



[4910-13]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No. FAA-2016-0965; Special Conditions No. 25-702-SC]

Special Conditions: TTF Aerospace Inc., Boeing Model 767-300F series airplane; Installation of Main-Deck Crew-Rest Compartment

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final special conditions; request for comments.

SUMMARY: These special conditions are issued for the Boeing Model 767-300F series airplane.

This airplane, as modified by TTF Aerospace Inc., will have a novel or unusual design feature when compared to the state of technology envisioned in the airworthiness standards for transport-category airplanes. This design feature is a crew-rest compartment located in a Class E cargo compartment on the main deck of the airplane. 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: This action is effective on TTF Aerospace Inc. on **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. Send your comments by **[INSERT DATE 45 DAYS AFTER PUBLICATION IN THE FEDERAL REGISTER]**.

ADDRESSES: Send comments identified by docket number FAA-2017-0965 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, DC, 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, DC, between 9 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).

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 Docket Operations in Room W12-140 of the West Building Ground Floor at 1200 New Jersey Avenue, SE., Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

FOR FURTHER INFORMATION CONTACT: John Sheldon, FAA, Airframe and Cabin Safety Section, AIR-675, Transport Standards Branch, Policy and Innovation Division, Aircraft Certification Service, 1601 Lind Avenue SW., Renton, Washington 98057-3356; telephone 425-227-2785; facsimile 425-227-1320.

SUPPLEMENTARY INFORMATION: The substance of these special conditions, as applied to the installation of crew-rest modules in the upper and lower lobes of the airplane, has been published in the Federal Register for public comment in several prior instances. In the past decade, comments were received in 2013 and 2014, but did not affect the substance of these special conditions. Also, in 2015, the FAA approved an exemption for a crew-rest module in a configuration very similar to this proposal. That exemption received no public comment. Therefore, the FAA finds it unnecessary to delay the effective date and that good cause exists for making these special conditions effective upon publication in the Federal Register.

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 September 28, 2016, TTF Aerospace Inc. applied for a supplemental type certificate for the installation of a crew-rest compartment on the main deck of Boeing Model 767-300F series

airplanes. The Boeing Model 767-300F series airplane is a transport-category, wide-body freighter airplane with a maximum takeoff weight of approximately 412,000 lbs.

Type Certification Basis

Under the provisions of title 14, Code of Federal Regulations (14 CFR) 21.101, TTF Aerospace Inc. must show that the Boeing Model 767-300F series airplane, as changed, continues to meet the applicable provisions of the regulations listed in Type Certificate No. A1NM or the applicable regulations in effect on the date of application for the change, except for earlier amendments as agreed upon by the FAA.

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 Boeing Model 767-300F series airplane 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, these special conditions would also apply to the other model under § 21.101.

In addition to the applicable airworthiness regulations and special conditions, the Boeing Model 767-300F series airplane 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 Feature

The Boeing Model 767-300F series airplane, as modified by TTF Aerospace Inc., will incorporate the following novel or unusual design feature:

A crew-rest compartment installed in a Class E cargo compartment on the airplane main deck.

Discussion

The crew-rest compartment will be located in what is currently the Class E main-deck cargo compartment of Boeing Model 767-300F series airplanes. It will be designed as a one-piece, self-contained unit for installation in the forward portion of the cargo compartment. The crew-rest compartment will be attached to the existing cargo-restraint system, and will interface with the left-hand wall of the cargo compartment with a seal that will surround the door that currently provides passage to and from the cargo compartment. Crew-rest compartment occupancy will be limited to a maximum of four occupants.

The crew-rest compartment will contain approved seats or berths, able to withstand the maximum flight loads when occupied, for each occupant permitted in the crew-rest compartment, and it will only be occupied in flight, i.e., not during taxi, takeoff or landing. A smoke-detection system, manual firefighting system, oxygen supply, and occupant amenities will be provided in the crew-rest compartment. The door will provide passage to and from the crew-rest compartment.

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 crewmembers or passengers) complex in terms of paragraph 6d of Advisory Circular (AC) 25.1309-1A, "System Design and

Analysis.” 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 compartment 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, and other dangerous cargo are prohibited from the crew-rest compartment.

The requirements in these special conditions are intended to enable crewmembers quick entry to the crew-rest compartment to locate a fire source, and also inherently place limits on the size of the crew-rest area, as well as the amount of baggage that may be stored inside the crew-rest compartment. Baggage in the crew-rest compartment must be limited to the stowage of crew personal luggage, and the compartment must not be used for the stowage of cargo or supernumerary baggage. The design of a system that includes cargo or supernumerary 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 water heater, within the crew-rest compartment, would also require additional special conditions, and is prohibited until such conditions are approved. A water heater is acceptable without the need for additional special conditions.

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 Boeing Model 767-300F series airplane. Should TTF Aerospace Inc. apply at a later date for a supplemental type certificate to modify any other model included on Type Certificate No. A1NM to incorporate the same novel or unusual design feature, these special conditions would apply to that model as well.

Conclusion

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

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 767-300F series airplanes modified by TTF Aerospace Inc. Special conditions 1a, 2b, 2c, and the operating procedures, warnings, alarms and alerts listed below must be added to the limitations section of the airplane flight manual.

- (1) Occupancy of the crew-rest compartment is limited to the total number of installed sleeping berths and seats in the compartment. Each occupant permitted in the crew-rest compartment must be

provided an approved seat or berth able to withstand the maximum flight loads when occupied. The maximum occupancy is four in the crew-rest compartment, accounting for two sleeping berths and two seats.

- (a) An appropriate placard must be displayed in a conspicuous place at each entrance to the crew-rest compartment to indicate:
 - (i) The maximum number of occupants allowed;
 - (ii) That occupancy is restricted to crewmembers who are trained in evacuation procedures for the crew-rest compartment;
 - (iii) That occupancy is prohibited during taxi, takeoff, and landing;
 - (iv) That smoking is prohibited in the crew-rest compartment;
 - (v) That hazardous quantities of flammable fluids, or other dangerous cargo are prohibited from the crew-rest compartment;
 - (vi) That stowage in the crew-rest compartment must be limited to emergency equipment, airplane-supplied equipment (e.g., bedding), and crew personal luggage; cargo and supernumerary baggage is not allowed.
- (b) At least one ashtray must be located conspicuously on or near the entry side of any entrance to the crew-rest compartment.
- (c) If access to the remainder of the Class E cargo compartment is required from the crew-rest compartment, doors must be designed to be easily opened from both within and outside of the crew-rest 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.

(d) For all doors installed in the evacuation routes, they must be designed such that they do not allow anyone to be trapped inside the crew-rest compartment. If a locking mechanism is installed on an evacuation-route door, it must be capable of being unlocked from the outside without the aid of special tools. The lock must not prevent opening the door from the inside of the crew-rest compartment at any time.

(2) An emergency-evacuation route must be available for occupants of the crew-rest compartment to rapidly evacuate to the flight deck/supernumerary area. The crew-rest compartment access must be able to be closed from the flight deck/supernumerary area after evacuation. In addition—

(a) The route must be designed to minimize the possibility of blockage that might result from fire, mechanical or structural failure, or persons standing on top of or against the escape route. The use of evacuation routes must not be dependent on any powered device. If an evacuation route has low headroom, provisions must be made to prevent or protect crew-rest compartment occupants from head injury.

(b) 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.

(c) The airplane flight manual, or other suitable means, must include a limitation requiring that crewmembers be trained in the use of evacuation routes.

- (3) A means must be provided for the evacuation of an incapacitated person (representative of a 95th percentile male) from the crew-rest compartment to the supernumerary compartment. The evacuation must be demonstrated for all evacuation routes.
- (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 utilized, 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;
 - (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) In the event of failure of the airplane's main power system, or of the normal crew-rest compartment lighting system, emergency illumination must automatically be provided for the crew-rest compartment. In addition—
- (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 evacuate to the flight deck/supernumerary area 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 an oxygen mask.
- (6) A means must be provided for two-way voice communications between crewmembers on the flight deck and occupants of the crew-rest compartment.
- (7) A means must be provided for manual activation of an aural emergency-alarm system, audible during normal and emergency conditions, to enable occupants on the flight deck to alert occupants of the crew-rest compartment of an emergency situation. Use of a public address or crew interphone system is acceptable, provided an adequate means of differentiating between normal and emergency communications is incorporated. The system must maintain power in-flight for at least ten minutes after the shutdown or failure of all engines and auxiliary power units (APUs), or the disconnection or failure of all power sources dependent on their continued operation of the engines and APUs.
- (8) A readily detectable means must be provided, for seated or standing occupants of the crew-rest compartment, that indicates when seatbelts should be fastened. In the absence of seats, at least one means must be provided to accommodate anticipated turbulence (e.g., sufficient handholds). Seatbelt-type restraints must be provided for berths, and must be compatible with occupant

sleeping attitude during cruise conditions. A placard must be located on each berth, and require that seatbelts be fastened when occupied. If compliance with any of the other requirements of these special conditions is predicated on a berth occupant's specific head location, a placard must identify the head location.

(9) In lieu of the requirements specified in § 25.1439(a) at Amendment 25-38, that pertain to isolated compartments, and to provide a level of safety equivalent to that which is provided to occupants of a small, isolated galley, the following 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 protective-breathing equipment (PBE) devices, approved to Technical Standard Order C116A or equivalent, suitable for firefighting, 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 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 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 supernumerary area. This warning must be readily detectable by a supernumerary.
- (11) The crew-rest compartment must be designed such 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 firefighting 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 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.
- (12) A means must be provided to exclude hazardous quantities of smoke or extinguishing agent, originating in the crew-rest compartment, from entering any other occupiable compartment. A means must also be provided to exclude hazardous quantities of smoke or extinguishing agent originating in the Class E cargo compartment from entering the crew-rest compartment. 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 supernumeraries, 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 supernumeraries or crewmembers 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 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 supernumeraries or crewmembers. 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) In lieu of providing a supplemental oxygen system in accordance with § 25.1447(c)(1), a portable oxygen unit, meeting the requirements of special condition no. 14, must be immediately available for occupants of each seat and berth in the crew-rest compartment. An aural and visual warning must be provided 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 pressed for reset. Procedures for decompression events must be established for crew-rest compartment occupants. These procedures must be transmitted to the operator for incorporation into their training programs and appropriate operational manuals.
- (14) The portable oxygen unit must meet the performance requirements of either § 25.1443(a) or § 25.1443(b), or the equipment must be shown to protect the occupant from hypoxia at an activity level required to return to his or her seat following a rapid decompression to 25,000 feet cabin altitude. In addition, the portable oxygen equipment must:

- (a) meet § 25.1439(b)(1), (2), and (4), and
 - (b) be designed to prevent any inward leakage to the inside of the mask, and
 - (c) prevent any outward leakage causing significant increase in the oxygen content of the local atmosphere, and
 - (d) be sized adequately for continuous and uninterrupted use during worst-case flight duration following decompression, or must be of sufficient duration to allow the occupant to return to their seat, where additional oxygen is readily accessible for the remainder of the decompression event.
- (15) If the airplane contains a destination area, such as a crewmember changing area, a portable oxygen unit, meeting the requirements of special condition no. 14, must be readily available for each occupant who may reasonably be expected to be in the destination area.
- (a) An aural and visual warning must be provided to alert the occupants of the crew-rest compartment to don oxygen masks in the event of decompression or fire in the Class E cargo compartment, or in cases in which a decompression and subsequent climb are required. 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 pressed for reset.
 - (b) Procedures for decompression events must be established for crew-rest compartment occupants. These procedures must be transmitted to the operator for incorporation into their training programs and appropriate operational manuals. These procedures must be transmitted to the operator for incorporation into their training programs and appropriate operational

manuals. In addition, a decompression panel must be incorporated into the crew-rest compartment construction.

- (16) The following requirements apply to crew-rest compartments that are divided into sections by the installation of curtains or partitions:
- (a) To accommodate sleeping occupants, an aural alert must be available that can be heard in each section of the crew-rest compartment. A visual indicator that occupants must don an oxygen mask is required in each section where seats or berths are installed. A minimum of one portable oxygen unit, meeting the requirements of special condition no. 14, is required for each seat or berth.
 - (b) A placard is required, adjacent each curtain that visually divides or separates, for privacy purposes, the crew-rest compartment into sections. The placard must require that the curtains remain open when the sections they create are unoccupied.
 - (c) For each crew-rest compartment section created by the installation of a curtain, the following requirements must be met with the curtain open or closed:
 - (i) Emergency illumination (special condition no. 5);
 - (ii) Emergency alarm system (special condition no. 7);
 - (iii) Fasten-seatbelt signal, or return-to-seat signal, as applicable (special condition no. 8); and
 - (iv) A smoke- or fire-detection system (special condition no. 10).
 - (d) Compartments visually divided, to the extent that evacuation could be affected, must have exit signs that direct occupants to the primary 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 must be met with the door open or closed:
- (i) 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 from within this area must be considered. A secondary evacuation route from a small room, such as a changing area or lavatory designed for only one occupant for short duration, is not required. However, removal of an incapacitated occupant from within this area must be considered.
 - (ii) Each section must contain exit signs that meet the requirements of § 25.812(b)(1)(i) at Amendment 25-58, directing occupants to the primary exit. An exit sign with reduced background area, as described in special condition no. 4(a), may be used to meet this requirement.
 - (iii) Special condition nos. 5 (emergency illumination), 7 (emergency alarm system), 8 (fasten-seatbelt signal, or return-to-seat signal, as applicable), and 10 (smoke- or fire-detection system) must be met with the door open or closed.
 - (iv) Special condition nos. 6 (two-way voice communication) and 9 (emergency firefighting 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 duration.

- (17) Where a waste-disposal receptacle is installed, it must be equipped with a built-in fire extinguisher designed to discharge automatically upon occurrence of a fire in the receptacle.
- (18) Materials, including finishes or decorative surfaces applied to the materials, must comply with the flammability requirements of § 25.853 as amended by Amendment 25-116 or later. Seat cushions and mattresses must comply with the flammability requirements of § 25.853(c) as amended by Amendment 25-116 or later, and the test requirements of part 25, appendix F, part II, or other equivalent methods.
- (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 an emergency-evacuation route must not require occupants of the crew-rest compartment to enter the cargo compartment as a means by which to return to the flight deck/supernumerary area.

(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 compartment that are not limited to stowage of emergency equipment or airplane-supplied equipment (e.g., bedding) must meet the design criteria provided in the table below. As indicated in the table, these special conditions do not address enclosed stowage compartments greater than 200 ft³ in interior volume. The in-flight accessibility of very large, enclosed stowage compartments, and the subsequent impact on crewmembers' ability to effectively reach any part of the compartment with the contents of a hand-held fire extinguisher, requires 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 ft³	25 ft³ to 57 ft³	57 ft³ to 200 ft³
Materials of Construction ¹	Yes	Yes	Yes
Detectors ²	No	Yes	Yes
Liner ³	No	No	Yes
Locating Device ⁴	No	Yes	Yes

¹ **Compliant Materials of Construction:** The material used in constructing 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 **Smoke or Fire Detectors:** 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 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 crew-rest compartment; and
- (c) A warning in the supernumerary seating area.

³ **Liner:** 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.

⁴ **Fire-Location Detector:** Crew-rest compartments that contain enclosed stowage compartments exceeding 25 ft³ interior volume and which are located away from one central location, such as the entry to the crew-rest compartment or a common area within the crew-rest compartment, would require additional fire-protection features or related devices to assist a firefighter in determining the location of a fire.

Issued in Renton, Washington, on October 12, 2017.

/s/

Victor Wicklund
Manager, Transport Standards Branch
Policy and Innovation Division
Aircraft Certification Service

[FR Doc. 2017-22544 Filed: 10/17/2017 8:45 am; Publication Date: 10/18/2017]