Air Medical Services
Oxygen system installation in EMS configuration.
Past experience and future perspective

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Your safety is our mission.

A paradigm change for STC holders

- A paradigm change in term of activities: from “provision only” to *all system verification* at STC level
  - Focus on “fire risk minimization” → EASA IM CRI
    - Fire Risk Assessment (oxygen leakages → interaction among systems, oxygen material compatibility → internal to oxygen system,…)
      - Installation guidance (minimization interference with other systems)
      - Oxygen system failure conditions and related mitigation factor assessment (ventilation requirement, TPL (Transition Pressure Limit) assessment for system strength & oxygen compatibility,..)
    - Majority of STC applicants got almost acquainted with Oxygen hazard analysis procedure
    - EASA CM on recommended oxygen bottle qualification standards informally circulated to oxygen community, yet not officially released

Challenges for TC/STC holders: new *business model* with TC holder and oxygen system supplier

- STC applicants need better co-ordination with TC holder
  - Some of fire risk mitigation measures need strong support from TC holders (i.e., ventilation requirement, rotor burst assessment,.)
  - New safety provisions need comprehensive knowledge of other *surrounding* systems installation
- STC applicants also need *deeper* knowledge of the installed oxygen component (i.e., oxygen pressure regulator,..)
  - Pressure regulator manufacturer could not provide sufficient support to them
    - i.e., ISO 10154-1/3 medical standard is not sufficient to cope with EASA CRI safety objective
  - TPL test is a mandatory, when sufficient data on pressure regulator *failure modes* are not available
  - Equipment compliance with *aeronautical use qualification standard* DO-160 is also difficult to be pursued

Perspective for a more flexible certification approach in the next future

- Background: STC applicants complain about a *too rigid/prescriptive approach* from EASA
  - More flexibility is mainly sought by EMS operator by requiring the possibility of deviating from the approved bottle/regulator due to "local" bottle/regulator availability constrain
- Possible solution: an approach called "*provision for installation certification*" (envisaged for CS 23/27/29 only!)
  - Oxygen bottle + reducer and medical equipment installed to be qualified to traditional aeronautical standards or against acceptable medical qualification standards (potentially EN 13718-1: 2014) in all the cases where this seems appropriate to product (CS 23/27/29)
  - Intermediate piping/equipment would be requested to sustain the max oxygen pressure for strength and oxygen material compatibility purpose, unless a credible TPL value could be established (TPL is strongly affected by system design,…)
  - Additional information would be warranted in the flight manual (oxygen quantity, max oxygen cylinder pressure, max weight of the oxygen components, max pressure downstream the regulator after failures,..)

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End slide

Any question ?

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THANK YOU

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