



NOTICE OF PROPOSED AMENDMENT (NPA) No 2011-19

DRAFT DECISION OF THE EXECUTIVE DIRECTOR OF THE EUROPEAN AVIATION SAFETY AGENCY

**amending Decision No 2003/19/RM of the Executive Director
of the European Aviation Safety Agency of 28 November 2003**

**on acceptable means of compliance and guidance material to Commission
Regulation (EC) No 2042/2003 of 20 November 2003 on the continuing
airworthiness of aircraft and aeronautical products, parts and appliances, and
on the approval of organisations and personnel involved in these tasks**

and

DRAFT OPINION OF THE EUROPEAN AVIATION SAFETY AGENCY

**for a Commission Regulation amending Commission Regulation (EC)
No 2042/2003 of 20 November 2003 on the continuing airworthiness of aircraft
and aeronautical products, parts and appliances, and on the approval of
organisations and personnel involved in these tasks**

'Aircraft Continuing Airworthiness Monitoring'

EXECUTIVE SUMMARY

As part of their continuing airworthiness oversight system competent authorities are required to develop a survey programme to monitor the airworthiness status of the fleet of aircraft on their register, referred to as Aircraft Continuing Airworthiness Monitoring (ACAM, cf. M.B.303). The survey programme shall be developed by selecting a relevant sample of aircraft and shall include an aircraft survey, focusing on a number of Key Risk Elements (KRE).

Appendix III to AMC M.B.303(d) 'Aircraft Continuing Airworthiness Monitoring – Planning & Recording Document' defines those KREs for the aircraft surveys to be conducted by competent authorities.

Feedback from competent authorities and typical findings encountered during standardisation inspections indicate that ACAM requirements and KREs are not consistently and uniformly applied in all Member States. The existing rule material and related AMC and Guidance Material has therefore been reviewed to improve clarity and to include additional guidance on the use of KREs. The changes proposed aim at enhanced efficiency of the ACAM programme, both in terms of flight safety and better use of competent authority resources, without creating additional burden for competent authorities or aircraft owners/operators.

TABLE OF CONTENTS

A. EXPLANATORY NOTE 4

 I. GENERAL..... 4

 II. CONSULTATION 4

 III. COMMENT-RESPONSE DOCUMENT 5

 IV. CONTENT OF THE DRAFT OPINION AND DRAFT DECISION 5

 V. REGULATORY IMPACT ASSESSMENT 11

B. DRAFT OPINION AND DECISION 13

 I. DRAFT OPINION PART-M 14

 II. DRAFT DECISION PART-M..... 15

A. Explanatory Note

I. General

1. The purpose of this Notice of Proposed Amendment (NPA) is to envisage amending provisions pertaining to ACAM in Commission Regulation (EC) No 2042/2003¹ Annex I Part-M and Decision 2003/19/RM of the Executive Director of 28 November 2003². The scope of this rulemaking activity is outlined in Terms of Reference (ToR) M.027 Issue 2 published on 4 October 2011 and is described in more detail below.
2. The European Aviation Safety Agency (hereafter referred to as the 'Agency') is directly involved in the rule-shaping process. It assists the Commission in its executive tasks by preparing draft regulations, and amendments thereof, for the implementation of the Basic Regulation³ which are adopted as 'Opinions' (Article 19(1)). It also adopts Certification Specifications, Acceptable Means of Compliance and Guidance Material to be used in the certification process (Article 19(2)).
3. When developing rules, the Agency is bound to follow a structured process as required by Article 52(1) of the Basic Regulation. Such process has been adopted by the Agency's Management Board and is referred to as the 'Rulemaking Procedure'⁴.
4. This rulemaking activity is included in the Agency's Rulemaking Programme for 2012. It implements the rulemaking task RMT.0216 (M.027) 'Aircraft Continuing Airworthiness Monitoring'.
5. The text of this NPA has been developed by the Agency with the assistance of the drafting group RMT.0216 (M.027). It is submitted for consultation of all interested parties in accordance with Article 52 of the Basic Regulation and Articles 5(3) and 6 of the Rulemaking Procedure.

The proposed rule has taken into account the development of European Union and International law (ICAO), and the harmonisation with the rules of other authorities of the European Union's main partners as set out in the objectives of Article 2 of the Basic Regulation. The proposed rule is equivalent to the ICAO Standards and Recommended Practices.

II. Consultation

6. To achieve optimal consultation, the Agency is publishing the draft Opinion and Decision of the Executive Director on its Internet site. Comments should be provided within three months in accordance with Article 6(4) of the Rulemaking Procedure. Comments on this proposal should be submitted by one of the following methods:

¹ OJ L 315, 28.11.2003, p. 1. Regulation as last amended by Commission Regulation (EC) No 962/2010 (OJ L 281, 27.10.2010, p. 78).

² Decision No 2003/19/RM of the Executive Director of the Agency of 28 November 2003 on acceptable means of compliance and guidance material to Commission Regulation (EC) No 2042/2003 of 20 November 2003 on the continuing airworthiness of aircraft and aeronautical products, parts and appliances, and on the approval of organisations and personnel involved in these tasks. Decision as last amended by Decision 2010/006/R of the Executive Director of the Agency of 31 August 2010.

³ 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, 19.03.2008, p. 1). Regulation as last amended by Regulation 1108/2009 of the European Parliament and of the Council of 21 October 2009 (OJ L 309, 24.11.2009, p. 51).

⁴ Management Board Decision concerning the procedure to be applied by the Agency for the issuing of opinions, certification specifications and guidance material (Rulemaking Procedure), EASA MB 08-2007, 13.6.2007.

CRT: Send your comments using the Comment-Response Tool (CRT) available at <http://hub.easa.europa.eu/crt/>.

E-mail: Comments can be sent by e-mail only in case the use of CRT is prevented by technical problems. The(se) problem(s) should be reported to the [CRT webmaster](#) and comments should be sent by e-mail to NPA@easa.europa.eu.

Correspondence: If you do not have access to the Internet or e-mail, you can send your comments by mail to:

Process Support
Rulemaking Directorate
EASA
Postfach 10 12 53
50452 Cologne
Germany

Comments should be submitted by 1 March 2012. If received after this deadline, they might not be taken into account.

III. Comment-response document

7. All comments received in time will be responded to and incorporated in a Comment-Response Document (CRD). The CRD will be available on the Agency's website and in the Comment-Response Tool (CRT).

IV. Content of the draft Opinion and draft Decision

8. M.B.303 requires competent authorities to develop a survey programme to monitor the airworthiness status of the fleet of aircraft on their register, referred to as Aircraft Continuing Airworthiness Monitoring (ACAM). The ACAM programme is an important element of the competent authorities' continuing oversight and supports the objectives of the ICAO SARPS on the State Safety Programme. The survey programme shall include a product survey, focusing on a number of Key Risk Elements (KRE) in terms of continuing airworthiness that derive from the ICAO Airworthiness manual (Doc. 9760).

Appendix III to AMC M.B.303(d) 'Aircraft Continuing Airworthiness Monitoring – Planning & Recording Document' provides a list of 14 KREs for the product surveys to be conducted by competent authorities, without providing guidance on the definition and scope of these KREs.

9. As the validity of the Certificate of Airworthiness (CofA) is unlimited and conditioned by the existence and validity of an Airworthiness Review Certificate, the ACAM is an essential element of the competent authority's oversight of the continuing airworthiness management system and the organisations involved, based on the airworthiness status of the aircraft inspected. Feedback from competent authorities and typical findings encountered during standardisation inspections in relation to M.B.303 indicate that ACAM requirements and KREs are not consistently and uniformly applied in all Member States. This justifies the need to review the existing rule material so as to improve clarity and to issue additional AMC and GM, where appropriate, to ensure the ACAM fulfils its objectives in terms of effective oversight.
10. Whereas the scope of the rulemaking task as set out in Issue 1 of the ToR RMT.0216 (M.027) was initially limited to providing Guidance Material on the proper use of the KREs, the Agency, following a recommendation from the drafting group, extended the scope so as to include in the review the provisions at implementing rule level in order to enhance clarity and consistency. The specific issues identified during the drafting process that are intended to be addressed as part of this rulemaking task are explained below:

Survey programme

11. M.B.303(a) requires the development of a survey programme, without imposing any programming interval. Current AMC M.B.303(c) provides for an annual programme. The drafting group indicated that the provisions at AMC level should not introduce additional or more stringent requirements to those defined at implementing rule level and recommended removing the reference to an annual programme from the AMC. This now provides for flexible and dynamic implementation and caters for different programming patterns, such as biannual or continuous programming. To provide transparency and ensure traceability, a provision is added in AMC 2 M.B.303(a) to ensure that competent authorities document the programme and any changes thereto.

Combined surveys

12. ACAM surveys constitute one out of a series of product surveys involving a physical inspection of aircraft that a competent authority may be required to perform. To encourage efficient use of competent authority staff, Guidance Material is added to clarify that aircraft inspection procedures may take into account and combine the scope of other aircraft inspection tasks, such as continuing airworthiness management organisation (CAMO) or Part-145 product audits, inspections for export certification or issuance of a Permit to Fly, as well as ramp inspections performed in accordance with other Parts (cf. GM-1 M.B.303(a) Aircraft continuing airworthiness monitoring – COMBINED SURVEYS).

Root-cause analysis for each finding

13. The current rule mandates competent authorities to analyse each ACAM finding to determine its root cause. The drafting group expressed the opinion that root-cause investigation on all ACAM findings was not realistic and of limited added value when no CAMO is involved, in particular in the case of privately owned/general aviation aircraft. The Agency insisted on the need to ensure proper investigation of the root cause to address possible safety issues that may affect the whole fleet or that require action at the level of the competent authority, the Member State or even at the level of the Agency. The text of paragraph M.B.303(d) has therefore been amended by removing the reference to root-cause analysis and replacing it by the obligation for competent authorities to implement a system to analyse findings for their safety significance, which better reflects the safety objective. A new AMC is proposed to specify what this process should entail (cf. AMC1-M.B.303(d)). It is based on the text of AMC M.A.403(b). This removes the obligation to perform a root-cause analysis of each finding. Instead, competent authorities should decide on the need for a root-cause analysis on the basis of the safety significance of a finding or combination of findings. This is additional to the provisions on the handling of findings that can be linked to an approved organisation, which remain unchanged.
14. The drafting group also pointed out an inconsistency under Part-M, as root-cause analysis is only referred to in M.B.303, and neither M.A.716 'Findings', nor M.A.905 'Findings' contain any provisions on root-cause analysis. The group therefore recommended a general review for consistency of all provisions related to findings throughout Regulation (EC) 2042/2003 in order to clarify the conditions, responsibilities and methods to be used to ensure effective root-cause analysis. This review cannot be accommodated under task RMT.0216 (M.027); the Agency therefore proposes to address this with the rulemaking task RMT.0251 (MDM.055) 'SMS implementation for Regulation (EC) 2042/2003'. A similar review for consistency of the provisions related to findings and root-cause analysis in Regulation (EC) 1702/2003 could be performed by means of the rulemaking task RMT.0262 (MDM.060).
15. Following the amendments proposed to M.B.303(g) and (h) to redefine the provisions related to root-cause analysis, the text of M.B.304 has been amended to maintain a link with the provisions defined in M.B.903 'Findings'. The reference to limitation of the airworthiness review certificate in subparagraph (b) is proposed to be removed to align with M.B.903.

Compatibility and comparability of ACAM results from different Member States

16. M.B.303(i) defines that in order to facilitate appropriate enforcement action, competent authorities shall exchange information on ACAM non-compliances. Issue 1 of the ToR RMT.0216 (M.027) included in the task objectives the need to ensure compatibility and comparability of ACAM results and closely linked to that to adopt standard descriptions and findings for the 14 KREs. The Agency reconsidered this objective on the basis of the feedback provided by the drafting group: Comparing ACAM results between Member States would not only require the use of pre-defined findings, it would also entail the implementation of a common format for data to be exchanged and ideally of a common findings database, as well as of a standardised methodology to determine aircraft sample sizes representative of a given fleet and type of operations. In the absence of such tools and systems, the exchange of raw ACAM data between authorities is therefore considered to be of limited added value. As a consequence, the initial intent of adopting standard finding definitions for the list of KREs has not been maintained. The Agency amended the ToR accordingly to remove the reference to compatibility and comparability of data and reformulate the task objective with regards to the KREs. This does not prevent competent authorities from exchanging information derived from ACAM inspections in cases where a representative sample size cannot be reached in one Member State alone.

In-flight surveys

17. AMC M.B.303(b)(1)(c) defines that sample product surveys of aircraft include in-flight surveys as deemed necessary by the competent authority, without setting precise conditions or criteria when such in-flight surveys should be requested and under which protocol these should be carried out. In respect of the existing provisions on operational flight inspections for the initial certification and oversight of AOC holders (EU-OPS and future EASA ARO.OPS⁵) and considering that requesting such in-flight survey in response to serious ACAM findings would not be the adequate response under Part-M, where serious findings should be addressed by taking action on the ARC, the Agency, in agreement with the drafting group, decided to remove the reference to in-flight surveys in the AMC. M.B.303(b). This will not affect the possibility already provided to feed data derived from operational flight inspections into the ACAM process, for example to determine the right sample size or the KREs to be surveyed. The Agency invites stakeholders to provide their views on the deletion of in-flight airworthiness surveys as part of the ACAM and on the need to further regulate the performance of airworthiness check flights by the competent authority, as opposed to maintenance check flights, which are the subject of the rulemaking task RMT.0393 (MDM.097(a)) and RMT.0394 (MDM.097(b)) 'Airworthiness and operational aspects for maintenance check flights'.

Qualification criteria for ACAM inspectors

18. Qualification criteria for competent authority staff involved in Part-M activities defined in M.B.102 'Competent Authority' and related AMC M.B.102(c) do not include specific requirements for ACAM inspectors. The drafting group assessed the need to include specific criteria to consider the knowledge required in relation to the 14 KREs. It concluded that the criteria set out in AMC M.B.102(c)(1) were adequate for ACAM in-depth inspections, but that these may not be appropriate for those inspectors only performing ACAM ramp inspections. It is therefore proposed to add a new AMC to M.B.102(c) to specify which requirements should apply for these two inspector profiles. For the ACAM ramp surveys, the AMC now provides an alleviation by foreseeing the possibility to use inspectors qualified for the technical tasks of ramp inspections performed in accordance with other Parts. In the future this could include inspectors qualified to perform ramp inspections for the safety assessment of community operators (SACA) as defined with Opinion 04/2011 (ARO.RAMP). The group expressed the opinion

⁵ Cf. Opinion No 04/2011 of the European Aviation Safety Agency of 1 June 2011 for a Commission Regulation establishing Implementing Rules for Air Operations, Part-ARO, Subpart OPS.

that this should however not apply to SAFA inspectors, as their qualification requires knowledge of ICAO standards, not of EASA rules.

19. In this context, the drafting group discussed the categorisation of findings against the relevant Part-M requirements and whether ACAM inspectors should be entitled to raise findings on OPS items, including national operational requirements. The drafting group expressed the opinion that an integrated set of rules on ramp inspections would be required to provide for a common, streamlined system of inspections, addressing the full scope (airworthiness, OPS and FCL), so as to promote a holistic oversight system and to make better use of competent authority resources. The Agency invites stakeholders to provide their views on the need for a common regulatory framework for ramp inspections, and linked to this, on how this could best be accommodated under the current rule structure.

Key Risk Elements (KREs)

20. The initial trigger for rulemaking task M.027 was the initiative taken by a group of competent authorities to provide additional guidance on the use of the 14 KREs. To this effect an informal group of seven EASA Member States (Germany, Greece, Spain, Sweden, Switzerland, the Netherlands and the United Kingdom) drafted a guidance document for the purpose of uniform reporting of findings and categorisation against KREs during an ACAM inspection. The group invested significant effort into producing a catalogue of standard findings against each KRE.
21. The Agency used this document as a starting point to draft its GM on the KREs (Appendix III to GM 1 M.B.303(b)). However, the objective of including standard findings' definitions was not maintained in line with the drafting group's conclusion that KREs should not serve the purpose of providing statistics and that comparing raw inspection data between authorities was of limited value. In this context, it is worth mentioning that M.B.303(d) does not require classification of findings against KREs. The list of KREs should instead be used as a planning aid and a working tool for the ACAM process. For an individual ACAM inspection, the competent authority may sample specific KREs, but it should be able to demonstrate that all KREs have been assessed during the programming period, so as to ensure there are no blind spots in the programme in terms of airworthiness.
22. The ACAM programme should ultimately contribute to assessing the entire continuing airworthiness system, including continuing airworthiness management and maintenance. Therefore, the group expressed the opinion that findings should not be classified against the KREs, but against the relevant implementing rules. Relevant EASA rule references are provided in the new format of the list for that purpose. The Agency invites stakeholders to provide their views on the need to include a detailed list of EASA rule references and on the periodicity for updating these.
23. Moreover, the list provides a definition for each KRE, includes supporting information for some specific KREs, and provides a list of typical items to be checked for each KRE. Although KREs are primarily intended to assess the airworthiness status of the aircraft, some of the elements include specific operational items to be assessed. These will require a review once the EASA OPS rules will be effective to ensure consistency. It is important to note that the new list of KREs has been developed with a view to exhaustively cover all items that may be relevant to the more complex types of aircraft, i.e. large aircraft used in commercial air transport. It is important to adapt the list to the complexity of the aircraft type being surveyed by retaining only those items that are applicable and relevant for the particular aircraft type.

Summary of changes – Implementing Rule

24. **M.B.303** is amended in order to better clarify the intent of the rule. Former paragraph (c) is removed, the items to be considered for the development of the programme are now addressed in AMC 1 M.B.303 (a). In former paragraph (d) the requirement for a root-cause determination for each finding has been removed.

Provisions for the analysis of findings are now included with AMC 1 M.B.303(d) 'Findings analysis'. Former paragraph (e), now (d), is amended to ensure that all findings can be traced back to a Part-M requirement. This does not limit the scope of findings that can be raised through the ACAM, but requires a link to be made between the finding and the corresponding continuing airworthiness management requirements. A requirement is added to analyse findings for their safety significance. The new paragraph (f) is derived from former paragraph (g) and made more generic. It focuses on the processing of the finding, as opposed to categorisation of findings which is addressed in paragraph (d). Former paragraph (i), now (g), is amended to clarify that exchange of information on non-compliances identified is only required when necessary to ensure proper enforcement.

25. **M.B.304** is amended as a result of the deletion of M.B.303(g) and to ensure consistency with M.B.903. The reference to 'limitation' is deleted, as this option is not provided for in M.B.903.

Summary of changes – AMCs and GM

26. A new AMC is added to **M.B.102(c)** in order to specify the qualification requirements for ACAM surveys depending on the type of survey (in-depth/ramp). This allows inspectors qualified to perform ramp inspections in accordance with other Parts (such as the future ARO.RAMP⁶) to perform ACAM ramp surveys.
27. **AMC M.B.303** is deleted, the issue is now addressed under new AMC 2 M.B.303(a) 'Crediting' point (2). Two new AMCs are added to M.B.303(a), they incorporate relevant elements from former M.B.303(c), AMC M.B.303(c) and AMC M.B.303(d).
- **AMC 1 M.B.303(a)** addresses the scope of the ACAM survey programme for a given planning cycle and defines the aspects to be considered in terms of risk-based planning. As regards item (2) of the AMC, a reference to complexity of aircraft on the register is included to consider situations where the ratio between large and small aircraft is not balanced: Adopting a purely quantitative method for the determination of the sample size without considering the complexity of aircraft may lead to an over-representation of smaller aircraft in the ACAM survey programme, given that these may outnumber large commercial air transport aircraft for a given register.
 - **AMC 2 M.B.303(a)** addresses the crediting of surveys: Point (1) covers the crediting 'out' of ACAM surveys, point (2) covers the crediting 'in' of aircraft inspections others than those performed under M.B.303.
28. A new **GM 1 M.B.303(a)** 'Combined surveys' is added; it provides a non-exhaustive list of typical aircraft inspections that the competent authority may be required to perform and encourages integration of these inspections whenever possible. This reflects the views expressed by the drafting group on the need for a streamlined system of aircraft inspections.
29. The text of AMC M.B.303(b), now included as **AMC 1 M.B.303(b)**, is amended for consistency of wording. A statement is added on the need to perform a physical inspection during each ACAM survey to clarify the meaning of product survey. The reference to in-flight survey is deleted in line with the conclusions of the drafting group (cf. § 17).
30. A new **AMC 2 M.B.303(b)** is added; it incorporates elements from former AMC M.B.303(d) and provides the link to the Appendix with the description of the KREs. A new **GM 1 M.B.303(b)** is added to clarify the need to address all KREs through the ACAM survey programme, whereas for a specific inspection a selection of KREs may be

⁶ Cf. Opinion No 04/2011 of the European Aviation Safety Agency of 1 June 2011 for a Commission Regulation establishing Implementing Rules for Air Operations, Part-ARO, Subpart RAMP.

used, depending on the time available for the inspection and the KREs that are prioritised in the survey programme (cf. AMC 1 M.B.303(a) point (3)).

31. AMC M.B.303(c), incorporated into **AMC 1 M.B.303(a)**, is deleted. AMC M.B.303(d) is replaced by the new **AMC 2 M.B.303(b)** and new **GM 1 to M.B.303(b)**. To ensure consistency with other changes made, the references to root-cause identification and corrective action are deleted. A new **AMC 1 M.B.303(d)** 'Findings analysis' is added to specify the actions required to determine the safety significance of any finding or combination of findings. The need for a root-cause analysis should be determined based on this analysis. Actions required are those defined in M.B.303 (d), (e) and (f).
32. Appendix III to AMC M.B.303(d) is now included as **Appendix III to GM 1 M.B.303(b)**.

The following list provides a summary of the main changes made:

- Order of key risk elements changed and key risk elements grouped in three broad categories:
 - A. Aircraft Configuration;
 - B. Aircraft Operation;
 - C. Aircraft Maintenance.
- KRE 5 'Ultimate service life' renamed 'Component control'.
- KRE 6 'Structural repair manual' renamed 'Structure/Repairs'.
- KRE 8 'Minimum Equipment List' renamed 'Defect management'.
- KRE 11 'Reliability programme' and KRE 13 'Maintenance programme' now grouped as 'Aircraft Maintenance Programme', number KRE 11 no longer allocated.
- KRE 12 'Type design' merged with KRE 4 'Configuration control' and renamed 'Type design and changes to type design'.
- new KRE 'Aircraft documents', under category B. 'Aircraft Operation'.
- no separate KRE retained for aircraft assessment, this item was included only to record the physical survey which is part of each ACAM inspection.

The new KRE list and guidance also considers the list of items and terminology used in M.A.710 'Airworthiness Review', which in its subparagraph (a) provides the areas to be assessed during the airworthiness review. The KRE numbers corresponding to the order of items in the current version of Appendix III to AMC M.B.303(d) are retained in the overview of KREs to serve as reference. KREs should preferably be referred to by using their title rather than their number.

V. Regulatory Impact Assessment

1. Process and consultation

This Regulatory Impact Assessment is based on the pre-RIA and considers inputs provided by the drafting group, which is composed of competent authority representatives and industry representatives (one industry representative and one operator). It is provided in the form of a qualitative assessment.

2. Issue analysis and risk assessment

2.1. Issue which the NPA is intended to address and sectors concerned

The issue at stake is primarily relevant to competent authorities. Owners/operators are indirectly affected, when their aircraft is sampled by the competent authority for an ACAM ramp or in-depth inspection.

M.B.303 requires competent authorities to develop a survey programme to monitor the airworthiness status of the fleet of aircraft on their register as part of ACAM. Such survey programme shall include a product survey, focusing on a number of KREs. Appendix III to AMC M.B.303(d) 'Aircraft Continuing Airworthiness Monitoring – Planning & Recording Document' defines those KREs for the product surveys to be conducted by competent authorities. The Acceptable Means of Compliance (AMC) issued for M.B.303 do not provide a detailed description of the KREs defined in Appendix III to AMC M.B.303 (d), nor do they contain a list of items to inspect.

This has resulted and continues to result in a non-standardised application of the requirements in M.B.303. The issue has been discussed during successive standardisation meetings organised by the Agency and the need for further Guidance Material was strongly advocated by competent authorities and by the Agency.

2.2. What are the risks (probability and severity)?

The main risk of inadequate ACAM is that any potentially hazardous effects that could affect flight safety in terms of individual aircraft or a fleet are not properly identified and acted upon. Ultimately, inadequate ACAM directly affects the efficiency of continuing oversight performed by the competent authority, which may lower the level of safety. Based on past standardisation results, the probability of this risk is assumed to be occasional. As regards severity, taking into account that ACAM is only one element in the oversight system and that the airworthiness of individual aircraft is generally monitored by an approved Part-M Subpart G organisation, it is assumed to be minor.

3. Objectives

The specific objective of this NPA is to reduce the identified safety risks and implementation problems by clarifying the requirements and AMC and by providing further guidance material for use by competent authorities in the framework of the ACAM, in order to:

- contribute to promoting a risk-based, flexible approach for the ACAM programme;
- contribute to ensuring a common understanding among competent authorities of the proper use of KREs for the ACAM product surveys;
- based on KRE guidance, support training of competent authority staff performing ACAM product surveys;
- facilitate the exchange of information between authorities on non-compliances identified (M.B.303(i)) in the context of the ACAM programmes.

This should enhance the efficiency of the ACAM survey programmes, support standardisation, ensure uniform application, also for equal treatment of operators subject to ACAM product surveys, facilitate cooperative oversight and ultimately contribute to improving the level of safety.

4. Options identified

- | | |
|---|--|
| 0 | Baseline option (No change in rules, risks remain as outlined in Section 3) |
| 1 | Review M.B.303 and related AMC to improve clarity, enhance flexibility and efficiency and provide additional Guidance Material to M.B.303. |

5. Methodology and data requirements

N/A

6. Analysis of the impacts

6.1. Safety impacts

The main risk of inadequate ACAM is that any potentially hazardous effects that could affect flight safety in terms of individual aircraft or a fleet are not properly identified and acted upon. Ultimately, inadequate ACAM directly affects the efficiency of continuing oversight performed by the competent authority, which may lower the level of safety.

6.2. Social impacts

None identified.

6.3. Economic impacts

Aircraft owners/operators may benefit from a more effective, risk-based ACAM programme and competent authorities may make better use of their resources; however, it is not possible to quantify these potential impacts.

The provision of a new KRE list may affect existing systems and procedures implemented by competent authorities for the ACAM, it is assumed that some adjustments may be required to align with the new KRE list. It must be noted that the new material is included in the form of Guidance Material.

6.4. Environmental impacts

None identified.

6.5. Proportionality issues

None identified.

6.6. Impact on regulatory coordination and harmonisation

None identified.

7. Conclusion and preferred option

With Option 0, the current suboptimal situation with regard to the implementation of the requirements laid down in M.B.303 would remain unchanged.

Option 1 is fully aligned with the task objectives, while leaving enough flexibility for competent authorities to adapt specific aspects of the ACAM programme.

None of the Options has significant impacts on environment, economic or social issues.

Option 1 provides a positive safety impact and supports standardisation.

B. Draft Opinion and Decision

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

1. deleted text is shown with a strike through: ~~deleted~~
2. new text is highlighted with grey shading: new
3. ...

... indicates that remaining text is unchanged in front of or following the reflected amendment.

I. Draft Opinion Part-M

1. M.B.303 is amended as follows:

M.B.303 Aircraft continuing airworthiness monitoring

- (a) The competent authority shall develop a survey programme on a risk-based approach to monitor the airworthiness status of the fleet of aircraft on its register.
- (b) The survey programme shall include sample product surveys of aircraft and shall cover all aspects of the key risk elements.
- ~~(c) The programme shall be developed on a risk based approach taking into account the number of aircraft on the register, the diversity of aircraft types, local knowledge and the results of past surveillance activities.~~
- ~~(d) (c) The product survey shall focus on a number of key risk airworthiness elements sample the airworthiness standards achieved, on the basis of the applicable requirements, and identify any findings. Furthermore, the competent authority shall analyse each finding to determine its root cause.~~
- (e) (d) Any AH findings identified shall be categorised against the requirements of this Part and confirmed in writing to the person or organisation accountable according to M.A.201. The competent authority shall have a process in place to analyse findings for their safety significance.
- ~~(f) (e) The competent authority shall record all findings, closure actions and recommendations.~~
- ~~(g) If during aircraft surveys evidence is found showing non-compliance to a Part-M requirement, the competent authority shall take actions in accordance with M.B.903.~~
- (h) (f) If during aircraft surveys evidence is found showing non-compliance with this Part or with another Part, the finding shall be dealt with as prescribed by the relevant Part.
- ~~(i) (g) In order to facilitate If so required to ensure appropriate enforcement action, the competent authority authorities shall exchange information on non-compliances identified in accordance with paragraph (h) (f) with other competent authorities.~~

2. M.B.304 is amended as follows:

M.B.304 Revocation and, suspension and limitation

The competent authority shall:

- (a) suspend an airworthiness review certificate on reasonable grounds in the case of potential safety threat, or;
- (b) suspend or, revoke or limit an airworthiness review certificate pursuant to M.B.903(1) M.B.303(g).

II. Draft Decision Part-M

1. AMC M.B.102(c) Competent authority – Qualification and training is renumbered as follows:

AMC 1 M.B.102(c) Competent authority – Qualification and training

2. A new AMC 2 M.B.102(c) is added

AMC 2 M.B.102(c) Competent authority – Qualification and training

ACAM INSPECTORS

1. ACAM in-depth surveys should be performed by competent authority inspectors qualified in accordance with M.B.102(c).
2. ACAM ramp surveys may be performed by inspectors qualified for the technical tasks of ramp inspections in accordance with other Parts, or inspectors qualified in accordance with M.B.102(c).

3. AMC M.B.303 is deleted:

~~AMC M.B.303 Aircraft continuing airworthiness monitoring~~

~~The competent authority may create an adapted airworthiness survey programme for the aircraft for which it performs the airworthiness review.~~

4. Two new AMCs are added to M.B.303(a), they incorporate relevant elements from former M.B.303(c), AMC M.B.303(c) and AMC M.B.303(d):

AMC 1 M.B.303(a) Aircraft continuing airworthiness monitoring

ACAM SURVEY PROGRAMME – SCOPE

1. Each competent authority should create a programme covering in-depth surveys and ramp surveys.
2. The competent authority's survey programme should select aircraft and/or operators depending on the number and complexity of aircraft on the register, the diversity of aircraft types, local knowledge of the maintenance environment and operating conditions, airworthiness standards and past surveillance experience.
3. The programme should prioritise the operator/fleet/aircraft/key risk elements which are causing the greatest concern.
4. The survey programme and changes thereto should be documented.

AMC 2 M.B.303(a) Aircraft continuing airworthiness monitoring**ACAM SURVEY PROGRAMME - CREDITING**

1. Where the aircraft continuing airworthiness monitoring survey can be linked to the oversight of an approved organisation, then credit can be taken in the monitoring process of that approved organisation.
 2. The competent authority may take credit for aircraft continuing airworthiness inspections which it performs in accordance with this and other Parts into the ACAM programme.
5. A new GM is added for M.B.303(a):

GM 1 M.B.303(a) Aircraft continuing airworthiness monitoring**COMBINED SURVEYS**

In the interest of efficient use of competent authority resources, aircraft inspection procedures can be established which cover the combined scope of various aircraft survey tasks performed by a competent authority, such as, but not limited to:

- ACAM in-depth survey;
- Airworthiness review;
- Permit to fly physical inspection;
- Export Certificate of Airworthiness inspection;
- Product survey in accordance with M.B.704(c);
- Product audit in accordance with Part-145 or Part-M Subpart F;
- Review under supervision for airworthiness review staff authorisation, provided it covers the full scope of the physical survey in accordance with M.A.710(c); and
- Ramp inspections performed in accordance with other Parts.

Depending on which type of survey is required, any actual survey performed may cover a subset of the combined scope.

6. In AMC M.B.303 (b), now AMC 1 M.B.303(b), the order of the subparagraphs is changed and the text is amended as follows:

AMC 1 M.B.303(b) Aircraft continuing airworthiness monitoring (*)**SCOPE OF SURVEYS**

- ~~2-~~ 1. The competent authority should undertake regular sample product surveys of aircraft on its register to verify that:
- (a) the condition of an aircraft as sampled is to a standard acceptable for the Certificate of Airworthiness/Airworthiness Review Certificate to remain in force,
 - (b) the operator/Owner's management of the airworthiness of their aircraft is effective,
 - (c) satisfactory levels of continuing ~~continued~~ airworthiness are being achieved,
 - (d) the approvals and licenses granted to organisations and persons continue to be applied in a consistent manner to achieve the required standards.

A physical inspection of the aircraft is necessary during each ACAM survey (ramp or in-depth).

4- 2. Sample product surveys of aircraft include:

- (a) in depth surveys carried out during extensive maintenance that fully encompass selected aspects of an aircraft's airworthiness,
- (b) ramp surveys carried out during aircraft operations to monitor the apparent condition of an aircraft's airworthiness.
- ~~(c) in-flight surveys, as deemed necessary by the competent authority.~~

7. A new AMC 2 is added for M.B.303(b), it incorporates elements from former AMC M.B.303(d).

AMC 2 M.B.303(b) Aircraft continuing airworthiness monitoring

IN-DEPTH SURVEY

1. An ACAM in-depth survey is a sample inspection of the key risk elements (KREs) and should be performed during scheduled/extensive maintenance. Appendix III to GM 1 to M.B.303(b) provides guidance on KREs that can be used for planning and/or analysis of the inspections.

2. The survey should be a 'deep cut' through the elements or systems selected.

3. The record of an ACAM inspection should identify which KREs were inspected.

8. New GM is added for M.B.303(b):

GM 1 M.B.303(b) Aircraft continuing airworthiness monitoring*

KEY RISK ELEMENTS

The KREs define the scope of continuing airworthiness. The list of KREs is intended to provide the basis for planning and control of the ACAM survey programme to ensure that the programme covers all aspects of continuing airworthiness. While any specific inspection need not cover all KREs, the ACAM survey programme needs to ensure that there is no 'blind spot', in that a certain KRE is never inspected.

* See Appendices to Part-M - Appendix III to GM 1 M.B.303(b)

9. AMC M.B.303(c), incorporated into AMC 1 M.B.303 (a), is deleted:

~~AMC M.B.303 (c) Aircraft continuing airworthiness monitoring~~

~~Each competent authority should create an annual programme of surveys, selecting aircraft and/or operators depending on local knowledge of the maintenance environment, operating conditions, airworthiness standards and past surveillance experience. The programme should be used to identify the operator/fleet/aircraft, which are causing the greatest concern.~~

10. AMC M.B.303(d) is deleted, it is replaced by the new AMC 2 to M.B.303 (b) and new GM 1 to M.B.303(b).

AMC M.B.303 (d) Aircraft continuing airworthiness monitoring

1. ~~Appendix III to this AMC is an example format for an annual in depth survey programme. A sample of the 14 key risk airworthiness elements identified on the example should be assessed during each survey and the survey should include the aircraft as the product sample. The survey should be a 'deep cut' through the elements or systems selected and all findings should be recorded. Surveyors/inspectors in conjunction with the owners, operators and maintenance organisations should identify the root cause of each confirmed finding.~~
2. ~~In addition, an annual ramp survey programme should be developed based on geographical locations, taking into account airfield activity, and focusing on key issues that can be surveyed in the time available without unnecessarily delaying the aircraft.~~
3. ~~Surveyors/inspectors should be satisfied that the root cause found and the corrective actions taken are adequate to correct the deficiency and to prevent re-occurrence.~~
4. ~~Where the aircraft continuing airworthiness monitoring survey visit can be linked to the oversight of an approved organisation then credit can be taken in the monitoring process of that approved organisation.~~

11. A new AMC is added to M.B.303(d):

AMC 1 M.B.303(d) Aircraft continuing airworthiness monitoring**FINDINGS ANALYSIS**

The process should analyse the finding or combination of findings for any potentially hazardous effects that could affect flight safety in order to determine the need for further analysis to identify the root cause of the finding or combination of findings. The results of this analysis should be fed back into the ACAM and acted upon in accordance with M.B.303(d), (e) and (f).

12. As a result of the changes made to M.B.303, item (2) of AMC M.B.705(a)(1) 'Findings' is changed as follows:

Furthermore, a level 1 finding could lead to a non-compliance to be found on an aircraft as specified in M.B.303 (g). ~~In this case, proper action as specified in M.B.303 (h g) would be taken.~~

13. Appendix III to AMC M.B.303(d) is renumbered Appendix III to GM 1 M.B.303(b) and replaced by the following document:

Appendix III to GM 1 M.B.303(b)

	previous KRE ref.	Title	Description
A. AIRCRAFT CONFIGURATION			
A.1	KRE 12	Type design and changes to type design	The type design is the part of the approved configuration of a product, as laid down in the TCDS, common to all products of that type. Any changes to type design shall be approved, and for those embodied, shall be recorded with the reference to the approval.
A.2	KRE 1	Airworthiness limitations	An airworthiness limitation is a boundary beyond which an aircraft or a component thereof must not be operated, unless the instruction(s) associated to this airworthiness limitation is complied with.
A.3	KRE 14	Airworthiness Directives	An Airworthiness Directive means a document issued or adopted by the Agency, which mandates actions to be performed on an aircraft to restore an acceptable level of safety, when evidence shows that the safety level of this aircraft may otherwise be compromised. (Part 21A.3B)
B. AIRCRAFT OPERATION			
B.1	n/a	Aircraft documents	Aircraft certificates and documents necessary for operations.
B.2	KRE 9	Aircraft Flight Manual	A manual, associated with the certificate of airworthiness, containing limitations within which operation of the aircraft is to be considered airworthy and, instructions and information necessary to the flight crew members for the safe operation of the aircraft.
B.3	KRE 10	Mass & Balance	Mass and balance data is required to make sure the aircraft is capable of operating within the approved envelope.
B.4	KRE 2	Markings & placards	Markings and placards are defined in the individual aircraft type design. Some information may also be found in the TCDS, the Supplemental Type Certificates (STC), the FM, the AMM, the IPC, etc...
B.5	KRE 7	Operational requirements	Items required to be installed to perform a specific type of operation
B.6	KRE 8	Defect management	Defect management requires a system whereby information on faults, malfunctions, defects and other occurrences that cause or might cause adverse effects on the continuing airworthiness of the aircraft is captured. This system should be properly documented. It includes, amongst others, the MEL system, the CDL system and deferred defects management.
C. AIRCRAFT MAINTENANCE			
C.1	KRE 11 KRE 13	Aircraft Maintenance Programme	A document which describes the specific scheduled maintenance tasks and their frequency of completion, related standard maintenance practices and the associated procedures necessary for the safe operation of those aircraft to which it applies.
C.2	KRE 5	Component control	The component control should consider a twofold objective for components maintenance: - Maintenance for which compliance is <u>mandatory</u> . - Maintenance for which compliance is <u>recommended</u> .
C.3	KRE 6	Structure / Repairs	All repairs and unrepaired damages/degradations need to comply with the instructions of the appropriate manual (e.g. the SRM, the AMM, the CMM) or, have been appropriately approved and recorded with the reference to the approval. This includes any damages or repairs to the aircraft/engines/propellers and their components.
C.4	KRE 3	Records	Continuing Airworthiness records are defined in M.A.305 and M.A.306 and related AMCs.

A.1	Type design and changes to type design	The type design is the part of the approved configuration of a product, as laid down in the TCDS, common to all products of that type. Any changes to type design shall be approved, and for those embodied, shall be recorded with the reference to the approval.
Supporting information		Typical inspection items
<p>The type design consists of:</p> <ol style="list-style-type: none"> 1. The drawings and specifications, and a listing of those drawings and specifications, necessary to define the configuration and the design features of the product (i.e. the aircraft, its components, etc.) shown to comply with the applicable type-certification basis and environmental protection requirements; 2. Information on materials and processes and on methods of manufacture and assembly of the product necessary to ensure the conformity of the product; 3. Instructions for Continued Airworthiness (ICA) i.a.w. 21A.61, including an approved Airworthiness Limitation Section (ALS); and 4. Any other data necessary to allow by comparison the determination of the airworthiness, the characteristics of noise, fuel venting, and exhaust emissions (where applicable) of later products of the same type. <p>The individual aircraft design is made of the type design supplemented with changes to the type design (e.g. modifications) embodied on the considered aircraft.</p> <p>Depending on the product State of Design, Bilateral Agreements and/or Agency decisions on acceptance of certification findings exist and should be taken into account.</p>		<ol style="list-style-type: none"> 1. Use the current type certificate data sheets (airframe, engine, propeller as applicable) and check that the aircraft conforms to its type design (correct engine installed, seat configuration, etc.). 2. Check that changes have been approved properly (approved data is used, and a direct relation to the approved data). 3. Check for unintentional deviations from the approved type design, sometimes referred to as concessions, divergences, or non-conformances, Technical Adaptations, Technical Variation, etc. 4. Check cabin configuration (LOPA). 5. Check for embodiment of STC's, and, if any Airworthiness Limitations Section (ALS)/ FM/MEL/WBM and revisions are needed, they have been approved and complied with. <ol style="list-style-type: none"> a. Aircraft S/N applicable b. Applicable engines c. Applicable APU d. Max. certified weights e. Seating configuration f. Exits 6. Check that the individual aircraft design/configuration is properly established and used as a reference.
Reference documents: EASA		
<ul style="list-style-type: none"> - EASA Part-21, Subparts B, D, E, K, O - EASA Part 21A.41 - EASA Part 21A.61EASA Part M.A.304 - EASA Part M.A.305 - EASA Part M.A.401 		

A.2	Airworthiness limitations	An airworthiness limitation is a boundary beyond which an aircraft or a component thereof must not be operated, unless the instruction(s) associated with this airworthiness limitation is complied with.
Supporting information		Typical inspection items
<p>Airworthiness limitations are exclusively associated with instructions whose compliance is mandatory as part of the type design. They apply to some scheduled or unscheduled instructions that have been developed to prevent and to detect safety-significant failure.</p> <p>They mainly provide maintenance requirements (mandatory modification, replacement, inspections, checks, etc.), but can also provide requirements to control critical design configurations (for example Critical Design Configuration Control Limitations (CDCCL) for the fuel tank safety).</p>		<ol style="list-style-type: none"> 1. Check that the Aircraft Maintenance Programme (AMP) reflects airworthiness limitations (standard or alternative) issued by the relevant design approval holders and approved by the competent authority. 2. Check that the aircraft and the components thereof comply with the approved AMP. 3. Check the current status of life-limited parts. The current status of life-limited parts, which is required upon each transfer throughout the operating life of the part. <p>Typical Airworthiness Limitation items:</p> <ul style="list-style-type: none"> - Safe Life ALI (SL ALI)/Life limited parts, - Damage Tolerant ALI/Structure(DT ALI), including ageing aircraft structure, - CMR, - Ageing Systems Maintenance (ASM), including instructions for EWIS, - Fuel Tank Ignition Prevention (FTIP)/Flammability Reduction Means (FRM), - CDCCL, check wiring if any maintenance carried out in same area - wiring separation, - Review MRBR/MPD versus aircraft maintenance programme (AMP) to ensure mandatory tasks are included, - Ageing fleet inspections are included in the AMP.
Reference documents: EASA		
<ul style="list-style-type: none"> - EASA Part 21A.31 - EASA Part 21A.61 - EASA CS 22.1529 - EASA CS 23.1529, appendix G, para. G25.4 - EASA CS 25.1529, appendix H, para. H25.4 - EASA CS 27.1529, appendix A, para. A27.4 - EASA CS 29.1529, appendix A, para. A29.4 - EASA CS 31HB.82 - EASA CS-APU 30 - EASA CS-E 25 - EASA CS-P 40 - EASA CS VLR.1529, appendix A, para. A.VLR.4 - EASA Part M.A.302 - EASA Part M.A.305 - EASA Part M.A.710(a)(7) 		

A.3	Airworthiness Directives	An Airworthiness Directive means a document issued or adopted by the Agency, which mandates actions to be performed on an aircraft to restore an acceptable level of safety, when evidence shows that the safety level of this aircraft may otherwise be compromised. (Part 21A.3B)
Supporting information		Typical inspection items
<p>This may include ADs issued or adopted by the State of Registry.</p> <p>Any airworthiness directive issued by a State of Design for an aircraft imported from a third country, or for an engine, propeller, part or appliance imported from a third country and installed on an aircraft registered in a Member State, shall apply unless the Agency has issued a different Decision before the date of entry into force of that airworthiness directive.</p> <p>(ED Decision 02/2003 Final)</p>		<ol style="list-style-type: none"> 1. Check if all ADs applicable to the airframe, engine(s), propeller(s) and equipment have been incorporated in the AD-status, including their revisions. 2. Check that additional requirements issued by the State of Registry have been taken into account. 3. Check records for ADs incorrectly listed as non-applicable. 4. Check by sampling in the current AD status that applicable ADs have been or are planned to be (as appropriate) carried out within the requirements of these Airworthiness Directives, unless otherwise specified by the Agency (AMOC). 5. Check that applicable ADs (including additional requirements by the State of Registry), related to maintenance, are included into the aircraft maintenance programme. 6. Check that task-cards correctly reflect AD requirements or refer to procedures and standard practises referenced in ADs. 7. Sample during a physical survey some ADs for which compliance can be physically checked.
Reference documents: EASA		
<ul style="list-style-type: none"> - EASA PART 21A.3B - EASA Part 21B.60 - EASA Part 21B.326 - EASA Part 21B.327 - EASA PART M.A.201 & AMC M.A.201(h) § 4 - EASA PART M.A.303 - EASA PART M.A.305 § (d) & (h) - EASA PART M.A.401 § (a) & (b) - EASA PART M.A.501 § (b) - EASA PART M.A.503 § (a) - EASA PART M.A.504 § (a) 2 - EASA PART M.A.504 & AMC M.A.504(c) § 1 (f) - EASA PART M.A.613 & AMC M.A.613(a) § 2.4.3, 2.5.2, 2.6.1(h) & 2.8(b) - EASA PART M.A.708 § (b)8 - EASA PART M.A.709(a) - EASA PART M.A.710 § (a)5 - EASA PART M.A.801 & AMC M.A.801(h) 		

B.1	Aircraft documents	Aircraft certificates and documents necessary for operations.
Supporting information		Typical inspection items
<p>The aircraft certificates and documents necessary for operations may include, but are not necessarily limited to:</p> <ul style="list-style-type: none"> - Certificate of Registration; - Certificate of Airworthiness; - Noise certificate; - Aircraft certificate of release to service; - Technical log book, if required; - Airworthiness Review Certificate; - Etc. 		<ol style="list-style-type: none"> 1. Check that all certificates and documents pertinent to the aircraft and necessary for operations (or copies, as appropriate) are on board. 2. Check C of A modification/Aircraft identification. 3. Check that noise certificate corresponds to aircraft configuration. 4. Check Permit to fly and Flight Condition when necessary. 5. Check that there is an appropriate aircraft certificate of release to service.
Reference documents: EASA		
<ul style="list-style-type: none"> - EASA Part 21 Subpart H - 21A.175 - 21A.177 - 21A.182 - Part 21 Subpart I - Part 21 Subpart P - EASA Part 21 Subpart Q - 21A.801 - 21.A.807 - EASA Part M.A.201(a)(2) - EASA Part M.A 801 		

B.2	Aircraft Flight Manual	A manual, associated with the certificate of airworthiness, containing operational limitations, instructions and information necessary for the flight crew members for the safe operation of the aircraft.
Supporting information		Typical inspection items
<p>The Aircraft Flight Manual needs to reflect the current status/configuration of the aircraft. When it does not, it may provide flight crew members with wrong information.</p> <p>This may lead to errors and/or to override limitations that may result in hazardous/catastrophic events.</p>		<ol style="list-style-type: none"> 1. Check the conformity of the AFM (latest issue) with aircraft configuration, including modification status, (AD, SB, STC etc.). 2. Check: <ul style="list-style-type: none"> - The AFM approval, revision control, Supplement to AFM The impact of modification status on noise and weight & balance, - Additional required manuals (QRH/FCOM/OM-B etc.), - AFM limitation.
Reference documents: EASA		
<ul style="list-style-type: none"> - EASA Part 21A.174(b), 2(iii), (b), 3(ii) - EASA Part 21A.204(b)1(ii), (b)2(i) - EASA Part M.A. 305, AMC M.A. 305(d) - EASA Part M.A.710(a), 2 - EASA Part M.A. 710(c), 2 - EASA AMC M.A.710(a), 1 - EASA AMC M.A.901(b), (g) - EASA AMC M.A.902(b), 3 - EASA AMC M.A.904(a), 2(c) and (k) - EASA AMC M.A.904(b), (c) 		

B.3	Mass & Balance	Mass and balance data is required to make sure the aircraft is capable of operating within the approved envelope.
Supporting information		Typical inspection items
<p>The mass and balance report needs to reflect the actual configuration of the aircraft. When it does not, the aircraft might be operated outside the certified operating envelope.</p>		<ol style="list-style-type: none"> 1. Check that mass and balance report is valid, considering current. 2. Make sure that modifications and repairs are taken into account in the report. 3. Check that equipment status is recorded on the mass and balance report.
Reference documents: EASA / EU		
<ul style="list-style-type: none"> - EASA Part M.A.305(d)5 - EASA Part M.A.708(b)(10) - EASA Part M.A.710(a)(9),AMC M.A.710 (1) - EU-OPS 1.605 & appendix 1 		

B.4	Markings & placards	Markings and placards are defined in the individual aircraft type design. Some information may also be found in the TCDS, the Supplemental Type Certificates (STC), the FM, the AMM, the IPC, etc.
Supporting information		Typical inspection items
<p>Markings and placards on instruments, equipment, controls, etc. shall include such limitations or information as necessary for the direct attention of the crew during flight.</p> <p>Markings and placards or instructions shall be provided to give any information that is essential to the ground handling in order to preclude the possibility of mistakes in ground servicing (e.g. towing, refuelling) that could pass unnoticed and that could jeopardise the safety of the aeroplane in subsequent flights.</p> <p>Markings and placards or instructions shall be provided to give any information essential in the prevention of passenger injuries.</p> <p>National registration markings must be installed. They include registration, possible flag, fireproof registration plate.</p> <p>Product data plates must be installed.</p> <p>When markings and placards are missing, or unreadable, or not properly installed, mistakes or aircraft damages may occur and may subsequently result in a hazardous or catastrophic event.</p>		<ol style="list-style-type: none"> 1. Check that the required markings and placards are installed on the aircraft, especially the emergency exit markings instructions and passenger information signs and placards. 2. Check that all installed placards are readable. 3. Check the AFM versus the instruments. (General Aviation usually). 4. Check registration markings, including State of Registry fireproof nameplate. 5. Check product data plates. <p><u>Examples of markings & placards:</u></p> <ul style="list-style-type: none"> - door means of opening, - each compartment's weight/load limitation/placards stating limitation on contents, - passenger information signs, including no smoking signs, - emergency exit marking, - pressurised cabin warning, - calibration placards, - cockpit placards and instrument markings, - O₂ system information data, - accesses to the fuel tanks with flammability reduction means (CDCCL), - fuelling markings (fuel vent, fuel dip stick markings), - EWIS identification, - towing limit markings, - break-in markings, - inflate tyres with nitrogen, - RVSM + static markings.
Reference documents: EASA		
<ul style="list-style-type: none"> - EASA Part 21A.175 - EASA Part 21A.715 - EASA Part 21A.801 - EASA Part 21A.803 - EASA Part 21A.804 - EASA Part 21A.805 - EASA Part 21A.807 - Relevant CS for the aircraft type being inspected - EASA Part M.A.501 - EASA Part M.A.710(c) - EASA AMC M.A.504(e) - EASA AMC M.A.603(c) - EASA AMC M.A.904(a)(2), para. 2.f. & 2.k. 		

B.5	Operational requirements	Requirements for the type of operation are complied with (e.g. equipment, documents, approvals).
Supporting information		Typical inspection items
<p>This includes all equipment required by the applicable operational code including national requirements.</p> <p>In case of malfunction, it can create a hazardous situation. Especially emergency equipment needs attention during this inspection.</p>		<ol style="list-style-type: none"> 1. Check CofA/ARC/PtF/Noise certificate (i.a.w. current configuration). 2. Check permits & approvals required for type of operation. 3. Check for the presence and serviceability of equipment required by operational approvals. 4. Check safety equipment, check that emergency equipment is readily accessible. 5. Check the equipment is approved, if approval is required (TSO/ETSO). 6. Check that location of equipment is shown in the operator's Cabin Safety Manual or similar documents.
Reference documents: EASA / EU		
<ul style="list-style-type: none"> - EASA Part M.A.201(a)(2) - EASA Part-21 Subpart I - EU-OPS Subpart K Instruments and Equipment - EU-OPS Subpart L Communication and Navigation Equipment 		

B.6	Defect management	Defect management requires a system whereby information on faults, malfunctions, defects and other occurrences that cause or might cause adverse effects on the continuing airworthiness of the aircraft is captured. This system should be properly documented. It includes, amongst others, the MEL system, the CDL system and deferred defects management.
Supporting information		Typical inspection items
This KRE includes defects found during the physical inspection.		<ol style="list-style-type: none"> 1. Check that the deferred defects have been identified, recorded, and rectified in accordance with approved procedures and within approved time limits. 2. Check that operations outside published approved data have only been performed under a Permit to Fly or under flexibility provisions (Basic Regulation Article 14). Sample on: <ol style="list-style-type: none"> a. TLB and hold item list, b. Maintenance task cards, c. Engine shop report, d. (Major) component shop report, e. Maintenance/repair/modification working party files after embodiment of modifications or repairs, f. Occurrence reporting data, g. Communications between the user of maintenance data and the maintenance data author in case of inaccurate, incomplete, ambiguous procedures and practices. 3. Check that the consequences of the deferral have been managed with Operation/Crew. 4. Check that defects are being deferred in accordance with approved data (current revision of the MEL, CDL, aircraft maintenance programme).
Reference documents: EASA /EU		
<ul style="list-style-type: none"> - EASA Part M.A.301(2) - AMC M.A.301-2 - EASA Part M.A.403 - AMC M.A.710(a) Airworthiness review - EASA Part 145.A.60 - EASA Part 145.A.45(c) - EASA Part-21 AMC 20-8 - EU Directive 2003/42/EC on occurrence reporting 		

C.1	Aircraft Maintenance Programme	A document which describes the specific scheduled maintenance tasks and their frequency of completion, related standard maintenance practices and the associated procedures necessary for the safe operation of those aircraft to which it applies.
Supporting information		Typical inspection items
<p>The <u>KRE</u> Aircraft Maintenance Programme (AMP) also includes the reliability programme, when required.</p> <p>Tasks included in the maintenance programme can originate from:</p> <ul style="list-style-type: none"> - Tasks for which compliance is mandatory: Instructions specified in the Airworthiness Directives (AD), and/or in the Airworthiness Limitations Section (ALS), or Certification Maintenance Requirements (CMR) of a design approval holder's maintenance manual, or Instructions for Continued Airworthiness (ICA). - Maintenance for which compliance is <u>recommended</u>: Additional instructions specified in the Maintenance Review Board Report (MRBR), the Maintenance Planning Document (MPD), the Service Bulletins (SB), etc. <p>Task accomplishment is scheduled (one time or periodically), or unscheduled (e.g. following an event). Statuses in aircraft continuing airworthiness records (refer to logbooks, technical logbooks, component log cards) dealing with:</p> <ul style="list-style-type: none"> - Scheduled tasks: <ul style="list-style-type: none"> - One-time: life-limited parts status, modification status, repair status. - Repetitive: maintenance programme status. 		<ol style="list-style-type: none"> 1. Check if the AMP used is valid for the aircraft, is approved and is amended correctly. 2. Check if the maintenance tasks specified in ADs or specified as mandatory in the approval of the type design (and the changes thereto) are identified as such. 3. Check if the latest (MRB or AMM) revision <u>mandatory</u> scheduled and unscheduled maintenance tasks are implemented. Sample check that no tasks have been omitted. 4. Check if <u>recommended</u> scheduled and unscheduled maintenance tasks (the latest revision) are appropriately considered. 5. Check if task-cards correctly reflect the AMP and refer to accepted procedures and standard practises. Pay attention to unscheduled mandatory tasks (e.g. Critical Design Configuration Control Limitations, CDCCL). 6. Check if tasks are performed at correct intervals and comply with M.A.302. 7. Check the reporting of performed scheduled maintenance into the records system. 8. Check if reliability programme is present and active when required. Analyse the effectiveness of maintenance programme and reliability by reviewing the unscheduled tasks: directly recorded in logbooks, technical logbook, component log card, task cards.
Reference documents: EASA		
<ul style="list-style-type: none"> - EASA Part M.A.302 and its AMC. - EASA Part M.A.708(b)(1), (2), (4) 		

C.2	Component control	The component control should consider a twofold objective for components maintenance: <ul style="list-style-type: none"> - Maintenance for which compliance is <u>mandatory</u>. - Maintenance for which compliance is <u>recommended</u>.
Supporting information		Typical inspection items
<p>Depending on each maintenance task, accomplishment is <u>scheduled</u> or <u>unscheduled</u>. Refer to KRE Aircraft Maintenance Programme.</p> <p>Components affected by scheduled maintenance:</p> <ul style="list-style-type: none"> - Life-limited parts must be <u>permanently</u> removed from service when, or before, their operating limitation is exceeded. The life limitation is controlled at the component level (in opposition to aircraft level). - Time controlled components, include the following: Components for which removal and restoration are scheduled, regardless of their level of failure resistance. Reference is made to hard time components: They are subject to periodic maintenance dealing with a deterioration that is assumed to be <u>constant</u> (the overall reliability invariably decreases with age): Failure is less likely to occur before restoration is necessary. <p>Restoration tasks for hard time components are not the same as 'On-condition' tasks, these tasks do not monitor <u>gradual</u> deterioration, but are primarily done to ensure the item may continue to remain in service until the next planned restoration.</p> <p>Components for which failure resistance can reduce and drop below a defined level: Inspections are scheduled to detect potential failures. Reference is made to 'On-condition' components: They are called such because components, which are inspected, are left in service (no further maintenance action taken) on the condition that they continue to meet specified performance standards.</p>		<ol style="list-style-type: none"> 1. Check that the mandatory maintenance tasks are identified as such and managed separately from recommendations. 2. Check the current component statuses, with due consideration to deferred items. They must identify: <ol style="list-style-type: none"> a. The affected components (Part Number and Serial Number), b. For components subject to a life limitation: the life limitation, the component's total accumulated life, and the life remaining before the component's life limitation is reached. (Use Hours, Cycles, Landings, Calendar time, as necessary), c. For components subject to a repetitive task: the task description and reference, the applicable threshold/interval, the last accomplishment data (date, the component's total accumulated life in Hours, Cycles, Landings, Calendar time, as necessary) and the next planned accomplishment data, d. For components subject to an unscheduled task: the task description and reference, the accomplishment data (date, the component's total accumulated life in Hours, Cycles, Landings, Calendar time, as necessary). Pay attention to ETOPS and CDCCL components). 3. Check current status of time controlled components. This status can be requested upon each transfer throughout the operating life of the part. 4. Check if the aircraft maintenance programme and reliability programme results impact the component control. 5. Check that life-limited and time controlled components are correctly marked during a physical survey.
Reference documents: EASA		
<ul style="list-style-type: none"> - EASA Part 21A.805 - EASA Part M.A.302 - EASA Part M.A.305 - EASA Part M.A.501 - EASA Part M.A.503 - EASA Part M.A.710 		

<p>C.3</p>	<p>Structure / Repairs</p>	<p>All repairs and unrepaired damage/degradations need to comply with the instructions of the appropriate manual (e.g. the SRM, the AMM, the CMM) or, have been appropriately approved and recorded with the reference to the approval. This includes any damage or repairs to the aircraft/engine(s)/propeller(s), and their components.</p>
<p>Supporting information</p>		<p>Typical inspection items</p>
<p>Each repair file should record the damage assessment, the rationale for the classification of the repair, the evidence the repair has been designed in accordance with approved data, i.e. by reference to the appropriate manual procedure or to a Part-21 repair design approval, and the drawings/material and accomplishment task cards.</p> <p>Depending on the product State of Design, Bilateral Agreements and/or Agency Decisions on acceptance of certification findings exist and should be taken into account.</p>		<ol style="list-style-type: none"> 1. Compare the repair status and the physical status of the repaired aircraft/engine(s)/propeller(s), and their repaired components (physical survey). 2. Operator repair status should determine the damage assessment; the classification of the repair, the evidence of approved data issued from SRM or Part-21 approval reference, and the drawings/material and accomplishment task cards. 3. Check repairs that are requiring repetitive inspection and/or limitation. 4. Check that major repairs resulting in airworthiness limitations and associated mandatory instructions (including ageing aircraft programme) have been included in the aircraft maintenance programme. 5. Check that recommended maintenance resulting from repairs has been considered for inclusion in the aircraft maintenance programme. 6. Sample embodied repairs to check conformity against repair files (physical survey).
<p>Reference documents: EASA</p>		
<ul style="list-style-type: none"> - EASA Part M.A.304 - EASA AMC Part M.A.304 - EASA Part M.A.305 - EASA AMCs to Part M.A.305 - EASA Part M.A.401 - EASA AMCs to Part M.A.401 		

C.4	Records	Continuing Airworthiness records are defined in M.A.305 and M.A.306 and related AMCs.
Supporting information		Typical inspection items
Retention/Transfer of the records is required so that the status of the aircraft and its components can be readily established at any time.		<ol style="list-style-type: none"> 1. Check the aircraft continuing airworthiness record system: M.A.305 and M.A.306, as applicable, require that certain records are kept for defined periods. Pay attention to the continuity, integrity and traceability of records: <ol style="list-style-type: none"> a. Integrity: Check the data recorded is legible, b. Continuity: Check that records are available for the applicable retention period, c. Traceability: Check the link between operator/CAMO and maintenance documentation, traceability to approved data, traceability to appropriate release documents, etc. 2. If applicable, make sure that the tech log system is used correctly and the work performed is signed off (including the maintenance statement) by competent/authorised persons. 3. In case of transfer of aircraft/engine/propeller/component/part: Check that records are appropriately transferred to the new owner/operator. 4. Check that any maintenance required following overspeed/hard landing/excessive turbulence etc., overweight operation, and operation outside of AFM limitations has been performed, as applicable.
Reference documents: EASA		
<ul style="list-style-type: none"> - EASA Part M.A. 305 - EASA Part M.A. 306 - EASA Part M.A. 307 - EASA AMCs to Part M.A. 305 - EASA AMCs to Part M.A. 306 - EASA AMC to Part M.A. 307 		

Abbreviations used:

A/C	Aircraft
ACAM	Aircraft Continuous Airworthiness Monitoring
AD	Airworthiness Directive
AFM	Aircraft Flight Manual
ALI	Airworthiness Limitation Items
ALS	Airworthiness Limitations Section
AMM	Aircraft Maintenance Manual
AMP	Aircraft Maintenance Programme
APU	Auxiliary Power Unit
ASM	Ageing Systems Maintenance
CAMO	Continuing Airworthiness Management Organisation
CDL	Configuration Deviation List
CDCCL	Critical Design Configuration Control Limitations
CMR	Certification Maintenance Requirement
DT	Damage Tolerant
ED	Executive Director of EASA
ETSO	European Technical Standard Order
EWIS	Electrical Wiring Interconnection System
EZAP	Enhanced Zonal Analysis Programme
FCOM	Flight Crew Operations Manual
FDR	Flight Data Recorder
FTIP	Fuel Tank Ignition Prevention
GA	General Aviation
ICA	Instructions for Continuing Airworthiness
IPC	Illustrated Parts Catalogue
KRE	Key Risk Element
LHIRF	Lightning High Intensity Radiated Field
LOPA	Layout of Passenger Accommodation
MCAI	Mandatory Continuing Airworthiness Information
MEL	Minimum Equipment List
MRB	Maintenance Review Board
MRBR	Maintenance Review Board Report
MPD	Maintenance Planning Document
NAA	National Aviation Authority
OEM	Original Equipment Manufacturer
OM	Operations Manual
PN	Part Number
QRH	Quick Reference Handbook
PWR	Power
RVSM	Reduced Vertical Separation Minima
SN	Serial Number
SB	Service Bulletin
SM	Service Manual
SRM	Structural Repair Manual
STC	Supplemental Type Certificate
TC	Type Certificate
TCDS	Type Certificate Data Sheet
TLB	Technical Logbook
TSO	Technical Standard Order