

LBA-Richtlinie B2-430.04.02.8(8)

„Spezielle Anforderungen an Schlafgelegenheiten für verstärkte Flugbesatzungen“

Design, Equipment and Installation Criteria for Flight Crew Sleeping Quarters

1. Purpose:

An extension of the unrestricted flight duty time for pilots of 13 hours (between two rest periods) may be granted by the competent authority in accordance with Paragraph 14, of the 1st Implementation Order to the German Aircraft Operations Order (1. DV LuftBO) if the flight is going to be conducted by an augmented flight crew and an „adequate **sleeping** facility in a compartment separated from the cockpit and from the cabin“ or an other equivalent accommodation is provided.

This document contains criteria for the design and installation of a flight crew sleeping quarter acceptable to the LBA to show compliance with the requirement referred to above.

2. Definition:

Rest facility means a bunk, seat, room, or other accommodation that provides a crew member with a sleep opportunity for an off-duty flight crew member who is going to have flight deck duty before the flight is completed.

1. “Class 1 rest facility” means a bunk or other surface that allows for a flat sleeping position and is located separately from both the flight deck and the passengers cabin in an area that is temperature controlled, allows the crew member to control light, and provides isolation from noise and disturbance;

2. “Class 2 rest facility” means a seat in an aircraft cabin that allows for a flat or near flat sleeping position, which is separated from passengers at least by a curtain to provide darkness and some sound mitigation, and is reasonably free from disturbance by passengers or crew members, and is not adjacent to any seat occupied by passengers;

3. "Class 3 rest facility" means a seat in an aircraft cabin or flight deck that reclines at least 45 degrees, provides leg and foot support and is separated from passengers by at least a curtain to provide darkness and some sound mitigation, and is not adjacent to any seat occupied by passengers.

For the design requirements of a "Class 1 rest facility" refer to Annex I. For Rest Facilities other than a "Class 1 rest facility" refer to Annex II.

3. Extension of FDP due to in-flight rest

3.1 The extended FDP is limited to 3 sectors.

3.2 The minimum in-flight rest period shall be a consecutive 90-minute period for each crew member and two consecutive hours for those crew members at control during landing.

3.3 The maximum FDP may be extended:

With one additional flight crew member:

- (i) up to 14 hours with class 3 rest facilities;
- (ii) up to 15 hours with class 2 rest facilities;
- (iii) up to 16 hours with class 1 rest facilities;

3.2. If the FDP is limited to 2 sectors, where 1 sector shall be over 9 hours continuous flight time, the maximum daily FDP may be extended due to in-flight rest for flight crew:

- (i) up to 15 hours with class 3 rest facilities;
- (ii) up to 16 hours with class 2 rest facilities;
- (iii) up to 17 hours with class 1 rest facilities;
- (iv) up to 18 hours with class 1 rest facilities, if a bunk is installed;

3.3. The cruise phase of the flight above FL 200 shall be used to maximise the in-flight rest period of those crew members at control during landing.

3.5. The whole period of time spent in the rest facility shall be counted as FDP.

3.6. The minimum rest at destination shall be at least as long as the preceding duty period, or 14 hours, whichever is the greater.

3.7. All flight crew members shall commence their FDP at the same reporting place if they are part of an augmented crew. No single crew member may start a positioning sector to then augment a crew on the same flight.

Annex I

1. Design, Equipment and Installation of a “Class 1 rest facility”:

1.1 Sleeping space volume:

Adequate volume must be provided for sleeping. The recommended sleeping space volume per individual is 1.0 m³ (35 feet³). In addition, there should be free space to change and stow clothing inside the sleeping quarter, unless the sleeping quarter is located in an area separated from other compartments occupied by crew or passengers.

1.2 Sleeping quarter location and environment:

The sleeping quarter must be separated from other occupied areas and should be well protected from noise by panels, dividers and/or acoustic insulation curtains. Airflow and temperature control should provide a uniformly well-ventilated atmosphere. The area should especially be free from draughts and cold spots and should be comfortable with respect to darkness, temperature and humidity. The sleeping quarter should be located where vibrations and odours are kept to a minimum.

1.3 Stowage and restraint provisions:

There should be stowage and restraint provisions inside or adjacent to the sleeping quarter to prevent personal belongings of the occupant (flight bags, clothing, shoes etc.) from becoming a hazard during turbulences.

1.4 Flammability:

If foam material is used for the mattress of the berth, the mattress must comply with the test criteria for seat cushions as specified in CS 25, Appendix F, Part II. With respect to heat release and smoke density (of the outer surfaces) of the panels being part of the sleeping quarter, the requirements of CS 25, Appendix F, Parts IV & V must be complied with on large aeroplanes having a Maximum Approved Passenger Seating Configuration (MAPSC) of more than 19.

1.5 Isolation:

The noise level in the sleeping quarter shall be kept to a minimum. The spectrum of the sound within this area should be limited to broadband without annoying tones. Special attention should be given to the doors, passenger convenience systems, public address systems, etc., in the surrounding area to minimize intrusive noise. A noise level during cruise flight in the range of 70 to 75 dB (A) is considered a reasonable design objective.

1.6 Emergency Lighting:

An emergency lighting independent of the main lighting system which automatically provides sufficient illumination to readily identify the exit of the sleeping quarter in an emergency should be installed.

1.7 Oxygen System and Equipment:

There must be an oxygen dispensing unit connected to an oxygen supply system. The dispensing unit must provide the supplemental oxygen flow required in the airworthiness code for cabin occupants and must be automatically presented to the lying and restrained occupant before the cabin pressure altitude exceeds 15,000 ft.

For the purpose of supplemental oxygen supply, flight crew compartment seat occupants who are:

- (1) supplied with oxygen from the flight crew source of oxygen should be considered as flight crew members; and
- (2) not supplied with oxygen by the flight crew source of oxygen should be considered as passengers.

Cabin crew members in addition to the minimum number of cabin crew and additional crew members should be considered as passengers for the purpose of supplemental oxygen supply.

1.8 Alarm system and communication means:

There should be an aural emergency alarm system suitable to awaken any deeply sleeping occupant of the flight crew sleeping quarter in case of an emergency, such as an in-flight fire, hijacking, aircraft depressurization, etc.. The emergency alarm system should be readily accessible for manual activation from each of the required flight crew member stations in the flight crew compartment.

There must be an automatic activation of the aural warning system in case of a decompression before the cabin pressure altitude exceeds 15,000 ft. The warning must continue until the warning horn is being deactivated by the occupant of the sleeping quarter.

A means of two-way communication between the sleeping quarter occupant and the flight crew members on duty is recommended. (This communication means may become part of the crew member interphone system referred to in CAT.IDE.A.170.)

1.9 Restraints:

An approved occupant restraint system must be provided for the occupant of the sleeping surface.

1.10 Fasten seat belt sign:

A sign should be provided that notifies when the seat belt shall be fastened. The sign must be operable by a member of the flight crew from the flight crew compartment. When illuminated, the sign must be legible under all probable conditions of cabin illumination to the occupant of the sleeping quarter while resting on the sleeping surface.

1.11 No smoking placard:

Smoking is to be prohibited in the sleeping quarter. A placard so stating must be located so that it is legible to the occupant resting on the sleeping surface. In addition, there must be a „no smoking“ placard conspicuously located adjacent to the entry side of the sleeping quarter. Symbols that clearly express the intent of the placard may be used in lieu of letters.

1.12 Hand-fire extinguisher:

At least one approved hand-fire extinguisher must be located readily accessible for use in the sleeping quarter.

1.13 Protective breathing equipment:

Approved portable protective breathing equipment must be provided for use by the sleeping quarter occupant. The PBE should be stowed outside but adjacent to the entrance to the sleeping quarter. The equipment must provide breathable gas for 15 minutes of duration and must protect the eyes, nose and mouth of the crew member from smoke, carbon dioxide, and other harmful gases while combating a fire in the sleeping area. If a portable PBE required either by airworthiness or by operating rules is located near to the sleeping quarter, no additional protective breathing equipment is required because of the installation of the sleeping quarter.

1.14 Electric torch:

An electric torch readily accessible to the occupant of the sleeping quarter must be provided to meet the intent of CAT.IDE.A.115.

Annex II

2. **Design, Equipment and Installation of the rest facilities other than a “Class 1 rest facility”:**

2.1 Requirements for a Class II seat:

Class II rest facility means a seat in an aircraft cabin that reclines at least 45° back angle to the vertical, has at least a pitch of 55 inches (137,5 cm), a seat width of at least 20 inches (50 cm) and provides leg and foot support. It is separated from passengers by at least a curtain to provide darkness and some sound mitigation, and is reasonably free from disturbance by passengers or crew members. Examples are so-called “Lie-Flat” seats, or “Flat Bed” seats.

Under no circumstances may the common group of seats be shared by any crew member and a passenger.

2.2 Requirements for a Class III seat:

Class III rest facility means a seat in an aircraft cabin or flight crew compartment that reclines at least 40° from the vertical, provides leg and foot support and is separated from passengers by at least a curtain to provide darkness and some sound mitigation, and is not adjacent to any seat occupied by passengers.

2.3 Sleeping seat location and environment:

The sleeping quarter must be separated from other occupied cabin seats and should be well protected from noise as far as possible by dividers and/or acoustic insulation curtains. For safety reasons it should be the first row. There should be no galley or toilet adjacent to these seats.

2.4 Stowage and restraint provisions:

There shall be stowage and restraint provisions inside or adjacent to the seat to prevent personal belongings of the occupant from becoming a hazard during turbulences. Normally the overhead bin should be free to be used by the occupant.

2.5 Flammability:

The seat has to fulfil all certification specifications for aircraft interior.

2.6 Insulation:

The noise level in an around the sleeping quarter shall be kept to a minimum. Special attention should be given to the doors, passenger convenience systems, public address systems, etc. in the surrounding area to minimize intrusive noise.

2.7 Oxygen System and Equipment:

There must be an oxygen dispensing unit connected to an oxygen supply system. The dispensing unit must provide the supplemental oxygen flow required in the airworthiness code for cabin occupants and must be automatically presented to the occupant before the cabin pressure altitude exceeds 15,000 ft.

For the purpose of supplemental oxygen supply, flight crew compartment seat occupants who are:

- (1) supplied with oxygen from the flight crew source of oxygen should be considered as flight crew members; and
- (2) not supplied with oxygen by the flight crew source of oxygen should be considered as passengers.

Cabin crew members in addition to the minimum number of cabin crew and additional crew members should be considered as passengers for the purpose of supplemental oxygen supply.

2.8 Alarm system and communication means:

There should be an aural emergency alarm system procedure to awake any deeply sleeping occupant of the flight crew in case of an emergency.

2.9 Restraints:

An approved occupant restraint system must be provided.

2.10 Fasten seat belt sign:

A sign shall be provided that notifies the occupant in case the seat belt has to be fastened.

2.11 No smoking placard:

Smoking is prohibited in the sleeping quarter. A placard so stating must be located so that it is legible to the occupant.

2.12 Hand-fire extinguisher:

At least one approved hand-fire extinguisher must be located readily accessible for use near the sleeping seat inside the cabin.

2.13 Protective breathing equipment:

Approved portable protective breathing equipment must be provided for use of the sleeping quarter occupant. The PBE should be stowed adjacent to the entrance to the sleeping quarter. The equipment must provide breathable gas for 15 minutes of duration and must protect the eyes, nose and mouth of the crew member from smoke, carbon dioxide, and other harmful gases.

2.14 Electric torch:

An electric torch readily accessible to the occupant of the sleeping quarter must be provided to meet the intent of CAT.IDE.A.115.