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# As Military as Necessary As Civilian as Practicable

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# Introduction

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*Ian Kitson*

- Background
  - RAF and UK MoD
  - UK CAA, EASA and UK MoD Approved Design organisation
  - Australia CASA - HoD (CAR35), HoD (CASR 21M) HPO (CASR 21G)
  - QinetiQ DASR Implementation SME, currently embedded at MPSPO
- The new Defence Aviation Safety Regulations.
  - Why does Australia need new airworthiness regulations?
  - Why not just use existing civilian regulations?
  - What does this mean for defence?

# Introduction

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## “As Military as Necessary, as Civilian as Practicable”

*- Air Vice Marshal Martin Clark, UK MoD Director (Technical) Military Airworthiness when discussing the adoption of the European Military Airworthiness Requirements as the framework for the UK's Military Airworthiness Regulations.*

*Military regulations need to accommodate operational flexibility that allows the war fighter to “do their day job” under changing conditions in the most effective manner possible.*

*Civil regulations cater for an industry that thrives on a stable operational environment allowing the operators to maximise revenue and minimise costs.*

*Both have the same goal – **Remove Unacceptable Risks** from aviation activities*

# From ICAO to DASRs

Can an airworthiness regulation framework developed for the civil sector be used successfully in the military sector?

## *A bit of history*

In the first part of the 20<sup>th</sup> century most civil aviation throughout the world was regulated or at least administered by the military.

1944 - The international convention on civil aviation was signed in Chicago. This led to the establishment of ICAO, an agency of the United Nations

ICAO developed a set of requirements that signatories would be obliged to satisfy when developing their own national regulations. The aim was to facilitate easier international air travel by setting common methods, standards and practices.



# From ICAO to DASRs

Whilst each nation developed their own national regulations, there was little mutual recognition of each other.

In 1970 a group of like-minded European regulators formed the Joint Aviation Authorities. The JAA collaborated closely with the FAA to produce the Joint Aviation Requirements.

2002, Closer European Union allowed the establishment of a single regulator for the EU – EASA. Much of the work carried out by the JAA was adopted by EASA.

EASA was formed via EU Legislation with the aims of

- Avoiding duplication in the regulatory and certification processes among member states
- Play a leading role within the EU for External Aviation Policy
- Provide a strong counterpart to other large Airworthiness Authorities such as FAA, TC JCAB and ANAC.
- Develop and export EU aviation standards worldwide, in order to promote the free movement of EU aeronautical products, professionals and services throughout the world



# A Difficult Birth

- Before EASA most European states had their own independent National Aviation Authority all working under their own legislation and associated regulations
  - UK – CAA, Germany – LBA, France – DGCA, Poland – ULC, etc.
- Some ex Soviet block nations had no effective NAA. Previously they relied on the USSR.
  - Others had immature NAA's formed after the fall of the Berlin wall.
- On the day EASA was established it became the civil aviation regulator for close to 400 million EU citizens. Yet it only had two employees – The CEO and a Lawyer !
  - EASA had to (and still does) seek a great deal of assistance from the NAAs.
  
- However this environment set the scene to allow EASA to develop the JAA model into what is now regarded by ICAO as the world's best practice civil aviation regulatory system.

# International cooperation and recognition

Civilian regulatory systems have a concept of “State of Design”

- This refers to the country who’s NAA initially certified the product.
- The degree of certification activity undertaken by subsequent NAA’s for a new type or a change to a type will vary dependant in part on the ‘confidence’ that the NAA has in the ability of the State of Design NAA to find compliance.
  - That confidence is expressed through Government to Government Bi-lateral Aviation Safety Agreements (BASA) allowing one NAA to accept findings made by another NAA
- Australia has a number of these international agreements. USA, Brazil, Korea, China, NZ, Papua New Guinea, Singapore, Hong Kong. More in the pipeline.
- EASA has a BASA with the USA.

The concept of Mutual Recognition plays an ever important role in civil aviation

# Regulation of European Military Aviation



## European Defence Agency

- The European Defence Agency can trace its origins back to the Organisation Conjointe de Coopération en Matière d'Armement, (OCCAR) in 1996.
- OCCAR managed the Airbus A400M programme as well as other programs such as the FSAF family of surface-to-air missiles, the FREMM frigate and the Tiger helicopter
- European defence industry continued to lobby the EU for an equivalent to the US DARPA
- The result was the formation of the EDA in 2004 and would be used to foster cooperative defence procurement and research across member states.
- EDA realised that common harmonised airworthiness requirements would be key to allowing joint certification, test and evaluation thus avoiding duplication of effort within the procurement cycle.

**Sound Familiar ?**



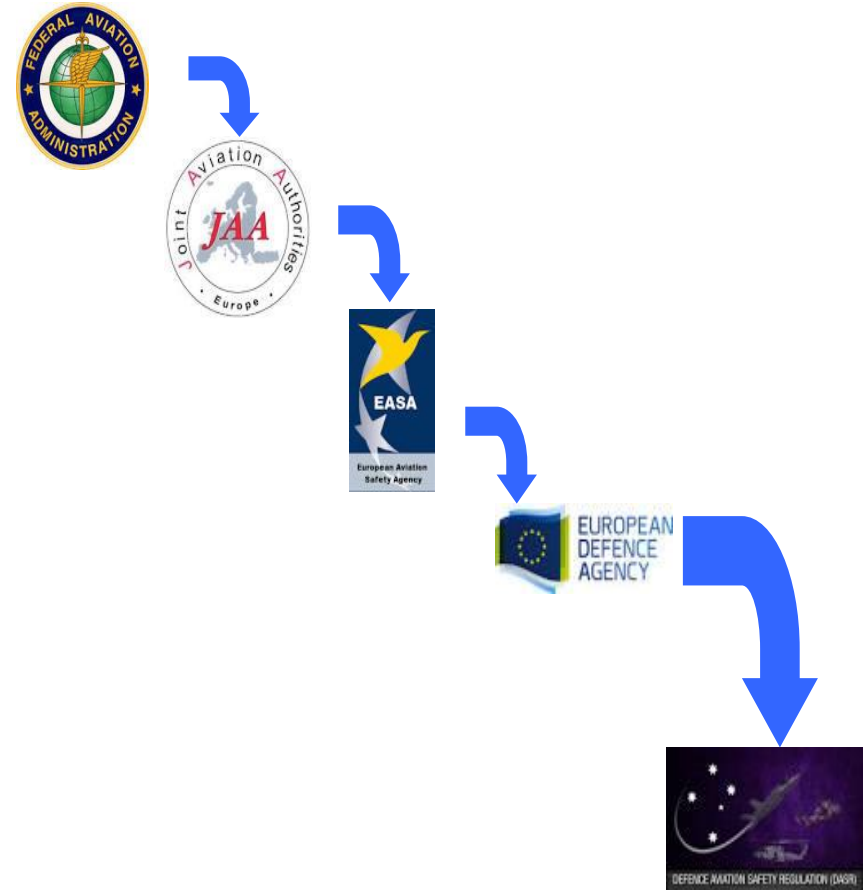
# Military Airworthiness Authorities

- In 2008 the EDA set up the Military Airworthiness Authorities forum to develop and achieve the following:
  - common regulatory framework;
  - common certification processes;
  - common approach to organisational approvals;
  - common certification/design codes;
  - common approach to preservation of airworthiness;
  - arrangements for mutual recognition;
  - formation of a European Military Joint Airworthiness Authorities Organisation (EMJAAO).
- These goals are virtually identical to those which led to the creation of the JAA and EASA
- EDA published European Military Airworthiness Requirements (EMARs)
- Not surprising that 95% of EMARs can be satisfied by complying with the EASA regulations
  
- Following much behind the scenes effort and engagement of other NMAA's, NAA's and ICAO  
The Australian Defence Force took the decision to base the new Defence Aviation Safety Regulations on the European requirements.

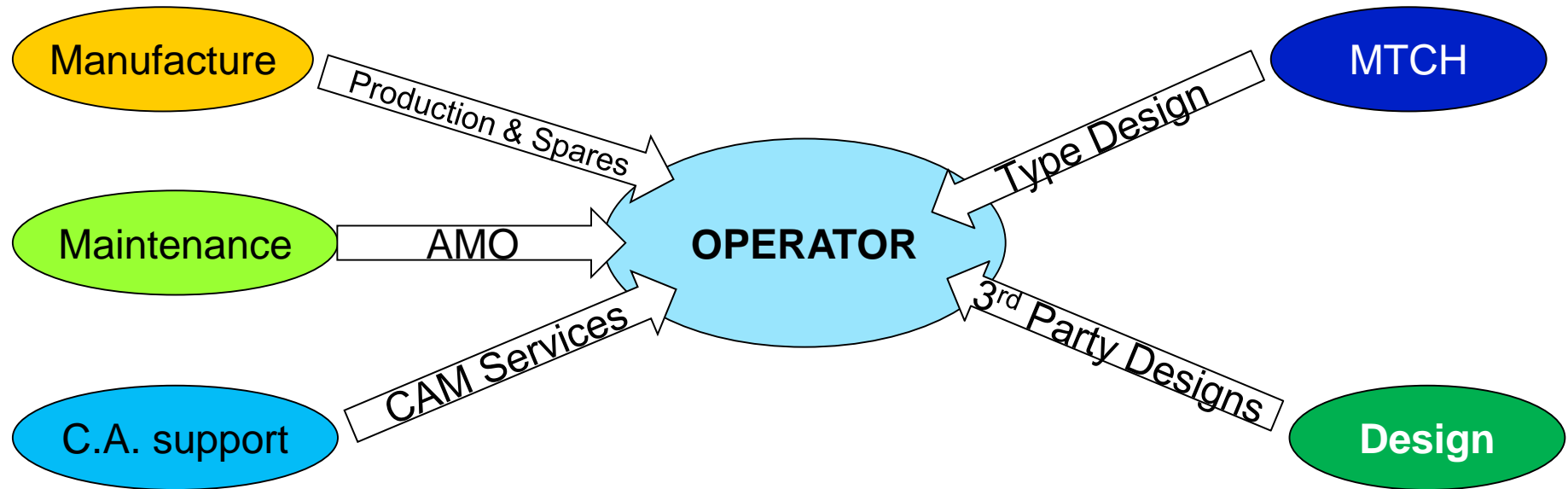


# Regulation Ancestry

- **USA - Federal Aviation Administration - FAA**
  - Federal Aviation regulations – FARs
- **Europe (and others) - Joint Aviation Authorities – JAA**
  - Joint Aviation Requirements – JARs
- **Europe - European Aviation Safety Agency – EASA**
  - Basic Regs & Annexes (e.g. Part 21, Part M, Part 145)
- **Europe - European Defence Agency – Military Airworthiness Authority**
  - European Military Airworthiness Requirements - EMARs
- **Australia – Defence Aviation Safety Authority - DASA**
  - Defence Aviation Safety Regulations DASRs



## Operator Centred



## **Accountability**

- **Very clearly laid out lines of accountability which cannot be delegated.**

## **Delivery**

- **Flexible methods of delivery allowing the operator the ability to 'out-source' various Initial and continuing airworthiness functions to other organisations, both military and commercial.**

# So, Where's the catch ?

- **EASA (and CASA) regulations are backed up by legislation, DASR's are not.**
  - This would appear to limit the level of authority the regulator has over commercial organisations
    - It is one of the reasons the CoA do not plan to issue type certificates to the aircraft OEM as happens in the civil system, The MTC will be retained by the CoA.
- **The Military and the Civil world have different perceptions of acceptable risk.**
  - EMARs are only applicable during peace time.
  - The flexibility built into the DASR regulations specifically allows for the operator to retain risk under controlled conditions even to the extent of operating un-airworthy aircraft if there is an operational imperative - This would rarely be allowed in the civil sector.

# So, Where's the catch ?

- **The Military operators carry out a much broader range of higher risk operations than a typical airline.**
  - **True, but there are plenty of civil special mission operators out there carrying out pseudo military operations as well as some high risk operations**
    - **The real issue is the operator needs to understand the risks involved and mitigate them down to a level that is acceptable to them, their regulator and where applicable; their insurer.**



# So, Where's the catch ?

- **Regulatory change in itself can introduce risk**
  - **The DASR's are being introduced under two phases with phase one designed to lock in the current level of safety currently enjoyed by the ADF.**
    - **Phase one requires the regulated community to assess their current processes and map them to the DASR regulations so that any shortfalls can be identified – essentially do what you do now but know what you need to change later.**
    - **Phase two will allow the removal of these shortfalls through process / procedure amendment so that full DASR compliance can be achieved.**

# Conclusions

- **The requirements driving the civil and military regulations are essentially the same – Remove unacceptable risk and strive for “Zero harm”**
- **Regulations should be appropriate and remain relevant to the sector they regulate.**
- **The military sector can benefit from a regulatory system that is “Outcome” focused rather than “Prescriptive”.**
- **Mutual recognition is an important tool in both sectors. The US NAC has accepted EMAD R as a valid process for mutual recognition.**
- **The EMAR’s are gaining support from a large list of nations worldwide, this will result in greater interoperability and reduced duplication of effort.**



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# Questions ?

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Thank You