

[4910-13]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No. NM440; Special Conditions No. 25-415-SC]

Special Conditions: TTF Aerospace, LLC, Modification to Boeing Model 767-300 Series Airplanes; Pilot Lower Lobe Crew Rest Module

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final special conditions; request for comments.

SUMMARY: These special conditions are issued for the Boeing Model 767-300 series airplane. This airplane, as modified by TTF Aerospace, LLC, will have a novel or unusual design features associated with the pilot lower lobe crew rest module (CRM). 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 January 21, 2011. We must receive your comments by March 14, 2011.

ADDRESSES: You must mail two copies of your comments to: Federal Aviation Administration, Transport Airplane Directorate, Attn: Rules Docket (ANM-113), Docket No. NM440, 1601 Lind Avenue SW., Renton, Washington, 98057-3356. You may deliver two copies to the Transport Airplane Directorate at the above address. You must mark your

comments: Docket No. NM440. You can inspect comments in the Rules Docket weekdays, except Federal holidays, between 7:30 a.m. and 4:00 p.m.

FOR FURTHER INFORMATION CONTACT: John Shelden, FAA, Airframe/Cabin Safety Branch, ANM-115, Transport Airplane Directorate, Aircraft Certification Service, 1601 Lind Avenue SW., Renton, Washington 98057-3356; telephone (425) 227-2785; facsimile (425) 227-1320.

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. The FAA, therefore, finds that good cause exists for making these special conditions effective upon issuance.

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 ask that you send us two copies of written comments.

We will file in the docket all comments we receive, as well as a report summarizing each substantive public contact with FAA personnel about these special conditions. You can inspect the docket before and after the comment closing date. If you wish to review the docket in

person, go to the address in the ADDRESSES section of this preamble between 7:30 a.m. and 4:00 p.m., Monday through Friday, except Federal holidays.

We will consider all comments we receive by the closing date for comments. We will consider comments filed late if it is possible to do so without incurring expense or delay. We may change these special conditions based on the comments we receive.

If you want us to acknowledge receipt of your comments on these special conditions, include with your comments a self-addressed, stamped postcard on which you have written the docket number. We will stamp the date on the postcard and mail it back to you.

Background

On May 27, 2010, TTF Aerospace, LLC (TTF) applied for a supplemental type certificate (STC) for installation of a lower lobe pilot crew rest module (CRM) in Boeing Model 767-300 series airplanes. The CRM will be a one-piece, self-contained unit for installation in the forward portion of the aft cargo compartment. It will be attached to the existing cargo restraint system and will be limited to a maximum of two occupants. An approved seat or berth, able to withstand the maximum flight loads when occupied, will be provided for each occupant permitted in the CRM. The CRM is intended to be occupied only in flight, i.e., not during taxi, takeoff, or landing. A smoke detection system, manual fire fighting system, oxygen system, and occupant amenities will be provided.

Two entry/exits between the main deck area will be required. The floor structure will be modified to provide access for the main entry hatch and emergency-access hatch.

Type Certification Basis

Under the provisions of 14 CFR 21.101, TTF must show that Boeing Model 767-300 series airplanes, with the CRM, continue to meet either:

(1) The applicable provisions of the regulations incorporated by reference in Type Certificate No. A1NM, or

(2) The applicable regulations in effect on the date of TTF's application for the change.

The regulations incorporated by reference in the type certificate are commonly referred to as the "original type-certification basis." The certification basis for Boeing Model 767-300 series airplanes is 14 CFR part 25, as amended by Amendments 25-1 through 25-37. Refer to Type Certificate No. A1NM for a complete description of the certification basis for this model.

According to 14 CFR 21.16, if the Administrator finds that the applicable airworthiness regulations do not contain adequate or appropriate safety standards for Boeing Model 767-300 series airplanes because of a novel or unusual design feature, the Administrator prescribes special conditions for the airplane.

As defined in 14 CFR 11.19, special conditions are issued in accordance with 14 CFR 11.38 and become part of the type certification basis in accordance with 14 CFR 21.101.

Special conditions are initially applicable to the model for which they are issued. If the type certificate for that model is amended to include any other model that incorporates the same or similar novel or unusual design feature, the special conditions would also apply to that model. Similarly, if any other model already included on the same type certificate is modified to incorporate the same or similar novel or unusual design feature, the special conditions would apply to that other model under the provisions of 14 CFR 21.101.

In addition to the applicable airworthiness regulations and special conditions, Boeing Model 767-300 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.

Novel or Unusual Design Features

While installation of a CRM is not a new concept for large, transport category airplanes, each module has unique features based on its design, location, and use. The CRM to be installed on Boeing Model 767-300 series airplanes is novel in that it will be located below the passenger cabin floor in the aft portion of the forward cargo compartment.

Because of the novel or unusual features associated with the installation of a CRM, 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 of this airplane model. These special conditions do not negate the need to address other applicable part 25 regulations.

Operational Evaluations and Approval

These special conditions specify requirements for design approvals (i.e., type design changes and STCs) of CRMs administered by the FAA's Aircraft Certification Service. The FAA's Flight Standards Service, Aircraft Evaluation Group (AEG), must evaluate and approve the "basic suitability" of the CRM for occupation by crewmembers before the module may be used. If an operator wishes to use a CRM as "sleeping quarters," the module must undergo an additional operational evaluation and approval. AEG would evaluate the CRM for compliance with §§ 121.485(a) and 121.523(b), with Advisory Circular 121-31, "Flight Crew Sleeping

Quarters and Rest Facilities,” providing one method of compliance to these operational regulations.

To obtain an operational evaluation, the supplemental type design holder must contact AEG within the Flight Standards Service that has operational-approval authority for the project. In this instance, it is the Seattle AEG. The supplemental type design holder must request a “basic suitability” evaluation or a “sleeping quarters” evaluation of the crew rest module. The supplemental type design holder may make this request concurrently with the demonstration of compliance with these special conditions.

The Boeing Model 767-300 Flight Standardization Board Report Appendix will document the results of these evaluations. In discussions with the FAA Principal Operating Inspector, individual operators may refer to these standardized evaluations as the basis for an operational approval, instead of an on-site operational evaluation.

Any change to the approved CRM configuration requires an operational re-evaluation and approval, if the change affects any of the following:

- Procedures for emergency egress of crewmembers,
- Other safety procedures for crewmembers occupying the CRM, or
- Training related to these procedures.

The applicant for any such change is responsible for notifying the Seattle AEG that a new evaluation of the CRM is required. All instructions for continued airworthiness, including service bulletins, must be submitted to the Seattle AEG for approval before the FAA approves the modification.

Discussion of Special Conditions No. 9 and No. 12

The following clarifies the intent of Special Condition No. 9 relative to the fire fighting equipment necessary in the CRM:

Amendment 25-38 modified the requirements of § 25.1439(a) by adding, “In addition, protective breathing equipment must be installed in each isolated separate compartment in the airplane, including upper and lower lobe galleys, in which crewmember occupancy is permitted during flight for the maximum number of crewmembers expected to be in the area during any operation.”

Section 25.851(a)(4) requires at least one hand fire extinguisher be located in, or readily accessible for use in, each galley located above or below the passenger compartment. The crew rest is not considered a galley, and it does not meet one of the cargo compartment classifications in § 25.851(a)(3). Therefore, special conditions are required to define the quantity and type of fire extinguishers required in order to maintain the same level of safety.

The CRM is an isolated, separate compartment, so § 25.1439(a) is applicable. However, the requirements of Special Condition No. 9 clarify the expected number of portable PBE in relation to the number of required fire extinguishers.

These special conditions address a CRM that can accommodate up to two crewmembers. In the event of a fire, the first action should be for each occupant to leave the confined space, unless that occupant is fighting the fire. Taking the time to don protective breathing equipment would prolong the time for the emergency evacuation of the occupants and possibly interfere with efforts to extinguish the fire. However, the FAA considers it appropriate that a minimum of

two crewmembers would be used fight a fire. As such, Special Condition No. 9 describes the minimum equipment necessary to fight a fire in the crew rest area.

Regarding Special Condition No. 12, the FAA considers that during the 1-minute smoke detection time, penetration of a small quantity of smoke from the aft lower lobe CRM into an occupied area of the airplane would be acceptable, given the limitations in these special conditions. The FAA considers that the special conditions place sufficient restrictions on the quantity and type of material allowed in crew carry-on bags that the threat from a fire in the remote CRM would be equivalent to the threat from a fire in the main cabin.

Applicability

As discussed above, these special conditions are applicable to Boeing Model 767-300 series airplanes. Should TTF apply at a later date for a STC to modify any other model included on Type Certificate No. A1NM to incorporate the same or similar 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 Boeing Model 767-300 series 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, because a delay would significantly affect the certification of the airplane, which is imminent, 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 Boeing Model 767-300 series airplanes modified by TTF Aerospace, LLC.

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

(a) There must be an appropriate placard displayed in a conspicuous place at each entrance to the CRM compartment to indicate:

- (1) The maximum number of occupants allowed;
- (2) That occupancy is restricted to crewmembers whom are trained in the evacuation procedures for the crew rest compartment;
- (3) That occupancy is prohibited during taxi, take-off, and landing;

(4) That smoking is prohibited in the crew rest compartment;

(5) That hazardous quantities of flammable fluids, explosives, or other dangerous cargo are prohibited from the crew rest compartment; and

(6) That stowage in the crew rest area must be limited to emergency equipment, airplane-supplied equipment (e.g., bedding), and crew personal luggage; cargo or passenger baggage is not allowed.

(b) There must be at least one ashtray located conspicuously on or near the entry side of any entrance to the crew rest compartment.

(c) There must be a means to prevent passengers from entering the 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 crew rest 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 in the evacuation routes, there must be a means to preclude anyone from being trapped inside the 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.

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

(a) The routes must be located with one at each end of the compartment, or with two having sufficient separation within the compartment and between the routes to minimize the

possibility of an event (either inside or outside of the crew rest compartment) rendering both routes inoperative.

(b) The routes must be designed to minimize the possibility of blockage, which might result from fire, mechanical or structural failure, or persons standing on top of or against the escape route. If an evacuation route uses an area where normal movement of passengers occurs, it must be demonstrated that passengers would not impede egress to the main deck. 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 95th percentile male, is standing on the hatch or door. The use of evacuation routes must not be dependent on any powered device. If there is low headroom at or near an evacuation route, provisions must be made to prevent or to protect occupants (of the crew rest area) from head injury.

(c) Emergency evacuation procedures, including the emergency evacuation of an incapacitated occupant from the crew rest compartment, must be established. All of these procedures must be transmitted to the operators for incorporation into their training programs and appropriate operational manuals.

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

3. There must be a means for the evacuation of an incapacitated person (representative of a 95th percentile male) from the crew rest compartment to the passenger cabin floor. The

evacuation must be demonstrated for all evacuation routes. A flight attendant or other crewmember (a total of one assistant within the crew rest area) may provide assistance in the evacuation. Additional assistance may be provided by up to three persons in the main passenger compartment. For evacuation routes having stairways, the additional assistants may descend down to one-half the elevation change from the main deck to the lower deck compartment, or to the first landing, whichever is higher.

4. The following signs and placards must be provided in the crew rest compartment:

(a) At least one exit sign, located near each exit, meeting the requirements of § 25.812(b)(1)(i) at Amendment 25-58, except that a sign with reduced background area of no less than 5.3 square inches (excluding the letters) may be used, provided that it is installed so that the material surrounding the exit sign is light in color (e.g., white, cream, or 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;

(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; and

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

5. There must be a means in the event of failure of the aircraft's main power system, or of the normal crew rest compartment lighting system, for emergency illumination to be automatically provided for the crew rest 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 crew rest compartment to locate and transfer 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 to locate a deployed oxygen mask.

6. There must be means for two-way voice communications between crewmembers on the flightdeck and occupants of the crew rest compartment. There must also be two-way communications between the occupants of the CRM compartment and each flight attendant station required to have a public address (PA) system microphone in accordance with § 25.1423(g) in the passenger cabin. In addition, the PA system must include provisions to provide only the relevant information to the crewmembers in the CRM compartment (e.g., fire in flight, aircraft depressurization, preparation of the compartment for landing, etc.). That is, provisions must be made so that occupants of the CRM compartment will not be disturbed with normal, non-emergency announcements made to the passenger cabin.

7. There must be a means for manual activation of an aural emergency alarm system, audible during normal and emergency conditions, to enable crewmembers on the flightdeck and at each pair of required floor level emergency exits to alert occupants of the crew rest compartment of an emergency situation. Use of a PA 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 for at least ten minutes after the shutdown or failure of all engines and auxiliary power units (APU), or the disconnection or failure of all power sources dependent on their continued operation of the engines and APUs.

8. There must be a means, readily detectable by seated or standing occupants of the crew rest compartment, which indicates 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.

9. The following fire fighting equipment must be provided in the crew rest compartment:

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

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

(c) One flashlight.

Note: Additional PBEs and fire extinguishers in specific locations (beyond the minimum numbers prescribed in Special Condition No. 9) may be required as a result of any egress analysis accomplished to satisfy Special Condition No. 2(a).

10. A smoke or fire detection system (or systems) must be provided that monitors each occupiable area within the crew rest 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 crew rest 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.

11. The crew rest compartment must be designed so that fires within the compartment can be controlled without a crewmember having to enter the compartment, or the design of the access provisions must allow crewmembers equipped for fire fighting to have unrestricted access to the compartment. The time for a crewmember on the main deck to react to the fire alarm, to don the fire fighting 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.

12. There must be a means provided to exclude hazardous quantities of smoke or extinguishing agent originating in the crew rest compartment from entering any other compartment occupied by crewmembers or passengers. This means must include the time periods during the evacuation of the crew rest compartment and, if applicable, when accessing

the crew rest compartment to manually fight a fire. Smoke entering any other compartment occupied by crewmembers or passengers when the access to the crew rest compartment is opened, during an emergency evacuation, must dissipate within five minutes after the access to the crew rest compartment is closed. Hazardous quantities of smoke may not enter any other compartment occupied by crewmembers or passengers during subsequent access to manually fight a fire in the crew rest compartment (the amount of smoke entrained by a firefighter exiting the crew rest compartment through the access is not considered hazardous). During the 1-minute smoke detection time, penetration of a small quantity of smoke from the crew rest compartment into an occupied area is acceptable. Flight tests must be conducted to show compliance with this requirement.

If a built-in fire extinguishing system is used instead of manual fire fighting, 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 crew rest compartment, considering the fire threat, volume of the compartment, and the ventilation rate.

13. There must be a supplemental oxygen system equivalent to that provided for main deck passengers for each seat and berth in the crew rest compartment. The system must provide an aural and visual warning to warn the occupants of the crew rest compartment to don oxygen masks in the event of decompression. The warning must activate before the cabin pressure altitude exceeds 15,000 feet. The aural warning must sound continuously for a minimum of five minutes or until a reset push button in the crew rest compartment is depressed. Procedures for crew rest occupants in the event of decompression must be established. These procedures must

be transmitted to the operator for incorporation into their training programs and appropriate operational manuals.

14. If a destination area (such as a changing area) is provided, there must be an oxygen mask readily available for each occupant who 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 destination area). There must be a supplemental oxygen system equivalent to that provided for main deck passengers for each seat and berth in the crew rest compartment. The system must provide an aural and visual warning to warn the occupants of the crew rest compartment to don oxygen masks in the event of decompression. The warning must activate before the cabin pressure altitude exceeds 15,000 feet. The aural warning must sound continuously for a minimum of five minutes or until a reset push button in the crew rest compartment is depressed. Procedures for crew rest occupants in the event of decompression must be established. These procedures must be transmitted to the operator for incorporation into their training programs and appropriate operational manuals.

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

(a) To compensate for sleeping occupants, there must be an aural alert that can be heard in each section of the crew rest compartment that accompanies automatic presentation of supplemental oxygen masks. A visual indicator that occupants must don an oxygen mask is required in each section where seats or berths are not installed. A minimum of two supplemental oxygen masks is required for each seat or berth. There must also be a means by which the oxygen masks can be manually deployed from the flightdeck.

(b) A placard is required adjacent to each curtain that visually divides or separates, for privacy purposes, the crew rest compartment into small sections. The placard must require that the curtain remains open when the private section it creates is unoccupied.

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

- (1) Emergency illumination (Special Condition No. 5);
- (2) Emergency alarm system (Special Condition No. 7);
- (3) Seat belt fasten signal or return to seat signal as applicable (Special Condition No. 8);

and

- (4) The smoke or fire detection system (Special Condition No. 10).

(d) 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 crew rest compartment, and must meet the requirements of § 25.812(b)(1)(i) at Amendment 25-58. An exit sign with reduced background area as described in Special Condition No. 4(a) may be used to meet this requirement.

(e) For sections within a crew rest compartment that are created by the installation of a partition with a door 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, it must be shown 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 this area 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) at Amendment 25-58 that direct occupants to the primary stairway exit. An exit sign with reduced background area as described in Special Condition No. 4(a) may be used to meet this requirement.

(5) Special Conditions No. 5 (emergency illumination), No. 7 (emergency alarm system), No. 8 (fasten seat belt signal or return to seat signal as applicable) and No. 10 (smoke or fire detection system) must be met with the door open or closed.

(6) Special Conditions No. 6 (two-way voice communication) and No. 9 (emergency fire fighting and protective equipment) must be met independently for each separate section except for lavatories or other small areas that are not intended to be occupied for extended periods of time.

16. Where a waste disposal receptacle is fitted, it must be equipped with a built-in fire extinguisher designed to discharge automatically upon occurrence of a fire in the receptacle.

17. Materials (including finishes or decorative surfaces applied to the materials) must comply with the flammability requirements of § 25.853 at Amendment 25-66. Mattresses must comply with the flammability requirements of § 25.853(b) and (c) at Amendment 25-66.

18. All lavatories within the crew rest compartment are required to meet the same requirements as those for a lavatory installed on the main deck, except with regard to Special Condition No. 10 for smoke detection.

19. When a crew rest compartment is installed or enclosed as a removable module in part of a cargo compartment or is located directly adjacent to a cargo compartment without an intervening cargo compartment wall, the following applies:

(a) Any wall of the module (container) forming part of the boundary of the reduced cargo compartment, subject to direct flame impingement from a fire in the cargo compartment and including any interface item between the module (container) and the airplane structure or systems, must meet the applicable requirements of § 25.855 at Amendment 25-60.

(b) Means must be provided so that the fire protection level of the cargo compartment meets the applicable requirements of § 25.855 at Amendment 25-60, § 25.857 at Amendment 25-60, and § 25.858 at Amendment 25-54 when the module (container) is not installed.

(c) Use of each emergency evacuation route must not require occupants of the crew rest compartment to enter the cargo compartment in order to return to the passenger compartment.

(d) The aural warning in Special Condition No. 7 must sound in the crew rest compartment in the event of a fire in the cargo compartment.

20. All enclosed stowage compartments within the crew rest that are not limited to stowage of emergency equipment or airplane-supplied equipment (e.g., bedding) must meet the design criteria given in the table below. As indicated by the table below, enclosed stowage compartments greater than 200 ft³ 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 crewmember’s 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.

Fire Protection Features	Stowage Compartment Interior Volumes		
	Less than 25 ft ³	25 ft ³ to 57 ft ³	57 ft ³ to 200 ft ³
Materials of construction ¹	Yes	Yes	Yes
Detectors ²	No	Yes	Yes
Liner ³	No	No	Yes
Locating device ⁴	No	Yes	Yes

¹Material: 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 according to the requirements of § 25.853. For compartments less than 25 ft³ in interior volume, the design must ensure the ability to contain a fire likely to occur within the compartment under normal use.

²Detectors: Enclosed stowage compartments equal to or exceeding 25 ft³ in interior volume must be provided with a smoke or fire detection system to ensure that a fire can be detected within a 1-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 crew rest 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.

³Liner: If it can be shown that the material used to construct the stowage compartment meets the flammability requirements of a liner for a Class B cargo compartment, then no liner would be required for enclosed stowage compartments equal to or greater than 25 ft³ in interior volume but less than 57 ft³ in interior volume. For all enclosed stowage compartments equal to or greater than 57 ft³ in interior volume but less than or equal to 200 ft³, a liner must be provided that meets the requirements of § 25.855 at Amendment 25-60 for a Class B cargo compartment.

⁴Locating Device: Crew rest areas that contain enclosed stowage compartments exceeding 25 ft³ interior volume, and that are located away from one central location, such as the entry to the crew rest area or a common area within the crew rest area, would require additional fire protection features and/or devices to assist the firefighter in determining the location of a fire.

Issued in Renton, Washington, on January 21, 2011.

/s/

Ali Bahrami
Manager, Transport Airplane Directorate
Aircraft Certification Service