



# European Aviation Safety Agency – Rulemaking Directorate

## Notice of Proposed Amendment 2014-04

### Technical records

RMT.0276 (MDM.076) – 7.2.2014

#### EXECUTIVE SUMMARY

Technical records are the means to assess the airworthiness status of a product and its components. Incomplete technical records may lead to a wrong assessment with safety risk.

Although there are specific requirements in the rule, the Agency infers from the number of queries received that the provisions are not clear enough on what should be kept and for how long.

Furthermore, this NPA evaluates the use of new technologies and copies of the continuing airworthiness records, providing more guidance on the commonly used information technology (IT) systems. This evaluation is always done taking into account different operations/aircraft, so the less complex aviation community is not imposed to hold records in the same way that more complex ones are.

The Agency received a safety recommendation from AAIB which is addressed within this rulemaking task (ref.: UNKG-2007-091). It recommends that the maintenance and overhaul records must be part of the log book and retained until the aircraft/engine/propeller/component has been destroyed or permanently removed from service.

Applicability		Process map	
Affected regulations and decisions:	Commission Regulation (EC) No 2042/2003: Part-M and Part-145	Concept Paper:	No
Affected stakeholders:	Air Operators/aircraft owners Continuing Airworthiness Management Organisations (CAMOs) Maintenance Organisations Competent Authorities	Terms of Reference:	28.11. 2011
Driver/origin:	Level playing field	Rulemaking group:	Yes
Reference:	– FAA AC 120-16E, Chapter 8 – Maintenance record keeping system – FAA 20-162 and TGL 41 on RFID devices – ICAO Annex 6 Chapter I 8.4	RIA type:	Light
		Technical consultation during NPA drafting:	No
		Duration of NPA consultation:	3 months
		Review group:	Yes
		Focussed consultation:	Yes
		Publication date of the Opinion:	2017Q1
		Publication date of the Decision:	Upon adoption of the Opinion by the Commission

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## 1. Procedural information

### 1.1. The rule development procedure

The European Aviation Safety Agency (hereinafter referred to as the 'Agency') developed this Notice of Proposed Amendment (NPA) in line with Regulation (EC) No 216/2008<sup>1</sup> (hereinafter referred to as the 'Basic Regulation') and the Rulemaking Procedure<sup>2</sup>.

This rulemaking activity is included in the Agency's Rulemaking Programme 2014-2017 under RMT.0276 (former task number MDM.076).

The text of this NPA has been developed by the Agency based on the input of the Rulemaking group RMT.0276 (MDM.076). It is hereby submitted for consultation of all interested parties<sup>3</sup>.

The process map on the title page contains the major milestones of this rulemaking activity to date and provides an outlook of the timescale of the next steps.

### 1.2. The structure of this NPA and related documents

Chapter 1 of this NPA contains the procedural information related to this task. Chapter 2 (Explanatory Note) explains the core technical content. Chapter 3 contains the proposed text for the new requirements. Chapter 4 contains the Regulatory Impact Assessment showing which options were considered and what impacts were identified, thereby providing the detailed justification for this NPA.

### 1.3. How to comment on this NPA

Please submit your comments using the automated **Comment-Response Tool (CRT)** available at <http://hub.easa.europa.eu/crt/><sup>4</sup>.

The deadline for submission of comments is **7 May 2014**.

### 1.4. The next steps in the procedure

Following the closing of the NPA public consultation period, the Agency will review all comments and perform a focussed consultation which will consist of a workshop.

The outcome of the NPA public consultation will be reflected in the respective Comment-Response Document (CRD).

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<sup>1</sup> Regulation (EC) No 216/2008 of the European Parliament and the Council of 20 February 2008 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency, and repealing Council Directive 91/670/EEC, Regulation (EC) No 1592/2002 and Directive 2004/36/EC (OJ L 79, 19.3.2008, p. 1), as last amended by Commission Regulation (EU) No 6/2013 of 8 January 2013 (OJ L 4, 9.1.2013, p. 34).

<sup>2</sup> The Agency is bound to follow a structured rulemaking 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'. See 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 Decision No 01-2012 of 13 March 2012.

<sup>3</sup> In accordance with Article 52 of the Basic Regulation and Articles 5(3) and 6 of the Rulemaking Procedure.

<sup>4</sup> In case of technical problems, please contact the CRT webmaster ([crt@easa.europa.eu](mailto:crt@easa.europa.eu)).

## 2. Explanatory Note

### 2.1. Overview of the issues to be addressed

Proposed by the Industry and the Member States, the need of a rulemaking task was indeed found adequate to reduce the safety risk identified in relation to the aircraft's technical records.

In 2012 the Agency created a rulemaking group with the participation of experienced members from industry and civil aviation authorities whose task was the development of this Notice of Proposed Amendment (NPA).

For more detailed analysis of the issues addressed by this proposal, please refer to the RIA section 4.1. 'Issues to be addressed' which are basically:

- Inconsistency in the use of the terms 'Life Limited Parts' and 'Service Life Limited Parts';
- Different interpretations as to which components require an EASA Form 1 or equivalent, and which documents are considered equivalent to an EASA Form 1;
- Different interpretations of the need for 'back to birth' traceability;
- Inconsistency in 145.A.55 of the record-keeping periods and the periods applicable to the transfer of records;
- Lack of guidance on the use of electronic signature;
- Lack of guidance on the acceptability of records copies (scanned, photocopy);
- Lack of guidance on the acceptability of new technology, such as RFID (Radio Frequency Identification);
- Lack of harmonisation with the FAA requirements in relation to continuing airworthiness records.

Additionally, EASA intends to address a Safety Recommendation made by the AAIB (ref.: UNKG-2007-091): 'It is recommended that the European Aviation Safety Agency (EASA) amend EASA Part-145 (and Part-M as necessary) to require that maintenance and overhaul records that are referred to in airframe, engine and propeller log books, and component record cards, are deemed to be part of that log book or record card and are retained until the aircraft, engine, propeller or component has been destroyed or permanently removed from service.'

### 2.2. Objectives

The overall objectives of the EASA system are defined in Article 2 of the Basic Regulation. This proposal will contribute to the achievement of the overall objectives by addressing the issues outlined in Section 4.1.

The specific objectives are to clarify the use of the current rules and to develop relevant guidance on the use of new technologies for record-keeping in order to achieve safe and cost-efficient rules.

### 2.3. Summary of the Regulatory Impact Assessment (RIA)

Chapter 4 contains the Regulatory Impact Assessment showing which options were considered and what impacts were identified, with the following conclusion:

- Inconsistency in the use of the terms 'Life Limited Parts' and 'Service Life Limited Parts'

The option that provides more benefits is the use of terms 'time controlled component' and 'life limited parts' and clarify records requirements depending on the type of component.
- Different interpretations as to which components require an EASA Form 1 or equivalent, and which documents are considered equivalent to an EASA Form 1

The option that provides more benefits is 'Identify when the EASA Form 1 must be retained'.
- Different interpretations of the need for 'back to birth' traceability

To solve this issue the assessment concludes that the term 'in-service history' must be introduced. This term partially incorporates the concept of back to birth traceability but keeping some records up to a certain extent defining 'detailed maintenance records'.
- Inconsistency in 145.A.55 of the record keeping periods and the periods applicable to the transfer of records

The inconsistency is solved changing the applicable period to transfer of the records from three to two years.
- Lack of guidance on the acceptability of records copies (scanned, photocopy)

The assessment concludes as the most beneficial option to create additional guidance to accept records others than in 'original paper'.
- Lack of guidance on the acceptability of new technology, such as RFID (Radio Frequency Identification)

It is not considered beneficial for the purpose of keeping records to change the rule, so no guidance is added in the case of RFID.
- Safety Recommendation

After assessing the recommendation, it is not considered beneficial to change the current rule.

#### **2.4. Overview of the proposed amendments**

This NPA:

- proposes a new structure of M.A.305,
- introduces new concepts related to components,
- clarifies the existing requirements of technical records related to continuing airworthiness and maintenance, after assessing the need of each requirement,
- introduces guidance about IT systems and the use of new technologies and copies in a way that can be tailored to the complexity of the aircraft/organisations,
- eliminates some inconsistencies, and

- additionally proposes a change in AMC to Part-CAT<sup>5</sup>.

Some shortcomings of the current structure of M.A.305 have been identified and improved:

- Current M.A.305 (b) and (d) quote respectively 'records shall consist of' and 'records shall contain' while not making clear what the rest of the requirements are, if not records. This lack of clarity is eliminated by including a single point stating what records 'shall contain' and referring to the corresponding paragraphs.
- Additionally, the requirements for records at aircraft level are mixed with those records at component level. The proposal separates both requirements.
- Lack of clarity with regard to what to keep when the aircraft or its components, as appropriate, are permanently withdrawn from service. The proposal makes a distinction between aircraft/components in service and those permanently withdrawn from service.

M.A.305 (a) is amended for clarity purposes.

M.A.305 (b) is replaced to indicate what the aircraft continuing airworthiness records system shall contain, cross-referencing other paragraphs. AMC M.A.305 (b) 1 provides guidance in the case of engine modular design.

M.A.305 (c) is replaced to include the statuses and reports that are part of the aircraft continuing airworthiness records. AMC M.A.305 (c) (1), (2) and (3) and GM M.A.305 (c) (2) are added to explain what each status should include. The following means and guidance are included related to the modification status:

- it should include components subjected to airworthiness limitations,
- it should be sufficiently detailed to identify any installed field loadable software,
- when a component is replaced by a fully interchangeable alternate component, it is not considered a modification, and
- guidance material on examples of listings of components.

M.A.305 (d) is replaced to request the statuses specific to components. The terms 'life limited part' and 'time controlled component' are introduced while the term 'service life-limited component' is removed from the proposal. The current AMC MA305 (d) and AMC M.A.305 (d) (4) and AMC M.A.305 (h) points are deleted and the new point GM M.A.305 (d)(2) is added. These points define 'life limited part', 'time controlled component', 'current status', 'in-service history record' and include some guidance on different maintenance processes (MSG-1, MSG-2 and MSG-3) to avoid confusion.

M.A.305 (e) is replaced to specify the documents and data to be kept and the retention period. This point is divided into four paragraphs:

- Operator's technical log system. The current M.A.306 (c) requirement is moved into this paragraph, so M.A.306 (c) is deleted;

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<sup>5</sup> Commission Regulation (EU) No 965/2012 of 5 October 2012 laying down technical requirements and administrative procedures related to air operations pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council as last amended by Commission Regulation (EU) No 800/2013 of 14 August 2013.

- General data: specific information on what to keep depending on the requirement at aircraft level (AD, modifications and repairs and scheduled maintenance or other maintenance required for continuing airworthiness);
- Data specific to certain components, which introduces the new term 'in-service history record' for life limited parts; and
- Retention periods for data and documents when the aircraft and its components have been permanently withdrawn from service.

AMC M.A.305 (e) is added to provide means to comply with:

- how the person or organisation responsible for the aircraft continuing airworthiness can use the system to record the aircraft continuing airworthiness data and the main features if the system used is IT based (record making),
- the content of logbook/logcard,
- different forms of record keeping (paper, electronically digitised copy, etc.) and the main characteristics for digitised records,
- the main characteristics of systems used for retention of digitised records, giving the possibility of disposal of the original paper records when the competent authority has approved such systems, and
- lost or destroyed records.

AMC M.A.305 (e) (2) is added to provide guidance on what to keep under modifications, repairs and ADs.

AMC M.A.305 (e) (3) provides means in the case of missing records.

GM M.A.305 (e) (3) is added to clarify that it is not requested to retain EASA Form 1 for certain components.

A new AMC M.A.305 (f) details the case where the owner/operator arranges for a maintenance organisation to retain the aircraft continuing airworthiness records.

M.A.305 (g) is amended for clarity.

M.A.305 (h) is deleted.

AMC M.A.305 (h) and AMC M.A.305 (h) (6) are deleted.

A new GM M.A.305 is added to provide the definitions of the terms used through M.A.305.

M.A. 503, M.A.504 (c), AMC M.A.501 (b), AMC M.A.504 (c) and AMC M.A.504 (d) (2) are amended for consistency.

AMC M.A.613 (a) is amended for consistency.

Point M.A.614 (b) is amended to clarify what the maintenance organisation must transfer to the owner/operator so that the latter can demonstrate compliance with Part-M requirements on the 'detailed maintenance records'.

M.A.710 and Appendix II to M.A.201 (h)1 are amended for consistency.

AMC M.A.710 (a), AMC M.A.901 (d) and (g), AMC M.A.904 (a)(2), AMC M.A.904 (b), Appendix XI to AMC M.A.708 (c) and Appendix III to GM 1 M.B.303 (b) are amended for consistency.



145.A.55 (b) and (c) are amended to clarify what the maintenance organisation must transfer to the owner/operator so that the latter can demonstrate compliance with Part-M requirements on the 'detailed maintenance records'. Additionally Part-145 is amended to be consistent with the different retention periods of records mentioned in the point.

AMC No2 to 145.A.50 (d) and GM 145.A.55 (a) are amended for consistency.

Points AMC1 CAT.IDE.A.105, AMC1 CAT.IDE.H.105 are added to Part-CAT in order to provide operators with a means to comply with the responsibility regarding the availability of the components required for the intended operation that are not controlled for the purpose of continuing airworthiness management. The same logic applies for the new points AMC1 NCC.IDE.A.105 and AMC1 NCC.IDE.H.105 to Part-NCC and AMC1 NCO.IDE.A.105 and AMC1 NCO.IDE.H.105 to Part-NCO.

### 3. Proposed amendments

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

- (a) deleted text is marked with ~~strike through~~;
- (b) new or amended text is highlighted in **grey bold**;
- (c) an ellipsis (...) indicates that the remaining text is unchanged in front of or following the reflected amendment.

#### 3.1. Draft Regulation (Draft EASA Opinion)

##### 3.1.1. Annex I to Commission Regulation (EC) No 2042/2003 (Part-M)

Point M.A.305(a) is amended as follows:

###### **M.A.305 Aircraft continuing airworthiness record system**

- (a) At the completion of any maintenance, the certificate of release to service required by point M.A.801 or point 145.A.50 shall be ~~entered~~ **included** in the aircraft continuing airworthiness records. Each entry shall be made as soon as practicable but in no case more than 30 days after the day of the maintenance action.

Point M.A.305(b) is replaced as follows:

###### **M.A.305 Aircraft continuing airworthiness record system**

~~(b) The aircraft continuing airworthiness records shall consist of:~~

- ~~1. an aircraft logbook, engine logbook(s) or engine module log cards, propeller logbook(s) and log cards, for any service life limited component as appropriate, and~~
- ~~2. when required in point M.A.306 for commercial air transport or by the Member State for commercial operations other than commercial air transport, the operator's technical log.~~

**(b) The aircraft continuing airworthiness records shall contain the following:**

- 1. a record of the date, total in-service life accumulated in flight hours and/or flight cycles and/or landings and/or any other applicable parameter, for the aircraft, engine(s) and/or propeller(s) after each flight;**
- 2. the data described in (c) and (d) together with the supporting detailed maintenance records described in (e); and**
- 3. when required in point M.A.306 for commercial air transport or by the Member State for commercial operations other than commercial air transport, the operator's technical log.**

Point M.A.305(c) is replaced as follows:

###### **M.A.305 Aircraft continuing airworthiness record system**

- ~~(c) The aircraft type and registration mark, the date, together with total flight time and/or flight cycles and/or landings, as appropriate, shall be entered in the aircraft logbooks.~~

**(c) The aircraft continuing airworthiness records shall include the current:**

1. status of airworthiness directives and measures mandated by the competent authority in immediate reaction to a safety problem;
2. status of modifications and repairs;
3. status of compliance with the aircraft maintenance programme;
4. mass and balance report; and
5. status of deferred maintenance tasks and deferred defects rectification.

Point M.A.305(d) is replaced as follows:

#### **M.A.305 Aircraft continuing airworthiness record system**

~~(d) The aircraft continuing airworthiness records shall contain the current:~~

- ~~1. status of airworthiness directives and measures mandated by the competent authority in immediate reaction to a safety problem;~~
- ~~2. status of modifications and repairs;~~
- ~~3. status of compliance with maintenance programme;~~
- ~~4. status of service life limited components;~~
- ~~5. mass and balance report;~~
- ~~6. list of deferred maintenance.~~

**(d) The aircraft continuing airworthiness records shall include the following additional information specific to components:**

1. current status of life limited parts including the life accumulated by each affected part in relation to the applicable airworthiness limitation parameter; and
2. current status of time controlled components, including the life accumulated by the affected components in the applicable parameter, since the last accomplishment of scheduled maintenance specified in the aircraft maintenance programme.

Point M.A.305(e) is replaced as follows:

#### **M.A.305 Aircraft continuing airworthiness record system**

~~(e) In addition to the authorised release document, EASA Form 1 or equivalent, the following information relevant to any component installed (engine, propeller, engine module or service life limited component) shall be entered in the appropriate engine or propeller logbook, engine module or service life limited component log card:~~

- ~~1. identification of the component; and~~
- ~~2. the type, serial number and registration, as appropriate, of the aircraft, engine, propeller, engine module or service life limited component to which the particular component has been fitted, along with the reference to the installation and removal of the component; and~~
- ~~3. the date together with the component's accumulated total flight time and/or flight cycles and/or landings and/or calendar time, as appropriate; and~~
- ~~4. the current paragraph (d) information applicable to the component.~~

**(e) The owner or operator shall ensure that a system has been established to keep the following documents and data for the periods specified in a form acceptable to the competent authority:**

1. **Operator's technical log system: the technical log or data equivalent in scope and detail contained in the information technology system corresponding to the 36 months prior to the last entry shall be retained.**

**2. General data:**

- (i) the certificate of release to service and detailed maintenance records demonstrating compliance with airworthiness directives and measures mandated by the competent authority in immediate reaction to a safety problem applicable to the aircraft, engine(s), propeller(s) and components fitted thereto, as appropriate, until such time as the information contained therein is superseded by new information equivalent in scope and detail but not less than 24 months;
- (ii) the certificate of release to service and detailed maintenance records demonstrating compliance with the applicable data in accordance with M.A.304 for current modifications and repairs to the aircraft, engine(s), propeller(s) and any component subject to airworthiness limitations; and
- (iii) the certificate of release to service and detailed maintenance records of all scheduled maintenance or other maintenance required for continuing airworthiness in respect of the aircraft, engine(s), propeller(s), as appropriate, until such time as the information contained therein is superseded by new information equivalent in scope and detail but not less than 24 months;

**3. Data specific to certain components:**

- (i) an in-service history record for each life limited part from which the current status of compliance with airworthiness limitations can be determined;
- (ii) the certificate of release to service and detailed maintenance records for the last accomplishment of any scheduled maintenance, and any subsequent unscheduled maintenance, on all life limited parts and time controlled components until the scheduled maintenance has been superseded by another scheduled maintenance of equivalent scope and detail but not less than 24 months;

**4. Retention periods when the aircraft is permanently withdrawn from service:**

- (i) the data required in M.A.305(b)1 in respect of the aircraft, engine(s), and propeller(s) shall be retained at least 24 months;
- (ii) the last effective status and reports identified in M.A.305(c) and (d) shall be retained for at least 24 months;
- (iii) the most recent certificate of release to service and detailed maintenance records identified in M.A.305(e)2 and (e) 3 shall be retained for not less than 24 months.

Point M.A.305(g) is amended as follows:

**M.A.305 Aircraft continuing airworthiness record system**

- (g) All entries made in the aircraft continuing airworthiness records **system** shall be clear and accurate. When it is necessary to correct an entry, the correction shall be made in a manner that clearly shows the original entry.

Point M.A.305(h) is deleted

#### **M.A.305 Aircraft continuing airworthiness record system**

- (h) ~~An owner or operator shall ensure that a system has been established to keep the following records for the periods specified:~~
- ~~1. all detailed maintenance records in respect of the aircraft and any service life limited component fitted thereto, until such time as the information contained therein is superseded by new information equivalent in scope and detail but not less than 36 months after the aircraft or component has been released to service; and~~
  - ~~2. the total time in service (hours, calendar time, cycles and landings) of the aircraft and all service life limited components, at least 12 months after the aircraft or component has been permanently withdrawn from service; and~~
  - ~~3. the time in service (hours, calendar time, cycles and landings) as appropriate, since last scheduled maintenance of the component subjected to a service life limit, at least until the component scheduled maintenance has been superseded by another scheduled maintenance of equivalent work scope and detail; and~~
  - ~~4. the current status of compliance with maintenance programme such that compliance with the approved aircraft maintenance programme can be established, at least until the aircraft or component scheduled maintenance has been superseded by other scheduled maintenance of equivalent work scope and detail; and~~
  - ~~5. the current status of airworthiness directives applicable to the aircraft and components, at least 12 months after the aircraft or component has been permanently withdrawn from service; and~~
  - ~~6. details of current modifications and repairs to the aircraft, engine(s), propeller(s) and any other component vital to flight safety, at least 12 months after they have been permanently withdrawn from service.~~

Point M.A.306(c) is deleted as follows:

#### **M.A.306 Operator's technical log system**

- (c) ~~An operator shall ensure that the aircraft technical log is retained for 36 months after the date of the last entry.~~

Point M.A.503 is amended as follows:

#### **M.A.503 Life limited parts and time controlled components ~~Service life limited components~~**

- (a) Installed ~~service life limited~~ **life limited parts and time controlled** components shall not exceed the approved ~~service life~~ limit as specified in the approved maintenance programme and airworthiness directives, except as provided for in point M.A.504(c).
- (b) The approved ~~limit~~ **limit** service life is expressed in calendar time, flight hours, landings or cycles, as appropriate.
- (c) At the end the approved ~~limit~~ **limit** service life, the component must be removed from the aircraft for maintenance, or for disposal in the case of ~~life limited parts~~ **life limited parts** components with a certified life limit.

Point M.A.504(c) is amended as follows:

#### **M.A.504 Control of unserviceable components**

- (c) Components which have reached their certified **mandatory** life limit **limitation** or contain a non-repairable defect shall be classified as unsalvageable and shall not be permitted to re-enter the component supply system, unless **the certified mandatory** life limits **limitation has** have been extended or a repair solution has been approved according to M.A.304.

Point M.A.614 is amended as follows:

#### **M.A.614 Maintenance records**

- ~~(b) The approved maintenance organisation shall provide a copy of each certificate of release to service to the aircraft owner, together with a copy of any specific repair/modification data used for repairs/modifications carried out.~~

- (b) The approved maintenance organisation shall provide a copy of each certificate of release to service to the aircraft owner, together with a copy of any detailed maintenance records associated with the work carried out and necessary to demonstrate compliance with M.A.305.**

Point M.A.710 is amended as follows:

#### **M.A.710 Airworthiness review**

- (a) To satisfy the requirement for the airworthiness review of an aircraft referred to in point M.A.901, a full documented review of the aircraft records shall be carried out by the approved continuing airworthiness management organisation in order to be satisfied that:

(...)

7. all ~~service life limited~~ **life limited parts and time controlled** components installed on the aircraft are properly identified, registered and have not exceeded their approved service life limit; and

Appendix II to M.A.201(h)1 is amended as follows:

#### **Appendix II to M.A.201(h)(1): Sub-contracting of continuing airworthiness management tasks**

(...)

- 2.11 ~~Service life limit~~ **Mandatory life limitation or scheduled maintenance** controls & component control/removal forecast.

(...)

#### 2.15 Continuing airworthiness records

These may be maintained and kept by the **sub-contracted** organisation on behalf of the operator who remains the owner of these documents. However, the operator should be provided with the current status of AD compliance and ~~service life limited~~ **life limited parts and time controlled** components in accordance with agreed procedures. The operator should also be provided with unrestricted and timely access to original records as and when needed. On-line access to the appropriate information systems is acceptable.

### 3.1.2. Annex II to Commission Regulation (EC) No 2042/2003 (Part-145)

Point 145.A.55 is amended as follows:

#### 145.A.55 Maintenance records

~~(b) The organisation shall provide a copy of each certificate of release to service to the aircraft operator, together with a copy of any specific repair/modification data used for repairs/modifications carried out.~~

**(b) The organisation shall provide a copy of each certificate of release to service to the aircraft operator, together with a copy of any detailed maintenance record associated with the work carried out and necessary to demonstrate compliance with M.A.305.**

(c) The organisation shall retain a copy of all detailed maintenance records and any associated maintenance data for ~~three~~ **two** years from the date the aircraft or component to which the work relates was released from the organisation.

### 3.2. Draft Acceptable Means of Compliance and Guidance Material (Draft EASA Decision)

#### 3.2.1. Annex I to Decision 2003/19/RM (AMC to Part-M) is amended as follows:

Point GM M.A.305 is added

#### GM M.A.305 Aircraft continuing airworthiness record system

**(1) 'Applicable airworthiness limitation parameter' and 'applicable parameter' mean 'in flight hours' and/or 'flight cycles' and/or 'landings' and/or 'calendar time', as appropriate.**

**(2) A 'life limited part' is a part for which the maintenance schedule of the aircraft maintenance programme requires the permanent removal from service when, or before, the specified mandatory life limitation in the applicable parameter is reached.**

**(3) The 'current status of life limited parts' should indicate, for each affected part, the life limitation, total number of accumulated flight hours and/or flight cycles and/or calendar time and/or life in any other applicable parameter (as appropriate) and the remaining life in flight hours and/or flight cycles and/or calendar time and/or any other applicable parameter before the life limitation is reached.**

**(4) The term 'time controlled components' embraces any component for which the maintenance schedule of the aircraft maintenance programme requires periodically the removal for restoration, the replacement, or the quantitative inspection of component's performance.**

**(5) The 'current status of time controlled components' means the current status of compliance with the required periodic maintenance task(s) from the maintenance schedule of the aircraft maintenance programme specific to the time controlled components. It should include the life accumulated by the affected components, the applicable parameter, as appropriate, since the last accomplishment of scheduled maintenance specified in the maintenance schedule of the aircraft maintenance programme. Any action that alters the**

periodicity of the maintenance task(s) or changes the parameter of this periodicity should be recorded.

- (6) 'Detailed maintenance records' are those records required to be kept by the owner/operator to be able to determine the continuing airworthiness and configuration of the aircraft in accordance with Part-M relevant for future maintenance. These are different from the detailed maintenance records required to be kept by a maintenance organisation as per M.A.614 or 145.A.55(c). Whereas maintenance organisations are required to retain all detailed records to demonstrate that they worked in compliance with their respective requirements, aircraft owners/operators need to retain those records required for assessing the aircraft configuration and the airworthiness of the aircraft and all components installed. 'Dirty finger prints' may not need to be transferred from the maintenance organisation to the aircraft owner/operator.

Where the maintenance organisation retains the detailed maintenance records in accordance with 145.A.55(c) and M.A.614, the owner/operator should receive the aircraft release to service performed during the maintenance and necessary to determine the aircraft continuing airworthiness and its configuration, which includes references to all:

- taskcards,
- modifications,
- airworthiness directives,
- repaired and non-repaired damage, and
- measurements relating to defects.

- (7) 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 (are) complied with.
- (8) 'Other maintenance required for continuing airworthiness' means other maintenance due to abnormal conditions or events with an impact on the continuing airworthiness of the aircraft at the time of its return to service. It is not intended to request every single condition described in the maintenance data, i.e. Aircraft Maintenance Manual chapter 5, but just the ones that cannot be captured by other means, for example when those are included in the records for repairs. Some abnormal conditions that could be kept under this requirement could be lightning strikes, hard landings, long term storage, propeller or rotor over-speed, over-torque, impact on a main rotor blade, etc.
- (9) The term 'in-service history records' embraces records from which the current status of life limited parts can be determined.

Such records document each time a life limited part is placed in service or removed from service. They should clearly:

- (i) identify the part by its part number and serial number,
- (ii) show the date of installation and removal (i.e. date on/date off),
- (iii) show the details of the installation and removal (i.e. type, serial number, weight variant, thrust rating, as appropriate, of the aircraft, engine, engine module, or propeller) at installation and removal of the part that are necessary to appropriately control the life limitation.



(iv) show the total in-service life accumulated in flight hours and/or flight cycles and/or landings and/or calendar time and/or any other applicable parameter, as appropriate, corresponding to the dates of installation and removal of the part.

Any other events that would affect the life limitation, such as a modification (in accordance with airworthiness directives, service bulletins or any product improvements) that affects the life limitation or changes the limitation parameter, must also be included in the in-service history record. Not all modifications would necessarily be pertinent to the life limitation of the component.

Point AMC M.A.305(b)1 is added as follows:

Some gas turbine engines are assembled from modules and the total life accumulated in service for the complete engine may not be kept. When owners and operators wish to take advantage of the modular design, then the total life accumulated in service for each module, and maintenance records for each module, should be maintained. The continuing airworthiness records as specified should be kept with the module and should show compliance with any mandatory requirements pertaining to that module.

Point AMC M.A.305(c)1 is added as follows:

#### **AMC M.A.305(c)1 Aircraft continuing airworthiness record system**

(a) The current status of ADs, and measures mandated by the competent authority in immediate reaction to a safety problem, should identify the product/component, the applicable ADs including revision or amendment numbers and the date on which the status was updated.

If the AD is generally applicable to the aircraft or component type but is not applicable to the particular aircraft, engine, propeller or component, then this should be identified with the reason why it is not applicable.

The AD status should include the release to service date on which the AD or measure was accomplished, and where the AD or measure is controlled by flight hours and/or flight cycles and/or landings and/or any other applicable parameter, as appropriate, it should include the corresponding total life accumulated in service on the date when the AD or measure was accomplished. For repetitive ADs or measures, only the dates of the last and next application should be recorded in the current status. The status should also specify the method of compliance and which part of a multi-part AD or measure has been accomplished, where a choice is available in the AD or measure.

When the AD is multi-part or requests assessments of certain inspections, this information should be shown as well.

Point AMC M.A.305(c)2 is added as follows:

#### **AMC M.A.305(c)2 Aircraft continuing airworthiness record system**

(a) Status of current modifications and repairs means a list of modifications and repairs embodied on the aircraft. It should include the identification of the aircraft, engine(s) or propeller(s), as appropriate, and when the modification or repair was accomplished. Where a modification or repair

creates the need for the accomplishment of repetitive maintenance tasks, the reference to the applicable tasks of the aircraft maintenance programme should be added. The status should include the reference to the data in accordance with M.A.304 that provides the accomplishment procedure for the modification or repair. It should also specify which part of a multi-part modification or repair has been accomplished and the method of compliance, where a choice is available in the data.

**(b) The data may include:**

- (1) installation instructions;**
- (2) mass and balance change data;**
- (3) maintenance and repair manual supplements;**
- (4) maintenance programme changes and instructions for continuing airworthiness; and/or**
- (5) aircraft flight manual supplements.**

**(c) The status of modifications should be sufficiently detailed to identify any installed field loadable software which is used for operating or controlling the aircraft.**

A field loadable software can be loaded without removal of the equipment from the aircraft or engine. Other types of field loadable software not used for operating or controlling, as navigational data bases or entertainment systems, are not considered under this recording requirement.

**(d) For the purpose of recording modifications in accordance with the current paragraph, a component replaced by a fully interchangeable alternate component is not considered a modification, if this condition is published by the design approval holder (DAH).**

**(e) It is not expected to have the status of modifications and repairs per each component. This status should include engine(s), propeller(s) and components subjected to airworthiness limitations, and it is not intended that it should be retained for other components.**

Point GM M.A.305(c)2 is added as follows:

**GM M.A.305(c)2 Aircraft continuing airworthiness record system**

**The status of modifications embodied could include:**

- (a) List of the installed components**
- (b) List of other modifications not covered by the previous point.**

**When aircraft require a specific field loadable software configuration to operate correctly, a specific listing with this information may be necessary too.**

Point AMC M.A.305(c)3 is added as follows:

**AMC M.A.305(c)3 Aircraft continuing airworthiness record system**

- (a) The current status of compliance with the aircraft maintenance programme means the last and next accomplishment data for the scheduled tasks specified in the aircraft maintenance programme. Accomplishment data pertinent to the engine, propeller or component should be stated when a task is controlled at the engine, propeller, or component level.**

- (b) Where the task is controlled by flight hours and/or flight cycles and/or landings and/or calendar time and/or any other applicable parameter, the total in-service life accumulated by the aircraft, engine, propeller or component (as appropriate) in the suitable parameter(s) should also be included. For repetitive tasks, only the date of the last and next applications should be recorded, as well as the terminating action when it is performed.**

Point AMC M.A.305(d) is deleted as follows:

- ~~— The current status of AD should identify the applicable AD including revision or amendment numbers. Where an AD is generally applicable to the aircraft or component type but is not applicable to the particular aircraft or component, then this should be identified. The AD status includes the date when the AD was accomplished, and where the AD is controlled by flight hours or flight cycles it should include the aircraft or engine or component total flight hours or cycles, as appropriate. For repetitive ADs, only the last application should be recorded in the AD status. The status should also specify which part of a multi-part directive has been accomplished and the method, where a choice is available in the AD.~~
- ~~— The status of current modification and repairs means a list of embodied modification and repairs together with the substantiating data supporting compliance with the airworthiness requirements. This can be in the form of a Supplemental Type Certificate (STC), SB, Structural Repair Manual (SRM) or similar approved document.~~
- ~~— The substantiating data may include:
  - ~~(a) compliance programme; and~~
  - ~~(b) master drawing or drawing list, production drawings, and installation instructions; and~~
  - ~~(c) engineering reports (static strength, fatigue, damage tolerance, fault analysis, etc.); and~~
  - ~~(d) ground and flight test programme and results; and~~
  - ~~(e) mass and balance change data; and~~
  - ~~(f) maintenance and repair manual supplements; and~~
  - ~~(g) maintenance programme changes and instructions for continuing airworthiness; and~~
  - ~~(h) aircraft flight manual supplement.~~~~
- ~~— Some gas turbine engines are assembled from modules and a true total time in service for a total engine is not kept. When owners and operators wish to take advantage of the modular design, then total time in service and maintenance records for each module is to be maintained. The continuing airworthiness records as specified are to be kept with the module and should show compliance with any mandatory requirements pertaining to that module~~

Point AMC M.A.305(d)(4) and AMC M.A.305(h) is deleted

**~~AMC M.A.305 (d) (4) and AMC M.A.305 (h) Aircraft continuing airworthiness record system~~**

~~The term 'service life limited components' embraces: (i) components subject to a certified life limit after which the components should be retired, and (ii) components~~

~~subject to a service life limit after which the components should undergo maintenance to restore their serviceability.~~

~~— The current status of service life limited aircraft components should indicate:~~

- ~~i. for components subject to a certified life limit: the component life limitation, total number of hours, accumulated cycles or calendar time and the number of hours/cycles/time remaining before the required retirement time of the component is reached;~~
- ~~ii. for components subject to a service life limit: the component service life limit, the hours, cycles or calendar time since the component has been restored back to their service life and the remaining service (hours, cycles, calendar time) life before the components need to undergo maintenance.~~

~~Any action that alters the components' life limit (certified or service) or changes the parameter of the life limit (certified or service) should be recorded.~~

~~— When the determination of the remaining life requires knowledge of the different types of aircraft/engine on which the component has previously been installed, the status of all service life limited aircraft components should additionally include a full installation history indicating the number of hours, cycles or calendar time relevant to each installation on these different types of aircraft/engine. The indication of the type of aircraft/engine should be sufficiently detailed with regard to the required determination of remaining life.~~

~~— Recommendations from the type certificate holder on the procedures to record the remaining life may be considered.~~

Point GM M.A.305(d)(2) is added as follows:

#### **GM M.A.305(d)(2) Aircraft continuing airworthiness record system**

**The maintenance schedule of the aircraft maintenance programme may require:**

- (a) the removal of a component for periodic restoration to return the component to a specified standard (e.g. removal of landing gear for overhaul);**
- (b) the periodic replacement of a component by a new one when it is not possible to restore the item to a specific standard of failure resistance (e.g. discarding of filters, batteries, discharge cartridges of fire extinguishers, etc.);**
- (c) a quantitative inspection to confirm periodically that a component meets specified performance standards (e.g. functional check of aileron hinge bearings for excessive play, functional check of emergency exit locking mechanism, etc.). The component is left in service (no further maintenance action taken) on the condition that it continues to fulfil its intended purpose within specified performance limits until next scheduled inspection.**

**Components subject to the above maintenance schedule requirements are termed 'time controlled components'.**

**Note: The maintenance in accordance:**

- with (a) and (b) assumes a predictable deterioration of the component: the overall reliability invariably decreases with age; and**
- with (c) assumes a gradual deterioration of the component: failure resistance can reduce and drop below a defined level.**

For aircraft maintenance programmes developed under a primary maintenance process oriented methodology (e.g. Maintenance Steering Group-1 (MSG-1) or MSG-2), the term 'time controlled component' applies to 'Hard Time' components and 'On-Condition' components. Such terms mean:

**(1) Hard Time**

This is a preventative process in which known deterioration of a component is limited to an acceptable level by the maintenance actions which are carried out at periods related to time in service (e.g. calendar time, number of cycles, number of landings). The prescribed actions return the component to its original condition.

**(2) On-Condition**

It is a preventive process in which the component is inspected or tested, at specified periods, to an appropriate standard in order to determine whether it can continue in service. The purpose is to remove the component before its failure in service.

**Note:** Components which are not time controlled are instead subject to Condition-Monitoring. These components are permitted to remain in service without preventive maintenance until a functional failure occurs (i.e. they are 'fly-to failure').

Point AMC M.A.305 (e) is added as follows:

**AMC M.A.305(e) Aircraft continuing airworthiness record system**

**(a) The information that constitutes the aircraft continuing airworthiness records may be entered in an information technology (IT) system and/or other documents equivalent in scope and detail.**

**IT systems acceptable for supporting the aircraft continuing airworthiness records should:**

- (1) include functions so that search of data and production of status is possible;**
- (2) allow a transfer of the aircraft continuing airworthiness records data from one system to another using an industry wide/worldwide data format or allow printing information;**
- (3) contain safeguards which prevent unauthorised personnel from altering data; and**
- (4) ensure the integrity of the data, including traceability of amendments.**

**(b) 'Other document equivalent in scope and detail' could be an aircraft logbook, engine logbook(s) or engine module log cards, propeller logbook(s) and log cards for life limited parts and time controlled components.**

**Any logbook/logcard should contain:**

- (1) Identification of the product, part or component it refers to;**
- (2) Type, serial number and registration, as appropriate, of the aircraft, engine, propeller, engine module, or component to which the particular component has been fitted, along with the reference to the installation and removal;**
- (3) The date and accumulated total flight time and/or flight cycles and/or landings and/or calendar time, as appropriate; and**

- (4) Any AD, modification, repair, maintenance or deferred maintenance tasks applicable.

If fulfilling the applicable requirements, a logbook/log card as described above could be a means to comply with the current status of life limited parts and time controlled components and/or the in-service history record for each life limited part.

**(c) Form of record keeping:**

Keeping continuing airworthiness records in a form acceptable to the competent authority normally means in one of the following formats:

- (1) as the original form (either paper or via an approved electronically signed form)
- (2) as an electronically digitised copy of the original paper form, or
- (3) as a microfilm or scanned copy of the original form, or
- (4) as a paper form where the paper record is a printed reproduction of an original form from either (1), (2) or (3) above.

Where IT systems are used to retain documents and data, it should be possible to print a paper version of the documents and data kept.

**(d) Non-digitised records:**

All physical records should remain legible throughout the required retention period. Physical records on either paper or microfilm systems should use robust material, which can withstand normal handling, filing and ageing. They should be stored in a safe way with regard to damage, alteration and theft.

**(e) Digitised Record:**

Digitised records may be created from an original paper record or as a digital electronic original.

**When created from an original paper record:**

- (1) the creation date of the digitised record should be stored with the digitised record,
- (2) it is advisable to create an individual digitised record for each original, and
- (3) if an organisation creates a large number of digitised records, the use of database technology should ease the future retrieval of the record.

**(f) Digitised Record Retention:**

Digitised records when created from an original paper record, or as a digital electronic original, should be stored on a system which is secured and kept in an environment protected from damage (e.g. fire, flooding, excessive temperature or accidental erasing). IT systems should have at least one backup system, which should be updated at least within 24 hours of any entry in the primary system. Access to both primary and backup systems is required to be protected against the ability of unauthorised personnel to alter the database and they should preferably be located remotely from the main system.

**The system used for retention of digitised records must:**

1. Ensure the integrity and accuracy of the record (when created from an original paper record).
2. Ensure that access to the digitised record has safeguards against alteration of the data.
3. Provide assurance that the data has not been modified after creation.
4. Be capable of retrieval of individual records within a reasonable time period.
5. Be maintained against technological obsolescence which would prevent printing, displaying or retrieval of the digitised records.

Computer backup discs, tapes etc., should be stored in a different location from that containing the current working discs, tapes, etc., and in a safe environment.

Where the competent authority has approved a system for digitised record keeping satisfying the above, the original paper record may be permanently disposed of.

**(g) Lost or destroyed records:**

Reconstruction of lost or destroyed records can be done by reference to other records which reflect the time in service, research of records maintained by maintenance organisations and reference to records maintained by individual mechanics, etc. When reconstruction has been done and the record is still incomplete, the owner/operator may make a statement in the new record describing the loss and establishing the time in service based on the research and the best estimate of time in service. The reconstructed records should be submitted to the competent authority for acceptance. The competent authority may require the performance of additional maintenance if not satisfied with the reconstructed records.

Point AMC M.A.305(e)(2) is added as follows:

**AMC M.A.305(e)(2) Aircraft continuing airworthiness record system**

- (1) EASA Form 1 and the Certificate of Conformity of the components used to perform a modification/repair are not part of the substantiation data for a modification/repair, which are retained by the maintenance organisation.
- (2) In the case of an AD with several steps or with interim assessments during its application, these intermediate steps are part of the detailed maintenance records.

Point AMC M.A.305(e)(3) is added as follows:

**AMC M.A.305 (e)(3) Aircraft continuing airworthiness record system**

- (1) An EASA Form 1 and detailed maintenance records are not meant to support every installation/removal shown in the in-service history records.
- (2) Conservative methods to manage missing historical periods are acceptable to establish the current status of the life limited part. In case of use of a conservative method, the supporting documents should be endorsed. Recommendations from the DAH on the procedures to record or reconstruct the in-service history should be considered.

Point GM M.A.305(e)(3) is added as follows:

**GM M.A.305(e)(3) Aircraft continuing airworthiness record system**

**The EASA Form 1 or equivalent is not requested to be kept for 'condition monitoring' components unless this is the means to fulfil another requirement quoted in M.A.305, (e.g. maintenance programme task compliance).**

Point AMC M.A.305(f) is added as follows:

**AMC M.A.305(f) Aircraft continuing airworthiness record system**

**When an owner/operator arranges for the relevant maintenance organisation to retain copies of the continuing airworthiness records on its behalf, the owner/operator will continue to be responsible for the retention of records. If they cease to be the owner/operator of the aircraft, they also remain responsible for transferring the records to the new owner/operator of the aircraft.**

Point AMC M.A.305(h) is deleted

**~~AMC M.A.305(h) Aircraft continuing airworthiness record system~~**

~~When an owner/CAMO arranges for the relevant maintenance organisation to retain copies of the continuing airworthiness records on their behalf, the owner/CAMO will continue to be responsible for the retention of records. If they cease to be the owner/CAMO of the aircraft, they also remain responsible for transferring the records to any other person who becomes the owner/CAMO of the aircraft.~~

~~Keeping continuing airworthiness records in a form acceptable to the competent authority normally means in paper form or on a computer database or a combination of both methods. Records stored in microfilm or optical disc form are also acceptable. All records should remain legible throughout the required retention period.~~

~~Paper systems should use robust material, which can withstand normal handling and filing.~~

~~Computer systems should have at least one backup system, which should be updated at least within 24 hours of any maintenance. Each terminal is required to contain programme safeguards against the ability of unauthorised personnel to alter the database.~~

~~Continuing airworthiness records should be stored in a safe way with regard to damage, alteration and theft. Computer backup discs, tapes etc., should be stored in a different location from that containing the current working discs, tapes, etc., and in a safe environment. Reconstruction of lost or destroyed records can be done by reference to other records which reflect the time in service, research of records maintained by repair facilities and reference to records maintained by individual mechanics, etc. When these things have been done and the record is still incomplete, the owner/CAMO may make a statement in the new record describing the loss and establishing the time in service based on the research and the best estimate of time in service. The reconstructed records should be submitted to the competent authority for acceptance. The competent authority may require the performance of additional maintenance if not satisfied with the reconstructed records.~~

Point AMC M.A.305(h)(6) is deleted

**~~AMC M.A.305(h)6 Aircraft continuing airworthiness record system~~**

~~For the purpose of this paragraph, a 'component vital to flight safety' means a component that includes certified life-limited parts or is subject to airworthiness limitations or a major component such as, undercarriage or flight controls.~~



Point AMC M.A.501(b) is modified as follows:

#### **AMC M.A.501(b) Installation**

- (3) The person referred to under M.A.801 or the M.A. Subpart F or Part-145 approved maintenance organisation should be satisfied that the component in question meets the approved data/ standard, such as the required design and modification standards. This may be accomplished by reference to the (S)TC holder or manufacturer's parts catalogue or other approved data (i.e. Service Bulletin). Care should also be taken in ensuring compliance with applicable AD and the status of any ~~service life limited~~ **life limited parts and time controlled components** fitted to the aircraft component.

Point AMC M.A.504(c) is amended as follows:

#### **AMC M.A.504(c) Control of unserviceable components – unsalvageable components**

1. The following types of components should typically be classified as unsalvageable:
- (...)
- (d) ~~certified life limited parts~~ **life limited parts** that have reached or exceeded their ~~certified life limits~~ **specified mandatory life**, or have missing or incomplete records;

Point AMC M.A.504(d)(2) is amended as follows:

#### **AMC M.A.504(d)(2) Control of unserviceable components**

4. Since manufacturers producing approved aircraft components should maintain records of serial numbers for 'retired' **life limited parts** ~~certified life limited or other critical components~~, the organisation that mutilates a component should provide the original manufacturer with the data plate and/or serial number and final disposition of the component.

Point AMC M.A.613(a) is modified as follows:

#### **AMC M.A.613(a) Component certificate of release to service**

- 2.4. An EASA Form 1 issued in accordance with this paragraph 2 should be issued by signing in block 14b and stating 'Inspected' in block 11. In addition, block 12 should specify:
- (...)
- 2.4.4. detail of life used for ~~service life limited~~ **life limited parts and time controlled components** being any combination of fatigue, overhaul or storage life;
- 2.6. Used aircraft components removed from a serviceable aircraft.
- (...)
- (g) The flight hours/cycles/landings as applicable of any ~~service life limited~~ **life limited parts and time controlled components** including time since overhaul should be established.
- 2.8. Used aircraft components maintained by organisations not approved in accordance with M.A Subpart F or Part-145.
- (...)
- (b) replacing of all ~~service life limited components~~ **life limited parts and time controlled components** when no satisfactory evidence of life used is available and/or the components are in an unsatisfactory condition,

Point AMC M.A.710(a) is modified as follows:

**AMC M.A.710(a) Airworthiness review**

- (1) A full documented review is a check of at least the following categories of documents:
- list of ~~service-life-limited-component~~ **life limited parts and time controlled components**

Points AMC M.A.901(d) and (g) are amended as follows:

**AMC M.A.901(d) and (g) Aircraft airworthiness review**

- (g) Statement
- (...)
- component ~~service-life~~ limitations, and;

Point AMC M.A.904(a)(2) is amended as follows:

**AMC M.A.904(a)(2) Airworthiness reviews of aircraft imported into the EU**

2. In determining the work to be undertaken during the airworthiness review on the aircraft, the following should be taken into consideration:
- (...)
- (d) the aircraft continuing airworthiness status such as the aircraft and component AD status, the SB status, the maintenance status, the status of **life limited parts and time controlled components** ~~all service-life-limited-components~~, weight and centre of gravity schedule including equipment list;

Point AMC M.A.904(b) is amended as follows:

**AMC M.A.904(b) Airworthiness review of aircraft imported into the EU**

- (c) Documents accompanying the recommendation
- (...)
- status of all ~~service-life-limited-components~~ **life limited parts and time controlled components**, and;

Point 2.11 of Appendix XI to AMC M.A.708(c) is modified as follows:

**Appendix XI to AMC M.A.708(c) Contracted maintenance**

- 2.11 ~~Service-life-limited-components~~ **Life limited parts and time controlled components**

**Life limited parts and time controlled components** ~~Service-life-limited-components~~ control is the responsibility of the operator.

The Part 145 approved organisation will have to provide the operator with all the necessary information about the **life limited parts and time controlled components** ~~service-life-limited-components-removal/installation~~ so that the operator may update its records (see also paragraph 2.22 'Exchange of information').

Appendix III to GM1 M.B.303(b) is amended as follows:

**Appendix III to GM1 M.B.303(b) 'KEY RISK ELEMENTS'**

<b>C.2</b>	<b>Component control</b>	<p>The component control should consider a twofold objective for components maintenance:</p> <ul style="list-style-type: none"> <li>- maintenance for which compliance is mandatory.</li> <li>- maintenance for which compliance is recommended.</li> </ul>
<b>Supporting information</b>		<b>Typical inspection items</b>
<p>Depending on each maintenance task, accomplishment is <u>scheduled</u> or <u>unscheduled</u>. Refer to KRE C.1 'Aircraft Maintenance Programme'.</p> <p>Components affected by scheduled maintenance are of two types:</p> <p><del>Life limited components are of two types:</del></p> <ul style="list-style-type: none"> <li><del>— components subject to a certified life limit;</del></li> <li><del>— components subject to a service life limit.</del></li> </ul> <p>a) Components with a certified life-limit 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).</p> <p>b) Components <b>which are</b> <del>subject to a service life (time controlled components)</del> include the following:</p> <ul style="list-style-type: none"> <li>- 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>predictable</u> (the overall reliability invariably decreases with age): Failure is less likely to occur before restoration is necessary;</li> <li>- 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</li> </ul>		<ol style="list-style-type: none"> <li>1. Check that the mandatory maintenance tasks are identified as such and managed separately from recommendations.</li> <li>2. Sample check installed components (PN and SN) against aircraft records: <ol style="list-style-type: none"> <li>a. Correct Part Number and Serial Number installed.</li> <li>b. Correct authorised release document available.</li> </ol> </li> <li>3. Check the current status of time-controlled components, with due consideration to deferred items. They must identify: <ol style="list-style-type: none"> <li>a. The affected components (Part Number and Serial Number).</li> <li>b. 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.</li> <li>c. 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.</li> </ol> </li> <li>4. Check current status of <b>life limited parts</b> <del>life limited components</del>. This status can be requested upon each transfer throughout the operating life of the part: <ol style="list-style-type: none"> <li>a. The life limitation, the component's total accumulated life, and the life remaining before the component's life limitation is reached (indicating Hours, Cycles, Landings, Calendar time, as necessary).</li> <li>b. If relevant for the determination of the remaining life, a full installation history indicating the number of hours, cycles or calendar time relevant to each installation on these different types of aircraft/engine.</li> </ol> </li> <li>5. Check if the aircraft maintenance programme and reliability programme results</li> </ol>

<p>maintenance action taken) on the condition that they continue to meet specified performance standards.</p> <p>Notes:</p> <ol style="list-style-type: none"> <li>1. Restoration tasks for hard time components are not the same as 'On-condition' tasks, since they 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.</li> <li>2. Components subject to 'condition-monitoring' are permitted to remain in service without preventive maintenance until functional failure occurs. Reference is made to 'fly-to-failure'. Such components are subject to unscheduled tasks.</li> </ol>	<p>impact the component control.</p> <ol style="list-style-type: none"> <li>6. Check that life-limited and time controlled components are correctly marked during a physical survey.</li> </ol>
<p><b>Reference documents: EASA</b></p>	<ul style="list-style-type: none"> <li>- EASA Part 21.A.805</li> <li>- EASA Part M.A.302</li> <li>- EASA Part M.A.305</li> <li>- EASA Part M.A.501</li> <li>- EASA Part M.A.503</li> <li>- EASA Part M.A.710</li> </ul>

**3.2.2. Annex II to Decision 2003/19/RM (AMC to Part-145) is amended as follows:**

AMC No 2 to 145.A.50(d) is amended as follows:

**AMC No 2 to 145.A.50(d) Certification of maintenance**

2. In the case of the issue of EASA Form 1 for components in storage before Part-145 and Part-21 became effective and not released on an EASA Form 1 or equivalent in accordance with 145.A.42(a) or removed serviceable from a serviceable aircraft or an aircraft which has been withdrawn from service the following applies:

(...)

- 2.4.4. Detail of life used for ~~service life limited parts~~ **life limited parts and time controlled components** being any combination of fatigue, overhaul or storage life.

(...)

- 2.6.1 Serviceable aircraft components removed from a Member State registered aircraft may be issued with an EASA Form 1 by an appropriately rated organisation subject to compliance with this subparagraph.

(...)

- (g) The flight hours/cycles/landings as applicable of any ~~service life limited parts~~ **life limited parts and time controlled components** including time since overhaul should be established.

(...)

- 2.8. Used aircraft components maintained by organisations not approved in accordance with Part-145. For used components maintained by a maintenance organisation not approved under Part-145, due care should be taken before acceptance of such components. In such cases an appropriately rated maintenance organisation approved under Part-145 should establish satisfactory conditions by:

(...)

- (b) replacing all ~~service life limit components~~ **life limited parts and time controlled components** when no satisfactory evidence of life used is available and/or the components are in an unsatisfactory condition;

Point GM 145.A.55 (a) is amended as follows:

**GM 145.A.55(a) Maintenance records**

1. Properly executed and retained records provide owners, operators and maintenance personnel with information essential in controlling unscheduled and scheduled maintenance, and trouble shooting to eliminate the need for re-inspection and rework to establish airworthiness.

The prime objective is to have secure and easily retrievable records with comprehensive and legible contents. The aircraft record should contain basic details of all serialised aircraft components and all other significant aircraft components installed **during the maintenance performed**, to ensure traceability to such installed aircraft component documentation and associated maintenance data as specified in 145.A.45.

**3.2.3. Decision 2012/018/R (AMC and GM to Part-CAT) is amended as follows:**

Point AMC1 CAT.IDE.A.105 is added as follows:

**AMC CAT.IDE.A.105 Minimum equipment for flight**

The operator should control and retain the status of the instruments, equipment or functions required for the intended operation, such as but not limited to equipment related to navigation approvals as FM immunity or certain software versions, that are not controlled for the purpose of continuing airworthiness management.

Point AMC1 CAT.IDE.H.105 is added as follows:

**AMC CAT.IDE.H.105 Minimum equipment for flight**

The operator should control and retain the status of the instruments, equipment or functions required for the intended operation, such as but not limited to equipment related to navigation approvals as FM immunity or certain software versions, that are not controlled for the purpose of continuing airworthiness management.

**3.2.4. Decision 2013/021/R (AMC and GM to Part-NCC) is amended as follows:**

Point AMC1 NCC.IDE.A.105 is added as follows:

**AMC NCC.IDE.A.105 Minimum equipment for flight**

The operator should control and retain the status of the instruments, equipment or functions required for the intended operation, such as but not limited to equipment related to navigation approvals as FM immunity or certain software versions, that are not controlled for the purpose of continuing airworthiness management.

Point AMC1 NCC.IDE.H.105 is added as follows:

**AMC NCC.IDE.H.105 Minimum equipment for flight**

The operator should control and retain the status of the instruments, equipment or functions required for the intended operation, such as but not limited to equipment related to navigation approvals as FM immunity or certain software versions, that are not controlled for the purpose of continuing airworthiness management.

**3.2.5. Decision 2013/022/R (AMC and GM to Part-NCO) is amended as follows:**

Point AMC1 NCO.IDE.A.105 is added as follows:

**AMC NCO.IDE.A.105 Minimum equipment for flight**

The operator should control and retain the status of the instruments, equipment or functions required for the intended operation, such as but not limited to equipment related to navigation approvals as FM immunity or certain software versions, that are not controlled for the purpose of continuing airworthiness management.

Point AMC1 NCO.IDE.H.105 is added as follows:

**AMC NCO.IDE.H.105 Minimum equipment for flight**

The operator should control and retain the status of the instruments, equipment or functions required for the intended operation, such as but not limited to equipment related to navigation approvals as FM immunity or certain software versions, that are not controlled for the purpose of continuing airworthiness management.

## 4. Regulatory Impact Assessment (RIA)

### 4.1. Issues to be addressed

Technical records are the means to assess the airworthiness status of a product and its installed components. Incomplete technical records may lead to a wrong assessment with a safety risk. The economic impact of the recertification of a component is another aspect of the issue.

Although from the owner/operator point of view there are specific paragraphs in Part-M dealing with this subject, one of the largest group of questions received by the Agency from the stakeholders and competent authorities are about continuing airworthiness records, including their connection with the maintenance records. The main concerns relate to the wrong understanding of the provisions on what should be kept to be able to assess the airworthiness status of an aircraft and its installed components, and for how long.

This task will consider the introduction and impact of new technologies (paperless operation) and copies of the records (scanned,...). Although Information Tool (IT) systems are commonly used in certain organisations, there is a lack of guidance on their use. It is important to highlight that the Acceptable Means of Compliance (AMC) give several ways to comply with the intent of the rule to allow a tailor-made record keeping system depending on the needs of different aviation communities.

Furthermore, the safety recommendation made by the AAIB from UK (ref.:UNKG-2007-091) is addressed to retain maintenance records until the aircraft/engine/propeller or component has been permanently removed from service.

This NPA amends Commission Regulation (EC) 2042/2003<sup>6</sup> and Decision 2003/19/RM<sup>7</sup> of the Executive Director of the Agency. Some records, which are not related to continuing airworthiness but to the operation of the aircraft, were not clearly stated in the current regulation, so it was considered adequate to propose an amendment to the Decision 2012/018/R<sup>8</sup> of the Executive Director of the Agency (AMC and GM to Part-CAT).

Additionally the discussion led to a proposal for an amendment to Annex IV 'Essential requirements for air operations' to the Basic Regulation. It is proposed to remove 'When the aircraft is leased, all records demonstrating the airworthiness of the aircraft must be kept at least for the length of the lease.'. This proposal should be evaluated when dealing with the next amendment to the Basic Regulation.

Feedback received from Industry and NAAs shows the following issues:

- Inconsistency in the use of the terms 'Life Limited Parts' and 'Service Life Limited Parts';
- Different interpretations as to which components require an EASA Form 1 or equivalent, and which documents are considered equivalent to an EASA Form 1;

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<sup>6</sup> 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 (OJ L 315, 28.11.2003, p. 1)

<sup>7</sup> Decision 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.

<sup>8</sup> Decision 2012/18/R of 24 October 2012 on acceptable means of compliance and guidance material to Commission Regulation (EU) No 965/2012 of 5 October 2012 laying down technical requirements and administrative procedures related to air operations pursuant to Regulation (EC) 216/2008 of the European Parliament and of the Council – Acceptable Means of Compliance and Guidance Material to Part-CAT

- Different interpretations of the need for 'back to birth' traceability;
- Inconsistency in 145.A.55 of the record-keeping periods and the periods applicable to the transfer of records;
- Lack of guidance on the use of electronic signature;
- Lack of guidance on the acceptability of records copies (scanned, photocopy);
- Lack of guidance on the acceptability of new technology, such as RFID (Radio Frequency Identification);
- Lack of harmonisation with the FAA requirements in relation to continuing airworthiness records.

Additionally, the Agency intends to address a Safety Recommendation made by the UK (ref UNKG-2007-091): 'It is recommended that the European Aviation Safety Agency (EASA) amend EASA Part-145 (and Part-M as necessary) to require that maintenance and overhaul records that are referred to in airframe, engine and propeller log books, and component record cards, are deemed to be part of that log book or record card and are retained until the aircraft, engine, propeller or component has been destroyed or permanently removed from service.'

#### **4.1.1. Safety risk assessment**

##### Safety risks

In the worst case scenario, the presence of components with unknown airworthiness status and history may be a contributing factor to or cause of a fatal accident with large aircraft. Thus, the severity is estimated as catastrophic. Taking into account the absence of known accidents attributed to this cause, the probability of occurrence is estimated to be low.

The safety risk associated with the use of the information technology systems should be addressed.

Additionally, the Agency intends to address a Safety Recommendation made by the AAIB (ref.: UNKG-2007-091): 'It is recommended that the European Aviation Safety Agency (EASA) amend EASA Part-145 (and Part-M as necessary) to require that maintenance and overhaul records that are referred to in airframe, engine and propeller log books, and component record cards, are deemed to be part of that log book or record card and are retained until the aircraft, engine, propeller or component has been destroyed or permanently removed from service.'

#### **4.1.2. Who is affected?**

Owners, operators, maintenance organisations and independent certifying staff are affected by the future rule as well as competent authorities.

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

First of all, if the rule does not change, then the safety risks already identified will not be addressed. Additionally, paperless operation is already in use and, although the current regulation does not prevent this (there are some industry segments already using this), more guidance should be provided, as in the use of information technology and records copies, in order to ensure that related risks are mitigated.



## 4.2. Objectives

The overall objectives of the EASA system are defined in Article 2 of the Basic Regulation. This proposal will contribute to the achievement of the overall objectives by addressing the issues outlined in Section 4.1.

The specific objectives are to clarify the use of the current rules and to develop relevant guidance on the use of new technologies for record-keeping in order to achieve safe and cost-efficient rules.

## 4.3. Policy options

### 4.3.1. Inconsistency in the use of the terms 'Life Limited Parts' and 'Service Life Limited Parts'

Option 1. The term 'service life-limited component' is used for components maintained according to requirements of different natures, which creates confusion. It could be better explained, as well as 'life limited parts'.

Option 2. Use of the term 'critical component'.

Option 3. Use of the term 'life limited part' (LLP), which is well known by the industry and currently used in Part-M and in ICAO. Due to the lack of clarity in the term 'service life-limited component' (see option 1), this term could be deleted. In any case, the records requirements should not be the same for all the components but depending on certain characteristics. A set of requirements could be for LLP and other set for components which are not LLP, but are affected by some maintenance in accordance with the instructions provided by the Design Approval Holder (DAH). The term 'time controlled component' could be used to create another group of components with special characteristics in accordance with the certification process. A definition of this term could be included in the AMC using maintenance terminology.

<b>Option No</b>	<b>Short title</b>	<b>Description</b>
0		Baseline option (no change in rules; risks remain as outlined in the issue analysis).
1		Clarify current terms under AMC
2		Use of the term 'critical component'
3		Use of the terms 'time controlled component' and 'life limited parts' and clarify records requirements depending on the type of component.

### 4.3.2. Different interpretations as to which components require an EASA Form 1 or equivalent, and which documents are considered equivalent to an EASA Form 1

Option 1. The intent of the current rulemaking task is to clarify for which components it is needed to retain EASA Form 1 to assess its airworthiness status. The current regulation is clear enough about what is equivalent to an EASA Form 1. Additionally, the Agency initiated rulemaking tasks RMT.0018 and RMT.0571 'Installation of parts and appliances that are released without an EASA Form 1 or equivalent'. On the other hand, it should be clearly stated when an EASA Form 1 must be retained.

If an 'equivalent' to an EASA Form 1 is understood as using new technologies different from the ones already addressed in the AMC to Appendix II to Part-M, then this option should be checked in 4.3.5. and 4.3.6.

<b>Option No</b>	<b>Short title</b>	<b>Description</b>
0		Baseline option (no change in rules; risks remain as outlined in the issue analysis).
1		Clarify when the EASA Form 1 must be retained

#### **4.3.3. Different interpretations of the need for 'back to birth' traceability**

Option 1. The term 'back to birth' traceability could be introduced supporting every step of the utilization of the component since it was manufactured. Every step of this utilization should be supported with the corresponding information as a mean to assess the airworthiness status of the component.

Option 2. Introduce the term 'in-service history' which partially incorporates the concept of back to birth traceability but keeping some records up to a certain extent. An important issue is 'detailed maintenance records' to support such history, not keeping this history from 'the birth' of the component, but from certain time.

<b>Option No</b>	<b>Short title</b>	<b>Description</b>
0		Baseline option (no change in rules; risks remain as outlined in the issue analysis).
1		Introduce the term 'back to birth traceability' requesting to keep every single document related to the part since manufacture.
2		Introduce the term 'in-service history' which partially incorporates the concept of back to birth traceability but keeping some records up to a certain extent and definition of 'detailed maintenance records'.

#### **4.3.4. Inconsistency in 145.A.55 of the record-keeping periods and the periods applicable to the transfer of records**

Option 1. The current inconsistency in 145.A.55 of the record-keeping periods and the periods applicable to the transfer of records is considered an administrative error. The periods should be consistent.

<b>Option No</b>	<b>Short title</b>	<b>Description</b>
0		Baseline option (no change in rules; risks remain as outlined in the issue analysis).
1		Change the applicable period to retain records from three to two years

#### **4.3.5. Lack of guidance on the use of electronic signature**

The electronic signature is described in Directive 1999/93/EC of the European Parliament and of the Council of 13 December 1999 on a Community framework for electronic

signatures. The records using this type of signature are addressed in the next point, so this option is merged with the next issue.

#### **4.3.6. Lack of guidance on the acceptability of record copies (scanned, photocopy)**

Option 1. More guidance to accept other forms of records different from the traditional ones, paper or microfilm.

<b>Option No</b>	<b>Short title</b>	<b>Description</b>
0		Baseline option (no change in rules; risks remain as outlined in the issue analysis).
1		Additional guidance to accept records others than in 'original paper'

#### **4.3.7. Lack of guidance on the acceptability of new technology, such as RFID (Radio Frequency Identification)**

Option 1. More guidance to accept the RFID as other means to keep records.

<b>Option No</b>	<b>Short title</b>	<b>Description</b>
0		Baseline option (no change in rules; risks remain as outlined in the issue analysis).
1		Introduce guidance accepting RFID as part of records

#### **4.3.8. Lack of harmonisation with the FAA requirements in relation to continuing airworthiness records**

There are some differences between the FAA and EASA systems, but this topic is covered by the bilateral agreement, so no action is expected by this rulemaking task.

#### **4.3.9. Safety Recommendation**

Option 1. Change in the rule to require that the maintenance and overhaul records are part of the aircraft log book or component record card, and it must be retained until it is completely removed from service.

<b>Option No</b>	<b>Short title</b>	<b>Description</b>
0		Baseline option (no change in rules; risks remain as outlined in the issue analysis).
1		Change in the rule to require the maintenance organisation to send the owner/operator the maintenance records to be part of the log book/record card and retain those records until it is completely removed from service.

#### 4.4. Analysis of impacts

##### 4.4.1. Inconsistency in the use of the terms 'Life Limited Parts' and 'Service Life Limited Parts'

###### 1. Safety impact

Option 0. No change compared with the current situation, with the safety issues already described in 4.1.(0)

Option 1. The current terms are better described. Possible swapping in requirements still possible as 'service life limited components' is a no clear term.(1)

Option 2. From the safety perspective, defining the need of records depending on the criticality of a component is a sensible way of addressing the issue. But 'critical components' are not always defined by the DAH, which could create some uncertainty. (3)

Option 3. The term 'life limited part' and the term 'time controlled component' are used, providing a clearer understanding of different components with different records requirements and depending on information provided by the DAH. (3)

###### 2. Environmental impact

No impact is foreseen for the different options.

###### 3. Social impact

No impact is expected for the different options.

###### 4. Economic impact

Option 0. No change of the current situation. (0)

Options 1 and 3. Cost of recertification of a part because of missing records could be lower if the requirements are better explained. (1)

Option 2. As a first step, the DAH would have to define 'critical components' (-1)

###### 5. General aviation and Proportionality issues

No impact is expected for the different options.

###### 6. Impact on 'Better Regulation' and harmonisation

Options 0, 1 and 2. No change compared with the current situation, with the safety issues already described.(0)

Option 3. Provides more harmonisation using terms already used in other regulatory systems. (1)

<i>Options</i>	<i>Safety</i>	<i>Environmental</i>	<i>Social</i>	<i>Economic</i>	<i>GA<sup>9</sup></i>	<i>Harmonisation</i>	<i>Total</i>
0 - Baseline	0	0	0	0	0	0	0
1 - Clarify current terms	1	0	0	1	0	0	2
2 - Use 'critical component'	3	0	0	-1	0	0	2
3 - Use 'time controlled component' and 'life limited parts'	3	0	0	1	0	1	5

#### **4.4.2. Different interpretations as to which components require an EASA Form 1 or equivalent, and which documents are considered equivalent to an EASA Form 1**

##### **1. Safety impact**

Option 0. No change compared with the current situation, with the safety issues already described.(0)

Option 1. The requirement is better explained so the safety risk should be less than not doing anything.(1)

##### **2. Environmental impact**

No impact is expected for the different options.

##### **3. Social impact**

No impact is expected for the different options.

##### **4. Economic impact**

Option 0. No change of the current situation. (0)

Options 1. Cost of recertification of a part because of missing records are lower as the requirements are better explained. (1)

##### **5. General aviation and Proportionality issues**

General aviation sector will not be affected by these options.

##### **6. Impact on 'Better Regulation' and harmonisation**

Options 0, 1 and 2. No change compared with the current situation, with the safety issues already described.(0)

Option 1. Clarify when an EASA Form 1 is to be retained. (1)

<i>Options</i>	<i>Safety</i>	<i>Environmental</i>	<i>Social</i>	<i>Economic</i>	<i>GA</i>	<i>Harmonisation</i>	<i>Total</i>
0 - Baseline	0	0	0	0	0	0	0
1 - Clarify when EASA Form 1 must be retained	1	0	0	1	0	1	3

<sup>9</sup> General aviation and Proportionality issues

#### 4.4.3. Different interpretations of the need for 'back to birth' traceability

##### 1. Safety impact

Option 0. No change compared with the current situation, with the safety issues already described. (0)

Option 1. All the documents related to the 'life' of the part are kept, even if they are already overridden by a repeated maintenance action. Therefore, some safety improvement is foreseen but not proportional to the need to assess the airworthiness. Furthermore, it could create some confusion as regards the 'birth' of the component and the 'traceability' as every single document to support the 'life' of the component. (1)

Option 2. The complete history, called 'in-service history', is kept but only some documents are requested to support that history. The term 'detailed maintenance records' is already used in different contexts (Part-M, Part-145) and means something different depending on the context, so a better definition would reduce the safety risk. (3)

##### 2. Environmental impact

No impact is expected for the different options.

##### 3. Social impact

No impact is expected for the different options.

##### 4. Economic impact

Option 0. No change of the current situation. (0)

Options 1. The parts without the complete history and traceability from 'birth' would have to be recertified with the cost associated, and sometimes without any added value. (-3)

Option 2. Some parts with missing history or detailed maintenance records would need to be recertified, but it is less probable than the previous option. In any case, the records of repairs and modifications of life limited components are already requested in the current regulation. (-1)

##### 5. General aviation and Proportionality issues

General aviation sector will not be negatively affected by these options if some guidance is provided to use the log cards as 'in-service history'. So this requirement would not be new.

##### 6. Impact on 'Better Regulation' and harmonisation

Option 0. The current regulation requests a close concept to 'in-service history' under M.A.305(e), but the AMC explained that it is not needed to record every removal/installation, just the actions that are affecting the service-life of the component. This is not aligned with ICAO. (-1)

Option 1. This option would be closer to ICAO than the current regulation, but still not aligned. (0)

Option 2. The term 'in-service history' is used for ICAO so this option offers more harmonisation. (1)

Options	Safety	Environmental	Social	Economic	GA	Harmonisation	Total
0 – Baseline	0	0	0	0	0	-1	-1
1 – Introduce 'back to birth'	1	0	0	-3	0	0	-2

traceability'								
2 – Introduce 'in-service history'	3	0	0	-1	0	1		3

#### 4.4.4. Inconsistency in 145.A.55 of the record keeping periods and the periods applicable to the transfer of records

##### 1. Safety impact

No impact is expected for the different options.

##### 2. Environmental impact

No impact is expected for the different options.

##### 3. Social impact

No impact is expected for the different options.

##### 4. Economic impact

No impact is foreseen for the different options.

##### 5. General aviation and Proportionality issues

No impact is foreseen for the different options.

##### 6. Impact on 'Better Regulation' and harmonisation

Options 0. No change compared with the current situation.(0)

Option 1. Provides a 'better regulation' removing the inconsistency. (1)

Options	Safety	Environmental	Social	Economic	GA	Harmonisation	Total
0 – Baseline	0	0	0	0	0	0	0
1 – Change retain period from 3 to 2 years	0	0	0	0	0	1	1

#### 4.4.5. Lack of guidance on the use of electronic signature

As already mentioned, merged with the following item.

#### 4.4.6. Lack of guidance on the acceptability of records copies (scanned, photocopy)

##### 1. Safety impact

Options 0. No change compared with the current situation. Some common used systems are not even mentioned in the rule, which could create some misunderstanding regarding the minimum features to request to avoid a safety impact. (-1)

Option 1. The new guidance would provide guidance with the minimum requirements to not impact the records kept to assess the airworthiness. (1)

**2. Environmental impact**

Options 0. No change compared with the current situation. (0)

Option 1. Digital records would be more environmental friendly (1)

**3. Social impact**

No impact is foreseen for the different options.

**4. Economic impact**

Options 0. No change compared with the current situation. (0)

Option 1. Digital records would impact in the volume of the records, reducing the need of room. (1)

**5. General aviation and Proportionality issues**

Options 0. No change compared with the current situation. (0)

Option 1. Some proportionality measures should be provided not to impose the same system to all the aviation community but proportional to their needs. (1)

**6. Impact on 'Better Regulation' and harmonisation**

Options 0. No change compared with the current situation.(0)

Option 1. Provides a 'better regulation' incorporating new guidance on state-of-the art technology. (1)

<i>Options</i>	<i>Safety</i>	<i>Environmental</i>	<i>Social</i>	<i>Economic</i>	<i>GA</i>	<i>Harmonisation</i>	<i>Total</i>
0 – Baseline	-1	0	0	0	0	0	-1
1 – More guidance on other means different from paper	1	1	1	1	1	1	6

**4.4.7. Lack of guidance on the acceptability of new technology, such as RFID (Radio Frequency Identification)****1. Safety impact**

Options 0. No change compared with the current situation. (0)

Option 1. The introduction of RFID (passive or active) is a change to the aircraft and, if approved under Part-21, does not impact the safety. But the device is installed on the component and cannot be used as the 'primary' source of the records to prevent the loss of information in case of accident. (-1)

**2. Environmental impact**

No impact is foreseen for the different options.

**3. Social impact**

No impact is foreseen for the different options.

**4. Economic impact**

No impact is foreseen for the different options.

**5. General aviation and Proportionality issues**

No impact is foreseen for the different options.



**6. Impact on 'Better Regulation' and harmonisation**

No impact is foreseen for the different options.

<i>Options</i>	<i>Safety</i>	<i>Environmental</i>	<i>Social</i>	<i>Economic</i>	<i>GA</i>	<i>Harmonisation</i>	<i>Total</i>
0 – Baseline	0	0	0	0	0	0	0
1 – Guidance on RFID as records	-1	0	0	0	0	0	-1

**4.4.8. Lack of harmonisation with the FAA requirements in relation to continuing airworthiness records**

There are some differences between the FAA and EASA systems but this topic is covered by the bilateral agreement, so no action expected by this rulemaking task.

**4.4.9. Safety Recommendation****1. Safety impact**

No impact is foreseen for the different options.

**2. Environmental impact**

Options 0. No change compared with the current situation. (0)

Option 1. More paper to be kept longer, without a safety benefit. (-1)

**3. Social impact**

No impact is foreseen for the different options.

**4. Economic impact**

Options 0. No change compared with the current situation. (0)

Option 1. More paper to be kept longer, without a safety benefit. (-1)

**5. General aviation and Proportionality issues**

No impact is foreseen for the different options.

**6. Impact on 'Better Regulation' and harmonisation**

No impact is foreseen for the different options.

<i>Options</i>	<i>Safety</i>	<i>Environmental</i>	<i>Social</i>	<i>Economic</i>	<i>GA</i>	<i>Harmonisation</i>	<i>Total</i>
0 – Baseline	0	0	0	0	0	0	0
1 – Maintenance records as part of the log book to be retained until completely removed from service	0	-1	0	-1	0	0	-2

## 4.5. Comparison and conclusion

### 4.5.1. Comparison of options

The following analysis shows the qualitative summary of the previous assessment, highlighting the option which results in more benefits.

#### Inconsistency in the use of the terms 'Life Limited Parts' and 'Service Life Limited Parts'

<i>Options</i>	<i>Total score</i>
0 - Baseline	0
1 - Clarify current terms	2
2 - Use 'critical component'	2
3 - Use 'time controlled component' and 'life limited parts'	5

So, option 3 provides more benefits, which is 'The use of terms 'time controlled component' and 'life limited parts' and clarifies records requirements depending on the type of component'.

#### Different interpretations as to which components require an EASA Form 1 or equivalent, and which documents are considered equivalent to an EASA Form 1

<i>Options</i>	<i>Total score</i>
0 - Baseline	0
1 - Clarify when EASA Form 1 must be retained	3

Preferred option : Option 1 is 'Identify when the EASA Form 1 must be retained'.

#### Different interpretations of the need for 'back to birth' traceability

<i>Options</i>	<i>Total score</i>
0 - Baseline	-1
1 - Introduce 'back to birth traceability'	-2
2 - Introduce 'in-service history'	3

Preferred option : Option 2 is 'Introduce the term 'in-service history' which partially incorporates the concept of back to birth traceability but keeping some records up to a certain extent defining 'detailed maintenance records'.

#### Inconsistency in 145.A.55 of the record keeping periods and the periods applicable to the transfer of records

<i>Options</i>	<i>Total score</i>
0 - Baseline	0
1 - Change retain period from 3 to 2 years	1

Preferred option : Option 1 is to change the applicable period to transfer of the records from three to two years.

#### Lack of guidance on the acceptability of records copies (scanned, photocopy)

<i>Options</i>	<i>Total score</i>
0 - Baseline	-1
1 - More guidance on other means different from paper	6

Preferred option : Option 1 is to create additional guidance to accept records others than in 'original paper'.

Lack of guidance on the acceptability of new technology, such as RFID (Radio Frequency Identification)

<i>Options</i>	<i>Total</i>
0 – Baseline	0
1 – Guidance on RFID as records	-1

Preferred option : Option 0 is no change in rules.

#### **4.5.2. Safety Recommendation**

<i>Options</i>	<i>Total score</i>
0 – Baseline	0
1 – Maintenance records as part of the log book to be retained until completely removed from service	-2

Preferred option : Option 0 is no change in rules.

## **5. References**

### **5.1. Affected regulations**

Annex I to Commission Regulation (EC) No 2042/2003 (Part-M)

Annex II to Commission Regulation (EC) No 2042/2003 (Part-145)

### **5.2. Affected CS, AMC and GM**

Annex I to Decision 2003/19/RM (AMC to Part-M)

Annex II to Decision 2003/19/RM (AMC to Part-145)

ED Decision 2012/018/R (AMC and GM to Part-CAT)

### **5.3. Reference documents**

ICAO Annex 6 — Operation of Aircraft

Directive 1999/93/EC of the European Parliament and of the Council of 13 December 1999 on a Community framework for electronic signatures<sup>10</sup>

Study on Cross-Border Transferability (by the Aviation Working Group (AWG))

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<sup>10</sup> OJ L 13, 19.1.2000, p. 12.