



NTSB Airplane Fuselage Structural Integrity Forum

QA Production Certificate Requirements

Panel 4: Manufacturing and Production Quality Assurance

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Content

- Airframe production overview
- Airbus production organisation against EASA Part 21 subpart G
- Manufacturing processes against CS25.605 and quality Assurance / Qualification
- Quality control management

Airframe production overview

- From sheet...



Stretchformed and chemically milled aluminum sheet for fuselage skin



Rollbended aluminum sheet for stringers and frames

Airframe production overview

- ...to panel and fuselage section...



Upper panel



Cockpit section



Forward Fuselage section

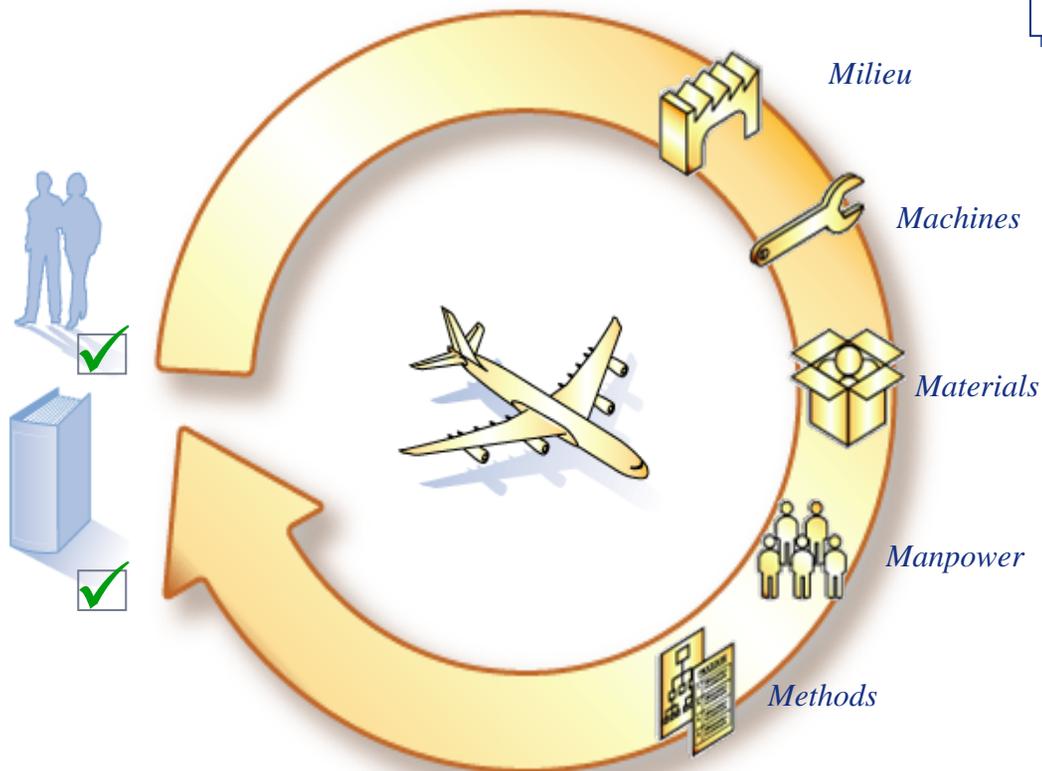
Airframe production overview

- ...to aircraft...



Production Organisation Approval (POA)

*Part 21 subpart G rule 1: the company must show that they have set up and can maintain a **Quality System***



*The **Quality System** controls and improves each element in the system ...*

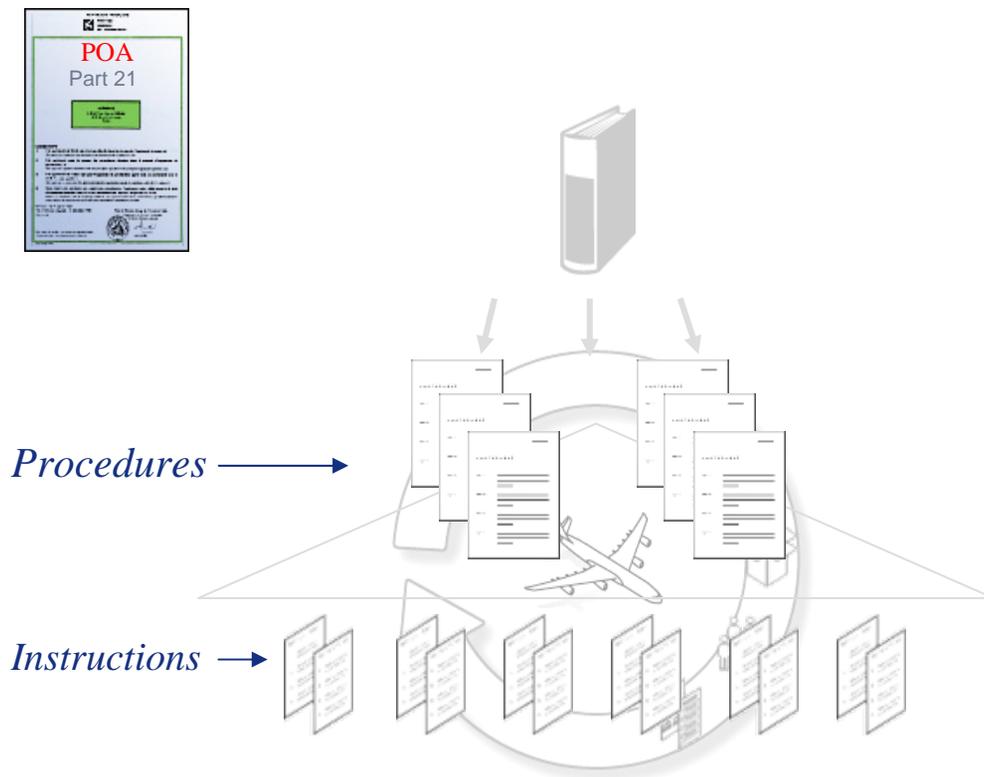
... to ensure:

- *the regulations are continuously satisfied*
- *the Customer's needs are continuously satisfied*
- *the complete production process is continually improved*
- *the product itself is continually improved*

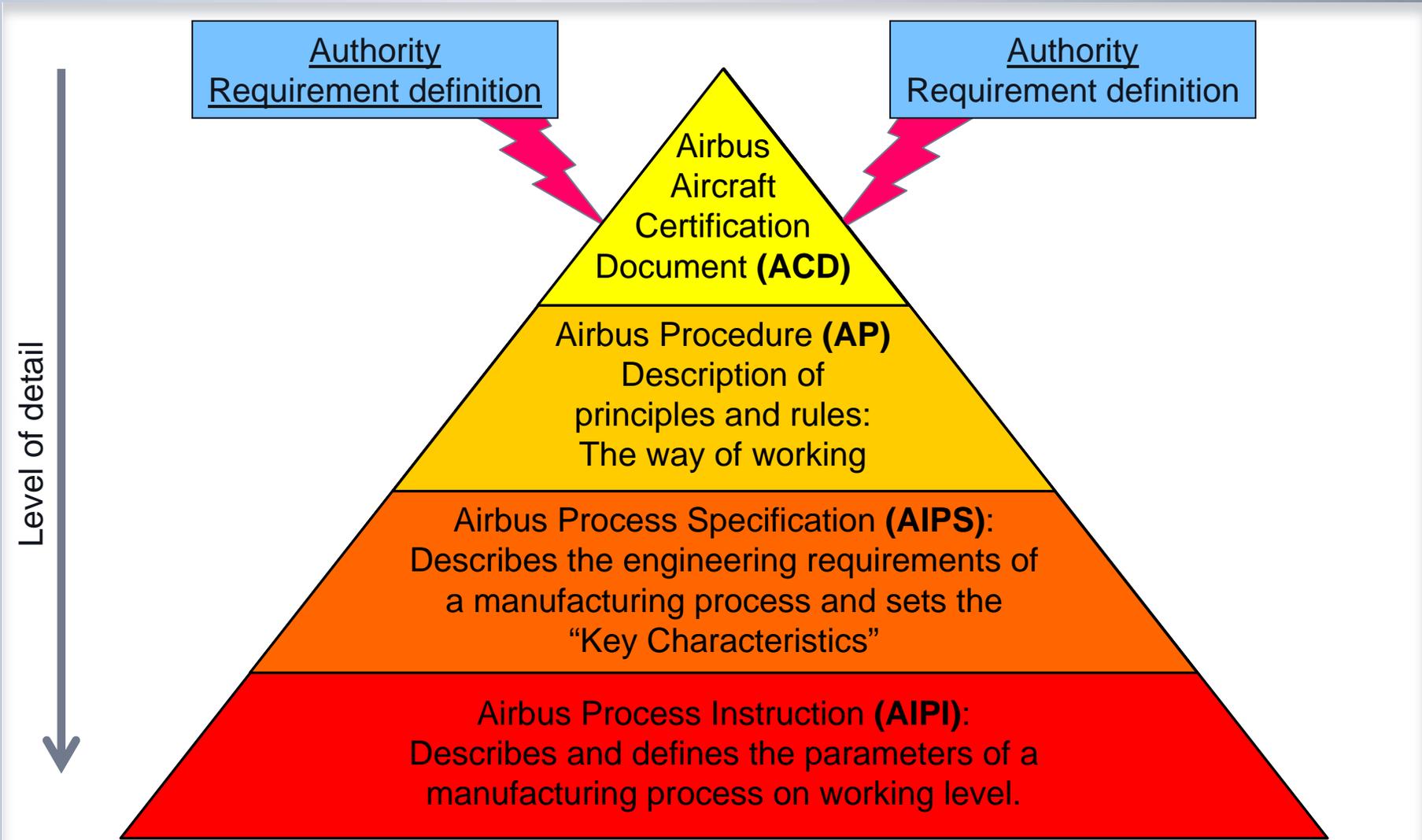
Production Organisation Approval (POA)

When the Competent Authority is satisfied that the rules in the Part 21 subpart G have been applied, they grant the company a **Production Organisation Approval (POA)**

To keep their POA, the company must **continue to demonstrate** to the Competent Authority that they apply the rules in Part 21 subpart G

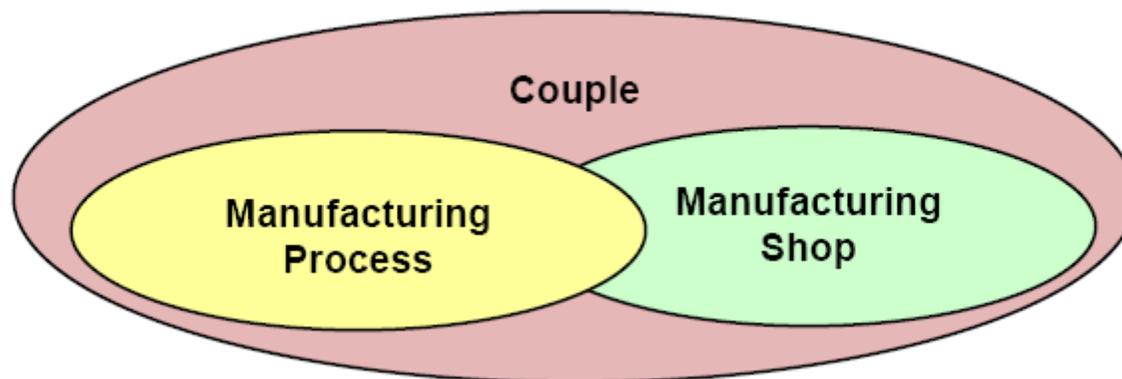


Manufacturing Process according to CS25.605: Requirement and Implementation



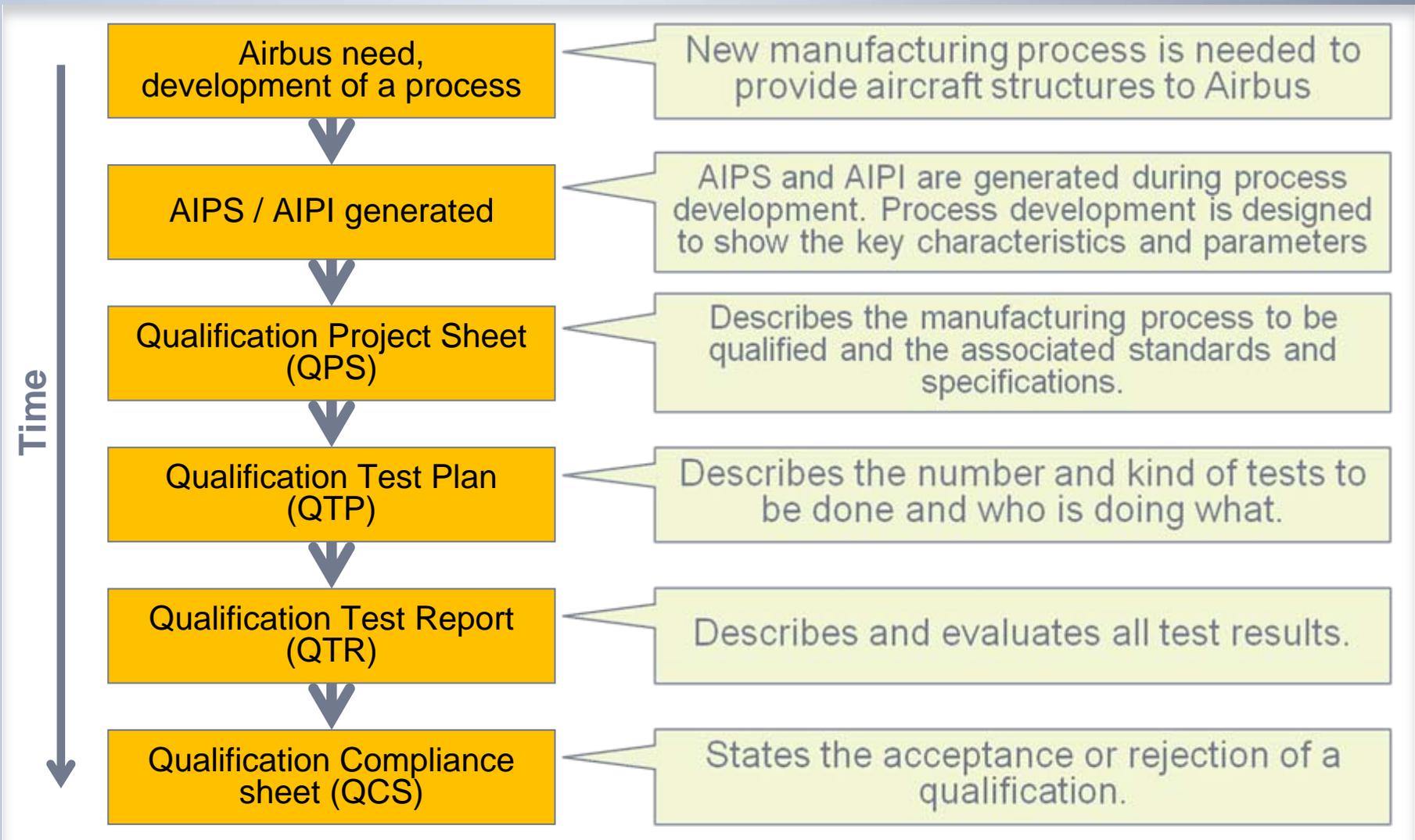
Qualification of Manufacturing Processes

- Subject of Qualification is a couple consisting of:
 - Manufacturing Process
 - Manufacturing Shop



- The AIPS/AIPI-development and general process qualification is done at an “Airbus Reference Manufacturing Shop”.
- Depending on the complexity of the process, the full qualification is repeated for each new shop or compliance is shown by First Article Inspection (FAI).

Qualification of Manufacturing Processes



Airbus Quality System relies on 7 main processes:

- **Set the Standards & Document them**

All activities ensuring that all Quality Management System components are in place.

- **Perform Measures:**

Identification, definition, production, record, analysis, review of process / product performance indicators.

- **Perform Audit & Surveillance:**

Preparation and deployment of internal and external audit and surveillance activities.

- **Manage Design non-conformance:**

Notify, analyze, classify, correct the non conformance. Identify preventive actions.

- **Manage Manufacturing non-conformance:**

Notify and solve a non-conformance during production. Identify preventive actions.

- **Perform Action Management, Review & Improvement:**

Analyse potential risks, identify and deploy preventive actions.

- **Manage conformity & attestation:**

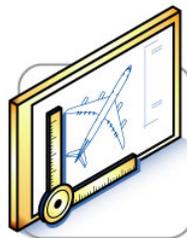
Ensure that parts, constituent assembly and aircraft are conform to airworthiness requirements.

Quality Control Management (in-house or vendor)



▶ Request for Concession

- Manufacturing
- *Airbus Industrial Partners*
- *Suppliers*



▶ Assessment and Decision

- *Design Office*
- *Design and Stress Specialist defines corrective action if needed.*



▶ Final Quality Check

- *Quality*



Aircraft Delivery



Official distribution

■ The main actors in the concession process are:

- ▶ Manufacturing (Originator) → Airbus, Industrial Partners, Suppliers
- ▶ Design Office → Design and Stress or Specialist (Airworthiness, ..)
- ▶ Final Quality

Thank you!





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