

readily controllable, using normal piloting techniques.

(b) *Maximum speed for stability characteristics*, V_{FC}/M_{FC} , V_{FC}/M_{FC} is the maximum speed at which the requirements of § 23.175(b)(2), special condition SC 23.177, and § 23.181 must be met with flaps and landing gear retracted. It may not be less than a speed midway between V_{MO}/M_{MO} and V_{DF}/M_{DF} except that, for altitudes where Mach number is the limiting factor, M_{FC} need not exceed the Mach number at which effective speed warning occurs.

12. SC 23.1505, *Airspeed Limitations*

Instead of compliance with § 23.1505, the following applies:

The maximum operating limit speed (V_{MO}/M_{MO} -airspeed or Mach number, whichever is critical at a particular altitude) is a speed that may not be deliberately exceeded in any regime of flight (climb, cruise, or descent), unless a higher speed is authorized for flight test or pilot training operations. V_{MO}/M_{MO} must be established so that it is not greater than the design cruising speed V_C/M_C and so that it is sufficiently below V_D/M_D or V_{DF}/M_{DF} , to make it highly improbable that the latter speeds will be inadvertently exceeded in operations. The speed margin between V_{MO}/M_{MO} and V_D/M_D or V_{DF}/M_{DF} may not be less than that determined under § 23.335(b) or found necessary in the flight test conducted under special condition SC 23.253.

13. SC 23.1545, *Airspeed Indicator*

Instead of compliance with § 23.1545, the following applies:

The following markings must be made on each airspeed indicator:

A maximum allowable airspeed indication showing the variation of V_{MO}/M_{MO} with altitude or compressibility limitations (as appropriate), or a radial red line marking for V_{MO}/M_{MO} must be made at the lowest value of V_{MO}/M_{MO} established for any altitude up to the maximum operating altitude for the airplane.

14. SC 23.1583, *Operating Limitations*

Instead of compliance with § 23.1583(a)(1), (a)(2), and (c)(4)(i) respectively, the following apply:

(a)(1) Information necessary for the marking of the airspeed limits on the airspeed indicator as required in special condition SC 23.1545, and the significance of each of those limits and of the color-coding used on the airspeed indicator.

(a)(2) The speeds V_{MC} , V_O , V_{LE} , V_{FE} , V_{LO} , if established, and their significance.

(c)(4)(i) The airplane complies with the requirements of special condition SC 23.63; and

15. SC 23.1585, *Operating procedures*

(c)(3) The requirement to comply with § 23.1585(c)(3) is deleted.

Issued in Kansas City, Missouri on April 16, 2004.

James E. Jackson,

Acting Manager, Small Airplane Directorate, Aircraft Certification Service.

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No. NM273; Special Conditions No. 25-260-SC]

Special Conditions: Boeing Model 777 Series Airplanes; Overhead Crew Rest Compartment Occupiable During Taxi, Take-off, and Landing

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final special conditions.

SUMMARY: These special conditions are issued for Boeing Model 777 series airplanes. These airplanes will have novel or unusual design features because of the installation of an overhead crew rest compartment that will be occupiable during taxi, takeoff, and landing. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for these design features. 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: *Effective Date:* April 14, 2004.

FOR FURTHER INFORMATION CONTACT: Mike Thompson, 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) 227-1157; facsimile (425) 227-1100.

SUPPLEMENTARY INFORMATION:

Background

On June 25, 2002, the Boeing Commercial Airplane Group (BCAG), P. O. Box 3707, Seattle, Washington, 98124, applied for a change to Type Certificate No. T00001SE to install an overhead crew rest (OHCR)

compartment, in Boeing Model 777 series airplanes. The OHCR compartment will be occupiable during taxi, takeoff, and landing (TT&L). The Boeing Model 777 series airplanes are large, twin-engine airplanes with various passenger capacities and ranges depending upon airplane configuration.

The OHCR compartment is located in the overhead space above the main passenger cabin immediately aft of the first pair of main deck emergency exits (Door 1) and includes a maximum of two private berths and two seats. Occupancy of the OHCR compartment will be limited to a maximum of four crewmembers during flight and two flight crewmembers, one in each seat, during TT&L.

The OHCR 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 from the OHCR compartment as an alternate route for evacuating occupants of the OHCR 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.

While the installation of an OHCR compartment is not a new concept for large transport category airplanes, each OHCR compartment has unique features based on design, location, and use on the airplane. Previously, OHCR compartments have been installed and certified in Boeing Model 777 series airplanes in the main passenger seating area, in the overhead compartment above the main passenger seating area, and below the passenger seating area within the cargo compartment. On April 9, 2003, the FAA issued Special Conditions No. 25-230-SC for an OHCR compartment immediately aft of the Door 1 exits, and an overhead flight attendant rest compartment adjacent to Door 3 in Boeing Model 777 series airplanes. These new special conditions address an OHCR compartment at the same location aft of Door 1 as in the April 2003 special conditions, except that they address occupancy by trained flightcrew during TT&L.

Type Certification Basis

Under the provisions of § 21.101, Amendment 21-69, effective September 16, 1991, Boeing Commercial Airplane Group must show that Model 777 series airplanes, as changed, continue to meet the applicable provisions of the regulations incorporated by reference in Type Certificate Data Sheet No. T00001SE or the applicable regulations

in effect on the date of application for the change. The regulations incorporated by reference in the type certificate are commonly referred to as the "original type certification basis." The U.S. type certification basis for Boeing Model 777 series airplanes is established in accordance with 14 CFR 21.17 and 21.29 and the type certificate application date. The type certification basis is listed in Type Certificate Data Sheet No. T00001SE.

If the Administrator finds that the applicable airworthiness regulations (*i.e.*, 14 CFR part 25) do not contain adequate or appropriate safety standards for Boeing Model 777 series airplanes because of a novel or unusual design feature, special conditions are prescribed under the provisions of § 21.16.

In addition to the applicable airworthiness regulations and special conditions, Boeing Model 777 series airplanes must comply with the fuel vent and exhaust emission requirements of 14 CFR part 34 and the noise certification requirements of 14 CFR part 36.

Special conditions, as defined in § 11.19, are issued in accordance with § 11.38 and become part of the type certification basis in accordance with § 21.101.

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, or should any other model already included on the same type certificate be modified to incorporate the same novel or unusual design features, the special conditions would also apply to the other model under the provisions of § 21.101.

Compliance with these special conditions does not relieve the applicant from the existing airplane certification basis requirements. One particular area of concern is that installation of the OHCR compartment creates a small compartment volume within the large overhead volume of the airplane. The applicant must comply with the requirements of §§ 25.365(e), (f), and (g) (regarding the effects of sudden decompression) for the OHCR compartment, as well as any other airplane compartment whose decompression characteristics are affected by the installation of an OHCR compartment. Compliance with § 25.831 (regarding ventilation) must be demonstrated for all phases of flight where occupants will be present.

Novel or Unusual Design Features

This OHCR compartment is unique to part 25 due to its design, location, and use on the airplane. This OHCR compartment is particularly unique in that it is in the overhead area of the passenger compartment and will be occupied by trained flightcrew during TT&L.

Due to the novel or unusual features associated with the installation of this OHCR compartment, special conditions are considered necessary to provide a level of safety equal to that established by the airworthiness regulations incorporated by reference in the type certificate. These special conditions do not negate the need to address other applicable part 25 regulations.

Discussion of Comments

Notice of Proposed Special Conditions No. 25-04-01-SC for the Boeing Model 777 series airplanes, was published in the **Federal Register** on February 6, 2004 (69 FR 5747). One commenter, Boeing Commercial Airplane Group, responded to the notice.

Comment: Boeing states that occupancy of the OHCR compartment during TT&L should not be limited to flight crewmembers, but should also include other crewmembers, such as flight attendants.

FAA Reply: Prior to issuance of Notice 25-04-01-SC, Boeing proposed to limit occupancy of the OHCR compartment during TT&L to flight crewmembers only. Hence, public comment was requested based on this limitation. Allowing other crewmembers to occupy the OHCR compartment during TT&L is considered beyond the scope of Notice No. 25-04-01-SC and should be addressed by separate notice.

Comment: Special Condition No. 1(a)(2) restricts occupancy of the OHCR compartment to crewmembers the pilot in command has determined are trained in the "evacuation procedures" for the OHCR compartment. Boeing proposes revising "evacuation procedures" to "emergency procedures."

FAA Reply: We concur with this proposal since occupants of the OHCR compartment must be trained in not only evacuation of the OHCR compartment, but also other emergency procedures (fire fighting, depressurization). Special Condition No. 1(a)(2) and other associated text in this document have been revised to address this comment.

Comment: Special Condition 4 requires that there be at least two emergency evacuation routes that could be used by "each occupant" of the

OHCR compartment to rapidly evacuate to the main cabin. Boeing proposes to change the words "each occupant" to "any occupant."

FAA Reply: We do not agree with this change. The proposed wording would allow the evacuation routes to be designed to be used by any particular crewmember who may occupy the OHCR compartment. For example, compliance with the commenter's proposed wording could be found with two emergency evacuation routes designed for use by a 5th percentile female occupant only. However, the emergency evacuation routes should be designed to also provide rapid means of escape for persons of larger size. The FAA proposed wording is based on the wording of § 25.819(a) and is considered appropriate.

Comment: Boeing proposes to refer to the emergency evacuation routes of Special Condition No. 4 as "evacuation routes" and not "emergency evacuation routes."

FAA Reply: We do not agree with this change. The term "emergency evacuation route" is based on the wording in § 25.819 and is considered appropriate.

Comment: Boeing proposes deleting the last sentence in Special Condition No. 13(b)(2) and placing a similar statement at the end of Special Condition No. 13. Boeing states that this would provide consistency with Special Conditions No. 25-230-SC and would provide clarity as to how the fire fighting procedures should be transmitted and incorporated into the operators' training and operational manuals.

FAA Reply: Special Condition No. 13(a) is intended to address the requirements for a built-in extinguishing system. Paragraph (b) is intended to address the requirements for when manual fire fighting would be chosen, whether the manual system was designed as the sole means to fight a fire or to supplement a built-in extinguishing system of limited effective suppression duration, as addressed in paragraph (a)(2). We have therefore revised paragraph (b) to provide the needed clarification. Additionally, paragraph (b)(2) is made up of two requirements, which although complementary, could be separated without changing the intent. To provide the clarification suggested by Boeing, we have moved the last sentence of paragraph (b)(2) to a new paragraph (b)(4).

Comment: Boeing proposes to add wording to the preamble discussion of Special Condition No. 14 which implies that smoke penetration requirements are

not applicable during TT&L for the OHCR compartment.

FAA Reply: Smoke penetration requirements must be met during all phases of flight when the OHCR compartment door is closed. This door is required to be closed when the OHCR compartment is not occupied, even during TT&L. When the OHCR compartment is occupied during TT&L, the door must be open, and the smoke penetration requirements are not applicable. We consider the original preamble wording to be sufficient.

Comment: Boeing proposes changing the word "decompression" to "depressurization" in Special Condition No. 15.

FAA Reply: We agree and have made this change.

Comment: Boeing also proposes adding the following sentence to Special Condition No. 15: "There must also be a limitation placed in the Airplane Flight Manual or other means requiring that crewmembers be trained in depressurization procedures." Boeing states that the addition of this sentence would ensure consistency within the special conditions concerning required training procedures and AFM limitations. Boeing further states that evacuation, fire fighting, and depressurization training are all required in order to occupy the OHCR compartment during taxi, takeoff and landing.

FAA Reply: The last two sentences of Special Condition No. 15 state that decompression procedures must be established and transmitted to the operators for incorporation into their training programs and appropriate operational manuals. Thus, the existing special conditions imply training is required. However, to provide further clarification, we have added the proposed sentence to the end of Special Condition No. 15.

Comment: Boeing proposes to delete wording in the preamble of Special Condition No. 20 that explains why the requirements of § 25.787(a) should apply to the OHCR compartment.

FAA Reply: We disagree. The current explanation provides clarity and should be retained in the preamble.

The commenter proposes several other nonsubstantive revisions to the proposed special conditions for clarity. We have incorporated these revisions where appropriate.

Operational Evaluations and Approval

These special conditions outline requirements for OHCR compartment design approvals (type design changes) administered by the FAA's Aircraft Certification Service. Prior to

operational use of an OHCR compartment, the FAA's Flight Standards Service must evaluate and approve the "basic suitability" of the OHCR compartment for crew occupation. Additionally, if an operator wishes to use an OHCR compartment as "sleeping quarters," the OHCR 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 special conditions does not ensure that the applicant has demonstrated compliance with the requirements of parts 121 or 135.

In order 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 their crew rest compartment. The results of these evaluations should be documented in a 777 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 OHCR compartment configuration that affect crewmember egress or any other procedures affecting the safety of the occupying crewmembers or related emergency training will require re-evaluation and approval. The applicant for a crew rest compartment design change that affects egress, safety procedures, or training is responsible for notifying the FAA's AEG that a new crew rest compartment evaluation is required. The results of a re-evaluation should also be documented in a 777 FSB report appendix.

Procedures must be developed to ensure that a crewmember entering the OHCR compartment through the vestibule to fight a fire will examine the vestibule and the lavatory areas (if installed) for the source of the fire prior to entering the remaining areas of the OHCR compartment. These procedures are intended to ensure that the source of the fire is not between the crewmember and the entrance to the OHCR compartment. In the event a fire source is not immediately evident to the firefighter, the firefighter should check for potential fire sources at areas closest to the OHCR compartment entrance first, then proceed to check areas in such a manner that the fire source, when found, would not be between the firefighter and the OHCR compartment

entrance. Procedures describing methods to search the OHCR 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

The installation of an OHCR compartment that can be occupied during TT&L by flightcrew is unique. 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 the materials are distributed to appropriate airports, domestic and foreign. A special condition is not considered appropriate to address this issue.

Discussion of the Special Conditions

These special conditions establish seating, communication equipment, lighting, personal safety, and evacuation requirements for the OHCR compartment. In addition, passenger information signs and supplemental oxygen are required. Where applicable, the requirements parallel the existing requirements for a lower deck service compartment in § 25.819 and for an OHCR compartment not occupiable during TT&L in Special Conditions No. 25-230-SC, issued on April 9, 2003. These special conditions provide a level of safety equivalent to that provided for main deck occupants.

Consideration of a Requirement for an External Exit

The FAA has considered whether or not a special condition should require that the OHCR compartment have an external exit leading directly outside the airplane. In accordance with § 21.16, special conditions must provide flight crewmembers who occupy the OHCR compartment during TT&L with a level of safety equivalent to that established by part 25 for main deck occupants. We consider that the following, in addition to the other special conditions, provides this level of safety:

1. The distances along the evacuation routes from seats in the OHCR 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 who are trained in the evacuation, fire fighting and depressurization procedures of the OHCR 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.

The Air Line Pilots Association, International (ALPA), and International Federation of Air Line Pilots (IFALPA) reviewed the Boeing OHCR compartment design and informed the FAA that in their opinion an external exit is not needed, because two independent, internal evacuation routes will be provided. ALPA and IFALPA provided this position to the FAA and Boeing in a meeting on January 7, 2003, and again to the FAA in letters dated February 20, 2003, and February 21, 2003. Since flight crewmembers will be the only occupants of the OHCR compartment during TT&L, this input provided further support in determining the acceptability of these special conditions, which do not include a requirement for an external exit.

As discussed in the background section, these special conditions address the same OHCR compartment as that addressed by Special Conditions No. 25-230-SC, except that these special conditions address occupancy of trained flightcrew during TT&L. Special Conditions No. 25-230-SC were developed based on occupancy during flight only for crewmembers in general (flight crewmembers and flight attendants). These special conditions also allow occupancy of flight crewmembers and flight attendants during flight. However, the applicant has requested that new special conditions be developed that would allow flight crewmembers to occupy the OHCR compartment during TT&L. The FAA has not considered the acceptability of any other occupants in the OHCR compartment during TT&L. These special conditions limit occupancy to crewmembers during flight and to flight crewmembers during TT&L.

Special Condition No. 1

Due to the location and configuration of the OHCR compartment, occupancy must be limited to a maximum of four crewmembers during flight and two flight crewmembers during TT&L. One factor which limits occupancy is the number of approved seats and berths provided in the OHCR compartment.

During TT&L, occupancy must be restricted to flight crewmembers who the pilot in command has determined are able to use the evacuation routes rapidly and who are trained in the emergency procedures for the OHCR compartment. The FAA considers this requirement necessary to support a finding that the OHCR compartment will provide an equivalent level of safety to that provided by main deck seating. The special conditions also provides requirements for the installation of ashtrays and to prohibit smoking and the stowage of cargo or passenger baggage in the OHCR compartment.

Special Condition No. 2

This special condition specifies the requirements for door access and locking. It provides requirements similar to those in Special Conditions No. 25-230-SC for the OHCR compartment that is not occupiable during TT&L, and also provides requirements to prevent doors from obstructing an evacuation after an emergency landing.

Special Condition No. 3

Section 25.562 was established in recognition that some standard beyond the static conditions of § 25.561 was necessary to provide seats which are more resistant to the dynamic nature of emergency landing forces. The new standard achieves this within the capability of traditional main deck floor-type structure. Numerous tests were conducted to establish this standard. The results were the 16G forward and 14G combined down and forward dynamic tests, as documented in § 25.562. Since § 25.562 was developed based on the inherent capability of traditional main deck floor structure, certification testing of main deck floor-type structure was not required by § 25.562.

The OHCR compartment structure bears little similarity in physical characteristics to main deck floor structure. In keeping with the intent of § 25.562, this different structure must be analyzed or tested to demonstrate that it will function with capability similar to traditional main deck floor structure in an emergency landing event, retaining the seats and maintaining their attachments to the airplane. Therefore, the OHCR compartment structure must be demonstrated to be compatible with dynamic loads introduced by the seats, providing the same level of protection during an emergency landing event as that provided to those seated on traditional main deck floor structure. The applicant must propose, for FAA

approval, means to analyze or test the OHCR compartment structure to demonstrate this capability.

Special Condition No. 4

This special condition refers to emergency evacuation routes and crew rest compartment outlets. A crew rest compartment outlet is an opening (for example, a door or hatch) between the OHCR compartment and the main passenger deck. An emergency evacuation route, as used in the context of this special condition, is an egress path that leads OHCR compartment occupants to crew rest compartment outlets and out of the compartment.

To preclude occupants from being trapped in the OHCR compartment in the event of an emergency, there must be at least two emergency evacuation routes that could be used by each occupant of the OHCR compartment to rapidly evacuate to the main cabin. These two routes must be sufficiently separated to minimize the possibility of an event rendering both routes inoperative. The main entry route meeting the appropriate requirements may be used as one of the emergency evacuation routes or, alternatively, two other emergency evacuation routes must be provided.

The following clarifies the intent of Special Condition No. 4(b) concerning the utility of the egress routes. First, occupied passenger seats are not considered an impediment to the use of an egress route (if, for example, the egress route drops into one row of main deck seats by means of a hatch), provided that the seated occupants do not inhibit the opening of the egress route (the hatch in this example). Second, an egress route may use areas where normal movement or evacuation of passengers occurs if it is demonstrated that the passengers would not impede egress to the main deck. If the egress means opens into a main aisle, cross aisle, or galley complex, 95th percentile male passengers on the main deck must be considered. Third, the escape hatch should be provided with a means to prevent it from being inadvertently closed by a passenger on the main deck. This will ensure main deck passengers cannot prevent occupants of the OHCR compartment from using the escape route.

Training requirements for the occupants of the OHCR compartment are included in these special conditions. Requirements to prevent passengers on the main deck from entering the OHCR compartment and requirements regarding door and hatch usability are also provided.

Special Conditions No. 25–230–SC has qualitative and quantitative criteria for determining that the evacuation routes have sufficient separation within the OHCR compartment. Those criteria have been incorporated into these special conditions to clarify how compliance can be shown with Special Condition No. 4(a).

Special Condition No. 5

This special condition requires a means for removing an incapacitated person from the OHCR compartment to the main deck. The design and procedures for such an evacuation must be demonstrated to be adequate for all evacuation routes. Limits would be imposed on the assistance that may be provided in evacuating an incapacitated person in these demonstrations.

Special Condition No. 6

Exit signs, placards for evacuation routes, and illumination for signs, placards, and door handles are required for the OHCR compartment. This special condition allows for use of exit signs with a reduced background. If a reduced background is used, the material surrounding the sign must be light in color to more closely match and enhance the illuminated background of the sign that has been reduced in area (letter size stays the same). These reduced background area signs have been allowed under previous equivalent level of safety findings for small transport executive jets.

Special Condition No. 7

An emergency lighting system is required to prevent the occupants from being isolated in a dark area due to loss of lighting in the OHCR compartment. The emergency lighting must be activated under the same conditions as the main deck emergency lighting system.

Special Condition No. 8

Two-way voice communications and public address speaker(s) are required and provisions to prevent occupants of the OHCR compartment from being disturbed by normal, non-emergency announcements made to the passenger cabin.

Special Condition No. 9

Means to notify occupants of the OHCR compartment of an emergency situation must be provided via an emergency alarm, use of the public address system, or a crew interphone system. Power to the emergency alarm system must be maintained for a specific duration after certain failures.

Special Condition No. 10

There must be a means, readily detectable by seated or standing occupants of the OHCR compartment, of indicating when seat belts should be fastened. The requirement for visibility of the sign by standing occupants may be met by a general area sign that is visible to occupants standing in the main floor area or corridor of the OHCR compartment. It would not be essential that the sign be visible from every possible location in the OHCR compartment. However, the sign should not be remotely located or located where it may be easily obscured.

Special Condition No. 11

The OHCR compartment, which is remotely located from the passenger cabin, must be equipped with the following:

- A hand-held fire extinguisher.
- Protective breathing equipment (PBE).
- A flashlight.

The following clarifies how this special condition should be understood relative to the requirements of § 25.1439(a). Amendment 25–38 modified the requirements of § 25.1439(a) by adding, “In addition, protective breathing equipment must be installed in each isolated separate compartment in the airplane, including upper and lower lobe galleys, in which crewmember occupancy is permitted during flight for the maximum number of crewmembers expected to be in the area during any operation.” But the PBE requirements of § 25.1439(a) are not appropriate in this case, because the OHCR compartment is novel and unusual in terms of the number of occupants. In 1976, when Amendment 25–38 was adopted, underfloor galleys were the only isolated compartments that had been certificated, with a maximum of two crewmembers expected to occupy those galleys. This special condition addresses PBE requirements for OHCR compartments, which can accommodate up to 4 crewmembers. This number of occupants in an isolated compartment was not envisioned at the time Amendment 25–38 was adopted. In the event of a fire, an occupant’s first action should be to leave the confined space, unless the occupant(s) is fighting the fire. It is not appropriate for all occupants of the OHCR compartment to don PBE. Taking the time to don the PBE would prolong the time for the occupant’s emergency evacuation and possibly interfere with efforts to extinguish the fire. Therefore, Special Condition No. 11 requires two PBE

units, or one PBE for each handheld fire extinguisher, whichever is greater, for this OHCR compartment.

Special Condition No. 12

Because the OHCR compartment is remotely located from the main passenger cabin and will not always be occupied, a smoke detection system and appropriate warnings are required. The smoke detection system must be capable of detecting a fire within the OHCR compartment, including each area of the compartment created by the installation of a curtain or door.

Special Condition No. 13

This special condition originated from a concern that a fire in an unoccupied OHCR compartment could spread into the passenger compartment or affect other vital systems before it could be extinguished. This special condition requires either installation of a built-in fire suppression system or a demonstration that the crew could satisfactorily perform the function of extinguishing a fire manually under the prescribed conditions. A built-in fire extinguishing system would be required only if a crewmember could not successfully locate and extinguish the fire during a demonstration in which the crewmember is responding to the alarm. (Reference Special Condition No. 13(a) in general.)

This special condition also provides requirements for the use of a combination of the two methods of fighting a fire if the applicant so chooses. (Reference Special Condition No. 13(a)(2).)

Also, the OHCR compartment must be designed so that fires within the compartment can be controlled without having to enter the compartment; or, the design of the access provisions must allow crew equipped for fire fighting to have unrestricted access to the compartment. (Reference Special Condition No. 13(b)(2).) The time for a crewmember on the main deck to react to the fire alarm, don firefighting equipment, and gain access must not exceed the time it would take for the OHCR compartment to become smoke filled, when it would be difficult to locate the fire source. (Reference Special Condition No. 13(b)(3).) (See additional information specified in Special Condition No. 14.)

The requirements for enabling crewmember(s) to quickly enter the OHCR compartment, locate a fire source (Reference Special Condition No. 13(b)), evacuate the compartment (Reference Special Condition No. 4), or evacuate an incapacitated person from the compartment (Reference Special

Condition No. 5), inherently places limits on the size of the OHCR compartment and the amount of baggage that may be stowed there. The OHCR compartment is limited to stowage of crew personal luggage and it is not intended to be used for the stowage of cargo or passenger baggage. The design of such a system to include cargo or passenger baggage would require additional requirements to ensure safe operation.

The OHCR 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) is considered 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 OHCR compartment fire protection system (*i.e.*, smoke or fire detection and fire suppression systems) in conjunction with an OHCR 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).

Special Condition No. 14

Means must be provided to exclude hazardous quantities of smoke or extinguishing agent originating in the OHCR compartment from entering any other compartment. The FAA accepts the fact that during the one-minute smoke detection time and during access to fight a fire, penetration of a small quantity of smoke from this OHCR compartment into an occupied area on this airplane configuration would be acceptable, based upon the limitations placed in this and other associated special conditions. (Reference Special Condition No. 12(a), and Special Conditions No. 14(b), (c), (d) and (e)).

Special Condition No. 15

The oxygen equipment and a supplemental oxygen deployment warning for the OHCR compartment must be equivalent to that provided for main deck passengers.

Special Condition No. 16

This special condition specifies the requirements for a divided OHCR compartment to address supplemental oxygen equipment and deployment means, signs, placards, curtains, doors, emergency illumination, alarms, seat

belt fasten signals, and evacuation routes.

Special Condition No. 17

If a waste disposal receptacle is fitted, it must be equipped with an automatic fire extinguisher.

Special Condition No. 18

Materials in the OHCR compartment must meet the flammability requirements of § 25.853 at Amendment 25-83. Seat cushions and mattresses must meet the fire blocking requirements of § 25.853(c).

Section 25.853(e) indicates that crew rest compartment quarters need not meet the standards of § 25.853(d), provided the interiors of these compartments are isolated from the main passenger cabin by doors or equivalent means that would normally be closed during an emergency landing. Since the OHCR compartment is occupiable during TT&L, the OHCR main entrance door must be latched open during TT&L, and hence, its interior must comply with § 25.853(d) in the manner consistent with the main passenger cabin.

Special Condition No. 19

This requirement is a reiteration of existing main deck lavatory requirements to provide clear applicability. OHCR compartment lavatories, if installed, must comply with the existing rules on lavatories in the absence of other specific requirements. In addition, any lavatory located in the OHCR compartment must also meet the requirements of Special Condition No. 12 for smoke detection due to placement within this remote area.

Special Condition No. 20

This special condition requires fire protection for stowage areas within an OHCR compartment as a function of size (compartment interior volume). The fire protection requirements for stowage compartments in the OHCR compartment are more stringent than those for stowage in the main passenger cabin, because the OHCR compartment is a remote area that can remain unoccupied for long periods of time, in contrast to the main cabin that is under continuous monitoring by the cabin crew and passengers. For stowage compartments less than 25 ft³, the safety objective of these requirements is to contain the fire. FAA research indicates that properly constructed compartments meeting the material requirements will prevent burnthrough. For stowage compartments greater than 25 ft³ but less than 200 ft³, the safety objective of

these requirements is to detect and contain the fire for sufficient time to allow it to be extinguished by the crew. The requirements for these sizes of compartments are comparable to the requirements for Class B cargo compartments. The fire protection requirements are intended to provide a level of safety for the OHCR compartment equivalent to the level of safety established by existing regulations for the main cabin.

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 is not applicable to the flight deck so that flight crewmembers may quickly access items and better perform their duties. Occupants of the OHCR compartment will not be performing flight deck duties, and the FAA considers that stowage compartments in the OHCR compartment, except for under-seat compartments for occupant convenience, should be completely enclosed. This will provide occupants of the OHCR compartment a level of safety similar to that provided to main deck passengers. Note that typical literature pockets and magazine racks are not considered stowage compartments and, therefore, are not required to be completely enclosed by this special condition.

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

Applicability

These special conditions are applicable to Boeing Model 777 series airplanes. Should the Boeing Commercial Airplane Group apply at a later date for a change to the type certificate to include another model incorporating the same novel or unusual design features, the special conditions would apply to that model as well under the provisions of § 21.101.

Effective Date

Under standard practice, the effective date of final special conditions would be 30 days after the date of publication in the **Federal Register**; however, as the certification date for a Boeing Model 777 series airplane with an OHCR compartment that is occupiable during TT&L by two flight crewmembers is

imminent, the FAA finds that good cause exists to make these special conditions effective upon issuance.

Conclusion

This action affects only certain novel or unusual design features on one airplane model. This 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 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 777 series airplanes with an overhead crew rest compartment (OHCR) installed adjacent to or immediately aft of the first pair of exits (Door 1).

1. During flight, occupancy of the OHCR 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 OHCR compartment is limited to the total number of installed seats approved to the flight and ground load conditions and emergency landing conditions. The OHCR 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 OHCR compartment to indicate:

(1) The maximum number of crewmembers allowed during flight and 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 OHCR compartment and able to rapidly use the evacuation routes.

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

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

(b) There must be at least one ashtray on the inside and outside of any entrance to the OHCR 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 OHCR compartment and are able to rapidly use the evacuation routes of the OHCR compartment.

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

(a) There must be a means for any door installed between the OHCR compartment and passenger cabin to be quickly opened from inside the OHCR 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 OHCR compartment and any other door(s) installed across emergency egress routes of the OHCR compartment, that requires these doors to be latched open during TT&L when the OHCR compartment is occupied. This requirement does not apply to emergency escape hatches installed in the floor of the OHCR compartment. A placard must be displayed in a conspicuous place on the outside of the entrance door to the OHCR 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 their training programs and appropriate operational manuals.

(d) For all doors installed in the OHCR compartment, there must be a means to preclude anyone from being trapped inside the OHCR compartment. If a locking mechanism is installed, it must be capable of being unlocked from the outside without the aid of a key or other special tools. The lock must not prevent opening from the inside of the OHCR 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 OHCR 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 OHCR compartment to rapidly evacuate to the main cabin. In addition—

(a) The routes must be located with sufficient separation within the OHCR compartment to minimize the

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

Compliance with the requirements of 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 Special Condition No. 4(a). An inspection finding that an OHCR compartment has evacuation routes located so that each occupant of the seats and berths has an unobstructed route to at least one of the crew rest 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 OHCR compartment would require no further review or analysis with regard to their separation.

Compliance by Analysis

Analysis must show that the OHCR compartment configuration and interior features allow all occupants of the OHCR 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 OHCR compartment, considered separately, and the design elements used to reduce the available fuel for the fire.

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

(3) Distribution and quantity of emergency equipment within the OHCR 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 in accordance with §§ 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 OHCR compartment. The location and quantity of PBE and fire extinguishers should allow occupants located in any approved seats or berths access to the equipment necessary to fight a fire in the OHCR compartment.

The intent of this special condition is to provide sufficient egress route separation. Therefore the separation analysis described above should not be used to approve crew rest 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 OHCR 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 OHCR compartment length.

For OHCR compartments with neither required crew rest compartment outlet located near the forward or aft end of the OHCR compartment (as measured by not having the centroid of either outlet opening within 20 percent of the forward or aft end of the total OHCR compartment length), the outlet separation from one outlet to the other should not be less than 30 percent of the total OHCR 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 crew rest compartment outlets. One of the two crew rest 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 OHCR 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 OHCR compartment) from head injury. The use of evacuation routes must not be dependent on any powered device. If a crew rest 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 evacuation process of an incapacitated person(s). If the 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 the emergency evacuation of an incapacitated occupant from the OHCR compartment, must be established. The applicant for a change in type design must transmit all of these procedures to the operator for incorporation into their training programs and appropriate operational manuals.

(d) There must be a limitation in the Airplane Flight Manual or other suitable means requiring that crewmembers be trained in the use of the OHCR compartment evacuation routes. This training must instruct them to ensure that the OHCR compartment (including seats, doors, etc.) is in its proper TT&L configuration.

(e) There must be a means to prevent passengers on the main deck from entering the OHCR compartment when no flight attendant is present or in the event of an emergency, including an emergency evacuation.

(f) Doors or hatches that separate the OHCR 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 OHCR compartment must be simple and obvious. In addition, the crew rest compartment doors and hatches must be able to be closed from the main passenger cabin.

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

Evacuation must be demonstrated for all evacuation routes. A crewmember may provide assistance in the evacuation (a total of one assistant within the OHCR compartment). 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 having stairways, the additional assistants may ascend up to one half the elevation change from the main deck to the OHCR compartment, or to the first landing, whichever is lower.

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

(a) At least one exit sign, located near each crew rest compartment outlet, meeting the requirements of § 25.812(b)(1)(i). An 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.

(b) An appropriate placard must be located conspicuously on or near each OHCR 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 OHCR compartment lighting system, for emergency illumination to be automatically provided for the OHCR compartment.

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

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

(c) The illumination level must be sufficient for the occupants of the OHCR compartment to locate and transfer to

the main passenger cabin floor by means of each evacuation route.

(d) The illumination level must be sufficient, with the privacy curtains in the closed position, for each occupant of the crew rest 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 OHCR compartment. There must also be two-way communications between the occupants of the OHCR compartment and each flight attendant station required to have a public address system microphone per § 25.1423(g) in the passenger cabin. In addition, the public address system must include provisions to provide only the relevant information to the crewmembers in the OHCR 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 OHCR 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 OHCR 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 (APU), for a period of at least ten minutes.

10. There must be a means, readily detectable by seated or standing occupants of the OHCR 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 special conditions is predicated on specific head location, there must be a placard identifying the head position.

11. Protective breathing equipment (PBE) must be provided in accordance with § 25.1439, except that in lieu of a device for each crewmember, the following must be provided: Two PBE devices approved to Technical Standard Order (TSO)-C116 or equivalent,

suitable for firefighting, or one PBE for each hand-held fire extinguisher, whichever is greater. The following equipment must also be provided in the OHCR 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 and fire extinguishers in specific locations, beyond the minimum numbers prescribed in Special Condition No. 11, may be required as a result of the egress analysis accomplished to satisfy Special Condition No. 4(a).

12. A smoke or fire detection system (or systems) must be provided that monitors each occupiable area within the OHCR 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 OHCR 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 (MPS) that have been established for the agent being used.

- (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:

- 1. Enter the crew rest compartment at the time that demonstrated fire suppression effectiveness will be exceeded.

- 2. Check for and extinguish any residual fire.

- 3. 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 OHCR:

- (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 crew rest compartment must not exceed the time for the compartment to become smoke-filled, making it difficult to locate the fire source.

- (4) Procedures describing methods to search the OHCR compartment for fire source(s) must be established and transmitted to the operator for incorporation into their 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 OHCR compartment from entering any other occupiable compartment.

- (a) Small quantities of smoke may penetrate from the crew rest 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 door(s) and hatch(es) at the crew rest compartment outlets are closed after evacuation of the crew rest compartment and during firefighting to minimize smoke and extinguishing agent from entering other occupiable compartments.

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

- (d) Hazardous quantities of smoke may not enter any occupied compartment 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 is not considered hazardous.

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

15. There must be a supplemental oxygen system equivalent to that provided for main deck passengers for each seat and berth in the OHCR compartment. The system must provide an aural and visual warning to alert the occupants of the OHCR compartment to don oxygen masks in the event of depressurization. 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 OHCR compartment is depressed. Procedures for crew rest compartment occupants in the event of depressurization must be established. These procedures must be transmitted to the operators for incorporation into their training programs and appropriate operational manuals. There must also be a limitation placed in the Airplane Flight Manual or other suitable means requiring that crewmembers be trained in depressurization procedures.

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

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

(b) A placard is required adjacent to each curtain that visually divides or separates, for privacy purposes, the OHCR 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.

(c) For each section of the OHCR compartment created by the installation of a curtain, requirements for the following must be met with the curtain open or closed:

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

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

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

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

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

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

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

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

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

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

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

(5) 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) and No. 12 (smoke or fire detection system) must be met with the door open or closed.

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

18. Materials (including finishes or decorative surfaces applied to the materials) must comply with the requirements of § 25.853 as amended by Amendment 25-83. Seat cushions and mattresses must comply with the flammability requirements of § 25.853(c), as amended by Amendment 25-83, and the test requirements of part 25, appendix F, part II, or other equivalent methods.

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

20. Each stowage compartment in the crew rest compartment, except for underseat compartments for occupant convenience, must be completely enclosed. All enclosed stowage compartments within the OHCR 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 ft³ in interior volume are not addressed by this special condition. The in-flight accessibility of very large enclosed stowage compartments and the subsequent impact on the 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.

REQUIREMENTS FOR FIRE PROTECTION FEATURES FOR STOWAGE COMPARTMENTS DEPENDING ON INTERIOR VOLUME SIZE

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
Materials of Construction ¹	Yes	Yes	Yes.
Smoke or Fire Detectors ²	No	Yes	Yes.
Liner ³	No	Conditional	Yes.
Location Detector ⁴	No	Yes	Yes.

¹ *Material*: The material used to construct each enclosed stowage compartment must at least be fire resistant and must meet the flammability standards established for interior components (i.e., 14 CFR Part 25 Appendix F, Parts I, IV, and V) per the requirements of §25.853. For compartments less than 25 ft³ 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 OHCR 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 25-93, 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 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 for a Class B cargo compartment.

⁴ *Location Detector*: OHCR compartments that contain enclosed stowage compartments exceeding 25 ft³ in interior volume and are located away from one central location such as the entry to the OHCR compartment or a common area within the OHCR 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 April 14, 2004.

Mike Kaszycki,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

[FR Doc. 04-9515 Filed 4-26-04; 8:45 am]

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 71

[FAA Docket No. FAA-2003-17383; Airspace Docket No. 04-AWA-01]

RIN 2120-AA66

Correction to Modification of the Houston Class B Airspace Area; TX

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule, correction.

SUMMARY: This action corrects a final rule published in the **Federal Register** on September 17, 2003. In that rule, inadvertent errors were made in the legal description of the Houston, TX, Class B airspace area. This action corrects those errors.

EFFECTIVE DATE: 0901 UTC, September 30, 2004.

FOR FURTHER INFORMATION CONTACT: Steve Rohring, Airspace and Rules, Office of System Operations and Safety, ATO-R, Federal Aviation Administration, 800 Independence

Avenue, SW., Washington, DC 20591; telephone: (202) 267-8783.

SUPPLEMENTARY INFORMATION:

History

On September 17, 2003, the FAA modified the Houston Class B airspace area (FAA Docket No. FAA-2003-14402/Airspace Docket No. 01-AWA-4; 68 FR 54329). That action contained several inadvertent errors in the legal description for the airspace area. Specifically, some areas were not the same as presented in the public meetings or studied by the *ad hoc* committee and were not sufficient to contain turbojet operations within the Houston Class B Airspace Area during the conduct of triple simultaneous operations. Subsequent to the publication of the final rule, the *ad hoc* committee met regarding the erroneous descriptions and agreed to corrections. This action corrects those inadvertent errors.

Corrections to Final Rule

■ Accordingly, pursuant to the authority delegated to me, the legal description for the Houston Class B airspace area, as published in the **Federal Register** on September 17, 2003 (68 FR 54329), and incorporated in 14 CFR 71.1, is corrected as follows:

PART 71—DESIGNATION OF CLASS A, B, C, D, AND E AIRSPACE AREAS; AIR TRAFFIC SERVICE ROUTES; AND REPORTING POINTS

§ 71.1 [Corrected]

■ On page 54329, correct the legal description of the Houston Class B Airspace, to read as follows:

Paragraph 3000—Subpart B—Class B Airspace

* * * * *

ASW TX B Houston, TX (Revised)

George Bush Intercontinental Airport (IAH)(Primary Airport)
(Lat. 29°59'04" N., long. 95°20'29" W.)
William P. Hobby Airport (HOU) (Secondary Airport)
(Lat. 29°38'44" N., long. 95°16'44" W.)
Ellington Field (EFD)
(Lat. 29°36'26" N., long. 95°09'32" W.)
Humble VORTAC (IAH)
(Lat. 29°57'25" N., long. 95°20'45" W.)
Point of Origin
(Lat. 29°39'01" N., long. 95°16'45" W.)

Boundaries

Area A. That airspace extending upward from the surface to and including 10,000 feet MSL bounded by a line beginning at the intersection of the Humble VORTAC 8-mile DME arc and the 090° radial; thence clockwise along the Humble VORTAC 8-mile DME arc to the Humble VORTAC 069° radial; thence east along the Humble VORTAC 069° radial to the 10-mile DME arc of Humble VORTAC; thence clockwise along the Humble VORTAC 10-mile DME arc to the Humble VORTAC 090° radial; thence west to the point of beginning; and that airspace bounded by a line beginning at lat. 29°45'37" N., long. 95°21'58" W.; to lat. 29°45'46" N., long. 95°11'47" W.; thence clockwise along