Airworthiness in State’s aviation
France: 10 years of experience

Lessons learned & Feedback

Colonel Stéphane Copéret
Overview

• **Introduction**
  – Airworthiness in the military aviation, why?

• **First step of implementation in the military in France.**
  – A specific regulation for State's aviation.
  – General overview of airworthiness organization principles in Europe.
  – General overview of airworthiness organization principles in French State’s aviation.
  – Creation of a French Military Aviation Authority.
  – The target & the burden
  – Implementation process: Timeline, milestones, targets & achievements.
  – DSAE’s resources & capacities.

• **Next step of implementation: process enlargement to European level.**
  – The MAWA Forum & the EMARs strategy.
  – The recognition process: interests & potential benefits.
  – Concrete example: the MRTT case.

• **General review**
  – Learning’s & obstacles
  – Results, achievements & benefits
Airworthiness in the military aviation, why?

- **A fundamental consideration.**
  - Civil agencies cannot regulate State’s aviation.
  - State’s aviation does not have to comply with civil regulation.

- **Several dramatic accidents.**
  - MIRAGE F1
  - CAP 232
  - NIMROD
  - US C130

- **A political will : following the civil trend.**
  - Creation of the EASA
  - Single European Sky
A specific regulation for State’s aviation

French Rulemaking Structure for State’s aviation: “the EMAR FR System”

Decree 2013 367

Order – “Duties”
Order – “Conditions”
Order – “Registration”
Order – “Continuing Airworthiness”
Order – “Remotely Piloted Aircraft System”

Authorities Level

Instruction
“Initial Airworthiness”
FRA / EMAR 21

Instruction
“Continuing Airworthiness”
FRA / EMAR FR M
FRA / EMAR FR 145
FRA / EMAR FR 66
FRA / EMAR FR 147

AMC & GM
Approved Means of Compliants & Guidance Material
“Certification”

AMC & GM
Approved Means of Compliants & Guidance Material
“Continuing Airworthiness”
A specific regulation for State’s aviation

EU Rulemaking Structure for civil aviation: “the PART System”

Council Regulation (EC) 216/2008
“Basic Regulation”
Annex I – Essential Requirements
Annex II – Excluded Aircraft
Annex III – Pilot Licensing
Annex IV – Air Operations
Annex V – Qualified Entities
Annex VI – Correlation Table

State’s aviation regulation
As a mirror to Civil regulation

Commission Regulation (EU) 748/2012
“Initial & continued Airworthiness”
Annex I – Part 21

Commission Regulation (EU) 1321/2014
“Continuing Airworthiness”
Annex I – Part M
Annex II – Part 145
Annex III – Part 147
Annex V – Part T

Approved Means of Compliants & Guidance Material
“Certification”

Approved Means of Compliants & Guidance Material
“Continuing Airworthiness”
General overview of airworthiness organization in Europe.
General overview of airworthiness organization in Europe.

AIRWORTHINESS FRAMEWORK

INITIAL AIRWORTHINESS

CONTINUING AIRWORTHINESS

AERONAUTICAL ACTIVITY OPERATIONS

OPERATOR
COMPANY
AIR FORCE

CAA'S

AVAITION AUTHORITY

DESIGN
PART 21 J
TYPE CERTIFICATE

PRODUCTION
ORGANISATION
PART 21 G

PART 21 M
AIRCRAFT

PART 147
TECHNICAL
MAINTENANCE
ORGANISATION
PART 66
TECHNICAL
A/W MANAGEMENT

PART 145
MAINTENANCE
organisation

AVIATION AUTHORITY

FRENCH STATE AVIATION SAFETY AUTHORITY

AVIATION AUTHORITY
Airworthiness organization in French State aviation

**Airworthiness Framework**
- Design Organization
- Type Certificate
- Production Organization
- Aircraft
- Training Organization
- Technician Organization
- Maintenance Organization
- A/W Management Organization

**Aviation Operating Authorities**
- Air Force
- Navy
- Army
- Flight Testing
- Gendarmerie
- Customs
- Civil Security
Airworthiness organization in French State aviation.

**AIRWORTHINESS FRAMEWORK**

- **Initial Airworthiness**
  - EMAR FRA 21 J
  - Design Organization

- **Continued Airworthiness**
  - EMAR FRA 21 G
  - Type Certificate

**Continuing Airworthiness**

- EMAR FRA 147
  - Training Organization
- EMAR FRA 66
  - Technician Organization
- EMAR FRA 145
  - Maintenance Organization

**AVIATION OPERATING AUTHORITIES**

- Air Force
- Navy
- Army
- Flight Testing
- Gendarmerie
- Customs
- Civil Security
Creation of a French Military Aviation Authority.

DSAÉ is a National-Competence Service of the Central Administration of the Ministry of Defence.
Global Safety Approach

- All the fields of aviation safety covered.
- Independent: clear separation between authority & users.
- Interdepartmental status & scope of action
- A unique representative for safety on State’s aviation

Creation of a Military Aviation Authority: pillars & missions

Missions:
- Regulation
- Certification
- Oversight
1350 Aircraft of 70 different types (including RPAS):
1200 in the military and 150 in other services or administrations. 50 engine & 20 propeller Types.

420 Organizations:
- 60 « CAMO ». Continuing Airworthiness Management Organizations.
- 100 « ATO ». Aircraft Training Organizations.
- 260 « MO ». Maintenance Organizations.

Technician Licenses
- 10000 to manage
Implementation process: Timeline, milestones, targets & achievements.

The strategic approach

AIRWORTHINESS REGULATION DECREES & ORDERS PUBLICATION

21 J: TYPE CERTIFICATION TCs

M: AIRCRAFT AIRWORTHINESS CERTIFICATION CoAs

66: LICENCE DELIVERY

M: CAMOs ORGANISATION APPROVAL

145: MOs MAINTENANCE ORGANISATION APPROVAL

21G: Pos PRODUCTION ORGANISATION APPROVAL

An ambitious implementation schedule

First focus on A/C & AW management

FRA 21 REGULATION PUBLICATION

FRA 145, 66, 147, M REGULATION PUBLICATION

100%

93%

60%

36%

100%

100%
Average activity & Workload capacity

**DSAE’s Airworthiness Directorate**: 65 personal.
- 50% at the Headquarter (Paris/Villacoublay)
- 50% On the Field (14 units based all other France)

Internal capacity 40 auditors
for 4800 days of audit per year

Audits/Year : 600
- 460 Airworthiness reviews,
- 140 Organizations audit,

Licences / year delivered : 2000
The MAWA Forum & the EMARs strategy.
The recognition process: interests & potential benefits.

<table>
<thead>
<tr>
<th>Country</th>
<th>MAA</th>
<th>Aircraft Models</th>
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<tr>
<td>FR</td>
<td>MRP</td>
<td>A400M, REAPER, C130</td>
</tr>
<tr>
<td>UK</td>
<td>MRP</td>
<td>可能存在 mutual interest with FR</td>
</tr>
<tr>
<td>DE</td>
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</tbody>
</table>

**Cooperation**
- Pooling & sharing
- Spare parts
- Common maintenance
- Mutual support / operations
- Mutual training
- Costs benefits

**Potential mutual interests with FR**
- A400M REAPER, C130J
- A400M TIGER, NH90
- A400M TIGER, MRTT, REAPER
- A400M NH90
- C130
- NH90
- MRTT
- TIGER
- NH90
- MRTT
- C130J
- C135
- REAPER

- Recognized
- Process to launch
- To be studied
Concrete example: the MRTT case.

**MRTT User’s & Airworthiness issues.**

<table>
<thead>
<tr>
<th>A/C</th>
<th>ATUSTRALIA</th>
<th>EAU</th>
<th>SAUDI ARABIA</th>
<th>UK</th>
<th>FRANCE</th>
<th>SINGAPORE</th>
<th>SOUTH KOREA</th>
<th>MMF</th>
<th>GERMANY</th>
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<td>EMAR</td>
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To summarize: Learning's & obstacles.

- A long, hard, & ambitious process.... *That needs to be accompanied.*
- Meanings & goals of airworthiness have to be trained both on base and directional levels
- A deep cultural & organizational change.... *Especially for the CAMO’s activities.*
- The need for a change management strategy.
- Difficulties to cope with: legacy A/C.
- Efficiency of quality systems ...... a new challenge.
To summarize: Results, achievements & benefits.

- More control, oversight & global rigor.
- A unique regulation adapted to the Military specificities (derogation) and close to the Civil.
- A strong & independent authority able to represent the French State.
- Next step: enlarge to European level through MAA recognition.
- Synergy improvement between Civil & Military.
- A consolidated & homogenate situation in France: A unique and harmonized way to manage safety in all the military as well as in the industry.
- General improvement in safety, in maintenance, in logistics, in training, in joint operations, in budget efficiency, in international cooperation, in aeronautical exports opportunities.

A safer, clearer and more controlled situation today than yesterday.
Thank you for your attention!