



EASA

European Aviation Safety Agency

Maintenance and Operational Considerations

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STC WORKSHOP

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Case study: STC on Heads-Up Display

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- Maintenance
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- Installation
 - Continuous Airworthiness
 - Maintenance
 - Manuals (SOPs)
 - Minimum Equipment List (MEL)
 - Training of personnel
 - Changes in the SMS and FDA
 - Oversight



General technical considerations

No STC, No business

M.A.201 Responsibilities

(a) The owner is responsible for the continuing airworthiness of an aircraft and shall ensure that no flight takes place unless:

1. the aircraft is maintained in an airworthy condition, and;
2. any operational and emergency equipment fitted is correctly installed and serviceable or clearly identified as unserviceable, and;
3. the airworthiness certificate remains valid, and;
4. the maintenance of aircraft is performed in accordance with the maintenance programme as specified in point M.A.302.

...

(f) For complex motor-powered aircraft used for commercial specialised operations, or CAT other

than those by air carriers licenced in accordance with Regulation (EC) No 1008/2008, or commercial ATOs, the operator shall ensure that

1. no flight takes place unless the conditions defined in paragraph (a) are met;
2. the tasks associated with continuing airworthiness are performed by an approved CAMO. When the operator is not CAMO approved itself then the operator shall establish a written contract in accordance with Appendix I with such an organisation, and
3. the CAMO referred to in (2) is approved in accordance with Part-145 for the maintenance of the aircraft and components for installation thereon, or it has established a contract in accordance with M.A.708(c) with such organisations.



Reminder, hopefully unnecessary

CAMO: the engine of continuing airworthiness

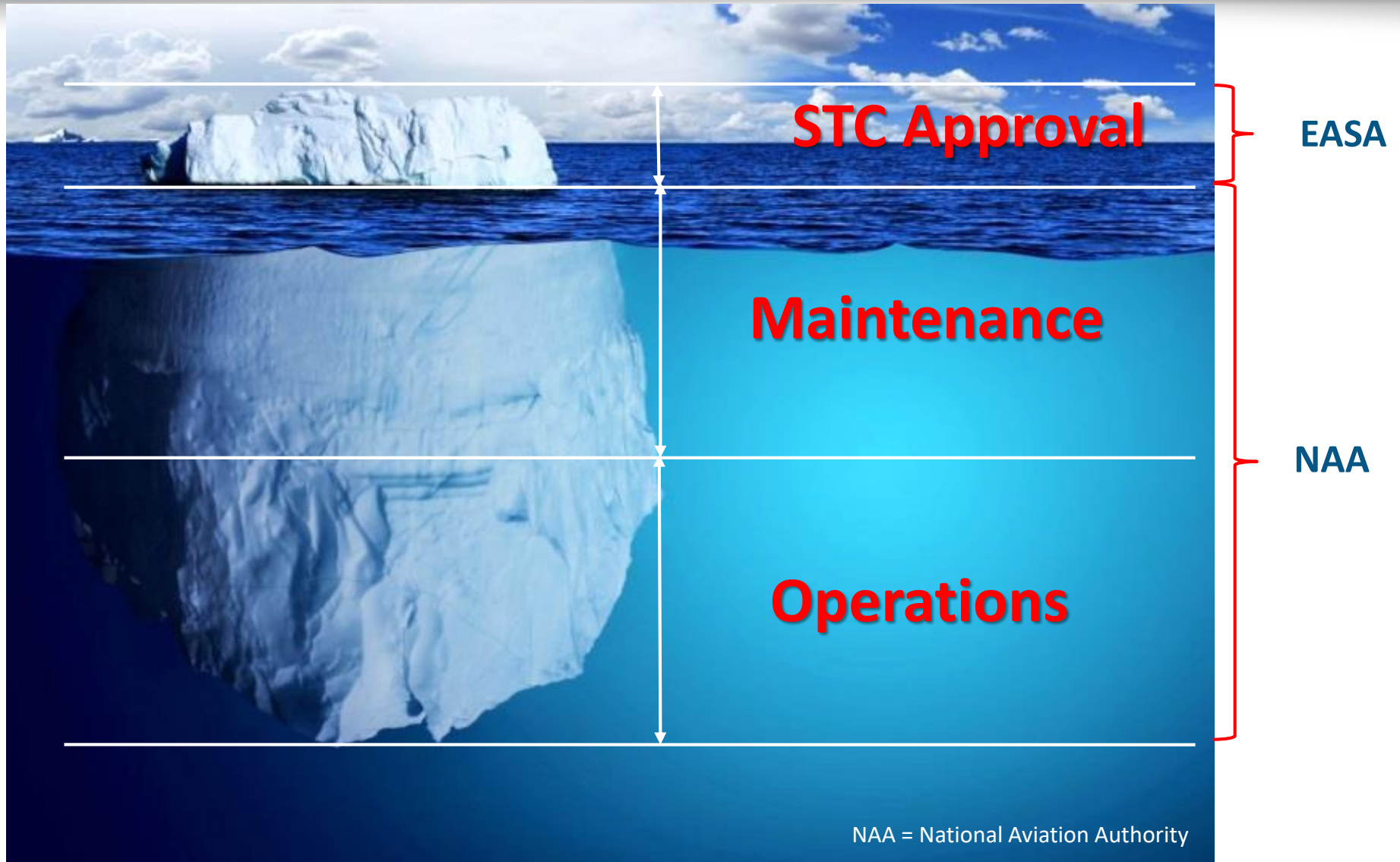
M.A.708 Continuing airworthiness management

For every aircraft managed, the approved continuing airworthiness management organisation shall:

1. develop and control a maintenance programme for the aircraft managed including any applicable reliability programme,
 2. present the aircraft maintenance programme and its amendments to the competent authority for approval, unless covered by an indirect approval procedure in accordance with point M.A.302(c), *and for aircraft not used by licenced air carriers in accordance with Regulation (EC) No 1008/2008 provide a copy of the programme to the owner or operator responsible in accordance with M.A.201,*
 3. manage the approval of modification and repairs,
 4. ensure that all maintenance is carried out in accordance with the approved maintenance programme and released in accordance with Section A, Subpart H of this Annex (Part-M),
 5. ensure that all applicable airworthiness directives and operational directives with a continuing airworthiness impact, are applied,
 6. ensure that all defects discovered during scheduled maintenance or reported are corrected by an appropriately approved maintenance organisation,
 7. ensure that the aircraft is taken to an appropriately approved maintenance organisation whenever necessary,
 8. coordinate scheduled maintenance, the application of airworthiness directives, the replacement of service life limited parts, and component inspection to ensure the work is carried out properly,
 9. manage and archive all continuing airworthiness records and/or operator's technical log.
 10. ensure that the mass and balance statement reflects the current status of the aircraft.
- + Manage the contract with the Part-145 AMO



Is an STC an Iceberg?





Head-Up Display (HUD) – Low visibility Operations LVO

- HUD (or HUDLS or EVS) may enable operational credits (low visibility operations).
- A Specific Approval is necessary (SPA.LVO):
 - Airworthiness approval
 - Flight crew training and qualifications
 - Operating procedures
 - Operational demonstration
 - Minimum Equipment List (MEL)
 - Continuous monitoring
- NAA needs to consider it in their oversight programme





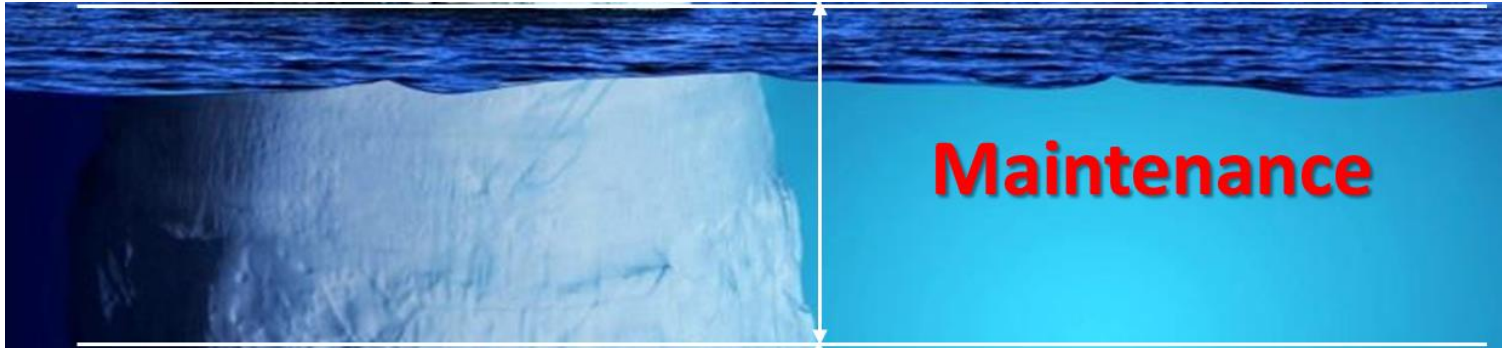
Approval



- The change must have an airworthiness approval
 - If is not approved, normally is not considered for purchase, or
 - Must be approved before purchase
- Equipment must be manufactured i.a.w. Part-21
 - Approved production organisation
 - EASA Form-1 or equivalent



Installation

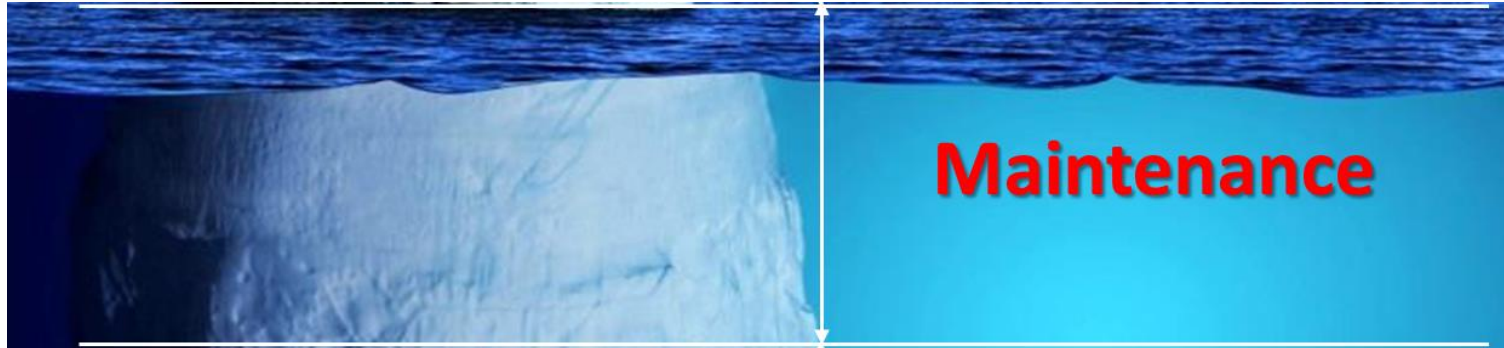


- Installation is maintenance:
 - Installation instructions (part of STC package – approved data, M.A.304)
 - Performed in a Part-145 approved organisation (or equivalent)
 - Requires a CRS (+ update of a/c records i.a.w. M.A.305)

- a/c document to be updated before entry into service
 - AFM/RFM – Limitations and procedures section
 - W&B record, OEW
 - MEL



Continuing Airworthiness

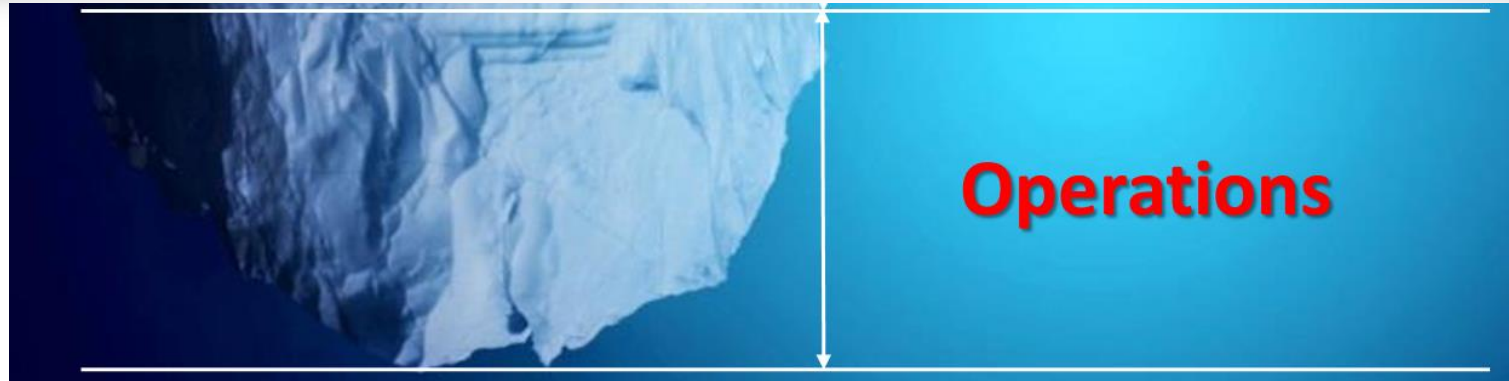


Once the STC is installed, is part of the approved configuration of the a/c:

- Continuing airworthiness:
 - Monitor issuance of applicable ADs and SB issued by STCH and decide embodiment (M.A.301)
 - Reporting to STCH (M.A.202)
- Maintenance
 - Update Approved Maintenance Programme (M.A.302)



Air Operations: regulatory approach

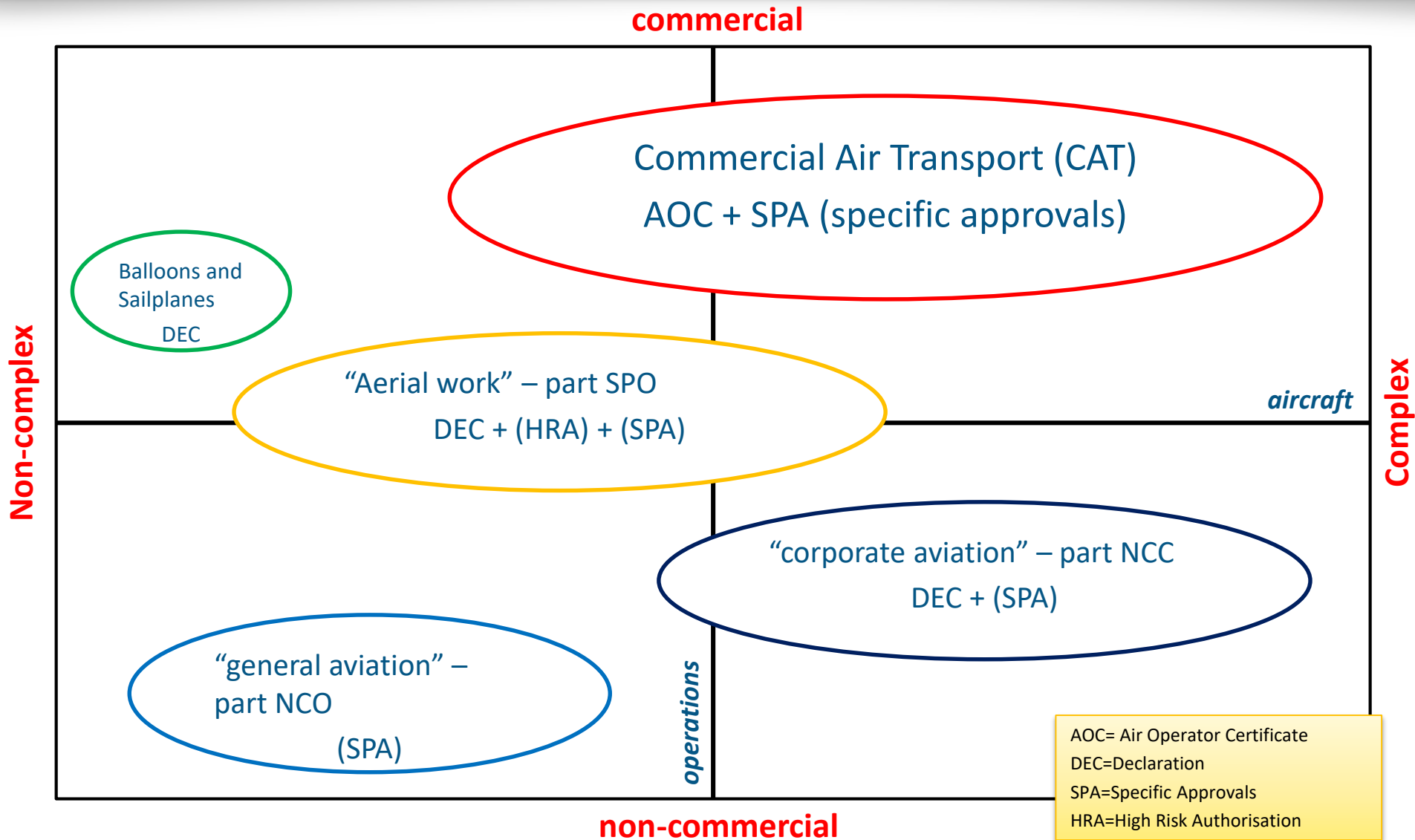


The level of protection (regulation) is determined by three main drivers:

1. Protection of (paying) passengers
2. Protection of third parties
3. Complexity of operation, determined mainly by the complexity of the aircraft



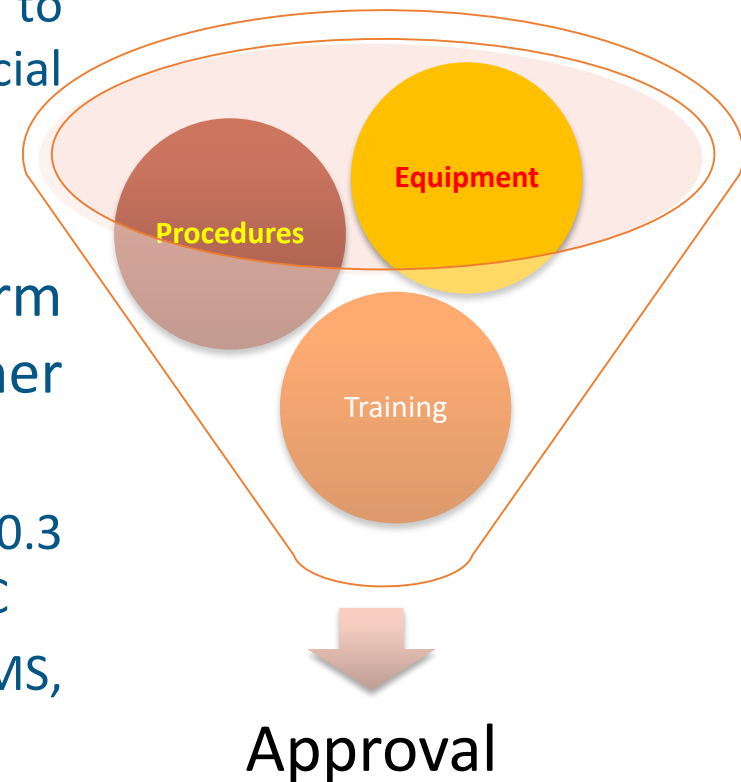
Regulatory overview





Regulatory Framework

- Organisational approvals:
 - General capability of an organisation to conduct safely a certain activity (commercial air transport) - Air Operator Certificate
- Specific Approvals – permission to perform certain types of operation (higher complexity/risk):
 - RVSM; MNPS (HLA); PBN (AR APCH, RNP 0.3 (H)), LVO, ETOPS, Dangerous Goods, SET/IMC
 - Helicopter operations: NVIS, HHO, HEMS, HOFO
- Specialised operations:
 - High risk commercial specialised operations





Conclusions

- To operate a modification subject to an STC the operator might require an OPS approval.
- The airworthiness approval (STC) is a pre-condition; however it does not guarantee the obtainment of an OPS approval
- The operator has to ensure that all applicable requirements are complied with in order to safely operate the installed equipment



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Thank you.

Questions ?

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