magnifying lenses, etc., may be used. Surface cleaning and elaborate access procedures may be required.''

(b) Within 36 months or 4,000 flight cycles after the effective date of this AD, whichever occurs first, accomplish paragraphs (b)(1) and (b)(2) of this AD.

(1) Perform a detailed visual inspection of the mating surfaces of both the hinge and the door skin and external fuselage doubler underlying the hinge to detect cracks or other discrepancies (e.g., double or closely drilled holes, corrosion, chips, scratches, or gouges). The detailed visual inspection shall be accomplished in accordance with a method approved by the Manager, Atlanta Aircraft Certification Office (ACO), FAA, Small Airplane Directorate. The requirements of this paragraph may be accomplished prior to or concurrently with the requirements of paragraph (b)(2) of this AD.

(2) Install a main deck cargo door hinge that complies with the applicable requirements of Civil Air Regulations (CAR) part 4b, including fail-safe requirements, in accordance with a method approved by the Manager, Atlanta ACO.

(c) If any crack or discrepancy is detected during the detailed visual inspection required by either paragraph (a) or (b)(1) of this AD, prior to further flight, repair in accordance with a method approved by the Manager, Atlanta ACO.

Actions Addressing the Main Deck Cargo Door Systems

(d) Within 60 days after the effective date of this AD, revise the Limitations Section of the FAA-approved Airplane Flight Manual (AFM) Supplement by inserting therein the procedures specified in paragraphs (d)(1) and (d)(2) of this AD, and install any associated placards. The AFM revision procedures and installation of any associated placards shall be accomplished in accordance with a method approved by the Manager, Atlanta ACO.

(1) Procedures to ensure that all power is removed from the main deck cargo door prior to dispatch of the airplane. And

(2) Procedures to ensure that the main deck cargo door is closed, latched, and locked prior to dispatch of the airplane.

(e) Within 36 months after the effective date of this AD, incorporate redesigned main deck cargo door systems (e.g., warning/monitoring, power control, view ports, and means to prevent pressurization to an unsafe level if the main deck cargo door is not closed, latched, and locked), including any associated procedures and placards, that comply with the applicable requirements of CAR part 4b and criteria specified in Appendix 1 of this AD; in accordance with a method approved by the Manager, Atlanta ACO.

Note 3: The design data submitted for approval should include a Systems Safety Analysis and Instructions for Continued Airworthiness that are acceptable to the Manager, Atlanta ACO.

Actions Addressing the Main Deck Cargo Barrier

(f) Within 36 months or 4,000 flight cycles after the effective date of this AD, whichever occurs first, install a main deck cargo barrier that complies with the applicable requirements of CAR part 4.b, in accordance with a method approved by the Manager, Atlanta ACO.

Note 4: The maximum main deck total payload that can be carried is limited to the lesser of the approved cargo barrier weight limit, weight permitted by the approved maximum zero fuel weight, weight permitted by the approved main deck position weights, weight permitted by the approved main deck running load or distributed load limitations, or approved cumulative zone or fuselage monocoque structural loading limitations (including lower hold cargo).

Note 5: Installation of a Ventura Aerospace Inc. cargo barrier STC ST00848LA is an approved means of compliance with the requirements of paragraph (f) of this AD.

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

Note 6: Information concerning the existence of approved alternative methods of compliance with this AD, if any, may be obtained from the Atlanta ACO.

(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.

Appendix 1

Excerpt from an FAA Memorandum to the Director-Airworthiness and Technical Standards of ATA, dated March 20, 1992.

''(1) *Indication System:*

(a) The indication system must monitor the closed, latched, and locked positions, directly.

(b) The indicator should be *amber* unless it concerns an outward opening door whose opening during takeoff could present an immediate hazard to the airplane. In that case the indicator must be *red* and located in plain view in front of the pilots. An aural warning is also advisable. A display on the master caution/warning system is also acceptable as an indicator. For the purpose of complying with this paragraph, an immediate hazard is defined as significant reduction in controllability, structural damage, or impact with other structures, engines, or controls.

(c) Loss of indication or a false indication of a closed, latched, and locked condition must be improbable.

(d) A warning indication must be provided at the door operators station that monitors the door latched and locked conditions directly, unless the operator has a visual indication that the door is fully closed and locked. For example, a vent door that monitors the door locks and can be seen from the operators station would meet this requirement.

(2) *Means to Visually Inspect the Locking Mechanism:*

There must be a visual means of directly inspecting the locks. Where all locks are tied to a common lock shaft, a means of inspecting the locks at each end may be sufficient to meet this requirement provided no failure condition in the lock shaft would go undetected when viewing the end locks. Viewing latches may be used as an alternate to viewing locks on some installations where there are other compensating features

(3) *Means to Prevent Pressurization:*

All doors must have provisions to prevent initiation of pressurization of the airplane to an unsafe level, if the door is not fully closed, latched and locked.

(4) *Lock Strength:*

Locks must be designed to withstand the maximum output power of the actuators and maximum expected manual operating forces treated as a limit load. Under these conditions, the door must remain closed, latched and locked.

(5) *Power Availability:*

All power to the door must be removed in flight and it must not be possible for the flight crew to restore power to the door while in flight.

(6) *Powered Lock Systems:*

For doors that have powered lock systems, it must be shown by safety analysis that inadvertent opening of the door after it is fully closed, latched and locked, is extremely improbable.''

Issued in Renton, Washington, on November 4, 1999.

D. L. Riggin,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

[FR Doc. 99–29476 Filed 11–10–99; 8:45 am]

BILLING CODE 4910–13–U

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 97–NM–234–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, among other actions, installation of a fail-safe hinge, redesigned main deck cargo door warning and power control systems, and 9g cargo barrier. This proposal is

prompted by the FAA's determination that the main deck cargo door hinge is not fail-safe; that certain main deck cargo door control systems do not provide an adequate level of safety; and that the main deck cargo barrier is not structurally adequate during an emergency landing. The actions specified by the proposed AD are intended to prevent structural failure of the main deck cargo door hinge or failure of the cargo door system, which could result in the loss or opening of the cargo door while the airplane is in flight, rapid decompression, and structural damage to the airplane; and to prevent failure of the main deck cargo barrier during an emergency landing, which could injure occupants.

DATES: Comments must be received by December 27. 1999.

ADDRESSES: Submit comments in triplicate to the Federal Aviation Administration (FAA), Transport Airplane Directorate, ANM–114, Attention: Rules Docket No. 97–NM–234–AD, 1601 Lind Avenue, SW., Renton, Washington 98055–4056. Comments may be inspected at this location by appointment only between the hours of 9:00 a.m. and 3:00 p.m., Monday through Friday, except Federal holidays.

FOR FURTHER INFORMATION CONTACT: Michael O'Neil, Aerospace Engineer, Airframe Branch, ANM–120L, FAA, Transport Airplane Directorate, Los Angeles Aircraft Certification Office, 3960 Paramount Boulevard, Lakewood, California 90712; telephone (562) 627–5320; fax (562) 627–5210.

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–234–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–114, Attention: Rules Docket No. 97–NM–234–AD, 1601 Lind Avenue, SW., Renton, Washington 98055–4056.

Discussion

Supplemental Type Certificate (STC) ST00015AT (held by Kitty Hawk Air Cargo) specifies a design for a main deck cargo door, associated cargo door cutout, door systems, and Class ''E'' cargo interior with a cargo barrier. As discussed in notice of proposed rulemaking (NPRM), Rules Docket No. 97–NM–80–AD [the final rule, AD 98–26–20, amendment 39–10963, was published in the **Federal Register** on January 12, 1999 (64 FR 2038)], which is applicable to certain Boeing Model 727 series airplanes that have been converted from a passenger to a cargo-carrying (''freighter'') configuration, the FAA has conducted a design review of Boeing Model 727 series airplanes modified in accordance with STC ST00015AT and has identified several potential unsafe conditions. [Results of this design review are contained in ''FAA Freighter Conversion STC Review, Report Number 4, dated February 6, 1997,'' hereinafter referred to as ''the Design Review Report,'' which is included in the Rules Docket for this NPRM.] This NPRM proposes corrective action for three of those potential unsafe conditions that relate to the following three areas: main deck cargo door hinge, main deck cargo door systems, and main deck cargo barrier.

Main Deck Cargo Door Hinge

In order to avoid catastrophic structural failure, it has been a typical industry approach to design outward opening cargo doors and their attaching structure to be fail-safe (*i.e.*, designed so that if a single structural element fails, other structural elements are able to carry the redistributed load). Another potential design approach is safe-life, where the critical structure is shown by analyses and/or tests to be capable of withstanding the repeated loads of variable magnitude expected in service for a specific service life. Safe-life is usually not used on critical structure because it is difficult to account for manufacturing or in-service accidental damage. For this reason, plus the fact that none of the STC holders have provided data in support of this approach, the safe-life approach will not be discussed further regarding the design and construction of the main deck cargo door hinge.

Structural elements such as the main deck cargo door hinge are subject to severe in-service operating conditions that could result in corrosion, binding, or seizure of the hinge. These conditions, in addition to the normal operational loads, can lead to early and unpredictable fatigue cracking. If a main deck cargo door hinge is not a fail-safe design, a fatigue crack could initiate and propagate longitudinally undetected, which could lead to a complete hinge failure. A possible consequence of this undetected failure is the opening of the main deck cargo door while the airplane is in flight. Service experience indicates that the opening of a cargo door while the airplane is in flight can be extremely hazardous in a variety of ways including possible loss of flight control, severe structural damage, or rapid decompression, any of which, could lead to loss of the airplane.

The design of the main deck cargo door hinge must be in compliance with Civil Air Regulations (CAR) part 4b, including CAR part 4b.270, which requires, in part, that catastrophic failure or excessive structural deformation, which could adversely affect the flight characteristics of the airplane, is not probable after fatigue failure or obvious partial failure of a single principal structural element. One common feature of a fail-safe hinge design is a division of the hinge into multiple segments such that, following failure of any one segment, the remaining segments would support the redistributed load.

The main deck cargo door installed in accordance with STC ST00015AT is supported by latches along the bottom of the door and a two-segment hinge along the top. This two-segment hinge is considered a critical structural element for this STC. A crack that initiates and propagates longitudinally along either segment of the hinge will eventually result in failure of the entire hinge, because the remaining segment of the hinge is unable to support the redistributed loads. Failure of the entire hinge can result in the opening of the main deck cargo door while the airplane is in flight.

On other Boeing Model 727 series airplanes modified in accordance with

similar STC's, inspections revealed a number of fasteners with both short edge margins and short spacing in the cargo door cutout external doublers. Some edge margins were as small as one fastener diameter. Fasteners that are placed too close to the edge of a structural member or spaced too close to an adjacent fastener can result in inadequate joint strength and stress concentrations, which may result in fatigue cracking of the skin. If such defects were to exist in the structure of the door or the fuselage to which the main deck cargo door hinge is attached, the attachment of the hinge could fail, and consequently cause the door to open while the airplane is in flight.

Since unsafe conditions have been identified that are likely to exist or develop on other products of this same type design, this proposed AD would require, within 250 flight cycles after the effective date of the AD, a one-time detailed visual inspection of the external surface of the main deck cargo door hinge (both fuselage and door side hinge elements) to detect cracks, and repair, if necessary. Accomplishment of this inspection will ensure that the subject airplanes are not in immediate risk of hinge failure.

In addition, the proposed AD would require a detailed visual inspection of the mating surfaces of both the hinge and the door skin and external fuselage doubler underlying the hinge to detect cracks or other discrepancies (e.g., double or closely drilled holes, corrosion, chips, scratches, or gouges). The proposed AD also would require installation of a main deck cargo door hinge that complies with the applicable requirements of CAR part 4b, including fail-safe requirements. Accomplishment of this detailed visual inspection will ensure the integrity of the door and fuselage structure to which the hinge is attached. The proposed compliance time for this inspection and installation is within 36 months or 4,000 flight cycles after the effective date of this AD, whichever occurs first. The compliance time is based on the FAA's assessment of the reasonable amount of time to redesign, manufacture, and install a fail-safe hinge. This time is in consideration of the 18-month time period estimated by the Boeing 727 industry working group, which includes operators, affected STC holders, and engineering organizations, to develop FAA-approved redesigns. These actions would be required to be accomplished in accordance with a method approved by the FAA.

Main Deck Cargo Door Systems

In early 1989, two transport airplane accidents were attributed to cargo doors coming open during flight. The first accident involved a Boeing 747 series airplane in which the cargo door separated from the airplane, and damaged the fuselage structure, engines, and passenger cabin. The second accident involved a McDonnell Douglas DC–9 series airplane in which the cargo door opened but did not separate from its hinge. The open door disturbed the airflow over the empennage, which resulted in loss of flight control and consequent loss of the airplane. Although cargo doors have opened occasionally without mishap during takeoff, these two accidents serve to highlight the extreme potential dangers associated with the opening of a cargo door while the airplane is in flight.

As a result of these cargo door opening accidents, the Air Transport Association (ATA) of America formed a task force, including representatives of the FAA, to review the design, manufacture, maintenance, and operation of airplanes fitted with outward opening cargo doors, and to make recommendations to prevent inadvertent cargo door openings while the airplane is in flight. A design working group was tasked with reviewing 14 CFR part 25.783 [and its accompanying Advisory Circular (AC) 25.783–1, dated December 10, 1986] with the intent of clarifying its contents and recommending revisions to enhance future cargo door designs. This design group also was tasked with providing specific recommendations regarding design criteria to be applied to existing outward opening cargo doors to ensure that inadvertent openings would not occur in the current transport category fleet of airplanes.

The ATA task force made its recommendations in the ''ATA Cargo Door Task Force Final Report,'' dated May 15, 1991 (hereinafter referred to as ''the ATA Final Report''). On March 20, 1992, the FAA issued a memorandum to the Director-Airworthiness and Technical Standards of ATA (hereinafter referred to as ''the FAA Memorandum''), acknowledging ATA's recommendations and providing additional guidance for purposes of assessing the continuing airworthiness of existing designs of outward opening doors. The FAA Memorandum was not intended to upgrade the certification basis of the various airplanes, but rather to identify criteria to evaluate potential unsafe conditions identified on in-service airplanes. Appendix 1 of this AD contains the specific paragraphs from the FAA Memorandum that set forth the criteria to which the outward opening doors should be shown to comply.

Applying the applicable requirements of CAR part 4b and design criteria provided by the FAA Memorandum, the FAA has reviewed the original type design of major transport airplanes, including Boeing 727 airplanes equipped with outward opening doors, for any design deficiency or service difficulty. Based on that review, the FAA identified unsafe conditions and issued, among others, the following AD's:

- For certain McDonnell Douglas Model DC–9 series airplanes: AD 89–11–02, amendment 39–6216 (54 FR 21416, May 18, 1989);
- For all Boeing Model 747 series airplanes: AD 90–09–06, amendment 39–6581 (55 FR 15217, April 23, 1990);
- For certain McDonnell Douglas Model DC–8 series airplanes: AD 93–20–02, amendment 39–8709 (58 FR 471545, October 18, 1993);
- For certain Boeing Model 747–100 and –200 series airplanes: AD 96–01–51, amendment 39–9492 (61 FR 1703, January 23, 1996); and
- For certain Boeing Model 727–100 and –200 series airplanes: AD 96–16–08, amendment 39–9708 (61 FR 41733, August 12, 1996).

Using the criteria specified in the ATA Final Report and the FAA Memorandum as evaluation guides, the FAA conducted an engineering design review and inspection of an airplane modified in accordance with STC ST00015AT (held by Kitty Hawk). The FAA identified a number of design features of the main deck cargo door systems of this STC that are unsafe and do not meet the criteria specified in the ATA Final Report and the FAA Memorandum. The FAA design review team determined that the design data of this STC did not include an adequate safety analysis of the main deck cargo door systems.

For airplanes modified in accordance with STC ST00015AT, the FAA considers the following three specific design deficiencies of the main deck cargo door systems to be unsafe:

1. Means to Visually Inspect the Locking Mechanism

The three view ports installed in accordance with STC ST00015AT are located for viewing locking pins at the No. 2, No. 4, and No. 6 latch positions of the main deck cargo door. These view ports are intended to allow the flight crew to conduct a visual inspection of the cargo door locking mechanism to determine whether or not the cargo door is closed, latched, and locked. The view

ports are used in conjunction with the door warning system and should provide a suitable back-up for confirming that the door is closed, latched and locked in the event that the main deck cargo door warning system malfunctions.

However, during the FAA design review, it was determined that these view ports are installed at an angle; therefore, a visual inspection of the locking pins is not possible. Therefore, the FAA finds that these view ports cannot be used to confirm that the door is closed, latched, and locked when the cargo door warning system malfunctions.

As discussed in the ATA Final Report and the FAA Memorandum, there must be a means of directly inspecting each lock or, at a minimum, the locks at each end of the lock shaft of certain designs, such that a failure condition in the lock shaft would be detectable.

2. Means to Prevent Pressurization to an Unsafe Level

Boeing 727–200 airplanes modified in accordance with STC ST00015AT are configured to utilize two outward opening vent doors for the purpose of preventing pressurization of the airplane to an unsafe level in the event the main deck cargo door is not closed, latched, and locked. Because the vent door openings are approximately six inches in diameter, the opening area may be insufficient to prevent pressurization of the airplane to an unsafe level in the event the main deck cargo door is not closed, latched, and locked. Paragraph (1)(d) of Appendix 1 describes the requirement that a warning indication be provided to the door operators station to monitor the door condition. Another function of the vent doors, if properly designed, would be to provide such a visual warning indication. If the vent door is open, the door operator will know the door is not closed, locked, and latched. The vent doors in this design are not spring loaded to the fully open position. As a result, they may appear to be closed when in fact they are not. Rather than provide a positive indication of a safe door, they can create a false indication of the door status. Therefore, the position of these vent doors cannot be used to indicate that the main cargo door is closed, latched, and locked, nor that there is a malfunction in the vent door system.

''Failure Mode and Effects Analysis (FMEA) for B727–200 Cargo Door Modifications,'' dated November 20, 1991, was prepared by the STC holder as a qualitative safety analysis for the vent door system of this STC. The FMEA indicates that the system has single point failures of the vent door systems that can result in a false indication that the door is safe. The presence of single point failures reflects that the system does not meet the standard established in the ATA Final Report and FAA memorandum that a false indication of a closed, latched, and locked condition is improbable.

3. Powered Lock Systems

The main deck cargo door actuation control system for STC ST00015AT utilizes a powered lock system. The main deck cargo door control system for STC ST00015AT that utilizes electrical interlock switches is designed to remove door control power (electrical and hydraulic) prior to flight and to prevent inadvertent door openings. The design shows the likelihood that latent and/or single point failures can restore or continue to allow power to the door controls and cause inadvertent door openings. The failure modes may be found in the electrical portion of the door control panel, which, in turn, activates the door control hydraulics. The potential for the occurrence of these failure conditions is increased by the harsh operating environment of freighter airplanes. Door system components are routinely exposed to precipitation, dirt, grease, and foreign object intrusion, all of which increase the likelihood of damage. As a result, wires, switches, and relays have a greater potential to fail or short circuit in such a way as to allow the cargo door to be powered open without an operator's command and regardless of electrical interlock positions.

A systems safety analysis would normally evaluate and resolve the potential for these types of unsafe conditions. However, the design data for STC ST00015AT includes a systems safety analysis that is insufficient to show that an inadvertent opening of the main deck cargo door after it is fully closed, latched, and locked is extremely improbable. The need for a system safety analysis is identified in the ATA Final Report and the FAA Memorandum.

Since unsafe conditions have been identified that are likely to exist or develop on other products of this same type design, this proposed AD would require, within 60 days after the effective date, revising the Limitations Section of the FAA-approved Airplane Flight Manual (AFM) Supplement to provide the flight crew with procedures for ensuring that the main deck cargo door is closed, latched, and locked prior to dispatch of the airplane; and installing any associated placards.

In addition, the proposed AD would require, within 36 months after the effective date of the AD, incorporation of redesigned main deck cargo door systems (*e.g.*, power control, view ports, and means to prevent pressurization to an unsafe level if the main deck cargo door is not closed, latched, and locked), including any associated procedures and placards that comply with the applicable requirements of CAR part 4b and design criteria of the ATA Final Report and the FAA Memorandum. Design data provided in support of the door systems re-design should include a Systems Safety Analysis and Instructions for Continued Airworthiness that are acceptable to the FAA. Accomplishment of the incorporation of redesigned main deck cargo door systems will prevent rapid decompression and/or structural damage to the airplane as a result of loss or opening of the cargo door while the airplane is in flight. The compliance time is based on the FAA's assessment of the reasonable amount of time to incorporate redesigned main deck cargo door systems. This time is in consideration of the 18-month time period estimated by the Boeing 727 industry working group, which includes operators, affected STC holders, and engineering organizations, to develop FAA-approved redesigns.

These actions would be required to be accomplished in accordance with a method approved by the FAA.

Cargo Barrier

In order to ensure the safety of occupants during emergency landing conditions, the FAA first established in 1934, a set of inertia load factors used to design the structure for restraining items of mass in the fuselage. Because the airplane landing speeds have increased over the years as the fleet has transitioned from propeller to jet design, inertia load factors were changed as specified in CAR part 4b.260. Experience has shown that an airplane designed to this regulation has a reasonable probability of protecting its occupants from serious injury in an emergency landing. The 727 passenger airplane was designed to these criteria which specified an ultimate inertia load requirement of 9g in the forward direction. This criteria was applied to the seats and structure restraining the occupants, including the flight crew, as well as other items of mass in the fuselage.

When the 727 passenger airplane is converted to carry cargo on the main deck, a cargo barrier is required, since most cargo containers and the container-to-floor attaching devices are not

designed to withstand emergency landing loads. In fact, the FAA estimates that the container-to-floor attaching devices will only support approximately 1.5g's to 3g's in the forward direction. Without a 9g cargo barrier, it is probable that the loads associated with an emergency landing would cause the cargo to become unrestrained and impact the occupants of the airplane, which could result in serious injury or death.

The structural inadequacy of the cargo barrier was evident to the FAA during its review in October 1996 of a Boeing 727 modified in accordance with STC ST00015AT. The observations revealed that the design of the cargo barrier floor attachment and circumferential supporting structure does not provide adequate strength to withstand the 9g forward inertia load generated by the main deck cargo mass, nor does it provide a load path to effectively transfer the loads from the cargo barrier to the fuselage structure of the airplane. These observations are supported by data contained in ''ER 2785, Structural Substantiation of the 50k 9g Bulkhead Restraint System in Support of STC SA1543SO PN 53–1292–401 for the 9g Bulkhead 53–1980–300 Assembly with Upper Attachment Structure, Lower Attachment Structure, Floor Shear Web Structure, Seat Track Splice Fittings, Seat Tracks, and Seat Track Splices,'' dated September 29, 1996, by M. F. Daniel. Although this report was specific to STC SA1543SO, the FAA has determined that the data are applicable to airplane modified in accordance with STC ST00015AT because the design principles for attachment of the barriers in both STC's are the same. The report reveals that structural deficiencies were found in the net attach plates and floor attachment structure of the cargo barrier. The data show large negative margins of safety, which indicate that the inertia load capability of the cargo barrier is closer to 2g than the required 9g in the forward direction. From these analyses, it is evident that the cargo barrier would not be capable of preventing serious injury to the occupants during an emergency landing event with the full allowable cargo load.

Since unsafe conditions have been identified that are likely to exist or develop on other products of this same type design, this proposed AD would require installation of a main deck cargo barrier that complies with the applicable requirements of CAR part 4b. Accomplishment of the installation will prevent serious injury to the occupants in the event of an emergency landing. The proposed compliance time for the installation is within 36 months or 4,000 flight cycles after the effective date of the AD, whichever occurs first. This compliance time is based on the FAA's assessment of the reasonable amount of time to redesign, manufacture, and install the cargo barrier. This time is consistent with estimates by affected STC holders and operators that necessary redesigns can by developed and approved by the FAA within 12 to 18 months from August 1998.

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.

This analysis examines the cost of a proposed AD that would require the installation of a fail-safe hinge, redesigned main deck cargo door warning and power control systems, and a 9g cargo barrier on Boeing Model 727 series airplanes that have been modified in accordance with an STC held by Kitty Hawk Air Cargo. As discussed above, the FAA has determined that the main deck cargo door hinge is not fail-safe, that certain main deck cargo door control systems do not provide an adequate level of safety, and that the main deck cargo barrier is not structurally adequate during a minor crash landing.

Approximately 5 U.S.-registered Boeing Model 727 series airplane would be affected by the proposed AD. Kitty Hawk, owner of the STC, operates all of these airplanes. The following discussion addresses, in sequence, the actions in proposed Rules Docket No. 97–NM–234–AD and the estimated cost associated with each of these actions. An analysis of the estimated cost is also available in the Rules Docket.

1. Main Deck Cargo Door Hinge

Since unsafe conditions have been identified that are likely to exist or develop on other modified Boeing Model 727 series airplanes, paragraph (a) of the proposed AD would require, within 250 flight cycles after the effective date this AD, a one-time detailed visual inspection to detect cracks of the external surface of the main deck cargo door hinge.

Paragraph (b)(1) of the proposed AD would require, within 36 months or 4,000 cycles after the effective date of this AD, a detailed visual inspection of the mating surfaces of both the hinge and the door skin and external fuselage doubler underlying the hinge. The FAA estimates that compliance with this inspection would take 200 hours at a cost of $12,000 per airplane, or $600,000 for the affected fleet. Kitty Hawk estimates that compliance with these two inspections would cost approximately $1,430 per airplane, or $7,150 for the affected fleet.

Paragraph (b)(2) of the proposed AD would require installation of a fail-safe door hinge. The compliance time for this installation also would be 36 months or 4,000 cycles after the effective date this AD. Kitty Hawk estimates the cost to design and certificate such a hinge is $50,000, that no parts for a fail-safe door hinge would be required, and that the cost of the modification would cost $15,000. Total compliance costs for this proposed provision for the affected fleet of 5 airplanes would be $125,000.

Paragraph (c) of the proposed AD would require that, if any cracks or discrepancies are detected during the inspections required by paragraph (a) or (b)(1) of the proposed AD, repairs must be made prior to further flight. The cost of these repairs is not attributable to this proposed AD.

For purposes of this analysis, the FAA assumes an effective date of July 1, 2000. The cost to comply with proposed paragraphs (a) through (c) over the 36-month compliance period is $132,000 or $116,000 discounted to present value at 7 percent. The FAA assumes that the installation of the main deck cargo door hinge [paragraph (b)(1)] would be accomplished at the same time as the detailed visual inspection of fastener holes [paragraph (b)(2)]. The FAA also assumes that Kitty Hawk would perform these two activities uniformly throughout the 36-month period. Finally, the certification cost for the main deck cargo door hinge would be incurred within the first 6 months after the effective date of this AD.

2. Main Deck Cargo Door Systems

Paragraph (d) of the proposed AD would require, within 60 days after the effective date of this AD, a revision to the Limitations Section of the FAA-approved AFM Supplement by inserting procedures to ensure that the main deck cargo door is closed, latched, and locked prior to dispatch of the airplane. In addition, paragraph (d) of the proposed AD would require the installation of any associated placards.

The FAA assumes that Boeing Model 727 series airplanes converted under a

Kitty Hawk STC will have an acceptable pressurization vent door installed, which operators could use to visually determine whether the vent is in the proper position prior to dispatch, indicating that the door is closed, latched, and locked. The FAA estimates that this activity would take no more than 30 minutes. Assuming each affected airplane flies one flight per day, 260 days per year, the estimated cost per inspection would be $30, or $7,800 per airplane per year until the door system is changed, a total of $58,500 over 36 months.

Paragraph (e) of the proposed AD would require, within 36 months after the effective date of this AD, incorporation of a redesigned main deck cargo door system. Kitty Hawk estimates that the development and certification of the system would cost $175,000. Modification parts would cost $38,000 per airplane and labor costs would be $23,500 per airplane. The FAA assumes that operators would incorporate the redesigned main deck cargo door system during regularly scheduled maintenance. (Kitty Hawk indicates that any lost revenue due to additional down time should be attributed to the installation of the 9g main deck cargo barrier, discussed below.) The total costs of installing a redesigned main deck cargo door system, including certification, parts, and labor would be $482,500 over the 36-month period.

The total estimated cost to comply with proposed requirements for the main deck cargo door system is $541,000 or $523,000, discounted to present value.

3. Main Deck Cargo Barrier

Paragraph (f) of the proposed AD would require, within 36 months or 4,000 flight cycles after the effective date of this AD, installation of a main deck cargo barrier that complies with the applicable requirements of CAR part 4b. Ventura Aerospace holds an STC for an approved 9g barrier, and Kitty Hawk indicates that they may purchase barriers manufactured to this STC. The cost of the barrier kits is $67,500. Kitty Hawk estimates that labor would cost $13,500 per airplane and that an affected airplane would be out-of-service 3 additional days, at a cost of $15,000 per day, while this barrier is installed.

The FAA assumes that Kitty Hawk would install 9g barriers uniformly over the 36-month compliance period. The total non-discounted cost of this proposed requirement would be $630,000, or $551,000 discounted to present value.

4. Alternative Methods of Compliance (AMOC) and Special Flight Permits

Paragraph (g) of the proposed AD would allow an AMOC or adjustment of compliance time that provides an acceptable level of safety if approved by the Manager of the Atlanta ACO. The FAA is unable to determine the cost of an AMOC, but assumes it would be less than the cost of complying with the proposed provisions in paragraphs (a) through (f) of the proposed AD.

Paragraph (h) of the proposed AD would allow special flight permits in accordance with the regulations to operate an affected airplane to a location where the requirements of the proposed AD could be accomplished.

5. Total Cost of the Proposed AD

The FAA estimates that the total compliance cost of the proposed AD would be $1.3 million, or $1.2 million discounted to present value.

The Regulatory Flexibility Act (RFA) of 1980 establishes ''as a principle of regulatory issuance that agencies shall endeavor, consistent with the objective of the rule and of applicable statutes, to fit regulatory and informational requirements to the scale of the business, organizations, and governmental jurisdictions subject to regulation. To achieve that principle, the RFA requires agencies to solicit and consider flexible regulatory proposals and to explain the rationale for their actions. The RFA covers a wide-range of small entities, including small businesses, not-for-profit organizations, and small governmental jurisdictions.

Agencies must perform a review to determine whether a proposed or final rule will have a significant economic impact on a substantial number of small entities. If the determination is that it will, the Agency must prepare a regulatory flexibility analysis as described in the RFA. However, if an agency determines that a proposed or final rule is not expected to have a significant economic impact on a substantial number of small entities, section 605(b) of the RFA provides that the head of the agency may so certify and an RFA is not required. The certification must include a statement providing the factual basis for this determination, and the reasoning should be clear.

Only one operator, Kitty Hawk, would be affected by this proposed AD. Kitty Hawk is small, that is, it employs fewer than 1,500 persons. However, pursuant to the Regulatory Flexibility Act, 5 U.S.C. 605(b), the FAA certifies that this proposed AD would not have a significant economic impact on a substantial number of small entities, because one entity is not a substantial number.

Title II of the Unfunded Mandates Reform Act of 1995 (the Act), enacted as Pub. L. 104–4 on March 22, 1995, requires each Federal agency, to the extent permitted by law, to prepare a written assessment of the effects of any Federal mandate in a proposed or final agency rule that may result in the expenditure by State, local, and tribal governments, in the aggregate, or by the private sector, of $100 million or more (adjusted annually for inflation) in any one year. Section 204(a) of the Act, 2 U.S.C. 1534(a), requires the Federal agency to develop an effective process to permit timely input by elected officers (or their designees) of State, local, and tribal governments on a proposed ''significant intergovernmental mandate.'' A ''significant intergovernmental mandate'' under the Act is any provision in a Federal agency regulation that would impose an enforceable duty upon State, local, and tribal governments, in the aggregate, of $100 million (adjusted annually for inflation) in any one year. Section 203 of the Act, 2 U.S.C. 1533, which supplements section 204(a), provides that before establishing any regulatory requirements that might significantly or uniquely affect small governments, the agency shall have developed a plan that, among other things, provides for notice to potentially affected small governments, if any, and for a meaningful and timely opportunity to provide input in the development of regulatory proposals.

This proposed AD does not contain any Federal intergovernmental or private sector mandate. Therefore, the requirements of Title II of the Unfunded Mandates Reform Act of 1995 do not apply.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, 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–234–AD.

Applicability: Model 727 series airplanes that have been converted from a passenger to a cargo-carrying (''freighter'') configuration in accordance with Supplemental Type Certificate (STC) 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 main deck cargo door hinge or failure of the cargo door systems, which could result in the loss or opening of the cargo door while the airplane is in flight, rapid decompression, and structural damage to the airplane; and to prevent failure of the main deck cargo barrier during an emergency landing, which could injure occupants; accomplish the following:

Actions Addressing the Main Deck Cargo Door Hinge

(a) Within 250 flight cycles after the effective date of this AD, perform a detailed visual inspection of the external surface of the main deck cargo door hinge (both fuselage and door side hinge elements) to detect cracks.

Note 2: For the purposes of this AD, a detailed visual inspection is defined as: ''An intensive visual examination of a specific structural area, system, installation, or assembly to detect damage, failure, or irregularity. Available lighting is normally supplemented with a direct source of good lighting at intensity deemed appropriate by the inspector. Inspection aids such as mirror, magnifying lenses, etc., may be used. Surface cleaning and elaborate access procedures may be required.''

(b) Within 36 months or 4,000 flight cycles after the effective date of this AD, whichever occurs first, accomplish paragraphs (b)(1) and (b)(2) of this AD.

(1) Perform a detailed visual inspection of the mating surfaces of both the hinge and the door skin and external fuselage doubler underlying the hinge to detect cracks or other discrepancies (*e.g.*, double or closely drilled holes, corrosion, chips, scratches, or gouges). The detailed visual inspection shall be accomplished in accordance with a method approved by the Manager, Los Angeles Aircraft Certification Office (ACO), FAA, Transport Airplane Directorate. The requirements of this paragraph may be accomplished prior to or concurrently with the requirements of paragraph (b)(2) of this AD.

(2) Install a main deck cargo door hinge that complies with the applicable requirements of Civil Air Regulations (CAR) part 4b, including fail-safe requirements, in accordance with a method approved by the Manager, Los Angeles ACO.

(c) If any crack or discrepancy is detected during the detailed visual inspection required by either paragraph (a) or (b)(1) of this AD, prior to further flight, repair in accordance with a method approved by the Manager, Los Angeles ACO.

Actions Addressing the Main Deck Cargo Door Systems

(d) Within 60 days after the effective date of this AD, revise the Limitations Section of the FAA-approved Airplane Flight Manual (AFM) Supplement by inserting therein procedures to ensure that the main deck cargo door is closed, latched, and locked prior to dispatch of the airplane, and install any associated placards. The AFM revision procedures and installation of any associated placards shall be accomplished in accordance with a method approved by the Manager, Los Angeles ACO.

(e) Within 36 months after the effective date of this AD, incorporate redesigned main deck cargo door systems (*e.g.*, power control, view ports, and means to prevent pressurization to an unsafe level if the main deck cargo door is not closed, latched, and locked), including any associated procedures and placards, that comply with the applicable requirements of CAR part 4b and criteria specified in Appendix 1 of this AD; in accordance with a method approved by the Manager, Los Angeles ACO.

Note 3: The design data submitted for approval should include a Systems Safety Analysis and Instructions for Continued Airworthiness that are acceptable to the Manager, Los Angeles ACO.

Actions Addressing the Main Deck Cargo Barrier

(f) Within 36 months or 4,000 flight cycles after the effective date of this AD, whichever occurs first, install a main deck cargo barrier that complies with the applicable requirements of CAR part 4.b, in accordance with a method approved by the Manager, Los Angeles ACO.

Note 4: The maximum main deck total payload that can be carried is limited to the lesser of the approved cargo barrier weight limit, weight permitted by the approved maximum zero fuel weight, weight permitted by the approved main deck position weights, weight permitted by the approved main deck running load or distributed load limitations, or approved cumulative zone or fuselage monocoque structural loading limitations (including lower hold cargo).

Note 5: Installation of a Ventura Aerospace Inc. cargo barrier STC ST00848LA is an approved means of compliance with the requirements of paragraph (f) of this AD.

(g) An alternative method of compliance or adjustment of the compliance time contained in this proposal that provides an acceptable level of safety may be used if approved by the Manager, Los Angeles ACO. Operators shall submit their requests through an appropriate FAA Principal Maintenance Inspector, who may add comments and then send it to the Manager, Los Angeles ACO.

Note 6: Information concerning the existence of approved alternative methods of compliance with this AD, if any, may be obtained from the Los Angeles ACO.

(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.

Appendix 1

Excerpt from an FAA Memorandum to Director-Airworthiness and Technical Standards of ATA, dated March 20, 1992.

''(1) *Indication System:*

(a) The indication system must monitor the closed, latched, and locked positions, directly.

(b) The indicator should be *amber* unless it concerns an outward opening door whose opening during takeoff could present an immediate hazard to the airplane. In that case the indicator must be *red* and located in plain view in front of the pilots. An aural warning is also advisable. A display on the master caution/warning system is also acceptable as an indicator. For the purpose of complying with this paragraph, an immediate hazard is defined as significant reduction in controllability, structural damage, or impact with other structures, engines, or controls.

(c) Loss of indication or a false indication of a closed, latched, and locked condition must be improbable.

(d) A warning indication must be provided at the door operators station that monitors the door latched and locked conditions directly, unless the operator has a visual indication that the door is fully closed and locked. For example, a vent door that monitors the door locks and can be seen from the operators station would meet this requirement.

(2) *Means to Visually Inspect the Locking Mechanism:*

There must be a visual means of directly inspecting the locks. Where all locks are tied to a common lock shaft, a means of inspecting the locks at each end may be sufficient to meet this requirement provided no failure condition in the lock shaft would go undetected when viewing the end locks. Viewing latches may be used as an alternate to viewing locks on some installations where there are other compensating features.

(3) *Means to Prevent Pressurization:*

All doors must have provisions to prevent initiation of pressurization of the airplane to an unsafe level, if the door is not fully closed, latched and locked.

(4) *Lock Strength:*

Locks must be designed to withstand the maximum output power of the actuators and maximum expected manual operating forces treated as a limit load. Under these conditions, the door must remain closed, latched and locked.

(5) *Power Availability:*

All power to the door must be removed in flight and it must not be possible for the flight crew to restore power to the door while in flight.

(6) *Powered Lock Systems:*

For doors that have powered lock systems, it must be shown by safety analysis that inadvertent opening of the door after it is fully closed, latched and locked, is extremely improbable.''

Issued in Renton, Washington, on November 4, 1999.

D.L. Riggin,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

[FR Doc. 99–29475 Filed 11–10–99; 8:45 am]

BILLING CODE 4910–13–U

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 97–NM–233–AD]

RIN 2120–AA64

Airworthiness Directives; Boeing Model 727 Series Airplanes Modified in Accordance With Supplemental Type Certificate SA1368SO, SA1797SO, or SA1798SO

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, among other actions, installation of a fail-safe hinge, redesigned main deck cargo door warning and power control systems, and 9g cargo barrier. This proposal is prompted by the FAA's determination that the main deck cargo door hinge is not fail-safe; that certain main deck cargo door control systems do not provide an adequate level of safety; and that the main deck cargo barrier is not structurally adequate during an emergency landing. The actions specified by the proposed AD are intended to prevent structural failure of the main deck cargo door hinge or failure of the cargo door system, which could result in the loss or opening of the cargo door while the airplane is in flight, rapid decompression, and structural damage to the airplane; and to prevent failure of the main deck cargo barrier during an emergency landing, which could injure occupants.

DATES: Comments must be received by December 27. 1999.

ADDRESSES: Submit comments in triplicate to the Federal Aviation Administration (FAA), Transport Airplane Directorate, ANM–114, Attention: Rules Docket No. 97–NM–233–AD, 1601 Lind Avenue SW., Renton, Washington 98055–4056. Comments may be inspected at this location by appointment only between the hours of 9 a.m. and 3 p.m., Monday through Friday, except Federal holidays.

FOR FURTHER INFORMATION CONTACT: Paul Sconyers, Associate Manager, Airframe and Propulsion Branch, ACE–117A, FAA, Small Airplane Directorate, Atlanta Aircraft Certification Office, One Crown Center, 1895 Phoenix Boulevard, Suite 450, Atlanta, Georgia 30349; telephone (770) 703–6076, fax (770) 703–6097.

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–233–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–114, Attention: Rules Docket No. 97–NM–233–AD, 1601 Lind Avenue, SW, Renton, Washington 98055–4056.

Discussion

Supplemental Type Certificates (STC) SA1797SO and SA1368SO (held by Aeronautical Engineers, Inc.) specify a design for a main deck cargo door, associated cargo door cutout, and door systems. STC SA1798SO (held by Aeronautical Engineers, Inc.) specifies a design for a Class ''E'' cargo interior with a cargo barrier. As discussed in notice of proposed rulemaking (NPRM), Rules Docket No. 97–NM–79–AD [the final rule, AD 98–26–19, amendment 39–10962, was published in the **Federal Register** on January 12, 1999 (64 FR 2016)], which is applicable to certain Boeing Model 727 series airplanes that have been converted from a passenger to a cargo-carrying (''freighter'') configuration, the FAA has conducted a design review of Boeing Model 727 series airplanes modified in accordance with STC's SA1797SO and SA1798SO and has identified several potential unsafe conditions. [Results of this design review are contained in ''FAA Freighter Conversion STC Review, Report Number 3, dated January 27, 1997,'' hereinafter referred to as ''the Design Review Report,'' which is included in the Rules Docket for this NPRM.] This NPRM proposes corrective action for three of those potential unsafe conditions that relate to the following three areas: Main deck cargo door hinge, main deck cargo door systems, and main deck cargo barrier.

Main Deck Cargo Door Hinge

In order to avoid catastrophic structural failure, it has been a typical industry approach to design outward opening cargo doors and their attaching structure to be fail-safe (*i.e.*, designed so that if a single structural element fails, other structural elements are able to carry resulting loads). Another potential design approach is safe-life, where the critical structure is shown by analyses and/or tests to be capable of withstanding the repeated loads of variable magnitude expected in service for a specific service life. Safe-life is usually not used on critical structure because it is difficult to account for manufacturing or in-service accidental damage. For this reason, plus the fact that none of the STC holders have provided data in support of this approach, the safe-life approach will not be discussed further regarding the design and construction of the main deck cargo door hinge.

Structural elements such as the main deck cargo door hinge are subject to severe in-service operating conditions that could result in corrosion, binding, or seizure of the hinge. These