

HELICOPTERS

# **EASA Rotorcraft Structures Workshop**

## **Continued Integrity Verification Programme (CIVP)**

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**AIRBUS**

# Presenters

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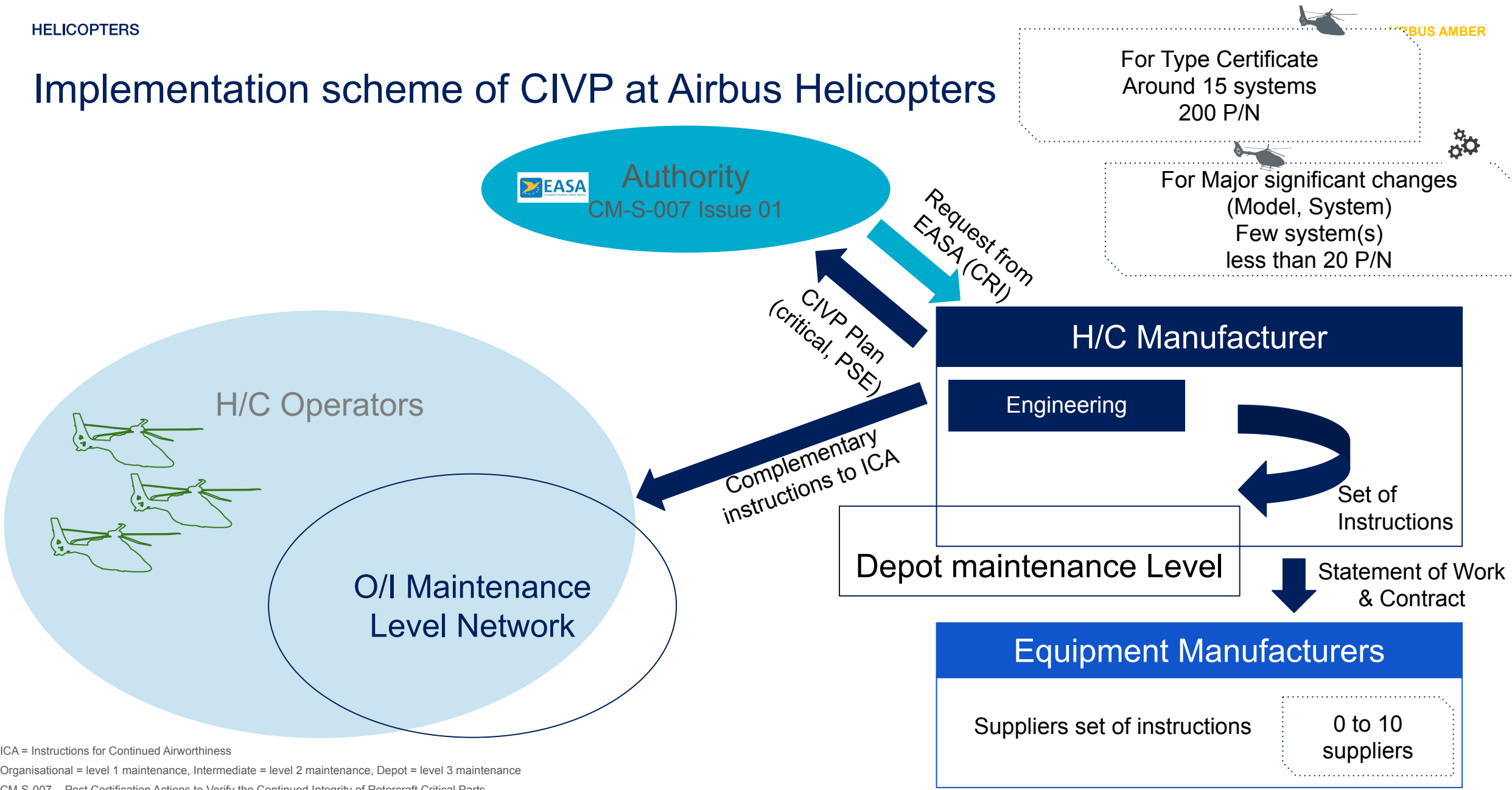
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Airbus Helicopters Airworthiness Office

# Agenda

- Implementation scheme of CIVP issue 1 at Airbus Helicopters
- Data collect: New organization, instructions & logistics flows
- CIVP & Operators
- Airbus feedback on CIVP mindset evolution from first Certification Memorandum
- Lessons learnt, recommendations & conclusions

# Implementation scheme of CIVP at Airbus Helicopters



ICA = Instructions for Continued Airworthiness  
Organisational = level 1 maintenance, Intermediate = level 2 maintenance, Depot = level 3 maintenance  
CM-S-007 - Post Certification Actions to Verify the Continued Integrity of Rotorcraft Critical Parts

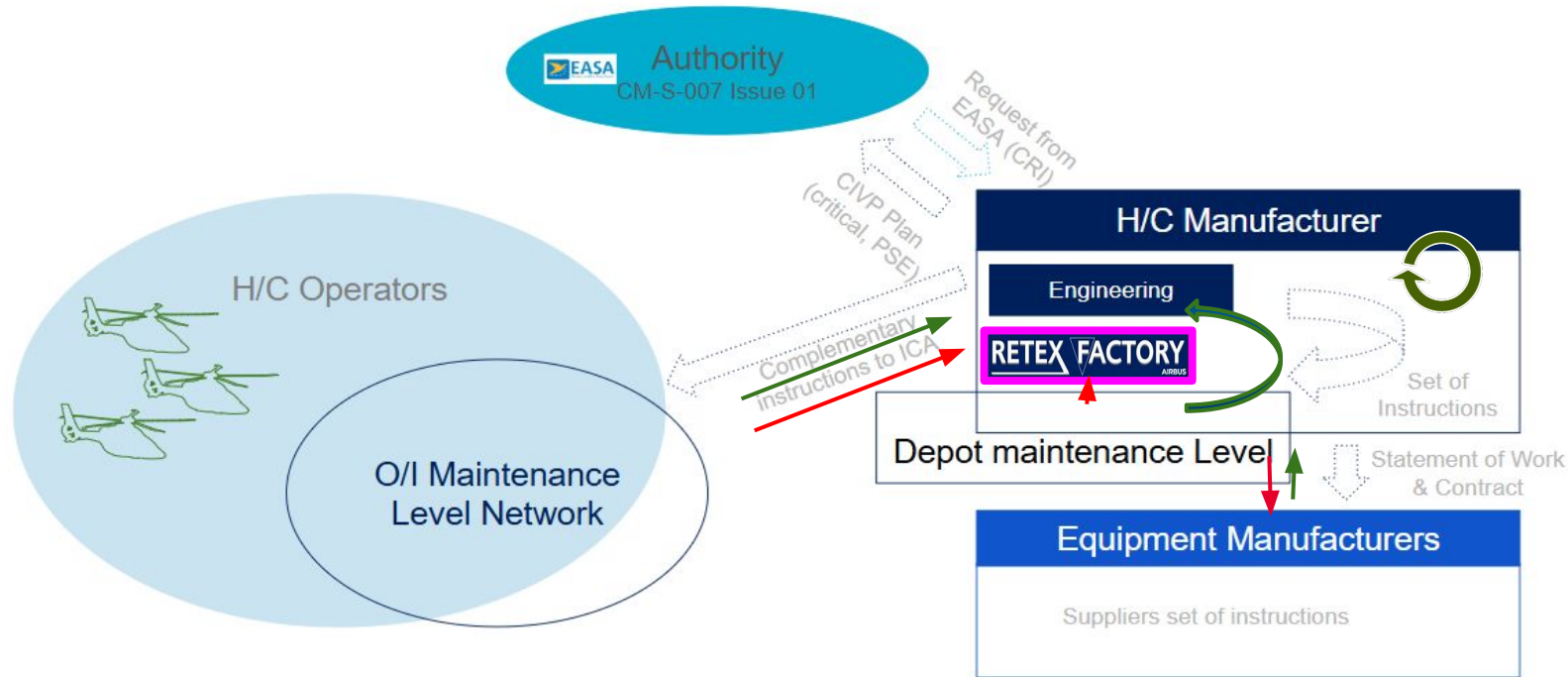
# CIVP - Data collection

CIVP main data sources come from **Usual Airbus Helicopters activities**

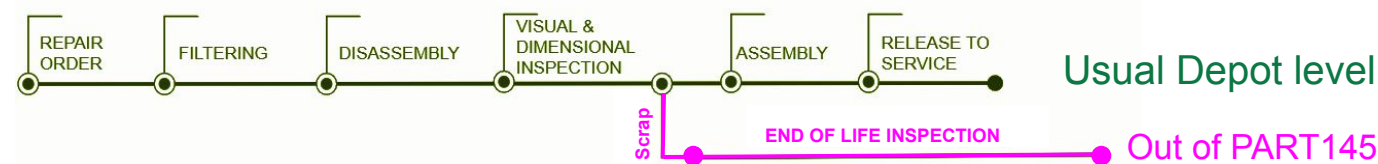
- Occurrence reporting (CAW)
- Operator Health & Usage Monitoring System and maintenance data
- Maintenance Repair, Overhaul data incl. Vendors

**Complementary activities** initiated for CIVP to formalise retex need as part of regulation:

- **Focus on critical parts & PSE with damages characterisation (sampling approach)**
  - at periodic interval
  - at end of life whatever is the reason: retirement time reached, Maintenance or Repair criteria exceeded



New dedicated Airbus Helicopters **organisation**:



**New logistic flows** supported by **specific 3 maintenance levels instructions** created to manage scrapped parts between all stakeholders (so as to not mix scrapped parts and PART145 parts)

# Specific organization - 'Retex Factory' experience

In addition to standard organisation for repair and overhaul, Airbus Helicopters has develop a dedicated organisation to collect Retex for “end of life” parts through dedicated investigations

## Key elements

Starting date: January 2017 at Marignane

Objective: support & improve the return of experience for Rotors & Transmissions ➡ CIVP corner stone

Method:

- **Parts life recording** (LogCard, System configuration, SLL etc)
- **Damage evidences** (pictures, location, dimensional characteristics, measurement reports, etc)
- All parts are **inspected the same way** (Damage mapping referential + Standard damage library)
- Recording of all inspections in a **Commun Database** exploitable by the design office

## Illustration with MGB Planet gears

**Thousands** inspections of planet gears

➡ Large amount of data collected and capitalized

Feedback about the certification assumption:

➡ **No new damage observed not already assessed within compliance documents**

Benefit:

➡ Improve knowledge on planet gears behaviour in service ⇒ provide inputs for accurate design rules

To perform investigation, this organization must require specific characterisation means and competencies;  
That's why Airbus Helicopters took the choice to bring back the “end of life” customers parts needed for CIVP.

# CIVP & Operators

In addition to above request on “end of life part inspection”, Operators are also solicited to perform some CIVP tasks

## Typical tasks



On the selected H/C

- **Additional capitalization** request to Customer on scheduled maintenance tasks

~15 tasks  
(150 / 3 000 FH)

- **Inspection interval reduction** for existing scheduled maintenance tasks

~20 tasks  
e.g divided by 3

- **Additional specific CIVP tasks**

~30 tasks  
(1 000 to 3 000 FH)

## Operators perception

Based on testimonies shared with Airbus staff

First: **Significant impact**

⇒ CIVP maintenance tasks **increase the unavailability / costs of the H/C**

Objective acceptance not obvious

⇒ Additional tasks do not mean a safer H/C, indeed additional tasks increase **Human risk factor**.  
e.g. poor accessibility, frequent checks that do not result in any findings, checks requiring disassembly / reassembly...

# Airbus Helicopters answer to Operators concerns & Lessons learned

From the first discussions with customers, Airbus Helicopters identified that CIVP demand is felt as an additional as not being required in Part 145 regulation. Strategy was adapted accordingly.

## Minimise CIVP impact for customers

- **Selected aircrafts** supporting the CIVP task within aircrafts **maintained by Airbus Helicopters networks**
- Most of Specific Tasks are **performed by Airbus Helicopters Representatives**
- Managed Part / Assembly **standard exchanges** for investigations in Airbus Helicopters premises

## Illustration: Main rotor head CIVP tasks

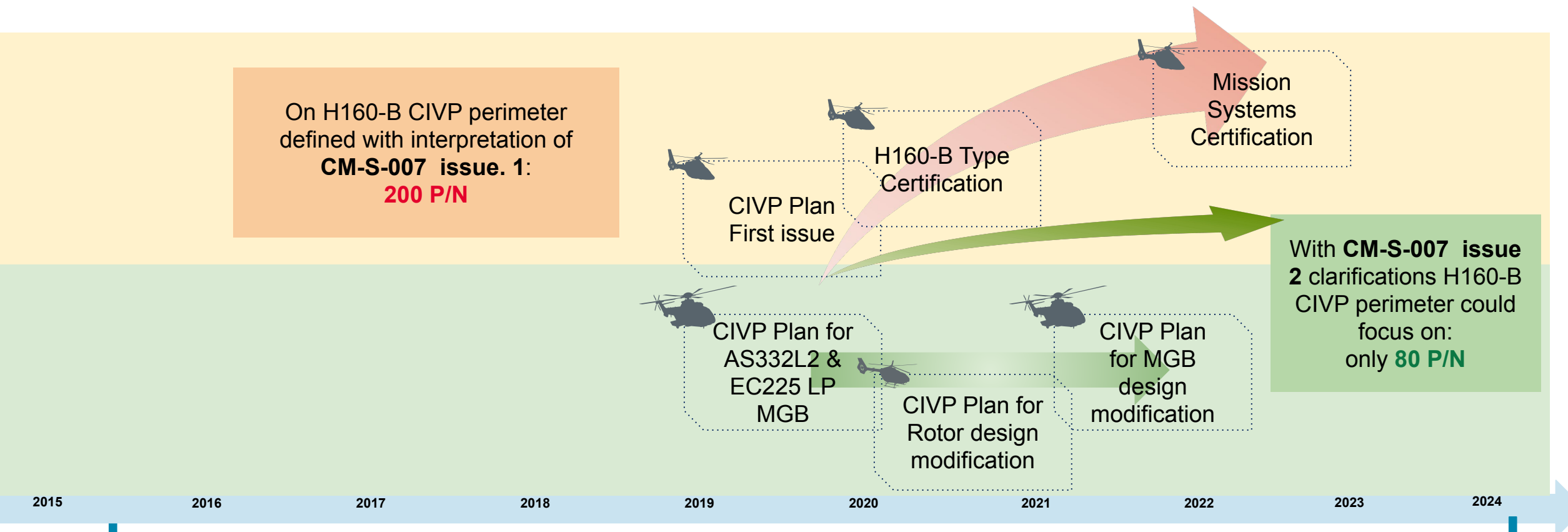
- Instead of performing on H/C all main rotor head CIVP specific tasks, the whole assy is send to Airbus Helicopters

## Lessons learned

- **Customer's agreement remains a concern**, CIVP introduces burden by customer with no proof yet that it prevents incidents
- The **agility to adapt to customers** is key & **selection of a particular H/C** (e.g. Fleet Leader) is **utopian**



# Airbus feedback on CIVP mindset evolution from first Certification Memorandum



Aug. 2015 – EASA  
Certification Memorandum  
CM-S-007 issue. 1

Rulemaking tasks may achieve to tune & define CIVP rules  
Nevertheless, as a first analysis CM-S-007 issue 2 seems to be in line with  
initial mindset: propose a Continued Integrity Verification Program to detect any  
unforeseen which degrade safety margins

Dec. 2024 – EASA  
Certification Memorandum  
CM-S-007 issue 2

CM-S-007 - Post Certification Actions to Verify the  
Continued Integrity of Rotorcraft Critical Parts

# Conclusion

## Preliminary lessons learnt

- CIVP on existing H/C: So far **none of the findings questioned the certification hypothesis**.
- CIVP on new TC: so far data reception only through usual process of part retrieval. No data reception received yet through new CIVP flows.
- **Positive feedbacks** of the CIVP for Airbus Helicopters :
  - ⇒ the CIVP allowed to **industrialize and standardize** the retex in service, on critical parts and PSE. Now with CIVP, retex becomes **the driving force of safety improvement**
  - ⇒ ultimately, the transverse CIVP would allow Airbus Helicopters to **consolidate the certification hypotheses** and therefore **simplify the certification works**

## Impacts

- For H/C manufacturers, **significant impacts** which are **proportional to CIVP scope** (Internal activities, Supplier contracts, customer consequences, ...).
- CIVP complement **doubles the effort** compared to reinforced organisation **usually deployed at the Entry into Service** of an H/C to collect & treat events and datas
- **Balance** should be found regarding **CIVP scope to capture advanced indications of impending failure of critical parts as defined at Certification Memorandum** (so as not to drown retex in too huge information flows)
- **Operators impact** shall be considered too:
  - ⇒ maintenance increase with non negligible **human factor risks**
  - ⇒ **CIVP scope shall be restrained at a limited number of systems**
  - ⇒ strong recommendation **to invite operators during CIVP 2025 Rulemaking Task**

**Airbus Helicopters position: CIVP first in service feedback is positive, on H160 the expected feedback is that CIVP should be adjusted, balanced.**

# Thank you

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Questions ?