

AIRWORTHINESS REVIEW IN FRENCH STATE AVIATION

Military Airworthiness Conference 2019 Vilnius

**FRENCH STATE AVIATION
AUTHORITY**

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Plan

- Why a briefing on airworthiness reviews?
- Brief recall on airworthiness reviews rules & principles.
- The French way to perform airworthiness reviews.
- Results, figures & lessons learned.
- Conclusions.



Why a briefing on this topic?

- A topic rarely discussed & first time in MAC.
- An essential tool for airworthiness surveillance.
- A rich & deep experience in France.
- Different ways to perform it from one NMAA to the other.
- An opportunity to debate, exchange & share good practices.



What is an airworthiness review?

Somehow a deep medical check up...



Principles & method

Reference: EMAR M

- ✚ **MA 710** Airworthiness Review.
- ✚ **MA 707** Airworthiness Review Staff.
- ✚ **MB 902** Airworthiness Review by the NMAA.
- ✚ **MB 903** Aircraft Findings.
- ✚ **AMC MA 707** Airworthiness Review Staff
- ✚ **AMC MA710** Airworthiness Review
- ✚ **AMC MA 901** Aircraft Airworthiness Review.
- ✚ **AMC MA 904** Airworthiness Review of an Aircraft imported into the EU.
- ✚ **GM MA 905** Aircraft findings by the NMAA
- ✚ **AMC MB 902** Airworthiness Review by the NMAA.



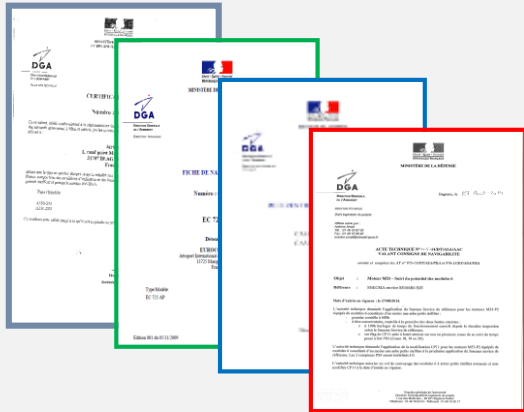
Principles & method

The French Model :

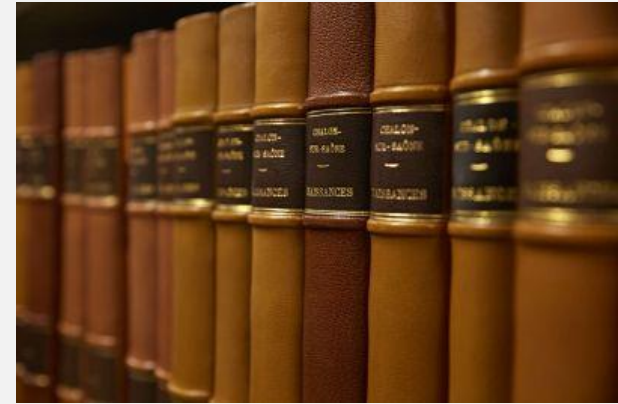
- Fully compliant with EMARs
- All the airworthiness reviews are performed by the authority.
- No ACAM
- Mostly ordinary CAMO & Few CAMO+ (G+I)
- Airworthiness review main DSAE activity.
- Around 560 audits per year including 400 airworthiness reviews.
- Airworthiness review are performed on ready to fly aircraft.
- Airworthiness review are performed by airworthiness inspectors.



Principles & method



**TYPE CERTIFICATE
+ AW DATA SHEET**



REGULATION

AW inspector's database

Mandatory A/C documents

EMAR MA 710...

Principles & method

Airworthiness review = main activity of the DSAÉ inspector

On Desk review (documentation check) \approx 80 %

On the field review (Aircraft physical check) \approx 20 %

Airworthiness review = a snapshot of the Aircraft technical situation.

Inspector's database = inspector's principal tool & reference

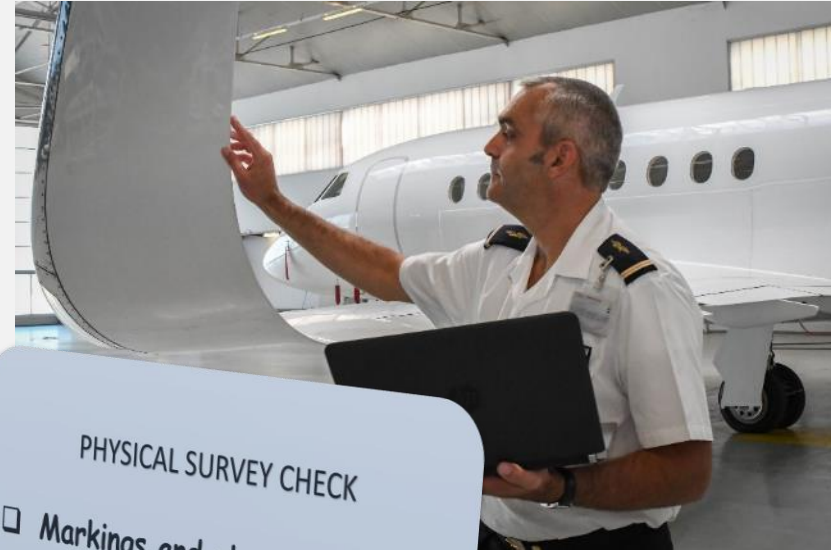
Principles & method



DOCUMENTARY REVIEW CHECK

- Records
- Flight manual
- Maintenance
- Defects
- Modifications
- AD : applied and registered
- Components : identification
- Life limits...
- Weight and balance
- Compliance with the approved type design

**DOCUMENTARY
REVIEW**
10 POINTS



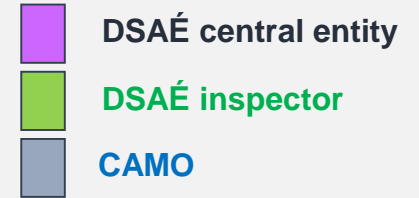
PHYSICAL SURVEY CHECK

- Markings and placards
- Compliance with A/C flight manual
- Compliance with approved data
- No evident defect
- No inconsistencies with review of records

**PHYSICAL
SURVEY**
5 POINTS

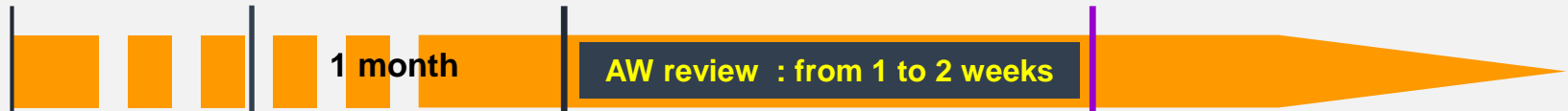
Timeline

AW review's yearly planning
CAMO / DSAÉ

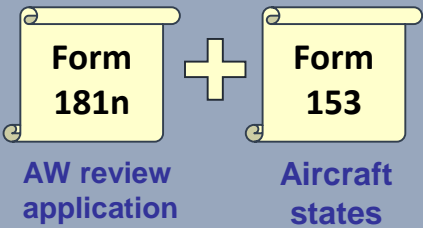


AW review
START

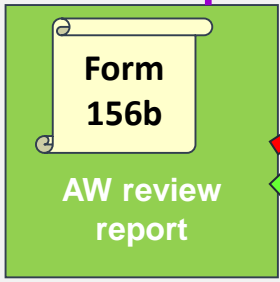
AW review
END



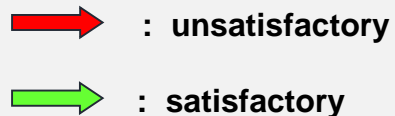
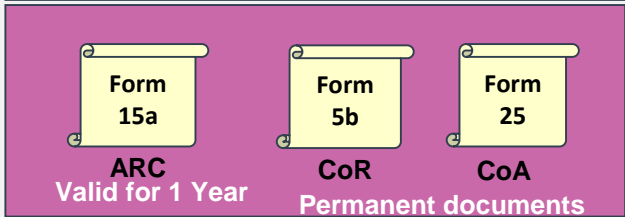
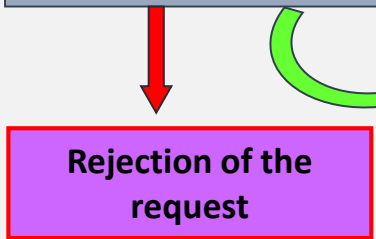
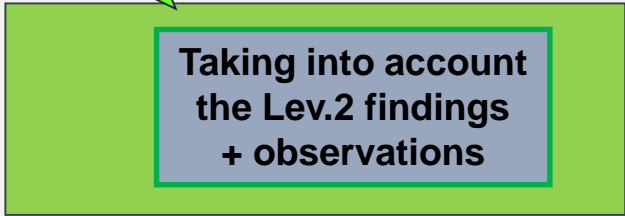
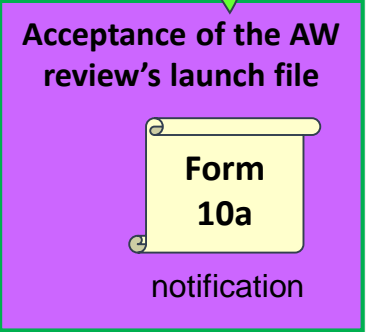
Issue a recommendation for AW review



Confirmation of the review's date



Lev.1 findings resolution



Finding criteria & categories

- ▶ **LEVEL 1 = Direct impact on safety.**
- ▶ **LEVEL 2 = Potential impact on safety.**
- ▶ **OBSERVATIONS = Areas of improvement.**



Finding criteria & categories

LEVEL 1

- ⊖ AD not applied,
- ⊖ mandatory modification not applied,
- ⊖ life limit exceeded,
- ⊖ maintenance task due ,
- ⊖ defect out of limit...

LEVEL 2

- ⚠ AD applied but not registered,
- ⚠ modification applied but not registered,
- ⚠ life limit not properly scheduled but not exceeded,
- ⚠ error about scheduled maintenance
- ⚠ defect acceptable but not carried forward in a controlled manner.



Inspector's good practices

You can't check everything...

Don't expect too much...

Don't think that... report only facts based information not who but what

The A/C surroundings don't matter

Don't try to guess...

Don't perform the review without a CAMO's representative

Don't do CAMO's job...



Results

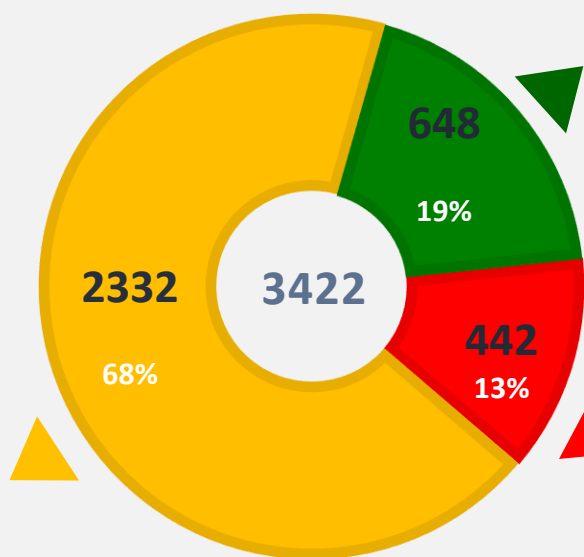
2018 global results.



▶ 393 A/C Certified (MARC issued)

▶ All level 1 solved during AR.

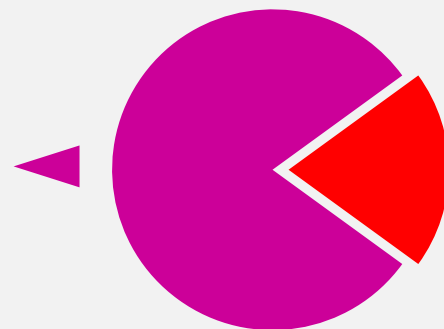
LEVEL 2



OBSERVATIONS

LEVEL 1

MAINTENANCE & REPAIR



AD & MOD

* AR = airworthiness review

Results

2018 global results.



Σ findings
airworthiness review

≈

9



-  1 level 1
-  6 level 2
-  2 obs.

Learnings

Airworthiness review results are depending on:

- **Airworthiness systems' maturity.**
- **Aircraft & system complexity & maturity.**
- **Aircraft age.**
- **CAMO & AMO maturity.**
- **Industrial support efficiency.**
- **Certification basis civil / military.**



Airworthiness review results

Same trends year after year.

Most of level 1 can be solved quickly.

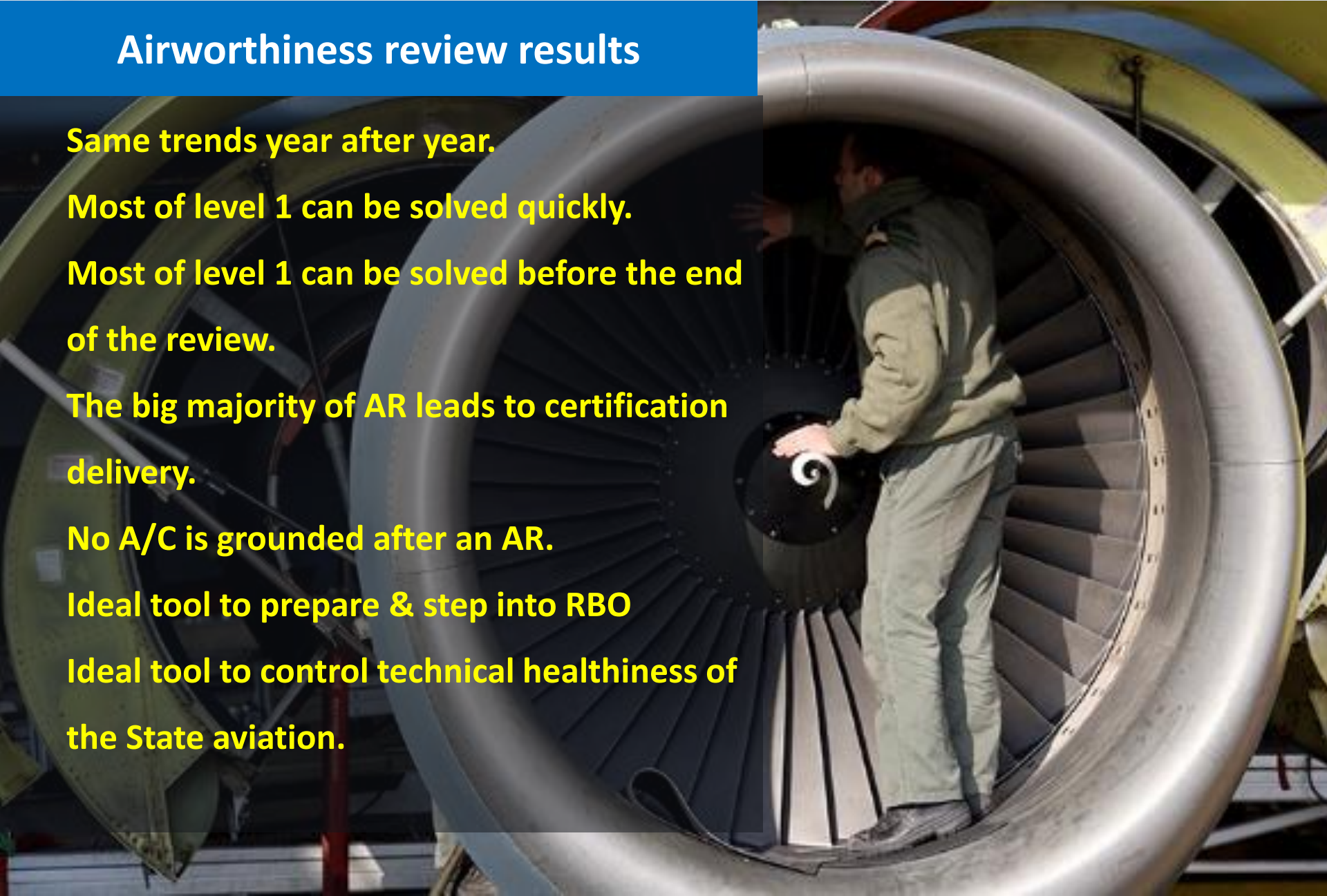
Most of level 1 can be solved before the end of the review.

The big majority of AR leads to certification delivery.

No A/C is grounded after an AR.

Ideal tool to prepare & step into RBO

Ideal tool to control technical healthiness of the State aviation.



Learnings

In fact,
looking at a
tree's fruit is
the best way
to tell



So, looking at
the A/C is
also the best
way to tell

FRENCH STATE AVIATION AUTHORITY



Colonel Stéphane COPERET
Airworthiness reviews in French State Aviation

