BELGIAN MILITARY AIRWORTHINESS REQUIREMENT

BMAR 21

CERTIFICATION OF MILITARY AIRCRAFT AND RELATED PRODUCTS, PARTS AND APPLIANCES, AND DESIGN AND PRODUCTION ORGANISATIONS

Belgian Military Airworthiness Authority

INITIAL and CONTINUED AIRWORTHINESS BRANCH

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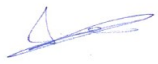
Prepared by	Captain Nicolas MAES	19-09-22 X  Captain Nicolas MAES BMAA - Initial & Continued AW Branch Signed by: Nicolas Maes (Authentication)
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VERSION CONTROL

Version reference	Comment	Date of approval
2010/01	Initial Edition	Feb 2012
Ed 1.1	Consolidated Version based on EMAR 21 Ed 1.1 and on the EMAR 21 AMC/GM Ed 1.1	Jun 2015
Ed 1.2	Consolidated Version based on EMAR 21 Ed 1.2 and on the EMAR 21 AMC/GM Ed 1.2	p.m.
Ed 1.3	Consolidated Version based on EMAR 21 Ed 1.3 and on the EMAR 21 AMC/GM Ed 1.3	Feb 2018
Ed 1.4	Consolidated Version based on EMAR 21 Ed 1.3 and on the EMAR 21 AMC/GM Ed 1.3, for introduction of BMAR 21 as annex to the Ministerial Decree	Sep 2022

PREAMBLE

On 10th November 2008, the twenty six participating Member States of the European Defence Agency 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 21 is based on the EMAR 21 Section A & B Edition 1.3 together with its associated Acceptable Means of Compliance (AMC) and Guidance Material (GM)[2]. These documents were approved by the MAWA Forum on 27 July 2017 and are based on the specific EC regulation and its AMC & GM laying down implementing rules for the airworthiness certification of aircraft and related products, parts and appliances, as well as for the certification of design and production organisations[3].

REMARKS:

1. The paragraph numbers used throughout this directive correspond with the paragraph number of the originating document.

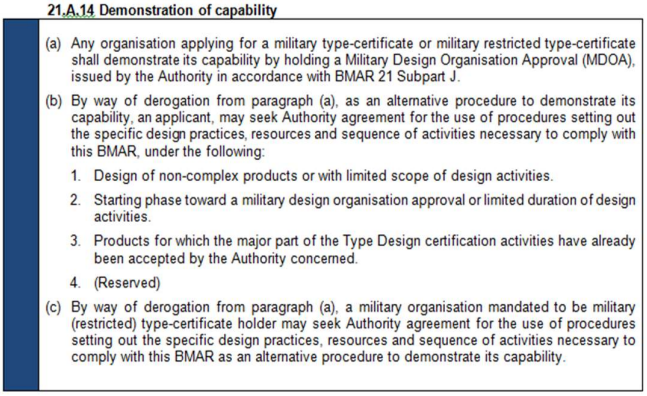
[1] Regulation (EC) n°216/2008 of the European Parliament and of the Council of 20 Feb 2008

[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

[3] Commission Regulation (EC) n°1702/2003 of 24 Sep 2003 at its M6 amendment of 30 Nov 2009.

2. The BMAR 21 Requirements, AMC and GM were merged into a single document that presents the information in a clear and readable format.
3. Feedback is invited to the BMAA Initial & Continued Airworthiness Branch (COMOPSAIR-BMAA-CERTIF-DL@mil.be)

KEY TO USE OF DOCUMENT



21.A.14 Demonstration of capability

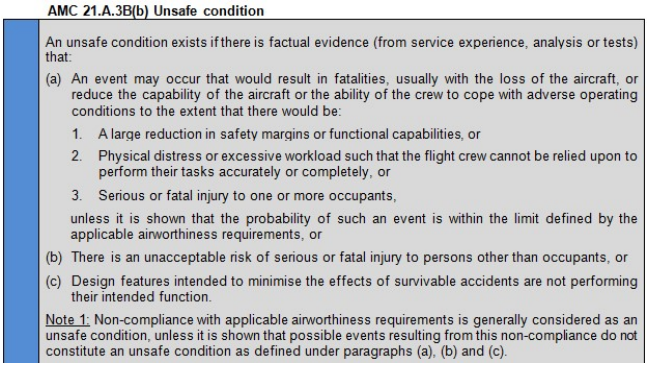
(a) Any organisation applying for a military type-certificate or military restricted type-certificate shall demonstrate its capability by holding a Military Design Organisation Approval (MDOA), issued by the Authority in accordance with BMAR 21 Subpart J.

(b) By way of derogation from paragraph (a), as an alternative procedure to demonstrate its capability, an applicant, may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this BMAR, under the following:

1. Design of non-complex products or with limited scope of design activities.
2. Starting phase toward a military design organisation approval or limited duration of design activities.
3. Products for which the major part of the Type Design certification activities have already been accepted by the Authority concerned.
4. (Reserved)

(c) By way of derogation from paragraph (a), a military organisation mandated to be military (restricted) type-certificate holder may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this BMAR as an alternative procedure to demonstrate its capability.

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



AMC 21.A.3B(b) Unsafe condition

An unsafe condition exists if there is factual evidence (from service experience, analysis or tests) that:

(a) An event may occur that would result in fatalities, usually with the loss of the aircraft, or reduce the capability of the aircraft or the ability of the crew to cope with adverse operating conditions to the extent that there would be:

1. A large reduction in safety margins or functional capabilities, or
2. Physical distress or excessive workload such that the flight crew cannot be relied upon to perform their tasks accurately or completely, or
3. Serious or fatal injury to one or more occupants,

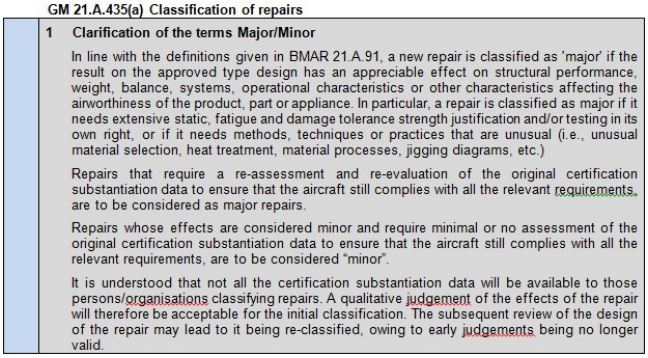
unless it is shown that the probability of such an event is within the limit defined by the applicable airworthiness requirements, or

(b) There is an unacceptable risk of serious or fatal injury to persons other than occupants, or

(c) Design features intended to minimise the effects of survivable accidents are not performing their intended function.

Note 1: Non-compliance with applicable airworthiness requirements is generally considered as an unsafe condition, unless it is shown that possible events resulting from this non-compliance do not constitute an unsafe condition as defined under paragraphs (a), (b) and (c).

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 21.A.435(a) Classification of repairs

1 Clarification of the terms Major/Minor

In line with the definitions given in BMAR 21.A.91, a new repair is classified as 'major' if the result on the approved type design has an appreciable effect on structural performance, weight, balance, systems, operational characteristics or other characteristics affecting the airworthiness of the product, part or appliance. In particular, a repair is classified as major if it needs extensive static, fatigue and damage tolerance strength justification and/or testing in its own right, or if it needs methods, techniques or practices that are unusual (i.e., unusual material selection, heat treatment, material processes, jigging diagrams, etc.)

Repairs that require a re-assessment and re-evaluation of the original certification substantiation data to ensure that the aircraft still complies with all the relevant requirements, are to be considered as major repairs.

Repairs whose effects are considered minor and require minimal or no assessment of the original certification substantiation data to ensure that the aircraft still complies with all the relevant requirements, are to be considered "minor".

It is understood that not all the certification substantiation data will be available to those persons/organisations classifying repairs. A qualitative judgement of the effects of the repair will therefore be acceptable for the initial classification. The subsequent review of the design of the repair may lead to it being re-classified, owing to early judgements being no longer valid.

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.

LIST OF NOT REFERENCED ABBREVIATIONS

AD	Airworthiness Directive
AMC	Acceptable Means of Compliance
ARC	Airworthiness Review Certificate
BMAA	Belgian Military Airworthiness Authority
CMR	Certification Maintenance Requirements
CPP	Certification Programme Plan
CS	Certification Specification
EMPA	European Military Part Approval
EPA	European Part Approval
GM	Guidance Material
MDOA	Military Design Organisation Approval
MDOE	Military Design Organisation Exposition
MMEL	Master Minimum Equipment List
MPOA	Military Production Organisation Approval
MPOE	Military Production Organisation Exposition
MTC	Military Type Certificate
MRTC	Military Restricted Type Certificate
MSTC	Military Supplemental Type Certificate
OP	Other Party
SB	Service Bulletin

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21.1 General

(a) When reference is given to 'design organisation' the following shall apply:

1. An organisation responsible for the design of products, parts and appliances or for changes or repairs thereto shall demonstrate its capability in compliance with BMAR 21. In the case that Belgian Defence entities undertake design activities with any other organisation responsible for the design of products, parts and appliances or for changes or repairs thereto, they shall be treated as a single organisation when demonstrating their capability in accordance with BMAR 21.
2. By way of derogation from point 1, an organisation whose principal place of business is in not located in Belgium may demonstrate its capability by holding a certificate or similar approval issued by an authority of that State for the product, part and appliance for which it applies, provided:
    i. that State is providing oversight as State of Design; and
    ii. through Recognition (EMAD-R) it can be determined, that the national airworthiness system of that State includes the same independent level of checking of compliance as provided by BMAR 21, either through an equivalent system of approvals of organisations or through direct involvement of the authority of that State.

(b) All references to 'aircraft' throughout this BMAR means 'military aircraft', defined as those that follow special laws and regulations and are designed with specific characteristics for military operations.

(c) 'Authority' shall be, unless otherwise specified in this BMAR:

1. The Authority in charge of the type certification process:
    i. For a multinational programme, the Military Airworthiness Authorities of the participating Nations/States under an agreed arrangement with the BMAA; or
    ii. For a national programme, the BMAA,
2. The Authority in charge of the production/design organisation approval:
    i. For a multinational programme, the Military Airworthiness Authorities of the participating Nations/States under an agreed arrangement with the BMAA; or
    ii. For a national programme, the BMAA,
3. The Authority in charge to issue the military permit to fly,
4. The registration Authority in charge to issue the Certificate of Airworthiness; or
5. For unregistered aircraft, the Authority which prescribed the identification marks.

(d) 'Applicant' shall be:

1. The contractor which should comply with this BMAR; or
2. Any organisation (including MODs) which must obtain from the BMAA; a type certificate, a restricted type certificate, a supplemental type certificate, an MTSO authorisation, a major change or a major repair design approval based on this BMAR. It should be included herein the certificate of airworthiness, as mentioned in BMAR 21.A.172, and Military Permit to Fly /Flight Conditions, as mentioned in BMAR 21.A.703.
3. Any organisation or operator or its representative which applies for an airworthiness certificate under Subpart H of this BMAR.

(e) 'Certification' means the process of recognition that a product, part or appliance, organisation or person complies with the applicable airworthiness requirements followed by the declaration of compliance.

(f) 'continued (design) airworthiness' means all tasks to be carried out to verify that the conditions under which a type certificate or a supplemental type certificate has been granted continue to be fulfilled at any time during its period of validity (Type Design)

(g) 'continuing (preservation of) airworthiness' means all of the processes ensuring that, at any time in its operating life, the aircraft complies with the airworthiness requirements in force and is in a condition for safe operation (Maintenance).

(h) All references to 'certificates' throughout this BMAR means 'Belgian Military Certificates' (Although credit can be taken from any prior Civil Certificate issued by a recognised Civil Authority).

(i) All references to 'organisation approvals' throughout this BMAR means 'organisational approvals accepted or issued by military authorities'.

(j) Where this BMAR requires specific BMAR forms to be used, equivalent forms approved by the BMAA are permitted.

(k) "Operational Suitability Data (OSD)" means data, which are part of an aircraft type-certificate, restricted type- certificate or supplemental type-certificate, consisting of all of the following:

1. the minimum syllabus of pilot type rating training, including determination of type rating;
2. the definition of scope of the aircraft validation source data to support the objective qualification of simulators or the provisional data to support their interim qualification;
3. the minimum syllabus of maintenance certifying staff type rating training, including determination of type rating;
4. determination of type or variant for cabin crew and type specific data for cabin crew;
5. the master minimum equipment list.

21.2 Applicability

The requirements of Section A apply for all aircraft intended to be registered or already registered on the Belgian Military Register, and its related engine(s) and/or propeller(s). However, military legacy aircraft and its related engine(s) and/or propeller(s), that means military aircraft registered before 31st December 2018, and all applicable changes and/or repairs defined and executed before 31st December 2018 are deemed to be already certified under this BMAR. In order to be granted a Military (Supplemental) Type Certificate for military legacy aircraft and its related engine(s) and/or propeller(s) or for a major change, an applicant shall:

(a) Establish, as far as practicable, the type certification basis and the showings of compliance;

(b) Establish the complete configuration of the product at the date of application (including drawings and specifications and a list of those, if possible) or all the necessary descriptive data for inclusion in the type design in case of a major modification;

(c) Establish an airworthiness limitations section of the instructions for continuing airworthiness;

(d) Undertake the obligations laid down in:

1. BMAR 21.A.44 in case of Military Type Certificate;
2. BMAR 21.A.118A in case of Military Supplemental Type Certificate;
3. BMAR 21.A.109 in case of minor change;

4. BMAR 21.A.451 in case of repair.

GM 21.2 Applicability

a. Product means an aircraft, engine or propeller.

b. Military Supplemental Type Certificate applies for major change to type design whose applicant is not the type certificate holder of.

c. Classification of changes can be found in BMAR 21.A.91 and its related GM.

d. Classification of repairs can be found in BMAR 21.A.435 and its related GM.

SECTION A - TECHNICAL REQUIREMENTS

Subpart A – General Provisions

21.A.1 Scope

This Section establishes general provisions governing the rights and obligations of the applicant for, and holder of, any certificate issued or to be issued in accordance with this Section.

21.A.2 Undertaking by another organisation than the applicant for, or holder of, a certificate

The actions and obligations required to be undertaken by the holder of, or applicant for, a certificate for a product, part or appliance under this Section may be undertaken on its behalf by any other organisation, provided the holder of, or applicant for, that certificate can show that it has made an agreement with the other person or organisation such as to ensure that the holder's obligations are and will be properly discharged.

AMC 21.A.2 Undertaking by another organisation than the applicant for, or holder of, a certificate

In order to undertake the actions and obligations of the holder of, or applicant for, the certificate, the organisation should have an agreement in place with an approved Design Organisation who has access to the Type Design data.

GM 21.A.2 Undertaking by another organisation than the applicant for, or holder of, a certificate

An “agreement” is to be understood as a formal agreement: contract, MOU, Letter of Agreement, internal directive, SLA or equivalent.

21.A.3A Failures, malfunctions and defects

(a) System for Collection, Investigation and Analysis of Data

1. The holder of a type-certificate, restricted type-certificate, supplemental type-certificate, Military Technical Standard Order (MTSO) authorisation, major repair design approval or any other relevant approval deemed to have been issued under this BMAR shall have a system for collecting, investigating and analysing reports of and information related to failures, malfunctions, defects or other occurrences which cause or might cause adverse effects on the airworthiness of the product, part or appliance covered by the type-certificate, restricted type-certificate, supplemental type-certificate, MTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this BMAR. Information about this system shall be made available to all known operating organisations of the product, part or appliance and, on request, to any person authorised under other associated BMARs.

(b) Reporting to the Authority

1. The holder of a type-certificate, restricted type-certificate, supplemental type-certificate, MTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this BMAR, shall report to the issuing/approving Authority any failure, malfunction, defect or other occurrence of which it is aware related to a product, part or appliance covered by the type-certificate, restricted type-certificate, supplemental

type-certificate, MTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this BMAR, and which has resulted in or may result in an unsafe condition.

2. These reports shall be made in a form and manner established by the Authority, as soon as practicable and in any case dispatched not later than 72 hours after the identification of the possible unsafe condition, unless exceptional circumstances prevent this.

(c) Investigation of Reported Occurrences

1. When an occurrence reported under paragraph (b), or under BMAR 21.A.129(f)(2) or 21.A.165(f)(2) results from a deficiency in the design, or a manufacturing deficiency, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, MTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this BMAR, or the manufacturer (Production Organisation) as appropriate, shall investigate the reason for the deficiency and report to the Authority the results of its investigation and any action it is taking or proposes to take to correct that deficiency.

If the Authority finds that an action is required to correct the deficiency, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, MTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this BMAR, or the manufacturer as appropriate, shall submit the relevant data to the Authority.

AMC 21.A.3A(a) Collection, investigation and analysis of data related to Flammability Reduction Means (FRM) reliability

Holders of a type certificate, restricted type certificate, supplemental type certificate or any other relevant approval deemed to have been issued under BMAR 21 and which have included a FRM in their design should assess on an on-going basis the effects of aeroplane component failures on FRM reliability. This should be part of the system for collection, investigation and analysis of data required by BMAR 21.A.3A(a). The applicant/holder should do the following:

(a) Demonstrate effective means to ensure collection of FRM reliability data. The means should provide data affecting FRM reliability, such as component failures.

(b) Unless alternative reporting procedures are approved by the Authority, provide a report to the Authority every six months for the first five years after service introduction. After that period, continued reporting every six months may be replaced with other reliability tracking methods found acceptable to the Authority or eliminated if it is established that the reliability of the FRM meets, and will continue to meet, the exposure specifications as defined by the applicable airworthiness requirements.

(c) Develop service instructions or revise the applicable aeroplane manual, according to a schedule approved by the Authority, to correct any failures of the FRM that occur in service that could increase any fuel tank's Fleet Average Flammability Exposure to more than that specified by the applicable airworthiness requirements.

GM 21.A.3A(a) System for Collection, Investigation and Analysis of Data

In the context of this requirement, the word "Collection" means the setting up of systems and procedures which will enable relevant malfunctions, failures and defects to be properly reported when they occur.

GM 21.A.3A(b) Occurrence reporting

For occurrence reporting, additional guidance material can be found in civil regulations EASA AMC 20-8, in EASA AMC-20[4].

In particular:

(a) The products and part and appliances design rules prescribe that occurrences defined as a failure, malfunction, defect or other occurrence which has resulted in or may result in an unsafe condition must be reported to the Authority;

(b) According to the product and part and appliances production rules occurrences defined as a deviation which could lead to an unsafe condition must be reported to the Authority.

AMC 21.A.3A(b)(2) Reporting to the Authority

Within the overall limit of 72 hours the degree of urgency for submission of a report should be determined by the level of hazard judged to have resulted from the occurrence.

Where an occurrence is judged by the person identifying the possible unsafe condition to have resulted in an immediate and particularly significant hazard the Authority expects to be advised immediately and by the fastest possible means (telephone, fax, email, etc.) of whatever details are available at that time. This initial report should be followed up by a full written report within 72 hours. A typical example would be an uncontained engine failure resulting in damage to aircraft primary structure.

Where the occurrence is judged to have resulted in a less immediate and less significant hazard, report submission may be delayed up to the maximum of three days in order to provide more details.

21.A.3B Airworthiness Directives

(a) An Airworthiness Directive (AD) means a document issued or adopted by the Authority which mandates actions to be performed on an aircraft to restore an acceptable level of safety, when evidence shows that the safety level of this aircraft may otherwise be compromised.

(b) The Authority shall issue an Airworthiness Directive when:

1. An unsafe condition has been determined by the Authority to exist in an aircraft, as a result of a deficiency in the aircraft, or an engine, propeller, part or appliance installed on this aircraft; and
2. That condition is likely to exist or develop in other aircraft, including engine, propeller, part or appliance installed on those aircraft that may be affected by this unsafe condition.

(c) When an Airworthiness Directive has to be issued by the Authority to correct the unsafe condition referred to in paragraph (b), or to require the performance of an inspection, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, major repair design approval, MTSO authorisation, or any other relevant approval deemed to have been issued under this BMAR, shall:

1. Propose the appropriate corrective action and/or required inspections and submit details of these proposals to the Authority for approval;
2. Following the approval by the Authority of the corrective action and/or required inspections referred to under subparagraph (1), make available to all known operating organisations of

[4] ED Decision n°2013/12/RM of 5 Nov 2003

the product, part or appliance and, on request, to any person required to comply with the airworthiness directive, appropriate descriptive data and accomplishment instructions.

(d) An Airworthiness Directive shall contain at least the following information:

1. An identification of the unsafe condition;
2. An identification of the affected aircraft; operating and maintenance associated documentation;
3. The action(s) required;
4. The compliance time for the required action(s);
5. The date of entry into force.

AMC 21.A.3B(b) Unsafe condition

An unsafe condition exists if there is factual evidence (from service experience, analysis or tests) that:

(a) An event may occur that would result in fatalities, usually with the loss of the aircraft, or reduce the capability of the aircraft or the ability of the crew to cope with adverse operating conditions to the extent that there would be:

1. A large reduction in safety margins or functional capabilities, or
2. Physical distress or excessive workload such that the flight crew cannot be relied upon to perform their tasks accurately or completely, or
3. Serious or fatal injury to one or more occupants,

unless it is shown that the probability of such an event is within the limit defined by the applicable airworthiness requirements, or

(b) There is an unacceptable risk of serious or fatal injury to persons other than occupants, or

(c) Design features intended to minimise the effects of survivable accidents are not performing their intended function.

Note 1: Non-compliance with applicable airworthiness requirements is generally considered as an unsafe condition, unless it is shown that possible events resulting from this non-compliance do not constitute an unsafe condition as defined under paragraphs (a), (b) and (c).

Note 2: An unsafe condition may exist even though applicable airworthiness requirements are complied with.

Note 3: The above definition covers the majority of cases where the Authority considers there is an unsafe condition. There may be other cases where overriding safety considerations may lead the Authority to issue an airworthiness directive.

Note 4: There may be cases where events can be considered as an unsafe condition if they occur too frequently (significantly beyond the applicable safety objectives) and could eventually lead to consequences listed in paragraph (a) in specific operating environments. Although having less severe immediate consequences than those listed in paragraph (a), the referenced events may reduce the capability of the aircraft or the ability of the crew to cope with adverse operating conditions to the extent that there would be, for example, a significant reduction in safety margins or functional capabilities, a significant increase in crew workload, or in conditions impairing crew efficiency, or discomfort to occupants

GM 21.A.3B(b) Determination of an unsafe condition

It is important to note that these guidelines are not exhaustive. However, this material is intended to provide guidelines and examples that will cover most cases, taking into account the applicable certification requirements.

1. INTRODUCTION

Certification or approval of a product, part or appliance is a demonstration of compliance with requirements which are intended to ensure an acceptable level of safety. This demonstration however includes certain accepted assumptions and predicted behaviours, such as:

- fatigue behaviour is based on analysis supported by test,
- modelling techniques are used for Aircraft Flight Manual performances calculations,
- the systems safety analyses give predictions of what the systems failure modes, effects and probabilities may be,
- the system components reliability figures are predicted values derived from general experience, tests or analysis,
- the crew is expected to have the skill to apply the procedures correctly, and
- the aircraft is assumed to be maintained in accordance with the prescribed instructions for continued airworthiness (or maintenance programme), etc.

In service experience, additional testing, further analysis, etc., may show that certain initially accepted assumptions are not correct. Thus, certain conditions initially demonstrated as safe, are revealed by experience as unsafe. In this case, it is necessary to mandate corrective actions in order to restore a level of safety consistent with the applicable certification requirements.

See AMC BMAR 21.A.3B(b) for definition of "unsafe condition" used in BMAR 21.A.3A(b).

2. GUIDELINES FOR ESTABLISHING IF A CONDITION IS UNSAFE

The following paragraphs give general guidelines for analysing the reported events and determining if an unsafe condition exists, and are provided for each type of product, part or appliance subject to a specific airworthiness approval: Military Type-Certificates (MTC) or Military Supplemental Type-Certificates (MSTC) for aircraft, engines or propellers, or Military Technical Standard Orders (MTSO).

This analysis may be qualitative or quantitative, i.e. formal and quantitative safety analyses may not be available for older or small aircraft. In such cases, the level of analysis are to be consistent with that required by the airworthiness requirements and may be based on engineering judgement supported by service experience data.

2.1. Analysis method for aircraft

2.1.1. Accidents or incidents without any aircraft, engines, system, propeller or part or appliance malfunction or failure

When an accident/incident does not involve any component malfunction or failure but when a crew human factor has been a contributing factor, this has to be assessed from a man-machine interface standpoint to determine whether the design is adequate or not. Paragraph 2.5 gives further details on this aspect.

2.1.2. Events involving an aircraft, engines, system, propeller or part or appliance failure, malfunction or defect

The general approach for analysis of in service events caused by malfunctions, failures or defects will be to analyse the actual failure effects, taking into account previously unforeseen failure modes or improper or unforeseen operating conditions revealed by service experience.

These events may have occurred in service, or have been identified during maintenance, or been identified as a result of subsequent tests, analyses, or quality control.

These may result from a design deficiency or a production deficiency (non-conformity with the type design), or from improper maintenance. In this case, it has to be determined if improper maintenance is limited to one aircraft, in which case an airworthiness directive may not be issued, or if it is likely to be a general problem due to improper design and/or maintenance procedures, as detailed in paragraph 2.5.

2.1.2.1. Flight

An unsafe condition exists if:

- There is a significant shortfall of the actual performance compared to the approved performance (taking into account the accuracy of the performance calculation method), or
- The handling qualities, although having been found to comply with the applicable airworthiness requirements at the time of initial approval, are subsequently shown by service experience not to comply.

2.1.2.2. Structural or mechanical systems

An unsafe condition exists if the deficiency may lead to a structural or mechanical failure which:

- Could exist in a Principal Structural Element that has not been qualified as damage tolerant. Principal Structural Elements are those which contribute significantly to carrying flight, ground, and pressurisation loads, and whose failure could result in a catastrophic failure of the aircraft.

Typical examples of such elements are listed, as guidance, in EASA Certification Specification for Large Aircraft (CS – 25) AMC 25.571(a) “damage tolerance and fatigue evaluation of structure", and in the equivalent material for rotorcraft.

- Could exist in a Principal Structural Element that has been qualified as damage tolerant, but for which the established inspections, or other procedures, have been shown to be, or may be, inadequate to prevent catastrophic failure.
- Could reduce the structural stiffness to such an extent that the required flutter, divergence or control reversal margins are no longer achieved.
- Could result in the loss of a structural piece that could damage vital parts of the aircraft, cause serious or fatal injuries to persons other than occupants.
- Could, under ultimate load conditions, result in the liberation of items of mass that may injure occupants of the aircraft.
- Could jeopardise proper operation of systems and may lead to hazardous or catastrophic consequences, if this effect has not been taken adequately into account in the initial certification safety assessment.

2.1.2.3. Systems

The consequences of reported systems components malfunctions, failures or defects are to be analysed.

For this analysis, the certification data may be used as supporting material, in particular systems safety analyses.

The general approach for analysis of in service events caused by systems malfunctions, failures or defects will be to analyse the actual failure effects.

As a result of this analysis, an unsafe condition will be assumed if it cannot be shown that the safety objectives for hazardous and catastrophic failure conditions are still achieved, taking into account the actual failure modes and rates of the components affected by the reported deficiency.

The failure probability of a system component may be affected by:

- A design deficiency (the design does not meet the specified reliability or performance);
- A production deficiency (non-conformity with the certified type design) that affects either all components, or a certain batch of components;
- Improper installation (for instance, insufficient clearance of pipes to surrounding structure);
- Susceptibility to adverse environment (corrosion, moisture, temperature, vibrations etc.);
- Ageing effects (failure rate increase when the component ages);
- Improper maintenance.

When the failure of a component is not immediately detectable (hidden or latent failures), it is often difficult to have a reasonably accurate estimation of the component failure rate since the only data available are usually results of maintenance or flight crew checks. This failure probability is therefore be conservatively assessed.

As it is difficult to justify that safety objectives for the following systems are still met, a deficiency affecting these types of systems may often lead to a mandatory corrective action:

- Back up emergency systems, or
- Fire detection and protection systems (including shut off means).

Deficiencies affecting systems used during an emergency evacuation (emergency exits, evacuation assist means, emergency lighting system ...) and to locate the site of a crash (Emergency Locator Transmitter) will also often lead to mandatory corrective action.

2.1.2.4. Others

In addition to the above, the following conditions are considered unsafe:

- There is a deficiency in certain components which are involved in fire protection or which are intended to minimise/retard the effects of fire / smoke in a survivable crash, preventing them to perform their intended function (for instance, deficiency in cargo liners or cabin material leading to non-compliance with the applicable flammability requirements).
- There is a deficiency in the lightning or High Intensity Radiated Fields protection of a system which may lead to hazardous or catastrophic failure conditions.
- There is a deficiency which could lead to a total loss of power or thrust due to common mode failure.

If there is a deficiency in systems used to assist in the enquiry following an accident or serious incident (e.g., Cockpit Voice Recorder, Flight Data Recorder), preventing them to perform their intended function, the Authority may take mandatory action.

2.2. Engines

The consequences and probabilities of engine failures have to be assessed at the aircraft level in accordance with paragraph 2.1, and applicable airworthiness requirements. Further guidance at the engine level for those failures considered as hazardous can be found in CS-E-510 under EASA Certification Specification – Engines (CS-E).

The latter will be assumed to constitute unsafe conditions, unless it can be shown that the consequences at the aircraft level do not constitute an unsafe condition for a particular aircraft installation.

2.3. Propellers

The consequences and probabilities of propeller failures have to be assessed at the aircraft level in accordance with paragraph 2.1, and applicable airworthiness requirements. Further guidance at the propeller level for those failures considered as hazardous can be found in CS-P-70 under EASA Certification Specification – Propellers (CS-P).

The latter will be assumed to constitute unsafe conditions, unless it can be shown that the consequences at the aircraft level do not constitute an unsafe condition for a particular aircraft installation.

2.4. Parts and appliances

The consequences and probabilities of equipment failures have to be assessed at the aircraft level in accordance with paragraph 2.1.

2.5. Human factors aspects in establishing and correcting unsafe conditions

This paragraph provides guidance on the way to treat an unsafe condition resulting from a maintenance or crew error observed in service.

It is recognised that human factors techniques are under development. However, the following is a preliminary guidance on the subject.

Systematic review is to be used to assess whether the crew or maintenance error raises issues that require regulatory action (whether in design or other areas), or is to be noted as an isolated event without intervention. This may need the establishment of a multidisciplinary team (designers, crews, human factors experts, maintenance experts, operators etc.)

The assessment is to include at least the following:

- Characteristics of the design intended to prevent or discourage incorrect assembly or operation;
- Characteristics of the design that allow or facilitate incorrect operation;
- Unique characteristics of a design feature differing from established design practices;
- The presence of indications or feedback that alerts the operator to an erroneous condition;
- The existence of similar previous events, and whether or not they resulted (on those occasions) in unsafe conditions;
- Complexity of the system, associated procedures and training (has the crew a good understanding of the system and its logic after a standard crew qualification programme?);
- Clarity/accuracy/availability/currency and practical applicability of manuals and procedures;
- Any issues arising from interactions between personnel, such as shift changeover, dual inspections, team operations, supervision (or lack of it), or fatigue.

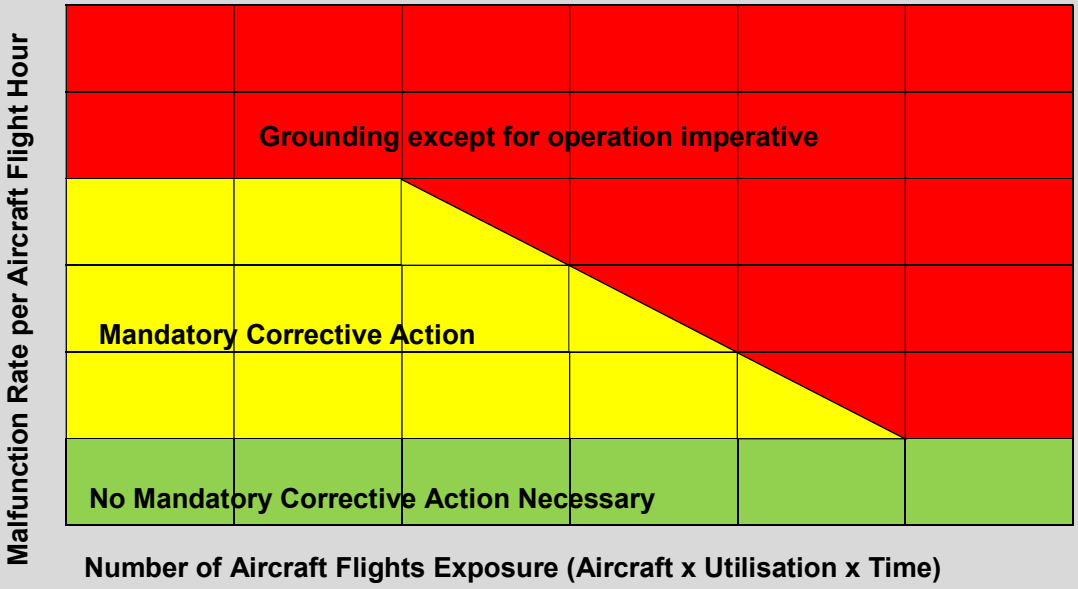
Apart from a design change, the corrective actions, if found necessary, may consist of modifications of the manuals, inspections, training programmes, and/or information to the operators about particular design features. The Authority may decide to make mandatory such corrective action if necessary.

GM 21.A.3B(d)(4) Compliance time

The residual risk during the time allowed to fix the defect is to be identified and minimized. Risk assessment techniques could be used to establish the deadline period to fix defects as agreed by the Authority.

The time period is directly related to the level risk ie higher the risk the shorter the time period. The graphic below, on a logarithmic scale, gives a representation of the relation risk-compliance time, without the numerical limits as these can be tailored considering the role of the aircraft.

Risk and Reaction Times



21.A.4 Coordination between design and production

Each holder of a type-certificate, restricted type-certificate, supplemental type-certificate, MTSO authorisation, approval of a change to type design or approval of a repair design, shall ensure collaboration between the design organisation and the production organisation as necessary to achieve:

(a) The satisfactory coordination of design and production required by BMAR 21.A.122, 21.A.130(b)(3) and (4), 21.A.133 or 21.A.165(c)(2) as appropriate; and

(b) The proper support of the continued airworthiness of the product, part or appliance.

AMC 21.A.4 Transferring of information on eligibility and approval status from the design organisations to production organisations

Where there is a need to provide (normally outside the design organisation) a visible statement of approved design data or airworthiness data associated with the approved design data, the following minimum information should be provided. The need for a visible statement may be in relation to Company holding a military production organisation approval (MPOA) in relation to BMAR 21.A.163(c).

The procedures related to the use of forms or other electronic means to provide this information should be agreed with the Authority.

Information to be provided:

Company Name: the name of the responsible design organisation (MTC, MSTC, approval of repair or minor change design, MTSO authorisation holder) issuing the information.

Date: the date at which the information is released.

Eligibility: indicate the specific products or articles, in case of MTSO authorisation, for which data have been approved.

Identification: the part number of the part or appliance. Preference should be given to the use of the Illustrated Parts Catalogue (IPC) designation. Alternatively the reference to the instruction for continued airworthiness could be stated. Marking requirements of BMAR 21 Section A Subpart Q should be taken into account.

Description: the name or description of the part or document should be given. In the case of a part or appliance preference should be given to use of IPC designation. The description is to include reference to any applicable MTSO authorisation or EMPA marking or previous national approvals still valid.

Purpose of data: the reason for the provision of the information should be stated by the design approval holder.

Examples:

a) Provision of approved design data to a production organisation to permit manufacture (AMC No 1 to BMAR 21.A.133(b) and (c)).

b) Information regarding eligibility for installation (replacement parts, repair, modification, etc.).

c) Direct Delivery Authorisation (AMC No 1 to BMAR 21.A.133(b) and (c)).

If the data is in support of a change or repair, then reference to the aircraft level approval should be given (make reference to the approved MSTC, change or repair).

Limitations/Remarks: state any information, either directly or by reference to supporting documentation that identifies any particular data or limitations (including specific importing requirements) needed by a production organisation to complete the BMAR Form 1.

Approval: provide reference information related to the approval of the data (Authority document or MDOA privilege).

Authorised signature: name and hand-written normal or electronic signature of a person who has written authority from the design organisation, as indicated in the procedures agreed with the Authority.

Subpart B – Military Type-Certificates and Military Restricted Type-Certificates

21.A.11 Scope

This Subpart establishes the procedure for issuing Military Type-Certificates (MTCs) for products and Military Restricted Type-Certificates (MRTCs) for aircraft, and establishes the rights and obligations of the applicants for, and holders of, those certificates.

21.A.13 Eligibility

Any organisation that has demonstrated, or is in the process of demonstrating, its capability in accordance with BMAR 21.A.14 shall be eligible as an applicant for a type-certificate or a restricted type-certificate under the conditions laid down in this Subpart.

21.A.14 Demonstration of capability

(a) Any organisation applying for a military type-certificate or military restricted type-certificate shall demonstrate its capability by holding a Military Design Organisation Approval (MDOA), issued by the Authority in accordance with BMAR 21 Subpart J.

(b) By way of derogation from paragraph (a), as an alternative procedure to demonstrate its capability, an applicant, may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this BMAR, under the following:

1. Products with simple or limited scope of design.
2. Starting phase toward a military design organisation approval or limited duration of design activities.
3. Products for which the major part of the Type Design certification activities have already been accepted by the Authority concerned.
4. (Reserved).

(c) By way of derogation from paragraph (a), an organisation mandated by the Belgian Defence to be military (restricted) type-certificate holder may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this BMAR as an alternative procedure to demonstrate its capability.

(d) By way of derogation from paragraph (a) and (b), any government organisation applying for a type certificate or restricted type certificate may demonstrate its capability by having an agreement in place, accepted by the Authority, in accordance with BMAR 21.A.2 with a design organisation which has access to the type design data. The agreement shall include detailed statements how the actions and obligations are delegated to enable the government organisation, in cooperation with the contracted organisation, to comply with the requirements of BMAR 21 Subpart J, including demonstration of compliance with BMAR 21.A.44.

GM 21.A.14(b) and (c) Eligibility for alternative procedures

Design organisations approved under BMAR 21 Section A Subpart J (“Subpart J MDOA”) is to be the normal approach for military type-certification, military supplemental type-certification, approval of major changes to type design or approval of major repair design, except when agreed otherwise by the Authority in accordance with BMAR 21.A.14, BMAR 21.A.112B and BMAR 21.A.432B.

The acceptance of alternative procedures, as defined in AMC BMAR 21.A.14(b) and (c), is to be limited where the Authority finds it more appropriate for the conduct of military type-certification,

	military supplemental type-certification, approval of changes to type design, approval of repair design.

AMC 21.A.14(b) and (c) Alternative Procedures

Alternative procedures are an acceptable means to demonstrate design capability in the cases described in BMAR 21.A.14, BMAR 21.A.112B, or BMAR 21.A.432B. This concept is the implementation, in the context of specific projects, of procedures required in Subpart J MDOA, to ensure that the applicant will perform relevant activities as expected by the Authority, but without the requirements on the organisation itself that can be found in Subpart J MDOA. The establishment of these alternative procedures may be seen as a starting phase for a Subpart J MDOA, allowing at a later stage, at the discretion of the applicant, to move towards a full Subpart J MDOA by the addition of the missing elements.

1. Scope

1.1. As alternative to MDOA, a manual of procedures should set out specific design practices, resources and sequence of activities relevant for the specific projects, taking account of BMAR 21 requirements.

1.2. These procedures should be concise and limited to the information needed for quality and proper control of activities by the applicant/holder, and by the Authority.

2. Management of the (supplemental) type-certification process

2.1. Certification programme: See BMAR AMC 21.A.20(b) for type-certification and BMAR AMC 21.A.114 for supplemental type-certification.

2.2. Compliance documentation: see BMAR AMC 21.A.20(c).

2.3. There are no privileges associated with alternative procedures, however the Authority will decide on the extent of its involvement in the verification of compliance documents. This involvement may vary according to the Authority knowledge of the applicant from previous and on-going activities and the resulting assessment of competence, and should be addressed in the certification programme.

3. Management of design changes

3.1. Approval of changes to type design, repairs and production deviations from the approved design data

The MTC or MSTC applicant should provide procedures acceptable to the Authority for classification and approval of changes to type design (see paragraphs 3.2 and 3.3), and repairs and production deviations from the approved design data (see paragraph 3.4).

3.2. Classification

3.2.1. Content

The procedure should address the following points:

- identification of changes to type design;
- airworthiness classification;
- changes to type design initiated by subcontractors;
- documents to justify the classification;
- authorised signatories.

Criteria used for classification should be in compliance with BMAR 21.A.91 and corresponding interpretations.

3.2.2. Identification of changes to type design

The procedure should indicate how the following are identified:

- major changes to type design;
- those minor changes to type design where additional work is necessary to show compliance with the airworthiness requirements;
- other minor changes to type design requiring no further showing of compliance.

3.2.3. Airworthiness classification

The procedure should show how the effects on airworthiness are analysed, from the very beginning, by reference to the applicable airworthiness requirements.

If no specific airworthiness requirements are applicable to the change, the above review should be carried out at the level of the part or system where the change is integrated and where specific airworthiness requirements are applicable.

3.2.4. Control of changes to type design initiated by subcontractors

The procedure should indicate, directly or by cross-reference to written procedures, how changes to type design initiated by subcontractors are controlled.

3.2.5. Documents to justify the classification

All decisions of classification of changes to type design should be documented and approved by the Authority. It may be in the format of meeting notes or register.

3.2.6. Authorised signatories

The procedure should identify the persons authorised to sign the proposed classification before release to the Authority for approval.

3.3. Approval of changes to type design

3.3.1. Content

The procedure should address the following points:

- compliance documentation;
- approval process;
- authorised signatories.

3.3.2. Compliance documentation

For major changes and those minor changes to type design where additional work to demonstrate compliance with the applicable airworthiness requirements is necessary, compliance documentation should be established in accordance with AMC 21.A.20(c).

3.3.3. Approval process

A. For the approval of major changes to type design, a certification programme as defined in AMC 21.A.97should be established.

B. For major changes and those minor changes to type design where additional work to show compliance with the applicable airworthiness requirements is necessary, the procedure should define a document to support the approval process.

This document should include at least :

- identification and brief description of the change and its classification;
- applicable requirements;

- reference to the compliance documents;
- effects, if any, on limitations and on the approved documentation;
- authorised signatory.

C. For the other minor changes, the procedure should define a means:

- to identify the change;
- to present the change to the Authority for approval.

3.3.4. Authorised signatories

The procedure should identify the persons authorised to sign the change before release to the Authority for approval.

3.4. Repairs and production deviations from the approved design data

A procedure following the principles of paragraphs 3.2 and 3.3 should be established for the classification and approval of repairs and unintentional deviations from the approved design data occurring in production (concessions or non-conformance's). For repairs, the procedure should be established in accordance with BMAR 21 Section A Subpart M and associated acceptable means of compliance (AMC) or guidance material (GM).

4. Issue of information and instructions to operating organisations

4.1. General

The information or instructions issued by a MTC, MSTC, approval of changes to type design, approval of repair design holder are intended to provide the operating organisations of a product with all necessary data to implement a change on the product, or a repair, or to inspect it.

The information or instructions may be issued in a format of a Service Bulletin as defined in S1000D Chapters, or in Structural Repair Manuals, Maintenance Manuals, Engine and Propeller Manuals, etc.

The preparation of this data involves design, production and inspection. The three aspects should be properly addressed and a procedure should exist.

4.2. Procedure

The procedure should address the following points:

- preparation;
- verification of technical consistency with corresponding approved change(s), repair(s) or approved data, including effectivity, description, effects on airworthiness, especially when limitations are changed;
- verification of the feasibility in practical applications.

The persons authorised to sign before release of information and instructions to the Authority for approval should be identified in the procedure.

The procedure should include the information or instructions prepared by subcontractors or vendors, and declared applicable to its products by the MTC, MSTC, approval of changes to type design or approval of repair design holders.

4.3. Statement

The information and instructions should contain a statement showing Authority approval.

5. Obligations addressed in BMAR 21.A.44 (MTC holder), BMAR 21.A.118A (MSTC holder) or BMAR 21.A.451 (repair design approval holder)

The applicant should establish the necessary procedures to show to the Authority how it will fulfil the obligations required under BMAR 21.A.44, BMAR 21.A.118A or BMAR 21.A.451, as appropriate.

6. Control of design subcontractors

The applicant should establish the necessary procedures to show to the Authority how it will control design subcontractors.

AMC 21.A.14(d) Alternative Demonstration

A government organisation can be approved by the Authority to execute the Military Type Certificate Holder (MTCH) responsibilities. This government organisation may apply for a type certificate or restricted type certificate, without being the original design organisation. In this case the government organisation should, in accordance with BMAR 21.A.2, enter an agreement with a design organisation which has access to the Type Design data to ensure the undertaking of specific actions and obligations. Any alternative procedures for establishing a Design Assurance System should be acceptable to the Authority in fulfilling the obligations required under BMAR 21.A.44.

21.A.15 Application

(a) An application for a military type-certificate or military restricted type-certificate shall be made in a form and manner established by the Authority.

(b) An application for an aircraft type-certificate or restricted type-certificate shall be accompanied by a three-view drawing of that aircraft and preliminary basic data, including the proposed operating characteristics and limitations.

(c) An application for an engine or propeller type-certificate shall be accompanied by a general arrangement drawing, a description of the design features, the operating characteristics, and the proposed operating limitations, of the engine, or propeller.

AMC 21.A.15(a) Application

Where Operational Suitability Data (OSD) is already available for the product and/or or where it is required by national regulations, an application under Subpart B, D or E should be supplemented by an application for approval of OSD.

GM 21.A.15(a) Application

When the application for a MTC (including MRTC or MSTC) is based on a Type Certificate issued under a different legal framework (such as EASA), such a Type certificate may contain OSD as approved data. The OSD available will be dependent of the class of the Aircraft in the following areas:

1. Minimum syllabus of pilot type rating training, including determination of type rating;
2. Definition of scope of the aircraft validation source data to support the objective qualification of simulator(s) associated to the pilot type rating training, or provisional data to support their interim qualification;
3. Minimum syllabus of maintenance certifying staff type rating training, including determination of type rating;
4. Determination type specific data for cabin crew training;
5. The master minimum equipment list.
6. Other type-related operational suitability elements.

The application for approval of such OSD will lead to the validation of this data in the scope of the military type definition and military operation of the aircraft, taking into account the difference in the assumptions that were the basis for the previously approved OSD, as well as the compatibility with Flight Crew (including Cabin Crew with airworthiness tasks such as Loadmasters) training and Maintenance Certifying Staff training.

21.A.16A Airworthiness Codes

The Authority may approve the use of applicable airworthiness codes as a standard means to show compliance of products, parts and appliances with the essential airworthiness requirements of the Belgian legal framework applicable to military aircraft. Such codes shall be sufficiently detailed and specific to indicate to applicants the conditions under which certificates will be issued.

GM 21.A.16A Airworthiness Codes

The European Military Airworthiness Certification Criteria (EMACC) handbook published by EDA identifies the Airworthiness Codes that can be used to show compliance of military products.

21.A.16B Special conditions

(a) The Authority shall approve any special detailed technical specifications, named special conditions, for a product, if the related airworthiness codes do not contain adequate or appropriate safety standards for the product, because:

1. The product has novel or unusual design features relative to the design practices on which the applicable airworthiness codes are based; or
2. The intended use of the product is unconventional; or
3. Experience from other similar products in service or products having similar design features, has shown that unsafe conditions may develop; or
4. Airworthiness codes do not exist for the concerned product function.

(b) The special conditions contain such safety standards as the Authority finds necessary to establish a level of safety equivalent to that established in the applicable airworthiness codes or a level of safety acceptable if airworthiness codes do not exist for the concerned product.

GM 21.A.16B Special Conditions

BMAR 21.A.16B introduces 3 categories of Special Conditions:

1. Novel and unusual design features;
2. Unconventional use of product;
3. Service experience has shown that unsafe conditions may exist.

However, the need for a Special Condition, with an equivalent level of safety, based on in-service experience should be judged by using the following points as benchmarks:

- The words “unsafe conditions” are used in GM BMAR 21.A.3B(b) to justify the basis for an airworthiness directive;
- The words “continued safe flight and landing” mean the capability for continued controlled flight and landing, possibly using emergency procedures, but without requiring exceptional pilot skill or strength. Some aircraft damage may be associated with a failure condition, during flight or upon landing.

21.A.17A Type-certification basis

(a) The type-certification basis to be notified for the issuance of a type-certificate or a restricted type-certificate shall consist of:

1. The applicable airworthiness codes established according to BMAR 21.A.16A that are effective on the date of application for that certificate unless:
   i. Otherwise specified by the Authority; or
   ii. Compliance with later effective amendments is elected by the applicant or under paragraph (d).
2. Any special condition prescribed in accordance with BMAR 21.A.16B(a).
3. The tailoring of the criteria in European Military Airworthiness Certification Criteria (EMACC) based on the military use of the product, when appropriate airworthiness codes are not available

(b) (Reserved).

(c) (Reserved).

(d) If an applicant elects to comply with an amendment to the airworthiness codes that is effective after the filing of the application for a type-certificate, the applicant shall also comply with any other amendment that the Authority finds is directly related.

(e) Special conditions in accordance with BMAR 21.A.16B may be required to take into account the intended military use of the aircraft.

GM 21.A.17A Type-certification Basis

The EMACC Guidebook published by EDA offers guidance on how to tailor the criteria for the type-certification basis, based on the intended military use of the product.

21.A.17B Reserved

21.A.18 Designation of applicable environmental protection requirements

The applicable environmental protection requirements shall be established when certifying a product, taking account of the military operational need.

21.A.19 Changes requiring a new type-certificate

Any applicant proposing to change a product, shall apply for a new type-certificate if the Authority finds that the change in design, configuration, power, thrust, or mass is so extensive that a substantially complete investigation of compliance with the applicable type-certification basis is required.

GM 21.A.19 Substantial changes

Changes that require a substantial re-evaluation of the product's compliance findings are referred to as "substantial changes". For further guidance, see GM 21.A.101 section 3 of Chapter 3.

21.A.20 Compliance with the type-certification basis and environmental protection requirements (where applicable)

(a) The applicant for a military type-certificate or a military restricted type-certificate shall show compliance with the applicable type-certification basis and environmental protection requirements (where applicable) and shall provide to the Authority the means by which such compliance has been demonstrated,.

(b) The applicant shall propose to the Authority a Certification Programme that includes a Certification Program Plan (CPP) that details the means for compliance demonstration. The Certification Programme shall be approved by the Authority before the compliance demonstration commences and updated as necessary during the certification process.

(c) The applicant shall record justification of compliance within compliance documents according to the CPP established under paragraph (b).

(d) The applicant shall declare that it has shown compliance with all applicable type-certification basisand environmental protection requirements (where applicable), according to the CPP established under paragraph (b).

(e) Where the applicant holds an appropriate design organisation approval, the declaration of paragraph (c) shall be made according to the provisions of BMAR 21 Subpart J.

AMC 21.A.20(b) Certification Programme

1 For a particular project and as part of the technical familiarisation, the applicant provides a Certification Programme that includes:

1.1 a plan (CPP) containing the following information:

- Description of the project and the kind of operations envisaged;
- The proposed airworthiness requirements (possibly derived from an applicable airworthiness code), special conditions and equivalent safety findings;
- The description on how compliance will be demonstrated, with proposed means of compliance (see appendix to this AMC below for codes), and any selected guidance material. The description of the means of compliance should be sufficient to determine that all necessary data will be collected and compliance can be demonstrated;
- A compliance checklist addressing each paragraphs of the type-certification basis applicable to the project, with reference to the means of compliance and to the related compliance documents;
- Identification of relevant personnel making decisions affecting airworthiness interfacing with the Authority, unless otherwise identified to the Authority.

1.2 a project schedule including major milestones.

2 The certification programme can be developed step by step, when the information needed is not available at the beginning of the project.

3 For a simple project, the certification programme can be proposed with the application.

4 The certification programme can be based on modules that can be updated independently.

Appendix to AMC 21.A.20(b) Means of compliance code

Type of Compliance	Means of Compliance	Associated Compliance Documents
Engineering evaluation	MC0: - Compliance statement - Reference to Type Design documents - Election of methods, factors, ... - Definitions	- Type Design documents - Recorded statements
	MC1: Design review	- Descriptions - Drawings
	MC2: Calculation/ Analysis	- Substantiation reports
	MC3: Safety assessment	- Safety analysis
Tests	MC4: Laboratory tests	- Test programmes - Test reports - Test interpretations
	MC5: Ground tests on related product	
	MC6: Flight tests	
	MC8: Simulation	
Inspection	MC7: Design inspection/ audit	- Inspection or audit reports
Equipment qualification	MC9: Equipment qualification	Note : Equipment qualification is a process which may include all previous means of compliance

GM 21.A.20(b) Update to the Certification Programme

The applicant should keep the certification programme current throughout the project and submit all revised elements to the Authority.

AMC 21.A.20(c) Compliance documentation

1. Compliance documentation comprises of one or more reports, drawings, specifications, calculations, analysis etc. and provides a record of the means by which compliance with the applicable type-certification basis is demonstrated.
2. Each compliance document should normally contain:
   - an adequate link with the corresponding certification program;
   - the reference of the certification specifications or special conditions requirements addressed by the document;
   - data demonstrating compliance;
   - a statement by the applicant declaring that the document provides the proof of compliance for which it has been created;

- the appropriate authorised signature.

3. Each compliance document should have a number and issue date. The various issues of a document should be controlled.

GM 21.A.20(d) Final statement

All compliance demonstrations should be completed before issuance of the final statement of compliance required by BMAR 21.A.20(d).

If so agreed by the Authority, some compliance documentation may be produced after issuance of the final statement of compliance required by BMAR 21.A.20(d).

21.A.21 Issue of a type-certificate

The applicant shall be entitled to have a product type-certificate issued by the Authority after:

(a) Demonstrating its capability in accordance with BMAR 21.A.14;

(b) Submitting the declaration referred to in BMAR 21.A.20(d); and

(c) It is shown that:

1. The product to be certificated meets the applicable type-certification basis and environmental protection requirements (where applicable) designated in accordance with BMAR 21.A.17A and 21.A.18 (where applicable);
2. Any airworthiness provisions not complied with are compensated for by factors that provide an equivalent level of safety;
3. No feature or characteristic makes it unsafe for the uses for which certification is requested; and
4. The type-certificate applicant has expressly stated that it is prepared to comply with BMAR 21.A.44.

(d) In the case of an aircraft type-certificate, the engine or propeller or both, if installed in the aircraft, have a type-certificate issued or determined in accordance with this BMAR, unless the engine and propeller are fully covered by the aircraft level type-certificate.

21.A.23 Issue of a restricted type-certificate

(a) For an aircraft that does not meet the provisions of BMAR 21.A.21(c), the applicant shall be entitled to have a restricted type-certificate issued by the Authority after:

1. Complying with the appropriate type-certification basis established by the Authority ensuring adequate safety where restrictions may be imposed in regard to the intended use of the aircraft;
2. Expressly stating that it is prepared to comply with BMAR 21.A.44.

(b) The engine or propeller installed in the aircraft, or both, shall:

1. Have a type-certificate issued or determined in accordance with this BMAR; or
2. Have been shown to be in compliance with the type-certification basis necessary to ensure safe flight of the aircraft.

21.A.31 Type design

(a) The type design shall consist of:

1. The drawings and specifications, and a listing of those drawings and specifications, necessary to define the configuration and the design features of the product shown to comply with the applicable type-certification basis and environmental protection requirements (where applicable) ;
2. Information on materials and processes and on methods of manufacture and assembly of the product necessary to ensure the conformity of the product;
3. An approved airworthiness limitations section of the instructions for continuing airworthiness as defined by the applicable airworthiness codes; and
4. Any other data necessary to allow by comparison the determination of the airworthiness, the characteristics of noise, fuel venting, and exhaust emisstions (where applicable) of later products of the same type.

(b) Each type design shall be adequately identified.

21.A.33 Investigation and tests

(a) The applicant shall perform all inspections and tests necessary to show compliance with the applicable type-certification basis.

(b) Before each test required by paragraph (a) is undertaken, the applicant shall have determined:

1. For the test specimen:
   i. That materials and processes adequately conform to the specifications for the proposed type design;
   ii. That parts of the products adequately conform to the drawings in the proposed type design;
   iii. That the manufacturing processes, construction and assembly adequately conform to those specified in the proposed type design; and
2. That the test equipment and all measuring equipment used for tests are adequate for the test and are appropriately calibrated.

(c) The applicant shall allow the Authority to make any inspection necessary to check compliance with paragraph (b).

(d) The applicant shall allow the Authority to review any report and make any inspection and to perform or witness any flight and ground test necessary to check the validity of the declaration of compliance submitted by the applicant under BMAR 21.A.20(d) and to determine that no feature or characteristic makes the product unsafe for the uses for which certification is requested.

(e) For tests performed or witnessed by the Authority under paragraph (d):

1. The applicant shall submit to the Authority a statement of compliance with paragraph (b); and
2. No change relating to the test that would affect the statement of compliance may be made to a product, part or appliance between the time compliance with paragraph (b) is shown and the time it is presented to the Authority for test.

GM 21.A.33 Investigation and Tests

The requirements of BMAR 21.A.33(a) will not preclude the applicant requesting the Authority to make flight or other tests of particular aspects of the product during its development and before the type design is fully defined and a Declaration of Compliance can be issued for all the applicable certification criteria. However in case of flight test the applicant is to have performed subject tests

before the Authority tests and is to ensure that no features of the product preclude the safe conduct of the evaluation requested. The Authority may require to repeat any such tests once the type design is fully defined to ensure that subsequent changes have not adversely affected the conclusions from any earlier evaluation. A statement of compliance with sub-paragraph BMAR 21.A.33(b) is also required for the above tests.

21.A.35 Flight Tests

(a) Flight testing for the purpose of obtaining a military type-certificate shall be conducted in accordance with conditions for such flight testing approved by the Authority.

(b) The applicant shall make all flight tests that the Authority finds necessary:

1. To determine compliance with the applicable type-certification basis, and environmental protection requirements (where applicable); and
2. To determine whether there is reasonable assurance that the aircraft, its parts and appliances are reliable and function properly.

(c) (Reserved).

(d) (Reserved).

(e) (Reserved).

(f) The flight tests prescribed in subparagraph (b)(2) shall include:

1. For aircraft incorporating turbine engines of a type not previously used in type-certificated aircraft, at least 300 hours of operation or as agreed by the Authority, with a full complement of engines that conform to a type-certificate; and
2. For all other aircraft, at least 150 hours of operation or as agreed by the Authority.

GM 21.A.35 Flight Tests

Detailed material on flight testing is included in the applicable certification criteria and GM.

GM 21.A.35(b)(2) Objective and Content of Function and Reliability Testing

1. Objective

The objective of this testing is to expose the aircraft to the variety of uses, including training, that are likely to occur when in routine service to provide an assurance that it performs its intended functions to the standard required for certification and will continue to do so in service.

2. Content of function and reliability testing

The testing is to cover both routine operations and some simulation of abnormal conditions. The details of the programme are to be agreed with the Authority prior to commencement of testing.

It may be possible to combine this testing with any required to show compliance with the applicable certification criteria. This will be agreed on a case-by-case basis with the Authority.

Where possible, testing conditions are to be defined with the co-operation of an operating organisation.

A substantial proportion of the flying is to be on a single aircraft. The flying is to be carried out to a continuous schedule on an aircraft that is very close to the final type design, operated as though it were in service and is to include a range of representative ambient operating conditions and airfields.

GM 21.A.35(f)(1) Flying Time for Function and Reliability Testing

All flying carried out with engines and associated systems not significantly different from the final type-certificate standard may count towards the 300 hours airframe flight time required by BMAR 21.A.35(f)(1). At least 150 of the 300 flying hours is to be conducted on a dedicated production configured aircraft. The requirement for 300 hours relevant flight time whenever a new turbine engine is incorporated applies regardless of whether the airframe/engine combination is subject to a new type-certificate or is to be certificated as a change or supplement to an existing type-certificate.

GM 21.A.35(f)(2) Flying Time for Function and Reliability Testing

All flying carried out on an aircraft not significantly different from the final type design may count towards the 150 hours airframe flight time required by BMAR 21.A.35(f)(2)

21.A.41 Type-certificate and restricted type-certificate

The type-certificate and restricted type-certificate are both considered to include the type design, the operating limitations, the type-certificate data sheet for airworthiness, the applicable type-certification basis and environmental protection requirements (where applicable) with which the Authority records compliance, and any other conditions or limitations prescribed for the product in the applicable airworthiness requirements and environmental protection requirements (where applicable).

21.A.42 Integration

The aircraft MTC Holder shall be responsible for the integration of Products, Weapons and other Systems onto the aircraft, except for approvals under Subpart E.

GM 21.A.42 Integration

The principles for the military type-certification (taking into account BMAR 21.A.17A) are predicated on the hierarchy of the Military Type Certificate and subordinate certification:

a) The use of the MTC is limited to Products, namely aircraft, engine or propeller.

b) The certification of Parts is to be undertaken in accordance with Subpart K.

21.A.44 Obligations of the holder

Each holder of a military type-certificate or military restricted type-certificate shall:

(a) Undertake the obligations laid down in BMAR 21.A.3A, 21.A.3B, 21.A.4, 21.A.55, 21.A.57 and 21.A.61; and, for this purpose, shall continue to meet the requirements of 21.A.14; and

(b) Specify the marking in accordance with BMAR 21 Subpart Q.

21.A.47 Transferability

Transfer of a military type-certificate or military restricted type-certificate may only be made to an organisation that is able to undertake the obligations under BMAR 21.A.44, and, for this purpose, has demonstrated its ability to qualify under the criteria of BMAR 21.A.14.

21.A.51 Duration and continued validity

(a) A military (restricted) type-certificate shall be issued for an unlimited duration. They shall remain valid subject to:

1. The holder remaining in compliance with this BMAR; and
2. The certificate not being surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the military (restricted) type-certificate shall be returned to the Authority.

(c) The military (restricted) type-certificate holder must inform the Authority, as soon as practicable, when it is no longer able to meet the type-certificate holder responsibilities defined by this BMAR, for one or several types of product

21.A.55 Record keeping

All relevant design information, drawings and test reports, including inspection records for the product tested, shall be held by the (restricted) type-certificate holder at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness and compliance with applicable environmental protection requirements (where applicable) of the product.

21.A.57 Manuals

The holder of a type-certificate or restricted type-certificate shall produce, maintain and update master copies of all manuals required by the applicable type-certification basis for the product, and provide copies, on request, to the Authority.

21.A.61 Instructions for continuing airworthiness

(a) The holder of the type-certificate or restricted type-certificate shall furnish at least one set of complete instructions for continuing airworthiness, comprising descriptive data and accomplishment instructions prepared in accordance with the applicable type-certification basis, to each known operating organisation of one or more aircraft, engine or propeller upon its delivery or upon issue of the first certificate of airworthiness for the affected aircraft, whichever occurs later and thereafter make those instructions available on request to any other operating organisation required to comply with any of the terms of those instructions. The availability of some manual or portion of the instructions for continuing airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight-hours/cycles.

(b) In addition, changes to the instructions for continuing airworthiness shall be made available to all known operating organisations of the product and shall also be provided on request to any other operating organisation required to comply with any of those instructions. A programme showing how changes to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

(Subpart C – Not Applicable)

Subpart D – Changes To Military Type-Certificates And Military Restricted Type-Certificates

21.A.90 Scope

This Subpart establishes the procedure for the approval of changes to type designs and type-certificates, and establishes the rights and obligations of the applicants for, and holders of, those approvals. In this Subpart, references to type-certificates include type-certificate and restricted type-certificate.

21.A.91 Classification of changes in type design

Changes in type design are classified as minor and major. A 'minor change' is one that has no appreciable effect on the mass, balance, structural strength, reliability, operational characteristics, or other characteristics affecting the airworthiness of the product and consider where applicable, environmental characteristics such as noise, fuel venting and exhaust emission.. Without prejudice to BMAR 21.A.19, all other changes are 'major changes' under this Subpart. Major and minor changes shall be approved in accordance with BMAR 21.A.95 or BMAR 21.A.97 as appropriate, and shall be adequately identified.

GM 21.A.91 Classification of changes to a type design

1. Purpose of classification

Classification of changes to a type design into MAJOR or MINOR is to determine the approval route to be followed in BMAR 21 Section A Subpart D, i.e., either BMAR 21.A.95 or BMAR 21.A.97, or alternatively whether application and approval has to be made in accordance with BMAR 21 Section A Subpart E.

2. Introduction

2.1. BMAR 21.A.91 proposes criteria for the classification of changes to a type design as minor and major.

i. This GM is intended to provide guidance on the phrase "appreciable effect affecting the airworthiness" of the product from BMAR 21.A.91, where "airworthiness" is interpreted in the context of a product in conformity with type design and in condition for safe operation. It provides complementary guidelines to assess a design change in order to fulfil the requirements of BMAR 21.A.91 and BMAR 21.A.117 where classification is the first step of a procedure.

Note: For classification of Repairs see GM BMAR 21.A.435(a).

ii. Although this GM provides guidance on the classification of major changes, as opposed to minor changes as defined in BMAR 21.A.91, the GM and BMAR 21.A.91 are deemed entirely compatible.

2.2. For an MTSO authorisation, BMAR 21.A.611 gives specific additional requirements for design changes to MTSO articles

For APU, this GM is to be used.

3. Assessment of a design change for classification

3.1. Changes to the type design

BMAR 21.A.31 defines what constitutes the type design. Alteration to any of the data included within the scope of BMAR 21.A.31 is considered a change to the type design.

3.2. Classification Process (see attached diagram in Appendix A)

BMAR 21.A.91 requires all changes to be classified as either major or minor, using the criteria of BMAR 21.A.91 and the complementary guidance of paragraph 3.3.

On some occasions, the classification process is initiated at a time when some data necessary to make a classification decision are not yet available. Therefore, the applicant is to wait for availability of data before making a decision.

Wherever there is doubt as to the classification of a change, the Authority is to be consulted for clarification.

When the strict application of the paragraph 3.3 criteria results in a major classification, the applicant may request re-classification, if justified, and the Authority could take the responsibility in re-classifying the change.

A simple design change planned to be mandated by an airworthiness directive may be re-classified minor due to the involvement of the Authority in the continued airworthiness process.

Reasons for a classification decision are to be recorded.

3.3. Complementary guidance for classification of changes

A change to the type design is judged to have an "appreciable effect on other characteristics affecting the airworthiness of the product" and therefore is to be classified major, in particular but not only, when one or more of the following conditions are met:

a) Where the change requires an adjustment of the type-certification basis (special condition, equivalent safety findings) other than elect to comply with later airworthiness codes;

b) Where the applicant proposes a new interpretation of the airworthiness requirements used for the type type-certification basis that has not been published as AMC material or otherwise agreed with the Authority;

c) Where the demonstration of compliance uses methods that have not been previously accepted as appropriate for the nature of the change to the product or for similar changes to other products designed by the applicant;

d) Where the extent of new substantiation data necessary to comply with the applicable airworthiness requirements and the degree to which the original substantiation data has to be re-assessed and re-evaluated is considerable;

e) The change alters the Airworthiness Limitations or the Operating Limitations;

f) The change is made mandatory by an airworthiness directive or the change is the terminating action of an airworthiness directive (ref. BMAR 21.A.3B), see Note 1;

g) Where the change introduces or affects functions where the failure effect is classified catastrophic or hazardous.

Note 1: The design change previously classified minor and approved prior to the airworthiness directive issuance decision needs no re-classification. However, the Authority retains the right to review the change and re-classify/re-approve if found necessary.

Note 2: These above conditions are an explanation of the criteria noted in BMAR 21.A.91.

For an understanding of how to apply the above conditions it is useful to take note of the examples given in Appendix A to GM BMAR 21.A.91.

Appendix A to GM 21.A.91: Examples of Major Changes per discipline

The information below is intended to provide a few major change examples per discipline, resulting from application of BMAR 21.A.91 and paragraph 3.3 conditions. It is not intended to present a comprehensive list of all major changes. Examples are categorised per discipline and are applicable to all products (aircraft, engines and propellers). However a particular change may involve more

than one discipline, e.g., a change to engine controls may be covered in engines and systems (software).

Those involved with classification are to always be aware of the interaction between disciplines and the consequences this will have when assessing the effects of a change (i.e., operations and structures, systems and structures, systems and systems, etc.; see example in paragraph 2 b)).

Specific rules may exist which override the guidance of these examples.

In the BMAR 21 a negative definition is given of minor changes only. However in the following list of examples it was preferred to give examples of major changes.

Where in this list of examples the words “has effect” or “affect(s)” are used, they have always to be understood as being the opposite of “no appreciable effect” as in the definition of minor change in BMAR 21.A.91. Strictly speaking the words “has appreciable effect” and “appreciably affect(s)” would have been used, but this has not been done to improve readability.

1. Structure

a) Changes such as a cargo door cut-out, fuselage plugs, change of dihedral, addition of floats;

b) Changes to materials, processes or methods of manufacture of primary structural elements, such as spars, frames and critical parts;

c) Changes that adversely affect fatigue or damage tolerance or life limit characteristics;

d) Changes that adversely affect aero-elastic characteristics;

e) Changes that affect primary structural element loads and their path.

2. Cabin Safety

a) Changes which introduce a new cabin layout of sufficient change to require a re-assessment of emergency evacuation capability or which adversely affect other aspects of passenger or crew safety.

Items to consider include, but are not limited to:

- changes to or introduction of dynamically tested seats;
- change to the pitch between seat rows;
- change of distance between seat and adjacent obstacle like a divider;
- changes to cabin lay outs that affect evacuation path or access to exits;
- installation of new galleys, toilets, wardrobes, etc.;
- installation of new type of electrically powered galley insert.

b) Changes to the pressurisation control system which adversely affect previously approved limitations.

3. Flight

a) Changes which adversely affect the approved performance, such as high altitude operation, brake changes that affect braking performance, deck landing, operation with night vision devices, air to air refueling, low level flight.

b) Changes which adversely affect the flight envelope.

c) Changes which adversely affect the handling qualities of the product including changes to the flight controls function (gains adjustments, functional modification to software) or changes to the flight protection or warning system.

4. Systems

For systems assessed under the applicable airworthiness requirements the classification process is based on the functional aspects of the change and its potential effects on safety.

a) Where failure effect is 'Catastrophic' or 'Hazardous', the change is to be classified as major.

b) Where failure effect is 'major', the change is to be classified as major if:

- aspects of the compliance demonstration use means that have not been previously accepted for the nature of the change to the system; or
- the change affects the pilot/system interface (displays, controls, approved procedures); or
- the change introduces new types of functions/systems such as GPS primary, TCAS, Predictive wind-shear, HUD.

The assessment of the criteria for software changes to systems also needs to be performed.

When software is involved, account is to be taken also of the following guidelines:

Where a change is made to software produced in accordance with the guidelines of EUROCAE ED12C/RTCA DO-178C "Software Considerations in Airborne Systems and Equipment Certification", the change is to be classified as major if either of the following apply, and the failure effect is Catastrophic, Hazardous or Major:

a) the executable code for software, determined to be Level A or Level B in accordance with the guidelines, is changed unless that change involves only a variation of a parameter value within a range already verified for the previous certification standard; or

b) the software is upgraded to or downgraded from Level A, Level B or Level C; or

c) the executable code, determined to be level C, is deeply changed, e.g., after a software reengineering process accompanying a change of processor.

For software developed to guidelines other than EUROCAE ED-12C/ RTCA DO-178C, the applicant is to assess changes in accordance with the foregoing principles.

For other codes the principles noted above may be used. However, due consideration is to be given to specific requirements/interpretations.

5. Propellers

Changes to:

a) diameter;

b) airfoil;

c) planform;

d) material;

e) blade retention system, etc.

6. Engines

Changes:

a) that adversely affect operating speeds, temperatures, and other limitations;

b) that affect or introduce parts (as identified by the applicable airworthiness requirements) where the failure effect has been shown to be hazardous;

c) that affect or introduce engine critical parts (as identified by the applicable airworthiness requirements) or their life limits;

d) to a structural part which requires a re-substantiation of the fatigue and static load determination used during certification;

e) to any part of the engine which adversely affects the existing containment capability of the structure;

f) that adversely affect the fuel, oil and air systems, which alter the method of operation, or require reinvestigation against the type-certification basis;

g) that introduce new materials or processes, particularly on critical components.

7. Rotors and drive systems

Changes that:

a) adversely affect fatigue evaluation unless the service life or inspection interval are unchanged. This includes changes to materials, processes or methods of manufacture of parts, such as:

- rotor blades;
- rotor hubs including dampers and controls;
- gears;
- drive shafts;
- couplings.

b) affect systems the failure of which may have hazardous or catastrophic effects. The design assessment will include:

- cooling system;
- lubrication system;
- rotor controls.

c) adversely affect the results of the rotor drive system endurance test, such as the rotor drive system required in EASA CS 27/29-917.

d) adversely affect the results of the shafting critical speed analysis such as required by EASA CS 27/29-931.

8. Evironment (where applicable)

A change that introduces an increase in noise or emissions

9. Power plant Installation

Changes which include:

a) control system changes which affect the engine/propeller/airframe interface;

b) new instrumentation displaying operating limits;

c) modifications to the fuel system and tanks (number, size and configuration);

d) change of engine/propeller type.

10. Operational capabilities

Integration or modification of mission equipment that could adversely affect safety of third parties include, but are not limited to:

a) installation of in-flight refueling capabilities;

b) installation of new external tanks;

c) installation of new weapons and stores;

	d) installation of new equipment that may affect Electromagnetic Environmental Effects (E3) integrity (eg new radar)installation of aerial delivery systems; e) installation of flare and chaff system; f) installation of systems integrating a high power laser; g) modification to the release device of a jettisoning tank. A classification process would be:

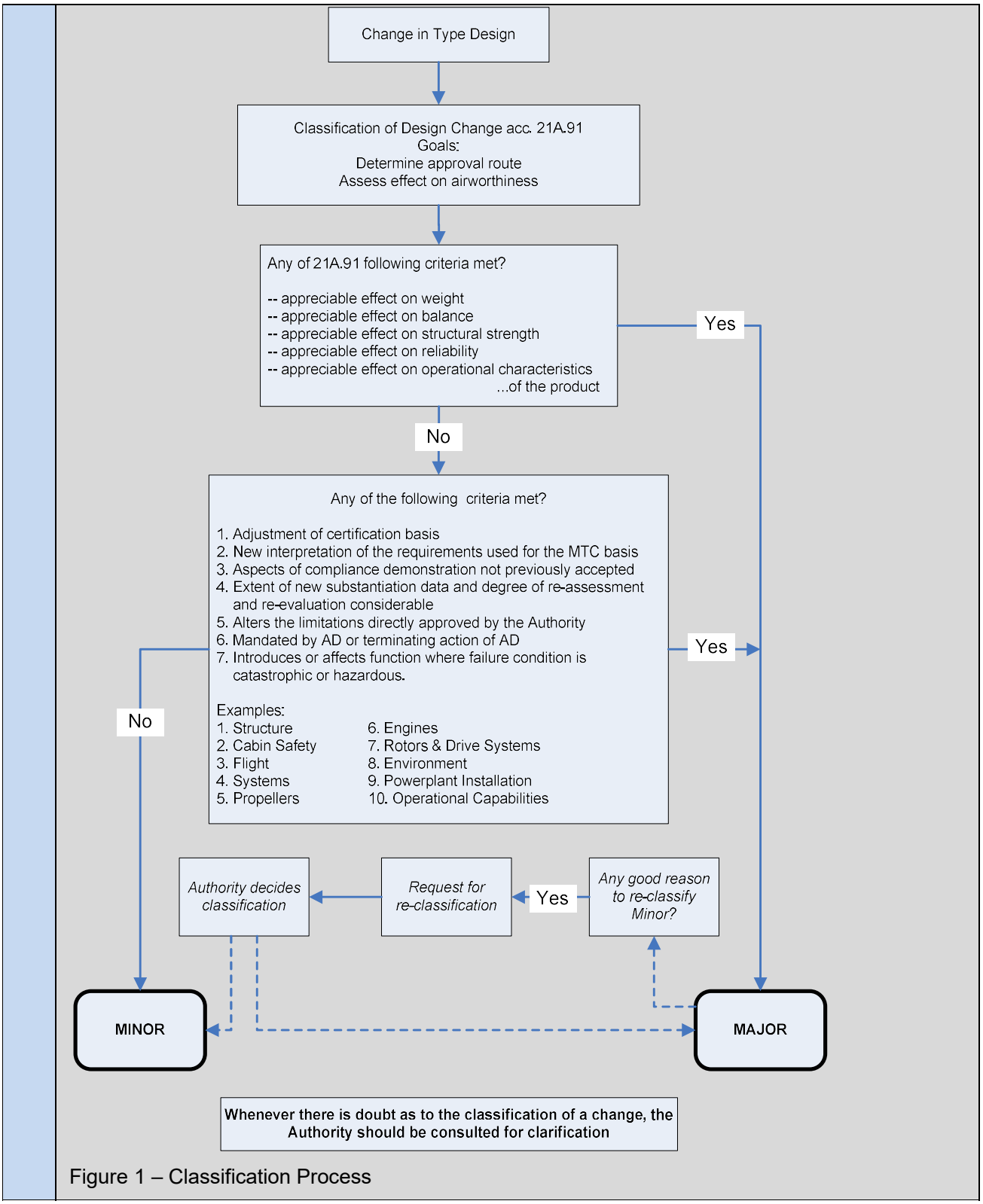


Figure 1 – Classification Process

21.A.92 Eligibility

(a) Only the type-certificate holder may apply for approval of a major change to a type design under this Subpart; all other applicants for a major change to a type design shall apply under BMAR 21 Subpart E.

(b) Any organisation may apply for approval of a minor change to a type design under this Subpart.

21.A.93 Application

An application for approval of a change to a type design shall be made in a form and manner established by the Authority and shall include:

(a) A description of the change identifying:

1. All parts of the type design and the approved manuals affected by the change; and
2. The airworthiness codes and environmental protection requirements (where applicable) with which the change has been designed to comply in accordance with BMAR 21.A.101.

(b) Identification of any re-investigations necessary to show compliance of the changed product with the applicable airworthiness codes.

GM 21.A.93(b) Major Changes: Application

Identification of re-investigations necessary to show compliance does not mean the showing of compliance itself, but the list of affected type design requirement paragraphs for which a new demonstration is necessary, together with the means (calculation, test or analysis) by which it is proposed to show compliance.

21.A.95 Minor changes

Minor changes in a type design shall be classified and approved either:

(a) By the Authority; or

(b) By an appropriately approved design organisation under a procedure agreed with the Authority.

21.A.97 Major changes

(a) An applicant for approval of a major change shall:

1. Submit to the Authority substantiating data together with any necessary descriptive data for inclusion in the type design;
2. Demonstrate that the changed product complies with applicable airworthiness codes and environmental protection requirements (where applicable), as specified in BMAR 21.A.101;
3. Declare that it has shown compliance with the applicable type certification basis and environmental protection requirements (where applicable) and shall provide to the Authority the basis on which such a declaration is made;
4. Where the applicant holds an appropriate design organisation approval, make the declaration of subparagraph (a)(3) according to the provisions of Subpart J;
5. Comply with BMAR 21.A.33 and, where applicable, 21.A.35.

(b) Approval of a major change in a type design is limited to that or those specific configuration(s) in the type design upon which the change is made.

AMC 21.A.97 Compliance demonstration process for major changes

(a) AMC/GM to BMAR 21.A.20 should be used for a major change.

(b) For major changes not requiring long and complex compliance demonstration activities, a certification programme, as described in AMC to BMAR 21.A.20(b), can be submitted with the application in a simplified format. The certification programme should contain at least the following elements:

- Purpose of change
- Description of change
- Applicability
- Applicable airworthiness requirements, special conditions and equivalent safety findings
- The description on how compliance will be demonstrated, with selected means of compliance and reference to compliance documents
- If relevant, the delivery schedule of compliance documents

21.A.101 Designation of applicable Airworthiness codes and environmental protection requirements (where applicable)

(a) An applicant for a change to a type-certificate shall demonstrate that the changed product complies with the airworthiness codes that are applicable to the changed product and that are in effect at the date of the application for the change, unless compliance with airworthiness codes of later effective amendments is chosen by the applicant or required under paragraph (f), and with the applicable environmental protection requirements (where applicable) laid down in BMAR 21.A.18..

(b) By derogation from paragraph (a), an applicant may show that the changed product complies with an earlier amendment of an airworthiness code defined in paragraph (a), and of any other requirement the Authority finds is directly related. However, the earlier amended airworthiness code may not precede the corresponding airworthiness code incorporated by reference in the type-certificate. The applicant may show compliance with an earlier amendment of an airworthiness code for any of the following:

1. A change that the Authority finds not to be significant. In determining whether a specific change is significant, the Authority considers the change in context with all previous relevant design changes and all related revisions to the applicable type-certification basis incorporated in the type-certificate for the product. Changes that meet one of the following criteria are automatically considered significant:
   i. The general configuration or the principles of construction are not retained.
   ii. The assumptions used for certification of the product to be changed do not remain valid.
2. Each area, system, part or appliance that the Authority finds is not affected by the change.
3. Each area, system, part or appliance that is affected by the change, for which the Authority finds that compliance with the airworthiness codes described in paragraph (a) would not contribute materially to the level of safety of the changed product or would be impractical.

(c) (Reserved).

(d) If the Authority finds that the airworthiness codes in effect at the date of the application for the change do not provide adequate standards with respect to the proposed change, the applicant shall also comply with any special conditions, and amendments to those special conditions,

prescribed under the provisions of BMAR 21.A.16B, to provide a level of safety equivalent to that established in the airworthiness codes in effect at the date of the application for the change.

(e) (Reserved)

(f) If an applicant chooses to comply with airworthiness requirements that are derived from an amendment to an airworthiness code that is effective after the filing of the application for a change to a type, the applicant shall also comply with any other airworthiness requirement that the Authority finds is directly related.

GM 21.A.101 Establishing the type-certification basis of Changed Aeronautical Products

This GM provides guidance for the application of the Changed Product Rule, BMAR 21.A.19 and BMAR 21.A.101, for changes made to military type-certificated aeronautical products.

Chapter 1. Introduction

1. Purpose

a) This GM provides guidance for establishing the military type-certification basis for changed aeronautical products in accordance with BMAR 21.A.101 and to help identify if it will be necessary to apply for a new military type-certificate (MTC) under BMAR 21.A.19. The guidance describes the process for establishing the type-certification basis for changes to military type certificates or military restricted type-certificates, military supplemental type certificates (MSTC) and amended MSTCs, detailing evaluations, classifications, and decisions made throughout the process.

b) The content of this GM is divided into four Chapters:

i. Chapter 1 explains the purpose of this GM, describes its content, specifies the intended audience, and clarifies which changes are within the scope of applicability of this GM. Chapter 1 also contains definitions and terminology used in this GM for the application of BMAR 21.A.19 and BMAR 21.A.101.

ii. Chapter 2 provides a general overview of BMAR 21.A.19 and BMAR 21.A.101, clarifies the principles and safety objectives and directs applicants to the applicable guidance contained in subsequent chapters of this GM.

iii. Chapter 3 contains guidance for implementation of BMAR 21.A.101(b) to establish the type-certification basis for changed aeronautical products. Chapter 3 describes in detail the various steps of the “top-down” certification basis development approach. Chapter 3 also addresses BMAR 21.A.19 considerations to identify conditions under which an applicant for a type design change is required to submit application for a new MTC and provides guidance at which stage of the process this assessment is to be performed.

iv. Chapter 4 contains considerations for design related operating requirements, guidance for establishing type-certification basis for changes on certain small aeroplanes and rotorcraft under specified maximum weight (“excepted products”), guidance for use of special conditions under BMAR 21.A.101(d), guidance on the effective period of an application, guidance for establishing the type-certification basis for changes on aircraft designed or modified for a special purpose (to operate under a restricted certificate of airworthiness) and guidance for documentation of revisions to the type-certification basis.

c) This GM describes an acceptable means, but not the only means to comply with BMAR 21.A.19 and BMAR 21.A101. However, if an applicant chooses to use the means described in this GM, they are to follow it entirely.

2. Audience

This GM is for applicants applying for:

- major changes to type design of products under BMAR 21.A.97 and to type design of Auxiliary Power Units (APUs) under BMAR 21.A.604(b),
- supplemental type-certificates (MSTCs) under BMAR 21.A.113, or
- major changes to MSTCs under BMAR 21.A.117(b).

3. Applicability

a) Reserved.

b) This GM applies to major type design changes under BMAR 21.A.101 for aeronautical products type-certificated, restricted type-certificated or supplemental type-certificated or MTSO approved (APU) under BMAR 21 (ref. BMAR 21.A.21, 21.A.23, 21.A.115, 21.A.604), with application for the type-certification basis of the applicable airworthiness code for the Certification Basis.

c) Minor type design changes are automatically considered not significant under BMAR 21.A.101(b) and the existing type-certification basis is considered adequate for their approval under BMAR 21.A.95.

d) Reserved.

e) For the purpose of this GM, the term aeronautical products, or products, means type-certificated or restricted type-certificated aircraft, engines and propellers or MTSO approved APUs.

f) Reserved.

4. Definitions and Terminology

Adequate Type-certification Basis – The type-certification basis for a changed product under BMAR 21.A.101 is considered adequate when the Authority determines that it provides adequate standards for the design change, i.e. when the applicable airworthiness code and prescribed special conditions provide an appropriate level of safety for the changed product and do not result in any unsafe design features.

Aeronautical product – The terms aeronautical product or product(s) used in this guidance material include type-certificated or restricted type-certificated aircraft, engines and propellers and MTSO approved Auxiliary Power Units (APUs).

Affected area, system, part or appliance – any system, part, or appliance which is either physically altered by a proposed design change or, even if not altered physically, its functional characteristics are altered due to the effects of the physical change.

Certification requirements – Refers to each requirement of the type-certification basis based on recognised airworthiness codes and/or standards (e.g. EASA CS, FAA FAR, Mil Hdbk, JSSG, STANAG, Def-STAN, etc.).

Design change – A change in the type design of an aeronautical product. In the context of this document the terms “change”, “design change” and “type design change” are synonymous.

Earlier airworthiness codes and/or standards – The applicable airworthiness codes and/or standards in effect prior to the date of application for the change, but not prior to the existing type-certification basis.

Existing type-certification basis –The applicable airworthiness code, special conditions and equivalent level of safety findings incorporated by reference in the type-certificate of the product to be changed.

Latest airworthiness codes and/or standards– The applicable airworthiness codes and/or standards in effect on the date of application for the change.

Previous relevant design changes – Previous design changes, the cumulative effect of which could result in a product significantly or substantially different from the original product or model, when considered from the last time the latest airworthiness codes and/or standards were applied.

Product level change – A change or combination of changes that makes the product distinct from other models of the product (for example, range, payload, speed, design philosophy). Product level change is defined at the aircraft, engine or propeller level of change.

Secondary change – A change is a secondary change if compliance to the latest amendment would not contribute materially to the level of safety and where it is part of and consequential to an overall significant change. A secondary change is a physical change that restores without changing the system, structural capacity, or functionality, but is necessary to support a significant change.

Significant change – A change to the type-certificate significant to the extent that it changes at the product level one or more of the following: general configuration, principles of construction, or the assumptions used for certification, but not to the extent to be considered a substantial change. The significance of the change is to be considered in the context of all previous relevant design changes and all related revisions to the applicable airworthiness codes and/or standards. Not all product level changes are significant.

Substantial change – A change which is so extensive that a substantially complete investigation of compliance with the applicable type-certification basis is required, and consequently a new military type certificate, in accordance with BMAR 21.A.19.

Chapter 2. Overview of BMAR 21.A.19 and 21.A.101

1. BMAR 21.A.19

a) BMAR 21.A.19 requires an applicant to obtain a new military type-certificate (MTC) for a changed product if the change in design, power, thrust, or weight is found by the Authority so extensive that a substantially complete investigation of compliance with the applicable type-certification basis is required.

b) Changes that require a substantial re-evaluation of the product's compliance findings are referred to as "substantial changes". For guidance, see section 3 of Chapter 3.

c) If the Authority has determined through BMAR 21.A.19 that the proposed design change does not require a new MTC, see BMAR 21.A.101 for the applicable implementing rules to establish the type-certification basis for the proposed design change. For guidance, see Chapter 3.

2. BMAR 21.A.101

a) BMAR 21.A.101(a) requires a change to a MTC to comply with the airworthiness codes that are applicable to the changed product and that are in effect at the date of the application, unless the change meets the criteria for the exceptions identified in BMAR 21.A.101(b). The intent of BMAR 21.A.101 is to enhance safety through the incorporation of the latest regulatory standards in the type-certification basis for changed products to the greatest extent practicable.

b) An applicant can comply with an earlier amendment of the airworthiness code consistent with the requirements of BMAR 21.A.101(b), when:

- a change is not significant (see BMAR 21.A.101(b)(1)), or
- an area, system, part or appliance is not affected by the change (see BMAR 21.A.101 (b)(2)), or
- compliance with the latest amendment for a significant change does not contribute materially to the level of safety (see BMAR 21.A.101(b)(3)), or
- compliance with the latest amendment would be impractical (see BMAR 21.A.101(b)(3)).

c) Note that earlier amendments may not precede the corresponding amendment of the airworthiness code incorporated by reference in the military type-certificate.

d) BMAR 21.A.101(b) allows a changed product to comply with an earlier amendment of the applicable airworthiness code, provided one of the criteria in BMAR 21.A.101(b)(1),(2) or (3) are met and the earlier amendment is considered adequate. However, when a proposed design change involves features or characteristics considered novel or unusual, or the intended use of the changed product is unconventional, or experience from other similar products in service or products having similar design features has shown that unsafe conditions may develop, and the proposed airworthiness standards do not contain adequate or appropriate standards for the changed product, later amendments and/or special conditions will be applied.

e) BMAR 21.A.101(b)(1)(i) and (ii) describe the automatic criteria establishing that a change is significant.

f) (Reserved).

g) BMAR 21.A.101(d) provides for the use of special conditions, under BMAR 21.A.16B, when the proposed amendment of the applicable airworthiness code and any later amendment do not provide adequate standards to the proposed change.

h) (Reserved).

i) (Reserved).

Chapter 3. The Process for Establishing the Type-certification Basis for Changed Products BMAR 21.A.101 (a) and (b)

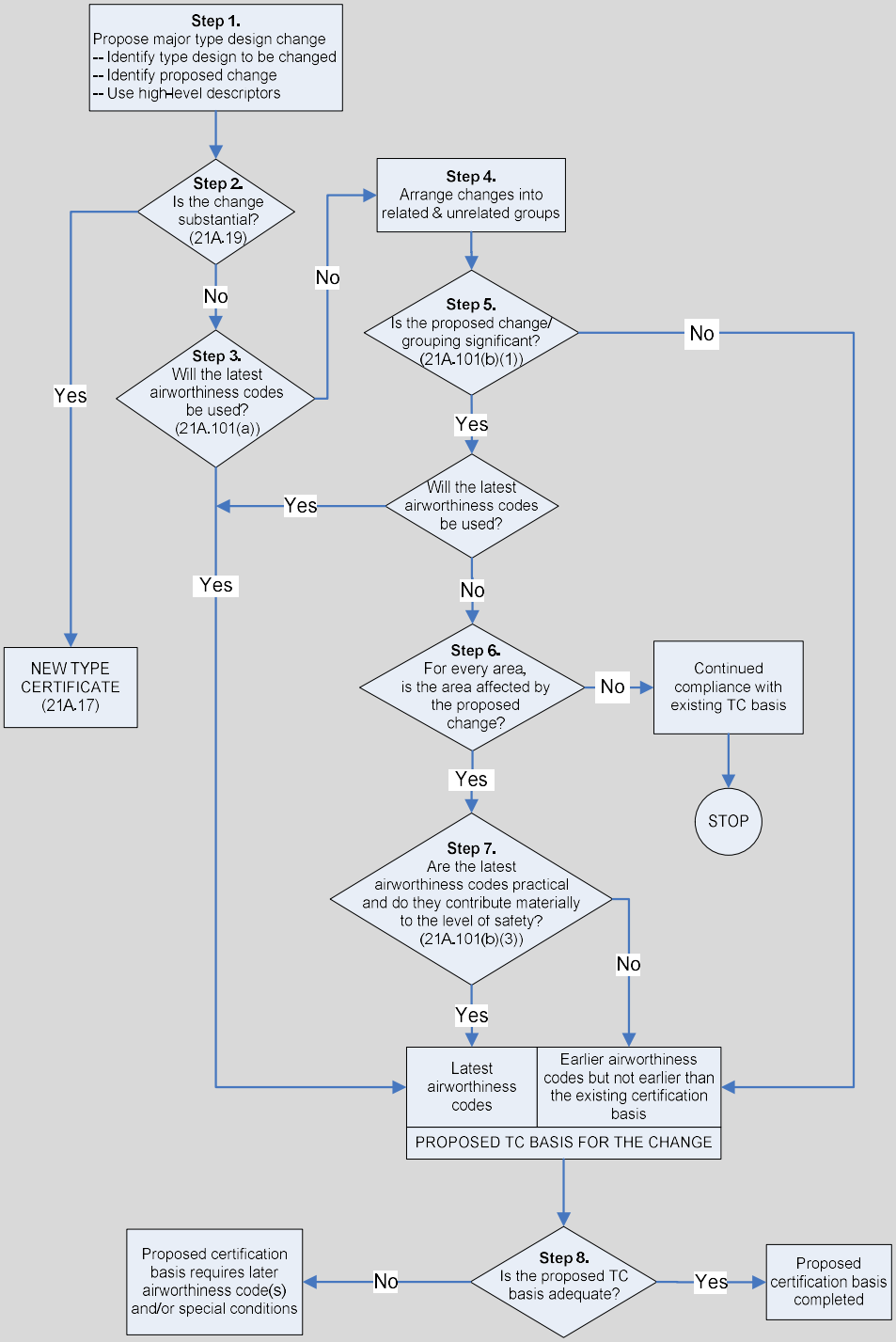
1. Overview

a) Both the applicant and the Authority have responsibility under BMAR 21.A.101(a) and (b). The applicant is to show that the change complies with the latest applicable airworthiness code unless use of an exception per BMAR 21.A.101(b) is justified. If an exception is proposed, the applicant is to make a preliminary classification whether the change is significant or not significant, and propose an appropriate type-certification basis. The Authority determines whether the applicant's classification of the change and proposal for the type-certification basis are consistent with the applicable rules and their interpretation, but will not be dependent on whether the MTC holder or applicant for a MSTC is originating the change. The type-certification basis can vary depending on the magnitude and scope of the change. The steps below present a streamlined approach for making this determination. In addition to assisting in the determination of significance and establishing the type-certification basis, this guidance will help to establish the appropriate amount of coordination required between the applicant and the Authority.

b) (Reserved).

c) The following steps in conjunction with Figure 2 can be used to establish the appropriate type-certification basis for the type design change.

Fig. 2. Establishing the type-certification basis for a changed product



2. Step 1 of Figure 2. Identify the proposed type design change to an aeronautical product

Step 1.
Propose major type design change
-- Identify type design to be changed
-- Identify proposed change
-- Use high-level descriptors

a) Prior to describing the proposed change(s), it is important to clearly identify the type design configuration to be changed. A series of derivative aircraft, engines, or propellers (for example, x-100, x-200, x-300) may evolve based on predecessor type designs, each with its own design changes that make it distinct from the other series. The applicant is to identify which model or series within that model is the specific configuration that will be modified.

Note: An MSTC is not a product; it is a change to a product.

When changing or amending an MSTC the starting point is the existing modified product (MTC with existing MSTC installed). For example, if an applicant were amending an MSTC for an external cargo locker and the applicant proposed changing the configuration of the locker, then the starting point would be the existing MTC with the existing MSTC installed.

The applicant would then compare that configuration (MTC with existing MSTC installed) to the changed product (MTC with proposed amended MSTC installed).

b) Changes to a product can include physical design changes, changes to an operating envelope and/or performance changes. The change can be a single change or a collection of changes. The purpose of this process step is to identify and describe the change to the aeronautical product. The applicant for a type design change is to consider all previous related design changes and the amendment level of the type-certification basis for these changes.

Note 1: By definition all previously incorporated changes have been approved. The purpose of step 1 is to consider the net cumulative effect of the changes since the last time the certification basis for the changed/affected area was upgraded from that of the original type design.

Note 2: Substantiating data for the proposed type design change can include compliance findings from a previously approved design change, in supporting compliance findings for the proposed change. However, for the purpose of classifying the proposed design change, such previously approved design and compliance data is to be now considered in relation to the proposed type design change and is to be taken into account as a part of the proposed design change classification.

c) When identifying the changes being proposed as part of a modification, consider previous relevant changes that create a cumulative effect, as these may influence the decisions regarding substantial and significant changes later in the process. By previous relevant changes those design changes are meant whose effects accumulate, such as successive thrust increases, incremental weight increases, or sectional increases in fuselage length. Any previous relevant design changes in the area affected by the current change that did not involve an upgrade of the existing type-certification basis is to be taken into account in the next design change proposal.

(1) Example 1: a 5 % weight increase is currently being proposed, but a previous 10 % and another 15 % weight increase has been incorporated into this aircraft without upgrading the existing type-certification basis. In the current proposal for a 5 % weight increase, the cumulative effects of the two previous weight increases that did not involve upgrade of the type-certification basis will now be accounted for as an approximately 30 % increase in weight, for the purpose of making the substantial and/or significant decisions. Note that

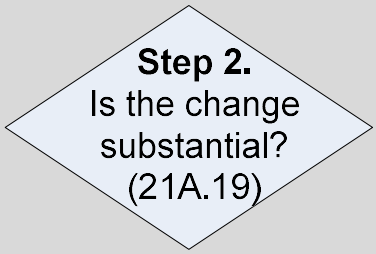
the cumulative effects to be considered are only those incremental increases from the last time the applicable airworthiness code in the type-certification basis were upgraded.

(2) Example 2: the MTC for aeroplane model X lists three series, namely X-300, X-200, and X-100. The X-300 is a derivative of the X-200 which is a derivative of the original X-100 series. An applicant proposes a design change to the X-300 series aeroplane. During the review of the X-300 type-certification basis and the airworthiness code affected by the proposed change, it was identified that one requirement (e.g., damage tolerance), remained at the same amendment level as the X-100 original type-certification basis (derogation from BMAR 21.A101(a) was allowed). Since the amendment level for this particular requirement was not changed for the two subsequent aeroplane series (X-200 and X-300), the cumulative effects of these two previous design changes that are related to the proposed change and the damage tolerance requirements are to now be addressed.

d) To identify and describe the proposed changes to any aeronautical product, use a high-level description of the design change that characterises the intent of, or the reason for, the change. No complex technical details are necessary at this stage. For example, a proposal to increase maximum passenger-carrying capacity may require an addition of a fuselage plug, and as such a “fuselage plug” becomes one possible high-level description of this design change. Similarly, a thrust increase, a complete new interior, an avionics system upgrade, or a passenger-to cargo conversion are all high-level descriptions that characterise typical changes to the aircraft, each driven by a specific goal, objective or purpose.

e) Evolutionary Changes. Evolutionary changes that occur during the course of a certification programme may require re-evaluation of the type-certification basis and may result in reclassification of the change. That is, any evolution in the proposed design change after the type-certification basis has been agreed to (or established) will necessitate a revisit of the type-certification basis to ensure that “evolved” aspects of the design change are still covered by the agreed upon certification basis.

3. Step 2 of Figure 2. Is the change substantial?



a) BMAR 21.A.19 requires an applicant to apply for a new MTC for a changed product if the proposed change in design, power, thrust, or weight is so extensive that a substantially complete investigation of compliance with the applicable type-certification basis is required. A new MTC could be required for either an extensive change to a previously type-certificated product or for a changed design derived through the cumulative effect of a series of design changes from a previously type-certificated product.

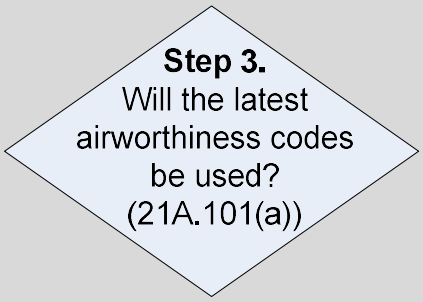
b) A ‘substantially complete investigation’ of compliance is required when most of the existing substantiation is not applicable to the changed product. A substantial change proposal will require the need to comply with all the airworthiness code requirements applicable to a particular category of product. The number of airworthiness code requirements to which compliance is to be re-established for the changed product may not necessarily be the sole determination criteria as to whether the change is substantial, but rather the extent of effort to establish compliance, or the depth of investigation required to be done. In other words, the design change may be considered substantial if it is so extensive (making the product

sufficiently different from its predecessor) that the design models, methodologies and approaches used to demonstrate a previous compliance finding could not be used.

c) To address the question if a change is substantial at the beginning of the process, the applicant is to evaluate the total or combined effect of all the proposed changes identified in Step 1, including the cumulative effects of previous relevant design changes since the last update of the type-certification basis (as explained in Step 1).

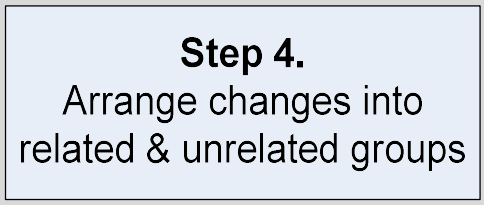
d) A substantial change requires application for a new MTC under BMAR 21.A.17A and BMAR 21.A.19. If the change is not substantial, then follow the BMAR 21.A.101 process.

4. Step 3 of Figure 2. Will the Latest Airworthiness Codes be Used?



The applicant can upfront elect to use the latest airworthiness codes for their proposed type design change. If the latest airworthiness codes are used, the applicant will meet the intent of BMAR 21.A.101 and no further classification (significant or not significant) and justification is needed. However, the decision to voluntarily comply with the latest version of an airworthiness code for a design change sets a new regulatory baseline for all future related changes in the same affected area. Even though one applicant elects to use the latest version of an airworthiness code, another applicant could apply BMAR 21.A.101 for a similar design change proposal, and use the exceptions in accordance with BMAR 21.A.101(b). If the latest airworthiness codes are not used, then proceed as follows:

5. Step 4 of Figure 2. Relation of Changes



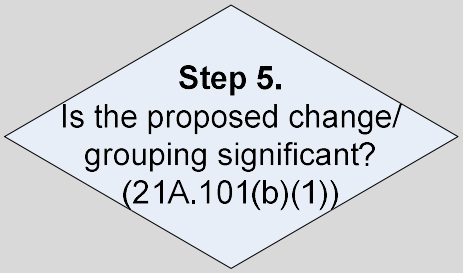
a) Once the proposed changes are identified using high-level descriptions, the next step is to determine if any of these changes are related to each other. Related changes are those that cannot exist without one another, are co-dependent, or a prerequisite of one another. For example, a need to carry more passengers could require the addition of a fuselage plug, which will result in a weight increase, and may necessitate a thrust increase. Thus the fuselage plug, weight increase and thrust increase are all related high-level changes that will be needed to achieve the goal of carrying more passengers. A decision to upgrade the cockpit to more modern avionics at the same time as these other design changes may be considered unrelated, as the avionics upgrade is not necessarily needed to carry more passengers (it has a separate purpose, likely just modernisation). The proposed avionics upgrade would then be considered an unrelated (or a stand-alone) change. However, the simultaneous introduction of a complete new interior may be considered related since a cabin length change will have an impact on occupant safety considerations. Even if a new cabin interior is not included in the product level change, the functional effect of the fuselage plug has implications on occupant safety (e.g., the

dynamic environment in an emergency landing, emergency evacuation, etc.), and thus the cabin interior becomes an affected area.

b) Once the change(s) are organised into groupings of those that are related and those that are unrelated (or stand-alone), the applicant is ready for Step 5 of Figure 2. The grouping of related and unrelated changes is particularly relevant to the significant Yes/No decision, (BMAR 21.A.101(b)(1)), described in Step 5 of Figure 2. Each group of related changes and each unrelated (stand-alone) change is evaluated on its own merit for significance.

c) After describing the groupings and the associated or supporting technical details for each change, the applicant is to identify areas, systems, parts or appliances of the product that are affected by the design change and the corresponding airworthiness code requirements associated with these areas. For each group, the applicant is to assess the physical and/or functional effects of the change on other areas, systems, parts, or appliances of the product. The characteristics affected by the change are not only physical changes, but also functional changes brought about by the physical changes. Examples of physical aspects are: structures, systems, parts and appliances, software in combination with the affected hardware. Examples of functional characteristics are performance, handling qualities, aeroelastic characteristics, and emergency egress. The intent is to encompass all aspects where there is a need for re-evaluation, that is, where the substantiation presented for the product being changed will be updated or rewritten.

6. Step 5 of Figure 2. Is the Proposed Change Significant? (21.A.101(b)(1))



a) In Step 5 it is the applicant's responsibility to justify that a grouping of related changes or an unrelated change does not qualify as a significant change. Significant changes are product level changes which are distinct from the vast majority of major changes. In general, these changes are either the result of an accumulation of changes or occur through an isolated extensive change that makes the changed product distinct from its predecessors. Step 1 explains the accumulation of changes that are to be considered. BMAR 21.A.101(b)(1) defines a significant change as existing when one or more of three automatic criteria apply:

(1) Changes where the general configuration is not retained (significant change to general configuration). A change to the general configuration at the product level that distinguishes the resulting product from other product models, for example performance or interchangeability of major components. Typically, for these changes an applicant will designate a new aircraft model number, although this is not required.

(2) Changes where the principles of construction are not retained (significant change to principles of construction). A change at the product level to the materials and/or construction methods that affect the overall products' operating characteristics or inherent strength and would require extensive reinvestigation to show compliance.

(3) Changes that invalidate the assumptionsused for certification (significant change to the assumptions used for certification). A change to the assumptions at the product level associated with the compliance demonstration, performance or operating envelope that by itself is so different that the original assumptions or methodologies of demonstrating compliance are invalidated.

b) The above criteria are used to determine if each change grouping and each stand-alone change is significant. These three criteria are assessed at the product level. In applying the automatic criteria the applicant is to focus on the design change itself. Consideration of only the regulatory importance or safety benefit of the latest airworthiness codes and/or standards certification specifications is not a justification by itself to cause a design change to be classified or re-classified as a significant change.

c) One or more of the automatic criteria in BMAR 21.A.101(b)(1) apply for each case where the changes are identified as significant. Experience has shown the concept of having only the three automatic criteria seems to fit most projects.

d) Design changes can trigger one or more of the automatic criteria listed in BMAR 21.A.101(b)(1)(i) and (ii) for the proposed design change. When assessing the design change grouping, consider the cumulative effect of previous relevant design changes. Design changes may have been incorporated over time with no change in the type-certification basis and the final product may be significantly different than would be represented by the existing type-certification basis.

e) Each grouping of related changes and each unrelated (stand-alone) change, identified using high-level descriptions, will be evaluated to determine if it is a significant or not significant change. Only when one or more of the three criteria is met, the type design change can be considered significant for that grouping or unrelated change. The starting point for assessing the cumulative effects of previous relevant design changes is from the last time the applicable certification requirements in the type-certification basis for the affected area, system, part, or appliance were upgraded.

f) Typically, a change to a single area, system, part or appliance may not result in a product level change. However, there may be distinct cases where the change to a single system or part may, in fact, result in a significant change due to its effect on the product overall. Examples may include addition of winglets, leading edge slats or change in primary flight controls to fly-by-wire system.

g) A change is a secondary change if compliance to the latest amendment does not contribute materially to the level of safety andwhere it is part of and consequential to an overall significant change. A secondary change is a physical change that restores without changing the system, structural capacity or functionality, but is necessary to support a significant change. Based on this description, a secondary change is not required to comply with the latest airworthiness codes and/or standards certification specifications because it is considered “not contributing materially to the level of safety”, and therefore eligible for an exception under BMAR 21.A.101(b)(1)(3). Determining whether a change meets the description for secondary change, and thus is eligible for an exception, will be straightforward. Hence the substantiation or justification need only be minimal. If this determination is not straightforward, then the proposed change is very likely not a secondary change.

   (1) In some cases the change which restores functionality may in fact contribute materially to the level of safety by meeting a later amendment. If this is the case, it would not be considered a secondary change.

   (2) An example of secondary change is lengthening existing control cables passing through the new fuselage plug to restore existing functions to systems that could be situated within or beyond the new plug. The lengthening of these cables can be accepted as not adding system capacity or capability, so these changes can be identified as secondary changes and not be required to meet the latest amendment.

h) A new model number designation to a changed product is not necessarily indicative that the design change is significant under BMAR 21.A.101. Conversely, retaining the existing model designation does not mean that the design change is not significant. All changes are considered in light of the magnitude of the type design change.

i) Making the determination. The final determination of whether a design change is significant or not significant is retained by the Authority.

j) At this point, the determination of significant or not significant for each of the groupings of related changes and each stand-alone change has been made. For significant changes, if the applicant proposes to comply with an earlier requirement, the procedure outlined in paragraph 7 below is to be used.

7. Proposing an Amendment Level for a Significant Change

a) If an unrelated (stand-alone) change or a grouping of related changes is classified as significant, the applicant will comply with the latest amendment of the applicable airworthiness codes and/or standards for certification of the changed product, unless the applicant can justify use of one of the exceptions provided in BMAR 21.A.101(b)(2) and/or (3) to show compliance with earlier amendment(s). The final type-certification basis may consist of a combination of the applicable airworthiness codes and/or standards at different amendment levels ranging from the original type-certification basis to the most current amendments.

b) If the classification of the change is significant, all areas, systems, parts or appliances affected by the change is to comply with certification specifications of the applicable airworthiness codes and/or standards at the amendment level in effect on the date of application for the change. The applicant will need to show that an area, system, part or appliance is not affected by the change to justify use of the exception in BMAR 21.A.101(b)(2) (see Section 9 for guidance on whether or not an area is affected by the proposed change).

c) (Reserved).

d) BMAR 21.A.101(b)(3) provides two more exceptions applicable to areas, systems, parts or appliances which are affected by the significant change but for which compliance with the latest version of an airworthiness code would either not contribute materially to the level of safety or would be impractical (see Section 10 for more guidance).

e) (Reserved).

f) The applicant is to provide acceptable justification for the application of earlier amendments for areas affected by a significant change. The justification will need to show that compliance with later amendment in these areas would not contribute materially to the level of safety or would be impractical. Such justification is to address all the aspects of the area, system, part or appliance affected by the significant change.

g) The final type-certification basis may combine airworthiness codes and/or standards certification specifications at the latest amendment level, earlier (intermediate) amendment levels, and the amendment level of the existing type-certification basis, but cannot contain airworthiness codes and/or standards certification specifications preceding the existing type-certification basis.

h) Note that if an applicant decides to use the latest airworthiness codes and/or standards certification specifications without any exceptions, no further evaluations and justifications are needed. In such a case, proceed to step 8 (section 11).

8. Proposing an Amendment Level for a Not Significant Change

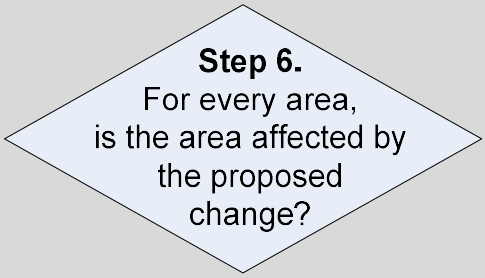
a) When a change is classified not significant, the rule (BMAR 21.A.101(b)(1)) allows the use of the earlier airworthiness codes and standards, but not dated prior to the existing type-certification basis. Within this limit, the applicant is allowed to propose an amendment level for each airworthiness code and/or standard for the affected area. However, the applicant is to be aware that their proposal for the type-certification basis will be reviewed by the Authority to ensure that the type-certification basis is adequate for the proposed change (see paragraph 8.d).

b) (Reserved).

c) When choosing the above option of the existing type-certification basis, an applicant can elect to comply with a specific certification specifications or a subset of airworthiness codes and/or standards of certification specifications at later amendments. In such a case, the applicant is to consult with the Authority to ensure the type-certification basis includes other certification requirements certification specifications that are directly related. Some later airworthiness codes and/or standards certification specifications may be less restrictive; therefore, the applicant may see advantage in using them on the elect to comply basis. However, the applicant is recommended not to make a final decision until they have learned from the Authority which other certification requirements certification specifications are considered directly related.

d) For a design change that contains features which are not covered in the proposed type-certification basis, i.e. when the type-certification basis is not considered “adequate” (see the definition of “adequate type-certification basis” in Chapter 1 Section 4), the Authority will designate the applicable airworthiness codes and/or standards certification specifications at the appropriate amendment level, beginning with the existing type-certification basis and progressing to the most appropriate later amendment level for the change. For a change that contains new design features that are novel or unusual, for which there is no later applicable airworthiness codes and/or standards certification specifications, the Authority will designate special conditions.

9. Step 6 of Figure 2. Is the Area Affected By the Proposed Change? (21.A.101(b)(2))



a) An unaffected area is any area, system, part, or appliance that is not affected by the proposed type design change. For a type design change, it is important that the effects of such change on other areas, systems, parts, or appliances of the product are properly assessed because areas that have not been physically changed may still be considered part of the affected area. If a new compliance finding is required, regardless of its amendment level, it is an affected area. If the significant change does not affect the area, then the type-certification basis of that area does not need to be revisited, in other words, the unaffected area continues to comply with the existing amendment level without further substantiation.

b) To determine whether an area is affected or not, consider the following aspects of a type design change:

(1) Physical aspects. The physical aspects include direct changes to structures, systems, parts, and appliances (physical aspects may include software/airborne electronic hardware changes and the resulting effect on systems functions).

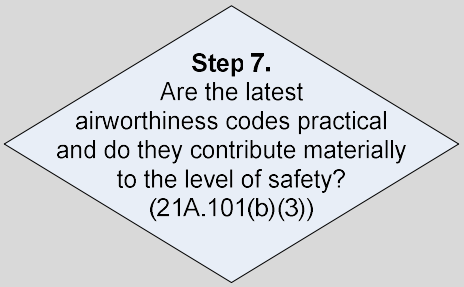
(2) Performance/functional characteristics. The less obvious aspect of the word “areas” covers general characteristics of the type-certificated product, such as performance features, handling qualities, emergency egress, structural integrity, aeroelastic characteristics, or crashworthiness. These characteristics may be affected by a product level change. For example, adding a fuselageplug could affect performance and handling qualities, and thus specifications associated with these aspects would be considered part of the affected area. Another example is the addition of a fuel tank and new fuel

conditioning unit. This change affects the fuel transfer and fuel quantity indication system resulting in the aeroplane's unchanged fuel tanks being affected. Thus, the entire fuel system (changed and unchanged areas) becomes part of the affected area due to the change in functional characteristics.

(3) Note: Substantiating data for the affected area for a proposed type design change can include compliance findings from a previously approved design change, in supporting compliance findings for your proposal. However, your proposal to use previously approved compliance data is to be considered part of the entire proposed type design change and is to be approved as part of your proposed design change.

c) All areas affected by the proposed design change are to comply with the latest airworthiness codes and/or standards certification specifications, unless the applicant can show that demonstrating compliance with the latest amendment of an airworthiness code and/or standard certification specifications would not contribute to the level of safety or would be impractical. Step 7 provides further explanation.

10. Step 7 of Figure 2. Are the Latest Airworthiness Codes and/or Standards certification specifications Practical and Do They Contribute Materially to the Level of Safety? (21.A.101(b)(3))



a) **Contribute materially to the level of safety.** Compliance with the latest airworthiness codes and/or standards could be considered; not to contribute materially to the level of safety if the existing type design and/orrelevant experience demonstrates a level of safety comparable to that provided by the latest airworthiness codes and/or standards. The applicant is to provide sufficient justification to allow the Authority to make this determination. This exception could be applicable in the situations described in the paragraphs below:

Note: Compliance with later airworthiness codes and/or standards would not be required where the amendment is of administrative nature and has been made only to correct inconsequential errors or omissions, consolidate text, or clarify an existing certification requirement.

(1) Design features that exceed the existing type-certification basis, but do not meet the latest airworthiness codes and/or standards, can be used as a basis for granting an exception under the "does not contribute materially" exception. These design features, if accepted as a justification for an exception, are to be incorporated in the amended type design configuration and recorded in the MTC data sheet or MSTC, where necessary, as an integral part of the type-certification basis. For example, an applicant proposes to install winglets on a large aeroplane. Part of the design involves adding a small number of new wing fuel tank fasteners. The latest certification requirements requires structural lightning protection. The applicant proposes an exception from these latest structural lightning protection requirements because the design change uses new wing fuel tank fasteners with cap seals installed. The cap seal is a design feature that exceeds the requirement at a previous amendment level, but does not meet the latest amendment. If the applicant can successfully substantiate that compliance with the previous amendment would not materially increase the level of safety of the changed product, then this design feature can be accepted as an exception to compliance with the latest amendment.

(2) Consistency of design is to be considered when applying the latest airworthiness codes and/or standards. Below, an aeroplane example is provided for describing how this provision may be used; however, the rationale in this example may be applied to any product covered by this GM.

- For example, when a small fuselage plug is added, additional seats and overhead bins are likely to be installed, and the lower cargo hold extended. These components may be identical to the existing components. The level of safety may not materially increase by applying the latest airworthiness codes and/or standards.
- However, if a fuselage plug is large enough in relation to the original certificated aircraft structure, seats, bins, doors, and cargo compartment, the change may require compliance with the latest airworthiness codes and/or standards, comparable with what will be required for a new aeroplane. In these circumstances the proposed type-certification basis will need to encompass the airworthiness codes and/or standards in effect on the date of application for the change.

(3) Service experience: Relevant service experience, such as fleet performance or utilisation over time (relevant flight hours or cycles), is one way of showing that a later amendment may not contribute materially to the level of safety, so the use of earlier airworthiness codes and/or standards could be appropriate.

- There may be cases for rotorcraft and small aeroplanes where relevant data may not be sufficient or not available at all because of the reduced utilisation and the different amount and type of data available. In such cases, other service history information may provide sufficient data to justify the use of earlier airworthiness codes and/or standards, such as: warranty, repair, and parts usage data; accident, incident, and service difficulty reports, service bulletins; airworthiness directives; or other pertinent and sufficient data collected by the manufacturers, authorities, or other entities.
- The service experience levels necessary to demonstrate the appropriate level of safety as they relate to the proposed design change would have to be reviewed and agreed to by the Authority.

b) **Impractical.** Compliance with the latest airworthiness codes and/or standards certification specifications may be considered impractical if the applicant can justify that it would result in additional resource requirements that are not commensurate with the incremental safety benefit (difference between the latest and the proposed type-certification basis). The additional resource requirements could include those arising from design changes required for compliance and the effort required to demonstrate compliance, but excludes resource expenditures for prior product changes.

(1) The position that compliance is impractical is to be supported with a substantiating data and analyses. While evaluating the applicant's position and their substantiating data regarding impracticality, the Authority may consider other factors (for example, the costs and safety benefits for a comparable new design).

(2) A review of large aeroplane projects showed that in certain cases, where an earlier amendment to applicable airworthiness codes and/or standards was allowed, design changes were made to nearly comply with the latest amendments. In these cases,the applicants were able to successfully demonstrate that full compliance would require a substantial increase in the outlay or expenditure of resources with a very small increase in the level of safety. These design features can be used as a basis for granting an exception under the "impracticality" exception.

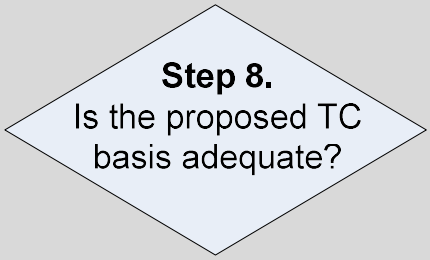
(3) There are cases where it is necessary to determine procedures for evaluating impracticality of applying latest airworthiness codes and/or standards to a changed product rule.

(a) The exception of impracticality is a qualitative and/or quantitative cost/safety benefit assessment for which itis difficult to specify clear criteria. Experience to date with applicants has shown that justification of impracticality is more feasible when both applicant and Authority agree at an earlier discussion that the effort (in terms of cost, changes in manufacturing, etc.), required to comply would not be commensurate with a small incremental safety gain. This would be clear even without the need to perform any detailedcost/safety benefit analysis (although cost analysis could always be used to support an appropriate amendment level).

Note: The impractical exception is not be based on the size of the applicant's company or their financial resources. Costs to comply with a later amendment are to be evaluated against the safety benefit of complying with the later amendment. Applicants that may not be able to afford the cost because of reasons such as fewer resources, will not be granted the impractical exception when the cost is comparable to the safety benefit achieved by complying with a later amendment.

(b) For example, a complex redesign of an area of the baseline aircraft may be required to comply with a new airworthiness code and/or standard, and that redesign may make the changed product uncommon withrespect to design and manufacturing processes from the existing family of derivatives. Relevant service experience of the existing fleet of the baseline aircraft family would be required to show that there has not been a history of problems associated with the hazard that the new amendment in question was meant to address. In this way, the incremental cost/impact to the applicant is onerous and the incremental safety benefit that would be realised by complying with the later amendment would be minimal, and this would be justified with a demonstrated acceptable service experience in relation to the hazard that the new airworthiness code and/or standard addresses.

11. Step 8 of Figure 2. Is the Proposed Type-certification Basis Adequate?



a) Regardless of whether the change is significant or not, the applicant's proposed type-certification basis may be deemed inadequate – that is, the change includes features or characteristics that were not foreseen during the initial (or previously approved) type-certification. These features or characteristics, if not adequately addressed, may make the product unsafe for the uses for which certification is requested. This would obstruct issuance of the requested approval for the change. The change is to comply with later standards (such as, a later amendment or a special condition). An example is adding a flight critical system such as an electronic air data display on a large aeroplane whose existing type-certification basis did not have lightning protection requirements. In this case, compliance with the certification requirement for lightning protection will be required, even though this is not a significant change.

b) In cases where inadequate or no airworthiness standards exist for the change in the proposed type-certification basis, but adequate standards exist in a subsequent amendment of the applicable airworthiness code, the subsequent amendment will be made part of the type certification basis to assure its adequacy.

c) In cases where no adequate standard exists in any subsequent amendment of the applicable airworthiness code because of one or more reasons specified in BMAR 21.A.16B(a), the

Authority will prescribe special conditions containing necessary safety standard per BMAR 21.A.16B(b). BMAR 21.A.101(d) allows for the application of special conditions, or for changes to the existing special conditions, to address the changed designs where the proposed type-certification basis does not provide adequate standards with respect tothe proposed change. Reference section 3 of Chapter 4 for additional information pertaining to special conditions.

d) (Reserved).

e) The final type-certification basis may consist of a combination of the applicable airworthiness codes and/or standards at different amendment levels ranging from the original type-certification basis to the most current amendments, and special conditions.

Chapter 4. Other Considerations

1. Design Related Operating Requirements.

The use of exceptions under BMAR 21.A.101 is not intended to alleviate or preclude compliance with applicable operating rules or directives that prescribe compliance with the applicable additional airworthiness (design-related) specifications for operations.

2. (Reserved).

3. Special Conditions.

BMAR 21.A.101(d) allows for the application of special conditions, or for changes to existing special conditions, to address the changed designs where the proposed type-certification basis does not provide adequate standards for an area, system, part or appliance related to the change and no adequate standard exist in any subsequent amendment of the applicable airworthiness code and/or standard in effect on the date of the application for the change. The objective is to achieve a level of safety consistent with that provided for other areas, systems, parts or appliances affected by the change by the other certification requirement of the proposed type-certification basis. The application of special conditions to a design change is not, in itself, a reason for it to be classified as either a substantial change or a significant change. When the change is significant with earlier airworthiness codes and/or standards allowed through exceptions, or not significant, the level of safety intended by the special conditions are to be consistent with the agreed type-certification basis. Note that special conditions may also be applied under BMAR 21.A.16B when the intended use of the changed product is unconventional or experience from other similar products in service or products having similar design features has shown that unsafe conditions may develop.

4. (Reserved).

5. Special purpose aircraft

When a change is proposed to aircraft which is designed or modified for a special purpose to operate in restricted airworthiness category (under a restricted certificate of airworthiness), the process of establishing the type-certification basis of the changed product is in principle the same as for aircraft with a standard certificate of airworthiness. BMAR 21.A.101 is equally applicable to those special purpose aircraft, except that the applicable certification requirements, the proposed change is to comply with, can exclude the paragraphs of the applicable airworthiness code that the Authority finds inappropriate for the special purpose for which the aircraft is to be used and may include possible alternative requirements to address that special purpose. Nevertheless, the “top-down” approach under BMAR 21.A.101(a) and (b) (and the guidance in Chapter 3 of this GM) generally applies also to special purpose aircraft. All the exception routes under BMAR 21.A.101(b)(1), (2) and (3) are still available, in particular the “not materially contributing to the level of safety” and “impractical” exceptions may be found justifiable considering the intended special purpose of the aircraft.

6. (Reserved).

7. Documentation.

All changes that result in a revision to the product's type-certification basis are to be reflected on the amended MTC or MSTC. The resulting type-certification basis is to be retained as it forms part of the compliance record required by the applicable Authority's internal working procedures.

21.A.103 Issue of approval

(a) The applicant shall be entitled to have a major change to a type design approved by the Authority after:

1. Submitting the declaration referred to in BMAR 21.A.20(d); and
2. It is demonstrated that:
   i. The changed product meets the applicable airworthiness codes and environmental protection requirements (where applicable) as specified in BMAR 21.A.101;
   ii. Any airworthiness provisions not complied with are compensated for by factors that provide an equivalent level of safety; and
   iii. No feature or characteristic makes the product unsafe for the uses for which certification is requested.

(b) A minor change to a type design shall only be approved in accordance with BMAR 21.A.95 if it is shown that the changed product meets the applicable airworthiness codes, as specified in BMAR 21.A.101.

21.A.105 Record keeping

(a) For each change, all relevant design information, drawings and test reports, including inspection records for the changed product tested, shall be held by the applicant at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness and compliance with applicable environmental protection requirements (where applicable) of the changed product.

(b) Unless otherwise laid down by the Authority, the records must be retained for at least two years after the removal of service of the last aircraft of the type certified.

21.A.107 Instructions for continuing airworthiness

(a) The holder of a minor change approval to type design shall furnish at least one set of the associated variations, if any, to the instructions for continuing airworthiness of the product on which the minor change is to be installed, prepared in accordance with the applicable type-certification basis, to each known operating organisation of one or more aircraft, engine, or propeller incorporating the minor change, upon its delivery, or upon issuance of the first certificate of airworthiness for the affected aircraft, whichever occurs later, and thereafter make those variations in instructions available, on request, to any other operating organisation required to comply with any of the terms of those instructions.

(b) In addition, changes to those variations of the instructions for continuing airworthiness shall be made available to all known operating organisations of a product incorporating the minor change and shall be made available, on request, to any organisation required to comply with any of those instructions.

21.A.109 Obligations and EMPA marking

The holder of a minor change approval to type design shall:

(a) Undertake the obligations laid down in BMAR 21.A.4, 21.A.105 and 21.A.107; and

	(b) Specify the marking, including EMPA (herein 'European Military Part Approval') letters, in accordance with BMAR 21.A.804.

Subpart E – Military Supplemental Type-Certificates

21.A.111 Scope

This Subpart establishes the procedure for the approval of major changes to the type design under supplemental type-certificate procedures, and establishes the obligations and privileges of the applicants for, and holders of, those certificates.

21.A.112A Eligibility

Any Organisation that has demonstrated, or is in the process of demonstrating, its capability under BMAR 21.A.112B shall be eligible as an applicant for a Supplemental Type-Certificate (STC) under the conditions laid down in this Subpart.

21.A.112B Demonstration of capability

(a) Any organisation applying for a supplemental type-certificate shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with BMAR 21 Subpart J.

(b) By way of derogation from paragraph (a), as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this Subpart.

(c) By way of derogation from paragraph (a) and (b), any government organisation applying for a supplemental type certificate may demonstrate its capability by having an agreement in place, accepted by the Authority, in accordance with BMAR 21.A.2 with a design organisation which has access to the type design data. The agreement shall include detailed statements how the actions and obligations are delegated to enable the government organisation, in cooperation with the contracted organisation, to comply with the requirements of BMAR 21 Subpart J, including demonstration of compliance with BMAR 21.A.118A.

AMC 21.A.112B (c) Alternative Demonstration

A government organisation approved by the Authority to execute the Military Supplemental Type Certificate Holder (MSTCH) responsibilities, may apply for a military supplemental type certificate, without being the original design organisation. In this case the government organisation should, in accordance with BMAR 21.A.2, enter an agreement with a design organisation which has access to the Type Design data to ensure the undertaking of specific actions and obligations. Any alternative procedures for establishing a Design Assurance System should be acceptable to the Authority in fulfilling the obligations required under BMAR 21.A.118A.

GM 21.A.112B Demonstration of capability for supplemental type-certificate cases

See also AMC BMAR 21.A.14(b) and (c) for the details of the alternative procedures.

The following examples of major changes to type design (ref: BMAR 21.A.91) are classified in two groups. Group 1 contains cases where a design organisation approved under BMAR 21 Section A Subpart J (“Subpart J MDOA”) will be required and Group 2 cases where the alternative procedure may be accepted. They are typical examples but each MSTC case is to be addressed on its merits and there would be exceptions in practice. This classification is valid for new MSTCs, not for evolution of MSTCs, and may depend upon the nature of the MSTC (complete design or installation).

Product	Discipline	Kind of MSTC	Group
Small aircraft (products where Subpart J MDOA is required for MTC)			
Notes : * MSTC which leads to reassess the loads on large parts of primary structure will be in group 1. * 2/1 means that an assessment of consequences in terms of handling qualities, performance or complexity of showing of compliance may lead to classification in group 1.			
	Aircraft		
		Conversion to tail wheel configuration	1
		Auxiliary fuel tank installations	2/1
		Glass fibre wing tips	2/1
		Fairings: nacelle, landing gear	2
		Gap seals: aileron, flap, empennage, doors	2
		Vortex generators	2/1
		Spoiler installation	1
		Increase in MTOW	1
	Structures		
		Stretcher installation	2
		Change to seating configuration	2
		Windshield replacement (heated, single piece, etc)	2
		Light weight floor panels	2
		Ski installations	2/1
	Propulsion		
		Engine model change	1

		Fixed pitch propeller installation	2
		Constant speed propeller installation	2/1
		Installation of exhaust silencer	2
		Installation of Graphic engine monitor	2
		Installation of fuel flow meter	2
		Accessory replacement (alternator, magnetos, etc.)	2
		Inlet modifications: oil cooler; induction air	2
	Equipment		
		Avionics upgrades (EFIS, GPS, etc)	2/1
		Engine instrument replacements	2
		Carburettor ice detection system	2
		Autopilot system installation	1
		Wing tip landing light; recognition lights	2
		WX radar installation	2
		Aeromedical system installations	2
		De- and anti-ice system installations	1
		Emergency power supply installations	2
Large aircraft			
	Cabin Safety		
Note : Basically all changes related to cabin configuration will be in Group 2.		Cabin layout (installation of seats (16G), galleys, single class or business / economy class, etc)	2
		Floor path marking	2
		Crew rest compartment	1
		Change of cargo compartment classification (from class D to class C)	1
	Structure		

Note : MSTC which leads to reassess the loads on large parts of primary structure will be in Group 1.		Cargo door	1
		Change from Passenger to Freighter configuration	1
	Avionics		
Notes : For large aircraft products, the existence of MTSO is not taken into account for the classification ; Impact on aircraft performance, and influence of aircraft performance are criteria to assess the classification ; Subjective assessment of human factors is considered for determination of classification.		CVR	2
		VHF	2
		NAV (ADF, VOR, GPS, BRNAV)	2
		Autopilot, HUD, EFIS, FMS	1
		DFDR	2/1
		Meteo radar	2
		ILS Cat 3	1
		RVSM	1
		TCAS, EGPWS	1
		GPWS	2
	Powerplant		
		Auxiliary fuel tanks	1
		Thrust Reverser system	1
		Hushkit	1
		Fire detection	1
		Fuel gauging	1

		Change of Engine or Propeller	1
Helicopters	All disciplines		
Note : 2/1 means that an assessment of consequences in terms of handling qualities and performance may lead to classification in Group 1.		Main rotor or tail rotor blades replacement	1
		Autopilot	1
		Engine type change	1
		GPS installation	2
		Jettisonable overhead raft installation	2
		Utility basket installation	2/1
		Nose or side mount camera installation	2/1
		Passenger access step installation	2/1
		Protection net & handle installation (parachuting)	2
		VIP cabin layout	2
		Navigation system installation	2
		Fuel boost pump automatic switch-on installation	2
		Decrease of maximum seating capacity	2
		Agricultural spray kit installation	2/1
		Long exhaust pipe installation	2
		Flotation gear installation	2/1
		Wipers installation	2
		Engine oil filter installation	2
		Skid gear covering installation	2/1
		Gutter installation (top pilot door)	2
		Cable cutter installation	2

	Auxiliary fuel tank fixed parts installation	2
	Cabin doors windows replacement	2
	Radio-altimeter aural warning installation	2
	Stand-by horizon autonomous power supply	2
	Fire attack system	2/1
	Hoisting system installation	2/1
	External loads hook installation	2
	Emergency flotation gear installation	2/1
	Heating/demisting (P2 supply)	2

21.A.113 Application for a supplemental type-certificate

(a) An application for a supplemental type-certificate shall be made in a form and manner established by the Authority.

(b) An application for a supplemental type-certificate shall include the descriptions and identification required by BMAR 21.A.93. In addition, such an application shall include a justification that the information on which those identifications are based is adequate either from the applicant's own resources, or through an arrangement with the type-certificate holder.

21.A.114 Showing of compliance

Any applicant for a supplemental type-certificate shall comply with BMAR 21.A.97 and shall be responsible for the integration of any such changes to the product.

AMC 21.A.114 Compliance demonstration process for Supplemental Type Certificate

1. AMC/GM to BMAR 21.A.20 should be used for a supplemental type certificate.
2. For major changes approved under a supplemental type certificate and not requiring long and complex compliance demonstration activities, a certification programme, as described in AMC to BMAR 21.A.20(b), can be submitted with the application in a simplified format. The certification programme should contain at least the following elements:
   - Purpose of change
   - Description of change
   - Applicability
   - Applicable airworthiness requirements, special conditions and equivalent safety findings;
   - As appropriate, the involvement of the type certificate holder of the product on which the STC is proposed (see BMAR 21.A.113 and 21.A.115)
   - If relevant, the delivery schedule of compliance documents

21.A.115 Issue of a supplemental type-certificate

The applicant shall be entitled to have a supplemental type-certificate issued by the Authority after:

(a) Complying with BMAR 21.A.103(a);

(b) Demonstrating its capability in accordance with BMAR 21.A.112B;

(c) Where, under BMAR 21.A.113(b), the applicant has entered into an arrangement with the type-certificate holder,

1. the type-certificate holder has advised that it has no technical objection to the information submitted under BMAR 21.A.93; and

2. the type-certificate holder has agreed to collaborate with the supplemental type-certificate holder to ensure discharge of all obligations for continued airworthiness of the changed product through compliance with BMAR 21.A.44 and 21.A.118A.

21.A.116 Transferability

A supplemental type-certificate shall only be transferred to an organisation that is able to undertake the obligations of BMAR 21.A.118A and for this purpose has demonstrated its ability to qualify under the criteria of BMAR 21.A.112B.

21.A.117 Changes to that part of a product covered by a supplemental type-certificate

(a) Minor changes to that part of a product covered by a supplemental type-certificate shall be classified and approved in accordance with BMAR 21 Subpart D.

(b) Each major change to that part of a product covered by a supplemental type-certificate shall be approved as a separate supplemental type-certificate in accordance with this Subpart.

(c) By way of derogation from paragraph (b), a major change to that part of a product covered by a supplemental type-certificate submitted by the supplemental type-certificate holder itself may be approved as a change to the existing supplemental type-certificate.

21.A.118A Obligations and EMPA marking

Each holder of a supplemental type-certificate shall:

(a) Undertake the obligations:

1. Laid down in BMAR 21.A.3A, 21.A.3B, 21.A.4, 21.A.105, 21.A.119 and 21.A.120;

2. Implicit in the collaboration with the type-certificate holder under BMAR 21.A.115(c)(2); and for this purpose continue to meet the criteria of BMAR 21.A.112B.

(b) Specify the marking, including EMPA letters, in accordance with BMAR 21.A.804.

21.A.118B Duration and continued validity

(a) A supplemental type-certificate shall be issued for an unlimited duration. It shall remain valid subject to:

1. The holder remaining in compliance with this BMAR; and

2. The certificate not being surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the supplemental type-certificate shall be returned to the Authority.

(c) The supplemental type-certificate holder shall inform the Authority, as soon as practicable, when it is no longer able to meet the supplemental type-certificate holder responsibilities defined by this BMAR, for one or several types of product. In this case, it shall provide access to the Authority with all the information necessary for the latter to ensure, or have ensured, the continued airworthiness of the type design of the concerned products.

21.A.119 Manuals

The holder of a supplemental type-certificate shall produce, maintain, and update master copies of variations in the manuals required by the applicable type-certification basis and environmental protection requirements (where applicable) for the product, necessary to cover the changes introduced under the supplemental type-certificate, and furnish copies of these manuals to the Authority, on request.

21.A.120 Instructions for continuing airworthiness

(a) The holder of the supplemental type-certificate for an aircraft, engine, or propeller, shall furnish at least one set of the associated variations to the instructions for continuing airworthiness, prepared in accordance with the applicable type-certification basis, to each known operating organisation of one or more aircraft, engine, or propeller incorporating the features of the supplemental type-certificate, upon its delivery, or upon issuance of the first certificate of airworthiness for the affected aircraft, whichever occurs later, and thereafter make those variations in instructions available, on request, to any other operating organisation required to comply with any of the terms of those instructions. Availability of some manual or portion of the variations to the instructions for continuing airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight-hours/cycles.

(b) In addition, changes to those variations of the instructions for continuing airworthiness shall be made available to all known operating organisations of a product incorporating the supplemental type-certificate and shall be made available, on request, to any operating organisations required to comply with any of those instructions. A programme showing how changes to the variations to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

Subpart F – Production Without Military Production Organisation Approval

21.A.121 Scope

(a) This Subpart establishes the procedure for demonstrating the conformity with the applicable design data of a product, part and appliance that is intended to be manufactured without a production organisation approval under BMAR 21 Subpart G.

(b) This Subpart establishes the rules governing the obligations of the manufacturer of a product, part or appliance being manufactured under this Subpart.

GM No. 1 to 21.A.121 Applicability - Individual product, part or appliance

In this context, “demonstrating the conformity with the applicable design data of a product, part and appliance” means that conformity with the applicable design data has to be established and shown for each and every product, part or appliance.

GM No. 2 to 21.A.121 Applicability – Applicable design data

Applicable design data is defined as all necessary drawings, specifications and other technical information provided by the applicant for, or holder of a design organisation approval, MTC, MSTC, approval of repair or minor change design, or MTSO authorisation (or equivalent when BMAR 21 Section A Subpart F is used for production of products, parts or appliances, the design of which has been approved other than according to BMAR 21), and released in a controlled manner to the manufacturer producing under BMAR 21 Section A Subpart F. This will be sufficient for the development of production data to enable manufacture in conformity with the design data.

Prior to issue of the MTC, MSTC, approval of repair or minor change design, or MTSO authorisation, or equivalent, design data is defined as ***‘not approved’***, but parts and appliances may be released with an BMAR Form 1 as a certificate of conformity.

After issue of the MTC, MSTC, approval of repair or minor change, or MTSO authorisation, or equivalent, this design data is defined as ***‘approved’*** and items manufactured in conformity are eligible for release on an BMAR Form 1 for airworthiness purposes.

21.A.122 Eligibility

Any organisation may apply to show conformity of individual products, parts or appliances under this Subpart, if:

(a) It holds or has applied for an approval covering the design of that product, part or appliance; or

(b) It has ensured satisfactory coordination between production and design, through an appropriate arrangement with the applicant for, or holder of, an approval of such a design.

AMC No. 1 to 21.A.122 Eligibility – Link between design and production

An “arrangement” is considered suitable if it is documented and satisfies the Authority that co-ordination is satisfactory.

To achieve satisfactory co-ordination the documented arrangements should at least define the following aspects irrespective of whether the design organisation and the person producing or intending to produce under BMAR 21 Section A Subpart F are separate legal entities or not:

(a) The responsibilities of a design organisation which assure correct and timely transfer of up-to-date applicable design data (e.g., drawings, material specifications, dimensional data, processes, surface treatments, shipping conditions, quality requirements, etc.);

(b) The responsibilities and procedures of the manufacturer for receiving, managing and using the applicable design data provided by the design organisation;

(c) The responsibilities and procedures of the manufacturer for developing, where applicable, its own manufacturing data in compliance with the applicable design data package;

(d) The responsibilities of the manufacturer to assist the design organisation in dealing with continuing airworthiness matters and for required actions (e.g., traceability of parts in case of direct delivery to users, retrofitting of modifications, traceability of processes' outputs and approved deviations for individual parts as applicable, technical information and assistance, etc.);

(e) The scope of the arrangements covering BMAR 21 Section A Subpart F requirements, in particular: BMAR 21.A.126(a)(4) and BMAR 21.A.129(d) and (f) and any associated GM or AMC;

(f) The responsibilities of the manufacturer, in case of products prior to type-certification to assist a design organisation in showing compliance with Certification Basis (access and suitability of production and test facilities for manufacturing and testing of prototype models and test specimen);

(g) The procedures to deal adequately with production deviations and non-conforming parts;

(h) The means to achieve adequate configuration control of manufactured parts, to enable the manufacturer to make the final determination and identification for conformity or airworthiness release and eligibility status;

(i) The identification of responsible persons/offices who controls the above;

(j) The acknowledgment by the holder of the MTC/MSTC/repair or change approval/MTSO authorisation that the approved design data provided, controlled and modified in accordance with the arrangement are recognised as approved.

In many cases the person producing or intending to produce under BMAR 21 Section A Subpart F may receive the approved design data through an intermediate production organisation. This is acceptable provided an effective link between the design approval holder and the production organisation can be maintained to satisfy the intent of BMAR 21.A.122.

When the design organisation and the manufacturer are two separate legal entities a Direct Delivery Authorisation should be available for direct delivery to end users in order to guarantee continued airworthiness control of the released parts and appliances.

Where there is no general agreement for Direct Delivery Authorisation, specific permissions may be granted (see AMC BMAR 21.A.4).

AMC No. 2 to 21.A.122 Eligibility – Link between design and production

In accordance with AMC No.1 to BMAR 21.A.122 the person producing or intending to produce under BMAR 21 Section A Subpart F should demonstrate to the Authority that it has entered into an arrangement with the design organisation. The arrangement should be documented irrespective of whether the two organisations are separate legal entities or not.

The documented arrangement should facilitate the person producing or intending to produce under BMAR 21 Section A Subpart F to demonstrate compliance with the requirement of BMAR 21.A.122 by means of written documents agreed.

In the case where the design organisation and the person producing or intending to produce under BMAR 21 Section A Subpart F are part of the same legal entity these interfaces may be demonstrated by company procedures accepted by the Authority.

In all other cases to define such a design/production interface the following sample format is offered:

Arrangement Sample Form

ARRANGEMENT in accordance with BMAR 21.A.122	
The undersigned agree on the following commitments:	relevant interface procedures
The design organisation [NAME] takes responsibility to □ assure correct and timely transfer of up-to-date applicable design data (e.g., drawings, material specifications, dimensional data, processes, surface treatments, shipping conditions, quality requirements, etc.) to the person producing under BMAR 21 Section A Subpart F [NAME] □ provide visible statement(s) of approved design data	
The person producing under BMAR 21 Section A Subpart F [NAME] takes responsibility to □ assist the design organisation [Name] in dealing with continuing airworthiness matter and for required actions □ assist the design organisation [Name] in case of products prior to type-certification in showing compliance with airworthiness requirements □ develop, where applicable, its own manufacturing data in compliance with the airworthiness data package	
The design organisation [Name] and the person producing under BMAR 21 Section A Subpart F [Name] take joint responsibility to □ deal adequately with production deviations and non conforming parts in accordance with the applicable procedures of the design organisation and the manufacturer producing under BMAR 21 Section A Subpart F. □ achieve adequate configuration control of manufactured parts, to enable the manufacturer producing under BMAR 21 Section A Subpart F to make the final determination and identification for conformity or airworthiness release and eligibility status.	

The scope of production covered by this arrangement is detailed in ... [DOCUMENT REFERENCE/ ATTACHED LIST]	
[When the design organisation is not the same legal entity as the manufacturer producing under BMAR 21 Section A Subpart F] Transfer of approved design data The MTC/MSTC/MTSO authorisation holder [NAME] acknowledges that the approved design data provided, controlled and modified in accordance with the arrangement are recognised as approved by the Authority and therefore the parts and appliances manufactured in accordance with these data and found in a condition for safe operation may be released certifying that the item was manufactured in conformity to approved design data and is in a condition for safe operation.	
[When the design organisation is not the same legal entity as the manufacturer producing under BMAR 21 Section A Subpart F] Direct Delivery Authorisation This acknowledgment includes also [OR does not include] the general agreement for direct delivery to end users in order to guarantee continued airworthiness control of the released parts and appliances.	
for the [NAME of the design organisation/MDOA holder] date signature xx.xx.xxxx ([NAME in block letters])	for the [NAME of the person producing under BMAR 21 Section A Subpart F] date signature xx.xx.xxxx ([NAME in block letters])

Instructions for completion:

Title: The title of the relevant document should clearly indicate that it serves the purpose of a design/production interface arrangement in accordance with BMAR 21.A.122.

Commitment: The document should include the basic commitments between the design organisation and the manufacturer producing under BMAR 21 Section A Subpart F as addressed in AMC BMAR 21.A.4 and AMC No. 1 to BMAR 21.A.122.

Relevant Procedures: Identify an entry point into the documentary system of the organisations with respect to the implementation of the arrangement (for example a contract, quality plan, handbooks, common applicable procedures, working plans etc.).

Scope of arrangement: The scope of arrangement should state by means of a list or reference to relevant documents those products, parts or appliances that are covered by the arrangement.

Transfer of approved design data: Identify the relevant procedures for the transfer of the applicable design data required by BMAR 21.A.122 and AMC No. 1 to BMAR 21.A.122 from the design organisation to the person producing under BMAR 21 Section A Subpart F. The means by which the design organisation advises the person producing under BMAR 21 Section A Subpart F whether such data is approved or not approved should also be identified (ref. BMAR 21.A.4 / AMC BMAR 21.A.4).

Direct Delivery Authorisation: Where the design organisation and the person producing under BMAR 21 Section A Subpart F are separate legal entities the arrangement should clearly identify whether authorisation for direct delivery to end users is permitted or not.

Where any intermediate production/design organisation is involved in the chain between the original design organisation and the person producing under BMAR 21 Section A Subpart F, evidence should be available that this intermediate organisation has received authority from the design organisation to grant Direct Delivery Authorisation.

Signature: AMC No. 1 to BMAR 21.A.122 requests the identification of the responsible persons/offices who control the commitments laid down in the arrangement. Therefore the basic document should be signed mutually by the authorised representatives of the design organisation and the manufacturer producing under BMAR 21 Section A Subpart F in this regard.

21.A.124 Application

(a) Each application for an agreement to the showing of conformity of individual products, parts and appliances under this Subpart shall be made in a form and manner established by the Authority.

(b) Such application shall contain:

1. Evidence which demonstrate, where applicable, that:
   i. The issuance of a military production organisation approval under BMAR 21 Subpart G would be inappropriate; or
   ii. The certification or approval of a product, part or appliance under this Subpart is needed pending the issuance of a military production organisation approval under BMAR 21 Subpart G.
2. An outline of the information required by BMAR 21.A.125A(b).

GM 21.A.124(a) Application – Application form

BMAR Form 60 is to be completed by the applicant.

An application may be accepted from:

(a) An individual applying on his or her own behalf, or

(b) In the case of an organisation, an individual with the authority to make agreements on behalf of the organisation.

The completed form is to be forwarded to the Authority.

GM to 21.A.124(b)(1) Re-Use of Evidence

Organizations recognized by competent civil aviation authorities or certified as per AS/EN 9100 or the equivalent AQAP, may re-use part or all of the same process evidences in the demonstration of compliance with BMAR 21 Section A Subpart F, as agreed by the Authority.

GM 21.A.124(b)(1)(i) Applicability - Inappropriate approval under Subpart G

The issue of a letter of agreement of production under BMAR 21 Section A Subpart F may be agreed by the Authority when:

(a) The applicant produces or intends to produce aeronautical products, parts and/or appliances intended for airborne use as part of a type-certificated product (this excludes simulators, ground equipment and tools), and

(b) The Authority determines that BMAR 21 Section A Subpart G would be inappropriate, and consequently BMAR 21 Section A Subpart F applies. The main difference between BMAR 21 Section A Subparts G and F is that Subpart G requires the existence of a Quality System which provides the Authority with the necessary confidence to grant to the manufacturer the privileges of certifying its own production. There are situations where a Quality System, including independent monitoring and continuous internal evaluation functions, is not justified and /or feasible. In making the determination that Subpart F may apply, the Authority may take into account one or a combination of parameters such as the following:

   i. no flow production (infrequent or low volume of production);

   ii. simple technology (enabling effective inspection phases during the manufacturing process);

   iii. very small organisation.

GM 21.A.124(b)(1)(ii) Certification or approval needed in advance of the issue of a MPOA

In cases where BMAR 21 Section A Subpart G is applicable, but when some time is needed for the organisation to achieve compliance with Subpart G, i.e., to establish the necessary documented quality system, the Authority may agree to use BMAR 21 Section A Subpart F for a limited period (transient phase).

In cases where BMAR 21 Section A Subpart G is applicable, such as to produce MTSO articles, a letter of agreement to produce under BMAR 21 Section A Subpart F will not be given unless an application has been made for organisation approval under Subpart G, and reasonable progress is being made towards compliance with Subpart G. Long-term production under BMAR 21 Section A Subpart F will not be permitted.

GM 21.A.124(b)(2) Application - Minimum information to include with the application

At this early stage, provision of the complete manual is not necessary, but at least the following items are to be covered:

(a) Table of Contents of the Manual (including list of existing inspection system documents or procedures);

(b) Description of items to be manufactured (including intended quantities /deliveries);

(c) List of possible suppliers;

(d) General description of facilities;

(e) General description of production means;

(f) Human resources.

21.A.125A Issue of a letter of agreement

The applicant shall be entitled to have a letter of agreement issued by the Authority agreeing to the showing of conformity of individual products, parts and appliances under this Subpart, after:

(a) Having established a production inspection system that ensures that each product, part or appliance conforms to the applicable design data and is in condition for safe operation.

(b) Providing a manual that contains:

1. A description of the production inspection system required under paragraph (a);
2. A description of the means for making the determinations of the production inspection system; and
3. A description of the tests of BMAR 21.A.127 and 21.A.128, and the names of persons authorised for the purpose of BMAR 21.A.130(a).

(c) Demonstrating that it is able to provide assistance in accordance with BMAR 21.A.3A and 21.A.129(d).

GM 21.A.125A Letter of agreement - Meaning of individual

"Individual" means that each part number or type of item (i.e., product, part or appliance) to be produced is to be specifically referenced, either directly or through a referenced capability list, in the letter of agreement from the Authority. The letter may also specify any limitation in the production rate.

GM No. 1 to 21.A.125A(b) Letter of agreement - Contents of the Manual

The manual referred in BMAR 21.A.125A(b) is to include, at least the following information:

(a) Declaration by the applicant of undertaking in respect of:

i. the requirements defined in BMAR 21 Section A Subpart F;

ii. the procedures contained in the manual and in the documentation mentioned herein;

iii. every legal provision laid down for the carrying on of the business activities (statutory declaration).

(b) Declaration by the applicant certifying the conformity of the manual to the requirements defined in BMAR 21 Section A Subpart F;

(c) Jobs, power and responsibilities of the accountable personnel;

(d) Organisation chart, if required by the Authority;

(e) Description of the resources, including human resources, with an indication of the personnel qualification criteria;

	(f) Description of location and equipment; (g) Description of the scope of work, the production processes and techniques, and reference to the “capability list”; (h) Communications with the Authority, and specifically those required by BMAR 21.A.125A(c); (i) Assistance and communication with the design approval holder, and the means of compliance with BMAR 21.A.125A(c); (j) Amendments to the Manual; (k) Description of the Inspection System (including test, see GM No. 2 to BMAR 21.A.125A(b), and BMAR 21.A.127 and BMAR 21.A.128), and the procedures to meet BMAR 21.A.126 and associated GM; (l) List of suppliers; (m) Issuing of the Statement of Conformity and Authority inspection for validation. If the information is listed in the Manual in a different order a cross reference to the above list is to be made available in the Manual.

GM No. 2 to 21.A.125A(b) Letter of agreement - Production Inspection System: Functional Tests

	All items produced are to be subject to inspection to be carried out at suitable phases which permit an effective verification of conformity with the design data. These inspections may provide for the execution of tests to measure performances as set out in the applicable design data. Considerations of complexity of the item and/or its integration in the next level of production will largely determine the nature and time for these tests, for example: (a) appliances - will require full functional testing to the specifications; (b) parts - will at least require basic testing to establish conformity, but due allowance may be made for further testing carried out at the next level of production; (c) material - will require verification of its stated properties.

GM 21.A.125A(c) Letter of agreement - Assistance

	The Authority is to be provided with material which defines the means of providing assistance as required by BMAR 21.A.125A(c). Suitable descriptive material is to be included in the Manual, as described in GM No. 1 to BMAR 21.A.125A(b).

21.A.125B Findings

(a) When objective evidence is found showing non-compliance of the holder of a letter of agreement with the applicable requirements of this BMAR, the finding shall be classified as follows:

1. A level one finding is any non-compliance with this BMAR which could lead to uncontrolled non-compliances with applicable design data and which could affect the safety of the aircraft.

2. A level two finding is any non-compliance with this BMAR which is not classified as level one.

(b) A level three finding is any item where it has been identified, by objective evidence, to contain potential problems that could lead to a non-compliance under paragraph (a).

(c) After receipt of notification of findings issued by the Authority:

1. In case of a level one finding, the holder of the letter of agreement shall demonstrate corrective action to the satisfaction of the Authority within a period of no more than 21 working days after written confirmation of the finding;

2. In case of level two findings, the corrective action period granted by the Authority shall be appropriate to the nature of the finding but in any case initially shall not be more than three months. In certain circumstances and subject to the nature of the finding the Authority may extend the three month period subject to a satisfactory corrective action plan agreed by the Authority;

3. A level three finding shall not require immediate action by the holder of the letter of agreement. If appropriate, the Authority will specify a compliance time.

(d) In case of level one or level two findings, the letter of agreement may be subject to a partial or full limitation, suspension and revocation under BMAR 21.B.145. The holder of the letter of agreement shall provide confirmation of receipt of the notice of limitation, suspension or revocation of the letter of agreement in a timely manner.

GM No. 1 to 21.A.125B(a) Uncontrolled non-compliance with applicable design data

An uncontrolled non-compliance with applicable design data is a non-compliance:

(a) that cannot be discovered through systematic analysis; or

(b) that prevents identification of affected products, parts, appliances, or material.

GM No. 2 to 21.A.125B(a) Examples for level one findings

Examples for level 1 findings are non-compliances with any of the following paragraphs, that could affect the safety of the aircraft:

- BMAR 21.A.126, BMAR 21.A.127, BMAR 21.A.128, BMAR 21.A.129.

It is to be anticipated that a non-compliance with these paragraphs is only considered a level one finding when objective evidence has been found that this finding is an uncontrolled non-compliance that could affect the safety of the aircraft.

21.A.125C Duration and continued validity

(a) The letter of agreement shall be issued for a limited duration not exceeding one year, or as agreed by the Authority. It shall remain valid unless:

1. The holder of the letter of agreement fails to demonstrate compliance with the applicable requirements of this Subpart; or
2. There is evidence that the manufacturer cannot maintain satisfactory control of the manufacture of products, parts, or appliances under the agreement; or
3. The manufacturer no longer meets the requirements of BMAR 21.A.122; or
4. The letter of agreement has been surrendered, revoked under BMAR 21.B.145, or has expired.

(b) Upon surrender, revocation or expiry, the letter of agreement shall be returned to the Authority.

21.A.126 Production inspection system

(a) The production inspection system required under BMAR 21.A.125A(a) shall provide a means for determining that:

1. Incoming materials, and bought or subcontracted parts, used in the finished product are as specified in the applicable design data;
2. Incoming materials, and bought or subcontracted parts, are properly identified;
3. Processes, manufacturing techniques and methods of assembly affecting the quality and safety of the finished product are accomplished in accordance with specifications accepted by the Authority;
4. Design changes, including material substitutions, have been approved under Subpart D or E and controlled before being incorporated in the finished product.

(b) The production inspection system required by BMAR 21.A.125A(a), shall also be such as to ensure that:

1. Parts in process are inspected for conformity with the applicable design data at points in production where accurate determinations can be made;
2. Materials subject to damage and deterioration are suitably stored and adequately protected;
3. Current design drawings are readily available to manufacturing and inspection personnel, and used when necessary;
4. Rejected materials and parts are segregated and identified in a manner that precludes installation in the finished product;
5. Materials and parts that are withheld because of departures from design data or specifications, and that are to be considered for installation in the finished product, are subjected to an approved engineering and manufacturing review procedure. Those materials and parts determined by this procedure to be serviceable shall be properly identified and re-inspected if rework or repair is necessary. Materials and parts rejected by this procedure shall be marked and disposed of to ensure that they are not incorporated in the final product;
6. Records produced under the production inspection system are maintained, identified with the completed product or part where practicable, and retained by the manufacturer in order to provide the information necessary to ensure the continued airworthiness of the product.

GM 21.A.126 Production Inspection System

GM BMAR 21.A.126(a) and (b) has been developed for persons producing under BMAR 21 Section A Subpart F on the long term basis as defined in BMAR 21.A.124(b)(1)(i).

For those persons producing under BMAR 21 Section A Subpart F as a transient phase under BMAR 21.A.124(b)(1)(ii), compliance with BMAR 21.A.126 may also be demonstrated to the satisfaction of the Authority by using the equivalent BMAR 21 Section A Subpart G AMC/GM.

GM 21.A.126(a)(1) Production Inspection System – Conformity of supplied parts, appliances and material

(a) The person producing under BMAR 21 Section A Subpart F is responsible for determining and applying acceptance standards for physical condition, configuration status and conformity, as appropriate, of raw materials, subcontracted works, and supplied products, parts, appliances or material, whether to be used in production or delivered to customers as spare parts. This responsibility also includes Government Furnished Equipment (GFE) items.

(b) Control may be based upon use of the following techniques, as appropriate:

i. first article inspection, including destruction if necessary, to verify that the article conforms to the applicable data for new production line or new supplier,

ii. incoming inspections and tests of supplied parts or appliances that can be satisfactorily inspected on receipt,

iii. identification of incoming documentation and data relevant to the showing of conformity to be included in the certification documents,

iv. any additional work, tests or inspection which may be needed for parts or appliances which are to be delivered as spare parts and which are not subject to the checks normally provided by subsequent production or inspection stages.

(c) The person producing under BMAR 21 Section A Subpart F may rely upon an BMAR Form 1 issued in accordance with BMAR 21 if provided as evidence of conformity with applicable design data.

(d) For suppliers not holding a MPOA the inspection system of the person producing under BMAR 21 Section A Subpart F is to establish a system for control of incoming materials and bought or subcontracted items which provides for inspections and tests of such items by the person producing under BMAR 21 Section A Subpart F at the supplier's facility, if the item cannot or will not be completely inspected upon receipt.

GM 21.A.126(a)(2) Production Inspection System - Identification of incoming materials and parts

All parts and materials coming from external parties are to be identified and inspected to ascertain that they have not been damaged during transport or unpacking, that the incoming parts and materials have the appropriate and correct accompanying documentation and that the configuration and condition of the parts or materials is as laid down in that documentation.

Only on completion of these checks and of any incoming further verifications laid down in the procurement specification, may the part or material be accepted for warehousing and used in production.

This acceptance is to be certified by an inspection statement.

A suitable recording system is to allow reconstruction at any time of the history of every material or part.

	The areas where the incoming checks are carried out and the materials or parts are stored pending completion of the checks are to be physically segregated from other departments.

GM No. 1 to 21.A.126(a)(3) Production Inspection System - List of specifications

	It is the responsibility of: (a) The designer, to define all necessary processes, techniques and methods to be followed during manufacture (BMAR 21.A.31) and this information will be provided as part of the applicable design data. (b) The manufacturer, to ensure that all processes are carried out strictly in accordance with the specifications provided as part of the applicable design data.

GM No. 2 to 21.A.126(a)(3) Production Inspection System - Means of checking of the production processes

	The Production Inspection System is to be provided with appropriate means of checking that production processes, whether performed by the person producing under BMAR 21 Section A Subpart F or by subcontractors under its control, are carried out in accordance with applicable data, including: (a) A system for the control and authorised amendment of data provided for the production, inspection and test to ensure that it is complete and up-to-date at the point of use; (b) Availability of personnel with suitable qualification, experience, and training for each required production, inspection, and test task. Special attention is to be paid to tasks requiring specialised knowledge and skill, e.g., NDT/NDI, welding...; (c) A working area where the working conditions and environment are controlled as appropriate in respect of: cleanliness, temperature, humidity, ventilation, lighting, space/access, protection against noise and pollution; Equipment and tools sufficient to enable all specified tasks to be accomplished in a safe and effective manner without detrimental effect on the items under production. Calibration control of equipment and tools which affect critical dimensions and values are to show compliance with, and be traceable to, recognised national or international standards.

GM 21.A.126(a)(4) Production Inspection System – Applicable design/production data procedures

	(a) When a person producing under BMAR 21 Section A Subpart F is developing its own manufacturing data from the design data package delivered by a Design holder, procedures are to demonstrate the correct transcription of the original design data. (b) Procedures are to define the manner in which applicable design data is used to issue and update the production/inspection data, which determines the conformity of products, parts, appliances and materials. The procedure is to also define the traceability of such data to each individual product, part, appliance or material for the purpose of stating the condition for safe operation and for issuing a Statement of Conformity. (c) During execution, all works are to be accompanied by documentation giving either directly or by means of appropriate references, the description of the works as well as the identification of the personnel in charge of inspection and execution tasks for each of the different work phases.

GM 21.A.126(b)(1) Production Inspection System - Inspection of parts in process

The purpose of the Production Inspection System is to check at suitable points during production and provide objective evidence that the correct specifications are used, and that processes are carried out strictly in accordance with the specification.

During the manufacturing process, each article is to be inspected in accordance with a plan which identifies the nature of all inspections required and the production stages at which they occur. The plan is to also identify any particular skills or qualification required of person(s) carrying out the inspections (e.g., NDT personnel). A copy of the plan is to be included in, or referenced by, the manual required by BMAR 21.A.125A(b).

If the parts are such that, if damaged, they could compromise the safety of the aircraft, additional inspections for such damage are to be performed at the completion of each production stage.

GM 21.A.126(b)(2) Production Inspection System – Suitable storage and protection

(a) Storage areas are to be protected from dust, dirt, or debris, and adequate blanking and packaging of stored items is to be practised.

(b) All parts are to be protected from extremes of temperatures and humidity and, where needed, temperature-controlled or full air-conditioned facilities are to be provided.

(c) Racking and handling equipment is to be provided such as to allow storage, handling and movement of parts without damage.

(d) Lighting is to be such as to allow safe and effective access and handling, but is to also cater for items which are sensitive to light e.g., rubber items.

(e) Care is to be taken to segregate and shield items which can emit fumes (e.g., wet batteries), substances or radiation (e.g., magnetic items) which are potentially damaging to other stored items.

(f) Procedures are to be in place to maintain and record stored parts identities and batch information.

(g) Access to storage areas is to be restricted to authorised personnel who are fully trained to understand and maintain the storage control arrangements and procedures.

(h) Provisions are to be made for segregated storage of non-conforming items pending their disposition (see GM BMAR 21.A.126(b)(4)).

GM 21.A.126(b)(3) Production Inspection System – Use of derived data instead of original design data

Where derived data, e.g., worksheets, process sheets, fabrication/inspection instructions, etc., is used instead of original design drawings, documents identification and control procedures are to be used to ensure that the documentation in use is always accurate and current.

GM 21.A.126(b)(4) Production Inspection System – Segregation of rejected material

All materials and parts which have been identified at any stage in the manufacturing process as not conforming to the specific working and inspection instructions are to be suitably identified by clearly marking or labelling, to indicate their non-conforming status.

All such non-conforming material or parts are to be removed from the production area and held in a restricted access segregated area until an appropriate disposition is determined in accordance with BMAR 21.A.126(b)(5).

GM 21.A.126(b)(5) Production Inspection System – Engineering and manufacturing review procedure

(a) The procedure is to permit to record the deviation, to present it to the Design holder under the provisions of BMAR 21.A.122, and to record the results of the review and actions taken consequently as regards the part/product.

(b) Any unintentional deviation from the manufacturing/inspection data is to be recorded and handled in accordance with BMAR 21 Section A Subpart D or E as changes to the approved design.

GM 21.A.126(b)(6) Production Inspection System – Recording and record keeping

(a) Records within a production environment satisfy two purposes. Firstly, they are to, during the production process, ensure that products, parts, or appliances are in conformity with the controlling data throughout the manufacturing cycle. Secondly, certain records of milestone events are needed to subsequently provide objective evidence that all prescribed stages of the production process have been satisfactorily completed and that compliance with the applicable design data has been achieved.

Therefore, the person producing under BMAR 21 Section A Subpart F is to implement a system for the compilation and retention of records during all stages of manufacture, covering short-term and long-term records appropriate to the nature of the product and its production processes.

The management of such information is to be subject to appropriate documented procedures in the Manual required by BMAR 21.A.125A(b).

All forms of recording media are acceptable (paper, film, magnetic ...) provided they can meet the required duration for archiving under the conditions provided.

(b) The related procedures are to:

i. Identify records to be kept.

ii. Describe the organisation of and responsibility for the archiving system (location, compilation, format) and conditions for access to the information (e.g., by product, subject).

iii. Control access and provide effective protection from deterioration or accidental damage.

iv. Ensure continued readability of the records.

v. Demonstrate to the Authority proper functioning of the records system.

vi. Clearly identify the persons involved in conformity determination.

vii. Define an archiving period for each type of data taking into account importance in relation to conformity determination subject to the following:

1. Data which supports conformity of a product, part, or appliance is to be kept for not less than three years from the issue date of the related Statement of Conformity or Authorised Release Certificate.

2. Data considered essential for continuing airworthiness is to be kept throughout the operational life of the product, part or appliance.

viii. Data related to supplied parts may be retained by the supplier if the supplier has a system agreed under BMAR 21 Section A Subpart F by the Authority. The manufacturer is to, in each case, define the archiving period and satisfy himself or herself and the Authority that the recording media are acceptable.

21.A.127 Tests: aircraft

(a) Each manufacturer, of an aircraft manufactured under this Subpart, shall establish an approved production ground and flight test procedure and check-off forms, and in accordance with those forms, test each aircraft produced, as a means of establishing relevant aspects of compliance with BMAR 21.A.125A(a).

(b) Each production test procedure shall include at least the following:

1. A check on handling qualities;
2. A check on flight performance (using normal aircraft instrumentation);
3. A check on the proper functioning of all aircraft equipment and systems;
4. A determination that all instruments are properly marked, and that all placards and required flight manuals are installed after flight test;
5. A check of the operational characteristics of the aircraft on the ground;
6. A check on any other items peculiar to the aircraft being tested.

GM 21.A.127 Approved production ground and flight tests

The production ground and flight tests for new aircraft will be specified by the aircraft design organisation.

21.A.128 Tests: engines and propellers

Each manufacturer of engines or propellers, manufactured under this Subpart, shall subject each engine, or variable pitch propeller, to an acceptable functional test as specified in the type-certificate holder's documentation, to determine if it operates properly throughout the range of operation for which it is type-certificated, as a means of establishing relevant aspects of compliance with BMAR 21.A.125A(a).

GM No. 1 to 21.A.128 Acceptable functional test - Engines

The functional test required for a new engine will be specified by the engine design organisation and will normally include at least the following:

(a) Break-in runs that include a determination of fuel and oil consumption and a determination of power characteristics at rated maximum continuous power or thrust and, if applicable, at rated takeoff power or thrust;

(b) A period of operation at rated maximum continuous power or thrust. For engines having a rated takeoff power or - thrust, part of that period is to be at rated takeoff power or - thrust.

The test equipment used for the test run is to be capable of output determination of accuracy sufficient to assure that the engine output delivered complies with the specified rating and operation limitations.

GM No. 2 to 21.A.128 Acceptable functional test –Variable pitch propellers

The functional tests required for a new propeller will be specified by the propeller design organisation and is to normally include a number of complete cycles of control throughout the propeller pitch and rotational speed ranges. In addition, for feathering and/or reversing propellers, several cycles of feathering operation and reversing operation from the lowest normal pitch to the maximum reverse pitch, will normally be required.

GM No. 3 to 21.A.128 Acceptable functional test - Engines and Propellers

After functional test, each engine or propeller is to be inspected to determine that the engine or propeller is in condition for safe operation. Such inspection will be specified by the design organisation and is to normally include internal inspection and examination. The degree of internal inspections will normally be determined on the basis of the positive results of previous inspections conducted on the first production engines, and on the basis of service experience.

21.A.129 Obligations of the manufacturer

Each manufacturer of a product, part or appliance being manufactured under this Subpart shall:

(a) Make each product, part or appliance available for inspection by the Authority;

(b) Maintain at the place of manufacture the technical data and drawings necessary to determine whether the product conforms to the applicable design data;

(c) Maintain the production inspection system that ensures that each product conforms to the applicable design data and is in condition for safe operation;

(d) Provide assistance to the holder of the type-certificate, restricted type-certificate or design approval in dealing with any continuing airworthiness actions that are related to the products, parts or appliances that have been produced;

(e) Establish and maintain an internal occurrence reporting system in the interest of safety, to enable the collection and assessment of occurrence reports in order to identify adverse trends or to address deficiencies, and to extract reportable occurrences. This system shall include evaluation of relevant information relating to occurrences and the promulgation of related information;

(f) Report:

1. to the holder of the type-certificate, restricted type-certificate or design approval, all cases where products, parts or appliances have been released by the manufacturer and subsequently identified to have deviations from the applicable design data, and investigate with the holder of the type-certificate, restricted type-certificate or design approval to identify those deviations which could lead to an unsafe condition;
2. to the Authority the deviations which could lead to an unsafe condition identified according to subparagraph (1). Such reports shall be made in a form and manner established by the Authority under BMAR 21.A.3A(b)(2) or accepted by the Authority;
3. where the manufacturer acts as supplier to another production organisation, also to that other organisation all cases where it has released products, parts or appliances to that organisation and subsequently identified them to have possible deviations from the applicable design data.

GM 21.A.129(a) Availability for inspection by the Authority

Each product, part or appliance is to be made available for inspection at any time at the request of the Authority.

It is recommended that a pre-defined plan of inspection points be established and agreed with the Authority to be used as a basis for such inspections.

The manufacturer is to provide such documentation, tools, personnel, access equipment etc. as necessary to enable the Authority to perform the inspections.

AMC No. 1 to 21.A.129(c) Obligations of the manufacturer – Conformity of prototype models and test specimens

BMAR 21.A.33 requires determination of conformity of prototype models and test specimens to the applicable design data. For a complete aircraft a 'conformity document', that has to be validated by the Authority, should be provided as part of the assistance to the design approval applicant. For products other than a complete aircraft, and for parts and appliances, a BMAR Form 1 validated by the Authority may be used as a conformity document as part of the assistance to the design approval applicant.

AMC No. 2 to 21.A.129(c) Obligations of the manufacturer – Conformity with Applicable Design Data

Individual configurations are often based on the needs of the customer and improvements or changes which may be introduced by the type-certificate holder. There are also likely to be unintentional divergences (concessions or non-conformances) during the manufacturing process. All these changes are required to have been approved by the design approval applicant/holder, or when necessary by the Authority.

AMC No. 3 to 21.A.129(c) Obligations of the manufacturer – Condition for safe operation

Before issue of the Statement of Conformity to the Authority the manufacturer under this Subpart should make an investigation so as to be satisfied in respect to each of the items listed below. The documented results of this investigation should be kept on file by the manufacturer. Certain of these items may be required to be provided (or made available) to the operating organisation of the aircraft, and, for validation of the statement of conformity, to the Authority.

(a) Equipment or modifications which do not meet the requirements of the state of manufacture but have been accepted by the Authority of the importing country.

(b) Identification of products, parts or appliances which:

  i. Are not new;

  ii. Are furnished by the buyer or future operating organisation (including those identified in BMAR 21.A.801 and BMAR 21.A.805).

(c) Technical records which identify the location and serial numbers of components that have traceability requirements for continued airworthiness purposes including those identified in BMAR 21.A.801 and BMAR 21.A.805.

(d) Log book and a modification record book for the aircraft as required by the Authority.

(e) Log books for products identified in BMAR 21.A.801 installed as part of the type design as required by the Authority.

(f) A weight and balance report for the completed aircraft.

(g) A record of missing items or defects which do not affect airworthiness these for example could be furnishing or GFE (Items may be recorded in a technical log or other suitable arrangement such that the operating organisation and Authority are formally aware).

(h) Product support information required by Certification Basis, such as a Maintenance Manual, a Parts Catalogue, or MMEL all of which are to reflect the actual build standard of the particular aircraft. Also an Electrical load analysis and a wiring diagram.

(i) Records which demonstrate completion of maintenance tasks appropriate to the test flight flying hours recorded by the aircraft. These records should show the relationship of the maintenance status of the particular aircraft to the manufacturers recommended maintenance task list and the Maintenance Review Board (MRB) document/report.

	(j) Details of the serviceability state of the aircraft in respect of, a) the fuel and oil contents, b) provision of operationally required emergency equipment such as life rafts, etc. (k) Details of the approved interior configuration if different from that approved as part of the type design. (l) An approved Flight Manual which conforms to the build standard and modification state of the particular aircraft should be available. (m) Show that inspections for foreign objects at all appropriate stages of manufacture have been satisfactorily performed. (n) The registration has been marked on the exterior of the aircraft as required by national legislation. (o) Where applicable, there should be a certificate for the aircraft radio station. (p) Where applicable, the installed compass and or compass systems have been adjusted and compensated and a deviation card displayed in the aircraft. (q) Software criticality list. (r) A record of rigging and control surface movement measurements. (s) Details of installations which will be removed before starting commercial air transport operations (e.g., ferry kits for fuel, radio or navigation). (t) List of all applicable Service Bulletins and airworthiness directives that have been implemented.

21.A.130 Statement of Conformity

(a) Each manufacturer of a product, part or appliance manufactured under this Subpart shall raise a Statement of Conformity, a BMAR Form 52, for complete aircraft, or BMAR Form 1, for other products, parts or appliances. This statement shall be signed by an authorised person who holds a responsible position in the manufacturing organisation.

(b) A statement of conformity shall include:

1. For each product, part or appliance a statement that the product, part or appliance conforms to the approved design data and is in condition for safe operation;
2. For each aircraft, a statement that the aircraft has been ground and flight checked in accordance with BMAR 21.A.127(a); and
3. For each engine, or variable pitch propeller, a statement that the engine or propeller has been subjected by the manufacturer to a final functional test, in accordance with BMAR 21.A.128.
4. Additionally, in the case of engines, a statement that the completed engine is in compliance with the applicable emissions requirements (where applicable) on the date of manufacture of the engine.

(c) Each manufacturer of such a product, part or appliance shall present a current statement of conformity, for validation by the Authority:

1. Upon the initial transfer by it of the ownership of such a product, part or appliance; or
2. Upon application for the original issue of an aircraft certificate of airworthiness; or
3. Upon application for the original issue of an airworthiness release document for an engine, a propeller, a part or appliance.

(d) The Authority shall validate by counter-signature the Statement of Conformity if it finds after inspection that the product, part or appliance conforms to the applicable design data and is in condition for safe operation.

AMC No. 1 to 21.A.130(b) Statement of Conformity for Complete Aircraft

Purpose and scope

The description for this AMC is contained in BMAR Form 52 and refers only to the use of the aircraft Statement of Conformity issued under BMAR 21 Section A Subpart F. Statement of Conformity under BMAR 21 Section A Subpart F for products other than complete aircraft, and for parts and appliances is described in AMC No. 2 to BMAR 21.A.130(b).

Additionally, for production under BMAR 21 Section A Subpart F, this Block should include validation by the Authority. For this purpose, the validation statement below should be included in the Block 21 itself, and not referred in a separate document. The statement can be pre-printed, computer generated or stamped, and should be followed by the signature of the representative of the Authority validating the certificate, the name and the position/identification of such representative of the Authority, and the date of such validation by the Authority.

VALIDATION STATEMENT:

“After due inspection the <*identify the issuing Authority* > is satisfied that this document constitutes an accurate and valid Statement of Conformity in accordance with BMAR 21 Section A Subpart F.”

AMC No. 2 to 21.A.130(b) Statement of Conformity for Products (other than complete aircraft), parts, appliances and materials - The Authorised Release Certificate (BMAR Form 1)

1. Introduction

This AMC relates only to the use of the BMAR Form 1 for manufacturing purposes. Attention is drawn to BMAR 21 and Appendix I to BMAR 145 which covers the use of the BMAR Form 1 for maintenance purposes.

2. Purpose and scope

Under BMAR 21 Section A Subpart F, the primary purpose of the certificate is to release products (other than complete aircraft), parts, appliances (hereafter referred to as 'item(s)') and/or material as identified in Blocks 7 through 10 as applicable after manufacture, or to release maintenance work carried out on items under the approval of the Authority.

The BMAR Form 1 is prepared and signed by the manufacturer. For production under BMAR 21 Section A Subpart F it is presented for validation by the Authority.

The Certificate referenced BMAR Form 1 is called the Authorised Release Certificate.

The Certificate is to be used for import purposes, as well as for domestic and intra-Community purposes, and serves as an official certificate for the delivery of items from the manufacturer to users. The Certificate is not a delivery or shipping note.

Under BMAR 21 Section A Subpart F the Certificate may only be issued by the Authority.

Aircraft are not to be released using the Certificate.

A mixture of 'New' and 'Used' items is not permitted on the same Certificate.

A mixture of items certified in conformity with 'approved data' and to 'non-approved data' is not permitted on the same Certificate, and consequently only one box in Block 13a can be ticked.

A mixture of items released under BMAR 21 Section A Subpart G and under BMAR Section A Subpart F is not permitted on the same Certificate.

3. General

By reference to BMAR 21, the Certificate should 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. The overall size of the Certificate may be significantly increased or decreased so long as the Certificate remains recognisable and legible. If in doubt consult the Authority.

Please note that the User responsibility statements are normally placed on the reverse of this Certificate, but they may be added to the front of the Certificate by reducing the depth of the Form.

All printing should be clear and legible to permit easy reading.

The Certificate may either be pre-printed or computer generated but in either case the printing of lines and characters should be clear and legible. Pre-printed wording is permitted in accordance with the attached model but no other certification statements are permitted.

English and, where required, Dutch or French are acceptable.

The details to be entered on the Certificate may be either machine/computer printed or hand-written using block letters, and should permit easy reading. Abbreviations should be restricted to a minimum. The space remaining on the reverse side of the Certificate may be used by the originator for any additional information but is not to include any certification statement.

The original Certificate should accompany the items and correlation should be established between the Certificate and the item(s). A copy of the Certificate should be retained by the manufacturer of the item and the Authority. Where the Certificate format and the data is entirely computer generated,

subject to acceptance by the Authority, it is permissible to retain the Certificate format and data on a secure database.

There is no restriction in the number of copies of the Certificate sent to the customer or retained by the originator.

The Certificate that accompanies the item may be attached to the item by being placed in an envelope for durability.

4. Completion of the release certificate by the originator

By reference to BMAR 21, except as otherwise stated, there should be an entry in all Blocks to make the document a valid certificate.

AMC 21.A.130(c) Validation of the Statement of Conformity

It is the responsibility of the applicant to ensure that each and every product, part and appliance conforms to the applicable design data and is in condition for safe operation before issuing and signing the relevant Statement of Conformity. During manufacture, the applicant is expected to use such facilities, systems, processes and procedures as described in the Manual and have been previously agreed with the Authority.

The Authority should then make such inspection and investigation of records and product, part or appliance as are necessary to determine that the agreed facilities, systems, processes and procedures have been used, and that the Statement of Conformity may be regarded as a valid document.

To enable timely inspection and investigation by the Authority, the Statement of Conformity should be prepared and submitted to the Authority immediately upon satisfactory completion of final production inspection and text.

AMC 21.A.130(c)(1) Initial transfer of ownership

Upon transfer of ownership:

(a) For a complete aircraft, whether or not an application for a Certificate of Airworthiness is to be made, a BMAR Form 52 should be completed and submitted to the Authority for validation.

(b) For anything other than a complete aircraft, a BMAR Form 52 is inappropriate, and a BMAR Form 1 should be completed and submitted to the Authority for validation.

NOTE: If there is significant delay between the last production task and presentation of BMAR Form 52 or BMAR Form 1 to the Authority, then additional evidence relating to the storage, preservation and maintenance of the item since its production should be presented to the Authority

Subpart G – Military Production Organisation Approval

21.A.131 Scope

This Subpart establishes:

(a) The procedure for the issuance of a military production organisation approval (MPOA), for a production organisation showing conformity of products, parts and appliances with the applicable design data;

(b) The rules governing obligations and privileges of the applicant for, and holders of, such approvals.

GM 21.A.131 Scope – Applicable design data

Applicable design data is defined as all necessary drawings, specifications and other technical information provided by the applicant for, or holder of a design organisation approval, MTC, MSTC, approval of repair or minor change design, or MTSO authorisation (or equivalent when BMAR 21 Section A Subpart G is used for production of products, parts or appliances, the design of which has been approved other than according to BMAR 21) and released in a controlled manner to a production organisation approval holder. This is to be sufficient for the development of production data to enable repeatable manufacture to take place in conformity with the design data.

Prior to issue of the MTC, MSTC, approval of repair or minor change design or MTSO authorisation, or equivalent, design data is defined as 'not approved' but parts and appliances may be released with a BMAR Form 1 as a certificate of conformity.

After issue of the MTC, MSTC, approval of repair or minor change or MTSO authorisation, or equivalent, this design data is defined as 'approved' and items manufactured in conformity are eligible for release on a BMAR Form 1 for airworthiness purposes.

21.A.133 Eligibility

Any organisation shall be eligible as an applicant for an approval under this Subpart. The applicant shall:

(a) Justify that, for a defined scope of work, an approval under this Subpart is appropriate for the purpose of showing conformity with a specific design; and

(b) Hold or have applied for an approval of that specific design; or

(c) Have ensured, through an appropriate arrangement with the applicant for, or holder of, an approval of that specific design, satisfactory coordination between production and design.

GM 21.A.133(a) Eligibility – Approval appropriate for showing conformity

'Appropriate' is to be understood as follows:

(a) The applicant produces or intends to produce aeronautical products, parts and/or appliances intended for airborne use as part of a type-certificated product (this excludes simulators, ground equipment and tools).

(b) The applicant will be required to show a need for an approval, normally based on one or more of the following criteria:

  i. Production of aircraft, engines or propellers (except if the Authority considers a MPOA inappropriate);

  ii. Production of MTSO articles and parts marked EMPA;

iii. Direct delivery to users such as operating organisations maintenance organisations with the need for exercising the privileges of issuing Authorised Release Certificates – BMAR Form 1;

iv. Participation in an international co-operation program where working under an approval is considered necessary by the Authority;

v. Criticality and technology involved in the part or appliance being manufactured. Approval in this case may be found by the Authority as the best tool to exercise its duty in relation to airworthiness control;

vi. Where an approval is otherwise determined by the Authority.

(c) It is not the intent of the Authority to issue approvals to manufacturing firms that perform only sub-contract work for main manufacturers of products and are consequently placed under their direct surveillance.

(d) Where standard parts, materials, processes or services are included in the applicable design data (see guidance on applicable design data in GM BMAR 21.A.131) their standards are to be controlled by the MPOA holder in a manner which is satisfactory for the final use of the item on the product, part or appliance. Accordingly, the manufacturer or provider of the following will not at present be considered for production organisation approval:

i. consumable materials;

ii. raw materials;

iii. standard parts;

iv. parts identified in the product support documentation as ‘industry supply’ or ‘no hazard’;

v. non-destructive testing or inspection;

vi. processes (heat treatment, surface finishing, shot peening, etc.).

AMC No. 1 to 21.A.133(b) and (c) Eligibility – Link between design and production organisations

An arrangement is considered appropriate if it is documented and satisfies the Authority that co-ordination is satisfactory.

To achieve satisfactory coordination the documented arrangements should at least define the following aspects irrespective of whether the two organisations are separate legal entities or not:

(a) The responsibilities of a design organisation which assure correct and timely transfer of up-to-date airworthiness data (e.g., drawings, material specifications, dimensional data, processes, surface treatments, shipping conditions, quality requirements, etc.);

(b) The responsibilities and procedures of a MPOA holder/applicant for developing, where applicable, its own manufacturing data in compliance with the airworthiness data package;

(c) The responsibilities of a MPOA holder/applicant to assist the design organisation in dealing with continuing airworthiness matters and for required actions (e.g., traceability of parts in case of direct delivery to users, retrofitting of modifications, traceability of processes’ outputs and approved deviations for individual parts as applicable, technical information and assistance, etc.);

(d) The scope of the arrangements should cover BMAR 21 Section A Subpart G requirements and associated AMC and GM, in particular: BMAR 21.A.145(b), BMAR 21.A.165(c), (f) and (g);

(e) The responsibilities of a MPOA holder/applicant, in case of products prior to type-certification to assist a design organisation in showing compliance with airworthiness requirements (access

and suitability of production and test facilities for manufacturing and testing of prototype models and test specimen);

(f) The procedures to deal adequately with production deviations and non-conforming parts;

(g) The procedures and associated responsibilities to achieve adequate configuration control of manufactured parts, to enable the production organisation to make the final determination and identification for conformity or airworthiness release and eligibility status;

(h) The identification of the responsible persons/offices who control the above;

(i) The acknowledgment by the holder of the MTC/MSTC/repair or change approval/any other authorisation that the approved design data provided, controlled and modified in accordance with the arrangement are recognised as approved.

In many cases the production organisation may receive the approved design data through an intermediate production organisation. This is acceptable provided an effective link between the design approval holder and the production organisation can be maintained to satisfy the intent of BMAR 21.A.133.

When the design and production organisations are two separate legal entities a Direct Delivery Authorisation should be available for direct delivery to end users in order to guarantee continued airworthiness control of the released parts and appliances.

Where there is no general agreement for Direct Delivery Authorisation, specific permissions may be granted (refer to AMC BMAR 21.A.4).

AMC No. 2 to 21.A.133(b) and (c) Eligibility – Link between design and production organisations

In accordance with AMC No.1 to BMAR 21.A.133(b) and (c) the MPOA holder should demonstrate to the Authority that it has entered into an arrangement with the design organisation. The arrangement should be documented irrespective of whether the two organisations are separate legal entities or not.

The documented arrangement should facilitate the MPOA holder to demonstrate compliance with the requirement of BMAR 21.A.133(b) and (c) by means of written documents agreed.

In the case where the design organisation and MPOA holder are part of the same legal entity these interfaces may be demonstrated by company procedures accepted by the Authority.

In all other cases to define such a design/production interface the following sample format is offered:

Arrangement in accordance with BMAR 21.A.133(b) and (c)	
The undersigned agree on the following commitments:	relevant interface procedures
The design organisation [NAME] takes responsibility to □ assure correct and timely transfer of up-to-date applicable design data (e.g., drawings, material specifications, dimensional data, processes, surface treatments, shipping conditions, quality requirements, etc.) to the production organisation approval holder [NAME] □ provide visible statement(s) of approved design data	
The production organisation approval holder [NAME] takes responsibility to □ assist the design organisation [Name] in dealing with continuing airworthiness matter and for required actions □ assist the design organisation [Name] in case of products prior to type-certification in showing compliance with airworthiness requirements □ develop, where applicable, its own manufacturing data in compliance with the airworthiness data package	
The design organisation [Name] and the MPOA holder [Name] take joint responsibility to □ deal adequately with production deviations and non-conforming parts in accordance with the applicable procedures of the design organisation and the production organisation approval holder □ achieve adequate configuration control of manufactured parts, to enable the MPOA holder to make the final determination and identification for conformity.	
The scope of production covered by this arrangement is detailed in ... [DOCUMENT REFERENCE/ ATTACHED LIST]	
[When the design organisation is not the same legal entity as the production organisation approval holder]	

Transfer of approved design data

The MTC/MSTC/MTSO holder [NAME] acknowledges that the approved design data provided, controlled and modified in accordance with the arrangement are recognised as approved by the Authority and therefore the parts and appliances manufactured in accordance with these data and found in a condition for safe operation may be released certifying that the item was manufactured in conformity to approved design data and is in a condition for safe operation.

[When the design organisation is not the same legal entity as the production organisation approval holder]

Direct Delivery Authorisation

This acknowledgment includes also [OR does not include] the general agreement for direct delivery to end users in order to guarantee continued airworthiness control of the released parts and appliances.

for the [NAME of the design organisation/MDOA holder]	for the [NAME of the MPOA holder]
date signature xx.xx.xxxx ([NAME in block letters])	date signature xx.xx.xxxx ([NAME in block letters])

Instructions for completion:

Title: The title of the relevant document should clearly indicate that it serves the purpose of a design/production interface arrangement in accordance with BMAR 21.A.133(b) and (c).

Commitment: The document should include the basic commitments between the design organisation and the MPOA holder as addressed in AMC BMAR 21.A.4 and AMC No. 1 to BMAR 21.A.133(b) and (c).

Relevant Procedures: Identify an entry point into the documentary system of the organisations with respect to the implementation of the arrangement (for example a contract, quality plan, handbooks, common applicable procedures, working plans etc.).

Scope of arrangement: The scope of arrangement should state by means of a list or reference to relevant documents those products, parts or appliances that are covered by the arrangement.

Transfer of applicable design data: Identify the relevant procedures for the transfer of the applicable design data required by BMAR 21.A.131 and AMC BMAR 21.A.131 from the design organisation to the MPOA holder. The means by which the design organisation advises the MPOA holder whether such data is approved or not approved is also to be identified (ref. BMAR 21.A.4/AMC BMAR 21.A.4).

Direct Delivery Authorisation: Where the design organisation and the MPOA holder are separate legal entities the arrangement should clearly identify whether authorisation for direct delivery to end users is permitted or not.

Where any intermediate production/design organisations are involved in the chain between the original design organisation and the MPOA holder evidence should be available that this intermediate organisation has received authority from the design organisation to grant Direct Delivery Authorisation.

Signature: AMC No. 1 to BMAR 21.A.133(b) and (c) requests the identification of the responsible persons/offices who control the commitments laid down in the arrangement. Therefore the basic document should be signed mutually by the authorised representatives of the design organisation and the MPOA holder in this regard.

21.A.134 Application

Each application for a military production organisation approval shall be made to the Authority in a form and manner established by that Authority, and shall include an outline of the information required by BMAR 21.A.143 and the terms of approval requested to be issued under BMAR 21.A.151.

GM 21.A.134 Application – Application form and manner

BMAR Form 50 is to be obtained from the Authority, and completed by the Accountable Manager of the organisation.

The completed form, an outline of the military production organisation exposition, and details of the proposed terms of approval are to be forwarded to the Authority.

Organizations recognized by competent civil aviation authorities or certified as per AS/EN 9100 or the equivalent AQAP, may re-use part or all of the same process evidences in the demonstration of compliance with BMAR 21 Section A Subpart G, as agreed by the Authority.

21.A.135 Issue of military production organisation approval

An organisation shall be entitled to have a military production organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart.

GM 21 A.135 Issue of Military Production Organisation Approval

(a) Where a production organisation has an extant EASA Part 21 production organisation approval, and when the military production activity is within the scope of the EASA term of approval, the organisation may be accepted by the Authority to satisfy the BMAR 21 requirements for that scope of work with any further investigation limited only to the delta between the two approvals. The Authority is to be kept informed by the production organisation of significant changes to the organisation and of any EASA findings that may impact the military production activity.

(b) Where a production organisation has an extant EASA Part 21 production organisation approval, and when the scope of the EASA term of approval does not entirely cover the military production activity, those parts of the organisation's EASA Part 21 exposition that are equally applicable to satisfy the BMAR 21 may be accepted by the Authority as equivalent in respect of the BMAR 21 requirements. It is permissible that only those parts of the organisation that are specific to the military activity or requirements are addressed in the BMAR 21 exposition. Those requirements covered by read-across of the sections of the EASA exposition document are to be identified and the EASA document clause reference quoted.

(c) The civil airworthiness release certificates signed under the civil POA authority can be recognised and accepted. Authorised signatures may be accepted by the BMAA for the common civil-military parts manufactured and delivered to a military organisation. Appropriate procedures are to be established to demonstrate that validation of the military applicability of

civil parts installed is performed. Suitable consideration must be given to the impact on continued airworthiness especially with regard to the implementation of applicable civil and military Airworthiness Directives.

21.A.139 Quality System

(a) The production organisation shall demonstrate that it has established and is able to maintain a quality system. The quality system shall be documented. This quality system shall be such as to enable the organisation to ensure that each product, part or appliance produced by the organisation or by its partners, or supplied from or subcontracted to outside parties, conforms to the applicable design data and is in condition for safe operation, and thus exercise the privileges set forth in BMAR 21.A.163.

(b) The quality system shall contain:

1. As applicable within the scope of approval, control procedures for:
   - i. Document issue, approval, or change;
   - ii. Vendor and subcontractor assessment audit and control;
   - iii. Verification that incoming products, parts, materials, and equipment, including items supplied new or used by buyers of products, are as specified in the applicable design data;
   - iv. Identification and traceability;
   - v. Manufacturing processes;
   - vi. Inspection and testing, including production flight tests;
   - vii. Calibration of tools, jigs, and test equipment;
   - viii. Non-conforming item control;
   - ix. Airworthiness coordination with the applicant for, or holder of, the design approval;
   - x. Records completion and retention;
   - xi. Personnel competence and qualification;
   - xii. Issue of airworthiness release documents;
   - xiii. Handling, storage and packing;
   - xiv. Internal quality audits and resulting corrective actions;
   - xv. Work within the terms of approval performed at any location other than the approved facilities;
   - xvi. Work carried out after completion of production but prior to delivery, to maintain the aircraft in a condition for safe operation;
   - xvii. Issue of military permit to fly and approval of associated flight conditions.

The control procedures shall include specific provisions for any critical parts.

2. An independent quality assurance function to monitor compliance with, and adequacy of, the documented procedures of the quality system. This monitoring shall include a feedback system to the person or group of persons referred to in BMAR 21A.145(c)(2) and ultimately to the manager referred to in 21A.145(c)(1) to ensure, as necessary, corrective action.

GM No. 1 to 21.A.139(a) Quality System

The quality system is an organisational structure with responsibilities, procedures, processes, and resources which implement a management function to determine and enforce quality principles.

The quality system is to be documented in such a way that the documentation can be made easily available to personnel who need to use the material for performing their normal duties, in particular:

(a) procedures, instructions, data to cover the issues of BMAR 21.A.139(b)(1) are available in a written form,

(b) distribution of relevant procedures to offices/persons is made in a controlled manner,

(c) procedures which identify persons responsible for the prescribed actions are established,

(d) the updating process is clearly described.

The manager responsible for ensuring that the quality system is implemented and maintained is to be identified.

The Authority will verify on the basis of the exposition and by appropriate investigations that the production organisation has established and can maintain their documented quality system.

GM No. 2 to 21.A.139(a) Quality System – Conformity of supplied parts or appliances

The MPOA holder is responsible for determining and applying acceptance standards for physical condition, configuration status and conformity of supplied products, parts or appliances, whether to be used in production or delivered to customers as spare parts. This responsibility also includes GFE.

To discharge this responsibility the quality system needs an organisational structure and procedures to adequately control suppliers. Elements of the quality system for the control of suppliers may be performed by other parties provided that the conditions of AMC No. 1 or No. 2 to BMAR 21.A.139(b)(1)(ii) are met.

Control can be based upon use of the following techniques (as appropriate to the system or product orientation necessary to ensure conformity):

(a) qualification and auditing of supplier's quality system,

(b) evaluation of supplier capability in performing all manufacturing activities, inspections and tests necessary to establish conformity of parts or appliances to type design,

(c) first article inspection, including destruction if necessary, to verify that the article conforms to the applicable data for new production line or new supplier,

(d) incoming inspections and tests of supplied parts or appliances that can be satisfactorily inspected on receipt,

(e) identification of incoming documentation and data relevant to the showing of conformity to be included in the certification documents,

(f) a vendor rating system which gives confidence in the performance and reliability of this supplier,

(g) any additional work, tests or inspection which may be needed for parts or appliances which are to be delivered as spare parts and which are not subjected to the checks normally provided by subsequent production or inspection stages.

The MPOA holder may rely on inspection/tests performed by supplier if it can establish that:

(a) personnel responsible in charge of these tasks satisfy the competency standards of the MPOA quality system,

(b) quality measurements are clearly identified,

(c) the records or reports showing evidence of conformity are available for review and audit.

The control of suppliers holding a MPOA for the parts or appliances to be supplied can be reduced, to a level at which a satisfactory interface between the two quality systems can be demonstrated. Thus, for the purpose of showing conformity, a MPOA holder can rely upon documentation for parts or appliances released under a supplier's BMAR 21.A.163 privileges.

A supplier who does not hold a MPOA is considered as a sub-contractor under the direct control of the MPOA quality system.

The MPOA holder retains direct responsibility for inspections/tests carried out either at its own facilities or at supplier's facilities.

GM 21.A.139(b)(1) Quality System – Elements of the quality system

(a) The control procedures covering the elements of BMAR 21.A.139(b)(1) are to document the standards to which the production organisation intends to work.

(b) An organisation having a Quality system designed to meet a recognised Standard such as AS/EN 9100 (relevant to the scope of approval being requested) is to expand it to include at least the following additional topics, as appropriate, in order to show compliance with the requirements of BMAR 21 Section A Subpart G:

i. Mandatory Occurrence Reporting and continued airworthiness as required by BMAR 21.A.165(e);

ii. Control of work occasionally performed (outside the MPOA facility by MPOA personnel);

iii. Co-ordination with the applicant for, or holder of, an approved design as required by BMAR 21.A.133(b) and (c) and BMAR 21.A.165(g);

iv. Issue of certifications within the scope of approval for the privileges of BMAR 21.A.163;

v. Incorporation of airworthiness data in production and inspection data as required in BMAR 21.A.133(b) and (c) and BMAR 21.A.145(b);

vi. When applicable, ground test and/or production flight test of products in accordance with procedures defined by the applicant for, or holder of, the design approval;

vii. Procedures for traceability including a definition of clear criteria of which items need such traceability. Traceability is defined as a means of establishing the origin of an article by reference to historical records for the purpose of providing evidence of conformity;

viii. Personnel training and qualification procedures especially for certifying staff as required in BMAR 21.A.145(d).

(c) An organisation having a quality system designed to meet a recognised aerospace quality standard will still need to ensure compliance with all the requirements of BMAR Section A Subpart G. In all cases, the Authority will still need to be satisfied that compliance with BMAR 21 Section A Subpart G is established.

GM No. 1 to 21.A.139(b)(2) Quality System – Independent quality assurance function

The quality assurance function which is part of the organisation is required to be independent from the functions being monitored. This required independence relates to the lines of reporting, authority and access within the organisation and assumes an ability to work without technical reliance on the monitored functions.

GM No. 2 to 21.A.139(b)(2) Quality System – Adequacy of procedures and monitoring function

Adequacy of procedures means that the quality system, through the use of the procedures as set forth, is capable of meeting the conformity objectives identified in BMAR 21.A.139(a).

The quality assurance function to ensure the above is to perform planned continuing and systematic evaluations or audits of factors that affect the conformity (and, where required, safe operation) of the products, parts or appliances to the applicable design. This evaluation is to include all elements of the quality system in order to show compliance with BMAR 21 Section A Subpart G.

AMC No. 1 to 21.A.139(b)(1)(ii) Vendor and sub-contractor assessment, audit and control – Military Production Organisation Approval (MPOA) holder using documented arrangements with other parties for assessment and surveillance of a supplier

1. General

Note

For the purpose of this AMC, vendors and sub-contractors are hereafter referred to as "suppliers", regardless of whether or not they hold a MPOA and audit and control is hereafter referred to as "surveillance".

The production organisation is required by BMAR 21 to demonstrate that it has established and maintains a quality system that enables the organisation to ensure that each item produced conforms to the applicable design data and is in a condition for safe operation. To discharge this responsibility, the quality system should have, among other requirements, procedures to adequately carry out the assessment and surveillance of suppliers.

The use of Other Parties (OP), such as a consulting firm or quality assurance company, for supplier assessment and surveillance does not exempt the MPOA holder from its obligations under BMAR 21.A.165. The supplier assessment and surveillance, corrective action and follow-up activity conducted at any of its supplier’s facilities may be performed by OP.

The purpose of using an OP cannot be to replace the assessment, audit and control of the MPOA Holder. It is to allow an element (i.e. the assessment of the quality system) to be delegated to another organisation under controlled conditions.

The use of OP to perform supplier assessments and surveillance should be part of the production organisation quality system and fulfil the conditions of this AMC.

This AMC is applicable to a method whereby a MPOA holder has a documented arrangement with OP for the purpose of assessing and/or surveying a MPOA's supplier.

2. Approval by the Authority

Implementing or changing procedures for using OP for supplier assessment and surveillance is a significant change to the quality system and requires approval in accordance with BMAR 21.A.147.

3. Conditions and criteria for the use of OP to perform supplier assessment and surveillance

(a) The MPOA holder should include the use of OP for supplier assessment and surveillance in the MPOA holders’ quality system to demonstrate compliance with the applicable requirements of BMAR 21.

(b) Procedures required for using OP for supplier assessment and surveillance should be consistent with other procedures of the MPOA holders’ quality system.

(c) Procedures of the MPOA holder that uses OP to perform supplier assessment and surveillance should include the following:

1. Identification of the OP that will conduct supplier assessment and surveillance.

2. A listing of suppliers under surveillance by the OP. This listing should be maintained by the MPOA holder and made available to the Authority upon request.

3. The method used by the MPOA holder to evaluate and monitor the OP. The method should include the following as a minimum:

   i. Verification that standards and checklists used by the OP are acceptable for the applicable scope.

   ii. Verification that the OP is appropriately qualified and have sufficient knowledge, experience and training to perform their allocated tasks.

   iii. Verification that the OP surveillance frequency of the suppliers is commensurate with the complexity of the product and with the surveillance frequency established by the MPOA holder's suppliers control programme.

   iv. Verification that the suppliers' assessment and surveillance is conducted on-site by the OP.

   v. Verification that the OP has access to applicable proprietary data to the level of detail necessary to survey suppliers functions.

Where the MPOA holder uses an OP accredited and working in accordance with an aviation standard (e.g. AS/EN 9104 series of requirements) that describes requirements for the other party assessment and surveillance, the items ii. and iv. above should be deemed to be complied with.

4. A definition to what scope the OP will conduct suppliers surveillance on behalf of the MPOA holder. If the OP replaces surveillance in part, the MPOA holder should identify the functions that will continue to be surveyed by the MPOA holder.

5. The procedures used by the OP to notify the MPOA holder of nonconformities discovered at the suppliers facility, corrective action and follow-up.

(d) The MPOA should make arrangements that allow the Authority to make investigation in accordance with BMAR 21.A.157 to include OP activities.

AMC No. 2 to 21.A.139(b)(1)(ii) Vendor and sub-contractor assessment, audit and control - Military Production Organisation Approval (MPOA) holder using other party supplier certification

1. General

Note

For the purpose of this AMC, vendors and sub-contractors are hereafter referred to as "suppliers", regardless of whether or not they hold a MPOA and audit and control is hereafter referred to as "surveillance".

Other party supplier certification is a method whereby a supplier contracts with an appropriately recognised or accredited Other Party (OP) for the purpose of obtaining a certification from that OP. Certification indicates that the supplier has satisfactorily demonstrated to meet the applicable standard on a continuing basis. OP certification results in placing the supplier on the OP list of certified organisations, or in the supplier receiving a certificate identifying the requirements that have been met. Periodic follow-up evaluations are conducted by the OP to verify continued compliance with the requirements of the applicable standard.

The production organisation is required by BMAR 21 to demonstrate that it has established and maintains a quality system that enables the organisation to ensure that each item produced conforms to the applicable design data and is in a condition for safe operation. To discharge this responsibility, the quality system should have, among other requirements, procedures to adequately carry out the assessment and surveillance of suppliers.

The assessment and surveillance of suppliers by an OP should be deemed to satisfy the requirements of BMAR 21.A.139(b)(1)(ii) when the conditions of this AMC are satisfied. The assessment and surveillance of suppliers by OP as part of supplier certification does not exempt the MPOA holder from its obligations under BMAR 21.A.165. The supplier assessment and surveillance, corrective action and follow-up activity conducted at any of its supplier's facilities may be performed by OP.

The purpose of using an OP cannot be to replace the assessment, audit and control of the MPOA Holder. It is to allow an element (i.e. the assessment of the quality system) to be delegated to another organisation under controlled conditions.

The use of suppliers that are certified by OP in accordance with this AMC should be part of a production organisation quality system.

2. Approval by the Authority

Implementing or changing procedures for using suppliers that are certified by an OP is a significant change to the quality system and requires approval in accordance with BMAR 21.A.147.

3. Conditions and criteria for using supplier certification for the supplier assessment and surveillance

(a) The MPOA holder should include the use of supplier certification for the supplier assessment and surveillance in the MPOA holder's quality system to demonstrate compliance with the applicable requirements of BMAR 21.

(b) Procedures required for use of supplier certification for the supplier assessment and surveillance should be consistent with other procedures of the MPOA holders' quality system.

(c) Procedures of the MPOA holder that uses supplier certification for the supplier assessment and surveillance should include the following:

1. Listing of the OP that has certified or will certify suppliers and will conduct supplier assessment and surveillance or the scheme under which the accreditation of the OP is controlled. This listing should be maintained by the MPOA holder and made available to the Authority upon request.
2. A listing of the certified suppliers under surveillance by the OP and used by the MPOA holder. This listing should be maintained by the MPOA holder and made available to the Authority upon request.
3. The method used by the MPOA holder to evaluate and monitor the certification process of any OP certification body or OP certification scheme used. This applies not only to new suppliers, but also to any decision by the MPOA holder to rely on OP certification of current suppliers. The method should include the following as a minimum:
    i. Verification that certification standards and checklists are acceptable and applied to the applicable scope.
    ii. Verification that the OP is appropriately qualified and has sufficient knowledge, experience and training to perform its allocated tasks.
    iii. Verification that the OP surveillance frequency of the suppliers is commensurate with the complexity of the product and with the surveillance frequency established by the MPOA holder's suppliers control programme.
    iv. Verification that the suppliers' surveillance is conducted on-site by the OP.
    v. Verification that the surveillance report will be made available to the Authority upon request.
    vi. Verification that the OP continues to be recognised or accredited.

vii. Verification that the OP has access to applicable proprietary data to the level of detail necessary to survey suppliers functions.

Where the MPOA holder uses an OP accredited and working in accordance with an aviation standard (e.g. AS/EN 9104 series of requirements) that describes requirements for the OP certification, the items ii., iv. and v. above should be deemed to be complied with.

4. A definition to what scope the OP will conduct suppliers surveillance on behalf of the MPOA holder. If the OP replaces surveillance in part, the MPOA holder should identify the functions that will continue to be surveyed by the MPOA holder.
5. Procedures that ensure that the MPOA is aware of the loss of an existing certification.
6. Procedures that ensure that the MPOA holder is aware of nonconformities and has access to detailed information of these nonconformities.
7. Procedures to evaluate the consequences of nonconformities and take appropriate actions.

(d) The MPOA should make arrangements that allow the Authority to make investigation in accordance with BMAR 21.A.157 to include OP activities.

21.A.143 Military Production Organisation Exposition (MPOE)

(a) The organisation shall submit to the Authority a MPOE providing the following information:

1. A statement signed by the accountable manager confirming that the MPOE and any associated manuals which define the approved organisation's compliance with this Subpart will be complied with at all times;
2. The title(s) and names of managers accepted by the Authority in accordance with BMAR 21.A.145(c)(2);
3. The duties and responsibilities of the manager(s) as required by BMAR 21.A.145(c)(2) including matters on which they may deal directly with the Authority on behalf of the organisation;
4. An organisational chart showing associated chains of responsibility of the managers as required by BMAR 21.A.145(c)(1) and (2);
5. A list of certifying staff as referred to in BMAR 21.A.145(d);
6. A general description of man-power resources;
7. A general description of the facilities located at each address specified in the production organisation's certificate of approval;
8. A general description of the production organisation's scope of work relevant to the terms of approval;
9. The procedure for the notification of organisational changes to the Authority;
10. The amendment procedure for the MPOE;
11. A description of the quality system and the procedures as required by BMAR 21.A.139(b)(1);
12. A list of those outside parties referred to in BMAR 21.A.139(a).

(b) The MPOE shall be amended as necessary to remain an up-to-date description of the organisation, and copies of any amendments shall be supplied to the Authority.

GM 21.A.143 Exposition – Military Production Organisation Exposition

The purpose of the MPOE is to set forth in a concise document format the organisational relationships, responsibilities, terms of reference, and associated authority, procedures, means and methods of the organisation.

The information to be provided is specified in BMAR 21.A.143(a). Where this information is documented and integrated in manuals, procedures and instruction, the MPOE is to provide a summary of the information and an appropriate cross reference.

The Authority requires the MPOE to be an accurate definition and description of the production organisation. The document does not require approval in itself, but it will be considered as such by virtue of the approval of the organisation.

When changes to the organisation occur, the MPOE is required to be kept up to date per a procedure, laid down in the MPOE. Significant changes to the organisation (as defined in GM BMAR 21.A.147(a)) is to be approved by the Authority prior to update of the MPOE.

When an organisation is approved against any other implementing rule containing a requirement for an exposition, a supplement covering the differences may suffice to meet the requirements of BMAR 21 Section A Subpart G except that the supplement is to have an index identifying where those parts missing from the supplement are covered. Those items then formally become part of the MPOE. In any combined documents the MPOE is to be easily identifiable.

21.A.145 Approval requirements

The production organisation shall demonstrate, on the basis of the information submitted in accordance with BMAR 21.A.143 that:

(a) With regard to general approval requirements, facilities, working conditions, equipment and tools, processes and associated materials, number and competence of staff, and general organisation are adequate to discharge obligations under BMAR 21.A.165.

(b) With regard to all necessary airworthiness data:

1. The production organisation is in receipt of such data from the Authority, and from the holder of, or applicant for, the type-certificate, restricted type-certificate or design approval, to determine conformity with the applicable design data;
2. The production organisation has established a procedure to ensure that airworthiness data are correctly incorporated in its production data; and
3. Such data are kept up to date and made available to all personnel who need access to such data to perform their duties.

(c) With regard to management and staff:

1. A manager has been nominated by the production organisation, and is accountable to the Authority. His or her responsibilities within the organisation shall consist of ensuring that all production is performed to the required standards and that the production organisation is continuously in compliance with the data and procedures identified in the exposition referred to in BMAR 21.A.143;
2. A person or group of persons have been nominated by the production organisation to ensure that the organisation is in compliance with the requirements of this BMAR, and are identified, together with the extent of their authority. Such person(s) shall act under the direct authority of the accountable manager referred to in subparagraph (1). The person(s) nominated shall be able to show the appropriate knowledge, background and experience to discharge their responsibilities; and

3. Staff at all levels have been given appropriate authority to be able to discharge their allocated responsibilities and that there is full and effective coordination within the production organisation in respect of airworthiness matters.

(d) With regard to certifying staff, authorised by the production organisation to sign the documents issued under BMAR 21.A.163 under the scope or terms of approval:

1. The knowledge, background (including other functions in the organisation), and experience of the certifying staff are appropriate to discharge their allocated responsibilities;

2. The production organisation maintains a record of all certifying staff which shall include details of the scope of their authorisation;

3. Certifying staff are provided with evidence of the scope of their authorisation.

GM 21.A.145(a) Approval Requirements

A facility is a working area where the working conditions and the environment are controlled as appropriate in respect of: cleanliness, temperature, humidity, ventilation, lighting, space/access, noise, air pollution.

Equipment and tools are to be such as to enable all specified tasks to be accomplished in a repeatable manner without detrimental effect. Calibration control of equipment and tools which affect critical dimensions and values are to show compliance with, and be traceable to, national or international standards.

Sufficient personnel means that the organisation has for each function according to the nature of the work and the production rate, a sufficient quantity of qualified personnel to accomplish all specified manufacturing tasks and to attest the conformity. Their number is to be such that airworthiness consideration may be applied in all areas without undue pressure.

An evaluation of the competence of personnel is performed as part of the quality system. This is to include, where appropriate, verification that specific qualification standards have been implemented, for example NDT, welding, etc. Training is to be organised to establish and maintain the personal competence levels determined by the organisation to be necessary.

GM 21.A.145(b)(2) Approval Requirements – Airworthiness, noise, fuel venting and exhaust emissions (where applicable) /production data procedures

(a) When a MPOA holder/applicant is developing its own manufacturing data, such as computer based data, from the design data package delivered by a design organisation, procedures are required to demonstrate the right transcription of the original design data.

(b) Procedures are required to define the manner in which airworthiness, and where applicable noise, fuel venting and exhaust emissions data is used to issue and update the production/quality data, which determines the conformity of products, parts and appliances. The procedure is to also define the traceability of such data to each individual product, part or appliance for the purpose of certifying condition for safe operation and issuing a Statement of Conformity or BMAR Form 1.

GM 21.A.145(c)(1) Approval Requirements – Accountable Manager

Accountable Manager means the manager who is responsible, and has corporate authority for ensuring that all production work is carried out to the required standard. This function may be carried out by the Chief Executive or by another person in the organisation, nominated by him or her to fulfil the function provided his or her position and authority in the organisation permits to discharge the attached responsibilities.

The manager is responsible for ensuring that all necessary resources are available and properly used in order to produce under the production approval in accordance with BMAR 21 Section A Subpart G.

The manager needs to have sufficient knowledge and authority to enable him or her to respond to the Authority regarding major issues of the production approval and implement necessary improvements.

The manager needs to be able to demonstrate that he or she is fully aware of and supports the quality policy and maintains adequate links with the quality manager.

GM 21.A.145(c)(2) Approval Requirements – Responsible managers

The person or persons nominated is to represent the management structure of the organisation and be responsible for all functions as specified in BMAR 21 Section A Subpart G. It therefore follows that, depending on the size of the BMAR 21 Section A Subpart G organisation, the functions may be subdivided under individual managers (and in fact may be further subdivided) or combined in a variety of ways.

The Authority requires the nominated managers to be identified and their credentials submitted on a BMAR Form 4 to the Authority in order that they may be seen to be appropriate in terms of relevant knowledge and satisfactory experience related to the nature of the production activities as performed by the BMAR 21 Section A Subpart G organisation.

The responsibilities and the tasks of each individual manager are required to be clearly defined, in order to prevent uncertainties about the relations, within the organisation. In the case of organisation structures where staff-members are responsible to more than one person, as for instance in matrix and project organisations, responsibilities of the managers are to be defined in such a way that all responsibilities are covered.

Where a BMAR 21 Section A Subpart G organisation chooses to appoint managers for all or any combination of the identified BMAR 21 functions because of the size of the undertaking, it is necessary that these managers report ultimately to the Accountable Manager. In cases where a manager does not directly report to the Accountable Manager, he or she is to have a formally established direct access to the Accountable Manager.

One such manager, normally known as the quality manager is responsible for monitoring the organisation's compliance with BMAR 21 Section A Subpart G and requesting remedial action as necessary by the other managers or the Accountable Manager as appropriate. He or she is to have a direct access to the Accountable Manager.

AMC 21.A.145(d)(1) Approval Requirements – Certifying staff

(a) Certifying Staff are nominated by the production organisation to ensure that products, parts and/or appliances qualify for Statements of Conformity or Release Certificates. Certifying Staff positions and numbers are to be appropriate to the complexity of the product and the production rate.

(b) The qualification of certifying staff is based on their knowledge, background and experience and a specific training (or testing) established by the organisation to ensure that it is appropriate to the product, part, or appliance to be released.

(c) Training should be given to develop a satisfactory level of knowledge of organisation procedures, aviation legislation, and associated implementing rules, airworthiness requirements and GM, relevant to the particular role.

(d) For that purpose, in addition to general training policy, the organisation should define its own standards for training, including pre-qualification standards, for personnel to be identified as certifying staff.

(e) Training policy is part of the Quality System and its appropriateness forms part of investigation by the Authority within the organisation approval process and subsequent surveillance of persons proposed by managers.

(f) The training should be updated in response to experience gained and changes in technology.

(g) A feedback system to ascertain that the required standards are being maintained should be put in place to ensure the continuing compliance of personnel to authorisation requirements.

(h) For release of products, parts or appliances, the responsibilities to issue statements of conformity/release certificates (BMAR Form 1) or military permit to fly including approval of flight conditions are allocated to the certifying staff identified in BMAR 21.A.145(d)(2).

(i) The Authority holds the right to reject those personnel, appointed by the organisation, if found to have inappropriate experience or not to otherwise comply with its requirements.

AMC 21.A.145(d)(2) Approval Requirements – Record of certifying staff

(a) The following is the minimum information to be recorded in respect of each certifying person:

i. Name;

ii. Date of Birth;

iii. Basic Training and standard attained;

iv. Specific Training and standard attained;

v. If appropriate – Continuation Training;

vi. Experience;

vii. Scope of the authorisation;

viii. Date of first issue of the authorisation;

ix. If appropriate – expiry date of the authorisation;

x. Identification Number of the authorisation.

(b) The record may be kept in any format and should be controlled by an internal procedure of the organisation. This procedure forms part of the quality system.

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

(d) The certifying person should be given reasonable access on request to his or her own records.

(e) Under the provision of BMAR 21.A.157 the Authority has a right of access to the data held in such a system.

(f) The organisation should keep the record for at least two years after the certifying person has ceased employment with the organisation or withdrawal of the authorisation, whichever is the sooner.

AMC 21.A.145(d)(3) Approval requirements – Evidence of authorisation

(a) The authorisation document should 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, an interpretation document should be readily available.

(b) Certifying staff are not required to carry the authorisation document at all times but should be able to make it available within a reasonable time of a request from an authorised person. Authorised persons include the Authority.

21.A.147 Changes to the approved production organisation

(a) After the issue of a military production organisation approval, each change to the approved production organisation that is significant to the showing of conformity or to the airworthiness of the product, part or appliance, particularly changes to the quality system, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the organisation shall demonstrate to the Authority before implementation of the change that it will continue to comply with this Subpart.

(b) The Authority shall establish the conditions under which a production organisation approved under this Subpart may operate during such changes unless the Authority determines that the approval should be suspended.

GM 21.A.147(a) Changes to the approved production organisation – Significant changes

(a) Changes to be approved by the Authority include:

i. Significant changes to production capacity or methods;

ii. Changes in the organisation structure especially those parts of the organisation in charge of quality;

iii. A change of the Accountable Manager or of any other person nominated under BMAR 21.A.145(c)(2);

iv. Changes in the production or quality systems that may have an important impact on the conformity/airworthiness of each product, part or appliance;

v. Changes in the placement or control of significant sub-contracted work or supplied parts.

(b) To ensure that changes do not result in non-compliance with BMAR 21 Section A Subpart G it is in the interest of both the Authority and the approval holder to establish a relationship and exchange information that will permit the necessary evaluation work to be conducted before the implementation of a change. This relationship is to also permit agreement on the need for variation of the terms of approval (ref. BMAR 21.A.143(a)(9)).

(c) Where a change of name or ownership results in the issue of a new approval the investigation will normally take account of the Authority's knowledge and information from the preceding approval.

(d) Changes of location are addressed in BMAR 21.A.148 and changes of ownership in BMAR 21.A.149, change of scope of approval in BMAR 21.A.153.

21.A.148 Changes of location

A change of the location of the manufacturing facilities of the approved production organisation shall be deemed of significance and therefore shall comply with BMAR 21.A.147.

AMC 21.A.148 Changes of location – Management during change of location

(a) The relocation of any work, to an unapproved location, or a location with inappropriate scope of approval, constitutes a change of significance to the organisation and requires approval by the Authority as prescribed in BMAR 21.A.147. An unapproved relocation will invalidate the MPOA, and may necessitate re-application for any similar approval required at the new location. However, suitable transitional arrangements may be agreed with the Authority, in advance of the relocation, which can allow continuation of the approval.

(b) When an organisation expands its facility to include a new production location or moves parts of its production to a new location, the MPOA may continue in force, but the approval does not include the new location until the Authority has indicated its satisfaction with the arrangements.

(c) For a change in location, taking an extended period of time, suitable transitional arrangements would require preparation of a co-ordination plan for the removal. The plan should, at least, identify the following:

i. A clearly identified person, or group of persons, responsible for co-ordinating the removal and acting as focal point for communication with all parties, including the Authority;

ii. The basis of the co-ordination plan, e.g., whether by product or area;

iii. Planned timing of each phase of relocation;

iv. Arrangements for maintaining the standards of the approval up to the point where the production area is closed down;

v. Arrangements for verifying continued production quality upon resumption of work at the new location;

vi. Arrangements for check and/or re-calibration of inspection aids or production tools and jigs before resuming production;

vii. Procedures which ensure that goods are not released from the new location until their associated production and quality systems have been verified;

viii. Arrangements for keeping the Authority informed of progress with the relocation.

(d) From the co-ordination plan, the Authority can determine the points at which it wishes to conduct investigation.

(e) If an agreed co-ordination plan is in operation, the Authority will normally allow the existing approval to remain in force and will, where appropriate, grant an additional approval to cover the new address for the duration of the move.

21.A.149 Transferability

Except as a result of a change in ownership, which is deemed significant for the purposes of BMAR 21.A.147, a military production organisation approval is not transferable.

GM 21.A.149 Transferability

Transfer of approval would normally only be agreed in cases where the ownership changes but the organisation itself remains effectively unchanged. For example:

An acceptable transfer situation could be a change of company name (supported by the appropriate certificate from the National Companies Registration Office or equivalent) but with no changes to site address, facilities, type of work, staff, Accountable Manager or person nominated under BMAR 21.A.145.

Alternatively, in the event of receivership (bankruptcy, insolvency or other equivalent legal process) there may be good technical justification for continuation of the approval provided that the company continues to function in a satisfactory manner in accordance with their MPOE. It is likely that at a later stage the approval might be voluntarily surrendered or the organisation transferred to new owners in which case the former paragraphs apply. If it does not continue to operate satisfactorily then the Authority could suspend or revoke the approval.

In order for the Authority to agree to a transfer of approval, it will normally prescribe it as a condition in accordance with BMAR 21.A.147(b) that the obligations and responsibilities of the former organisation are to be transferred to the new organisation, otherwise transfer is not possible and application for a new approval will be required.

21.A.151 Terms of approval

The terms of approval shall identify the scope of work, the products or the categories of parts and appliances, or both, for which the holder is entitled to exercise the privileges under BMAR 21.A.163. Those terms shall be issued as part of a military production organisation approval.

GM 21.A.151 Terms of approval – Scope and categories

Terms of approval document(s) will be issued by the Authority under BMAR 21.A.135 to identify the scope of work, the products, and/or categories for which the holder is entitled to exercise the privileges defined in BMAR 21.A.163.

The codes shown against each scope of work item are intended for use by the Authority for purposes such as managing, administering and filing details of approvals. It may also assist in the production and publication of a list of approval holders.

The scope of work, the Products, Parts, or Appliances for which the MPOA holder is entitled to exercise the privileges defined in BMAR 21.A.163 will be described by the Authority as follows:

For Products:

(a) General area, similar to the titles of the corresponding certification codes;

(b) Type of Product, in accordance with the type-certificate.

For Parts and Appliances:

(a) General area, showing the expertise, e.g., mechanical, metallic structure;

(b) Generic type, e.g., wing, landing gear, tyres.

SCOPE OF WORK		PRODUCTS/CATEGORIES
A1	Large Aeroplanes	Insert types
A2	Small Aeroplanes	“
A3	Large Helicopters	“
A4	Small Helicopters	“
A5	Gyroplanes	“
A6	Sailplanes	“
A7	Motor Gliders	“
A8	Manned Balloons	“

A9 Airships	“
A11 Very Light Aeroplanes	“
A12 Other	“
M1 Aircraft for military transport of troops, reconnaissance, patrols, tankers, electronic warfare missions, etc.	“
M2 Combat fixed wing aircraft and advanced trainers	“
M3 Combat helicopter	“
U1 Fixed wing UAV <150kg	“
U2 Fixed wing UAV >150kg	“
U4 Rotary wing UAV <150kg	“
U5 Rotary wing UAV >150kg	“
B1 Turbine Engines	“
B2 Piston Engines	“
B3 APU’s	“
B4 Propellers	“
C1 Appliances:	State appliance generic types (e.g., Tyres, Altimeter, etc.) Examples include: Avionic, Com/Nav/Pulse Computer System, Aircraft/Engine/Avionic Instruments, Mechanical/Electrical/ Gyroscopic/Electronic Mechanical/Hydraulic/Pneumatic
C2 Parts:	State part generic types (e.g., Wing, Landing Gear, etc.) Examples include: Structural, Metallic/non-metallic Mechanical/Hydraulic/Pneumatic Electrical Electronic

C3	Weapons	
C4	Other military equipment	Defensive Aids
D1	Maintenance	Insert aircraft types
D2	Issue of military permit to fly	State aircraft types

21.A.153 Changes to the terms of approval

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The applicant shall comply with the applicable requirements of this Subpart.

AMC 21.A.153 Changes to the terms of approval – Application for a change to the terms of approval

BMAR Form 51 should be completed in accordance with the procedures of the MPOE.

The information entered on the form is the minimum required by the Authority to assess the need for change of the MPOA.

The completed form and an outline of the changed MPOE, and details of the proposed change to MPOA terms of approval should be forwarded to the Authority.

21.A.157 Investigations

A production organisation shall make arrangements that allow the Authority to make any investigations, including investigations of partners and subcontractors, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart.

GM 21.A.157 Investigations – Arrangements

The arrangements made by the applicant for, or holder of an approval under BMAR 21 Section A Subpart G are to allow the Authority to make investigations that include the complete production organisation including partners, sub-contractors and suppliers, whether they are in the State of the applicant or not.

The investigation may include; audits, enquiries, questions, discussions and explanations, monitoring, witnessing, inspections, checks, flight and ground tests and inspection of completed products, parts or appliances produced under the MPOA.

In order to maintain its confidence in the standards achieved by a MPOA holder or applicant the Authority may make an investigation of a sample product part or appliance and its associated records, reports and certifications.

The arrangements are to enable the organisation to give positive assistance to the Authority and co-operate in performing the investigation during both initial assessment and for the subsequent surveillance to maintain the MPOA.

Co-operation in performing investigation means that the Authority has been given full and free access to the facilities and to any information relevant to show compliance to BMAR 21 Section A Subpart G requirements, and assistance (personnel support, records, reports, computer data, etc, as necessary).

Assistance to the Authority includes all appropriate means associated with the facilities of the production organisation to allow the Authority to perform these investigations, such as the availability of a meeting room, office and personnel support, documentation and data, and communication facilities, all properly and promptly available as necessary.

The Authority seeks to have an open relationship with the organisation and suitable liaison personnel are to be nominated to facilitate this, including suitable representative(s) to accompany Authority staff during visits not only at the organisations own facilities but also at sub-contractors, partners or suppliers.

21.A.158 Findings

(a) When objective evidence is found showing non-compliance of the holder of a military production organisation approval with the applicable requirements of this BMAR, the finding shall be classified as follows:

1. A level one finding is any non-compliance with this BMAR which could lead to uncontrolled non-compliances with applicable design data and which could affect the safety of the aircraft;
2. A level two finding is any non-compliance with this BMAR which is not classified as level one.

(b) A level three finding is any item where it has been identified, by objective evidence, to contain potential problems that could lead to a non-compliance under paragraph (a).

(c) After receipt of notification of findings issued by the Authority according to BMAR 21.B.225:

1. In case of a level one finding, the holder of the military production organisation approval shall demonstrate corrective action to the satisfaction of the Authority within a period of no more than 21 working days after written confirmation of the finding;
2. In case of level two findings, the corrective action period granted by the Authority shall be appropriate to the nature of the finding but in any case initially shall not be more than three months. In certain circumstances and subject to the nature of the finding the Authority may extend the three months period subject to a satisfactory corrective action plan agreed by the Authority;
3. A level three finding shall not require immediate action by the holder of the military production organisation approval. If appropriate, the Authority will specify a compliance time.

(d) In case of level one or level two findings, the military production organisation approval may be subject to a partial or full limitation, suspension or revocation under BMAR 21.B.245. The holder of the military production organisation approval shall provide confirmation of receipt of the notice of limitation, suspension or revocation of the military production organisation approval in a timely manner.

GM No. 1 to 21.A.158(a) Uncontrolled non-compliance with applicable design data

An uncontrolled non-compliance with applicable design data is a non-compliance:

(a) that cannot be discovered through systematic analysis; or

(b) that prevents identification of affected products, parts, appliances, or material.

GM No. 2 to 21.A.158(a) Examples of level one findings

Examples of level one findings are non-compliances with any of the following BMAR 21 paragraphs, that could affect the safety of the aircraft:

- 21.A.139, 21.A.145, 21.A.147, 21.A.148, 21.A.151, 21.A.163, 21.A.165(b), (c), (d), (e), (f) and (g).

It is to be anticipated that a non-compliance with these paragraphs is only considered a level one finding when objective evidence has been found that this finding is an uncontrolled non-compliance that could affect the safety of the aircraft.

In addition, the failure to arrange for investigations under BMAR 21.A.157, in particular to obtain access to facilities, after denial of one written request are to be classified as a level one finding.

21.A.159 Duration and continued validity

(a) A military production organisation approval can be issued for a limited period. It shall remain valid unless:

1. The production organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or
2. The Authority is prevented by the holder or any of its partners or subcontractors to perform the investigations in accordance with BMAR 21.A.157; or
3. There is evidence that the production organisation cannot maintain satisfactory control of the manufacture of products, parts or appliances under the approval; or
4. The production organisation no longer meets the requirements of BMAR 21.A.133; or
5. The certificate has been surrendered or revoked under BMAR 21.B.245; or
6. The production organisation has not carried out production activities in the scope of the term of the approval for a period specified by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

GM 21.A.159(a)(3) Evidence of a lack of satisfactory control

A positive finding by the Authority of:

(a) an uncontrolled non-compliance with type design data affecting the airworthiness of product part or appliance;

(b) an incident/accident identified as caused by MPOA holder;

(c) non-compliance with the MPOE and its associated procedures which could affect conformity of manufactured items to design data;

(d) insufficient competence of certifying staff;

(e) insufficient resources in respect of facilities, tools and equipment;

(f) insufficient means to ensure good production work standards;

(g) a lack of effective and timely response to prevent a recurrence of any of paragraph (a) to (f).

21.A.163 Privileges

Pursuant to the terms of approval issued under BMAR 21.A.135, the holder of a military production organisation approval may:

(a) Perform production activities under this BMAR;

(b) In the case of complete aircraft and upon presentation of a Statement of Conformity (BMAR Form 52) under BMAR 21.A.174, obtain an aircraft certificate of airworthiness without further showing;

(c) In the case of other products, parts or appliances issue authorised release certificates (BMAR Form 1) under BMAR 21.A.307 without further showing;

(d) Maintain a new aircraft that it has produced and issue a certificate of release to service (BMAR Form 53) in respect of that maintenance; or

(e) Under procedures agreed with its Authority for an aircraft it has produced and when the production organisation itself is controlling under its MPOA, the configuration of the aircraft and is attesting conformity with the design conditions approved for the flight, to issue a military permit to fly in accordance with BMAR 21.A.711(c) including approval of the flight conditions in accordance with BMAR 21.A.710(b).

AMC 21.A.163(c) Computer generated signature and electronic exchange of the BMAR Form 1

1 Submission to the Authority

Any MPOA holder/applicant 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 Authority as part of the documents attached with its exposition.

2 Characteristics of the electronic system generating the BMAR Form 1

2.1 The electronic system should :

a) guarantee secure access for each certifying staff;

b) ensure integrity and accuracy of the data certified by the signature of 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;

c) be active only at the location where the part is being released with an BMAR Form 1;

d) not permit to sign a blank form;

e) provide a high degree of assurance that the data has not been modified after signature (if modification is necessary after issuance, i.e., re-certification of a part, a new form with a new number and reference to the initial issuance should be made);

f) provide for a "personal" electronic signature identifying the signatory. The signature should be generated only in the presence of the signatory.

2.2 An electronic signature means data in electronic form which are attached to or logically associated with other electronic data and which serve as a method of authentication and should meet the following criteria:

a) it is uniquely linked to the signatory;

b) it is capable of identifying the signatory;

c) it is created using means that the signatory can maintain under their sole control.

2.3 The electronic signature is defined as 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.

2.4 MPOA holders/applicants are reminded that additional national and/or European requirements may need to be satisfied when operating electronic systems.

2.5 The electronic system should be based on a policy and management structure (confidentiality, integrity and availability), such as:

a) administrators, signatories;

b) scope of authorisation, rights;

c) password and secure access, authentication, protections, confidentiality;

d) track changes;

e) minimum blocks to be completed, completeness of information;

f) archives;

g) etc.

2.6 The electronic system generating the BMAR Form 1 may contain additional data such as:

a) manufacturer code;

b) customer identification code;

c) workshop report;

d) inspection results;

e) etc.

3 Characteristics of the BMAR Form 1 generated from the electronic system

3.1 To facilitate understanding and acceptance of the BMAR Form 1 released with an electronic signature, the following statement should be in Block 13b: 'Electronic Signature on File'.

3.2 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 their name.

3.3 When printing the electronic form, it should meet the general format of BMAR Form 1. A watermark-type 'PRINTED FROM ELECTRONIC FILE' should be printed on the document.

3.4 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.

3.5 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 do not prevent.

4 Electronic exchange of the electronic BMAR Form 1

4.1 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.

4.2 For that purpose, the exchange needs to include:

a) all data of the BMAR Form 1, including data referenced from the BMAR Form 1;

b) all data required for authentication of the BMAR Form 1.

4.3 In addition, the exchange may include:

a) data necessary for the electronic format;

b) additional data not required by the BMAR Form 1 completion instructions, such as manufacturer code, customer identification code.

4.4 The system used for the exchange of the electronic BMAR Form 1 should provide:

a) a high level of digital security; the data should be protected, unaltered or uncorrupted;

b) traceability of data back to its source should be possible.

4.5 Trading partners wishing to exchange BMAR Form 1 electronically should do so in accordance with these means of compliance stated in this document. It is recommended that they use an established, common, industry method such as Air Transport Association (ATA) Spec 2000 Chapter 16.

4.6 (Reserved).

4.7 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.

4.8 When the receiver needs to print the electronic form, refer to the subparagraph 3 above.

AMC 21.A.163(d) Privileges – Maintenance

The applicant may apply for terms of approval, which cover maintenance of a new aircraft that it has manufactured, as necessary to keep it in an airworthy condition, but not beyond the point at which the applicable operational rules require maintenance to be performed by an approved maintenance organisation. If the production organisation intends to maintain the aircraft beyond that point, it would have to apply for and obtain an appropriate maintenance approval.

When the Authority is satisfied that the procedures required by BMAR 21.A.139 are satisfactory to control maintenance activities so as to ensure that the aircraft is airworthy, this capability will be stated in the terms of approval.

Maintenance of aircraft

Examples of such maintenance activities are:

(a) Preservation, periodic inspection visits, etc.;

(b) Embodiment of a Service Bulletin;

(c) Application of airworthiness directives;

(d) Repairs;

(e) Maintenance tasks resulting from special flights;

(f) Maintenance tasks to maintain airworthiness during flight training, demo flights and other non-revenue flights.

Any maintenance activities should be recorded in the Aircraft Log Book. It should be signed by certifying staff for attesting the conformity of the work to the applicable airworthiness data.

In some cases the Aircraft Log Book is not available, or the production organisation prefers to use a separate form (for instance for a large work package or for delivery of the aircraft to the customer). In these cases, production organisations should use BMAR Form 53 which should subsequently become part of the aircraft maintenance records.

Maintenance of components outside the MPOA capability

Such maintenance activity outside the capability of the Aircraft MPOA holder may still be accomplished under the production approval of the original release organisation. In such

circumstances the engine(s), propeller(s), parts and appliances will require re-release in accordance with BMAR 21.A.163(c) (BMAR Form 1).

Records relevant to continued airworthiness or retirement lives, such as engine runs, flight hours, landings, etc., which affect part retirement of maintenance schedules should be specified on any re-release.

As an alternative the engine, propeller, part or appliance may be maintained by the holder of an approval in accordance with BMAR 145, classified and released as 'used'.

AMC 21.A.163(e) Procedure for the issue of a military permit to fly including approval of the flight conditions

1 Intent

This acceptable means of compliance provides means to develop a procedure for the issue of a military permit to fly including approval of the flight conditions.

Each MPOA applicant or holder should develop its own internal procedure following this AMC, in order to obtain the privilege of BMAR 21.A.163(e) to issue permits to fly for an aircraft under procedures agreed with its Authority for production, when the production organisation itself is controlling under its MPOA the configuration of the aircraft and is attesting conformity with the design conditions approved for the flight.

2 Procedure for the issue of a military permit to fly

2.1 Content

The procedure should address the following points:

a) as relevant, in accordance with BMAR 21.A.710(b), the approval of flight conditions;

b) conformity with approved conditions;

c) issue of the military permit to fly under the MPOA privilege ;

d) authorised signatories;

e) interface with the local Authority for the flight.

2.2 Approval of the flight conditions (when relevant)

The procedure should include the process to establish and justify the flight conditions, in accordance with BMAR 21.A.708 and how compliance with BMAR 21.A.710(c) is established, and include the BMAR Form 18b as defined in AMC BMAR 21.A.709(b) for the approval under the MPOA privilege.

2.3 Conformity with approved conditions

The procedure should indicate how conformity with approved conditions is made, documented and attested by an authorised person.

2.4 Issue of the military permit to fly under the MPOA privilege

The procedure should describe the process to prepare the BMAR Form 20b and how compliance with BMAR 21.A.711(c) and (e) is established before signature of the military permit to fly.

2.5 Authorised signatories

The person(s) authorised to sign the military permit to fly under the privilege of BMAR 21.A.163(e) should be identified (name, signature and scope of authority) in the procedure, or in an appropriate document linked to the Production Organisation Exposition.

2.6 Interface with the local Authority for the flight

The procedure should include provisions describing the communication with the local Authority for compliance with the local requirements which are outside the scope of the conditions of BMAR 21.A.708(b) (see BMAR 21.A.711(e)).

21.A.165 Obligations of the holder

The holder of a military production organisation approval shall:

(a) Ensure that the production organisation exposition furnished in accordance with BMAR 21.A.143 and the documents to which it refers, are used as basic working documents within the organisation;

(b) Maintain the production organisation in conformity with the data and procedures approved for the military production organisation approval;

(c) Determine:

1. that each completed aircraft conforms to the type design and is in condition for safe operation prior to submitting Statements of Conformity to the Authority; or
2. that other products, parts or appliances are complete and conform to the approved design data and are in condition for safe operation before issuing BMAR Form 1 to certify conformity to approved design data and condition for safe operation; or
3. Additionally, in the case of engines, a statement that the completed engine is in compliance with the applicable emissions requirements (where applicable) on the date of manufacture of the engine;
4. that other products, parts or appliances conform to the applicable data before issuing BMAR Form 1 as a conformity certificate.

(d) Record all details of work carried out;

(e) Establish and maintain an internal occurrence reporting system in the interest of safety, to enable the collection and assessment of occurrence reports in order to identify adverse trends or to address deficiencies, and to extract reportable occurrences. This system shall include evaluation of relevant information relating to occurrences and the promulgation of related information;

(f) Report:

1. to the holder of the type-certificate or design approval, all cases where products, parts or appliances have been released by the production organisation and subsequently identified to have possible deviations from the applicable design data, and investigate with the holder of the type-certificate, or design approval in order to identify those deviations which could lead to an unsafe condition;
2. to the Authority the deviations which could lead to an unsafe condition identified according to subparagraph (1). Such reports shall be made in a form and manner established by the Authority under BMAR 21.A.3A(b)(2) or accepted by the Authority;
3. where the holder of the military production organisation approval is acting as a supplier to another production organisation, also to that other organisation all cases where it has released products, parts or appliances to that organisation and subsequently identified them to have possible deviations from the applicable design data.

(g) Provide assistance to the holder of the type-certificate or design approval in dealing with any continuing airworthiness actions that are related to the products, parts or appliances that have been produced;

(h) Establish an archiving system incorporating requirements imposed on its partners, suppliers and subcontractors, ensuring conservation of the data used to justify conformity of the products,

parts or appliances. Such data shall be held at the disposal of the Authority and be retained in order to provide the information necessary to ensure the continued airworthiness of the products, parts or appliances;

(i) Where, under its terms of approval, the holder issues a certificate of release to service, determine that each completed aircraft has been subjected to necessary maintenance and is in condition for safe operation, prior to issuing the certificate;

(j) Where applicable, under the privilege of BMAR 21.A.163(e), determine the conditions under which a military permit to fly can be issued;

(k) Where applicable, under the privilege of BMAR 21.A.163(e), establish compliance with BMAR 21.A.711(c) and (e) before issuing a military permit to fly to an aircraft.

GM 21.A.165(a) Obligations of the holder – Basic working document

Compliance with the MPOE is a prerequisite for obtaining and retaining a MPOA.

The organisation is to make the MPOE available to its personnel where necessary for the performance of their duties. A distribution list is to therefore be established. Where the MPOE mainly refers to separate manuals or procedures, the distribution of the MPOE could be limited.

The organisation is to ensure that personnel have access to and are familiar with that part of the content of the MPOE or the referenced documents, which covers their activities.

Monitoring of compliance with the MPOE is normally the responsibility of the quality assurance function.

GM No. 1 to 21.A.165(c) Obligations of the holder – Conformity of prototype models and test specimens

BMAR 21.A.33 requires determination of conformity of prototype models and test specimens to the applicable design data. The BMAR Form 1 may be used as a conformity certificate as part of the assistance a MPOA holder provides to a design approval holder/applicant.

GM No. 2 to 21.A.165(c) Obligations of holder – Conformity with type design

Individual configurations are often based on the needs of the customer and improvements or changes which may be introduced by the type-certificate holder. There are also likely to be unintentional divergences (concessions or non-conformances) during the manufacturing process. All these changes are to have been approved by the design approval holder, or when necessary by the Authority.

GM No. 3 to 21.A.165(c) Obligations of the holder – Condition for safe operation

Before issue of the Statement of Conformity to the Authority of the Member State of registry, the holder of a MPOA is to make an investigation so as to be satisfied in respect of each of the items listed below. The documented results of this investigation are to be kept on file by the MPOA holder. Certain of these items may be required to be provided (or made available) to the operating organisation of the aircraft (and in some cases the Authority of the Member State of registry):

(a) Equipment or modifications which do not meet the requirements of the State of manufacture but have been accepted by the Authority of the importing country;

(b) Identification of products, parts or appliances which:

i. Are not new;

	ii. Are furnished by the buyer or future operating organisation (including those identified in BMAR 21.A.801 and BMAR 21.A.805). (c) Technical records which identify the location and serial numbers of significant components that have special traceability requirements for continued airworthiness purposes including those identified in BMAR 21.A.801 and BMAR 21.A.805; (d) Log book and a modification record book for the aircraft as required by the Authority; (e) Log books for products identified in BMAR 21.A.801 installed as part of the type design as required by the Authority; (f) A weight and balance report for the completed aircraft; (g) A record of missing items or defects which do not affect airworthiness these for example could be furnishing or GFE (Items may be recorded in a technical log or other suitable arrangement such that the operating organisation and Authority are formally aware); (h) Product support information required by other implementing rules and associated airworthiness requirements or GM, such as a Maintenance Manual, a Parts Catalogue, or MMEL all of which are to reflect the actual build standard of the particular aircraft. Also an Electrical load analysis and a wiring diagram; (i) Records which demonstrate completion of maintenance tasks appropriate to the test flight flying hours recorded by the aircraft. These records are to show the relationship of the maintenance status of the particular aircraft to the manufacturers recommended maintenance task list and the MRB document/report; (j) Details of the serviceability state of the aircraft in respect of: i. the fuel and oil contents, ii. provision of operationally required emergency equipment such as life rafts, etc; (k) Details of the approved interior configuration if different from that approved as part of the type design; (l) An approved Flight Manual which conforms to the build standard and modification state of the particular aircraft is to be available; (m) Show that inspections for foreign objects at all appropriate stages of manufacture have been satisfactorily performed; (n) The registration has been marked on the exterior of the aircraft as required by national legislation. Where required by national legislation fix a fireproof owners nameplate; (o) Where applicable there is to be a certificate for the aircraft radio station; (p) The installed compass and or compass systems have been adjusted and compensated and a deviation card displayed in the aircraft; (q) Software criticality list; (r) A record of rigging and control surface movement measurements; (s) Details of installations which will be removed before starting commercial air transport operations (e.g., ferry kits for fuel, radio or navigation); (t) Where maintenance work has been performed under the privilege of BMAR 21.A.163(d) issue a release to service that includes a statement that the aircraft is in a condition for safe operation; (u) List of all applicable Service Bulletins and airworthiness directives that have been implemented.

GM No. 4 to 21.A.165(c) Airworthiness Release or Conformity Certificate

The BMAR Form 1, when used as a release certificate as addressed in BMAR 21.A.165(c)(2) and (3), may be issued in two ways:

(a) As an airworthiness release, only when by virtue of the arrangement described in BMAR 21.A.133(b) and (c), it can be determined that the part conforms to the approved design data and is in condition for safe operation.

(b) As a conformity Certificate, only when by virtue of the arrangement described in BMAR 21.A.133(b) and (c), it can be determined that the part conforms to applicable design data which is not (yet) approved, for a reason that is indicated in Block 12. Parts released with an BMAR Form 1 as a conformity Certificate are not eligible for installation in a type-certificated aircraft.

The BMAR Form 1 is to only be used for Conformity release purposes when it is possible to indicate the reason that prevents its issue as for airworthiness release purposes.

GM 21.A.165(d) and (h) Obligations of the holder – Recording and archiving system

Records within a production environment satisfy two purposes. Firstly, they are required, during the production process to ensure that products, parts, or appliances are in conformity with the controlling data throughout the manufacturing cycle. Secondly, certain records of milestone events are needed to subsequently provide objective evidence that all prescribed stages of the production process have been satisfactorily completed and that compliance with the applicable design data has been achieved.

Therefore, the approved production organisation is to implement a system for the compilation and retention of records during all stages of manufacture, covering short-term and long-term records appropriate to the nature of the product and its production processes.

The management of such information is to be subject to appropriate procedures in the Quality System required by BMAR 21.A.139.

All forms of recording media are acceptable (paper, film, magnetic, etc.) provided they can meet the required duration for archiving under the conditions provided.

The related organisation procedures are to:

(a) Identify records to be kept;

(b) Describe the organisation of and responsibility for the archiving system (location, compilation, format) and conditions for access to the information (e.g., by product, subject);

(c) Control access and provide effective protection from deterioration or accidental damage;

(d) Ensure continued readability of the records;

(e) Demonstrate to the Authority proper functioning of the records system;

(f) Clearly identify the persons involved in conformity determination;

(g) Define an archiving period for each type of data taking into account importance in relation to conformity determination subject to the following:

  i. Data which supports conformity of a product, part, or appliance are to be kept for not less than three years from the issue date of the related Statement of Conformity or Authorised Release Certificate;

  ii. Data considered essential for continuing airworthiness are to be kept throughout the operational life of the product, part or appliance.

(h) Ensure that the recording and record-keeping system used by the partners, supplier and sub-contractors meet the objective of conformity of the product, part or appliance with the same

	level of confidence as for their own manufacture. They are to define in each case who is to retain the record data (organisation or partner, supplier or sub-contractor). They are to also define method for surveillance of the recording/record keeping system of the partners, suppliers or sub-contractors.

Subpart H – Military Certificates Of Airworthiness And Military Restricted Certificates Of Airworthiness

21.A.171 Scope

This Subpart establishes the procedure for issuing airworthiness certificates.

21.A.172 Eligibility

Any organisation in charge of an aircraft listed or to be listed on the Belgian military aircraft register shall be eligible as an applicant for an airworthiness certificate for that aircraft under this Subpart.

21.A.173 Classification

Airworthiness certificates shall be classified as follows:

(a) Certificates of airworthiness shall be issued to aircraft which conform to a type-certificate that has been issued in accordance with this BMAR (or based upon a Civil Type-certificate issued by a recognised Civil Authority);

(b) Restricted certificates of airworthiness shall be issued to aircraft:

1. Which conform to a restricted type-certificate that has been issued in accordance with this BMAR; or
2. Which have been shown to the Authority to comply with specific airworthiness specifications ensuring adequate safety.

21.A.174 Application

(a) Pursuant to BMAR 21.A.172, an application for an airworthiness certificate shall be made in a form and manner established by the Authority.

(b) Each application for a certificate of airworthiness or restricted certificate of airworthiness shall include:

1. The class of airworthiness certificate applied for;
2. With regard to new aircraft:
   i. A statement of conformity:
      - Issued under BMAR 21.A.163(b); or
      - Issued under BMAR 21.A.130 and validated by the Authority; or
      - For an imported aircraft, any acceptable evidence to support that the aircraft conforms to a design approved by the Authority.
   ii. A weight and balance report with a loading schedule;
   iii. The flight manual and any other manuals required by the airworthiness Authority.
3. With regard to used aircraft:
   i. Originating from a State with a recognised Authority, a Military Airworthiness Review Certificate or its equivalent;
   ii. Originating from another State:
      - A statement by the Authority of the State where the aircraft is, or was, registered, reflecting the airworthiness status of the aircraft on its register at time of transfer;

- A weight and balance report with a loading schedule;
- The flight manual and any other manuals required by the airworthiness Authority of the State of registry;
- Historical records to establish the production, modification, and maintenance standard of the aircraft, including all limitations associated with a restricted certificate of airworthiness under BMAR 21.B.327(c);
- A recommendation for the issuance of a certificate of airworthiness or restricted certificate of airworthiness and a Military Airworthiness Review Certificate following an airworthiness review in accordance with BMAR M.

(c) Unless otherwise agreed, the statements referred to in subparagraphs (b)(2)(i) and (b)(3)(ii) shall be issued no more than 60 days before presentation of the aircraft to the airworthiness Authority.

GM 21.A.174(b)3 Limitations associated with a restricted certificate of airworthiness

Limitations for use will be associated with restricted certificates of airworthiness, including airspace restrictions, as necessary to take account of deviations from essential requirements for airworthiness laid down in the Belgian legal framework applicable to military aircraft.

21.A.175 Language

The manuals, placards, listings, and instrument markings and other necessary information required by applicable airworthiness codes shall be presented in English. French or Dutch may be accepted.

21.A.177 Amendment or modification

An airworthiness certificate may be amended or modified only by the Authority.

21.A.179 Transferability and re-issuance within States applying EMARs

(a) Where national regulations allow ownership (either nationally or to another State/Nation) of an aircraft to be changed:

1. If it remains in the same State of registry, the certificate of airworthiness, or the restricted certificate of airworthiness conforming to a restricted type certificate only, shall be transferred together with the aircraft;
2. If the aircraft is registered in another State applying EMARs, the certificate of airworthiness, or the restricted certificate of airworthiness conforming to a restricted type certificate only, shall be issued:
   i. Upon presentation of the former certificate of airworthiness and of a valid Military Airworthiness Review Certificate issued under EMAR M; and
   ii. When satisfying EMAR 21.A.175.

(b) Where ownership of an aircraft has changed, and the aircraft has a restricted certificate of airworthiness not conforming to a restricted type certificate, the airworthiness certificates shall be transferred together with the aircraft provided the aircraft remains on the same register, only with the formal agreement of the Authority of the State of registry to which it is transferred.

21.A.180 Inspections

The holder of the airworthiness certificate shall provide access to the aircraft for which that airworthiness certificate has been issued upon request by the Authority of the State of registry.

21.A.181 Duration and continued validity

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

1. Compliance with the applicable type-design, airworthiness directives and instructions for continuing airworthiness; and
2. The aircraft remaining on the same register;
3. The type-certificate or restricted type-certificate under which it is issued not being previously invalidated under BMAR 21.A.51; and
4. The certificate not being surrendered or revoked by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

GM 21.A. 181(a) Issuance

In accordance with the applicable continuing airworthiness requirements, a certificate of airworthiness is valid only if a valid airworthiness review certificate is attached to it. For new aircraft, the Authority will issue the airworthiness review certificate when issuing the certificate of airworthiness

21.A.182 Aircraft identification

Each applicant for an airworthiness certificate under this Subpart shall demonstrate that its aircraft is identified in accordance with BMAR 21 Subpart Q.

Subpart I – NOISE CERTIFICATES

(to be added later if required)

Subpart J – Military Design Organisation Approval

21.A.231 Scope

This Subpart establishes the procedure for the approval of design organisations and rules governing the obligations and privileges of applicants for, and holders of, such approvals.

21.A.233 Eligibility

At the discretion of the Authority, any organisation shall be eligible as an applicant for an approval under this Subpart:

(a) In accordance with BMAR 21.A.14, 21.A.112B or 21.A.432B or 21.A.602B; or

(b) For approval of minor changes or minor repair design, when requested for the purpose of obtaining privileges under BMAR 21.A.263.

21.A.234 Application

Each application for a design organisation approval shall be made in a form and manner established by the Authority, or an alternative acceptable to the Authority, and shall include an outline of the information required by BMAR 21.A.243, and the terms of approval requested to be issued under BMAR 21.A.251.

21.A.235 Issue of Military design organisation approval

An organisation shall be entitled to have a military design organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart.

GM to 21.A.235 Issue of Military Design Organisation Approval

(a) Where a design organisation has an extant EASA Part 21 design organisation approval, and when the military design activity are in the scope of the EASA term of approval, the organisation may be accepted by the Authority to satisfy the BMAR 21 requirements for that scope of work with any further investigation limited only to the delta between the two approvals. The Authority is to be kept informed by the design organisation of significant changes to the organisation and of any EASA findings that may impact the military design activity.

(b) Where a design organisation has an extant EASA Part 21 design organisation approval, and when the scope of the EASA term of approval does not entirely cover the military design activity, those parts of the organisation's EASA Part 21 exposition that are equally applicable to satisfy the BMAR 21 may be accepted by the Authority as equivalent in respect of the BMAR 21 requirements. It is permissible that only those parts of the organisation that are specific to the military activity or requirements are addressed in the BMAR 21 exposition. Those requirements covered by read-across of the sections of the EASA exposition document are to be identified and the EASA document clause reference quoted.

21.A.239 Design assurance system

(a) The design organisation shall demonstrate that it has established and is able to maintain a design assurance system for the control and supervision of the design, and of design changes, of products, parts and appliances covered by the application. This design assurance system shall be such as to enable the organisation:

1. To ensure that the design of the products, parts and appliances or the design change or repair solution thereof, comply with the applicable type-certification basis; and
2. To ensure that its responsibilities are properly discharged in accordance with:
   i. The appropriate provisions of this BMAR; and
   ii. The terms of approval issued under BMAR 21.A.251.
3. To independently monitor the compliance with, and adequacy of, the documented procedures of the system. This monitoring shall include a feed-back system to a person or a group of persons having the responsibility to ensure corrective actions.

(b) The design assurance system shall include an independent checking function of the showings of compliance on the basis of which the organisation submits compliance statements and associated documentation to the Authority.

(c) The design organisation shall specify the manner in which the design assurance system accounts for the acceptability of the parts or appliances designed or the tasks performed by partners or subcontractor according to methods which are the subject of written procedures.

GM No. 1 to 21.A.239(a) Design assurance system

1. Purpose

This GM outlines some basic principles and objectives of BMAR 21.A.239(a).

2. Definitions

(a) The design assurance system is the organisational structure, responsibilities, procedures and resources to ensure the proper functioning of the design organisation.

(b) The design assurance means all those planned and systematic actions necessary to provide adequate confidence that the organisation has the capability:

   i. to design products, or parts in accordance with the applicable airworthiness requirements and environmental protection requirements (where applicable);

   ii. to show and verify the compliance with these requirements; and

   iii. to demonstrate this compliance.

(c) The “Type Investigation” means the tasks of the organisation in support of the type-certificate, supplemental type-certificate or other design approval processes necessary to show and verify and to maintain compliance with the applicable airworthiness requirements and environmental protection requirements (where applicable).

3. Design Assurance

The complete process, starting with the airworthiness and environmental protection (where applicable) requirements and product specifications and culminating with the issuing of a type-certificate, is shown in the diagram on Figure 3. This identifies the relationship between the design, the Type Investigation and design assurance processes.

Effective Design Assurance demands a continuing evaluation of factors that affect the adequacy of the design for intended applications, in particular that the product, or part, complies with applicable airworthiness and environmental protection (where applicable) requirements and will continue to comply after any change.

Two main aspects should therefore be considered:

(a) How the planned and systematic actions are defined and implemented, from the very beginning of design activities up to and including the continued airworthiness activities;

(b) How these actions are regularly evaluated and corrective actions implemented as necessary.

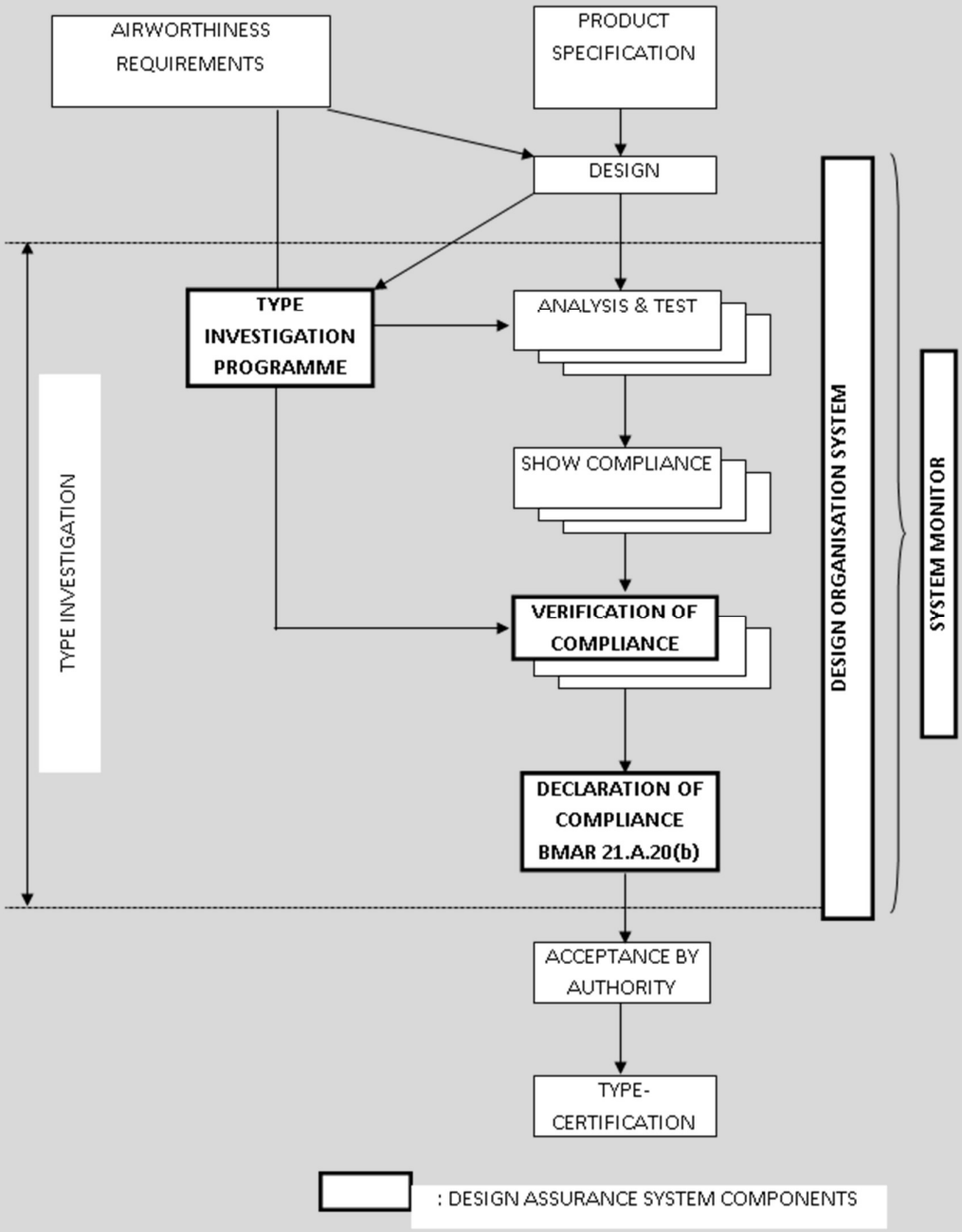


Figure 3 - Relationships between design, design assurance and type investigation

3.1. Planned and Systematic Actions

For design organisations carrying out Type Investigation of products, the planned and systematic actions should cover the following tasks and procedures should be defined accordingly:

3.1.1. General

(a) To issue or, where applicable, supplement or amend the Military Design Organisation Exposition (MDOE) in accordance with BMAR 21.A.243, in particular to indicate the initiation of design activities on a product.

(b) To assure that all instructions of the MDOE are adhered to.

(c) To conduct Type Investigation.

(d) To nominate staff as “compliance verification engineers” responsible to approve compliance documents as defined in paragraph 3.1.3.

(e) To nominate personnel belonging to the Office of Airworthiness responsible as defined in paragraph 3.1.4.

(f) In the case of an applicant for a supplemental type-certificate, to obtain the agreement of the type-certificate holder for the proposed supplemental type-certificate to the extent defined in BMAR 21.A.115.

(g) To ensure full and complete liaison between the type design organisation and related organisations having responsibility for products manufactured to the type-certificate.

(h) To provide the assurance to the Authority that prototype models and test specimens adequately conform to the type design (see BMAR 21.A.33(b)(1)).

3.1.2. Chief Executive and Head of design organisation (or his or her Deputy)

(a) The Chief Executive should provide the necessary resources for the proper functioning of the design organisation.

(b) The Head of the design organisation, or an authorised representative, should sign a declaration of compliance (see BMAR 21.A.20(d) and BMAR 21.A.97(a)(3)) with the applicable airworthiness requirements after verification of satisfactory completion of the Type Investigation. In accordance with BMAR 21.A.20(e) and BMAR 21.A.97(a)(4), his or her signature on the declaration of compliance confirms that the procedures as specified in the MDOE have been followed (see also GM BMAR 21.A.265(b)).

(c) The functions of Chief Executive and Head of the design organisation may be performed by the same person.

3.1.3. Compliance Verification

(a) Approval by signing of all compliance documents, including test programmes and data, necessary for the verification of compliance with the applicable airworthiness requirements as defined in the certification programme.

(b) Approval of the technical content (completeness, technical accuracy...), including any subsequent revisions, of the manuals approved by the Authority (Aircraft Flight Manual, the Airworthiness Limitations section of the Instructions for Continued Airworthiness and the Certification Maintenance Requirements (CMR) document, where applicable).

3.1.4. Office of Airworthiness

(a) Liaison between the design organisation and the Authority with respect to all aspects of the certification programme.

(b) Ensuring that a MDOE is prepared and updated as required in BMAR 21.A.243.

(c) Co-operation with the Authority in developing procedures to be used for the type-certification process.

(d) Issuing of guidelines for documenting compliance.

(e) Co-operation in issuing guidelines to ensure compliance with the regulations for the preparation of the manuals, Service Bulletins, drawings, specifications, and standards.

(f) Ensuring distribution of applicable airworthiness and environmental protection (where applicable) requirements and other specifications.

(g) Co-operating with the Authority in proposing the type-certification basis

(h) Interpretation of airworthiness and environmental protection (where applicable) requirements and requesting decisions of the Authority in case of doubt.

(i) Advising of all departments of the design organisation in all questions regarding airworthiness, environmental protection (where applicable) approvals and certification.

(j) Preparation of the certification programme and co-ordination of all tasks related to Type Investigation in concurrence with the Authority.

(k) Regular reporting to the Authority about Type Investigation progress and announcement of scheduled tests in due time.

(l) Ensuring co-operation in preparing inspection and test programmes needed for demonstration of compliance.

(m) Establishing the compliance checklist and updating for changes.

(n) Checking that all compliance documents are prepared as necessary to demonstrate compliance with all airworthiness and environmental protection (where applicable) requirements, as well as for completeness, and signing for release of the documents.

(o) Checking the required type design definition documents described in BMAR 21.A.31 and ensuring that they are provided to the Authority for approval when required.

(p) Preparation, if necessary, of a draft for a type-certificate data sheet and/or type-certificate data sheet modification.

(q) Providing verification to the head of the design organisation that all activities required for Type Investigation have been properly completed.

(r) Approving the classification of changes in accordance with BMAR 21.A.91 and granting the approval for minor changes in accordance with BMAR 21.A.95(b).

(s) Monitoring of significant events on other aeronautical products as far as relevant to determine their effect on airworthiness of products being designed by the design organisation.

(t) Ensuring co-operation in preparing Service Bulletins and the Structural Repair Manual, and subsequent revisions, with special attention being given to the manner in which the contents affect airworthiness and granting the approval on behalf of the Authority.

(u) Ensuring the initiation of activities as a response to a failure (accident/incident/in-service occurrence) evaluation and complaints from the operation and providing of information to the Authority in case of airworthiness impairment (continuing airworthiness).

(v) Advising the Authority with regard to the issue of airworthiness directives in general based on Service Bulletins.

(w) Ensuring that the manuals approved by the Authority, including any subsequent revisions (the Aircraft Flight Manual, MMEL, the Airworthiness Limitations section of the Instructions for Continued Airworthiness and the CMR document, where applicable) are checked to determine that they meet the respective requirements, and that they are provided to the Authority for approval.

3.1.5. Maintenance and Operating Instructions

(a) Ensuring the preparation and updating of all maintenance and operating instructions (including Services Bulletins) needed to maintain airworthiness (continuing airworthiness) in accordance with relevant airworthiness requirements. For that purpose, the applicant should:

iv. establish the list of all documents it is producing to comply with the applicable airworthiness requirements;

v. define procedures and organisation to produce and issue these documents, using where applicable and so elected BMAR 21.A.263(c)(3) privilege.

(b) In accordance with BMAR 21.A.57, BMAR 21.A.61, BMAR 21.A.107, BMAR 21.A.119, BMAR 21.A.120 and BMAR 21.A.449, ensuring that these documents are provided to all affected operating organisations and authorities.

3.2. Continued Effectiveness of the design assurance system.

The organisation should establish the means by which the continuing evaluation (system monitoring) of the design assurance system will be performed in order to ensure that it remains effective.

GM No. 2 to 21.A.239(a) Design assurance system for minor changes to type design or minor repairs to products

1. Purpose

This GM outlines some basic principles and objectives in order to comply with BMAR 21.A.239(a) for organisations designing only minor changes to type design or minor repairs to products.

2. Design assurance system

The design assurance system should include the following:

(a) an organisational structure to:

i. control the design;

ii. demonstrate compliance with applicable airworthiness and environmental protection (where applicable) requirements;

iii. independently check demonstration of compliance;

iv. liaise with the Authority;

v. continuously evaluate the design organisation;

vi. control sub-contractors.

(b) Procedures and responsibilities associated with the functions listed above, taking due account of BMAR 21 requirements applicable to design and approval of minor changes to type design or minor repairs to products.

AMC 21.A.239(a)(3) Design assurance system - Independent system monitoring

The system monitoring function required by BMAR 21.A.239(a)(3) may be undertaken by the existing quality assurance organisation when the design organisation is part of a larger organisation.

AMC 21.A.239(b) Design assurance system - Independent checking function of the showing of compliance

(a) The independent checking function of the showing of compliance should consist of the verification by a person not creating the compliance data. Such person may work in conjunction with the individuals who prepare compliance data.

(b) The verification should be shown by signing compliance documents, including test programmes and data.

(c) For a product, there is normally only one compliance verification engineer nominated for each relevant subject. A procedure should cover the non-availability of nominated persons and their replacement when necessary.

(d) For MSTC cases, when compliance statement and associated documentation are produced by the MTC holder, and when these data are approved under the system of the authority of MTC holder, then the MSTC applicant MDOEs not need to provide, within its own MDOA, the independent checking function required in BMAR 21.A.239(b) for these data.

GM 21.A.239(c) Design assurance system

In meeting the requirements of BMAR 21.A.239(c) the applicant for a military design organisation approval under BMAR 21 Section A Subpart J may adopt the following policy:

(a) The satisfactory integration of the Partner/Sub-contractor and applicant's design assurance systems should be demonstrated for the activities covered under the applicant's terms of approval.

(b) In the event that a Partner/Sub-contractor holds a MDOA, then in accordance with BMAR 21.A.239(c), the applicant may take this into account in demonstrating the effectiveness of this integrated system.

(c) When any Partner/Sub-contractor MDOEs not hold a MDOA then the applicant will need to establish to its own satisfaction and the satisfaction of the Authority, the adequacy of that partner's/sub-contractor's design assurance system in accordance with BMAR 21.A.243(b).

21.A.243 Military Design Organisation Exposition (MDOE)

(a) The design organisation shall furnish a MDOE to the Authority describing, directly or by cross-reference, the organisation, the relevant procedures and the products, or changes to products to be designed.

(b) Where any parts or appliances, or any changes to the products are designed by partner organisations or subcontractors, the MDOE shall include a statement of how the design organisation is able to give, for all parts and appliances, the assurance of compliance required by BMAR 21.A.239(b), and shall contain, directly or by cross-reference, descriptions and information on the design activities and organisation of those partners or subcontractors, as necessary to establish this statement.

(c) The MDOE shall be amended as necessary to remain an up-to-date description of the organisation, and copies of amendments shall be supplied to the Authority.

(d) The design organisation shall furnish a statement of the qualifications and experience of the management staff and other persons responsible for making decisions affecting airworthiness and environmental protection (where applicable) in the organisation.

AMC No. 1 to 21.A.243(a) Military Design Organisation Exposition requirements

The MDOE should provide the following information for each product covered by the design organisation approval.

(a) A description of the tasks which can be performed under the approval, according to the following classification:

i. General areas, like turbojet and turbo-propeller aircraft, small aircraft, UAVs and rotorcraft;

ii. Technologies handled by the organisation (composite, wood or metallic construction, electronic systems, etc.);

iii. A list of types and models for which the design approval has been granted and for which privileges may be exercised, supported by a brief description for each product;

iv. For repair design, classification and (if appropriate) approval activities it is necessary to specify the scope of activity in terms of structures, systems, engines, etc.

(b) A general description of the organisation, its main departments, their functions and the names of those in charge; a description of the line management and of functional relationships between the various departments.

(c) A description of assigned responsibilities and delegated authority of all parts of the organisation which, taken together, constitute the organisation's design assurance system together with a chart indicating the functional and hierarchical relationship of the design assurance system to Management and to other parts of the organisation; also the chains of responsibilities within the design assurance system, and the control of the work of all partners and sub-contractors.

(d) A general description of the way in which the organisation performs all the design functions in relation to airworthiness approvals including:

i. The procedures followed and forms used in the Type Investigation process to ensure that the design of, or the change to the design of, the product as applicable is identified and documented, and complies with the applicable airworthiness requirements, including specific requirements for import by importing authorities;

ii. The procedures for classifying design changes as "major" or "minor" and for the approval of minor changes;

iii. The procedures for classifying and approving unintentional deviations from the approved design data occurring in production (concessions or non-conformance's);

iv. The procedure for classifying and obtaining approval for repairs.

(e) A general description of the way in which the organisation performs its functions in relation to the continuing airworthiness of the product it designs, including co-operation with the production organisation when dealing with any continuing airworthiness actions that are related to production of the product, part or appliance, as applicable.

(f) A description of the human resources, facilities and equipment, which constitutes the means for design, and where appropriate, for ground and flight testing.

(g) An outline of a system for controlling and informing the Staff of the organisation of current changes in engineering drawings, specifications and design assurance procedures.

(h) A description of the recording system for:

i. The type design, including relevant design information, drawings and test reports, including inspection records of test specimens;

ii. The means of compliance;

iii. The compliance documentation (compliance check list, reports...).

(i) A description of the record keeping system to comply with BMAR 21.A.55 and BMAR 21.A.105.

(j) A description of the means by which the organisation monitors and responds to problems affecting the airworthiness of its product during design, production and in service in particular to comply with BMAR 21.A.3A (see also GM No. 1 to BMAR 21.A.239(a), paragraphs 3.1.4(s) and (u)).

(k) The names of the design organisation authorised signatories. Nominated persons with specific responsibilities such as mentioned in BMAR 21.A.33 and BMAR 21.A.35 should be listed.

(l) (Reserved).

(m) A clear definition of the tasks, competence and areas of responsibility of the Office of Airworthiness.

(n) A description of the procedures for the establishment and the control of the maintenance and operating instructions (see BMAR 21.A.57, BMAR 21.A.61, BMAR 21.A.107, BMAR 21.A.119, BMAR 21.A.120 and BMAR 21.A.449).

(o) A description of the means by which the continuing evaluation (system monitoring) of the design assurance system will be performed in order to ensure that it remains effective.

AMC No. 2 to 21.A.243(a) Data requirements - Model content of MDOE for organisations designing minor changes to type design or minor repairs to products

Part 1. Organisation

1.1. Objective of MDOE and binding statement

1.2. Responsible person for administration of MDOE

1.3. Amendment procedure

1.4. List of effective pages

1.5. Distribution list

1.6. Presentation of design organisation (including locations)

1.7. Scope of work (with identification of type and models of products)

1.8. Organisation charts

1.9. Human resources

1.10. Management staff

1.11. Certifying personnel (see GM No. 2 to BMAR 21.A.243(d), paragraph 2)

1.12. Independent system monitoring

Part 2. Procedures

2.1. Management of changes to type design and design of repairs

- a) configuration control
- b) classification
- c) approval of minor changes to type design and minor repairs

2.2. Control of design subcontractors

2.3. Collecting/Investigating of failures, malfunctions and defects

2.4. Co-ordination with production

2.5. Documentation control

- a) in relations with the changes and repairs
- b) in relation with failures/malfunctions and defects (i.e. Services - Bulletins)

2.6. Record keeping

GM No. 1 to 21.A.243(d) Statement of qualifications and experience

1. Purpose

This GM provides guidelines on the following points:

(a) Who are the persons covered by BMAR 21.A.243(d)?

(b) What is requested from the applicant for these persons?

2. Who are the persons?

Three different types of functions are named or implicitly identified in the requirements of BMAR 21 Section A Subpart J or in associated AMC and GM, using qualified and experienced personnel:

(a) the Chief Executive [see GM No. 1 to BMAR 21.A.239(a), para. 3.1.2, GM BMAR 21.A.249, GM BMAR 21.A.265(b)].

(b) the other management staff:

i. the Head of the design organisation [see GM No. 1 to BMAR 21.A.239(a), para.3.1.2, GM No. 1 BMAR 21.A.245, para. 4.1, GM BMAR 21.A.265(b)];

ii. the Chief of the Office of Airworthiness, or [see GM No. 1 to BMAR 21.A.245, para. 4.2];

iii. the Chief of the independent monitoring function of the design assurance system [see BMAR 21.A.239(a)(3) and AMC No. 1 to BMAR 21.A.243(a), para.2].

(c) the personnel making decisions affecting airworthiness:

i. compliance verification engineers [see GM No. 1 to BMAR 21.A.239(a), para. 3.1.3; AMC BMAR 21.A.239(b)];

ii. personnel of the Office of Airworthiness making decisions affecting airworthiness, especially those linked with the BMAR 21.A.263 privileges (signing documents for release, approving classification of changes and repairs, and granting the approval of minor changes and minor repairs, granting the approval of SBs, and minor revisions to the aircraft flight manual) [see GM No. 1 to BMAR 21.A.239(a), para. 3.1.4].

3. Kind of statement

3.1. Chief Executive

The Chief Executive should provide the necessary resources for the proper functioning of the design organisation.

A statement of the qualification and experience of the Chief Executive is normally not required.

3.2. Other management staff

The person or persons nominated should represent the management structure of the organisation and be responsible through the Head of design organisation to the Chief Executive for the execution of all functions as specified in BMAR 21 Section A Subpart J. Depending on the size of the organisation, the functions may be subdivided under individual managers.

The nominated managers should be identified and their credentials furnished to the Authority on BMAR Form 4 in order that they may be seen to be appropriate in terms of relevant knowledge and satisfactory experience related to the nature of the design activities as performed by the organisation.

The responsibilities and the tasks of each individual manager should be clearly defined, in order to prevent uncertainties about the relations, within the organisation. Responsibilities of the managers should be defined in a way that all responsibilities are covered.

3.3. Personnel making decisions affecting airworthiness

For these personnel, no individual statement is required. The applicant should show to the Authority that there is a system to select, train, maintain and identify them for all tasks where they are necessary.

The following guidelines for such a system are proposed:

(a) These personnel should be identified in the MDOE, or in a document linked to the MDOE. This, and the corresponding procedures, should enable them to carry out the assigned tasks and to properly discharge associated responsibilities.

(b) The needs, in terms of quantity of these personnel to sustain the design activities, should be identified by the organisation.

(c) These personnel should be chosen on the basis of their knowledge, background and experience.

(d) When necessary, complementary training should be established, to ensure sufficient background and knowledge in the scope of their authorization. The minimum standards for new personnel to qualify in the functions should be established. The training should lead to a satisfactory level of knowledge of the procedures relevant for the particular role.

(e) Training policy forms part of the design assurance system and its appropriateness forms part of investigation by the Authority within the organisation approval process and subsequent surveillance of persons proposed by the organisation.

(f) This training should be adapted in response to experience gained within the organisation.

(g) The organisation should maintain a record of these personnel which includes details of the scope of their authorisation. The personnel concerned should be provided with evidence of the scope of their authorisation.

(h) The following minimum information should be kept on record:

i. Name;

ii. Date of birth;

iii. Experience and training;

iv. Position in organisation;

v. Scope of the authorisation;

vi. Date of first issue of the authorisation;

vii. If appropriate, date of expiry of the authorisation;

viii. Identification number of the authorisation.

The record may be kept in any format and should be controlled.

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

(j) Personnel should be given access to their own record.

(k) Under the provision of BMAR 21.A.257 the Authority has a right of access (subject to contract) to the data held in such a system.

(l) The organisation should keep the record for at least 2 years after a person has ceased employment with the organisation or withdrawal of the authorisation, whichever is the sooner.

GM No. 2 to 21.A.243(d) Data requirements - Statement of the qualification and experience- Organisations designing minor changes to type design or minor repairs to products

For organisations designing minor changes to type design or minor repairs to products, the statement of the qualifications and experience required by BMAR 21.A.243(d) should be addressed as follows :

(a) The nominated managers should be identified and their credentials submitted to the Authority on BMAR Form 4 in order that they may be seen to be appropriate in terms of relevant knowledge and satisfactory experience related to the nature of the design activities as performed by the organisation.

(b) The persons responsible to:

i. classify changes to type design or repairs;

ii. verify compliance [BMAR 21.A.239(b)];

iii. approve minor changes to type design and minor repairs [BMAR 21.A.263(c)(2)];

iv. issue information or instructions [BMAR 21.A.263(c)(3)].

Should be selected by the organisation in accordance with a procedure and criteria agreed with the Authority.

21.A.245 Approval requirements

The design organisation shall demonstrate, on the basis of the information submitted in accordance with BMAR 21.A.243 that, in addition to complying with BMAR 21.A.239:

(a) The staff in all technical departments are of sufficient numbers and experience and have been given appropriate authority to be able to discharge their allocated responsibilities and that these, together with the accommodation, facilities and equipment are adequate to enable the staff to achieve the airworthiness and environmental protection (where applicable) objectives for the product;

(b) There is full and efficient coordination between departments and within departments in respect of airworthiness matters.

GM No. 1 to 21.A.245 Requirements for approval

1. General

The MDOE submitted in accordance with BMAR 21.A.243 should show that sufficient skilled personnel are available and suitable technical and organisational provisions have been made for carrying out the Type Investigation defined by GM No. 1 to BMAR 21.A.239(a), paragraph 2.3.

2. Personnel

The applicant should show that the personnel available to comply with BMAR 21.A.245(a) are, due to their special qualifications and number, able to provide assurance of the design or modification of a product, as well as the compilation and verification of all data needed to meet the applicable airworthiness requirements while taking into account the present state of the art and new experience.

3. Technical

The applicant should have access to:

a) Workshops and production facilities which are suitable for manufacturing prototype models and test specimens;

b) Accommodation and test facilities which are suitable for carrying out tests and measurements needed to demonstrate compliance with the airworthiness requirements. The test facilities may be subjected to additional technical conditions related to the nature of tests performed.

4. Organisation

The MDOE submitted in accordance with BMAR 21.A.243 should show that:

4.1. The Head of the design organisation for which an application for approval has been made, has the direct or functional responsibility for all departments of the organisation which are responsible for the design of the product. If the departments responsible for design are functionally linked, the Head of the design organisation still carries the ultimate responsibility for compliance of the organisation with BMAR 21 Section A Subpart J.

4.2. An Office of Airworthiness, or equivalent function, has been established and staffed on a permanent basis to act as the focal point for co-ordinating airworthiness matters (see GM No. 1 to BMAR 21.A.239(a) paragraph 3.1.4); it reports directly to the Head of the design organisation or is integrated into an independent quality assurance organisation reporting to the Head of the design organisation.

4.3. (Reserved)

4.4. Responsibilities for all tasks related to Type Investigations are assigned in such a way that gaps in authority are excluded.

4.5. The responsibility for a number of tasks as in paragraph 4.4 may be assigned to one person especially in the case of simple projects.

4.6. Co-ordination between technical departments and the persons in charge of the system monitoring required by BMAR 21.A.239(a)(3) has been established :

a) to ensure quick and efficient reporting and resolution of difficulties encountered using the MDOE and associated procedures;

b) to maintain the design assurance system;

c) to optimise auditing activities.

GM No. 2 to 21.A.245 Requirements for approval - Organisations designing minor changes to type design or minor repairs to products

The MDOE submitted in accordance with BMAR 21.A.243 should show that:

a) The manager responsible for design has the direct or functional responsibility for all departments of the organisation which are involved in the design of minor changes to type design or minor repairs to products.

b) Person(s) have been nominated to liaise with the Authority and to co-ordinate airworthiness and environmental protection (where applicable) matters. Their position in the organisation should allow direct report to the manager responsible for design.

c) Responsibilities for all tasks related to the design and approval of minor changes to type design or minor repairs to products are assigned to ensure that all areas are covered

d) The responsibility for a number of tasks as in paragraph 3 may be assigned to one person especially in the case of simple projects.

21.A.247 Changes in design assurance system

After the issue of a military design organisation approval, each change to the design assurance system that is significant to the showing of compliance or to the airworthiness and environmental

protection (where applicable) of the product shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the design organisation shall demonstrate to the Authority, on the basis of submission of proposed changes to the MDOE, and before implementation of the change, that it will continue to comply with this Subpart after implementation.

GM 21.A.247 Significant changes in the design assurance system

In addition to a change in ownership (see BMAR 21.A.249), the following changes to the design assurance system should be considered as “significant” to the showing of compliance to the airworthiness of the products:

1. Organisation

a) Relocation to new premises (see also GM BMAR 21.A.249).

b) Change in the industrial organisation (partnership, suppliers, design worksharing) unless it can be shown that the independent checking function of the showing of compliance is not affected.

c) Change in the parts of the organisation that contribute directly to the airworthiness (independent checking function, office of airworthiness [or equivalent]).

d) Change to the independent monitoring principles (see BMAR 21.A.239(a)(3)).

2. Responsibilities

a) Change of the management staff.

i. the Head of the design organisation [GM No. 1 to BMAR 21.A.239(a), para. 3.1.2, GM No. 1 to BMAR 21.A.245, para. 4.1, GM BMAR 21.A.265(b)];

ii. the Chief of the Office of Airworthiness [GM No. 1 to BMAR 21.A.245, para. 4.2];

iii. the Chief of the independent monitoring function of the design assurance system [BMAR 21.A.239(a)(3) and AMC No. 1 to BMAR 21.A.243(a), para.2].

b) New distribution of responsibilities affecting airworthiness.

c) For organisations designing minor changes to type design or minor repairs to products, change of the persons identified in GM No. 2 to BMAR 21.A.243(d).

3. Procedures

Change to the principles of procedures related to:

a) the type-certification.

b) the classification of changes and repairs as " major " or " minor " [BMAR 21.A.263(c)(1)].

c) the treatment of major changes and major repairs.

d) the approval of the design of minor changes and minor repairs [BMAR 21.A.263(c)(2)].

e) the issue of information and instructions under the privilege of BMAR 21.A.263(c)(3).

f) the approval of documentary changes to the Aircraft Flight Manual [BMAR 21.A.263(c)(4)].

g) the approval of the design of major repairs [BMAR 21.A.437 or BMAR 21.A.263(c)(5)].

h) continuing airworthiness (see BMAR 21.A.3A).

i) the configuration control, when airworthiness r environmental protection (where applicable) is affected.

j) the acceptability of design tasks undertaken by partners or subcontractors [BMAR 21.A.239(c)].

4. Resources

Substantial reduction in number and/or experience of staff (see BMAR 21.A.245(a)).

21.A.249 Transferability

Except as a result of a change in ownership, which is deemed significant for the purposes of BMAR 21.A.247, a design organisation approval is not transferable.

GM 21.A.249 Transferability

Transfer of the approval would normally only be agreed in cases where the organisation itself remains substantially unchanged.

An acceptable transfer situation could be for example a change of company name (supported by the appropriate certificate from the National Companies Registration Office or equivalent) but with no changes to site address or Chief Executive.

In the event of receivership there may be good technical justification for continuation of the approval provided that the company continues to function in a satisfactory manner. It is likely that at a later stage the approval might be surrendered by the receiver or transferred to another organisation in which case the former paragraphs apply.

21.A.251 Terms of approval

The terms of approval shall identify the types of design work, categories of products, parts and appliances for which the design organisation holds a military design organisation approval, and the functions and duties that the organisation is approved to perform in regard to the airworthiness of products. For military design organisation approval covering type-certification or MTSO authorisation for Auxiliary Power Unit (APU), the terms of approval shall contain in addition the list of products or APU. Those terms shall be issued as part of a military design organisation approval.

GM No. 1 to 21.A.251 Terms of approval

The terms of approval are stated on the certificate of approval issued by the Authority. The certificate states the scope of work and the products, changes or repairs thereof, with the appropriate limitations for which the approval has been granted. For MDOA covering type-certification or MTSO authorisation for APU, the list of product types covered by the design assurance system should be included.

Approval of a change in the terms of approval in accordance with BMAR 21.A.253 will be confirmed by an appropriate amendment of the certificate of approval.

The certificate references the MDOE of the approved design organisation, provided in accordance with BMAR 21.A.243. This MDOE defines the tasks which may be performed under the approval.

Scopes of work are, for example, “subsonic turbojet aircraft”, “turbo-propeller aircraft”, “small aircraft”, “rotorcraft”... Technologies are quoted in the scope of work when it is considered by the Authority as a limitation for the MDOA.

For repair design activities, the certificate states the scope of work with the appropriate limitations for which the approval has been granted.

GM No. 2 to 21.A.251 Terms of approval - Organisations designing minor changes to type design or minor repairs to products

Terms of approval issued for organisations designing minor changes to type design or minor repairs to products should contain:

1. Scope of work

This military design organisation approval has been granted for:

a) designing minor changes to type design or minor repairs to [aircraft, engine, propeller] in accordance with the applicable airworthiness,

b) showing and verifying the compliance with these airworthiness.

2. Category of products

Any other indication if the Authority has found a limitation related to aircraft systems or technologies and reducing the scope as defined in paragraph 1.

3. Privileges

The holder of this approval is entitled to:

List of the privileges granted with the approval, pursuant to BMAR 21.A.263(c)(1), (2) and (3).

21.A.253 Changes to the terms of approval

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The design organisation shall comply with the applicable requirements of this Subpart.

21.A.257 Investigations

(a) The design organisation shall make arrangements that allow the Authority to make any investigations, including investigations of partners and subcontractors, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart.

(b) The design organisation shall allow the Authority to review any report and make any inspection and perform or witness any flight and ground test necessary to check the validity of the compliance statements submitted by the applicant under BMAR 21.A.239(b).

GM 21.A.257(a) Investigations

Arrangements that allow the Authority to make investigations include the complete design organisation including partners, sub-contractors and suppliers, whether they are in the State of the applicant or not, assisting and co-operating with the Authority in performing inspections and audits conducted during initial assessment and subsequent surveillance.

Assistance to the Authority includes all appropriate means associated with the facilities of the design organisation to allow the Authority to perform these inspections and audits, such as a meeting room and office support.

21.A.258 Findings

(a) When objective evidence is found showing non-compliance of the holder of a military design organisation approval with the applicable requirements of this BMAR, the finding shall be classified as follows:

1. A level one finding is any non-compliance with this BMAR which could lead to uncontrolled non-compliances with applicable requirements and which could affect the safety of the aircraft;
2. A level two finding is any non-compliance with this BMAR which is not classified as level one.

(b) A level three finding is any item where it has been identified, by objective evidence, to contain potential problems that could lead to a non-compliance under paragraph (a).

(c) After receipt of notification of findings under the applicable administrative procedures established by the Authority,

1. In case of a level one finding, the holder of the military design organisation approval shall demonstrate corrective action to the satisfaction of the Authority within a period of no more than 21 working days after written confirmation of the finding;
2. In case of level two findings, the corrective action period granted by the Authority shall be appropriate to the nature of the finding but in any case initially shall not be more than three months. In certain circumstances and subject to the nature of the finding the Authority may extend the three month period subject to a satisfactory corrective action plan agreed by the Authority.
3. A level three finding shall not require immediate action by the holder of the military design organisation approval. If appropriate, the Authority will specify a compliance time.

(d) In case of level one or level two findings, the military design organisation approval may be subject to a partial or full suspension or revocation under the applicable administrative procedures established by the Authority. The holder of the military design organisation approval shall provide confirmation of receipt of the notice of suspension or revocation of the military design organisation approval in a timely manner.

21.A.259 Duration and continued validity

(a) A military design organisation approval can be issued for a limited period. It shall remain valid for that duration unless:

1. The design organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or
2. The Authority is prevented by the holder or any of its partners or subcontractors to perform the investigations in accordance with BMAR 21.A.257; or
3. There is evidence that the design assurance system cannot maintain satisfactory control and supervision of the design of products or changes thereof under the approval; or
4. The certificate has been surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.263 Privileges

The Authority may grant the following privileges:

(a) The holder of a military design organisation approval shall be entitled to perform design activities under this BMAR and within its scope of approval;

(b) Subject to BMAR 21.A.257(b), the Authority shall accept without further verification the following compliance documents submitted by the applicant for the purpose of obtaining:

1. The approval of flight conditions required for a military permit to fly; or
2. A type-certificate or approval of a major change to a type design; or
3. A supplemental type-certificate; or
4. An MTSO authorisation under BMAR 21.A.602B(b)(1); or
5. A major repair design approval.

(c) The holder of a military design organisation approval shall be entitled, within its terms of approval and under the relevant procedures of the design assurance system:

1. To classify changes to type design and repairs as ‘major’ or ‘minor’;
2. To approve minor changes to type design and minor repairs;
3. To issue information or instructions containing the following statement: ‘The technical content of this document is approved under the authority of MDOA ref. BEL.[Authority].21J.[XXXX];
4. To approve minor revisions to the aircraft flight manual and supplements, and issue such changes containing the following statement: ‘Revision nr. YY to AFM (or supplement) ref. (ZZ), is approved under the authority of MDOA ref. BEL.[Authority].21J.[XXXX];
5. To approve the design of major repairs to products for which it holds the type-certificate or the supplemental type-certificate or MTSO authorisation;
6. To approve the conditions under which a military permit to fly can be issued in accordance with BMAR 21.A.710(a)(2) :

   i. Except for initial flights of:

   - A new type of aircraft; or
   - An aircraft modified by a change that is, or would be, classified as a significant major change or significant STC; or
   - An aircraft whose flight and/or piloting characteristics may have been significantly modified; or
   - An aircraft dedicated to open a non-conventional flight envelope.

ii. Except for permits to fly to be issued for the purpose of BMAR 21.A.701(a)(15).

7. To issue a military permit to fly in accordance with BMAR 21.A.711(b) for an aircraft it has designed or modified, or for which it has approved under BMAR 21.A.263(c)6 the conditions under which the military permit to fly can be issued, and when the design organisation itself is controlling under its MDOA the configuration of the aircraft and is attesting conformity with the design conditions approved for the flight.

(d) For a military product derived from a civil type certified product, the holder of a MDOA shall be entitled, within its terms of approval and under the relevant procedures of the design assurance system:

1. To declare the applicability, through validation of no impact to the military certification basis and the intended use, of the following when it is has already been approved by a recognized civil airworthiness authority:

i. A modification; or

ii. An instruction for continuing airworthiness; or

iii. Revisions to the flight manual; or

iv. Revisions to the maintenance manual.

2. To approve the following, when it is has already been approved by a recognized civil airworthiness authority and when it has been declared to be applicable to the military product:

i. A major modification; or

ii. Revisions to the flight manual; or

iii. Revisions to the approved sections of the maintenance manual.

GM 21.A.263(b) MDOA privilege related to compliance documents

A compliance document is the end result of a certification process, where the demonstration of compliance is recorded. For each specific certification process, the Authority is involved in the process itself at an early stage, especially through the establishment of the certification programme. The inspections or tests under BMAR 21.A.257(b) may be performed at various stages of the whole certification process, not necessarily when the compliance document is presented.

Therefore, according to the scheduled level of involvement, the Authority should agree with the MDOA holder documents to be accepted without further Authority verification under the MDOA privilege of BMAR 21.A.263(b).

AMC 21.A.263(b)(1) Compliance documents with conditions related to engine or propeller without a type-certificate or with unapproved changes and fitted on aircraft for which a military permit to fly is requested

The establishment of flight conditions may include conditions related to engines/propellers without a type-certificate or with unapproved changes and fitted on the aircraft for which a military permit to fly is requested. These conditions (i.e. installation, operating, maintenance conditions or limitations) are defined by the organisation responsible for the design of the engine/propeller and provided to the organisation responsible for the design of the aircraft.

When the organisation responsible for the design of the engine/propeller has a MDOA, the establishment and substantiation of these conditions should be done under the relevant MDOA procedures. For that purpose, the associated documentation should be processed like any other

compliance document. It should be provided to the organisation responsible for the design of the aircraft that will use it for the establishment of the aircraft flight conditions.

AMC No. 1 to 21.A.263(c)(1) Procedure for the classification of changes to type design and repairs as minor and major

1. Intent

This acceptable means of compliance provides means to develop a procedure for the classification of changes to type design and repairs.

Each MDOA applicant should develop its own internal classification procedure following this AMC, in order to obtain the associated BMAR 21.A.263(c)(1) privilege.

2. Procedure for the classification of changes to type design and repairs

2.1. Content

The procedure should address the following points:

a) the identification of changes to type design or repairs;

b) classification;

c) justification of the classification;

d) authorised signatories;

e) supervision of changes to type design or repairs initiated by subcontractors.

For changes to type design, criteria used for classification should be in compliance with BMAR 21.A.91 and GM BMAR 21.A.91.

For repairs, criteria used for classification should be in compliance with BMAR 21.A.435 and GM BMAR 21.A.435.

2.2. Identification of changes to type design or repairs

The procedure should indicate how the following are identified:

a) major changes to type design or major repairs;

b) those minor changes to type design or minor repairs where additional work is necessary to show compliance with the airworthiness and environmental protection requirements (where applicable);

c) other minor changes to type design or minor repairs requiring no further showing of compliance.

2.3. Classification

The procedure should show how the effects on airworthiness and environmental protection (where applicable) are analysed, from the very beginning, by reference to the applicable requirements.

If no specific airworthiness or environmental protection requirements (where applicable) are applicable to the change or repairs, the above review should be carried out at the level of the part or system where the change or repair is integrated and where specific airworthiness are applicable.

2.4. Justification of the classification

All decisions of classification of changes to type design or repairs as “major” or “minor” should be recorded and, for those which are not straightforward, also documented. These records should be easily accessible to the Authority for sample check.

2.5. Authorised signatories

All classifications of changes to type design or repairs should be accepted by an appropriate authorised signatory.

The procedure should indicate the authorised signatories for the various products listed in the terms of approval.

For those changes or repairs that are handled by subcontractors, as described under paragraph 2.6, it should be described how the MDOA holder manages its classification responsibility.

2.6. Supervision of changes to type design or repairs initiated by subcontractors

The procedure should indicate, directly or by cross-reference to written procedures, how changes to type design or repairs may be initiated and classified by subcontractors and are controlled and supervised by the MDOA holder.

AMC No. 2 to 21.A.263(c)(1) Privileges - Organisations designing minor changes to type design or minor repairs to products : classification procedure

1. Content

The procedure should address the following points:

a) configuration control rules, especially the identification of changes to type design or repairs;

b) classification, in compliance with BMAR 21.A.91 and GM BMAR 21.A.91 for changes and GM BMAR 21.A.435 for repairs;

c) justification of the classification;

d) authorised signatories.

2. Identification of changes to type design or repairs

The procedure should indicate how the following minor changes to type design or minor repairs are identified:

a) those minor design changes to type design or minor repairs where additional substantiation data is necessary to show compliance with the airworthiness;

b) other minor design changes to type design or minor repairs requiring no further showing of compliance.

3. Classification

The procedure should show how the effects on airworthiness and environmental protection (where applicable) are analysed, from the very beginning, by reference to the applicable requirements.

If no specific requirements are applicable to the change or the repair, the above review should be done at the level of the part or system where the change or repair is integrated and where specific airworthiness requirements are applicable.

For repair, see also GM BMAR 21.A.435.

4. Justification of the classification

All decisions of classification of changes to type design or repairs as "minor" should be recorded and, for those which are not straightforward, also documented. These records should be easily accessible to the Authority for sample check.

It may be in the format of meeting notes or register.

5. Authorised signatories

All classifications of changes to type design or repairs should be accepted by an appropriate authorised signatory.

The procedure should indicate the authorised signatories for the various products listed in the terms of approval.

AMC No. 1 to 21.A.263(c)(2) Procedure for the approval of minor changes to type design or minor repairs

1. Intent

This acceptable means of compliance provides means to develop a procedure for the approval of minor changes to type design or minor repairs.

Each MDOA applicant should develop its own internal procedures following this AMC, in order to obtain the associated privilege under BMAR 21.A.263(c)(2).

2. Procedure for the approval of minor changes to type design or minor repairs

2.1. Content

The procedure should address the following points:

a) compliance documentation;

b) approval under the MDOA privilege;

c) authorised signatories;

d) supervision of minor changes to type design or minor repairs handled by subcontractors.

2.2. Compliance documentation

For those minor changes to type design or minor repairs where additional work to show compliance with the applicable airworthiness requirements is necessary, compliance documentation should be established and independently checked as required by BMAR 21.A.239(b).

The procedure should describe how the compliance documentation is produced and checked.

2.3. Approval under the MDOA privilege

2.3.1. For those minor changes to type design or minor repairs where additional work to show compliance with the applicable airworthiness is necessary, the procedure should define a document to formalise the approval under the MDOA privilege.

This document should include at least :

a) identification and brief description of the change or repair and reasons for change or repair;

b) applicable airworthiness or environmental protection requirements (where applicable) and methods of compliance;

c) reference to the compliance documents;

d) effects, if any, on limitations and on the approved documentation;

e) evidence of the independent checking function of the demonstration of compliance;

f) evidence of the approval under the privilege of BMAR 21.A.263(c)(2) by an authorised signatory;

g) date of the approval.

For repairs, see AMC BMAR 21.A.433(a).

2.3.2. For the other minor changes to type design or minor repairs, the procedure should define a means to identify the change or repair and reasons for the change or repair, and to formalise its approval by the appropriate engineering authority under an authorised signatory. This function may be delegated by the Office of Airworthiness but should be controlled by the Office of Airworthiness, either directly or through appropriate procedures of the MDOA holder's design assurance system.

2.4. Authorised signatories

The persons authorised to sign for the approval under the privilege of BMAR 21.A.263(c)(2) should be identified (name, signature and scope of authority) in appropriate documents that maybe linked to the MDOE.

2.5. Supervision of minor changes to type design or minor repairs handled by subcontractors

For the minor changes to type design or minor repairs described in 2.3.2, that are handled by subcontractors, the procedure should indicate, directly or by cross-reference to written procedures how these minor changes to type design or minor repairs are approved at the subcontractor level and the arrangements made for supervision by the MDOA holder.

AMC No. 2 to 21.A.263(c)(2) Privileges - Organisations designing minor changes to type design or minor repairs to products : procedure for the approval of minor changes to type design or minor repairs

1. Content

The procedure should address the following points:

a) compliance documentation;

b) approval under the MDOA privilege;

c) authorised signatories.

2. Compliance documentation

For those minor changes to type design or minor repairs where additional work to show compliance with the applicable airworthiness and environmental protection requirements (where applicable) is necessary, compliance documentation should be established and independently checked as required by BMAR 21.A.239(b).

The procedure should describe how the compliance documentation is produced and checked.

3. Approval under the MDOA privilege

For those minor changes to type design or minor repairs where additional work to demonstrate compliance with the applicable airworthiness or environmental protection requirements (where applicable) is necessary, the procedure should define a document to formalise the approval under the MDOA privilege.

This document should include at least:

a) identification and brief description of the change or the repair and reason for change or repair;

b) applicable airworthiness or environmental protection requirements (where applicable)and methods of compliance;

c) reference to the compliance documents;

d) effects, if any, on limitations and on the approved documentation;

e) evidence of the independent checking function of the showing of compliance;

f) evidence of the approval under the privilege of BMAR 21.A.263(c)(2) by an authorised signatory;

g) date of the approval.

For repairs, see also AMC BMAR 21.A.433(a).

For the other minor changes to type design or minor repairs, the procedure should define a means to identify the change or repair and reasons for the change or repair, and to formalise its approval by the appropriate engineering authority under an authorised signatory. This function should be controlled through appropriate procedures of the MDOA holder's design assurance system.

4. Authorised signatories

The persons authorised to sign for the approval under the privilege of BMAR 21.A.263(c)(2) should be identified (name, signature and scope of authority) in appropriate documents that may be linked to the MDOE.

GM 21.A.263(c)(3) Issue of information or instructions

1. Intent

This GM provides guidelines to address the various aspects the MDOA should cover in order to have a comprehensive procedure for the issue of information or instructions.

2. Scope

The information or instructions referred to in BMAR 21.A.263(c)(3) are issued by a MDOA holder to make available to the operating organisations of a product with all necessary data to implement a change on the product or a repair, or to inspect it. Some are also issued to provide maintenance organisations and other interested persons with all necessary maintenance data for the performance of maintenance, including implementation of a change on the product or a repair, or inspection, in accordance with BMAR 21.A.61, BMAR 21.A.107, BMAR 21.A.120 or BMAR 21.A.449 (Instructions for Continuing Airworthiness).

This information or instructions may be issued in a format of a Service Bulletin as defined in S1000D Chapters, or in Structural Repair Manuals, Maintenance Manuals, Engine and Propeller Manuals etc.

The preparation of this data involves design, production and inspection. As the overall responsibility, through the privilege, is allocated to the MDOA holder, the three aspects should be properly handled under the MDOA to obtain the privilege "to issue information or instructions containing a statement that the technical content is approved", and a procedure should exist.

3. Procedure

For the information and instructions issued under BMAR 21.A.263(c)(3), the MDOA holder should establish a procedure addressing the following points :

a) Preparation;

b) verification of technical consistency with corresponding approved change(s), repair(s) or approved data, including effectivity, description, effects on airworthiness and environmental protection (where applicable), especially when limitations are changed;

c) verification of the feasibility in practical applications;

d) authorised signatories.

The procedure should include the information or instructions prepared by subcontractors or vendors, and declared applicable to its products by the MDOA holder.

4. Statement

The statement provided in the information or instructions should also cover the information or instructions prepared by subcontractors or vendors and declared applicable to its products by the MDOA holder.

The technical content is related to the design data and accomplishment instructions, and its approval means that:

a) the design data has been appropriately approved; and

b) the instructions provide for practical and well defined installation/inspection methods, and, when accomplished, the product is in conformity with the approved design data.

Note : Information and instructions related to required actions under BMAR 21.A.3B(b) (airworthiness directives) are submitted to the Authority to ensure compatibility with Airworthiness directive content (see BMAR 21.A.265(e)), and contain a statement that they are, or will be, subject to an airworthiness directive issued by the Authority.

GM 21.A.263(c)(4) Procedure for the approval of minor revisions to the Aircraft Flight Manual

1. Intent

This GM provides guidelines to develop a procedure for the approval of minor revisions to the Aircraft Flight Manual (AFM).

Each MDOA applicant should develop its own internal procedure, based on these guidelines, in order to obtain the associated privilege under BMAR 21.A.263(c)(4).

2. Minor revisions to the AFM

2.1. The following revisions to the AFM are defined as minor revisions:

a) Revisions to the AFM associated with changes to type design classified as minor in accordance with BMAR 21.A.91

b) Revision to the AFM not associated with changes to type design (also identified as stand-alone revisions), that falls under one of the following:

- Changes to limitations or procedures that are achieved without altering or exceeding certification data (e.g. weight, structural, etc.)
- Consolidation of two or more previously approved and compatible AFMs into one, or compilation of different parts taken from previously approved and compatible AFMs that are directly applicable to the subject aircraft
- The introduction of compatible and previously approved AFM amendments, revisions, appendices or supplements

c) Administrative revisions to the AFM, defines as follows:

i. for AFM issued by the military type-certificate holder:

- Editorial revisions or corrections to the AFM
- Changes to parts of the AFM that are not required to be approved by the Authority
- The addition of compatible and previously approved AFM Temporary changes, appendices or Supplements
- Conversions of previous Authority (BMAA, recognized NMAA, FAA or EASA) approved combinations of units of measurement added to the AFM in a previously approved manner

- The addition of aircraft serial numbers to an existing AFM where the aircraft configuration, as related to the AFM, is identical to aircraft already in that AFM
- The removal of reference to aircraft serial numbers no longer applicable to that AFM
- The translation of an Authority approved AFM (possibly through recognition) into Dutch, French or English

ii. for AFM supplements issued by MSTC holders:

- Editorial revisions or corrections to the AFM Supplement
- Changes to parts of the AFM that are not required to be approved by the Authority
- Conversions of previous Authority (BMAA, recognized NMAA, FAA or EASA) approved combinations of units of measurement added to the AFM in a previously approved manner
- The addition of aircraft serial numbers to an existing AFM Supplement where the aircraft configuration, as related to the AFM Supplement, is identical to aircraft already in that AFM Supplement;
- The removal of reference to aircraft serial numbers no longer applicable to that AFM Supplement
- The addition of a new MSTC to an existing AFM supplement, when this supplement is fully applicable to the new MSTC
- The translation of an Authority approved AFM (possibly through recognition) into Dutch, French or English

2.2. No other revision can be classified as minor, unless specifically agreed by the Authority.

3. Procedure for the approval of minor revision to the AFM

3.1. Content

The procedure should address the following points:

a) preparation of all revisions to the AFM

b) classification as minor of the revision to the AFM

c) approval of the revisions to the AFM

d) approval statement

3.2. Preparation

The procedure should indicate how revisions to the AFM are prepared and how the co-ordination with people in charge of design changes is performed.

3.3. Classification

The procedure should indicate how the revisions to the AFM are classified as minor, in accordance with the criteria of paragraph 2.

All decisions of classification of minor revisions to the AFM that are not straightforward must be recorded and documented. These records must be easily accessible to the Authority for sample check.

All classifications of minor revisions to AFM must be accepted by an appropriate authorised signatory.

The procedure must indicate the authorised signatories for the various products listed in the terms of approval.

3.4. Approval

The procedure should indicate how the approval under the privilege of BMAR 21.A.263(c)(4) will be formalised.

The authorised signatories should be identified (name, signature), together with the scope of authorisation, in a document that can be linked to the MDOA handbook.

3.5. Approval statement

Revisions of the AFM under the privilege of BMAR 21.A.263(c)(4) should be issued with the approval statement defined in BMAR 21.A.263(c)(4) on the front page and/or in the log of revisions

AMC 21.A.263(c)(6) Procedure for the approval of the conditions for issue of a military permit to fly

1. Intent

This AMC provides means to develop a procedure to determine that an aircraft can fly, under the appropriate restrictions compensating for non-compliance with the airworthiness requirements applicable to the aircraft category.

Each MDOA applicant or holder should develop its own internal procedure following this AMC, in order to obtain the privilege to make this determination and approve associated conditions without Authority involvement, under BMAR 21.A.263(c)(6). When the privilege MDOEs not apply, the MDOA holder will prepare all necessary data required for the determination in accordance with the same procedure required for the privilege, and will apply for Authority approval.

2. Procedure for the approval of the conditions for issue of a military permit to fly

2.1. Content

The procedure should address the following points:

a) decision to use the privilege;

b) management of the aircraft configuration;

c) determination of the conditions that should be complied with to perform safely a flight;

d) documentation of flight conditions substantiations;

e) approval under the MDOA privilege, when applicable;

f) authorised signatories.

2.2. Decision to use the privilege of BMAR 21.A.263(c)(6)

The procedure should include a decision to determine:

a) flights for which the privilege of BMAR 21.A.263(c)(6) will be exercised.; and

b) flights for which the approval of flight conditions by the Authority will be required according to the criteria of BMAR 21.A.263(c)(6).

2.3. Management of the aircraft configuration

The procedure should indicate:

a) how the aircraft, for which an application for military permit to fly is made, is identified;

b) how changes to the aircraft will be managed.

2.4. Determination of the conditions that should be complied with to perform safely a flight

The procedure should describe the process used by the MDOA holder to justify that an aircraft can perform the intended flight(s) safely. This process should include:

a) identification of deviations from applicable airworthiness requirements or non-compliance with BMAR 21 conditions for the issue of a certificate of airworthiness;

b) analysis, calculations, tests or other means used to determine under which conditions or restrictions the aircraft can perform safely a flight;

c) the establishment of specific maintenance instructions and conditions to perform these instructions;

d) independent technical verification of the analysis, calculations, tests or other means used to determine under which conditions or restrictions the aircraft can perform the intended flight(s) safely;

e) statement by the office of airworthiness (or equivalent), that the determination has been made in accordance with the procedure and that the aircraft has no features and characteristics making it unsafe for the intended operation under the identified conditions and restrictions;

f) approval by an authorised signatory.

2.5. Documentation of flight conditions substantiations

The analysis, calculations, tests, or other means used to determine under which conditions or restrictions the aircraft can perform safely a flight, should be compiled in compliance documents. These documents should be signed by the author and by the person performing the independent technical verification.

Each compliance document should have a number and issue date. The various issues of a document should be controlled.

The data submitted and approved by the type-certificate holder can be used as substantiations. In that case, the independent technical verification referred to in 2.4 is not required.

2.6. Approval under the MDOA privilege

2.6.1. Initial approval

The procedure should include BMAR Form 18a to support the approval under the MDOA privilege.

When the privilege of BMAR 21.A.263(c)(6) is not applicable, the signed form should be presented by the office of airworthiness (or equivalent) to the Authority.

2.6.2. Approval of changes

Except for changes that do not affect the conditions approved for the issue of the military permit to fly, the procedure should specify how changes will be approved by the MDOA Holder. The BMAR Form 18a should be updated.

2.7. Authorised signatories

The person(s) authorised to sign the approval form should be identified (name, signature and scope of authority) in the procedure, or in an appropriate document linked to the MDOA exposition.

AMC 21.A.263(c)(7) Procedure for the issue of a military permit to fly

1. Intent

This acceptable means of compliance provides means to develop a procedure for the issue of a military permit to fly.

Each MDOA applicant or holder should develop its own internal procedure following this AMC, in order to obtain the privilege of BMAR 21.A.263(c)(7) to issue military permits to fly for aircraft it has designed or modified, or for which it has approved under BMAR 21.A.263(c)(6) the conditions under which the military permit to fly can be issued, and when the design organisation itself is controlling

under its MDOA the configuration of the aircraft and is attesting conformity with the design conditions approved for the flight.

2. Procedure for the issue of a military permit to fly

2.1. Content

The procedure should address the following points:

a) conformity with approved conditions;

b) issue of the military permit to fly under the MDOA privilege;

c) authorised signatories;

d) interface with the local Authority for the flight.

2.2. Conformity with approved conditions

The procedure should indicate how conformity with approved conditions is made, documented and attested by an authorised person.

2.3. Issue of the military permit to fly under the MDOA privilege

The procedure should describe the process to prepare the BMAR Form 20b and how compliance with BMAR 21.A.711(b) and (e) is established before signature of the military permit to fly.

2.4. Authorised signatories

The person(s) authorised to sign the military permit to fly under the privilege of BMAR 21.A.263(c)(7) should be identified (name, signature and scope of authority) in the procedure, or in an appropriate document linked to the MDOA exposition.

2.5. Interface with the local Authority for the flight

The procedure should include provisions describing the communication with the local Authority for compliance with the local requirements which are outside the scope of the conditions of BMAR 21.A.708(b) (see BMAR 21.A.711(e)).

AMC 21.A.263(d)(1) Declaration of applicability

1. Intent

This acceptable means of compliance provides means for a MDOA applicant to obtain the associated privileges under BMAR 21.A.263(d)1) to declare the applicability of a modification, or of an instruction for continuing airworthiness, or of a modification to the flight manual or of a modification to the maintenance manual, as relevant, when it is already approved by a recognized civil airworthiness authority, to a product derivate from a civil type certified product.

2. Procedure for declaring the applicability

In order to obtain the associated BMAR 21A.263(d)(1) privilege for a scope of derivative product, a MDOA applicant should respect the following conditions:

a) Being approved under EASA Part 21 Section A Subpart J under a civil DOA and being the type certificate holder from which the product is derived.

b) Demonstrate he has access to the whole Type Certificate definition of the derivative product when applying its privileges.

c) Develop its own internal procedure addressing the following points as agreed with the Authority:

i. Identification of the derivative delta to be assessed:

- type design definition including modifications

- operational characteristics
- performances
- limitation
- certification requirements
- means of demonstration of compliance

ii. Impact Assessment.

iii. Document to formalize the declaration of applicability and conditions

iv. Records

d) Assessment results should be documented and recorded. These records should be easily accessible to the Authority for sample check.

e) The declaration of applicability should be signed by an appropriate authorised signatory.

In case further investigation is needed for analysis of impact due to STC or because the specific configuration is not known by the applicant, the applicant will provide the data requested by the Authority for complementary analysis.

AMC 21.A.263(d)(2) Approval

1. Intent

This acceptable means of compliance provides means for a MDOA applicant to obtain the associated privileges under BMAR 21.A.263(d)(2) to approve a major modification, or the approved parts of the maintenance manual, or of the flight manual, and their evolutions, when it is already approved by a recognized civil airworthiness authority and when it has been declared applicable to the product derivate from the civil type certified product.

Applying this privilege implies that no additional work to show compliance to the (military) airworthiness requirements is needed.

In case the applicability to the specific definition of the derivative needs further demonstration of compliance (i.e. the assessment of “no impact” is not confirmed) the applicant will apply the relevant procedures of its military design assurance system for getting approval of the change.

Approval of minor changes is to be considered under relevant privileges BMAR 21.A.263(c)(2).

2. Procedure for approving

In order to obtain the associated BMAR 21A.263(d)(2) privilege, a MDOA applicant should comply with the following:

a) The conditions related to privileges BMAR 21.A.263(d)(1)

b) Its own internal approval procedure as agreed by the Authority

In addition, the applicant should:

a) Define how the approval under the MDOA privilege will be formalized and how the link with the civil approval is made visible.

b) Provide records and substantiation data including documents showing compliance with the airworthiness requirements required for the civil approval, to the Authority when requested.

c) Maintain a summary list of approvals under this privilege to the Authority on a regular basis as agreed with the Authority.

21.A.265 Obligations of the holder

The holder of a military design organisation approval shall:

(a) Maintain the MDOE in conformity with the design assurance system;

(b) Ensure that this MDOE is used as a basic working document within the organisation;

(c) Determine that the design of products, or changes or repairs thereof, as applicable, comply with applicable airworthiness requirements and have no unsafe feature;

(d) Except for minor changes or repairs approved under the privilege of BMAR 21.A.263, provide to the Authority statements and associated documentation confirming compliance with paragraph (c);

(e) Provide to the Authority information or instructions related to required actions under BMAR 21.A.3B;

(f) Where applicable, under the privilege of BMAR 21.A.263(c)(6), determine the conditions under which a military permit to fly can be issued; and

(g) Where applicable, under the privilege of BMAR 21.A.263(c)(7), establish compliance with BMAR 21.A.711(b) and (e) before issuing a military permit to fly (BMAR Form 20b) for an aircraft.

AMC 21.A. 265(a) Administration of the MDOE

a) The MDOE of the applicant should be in the language which will permit the best use of it by all personnel charged with the tasks performed for the purpose of the design organisation. The applicant may be requested to provide an English translation of the MDOE and other supporting documents as necessary for the investigation.

b) The MDOE should be produced in a concise form with sufficient information to meet BMAR 21.A.243 relevant to the scope of approval sought by the applicant. The MDOE should include the following :

   i. Organisation name, address, telephone, telex and facsimile numbers.

   ii. Document title, and company document reference No (if any).

   iii. Amendment or revision standard identification for the document.

   iv. Amendment or revision record sheet.

   v. List of effective pages with revision/date/amendment identification for each page.

   vi. Contents list or index.

   vii. A distribution list for the MDOE.

   viii. An introduction, or foreword, explaining the purpose of the document for the guidance of the organisation's own personnel. Brief general information concerning the history and development of the organisation and, if appropriate, relationships with other organisations which may form part of a group or consortium, should be included to provide background information for the Authority.

   ix. The certificate of approval should be reproduced in the document.

   x. Identification of the department responsible for administration of the MDOE.

NOTE: In the case of an initial or revised approval it is recognised that certificate will be issued after Authority agreement to the MDOE content in draft form. Arrangements for formal publication in a timely manner should be agreed before the certificate of approval is issued.

c) An updating system should be clearly laid down for carrying out required amendments and modifications to the MDOE.

d) The MDOE may be completely or partially integrated into the company organisation manual. In this case, identification of the information required by BMAR 21.A.243 should be provided by giving appropriate cross references, and these documents should be made available, on request, to the Authority.

GM 21.A.265(b) Use of the MDOE

a) The MDOE should be signed by the Chief Executive and the Head of the design organisation and declared as a binding instruction for all personnel charged with the development and type investigation of products.

b) All procedures referenced in the MDOE are considered as parts of the MDOE and therefore as basic working documents.

Subpart K – Parts And Appliances

21.A.301 Scope

This Subpart establishes the procedure relating to the approval of parts and appliances.

GM 21.A.301 Scope

Parts and appliances can include Government Furnished Equipment.

21.A.303 Compliance with applicable requirements

The showing of compliance of parts and appliances to be installed in a type-certificated product shall be made:

(a) In conjunction with the type-certification procedures of BMAR 21 Subpart B, D or E for the product in which it is to be installed; or

(b) Where applicable, under the MTSO authorisation procedures of BMAR 21 Subpart O;

(c) In the case of standard parts, in accordance with officially recognised Standards; or

(d) For specific equipment not subject to recognised airworthiness standards covered by the above and which has been demonstrated to the Authority not to adversely affect the airworthiness of the aircraft, in accordance with integration or installation requirements at aircraft level.

AMC 21.A.303(c) Standard Parts

In this context a part is considered a “standard part” where it is designated as such by the design approval holder responsible for the product, part or appliance, in which the part 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, split pins, etc.

In order to be considered a “standard part”, all design, manufacturing, inspection data and marking requirements necessary to demonstrate conformity of that part should be in the public domain and published or established as part of officially recognised Standards.

Equipment which must be approved in accordance to a specific set of certification requirements is not considered a standard part.

GM 21.A.303(c) Officially Recognised Standards

In this context “officially recognised Standards” means:

a) 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.

b) The standard used by the manufacturer of the equipment as mentioned in paragraph 2 of AMC BMAR 21.A.303(c).

21.A.305 Approval of parts and appliances

In all cases where the approval of a part or appliance is explicitly required by this BMAR or Authority procedures, the part or appliance shall comply with the applicable MTSO or with the specifications recognised as equivalent by the Authority in the particular case.

21.A.307 Release of parts and appliances for installation

A part or appliance shall be eligible for installation in a type-certificated product when it is in a condition for safe operations, and it is:

(a) accompanied by an authorised release certificate (BMAR Form 1 or equivalent), certifying that the item was manufactured in conformity to approved design data and is marked in accordance with Subpart Q; or

(b) a standard part; or

(c) a specific equipment defined in BMAR 21.A.303(d).

GM 21.A.307 (b) and (c) Condition for safe operation

The assessment of the condition for safe operations should consist at a minimum in a visual quality control at the reception of the parts and before its installation on aircraft.

(Subpart L – Not Applicable)

Subpart M – Repairs

21.A.431 Scope

(a) This Subpart establishes the procedure for the approval of repair design, and establishes the obligations and privileges of the applicants for, and holders of, those approvals.

(b) A 'repair' means elimination of damage and/or restoration to an airworthy condition following initial release into service by the manufacturer of any product, part or appliance.

(c) Elimination of damage by replacement of parts or appliances without the necessity for design activity shall be considered as a maintenance task and shall therefore require no approval under this BMAR.

(d) A repair to an MTSO article other than an Auxiliary Power Unit (APU) shall be treated as a change to the MTSO design and shall be processed in accordance with BMAR 21.A.611.

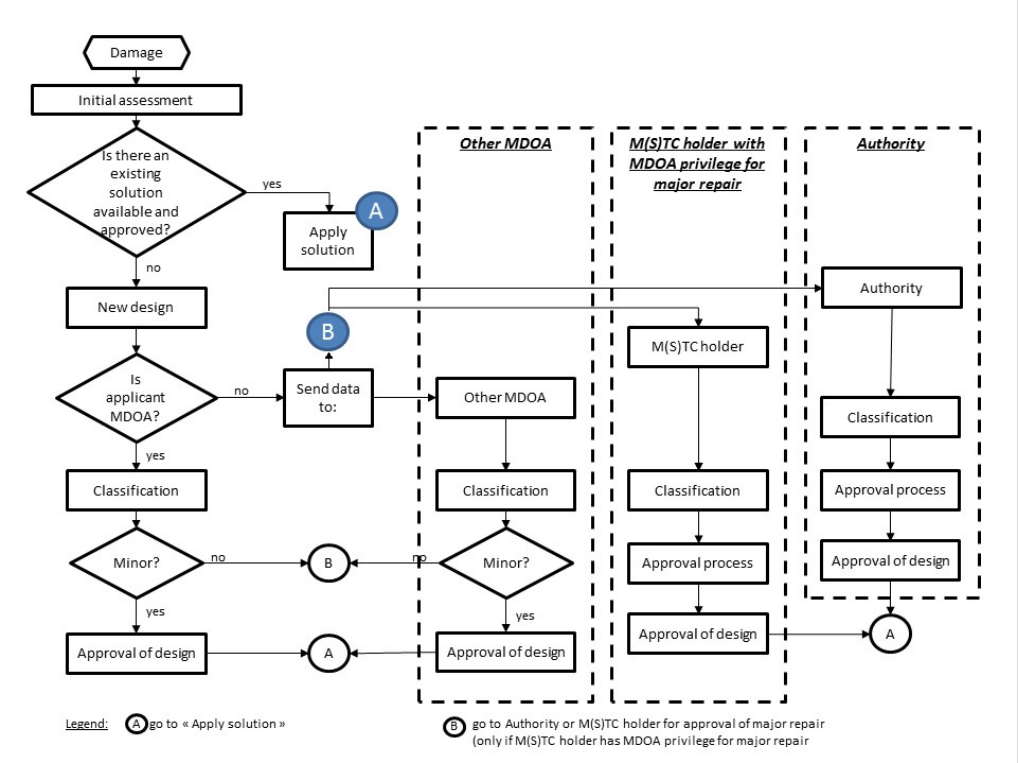
GM 21.A.431(a) Scope

Manuals and other instructions for continued airworthiness (such as the Manufacturers Structural Repair Manual, Maintenance Manuals and Engine Manuals provided by the holder of the type-certificate, supplemental type-certificate, design approval or APU MTSO authorisation as applicable) for operating organisations, contain useful information for the development and approval of repairs.

When these data are explicitly identified as approved, they may be used by operating organisations without further approval to cope with anticipated in-service problems arising from normal usage provided that they are used strictly for the purpose for which they have been developed.

Approved data is data which is approved either by the Authority, or by an appropriately approved design organisation.

NB: Flow Chart 1 addresses the procedures that should be followed for products.



Flow chart 1

GM 21.A.431(d) Repairs to MTSO articles other than an APU

A repair to an MTSO article other than an APU can either be seen:

a) Under BMAR 21.A.611 in the context of an MTSO authorisation, i.e., when an article as such is specifically approved under BMAR 21 Section A Subpart O, with dedicated rules that give specific rights and obligations to the designer of the article, irrespective of any product type design or change to the type design. For a repair to such an article, irrespective of installation on any aircraft, BMAR 21 Section A Subpart O, and BMAR 21.A.611 in particular, should be followed; or

b) When a BMAR 145 / BMAR M organisation is designing a new repair (based on data not published in the MTC holder or Original Equipment Manufacturer documentation) on an article installed on an aircraft, such a repair can be considered as a repair to the product in which the article is installed, not to the article taken in isolation. Therefore, BMAR 21 Section A Subpart M can be used for the approval of this repair that will be identified as "repair to product x affecting article y", but not "repair to article y".

21.A.432A Eligibility

(a) Any organisation that has demonstrated, or is in the process of demonstrating, its capability according to BMAR 21.A.432B shall be eligible as an applicant for a major repair design approval under the conditions laid down in this Subpart.

(b) Any organisation shall be eligible to apply for approval of a minor repair design.

21.A.432B Demonstration of capability

(a) An applicant for a major repair design approval shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with BMAR 21 Subpart J.

(b) By way of derogation from paragraph (a), as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this Subpart.

(c) By way of derogation from paragraph (a) and (b), any government organisation applying for a major repair design approval may demonstrate its capability by having an agreement in place, accepted by the Authority, in accordance with BMAR 21.A.2 with a design organisation which has access to the type design data. The agreement shall include detailed statements how the actions and obligations are delegated to enable the government organisation, in cooperation with the contracted organisation, to comply with the requirements of BMAR 21 Subpart J, including demonstration of compliance with BMAR 21.A.451.

AMC 21.A.432(c) Alternative Demonstration

A government organisation can be approved by the Authority to execute the Repair Approval Holder responsibilities. This government organisation may apply for a repair approval from its Authority, without being the original design organisation. In this case the government organisation should, in accordance with BMAR 21.A.2, enter an agreement with a design organisation to ensure the undertaking of specific actions and obligations. Any alternative procedures for establishing a Design Assurance System should be acceptable to the Authority in fulfilling the obligations required under BMAR 21.A.451.

21.A.433 Repair design

(a) The applicant for approval of a repair design shall:

1. Demonstrate compliance with the type-certification basis and environmental protection requirements (where applicable) incorporated by reference in the type-certificate or supplemental type-certificate or APU MTSO authorisation, as applicable, or those in effect on the date of application (for repair design approval), plus any amendments to the type-certification basis the Authority finds necessary to establish a level of safety equal to that established by the type-certification basis incorporated by reference in the type-certificate or supplemental type-certificate or APU MTSO authorisation;
2. Submit all necessary substantiation data, when requested by the Authority;
3. Declare compliance with the type-certification basis of subparagraph (a)(1).

(b) Where the applicant is not the type-certificate or supplemental type-certificate or APU MTSO authorisation holder, as applicable, the applicant may comply with the requirements of paragraph (a) through the use of its own resources or through an arrangement with the type-certificate or supplemental type-certificate or APU MTSO authorisation holder as applicable.

AMC 21.A.433(a) and 21.A.447 Repair design and Record Keeping

1. Relevant substantiation data associated with a new major repair design and record keeping should include:
   a) damage identification and reporting source;

b) major repair design approval sheet identifying applicable requirements and references of justifications;

c) repair drawing and/or instructions and scheme identifier;

d) correspondence with the MTC, MSTC, MDOA or APU MTSO authorisation holder, if its advice on the design has been sought;

e) structural justification (static strength, fatigue, damage tolerance, flutter etc) or references to this data;

f) effect on the aircraft, engines and/or systems, (performance, flight handling, etc as appropriate);

g) effect on maintenance programme,

h) effect on Airworthiness limitations, the Flight Manual and the Operating Manual;

i) weight and moment change;

j) special test requirements.

2. Relevant minor repair documentation includes paragraphs 1.a and 1.c Other points of paragraph 1 may be included where necessary. If the repair is outside the approved data, justification for classification is required.

3. Special consideration should be given to repairs that impose subsequent limitations on the part, product or appliance, (e.g., engine turbine segments that may only be repaired a finite number of times, number of repaired turbine blades per set, oversizing of fastener holes, etc.).

4. Special consideration should also be given to Life Limited parts and Critical Parts, notably with the involvement of the military type-certificate or MSTC holder, when deemed necessary under BMAR 21.A.433(b).

5. Repairs to engine critical parts would normally only be accepted with the involvement of the MTC holder.

21.A.435 Classification of repairs

(a) A repair may be 'major' or 'minor'. The classification shall be made in accordance with the criteria of BMAR 21.A.91 for a change in the type design.

(b) A repair shall be classified ‘major’ or ‘minor’ under paragraph (a) either:

1. By the Authority; or

2. By an appropriately approved design organisation under a procedure agreed with the Authority.

GM 21.A.435(a) Classification of repairs

1. Clarification of the terms Major/Minor

In line with the definitions given in BMAR 21.A.91, a new repair is classified as 'major' if the result on the approved type design has an appreciable effect on structural performance, weight, balance, systems, operational characteristics or other characteristics affecting the airworthiness of the product, part or appliance. In particular, a repair is classified as major if it needs extensive static, fatigue and damage tolerance strength justification and/or testing in its own right, or if it needs methods, techniques or practices that are unusual (i.e., unusual material selection, heat treatment, material processes, jigging diagrams, etc.)

Repairs that require a re-assessment and re-evaluation of the original certification substantiation data to ensure that the aircraft still complies with all the relevant requirements, are to be considered as major repairs.

Repairs whose effects are considered minor and require minimal or no assessment of the original certification substantiation data to ensure that the aircraft still complies with all the relevant requirements, are to be considered “minor”.

It is understood that not all the certification substantiation data will be available to those persons/organisations classifying repairs. A qualitative judgement of the effects of the repair will therefore be acceptable for the initial classification. The subsequent review of the design of the repair may lead to it being re-classified, owing to early judgements being no longer valid.

2. Airworthiness concerns for Major/Minor classification

The following should be considered for the significance of their effect when classifying repairs. Should the effect be considered to be significant then the repair should be classified 'Major'. The repair may be classified as 'Minor' where the effect is known to be without appreciable consequence.

2.1. Structural performance

Structural performance of the product includes static strength, fatigue, damage tolerance, flutter and stiffness characteristics. Repairs to any element of the structure should be assessed for their effect upon the structural performance.

2.2. Weight and balance

The weight of the repair may have a greater effect upon smaller aircraft as opposed to larger aircraft. The effects to be considered are related to overall aircraft centre of gravity and aircraft load distribution. Control surfaces are particularly sensitive to the changes due to the effect upon the stiffness, mass distribution and surface profile which may have an affect upon flutter characteristics and controllability.

2.3. Systems

Repairs to any elements of a system should be assessed for the effect intended on the operation of the complete system and for the effect on system redundancy. The consequence of a structural repair on an adjacent or remote system should also be considered as above, (for example: airframe repair in area of a static port).

2.4. Operational characteristics

Changes may include:

i. stall characteristics;

ii. handling;

iii. performance and drag;

iv. vibration.

2.5. Other characteristics

i. changes to load path and load sharing;

ii. fire protection / resistance.

Note: Considerations for classifying repairs 'Major/Minor' should not be limited to those listed above.

3. Examples of 'Major' repairs

a) A repair that requires a permanent additional inspection to the approved maintenance programme, necessary to ensure the continued airworthiness of the product. Temporary repairs for which specific inspections are required prior to installation of a permanent repair do not necessarily need to be classified as 'Major'. Also, inspections and changes to inspection frequencies not required as part of the approval to ensure continued airworthiness do not cause classification as 'Major' of the associated repair.

b) A repair to life limited or critical parts.

c) A repair that introduces a change to the Aircraft Flight Manual.

21.A.437 Issue of a repair design approval

When it has been declared and has been shown that the repair design meets the applicable type-certification basis of BMAR 21.A.433(a)(1), it shall be approved:

(a) By the Authority; or

(b) By an appropriately approved organisation that is also the type-certificate or the supplemental type-certificate or APU MTSO authorisation holder, under a procedure agreed with the Authority; or

(c) For minor repairs only, by an appropriately approved design organisation under a procedure agreed with the Authority.

GM 21.A.437 Issue of repair design approval

1. Approval by MDOA holder

Approval of repairs through the use of procedures agreed with the Authority, means an approval issued by the MDOA holder without requiring Authority involvement. The Authority will monitor application of this procedure within the surveillance plan for the relevant organisation. When the organisation exercises this privilege, the repair release documentation should clearly show that the approval is under their MDOA privilege.

2. Previously approved data for other applications

When it is intended to use previously approved data for other applications, it is expected that applicability and effectiveness would be checked with an appropriately approved design organisation. After damage identification, if a repair solution exists in the available approved data, and if the application of this solution to the identified damage remains justified by the previous approved repair design, (structural justifications still valid, possible airworthiness limitations unchanged), the solution can be considered approved and can be used again.

3. Temporary repairs

These are repairs that are life limited, to be removed and replaced by a permanent repair after a limited service period. These repairs should be classified under BMAR 21.A.435 and the service period defined at the approval of the repair.

4. Fatigue and damage tolerance

When the repaired product is released into service before the fatigue and damage tolerance evaluation has been completed, the release should be for a limited service period, defined at the issue of the repair.

GM 21.A.437(a) Issue of repair design approval

1. Products type-certificated by the Authority

a) Authority approval is required in cases of major repairs proposed by MDOA holders, not being the MTC, MSTC or APU MTSO authorisation holder, and in cases of minor repairs proposed by persons not holding a MDOA.

b) Authority approval may be required in cases of major repairs proposed by MDOA holders, being the MTC, MSTC or APU MTSO authorisation holder, if the major repair is:

i. related to new interpretation of the airworthiness requirement as used for type-certification;

ii. related to different means of compliance from that used for type-certification;

iii. related to the application of airworthiness requirements different from that used for type-certification.

NOTE: This should be established at the time of MDOA approval.

2. Products type-certificated other than by Authority

Authority approval is always required for major repairs on such products

AMC 21.A.437(b) Issue of repair design approval

In order for the approved design organisation that is also the type-certificate, supplemental type-certificate or APU MTSO authorisation holder to approve 'Major' repair design the following should be considered applicable:

a) The type-certificate, supplemental type-certificate or APU MTSO authorisation holder being approved under BMAR 21 Section A Subpart J;

b) Procedures having been established that comply with BMAR 21 Section A Subpart M as agreed with the Authority;

c) The type-certification basis for the product, part or appliance to be repaired having been identified together with all other relevant requirements;

d) All records and substantiation data including documents showing compliance with all relevant airworthiness requirements being held for reviews by the Authority;

e) A summary list of all major repair approvals being provided to the Authority on a regular basis as agreed with the Authority:

f) Whether the repair design is affected by the presence of any supplemental type-certificate.

21.A.439 Production of repair parts

Parts and appliances to be used for the repair shall be manufactured in accordance with production data based upon all the necessary design data as provided by the repair design approval holder:

(a) Under BMAR 21 Subpart F; or

(b) By an organisation appropriately approved in accordance with BMAR 21 Subpart G; or

(c) By an appropriately approved maintenance organisation.

GM 21.A.439 Production of repair parts

A maintenance body, (organisation or person), may manufacture parts for repair purposes when approved under BMAR 21 Section A Subpart G. In addition, a maintenance organisation may manufacture parts for its own repair purposes when expressly authorised by the Authority.

21.A.441 Repair embodiment

(a) The embodiment of a repair shall be made by an appropriately approved maintenance organisation, or by a production organisation appropriately approved in accordance with BMAR 21 Subpart G, under 21.A.163 privilege.

(b) The design organisation shall transmit to the organisation performing the repair all the necessary installation instructions.

GM 21.A.441 Repair Embodiment

Repairs should be accomplished by an organisation or person in accordance with the relevant airworthiness requirements.

The holder of a military production organisation approval under BMAR 21 Section A Subpart G may accomplish repairs to new aircraft, within its terms of approval, under the privilege of BMAR 21.A.163(d).

21.A.443 Limitations

A repair design may be approved subject to limitations, in which case the repair design approval shall include all necessary instructions and limitations. These instructions and limitations shall be transmitted by the repair design approval holder to the operating organisation in accordance with a procedure agreed with the Authority.

GM 21.A.443 Limitations

Instructions and limitations associated with repairs should be specified and controlled by those procedures required by the applicable procedures.

21.A.445 Unrepaired damage

(a) When a damaged product, part or appliance, is left unrepaired, and is not covered by previously approved data, the evaluation of the damage for its airworthiness consequences may only be made:

1. By the Authority; or
2. By an appropriately approved design organisation under a procedure agreed with the Authority.

Any necessary limitations shall be processed in accordance with the procedures of BMAR 21.A.443.

(b) Where the organisation evaluating the damage under paragraph (a) is neither the Authority nor the type-certificate or supplemental type-certificate or APU MTSO authorisation holder, this organisation shall justify that the information on which the evaluation is based is adequate either from its organisation's own resources or through an arrangement with the type-certificate or supplemental type-certificate or APU MTSO authorisation holder, or manufacturer, as applicable.

GM 21.A.445 Unrepaired damage

This is not intended to supersede the normal maintenance practices defined by the type-certificate holder, (e.g., blending out corrosion and re-protection, stop drilling cracks, etc.), but addresses specific cases not covered in the manufacturer's documentation.

21.A.447 Record keeping

For each repair, all relevant design information, drawings, test reports, instructions and limitations possibly issued in accordance with BMAR 21.A.443, justification for classification and evidence of the repair design approval, shall:

(a) Be held by the repair design approval holder at the disposal of the Authority; and

(b) Be retained by the repair design approval holder in order to provide the information necessary to ensure the continued airworthiness of the repaired products, parts or appliances.

21.A.449 Instructions for continuing airworthiness

(a) The holder of the repair design approval shall furnish at least one complete set of those changes to the instructions for continuing airworthiness which result from the design of the repair, comprising descriptive data and accomplishment instructions prepared in accordance with the applicable requirements, to each operating organisation of aircraft incorporating the repair. The repaired product, part or appliance may be released back into service before the changes to those instructions have been completed, but this shall be for a limited service period, and in agreement with the Authority. Those changes to the instructions shall be made available on request to any other operating organisation required to comply with any of the terms of those changes to the instructions. The availability of some manual or portion of the changes to the instructions for continuing airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight — hours/cycles.

(b) If updates to those changes to the instructions for continuing airworthiness are issued by the holder of the repair design approval after the repair has been first approved, these updates shall be furnished to each operating organisation and shall be made available on request to any other operating organisation required to comply with any of the terms of those changes to the instructions. A programme showing how updates to the changes to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

21.A.451 Obligations and EMPA marking

(a) Each holder of a major repair design approval shall:

1. Undertake the obligations:

   i. Laid down in BMAR 21.A.3A, 21.A.3B, 21.A.4, 21.A.439, 21.A.441, 21.A.443, 21.A.447 and 21.A.449;

   ii. Implicit in the collaboration with the type-certificate, supplemental type-certificate and with the APU MTSO authorisation holder under BMAR 21.A.433 (b), as appropriate.

2. Specify the marking, including EMPA (‘European Military Part Approval’) letters, in accordance with BMAR 21.A.804(a).

(b) Except for type-certificate holders or APU MTSO authorisation holders for which BMAR 21.A.44 applies, the holder of a minor repair design approval shall:

1. Undertake the obligations laid down in BMAR 21.A.4, 21.A.447 and 21.A.449; and

2. Specify the marking, including EMPA letters, in accordance with BMAR 21.A.804(a).

(Subpart N – Not Applicable)

Subpart O – Military Technical Standard Order

21.A.601 Scope

This Subpart establishes the procedure for issuing Military Technical Standard Order (MTSO) authorisations and the rules governing the obligations and privileges of applicants for, or holders of, such authorisations.

GM 21.A.601 Scope

For the purpose of this Subpart:

(a) 'Article' means any part and appliance (including Government Furnished Equipment) to be used on military aircraft;

(b) 'technical standards and airworthiness specifications' referred to should consider published Technical Standard Orders (e.g. CS-ETSO, TSO standards issued by FAA) or equivalent that are accepted by the authority establishing the minimum performance requirements for the specified articles.

(c) An article produced under an MTSO authorisation is an approved article for the purpose of Subpart K.

21.A.602A Eligibility

Any organisation that produces or is preparing to produce an MTSO article, and that has demonstrated, or is in the process of demonstrating, its capability under BMAR 21.A.602B shall be eligible as an applicant for an MTSO authorisation.

21.A.602B Demonstration of capability

Any applicant for an MTSO authorisation shall demonstrate its capability as follows:

(a) For production, by holding a production organisation approval, issued in accordance with BMAR 21 Subpart G, or through compliance with BMAR 21 Subpart F procedures; and

(b) For design:

1. For an Auxiliary Power Unit, by holding a design organisation approval, issued by the Authority in accordance with BMAR 21 Subpart J;
2. For all other articles, by using procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this BMAR.

AMC 21.A.602B(b)(2) Procedures for MTSO authorisations

1. Scope

A manual of procedures should set out specific design practices, resources and sequence of activities relevant for the specific projects, taking account of BMAR 21 requirements.

These procedures should be concise and limited to the information needed for quality and proper control of activities by the applicant/holder, and by the Authority.

2. Management of the MTSO authorisation process

A procedure explaining how the application to the Authority certification process to obtain an MTSO authorisation will be made, should be established.

3. Management of design changes

A procedure taking into account BMAR 21.A.611, should be established for the classification and approval of design changes on articles under MTSO authorisation.

Repairs and production deviations from the approved design data.

Procedure for the classification and approval of repairs and unintentional deviations from the approved design data occurring in production (concessions or non-conformance's) should be established.

4. Obligations addressed in BMAR 21.A.609

The applicant should establish the necessary procedures to show to the Authority how it will fulfil the obligations under BMAR 21.A.609.

For issue of information and instructions, a procedure following the principles of AMC BMAR 21.A.14(b), paragraph 4 should be established.

5. Control of design subcontractors

The applicant should establish the necessary procedures to show to the Authority how it will control design subcontractors.

21.A.603 Application

(a) An application for an MTSO authorisation shall be made in a form and manner established by the Authority and shall include an outline of the information required by BMAR 21.A.605.

(b) When a series of minor changes in accordance with BMAR 21.A.611 is anticipated, the applicant shall set forth in its application the basic model number of the article and the associated part numbers with open brackets after it to denote that suffix change letters or numbers (or combinations of them) will be added from time to time.

21.A.604 MTSO Authorisation for an Auxiliary Power Unit

With regard to MTSO authorisation for an Auxiliary Power Unit:

(a) BMAR 21.A.15, 21.A.16B, 21.A.17A, 21.A.20, 21.A.21, 21.A.31, 21.A.33, 21.A.44 shall apply by way of derogation from BMAR 21.A.603, 21.A.606(c), 21.A.610 and 21.A.615, except that an MTSO authorisation shall be issued in accordance with BMAR 21.A.606 instead of the type certificate;

(b) Subpart D or Subpart E of this BMAR is applicable for the approval of design changes by way of derogation from BMAR 21.A.611. When Subpart E is used, a separate MTSO authorisation shall be issued instead of a supplemental type certificate.

(c) Subpart M is applicable to the approval of repair designs.

21.A.605 Data requirements

The applicant shall submit the following documents, to the Authority:

(a) A statement of compliance certifying that the applicant has met the requirements of this Subpart;

(b) A Declaration of Design and Performance (DDP);

(c) One copy of the technical data required in the applicable technical standards and airworthiness specifications;

(d) The exposition (or a reference to the exposition) referred to in BMAR 21.A.143 for the purpose of obtaining an appropriate production organisation approval under BMAR 21 Subpart G or the

manual (or a reference to the manual) referred to in BMAR 21.A.125A(b) for the purpose of manufacturing under BMAR 21 Subpart F without production organisation approval;

(e) For an APU, the Design Organisation Exposition (DOE), or a reference to the DOE, referred to in BMAR 21.A.243 for the purpose of obtaining an appropriate design organisation approval under BMAR 21 Subpart J;

(f) For all other articles, the procedures referred to in BMAR 21.A.602B(b)(2).

21.A.606 Issue of MTSO authorisation

The applicant shall be entitled to have an MTSO authorisation issued by the Authority after:

(a) Demonstrating its capability in accordance with BMAR 21.A.602B;

(b) Demonstrating that the article complies with the technical conditions of the technical standards and airworthiness specifications that are acceptable to the authority, and submitting the corresponding statement of compliance; and

(c) Expressly stating that it is prepared to comply with BMAR 21.A.609.

21.A.607 MTSO authorisation privileges

The holder of an MTSO authorisation is entitled to produce and to mark the article with the appropriate MTSO marking.

21.A.608 Declaration of Design and Performance (DDP)

(a) The DDP shall contain at least the following information:

1. Information corresponding to BMAR 21.A.31(a) and (b), identifying the article and its design and testing standard.
2. The rated performance of the article, where appropriate, either directly or by reference to other supplementary documents.
3. A statement of compliance certifying that the article has met the applicable technical standards and airworthiness specifications.
4. Reference to relevant test reports.
5. Reference to the appropriate Maintenance, Overhaul and Repair Manuals.
6. The levels of compliance, where various levels of compliance are allowed by the applicable technical standards and airworthiness specifications.
7. List of deviations accepted in accordance with BMAR 21.A.610.

(b) The DDP shall be endorsed with the date and signature of the holder of the MTSO authorisation, or its authorised representative.

AMC 21.A.608 Declaration of Design and Performance (DDP)

The BMAR form DDP should be completed by the applicant

21.A.609 Obligations of holders of MTSO authorisations

The holder of an MTSO authorisation under this Subpart shall:

(a) Manufacture each article in accordance with BMAR 21 Subpart G or Subpart F that ensures that each completed article conforms to its design data and is safe for installation;

(b) Prepare and maintain, for each model of each article for which an MTSO authorisation has been issued, a current file of complete technical data and records in accordance with BMAR 21.A.613;

(c) Prepare, maintain and update master copies of all manuals required by the applicable airworthiness specifications for the article;

(d) Make available to users of the article and to the Authority on request those maintenance, overhaul and repair manuals necessary for the usage and maintenance of the article, and changes to those manuals;

(e) Mark each article in accordance with BMAR 21.A.807;

(f) Comply with BMAR 21.A.3A, 21.A.3B and 21.A.4;

(g) Continue to meet the requirements of BMAR 21.A.602B.

21.A.610 Approval for deviation

(a) Each manufacturer who requests approval to deviate from any performance requirements of applicable technical standards and airworthiness specifications shall demonstrate that the standards from which a deviation is requested are compensated for by factors or design features providing an equivalent level of safety.

(b) The request for approval to deviate, together with all pertinent data, shall be submitted to the Authority.

21.A.611 Design changes

(a) The holder of the MTSO authorisation may make minor design changes (any change other than a major change) without further authorisation by the Authority. In this case, the changed article keeps the original model number (part number changes or amendments shall be used to identify minor changes) and the holder shall forward to the Authority any revised data that are necessary for compliance with BMAR 21.A.603(b).

(b) Any design change by the holder of the MTSO authorisation that is extensive enough to require a substantially complete investigation to determine compliance with the applicable technical standards and airworthiness specifications is a major change. Before making such a change, the holder shall assign a new type or model designation to the article and apply for a new authorisation under BMAR 21.A.603.

(c) No design change by any organisation, other than the holder of the MTSO authorisation who submitted the statement of compliance for the article, is eligible for approval under this BMAR 21 Subpart O unless the organisation seeking the approval applies under BMAR 21.A.603 for a separate MTSO authorisation.

GM 21.A.611 Design changes

A change to an MTSO article can either be seen:

under BMAR 21.A.611 in the context of an MTSO authorisation, i.e., when an article as such is specifically approved under BMAR 21 Section A Subpart O, with dedicated rules that give specific rights and obligations to the designer of the article, irrespective of any product type design or change to the type design. For a change to such an article, irrespective of installation on any aircraft, BMAR 21 Section A Subpart O, and BMAR 21.A.611 in particular, should be followed.

or

when an organisation is designing a change (based on data not published in the MTC holder or Original Equipment Manufacturer documentation) on an article installed on an aircraft, such a

	change can be considered as a change to the product in which the article is installed, not to the article taken in isolation. Therefore BMAR 21 Section A Subpart D can be used for the approval of this change that will be identified as "change to product x affecting article y", but not "change to article y".

21.A.613 Record keeping

	Further to the record keeping requirements appropriate to, or associated with, the quality system, all relevant design information, drawings and test reports, including inspection records for the article tested, shall be held at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the article and of the type certificated product in which it is fitted.

21.A.615 Inspection by the Authority

	Upon a request of the Authority, each applicant for, or holder of an MTSO authorisation for an article shall allow the Authority to: (a) Witness any tests; (b) Inspect the technical data files on that article.

21.A.619 Duration and continued validity

	(a) An MTSO authorisation shall be issued for an unlimited duration. It shall remain valid unless: 1. The conditions required when MTSO authorisation was granted are no longer being observed; or 2. The obligations of the holder specified in BMAR 21.A.609 are no longer being discharged; or 3. The article has proved to give rise to unacceptable hazards in service; or 4. The authorisation has been surrendered or revoked under the applicable administrative procedures established by the Authority. (b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.621 Transferability

	Except for a change in ownership of the holder, which shall be regarded as a change of significance, and shall therefore comply with BMAR 21.A.147 and 21.A.247 as applicable, an MTSO authorisation issued under this BMAR is not transferable.

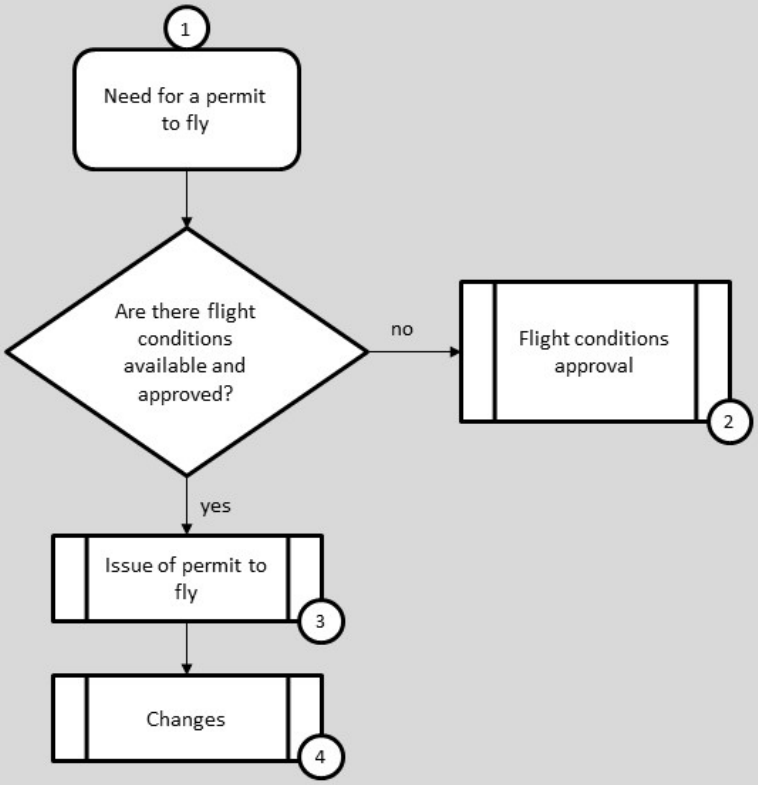
Subpart P – Military Permit To Fly

GM to Subpart P

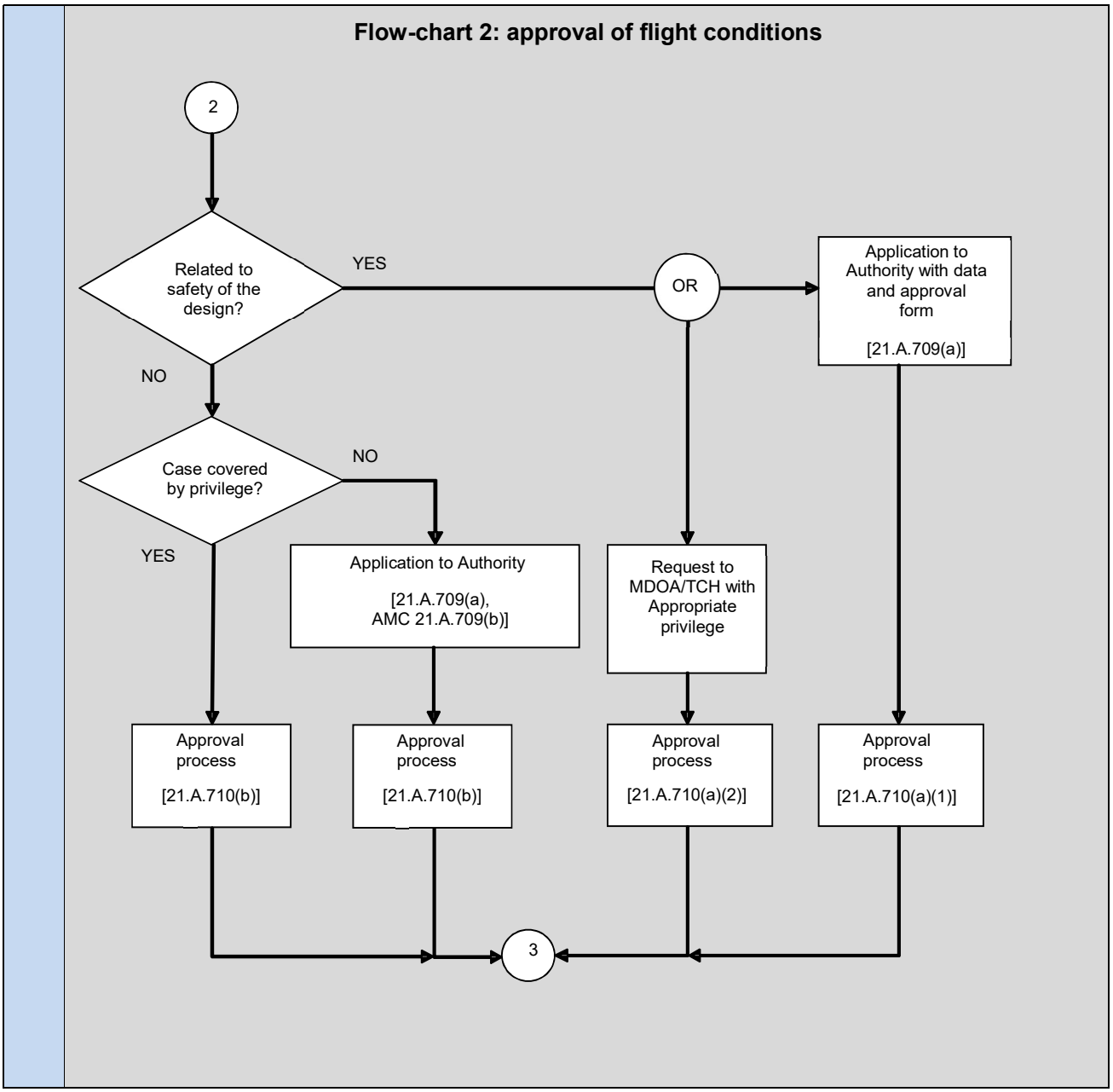
The process allowing a flight under a military permit to fly can be described as follows:

1. Flow-chart 1: overview;
2. Flow-chart 2: approval of flight conditions;
3. Flow-chart 3: issue of military permit to fly;
4. Flow-chart 4: changes after first issue of military permit to fly.

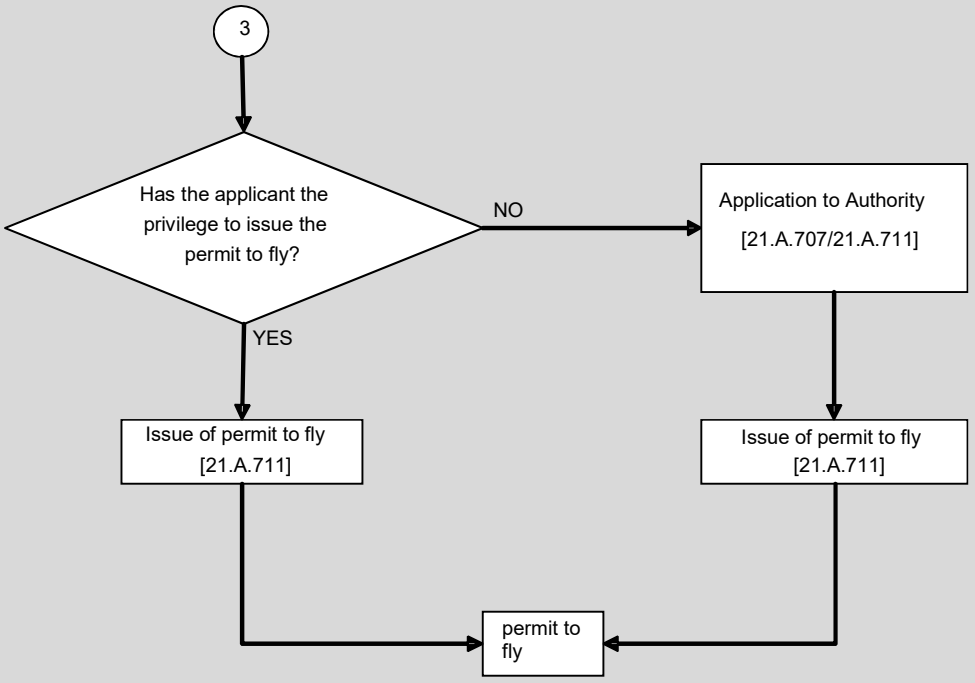
Flow-chart 1: overview



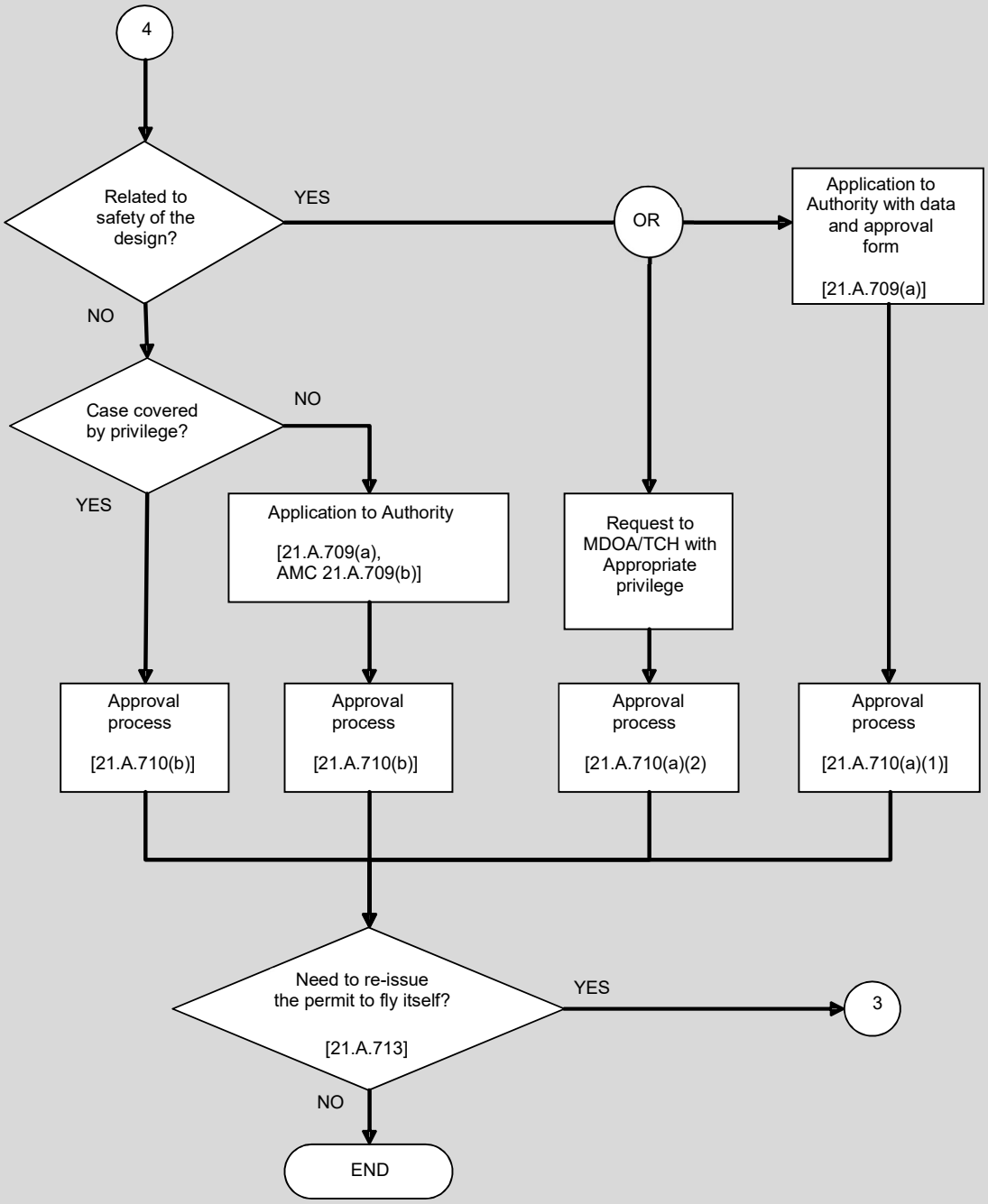
Flow-chart 2: approval of flight conditions



Flow-chart 3: issue of military permit to fly



Flow-chart 4: changes after first issue of military permit to fly



21.A.701 Scope

(a) Military permits to fly shall be issued in accordance with this Subpart to aircraft that do not meet, or have not been shown to meet, applicable airworthiness requirements but are capable of safe flight under defined conditions and for the following purposes:

Examples of where a military permit to fly may be required are:

1. Development;
2. Showing compliance with regulations or airworthiness codes;
3. Design organisations or production organisations crew training;
4. Production flight testing of new production aircraft;
5. Flying aircraft under production between production facilities;
6. Flying the aircraft for customer acceptance;
7. Delivering or exporting the aircraft;
8. Flying the aircraft for Authority acceptance;
9. Market survey, including customer's crew training;
10. Exhibition and air show;
11. Flying the aircraft to a location where maintenance or airworthiness review are to be performed, or to a place of storage;
12. Flying an aircraft at a weight in excess of its maximum certificated takeoff weight for flight beyond the normal range over water, or over land areas where adequate landing facilities or appropriate fuel is not available;
13. (Reserved)
14. Flying aircraft meeting the applicable airworthiness requirements before conformity to the environmental requirements (where applicable) has been found;
15. For individual aircraft or types for which a certificate of airworthiness or restricted certificate of airworthiness is not appropriate.

(b) This Subpart establishes the procedure for issuing military permits to fly and approving associated flight conditions and establishes the rights and obligations of the applicants for, and holders of, those permits and approvals for flight conditions.

GM 21.A.701 Military permit to fly when certificate of airworthiness or restricted certificate of airworthiness is not appropriate

A certificate of airworthiness or restricted category certificate of airworthiness may not be appropriate for an individual aircraft or aircraft type when it is not practicable to comply with the normal continued airworthiness requirements and the aircraft is to a design standard that is demonstrated to be capable of safe flight under defined conditions. BMAR 21.A.701 identifies cases where the issuance of a (Restricted) Certificate of Airworthiness may not be possible or appropriate and this paragraph provides further information and typical examples for clarification where appropriate:

Note: This list of examples is not exhaustive

a) Development:

   i. testing of new aircraft or modifications;

   ii. testing of new concepts of airframe, engine propeller and equipment;

iii. testing of new operating techniques.

b) Showing compliance with regulations or certification requirements:

Certification flight testing for military type-certification, military supplemental type certificates, changes to military type certificates or MTSO authorisation.

c) Design organisations or production organisations crew training:

Flights for training of crew that will perform design or production flight testing before the design approval or Certificate of Airworthiness (C of A) can be issued.

d) Production flight testing of new production aircraft:

For establishing conformity with the approved design, typically this would be the same program for a number of similar aircraft.

e) Flying aircraft under production between production facilities:

Green aircraft ferry for follow on final production.

f) Flying the aircraft for customer acceptance:

Before the aircraft is sold and/or registered.

g) Delivering or exporting the aircraft:

Before the aircraft is registered in the State where the C of A will be issued.

h) Flying the aircraft for Authority acceptance:

In the case of inspection flight test by the Authority before the C of A is issued.

i) Market survey, including customer's crew training:

Flights for the purpose of conducting market survey, sales demonstrations and customer crew training with non military type certificated aircraft or aircraft for which conformity has not yet been established or for non-registered a/c and before the C of A is issued.

j) Exhibition and air show:

Flying the aircraft to an exhibition or show and participating to the exhibition or show before the design approval is issued or before conformity with the approved design has been shown.

k) Flying the aircraft to a location where maintenance or airworthiness review are to be performed, or to a place of storage:

Ferry flights in cases where maintenance is not performed in accordance with approved programmes, where an AD has not been complied with, where certain equipment outside the Master Minimum Equipment List (MMEL) is unserviceable or when the aircraft has sustained damage beyond the applicable limits.

l) Flying an aircraft at a weight in excess of its maximum certificated takeoff weight for flight beyond the normal range over water, or over land areas where adequate landing facilities or appropriate fuel is not available:

Oversees ferry flights with additional fuel capacity.

m) (Reserved)

n) Flying aircraft meeting the applicable airworthiness requirements before conformity to the environmental requirements has been found:

Flying an aircraft which has been demonstrated to comply with all applicable airworthiness requirements but not with environmental requirements.

o) For individual aircraft or types for which a certificate of airworthiness or restricted certificate of airworthiness is not appropriate:

For aircraft which cannot practically meet all applicable airworthiness requirements, such as certain aircraft without MTC-holder ("generically termed orphan aircraft") or aircraft which have been under national systems of military permit to fly and have not been shown to meet all applicable requirements. The option of a military permit to fly for such an aircraft should only be used if a certificate of airworthiness or restricted certificate of airworthiness cannot be issued due to conditions which are outside the direct control of the aircraft operating organisation, such as the absence of properly certified spare parts.

GM 21.A.701 Scope

A military aircraft registered outside Belgium and used for flight testing by an organisation which has its principle place of business in Belgium, remains under the Authority of its state of registry. The Belgian Authority or an appropriately approved design organisation can provide, on request, technical assistance to the state of registry for the issue of a military permit to fly under the state of registry applicable regulations.

21.A.703 Eligibility

(a) Any organisation shall be eligible as an applicant for a military permit to fly under the conditions laid down in this Subpart. The applicant for a military permit to fly is also eligible for application for the approval of the flight conditions.

(b) (Reserved)

(c) (Reserved)

GM 21.A.703 Applicant for a military permit to fly

The applicant for a military permit to fly may be a person other than the registered operating organisation of the aircraft. As the holder of this permit will be responsible for ensuring that all the conditions and limitations associated with the military permit to fly are continuously satisfied, the applicant for the permit should be a person or organisation suitable for assuming these responsibilities. In particular, the organisations designing, modifying or maintaining the aircraft should normally be the holder of the associated permits to fly.

An appropriately approved design organisation can apply for the approval of the flight conditions when using its privilege in accordance with BMAR 21.A.263(b)(1).

21.A.705 Authority of the State

The military permit to fly under BMAR 21 shall be issued by the Authority including cases where the aircraft will fly in another State. The military permit to fly contains all the conditions and restrictions to ensure safe flight but other airspace and operational rules remain the competence of the Authority of the State where the flight will take place. The applicant shall therefore also ensure compliance with the relevant regulations of that State.

21.A.707 Application for military permit to fly

(a) Pursuant to BMAR 21.A.703 and when the applicant has not been granted the privilege to issue a military permit to fly, an application for a military permit to fly shall be made to the Authority in a form and manner established by that Authority.

(b) Each application for a military permit to fly shall include:

1. The purpose(s) of the flight(s), in accordance with BMAR 21.A.701;
2. The ways in which the aircraft does not comply with the applicable airworthiness requirements;
3. The flight conditions approved in accordance with BMAR 21.A.710.

(c) Where the flight conditions are not approved at the time of application for a military permit to fly, an application for approval of the flight conditions shall be made in accordance with BMAR 21.A.709.

GM 21.A.707(b) Application

The military permit to fly application form (BMAR Form 21) is to be obtained from the Authority.

21.A.708 Flight conditions

Flight conditions include:

(a) The configuration(s) for which the military permit to fly is requested;

(b) Any condition or restriction necessary for safe operation of the aircraft, including:

1. The conditions or restrictions put on itineraries or airspace, or both, required for the flight(s);
2. The conditions and restrictions put on the flight crew to fly the aircraft;
3. The restrictions regarding carriage of persons other than flight crew;
4. The operating limitations, specific procedures or technical conditions to be met (which may include the restrictions regarding carriage/release/firing of weapons);
5. The specific flight test programme (if applicable);
6. The specific continuing airworthiness arrangements and the regime under which they will be performed.

(c) The substantiation that the aircraft is capable of safe flight under the conditions or restrictions of subparagraph (b);

(d) The method used for the control of the aircraft configuration, in order to remain within the established conditions.

GM 21.A.708(b)(6) Continuing airworthiness

In most cases a simple reference to existing maintenance requirements will suffice for aircraft that have a temporarily invalid C of A.

For other aircraft it will have to be proposed by the applicant as part of the flight conditions. For approved organisations they can be included in their procedures.

GM No. 1 to 21.A.708(c) Safe flight

Safe flight normally means continued safe flight and landing but in some limited cases (e.g. higher risk flight testing) it can mean that the aircraft is able to fly in a manner that will primarily ensure the safety of overflown third parties, the flight crew and, if applicable other occupants.

This definition of “safe flight” should not be interpreted as allowing a test pilot, equipped with a parachute and operating over a sparsely populated area, to set out on a test flight in the full knowledge that there is a high probability of losing the aircraft. The applicant should take reasonable care to minimise safety risks and to be satisfied that there is a reasonable probability that the aircraft will carry out the flight without damage or injury to the aircraft and its occupants or to other property or persons whether in the air or on the ground.

GM No. 2 to 21.A.708(c) Substantiations

The substantiations should include analysis, calculations, tests or other means used to determine under which conditions or restrictions the aircraft can perform safely a flight.

GM 21.A.708(d) Control of aircraft configuration

The applicant should establish a method for the control of any change or repair made to the aircraft, for changes and repairs that do not invalidate the conditions established for the military permit to fly.

All other changes should be approved in accordance with BMAR 21.A.713 and when necessary a new military permit to fly should be issued in accordance with BMAR 21.A.711.

21.A.709 Application for approval of flight conditions

(a) Pursuant to BMAR 21.A.707(c) and when the applicant has not been granted the privilege to approve the flight conditions, an application for approval of the flight conditions shall be made in a form and manner established by the Authority.

(b) Each application for approval of the flight conditions shall include:

1. The proposed flight conditions;
2. The documentation supporting these conditions; and
3. A declaration that the aircraft is capable of safe flight under the conditions or restrictions of paragraph BMAR 21.A.708(b).

AMC 21.A.709(b) Submission of documentation supporting the establishment of flight conditions

Together with the application, the documentation required by BMAR 21.A.709(b) should be submitted with BMAR Form 18b, completed with all relevant information. If the complete set of data is not available at the time of application, the missing elements can be provided later. In such cases, the approval form should be provided only when all data are available, to allow the applicant to make the statement required in Block 9 of the Form.

21.A.710 Approval of flight conditions

(a) When approval of the flight conditions is related to the safety of the design, the flight conditions shall be approved by:

1. The Authority; or
2. An appropriately approved design organisation, under the privilege of BMAR 21.A.263(c)(6).

(b) When approval of the flight conditions is not related to the safety of the design, the flight conditions shall be approved by the Authority, or the appropriately approved organisation that will also issue the military permit to fly.

(c) Before approving the flight conditions, the Authority or the approved organisation under BMAR 21.A.711 (b) or (c) must be satisfied that the aircraft is capable of safe flight under the specified conditions and restrictions. The Authority may make or require the applicant to make any necessary inspections or tests for that purpose.

GM 21.A.710 Approval of flight conditions

1. The approval of flight conditions is related to the safety of the design, when:
   a) the aircraft does not conform to an approved design; or
   b) an Airworthiness Limitation, a Certification Maintenance Requirement or an Airworthiness Directive has not been complied with; or
   c) the intended flight(s) are outside the approved envelope.
2. Examples when the approval of flight conditions is not related to the safety of the design are:
   a) production flight testing for the purpose of conformity establishment;
   b) delivery / export flight of a new aircraft the design of which is approved;
   c) demonstrating continuing conformity with the standard previously accepted by the Authority for the aircraft or type of aircraft to qualify or re-qualify for a (restricted -) certificate of airworthiness.

21.A.711 Issue of a military permit to fly

(a) The Authority shall issue a military permit to fly:

1. Upon presentation of the data required by BMAR 21.A.707;
2. When the conditions of BMAR 21.A.708 have been approved in accordance with BMAR 21.A.710; and
3. When the Authority, through its own investigations, which may include inspections, or through procedures agreed with the applicant, is satisfied that the aircraft conforms to the design defined under BMAR 21.A.708 before flight.

(b) An appropriately approved design organisation may issue a military permit to fly (BMAR Form 20b) under the privilege granted under BMAR 21.A.263(c)(7), when the flight conditions referred to in 21.A.708 have been approved in accordance with 21.A.710.

(c) An appropriately approved production organisation may issue a military permit to fly (BMAR Form 20b) under the privilege granted under BMAR 21.A.163(e), when the flight conditions referred to in 21.A.708 have been approved in accordance with 21.A.710.

(d) (Reserved)

(e) The military permit to fly shall specify the purpose(s) and any conditions and restrictions, which have been approved in accordance with BMAR 21.A.710.

(f) For permits issued under subparagraph (b), (c) or (d), a copy of the military permit to fly and associated flight conditions shall be submitted to the Authority at the earliest opportunity but not later than three days from the permit being issued.

(g) Upon evidence that any of the conditions specified in BMAR 21.A.723(a) are not met for a military permit to fly that an organisation has issued pursuant to subparagraph (b), (c) or (d), that organisation shall revoke that military permit to fly immediately and inform without delay the Authority.

AMC 21.A.711 Issue of a military permit to fly

As an alternative means of compliance to Subpart P requirements, the military permit to fly for an aircraft allocated for flight test development should be issued in compliance with the Military Fight Test Permit (MFTP) procedure in defining the approval process for the flight test conditions. The MFTP process has been specifically developed for use in the Military Flight Test environment and enables closer cooperation between participating nations to utilise a single MFTP.

GM 21.A.711(e) Additional conditions and restrictions

The conditions and restrictions prescribed by the Authority may include airspace restrictions to make the conditions approved under BMAR 21.A.710 more concrete, or conditions outside the scope of the ones mentioned in BMAR 21.A.708(b) such as a radio station license.

21.A.713 Changes

(a) Any change that invalidates the flight conditions or associated substantiation established for the military permit to fly shall be approved in accordance with BMAR 21.A.710. When relevant, an application shall be made in accordance with BMAR 21.A.709.

(b) A change affecting the content of the military permit to fly requires the issuance of a new military permit to fly in accordance with BMAR 21.A.711.

GM 21.A.713 Changes

Changes to the conditions or associated substantiations that are approved but do not affect the text on the military permit to fly do not require issuance of a new military permit to fly.

In case a new application is necessary, the substantiation for approval of the flight conditions only needs to address the change.

21.A.715 Language

The military permit to fly shall be issued in English and the flight conditions and its supporting documents shall be presented in English. Dutch or French may also be accepted.

21.A.719 Transferability

A military permit to fly is not transferable.

GM 21.A.719 Transfer of a military permit to fly

A military permit to fly is issued based upon the applicant's declaration of many aspects of the proposed flight or flights, some of which are specific to the applicant. Accordingly, the basis upon which a military permit to fly has been issued necessarily is no longer fully in place when the holder of a military permit to fly changes, ownership changes, and/or there is a change of register. Such changes necessitate a new application under BMAR 21.A.707.

21.A.721 Inspections

The holder of, or the applicant for, a military permit to fly shall provide access to the aircraft concerned at the request of the Authority.

21.A.723 Duration and continued validity

(a) A military permit to fly shall be issued for a stated period of validity and shall remain valid subject to:

1. Compliance with the conditions and restrictions of BMAR 21.A.711(e) associated to the military permit to fly;
2. The military permit to fly not being surrendered or revoked (under the applicable administrative procedures established by the Authority);
3. The aircraft remaining on the same register.

(b) (Reserved)

(c) Upon surrender or revocation, the military permit to fly shall be returned to the Authority.

21.A.725 Renewal of military permit to fly

Renewal of the military permit to fly shall be processed as a change in accordance with BMAR 21.A.713.

21.A.727 Obligations of the holder of a military permit to fly

The holder of a military permit to fly shall ensure that all the conditions and restrictions associated with the military permit to fly are satisfied and maintained.

21.A.729 Record keeping

(a) All documents produced to establish and justify the flight conditions shall be held by the holder of the approval of the flight conditions at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the aircraft.

(b) All documents associated to the issue of permits to fly under the privilege of approved organisations, including inspection records, documents supporting the approval of flight conditions and the military permit to fly itself, shall be held by the related approved organisation at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the aircraft.

Subpart Q – Identification Of Products, Parts And Appliances

21.A.801 Identification of products

(a) The identification of products shall include the following information:

1. Manufacturer's name;
2. Product designation;
3. Manufacturer's Serial number; and
4. Any other information the Authority finds appropriate.

(b) Any organisation that manufactures an aircraft or engine under BMAR 21 Subpart G or Subpart F shall identify that aircraft or engine by means of a fireproof plate that has the information specified in paragraph (a) marked on it by etching, stamping, engraving, or other approved method of fireproof marking. The identification plate shall be secured in such a manner that it is accessible and legible, and will not likely be defaced or removed during normal service, or lost or destroyed in an accident.

(c) Any organisation that manufactures a propeller, propeller blade, or propeller hub under BMAR 21 Subpart G or Subpart F shall identify it by means of a plate, stamping, engraving, etching or other approved method of fireproof identification that is placed on it on a non-critical surface, contains the information specified in paragraph (a), and will not likely be defaced or removed during normal service or lost or destroyed in an accident.

(d) (Reserved).

21.A.803 Handling of identification data

(a) No person shall remove, change, or place identification information referred to in BMAR 21.A.801(a) on any aircraft, engine, propeller, propeller blade, or propeller hub, or in BMAR 21.A.807(a) on an APU, without the approval of the Authority.

(b) No person shall remove or install any identification plate referred to in BMAR 21.A.801, or in BMAR 21.A.807 for an APU, without the approval of the Authority.

(c) By way of derogation from paragraphs (a) and (b), any organisation performing maintenance work under the applicable associated implementing rules may, in accordance with methods, techniques and practices established by the Authority:

1. Remove, change, or place the identification information referred to in BMAR 21.A.801(a) on any aircraft, engine, propeller, propeller blade, or propeller hub, or in BMAR 21.A.807(a) on an APU; or
2. Remove an identification plate referred to in BMAR 21.A.801, or 21.A.807 for an APU, when necessary during maintenance operations.

(d) No person shall install an identification plate removed in accordance with subparagraph (c)(2) on any aircraft, engine, propeller, propeller blade, or propeller hub other than the one from which it was removed.

21.A.804 Identification of parts and appliances

(a) Each part or appliance shall be marked permanently and legibly with:

1. A name, trademark, or symbol identifying the manufacturer in a manner identified by the applicable design data; and
2. The part number, as defined in the applicable design data; and
3. The letters MPA (Military Part Approval) for parts or appliances produced in accordance with approved design data not belonging to the type-certificate holder of the related product, except for MTSO articles.

(b) By way of derogation from paragraph (a), if the Authority agrees that a part or appliance is too small or that it is otherwise impractical to mark a part or appliance with any of the information required by paragraph (a), the authorised release document accompanying the part or appliance or its container shall include the information that could not be marked on the part.

GM 21.A.804(a)(1) Identification of parts and appliances

It is not the intent of BMAR 21.A.804(a)(1) to introduce an obligation for a production organisation (manufacturer) to mark new parts or appliances with information which is not identified by the military design approval holder. Therefore, the physical marking of parts and appliances is only required when established by the military design approval (MTC, MSTC, MTSO, repair, minor change) holder.

AMC 21.A.804(a)(3) Identification of parts and appliances

Mark “EMPA” (European Military Part Approval) is a generic designation that is to be adapted by each Nation in order to distinguish identification of parts and appliances produced under each nation approval. Thus, the letter “E” should be replaced by the ISO 3166-1:2006 (or STANAG 1059 Edition 8)* three letter code BEL for Belgium.

GM 21.A.804(a)(3) Identification of parts and appliances

“EPA” (European Part Approval) mark, for parts and appliances produced under EASA approval that can be installed in military aircraft, should be considered as an recognized mark instead of “EMPA” (European Military Part Approval) in the same manner as defined on AMC BMAR 21.A.804(a)(3) for parts and appliances produced under each nation approval.

21.A.805 Identification of critical parts

In addition to the requirement of BMAR 21.A.804, each manufacturer of a part to be fitted on a type-certificated product which has been identified as a critical part shall permanently and legibly mark that part with a part number and a serial number.

21.A.807 Identification of MTSO articles

(a) Each holder of an MTSO authorisation under BMAR 21 Subpart O shall permanently and legibly mark each article with the following information:

1. The name and address of the manufacturer;
2. The name, type, part number or model designation of the article;
3. The serial number or the date of manufacture of the article or both; and
4. The applicable MTSO number.

(b) By way of derogation from paragraph (a), if the Authority agrees that a part is too small or that it is otherwise impractical to mark a part with any of the information required by paragraph (a), the authorised release document accompanying the part or its container shall include the information that could not be marked on the part.

(c) Each person who manufactures an APU under BMAR 21 Subpart G or Subpart F shall identify that APU by means of a fire-proof plate that has the information specified in paragraph (a) marked on it by etching, stamping, engraving, or other approved method of fireproof marking. The identification plate shall be secured in such a manner that it is accessible and legible, and will not likely be defaced or removed during normal service, or lost or destroyed in an accident.

SECTION B – PROCEDURES OF THE AUTHORITY

Subpart A – General Provisions

21.B.1 Question Set

The EMAR Question Set will enable an Authority to assess compliance of their national regulations against the respective EMAR. This will support the demonstration of implementation and will facilitate the recognition process between authorities.

21.B.5 Scope

(a) This Section establishes the procedures for the Authority when exercising their tasks and responsibilities concerned with the issuance, maintenance, amendment, suspension and revocation of certificates, approvals and authorisations referred to in this BMAR.

(b) (Reserved).

(c) The content of this Section represents the internal governance for the Authority in the implementation of Section A.

21.B.20 Obligations of the Authority

(Reserved).

21.B.25 Requirements for the organisation of the Authority

(a) General:

(Reserved)

(b) Resources:

1. The number of staff shall be sufficient to perform the allocated tasks;
2. The Authority shall appoint a manager, or managers, who are responsible for the execution of the related task(s) within the authority, including communication with other military airworthiness authorities, as appropriate.

(c) Qualification and training:

All staff shall be appropriately qualified and have sufficient knowledge, experience and training to perform their allocated task.

21.B.30 Documented procedures

(a) The Authority shall establish documented procedures to describe its organisation, means and methods to fulfil the requirements of this BMAR. The procedures shall be kept up to date and serve as the basic working documents within that authority for all related activities.

(b) (Reserved)

21.B.35 Changes in organisation and procedures

(a) The Authority shall notify any significant change in its organisation and documented procedures in accordance with EMAD R.

(b) The Authority shall update its documented procedures relating to any change to regulations in a timely manner to ensure effective implementation.

21.B.40 Resolution of disputes

(a) The Authority shall establish a process for the resolution of disputes within its organisation documented procedures.

(b) (Reserved).

21.B.45 Reporting/coordination

The Authority shall ensure coordination as applicable with other related certification, investigation, approval or authorisation teams of any other Airworthiness Authority to ensure efficient exchange of information relevant for safety of the products, parts and appliances.

21.B.55 Record keeping

The Authority shall keep, or maintain access to, the appropriate records related to the certificates, approvals and authorisations it has granted in accordance with this BMAR.

21.B.60 Airworthiness Directives

(a) The Authority shall establish documented procedures to describe its organisation, means and methods to issue or adopt mandatory actions to be performed on an aircraft to restore an acceptable level of safety when evidence shows that the safety level of this aircraft may otherwise be compromised.

(b) The Authority shall issue Airworthiness Directives under BMAR 21 Section A, 21.A.3B to address unsafe conditions resulting from:

1. A deficiency in the approved design, or
2. Non-conformities of aircraft with the approved design likely to exist or develop in other aircraft, due to manufacturing or maintenance deficiencies, when the Airworthiness Directive results in a design approval, such as:
    i. Approval of non-conformities, subject to conditions, such as limitations or additional inspections.
    ii. Inspection, replacement or modification, within a specified time frame, of non-conformities, to bring them back into conformity with the approved design.

(c) The Authority shall establish documented procedure to describe means and method to identify and disseminate all applicable Airworthiness Directives, and keep and maintain access to all known (national) operators or owners of the product and, to any person or organisation required to comply with the Airworthiness Directive.

(d) When an Airworthiness Directive issued by a civil or by a Military Airworthiness Authority concerns an aircraft under the responsibility of another Authority, this Authority shall disseminate that Airworthiness Directive in accordance with internal procedures in order to maintain the acceptable level of safety.

Subpart B – Military Type Certificates And Military Restricted Type Certificates

Administrative procedures established by the Authority shall apply.

(Subpart C – Not Applicable)

Subpart D – Changes To Military Type Certificates And Military Restricted Type Certificates

Administrative procedures established by the Authority shall apply.

Subpart E – Military Supplemental Type Certificates

Administrative procedures established by the Authority shall apply.

Subpart F – Production Without Military Production Organisation Approval

21.B.120 Investigation

(a) The Authority shall appoint an investigation team for each applicant for, or holder of, a letter of agreement to conduct all relevant tasks related to this letter of agreement, consisting of a team-leader to manage and lead the investigation team and, if required, one or more team members. The team-leader reports to the manager responsible for the activity, as defined in BMAR 21.B.25 (b)(2).

(b) The Authority shall perform sufficient investigation activities to justify the issuance, maintenance, amendment, suspension or revocation of the letter of agreement.

(c) The Authority shall prepare procedures for the investigation of applicants for, or holders of, a letter of agreement as part of the documented procedures covering at least the following elements:

1. Evaluation of applications received;
2. Determination of investigation team;
3. Investigation preparation and planning;
4. Evaluation of the documentation (manual, procedures, etc.);
5. Auditing and inspection;
6. Follow up of corrective actions;
7. Issuance, amendment, suspension or revocation of the letter of agreement.

21.B.125 Findings

(a) When during audits or by other means, objective evidence is found by the Authority showing non-compliance of the holder of a letter of agreement with the applicable requirements of Section A of this BMAR, this finding shall be classified in accordance with BMAR 21.A.125B(a).

(b) The Authority shall take the following actions:

1. For level one findings, immediate action shall be taken by the Authority to limit, suspend or revoke the letter of agreement in whole or in part, depending upon the extent of the finding, until successful corrective action has been completed by the organisation;
2. For level two findings, the Authority shall grant a corrective action period appropriate to the nature of the finding that shall not to be more than three months. In certain circumstances, at the end of this period and subject to the nature of the finding, the Authority can extend the three months period subject to a satisfactory corrective action plan.

(c) Action shall be taken by the Authority to suspend the letter of agreement in whole or in part in case of failure to comply within the timescale granted by the Authority.

21.B.130 Issue of a letter of agreement

(a) When satisfied that the manufacturer is in compliance with the applicable requirements of BMAR 21 Section A, Subpart F, the Authority shall issue a letter of agreement to the showing of conformity of individual products, parts or appliances (BMAR Form 65) without undue delay.

(b) The letter of agreement shall contain the scope of the agreement, a termination date and, where applicable, the appropriate limitations relating to the authorisation.

(c) The duration of the letter of agreement is not to exceed one year, or as agreed with the manufacturer.

21.B.135 Maintenance of the letter of agreement

The Authority shall maintain the letter of agreement as long as:

(a) The manufacturer is properly using the BMAR Form 52 as a Statement of Conformity for complete aircraft, and the BMAR Form 1 for products other than complete aircraft, parts and appliances; and

(b) Inspections performed by the Authority before validation of the BMAR Form 52 or the BMAR Form 1, as per BMAR 21.A.130(c) did not reveal any findings of non-compliance against the requirements or the procedures as contained in the manual provided by the manufacturer, or against the conformity of the respective products, parts or appliances. These inspections shall check at least that:

1. The agreement covers the product, part or appliance being validated, and remains valid;
2. The manual described in BMAR 21.A.125A(b) and its change status referred to in the letter of agreement is used as the basic working document by the manufacturer. Otherwise, the inspection shall not continue and therefore the release certificates shall not be validated;
3. Production has been carried out under the conditions prescribed in the letter of agreement and satisfactorily performed;
4. Inspections and tests (including flight tests, if appropriate), as per BMAR 21.A.130(b)(2) and/or (b)(3), have been carried out under the conditions prescribed in the letter of agreement and satisfactorily performed;
5. The inspections by the Authority described or addressed in the letter of agreement have been performed and found acceptable;
6. The statement of conformity complies with BMAR 21.A.130, and the information provided does not prevent its validation; and

(c) Any termination date for the letter of agreement has not been reached.

21.B.140 Amendment of the letter of agreement

(a) The Authority shall investigate, as appropriate, in accordance with BMAR 21.B.120 any amendment of the letter of agreement.

(b) When the Authority is satisfied that the requirements of BMAR 21 Section A Subpart F continue to be complied with, it shall amend the letter of agreement accordingly.

21.B.145 Limitation, suspension and revocation of the letter of agreement

(a) The limitation, suspension or revocation of the letter of agreement shall be communicated in writing to the holder of the letter of agreement. The Authority shall state the reasons for the limitation, suspension or revocation and inform the holder of the letter of agreement of its right to appeal.

(b) When the letter of agreement has been suspended it shall only be reinstated after compliance with BMAR 21 Section A, Subpart F has been re-established.

21.B.150 Record keeping

(a) The Authority shall establish a system of record keeping that allows adequate traceability of the process to issue, maintain, amend, suspend or revoke each individual letter of agreement.

(b) The records shall at least contain:

1. The documents provided by the applicant for, or holder of, a letter of agreement;
2. The documents established during investigation and inspection, in which the activities and the final results of the elements defined in BMAR 21.B.120 are stated, including findings and corrective actions established in accordance with BMAR 21.B.125;
3. The letter of agreement, including changes; and
4. The minutes of the meetings with the manufacturer.

(c) The records shall be archived for a minimum retention period of six years after termination of the letter of agreement.

(d) The Authority shall also maintain records of all statements of conformity (BMAR Form 52) and authorised release certificates (BMAR Form 1) that it has validated.

Subpart G – Military Production Organisation Approval

21.B.220 Investigation

(a) The Authority shall appoint a production organisation approval team for each applicant, or holder of, a production organisation approval to conduct all relevant tasks related to this production organisation approval, consisting of a team leader to manage and lead the approval team and, if required, one or more team members. The team leader reports to the manager responsible for the activity as defined in BMAR 21.B.25(b)(2).

(b) The Authority shall perform sufficient investigation activities to justify the issuance, maintenance, amendment, suspension or revocation of the approval.

(c) The Authority shall prepare procedures for the investigation of a production organisation that has applied for an approval, as part of the documented procedures, covering at least the following elements:

1. Evaluation of applications received;
2. Determination of production organisation approval team;
3. Investigation preparation and planning;
4. Evaluation of the documentation (production organisation exposition, procedures, etc.);
5. Auditing;
6. Follow up of corrective actions;
7. Issuance, amendment, suspension or revocation of a production organisation approval;
8. Continued surveillance.

21.B.225 Findings

(a) When during audits or by other means objective evidence is found by the Authority, showing non-compliance of the holder of a production organisation approval with the applicable requirements of Section A, this finding shall be classified in accordance with BMAR 21.A.158(a).

(b) The Authority shall take the following actions:

1. For level one findings, immediate action shall be taken by the Authority to limit, suspend or revoke the production organisation approval, in whole or in part, depending upon the extent of the finding, until successful corrective action has been completed by the organisation;
2. For level two findings, the Authority shall grant a corrective action period appropriate to the nature of the finding that shall not to be more than three months. In certain circumstances, at the end of this period and subject to the nature of the finding, the Authority can extend the three months period subject to a satisfactory corrective action plan.

(c) Action shall be taken by the Authority to suspend the approval in whole or in part, in case of failure to comply within the timescale granted by the Authority.

21.B.230 Issue of certificate

(a) When satisfied that the production organisation is in compliance with the applicable requirements of BMAR 21 Section A, Subpart G, the Authority shall issue a Production Organisation Approval (BMAR Form 55) without undue delay.

(b) The reference number shall be included on the BMAR Form 55 in a manner specified by the Authority.

21.B.235 Continued surveillance

(a) In order to justify the maintenance of the production organisation approval the Authority shall perform continued surveillance:

1. To verify that the production organisation approval holder's quality system complies with BMAR 21 Section A, Subpart G;
2. To verify that the organisation of the production organisation approval holder operates in accordance with the production organisation exposition;
3. To verify the effectiveness of the production organisation exposition procedures; and
4. To monitor by sample the standards of the product, part or appliance.

(b) Continued surveillance shall be performed in accordance with BMAR 21.B.220.

(c) The Authority shall provide through planned continued surveillance that a production organisation approval is completely reviewed for compliance with this BMAR during a period of 24 months. The continued surveillance may be made up of several investigation activities during this period. The number of audits may vary depending upon the complexity of the organisation, the number of sites and the criticality of the production. The holder of a production organisation approval shall be subject to continued surveillance activity by the Authority at least once every year.

21.B.240 Amendment of a production organisation approval

(a) The Authority shall monitor any minor change through the continued surveillance activities.

(b) The Authority shall investigate as appropriate in accordance with BMAR 21.B.220 any significant change of a production organisation approval or application by the holder of a production organisation approval for an amendment of the scope and terms of approval.

(c) When the Authority is satisfied that the requirements of BMAR 21 Section A, Subpart G continue to be complied with, it shall amend the production organisation approval accordingly.

21.B.245 Suspension and revocation of a production organisation approval

(a) In case of a level one or level two finding, the Authority shall partly or fully limit, suspend or revoke a production organisation approval as follows:

1. In case of a level one finding the production organisation approval shall be immediately limited or suspended. If the holder of the production organisation approval fails to comply with BMAR 21.A.158(c)(1), the production organisation approval shall be revoked;
2. In case of a level two finding, the Authority shall decide on any restriction to the scope of approval, by temporary suspension of the production organisation approval or parts thereof. If the holder of a production organisation approval fails to comply with BMAR 21.A.158(c)(2), the production organisation approval shall be revoked.

(b) The limitation, suspension or revocation of the production organisation approval shall be communicated in writing to the holder of the production organisation approval. The Authority shall state the reasons for the suspension or revocation and inform the holder of the production organisation approval of its right to appeal.

(c) When a production organisation approval has been suspended it shall only be reinstated after compliance with BMAR 21 Section A, Subpart G has been re-established.

21.B.260 Record keeping

(a) The Authority shall establish a system of record keeping that allows adequate traceability of the process to issue, maintain, amend, suspend or revoke each individual production organisation approval.

(b) The records shall at least contain:

1. The documents provided by the applicant for, or holder of, a production organisation approval certificate;
2. The documents established during the investigation, in which the activities and the final results of the elements defined in BMAR 21.B.220 are stated, including findings and corrective actions established in accordance with BMAR 21.B.225;
3. The continued surveillance programme, including records of investigations performed;
4. The production organisation approval certificate, including changes;
5. The minutes of the meetings with the holder of the production organisation approval.

(c) The records are to be archived for a minimum retention period of six years.

Subpart H – Military Certificates Of Airworthiness And Military Restricted Certificates Of Airworthiness

21.B.320 Investigation

(a) The Authority of registry shall perform sufficient investigation activities for an applicant for, or holder of, an airworthiness certificate to justify the issuance, maintenance, amendment, suspension or revocation of the certificate.

(b) The Authority of registry shall prepare evaluation procedures covering at least the following elements:

1. Evaluation of eligibility of the applicant;
2. Evaluation of the eligibility of the application;
3. Classification of airworthiness certificates;
4. Evaluation of the documentation received with the application;
5. Inspection of aircraft;
6. Determination of necessary conditions, restrictions or limitations to the airworthiness certificates.

21.B.325 Issue of airworthiness certificates

(a) The Authority of registry shall issue or change a Certificate of Airworthiness (BMAR Form 25) when it is satisfied that the requirements of BMAR 21.B.326 and the applicable requirements of BMAR 21 Section A of Subpart H are met.

(b) The Authority of registry shall issue or change a Restricted Certificate of Airworthiness (BMAR Form 24) when it is satisfied that the requirements of BMAR 21.B.327 and the applicable requirements of BMAR 21 Section A of Subpart H are met.

(c) For any new aircraft or used aircraft originating from another state, in addition to the appropriate airworthiness certificate referred to in point (a) or (b), the authority of the Member State of registry shall issue an initial Military Airworthiness Review Certificate (BMAR Form 15a).

21.B.326 Certificate of airworthiness

The Authority of registry shall issue a certificate of airworthiness for:

(a) New aircraft:

1. Upon presentation of the documentation required by BMAR 21.A.174(b)(2);
2. When the Authority of registry is satisfied that the aircraft conforms to an approved design and is in a condition for safe operation. This may include inspections by the Authority of registry.

(b) Used aircraft:

1. Upon presentation of the documentation required by BMAR 21.A.174(b)(3) demonstrating that:
   i. The aircraft conforms to a type design approved under a type certificate and any supplemental type certificate, change or repair approved in accordance with this BMAR;
   ii. The applicable Airworthiness Directives have been complied with; and

iii. The aircraft has been inspected in accordance with the applicable provisions of BMAR M.

2. When the Authority of registry is satisfied that the aircraft conforms to an approved design and is in a condition for safe operation. This may include inspections by the Authority of registry.

21.B.327 Restricted certificate of airworthiness

(a) The Authority of registry shall issue a restricted certificate of airworthiness for:

1. New aircraft:

i. Upon presentation of the documentation required by BMAR 21.A.174(b)(2);

ii. When the Authority of registry is satisfied that the aircraft conforms to an approved design under a restricted type certificate or in accordance with specific airworthiness specifications, and is in a condition for safe operation. This may include inspections by the Authority of registry.

2. Used aircraft:

i. Upon presentation of the documentation required by BMAR 21.A.174(b)(3) demonstrating that:

(A) The aircraft conforms to a design approved under a restricted type certificate or in accordance with specific airworthiness specifications and any supplemental type certificate change or repair approved in accordance with this BMAR;

(B) The applicable Airworthiness Directives have been complied with; and

(C) The aircraft has been inspected in accordance with the applicable provisions of BMAR M.

ii. When the Authority of registry is satisfied that the aircraft conforms to the approved design and is in a condition for safe operation. This may include inspections by the Authority of registry.

(b) For an aircraft that cannot comply with the essential requirements referred to in the Royal Decree and which is not eligible for a restricted type certificate, the Authority shall, as necessary to take account of deviations from these essential requirements:

1. Issue and check compliance with specific airworthiness specifications ensuring adequate safety with regard to the intended use; and

2. Specify limitations for use of this aircraft.

(c) Limitations for use will be associated with restricted certificates of airworthiness, including airspace restrictions, as necessary to take account of deviations from essential requirements for airworthiness laid down in the Royal Decree.

21.B.330 Suspension and revocation of certificates of airworthiness and restricted certificates of airworthiness

(a) Upon evidence that any of the conditions specified in BMAR 21.A.181(a) is not met, the Authority of registry shall suspend or revoke an airworthiness certificate.

(b) Upon issuance of the notice of suspension or revocation of a certificate of airworthiness or restricted certificate of airworthiness the Authority of registry shall

state the reasons for the suspension or revocation and inform the holder of the certificate on its right to appeal.

21.B.345 Record keeping

(a) The Authority of registry shall establish a system of record keeping that allows adequate traceability of the process to issue, maintain, amend, suspend or revoke each individual airworthiness certificate.

(b) The records shall at least contain:

1. The documents provided by the applicant;
2. The documents established during the investigation, in which the activities and the final results of the elements defined in BMAR 21.B.320(b) are stated; and
3. A copy of the certificate, including amendments.

(c) The records shall be archived for a minimum retention period of six years after leaving that national register.

Subpart I – Reserved

(To Be Added Later If Required)

Subpart J – Military Design Organisation Approval

21.B.460 Investigation

(a) The Authority shall appoint a design organisation approval team for each applicant, or holder of, a design organisation approval to conduct all relevant tasks related to this design organisation approval, consisting of a team leader to manage and lead the approval team and, if required, one or more team members. The team leader reports to the manager responsible for the activity as defined in BMAR 21.B.25(b)(2).

(b) The Authority shall perform sufficient investigation activities to justify the issuance, maintenance, amendment, suspension or revocation of the approval.

(c) The Authority shall prepare procedures for the investigation of a design organisation approval, as part of the documented procedures, covering at least the following elements:

1. Evaluation of applications received;
2. Determination of design organisation approval team;
3. Investigation preparation and planning;
4. Evaluation of the documentation (design organisation exposition, procedures, etc.);
5. Auditing;
6. Follow up of corrective actions;
7. Issuance, amendment, suspension or revocation of design organisation approval;
8. Continued surveillance.

21.B.465 Findings

(a) When during audits or by other means objective evidence is found by the Authority, showing non-compliance of the holder of a design organisation approval with the applicable requirements of Section A, this finding shall be classified in accordance with BMAR 21.A.258(a).

(b) The Authority shall take the following actions:

1. For level one findings, immediate action shall be taken by the Authority to limit, suspend or revoke the design organisation approval, in whole or in part, depending upon the extent of the finding, until successful corrective action has been completed by the organisation;
2. For level two findings, the Authority shall grant a corrective action period appropriate to the nature of the finding that is not to be more than three months. In certain circumstances, at the end of this period and subject to the nature of the finding, the Authority can extend the three months period subject to a satisfactory corrective action plan.

(c) Action shall be taken by the Authority to suspend the approval in whole or in part, in case of failure to comply within the timescale granted by the Authority.

21.B.470 Issue of certificate

(a) When satisfied that the design organisation is in compliance with the applicable requirements of BMAR 21 Section A, Subpart J, the Authority shall issue a Design Organisation Approval without undue delay.

(b) The reference number shall be included on the Approval document in a manner specified by the Authority.

21.B.475 Continued surveillance

(a) In order to justify the maintenance of the design organisation approval the Authority shall perform continued surveillance:

1. To verify that the design organisation approval holder's design assurance system complies with BMAR 21 Section A, Subpart J;
2. To verify that the organisation of the design organisation approval holder operates in accordance with the design organisation exposition;
3. To verify the effectiveness of the design organisation exposition procedures; and
4. To monitor by sample the information coming from approval processes of design data.

(b) Continued surveillance shall be performed in accordance with BMAR 21.B.460.

(c) The Authority shall provide through planned continued surveillance that a design organisation approval is completely reviewed for compliance with this BMAR during a period of 36 months. The continued surveillance may be made up of several investigation activities during this period. The number of audits may vary depending upon the complexity of the organisation, the number of sites and the criticality of the design activities. The holder of a design organisation approval shall be subject to continued surveillance activity by the Authority at least once every year.

21.B.480 Amendment of a design organisation approval

(a) The Authority shall monitor any minor change through the continued surveillance activities.

(b) The Authority shall investigate as appropriate in accordance with BMAR 21.B.460 any significant change of a design organisation approval or application by the holder of a design organisation approval for an amendment of the scope and terms of approval.

(c) When the Authority is satisfied that the requirements of BMAR 21 Section A, Subpart J continue to be complied with, it shall amend the design organisation approval accordingly.

21.B.485 Suspension and revocation of a design organisation approval

(a) In case of a level one or level two finding, the Authority shall partly or fully limit, suspend or revoke a design organisation approval as follows:

1. In case of a level one finding the design organisation approval shall be immediately limited or suspended. If the holder of the design organisation approval fails to comply with BMAR 21.A.258(c)(1), the design organisation approval shall be revoked;
2. In case of a level two finding, the Authority shall decide on any restriction to the scope of approval, by temporary suspension of the design organisation approval or parts thereof. If the holder of a design organisation approval fails to comply with BMAR 21.A.258(c)(2), the design organisation approval shall be revoked.

(b) The limitation, suspension or revocation of the design organisation approval shall be communicated in writing to the holder of the design organisation approval. The Authority shall state the reasons for the suspension or revocation and inform the holder of the design organisation approval of its right to appeal.

(c) When a design organisation approval has been suspended it shall only be reinstated after compliance with BMAR 21 Section A, Subpart J has been re-established.

21.B.490 Record keeping

(a) The Authority shall establish a system of record keeping that allows adequate traceability of the process to issue, maintain, amend, suspend or revoke each individual design organisation approval.

(b) The records shall at least contain:

1. The documents provided by the applicant for, or holder of, a design organisation approval certificate;
2. The documents established during the investigation, in which the activities and the final results of the elements defined in BMAR 21.B.460 are stated, including findings and corrective actions established in accordance with BMAR 21.B.465;
3. The continued surveillance programme, including records of investigations performed;
4. The design organisation approval certificate, including changes;
5. The minutes of the meetings with the holder of the design organisation approval.

(c) The records shall be archived for a minimum retention period of six years.

Subpart K – Parts and Appliances

Administrative procedures established by the Authority shall apply.

(Subpart L – Not Applicable)

Subpart M – Repairs

Administrative procedures established by the Authority shall apply.

(Subpart N – Not Applicable)

Subpart O – European Military Technical Standard Order Authorisations

Administrative procedures established by the Authority shall apply.

Subpart P – Military Permit To Fly

21.B.520 Investigation

(a) The Authority shall perform sufficient investigation activities to justify the issuance or revocation of the military permit to fly.

(b) The Authority shall prepare evaluation procedures covering at least the following elements:

1. Evaluation of the eligibility of the applicant;
2. Evaluation of the eligibility of the application;
3. Evaluation of the documentation received with the application;
4. Inspection of the aircraft;
5. Approval of the flight conditions in accordance with BMAR 21.A.710.

21.B.525 Issue of a military permit to fly

The Authority shall issue a military permit to fly (BMAR Form 20a):

(a) Upon presentation of the data required by BMAR 21.A.707; and

(b) When the flight conditions referred to in BMAR 21.A.708 have been approved in accordance with BMAR 21.A.710; and

(c) When the Authority, through its own investigations, which may include inspections, or through procedures agreed with the applicant, is satisfied that the aircraft conforms to the design defined under BMAR 21.A.708 before flight.

21.B.530 Revocation of permits to fly

(a) Upon evidence that any of the conditions specified in BMAR 21.A.723(a) are not met for a military permit to fly it has issued, the Authority shall revoke that military permit to fly.

(b) Upon issuance of the notice of revocation of a military permit to fly the Authority shall state the reasons for the revocation and inform the holder of the military permit to fly on the right to appeal.

21.B.545 Record keeping

(a) The Authority shall establish a system of record keeping that provides adequate traceability of the process for the issue and revocation of each individual military permit to fly.

(b) The records shall at least contain:

1. The documents provided by the applicant;
2. The documents established during the investigation, in which the activities and the final results of the elements defined in BMAR 21.B.520(b) are stated; and
3. A copy of the military permit to fly.

(c) The records shall be archived for a minimum retention period of six years after the permit ceases to be valid.

Subpart Q – Identification Of Products, Parts And Appliances

Administrative procedures established by the Authority shall apply.