[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2023-1893; Project Identifier AD-2023-00389-A]

RIN 2120-AA64

Airworthiness Directives; FS 2001 Corp, FS 2002 Corporation, FS 2003 Corporation, Piper, and Piper Aircraft, Inc. Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: The FAA proposes to adopt a new airworthiness directive (AD) for certain FS 2001 Corp, FS 2002 Corporation, FS 2003 Corporation, Piper, and Piper Aircraft, Inc. (Piper) airplanes. This proposed AD was prompted by reports of broken rudders. This proposed AD would require replacing any rudder equipped with a rudder post made from a certain carbon steel with a rudder equipped with a rudder post made from a certain low-alloy steel. The FAA is proposing this AD to address the unsafe condition on these products.

DATES: The FAA must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

• Federal eRulemaking Portal: Go to regulations.gov. Follow the instructions for submitting comments.

• Fax: (202) 493-2251.

• Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.

• Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

AD Docket: You may examine the AD docket at regulations.gov by searching for and

locating Docket No. FAA-2023-1893; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this NPRM, any comments received, and other information. The street address for Docket Operations is listed above.

FOR FURTHER INFORMATION CONTACT: Joseph Zuklic, Aviation Safety Engineer, FAA, 2200 South 216th Street, Des Moines, WA 98198; phone: (206) 231-3858; email: joseph.r.zuklic@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

The FAA invites you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under ADDRESSES. Include "Docket No. FAA-2023-1893; Project Identifier AD-2023-00389-A" at the beginning of your comments. The most helpful comments reference a specific portion of the proposal, explain the reason for any recommended change, and include supporting data. The FAA will consider all comments received by the closing date and may amend this proposal because of those comments.

Except for Confidential Business Information (CBI) as described in the following paragraph, and other information as described in 14 CFR 11.35, the FAA will post all comments received, without change, to regulations.gov, including any personal information you provide. The agency will also post a report summarizing each substantive verbal contact received about this NPRM.

Confidential Business Information

CBI is commercial or financial information that is both customarily and actually treated as private by its owner. Under the Freedom of Information Act (FOIA) (5 U.S.C. 552), CBI is exempt from public disclosure. If your comments responsive to this NPRM contain commercial or financial information that is customarily treated as private, that you actually treat as private, and that is relevant or responsive to this NPRM, it is important that you clearly designate the submitted comments as CBI. Please mark each page of your submission containing CBI as "PROPIN." The FAA will treat such marked submissions as confidential under the FOIA, and they will not be placed in the public

docket of this NPRM. Submissions containing CBI should be sent to Joseph Zuklic, Aviation Safety Engineer, FAA, 2200 South 216th Street, Des Moines, WA 98198. Any commentary that the FAA receives which is not specifically designated as CBI will be placed in the public docket for this rulemaking.

Background

The FAA received reports of two non-fatal accidents involving airplanes designed and built by Piper that were caused by broken rudder posts that structurally failed above the upper hinge in flight. Both accidents occurred in Anchorage, Alaska. The first accident occurred on June 8, 2020, and involved an FS 2003 Model PA-12 airplane and the second accident occurred on July 23, 2021, and involved an FS 2002 Model PA-14 airplane. Both airplanes sustained substantial damage when the rudder structurally failed.

The National Transportation Safety Board (NTSB) published the report *Structural Failure of Piper Part Number 40622 Rudder Posts Made of 1025 Carbon Steel,* NTSB/AIR-22/02, dated January 10, 2022, which provides information regarding the NTSB's investigations of these two accidents. The NTSB accident investigation report included a recommendation (Safety Recommendation No. A-22-3) to the FAA to issue an airworthiness directive addressing this unsafe condition. The NTSB report can be found on ntsb.gov.

The NTSB examined the rudders involved in these accidents and determined that the rudder posts fractured above the upper hinge and the top portion of the rudder folded over the upper tail brace wires. The NTSB also determined that the rudder posts were made from 1025 carbon steel and fractured due to fatigue.

Prior to this proposed rulemaking action the FAA issued an Airworthiness Concern Sheet, dated September 4, 2020, that requested information from the aviation community regarding in-flight failure of the rudder just above the upper hinge on all Piper and FS2003 Corp (type certificate previously held by Piper) Model J-5A, J-5B, J-5C, J-5D, AE-1, HE-1, PA-12, PA-12S, PA-14, PA-16, PA-18, L-21, PA-20, and PA-22 airplanes. The responses revealed that there were five additional broken rudder incidents dating as far back as 1979.

Prior to 1974, all rudders installed on Piper model airplanes were equipped with rudder posts manufactured from 1025 carbon steel and starting in 1974, the rudder posts were manufactured from 4130N low-alloy steel (Chromoly). Most parts manufacturer approval rudders are equipped with rudder posts made from 4130N low-alloy steel.

The NTSB determined that the broken rudder incidents resulted from the combination of fatigue loading and corrosion affecting the rudder assemblies made from 1025 carbon steel. This condition, if not addressed, could result in a broken rudder and consequent reduced ability of the flightcrew to maintain the safe flight and landing of the airplane.

FAA's Determination

The FAA is issuing this NPRM after determining that the unsafe condition described previously is likely to exist or develop on other products of the same type design.

Proposed AD Requirements in this NPRM

This proposed AD would require replacing any rudder equipped with a rudder post made from 1025 carbon steel with a rudder equipped with a rudder post made from 4130N low-alloy steel.

Costs of Compliance

The FAA estimates that this AD, if adopted as proposed, would affect 30,992 airplanes of U.S. registry.

The FAA estimates the following costs to comply with this proposed AD:

Estimated costs

Action	Labor Cost	Parts Cost	Cost per product	Cost on U.S. operators
Replace rudder	8 work-hours x $85 per hour = $680	$2,320	$3,000	$92,976,000

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator.

Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency's authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: General requirements. Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

The FAA determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD 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.

For the reasons discussed above, I certify this proposed regulation:

(1) Is not a "significant regulatory action" under Executive Order 12866,

(2) Would not affect intrastate aviation in Alaska, and

(3) Would not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 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. The FAA amends § 39.13 by adding the following new airworthiness directive:

FS 2001 Corp, FS 2002 Corporation, FS 2003 Corporation, Piper, and Piper Aircraft, Inc.: Docket No. FAA-2023-1893; Project Identifier AD-2023-00389-A.

(a) Comments Due Date

The FAA must receive comments on this airworthiness directive (AD) by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

None.

(c) Applicability

This AD applies to all airplane models specified in Table 1 to paragraph (c) of this AD, certificated in any category, that are not equipped with a rudder having a rudder post made from 4130N low-alloy steel.

Note 1 to paragraph (c): Most parts manufacturer approval (PMA) rudders are equipped with a rudder post made from 4130N low-alloy steel. This can be verified by reviewing the individual PMA.

Note 2 to paragraph (c): Piper Service Bulletin 1379, dated December 2, 2022, contains information related to this AD.

Table 1 to paragraph (c) – Applicable Airplane Models

Type certificate holder	Airplane model
FS 2001 Corp	J5A (Army L-4F), J5A-80, J5B (Army L-4G), J5C, AE-1, HE-1
FS 2002 Corporation	PA-14
FS 2003 Corporation	PA-12, PA-12S
Piper Aircraft, Inc.	J3C-40, J3C-50, J3C-50S, J3C-65, J3C-65S, PA-11, PA-11S
Piper Aircraft, Inc.	J3F-50, J3F-50S, J3F-60, J3F-60S, (Army L-4D) J3F-65, J3F-65S
Piper Aircraft, Inc.	J3L, J3L-S, J3L-65 (ARMY L-4C), J3L-65S
Piper Aircraft, Inc.	J4, J4A, J4A-S
Piper Aircraft, Inc.	J4E (ARMY L-4E)
Piper	J4F
Piper Aircraft, Inc.	PA-15
Piper Aircraft, Inc.	PA-16, PA-16S
Piper Aircraft, Inc.	PA-17
Piper Aircraft, Inc	PA-18, PA-18S, PA-18 “105” (Special), PA-18S “105” (Special), PA-18A, PA-18 “125” (Army L-21A), PA-18S “125”, PA-18AS “125”, PA-18 “135” (Army L-21B), PA-18A “135”, PA-18S “135”, PA-18AS “135”, PA-18 “150”, PA-18A “150”, PA-18S “150”, PA-18AS “150”, PA-19 (Army L-18C), PA-19S

Type certificate holder	Airplane model
Piper Aircraft, Inc	PA-18A (Restricted), PA-18A “135” (Restricted), PA-18A “150” (Restricted)
Piper Aircraft, Inc	PA-20, PA-20S, PA-20 “115”, PA-20S “115”, PA-20 “135”, PA-20S “135”
Piper Aircraft, Inc	PA-22, PA-22-108, PA-22-135, PA-22S-135, PA-22-150, PA-22S-150, PA-22-160, PA-22S-160

(d) Subject

Joint Aircraft System Component (JASC) Code 5540, Rudder Structure.

(e) Unsafe Condition

This AD was prompted by reports of broken rudders. The FAA is issuing this AD to address fatigue loading and corrosion of rudder posts made from 1025 carbon steel which, if not addressed, could result in a broken rudder and consequent reduced ability of the flightcrew to maintain the safe flight and landing of the airplane.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Required Actions

(1) At the applicable compliance time for the category type for your airplane specified in Table 2 to paragraph (g) of this AD, replace the rudder with a rudder that is equipped with a rudder post made from 4130N low-alloy steel.

Table 2 to paragraph (g) – Compliance Times

Airplane model	Category type	Compliance time
J-3, J3C-40, J3C-50, J3C-50S, J3C-65, J3C-65S, J3F-50, J3F-50S, J3F-60, J3F-60S, J3F-65 (Army L-4D), J3F-65S, J3L, J3L-S, J3L-65 (ARMY L-4C), J3L-65S	Category I Airplanes: Airplanes having both a rudder post mounted beacon light and a 150 or greater horsepower (HP) engine installed.	Within 2 years after the effective date of this AD.
J-4, J4, J4A, J4A-S, J4E (ARMY L-4E), J4F PA-11, PA-11S	Category II Airplanes: Airplanes having either a rudder post mounted beacon light or a 150 or greater HP engine installed.	Within 3 years after the effective date of this AD.

PA-15 PA-16, PA-16S PA-17 PA-18, PA-18S, PA-18 “105” (Special), PA-18S “105” (Special), PA-18A, PA-18 “125” (Army L-21A), PA-18S “125”, PA-18AS “125”, PA-18 “135” (Army L-21B), PA-18A “135”, PA-18S “135”, PA-18AS “135”, PA-18 “150”, PA-18A “150”, PA-18S “150”, PA-18AS “150”, PA-18A (Restricted), PA-18A “135” (Restricted), PA-18A “150” (Restricted) PA-19, PA-19 (Army L-18C), PA-19S PA-20, PA-20S, PA-20 “115”, PA-20S “115”, PA-20 “135”, PA-20S “135” PA-22, PA-22-108, PA-22-135, PA-22S-135, PA-22-150, PA-22S-150, PA-22-160, PA-22S-160 J-5, J5A (Army L-4F), J5A-80, J5B (Army L-4G), J5C, AE-1, HE-1 PA-12, PA-12S, PA-14	Category III Airplanes: All other airplanes not in Category I or Category II that do not have a rudder post mounted beacon light and have an engine less than 150 HP installed.	Within 5 years after the effective date of this AD.

(2) As of the effective date of this AD, do not install any rudder that is equipped with a rudder post made from 1025 carbon steel on any airplane.

(h) Alternative Methods of Compliance (AMOCs)

(1) The Manager, West Certification Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local

Flight Standards District Office, as appropriate. If sending information directly to the manager of the West Certification Branch, send it to the attention of the person identified in paragraph (i)(1) of this AD. Information may be emailed to: 9-ANM-Seattle-ACO-AMOC-Requests@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(i) Related Information

(1) For more information about this AD, contact Joseph Zuklic, Aviation Safety Engineer, FAA, 2200 South 216th Street, Des Moines, WA 98198; phone: (206) 231-3858; email: joseph.r.zuklic@faa.gov.

(2) For service information identified in this AD that is not incorporated by reference, contact Piper Aircraft, Inc., 2926 Piper Drive, Vero Beach, FL 32960; phone: (772) 299-2141; website: piper.com. You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 901 Locust, Kansas City, MO 64106. For information on the availability of this material at the FAA, call (817) 222-5110.

(j) Material Incorporated by Reference

None.

Issued on September 27, 2023.

Victor Wicklund, Deputy Director,
Compliance & Airworthiness Division,
Aircraft Certification Service.
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