Airplane Weight and Balance Supplements to include the following information. This may be accomplished by inserting a copy of this AD in all AFM's, AFM Supplements, and Weight and Balance Supplements.

''Limitations

All containers must be oriented with the door side of the container facing forward.

The location of the horizontal center of gravity for the total payload within each container shall not vary more than 8.8 inches from the geometric center of the base of the container for the forward and aft direction and 12.5 inches from the geometric center of the base of the container for the left or right direction.

Payload Limitations

Do not exceed a total weight of 3,000 pounds per container on the main cargo deck, except in the area adjacent to the side cargo door. In that side door area (Body Station 440 to Body Station 660), containers are restricted to a maximum payload of 2,700 pounds per container. This payload limit includes the payload in the lower lobe cargo compartments and any other load applied to the bottom of the floor beams of the main cargo deck for the same body station location as the container on the main cargo deck.''

(f) As an alternative to compliance with paragraphs (a), (b), (c), (d), and (e) of this AD: An applicant may submit a proposal to modify the floor structure or proposed new payload and other limits, and substantiating data and analyses to the Manager, Standardization Branch, ANM–113, in accordance with the procedures of paragraph (g) of this AD, showing that the floor structure of the main cargo deck is in compliance with the requirements of Civil Air Regulations (CAR) part 4b. If the FAA determines that these documents are acceptable and applicable to the specific airplane being analyzed and approves the proposed limits, prior to flight under these new limits, the operator must revise the Limitations Section of all FAA-approved AFM's and AFM Supplements, and the Limitations Section of all FAA-approved Airplane Weight and Balance Supplements in accordance with a method approved by the Manager, Standardization Branch, ANM–113. Accomplishment of these revisions in accordance with the requirements of this paragraph constitutes terminating action for the requirements of this AD.

(g) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be used if approved by the Manager, Standardization Branch, ANM–113. Operators shall submit their requests through an appropriate FAA Principal Maintenance Inspector who may add comments and then send it to the Manager, Standardization Branch, ANM–113.

Note 3: Information concerning the existence of approved alternative methods of compliance with this AD, if any, may be obtained from the Manager, Standardization Branch, ANM–113.

(h) Special flight permits may be issued in accordance with sections 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the airplane to a location where the requirements of this AD can be accomplished.

Issued in Renton, Washington, on .July 8, 1997.

Darrell M. Pederson,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

[FR Doc. 97–18358 Filed 7–14–97; 8:45 am]

BILLING CODE 4910–13–U

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 97–NM–80–AD]

RIN 2120–AA64

Airworthiness Directives; Boeing Model 727 Series Airplanes Modified in Accordance With Supplemental Type Certificate ST00015AT

AGENCY: Federal Aviation Administration, DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: This document proposes the adoption of a new airworthiness directive (AD) that is applicable to certain Boeing Model 727 series airplanes that have been converted from a passenger to a cargo-carrying (''freighter'') configuration. This proposal would require limiting the payload on the main cargo deck by revising the Limitations Sections of all Airplane Flight Manuals (AFM), AFM Supplements, and Airplane Weight and Balance Supplements for these airplanes. This proposal also provides for the submission of data and analysis that substantiates the strength of the main cargo deck, or modification of the main cargo deck, as optional terminating action for these payload restrictions. This proposal is prompted by the FAA's determination that unreinforced floor structure of the main cargo deck is not strong enough to enable the airplane to safely carry the maximum payload that is currently allowed in this area. The actions specified by the proposed AD are intended to prevent failure of the floor structure, which could lead to loss of the airplane.

DATES: Comments must be received by August 22, 1997.

ADDRESSES: Submit comments in triplicate to the Federal Aviation Administration (FAA), Transport Airplane Directorate, ANM–103, Attention: Rules Docket No. 97–NM–80–AD, 1601 Lind Avenue, SW., Renton, Washington 98055–4056. Comments may be inspected at this location between 9:00 a.m. and 3:00 p.m., Monday through Friday, except Federal holidays.

FOR FURTHER INFORMATION CONTACT: Steven C. Fox, Senior Aerospace Engineer, Airframe Branch, ANM–120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington; telephone (425) 227–2777; fax (425) 227–1181.

SUPPLEMENTARY INFORMATION:

Comments Invited

Interested persons are invited to participate in the making of the proposed rule by submitting such written data, views, or arguments as they may desire. Communications shall identify the Rules Docket number and be submitted in triplicate to the address specified above. All communications received on or before the closing date for comments, specified above, will be considered before taking action on the proposed rule. The proposals contained in this notice may be changed in light of the comments received.

Comments are specifically invited on the overall regulatory, economic, environmental, and energy aspects of the proposed rule. All comments submitted will be available, both before and after the closing date for comments, in the Rules Docket for examination by interested persons. A report summarizing each FAA-public contact concerned with the substance of this proposal will be filed in the Rules Docket.

Commenters wishing the FAA to acknowledge receipt of their comments submitted in response to this notice must submit a self-addressed, stamped postcard on which the following statement is made: ''Comments to Docket Number 97–NM–80–AD.'' The postcard will be date stamped and returned to the commenter.

Availability of NPRMs

Any person may obtain a copy of this NPRM by submitting a request to the FAA, Transport Airplane Directorate, ANM–103, Attention: Rules Docket No. 97–NM–80–AD, 1601 Lind Avenue, SW., Renton, Washington 98055–4056.

Discussion

The FAA has issued supplemental type certificates (STC) for converting certain Boeing Model 727 and 747 series airplanes from a passenger to a cargo-carrying (''freighter'') configuration. These freighter conversions entail such modifications as removal of the passenger interior, the installation of

systems to handle cargo containers (such as pallets and other unit load devices), the installation of a side cargo door for the main cargo deck, and alterations to such systems as the hydraulic, electrical, and smoke detection systems that are associated with the transport of cargo. When a conversion is completed, the weight permitted to be carried (''payload'') on the main cargo deck is significantly greater than the payload allowed in that same area when the airplane was in its original passenger configuration.

On December 27, 1995, the FAA issued Airworthiness Directive (AD) 96–01–03, amendment 39–9479 (61 FR 116, January 3, 1996). The FAA took this action after determining that Model 747 passenger airplanes converted to freighters under certain STC's are not structurally capable of safely carrying the payload allowed on the main cargo deck. This condition is due to structural deficiencies in the floor beams of this deck, as well as in the fuselage structure surrounding the side cargo door for this area. That AD requires operators of those Model 747 freighters to reduce the maximum payload that can be carried on the main cargo deck in order ''[t]o prevent collapse of the aft fuselage due to inadequate strength in the airplane structure and subsequent separation of the aft fuselage from the airplane.'' Model 747 freighters affected by AD 96–01–03 were converted under STC's held by GATX/Airlog Company (''GATX'') when that AD was issued. GATX had acquired the original STC's from Hayes International Corporation (Hayes).

During its investigation of the circumstances that led to the issuance of AD 96–01–03, the FAA determined that similar unsafe conditions were likely to be found on certain Model 727 series airplanes that had been converted to freighters in a comparable manner. The bases for these concerns were that similar procedures and design methods had been used on both the 727 and 747 models, and that these STC's could be traced back to the same companies.

Actions Subsequent to AD 96–01–03

In response to those concerns, the FAA's Transport Airplane Directorate established a design review team of FAA engineers to identify any safety problems pertaining to certain interior and side cargo door STC's for Model 727 series airplanes, and to make recommendations for correcting any unsafe conditions.

The design review team has determined that there are more than 10 STC's for Model 727 freighters (''freighter STC's'' or ''Model 727 freighter STC's'') that need to be reviewed. These freighter STC's are individually held by Aeronautical Engineers, Inc. (AEI), ATAZ, Inc. (ATAZ), Federal Express Corporation (FedEx), and Pemco Aeroplex, Inc. (Pemco). The STC held by ATAZ is ST00015AT, which pertains to the cargo door and cargo compartment interior. Over 300 Model 727 series airplanes of both U.S. and foreign registry have been modified in accordance with these STC's, and more than 32 operators worldwide use these freighters.

In reviewing these freighter STC's, the design review team applied the standards of Civil Air Regulations (CAR) part 4b, applicable to the original Boeing Model 727 airplane. These federal standards establish *minimum* safety requirements. A design which does not meet these standards is presumed to be unsafe.

Between September 1996 and February 1997, members of the design review team made four visits to inspect Model 727 series airplanes that were in the process of being converted or already had been converted under these freighter STC's. Site visits were conducted at Pemco World Air Services in Dothan, Alabama (Pemco STC's); the Tramco repair station in Everett, Washington (FedEx STC's that had originally been developed by Hayes); and Professional Modification Services (PMS), Inc.'s, facility in Miami, Florida (AEI and ATAZ STC's).

On all of the Model 727 series airplanes inspected during these site visits, the design review team observed that the original passenger floor beams, which now support the main cargo deck, had not been structurally reinforced by the STC modification for the heavier payloads these freighters are permitted to carry.

These STC freighters typically are allowed to carry 8,000 pound containers (weight of the cargo and container) on the main cargo deck. Because these containers are 88 inches long, the running load (the weight that can be placed on a longitudinal section of the main cargo deck) is 90 pounds per inch (8,000 pounds divided by 88 inches). This running load of 90 pounds per inch is a safety concern because it is approximately 2.6 times higher than the maximum running load of 34.5 pounds per inch allowed on these same floor beams when the airplane was in a passenger configuration.

FAA Structural Analysis of the Floor Beams of the Main Cargo Deck

The design review team examined the documents that the current or a previous STC holder had submitted when seeking original FAA approval of the STC application. The team was unable to find any data to verify that the unreinforced floor structure of the main cargo deck can safely support the heavier freighter payloads.

To independently evaluate whether these floor beams are strong enough to support the maximum payload permitted by the STC's, the design review team performed a limited structural analysis of the design of each main cargo deck viewed during its site visits.

In analyzing the floor beams of the main cargo deck, the FAA engineers used the payload configuration defined in the weight and balance documents for each STC. (These STC freighters are operated in accordance with FAA-approved Weight and Balance Supplements, which specify the payload that can be carried onboard, as well as the maximum payload and assigned location for individual containers on the main cargo deck.) Most of the containers permitted in the Weight and Balance Supplements for these STC's weigh up to 8,000 pounds each.

In its analysis, the design review team considered the different cargo handling system configurations observed on the STC freighters during the site visits; these systems include roller trays and container locks. The roller trays are attached to the floor of the main cargo deck, and enable cargo to be rolled forward and aft. These trays also support the weight of the cargo containers. The container locks, which hold a container in place, are spaced along the floor of the main cargo deck for all of these STC's but one; that STC also has side vertical cargo container restraints (''side restraints''). The analysis is based on the use of containers that are 88 inches by 125 inches, and the location of the horizontal center of gravity for the total payload in each container was within 8.8 inches from the geometric center of the base of the container for the forward and aft direction and 12.5 inches from the geometric center of the base of the container for the left and right direction.

The design review team used commonly accepted analytical methods in its structural analyses. This methodology, or an equivalent, was applicable when the STC application was originally submitted for approval, and it is applicable today. None of the floor analyses performed by the team involved the application of advanced technologies such as finite element modeling. The results of these structural analyses were consistent with data provided by Boeing, which had originally built these airplanes as

passenger transports, and with some of the data provided by these STC holders.

To evaluate the adequacy of the floor, the team determined that the most likely ''critical case'' (the conditions or circumstances that exert the greatest forces on the main cargo deck) would be the ''down gust'' conditions specified in CAR part 4b. Down gusts are downward vertical movements of air that occur in turbulence and storms. Down gusts exert a downward force on the entire airplane. As this force causes the airplane to accelerate downward, containers on the main cargo deck—because of inertia—are pulled upward. This upward force on the containers is transmitted through the container locks and into the floor beams. On these STC freighters, this upward force could bend these floor beams upward to failure, and the failure of even a single beam could result in loss of the airplane.

Even if the floor beams of the main cargo deck only become deformed, the results could be catastrophic. Because flight control system cables and fuel lines pass through small holes in these floor beams, significant—although temporary—deformation of these beams could jam the cables or break fuel lines. Consequently, this could reduce controllability of the airplane, cause fuel starvation of one or more engines, or lead to a fire in the fuselage.

The FAA also has determined that performance of the flight maneuvers defined in CAR part 4b would produce critical case forces on these STC freighters, and consequent deformation or failure of floor beams on the main cargo deck. These maneuvers would cause upward forces on the cargo containers relative to the floor. Because of the location of the container locks, the floor beams at the forward or aft edges of the containers would be more critically loaded, and consequently deflected upward.

Determining Floor Strength (the ''Margin of Safety'')

The measure of the ability of the floor beams of the main cargo deck to support the stresses caused by various load cases (combinations of specific container weights with either wind gust conditions or airplane maneuvers) is its ''margin of safety.'' Because the floor must be designed to withstand the critical case stresses, the design review team calculated the margin of safety when the floor is subject to the turbulent ''down gust'' wind conditions defined in CAR part 4b.

The equation for determining the margin of safety is:

$$\text{Margin of Safety} = \frac{\text{Allowable Stress}}{\text{Applied Stress}} - 1$$

In this equation, ''Allowable Stress'' is the measure of the strength of a floor beam of the main cargo deck. ''Applied Stress'' is the stress level produced in that floor beam multiplied by a ''factor of safety'' of 1.5. The weight of the containers on the floor beam, flight conditions (for example, wind gusts or airplane maneuvers), and other forces, such as pressurization of the fuselage, all combine to create the ''applied stress'' level in that floor beam. CAR 4b.200(a) requires the inclusion of the 1.5 factor of safety in structural designs. (This factor is discussed in the ''Elimination of the 1.5 Factor of Safety'' section of this preamble.)

When the margin of safety is zero for all load cases, the structure meets the minimum requirements of CAR part 4b. A structure with a margin of safety greater than zero exceeds those standards. A structure with a margin of safety of less than zero does not meet these minimum requirements, and is presumed to be unsafe. If the margin of safety reaches -1 (the extreme case), the structure is not strong enough to withstand the stresses generated by any load case without failing.

Using this equation, the design review team calculated margins of safety for the STC floor designs as ranging from approximately -0.55 to -0.63. Because of the large negative margins of safety that were calculated for the down gust condition (the most likely critical case), the FAA did not analyze other load cases.

For the margins of safety to be positive for the ''down gust'' condition, the FAA determined that these STC freighters must be limited to less than 50% of the typical maximum payload of 8,000 pounds per container currently allowed by the STC's. From its analyses, the design review team determined that these main cargo decks are capable of supporting a maximum payload of approximately 3,000 pounds per container (a maximum running load of 34.5 pounds per inch) in all areas of the main cargo deck, except in the area adjacent to the side cargo door. In that side door area, containers would be restricted to a maximum payload of approximately 2,700 pounds per container (a maximum running load of 31.0 pounds per inch) due to structural configurations affecting the strength of the floor beams in this area. These running loads include payload in the lower lobe cargo compartments, and any other load applied to the bottom of the floor beams of the main cargo deck. [The Air Transport Association of America (ATA) recommended a maximum payload of 6,000 pounds per container. This recommendation, which is discussed in the ''ATA Recommendations for a Final Rule'' section of this preamble, is substantially above the safe payload limits calculated by the design review team, and would result in a negative margin of safety.]

Typically, freighters converted under these STC's are allowed to carry 11 or 12 containers on the main cargo deck. Containers in most areas of this deck have a maximum payload of up to 8,000 pounds per container; over the wing and landing gear area, this maximum payload per container can be up to 10,000 pounds. Although it would seem that these STC freighters could carry up to a total of 100,000 pounds, the maximum payload is actually limited by the strength of the fuselage as well as the strength of the floor beams. Consequently, the current maximum payloads on these airplanes range from 54,000 pounds (for a Model 727–100 series airplane) to 62,000 pounds (for a Model 727–200 series airplane), depending on the configuration of the freighter. The FAA's structural analysis shows that the maximum payload should be limited to approximately 35,000 pounds. This maximum payload is approximately 22% less than the average payload of 45,000 pounds that has been reported by some operators of these Model 727 STC freighters.

The FAA has determined that none of these main cargo decks are strong enough for the current maximum payloads, and therefore are unsafe. Furthermore, these decks do not comply with the requirements of CAR part 4b.

Operational Factors Affecting Payload Limitation

The FAA's structural analysis was based on the ''worst case'' conditions of the following operational factors: maximum operating speed limit, airplane in-flight weight, container orientation, and side restraints. The FAA realizes that if restrictions are placed on these factors, higher payloads can be allowed. Although the absolute effects of these restrictions would require extensive analysis, the FAA has concluded that it is sufficient to estimate the effects of these factors if they are only to be applied for a limited amount of time. The FAA design review team determined that these restrictions would not violate other load cases.

- *Maximum Operational Speed and In-Flight Weight*

Some of these STC freighters are allowed to fly at a maximum operational speed of 390 knots equivalent airspeed

(KEAS). During turbulence, the forces experienced by the airplane are, in part, a function of the aircraft's speed, which consequently affects the forces on the floor beams. By reducing the maximum operational speed to 350 knots indicated airspeed (KIAS), the forces on the floor beams during turbulence are reduced.

The forces experienced by the airplane during turbulence also are a function of the weight of the aircraft. A heavy airplane has more inertia, and therefore is less affected by severe gusts than a lighter one. The FAA has estimated that a minimum operational in-flight weight of 100,000 pounds will reduce the gust loads on these airplanes and, therefore, reduce the floor beam loads. Some ways to ensure that the in-flight weight does not fall below a prescribed limit is to have a minimum cargo weight, a minimum quantity of ''tankered'' fuel, sufficient ballast, or a combination of these items.

- *Container Orientation*

Typically, these STC freighters carry National Aerospace Standard (NAS) 3610 class II cargo containers, which have a fixed back wall; a partially or fully removable front wall; and are 88 inches by 125 inches. Due to this method of construction, a large portion of the forces that a container experiences in ''down gust'' wind conditions or turbulence is carried by the container's back wall, which is its strongest element. When cargo containers are oriented back-to-back, a large portion of both container loads is carried by the same container locks. This places higher loads on the floor beam supporting these locks. By requiring the containers to be oriented with the door side of the container facing forward, however, a more uniform distribution of the loads is achieved.

- *Side Restraints*

A better distribution of the container load is achieved by installing side restraints. The FAA estimates that there can be an increase in the maximum payload per container when FAA-approved side restraints are installed.

The FAA estimates that the combined effect of this speed limitation, minimum in-flight weight, and container orientation would result in a total weight of no more than 8,000 pounds for any *two* adjacent containers that are each 88 inches by 125 inches. By installing FAA-approved side restraints, this estimated total weight for any two adjacent containers could be increased to 9,600 pounds. Under no circumstances, however, can the total weight of any individual container exceed 8,000 pounds.

Elimination of the 1.5 Factor of Safety

At the request of industry, the FAA considered the consequences of elimination of the 1.5 factor of safety used in the ''Margin of Safety'' equation discussed above. By eliminating the 1.5 factor of safety, the FAA analysis determined that the proposed payload limits per container would increase by 50%. CAR 4b.200(a) requires that an airplane be designed with a certain amount of ''reserve structural strength'' to minimize the potential for complete structural failure of an airplane. This reserve is the ''1.5 factor of safety.'' Ordinarily, an applicant seeking to reduce or eliminate this requirement must file a request for an exemption. If the applicant uses an approach in its design that is comparable to the 1.5 factor of safety, the applicant can declare that this approach provides ''an equivalent level of safety.'' The applicant, however, must substantiate this declaration to the satisfaction of the FAA.

The FAA has examined the consequences resulting from the elimination of the 1.5 factor of safety, and has concluded that this action would pose unacceptable hazards for these airplanes. The FAA's intent in issuing this proposed AD is to prevent a combination of circumstances that could result in catastrophic loss of a Model 727 freighter converted under these STC's. Elimination of the 1.5 factor of safety in conjunction with the other measures discussed earlier to increase the allowable payload would be contrary to this intent.

CAR part 4b refers to the critical load cases—the down gust and maneuver forces previously described in this preamble—as ''limit loads.'' CAR 4b.200 requires that these limit loads be multiplied by 1.5 (the ''1.5 factor of safety''), thereby becoming ''ultimate loads'' as defined in CAR part 4b. CAR 4b.201(c) further requires that the structure be able to carry these ultimate loads (which provide a reserve of structural strength) without failure. Although it is anticipated that these STC freighters will not be routinely subjected to limit load forces, it sometimes happens during emergencies and unusual environmental conditions such as turbulence.

- *Emergency Conditions*

In an emergency, the pilot may exceed critical case maneuver forces, and fly the STC freighter beyond the airspeed and flight maneuver limits for which the airplane is designed. The failure of an engine, avoidance of a collision, or the opening of a cargo door during flight are conditions that could necessitate these actions.

Emergencies do occur. On February 5, 1997, a Model 727 passenger airplane was flying to John F. Kennedy International Airport in New York when an Air National Guard F–16 jet fighter approached close enough to activate the Model 727's collision avoidance system alarm. The pilot of the passenger airplane, following the system's emergency guidance, maneuvered the Model 727 into a steep dive and then a steep climb. Two flight attendants and a passenger were thrown down by these maneuvers. Although the actual maneuver forces for this incident are unknown, the 1.5 factor of safety may have provided structural strength to maneuver the airplane beyond the forces in CAR part 4b.

In 1991, a pilot performed a flight maneuver that imposed forces of approximately 3g's (three times the force of gravity) on a Model 747 freighter that was carrying a partial payload. The applicable federal regulations require Model 747 and 727 series airplanes to be designed for maneuvers imposing forces of up to 2.5g's. Had this freighter been carrying a full payload and the 1.5 factor of safety not been used in its design, FAA analysis indicates that this freighter would have been lost.

- *Turbulence*

Airplanes may encounter severe turbulence that exerts wind gust forces beyond the critical case forces of CAR part 4b. AD 96–01–03 describes an occasion in 1991 when wind gusts were so severe that an engine separated from a Model 747–100 freighter shortly after take-off.

More recently, severe wind gusts on September 5, 1996, caused numerous passenger injuries and one fatality on a Model 747–400 series airplane. The FAA received reports indicating that those gusts produced downward accelerations of –1.15g's and upward accelerations of +2.09g's on that airplane in less than four seconds. Had a Model 727 STC freighter experienced similar conditions while transporting close to the maximum payload, FAA analysis indicates that the floor beams of the freighter's main cargo deck would have collapsed.

The FAA has received 87 reports of Model 727 series airplanes experiencing severe turbulence; these reports typically do not include events that have occurred in other countries. The majority of these events were unforeseen and resulted in injuries to

the flight crew or passengers. Five of the reports document gusts causing airplane accelerations of at least +1.88g's upward and 1.5g's downward.

• *Hazardous Deformation of the Main Cargo Deck*

CAR 4b.201(a) requires any structure on the freighter, including the floor beams, to be strong enough to withstand—without ''detrimental permanent deformation''—the anticipated critical case forces that could be exerted upon it during its service life. CAR 4b.201(b) requires that any structural deformations caused by these critical case or limit loads not interfere with the safe operation of the airplane. (The catastrophic consequences of deformation are discussed earlier in this preamble.) Using the 1.5 factor of safety in structural analysis takes deformation into account; without the 1.5 factor of safety, the STC holder would be required to provide an analysis that demonstrates these floors would be free from detrimental deformation. Because these STC's lack a deformation analysis, the FAA would not consider a request for reducing the 1.5 factor of safety requirement unless such an analysis was conducted.

• *Other Considerations*

Another reason that reserve structural strength is necessary is that aerodynamic and structural analysis theory is not precise: exact conditions or circumstances are indeterminable; therefore approximations must be made. In addition, the 1.5 factor of safety takes into account such considerations as the variations in the physical properties of materials, the range of fabrication tolerances, and corrosion or damage. For example, all Model 727 series airplanes must have enough structural reserve to cover the corrosion control activities mandated by AD 90–25–03, amendment 39–6787 (55 FR 49258, November 27, 1990). That AD, in order to control corrosion, permits up to 10 % of the material thickness of a floor beam of the main deck to be removed by grinding without undertaking repair; the removal of this material further reduces the strength of the floor.

The majority of these modified airplanes are nearing, or past, their design life of 20 years, 60,000 flights, or 50,000 hours of operation. As the airplanes age and are repeatedly flown, they accumulate fatigue damage and corrosion, which degrades the structural capability. Airplanes that are near or past their design life are part of the FAA's Aging Airplane Program and are subject to numerous AD's to correct unsafe conditions resulting from fatigue cracking and corrosion.

During the time period allowed by the AD's to implement the corrective action, it is probable that many of these aging airplanes will continue to have fatigue cracks and corrosion. Because these airplanes have been built with a safety factor of 1.5, there is a sufficient structural strength margin to allow some finite time to implement the AD's to correct the unsafe conditions. Without this factor of safety, a new maintenance program would have to be developed for these airplanes to ensure that all of the Aging Airplane Program fatigue cracks and corrosion problems are continuously identified and immediately eliminated.

Service History of the Model 727 STC Freighters

Although the modification of these airplanes commenced in 1983, the average modification date for these STC freighters is 1991. In fact, approximately 100 of these airplanes (one-third of the STC freighter fleet) have been modified in just the last three years.

Most of these STC freighters fly only two flights each day, resulting in a low number of accumulated flights since conversion. A representative of the largest operator of these airplanes indicates that, on average, the airplanes carry only slightly more than half of the current maximum payload of 8,000 pounds per container. These circumstances may explain why the FAA has not received reports of adverse events relating to the structural strength of these floor beams.

These floor beams, if overstressed, are not likely to give warning prior to total failure. The existing floor beams on these STC freighters are commonly made from 7075–T6511 aluminum alloy, and there is only a 10% difference between the stress level at which the floor beam permanently bends, and the stress level at which the beam breaks. Consequently, once the floor beams are stressed to the point of being permanently bent, it takes only a small amount of additional stress until the floor beams break, which could result in loss of the airplane.

The FAA has concluded that the reported service history of these STC freighters does not demonstrate that these airplanes are safe.

Issuance of an AD Is Appropriate Regulatory Action

Because of the unsafe condition found on these STC freighters (the inadequate strength of the floor structure of the main cargo deck to carry the current maximum payloads), the FAA has determined that there are two ways in which it could proceed: Issuance of an AD to correct the unsafe condition of the floor, or suspension or revocation of these STC's.

The Administrator of the FAA has the authority to issue an AD when ''an unsafe condition exists in a product'' [14 CFR 39.1(a)], and ''[t]hat condition is likely to exist or develop in other products of the same type design'' [14 CFR 39.1(b)]. When such a finding is made, the Administrator may, as appropriate, prescribe ''inspections and the conditions and limitations, if any, under which those products may continue to be operated'' (14 CFR 39.11). By using the AD process, the FAA can still allow these STC freighters to operate, although under restrictions which are necessary to eliminate the unsafe condition.

Because the floor structures did not meet CAR part 4b certification standards at the time these STC's were originally issued, the Administrator of the FAA is empowered to suspend or revoke these STC's [49 U.S.C. 44709(b)]. If the Administrator were to take such action against these STC's, the order could result in the immediate grounding of these STC freighters.

In consideration of the disruption of domestic and international commerce that would result from the suspension or revocation of these STC's, as well as the significant impacts on the domestic and international economy that such an action would have, the FAA has concluded that the issuance of an AD with restrictions on the maximum payloads on the main cargo deck is appropriate action. These payload restrictions will enable these freighters to continue operating, and remove the unsafe condition that currently exists in the floor beams of the main cargo deck.

FAA Meetings With STC Holders and Operators

The FAA has met individually with each of the affected STC holders to discuss the FAA design review team's observations, analyses, and findings. In a letter sent prior to these meetings, the FAA provided its preliminary conclusions to each STC holder. In addition, the agency asked the STC holder to submit data showing that unsafe conditions do not exist, and that the STC designs do meet applicable federal aviation regulations. If the FAA's findings and analyses could not be controverted, the STC holder was asked to specify what actions it would take to bring its designs into compliance. STC holders also were asked to propose actions that would enable these

airplanes to operate safely while data or modifications were being developed.

At its meeting with the FAA, ATAZ did not present any information to contradict the FAA's analyses, or submit proposals to keep these planes operating safely. The FAA's meetings with the other 3 STC holders produced similar results.

The FAA also has met jointly with the STC holders and the operators of the Model 727 freighters modified under these STC's. On February 14, 1997, the FAA convened this meeting, which was attended by more than 75 industry representatives, to discuss what the design review team had observed during its site visits and determined from its analyses of STC data. During this meeting the operators presented no technical data, but provided the FAA with information about the potential impacts on their businesses if the agency were to reduce the current maximum payload.

Industry Proposal for the Timing of an NPRM and FAA Response

During the February 14 meeting, representatives of the affected operators and STC holders in attendance presented a proposal to the FAA. Generally, industry proposed that the FAA delay issuing an NPRM and imposing payload restrictions; in turn, industry, within 120 days from the end of February 1997, would test floor beams, perform analyses, redesign the floor structure, if necessary, and submit data to the FAA substantiating compliance with CAR part 4b. At the meeting, the FAA responded that its priority is the safety of these airplanes, and the burden is now on industry to establish the ability of these STC freighters to carry more than the 3,000 pounds per container being considered by the FAA.

ATA Recommendations for a Final Rule

ATA followed up on the proposal at the February 14 meeting with a March 10, 1997, letter that contained recommendations in order ''to get the necessary design changes quickly incorporated while permitting the airlines to continue operating their aircraft.'' ATA proposed that a 3,000 pound per pallet weight limit be gradually phased-in as follows:

1. There would be at least 120 days after the effective date of the AD before any payload restrictions would be implemented. According to ATA, this period would enable STC holders or others to redesign the freighter floors and provide enough time for operators to procure parts to modify the floors.

2. Initially, payload restrictions would be reduced from 8,000 pounds per pallet to 6,000 pounds per pallet. These restrictions would be in effect for at least one year or the next ''C'' check, whichever occurs later, and operators would not be required to modify the floor beams during this time.

3. Ultimately, the floor beams of the main cargo deck would not have to be modified until at least 16 months after the effective date of the AD. At that time, the payload per pallet would be reduced to 3,000 pounds if an operator opted not to accomplish that modification.

4. Airplanes would not be subject to any of these restrictions if operators can substantiate to the FAA that the floor beams are strong enough to support the existing payload per pallet.

The FAA considered ATA's recommendations in developing this proposed action. The FAA determined that allowing these airplanes to continue to operate without restrictions for 120 days after the effective date of this AD, and allowing 16 months for modification of the floor structure of the main cargo deck would not address the unsafe condition in a timely manner. The FAA's analysis also determined that ATA's recommended payload limit of 6,000 pounds per container at all locations would result in negative margins of safety. The interim weight restrictions proposed by the FAA allow the carriage of a limited number of individual containers at or above the 6,000 pound per container payload suggested by ATA. In addition, the 120-day period of operation at the interim payloads proposed by the FAA (discussed below) does, in part, meet ATA's suggested time for allowing redesign of these STC freighter floors.

FAA Findings

Based on the observations and analyses of its design review team, and information presented by affected STC holders and the operators of Model 727 series airplanes converted to freighters under these STC's, the FAA has found that:

1. None of the floor beams of the main cargo deck on any of these STC's have been modified from the original passenger configuration to support the heavier payloads carried on a freighter.

2. Based on the FAA's analyses, the floor structures of these STC freighters are not capable of withstanding the forces that would result from the current maximum payload when CAR part 4b conditions are encountered.

3. When the maximum payload of a container is limited to 8,000 pounds or 6,000 pounds (for all container positions) as proposed by ATA, the margins of safety for the floor beams of the main cargo deck are calculated as negative numbers and the structural strength of these beams is not sufficient to meet the requirements of CAR part 4b. When the maximum payload of a container is limited to approximately 3,000 pounds, the margin of safety is calculated as a positive number and these floor beams meet the structural strength requirements of CAR part 4b.

4. The FAA estimates the combined effect of imposing operational restrictions on airplane weight, maximum operating speed, and orientation of containers reduces the forces exerted on the airplane in ''down gust'' conditions, and will permit the maximum payload of a container to be increased on an interim basis. The installation of side restraints can permit a further temporary increase in payload.

5. Typically, these STC freighters are modified by other STC's that change the maximum taxi, take-off, zero fuel, and landing weights of these airplanes. These weight changes permit the airplanes to carry more payload on the main cargo deck.

No compatibility study has been performed showing that these weight changes are safe considering the existing freighter STC modifications and payload limits. In addition, no compatibility study has been done for the addition of auxiliary fuel tanks, engine changes, and other types of modifications that alter the basic loads on these airplanes.

6. When these STC modifications were accomplished, each airplane was modified differently, due to different installer shop practices and the configuration of each airplane prior to modification. Subsequent modifications under other STC's that alter the structure were not shown to be compatible with the freighter modifications. The resulting airplane configuration can be significantly different between individual airplanes. Any modifications that are undertaken to bring these airplanes into compliance with CAR part 4b must be shown to be compatible with the specific airplanes being modified.

7. The elimination of the 1.5 factor would not eliminate the unsafe condition that occurs when these airplanes are carrying containers weighing more than the payloads specified in this proposed AD.

FAA Conclusions

From these findings, the FAA has concluded that:

1. The lack of strength in the floor structure of the main cargo deck must be corrected by reducing the payload

carried on the main cargo deck. This reduced payload includes the payload in the lower lobe cargo compartments.

2. Maximum payloads of approximately 2,700 pounds per container in the areas near the forward side cargo door and approximately 3,000 pounds per container in all other areas of the main cargo deck provide an acceptable level of safety. It is estimated that operational restrictions on airplane weight, maximum operating speed, and orientation of containers, as well as the installation of FAA-approved side restraints, would allow safe operation with higher payloads during an interim period.

3. Because these STC freighters are modified by other STC's that change the maximum taxi, take-off, zero fuel, and landing weights of these airplanes, and permit more payload on the main cargo deck, all of the airplanes' Airplane Flight Manuals (AFM's), AFM Supplements, and Weight and Balance Supplements would have to be revised to show the payload restrictions.

Additional AD Actions

The FAA design review team's scope of review of these STC's was not limited to concerns about the strength of the floor structure that support the main cargo deck. The team also made inspections and gathered information about other areas where additional unsafe conditions may exist. Following this proposed rulemaking, additional rulemaking will be initiated to address these concerns. These concerns include the following structural, door systems, and STC certification and documentation issues:

- *Structural Deficiencies*

Lack of ''Fail-Safe'' Hinges on the Cargo Door

The design review team saw single or double-piece hinge fittings on the side cargo doors of these STC freighters. Should a crack propagate along the hinge line where the hinge attaches either to the upper sill of the fuselage or to the door itself, the cargo door could separate from the airplane, and result in loss of the airplane.

Apparent Lack of Strength of the Structure Surrounding the Side Cargo Door

To install a side cargo door for the main deck, an opening of approximately 7.5 feet by 11 feet (82.5 square feet) must be cut into the side of the fuselage. This opening requires that the cutout area and adjacent structural areas be substantially reinforced. If the fuselage structure that surrounds this cargo door is not strong enough to withstand the forces that may be exerted during flight, it could result in loss of the airplane.

The design review team observed that reinforcing structures used in this area, such as longerons, frames, doublers and triplers, are discontinuous and appear to lack adequate load paths and strength. These discrepancies could result in a fuselage structure that does not meet the strength and deformation requirements of CAR 4b.201, proof of structure standards of CAR 4b.202, or fail safety requirements of CAR 4b.270(b).

In its examination of the data supporting these STC's, the design review team determined that the STC applicants used inadequate methods and/or incomplete analyses to substantiate that their modifications provide adequate strength in this area. The STC applicants typically did not substantiate the strength of numerous structural features, such as splices and runouts. The STC holders also used analytical approaches that failed to consider such impacts as redistribution of the forces in the fuselage, and localized stress effects such as ''buckling.''

Inadequate Cargo Restraint Barriers

CAR 4b.260 requires that the restraint barrier in the cargo compartment of the main deck be strong enough to protect the occupants from injury when the freighter is carrying its maximum payload and emergency landing conditions occur (the ''9.0g standard'').

Based on the observations and analyses of the design review team, the FAA has determined that the bulkhead restraint barriers on all of the observed STC freighters do not meet the 9.0g standard; three of the four STC holders have confirmed the FAA's finding.

- *Deficiencies in Systems for the Side Cargo Door*

Because of cargo door-related accidents, industry and the FAA, during the early 1990s, conducted an extensive design review of cargo doors and agreed on new standards to eliminate safety deficiencies in certain cargo door systems. The FAA agreed to issue AD's requiring compliance with these standards, which are based on Amendment 54 to 14 CFR 25.783, for those freighters that did not comply. These standards are not intended to upgrade the requirements of CAR part 4b after certification, but are to correct potentially unsafe conditions on airplanes already in service that were identified during the design review.

Inadequate Warning System for an ''Unsafe'' Door

Freighters must have a warning system that directly alerts the pilot and co-pilot that the side cargo door is ''unsafe'' (open, unlatched, or unlocked). A ''safe'' cargo door is one that is verified to be closed, latched, and locked prior to taxiing for take-off.

The design review team observed STC freighters that do not have a red cargo door warning light in plain view of both pilots. In the event that the cargo door is unsafe, pilots on those planes would not be directly warned; this situation could lead to pilot inaction or dispatch of the airplane, and consequent opening of this door during flight.

Improper Pressurization of the Fuselage When the Cargo Door Is ''Unsafe''

The opening of a door during flight has caused several serious accidents. Some of those accidents have resulted in loss of life; others have resulted in loss of the airplane. Consequently, industry and the FAA adopted standards to prevent pressurization of the fuselage when the cargo door is unsafe. Typically, compliance with these standards involves installation of vent doors that close only when the cargo door is safe.

In its examination of the associated cargo door related systems on these STC freighters, the design review team detected that the fuselage of some of these airplanes could be pressurized when the cargo door vent door is not closed. The team also found that some STC's did not have the required safety analysis that would verify the adequacy of the design's pressurization prevention system when the cargo door is unsafe.

Electrical/Hydraulic System Deficiencies That Could Cause an ''Unsafe'' Cargo Door

Electrical short circuits could transmit power to the electrical or hydraulic systems that operate the side cargo door, lead to opening of this door during flight, and could result in the loss of the airplane. To prevent this, all power to this door must be removed during flight, and the flight crew must not be able to restore this power at any time during flight.

CAR 4b.606 (which has been further refined by the cargo door standards agreed upon by industry and the FAA) requires STC holders to show that the design of the electrical system is adequate to prevent the side cargo door from opening during flight. These STC holders did not accomplish this analysis.

Inability to Visually Verify the Status of the Side Cargo Door

When the system that warns the pilot and co-pilot about an ''unsafe'' cargo door is not working correctly, the red warning light either will fail to light up during pre-flight testing of the system, or will light up when the side cargo door is actually ''safe.'' These STC's have a backup system that allows the flight crew to confirm that the door is actually safe.

The cargo door standards to which industry and the FAA agreed require ''a visual means of directly inspecting the locks.'' The design review team observed that these backup systems enable the flight crew to view only a portion of the locking beam. Because a visual means of directly inspecting the locking mechanism of the door is not available, these STC's do not comply with these standards. When the entire locking mechanism cannot be visually inspected, a false report on the condition of the door may be given to the crew, and the airplane may be dispatched with an unsafe door.

Cargo Compartment Smoke Detection and Warning Systems

CAR 4b.383(e)(2) requires that there be a means for the flight crew to check and assure the proper functioning of each smoke detector circuit. The FAA design review team and STC freighter operators have observed that some STC's contain electrical wiring designs that test only a portion of the smoke detection system—not the entire system as required—when a single button is pressed (the ''press to test'' feature). If the flight crew is not alerted that some smoke detectors are not functioning, the crew may not be able to respond to a cargo compartment fire in a timely manner.

- *The Carriage of Supernumeraries*

Supernumeraries are non-flight crew personnel who are carried on board the airplane. For example, a supernumerary could be an airline employee who is not part of the flight crew, but is specially trained to handle cargo.

These STC freighters have a cargo compartment that is used only for the carriage of cargo. Before supernumeraries can be carried, the STC holder or operator must apply to the FAA for an exemption from CAR 4b.383(e), and from other federal regulations that pertain to seats, berths, and safety belts; emergency evacuation; ventilation; and fire protection. Such exemptions are granted only when the FAA determines that the design contains features that provide an acceptable level of safety for the supernumeraries.

The FAA has become aware of numerous instances where STC holders have made provisions for the carriage of supernumeraries without applying for FAA exemptions and without demonstrating that the safety provisions for supernumeraries are acceptable.

- *STC Data and Documentation Concerns*

When the FAA design review team evaluated data that STC applicants originally submitted to obtain FAA approval of these freighter STC's, the team found a number of deficiencies. Examples include data that is not adequately substantiated; payload limits in Weight and Balance documents that are inconsistent with the structural capability of the fuselage; structural analyses that lack the critical case; no analysis of the floor beams over the wing center section; and documented negative margins of safety that are unresolved.

- *Unsubmitted Instructions for Continued Airworthiness*

Federal regulations require an STC holder to submit ''Instructions for Continued Airworthiness'' to the FAA for review. These instructions include maintenance procedures, maintenance manuals, and maintenance program requirements for the continued safety of the airplane converted under the STC. Only one of the four STC holders has complied with this requirement.

Future FAA Review of Other Transport Airplane Cargo Conversions

The FAA's review of STC's and the safety of airplanes converted from a passenger to a cargo-carrying configuration will not be limited to just Model 727 and 747 series airplanes. Based on the discovery of unsafe conditions on both of these airplane models, the FAA intends to examine all transport category passenger airplanes that have been converted to a cargo-carrying configuration under STC's.

The FAA urges STC holders and operators of these freighters to begin, as soon as possible, an examination of the data supporting the STC's. If problems such as those identified in the Model 727 and 747 conversions are detected, corrective actions should be developed. Self-examination of these conversions prior to formal FAA review may shorten the time needed for any corrective actions, and reduce the impacts on operators of these freighters.

Explanation of Requirements of Proposed Rule

Since an unsafe condition has been identified that is likely to exist or develop on other products of this same type design, the proposed AD would restrict the payload on the main cargo deck of Model 727 series airplanes modified in accordance with STC ST00015AT. This proposal would be accomplished by revisions to the Limitations Section of all FAA-approved AFM's, AFM Supplements, and Weight and Balance Supplements. Revision of all these documents would be required because these STC freighters have been modified by other STC's that change the maximum taxi, take-off, zero fuel and landing weights of these airplanes.

The payload limits that are proposed are based on the use of containers that are 88 inches by 125 inches, and a horizontal center of gravity for the total payload in each container that is located within 8.8 inches from the geometric center of the base of the container for the forward and aft direction and 12.5 inches from the geometric center of the base of the container for the left and right direction. The payload limits are also based on a requirement that all containers are loaded with the door side of the container facing forward.

The proposal presents three options for payload limitations: one ''baseline'' [paragraph (a)] and two ''interim'' [paragraphs (b) and (c)], depending upon the floor configuration and other operating limitations.

Paragraph (a) would establish a payload limit of 3,000 pounds per container.

For airplanes equipped with FAA-approved side restraints, paragraph (b) would provide for temporary payload limits in some areas of 9,600 pounds for any *two* adjacent containers, with a limit of 8,000 pounds for any one container. These limits would be available when the following two conditions are met: the maximum operational airspeed does not exceed 350 KIAS *and* the minimum in-flight weight exceeds 100,000 pounds.

For airplanes that are not equipped with FAA-approved side restraints, paragraph (c) would provide for a temporary payload limit in some areas of 8,000 pounds for any *two* adjacent containers. This limit also would be available when the following two conditions are met: the maximum operational airspeed does not exceed 350 KIAS *and* the minimum in-flight weight exceeds 100,000 pounds.

Because the determination of the effects of operational limitations on

payload is based on approximations, the resulting payload limits may be unconservative. Consequently, operation with these payload limits is only acceptable for a limited period of time. Continued use of these operational limits and the associated payload limits must be substantiated. The FAA has determined that an acceptable level of safety is provided if the time period is limited to no more than 120 days, which would also allow sufficient time for an applicant to develop an acceptable analysis regarding the applicability of the operational limitations.

At the February 14 meeting discussed above, the industry participants proposed to complete a redesign of the floor structure within 120 days from the end of February (by the end of June). The FAA bases the proposed 120-day interim period in paragraphs (b) and (c) on the following assumptions:

1. Industry will fulfill this proposal;

2. The final rule will not become effective before October 1, 1997, and thus allow additional time for the industry to modify the main cargo deck floor structure; and

3. Operators and STC holders will work diligently in the meantime to avoid any disruptions to operations.

In light of the seriousness of the unsafe conditions addressed by this proposal, the FAA considers that the 120-day interim period:

1. Provides an acceptable level of safety;

2. Minimizes exposure to any potential unconservatism in the determination of the payload limits;

3. Provides an adequate opportunity for applicants to develop substantiation for continued use of operational limits to enhance payload limits; and

4. Minimizes, for the interim period, the burdens on operators resulting from this AD.

Should an operator desire to transport containers of other dimensions or use a different payload container center of gravity, it would have to apply to the FAA for appropriate payload limits.

At any time, an applicant would be able to present a proposal to modify the floor structure or proposed weight and other limits, data, and analysis to the FAA to substantiate that floor structure of the main cargo deck (existing or modified) is in compliance with the requirements of CAR part 4b when supporting the proposed weight limits. When the FAA determines that these documents are acceptable, the operator would be able to operate its airplane at the payload limits substantiated by its data and analysis.

Regulatory Evaluation Summary

The regulations proposed 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 proposal would not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

The FAA conducted a ''Cost Analysis and Initial Regulatory Flexibility Determination and Analysis'' to determine the regulatory impacts of this and three other proposed AD's to operators of all 244 U.S.-registered Boeing Model 727–100 and -200 series passenger airplanes that have been converted to cargo-carrying configurations under 10 STC's held by four companies. This analysis is included in the docket for each AD. The FAA has determined that approximately 4 Model 727–200 series airplanes were converted under the ATAZ STC. (There were 15 Model 727 series airplanes for which the FAA could not identify the STC holder. It is possible that these airplanes were also converted under an ATAZ STC. Their costs are not included here.)

Assuming that the operator of affected airplanes converted under the ATAZ STC would comply with the restricted interim operating conditions set forth in the proposed rule, the FAA estimates in the analysis that none of the modified Model 727–200 series airplanes would lose revenues during the interim period.

Based on the ''Cost Analysis and Initial Regulatory Flexibility Determination and Analysis'' included in the docket, the FAA estimates that affected airplanes could be modified at a cost of $100,000 per airplane. The total cost, therefore, to modify the fleet of affected Model 727 series airplanes that were originally modified to the ATAZ STC is $400,000. This assumes that modifications to the airplane are available and installed within the 120-day time period. If there are any delays in the availability or implementation of modifications, the revenue loss due to operation at the 3,000 pound payload limit would substantially increase the costs. The FAA solicits detailed cost information from the affected carriers concerning the proposed AD's compliance costs.

The Regulatory Flexibility Act of 1980 (RFA) was enacted by Congress to ensure that small entities are not unnecessarily or disproportionately burdened by government regulations. The RFA requires a Regulatory Flexibility Analysis if a proposed rule would have a significant economic impact, either detrimental or beneficial, on a substantial number of small entities. The Regulatory Flexibility Analysis includes the consideration of alternative actions.

FAA Order 2100.14A, Regulatory Flexibility Criteria and Guidance, establishes threshold cost values and small entity size standards for complying with RFA review requirements in FAA rulemaking actions. The Order defines ''small entities'' in terms of size thresholds, ''significant economic impact'' in terms of annualized cost thresholds, and ''substantial number'' as a number which is not less than eleven and which is more than one-third of the small entities subject to the proposed or final rule.

FAA Order 2100.14A sets the size threshold for small entities operating aircraft for hire at 9 aircraft and the annualized cost threshold at $69,000 for scheduled operations of airplanes with fewer than 60 seats and $5,000 for nonscheduled operations.

The affected carrier is not considered a small entity (it operates 13 affected airplanes, including 4 modified under the ATAZ STC). Therefore, this AD does not have a significant economic impact on a substantial number of small entities and a regulatory flexibility analysis is not required.

For the reasons discussed above, I certify that this proposed regulation (1) is not a ''significant regulatory action'' under Executive Order 12866; (2) is not a ''significant rule'' under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and (3) if promulgated, 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. A copy of the ''Cost Analysis and Initial Regulatory Flexibility Determination and Analysis'' prepared for this action is contained in the Rules Docket. A copy of it may be obtained by contacting the Rules Docket at the location provided under the caption **ADDRESSES.**

List of Subjects in 14 CFR Part 39

Air transportation, Airplanes, Aviation safety, Safety.

The Proposed Amendment

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration proposes to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) as follows:

PART 39—AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

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

§ 39.13 [Amended]

2. Section 39.13 is amended by adding the following new airworthiness directive:

Boeing: Docket 97–NM–80–AD.

Applicability: Model 727 series airplanes; modified in accordance with Supplemental Type Certificate ST00015AT; certificated in any category.

Note 1: This AD applies to each airplane identified in the preceding applicability provision, regardless of whether it has been otherwise modified, altered, or repaired in the area subject to the requirements of this AD. For airplanes that have been modified, altered, or repaired so that the performance of the requirements of this AD is affected, the owner/operator must request approval for an alternative method of compliance in accordance with paragraph (g) of this AD. The request should include an assessment of the effect of the modification, alteration, or repair on the unsafe condition addressed by this AD; and, if the unsafe condition has not been eliminated, the request should include specific proposed actions to address it.

Compliance: Required as indicated, unless accomplished previously.

To prevent structural failure of the floor beams of the main cargo deck, which could lead to loss of the airplane, accomplish the following:

(a) Except as provided in paragraphs (b), (c), and (d) of this AD, within 48 clock hours (not flight hours) after the effective date of this AD, accomplish the requirements of paragraph (a)(1) or (a)(2) of this AD, as applicable:

(1) For airplanes on which only containers that are 88 inches by 125 inches are transported: Revise the Limitations Section of all FAA-approved Airplane Flight Manuals (AFM) and AFM Supplements, and the Limitations Section of all FAA-approved Airplane Weight and Balance Supplements to include the following information. This may be accomplished by inserting a copy of this AD in all AFM's, AFM Supplements, and Weight and Balance Supplements.

''Limitations

All containers must be oriented with the door side of the container facing forward.

The location of the horizontal center of gravity for the total payload within each container shall not vary more than 8.8 inches from the geometric center of the base of the container for the forward and aft direction and 12.5 inches from the geometric center of the base of the container for the left or right direction.

Payload Limitations

Do not exceed a total weight of 3,000 pounds per container on the main cargo deck, except in the area adjacent to the side cargo door. In that side door area (Body Station 440 to Body Station 660), containers are restricted to a maximum payload of 2,700 pounds per container. This payload limit includes the payload in the lower lobe cargo compartments and any other load applied to the bottom of the floor beams of the main cargo deck for the same body station location as the container on the main cargo deck.

(2) For airplanes on which any containers other than 88 inches by 125 inches are transported: Revise the Limitations Section of all FAA-approved AFM's and AFM Supplements, and the Limitations Section of all FAA-approved Airplane Weight and Balance Supplements in accordance with a method approved by the Manager, Standardization Branch, ANM–113, FAA Transport Airplane Directorate.

Note 2: The weight restrictions to be approved under paragraph (a)(2) will be consistent with the applicable weight restrictions of paragraph (a)(1), (b), or (c) of this AD.

(b) During the period ending 120 days after the effective date of this AD: For airplanes on which only containers that are 88 inches by 125 inches are transported, and that are equipped with side vertical cargo container restraints that have been approved by the Manager, Standardization Branch, ANM–113, as an optional alternative to compliance with paragraph (a)(1) of this AD, revise the Limitations Section of all FAA-approved AFM's and AFM Supplements, and the Limitations Section of all FAA-approved Airplane Weight and Balance Supplements to include the following limitations. This may be accomplished by inserting a copy of this AD in all AFM's, AFM Supplements, and Weight and Balance Supplements.

''Limitations

Maximum Operating Airspeed of V_{mo} equals 350 knots indicated airspeed (KIAS).

Minimum in-flight weight: 100,000 pounds or greater.

All containers must be oriented with the door side of the container facing forward.

The location of the horizontal center of gravity for the total payload within each container shall not vary more than 8.8 inches from the geometric center of the base of the container for the forward and aft direction and 12.5 inches from the geometric center of the base of the container for the left or right direction.

Payload Limitations

Do not exceed a total weight of 9,600 pounds for any *two* adjacent containers and a total weight of 8,000 pounds for any container, except that the total weight of all containers forward of Body Station 436 shall not exceed 4,000 pounds. This payload limit includes the payload in the lower lobe cargo compartments and any other load applied to the bottom of the floor beams of the main cargo deck for the same body station location as the container on the main cargo deck.''

(c) During the period ending 120 days after the effective date of this AD: For airplanes on which only containers that are 88 inches by 125 inches are transported, and that are NOT equipped with side vertical cargo container restraints that have been approved by the Manager, Standardization Branch, ANM–113, as an optional alternative to compliance with paragraph (a)(1) of this AD, revise the Limitations Section of all FAA-approved AFM's and AFM Supplements, and the Limitations Section of all FAA-approved Airplane Weight and Balance Supplements to include the following limitations. This may be accomplished by inserting a copy of this AD in all AFM's, AFM Supplements, and Weight and Balance Supplements.

''Limitations

Maximum Operating Airspeed of V_{mo} equals 350 knots indicated airspeed (KIAS).

Minimum in-flight weight: 100,000 pounds or greater.

All containers must be oriented with the door side of the container facing forward.

The location of the horizontal center of gravity for the total payload within each container shall not vary more than 8.8 inches from the geometric center of the base of the container for the forward and aft direction and 12.5 inches from the geometric center of the base of the container for the left or right direction.

Payload Limitations

Do not exceed a total weight of 8,000 pounds for any *two* adjacent containers and the total weight of all containers forward of Body Station 436 shall not exceed 4,000 pounds. This payload limit includes the payload in the lower lobe cargo compartments and any other load applied to the bottom of the floor beams of the main cargo deck for the same body station location as the container on the main cargo deck.''

(d) For airplanes that operate under the 350 KIAS requirements of paragraph (b) or (c) of this AD: A maximum operating airspeed limitation placard must be installed adjacent to the airspeed indicator and in full view of both pilots. This placard must state: ''Limit V_{mo} to 350 KIAS.''

(e) For airplanes complying with paragraph (b) or (c) of this AD, within 120 days after the effective date of this AD: Revise the Limitations Section of all FAA-approved AFM's and AFM Supplements, and the Limitations Section of all FAA-approved Airplane Weight and Balance Supplements to include the following information. This may be accomplished by inserting a copy of this AD in all AFM's, AFM Supplements, and Weight and Balance Supplements.

''Limitations

All containers must be oriented with the door side of the container facing forward.

The location of the horizontal center of gravity for the total payload within each container shall not vary more than 8.8 inches from the geometric center of the base of the container for the forward and aft direction and 12.5 inches from the geometric center of the base of the container for the left or right direction.

Payload Limitations

Do not exceed a total weight of 3,000 pounds per container on the main cargo deck, except in the area adjacent to the side cargo door. In that side door area (Body Station 440 to Body Station 660), containers are restricted to a maximum payload of 2,700 pounds per container. This payload limit includes the payload in the lower lobe cargo compartments and any other load applied to

the bottom of the floor beams of the main cargo deck for the same body station location as the container on the main cargo deck.''

(f) As an alternative to compliance with paragraphs (a), (b), (c), (d), and (e) of this AD: An applicant may submit a proposal to modify the floor structure or proposed new payload and other limits, and substantiating data and analyses to the Manager, Standardization Branch, ANM–113, in accordance with the procedures of paragraph (g) of this AD, showing that the floor structure of the main cargo deck is in compliance with the requirements of Civil Air Regulations (CAR) part 4b. If the FAA determines that these documents are acceptable and applicable to the specific airplane being analyzed and approves the proposed limits, prior to flight under these new limits, the operator must revise the Limitations Section of all FAA-approved AFM's and AFM Supplements, and the Limitations Section of all FAA-approved Airplane Weight and Balance Supplements in accordance with a method approved by the Manager, Standardization Branch, ANM–113. Accomplishment of these revisions in accordance with the requirements of this paragraph constitutes terminating action for the requirements of this AD.

(g) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be used if approved by the Manager, Standardization Branch, ANM–113. Operators shall submit their requests through an appropriate FAA Principal Maintenance Inspector who may add comments and then send it to the Manager, Standardization Branch, ANM–113.

Note 3: Information concerning the existence of approved alternative methods of compliance with this AD, if any, may be obtained from the Manager, Standardization Branch, ANM–113.

(h) Special flight permits may be issued in accordance with sections 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the airplane to a location where the requirements of this AD can be accomplished.

Issued in Renton, Washington, on July 8, 1997.

Darrell M. Pederson,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

[FR Doc. 97–18356 Filed 7–14–97; 8:45 am]

BILLING CODE 4910–13–U

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 97–NM–09–AD]

RIN 2120–AA64

Airworthiness Directives; Boeing Model 727 Series Airplanes Modified in Accordance With Supplemental Type Certificate SA1767SO, SA1768SO, or SA7447SW

AGENCY: Federal Aviation Administration, DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: This document proposes the adoption of a new airworthiness directive (AD) that is applicable to certain Boeing Model 727 series airplanes that have been converted from a passenger to a cargo-carrying (''freighter'') configuration. This proposal would require limiting the payload on the main cargo deck by revising the Limitations Sections of all Airplane Flight Manuals (AFM), AFM Supplements, and Airplane Weight and Balance Supplements for these airplanes. This proposal also provides for the submission of data and analysis that substantiates the strength of the main cargo deck, or modification of the main cargo deck, as optional terminating action for these payload restrictions. This proposal is prompted by the FAA's determination that unreinforced floor structure of the main cargo deck is not strong enough to enable the airplane to safely carry the maximum payload that is currently allowed in this area. The actions specified by the proposed AD are intended to prevent failure of the floor structure, which could lead to loss of the airplane.

DATES: Comments must be received by August 22, 1997.

ADDRESSES: Submit comments in triplicate to the Federal Aviation Administration (FAA), Transport Airplane Directorate, ANM–103, Attention: Rules Docket No. 97–NM–09–AD, 1601 Lind Avenue, SW., Renton, Washington 98055–4056. Comments may be inspected at this location between 9:00 a.m. and 3:00 p.m., Monday through Friday, except Federal holidays.

FOR FURTHER INFORMATION CONTACT: Steven C. Fox, Senior Aerospace Engineer, Airframe Branch, ANM–120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington; telephone (425) 227–2777; fax (425) 227–1181.

SUPPLEMENTARY INFORMATION:

Comments Invited

Interested persons are invited to participate in the making of the proposed rule by submitting such written data, views, or arguments as they may desire. Communications shall identify the Rules Docket number and be submitted in triplicate to the address specified above. All communications received on or before the closing date for comments, specified above, will be considered before taking action on the proposed rule. The proposals contained in this notice may be changed in light of the comments received.

Comments are specifically invited on the overall regulatory, economic, environmental, and energy aspects of the proposed rule. All comments submitted will be available, both before and after the closing date for comments, in the Rules Docket for examination by interested persons. A report summarizing each FAA-public contact concerned with the substance of this proposal will be filed in the Rules Docket.

Commenters wishing the FAA to acknowledge receipt of their comments submitted in response to this notice must submit a self-addressed, stamped postcard on which the following statement is made: ''Comments to Docket Number 97–NM–09–AD.'' The postcard will be date stamped and returned to the commenter.

Availability of NPRMs

Any person may obtain a copy of this NPRM by submitting a request to the FAA, Transport Airplane Directorate, ANM–103, Attention: Rules Docket No. 97–NM–09–AD, 1601 Lind Avenue, SW., Renton, Washington 98055–4056.

Discussion

The FAA has issued supplemental type certificates (STC) for converting certain Boeing Model 727 and 747 series airplanes from a passenger to a cargo-carrying (''freighter'') configuration. These freighter conversions entail such modifications as removal of the passenger interior, the installation of systems to handle cargo containers (such as pallets and other unit load devices), the installation of a side cargo door for the main cargo deck, and alterations to such systems as the hydraulic, electrical, and smoke detection systems that are associated with the transport of cargo. When a conversion is completed, the weight permitted to be carried (''payload'') on the main cargo deck is significantly