Stretcher/ Ambulance Conversions/ Medical Evacuation

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Stretcher/ Ambulance Conversions/ Medical Evacuation

- Quick installation stretchers
- Intensive care units
- Air Ambulance Installations
- Medical Evacuation Configurations
- Development of a new policy for Large Aeroplanes

Stretcher/ Ambulance Conversions/ Medical Evacuation

Quick installation stretchers

- Quick installation stretchers provide flexibility to airlines that intend to transport patients on scheduled flights.
- They are installed above existing seats, typically 3 seat rows are affected by the installation.
- To provide a minimum of privacy the patient can be separated from main cabin by curtains.
- An attendant can be seated next to the stretcher.

Quick installation stretchers

- Installation of this type of stretchers should be considered a major change.
- The number and location of stretchers should be subject to limitations.
- Aspects to be considered are:
  - Emergency evacuation
  - Supplemental oxygen availability
  - Medical equipment belonging to the patient
  - Additional special operational procedures (OSD) and or AFM supplement.

Quick installation stretchers

- Emergency evacuation:
  - Impact on emergency evacuation has traditionally been considered negligible in case one stretcher per aisle is installed on an aircraft.
  - The patient on the stretcher is the last passenger to be evacuated. In that way the preparation of the stretcher occupant evacuation will not hinder or delay the rapid evacuation of the aircraft.
  - Cabin crew and/or attendant must be trained/briefed on the evacuation procedure (OSD/AFM)
  - Evacuation of the stretcher occupant without the stretcher, if possible.

- Supplemental oxygen:
  - Only the aircraft oxygen system is qualified to provide oxygen under foreseeable decompression conditions.
  - The stretcher and the patient must be located and orientated to allow unrestricted access to aircraft oxygen in case of decompression

- Medical equipment belonging to the patient
  - medical equipment that is arriving together with the patient is covered by “AMC1 CAT.GEN.MPA.140 Portable electronic devices ((i) Medical equipment necessary to support physiological functions does not need to be switched-off.)”

Quick installation stretchers

- Additional special operational procedures (OSD) and or AFM supplement
  - Additional information/training for cabin crew related to the transportation of the patient on the stretcher should contain:
    - evacuation aspects
    - briefing of the patients attendant (if the attendant is not an additional trained cabin crew)
    - use of oxygen
  - Location and limitations of the stretcher installation
  - Required attendant
- Other aspects
  - Stretchers have not been required to comply with 25.562 because existing occupant injury criteria were not developed to address transportation of patients in a horizontal or reclined position (ref. JAA TGM/12 and CS-25 Amendment 13).
  - Locations acceptable for the installation of stretchers should be selected so that in case of structural failure they would not injure other passengers and/or adversely affect their capability to reach and use the available emergency exits (see also AMC CAT.OP.MPA.155).

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Intensive care units

- Seats must be removed from the cabin in order to allow installation of the intensive care unit.
- Installation in a separate cabin part or ambulance aircraft (more privacy is needed).
- An intensive care unit is considered as a stretcher (mounted on a monument) and therefore only 25.561 is applicable. Usually such units are equipped with medical oxygen systems containing larger amounts of oxygen. The medical oxygen system should be certified as part of the intensive care unit / aircraft.

- For the approval of oxygen systems EASA has issued generic CRI's.
  The most important one is "Oxygen Hazards Fire Risk Assessment (OHFRA)". It is Interpretative Material but requesting the applicant to check:
  - Failure conditions consideration and related mitigation factor assessment (ventilation requirement, transition pressure limit check,..) and
  - Oxygen hazard analysis plays a central role -> novelty compared, for example, to FAA AC 29/27 MG 6 (Rotorcraft EMS)

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Intensive care units

- EASA is not approving the medical equipment as part of the aircraft design.
  This is based on non-existent aviation certification standards for such equipment.
  In addition medical equipment has to comply with the medical requirements for such equipment.
  This may be in contradiction to aviation standards (e.g. flammability) but is also introducing a minimum protection to EMI. The use on board of aircraft can be allowed under AMC CAT.GEN.MPA.140 (see stretcher)

- The unit itself must be designed to carry the intended loads (limitations?)
- Electrical power supply can be quick connect but has to comply with the related requirements.
- If batteries are used for emergency power, specific CRI may be needed
- Backup batteries in medical equipment are covered by AMC CAT.GEN.MPA.140
- The number and location of intensive care units should be subject to limitations. The same considerations made for quick installation stretchers apply also to intensive care units.

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Air Ambulance Installations

- Air Ambulance Installations are developed to provide Emergency Medical Services (EMS), typically on helicopters and on smaller fixed-wing aircraft (Learjet, Do328).
- An Air Ambulance cabin configurations may consist in a more or less complex combination of intensive care units, quick mounting stretchers, medical oxygen systems, medical equipment and, of course, passenger seats and other interior components .
- The same considerations as for “Quick installation Stretcher” and “Intensive care units” are applicable
- There is no specific guidance available for Air Ambulance installations on Large Aeroplanes.
- Due to the small size of the cabin, it may be challenging to comply with requirements related to emergency evacuation (e.g. one exit could be only TypeIV)

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Air Ambulance Installations

- Air Ambulance Installations on CS-29 helicopter types, EASA is expecting applicants to follow the guidance of:
  AC 29 MG 6 (EMERGENCY MEDICAL SERVICE (EMS) SYSTEMS, INSTALLATIONS, INTERIOR ARRANGEMENTS, AND EQUIPMENT).
- Oxygen installations should also follow CRI on OHFRA (see intensive care units)

- For Air Ambulance configuration installed on CS-27 helicopter types, EASA expects Applicants to follow the guidance of:
  AC 27 MG 6 (EMERGENCY MEDICAL SERVICE (EMS) SYSTEMS, INSTALLATIONS, INTERIOR ARRANGEMENTS, AND EQUIPMENT).

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Medical Evacuation Configurations

- The conversion of a large aeroplane from a standard airline layout into a configuration to be used in case of Medical Evacuation (Medevac) foresees the installation of a significant number of stretchers.
- EASA has published Special Conditions to address critical design features of Medevac configurations.
- Medevac configurations are characterized by the following critical items:
  - High number of patients on stretcher
  - Cabin areas that do not provide firm handhold,
  - Cabin attendant direct view
  - In case of cabin decompression, oxygen masks may not be automatically presented to stretchers occupants
  - life preservers might not be within easy reach.
  - Compliance to 25.803 is at least a challenge.
  - No public passenger transport

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Medical Evacuation Configurations

- The large number of stretchers and the correspondingly relatively low number of seated occupants require that all practicable design precautions and operational procedures are developed to facilitate evacuation of stretcher occupants without compromising the egress of cabin attendants and other passengers (doctors, nurses, etc.)
- Precautions may include features such as easy release of stretchers from their attachments, easily accessed patient restraint buckles to alternatively allow removal and direct carrying of patients, associated training/briefing procedures for attendants (OSD), etc.
- Proposed design precautions and procedures will be evaluated by the Agency for acceptability and included in an AFM supplement, together with a limitation to non-commercial operation of the aircraft.

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Development of a new policy for Large Aeroplanes

- EASA is intentioned to develop a single policy that could apply to all mode of transportation of passengers in recumbent position, from quick stretcher installation in airline configurations to Medevac configurations.
- The new policy will consist in a revision of the Special Conditions issued by EASA to address critical design features of Medevac configurations. A draft is already available.
- EASA would appreciate active contribution from the Industry to the development of the new policy.
- An ad-hoc working group may be formed to support EASA in this activity.

EASA
European Aviation Safety Agency

Any Questions?

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