



EASA

European Aviation Safety Agency

NPA 2015/17: Proposed amendments (Part 2 of 3)

Airworthiness Review Process, Sampling ARS requirements

Eugenia Diaz Alcazar
Regulations Officer – Continuing Airworthiness

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- **Airworthiness review (AR) process**
- **Airworthiness review (AR) content: sampling**
- **Airworthiness review staff (ARS) and airworthiness review support staff (ARSS)**
- In each topic:
 - Summary of the current requirements
 - Summary of main proposed changes



- **Airworthiness review (AR) process**
- Airworthiness review (AR) content: sampling
- Airworthiness review staff (ARS) and airworthiness review support staff (ARSS)



AR process (1/20) - Current requirements

➤ M.A.901

- To ensure validity of the CofA an AR shall be carried out periodically
- An ARC is issued on completion of a satisfactory AR
- Several provisions who and when an ARC, extension or recommendation can be issued
- ARC cannot be issued nor extended if the aircraft not airworthy

➤ AMC M.A.901 Recommendation

- (f) All Findings with the corrective action carried out



AR process (2/20) - Current requirements

➤ M.A.710

- (a) ...a full documented review of the aircraft records shall be carried out by the CAMO...
- (b) The ARS shall carry out a physical survey of the aircraft

➤ AMC M.A.710

- The ARS who signs the ARC or the recommendation should be the one performing both the documented review and the physical survey of the aircraft



AR process (3/20) - Current requirements

➤ M.A.710

- (e) ARC or recommendation can only be issued
 - By ARS; and
 - When satisfied that the AR has been completely carried out and that there is no non-compliance which is known to endanger flight safety.
- (d) AR can be anticipated by a maximum period of 90 days without loss of continuity of the airworthiness review pattern
- (h) Should the outcome of the AR be inconclusive, the NAA shall be informed within 72 hours



AR process (4/20) - Current requirements

- AR is performed by 1 ARS and consists of a documented review and physical survey.
- But...
 - Is this the only task of the ARS?
 - What happens when there are findings in the compliance reports?
 - Who is responsible of addressing them?
 - Is it safe than more than 1 ARS performs the AR?
 - What means “inconclusive”?



AR process (5/20) - Proposal

- The ARC cannot be issued with findings without taking proper action
- The rule and AMC/GM are amended to provide more information on **how** to address those findings and **who** is responsible for these findings



AR process (6/20) - Proposal

- The term '**inconclusive**' is **deleted** because it only adds confusion. If there is a safety concern, the regulation contains other provisions that can be used by the NAA.



➤ M.A.903 Airworthiness review process

- An airworthiness review is a process that comprises **all the tasks and activities for determining the airworthiness status of an aircraft** based on a **documented review of its records and a physical survey.**



AR process (8/20) - Proposal

➤ ARS

➤ Documented review and
Physical survey

➤ Informing the
owner/CAMO of any
findings

➤ Assessing information

➤ Issuing
ARC/recommendation

➤ CAMO/owner (M.A.201)

➤ Taking action findings

➤ Inform NAA



AR process (9/20) - Proposal

➤ ARS

➤ Documented review and Physical survey

➤ Informing the
owner/CAMO of any
findings

➤ Assessing information

➤ Issuing
ARC/recommendation

➤ CAMO/owner (M.A.201)

➤ Taking action findings

➤ Inform NAA



AR process (10/20) - Proposal

➤ ARS

➤ Documented review and Physical survey

- ❑ *Content (in coming slides)*
- ❑ *90 days in advance to maintain airworthiness pattern*
- ❑ *Anticipation would allow aircraft available for physical survey*
- ❑ *Time limit between the documented review and the physical survey not to exceed 60 calendar days*



AR process (11/20) - Proposal

➤ ARS

➤ Documented review and physical survey

- ❑ *ARS may be assisted by qualified support staff (ARSS) (CAMO)*
- ❑ *The ARS itself will perform the review and its role can never be only signing the ARC/recommendation*
- ❑ *A maximum of two ARSS should participate in the process*



AR process (12/20) - Proposal

➤ ARS

➤ Documented review

➤ Physical survey

➤ Informing the
owner/CAMO of any
findings

➤ Assessing information

➤ Issuing
ARC/recommendation

➤ CAMO/owner (M.A.201)

➤ Taking action findings

➤ Inform NAA



AR process (13/20) - Proposal

➤ ARS

➤ Informing the owner/CAMO of any findings

- ❑ *Any findings raised during the AR should be **listed and handed over to the owner or CAMO** managing the continuing airworthiness of the aircraft*



AR process (14/20) - Proposal

➤ ARS

➤ Documented review

➤ Physical survey

➤ Informing the owner/CAMO of any findings

➤ Assessing information

➤ Issuing ARC/recommendation

➤ CAMO/owner (M.A.201)

➤ Taking action findings

➤ Inform NAA



AR process (15/20) - Proposal

➤ CAMO/owner (M.A.201)

➤ Taking action findings

- ❑ *The owner or CAMO is **responsible** for taking action to **correct or appropriately defer the findings**.*
- ❑ ***Written feedback** with the actions taken per finding and signed by the owner or CAMO should be given to the ARS.*



AR process (16/20) - Proposal

➤ ARS

- Documented review
- Physical survey
- Informing the owner/CAMO of any findings

➤ **Assessing information**

- Issuing ARC/recommendation

➤ CAMO/owner (M.A.201)

- Taking action findings

- Inform NAA



AR process (17/20) - Proposal

➤ ARS

➤ Documented review

➤ Physical survey

➤ Informing the owner/CAMO of any findings

➤ Assessing information

➤ Issuing
ARC/recommendation

➤ CAMO/owner (M.A.201)

➤ Taking action findings

➤ Inform NAA



AR process (18/20) - Proposal

➤ ARS

➤ Issuing ARC/recommendation

- ❑ *The **ARS** will issue the **ARC/recommendation** when satisfied with **the actions** (an open entry in the technical log system is considered acceptable)*



AR process (19/20) - Proposal

➤ ARS

➤ Documented review

➤ Physical survey

➤ Informing the owner/CAMO of any findings

➤ Assessing information

➤ Issuing ARC/recommendation

➤ CAMO/owner (M.A.201)

➤ Taking action findings

➤ Inform NAA



AR process (20/20) - Proposal

➤ CAMO/owner (M.A.201)

➤ Inform NAA

- ❑ *A **copy of the ARC** issued or extended for an aircraft shall be sent to the Member State of registry in **10 days**.*
- ❑ *The **recommendation** should be sent by the owner or CAMO*



- Airworthiness review (AR) process
- **Airworthiness review (AR) content: sampling**
- Airworthiness review staff (ARS) and airworthiness review support staff (ARSS)



AR content (1/17) - Current requirements

➤ M.A.710 Airworthiness review

- (a) ... a full documented review of the aircraft records...
 - 1. airframe, engine and propeller flying hours and associated flight cycles have been properly records; and
 - 2. the flight manual is applicable to the aircraft configuration and reflects the latest revision status; and
 - 3. all the maintenance due on the aircraft according to the approved maintenance programme has been carried out; and
 - 4... to point 11.
- (c) physical survey
 - 1. all required markings and placards are properly installed; and
 - 2 ... to point 5



AR content (2/17) - Current requirements

➤ AMC M.A.710

- A full documented review is a check of at least the following categories of documents:
 - registration papers
 - M.A.305 aircraft continuing airworthiness record system
 - M.A.306 operator's technical log system
 - List of deferred defects, minimum equipment list and configuration deviation list if applicable
 - ...
- As a minimum, sample checks within each document category should be carried out.
- CAMO should develop procedures.



AR content (3/17) - Current requirements

➤ AMC M.A.710 (e)

- A copy of both physical survey and document review compliance reports stated above should be sent to the NAA together with any recommendation issued.



AR content (4/17) - Proposal

➤ ARS

➤ Documented review

➤ Physical survey

➤ Informing the
owner/CAMO of any
findings

➤ Assessing information

➤ Issuing
ARC/recommendation

➤ CAMO/owner (M.A.201)

➤ Taking action findings

➤ Inform NAA



AR content (5/17) - Proposal

➤ ARS

➤ Documented review

➤ Physical survey

- ❑ *The IRs **do not change significantly** compared to the current regulation (delete “full” documented review and “all” in each item)*
- ❑ *AMC/GM provide **more guidance on how to use samples***
- ❑ *Procedures: **minimum sample** for each section to be reviewed and be **proportional** to the number of items to be sampled*



AR content (6/17) - Proposal

- M.A.903 Airworthiness review process
- (b) The documented review of the aircraft records shall be carried out to be satisfied that:
 - 1. airframe, engine and propeller flight hours and associated flight cycles have been properly recorded;
 - 2. the flight manual is applicable to the aircraft configuration and reflects the latest revision status;
 - 3. the maintenance due on the aircraft according to the approved maintenance programme has been carried out;
 - 4. known defects have been corrected or, when applicable, carried forward in a controlled manner;
 - 5. applicable airworthiness directives and the measures mandated by the competent authority have been complied with and properly registered;
 - (...)



AR content (7/17) - Proposal

- (...)
- 6. modifications and repairs applied to the aircraft have been registered and are in compliance with Annex I (Part-21) to Regulation (EU) No 748/2012;
- 7. service life limited components installed on the aircraft are properly identified, registered and have not exceeded their approved service life limit;
- 8. maintenance has been released in accordance with Annex I (Part-M) to this Regulation;
- 9. the current mass and balance statement reflects the configuration of the aircraft and is valid;
- 10. the aircraft complies with the latest revision of its type design approved by the Agency; and
- 11. if required, the aircraft holds a noise certificate corresponding to the current configuration of the aircraft in compliance with Subpart I of Annex I (Part-21) to Regulation (EU) No 748/2012.



AR content (8/17) - Proposal

- M.A.903 Airworthiness review process
- (c) The physical survey of the aircraft shall ensure that:
 - 1. required markings and placards are properly installed;
 - 2. the aircraft complies with its approved flight manual;
 - 3. the aircraft configuration complies with the approved documentation;
 - 4. no evident defect can be found that has not been addressed according to M.A.403; and
 - 5. no inconsistencies can be found between the aircraft and the documented review of its records.



AR content (9/17) - Proposal

- M.A.903 Airworthiness review process
- (b) The documented review of the aircraft records shall be carried out to be satisfied that:
 - 1. airframe, engine and propeller flight hours and associated flight cycles have been properly recorded;
 - 2. the flight manual is applicable to the aircraft configuration and reflects the latest revision status;
 - **3. the maintenance due on the aircraft according to the approved maintenance programme has been carried out;**
 - 4. known defects have been corrected or, when applicable, carried forward in a controlled manner;
 - 5. applicable airworthiness directives and the measures mandated by the competent authority have been complied with and properly registered;
 - (...)



AR content (10/17) - Proposal

- AMC - Airworthiness review process
- (a) The documented review of the aircraft records and the physical survey of the aircraft **should be based on samples and should cover the following:**
 - (1) **Technical log system/Aircraft logbook:** flight hours and flight cycles for airframe, engine and propeller, as appropriate, are verified and have been properly recorded; and aircraft, engine, and propeller maintenance entries are up to date and correct.
 - (...)
 - (4) **Aircraft maintenance programme (AMP):**
 - applicable maintenance as required by the maintenance programme has been carried out or carried forward in a controlled manner; and
 - the aircraft maintenance programme includes all mandatory continuing-airworthiness requirements.
 - (5) **Status of service life-limited components:**
 - no service life-limited component is overdue.
 - (...)



AR content (11/17) - Proposal

- AMC - Airworthiness review process
- (a) The documented review of the aircraft records and the physical survey of the aircraft should be based on samples and should cover the following:
 - (1) Technical log system/Aircraft logbook: flight hours and flight cycles for airframe, engine and propeller, as appropriate, are verified and have been properly recorded; and aircraft, engine, and propeller maintenance entries are up to date and correct.
 - (...)
 - **(4) Aircraft maintenance programme (AMP):**
 - applicable maintenance as required by the maintenance programme has been carried out or carried forward in a controlled manner; and
 - the aircraft maintenance programme includes all mandatory continuing airworthiness requirements.
 - (5) Status of service life-limited components:
 - no service life-limited component is overdue.
 - (...)



AR content (12/17) - Proposal

- GM - examples of inspections
- It could assist to create the appropriate check list to perform the AR (requires further adaptation)
 - Technical Log System/Aircraft Logbook
 - Aircraft Flight Manual
 - Aircraft Maintenance Programme
 - Aircraft Defect & rectification
 - ADs
 - Modifications and repairs
 - Mass and Balance
 - Type Design
 - Aircraft Certificates
 - Operational Requirements
 - Complaints of the last airworthiness review
 - Marking and Placards & Area inspection



AR content (13/17) - Proposal

AMP	<p>NOTE: AMP is the starting point, it is not the intent to check compliance with the maintenance planning document (MPD).</p> <ul style="list-style-type: none">– Verify approval/declaration, amendments and revision status reference.– Verify compliance with mandatory instructions such as repetitive airworthiness directives (ADs), the airworthiness limitation section (ALS) of the instructions for continued airworthiness (ICA) or specific maintenance requirements contained in the type certificate data sheet.– The maintenance due on the aircraft according to the maintenance programme has been carried out and properly released or, if applicable, carried forward in a controlled manner.– Check that the repetitive inspections requirement coming from a repair/modification is in the AMP. (...)
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AR content (14/17) - Proposal

AMP	<ul style="list-style-type: none">– Check the summary status of the maintenance task(s) to track the date and time when the required action was last performed and when it is next due.– Check for any additional scheduled maintenance measures required due to the use of aircraft and the operational environment.– If applicable, check for pilot-owner maintenance tasks.– Check components with a specific maintenance action (verify physically some of these components).
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AR content (15/17) - Proposal

➤ AMC - Samples

➤ **Procedures:**

- statuses in M.A.305 are complete;
- minimum sample size for each section of the review taking into account the number of items per type of information; and
- how to increase the sample size depending on the number of non-conformities (may be based on an internationally recognised standard).



AR content (16/17) - Proposal

- GM
- An example of the samples' size could be the following:
 - for **new aircraft not older than one year**, at least three samples of each type of information plus one additional sample per each different operator since new; or
 - for **used aircraft older than one year**, at least five samples back to the release to service of each type of information plus two samples per each different operator since new.
- Sampling does not include only the last 3 years
- This initial samples' size should be **increased depending on the number of non-conformities** detected.



AR content (17/17) - Proposal

- GM
- The investigation of each item should confirm the status of such item.
- For example, in case of ADs, modifications or life-limited parts, the investigation should cover the complete process, including the maintenance date and the embodiment/installation in the aircraft.



- Airworthiness review (AR) process
- Airworthiness review (AR) content: sampling
- **Airworthiness review staff (ARS) and
airworthiness review support staff (ARSS)**



ARS (1/15) – current requirements

➤ **M.A.707: CAMO shall have appropriate ARS to issue ARC or recommendations**

➤ For all aircraft used in **CAT**, and aircraft **above 2730 kg MTOM, except balloons**

- 5 years' experience in continuing airworthiness
- Part-66 license or aeronautical degree or national equivalent (or 5 more years of experience in continuing airworthiness)
- Formal aeronautical maintenance training, and
- Position within the organisation with appropriate responsibilities (AMC: independence and overall authority)



ARS (2/15) – current requirements

- **M.A.707: CAMO shall have appropriate ARS to issue ARC or recommendations**
 - For aircraft **not** used in **CAT**, and aircraft of **2730 kg MTOM and below, and balloons**
 - 3 years' experience in continuing airworthiness
 - Part-66 license or aeronautical degree or national equivalent (or 4 more years of experience in continuing airworthiness)
 - Appropriate aeronautical maintenance training, and
 - Position within the CAMO with appropriate responsibilities

- **PROPOSAL: simplified requirements in IR**



➤ M.A.904

- Staff can be nominated to the NAA by CAMO to perform ARs when they:
 - have acquired **knowledge**, as shown by:
 - an appropriate license issued in compliance with Annex III (Part-66) to this Regulation, or an aeronautical degree or national equivalent;
 - appropriate aeronautical training;
 - at least 5 years' **experience** in **CAW** which may be reduced to 3 years for other-than-complex motor-powered aircraft not used in CAT; **and**
 - **hold a position** within the approved organisation with appropriate responsibilities.



➤ **AMC M.A.904**

➤ **hold a position** within the approved organisation with appropriate responsibilities.

➤ Certifying staff who have not released the aircraft from base maintenance during the preceding 3 months are considered acceptable for being ARS.



➤ Process for ARS

- CAMO nominates ARS
- Supervision ARS: AMC and GM describe also the supervision goals and how to assess the competences of such staff.
- NAA accepts the ARS after supervision by NAA or organisation
- Authorisation by the organisation



➤ Process for ARS

➤ CAMO nominates ARS

- Before the nomination by the CAMO and supervision, the organisation will ensure that the ARS and ARSS have an adequate understanding of the relevant aircraft, the organisation's procedures and the applicable regulation.
- It means that the person has the knowledge and experience required, and has been successfully assessed on:
 - the type of aircraft;
 - the differences of the particular model/variant and the particular configuration;
 - the applicable regulation; and
 - the applicable procedures.



➤ Process for ARS

- CAMO nominates ARS
- Supervision ARS: AMC and GM describe also the supervision goals and how to assess the competences of such staff.
- NAA accepts the ARS after supervision by NAA or organisation
- Authorisation by the organisation



ARS (8/15) – proposal

➤ Process for ARS

- Supervision ARS: AMC and GM describe also the supervision goals and how to assess the competences of such staff.
 - Organisation should develop procedures describing the process to assess the competence of personnel
 - The supervision goal is to assess the competence of the nominated ARS (knowledge, experience and know-how). For the required scope, competence during supervision should be assessed through:
 - The physical survey should be assessed during the demonstration to the assessor
 - knowledge of the aircraft;
 - knowledge of the regulations, procedures, tools and recognised standards;
 - ability to check an area with regard to the relevant criteria for this zone;
 - ...



➤ Process for ARS

- CAMO nominates ARS
- Supervision ARS: AMC and GM describe also the supervision goals and how to assess the competences of such staff.
- NAA accepts the ARS after supervision by NAA or organisation
- Authorisation by the organisation



➤ Process for ARSS

- CAMO may authorise ARSS to assist ARS in performing specific tasks of the AR
- ARSS should have the appropriate knowledge and experience as ARS for the intended scope of the authorisation.
- ARSS should be assessed by ARS before being authorised
- Identified in CAME with scope of work and requirements to ensure validity of the authorisation



➤ M.A.707

➤ Recent continuing airworthiness management experience

- (AMC) To keep validity of ARS authorisation: 6 months in every two year period in CAW activities, or 1 AR in the last 12 months
- Restore validity authorisation: airworthiness review under supervision



➤ M.A.904

➤ Recent continuing airworthiness management experience

- (AMC) To keep validity of ARS authorisation: 6 months in every two year period in CAW activities, or 1 AR per relevant aircraft in the last 12 months (last 6 months in the case of complex motor-powered aircraft or CAT)
- A 'relevant aircraft' assessment should consider manufacturer, similar technology, construction and systems
- Restore validity authorisation: airworthiness review under supervision



➤ M.A.904

- Certifying staff may be formally accepted by NAA to perform AR for ELA1 aircraft not involved in commercial operations
- The certifying staff shall apply to the competent authority of the State of registry when fulfilling the conditions of knowledge and experience
- The staff may only be formally accepted by this NAA after satisfactory completion of an airworthiness review under supervision of the NAA, where the procedure of performing an AR shall be checked



➤ **M.A.901(I) introduced by Reg (EC) 2015/1088**

- ELA1 aircraft not involved in commercial operations
- For maintenance organisations performing AR at the same time as the annual inspection
- Requirements do not change



➤ Oversight of the organisations

- The oversight aspect is enforced by specifically stating that during the oversight over the organisations, one audit of an airworthiness review shall be performed (no need to participate in the complete airworthiness review).



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Questions?

Thank you

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