

# EUROPEAN MILITARY AIRWORTHINESS REQUIREMENT EMAR M AMC & GM

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## **DOCUMENT CONTROL**

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The following table identifies the persons who have approved this document

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#### **STATUS**

The Status of the document can take 3 values:

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**Draft:** Draft version when issued by Task Force and proposed to MAWA Forum.

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#### **EDITION**

Edition will have the following template: Edition X.Y

The value of **X** will change after a **major** modification of the document

The value of Y will change after a minor modification of the document

#### NOTE:

1. This EMAR AMC & GM relies on definitions laid down in EMAD 1. The Forms referred to in this document can be found in the EMAR Forms document.

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# ACCEPTABLE MEANS OF COMPLIANCE & GUIDANCE MATERIAL

**SECTION A** 

**TECHNICAL REQUIREMENTS** 

**SUBPART A - GENERAL** 

#### SUBPART B - ACCOUNTABILITY

#### GM1 M.A. 201(a) Responsibilities

- 1. Within the context of EMAR M, a military Operating Organisation is to be understood as a force structure that operates military aircraft and is responsible for their Continuing Airworthiness.
- 2. The force structure may be a Flight, Squadron, Wing, Command or other organisation as determined by the pMS.

#### GM2 M.A. 201(a) Responsibilities

'Accountability' as used in EMAR M.A.201 stresses that this responsibility cannot be delegated.

#### GM3 M.A. 201(a) Responsibilities

Where an Operating Organisation has responsibility for the Continuing Airworthiness of military aircraft that have been issued with a Military Permit to Fly, the national decrees/laws/regulations applicable to these aircraft are to be followed, supplemented by the conditions identified in EMAR 21 Subpart P.

#### AMC M.A.201(d) Responsibilities

'Qualified person' in this context means an individual who has received appropriate training for the relevant pre-flight inspection tasks to a standard as described in <u>AMC EMAR M.A.301(a)1</u> subparagraph 3.

#### AMC M.A.201(e) Responsibilities

NOT APPLICABLE.

#### AMC M.A.201(h) Responsibilities

- 1. Reference to aircraft includes the components fitted to or intended to be fitted to the aircraft.
- 2. The performance of ground de-icing and anti-icing activities does not require a maintenance organisation approval. Nevertheless, inspections required to detect, and when necessary eliminate de-icing and/or anti-icing fluid residues are considered maintenance. Such inspections should only be carried out by suitably authorised personnel.
- 3. The requirement means that the CAMO is responsible for determining what maintenance is required, when it has to be performed and by whom and to what standard, in order to ensure the continuing airworthiness of the aircraft being operated.

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- 4. The CAMO should therefore have adequate knowledge of the design status (type design data, Airworthiness Directives (AD), airworthiness limitations from the certification programme, fuel tank system airworthiness limitations including Critical Design Configuration Control Limitations (CDCCL), modifications, repairs, operational equipment and, required and performed maintenance).
- 5. The CAMO should ensure adequate co-ordination between flight operations and maintenance to ensure that both will receive all information on the condition of the aircraft necessary to enable both to perform their tasks.
- 6. The requirement does not mean that an Operating Organisation itself performs the maintenance (this is to be done by an EMAR 145 Approved Maintenance Organisation (AMO)) but that the Operating Organisation carries the responsibility for the airworthy condition of aircraft it operates and thus should be satisfied before the intended flight that all required maintenance has been properly carried out.
- 7. When an Operating Organisation is not appropriately approved in accordance with EMAR 145, the CAMO should provide a clear work order to the EMAR 145 AMO. The fact that an Operating Organisation has contracted/tasked an EMAR 145 AMO should not prevent it (or the organisation it contracts/tasks to manage the continuing airworthiness of the aircraft it operates) from checking at the maintenance facilities on any aspect of the tasked work if it wishes to do so to satisfy its responsibility for the airworthiness of the aircraft.

#### AMC M.A.201(h)1 Responsibilities

#### 1. NOT APPLICABLE.

- 2. When the Operating Organisation itself is approved in accordance with EMAR M.A. Subpart G, the approval does not prevent the Operating Organisation contracting/tasking certain continuing airworthiness management tasks to competent organisations. This activity is considered as an integral element of the Operating Organisation's EMAR M.A. Subpart G approval. The regulatory monitoring is exercised through the Operating Organisation's EMAR M.A. Subpart G approval. The continuing airworthiness elements of the contracts/tasking documents should be acceptable to the National Military Airworthiness Authority (NMAA).
- 3. The accomplishment of continuing airworthiness activities forms an important part of the Operating Organisation's responsibility with the Operating Organisation remaining accountable for satisfactory completion irrespective of any contract/tasking that may be established.

#### 4. NOT APPLICABLE

- 5. The Operating Organisation is ultimately responsible and therefore accountable for the airworthiness of its aircraft. To exercise this responsibility the Operating Organisation should be satisfied that the actions taken by contracted/tasked organisations meet the standards required by EMAR M.A. Subpart G. The Operating Organisation's management of such activities should therefore be accomplished by:
  - (a) active control through direct involvement; and/or

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- (b) endorsing the recommendations made by the contracted/tasked organisation.
- 6. In order for the Operating Organisation to retain ultimate responsibility, the CAMO should limit contracted/tasked activities to those specified below:
  - (a) Airworthiness Directive analysis and planning;
  - (b) Service Bulletin analysis;
  - (c) planning of maintenance;
  - (d) reliability monitoring, engine health monitoring and other forms of health monitoring as agreed by the NMAA;
  - (e) AMP development and amendments:
  - (f) any other activities which do not limit the Operating Organisation's responsibilities as agreed by the NMAA.
- 7. The Operating Organisation's management controls associated with contracted/tasked continuing airworthiness management activities should be reflected in the associated written contract/tasking and be in accordance with the Operating Organisation's policy and procedures defined in their Continuing Airworthiness Management Exposition (CAME). When such tasks are contracted/tasked the Operating Organisation's continuing airworthiness management system is considered to be extended to the contracted/tasked organisation.
- 8. With the exception of engines and auxiliary power units, contracts/tasking should normally be limited to one organisation per aircraft type for any combination of the activities described in <a href="Appendix II to AMC EMAR M.A.201(h)1">Appendix II to AMC EMAR M.A.201(h)1</a>. Where arrangements are made with more than one organisation the Operating Organisation should demonstrate that adequate co-ordination controls are in place and that the individual responsibilities are clearly defined in related contracts/tasking.
- 9. Contracts/taskings should not authorise the contracted/tasked organisation to further contract/task to other organisations elements of the continuing airworthiness management tasks.
- 10. The CAMO should ensure that any findings arising from the NMAA monitoring of the contracted/tasked continuing airworthiness management activities will be closed to the satisfaction of the NMAA. This provision should be included in the contract/tasking.
- 11. The contracted/tasked organisation should agree to notify the CAMO of any changes affecting the contract/tasking as soon as practicable. The CAMO should then inform the NMAA. Failure to do so may invalidate the NMAA acceptance of the continuing airworthiness management elements of the contract.
- 12. <u>Appendix II to AMC EMAR M.A.201(h)1</u> provides information on the contracting/tasking of continuing airworthiness management activities.

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13. The CAMO should only contract to organisations which are specified by the NMAA on the EMAR Form 14.

#### GM M.A.201(h)2 Responsibilities

- 1. The requirement is intended to provide for the possibility of the following three alternative options:
  - (a) an Operating Organisation to be approved in accordance with EMAR 145 to carry out all maintenance of its aircraft and components;
  - (b) an Operating Organisation to be approved in accordance with EMAR 145 to carry out some of the maintenance of its aircraft and components. This, at minimum, could be limited to line maintenance but may be considerably more but still short of option (a);
  - (c) An Operating Organisation not approved in accordance with EMAR 145 to carry out any maintenance.
- 2. An Operating Organisation may apply for any one of these options but it will be for the NMAA to determine which option may be accepted in each particular case.
  - 2.1 NOT APPLICABLE.
  - 2.2 NOT APPLICABLE.
  - 2.3 NOT APPLICABLE.
  - 2.4 NOT APPLICABLE.

#### AMC M.A. 201(k) Responsibilities

- 1. When an Operating Organisation contracts/tasks an EMAR M.A. Subpart G CAMO in accordance with EMAR M.A.201(k) to carry out continuing airworthiness management tasks, a copy of the arrangement should be sent by the Operating Organisation to the NMAA once it has been signed by both parties. The contracted/tasked organisation is considered to perform the continuing airworthiness management tasks as an integral part of the Operating Organisation's continuing airworthiness system.
- 2. The arrangement should be developed taking into account the requirements of EMAR M and should define the obligations of the signatories in relation to the management of the continuing airworthiness of the aircraft.
- 3. The arrangement should contain as a minimum the:
  - aircraft registration(s); and
  - aircraft type/model/series; and
  - aircraft serial number(s); and

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- aircraft Operating Organisation including the address; and,
- EMAR M.A. Subpart G CAMO details including the address.
- 4. The arrangement should state the following:

"The Operating Organisation entrusts to the CAMO the management of the continuing airworthiness of the aircraft, the development of an Aircraft Maintenance Programme that shall be approved by the NMAA (if applicable), and the organisation of the maintenance of the aircraft according to the Aircraft Maintenance Programme in an EMAR 145 Approved Maintenance Organisation.

According to the present arrangement, both signatories undertake to follow the respective obligations of this arrangement.

The Operating Organisation certifies, to the best of their belief that all the information given to the CAMO concerning the continuing airworthiness of the aircraft is and will be accurate and that the aircraft will not be altered without prior approval of the CAMO.

In case of any non-conformity with this arrangement, by either of the signatories, it will become invalid. In such a case, the Operating Organisation will retain full responsibility for every task linked to the continuing airworthiness of the aircraft and the Operating Organisation shall inform the NMAA as soon as possible."

- 5. When an Operating Organisation contracts a CAMO in accordance with EMAR M.A.201(k) the minimum obligations of each party should be shared as follows:
  - 5.1. Obligations of the CAMO:
    - 1. have the aircraft type(s) in the scope of its approval;
    - 2. respect the conditions to maintain the continuing airworthiness of the aircraft in accordance with EMAR M.A.708;
    - 3. NOT APPLICABLE:
    - 4. NOT APPLICABLE:
    - 5. inform the NMAA whenever the aircraft is not presented to the EMAR 145 AMO(s) by the Operating Organisation as requested by the CAMO;
    - 6. inform the NMAA whenever the present arrangement has not been respected;
    - 7. if applicable, carry out the airworthiness review of the aircraft when necessary and issue the Military Airworthiness Review Certificate (MARC) or the recommendation to the NMAA;
    - 8. send within 10 days a copy of any MARC issued or extended, to the NMAA;

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- 9. carry out all applicable mandated occurrence reporting;
- 10. inform the NMAA whenever the present arrangement is terminated by either party.
- 5.2. Obligations of the Operating Organisation:
  - 1. NOT APPLICABLE;
  - 2. NOT APPLICABLE;
  - 3. present the aircraft to the EMAR 145 AMO agreed with the CAMO at the due time designated by the CAMO's request;
  - 4. not modify the aircraft without first consulting the CAMO;
  - 5. NOT APPLICABLE;
  - 6. report to the CAMO through the aircraft technical log all defects found during operations;
  - 7. inform the NMAA whenever the present arrangement is denounced by either party;
  - 8. inform the NMAA and the CAMO whenever the aircraft is no longer operated by the Operating Organisation;
  - 9. carry out all applicable mandated occurrence reporting;
  - 10. inform on a regular basis the CAMO about the aircraft flying hours and any other utilisation data, as agreed with the CAMO;
  - 11. NOT APPLICABLE;
  - 12. NOT APPLICABLE.
- 6. The contracted/tasked CAMO should be approved in accordance with EMAR M.A. Subpart G. However, this approval does not prevent the CAMO contracting/tasking certain continuing airworthiness management tasks to other competent organisations. This activity is considered as an integral element of the CAMO's EMAR M.A. Subpart G approval. The regulatory monitoring is exercised through the CAMO's EMAR M.A. Subpart G approval. The contracts/tasks should be acceptable to the NMAA. Contracts/taskings should not authorise the contracted/tasked organisation to further contract/task to other organisations elements of the continuing airworthiness management tasks. Appendix II to AMC EMAR M.A.201(h)1 provides information on the contracting/tasking of continuing airworthiness management.

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#### AMC M.A.202(a) Occurrence reporting

Operating Organisations should ensure that the (Military) Type Certificate ((M)TC) holder receives adequate reports of occurrences for that aircraft type, to enable the M(TC) holder to fulfil its EMAR 21 obligations.

Liaison with the (M)TC holder should be established to determine whether published or proposed service information will resolve the problem or to obtain a solution to a particular problem.

An approved CAMO should assign responsibility for co-ordinating action on airworthiness occurrences and for initiating any necessary further investigation and follow-up activity to a qualified person with clearly defined authority and status.

'Qualified person' in this context means an individual who has received appropriate training and has relevant experience in the management of airworthiness occurrences detailed in EMAR M.A.202. In the case of a contracted/tasked CAMO, close coordination between the CAMO and the Operating Organisation is needed to define the appropriate training and relevant experience and to ensure that such person is officially on record at the CAMO.

'Endanger flight safety' means any instance where safe operation could not be assured or which could lead to an unsafe condition. It typically includes, but is not limited to, significant cracking, deformation, corrosion or failure of primary structure, any evidence of burning, electrical arcing, significant hydraulic fluid or fuel leakage and any emergency system or total system failure. An Airworthiness Directive overdue for compliance is also considered a hazard to flight safety.

#### AMC M.A.202(b) Occurrence reporting

- 1. The aim of occurrence reporting is to identify the factors contributing to incidents and to make the system resistant to similar errors.
- 2. An occurrence reporting system should enable and encourage free and frank reporting of any (potentially) safety related occurrence. This should be facilitated by the establishment of a "just culture". A CAMO should ensure that personnel are not inappropriately punished for reporting or co-operating with occurrence investigations.
- 3. The internal reporting process should be closed-loop, ensuring that actions are taken internally to address safety hazards.
- 4. Feedback to reportees, both on an individual and more general basis, is important to ensure their continued support for the scheme.

#### AMC M.A.202(c) Occurrence reporting

Occurrence reporting should be in a form and manner as defined by the NMAA, taking into account any confidential/classified information.

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#### GM M.A.202(c) Occurrence reporting

Each report should contain at least the following information:

- (a) CAMO name and approval reference; and
- (b) Information necessary to identify the subject aircraft and / or component; and
- (c) Date and time relative to any life or overhaul limitation in terms of flying hours/cycles/landings etc. as appropriate; and
- (d) Details of the condition as required by EMAR M.A.202(c); and
- (e) Any other relevant information found during the evaluation or rectification of the condition.

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#### **SUBPART C - CONTINUING AIRWORTHINESS**

#### AMC M.A.301(a)1 Continuing airworthiness tasks

- 1. With regard to the pre-flight inspection it is intended to mean all of the actions necessary to ensure that the aircraft is fit to make the intended flight. These should typically include but are not necessarily limited to:
  - (a) a walk-around type inspection of the aircraft, its emergency equipment and any stores/weapons carried for condition including, in particular, any obvious signs of wear, damage or leakage. In addition, the presence of all required equipment, including emergency equipment, should be established and the security of attachment of any stores/weapons carried should be checked;
  - (b) an inspection of the aircraft continuing airworthiness record system or the aircraft technical log as applicable to ensure that the intended flight is not adversely affected by any outstanding deferred defects and that no required maintenance action shown in the maintenance statement is overdue or will become due during the flight;
  - (c) a control that consumable fluids, gases etc. uplifted prior to flight are of the correct specification, free from contamination, and correctly recorded;
  - (d) a control that all doors are securely fastened;
  - (e) a control that control surface and landing gear locks, pitot/static covers, restraint devices and engine/aperture blanks have been removed;
  - (f) a control that all the aircraft's external surfaces and engines are free from ice, snow, sand, dust etc. and an assessment to confirm that, as the result of meteorological conditions and de-icing/anti-icing fluids having been previously applied on it, there are no fluid residues that could endanger flight safety. Alternatively to this pre-flight assessment, when the type of aircraft and nature of operations allow for it, the build-up of residues may be controlled through scheduled maintenance inspections/cleanings identified in the AMP;
  - (g) removal of safety/arming pins if applicable.
- 2. Tasks such as oil and hydraulic fluid uplift and tyre inflation may be considered as part of the pre-flight inspection. The related pre-flight inspection instructions should address the procedures to be taken to determine whether the necessary fluid uplift or tyre inflation results from an abnormal consumption/excessive leakage, thereby possibly requiring additional maintenance action by the AMO or certifying staff as appropriate.
- 3. Operating Organisations should publish guidance to maintenance, flight and any other personnel performing pre-flight inspection tasks, as appropriate, defining their responsibilities for these actions. It should be demonstrated to the NMAA that pre-flight inspection personnel have received appropriate training for the relevant pre-flight inspection tasks. The training standard for personnel performing the pre-flight inspection should be described in the CAME.

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#### AMC M.A.301(a)2 Continuing airworthiness tasks

The CAMO should have a system to ensure that all defects affecting the safe operation of the aircraft are rectified within the limits prescribed by the approved Minimum Equipment List (MEL) or Configuration Deviation List (CDL) or national equivalents. Such defect rectification cannot be postponed unless agreed by the CAMO and in accordance with a procedure approved by the NMAA.

A system of assessment should be established to support the continuing airworthiness of the aircraft and to provide a continuous analysis of the effectiveness of the CAMO's defect control system in use.

The system should provide for:

- (a) significant incidents and defects: monitor incidents and defects that have occurred in flight and defects found during maintenance, highlighting any that appear significant in their own right.
- (b) repetitive incidents and defects: monitor on a continuous basis defects occurring in flight and defects found during maintenance, highlighting any that are repetitive.
- (c) deferred and carried forward defects: monitor on a continuous basis deferred and carried forward defects. Deferred defects are defined as those defects reported in operational service which are deferred for later rectification. Carried forward defects are defined as those defects arising during maintenance which are carried forward for rectification at a later maintenance input.
- (d) unscheduled removals and system performance: analyse unscheduled component removals and the performance of aircraft systems for use as part of the AMP efficiency.

When deferring or carrying forward a defect, the cumulative effect of a number of deferred or carried forward defects occurring on the same aircraft and any restrictions contained in the MEL/CDL or national equivalents should be considered. Deferred defects should be made known to the pilot/flight crew prior to their pre-flight inspection of the aircraft.

#### AMC M.A.301(a)3 Continuing airworthiness tasks

The CAMO should have a system to ensure that all aircraft maintenance checks are performed within the limits prescribed by the AMP and that, whenever a maintenance check cannot be performed within the required time limit, its postponement is allowed in accordance with a procedure agreed by the NMAA.

#### AMC M.A.301(a)4 Continuing airworthiness tasks

The CAMO should have a system to analyse the effectiveness of the AMP, with regard to spares, established defects, malfunctions and damage, and to amend the AMP accordingly.

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#### AMC M.A.301(a)5 Continuing airworthiness tasks

Operational directives with a continuing airworthiness impact include operating rules such as Extended Twin-engine Operations (ETOPS) / Long Range Operations (LROPS), Reduced Vertical Separation Minima (RVSM), Minimum Navigation Performance Specification (MNPS), All Weather Operations (AWOPS), Area Navigation (RNAV), etc.

Any other continued airworthiness requirement made mandatory by the NMAA includes (M)TC related requirements such as: Certification Maintenance Requirements (CMR), certification life limited parts, airworthiness limitations from the aircraft type-certification basis, fuel tank system airworthiness limitations including Critical Design Configuration Control Limitations (CDCCL), etc.

#### AMC M.A.301(a)7 Continuing airworthiness tasks

A CAMO managing the continuing airworthiness of the aircraft should establish and work according to a policy, which assesses non-mandatory information related to the airworthiness of the aircraft. Non-mandatory information includes Service Bulletins (or national equivalent), service letters and other information that is produced for the aircraft and its components by a design organisation accepted by the NMAA, or the manufacturer or the NMAA.

#### AMC M.A.302 Aircraft Maintenance Programme (\*)(AMP)

- 1. The term 'Aircraft Maintenance Programme (AMP)' is intended to include scheduled maintenance tasks, their associated maintenance procedures and standard maintenance practices. The term "maintenance schedule" is intended to embrace the scheduled maintenance tasks alone.
- 2. The aircraft should only be maintained to one approved AMP at a given point in time. Where an Operating Organisation wishes to change from one AMP to another, a transfer check or inspection may need to be performed in order to implement the change.
- 3. The AMP details should be reviewed at least annually. As a minimum, revisions of documents affecting the AMP basis need to be considered for inclusion in the AMP during the annual review. Applicable mandatory requirements for compliance with EMAR 21 should be incorporated into the AMP as soon as possible.
- 4. The AMP should contain a preface which will define the AMP contents, the inspection standards to be applied, permitted variations to task frequencies and, where applicable, any procedure to manage the evolution of established check or inspection intervals.

<u>Appendix I to AMC EMAR M.A.302 and AMC EMAR M.B.301(b)</u> provides detailed information on the contents of an AMP.

5. Repetitive maintenance tasks derived from modifications and repairs should be incorporated into the AMP.

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<sup>\*</sup> see Appendix I to AMC EMAR M.A.302 and AMC EMAR M.B.301(b).

#### AMC M.A.302(a) Aircraft Maintenance Programme (AMP)

Moved to GM M.A.302(a).

#### GM M.A.302(a) Aircraft Maintenance Programme (AMP)

An AMP may indicate that it applies to several aircraft registration numbers as long as the AMP clearly identifies the effectivity of the tasks and procedures that are not applicable to all of the listed registration numbers.

#### AMC M.A.302(d) Aircraft Maintenance Programme (AMP)

- 1. An Operating Organisation's AMP should normally be based upon the Maintenance Review Board (MRB) report or equivalent report where applicable, the Maintenance Planning Document (MPD), the relevant chapters of the maintenance manual or any other maintenance data containing information on scheduling. Furthermore, an Operating Organisation's AMP should also take into account any maintenance data containing information on scheduling for components.
- 2. Instructions issued by the NMAA can encompass all types of instructions from a specific task for a particular aircraft to complete recommended maintenance schedules for certain aircraft types that can be used by the Operating Organisation directly. These instructions may be issued by the NMAA in the following cases:
  - in the absence of specific recommendations of the (Military) Type Certificate Holder;
  - to provide alternative instructions to those described in the subparagraph 1 above, with the objective of providing flexibility to the Operating Organisation.
- 3. Where an aircraft type has been subjected to the MRB report process, the initial AMP should normally be based upon the MRB report.
- 4. Where an aircraft is maintained in accordance with an AMP based upon the MRB report process, any associated programme for the continuous surveillance of the reliability, or health monitoring of the aircraft should be considered as part of the AMP.
- 5. AMPs for aircraft types subjected to the MRB report process should contain identification cross reference to the MRB report tasks such that it is always possible to relate such tasks to the current AMP. This does not prevent the AMP from being developed in the light of service experience to beyond the MRB report recommendations but will show the relationship to such recommendations.
- 6. Some AMPs, not developed from the MRB process, utilise reliability programmes. Such reliability programmes should be considered as a part of the AMP.
- 7. Alternative and/or additional instructions to those defined in EMAR M.A.302(d)1 and (2), proposed by the Operating Organisation, may include but are not limited to the following:

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- Extension of the interval for certain tasks based on reliability data or other supporting information. Appendix I recommends that the AMP contains the corresponding extension procedures. The extension in periodicity of these tasks is directly approved by the NMAA, including ALIs (Airworthiness Limitation Items).
- Reduced intervals from those proposed by the (M)TCH as a result of the reliability data or because of a more stringent operational environment.
- Additional tasks at the discretion of the Operating Organisation.
- 8. 'Field Evaluation' data from other military Operating Organisations using the same aircraft type in a similar manner may have been used to develop an initial Aircraft Maintenance Programme. However, where an aircraft has been procured from a foreign nation, security constraints or other nationally imposed limitations may result in a lack of complete data being available to support the AMP. In these cases, the Operating Organisation should justify to the NMAA that the available data is sufficient to reduce any risks to As Low As Reasonably Practicable (ALARP).

#### **GM M.A.302(f) Aircraft Maintenance Programme (AMP)**

- 1. NOT APPLICABLE.
- 2. NOT APPLICABLE.
- 3. The purpose of a reliability programme is to ensure that the AMP tasks are effective and their periodicity is adequate.
- 4. The reliability programme may result in the extension or reduction of a maintenance task interval, as well as the deletion or addition of a maintenance task.
- 5. A reliability programme provides an appropriate means of monitoring the effectiveness of the AMP.
- 6. <u>Appendix I to AMC EMAR M.A.302 and EMAR M.B.301(b)</u> gives further guidance.

#### AMC M.A.304 Data for modifications and repairs

An EMAR 145 AMO repairing an aircraft or component should assess the damage against published approved repair data and the action to be taken if the damage is beyond the limits or outside the scope of such data. This action could involve any one or more of the following options:

- the repair by replacement of the damaged parts;
- requesting technical support from the (M)TCH or a design organisation approved or accepted by the NMAA;
- NMAA approval of the particular repair data.

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#### GM M.A.304(d) Data for modifications and repairs

An 'organisation accepted by the NMAA' should be understood to mean an organisation which does not have an appropriate EMAR 21 approval, but nonetheless the NMAA possesses sufficient knowledge of the organisation's processes, procedures, quality system and, where appropriate, the regulatory system under which the organisation operates, to enable it to be considered as a legitimate provider of this information.

#### AMC M.A.305(d) Aircraft continuing airworthiness record system

The current status of ADs should identify the applicable ADs including any revision or amendment numbers. Where an AD is generally applicable to an aircraft or component type but is not applicable to the particular aircraft or component type used by the Operating Organisation, then this should be identified. The AD status includes the date when the AD was accomplished, and where the AD is controlled by flight hours or flight cycles it should include the aircraft or engine or component total flight hours or cycles or any other approved service life consumption units as appropriate. For repetitive ADs, only the last application should be recorded in the AD status. The status should also specify which part of a multi-part directive has been accomplished and the method, where a choice is available in the AD.

The status of current modification and repairs means a list of embodied modifications and repairs together with the substantiating data supporting compliance with the airworthiness requirements. This can be in the form of a Supplemental (Military) Type Certificate (S(M)TC), Service Bulletin (or national equivalent), Structural Repair Manual (SRM) or similar approved document.

The substantiating data may include:

- (a) compliance programme; and
- (b) master drawing or drawing list, production drawings, and installation instructions; and
- (c) engineering reports (static strength, fatigue, damage tolerance, fault analysis, etc.); and
- (d) ground and flight test programme and results; and
- (e) weight and balance change data; and
- (f) maintenance and repair manual supplements; and
- (g) AMP changes and Instructions for Continuing Airworthiness; and
- (h) aircraft flight manual supplement; and
- (i) symmetry check report (if applicable).

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

For some gas turbine engines, especially turbo-shaft engines, the true total time of continuous operation for particular power settings is to be maintained if applicable.

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

The term 'service life limited components' embraces:

- (i) components subject to a certified life limit after which the components should be retired, and
- (ii) components subject to a service life limit after which the components should undergo maintenance to restore their serviceability.

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

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

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

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

Recommendations from the (M)TCH on the procedures to record the remaining life should be considered.

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#### AMC M.A.305(g) Aircraft continuing airworthiness record system

For paper documentation, entries made in error should not to be erased but should be ruled through and initialed by the person making the correction. Opaque correction fluid should not be used in correcting paper records.

For electronic systems, incorrect entries should be flagged to indicate that they have been corrected, and a mechanism should be put in place to retain and easily access copies of the original, if incorrect, data.

#### GM M.A.305(g) Aircraft continuing airworthiness record system

ISO 15489-1 (International Standard on Records Management) and Electronic Document and Records Management System provide further information on this topic.

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

When an Operating Organisation arranges for the relevant EMAR 145 AMO to retain copies of the continuing airworthiness records on their behalf, the Operating Organisation will continue to be responsible for the retention of records. If they cease to be the Operating Organisation of the aircraft, they remain responsible for transferring the records to any other Operating Organisation of the aircraft.

Keeping continuing airworthiness records in a form acceptable to the NMAA normally means in paper form or on a computer database or a combination of both methods. Records stored in microfilm or optical disc form are also acceptable. All records should remain readable and accessible for the duration of the storage period.

'Readable and accessible' means that the organisation should possess the ability to access the stored records in their original format for the duration of the specified storage period. Where the data contained in stored records is no longer compatible with changes and/or upgrades to equipment/computer/hardware/software, the organisation should put in place provisions to ensure that sufficient equipment is retained that is compatible with the storage medium, or that the records in their original format are transferred to an alternative medium.

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

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

Continuing airworthiness records should be stored in a safe way with regard to damage, alteration and theft. Computer backup discs, tapes etc., should be stored in a different location from that containing the current working discs, tapes, etc., and in a safe environment. Reconstruction of lost or destroyed records can be done by reference to other records which reflect the time in service, research of records maintained by repair facilities and reference to records maintained by individual mechanics, etc. When these things have been done and the record is still incomplete, the Operating Organisation may make a statement in the new record describing the loss and establishing the time in

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service based on the research and the best estimate of time in service. The reconstructed records should be submitted to the NMAA for acceptance. The NMAA may require the performance of additional maintenance if not satisfied with the reconstructed records.

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

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

#### AMC M.A.306(a) Aircraft technical log

The Operating Organisation's aircraft technical log is a system for recording defects and malfunctions during the aircraft operation and for recording details of all maintenance carried out on an aircraft between scheduled base maintenance visits. In addition, it is used for recording flight safety and maintenance information the flight crew need to know.

Where an NMAA has promulgated instructions on the format and construct of an aircraft technical log, this format should be used by all organisations and personnel engaged in the maintenance and support of military registered aircraft and airborne equipment. These instructions should provide a description of the format and use of military aviation engineering documentation, together with any associated procedures.

#### GM M.A.306(a) Aircraft technical log

Guidance on the typical information contained within an aircraft technical log can be found in AMC to EASA Part M.A.306(a).

#### AMC M.A.306(b) Aircraft technical log

The aircraft technical log can be either a paper or computer system or any combination of both methods acceptable to the NMAA.

In case of a computer system, it should contain program safeguards against the ability of unauthorised personnel to alter the database.

#### AMC M.A.307(a) Transfer of aircraft continuing airworthiness records

NOT APPLICABLE.

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#### **SUBPART D - MAINTENANCE STANDARDS**

NOT APPLICABLE - See EMAR 145.

#### **SUBPART E - COMPONENTS**

NOT APPLICABLE – See EMAR 145.

#### **SUBPART F - MAINTENANCE ORGANISATION**

NOT APPLICABLE.

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#### SUBPART G - CONTINUING AIRWORTHINESS MANAGEMENT ORGANISATION

#### AMC M.A.702(a) Application

'On a form and in a manner established by the NMAA' means that the application should be made by using an EMAR Form 2.

The EMAR Form 2 is valid for the application for EMAR 145 and EMAR M.A. Subpart G organisations. Organisations applying for both approvals may do so using a single EMAR Form 2.

#### AMC M.A.702(b) Application

- 1. Draft documents should be submitted at the earliest opportunity so that NMAA investigation of the application can begin. 'Issue' or 'Change' cannot be achieved until the NMAA is in possession of completed documents.
- 2. This information is required to enable the NMAA to conduct its investigation, to assess the volume of maintenance work necessary and the locations at which it will be accomplished.
- 3. The applicant should inform the NMAA where base and scheduled line maintenance is to take place and give details of any contracted/tasked maintenance which is in addition to that provided in response to EMAR M.A.201(h)2 or EMAR M.A.708(c).
- 4. At the time of application, arrangements should be in place for all base and scheduled line maintenance for an appropriate period of time, as acceptable to the NMAA. Further arrangements should be established in due course before the maintenance is due.

Base maintenance contracts for high-life time checks may be based on one time contracts/taskings, when the NMAA considers that this is compatible with the Operating Organisation's fleet size.

#### AMC M.A.702(b)5 Application

- 1. Additional documentation may include, but not be limited to:
  - a. contract/tasking between the CAMO and other organisations in accordance with AMC EMAR M.A.201(h)1;
  - b. EMAR M.A.201(k) contract/tasking between the Operating Organisation and the CAMO.
- 2. As only the technical parts of any contracts have to be acceptable to the NMAA, those elements that address costs, warranty etc. are not required.

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#### **AMC M.A.704 Continuing Airworthiness Management Exposition (CAME)**

- 1. The purpose of the CAME is to set forth the procedures, means and methods of the CAMO. Compliance with its contents will assure compliance with EMAR M requirements.
- 2. A CAME should comprise:
  - Part 0 General organisation
  - Part 1 Continuing airworthiness management procedures
  - Part 2 Quality system
  - Part 3 Contracted/tasked maintenance
  - Part 4 Airworthiness review procedures (if applicable)
  - Part 5 Appendices
- 3. Where an Operating Organisation is also approved to EMAR 145, the Exposition required by EMAR 145 may form the basis of the CAME in a combined document:

EMAR 145 Exposition (see equivalent paragraphs in EMAR AMC 145.A.70 (a))

- Part 1 Management
- Part 2 Maintenance procedures
- Part L2 Additional line maintenance procedures
- Part 3 Quality system
- Part 4 Contracts/tasking with Operating Organisations
- Part 5 Appendices
- Part 7 (Not Applicable)
- Part 8 (Not Applicable)
- Part 3 should also cover the functions specified by EMAR M.A.712 Quality system.
- Part 4 should also cover contracted/tasked maintenance

Additional parts should be introduced into the combined Exposition covering the following (see equivalent paragraphs in the example CAME contained in Appendix V to AMC EMAR M.A.704):

- Part 0 General organisation
- Part 6 Continuing airworthiness management procedures
- Part 9 Airworthiness review procedures (if applicable)
- 4. Personnel should be familiar with those parts of the CAME that are relevant to their tasks.
- 5. The CAMO should specify in the CAME who is responsible for the amendment of the document.
- 6. Unless otherwise agreed by the NMAA, the person responsible for the management of the quality system should be responsible for monitoring and amending the CAME, including any associated procedures manuals, and the submission of proposed amendments to the NMAA. The NMAA may agree a procedure, which will be stated in the amendment control section of the CAME, defining the class of amendments which can be incorporated without the prior consent of the NMAA.

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- 7. The CAMO may use Electronic Data Processing (EDP) for publication of the CAME. The CAME should be made available to the NMAA in a form acceptable to the NMAA. Attention should be paid to the compatibility of EDP publication systems with the necessary dissemination of the CAME, both internally and externally.
- 8. Part 0 "General organisation" of the CAME should include a corporate commitment by the CAMO, signed by the Accountable Manager, confirming that the CAME and any associated manuals define the organisation's compliance with EMAR M and will be complied with at all times.
- 9. The Accountable Manager's Exposition statement should embrace the intent of the following paragraph, and this statement may be used without amendment. Any modification to the statement should not alter the intent:

"This Exposition defines the organisation and procedures upon which the (NMAA - \* see note below) EMAR M.A. Subpart G continuing airworthiness management approval is based.

These procedures are approved by the undersigned and should be complied with, as applicable, in order to ensure that all continuing airworthiness tasks of... (quote Operating Organisation's name) fleet of aircraft and/or of all aircraft under contract/tasking in accordance with EMAR M.A.201(k) with ... (quote CAMO's name) ... are carried out on time to an approved standard.

It is accepted that these procedures do not override the necessity of complying with any new or amended regulation published from time to time where these new or amended regulations are in conflict with these procedures.

It is understood that the (NMAA\*) will approve this organisation whilst the (NMAA\*) is satisfied that the procedures are being followed and the work standard is maintained. It is understood that the (NMAA\*) reserves the right to suspend, limit or revoke the EMAR M.A. Subpart G continuing airworthiness management approval of the organisation, if the (NMAA\*) has evidence that the procedures are not followed and the standards not upheld."

Signed
Dated
Accountable Manager and(quote position)
For and on behalf of (quote organisation's name)

Note: Where it states (NMAA\*), please insert the actual name of the pMS's NMAA, for example MAA, DSAE, etc.

10. Whenever the Accountable Manager changes, it is important to ensure that the new Accountable Manager signs the paragraph 9 statement at the earliest opportunity.

Failure to carry out this action could invalidate the EMAR M.A. Subpart G approval.

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11. The CAME should contain information as applicable, on how the CAMO complies with CDCCL instructions.

Appendix V to AMC EMAR M.A.704 contains an example of a CAME lay-out.

#### AMC M.A.705 Facilities

Office accommodation should be such that the occupants, whether they be continuing airworthiness management, planning, technical records or quality staff, can carry out their designated tasks in a manner that contributes to good standards. In a smaller CAMO, the approving NMAA may agree to these tasks being conducted from one office subject to being satisfied that there is sufficient space and that each task can be carried out without undue disturbance. Office accommodation should also include an adequate technical library and room for document consultation.

#### **AMC M.A.706 Personnel requirements**

- 1. The person or group of persons should represent the continuing airworthiness management structure of the CAMO and be responsible for all continuing airworthiness functions. Dependent on the fleet activity and the organisational structure, the continuing airworthiness functions may be divided under individual managers or combined in nearly any number of ways. However, the quality system should be independent from the other functions.
- 2. The actual number of persons to be employed and their necessary qualifications is dependent upon the tasks to be performed and thus dependent on the size and complexity of the CAMO (e.g. number of aircraft and the aircraft types, complexity of the aircraft and their age, operational usage etc.) and the amount and complexity of maintenance contracting or tasking. Consequently the number of persons needed, and their qualifications, may differ greatly from one CAMO to another and a simple formula covering the whole range of possibilities is not feasible.
- 3. To enable the NMAA to accept the number of persons and their qualifications, a CAMO should make an analysis of the tasks to be performed, the way in which it intends to divide and/or combine these tasks, indicate how it intends to assign responsibilities and establish the number of individuals/hours and the qualifications needed to perform the tasks. If there are any significant changes that will impact on the number of persons and their qualifications, this analysis should be updated.
- 4. The nominated person or group of persons should have:
  - 4.1. practical experience and expertise in the application of aviation safety standards and safe operating practices; and
  - 4.2. a comprehensive knowledge of:
    - (a). relevant military operational requirements and procedures; and
    - (b). NOT APPLICABLE:

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- (c). the content of the relevant parts of the Operating Organisation's Operations Manual (or national equivalent) when it impacts the continuing airworthiness of the aircraft operated;
- 4.3. knowledge of quality systems; and
- 4.4. five years of relevant experience of which at least two years should be within the aviation environment in a position considered appropriate by the NMAA; and
- 4.5. a relevant engineering degree or an aircraft maintenance technician qualification with additional education acceptable to the NMAA. 'Relevant engineering degree' means an engineering degree from aeronautical, mechanical, electrical, electronic, avionic or other studies relevant to the maintenance and continuing airworthiness of aircraft/aircraft components;

The above recommendation may be replaced by 5 years of experience additional to those already recommended by paragraph 4.4 above. These 5 years should cover an appropriate combination of experience in tasks related to aircraft maintenance and/or continuing airworthiness management (engineering) and/or surveillance of such tasks.

- 4.6. thorough knowledge of the CAME; and
- 4.7. knowledge of a relevant sample of the type(s) of aircraft gained through a formalised training course(s). These course(s) should be at least at a level equivalent to EMAR 66 Appendix III Level 1 familiarisation and could be imparted by an EMAR 147 Maintenance Training Organisation (MTO), by the manufacturer, or by any other organisation accepted by the NMAA;

"Relevant sample" means that these courses should cover typical systems embodied in those aircraft being within the scope of CAMO's approval.

- 4.8. knowledge of maintenance methods; and
- 4.9. knowledge of applicable regulations.

#### AMC M.A.706(a) Personnel requirements

Accountable Manager is normally intended to mean the Chief Executive Officer or a senior military commander of the CAMO approved under EMAR M.A. Subpart G, who by virtue of position has overall (including in particular resource allocation) responsibility for running the organisation. The Accountable Manager may be the Accountable Manager for more than one organisation and is not required to be knowledgeable on technical matters as the CAME defines the continuing airworthiness standards. When the Accountable Manager is not the Chief Executive Officer or senior military commander, the NMAA will need to be assured that such an Accountable Manager has direct access to the Chief Executive Officer or senior military commander and has a sufficiency of 'continuing airworthiness resources' allocation.

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#### AMC M.A.706(e) Personnel requirements

- 1. The NMAA may accept that the Continuing Airworthiness Manager referred to in paragraph (d) is also part of an EMAR 145 AMO being contracted/tasked by the Operating Organisation in the case where the individual has military command and control responsibilities over both organisations (e.g. a military Commanding Officer with responsibility for both organisations on an airbase).
- 2. This paragraph only applies to contracted/tasked maintenance and therefore does not affect situations where the organisation approved under EMAR 145 and the Operating Organisation are the same organisation.

#### AMC M.A.706(f) Personnel requirements

Additional training in fuel tank safety as well as associated inspection standards and maintenance procedures should be required of continuing airworthiness management organisations' technical personnel, especially the staff involved with the management of CDCCL (if applicable), Service Bulletin assessment, work planning and maintenance programme management. Further guidance is provided for training of CAMO's continuing airworthiness personnel in Appendix IV to EMAR AMC 145.A.30(e) and EMAR AMC 145.B.10(c).

#### AMC M.A.706(i) Personnel requirements

The approval by the NMAA of the CAME, containing the list of EMAR M.A.706(i) personnel, constitutes formal acceptance by the NMAA and their formal authorisation by the CAMO.

Nominated airworthiness review staff who are accepted by the NMAA are automatically recognised as persons with authority to extend a Military Airworthiness Review Certificate in accordance with EMAR M.A.711(a)4 and EMAR M.A.901(c)2.

#### AMC M.A.706(k) Personnel requirements

Adequate initial and recurrent training should be provided and recorded to ensure continued competence.

#### AMC M.A.707(a) Airworthiness review staff

- 1. Airworthiness review staff are only required if the CAMO wants to be granted EMAR M.A.711 (b) airworthiness review privileges.
- 2. "experience in continuing airworthiness" means any appropriate combination of experience in tasks related to aircraft maintenance and/or continuing airworthiness management (engineering) and/or surveillance of such tasks.
- 3. A person qualified to the <u>AMC EMAR M.A.706</u> subparagraph 4.5 should be considered as holding the equivalent to an aeronautical degree.
- 4. An appropriate MAML in compliance with EMAR 66 is any one of the following:

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- a category B1 licence in the subcategory of the aircraft reviewed, or
- a category B2 or C licence.

It is not necessary to satisfy the experience requirements of EMAR 66.A.20(b)(2) at the time of the review.

5. To hold a position with appropriate responsibilities means the airworthiness review staff should have a position in the CAMO independent from the airworthiness management process or with overall authority on the airworthiness management process of complete aircraft.

Independence from the airworthiness management process may be achieved, among other ways, by:

- Being authorised to perform airworthiness reviews only on aircraft for which
  the person has not participated in their management. For example,
  performing airworthiness reviews on a specific type or series, while being
  involved in the airworthiness management of a different type or series.
- CAMOs that are part of an Operating Organisation that also has an EMAR 145 approval, may nominate maintenance personnel from their EMAR 145 organisation as airworthiness review staff, as long as they are not involved in the airworthiness management of the aircraft. These personnel should not have been involved in the release to service of that particular aircraft (other than maintenance tasks performed during the physical survey of the aircraft or performed as a result of findings discovered during such physical survey) to avoid possible conflict of interests.
- Nominating as airworthiness review staff personnel from the Quality Department of the CAMO.
- Contracting/tasking staff from another organisation.

Overall authority on the airworthiness management process of complete aircraft may be achieved, among other ways, by:

- Nominating as airworthiness review staff the Accountable Manager or the Continuing Airworthiness Manager.
- Being authorised to perform airworthiness reviews only on those particular aircraft for which the person is responsible for the complete continuing airworthiness management process.

### AMC M.A.707(a)(1) Airworthiness review staff

Formal aeronautical maintenance training means training (internal or external) supported by evidence on the following subjects:

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- relevant parts of initial and continuing airworthiness regulations; and
- relevant parts of operational requirements and procedures, if applicable; and
- the CAME; and
- knowledge of a relevant sample of the type(s) of aircraft gained through a
  formalised training course. These courses should be at least at a level
  equivalent to EMAR 66 Appendix III Level 1 General Familiarisation and could
  be imparted by an EMAR 147 MTO, by the manufacturer, or by any other
  organisation accepted by the NMAA;

"relevant sample" means that these courses should cover typical systems embodied in those aircraft being within the scope of approval;

maintenance methods.

### AMC M.A.707(a)(2) Airworthiness review staff

NOT APPLICABLE.

### AMC M.A.707(b) Airworthiness review staff

The formal acceptance by the NMAA of the airworthiness review staff is granted through the corresponding EMAR Form 4.

An airworthiness review "under supervision" means under the supervision of the NMAA. If the CAMO has already properly authorised airworthiness review staff, the NMAA may accept that the supervision be performed by these existing airworthiness review staff in accordance with an approved procedure. In such cases, evidence of the airworthiness review performed under supervision should be provided to the NMAA together with the EMAR Form 4. If satisfied, the NMAA will issue the formal acceptance through the EMAR Form 4.

Once the airworthiness review staff have been accepted by the NMAA, the inclusion of their name in the CAME (refer to EMAR M.A.704(a)5) constitutes the formal authorisation by the CAMO.

### AMC M.A.707(c) Airworthiness review staff

In order to keep their authorisations valid, the airworthiness review staff should have either:

- been involved in continuing airworthiness management activities for at least six months in every two year period; or
- conducted at least one airworthiness review in the last twelve month period.

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In order to restore the validity of the authorisation, the airworthiness review staff should conduct at a satisfactory level an airworthiness review under the supervision of the NMAA or, if accepted by the NMAA, under the supervision of another currently valid authorised airworthiness review staff of the CAMO in accordance with an approved procedure.

### AMC M.A.707(e) Airworthiness review staff

The minimum content of the airworthiness review staff record should be:

- Name.
- Rank/Grade and Service Number (if applicable)
- Date of Birth,
- Basic Education,
- Experience,
- Aeronautical Degree and/or EMAR 66 qualification and/or nationally recognised maintenance personnel qualification,
- Initial Training received,
- Type Training received,
- Continuation Training received,
- Experience in continuing airworthiness and within the organisation,
- Responsibilities of current role in the organisation,
- Copy of the authorisation (to include scope, date of first issue, expiry date, and identification number if applicable),
- Security clearance (where applicable).

#### GM M.A.708(b)(2) Continuing airworthiness management

It is possible that within a pMS, the AMP will be provided to the CAMO for some aircraft types whilst for other aircraft types the AMP is to be 'developed and controlled' by the CAMO. This will be identified by the NMAA on a platform-by-platform basis. In these cases it is possible that the CAMO's responsibilities towards the 'development and control' of the AMP of the aircraft types for which it is responsible will differ. These differences are to be clearly identified in the CAME.

### AMC M.A.708(b)(3) Continuing airworthiness management

NOT APPLICABLE.

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### AMC M.A.708(c) Continuing airworthiness management (\*)

- 1. Where an Operating Organisation is not approved under EMAR 145 or where an Operating Organisation's maintenance organisation is an independent organisation, formal tasking or a contract should be agreed between the Operating Organisation/CAMO and an EMAR 145 AMO which specifies, in detail the work to be performed by the EMAR 145 AMO. Appendix XI to AMC to EMAR M.A.708(c) gives further details on the subject.
- 2. Both the specification of work and the assignment of responsibilities should be clear, unambiguous and sufficiently detailed to ensure that no misunderstanding should arise between the parties concerned (Operating Organisation, CAMO and EMAR 145 AMO) that could result in a situation where work that has a bearing on the airworthiness or serviceability of an aircraft is not or will not be properly performed.
- 3. Special attention should be paid to procedures and responsibilities to ensure that all maintenance work is performed, Service Bulletins (or national equivalent) are analysed and decisions taken on their accomplishment, Airworthiness Directives are completed on time and that all work, including non-mandatory modifications, is carried out to approved data and to the latest standards.
- 4. NOT APPLICABLE.
- 5. NOT APPLICABLE.
- 6. NOT APPLICABLE.
- 7. The purpose of EMAR M.A.708(c) is to ensure that all maintenance is carried out by EMAR 145 AMOs. This does not preclude a primary maintenance arrangement with an organisation that is not such an EMAR 145 AMO, when it proves that such an arrangement is in the interest of the Operating Organisation by simplifying the management of its maintenance, and the Operating Organisation/CAMO keeps an appropriate control of it. Such an arrangement should not preclude the Operating Organisation/CAMO from ensuring that all maintenance is performed by an EMAR 145 AMO and complying with the EMAR M.A.201 continuing airworthiness responsibility requirements. A typical example of such an arrangement is:

The Operating Organisation may find it more appropriate to have a primary contractor that would dispatch the aircraft and/or components to appropriately approved maintenance organisations, rather than the Operating Organisation itself sending the aircraft and/or different types of components to various EMAR 145 AMOs. The benefit for the Operating Organisation is that the management of maintenance is simplified by having a single point-of-contact for aircraft and/or component maintenance. The Operating Organisation remains responsible for ensuring that all maintenance is performed by EMAR 145 AMOs and in accordance with the approved standard.

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In essence, this does not alter the intent of EMAR M.A.201(h) in that it also requires that the Operating Organisation has to establish formal tasking or a written maintenance contract and, whatever type of acceptable arrangement is made, the Operating Organisation is required to exercise the same level of control on contracted or tasked maintenance, particularly through the EMAR M.A.706(c) continuing airworthiness management group of persons and quality system as referred to in EMAR M.A.712.

\* see Appendix XI to AMC to EMAR M.A.708(c)

### AMC M.A.708(c)(1) Continuing airworthiness management

**NOT APPLICABLE** 

#### AMC M.A.709 Documentation

When a CAMO is contracted/tasked under EMAR M.A.201(k) for the management of the continuing airworthiness of aircraft operated by the Operating Organisation and it uses maintenance data provided by the Operating Organisation, the CAMO is responsible for ensuring that this data is current. As a consequence, it should establish appropriate procedures or provisions in the contract/tasking with the Operating Organisation.

The sentence "..., except when required by EMAR M.A.714", means, in particular, the need to keep a copy of the Operating Organisation's data which was used to perform continuing airworthiness activities during the contract/tasking period.

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

- 1. A review is a check of at least the following categories of documents:
  - registration papers (where applicable):
  - EMAR M.A.305 aircraft continuing airworthiness record system;
  - EMAR M.A.306 aircraft technical log;
  - list of deferred defects, MEL and CDL (if applicable);
  - aircraft flight manual and/or any other manuals required by the NMAA including aircraft configuration;
  - AMP;
  - maintenance data;
  - relevant work packages;
  - AD status:
  - modification and SB status (or national equivalent):
  - modification and repair approval sheets;

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- list of service life-limited components (to include list of engine and/or propeller modules where appropriate);
- relevant EMAR Form 1s or equivalent;
- weight and balance report and installed equipment list;
- aircraft, engine and propeller (M)TC Data Sheets;
- if applicable, latest symmetry report.

As a minimum, sample checks within each document category should be carried out.

2. In the context of EMAR M.A.710(a), 'fully documented' means that the CAMO should develop procedures for airworthiness review staff to produce a compliance report that confirms the above have been reviewed and, based on objective evidence, found to be in compliance with EMAR M.

In this context, 'objective evidence' is physical evidence that an individual auditing the airworthiness review can inspect and evaluate for themselves. It provides compelling evidence that the review or audit was actually performed as indicated, and that the criteria in EMAR M.A.710(a) were found to be in order.

### AMC M.A.710(b) and (c) Airworthiness review

1. The physical survey could require actions categorised as maintenance (e.g. operational tests, tests of emergency equipment, visual inspections requiring panel opening etc.). In this case, after the airworthiness review, a CRS for aircraft should be issued in accordance with EMAR 145.

When the airworthiness review staff are not appropriately authorised to release such maintenance, EMAR M.A.710(b) requires them to be assisted by EMAR 145.A.35 certifying staff. However, the function of such certifying staff is limited to performing and releasing the maintenance actions requested by the airworthiness review staff; it is not their function to perform the physical survey of the aircraft. As stated in EMAR M.A.710(b), the airworthiness review staff shall carry out the physical survey of the aircraft, and this survey includes the verification that no inconsistencies can be found between the aircraft and the documented review of records.

- 2. The physical survey of the aircraft may include verifications to be carried out during flight.
- 3. The CAMO should develop procedures for the airworthiness review staff to produce a compliance report that confirms the physical survey has been carried out and found satisfactory.
- 4. To ensure compliance, the physical survey of the aircraft may include relevant sample checks of items.

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### AMC M.A.710(d) Airworthiness review

When an airworthiness review is anticipated by up to 90 days, the expression "without loss of continuity of the airworthiness review pattern" means that the new expiration date is set up one year after the previous expiration date. As a consequence, when the airworthiness review is anticipated, the validity or the airworthiness review certificate is longer than one year (up to 90 days longer).

If for service reasons, an airworthiness review is anticipated by more than 90 days, the next airworthiness review is due 12 months from this earlier anticipated date.

### AMC M.A.710(e) Airworthiness review

A copy of both the physical survey compliance report and the document review compliance report should be sent to the NMAA together with any recommendation issued.

### AMC M.A.710(g) Airworthiness review

This means that the airworthiness review staff who is going to sign the MARC (EMAR Form 15b) or the recommendation for the NMAA to issue the MARC (EMAR Form 15a) should be the one who carried out the physical survey of the aircraft and also completed/supervised/managed the documented review. It is not the intent of the requirement to delegate the physical survey of the aircraft to certifying staff who are not airworthiness review staff. Furthermore, the provision of EMAR M.A.710(d) allowing a 90 days anticipation for the physical survey provides enough flexibility to ensure that the airworthiness review staff are present.

# AMC M.A.711(b) Privileges of the organisation

**NOT APPLICABLE** 

### AMC M.A.711(c) Privileges of the organisation

**NOT APPLICABLE** 

# AMC M.A.712(a) Quality system

- 1. Procedures should be held current such that they reflect best practice within the CAMO. It is the responsibility of all CAMO staff to report any difficulties with the procedures via their CAMO's internal occurrence reporting mechanisms.
- 2. All procedures, and changes to the procedures, should be verified and validated before use where practicable.
- 3. The feedback part of the system should address who is required to rectify any non-compliance in each particular case and the procedure to be followed if rectification is not completed within appropriate timescales. The procedure should include the Accountable Manager specified in EMAR M.A.706.

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- 4. The independent quality audit reports referenced in <u>AMC EMAR M.A.712(b)</u> should be sent to the relevant department for rectification action giving target rectification dates. Rectification dates should be discussed with such department before the quality department or nominated quality auditor confirms such dates in the report. The relevant department is required to rectify findings and inform the Quality Manager or the quality auditor of such rectification.
- 5. The Accountable Manager should hold regular meetings with staff to check progress on rectification. In large CAMOs such meetings may be delegated on a day to day basis to the Quality Manager, subject to the Accountable Manager meeting at least twice per year with the senior staff involved to review the overall performance and receiving at least a half yearly summary report on findings of non-compliance.

## AMC M.A.712(b) Quality system

- 1. The primary objectives of the quality system are to enable the CAMO to ensure airworthy aircraft and to remain in compliance with the EMAR M requirements.
- 2. An essential element of the quality system is the independent audit.
- 3. The independent audit is an objective process of routine sample checks of all aspects of the CAMO's ability to carry out continuing airworthiness management to the required standards. It includes some on-aircraft sampling as this is the end result of the process.
- 4. The independent audit represents an objective overview of the complete continuing airworthiness management related activities. It is intended to complement the EMAR M.A.902 requirement for an airworthiness review to be satisfied that all aircraft managed by the organisation remain airworthy.
- 5. The independent audit should ensure that all aspects of EMAR M.A. Subpart G compliance are checked annually, including all the contracted/tasked activities, and may be carried out as a complete single exercise or subdivided over the annual period in accordance with a scheduled plan. If the continuing airworthiness of more than one aircraft type is managed, the independent audit does not require each procedure to be checked against each aircraft type when it can be shown that the particular procedure is common to more than one aircraft type and the procedure has been checked every year without resultant findings. Where findings have been identified, the particular procedure should be rechecked against other aircraft types until the findings have been rectified after which the independent audit procedure may revert back to the annual interval for the particular procedure.

Provided that there are no safety related findings, the audit time periods specified in this AMC may be increased by up to 100% subject to agreement by the NMAA.

6. Where the CAMO has more than one approved location, the quality system should describe how these are integrated into the system and include a plan to audit each location every year.

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- 7. A report should be raised each time an audit is carried out describing what was checked and the resulting findings against applicable procedures, contracts/taskings and EMAR requirements.
- 8. The independence of the audit should be established by ensuring that audits are not carried out by personnel responsible for the function, procedure or products being checked.
- 9. A CAMO should establish a quality plan acceptable to the NMAA that shows when and how often the activities required by EMAR M.A. Subpart G will be audited.

### AMC M.A.712(f) Quality system

**NOT APPLICABLE** 

### AMC M.A.713 Changes to the CAMO

- 1. NOT APPLICABLE.
- 2. Moved to AMC EMAR M.B.706.

### AMC M.A.714 Record-keeping

- 1. The system to retain the continuing airworthiness records should be described in the CAME.
- 2. When a CAMO arranges for an EMAR 145 AMO to retain copies of the EMAR M.A.714 continuing airworthiness records on its behalf, the CAMO will nevertheless continue to be responsible for their preservation. If another CAMO assumes responsibility for managing the continuing airworthiness of an aircraft, then the original CAMO is responsible for transferring the records.
- 3. Keeping continuing airworthiness records in a form acceptable to the NMAA means in paper form or on a computer database or a combination of both methods. Records stored in microfilm or optical disc form are also acceptable. The record should remain readable and accessible throughout the required retention period.

'Readable and accessible' is defined in AMC EMAR M.A.305(h).

- 4. Paper systems should use robust material which can withstand normal handling and filing.
- 5. Computer systems should have at least one backup system which should be updated within 24 hours of any new entry. Each terminal is required to contain program safeguards against the ability of unauthorised personnel to alter the database.
- 6. Microfilming or optical storage of continuing airworthiness records may be carried out at any time. The records should be as legible as the original record and remain so for the required retention period.

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### AMC M.A.716(a)2 CAMO findings by the NMAA

The corrective action plan defined by the CAMO should address the effects of the non-compliance, as well as its root cause.

### GM M.A.716 CAMO findings by the NMAA

#### 1. General

- (a) Preventive action is the action to eliminate the cause of a potential non-compliance, or other undesirable potential situation.
- (b) Corrective action is the action to eliminate or mitigate the root cause(s) and prevent recurrence of an existing detected non-compliance, or other undesirable condition or situation. Proper determination of the root cause is crucial for defining effective corrective actions to prevent reoccurrence.
- (c) Correction is the action to eliminate a detected non-compliance.

#### 2. Root-cause analysis

- (a) It is important that the analysis does not primarily focus on establishing who or what caused the non-compliance but why it was caused. Establishing the root-cause or causes of a non-compliance often requires an overarching view of the events and circumstances that lead to it, to identify all possible systemic and contributing factors (regulatory, human factors, organisational, managerial, cultural, technical, etc.) in addition to the direct factors. A narrow focus on single events or failures, or the use of a simple method such as fault tree, to identify the chain of events that lead to the non-compliance may not properly reflect the complexity of the issue, and, therefore bears the risk that important factors required to be addressed in order to prevent reoccurrence will be ignored.
- (b) Such inappropriate or partial root-cause analysis often leads to defining 'quick fixes' addressing the symptoms of the nonconformity only. A peer review of the results of the root-cause analysis may increase its reliability and objectivity.
- (c) A system description of the organisation considering organisational structures, processes and their interfaces, procedures, staff, equipment, facilities and the environment in which the organisation operates will support both effective root-cause (reactive) and hazard (proactive) analysis.

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## SUBPART H - CERTIFICATE OF RELEASE TO SERVICE — CRS

NOT APPLICABLE.

### SUBPART I - MILITARY AIRWORTHINESS REVIEW CERTIFICATE (MARC)

#### AMC M.A.901 Aircraft airworthiness review

NOT APPLICABLE.

### AMC M.A.901(a) Aircraft airworthiness review

EMAR Form 15a is issued by the NMAA while EMAR Form 15b is issued by a CAMO.

### AMC M.A.901(b) Aircraft airworthiness review

NOT APPLICABLE.

### AMC M.A.901(c)(2) Aircraft airworthiness review

It is acceptable to anticipate the extension of the MARC by a maximum of 30 days without a loss of continuity of the airworthiness review pattern, which means that the new expiration date is set up one year after the previous expiration date.

It is also acceptable to perform the extension of a MARC after its expiration date, as long as all the conditions for the extension are met. However, this means that:

- until the MARC is extended the aircraft cannot fly because the MARC has expired; and
- the new expiration date (after extension) is set one year after the previous expiration date (not one year after the extension is performed).

## AMC M.A.901(d) Aircraft airworthiness review

The recommendation sent to the NMAA should contain at least the items described below:

- (a) General information
  - CAMO information;
  - Operating Organisation information;
  - date and place the document review and the aircraft survey were carried out;
  - period and place the aircraft can be seen if required by the NMAA.
- (b) Aircraft information
  - registration;
  - type;

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- manufacturer;
- serial number;
- Aircraft Flight Manual reference;
- weight and centre of gravity data;
- AMP reference;
- symmetry check data (if applicable).
- (c) Documents accompanying the recommendation
  - copy of the Operating Organisation's request for a new MARC.

#### (d) Aircraft status

- aircraft total flight hours and cycles or other service life consumption units if applicable;
- list of organisations having carried out continuing airworthiness activities including maintenance tasks on the aircraft and its components since the last MARC was issued.

#### (e) Aircraft survey

- a precise list of the areas of the aircraft that were surveyed and their status.

#### (f) Findings

- a list of all the findings made during the airworthiness review with the corrective action carried out

#### (g) Statement

A statement signed by the airworthiness review staff recommending the issue of a MARC.

The statement should confirm that the aircraft in its current configuration complies with the following:

- Airworthiness Directives up to the latest published issue; and
- (Military) Type Certificate datasheet; and
- AMP; and
- component service life limitations; and

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- the valid weight and centre of gravity schedule reflecting the current configuration of the aircraft; and
- EMAR 21 for all modifications and repairs; and
- the current Aircraft Flight Manual including supplements; and
- valid symmetry check schedule (if applicable); and
- operational requirements.

The above items should clearly state the exact reference of the data used in establishing compliance; for instance the number and issue of the (M)TC data sheet used should be stated.

The statement should also confirm that all of the above is properly entered and certified in the aircraft continuing airworthiness record system and/or in the aircraft technical log.

### AMC M.A.901(g) Aircraft airworthiness review

NOT APPLICABLE.

### AMC M.A.901(j) Aircraft airworthiness review

Suitable accommodation should include:

- a) an office with normal office equipment such as desks, telephones, photocopying machines etc. whereby the continuing airworthiness records can be reviewed.
- b) a hangar when needed for the physical survey.

The support of personnel appropriately authorised in accordance with EMAR 145.A.35 is necessary to assist with depanelling/panelling/functional checks etc.

#### AMC M.A.903 Transfer of aircraft registration within the EU

TO BE ADDED LATER IF REQUIRED.

#### AMC M.A.904 Airworthiness review of aircraft imported into the EU

TO BE ADDED LATER IF REQUIRED.

## AMC M.A.905(a)1 Aircraft findings by the NMAA

The Operating Organisation should establish an effective system of communication with operating locations to ensure the timely suspension of flight operations of the affected aircraft.

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### AMC M.A.905(a)3 Aircraft findings by the NMAA

The corrective action plan defined by the Operating Organisation should address the effects of the non-compliance, as well as its root cause.

## AMC M.A.905(b) Aircraft findings by the NMAA

The Operating Organisation should consider at least the following:

- (a) Probable root cause and contributory factors;
- (b) Applicability of those to other aircraft under its responsibility;
- (c) Other factors that could potentially lead to unsafe condition(s) in those other aircraft.

### GM M.A.905(a) Aircraft findings by the NMAA

See <u>GM EMAR M.A.716</u> for further guidance.

#### **SECTION B**

#### PROCEDURES FOR NATIONAL MILITARY AIRWORTHINESS AUTHORITIES

#### **SUBPART A - GENERAL**

# AMC M.B.102(a) NMAA - General

- 1. In deciding upon the required airworthiness organisational structure, the NMAA should review the number of certificates to be issued, the number and size of potential Operating Organisations and CAMOs within that pMS, as well as the level of military aviation activity, number and complexity of aircraft and the size of the pMS's aviation industry.
- 2. The NMAA should retain effective control of important surveillance functions and not delegate them in such a way that Operating Organisations and CAMOs, in effect, regulate themselves in airworthiness matters.
- 3. The set-up of the organisational structure should ensure that the various tasks and obligations of the NMAA are not relying on individuals. That means that a continuing and undisturbed fulfilment of these tasks and obligations of the NMAA should also be guaranteed in case of illness, accident or leave of individual employees.

### AMC M.B.102(c) NMAA - Qualification and training

- 1. NMAA surveyors should have:
  - 1.1 practical experience and expertise in the application of aviation safety standards and safe operating practices;
  - 1.2 comprehensive knowledge of:
    - (a) relevant parts of national implementing rules/regulations, certification specifications, airworthiness codes and guidance material;
    - (b) the NMAA's procedures;
    - (c) the rights and obligations of a surveyor;
    - (d) quality systems;
    - (e) continuing airworthiness management;
    - (f) operational procedures when affecting the continuing airworthiness management of the aircraft or the maintenance.
  - 1.3 training on auditing techniques.

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- 1.4 five years relevant work experience to be allowed to work as a surveyor independently. This may include, but should not be limited to, experience gained during training to obtain the subparagraph 1.5 (below) qualification.
- 1.5 a relevant engineering degree or an aircraft maintenance technician qualification with additional education. 'Relevant engineering degree' means an engineering degree from aeronautical, mechanical, electrical, electronic, avionic or other studies relevant to the maintenance and continuing airworthiness of aircraft/aircraft components.
- 1.6 knowledge of a relevant sample of the type(s) of military aircraft gained through a formalised training course, including Fuel Tank Safety (FTS) training as described in Appendix IV to EMAR AMC 145.A.30(e) and EMAR AMC 145.B.10(c). These courses should be at least at a level equivalent to EMAR 66 Appendix III Level 1 familiarisation and could be imparted by an EMAR 147 MTO, by the manufacturer, or by any other organisation accepted by the NMAA.
- "Relevant sample" means that these courses should cover typical systems embodied in those aircraft being surveyed.
- 1.7 knowledge of maintenance standards.
- 2. In addition to technical competency, surveyors should have a high degree of integrity, be impartial in carrying out their tasks, be tactful, and have a good understanding of human nature and the military environment.
- 3. A programme for continuation training should be developed ensuring that the surveyors remain competent to perform their allocated tasks.

# AMC M.B.102(d) NMAA - Procedures

The documented procedures should contain the following information:

- (a) The pMS's designation of the NMAA.
- (b) The title(s) and name(s) of the manager(s) of the NMAA and their duties and responsibilities.
- (c) Organisation chart(s) showing associated chains of responsibility of the senior persons.
- (d) A procedure defining the qualifications for staff together with a list of staff authorised to sign certificates.
- (e) A general description of the facilities.
- (f) Procedures specifying how the NMAA ensures compliance with EMAR M.

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### AMC M.B.104(a) Record-keeping

- 1. The record-keeping system should ensure that all records are accessible whenever needed within a reasonable time. These records should be organised in a consistent way throughout the NMAA (chronological, alphabetical order, etc.).
- 2. All records containing sensitive data regarding applicants or organisations should be stored in a secure manner with controlled access to ensure confidentiality of this kind of data.
- 3. All computer hardware used to ensure data backup should be stored in a different location from that containing the working data in an environment that ensures they remain in good condition. When hardware or software changes take place special care should be taken to ensure that all necessary data continues to be accessible at least through the full period specified in EMAR M.B.104 (c) and/or (e).

### AMC M.B.104(f) Record-keeping

**NOT APPLICABLE** 

### GM M.B.104 Record-keeping

The NMAA may elect to use either a paper or computer system or any combination of both subject to appropriate controls.

# AMC M.B.105(a) Mutual exchange of information

**NOT APPLICABLE** 

# **SUBPART B - ACCOUNTABILITY**

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#### **SUBPART C - CONTINUING AIRWORTHINESS**

### AMC M.B.301(a) Aircraft Maintenance Programme (AMP)

For the NMAA to verify compliance with EMAR M.A.302, the auditing surveyor should have received training on AMP development and control.

### AMC M.B.301(b) Aircraft Maintenance Programme (AMP) (\*)

- 1. When assessing AMPs for approval, the NMAA should verify that the AMP is acceptable for the continuing airworthiness of the specific aircraft listed and it is appropriate for the proposed operating environment and scheduled utilisation.
- 2. The NMAA should assess the contents taking into account the origins of the document i.e. the manufacturers recommended maintenance programme, a MRB report, the Operating Organisation's own experience or another approved programme.
- 3. NOT APPLICABLE.
- 4. A copy of the approved AMP should be retained by the NMAA.
- 5. NOT APPLICABLE.
- 6. Amendment of an approved Operating Organisation's specific AMP is dependent upon sufficient satisfactory in-service experience which has been properly processed. In general, the task being considered for extension beyond the MRB (or equivalent) limits should have been satisfactorily repeated at the existing frequency several times before being proposed for extension. <u>Appendix I to EMAR AMC M.A.302 and EMAR AMC M.B.301(b)</u> gives further information.
- 7. The NMAA may approve an incomplete AMP at the start of operation of a military aircraft, subject to limiting the approval of the AMP to a period that does not exceed any required maintenance not yet approved.
- 8. If the NMAA is no longer satisfied that a safe operation can be maintained, the approval of an AMP (or part of it) should be suspended or revoked. Events giving rise to such action include:
  - 8.1 An Operating Organisation changing the utilisation of an aircraft;
  - 8.2 The CAMO has failed to ensure that the AMP reflects the maintenance needs of the aircraft such that safe operation can be assured.

#### AMC M.B.301(c) Aircraft Maintenance Programme (AMP)

1. Approval of an AMP through a procedure established by a CAMO should require the CAMO to demonstrate to the NMAA that it has competence, procedures and record keeping provisions, which will enable the CAMO to analyse aircraft reliability, (M)TC holder's instructions, and other related operating and maintenance criteria.

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<sup>\*</sup> see Appendix I to AMC EMAR M.A.302 and AMC EMAR M.B.301(b).

- 2. According to the complexity of the aircraft and the nature of the operation, the AMP procedures should contain Reliability Centred Maintenance (RCM) and Condition Based Maintenance (CBM) programme procedures and have procedures relating to the programme control which contain the following provisions:
  - (a) task extension or adjustment,
  - (b) AMP review,
  - (c) SB or Service Information (or national equivalent) assessment,
  - (d) component and structures in service performance review,
  - (e) AMP revision,
  - (f) maintenance procedure effectiveness review and amendment,
  - (g) MRB Report (MRBR) or OEM MPD (or equivalent documents) review and assessment, as appropriate,
  - (h) AD review and assessment,
  - (i) Operating Organisation/EMAR 145 AMO/CAMO liaison,
  - (j) training.
- 3. When the NMAA requests, the CAMO should make provision for the attendance of a NMAA representative at meetings held to consider maintenance implications arising from reviews of the above provisions.

### AMC M.B.301(d) Aircraft Maintenance Programme (AMP)

AMPs and all associated airworthiness data, including that data used for substantiating the extension of tasks within AMPs should be made available to the NMAA upon request.

# AMC M.B.301(e) Aircraft Maintenance Programme (AMP)

The procedures developed by the NMAA should include consideration of, but not be limited to, the provisions identified in <u>AMC EMAR M.B.301(c)</u>. Particular care should be taken to ensure that an appropriate feedback mechanism exists between the Operating Organisation/EMAR 145 AMO/CAMO/organisation responsible for controlling and amending the AMP, to ensure that the AMP is able to assure safe operation of the aircraft operated.

# AMC M.B.303 Aircraft Continuing Airworthiness Monitoring (ACAM)

The NMAA should create an adapted airworthiness survey programme for the aircraft for which it performs the airworthiness review.

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### AMC1 M.B.303(b) Aircraft Continuing Airworthiness Monitoring (ACAM)

#### SCOPE OF SURVEYS

- 1. The NMAA should undertake sample airworthiness surveys of aircraft on its register to verify that:
  - (a) the condition of an aircraft as sampled is to a standard acceptable for the Military Certificate of Airworthiness (MCOA)/MARC to remain in force,
  - (b) the management of the airworthiness of the registered aircraft is effective,
  - (c) the approvals granted to organisations continue to be applied in a consistent manner to achieve the required standards.

A physical inspection of the aircraft is necessary during each ACAM survey ('ramp' or 'indepth').

- 2. Sample airworthiness surveys of aircraft include:
  - (a) 'in-depth' surveys carried out (e.g. during extensive maintenance) that fully encompass selected aspects of an aircraft's airworthiness.
    - (i) An ACAM 'in-depth' survey is a sample inspection of the selected Key Risk Elements (KREs).
    - (ii) The survey should be a 'deep cut' through the elements or systems selected.
  - (b) 'ramp' surveys carried out (e.g. on the flight line) during aircraft operations to monitor the apparent condition of an aircraft's airworthiness.
    - (i) An ACAM 'ramp' survey is a sample inspection of the selected KREs.
    - (ii) The survey should be an inspection of the aircraft 'as operated'. This may be with 'no-notice' being provided to the Operating Organisation.
  - (c) in-flight surveys, as deemed necessary by the NMAA.

<u>Appendix III to GM to EMAR M.B.303(b)</u> provides guidance on KREs that can be used for planning and/or analysis of the inspections. The record of an ACAM inspection should identify which KREs were inspected.

3. NOT APPLICABLE.

# AMC2 M.B.303(b) Aircraft Continuing Airworthiness Monitoring (ACAM)

Moved to AMC 1 EMAR M.B.303(b).

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### AMC3 M.B.303(b) Aircraft Continuing Airworthiness Monitoring (ACAM)

#### **KEY RISK ELEMENTS**

- 1. The following KREs should be used for aircraft continuing airworthiness monitoring:
  - (a) Type design and changes to type design;
  - (b) Airworthiness limitations;
  - (c) Airworthiness Directives:
  - (d) Aircraft documents;
  - (e) Aircraft Flight Manual;
  - (f) Weight & Balance;
  - (g) Markings & placards;
  - (h) Operational requirements;
  - (i) Defect management;
  - (j) Symmetry;
  - (k) Aircraft Maintenance Programme;
  - (I) Component control;
  - (m) Repairs;
  - (n) Records;
- 2. These KREs and their detailed components should be adapted to the complexity of the aircraft type being surveyed by retaining only those items that are applicable and relevant for the particular aircraft type.

### GM M.B.303(b) Aircraft Continuing Airworthiness Monitoring (ACAM)(\*)

#### **KEY RISK ELEMENTS**

The KREs define the scope of continuing airworthiness. The list of KREs is intended to provide the basis for planning and control of the ACAM survey programme. It will ensure that the programme covers all aspects of continuing airworthiness. While it is not required to cover all KREs during a given inspection, the ACAM survey programme should ensure that there is no omission, i.e. avoiding the situation where certain KRE's are never inspected.

\* See Appendix III to GM EMAR M.B.303(b).

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# AMC M.B.303(c) Aircraft Continuing Airworthiness Monitoring (ACAM)

The NMAA should create an annual programme of surveys, selecting aircraft and/or Operating Organisations depending on local knowledge of the maintenance environment, operating conditions, airworthiness standards and past surveillance experience. The results of the programme should be used to identify the Operating Organisation/fleet/aircraft, which are causing the greatest concern.

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# **SUBPART D - MAINTENANCE STANDARDS**

NOT APPLICABLE

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# **SUBPART E - COMPONENTS**

NOT APPLICABLE

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# **SUBPART F - MAINTENANCE ORGANISATION**

NOT APPLICABLE.

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#### SUBPART G - CONTINUING AIRWORTHINESS MANAGEMENT ORGANISATION

### AMC M.B.701(a) Application

1. The NMAA should not expect the documents listed in EMAR M.A.702(b) to be submitted in a completed state with the initial application for grant or change since each may require approval in its own right and may be subject to amendment as a result of NMAA assessment during the technical investigations.

The Operating Organisation's AMPs are not required to be submitted by the applicant to the NMAA if they are not developed and controlled by the CAMO (EMAR M.A.711(d) refers). In this case, the NMAA will check that the approved AMPs are being used whilst carrying out the approval audit(s).

### AMC M.B.702(a) Initial approval

- 1. 'Formally indicate in writing' means that an EMAR Form 4 should be used for this activity. With the exception of the Accountable Manager, an EMAR Form 4 should be completed for each person nominated to hold a position required by EMAR M.A.706 (c), EMAR M.A.706(d) and EMAR M.A.707.
- 2. In the case of the Accountable Manager, approval of the CAME containing the Accountable Manager's signed commitment statement constitutes formal acceptance, once the NMAA has held a meeting with the Accountable Manager and is satisfied with its results.

Note: NMAAs should be aware of their legal responsibilities for the collection, use and safeguarding of personal data, including the provision of this data to third parties without the data-subject's consent.

# AMC M.B.702(b) Initial approval

- 1. The NMAA should indicate approval of the CAME in writing.
- 2. The technical specifications of any contracts/tasking for the execution of specific continuing airworthiness management tasks by CAMOs should be included in the CAME. The NMAA should verify that the standards set forth in <a href="AMC EMAR M.A.201(h)1">AMC EMAR M.A.201(h)1</a> are being met when approving the CAME.
- 3. While investigating the acceptability of the proposed contracted/tasked continuing airworthiness management tasks arrangements, the NMAA will take into account all other such contracts/tasks that are in place in the contracted/tasked organisation in terms of sufficiency of resources, expertise, management structure, facilities and liaison between the CAMO, the contracted/tasked organisation and where applicable contracted/tasked EMAR 145 AMO(s).

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### AMC M.B.702(c) Initial approval

- 1. The NMAA should determine by whom, and how the audit shall be conducted. For example, it will be necessary to determine whether one large team audit or a short series of small team audits or a long series of single person audits are most appropriate for the particular situation.
- 2. The audit may be carried out on an aircraft- type basis. For example, in the case of an organisation seeking approval to manage the continuing airworthiness of 2 different aircraft types, the audit could be concentrated on one type only for a full compliance check. Dependent upon the result, the second type may only require a sample check that should at least cover the activities identified as weak for the first type.
- 3. When determining the scope of the audit and which activities of the organisation will be assessed during the audit, the requested privileges of the organisation should be taken into account, e.g. approval to carry out airworthiness reviews.
- 4. The NMAA auditing surveyor should always ensure that he/she is accompanied throughout the audit by a senior technical member of the organisation. Normally this is the Quality Manager. The reason for being accompanied is to ensure the organisation is fully aware of any findings during the audit.
- 5. The auditing surveyor should inform the senior technical member of the organisation at the end of the audit visit on all findings made during the audit.

# AMC M.B.702(e) Initial approval

- 1. Findings should be recorded on an audit report form with a provisional categorisation as a level 1 or 2. Subsequent to the audit visit that identified the particular findings, the NMAA should review the provisional finding levels, adjusting them if necessary and change the categorisation from 'provisional' to 'confirmed'.
- 2. All findings should be confirmed in writing to the applicant organisation within 2 weeks of the audit visit.
- 3. There may be occasions when the NMAA finds situations in the applicant organisation on which it is unsure about compliance. In this case, the organisation should be informed about possible non-compliance at the time and the fact that the situation will be reviewed within the NMAA before a decision is made. If the review concludes that there is no finding then a verbal confirmation to the organisation will suffice.

# AMC M.B.702(f) Initial approval

- 1. The audit report form should be the EMAR Form 13.
- 2. Before the EMAR Form 13 is closed and the initial approval issued, a quality review of the EMAR Form 13 audit report should be carried out by a competent independent person nominated by the NMAA. The review should take into account the relevant paragraphs of EMAR M.A. Subpart G, the categorisation of finding levels and the closure action taken. Satisfactory review of the audit form should be indicated by a signature on the EMAR Form 13.

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### AMC M.B.702(g) Initial approval

The audit reports should include the date each finding was cleared together with reference to the NMAA report or letter that confirmed the clearance.

Note: The NMAA may decide that not all findings have to be cleared to issue an initial organisational approval. For findings that are not cleared, the NMAA could accept a Corrective Action Plan that clearly defines when and how the findings will be resolved.

### AMC M.B.703 Issue of approval

The table shown for the Approval Schedule on the EMAR Form 14 includes a field designated as "Aircraft type/series/group".

The intention is to give maximum flexibility to the NMAA to customise the approval to a particular CAMO.

Possible alternatives to be included in this field are the following:

- A specific type designation that is part of a type certificate, such as C 130 H type or C 130 J type, Tiger HAP type or Tiger HAD type etc.
- A type rating (or series) which may be further subdivided, such as Tiger series or Tornado series or Rafale series or Super Puma series or AB 212 series or Gripen series or C 101 series or C 235 series etc.
- An aircraft group such as Fokker twin turbo prop aircraft.

Reference to the engine type installed in the aircraft may or may not be included, as necessary.

In all cases, the NMAA should be satisfied that the CAMO has the capability to manage the requested types/series/groups.

#### AMC M.B.703(a) Issue of approval

NOT APPLICABLE.

# AMC M.B.703(c) Issue of approval

The numeric sequence should be unique to the particular CAMO.

#### AMC M.B.704(b) Continuing oversight

1. Where the NMAA has decided that a series of audit visits are necessary to arrive at a complete audit of a CAMO, the programme should indicate which aspects of the approval will be covered on each visit.

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- 2. It is recommended that part of an audit concentrates on two ongoing aspects of the EMAR M.A. Subpart G approval, namely the CAMO's internal self-monitoring quality reports produced by the quality monitoring personnel to determine if the organisation is identifying and correcting its problems and secondly the number of concessions granted by the Quality Manager.
- 3. At the successful conclusion of the audit including verification of the CAME, an audit report form should be completed by the auditing surveyor including all recorded findings, closure actions and recommendation. An EMAR Form 13 should be used for this activity.
- 4. Credit may be claimed by the NMAA Surveyor(s) for specific item audits completed during the preceding 23 month period subject to four conditions:
  - (a) the specific item audit should be the same as that required by EMAR M.A. Subpart G latest amendment; and
  - (b) there should be satisfactory evidence on record that such specific item audits were carried out and that all corrective actions have been taken; and
  - (c) the NMAA surveyor(s) should be satisfied that there is no reason to believe standards have deteriorated in respect of those specific item audits being granted a back credit; and
  - (d) the specific item audit being granted a back credit should be audited not later than 24 months after the last audit of the item.
- 5. When a CAMO contracts/tasks specific continuing airworthiness management tasks in accordance with EMAR M.A.711(a)3, all contracted/tasked organisations should also be audited by the NMAA at periods not exceeding 24 months (credits per paragraph 4 above are permitted) to ensure they also fully comply with EMAR M.A. Subpart G. For these audits, the NMAA auditing surveyor should always ensure that he/she is accompanied throughout the audit by a senior technical member of the CAMO. All findings should be sent to and corrected by the CAMO.
- 6. When performing the oversight of Operating Organisations that hold both EMAR 145 and EMAR M.A. Subpart G approvals, the NMAA should arrange the audits to cover both approvals avoiding duplicated visit of a particular area.

# AMC M.B.705(a)(1) CAMO Findings

- 1. For a level 1 finding the NMAA should inform the Operating Organisation in order that corrective action can be taken to ensure possible unsafe conditions on their aircraft are corrected before further flight.
- 2. Furthermore, a level 1 finding could lead to a non-compliance to be found on an aircraft as specified in EMAR M.B.303(g). In this case, proper action as specified in M.B.303(h) should be taken.

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### AMC M.B.706 Changes

1. Changes in nominated persons

The NMAA should have adequate control over any changes to the management personnel specified in EMAR M.A.706(a), (c), (d) and (i). Such changes will require an amendment to the CAME.

- 2. It is recommended that a simple CAME status sheet is maintained which contains information on when an amendment was received by the NMAA and when it was approved.
- 3. The NMAA should define the minor amendments to the CAME which may be incorporated through indirect approval. In this case a procedure should be stated in the amendment section of the CAME.

Changes notified in accordance with EMAR M.A.713 are not considered minor.

For all cases other than minor, the applicable part(s) of the EMAR Form 13 should be used for the change.

- 4. The CAMO should submit each CAME amendment to the NMAA whether it be an amendment for NMAA approval or an indirectly approved amendment. Where the amendment requires NMAA approval, the NMAA when satisfied, should indicate its approval in writing. Where the amendment has been submitted under the indirect approval procedure the NMAA should acknowledge receipt in writing.
- 5. The primary purpose of this paragraph is to enable the CAMO to remain approved if agreed by the NMAA during negotiations about any of the specified changes. Without this paragraph the approval would automatically be suspended in all cases.

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# SUBPART H - CERTIFICATE OF RELEASE TO SERVICE - CRS

NOT APPLICABLE

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### **SUBPART I - MILITARY AIRWORTHINESS REVIEW CERTIFICATE (MARC)**

#### AMC M.B.901 Assessment of recommendations

- 1. The result of the verification and the investigation of a recommendation should be sent to the applicant within 30 days. If corrective action has been requested before the issuance of a MARC, the NMAA may decide a further period for the assessment of the requested corrective action.
- 2. The verification of the compliance statement required by EMAR M.B.901 does not mean repeating the airworthiness review itself. However the NMAA should verify that the CAMO has carried out a complete and accurate assessment of the airworthiness of the aircraft.
- 3. Depending on the content of the recommendation, the history of the particular aircraft, and the NMAA's knowledge of the CAMO the extent of the investigation will vary. Therefore, whenever possible, the person carrying out the investigation should be involved in the oversight of the CAMO making the recommendation.
- 4. In some cases, the surveyor may decide that it is necessary to organise:
  - a physical survey of the aircraft; or
  - a full or partial airworthiness review.

In this case, the surveyor should inform the CAMO making the recommendation with sufficient notice so that it may make arrangements according to EMAR M.A.901(j).

Furthermore, this part of the investigation should be carried out by appropriate airworthiness review staff in accordance with EMAR M.B.902(b).

5. Only when satisfied the aircraft is airworthy, should the surveyor issue a MARC.

### AMC M.B.902(b) Airworthiness review by the NMAA

1. A person qualified in accordance with <u>AMC EMAR M.B.102(c)</u> subparagraph 1.5 should be considered as holding the equivalent to a relevant engineering degree.

'Relevant engineering degree' means an engineering degree from aeronautical, mechanical, electrical, electronic, avionic or other studies relevant to the maintenance and continuing airworthiness of aircraft/aircraft components;

- 2. "Experience in continuing airworthiness" means any appropriate combination of experience in tasks related to aircraft maintenance and/or continuing airworthiness management (engineering) and/or surveillance of such tasks.
- 3. An appropriate MAML in compliance with EMAR 66 is a category B1/B2 or C licence in the subcategory of the aircraft reviewed. It is not necessary to satisfy the recent experience requirements of EMAR 66.A.20(b)(2) at the time of the review or to hold the military type rating on the particular aircraft.

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- 4. To hold a position with appropriate responsibilities means the airworthiness review staff should have a position within the NMAA that authorises that person to sign on behalf of the NMAA.
- 5. NOT APPLICABLE.

## AMC M.B.902(b)(1) Airworthiness review by the NMAA

Formal aeronautical maintenance training means training (internal or external) supported by evidence on the following subjects:

- Relevant parts of initial and continuing airworthiness regulations.
- Relevant parts of operational requirements and procedures, if applicable.
- Knowledge of the internal procedures for continuing airworthiness.
- Knowledge of a relevant sample of the type(s) of aircraft gained through a
  formalised training course including Fuel Tank Safety (FTS) training as described
  in Appendix IV to EMAR AMC 145.A.30(e) and EMAR AMC 145.B.10(c). These
  courses should be at least at a level equivalent to EMAR 66 Appendix III Level 1
  familiarisation and could be imparted by an EMAR 147 MTO, by the manufacturer,
  or by any other organisation accepted by the NMAA.

'Relevant sample' means that these courses should cover typical systems embodied in those aircraft being surveyed.

### AMC M.B.902(b)(2) Airworthiness review by the NMAA

NOT APPLICABLE.

### AMC M.B.902(c) Airworthiness review by the NMAA

The minimum content of the airworthiness review staff record should be:

- Name.
- Rank/Grade and Service Number (if applicable)
- Date of Birth,
- Basic Education,
- Experience,
- Engineering Degree and/or EMAR 66-qualification and/or nationally-recognised maintenance personnel qualification,

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- Initial Training received,
- Type Training received,
- Continuation Training received,
- Experience in continuing airworthiness and within the organisation,
- Responsibilities of current role in the organisation,
- Security clearance (where applicable).

# APPENDICES TO AMCs

# Appendix I to AMC M.A.302 and AMC M.B.301(b): Content of the Aircraft Maintenance Programme (AMP)

## 1 General requirements

- 1.1 The AMP should contain the following basic information.
  - 1.1.1 The type/model and registration number of the aircraft, engines and, where applicable, auxiliary power units and propellers.
  - 1.1.2 The name and address of the Operating Organisation(s) and the organisation responsible for producing and amending the AMP.
  - 1.1.3 The reference, the date of issue and issue number of the AMP.
  - 1.1.4 A statement signed by the CAMO's Accountable Manager or their nominated representative to the effect that the specified aircraft will be maintained to the AMP and that the AMP will be reviewed and updated as required.
  - 1.1.5 Contents/list of effective pages and their revision status of the document.
  - 1.1.6 Intervals for scheduled maintenance, which reflect the anticipated utilisation of the aircraft. Such utilisation should be stated and include a tolerance. Where utilisation cannot be anticipated, calendar time limits should also be included.
  - 1.1.7 Procedures for the extension of established intervals for scheduled maintenance, where applicable and acceptable to the NMAA.
  - 1.1.8 Provision to record the date and reference of approved amendments incorporated in the AMP.
  - 1.1.9 Details of pre-flight tasks that are accomplished by maintenance staff.
  - 1.1.10 The tasks and the periods (intervals/frequencies) at which each part of the aircraft, engines, APU's, propellers, components, accessories, equipment, instruments, electrical and radio apparatus, together with the associated systems and installations should be inspected. This should include the type and degree of inspection required.
  - 1.1.11 The periods at which components should be checked, cleaned, lubricated, replenished, adjusted and tested.
  - 1.1.12 If applicable, details of ageing aircraft system requirements together with any specified sampling programmes.
  - 1.1.13 If applicable, details of specific structural maintenance programmes where issued by the MTCH/any organisation recognized by the NMAA including but not limited to:

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- a. Damage Tolerance based Structural Maintenance Inspection Programmes and Supplemental Structural Inspection Documents (SSID).
- b. Structural maintenance programmes resulting from the SB review performed by the MTCH.
- c. Corrosion Prevention and Control Programmes (CPCP).
- d. Repair Evaluation Guidelines, Repair Assessment Programmes or similar documents.
- e. Widespread Fatigue Damage.
- 1.1.14 If applicable, details of CDCCLs together with appropriate procedures.
- 1.1.15 If applicable, a statement of the limit of validity in terms of total flight cycles/calendar date/flight hours/other service life consumption units for the structural programme in 1.1.13.
- 1.1.16 The periods at which overhauls and/or replacements by new or overhauled components should be made.
- 1.1.17 A cross-reference to other documents approved by the NMAA which contain the details of maintenance tasks related to mandatory life limitations, Certification Maintenance Requirements (CMR's) and ADs.

Note: To prevent inadvertent variations to such tasks or intervals these items should not be included in the main portion of the AMP document, or any planning control system, without specific identification of their mandatory status.

- 1.1.18 Details of, or cross-reference to, any required reliability programme or statistical methods of continuous surveillance.
- 1.1.19 A statement that practices and procedures to satisfy the programme should be to the standards specified in the maintenance instructions promulgated by the (Military) Type Certificate (MTC) and (Military) Supplementary Type Certificate (MSTC) holders and any other organisation that publishes such data in accordance with EMAR 21. In the case of approved practices and procedures that differ, the statement should refer to them.
- 1.1.20 Each maintenance task quoted should be defined in a definition section of the AMP.

## 2 AMP basis

2.1 An AMP should normally be based upon the MRB report (or equivalent), where applicable, and the MTCH's MPD or the manufacturer's recommended maintenance programme.

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The structure and format of these maintenance recommendations may be re-written to better suit the operation and control of the particular AMP.

- 2.2 For a newly type-certificated aircraft where no previously approved AMP exists, it will be necessary to comprehensively appraise the manufacturer's recommendations (and the MRB report or equivalent where applicable), together with other airworthiness information, in order to produce a realistic AMP for approval.
- 2.3 For existing aircraft types it is permissible to make comparisons with AMPs previously approved. It should not be assumed that an AMP approved for one Operating Organisation will automatically be approved for another.

Evaluation should be made of the aircraft/fleet utilisation, landing rate, equipment fit and, in particular, the experience of the Operating Organisation/CAMO/other Operating Organisations when assessing an existing AMP.

Where the NMAA is not satisfied that the proposed AMP can be used as is, the NMAA should request appropriate changes such as additional maintenance tasks or reduction of established intervals of scheduled maintenance tasks as necessary.

2.4 Critical Design Configuration Control Limitations (CDCCLs)

If CDCCLs have been identified for the aircraft type by the M(S)TC Holder, maintenance instructions should be developed. CDCCLs are characterised by features in an aircraft installation or component that should be retained during modification, change, repair, or scheduled maintenance for the operational life of the aircraft or applicable component or part.

#### 3 Amendments

Amendments (revisions) to an approved AMP should be made to reflect changes in the M(S)TCH's recommendations, modifications, service experience, or as required by the NMAA.

#### 4 Permitted variations to maintenance periods

Maintenance periods prescribed by the AMP may only be varied with the approval of the NMAA or through a procedure developed in the AMP and approved by the NMAA.

#### 5 Periodic review of AMP contents

- 5.1 Approved AMPs should be subject to periodic review to ensure that they reflect current M(S)TCH's recommendations, revisions to the MRB report (or equivalent) if applicable, mandatory requirements and the maintenance needs of the aircraft.
- 5.2 A review of the detailed requirements should be carried out at least annually for continued validity in the light of operating experience.

#### 6. Reliability Programmes

6.1 A reliability programme should be developed (see GM EMAR M.A.302(f))

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- 6.1.1 Not Applicable.
- 6.1.2 Not Applicable.
- 6.1.3 Not Applicable.
- 6.2 Applicability for small fleets of aircraft
  - 6.2.1 For the purpose of this paragraph, a small fleet of aircraft is a fleet of less than 6 aircraft of the same type.
  - 6.2.2 The requirement for a reliability programme is irrespective of the fleet size.
  - 6.2.3 Complex reliability programmes could be inappropriate for a small fleet. It is recommended that reliability programmes are tailored to suit the size and complexity of operational usage.
  - 6.2.4 One difficulty with a small fleet of aircraft consists in the amount of available data which can be processed: when this amount is too low, the calculation of alert level is very coarse. Therefore "alert levels" should be used carefully.
  - 6.2.5 When establishing a reliability programme for a small fleet of aircraft, the following should be considered:
    - (a) The programme should focus on areas where a sufficient amount of data is likely to be processed.
    - (b) When the amount of available data is very limited, engineering judgement is then a vital element. In the following examples, careful engineering analysis should be exercised before taking decisions:
    - A "0" rate in the statistical calculation may possibly simply reveal that not enough statistical data is available, rather that there is no potential problem.
    - When alert levels are used, a single event may have the figures reach the alert level. Engineering judgement is necessary so as to discriminate an artefact from an actual need for a corrective action.
    - In making an engineering judgement, contact should be established and comparisons made with other Operating Organisations/CAMOs of the same aircraft type, where possible and relevant. Making comparison with data provided by the manufacturer may also be possible.
  - 6.2.6 In order to obtain accurate reliability data, it should be recommended to pool data and analysis with one or more other Operating Organisations/CAMOs. Paragraph 6.6 of this Appendix specifies under which conditions it is acceptable that Operating Organisations/CAMOs share reliability data.

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6.2.7 Notwithstanding the above there are cases where the pooling of data is not possible, e.g. at the introduction to service of a new aircraft type. In that case, the NMAA should impose additional restrictions on the scheduled maintenance task intervals (e.g. no variations or only changes with NMAA approval are possible).

## 6.3 Engineering judgement

- 6.3.1 Engineering judgement is itself inherent to reliability programmes as no interpretation of data is possible without judgement. In approving the maintenance and reliability programmes, the NMAA is expected to ensure that the organisation responsible for developing and controlling the AMP has sufficiently qualified personnel with appropriate engineering experience and understanding of reliability concepts.
- 6.3.2 It follows that failure to provide appropriately qualified personnel for the reliability programme may lead to the NMAA rejecting the approval of the reliability programme and therefore the AMP.

## 6.4 Contracted/Tasked Reliability Programme

6.4.1 The organisation responsible for the development of the AMP may delegate certain functions to a suitably qualified organisation under contract/task, provided this organisation proves to have the appropriate expertise.

#### 6.4.2 These functions are:

- (a) Developing the aircraft maintenance and reliability programmes,
- (b) Performing the collection and analysis of the reliability data,
- (c) Providing reliability reports, and
- (d) Proposing corrective actions to the organisation responsible for the development of the AMP.
- 6.4.3 Notwithstanding the above, the decision to implement a corrective action (or the decision to request from the NMAA the approval to implement a corrective action) remains the CAMO's prerogative and responsibility. In relation to paragraph 6.4.2(d) above, a decision not to implement a corrective action should be justified and documented.
- 6.4.4 The arrangement between the organisation responsible for the development of the AMP and the contracted/tasked organisation should be specified in the contract/task.

#### 6.5 Reliability programme

In preparing the reliability programme details, account should be taken of this paragraph. All associated procedures should be clearly defined.

## 6.5.1 Objectives

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- 6.5.1.1 A statement should be included summarising as precisely as possible the scope and prime objectives of the reliability programme. As a minimum it should include the following:
  - (a) to recognise the need for corrective action; and
  - (b) to establish what corrective action is needed; and
  - (c) to determine the effectiveness of that action.
- 6.5.1.2 The extent of the objectives should be directly related to the scope of the reliability programme. Its scope could vary from a component defect monitoring system to an integrated maintenance management programme. The manufacturer's MPDs may give guidance on the objectives and should be consulted in every case.
- 6.5.1.3 In case of a MSG-3 (or equivalent) based AMP, the reliability programme should provide a monitor that all MSG-3 (or equivalent) related tasks from the AMP are effective and their periodicity is adequate.

#### 6.5.2 Identification of items.

The items controlled by the reliability programme should be stated, e.g. by S1000D Chapters. Where some items (e.g. aircraft structure, engines, APU) are controlled by separate reliability programmes, the associated procedures (e.g. individual sampling or life development programmes, MTCH's structure sampling programmes) should be cross referenced in the reliability programme.

#### 6.5.3 Terms and definitions.

The significant terms and definitions applicable to the reliability programme should be clearly identified. Terms are already defined in MSG-3 (or equivalent) and other relevant documents.

- 6.5.4 Information sources and collection.
  - 6.5.4.1 Sources of information should be listed and procedures for the transmission of information from the sources, together with the procedure for collecting and receiving it, should be detailed.
  - 6.5.4.2 The type of information to be collected should be related to the scope and objectives of the reliability programme and should be such that it enables both an overall broad based assessment of the information to be made and also allow for assessments to be made as to whether any reaction, both to trends and to individual events, is necessary. The following are examples of the normal prime sources:
    - (a) Pilots' reports.
    - (b) Aircraft technical Logs.

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- (c) Aircraft maintenance access terminal / On-board maintenance system readouts.
- (d) Maintenance worksheets.
- (e) Workshop reports.
- (f) Reports on functional checks.
- (g) Reports on Special Inspections.
- (h) Stores issues/reports.
- (i) Air Safety Reports.
- (j) Reports on technical delays and incidents.
- (k) Other sources: ETOPS, RVSM, CAT II/III (where applicable).
- 6.5.4.3 In addition to the normal prime sources of information, due account should be taken of continued airworthiness and safety information promulgated under EMAR 21.

## 6.5.5 Display of information.

Collected information may be displayed graphically or in a tabular format or a combination of both. The rules governing any separation or discarding of information prior to incorporation into these formats should be stated. The format should be such that the identification of trends, specific highlights and related events would be readily apparent.

- 6.5.5.1 The above display of information should include provisions for "nil returns" to aid the examination of the total information.
- 6.5.5.2 Where "standards" or "alert levels" are included in the reliability programme, the display of information should be orientated accordingly.
- 6.5.6 Examination, analysis and interpretation of the information.

The method employed for examining, analysing and interpreting the reliability programme information should be explained.

## 6.5.6.1 Examination.

Methods of examination of information may be varied according to the content and quantity of information of individual reliability programmes. These can range from examination of the initial indication of performance variations to formalised detailed procedures at specific periods, and the methods should be fully described in the reliability programme documentation.

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6.5.6.2 Analysis and Interpretation.

The procedures for analysis and interpretation of information should be such as to enable the performance of the items controlled by the reliability programme to be measured; they should also facilitate recognition, diagnosis and recording of significant problems. The whole process should be such as to enable a critical assessment to be made of the effectiveness of the reliability programme as a total activity. Such a process may involve:

- (a) Comparisons of operational reliability with established or allocated standards (in the initial period these could be obtained from in-service experience of similar equipment or aircraft types).
- (b) Analysis and interpretation of trends.
- (c) The evaluation of repetitive defects.
- (d) Confidence testing of expected and achieved results.
- (e) Statistical analysis of reliability data.
- (f) Reliability predictions.
- (g) Other methods of assessment.
- 6.5.6.3 The range and depth of engineering analysis and interpretation should be related to the particular reliability programme and to the facilities available. The following, at least, should be taken into account:
  - (a) Flight defects and reductions in operational reliability.
  - (b) Defects found during line maintenance and those found during base maintenance.
  - (c) Deterioration observed during routine maintenance.
  - (d) Workshop and overhaul facility findings.
  - (e) Modification evaluations.
  - (f) Sampling programmes.
  - (g) The adequacy of maintenance equipment and publications.
  - (h) The effectiveness of maintenance procedures.
  - (i) Staff training.

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- (j) Service Bulletins (or national equivalent), Technical Instructions, etc.
- 6.5.6.4 Where there is reliance upon contracted/tasked maintenance and/or overhaul facilities as an information input to the reliability programme, the arrangements for availability and continuity of such information should be established and details should be included in the contract/tasking document.

#### 6.5.7 Corrective Actions.

- 6.5.7.1 The procedures and time scales both for implementing corrective actions and for monitoring the effectiveness of corrective actions should be fully described. Corrective actions shall correct any reduction in reliability revealed by the reliability programme and could take the form of one or more of the following:
  - (a) Changes to maintenance, operational procedures or techniques.
  - (b) Maintenance changes involving inspection frequency and content, function checks, overhaul requirements and time limits, which will require amendment of the scheduled maintenance periods or tasks in the AMP. This may include the extension or reduction of task intervals, or the addition, modification or deletion of tasks.
  - (c) Amendments to approved manuals (e.g. AMM, crew manual etc.).
  - (d) Initiation of modifications.
  - (e) Special inspections or 'fleet campaigns'.
  - (f) Spares provisioning.
  - (g) Staff training.
  - (h) Manpower and equipment planning.

<u>Note</u>: Some of the above corrective actions may need the NMAA's approval before implementation.

6.5.7.2 The procedures for making changes to the AMP should be described. The associated documentation should include a planned completion date for each corrective action, where applicable.

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## 6.5.8 Organisational Responsibilities.

The organisational structure and the department responsible for the administration of the reliability programme should be stated. The chains of responsibility for individuals and departments (Engineering, Production, Quality, Operations etc.) in respect of the reliability programme, together with the information and functions of any reliability programme control committees (reliability group), should be defined. Participation of the NMAA should be stated.

#### 6.5.9 Presentation of information to the NMAA.

The following information should be submitted to the NMAA for approval as part of the reliability programme:

- (a) The format and content of routine reports.
- (b) The time scales for the production of reports together with their distribution.
- (c) The format and content of reports supporting requests for increases in periods between maintenance (extension) and for amendments to the AMP. These reports should contain sufficient detailed information to enable the NMAA to make its own evaluation where necessary.

#### 6.5.10 Evaluation and review.

Each reliability programme should describe the procedures and individual responsibilities in respect of continuous monitoring of the effectiveness of the AMP as a whole. The time periods and the procedures for both routine and non-routine reviews of maintenance control should be detailed (progressive, monthly, quarterly, or annual reviews, procedures following reliability "standards" or "alert levels" being exceeded, etc.).

- 6.5.10.1 Each reliability programme should contain procedures for monitoring and, as necessary, revising the reliability "standards" or "alert levels". The organisational responsibilities for monitoring and revising the "standards" should be specified together with associated time scales.
- 6.5.10.2 Although not exclusive, the following list gives guidance on the criteria to be taken into account during the review.
  - (a) Utilisation (high/low/operational environment).
  - (b) Fleet commonality.
  - (c) Alert Level adjustment criteria.
  - (d) Adequacy of data.
  - (e) Reliability procedure audit.

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- (f) Staff training.
- (g) Operational and maintenance procedures.

## 6.5.11 Approval of AMP amendments

The NMAA may authorise the organisation responsible for the development and control of the AMP to implement changes to the AMP arising from the reliability programme results prior to their formal approval by the NMAA, when it is satisfied that;

- (a) the reliability programme monitors the content of the AMP in a comprehensive manner; and
- (b) the procedures associated with the functioning of the "Reliability Group" provide the assurance that appropriate control is exercised over the internal validation of such changes.

## 6.6 Pooling Arrangements.

- 6.6.1 In some cases, in order that sufficient data may be analysed it may be desirable to 'pool' data: i.e. collate data from a number of Operating Organisations of the same type of aircraft. For the analysis to be valid, the aircraft concerned, mode of operation, and maintenance procedures applied should be substantially the same: variations in utilisation between two Operating Organisations may, more than anything, fundamentally corrupt the analysis. Although not exhaustive, the following list gives guidance on the primary factors which need to be taken into account.
  - (a) Certification factors, such as: aircraft MTC data sheet compliance (variant)/modification status, including SB (or national equivalent) compliance.
  - (b) Operational Factors, such as: operational environment/utilisation (e.g. low/high/operational environment, etc.)/respective fleet size operating rules applicable (e.g. ETOPS/RVSM/All Weather etc.)/operating procedures/MEL/CDL and MEL/CDL utilisation.
  - (c) Maintenance factors, such as: aircraft age maintenance procedures; maintenance standards applicable; lubrication procedures and lubrication programme; MPD revision or extensions applied or AMP applicable.
- 6.6.2 Although it may not be necessary for all of the above to be completely common, it is necessary for a substantial amount of commonality to exist. The decision on whether pooling data is appropriate should be taken by the NMAA on a case by case basis.

## 6.6.3 NOT APPLICABLE.

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6.6.4 Changes by any one of the Operating Organisations to the paragraph 6.6.1 factors will require re-assessment in order to determine whether or not the pooling benefits can be maintained. Where an organisation responsible for the development and control of an AMP wishes to pool data in this way, the approval of the NMAA should be sought prior to any formal agreement being signed between the pooling organisations.

6.6.5 Paragraph 6.6 is intended to address the pooling of data directly between Operating Organisations. It is also acceptable that the organisation responsible for the production and control of an AMP participates in a reliability programme managed by the MTCH, when the NMAA is satisfied that the MTCH manages a reliability programme which complies with the intent of this paragraph.

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# Appendix II to AMC M.A.201(h)(1): Contracting/tasking of continuing airworthiness management tasks

### 1. CONTRACTED/TASKED CONTINUING AIRWORTHINESS MANAGEMENT ACTIVITIES

- 1.1 NOT APPLICABLE.
- 1.2 The CAMO should conduct a pre-contract audit to establish that the contracted/tasked organisation can achieve the standards required by EMAR M.A. Subpart G in connection with those activities to be contracted/tasked.
- 1.3 The CAMO should ensure that the contracted/tasked organisation has sufficient qualified personnel who are trained and competent in the activities to be contracted/tasked. In assessing the adequacy of personnel resources the CAMO should consider the particular needs of those activities that are to be contracted/tasked, while taking into account the contracted/tasked organisation's existing commitments.
- 1.4 To be appropriately approved to contract/task continuing airworthiness management activities the CAMO should have procedures for the management control of these arrangements. The CAME should contain relevant procedures to reflect the CAMO's control of those arrangements made with the contracted/tasked organisation(s).
- 1.5 Contracted/tasked continuing airworthiness management activities should be addressed in a contract/formal tasking document between the CAMO and the contracted/tasked organisation. The contract/formal tasking document should also specify that the contracted/tasked organisation is responsible for informing the CAMO who is, in turn, responsible for notifying the NMAA, of any subsequent changes that affect their ability to support the contract/formal tasking document.
- 1.6 Contracted/tasked organisations should use procedures which set out the manner by which the organisation fulfils its responsibility to those contracted/tasked activities. Such procedures may be developed by either the contracted/tasked organisation or the CAMO.
- 1.7 Where the contracted/tasked organisation develops its own procedures, these should be compatible with the CAME and the terms of the contract/formal tasking document. These should be accepted by the NMAA as extended procedures of the CAMO and as such should be cross-referenced from the CAME. One current copy of the contracted/tasked organisation's relevant procedures should be kept by the CAMO and should be accessible to the NMAA when needed.

Note: Should any conflict arise between the contracted/tasked organisation's procedures and those of the CAMO then the policy and procedures detailed in the CAME will prevail.

1.8 The contract/formal tasking document should also specify that the contracted/tasked organisation's procedures may only be amended with the agreement of the CAMO. The CAMO should ensure that these amendments are compatible with their CAME and are in compliance with EMAR M.A. Subpart G.

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The CAMO should nominate who will be responsible for continued monitoring and acceptance of the contracted/tasked organisation's procedures and their amendments. The controls used to fulfil this function should be clearly set out in the amendment section of the CAME detailing the level of CAMO involvement.

1.9 Whenever any elements of continuing airworthiness management activities are contracted/tasked the CAMO's personnel should have access to all relevant data in order to fulfil their responsibilities.

Note: The CAMO retains authority to override any recommendation of the contracted/tasked organisation where necessary, for the continuing airworthiness of the aircraft for which they have responsibility.

- 1.10 The CAMO should ensure that the contracted/tasked organisation continues to have qualified technical expertise and sufficient resources to perform the contracted/tasked activities while in compliance with the relevant procedures. Failure to do so may invalidate the approval of the CAMO's continuing airworthiness management system.
- 1.11 The contract/formal tasking document should provide for NMAA monitoring.
- 1.12 The contract/formal tasking document should address the respective responsibilities to ensure that any findings arising from NMAA monitoring will be closed to the satisfaction of the NMAA.

## 2. ACCOMPLISHMENT

This paragraph describes topics which may be applicable for contract/tasking activities.

2.1 Scope of work

The type of aircraft and their military registrations, engine types and/or components subject to the contract/tasking should be specified.

2.2 AMP development and amendment (where applicable - EMAR M.A.708(b)2 refers)

The CAMO may contract/task the preparation of the draft AMP and any subsequent amendments. However, the CAMO remains responsible for assessing that the draft proposals meet their needs and obtaining NMAA approval; the relevant procedures should specify these responsibilities. The contract/tasking should also stipulate that any data necessary to substantiate the approval of the initial AMP or an amendment to the AMP should be provided for CAMO and/or NMAA agreement upon request.

2.3 AMP effectiveness and reliability (where applicable - EMAR M.A.708(b)2 refers)

The CAMO should have in place a system to monitor and assess the effectiveness of the AMP based on maintenance and operational experience. The collection of data and initial assessment may be made by the contracted/tasked organisation; the required actions are to be endorsed by the CAMO.

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Where reliability monitoring is used to establish AMP effectiveness, this may be provided by the contracted/tasked organisation and should be specified in the relevant procedures. Reference should be made to the CAMO's AMP and reliability programme. Participation of the CAMO's personnel in reliability meetings with the contracted/tasked organisation should also be specified.

In providing reliability data the contracted/tasked organisation is limited to working with primary data/documents provided by the CAMO or data provided by the Operating Organisation's EMAR 145 AMO(s) from which the reports are derived. The pooling of reliability data from other CAMOs/Operating Organisations/EMAR 145 AMOs is permitted if accepted by the NMAA.

### 2.4 Permitted variations to the AMP (where applicable - EMAR M.A.708(b)2 refers)

The reasons and justification for any proposed variation to scheduled maintenance may be prepared by the contracted/tasked organisation. The proposed variation should be reviewed by the CAMO and accepted or rejected as appropriate. The means by which CAMO acceptance is given should be specified in the relevant CAME procedures. When these proposed variations go outside the limits detailed in the approved data, the CAMO is required to obtain approval by the NMAA.

#### 2.5 Scheduled maintenance

Where the contracted/tasked organisation plans and defines maintenance checks or inspections in accordance with the AMP, the required liaison with the CAMO, including feedback, should be defined.

The planning control functions and required documentation should be specified in the appropriate supporting CAME procedures. These procedures should typically set out the CAMO's level of involvement in each type of check. This will normally involve the CAMO assessing and agreeing to a work specification on a case-by-case basis for base maintenance checks. For routine line maintenance checks this may be controlled on a day-to-day basis by the contracted/tasked organisation subject to appropriate liaison and CAMO controls to ensure timely compliance. This typically may include, but is not limited to:

- Applicable work package, including job cards.
- Scheduled component removal list,
- ADs to be incorporated,
- Modifications to be embodied

The associated procedures should ensure that the CAMO is advised in a timely manner on the accomplishment of such activities.

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## 2.6 Quality monitoring

The CAMO's quality system should monitor the adequacy of the performance of the contracted/tasked continuing airworthiness management activities for compliance with the contract/formal tasking document and EMAR M.A. Subpart G. The terms of the contract/formal tasking document should therefore include a provision allowing the CAMO to perform a quality surveillance (including audits) upon the contracted/tasked organisation. The aim of the surveillance is primarily to investigate and judge the effectiveness of those contracted/tasked activities and thereby to ensure compliance with EMAR M.A. Subpart G and the contract/formal tasking document. Audit reports may be subject to review when requested by the NMAA.

## 2.7 Access by the NMAA

The contract/formal tasking document should specify that the contracted/tasked organisation should grant access to the NMAA when requested to determine continued compliance with the CAMO's EMAR M.A. Subpart G approval.

#### 2.8 Maintenance data

The approved maintenance data used for the purpose of the contract/tasking should be specified, together with the organisations responsible for providing such data. The CAMO should ensure such data, including revisions, is readily available to the contracted/tasked organisation who may be required to assess such data. The CAMO should establish a 'fast track' means of ensuring that urgent data is transmitted to the contracted/tasked organisation in a timely manner. Maintenance data may include, but is not necessarily limited to:

- AMP,
- ADs,
- Service Bulletins (or national equivalent),
- Major repairs/modification data.
- Aircraft Maintenance Manual,
- Engine overhaul manual,
- Aircraft Illustrated Parts Catalogue,
- Wiring diagrams,
- Trouble shooting manual,

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#### 2.9 ADs

While the various aspects of AD assessment, planning and follow-up may be accomplished by the contracted/tasked organisation, embodiment is performed by an EMAR 145 AMO. The CAMO is responsible for ensuring timely embodiment of applicable ADs and is to be provided with notification of compliance. It therefore follows that the CAMO should have clear policies and procedures on AD embodiment which will ensure that the CAMO finds the contracted/tasked organisation's proposed means of compliance acceptable.

The policies and procedures should specify:

- What information (e.g. AD publications, continuing airworthiness records, flight hours/cycles, etc.) the contracted/tasked organisation needs from the CAMO. It is the responsibility of the contracted/tasked organisation to request from the CAMO any additional information that may be felt necessary.
- What information (e.g. AD planning listing, detailed engineering order, etc.) the CAMO needs from the contracted/tasked organisation in order to ensure timely compliance with ADs.

To fulfil their above responsibility, CAMOs should ensure that they are in receipt of current mandatory continued airworthiness information for the aircraft and equipment that they operate.

## 2.10 Service Bulletin (or national equivalent)/modifications

The contracted/tasked organisation may be required to review and make recommendations on the embodiment of an SB (or national equivalent) and other associated non-mandatory material based on a clear CAMO policy. This should be specified in the contract/formal tasking document.

## 2.11 Service life limit controls & component control/removal forecast.

Where the contracted/tasked organisation performs planning activities, it should be specified that the contracted/tasked organisation should be in receipt of the current flight time and/or flight cycles and/or landings and/or calendar time, and/or any other approved service life consumption units as applicable, at a frequency to be specified in the contract/formal tasking document. The frequency should be such that it allows the organisation to properly perform the contracted/tasked planning functions. It therefore follows that there will need to be adequate liaison between the CAMO, the EMAR 145 AMO(s) and the contracted/tasked organisation.

Additionally, the contract/formal tasking document should specify how the CAMO will be in possession of all current flight cycles, flight hours, etc. in order that the CAMO may assure the timely accomplishment of the required maintenance.

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## 2.12 Health monitoring

If the CAMO contracts/tasks health monitoring activities (for example on-wing engine health monitoring), the contracted/tasked organisation should be in receipt of all the relevant information to perform these activities, including any parameter reading deemed necessary to be supplied by the CAMO for this control. The contract/formal tasking document should also specify what kind of feedback information (such as engine limitation, appropriate technical advice, etc.) the contracted/tasked organisation should provide to the CAMO.

#### 2.13 Defect control

Where the CAMO has contracted/tasked the day-to-day control of aircraft technical log deferred defects this should be specified in the contract/formal tasking document and should be adequately described in the appropriate procedures. The CAMO's MEL/CDL provides the basis for establishing which defects may be deferred and associated limits. The procedures should also define the responsibilities and actions to be taken for defects such as 'Aircraft On Ground' situations, repetitive defects, and damage beyond the MTC holder's limits.

For all other defects identified during maintenance, the information should be brought to the attention of the CAMO who, dependent upon the procedural authority granted by the NMAA, may determine that some defects can be deferred. Therefore, adequate liaison between the CAMO, the contracted/tasked organisation and the EMAR 145 AMO should be ensured.

The contracted/tasked organisation should make a positive assessment of potential deferred defects and consider potential hazards arising from the cumulative effect of any combination of defects. The contracted organisation should liaise with the CAMO to gain their agreement following this assessment.

Deferment of MEL/CDL allowable defects/deviations can be accomplished by an EMAR 145 AMO in compliance with the relevant aircraft technical log procedures; they are subject to acceptance by the aircraft commander.

## 2.14 Mandatory occurrence reporting

All incidents and occurrences that fall within the reporting criteria defined in EMAR M.A.202 and EMAR 145.A.60 should be reported as required. The CAMO should ensure adequate liaison exists with the contracted/tasked organisation and the EMAR 145 AMO.

## 2.15 Continuing airworthiness records

These may be maintained and held by the contracted/tasked organisation on behalf of the CAMO who remains responsible for the control of the records. However, the CAMO should be provided with the current status of AD compliance and service life limited components in accordance with agreed procedures. The CAMO should also be provided with unrestricted and timely access to original

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records as and when needed. On-line access to the appropriate information systems is acceptable.

The record keeping requirements of EMAR M should be satisfied. Access to the records by duly authorised members of the NMAA should be arranged upon request.

### 2.16 Maintenance check flight procedures

Maintenance check flights are carried out under the control of the Operating Organisation. Maintenance check flight requirements from the contracted/tasked organisation or the EMAR 145 AMO should be agreed by the Operating Organisation.

## 2.17 Communication between the CAMO and contracted/tasked organisation

- 2.17.1 To exercise its airworthiness responsibility the CAMO needs to be in receipt of all relevant reports and relevant maintenance data. The contract/formal tasking document should specify what information should be provided and when.
- 2.17.2 Meetings provide one important corner stone whereby the CAMO can exercise part of its responsibility for ensuring the airworthiness of the operated aircraft for which it is responsible. The meetings should be used to establish good communications between the CAMO, the contracted/tasked organisation and the EMAR 145 AMO. The terms of the contract/formal tasking document should include, whenever appropriate, the provision for a certain number of meetings to be held between involved parties. Details of the types of liaison meetings and associated Terms of Reference of each meeting should be documented. The meetings may include but are not limited to all or a combination of:

## a – Contract/Tasking review

Before the contract/formal tasking document comes into force, it is very important that the technical personnel of both parties that are involved in the application of the contract/tasking meet in order to be sure that every point leads to a common understanding of the duties of both parties.

#### b – Work scope planning meeting

Work scope planning meetings may be organised so that the activities to be performed may be commonly agreed.

## c - Technical meeting

Scheduled meetings should be organised in order to review on a regular basis and agree actions on technical matters such as ADs, SBs (or national equivalent), future modifications, major defects found during maintenance facility visits, reliability, etc.

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## d - Quality meeting

Quality meetings should be organised in order to examine matters raised by the CAMO's quality surveillance and the NMAA's monitoring activity and to agree upon necessary corrective actions.

## e - Reliability meeting

When a reliability programme exists, the contract/formal tasking document should specify the CAMO's and EMAR 145 AMO's respective involvement in that programme, including the participation at reliability meetings. Provision to enable NMAA participation in these meetings should also be provided.

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# Appendix III to GM EMAR M.B.303(b): Key Risk Elements

	Title	Description	
A.	AIRCRAFT CONFIGURATION		
A.1	Type design and changes to type design	Type design is the minimum set of approved design information necessary to define the product type, as detailed in EMAR 21.A.31.	
		Any changes to type design shall be approved and, for those embodied, shall be recorded with the reference to the approval.	
A.2	Airworthiness limitations	An airworthiness limitation is a boundary beyond which an aircraft or a component thereof must not be operated, unless the instruction(s) associated to this airworthiness limitation is (are) complied with.	
A.3	Airworthiness Directives	An Airworthiness Directive means a document issued or adopted by the NMAA, which mandates actions to be performed on an aircraft to restore an acceptable level of safety, when evidence shows that the safety level of this aircraft may otherwise be compromised (EMAR 21.A.3B).	
B.	AIRCRAFT OPERATION		
B.1	Aircraft documents	Aircraft certificates and documents necessary for operations.	
B.2	Aircraft Flight Manual	An Aircraft Flight Manual is a manual, associated with the Military Type Certificate, containing limitations within which operation of the aircraft is to be considered airworthy, and instructions and information necessary to the flight crew members for the safe operation of the aircraft.	
B.3	Weight & balance	Weight and balance data is required to make sure the aircraft is capable of operating within the approved envelope.	
B.4	Markings & placards	Markings and placards are defined in the individual aircraft type design. Some information may also be found in the Military Type Certificate Data Sheet, the Military Supplemental Type Certificates, the Aircraft Flight Manual, the Aircraft Maintenance Manual, the Illustrated Parts Catalogue, etc.	
B.5	Operational requirements	Requirements for the type of operation are complied with (e.g. equipment, documents, approvals).	
B.6	Defect management	Defect management requires a system whereby information on faults, malfunctions, defects and other occurrences that cause or might cause adverse effects on the airworthiness of the aircraft are captured. This system should be properly documented.  It may include, amongst others, the Minimum Equipment List system (or national equivalent), the Configuration Deviation List	
B.7	Symmetry check	system and deferred defects management.  Symmetry check data is required to make sure the aircraft is within the approved design data issued by the relevant design approval holder.	

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C.	AIRCRAFT MAINTENANG	CE
C.1	Aircraft Maintenance Programme	A document which describes or incorporates by reference the specific scheduled maintenance tasks and their frequency of completion, the associated maintenance procedures and related standard maintenance practices necessary to preserve the airworthiness of those aircraft to which it applies.
C.2	Component control	Component control should consider two objectives for component maintenance: - maintenance for which compliance is mandatory; - maintenance for which compliance is recommended.
C.3	Repairs	All repairs and unrepaired damage/degradations need to comply with the instructions of the appropriate maintenance manual (e.g. the SRM, the AMM, the CMM). All repairs not defined in the appropriate maintenance manual need to be appropriately approved and recorded with the reference to the approval.  This includes any damage or repairs to the aircraft/engine(s)/propeller(s), and their components.
C.4	Records	Continuing Airworthiness records are defined in EMAR M.A.305 and EMAR M.A.306 and their related AMCs.

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A.1	Type design and changes to type design	Type Design is the minimum set of approved design information necessary to define the product type, as detailed in EMAR 21.A.31.  Any changes to type design shall be approved and, for those embodied, shall be recorded with the reference to the approval.
Supporti	ng information	Typical inspection items
The type design consists of:  1. the drawings and specifications, and a listing of those drawings and specifications, necessary to define the configuration and the design features of the product shown to comply with the applicable type-certification basis and environmental protection requirements (where applicable);  2. information on materials and processes and on methods of manufacture and assembly of the product necessary to ensure the conformity of the product;  3. an approved Airworthiness Limitation Section (ALS) of the Instructions for Continuing Airworthiness (ICA) as defined by the applicable airworthiness codes; and  4. any other data necessary to allow by comparison the determination of the airworthiness, the characteristics of noise, fuel venting, and exhaust emissions (where applicable) of later products of the same type.  The individual aircraft design is made of the type design supplemented with changes to the type design (e.g. modifications) embodied on the considered aircraft.  Depending on the product State of Design, Recognition Agreements and/or Authority decisions on acceptance of certification findings		1. Use the current Military Type Certificate Data Sheets (airframe, engine, propeller as applicable) and check that the aircraft conforms to its type design (correct engine(s) installed, mission equipment, etc.).  2. Check that changes have been approved properly (approved data is used, and a direct relation to the approved data).  3. Check for unintentional deviations from the approved type design (sometimes referred to as concessions), divergences, or non-conformances, Technical Adaptations, Technical Variations, etc.  4. Check cabin configuration (LOPA) (if applicable).  5. Check for embodiment of (M)STC's and, if any Airworthiness Limitations Section (ALS)/ Aircraft Flight Manual /Minimum Equipment List/Weight & Balance Manual and revisions are needed, they have been approved and complied with.  6. Check that the individual aircraft design/configuration is properly established and used as a reference. The following are typical points that should be checked:  a. Aircraft S/N applicable  b. Applicable engines and propellers  c. Applicable APU  d. Max. certified weights  e. Seating/cargo configuration (if applicable)  f. Exits (including emergency egress)
Reference	e documents:	g. Mission equipment  - EMAR 21.A.31  - EMAR 21.A.41  - EMAR 21.A.61  - EMAR 21.A.90  - EMAR 21.A.107  - EMAR 21.A.111  - EMAR 21.A.111  - EMAR M.A.304  - EMAR 145.A.45

A.2	Airworthiness limitations	Each mandatory replacement time, structural inspection interval, and related structural inspection task which are contained in a section of the Instructions for Continuing Airworthiness.	
Supporti	ng information	Typical inspection items	
Airworthiness limitations are exclusively associated with instructions whose compliance is mandatory as part of the type design. They apply to some scheduled or unscheduled instructions that have been developed to prevent and/or to detect the most severe failure. They mainly apply to maintenance (mandatory modification, replacement, inspections, checks, etc.), but can also apply to instructions to control critical design configurations (for example Critical Design Configuration Control Limitations (CDCCL) for the fuel tank safety).		1. Check that the Aircraft Maintenance Programme (AMP) reflects airworthiness limitations and associated instructions issued by the relevant design approval holders and is approved by the NMAA.  2. Check that the aircraft and the components thereof comply with the approved AMP.  3. Check the current status of service life-limited components. The current status of service life-limited components is to be maintained throughout the operating life of the component.  4. Typical Airworthiness Limitation Items:  - Safe Life Airworthiness Limitation Item (SL ALI)/Life limited components,  - Damage Tolerant Airworthiness Limitation Item (DT ALI)/Structure, including ageing aircraft structure,  - Certification Maintenance Requirements (CMR),  - Ageing Systems Maintenance (ASM), including Airworthiness Limitations for Electrical Wiring Interconnection System (EWIS),  - Fuel Tank Ignition Prevention (FTIP)/Flammability Reduction Means (FRM),  - CDCCL, check wiring if any maintenance carried out in same area - wiring separation,  - Ageing fleet inspections mandated through ALS or	
Referenc	e documents:	- EMAR 21.A.31 - EMAR 21.A.61 - Relevant ICA certification requirement for the aircraft type being inspected (refer to Type Certification basis) - EMAR M.A.302	
		- EMAR M.A.305 EMAR M.A.710(a)(7)	

A.3	Airworthiness Directives	An Airworthiness Directive means a document issued or adopted by the NMAA, which mandates actions to be performed on an aircraft to restore an acceptable level of safety, when evidence shows that the safety level of this aircraft may otherwise be compromised (EMAR 21A.3B).
Supporti	ng information	Typical inspection items
Any Airv NMAA sh	vorthiness Directive issued by the all apply.	<ol> <li>Check if all ADs applicable to the airframe, engine(s), propeller(s) and equipment have been incorporated in the AD-status, including their revisions.</li> <li>Check records for correct AD applicability (including ADs incorrectly listed as non-applicable).</li> </ol>
		3. Check by sampling in the current AD status that applicable ADs have been or are planned to be (as appropriate) carried out within the requirements of these Airworthiness Directives, unless otherwise specified by the NMAA.
		4. Check that applicable ADs related to maintenance are included into the Aircraft Maintenance Programme.
		5. Check that workcards correctly reflect AD requirements or refer to procedures and standard practices referenced in ADs.
		6. Sample during a physical survey some ADs for which compliance can be physically checked.
Referenc	e documents:	- EMAR 21.A.3B
		- EMAR 21.B.60
		- EMAR 21.B.326
		- EMAR 21.B.327
		- EMAR M.A.201 & AMC EMAR M.A.201(h) paragraph 4
		- EMAR M.A.303
		- EMAR M.A.305 paragraphs (d) & (h)
		- EMAR 145.A.45
		- EMAR M.A.708 paragrahs (b)5 & (b)8
		- EMAR M.A.709(a)
		- EMAR M.A.710 paragrah (a)5

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B.1	Aircraft documents	Aircraft certificates and documents necessary for operations.	
Supporting information		Typical inspection items	
The aircraft certificates and documents necessary for operations may include, but are not necessarily limited to:  - Certificate of Registration (if applicable);  - Military Certificate of Airworthiness;  - Aircraft Certificate of Release to Service;  - Technical log book, if required;  - Military Airworthiness Review Certificate;  - Etc.		1. Check that all certificates and documents pertinent to the aircraft and necessary for operations (or copies, as appropriate) are available.  2. Check MCoA modification/Aircraft identification.  3. Not Applicable.  4. Check Military Permit to Fly and Flight Conditions when necessary.  5. Check that there is an appropriate aircraft Certificate of Release to Service.	
Reference documents:		- EMAR 21.A.175 - EMAR 21.A.177 - EMAR 21.A.182 - EMAR 21.A.708 - EMAR 21.A.711 - EMAR 21.A.801 - EMAR M.A.201(a)(2) - EMAR M.A.305 - EMAR M.A.306 - EMAR 145.A.55	

Aircraft Flight Manual	An Aircraft Flight Manual (AFM) is a manual, associated with the Military Type Certificate, containing limitations within which operation of the aircraft is to be considered airworthy, and instructions and information necessary to the flight crew members for the safe operation of the aircraft.	
g information	Typical inspection items	
In needs to reflect the current figuration of the aircraft. When it does y provide flight crew members with rmation.  I lead to errors and/or to override that could contribute to unsafe		
e documents:	- EMAR 21.A.174(b)2(iii) and (b)3(ii) - EMAR M.A.305 & AMC EMAR M.A.305(d)	
r r	g information  I needs to reflect the current figuration of the aircraft. When it does by provide flight crew members with remation.  I lead to errors and/or to override that could contribute to unsafe	

B.3	Weight & balance	Weight and balance data is required to make sure the aircraft is capable of operating within the approved envelope.
Supporti	ng information	Typical inspection items
the actua	ht and balance report needs to reflect I configuration of the aircraft. When it the aircraft might be operated outside ed operating envelope.	<ol> <li>Check that the weight and balance report is valid, considering current configuration.</li> <li>Make sure that modifications and repairs are taken into account in the report.</li> <li>Check that equipment status is recorded on the weight and balance report.</li> <li>Compare current weight and balance report with previous report for consistency.</li> </ol>
Referenc	e documents:	- EMAR M.A.305(d)5 - EMAR M.A.708(b)(10)

equipment, controls, etc. shall include such limitations or information as necessary for the direct attention of the crew during flight.  Markings and placards or instructions shall be provided to give any information that is essential to the ground handling in order to preclude the possibility of mistakes in ground servicing (e.g. towing, refuelling) that could pass unnoticed and that could jeopardise the safety of the aircraft in subsequent flights.  Markings and placards or instructions shall be provided to give any information essential in the prevention of passenger injuries.  National military registration markings/insignia must be installed.  Product data plates must be installed.  When markings and placards are missing, or unreadable, or not properly installed, mistakes or aircraft damage may occur and could subsequently contribute to an unsafe situation.  Braid do n the aircraft, especially the emergence exit/egress markings instructions and passenge information signs and placards (where applicable).  Check that all installed placards are readable.  3. Check the Aircraft Flight Manual versus the instruments.  4. Check registration markings/national insignia.  5. Check product data plates.  6. Examples of markings aplacards:  - markings related to military equipment/operation (e.g. weapons, ejection seats, AAR, etc).  - door means of opening,  - each compartment's weight/load limitation/placard stating limitation on contents,  - passenger information signs, including no smokin signs (where applicable),  - emergency exit marking,  - pressurised cabin warning (if applicable),  - calibration placards,  - cockpit placards and instrument markings,  - Oxygen system information data,  - accesses to the fuel tanks with flammabilit reduction means (CDCCL),	B.4	Markings & placards	Markings and placards are defined in the individual aircraft type design. Some information may also be found in the Military Type Certificate Data Sheet, the Military Supplemental Type Certificates, the Aircraft Flight Manual, the Aircraft Maintenance Manual, the Illustrated Parts Catalogue, etc.
equipment, controls, etc. shall include such limitations or information as necessary for the direct attention of the crew during flight.  Markings and placards or instructions shall be provided to give any information that is essential to the ground handling in order to preclude the possibility of mistakes in ground servicing (e.g. towing, refuelling) that could pass unnoticed and that could jeopardise the safety of the aircraft in subsequent flights.  Markings and placards or instructions shall be provided to give any information essential in the prevention of passenger injuries.  National military registration markings/insignia must be installed.  Product data plates must be installed.  When markings and placards are missing, or unreadable, or not properly installed, mistakes or aircraft damage may occur and could subsequently contribute to an unsafe situation.  Herein the crew during flight.  Acheck the Aircraft Flight Manual versus the instruments.  Check the Aircraft Flight Manual versus the instruments.  Check registration markings/national insignia.  Check registration markings/national insignia.  Examples of markings aplacards:  - markings related to military equipment/operation (e.g. weapons, ejection seats, AAR, etc).  - door means of opening,  - each compartment's weight/load limitation/placard stating limitation on contents,  - passenger information signs, including no smokin signs (where applicable),  - emergency exit marking,  - pressurised cabin warning (if applicable),  - calibration placards,  - cockpit placards and instrument markings,  - Oxygen system information data,  - accesses to the fuel tanks with flammabilit reduction means (CDCCL),	Supporti	ng information	Typical inspection items
- EWIS identification, - towing limit markings, - break-in markings, - inflate tyres with nitrogen, - RVSM + pitot static markings  - EMAR 21.A.175 - EMAR 21.A.715 - EMAR 21 Subpart Q - Relevant certification requirement for the aircraft typh being inspected (refer to Type Certification basis)	Markings equipmer limitations direct atte Markings provided to the gro possibility towing, re that could subseque Markings provided preventio National must be i Product of When ma unreadab or aircra subseque	and placards on instruments, at, controls, etc. shall include such so or information as necessary for the ention of the crew during flight.  and placards or instructions shall be to give any information that is essential bund handling in order to preclude the of mistakes in ground servicing (e.g. afuelling) that could pass unnoticed and dipopardise the safety of the aircraft in entiflights.  and placards or instructions shall be to give any information essential in the nof passenger injuries.  military registration markings/insignial installed.  ata plates must be installed.  arkings and placards are missing, or le, or not properly installed, mistakes aft damage may occur and could ently contribute to an unsafe situation.	1. Check that the required markings and placards are installed on the aircraft, especially the emergency exit/egress markings instructions and passenger information signs and placards (where applicable).  2. Check that all installed placards are readable.  3. Check the Aircraft Flight Manual versus the instruments.  4. Check registration markings/national insignia.  5. Check product data plates.  6. Examples of markings & placards:  - markings related to military equipment/operations (e.g. weapons, ejection seats, AAR, etc).  - door means of opening,  - each compartment's weight/load limitation/placards stating limitation on contents,  - passenger information signs, including no smoking signs (where applicable),  - emergency exit marking,  - pressurised cabin warning (if applicable),  - calibration placards,  - cockpit placards and instrument markings,  - Oxygen system information data,  - accesses to the fuel tanks with flammability reduction means (CDCCL),  - fuelling markings (fuel vent, fuel dip stick markings),  - EWIS identification,  - towing limit markings,  - break-in markings,  - inflate tyres with nitrogen,  - RVSM + pitot static markings  - EMAR 21.A.175  - EMAR 21 Subpart Q  - Relevant certification requirement for the aircraft type
– EMAR 145.A.42 & AMC EMAR 145.A.42			- EMAR 145.A.42 & AMC EMAR 145.A.42

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B.5	Operational requirements	Requirements for the type of operation are complied with (e.g. equipment, documents, approvals).
Supporting information		Typical inspection items
This includes all equipment required by the applicable operational military requirements.		1. Check permits & approvals required for type of operation.
In case of malfunction, faulty equipment can create a hazardous situation. In particular, emergency equipment is to be examined during		2. Check for the presence and serviceability of equipment required by operational military requirements.
this inspection.		3. Check safety equipment, check that emergency equipment is readily accessible (if applicable).
Referenc	e documents:	- EMAR M.A.201(a)(2)
		- National operational military requirements

B.6	Defect management	Defect management requires a system whereby information on faults, malfunctions, defects and other occurrences that cause or might cause adverse effects on the continuing airworthiness of the aircraft are captured. This system should be properly documented. It may include, amongst others, the Minimum Equipment List system (or national equivalent), the Configuration Deviation List system and deferred defects management.
Supporti	ng information	Typical inspection items
managen	addresses the effectiveness of defect nent, it should also consider defects ing the physical inspection.	1. Check that the deferred defects have been identified, recorded, and rectified/deferred in accordance with approved procedures and within approved time limits.
		2. Check that operations outside published approved data have only been performed under a Military Permit to Fly
		3. Sample on:
		a. Deferred defect list,
		b. maintenance task cards,
		c. engine shop report,
		d. (major) component shop report,
		e. maintenance/repair/modification working party files after embodiment of modifications or repairs,
		f. occurrence reporting data,
		g. communications between the user of maintenance data and the maintenance data author in case of inaccurate, incomplete, ambiguous procedures and practices.
		4. Check that the consequences of the deferral have been managed with the Operating Organisation/CAMO.
		5. Check that defects are being deferred in accordance with approved data (current revision of the MEL, CDL, Aircraft Maintenance Programme).
		6. Compare physical location of parts/serial numbers with recorded locations to identify undocumented partswaps for troubleshooting.
		7. Check that the root-cause of defects have been identified.
Reference	e documents:	- EMAR M.A.301(a)(2) & AMC EMAR M.A.301(a)(2)
		- EMAR M.A.306(a)4
		- EMAR 145.A.45(c)
		- EMAR 145.A.48(c)
		- EMAR 145.A.50(c)
		- EMAR 145.A.60

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B.7	Symmetry check	Symmetry check data is required to make sure the aircraft is within the approved design data issued by the relevant design approval holder.
Supporting information		Typical inspection items
A symmetry check is done by taking selected measurements for comparison with the measurements taken at the same points on the aircraft when the aircraft was prepared for delivery by the Original Equipment Manufacturer (OEM). All reference points and dimensions are defined in last revision of the Aircraft Maintenance Manual (AMM).		<ol> <li>Check that the required reference points are present and readable on the aircraft.</li> <li>Check that the symmetry check report is valid, considering current configuration.</li> <li>Make sure that a symmetry check is performed after the following conditions have occurred:         <ul> <li>a. hard or overweight landing,</li> <li>b. abnormal loads to the structure due to 'g' limits being exceeded or due to other causes e.g. severe turbulence,</li> <li>c. a major structural component is changed,</li> <li>d. when the flying characteristics of the aircraft are such as to cause doubt in the correctness of the symmetry check.</li> </ul> </li> <li>Check that the position relationship of each major component is inspected.</li> <li>Compare current symmetry check report with previous report for consistency.</li> </ol>
Referenc	e documents:	- EMAR M.A.305(d)7
		- AMC EMAR M.A.305(d)
		- EMAR M.A.708(b)(11) - AMC EMAR M.A.901(d)
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EMAR M AMC & GM - CONTINUING AIRWORTHINESS REQUIREMENTS				
C.1	Aircraft Maintenance Programme	A document which describes or incorporates by reference the specific scheduled maintenance tasks and their frequency of completion, related standard maintenance practices and the associated procedures necessary to preserve the airworthiness of those aircraft to which it applies.		
Supporting information		Typical inspection items		
The Air	craft Maintenance Programme (AMP) is	Review of AMP contents:		
intended to include scheduled maintenance tasks, the associated procedures and standard maintenance practices. It also includes the reliability programme.  Tasks included in the AMP can originate from:		1. Check that the AMP properly reflects mandatory continuing airworthiness instructions (ALIs, CMRs (the latest source documents' revision)). Sample check that tasks are implemented within approved compliance times and that no tasks have been omitted.		
- tasks for which compliance is mandatory: instructions specified in repetitive Airworthiness Directives (AD), or in the Airworthiness Limitations Section (ALS), which may include Certification Maintenance Requirements (CMRs). The Airworthiness Limitations Section is included in the Instructions for Continuing Airworthiness (ICA) of a design approval holder;		2. Check how recommended scheduled maintenance tasks (such as TBO intervals, recommended through Service Bulletins, Service Letters, etc., the latest source documents' revision) are considered when updating the AMP. If applicable, check embodiment policy as required by EMAR M.A.301(a)7.  3. Check that the AMP properly reflects the maintenance tasks specified in repetitive ADs.		
addition Mainten equivale Docume other n informat	ance Review Board Report (MRBR) or	<ul> <li>4. Check that the AMP properly reflects additional Instructions for Continuing Airworthiness resulting from specific installed equipment or modifications embodied.</li> <li>5. Check that the AMP properly reflects additional Instructions for Continuing Airworthiness resulting from repairs embodied.</li> <li>6. If applicable, check that the AMP properly reflects</li> </ul>		
by the with EM	chal or alternative instructions proposed CAMO once approved in accordance AR M.A.302(d)(3);  MP shall contain details including	<ul><li>additional maintenance tasks required by specific approvals.</li><li>7. Check for any additional scheduled maintenance measures required due to the use of the aircraft and</li></ul>		

The AMP shall contain details, including frequency, of all maintenance to be carried out, including any specific tasks linked to the type and the specificity of operations.

- the operational environment.
- 8. Not Applicable
- 9. Check the approval status of additional or alternative instructions (EMAR M.A.302(d)(3)).
- 10. Check if a reliability programme is present and active when required.

## Review of aircraft compliance with an AMP:

- 11. Check if the AMP used is valid for the aircraft, is approved and is amended correctly.
- 12. Check if tasks are performed within the timescales(s) quoted in the AMP and the source documents
- 13. Sample check that no task has been omitted without justifications accepted by the NMAA (at the time of decision).

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	14. Check the reporting of performed scheduled maintenance into the aircraft continuing airworthiness record system.
	15. Analyse the effectiveness of the AMP and the reliability programme by reviewing the unscheduled tasks.
Reference documents:	- EMAR M.A.302 and <u>AMC EMAR M.A.302</u> . - EMAR M.A.708(b)(1), (2), (4)

#### **C.2 Component control** Component control should consider a two objectives for component maintenance: - maintenance for which compliance is mandatory. - maintenance for which compliance is recommended. Supporting information Typical inspection items Depending maintenance 1. Check that the mandatory maintenance tasks are on each task, accomplishment is scheduled or unscheduled. identified as such and managed separately from Refer to KRE C.1 'Aircraft Maintenance recommendations. Programme'. 2. Sample check installed components (P/N and S/N) One or more primary maintenance processes against aircraft records: are utilised during scheduled maintenance of a. Correct Part Number and Serial Number installed. components: b. Correct authorised release document available. 1. Hard-Time (HT) that requires a specific action 3. Check the current status of components for which at a specific interval (e.g. overhaul, bench the AMP requires their periodical removal for check, etc.) per the (M)TCH recommendations, restoration, their replacement, or the quantitative 2. On-Condition (OC) that requires a component inspection of their performance, with due consideration be inspected periodically or checked against to deferred items. They must identify: physical appropriate standard some a. The affected components (Part Number and determine if it can continue in service. The Serial Number). standard ensures that the component is b. For components subject to a repetitive task: the removed from service before failure during task description and reference, the applicable normal operation, threshold/interval, the last accomplishment data 3. Condition Monitoring (CM) is a process for (date, the component's total accumulated life in components that have neither HT nor OC hours, cycles, landings, calendar time, or any other maintenance as their primary maintenance approved service life consumption units as process. It is accomplished by appropriate necessary) and the next planned accomplishment means available Operating to an data. Organisation/CAMO for finding and solving c. For components subject to an unscheduled task: areas. The Operating task description and reference, Organisation/CAMO must control the reliability accomplishment data (date, the component's total of components. accumulated life in hours, cycles, landings, calendar time, or any other approved service life consumption units as necessary). Pay attention to ETOPS and CDCCL components. 4. Check current status of service life-limited components. This status can be requested upon each transfer throughout the operating life of the part: a. The life limitation, the component's total accumulated life, and the life remaining before the component's life limitation is reached (indicating hours, cycles, landings, calendar time, or any other approved service life consumption units as necessary). b. If relevant for the determination of the remaining life, a full installation history indicating the number of hours, cycles or calendar time or any other approved service life consumption units relevant to each installation on these different types of

aircraft/engine.

	<ul> <li>5. Check if the AMP and reliability programme results impact the component control.</li> <li>6. Check that service life-limited components for which the AMP requires their periodical removal/replacement quantitative inspection of their performance are correctly marked during a physical survey.</li> </ul>
Reference documents:	- EMAR 21.A.805 - EMAR M.A.302 - EMAR M.A.305 - EMAR M.A.710

C.3	Repairs	All repairs and unrepaired damage/degradations need	
		to comply with the instructions of the appropriate maintenance manual (e.g. the SRM, the AMM, the CMM). All repairs not defined in the appropriate maintenance manual need to be appropriately approved and recorded with the reference to the approval.	
		This includes any damage or repairs to the aircraft/engine(s)/propeller(s), and their components.	
Supporti	ng information	Typical inspection items	
but is not the ration the evide accordance reference or to an drawings/instruction operations. 'Repair st - the redelivery aircraft/er - the unreal talso incomporting substantiating the application of the repair reference item (i.e. and a produce and a produce and a produce and finding of Cross-reference included, Dependin Recognitical Decisions may exist the deterrition of the results of the deterrition of the results of the produced of the results of	al instructions.  atus' means a list of:  apairs embodied since the original of (and still existent upon) the agine/propeller/component; and apaired damage/degradations.  atudes, either directly or by reference to g documentation (i.e. repair files), the ating data supporting compliance with able airworthiness requirements.  ir status should identify the repair file that the repair classification, the repaired aircraft/engine/propeller/component, ecise location if necessary), and the total life in flying hours/flight cycles/any service life consumption units ated by the item at the time of repair or the un-repaired damage/degradations. Herefore to the AMP should also be as necessary.  If you have product State of Design, on Agreements and/or Authority and should be taken into account for mination of acceptable data for repairs.	<ol> <li>Sample the repair status to confirm it appropriately traces repairs and un-repaired damage/deteriorations.</li> <li>Sample repair files (at least one file for each type of repaired item) to check that repaired and unrepaired damage/deterioration have been assessed against the latest published approved repair data.</li> <li>Check that repair instructions detailed in the repair file comply with published approved repair data.</li> <li>Check that major repairs resulting in new or amended airworthiness limitations and associated mandatory instructions (including ageing aircraft programme) have been included in the AMP.</li> <li>Check that new or amended maintenance instructions resulting from repairs have been considered for inclusion in the AMP.</li> <li>Compare the repair status and the physical status of the repaired aircraft/engine(s)/propeller(s), and their repaired components (physical survey) in order to confirm the accuracy of the repair status. Sample embodied repairs to check their conformity against the repair files (physical survey).</li> </ol>	
Referenc	e documents:	- EMAR 21.A.431	
		- EMAR M.A.304 & <u>AMC EMAR M.A.304</u> - EMAR M.A.305 & <u>AMC EMAR M.A.305(d)</u>	
		- EMAR 145.A.45 & AMC EMAR 145.A.45	

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C.4	Records	Continuing Airworthiness records are defined in EMAR M.A.305 and EMAR M.A.306 and their related AMCs.
Supporting information		Typical inspection items
that the scan be recan be reca	n/Transfer of the records is required so status of the aircraft and its components eadily established at any time.  complishment is scheduled (one time or lly), or unscheduled (e.g. following an aircraft continuing airworthiness record (refer to logbooks, technical logbooks, ent log cards or workcards or ets) shall provide the status with regard duled tasks:  neduled tasks.	1. Check the aircraft continuing airworthiness record system: EMAR M.A.305 and EMAR M.A.306 (as applicable) require that certain records are kept for defined periods.  Pay attention to the continuity, integrity and traceability of records:  a. integrity: Check the data recorded is legible, b. continuity: Check that records are available for the applicable retention period, c. traceability: Check the link between Operating Organisation/CAMO and maintenance documentation, traceability to approved data, traceability to appropriate release documents, etc.  2. If applicable, make sure that the Aircraft Technical Log is used correctly, including: a. current aircraft Certificate of Release to Service and the current maintenance statement b. pre-flight inspections signed-off by authorised persons; 3. Check that any maintenance required following abnormal operation/event (such as overspeed, overweight operation, hard landing, excessive turbulence, and operation outside of Aircraft Flight Manual limitations) has been performed, as applicable.
Reference	ce documents:	- EMAR M.A.305 & <u>AMC EMAR M.A.305(d)4 and (h)</u> - EMAR M.A.306 & AMC EMAR M.A.306
		- EMAR M.A.306 & AMC EMAR M.A.306 - EMAR M.A.307 & AMC EMAR M.A.307(a)

## Abbreviations used in Appendix III:

AAR	Air to Air Refueling
AD	Airworthiness Directive
AFM	Aircraft Flight Manual
ALI	Airworthiness Limitation Items
ALS	Airworthiness Limitations Section
AMC	Acceptable Means of Compliance
AMM	Aircraft Maintenance Manual
AMP	Aircraft Maintenance Programme
APU	Auxiliary Power Unit
ASM	Ageing Systems Maintenance
CAMO	Continuing Airworthiness Management Organisation
CDCCL	Critical Design Configuration Control Limitations
CDL	Configuration Deviation List
CMM	Component Maintenance Manual
CMR	Certification Maintenance Requirement
DT	Damage Tolerant
ETOPS	Extended Range Operations with Two-engined aeroplanes
EWIS	Electrical Wiring Interconnection System
FRM	Flammability Reduction Means
FTIP	Fuel Tank Ignition Prevention
ICA	Instructions for Continuing Airworthiness
KRE	Key Risk Element
LOPA	Layout of Passenger Accommodation
MCoA	Military Certificate of Airworthiness
MEL	Minimum Equipment List
MRBR	Maintenance Review Board Report
MPD	Maintenance Planning Document
(M)STC	(Military) Supplemental Type Certificate
NMAA	National Military Airworthiness Authority
OEM	Original Equipment Manufacturer
P/N	Part Number
RVSM	Reduced Vertical Separation Minima
S/N	Serial Number
SB	Service Bulletin
SL	Safe Life
SRM	Structural Repair Manual
TBO	Time Between Overhauls
TC	Type Certificate
TCDS	Type Certificate Data Sheet

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Appendix IV to AMC M.A.604: NOT APPLICABLE

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# Appendix V to AMC M.A.704: Continuing Airworthiness Management Exposition (CAME)

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- 0.2 General information.
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- 0.5 Notification procedure to the NMAA regarding changes to the organisation's activities / approval / location / personnel.
- 0.6 CAME amendment procedure.

#### Part 1 CONTINUING AIRWORTHINESS MANAGEMENT PROCEDURES

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- 1.2 Aircraft Maintenance Programmes (AMPs) development, amendment and approval.
- 1.3 Usage and continuing airworthiness records, responsibilities, retention, access.
- 1.4 Accomplishment and control of Airworthiness Directives (ADs).
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- 2.4 Monitoring that all maintenance is carried out by an appropriate EMAR 145 Approved Maintenance Organisation (AMO).
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- 5.1 Sample documents.
- 5.2 List of airworthiness review staff.
- 5.3 List of contractors/tasked organisations as per <u>AMC EMAR M.A.201(h)1</u> and EMAR M.A.711(a)3.
- 5.4 List of contracted/tasked EMAR 145 AMOs.
- 5.5 Copy of contracts/taskings for contracted/tasked activities (<u>Appendix II to AMC EMAR M.A.201(h)1</u>).
- 5.6 Copy of contracts/taskings with EMAR 145 AMOs.
- 5.7 List of Operating Organisations to whom the organisation provides the management of the continuing airworthiness of the aircraft as per EMAR M.A.201(k).
- 5.8 Copy of continuing airworthiness arrangements with Operating Organisations as per <u>AMC EMAR M.A.201(k)</u>.

#### LIST OF EFFECTIVE PAGES

Page	Revision
1	Original
2	Original

Page	Revision
3	Original
4	Original

Page	Revision
5	Original

#### **DISTRIBUTION LIST**

(The document should include a distribution list to ensure proper distribution of the CAME and to demonstrate to the NMAA that all personnel involved in continuing airworthiness have access to the relevant information. This does not mean that all personnel have to be in receipt of a CAME but that a reasonable number of copies are distributed within the organisation(s) so that all personnel may have quick and easy access to it. Reference should also be made to the location of any e-copies of the CAME.

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Accordingly, the CAME should be distributed to:

- the Operating Organisation's or the CAMO's management personnel and any person at a lower level as necessary; and,
- the EMAR 145 contracted/tasked AMO(s); and,
- the NMAA.)

Signed

#### PART 0 GENERAL ORGANISATION

#### 0.1 Corporate commitment by the Accountable Manager

(The Accountable Manager's CAME statement should embrace the intent of the following paragraph and this statement may be used without amendment. Any modification to the statement should not alter the intent.)

"This Exposition defines the organisation and procedures upon which the (NMAA - \* see note below) EMAR M.A. Subpart G continuing airworthiness management approval is based.

These procedures are approved by the undersigned and must be complied with, as applicable, in order to ensure that all the continuing airworthiness tasks of (quote Operating Organisation's name) fleet of aircraft and/or of all aircraft under contract/tasking in accordance with EMAR M.A.201(k) with (quote CAMO's name) are carried out on time to an approved standard.

It is accepted that these procedures do not override the necessity of complying with any new or amended regulation published from time to time where these new or amended regulations are in conflict with these procedures.

It is understood that the (NMAA\*) will approve this organisation whilst the (NMAA\*) is satisfied that the procedures are being followed and the work standard is maintained. It is understood that the (NMAA\*) reserves the right to suspend, limit or revoke the EMAR M.A. Subpart G continuing airworthiness management approval of the organisation if the (NMAA\*) has evidence that the procedures are not followed and the standards not upheld."

Oigi loui
Dated
Accountable Manager and (quote position)
For and on behalf of (quote organisation's name)
Note: Where it states (NMAA*), please insert the actual name of the pMS's NMAA, for example MAA, DSAE, etc.

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#### 0.2 General Information

a) Brief description of the organisation

(This paragraph should describe broadly how the whole organisation (i.e. including the Operating Organisation and EMAR 145 AMO when other approvals are held) is organised under the management of the Accountable Manager, and should refer to the organisation charts of paragraph 0.4.)

b) Relationship with other organisations

(Insert details of those organisations involved in the delivery of continuing airworthiness and/or maintenance of the aircraft and its components, including other contracted/tasked organisations.

Details of specific contracts/taskings should be included in Part 3 of the CAME, with a cross reference to the relevant element included here.)

c) Aircraft managed – Fleet composition

(This paragraph should list the aircraft types/models/series and the serial/registration numbers of all aircraft managed by the CAMO. It should be updated each time an aircraft is removed from, or added to, the list.)

d) Type of operation

(This paragraph should give broad information on the type of military operations such as: combat missions, transport (personnel/cargo), Search and Rescue, surveillance, etc.)

#### 0.3 Management personnel

a) Accountable Manager

(This paragraph should address the duties and responsibilities of the Accountable Manager as far as EMAR M.A. Subpart G is concerned and demonstrate that he/she has corporate authority for ensuring that all continuing airworthiness activities can be resourced and carried out in accordance with EMAR M.)

b) Continuing Airworthiness Manager

(This paragraph should:

- Emphasise that the Continuing Airworthiness Manager is responsible for ensuring that all maintenance is carried out on time to an approved standard.
- Describe the extent of his/her authority as regards his/her EMAR M responsibility for managing the continuing airworthiness of the aircraft for which he/she is responsible.)

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#### c) Continuing airworthiness coordination

(This paragraph should list the job functions that constitute the "group of persons" as required by EMAR M.A.706(c) in enough detail so as to show that all the continuing airworthiness responsibilities as described in EMAR M are covered by the persons that constitute that group.)

#### d) Duties and responsibilities

(This paragraph should further develop the duties and responsibilities of:

- the personnel listed in paragraph c): 'Continuing airworthiness coordination',
- the Quality Manager, as regards the quality monitoring of the maintenance system (which includes the EMAR 145 AMO(s)). This should include the links between the Continuing Airworthiness Manager and the Accountable Manager and how independence will be achieved from the activity subject to audit.)

#### e) Manpower resources and training policy

#### (1) Manpower resources

(This paragraph should give broad figures to show that the number of people dedicated to the performance of the approved continuing airworthiness activity is adequate. It is not necessary to give the detailed number of employees of the whole organisation but only the number of those involved in continuing airworthiness. All posts and/or organisations conducting activity on behalf of the CAMO, including details of the activity being carried out by them, should be included. This could be presented as follows:)

	Full Time	Part Time in equivalent full time
Quality monitoring	AA	aa = AA'
Continuing Airworthiness Management	ВВ	bb = BB'
(Detailed information about the	BB1	bb1 = BB1'
management group of persons)	BB2	bb2 = BB2'
Other	CC	cc = CC'
Total	TT	tt = TT'
Total Staff	TT + TT'	

(Note: According to the size and complexity of the organisation, this table may be further developed or simplified)

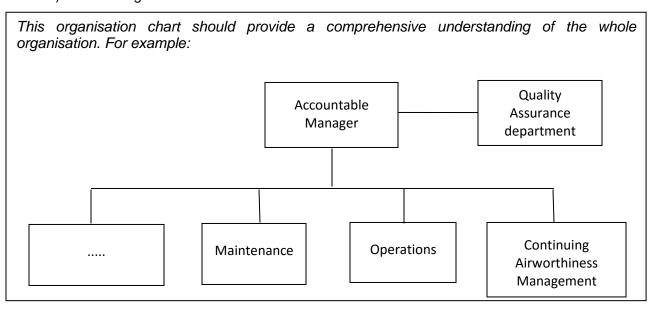
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#### (2) Training policy

(This paragraph should show that the training and qualification standards for the personnel quoted above are consistent with the size and complexity of the organisation. It should also explain how the need for recurrent training is assessed, and how the recording of training and follow-up activity is performed)

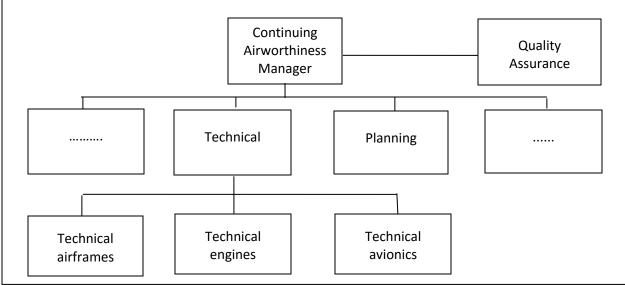
#### 0.4 Management organisation charts

#### a) General organisation chart



#### b) CAMO chart

This organisation chart should give further details on the continuing airworthiness management system, and should clearly show the independence of the quality monitoring system, including the links between the Quality Assurance department and the other departments (see example below). This organisation chart may be combined with the one above or subdivided as necessary, depending on the size and the complexity of the organisation. For example:



# 0.5 Notification procedure to the NMAA regarding changes to the organisation's activities / approval / location / personnel

(This paragraph should explain on which occasions the CAMO should inform the NMAA prior to incorporating proposed changes; for instance:

The Accountable Manager (or any delegated person such as the Continuing Airworthiness Manager or the Quality Manager) will notify to the NMAA any change concerning:

- (1) the name of the CAMO;
- (2) the location of the CAMO;
- (3) additional locations of the CAMO;
- (4) the Accountable Manager;
- (5) any of the persons specified in paragraph 0.3.c);
- (6) the facilities, procedures, work scope and staff that could affect the approval;
- (7) any change that affects the approval certificate.

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Such changes will not be incorporated until they have been assessed and approved by the NMAA.)

#### 0.6 CAME amendment procedure

(This paragraph should explain who is responsible for the amendment of the CAME and its submission to the NMAA for approval. This may include, if agreed by the NMAA, the possibility for the CAMO to internally approve minor changes that have no impact on the approval held (EMAR M.A.704(c) refers). The paragraph should then specify what types of changes are considered as minor and major and what the approval procedures for both cases are.)

#### PART 1 CONTINUING AIRWORTHINESS MANAGEMENT PROCEDURES

# 1.1 Utilisation of aircraft continuing airworthiness record system and aircraft technical log and MEL and/or CDL

- a) Aircraft technical log and continuing airworthiness record system
  - (1) General

(The introductory paragraph should explain how the aircraft technical log system and the aircraft continuing airworthiness record system are configured (EMAR M.A.305 and EMAR M.A.306 refer.))

#### (2) Instructions for use

(This paragraph should provide instructions for using the aircraft technical log and the aircraft continuing airworthiness record system. It should identify the respective responsibilities of the maintenance personnel and aircrew. Samples of the technical log and/or aircraft continuing airworthiness record system should be included in Part 5 "Appendices" in order to provide enough detailed instructions.)

#### (3) Aircraft technical log approval

(This paragraph should identify who is responsible for submitting the template for the aircraft technical log and any subsequent amendment to the NMAA for approval and what is the procedure to be followed.)

#### b) MEL and/or CDL utilisation (if applicable)

Although the decision of whether or not to accept a MEL and/or CDL tolerance remains the responsibility of the aircraft commander, this paragraph should explain in sufficient detail the MEL and/or CDL utilisation procedure. This is because the MEL and CDL are tools that maintenance personnel should be familiar with in order to ensure proper and efficient communication with the aircraft commander in case of a decision to defer defect rectification.

This paragraph does not apply to those types of aircraft that do not have an MEL and/or CDL.)

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#### (1) General

(This paragraph should explain broadly what a MEL and/or CDL document is. The information could be extracted from the aircraft flight manual.)

#### (2) MEL/CDL categories

(Where an NMAA or Operating Organisation uses a classification system placing a time constraint on the rectification of MEL/CDL related defects, the general principles of such a system should be explained. It is essential for the personnel involved in maintenance to be familiar with the classification system for the effective management and rectification of MEL/CDL related deferred defects.)

#### (3) Utilisation

(This paragraph should explain how the maintenance personnel identify a MEL/CDL limitation to the aircraft commander. This should refer to the aircraft technical log procedures.)

#### (4) Acceptance by the aircraft commander

(This paragraph should explain how the aircraft commander notify his/her acceptance (or non-acceptance) of the MEL/CDL deferment in the aircraft technical log.)

#### (5) Management of the MEL/CDL time limits

(After a technical limitation is accepted by the aircraft commander, the defect must be rectified within the time limit specified in the MEL/CDL. There should be a system to ensure that the defect will actually be corrected before that time limit. This system could be the aircraft technical log for those CAMOs that use it as a planning document, or a specific follow-up system in other cases, where control of the maintenance time limit is ensured by another means such as data processed planning systems.)

#### (6) MEL/CDL Time Limitation Overrun

(The NMAA may authorise the CAMO to overrun MEL/CDL time limitations under specified conditions. Where applicable, this paragraph should describe the specific duties and responsibilities for controlling these extensions.)

# 1.2 Aircraft Maintenance Programmes (AMPs) - development, amendment and approval

#### a) General

(This introductory paragraph should also include reference to the fact that the purpose of an AMP is to provide maintenance planning instructions necessary for the safe operation of the aircraft.)

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#### b) Content

(This paragraph should explain what is/are the format(s) of the AMP(s) used. Appendix I to EMAR AMC M.A.302(a) and EMAR M.B.301(b) should be used as a guideline to develop this paragraph.)

#### c) Development

#### (1) Sources

(This paragraph should explain what are the sources (MRB report, MPD, Maintenance Manual, etc.) used for the development of the AMP(s).)

#### (2) Responsibilities

(This paragraph should explain who is responsible for the development of the AMP(s).)

#### (3) AMP amendments

(This paragraph should demonstrate that there is a system for ensuring the continuing validity of the AMP. Particularly, it should show how any relevant information is used to update the AMP. This should include, as applicable, MRB report revisions, consequences of modifications, manufacturers and NMAA recommendations, in-service experience, and reliability reports.)

## (4) Acceptance by the NMAA

(This paragraph should explain who is responsible for the submission of the AMP to the NMAA and what the procedure to follow is. This should in particular address the issue of the NMAA approval for variation to maintenance periods. This may include, if agreed by the NMAA, the possibility for the CAMO to internally approve certain changes. The paragraph should then specify what types of changes can be internally approved and what the approval procedures are.)

# 1.3 Usage and continuing airworthiness records, responsibilities, retention, access

#### a) Flying hours, flight cycles, landings etc. recording

(The recording of airframe, engine and propeller flying hours and associated flight cycles and/or landings and any other approved service life consumption units. is essential for the planning of maintenance tasks. This paragraph should explain how the CAMO has access to the current information on airframe, engine and propeller flying hours and associated flight cycles and/or landings and any other approved service life consumption units and how they are processed through the CAMO.)

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#### b) Records

(This paragraph should give in detail the type of documents that are required to be recorded and what are the recording period requirements for each of them. This can be provided by a table or series of tables that would include the following:

- Type of document (if necessary),
- Name of document,
- Retention period,
- Responsible person for retention,
- Place of retention.)

#### c) Preservation of records

(This paragraph should set out the means provided to protect the records from damage, alteration and theft and that the records remain readable and accessible for the duration of the storage period. Specific procedures should be set out to guarantee that the records will not be altered during the retention period (especially for computer records).)

#### d) Transfer of continuing airworthiness records

(This paragraph should set out the procedure for the transfer of records to another CAMO. In particular, it should specify which records have to be transferred and who is responsible for the coordination (if necessary) of the transfer.)

## 1.4 Accomplishment and control of Airworthiness Directives (ADs)

(This paragraph should demonstrate that there is a comprehensive system for the management of ADs and operational directives with a continuing airworthiness impact. This paragraph may include the following Sub-paragraphs:)

#### a) AD information

(This paragraph should explain what are the sources of the ADs and operational directives with a continuing airworthiness impact and who receives them in the CAMO.)

#### b) AD decision

(This paragraph should explain how and by whom the information in ADs and operational directives with a continuing airworthiness impact is analysed and what kind of information is provided to the contracted/tasked EMAR 145 AMOs in order to plan and to perform the AD. This should as necessary include a specific procedure for emergency Airworthiness Directives (or equivalent) management)

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#### c) AD control

(This paragraph should specify how the CAMO ensures that all the applicable ADs are performed and that they are performed on time. This should include a closed-loop system that allows for the verification that for each new or revised AD and for each aircraft:

- the AD is not applicable or,
- if the AD is applicable:
  - the AD is not yet performed but the time limit is not overdue; or
  - the AD is performed, and any repetitive inspections are identified and performed.

This may be a continuous process or may be based on scheduled reviews.)

#### 1.5 Analysis of the effectiveness of the AMP

(This paragraph should show what tools are used in order to analyse the effectiveness of the AMP, such as:

- pilot reports (including air turn-backs, etc.),
- spares consumption,
- repetitive technical occurrence and defects,
- technical delays analysis (through statistics if relevant),
- technical incidents/accidents analysis (through statistics if relevant),
- etc.

The paragraph should also indicate by whom and how this data is analysed, what is the decision process to take action and what kind of action could be taken. This may include:

- amendment of the AMP,
- amendment of maintenance or operational procedures,
- etc.)

#### 1.6 Non-mandatory modification embodiment policy

(This paragraph should specify how the information on non-mandatory modifications is processed through the CAMO, who is responsible for their assessment against the Operating Organisation's need and operational experience, what are the main criteria for decisions to be made and who takes the decision of implementing (or not) a non-mandatory modification.)

#### 1.7 Major repair and modification standards

(This paragraph should set out a procedure for the assessment of the approval status of any major repair or modification before embodiment. This will include the assessment of the need of an NMAA or EMAR 21 Design Organisation Approval (DOA). It should also identify the type of approval required and the procedure to follow to have a repair or modification approved by the NMAA or by the (Military) Type Certificate Holder (MTCH).)

#### 1.8 Defect reports

#### a) Analysis

(This paragraph should explain how the defect reports provided by the contracted/tasked EMAR 145 AMOs are processed by the CAMO. Analysis should be conducted in order to give elements to activities such as AMP evolution and non-mandatory modification policy.)

#### b) Liaison with MTCH and the NMAA

(Where a defect report shows that such defect is likely to occur to other aircraft, a liaison should be established with the (M)TCH and the NMAA, so that they may take all the necessary action.)

#### c) Deferred defect policy

(Defects such as cracks and structural defects are not addressed in the MEL and CDL. However, it may be necessary in certain cases to defer the rectification of a defect. This paragraph should establish the procedure to be followed in order to be sure that the deferment of any defect will not lead to any safety concern. This will include appropriate liaison with the (M)TCH.)

#### 1.9 Engineering activity

(Where applicable, this paragraph should identify the scope of the CAMO's engineering activity in terms of approval of modification and repairs. It should set out a procedure for developing and submitting a modification/repair design for approval to the NMAA/MTCH and include reference to the supporting documentation and forms used. It should identify the person in charge of accepting the design before submission to the NMAA/MTCH.

Where the CAMO has a (M)DOA capability under EMAR 21, it should be indicated here and the related manuals should be referred to.)

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#### 1.10 Reliability programmes

(This paragraph should explain the management of any reliability programme(s). It should at least address the following:

- extent and scope of the reliability programmes,
- specific organisational structure, duties and responsibilities.
- establishment of reliability data,
- analysis of the reliability data,
- corrective action system (AMP amendment),
- scheduled reviews (reliability meetings, the participation of the NMAA).)

(This paragraph may, where necessary, be subdivided as follows:

- a) Airframe
- b) Propulsion
- c) Component)

#### 1.11 Pre-flight inspections

(This paragraph should show how the scope and definition of the <u>AMC EMAR M.A.301(a)1</u> pre-flight inspections (usually performed by the aircrew) are kept consistent with the scope of the maintenance performed by the contracted/tasked EMAR 145 AMOs. It should show how the evolution of the pre-flight inspection content and the AMP remains coherent.)

(The following paragraphs are self-explanatory. Although these activities are normally not performed by continuing airworthiness personnel, these paragraphs have been placed here in order to ensure that the related procedures are consistent with the continuing airworthiness activity procedures.)

- a) Preparation of aircraft for flight
- b) Ground handling function
- c) Cargo and Baggage loading
- d) Control of refueling, Quantity/Quality
- e) Control of snow, ice, residues from de-icing or anti-icing operations, dust/sand/salt contamination to an approved standard.

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#### 1.12 Aircraft weighing

(This paragraph should state on which occasions an aircraft should be weighed (for instance after a major modification because of weight and balance, operational requirements, etc.) who performs it, which procedure is used, who calculates the new weight and balance and how the results are processed into the CAMO.)

#### 1.13 Maintenance check flight procedures

(The criteria for performing a maintenance check flight are normally included in the AMP. This paragraph should explain how the maintenance check flight procedure is established in order to meet its intended purpose (for instance after a base maintenance check, after engine or flight control removal or installation, etc.), and the release procedures to authorise such a maintenance check flight.)

#### **PART 2 QUALITY SYSTEM**

# 2.1 Continuing airworthiness quality policy, quality plan and quality audit procedure

#### a) Continuing airworthiness quality policy

(This paragraph should include a formal Quality Policy statement. This should provide a commitment on what the Quality System is intended to achieve. It should include, as a minimum, monitoring compliance with EMAR M and any additional standards specified by the CAMO.)

#### b) Quality plan

(This paragraph should show how the quality plan is established. The quality plan will consist of a quality audit and sampling schedule that should cover all the areas specific to EMAR M in a definite period of time. However, the scheduling process should also be dynamic and allow for special evaluations when trends or concerns are identified. In the case of contracting/tasking of non-approved organisations, this paragraph should also address the planning of the auditing of non-approved organisations at the same frequency as the rest of the CAMO.)

#### c) Quality audit procedure

(The quality audit is a key element of the quality system. Therefore, the quality audit procedure should be sufficiently detailed to address all the steps of an audit, from the preparation to the conclusion, show the audit report format (e.g. by reference to paragraph 5.1 'Sample documents'), and explain the procedures for the distribution of audit reports within the organisation (e.g. involvement of the Quality Manager, Accountable Manager, Continuing Airworthiness Manager, etc.).)

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d) Quality audit remedial action procedure

(This paragraph should explain what system is put in place in order to ensure that the root-cause of any findings is identified, corrective actions are implemented on time and that the result of the corrective action meets the intended purpose. For instance, where this system consists of periodical corrective action reviews, instructions should be given on how such reviews should be conducted and what should be evaluated.)

#### 2.2 Monitoring of continuing airworthiness management activities

(This paragraph should set out a procedure to periodically review the activities of the maintenance management personnel and how they fulfil their responsibilities, as defined in Part 0.It should also set out a procedure to periodically review the activities of the contracted/tasked continuing airworthiness management activities (<u>Appendix II to AMC EMAR M.A.201(h)1 refers</u>).)

#### 2.3 Monitoring of the effectiveness of the AMP(s)

(This paragraph should set out a procedure to periodically review that the effectiveness of the AMP(s) is/are actually analysed as defined in Part 1.)

# 2.4 Monitoring that all maintenance is carried out by an appropriate EMAR 145 Approved Maintenance Organisation (AMO)

(This paragraph should set out a procedure to periodically review that the approval of the contracted/tasked EMAR 145 AMOs are relevant for the maintenance being performed on the Operating Organisation's aircraft. This may include feedback information from any contracted/tasked organisation on any actual or contemplated amendment, in order to ensure that the maintenance system remains valid and to anticipate any necessary change in the maintenance agreements.

If necessary, the procedure may be subdivided as follows:

- a) Aircraft maintenance
- b) Engines
- c) Components)

# 2.5 Monitoring that all contracted/tasked maintenance is carried out in accordance with the contract/tasking, including maintenance organisations not approved to EMAR 145 used by the maintenance contractor/tasked organisation

(This paragraph should set out a procedure to periodically review that the CAMO personnel are satisfied that all contracted/tasked maintenance is carried out in accordance with the contract/tasking. This may include a procedure to ensure that the system allows all the personnel involved in the contract/tasking (including the EMAR 145 AMO personnel and any non-approved organisations they contract/task) to be acquainted with the terms of the contract/tasking and that, for any contract/tasking

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amendment, relevant information is dispatched in the EMAR 145 AMO and at their contracted/tasked organisation(s).)

#### 2.6 Quality audit personnel

(This paragraph should establish the required training and qualification standards of auditors. Where an individual is not a full-time auditor, it should be emphasized that this person must not be directly involved in the activity he/she audits.)

#### PART 3 CONTRACTED/TASKED MAINTENANCE

#### 3.1 Maintenance contractor/tasked organisation selection procedure

(This paragraph should explain how an EMAR 145 AMO is selected by the CAMO. Selection should not be limited to the verification that the EMAR 145 AMO is appropriately approved for the type/model/series of aircraft, but also that the EMAR 145 AMO has the capacity and resources to undertake the required maintenance. This selection procedure should preferably include a contract/tasking review process in order to ensure that:

- the contract/tasking is comprehensive and that no gap or unclear area remains,
- everyone involved in the contract/tasking (both at the CAMO and at the EMAR 145 AMO) agrees with the terms of the contract/tasking and fully understand their responsibility.
- that functional responsibilities of all parties are clearly identified.)

#### 3.2 Quality audit of aircraft

(This paragraph should set out the procedure when performing an EMAR M.A.706(k) quality audit of an aircraft. It should set out the differences between an airworthiness review and a quality audit. This procedure may include:

- compliance with approved procedures;
- contracted/tasked maintenance is carried out in accordance with the contract/tasking;
- continued compliance with EMAR M.)

#### PART 4 AIRWORTHINESS REVIEW PROCEDURES (IF APPLICABLE)

#### 4.1 Airworthiness review staff

(This paragraph should establish the working procedures for the assessment of the airworthiness review staff. The assessment addresses experience, qualification, training etc. A description should be given regarding the issuance of authorisations for the airworthiness review staff and how records are kept and maintained.)

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#### 4.2 Review of aircraft records

(This paragraph should describe in detail the aircraft records that are required to be reviewed during the airworthiness review. The level of detail that needs to be reviewed and the number of records that need to be reviewed during a sample check should be described.)

#### 4.3 Physical survey

(This paragraph should describe how the aircraft physical survey needs to be performed. It should list the topics that need to be reviewed, the physical areas of the aircraft to be inspected, which documents onboard the aircraft that need to be reviewed, etc.)

#### 4.4 Not Applicable

#### 4.5 Recommendations to the NMAA for the issue of a MARC

(This paragraph should stipulate the communication procedures with the NMAA in the case of a recommendation for the issuance of a MARC. In addition, the content of the recommendation should be described.)

#### 4.6 Issuance of a MARC

(This paragraph should set out the procedures for the issuance of a MARC. It should address record keeping, distribution of the MARC copies etc. This procedure should ensure that only after an airworthiness review that has been properly carried out, a MARC will be issued.)

#### 4.7 Airworthiness review records, responsibilities, retention and access

(This paragraph should describe how records are kept, the periods of record keeping, location where the records are being stored, access to the records and responsibilities.)

#### 4.8 Extension of a MARC

(This paragraph should describe the procedure used to extend a MARC (EMAR M.A.901(f) refers). It should address record keeping, distribution of MARC copies etc.)

#### PART 4B NOT APPLICABLE

#### **PART 5 APPENDICES**

#### 5.1 Sample documents

(A self-explanatory paragraph)

#### 5.2 List of airworthiness review staff

(A self-explanatory paragraph)

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# 5.3 List of contractors/tasked organisations as per AMC EMAR M.A.201(h)1 and EMAR M.A.711(a)3.

(A self-explanatory paragraph. In addition, it should set out that the list should be periodically reviewed.)

#### 5.4 List of contracted/tasked EMAR 145 AMOs

(A self-explanatory paragraph. In addition it should set out that the list should be periodically reviewed.)

# 5.5 Copy of contracts/taskings for contracted/tasked work (Appendix II to AMC EMAR M.A.201(h)1)

(A self-explanatory paragraph)

#### 5.6 Copy of contracts/taskings with EMAR 145 AMOs

(A self-explanatory paragraph)

5.7 List of Operating Organisations to whom the CAMO provides the management of the continuing airworthiness of the aircraft as per EMAR M.A.201(k).

(A self-explanatory paragraph)

5.8 Copy of continuing airworthiness arrangements with Operating Organisations as per AMC EMAR M.A.201(k).

(A self-explanatory paragraph)

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# Appendix VI to AMC M.B.602(f): NOT APPLICABLE

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# Appendix VII to AMC M.B.702(f) and M.B.704(b): EMAR Form 13

EMAR Form 13 is contained in the EMAR Forms document.

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# Appendix VIII to AMC M.A.616: NOT APPLICABLE

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# Appendix IX to AMC M.A.702: EMAR Form 2

EMAR Form 2 is contained in the EMAR Forms document.

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# Appendix X to AMC M.A.702(a): EMAR Form 4

EMAR Form 4 is contained in the EMAR Forms document.

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#### Appendix XI to AMC to EMAR M.A.708(c): Contracted/Tasked Maintenance

#### 1. Maintenance contracts/tasking

The following paragraphs are not intended to provide a standard maintenance contract/tasking document but to provide a list of the main points that should be addressed, when applicable, in a maintenance contract/tasking between an Operating Organisation/CAMO and an EMAR 145 AMO. The following paragraphs only address technical matters and exclude matters such as costs, delay, warranty, etc.

When maintenance is contracted/tasked to more than one EMAR 145 AMO (for example aircraft base maintenance to X and engine maintenance to Y), attention should be paid to the consistency of the different maintenance contracts/taskings.

A maintenance contract/tasking is not normally intended to provide appropriate detailed work instruction to the personnel (and is not normally distributed as such). Accordingly there should be established organisational responsibility, procedures and routines in the CAMO & EMAR 145 AMOs to take care of these functions in a satisfactory way such that any person involved is informed about his/her responsibility and the procedures which apply. These procedures and routines can be included/appended to the CAME and the EMAR 145 AMO's MOE or be located in separate procedures. Procedures and routines should always reflect the conditions of the contract/tasking.

Note: In the case where an Operating Organisation contracts/tasks an EMAR 145 AMO through a CAMO (in accordance with EMAR M.A.201(h)2 and EMAR M.A.201(k)), it is important that all organisations fully understand their responsibilities for the continuing airworthiness of the aircraft operated. The text in this Appendix should be modified accordingly to ensure that the allocation of responsibilities is clearly detailed.

#### 2. Aircraft/Engine maintenance

The following subparagraphs may be adapted to a maintenance contract/tasking that applies to aircraft base maintenance, aircraft line maintenance and engine maintenance.

Aircraft maintenance also includes the maintenance of the engines and APU while they are installed on the aircraft.

#### 2.1. Scope of work

The type of maintenance to be performed by the EMAR 145 AMO should be specified unambiguously. In case of line and/or base maintenance, the contract/tasking should specify the aircraft type and include the aircrafts' registrations.

In case of engine maintenance, the contract/tasking should specify the engine type.

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#### 2.2. Locations identified for the performance of maintenance/ Certificates held

The place(s) where base, line or engine maintenance, as applicable, will be performed should be specified. The approval certificate held by the EMAR 145 AMO at the place(s) where the maintenance will be performed should be referred to in the contract/tasking. If necessary the contract/tasking may address the possibility of performing maintenance at any location subject to the need for such maintenance arising either from the unserviceability of the aircraft or from the necessity of supporting occasional line maintenance.

# 2.3. EMAR 145 AMO contracting/tasking with approved/non-approved organisations

The maintenance contract/tasking should specify under which conditions the EMAR 145 AMO may contract tasks to a third party (whether this third party is EMAR 145 approved or not). At least the contract/tasking should make reference to EMAR 145.A.75. Additional guidance is provided by AMC EMAR 145.A.75. In addition the CAMO may require the EMAR 145 AMO to obtain the Operating Organisation's agreement before contracting to a third party. Access should be given to the Operating Organisation/CAMO to any information (especially the quality monitoring information) about the EMAR 145 AMO's contractors involved in the contract/tasking.

#### 2.4. Aircraft Maintenance Programme

The AMP under which the maintenance has to be performed should be specified.

#### 2.5. Quality monitoring

The terms of the contract/tasking should include a provision allowing the CAMO to perform a quality surveillance (including audits) upon the EMAR 145 AMO. The maintenance contract/tasking should specify how the results of the quality surveillance are taken into account by the EMAR 145 AMO (see also paragraph 2.22. 'Meetings').

#### 2.6. NMAA involvement

#### TO BE ADDED LATER IF REQUIRED.

#### 2.7. Airworthiness data

The airworthiness data used for the purpose of this contract/tasking should be specified. This may include, but not be limited to:

- AMP,
- Airworthiness Directives,
- operational directives with a continuing airworthiness impact,
- Service Bulletins (or national equivalent),

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- major repairs/modification data,
- Aircraft Maintenance Manual,
- aircraft Illustrated Parts Catalogue,
- wiring diagrams,
- trouble shooting manual,
- Minimum Equipment List (if applicable),
- Configuration Deviation List (if applicable)
- operators manual,
- Aircraft Flight Manual,
- engine maintenance manual,
- engine overhaul manual.

#### 2.8. Incoming Conditions

The contract/tasking should specify in which condition the Operating Organisation should send the aircraft to the EMAR 145 AMO. For larger maintenance activities, it may be beneficial that a work scope planning meeting be organised so that the tasks to be performed may be commonly agreed (see also paragraph 2.23: 'Meetings').

#### 2.9. Airworthiness Directives and Service Bulletin/Modifications

The contract/tasking should specify what information the CAMO is responsible to provide to the EMAR 145 AMO, such as the due date of the Airworthiness Directives (ADs), the selected means of compliance, the decision to embody Service Bulletins (SBs) or modifications, etc. In addition, the type of information the CAMO will need in return to complete the control of ADs and modification status should be specified.

#### 2.10. Hours & Cycles control

Hours and cycles control is the responsibility of the CAMO, but there may be cases where the EMAR 145 AMO should receive the current flight hours and cycles on a regular basis so that it may update the records for its own planning functions (see also paragraph 2.22: 'Exchange of information').

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#### 2.11. Service life-limited components

Service life-limited components control is the responsibility of the CAMO.

The EMAR 145 AMO will have to provide the CAMO with all the necessary information about the service life-limited components removal/installation so that the CAMO may update its records (see also paragraph 2.22 'Exchange of information').

#### 2.12. Supply of parts

The contract/tasking should specify whether a particular type of material or component is supplied by the Operating Organisation/CAMO or by the contracted/tasked EMAR 145 AMO, which type of component is pooled, etc. The contract/tasking document should clearly state that it is the EMAR 145 AMO's responsibility to be satisfied that the component in question meets the approved data/standard and to ensure that the aircraft component is in a satisfactory condition for installation. The EMAR 145 AMO should not 'blindly' accept whatever is supplied by the Operating Organisation/CAMO. Additional AMC and GM is detailed for EMAR 145.A.42 'Acceptance of components'.

#### 2.13. NOT APPLICABLE.

#### 2.14. Scheduled maintenance

When planning scheduled maintenance, the support documentation to be given to the EMAR 145 AMO should be specified. This may include, but not be limited to:

- applicable work package, including job cards;
- scheduled component removal list;
- modifications to be incorporated.

When the EMAR 145 AMO determines, for any reason, to defer a maintenance task, it has to be formally agreed with the CAMO. If the deferment goes beyond an approved limit, refer to paragraph 2.17: 'Deviation from the maintenance schedule'. This should be addressed, where applicable, in the maintenance contract/tasking document.

#### 2.15. Unscheduled maintenance/Defect rectification

The contract/tasking should specify to which level the EMAR 145 AMO may rectify a defect without reference to the Operating Organisation/CAMO. As a minimum, the acceptance and incorporation of major repairs should be addressed. The deferment of any defect rectification should be submitted to the CAMO and, if applicable, to the NMAA.

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#### 2.16. Deferred maintenance

See paragraphs 2.14 and 2.15 above and AMC EMAR 145.A.50(e). In addition, for aircraft line and base maintenance the use of the MEL and CDL (if applicable) should be addressed.

#### 2.17. Deviation from the maintenance schedule

Deviations have to be granted by the CAMO in accordance with a procedure approved by the NMAA. The contract/tasking should specify the support the EMAR 145 AMO may provide to the CAMO in order to substantiate a request for deviation from the maintenance schedule.

#### 2.18. Maintenance check flight

If a maintenance check flight is required after aircraft maintenance, it should be performed in accordance with the procedures established in the CAME.

#### 2.19 Engine Test

The contract/tasking should specify the acceptability criterion and whether a representative of the Operating Organisation/CAMO should witness an engine undergoing test.

#### 2.20 Release to service documentation

The release to service has to be performed by the EMAR 145 AMO in accordance with its MOE procedures. The contract/tasking should, however, specify which aircraft documentation should be used (e.g. Aircraft technical log,) and the documentation the EMAR 145 AMO should provide to the CAMO upon delivery of the aircraft. This may include, but not limited to:

- Certificate of Release to Service mandatory,
- maintenance check flight report,
- list of modifications embodied.
- list of repairs,
- list of ADs incorporated,
- engine test report.

#### 2.21. Maintenance recording

The Operating Organisation/CAMO may contract/task the EMAR 145 AMO to retain some of the maintenance records required by EMAR M.A. Subpart C. It should be ensured that every requirement of EMAR M.A. Subpart C is fulfilled by either the Operating Organisation/CAMO or the EMAR 145 AMO. In such a case,

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free and quick access to the above-mentioned records should be given by the EMAR 145 AMO to the Operating Organisation/CAMO.

#### 2.22. Exchange of information

Each time exchange of information between the Operating Organisation/CAMO and the EMAR 145 AMO is necessary, the contract/tasking should specify what information should be provided and when (i.e. on what occasion or at what frequency), how, by whom and to whom it has to be transmitted.

#### 2.23. Meetings

To ensure that a good communication system exists between the Operating Organisation/CAMO and the EMAR 145 AMO, the terms of the maintenance contract/tasking should include the provision for a certain number of meetings to be held between all parties.

#### 2.23.1. Contract/tasking review

Before the contract/tasking is applicable, it is very important for the technical personnel of all parties that are involved in the application of the contract/tasking to meet, in order to be sure that every point leads to a common understanding of the duties of all parties.

#### 2.23.2. Work scope planning meeting

Work scope planning meetings may be organised so that the tasks to be performed may be commonly agreed.

#### 2.23.3. Technical meeting

Scheduled meetings may be organised in order to review on a regular basis technical matters such as ADs, SBs (or national equivalent), future modifications, major defects found during maintenance check, reliability, etc.

#### 2.23.4. Quality meeting

Quality meetings may be organised in order to examine matters raised by the CAMO's EMAR M.A.712 quality surveillance and to agree upon necessary corrective actions.

#### 2.23.5. Reliability meeting

When a reliability programme exists (EMAR M.A.302(f) refers), the contract/tasking should specify the CAMO's and the EMAR 145 AMO's respective involvement in that programme, including the participation in reliability meetings.

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# Appendix XII to AMC to M.A.706(f) and M.B.102(c): Fuel Tank Safety Training

This Appendix is contained within Appendix IV to EMAR AMC 145.A.30(e) and EMAR AMC 145.B.10(c).

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# Appendix XIII to AMC M.A.712(f): NOT APPLICABLE

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