

PROCEDURES FOR EXITING THE SEVERE ICING ENVIRONMENT

These procedures are applicable to all flight phases from takeoff to landing. Monitor the ambient air temperature. While severe icing may form at temperatures as cold as -18 degrees Celsius, increased vigilance is warranted at temperatures around freezing with visible moisture present. If the visual cues specified in the Limitations Section of the AFM for identifying severe icing conditions are observed, accomplish the following:

- Immediately request priority handling from Air Traffic Control to facilitate a route or an altitude change to exit the severe icing conditions in order to avoid extended exposure to flight conditions more severe than those for which the airplane has been certificated.
- Avoid abrupt and excessive maneuvering that may exacerbate control difficulties.
- Do not engage the autopilot.
- If the autopilot is engaged, hold the control wheel firmly and disengage the autopilot.
- If an unusual roll response or uncommanded roll control movement is observed, reduce the angle-of-attack.
- Do not extend flaps when holding in icing conditions. Operation with flaps extended can result in a reduced wing angle-of-attack, with the possibility of ice forming on the lower surface further aft on the wing than normal, possibly aft of the protected area.
- If the flaps are extended, do not retract them until the airframe is clear of ice.
- Report these weather conditions to Air Traffic Control."

(b) Incorporating the AFM revisions, as required by this AD, may be performed by the owner/operator holding at least a private pilot certificate as authorized by section 43.7 of the Federal Aviation Regulations (14 CFR 43.7), and must be entered into the aircraft records showing compliance with this AD in accordance with section 43.11 of the Federal Aviation Regulations (14 CFR 43.11).

(c) 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.

(d) 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, Small Airplane Directorate, FAA, 1201 Walnut, suite 900, Kansas City, Missouri 64106. The request shall be forwarded through an appropriate FAA Maintenance Inspector, who may add comments and then send it to the Manager, Small Airplane Directorate.

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

(e) All persons affected by this directive may examine information related to this AD at the FAA, Central Region, Office of the Assistant Chief Counsel, Room 1558, 601 E. 12th Street, Kansas City, Missouri 64106.

Issued in Kansas City, Missouri, on September 9, 1997.

James E. Jackson,

Acting Manager, Small Airplane Directorate, Aircraft Certification Service.

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 97-CE-60-AD]

RIN 2120-AA64

Airworthiness Directives; The New Piper Aircraft, Inc. Models PA-46-310P and PA-46-350P Airplanes

AGENCY: Federal Aviation Administration, DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: This document proposes to adopt a new airworthiness directive (AD) that would apply to The New Piper Aircraft, Inc. Model PA-46-310P and PA-46-350P airplanes. This proposal would require revising the FAA-approved Airplane Flight Manual (AFM) to specify procedures that would prohibit flight in severe icing conditions (as determined by certain visual cues), limit or prohibit the use of various flight control devices while in severe icing conditions, and provide the flight crew with recognition cues for, and procedures for exiting from, severe icing conditions. The proposed AD is prompted by the results of a review of the requirements for certification of these airplanes in icing conditions, new information on the icing environment, and icing data provided currently to the flight crew. The actions specified by the proposed AD are intended to minimize the potential hazards associated with operating these airplanes in severe icing conditions by providing more clearly defined procedures and limitations associated with such conditions.

DATES: Comments must be received on or before October 14, 1997.

ADDRESSES: Submit comments in triplicate to the Federal Aviation Administration (FAA), Central Region, Office of the Assistant Chief Counsel, Attention: Rules Docket No. 97-CE-60-AD, Room 1558, 601 E. 12th Street, Kansas City, Missouri 64106. Comments may be inspected at this location between 8 a.m. and 4 p.m., Monday through Friday, holidays excepted.

This information also may be examined at the Rules Docket at the address above.

FOR FURTHER INFORMATION CONTACT: Mr. John P. Dow, Sr., Aerospace Engineer, Small Airplane Directorate, Aircraft Certification Service, 1201 Walnut, suite 900, Kansas City, Missouri 64106, telephone (816) 425-6932, facsimile (816) 426-2169.

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 should 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 that summarizes 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 No. 97-CE-60-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, Central Region, Office of the Assistant Chief Counsel, Attention: Rules Docket No. 97-CE-60-AD, Room 1558, 601 E. 12th Street, Kansas City, Missouri 64106.

Discussion

In October 1994, a transport category airplane was involved in an accident in which severe icing conditions (believed to be composed of freezing drizzle or supercooled large droplets (SLD)) were reported in the area. Loss of control of the airplane may have occurred because ice accretion on the upper surface of the wing aft of the area protected by the ice protection system caused airflow separation, which resulted in the ailerons being forced to a right-wing-

down control position. There also is concern that the autopilot, which was engaged, may have masked the unusual control forces generated by the ice accumulation. These conditions, if not corrected, could result in a roll upset from which the flight crew may be unable to recover.

The atmospheric conditions (freezing drizzle or SLD conditions) that may have contributed to the accident are outside the icing envelope specified in Appendix C of part 25 of the Federal Aviation Regulations (14 CFR part 25) for certification of the airplane. Such icing conditions are not defined in Appendix C, and the FAA has not required that airplanes be shown to be capable of operating safely in those icing conditions.

The FAA finds that flight crews are not currently provided with adequate information necessary to determine when the airplane is operating in icing conditions for which the airplane is not certificated or what action to take when such conditions are encountered.

Therefore, the FAA has determined that flight crews must be provided with such information and must be made aware of certain visual cues that may indicate the airplane is operating in atmospheric conditions that are outside the icing envelope.

Since such information is not available to flight crews, and no airplane is certificated for operation in severe icing conditions, such as freezing drizzle or SLD conditions, the FAA finds that the potentially unsafe condition (described previously as control difficulties following operation of the airplane in icing conditions outside the icing envelope) is not limited to airplanes having the same type design as that of the accident airplane.

The FAA recognizes that the flight crew of any airplane that is certificated for flight in icing conditions may not have adequate information concerning icing conditions outside the icing envelope. However, in 1996, the FAA found that the specified unsafe

condition must be addressed as a higher priority on airplanes equipped with unpowered roll control systems and pneumatic de-icing boots. These airplanes were addressed first because the flight crew of an airplane having an unpowered roll control system must rely solely on physical strength to counteract roll control anomalies, whereas a roll control anomaly that occurs on an airplane having a powered roll control system need not be offset directly by the flight crew. The FAA also placed a priority on airplanes that are used in regularly scheduled passenger service. The FAA issued the following airworthiness directives (AD's) that addressed airplanes that met these criteria. These AD's identified visual cues for recognizing severe icing conditions, procedures for exiting these conditions, and prohibitions on the use of various flight control devices. These AD's consisted of the following airplane models.

Docket No.	Manufacturer/airplane model	Federal Register citation
96-CE-01-AD	de Havilland DHC-6 Series	61 FR 2175
96-CE-02-AD	EMBRAER EMB-110P1/EMB-110P2	61 FR 2183
96-CE-03-AD	Beech 99/200/1900 Series	61 FR 2180
96-CE-04-AD	Dornier 228 Series	61 FR 2172
96-CE-05-AD	Cessna 208/208B	61 FR 2178
96-CE-06-AD	Fairchild Aircraft SA226/SA227 Series	61 FR 2189
96-CE-07-AD	Jetstream 3101/3201	61 FR 2186
96-NM-13-AD	Jetstream BAe ATP	61 FR 2144
96-NM-14-AD	Jetstream 4101	61 FR 2142
96-NM-15-AD	British Aerospace HS 748 Series	61 FR 2139
96-NM-16-AD	Saab SF340A/SAAB 340B/SAAB 2000 Series	61 FR 2169
96-NM-17-AD	CASA C-212/CN-235 Series	61 FR 2166
96-NM-18-AD	Dornier 328-100 Series	61 FR 2157
96-NM-19-AD	EMBRAER EMB-120 Series	61 FR 2163
96-NM-20-AD	de Havilland DHC-7/DHC-8 Series	61 FR 2154
96-NM-21-AD	Fokker F27 Mark 100/200/300/400/500/600/700/050 Series	61 FR 2160
96-NM-22-AD	Short Brothers SD3-30/SD3-60/SD3-SHERPA Series	61 FR 2151
95-NM-146-AD	Aerospatiale ATR-42/ATR-72 Series	61 FR 2147

Since issuance of those AD's, the FAA has determined that similar AD's should be issued for similarly equipped airplanes that are not used in regularly scheduled passenger service. Like the AD's written in 1996, the proposed rules described below would also provide visual cues for recognizing severe icing conditions, procedures for exiting these conditions, and prohibitions on the use of various flight control devices. These proposed rules would apply to part 25 and certain part 23 airplanes that are equipped with unpowered aileron controls and pneumatic de-icing boots. The part 23 NPRM's address airplanes certificated in normal and utility categories (not used in agricultural operations) that are used in part 135 on-demand and air-taxi operation, and other airplanes regularly exposed to icing conditions. The proposed rules affect the following airplanes.

Airplane models	Docket No.
Aerospace Technologies of Australia, Models N22B and N24A	97-CE-49-AD
Harbin Aircraft Mfg. Corporation, Model Y12 IV	97-CE-50-AD
Partenavia Costruzioni Aeronauticas, S.p.A., Models P68, AP68TP 300, AP68TP 600	97-CE-51-AD
Industrie Aeronautiche e Meccaniche Rinaldo Piaggio S.p.A., Model P-180	97-CE-52-AD
Pilatus Aircraft Ltd., Models PC-12 and PC-12/45	97-CE-53-AD
Pilatus Britten-Norman Ltd., Models BN-2A, BN-2B, and BN-2T	97-CE-54-AD
SOCATA—Groupe Aerospatiale, Model TBM-700	97-CE-55-AD
Aerostar Aircraft Corporation, Models PA-60-600, -601, -601P, -602P, and -700P	97-CE-56-AD
Twin Commander Aircraft Corporation, Models 500, -500-A, -500-B, -500-S, -500-U, -520, -560, -560-A, -560-E, -560-F, -680, -680-E, -680FL(P), -680T, -680V, -680W, -681, -685, -690, -690A, -690B, -690C, -690D, -695, -695A, -695B, and 720	97-CE-57-AD

Airplane models	Docket No.
Raytheon Aircraft Company (formerly known as Beech Aircraft Corporation), Models E55, E55A, 58, 58A, 58P, 58PA, 58TC, 58TCA, 60 series, 65-B80 series, 65-B-90 series, 90 series, F90 series, 100 series, 300 series, and B300 series.	97-CE-58-AD
Raytheon Aircraft Company (formerly known as Beech Aircraft Corporation), Model 2000	97-CE-59-AD
The New Piper Aircraft, Inc., Models PA-46-310P and PA-46-350P	97-CE-60-AD
The New Piper Aircraft, Inc., Models PA-23, PA-23-160, PA-23-235, A-23-250, PA-E23-250, PA-30, PA-39, PA-40, PA-31, PA-31-300, PA-31-325, PA-31-350, PA-34-200, PA-34-200T, PA-34-220T, PA-42, PA-42-720, PA-42-1000.	97-CE-61-AD
Cessna Aircraft Company, Models P210N, T210N, P210R, and 337 series	97-CE-62-AD
Cessna Aircraft Company, Models T303, 310R, T310R, 335, 340A, 402B, 402C, 404, F406, 414, 414A, 421B, 421C, 425, and 441.	97-CE-63-AD
SIAl-Marchetti S.r.l. (Augusta), Models SF600 and SF600A	97-CE-64-AD
Cessna Aircraft Company, Models 500, 501, 550, 551, and 560 series	97-NM-170-AD
Sabreliner Corporation, Models 40, 60, 70, and 80 series	97-NM-171-AD
Gulfstream Aerospace, Model G-159 series	97-NM-172-AD
McDonnell Douglas, Models DC-3 and DC-4 series	97-NM-173-AD
Mitsubishi Heavy Industries, Model YS-11 and YS-11A series	97-NM-174-AD
Frakes Aviation, Model G-73 (Mallard) and G-73T series	97-NM-175-AD
Fairchild, Models F27 and FH227 series	97-NM-176-AD
Lockheed Models	97-NM-177-AD

The FAA's Determination

Following examination of all relevant information, the FAA has determined that certain limitations and procedures should be included in the FAA-approved Airplane Flight Manual (AFM) for the affected airplanes as follows:

- All Piper Model PA-46-310P and PA-46-350P airplanes must be prohibited from flight in severe icing conditions (as determined by certain visual cues), and
- Flight crews must be provided with information that would minimize the potential hazards associated with operating the airplane in severe icing conditions.

The FAA has determined that such limitations and procedures currently are not defined adequately in the AFM for these airplanes.

These airplane models are manufactured in Australia and are type certificated for operations in the United States under the provisions of Section 21.29 of the Federal Aviation Regulations (14 CFR 21.29) and the applicable bilateral airworthiness agreement.

Explanation of the Provisions of the Proposed AD

Since an unsafe condition has been identified in which an unrecoverable roll upset may occur, as a result of exposure to severe icing conditions that are outside the icing limits for which the airplanes were certificated, the proposed AD would require revising the Limitations Section of the FAA-approved AFM to specify procedures that would:

- require flight crews to immediately request priority handling from Air Traffic Control to exit severe icing conditions (as determined by certain visual cues);

- prohibit use of the autopilot when ice is formed aft of the protected surfaces of the wing, or when an unusual lateral trim condition exists; and

- require that all icing wing inspection lights be operative prior to flight into known or forecast icing conditions at night.

This proposed AD would also require revising the Normal Procedures Section of the FAA-approved AFM to specify procedures that would:

- limit the use of the flaps and prohibit the use of the autopilot when ice is observed forming aft of the protected surfaces of the wing, or if unusual lateral trim requirements or autopilot trim warnings are encountered; and
- provide the flight crew with recognition cues for, and procedures for exiting from, severe icing conditions.

Cost Impact

The FAA estimates that 399 airplanes in the U.S. registry would be affected by the proposed AD, that it would take approximately 1 workhour per airplane to accomplish the proposed action, and that the average labor rate is approximately \$60 an hour. Since an owner/operator who holds at least a private pilot's certificate as authorized by §§ 43.7 and 43.11 of the Federal Aviation Regulations (14 CFR 47.7 and 43.11) can accomplish the proposed action, the only cost impact upon the public is the time it would take the affected airplane owners/operators to incorporate the proposed AFM revisions.

The cost impact figure discussed above is 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 AD were not adopted.

In addition, the FAA recognizes that the proposed action may impose operational costs. However, these costs are incalculable because the frequency of occurrence of the specified conditions and the associated additional flight time cannot be determined. Nevertheless, because of the severity of the unsafe condition, the FAA has determined that continued operational safety necessitates the imposition of the costs.

Regulatory Impact

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.

For the reasons discussed above, I certify that this action (1) is not a "significant regulatory action" under Executive Order 12866; (2) is not a "significant rule" under 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 has been placed 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 USC 106(g), 40113, 44701.

§39.13 [Amended]

2. Section 39.13 is amended by adding a new airworthiness directive (AD) to read as follows:

The New Piper Aircraft, Inc.: Docket No. 97-CE-60-AD.

Applicability: Models PA-46-310P and PA-46-350P airplanes (all serial numbers), 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 (d) 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 already accomplished.

To minimize the potential hazards associated with operating the airplane in severe icing conditions by providing more clearly defined procedures and limitations associated with such conditions, accomplish the following:

(a) Within 30 days after the effective date of this AD, accomplish the requirements of paragraphs (a)(1) and (a)(2) of this AD.

Note 2: Operators should initiate action to notify and ensure that flight crewmembers are apprised of this change.

(1) Revise the FAA-approved Airplane Flight Manual (AFM) by incorporating the following into the Limitations Section of the AFM. This may be accomplished by inserting a copy of this AD in the AFM.

“WARNING

Severe icing may result from environmental conditions outside of those for

which the airplane is certificated. Flight in freezing rain, freezing drizzle, or mixed icing conditions (supercooled liquid water and ice crystals) may result in ice build-up on protected surfaces exceeding the capability of the ice protection system, or may result in ice forming aft of the protected surfaces. This ice may not be shed using the ice protection systems, and may seriously degrade the performance and controllability of the airplane.

- During flight, severe icing conditions that exceed those for which the airplane is certificated shall be determined by the following visual cues. If one or more of these visual cues exists, immediately request priority handling from Air Traffic Control to facilitate a route or an altitude change to exit the icing conditions.

- Unusually extensive ice accumulation on the airframe and windshield in areas not normally observed to collect ice.

- Accumulation of ice on the upper surface of the wing aft of the protected area.

- Since the autopilot, when installed and operating, may mask tactile cues that indicate adverse changes in handling characteristics, use of the autopilot is prohibited when any of the visual cues specified above exist, or when unusual lateral trim requirements or autopilot trim warnings are encountered while the airplane is in icing conditions.

- All wing icing inspection lights must be operative prior to flight into known or forecast icing conditions at night. [NOTE: This supersedes any relief provided by the Master Minimum Equipment List (M MEL).]”

(2) Revise the FAA-approved AFM by incorporating the following into the Normal Procedures Section of the AFM. This may be accomplished by inserting a copy of this AD in the AFM.

“THE FOLLOWING WEATHER CONDITIONS MAY BE CONDUCTIVE TO SEVERE IN-FLIGHT ICING:

- Visible rain at temperatures below 0 degrees Celsius ambient air temperature.
- Droplets that splash or splatter on impact at temperatures below 0 degrees Celsius ambient air temperature.

PROCEDURES FOR EXITING THE SEVERE ICING ENVIRONMENT:

These procedures are applicable to all flight phases from takeoff to landing. Monitor the ambient air temperature. While severe icing may form at temperatures as cold as -18 degrees Celsius, increased vigilance is warranted at temperatures around freezing with visible moisture present. If the visual cues specified in the Limitations Section of the AFM for identifying severe icing conditions are observed, accomplish the following:

- Immediately request priority handling from Air Traffic Control to facilitate a route or an altitude change to exit the severe icing conditions in order to avoid extended exposure to flight conditions more severe

than those for which the airplane has been certificated.

- Avoid abrupt and excessive maneuvering that may exacerbate control difficulties.
- Do not engage the autopilot.
- If the autopilot is engaged, hold the control wheel firmly and disengage the autopilot.
- If an unusual roll response or uncommanded roll control movement is observed, reduce the angle-of-attack.
- Do not extend flaps when holding in icing conditions. Operation with flaps extended can result in a reduced wing angle-of-attack, with the possibility of ice forming on the upper surface further aft on the wing than normal, possibly aft of the protected area.
- If the flaps are extended, do not retract them until the airframe is clear of ice.
- Report these weather conditions to Air Traffic Control.”

(b) Incorporating the AFM revisions, as required by this AD, may be performed by the owner/operator holding at least a private pilot certificate as authorized by section 43.7 of the Federal Aviation Regulations (14 CFR 43.7), and must be entered into the aircraft records showing compliance with this AD in accordance with section 43.11 of the Federal Aviation Regulations (14 CFR 43.11).

(c) 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.

(d) 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, Small Airplane Directorate, FAA, 1201 Walnut, suite 900, Kansas City, Missouri 64106. The request shall be forwarded through an appropriate FAA Maintenance Inspector, who may add comments and then send it to the Manager, Small Airplane Directorate.

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

(e) All persons affected by this directive may examine information related to this AD at the FAA, Central Region, Office of the Assistant Chief Counsel, Room 1558, 601 E. 12th Street, Kansas City, Missouri 64106.

Issued in Kansas City, Missouri, on September 9, 1997.

James E. Jackson,

Acting Manager, Small Airplane Directorate, Aircraft Certification Service.

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