[4910-13]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No. FAA-2013-0374; Special Conditions No. 25-488-SC]

Special Conditions: Airbus, Model A340-600 Series Airplanes; Lower Deck Crew Rest Compartments.

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final special condition; request for comments.

SUMMARY: These special conditions are issued for the Airbus Model A340 series airplanes. These airplanes, as modified by Flight Structures, Inc., will have a novel or unusual design feature associated with the installation of lower deck crew rest (LDCR) compartments. The LDCR compartment is novel in terms of part 25 in that it will be located under the passenger cabin floor in the aft cargo compartment of Airbus Model A340-200 series airplanes. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for this design feature. These special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

DATES: The effective date of these special conditions is April 29, 2013. We must receive your comments by [insert a date 45 days after date of publication in the *Federal Register*].

ADDRESSES: Send comments identified by docket number FAA-2013-0374 using any of the following methods:

- Federal eRegulations Portal: Go to http://www.regulations.gov/ and follow the online instructions for sending your comments electronically.

Mail: Send comments to Docket Operations, M-30, U.S. Department of Transportation (DOT), 1200 New Jersey Avenue, SE, Room W12-140, West Building Ground Floor, Washington, D.C., 20590-0001.

Hand Delivery or Courier: Take comments to Docket Operations in Room W12-140 of the West Building Ground Floor at 1200 New Jersey Avenue, SE, Washington, D.C., between 8 a.m. and 5 p.m., Monday through Friday, except federal holidays.

Fax: Fax comments to Docket Operations at 202-493-2251.

Privacy: The FAA will post all comments it receives, without change, to http://www.regulations.gov/, including any personal information the commenter provides. Using the search function of the docket web site, anyone can find and read the electronic form of all comments received into any FAA docket, including the name of the individual sending the comment (or signing the comment for an association, business, labor union, etc.). DOT's complete Privacy Act Statement can be found in the *Federal Register* published on April 11, 2000 (65 FR 19477–19478), as well as at http://DocketsInfo.dot.gov/.

Docket: Background documents or comments received may be read at http://www.regulations.gov/ at any time. Follow the online instructions for accessing the docket or go to the Docket Operations in Room W12-140 of the West Building Ground Floor at 1200 New Jersey Avenue, SE, Washington, D.C., between 9 a.m. and 5 p.m., Monday through Friday, except federal holidays.

FOR FURTHER INFORMATION CONTACT: Alan Sinclair, FAA, Airframe and Cabin Safety Branch, ANM-115, Transport Airplane Directorate, Aircraft Certification Service, 1601 Lind Avenue SW, Renton, Washington 98057-3356; telephone 425-227-2194; facsimile 425-227-1149.

SUPPLEMENTARY INFORMATION:

The FAA has determined that notice of, and opportunity for prior public comment on, these special conditions are impracticable because these procedures would significantly delay issuance of the design approval and thus delivery of the affected aircraft. In addition, the substance of these special conditions has been subject to the public comment process in several prior instances with no substantive comments received.

Comments Invited

We invite interested people to take part in this rulemaking by sending written comments, data, or views. The most helpful comments reference a specific portion of the special conditions, explain the reason for any recommended change, and include supporting data. We will consider all comments we receive by the closing date for comments. We may change these special conditions based on the comments we receive.

Background

On July 21, 2011, Flight Structures, Inc., applied for a supplemental type certificate to install a lower deck crew rest (LDCR) compartment in Airbus Model A340-600 series airplanes. The LDCR is located under the passenger cabin floor of Airbus Model A340-600 series airplanes and installed in the aft portion of the airplane. Occupancy for the LDCR compartment is limited to a maximum of seven (7) occupants. There are seven approved berths able to withstand the

maximum flight loads when the LDCR compartment is at maximum capacity. The LDCR will only be occupied in flight, i.e., not during taxi, takeoff or landing. A smoke detection system, manual fire-fighting system, oxygen system and occupant amenities are provided. Additionally, a sink and vanity are located just inside the main access door.

Main access to the LDCR compartment is gained via the fixed staircase just outside of the LDCR access door. Secondary emergency egress uses an existing emergency escape hatch which is located above the aft left-hand bunk to provide access to the main deck. See Figure 1.

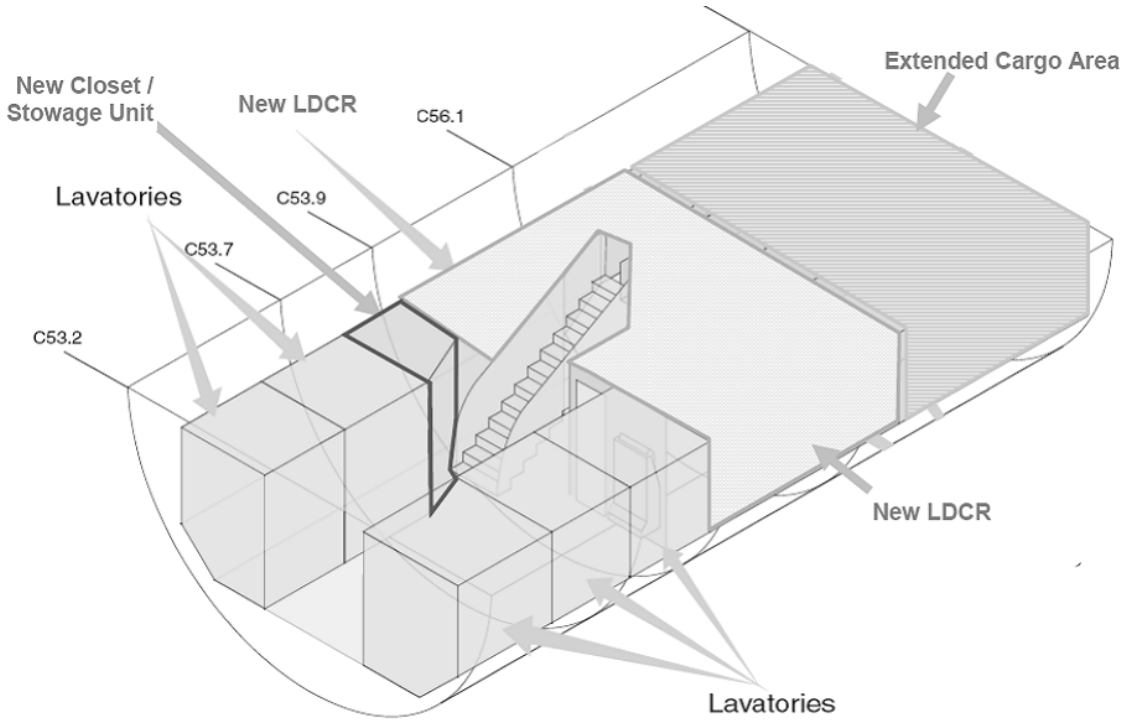

Figure 1: Diagram of Lower Deck Crew Rest Compartment

Type Certification Basis

Under the provisions of § 21.101, Flight Structures, Inc., must show that the Airbus Model A340-600 series airplanes, as changed, continue to meet the applicable provisions of the regulations incorporated by reference in Type Certificate No. A43NM or the applicable

regulations in effect on the date of application for the change. The regulations incorporated by reference in the type certificate are commonly referred to as the "original type certification basis." The regulations incorporated by reference in A43NM are as follows: 14 CFR part 25, as amended by Amendments 25-1 through 25-63; certain regulations at later Amendments 25-65, 25-66, and 25-77; and Amendment 25-64 with exceptions. Refer to Type Certificate Data Sheet A43NM, as applicable, for a complete description of the certification basis for these models, including certain special conditions that are not relevant to these proposed special conditions.

If the Administrator finds that the applicable airworthiness regulations (i.e., 14 CFR part 25) do not contain adequate or appropriate safety standards for the Airbus Model A340-600 series airplanes because of a novel or unusual design feature, special conditions are prescribed under the provisions of § 21.16.

Special conditions are initially applicable to the model for which they are issued. Should the applicant apply for a supplemental type certificate to modify any other model included on the same type certificate to incorporate the same novel or unusual design feature, the special conditions would also apply to the other model.

In addition to the applicable airworthiness regulations and special conditions, the Airbus Model A340-600 series airplanes must comply with the fuel vent and exhaust emission requirements of 14 CFR part 34 and the noise certification requirements of 14 CFR part 36.

The FAA issues special conditions, as defined in 14 CFR 11.19, in accordance with § 11.38, and they become part of the type-certification basis under § 21.101.

Novel or Unusual Design Features

The Airbus Model A340-600 series airplanes will incorporate the following novel or unusual design features: LDCR compartments.

While the installation of LDCR compartments is not a new concept for large transport category airplanes, each compartment design has unique features by virtue of its design, location, and use on the airplane. Crew rest compartments have been previously installed and certificated on several Airbus airplane models (as well as those of other manufacturers) in locations as varied as in the main passenger seating area, in the overhead space above the main passenger cabin seating area, and below the passenger cabin seating area within the cargo compartment. The modification is evaluated with respect to the interior and assessed in accordance with the certification basis of the airplane. However, part 25 does not provide all of the requirements necessary for safety in crew rest compartments. The LDCR compartment is novel in terms of part 25 in that it will be located under the passenger cabin floor in the aft cargo compartment of Airbus Model A340-200 series airplanes. Further, these special conditions do not negate the need to address other applicable part 25 regulations.

Due to the novel or unusual features associated with the installation of this LDCR compartment, special conditions are considered necessary to provide a level of safety equal to that established by the airworthiness regulations incorporated by reference in the type certificate.

Operational Evaluations and Approval

These special conditions outline requirements for LDCR compartment design approvals (e.g., type design change or supplemental type certificate) administered by the FAA's Aircraft Certification Service. Prior to operational use of an LDCR compartment on U.S.-registered

aircraft, the FAA's Flight Standards Service must evaluate and approve the "basic suitability" of the LDCR compartment for crew occupation. Additionally, if an operator wishes to use an LDCR compartment as sleeping quarters, the crew rest compartment must undergo an additional evaluation and approval (Reference §§ 121.485(a), 121.523(b), and 135.269(b)(5)). Compliance with these special conditions does not ensure that the applicant has demonstrated compliance with the requirements of part 121 or part 135.

To obtain an operational evaluation, the type design holder must contact the Aircraft Evaluation Group (AEG) in the Flight Standards Service and request a basic suitability evaluation or a sleeping quarters evaluation of their crew rest compartments. The results of these evaluations should be documented in the Flight Standardization Board Report Appendix. Individual operators may reference these standardized evaluations in discussions with their FAA Principal Operating Inspector as the basis for an operational approval, in lieu of an on-site operational evaluation.

Any changes to the approved LDCR compartment configuration that affect crew member emergency egress or any other procedures affecting the safety of the occupying crew members and/or related training shall require a re-evaluation and approval. The applicant for a crew rest design change that affects egress, safety procedures, or training is responsible for notifying the FAA's AEG that a new crew rest evaluation is required.

Procedures must be developed to assure that a crew member entering the LDCR compartment through the vestibule to fight a fire will examine the vestibule and the lavatory areas for the source of the fire prior to entering the remaining areas of the crew rest compartment. These procedures are intended to ensure that the source of the fire is not between

the crew member and the primary exit. In the event a fire source is not immediately self-evident to the firefighter, the firefighter should check for potential fire sources at areas closest to the primary exit first, then proceed to check areas in such a manner that the fire source, when found, would not be between the firefighter and the primary exit. Procedures describing methods to search the LDCRs for fire source(s) must be transmitted to the operator for incorporation into their training programs and appropriate operational manuals.

Discussion

The FAA formulated the special conditions for the LDCR compartment from previous requirements established for various airplanes. These special conditions along with the original type certification basis provide the regulatory requirements necessary for certification of this modification. Other special conditions may be developed, as needed, based on further FAA review and discussions with the applicant, manufacturer, and civil aviation authorities.

Compliance with these proposed special conditions does not relieve the applicant from the existing airplane certification basis requirements. One particular area of concern is the smaller compartment volume created in the lower deck area of the airplane as a result of the crew rest installation. The applicant must comply with the requirements of §§ 25.365(e), (f), and (g) for each of these compartments, including the crew rest compartment, as well as any other airplane compartments whose decompression characteristics are affected by the installation of the crew rest compartment. Please note that compliance with § 25.831 must also be demonstrated for all phases of flight where occupants will be present.

The applicant should note that the FAA considers crew rest compartment smoke or fire detection and fire suppression systems (including airflow management features which prevent

hazardous quantities of smoke or fire extinguishing agent from entering any other compartment occupied by crew members or passengers) complex in terms of paragraph 6d of Advisory Circular (AC) 25.1309-1A, *System Design and Analysis,* dated June 21, 1988. In addition, the FAA considers failure of the crew rest compartment fire protection system (i.e., smoke or fire detection and fire suppression systems) in conjunction with a crew rest fire to be a catastrophic event. Based on the "Depth of Analysis Flowchart" shown in Figure 2 of AC 25.1309-1A, the depth of analysis should include both qualitative and quantitative assessments (reference paragraphs 8d, 9, and 10 of AC 25.1309-1A). In addition, it should be noted that flammable fluids, explosives, or other dangerous cargo are prohibited from being carried in the crew rest areas.

The requirements to enable crew member(s) quick entry to the crew rest compartment and to locate a fire source inherently places limits on the amount of baggage that may be carried and the size of the crew rest area. The FAA considers that the crew rest area must be limited to the stowage of crew personal luggage and must not be used for the stowage of cargo or passenger baggage. The design of such a system to include cargo or passenger baggage would require additional requirements to ensure safe operation.

The addition of galley equipment or a kitchenette incorporating a heat source (e.g., cook tops, microwaves, coffee pots, etc.) other than a conventional lavatory or kitchenette hot water heater within the LDCR compartment may require further special conditions to be considered. A hot water heater is acceptable without further special conditions consideration.

For the reasons discussed above, these special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

Applicability

As discussed above, these special conditions are applicable to the Airbus Model A340-600 series airplanes. Should Flight Structures, Inc., apply at a later date for a supplemental type certificate to modify any other model included on Type Certificate No. A43NM to incorporate the same novel or unusual design feature, the special conditions would apply to that model as well.

Conclusion

This action affects only certain novel or unusual design features on one model series of airplanes. It is not a rule of general applicability and affects only the applicant who applied to the FAA for approval of these features on the airplane.

The substance of these special conditions has been subjected to the notice and comment period in several prior instances and has been derived without substantive change from those previously issued. It is unlikely that prior public comment would result in a significant change from the substance contained herein. Therefore, the FAA has determined that prior public notice and comment are unnecessary and impracticable, and good cause exists for adopting these special conditions upon issuance. The FAA is requesting comments to allow interested persons to submit views that may not have been submitted in response to the prior opportunities for comment described above.

List of Subjects in 14 CFR Part 25

Aircraft, Aviation safety, Reporting and recordkeeping requirements.

The authority citation for these special conditions is as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701, 44702, 44704.

The Special Conditions

Accordingly, pursuant to the authority delegated to me by the Administrator, the following special conditions are issued as part of the type certification basis for Airbus Model A340-600 series airplanes modified by Flight Structures, Inc.

1. Occupancy of the lower deck crew rest (LDCR) compartment is limited to the total number of installed bunks and seats in that compartment. There must be an approved seat or berth able to withstand the maximum flight loads when occupied for each occupant permitted in the LDCR compartment. The maximum occupancy is seven in the LDCR compartment.

(a) Appropriate placards must be located inside and outside each entrance to the LDCR compartment to indicate:

(1) The maximum number of occupants allowed,

(2) That occupancy is restricted to crew members who are trained in the evacuation procedures for the LDCR compartment,

(3) That occupancy is prohibited during taxi, take-off, and landing,

(4) That smoking is prohibited in the LDCR compartment, and

(5) That stowage in the crew rest compartment area is limited to crew personal luggage. The stowage of cargo or passenger baggage is not allowed.

(b) At least one ashtray must be on the inside and outside of any entrance to the LDCR compartment.

(c) There must be a means to prevent passengers from entering the LDCR compartment in the event of an emergency or when no flight attendant is present.

(d) There must be a means for any door installed between the LDCR compartment and passenger cabin to be capable of being quickly opened from inside the compartment, even when crowding occurs at each side of the door.

(e) For all doors installed, there must be a means to preclude anyone from being trapped inside the LDCR compartment. If a locking mechanism is installed, it must be capable of being unlocked from the outside without the aid of special tools. The lock must not prevent opening from the inside of the compartment at any time.

(f) The means of opening doors and hatches to the LDCR compartment must be simple and obvious. In addition, doors or hatches that separate the LDCR compartment from the main deck must not adversely affect evacuation of occupants on the main deck (e.g., slowing evacuation by encroaching into aisles) or cause injury to those occupants during opening or while opened.

2. There must be at least two emergency evacuation routes, which could be used by each occupant of the LDCR compartment to rapidly evacuate to the main cabin. These evacuation routes must be able to be closed from the main passenger cabin after evacuation. In addition—

(a) The routes must be located with sufficient separation within the LDCR compartment to minimize the possibility of an event either inside or outside of the crew rest compartment rendering both routes inoperative.

(b) Compliance to the requirements of Special Condition No. 2(a) may be shown by inspection or by analysis. Regardless which method is used, the maximum acceptable exit separation is 60 feet measured between exit openings.

3. Compliance by Inspection. A LDCR compartment in which the evacuation routes are located such that each occupant of the seats and berths has an unobstructed route to at least one of the evacuation routes regardless of the location of a fire would be acceptable by inspection. A fire within a berth that only blocks the occupant of that berth from exiting the berth need not be considered. Therefore, exits which are located at absolute opposite ends (i.e., adjacent to opposite end walls) of the crew rest would require no further review or analysis with regard to exit separation.

4. Compliance by Analysis.

(a) Analysis must show the LDCR compartment configuration and interior features provide for all occupants of the LDCR compartment to escape the compartment in the event of a hazard inside or outside of the compartment. Elements to consider in this evaluation are as follows:

(1) Fire inside or outside the LDCR compartment considered separately and the design elements used to reduce the available fuel for the fire,

(2) Design elements to reduce the fire ignition sources in the LDCR compartment,

(3) Distribution and quantity of emergency equipment within the LDCR compartment,

(4) Structural failure or deformation of components that could block access to the available evacuation routes (e.g., seats, folding berths, contents of stowage compartments, etc.),

(5) An incapacitated person blocking the evacuation routes, and

(6) Any other foreseeable hazard not identified above that could cause the evacuation routes to be compromised.

(b) Analysis must consider design features affecting access to the evacuation routes. The design features that should be considered include but are not limited to seat-back break-over, the elimination of rigid structure that reduces access from one part of the compartment to another, the elimination of items that are known to be the cause of potential hazards, the availability of emergency equipment to address fire hazards, the availability of communications equipment, supplemental restraint devices to retain items of mass that could hinder evacuation if broken loose and load path isolation between components that contain the evacuation routes.

(c) Analysis of the fire threats should be used in determining the placement of required fire extinguishers and protective breathing equipment (PBE) and should take into consideration the possibility of fire in any location in the LDCR compartment. The location and quantity of PBE and fire extinguishers should allow occupants located in any approved seats or berths access to the equipment necessary to fight a fire in the LDCR compartment.

(d) The intent of this special condition is to provide sufficient exit separation, therefore the exit separation analysis described above should not be used to approve exits which have less physical separation (measured between the centroid of each exit opening) than the minimums

prescribed below, unless compensating features are identified and submitted to the FAA for evaluation and approval.

(e) For LDCR compartments with one exit located near the forward or aft end of an LDCR compartment (as measured by having the centroid of the exit opening within 20 percent of the forward or aft end of the total LDCR compartment length) the exit separation should not be less than 50 percent of the total LDCR compartment length.

(f) For LDCR compartments with neither required exit located near the forward or aft end of the LDCR compartment (as measured by not having the centroid of either exit opening within 20 percent of the forward or aft end of the total LDCR compartment length) the exit separation should not be less than 30 percent of the total LDCR compartment length.

(1) The routes must be designed to minimize the possibility of blockage, which might result from fire, mechanical or structural failure, or persons standing below or against the escape route. One of the two evacuation routes should not be located where, during times in which occupancy is allowed, normal movement by passengers occurs (i.e., main aisle, cross aisle or galley complex) that would impede egress from the LDCR compartment. If an evacuation route utilizes an area where normal movement of passengers occurs, it must be demonstrated that passengers would not impede egress to the main deck. If there is low headroom at or near the evacuation route, provisions must be made to prevent or to protect occupants (of the LDCR compartment) from head injury. The use of evacuation routes must not be dependent on any powered device. If a hatch is installed in an evacuation route, the point at which the evacuation route terminates in the passenger cabin should not be located where normal movement by passengers or crew occurs (main aisle, cross aisle, passageway or galley complex). If such a

location cannot be avoided, special consideration must be taken to ensure that the hatch or door can be opened when a person, the weight of a ninety-fifth percentile male, is standing on the hatch or door.

(2) Emergency evacuation procedures, including the emergency evacuation of an incapacitated occupant from the LDCR compartment, must be established. The applicant must transmit all of these procedures to the operator for incorporation into its training programs and appropriate operational manuals.

(3) There must be a limitation in the Airplane Flight Manual or other suitable means requiring that crew members be trained in the use of evacuation routes.

5. There must be a means for the evacuation of an incapacitated person (representative of a ninety-fifth percentile male) from the LDCR compartment to the passenger cabin floor.

(a) The evacuation must be demonstrated for all evacuation routes. A crew member (a total of one assistant within the LDCR compartment) may provide assistance in the evacuation. Additional assistance may be provided by up to three persons in the main passenger compartment. These additional assistants must be standing on the floor while providing assistance.

(b) For evacuation routes having stairways, the additional assistants may ascend up to one half the elevation change from the main deck to the LDCR compartment, or to the first landing, whichever is lower.

6. The following signs and placards must be provided in the LDCR compartment:

(a) At least one exit sign meeting the requirements of § 25.812(b)(1)(i) must be located near each exit. One allowable exception is utilization of a sign with reduced background area of

no less than 5.3 square inches (excluding the letters), provided that it is installed such that the material surrounding the exit sign is light in color (e.g., white, cream, light beige). If the material surrounding the exit sign is not light in color, a sign with a minimum of a one-inch wide background border around the letters would also be acceptable. Another allowable exception is a sign with a symbol that the FAA has determined to be equivalent for use as an exit sign in an LDCR compartment.

(b) An appropriate placard located near each exit defining the location and the operating instructions for each evacuation route.

(c) Placards must be readable from a distance of 30 inches under emergency lighting conditions.

(d) The exit handles and evacuation path operating instruction placards must be illuminated to at least 160 microlamberts under emergency lighting conditions.

7. There must be a means in the event of failure of the aircraft's main power system, or of the normal LDCR compartment lighting system, for emergency illumination to be automatically provided for the LDCR compartment.

(a) This emergency illumination must be independent of the main lighting system.

(b) The sources of general cabin illumination may be common to both the emergency and the main lighting systems if the power supply to the emergency lighting system is independent of the power supply to the main lighting system.

(c) The illumination level must be sufficient for the occupants of the LDCR compartment to locate and move to the main passenger cabin floor by means of each evacuation route.

(d) The illumination level must be sufficient, with the privacy curtains in the closed position, for each occupant of the crew rest compartment to locate a deployed oxygen mask.

8. There must be means for two-way voice communications between crew members on the flight deck and occupants of the LDCR compartment. There must also be two-way communications between the occupants of the LDCR compartment and each flight attendant station in the passenger cabin required to have a public address system microphone per § 25.1423(g). In addition, the public address system must include provisions to provide only the relevant information to the flight crew members in the LDCR compartment (e.g., fire in flight, aircraft depressurization, preparation of the compartment occupants for landing, etc.).

9. There must be a means for manual activation of an aural emergency alarm system, audible during normal and emergency conditions, to enable crew members on the flight deck and at each pair of required floor level emergency exits to alert occupants of the LDCR compartment of an emergency situation. Use of a public address or crew interphone system will be acceptable, provided an adequate means of differentiating between normal and emergency communications is incorporated. The system must be powered in flight, after the shutdown or failure of all engines and auxiliary power units, for a period of at least ten minutes.

10. There must be a means, readily detectable by seated or standing occupants of the LDCR compartment to indicate when seat belts should be fastened. In the event there are no seats, at least one means must be provided to cover anticipated turbulence (e.g., sufficient handholds). Seat-belt-type restraints must be provided for berths and must be compatible for the sleeping attitude during cruise conditions. There must be a placard on each berth requiring that seat belts must be fastened when occupied. If compliance with any of the other requirements of these

special conditions is predicated on specific head location, there must be a placard identifying the head position.

11. In lieu of the requirements specified in § 25.1439(a) that pertain to isolated compartments and to provide a level of safety equivalent to that which is provided occupants of an isolated galley, all of the following equipment must be provided in the LDCR compartment:

(a) At least one approved hand-held fire extinguisher appropriate for the kinds of fires likely to occur.

(b) Two PBE devices suitable for firefighting or one PBE for each hand-held fire extinguisher, whichever is greater. All PBE devices must approved to Technical Standard Order (TSO)-C116 or equivalent.

(c) One flashlight.

Note: Additional PBE and fire extinguishers in specific locations, beyond the minimum numbers prescribed in Special Condition No. 11 may be required as a result of the egress analysis accomplished to satisfy Special Condition No. 2(a).

12. A smoke or fire detection system (or systems) must be provided that monitors each occupiable area within the LDCR compartment, including those areas partitioned by curtains. Flight tests must be conducted to show compliance with this requirement. Each system (or systems) must provide:

(a) A visual indication to the flightdeck within one minute after the start of a fire;

(b) An aural warning in the LDCR compartment; and

(c) A warning in the main passenger cabin. This warning must be readily detectable by a flight attendant, taking into consideration the positioning of flight attendants throughout the main passenger compartment during various phases of flight.

13. The LDCR compartment must be designed such that fires within the compartment can be controlled without a crew member having to enter the compartment, or the design of the access provisions must allow crew members equipped for firefighting to have unrestricted access to the compartment. The time for a crew member on the main deck to react to the fire alarm, to don the firefighting equipment, and to gain access must not exceed the time for the compartment to become smoke-filled, making it difficult to locate the fire source. Procedures describing methods to search the LDCR compartments for fire sources(s) must be established. The applicant must transmit these procedures to the operator for incorporation into their training programs and appropriate operational manuals.

14. Fire and Smoke Extinguishing Equipment

(a) A means must be provided to prevent hazardous quantities of smoke or extinguishing agent originating in the LDCR compartment from entering any other compartment occupied by crew members or passengers. This means must include the time periods during the evacuation of the LDCR compartment and, if applicable, when accessing the LDCR compartment to manually fight a fire. Smoke entering any other compartment occupied by crew members or passengers when the access to the LDCR compartment is opened, during an emergency evacuation, must dissipate within five minutes after the access to the LDCR compartment is closed. Hazardous quantities of smoke may not enter any other compartment occupied by crew members or passengers during subsequent access to manually fight a fire in the LDCR compartment (the

amount of smoke entrained by a firefighter exiting the LDCR compartment through the access is not considered hazardous). During the one-minute smoke detection time, penetration of a small quantity of smoke from the LDCR compartment into an occupied area is acceptable. Flight tests must be conducted to show compliance with this requirement.

(b) There must be a provision in the firefighting procedures to ensure that all door(s) and hatch(es) at the crew rest compartment outlets are closed after evacuation of the crew rest compartment and during firefighting to minimize smoke and extinguishing agent from entering other occupiable compartments.

(c) If a built-in fire extinguishing system is used in lieu of manual firefighting, then the fire extinguishing system must be designed so that no hazardous quantities of extinguishing agent will enter other compartments occupied by passengers or crew. The system must have adequate capacity to suppress any fire occurring in the LDCR compartment, considering the fire threat, volume of the compartment and the ventilation rate.

15. There must be a supplemental oxygen system within the crew rest compartment that provides the following:

(a) At least one mask for each seat and berth in the crew rest compartment.

(b) If a destination area (such as a changing area) is provided in the LDCR compartment, an oxygen mask must be readily available for each occupant that can reasonably be expected to be in the destination area (with the maximum number of required masks within the destination area being limited to the placarded maximum occupancy of the crew rest).

(c) An oxygen mask must be readily accessible to each occupant who can reasonably be expected to be moving from the main cabin into the crew rest compartment, moving around within the crew rest compartment, or moving from the crew rest compartment to the main cabin.

(d) The system must provide an aural and visual alert to warn the occupants of the LDCR compartment to don oxygen masks in the event of decompression. The aural and visual alerts must activate concurrently with the deployment of the oxygen masks in the passenger cabin. To compensate for sleeping occupants, the aural alert must be heard in each section of the LDCR compartment and must sound continuously for a minimum of five minutes or until a reset switch within the LDCR compartment is activated. A visual alert that informs occupants that they must don an oxygen mask must be visible in each section.

(e) There must also be a means by which the oxygen masks can be manually deployed from the flight deck.

(f) Procedures for crew rest occupants in the event of decompression must be established. These procedures must be transmitted to the operator for incorporation into its training programs and appropriate operational manuals.

(g) The supplemental oxygen system for the crew rest shall meet the same 14 CFR part 25 regulations as the supplemental oxygen system for the passenger cabin occupants except for the 10 percent additional masks requirement of 14 CFR 25.1447(c)(1).

(h) The illumination level of the normal LDCR compartment lighting system must automatically be sufficient for each occupant of the compartment to locate a deployed oxygen mask.

16. The following requirements apply to LDCR compartments that are divided into several sections by the installation of curtains or partitions:

(a) A placard is required adjacent to each curtain that visually divides or separates, for privacy purposes, the LDCR compartment into small sections. The placard must require that the curtain(s) remains open when the private section it creates is unoccupied. The vestibule section adjacent to the stairway is not considered a private area and, therefore, does not require a placard.

(b) For each section of the LDCR compartment created by the installation of a curtain, the following requirements of these special conditions must be met with the curtain open or closed:

(1) No smoking placard (Special Condition No. 1),

(2) Emergency illumination (Special Condition No. 7),

(3) Emergency alarm system (Special Condition No. 9),

(4) Seat belt fasten signal or return to seat signal as applicable (Special Condition No. 10),

(5) The smoke or fire detection system (Special Condition No. 12), and

(6) The oxygen system (Special Condition No. 15).

(c) Lower deck crew rest compartments visually divided to the extent that evacuation could be affected must have exit signs that direct occupants to the primary stairway exit. The exit signs must be provided in each separate section of the LDCR compartment, except for curtained bunks, and must meet the requirements of § 25.812(b)(1)(i). An exit sign with reduced

background area or a symbolic exit sign as described in Special Condition No. 6(a) may be used to meet this requirement.

(d) For sections within a LDCR compartment that are created by the installation of a rigid partition with a door physically separating the sections, the following requirements of these special conditions must be met with the door open or closed:

(1) There must be a secondary evacuation route from each section to the main deck, or alternatively, the applicant must show that any door between the sections has been designed to preclude anyone from being trapped inside the compartment. Removal of an incapacitated occupant within this area must be considered. A secondary evacuation route from a small room designed for only one occupant for short time duration, such as a changing area or lavatory, is not required. However, removal of an incapacitated occupant within a small room, such as a changing area or lavatory, must be considered.

(2) Any door between the sections must be shown to be openable when crowded against, even when crowding occurs at each side of the door.

(3) There may be no more than one door between any seat or berth and the primary stairway exit.

(4) There must be exit signs in each section meeting the requirements of § 25.812(b)(1)(i), or shown to have an Equivalent Level of Safety, that direct occupants to the primary stairway exit. An exit sign with reduced background area or a symbolic exit sign as described in Special Condition No. 6(a) may be used to meet this requirement.

(e) For each smaller section within the main LDCR compartment created by the installation of a partition with a door, the following requirements of these special conditions must be met with the door open or closed:

(1) No smoking placards (Special Condition No. 1);

(2) Emergency illumination (Special Condition No. 7);

(3) Two-way voice communication (Special Condition No. 8);

(4) Emergency alarm system (Special Condition No. 9);

(5) Seat belt fasten signal or return to seat signal as applicable (Special Condition No. 10);

(6) Emergency firefighting and protective equipment (Special Condition No. 11);

(7) Smoke or fire detection system (Special Condition No. 12), and

(8) The oxygen system (Special Condition No. 15).

17. The requirements of two-way voice communication with the flight deck and provisions for emergency firefighting and protective equipment are not applicable to lavatories or other small areas that are not intended to be occupied for extended periods of time.

18. Where a waste disposal receptacle is fitted, it must be equipped with an automatic fire extinguisher that meets the performance requirements of § 25.854(b).

19. Materials (including finishes or decorative surfaces applied to the materials) must comply with the flammability requirements of § 25.853(a) as amended by Amendment 25-116. Mattresses must comply with the flammability requirements of § 25.853(c), as amended by Amendment 25-116.

20. The addition of a lavatory within the LDCR compartment would require the lavatory to meet the same requirements as those for a lavatory installed on the main deck except with regard to Special Condition No. 12 for smoke detection.

21. Each stowage compartment in the crew rest compartment must be completely enclosed. All enclosed stowage compartments within the LDCR compartment that are not limited to stowage of emergency equipment or airplane supplied equipment (i.e., bedding) must meet the design criteria given in the table below. Enclosed stowage compartments greater than 200 ft^3 in interior volume are not addressed by this special condition. The in flight accessibility of very large enclosed stowage compartments and the subsequent impact on the crew members' ability to effectively reach any part of the compartment with the contents of a hand fire extinguisher will require additional fire protection considerations similar to those required for inaccessible compartments such as Class C cargo compartments.

	STOWAGE COMPARTMENT INTERIOR VOLUMES		
Fire Protection Features	less than 25 cubic feet	25 cubic feet to less than 57 cubic feet	57 cubic feet to 200 cubic feet
Materials of Construction[1]	Yes	Yes	Yes
Detectors[2]	No	Yes	Yes
Liner[3]	No	Yes	Yes
Locating Device[4]	No	Yes	Yes

[1]Material

The material used to construct each enclosed stowage compartment must at least be fire resistant and must meet the flammability standards established for interior components (i.e.,

14 CFR part 25 Appendix F, parts I, IV, and V) per the requirements of § 25.853. For compartments less than 25 ft^3 in interior volume, the design must ensure the ability to contain a fire likely to occur within the compartment under normal use.

[2]Detectors

Enclosed stowage compartments equal to or exceeding 25 ft^3 in interior volume must be provided with a smoke or fire detection system to ensure that a fire can be detected within a one-minute detection time. Flight tests must be conducted to show compliance with this requirement. Each system (or systems) must provide:

(a) A visual indication in the flight deck within one minute after the start of a fire,

(b) An aural warning in the LDCR compartment, and

(c) A warning in the main passenger cabin. This warning must be readily detectable by a flight attendant, taking into consideration the positioning of flight attendants throughout the main passenger compartment during various phases of flight.

[3]Liner

If the material used to construct the stowage compartment can be shown to meet the flammability requirements of a liner for a Class B cargo compartment (i.e., § 25.855 at Amendment 25-116, and Appendix F, part I, paragraph (a)(2)(ii)), then no liner would be required for enclosed stowage compartments equal to or greater than 25 ft^3 in interior volume but less than 57 ft^3 in interior volume. For all enclosed stowage compartments equal to or greater than 57 ft^3 in interior volume but less than or equal to 200 ft^3**,** a liner must be provided that meets the requirements of § 25.855 for a Class B cargo compartment.

[4]Location Detector

Lower deck crew rest compartments which contain enclosed stowage compartments exceeding 25 ft^3 interior volume and which are located away from one central location such as the entry to the LDCR compartment or a common area within the LDCR compartment would require additional fire protection features and/or devices to assist the firefighter in determining the location of a fire.

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/s/

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