (3) any other supplier data identified by the DAH as containing ICA information. In all other situations, the NPA allows “remove and replace” to be the only method for ensuring a product’s continued airworthiness. The third situation ignores the fact that the replacement component, unless it is a new article, is restored to an airworthy condition in a workshop that is required to possess and follow the manufacturer’s maintenance instructions.

The NPA continues an unfortunate trend whereby EASA has selectively abdicated its regulatory authority to the DAH.¹ In this case, it continues to allow the DAHs to determine which CMMs are ICA, leaving the vast majority of those manuals outside the “make available” requirement in 21.A.7(b). Considering that the [European Commission's anti-competitiveness investigation](#) appears stalled, there’s no imminent solution to the government-sponsored monopoly on component maintenance data bestowed on suppliers to the type certificate (TC) holders.

Further, the NPA fails to address questionable practices even when the maintenance data is clearly ICA including restrictions that render the ICA constructively unavailable (such as charging exorbitant prices), removing repairs from maintenance and overhaul manuals, imposing source approval requirements and/or directing that articles be returned to the DAH or PAH for maintenance. The last practice is particularly egregious since the DAH/PAH must have an AMO to work on the article and that AMO must have maintenance instructions.

ARSA addresses the NPA’s shortcomings below.

Specific Issues

Selected NPA segments (i.e., those on which ARSA commented) are repeated here in plain text for ease of reference. ARSA’s comments are shown by ~~strike-throughs~~ for deletions and **bold text** for additions.

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.

¹ See NPA 2017-19 in which EASA proposed an entirely new system of documenting new parts for maintenance yet proposed to allow the DAH to opt out of it entirely, thus leaving the current costly, burdensome and dis-harmonized system in place.

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 authorizations 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 organizations, permit to fly holders, competent authorities (except for design approvals transferred to EASA)?

ARSA supports making the ICA part of the type certificate to improve standardization of these documents, with respect to preparation and required content. The effort will also provide the necessary controls for the EASA to ensure compliance.

ARSA answers the two questions in the affirmative.

ARSA's recommended addition to this AMC is necessary given the suggested change to GM No 2 to 21.A.7(a) that would require all CMMs for components included in the type design to be considered ICA, furnished to owners and made available to other persons required to follow those instructions. That recommended change is necessary to align the design regulations with the maintenance regulations.

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, servicing or maintenance actions for articles installed on the product to the extent required for the management of continuing airworthiness functions under Part-M or for performing maintenance in a workshop in accordance with Part-145.

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

2.45) 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.

ARSA suggests the following changes to this AMC to make clear that the ICA includes all component maintenance and overhaul manuals for any item of installed equipment. Component maintenance data is necessary for continued airworthiness since, in most cases, a product would not conform to its type design if it is flown with inoperative equipment. Additionally, in its maintenance rules, EASA has determined that the manufacturer's component maintenance data must be obtained by a Part-145 organization (see 145.A.42) and used to perform the relevant work. It is long past time that the design rules be connected to the maintenance rules.

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 **shall** references the use of a supplier's data (e.g. CMM or section COM) 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 3) If the maintenance data made available by a DAH includes data from an operator (i.e. in order to customize 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.

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 product ICA (such as MRBR) are part of the aircraft product 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 the performance of maintenance on an installed component in a workshop, including at a minimum, instructions for repairing or overhauling that article including methods for disassembly, cleaning, inspecting to wear tolerances established by the component manufacturer, repairing as necessary, re-assembling and inspecting and/or testing in accordance with the

manufacturer's instructions or other approved data. The standard for determining the adequacy of component ICA information is whether a CAMO and/or a Part-145 organization would be required to possess and use that data in managing and performing maintenance on the supplier's article in the workshop. Any such supplier data will be considered ICA. It is not acceptable for a CMM to state that an article manufactured by it must be returned to it for maintenance.

— supplier's data related to ~~scheduled maintenance on the~~ a 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.

32) 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 authorization 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.~~

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.

ARSA suggests the following addition:

In furnishing or making ICA available to organizations entitled to receive them, a DAH may impose reasonable fees to recoup its costs in creating ICA and making them available to organizations entitled to receive them. It may also impose reasonable restrictions on the ICA's use, such as requiring a maintenance organization and its subcontractors to sign a Non-Disclosure Agreement (NDA).

However, the DAH may not limit the availability of ICA to favored organizations with which it has established a business relationship. Additionally, it may not remove required repairs or similar information from an ICA or impose source approval requirements as a condition for obtaining ICA if the entity requesting them is entitled to them under 21.A.7B and GM No 1.

Additionally, the Agency will investigate complaints of DAHs charging excessive amounts to obtain ICA if they render those instructions constructively unavailable or if the DAH attempts to interfere with an operator's or CAMO's choice of maintenance provider.

It is not the Agency's intention to list all practices that might be used to reduce the information or availability of ICA. However, any authorized organization that believes a DAH has acted contrary to Part-21 may submit a complaint to the Certification Directorate for appropriate investigation and resolution.

15. New AMC 21.A.609(c)(d) is added AMC 21.A.609 (c) and (d) Obligations of holders of ETSO authorizations

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. **This NPA requires the DAH to the extent necessary to ensure the ETSOA article's continuing airworthiness. In addition, if an the 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. This includes the same workshop data required for any installed component referenced in GM No. 2 to 21.A.7(a). It may be necessary for the The DAH or DAA should 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.

For this, the applicant for an ETSO authorization may provide by the time of application and before the authorization 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.).

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 organizations?
- 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 organizations may not have all the necessary data to perform the maintenance in the correct way, which can lead to them using unapproved methods. (Emphasis added.)

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 authorization after installation.

ARSA supports the proposal to require each DAH to review a supplier's initial maintenance recommendations to determine their applicability and effectiveness. Unfortunately, this proposal doesn't go far enough.

EASA cites the above accidents for the proposition that failure to perform maintenance on components (or performing it improperly) can have serious safety consequences. Yet, in the vast majority of cases it continues to allow DAHs to determine whether a particular CMM is ICA (unless compliance with the CMM is

mandated by the Airworthiness Limitations or contains scheduled maintenance requirements).

At the same time, the Agency mandates that CAMOs and maintenance providers have and follow the very manuals that are apparently not important enough to be ICA. The Part-M and Part-145 requirements are not limited to components referenced in airworthiness limitations or those having a recommended scheduled maintenance interval in the product's ICA. They apply to all components.

Following the NPA to its logical conclusion, most CMMs are not and will not be ICA and therefore need not be created under the regulations. Even if they exist due to contractual requirements, they are not required to be made available to maintenance providers. If a CAMO or Part-145 organization is unable to obtain them, it is prohibited from exercising the privileges of those certificates unless it develops and obtains approval of its own repair designs. This would lead to the proliferation of numerous non-standard maintenance procedures for the same workscope. Unfortunately, in the vast majority of cases, the maintenance provider must rely on the component manufacturer's willingness to provide this information at a fair and reasonable price. If the manufacturer believes this is contrary to its best interests, it will not happen, despite or in spite of the safety implications. Therefore, it is incumbent upon the aviation safety agency to ensure the proper information is created and provided—the decision should not be left to the design approval holder.

Left unchecked, the component manufacturers will eventually perform all the maintenance on their articles and the government-imposed monopoly represented by a design approval will be perpetuated. The industry is clearly heading in this direction. Respondents to a recent ARSA member survey identified the availability of maintenance information as one of the top two concerns impacting their company's future.

Conclusion

With today's focus on State Safety Programs, Safety Management Systems and system safety, the disconnect between the design and maintenance rules is obvious. The regulatory framework links design, production, operations and maintenance. Together, they comprise a system for which airworthiness is the common principle and mandate. The agency has an obligation to ensure its regulatory scheme flows seamlessly from one certificate holder to the next. That means it must ensure the information required to be provided by the design approval holder will establish compliance with the maintenance providers' obligations.

The certification specifications apply to all aircraft systems, assemblies and subassemblies and, with few exceptions, each item of installed equipment must function as intended to obtain a design approval (see, for example, CS 25.1309). They must continue to conform to the approved design during the product's operating life.

The ICA are the primary method for maintaining continued airworthiness. They provide the important link between design and maintenance just as the Airplane or Rotorcraft Flight Manual links design and operations. The regulations do not allow the withholding of normal operating procedures from an aircraft flight manual, which must be furnished with each aircraft. (see CS 25.1581 and 25.1585(a)(1). Why are normal maintenance procedures, such as instructions for accomplishing basic repairs and overhauls to components, any different?

By perpetuating the decades old notion that "remove and replace" is an acceptable method for ensuring airworthiness, the NPA ignores the realities of developing, managing and following an approved maintenance program for all items of installed equipment. Important component maintenance is performed in a workshop as mandated by Part-M and Part-145, and it is not limited to compliance with airworthiness limitations and "scheduled" maintenance, which can change according to the operator's maintenance program.

When EASA first initiated this rulemaking project, it held a public meeting in which one of its managers referred to ICA as the "Secrets for Continued Airworthiness." Unfortunately, he wasn't joking. What began with much promise appears to have succumbed to the regulator's propensity to abdicate its responsibility when commercial realities interfere with a clear aviation safety requirement.

Respectfully submitted,

A handwritten signature in black ink that reads "Marshall S. Filler". The signature is written in a cursive, flowing style.

Marshall S. Filler
Managing Director & General Counsel