Applicant Logo

**MINOR CHANGE CERTIFICATION Programme FOR
<mod name> + <mod identifier>**

**<Unique Doc identifier> + <Issue XX>
dd/mm/20aa**

**Applicant Details:**

*(e.g. Company name, address, ADOA ref number if available …)*

This document is intended to assist applicants (especially non-DOA) in having a more uniform methodology for Minor Changes to General Aviation aircraft.

With the change Introduced to part 21 by regulation EU 2019/897, a certification programme is mandatory for minor changes. This guidance document is one way of preparing a certification programme (but not the only way) for those applicants that wish to adopt it.

On the other hand, it will facilitate common understanding and it will promote an uniform approach. It is understood that in some cases where the change is more simple, several paragraphs can be marked as not applicable (N/A) without the need of further justification.

In case of uncertainty in classifying the change, please contact EASA, the competent NAA or the involved Qualified Entity.

**Applicant Contact Details**

**(Responsible Person for this Change )**

*(including name, position and signature)*

Table of Contents

[1 Document History 3](#_Toc71193580)

[1.1 List of acronyms 3](#_Toc71193581)

[2 Description of change 3](#_Toc71193583)

[2.1 Classification of change 3](#_Toc71193584)

[2.2 Part Numbers 3](#_Toc71193585)

[2.3 Interfaces 4](#_Toc71193587)

[2.4 Operations 4](#_Toc71193588)

[3 Applicability 4](#_Toc71193589)

[3.1 Current Limitations 4](#_Toc71193590)

[4 Certification Basis (CB) 4](#_Toc71193591)

[4.1 Affected Requirements 5](#_Toc71193592)

[4.2 Specific Guidance Documents 5](#_Toc71193593)

[5 Master Document List (MDL) 6](#_Toc71193594)

[6 Structural Considerations 6](#_Toc71193595)

[7 Aircraft Flight Manual (AFM) Impact 7](#_Toc71193596)

[8 Weight and Balance Impact 7](#_Toc71193597)

[9 Wiring Considerations 7](#_Toc71193598)

[10 Electrical Load Analysis Impact 7](#_Toc71193599)

[11 Installation Considerations and Verification 7](#_Toc71193641)

[11.1 Service Bulletins (SB) 8](#_Toc71193642)

[12 Testing 8](#_Toc71193643)

[12.1 EMC/EMI Testing 8](#_Toc71193644)

[12.2 Ground Testing 8](#_Toc71193645)

[12.3 Flight Test and Check Flights 9](#_Toc71193646)

[13 Instructions for Continued Airworthiness Impact 9](#_Toc71193647)

[14 Operational Suitability Data Impact 9](#_Toc71193648)

[15 Other possible impacted areas 10](#_Toc71193649)

[16 Declaration of compliance 10](#_Toc71193652)

[17 Minor Change approval holder obligations 10](#_Toc71193653)

[18 Appendix A 10](#_Toc71193654)

# Document History

|  |  |  |
| --- | --- | --- |
| **Issue** | **Date** | **Change** |
| A | dd/mm/20aa | Initial Issue |
|  |  |  |
|  |  |  |
|  |  |  |

## List of acronyms

Include here all the acronyms used in the document

#  Description of change

Describe comprehensively the change in accordance with point 21.A.93 (b)(1)(2).

Include some schematics/pictures if necessary, for a better understanding. Explanation of the purpose of the modification is likely to be advantageous. Identify the locations of removed and of installed equipment and components. Where changes are made to the flight deck, provide sufficient information to assess human factors aspects.

Describe also in detail other design changes that are a pre-requisite for this change. This description shall take into consideration the limitation and conditions of the applicable design changes and an analysis of the interfaces shall be performed

## Classification of change

Provide a rationale for the classification as minor (in accordance with guidance material for 21.A.91).

*NOTE:**The Appendix A to the Guidance Material for 21.A.91 includes examples of Major Changes grouped per discipline. These cases should be reviewed and assessed taking into considerations all the aspects (i.e. structure, cabin safety, powerplant, flight, environmental and systems).*

*NOTE: Few minor changes cases may require to have some considerations related to the Safety Assessment, in these cases analyses and conclusions shall be reported here supporting the classification.*

*NOTE: please also consider that standard changes defined in CS-STAN can already cover your case and an application for a design change is not required. On the other hand, it is not expected that CS STAN are used to approve minor changes.*

## Part Numbers

List here all the relevant P/N removed and installed (including their (E)TSO approvals)

|  |  |  |  |
| --- | --- | --- | --- |
| **I / R[[1]](#footnote-1)** | **Name & Manufacturer** | **P/N** | **Part & Appliance Approval** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

## Interfaces

If the newly installed equipment is interfaced with other existing equipment on the A/C a description or list/schematic should be provided.

## Operations

Identify the type of operations of the A/C (VFR, IFR or VFR Day only). The minor change cannot extend the type of operations approved for any single A/C.

# Applicability

List here applicable types, models and/or serial numbers (if relevant) including reference to the applicable TCDS.

|  |  |
| --- | --- |
| **Type** |  |
| **Model(s)** |  |
| **S/N[[2]](#footnote-2)**  |  |
| **TCDS** |  |

## Current Limitations

Identify any limitation which might be applicable for the minor change approval (e.g. VFR only, no precision approach, etc.). In case of doubt, note “TBD” and check with the PCM.

# Certification Basis (CB)

Identify here the aircraft CB (e.g. CS-23 Amdt 3, FAR 23 Amdt 62). Please consider that for minor changes, the certification basis is the one of the original product as identified in the TCDS. If you want to apply later amendment of the certification specifications in the TCDS , please briefly clarify the rationale (as per point 21.A.95(c)).

Note : Please consult the EASA Website for information on the TCDS

1 - EASA issued TCDS - <https://www.easa.europa.eu/document-library/type-certificates>

2 - EASA accepted products and TCDS List (- <https://www.easa.europa.eu/document-library/product-certification/type-certificates/easa-product-lists>

Note – for the case 2 above and since EASA did not issue a TCDS, a consultation of the website of the primary certification authority will have to be performed ( for example FAA - <https://rgl.faa.gov/Regulatory_and_Guidance_Library/rgMakeModel.nsf/Frameset?OpenPage>)

## Affected Requirements

Taking into consideration the proposed change and reviewing the requirements identified in the previous paragraph determine what paragraphs are affected by the change

After all requirements for which compliance needs to be show are identified, you will need to determine how this is going to be demonstrated (the bellow tables may be used for that purpose).

The final step it to provide the compliance statement, considering the MOC (see appendix A)

 selected.

Provide in the following table list of the Certification Basis affected paragraph, together with the means of compliance used and the evidence(s) produced.

|  |  |  |  |
| --- | --- | --- | --- |
| **Para. & Amdt.** | **Paragraph Title / Description** | **MOC[[3]](#footnote-3)** | **Compliance Statement / Document / Remarks** |
| **Subpart A** |
| §.XXXX |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| **Subpart B** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| **Subpart ...** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

## Specific Guidance Documents

List here any further document that is used for compliance / installation (e.g. ACs, AMCs, CM, GM[[4]](#footnote-4) and Equipment Manufacturer Installation Manual) - see also EASA GA FAQ.

Identify also any additional guidance material that can be followed. The EASA website on Certification Memoranda can also be used as a source of information <https://www.easa.europa.eu/document-library/public-consultations/certification-memoranda> )

It is assumed that for many cases it is convenient for the Applicant to produce separated documents to cover the different aspects (at least for some) described in Sections 4, 5, 7, 8, 9, 0, 11 and 13.

Nevertheless, whether the applicant decides to include completely these aspects in the “Minor Change Certification Document”, this approach is considered acceptable provided that all the required information are included.

If these are impacts on Sections 6 and 12 which require additional information to be provided, a separate document shall be provided for this in any case in order to facilitate the flight and maintenance operations. These supplements shall be added respectively to the AFM and ICA.


# Master Document List (MDL)

List all the documentation produced for the change. Moreover, whether the content of the document cannot be immediately derived from the title a short description might be of help.

*NOTE: All the relevant documents produced shall be controlled (i.e. have a doc number, a title, an Issue/Revision and a date) and duly signed. Moreover, it is reminded that any document prepared in the framework of this project (and required for its approval) have to be completed, signed and agreed with the PCM prior of the Minor Change approval.*

Alternatively, a reference to the MDL produced is also acceptable (despite a separate MDL is not mandatory for minor changes, due to the intrinsic non complexity of the project).

# Structural Considerations

In the cases when changes to the structure are required, provide a comprehensive description here, including all the necessary details and drawings. Following the identification of the affected requirements in Section 3.1 specify how compliance is shown[[5]](#footnote-5).

In case details are provided in separate documents, provide here a high level description of the change and methods along with the references to the appropriate structural documents.

# Aircraft Flight Manual (AFM) Impact

Describe here the content of the change(s)/supplement to the flight manual related to this application referring also to the AFM Supplement produced.

*NOTE: The AFM Supplement shall describe also all the limitations placards defined for this minor change that have to be installed in the cockpit.*

# Weight and Balance Impact

List here the calculated weight and balance differences with regards to the previously approved configuration[[6]](#footnote-6). When applicable the note to update the relevant Section of the AFM shall be included (refer also to Section 6).

Alternatively, reference to the specific document/supplement is also acceptable.

*NOTE: As part of the change classification assessment, the impact of the weight change on the aircraft’s approved noise levels shall be taken into account. A change to a weight for which EASA has not approved noise levels may lead to a Major Change classification. In case of doubt, please contact the EASA Environment Department (**noise@easa.europa.eu**).*

# Wiring Considerations

Describe here the changes in the wirings and provide simple schematics, when applicable refer also to the Wiring Diagram Manual (WDM) document. As relevant, provide information on routing of wiring, protective devices (circuit breakers), and type/gauge of wiring.

Alternatively, references to the specific documents/drawings are also acceptable.

# Electrical Load Analysis Impact

Provide here the calculated[[7]](#footnote-7) electrical loads for the new configuration and highlight the differences with the previously approved one[[8]](#footnote-8). The calculation should conservatively account the most critical consumption. When applicable the note to update the relevant Section of the AFM shall be included (refer also to Section 6).

 Alternatively, reference to a specific ELA document is also acceptable.

# Installation Considerations and Verification

Provide here the drawings, specification (if needed), installation instructions and considerations required for the completion of the physical modification, including:

* Verification that the existing aircraft configuration is compatible with the proposed design changes before embodiment begins (checking also that all the applicable approved documentation is in line with the specific aircraft configuration)
* Verify that the intended installation meets the environmental conditions for which an equipment or part has been designed (e.g. temperature, height, vibrations)
* Access or preparation work
* Special precautions
* Required tooling, test equipment or aircraft/equipment manufacturer’s data
* Parts to be manufactured
* Parts or equipment to be fitted (by part number) including location and the associated methods of attachment/installation
* Required materials
* Modification to existing aircraft parts or structure
* Required placards

Refer also to all the installation/guidance documents used, if not already reported in Section 3.2.

*NOTE: In case the change is performed by a Third Party it shall be stated that all the instruction included in this section shall be available to the Third Party.*

## Service Bulletins (SB)

Include the reference to the SB produced (if any produced or foreseen) or used (from the equipment manufacturer).

# Testing

*NOTE: All flight and ground test shall be prepared in accordance with the applicable rules and equipment manufacturer recommendations as listed in the installation manual.*

## EMC/EMI Testing

Description and results of the EMC/EMI testing activities performed (if applicable).

Alternatively, reference to a specific EMC/EMI test procedure and report document is also acceptable.

## Ground Testing

Description and results of the ground test activities performed.

Alternatively, references to specific Ground Test procedure(s) and report(s) document are also acceptable.

## Flight Test and Check Flights

Most Minor Changes do not require flight test activities. Nevertheless, few of them could require a small flight test activity to show compliance (e.g. small calibration, antenna patterns in avionic changes or reduced flight test with no safety risk). This is a case by case decision to be agreed with the Agency and/or the assigned PCM and the flight test results shall be part of the certification documentation. To perform these flights the Applicant needs to Apply for a Permit to Fly to the local competent Authority and requests the Flight Conditions to be approved by EASA, as prescribed by 21.A.710 and related Guidance Material. Moreover, in few cases a check flight might be envisaged in order to assess the good functioning of the equipment after the Change approval. In this case, no Permit to Fly and Flight Conditions shall be requested, since the design is already considered as approved (Check Flights shall occur after the Minor Change approval as they do not provide compliance).

In both the cases above a description of the test/check objectives and relative procedures shall be provided here or, alternatively, references to a specific document is also acceptable

# Instructions for Continued Airworthiness Impact

Include the reference to the ICA documentation produced if required. In many cases it is adequate to refer to the maintenance instructions of the equipment manufacturer. On a general level, the ICA may include some (or all) of the following:

* Instructions on the removal and installation of equipment which may fail or otherwise need replacement during service (including subsequent testing)
* Any instructions necessary for access
* Instructions on and frequency of any required scheduled maintenance
* Instructions on and parts required for any servicing (e.g. charging, lubrication)
* Details of any tooling or test equipment
* Details of any supplementary data such as equipment or aircraft manufacturers instruction manuals
* Details of any Airworthiness Limitations (despite this would normally raise a major classification. The Agency/PCM shall finally agree)

# Operational Suitability Data Impact

Include here the assessment, description and reference to the Operational Suitability Data (OSD) if there is an impact as per point 21.A.95(b)(2).

Definition of the OSD is provided in the requirement 21.A.15(d) and related GMs.

*NOTE: Following the introduction of the European Commission Regulation No 69/2014 in January 2014, the EASA Part 21 has been modified in order to include the OSD in the Type Certification processes and the subsequent changes. Point 21.A.95(b)(2)prescribes that even for Minor Changes an assessment of the impact on OSD shall be performed by the applicant and, if impacted, data shall be made available in accordance with point 21.A.108.*

*In accordance with point 21.A.(d) a minor change to an aircraft type-certificate may be approved before compliance with the operational suitability data certification basis has been demonstrated, provided that the applicantdemonstrates such compliance before the date at which those data are actually used.*

*For most of the General Aviation fleet this section will be not applicable in the nearest future, nevertheless it is important to make the assessment if there is any impact.*

# Other possible impacted areas

Include here the description and reference to other areas where it is believed to have an impact (in line with the interfaces identified in Section 2.3).

Alternatively, references to the appropriate documents are also acceptable.

# Declaration of compliance

The applicant should provide a statement in accordance with point 21.A.95(e).

# Minor Change approval holder obligations

**The certification specification affected have been met as shown in this document. The document is ready for approval by the Agency. It is hereby confirmed that the holder of this minor change is aware and ready to discharge her/his obligations according to 21.A.109.**

# Appendix A

|  |  |  |
| --- | --- | --- |
| **Type of Compliance** | **Means of Compliance** | **Associated Compliance Documents** |
| Engineering Evaluation | MC0 : Compliance statement – reference to TD documents – election of methods, factors – definitions | Type Design Documents Recorded Statements |
| MC1 : Design Review | Description, Drawings |
| MC2 : Calculation/Analysis | Substantiation Reports |
| MC3 : Safety Assessment | Safety Analysis |
| Tests | MC4 : Laboratory Tests | Test ProgrammesTest ReportsTest Interpretations |
| MC5 : Ground Tests on related product |
| MC6 : Flight Tests |
| MC8 : Simulation |
| Inspection | MC7 : Design Inspection | Inspection Reports |
| Equipment Qualification | MC9 : Equipment Qualification (e.g. ETSO) | Reference to existing approvals and their applicability |

1. I = Installed R = Removed [↑](#footnote-ref-1)
2. In case the change is limited to one or few S/N, specify them. Otherwise, include the note “all” or the applicable batches or the characteristics required and provide the S/N for the first installation. Moreover in case of applicability to a big number of S/N (e.g. “all”, batches) a rationale should be provided to substantiate the applicability range. [↑](#footnote-ref-2)
3. Advisory: Provide identification of the Means of Compliance (MOC) used. It is possible to use the conventional MOC codes see appendix A or AMC to 21A15b [↑](#footnote-ref-3)
4. AC – (FAA) Advisory Circular, AMC – Acceptable Means of Compliance, CM – Certification Memoranda, GM – Guidance Material [↑](#footnote-ref-4)
5. The approach described in FAA AC 43.13-2B is considered acceptable, if adequately adapted to the applicable certification basis. [↑](#footnote-ref-5)
6. The effect on weight needs to be calculated and the result reported in the Aircraft Flight Manual Supplement (AFMS). If there is no appreciable difference, this must be stated here and the AFMS will report in the weight section “no change” (e.g. an appreciable difference could be one which does change the power required for take-off more than 1%÷2% according also the precision of the power reading instrument). [↑](#footnote-ref-6)
7. As described in the FAA AC 43.13-1B it is also acceptable that the electrical load is physically measured on the aircraft after installation instead of providing the calculated values. [↑](#footnote-ref-7)
8. If the new load consumption is higher than before, it must be assessed if this is affecting the available power (this assessment shall be done considering all other consumptions at their maximum value). In some cases it can be necessary to make this verification for each installation and provide means to the installer to assess the acceptability of the changed current consumption. [↑](#footnote-ref-8)