

SFAR 50-2H
See SFAR 50-2J

DEPARTMENT OF TRANSPORTATION**Federal Aviation Administration****14 CFR Parts 91 and 135**

[Docket No. 25149; SFAR No. 50-2]

RIN 2120-AC70

Special Flight Rules in the Vicinity of the Grand Canyon National Park

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

ACTION: Final rule.

SUMMARY: On June 2, 1988, the FAA published a final rule which established certain restrictions on the operation of aircraft in the vicinity of the Grand Canyon National Park. This action corrects certain discrepancies between the technical boundary descriptions of the Grand Canyon Special Flight Rules Area and certain flight-free zones within that area and the boundary of the Grand Canyon National Park. The effective date of this rule will be coincident with the effective date of the new Las Vegas Sectional Aeronautical Chart.

DATES: *Effective date:* April 5, 1990.

Expiration date: Special Federal Aviation Regulation (SFAR) No. 50-2 expires on June 15, 1992.

FOR FURTHER INFORMATION CONTACT: Richard K. Kagehiro, Air Traffic Rules Branch, ATO-230, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, DC 20591, Telephone: (202) 267-8783.

SUPPLEMENTARY INFORMATION:**Availability of Document**

Any person may obtain a copy of this document by submitting a request to the Federal Aviation Administration, Office of Public Affairs, APA-200, 800 Independence Avenue, SW., Washington, DC 20591, or by calling (202) 267-3479. Communications must identify the number of this SFAR. Persons interested in being placed on a mailing list for future rules should also request a copy of Advisory Circular No. 11-2A which describes the application procedure.

Background

On May 27, 1988, the FAA issued a final rule for the operation of aircraft in the airspace above the Grand Canyon up to an altitude, but not including, 14,500 feet above mean sea level (MSL), with an effective date of September 22, 1988. SFAR No. 50-2 (53 FR 20264, June 2, 1988), revised prior flight regulations in the vicinity of the Grand Canyon National Park to comply with legislation

requiring additional flight regulations based on the recommendations of the U.S. Department of the Interior. The final rule substantially adopted the recommendations submitted by the Secretary of the Interior to the FAA in accordance with section 3 of Pub. L. 100-91.

After consulting the National Park Service (NPS), the FAA determined that certain minor discrepancies exist between the boundary descriptions of the Grand Canyon Special Flight Rules Area (SFRA) and certain flight-free zones, specified in SFAR No. 50-2, and the current NPS boundary description of the Grand Canyon National Park. As a result, the technical descriptions of the Grand Canyon SFRA and the flight-free zones were reviewed for accuracy. This amendment corrects the discrepancies in those boundary descriptions identified by that review.

The Rule

This amendment revises section 1 of SFAR 50-2 by changing one latitudinal coordinate of the northern boundary description of the Grand Canyon SFRA to coincide with the current boundary of the Grand Canyon National Park. Section 4(c) of SFAR No. 50-2 is similarly revised to change the boundary description of the Shinumo Flight-Free Zone. An editorial correction to section 4(d) describing the Toroweap/Thunder River Flight-Free Zone is made by changing the word "northeast" to "northwest." Additionally, certain coordinates in the technical description of the Toroweap/Thunder River Flight-Free Zone are revised to correspond to the current park boundary.

Without this revision to the technical boundary descriptions specified in SFAR 50-2, certain portions of airspace overlying the Grand Canyon National Park would not be within the lateral confines of the Grand Canyon SFRA. Exclusion of this airspace from the Grand Canyon SFRA would result in the nonapplicability of SFAR 50-2 operating restrictions within that airspace. The restrictions established by SFAR 50-2 were in response to certain environmental and noise-reduction concerns and were consistent with the intent of legislation and the recommendations of the Department of the Interior. The effective date of this amendment will be coincident with the publication of the new Las Vegas Sectional Aeronautical Chart.

Since this amendment is corrective in nature and does not establish additional operating requirements or modify any existing requirements, I find that the notice and public procedure under 5 U.S.C. 553(b) are unnecessary. For the

same reasons, I find that good cause exists for making this rule effective in less than 30 days after publication so as to coincide with the publication of the Las Vegas Sectional Aeronautical Chart.

Environmental Review

An environmental assessment of SFAR No. 50-2 and a Finding of No Significant Impact have been placed in the rules docket. Since this amendment does not alert the conclusions in that document, the FAA has concluded that further environmental assessment is unnecessary.

Economic Evaluation

Because the economic impact of this amendment is so minimal, a regulatory evaluation is unnecessary. For the same reason, the FAA certifies that the amendment will not have a significant effect on a substantial number of small entities.

Federalism Determination

The amendment set forth herein would not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government. Therefore, in accordance with Executive Order 12612, it is determined that this regulation does not have federalism implications warranting the preparation of a Federalism Assessment.

Conclusion

For the reasons set forth above, the FAA has determined that this amendment is not major under Executive Order 12291. In addition, the FAA certified that this regulation will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act. This regulation is not considered significant under Department of Transportation Regulatory Policies and Procedures (44 FR 11024; February 26, 1979).

List of Subjects**14 CFR Part 91**

Aircraft, Aviation safety, Grand Canyon.

14 CFR Part 135

Aviation safety, Air taxis, Commercial operators.

The Amendment

In consideration of the foregoing, the Federal Aviation Administration amends parts 91 and 135 of the Federal

SFAR 50-2

Aviation Regulations (14 CFR parts 91 and 135), Special Federal Aviation Regulation No. 50-2 as follows:

PART 91—GENERAL OPERATING AND FLIGHT RULES

1. The authority citation for part 91 continues to read as follows:

Authority: 49 U.S.C. 1301(7), 1303, 1344, 1348, 1352 through 1355, 1401, 1421 (as amended by P.L. 100-223), 1422 through 1431, 1471, 1472, 1502, 1510, 1522, and 2121 through 2125; Articles 12, 29, 31, and 32(a) of the Convention on International Civil Aviation (61 Stat. 1180); 42 U.S.C. 4321 *et seq.*; E.O. 11514; (P.L. 100-202); 49 U.S.C. 106(g) (Revised Pub. L. 97-449, January 12, 1983).

PART 135—AIR TAXI OPERATORS AND COMMERCIAL OPERATORS

2. The authority citation for part 135 continues to read as follows:

Authority: 49 U.S.C. 1354(a), 1355(a), 1421 through 1431, and 1502; 49 U.S.C. 106(g) (Revised Pub. L. 97-449, January 12, 1983).

3. SFAR 50-2 is amended by revising section 1 and sections 4 (c) and (d). The introductory text of section 4 is republished for the convenience of the reader.

SFAR No. 50-2—Special Flight Rules in the Vicinity of the Grand Canyon National Park, AZ.

Section 1. Applicability. This rule prescribes special operating rules for all persons operating aircraft in the following airspace, designated as the Grand Canyon National Park Special Flight Rules Area:

That airspace extending upward from the surface up to but not including 14,500

feet MSL within an area bounded by a line beginning at lat. 36°09'30" N., long. 114°03'00" W.; northeast to lat. 36°14'00" N., long. 113°09'50" W.; thence northeast along the boundary of the Grand Canyon National Park to lat. 36°24'47" N., long. 112°52'00" W.; to lat. 36°30'30" N., long. 112°36'15" W.; to lat. 36°21'30" N., long. 112°00'00" W.; to lat. 36°35'30" N., long. 111°53'10" W.; to lat. 36°53'00" N., long. 111°36'45" W.; to lat. 36°53'00" N., long. 111°33'00" W.; to lat. 36°19'00" N., long. 111°50'50" W.; to lat. 36°17'00" N., long. 111°42'00" W.; to lat. 35°59'30" N., long. 111°42'00" W.; to lat. 35°57'30" N., long. 112°03'55" W.; thence counterclockwise via the 5-statute mile radius of the Grand Canyon Airport reference point (lat. 35°57'09" N., long. 112°08'47" W.) to lat. 35°57'30" N., long. 112°14'00" W.; to lat. 35°57'30" N., long. 113°11'00" W.; to lat. 35°42'30" N., long. 113°11'00" W.; to lat. 35°38'30" N., long. 113°27'30" W.; thence counterclockwise via the 5-statute mile radius of the Peach Springs VORTAC to lat. 35°41'20" N., long. 113°36'00" W.; to lat. 35°55'25" N., long. 113°49'10" W.; to lat. 35°57'45" N., long. 113°45'20" W.; thence northwest along the park boundary to lat. 36°02'20" N., long. 113°50'15" W.; to lat. 36°00'10" N., long. 113°53'45" W.; thence to the point of beginning.

* * * * *

Section 4. Flight-free zones. Except in an emergency or if otherwise necessary for safety of flight, or unless otherwise authorized by the Flight Standards District Office for a purpose listed in section 3(b), no person may operate an aircraft in the Special Flight Rules Area within the following areas:

* * * * *

(c) *Shinumo Flight-Free Zone.* Within an area bounded by a line beginning at lat. 36°04'00" N., long. 112°16'40" W.; northwest along the park boundary to a point at lat. 36°12'47" N., long. 112°30'53" W.; to lat. 36°21'15" N., long. 112°20'20" W.; east along the park boundary to lat. 36°21'15" N., long. 112°13'55" W.; to lat. 36°14'40" N., long. 112°11'25" W.; to the point of origin. The area between the Thunder River/Toroweap and Shinumo Flight-Free Zones is designated the "Fossil Canyon Corridor."

(d) *Toroweap/Thunder River Flight-Free Zone.* Within an area bounded by a line beginning at lat. 36°22'45" N., long. 112°20'35" W.; thence northwest along the boundary of the Grand Canyon National Park to lat. 36°17'48" N., long. 113°03'15" W.; to lat. 36°15'00" N., long. 113°07'10" W.; to lat. 36°10'30" N., long. 113°07'10" W.; thence east along the Colorado River to the confluence of Havasu Canyon (lat. 36°18'40" N., long. 112°45'45" W.) including that area within a 1.5-nautical-mile radius of Toroweap Overlook (lat. 36°12'45" N., long. 113°03'30" W.) to the point of origin; but not including the following airspace designated as the "Tuckup Corridor": at or above 10,500 feet MSL within 2 nautical miles either side of a line extending between lat. 36°24'47" N., long. 112°48'50" W.; and lat. 36°17'10" N., long. 112°48'50" W.; to the point of origin.

* * * * *

Issued in Washington, DC, on April 4, 1990.

James B. Busey,
Administrator.

[FR Doc. 90-8140 Filed 4-4-90; 4:33 pm]

BILLING CODE 4910-13-M

DEPARTMENT OF TRANSPORTATION**Federal Aviation Administration****14 CFR Part 25**

[Docket No. 25567, Amdt. No. 25-71]

RIN 2120-AC44

Improved Structural Requirements for Pressurized Cabins and Compartments in Transport Category Airplanes**AGENCY:** Federal Aviation Administration (FAA), DOT.**ACTION:** Final rule.

SUMMARY: This amendment upgrades the airworthiness requirements for pressurized compartments on transport category airplanes by (1) amending the criteria for evaluation of the secondary effects caused by openings in the pressure vessel, and (2) extending the area of consideration to include openings anywhere in any pressurized compartment. There are no changes to the sizes of the openings that must be considered. This amendment is a result of recent service experience and is intended to make the pressurized compartment load requirements less design-dependent and more objective. It requires evaluation of openings in any pressurized compartment and examination of the effects of differential pressure loads on any critical structure inside or outside the pressurized compartment.

EFFECTIVE DATE: May 10, 1990.

FOR FURTHER INFORMATION CONTACT: James Haynes, Airframe and Propulsion Branch (ANM-112), Transport Airplane Directorate, Aircraft Certification Service, FAA, 17900 Pacific Highway South, C-68966, Seattle, Washington 98168; telephone (206) 431-2113.

SUPPLEMENTARY INFORMATION:**Background**

This amendment is based on Notice of Proposed Rulemaking (NPRM) No. 88-5, which was published in the *Federal Register* on March 16, 1988 (53 FR 8742). The notice proposed to upgrade the requirements concerning pressurized cabin and compartment design loads by requiring that the specified openings for rapid decompression evaluation be considered in all compartments of the pressure vessel and that the effects of the differential pressure load be considered for any structure inside or outside the pressure vessel.

As discussed in the notice, § 25.365 "Pressurized cabin loads" was revised by Amendment 25-54 (effective October 14, 1980) to include a new requirement for the structural evaluation of the

effects of rapid depressurization resulting from a specific size opening in the fuselage. This requirement was initially prompted by a transport airplane accident in which a failed door resulted in decompression and collapse of the floor with subsequent jamming of the flight controls and loss of the airplane. This accident raised concerns regarding the reliability of outward opening doors and the potential harm to the airplane from openings that may occur in the pressure vessel from a variety of causes including the detonation of bombs, mid-air collisions, and maintenance and production errors. These concerns resulted in proposal number 1051 of the Biennial Airworthiness Review of 1974-1975 which, in turn, resulted in the issuance of NPRM No. 75-31 (40 FR 29410; July 11, 1975).

In NPRM No. 75-31, the FAA proposed to amend the transport category airplane airworthiness standards to prevent floor failure, or any structural failure that would prevent continued safe flight and landing caused by the sudden release of pressure through an opening in any compartment at any approved operating altitude. This would have been accomplished by considering openings from bomb detonations, nonplug door failures, engine disintegrations, bird strikes, and any other eventualities. However, in the rule that was eventually adopted (Amendment 25-54; effective October 14, 1980), the requirement to consider compartment openings was limited to those openings caused by engine disintegration and other airplane or equipment failures. To account for other openings, the rule prescribed an opening of a computed size (based on a formula) in the passenger and cargo compartments. The evaluation of the effects was limited to partitions, floors and bulkheads within the pressurized cabin.

The final rule adopted in 1980 (Amendment 25-54) addressed the original concerns by: (1) Revising § 25.783, "Doors," to improve the standards for doors to the point that the failure of an outward-opening door was considered extremely improbable; and (2) requiring designs that prevent the collapse of floors and bulkheads in the event of an opening of a specific size in passenger and cargo compartments. The size of that opening was based on a formula involving the maximum cross-sectional area of the fuselage; however, the rule did not require the consideration of a size greater than 20 square feet.

The changes made to § 25.783 in 1980 were considered to have adequately

addressed the occurrence of fuselage openings resulting from the opening of large doors; and the changes to § 25.365 were considered to have provided protection against the secondary effects of decompression resulting from other causes of fuselage openings. Although these changes were principally prompted by concerns over fuselage openings caused by the detonation of bombs during pressurized flight, the computed opening was considered large enough to cover other conceivable causes of fuselage openings. These included openings caused by structural failure resulting from corrosion, failure of rotating machinery, and errors in maintenance, production or operation.

The intent of the proposed change to § 25.365(e) in NPRM No. 75-31 was to provide some level of protection for the critical systems and components from the effects of decompression in the event of a fuselage opening that in itself may not cause the loss of the airplane. As adopted, the rule required an airplane to be designed to prevent the failure of floors and bulkheads in the event of an opening of a specified size. The physiological effects of decompression on the crew and passengers and the loss of structural integrity at the opening location, were not addressed in NPRM No. 75-31 or the resulting Amendment 25-54.

Section 25.365(e), as revised by Amendment 25-54, required that an airplane be designed to prevent the failure of floors, bulkheads and partitions that could result from a computed opening in any pressurized passenger or cargo compartment. The location of the computed opening was limited to these areas because they were considered the most likely locations for a bomb.

A requirement similar to that of § 25.365(e), as revised by Amendment 25-54, had already been issued in the form of an airworthiness directive (AD 75-15-05, Amendment 39-2262; 40 FR 29269; July 11, 1975) and made applicable to all wide body airplanes. This airworthiness directive resulted in the strengthening of the floors and in provisions for additional ventilation between compartments. It appears that the benefits of these requirements were realized in 1984 when a Boeing 747 airplane survived a 40 square foot opening from a bomb detonation.

Additional service experience since adoption of Amendment 25-54 indicates that the venting of pressure into normally unpressurized areas can cause secondary structural damage which in turn can lead to failure of critical flight control systems and components.

Furthermore, experience shows that all compartments of the airplane are subject to potentially survivable openings resulting from bomb detonation or the other events cited in NPRM No. 75-31.

In NPRM No. 88-5, the FAA proposed to upgrade the requirements to consider design loads on any structure, inside or outside the pressurized compartments, resulting from decompression through specified openings in any compartment. The proposal addressed only the secondary effects of the decompression loads on any structure and required each structure to withstand the loads if the failure of the structure could interfere with safe flight and landing. All effects on systems, equipment, or other structural components resulting from the secondary structural failures were to be evaluated.

A special requirement was provided for very small compartments where the required opening of the proposed § 25.365(e)(2) could not reasonably be expected to be confined to the small compartment. Instead of the computed opening, an opening of the maximum size expected to remain confined in the small compartment would be considered in the small compartment. As a separate condition, the small compartment would then be combined with an adjacent pressurized compartment and both considered as a single compartment for the maximum size opening specified by the formula. The cockpit would not be considered a small compartment for the purposes of the proposal.

Discussion of Comments

Comments were received from foreign and domestic airplane manufacturers, foreign government agencies, airplane operators and organizations representing pilots and flight engineers. The overwhelming majority of the commenters indicate support for the proposed changes, while some recommend additional or more stringent requirements and a few oppose certain provisions of the proposed rule. Many commenters recommend editorial, organizational, and clarifying comments which would result in a more understandable regulation.

Several commenters recommend that proposed § 25.365(h) be incorporated into new § 25.365(e) to simplify and improve the organization of the requirements. The FAA agrees, and the provisions of proposed paragraph (h) are incorporated into paragraph (e). Section 25.365(e) now applies to any structure, component, or part inside and outside the pressurized compartments. At the same time, the specific references to "bulkheads, floors, and partitions" in

paragraph (e) are retained and moved from paragraph (e) to paragraph (g) to clarify the passenger protection aspects related to failure of these specific structures in occupied compartments regardless of whether the failure of these structures would interfere with safe flight and landing. Paragraph (g) is the more appropriate paragraph in which to address this concern since it already addresses the need for passenger protection from injury caused by the detachment of other parts under decompression conditions.

One commenter suggests that the reference to "any structure" might not be interpreted consistently to include components and supports for systems. To clarify that the rule applies to all structures that can be exposed to depressurization loads, including components and supports for systems, new § 25.365(e) now refers to "any structure, component, or part." The intent is to require that any structure, component, and part, the failure of which could interfere with continued safe flight and landing, be designed to withstand the differential pressure loads resulting from the release of pressure through openings in pressurized compartments. The evaluation includes not only the failure of the structure, component, or part, but also any subsequent failures that could result from the failure of that structure, component or part.

Several commenters recommend that the wording be revised to clarify that the loads resulting from the decompression events are ultimate load conditions. The FAA agrees and changes have been made to paragraph (f) to allow the resulting differential pressure loads to be considered as ultimate loads, provided that any resulting deformation does not interfere with continued safe flight and landing.

Several commenters suggest that the word "compartment" be used instead of "cabin" unless occupied compartments are intended. The FAA agrees, and changes have been made to the proposed paragraphs as well as to the title and other paragraphs of the rule to be consistent in the use of the word "compartment."

One commenter points out that the environmental qualification requirements for equipment that could be flight critical allow 15 seconds for decompression, while the current requirement as well as that in § 25.365 could result in a much shorter time interval. The commenter suggests that consideration be given to improving the equipment qualification standards for critical flight equipment. This would be beyond the scope of this rulemaking;

however, the FAA is addressing this concern in separate actions.

One commenter proposes that, in view of the JAL accident of 1985, the FAA consider increasing the upper limit on the computed opening size set forth by the formula in § 25.365(e)(2). The commenter provided no information that would indicate that the depressurization criteria provided by this rule would have been ineffective in preventing that accident. The computed opening defined in § 25.365(e)(2), with the 20 square foot maximum limit, is considered adequate for current and future designs, and to increase the maximum size of this opening would be beyond the scope of the proposals. Furthermore, there are other opening criteria provided by the rule which have no maximum limit. The computed opening established by § 25.365(e)(2) is intended to require consideration of a minimum size opening regardless of the opening sizes derived from specified failure conditions. Sections 25.365(e)(1) and 25.365(e)(3) require the consideration of other openings which could result from airplane, engine, and equipment failures regardless of the size of those openings.

The same commenter also recommended expanding the scope of the rule to include consideration of the primary effects of the opening in the external hull. The FAA agrees that some consideration of the primary effects of openings may have merit as it relates to protection of systems from major structural damage. Government and industry studies regarding the protection of systems from major structural damage are currently being conducted and may result in additional rulemaking action. However, the intent of § 25.365(e), as revised by this amendment, is to establish differential pressure design loads. It addresses only the secondary effects of decompression loading conditions on other structures, components and parts regardless of where they may be located on the airplane.

One commenter suggests that in some circumstances flight loads imposed by decompression emergency conditions should be combined with the resulting differential pressure loads, provided that they could exist simultaneously. The FAA agrees, and paragraph (f) has been clarified to indicate that any differential pressure loads be combined with the loads arising from decompression emergency procedures in a rational and conservative manner.

One commenter opposes the inclusion of the cockpit as a compartment where the opening of § 25.365(e)(2) of the proposal is to be considered, since the

cockpit size on wide-body airplanes may not be proportional to fuselage size. The commenter suggests that separate criteria should be established for the cockpit. The FAA does not agree since the intent of the requirement is to establish structural design loads resulting from specified openings in the pressure vessel. The applicability of the decompression criteria to a specific compartment should not be determined by the use of that compartment as a cockpit. In addition, § 25.365(e)(2) already establishes a 20 square foot upper limit on the size of the computed opening, which can be feasible and potentially survivable for the cockpit of wide-body transports.

Only one commenter suggests that extending the computed opening to the cockpit might result in some economic impact. However, that commenter provides no data to support his claim. All other commenters, which include representatives of all U.S. manufacturers and operators, support the FAA contention that there would be no significant cost associated with this change.

Another commenter believes that openings in the center wing box should not be required since an opening at this location would cause immediate loss of the airplane. The FAA disagrees. The formula for the opening size results in opening areas proportional to airplane size that might reasonably be expected without loss of sufficient load carrying capability in the wing. Furthermore, the proposed § 25.365(e)(2) was not intended to address the primary effects of the opening (loss of strength, fuel leakage, fire hazard, etc.).

Regulatory Evaluation

Benefit-Cost Analysis

This regulatory evaluation examines the cost and benefit aspects of the final rule to establish improved structural requirements for pressurized cabins and compartments in transport category airplanes. The rule amends part 25 of the Federal Aviation Regulations (FAR). It will require evaluation of openings in any pressurized compartment and examination of the effects of differential pressure loads on any critical structure inside or outside of the pressurized cabin.

The rule is a result of an FAA review of the pressurized cabin load requirements.

The rule potentially impacts U.S. and foreign manufacturers that sell newly type certificated transport category airplanes in the U.S.

Costs

The FAA estimates the incremental cost of compliance that is expected to accrue from implementation of the rule to be minor. This assessment is based largely on information received from industry sources. According to the industry sources, the Japan Airlines (JAL) Flight 123 accident, which occurred in Japan in 1985 and represents one of the most tragic in aviation history, prompted increased world-wide safety awareness. This awareness, coupled with an anticipation of FAA rulemaking action related to the subject accident, provided most of the impetus behind the voluntary adoption of structural changes similar to those that will be required by this rule by manufacturers of transport category airplanes (including those designed expressly for executive transportation). Manufacturers of these airplanes reviewed their existing and future designs for possible flaws similar to those believed to have contributed to the JAL Flight 123 accident in 1985. Appropriate structural changes were made to some airplanes in the design stage and to some airplanes currently in use by operators. For these reasons, the FAA believes compliance with the rule will not impose any significant additional costs on manufacturers of transport category airplanes.

The belief that manufacturers of transport category airplanes will not incur significant costs as a result of this final rule has been reinforced by the fact that the FAA did not receive any negative comments from U.S. manufacturers or operators. The sole negative comment from a foreign manufacturer was not supported by cost data.

Benefits

The potential benefits of the rule represent the prevention of casualty losses (fatalities and to a lesser extent property damage) that would be expected to occur if the standards of this rule were not adopted.

Based largely on information received from industry sources, the FAA expects the rule to ensure that a sufficient level of safety will be maintained with openings of up to 20 square feet in size anywhere within the pressurized fuselages of transport airplanes. This effort will be accomplished by assuring that the current high level of voluntary measures continues with respect to newly type certificated aircraft. As a result of the voluntary measures, there is an unlikely chance of an accident occurring, which would be due to openings in the pressurized fuselages of

transport airplanes, over the next 10 or more years. If, however, the rule were not adopted and newly type certificated transport category airplanes did not enjoy the level of safety presently achieved by voluntary measures, a number of aviation accidents involving such airplanes might occur over the next 10 years. Conservative monetary estimates of at least one of those accidents would amount to either a uniform stream of \$13.8 million annually or a cumulative \$85.4 million discounted at 10 percent over the next 10 years, in 1988 dollars, starting in 1990. These estimates are based on the occurrence of only one accident because it is not known how many accidents would occur over the next 10 years. Nevertheless, it is almost certain that at least one would occur.

Comparison of Costs and Benefits

This area of the evaluation summary presents a comparison of costs and benefits that could accrue over a period of 10 years as the result of implementation of this rule. The potential benefits of this rule are derived from the requirement that industry continue its current practices of addressing the problems identified in this rule and taking appropriate actions. This will greatly reduce the potential for the occurrence of an accident similar to or worse than the JAL Flight 123 disaster. Minimum benefits of \$13.8 million annually or \$85.4 million cumulative could be realized over the next ten years.

The costs associated with this rule are estimated to be minor since manufacturers have taken the initiative to implement most of the design changes necessary to meet the requirements contained in the rule. The FAA, therefore, considers this rulemaking action to be cost-beneficial.

The Regulatory Evaluation that has been placed in the Rule Docket contains additional information related to the costs and benefits that are expected to accrue from the implementation of this rule.

Final Regulatory Flexibility Determination

The Regulatory Flexibility Act of 1980 (RFA) was enacted by Congress to ensure that small entities are not unnecessarily and disproportionately burdened by government regulations. The Act requires agencies to review rules which may have "a significant economic impact on a substantial number of small entities." Since the Act applies to U.S. entities, only U.S. manufacturers and operators of

transport category airplanes would be affected.

In the United States, there are two manufacturers that specialize in commercial transport category airplanes, The Boeing Company and McDonnell Douglas Corporation. In addition, there are others that specialize in the manufacture of other transport category airplanes, such as those designed for executive transportation. These are Cessna Aircraft Corporation, Beech Aircraft Corporation, Gulfstream Corporation and Gates Learjet Corporation.

The FAA size threshold for a determination of a small entity for U.S. airplane manufacturers is 75 employees; any manufacturer with more than 75 employees is considered not to be a small entity. Because none of the U.S. manufacturers of transport category airplanes is a small entity, this rule has no impact on any manufacturer that is a "small entity."

Because this rule does not have a "significant economic impact on a substantial number of small entities," no review is required in this regard by the Act.

International Trade Impact Assessment

This rule is not expected to have an adverse impact on the trade opportunities of either U.S. manufacturers of transport category airplanes doing business abroad or foreign aircraft manufacturers doing business in the United States. Since the certification rules are applicable to both foreign and domestic manufacturers, which sell their products in the United States, there will be no competitive trade advantage to either.

Federalism Implications

The regulations adopted herein would not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government. Therefore, in accordance with Executive Order 12612, it is determined that this final rule will not warrant the preparation of a Federalism Assessment.

Conclusion

Because amending the structural requirements for pressurized compartments on transport category airplanes is not expected to result in a substantial cost, the FAA has determined that this amendment is not

major as defined in Executive Order 12291. For the same reason, this amendment is not considered to be significant as defined in Department of Transportation Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). In addition, since there are no small entities affected by this rulemaking, it is certified, under the criteria of the regulatory Flexibility Act, that this amendment will not have a significant economic impact, positive or negative, on a substantial number of small entities. A copy of the regulatory evaluation prepared for this project may be examined in the Rules Docket or obtained from the person identified under the caption **FOR FURTHER INFORMATION CONTACT**.

List of Subjects in 14 CFR Part 25

Air transportation, Aircraft, Aviation safety, Safety.

Adoption of the Amendment

Accordingly, part 25 of the Federal Aviation Regulations (FAR) 14 CFR part 25, is amended as follows:

PART 25—AIRWORTHINESS STANDARDS: TRANSPORT CATEGORY AIRPLANES

1. The authority citation for part 25 continues to read as follows:

Authority: 49 U.S.C. 1344, 1354(a), 1355, 1421, 1423, 1424, 1425, 1428, 1429, 1430; 49 U.S.C. 106(g) (Revised Pub L. 97-449, January 12, 1983). 49 CFR 1.47(a).

2. Amend § 25.365, by revising the introductory paragraph and by revising paragraphs (c), (e), (f) and (g) to read as follows.

§ 25.365 Pressurized compartment loads.

For airplanes with one or more pressurized compartments the following apply:

* * * * *

(c) If landings may be made with the compartment pressurized, landing loads must be combined with pressure differential loads from zero up to the maximum allowed during landing.

* * * * *

(e) Any structure, component or part, inside or outside a pressurized compartment, the failure of which could interfere with continued safe flight and landing, must be designed to withstand the effects of a sudden release of pressure through an opening in any compartment at any operating altitude resulting from each of the following conditions:

(1) The penetration of the compartment by a portion of an engine following an engine disintegration;

(2) Any opening in any pressurized compartment up to the size H_o in square feet; however, small compartments may be combined with an adjacent pressurized compartment and both considered as a single compartment for openings that cannot reasonably be expected to be confined to the small compartment. The size H_o must be computed by the following formula:

$$H_o = PA_s$$

where,

H_o = Maximum opening in square feet, need not exceed 20 square feet.

$$P = \frac{A_s}{6240} + .024$$

A_s = Maximum cross-sectional area of the pressurized shell normal to the longitudinal axis, in square feet; and

(3) The maximum opening caused by airplane or equipment failures not shown to be extremely improbable.

(f) In complying with paragraph (e) of this section, the fail-safe features of the design may be considered in determining the probability of failure or penetration and probable size of openings, provided that possible improper operation of closure devices and inadvertent door openings are also considered. Furthermore, the resulting differential pressure loads must be combined in a rational and conservative manner with 1-g level flight loads and any loads arising from emergency depressurization conditions. These loads may be considered as ultimate conditions; however, any deformations associated with these conditions must not interfere with continued safe flight and landing. The pressure relief provided by intercompartment venting may also be considered.

(g) Bulkheads, floors, and partitions in pressurized compartments for occupants must be designed to withstand the conditions specified in paragraph (e) of this section. In addition, reasonable design precautions must be taken to minimize the probability of parts becoming detached and injuring occupants while in their seats.

Issued in Washington DC, on April 2, 1990.

James B. Busey,

Administrator.

[FR Doc. 90-8190 Filed 4-9-90; 8:45 am]

BILLING CODE 4910-13-M