



EUROPEAN MILITARY AIRWORTHINESS REQUIREMENT

EMAR 147

AMC & GM

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NOTE:

1. Where the content of any of the paragraphs from the previous document has been amended, this is indicated by the use of a 'sidebar' in the margin. This can be readily cross-referenced using the table at the end of the document which details each change.

2. 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

SECTION A -

TECHNICAL REQUIREMENTS

AMC 147.A.15 Application

The application form should contain the information required in the EMAR Form 12 (see Appendices to AMC Appendix IV).

AMC 147.A.100(b) Facility requirements

1. The maximum number of students undergoing knowledge training during any training session should not normally exceed 28. In cases where it is necessary to exceed this number, the NMAA is to be informed and the MTO should submit evidence of how an 'effective learning environment' is being maintained with this larger number of students.

AMC 147.A.100(d) Facility requirements

1. In the context of this paragraph, 'another organisation' means any other organisation with which the MTO has a formal agreement for the provision of practical training facilities. This organisation's details should be included in Section 2.8 of the MTOE.

AMC 147.A.100(i) Facility requirements

1. For approved basic maintenance training courses this means holding and ensuring reasonable access to copies of all national military aviation legislation, examples of typical aircraft maintenance manuals and service bulletins and Airworthiness Directives (or their national equivalents), aircraft and component records, release documentation, procedures manuals and aircraft maintenance programmes.

2. Except for the national military aviation regulations, the remainder of the documentation should represent typical examples of military aircraft and cover both aeroplanes and helicopters as appropriate for the nation. Avionic and armaments documentation should cover a representative range of available equipment that will be encountered within the pMS. All documentation should be reviewed and updated on a regular basis.

AMC 147.A.105 Personnel requirements

1. The larger MTO (an organisation with the capacity to provide training for 50 students or more) should appoint a training manager with the responsibility of managing the MTO on a day-to-day basis. Such person could also be the Accountable Manager. In addition, the MTO should appoint a quality manager with the responsibility of managing the quality system as specified in EMAR 147.A.130(b) and an examination manager with the responsibility of managing the relevant EMAR 147 Subpart C or Subpart D examination system. Such person(s) may also be an instructor and/or examiner.

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2. The smaller MTO (an organisation with the capacity to provide training for less than 50 students) may combine any or all of the subparagraph (1) positions subject to the NMAA verifying and being satisfied that all functions can be properly carried out in combination.

3. When the organisation is also approved against other EMARs which contain some similar functions, then such functions may be combined.

AMC 147.A.105(b) Personnel requirements

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 147.A.105(b). EMAR Form 4 is contained within the EMAR Forms document.

AMC 147.A.105(c) Personnel requirements

The MTO should have a core of permanently employed staff to undertake the minimum amount of maintenance training proposed but may contract, on a part-time basis, instructors for subjects which are only taught on an occasional basis.

AMC 147.A.105(f) Personnel requirements

1. Any person currently accepted by the NMAA in accordance with the national military aviation regulations in force prior to a date established in national regulation for the implementation of the requirements of EMAR 147 may continue to be accepted in accordance with EMAR 147.A.105(f).

Paragraph 3 of Appendix III to AMC of EMAR 66 provides criteria to establish the qualification of assessors.

2. Examiners should demonstrate a clear understanding of the examination standard required by EMAR 66 and have a responsible attitude to the conduct of examinations such that the highest integrity is ensured.

AMC 147.A.105(h) Personnel requirements

1. Updating training should normally be of 35 hours duration but may be adjusted to the scope of training of the MTO and particular instructor/examiner.

2. Records should show for each instructor/knowledge examiner when the updating training was scheduled and when it took place.

AMC 147.A.110 Records of instructors, examiners and assessors

1. The following minimum information relevant to the scope of activity should be kept on record in respect of each instructor, knowledge examiner and practical assessor:

- (a) Full Name;
- (b) Rank/Grade (if applicable);
- (c) Date of birth;

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- (d) Service/Personnel number;
 - (e) Experience;
 - (f) Qualifications;
 - (g) Training history (before entry);
 - (h) Subsequent training;
 - (i) Scope of activity;
 - (j) Starting date of employment/contract/posting into MTO;
 - (k) If appropriate – ending date of employment/contract/posting out of MTO;
 - (l) Security clearance (where appropriate).
2. The record may be kept in any format but should be under the control of the MTO's quality system.
3. Persons authorised to access the system should be maintained at a minimum to ensure that records cannot be altered in an unauthorised manner or that such confidential records become accessible to unauthorised persons.
4. The NMAA, or qualified entity acting on behalf of the NMAA, is to be considered as an 'authorised person' when investigating the records system for initial and continued approval or when the NMAA has cause to doubt the competence of a particular person.

AMC 147.A.115(c) Instructional equipment

1. An appropriate selection of aircraft parts means appropriate in relation to the particular subject module or submodule of EMAR 66 being instructed. For example, the turbine engine module should require the provision of sufficient parts from different types of turbine engine to show what such parts look like, what the critical areas are from a maintenance viewpoint and to enable disassembly/assembly exercises to be completed.
2. 'Appropriate aircraft, engines, aircraft parts, avionic equipment, armaments, escape systems and other relevant military-specific systems' means appropriate in relation to the particular subject module or submodule of EMAR 66 being instructed. For example, Category B2 avionic training should require, amongst other equipment, access to different navigation systems such that maintenance and system functioning can be observed and therefore more fully understood by the student in the working environment.
3. Moved to AMC 147.A.115(d).

AMC 147.A.115(d) Instructional equipment

"Access" should be interpreted to mean, in conjunction with the facilities requirement of EMAR 147.A.100(d), that there may be an agreement with an EMAR 145 Approved Maintenance Organisation to access the aircraft type, related parts, etc.

AMC 147.A.120(a) Maintenance training material

Training course notes, diagrams and any other instructional material should be accurate. Where an amendment service is not provided, a written warning to this effect should be given.

AMC 147.A.125 Records of students

In addition to each student's training, examination and assessment records, the content of the course(s) undertaken by each student (eg syllabus, together with the amendment state of the course content as detailed in the MTOE Item 4.2) should also be retained.

AMC 147.A.130(b) Training procedures and quality system

1. The independent audit procedure should ensure that all aspects of EMAR 147 compliance should be checked at least once in every 12 months and may be carried out as one complete single exercise or subdivided over a 12-month period in accordance with a scheduled plan.

2. In a small MTO (an organisation with the capacity to provide training for less than 50 students) the independent audit function may be contracted to another MTO approved under EMAR 147 by an arrangement acceptable to the NMAA, or to a competent person acceptable to the NMAA. Where the small MTO chooses to contract the audit function, the NMAA should specify the audit periodicity.

3. Where the MTO is part of an organisation that is also approved to another EMAR requiring a quality system, then such quality systems may be combined.

4. When training or examination is carried out under the 'subcontract control system' (see EMAR 147.A.145):

(i) a pre-audit procedure should be established whereby the EMAR 147 MTO should audit a prospective subcontractor to determine whether the services of the subcontractor meet the intent of EMAR 147. The pre-audit procedure should focus on establishing compliance with the training and examination standards set out in EMAR 147 and EMAR 66.

(ii) a renewal audit of the subcontractor should be performed at least once every 12 months to ensure continuous compliance with the EMAR 147 standard.

(iii) the subcontract control procedure should record audits of the subcontractor and have a corrective action follow-up plan.

5. The independence of the audit system should be established by always ensuring that audits are carried out by personnel not responsible for the function or procedure being checked.

AMC 147.A.135 Examinations

1. Examinations may be computer- or hard-copy-based or a combination of both.

2. The actual questions to be used in a particular examination should be determined by the examiners.

AMC 147.A.135(b) Examinations

If the NMAA approves a period of less than 12 months, this approval should be provided in writing to the MTO and kept within the student's records as detailed in EMAR 147.A.125.

AMC 147.A.140 Maintenance Training Organisation Exposition (MTOE)

1. The information detailed in Appendix I to the AMCs should be included in the MTOE.
2. When the MTO, or organisation it is part of, is approved in accordance with any other EMAR or EASA approval which also requires an exposition, the exposition required by the other EMAR or EASA approval may form the basis of the MTOE in a combined document, as long as the other exposition contains the information required by EMAR 147.A.140 and a cross-reference index is included based upon Appendix I.
3. When training or examination is carried out under the 'subcontract control system' (see EMAR 147.A.145), the MTOE should contain a specific procedure on the control of subcontractor(s) as per Appendix I item 2.18 plus a list of subcontractor(s) as required by EMAR 147.A.140(a)12 and detailed in Appendix I item 1.7.
4. NOT APPLICABLE.

AMC 147.A.145(d) Privileges of the Maintenance Training Organisation

1. When training or examination is carried out under the 'subcontract control system', it means that for the duration of such training or examination, the EMAR 147 approval has been temporarily extended to include the subcontractor. It therefore follows that those parts of the subcontractor's facilities, personnel and procedures involved with the EMAR 147 MTO's students should meet the requirements of EMAR 147 for the duration of that training or examination and it remains the EMAR 147 MTO's responsibility to ensure such requirements are satisfied.
2. The MTO approved under EMAR 147 is not required to have complete facilities and personnel for training that it needs to subcontract but it should have its own expertise to determine that the subcontractor meets the EMAR 147 standards. Particular attention should be given to ensuring that the training that is delivered also meets the requirements of EMAR 66 and that the aircraft technologies are appropriate.
3. The contract between the MTO approved under EMAR 147 and the subcontractor should contain:
 - a provision for the NMAA to have right of access to the subcontractor;
 - a provision that the subcontractor must inform the EMAR 147 approved MTO of any change that may affect its EMAR 147 approval, before any such change takes place.

AMC 147.A.145(f) Privileges of the Maintenance Training Organisation

NOT APPLICABLE.

AMC 147.A.155(a)2 Continued validity of approval

In addition to being granted access to the MTO to determine continued compliance, the NMAA should also be granted access to any organisation carrying out training (and, if applicable, examination) on behalf of the MTO under the 'subcontract control system' as specified at AMC 147.A.145(d).

AMC 147.A.200(b) The approved basic training course

Each MAML category or subcategory basic training course may be subdivided into modules or submodules of knowledge and may be intermixed with the practical training elements subject to the required time elements of EMAR 147.A.200 (f) and (g) being satisfied.

AMC 147.A.200(d) The approved basic training course

1. NOT APPLICABLE.
2. At least 30% of the practical training element should be carried out in a realistic maintenance working environment.

AMC 147.A.200(f) The approved basic training course

1. In order to follow pedagogical and human factors principles, the maximum number of training hours per day for the theoretical training should not be more than 6 hours. A training hour means 60 minutes of tuition excluding any breaks, examination, revision, preparation and aircraft visits. In exceptional cases, the NMAA may allow deviation from this standard when it is properly justified that the proposed number of hours follows pedagogical and human factors principles. These principles are especially important in those cases where:

Theoretical and practical training are performed at the same time;

Training and normal maintenance duty/apprenticeship are performed at the same time.

2. The minimum participation time for the student to meet the objectives of the course should not be less than 90 % of the tuition hours. Additional training may be provided by the MTO in order to meet the minimum participation time. If the minimum participation defined for the course is not met, a certificate of recognition (see example at EMAR 147 Appendix III) should not be issued.

AMC 147.A.200(g) The approved basic training course

NOT APPLICABLE.

AMC 147.A.205 Basic knowledge examinations

The NMAA may accept that the MTO approved under EMAR 147 can conduct examination of students who did not attend an approved basic course at that MTO.

AMC 147.A.210(a) Basic practical assessment

NOT APPLICABLE.

AMC 147.A.210(b) Basic practical assessment

An assessed pass for each student should be granted when the practical assessor is satisfied that the student meets the criteria of EMAR 147.A.200(e). This means that the student has demonstrated the capability to use relevant tools/equipment/test equipment as specified by the tool/equipment/test equipment manufacturer and the use of maintenance manuals, and the student can carry out the required inspection/testing without missing any defects, can readily identify the location of components and is capable of correct removal/fitment/adjustment of such components. The student is only required to carry out enough inspection/testing and component removal/fitment/adjustments to prove capability. The student should also show an appreciation of the need to ensure clean working conditions and the observance of safety precautions for the student and the product. In addition, the student should demonstrate a responsible attitude in respect to flight safety and the airworthiness of the aircraft.

Appendix III to AMC to EMAR 66 provides criteria for the competence assessment performed by the designated assessors (and their qualifications).

AMC 147.A.300 Military Aircraft Type/Task Training

Military Aircraft Type Training may be subdivided into airframe and/or powerplant and/or avionics/electrical systems and/or armaments/escape systems/other relevant military-specific systems type training courses. An MTO approved under EMAR 147 may be approved to conduct airframe type training only, powerplant type training only, avionics/electrical systems type training only, armaments/escape systems/other relevant military-specific systems type training only or any combination thereof.

1. Airframe type training course means a type training course including all relevant aircraft structure and electrical and mechanical systems excluding the powerplant.
2. Powerplant type training course means a type training course on the bare engine, including the build-up to an engine change unit.
3. The interface of the engine/airframe systems should be addressed by either airframe or powerplant type training course.
4. Avionics/electrical systems type training course means type training on avionics and electrical systems as determined by the NMAA.
5. Armaments/escape systems/other relevant military-specific systems type training means type training on all other military-specific systems not covered in sub-paragraphs 1-4 above, as determined by the NMAA.

SECTION B

PROCEDURES FOR NATIONAL MILITARY AIRWORTHINESS AUTHORITIES

AMC 147.B.10(a) National Military Airworthiness Authority

1. In deciding upon the required organisational structure, the NMAA should review the number of certificates to be issued, the number and size of potential EMAR 147 approved MTOs within that pMS, as well as the level of military aviation activity, number and complexity of aircraft and the size of the pMS's military aviation forces.
2. The NMAA should retain effective control of important surveillance functions and not delegate them in such a way that EMAR 147 MTOs, 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 continued and undisturbed fulfillment of these tasks and obligations of the NMAA should also be guaranteed in case of illness, accident or leave of individual employees.

AMC 147.B.10(c) National Military Airworthiness Authority

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.

- 1.3 training on auditing techniques;

- 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 sub-paragraph 1.5 (below) qualification;

- 1.5 a relevant engineering degree or an aircraft maintenance technician qualification or training qualification with additional education. 'Relevant engineering degree' means an engineering degree from aeronautical, mechanical, electrical, electronic, avionics or other studies relevant to the maintenance and continuing airworthiness of aircraft/aircraft components;

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1.6 knowledge of a relevant sample of aircraft types;

1.7 knowledge of maintenance training 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.

3. A programme for continuation training should be developed that ensures that the surveyors remain competent to perform their allocated tasks.

AMC 147.B.10(d) National Military Airworthiness Authority

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 147.

AMC 147.B.20 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 that all necessary data continues to be accessible at least through the full period specified in EMAR 147.B.20.

AMC 147.B.110(a) Procedure for approval and changes to the approval

1. The audit should be conducted on the basis of checking the facility for compliance, interviewing personnel and sampling any relevant training course for its conduct and standard.

2. The audit report should be made on an EMAR Form 22 (see Appendix III).

AMC 147.B.110(b) Procedure for approval and changes to the approval

1. The reports should include the date each finding was cleared together with reference to the NMAA report or letter that confirmed the clearance.
2. Findings should be recorded on the 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”.

AMC 147.B.120(a) Continued validity procedure

1. Audits should be conducted to ensure the continuity of the approval; it is not necessary to sample all basic and Military Aircraft Type Training courses, but the NMAA should sample, as appropriate, one basic and one Military aircraft Type Training course to establish that training is conducted in an appropriate manner. Nevertheless, the duration of the sampling for each course should not be less than 3 hours. Where no training course is being conducted during the audit, arrangements should be made to return at a later date to sample the conduct of a training course.
2. It is not necessary to sample all examinations associated with a training course but the NMAA should sample, as appropriate, one basic and one Military Aircraft Type Training course examination.

AMC 147.B.130(b) Findings

1. In the case of a level 2 finding, the NMAA may give up to 6 months’ notice of the need for rectification. Dependent upon the seriousness of the level 2 finding(s), the NMAA may choose a notice period less than 6 months.
2. When the NMAA chooses to allow 6 months, the initial notification should be of 3 months duration to the quality manager followed by the final 3 months’ notice to the Accountable Manager.

AMC to Appendix II to EMAR 147 “Maintenance Training Organisation Approval”

AMC to EMAR Form 11 is contained in the EMAR Forms document.

AMC to Appendix III to EMAR 147 “Examples of Training Certificates”

A Certificate of Recognition for an EMAR 147 Basic Training Course or Basic Examination should be issued after completion of either basic training, basic examination or both basic training and basic examination.

Some examples of cases where a Certificate of Recognition should be issued are the following:

After successful completion of a full basic course in one MAML (sub) category including successful completion of the examinations of all the corresponding modules.

After successful completion of a full basic course in one MAML (sub) category without performing examinations. The examinations may be performed at a different EMAR 147 MTO (this MTO will issue the corresponding Certificate of Recognition for those examinations) or at the NMAA.

After successful completion of all module examinations corresponding to a MAML (sub) category.

After successful completion of certain modules/sub-modules/subjects.

It must be noted that “successful completion of a course” (without the module examinations) means successful completion of the theoretical and practical training including the corresponding practical assessment.

APPENDICES to AMC to EMAR 147

Appendix I - Maintenance Training Organisation Exposition (MTOE)

1. The following subject headings form the basis of the MTOE required by EMAR 147.A.140.
2. For standardisation purposes and to facilitate the production of the MTOE by the EMAR 147 Maintenance Training Organisation (MTO) NMAA recommends adoption of the following format for the MTOE. It is not mandatory to assemble the MTOE in this manner as long as a cross-reference index is included in the MTOE as an Appendix and the Part 1 items remain in Part 1. The MTO should customize the document to suit their organisation and may add pages/paragraphs as necessary. Moreover, NMAAs may consider that the MTOE be provided bilingual (national language and English) for international purposes.
3. Part 2, 3 and 4 material may be produced as separate detailed manuals subject to the main MTOE containing the Part 2, 3 and 4 fundamental principles and policy on each item. It is then permitted to delegate the approval of these separate manuals to the senior person but this fact and the procedure for doing so should be specified in paragraph 1.10.
4. Where an MTO is approved in accordance with any other EMARs which require an exposition, it is acceptable to combine the exposition requirements by merging the Part 1 items and adding the Parts 2, 3 and 4. When this method is used, it is essential to include the cross-reference index of Part 4 item 4.3.

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- 4.2 Syllabus and Training Needs Analysis (TNA) of each training course
- 4.3 Cross-reference index

Where a Part is not used it should be shown in the MTOE as Not Applicable.

PART 0 GENERAL ORGANISATION

0.1 List of effective pages

Example:

Page	Revision
1	Original
2	Original

Page	Revision
3	Original
4	Original

Page	Revision
5	Original
.....

0.2 List of issues / amendments / record of revisions

Example:

Issue number	Revision number	Date	Reason for change
1	0	19/12/06	n/a
2	0	01/01/12	Extension of the TB1.3 scope of approval
	1	01/01/14	New procedure for the records of students

0.3 Distribution list

The document should include a distribution list to ensure proper distribution of the MTOE and to demonstrate to the NMAA that all personnel involved in the maintenance training have access to the relevant information. This does not mean that all personnel have to be in receipt of a MTOE 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 MTOE.

Accordingly, the MTOE should be distributed to:

- the Operating Organisation's management personnel (if the MTO is part of an Operating Organisation),
- any relevant maintenance organisation (e.g. when MTO contract/task the practical type training,...) or MTO,
- the MTO's management personnel and any person at a lower level as necessary; and,
- the NMAA.

0.4 EMAR 147 requirements cross-reference list

The MTOE should contain a cross-reference list with an explanation as to where each EMAR 147 Section A requirement is addressed in the MTOE.

0.5 General information

This chapter should describe broadly how the whole organisation is organised under the management of the Accountable Manager.

PART 1 MANAGEMENT

1.1 Corporate commitment by the Accountable Manager

The Accountable Manager’s MTOE 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 MTOE defines the organisation and procedures upon which the EMAR 147 MTO approval is based.

It is accepted that these procedures do not override the necessity of complying with any new or amended regulation published by the NMAA* 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 MTO whilst the NMAA* is satisfied that the procedures and work standards are being followed. It is understood that the NMAA* reserves the right to suspend, vary or revoke the EMAR 147 MTO approval, as applicable, if the NMAA* has evidence that the procedures are not followed and the standards not upheld.

These procedures are approved by the undersigned and must be complied with, as applicable, whenever knowledge or practical training is being progressed under the terms of the EMAR 147 approval.

The undersigned fully accepts the duties and responsibilities of Accountable Manager as defined in paragraph 1.3.1 of this MTOE.

Signed

Dated

Accountable Manager and..... (quote position).....

For and on behalf of..... (quote MTO’s name).....

Note:

Where it states (NMAA*) please insert the actual name of the pMS’ NMAA, for example, MAA, DSAÉ, etc.

1.2 Management personnel

Accountable Manager -----(Insert Name)

Training Manager -----(Insert Name)

Quality Manager -----(Insert Name)

Examination Manager -----(Insert Name)

Other (as required) -----(Insert Name)

The Managers specified above are identified and their credentials apart from the Accountable Manager have been submitted on EMAR Form 4 to the NMAA.

Any changes to the above personnel shall be advised to the NMAA. Failure to do so may affect the status of the EMAR 147 approval.

1.3 Duties and responsibilities of management personnel, instructors, knowledge examiners and practical assessors

1.3.1 Accountable Manager

The Accountable Manager is responsible for:

- Ensuring that all instruction and examinations carried out by the MTO meet the standards required by the NMAA.
- Ensuring that the necessary finance, manpower resources and facilities are available to enable the MTO to perform the knowledge and/or practical instruction and examinations to which it is committed under the requirements of EMAR 147.
- Chairing the annual meeting of senior staff to review the overall performance of the MTO.
- Ensuring that during periods of absence, control will be maintained for administration purposes by (Insert name/position in MTO), who will accept full responsibility for all training issues and related decisions.
- The operation of (insert name of MTO) is efficiently managed and conforms to the requirements of EMAR 147 as stipulated by the NMAA.

Notes: (not for inclusion in the MTOE)

- Any additional duties and responsibilities within the MTO may be added or delegated provided they do not conflict with those above, which constitute the Accountable Manager's responsibilities under EMAR 147.
- The MTO should decide who will be responsible for liaison with the NMAA and show this in his/her terms of reference. If more than one person is nominated it must be clearly shown what each person is responsible for with, as a general rule, no overlapping of responsibility.

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1.3.2 Training Manager

The Training Manager will undertake:

- The responsibilities of the nominated person at (insert name of EMAR 147 MTO).
- The duties and responsibilities of the EMAR 147 approved examiner during the absence of any nominated approved examiner(s).

The Training Manager will ensure that:

- The Accountable Manager is kept informed as to the state of compliance of the MTO with EMAR 147.
- The operation of (insert name of MTO) is efficiently managed and conforms to the requirements of EMAR 147 as stipulated by the NMAA.
- Sufficient staff with appropriate qualifications are selected, trained and developed, to plan, perform, supervise, examine and assess students as required.
- All necessary Airworthiness data published by the NMAA and Aircraft manufacturers as appropriate, is made available.
- All changes to the MTOE and associated manuals are notified immediately to the NMAA.
- The MTOE and associated manuals are amended as required.
- Knowledge examiners, instructors and practical assessors are fully trained and assessed regularly for competence and that all records pertaining to these personnel are kept up to date.
- Contracted/tasked staff including any part time staff conform to the requirements of EMAR 147 and the training procedures.
- Office accommodation and facilities are available appropriate to the management of the planned training and for the use of training staff.
- Staff development and update training is undertaken and recorded.
- That all approved courses and examinations are delivered to the standard and content at the required level of knowledge, as specified in EMAR 147.
- A working environment is provided appropriate to the tasks being undertaken.
- There are sufficient storage facilities, tools, equipment, materials and publications available to perform the planned practical tasks.
- Secure facilities are available for the storage of examination papers prior to the examination and for the storage of completed students answer papers.

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- The interviewing of students prior to, during and on completion of the course is effective and without bias.
- Student and staff records are produced and stored in secure conditions.
- Any person to whom any of these responsibilities may be delegated is aware of current regulations.
- Corrective action is carried out for the findings of quality audits.
- The follow up and rectification of findings required to re-establish the required standards of training, examination or maintenance standards.
- That sufficient questions are available to produce the examination papers required to cover the syllabus in accordance with EMAR 66 Appendix II and III. If questions are utilised for progress tests they should not be used in the final examination.
- The security and validity of all examinations are in accordance with the requirements of EMAR 66 and EMAR 147.
- All examinations and assessment timetables are coordinated.
- Compliance with the examination question review procedures is as required by EMAR 66 and/or EMAR 147.

Notes:

This paragraph should emphasize that the nominated post holder for training is responsible to ensure that all training is carried out to an approved standard and describes the extent of his authority as regards his EMAR 147 responsibility.

These duties may be adjusted to suit the requirements of the EMAR 147 Approved MTO but should not detract from the particular requirements of EMAR 147 or EMAR 66.

1.3.3 Quality Manager

The Quality Manager has direct access to the Accountable Manager in the event of any reported discrepancy not being adequately attended to by the relevant person, or in respect of any disagreement over the nature of the discrepancy.

The Quality Manager is responsible for:

- Establishing an independent quality system to monitor compliance with EMAR 147 requirements.
- Assessing non-approved contracted/tasked MTOs working under the MTO quality system.
- Implementing a quality audit programme in which compliance with all training procedures is reviewed at regular intervals, and any observed non-compliances or poor standards are brought to the attention of the person concerned via his/her Manager.
- Proposing all corrective action necessary for eliminating non-compliance and ensuring that these corrective actions are initiated and when completed are efficient and meet their intended purpose.
- Requiring remedial action, as necessary, by the Training Manager or the Accountable Manager.
- The MTOE and associated manuals are amended as required.

Notes:

These duties may be adjusted to suit the requirements of the EMAR 147 approved MTO but should not detract from the particular requirements of EMAR 147 or EMAR 66.

It must be remembered that the quality audit system is required to be independent and where possible the Quality Manager and quality audit personnel should not be directly involved in the training process. Where for reasons of expediency it is necessary to utilize training staff, it would then become necessary for a second member of staff to be nominated to audit those functions performed by the Quality Manager.

Alternatively/additionally an external auditor acceptable to the NMAA may be contracted/tasked in order to ensure the required independence.

1.3.4 Examiner

The examiner is a nominated person who will determine the level of theoretical knowledge of the trainees on a particular module, element, or part thereof. The function may include the drafting and/ or the selection of questions (MCQs and Essays), the performance of the examination exercise itself for essay questions, the evaluation of the correctness of answers (except when correct answers are pre-determined) and the final judgment regarding the level of knowledge demonstrated by the trainee.

Note: Persons solely supervising an exam session consisting of pre-selected MCQ questions are not considered as examiners but are considered as support staffs (invigilators) and are therefore not subject to the knowledge and experience requirements but need to be trained to the examination procedure described in the MTOE.

The invigilation of examinations shall ensure that the conditions for examination comply with EMAR 66 Appendix II (for basic training) or Appendix III, paragraph 3 (for type training).

1.3.5 Instructor

The instructor is a nominated person who will carry out instructional duties for which he/she is qualified (type/basic training).

Additionally, the instructor can:

- Draft questions for examination banks for courses he/she is authorized;
- Undertake duties of invigilator where he/she is not involved in the instruction of that particular phase examination.

Note: The instructor is not necessarily the person involved into the drafting of the course material (content, duration etc...), however he must be involved at some point into the organization of the lessons themselves (creation of the instructor notes, slides, sequencing etc...).

1.3.6 Practical assessor

The practical assessor is a nominated person who will determine the level of practical knowledge/ practical skills of the trainees on a particular module, element, or part thereof. The function may include the drafting and/ or the selection of practical tasks and shall include the performance of the practical assessment itself, and the evaluation of the practical abilities on the tasks covered by the assessment.

1.4 Management personnel organisation chart

A flow chart should provide a comprehensive understanding of the whole MTO. It should give further details on the 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. This flow chart may be combined or subdivided as necessary, depending on the size and the complexity of the MTO.

Note: The MTOE must also define who deputises for any senior person in case of lengthy absence.

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1.5 List of Instructional and Examination staff

This paragraph should give broad figures to show that the number of people dedicated to the performance of the approved training activity is adequate. It is not necessary to give the detailed number of employees of the whole MTO but only the number of those involved in training.

This could be presented as follows:

Appointment	Name	Competencies
Training Manager		
Deputy Training Manager		enter here those areas each person is qualified to instruct using EMAR 66 module/sub-modules
Quality Manager		
Examiner		OR
Examiner/Instructor		
Instructor		type of aircraft and the specific areas he/she is qualified to instruct i.e. Airframe, Engine, Electrical Instrument, Auto flight, Radio or Radar.
Instructor		
Instructor		
Instructor/Invigilator		
Invigilator		
Practical assessor		

Notes:

According to the size and complexity of the MTO, this table may be further developed.

The EMAR 147 examiners are the only persons allowed to produce/select examination papers. They may nominate other persons to mark completed examinations. The examiners and these persons should be other than the knowledge instructors involved in the instruction of that particular module/sub-module.

1.6 List of approved addresses

This paragraph should list those address(es) at which instruction and/or practical training are to be carried out for the duration of the EMAR 147 course.

The names, address(es) and approval numbers of any proposed EMAR 145 AMO at which it is proposed to carry out student practical training in order to fulfil the requirements of EMAR 147 may be kept in another document or procedure and cross referenced here.

1.7 List of contracted/tasked organisations as per EMAR 147.A.145(d)

This paragraph should list those address(s) at which training beyond the capacity of the EMAR 147 MTO may be carried out.

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EMAR-66 Modules 1 to 6 inclusive and 8 to 10 inclusive may be contracted/tasked to organisations not specialised in aircraft maintenance and where the EMAR 147.A.200 practical training element does not apply.

1.8 General description of facilities at paragraph 1.6 addresses

Include here the facilities such as desks, chairs, lockers, overhead projectors, other teaching aids, etc for each of the offices, classrooms, practical training workshops and examination rooms provided.

1.9 Specific list of courses and aircraft type examinations approved by the NMAA.

This paragraph must contain a list of the EMAR 147 course(s) for which approval is held.

This should also include 'Differences' courses.

E.g. Airbus A319/320/321 (CFM 56) B1 - differences to A319/320/321 (V2500) B1.

1.10 Notification procedures regarding changes to the MTO

Include here any cross references to the intended procedures for continued validity of the approval in compliance with the requirements of EMAR 147.A.155.

The MTOs 'nominated person' is responsible for informing the NMAA of any proposed changes. (Ref Part 1-Management, paragraph 1.3.2 of the MTOE as an example)

1.11 MTOE and associated manuals amendment procedure

Detail here or cross refer to the procedures to be followed for the amendment of the MTOE and any associated procedures and or documents.

PART 2 TRAINING AND EXAMINATION PROCEDURES

2.1 Organisation of courses

In this paragraph the MTO should detail the procedures in place in order to organise the courses and to ensure that all necessary means are available to deliver in good conditions and by appropriately qualified staff all the course elements as required by the EMAR 66 syllabus. Such procedures may include a formalised review of the availability of required appropriate training rooms, materials, STDs, specialists... and resulting in training programme.

2.2 Preparation of course material

Training material should meet the requirements of EMAR 66. It should also state how the approved MTO produces a course for a new aircraft type (new approval scope). This would typically include the production of the Training Needs Analysis and eventually a training programme for the new aircraft that has to list what is being taught, to what level and for how long. Once completed, this should be sent to the NMAA for review and approval of the course. This list must be given a unique reference number and revision status. In order to get the course approved a set of multi-choice questions and a copy of the course notes used by the student must also be submitted.

The course notes must reflect the training programme and be given the same reference number and revision status. This may cross refer to a separate procedure in which details of how the standard course lecture notes are produced which would include content, indexing, chapter and page numbering, font, etc, in the 'House Style'.

This same procedure should also be utilized to list the responsibilities by EMAR 66 module/submodule for the production, review & amendment of lecture notes.

Include cross references to any procedures used for the inclusion of other course material, e.g. Aircraft Manuals, and/or Standard Text Books used for note preparation and available to students as reference material.

2.3 Preparation of classrooms and equipment

Cross reference to any procedures for the preparation of classrooms and reporting of faults to any classroom equipment, general maintenance procedures and the control of the teaching environment.

2.4 Preparation of workshop/maintenance facilities and equipment

Cross reference to any procedures for the reporting of faults to any workshop equipment, general maintenance procedures and the control of the teaching environment.

Cross reference to procedures for the ordering and storage of aircraft materials used in the production of practical tasks, and for the ordering and acquisition of any new equipment required to complete the tasks.

Cross reference to the procedures for ensuring that all test equipment and/or tooling requiring calibration are correctly forecast and expedited.

2.5 Conduct of theoretical training and practical training (during basic knowledge training and type/task training)

Describe the method utilized in teaching the Basic/Type knowledge and practical training courses for which the MTO is approved.

Cross refer to the low level document referred to in 2.1 above.

2.6 Records of training carried out

Cross refer to procedures for the production, maintenance and security of student files.

These should include details of all student attendance's, final knowledge examinations, practical assessments and any re-examination carried out and their results by EMAR 66 complete module/sub-module for basic training courses and for type training, information of those courses completed, their content and at which levels they were instructed and examined.

There should also be reference to the basic work experience' records required to be kept by the student whilst he is undergoing his live operating aircraft experience.

The use of an "Aircraft Maintenance Engineers Log Book" is a good example.

2.7 Storage of training Records

Cross refer to procedures for the storage of staff and student's records.

As a minimum, the procedures shall describe which are the documents that are recorded, the means that are used for recording and how long the records will be kept. These may be electronically based provided that adequate safeguards are in place to prevent unauthorised access and alteration.

2.8 Training at locations not listed in paragraph 1.6

Should the Management wish to contract/task part of the practical training, control procedures must be in place. These procedures should effectively reflect those of the NMAA in auditing the EMAR 147 MTO.

Any training carried out at address not listed at 1.6 above must be approved by the NMAA and control procedures must be in place to ensure that the proposed contracted/tasked organisation is in compliance with the requirements of EMAR 66 & EMAR 147.

A contract must be in place with the proposed organisation in which it is agreed that access is granted to the NMAA for the purpose of audit.

Note:

The "APPLICATION TO CONDUCT TRAINING/EXAMINATIONS* AT A LOCATION REMOTE FROM THE EMAR 147 APPROVED SITE" Form should be annexed to the MTOE.

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Ref:
**APPLICATION TO CONDUCT TRAINING/EXAMINATIONS* AT A LOCATION
 REMOTE FROM THE EMAR 147 APPROVED SITE**

Type of
 Training/Examinations:* _____

Date of
 Training/Examinations:* _____

Proposed Location: _____

Reason for Application: _____

I confirm that the essential requirements of EMAR 147.A.100 to EMAR 147.A.135 as appropriate, will be met.

Quality Representative:

Name: _____

Signature: _____

Date: _____

Ref: EMAR 147.A.100 to
 EMAR 147.A.135

* DELETE AS REQUIRED

For NMAA Use:

Application approved:

Application not approved:

Reason:

NMAA Representative:

Name: _____

Signature: _____

Date: _____

2.9 Organisation of examinations

For Military Aircraft Maintenance Licence (MAML) course a high-level document detailing the course examinations, when each EMAR 66 module/sub-module is to be examined and to what EMAR 66 level. This should include the knowledge, practical training elements and how the number of hours of each comply with the percentage requirements of AMC EMAR 147A.200.

For aircraft type training, the course syllabus should be used to prepare an examination schedule. The examination schedule should detail the examinations to be set at the end of each major phase within the syllabus. A final examination should be conducted at the end of the type training course. The final examination should be recorded. Refer to EMAR 66 Appendix III, paragraphs 4.1.

2.10 Security and preparation of examination material

For MAML courses detail the preparation and security of Examination papers. Number of Questions and Timing must be in accordance with EMAR 66 Appendix II.

Cross reference to procedures for the production of examination questions, their validation and security of the data bank.

For type training it is sufficient to detail the preparation and security procedures in place for the production and storage of examination papers.

2.11 Preparation of examination rooms

Cross refer to procedure to be followed by the examiner and Invigilator in preparing the examination room for examinations.

An invigilator's ready reference sheet for briefing the candidates prior to the examination should be available in procedures and cross referenced here.

2.12 Conduct of examinations (basic knowledge examinations, type/task training examinations)

A procedure should be in place to define how the MTO manage the conduction of examinations in respect of the EMAR 147.A.135. The procedure should define responsibilities for the conduct and monitoring of the examination, and the instruction for the performance of the examination such as:

- information about the examination type (number of questions, type of questions, topics, maximum duration, ...)
- information about the conduct of the examination (format of the responses, distribution and collating of copies, login if electronic systems,...)
- information about rules to be respected (communication, utilization of documents/means/personal objects,...) and measures to be taken in case of someone found cheating.

The minimum conditions to be authorized to monitor an examination should also be described.

It is recommended that examination papers of candidates should be identified through an anonymous system (e.g. numbering system,...) to be described in the MTOE.

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A procedure should be in place for checking that all the pages of each examination paper are complete at examination completion and that all examination papers are accounted for.

Both the written element and the multi-choice question elements should be marked to 75% with no penalty marking. Ref EMAR 66 Appendix II.

Nothing other than the actual examination/answer paper is permitted to be on the candidate's desk.

All wall charts and/or other visual teaching aids should be removed from the examination room.

2.13 Conduct of practical assessments (during basic knowledge training and type/task training)

Cross refer to procedures used for assessment of student hand skills, and the standard tasks set throughout the course. A set number of mandatory tasks should be assessed to have been completed to a satisfactory standard.

2.14 Marking and record of examinations

A procedure should define how and by whom an examination is corrected, how and by whom is the examination result validated, how the examination result is transmitted to the student and under which format the examination is recorded.

Cross refer to procedures for the marking of completed examination papers and the recording of results.

Cross refer to a procedure for practical assessments and recording of results.

2.15 Storage of examination records

A procedure should define as a minimum which are the documents that are recorded, the means / systems / storage locations that are used to ensure a retention period of 20 years.

Electronic means of storage may be utilized as required, provided the appropriate computer security systems are in place.

2.16 Examinations at locations not listed in paragraph 1.6

Cross refer to the control procedure in common with part 2.8 above. This location must comply with the requirements of 2.10, 2.11, 2.12, 2.13, 2.14 and 2.15 above.

Consideration is needed for the security/control of examinations and their completed examination papers and/or practical assessment results.

2.17 Preparation, control and issue of Basic/Type training course certificates

The procedure for issuing training certificates should define the responsibility for verifying the data, the procedures for issuing and archiving the certificates and the authorised signatories.

The certificates should be prepared to reflect that illustrated in EMAR 147 Appendix III and tightly controlled prior to issue, with a system in place to ensure that each copy is numbered as part of a sequence and recorded as issued to a candidate by name.

2.18 Control of contracted/tasked organisations

When contracted/tasked organisations are defined in §1.7, it is necessary to define how and how often these contracted/tasked organisations are controlled in terms of training and examination/evaluation and means in place.

Cross refer to procedures for the control of contracted/tasked organisations as appropriate.

PART 3 TRAINING SYSTEM QUALITY PROCEDURES

3.1 Audit of training

The approved MTO should develop a form/audit checklist to be used by the auditor that would demonstrate that all the requirements of EMAR 147 have been reviewed during the audit process. The audit plan should indicate applicability of the various activities to be monitored and more than one list may be necessary (rolling audit). Each list should be shown against a timetable to indicate when the particular item is scheduled for audit and when the audit was completed. A complete audit of the EMAR 147 MTO must be completed every 12 months.

For courses and depending on the approval scope (Basic and/or Type) at least one basic and/or type, theoretical and practical course should be audited each year.

Cross refer to the various procedures required for quality auditing, reporting findings and levels with any corrective actions required.

A management control and follow up system must also be in place and may not be contracted out.

Cross reference to any quality procedures manual if available is permitted, but this system must relate to and make reference to the relevant EMAR 147 requirements.

3.2 Audit of examinations

Must be audited annually but may be part of the rolling audit procedure.

3.3 Analysis of examination results

Examination results should be analyzed on completion of each examination and any questions amended as necessary. Cross refer to procedures detailing responsibilities.

3.4 Audit and analysis remedial action

Cross refer to procedures for the reporting of findings and for corrective actions.

3.5 Accountable Manager annual review

At least once a year a review of the activities must be made by the Accountable Manager.

Points discussed on a set date should include:

- Projects requiring financial support.
- Sufficient staff employed to meet foreseen training program.
- EMAR 147 MTO review.
- Examinations and assessments.
- Student achievements.
- Student support.
- Quality Assurance review.
- Continuous improvement opportunities.

3.6 Qualifying the instructors

List of acceptable staff qualifications:

Include procedures for the induction of inexperienced instructors as required.

Where relevant include procedures for the employment of part time or contract instructors.

All staff should have an appreciation of the contents of EMAR 66 and EMAR 147.

Cross refer to the list of present staff/qualification.

Note: staff employed prior to EMAR 147 application who's qualifications were previously acceptable, will continue to be accepted.

Cross refer to procedures for staff development.

3.7 Qualifying the examiners and the practical assessors

Examiners should have a full understanding of all the requirements of EMAR 66 and EMAR 147.

Cross refer to procedures for staff development.

Cross refer to the list of staff/qualifications.

Practical work assessors should be assessed as being competent in accordance with an approved process.

3.8 Records of qualified instructors, examiners and practical assessors

The MTO must maintain a record of all training staff which must include details of the scope of their authorisation.

Training staff must be provided with evidence of the scope of their authorisation.

The following minimum information should be kept on record in respect of each instructor, examiner and practical assessor:

- Name
- Date of Birth
- Personnel Number
- Experience
- Qualifications relevant to the approval scope
- Training History (before entry)
- Training (basic training, type training, continuation training)
- Scope of activity
- Date of first issue of the authorisation

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- If appropriate – expiry date of the authorisation
- Starting date of employment

The records may be kept in any format (hard copy or computer based) subject to the appropriate security requirements.

Persons authorised to access the system should be maintained at a minimum to ensure that records cannot be altered in an unauthorised manner or that such confidential records become accessible to unauthorised persons.

The training staff should be given reasonable access on request to his/her own records.

The authorisation document should be in a style that makes its scope clear to training staff and any authorised person that may be required to review the document. Where codes are used to define scope, an interpretation document should be readily available.

Training staff are not required to carry the authorisation document at all times but should produce it within a reasonable time of a request from an authorised person. Authorised persons, apart from the MTO's quality department must include NMAA.

Any member of the NMAA is classed as an authorised person when investigating the records system for initial and continued approval or when the NMAA has cause to doubt the competence of a particular training staff.

PART 4 APPENDICES

4.1 Examples of documents and forms used

This section should include examples of all documents and forms used by the MTO in the conduct of its EMAR 147 function.

Some examples are listed below:

- Student attendance record
- Course certificate(s)
- Certificate(s) of training
- Classroom plan (exam purposes)
- Course critique
- Course results
- Course design/change plan
- Exam answer sheet
- Exam results
- Internal audit procedure
- Internal audit schedule
- Internal audit report
- Application to conduct courses/examinations at a remote location
- Interview report form
- MTOE amendment request
- MTOE amendment request log
- Staff training record (to include qualifications, history and subjects taught)
- Staff terms of reference
- Student training/examination and assessment form
- Training course review
- Quality system
- Aircraft visit form

4.2 Syllabus and Training Needs Analysis (TNA) of each training course

This section should contain the syllabus for each NMAA approved course and should also contain the associated Training Needs and Analysis.

4.3 Cross-reference Index

If applicable - self-explanatory.

Appendix II – EMAR Form 4

EMAR Form 4 is contained in the EMAR Forms document.

Appendix III - EMAR Form 22

EMAR Form 22 is contained in the EMAR Forms document.

Appendix IV - EMAR Form 12

EMAR Form 12 is contained in the EMAR Forms document

GUIDANCE MATERIAL

SECTION A

TECHNICAL REQUIREMENTS

GM 147.A.10 General

Such an MTO may conduct its activity from more than one address.

GM 147.A.100(i) Facility requirements

Where the organisation has an existing library of regulations, manuals and documentation required by another EMAR, it is not necessary to duplicate such a facility subject to student access being under controlled supervision.

GM 147.A.105(f) Personnel requirements

It is recommended that potential instructors be trained in instructional techniques.

GM 147.A.105 (g) Personnel requirements

Moved to AMC 147.A.105(f).

GM 147.A.105(h) Personnel requirements

1. Moved to AMC 147.A.105(h)2.
2. The updating training may be subdivided during the 24 months into more than one element and may include such activities as attendance at relevant lectures and symposiums.

GM 147.A.110 Records of instructors, examiners and assessors

Instructors, knowledge examiners and practical assessors should be provided with a copy of their terms of reference.

GM 147.A.115(a) Instructional equipment

1. Synthetic training devices are working models of a particular system or component and include computer simulations.
2. NOT APPLICABLE.

GM 147.A.130(b) Training procedures and quality system

1. The primary objective of the quality system is to enable the MTO to satisfy itself that it can deliver properly trained students and that the MTO remains in compliance with EMAR 147.

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2. The independent audit is a process of routine sample checks of all aspects of the MTO's ability to carry out all training and examinations to the required standards. It represents an overview of the complete training system and does not replace the need for instructors to ensure that they carry out training to the required standard.

3. A report should be raised each time an audit is carried out describing what was checked and any resulting findings. The report should be sent to the affected department(s) for rectification action giving target rectification dates. Possible rectification dates may be discussed with the affected department(s) before the quality department confirms such dates on the report. The affected department(s) should rectify any findings and inform the quality department of such rectification.

4. A large MTO (an organisation with the capacity to provide training for 50 students or more) should have a dedicated quality audit group whose sole function is to conduct audits, raise finding reports and follow-up to ensure that findings are being rectified. For the small MTO (an organisation with the capacity to provide training for less than 50 students) it is acceptable to use competent personnel from one section/department not responsible for the function or procedure to check the section/department that is responsible, subject to the overall planning and implementation being under the control of the quality manager.

5. The management control and follow-up system should not be contracted to outside persons. The principal function is to ensure that all findings resulting from the independent audit are corrected in a timely manner and to enable the Accountable Manager to remain properly informed of the state of compliance. Apart from rectification of findings, the Accountable Manager should hold routine meetings to check progress on rectification, except that in the large MTO such meetings may be delegated on a day-to-day basis to the quality manager as long as the Accountable Manager meets at least once per year with the senior staff involved to review the overall performance.

GM 147.A.135(c) Examinations

The NMAA will determine when or if the disqualified examiner may be reinstated.

GM 147.A.140(c) Maintenance Training Organisation Exposition (MTOE)

The quality manager should be responsible for monitoring the amendment of the MTOE, unless otherwise agreed by the NMAA, including associated procedures manuals and submission of the proposed amendments to the NMAA. However, the NMAA may agree via a procedure stated in the amendment section of the MTOE that some defined class of amendments may be incorporated without prior approval by the NMAA.

GM 147.A.145(d) Privileges of the Maintenance Training Organisation

1. Moved to AMC 147.A.130(b) paragraph 4(i).

2. The fundamental reason for allowing an MTO approved under EMAR 147 to subcontract certain basic theoretical training courses is to permit the approval of MTOs which may not have the capacity to conduct training courses on all EMAR 66 modules.

3. The reason for allowing the subcontracting of only training modules 1 to 6 and 8 to 10 of Appendix I to EMAR 66 is that most of the related subjects can generally also be taught by training organisations not specialised in aircraft maintenance and the practical training element as

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specified in EMAR 147.A.200 does not apply to them. However, training modules 7, 11 to 17 and 50 to 55 of Appendix I to EMAR 66 are specific to aircraft maintenance and include the practical training element as specified in EMAR 147.A.200. The intent of the “limited subcontracting” option as specified in EMAR 147.A.145 is to grant EMAR 147 approvals only to those organisations having themselves at least the capacity to teach on-aircraft maintenance specific matters.

GM 147.A.145(d)3 Privileges of the Maintenance Training Organisation

In the case of Military Aircraft Type Training and examination, the reason for restricting subcontracting to powerplant, avionic systems, armaments, escape systems and other relevant military-specific systems is that the related subjects can generally also be imparted by certain organisations specialised in these domains such as the (Military) Type Certificate Holder of the powerplant or the OEMs of these avionic systems, armaments, escape systems and other relevant military-specific systems. In such a case, the Military Aircraft Type Training course should make clear how the interfaces with the aircraft are addressed and by whom (the subcontracted organisation or the EMAR 147 MTO itself).

SECTION B

PROCEDURES FOR NATIONAL MILITARY AIRWORTHINESS AUTHORITIES

GM 147.B.110 Procedure for approval and changes to the approval

1. NOT APPLICABLE.
2. The NMAA should determine how and by whom the audit should be conducted. For example, if the applicant is a large MTO, 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 is most appropriate for the particular situation. A further consideration in the case of a combined EMAR 145/EMAR 147 organisation is the possibility to combine the audits.
3. Where it is intended that the MTO may conduct training and examinations away from the MTO address(es) in accordance with EMAR 147.A.145(c), then a sample audit of the process should be carried out by the NMAA from time to time to ensure that procedures are followed. For practical reasons such sample audits will need to be carried out when the training is actually being conducted away from the MTO address(es).
4. The auditing surveyor should ensure that they are always accompanied throughout the audit by a senior member of the MTO making application for an EMAR 147 approval. Normally this should be the proposed quality manager. The reason for being accompanied is to ensure that the MTO is fully aware of any findings during the audit. In any case, the proposed quality manager/senior member of the MTO should be debriefed at the end of the audit visit on the findings made during the audit.
5. There may be occasions when the auditing surveyor may find situations in the applicant's organisation on which he/she 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. The organisation should be informed of the decision within 2 weeks of the audit visit in writing if the decision is a confirmation of non-compliance. If the decision is a finding of being in compliance, a verbal confirmation to the organisation will suffice.
6. A change of name of the MTO requires the MTO to submit a new application as a matter of urgency stating that only the name of the MTO has changed including a copy of the MTOE with the new name. Upon receipt of the application and the MTOE, the NMAA should reissue the approval certificate.
7. A name change alone does not require the NMAA to audit the MTO, unless there is evidence that other aspects of the MTO have changed.
8. A change of Accountable Manager requires the MTO to submit such fact to the NMAA as a matter of urgency together with the amendment to the Accountable Manager exposition statement.
9. A change of any of the senior personnel specified in EMAR 147.A.105(b) requires the MTO to submit to the NMAA an EMAR Form 4 in respect of the particular person. If satisfied that the

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qualifications and experience meet the standard required by EMAR147, the NMAA should indicate acceptance in writing to the MTO.

10. A change in the MTOE requires the NMAA to establish that the procedures specified in the MTOE are in compliance with EMAR 147 and then to establish if these are the same procedures intended for use within the training facility.

11. Any change of location of the MTO requires the MTO to make a new application to the NMAA together with the submission of an amended MTOE. The NMAA should follow the procedure specified in EMAR 147.B.110(a) and (b) in so far as the change affects such procedure before issuing a new EMAR147 approval certificate.

12. The complete or partial reorganisation of an MTO should require the re-audit of those elements that have changed.

13. Any additional basic or Military Aircraft Type Training courses require the MTO to make a new application to the NMAA together with the submission of an amended MTOE. For basic training extensions, an additional sample of new examination questions relevant to the modules associated with the extension being sought will be required to be submitted. The NMAA should follow the procedure of paragraph 11 (above) in so far as the change affects such procedures unless the NMAA is satisfied that the MTO has a well-controlled procedure to qualify such change when it is not necessary to conduct the audit elements of the paragraph 11 procedure.

EMAR 147 AMC & GM Ed 1.1 vs EMAR 147 AMC & GM Ed 1.2 TABLE OF CHANGES

In accordance with the direction received from the MAWA Forum, all amended paragraphs from EMAR 147 AMC & GM Edition 1.1 are indicated by the use of a 'sidebar' in the margin. This can be readily cross-referenced using this table which details each change.

Nomenclature Used:

Additions to the text introduced in Edition 1.2 are tabulated below in red. Deletions of text from Edition 1.1 are indicated by the use of ►◄. In both cases, the reason for the difference is clarified in the 'notes' column'.

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Paragraph	Sub-Para	EMAR 147 AMC & GM Ed 1.1 wording	EMAR 147 AMC & GM Ed 1.2 revised wording	Notes
Header		None	EMAR 147 AMC & GM – AIRCRAFT MAINTENANCE TRAINING ORGANISATIONS	Missing “header” was added to align with the other EMAR and AMC & GM.

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Paragraph	Sub-Para	EMAR 147 AMC & GM Ed 1.1 wording	EMAR 147 AMC & GM Ed 1.2 revised wording	Notes
		<p><u>STATUS</u> The Status of the document can take 3 values: Working Draft: First version provided during the elaboration of the document by Task Force. Draft: Draft version when issued by Task Force and proposed to MAWA Forum. Approved: The document is approved by the participating Member States at the MAWA Forum for release.</p> <p><u>EDITION</u> 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</p> <p><u>NOTE</u> None</p> <p>This EMAR AMC/GM relies on definitions laid down in EMAD 1</p>	<p><u>DOCUMENT STATUS</u> The Status of the document can take 3 values: Working Draft: ► Working copy to develop the proposed version or revision of the document. ◀ Draft: ► Version to be proposed to the MAWA Forum by the Advisory Group. ◀ Approved: ► Final version approved by the participating Member States for publication. ◀</p> <p><u>EDITION</u> The Edition value of document will have the following template: Edition X.YY The value of X will change after a major ► revision ◀ of the document The value of Y will change after a minor ► revision ◀ of the document</p> <p><u>NOTE</u> 1. Where the content of any of the paragraphs from the previous document has been amended, this is indicated by the use of a 'sidebar' in the margin. This can be readily cross-referenced using the table at the end of the document which details each change. 2. 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.</p>	<p>The wording of the “DOCUMENT STATUS” was aligned with the new one contained in the MAWA Activity Identification & Management process (MAWA AIM) Edition 1.0 from 25 Sep 2018.</p> <p>The “NOTE” section was completed to align with the EMAR 145 AMC & GM one:</p> <ul style="list-style-type: none"> - Mention about the use of “sidebar” in the margin; - Inclusion of information about the “table of changes” to track and justify the modifications performed (the “Table of changes” was also added as there was none in the EMAR 147 AMC & GM Ed. 1.1); - Introduction of the EMAR Forms document.

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Paragraph	Sub-Para	EMAR 147 AMC & GM Ed 1.1 wording	EMAR 147 AMC & GM Ed 1.2 revised wording	Notes
Appendix I - Maintenance Training Organisation Exposition (MTOE)	2	Whilst this format is recommended, it is not mandatory to assemble the MTOE in this manner as long as a cross-reference index is included in the MTOE as an Appendix and the Part 1 items remain in Part 1.	► For standardisation purposes and to facilitate the production of the MTOE by the EMAR 147 Maintenance Training Organisation (MTO) NMAA recommends adoption of the following format for the MTOE. ◀ It is not mandatory to assemble the MTOE in this manner as long as a cross-reference index is included in the MTOE as an Appendix and the Part 1 items remain in Part 1. The MTO should customize the document to suit their organisation and may add pages/paragraphs as necessary. Moreover, NMAAs may consider that the MTOE be provided bilingual (national language and English) for international purposes.	Precisions added as they were considered clearer and more complete than the previous text.
	3	Part 2, 3 and 4 material may be produced as separate detailed manuals subject to the main exposition containing the Part 2, 3 and 4 fundamental principles and policy on each item. It is then permitted to delegate the approval of these separate manuals to the senior person but this fact and the procedure for doing so should be specified in paragraph 1.10.	Part 2, 3 and 4 material may be produced as separate detailed manuals subject to the main ►MTOE◀ containing the Part 2, 3 and 4 fundamental principles and policy on each item. It is then permitted to delegate the approval of these separate manuals to the senior person but this fact and the procedure for doing so should be specified in paragraph 1.10.	“Exposition” wording was replaced by “MTOE” in the whole Appendix I - Maintenance Training Organisation Exposition (MTOE).
	Table of content	None	TABLE OF CONTENT	Added to align with the table of content of the MOE (EMAR 145 AMC & GM refers).
	Table of content	None	PART 0 – GENERAL ORGANISATION 0.1 List of effective pages 0.2 List of issues/amendments/record of revisions 0.3 Distribution list 0.4 EMAR 147 requirements cross-reference list 0.5 General information	New “PART 0 – General Organisation” was added to align with the table of content of the MOE (EMAR 145 AMC & GM refers).

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Paragraph	Sub-Para	EMAR 147 AMC & GM Ed 1.1 wording	EMAR 147 AMC & GM Ed 1.2 revised wording	Notes
	Table of content	<p>PART 1 – MANAGEMENT</p> <p>1.1. Corporate commitment by Accountable Manager</p> <p>1.5. List of instructional and examination staff Note: A separate document may be referenced</p> <p>1.7. List of subcontractors as per EMAR 147.A.145(d)</p> <p>1.9. Specific list of courses and type examinations approved by the NMAA</p> <p>1.10. Notification procedures regarding changes to MTO</p>	<p>PART 1 – MANAGEMENT</p> <p>1.1 Corporate commitment by the Accountable Manager</p> <p>1.3.1 Accountable Manager</p> <p>1.3.2 Training Manager</p> <p>1.3.3 Quality Manager</p> <p>1.3.4 Examiner</p> <p>1.3.5 Instructor</p> <p>1.3.6 Practical Assessor</p> <p>1.5 List of instructional and examination Staff</p> <p>▶◀</p> <p>1.7 List of ▶ contracted/tasked organisations ◀ as per EMAR 147.A.145 (d)</p> <p>1.9 Specific list of courses and aircraft type examinations approved by the NMAA</p> <p>1.10 Notification procedures regarding changes to the MTO</p>	<p>As § 1.3.1 to 1.3.36 were developed in the MTOE, they are reflected in the table of content</p> <p>Ongoing process to replace “subcontractor” wording by “contracted/tasked organisations” in all EMARS / AMC & GM.</p> <p>“Aircraft” was added in front of “type examinations” to keep consistency with EMAR 147.A.305 “Aircraft Type Examinations” wording and with MTOE § 2.12 title where “type examination” wording was deleted (not applicable in EMAR 66 Appendix III § 5).</p>

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Paragraph	Sub-Para	EMAR 147 AMC & GM Ed 1.1 wording	EMAR 147 AMC & GM Ed 1.2 revised wording	Notes
	Table of content	PART 2 – TRAINING AND EXAMINATION PROCEDURES 2.12. Conduct of examinations (basic knowledge examinations, type/task training examinations and type examinations) 2.17. Preparation, control & issue of basic training course certificates 2.18. Control of subcontractors	PART 2 – TRAINING AND EXAMINATION PROCEDURES 2.12 Conduct of examinations (basic knowledge examinations, type/task training examinations ►◄) 2.17 Preparation, control ►and◄ issue of basic/type training course certificates 2.18 Control of ►contracted / tasked organisations◄	2.12: “type examinations” was deleted because is not applicable in EMAR 66 Appendix III § 5 (EMAR 66 was developed for large aircraft that requires type training examinations. 2.17: course certificates concern also type training. 2.18: Ongoing process to replace “subcontractor” wording by “contracted/tasked organisations” in all EMARS / AMC & GM.
	Table of content	PART 3 – TRAINING SYSTEM QUALITY PROCEDURES 3.7. Qualifying the examiners and the assessors 3.8. Records of qualified instructors & examiners	PART 3 – TRAINING SYSTEM QUALITY PROCEDURES 3.7 Qualifying the examiners and the practical assessors 3.8 Records of qualified instructors, ►◄ examiners and practical assessors	Addition of “practical” before “assessors” to harmonize the wording used throughout the EMAR 147 AMC & GM and EMAR 147 for global consistency.
	Table of content	PART 4 – APPENDICES 4.2. Syllabus of each training course 4.3 Cross-reference index – if applicable	PART 4 – APPENDICES 4.2 Syllabus and Training Needs Analysis (TNA) of each training course 4.3 Cross-reference index ►◄	Added to precise that each approved course shall be subject to a TNA in accordance with EMAR 66 Appendix III § 3.1 (d). “if applicable” removed from the title and reassigned in the § 4.3.
	Table of content	None	Where a Part is not used it should be shown in the MTOE as Not Applicable.	Precision added to illustrate that all the expected Parts of the MTOE should be addressed.

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Paragraph	Sub-Para	EMAR 147 AMC & GM Ed 1.1 wording	EMAR 147 AMC & GM Ed 1.2 revised wording	Notes
	All (from § 0.1 to § 4.3)	None	See detailed wording in pages 21 to 43 (Appendix I - Maintenance Training Organisation Exposition (MTOE))	The whole appendix I to AMC to EMAR 147 (detailed content of the MTOE) was developed on the basis of the EASA guide UG.CAO.00014-002 “Foreign Part 147 approvals – User guide for Maintenance Training Organisation Exposition” dated January 2012.