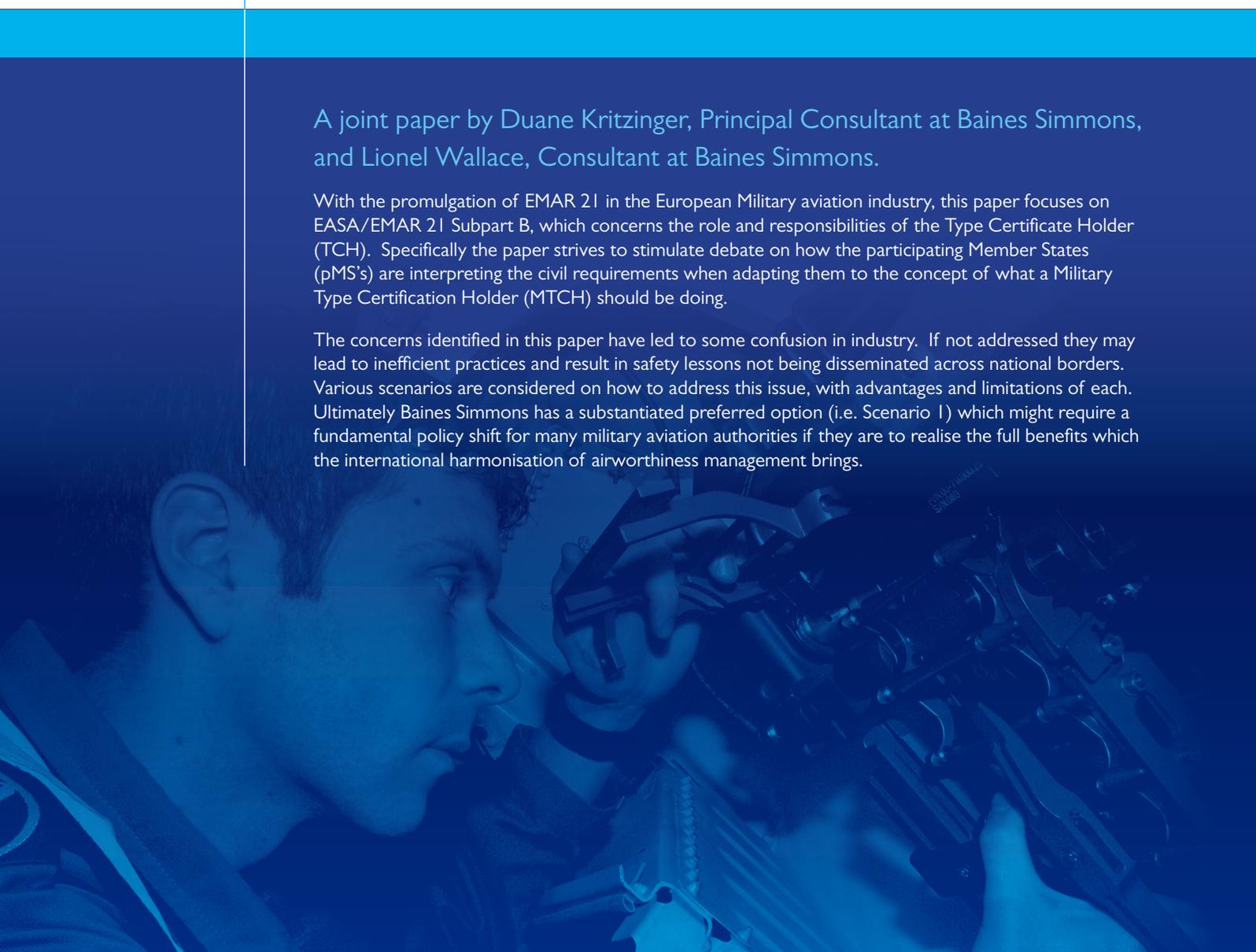


# European Military Aviation Requirements: Who should be the Military Type Certificate Holder?

A joint paper by Duane Kritzing, Principal Consultant at Baines Simmons, and Lionel Wallace, Consultant at Baines Simmons.

With the promulgation of EMAR 21 in the European Military aviation industry, this paper focuses on EASA/EMAR 21 Subpart B, which concerns the role and responsibilities of the Type Certificate Holder (TCH). Specifically the paper strives to stimulate debate on how the participating Member States (pMS's) are interpreting the civil requirements when adapting them to the concept of what a Military Type Certification Holder (MTCH) should be doing.

The concerns identified in this paper have led to some confusion in industry. If not addressed they may lead to inefficient practices and result in safety lessons not being disseminated across national borders. Various scenarios are considered on how to address this issue, with advantages and limitations of each. Ultimately Baines Simmons has a substantiated preferred option (i.e. Scenario 1) which might require a fundamental policy shift for many military aviation authorities if they are to realise the full benefits which the international harmonisation of airworthiness management brings.



# I. Introduction

## Background

The European Defence Agency (EDA) created the Military Airworthiness Authorities (MAWA) Forum with the objective of harmonising European Military Airworthiness Requirements (EMARs). The goal of the MAWA Forum is to develop and achieve the following ministerial approved 'roadmap-objectives' for adoption by each participating Member State (pMS) into their regulatory systems:

- a. common regulatory framework;
- b. common certification processes;
- c. common approach to organisational approvals;
- d. common certification/design codes;
- e. common approach to preservation of airworthiness;
- f. arrangements for mutual recognition;
- g. formation of a European Military Joint Airworthiness Authorities Organisation (EMJAAO).

In the Initial Airworthiness (IAW) domain, the EDA recognised that a common approach to the type-certification of military aircraft can act as a key enabler for future collaborative activities<sup>1</sup>. To satisfy objectives (a), (b) and (c) above the MAWA forum decided to use EASA Part 21 as a benchmark<sup>2</sup>, which would further bring benefits for the use of civil certified solutions. Accordingly, EMAR 21 (at edition 1.1) was created using EASA Part 21 (at Issue 1 Amendment 6 status) as a basis to achieve a starting point.

## The relevant requirements - extracted from EMAR 21

### 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<sup>3</sup> 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 organisation such as to ensure that the holder's obligations are and will be properly discharged.

### 21.A.13 Eligibility

Any organisation that has demonstrated, or is in the process of demonstrating, its capability in accordance with EMAR 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 type-certificate or restricted type-certificate shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with EMAR 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 EMAR, 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.

<sup>1</sup> The benefits of developing a full suite of common military airworthiness requirements will offer tangible savings in terms of reduced development time, initial procurement costs and will support more efficient collaborative capability sustainment programmes with further whole life cost benefits.

<sup>2</sup> See also the well-researched "10 Ways to Better Aviation Regulation" by the Australian Directorate General Technical Airworthiness: <http://www.defence.gov.au/DASP/Docs/Manuals/BetterPracticeGuide/10WaysToBetterAviationRegulationFirstEdition2014.pdf>

<sup>3</sup> This "Section" refers to EMAR 21 Section A (i.e. the EMAR 21 requirements applicable to industry), not Section B (i.e. the requirements applicable to the pMS's Competent Authority)

#### 21.A.44 Obligations of the holder

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

- a. Undertake the obligations laid down in EMAR 21.A.3 (Occurrence Reporting), 21.A.3B (AD Support), 21.A.4 (DOA-POA coordination), 21.A.55 (Record Keeping), 21.A.57 (Manuals) and 21.A.61 (Instructions for Continued Airworthiness); and, for this purpose, shall continue to meet the requirements of 21.A.14; and
- b. Specify the marking in accordance with EMAR 21 Subpart Q.

#### 21.A.235 Issue of Military design organisation approval (DOA)

An organisation shall be entitled to have a design organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart.

#### 21.A.245 Approval requirements

The design organisation shall demonstrate, on the basis of the information submitted in accordance with EMAR 21.A.243 that, in addition to complying with EMAR 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 and environmental protection (where applicable) matters.

#### 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 design organisation approval, and the functions and duties that the organisation is approved to perform in regard to the airworthiness of products.

### **How are some participating member states interpreting this?**

Many Member States feel strongly that the MTC should be held by a servant of the state and this servant of the state does not necessarily need to be a DOA. Reasons provided include:

- a. To retain sovereignty.
- b. To operate (when needed) outside the limitations of the Type Certificate Data Sheet.
- c. To incorporate all major changes into an update of the current Military Type Certificate.
- d. EMAR Requirements are not enshrined in law (i.e. only enforceable via contracts on Design Organisations and Post-Design Support (PDS) Organisations).
- e. Military want to be able to change the TC without OEM involvement.
- f. MTCH is accountable for Type Airworthiness (which includes certification and configuration management)
- g. Many US aircraft are acquired without a TC.

## So what are our concerns?

When it comes to aircraft types which are used internationally, there are numerous concerns regarding each pMS having their own MTC. These include:

- ▶ Who fulfils the obligations [21.A.44] of the TCH under the following scenarios?
  - ▶ Civil certified<sup>4</sup> product (i.e. aircraft, engine or propeller) which is owned and operated by many pMS.
  - ▶ Military certified product (with a TC) which is owned and operated by many pMS.
- ▶ Military products which are acquired without a TC [21.A.44], so the Type Design and Certification Basis is either ambiguous or differs across national borders (therefore going against the EDA's intent for efficient collaborative capability sustainment programmes)
- ▶ Does the indigenous OEM or civil TCH meet the eligibility requirements of EMAR 21.A.13? If not, is it economically feasible for each pMS to contract [21.A.2] a local DOA who meets the terms of the approval [21.A.235, 21.A.245 and 21.A.251]
- ▶ The fact that some of the reasons expressed in the previous paragraph are in conflict with the intent of the International Civil Aviation Organisation (ICAO) construct (See next paragraph).

The concerns identified in this paper have led to some confusion in the industry. If not addressed they may lead to inefficient practices and result in safety lessons not being disseminated across national borders.

## 2. The ICAO Construct

Before one can fully exploit the benefits of the civil aviation framework, it is important to understand the foundation on which the Civil System is built. We must therefore return to the Convention on International Civil Aviation (i.e. the Chicago Convention) which recognises that every State has complete and exclusive sovereignty over the airspace above its territory<sup>5</sup>. The Convention also recognised the need for allocation of responsibilities to states for effective control of aviation, whether over the territory of that state or the territory of another state.

ICAO has developed the Airworthiness Manual<sup>6</sup> (Doc 9760) which provides guidance on how contracting states might develop their comprehensive national code with a view to some degree of uniformity between states. The main regulatory roles and responsibilities are set out in three parts:

- ▶ Part III: The State of Registry
- ▶ Part IV: The State of Operator
- ▶ Part V: The State of Design and the State of Manufacture

Note: Whilst the design and manufacture of a product has in past times been largely undertaken in the same State, we know that this can no longer be assumed to be the case and it is useful to consider the State of Design and the State of Manufacture as separate distinct entities to best understand their specific roles and responsibilities.

<sup>4</sup> Note, because it is civil certified, the legal obligations of EASA Part 21 is in force, thus negating reason (d) on the previous page.

<sup>5</sup> Refer Chapter I (Article I) of the Convention on International Civil Aviation.

<sup>6</sup> Doc 9760 supports the whole concept of how Member States are required to 'do' Airworthiness and their obligations and responsibilities in relation to all the aspects listed here. In EASA language it is like the AMC or GM to Annex 8 of the Chicago Convention.

## State of Registry

The definition and guidance associated with the State of Registry status is provided in ICAO Airworthiness Manual (Doc 9760) Part III. The role and responsibilities include:

- ▶ Certificate of Registration (C of R)
- ▶ Certificate of Airworthiness (C of A)
- ▶ Noise certificate
- ▶ Export C of A
- ▶ Special flight permit
- ▶ Major repairs and modifications approval
- ▶ Maintenance programme approval
- ▶ Approval of maintenance organization
- ▶ Continuing airworthiness of aircraft

In executing its responsibilities, particularly in relation to continuing airworthiness, the ICAO system requires that the State of Registry undertake responsibilities which include the following actions:

- a. Ensure that it informs the State of Design when it first enters on its register an aircraft of a particular type.
- b. Determine the continuing airworthiness of an aircraft in relation to the appropriate airworthiness requirements.
- c. Develop or adopt requirements to ensure the continuing airworthiness of aircraft during its service life including requirements that the aircraft, for example:
  - ▶ Continues to comply with the appropriate airworthiness requirements after a modification, repair or installation of a replacement part.
  - ▶ Is maintained in an airworthy condition and in compliance with maintenance requirements of Annex 6 of the convention.
- d. Approval (or acceptance) of modifications and repairs relevant to the continuing airworthiness of aircraft.
- e. Upon receipt of Mandatory Continued Airworthiness Information (MCAI)<sup>7</sup> from State of Design, adopt directly or assess the information received and take appropriate action.
- f. Ensure the transmission to the State of Design all MCAI issued by the State of Registry in respect of a product or modification originated from that aircraft.
- g. Ensure there exists a system whereby information on faults, malfunctions, defects and other occurrences that might cause adverse effects on continuing airworthiness is transmitted to the type design organization. If this is due to a modification, then the organization responsible for the design modification should be informed.

From the above it can be seen that the overriding power for approval of aircraft for airworthy flight of any individual aircraft is the State of Registry. ICAO Annex 8 (Part II para 4.2.3) ultimately assigns the State of Registry the responsibility for determining the continuing airworthiness of the aircraft in its aircraft register. The State of Registry is empowered to take, modify or set aside data or advice from the State of Design and the State of Manufacture if it so determines it necessary to do so, in execution of its own jurisdiction and responsibilities. The powers therefore available to a Type Certificate Holder (TCH) under privileges determined by the State of Design do not extend to have any impact on actual products unless the State of Registry has made provision for it to do so, either automatically or by a regulated process. It follows that the actual airworthiness approval standard on individual aircraft products is controlled by the State of Registry and not the State of Design and it is unnecessary for a State to allocate to itself the State of Design responsibilities in order to control the standard of aircraft on its register.

<sup>7</sup> This information might typically include Airworthiness Directive and Service Bulletins

## State of Operator

The definition and guidance associated with the State of Operator is provided in ICAO Airworthiness Manual (Doc 9760) Part IV. The role and responsibilities include:

- ▶ Air Operator Certificate (Airworthiness Aspects)
- ▶ Operations Specifications
- ▶ Minimum Equipment List (MEL)
- ▶ Continuing airworthiness of aircraft

This principle is equally applicable to the military environment. Most of the Military Forces will have Squadrons or similar units carrying a level of independence for operations, even when they are regulated by a higher authority such as a Military Airworthiness Authority. In the civil model this would be similar to the responsibilities partitioned between the State of Operator and the State of Registry. Whilst, for example, the operator may choose to operate his aircraft in a manner that suits his requirements, certain boundaries and ultimate authority over the certificate of airworthiness lies with the competent authority.

## State of Design

The definition and guidance associated with the State of Design is provided in ICAO Airworthiness Manual (Doc 9760) Part V. The role and responsibilities include:

- ▶ Type Certification
- ▶ Continued Airworthiness [of the design]

Amendment 98 to ICAO Annex 8 introduced the formal requirement for a State of Design to issue a Type Certificate (TC) as evidence of approval for any new application for aircraft certification on or after 2 March 2004. However, it is not mandatory that an aircraft Certificate of Airworthiness be supported by a Type Certificate. Therefore, it should be noted that the establishment of a Type Certificate Holder is not a necessity in the maintenance of the civil airworthiness system.

This principle is equally applicable to the military environment. For example, where a State of Registry informs the State of Design that it has placed an aircraft on its register for which the design aspects of that product are under the jurisdiction of that State of Design, then the State of Design must ensure the communication of essential information for the continued airworthiness of the design data. This is normally supported by the holder of the type design data/TCH and is a civil legislative obligation under the approval system. The fact is that the type designer in the military system is often acting in execution of a contract and owes no obligation to anyone other than his customer and that obligation is often not required to be executed unless the customer pays for the work.

## State of Manufacture

The definition and guidance associated with the State of Manufacture is provided in ICAO Airworthiness Manual (Doc 9760) Part V. The role and responsibilities include:

- ▶ Production Approval/Certification
- ▶ Continued Airworthiness (of the product)

Within the civil system DOA/POA agreements are just one aspect of system which supports the ICAO delineation of responsibilities between the State of Design and the State of Manufacture. In a similar manner to the challenge identified above, the fulfilment of this obligation only subject to contract poses some difficulties to effective administration of an Airworthiness system.

These cardinal pillars of the international civil aviation system have been flowed down into ICAO contracting states' national legislation and ensure that the mutual acceptance objectives of contracting states are not compromised. The EASA construct is based on these roles and responsibilities. Therefore, adopting the EASA framework without these essential cardinal points will mean that there is confusion in the associated airworthiness system as to where the airworthiness authority or responsibility lies and the obligations of and between parties in the process. The obligations are further frustrated as noted above where they are only fulfilled as a matter of contract and not by statute. The question must be asked as to whether pMSs should develop a regulatory framework similar to the civil model which removes this commercial conflict in the system, by legally shifting the responsibility over time to a statute provision.

### 3. EMAR 21 Construct Regarding Type Certification

EMAR 21 (Issue 1.1) based on EASA Part 21 (Commission Regulation 748/2012 up to amendment 6). The Subparts pertinent to this paper are:

- ▶ Subpart A: Which includes the Continued Airworthiness<sup>8</sup> obligation of the holder of a design approval, i.e.
  - ▶ Monitor and report failures, malfunctions and defects
  - ▶ Provide support to the Authority when they need to issue and AD
  - ▶ Continuously coordinate with the Product Organising (for serial production, including spare parts)
- ▶ Subpart B: Which establishes the procedure for issuing Type Certificates (TCs) for products<sup>9</sup>, and establishes the rights and obligations of the applicants for, and holders of, those TCs. Application for a TC is only acceptable from the holder of a design organisation approval (i.e. DOA or ADOA)
- ▶ Subpart D: Which allows anyone to apply for an approval of a MINOR change to a product. Only the TC holder can apply for a MAJOR change under this Subpart.
- ▶ Subpart D: Which allows someone other than the TCH to do a MAJOR change to a product and to obtain approval via an STC. Application for an STC is only acceptable from the holder of a design organisation approval (i.e. DOA or ADOA)
- ▶ Subpart J: Which allows appropriately approved design originations to self-classify changes (as MAJOR or MINOR) and to self-approve MINOR changes.

### 4. Relating the ICAO, EMAR and Historical Military Constructs

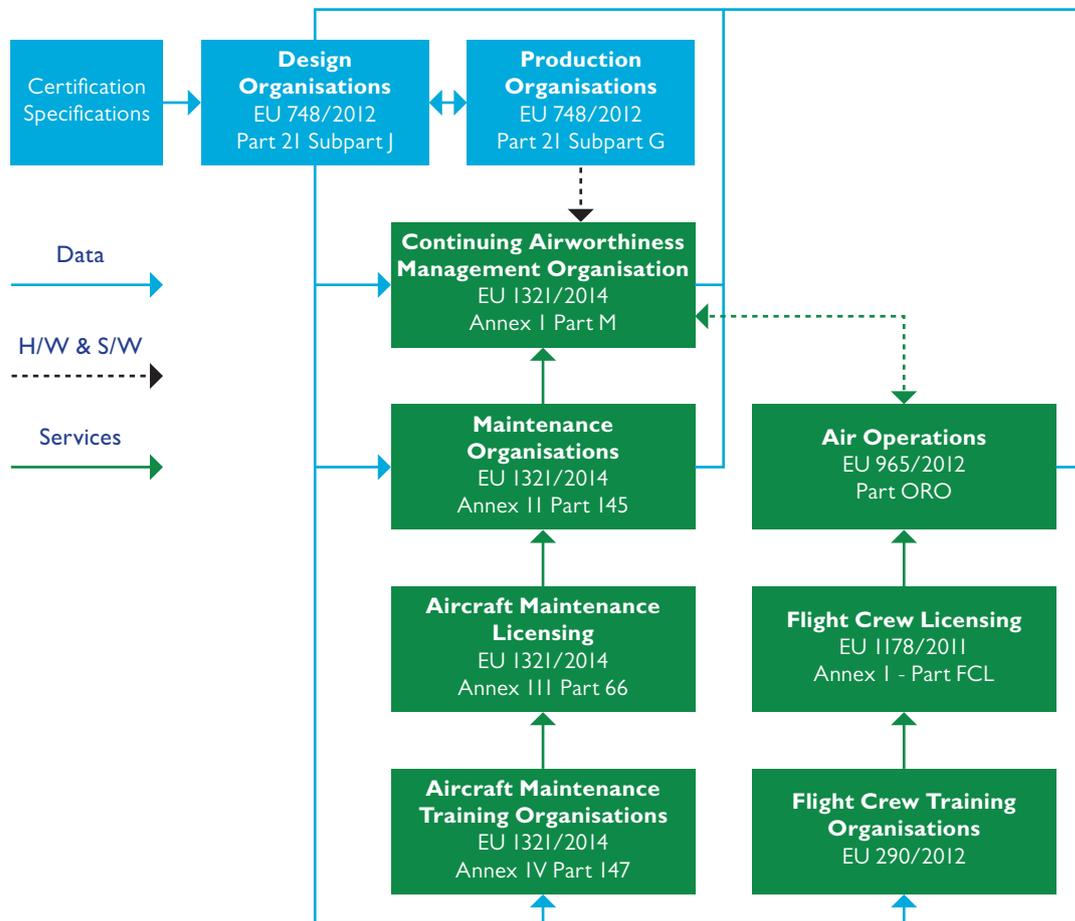
There are a few points which can be extracted from the discussions in paragraph 2 and 3 above and applied to the challenges relating to member state interpretation of EMAR 21, and international use of aircraft:

- a. If the regulatory structure for EMARs do not follow the ICAO and EASA approach and philosophies then it is hard to see how a common approach to the management of Airworthiness (in the initial and continuing airworthiness domains) is to be mutually accepted across national borders without intensive bilateral agreement effort.
- b. Whether or not a TCH exists should not affect the responsibility of the military equivalent to either the State of Registry or State of Operator. The military equivalent to the State of Design should only allocate an MTCH to a holder a person can show similarly to 21.A.2 that they either have an arrangement with a competent other or can execute the responsibility themselves (on behalf of the State of Design).
- c. The TC can only be amended by the TCH (using the requirements of EMAR 21 Subpart D). The TCH should not update the TC to incorporate either
  - ▶ 3rd party STCs, which were generated under EMAR 21 Subpart E
  - ▶ 3rd party Minor changes, which were generated under EMAR 21 Subpart D.
- d. The non-recurring obligations of the TCH and the STCH are clearly defined in Subparts B (21.A.44, 21.A.55, 21.A.61) and Subpart E (21.A.118A, 21.A.119 and 21.A.120). The recurring obligations are defined in Subpart A (21.A.3A, 21.A.3B and 21.A.4). If there are multiple Type Certificates. (e.g. Where Airbus are the TC holder for the A400M and then each pMS who has approved the A400M appoint their own (different) MTCH) then the recurring and non-recurring obligations become very complicated and confusing.

<sup>8</sup> "Continued airworthiness" means all tasks to be carried out to verify that the conditions under which a TC or STC has been granted continue to be fulfilled at any time during its period of validity.

<sup>9</sup> A "product" is an aircraft, engine or propeller (each of which can receive a TC via Part 21 Subpart B)

- e. Continuing Airworthiness<sup>10</sup> of the aircraft is not managed by any organisation defined in EMAR 21, and is primarily the responsibility of the CAMO (under EMAR M). After the design change is approved, there is no requirement on a design organisation to manage the configuration control of a product (e.g. particular serial number aircraft) on which its design changes are installed. The CAMO can decide what Major or Minor changes to embody on to the product under their control. The relationship between the CAMO and the Design Organisations (including other organisational approvals) in the EASA system are illustrated below:



<sup>10</sup> Continuing Airworthiness: 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 [Regulation (EU) 1321/2014]. Note this differs from Continued Airworthiness.

## 5. MTCH Options For Participating Member States

A primary objective of the airworthiness harmonisation activity being undertaken by the MAWA Forum is that a certification or approval of any product or organization, based on EMARs, by one pMS can therefore be recognized by another pMS' Authority. However, to achieve this objective, 'recognition' must first be achieved of one Authority by another Authority.

The challenge is that the European Military Airworthiness Requirements (EMARs) are "requirements" and it is incumbent upon each pMS to turn the "requirements" into "regulations" by specifically changing the "requirement" to suit its needs and the applicable national law. The more these "regulations" deviate from the EMARs the more difficult it will become to:

- a. Manage the mutual recognition process.
- b. For organisations to sell their certified services/goods across national borders without multiple pMS oversight.
- c. Generate the EDA's anticipated cost and programme duration time savings on industry as well as on the government's side.
- d. Increase the effectiveness of support to military aircraft operations 'in-theatre' with a potentially wide pool of transnational engineering staff and shared common spare parts being available.
- e. Deliver positive effect on the levels of safety of European military aircraft due to the utilisation of harmonised best practises.

So, to focus on the title of this paper, who should be the Type Certificate Holder for aircraft registered in different states? The following sub-paragraphs will explore some scenarios, with the first two being polar opposite approaches and the remaining ones exploring options in-between.

### **Scenario I: Adopting the ICAO and EASA constructs of the OEM being the sole TCH**

This is familiar territory for those design organisations supporting civil registered aircraft. The roles, responsibilities and obligation are well understood and internally accepted as good practice.

The perceived disadvantage for the pMS is that they do not hold the TC unless they are the State of Design. However, other than the warm feeling of TC ownership, there are no other disadvantages. With reference to member state interpretation of EMAR 21 requirements:

- a. The State of Registry still retains sovereignty of Type Airworthiness (under EMAR M).
- b. The Permit to Fly can be used to operate outside the TC Basis/Limitations.
- c. Under the EMAR M obligations for the Certificate of Airworthiness, there is no need to update the TC with all minor changes and STCs.
- d. All designs certified by EASA DOAs can be acquired with the comforting knowledge that those organisations have a legal obligation for ICA and other Continued Airworthiness activities. However, those designs acquired from EMAR DOA's would need to ensure that the contractual obligations are robust.
- e. The pMS is able to change the Type Design, using EMAR 21 Subpart D (minor changes), Subpart E (major changes via STC) or Subpart M (repairs)
- f. The TCH or STCH is accountable for the certification the Type Design. The CAMO is accountable for the approved configuration.
- g. With reference to State of Design, it is not mandatory that an aircraft Certificate of Airworthiness be supported by a Type Certificate.

## **Scenario 2: MTCH is a State Servant without linking into EMAR 21**

In this scenario, the pMS elects to assign all MTCH duties to the State Servant via domestic regulations (or processes) and the EMARs remain unchanged.

The advantage of this approach is that it is familiar territory to many pMSs and reflects their thinking prior to consideration of the EMAR construct.

The challenges of this approach are listed under 'So what are our concerns?'. A further challenge is that it is unlikely that this State Servant will be a DOA or ADOA, thus deviating from the principles of Subparts B, D and E when it comes to managing design changes. The State Servant, if formally designated the MTCH, may of course engage the principle of 21.A.2 and contract a national Design Organisation to fulfil the obligation of the MTCH on his/her behalf, but this will of course lead to duplication of resources if multiple pMSs each do this with national organisations. It may also lead to conflict in advice or continued airworthiness approaches for the same product.

## **Scenario 3: Expanding 21.A 14 to also provide for the MTCH as a State Servant**

In this scenario, we could either expand EMAR 21.A.14 or expand its local regulatory adoption to cater for the need to hold an indigenous MTC.

The advantage of this approach is that it intuitively feels like the natural place for this function to be specified.

However, all the challenges listed in Scenario 2 (and under 'So what are our concerns?') remain.

## **Scenario 4: Adding MTCH as a State Servant to EMAR 21 Section B**

In this scenario, we could use Section B (e.g. in Subpart B) to clarify the MTC procedures associated with the authority owning the MTC.

The advantage of this approach is that section B describes the obligations of the Authority who, in this case, is the State of Design issuing the MTC.

However, depending on the scope of the narrative used, most of the challenges listed in Scenario 2 (and under 'So what are our concerns?') remain.

## **Scenario 5: Creating a new EMAR 21 Subpart C for the MTCH as a State Servant**

In this scenario, we could add a new Subpart C (currently "reserved") to EMAR 21 or add the equivalent to the local regulatory adoption.

The advantage of this approach is that it would be the ideal position to provide clarity on the interfaces with Subparts B, D and E.

However, all the challenges listed in Scenario 2 (and under 'So what are our concerns?') remain.

## **Scenario 6: Creating a new EMAR defining the role of "Type Airworthiness Authority"**

In this scenario, we could add a new EMAR (or add the equivalent to the local regulatory adoption) which is positioned at the same level as EMAR 21, EMAR 145 and EMAR M.

The advantage of this approach is that it could define the interfaces between this "Type Airworthiness Authority" and the following stakeholders:

- ▶ The pMS's Regulator, who needs to provide oversight (and approval) of this "TAA"
- ▶ The Design Organisation(s) providing modification and post-design support services
- ▶ The CAMO, who relies on the post-design support service and Instruction for Continuing Airworthiness (ICA)
- ▶ The Maintenance Organisations, who maintain the aircraft as contracted by the CAMO.

However, all the challenges listed in Scenario 2 (and under 'So what are our concerns?') remain.

## 6. Final thoughts

Each Military Authority is indeed free to select the manner in which the Type Certificate will be controlled. In paragraph 5 we discussed some options/scenarios available, but the approaches need not be limited to these only. However, all Authorities need to strive to avoid defeating the objective of standardisation. Whichever option/scenario is selected, we should not lose sight of the following objectives:

- a. The legal construct on which the EMARs are based should align with those principles identified in ICAO. To facilitate harmonisation, pMS's should consider revision to their national legislation as required to facilitate this.
- b. An approved organisation (e.g. DOA, POA, I45, etc) should<sup>11</sup> only need to be subject to recurring oversight by a single participating Member State. Any duplication is inefficient and should only occur if:
  - ▶ the scope of approval is different
  - ▶ the two member states do not trust each other's capabilities.
- c. Certificates (e.g. Major Repair Approvals, STCs, Form 1's, etc) are the "passports" for products, parts and appliances to move around the system. Once issued by an approved organisation these certificates should be accepted across national borders (subject to pMS bilateral agreements). This will lower non-recurring certification costs and widen the spare parts pool. Regulations/Rules/Requirements need to be harmonised within the main international trade partners in order to either ensure fair competition or facilitate the free movement of goods, persons and services.
- d. All approved organisations need to know that they need to report occurrences [21.A.3A] both to their pMS authority and the Design Organisation responsible for that design (be it the original aircraft, or a change to that aircraft). The principles of AMC20-8 (i.e. distribution of safety occurrence data to all affected stakeholders ) works and should be upheld.

As Bob Simmons explained in his paper "*Harmonising Military Airworthiness through EMARs - A Golden Opportunity?*", EMARs could be good for business. The way regulations are promulgated in each pMS should not get in the way of us doing business internationally. Instead, regulation should provide a framework for us to safely do business in a way which can exploit all opportunities for business to be done more efficiently. Duplicating of effort is a waste of time and resources.



<sup>11</sup> This pre-supposes that all pMS elect to be fully compliant with EMARs as they stand – which is not the case, therefore the burden is placed on understanding which parts of EMARs have and have not been complied with prior to acceptance.

# About Baines Simmons

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# Authors

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Duane Kritzinger is an experienced Certification and Safety Engineering specialist. His distinguishing safety expertise lies in the ability to differentiate and integrate the Safety Assessments in the design phase with the Safety Management activities in the operational phase. His certification skills cover both the military and civil aviation domains, where he not only provides expertise in the certification of products/parts/appliance, but also assists with EASA/EMAR Part 21 Design Organisation Approvals (which includes the establishment of organisation processes and structures to move beyond minimum compliance towards organisational performance).

Since the publication of EMAR 21, Duane has been assisting both the military regulators (in their adoption of EMAR 21) and the regulated community (in demonstration compliance in the most efficient manner with due consideration of other approvals held).

## Lionel Wallace Consultant, Baines Simmons

Lionel is an accomplished Airworthiness, Safety and Certification Consultant who assists clients operating in the Initial and Continuing Airworthiness sectors with performance enhancing programmes.

With a career background spanning more than 30 years, he is skilled in delivering highly effective training programmes and provides bespoke advisory services to civil and defence organisations looking to achieve, maintain and improve compliance with part 21 design approvals. Lionel has previously represented UK Industry on the ASD Airworthiness Committee and participated in the European Defence Agency's work with industry on the establishment of the EMARs through the MAWA forum, both as a focal point (TFI - Framework Document) or member of various associated Task Forces initiated to charter the basis of a EU military airworthiness approach, taking into consideration the civil aviation regulatory system.