# BELGIAN MILITARY AIRWORTHINESS REQUIREMENT

# BMAR 145

REQUIREMENTS
FOR
MAINTENANCE ORGANISATIONS

Belgian Military Airworthiness Authority

CONTINUING AIRWORTHINESS BRANCH

| | **Name** | **Signature & Validation date** |
|---|---|---|
| Prepared by | Senior Captain PAEME Laurent | 03/10/2022<br>X  <br>Senior Captain PAEME Laurent, Ir<br>Head of BMAA Continuing AW Branch<br>Signed by: Laurent Paeme (Signature) |
| Reviewed by | Major DALKOWSKI Jeroen | 4/10/2022<br>X  <br>Major DALKOWSKI Jeroen<br>Head of BMAA<br>Signed by: Jeroen Dalkowski (Authentication) |
| Endorsed by | Major General Thierry DUPONT, MSc Eng | 16-01-23<br>X ACC<br>Major General Thierry DUPONT, MSc Eng<br>Executive Director BMAA<br>Signed by: Thierry Dupont (Authentication) |
| Approved by | Mrs Ludivine DEDONDER, Minister of Defence | Refer to Ministerial Decree<br><br>Published in Belgian Official Journal, |

# VERSION CONTROL

| Version reference | Comment | Date of approval |
|---|---|---|
| Ed 1.1 | Consolidated Version based on EMAR 145 Ed 1.1 and on the EMAR 145 AMC/GM Ed 1.1 | 18 May 2016 |
| **Ed 1.2** | Consolidated Version based on EMAR 145 Ed 1.2 and on the EMAR 145 AMC/GM Ed 1.2 + 1.3 (draft version)<br>Major changes to Ed 1.1 are indicated with a side bar.<br>Differences with EMAR 1.2 and related AMC/GM are highlighted in purple. | 30 Sep 2018 |
| **Ed 1.3** | Consolidated Version based on EMAR 145 Ed 1.2 and on the EMAR 145 AMC/GM Ed 1.3<br>Changes to Ed 1.2 are indicated with a side bar, including corrections.<br>Differences with EMAR 1.2 and related AMC/GM are highlighted in purple.<br>Introduction of BMAR 145 as annex to the Ministerial Decree | See front page (2022) |

# PREAMBLE

On 10th November 2008, the twenty six participating Member States of the European Defence Agency (EDA) agreed to the formation of a Military Airworthiness Authorities (MAWA) Forum under the auspices of the EDA. The main activity of the MAWA Forum is to develop a set of harmonised requirements for the airworthiness of aircraft involved in military activities or services in Europe – European Military Airworthiness Requirements (EMARs) – and to ease harmonisation of such requirements throughout pMS. The starting point of the EMARs development was agreed to be the EC regulations put in place for civil aviation[1].

The ambition of Belgian Defence is to be as far as practicable compliant with EMARs and to implement these into its own national regulation through the Belgian Military Airworthiness Requirements (BMARs).

The current BMAR 145 edition is based on the EMAR 145 Section A & B Edition 1.2 together with its associated Acceptable Means of Compliance (AMC) and Guidance Material (GM)[2] – including a draft version of AMC Ed 1.3 concerning a MOE handbook –. These documents were approved by the MAWA Forum on October, 4th, 2016 and are based on the specific EC regulation and its AMC & GM laying down implementing rules for the continuing airworthiness of aircraft.

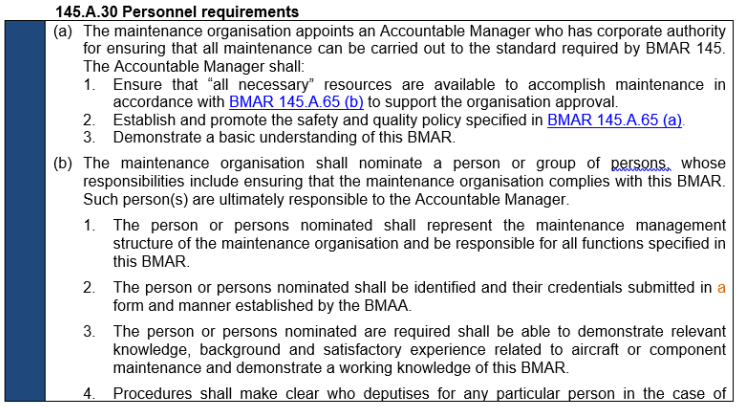
REMARKS:

1. The paragraph numbers used throughout this document correspond with the paragraph number of the originating document.
2. The BMAR 145 Requirements, AMC and GM were merged into a single document that presents the information in a clear and readable format. Feedback is invited to BMAA Maintenance and Operator Branch (POC: COA A4.3/AW office) on any perceived errors or comments relating to this document.
3. Differences with EMAR M are highlighted in purple and are also logged in a separate document (conversion log).

[1] Regulation (EC) n°216/2008 of the European Parliament and of the Council of 20 Feb 2008.
[2] The officially published documents, used to amalgamate all the elements into this consolidated version, may be found on the EDA website at www.eda.europa.eu.

4. Feedback is invited to BMAA Continuing Airworthiness Branch (COMOPSAIR-BMAA-MAINT-DL@mil.be)

# KEY TO USE OF DOCUMENT



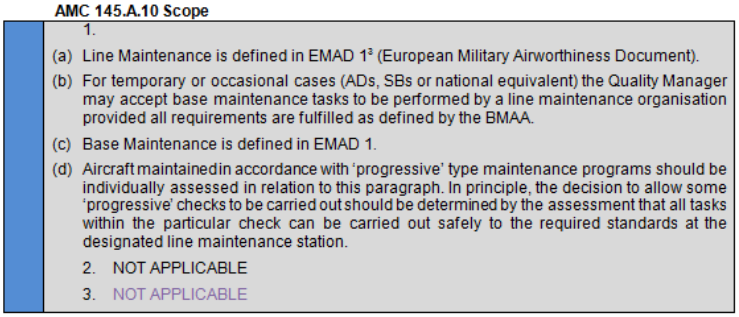
**145.A.30 Personnel requirements**

(a) The maintenance organisation appoints an Accountable Manager who has corporate authority for ensuring that all maintenance can be carried out to the standard required by BMAR 145. The Accountable Manager shall:
1. Ensure that "all necessary" resources are available to accomplish maintenance in accordance with BMAR 145.A.65 (b) to support the organisation approval.
2. Establish and promote the safety and quality policy specified in BMAR 145.A.65 (a).
3. Demonstrate a basic understanding of this BMAR.

(b) The maintenance organisation shall nominate a person or group of persons, whose responsibilities include ensuring that the maintenance organisation complies with this BMAR. Such person(s) are ultimately responsible to the Accountable Manager.

1. The person or persons nominated shall represent the maintenance management structure of the maintenance organisation and be responsible for all functions specified in this BMAR.
2. The person or persons nominated shall be identified and their credentials submitted in a form and manner established by the BMAA.
3. The person or persons nominated are required shall be able to demonstrate relevant knowledge, background and satisfactory experience related to aircraft or component maintenance and demonstrate a working knowledge of this BMAR.
4. Procedures shall make clear who deputises for any particular person in the case of

**Requirements** – including the Requirement number, are contained within boxes with a dark blue field on the left-hand edge.



**AMC 145.A.10 Scope**

1.

(a) Line Maintenance is defined in EMAD 1[3] (European Military Airworthiness Document).

(b) For temporary or occasional cases (ADs, SBs or national equivalent) the Quality Manager may accept base maintenance tasks to be performed by a line maintenance organisation provided all requirements are fulfilled as defined by the BMAA.

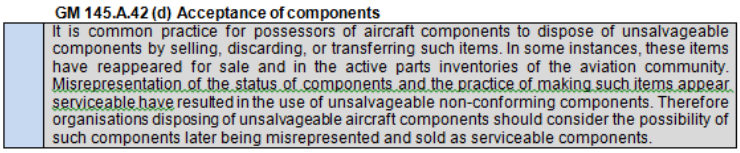
(c) Base Maintenance is defined in EMAD 1.

(d) Aircraft maintained in accordance with 'progressive' type maintenance programs should be individually assessed in relation to this paragraph. In principle, the decision to allow some 'progressive' checks to be carried out should be determined by the assessment that all tasks within the particular check can be carried out safely to the required standards at the designated line maintenance station.

2. NOT APPLICABLE

3. NOT APPLICABLE

**Acceptable Means of Compliance (AMC)** – including the AMC number, are contained within grey shaded boxes with a middle-blue field on the left-hand edge. AMC are located directly after the Requirements to which they refer for ease of use. AMC are means that organisations and personnel may use to demonstrate compliance with the provisions of this BMAR.



**GM 145.A.42 (d) Acceptance of components**

It is common practice for possessors of aircraft components to dispose of unsalvageable components by selling, discarding, or transferring such items. In some instances, these items have reappeared for sale and in the active parts inventories of the aviation community. Misrepresentation of the status of components and the practice of making such items appear serviceable have resulted in the use of unsalvageable non-conforming components. Therefore organisations disposing of unsalvageable aircraft components should consider the possibility of such components later being misrepresented and sold as serviceable components.

**Guidance Material (GM)** – including the Guidance Material number, are contained within grey shaded boxes with a light-blue field on the left-hand edge. GM are located directly after the Requirements (and if applicable, directly after the AMC) to which they refer for ease of use. GM explain the intent of the requirement.

# LIST OF NOT REFERENCED ABBREVIATIONS

| | |
|---|---|
| AD | Airworthiness Directive |
| AMC | Acceptable Means of Compliance |
| AMP | Aircraft Maintenance Program |
| AMO | Approved Maintenance Organisation |
| BMAA | Belgian Military Airworthiness Authority |
| BMAR | Belgian Military Airworthiness Requirement |
| CAMO | Continuing Airworthiness Management Organisation |
| CDCCL | Critical Design Configuration Control Limitations |
| CRS | Certificate of Release to Service |
| EASA | European Aviation Safety Agency |
| EDA | European Defence Agency |
| EMAD | European Military Airworthiness Document |
| EMAR | European Military Airworthiness Requirements |
| ET | Eddy current Testing |
| EWIS | Electrical Wiring Interconnect System |
| FAA | Federal Aviation Administration |
| FLIR | Forward Looking Infrared |
| FTS | Fuel Tank Safety |
| GM | Guidance Material |
| HF | Human Factors |
| ICAO | International Civil Aviation Organization |
| MAML | Military Aircraft Maintenance Licence |
| MAWA | Military Airworthiness Authorities |
| MEL | Minimum Equipment List |
| MOE | Maintenance Organisation Exposition |
| M(S)TCH | Military (Supplemental) Type Certificate holder |
| MT | Magnetic Testing |
| MTO | Maintenance Training Organisation |
| NDI | Non-Destructive Inspection |
| pMS | participating Member States |
| PT | Penetrant Testing |
| RT | Radiographic Testing |
| SB | Service Bulletin |
| ST | Shearographic Testing |
| TT | Thermographic Testing |
| UT | Ultrasonic Testing |

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# SECTION A - TECHNICAL REQUIREMENTS FOR MAINTENANCE ORGANISATIONS

**145.A.10 Scope**

This Section establishes the requirements to be met by an organisation to qualify for the issue or continuation of an approval for the maintenance of aircraft and components.

**AMC 145.A.10 Scope**

1.

(a) Line Maintenance is defined in EMAD 1[3] (European Military Airworthiness Document).

(b) For temporary or occasional cases (ADs, SBs or national equivalent) the Quality Manager may accept base maintenance tasks to be performed by a line maintenance organisation provided all requirements are fulfilled as defined by the BMAA.

(c) Base Maintenance is defined in EMAD 1.

(d) Aircraft maintained in accordance with 'progressive' type maintenance programs should be individually assessed in relation to this paragraph. In principle, the decision to allow some 'progressive' checks to be carried out should be determined by the assessment that all tasks within the particular check can be carried out safely to the required standards at the designated line maintenance station.

2. NOT APPLICABLE

3. NOT APPLICABLE

**GM 145.A.10 Scope**

NOT APPLICABLE

**145.A.15 Application**

An application for the issue or change of an approval is made to the Belgian Military Airworthiness Authority (BMAA) in a form and manner established by such authority.

**AMC 145.A.15 Application**

In a form and manner established by the BMAA means that the application should be made by using a BMAR Form 2 (refer to Appendix III of BMAR AMC 145).

**145.A.20 Terms of approval**

The organisation shall specify the scope of work deemed to constitute approval in its Maintenance Organisation Exposition (MOE). (Appendix II to this BMAR contains a table of all classes and ratings).

[3] EMAD 1: Definitions and Acronyms Document which can be found on the EDA website at www.eda.europa.eu.

**AMC 145.A.20 Terms of approval**

Table 1 in Appendix II of BMAR 145 identifies the S1000D Chapter Reference for the Category C component rating. If the maintenance manual (or equivalent document) does not follow the S1000D Chapter reference, the corresponding subjects still apply to the applicable C rating.

**145.A.25 Facility requirements**

The maintenance organisation ensures that:

(a) Facilities are provided appropriate for all planned work, ensuring in particular, protection from the weather elements. Specialised workshops and bays are segregated as appropriate, to ensure that environmental and work area contamination is unlikely to occur.

1. For base maintenance of aircraft, aircraft hangars are both available and large enough to accommodate aircraft on planned base maintenance;

2. For component maintenance, component workshops are large enough to accommodate the components on planned maintenance.

(b) Office accommodation is provided for the management of the planned work referred to in paragraph (a), and certifying staff so that they can carry out their designated tasks in a manner that contributes to good aircraft maintenance standards.

(c) The working environment including aircraft hangars, component workshops and office accommodation is appropriate for the task carried out and in particular special requirements observed. Unless otherwise dictated by the particular task environment, the working environment shall be such that the effectiveness of personnel is not impaired:

1. Temperatures shall be maintained such that personnel can carry out required tasks without undue discomfort.

2. Dust and any other airborne contamination shall be kept to a minimum and not be permitted to reach a level in the work task area where visible aircraft/component surface contamination is evident. Where dust/other airborne contamination results in visible surface contamination, all susceptible systems are sealed until acceptable conditions are re-established.

3. Lighting shall be such as to ensure each inspection and maintenance task can be carried out in an effective manner.

4. Noise shall not distract personnel from carrying out inspection tasks. Where it is impractical to control the noise source, such personnel are provided with the necessary personal equipment to stop excessive noise causing distraction during inspection tasks.

5. Where a particular maintenance task requires the application of specific environmental conditions different to the foregoing, then such conditions shall be observed. Specific conditions are identified in the maintenance data.

6. The working environment for line maintenance shall be such that the particular maintenance or inspection task can be carried out without undue distraction. Therefore, where the working environment deteriorates to an unacceptable level in respect of temperature, moisture, hail, ice, snow, wind, light, dust/other airborne contamination, the particular maintenance or inspection tasks must be suspended until satisfactory conditions are re-established.

(d) Secure storage facilities shall be provided for components, equipment, tools and material. Storage conditions ensure segregation of serviceable components and material from unserviceable aircraft components, material, equipment and tools. The conditions of storage shall be in accordance with the manufacturer's instructions to prevent deterioration and damage of stored items. Access to storage facilities shall be restricted to authorised personnel.

**AMC 145.A.25(a) Facility requirement**

(a) Where the hangar is not owned by the organisation, it may be necessary to establish proof of tenancy. In addition, sufficiency of hangar space to carry out planned base maintenance should be demonstrated by the preparation of a projected aircraft hangar visit plan relative to the maintenance programme. The aircraft hangar visit plan should be updated on a regular basis.

(b) Protection from the weather elements relates to the normal prevailing local weather elements that are expected throughout any twelve month period. Aircraft hangar and component workshop structures should prevent the ingress of rain, hail, ice, snow, wind and dust etc. as far as is militarily practicable. Aircraft hangar and component workshop floors should be sealed to minimize dust generation.

(c) For line maintenance of aircraft, hangars are not essential but it is recommended that access to hangar accommodation be demonstrated for usage during inclement weather for minor scheduled work and lengthy defect rectification.

(d) Aircraft maintenance staff should be provided with an area where they may study maintenance instructions and complete maintenance records in a proper manner.

**AMC 145.A.25(b) Facility requirement**

It is acceptable to combine any or all of the office accommodation requirements into one office subject to the staff having sufficient room to carry out the assigned tasks.

In addition, as part of the office accommodation, aircraft maintenance staff should be provided with an area where they may study maintenance instructions and complete maintenance records in a proper manner.

**AMC 145.A.25(c) Facility requirement**

Military operational needs should be taken into account when establishing a suitable working environment. However, as far as is practicable, the requirements should be adhered to.

**AMC 145.A.25(d) Facility requirement**

1. Storage facilities for serviceable aircraft components should be clean, well ventilated and maintained at a constant dry temperature to minimize the effects of condensation. Manufacturer’s storage recommendations should be followed for those aircraft components identified in such published recommendations. With regards to deployed military operations these requirements should be met as far as practicable.

2. Storage racks should be strong enough to hold aircraft components and provide sufficient support for large aircraft components such that the component is not distorted during storage.

3. All aircraft components, wherever practicable, should remain packaged in protective material to minimize damage and corrosion during storage.

**145.A.30 Personnel requirements**

(a) The maintenance organisation appoints an Accountable Manager who has corporate authority for ensuring that all maintenance can be carried out to the standard required by BMAR 145. The Accountable Manager shall:

1. Ensure that "all necessary" resources are available to accomplish maintenance in accordance with BMAR 145.A.65 (b) to support the organisation approval.

2. Establish and promote the safety and quality policy specified in BMAR 145.A.65 (a).

3. Demonstrate a basic understanding of this BMAR.

(b) The maintenance organisation shall nominate a person or group of persons, whose responsibilities include ensuring that the maintenance organisation complies with this BMAR. Such person(s) are ultimately responsible to the Accountable Manager.

1. The person or persons nominated shall represent the maintenance management structure of the maintenance organisation and be responsible for all functions specified in this BMAR.

2. The person or persons nominated shall be identified and their credentials submitted in a form and manner established by the BMAA.

3. The person or persons nominated are required shall be able to demonstrate relevant knowledge, background and satisfactory experience related to aircraft or component maintenance and demonstrate a working knowledge of this BMAR.

4. Procedures shall make clear who deputises for any particular person in the case of lengthy absence of the said person.

(c) The Accountable Manager under paragraph (a) appoints a person with responsibility for monitoring the quality system, including the associated feedback system as required by BMAR 145.A.65 (c). The appointed person shall have direct access to the Accountable Manager to ensure that the Accountable Manager is kept properly informed on quality and compliance matters.

(d) The maintenance organisation shall have a "*maintenance man-hour plan*" showing that the maintenance organisation has sufficient competent staff to plan, perform, supervise, inspect and quality monitor the maintenance organisation in accordance with the approval. In addition, the maintenance organisation shall have a procedure to reassess work intended to be carried out when actual staff availability is less than the planned staffing level for any particular work shift or period.

(e) The maintenance organisation shall establish and control the competence of personnel involved in any maintenance, management and/or quality audits in accordance with a procedure and to a standard defined through the MOE and approved by the BMAA. In addition to the necessary expertise related to the job function, competence shall include an understanding of the application of human factors and human performance issues appropriate to that person's function in the maintenance organisation.

'Human factors' means principles which apply to aeronautical design, certification, training, operations and maintenance and which seek safe interface between the human and other system components by proper consideration of human performance.

'Human performance' means human capabilities and limitations which have an impact on the safety and efficiency of aeronautical operations.

(f) The maintenance organisation shall ensure that personnel who carry out and/or control a non-destructive inspection (NDI) of aircraft structures and/or components are appropriately qualified for the particular non-destructive test in accordance with the European or equivalent Standard recognised by the BMAA. Personnel who carry out any other specialised task shall be appropriately qualified in accordance with officially recognised standards.

By derogation to this paragraph, a maintenance organisation may authorise those personnel specified in paragraphs (g) and (h)(1), qualified in Category B1 in accordance with BMAR 66 or qualification recognised equivalent by the BMAA, to carry out and/or control colour contrast dye penetrant inspections/visible dye penetrant inspections which are to be detailed in the MOE.

(g) Any maintenance organisation maintaining aircraft, except where stated otherwise in paragraph (j), shall in the case of aircraft line maintenance, have appropriate Military Aircraft Type Rated certifying staff, qualified as Category B1, B2 and B ARM, or qualification recognised equivalent by the BMAA, in accordance with BMAR 66 and BMAR 145.A.35.

In addition such maintenance organisations may also use appropriately task trained certifying staff holding the privileges described in BMAR 66.A.20 (a) (1) or BMAR 66.A.20 (a) 3 (ii) and qualified in accordance with BMAR 66 and BMAR 145.A.35 to carry out minor scheduled line maintenance and simple defect rectification.

The availability of such certifying staff shall not replace the need for Category B1, B2 and B ARM (or category recognised equivalent by the BMAA) certifying staff.

(h) Any maintenance organisation maintaining aircraft, except where stated otherwise in paragraph (j) shall:

1. In the case of base maintenance of aircraft, have appropriate Military Aircraft Type Rated certifying staff qualified as Category C (or category recognised equivalent by the BMAA) in accordance with BMAR 66 and BMAR 145.A.35. In addition the maintenance organisation shall have sufficient Military Aircraft Type Rated staff qualified as Category B (or a category recognised equivalent by the BMAA) as appropriate in accordance with BMAR 66 and BMAR 145.A.35 to support the Category C staff (or recognised equivalent qualification by BMAA).

   i. Category B1, B2 and B ARM support staff shall ensure that all relevant maintenance tasks have been carried out to the required standard before the Category C or equivalent qualification certifying staff (recognised by BMAA) issues the Certificate of Release to Service (CRS) for aircraft.

   ii. The maintenance organisation shall maintain a register of any such B1, B2 and B ARM support staff or equivalent qualification (recognised by BMAA).

   iii. The Category C or equivalent qualification (recognised by BMAA) certifying staff shall ensure that compliance with paragraph (i) has been met and that all work has been accomplished during the particular base maintenance check or work package, and shall also assess the impact of any work not carried out with a view to either requiring its accomplishment or agreeing with the appropriate Continuing Airworthiness

Management Organisation[4] (CAMO) to defer such work to another specified check or time limit.

2. NOT APPLICABLE

(i) Component certifying staff shall be authorised by the maintenance organisation on the basis of appropriate competence, training and experience in accordance with a procedure(s) contained in the MOE.

(j) By derogation to paragraphs (g) and (h), in relation to the obligation to comply with BMAR 66 the maintenance organisation may use certifying staff qualified in accordance with the following provisions:

1. NOT APPLICABLE

2. NOT APPLICABLE

3. For a repetitive pre-flight Airworthiness Directive (AD) which specifically states that the flight crew may carry out such AD, the maintenance organisation may issue a limited certification authorisation to the aircraft commander and/or the flight engineer on the basis of the flight crew licence or equivalent qualification (recognised by BMAA) held. However, the maintenance organisation shall ensure that sufficient practical training has been carried out to ensure that such aircraft commander and/or flight engineer can accomplish the AD to the required standard.

4. In the case of aircraft operating away from a supported location[5] the maintenance organisation may issue a limited certification authorisation to the aircraft commander and/or the flight engineer on the basis of the flight crew licence or equivalent qualification (recognised by BMAA) held subject to being satisfied that sufficient practical training has been carried out to ensure that the aircraft commander and/or flight engineer can accomplish the specified task to the required standard. The provisions of this paragraph are to be detailed in a MOE procedure.

5. In unforeseen cases, where an aircraft is grounded at a location other than the main base where no appropriate certifying staff are available, the maintenance organisation may issue a one-off certification authorisation:

   (i) to one of its employees holding equivalent authorisations on other aircraft types of similar technology, construction and systems; or

   (ii) to any person with not less than five years maintenance experience and holding a valid Military Aircraft Maintenance Licence (MAML) rated for the aircraft, provided there is no maintenance organisation appropriately approved under BMAR 145 at that location and the supporting maintenance organisation obtains and holds on file evidence of the experience and the MAML of that person.

All such cases as specified in this subparagraph shall be reported to the BMAA within seven days of the issuance of such certification authorisation. The maintenance organisation issuing the one-off authorisation shall ensure that any such maintenance that could affect flight safety is re-checked by an appropriately approved maintenance organisation.

[4] As per BMAR M ("*Continuing Airworthiness*")
[5] Deployed Operating Base (DOB)

(k) To certify on-aircraft maintenance performed on armament, rescue and escape systems and other military-specific systems, any maintenance organisation maintaining aircraft shall have sufficient staff possessing the Category A and/or B ARM MAML (or recognised equivalent qualification by BMAA).

**AMC 145.A.30 (a) Personnel requirements**

With regard to the Accountable Manager, it is normally intended to mean the Chief Executive Officer or senior military commander of the maintenance organisation, who by virtue of position has overall (including in particular resource allocation) responsibility for running the maintenance organisation. The Accountable Manager may be the Accountable Manager for more than one organisation and is not required to be necessarily knowledgeable on technical matters as the Maintenance Organisation Exposition defines the maintenance standards.

When the Accountable Manager is not the Chief Executive Officer or senior military commander, the BMAA 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 'maintenance resources' allocation.

**AMC 145.A.30 (b) Personnel requirements**

1. Dependent upon the size of the maintenance organisation, the BMAR 145 functions may be subdivided under individual managers or combined in any number of ways.

2. The maintenance organisation should have, dependent upon the extent of approval, a base maintenance manager, a line maintenance manager, a workshop manager and a quality manager, all of whom should report to the Accountable Manager.

3. The base maintenance manager is responsible for ensuring that all required base maintenance, plus any defect rectification carried out during base maintenance, is carried out to the design and quality standards specified in BMAR 145.A.65 (b). The base maintenance manager is also responsible for any corrective action resulting from the quality compliance monitoring of BMAR 145.A.65 (c).

4. The line maintenance manager is responsible for ensuring that all line maintenance required to be carried out including line defect rectification is carried out to the standards specified in BMAR 145.A.65 (b) and also responsible for any corrective action resulting from the quality compliance monitoring of BMAR 145.A.65 (c).

5. The workshop manager is responsible for ensuring that all work on aircraft components is carried out to the standards specified in BMAR 145.A.65 (b) and also responsible for any corrective action resulting from the quality compliance monitoring of BMAR 145.A.65 (c).

6. The quality manager's responsibility is specified in BMAR 145.A.30 (c).

7. Notwithstanding the example subparagraphs 2 – 6 titles, the maintenance organisation may adopt any title for the foregoing managerial positions but should identify to the BMAA the titles and persons chosen to carry out these functions.

8. Where a maintenance organisation chooses to appoint managers for all or any combination of the identified BMAR 145 functions because of the size of the undertaking, it is necessary that these managers report ultimately through either the base maintenance manager or line maintenance manager or workshop manager or quality manager, as appropriate, to the Accountable Manager.

Note: Certifying staff may report to any of the managers specified depending upon which type of control the maintenance organisation uses (for example licensed engineers/independent inspection/dual function supervisors etc.) as long as the quality compliance monitoring staff specified in BMAR 145.A.65 (c) (1) remain independent.

**AMC 145.A.30 (c) Personnel requirements**

Monitoring the quality system includes requesting remedial action as necessary by the Accountable Manager and the nominated persons referred to in BMAR 145.A.30 (b).

**AMC 145.A.30 (d) Personnel requirements**

1. "Sufficient staff" means that the maintenance organisation employs or contracts/tasks competent staff, as detailed in the man-hour plan, of which at least half the staff that perform maintenance in each workshop, hangar or flight line on any shift should be employed to ensure organisational stability. For the purpose of meeting a specific operational necessity, a temporary increase of the proportion of contracted staff may be permitted to the maintenance organisation by the BMAA, in accordance with an approved procedure which should describe the extent, specific duties, and responsibilities for ensuring adequate organisation stability. For the purpose of this subparagraph, employed means the person is directly employed as an individual by the maintenance organisation whereas contracted/tasked means the person is employed by another organisation or military unit and contracted/tasked by that organisation to the maintenance organisation. In the case of MOD/Industrial partnered support arrangements, the MOD element of the maintenance organisation should be considered, for the purpose of this clause, as part of the industry workforce.

2. The maintenance man-hour plan should take into account all activities carried out outside the scope of the BMAR 145 approval.

   The planned absence (for training, vacations, etc.) should be considered when developing the man-hour plan.

3. The maintenance man-hour plan should relate to the anticipated maintenance work load except that when the maintenance organisation cannot predict such workload, due to the short term nature of its contracts/taskings or unpredictable variations in operational military tasking, then such a plan should be based upon the minimum maintenance workload needed for organisational viability. Maintenance work load includes all necessary work such as, but not limited to, planning, maintenance record checks, production of worksheets/cards in paper or electronic form, accomplishment of maintenance, inspection and the completion of maintenance records.

4. In the case of aircraft base maintenance, the maintenance man-hour plan should relate to the aircraft hangar visit plan as specified in BMAR AMC 145.A.25 (a).

5. In the case of aircraft component maintenance, the maintenance man-hour plan should relate to the aircraft component planned maintenance as specified in BMAR 145.A.25 (a) (2).

6. The quality monitoring compliance function man-hours should be sufficient to meet the requirement of BMAR 145.A.65 (c) which means taking into account BMAR AMC 145.A.65 (c). Where quality monitoring staff performs other functions, the time allocated to such functions needs to be taken into account in determining quality monitoring staff numbers.

7. The maintenance man-hour plan should be reviewed at least every 3 months and updated when necessary.

8. Significant deviation from the maintenance man-hour plan should be reported through the appropriate manager to the quality manager and the Accountable Manager for review. Significant deviation means more than a 25% shortfall in available man-hours during a calendar month for any one of the functions specified in BMAR 145.A.30 (d), or an inability to achieve military tasking due to personnel shortfalls.

**AMC 1 145.A.30 (e) Personnel requirements**

Competence should be defined as a measurable skill or standard of performance, knowledge and understanding, taking into consideration attitude and behaviour.

The referenced procedure requires amongst others that planners, mechanics, specialised services staff, supervisors, certifying staff and support staff, whether employed or contracted, are assessed for competence before unsupervised work commences and competence is controlled on a continuous basis.

Competence should be assessed by evaluation of:

- on-the-job performance and/or testing of knowledge by appropriately qualified personnel; and

- records for basic, organisational, and/or product type and differences training; and

- experience records.

Validation of the above could include a confirmation check with the organisation(s) that issued such document(s). For that purpose, experience/training may be recorded in a document such as a log book or based on the suggested template in GM 3 to BMAR 145.A.30 (e).

As a result of this assessment, an individual's qualification should determine:

- which level of ongoing supervision would be required or whether unsupervised work could be permitted.

- whether there is a need for additional training.

A record of the qualification and competence assessment should be kept. This should include copies of all documents that attest to qualification, such as the MAML and/or any authorisation held, as applicable.

For a proper competence assessment of its personnel, the maintenance organisation should consider that:

1. In accordance with the job function, adequate initial and recurrent training should be provided and recorded to ensure continued competence so that it is maintained throughout the duration of employment/contract.

2. All staff should be able to demonstrate knowledge of and compliance with the maintenance organisation's procedures, as applicable to their duties.

3. All staff should be able to demonstrate an understanding of human factors and human performance issues in relation with their job function and be trained as per AMC 2 to BMAR 145.A.30(e).

4. To assist in the assessment of competence and to establish the training needs analysis, job descriptions are recommended for each job function in the maintenance organisation. Job descriptions should contain sufficient criteria to enable the required competence assessment.

5. Criteria should allow the assessment to establish that, among others (titles might be different in each organisation):

   - Managers are able to properly manage the work output, processes, resources and priorities described in their assigned duties and responsibilities in a safe compliant manner in accordance with requirements and maintenance organisation procedures.

   - Planners are able to interpret maintenance requirements into maintenance tasks, and have an understanding that they have no authority to deviate from the maintenance data.

   - Supervisors are able to ensure that all required maintenance tasks are carried out and, where not completed or where it is evident that a particular maintenance task cannot be carried out to the approved maintenance data, then such problems should be reported to the BMAR 145.A.30 (c) person for appropriate action. In addition, for those supervisors, who also carry out maintenance tasks, that they understand such tasks should not be undertaken when incompatible with their management responsibilities.

   - Mechanics are able to carry out maintenance tasks to any standard specified in the maintenance data and should notify supervisors of defects or mistakes requiring rectification to re-establish required maintenance standards.

   - Specialised services staff are able to carry out specialised maintenance tasks to the standard specified in the maintenance data. They should be able to communicate with supervisors and report accurately when necessary.

   - Support staffs are able to determine that relevant maintenance tasks have been carried out to the required standard.

   - Certifying staff are able to determine when the aircraft or aircraft component is ready to release to service and when it should not be released to service.

   - Quality audit staff are able to monitor compliance with BMAR 145 identifying non-compliance in an effective and timely manner so that the Approved Maintenance Organisation (AMO) may remain in compliance with BMAR 145.

Competence assessment should be based upon the procedure specified in GM 2 to BMAR 145.A.30 (e).

**AMC 2 145.A.30 (e) Personnel requirements**

In respect to the understanding of the application of human factors and human performance issues, all maintenance organisation personnel should have received an initial and continuation human factors training. This should concern to a minimum:

- Nominated persons, managers, supervisors;
- Certifying staff, support staff and mechanics;
- Technical support personnel such as planners, engineers, technical record staff;
- Quality control/assurance staff;
- Specialized services staff;
- Human factors staff/ human factors trainers;
- Store department staff, purchasing department staff;
- Ground equipment operators;
- Contracted/tasked staff in the above categories.

1. Initial human factors training should cover all the topics of the training syllabus specified in BMAR GM 1 145.A.30 (e) either as a dedicated course or else integrated within other training. The syllabus may be adjusted to reflect the particular nature of the maintenance organisation. The syllabus may also be adjusted to meet the particular nature of work for each function within the maintenance organisation.

   For example:

   - small maintenance organisations not working in shifts may cover in less depth subjects related to teamwork and communication,
   - planners may cover in more depth the scheduling and planning objective of the syllabus and in less depth the objective of developing skills for shift working.

   All personnel, including personnel being recruited from any other organisation should receive initial human factors training compliant with the maintenance organisation's training standards prior to commencing actual job function, unless their competence assessment justifies that there is no need for such training. Newly directly employed personnel working under direct supervision may receive training within 6 months after joining the maintenance organisation.

2. The purpose of human factors continuation training is primarily to ensure that staff remains current in terms of human factors and also to collect feedback on human factors issues. Consideration should be given to the possibility that such training has the involvement of the quality department. There should be a procedure to ensure that feedback is formally passed from the trainers to the quality department to initiate action where necessary.

   Human factors continuation training should be of an appropriate duration in each two year period in relation to relevant quality audit findings and other internal/external sources of information on human errors in maintenance available to the maintenance organisation.

3. Human factors training may be conducted by the maintenance organisation itself, or independent trainers, or any training organisations acceptable to the BMAA.

4. The human factors training procedures should be specified in the MOE.

**AMC 3 145.A.30 (e) Personnel requirements**

Additional training in fuel tank safety as well as associated inspection standards and maintenance procedures should be required for maintenance organisations' technical personnel, especially technical personnel involved in the compliance of Critical Design Configuration Control Limitations[6] (CDCCL) tasks (if applicable).

Guidance is provided for training to maintenance organisation personnel in Appendix IV to BMAR AMC 145.A.30 (e) and BMAR AMC 145.B.10 (c).

**AMC 4 145.A.30 (e) Personnel requirements**

Competence assessment should include the verification for the need of additional EWIS training when relevant.

(Note: EASA guidance for an EWIS training programme to maintenance organisation personnel can be found in EASA AMC 20-22.)

**GM 1 145.A.30 (e) Training syllabus for initial human factor training**

The training syllabus below identifies the topics and subtopics to be addressed during the human factors training.

The maintenance organisation may combine, divide, change the order of any subject of the syllabus to suit its own needs, as long as all subjects are covered to a level of detail appropriate to the maintenance organisation and its personnel.

Some of the topics may be covered in separate training (health and safety, management, supervisory skills, etc.) in which case duplication of training is not necessary.

Where possible, practical illustrations and examples should be used, especially accident and incident reports.

Topics should be related to existing legislation, where relevant. Topics should be related to existing guidance/advisory material, where relevant (e.g. ICAO Human Factors (HF) Digests and Training Manual and appropriate military training).

Topics should be related to maintenance engineering where possible; too much unrelated theory should be avoided.

1. General/Introduction to human factors
   - 1.1. The need to take human factors into account
   - 1.2. Statistics
   - 1.3. Incidents attributable to human factors/human error
   - 1.4. "Murphy's Law"
2. Safety Culture/Organisational factors
   - 2.1. "Culture" issues
3. Human errors
   - 3.1. Error models and theories
   - 3.2. Types of errors in maintenance tasks

[6] See note under AMC 145.A.45.d

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| | 3.3. Violations<br>3.4. Implications of errors (i.e. accidents)<br>3.5. Avoiding and managing errors<br>3.6. Human reliability<br>4. Human performance & limitations<br>4.1. Vision<br>4.2. Hearing<br>4.3. Information-processing<br>4.4. Attention and perception<br>4.5. Situational awareness<br>4.6. Memory<br>4.7. Claustrophobia and physical access<br>4.8. Motivation and de-motivation<br>4.9. Fitness/Health<br>4.10. Stress: domestic and work related<br>4.11. Workload management (overload and underload)<br>4.12. Sleep and fatigue<br>4.13. Alcohol, medication, drug abuse<br>4.14. Physical work<br>4.15. Repetitive tasks/complacency<br>5. Environment<br>5.1. Peer pressure<br>5.2. Stressors<br>5.3. Time pressure and deadlines<br>5.4. Workload<br>5.5. Shift Work<br>5.6. Noise and fumes<br>5.7. Illumination<br>5.8. Climate and temperature<br>5.9. Motion and vibration<br>5.10. Complex systems<br>5.11. Hazards in the workplace, recognizing and avoiding hazards, dealing with emergencies<br>5.12. Lack of manpower<br>5.13. Distractions and interruptions<br>5.14. Military environment and other military factors/Operational pressures<br>6. Procedures, information, tools and practices<br>6.1. Visual Inspection |

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| | 6.2. Work logging and recording<br>6.3. Procedure - practice/mismatch/norms<br>6.4. Technical documentation -access and quality<br>7. Communication<br>7.1. Shift/Task handover<br>7.2. Dissemination of information<br>7.3. Cultural difference<br>7.4. Within and between teams<br>8. Teamwork<br>8.1. Responsibility: individual and group<br>8.2. Management, supervision and leadership<br>8.3. Decision making<br>9. Professionalism and integrity<br>9.1. Keeping up to date; currency<br>9.2. Error provoking behavior<br>9.3. Assertiveness<br>10. Maintenance Organisation's HF program<br>10.1. Reporting errors<br>10.2. Disciplinary policy<br>10.3. Error investigation<br>10.4. Action to address problems<br>10.5. Feedback |

**GM 2 145.A.30 (e) Competence assessment procedure**

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| | The maintenance organisation should develop a procedure describing the process of competence assessment of personnel. The procedure should specify:<br>- persons responsible for this process,<br>- when the assessment should take place,<br>- credits from previous assessments,<br>- validation of qualification records,<br>- means and methods for the initial assessment,<br>- means and methods for the continuous control of competence including feedback on personnel performance,<br>- competences to be observed during the assessment in relation with each job function,<br>- actions to be taken when assessment is not satisfactory,<br>- recording of assessment results. |

For example, according to the job functions and the scope, size and complexity of the maintenance organisation, the assessment may consider the following (the table is not exhaustive):

| | Managers | Planners | Supervisor | Certifying staff and support staff | Mechanics | Specialized Service staff | Quality audit staff |
|---|---|---|---|---|---|---|---|
| Knowledge of applicable officially recognised standards | | | | | | X | X |
| Knowledge of auditing techniques: planning, conducting and reporting | | | | | | | X |
| Knowledge of human factors, human performance and limitations | X | X | X | X | X | X | X |
| Knowledge of logistics processes | X | X | X | | | | |
| Knowledge of maintenance organisation capabilities, privileges and limitations | X | X | X | X | | X | X |
| Knowledge of BMAR M, BMAR 145 and any other relevant regulations | X | X | X | X | | | X |
| Knowledge of relevant parts of the MOE and procedures | X | X | X | X | X | X | X |
| Knowledge of occurrence reporting system and understanding of the importance of reporting occurrences, incorrect maintenance data and existing or potential defects | | X | X | X | X | X | |
| Knowledge of safety risks linked to the working environment | X | X | X | X | X | X | X |
| Knowledge on CDCCL when relevant | X | X | X | X | X | X | X |
| Knowledge on EWIS when relevant | X | X | X | X | X | X | X |
| Understanding of professional integrity, behaviour and attitude towards safety | X | X | X | X | X | X | X |
| Understanding of conditions for ensuring continuing airworthiness of aircraft and components | | | | X | | | X |
| Understanding of his/her own human performance and limitations | X | X | X | X | X | X | X |
| Understanding of personnel authorisations and limitations | X | X | X | X | X | X | X |
| Understanding critical task | | X | X | X | X | | X |
| Ability to compile and control completed work cards | | X | X | X | | | |
| Ability to consider human performance and limitations. | X | X | X | X | | | X |
| Ability to determine required qualifications for task performance | | X | X | X | | | |
| Ability to identify and rectify existing and potential unsafe conditions | | | X | X | X | X | X |
| Ability to manage third parties involved in maintenance activity | | X | X | | | | |
| Ability to confirm proper accomplishment of maintenance tasks | | | X | X | X | X | |
| Ability to identify and properly plan performance of critical task | | X | X | X | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Ability to prioritise tasks and report discrepancies | | X | X | X | X | | |
| | | Ability to process the work requested by the operator | | X | X | X | | | |
| | | Ability to promote the safety and quality policy | X | | X | | | | |
| | | Ability to properly process removed, uninstalled and rejected parts | | | X | X | X | X | |
| | | Ability to properly record and sign for work accomplished | | | X | X | X | X | |
| | | Ability to recognise the acceptability of parts to be installed prior to fitment | | | | X | X | | |
| | | Ability to split complex maintenance tasks into clear stages | | X | | | | | |
| | | Ability to understand work orders, work cards and refer to and use applicable maintenance data | | X | X | X | X | X | X |
| | | Ability to use information systems | X | X | X | X | X | X | X |
| | | Ability to use, control and be familiar with required tooling and/or equipment | | | X | X | X | X | |
| | | Adequate communication and literacy skills | X | X | X | X | X | X | X |
| | | Analytical and proven auditing skills (for example, objectivity, fairness, open-mindedness, determination, …) | | | | | | | X |
| | | Maintenance error investigation skills | | | | | | | X |
| | | Resources management and production planning skills | X | X | X | | | | |
| | | Teamwork, decision-making and leadership skills | X | | X | | | | |

**GM 3 145.A.30 (e) Template for recording experience/training**

NOT APPLICABLE.

**AMC 145.A.30 (f) Personnel requirements**

1. NOT APPLICABLE.

2. "Appropriately qualified" means to levels of qualification and certification as defined by the European Standard EN 4179 (or equivalent qualification recognised by BMAA) dependent upon the non-destructive testing function to be carried out.

3. Notwithstanding the fact that Level 3 personnel (or equivalent qualification recognised by BMAA) may be qualified via EN 4179 to establish and authorize methods, techniques, etc., this does not permit such personnel to deviate from methods and techniques published by the (Military) Type Certificate Holder/manufacturer or BMAA in the form of continued airworthiness data, such as in non-destructive test manuals or Service Bulletins, unless the manual or Service Bulletin expressly permits such deviation.

4. Notwithstanding the general references in EN 4179 to a national aerospace non-destructive testing (NDT) board, all examinations should be conducted by personnel or organisations under the general control of such a board or as specified by the BMAA. In the absence of a national aerospace NDT board, the aerospace NDT board of another pMS should be used, as defined by the BMAA.

5. Moved to GM 145.A.30 (f) Personnel requirements.

6. It should be noted that new methods are being and will be developed, which are not specifically addressed by EN 4179. Until the time this agreed standard is established, such methods should be carried out in accordance with the particular equipment manufacturer's recommendations including any training and examination process to ensure competence of the personnel in the process.

7. Any maintenance organisation that carries out NDT should establish NDT specialist qualification procedures detailed in the exposition and accepted by the BMAA.

8. Boroscoping and other techniques such as manual tap testing are non-destructive inspections rather than non-destructive testing. Notwithstanding such differentiation, the maintenance organisation should establish a MOE procedure accepted by the BMAA to ensure that personnel who carry out and interpret such inspections are properly trained and assessed for their competence in the process. Non-destructive inspections, not being considered as NDT by BMAR 145 are not listed in BMAR 145 Appendix II under class rating D1.

9. The referenced standards, methods, training and procedures should be specified in the MOE.

10. Any such personnel who intend to carry out and/or control a non-destructive test for which they were not qualified prior to the effective date of BMAR 145 should qualify for such non-destructive test in accordance with EN 4179 (or national equivalent qualification recognised by BMAA).

11. In this context "officially recognised standard" means those standards established or published by an official body whether having legal personality or not, which are widely recognised by the aerospace sector as constituting good practice, or those accepted by the BMAA.

**GM 145.A.30 (f) Personnel requirements**

Particular non-destructive test means any one or more of the following; Penetrant Testing (PT), Magnetic Testing (MT), Eddy current Testing (ET), Ultrasonic Testing (UT), Radiographic Testing (RT), Thermographic Testing (TT) and Shearographic Testing (ST) methods.

**AMC 145.A.30 (g) Personnel requirements**

1. For the purposes of BMAR 66.A.20 (a) (1) and BMAR 66.A.20 (a) (3) (ii) personnel, minor scheduled line maintenance means any minor scheduled inspection/check up to and including a weekly check specified in the approved Aircraft Maintenance Program (AMP). For AMPs that do not specify a weekly check, the BMAA should determine the most significant check that is considered equivalent to a weekly check.

2. Typical tasks permitted after appropriate task training to be carried out by the BMAR 66.A.20 (a) 1) and the BMAR 66.A.20 (a) (3) (ii) personnel for the purpose of these personnel issuing an aircraft Certificate of Release to Service (CRS) as specified in BMAR 145.A.50 as part of minor scheduled line maintenance or simple defect rectification are contained in the following list:

    a. Replacement of wheel assemblies.

    b. Replacement of wheel brake units.

c. Replacement of emergency equipment.

d. Replacement of ovens, boilers and beverage makers.

e. Replacement of internal and external lights, filaments and flash tubes.

f. Replacement of windscreen wiper blades.

g. Replacement of passenger and cabin crew seats, seat belts and harnesses.

h. Closing of cowlings and refitment of quick access inspection panels.

i. Replacement of toilet system components but excluding gate valves.

j. Simple repairs and replacement of internal compartment doors and placards but excluding doors forming part of a pressure structure.

k. Simple repairs and replacement of overhead storage compartment doors and cabin furnishing items.

l. Replacement of static wicks.

m. Replacement of aircraft main and APU aircraft batteries.

n. NOT APPLICABLE.

o. Routine lubrication and replenishment of all system fluids and gases.

p. The de-activation only of sub-systems and aircraft components as permitted by the Operating Organisation's Minimum Equipment List (MEL) where relevant or national equivalent procedure, where such de-activation is agreed by the BMAA as a simple task.

q. Inspection for and removal of de-icing/anti-icing fluid residues, including removal/closure of panels, cowls or covers or the use of special tools.

r. Removal and installation of simple internal medical equipment.

s. Any other task agreed by the BMAA as a simple task for a particular aircraft type. This may include defect deferment when all the following conditions are met:

- There is no need for troubleshooting; and
- The task is in the MEL; and
- The maintenance action required by the MEL is agreed by the BMAA to be simple.

In the particular case of helicopters, and in addition to the items above, the following:

t. Removal and installation of external cargo provisions (i.e. external hook, mirrors) other than the hoist.

u. Removal and installation of quick release external cameras and search lights.

v. Removal and installation of emergency float bags, not including the bottles.

w. Removal and installation of external doors fitted with quick release attachments.

x. Removal and installation of snow pads/skid wear shoes/slump protection pads.

Any task on a military specific system agreed by the BMAA as a simple task for a particular aircraft type.

No task which requires troubleshooting should be part of the authorized maintenance actions. Release to service after rectification of deferred defects should be permitted as long as the task is listed above.

3. The requirement of having appropriate aircraft rated certifying staff qualified as Category B1 or B2 as appropriate; in the case of aircraft line maintenance does not imply that the maintenance organisation must have B1 or B2 personnel at every line station. The MOE should have a procedure on how to deal with defects requiring B1 or B2 certifying staff.

4. The BMAA may accept that in the case of aircraft line maintenance a maintenance organisation has only B1 or B2 certifying staff, as appropriate, provided that the BMAA is satisfied that the scope of work, as defined in the MOE, does not need the availability of all B1 or B2 certifying staff. Special attention should be taken to clearly limit the scope of scheduled and non-scheduled line maintenance (defect rectification) to only those tasks that can be certified by the available certifying staff Category.

**AMC 145.A.30 (h) Personnel requirements**

In accordance with BMAR 145.A.30 (h) and BMAR 145.A.35, the qualification requirements (MAML, Military Aircraft Type Ratings, recent experience and continuation training) are identical for certifying staff and for support staff. The only difference is that support staff cannot hold certification privileges when performing this role since during base maintenance the release to service will be issued by Category C certifying staff. Nevertheless, the maintenance organisation may use as support staff (for base maintenance) persons who already hold certification privileges for line maintenance.

**AMC 145.A.30 (j) (4) Personnel requirements**

1. For the issue of a limited certification authorisation the aircraft commander or flight engineer should hold either a valid pilot or flight engineer licence/national military qualification (or civilian equivalent) acceptable to the BMAA on the aircraft type. In addition, the limited certification authorisation is subject to the MOE containing procedures to address the personnel requirements of BMAR 145.A.30 (e) and associated Acceptable Means of Compliance (AMC) and Guidance Material (GM). Such procedures should include as a minimum:

   a. Completion of adequate national military airworthiness regulation training; and

   b. Completion of adequate task training for the specific task on the aircraft. The task training should be of sufficient duration to ensure that the individual has a thorough understanding of the task to be completed and should involve training in the use of associated maintenance data; and

   c. Completion of the procedural training as specified in BMAR 145.

   The above procedures should be specified in the MOE and be accepted by the BMAA.

2.

(i) Typical tasks that may be certified and/or carried out by the aircraft commander holding a valid licence/national military pilot qualification (or civilian equivalent) acceptable to the BMAA on the aircraft type are minor maintenance or simple checks included in the following list:

a. Replacement of internal lights, filaments and flash tubes.

b. Closing of cowlings and refitment of quick access inspection panels.

c. Simple configuration changes (e.g. stretcher fit, FLIR, doors, photographic equipment etc.).

d. Inspection for and removal of de-icing/anti-icing fluid residues, including removal/closure of panels, cowls or covers that are easily accessible but not requiring the use of special tools.

e. Any check/replacement involving simple techniques consistent with this AMC and as agreed by the BMAA.

(ii) Holders of a valid national military flight engineer licence/qualification, or equivalent, acceptable to the BMAA, on the aircraft type may only exercise this limited certification authorisation privilege when performing the duties of a flight engineer. In addition to paragraph 2(i)(a) to (e), other typical minor maintenance or simple defect rectification tasks that may be carried out are included in the following list:

a. Replacement of wheel assemblies.

b. Replacement of simple emergency equipment that is easily accessible.

c. Replacement of ovens, boilers and beverage makers.

d. Replacement of external lights.

e. Replacement of passenger and cabin crew seats, seat belts and harnesses.

f. Simple replacement of overhead storage compartment doors and cabin furnishing items.

g. Replacement of static wicks.

h. Replacement of aircraft main and APU aircraft batteries.

i. NOT APPLICABLE.

j. The de-activation only of sub-systems and aircraft components as permitted by the Operating Organisation’s MEL where relevant or a national equivalent procedure, where such de-activation is agreed by the BMAA as a simple task.

k. Re-setting of tripped circuit breakers under the guidance of maintenance control.

l. Any other task as agreed by the BMAA as a simple task for a particular aircraft type.

3. The authorisation should have a finite life of twelve months subject to satisfactory re-current training on the applicable aircraft type.

**GM 145.A.30 (j) (4) Personnel requirements (Flight crew)**

For military aircrew, the theoretical knowledge is covered throughout flying training and, for specific aircraft types, during operational conversion training for the relevant aircraft type. Thereafter, the individual's level of knowledge is monitored by the national aircrew standards organisation for that specific type.

**AMC 145.A.30 (j) (5) Personnel requirements**

1. For the purposes of this subparagraph "unforeseen" means that the aircraft grounding could not reasonably have been predicted by the operator because the defect was unexpected due to being part of a hitherto reliable system.

2. A one-off authorisation should only be considered for issue by the maintenance organisation after it has made a reasoned judgment that such a requirement is appropriate under the circumstances and at the same time maintaining the required airworthiness standards. The maintenance organisation should assess each situation individually prior to the issuance of a one-off authorisation. The maintenance organisation that issues this one-off authorisation retains responsibility for all work performed.

3. A one-off authorisation should not be issued where the level of certification required could exceed the knowledge and experience level of the person it is issued to. In all cases, due consideration should be given to the complexity of the work involved and the availability of required tooling and/or test equipment needed to complete the work.

**AMC 145.A.30 (j) (5) (i) Personnel requirements**

In those situations where the requirement for a one-off authorisation to issue a Certificate of Release to Service (CRS) for a task on an aircraft type for which certifying staff does not hold a type-rated authorisation has been identified, the following procedure is recommended:

1. Flight crew should communicate full details of the defect to their maintenance organisation. If necessary, the maintenance organisation should consider the issue of a one-off authorisation.

2. When issuing a one-off authorisation, the maintenance organisation should verify that:

   a) Full technical details relating to the work required to be carried out have been established and passed on to the certifying staff; and

   b) The maintenance organisation has an approved procedure in place for coordinating and controlling the total maintenance activity undertaken at the location under the authority of the one-off authorisation; and

   c) The person to whom a one-off authorisation is issued has been provided with all the necessary information and guidance relating to maintenance data and any special technical instructions associated with the specific task undertaken. A detailed step by step worksheet has been defined by the maintenance organisation, communicated to the one-off authorisation holder; and

d) The person holds authorisations of equivalent level and scope on other aircraft type of similar technology, construction and systems.

3. The one-off authorisation holder should sign off the detailed step by step worksheet when completing the work steps. The completed tasks should be verified by visual examination and/or normal system operation upon return to an appropriately approved BMAR 145 maintenance facility.

**AMC 145.A.30 (j) (5) (ii) Personnel requirements**

This paragraph addresses staff not employed by the maintenance organisation who meet the requirements of BMAR 145.A.30 (j) (5). In addition to the items listed in BMAR AMC 145.A.30 (j)(5)(i), paragraph 1, 2(a), (b) and (c) and 3 the maintenance organisation may issue such a one-off authorisation subject to full qualification details relating to the proposed certifying personnel being verified by the maintenance organisation and made available at the location.

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

(a) In addition to the appropriate requirements of BMAR 145.A.30 (g) and (h), the maintenance organisation shall ensure that certifying and support staff have an adequate understanding of the relevant aircraft and/or components to be maintained together with the associated maintenance organisation procedures. In the case of certifying staff, this shall be accomplished before the issue or re-issue of the certification authorisation.

1. 'Support staff' means those staff holding a BMAR MAML in Category B1 and/or B2 and/or B ARM (or national equivalent qualification), working in a base maintenance environment while not necessarily holding certification privileges.

2. 'Relevant aircraft and/or components', means those aircraft or components specified in the particular certification authorisation.

3. 'Certification authorisation' means the authorisation issued to certifying staff by the Approved Maintenance Organisation (AMO) and which specifies the fact that they may sign CRSs within the limitations stated in such authorisation on behalf of the approved organisation.

(b) Excepting those cases listed in BMAR 145.A.30 (j) and BMAR 66.A.20 (a )3 (ii) the maintenance organisation may only issue a certification authorisation to certifying staff in relation to the basic categories or subcategories and any Military Aircraft Type Rating endorsed on the MAML, remaining valid throughout the validity period of the authorisation and the certifying staff remaining in compliance with BMAR 66 (or national equivalent) requirement.

The maintenance organisation issues the certification authorisation when satisfied that compliance has been established with the appropriate paragraphs of BMAR 145 and BMAR 66. In granting the certification authorisation the maintenance organisation needs to be satisfied that the person holds a valid and applicable BMAR 66 MAML and shall confirm such fact with their BMAA.

(c) The maintenance organisation shall ensure that all certifying staff and support staff are involved in at least six months of actual relevant aircraft or component maintenance experience in any consecutive two year period.

For the purpose of this paragraph 'involved in actual relevant aircraft or component maintenance' means that the person has worked in an aircraft or component maintenance environment and has either exercised the privileges of the certification authorisation and/or has

actually carried out maintenance on at least some of the aircraft type or aircraft group systems specified in the particular certification authorisation.

(d) The maintenance organisation shall ensure that all certifying staff and support staff receive sufficient continuation training in each two year period to ensure that such staff have up-to-date knowledge of relevant technology, maintenance organisation procedures and human factor issues.

(e) The maintenance organisation shall establish a programme for continuation training for certifying staff and support staff including a procedure to ensure compliance with the relevant paragraphs of BMAR 145.A.35 as the basis for issuing certification authorisations under this BMAR to certifying staff, and a procedure to ensure compliance with BMAR 66.

(f) Except where any of the unforeseen cases of BMAR 145.A.30 (j) (5) apply, the maintenance organisation shall assess all prospective certifying staff for their competence, qualification and capability to carry out their intended certifying duties in accordance with a procedure as specified in the MOE prior to the issue or re-issue of a certification authorisation under this BMAR 145.

(g) When the conditions of paragraphs (a), (b), (d), (f) and, where applicable, paragraph (c) have been fulfilled by the certifying staff, the maintenance organisation shall issue a certification authorisation that clearly specifies the scope and limits of such authorisation. Continued validity of the certification authorisation is dependent upon continued compliance with paragraphs (a), (b), (d), and where applicable, paragraph (c).

(h) The certification authorisation shall be in a style that makes its scope clear to the certifying staff and any authorised person who may require to examine the authorisation. Where codes are used to define scope, the maintenance organisation shall make a code translation readily available.

'Authorised person' means the officials of the BMAA.

(i) The maintenance organisation shall nominate an individual who shall remain responsible on behalf of the maintenance organisation for issuing certification authorisations to certifying staff. Such person may nominate other persons to actually issue or revoke the certification authorisations in accordance with a procedure as specified in the MOE.

(j) The maintenance organisation shall maintain a record of all certifying staff and support staff which shall contain:

1. Details of any MAML held under BMAR 66 (or national equivalent) requirement; and

2. All relevant training completed; and

3. The scope of the certification authorisations issued, where relevant; and

4. Particulars of staff with limited or one-off certification authorisations.

The maintenance organisation shall retain the record for at least three years after the certifying staff or support staff have ceased employment with the maintenance organisation or as soon as the authorisation has been withdrawn. In addition, upon request, the maintenance organisation shall furnish certifying staff and support staff with a copy of their record on leaving the maintenance organisation.

The certifying staff and support staff shall be given access on request to their personal records as detailed above.

(k) The maintenance organisation shall provide certifying staff with a copy of their certification authorisation in either a documented or electronic format.

(l) Certifying staff shall produce their certification authorisation to any authorised person within 72 hours.

(m) The minimum age for certifying staff and support staff shall be 21 years.

(n) The holder of a Category A MAML may only exercise certification privileges on a specific aircraft type following the satisfactory completion of the relevant Category A aircraft task training carried out by an organisation appropriately approved in accordance with BMAR 145 or BMAR 147. This training shall include practical hands on training and theoretical training as appropriate for each task authorised. Satisfactory completion of training shall be demonstrated by an examination or by workplace assessment carried out by the AMO or BMAR 147 MTO.

(o) The holder of a Category B2 MAML may only exercise the certification privileges described in BMAR 66.A.20 (a) (3) (ii) following the satisfactory completion of:

1. the relevant Category A aircraft task training; and

2. 6 months of documented practical experience covering the scope of the authorisation that will be issued.

The task training shall include practical hands on training and theoretical training as appropriate for each task authorised. Satisfactory completion of training shall be demonstrated by an examination or by workplace assessment. Task training and examination/assessment shall be carried out by the AMO issuing the certifying staff authorisation. The practical experience shall be also obtained within the same AMO unless approved otherwise by the BMAA.

**AMC 145.A.35 (a) Certifying staff and support staff**

1. Holding a MAML with the relevant Military Aircraft Type/Group Rating, or a national qualification in the case of components, does not mean by itself that the holder is qualified to be authorised as certifying staff and/or support staff. The maintenance organisation is responsible to assess the competence of the holder for the scope of maintenance to be authorised.

2. The sentence *"the maintenance organisation shall ensure that certifying staff and support staff have an adequate understanding of the relevant aircraft and/or components to be maintained together with the associated maintenance organisation procedures"* means that the person has received training and has been successfully assessed on:

   - the type of aircraft or component;
   - the differences on the particular model/variant and the particular configuration.

   The maintenance organisation should specifically ensure that the individual competences have been established with regard to:

   - relevant knowledge, skills and experience in the product type and configuration to be maintained, taking into account the differences between the generic Military Aircraft Type Rating training that the person received and the specific configuration of the aircraft to be maintained;

- appropriate attitude towards safety and observance of procedures;
- knowledge of the associated maintenance organisation and Operating Organisation procedures (i.e. handling and identification of components, MEL use, Aircraft Technical Log use, independent checks, etc.).

3. Some special maintenance tasks may require additional specific training and experience, including but not limited to:
   - in-depth troubleshooting;
   - very specific adjustment or test procedures;
   - rigging;
   - engine run-up, starting and operating the engines, checking engine performance characteristics, normal and emergency engine operation, associated safety precautions and procedures;
   - extensive structural/system inspection and repair;
   - other specialised maintenance required by the AMP.

   For engine run-up training, simulators and/or real aircraft should be used.
4. The satisfactory assessment of the competence should be conducted in accordance with a procedure approved by the BMAA (item 3.4 of the MOE, as described in AMC BMAR 145.A.70 (a).
5. The maintenance organisation should hold copies of all documents that attest the competence and recent experience for the period described in BMAR 145.A.35 (j). Additional information is provided in AMC BMAR 66.A.20 (b) 3.

**AMC 145.A.35 (b) Certifying staff and support staff**

Moved to BMAR 145.A.35 (b).

**AMC 1 145.A.35 (c) Certifying staff and support staff**

For the interpretation of *"6 months of actual relevant aircraft maintenance experience in any consecutive 2-year period"*, the provisions of AMC BMAR 66.A.20 (b) 2 are applicable.

**AMC 2 145.A.35 (c) Certifying staff and support staff**

Where unpredictable variations in operational military tasking require the use of personnel not meeting the six-month experience requirement, this should be approved by the Accountable Manager on a temporary basis only with the necessary precaution/mitigation put in place and both the CAMO for which work is being conducted and the BMAA should be informed.

**AMC 145.A.35 (d) Certifying staff and support staff**

1. Continuation training is a two way process to ensure that certifying staff and support staff remain current in terms of procedures, human factors and technical knowledge and that the maintenance organisation receives feedback on the adequacy of its procedures and maintenance instructions. Due to the interactive nature of this training, the maintenance organisation should consider the involvement of the quality department to ensure that feedback is actioned. Alternatively, there should be a procedure to ensure that feedback is formally passed from the training department to the quality department to initiate action.

2. Continuation training should cover changes in relevant requirements such as BMAR 145, changes in maintenance organisation procedures and the modification standard of the products being maintained plus human factor issues identified from any internal or external analysis of incidents. It should also address instances where staff failed to follow procedures and the reasons why particular procedures are not always followed. In many cases the continuation training should reinforce the need to follow procedures and ensure that incomplete or incorrect procedures are identified to the maintenance organisation in order that they can be corrected. This does not preclude the possible need to carry out a quality audit of such procedures.

3. Continuation training should be of sufficient duration in each 2 year period to meet the intent of BMAR 145.A.35 (d) and may be split into a number of separate elements. BMAR 145.A.35 (d) requires such training to keep certifying staff and support staff updated in terms of relevant technology, procedures and human factors issues which means it is one part of ensuring quality. Therefore, sufficient duration should be related to relevant quality audit findings and other internal/external sources of information available to the maintenance organisation on human errors in maintenance. This means that in the case of a maintenance organisation that maintains aircraft with few relevant quality audit findings, continuation training could be limited to days rather than weeks, whereas a similar maintenance organisation with a number of relevant quality audit findings, such training may take several weeks. For a maintenance organisation that maintains aircraft components, the duration of continuation training would follow the same philosophy but should be scaled down to reflect the more limited nature of the activity. For example, certifying staff who release hydraulic pumps may only require a few hours of continuation training whereas those who release turbine engines may require a few days of such training. The content of continuation training should be related to relevant quality audit findings and it is recommended that such training is reviewed at least once in every 24 month period.

4. The method of training is intended to be a flexible process and could, for example, include a BMAR 147 continuation training course, aeronautical college courses, internal short duration courses, seminars, etc. The elements, general content and length of such training should be specified in the MOE unless such training is undertaken by a BMAR 147 Maintenance Training Organisation (MTO) when such details may be specified under the approval and cross referenced in the MOE.

**AMC 145.A.35 (e) Certifying staff and support staff**

The programme for continuation training should list all certifying staff and support staff and when training will take place, the elements of such training and an indication that it was carried out reasonably on time as planned. Such information should subsequently be transferred to the certifying staff and support staff record as required by BMAR 145.A.35 (j).

**AMC 145.A.35 (f) Certifying staff and support staff**

As stated in BMAR 145.A.35 (f), except where any of the unforeseen cases of BMAR 145.A.30 (j) (5) applies, all prospective certifying staff and support staff should be assessed for competence related to their intended duties in accordance with AMCs 1, 2, 3 and 4 to BMAR 145.A.30 (e), as applicable.

**AMC 145.A.35 (j) Certifying staff and support staff**

1. The following minimum information as applicable should be kept on record in respect of each certifying staff and support staff:

a. Name

b. Rank/Grade and Service Number (if applicable)

c. Date of Birth

d. Basic Training

e. Military Aircraft Type Training/Task Training

f. Continuation Training

g. Experience

h. Qualifications relevant to the authorisation

i. Scope of the authorisation

j. Date of first issue of the authorisation

k. If appropriate – expiry date of the authorisation

l. Identification Number of the authorisation

m. Security clearance (where applicable).

2. The record may be kept in any format and should be controlled by the maintenance organisation.

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

4. The BMAA or qualified entity acting on behalf of the BMAA are to be considered as an 'authorized person' when investigating the records system for initial and continued approval or when the BMAA has cause to doubt the competence of a particular person.

**AMC 145.A.35 (n) Certifying staff and support staff**

1. It is the responsibility of the AMO issuing the Category A certifying staff authorisation to ensure that the task training received by this person covers all the tasks to be authorised. This is particularly important in those cases where the task training has been provided by a BMAR 147 MTO or by an AMO different from the one issuing the authorisation.

2. "Appropriately approved in accordance with BMAR 147" means an MTO holding an approval to provide Category A task training for the corresponding aircraft type.

3. "Appropriately approved in accordance with BMAR 145" means an AMO holding a maintenance organisation approval for the corresponding aircraft type.

**AMC 145.A.35 (o) Certifying staff and support staff**

1. The privilege for a Category B2 MAML holder to release minor scheduled line maintenance and simple defect rectification in accordance with BMAR 66.A.20 (a) (3) (ii) can only be

granted by the AMO where the MAML holder is employed/contracted after meeting all the requirements specified in BMAR 145.A.35 (o). This privilege cannot be transferred to another maintenance organisation.

2. When a Category B2 MAML holder already holds a certifying staff authorisation containing minor scheduled line maintenance and simple defect rectification for a particular aircraft type, new tasks relevant to Category A can be added to that type without requiring another 6 months of experience. However, task training (theoretical plus practical hands-on) and examination/assessment for these additional tasks is still required.

3. When the certifying staff authorisation intends to cover several aircraft types, the experience may be combined within a single 6-month period.

   For the addition of new aircraft types to the certifying staff authorisation, another 6 months should be required unless the aircraft is considered similar per AMC BMAR 66.A.20 (b) 2 to the one already held.

4. The term "6 months of experience" can include either full-time employment or part-time employment. The important aspect is that the person has been involved during a period of 6 months (not necessarily every day) in those tasks which are going to be part of the authorisation.

**GM 145.A.35 (o) Certifying staff and support staff**

'Unless approved otherwise by the BMAA' in this context means that the requirement can be waived by the BMAA in the case of military personnel that already hold this privilege when they are posted from one AMO to another.

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

(a) The maintenance organisation shall have available and use the necessary equipment, tools and material to perform the approved scope of work.

1. Where the manufacturer specifies a particular tool or equipment, the maintenance organisation shall use that tool or equipment, unless the use of alternative tooling or equipment is agreed by the BMAA via procedures specified in the MOE.

2. Equipment and tools must be permanently available, except in the case of any tool or equipment that is so infrequently used that its permanent availability is not necessary. Such cases shall be detailed in the MOE.

3. A maintenance organisation approved for base maintenance shall have sufficient aircraft access equipment and inspection platforms/docking such that the aircraft can be properly inspected.

(b) The maintenance organisation shall ensure that all tools, equipment and particularly test equipment, as appropriate, are controlled and calibrated according to an officially recognised standard at a frequency to ensure serviceability and accuracy. Records of such calibrations and traceability to the standard used shall be kept by the maintenance organisation.

**AMC 145.A.40 (a) Equipment, tools and material**

Once the applicant for approval has determined the intended scope of approval for consideration by the BMAA, it should be necessary to show that all tools and equipment as specified in the maintenance data can be made available when needed. All such tools and equipment that require

to be controlled in terms of servicing or calibration by virtue of being necessary to measure specified dimensions and torque figures etc, should be clearly identified and listed in a control register including any personal tools and equipment that the maintenance organisation agrees can be used.

**AMC 145.A.40 (b) Equipment, tools and material**

1. The control of these tools and equipment requires that the maintenance organisation has a procedure to inspect/service and, where appropriate, calibrate such items on a regular basis and indicate to users that the item is within any inspection or service or calibration time-limit. A clear system of labelling all tooling, equipment and test equipment is therefore necessary giving information on when the next inspection or service or calibration is due and if the item is unserviceable for any other reason where it may not be obvious. A register should be maintained for all precision tooling and equipment together with a record of calibrations and standards used.

2. Inspection, service or calibration on a regular basis should be in accordance with the equipment manufacturers' instructions unless approved otherwise by the BMAA.

3. In this context officially recognised standard means those standards established or published by an official body whether having legal personality or not, which are widely recognised by the aerospace sector as constituting good practice, or those accepted by the BMAA.

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

(a) All components shall be classified and appropriately segregated into the following categories:

1. Components which are in a satisfactory condition, released on a BMAR Form 1 or equivalent (recognised by BMAA) and marked in accordance with BMAR 21 Subpart Q.

2. Unserviceable components which shall be maintained in accordance with this section. A component shall be considered unserviceable in any one of the following circumstances:

   (i) expiry of the service life limit as defined in the Aircraft Maintenance Programme (AMP);

   (ii) non-compliance with the applicable ADs and other continued or continuing airworthiness requirement mandated by the BMAA;

   (iii) absence of the necessary information to determine the airworthiness status or eligibility for installation;

   (iv) evidence of defects or malfunctions;

   (v) involvement in an incident or accident likely to affect its serviceability.

   Unserviceable components shall be identified and stored in a secure location under the control of a maintenance organisation until a decision is made on the future status of such component.

3. Unsalvageable components which are classified in accordance with BMAR 145.A.42 (d). A maintenance organisation in consultation with the CAMO shall, in the case of unsalvageable components:

(i) retain such components in a secure location under the control of the maintenance organisation until a decision is made on the future status of such component; or

(ii) arrange for the components to be mutilated in a manner that ensures they are beyond economic salvage or repair before relinquishing responsibility for such components. By derogation, a CAMO may transfer responsibility of components classified as unsalvageable to an organisation for training or research without mutilation.

4. Standard parts used on an aircraft, engine, propeller or other aircraft component when specified in the manufacturer's illustrated parts catalogue and/or the maintenance data. These parts shall be accompanied by a manufacturer's declaration of conformity traceable to the applicable standard.

5. Material both raw and consumable used in the course of maintenance when the maintenance organisation is satisfied that the material meets the required specification and has appropriate traceability. All material shall be accompanied by documentation clearly relating to the particular material and containing conformity to specification statement plus both the manufacturing and supplier source.

6. NOT APPLICABLE.

(b) Prior to installation of a component, the maintenance organisation shall ensure that the particular component is eligible to be fitted when different modification and/or AD standards may be applicable.

(c) The maintenance organisation may fabricate a restricted range of parts to be used in the course of undergoing work within its own facilities, or other facilities if this is approved by the BMAA, provided procedures are identified in the MOE.

(d) Components which have reached their certified life limit or contain a non-repairable defect shall be classified as unsalvageable and shall not be permitted to re-enter the component supply system unless certified life limits have been extended or a repair solution has been approved according to BMAR 21.

(e) NOT APPLICABLE.

**AMC 145.A.42 (a) Acceptance of components**

(a) A document equivalent to a BMAR Form 1 may be:

a) NOT APPLICABLE

b) NOT APPLICABLE

c) NOT APPLICABLE

d) NOT APPLICABLE

e) NOT APPLICABLE

f) An EASA Form 1 (not originating from an EASA Part M Subpart F approved organisation)

g) A national equivalent document recognised by the BMAA as declaring an item's serviceability and airworthiness

h) A release document issued by an organisation accepted by the BMAA;

(b) See BMAR AMC 145.A.42 (a) 4 and BMAR AMC 145.A.42 (a) 5

**GM 145.A.42 (a) Acceptance of components**

The reason that the EASA Form 1 must be issued by an EASA Part 145 maintenance organisation, not an EASA Part M Subpart F approved organisation is that a Subpart F organisation should not issue parts for 'complex motor-powered' or 'CAT' aircraft. Military aircraft are considered equivalent to 'complex motor-powered' aircraft and 'CAT' aircraft.

**AMC 145.A.42 (a) 2 Acceptance of components**

The maintenance organisation performing maintenance should ensure proper identification of any unserviceable components.

The unserviceable status of the component should be clearly declared on a tag or other suitable means together with the component identification data and any information useful to define actions necessary to be taken. Such information should state, as applicable, in-service times, maintenance status, preservation status, failures, defects or malfunctions reported or detected exposure to adverse environmental conditions or if the component has been involved in or affected by an accident/incident. Means should be provided to prevent unwanted separation of this tag from the component.

**AMC 145.A.42 (a) 3 Acceptance of components**

A maintenance organisation may choose, in consultation with the CAMO, to release an unsalvageable component for legitimate non-flight uses, such as for training and education, research and development. In such instances, mutilation may not be appropriate. The following methods should be used to prevent the component re-entering the aviation supply system:

(a) permanently marking or stamping the component, as "NOT SERVICEABLE." (ink stamping is not an acceptable method);

(b) removing original part number identification;

(c) removing data plate identification;

(d) maintaining a tracking or accountability system, by serial number or other individualised data, to record transferred unsalvageable aircraft component;

(e) including written procedures concerning disposal of such components in any agreement or contract transferring such components.

NOTE: Unsalvageable components should not be released to any person or organisation that is known to return unsalvageable components back into the aviation supply system, due to the potential safety threat. Information about such organisations can be found, for example, in FAA Unapproved Parts Notifications, FAA Special Airworthiness Bulletins or EASA Safety Information Bulletins.

**AMC 145.A.42 (a) 3 (ii) Acceptance of components**

1. Mutilation should be accomplished in such a manner that the components become permanently unusable for their original intended use. Mutilated components should not be able to be reworked or camouflaged to provide the appearance of being serviceable, such as by re-plating, shortening and re-threading long bolts, welding, straightening, machining, cleaning, polishing, or repainting.

2. Mutilation may be accomplished by one or a combination of the following procedures:

   (a) grinding,

   (b) burning,

   (c) removal of a major lug or other integral feature,

   (d) permanent distortion of parts,

   (e) cutting a hole with a cutting torch or saw,

   (f) melting,

   (g) sawing into many small pieces,

   (h) any other method accepted by the BMAA on a case by case basis.

3. The following procedures are examples of mutilation that are often less successful because they may not be consistently effective:

   (a) stamping or vibro-etching,

   (b) spraying with paint,

   (c) small distortions, incisions or hammer marks,

   (d) identification by tag or markings,

   (e) drilling small holes,

   (f) sawing in two pieces only.

4. Since manufacturers producing approved aircraft components should maintain records of serial numbers for 'retired' certified life-limited or other critical components, the organisation that mutilates a component should inform the original manufacturer unless directed otherwise by the BMAA.

**AMC 145.A.42 (a) 4 Acceptance of components**

STANDARD PARTS

(a) For a definition of 'Standard Parts' see EMAD 1[7].

[7] A standard part is a part designated as such by the design approval holder responsible for the product, part or appliance, in which it is intended to be used and manufactured in complete compliance with an established specification which includes design, manufacturing, test and acceptance criteria, and uniform identification requirements. Examples of standard parts are aircraft general spares as defined by the design approval holder, such as nuts, bolts, washers,

(b) Documentation accompanying standard parts should clearly relate to the particular parts and contain a conformity statement plus both the manufacturing and supplier source (a Certificate of Conformity is sufficient). Some material is subject to special conditions such as storage condition or life limitation, etc. and this should be included on the documentation and/or material packaging.

(c) An EASA/BMAR Form 1 or equivalent is not normally issued and therefore none should be expected.

**AMC 145.A.42 (a) 5 Acceptance of components**

(a) Consumable material is any material which is only used once, such as lubricants, cements, compounds, paints, chemicals, dyes, and sealants, etc.

(b) Raw material is any material that requires further work to make it into a component part of the aircraft such as metals, plastics, fabric, etc.

(c) Material, both raw and consumable, should only be accepted when satisfied that it is to the required specification. To be satisfied, the material and/or its packaging should be marked with the specification and, where appropriate, the batch number.

(d) Documentation accompanying all material should clearly relate to the particular material and contain a conformity statement plus both the manufacturing and supplier source. Some material is subject to special conditions such as storage condition, or life limitation, etc., and this should be included on the documentation and/or material packaging.

(e) The material specification is normally identified in the M(S)TC holder's data except in the case where the BMAA has agreed otherwise. An EASA/BMAR Form 1 or equivalent should not be issued for such material, and, therefore, none should be expected.

(f) Items purchased in batches (fasteners, etc.) should be supplied in a package. The packaging should state the applicable specification/standard, P/N, batch number, and the quantity of the items. The documentation accompanying the material should contain the applicable specification/standard, P/N, batch number, supplied quantity, and the manufacturing sources. If the material is acquired from different batches, acceptance documentation for each batch should be supplied.

**AMC 145.A.42 (b) Acceptance of components**

(a) The BMAR Form 1 (or other equivalent forms detailed at BMAR AMC 145.A.42 (a)) identifies the status of an aircraft component. Block 12 'Remarks' on the BMAR Form 1 in some cases contains vital airworthiness related information which may need appropriate and necessary actions. The receiving maintenance organisation should be satisfied that the component in question is in satisfactory condition and has been appropriately released to service. In addition, the maintenance organisation should ensure that the component meets the approved data/standard, such as the required design and modification standard. This may be accomplished by reference to the manufacturer's parts catalogue or other approved data (i.e. Service Bulletin). Care should also be taken in ensuring compliance with applicable AD, the status of any life-limited parts fitted to the aircraft component as well as CDCCL (if applicable).

(b) To ensure a component is in a satisfactory condition, the maintenance organisation should perform checks and verifications.

split pins, etc. All design, manufacturing, inspection data and marking requirements necessary to demonstrate conformity of the part will be in the public domain and published or established as part of recognised specifications.

(c) Performance of the above checks and verifications should take place before the component is installed on the aircraft.

(d) The following list, though not exhaustive, contains typical checks to be performed:

(i) verify the general condition of components and their packaging in relation to damages that could affect the integrity of the components;

(ii) verify that the shelf life of the component has not expired;

(iii) verify that items are received in the appropriate package in respect of the type of component: e.g. correct ATA 300 or electrostatic sensitive devices packaging, when necessary;

(iv) verify that the component has all plugs and caps appropriately installed in accordance with approved data to prevent damage or internal contamination.

**AMC 145.A.42 (c) Acceptance of components**

1. The agreement by the BMAA for the fabrication of parts by the maintenance organisation should be formalized through the approval of a detailed procedure in the MOE. This AMC contains principles and conditions to be taken into account for the preparation of an acceptable procedure.

2. Fabrication, inspection assembly and test should be clearly within the technical and procedural capability of the maintenance organisation;

3. All necessary data to fabricate the part should be approved either by the BMAA or the (Military) Type Certificate (TC) holder or BMAR 21 Design Organisation Approval holder, or (Military) Supplemental Type Certificate (STC) holder;

4. Items fabricated by a maintenance organisation may only be used by that maintenance organisation in the course of overhaul, maintenance, modifications, or repair of aircraft or components undergoing work within its own facility. The fabrication of parts for other facilities may only take place if approved by the BMAA. The permission to fabricate does not constitute approval for manufacture and the parts do not qualify for certification on BMAR Form 1. This prohibition also applies to the bulk transfer of surplus inventory, in that locally fabricated parts are physically segregated and excluded from any delivery certification. Fabricated parts are to be clearly labelled in a manner identified by the BMAA.

5. Fabrication of parts, modification kits etc for onward supply may not be conducted by a maintenance organisation, unless otherwise approved by the BMAA.

6. The data specified in paragraph 3 may include repair procedures involving the fabrication of parts. Where the data on such parts is sufficient to facilitate fabrication, the parts may be fabricated by a maintenance organisation. Care should be taken to ensure that the data includes details of part numbering, dimensions, materials, processes, and any special manufacturing techniques, special raw material specification or/and incoming inspection requirement and that the maintenance organisation has the necessary capability. That capability should be defined by way of MOE content. Where special processes or inspection procedures are defined in the approved data which are not available at the organisation, the organisation cannot fabricate the part unless the (Military) TC/STC-holder or BMAR 21 Design Organisation Approval holder gives an approved alternative.

7. Examples of fabrication under the scope of a BMAR 145 approval can include but are not limited to the following:

    a) Fabrication of bushes, sleeves and shims.

    b) Fabrication of secondary structural elements and skin panels.

    c) Fabrication of control cables.

    d) Fabrication of flexible and rigid pipes.

    e) Fabrication of electrical cable looms and assemblies.

    f) Formed or machined sheet metal panels for repairs.

    All the above fabricated parts should be in accordance with data provided in overhaul or repair manuals, modification schemes and service bulletins, drawings or otherwise approved by the BMAA.

    Note: It is not acceptable to fabricate any item to pattern unless an engineering drawing of the item is produced which includes any necessary fabrication processes and which is acceptable to the BMAA.

8. Where a (Military)TC/STC-holder or a BMAR 21 Approved Production Organisation is prepared to make available complete data which is not referred to in aircraft manuals or service bulletins but provides manufacturing drawings for items specified in parts lists, the fabrication of these items is not considered to be within the scope of an approval unless agreed otherwise by the BMAA in accordance with a procedure specified in the MOE.

9. Inspection and Identification

    Any locally fabricated part should be subjected to an inspection stage before, separately, and preferably independently from, any inspection of its installation. The inspection should establish full compliance with the relevant manufacturing data, and the part should be unambiguously identified as fit for use by stating conformity to the approved data. Adequate records should be maintained of all such fabrication processes including, heat treatment and the final inspections. Fabricated parts are to be clearly labelled in a manner identified by the BMAA. All parts, except those having not enough space, should carry a part number which clearly relates it to the manufacturing/inspection data. Additional to the part-number the maintenance organisation's identity should be marked on the part for traceability purposes.

**AMC 145.A.42 (d) Acceptance of components**

1. The following types of components should typically be classified as unsalvageable:

    a. Components with non-repairable defects, whether visible or not to the naked eye;

    b. Components that do not meet design specifications, and cannot be brought into conformity with such specifications;

    c. Components subjected to unacceptable modification or rework that is irreversible;

    d. Certified life-limited parts that have reached or exceeded their certified life limits, or have missing or incomplete records;

e. Components that cannot be returned to an airworthy condition due to exposure to extreme forces, heat or adverse environment;

f. Components for which conformity with an applicable AD cannot be accomplished;

g. Components for which maintenance records and/or traceability to the manufacturer/maintenance organisation cannot be retrieved.

2. Caution should be exercised to ensure that unsalvageable components are disposed of in a manner that does not allow them to be returned to service.

**GM 145.A.42 (d) Acceptance of components**

It is common practice for possessors of aircraft components to dispose of unsalvageable components by selling, discarding, or transferring such items. In some instances, these items have reappeared for sale and in the active parts inventories of the aviation community. Misrepresentation of the status of components and the practice of making such items appear serviceable have resulted in the use of unsalvageable non-conforming components. Therefore organisations disposing of unsalvageable aircraft components should consider the possibility of such components later being misrepresented and sold as serviceable components.

**145.A.45 Maintenance data**

(a) The maintenance organisation shall have access to and use applicable current maintenance data in the performance of maintenance, including modifications and repairs. 'Applicable' means relevant to any aircraft, component or process specified in the Maintenance Organisation Approval Schedule and in any associated capability list.

In the case of maintenance data provided by a CAMO, the maintenance organisation shall have access to such data when the work is in progress, with the exception of the need to comply with BMAR 145.A.55 (c).

(b) For the purposes of BMAR 145, applicable maintenance data shall be any of the following:

1. Any applicable requirement, procedure, operational directive or information issued by or provided by the BMAA;

2. Any applicable AD issued by the BMAA;

3. Instructions for Continuing Airworthiness, issued by (Military) Type Certificate (MTC) holders, (Military) Supplementary Type Certificate (MSTC) holders, any other organisation required to publish such data by BMAR 21 and in the case of aircraft or components from third countries the airworthiness data mandated by the Authority responsible for the oversight of the aircraft or component and accepted by the BMAA;

4. Any applicable standard, such as but not limited to, maintenance standard practices recognised by the BMAA as a good standard for maintenance;

5. Any applicable data issued in accordance with paragraph (d).

(c) The maintenance organisation shall establish procedures to ensure that if found, any inaccurate, incomplete or ambiguous procedure, practice, information or maintenance instruction contained in the maintenance data used by maintenance personnel is recorded and notified to the author of the maintenance data.

(d) The maintenance organisation may only modify maintenance instructions in accordance with a procedure specified in the MOE. With respect to those changes, the maintenance organisation shall demonstrate that they result in equivalent or improved maintenance standards and shall inform the MTC holder/MSTC holder of such changes. Maintenance instructions for the purposes of this paragraph means instructions on how to carry out the particular maintenance task: they exclude the engineering design of repairs and modifications.

(e) The maintenance organisation shall provide a common work card or worksheet system to be used throughout relevant parts of the maintenance organisation. In addition, the maintenance organisation shall either transcribe accurately the maintenance data contained in paragraphs (b) and (d) onto such work cards or worksheets or make precise reference to the particular maintenance task or tasks contained in such maintenance data. Work cards and worksheets may be computer generated and held on an electronic database subject to both adequate safeguards against unauthorised alteration and a back-up electronic database which shall be updated within 24 hours of any entry made to the main electronic database. Complex maintenance tasks shall be transcribed onto the work cards or worksheets and subdivided into clear stages to ensure a record of the accomplishment of the complete maintenance task.

Where the maintenance organisation provides a maintenance service to a CAMO who requires their work card or worksheet system to be used then such work card or worksheet system may be used. In this case, the maintenance organisation shall establish a procedure to ensure correct completion of the CAMO's work cards or worksheets.

(f) The maintenance organisation shall ensure that all applicable maintenance data is readily available for use when required by maintenance personnel.

(g) The maintenance organisation shall establish a procedure to ensure that maintenance data it controls is kept up to date. In the case of maintenance data controlled and provided by the CAMO, the maintenance organisation shall be able to show that either it has written confirmation from the CAMO that all such maintenance data is up to date or it has work orders specifying the amendment status of the maintenance data to be used or it can show that it is on the CAMO maintenance data amendment list.

**AMC 145.A.45 (b) Maintenance data**

1. Except as specified in subparagraph 5, each AMO should have access to and use the following minimum maintenance data relevant to the AMO's approval class rating: all maintenance related requirements and associated AMCs, approval specifications and Guidance Material, all applicable national maintenance requirements and notices which have not been superseded by a BMAA requirement, procedure or directive and all applicable ADs as well as CDCCLs (if applicable).

2. In addition to subparagraph 1, an AMO with an approval class rating in category A – Aircraft, should have access to and use the following maintenance data where published: the appropriate sections of the Aircraft Maintenance Programme, Aircraft Maintenance Manual, repair manual, supplementary structural inspection document, corrosion control document, Service Bulletins, service letters, service instructions, modification leaflets, NDT manual, parts catalogue, (Military) TC data sheet and any other specific document issued by the (military) TC/STC holder or BMAA as maintenance data.

3. In addition to subparagraph 1, an AMO with an approval class rating in category B — Engines/APUs, should have access to and use the following maintenance data where published: the appropriate sections of the engine/APU maintenance and repair manual, Service Bulletins, service letters, modification leaflets, non-destructive testing (NDT)

manual, parts catalogue, (Military) Type Certificate data sheet and any other specific document issued by the (Military) TC/STC holder or BMAA as maintenance data.

4. In addition to subparagraph 1, an AMO with an approval class rating in category C – Components other than complete engines/APUs, should have access to and use the following maintenance data where published: the appropriate sections of the component maintenance and repair manual, Service Bulletins and service letters plus any document issued by the (Military) TC/STC holder or BMAA as maintenance data on whose product the component may be fitted when applicable.

5. Appropriate sections of the subparagraphs 2 to 4 additional maintenance data means in relation to the maintenance work scope at each particular maintenance facility. For example, a base maintenance facility should have access to almost complete set(s) of the maintenance data whereas a line maintenance facility may need only the maintenance manual and the parts catalogue.

6. An AMO only approved in class rating category D – Specialised services, should hold and use all applicable specialised service(s) process specifications.

**AMC 145.A.45 (c) Maintenance data**

1. The referenced procedure should ensure that when maintenance personnel discover inaccurate, incomplete or ambiguous information in the maintenance data they should record the details. The procedure should then ensure that the maintenance organisation notifies the problem to the author of the maintenance data in a timely manner. A record of such communications to the author of the maintenance data should be retained by the maintenance organisation until such time as the (Military) TC/STC holder, BMAR 21 Design Organisation Approval holder or BMAA has clarified the issue by e.g. amending the maintenance data.

2. The referenced procedure should be specified in the MOE.

**AMC 145.A.45 (d) Maintenance data**

The referenced procedure should address the need for a practical demonstration by the maintenance personnel to the quality personnel of the proposed modified maintenance instruction. When satisfied the quality personnel should approve the modified maintenance instruction and ensure that the (Military)TC holder, BMAR 21 Design Organisation Approval holder or BMAA is informed of the modified maintenance instruction. The procedure should include a paper/electronic traceability of the complete process from start to finish and ensure that the relevant maintenance instruction clearly identifies the modification. Modified maintenance instructions should only be used in the following circumstances:

a. Where the (Military) TC/STC holder, BMAR 21 Design Organisation Approval holder or BMAA's original intent can be carried out in a more practical or more efficient manner.

b. Where the (Military) TC/STC holder, BMAR 21 Design Organisation Approval holder or BMAA's original intent cannot be achieved by following the maintenance instructions. For example, where a component cannot be replaced following the original maintenance instructions.

c. For the use of alternative tools/equipment.

Important note: CDCCLs are airworthiness limitations. Any modification of the maintenance instructions linked to CDCCL constitutes an aircraft modification that should be approved in accordance with BMAR 21.

**AMC 145.A.45 (e) Maintenance data**

1. The maintenance organisation should:

    a. Transcribe accurately the maintenance data onto such workcards or worksheets, or

    b. Make precise reference to the particular maintenance task(s) contained in such maintenance data, which already identifies the task as a CDCCL where applicable.

2. Relevant parts of the maintenance organisation means with regard to aircraft base maintenance, aircraft line maintenance, engine workshops, mechanical workshops and avionic workshops. Therefore, engine workshops for example should have a common system throughout such engine workshops that may be different to that in the aircraft base maintenance.

3. The workcards should differentiate and specify, when relevant, disassembly, accomplishment of task, reassembly and testing. In the case of a lengthy maintenance task involving a succession of personnel to complete such a task, it may be necessary to use supplementary workcards or worksheets to indicate what was actually accomplished by each individual person.

**GM 145.A.45 (e) Maintenance data**

'Complex maintenance tasks' are neither minor scheduled line maintenance tasks nor simple defect rectification tasks. They therefore cannot be certified by a Category A MAML holder.

**AMC 145.A.45 (f) Maintenance data**

1. Data being made available to personnel maintaining aircraft means that the data should be available in close proximity to the aircraft being maintained for supervisors, mechanics and certifying and support staff to study.

2. Where computer systems are used, the number of computer terminals or maintenance data access points should be sufficient in relation to the size of the work programme to enable easy access, unless the computer system can produce paper copies. Where microfilm or microfiche readers/printers are used, a similar requirement is applicable.

**AMC 145.A.45 (g) Maintenance data**

1. To keep data up-to-date, a procedure should be set up to monitor the amendment status of all data and maintain a check that all amendments are being received by being a subscriber to any document amendment scheme. Special attention should be given to (Military) TC/STC related data such as certification life-limited parts, airworthiness limitations and Airworthiness Limitation Items (ALI), etc.

2. If paper copies are printed from computer systems, a procedure should be in place to ensure the control or destruction of such copies after use.

**145.A.47 Maintenance planning**

(a) The maintenance organisation shall have a system appropriate to the amount and complexity of work to plan the availability of all necessary personnel, tools, equipment, material, maintenance data and facilities in order to ensure the safe completion of the maintenance work.

(b) The planning of maintenance tasks, and the organising of shifts, shall take into account human performance limitations.

(c) When it is required to hand over the continuation or completion of maintenance tasks for reasons of a shift or personnel changeover, relevant information shall be adequately communicated between outgoing and incoming personnel.

**AMC 145.A.47 (a) Maintenance planning**

1. Depending on the amount and complexity of work generally performed by the maintenance organisation, the planning system may range from a very simple procedure to a complex organisational set-up including a dedicated planning function in support of the maintenance function.

2. For the purpose of BMAR 145, the maintenance planning function should include two complementary elements:
   - scheduling the maintenance work ahead, to ensure that it will not adversely interfere with other work as regards the availability of all necessary personnel, tools, equipment, material, maintenance data and facilities.
   - during maintenance work, organising maintenance teams and shifts and provide all necessary support to ensure the completion of maintenance without undue time pressure.

3. When establishing the maintenance planning procedure, consideration should be given to the following:
   - logistics,
   - inventory control,
   - square meters of accommodation,
   - man-hours estimation,
   - man-hours availability,
   - preparation of work,
   - hangar availability,
   - environmental conditions (access, lighting standards and cleanliness),
   - coordination with contracted/tasked maintenance organisations, internal and external suppliers, etc.
   - scheduling of safety-critical tasks during periods when staff are likely to be most alert,
   - military operational commitments,
   - location (e.g. Main Operating Base, Deployed Operating Base).

**AMC 145.A.47 (b) Maintenance planning**

Limitations of human performance, in the context of planning safety related tasks, refers to the upper and lower limits, and variations, of certain aspects of human performance (Circadian rhythm / 24 hours body cycle) which personnel should be aware of when planning work and shifts.

**AMC 145.A.47 (c) Maintenance planning**

The primary objective of the changeover / handover information is to ensure effective communication at the point of handing over the continuation or completion of maintenance actions. Effective task and shift handover depends on three basic elements:

a. The outgoing person's ability to understand and communicate the important elements of the job or task being passed over to the incoming person.

b. The incoming person's ability to understand and assimilate the information being provided by the outgoing person.

c. A formalized process for exchanging information between outgoing and incoming persons and a planned shift overlap and a place for such exchanges to take place.

**145.A.48 Performance of maintenance**

(a) All maintenance shall be performed by qualified personnel, following the methods, techniques, standards, and instructions specified in the BMAR 145.A.45 maintenance data.

(b) An independent inspection shall be carried out after any flight safety sensitive maintenance task unless otherwise specified in this BMAR or agreed by the BMAA.

(c) Damage is assessed and modifications and repairs are carried out using data specified in BMAR M.A.304.

(d) After completion of all maintenance, a general verification shall be carried out to ensure the aircraft or component is clear of all tools, equipment, and any other extraneous parts and material, and that all access panels removed have been refitted;

**AMC 145.A.48 (b) Performance of maintenance**

(a) The manufacturer's Instructions for Continuing Airworthiness should be followed when determining the need for an independent inspection.

(b) In the absence of maintenance and inspection standards published by the organisation responsible for the type design, maintenance tasks that involve the assembly or any disturbance of a control system and that, if errors occurred, could result in a failure, malfunction, or defect endangering the safe operation of the aircraft should be considered as flight safety sensitive maintenance tasks needing an independent inspection. A control system is an aircraft system by which the flight path, attitude, or propulsive force of the aircraft is changed, including the flight, engine and propeller controls (but not limited to these systems), the related system controls and the associated operating mechanisms. Maintenance tasks associated with the crew escape and safety systems should also be considered as flight safety sensitive maintenance tasks.

(c) A maintenance task requiring an independent inspection consists of an authorised person signing the maintenance task/release, who assumes full responsibility for the satisfactory completion of the work, before being subsequently inspected by an independent competent

and authorised person who attests to the satisfactory completion of the work recorded and that no deficiencies have been found.

(1) A maintenance task requiring an independent inspection should therefore involve at least two persons, to ensure correct assembly, locking and sense of operation. A technical record of the inspection should contain the signatures of both persons before the relevant certificate of release to service is issued.

(2) The independent competent and authorised person is not issuing a maintenance release, therefore, is not required to hold certification privileges. However, they should be suitably qualified to carry out the inspection and must not have been involved in the work.

(d) The maintenance organisation should have procedures to demonstrate that independent signatories have been trained, and have gained experience on the specific systems being inspected.

(e) The following maintenance tasks should primarily be considered when inspecting aircraft control and crew escape and safety systems that have been disturbed:

(1) installation, rigging, and adjustment of flight controls;

(2) installation of aircraft engines, propellers; and rotors; and

(3) overhaul, calibration or rigging of components such as engines, propellers, transmissions and gearboxes; and

(4) installation and maintenance carried out on ejection seats.

Consideration should also be given to:

(1) previous experience of maintenance errors, depending on the consequences of the failure; and

(2) information arising from an ‘occurrence reporting system’; and

(3) information arising from the CAMO.

(f) When inspecting control systems and crew escape and safety systems that have undergone maintenance, the person signing the maintenance release and the person performing the independent inspection should consider the following points independently:

(1) all those parts of the system that have actually been disconnected or disturbed, should be inspected for correct assembly and locking;

(2) the system as a whole should be inspected for full and free movement over the complete range;

(3) cables should be tensioned correctly with adequate clearance at secondary stops;

(4) the operation of the system as a whole should be observed to ensure that the controls are operating in the correct sense;

(5) if the system is duplicated to provide redundancy, each system should be inspected separately; and

(6) if different systems are interconnected so that they affect each other, all interactions should be inspected through the full range of the applicable controls.

**AMC 145.A.48 (c) Performance of maintenance**

NOT APPLICABLE.

**145.A.50 Certification of maintenance**

(a) A CRS for aircraft and a CRS for components shall be issued by appropriately authorised certifying staff on behalf of the AMO when it has been verified that all maintenance ordered/tasked has been properly carried out in accordance with the procedures specified in BMAR 145.A.70, taking into account the availability and use of the maintenance data specified in BMAR 145.A.45 and that there are no non-compliances which are known to endanger flight safety.

(b) A CRS for aircraft shall be issued before flight at the completion of any maintenance.

(c) New defects or incomplete maintenance work orders identified during the above maintenance shall be brought to the attention of the CAMO for the specific purpose of obtaining agreement to rectify such defects or completing the missing elements of the maintenance work order. In the case where the CAMO declines to have such maintenance carried out under this paragraph, paragraph (e) is applicable.

(d) A CRS for components shall be issued at the completion of any maintenance on a component whilst off the aircraft. The authorised release certificate or airworthiness approval tag identified as BMAR Form 1 or equivalent constitutes the component CRS. When an AMO maintains a component for its own use, a BMAR Form 1 or equivalent may not be necessary depending upon the AMO's internal release procedures defined in the MOE.

(e) By derogation to paragraph (a), when the AMO is unable to complete all maintenance ordered/tasked, it may issue a CRS within the approved aircraft limitations. The AMO shall enter such fact in the aircraft CRS before the issue of such certificate. Details of any deferred maintenance are to be entered in the aircraft technical log by appropriately approved certifying staff.

(f) By derogation to paragraphs (a) and BMAR 145.A.42, when an aircraft is grounded at a location other than the Main Operation Base (MOB) due to the non-availability of a component with an appropriate release certificate, it is permissible to temporarily fit a component with another release certificate, subject to CAMO approval, which is in compliance with all the applicable technical and operational requirements. The fitment of such components shall be noted in the aircraft documentation, with a provision for the component to be removed at a time specified by the CAMO, unless an appropriate release certificate has been obtained in the meantime under paragraph (a) and BMAR 145.A.42.

**AMC 145.A.50 (a) Certification of maintenance**

'*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 AD overdue for compliance is also considered a hazard to flight safety.

**AMC 145.A.50 (b) Certification of maintenance**

1. The CRS for aircraft should contain the following statement:

   'Certifies that the work specified, except as otherwise specified, was carried out in accordance with BMAR 145 and in respect to that work the aircraft / aircraft component is considered ready for release to service'.

   Reference should also be made to the BMAR 145 approval number.

2. It is acceptable to use an alternate abbreviated CRS for aircraft consisting of the following statement 'BMAR 145 release to service' instead of the full certification statement specified in paragraph 1. When the alternate abbreviated CRS is used, the introductory section of the aircraft technical log should include an example of the full certification statement from paragraph 1.

3. The CRS should relate to the task specified in the (Military) TC/STC holder's or CAMO's instructions or the Aircraft Maintenance Programme which itself may cross-refer to maintenance data.

4. The date such maintenance was carried out should include when the maintenance took place relative to any life or overhaul limitation in terms of date/flying hours/cycles/landings etc., as appropriate.

5. When extensive maintenance has been carried out, it is acceptable for the CRS to summarize the maintenance as long as there is a unique cross-reference to the work package containing full details of maintenance carried out. Dimensional information should be retained in the work-pack record.

**AMC 1 145.A.50 (d) Certification of maintenance**

1. The purpose of the CRS is to release assemblies/items/components/parts (hereafter referred to as 'item(s)') after maintenance and to release maintenance work carried out on such items under the approval of a BMAA and to allow items removed from one aircraft/aircraft component to be fitted to another aircraft/aircraft component.

2. The certificate is to be used for export/import purposes, the transfer of items between pMS as well as for domestic purposes, and serves as an official certificate for items from the manufacturer/AMO to users.

3. It can only be issued by AMOs within the scope of the approval.

4. The CRS may be used as a rotable tag (if using BMAR Form 1 – national equivalents recognized by BMAA may be able to be used this way also) by utilizing the available space on the reverse side of the certificate for any additional information and dispatching the item with two copies of the certificate so that one copy may be eventually returned with the item to the AMO. The alternative solution is to use existing rotable tags and also supply a copy of the certificate.

5. A CRS should not be issued for any item when it is known that the item is unserviceable except in the case of an item undergoing a series of maintenance processes at several AMOs and the item needs a certificate for the previous maintenance process carried out for the next AMO to accept the item for subsequent maintenance processes. In such a case, a clear statement of limitation should be endorsed in Block 12 of BMAR Form 1 (or equivalent).

**AMC 2 145.A.50 (d) Certification of maintenance**

1. A component which has been maintained off the aircraft needs the issuance of a CRS for such maintenance and another CRS in regard to being installed properly on the aircraft when such action occurs.

2. In the case of the issue of BMAR Form 1 (or equivalent) for components in storage before BMAR 145 and BMAR 21 became effective and not released on a BMAR Form 1 or equivalent in

accordance with BMAR 145.A.42 (a) or removed serviceable from a serviceable aircraft or an aircraft which has been withdrawn from service the following applies:

2.1. A BMAR Form 1 (or equivalent) may be issued for an aircraft component which has been:

2.1.1. Maintained before BMAR 145 became effective or manufactured before BMAR 21 became effective.

2.1.2. Used on an aircraft and removed in a serviceable condition. Examples include leased and loaned aircraft components, or “cannibalised” components.

2.1.3. Removed from aircraft which have been withdrawn from service, or from aircraft which have been involved in abnormal occurrences such as accidents, incidents, heavy landings or lightning strikes.

2.1.4. Maintained by an unapproved maintenance organisation.

2.2. An appropriately rated AMO may issue a BMAR Form 1 (or equivalent) as detailed in this AMC subparagraph 2.5 to 2.9, as appropriate, in accordance with procedures detailed in the MOE as approved by the BMAA. The appropriately rated AMO is responsible for ensuring that all reasonable measures have been taken to ensure that only approved and serviceable aircraft components are issued a BMAR Form 1 (or equivalent) under this paragraph.

2.3. For the purposes of this AMC 2 only, ’appropriately rated’ means an AMO with an approval class rating for the type of component or for the product in which it may be installed.

2.4. A BMAR Form 1 (or equivalent) issued in accordance with paragraph 2 should be issued by signing in Block 14b and stating ‘Inspected’ in Block 11. In addition, Block 12 should specify:

2.4.1. When the last maintenance was carried out and by whom.

2.4.2. If the component is unused, when the component was manufactured and by whom with a cross-reference to any original documentation which should be included with the Form.

2.4.3. A list of all ADs, repairs and modifications known to have been incorporated. If no ADs or repairs or modifications are known to be incorporated, then this should be so stated.

2.4.4. Detail of life used for service life-limited parts being any combination of fatigue, overhaul or storage life.

2.4.5. For any aircraft component having its own maintenance history record, reference to the particular maintenance history record as long as the record contains the details that would otherwise be required in Block 12. The maintenance history record and acceptance test report or statement, if applicable, should be attached to the BMAR Form 1 (or equivalent).

2.5. New/unused aircraft components.

2.5.1. Any unused aircraft component in storage without a BMAR Form 1 (or equivalent) up to the effective date(s) for BMAR 21 that was manufactured by an organisation acceptable to the BMAA at that time may be issued with a BMAR Form 1 (or equivalent) by an appropriately rated AMO. The BMAR Form 1 (or equivalent) should be issued in

accordance with the following subparagraphs which should be included in a procedure within the MOE.

Note: It should be understood that the release of a stored but unused aircraft component in accordance with this subparagraph represents a maintenance release under BMAR 145 and not a production release under BMAR 21. It is not intended to by-pass the production release procedure agreed by the pMS for parts and subassemblies intended for fitment on the manufacturer's own production line.

(a) An acceptance test report or statement should be available for all used and unused aircraft components that are subjected to acceptance testing after manufacturing or maintenance as appropriate.

(b) The aircraft component should be inspected for compliance with the manufacturer's instructions and limitations for storage and condition including any requirement for limited storage life, inhibitors, controlled climate and special storage containers. In addition, or in the absence of specific storage instructions, the aircraft component should be inspected for damage, corrosion and leakage to ensure good condition. Where military operational circumstances have prevented storage in accordance with the manufacturer's instructions, a procedure approved by the BMAA should be defined and adhered to.

(c) The storage life used of any storage life-limited parts should be established.

2.5.2. If it is not possible to establish satisfactory compliance with all applicable conditions specified in subparagraph 2.5.1 (a) to (c) inclusive, the aircraft component should be disassembled by an appropriately rated AMO and subjected to a check for incorporated ADs, repairs and modifications and inspected/tested in accordance with the maintenance data to establish satisfactory condition and, if relevant, all seals, lubricants and life-limited parts should be replaced. Upon satisfactory completion after reassembly, a BMAR Form 1 (or equivalent) may be issued stating what was carried out and the reference of the maintenance data included.

2.6. Used aircraft components removed from a serviceable aircraft.

2.6.1. Serviceable aircraft components removed from a Belgian registered aircraft may be issued with a BMAR Form 1 (or equivalent) by an appropriately rated AMO subject to compliance with this subparagraph.

(a) The AMO should ensure that the component was removed from the aircraft by an appropriately qualified person.

(b) The aircraft component may only be deemed serviceable if the last flight operation with the component fitted revealed no faults on that component/related system.

(c) The aircraft component should be inspected for satisfactory condition including in particular damage, corrosion or leakage and compliance with any additional maintenance data.

(d) The aircraft record should be researched for any unusual events that could affect the serviceability of the aircraft component such as involvement in accidents, incidents, heavy landings or lightning strikes. Under no circumstances may a BMAR Form 1 (or equivalent) be issued in accordance

with this paragraph 2.6 if it is suspected that the aircraft component has been subjected to extremes of stress, temperatures or immersion which could affect its operation.

(e) A maintenance history record should be available for all used serialised aircraft components.

(f) Compliance with known modifications and repairs should be established.

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

(h) Compliance with known applicable ADs should be established.

(i) Subject to satisfactory compliance with this subparagraph 2.6.1, a BMAR Form 1 (or equivalent) may be issued and should contain the information as specified in paragraph 2.4 including the aircraft from which the aircraft component was removed.

2.6.2. NOT APPLICABLE

2.7. Used aircraft components removed from an aircraft withdrawn from service.

Serviceable aircraft components removed from an aircraft withdrawn from service may be issued with a BMAR Form 1 (or equivalent) by an AMO subject to compliance with this subparagraph.

(a) Aircraft withdrawn from service are sometimes dismantled for spares. This is considered to be a maintenance activity and should be accomplished under the control of an AMO, employing procedures approved by the BMAA.

(b) To be eligible for installation, components removed from such aircraft may be issued with a BMAR Form 1 (or equivalent) by an appropriately rated AMO following a satisfactory assessment.

(c) As a minimum, the assessment will need to satisfy the standards set out in paragraphs 2.5 and 2.6 as appropriate. This should, where known, include the possible need for the alignment of scheduled maintenance that may be necessary to comply with the maintenance programme applicable to the aircraft on which the component is to be installed.

(d) Irrespective of whether the aircraft holds a Military Certificate of Airworthiness or not, the AMO responsible for certifying any removed component should ensure that the manner in which the components were removed and stored are compatible with the standards required by BMAR 145.

(e) A structured plan should be formulated to control the aircraft disassembly process. The disassembly is to be carried out by an appropriately rated AMO under the supervision of certifying staff who will ensure that the aircraft components are removed and documented in a structured manner in accordance with the appropriate maintenance data and disassembly plan.

(f) All recorded aircraft defects should be reviewed and the possible effects these may have on both normal and standby functions of removed components are to be considered.

(g) Dedicated control documentation is to be used as detailed by the disassembly plan, to facilitate the recording of all maintenance actions and component removals performed during the disassembly process. Components found to be unserviceable are to be identified as such and quarantined pending a decision on the actions to be taken. Records of the maintenance accomplished to establish serviceability are to form part of the component maintenance history.

(h) Suitable BMAR 145 facilities for the removal and storage of removed components are to be used which include suitable environmental conditions, lighting, access equipment, aircraft tooling and storage facilities for the work to be undertaken. While it may be acceptable for components to be removed, given local environmental conditions, without the benefit of an enclosed facility, subsequent disassembly (if required) and storage of the components should be in accordance with the manufacturer's recommendations.

2.8. Used aircraft components maintained by maintenance organisations not approved in accordance with BMAR 145.

For used components maintained by a maintenance organisation not approved under BMAR 145, due care should be taken before acceptance of such components. In such cases an appropriately rated AMO should establish satisfactory conditions by:

(a) dismantling the component for sufficient inspection in accordance with the appropriate maintenance data;

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

(c) reassembling and testing as necessary the component;

(d) completing all certification requirements as specified in BMAR 145.A.50.

2.9. Used aircraft components removed from an aircraft involved in an accident or incident.

Such components should only be issued with a BMAR Form 1 (or equivalent) when processed in accordance with paragraph 2.7 and a specific work order including all additional necessary tests and inspections deemed necessary by the accident or incident. Such a work order may require input from the BMAA/(Military) TC/STC holder or original manufacturer as appropriate. This work order should be referenced in Block 12.

**AMC 145.A.50 (e) Certification of maintenance**

1. Being unable to establish full compliance with subparagraph BMAR 145.A.50 (a) means that the maintenance required by the CAMO could not be completed due either to running out of available aircraft maintenance downtime for the scheduled check or by virtue of the condition of the aircraft requiring additional maintenance downtime.

2. The CAMO is responsible for ensuring that all required maintenance has been carried out before flight and therefore BMAR 145.A.50 (e) requires the CAMO to be informed in the case where full compliance with BMAR 145.A.50 (a) cannot be achieved. If the CAMO agrees to the deferment of full compliance, then the 'CRS for aircraft' may be issued subject to details of the deferment, including the CAMO's authority, being endorsed on the certificate.

Note: Whether or not the CAMO does have the authority to defer maintenance is an issue between the CAMO and the BMAA. In case of doubt concerning such a decision of the CAMO, the AMO should inform its BMAA on such doubt, before issuing the CRS. This should allow the BMAA to investigate the matter as appropriate.

3. The procedure should draw attention to the fact that BMAR 145.A.50 (a) does not normally permit the issue of a 'CRS for aircraft' in the case of non-compliance and should state what action the mechanic, supervisor and certifying staff should take to bring the matter to the attention of the relevant department or person responsible for technical co-ordination with the CAMO so that the issue may be discussed and resolved. In addition, the appropriate person(s) as specified in BMAR 145.A.30 (b) should be kept informed in writing of such possible non-compliance situations and this should be included in the procedure.

**AMC 145.A.50 (f) Certification of maintenance**

1. 'Appropriate release certificate' means a certificate which clearly states that the aircraft component is serviceable and clearly specifies the AMO releasing this component together with details of the authority under whose approval the AMO works including the approval or authorisation reference.

2. 'Compliance with all other technical and operational requirements' means making an appropriate entry in the aircraft technical log, checking for compliance with type design standards, modifications, repairs, ADs, life limitations and condition of the aircraft component plus information on where, when and why the aircraft was grounded.

**145.A.55 Maintenance records**

(a) The maintenance organisation shall record all details of maintenance work carried out. As a minimum, the AMO shall retain records necessary to prove that all requirements have been met for issuance of the CRS, including all release documents.

(b) The AMO shall provide a copy of each CRS to the CAMO, together with a copy of any specific repair/modification data used for repairs/modifications carried out.

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

1. Records under this paragraph shall be stored in a manner that ensures protection from damage, alteration and theft. The records shall remain readable and accessible for the duration of the storage period.

2. Computer backup discs, tapes etc. shall be stored in a different location from that containing the working discs, tapes etc., in an environment that ensures they remain in good condition.

3. Where an AMO terminates its operation, all retained maintenance records covering the last three years shall be distributed to the CAMO responsible for the respective aircraft or component or shall be stored as specified by the BMAA.

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

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

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

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

3. 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 CAMO may make a statement in the new record describing the loss and establishing the time in service based on the research and the best estimate of time in service. The reconstructed records should be submitted to the BMAA for acceptance.

   Note: Additional maintenance may be required.

4. The maintenance record can be either a paper or computer system or any combination of both.

5. Paper systems should use robust material which can withstand normal handling and filing. The record should remain legible throughout the required retention period.

6. Computer systems may be used to control maintenance and/or record details of maintenance work carried out. Computer systems used for maintenance should have at least one backup system which should be updated at least within 24 hours of any maintenance. Each terminal is required to contain programme safeguards against the ability of unauthorized personnel to alter the database.

   Note: An AMO's responsibility for recording all details of the maintenance work carried out ends with the completion of the CRS. It is the CAMO's responsibility to enter the information given in the CRS into the aircraft continuing airworthiness record system.

**AMC 145.A.55 (c) Maintenance records**

Associated maintenance data is specific information such as repair and modification data. This does not necessarily require the retention of all Aircraft Maintenance Manual, Component Maintenance Manual, Illustrated Parts Catalogue etc. issued by the (Military) TC/ STC holder. Maintenance records should refer to the revision status of the data used.

**145.A.60 Occurrence reporting**

(a) The maintenance organisation shall report to the BMAA and all further addressees as required by national regulations any condition of the aircraft or component identified by the maintenance

organisation that has resulted or may result in an unsafe condition that hazards seriously the flight safety.

(b) The maintenance organisation shall establish an internal occurrence reporting system as detailed in the MOE to enable the collection and evaluation of such reports, including the assessment and extraction of those occurrences to be reported under paragraph (a). This procedure shall identify adverse trends, corrective actions taken or to be taken by the maintenance organisation to address deficiencies and include evaluation of all known relevant information relating to such occurrences and a method to circulate the information as necessary.

(c) The maintenance organisation shall make such reports in a form and manner established by the BMAA, and ensure that they contain all pertinent information about the condition and evaluation results known to the maintenance organisation.

(d) The maintenance organisation shall report to the CAMO any such condition affecting the aircraft or component.

(e) The maintenance organisation shall produce and submit such reports within predefined BMAA timeframes, but in any case within 72 hours of the maintenance organisation identifying the condition to which the report relates.

**AMC 145.A.60 (a) Occurrence reporting**

NOT APPLICABLE.

**GM 145.A.60 (a) Occurrence reporting**

NOT APPLICABLE.

**AMC 145.A.60 (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 maintenance organisation 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.

**GM 145.A.60 (c) Occurrence reporting**

Each report should contain at least the following information:

(i) Maintenance organisation name and approval reference.

(ii) Information necessary to identify the subject aircraft and / or component.

(iii) Date and time relative to any life or overhaul limitation in terms of flying hours/cycles/landings etc. as appropriate.

(iv) Details of the condition as required by BMAR 145.A.60 (b).

(v) Any other relevant information found during the evaluation or rectification of the condition.

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

(a) The maintenance organisation shall establish a safety and quality policy for the maintenance organisation to be included in the MOE under BMAR 145.A.70.

(b) The maintenance organisation shall establish procedures agreed by the BMAA taking into account human factors and human performance to ensure good maintenance practices and compliance with BMAR 145 which shall include a clear work order or contract such that aircraft and components may be released to service in accordance with BMAR 145.A.50.

1. The maintenance procedures under this paragraph apply to BMAR 145.A.25 to BMAR 145.A.95.

2. The maintenance procedures established or to be established by the maintenance organisation under this paragraph shall cover all aspects of carrying out the maintenance activity, including the provision and control of specialised services and lay down the standards to which the maintenance organisation intends to work.

3. With regard to aircraft line and base maintenance, the maintenance organisation shall establish procedures to minimise the risk of multiple errors and capture errors on critical systems, and to ensure that no person is required to carry out and inspect in relation to a maintenance task involving some element of disassembly/reassembly of several components of the same type fitted to more than one system on the same aircraft during a particular maintenance check.

   However, when only one person is available to carry out these tasks then the maintenance organisation's work card or worksheet shall include an additional stage for re-inspection of the work by this person after completion of all the same tasks.

4. Maintenance procedures shall be established to ensure that damage is assessed and modifications and repairs are carried out using data provided by an organisation approved by the BMAA or by an approved BMAR 21 Design Organisation, as appropriate.

(c) The maintenance organisation shall establish a quality system that includes the following:

1. Independent audits in order to monitor compliance with required aircraft/aircraft component standards and adequacy of the procedures to ensure that such procedures invoke good maintenance practices and airworthy aircraft/aircraft components and;

2. A quality feedback reporting system to the person or group of persons specified in BMAR 145.A.30 (b) and ultimately to the Accountable Manager that ensures proper and timely corrective action is taken in response to reports resulting from the independent audits established to meet paragraph 1.

(d) The maintenance organisation shall ensure that its personnel have access to quality system documentation and are knowledgeable of procedures relevant to their function.

(e) Where an organisation has several BMAR approvals, the quality systems may be combined.

**AMC 145.A.65 (a) Safety and quality policy, maintenance procedures and quality system**

The safety and quality policy should as a minimum include a statement committing the maintenance organisation to:

- Recognise safety as a prime consideration at all times;
- Apply Human factors principles;
- Encourage personnel to report maintenance related errors/incidents;
- Recognise that compliance with procedures, quality standards, safety standards and regulations is the duty of all personnel;
- Recognise the need for all personnel to cooperate with the quality auditors;
- Except when the regulatory framework (law of 31 Jul 2020 and its implementing Royal and Ministerial Decree) allows it, ensure that safety standards are not reduced by operational imperatives;
- Train all maintenance organisation staff to be aware of human factors and set a continuous training programme in this field.

**AMC 145.A.65 (b) Safety and quality policy, maintenance procedures and quality system**

1. Maintenance procedures should be held current such that they reflect best practice within the maintenance organisation. It is the responsibility of all the maintenance organisation's personnel to report any differences via their maintenance organisation's internal occurrence reporting mechanisms.

2. All procedures, and changes to those procedures, should be verified and validated before use where practicable.

3. All technical procedures should be designed and presented in accordance with good human factors principles.

**AMC 145.A.65 (b) (2) Safety and quality policy, maintenance procedures and quality system**

Specialised services include any specialised activity, such as, but not limited to non-destructive testing, requiring particular skills and/or qualification. BMAR 145.A.30 (f) covers the qualification of personnel but, in addition, maintenance procedures should be established that cover the control of any specialised process.

**AMC 145.A.65 (b) (3) Safety and quality policy, maintenance procedures and quality system**

1. See BMAR GM 145.A.65 (b) (3)

2. Procedures should be established to detect and rectify maintenance errors that could, as minimum, result in a failure, malfunction, or defect endangering the safe operation of the aircraft if not performed properly ('Safety-Critical' tasks). These procedures should identify the method for capturing errors, and the maintenance tasks or processes concerned. In order to determine the work items to be considered, the following maintenance tasks should primarily be reviewed to assess their impact on safety:
   - Installation, rigging and adjustments of flight controls;
   - Installation of aircraft engines, propellers and rotors;

- Overhaul, calibration or rigging of components such as engines, propellers, transmissions and gearboxes;
- Installation and maintenance carried out on ejection seats

but additional information should also be processed, such as:

- Previous experiences of maintenance errors, depending on the consequence of the failure;
- Information arising from the 'occurrence reporting system' required by BMAR 145.A.60;
- BMAA requirements for error capturing, if applicable.

3. In order to prevent omissions, every maintenance task or group of tasks should be signed-off. To ensure the task or group of tasks is completed, it should only be signed-off after completion. Work by unauthorized personnel (i.e. temporary staff, trainee,…) should be checked by authorised personnel before they sign-off. The grouping of tasks for the purpose of signing-off should allow critical steps to be clearly identified.

   Note: A "sign-off" is a statement by the competent person performing or supervising the work, that the task or group of tasks has been correctly performed. A sign-off relates to one step in the maintenance process and is therefore different to the release to service of the aircraft. "Authorised personnel" means personnel formally authorised by the maintenance organisation to sign-off tasks. "Authorised personnel" are not necessarily "certifying staff".

4. The maintenance organisation should ensure that when carrying out a modification, repair or maintenance, CDCCL (if applicable) are not compromised; this should require the development of appropriate procedures where necessary by the maintenance organisation. The maintenance organisation should pay particular attention to possible adverse effects of any wiring change to the aircraft, even a change not specifically associated with the fuel tank system. For example, it should be common practice to identify segregation of fuel gauging system wiring as a CDCCL (if applicable). Maintenance organisations can prevent adverse effects associated with wiring changes by standardising maintenance practices through training, rather than by periodic inspection. Training should be provided to prevent indiscriminate routing and splicing of wires and to provide comprehensive knowledge of critical design features of fuel tank systems that would be controlled by a CDCCL (if applicable). AMC is provided for training to maintenance organisation personnel in Appendix IV to AMC BMAR 145.A.30 (e) and AMC BMAR 145.B.10 (c).

**GM 145.A.65 (b) (3) Safety and quality policy, maintenance procedures and quality system**

1. Critical Tasks might not jeopardise safety on their own, but there could be a cumulative effect if the same maintainer reproduces the same error when he does the same tasks on several systems. The purpose of this procedure is therefore to minimise the rare possibility of an error being repeated whereby the identical aircraft components are not reassembled thereby compromising more than one system. One example is the remote possibility of failure to reinstall engine gearbox access covers or oil filler caps on all engines of a multi-engined aircraft resulting in major oil loss from all engines. Another example is the case of removal and refitment of multiple oil filler caps on one aircraft/engine or component, which could require a re-inspection of all oil filler caps on that particular aircraft/engine or component after the last oil filler cap has supposedly been refitted.

2. The maintenance of ignition prevention features is necessary for the inherent safety and reliability of an aircraft's fuel tank system. The aircraft cannot be operated indefinitely with the failure of an ignition prevention feature. The failure will have a direct adverse effect on operational safety. It could prevent the continued safe flight and landing of the aircraft or cause serious or fatal injury to the occupants. The fuel system review required will identify ignition prevention features of the design. The failure of any of these features may not immediately result in an unsafe condition, but it may warrant certain maintenance to support continued airworthiness.

**AMC 145.A.65 (c) (1) Safety and quality policy, maintenance procedures and quality system**

1. The primary objectives of the quality system are to enable the maintenance organisation to ensure that it can deliver a safe product and that the maintenance organisation remains in compliance with the 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 maintenance organisation's ability to carry out all maintenance to the required standards and includes some product sampling as this is the end result of the maintenance process. It represents an objective overview of the complete maintenance related activities and is intended to complement the BMAR 145.A.50 (a) requirement for certifying staff to be satisfied that all required maintenance has been properly carried out before issue of the CRS for aircraft and components. Independent audits should include a percentage of random audits carried out on a sample basis when maintenance is being carried out. This means some audits during the night for those maintenance organisations that work at night, and some audits while in an operational environment (if appropriate).

4. Except as specified in subparagraph 9, the independent audit should ensure that all aspects of BMAR 145 compliance are checked every 12 months and may be carried out as a complete single exercise or subdivided over the 12 month period in accordance with a scheduled plan. The independent audit does not require each procedure to be checked against each product line when it can be shown that the particular procedure is common to more than one product line and the procedure has been checked every 12 months without resultant findings. Where findings have been identified, the particular procedure should be rechecked against other product lines until the findings have been rectified after which the independent audit procedure may revert back to 12 monthly for the particular procedure.

5. The independent audit should sample check one product on each product line every 12 months as a demonstration of the effectiveness of maintenance procedures compliance. It is recommended that procedures and product audits be combined by selecting a specific product example, such as an aircraft or engine or instrument and sample checking all the procedures and requirements associated with the specific product example to ensure that the end result should be an airworthy product.

    a. For the purpose of the independent audit, a product line includes any product under a BMAR 145 Appendix II approval class rating as specified in the approval schedule issued to the particular AMO.

    b. It therefore follows for example that a maintenance organisation with a capability to maintain aircraft, repair engines, brakes and autopilots would need to carry out

four complete audit sample checks each year except as specified otherwise in subparagraphs 5 or 9.

6. The sample check of a product means to witness any relevant testing and visually inspect the product and associated documentation. The sample check should not involve repeat disassembly or testing unless the sample check identifies findings requiring such action.

7. NOT APPLICABLE

8. Except as specified otherwise in subparagraph 9, where the maintenance organisation has line stations (such as but not limited to “out of area” locations, embarked operations if appropriate) listed as per BMAR 145.A.75 (d) the quality system should describe how these are integrated into the system and include a plan to audit each listed line station at a frequency consistent with the extent of flight and maintenance activity at the particular line station. Except as specified otherwise in subparagraph 9 the maximum period between audits of a particular line station should not exceed 24 months.

9. Except as specified otherwise in subparagraph 5, the BMAA may agree to increase any of the audit time periods specified in AMC BMAR 145.A.65 (c) (1) by up to 100% provided that there are no safety related findings and subject to being satisfied that the maintenance organisation has a good record of rectifying findings in a timely manner.

10. A report should be raised each time an audit is carried out describing what was checked and the resulting findings against applicable requirements, procedures and products.

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

    It therefore follows that a large maintenance organisation, being a maintenance organisation with more than about 500 maintenance staff should have a dedicated quality audit group whose sole function is to conduct audits, raise finding reports and follow up to check that findings are being rectified.

    For the medium sized maintenance organisation, being a maintenance organisation with less than about 500 maintenance staff, it is acceptable to use competent personnel from one section/department not responsible for the maintenance function, procedure or product to audit the section/department that is responsible subject to the overall planning and implementation being under the control of the quality manager.

    Maintenance organisations with a maximum of 10 maintenance staff actively engaged in carrying out maintenance may contract or delegate the independent audit element of the quality system to another organisation or a qualified and competent person, in both cases approved by the BMAA.

**GM 145.A.65 (c) (1) Safety and quality policy, maintenance procedures and quality system**

1. The purpose of this GM is to give guidance on just one acceptable working audit plan to meet part of the needs of BMAR 145.A.65 (c) 1. There is any number of other acceptable working audit plans.

2. The proposed plan lists the subject matter that should be covered by the audit and attempts to indicate applicability in the various types of workshops and aircraft facilities. The list should therefore be tailored for the particular situation and more than one list may be

necessary. Each list should be shown against a timetable to indicate when the particular item is scheduled for audit and when the audit was completed.

| PARA | Comment | HANGAR | ENGINE Workshop | MECH Workshop | AVIONIC Workshop |
|---|---|---|---|---|---|
| 145.A.25 | | Yes | Yes | Yes | Yes |
| 145.A.30 | | Yes | Yes | Yes | Yes |
| 145.A.35 | | Yes | Yes | Yes | Yes |
| 145.A.40 | | Yes | Yes | Yes | Yes |
| 145.A.42 | | Yes | Yes | Yes | Yes |
| 145.A.45 | | Yes | Yes | Yes | Yes |
| 145.A.47 | | Yes | Yes | Yes | Yes |
| 145.A.48 | | Yes | Yes | Yes | Yes |
| 145.A.50 | | Yes | Yes | Yes | Yes |
| 145.A.55 | | Yes | Yes | Yes | Yes |
| 145.A.60 | | Yes | Yes | Yes | Yes |
| 145.A.65 | | Yes | Yes | Yes | Yes |
| 2.1 | MOE | Yes | Yes | Yes | Yes |
| 2.2 | MOE | Yes | Yes | Yes | Yes |
| 2.3 | MOE | Yes | Yes | Yes | Yes |
| 2.4 | MOE | Yes | Yes | Yes | Yes |
| 2.5 | MOE | Yes | Yes | Yes | Yes |
| 2.6 | MOE | Yes | Yes | Yes | Yes |
| 2.7 | MOE | Yes | Yes | Yes | Yes |
| 2.8 | MOE | Yes | Yes | Yes | Yes |
| 2.9 | MOE | Yes | Yes | Yes | Yes |
| 2.10 | MOE | Yes | No | No | No |
| 2.11 | MOE | Yes | Yes | Yes | Yes |
| 2.12 | MOE | Yes | Yes | Yes | Yes |
| 2.13 | MOE | Yes | Yes | Yes | Yes |
| 2.14 | MOE | Yes | Yes | Yes | Yes |
| 2.15 | MOE | Yes | No | No | No |
| 2.16 | MOE | Yes | Yes | Yes | Yes |
| 2.17 | MOE | if appl | if appl | if appl | if appl |
| 2.18 | MOE | Yes | Yes | Yes | Yes |
| 2.19 | MOE | Yes | Yes | Yes | Yes |
| 2.20 | MOE | Yes | Yes | Yes | Yes |
| 2.21 | MOE | if appl | if appl | if appl | if appl |
| 2.22 | MOE | Yes | Yes | No | No |
| 2.23 | MOE | Yes | No | No | No |
| 2.24 | MOE | Yes | Yes | Yes | Yes |
| 2.25 | MOE | Yes | Yes | Yes | Yes |
| 2.26 | MOE | Yes | Yes | Yes | Yes |
| 2.27 | MOE | Yes | Yes | Yes | Yes |
| 2.28 | MOE | Yes | Yes | Yes | Yes |
| L2.1 | MOE | If appl | No | No | No |
| L2.2 | MOE | If appl | No | No | No |
| L2.3 | MOE | If appl | No | No | No |
| L2.4 | MOE | If appl | No | No | No |
| L2.5 | MOE | If appl | No | No | No |
| L2.6 | MOE | If appl | No | No | No |
| L2.7 | MOE | If appl | No | No | No |

| | | | | | |
|---|---|---|---|---|---|
| 3.9 | MOE | if appl | if appl | if appl | if appl |
| 3.10 | MOE | if appl | if appl | if appl | if appl |
| 3.11 | MOE | if appl | if appl | if appl | if appl |
| 3.12 | MOE | Yes | Yes | No | No |
| 3.13 | MOE | Yes | Yes | Yes | Yes |
| 3.14 | MOE | Yes | Yes | Yes | Yes |
| 145.A.70 | | Yes | Yes | Yes | Yes |
| 145.A.75 | | Yes | Yes | Yes | Yes |
| 145.A.80 | | Yes | Yes | Yes | Yes |
| 145.A.85 | | Yes | Yes | Yes | Yes |
| 145.A.95 | | if appl | if appl | if appl | if appl |

Note 1: 'if appl' means if applicable or relevant.

Note 2: In the line station case all line stations should be audited at the frequency agreed with the BMAA within the limits of AMC BMAR 145.A.65 (c) (1).

**AMC 145.A.65 (c) (2) Safety and quality policy, maintenance procedures and quality system**

1. An essential element of the quality system is the quality feedback system.

2. The quality feedback system should not be contracted to outside persons. The principal function of the quality feedback system is to ensure that all findings resulting from the independent quality audits of the maintenance organisation are properly investigated and corrected in a timely manner and to enable the Accountable Manager to be kept informed of any safety issues and the extent of compliance with BMAR 145.

3. The independent quality audit reports referenced in AMC BMAR 145.A.65 (c) (1) subparagraph 10 should be sent to the relevant department(s) for rectification action giving target rectification dates. Rectification dates should be discussed with such department(s) before the quality department or nominated quality auditor confirms such dates in the report. The relevant department(s) are required by BMAR 145.A.65 (c) (2) to rectify findings and inform the quality department or nominated quality auditor of such rectification.

4. The Accountable Manager should hold regular meetings with staff to check progress on rectification except that in the large maintenance organisations 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 noncompliance.

5. All records pertaining to the independent quality audit and the quality feedback system should be retained for at least 2 years after the date of clearance of the finding(s) to which they refer or for such periods as to support changes to the AMC BMAR 145.A.65 (c) (1) subparagraph 9 audit time periods, whichever is the longer.

**145.A.70 Maintenance Organisation Exposition (MOE)**

(a) 'Maintenance Organisation Exposition' means the document or documents that contain the material specifying the scope of work deemed to constitute approval and showing how the maintenance organisation intends to comply with BMAR 145. The maintenance organisation shall provide the BMAA with a MOE containing the following information:

1. A statement signed by the Accountable Manager confirming that the MOE and any referenced associated manuals define the maintenance organisation's compliance with BMAR 145 and shall be complied with at all times. When the Accountable Manager is neither the Chief Executive Officer[8] nor senior military commander of the maintenance organisation then one of the latter shall countersign the statement; and

2. The maintenance organisation's safety and quality policy as specified by BMAR 145.A.65; and

3. The title(s) and name(s) of the persons nominated under BMAR 145.A.30(b); and

4. The duties and responsibilities of the persons nominated under BMAR 145.A.30(b), including matters on which they may deal directly with the BMAA on behalf of the maintenance organisation; and

5. An organisation chart showing associated chains of responsibility between the persons nominated under BMAR 145.A.30(b); and

6. A list of certifying staff and support staff; and

7. A general description of manpower resources; and

8. A general description of the facilities located at each address specified in the maintenance organisation's approval certificate; and

9. A specification of the maintenance organisation's scope of work relevant to the extent of approval; and

10. The notification procedure of BMAR 145.A.85 for organisation changes; and

11. The MOE amendment procedure; and

12. The procedures and quality system established by the maintenance organisation under BMAR 145.A.25 to BMAR 145.A.90; and

13. A list of CAMO's to which the maintenance organisation provides an aircraft maintenance service; and

14. A list of contracted/tasked organisations, where applicable, as specified in BMAR 145.A.75(b); and

15. A list of line stations, where applicable, as specified in BMAR 145.A.75(d); and

16. A list of contracted/tasked organisations, operating under their own BMAR approval or BMAA accepted equivalent approvals, where applicable.

(b) The MOE shall be amended as necessary to remain an up-to-date description of the maintenance organisation. The MOE and any subsequent amendment shall be approved by BMAA.

(c) Notwithstanding paragraph (b) minor amendments to the MOE may be approved through an MOE procedure (hereinafter called indirect approval).

[8] Wing Commander – Base Commander

(d) Where a maintenance organisation has an extant EASA Part 145 approval, those parts of the organisation's EASA Part 145 exposition that are equally applicable to satisfy the BMAR 145 requirements shall generally be accepted by the BMAA as equivalent in respect of the BMAR 145 MOE. In this case it is permissible that only those requirements that are military specific need be addressed in the BMAR 145 MOE; those requirements covered by read-across of the sections of the EASA exposition document shall be identified and the EASA exposition clause reference quoted.

(e) Paragraph moved to 145.A.65 (d).

**AMC 145.A.70 (a) Maintenance Organisation Exposition (MOE)**

1. The information specified in BMAR 145.A.70 (a) subparagraphs (6) and (12) to (16) inclusive, whilst a part of the MOE, may be kept as separate documents or on separate electronic data files subject to the management part of this MOE containing a clear cross-reference to such documents or electronic data files.

2. The MOE should contain the information, as applicable, specified in this AMC. The information may be presented in any subject order as long as all applicable subjects are covered. Where a maintenance organisation uses a different format, for example, to allow the MOE to serve for more than one approval, then the MOE should contain a cross-reference annex using this list as an index with an explanation as to where the subject matter can be found in the MOE.

3. The MOE should contain information, as applicable, on how the maintenance organisation complies with CDCCL instructions (if applicable).

4. NOT APPLICABLE.

5. The maintenance organisation may use electronic data processing (EDP) for publication of the MOE. The MOE should be made available to the approving BMAA in a form acceptable to the BMAA. Attention should be paid to the compatibility of EDP publication systems with the necessary dissemination of the MOE, both internally and externally.

6. The following information should be included in the MOE (additional detailed content of the MOE is provided in Appendix V to this AMC with the MOE Handbook):

**PART 0 GENERAL ORGANISATION**

This Section is reserved for:

1. A maintenance organisation seeking approval under BMAR 145, which is also part of an Operating Organisation.
2. An Original Equipment Manufacturer (OEM) seeking approval as a maintenance organisation under BMAR 145. For these organisations, among other organisational aspects, this section should illustrate how the maintenance organisation will be independent from other organisational functions (e.g. design and production/ engineering tasks, operations).

**PART 1 MANAGEMENT**

1.1 Corporate commitment by the Accountable Manager

1.2 Safety and quality policy

1.3 Management personnel

1.4 Duties and responsibilities of the management personnel

1.5 Management organisation chart

1.6 List of certifying staff and support staff

1.7 Manpower resources

1.8 General description of the facilities at each address intended to be approved

1.9 Organisations intended scope of work

1.10 Notification procedure to the BMAA regarding changes to the maintenance organisation's activities/approval/location/personnel

1.11 MOE amendment procedures including, if applicable, delegated procedures

**PART 2 MAINTENANCE PROCEDURES**

2.1 Supplier evaluation and contract/tasking control procedure

2.2 Acceptance/inspection of aircraft components and material from outside contractors/organisations

2.3 Storage, tagging and release of aircraft components and material to aircraft maintenance

2.4 Acceptance of tools and equipment

2.5 Calibration of tools and equipment

2.6 Use of tooling and equipment by staff (including alternative tools)

2.7 Cleanliness standards of maintenance facilities

2.8 Maintenance instructions and relationship to aircraft/aircraft component manufacturers' instructions including updating and availability to staff

2.9 Repair procedures

2.10 Aircraft Maintenance Programme compliance

2.11 Airworthiness Directives procedure

2.12 Optional modification procedure

2.13 Maintenance documentation in use and completion of same

2.14 Technical records control

2.15 Rectification of defects arising during base maintenance

2.16 Release to service procedure

2.17 Maintenance records for the CAMO

2.18 Reporting of defects

2.19 Return of defective aircraft components to store

2.20 Management of defective components with outside contractors/organisations

2.21 Control of computer maintenance record systems

2.22 Control of manhour planning versus scheduled maintenance work

2.23 Control of critical maintenance tasks

2.24 Reference to specific maintenance procedures such as:

- Engine running procedures
- Aircraft pressure run procedures

- Aircraft towing procedures
- Aircraft taxiing procedures
- Aircraft military specific systems procedures

2.25 Procedures to detect and rectify maintenance errors

2.26 Shift/task handover procedures

2.27 Procedures for notification of maintenance data inaccuracies and ambiguities, to the BMAA / author of the maintenance data

2.28 Maintenance planning procedures

**PART L2 ADDITIONAL LINE MAINTENANCE PROCEDURES**

L2.1 Line maintenance control of aircraft components, tools, equipment, etc.

L2.2 Line maintenance procedures related to servicing/fuelling/de-icing including inspection for/removal of de-icing/anti-icing fluid residues, etc.

L2.3 Line maintenance control of defects and repetitive defects

L2.4 Line procedure for completion of aircraft technical log

L2.5 Line procedure for pooled parts and loan parts

L2.6 Line procedure for return of defective parts removed from aircraft

L2.7 Line procedure control of critical tasks

**PART 3 QUALITY SYSTEM PROCEDURES**

3.1 Quality audit of maintenance organisation procedures

3.2 Quality audit of aircraft and/or components

3.3 Quality audit remedial action procedure

3.4 Certifying staff and support staff qualification and training procedures

3.5 Certifying staff and support staff records

3.6 Procedures for qualifying of quality audit personnel

3.7 Procedures for qualifying of inspectors

3.8 Procedures for qualifying of maintenance personnel

3.9 Aircraft or aircraft component maintenance tasks exemption process control

3.10 Concession control for deviation from organisations' procedures

3.11 Qualification procedure for specialised activities such as NDT, welding, etc.

3.12 Control of manufacturers' and other maintenance working teams

3.13 Human factors training procedure

3.14 Competence assessment of personnel

3.15 Training procedures for On-the-Job Training as per Section 6 of Appendix III to BMAR 66

3.16 Procedure for the issue of a recommendation to the BMAA for the issue of a MAML in accordance with BMAR 66.B.105

**PART 4**

This section is reserved for describing the procedures, paperwork and records associated with the CAMOs that place tasks on the maintenance organisation.

4.1 Contracting / tasking CAMO

4.2 CAMO procedures and paperwork

4.3 CAMO record completion

**PART 5**

5.1 Sample of documents

5.2 List of contractors/tasked organisations as per BMAR 145.A.75 (b)

5.3 List of Line maintenance locations as per BMAR 145.A.75 (d)

5.4 List of contracted/tasked organisations as per BMAR 145.A.70 (a) (16)

**PART 6 OPERATING ORGANISATION'S MAINTENANCE PROCEDURES**

This section is reserved for those maintenance organisations who are also part of Operating Organisations.

**PART 7** NOT APPLICABLE

**PART 8** NOT APPLICABLE

**GM 145.A.70 (a) Maintenance Organisation Exposition (MOE)**

1. The purpose of the MOE is to detail the procedures, means and methods of the maintenance organisation.

2. Compliance with its contents will assure compliance with the requirements of BMAR 145, which is a prerequisite to obtaining and retaining a maintenance organisation approval certificate.

3. BMAR 145.A.70 (a) (1) to (a) (11) constitutes the 'management' part of the MOE and therefore could be produced as one document and made available to the person(s) specified under BMAR 145.A.30 (b) who should be reasonably familiar with its contents. BMAR 145.A.70 (a) (6) list of certifying staff and support staff may be produced as a separate document.

4. BMAR 145.A.70 (a) (12) constitutes the working procedures of the maintenance organisation and therefore as stated in the requirement may be produced as any number of separate procedures manuals. It should be remembered that these documents should be cross-referenced from the management MOE.

5. Personnel are expected to be familiar with those parts of the MOE/manuals that are relevant to the maintenance work they carry out.

6. The maintenance organisation should specify in the MOE who should amend the MOE/manuals particularly in the case where there are several parts.

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

8. The MOE should cover four main parts:

   a. The management MOE covering the parts specified earlier.

b. The maintenance procedures covering all aspects of how aircraft components may be accepted from outside sources and how aircraft, engines and or components will be maintained to the required standard.

c. The quality system procedures including the methods of qualifying mechanics, inspection, certifying staff, support staff and quality audit personnel.

d. Contracting/tasking procedures and paperwork.

9. The Accountable Manager's MOE statement as specified under BMAR 145.A.70 (a) (1) 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 MOE and any associated referenced manuals define the organisation and procedures upon which the BMAA BMAR 145 approval is based as required by BMAR 145.A.70. These procedures are approved by the undersigned and should be complied with, as applicable, when work orders are being progressed under the terms of the BMAR 145 approval.

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

It is understood that the BMAA will approve this maintenance organisation whilst the BMAA is satisfied that the procedures are being followed and work standards maintained. It is further understood that the BMAA reserves the right to suspend, limit or revoke the approval of the maintenance organisation if the BMAA has evidence that procedures are not followed or standards not upheld."

Signed .....

Dated .....

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

For and on behalf of .....(quote maintenance organisation's name) .....

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 BMAR 145 approval.

10. When an organisation is approved against any other EMAR (or EASA equivalent Regulation) containing a requirement for an Exposition, a BMAR 145 MOE covering the differences will suffice to meet the requirements except that the BMAR 145 MOE should reference where those parts missing from this MOE are covered.

**145.A.75 Privileges of the AMO**

In accordance with the MOE, the AMO shall be entitled to carry out the following tasks:

(a) Maintain any aircraft and/or component listed on its approval certificate at the locations identified in the approval certificate and in the MOE;

(b) Arrange for maintenance of any aircraft or component listed on the approval certificate, to be carried by another maintenance organisation that is working under the quality system of the AMO. This refers to work being carried out by a maintenance organisation not itself appropriately approved to carry out such maintenance under this BMAR and is limited to the work scope permitted under BMAR 145.A.65 (b) procedures. This work scope shall not include a base maintenance check of an aircraft or a complete workshop maintenance check or overhaul of an engine or engine module. The AMO that contracts/tasks such work retains responsibility for all these maintenance activities irrespective of who is undertaking them. All such maintenance organisations shall be listed in the MOE;

(c) Maintain any aircraft or any component listed on its approval certificate 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, subject to the conditions specified in the MOE;

(d) Maintain any aircraft and/or component listed on its approval certificate at a location identified as a line maintenance location capable of supporting minor maintenance and only if the MOE both permits such activity and lists such locations;

(e) Issue CRSs in respect of completion of maintenance in accordance with BMAR 145.A.50.

**AMC 145.A.75 (b) Privileges of the AMO**

1. Working under the quality system of the AMO refers to the case of one maintenance organisation, not itself appropriately approved to BMAR 145 that carries out aircraft line maintenance or minor engine maintenance or maintenance of other aircraft components or a specialised service as a contractor/tasked maintenance organisation for a maintenance organisation appropriately approved under BMAR 145. To be appropriately approved to contract/task with a non-approved maintenance organisation, the AMO should have a procedure for the control of such contractors/tasked maintenance organisations as described below.

2. Maintenance of engines or engine modules other than a complete workshop maintenance check or overhaul is intended to mean any maintenance that can be carried out without disassembly of the core engine or, in the case of modular engines, without disassembly of any core module.

3. Fundamentals of contracting/tasking a non-approved maintenance organisation under BMAR 145.

   3.1. The fundamental reasons for allowing an AMO to contract/task a non-approved maintenance organisation certain maintenance tasks are:

(a) To permit the acceptance of specialised maintenance services, such as, but not limited to, plating, heat treatment, plasma spray, fabrication of specified parts for minor repairs / modifications, etc., without the need for direct approval by the BMAA in such cases.

(b) To permit the acceptance of aircraft maintenance up to but not including a base maintenance check as specified in BMAR 145.A.75 (b) by maintenance organisations not appropriately approved under BMAR 145 when it is unrealistic to expect direct approval by the BMAA. The BMAA should determine when it is unrealistic but in general it is considered unrealistic if only one or two AMOs intend to use the contracted/tasked maintenance organisation.

(c) To permit the acceptance of component maintenance.

(d) To permit the acceptance of engine maintenance up to but not including a workshop maintenance check or overhaul of an engine or engine module as specified in BMAR 145.A.75 (b) by maintenance organisations not appropriately approved under BMAR 145 when it is unrealistic to expect direct approval by the BMAA. The determination of unrealistic is as per subparagraph (b).

3.2. When maintenance is carried out under the 'contract/task with a non-approved maintenance organisation' control system it means that for the duration of such maintenance, the BMAR 145 approval has been temporarily extended to include the non-approved contractor/tasked maintenance organisation. Consequently those parts of the non-approved contractor`s/tasked maintenance organisation's facilities, personnel and procedures involved with the AMO's products undergoing maintenance should meet BMAR 145 requirements for the duration of that maintenance and it remains the AMO's responsibility to ensure such requirements are satisfied

3.3. For the criteria specified in subparagraph 3.1, the AMO is not required to have complete facilities for maintenance that it needs to contract/task. Nevertheless, it should have its own expertise to determine that the non-approved contractor/tasked maintenance organisation meets the necessary standards. However, a maintenance organisation cannot be approved unless it has the in-house facilities, procedures and expertise to carry out the majority of maintenance for which it wishes to be approved in terms of the number of class ratings.

3.4. The AMO may find it necessary to include several specialist non-approved contractors/tasked maintenance organisations to enable it to be approved to completely certify the release to service of a particular product. Examples could be specialist welding, electro-plating, painting etc. To authorize the use of such non-approved contractors/tasked maintenance organisations, the BMAA should be satisfied that the AMO has the necessary expertise and procedures to control such non-approved contractors/tasked maintenance organisations.

3.5. An AMO working outside the scope of its approval schedule is deemed to be not approved for this work. Such an AMO should in this circumstance operate only under the contracted/tasked control of another AMO.

3.6. Authorisation to contract/task non-approved maintenance organisations is indicated by the BMAA accepting the MOE containing a specific procedure on the control of non-approved contractors/tasked maintenance organisations.

4. Principal BMAR 145 procedures for the control of contractors/tasked maintenance organisations not approved under BMAR 145.

4.1. A pre-audit procedure should be established whereby the AMO's 'contract/task a non-approved maintenance organisation' control section, which may also be the BMAR 145.A.65 (c) quality system independent audit section, should audit a prospective non-approved contractor/tasked maintenance organisation to determine whether those services of the non-approved contractor/tasked maintenance organisation that it wishes to use meet the intent of BMAR 145.

4.2. The AMO should assess to what extent it will use the non-approved contractor`s/tasked maintenance organisation's facilities. As a general rule the AMO should require its own paperwork, approved data and material/spare parts to be used, but it could permit the use of tools, equipment and personnel from the non-approved contractor/tasked maintenance organisation as long as such tools, equipment and personnel meet the requirements of BMAR 145. In the case of non-approved contractors/tasked maintenance organisations who provide specialised services it may, for practical reasons, be necessary to use their specialised services personnel, approved data and material subject to acceptance by the AMO.

4.3. Unless the contracted/tasked maintenance work can be fully inspected on receipt by the AMO, the AMO should supervise the inspection and release from the non-approved contractor/tasked maintenance organisation. Such activities should be fully described in the MOE. The AMO should consider whether to use its own staff or authorise the non-approved contractor's/tasked maintenance organisation's staff.

4.4. The CRS for components may be issued either at the non-approved contractor/tasked maintenance organisation or at the AMO facility by staff holding a certification authorisation in accordance with BMAR 145.A.30 as appropriate. Such staff would normally come from the AMO but may otherwise be a person from the non-approved contractor/tasked maintenance organisation who meets the AMO certifying staff standard which itself is approved by the BMAA via the MOE. The CRS for components and/or the BMAR Form 1 should always be issued under the AMO approval reference.

4.5. The 'contract/task a non-approved maintenance organisation' control procedure should record audits of the non-approved contractor/tasked maintenance organisation, to have a corrective action follow-up plan and to know when non-approved contractors/tasked maintenance organisations are being used. The procedure should include a clear revocation process for non-approved contractors/tasked maintenance organisations who do not meet the AMO's requirements.

4.6. The AMO's quality audit staff should audit the 'non-approved maintenance organisation contract/tasking control section' and sample audit non-approved contractors/tasked maintenance organisations unless this task is already carried out by the quality audit staff as stated in subparagraph 4.1.

4.7. The contract between the AMO and the non-approved contractor/tasked maintenance organisation should contain a provision for the BMAA or a qualified entity acting on behalf of the BMAA to have right of access to the non-approved contractor/tasked maintenance organisation.

**145.A.80 Limitations on the AMO**

The AMO shall only maintain an aircraft or component for which it is approved when all the necessary facilities, equipment, tooling, material, maintenance data and certifying staff are available.

**AMC 145.A.80 Limitations on the AMO**

This paragraph is intended to cover the situation where an AMO may temporarily not hold all the necessary tools, equipment etc., for an aircraft type or variant specified in the AMO's approval. This paragraph means that the BMAA need not amend the approval to delete the aircraft type or variants on the basis that it is a temporary situation and there is a commitment from the AMO to re-acquire tools, equipment etc. before maintenance on the type may recommence.

**145.A.85 Changes to the AMO**

The AMO shall notify the BMAA of any proposal to carry out any of the following changes before such changes take place to enable the BMAA to determine continued compliance with BMAR 145 and to amend, if necessary, the approval certificate, except that in the case of proposed changes in personnel not known to the management beforehand, these changes shall be notified at the earliest opportunity.

1. The name of the AMO;
2. The main location of the AMO;
3. Additional locations of the AMO;
4. The Accountable Manager and all appointed deputies;
5. Any of the persons nominated under BMAR 145.A.30(b) and their appointed deputies;
6. The facilities, equipment, tools, material, procedures, work scope or certifying staff that could affect the approval;
7. The ownership of the AMO or its parent company.

**145.A.90 Continued validity of approval**

(a) An approval shall be issued for an unlimited duration. It shall remain valid subject to:

1. The AMO remaining in compliance this BMAR, in accordance with the provisions related to the handling of findings in accordance with BMAR 145.B.50; and
2. The BMAA being granted access to the AMO to determine continued compliance with this BMAR; and
3. The certificate not being surrendered or revoked.

(b) Upon surrender or revocation, the approval shall be returned to the BMAA.

**145.A.95 AMO Findings by the BMAA**

(a) After receipt of notification of findings according to BMAR 145.B.50, the AMO shall:

1. Identify the root cause of the non-compliance; and
2. Define a corrective action plan; and
3. Demonstrate corrective action implementation to the satisfaction of the BMAA within a period required by the BMAA.

(b) A level 1 finding is any significant non-compliance with BMAR 145 requirements which lowers the safety standard and hazards seriously the flight safety. Depending upon the extent of the level 1 finding, it leads to an immediate full or partial revocation, limitation or suspension of the approval by the BMAA until successful corrective action has been taken by the AMO

(c) A level 2 finding is any non-compliance with the BMAR 145 requirements which could lower the safety standard and possibly hazards the flight safety.

(d) An AMO's non-compliance with the actions identified in BMAR 145.A.95 (a) leads to a full or partial suspension of the approval by the BMAA.

# SECTION B – PROCEDURES FOR BMAA

### 145.B.01 Scope

This section establishes the administrative procedures which the BMAA shall follow when exercising its tasks and responsibilities regarding issuance, continuation, change, suspension or revocation of maintenance organisation approvals in accordance with the requirements of BMAR 145.

### 145.B.10 Belgian Military Airworthiness Authority

(a) General

Within Belgian Defence the BMAA shall be designated with allocated responsibilities for the issuance, continuation, change, suspension or revocation of a maintenance organisation approval. The BMAA shall establish documented procedures and an organisational structure.

(b) Resources

The number of staff shall be appropriate to carry out the requirements as detailed in this section.

(c) Qualification and training

All staff involved in BMAR 145 approvals shall:

1. Be appropriately qualified and have all necessary knowledge, experience and training to perform their allocated tasks.

2. Have received initial training/continuation training on BMAR 145 where relevant, including its intended meaning and standard.

(d) Procedures

The BMAA shall establish procedures detailing how compliance with this Section B is accomplished. The procedures shall be reviewed and amended to ensure continued compliance.

### AMC 145.B.10 (a) BMAA – General

1. In deciding upon the required organisational structure, the BMAA should review the number of certificates to be issued, the number and size of potential AMOs within Belgium, as well as the level of military aviation activity, number and complexity of aircraft and the size of the Belgian aviation industry.

2. The BMAA should retain effective control of important surveillance functions and not delegate them in such a way that AMOs, 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 BMAA are not relying on individuals. That means that a continuing and undisturbed fulfilment of these tasks and obligations of the BMAA should also be guaranteed in case of illness, accident or leave of individuals.

**AMC 145.B.10 (c) BMAA – Qualification and training**

1. BMAA 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 BMAA'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.

   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 appropriate 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 maintenance standards, including Fuel Tank Safety (FTS) training as described in "Appendix IV to AMC BMAR 145.A.30 (e) and AMC BMAR 145.B.10 (c)".

   1.7. knowledge and understanding of Human Factors, as described in BMAR 145.

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 ensuring that the surveyors remain competent to perform their allocated tasks.

**AMC 145.B.10 (d) BMAA – Procedures**

The documented procedures should contain the following information:

(a) The Federal Belgian authorities designating the BMAA (the Law of 31 Jul 2020 and its implementing Royal Decree).

(b) The title(s) and name(s) of the manager(s) of the BMAA 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 BMAA ensures compliance with BMAR 145.

**145.B.15 Maintenance Organisations located in several pMS**

NOT APPLICABLE

**145.B.20 Initial approval**

(a) Provided the requirements of BMAR 145.A.30 (a) and (b) are complied with, the BMAA shall formally indicate its acceptance of the personnel, specified in BMAR 145.A.30 (a) and (b), to the applicant in writing.

(b) The BMAA shall establish that the procedures specified in the MOE comply with BMAR 145 and verify that the Accountable Manager signs the commitment statement.

(c) The BMAA shall verify that the maintenance organisation is in compliance with the requirements of BMAR 145.

(d) A meeting between the BMAA and the Accountable Manager shall be convened at least once during the investigation for approval to ensure that he/she fully understands the significance of the approval and the reason for signing the MOE commitment statement to compliance with the procedures specified in the MOE.

(e) All findings must be confirmed in writing to the maintenance organisation.

(f) The BMAA shall record all findings, closure actions (actions required to close a finding) and recommendations.

(g) For initial approval, all findings shall be corrected by the maintenance organisation and accepted by the BMAA before the approval can be issued.

(h) The BMAA shall also verify the validity of all MAMLs held by maintenance organisation personnel specified in BMAR 145.A.30 and BMAR 145.A.35.

**AMC 145.B.20 (a) Initial approval (*)**

1. 'The BMAA shall formally indicate its acceptance of the personnel,' means that the BMAR Form 4 should be used for this activity. With the exception of the Accountable Manager, a BMAR Form 4 should be completed for each person nominated to hold a position as required by BMAR 145.A.30 (b).

2. Formal indication of acceptance should be by use of the BMAR Form 4 or in the case of the Accountable Manager via approval of the MOE containing the Accountable Manager's commitment statement.

3. The BMAA may reject an Accountable Manager where there is clear evidence that they previously held a senior position in any other approved Organisation and abused that position by not complying with the particular requirements in force.

* See Appendix I to AMC BMAR 145.B.20(a): BMAR Form 4

**AMC 145.B.20 (b) Initial approval**

Verification that the maintenance organisation complies with the MOE procedures should be established by the BMAA approving the MOE.

**AMC 145.B.20 (c) Initial approval**

1. The BMAA should determine by whom, and how the audit should be conducted. For example, for a large maintenance organisation, 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 man audits are most appropriate for the particular situation.

2. It is recommended that the audit is carried out on a product line type basis in that, for example, in the case of a maintenance organisation with A400M and C-130 ratings, the audit be concentrated on one type only for a full compliance check and dependent upon the result, the second type may only require a sample check against those activities seen to be weak on compliance for the first type.

3. The BMAA auditing surveyor should always ensure that he/she is accompanied throughout the audit by a senior technical member of the maintenance organisation. Normally this is the quality manager. The reason for being accompanied is to ensure the maintenance organisation is fully aware of any findings during the audit.

4. The auditing surveyor should inform the senior technical member of the maintenance organisation at the end of the audit visit on all findings made during the audit.

**AMC 145.B.20 (e) Initial approval (*)**

1. The audit report form should be the BMAR Form 6.

2. A quality review of the BMAR Form 6 audit report form should be carried out by a competent independent person nominated by the BMAA. The review should take into account the relevant paragraphs of BMAR 145, the categorisation of finding levels and the closure action taken. Satisfactory review of the audit form should be indicated by a signature on the audit form.

* See Appendix II to AMC BMAR 145.B.20 (e): BMAR Form 6

**AMC 145.B.20 (f) Initial approval**

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

2. There may be occasions when the BMAA surveyor may find situations in the applicant's maintenance organisation on which he/she is unsure about compliance. In this case, the maintenance organisation should be informed about possible non-compliance at the time and the fact that the situation will be reviewed within the BMAA before a decision is made. If the decision is a finding of being in compliance then a verbal confirmation to the maintenance organisation should suffice.

3. 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 BMAA should review the provisional finding levels, adjusting them if necessary and change the categorisation from "provisional" to "confirmed".

4. All findings should be confirmed in writing to the applicant maintenance organisation within 2 weeks of the audit visit.

**145.B.25 Issue of approval**

(a) The BMAA shall formally approve the MOE and issue to the applicant a BMAR Form 3 approval certificate, which includes the approval ratings (specified in Appendix II). The BMAA shall only issue a certificate when the maintenance organisation is in compliance with BMAR 145.

(b) The BMAA shall indicate the conditions of the approval on the BMAR Form 3 approval certificate.

(c) The reference number shall be included on the BMAR Form 3 approval certificate.

**AMC 145.B.25 (a) Issue of approval**

1. NOT APPLICABLE.

2. NOT APPLICABLE.

3. The BMAA should indicate approval of the MOE in writing.

**AMC 145.B.25 (b) Issue of approval**

The validity of the BMAR 145 approval should be of unlimited duration.

**AMC 145.B.25 (c) Issue of approval**

The numeric sequence should be unique to the particular AMO.

**145.B.30 Continuing oversight**

The continuation of an approval shall be monitored in accordance with the applicable 'initial approval' process under BMAR 145.B.20. In addition:

(a) The BMAA shall keep and update a program listing the AMOs under its supervision, the dates when audit visits are due and when such visits were carried out.

(b) Each AMO shall be reviewed for compliance with BMAR 145 at periods not exceeding 24 months.

(c) A meeting with the Accountable Manager shall be convened at least once every 24 months to ensure he/she remains informed of significant issues arising during audits.

(d) All findings shall be confirmed officially to the AMO.

(e) The BMAA shall record all findings, their level and corrective actions taken (date due, date closed and the reference) and recommendations.

**AMC 145.B.30 (a) Continuing oversight**

Credit may be claimed by the BMAA surveyor(s) for specific item audits completed during the preceding 23 month period subject to four conditions:

- the specific item audit should be the same as that required by BMAR 145 latest amendment; and
- there should be satisfactory evidence on record that such specific item audits were carried out and that all corrective actions have been taken; and
- the BMAA 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
- the specific item audit being granted a back credit should be audited not later than 24 months after the last audit of the item.

**AMC 145.B.30 (b) Continuing oversight**

1. Where the BMAA has decided that a series of audit visits are necessary to arrive at a complete audit of an AMO, the program should indicate which aspects of the approval will be covered on each visit.
2. It is recommended that part of an audit concentrates on two on-going aspects of the BMAR 145 approval, namely the AMO's internal self-monitoring quality reports produced by the quality monitoring personnel to determine if the AMO 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 approval of the MOE, an audit report form should be completed by the auditing surveyor including all recorded findings, closure actions and recommendation. A BMAR Form 6 should be used for this activity.
4. The Accountable Manager should be seen at least once every 24 months to ensure he/she fully understands the significance of the approval.
5. In the case of line stations the BMAA can adopt a sampling program based upon the number of line stations and their complexity.

**145.B.35 Changes**

(a) The BMAA shall receive notification from the AMO of any proposed change as listed in BMAR 145.A.85. The BMAA shall follow the applicable elements of the initial process paragraphs for any change to the AMO.

(b) The BMAA may prescribe the conditions under which the AMO may operate during such changes unless it determines that the approval should be suspended due to the nature or the extent of the changes.

**AMC 145.B.35 Changes**

The BMAA should have adequate control over any changes to the management personnel specified in BMAR 145.A.30 (a) and (b) and such changes in personnel should require an amendment to the MOE.

**AMC 145.B.35 (a) Changes**

The applicable part(s) of the BMAR Form 6 should be used for the changes to the BMAR 145 approval.

**AMC 145.B.35 (b) Changes**

The primary purpose of this paragraph is to enable the AMO to remain approved if agreed by the BMAA during negotiations about any of the specified changes. Without this paragraph the approval would automatically be suspended in all cases.

**145.B.40 Maintenance Organisation Exposition (MOE) amendments**

For any change to the MOE:

(a) In the case of direct approval of the amendments of the MOE, the BMAA shall verify that the procedures specified in the MOE are in compliance with BMAR 145 before formally notifying the AMO of the approval.

(b) In the case of indirect approval of amendments of the MOE, the BMAA shall ensure that:

(i) the amendments remain minor; and

(ii) it has an adequate control over the approval of all MOE amendments to ensure they remain in compliance with BMAR 145.

**AMC 145.B.40 MOE amendments**

1. It is recommended that a simple MOE status sheet is maintained which contains information on when an amendment was received by the BMAA and when it was approved.

2. The BMAA may define some class of amendments to the MOE which may be incorporated without prior authority approval. In this case a procedure should be stated in the amendment section of the MOE. The MOE chapter dealing with scope of work/approval should not be subject to this procedure.

3. The AMO should submit each MOE amendment to the BMAA whether it is an amendment for direct approval or an indirect approval amendment. Where the amendment requires approval by the BMAA, the BMAA should indicate its approval in writing when satisfied. Where the amendment has been submitted under the indirect approval procedure the BMAA should acknowledge receipt in writing.

**145.B.45 Revocation, suspension and limitation of approval**

The BMAA shall:

(a) suspend an approval on reasonable grounds in the case of a potential safety threat; or

(b) suspend, revoke or limit an approval pursuant to BMAR 145.B.50.

**145.B.50 Findings**

(a) When during audits or by other means evidence is found showing non-compliance with the requirements of BMAR 145, the BMAA shall take the following actions:

1. For level 1 findings, immediate action shall be taken by the BMAA to revoke, limit or suspend in whole or in part, depending upon the extent of the level 1 finding, the AMO approval, until successful corrective action has been taken by the AMO.

2. For level 2 findings, the corrective action period granted by the BMAA must be appropriate to the nature of the finding but in any case initially must not be more than three months. In

certain circumstances and subject to the nature of the finding the BMAA may extend the three month period subject to a satisfactory corrective action plan agreed by the BMAA.

(b) Action shall be taken by the BMAA to suspend in whole or in part the approval in case of failure to comply within the timescale granted by the BMAA.

(c) The BMAA shall have a system to analyse findings for their safety significance.

**AMC 145.B.50 (a) Findings**

In practical terms a level 1 finding is where a BMAA finds a significant non-compliance with BMAR 145. The following are examples of level 1 findings:

- Failure to gain access to the AMO during normal operating hours of the AMO in accordance with BMAR 145.A.90 (a) (2) after two written requests.
- If the calibration control of equipment as specified in BMAR 145.A.40 (b) had previously broken down on a particular type product line such that most "calibrated" equipment was suspect from that time then that would be a level 1 finding.

  Note: A complete product line is defined as all the aircraft, engines or components of a particular type.

For a level 1 finding it may be necessary for the BMAA to ensure that further maintenance and re-certification of all affected products is accomplished, dependent upon the nature of the finding.

In practical terms where a BMAA surveyor finds a non-compliance with BMAR 145 against one product, it is deemed to be a level 2 finding. The following are examples of level 2 findings:

- One time use of a component without any serviceable tag.
- The training documents of the certifying staff or support staff are not completed.

**AMC 145.B.50 (b) Findings**

Where the AMO has not implemented the necessary corrective action within that period it may be appropriate to grant a further period of up to three months, subject to the BMAA notifying the Accountable Manager. In exceptional circumstances and subject to a realistic action plan being in place, the BMAA may specifically vary the maximum 6 month corrective action period. However, in granting such a change the past performance of the AMO should be considered.

**145.B.55 Record-keeping**

(a) The BMAA shall establish a system of record-keeping with minimum retention criteria that allows adequate traceability of the process to issue, continue, change, suspend or revoke each individual maintenance organisation approval.

(b) The records shall include as a minimum:

1. The application for an maintenance organisation approval, including the continuation thereof; and
2. The BMAA continued oversight program including all audit records; and
3. A copy of the AMO approval certificate including any change thereto; and

4. A copy of the audit program listing the dates when audits are due and when audits were carried out; and

5. Copies of all formal correspondence including BMAR Form 4; and

6. Details of any exemption and enforcement action(s); and

7. Any other BMAA audit report forms; and

8. MOEs.

(c) The minimum retention period for the above records shall be four years.

(d) Moved to GM BMAR 145.B.55.

(e) The records shall be stored in a manner that ensures protection from damage, alteration and theft. The records shall remain readable and accessible for the duration of the storage period.

**AMC 145.B.55 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 BMAA (chronological, alphabetical order, etc.).

2. All records containing sensitive data regarding applicants or AMOs 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 BMAR 145.B.55.

**GM 145.B.55 Record-keeping**

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

**145.B.60 Exemptions**

All exemptions granted shall be recorded and retained by the BMAA.

# Appendix I – BMAR Form 1: Authorised Release Certificate

These instructions relate only to the use of the BMAR Form 1 for maintenance purposes[9].

**1. Purpose and use**

1.1. The primary purpose of the certificate is to declare the airworthiness of maintenance work undertaken on products, parts and appliances (hereafter referred to as 'item(s)').

1.2. Correlation must be established between the certificate and the item(s). The originator must retain a certificate in a form that allows verification of the original data.

1.3. NOT APPLICABLE

1.4. The certificate is not a delivery or shipping note.

1.5. Aircraft are not to be released using the certificate.

1.6. The certificate does not constitute approval to install the item on a particular aircraft, engine, or propeller but helps the end user determine its airworthiness approval status.

1.7. A mixture of production released and maintenance released items is not permitted on the same certificate.

**2. General format**

2.1. The certificate must comply with the format attached including block numbers and the location of each block. The size of each block may however be varied to suit the individual application, but not to the extent that would make the certificate unrecognisable.

2.2. The certificate must be in 'landscape' format but the overall size may be significantly increased or decreased as long as the certificate remains recognizable and legible. If in doubt consult the BMAA.

2.3. The User/Installer responsibility statement can be placed on either side of the form.

2.4. All printing must be clear and legible to permit easy reading.

2.5. The certificate may either be pre-printed or computer generated but in either case the printing of lines and characters must be clear and legible and in accordance with the defined format.

2.6. The certificate shall be in English, and if appropriate, in the official language(s) of Belgium.

2.7. The details to be entered on the certificate may be either machine/computer printed or handwritten using block letters and must permit easy reading.

2.8. The use of abbreviations must be kept to a minimum, to aid clarity.

2.9. The space remaining on the reverse side of the certificate may be used by the originator for any additional information but must not include any certification statement. Any use of the

[9] Attention is drawn to BMAR 21 which uses the BMAR Form 1 for production purposes.

reverse side of the certificate must be referenced in the appropriate block on the front side of the certificate.

Note: The original certificate must accompany the items and correlation must be established between the certificate and the items. A copy of the certificate must be retained by the organisation that manufactured or maintained the item. Where the certificate format and data is entirely computer generated, subject to acceptance by the BMAA, it is permissible to retain the certificate format and data on a secure database.

Where a single certificate was used to release a number of items and those items are subsequently separated out from each other, such as through a parts distributor, then a copy of the original certificate must accompany such items and the original certificate must be retained by the organisation that received the batch of items. Failure to retain the original certificate could invalidate the release status of the items.

**3. Copies**

3.1. There is no restriction in the number of copies of the certificate sent to the customer or retained by the originator.

**4. Error(s) on a certificate**

4.1. If an end-user finds an error(s) on a certificate, he must identify it/them in writing to the originator. The originator may issue a new certificate only if the error(s) can be verified and corrected.

4.2. The new certificate must have a new tracking number, signature and date.

4.3. The request for a new certificate may be honored without re-verification of the item(s) condition. The new certificate is not a statement of current condition and should refer to the previous certificate in Block 12 by the following statement; 'This certificate corrects the error(s) in block(s) [*enter block(s) corrected*] of the certificate [*enter original tracking number*] dated [*enter original issuance date*] and does not cover conformity/condition/release to service'. Both certificates should be retained according to the retention period associated with the first.

**5. Completion of the certificate by the originator**

- **Block 1** Approving BMAA

  State the name and country of the BMAA under whose approval the certificate was issued.

- **Block 2** BMAR Form 1 header 'AUTHORISED RELEASE CERTIFICATE BMAR FORM 1'.

- **Block 3** Form Tracking Number

  Enter the unique number established by the numbering system/procedure of the organisation identified in Block 4; this may include alphanumeric characters.

- **Block 4** Approved Organisation Name and Address

Enter the full name and address of the approved organisation (refer to BMAR Form 3) releasing the items covered by this certificate. Logos, etc., are permitted if the logo can be contained within the block.

- **Block 5** Work Order/Contract/Invoice

  To facilitate customer traceability of the item(s), enter the work order number, contract number, invoice number, or similar reference number.

- **Block 6** Item

  Enter line item numbers when there is more than one line item. This block permits easy cross-referencing to the Remarks Block 12.

  Note: This block is used to accurately reference a number of parts which may be legitimised by a single BMAR Form 1. For example a single Form 1 has been generated to include 10 items with the same part number but different material batch numbers or serial numbers.

- **Block 7** Description

  Enter the name or description of the item. Preference should be given to the term used in the instructions for continuing airworthiness or maintenance data (e.g. Illustrated Parts Catalogue, Aircraft Maintenance Manual, Service Bulletin, Component Maintenance Manual).

- **Block 8** Part Number

  Enter the part number as it appears on the item or tag/packaging. In case of an engine or propeller the type designation may be used.

- **Block 9** Quantity

  State the quantity of items.

- **Block 10** Serial Number

  If the item is required to be identified with a serial number, enter it here. If there is no serial number identified on the item, enter 'N/A'.

- **Block 11** Status/Work

  The following describes the permissible entries for Block 11. Enter only one of these terms – where more than one may be applicable, use the one that most accurately describes the majority of the work performed and/or the status of the article:

  i. Overhauled. Means a process that ensures the item is in complete conformity with all the applicable service tolerances specified in the (Military) Type Certificate holder's, or equipment manufacturer's instructions for continuing airworthiness, or in the data which is approved or accepted by the BMAA. The item will be at least disassembled, cleaned, inspected, repaired as necessary, reassembled and tested in accordance with the above specified data.

  ii. Repaired. Rectification of defect(s) using an applicable standard (*).

iii. Inspected/Tested. Examination, measurement, etc. in accordance with an applicable standard (*) (e.g. visual inspection, functional testing, bench testing etc.).

iv. Modified. Alteration of an item to conform to an applicable standard (*).

(*) Applicable standard means a manufacturing/design/maintenance/quality standard, method, technique or practice approved by or acceptable to the BMAA. The applicable standard shall be described in block 12.

- **Block 12** Remarks

Describe the work identified in Block 11, either directly or by reference to supporting documentation, necessary for the user or installer to determine the airworthiness of item(s) in relation to the work being certified. If necessary, a separate sheet may be used and referenced from the main BMAR Form 1. Each statement must clearly identify which item(s) in Block 6 it relates to.

Examples of information to be entered in Block 12 are:

i. Maintenance data used, including the revision status and reference.

ii. Compliance with airworthiness directives or service bulletins or national equivalent.

iii. Repairs carried out.

iv. Modifications carried out.

v. Replacement parts installed.

vi. Life limited parts status.

vii. Deviations from the customer work order.

viii. NOT APPLICABLE

ix. Information needed to support shipment with shortages or re-assembly after delivery.

x. NOT APPLICABLE

Note: If printing the data from an electronic BMAR Form 1, any appropriate data not fit for other blocks should be entered in this block.

- **Block13a – 13e**

General Requirements for Blocks 13a-13e: Not used for maintenance release. Shade, darken, or otherwise mark to preclude inadvertent or unauthorised use.

- **Block 14a** Certification statement

For all maintenance carried out by maintenance organisations approved in accordance with BMAR 145, the certification statement ‘unless otherwise specified in Block 12’ is intended to address the following cases:

(a) Where the maintenance could not be completed.

(b) Where the maintenance deviated from the standard required by BMAR 145.

(c) Where the maintenance was carried out in accordance with a requirement other than that specified in BMAR 145. In this case Block 12 shall specify the particular national regulation.

- **Block 14b** Authorized Signature

  This space shall be completed with the signature of the authorized person. Only persons specifically authorized under the rules and policies of the BMAA are permitted to sign this block. To aid recognition, a unique number identifying the authorized person may be added.

  Note: This signature can be computer printed subject to the BMAA being satisfied that only the signatory can direct the computer and that a signature is not possible on a blank computer generated form.

- **Block 14c** Approval / Authorisation Number

  The BMAR 145 Approved Maintenance Organisation Approval / Authorisation number given by the BMAA.

- **Block 14d** Name

  Enter the name of the person signing Block 14b in a legible form.

- **Block 14e** Date

  Enter the date on which Block 14b is signed, the date must be in the format dd = 2 digit day, mm = 2 digit month, yyyy = 4 digit year.

- User/Installer Responsibilities

  Place the following statement on the certificate to notify end users that they are not relieved of their responsibilities concerning installation and use of any item accompanied by the form:

  'THIS CERTIFICATE DOES NOT AUTOMATICALLY CONSTITUTE AUTHORITY TO INSTALL.

  WHERE THE USER/INSTALLER PERFORMS WORK IN ACCORDANCE WITH REGULATIONS OF AN BMAA DIFFERENT THAN THE BMAA SPECIFIED IN BLOCK 1, IT IS ESSENTIAL THAT THE USER/INSTALLER ENSURES THAT HIS/HER BMAA ACCEPTS ITEMS FROM THE BMAA SPECIFIED IN BLOCK 1.

  STATEMENTS IN BLOCKS 13A AND 14A DO NOT CONSTITUTE INSTALLATION CERTIFICATION. IN ALL CASES AIRCRAFT MAINTENANCE RECORDS MUST CONTAIN AN INSTALLATION CERTIFICATION ISSUED IN ACCORDANCE WITH THE NATIONAL REGULATIONS BY THE USER/INSTALLER BEFORE THE AIRCRAFT MAY BE FLOWN.

| 1. Approving Authority: BMAA | 2. AUTHORISED RELEASE CERTIFICATE BMAR □FORM 1 | 3. Form Tracking Number : |
|---|---|---|
| 4. Approved Organisation Name and Address: | | 5. Work Order/Contract/Invoice: |

| 6. Item : | 7. Description : | 8. Part No : | 9. Qty : | 10. Serial No. : | 11. Status / Work : |
|---|---|---|---|---|---|
| | | | | | |

12. Remarks :

| 13a. Certifies that the items identified above were manufactured in conformity to:<br>☐ approved design data and are in condition for safe operation<br>☐ non-approved design data specified in block 12 | | 14a. Certification Statement<br>Certifies that unless otherwise specified in Block 12, the work identified in Block 11 and described in Block 12, was accomplished in accordance with BMAR 145 and in respect to that work the items are considered ready for release to service. | |
|---|---|---|---|
| 13b. Authorised Signature | 13c. Approval / Authorisation Number | 14b. Authorised Signature | 14c. Approval / Authorisation Number |
| 13d. Name | 13e. Date (dd/mm/yyyy) | 14d. Name | 14e. Date (dd/mm/yyyy) |

USER/INSTALLER RESPONSIBILITIES
'THIS CERTIFICATE DOES NOT AUTOMATICALLY CONSTITUTE AUTHORITY TO INSTALL.
WHERE THE USER/INSTALLER PERFORMS WORK IN ACCORDANCE WITH REGULATIONS OF AN BMAA DIFFERENT THAN THE BMAA SPECIFIED IN BLOCK 1, IT IS ESSENTIAL THAT THE USER/INSTALLER ENSURES THAT HIS/HER BMAA ACCEPTS ITEMS FROM THE BMAA SPECIFIED IN BLOCK 1.
STATEMENTS IN BLOCKS 13A AND 14A DO NOT CONSTITUTE INSTALLATION CERTIFICATION. IN ALL CASES AIRCRAFT MAINTENANCE RECORDS MUST CONTAIN AN INSTALLATION CERTIFICATION ISSUED IN ACCORDANCE WITH THE NATIONAL REGULATIONS BY THE USER/INSTALLER BEFORE THE AIRCRAFT MAY BE FLOWN.

**AMC to Appendix I to BMAR 145 – Use of the BMAR Form 1 for maintenance**

1. The following formats of an issued BMAR Form 1 or certificate recognised as equivalent by the BMAA are acceptable:

   i. A paper certificate bearing a signature (both originals and copies are accepted);

   ii. A paper certificate generated from an electronic system (printed from electronically stored data) when complying with the following subparagraph 2;

   iii. An electronic BMAR Form 1 or equivalent when complying with the following subparagraph 2.

2. Electronic signature and electronic exchange of the BMAR Form 1

   a) Submission to the BMAA

      Any organisation intending to implement an electronic signature procedure to issue BMAR Form 1 and/or to exchange electronically such data contained on the BMAR Form 1, should document it and submit it to the BMAA as part of the documents attached to its Maintenance Organisation Exposition.

   b) Characteristics of the electronic system generating the BMAR Form 1

      The electronic system should:

      i. guarantee secure access for each certifying staff;

      ii. ensure integrity and accuracy of the data certified by the signature on the form and be able to show evidence of the authenticity of the BMAR Form 1 (recording and record keeping) with suitable security, safeguards and backups;

      iii. be active only at the location where the part is being released with A BMAR Form 1;

      iv. not permit a blank form to be signed;

      v. provide a high degree of assurance that the data has not been modified after signature (if a modification is necessary after issuance, e.g., re-certification of a part, a new form with a new number and reference to the initial issuance should be made);

      vi. provide for a ‘personal’ electronic signature, identifying the signatory. The signature should be generated only in presence of the signatory.

      An electronic signature means data in electronic form which is attached to or logically associated with other electronic data and which serves as a method of authentication and should meet the following criteria:

      - it is uniquely linked to the signatory;
      - it is capable of identifying the signatory;
      - it is created using means that the signatory can maintain under his sole control.

This electronic signature should be an electronically generated value based on a cryptographic algorithm and appended to data in a way to enable the verification of the data's source and integrity.

This electronic signature should be an electronically generated value based on a cryptographic algorithm and appended to data in a way to enable the verification of the data's source and integrity.

The electronic system should be based on a policy and management structure (confidentiality, integrity and availability), such as:

- Administrators, signatories;
- Scope of authorisation, rights;
- Password and secure access, authentication, protections, confidentiality;
- Track changes;
- Minimum blocks to be completed, completeness of information;
- Archives;
- etc.

The electronic system generating the BMAR Form 1 may contain additional data such as;

- Manufacturer code;
- Customer identification code;
- Workshop report;
- Inspection results;
- etc.

c) Characteristics of the BMAR Form 1 generated from the electronic system

To facilitate understanding and acceptance of the BMAR Form 1 released with an electronic signature, the following statement should be in Block 14b: 'Electronic Signature on File'.

In addition to this statement, it is accepted to print or display a signature in any form, such as a representation of the hand-written signature of the person signing (i.e. scanned signature) or a representation of their name.

When printing the electronic form, the BMAR Form 1 should meet the general format as specified in Appendix I to BMAR 145. A watermark-type 'PRINTED FROM ELECTRONIC FILE' should be printed on the document.

When the electronic file contains a hyperlink to data required to determine the airworthiness of the item(s), the data associated to the hyperlink, when printed, should be in a legible format and be identified as a reference from the BMAR Form 1.

Additional information not required by the BMAR Form 1 completion instructions may be added to the printed copies of BMAR Form 1, as long as the additional data does not prevent a person from filling out, issuing, printing, or reading any portion

of the BMAR Form 1. This additional data should be provided only in Block 12 unless it is necessary to include it in another block to clarify the content of that block.

d) Electronic exchange of the electronic BMAR Form 1

e) The electronic exchange of the electronic BMAR Form 1 should be accomplished on a voluntary basis. Both parties (issuer and receiver) should agree on electronic transfer of the BMAR Form 1.

For that purpose, the exchange needs to include:

- all data of the BMAR Form 1, including referenced data required by the BMAR Form 1 completion instructions;
- all data required for authentication of the BMAR Form 1.

In addition, the exchange may include:

- data necessary for the electronic format;
- additional data not required by the BMAR Form 1 completion instructions, such as manufacturer code, customer identification code.

The system used for the exchange of the electronic BMAR Form 1 should provide:

- A high level of digital security; the data should be protected, not altered or not corrupted;
- Traceability of data back to its source.

Trading partners wishing to exchange BMAR Form 1 electronically should do so in accordance with this Acceptable Means of Compliance. It is recommended that they use an established, common, industry method such as Air Transport Association (ATA) Spec 2000 Chapter 16.

The organisations are reminded that additional national and/or European requirements may need to be satisfied when operating the electronic exchange of the electronic BMAR Form 1.

The receiver should be capable of regenerating the BMAR Form 1 from the received data without alteration; if not, the system should revert back to the paper system.

When the receiver needs to print the electronic form, refer to subparagraph c) here above.

**GM to Appendix I to BMAR 145 – Use of the BMAR Form 1 for maintenance**

**BMAR Form 1 Block 12 'Remarks'**

Examples of data to be entered in this block as appropriate:

- Maintenance documentation used, including the revision status, for all work performed and not limited to the entry made in Block 11. A statement such as 'in accordance with the Component Maintenance Manual (CMM)' is not acceptable.
- NDT methods with appropriate documentation used when relevant.
- Compliance with Airworthiness Directives or Service Bulletins.
- Repairs carried out.
- Modifications carried out.
- Replacement parts installed.
- Life-limited parts status.
- Shelf life limitations.
- Deviations from the CAMO's work order.
- Information needed to support shipment with shortages or re-assembly after delivery.
- References to aid traceability, such as batch numbers.

**Electronic Signatures**

Organisations are reminded that additional national and/or European requirements may need to be satisfied when operating electronic systems.

# Appendix II - Class and Rating System to be used for the Approval of Maintenance Organisations

1. Table 1 outlines the full extent of approval possible under BMAR 145 in a standardised form. A maintenance organisation shall be granted an approval ranging from a single class and rating with limitations to all classes and ratings with limitations.

2. In addition to Table 1 the maintenance organisation is required by BMAR 145.A.20 to indicate its scope of work in the MOE. See also paragraph 11.

3. Within the approval class(es) and rating(s) granted by the BMAA, the scope of work specified in the MOE defines the exact limits of approval. It is therefore essential that the approval class(es) and rating(s) and the maintenance organisation's scope of work are matching.

4. A Category A class rating means that the AMO may carry out maintenance on the aircraft and any component (including engines/APUs), in accordance with aircraft maintenance data or, if agreed by the BMAA, in accordance with component maintenance data, only whilst such components are fitted to the aircraft. Nevertheless, such A-rated AMO may temporarily remove a component for maintenance, in order to improve access to that component, except when such removal generates the need for additional maintenance not covered under the provisions of this paragraph. This shall be subject to a control procedure in the MOE to be approved by the BMAA. The limitation section shall specify the scope of such maintenance thereby indicating the extent of approval.

5. A Category B class rating means that the AMO may carry out maintenance on the uninstalled engine and/or APU (‘Auxiliary Power Unit’) and engine and/or APU components, in accordance with engine and/or APU maintenance data or, if agreed by the BMAA, in accordance with component maintenance data only whilst such components are fitted to the engine and/or APU. Nevertheless, such B-rated AMO may temporarily remove a component for maintenance, in order to improve access to that component, except when such removal generates the need for additional maintenance not covered under the provisions of this paragraph. The limitation section shall specify the scope of such maintenance thereby indicating the extent of approval. An AMO with a Category B class rating may also carry out maintenance on an installed engine during ‘base’ and ‘line’ maintenance subject to a control procedure in the MOE to be approved by the BMAA. The MOE scope of work shall reflect such activity where permitted by the BMAA.

6. A Category C class rating means that the AMO may carry out maintenance on uninstalled components (excluding engines and APUs) intended for fitment to the aircraft or engine/APU. The limitation section shall specify the scope of such maintenance thereby indicating the extent of approval. An AMO with a Category C class rating may also carry out maintenance on an installed component during base and line maintenance or at an engine/APU maintenance facility subject to a control procedure in the MOE to be approved by the BMAA. The MOE scope of work shall reflect such activity where permitted by the BMAA.

7. A Category D class rating is a self-contained class rating not necessarily related to a specific aircraft, engine or other component. The D1 — Non-Destructive Testing (NDT) rating is only necessary for an AMO that carries out NDT as a particular task for another maintenance organisation. An AMO with a class rating in A or B or C Category may carry out NDT on products it is maintaining subject to the MOE containing NDT procedures, without the need for a D1 class rating.

8. Category A class ratings are subdivided into ‘base’ or ‘line’ maintenance. A maintenance organisation may be approved for either ‘base’ or ‘line’ maintenance or both. It should be noted that a ‘line’ facility located at a main base facility requires a ‘line’ maintenance approval.

9. The 'limitation' section is intended to give the BMAA the flexibility to customise the approval to a particular maintenance organisation. Ratings shall be mentioned on the approval only when appropriately limited. Table 1 specifies the types of limitation possible (an example could be avionic systems installations and related maintenance). Whilst maintenance is listed last in each class rating it is acceptable to stress the maintenance task rather than the aircraft or engine type or manufacturer, if this is more appropriate to the maintenance organisation (an example could be avionic systems installations and maintenance). Such mention in the limitation section indicates that the maintenance organisation is approved to carry out maintenance up to and including this particular type/task.

10. Table 1 makes reference to series, type and group in the limitation section of class A and B. Series means a specific type series 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. Type means a specific type or model such as C 130 H type or C 130 J type, Tiger HAP type or Tiger HAD type etc. Any number of series or types may be quoted. Group means for example: "Rolls Royce T-56 Turbo prop engines" or "Fokker twin turbo prop aircraft".

11. When a lengthy capability list is used which could be subject to frequent amendment, then such amendment shall be in accordance with a procedure acceptable to the BMAA and included in the MOE. The procedure shall address the issues of who is responsible for capability list amendment control and the actions that need to be taken for amendment. Such actions include ensuring compliance with BMAR 145 for products or services added to the list.

12. NOT APPLICABLE.

**Table 1**

| *CLASS* | *RATING* | *LIMITATION* | *BASE* | *LINE* |
|---|---|---|---|---|
| AIRCRAFT | A1 Aeroplanes/ above 5 700 kg | [State aeroplane manufacturer or group or series or type and/or the maintenance task(s)] | *[YES/ NO]** | *[YES/ NO]** |
| | A2 Aeroplanes/ 5 700 kg and below | [State aeroplane manufacturer or group or series or type and/or the maintenance tasks] | *[YES/ NO]** | *[YES/ NO]** |
| | A3 Helicopters | [State helicopter manufacturer or group or series or type and/or the maintenance task(s)] | *[YES/ NO]** | *[YES/ NO]** |
| | A4 Aircraft other than A1, A2 and A3 | [State aircraft series or type and/or the maintenance task(s)] | *[YES/ NO]** | *[YES/ NO]** |
| ENGINES/APU | B1 Turbine | [State engine series or type and/or the maintenance task(s)] | | |
| | B2 Piston | [State engine manufacturer or group or series or type and/or the maintenance task(s)] | | |
| | B3 APU | [State engine manufacturer or series or type and/or the maintenance task(s)] | | |
| COMPONENTS other than complete engines or APU's | | *S1000D CHAPTER REFERENCE* [10] | *LIMITATIONS (aircraft type, component, manufacturer)* | |
| | C1 Air Cond & Press | 21 | | |
| | C2 Auto Flight | *22* | | |
| | C3 Comms and Nav | *23-34-43* | | |
| | C4 Doors — Hatches | *52* | | |
| | C5 Electrical Power & Lights | *24-33-91* | | |
| | C6 Equipment | *25-38-45-50* | | |

10 S1000D Chapter Reference : in conformity with "S1000D Main System Breakdown"

| | | | | |
|---|---|---|---|---|
| | | C7 Engine — APU | *49-71-72-73-74-75-76-77-78-79-80-81-82-83-86* | |
| | | C8 Flight Controls | *27-55-57.40-57.50-57.60-57.70* | |
| | | C9 Fuel — Airframe | *28-48* | |
| | | C10 Helicopter — Rotors | *62-64-66-67* | |
| | | C11 Helicopter — Trans | *63-65* | |
| | | C12 Hydraulic Power | *29* | |
| | | C13 Indicating - recording system | *31-46* | |
| | | C14 Landing Gear | *32-90* | |
| | | C15 Oxygen | *35-47* | |
| | | C16 Propellers | *61* | |
| | | C17 Pneumatic & Vacuum | *36-37* | |
| | | C18 Protection ice/ rain/fire | *26-30* | |
| | | C19 Windows | *56* | |
| | | C 20 Structural | *53-54-57.10-57.20-57.30* | |
| | | C 21 Water Ballast | *41* | |
| | | C 22 Propulsion Augmentation | *84* | |
| | | C 51 Attack systems | *39-40-42* | |
| | | C 52 Radar/ Surveillance | *92-93* | |
| | | C 53 Weapons systems | *94* | |
| | | C 54 Crew escape &Safety | *95* | |
| | | C 55 Drones/Telemetry | *96-00, 96-30, 96-40* | |
| | | C 56 Reconnaissance | *97-98* | |
| | | C 57 Electronic warfare | *99* | |
| | SPECIALISED SERVICES | D1 Non-Destructive Testing | [State particular NDT method(s)] | |
| | | D5 Arms, Munitions and Pyrotechnic Systems Specific | [State arms type and maintained pyrotechnic systems] | |

## Appendix III – BMAR Form 3 : Maintenance Organisation Approval Certificate

# BMAA

# MAINTENANCE ORGANISATION APPROVAL CERTIFICATE

Reference:

Pursuant to national regulation for the time being in force and subject to the conditions specified below, the BMAA hereby certifies

[NAME AND MAINTENANCE ORGANISATION ADDRESS]

**As a BMAR 145 maintenance organisation** approved to maintain the products, parts and appliances listed in the attached approval schedule and issue related certificates of release to service using the above reference.

CONDITIONS

1. This approval is limited to that specified in the scope of work section of the BMAR 145 Approved Maintenance Organisation's Exposition, and
2. This approval requires compliance with the procedures specified in the BMAR 145 Approved Maintenance Organisation's Exposition, and
3. This approval is valid whilst the Approved Maintenance Organisation remains in compliance with BMAR 145.
4. Subject to compliance with forgoing conditions, this approval shall remain valid for an unlimited duration unless the approval has been surrendered, superseded, suspended or revoked.

Date of original issue:

Date of this revision:

Revision No:

Signed:

For the BMAA

# MAINTENANCE ORGANISATION APPROVAL SCHEDULE

Organisation name :

Reference : BMAR145.XXXX (*)

| CLASS | RATING | LIMITATION | BASE | LINE |
|---|---|---|---|---|
| **AIRCRAFT (**)** | (***) | | (YES/NO)(**) | (YES/NO)(**) |
| | (***) | | (YES/NO)(**) | (YES/NO)(**) |
| | (***) | | (YES/NO)(**) | (YES/NO)(**) |
| | (***) | | (YES/NO)(**) | (YES/NO)(**) |
| **ENGINES (**)** | (***) | (***) | | |
| | (***) | (***) | | |
| **COMPONENTS OTHER THAN COMPLETE ENGINES OR APUs (**)** | (***) | (***) | | |
| | (***) | (***) | | |
| | (***) | (***) | | |
| | (***) | (***) | | |
| | (***) | (***) | | |
| | (***) | (***) | | |
| **SPECIALISED SERVICES (**)** | (***) | (***) | | |
| | (***) | (***) | | |

This approval schedule is limited to those products, parts and appliances and to the activities specified in the scope of work section contained in the BMAR 145 Approved Maintenance Organisation's Exposition.

MOE Reference:

Date of original issue:

Date of last revision approved: Revision no:

Signed

For the BMAA

(*) Text to be determined by BMAA
(**) Delete as appropriate if the organisation is not approved.
(***) Complete with the appropriate rating and limitation.

## Appendix IV

| | |
|---|---|
| | NOT APPLICABLE. |

# APPENDICES TO AMCs

**Appendix I to AMC 145.B.20 (a) - BMAR Form 4: BMAA Acceptance of Nominated Management Personnel**

**BELGIAN MILITARY AIRWORTHINESS AUTHORITY**

Details of Management Personnel required to be accepted as specified in BMAR-……

1. Name:

2. Position:

3. Qualifications relevant to the item (2) position:

4. Work experience relevant to the item (2) position:

Signature: ..... Date: .....

On completion, please send this form under confidential cover to the BMAA

BMAA use only

Name and signature of authorised BMAA staff member accepting this person:

Signature: ..... Date: .....

Name: ..... Office: .....

**Appendix II to AMC 145.B.20 (e) - BMAR Form 6: BMAR 145 Approval Recommendation Report**

**BMAR 145 APPROVAL RECOMMENDATION REPORT** **BMAR FORM 6**

**Part 1: General**

Name of organisation:

Approval reference:

Requested approval rating:

BMAR Form 3 dated*:

Address of Facility Audited:

Audit period: From to

Date(s) of Audit:

Audit reference(s):

Persons interviewed:

BMAA surveyor: Signature(s):

BMAA office:

Date of Form 6 part 1 completion:

*delete where applicable

**BMAR 145 APPROVAL RECOMMENDATION REPORT** **BMAR FORM 6**

**Part 2: BMAR 145 Compliance Audit Review**
The five columns may be labelled and used as necessary to record the approval class and/or product line reviewed. Against each column used of the following BMAR 145 sub-paragraphs please either tick (√) the box if satisfied with compliance or cross (X) the box if not satisfied with compliance and specify the reference of the Part 4 finding next to the box, or enter N/A where an item is not applicable, or N/R when applicable but not reviewed.

| Para | Subject | | | | | |
|---|---|---|---|---|---|---|
| 145.A.25 | Facility requirements | | | | | |
| 145.A.30 | Personnel requirements | | | | | |
| 145.A.35 | Certifying staff and support staff | | | | | |
| 145.A.40 | Equipment, tools and material | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 145.A.42 | Acceptance of components | | | | | |
| 145.A.45 | Maintenance data | | | | | |
| 145.A.47 | Maintenance planning | | | | | |
| 145.A.48 | Performance of maintenance | | | | | |
| 145.A.50 | Certification of maintenance | | | | | |
| 145.A.55 | Maintenance records | | | | | |
| 145.A.60 | Occurrence reporting | | | | | |
| 145.A.65 | Safety and quality policy, maintenance procedures and quality system | | | | | |
| 145.A.70 | Maintenance Organisation Exposition (MOE) (See Part 3) | | | | | |
| 145.A.75 | Privileges of the AMO | | | | | |
| 145.A.80 | Limitations on the AMO | | | | | |
| 145.A.85 | Changes to the AMO | | | | | |
| 145.A.95 | AMO Findings by the BMAA | | | | | |

Competent surveyor(s): Signature(s):

BMAA office: Date of Form 6 part 2 completion:

**BMAR 145 APPROVAL RECOMMENDATION REPORT** **BMAR FORM 6**

**PART 3: Compliance with BMAR 145.A.70 Maintenance Organisation Exposition**
*Please either tick (√) the box if satisfied with compliance; or cross (X) if not satisfied with compliance and specify the reference of the Part 4 finding; or enter N/A where an item is not applicable; or N/R when applicable but not reviewed.*

| Part 1 | Management | |
|---|---|---|
| 1.1 | | Corporate commitment by the Accountable Manager |
| 1.2 | | Safety and quality policy |
| 1.3 | | Management personnel |
| 1.4 | | Duties and responsibilities of the management personnel |
| 1.5 | | Management organisation chart |
| 1.6 | | List of certifying staff and support staff (Note: a separate document may be referenced) |
| 1.7 | | Manpower resources |

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|---|---|---|
| 1.8 | | General description of the facilities at each address intended to be approved |
| 1.9 | | Organisation's intended scope of work |
| 1.10 | | Notification procedure to the BMAA regarding changes to the organisation's activities/approval/location/personnel |
| 1.11 | | MOE amendment procedures including, if applicable, delegated procedures. |
| Part 2 | Maintenance Procedures | |
| 2.1 | | Supplier evaluation and contract/tasking control procedure |
| 2.2 | | Acceptance/inspection of aircraft components and material from outside contractors/organisations |
| 2.3 | | Storage, tagging, and release of aircraft components and material to aircraft maintenance |
| 2.4 | | Acceptance of tools and equipment |
| 2.5 | | Calibration of tools and equipment |
| 2.6 | | Use of tooling and equipment by staff (including alternative tools) |
| 2.7 | | Cleanliness standards of maintenance facilities |
| 2.8 | | Maintenance instructions and relationship to aircraft/aircraft component manufacturers' instructions including updating and availability to staff |
| 2.9 | | Repair procedures |
| 2.10 | | Aircraft Maintenance Programme compliance |
| 2.11 | | Airworthiness Directives procedure |
| 2.12 | | Optional modification procedure |
| 2.13 | | Maintenance documentation in use and completion of same |

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|---|---|---|
| **Part 3: Compliance with BMAR 145.A.70 Maintenance Organisation Exposition** | | |
| 2.14 | | Technical record control |
| 2.15 | | Rectification of defects arising during base maintenance |
| 2.16 | | Release to service procedure |
| 2.17 | | Maintenance records for the CAMO |
| 2.18 | | Reporting of defects to the BMAA/CAMO/(Military) TC/STC Holder |
| 2.19 | | Return of defective aircraft components to store |
| 2.20 | | Management of defective components with outside contractors/organisations |
| 2.21 | | Control of computer maintenance record systems |
| 2.22 | | Control of man-hour planning versus scheduled maintenance work |
| 2.23 | | Control of critical tasks |
| 2.24 | | Reference to specific maintenance procedures |

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|---|---|---|
| 2.25 | | Procedures to detect and rectify maintenance errors |
| 2.26 | | Shift/task handover procedures |
| 2.27 | | Procedures for notification of maintenance data inaccuracies and ambiguities to the BMAA/ (Military) TC/STC holder |
| 2.28 | | Maintenance planning procedures |
| Part L2 | Additional Line Maintenance Procedures | |
| L2.1 | | Line maintenance control of aircraft components, tools, equipment, etc. |
| L2.2 | | Line maintenance procedures related to servicing/fuelling/de-icing, etc. |
| L2.3 | | Line maintenance control of defects and repetitive defects |
| L2.4 | | Line procedure for completion of technical log |
| L2.5 | | Line procedure for pooled parts and loan parts |
| L2.6 | | Line procedure for return of defective parts removed from aircraft |
| L2.7 | | Line procedure for control of critical tasks |
| Part 3 | Quality System Procedures | |
| 3.1 | | Quality audit of organisation procedures |
| 3.2 | | Quality audit of aircraft and components |
| 3.3 | | Quality audit remedial action procedure |
| 3.4 | | Certifying staff and support staff qualification and training procedures |
| 3.5 | | Certifying staff and support staff records |
| 3.6 | | Procedure(s) for qualifying of quality audit personnel |

| **BMAR 145 APPROVAL RECOMMENDATION REPORT** | | **BMAR FORM 6** |
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| **Part 3: Compliance with BMAR 145.A.70 Maintenance Organisation Exposition** | | |
| 3.7 | | Procedure(s) for qualifying of supervisors |
| 3.8 | | Procedure(s) for qualifying of maintenance personnel |
| 3.9 | | Aircraft or aircraft component maintenance tasks exemption process control |
| 3.10 | | Concession control for deviation from organisation's procedures |
| 3.11 | | Qualification procedure for specialised activities such as NDT, welding etc. |
| 3.12 | | Control of manufacturers' and other maintenance working teams |
| 3.13 | | Human factors training procedure |
| 3.14 | | Competence assessment of personnel |
| 3.15 | | Training procedures for On-the-Job Training as per Section 6 of Appendix III to BMAR 66 |
| 3.16 | | Procedure for the issue of a recommendation to the BMAA for the issue of a MAML in accordance with BMAR 66.B.105 |
| Part 4 | | |

| | | |
|---|---|---|
| 4.1 | | Contracting/tasking CAMO |
| 4.2 | | CAMO procedures/paperwork |
| 4.3 | | CAMO record completion |
| Part 5 | Appendices | |
| 5.1 | | Sample Documents |
| 5.2 | | List of contractors/tasked organisations as per BMAR 145.A.75 (b) |
| 5.3 | | List of line maintenance locations as per BMAR 145.A.75 (d) |
| 5.4 | | List of contracted/tasked organisations as per BMAR 145.A.70 (a) (16) |

| | |
|---|---|
| MOE Reference: | MOE Amendment: |
| BMAA audit staff: | Signature(s): |
| BMAA office: | Date of Form 6 part 3 completion: |

**BMAR 145 APPROVAL RECOMMENDATION REPORT** **BMAR FORM 6**

**Part 4: Findings BMAR 145 Compliance status**
Each level 1 and 2 finding should be recorded whether it has been rectified or not and should be identified by a simple cross-reference to the Part 2 requirement. All non-rectified findings should be copied in writing to the organisation for the necessary corrective action.

| Part 2 or 3 ref. | Audit reference(s): *Findings* | Level | Corrective action | | |
|---|---|---|---|---|---|
| | | | Date Due | Date Closed | Reference |
| | | | | | |

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|---|---|---|---|---|---|
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| **BMAR 145 APPROVAL RECOMMENDATION REPORT** | **BMAR FORM 6** |
|---|---|
| **Part 5: BMAR 145 Approval or continued approval or change recommendation*** | |

Name of organisation:

Approval reference:

Audit reference(s):

The following BMAR 145 scope of approval is recommended for this organisation:

Or, it is recommended that the BMAR 145 scope of approval specified in BMAR Form 3 referenced..... be continued.

Name of recommending BMAA surveyor:

Signature of recommending BMAA surveyor:

BMAA office:

Date of recommendation:

BMAR Form 6 review (quality check): Date:

* delete where applicable

**Appendix III to AMC 145.A.15: BMAR Form 2: Application for BMAR 145 Approval**

**Application for**

**BMAA Change*** **BMAR 145 Approval** **initial grant*/**

1. Name of organisation seeking approval:

2. Trading name (if different):

3. Location(s) requiring approval:

4. Tel. ..... Fax ..... E-mail .....

5. Scope of approval relevant to this application: see BMAR 145 Appendix II table 1 for possibilities:

6. Position and name of the (proposed*) Accountable Manager:

.....

7. Signature of the (proposed*) Accountable Manager:

.....

8. Place: .....

9. Date: .....

Note 1: State here the BMAA address to which the Form(s) should be sent.

Note 2: State here any fees payable if applicable.

* delete as applicable

BMAR Form 2 (issue BMAR 145 Section A AMC & GM edition 1.1)

**Appendix IV to AMC 145.A.30 (e) and BMAR AMC 145.B.10(c) – FUEL TANK SAFETY TRAINING**

This Appendix includes general instructions for providing training on Fuel Tank Safety (FTS) issues.

**A) Applicability:**
As nationally defined by the BMAA.

**B) Affected organisations:**
AMOs involved in the maintenance of aircraft specified in paragraph A) and fuel system components installed on such aircraft when the maintenance data are affected by CDCCL (if applicable).
CAMO's involved in the continuing airworthiness management of aeroplanes specified in paragraph A).
BMAA responsible as per BMAR 145.B.30 for the oversight of the AMOs specified in this paragraph B and as per BMAR M.B.704 for the oversight of CAMOs specified in this paragraph B).

**C) Persons from affected organisations who should receive training:**

Phase 1 only:
The group of persons representing the maintenance management structure of the AMO, the quality manager and the staff required to quality monitor the AMO.
Personnel of the BMAA responsible as per BMAR 145.B.30 for the oversight of AMOs specified in paragraph B) and as per BMAR M.B.704 for the oversight of CAMOs specified in paragraph B).

Phase 1 + Phase 2 + Continuation training:
Personnel of the AMO required to plan, perform, supervise, inspect and certify the maintenance of aircraft and fuel system components specified in paragraph A).
Personnel of the CAMO involved in the management and review of the continuing airworthiness of aircraft specified in paragraph A).

**D) General requirements of the training courses**

Phase 1 – Awareness
The training should be carried out before the person starts to work without supervision but not later than 6 months after joining the AMO.

Type: Should be an awareness course with the principal elements of the subject. It may take the form of a training bulletin, or other self-study or informative session. Signature of the reader is required to ensure that the person has passed the training.

Level: It should be a course at the level of familiarisation with the principal elements of the subject.

Objectives:
The trainee should, after the completion of the training:
1. Be familiar with the basic elements of the fuel tank safety issues.

2. Be able to give a simple description of the historical background and the elements requiring a safety consideration, using common words and showing examples of non-conformities.
3. Be able to use typical terms.

Content: The course should include:
- a short background showing examples of FTS accidents or incidents,
- the description of concept of fuel tank safety (and CDCCL if applicable),
- some examples of manufacturers documents showing CDCCL items (if applicable),
- typical examples of FTS defects,
- some examples of (Military) TC/ STC holders repair data,
- some examples of maintenance instructions for inspection.

Phase 2 – Detailed training

Type: Should be a more in-depth internal or external course. It should not take the form of a training bulletin, or other self-study. An examination should be required at the end, which should be in the form of a multi choice questionnaire, and the pass mark of the examination should be 75%.

Level: It should be a detailed course on the theoretical and practical elements of the subject.

The training may be made either:
- in appropriate facilities containing examples of components, systems and parts affected by FTS issues. The use of films, pictures and practical examples on FTS is recommended; or
- by attending a distance course (e-learning or computer based training) including a film when such film meets the intent of the objectives and content here below. An e-learning or computer based training should meet the following criteria:
  - A continuous evaluation process should ensure the effectiveness of the training and its relevance;
  - Some questions at intermediate steps of the training should be proposed to ensure that the trainee is authorized to move to the next step;
  - The content and results of examinations should be recorded;
  - Access to an instructor in person or at distance should be possible in case support is needed.

A duration of 8 hours for phase 2 is an acceptable compliance.
When the course is provided in a classroom, the instructor should be very familiar with the data in Objectives and Guidelines. To be familiar, an instructor should have attended himself a similar course in a classroom and made additionally some lecture of related subjects.

Objectives:

The attendant should, after the completion of the training:
- have knowledge of the history of events related to FTS issues and the theoretical and practical elements of the subject, have an overview of all relevant requirements and/or regulations as defined by the BMAA, be able to give a detailed description of the concept of fuel tank system Airworthiness Limitation Instructions (ALI) (including CDCCL if applicable), and using theoretical fundamentals and specific examples;
- have the capacity to combine and apply the separate elements of knowledge in a logical and comprehensive manner;
- have knowledge on how the above items affect the aircraft;

- be able to identify the components or parts or the aircraft subject to FTS from the manufacturer's documentation,
- be able to plan the action or apply a Service Bulletin, an AD or national equivalent.

Content: Following the guidelines described in paragraph E.

Continuation training

The AMO/CAMO should ensure that the continuation training is required in each two years period. The syllabus of the training programme referred to in 3.4 of the MOE or 0.3(e) of the CAME should include the additional syllabus for this continuation training.

The continuation training may be combined with the phase 2 training in a classroom or at distance.

The continuing training should be updated when new instructions are issued which are related to the material, tools, documentation and manufacturer's or BMAA's directives.

**E) Guidelines for preparing the content of Phase 2 courses.**

The following guidelines should be taken into consideration when the phase 2 training programme is being established:

a) understanding of the background and the concept of FTS;

b) how the mechanics can recognise, interpret and handle the improvements in the instruction for continuing airworthiness that have been made or are being made regarding the fuel tank system maintenance;

c) awareness of any hazards especially when working on the fuel system, and when the Flammability Reduction System (FRS) using nitrogen is installed.

Paragraphs a) b) and c) above should be introduced in the training programme addressing the following issues:

i) The theoretical background behind the risk of FTS: the explosions of mixtures of fuel and air, the behaviour of those mixtures in an aviation environment, the effects of temperature and pressure, energy needed for ignition etc, the 'fire triangle'.

Explain 2 concepts to prevent explosions:

(1) ignition source prevention and

(2) flammability reduction.

ii) The major accidents related to fuel tank systems, the accident investigations and their conclusions.

iii) ignition prevention program initiatives and goals, to identify unsafe conditions and to correct them, to systematically improve fuel tank maintenance.

iv) Explain briefly the concepts that are being used: the results of Special Federal Aviation Regulation 88 (SFAR 88) of the Federal Aviation Administration (FAA), Joint Aviation Authorities Temporary Guidance Leaflet 47(JAA TGL 47), Joint Aviation Authorities Interim Policy Letter 25/12 (JAA INT/POL 25/12) and any other unique BMAA initiatives: modifications, airworthiness limitations items and CDCCL (if applicable).

v) Where relevant information can be found and how to use and interpret this information in the instructions for continuing airworthiness (aircraft maintenance manuals, component maintenance manuals, Service Bulletins…).

vi) FTS during maintenance: fuel tank entry and exit procedures, clean working environment, what is meant by configuration control, wire separation, bonding of components etc.

vii) FRS when installed: reason for their presence, their effects, the hazards of an FRS using nitrogen for maintenance, safety precautions in maintenance/working with an FRS.

viii) Recording maintenance actions, recording measures and results of inspections.

| | |
|---|---|
| | The training should include a representative number of examples of defects and the associated repairs as required by the (Military) TC/ STC holder's maintenance data.<br><br>**F) Approval of training**<br>For AMOs/CAMOs, the approval of the initial and continuation training programme and the content of the examination can be achieved through the MOE/CAME. |

**Appendix V to AMC 145.A.70 – MOE Handbook**

See separate document including the MOE Handbook Ed 1.1:

Appendix V to AMC 145.A.70_MOE hand