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Michael K. Dahl,

Acting Manager, Small Airplane Directorate, Aircraft Certification Service.

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 2001-NM-233-AD]

RIN 2120-AA64

Airworthiness Directives; Boeing Model 727 Series Airplanes

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 all Boeing Model 727 series airplanes. This proposal would require a review of maintenance records or a one-time test to determine if elevator hinge support ribs on the trailing edge of the horizontal stabilizer are made from a certain material, and follow-on repetitive inspections for corrosion or cracking of the elevator hinge support ribs, if necessary. For airplanes with the affected ribs installed, this proposal would eventually require replacement of all affected ribs with new, improved ribs. This action is necessary to prevent cracking of the elevator hinge support ribs, which could lead to vibration of the airframe during flight and consequent damage to the elevator and horizontal stabilizer, potentially resulting in loss of controllability of the airplane. This action is intended to address the identified unsafe condition.

DATES: Comments must be received by January 14, 2002.

ADDRESSES: Submit comments in triplicate to the Federal Aviation Administration (FAA), Transport Airplane Directorate, ANM-114, Attention: Rules Docket No. 2001-NM-233-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. Comments may be submitted via fax to (425) 227-1232. Comments may also be sent via the Internet using the following address: 9-anm-nprmcomment@faa.gov. Comments sent via fax or the Internet must contain

“Docket No. 2001-NM-233-AD” in the subject line and need not be submitted in triplicate. Comments sent via the Internet as attached electronic files must be formatted in Microsoft Word 97 for Windows or ASCII text.

The service information referenced in the proposed rule may be obtained from Boeing Commercial Airplane Group, P.O. Box 3707, Seattle, Washington 98124-2207. This information may be examined at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington.

FOR FURTHER INFORMATION CONTACT: Duong Tran, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98055-4056; telephone (425) 227-2773; 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 action may be changed in light of the comments received.

Submit comments using the following format:

- Organize comments issue-by-issue. For example, discuss a request to change the compliance time and a request to change the service bulletin reference as two separate issues.
- For each issue, state what specific change to the proposed AD is being requested.
- Include justification (*e.g.*, reasons or data) for each request.

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 2001-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. 2001-NM-233-AD, 1601 Lind Avenue, SW., Renton, Washington 98055-4056.

Discussion

The FAA has received numerous reports of cracking of elevator hinge support ribs on the trailing edge of the horizontal stabilizer on Boeing Model 727 series airplanes. Investigation revealed that the cracking is caused by stress corrosion. The affected elevator hinge support ribs are made from 7079-T6 material. Cracks on multiple ribs may continue to extend in length, until the stiffness of the elevator support is decreased. This condition, if not corrected, could result in vibration of the airframe during flight and consequent damage to the elevator and horizontal stabilizer, which could result in loss of controllability of the airplane.

Explanation of Relevant Service Information

The FAA has reviewed and approved Boeing Alert Service Bulletin 727-55A0091, dated August 16, 2001, which describes procedures for repetitive detailed visual inspections for corrosion or cracking of elevator hinge support ribs made from 7079-T6 material. The service bulletin specifies to contact Boeing for repair information.

Explanation of Applicability

The service bulletin divides affected airplanes into three groups. Group 1 airplanes were delivered with elevator hinge support ribs made from 7079-T6 material installed at all 14 elevator station locations. Group 2 airplanes were delivered with elevator hinge support ribs made from 7075-T73 material (a more stress corrosion-resistant material) installed at 12 elevator station locations, but with ribs made from 7079-T6 material installed at 2 elevator station locations. Group 3 airplanes were delivered with elevator hinge support ribs made from 7075-T73 material in all elevator station locations. However, airplanes in Groups 2 and 3 may have had ribs replaced after delivery with ribs made from 7079-T6 material. Thus we find that it is necessary for operators of all Boeing Model 727 series airplanes to perform an inspection to determine whether ribs made of 7079-T6 material are installed.

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 require a one-time review of maintenance records or a one-time electrical conductivity test of the elevator hinge support ribs, as applicable, to determine whether ribs made from 7079-T6 material are installed on the airplane. The proposed AD also would require accomplishment of the actions specified in the service bulletin described previously, except as discussed below. Also, for airplanes with the affected ribs installed, the proposed AD would eventually require replacement of all 7079-T6 ribs with new, improved ribs.

Differences Between This Proposed AD and the Service Bulletin

This proposed AD differs from Boeing Alert Service Bulletin 727-55A0091 in the following ways:

- Though the effectivity summary in paragraph 1.A.1. of Boeing Service Bulletin 727-55A0091 identifies only Model 727-100 and -200 series airplanes as being subject to the service bulletin, we have determined that the proposed actions apply to all Model 727 series airplanes, including Model 727, 727-100C, 727-200F, and 727C series airplanes.

- The service bulletin does not specify a method for determining whether ribs made from 7079-T6 material are installed on the airplane. As described previously, the proposed AD would require a one-time review of maintenance records or a one-time electrical conductivity test of the elevator hinge support ribs, as applicable, to determine whether ribs made from 7079-T6 material are installed on the airplane. The electrical conductivity test, if accomplished, would be required to be accomplished according to Boeing Document D6-48875, Boeing 727 Non-Destructive Test Manual, Part 6, Section 51-00-00, Figure 20; and Boeing Process Specification BAC 5946, Table I, page 12.

- The service bulletin specifies that the manufacturer may be contacted for disposition of certain repair conditions. However, this proposed AD would require the repair of those conditions to be accomplished per a method approved by the FAA, or per data meeting the type certification basis of the airplane approved by a Boeing Company Designated Engineering Representative who has been authorized by the

Manager, Seattle Aircraft Certification Office, to make such findings.

- The service bulletin specifies that the next revision of the service bulletin will include compliance times and instructions for replacement of all ribs made from 7079-T6 material. However, this proposed AD would require accomplishment of the replacement of all ribs made from 7079-T6 material with new ribs within 48 months after the effective date of this AD, according to a method approved by the FAA. The decision to require such replacement is based upon our determination that, due to the criticality of the unsafe condition addressed in this proposed AD, it is not appropriate to wait until the airplane manufacturer revises its service bulletin to mandate the rib replacement. When the airplane manufacturer has prepared a revised service bulletin, and we have reviewed and approved it, we may consider further rulemaking to allow that service bulletin to be used as an acceptable method of compliance with this AD.

Cost Impact

There are approximately 1,383 airplanes of the affected design in the worldwide fleet. The FAA estimates that 915 airplanes of U.S. registry would be affected by this proposed AD.

The proposed AD offers two alternatives for compliance with the proposed requirement for an initial inspection to determine whether elevator hinge support ribs made from 7079-T6 material are installed. Estimates of the cost of these proposed actions are provided below.

It would take approximately 1 work hour per airplane to accomplish the proposed review of maintenance records, at an average labor rate of \$60 per work hour. Based on these figures, the cost impact of this proposed review is estimated to be \$60 per airplane.

In lieu of the review of maintenance records (i.e., if the review of maintenance records is not sufficient to make a determination), the proposed inspection of the ribs to determine if they are made from 7079-T6 material would take approximately 1 work hour per airplane to accomplish, at an average labor rate of \$60 per work hour. Based on these figures, the cost impact of this proposed inspection on U.S. operators is estimated to be \$60 per airplane.

The cost impact figures discussed above are based on assumptions that no operator has yet accomplished any of the proposed requirements of this AD action, and that no operator would accomplish those actions in the future if this proposed AD were not adopted. The

cost impact figures discussed in AD rulemaking actions represent only the time necessary to perform the specific actions actually required by the AD. These figures typically do not include incidental costs, such as the time required to gain access and close up, planning time, or time necessitated by other administrative actions.

Should an operator be required to accomplish the repetitive detailed inspections, it would take approximately 13 work hours per airplane to accomplish this proposed inspection, at an average labor rate of \$60 per work hour. Based on these figures, the cost impact of this inspection would be \$780 per airplane, per inspection cycle.

Should an operator be required to accomplish the replacement of the elevator hinge support ribs, it would take approximately 722 work hours per airplane to accomplish the proposed replacement of all ribs (on both the left and right-hand sides of the airplane, excluding the time for gaining access and closing up), at an average labor rate of \$60 per work hour. Required parts would cost approximately \$70,000 per airplane. Based on these figures, the cost impact of the proposed replacement would be \$113,320 per airplane.

Regulatory Impact

The regulations proposed herein would not have a substantial direct effect 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, it is determined that this proposal would not have federalism implications under Executive Order 13132.

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 draft regulatory evaluation 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, 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 2001–NM–233–AD.

Applicability: All Model 727 series airplanes, certificated in any category.

Note 1: This AD applies to each airplane identified in the preceding applicability provision, regardless of whether it has been 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 (f) 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 cracking of the elevator hinge support ribs, which could lead to vibration of the airframe during flight and consequent damage to the elevators and horizontal stabilizer, potentially resulting in loss of controllability of the airplane, accomplish the following:

One-Time Inspection

(a) Within 180 days after the effective date of this AD, review the airplane's maintenance records to determine whether any elevator hinge support rib on the trailing edge of the horizontal stabilizer is made from 7079–T6 material; OR, if the material cannot be conclusively determined from the maintenance records, do a one-time electrical conductivity test of the elevator hinge support ribs to determine whether any are made from 7079–T6 material, according to Boeing Document D6–48875, Boeing 727 Non-Destructive Test Manual, Part 6, Section 51–00–00, Figure 20; and Boeing Process Specification BAC 5946, Table I, page 12.

(1) If no ribs are made from 7079–T6 material, no further action is required by this AD.

(2) If any ribs are made from 7079–T6 material, do paragraph (b) of this AD.

Follow-on Repetitive Inspections

(b) Within 180 days after the effective date of this AD, perform a detailed visual inspection for corrosion or cracking of all elevator hinge support ribs made from 7079–T6 material, according to Boeing Alert Service Bulletin 727–55A0091, including Appendix A, dated August 16, 2001. Thereafter, repeat this inspection every 180 days, until paragraph (d) of this AD has been done.

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.”

Repair

(c) If any corrosion or cracking is found during any inspection required by paragraph (b) of this AD: Before further flight, repair according to a method approved by the Manager, Seattle Aircraft Certification Office (ACO), FAA; or according to data meeting the type certification basis of the airplane approved by a Boeing Company Designated Engineering Representative (DER) who has been authorized by the Manager, Seattle ACO, to make such findings. For a repair method to be approved by the Manager, Seattle ACO, as required by this paragraph, the Manager's approval letter must specifically reference this AD.

Replacement

(d) For airplanes on which any ribs made from 7079–T6 material are found: Within 48 months after the effective date of this AD, replace all elevator hinge support ribs made from 7079–T6 material with new, improved ribs, according to a method approved by the Manager, Seattle ACO, or according to data meeting the type certification basis of the airplane approved by a Boeing Company DER who has been authorized by the Manager, Seattle ACO, to make such findings. For a repair method to be approved by the Manager, Seattle ACO, as required by this paragraph, the Manager's approval letter must specifically reference this AD. Such replacement terminates the repetitive inspections required by paragraph (b) of this AD.

Spares

(e) After the effective date of this AD, no one may install an elevator hinge support rib made from 7079–T6 material on any airplane.

Alternative Methods of Compliance

(f) 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, Seattle ACO. Operators shall submit their requests through an appropriate FAA Principal Maintenance Inspector, who may add comments and then send it to the Manager, Seattle ACO.

Note 3: Information concerning the existence of approved alternative methods of compliance with this AD, if any, may be obtained from the Seattle ACO.

Special Flight Permits

(g) 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 November 21, 2001.

Kalene C. Yanamura,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.
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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 2001–NM–203–AD]

RIN 2120–AA64

Airworthiness Directives; Boeing Model 727 Series Airplanes

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 all Boeing Model 727 series airplanes. This proposal would require repetitive inspections for cracking of the upper chord of the rear spar of the wing, and corrective action, if necessary. This action is necessary to find and fix such cracking, which could result in fuel