

2461 note; 31 U.S.C. 330 and 5321; and 42 U.S.C. 4012a.

2. Subpart O is revised to read as follows:

**Subpart O—Civil Money Penalty Inflation Adjustments**

**§ 19.240 Inflation adjustments.**

The maximum amount of each civil money penalty within the OCC's

jurisdiction is adjusted in accordance with the Federal Civil Penalties Inflation Adjustment Act of 1990 (28 U.S.C. 2461 note) as follows:

U.S. Code citation	Description	Adjusted maximum penalty
12 U.S.C. 93(b), 504, 1817(j)(16), 1818(i)(2), and 1972(2)(F) ....	Tier 1 .....	5,500
	Tier 2 .....	27,500
	Tier 3 .....	1,175,000
12 U.S.C. 164 and 3110(c) .....	Tier 1 .....	2,200
	Tier 2 .....	22,000
	Tier 3 .....	1,175,000
12 U.S.C. 1832(c) and 3909(d)(1) .....	.....	1,100
12 U.S.C. 1884 .....	.....	110
12 U.S.C. 3110(a) .....	.....	27,500
15 U.S.C. 78u-2(b) .....	Tier 1 (natural person) .....	5,500
	Tier 1 (other person) .....	60,000
	Tier 2 (natural person) .....	60,000
	Tier 2 (other person) .....	300,000
	Tier 3 (natural person) .....	120,000
	Tier 3 (other person) .....	575,000
	Per violation .....	350
42 U.S.C. 4012a(f)(5) .....	Per year .....	115,000

**§ 19.241 Applicability.**

The adjustments in § 19.240 apply to violations that occur after December 11, 2000.

Dated: December 1, 2000.

**John D. Hawke, Jr.,**

*Comptroller of the Currency.*

[FR Doc. 00-31165 Filed 12-8-00; 8:45 am]

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**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 25**

[Docket No. NM175; Special Conditions No. 25-169-SC]

**Special Conditions: Boeing Model 777-200 Series Airplanes; Overhead Crew Rest Compartment**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final special conditions.

**SUMMARY:** These special conditions are issued for the Boeing Model 777-200 series airplanes, modified by Flight Structures, Inc. The modification consists of the installation of a crew rest compartment located in the vicinity of door three in the overhead area of the passenger compartment. The crew rest compartment is to be certified for a maximum of ten occupants for use only during flight. The applicable airworthiness regulations do not contain adequate or appropriate safety standards

for this design feature. These special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

**EFFECTIVE DATE:** December 1, 2000.

**FOR FURTHER INFORMATION CONTACT:** Jayson Claar, FAA, Transport Standards Staff, ANM-115, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, Washington, 98055-4056; telephone (425) 227-2194; facsimile (425) 227-1320.

**SUPPLEMENTARY INFORMATION:**

**Background**

On June 25, 1999, Flight Structures, Inc., 4407 172 Street NE, Arlington, Washington, 98223, applied for a supplemental type certificate to install an overhead crew rest compartment in Boeing Model 777-200 series airplanes. The Boeing Model 777-200 series airplane is a large twin-jet engine transport airplane with four pairs of Type A exits, a passenger capacity of 440, and a range of 5000 miles. The overhead crew rest compartment is a single compartment located above the main passenger compartment in the vicinity of door three. The crew rest compartment will contain eight private bunks and two seats, and is to be certified for a maximum of ten occupants. A stairwell entering from the door three aisle is the main entry. Two escape hatches are located on either side of the entryway door. These special conditions are written for an overhead

crew rest compartment that will be occupied only in flight, not during taxi, takeoff, or landing.

**Type Certification Basis**

Under the provisions of § 21.101, Flight Structures, Inc., must show that the Boeing Model 777-200 series airplane, as changed, continues to meet the applicable provisions of the regulations incorporated by reference in Type Certificate 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 regulations incorporated by reference in Type Certificate No. T00001SE for the Boeing Model 777-200 series airplanes include 14 CFR part 25, as amended by Amendments 25-1 through 25-82. The U.S. type certification basis for the Boeing Model 777-200 series airplanes is established in accordance with 14 CFR 21.29 and 21.17 and the type certification 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.*, part 25) do not contain adequate or appropriate safety standards for the Model 777-200 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 777-200

series airplane must comply with the fuel vent and exhaust emission requirements of 14 CFR part 34 and the noise certification requirements of 14 CFR part 36.

Special conditions, as appropriate, are issued in accordance with § 11.49, after public notice, as required by §§ 11.28 and 11.29(b), and become part of the type certification basis in accordance with § 21.101(b)(2).

Special conditions are initially applicable to the model for which they are issued. Should the applicant apply for a supplemental type certificate to modify any other model included on the same type certificate to incorporate the same novel or unusual design feature, the special conditions would also apply to the other model under the provisions of § 21.101(a)(1).

#### **Novel or Unusual Design Features**

While the installation of a crew rest compartment is not a new concept for large transport category airplanes, each compartment design has unique features by virtue of its design, location, and use on the airplane. Previously, crew rest compartments have been evaluated that are installed within the main passenger compartment area of the Boeing Model 777-200 and Model 777-300 series airplanes; other crew rest compartments have been installed below the passenger cabin area, within the cargo compartment. Similar overhead crew rest compartments have also been installed on the Boeing Model 747 airplane. The interfaces of the modification are evaluated within the interior and assessed in accordance with the certification basis of the airplane. However, part 25 does not provide the requirements for crew rest compartments within the overhead area of the passenger compartment for the Boeing Model 777-200 series airplanes.

This is a compartment that has never been used for this purpose in any previous Boeing Model 777-200 series airplanes. Due to the novel or unusual features associated with the installation of this crew rest 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.

#### **Discussion of Comments**

Notice of proposed special conditions No. 25-00-02-SC for the Boeing Model 777-200 series airplanes modified with a Flight Structures, Inc., overhead crew rest compartment was published in the **Federal Register** on September 25, 2000 (65 FR 57564). Six commenters responded to the Notice.

#### *Special Condition No. 1*

Two comments address special condition no. 1(a)(2), concerning a placard near the crew rest compartment entrance stating that occupants must be trained in crew rest compartment evacuation procedures. One commenter proposes that the placarding include the reference to the training material document. The commenter states that this would be consistent with the 747 door 5 overhead crew rest compartment special conditions.

The 747 door 5 overhead crew rest special conditions, issued November 13, 1987, do not include a requirement to have a placard near the entrance of the crew rest compartment stating that occupants must be trained in crew rest compartment evacuation procedures.

The requirement that the occupants must be trained in the evacuation procedures for the Boeing Model 777-200 series airplane crew rest compartment is contained in special condition no. 2(d). After further consideration, the FAA agrees with the recommendation to modify the placarding requirement of special condition no. 1(a)(2) to include "that are trained in the evacuation procedures for the overhead crew rest compartment," but not to include the reference to the training material document.

One comment raises the question that if lighted "No Smoking" signs are provided in addition to the "No Smoking" placarding in special condition no. 1(a)(4) then the signs and placarding could provide conflicting and confusing information. If the lighted signs are switchable then this would be confusing to the occupants of the crew rest compartment since the lighted signs when not illuminated would allow smoking and the placarding would prohibit smoking. The commenter recommends that if lighted signs are provided that they remain on at all times.

The FAA agrees that if lighted "No Smoking" signs are provided that they should remain on at all times.

#### *Special Condition No. 2*

One comment addresses special condition no. 2, concerning the requirement that the evacuation from the crew rest compartment must be rapid, which implies an undefined time restraint that is not well understood or required in other special conditions for similar designs of remote compartments. The commenter proposes removing the word "rapidly" from the special conditions.

The FAA does not agree with the comment that "rapidly" should be

removed from the special conditions. The wording in the special conditions is consistent with the evacuation requirements for other remote compartments. The regulation for lower deck service compartments, 14 CFR 25.819, has the same requirement that is addressed in special condition no. 2, including the requirement for rapid evacuation from the compartment to the main deck. The crew rest compartment evacuation must be rapid to reduce the amount of time between the detection of smoke and initiation of fire fighting procedures. Also, rapid evacuation would reduce the amount of time that smoke from the crew rest compartment could enter the passenger cabin through the open evacuation route.

Two comments address special condition no. 2(a), concerning the requirement that the two evacuation routes be located on opposite sides of the crew rest compartment, with sufficient separation within the compartment to minimize the possibility of an event rendering both routes inoperative. They note the words "opposite sides of the crew rest" do not add to the level of safety for the occupants of the crew rest over that provided by the evacuation routes that have "sufficient separation within the compartment to minimize the possibility of an event rendering both routes inoperative."

Previous special conditions for overhead crew rest compartments have given the option for evacuation routes to be located on opposite sides of the crew rest, or to have sufficient separation within the compartment to minimize the possibility of an event rendering both routes inoperative. The FAA agrees with the comment that the words "opposite sides of the crew rest" do not add to the level of safety for the occupants of the crew rest when the routes must have "sufficient separation within the compartment to minimize the possibility of an event rendering both routes inoperative." Evacuation routes located on opposite sides of the crew rest compartment may be located in an area where both routes could be rendered inoperative. The final special conditions will be revised to remove the words "opposite sides of the crew rest."

Five comments address special condition no. 2(b), concerning the location of crew rest compartment evacuation paths entering the main deck. One commenter proposes clarification to the times that must be considered for normal movement of passengers that would affect the evacuation from the crew rest compartment by adding the following words "during times in which

occupancy is allowed" in the crew rest compartment. The commenter states that since the crew rest compartment is not occupied during taxi, takeoff and landing, egress from the compartment during an emergency evacuation of the airplane is not relevant.

The FAA agrees with the comment that passenger movement during in-flight conditions needs to be considered since the crew rest may only be occupied during flight. The special conditions will be revised to reflect this clarification, that normal movement by passengers when crew rest compartment occupancy is allowed must be considered.

A second commenter states that the limitations for the location of one of the two evacuation routes are too restrictive and proposes some changes. The commenter suggests that during flight the normal passenger movement would be greatest in the main aisle and galley complex areas and the movement in a cross aisle would be much less. The commenter proposes allowing the evacuation routes to open into cross aisles provided there were procedures that would require verification that area below the emergency hatch is clear of passengers before evacuating.

The FAA does not agree with the concern that requiring one evacuation route not to open into a cross aisle is overly restrictive. The special conditions require that one evacuation route be located such that normal passenger movement would not block the route, but allows the other route(s) to be located where they could be blocked by normal passenger movement. A compartment design that would allow both evacuation routes to be blocked by normal passenger movement does not provide an acceptable level of safety.

A third commenter notes that passenger movement is low enough when the crew rest compartment is occupied that the cabin crew could clear the area under or adjacent to an emergency escape route quickly, regardless of its location. The commenter proposes a change to the special conditions requiring procedures for clearing the area of the evacuation route in the event an evacuation is necessary and there is passenger movement in the evacuation route.

The FAA has considered the proposal to have the main deck cabin crew clear passengers out of the evacuation path prior to evacuation from the crew rest compartment. The reliance on the main deck cabin crew to take some action before the crew rest compartment can be evacuated is not acceptable. In cases when the main deck cabin crew is

involved with an emergency, they may not be available to clear the passengers out of the area of the evacuation path. This includes evacuation paths into an aisle, cross aisle, galley complex, or over passenger seats.

A fourth commenter states that if the evacuation path is over an area where there are passenger seats, then several items need to be considered including: the number of passengers that would need to be displaced, the relocation of these displaced passengers, passenger displacement during turbulence, the possibility of the evacuees stepping on the passenger seats, and addressing the strength of these passenger seats. The fifth commenter provides some responses to the fourth commenter's concerns.

The FAA agrees that an evacuation path over an area where the passengers must be relocated is a concern. The FAA has considered this type of evacuation path and has determined that a maximum of one row of seats may be displaced.

The FAA agrees that if the evacuation procedure includes having the evacuee step on a seat, then it must be shown the seat will not be damaged to the extent that it is unsafe for the emergency landing conditions.

#### *Special Condition No. 3*

Three commenters address special condition no. 3 concerning the evacuation of an incapacitated person from the crew rest compartment. One commenter raises a concern that limiting the procedure to a single person assisting the evacuation of an incapacitated occupant was too restrictive. The commenter suggests that a procedure that requires more than one person assisting should be acceptable.

The FAA does not agree with the comment concerning the assistance of a single person to demonstrate that they can evacuate an incapacitated occupant from the crew rest compartment is too restrictive. In the event there are only two occupants of the crew rest compartment and one becomes incapacitated, the other occupant must be able to evacuate the incapacitated occupant to the main deck of the airplane.

The second commenter questions the need to have the evacuation demonstration conducted for each of the evacuation paths and proposes that the demonstration be limited to the most critical evacuation path.

The FAA does not agree with the comment that only the most critical evacuation path for the incapacitated occupant must be demonstrated, unless the paths are identical to each other

including but not limited to size, assist means, access, and available room around the evacuation path. It is very difficult to evaluate which evacuation route would be the most critical path to demonstrate the evacuation of an incapacitated occupant. Therefore, the FAA will require that all routes be demonstrated.

The third commenter proposes that the evacuation procedures should be transmitted to the operator as part of the training evacuation procedure.

The FAA concurs with the comment that the procedures for the evacuation of an incapacitated occupant should be part of the training requirements for the occupants of the crew rest compartment.

#### *Special Condition No. 4*

One comment addresses special condition no. 4(a), concerning the requirement for at least one exit sign to be located near each exit. The commenter proposes that only the primary evacuation route be equipped with an exit sign meeting the requirements of § 25.812(b)(1)(i). The commenter believes that having exit signs at both primary and secondary exits may cause confusion during an evacuation.

The FAA disagrees with the comment to have an exit sign only at the primary exit path. The basic reason for the requirement to have an exit sign meeting the requirements of § 25.812(b)(1)(i) located near each exit is to identify the emergency exits. When there is an emergency that requires the evacuation of the crew rest compartment, the occupants must be provided the greatest opportunity to evacuate the compartment as quickly as possible. Identifying all of the evacuation routes with an exit sign provides the evacuees with visible signs that locate the available exits. With this knowledge they can assess the conditions and determine the best route for evacuation based on the conditions present in the compartment.

Three comments address special condition no. 4(d) concerning the illumination of the exit handles and instruction placards. Two of the commenters recommend that the special conditions be revised to clarify what instruction placards are being addressed by the special conditions.

The FAA agrees that special condition no. 4(d) should be revised to identify what instruction placards must be illuminated to at least 160 microlamberts under emergency lighting conditions. The intent is to have the instruction placards for the operation and use of the escape paths be addressed by the illumination

requirements of these special conditions.

The third commenter proposes that special condition no. 4(d) be deleted and special condition no. 4(c) be revised to read as follows: "Placards and exit handles must be visible and readable from a distance of 30 inches under emergency lighting conditions."

The FAA disagrees with the proposal to delete special condition no. 4(d) and revise the requirements of special condition no. 4(c) to address the visibility of the instruction placards under emergency lighting conditions. The FAA requires a specific measurable illumination level because it is the best way to eliminate judgement calls that would result from the proposal that requires the placard be readable from a distance of 30 inches under emergency lighting conditions.

#### *Special Condition No. 7*

Two comments address special condition no. 7 concerning the use of the public address and crew interphone as the means of alerting the occupants of the crew rest compartment of an emergency. The commenters state that the current public address and crew interphone designs do not differentiate between normal and emergency communications and that each airline has a protocol and procedures for emergency communications.

The FAA is concerned that during normal operation the public address system would not be active in the crew rest compartment. In an emergency, the system would need to be active in the crew rest compartment. Therefore, means need to be provided for differentiating between normal and emergency communications. The FAA also has a similar concern that the chime system on the crew interphone system does not provide an adequate means of differentiating between normal and emergency communications.

#### *Special Condition No. 9*

Two comments address special condition no. 9 concerning providing protective clothing for a person fighting a fire in the crew rest compartment. One commenter proposes that protective clothing be provided for the designated fire fighter. The other commenter argues against that type of requirement.

The FAA has determined that the minimum equipment required to fight a fire in the crew rest compartment is a fire extinguisher and protective breathing equipment.

#### *Special Condition No. 10*

One comment addresses special condition no. 10(c) concerning the

smoke detection warning provided in the main passenger cabin. The commenter suggests that the special condition be changed from "A warning in the main passenger cabin \* \* \*" to "A visual and/or aural warning in the main passenger cabin. \* \* \*" It is the commenter's contention that both means would provide an acceptable warning.

The FAA agrees that either a visual or aural warning could be found acceptable, however, the current wording does allow both types of warnings or combinations of the warnings. Therefore, no change to the special conditions wording is required.

#### *Special Condition No. 11*

Five comments address special condition no. 11 concerning fire control in the overhead crew rest. One commenter disagrees with handling fire control without entering the overhead crew rest area. The commenter states that this does not provide an acceptable level of safety and that manual fire fighting does provide an acceptable level of safety. The commenter states that Halon stratification from a built-in system would settle in the vestibule area of the overhead crew rest and prevent proper concentration in the entire area that would be needed to control the fire.

The FAA disagrees with the comment that a built-in fire extinguishing system does not provide an acceptable level of safety. The FAA would require a test to show that for any built-in fire extinguishing system, the concentration during the initial introduction of Halon 1301 or equivalent is a minimum of five percent by volume and that it is sustained at a minimum level of three percent for the maximum diversion in still air (including an allowance for 15-minute holding and/or approach and land) for the airplane. The applicant's design must ensure that in the event the vestibule door is damaged, the extinguishing agent concentration of Halon 1301 is not compromised. The door would be placarded for crew access only and access will be limited by a mechanism to prevent "accidental opening."

One comment mentions a concern about products of thermal decomposition of Halon when exposed to a fire, and the impact of this on passengers.

The FAA agrees that the built-in fire extinguishing system must not introduce a hazard to the occupants or airplane structure. Section 25.851(b) would apply to any built-in fire extinguishing system. The issue of toxicity of fire extinguishing agents has been previously explored as in

Amendment 25-74, Airplane Cabin Fire Protection, adopted: April 4, 1991, effective May 16, 1991, as published in the **Federal Register** 56 FR 15450, April 16, 1991.

One comment expresses concern over the operation of the vent system used to evacuate smoke when smoke is present in the overhead crew rest. A system that evacuates smoke during a fire would also evacuate the fire suppression agents used to control the fire in the compartment.

The FAA agrees with the comment that a ventilation system within a compartment that has a fire suppression system can have a negative affect on the fire suppression system. The design of the ventilation system would need to ensure that the ventilation flow can be controlled in such a way during a fire that the fire suppression agent used remains in the compartment. There is no requirement to clear smoke from the crew rest area, however, there is a requirement to clear the smoke that has entered the main passenger compartment during the evacuation of the crew rest compartment and/or during the process of fighting the fire.

One commenter addresses concerns regarding the access provisions required for the crew rest compartment and timely access of the crew member with the fire fighting equipment and proposes changes to the special condition. The commenter believes that "unrestricted access" is too restrictive a requirement and the "sufficient access" provides an acceptable level of safety.

The FAA disagrees with the comment that the current language is inappropriate. The use of "unrestricted access" related to "crewmembers equipped for fire fighting". The intent of this requirement is to ensure that the aircraft design will accommodate the entrance to enable "crewmembers equipped for fire fighting" to gain entrance to the crew rest area in a minimum amount of time.

One comment suggests that a built-in fire extinguishing system is not warranted.

The FAA does not concur with the comment. The special condition as written allows either a built-in system or crew entry and extinguishing of fire directly. This is left to the applicant to propose and demonstrate a suitable solution. The overhead crew rest area poses some challenges but a successful applicant should be able to design the crew rest area and associated ventilation system and smoke/detection and fire suppression system architecture to ensure that FAA requirements are met. Therefore, the FAA believes that the

current language in the special condition is appropriate.

One commenter suggests the special condition should be revised to reflect the type of fire most likely to occur within the crew rest compartment and associated detection times.

The FAA disagrees that the special conditions should be revised to reflect the type of fires most likely to occur within the crew rest compartment. The special conditions must reflect all expected fire threat scenarios. It should be noted that the crew rest area will not be carrying flammable fluids, explosives, or other dangerous cargo. The requirements to enable crewmember(s) quick entry to the crew rest compartment and to locate a fire source inherently places limits on the amount of baggage that may be carried and the size of the crew rest area. The applicant must accommodate these requirements and the appropriate Aircraft Certification Office must require suitable means of compliance and may elect to limit an investigation to a "worse case fire threat" scenario.

One commenter suggests having a trained crewmember for manual fire fighting as the most effective means for controlling a fire in an overhead crew rest compartment. The commenter recommends that only the manual fire fighting be accepted for the crew rest compartment.

The special condition allows the applicant to select an appropriate means to meet the requirement. While the presence of a "trained crewmember" may be very effective, the FAA position is that a properly designed smoke detection and fire suppression system with sufficient quantity of smoke detectors, smoke detector placement, quantity and placement of fire extinguishing nozzles, control of ventilation, etc; can provide an effective means to control and suppress a fire threat in any crew rest area.

One commenter suggests that the critical design issue for effective manual fire fighting is unrestricted access to the compartment.

The FAA concurs that the time element is a critical issue for effective control and suppression of any fire threat for both a built-in smoke detection and fire suppression system and a manual fire fighting system.

One comment states that "the time for the compartment to become smoke-filled, \* \* \*" is vague and open to numerous interpretations.

The FAA disagrees. Performance based wording is deliberately used to convey to the applicant a broad spectrum of requirements that the regulation intends. The FAA does agree

that there needs to be a common understanding of the requirements and that they need to be consistently applied to each applicant that has a similar installation.

One comment states that it is not clear if a flight test is required for the crew intervention option in special condition no. 11. The commenter believes that it is possible this may be the more limiting test condition and should therefore be required.

The FAA concurs, and an aircraft certification office may require flight testing to demonstrate an acceptable means of compliance.

One comment states that there is no evaluation of the effectiveness of fire fighting procedures. The commenter questions whether it is sufficient to determine that the option of crew intervention provides an equivalent level of safety to the installation of a fire suppression system.

The FAA concurs that the special conditions as written focus on the requirement that a crewmember be able to quickly enter the crew rest compartment prepared to locate the smoke source. Inherent in the action of locating the smoke source is the action of suppression/extinguishment of the smoke source that should be no different than utilizing a fire extinguisher in the cabin. The key issue is the response time. As previously mentioned, the time required to gain access and determine the smoke source must be short enough to prevent the fire from propagating and threatening continued safe flight and landing. The applicant must evaluate the kinds of fires likely to occur and ensure that the appropriate fire extinguishers are provided per the requirements given in § 25.851. In addition, FAA has begun internal discussions to develop guidance on acceptable means of compliance. These discussions have included issues such as the required level of smoke concentration, the possible use of a low light level source to simulate a visual cue from a "smoldering source," placement of the smoke source, and test conditions. The FAA will issue applicable guidance material when it becomes available or is required.

#### *Special Condition No. 14*

Five comments address special condition no. 14(a) concerning the manual release of the oxygen system in the crew rest compartment. Several of the comments state that the design in previous remote crew rest compartments has been an extension of the system provided in the passenger compartment. The oxygen system has an

automatic and a manual release method. With the automatic release method, whenever the altitude in the cabin goes higher than a preset amount, the oxygen masks are automatically deployed. With the manual method, the flight crew can deploy the oxygen masks. The commenters question the need to have a method for the crew rest occupants to manually deploy the oxygen masks.

The FAA agrees with the commenters that the system should be similar to the main deck passenger oxygen system and there must be a means for the oxygen masks to be manually deployed from the flight deck.

One comment addresses special condition no. 14(c)(5) and (f)(7). The commenter interprets a section as a common area in the crew rest area that contains seats and/or bunks that can be closed off for privacy \* \* \* and a smoke detection system in that section that ties into the entire crew rest smoke detection system. The commenter suggests changing the wording in the special conditions to read "Testing of the smoke detection system will demonstrate that a fire can be detected in each individual bunk."

The FAA agrees with the interpretation but disagrees with the need to adopt the suggested language. The FAA interpretation of the requirements for built-in smoke detection and fire suppression/extinguishing systems inherently includes the need for detection and for suppression/extinguishment to encompass the entire area in question.

One comment recommends a general change to the special conditions concerning the approval of all normal, abnormal and emergency procedures and their training be approved by the Authority under which the airplane is operated. The commenter proposes that a statement to that effect be included in the special conditions.

The FAA agrees with the comment that the Authority under which the airplane is operated approves all normal, abnormal and emergency procedures and their training. However, the FAA disagrees that the special conditions must include that requirement. The modification to install the overhead crew rest area would be considered a major modification that would require the approval of the Authority under which the airplane is operated to return the airplane to service after the modification. This approval to return the airplane to service would include review and approval of all normal, abnormal and emergency procedures and their training changes made as a result of the modification.

### Discussion of the Special Conditions

In general, the requirements listed in these special conditions are similar to those previously approved in earlier certification programs, such as the Boeing Model 747 overhead crew rest compartment. These special conditions establish seating, communication, lighting, personal safety, and evacuation requirements for the overhead crew rest compartment. When applicable, the requirements parallel the existing requirements for a lower deck service compartment and provide an equivalent level of safety to that provided for main deck occupants.

Seats and berths must be certified to the maximum flight loads. Due to the location and configuration of the crew rest compartment, occupancy during taxi, takeoff, and landing would be prohibited, and occupancy limited to crewmembers during flight. Occupancy would be limited to either ten persons, or the combined total of approved seats and berths, whichever is less.

To preclude occupants from being trapped in the crew rest compartment in the event the main entryway is blocked, two evacuation routes, including the entryway, would be required. Each evacuation route must be designed to allow for removal of an incapacitated person from the crew rest compartment to the main deck.

In addition, passenger information signs, supplemental oxygen, and a seat or berth for each occupant of the crew rest compartment would be required. These items are necessary because of turbulence and/or decompression.

To prevent the occupants from being isolated in a dark area due to loss of the crew rest compartment lighting, either a second independent source of normal lighting or emergency lighting would be required. An emergency lighting system, which is activated under the same conditions as the main deck emergency lighting system, would also be required.

Two-way voice communications and public address speaker(s) would be required to alert the occupants to an inflight emergency. Also, a system to alert the occupants of the crew rest compartment in the event of decompression and to don oxygen masks would be required.

Special condition No. 8 requires a means, readily detectable by seated or standing occupants of the crew rest compartment, which indicates 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 crew rest area. It

will not be essential to be visible from every possible location in the crew rest area; however, the location should not be easily obscured or remotely located.

Since the overhead crew rest compartment is remotely located from the main passenger cabin and will not always be occupied, a smoke detection system and fire-fighting equipment will be required to minimize the hazards associated with a fire in the crew rest compartment. The smoke detection system must be capable of detecting a fire in each area of the compartment created by the installation of a curtain or partition. The materials in the crew rest compartment must meet the flammability requirements of § 25.853(a), and the mattresses must meet the fire blocking requirements of § 25.853(c).

The crew rest compartment must be designed such 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. The time for a crewmember on the main deck to react to the fire alarm, to don the fire fighting equipment, and to gain access must not exceed the time for the crew rest compartment to become smoke filled, making it difficult to locate the fire source. If the means of controlling the fire within the compartment is a Halon 1301 or equivalent fire suppression system, the system should be designed similar to a cargo compartment fire suppression system. Advisory Circular 120-42, titled "Extended Range Operation With Two-Engine Airplanes (ETOPS)" provides guidance on fire suppression systems in cargo compartments.

This special condition requirement concerning fires within the compartment was developed for, and applied to, Boeing Model 777-200 and Model 777-300 series airplanes lower lobe crew rest compartment; it was not applied to the overhead crew rest compartment in earlier certification programs such as the Boeing Model 747. The Model 747 special conditions were issued before the new flammability requirements were developed. This requirement originated from a concern that a fire in an unoccupied crew rest compartment could spread into the passenger compartment, or affect other vital systems, before it could be extinguished. The special condition would require either the installation of a manually activated fire containment system that is accessible from outside the crew rest compartment, or a demonstration that the crew could

satisfactorily perform the function of extinguishing a fire under the prescribed conditions. The manually activated fire containment system would be required only if it could not be demonstrated that a crewmember responding to the alarm could not locate the fire source and successfully extinguish the fire.

These special conditions provide the regulatory requirements necessary for certification of this modification. Other special conditions may be developed, as needed, based on further FAA review and discussions with the applicant, manufacturer, and civil aviation authorities.

### Applicability

As discussed above, these special conditions are applicable to Boeing Model 777-200 series airplanes. Should Flight Structures, Inc., apply at a later date for a supplemental type certificate to modify any other model included on Type Certificate No. T0001SE to incorporate the same novel or unusual design feature, the special conditions would apply to that model as well under the provisions of § 21.101(a)(1).

### Conclusion

This action affects only certain novel or unusual design features on Boeing Model 777-200 series airplanes. It is not a rule of general applicability, and it affects only the applicant who applied to the FAA for approval of these features on the airplane.

### List of Subjects in 14 CFR Part 25

Aircraft, Aviation safety, Reporting and recordkeeping requirements.

The authority citation for these special conditions is as follows:

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

### The Special Conditions

Accordingly, pursuant to the authority delegated to me by Administrator, the following special conditions are issued as part of the type certification basis for Boeing Model 777-200 series airplanes, as modified by Flight Structures, Inc., with overhead crew rest compartments.

1. Occupancy of the overhead crew rest compartment is limited to a maximum of ten occupants. There must be an approved seat or berth able to withstand the maximum flight loads when occupied for each occupant permitted in the crew rest compartment.

(a) There must be appropriate placards, inside and outside to indicate:

(1) The maximum number of occupants allowed,

(2) That occupancy is restricted to crewmembers that are trained in the evacuation procedures for the overhead crew rest compartment,

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

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

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

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

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

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

2. There must be at least two emergency evacuation routes that could be used by each occupant of the crew rest compartment to rapidly evacuate to the main cabin. In addition—

(a) The routes must be located with sufficient separation within the compartment, and between the evacuation routes, to minimize the possibility of an event rendering both routes inoperative.

(b) The routes must be designed to minimize the possibility of blockage, which might result from fire, mechanical or structural failure, or persons standing below or against the escape route. One of two evacuation routes may not be located where, during times in which occupancy is allowed, normal movement by passengers occurs (*i.e.*, main aisle, cross aisle, or galley complex) that would impede egress of the crew rest compartment. If there is low headroom at or near the evacuation route, provisions must be made to prevent or to protect occupants from head injury. The use of evacuation routes must not be dependent on any powered device. 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 and the evacuation of incapacitated

occupants must be established and transmitted to the operators for incorporation into their training programs and appropriate operational manuals.

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

3. There must be a means for the evacuation of an incapacitated person (representative of a ninety-fifth percentile male) from the crew rest compartment to the passenger cabin floor. The evacuation must be demonstrated for all evacuation routes. A flight attendant or other crewmember (a total of one assistant) may provide assistance in the evacuation. Procedures for the evacuation of an incapacitated person from the crew rest compartment must be established.

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

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

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

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

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

5. There must be a means in the event of failure of the airplane's main power system, or of the normal crew rest compartment lighting system, for emergency illumination to be automatically provided for the crew rest compartment.

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

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

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

6. There must be means for two-way voice communications between the crewmembers on the flight deck and the occupants of the crew rest compartment. There must also be two-way communications between the occupants of the crew rest compartment and each

flight attendant station required to have a public address system microphone per § 25.1423(g) in the passenger cabin.

7. There must be a means for manual activation of an aural emergency alarm system, audible during normal and emergency conditions, to enable crewmembers on the flight deck and at each pair of required floor level emergency exits to alert occupants of the crew rest compartment of an emergency situation. Use of a public address or crew interphone system will be acceptable, providing 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, or the disconnection or failure of all power sources dependent on their continued operation, for a period of at least ten minutes.

8. There must be a means, readily detectable by seated or standing occupants of the crew rest compartment, which indicates when seat belts should be fastened. Seat belt type restraints must be provided for berths and must be compatible for the sleeping attitude during cruise conditions. There must be a placard on each berth requiring that seat belts must be fastened when occupied. If compliance with any of the other requirements of these special conditions is predicated on specific head location, there must be a placard identifying the head position. In the event there are no seats, at least one sign must be provided to cover anticipated turbulence.

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

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

(b) One protective breathing equipment device approved to Technical Standard Order (TSO)-C116 or equivalent, suitable for fire fighting; and

(c) One flashlight.

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

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

(b) An aural warning in the crew rest compartment; and

(c) A warning in the main passenger cabin. This warning must be readily detectable by a flight attendant, taking

into consideration the positioning of flight attendants throughout the main passenger compartment during various phases of flight.

11. The crew rest compartment must be designed such that fires within the compartment can be controlled without a crewmember having to enter the compartment, or the design of the access provisions must allow crewmembers equipped for firefighting to have unrestricted access to the compartment. The time for a crewmember on the main deck to react to the fire alarm, to don the fire fighting equipment, and to gain access must not exceed the time for the compartment to become smoke-filled, making it difficult to locate the fire source.

12. There must be a means provided to exclude hazardous quantities of smoke or extinguishing agent originating in the crew rest compartment from entering any other compartment occupied by crewmembers or passengers. The means must include the time periods during the evacuation of the crew rest compartment and, if applicable, when accessing the crew rest compartment to manually fight a fire. Smoke entering any other compartment occupied by crewmembers or passengers must dissipate within 5 minutes after closing the access to the crew rest compartment. Flight tests must be conducted to show compliance with this requirement.

13. There must be a supplemental oxygen system equivalent to that provided for main deck passengers for each seat and berth in the crew rest compartment. The system must provide:

(a) An aural and visual warning to the occupants of the crew rest compartment to don oxygen masks in the event of decompression; and

(b) A decompression warning that activates before the cabin pressure altitude exceeds 15,000 feet. The warning must sound continuously until a reset pushbutton in the crew rest compartment is depressed.

14. The following requirements apply to a crew rest compartment that is divided into several sections by the installation of curtains or partitions:

(a) To compensate for sleeping occupants, there must be an aural alert that can be heard in each section of the crew rest compartment that accompanies automatic presentation of supplemental oxygen masks. Two supplemental oxygen masks are required in each section whether or not seats or berths are installed in each section. 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 overhead crew rest compartment into small sections. The placard must require that the curtain(s) remain 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 crew rest section created by the installation of a curtain, the following requirements of these special conditions must be met with the curtain open or closed:

(1) No smoking placard (special condition no. 1),

(2) Emergency illumination (special condition no. 5),

(3) Emergency alarm system (special condition no. 7),

(4) Seat belt fasten signal (special condition no. 8), and

(5) The smoke or fire detection system (special conditions no.'s 10, 11, and 12).

(d) Overhead crew rest compartments visually divided to the extent that evacuation could be affected must have exit signs that direct occupants to the primary stairway exit. The exit signs must be provided in each separate section of the crew rest compartment, and must meet the requirements of § 25.812(b)(1)(i).

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

(1) There must be a secondary evacuation route from each section to the main deck, or alternatively, it must be shown that any door between the sections has been designed to preclude anyone from being trapped inside the compartment.

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

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

(4) There must be exit signs in each section meeting the requirements of § 25.812(b)(1)(i) that direct occupants to the primary stairway exit.

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

(1) No smoking placards (special condition no. 1),

(2) Emergency illumination (special condition no. 5),

(3) Two-way voice communication (special condition no. 6),

(4) Emergency alarm system (special condition no. 7),

(5) Seat belt fasten signal (special condition no. 8),

(6) Emergency fire fighting and protective equipment (special condition no. 9), and

(7) Smoke or fire detection system (special conditions no.'s 10, 11, and 12).

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

16. 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).

17. Materials (including finishes or decorative surfaces applied to the materials) must comply with the flammability requirements of § 25.853(a), as amended by Amendment 25-83. Mattresses must comply with the flammability requirements of § 25.853(c), as amended by Amendment 25-83.

Issued in Renton, Washington on December 1, 2000.

**Donald L. Riggins,**

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## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 39

[Docket No. 2000-NM-03-AD; Amendment 39-12032; AD 2000-24-25]

RIN 2120-AA64

#### **Airworthiness Directives; Raytheon Model Hawker 800A (U-125A) and Hawker 800XP Series Airplanes**

**AGENCY:** Federal Aviation Administration, DOT.

**ACTION:** Final rule.

**SUMMARY:** This amendment adopts a new airworthiness directive (AD), applicable to certain Raytheon Model Hawker 800A (U-125A) and Hawker 800XP series airplanes, that requires inspecting the roller clearance in the nose landing gear drag stay and making