



# **EMAR 145 Implementation Guide for National Military Airworthiness Authorities**

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**EDITION**

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**NOTE**

The Forms referred to in this document can be found in the EMAR Forms document.

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## 1. Scope

This EMAR 145 Implementation guide presents some highlights on how a NMAA can implement the section B of EMAR 145 and therefore provides additional guidance on how to carry out EMAR 145 NMAA activities in order to develop the associated procedures for the national implementation of the EMAR 145.

The content of the present guide is limited to general principles that highlight the key functions of the EMAR 145 initial approval and continuing oversight activities performed by a NMAA.

Overarching topics not specific to EMAR 145 activities (e.g. creation of a NMAA with associated privileges, responsibilities, obligations, appeal process, recognition activities,...) will be addressed at a higher and generic level. Therefore, these topics will not be further developed in the present guide.

## 2. General considerations

### 2.1. Prerequisites

#### 2.1.1. Regulation

The EMAR 145 and the applicable EMAR 66 requirements should be nationally adopted.

#### 2.1.2. NMAA empowerment

The authority and delegation of the NMAA within the existing national structure should be addressed.

In order to implement EMAR 145, a NMAA should be appropriately empowered to conduct the following activities:

- Issuance of EMAR 145 approvals including continuing oversight;
- Issuance of EMAR 66 licenses (Line/Base maintenance);
- EMAR 145 enforcement actions (e.g. limitation, suspension, revocation of approvals).

#### 2.1.3. NMAA procedures

The NMAA should have clearly articulated procedures for:

- The issue of initial approvals;
- The continuing oversight of approvals;
- The issue of licenses;
- The training of its personnel.

It is considered good practice to include organisational charts at both the higher level and the detailed organisational.

It is also important that all the NMAA personnel have clear terms of reference which identifies their accountabilities and responsibilities for their post.

It is considered good practice that a NMAA has a quality system (or equivalent safety management system) to ensure compliance with EMAR 145 Section B requirements and NMAA's internal procedures.

#### 2.1.4. Resources

The number of the NMAA personnel should be appropriate to carry out the required assessments to perform all the EMAR 145 approval/oversight activities. This number should

be proportional to the number of Maintenance Organisations (MOs) to be EMAR 145 approved.

NMAA personnel should be competent by being appropriately qualified and having all the necessary knowledge, experience and training to perform their allocated tasks. Considerations should be given to prevent loss of competence due to the NMAA personnel turn over.

Depending on their function, NMAA personnel should have received initial and continuation training on the EMAR 145 requirements, on the auditing techniques and specialized training (e.g. NDT, FTS, CDCCL,...). This should also include a general understanding of the other EMAR requirements and relevant NMAA procedures.

### 2.2. Basic assumptions

It is assumed that the implementation of EMAR 145 is integrated in a holistic EMAR framework environment.

When a NMAA chooses to implement EMAR 145 on a fleet it should also be the case for the other EMARs because they are all interlinked:

- EMAR 21: as the approved maintenance data used by an EMAR 145 AMO originate from the Initial/Continued Airworthiness activities (e.g. Type certificate,...);
- EMAR M: as the EMAR 145 AMO is only performing the CAMO's work orders and reporting about their execution to the CAMO;
- EMAR 66: as the aircraft maintenance Certifying & Support staff need to be EMAR 66 MAML holders,
- EMAR 147: as the EMAR 66 Basic and Type training knowledges need to be gained in an EMAR 147 MTO.

Therefore, to get benefits from this holistic EMAR framework environment and to ensure a global consistency, a NMAA should:

- Request the application of EMAR approvals to all concerned organisations that provide Initial/Continued and/or Continuing Airworthiness services to the fleet, regardless whether these organisations are military or civil;
- Avoid, as far as practicable, mixing different Airworthiness Regulatory systems (e.g. PART, EMAR, legacy regulations,...).

### 2.3. Implementation strategy considerations

The NMAA should plan the EMAR 145 implementation based on the:

- Scope of the MOs to be EMAR 145 approved (e.g. military and/or industry MOs, national and/or foreign);
- Constraints for EMAR 145 implementation (e.g. time line, resources);
- Training needs;
- Prioritization of the MOs to be EMAR 145 approved.

#### 2.3.1. Transition considerations

NMAAs should determine a transition period to migrate from their national current MO system towards the EMAR 145 environment. During this period transitional measures should be determined to ease this change:

- Transition period should be dependent on:

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- number of MOs to be approved;
- number of available resources (possible utilization of contracted resources to increase rate of assessment);
- desired time for completion.
- Action to be taken if EMAR 145 implementation exceeds desired deadline;
- Approach to concurrent management of approved and non-approved organisations;
- Prioritization within EMAR approvals to be delivered (e.g. 145 vs M vs 147) and EMAR 66 licenses to be issued.

### 2.3.2. Maintenance during Operations/deployments

The maintenance to be performed during operations/deployments should be taken into consideration as part of the EMAR 145 implementation (e.g. location considerations (maintenance on/off government property, across foreign sites)).

### 2.3.3. Industry specificities with regards EMAR 145 approvals

NMAAs should take into consideration the industry specificities when implementing the EMAR 145 e.g.:

- Reuse of EASA PART 145 approval to issue EMAR 145 approval:
  - EMAR 145 MOE with references to the PART 145 MOE (the PART 145 MOE approved by the CAA does not guaranty that the NMAA will accept the civil procedures for the EMAR 145 MOE);
  - PART 66 licenses can be recognized (fully or partially) to issue EMAR 66 licenses;
  - Acceptance of Form 4 holders (reduced extent of the interviews).
- Location (maintenance on/off government property, across foreign sites)).

For cases where MOs have both PART & EMAR 145 approvals, NMAAs can establish relations/exchanges with the CAAs to share information/resources for their mutual benefit (e.g. audit reports, joint audits).

Usually EMAR 145 approvals are required of industry through contracts by national procurement agencies. Possible conflicts between contractual requirements and EMAR 145 requirements could be faced. In such cases, the NMAA should only be responsible for the EMAR 145 requirements and not for the contractual ones and the EMAR 145 requirements shall be satisfied despite of any other contractual agreement.

In addition, the NMAA could advise any procurement agency responsible for EMAR 145 related contracts.

## 2.4. Alternative acceptable means of compliance

In addition to the existing EMAR 145 AMC & GM (Acceptable Means of Compliance & Guidance Material), a NMAA may consider to define other criteria for specific topics (e.g. qualification criteria for aircraft & component certifying staff, etc.).

Examples of other acceptable means of compliance can be found on the EASA web site (e.g. foreign PART 145 organisations, etc.).

### 2.4.1. Acceptance policy

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When an aircraft/component originates from a non EMAR approved production/maintenance organisation (e.g. US or CA environment, etc.) the NMAA should establish an acceptance policy to provide guidance to their EMAR 145 MOs on how to accept these aircraft/components (e.g. serviceable tags for US components, documents based on governmental agreements, etc.).

### 2.4.2. Reuse of external artefacts

A NMAA could decide to reuse artefacts (e.g. 145 approvals, Form 1, 66 licenses, aircraft CRS, etc.) issued by other authorities/organisations (e.g. NMAAs, CAAs, AMOs,...). The reuse of these artefacts presumes that appropriate recognition and/or arrangements have been established.

In the case of reuse of an EMAR 145 approval issued by another NMAA, particular attention should be given to the possible differences and peculiarities between the national EMAR 145 approval approaches (e.g. maintenance data, ADs, occurrence reporting system, etc.).

The present guide does not address these recognitions and/or arrangements given that these activities are subject to specific documents (e.g. EMAD R and MARQS for NMAAs).

In order to ease the reuse of artefacts, it is considered as good practice that an English and/or bilingual version of the MOE can be provided since some NMAAs will have this as a national requirement for foreign AMOs and this may facilitate mutual interactions.

### 2.5. Contracting of NMAA activities

A NMAA may consider to contract part of its activities to a competent entity (e.g. audits, training, personnel, etc.). In any case, the NMAA remains responsible for the outputs (e.g. recommendation issued to NMAA) of the contracted activities. Such contracted activities should be documented by the NMAA.

## 3. EMAR 145 Approval and audits

### 3.1. General

The scope of this chapter is to enable an NMAA to process EMAR 145 approval applications and allocate internal / external resources as necessary in order to carry out the MO audit and issuance of an EMAR 145 approval following a satisfactory recommendation.

This chapter describes how a NMAA could handle the approval of EMAR 145 AMOs.

The approval shall be delivered in accordance with the requirements of EMAR 145 Section A and Section B.

Rights and obligations from applicable national regulations and arrangements (e.g. Bilateral/Multilateral arrangements for Mutual Recognition) should be taken into account.

### 3.2. Initial approval

#### 3.2.1. Application

A new application for an EMAR 145 approval shall be made in accordance with Section A of EMAR 145 by using the EMAR Form 2. This application Form shall be sent directly to the NMAA.

The NMAA should acknowledge receipt of the application. The NMAA should check the application and its eligibility. When incorrect or incomplete information is supplied, the NMAA should notify the MO as soon as possible detailing the omissions and errors. In case of refusal of an application, the NMAA should notify this decision in writing to the MO together with the reasons thereto.

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An initial application package should include:

- The EMAR Form 2;
- The EMAR Forms 4;
- The MOE (including related procedures/documents);
- Any additional document requested by the NMAA (e.g. EMAR 66 licenses).

### 3.2.2. Audit team

The NMAA should nominate an audit team made up of a lead auditor/auditor to carry out the audit process.

The MO should be informed in writing about the allocated audit team by the NMAA. This writing should also specify the contact details of the NMAA (e.g. PoC).

The composition of the audit team (e.g. number, experience, skills) should be appropriate and based on the following criteria:

- Complexity of the MO (e.g. scope of approval);
- Number and location of sites to be audited;
- Size of the MO;
- Any additional reason deemed necessary by the NMAA and justified by a specific situation.

It is considered as good practice to have a minimum of two auditors in the team and a number of audit trainees lower than the number of auditors.

### 3.2.3. Audit process

#### a. On desk Review

EMAR Form2:

The audit team should ensure that the application package is consistent with the EMAR Form 2 (e.g. scope of work, locations, contract).

MOE:

The audit team reviews the MOE (including associated list(s) and procedure(s) as applicable) to ensure full compliance with the applicable requirements and the relevant NMAA instructions. For this review, the audit team should refer to the expected content of the MOE, detailed in the Appendix V of EMAR 145 AMC & GM.

When the proposed MOE is not acceptable (i.e. procedures or required information not available, not compliant with EMAR 145 requirements and NMAA instructions) and therefore could not be reviewed, the lead auditor should formally notify the MO of the findings (e.g. MOE audit report). If after several exchanges, should the MO still fail to provide acceptable documents (MOE, associated lists, procedures, etc.), the NMAA should determine the most appropriate actions including termination of the application.

EMAR Form 4:

The audit team verifies the compliance of each management personnel (EMAR Form 4 holders) with the applicable requirements by using the relevant instructions as reference material.

#### b. Internal audit report from the MO's quality system

It is strongly recommended that the internal quality system of the applicant MO conduct preliminary audits to ensure the MO compliance with the applicable EMAR 145 requirements.

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Any finding raised during such internal audits should have been closed with appropriate corrective actions before applying to the NMAA for an EMAR 145 approval.

### c. Audit preparation

After receipt of the application package and the internal quality system audit report (if requested by the NMAA) and they are deemed acceptable, the lead auditor may initiate the on-site audit in accordance with Section B of EMAR 145, associated AMC & GM and relevant NMAA procedures.

The NMAA should request that the MO provide any necessary administrative support for the audit.

The lead auditor should:

- Liaise with the MO for scheduling the audit;
- Prepare and notify the MO of the audit programme.

Note: The NMAA shall be informed by the MO of any modification to the initial application (revised EMAR Form 2), before the audit takes place.

### d. On-site audit

The on-site audit should start with an opening meeting with the MO's management and when possible with the Accountable Manager. The following points should be considered when carrying out this meeting:

- Introduction of the audit team;
- Clarification/confirmation of practical details (e.g. confidentiality, local rules, availability of resources requested by the audit team);
- Confirmation of the audit schedule including objectives and scope of the audit;
- Confirmation of the required interviews/availability of the personnel involved in the EMAR 145 process;
- Explanation of the audit methodology (e.g. classification and reporting of findings, sampling within all applicable EMAR 145 requirements);
- Confirmation of the applicable EMAR requirements;
- Any interaction with the quality system of the MO (e.g. daily debriefing, follow up of the audit by quality personnel, etc.).

The Accountable Manager and all EMAR Form 4 holders should be met and interviewed by the audit team during the audit. As an example, the question set used by the FR MAA (DSAÉ) for Accountable Manager and Form 4 holders can be found in Annex 2.

The audit team should review the audit findings and evidences collected against the current/intended scope of work, agree on findings levels and corrective action time scales and prepare the audit conclusions for presentation to the MO. When a level 1 finding is suspected, it is strongly recommended that the lead auditor consults with the NMAA management level before informing the MO.

It is considered good practice to debrief the quality manager of the findings and conclusions of the audit in order to ensure there are no misunderstandings and that they are accepted by the quality manager of the MO before the closing meeting. It gives the quality manager the opportunity to discuss any non-compliance and timeframes.

A closing meeting chaired by the lead auditor should be held to present a summary of the audit findings and the conclusions to the MO's management, and when possible with the Accountable Manager, in order to ensure that they are understood and accepted.

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The audit report (e.g. EMAR Form 6) should be sent by the NMAA to the MO. As an example, the EMAR 145 Audit report used by the FR MAA (DSAÉ) can be found in Annex 5.

Should the initial audit lead to significant and/or numerous findings, this would show insufficient understanding/compliance by the MO and a lack of effectiveness of the quality system. In that case the NMAA may take the decision and inform the MO accordingly:

- Should the MO wish to re-apply for an EMAR 145 approval a new application has to be submitted to the NMAA;
- To limit the requested scope of work;
- Not to accept the proposed EMAR Form 4 holders.

Findings made during the audit process should be managed by the audit team in accordance with Section B of EMAR 145 and associated AMC & GM.

Failure to close the audit findings during the agreed period without adequate justification could lead the NMAA to terminate the application.

Depending on the extent and nature of the findings and the delay of corrective actions implementation, an additional audit might be taken into account.

Note: Should the audit lead to NIL finding, an audit report is still to be sent to the MO.

### **e. Recommendation**

Once the MO's compliance with EMAR 145 has been established and all findings are addressed as required by the NMAA, the lead auditor should make a recommendation to the NMAA to issue the EMAR 145 approval to the MO, which should include:

- The precise scope of work (e.g. class, ratings, limitations, Base/Line in accordance with EMAR 145 Appendix II Table 1);
- The identification reference of the MOE to be approved;
- The EMAR Form 4 management personnel to be approved.

There should be a global consistency of the scope of work between the received Form2, the MOE, the lead auditor recommendation and the approval certificate to be issued. In case that part of the requested scope of work is not approved, it should be clearly justified in the lead auditor recommendation (e.g; level 1 finding).

### **f. Issuance of approval**

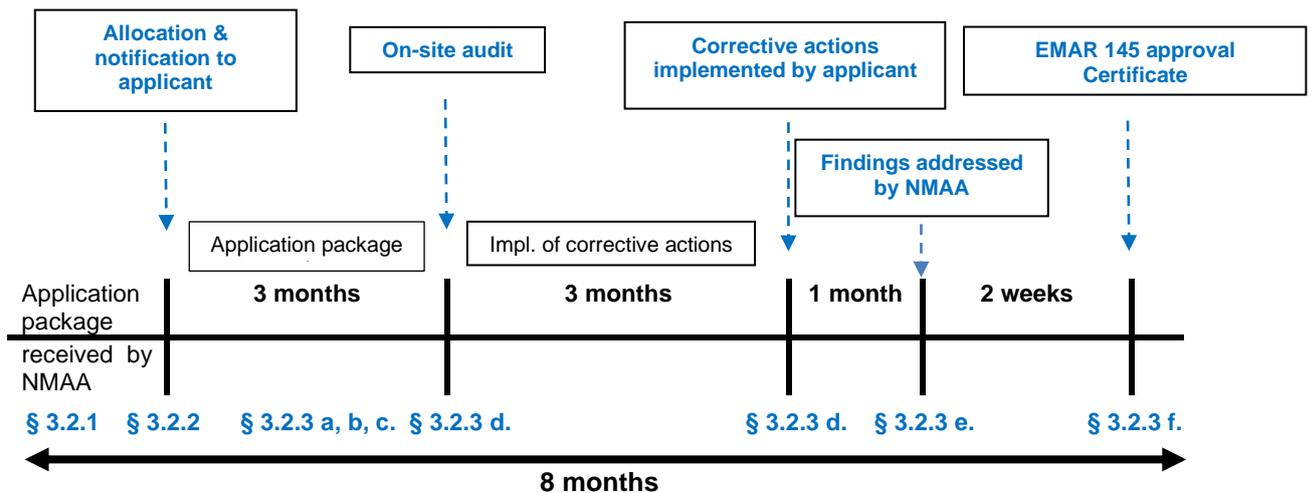
The recommendation received from the lead auditor is reviewed by the NMAA for compliance and accuracy. Once satisfied the NMAA should prepare the following documents for signature by an authorized NMAA person, as applicable:

- The EMAR 145 approval certificate EMAR Form 3;
- The approval letter of the MOE;
- The acceptance of EMAR Form 4s.

### **3.2.4. Time frame**

A typical time frame to process an EMAR 145 approval is about 8 months from the reception of the complete application package. However, the amount of time taken is largely dependent on the ability of the MO to produce the documentation required and to rectify any finding that may be identified during the approval process.

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Timeline is for reference purpose only.

### 3.2.5. Initial approval flow chart

As an example, an initial approval process flow chart can be found in Annex 3.

## 3.3. Continuing Oversight

### 3.3.1. Continuing oversight principles

#### a. Frequency of visits and number of auditors

As per EMAR 145.A.90 the approval shall be issued for an unlimited duration. The approval is to be continued every 24 months and each EMAR 145 AMO shall be audited as a minimum as once in this period. Nevertheless, it is considered as a good practice that the EMAR 145 AMO is audited by the NMAA once a year. In all the cases, all the EMAR 145 requirements applicable to the scope of work shall be audited by the NMAA on the 24 months period.

However, the number of intermediate audits as well as the number of auditors may be adapted by the NMAA depending on the following criteria:

- Complexity of the MO (e.g. scope of work);
- Number and location of sites to be audited;
- Size of the MO;
- Previous EMAR 145 audits results;
- Any additional reason deemed necessary by the NMAA and justified by a specific situation.

The oversight period to be considered starts from the date of issuance of the approval certificate or from its last continuation date. Possible changes of the approval certificate do not modify the continuation date of an approval.

It should be noted that an audit for change of the EMAR 145 AMO does not replace an intermediate audit but both may be combined.

Moreover, the NMAA may require additional audit(s) for the following reasons (other inputs):

- EMAR 145 AMO has shown weaknesses when formerly dealing with serious and / or numerous findings;
- EMAR 145 AMO has shown difficulties to close former findings within the expected time frame;

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- EMAR 145 AMO is facing frequent changes of his management personnel which could jeopardize the EMAR 145 AMO stability;
- The NMAA is informed about incident/accident or events that may affect the safety (e.g. occurrence report, any other input, etc.);
- Any information coming from CAA audits of AMOs having both PART 145 & EMAR 145 approvals;
- Any information coming from other open sources.

### **b. Allocation of the oversight audit team**

It is preferable that the continuing oversight of an approval is performed by the all or most of the team assigned for the initial audit or for the previous oversight cycle.

It is considered as good practice that the NMAA provides the EMAR 145 AMO with a PoC who will be in charge of the oversight management of the approval (e.g. management of findings, changes, audit plan).

### **3.3.2. Oversight audit**

#### **a. Audit process**

The audit process for a continuing oversight is identical to the initial audit process described in the chapter 3.2.3 “audit process” of this guide.

The process to manage the level 1 and level 2 findings is described in the following paragraphs.

#### **b. Products/component sampling**

The NMAA should establish a policy and processes to sample the output of the EMAR 145 AMO including a product/component survey plan to validate the safe operation of the entire system, where appropriate. Product/component sampling is most effectively completed during routine oversight audits.

The NMAA should establish the competence of its auditors undertaking product/component samples to ensure that they are able to make judgements about the physical condition and compliance of the product/component being reviewed. The sampling of product/components should be completed at various times during their maintenance or after they were released to ensure their compliance.

#### **c. Level 1 finding**

In case of Level 1 finding, it is strongly recommended that the lead auditor consults with the NMAA management level before informing the EMAR 145 AMO due to the direct impact on the approval. When the level 1 finding is confirmed, the NMAA should formally notify the EMAR 145 AMO with the finding(s) using the EMAR Form 6 together with the decision against the approval.

It is the responsibility of the EMAR 145 AMO to take the appropriate and immediate corrective action as specified in the chapter 3.9 “Limitation, suspension and revocation of an approval” of this guide.

#### **d. Level 2 finding**

Level 2 findings are notified to the EMAR 145 AMO by the NMAA.

The corrective action period granted by the NMAA depends on the nature and the gravity of the finding. In any case the initial due date should not exceed the date agreed with the NMAA.

The NMAA oversight PoC should monitor that the EMAR 145 AMO provides:

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- Within 1 month after the receipt of the finding notification or within the finding due date, whichever is the earlier date: an acknowledgement of the findings, a corrective action plan and confirmation that a root cause analysis has been started together with the associated proposed timescales;
- Corrective action evidence as per the agreed corrective action plan to allow the review by the NMAA oversight PoC within the finding due date. Findings made during the oversight cycle should be managed by the NMAA oversight PoC in accordance with Section B of EMAR 145 and associated AMC & GM.

Should the EMAR 145 AMO need an extension of the initial due date agreed for a finding, such an extension shall be justified and requested in writing to the NMAA oversight PoC. Such a justification shall consist in a corrective action plan detailing the corrective action(s) with the associated time frame and any intermediate actions as necessary. The NMAA oversight PoC should notify his decision to the EMAR 145 AMO. Such an extension is not systematically granted (AMC 145.B.50 (b)).

According to EMAR 145.B.50 (b), when the EMAR 145 AMO cannot meet the timescales specified for Level 2 findings and no request for an extension has been made, the NMAA can decide to suspend in whole or part the approval.

### e. Corrective action

To be acceptable a proposed corrective action shall address at least the following issues for each finding:

- The results of the root cause(s) analysis;
- Corrective action based upon the identified root cause(s) which shall detail:
  - Immediate or short-term corrective action;
  - Long term corrective action preventing reoccurrence of such non-conformity.

The implementation of the whole corrective action shall not exceed the time frame agreed with the NMAA to close the finding. This implies that the NMAA oversight PoC has received the agreed corrective actions and the relevant evidence<sup>1</sup> with enough anticipation to review them as necessary and to formally close the related findings at the due date.

An on-site audit by the NMAA may be needed to ensure the effectiveness of corrective action(s) implemented prior to formal closure of the related finding(s). When the NMAA oversight PoC is satisfied with the corrective action(s) that have been implemented by the EMAR 145 AMO, the NMAA oversight PoC notifies in writing the EMAR 145 AMO that the finding(s) is(are) closed.

Note: A voluntary reduction of the scope of approval cannot be systematically considered as an appropriate corrective action to a finding.

### 3.3.3. Recommendation for continuation

Every 24 months the NMAA oversight PoC should summarize the oversight performed and if satisfied, should recommend the NMAA to continue the approval. For that purpose, he should prepare a recommendation (e.g. EMAR Form 6) and an oversight plan for the new cycle. The oversight plan may be sent by the NMAA oversight PoC to the EMAR 145 AMO upon request. At the time of the continuation recommendation, recent level 2 findings having not yet reached their deadline may be still open. In this case the EMAR 145 AMO must provide the NMAA oversight PoC with an acceptable corrective action plan for those findings that are still open. The formal corrective action plan submitted by the EMAR 145 AMO must be formally accepted by the NMAA oversight PoC. Findings made during the oversight cycle should be

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<sup>1</sup> Promises, drafts, statements, wishes, hopes, plans, etc. cannot be accepted as evidence

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managed by the NMAA oversight PoC in accordance with Section B of EMAR 145 and associated AMC & GM.

### 3.3.4. Continuation of approval

At the end of each oversight cycle, the approval needs to be continued according to EMAR 145.B.30 provision. The continuation of an approval is a process not requiring any application from the approval holder and it is entirely managed by the NMAA with the support of NMAA oversight PoC. As a consequence, considering that the approval is valid for an unlimited duration under the provision of EMAR 145.A.90, the NMAA is not supposed to issue any formal continuation communication to the EMAR 145 AMO.

### 3.3.5. Continuing oversight flow chart

As an example, a continuing oversight flow chart can be found in Annex 4.

## 3.4. Audit plan by NMAA

The NMAA should establish an audit plan in order to match the workload with its available resources and the readiness of the MOs.

When rolling out the audit plan over a large number of MO/EMAR 145 AMOs this plan should be staggered. This rollout plan shall be agreed between the NMAA and the MOs//EMAR 145 AMOs with sufficient notice (e.g. 6 months). Therefore, a good communication should be established between the MOs and the NMAA.

## 3.5. Management of changes

### 3.5.1. Application

This chapter applies only once the approval is granted. All changes as detailed in the EMAR 145.A.85 require an EMAR Form 2. An application for change of an EMAR 145 AMO shall be made in accordance with Section A of EMAR 145 by using the EMAR Form 2 and its associated filling instruction. This application form shall be sent to the NMAA.

In order to keep the administrative workload at a reasonable level and to minimize the possible associated costs, the EMAR 145 AMO is recommended to combine change requests as much as possible instead of submitting several requests in the same short period of time (e.g. several applications within one month).

### 3.5.2. Audit team

The allocation of the audit team for a change of approval is identical to the initial audit process described in the chapter 3.2.2 “Audit team” of this guide.

### 3.5.3. Audit team composition

The audit team composition for a change of approval is identical to the initial audit process described in the chapter 3.2.3 “Audit team composition” of this guide.

### 3.5.4. Audit process

The audit process for a change of approval as listed in EMAR 145.A.85 is identical to the initial audit process described in the chapter 3.2.3 “audit process” of this guide. However, the followings peculiar points shall be considered:

- The internal quality audit shall cover at least all areas impacted by the requested change(s);
- Changes cannot be implemented prior to the NMAA formal approval. However, the NMAA oversight PoC shall liaise with the NMAA of all cases where the EMAR 145 AMO wishes to operate in accordance with EMAR 145.B.35 (b);

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- Should the audit for change lead to significant and/or numerous discrepancies, this would show insufficient understanding /compliance of the EMAR 145 AMO and a lack of effectiveness of the quality system. In that case the NMAA should terminate the application for change and raise a finding against the quality system. In that case the requested change shouldn't be approved and moreover, such a lack of effective implementation of quality system could lead the NMAA to limit or suspend the current approval;
- All findings that have an impact on the requested change must be listed and addressed prior to the NMAA oversight PoC making the recommendation for the approval of the change to the NMAA. The other findings, not directly related to the change, should be managed as part of the on-going regular oversight cycle.
- Changes of management personnel may not necessarily require an on-site audit and can be managed in accordance with the EMAR Form 4 instructions.

### 3.5.5. Time frame

The time frame related to the approval of a change is highly variable depending on the nature of the change. The time frame provided in § 3.2.4 for the process of initial approval may be considered as the upper limit.

### 3.5.6. Management of changes flow chart

As an example, a management of changes flow chart can be found in Annex 4.

## 3.6. Findings management

### 3.6.1. General

The finding level should be defined in accordance with EMAR 145.A.95.

It may be necessary for the NMAA to ensure that further maintenance and re-certification of all affected scope of work is accomplished, dependent upon the nature of the finding.

Where the MO/EMAR 145 AMO has not implemented the necessary corrective action within the period agreed by the NMAA it may be appropriate to accept a further period requested by the MO/EMAR 145 AMO.

### 3.6.2. Drafting methodology

The way of drafting a finding is crucial as a finding shall be understandable by anybody (and not only by the redactor), clear, concise, factual (based on evidences, no sensation nor impression, etc.), explained and justified with regard to the EMAR 145 requirement and/or the MOE procedure impacted. Therefore, the NMAA auditors should be trained to draft findings.

It is considered as a good practice to use the following drafting methodology for findings:

Drafting of findings, the Key points & Key words:

- **Structured:** clear and comprehensible presentation;
- **Factual & documented:** a clear evidence, no subjectivity;
- **Reminder of the impacted requirement and/or MOE procedure:** an audit is a compliancy check regarding a reference frame;
- **Concise & understandable to anybody at first reading:** avoid using acronyms or make them explicit, avoid calling the audit team back for additional information.

Therefore, the drafting of any finding should be structured as follows:

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- **Reminder of the impacted requirement** (and/or any MOE procedure);
- **Description of the non-compliance found** (e.g. the MO ... is not able to demonstrate compliance with...);
- **Evidence:** describe what was found...;
- **Conclusion:** (e.g. ... non compliance with EMAR 145.A.XX and/or MOE § Y.Y).

Note:

Reporting a finding means that there is an impacted requirement and a related evidence. In case of lack of one of these two elements (requirement and/or evidence), there is no finding to report.

### 3.7. Record keeping

The present guide does not provide further guidance for record keeping considering that the EMAR 145.B.55 and associated AMC & GM are sufficiently clear.

### 3.8. Exemptions for an EMAR 145 AMO

#### 3.8.1. Introduction

There may be occasions when the EMAR 145 AMO is unable to comply with the EMAR 145 requirements and/or MOE procedures. In such circumstances, a requirement/MOE procedure exemption may be applied for, to seek the granting of exemptions from extant requirements and/or MOE procedures. When granting an exemption, the NMAA must be satisfied that any risks associated with non-compliance have been fully considered and assessed.

Exemptions from extant requirements and/or MOE procedures may be employed at the request of an EMAR 145 AMO within the regulated environment and when agreed by the NMAA. Exemptions should be periodically reviewed by the NMAA.

Exemptions should be approved or rejected at the appropriate level within the NMAA. This signatory level should be dependent upon type, complexity or whether the request is novel and/or contentious.

#### 3.8.2. Process

When the need for a requirement and/or MOE procedures exemption is identified, an application should be made to the NMAA. It is suggested that the application should include the following material as a minimum:

- The details of any previous exemption, if relevant;
- The requirement and/or MOE procedure that causes difficulty for compliance and a description of why the application for an exemption is sensible;
- A risk assessment and risk mitigation;
- Supporting comments and documents should be annotated as references;
- An overall statement about the request; this may not be required if it is a simple request, but if there are multiple issues it can help to clarify the detail.

The application should be approved by the Accountable Manager.

#### 3.8.3. Initial Action

When the NMAA receives an application, it should be allocated a reference number and this number should be forwarded to the originator to confirm receipt. The NMAA should then establish if the exemption contains the required information to progress the application.

It is recommended that from the time of receipt of all the required information to releasing a response back to the originator should take no longer than 30 working days. If it is likely that the 30-day timescale should not be met, then the originator should be informed and regularly updated until the exemption is approved and issued or rejected.

### **3.8.4. Closure Action**

The exemption should ultimately be approved/rejected. Once completed, the NMAA's response should be sent to the originator with details of the agreement and any conditions/requirements such as enhanced recording/monitoring activity.

### **3.8.5. Validity of exemptions**

NMAA exemptions should be valid for the stipulated timescale. If a renewal is required, then this should be applied for at least 1 month before the exemption expiry date. Submission of an exemption request does not constitute compliance or guarantee that it will be approved. EMAR 145 AMOs no longer requiring an exemption should submit a cancellation request to the NMAA.

Exemptions should remain valid unless the specified conditions/requirements change.

## **3.9. Limitation, suspension and revocation of an approval**

### **3.9.1. Notification of NMAA decision**

Based upon a recommendation to limit, suspend or revoke the approval of an EMAR 145 AMO, the NMAA should make a decision in relation to the approval and formally notify the maintenance approval holder about:

- The NMAA decision to limit, suspend or revoke the EMAR 145 approval;
- The audit report (e.g. EMAR Form 6) showing the level 1 and level 2 finding(s).

### **3.9.2. MO action and response**

The MO is expected to:

- Acknowledge receipt of the letter, confirming that the MO has put in place the restrictions required by the NMAA;
- Take immediate corrective action to the level 1 finding(s) based upon the results of the root cause analysis and informed the NMAA accordingly;
- Identify – if applicable - the EMAR 145 maintenance release certificates signed that are relevant to the significant non-compliance (e.g. aircraft/engine/component);
- Ensure - when necessary - that additional maintenance or re-certification of all affected products/components is accomplished;
- Inform - when necessary - the relevant CAMO/Operating Organisation/MO and any concerned Airworthiness Authority (e.g. NMAA, CAA, etc.) about the significant non-compliance and the results of the associated non-compliance investigation;
- Propose the NMAA with a corrective action plan (CAP) for the level 2 findings within the defined time frame. This CAP can include the long-term corrective action related to the level 1 finding(s).

Where the EMAR 145 AMO fails to comply with any of the above-mentioned actions, the NMAA should reevaluate the impact on the EMAR 145 approval (e.g. revocation of the EMAR 145 approval).

In case of revocation of an approval, the MO shall immediately send the original approval certificate back to the NMAA.

## 4. EMAR 145 specific activities

### 4.1. EMAR 66 licenses

The EMAR 145.A.30 and EMAR 145.A.35 require that the Certifying Staff (C/S) and Support Staff (S/S) shall own a valid EMAR 66 license with the appropriate Aircraft Type training endorsed (applicable for aircraft maintenance under ratings “Ax”).

Therefore, this particular point shall be verified by the NMAA in charge of the assessment of the EMAR 145 application and shall be considered as a prerequisite before performing any on-site approval audit or issuing any EMAR 145 approval for aircraft Base/Line maintenance (ratings “Ax”).

The categories of the EMAR 66 licenses of the C/S and S/S shall be consistent with the requested/approved EMAR 145 scope of work: Base and/or Line maintenance.

Furthermore, the aircraft Type/model endorsed on the EMAR 66 licenses shall be consistent with the requested/approved EMAR 145 scope of work. The precise Type/model of aircraft to be reported shall originate from the aircraft Type Certificate.

Note: Further guidance for issuing licenses by NMAA is contained in the EMAR 147/66 Implementation Guide for NMAAs.

### 4.2. Occurrence reporting and any other input

The NMAA should assess any occurrence report or any other input in order to determine if any further action is necessary (e.g. audit, etc.).

Note: Further guidance for occurrence reporting is contained in the EMAD 20-8 chapter of the EMAD 20.

## 5. List of annexed/referenced documents

Many available documents (e.g. best practices, check-lists, etc.) originate from various sources (e.g. EASA, CAAs, NMAAs, etc.). Given the associated workload and, as a first step for the Edition 1.0 of the present Guide, it was considered that the most pragmatic way was to annex and/or reference them, as benchmarks/examples, in this chapter.

The following documents are examples:

- BE Audit check-list for BMAR 145 AMO: refer to Annex 1;
- FR question set for Accountable Manager & Form 4 holders: refer to Annex 2;
- Initial approval flow chart: refer to Annex 3;
- Continuing oversight & management of changes flow chart: refer to Annex 4;
- FR audit report for EMAR 145: refer to Annex 5.

## Annex 1 - BE audit check-list for BMAR 145 AMO

<b>System Audit Checklist – for 145 Maintenance Organisation</b>
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MO location:  
Hangar/building/office:

Report N°:  
Date of survey:  
Surveyor(s) :

**Applicability: Management (Mgt) / Planning (PI) / Production (Pr) / Storage (St)**

NOTE Each box must be completed with one of these four indicators :

- V: compliant;
- N/A: requirement Not Applicable to the activity at the location surveyed (the reason for N/A should be stated as well)
- N/R: requirement is not checked during this survey

### 145.A.25 - Facility Requirements

A	Mgt/PI/Pr/St
<b>Facilities:</b> appropriate	
Protection from the weather elements	
Aircraft hangar visit plan	
<b>Specialised workshops:</b> segregated; adequate; contamination free	
<b>Line maintenance:</b> access to the hangar	
Aera for maintenance staff	
B	Mgt/PI/Pr/St
<b>Office accommodation:</b> (e.g. for Bex; technical records; quality)	
Sufficient room to carry out assigned tasks	
C	Mgt/PI/Pr/St
<b>Working environment:</b> appropriate // temperature control // contamination hazard // general lighting and specific lighting // noise levels; personal equipment to stop excessive noise	
<b>Specific environmental requirement:</b> appropriate and conform to maintenance data? Environment: acceptable level (T°; moisture; hail; ice; snow; wind; light; dust)	
D	Mgt/PI/Pr/St
<b>Secure:</b> access restricted to authorised personnel	
<b>Storage conditions</b> must ensure segregation of serviceable (A/C components and material) from unserviceable (A/C components, material, equipment and tools).	
Incoming inspection / tagging of parts.	
<b>Storage facilities:</b> aircraft / components / equipment / tools and material; well-ventilated; // manufacturers storage recommendations // storage racks.	
<b>Conditions of storage:</b> Manufacturer's instructions followed (e.g. tyres); A/C components should remain packaged	

**QM Guidance:** Ref MOE 1.8 – 2.7

**COMMENT :**

**145.A.30 - Personnel requirements**

<b>A</b>		<b>Mgt</b>
<b>Accountable Manager:</b> Ensure that all necessary resources are available // establish and promote the safety and quality policy // demonstrate a basic understanding of this part		
<b>B</b>		<b>Mgt</b>
<b>Management structure</b> of the organisation: senior person or group of persons nominated. Base maintenance manager // line maintenance manager // Workshop manager // Quality manager		
Who deputises in the case of lengthy absence of said manager(s)		
<b>C</b>		<b>Mgt</b>
<b>Quality Mgr:</b> Person with responsibility for monitoring the quality system including the feedback system		
<b>D</b>		<b>Mgt/PI</b>
<b>Production man-hours plan:</b> per activity (base, line, workshop, ...). Planners, mechanics, specialised services staff (welding, NDT, ...), supervisors, certifying staff and auditors to plan, perform, supervise, inspect, and monitor quality		
Procedure to reassess the work when actual staff is less than the planned staffing level		
Reviewed at least every 3 months and updated when necessary		
<b>E</b>		<b>Mgt</b>
<b>Competence of personnel:</b> Procedure must be established to control the <u>competence</u> of maintenance, management and quality audit personnel		
Expertise related to the job function // understanding of the application of human factors and human performance issues; Assessment for Initial human factors training // Human factors continuation training. Initial human factors training syllabus. Initial training on fuel tank safety (CDCCL tasks)		
<b>F</b>		<b>Mgt</b>
<b>NDT (non-destructive test):</b> Personnel who carries out NDT must be qualified iaw the European standard (EN4179) or equivalent standard recognised by BMAA; <b>Specialised tasks (non-destructive inspections):</b> personnel must be appropriately qualified to official recognised standards. Properly trained and assessed for their competence with the process (e.g. boroscopic inspection)		
<b>G</b>		<b>Mgt</b>
<b>Line maintenance:</b> Certifying staff qualified as Cat B1, B2, B ARM, as appropriate, iaw Part-66 and 145.A.35		
May also use Certifying staff qualified as category A and B2 iaw Part-66 plus 145.A.35 → minor scheduled line maintenance and simple defect rectification.		
<b>H</b>		<b>Mgt</b>
<b>Base maintenance:</b> Certifying staff qualified as category C iaw PART-66 and 145.A.35; In addition, appropriate type rated staff CAT B1 and B2 to support CAT C. Register to be maintained for CAT B1 & B2 support staff.  <b>B1 &amp; B2 support staff</b> ensure that all relevant tasks or inspections have been carried out before the CAT C issues the CRS; <b>CAT C</b> ensure that all required maintenance work has been accomplished during the base maintenance or work package		
<b>I</b>		<b>Mgt</b>
<b>Certifying staff of components</b> Certifying staff qualified following approved formation by the BMAA		
<b>J</b>		<b>Mgt</b>
<b>Specific circumstances :</b>		
<b>Repetitive pre-flight AD carry out by the flight crew:</b> Sufficient practical training + limited certification authorisation + flight crew licence.		

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<p><b><u>Aircraft operating away from a supported location:</u></b> Sufficient practical training + limited certification authorisation (commander and/or the flight engineer on the basis of the flight crew licence held) – must be specified in MOE procedure</p>	
<p><b><u>A/C grounded at a location other than MOB where no appropriate Certifying staff is available:</u></b></p> <ol style="list-style-type: none"> <li>1) One-off certification authorisation of its employees holding equivalent type authorisations on aircraft similar.</li> <li>2) One-off certification authorisation to a person conform with conditions (5 years experience /...) provided there is no organisation appropriately 145 approved</li> </ol> <p>Report to BMAA within 7 days after issuing such certification authorisation – must be specified in MOE procedures. Any such maintenance that could affect flight safety is re-checked by an appropriately 145 approved organisation.</p>	
<p><b><u>QM Guidance:</u></b> Ref MOE 1.6 – 1.7 – 2.16 – 2.22 – 3.4 – 3.11 – 3.13 – 3.14</p>	
<p><b><u>COMMENT :</u></b></p>	

### **145.A.35 - Certifying staff and support staff.**

<b>A</b>	<b>Mgt</b>
Adequate knowledge and understanding of relevant A/C, A/C component(s) and organisation procedures (training and examination)	
<b>B</b>	<b>Mgt</b>
Issuance of a certification authorisation to certifying staff in relation to the aircraft maintenance licence PART 66	
<b>C</b>	<b>Mgt</b>
All Certifying staff and support staff are <u>involved in at least 6 months / 2 years period</u> – meaning: has certified and/or carried out maintenance on relevant aircraft or component as specified on certification authorisation	
<b>D</b>	<b>Mgt</b>
Continuous training for certifying staff and support staff in each 2 years period: relevant technology updating, organisation procedures, human factor issues, fuel tank safety, EWIS -Recommended that such training is reviewed at least once in every 2 years period-	
<b>E</b>	<b>Mgt</b>
Programme for the continuous training for certifying staff and support staff + (MOE) procedure to ensure compliance with 145.A.35 (issuing certification authorisation) and Part 66	
<b>F</b>	<b>Mgt</b>
Assessment all prospective Certifying staff for competence, qualification and capability before issue or re-issue of a Part 145 certification authorisation + (MOE) procedure	
<b>G</b>	<b>Mgt</b>
Certification authorisation that clearly specifies <u>the scope and limits of such authorisation</u>	
<b>H</b>	<b>Mgt</b>
Certification authorisation must be in a style that makes its scope clear, Where codes are used to define scope, the organisation shall make a code translation readily available	
<b>I</b>	<b>Mgt</b>
Responsability of the quality system for <u>issuing 145 certification authorisations</u> to certifying staff.	
<b>J</b>	<b>Mgt</b>

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<b>Retention of record:</b> all certifying staff and support staff with detail of licence held under Annex III (Part 66), scope of the certification authorisations, training completed and particulars of staff with limited or one-off certification authorisation - At least 3yr after leaving-		
<b>K</b>		<b>Mgt</b>
Certifying staff must be provided with <u>a copy</u> of their certification authorisation.		
<b>L</b>		<b>Mgt</b>
Certifying staff must be able to produce their certification authorisation within 24 hours.		
<b>M</b>		<b>Mgt</b>
The <u>minimum age</u> for certifying staff and support staff is 21 years.		
<b>N</b>		<b>Mgt</b>
<b>Category A aircraft <u>task training</u></b> carried out by MO 145 or MTO 147; Include practical hands on training and theoretical training; Satisfactory completion of training: examination or workplace assessment carried out		
<b>O</b>		<b>Mgt</b>
<b>Category B2:</b> <u>Maintenance</u> performed on avionics and electrical systems Electrical and avionics <u>tasks</u> within powerplant and mechanical systems. <ul style="list-style-type: none"> <li>▪ Satisfactory completion of the relevant CAT A aircraft task training (practical/theoretical) and 6 months of documented practical experience.</li> <li>▪ Demonstrated by an examination or by workplace assessment</li> </ul>		

**QM Guidance: Ref MOE 2.16 - 3.4 – 3.5 – 3.7 – 3.8 – 3.11 - 3.12 – 3.13 – 3.14**

**COMMENT :**

### **145.A.40 - Equipment, tools and material.**

<b>A</b>		<b>PI/Pr</b>
Necessary equipment, tools and material		
Control register (special tools / personal tools / alternative tooling / tools rarely needed) and procedures		
Use of alternative tooling or equipment (iaw procedure)		
Equipment and tools must be permanently available / case of tool and equipment infrequently used		
Sufficient aircraft access equipment and inspection platforms/docking		
<b>B</b>		<b>PI/Pr</b>
Where necessary, tools, equipment and particularly test equipment to be controlled and calibrated to officially recognised standards		
<u>Labelling</u> system for all tools, equipment and test equipment (due date)		
Inspection, service or calibration on regular basis iaw the manufacturer instructions		
A <u>register</u> of all precision tooling and equipment + record of calibrations and standards used		

**QM Guidance: Ref MOE 2.4 – 2.5 – 2.6 – L2.1**

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**COMMENT :**

### **145.A.42 - Acceptance of components**

<b>A</b>	<b>Pr/St</b>
<b><u>Classification of the components:</u></b> satisfactory condition (Form 1 or equivalent); unserviceable; unsalvageable (reached their certified life limit or contain a non-repairable defect); standard parts (IPC, maintenance data); material both raw and consumables (certificate of conformity); Appropriately segregated	
<b>B</b>	<b>Pr/St</b>
<b><u>Eligibility</u></b> of the component prior to installation (modification and / or AD standards / Life limited part)	
<b>C</b>	<b>Mgt/Pr</b>
<b><u>Fabrication</u></b> of a restricted range of parts under the scope of a 145 approval – must be specified in MOE procedure- In the course of undergoing work within its own facilities (only for internal use)	
<b>D</b>	<b>Pr/St</b>
Components which have reached their certified life limit or contain a non-repairable defect shall be classified as unsalvageable. Ensure that they are disposed in a manner that does not allow them to be returned to service	

**QM Guidance:** Ref MOE 2.1 – 2.2 – 2.9 - 2.19 – 2.20 - L2.1 – L2.5 – L2.6

**COMMENT:**

### **145.A.45 - Maintenance data.**

<b>A</b>	<b>PI/Pr</b>
<b><u>Availability and use</u></b> applicable up to date maintenance data to perform maintenance including modifications and repairs.	
<b>B</b>	<b>PI/Pr</b>
<b><u>Maintenance data:</u></b> Tech Doc approved by MatMan, including SB, TCTO, AD	
<b>C</b>	<b>PI/Pr</b>
If found, any inaccurate, incomplete or ambiguous procedures, practices, information or maintenance instructions contained in the maintenance data: recorded and notified to the MatMan	
<b>D</b>	<b>PI/Pr</b>
The MO must provide a common <b><u>Workcard or worksheet system</u></b> throughout the relevant department. <b><u>Workcards and /or Worksheets system:</u></b> reference to the particular maintenance task(s) contained in such maintenance data; <b><u>Complex maintenance tasks:</u></b> subdivided into clear stages	
Electronic dBase: adequate safeguards and a back-up electronic (updated within 24 hours)	
<b>E</b>	<b>PI/Pr</b>
All applicable maintenance data must be readily available for use by maintenance personnel: in base / line / workshop	
Data in close proximity of the aircraft / component maintenance being performed	
Computer system / microfilm or microfiche readers/printers (sufficient number)	

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<b>F</b>	<b>PI/Pr</b>
<b><u>Maintenance data is kept up to date:</u></b> control list / subscription / monitoring of amendment status. Special attention for life limited part	
Operator controlled and provided maintenance data; written confirmation // work orders specifying the amendment status // on operator amendment list	

<b><u>QM Guidance:</u></b> Ref MOE 2.8 – 2.9 – 2.10 – 2.11 – 2.12 – 2.13 – 2.21 – 2.27
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<b><u>COMMENT :</u></b>
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### **145.A.47 - Production planning.**

<b>A</b>	<b>PI/Pr</b>
(Bex) - System appropriate to the amount and complexity of work to plan the availability of all necessary personnel, tools, equipment, material, maintenance data and facilities in order to ensure the safe completion of the maintenance work.	
The production planning function elements: scheduling the maintenance work ahead; during maintenance work, organising maintenance teams and shifts and provide all necessary support	
<b>B</b>	<b>PI/Pr</b>
The planning of maintenance tasks, and the organisation shifts, must take into account human performance limitations	
<b>C</b>	<b>PI/Pr</b>
Shift or personnel changeover, relevant information must be adequately communicated between outgoing and incoming personnel.	
Understand and communicate the important elements of the job or task (Outgoing personnel)	
Understand and assimilate the information(Incoming personnel)	
Formalised process for exchanging information between outgoing and incoming persons.	

<b><u>QM Guidance:</u></b> Ref MOE 2.26 – 2.28
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<b><u>COMMENT :</u></b>
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### **145.A.48 - Performance of maintenance.**

<b>A</b>	<b>Pr</b>
Procedure to ensure that: <u>a general verification is carried out:</u> aircraft or component is clear of all tools, equipment and any extraneous parts or material, all access panels removed have been refitted	
<b>B</b>	<b>PI/Pr</b>
Procedure to ensure that: an <u>error capturing method</u> is implemented after the performance of any critical maintenance task - <i>Adequate for the work and the disturbance of the system (visual inspection, operational check, rigging check, functional check) - Independent Inspection // Reinspection (only one person is available)</i>	
<b>C</b>	<b>PI/Pr</b>

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<p>Procedure to ensure that: the <u>risk of multiple errors</u> during maintenance and the <u>risk of errors being repeated in identical maintenance tasks</u> are minimised</p> <ol style="list-style-type: none"> <li>1) <i>Plan the performance by different persons of the same task in different systems;</i></li> <li>2) <i>Duplicate inspection or re-inspection procedure;</i></li> <li>3) <i>Prevent omissions: task or group of tasks should be signed-off after completion // authorised personnel // critical steps to be clearly identified // personnel under supervision</i></li> </ol>	
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<p><b>QM Guidance:</b> Ref MOE 2.22 – 2.23 – 2.25 – 2.26 – 2.28 – L2.3</p>
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<p><b>COMMENT:</b></p>
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### **145.A.50 - Certification of maintenance.**

<b>A</b>	<b>PI/Pr</b>
Certificate of release to service (aircraft // aircraft component) must be issued	
Appropriately authorised staff (Certifying staff)	
A CRS must not be issued in case of any non-compliance known that endangers flight safety	
All maintenance ordered has been properly carried out Task carried out to a fuel system (CDCCL): marking "CDCCL task"	
<b>B</b>	<b>PI/Pr</b>
Before flight: base and line maintenance, at the completion of any maintenance → A/C Form Contains basic details of maintenance carried out // date // certifying staff identity // signature // cross-reference to work-package	
<b>C</b>	<b>PI/Pr</b>
New defects or incomplete maintenance work shall be brought to attention CAMO: For obtaining agreement to rectify such defects or completing the missing elements of maintenance work order → Deferral/Tech waiver procedure	
<b>D</b>	<b>PI/Pr</b>
Issued CRS at the completion of any maintenance on A/C component whilst off A/C requires a EMAR/BMAR Form 1 or equivalent	
<b>E</b>	<b>PI/Pr</b>
When the MO is unable to complete all required maintenance, this must be entered in the CRS	
<b>F</b>	<b>PI/Pr</b>
When A/C is grounded outside MOB, (MOE) procedure for component temporarily fitted without appropriate release certificate, but with suitable serviceable tag and operator's agreement	

<p><b>QM Guidance:</b> Ref MOE 2.15 – 2.16 – 3.9 – 3.10</p>
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<p><b>COMMENT :</b></p>
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### **145.A.55 - Maintenance records.**

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<b>A</b>	<b>PI/Pr</b>
Record all details of work carried out, including subcontractor's documents → ILIAS	
<b>B</b>	<b>PI/Pr</b>
Copy of certificate of release to service to the aircraft operator // basic details of maintenance carried out / specific data.	
<b>C</b>	<b>PI/Pr</b>
Record stored: protection from damage, alteration and theft	
Backup and retention period (three years)	

**QM Guidance:** Ref MOE 2.13 - 2.14 – 2.16 - 2.17 – 2.21

**COMMENT :**

### **145.A.60 - Occurrence reporting.**

<b>A</b>	<b>Mgt/PI/Pr</b>
Acceptable internal occurrence reporting system: collection and evaluation of such reports, including the assessment and extraction of those occurrences to be reported to BMAA	
<b>B</b>	<b>Mgt/PI/Pr</b>
All pertinent information and evaluation results; adequate format	
<b>C</b>	<b>Mgt/PI/Pr</b>
Reporting to the operator (COA ASD)	
<b>D</b>	<b>Mgt/PI/Pr</b>
Reports delay: 72 hours	

**QM Guidance:** Ref MOE 2.18

**COMMENT :**

### **145.A.65 - Safety and quality policy, maintenance procedures and quality system.**

<b>A</b>	<b>Mgt</b>
The MO must establish a safety and quality policy to be included in the MOE	
<b>B</b>	<b>Mgt/PI</b>
<b><u>Maintenance procedures</u></b> must be established, taking into account human factors and human performance, to ensure good maintenance practices and compliance requirements	
Include a clear contract - between CAMO and MO – before providing maintenance services	
Maintenance procedures must cover all aspects of the activity: standards, procedures, personnel	

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Procedure must be established that cover the control of any specialised services (NDT, paint,...) and lay down the standards to which the MO intends to work		
<b>C</b>		<b>Mgt</b>
The MO must establish a <b><u>quality system</u></b> that includes:		
Independent audits in order to monitor Aircraft/ aircraft component standards and adequacy of procedure to ensure good maintenance practices		
Product sampling and Procedure - one product on each product line at least every 12 months in accordance with a scheduled plan -		
A report should be raised each time an audit is carried out and must describe: what has been checked, the resulting findings against applicable requirements, procedure and products		
Audit of products / workshop activities / personnel qualification / work card / technical log completion / process exemptions / special process control / finding notified / identified		
All aspects of 145 compliance and product sampling are checked every 12 months: scheduled internal auditing plan, training of the auditors		
<b><u>Quality audit feedback system</u></b> (may not be contracted to outside persons):		
Findings properly investigated and corrected in a timely manner		
Reports to relevant departments		
Information to Quality Department or to auditor after corrective actions		
Feedback to Managers and Accountable Manager - Meeting at least twice per year -		
Records storage period - at least 2 years) -		

**QM Guidance:** Ref MOE 1.2 - 2.23 – 3.1 – 3.2 – 3.3 – 3.6

**COMMENT :**

### **145.A.70 - Maintenance organisation exposition.**

<b>A</b>		<b>Mgt</b>
Provide a maintenance organisation exposition (MOE) with the following information:		
(1)	Statement by the Accountable Manager	
(2)	The organisation its safety and quality policy	
(3)	The title(s) and name(s) of Mgt person(s)	
(4)	The duties and responsibilities of Mgt person(s)	
(5)	Organisation chart	
(6)	List of certifying staff, support staff within their scope of approval	
(7)	A general description of manpower resources	
(8)	A general description of the facilities	
(9)	Scope of work – including capability list for components	
(10)	The notification procedure for approved organisation changes	
(11)	The maintenance organisation exposition amendment procedure	
(12)	Maintenance organisation's procedure and quality system	
(14)	List of subcontracted organisations	

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(15)	List of line stations	
(16)	List of contracted organisations	
(6); (14) to (16)	→ may be kept as separate documents (softcopy)	
<b>B</b>		<b>Mgt</b>
	MOE and subsequent changes must be approved by BMAA	
<b>C</b>		<b>Mgt</b>
	Minor changes may be approved through a MOE procedure	

**QM Guidance:** Ref MOE 1.1 – 1.2 – 1.3 – 1.4 – 1.5 – 1.9 – 1.10 – 1.11

**COMMENT :**

### **145.A.75 - Privileges of the organisation.**

<b>A</b>		<b>Mgt</b>
	Maintain any A/C or A/C component: locations identified in approval certificate // MOE	
<b>B</b>		<b>Mgt</b>
	Arrange for maintenance at another MO: subcontracting under the quality system of the AMO	
	Procedure for the control of subcontractors	
	Pre audit procedure; Record audits of the sub-contractor; Corrective action follow up plan; Know when subcontractor are being used	
<b>C</b>		<b>Mgt</b>
	Maintain any A/C or A/C component: unserviceability of the A/C or occasional line maintenance (MOE procedure)	
<b>D</b>		<b>Mgt</b>
	Maintain any A/C or A/C component: locations identified as a line maintenance location (scope of work and list in MOE)	

**QM Guidance:** Ref MOE 1.9 - 2.1

**COMMENT :**

### **145.A.80 - Limitations on the organisation.**

<b>A</b>		<b>Mgt</b>
	Maintain an A/C or A/C component for which it is approved when all necessary facilities, equipment, tooling, material, maintenance data and Certifying staff are available	

**QM Guidance:** Ref MOE 1.9

**COMMENT :**

**145.A.85 - Changes to the organisation.**

A	Mgt
<b><i>The MO must notify any of the following changes :</i></b>	
The name of the organisation	
The main location of the organisation	
Additional locations of the organisation	
The accountable Manager	
Any of the persons nominated point 145.A.30(b)	
The facilities, equipment, tools, material, etc...	
MO procedures	
Approved scope of work	
Certifying staff and airworthiness review staff	
Notification to the Authority	
Changes to Capability lists controlled and recorded	

**QM Guidance:** Ref MOE 1.10 – 1.11

**COMMENT :**

**145.A.90 - Continued validity.**

A	Mgt
The approval (unlimited duration approval) remain valid subject to: 1) the maintenance organisation remains in compliance with BMAR 145; 2) the BMAA being granted access to the 145 MO; 3) the MOA certificate not being surrendered or revoked	
B	Mgt
Upon surrender or revocation, the approval shall be returned to the BMAA	

**QM Guidance:**

**COMMENT :**

**145.A.95 - Findings → N/A for units**

<b>A</b>	
<b><u>Level 1:</u></b> any significant non-compliance with BMAR 145 requirements which lowers the safety standard and hazards seriously the flight safety	
<b>B</b>	
<b><u>Level 2:</u></b> any non-compliance with BMAR 145 requirements which could lower the safety standard and hazard the flight safety.	
<b>C</b>	
After receipt of findings, the MO shall: <ol style="list-style-type: none"> <li>1) define a corrective action plan;</li> <li>2) demonstrate corrective action to the satisfaction of the BMAA within a period agreed with the BMAA</li> </ol>	

**QM Guidance:**

**COMMENT :**

## Annex 2 - FR question set for Accountable Manager & Form 4 holders

### 1. Interview of the Accountable Manager

#### A. Conduct the interview

The objective of the interview is to ensure that the Accountable Manager (AM) is aware of the commitments he/she made through the application for an EMAR 145 approval.

After reminding the mission entrusted to the NMAA (the safety of military/state owned aircraft), the NMAA lead auditor (usually accompanied by the NMAA Airworthiness Director (AD) or his Deputy) should discuss with the AM the commitments he/she endorses in accordance with the MOE.

#### B. Participants to the interview

The interview of the AM could take place as follow:

- Interview between the NMAA lead auditor/AD and the AM eventually accompanied by the EMAR Form 4 nominated managers (Maintenance Manager, Quality Manager, etc.);
- This interview could provide the opportunity for the NMAA to debrief the audit that has been carried out and to have confirmation that the AM requests effective actions from its management team and has a message in line with his/her commitment.

#### C. Presentation

The NMAA should briefly present its role and organization, but it should not be forgotten that it is up to the AM to present and explain how he/she intends to comply with the EMAR 145 requirements as regards to the MO's mission. So, beware of the trap to focus the interview on the NMAA; the presentation of the NMAA should only be introductory, the rest of the interview must be focused on the MO.

#### D. Topics to be addressed

Without wanting to put the AM in trouble, it is up to him/her to demonstrate to the NMAA that he/she masters the commitments he/she has made and therefore that he/she has a global understanding of the main areas of the EMAR 145 requirements, in accordance with the scope of work of his/her MO, namely :

- Responsibilities of the AM;
- Responsibilities of the Maintenance Manager, Quality Manager, nominated managers,... (EMAR Form 4 holders);
- Quality system (Quality manager, AM annual review & management review...);
- Maintenance Organisation exposition (MOE);
- Maintenance;
- Maintenance training;
- Human Resources;
- EMAR 66 licenses (only for aircraft maintenance – EMAR 145 ratings “Ax”).

Indeed, EMAR 145 requires that the AM should demonstrate that he has a global overview of the EMAR 145 and that he has the power/levers to allow the MO to meet the EMAR 145 requirements. It is therefore the responsibility of the NMAA to discuss potential topics not covered by the AM in order to ensure that he is well informed of all the commitments incumbent upon him.

#### E. Questions to be asked

As mentioned above, this interview is not conducted on the basis of a NMAA checklist but by deeper discussions on points that have not been addressed. The following questions address, in a non-exhaustive way, the points that should lead to clear answers from the AM:

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- What are the implications of the implementation of EMAR 145 on the operation and the mission of your MO?
- What management tools have you put in place to ensure your relationships with your nominated managers (EMAR Form 4 holders)?
- How is the Quality system implemented and what is your involvement in the follow-up of actions? corrective and preventive measures (indicators, management review, etc.)?

The NMAA has no particular information to provide to the MO for the preparation of the AM interview, except for the framework of the meeting (meeting with the AM following initial approval request or continuing oversight), the names and functions of the NMAA interviewers.

### **2. Interview of the EMAR Form 4 holders**

#### **A. Interview of the Maintenance Manager**

The AM is responsible for the means to be implemented to meet the EMAR 145 requirements, while the Maintenance Manager (MM) is responsible for their implementation. The MM should report to the AM any difficulties he encounters in maintaining compliancy towards the requirements.

The MM should particularly demonstrate to the NMAA:

- How he/she reports to the AM on the functioning of the MO;
- The management tools he/she has implemented to monitor the activity of the MO;
- How he/she monitors the implementation of the corrective actions he/she is in charge of (correction of findings from internal Quality system and/or NMAA audits).

It is the responsibility of the MM to master the main lines of the EMAR 145 scope of work covered by the MOE and to demonstrate to the NMAA his/her involvement in the following topics:

- Maintenance Organisation Exposition;
- Facilities;
- Tools & Equipment;
- Maintenance planning;
- Certification of maintenance process;
- EMAR 66 licenses (only for aircraft maintenance – EMAR 145 ratings “Ax”).

#### **B. Interview of the Quality Manager**

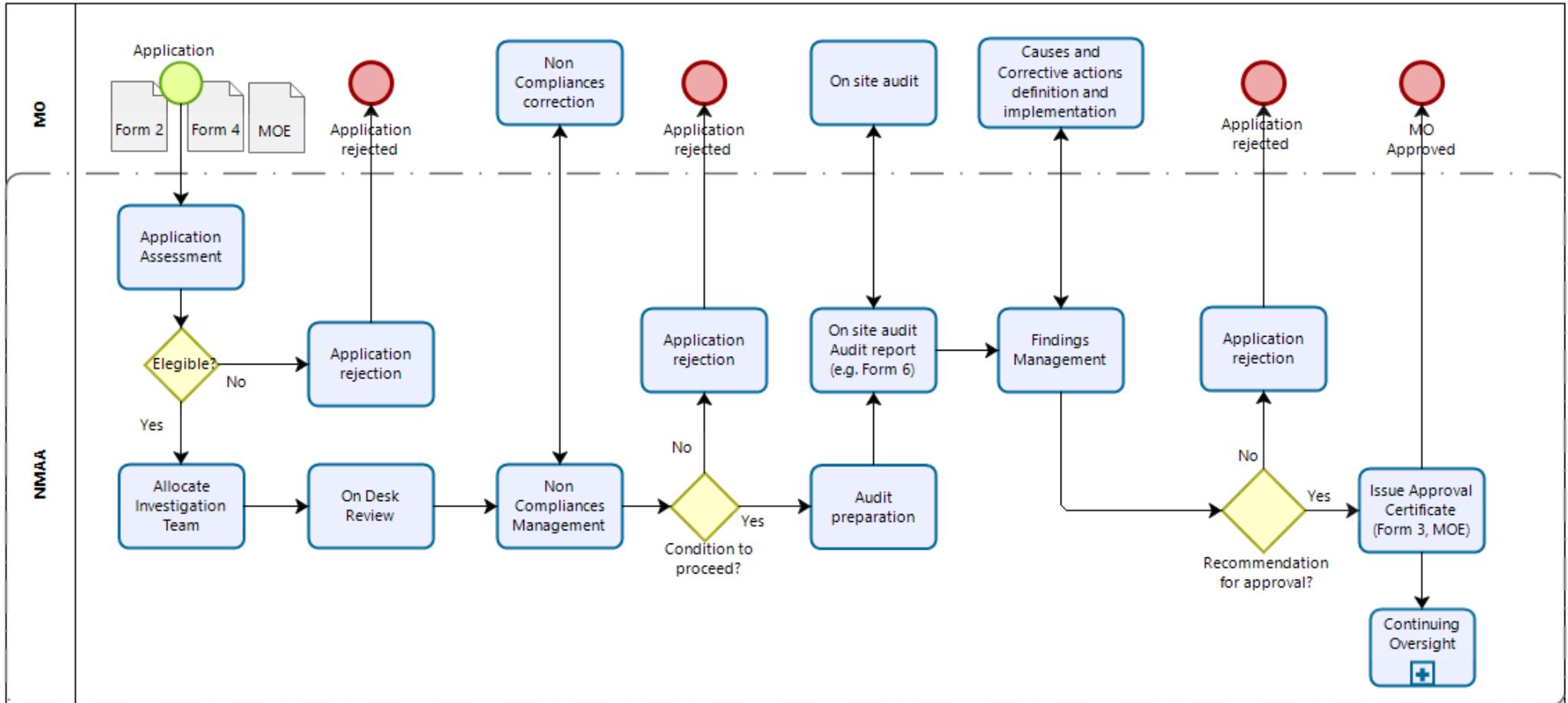
The Quality Manager (QM) is not responsible for the implementation of the EMAR 145 requirements, but his/her role is to control that these requirements are met and, if necessary, to inform the AM of any dysfunction within the MO.

The interview should highlight the direct link between the QM and the AM.

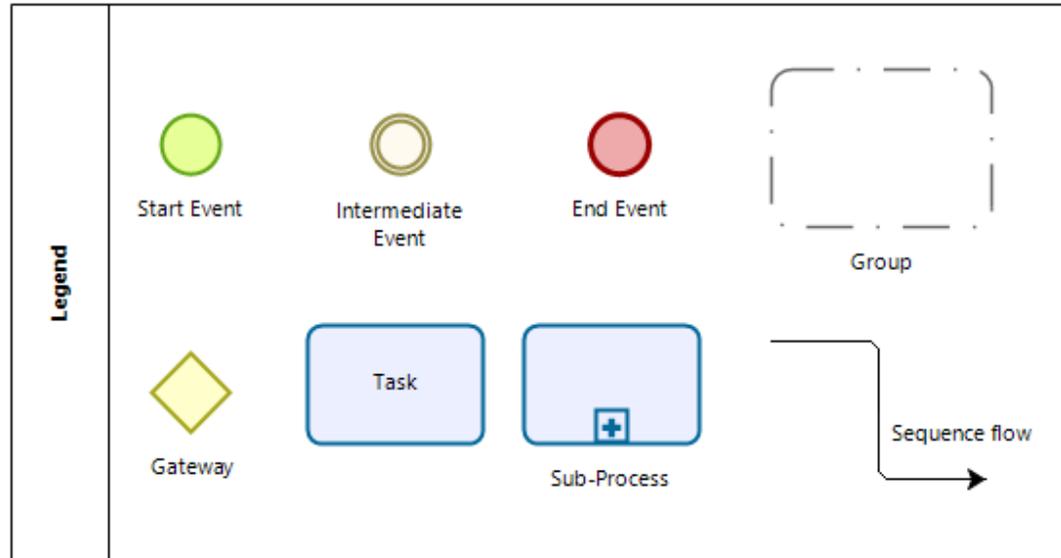
The QM should demonstrate how he/she ensures the independence of the Quality system, in particular, he/she should focus on the following topics:

- Two-year internal audit planning to cover all the EMAR 145 requirements linked to the scope of work of the MO;
- Information feedback to the AM (management review, quality review, etc.);
- Monitoring of the follow-up of corrective actions;
- Monitoring of contractors (if any).

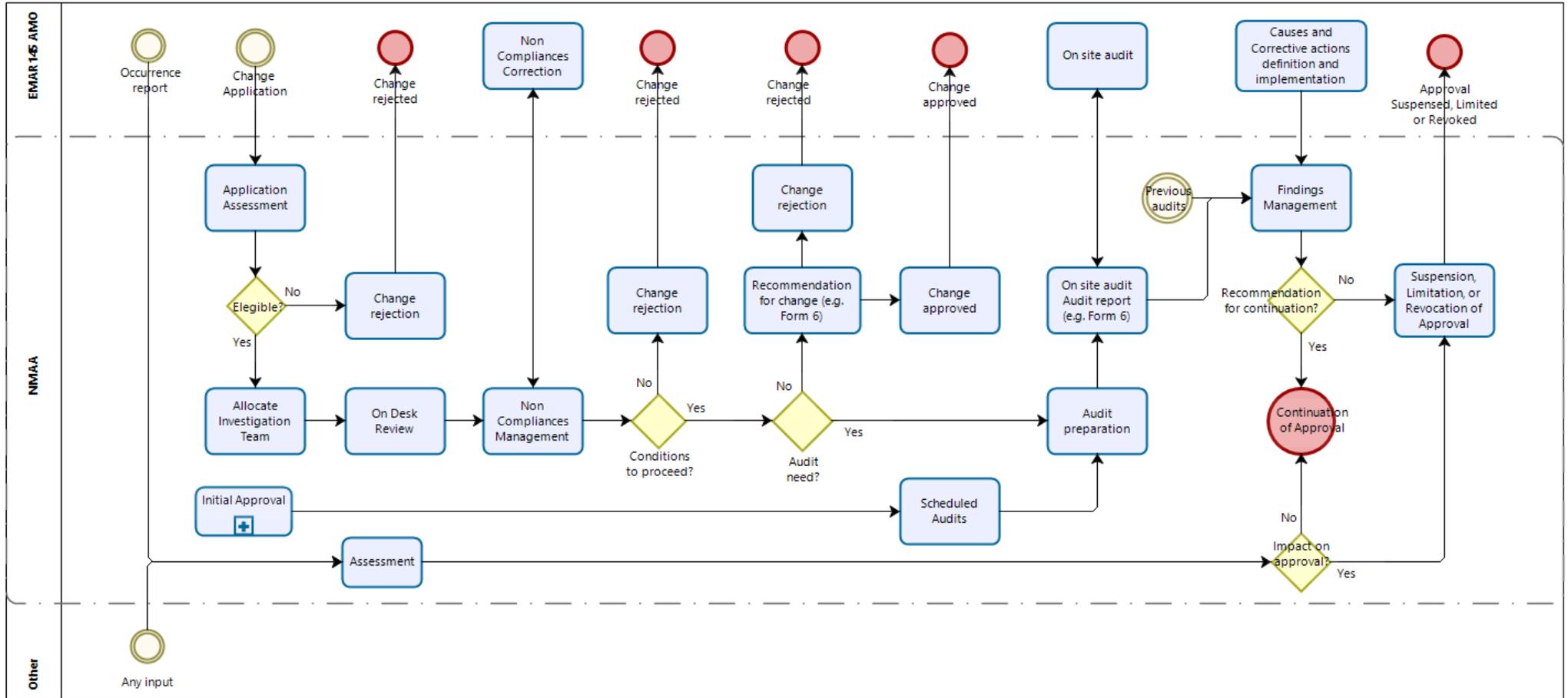
Annex 3 – Initial approval flow chart



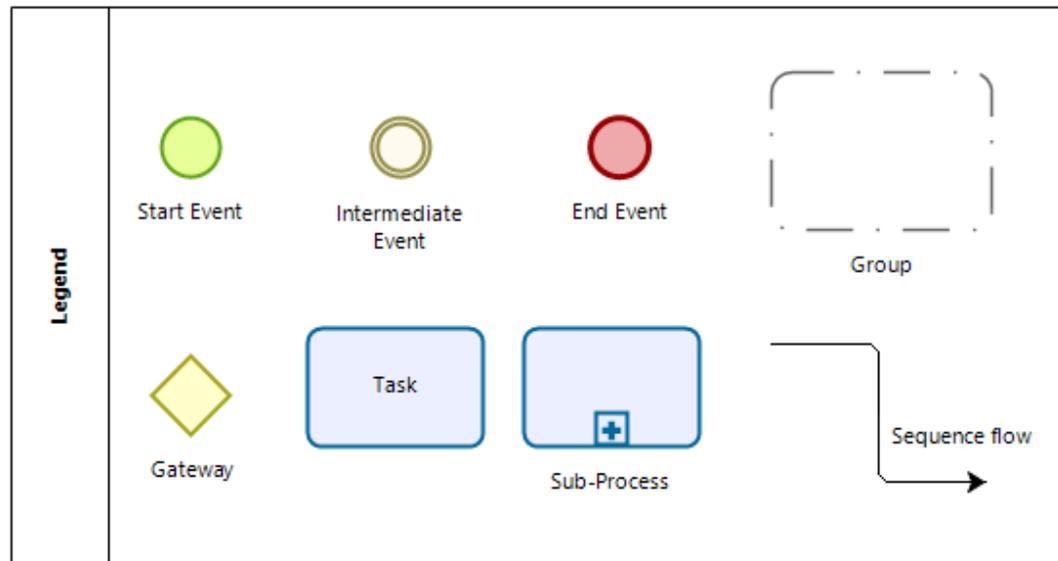
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Annex 4 – Continuing oversight & management of changes flow chart



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## Annex 5 – FR audit report for EMAR 145

 <b>DSAÉ</b> <small>DRCAM ESRNAV EPIA</small>	<b>Audit report</b>	CRIS-145-XX-2016-12-02	Page 39 / 42
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<b>Type</b> <i>Type:</i> Audit for initial approval.	<b>Référence de l'agrément</b> <i>Reference of approval:</i> Not issued yet
<b>Référentiel réglementaire</b> <i>Regulation:</i> - Instruction N°500557/DEF/DSAÉ du 18 février 2016 EMAR (FR); - Decree and Orders « airworthiness ».	<b>Organisme(s)</b> <i>Organisation(s):</i> Air Combat Command (ACC) Maintenance Organisation.
<b>Thème(s)</b> <i>Topic(s):</i> EMAR (FR) 145 all requirements	<b>Site(s) audité(s)</b> <i>Audited site(s):</i> Air Base 102 - DIJON  <b>Périmètre(s)</b> <i>Scope(s):</i> - <b>A1:</b> Rafale, A330-243 MRTT (Line and Base); - <b>B1:</b> ROLLS ROYCE TRENT 772B-60; - <b>B3:</b> APU HONEYWELL GTCP331-350; - <b>C4, C5, C6, C8, C9, C14 et C20.</b>
<b>Date début d'audit</b> <i>Start audit date:</i> 10 December 2016  <b>Date fin d'audit</b> <i>End audit date:</i> 14 December 2016	<b>Catégorie(s)</b> <i>Category(ies):</i> Detailed in the EMAR-145 capacity list V1.0 of 2016/11/15, associated with the maintenance exposition of the ACC (V2.0 of 2016/08/10).

<b>Responsable d'audit</b> <i>Lead Auditor:</i> Major DUPONT Jacques
<b>Auditeur(s)</b> <i>Auditor(s):</i> DURAND Pierre & DELACROIX Charles
<b>Interlocuteur(s)</b> <i>Interlocutor(s):</i> - Air base accountable manager ( <i>Air Base commander</i> ) - Air base quality manager - Air base quality section - Air base maintenance organisations.

<b>Nombre de constats</b> <i>Number of findings</i>  Constatation(s) niveau 1: 01 <i>Level 1 finding(s): 1</i>	<b>Plan d'action accepté le:</b> <i>Corrective Action Plan accepted on:</i>  <i>Visa Responsable d'audit</i> <i>Lead Auditor visa</i>
Constatation(s) niveau 2: 01 <i>Level 2 finding(s): 1</i>	<b>CRIS clos le:</b> <i>Audit report closed on:</i>  <i>Visa Responsable d'audit</i> <i>Lead Auditor visa</i>
<b>Acceptation des constats par l'audité le:</b> <i>Findings acceptance by the audited organisation:</i>  <i>Nom / Fonction</i> <i>Name/rank/function</i>  <i>Visa / date</i>	<b>Signature du Responsable d'audit:</b> <i>Lead Auditor visa :</i>  <i>Nom / Fonction</i> <i>Name/rank/function</i>  <i>Visa / date</i>

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<b>Constat (finding) n° 1: level 1</b> <i>Délai de traitement :</i> <i>Time limit for resolution:</i> <i>Extension du délai:</i> <i>Extended time limit for resolution:</i>	<b>Action(s) corrective(s)</b> <i>Corrective(s) action(s)</i>	<b>Traitement</b> <i>Progress</i>
<p><b><u>EMAR (FR) 145.A.40.a).</u></b>  <i>"The organization shall have available and use the necessary instruments, tools and material ..."</i></p> <p><b><u>EMAR (FR) 145.A.47.a).</u></b>  <i>"The maintenance organization shall have a system appropriate ... to plan the availability of all tools, instruments ..."</i></p> <p><b><u>ACC MOE §2.4.3. Supply of tools and instruments:</u></b>  <i>"These allocations are re-evaluated according to the needs of each technical unit of the ACC MO depending on the scope of activities covered and the forecast load plan"</i></p> <p>The organization does not demonstrate that it has all the necessary tools to carry out maintenance operations related to its field of activity for which it applies (both line and base maintenance). Regarding the A330-MRTT, the availability of tools (see MOE §2.4) is not defined. The planning of maintenance operations scheduled for early 2017 did not consider the availability of the necessary tools. The organization does not demonstrate that it has all the necessary means to carry out the maintenance tasks it has scheduled.</p> <p><b>Lack of means to perform a part of the scope of activity.</b></p>		<p><i>Date de clôture</i></p> <p><i>Closing Date</i></p> <p><i>Visa / date</i></p>
<p><b>Commentaire(s) <i>Comments:</i></b> This finding level 1 only concerns A330-MRTT and not Rafale.</p>		

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<p><b>Constat (finding) n° 2:</b> level 2  <i>Délai de traitement Time limit for resolution:</i></p> <p><i>Extension du délai Extended time limit for resolution:</i></p>	<p><b>Action(s) corrective(s)</b>  <i>Corrective(s) action(s)</i></p>	<p><b>Traitement</b>  <i>Progress</i></p>
<p><b><u>EMAR (FR) 145.A.25. Facility Requirements</u></b>  <i>“d) Secure storage facilities shall be provided for components, equipment, tools and material. Storage conditions ensure segregation of serviceable components and material from unserviceable aircraft components, material, equipment and tools. The conditions of storage shall be in accordance with the manufacturer's instructions to prevent deterioration and damage of stored items. Access to storage facilities shall be restricted to authorised personnel.”</i></p> <p>The Rafale tyres storage room is not controlled in terms of temperature and humidity. The maintenance organization cannot demonstrate that it complies with the storage conditions defined in the manufacturer’s instructions.</p> <p>LOCTITE 221 and 222 (consumables use for both Rafale and A330-MRTT) must be stored at temperatures between 8°C and 21°C. Theses consumables are stored in a cabinet located in the hangar n°18 and no temperature control is performed. The maintenance organization cannot demonstrate that it complies with the required storage conditions defined in the manufacturer’s instructions.</p> <p><b>Non-compliance with the storage conditions control.</b></p>		<p>Date de clôture  <i>Closing Date</i></p> <p><i>Visa / date</i></p>
<p><b>Commentaire(s) Comments:</b></p>		

**Conclusion(s) et proposition de décision:** *Conclusion(s) and draft decision*

During this audit, the organisation and its staff showed a real willingness to comply with the EMAR (FR) 145 regulation. Although acculturation actions still need to be carried out, particularly for the control of the operating procedures of the maintenance organisation, it was found that the system is working.

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All the remarks considered as "axis of improvement" were presented to the quality manager during each daily audit report, they are not included in this audit report.

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**RECOMMENDATIONS**

Considering the national airworthiness regulation (EMAR (FR) 145, decrees and orders) and the result of this audit, the lead auditor is in favour of granting the approval for the following scope of work:

- **A1:** RAFALE – Base and Line maintenance;
- **B1:** ROLLS ROYCE TRENT 772B-60 - according to the limitations mentioned in the MOE V2.0 §1.6.2;
- **B3:** HONEYWELL APU GTCP331-350 - according to the limitations mentioned in the MOE V2.0 §1.6.2;
- **C4, C5, C6, C8, C9, C14 et C20** - according to the limitations mentioned in the MOE V2.0 §1.6.2.

Due to the finding level 1 n°1 and considering the national airworthiness regulation (EMAR (FR) 145, decrees and orders), the audit manager is not in favour of granting the approval for the following scope of work:

- **A1:** A330-MRTT – Base and Line maintenance ;

In addition, the lead auditor recommends the approval of the ACC MO (V2.0 of 2016/08/10).