

flammability requirements of § 25.853(c) as amended by Amendment 25-116.

18. The addition of a lavatory within the OCR compartment would require the lavatory to meet the same requirements as those for a lavatory installed on the main deck except with regard to Proposed Special Condition No. 10 for smoke detection.

19. Each stowage compartment in the OCR compartment must be completely

enclosed. All enclosed stowage compartments within the OCR 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 ft³ in interior volume are not addressed by this proposed special condition. The

in-flight accessibility of very large enclosed stowage compartments and the subsequent impact on the crewmembers' 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.

DESIGN CRITERIA FOR ENCLOSED STOWAGE COMPARTMENTS NOT LIMITED TO STOWAGE OF EMERGENCY OR AIRPLANE-SUPPLIED EQUIPMENT

Fire protection features	Applicability of fire protection requirements by interior volume		
	Less than 25 cubic feet	25 Cubic feet to less than 57 cubic feet	57 Cubic feet to 200 cubic feet
Compliant Materials of Construction ¹	Yes	Yes	Yes.
Smoke or Fire Detectors ²	No	Yes	Yes.
Liner ³	No	Conditional	Yes.
Fire Location Detector ⁴	No	Yes	Yes.

¹ Compliant Materials of Construction

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 Smoke or Fire 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 overhead crew rest compartment.

(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 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 (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 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 Fire Location Detector

If an OCR compartment has enclosed stowage compartments exceeding 25 ft.³ interior volume that are located separately from the other stowage compartments (located, for example, away from one central location, such as the entry to the OCR compartment or a common area within the OCR compartment, where the other stowage compartments are), that OCR compartment 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 December 28, 2009.

Ali Bahrami,

Manager, Transport Airplane Directorate, Aircraft Certification Service.

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No. NM411 Special Conditions No. 25-09-07-SC]

Special Conditions: Boeing Model 787-8 Airplane; Overhead Flightcrew Rest Compartment Occupiable During Taxi, Take-Off, and Landing

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed special conditions.

SUMMARY: This action proposes special conditions for the Boeing Model 787-8 airplane. This airplane will have novel or unusual design features associated with an overhead flightcrew rest (OFCR) compartment, which is proposed to be occupiable during taxi, take-off, and landing (TT&L). The applicable airworthiness regulations do not contain adequate or appropriate safety standards for this design feature. These proposed 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. Additional special conditions will be issued for other novel or unusual design features of the Boeing Model 787-8 airplanes.

DATES: We must receive your comments by February 18, 2010.

ADDRESSES: You must mail two copies of your comments to: Federal Aviation Administration, Transport Airplane Directorate, Attn: Rules Docket (ANM-113), Docket No. NM411, 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. NM411. You can inspect comments in the Rules Docket weekdays, except Federal holidays, between 7:30 a.m. and 4 p.m.

FOR FURTHER INFORMATION CONTACT: Jeff Gardlin, FAA, Airframe/Cabin Safety Branch, ANM-115, Transport Standards Staff, Transport Airplane Directorate, Aircraft Certification Service, 1601 Lind Avenue, SW., Renton, Washington 98055-4056; telephone (425) 227-2136; facsimile (425) 227-1320.

SUPPLEMENTARY INFORMATION:**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 concerning 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 p.m., Monday through Friday, except Federal holidays.

We will consider all comments we receive on or before 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 this proposal, 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 March 28, 2003, The Boeing Commercial Airplane Group (hereafter referred to as "Boeing") applied for an FAA type certificate for its new Boeing Model 787-8 passenger airplane. The company applied for an extension of time for the type certificate on March 9, 2009, and was granted that extension on March 13, 2009. The Boeing Model 787-8 airplane will be an all-new, two-engine jet transport airplane with a two-aisle cabin. The maximum takeoff weight will be 476,000 pounds, with a maximum passenger count of 381 passengers.

Type Certification Basis

Under provisions of Title 14 Code of Federal Regulations (14 CFR) 21.17, Boeing must show that the Boeing Model 787-8 airplane (hereafter referred to as "the 787") meets the applicable provisions of 14 CFR part 25, as amended by Amendments 25-1 through 25-117, 25-120, 25-124, 25-125 and 25-128, except that § 25.1309 remains at Amendment 25-117 for cargo fire protection systems. 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 787 because of a novel or unusual design feature, special conditions are prescribed under the provisions of § 21.16.

In addition to complying with the applicable airworthiness regulations and special conditions, the 787 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 must also issue a finding of regulatory adequacy pursuant to section 611 of Public Law 92-574, the "Noise Control Act of 1972."

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 § 21.17(a)(2).

Special conditions are initially applicable to the model for which they are issued. Should the type certificate for that model be amended later to include any other model that incorporates the same novel or unusual design features, the special conditions would also apply to the other model under provisions of § 21.101.

Novel or Unusual Design Features

Crew rest compartments have been installed and certificated on several Boeing airplane models in locations as varied as the main passenger seating area, the overhead space above the main passenger cabin seating area, and below the passenger cabin seating area within the cargo compartment. In each case, the Administrator has determined that the applicable regulations (i.e., 14 CFR part 25) did not provide all of the necessary requirements because each installation had unique features by virtue of its design, location, and use on the airplane. When the Administrator finds that the applicable airworthiness regulations do not contain adequate or appropriate safety standards because of a novel or unusual design feature, special conditions are prescribed under the provisions of § 21.16. The proposed special conditions contain safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

Most recently, for the Boeing Model 777 series airplanes, the FAA has issued Special Conditions No. 25-230-SC, dated April 9, 2003, for overhead crew rest compartments allowed to be occupied during flight, and Special Conditions No. 25-260-SC, dated April 14, 2004, for overhead flightcrew rest (OFCR) compartments allowed to be

occupied during TT&L, as well as during flight.

For the 787, an OFCR compartment is located in the overhead space above the main passenger cabin seating area immediately aft of the first pair of main deck emergency exits (Door 1). This compartment includes two private berths and up to two seats. Occupancy of the compartment will be limited to a maximum of four trained crewmembers during flight and two trained flight crewmembers, one in each seat, during TT&L. The compartment will be accessed from the main deck by stairs through a vestibule. In addition, a secondary evacuation route, which opens directly into the main passenger seating area, will be available as an alternate for evacuating occupants of the compartment. A smoke detection system and an oxygen system will be provided in the compartment. Other optional features, such as a sink with cold drink stowage or a lavatory, may be provided as well.

This OFCR compartment is unique to part 25 because of its design, location, and use on the airplane. It is also unique because it is in the overhead area of the passenger compartment and is proposed to be occupied by trained flightcrew during TT&L.

Because of the novel or unusual features associated with installation of this OFCR compartment, special conditions are considered necessary to provide a level of safety equal to that established by the airworthiness regulations. These proposed special conditions do not negate the need to address other applicable part 25 regulations.

Consideration of a Requirement for an External Exit

For Boeing Model 777 Special Conditions No. 25-260-SC, the FAA considered whether or not a special condition should require that the OFCR compartment have an external exit leading directly outside the airplane. The Air Line Pilots Association, International (ALPA), and International Federation of Air Line Pilots (IFALPA) reviewed the design of the 777 OFCR compartment and informed the FAA that in their opinion an external exit was not needed because two independent, internal evacuation routes were provided. That input, and the fact that flight crewmembers would be the only occupants of the compartment during TT&L, supported the FAA in determining that a special condition requiring an external exit was not required. The FAA considers that the following, in addition to Special Conditions No. 25-260-SC, provide a

level of safety equivalent to that established by part 25 for main deck occupants:

1. The distances along the evacuation routes from the seats in the OFCR compartment to the Door 1 exits on the main deck are significantly shorter than the maximum distance a seated passenger on the main deck would need to travel to reach an exit.

2. Occupancy during TT&L will be limited to two flight crewmembers trained in the evacuation, fire fighting, and depressurization procedures of the OFCR compartment. An airplane flight manual limitation must be established to restrict occupancy to only persons the pilot in command has determined are able to use both evacuation routes rapidly. The ability of such persons to fit through the escape hatch must be considered in this determination.

For the reasons noted above, the FAA does not believe that this proposed special condition should require that the 787 OFCR compartment have an external exit.

Operational Evaluations and Approval

These proposed special conditions outline requirements for OFCR compartment design approvals administered by the FAA's Aircraft Certification Service. Prior to operational use of an OFCR compartment, the FAA's Flight Standards Service must evaluate and approve the "basic suitability" of the compartment for crew occupation. Additionally, if an operator wishes to use an OFCR compartment as "sleeping quarters," the compartment must undergo an additional evaluation and approval (reference 14 CFR 121.485(a), 121.523(b), and 135.269(b)(5)). Compliance with these proposed special conditions does not ensure that the applicant has demonstrated compliance with the requirements of parts 121 or 135.

To obtain an operational evaluation, the type certificate holder must contact the appropriate aircraft evaluation group (AEG) in the Flight Standards Service and request a "basic suitability" evaluation or a "sleeping quarters" evaluation of its OFCR compartment. The results of these evaluations should be documented in a 787 flight standardization board (FSB) report appendix. Individual operators may reference these standardized evaluations in discussions with their FAA principal operating inspector (POI) as the basis for an operational approval, in lieu of an on-site operational evaluation.

Any changes to the approved OFCR compartment configuration that affect crewmember emergency egress or any

other procedures affecting safety of the occupying crewmembers or related emergency training will require re-evaluation and approval. The applicant for an OFCR compartment design change that affects egress, safety procedures, or training is responsible for notifying the FAA's AEG that a new compartment evaluation is required. The results of a re-evaluation should also be documented in a 787 FSB report appendix.

Procedures must be developed to ensure that a crewmember entering the OFCR compartment through the vestibule to fight a fire will examine the vestibule and the adjacent galley or lavatory areas (if installed) for the source of the fire before entering the remaining areas of the compartment. This is intended to ensure that the source of the fire is not between the crewmember and the entrance to the OFCR compartment. If a fire source is not immediately evident to the firefighter, the firefighter should check for potential fire sources at areas closest to the OFCR compartment entrance first, then proceed to check areas in such a manner that the fire source, when found, will not be between the firefighter and his or her way to get out of the compartment. Procedures describing methods for searching the OFCR compartment for fire source(s) must be transmitted to operators for incorporation into their training programs and appropriate operational manuals.

Discussion of Rescue Crew Training Materials

Installation of an overhead crew rest compartment that can be occupied during TT&L by flight crew is unusual. Appropriate information must be provided to airport fire rescue personnel so that they understand that this remote compartment may be occupied during an emergency landing. The applicant must provide rescue crew training materials to the FAA Airports Division, Safety and Standards Branch (ANM-620) to address this issue. The FAA Airports Division, Safety and Standards Branch, will ensure that these materials are distributed to appropriate airports, domestic and foreign. A special condition is not considered appropriate to address this issue.

Discussion of Proposed Special Conditions

These proposed special conditions would apply to OFCR compartments that are occupiable during TT&L and are installed immediately aft of the Door 1 exits on the 787. These proposed special conditions would supplement 14 CFR

part 25. Except as noted below, these proposed special conditions for the 787 will be identical to Boeing Model 777 Special Conditions No. 25-260-SC.

Proposed Special Conditions No. 6 and 16 contain requirements for the exit signs that must be provided in the OFCR compartment. As stated in the proposed special conditions, symbol signs in OFCR compartments that satisfy the equivalent level of safety finding established for the 787 may be used in lieu of the text signs required by § 25.812(b)(1)(i).

Proposed Special Condition No. 15 contains requirements for supplemental oxygen systems. Special Conditions No. 25-260-SC required that each berth be provided with two oxygen masks. This was intended to address the case where a person not in a berth was moving around within the crew rest compartment and needed quick access to the oxygen. For the designs used in the model 777, this requirement was sufficient. However, for the 787, the requirement to have two masks per berth may not always meet the objective of having masks available to persons who are in transition within the compartment. Therefore, the wording of this proposed special condition has been modified to better state the objective rather than specify that two masks be provided per berth. In addition, the requirement to have adequate illumination to retrieve the mask, while implied previously, is made explicit in this proposal.

Proposed Special Condition No. 18 contains the requirements for materials used in the construction of the OFCR compartment. Special Conditions No. 25-260-SC stated that § 25.853 as amended by Amendment 25-83 is the appropriate regulation. Section 25.853 has since been further amended, and these proposed special conditions reference the latest amendment level for § 25.853 (Amendment 25-116).

Compliance with these proposed special conditions does not relieve the applicant from the existing airplane certification basis requirements. One particular area of concern is that installation of OFCR compartments leaves a smaller compartment volume within the overhead area of the airplane. The applicant must comply with the pressurized compartment loads requirements of § 25.365(e), (f), and (g) for the OFCR compartment, as well as for any other airplane compartments whose decompression characteristics are affected by the installation of an OFCR compartment. Compliance with § 25.813 emergency exit access requirements must be demonstrated for

all phases of flight during which occupants will be present.

The proposed configuration includes a seat installed adjacent to the OFCR compartment exit which will be occupiable during TT&L. It should be noted that the emergency landing conditions requirements of §§ 25.561(d) and 25.562(c)(8) are applicable to this configuration. Hence, deformations resulting from required static and dynamic structural tests must not impede rapid evacuation of the OFCR compartment occupants. Seat deformations must not prevent opening of the secondary escape hatch or rapid evacuation through the secondary escape route.

Section 25.785(h)(2) mandates that the flight attendant seats required by the operating rules be located in a position that provides a direct view of the cabin area for which the flight attendant is responsible. Since the OFCR compartment will be occupied only by trained crewmembers, the FAA does not consider this requirement applicable to the seating area in the compartment.

Section 25.787(a) requires each stowage compartment in the passenger cabin, except for underseat and overhead compartments for passenger convenience, to be completely enclosed. This requirement does not apply to the flight deck, because flight crewmembers must be able to quickly access items to better perform their duties. Flight crewmembers occupying the OFCR compartment will not be performing flight deck duties however. Therefore, the FAA considers that stowage compartments in the OFCR compartment, except for underseat compartments for occupant convenience, should be completely enclosed. This will provide occupants of the OFCR compartment a similar level of safety to that provided to passengers on the main deck. Proposed Special Condition No. 20 contains this requirement.

Section 25.811(c) requires that means be provided to assist occupants in locating the exits in conditions of dense smoke. Section 25.812(e) requires floor proximity emergency escape path marking to provide guidance for passengers when all sources of illumination above 4 feet from the cabin aisle floor are totally obscured. The FAA considers that the current OFCR compartment design is sufficient in regard to these regulations. The two OFCR compartment seats are only a couple of steps away from the stairway and once a trained flight crewmember is at the top of the stairway, the stairway itself will guide him/her to the main deck. Once the crewmember is on the

main deck, floor proximity lighting and exit marker signs, which are less than 4 feet above the floor, are provided.

Section 25.813(e) prohibits installation of interior doors between passenger compartments, but the FAA has historically found crew rest doors to be acceptable, because crew rests are not passenger compartments. Proposed Special Conditions No. 2 and 16 provide requirements for crew rest doors which are considered to provide an appropriate level of safety to OFCR compartment occupants.

Sections 25.1443, 25.1445, and 25.1447 contain oxygen requirements for flight crew, passengers, and cabin attendants. Flight crewmembers occupying the OFCR compartment are not on duty, and therefore are considered passengers in determining compliance with these oxygen regulations.

Applicability

As discussed above, these proposed special conditions are applicable to the 787. Should Boeing apply at a later date for a change to the type certificate to include another model incorporating the same novel or unusual design features, these proposed special conditions would apply to that model as well.

Conclusion

This action affects only certain novel or unusual design features of the 787. It is not a rule of general applicability.

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 Proposed Special Conditions

Accordingly, the Federal Aviation Administration (FAA) proposes the following special conditions as part of the type certification basis for the Boeing Model 787-8 airplanes with an overhead flightcrew rest (OFCR) compartment installed adjacent to or immediately aft of the first pair of exits (Door 1).

1. During flight, occupancy of the OFCR compartment is limited to the total number of bunks and seats installed in the compartment that are approved to the maximum flight loading conditions. During taxi, takeoff, and landing (TT&L), occupancy of the OFCR compartment is limited to the total number of installed seats approved for the flight and ground load conditions and emergency landing conditions. The OFCR compartment is limited to a

maximum of four crewmembers during flight and two flight crewmembers during TT&L.

(a) There must be appropriate placards, inside and outside each entrance to the OFCR compartment, to indicate:

(1) The maximum number of crewmembers allowed during flight and the maximum number of flight crewmembers allowed during TT&L.

(2) That occupancy is restricted to crewmembers who the pilot in command has determined are trained in the emergency procedures for the OFCR compartment and able to rapidly use the evacuation routes.

(3) That smoking is prohibited in the OFCR compartment.

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

(b) There must be at least one ashtray on the inside and one ashtray on the outside of any entrance to the OFCR compartment.

(c) A limitation in the airplane flight manual must be established to restrict occupancy to crewmembers who the pilot in command has determined are trained in the emergency procedures for the OFCR compartment and are able to rapidly use the evacuation routes of the OFCR compartment.

2. The following requirements are applicable to OFCR compartment door(s):

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

(b) Doors installed across emergency egress routes must have a means to latch them in the open position. The latching means must be able to withstand the loads imposed upon it when the door is subjected to the ultimate inertia forces, relative to the surrounding structure, listed in § 25.561(b).

(c) A placard must be displayed in a conspicuous place on the outside of the entrance door of the OFCR compartment, and on any other door(s) installed across emergency egress routes of the OFCR compartment, requiring those doors to be latched open during TT&L when the OFCR compartment is occupied. This requirement does not apply to emergency escape hatches installed in the floor of the OFCR compartment. A placard must be displayed in a conspicuous place on the outside of the entrance door to the OFCR compartment that requires it to be closed and locked when it is not

occupied. Procedures for meeting these requirements must be transmitted to the operator for incorporation into its training programs and appropriate operational manuals.

(d) For all doors installed in the OFCR compartment, there must be a means to preclude anyone from being trapped inside the OFCR 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 OFCR compartment at any time.

3. In addition to the requirements of § 25.562 for seats, which are occupiable during takeoff and landing, and restraint systems, the OFCR compartment structure must be compatible with the loads imposed by the seats as a result of the conditions specified in § 25.562(b).

4. There must be at least two emergency evacuation routes that could be used by each occupant of the OFCR 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 OFCR compartment to minimize the possibility of an event either inside or outside of the OFCR compartment rendering both routes inoperative.

Compliance with requirements of proposed Special Condition No. 4(a) may be shown by inspection or by analysis. Regardless of which method is used, the maximum acceptable distance between crew rest compartment outlets is 60 feet.

Compliance by Inspection

Inspection may be used to show compliance with proposed Special Condition No. 4(a). An inspection finding that an OFCR compartment has evacuation routes located so that each occupant of the seats and berths has an unobstructed route to at least one of the OFCR compartment outlets, regardless of the location of a fire, would be reason for a finding of compliance. A fire within a berth that only blocks the occupant of that berth from exiting the berth need not be considered. Therefore, crew rest compartment outlets that are located at absolute opposite ends (i.e., adjacent to opposite end walls) of the OFCR compartment would require no further review or analysis with regard to their separation.

Compliance by Analysis

Analysis must show that the OFCR compartment configuration and interior features allow all occupants of the

OFCR 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 OFCR compartment, considered separately, and the design elements used to reduce the available fuel for the fire.

(2) Design elements used to reduce fire ignition sources in the OFCR compartment.

(3) Distribution and quantity of emergency equipment within the OFCR compartment.

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

(5) An incapacitated person blocking the evacuation routes.

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

Analysis must consider design features affecting access to the evacuation routes. Possibilities for design components affecting evacuation that should be considered include, but are not limited to, seat deformations (reference §§ 25.561(d) and 25.562(c)(8)), seat back break-over, rigid structure that reduces access from one part of the compartment to another, and items known to be the cause of potential hazards. Factors that also should be considered are availability of emergency equipment to address fire hazards, availability of communications equipment, supplemental restraint devices to retain items of mass that, if broken loose, could hinder evacuation, and load path isolation between components containing evacuation routes.

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

The intent of this proposed special condition is to provide sufficient exit route separation. Therefore the separation analysis described above should not be used to approve OFCR compartment outlets that have less physical separation (measured between the centroid of each outlet opening) than the minimums prescribed below, unless compensating features are

identified and submitted to the FAA for evaluation and approval.

For an OFCR compartment with one outlet located near the forward or aft end of the compartment (as measured by having the centroid of the outlet opening within 20 percent of the total length of the compartment from the forward or aft end of the compartment) the outlet separation from one outlet to the other should not be less than 50 percent of the total OFCR compartment length.

For OFCR compartments with neither required crew rest compartment outlet located near the forward or aft end of the compartment (as measured by not having the centroid of either outlet opening within 20 percent of the forward or aft end of the total OFCR compartment length), the outlet separation from one outlet to the other should not be less than 30 percent of the total OFCR compartment length.

(b) 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 crew rest compartment outlets. One of the two OFCR compartment outlets should not be located where normal movement or evacuation by passengers occurs (main aisle, cross aisle, or galley complex, for example) that would impede egress from the OFCR compartment. If an evacuation route is in an area where normal movement or evacuation 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 OFCR compartment from head injury. Use of evacuation routes must not be dependent on any powered device. If an OFCR compartment outlet is over an area where there are passenger seats, a maximum of five passengers may be displaced from their seats temporarily during the process of evacuating an incapacitated person(s). If such an evacuation procedure involves the evacuee stepping on seats, the seats must not be damaged to the extent that they would not be acceptable for occupancy during an emergency landing.

(c) Emergency evacuation procedures, including procedures for emergency evacuation of an incapacitated occupant from the OFCR 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.

(d) There must be a limitation in the airplane flight manual or other suitable means to require that crewmembers be trained in the use of the OFCR compartment evacuation routes. This training must instruct them to ensure that the OFCR compartment (including seats, doors, etc.) is in its proper TT&L configuration during TT&L.

(e) For times when there is no flight attendant present in the area around the door to the OFCR compartment, and also during an emergency, including an emergency evacuation, there must be a means to prevent passengers on the main deck from entering the OFCR compartment.

(f) Doors or hatches separating the OFCR compartment from the main deck must not adversely affect evacuation of occupants on the main deck (slowing evacuation by encroaching into aisles, for example) or cause injury to those occupants during opening or while opened.

(g) The means of opening doors and hatches to the OFCR compartment must be simple and obvious. In addition, the OFCR compartment doors and hatches must be able to be closed from the main passenger cabin.

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

Such an evacuation must be demonstrated for all evacuation routes. A crewmember (a total of one assistant within the OFCR 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. For evacuation routes with stairways, the additional assistants may ascend up to one half the elevation change from the main deck to the OFCR compartment, or to the first landing, whichever is lower.

6. The following signs and placards must be provided in the OFCR compartment and they must meet the following criteria:

(a) At least one exit sign, located near each OFCR compartment outlet, meeting the emergency lighting requirements of § 25.812(b)(1)(i). One allowable exception would be a sign with reduced background area of no less than 5.3 square inches (excluding the letters), provided that it is installed so that the material surrounding the exit sign is light in color (white, cream, light beige, for example). 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 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 OFCR compartment.

(b) An appropriate placard located conspicuously on or near each OFCR compartment door or hatch that defines the location and the operating instructions for access to and operation of the outlet door or hatch.

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

(d) The door or hatch handles and operating instruction placards required by Special Condition No. 6(b) of these special conditions 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 OFCR compartment lighting system, for emergency illumination to be automatically provided for the OFCR 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 to allow occupants of the OFCR 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 OFCR compartment to locate a deployed oxygen mask.

8. There must be means for two-way voice communications between crewmembers on the flight deck and occupants of the OFCR compartment.

There must also be two-way communications between occupants of the OFCR compartment and each flight attendant station in the passenger cabin that is required per § 25.1423(g) to have a public address system microphone. In addition, the public address system must include provisions to provide only the relevant information to the crewmembers in the OFCR compartment (for example fire in flight, aircraft depressurization, preparation of the compartment for landing, etc.). That is, provisions must be made so that occupants of the OFCR compartment will not be disturbed with normal, non-

emergency announcements made to the passenger cabin.

9. 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 flight deck and at each pair of required floor level emergency exits to alert occupants of the OFCR 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 OFCR compartment, to indicate when seat belts should be fastened. Seat belt type restraints must be provided for berths and must be compatible with the sleeping position during cruise conditions. There must be a placard on each berth requiring that these restraints be fastened when occupied. If compliance with any of the other requirements of these proposed special conditions is predicated on specific head location, there must be a placard identifying that head position.

11. PBE devices must be provided in accordance with § 25.1439, except that in lieu of a device for each crewmember, the following PBE devices, approved to Technical Standard Order (TSO)-C116 or equivalent, must be provided: Two PBE devices suitable for firefighting, or one PBE for each hand-held fire extinguisher, whichever is greater. The following equipment must also be provided in the OFCR compartment:

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

(b) One flashlight.

Note: Additional PBE devices and fire extinguishers in specific locations, beyond the minimum numbers prescribed in proposed Special Condition No. 11, may be required as a result of the egress analysis accomplished to satisfy proposed Special Condition No. 4(a).

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

(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. Means to fight a fire must be provided. The means can either be a built-in extinguishing system or manual hand-held bottle extinguishing system.

(a) For a built-in extinguishing system:

(1) The system must have adequate capacity to suppress a fire considering the fire threat, volume of the compartment, and the ventilation rate. The system must have sufficient extinguishing agent to provide an initial knockdown and suppression environment per the minimum performance standards that have been established for the agent being used. In addition, certification flight testing will verify the acceptable duration that the suppression environment can be maintained.

(2) If the capacity of the extinguishing system does not provide effective fire suppression that will last for the duration of flight from the farthest point in route to the nearest suitable landing site expected in service, an additional manual firefighting procedure must be established. For the built-in extinguishing system, the time duration for effective fire suppression must be established and documented in the firefighting procedures in the airplane flight manual. If the duration of time for demonstrated effective fire suppression provided by the built-in extinguishing agent will be exceeded, the firefighting procedures must instruct the crew to:

(i) Enter the OFCR compartment at the time that demonstrated fire suppression effectiveness will be exceeded.

(ii) Check for and extinguish any residual fire.

(iii) Confirm that the fire is out.

(b) For a manual hand-held bottle extinguishing system (designed as the sole means to fight a fire or to supplement a built-in extinguishing system of limited suppression duration) for the OFCR:

(1) There must be a limitation in the airplane flight manual or other suitable means requiring that crewmembers be trained in the firefighting procedures.

(2) The compartment design must allow crewmembers equipped for firefighting to have unrestricted access to all parts of the compartment.

(3) The time for a crewmember on the main deck to react to the fire alarm, don the firefighting equipment, and gain

access to the OFCR compartment must not exceed the time it would take for the compartment to become filled with smoke, thus making it difficult to locate the fire source.

(4) Approved procedures describing methods for searching the OFCR compartment for fire source(s) must be established. These procedures must be transmitted to the operator for incorporation into its training programs and appropriate operational manuals.

14. There must be a means provided to exclude hazardous quantities of smoke or extinguishing agent originating in the OFCR compartment from entering any other occupiable compartment.

(a) Small quantities of smoke may penetrate from the OFCR compartment into other occupied areas during the one-minute smoke detection time.

(b) There must be a provision in the firefighting procedures to ensure that all doors and hatches at the OFCR compartment outlets are closed after evacuation of the compartment and during firefighting to minimize smoke and extinguishing agent entering other occupiable compartments.

(c) Smoke entering any occupiable compartment when access to the OFCR compartment is open for evacuation must dissipate within five minutes after the access to the OFCR compartment is closed.

(d) Hazardous quantities of smoke may not enter any occupied compartment during access to manually fight a fire in the OFCR compartment. The amount of smoke entrained by a firefighter exiting the OFCR compartment is not considered hazardous.

(e) Flight tests must be conducted to show compliance with this requirement.

15. There must be a supplemental oxygen system within the OFCR compartment as follows:

(a) There must be at least one mask for each seat and berth in the OFCR compartment.

(b) If a destination area (such as a changing area) is provided in the OFCR compartment, 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 OFCR compartment).

(c) There must also be an oxygen mask readily accessible to each occupant who can reasonably be expected to be moving from the main cabin into the OFCR compartment, moving around within the OFCR

compartment, or moving from the OFCR compartment to the main cabin.

(d) The system must provide an aural and visual alert to warn occupants of the OFCR compartment to don oxygen masks in the event of decompression. The aural and visual alerts must activate concurrently with 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 OFCR compartment and must sound continuously for a minimum of five minutes or until a reset switch within the OFCR 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 oxygen masks can be manually deployed from the flight deck.

(f) Approved procedures must be established for OFCR occupants in the event of decompression. 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 OFCR compartment must 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 OFCR compartment lighting system must automatically be sufficient for each occupant of the compartment to locate a deployed oxygen mask.

16. The following additional requirements apply to OFCR 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 OFCR 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 OFCR compartment created by the installation of a curtain, the following requirements of these proposed special conditions must be met with the curtain open or closed:

(1) No smoking placard requirement (Proposed Special Condition No. 1).

(2) Emergency illumination requirement (Proposed Special Condition No. 7).

(3) Emergency alarm system requirement (Proposed Special Condition No. 9).

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

(5) Smoke or fire detection system requirement (Proposed Special Condition No. 12).

(6) Oxygen system requirement (Proposed Special Condition No. 15).

(c) OFCR compartments that are visually divided to the extent that evacuation could be affected must have exit signs directing occupants to the primary stairway outlet. The exit signs must be provided in each separate section of the OFCR compartment, except for curtained bunks, and must meet requirements of § 25.812(b)(1)(i). An exit sign with reduced background area or a symbolic exit sign as described in Proposed Special Condition No. 6(a) may be used to meet this requirement.

(d) For sections within an OFCR compartment created by the installation of a rigid partition with a door separating the sections, the following requirements of these proposed 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 a section of the compartment. Removal of an incapacitated occupant from within this area must be considered. A secondary evacuation route from a small room designed for only one occupant for a short time

duration, such as a changing area or lavatory, is not required, but removal of an incapacitated occupant from within such a small room 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 door.

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

(5) Proposed Special Conditions No. 1 (no smoking placards), No. 7 (emergency illumination), No. 9 (emergency alarm system), No. 10 (fasten seat belt signal or return to seat signal as applicable), No. 12 (smoke or fire detection system), and No. 15 (oxygen system) must be met with the door open or closed.

(6) Proposed Special Conditions No. 8 (two-way voice communication) and No. 11 (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 periods of time.

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

18. Materials (including finishes or decorative surfaces applied to the materials) must comply with the requirements of § 25.853 as amended by Amendment 25-116. Seat cushions and mattresses must comply with the flammability requirements of § 25.853(c) as amended by Amendment 25-116 and the test requirements of part 25, appendix F, part II, or other equivalent methods.

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

20. Each stowage compartment in the OFCR compartment, except for underseat compartments for occupant convenience, must be completely enclosed. All enclosed stowage compartments within the OFCR compartment that are not limited to stowage of emergency equipment or airplane-supplied equipment 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 proposed special condition. The in-flight accessibility of very large enclosed stowage compartments and the subsequent impact on the crewmembers' 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.

DESIGN CRITERIA FOR ENCLOSED STOWAGE COMPARTMENTS NOT LIMITED TO STOWAGE OF EMERGENCY OR AIRPLANE-SUPPLIED EQUIPMENT

Fire protection features	Applicability of fire protection requirements by interior volume		
	Less than 25 cubic feet	25 Cubic feet to less than 57 cubic feet	57 Cubic feet to 200 cubic feet
Compliant Materials of Construction ¹	Yes	Yes	Yes.
Smoke or Fire Detectors ²	No	Yes	Yes.
Liner ³	No	Conditional	Yes.
Fire Location Detector ⁴	No	Yes	Yes.

¹ Compliant Materials of Construction

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 Smoke or Fire 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 OFCR compartment.

(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 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 (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 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 Fire Location Detector

If an OFCR compartment has enclosed stowage compartments exceeding 25 ft.³ interior volume that are located separately from the other stowage compartments (located, for example, away from one central location, such as the entry to the OFCR compartment or a common area within the OFCR compartment, where the other stowage compartments are), that OFCR compartment 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 December 28, 2009.

Ali Bahrami,

Manager, Transport Airplane Directorate,
Aircraft Certification Service.

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2009-1256; Directorate Identifier 2009-CE-064-AD]

RIN 2120-AA64

Airworthiness Directives; SOCATA Model TBM 700 Airplanes

AGENCY: Federal Aviation Administration (FAA), Department of Transportation (DOT).

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: We propose to adopt a new airworthiness directive (AD) for the products listed above. This proposed AD results from mandatory continuing airworthiness information (MCAI) originated by an aviation authority of another country to identify and correct an unsafe condition on an aviation product. The MCAI describes the unsafe condition as:

It has been discovered that the foam inside the towing bar box is not conformed to the certification specification, and especially the flame resistance properties.

In case of fire, in the front baggage compartment, the non conformed foam could rapidly propagate the flames and/or emit toxic fumes in the cabin.

The proposed AD would require actions that are intended to address the unsafe condition described in the MCAI.

DATES: We must receive comments on this proposed AD by February 18, 2010.

ADDRESSES: You may send comments by any of the following methods:

- *Federal eRulemaking Portal:* Go to <http://www.regulations.gov>. Follow the instructions for submitting comments.
- *Fax:* (202) 493-2251.
- *Mail:* U.S. Department of Transportation, Docket Operations, M-

30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue, SE., Washington, DC 20590.

- *Hand Delivery:* U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue, SE., Washington, DC 20590, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov>; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this proposed AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Office (telephone (800) 647-5527) is in the **ADDRESSES** section. Comments will be available in the AD docket shortly after receipt.

FOR FURTHER INFORMATION CONTACT:

Albert Mercado, Aerospace Engineer, FAA, Small Airplane Directorate, 901 Locust, Room 301, Kansas City, Missouri 64106; telephone: (816) 329-4119; fax: (816) 329-4090.

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite you to send any written relevant data, views, or arguments about this proposed AD. Send your comments to an address listed under the **ADDRESSES** section. Include "Docket No. FAA-2009-1256; Directorate Identifier 2009-CE-064-AD" at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this proposed AD. We will consider all comments received by the closing date and may amend this proposed AD because of those comments.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this proposed AD.

Discussion

The European Aviation Safety Agency (EASA), which is the Technical Agent for the Member States of the European Community, has issued EASA AD No.: 2009-0238-E, dated October 30, 2009 (referred to after this as "the MCAI"), to correct an unsafe condition for the specified products. The MCAI states:

It has been discovered that the foam inside the towing bar box is not conformed to the certification specification, and especially the flame resistance properties.

In case of fire, in the front baggage compartment, the non conformed foam could rapidly propagate the flames and/or emit toxic fumes in the cabin.

For the reason stated above the Airworthiness Directive (AD), as a temporary measure, mandates the removal of the foam, pending a foam change.

You may obtain further information by examining the MCAI in the AD docket.

Relevant Service Information

SOCATA has issued Mandatory Service Bulletin SB 70-179, dated October 2009. The actions described in this service information are intended to correct the unsafe condition identified in the MCAI.

FAA's Determination and Requirements of the Proposed AD

This product has been approved by the aviation authority of another country, and is approved for operation in the United States. Pursuant to our bilateral agreement with this State of Design Authority, they have notified us of the unsafe condition described in the MCAI and service information referenced above. We are proposing this AD because we evaluated all information and determined the unsafe condition exists and is likely to exist or develop on other products of the same type design.

Differences Between This Proposed AD and the MCAI or Service Information

We have reviewed the MCAI and related service information and, in general, agree with their substance. But we might have found it necessary to use different words from those in the MCAI to ensure the AD is clear for U.S. operators and is enforceable. In making these changes, we do not intend to differ