ICAO

1. ICAO SARPs: Annexes directly related to Continuing Airworthiness: Annex 1 (Personnel Licensing); Annex 6 (Operation of Aircraft); Annex 8 (Airworthiness of Aircraft); Annex 13 (Aircraft Accident and Incident Investigation); Annex 19 (Safety Management).


ICAO Member State Regulatory Authorities - National Aviation Authorities

3. Since its establishment in 2003, many of the responsibilities of the EU Member States’ NAAs have been transferred to European Aviation Safety Agency (EASA). While each member state may apply specific additional mandatory airworthiness requirements to aircraft on its registry, rule-making for all airworthiness related matters as well as certification of new aircraft/engines types and any major modifications (ie. Supplemental Type Certificates) are the responsibilities of EASA. However NAAs are still responsible for the oversight of organisations (except design) and enforcement of common European airworthiness regulations within their own territory.

There are many “Bilateral Aviation Safety Agreements” (BASAs) between states, which have responsibility for type design in their territory and the BASA between USA and EU, which entered into force in May 2011 is one of the most significant of such agreements and aims to harmonize regulations on airworthiness & environmental certification as well as maintenance.

4. Proposed amendments to regulations are issued by the responsible authorities – FAA NPRMs (Notice of Proposed Rule Making) – EASA NPAs (Notice of Proposed Amendments).

Continuing Airworthiness: As a result of the evolution of the industry and technology, it is inevitable that the need for continuing airworthiness to ensure aircraft are in a condition for safe operation needs to be reassessed.

Type Certificate (TC) – Type Certificate Data Sheet (TCDS): Baseline document for models & variants of aircraft or engines with important detailed technical information.

DEIR: FAA Delegated Engineering Representative and/or ARS – EU Airworthiness Review Staff. An airworthiness review under CAMO approval is a periodic review of an aircraft and its records to ensure it meets airworthiness requirements.

MSG (Maintenance Steering Group) – constituted from Authority and Industry specialists – leads to MRBR (Maintenance Review Board Report) to develop the basic approved minimum Maintenance Programme Document (MPD). Used by every operator to develop its own customized approved type maintenance programme.

Independent Accident Investigation Bodies such as US NTSB, Canadian TSB, UK AAIB, French BEA, German BFU, Australian ATSB. Most of the investigation bodies are independent from the regulatory authority but in some countries accidents are investigated by independent commissions established within the National Aviation Authorities.

Certificated Air Operator/ Carrier (AOC)

9. MEL (Minimum Equipment List) is particular for each aircraft type and operator. Derived from MMEL (Master Minimum Equipment List) developed by Approved Type Certification Organisation. Extended Range Operations (ETOPS) – Certificated Operator responsible for Operations and Maintenance Standards.

10. Occurrence Reporting Schemes – Data collection, Control, Investigation, Follow-up Feedback to Approved Type Certificate Organisation/ Regulatory Authority. EASA Member States programme (ECCAIRS). Confidential Reporting Programmes eg. ASRS (USA), CHIRP (UK).

Approved Design & Production Organisations - Aircraft, Related Products and Parts

11. Includes Sub Contractor standards.

12. System Safety Assessment (SSA) is used to determine failure effects to specified Requirements (eg FAR/EASA - CS 25.1309 - target failure rates and effects, also SAE Aerospace Recommended Procedures, Doc ARP4761). SSA also used to determine CMRs (Certification Maintenance Requirements) and SSIs (Structural Significant Items). Used in MSG analysis to determine inspection items in Maintenance Programmes.

Approved Maintenance & Repair Organisations (MRO)


14. Incorporation of ADs (Airworthiness Directives) – Mandatory. Incorporation of SBs (Service Bulletins) - Optional SBs as assessed by AOC holder.

15. Basic Engineer and/or Type Training - carried out in Approved School eg. (EASA/FAAR 147). Human Factors training is a Licensing requirement under ICAO Annex 1 Information is given in ICAO Airworthiness Manual Doc 9760 and ICAO Human Factors Training Manual Doc 9683.

NEVER FORGET: IT IS OFTEN THE SIMPLE PROCEDURAL ERRORS WHICH LET US DOWN - NOT THE TECHNOLOGY
CONTINUING AIRWORTHINESS – Functions & Responsibilities

ICAO
- Definition – Member State responsibilities (Convention 1944)
- Issue – International Standards & Recommended Practices (SARPs) (1)
- Issue – Technical Guidance Publications (2)

State Regulatory Authorities – National Aviation Authorities (3)
- ICAO Member States are responsible for the implementation of ICAO International Standards and Recommended Practices (SARPs) by issuing their own legislation within their territory. In case they cannot achieve this, they are obliged to file differences and notify ICAO.
- Establish and maintain a State Safety Programme (SSP) (ICAO Annex 19)
- Issue & Control – Legislation/Regulations. Usually the rulemaking process starts with Proposed Amendments (eg. NPRM/NPA), which enable consultation with the industry (4)
- Issue – Aircraft/Engine Type Certificates (TC) & (TCDS) (5)
- Issue/Revoke – Certificates of Registration, Airworthiness & Export
- Issue Approval – Design, Production, Continuing Airworthiness Management (CAMO), Maintenance (MRO) & Maintenance Training Organisations
- Issue – Air Operators Certificates (AOC) & Approve Manuals & Expositions
- Approve – Modifications (eg STC – Supplementary Type Certificates)
- Approve/Issue – Airworthiness Directives (ADs) & Service Bulletins (SBs)
- Issue – Personnel Licences & Approvals (eg. DER, ARS) (6)
- Control – MSG/MRB procedures (7)
- Approve – Maintenance Review Board Reports (MRBR) - state/authority issuing TC/TCDS, Maintenance Programmes and Reliability Programmes
- Approve – Ageing Aircraft and Systems Programmes
- Issue – Requirements – Occurrence Reporting, analysis and feedback schemes (10)
- Establish State Occurrence Reporting, analysis and feedback scheme, confidential reporting schemes as prescribed by individual state authorities. (10)
- Establish – Accident/Incident Investigation Board (eg NTSB, TSB, AAI, BEA, BFL, ATSB) (8)
- Respond – Accident/Incident Investigation Board Recommendations (eg EASA, FAA, TCCA, CAA, LBA, DGAC, CASA)
- Oversight & Enforcement - Auditing/Monitoring – Design, production, operations, maintenance and maintenance training standards
- Issue Requirements & Approve – Extended Range Operations (ETOPS)
- Approve – Master Minimum Equipment List (MMEL)/Operator MEL (9)
- Issue & Control – Continuing Airworthiness policy practices and procedures and Authority internal procedures

ICAO Member States Regulatory Authorities
National Aviation Authorities (NAA)

CONTINUING AIRWORTHINESS

Approved Design & Production Organisations
- Aircraft, Engines and Related Products & Parts (OEM)
- Control – Type Certification standards (Design and/or Production) (11)
- Establish – Airworthiness Office – Control Certification Procedures
- Prepare & Control – System Safety Assessment (12)
- Prepare & Control – Flight Manual
- Prepare & Control – Type Certificates & Type Certificate Data Sheets
- Control – Certificate of Airworthiness/Modifications Flight Testing
- Prepare & Control – Master Minimum Equipment List (MMEL) (9)
- Prepare & Control – Both Initial and Continuing Airworthiness Procedures for all special operations approvals (i.e. RVSM, ETOPS, AWO, RNP etc)
- Prepare & Control – ADs and SBs and STCs
- Establish – Occurrence Reporting/Investigation & Follow-up scheme (10)
- Issue & Control – Instructions for Continued Airworthiness (ICAs) (e.g. AMM, FIM, WDM, SRM, IPC, DPH etc.)
- Issue – Safety & Guidance information for Products - technical manuals (Maintenance Repair and Parts)
- Establish & Control – Quality Management System
- Establish & Maintain – Safety Management System (SMS)

Approved Maintenance Training Organisations
- Develop & Deliver – Basic & Type Training (15)
- Conduct – Examinations
- Establish & Maintain – Safety Management System (SMS)

Approved Maintenance & Repair Organisations (MRO)
- Control Maintenance standards (incl Sub Contractors) (13)
- Control – Maintenance Planning & Technical Manuals
- Issue & Control – Authorised Personnel (Certifying Staff)
- Incorporation – ADs and SBs & Approved Modifications (eg STC) (14)
- Establish & Control – Quality Management System
- Certification – Maintenance/Release to Service
- Control – Maintenance Records (incl Sub Contractors)
- Control – Maintenance Personnel Training & Records
- Establish – Occurrence Reporting/Investigation & Follow-up scheme (10)
- Issue & Control – Organisation Technical/Procedures
- Training – Maintenance Engineer Type/Procedures including Human Factors (15)
- Establish & Maintain – Safety Management System (SMS)

Air Operator Certificate (AOC) Holders
Approved Continuing Airworthiness Management Organisations (CAMO)
- Control – AOC standards (Operations & Maintenance)
- Control – Flight Operations Manual
- Control – Maintenance/Reliability Programmes
- Issue & Control Organisation technical/procedures
- Establish & Control – Quality Management System
- Establish & Control – Maintenance & Training records
- Prepare & Control – Minimum Equipment List (MEL) (9)
- Control – In-service Airworthiness Flight Testing
- Control airworthiness standards – Special Operational Approvals (e.g. RVSM, ETOPS, AWO, RNP)
- Establish – Occurrence Reporting/Investigation & Follow-up scheme (10)
- Control – Aircraft/Crew Leasing standards
- Control Training – Flight Crew & Maintenance including records
- Establish & Maintain – Safety Management System (SMS)
- Establish & Control Airworthiness Reviews and issue/extension ARC (6)