



Notification of a Proposal to issue a Certification Memorandum

Approved Model List Changes

EASA Proposed CM No.: Proposed CM–21.A-E Issue 01 issued 02 October 2017

Regulatory requirement(s): 21.A.57, 21.A.61, 21.A.62, 21.A.91, 21.A.93, 21.A.97, 21.A.114, 21.A.117, 21.A.119, 21.A.120A, 21.A.120B

In accordance with the EASA Certification Memorandum procedural guideline, the European Aviation Safety Agency proposes to issue an EASA Certification Memorandum (CM) on the subject identified above. All interested persons may send their comments, referencing the EASA Proposed CM Number above, to the e-mail address specified in the “Remarks” section, prior to the indicated closing date for consultation.

EASA Certification Memoranda clarify the European Aviation Safety Agency’s general course of action on specific certification items. They are intended to provide guidance on a particular subject and, as non-binding material, may provide complementary information and guidance for compliance demonstration with current standards. Certification Memoranda are provided for information purposes only and must not be misconstrued as formally adopted Acceptable Means of Compliance (AMC) or as Guidance Material (GM). Certification Memoranda are not intended to introduce new certification requirements or to modify existing certification requirements and do not constitute any legal obligation.

EASA Certification Memoranda are living documents into which either additional criteria or additional issues can be incorporated as soon as a need is identified by EASA.



Log of issues

Issue	Issue date	Change description
01	02/10/2017	First issue.

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1. Introduction

1.1. Purpose and scope

The purpose of this Certification Memorandum is to provide specific guideline for those seeking approval for an application for an Approved Model List (AML) Supplemental Type Certificate (STC), an AML Major Change or AML Minor Change. These three kinds of approvals are covered by the term AML-Changes in the frame of this CM. This CM does not add any additional regulation but attempts to clarify how the existing requirements can be taken into account when applying for the approval of an AML-Change.

Additionally, this CM aims to coordinate EASA efforts on the subject of AML-STCs with the policy set by the FAA on similar kind of approvals as detailed in the FAA AC 20-180.

1.2. Abbreviations

A/C	Aircraft
AFMS	Aircraft Flight Manual Supplement
AML	Approved Model List
AML-STC	Approved Model List Supplemental Type Certificate
CM	Certification Memorandum
CRI	Certification Review Item
EASA	European Aviation Safety Agency
ESF	Equivalent Safety Finding
FAA	Federal Aviation Administration
OSD	Operational Suitability Data
SC	Special Condition
STC	Supplemental Type Certificate
TC	Type Certificate

1.3. Definitions

Certification Baseline Data	The set of core compliance demonstration items needed for the change; these items are to be common to all the models/types in the AML.
Certification Basis	The Term “Certification Basis” in this CM is including the type certification basis, the OSD certification basis and environmental protection requirements.



2. Background

An STC, a Major Change or a Minor Change is typically a change in type design that is limited to a single type. An AML-Change is a multi-model and multi-type change that allows a set of compliance data, i.e. type design data and substantiating data, become applicable to various aircraft TCs under a single STC, Major Change or Minor Change approval.

The AML-Change is intended for changes whose design, function, installation and operation are identical or similar and share the same certification baseline data. Therefore, the pre-condition for an AML-Change is that the certification baseline data is common to all models/types in the AML. This approval method streamlines the certification effort by avoiding unnecessary testing and re-submittal of data that is common to more than one model or type of aircraft. If variation between models or types is such that the similarities (with respect to the change design, function, installation and operation) and a common certification baseline data cannot be established, then an AML-Change is not the proper method for approval.

AML-Changes are to be managed in the same way except for the obvious exception that AML-STCs and AML-Minor Changes can cover products of several TC holders while AML-Major Changes are limited to the products of the TC holder applying for the AML-Major Change.

3. EASA Certification Guidance

3.1. Applicability

This Certification Memorandum is applicable for applicants who wish to apply for the approval of an Approved Model List (AML) Change, i.e. AML Supplemental Type Certificate (STC), AML-Major Change or AML Minor Change.

The methodology given in this guidance applies to all kinds of products and to certification as well as validation projects.

Models that are not included in the validating authority TCDS cannot be validated within an AML.

3.2. General Considerations

Either kind of AML approval (AML-STC, AML-Major Change or AML-Minor Change) allows a set of compliance data (i.e., type design data and substantiating data) to be made applicable to various aircraft models or types. The following considerations allow taking benefit of this possibility while ensuring that a certification baseline data applicable to all models / types in the AML can be identified.

An AML approval is issued for aircraft that are type-certificated against the same product category of certification specifications (e.g., an AML-STC for an aircraft certificated under CS 23 cannot include aircraft certificated under CS 25, 27, or 29). The AML approval may not be suitable for those cases where type or model specific compliance demonstration is required; for example,

- those for systems that can directly control the aircraft and are dependent on aircraft feedback for design like most of autopilot installations or similar systems that involve control inputs .
- when each installation needs to have a separate compliance demonstration as e.g. for electromagnetic compatibility, HIRF or lightning effects.

It is important for applicants who are seeking an AML-Change approval to coordinate early with EASA in order to determine any issues that may have an impact on a multi-model/type installation approval.



The applicability of the certification baseline data for each model must be clearly established. The certification bases and amendment level to the areas affected by the modification must be stated respectively defined for each model. In this sense, and following the general principle of an AML-Change, it is necessary to have a common

- set of CS, SC, ESF, etc. corresponding to the most stringent certification basis of all the model/types included in the AML, i.e. the certification baseline data demonstrates compliance to the different certification bases of all included models, or
- unique certification basis corresponding to the most stringent certification basis of all the model/types included in the AML or according to later effective amendments.

In any case, the applicant's data for compliance with the Part 21 requirements for the approval of Minor Changes, Major Changes or STCs shall cover completely every model on the AML (i.e. covering all differences between the applicable models). When completing this step, the applicant should recall that the AML-Change is intended for changes whose design, function, installation and operation are identical or similar and share the same certification baseline data. The condition for an AML-Change is an identical compliance demonstration for the change for all affected models and types with a possible exception of the installation interface. In any case the vast majority of compliance demonstration must be identical to apply an AML for a change. If this commonality cannot be established, an AML approval is not the proper method of approval.

3.3. Acoustical Impact

An AML-Change should not create an acoustical change to the type-certificated product per section 21.A.93(b). If this were to be the case, the amount of additional demonstration items to be produced for each model/type included in the AML would defeat its very purpose (i.e. avoiding redundant testing and re-submittal of common data).

3.4. Aircraft Flight Manual Supplement

The Aircraft Flight Manual Change or Supplement, if issued, must be made applicable to each model of the AML-Change as per section 21.A.119 or 21.A.57 as applicable.

Note: If a particular change installation introduces unique operational characteristics in a particular aircraft model/type with respect to the others in the AML (thus requiring a highly customized AFMS per aircraft model/type), it might be necessary to seek a separate STC, Major Change or Minor Change approval.

3.5. Installation Instructions and Instructions for Continued Airworthiness (ICA)

The installation instructions must describe the installation in adequate detail such that follow-on installations are repeatable and result in a consistent and compliant installation for every model when properly followed.

For more complex systems, a more detailed set of installation instructions may be necessary. Any suitable format can be used to include a general section with specific model appendices to address individual installation requirements. The key is to provide these instructions and alternatives during the certification program as part of the AML-Change approval.

Note: The Instructions for Continued Airworthiness (ICA) must be established as per 21.A.120A or 21.A.61 as applicable, meeting the requirements of the appropriate (CS-LSA, CS-VLA, CS-VLR, CS-22, CS-23, CS-25, CS-27, CS-29, CS-31GB, CS-31HB, CS-31TGB, CS-E, CS-P, or CS-APU) ICA standards are required.



3.6. Operational Suitability Data

The Operational Suitability Data, if issued, must be made applicable to each model of the AML-Change as per section 21.A.120B and 21.A.119 or 21.A.62 and 21.A.57 as applicable.

Note: If a particular change installation introduces unique operational characteristics in a particular aircraft model/type with respect to the others in the AML (thus requiring highly customized OSD per aircraft model/type), it might be necessary to seek a separate STC, Major Change or Minor Change approval.

3.7. Changes to an AML-Change

Changes to an AML-Change are classified and managed as per 21.A.117 and 21.A.91. Additional clarifications are provided in this chapter because of the possibility of including additional aircraft models/types in the AML with a change that needs to be considered regarding the effect in all the installations already defined in the AML.

Major changes to an AML-STC or AML-Major Changes are considered major changes to type certificate; this includes two cases: the addition of aircraft models/types to the AML and the modification of the existing AML-STC or AML-Major Change definition.

There are instances where the STC or TC holder is not adding a new model to the AML, but makes an upgrade to an existing hardware or component on the AML (such as a software revision). In these cases, careful consideration should be given to ensure that the new revision does not have unintended consequences that affect a prior approval of any of the affected models. For example, a software revision may have a new functionality both in aural sound or visual display that requires new flight crew training to recognize the warnings and system failures. This may impact the operational characteristics or limitations of the aircraft. These types of changes may require further evaluation of pilot workload, human factor and other consequences from the revised software.

When adding new model(s) or amending an existing model, an AML-Change approval allows the use of previously-submitted compliance data that are applicable without the need for further review. If adding a new model that has differences from the previously-approved models, then further substantiation may be required in order to address those differences. The AML-Change is not a mean to approve additional models without further substantiation. Nevertheless, the technical re-investigation needed should be limited in scope; if an extensive re-investigation is necessary, the modification does not meet the condition for the AML-Change. Coordination with EASA will be necessary to assess the suitability of the technical investigation scope increase.

Adequate configuration control is expected in order to track all the changes made to an AML. These changes may consist of adding a new type(s) or amending an existing type with new model(s). In either case, the relevant data for each type must be maintained in such a way that traceability and commonality between models/types can be verified.

It is recommended that current configuration be captured in some tabulated form in order to accurately maintain the configuration control of an AML. The Appendix to this CM provides a sample AML table that may be used as a template. The columns in the template are optional and can be edited or left off to accommodate a specific project.

3.8. Checklist

The following items must be taken into account when pursuing an AML-Change approval:



- Aircraft models/types on the AML share the same certification baseline data.
- The purpose of the modification (i.e. functionality) is the same for all impacted aircraft models/types
- Installation similarities that exist between the proposed models and those areas of the modification that are different from the rest of the models are properly documented.
- A common set of CS, SC, ESF, etc. corresponding to the most stringent certification basis of all the model/types included in the AML is established that is covering all affected certification bases, or a common unique certification basis corresponding to the most stringent certification basis of all the model/types included in the AML or according to later effective amendments is established.
- Complete compliance is demonstrated for the modification to the affected areas for each aircraft model/type listed in the AML.
- Aircraft Flight Manual Supplement (FMS), if applicable, are pertinent to each specific model.
- Installation instructions are adequate to allow for a consistent and compliant installation on each model in the AML. Clear boundaries are established and documented.
- ICA, if needed, are applicable to each model in the AML.
- OSD impact is assessed against each impacted model in the AML. When an impact is identified, OSD is made available as required.

4. Remarks

1. This EASA Proposed Certification Memorandum will be closed for public consultation on the **15th of November 2017**. Comments received after the indicated closing date for consultation might not be taken into account.
2. Comments regarding this EASA Proposed Certification Memorandum should be referred to the Certification Policy and Safety Information Department, Certification Directorate, EASA. E-mail CM@easa.europa.eu.
3. For any question concerning the technical content of this EASA Proposed Certification Memorandum, please contact:

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5. Appendix – EASA Approved Model List Template

Aircraft TC Holder	Aircraft Type	Aircraft Model	EASA TCDS	Certification Basis	MDL	AFMS	ICA Document	OSD	Other Remarks



Instructions/Definitions:

- 1. Aircraft Make** as indicated on the TCDS: input in this column the TC holder's name.
- 2. Aircraft Type** input in this column the aircraft type as indicated in the TCDS.
- 3. Aircraft Model** as indicated on TCDS: input in this column the model of the aircraft. Include also the model series in those cases where the installation is model/series specific.
- 4. Type Certificate Data Sheet (TCDS):** input in this column the EASA TCDS number and the last revision level.
- 5. Certification basis (if not same as the one in the TCDS):** input in this column the certification basis and the amendment level for the areas affected by the modification.
- 6. Master Drawing List (MDL) / Installation Drawing:** input in this column the applicable installation drawing(s) or MDL with revision number. Generally, this document is used for the installation configuration control. Other documents are permissible for substitution if they serve the intended purpose for traceability and configuration control.
- 7. Aircraft Flight Manual Supplement (AFMS):** include in this column the supplement section revision level and the approved date to the existing flight manual.
- 8. Instructions for Continued Airworthiness (ICA):** input in this column the installation ICA document reference number with revision level and the date.
- 9. Operational Suitability Data (OSD):** input in this column any OSD document applicable to this installation with reference number, revision level and date.
- 10. Other Remarks**

