

DEPARTMENT OF TRANSPORTATION**Federal Aviation Administration****14 CFR Parts 91, 121, 125 and 135**

[Docket No. 27474; Notice No. 93-13]

Extended Overwater Operations With a Single High Frequency Communication System (HF) and a Single Long-Range Navigation System (LRNS)

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: This notice proposes to revise the Federal Aviation Regulations for certain overwater operations for air carriers, commercial operators, and general aviation operators of large and turbine-powered multiengine airplanes. It would define and clarify requirements for using long-range navigation systems (LRNS) and set forth criteria for navigation and communications equipment requirements for certain overwater operations. Under this proposal, air carriers and commercial operators would be authorized to use a single high frequency communication system (HF) and a single LRNS for extended overwater routes detailed in their operations specifications. Affected general aviation operators, who already are authorized to use a single HF when they have two very high frequency (VHF) communications systems, would be authorized to use a single LRNS in overwater operations in the Gulf of Mexico, the Caribbean Sea, and part of the western Atlantic Ocean. This proposal is needed to give the FAA greater flexibility in responding to advances in aviation technology and changes in the operational environment and to allow operators to conduct extended overwater operations without carrying unnecessary communication and navigation equipment.

DATES: Comments must be received October 20, 1993.

ADDRESSES: Comments on this notice may be mailed in duplicate or delivered to: Federal Aviation Administration, Office of Chief Counsel, Attention: Rules Docket (AGC-204), Docket No. 27474, 800 Independence Avenue, Washington, DC 20591.

FOR FURTHER INFORMATION CONTACT: Daniel V. Meier Jr., Project Development Branch, AFS-240, Air Transportation Division, Office of Flight Standards, Federal Aviation Administration, 800 Independence Avenue SW., Washington, DC 20591, Telephone (202) 267-3749.

SUPPLEMENTARY INFORMATION:**Background**

Air traffic in the Gulf of Mexico, the Caribbean Sea, and part of the western Atlantic Ocean (subsequently referred to in this proposal as the geographic area) has increased substantially during the last 20 years. Normally, such increases would be expected to intensify the potential for air traffic conflicts. That situation has not materialized. Instead, as air traffic volume has increased in the geographic area, new routes and route structures have been added. More routes are under consideration. These new routes permit Air Traffic Control (ATC) to accommodate air traffic demands while providing the amount of aircraft separation needed to ensure safety.

The number of ground-based communications and navigation facilities also has grown. As a result, areas without VHF communications, automatic direction finders (ADF), or very high frequency omnirange (VOR) coverage within the geographic area have been reduced. The usable radius distance of an ADF, with a transmitting station power output of 2,000 watts or more, is 75 nautical miles (NM) for all altitudes. The normal usable radius distance of a high-altitude VOR, for altitudes between 18,000 feet through flight level 450 is 130 NM. On some routes within the geographic area, the distance from the nearest usable ADF or VOR transmitting station exceeds these transmission limits. However, as discussed below, several factors have led the FAA to conclude that safety would not be compromised, under the provisions of the proposal, when those transmission limits are exceeded.

Advances in aircraft technology have increased the overall speed and functional reliability of modern airplanes. These high-speed airplanes can cover routes in the geographic area much more quickly than their predecessors. Because of their higher speeds, they also can cover greater distances during the time between positional fixes than their predecessors. Since such aircraft also routinely operate at higher altitudes en route, they can conduct VHF communications at greater ranges from their corresponding ground facilities than their predecessors.

Advances in avionics have resulted in increasingly accurate and dependable navigation systems, such as the Loran C system, the Omega/very low frequency navigation system, the nonradio-based inertial navigation system (INS) and flight management systems (FMS), all of which have been available for some time, and the global positioning satellite

navigation system (GPS), which will become fully operational soon.

Moreover, a number of operators have been allowed, with certain conditions and limitations, to conduct operations in the geographic area with a single HF and a single LRNS. To date, such operations have had no significant adverse effect on safety. Based on this experience and the factors set forth above, the FAA has concluded that operators in the geographic area can reduce the amount of navigation and communications equipment required for their operations without adversely affecting safety. The FAA therefore proposes, under certain conditions, to expand the authority for air carriers and commercial operators to amend their operations specifications to use a single HF and a single LRNS. The FAA contemplates that, for the time being, deviation authority will be limited to the geographic area. This limitation is based primarily on the increased availability of ground-based VHF communications and ADF or VOR navigation facilities within the geographic area, which provide a crucial buffer in the event of an HF or LRNS failure. In appropriate circumstances, the FAA may expand the areas in which operations with a single HF and a single LRNS will be permitted for part 121, 125, and 135 operators.

Since affected general aviation operators cannot be controlled through operations specifications, they would be authorized to use a single LRNS, but only in the geographic area. Under existing § 91.511(d), affected general aviation operators are already authorized to use a single HF when the airplane has two VHF transmitters and receivers, i.e., two VHF communications systems.

Aside from the current authority set forth in §§ 91.511(d) and 121.349(b), this proposal would not change the general requirements under parts 91, 121, 125, and 135 for two VHF communications systems and two each of any appropriate navigation systems required for the route to be flown. The FAA has concluded that maintaining these requirements would ensure that air transportation safety is not compromised.

General Discussion of Current Requirements for Extended Overwater Operations**General Aviation Operations**

With one exception, set forth in § 91.511(d), part 91 Subpart F currently requires large and turbine-powered multiengine airplanes engaged in overwater operations to be equipped

with two independent communications and two independent navigation systems. Communications equipment must be appropriate to the facilities to be used and able to transmit to and receive from at least one surface facility at any place on the route. Navigation equipment must be able to provide the pilot with the information necessary to navigate the airplane within the airspace assigned by ATC. Under the exception in § 91.511(d), if a route requires the use of both VHF and HF communications equipment, and the airplane has two VHF transmitters and two VHF receivers then only one HF transmitter and one HF receiver is required for communications.

Air Carrier and Commercial Operations

Parts 121, 125, and 135 also require airplanes engaged in extended overwater operations to be equipped with two independent communications and two independent navigation systems. Like part 91, parts 125 and 135 require that the communications equipment be appropriate to the facilities to be used and capable of transmitting to and receiving from at least one ground facility at any place on the route. Although the regulatory language differs somewhat, part 121 contains essentially the same requirements for communications equipment. Specifically, part 121 requires two independent communications systems able to communicate, under normal operating conditions, with at least one appropriate ground station from any point on the route and with appropriate air traffic control facilities from any point in the control zones within which the flights are intended to be conducted. These communications systems also must be able to receive, under normal operating conditions, meteorological information from any point en route. Unlike part 91, however, parts 121, 125, and 135 do not allow the use of a single HF where the airplane is also equipped with two VHF. Thus, if a route requires use of both VHF and HF, airplanes operating under parts 121, 125, and 135 must have two VHF and two HF.

Section 121.349(b) allows for the use of a single ADF when two VOR navigation units are installed and VOR navigation aids are so located and the airplane is so fueled that, in the case of a failure of the ADF, the flight may proceed safely to a suitable airport by means of VOR aids. In all other cases when use of ADF, VOR navigation equipment, or both, is needed for primary navigation, the current rules for parts, 121, 125, and 135 require the airplane to be equipped with two ADF

and two VOR navigation units, as appropriate.

Rationale for the Proposal

In this proposal, the FAA defines an LRNS as an electronic navigation unit that is approved for use under instrument flight rules (IFR) as a sole means of navigation, such as an INS, Omega/very low frequency, and Loran C. Thus, the FAA does not limit the scope of acceptable LRNS to radio-based or ground-based systems. Such nonradio, nonground-based systems as INS and FMS are included within the scope of acceptable alternatives as long as the system chosen has been approved for use under IFR. Once operational and approved for use, GPS or other satellite-based navigation systems also will fall within this definition. Where ADF or VOR radio navigation units are impractical or unusable, the FAA interprets the current regulations to require the airplane to be equipped with two LRNS for extended overwater operations. The FAA proposes to authorize deviation from this dual LRNS requirement. For parts 121, 125, and 135, authorization for a deviation would be approved in the certificate holder's operations specifications. Since affected part 91 operators are not controlled through operations specifications, they would be authorized to use a single LRNS, but only in the geographic area.

ATC uses various methods to control air traffic, but control becomes difficult when ATC is unable to communicate with aircraft under its control (§ 91.185). This is particularly true when an airplane is also having navigation difficulties. In a nonradar, oceanic environment, ATC relies on flightcrews to navigate along planned routes, in accordance with established International Civil Aviation Organization (ICAO) separation standards, to maintain planned airspeeds, to report their positions accurately as required, and to maintain two-way radio communications with ATC regardless of the routes being flown. Since flightcrews are expected to comply with these procedures, a pilot's failure to provide ATC with an expected position report within a reasonable amount of time, for example, could serve to alert ATC that the aircraft is having problems and that ATC should implement appropriate procedures to deal with the situation.

ATC's navigation accuracy requirements were established to separate air traffic operating under IFR in a nonradar environment. These requirements vary within the geographic area. For example, ICAO Document 7030 shows that the lateral separation

standards established in the Caribbean regional supplementary procedures vary from 120 nautical miles (NM) to 90 NM in different established Caribbean oceanic areas.

Navigation systems have increased in number and availability during the past 20 years. Loran C, Omega, and INS are now in common use, and satellite navigation systems will be available soon. The airborne equipment that these systems use has improved due to advances in avionics reliability and miniaturization. Each unit is now a microprocessor which gives instantaneous readouts of position, ground speed, wind, and waypoint progress.

Radio communication systems have enjoyed similar advances. Bulky vacuum tube units have given way to miniaturized units with transistors, precise frequency selection, and high reliability, which produce the same or greater transmitting power when compared to older models. In addition, the proliferation of VHF communications facilities within the geographic area ensures that most routes can be flown with a VHF communications gap of no more than 30 minutes.

Advanced technology notwithstanding, a single HF may fail during a flight segment in which the airplane is operated beyond the range of ground-based VHF radio communications equipment. However, the FAA concludes that the probability that an airplane would experience a failure of its single HF and its single LRNS when suitable ground-based navigation aids cannot be received is minimal. Even if such a dual failure did occur, the increased density of other air traffic in the vicinity could provide the affected airplane with some backup VHF communications with ATC. Moreover, regardless of the number of other aircraft in the area, if the flightcrew adheres to the operational procedures outlined in the first paragraph of this section, the failure of the LRNS should not lead to an increased potential for conflict between aircraft before the airplane could come into range of ground-based ADF or VOR equipment.

Modern airplanes, especially turbine-powered airplanes, can reduce the overall time spent on extended overwater distances because of their ability to operate at higher speeds. They can operate on longer routes than their predecessors while still providing ATC with reliable fixes once each hour from ICAO standard ground-based navigation aids. Thus, the number of routes in the geographic area where time between

reliable fixes was 1 hour or more has been reduced for these airplanes. Similarly, the airplane's exposure to the loss of its single LRNS before the next reliable fix can be obtained is limited.

The increased reliability of modern LRNS reduces navigation errors. Sophisticated flight management systems (FMS), integrated with control and navigation systems of an airplane provide greater position reliability. If the LRNS fails on an airplane using such sophisticated equipment, navigation errors inherent in dead-reckoning procedures from the moment of the failure until the next reporting point or fix should be well within the navigational performance capability required by ATC.

Because of the increased speeds and higher altitudes at which airplanes now operate, improved equipment reliability and LRNS accuracy, the FAA has concluded that, where exposure time for a critical equipment failure is 1 hour or less, the following is true:

- The probability of a failure occurring during this period is less than the probability of a failure with less modern equipment;
- With the accuracy of the present equipment, operators have a better knowledge of their position if a failure does occur;
- Increased air traffic density often allows operators, who experience loss of HF equipment, to use VHF equipment and transmit a message using another airplane as an intermediary in an emergency situation.

General Discussion of the Proposal

The FAA bases its proposals to amend part 91 and consider deviations for parts 121, 125, and 135 on the factors mentioned above and on the operator's ability to maintain two-way communications with ATC and, where appropriate, the certificate holder's dispatch office. Without such factors, ATC's ability to control airplanes in the geographic area would be adversely impacted, increasing the potential for air traffic conflicts. The flightcrew must be able to notify ATC of an LRNS failure and must be able to tell ATC whether the flightcrew can reliably fix the airplane's position using other means.

Part 91

As a result of changes in technology, the operational environment described, and experience gained with exemptions allowing a single LRNS, the FAA has concluded that part 91 operators of large and turbine-powered multiengine airplanes should be able to operate safely with a single HF and a single LRNS in the geographic area. In

conducting operations in the geographic area, these general aviation operators should consider how long they may be without two-way VHF communications. For flight planning purposes the FAA recommends that this gap should not exceed 30 minutes. The operator also should consider whether the position of the airplane can be reliably fixed once each hour if the LRNS fails.

Parts 121, 125, and 135

The FAA believes that the only appropriate method for authorizing single HF/single LRNS operations for part 121, 125, and 135 certificate holders is through FAA-approved deviations, which would be set forth in the certificate holder's operations specifications. This method of approval is necessary because it would provide both the FAA and the certificate holder greater flexibility in dealing with varied equipment configurations, possible reclassification of airspace operating areas, and changes in air traffic separation standards.

The FAA has authorized these operations in the past and has determined that permitting a VHF communications gap of not more than 30 minutes is appropriate for this proposal and provides an equivalent level of safety. Loss of the single LRNS still requires each operator currently authorized to operate with a single LRNS to reliably fix the airplane's position at least once each hour if the flight is continued and to navigate within the ATC-required degree of accuracy over any authorized route.

Conditions and Limitations for All Operators

Because part 91 operators are not required to have operations specifications, this proposal would limit general aviation operations to the geographic area. The areas of operation covered in this proposal for affected general aviation operators include the Gulf of Mexico, the Caribbean Sea, and the Atlantic Ocean west of a line which extends from 44°47'00" N/67°00'00" W to 39°00'00" N/67°00'00" W to 38°30'00" N/60°00'00" W south along the 60°00'00" W longitude line to the point where the line intersects with the northern coast of South America. This geographic area does not include the North Atlantic Minimum Navigational Performance Specifications (NAT/MNPS) airspace, where operations are governed by § 91.705 and Appendix C to part 91.

Limitations for air carrier and commercial operations would be set forth in the certificate holders' operations specifications. As in the case

of general aviation operations, the area of operation for air carrier and commercial operators would not include NAT/MNPS airspace.

Economic Summary

The proposed rule would reduce costs to operators by eliminating the requirement for two HF and two LRNS in the geographic area. These savings would come from reduced avionics costs, reduced fuel consumption from less aircraft weight, and reduced risk of flight cancellations.

The FAA estimates the fleet size operating in the geographic area at approximately 150 airplanes. This fleet varies from jumbo jets to smaller twin-engine turboprop planes; however, commercial operators most often use Boeing 727's. The FAA assumes that the size of this fleet will grow by 5.2 percent annually over the next 10 years.

In addition to the scheduled commercial fleet, general aviation and non-commercial operators also operate in the geographic area. These operators would also gain some relief from the proposed rule. However, the FAA does not have a measure of the number of airplanes of this type. The FAA requests comments on the size of the general aviation and non-scheduled commercial fleet operating in the geographic area.

Each commercial operator could save approximately \$17,000 per airplane in equipment costs and reduce aircraft weight 20 pounds per airplane by eliminating an HF; it could save about \$35,000 per airplane in equipment costs and 20 pounds per airplane by eliminating one LRNS. For existing airplanes with equipment made surplus by this proposed rule, the rule would result in cost savings because operators could return LRNS and HF equipment to inventory instead of purchasing new equipment. The FAA estimates that each additional pound on an airplane costs an additional 15 gallons of fuel annually. Hence the reduction in weight would save 600 gallons of fuel a year. The savings would total nearly \$5,000 per airplane over the decade.

Additional savings from the proposed rule would come from reduced flight cancellations. Reduced costs from preventing a cancellation depend on passenger time, passenger handling costs, lost revenue, operating costs. The approximate cost of a cancellation is \$28,000. This evaluation assumes that one-fourth of the aircraft affected by the proposed rule would suffer one less cancellation in the 2 years after the publication of the rule.

The FAA assumes that 50 percent of the commercial fleet will convert to having only one HF and one LRNS. In

the first year after the proposed rule becomes effective, the industry would reduce avionics costs by nearly \$2 million and save \$1 million in reduced flight cancellations. Over the decade, the net discounted savings would total \$7.3 million. The FAA requests comments on a total cost savings estimate.

The FAA has determined that no safety problem exists with the reduction in the requirements for HF and LRNS for certain overwater operations. In the past 2 decades, the FAA has granted to certain qualified operators limited exemption from requirements for dual HF and dual LRNS in the geographic area. No airplanes operating under exemption have had an accident caused from having one HF or one LRNS. Thus, the FAA believes that this proposed rule presents no degradation in aviation safety in the geographic area. The FAA seeks comment on additional information on the potential influence of this proposed amendment on safety.

International Trade Impact Analysis

This proposed rule would provide a small but negligible cost relief to domestic operators. It would provide no relief to foreign operators. Hence, this rule would have no effect on the sale of foreign aviation products or services in the U.S. or on the sale of U.S. products or services in foreign countries.

Regulatory Flexibility Determination

The Regulatory Flexibility Act of 1980 (RFA) ensures that government regulations do not needlessly and disproportionately burden small businesses. The RFA requires the FAA to review each rule that may have "a significant economic impact on a substantial number of small entities."

FAA criteria define "a substantial number" as not less than 11 and more than one-third of the small entities subject to the rule. Among air carriers, a small entity is defined as one which owns, but does not necessarily operate, nine or fewer aircraft. The criteria define "a significant impact" as follows: \$102,000 for scheduled air carriers with 60 or more seats; \$57,000 for scheduled air carriers with fewer than 60 seats.

The proposed amendment is completely cost relieving by eliminating the need two HF and two LRNS in the geographic area. The estimated cost savings to an operator is \$52,000. This savings is less than the threshold amount for small scheduled operators.

Federalism Implications

The regulations proposed herein will 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 federalism implications requiring the preparation of a Federalism Assessment.

International Civil Aviation Organization and Joint Aviation Regulations

In keeping with U.S. obligations under the Convention on International Civil Aviation, it is FAA policy to comply with ICAO Standards and Recommended Practices (SARP) to the maximum extent practicable. For this notice, the FAA has reviewed the SARP of Annex 6, Parts I and II, applicable to international commercial air transportation operations and international general aviation operations respectively. The FAA has determined that this proposal, if adopted, would not present any differences.

Paperwork Reduction Act

In accordance with the Paperwork Reduction Act of 1980, (Pub. L. 92-511), there are no requirements for information collection associated with the proposed rule.

Conclusion

For the reasons discussed in the preamble, and based on the findings in the Economic Assessment and the International Trade Impact Statement, the FAA has determined that this proposed regulation is not major under Executive Order 12291 or significant under DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). In addition, the FAA certifies that this proposal, if adopted, 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.

List of Subjects

Part 91

Agriculture, Air traffic control, Aircraft, Airmen, Airports, Aviation safety, Freight, Noise control, Reporting and recordkeeping requirements.

Part 121

Air safety, Air transportation, Aviation safety, Drug abuse, Narcotics, Safety, Transportation.

Part 125

Aircraft, Airmen, Aviation safety, Reporting and recordkeeping requirements.

Part 135

Air taxis, Aircraft, Airmen, Aviation safety, Flight Attendants, Reporting and recordkeeping requirements.

The Proposed Amendment

In consideration of the foregoing, the Federal Aviation Administration proposes to amend parts 91, 121, 125, and 135 of the Federal Aviation Regulations (14 CFR parts 91, 121, 125, and 135) as follows:

PART 91—AIR TRAFFIC AND GENERAL OPERATING RULES

1. The authority citation for part 91 continues to read as follows:

Authority: 49 U.S.C. app. §§ 1301(7), 1303, 1344, 1348, 1352 through 1355, 1401, 1421 through 1431, 1471, 1472, 1502, 1510, 1522, and 2121 through 2125; articles 12, 29, 31, and 32(a) of the Convention on International Civil Aviation (61 stat. 1180); 42 U.S.C. 4321 et seq.; E.O. 11514, 35 FR 4247; 3 CFR, 1966-1970 Comp., p. 902; 49 U.S.C. 106(g).

2. Section 91.511 is amended by revising the phrase "paragraphs (c) and (d)" to read "paragraphs (c), (d), and (f)" in the introductory language of paragraph (a) and by adding paragraph (f) to read as follows:

§ 91.511 Radio equipment for overwater operations.

* * * * *

(f) Notwithstanding the requirements in paragraph (a)(2) of this section, a person may operate in the Gulf of Mexico, the Caribbean Sea, and the Atlantic Ocean west of a line which extends from 44°47'00" N / 67°00'00" W to 39°00'00" N / 67°00'00" W to 38°30'00" N / 60°00'00" W south along the 60°00'00" W longitude line to the point where the line intersects with the northern coast of South America, when—

(1) A single long-range navigation system (LRNS)¹ is installed, operational, and appropriate for the route; and

(2) Flight conditions and the aircraft's capabilities are such that no more than a 30-minute gap in two-way radio VHF communications is expected to exist.

PART 121—CERTIFICATION AND OPERATIONS: DOMESTIC, FLAG, AND SUPPLEMENTAL AIR CARRIERS AND COMMERCIAL OPERATORS OF LARGE AIRCRAFT

3. The authority citation for part 121 continues to read as follows:

¹ An LRNS is an electronic navigation unit that is approved for use under instrument flight rules as a sole means of navigation, such as an inertial navigation system, Omega/very low frequency, and Loran C.

Authority: 49 U.S.C. app. §§ 1354(a), 1355, 1356, 1357, 1401, 1421-1430, 1472, 1485, and 1502; 49 U.S.C. 106(g) (revised, Pub. L. 97-449, January 12, 1983).

4. The first sentence of § 121.99 is revised to read as follows:

§ 121.99 Communication facilities.

Each domestic and flag air carrier must show that a two-way air/ground radio communication system is available at points that will ensure reliable and rapid communications, under normal operating conditions over the entire route (either direct or via approved point to point circuits) between each airplane and the appropriate dispatch office, and between each airplane and the appropriate air traffic control (ATC) unit except as specified in § 121.351(c). * * *

5. Section 121.351 is amended by revising paragraph (a) and adding new paragraph (c) to read as follows:

§ 121.351 Radio equipment for extended overwater operations and for certain other operations.

(a) Except as provided in paragraph (c) of this section, no person may conduct an extended overwater operation unless the airplane is equipped with the radio equipment necessary to comply with § 121.349, an independent system that complies with § 121.347(a)(1), and two long-range navigation systems (LRNS) when use of VOR or ADF radio navigation equipment is unusable along a portion of the route. An LRNS is an electronic navigation unit that is approved for use under instrument flight rules as a sole means of navigation, such as an inertial navigation system, Omega/very low frequency, and Loran C.

(b) * * *

(c) Notwithstanding the requirements of paragraph (a) of this section, deviations from this section for the installation and use of a single LRNS and a single high frequency (HF) communication system may be authorized by the Administrator and approved in the certificate holder's operations specifications. The following

are among the operational factors the Administrator may consider in granting a deviation: (1) the ability of the flightcrew to reliably fix the position of the airplane at least once each hour within the degree of accuracy required by ATC, (2) the length of the route being flown, and (3) the duration of the very high frequency (VHF) communications gap.

PART 125—CERTIFICATION AND OPERATIONS: AIRPLANES HAVING A SEATING CAPACITY OF 20 OR MORE PASSENGERS OR A MAXIMUM PAYLOAD CAPACITY OF 6,000 POUNDS OR MORE

6. The authority citation for part 125 continues to read as follows:

Authority: 49 U.S.C. 1354, 1421 through 1430, and 1502; 49 U.S.C. 106(g) (Revised Pub. L. 97-449, January 12, 1983).

7. Section 125.203 is amended by adding the phrase "Except as provided in paragraph (e) of this section," at the beginning of the first sentence of paragraph (c) introductory text and adding a new paragraph (e) to read as follows:

§ 125.203 Radio and navigational equipment.

* * * * *

(e) Notwithstanding the requirements of paragraph (c) of this section, deviations from this section for the installation and use of single long-range navigation system (LRNS) and a single high frequency (HF) communication system, for extended overwater operations, may be authorized by the Administrator and approved in the certificate holder's operations specifications. An LRNS is an electronic navigation unit that is approved for use under instrument flight rules as a sole means of navigation, such as an inertial navigation system, Omega/very low frequency, and Loran C. The following are among the operational factors the Administrator may consider in granting a deviation: (1) the ability of the flightcrew to reliably fix the position of the airplane at least once each hour within the degree of accuracy required

by ATC, (2) the length of the route being flown, and (3) the duration of the very high frequency (VHF) communications gap.

PART 135—AIR TAXI OPERATORS AND COMMERCIAL OPERATORS

8. The authority citation for part 135 continues to read as follows:

Authority: 49 U.S.C. 1354(a), 1355(a), 1421-1431, and 1502; 49 U.S.C. 106(g) (Revised Pub. L. 97-449, January 12, 1983).

9. Section 135.165 is amended by adding a new paragraph (d) to read as follows:

§ 135.165 Radio and navigation equipment: Extended overwater or IFR operations.

* * * * *

(d) Notwithstanding the requirements of paragraphs (a) and (b) of this section, deviations from this section for the installation and use of a single long-range navigation system (LRNS) and a single high frequency (HF) communication system, for extended overwater operations, may be authorized by the Administrator and approved in the certificate holder's operations specifications. An LRNS is an electronic navigation unit that is approved for use under instrument flight rules as a sole means of navigation, such as an inertial navigation system, Omega/very low frequency, and Loran C. The following are among the operational factors the Administrator may consider in granting a deviation: (1) the ability of the flightcrew to reliably fix the position of the airplane at least once each hour within the degree of accuracy required by ATC, (2) the length of the route being flown, and (3) the duration of the very high frequency (VHF) communications gap.

Issued in Washington, DC, on September 27, 1993.

William J. White,

Acting Director, Flight Standards Service.

[FR Doc. 93-24277 Filed 10-4-93; 8:45 am]

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DEPARTMENT OF TRANSPORTATION**Federal Aviation Administration****14 CFR Parts 121, 129 and 135**

[Docket No. 26718; Notice No. 93-14]

RIN 2120-AE42

Aging Airplane Safety**AGENCY:** Federal Aviation Administration, DOT.**ACTION:** Notice of proposed rulemaking.

SUMMARY: This document proposes rule changes that would: Require persons operating older airplanes to certify that certain airplane maintenance actions have been performed; and allow the Administrator to establish an airplane operational limit beyond which additional maintenance actions must be accomplished. This rulemaking project would implement part of the Federal Aviation Administration's (FAA) Aging Airplane Program Plan and respond to the Aging Aircraft Safety Act of 1991. The proposed rules are intended to assure that older airplanes are properly maintained for continued use in air transportation.

DATES: Comments must be received on or before February 2, 1994.

ADDRESSES: Comments on this proposal should be mailed or delivered in triplicate to: Federal Aviation Administration (FAA), Office of the Chief Counsel, Attention: Rules Docket (AGC-10), Docket No. 26718, 800 Independence Avenue SW., Washington, DC 20591. Comments may be examined in the Rules Docket, room 915-G, weekdays between 8:30 a.m. and 5 p.m., except Federal holidays.

FOR FURTHER INFORMATION CONTACT: Mr. Frederick Sobek, Flight Standards Service, Aircraft Maintenance Division (AFS-300), Federal Aviation Administration, 800 Independence Avenue SW., Washington, DC 20591, telephone (202) 267-7355.

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. Comments relating to the environmental, energy, federalism, or economic impact that might result from adopting the proposals in this notice are also invited. Substantive comments should be accompanied by cost estimates. Comments should identify the regulatory docket or notice number and should be submitted in

triplicate to the Rules Docket address specified above.

All comments received on or before the closing date for comments specified will be considered by the Administrator before taking action on this proposed rulemaking. The proposals contained in this notice may be changed in light of comments received. All comments received 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 rulemaking, will be filed in the docket. Commenters wishing the FAA to acknowledge receipt of their comments submitted in response to this notice must include a pre-addressed, stamped postcard on which the following statement is made: "Comments to Docket No. 26718." The postcard will be date/time stamped and mailed to the commenter.

Availability of NPRM's

Any person may obtain a copy of this notice of proposed rulemaking (NPRM) by submitting a request to the Federal Aviation Administration, Office of Public Affairs, Attention: Public Inquiry Center (APA-430), 800 Independence Avenue SW., Washington, DC 20591, or by calling (202) 267-3484. Communications must identify the notice number of this NPRM.

Persons interested in being placed on the mailing list for future NPRM's should request from the above office a copy of Advisory Circular 11-2A, Notice of Proposed Rulemaking Distribution System, which describes the application procedures.

Discussion*Background*

The FAA, airplane manufacturers, and airplane operators continually work to maintain the structural integrity of older airplanes. Traditionally, this effort has been accomplished through an exchange of field service information and subsequent changes to inspection programs, and by the development and installation of modifications in particular airplanes. However, increased utilization, longer operational lives, and higher safety demands imposed on current operating airplanes have indicated that there is a need for a program to assure a high level of structural integrity for all airplanes operating in air transportation.

On April 28, 1988, a Boeing Model 737 airplane experienced an in-flight decompression and separation of approximately 18 feet of the fuselage

skin and structure at the top of the airplane. A post-accident investigation revealed that the airframe had many fatigue cracks and a large amount of untreated corrosion despite the operator's compliance with required maintenance programs. The National Transportation Safety Board (NTSB) determined that the probable cause of the accident was the failure of the operator to detect the presence of skin disbonding, with resulting corrosion, metal fatigue, and separation of the airplane's skin and structure.

The airplane involved in the 1988 accident had been in service for 19 years and had flown 89,680 flights, accumulating 35,496 flight hours. One of the most highly utilized airplanes in the world, it was operated in a salt and moisture-laden atmosphere throughout its life. At that time, the average large transport airplane, similar to the one above, had been in operation approximately 12.4 years with 19,000 to 74,000 flights. Today these airplanes have been in operation an average of 17.8 years with up to 94,300 flights.

The accident, coupled with the increased use of older airplanes in air transportation, prompted the FAA to reexamine the adequacy of required airplane maintenance procedures. As a result of this examination, additional maintenance actions have been implemented through airworthiness directive (AD) actions. These AD's required for certain airplanes: (1) Structural modifications and inspections to be accomplished for fatigue problems; and (2) corrosion prevention and control programs be added to the required maintenance program.

Public concern that air carriers perform maintenance with the highest degree of safety led Congress in 1991 to direct the FAA to assure that older airplanes are properly maintained. The Aging Aircraft Safety Act of 1991 (the Act) requires the Administrator to initiate rulemaking and to take other actions to assure the continuing airworthiness of aging airplanes. The FAA's efforts to address the safety of older airplanes are known as the Aging Airplane Program. The Aging Airplane Program addresses: Transport Airplanes, Commuter Airplanes, Engines, Maintenance, and Research. The major thrust of the FAA's Aging Airplane Program is described below in a summary of the efforts underway to address large transport airplanes and commuter airplanes.

The FAA has identified eleven wide and narrow-bodied airplanes as aging transport airplanes. They are: Airbus Model A-300; Boeing Models 707/720,

727, 737, and 747; British Aerospace Model BAC 1-11; Fokker Model F-28; Lockheed Model L-1011; and McDonnell Douglas Models DC-8, DC-9, and DC-10. These airplane model fleets contain individual model airplanes that are approaching the design life goals established by the airplane manufacturer at the time of type certification.

Following the 1988 accident, the FAA concluded that a system to assure the structural integrity of older airplanes should place less reliance on routine, repetitive inspections. The FAA has adopted a policy that requires modifications or replacement of certain parts instead of routine inspections when three criteria exist: A structural fatigue cracking problem is likely to occur; a potentially catastrophic failure could result should the fatigue cracking go undetected; and the fatigue cracks are difficult to detect during routine maintenance. The FAA has mandated these structural modifications and directed certain inspections through a series of AD's for all of the aging transport airplanes.

The Aging Airplane Program also established corrosion prevention and control procedures for certain aging transport airplane models. These corrosion procedures supplement each operator's existing maintenance requirements. The FAA has issued AD's mandating corrosion programs for the Boeing models 707/720, 727, 737, 747, and the McDonnell Douglas models DC-8, DC-9, and DC-10 airplanes. AD's are being prepared for four other airplane models.

The FAA and industry are studying methodologies peculiar to each airplane model to assess airplane structural repairs. Some operators are using these methodologies to assess repair designs that preceded the requirement for damage tolerance assessment (Federal Aviation Regulations (FAR) 25, Amendment 45). The FAA may mandate these methodologies through rulemaking where appropriate.

The FAA is also reviewing the existing Supplemental Structural Inspection Documents (SSID). These SSID's and the AD's that mandated their use constitute part of the FAA's earlier approach to controlling the effects of fatigue cracking on older airplanes. The first SSID was mandated by AD in 1984. The purpose of the review is to determine if these inspections are sufficient and can be expected to remain effective throughout the life of the airplane. The SSID's and the AD's that mandated them will be revised as necessary to incorporate the results of the review.

Finally, the aging transport airplane program will establish structural maintenance program guidelines for older airplanes. An industry advisory committee has evaluated operator maintenance programs and prepared a set of guidelines called "Structural Maintenance Program General Guidelines." Operators may use this document to develop or enhance their structural maintenance programs. The FAA is evaluating this document to determine if any of the guidelines should be made mandatory through rulemaking.

The FAA is developing a program for aging commuter airplanes parallel to the program for aging transport airplanes. This aging commuter airplane portion of the Aging Airplane Program addresses those multi-engines used in air transportation having maximum takeoff weights between 6,000 and 75,000 pounds. These airplanes may be operated under 14 CFR parts 121, 129, or 135.

The FAA and the commuter industry have reviewed manufacturer's service bulletins and applicable AD's. These reviews may result in airplane specific modifications to reduce the reliance on repetitive inspections. The FAA is considering rulemaking to implement some recommended modifications. The FAA is investigating the development of airplane specific supplemental inspection documents (SID) that address both fatigue cracks and corrosion. These SID's may include provisions for the type of damage being considered, damage sites, inspection access, inspection threshold, inspection interval, inspection methods, and repair procedures. The FAA intends to implement SID programs through separate rulemaking.

A copy of the draft Aging Airplane Program Plan that discusses the FAA's efforts has been placed in the docket. Any person may obtain a copy of this plan by submitting a request to the FAA, Office of Public Affairs, Attention: Public Inquiry Center (APA-430), 800 Independence Avenue SW., Washington, DC 20591, or by calling (202) 267-3484. Communications must identify the notice number of this NPRM.

Discussion of the Proposal

Sections 121.368, 129.16, and 135.422

Proposed new §§ 121.368, 129.16, and 135.422 define the term "heavy maintenance check" (HMC). This term evolved from the "A", "B", "C", and "D" check maintenance philosophy that was developed in the early days of the aviation industry. The HMC closely

approximates the "D check" in this philosophy. The "D check" is frequently the scheduled maintenance visit for the accomplishment of major maintenance requirements that usually include systems operational or functional checks, structural inspections, airplane modifications, painting, cabin refurbishment, and overhaul, or repair of airplane powerplant or systems components. The "D check" has also been referred to as the heavy maintenance visit, heavy maintenance check, heavy level check, or special structural visit.

Proposed new §§ 121.368, 129.16, and 135.422 contain a definition for the HMC that encompasses the "D check" philosophy. All operators must accomplish the major maintenance requirements even if they do not use the "D check" terminology. The HMC as used in this proposed rule is intended to be the airplane maintenance visit that includes airframe structural inspections, airframe modifications, exterior painting, and overhaul of major systems and components.

The proposal would require that the operator establish an HMC for each airplane it operates, and that the operator make a maintenance record (a certification) as part of each HMC conducted on or after the first day of the fifteenth year of the airplane's service. The proposal also requires that the operator notify the Administrator prior to the start of an HMC. The operator would certify in the maintenance record that the airplane meets all maintenance requirements. In order to make the certification, the operator must conduct inspections and make records reviews applicable to the airplane. These inspections and reviews must determine that the airplane has complied with all applicable airworthiness requirements. The FAA would use this maintenance record as evidence that the operator has accomplished all required inspections and reviews. Therefore, this rulemaking would add only the requirement for an additional maintenance record certifying that the all requirements for maintenance have been accomplished. This requirement would be consistent with the FAA's established practice of relying on the operators and the existing delegations of the Administrator's authority (Reference section 601(a)(3)(C) of the Federal Aviation Act of 1958) to make physical inspections and reviews for each airplane. The new requirements are the FAA's response to section 402(b), (c), and (e) of the Aging Aircraft Safety Act of 1991. The FAA intends to utilize the aging airplane inspection procedures contained in existing maintenance programs to accomplish

the intent of section 402(d). The certification provides the FAA evidence that the operator has complied with those mandates published to assure the safety of aging airplanes.

There are many airplanes that are not required to have scheduled checks as discussed above. These airplanes may be subject to a 100 hour or annual inspection schedule, progressive inspection schedule, or an FAA-approved aircraft inspection program (AAIP). Unlike the "D" check, these inspection programs do not have an established interval for the structural inspections normally included in an HMC-type inspection. For this reason, the HMC for these airplanes must be treated differently.

The 100 hour inspection provides for a complete inspection of the airplane each 100 hours time in service. Similarly, the annual inspection provides for a complete inspection of the airplane once each 12 calendar months. The FAA intends that the certification be accomplished at a major inspection point for the airplane, i.e. the HMC. Since the 100 hour inspection and the annual inspection are identical in scope, the FAA will consider the annual inspection acceptable as the HMC for those operators subject to these types of inspections.

The progressive inspection program provides for incremental inspection segments resulting in a complete inspection of the airplane each twelve calendar months. The twelve month inspection period that coincides with completion of the progressive inspection program cycle would be considered the HMC interval for these airplanes.

An approved aircraft inspection program (AAIP) allows operators to develop and utilize inspection programs adjusted for their unique operating environment. Because of the variation among the AAIP's the FAA cannot define a generic HMC interval.

Therefore, the operator would establish an HMC interval as that interval that most closely approximates completion of all tasks in the AAIP inspection cycle.

The phrase "years in service" would mean the calendar time accrued since the airplane was issued its first United States (U.S.) or first foreign airworthiness certificate. This starting point for computing years in service was selected because before an airplane can be flown in the U.S. it must have an appropriate airworthiness certificate. This threshold will give a consistent starting point for the computation of age. In the U.S., the first airworthiness certificate issued is normally a special

airworthiness certificate for a manufacturer's production test flight. For foreign manufactured airplanes, the threshold would be the first issuance of an equivalent airworthiness certificate. The years in service period will not be adjusted for storage or nonoperating time. As corrosion may develop even in an unused airplane, the FAA chose not to give credit for nonoperational passage of time.

Sections 121.212, 129.20, and 135.168

Proposed new §§ 121.212, 129.20, and 135.168 would initiate the regulatory framework for the future establishment of an operational limit for certain airplanes. This operational limit would apply unless the Administrator has established certain additional maintenance requirements that are met. These limits will establish the point in the airplane's life where, due to unknown effects of fatigue and corrosion, its continued airworthiness cannot be assured using normal maintenance practices. The term "operational limit" would be that point in the life of the airplane where additional maintenance action is required to assure the continued airworthiness of the airplane's principle structural elements.

Section 402(a) of the Act requires the Administrator to initiate rulemaking in order to assure the continuing airworthiness of aging airplanes. The FAA examined the Aging Airplane Program Plan activities currently underway and the airplanes being addressed in that program, and considered either requiring a supplemental inspection program based on a damage tolerance assessment of these airplanes or establishing an operational limit.

The FAA may establish operational limits based on the most critical "service life" limit of the airplane Principle Structural Elements (PSE). The operational limit would be expressed in terms of flight hours, landings, or pressurization cycles and would be based on a structural substantiation approved by the Administrator.

Principle Structural Element and "service life" is described in 14 CFR 25.571. The FAA could consider some of the following:

- a. Cumulative damage criteria based on fatigue tests, analysis, fleet history, teardown inspections, or combinations thereof; or
- b. The principles of fracture mechanics that may include the assumption of an initial flaw; or

c. The service life chosen by the applicant at initial certification to comply with § 25.571.

The FAA envisions establishing an appendix to parts 121, 129, and 135 where the specific operational limit would appear. As part of that appendix would be a listing of appropriate maintenance requirements that would be imposed if the operator wished to go beyond the established operational limits. Such provisions would include, but may not be limited to, supplemental inspection programs, repetitive inspections of specific PSE's based on the principles of fracture mechanics or on engineering analysis, one-time major inspections of specific and/or repetitive major inspections based on the principles of fracture mechanics, replacement of life-limited components, other technically sound methods offered by the organization applying for the life extension; or any combination of the above, and demonstration that corrosion in primary structure of the airplane is maintained to an acceptable level.

This rulemaking will not set any operational limit nor will it set out the maintenance requirements for exceeding the operational limit. Separate rulemaking will be used to impose the operational limit. The preamble to the notice of proposed rulemaking for that rule will describe and solicit comments on the methodology used to establish the operational limit.

The FAA has tasked the Small Airplane Airworthiness Assurance Working Group within the Aviation Rulemaking Advisory Committee to study the methods used to develop and extend operational limits. The recommendations of this working group will be considered by the FAA.

Airplanes meeting the damage + tolerance design criteria of part 25 and those being inspected in accordance with a mandatory SSID that has been developed in accordance with damage tolerance principles may not need an operational limit.

Consideration of Foreign-Operated U.S.-Registered Airplanes

Most foreign air carriers and foreign persons engaged in common-carriage operations have airplane maintenance program requirements adopted by their domestic governments that are consistent with the international standards in Part I of Annex 6 to the Convention on International Civil Aviation. Annex 6 requires each operator to comply with the terms of the airplane's certificate of airworthiness and to maintain the airplane in an airworthy condition. However, some countries may not have requirements

completely consistent with the international airplane maintenance program requirements as set forth in Annex 6. This means that U.S.-registered airplanes operated by foreign operators or persons from those countries might not meet international let alone U.S. standards. FAR 129 regulates the operation of these U.S.-registered airplanes consistent with U.S. international obligations. Inclusion of the proposed rules in FAR 129 would assure the continued airworthiness of aging U.S.-registered airplanes in such use.

Consideration of all Classes of Operators

The FAA has considered the circumstances of all classes of operators, including air cargo operators, in the development of the Aging Airplane Program. The factors affecting aging airplanes—fatigue and corrosion—apply whether passengers or cargo is being carried. For that reason, this proposed rule does not distinguish between passenger-carrying and all-cargo operations for either large transport or commuter aging airplanes.

Comments Received During Development of the NPRM

The FAA received unsolicited comments before the publication of the NPRM regarding the agency's action under the legislation. These comments have been placed in Docket No. 26718 and will be considered along with those received after this NPRM is published.

Paperwork Reduction Act

This NPRM will create a slight additional burden to currently approved information collections. The requirement for clearance from this additional burden will be submitted to the Office of Management and Budget.

Regulatory Evaluation Summary

This section summarizes the full regulatory evaluation prepared by the FAA that provides more detailed estimates of the economic consequences of this regulatory action. This summary and the full evaluation quantify, to the extent practicable, estimated costs to the private sector, consumers, Federal, State, and local governments, as well as anticipated benefits.

Executive Order 12291, dated February 17, 1981, directs Federal agencies to promulgate new regulations or modify existing regulations only if potential benefits to society for each regulatory change outweigh potential costs. The order also requires the preparation of a Regulatory Impact Analysis of all "major" rules except

those responding to emergency situations or other narrowly defined exigencies. A "major" rule is one that is likely to result in an annual increase in consumer costs, a significant adverse effect on the economy of \$100 million or more, or a significant adverse effect on competition.

The FAA has determined that this proposed rule is not "major" as defined in the executive order; therefore, a full Regulatory Impact Analysis, which includes the identification and evaluation of cost-reducing alternatives to this rule, has not been prepared. Instead, the agency has prepared a more concise document termed a regulatory evaluation that analyzes only this proposed rule without identifying alternatives. In addition to a summary of the regulatory evaluation, this section also contains the Regulatory Flexibility determination required by the Regulatory Flexibility Act and an International Trade Impact Analysis. If more detailed economic information is desired, the reader may refer to the full regulatory evaluation contained in the docket.

Costs

The provisions of the proposed rule can be considered in three categories: (1) Definitions that are needed to clarify the intent of the proposal, (2) provisions for the future prohibition of operating an airplane beyond its operational limit unless it meets additional airworthiness requirements prescribed by the FAA, and (3) notification of inspection and certification of compliance with applicable maintenance programs.

No significant costs are attributed to the proposed definitions. They are included for purposes of clarification and explanation of the remaining provisions. The definitions themselves will not exact any expenditures by manufacturers or operators.

The proposed rule would also prohibit the operation of certain airplanes, yet to be specified, beyond their operational limits unless those airplanes meet certain additional airworthiness requirements prescribed by the FAA. The proposed rule itself would not impose any new requirements for any airplanes, but instead, would establish the regulatory structure for later agency rulemaking. As they are developed, the operational limits and additional airworthiness requirements for each affected airplane model would be listed in an appendix to the appropriate part(s) of the FAR's. Accordingly, the economic justification of the additional requirements for each model would be evaluated as part of the rulemaking that implements it.

The evaluation does not ascribe to this proposed rule any of the costs that will be incurred to actually perform the work associated with a given airplane's maintenance program requirements. These requirements are either currently in place, or are being developed for near-term application under other rulemaking efforts. The current rules, the aging airplanes airworthiness directives that have been issued through February 1993, have been estimated to require a total one-time expenditure of \$278 million and a recurring annual cost of \$42 million.

Additional costs would be incurred by the operator in notifying the FAA that a heavy maintenance check was scheduled, and in making the maintenance record check to certify maintenance program compliance. The certification would necessitate a brief review of the pertinent maintenance records that would normally be available during a heavy maintenance check.

Over the ten-year study period, the FAA forecasts that the numbers of heavy maintenance checks, as defined in the proposal, would increase from an estimated 1,966 in 1995, to 2,262 checks in the year 2004. Approximately one-half hour of time would be required per airplane, per heavy maintenance check to comply with the proposed requirements for notification and certification. Based on an assumed wage of \$42 per hour, including overhead, the requirements of this provision would incur an annual cost to industry of \$41,286 to \$47,502 over the study period.

The FAA would also incur additional costs as a result of the proposed rule. The agency estimates that an incremental 1,920 work hours would be expended annually in reviewing operator certifications to determine compliance. For the purposes of this analysis, the initial 1,920 hour estimate was inflated over time to coincide with the projected increase in the numbers of large transport category airplanes. Again assuming an average hourly wage rate of \$42 per hour, the FAA would incur additional annual costs of \$80,640 in the first year, increasing to \$105,672 ten years later. The present value of the ten-year costs of this proposal to industry and the FAA is estimated to be \$880,000.

Benefits

The expected benefit of the proposed rule is a reduction in the risk of accidents related to fatigue and corrosion that might otherwise occur. This benefit would result from the requirement that operators review their

records and certify through a maintenance record entry that their aging airplanes are in full compliance with all maintenance program requirements.

The economic valuation of the 1988 accident totals \$18.2 million. Given the potential severity of the accident, it is fortuitous that more fatalities did not occur. Had the airplane broken up and crashed with all 95 lives lost, the economic valuation of that single accident would have exceeded \$248 million.

The greater portion of the expected benefits in aging-airplane accident prevention will probably derive from the maintenance program initiatives themselves, rather than from this proposed rule. The FAA cannot assess the exact proportion of potential benefits that should be attributed specifically to this proposed rule. However, it should be noted that the U.S. fleet continues to age and recent accident history may not be representative of future conditions or of future exposure to such accidents. The economic environment of the aviation industry may necessitate greater use of aging airplanes than in the past.

It is the FAA's position that the requirement for operator demonstration of maintenance program compliance would result in the more consistent conduct of necessary maintenance and in an associated increase in the overall airworthiness of the aging airplane fleet. Thus, the effect of the proposed rule would be to reduce the likelihood of aging airplane accidents at a projected ten-year cost less than one-twentieth of the economic valuation of the 1988 accident.

The costs of this proposal would be directly related to the future exposure to accidents involving aging airplanes. If the use of aging airplanes decreases, the costs of this proposed rule would decrease proportionately. If the use of aging airplanes increases, the more effective maintenance generated by the proposed rule would correspondingly minimize the likelihood of future accidents to an increased number of airplanes. Accordingly, the FAA holds that the potential benefits of this rule would exceed the expected costs. In addition, the proposed rule was mandated by statute.

Regulatory Flexibility Determination

The Regulatory Flexibility Act of 1980 (RFA) was enacted by Congress to ensure that small entities are not unnecessarily or disproportionately burdened by Government regulations. The RFA requires a Regulatory Flexibility Analysis if a rule would have

a significant economic impact, either detrimental or beneficial, on a substantial number of small entities. FAA Order 2100.14A, Regulatory Flexibility Criteria and Guidance, establishes threshold cost values and small entity size standards for complying with RFA review requirements in FAA rulemaking actions. The size threshold for operators of aircraft for hire is ownership of nine or fewer airplanes. The lowest cost threshold for operators affected by this rule is the \$3,300 annual limit for unscheduled operators. At an estimated \$21 per year per aging airplane, the largest potential impact of this rule on a small entity would equal \$189 (9 × \$21). Accordingly, the FAA has determined that this proposed rule would not have a significant economic impact on a substantial number of small entities.

International Trade Impact Analysis

This proposed rule would not significantly influence or affect the sale of foreign products or services domestically, or the sale of U.S. products or services in foreign countries. The proposed rule would apply equally to U.S. operators and to foreign operators of U.S.-registered airplanes.

Federalism Implications

The regulation 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.

Conclusion

For the reasons discussed in the preamble, and based on the findings in the Regulatory Flexibility Determination and the International Trade Impact Analysis, the FAA has determined that this proposed regulation is not major under Executive Order 12291. In addition, the FAA certifies that this proposal, if adopted, 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. This proposal is considered significant under Department of Transportation (DOT) Order 2100.5, Policies and Procedures for Simplification, Analysis, and Review of Regulations. A draft regulatory evaluation of the proposal, including a

Regulatory Flexibility Determination and International Trade Impact Analysis, has been placed in the docket. A copy may be obtained by contacting the person identified under **FOR FURTHER INFORMATION CONTACT**.

List of Subjects

14 CFR Part 121

Air carriers, Aircraft, Airmen, Aviation safety, Charter flights, Drug testing, Reporting and recordkeeping requirements, Safety, Transportation.

14 CFR Part 129

Air carriers, Aircraft, Aviation safety, Reporting and recordkeeping requirements.

14 CFR Part 135

Air taxis, Aircraft, Airmen, Aviation safety, Reporting and recordkeeping requirements.

The Proposed Amendment

In consideration of the foregoing, the Federal Aviation Administration proposes to amend 14 CFR parts 121, 129, and 135 of the Federal Aviation Regulations as follows:

PART 121—CERTIFICATION AND OPERATIONS: DOMESTIC, FLAG, AND SUPPLEMENTAL AIR CARRIERS AND COMMERCIAL OPERATORS OF LARGE AIRCRAFT

1. The authority citation of part 121 is revised to read as follows:

Authority: 49 U.S.C. app. 1354(a), 1355, 1356, 1357, 1401, 1421–1430, 1472, 1485, and 1502, 49 U.S.C. 106(g) and Pub. L. 102–143 (October 28, 1991), 105 Stat. 951.

2. Section 121.212 is added to read as follows:

§ 121.212 Aging airplane limitation.

No certificate holder may operate an airplane beyond an operational limit established in this part unless the airplane has met any additional prescribed maintenance requirements for extending the operational limit.

3. Section 121.368 is added to read as follows:

§ 121.368 Maintenance certification for aging airplanes.

(a) *Heavy maintenance check* means an airplane's maintenance visit during which airframe structural inspections, airframe modifications, exterior painting, and overhaul of major systems and components are accomplished.

(b) Each certificate holder shall establish, as part of its FAA-approved maintenance program, a heavy maintenance check interval for each airplane it operates.

(c) At each heavy maintenance check after the start of an airplane's fifteenth year in service and thereafter as part of each subsequent heavy maintenance check, the certificate holder shall make a maintenance record certifying that the airplane meets all maintenance program requirements.

(d) *Years in service* means the calendar time accrued since the airplane was issued its first United States or first foreign airworthiness certificate.

(e) Each certificate holder operating an airplane subject to the requirement of paragraph (c) of this section shall notify the Administrator at least 30 days prior to the start of an airplane's heavy maintenance check.

PART 129—OPERATIONS: FOREIGN AIR CARRIERS AND FOREIGN OPERATORS OF U.S.-REGISTERED AIRCRAFT ENGAGED IN COMMON CARRIAGE

4. The authority citation of part 129 is revised to read as follows:

Authority: 49 U.S.C. app. 1346, 1354(a), 1356, 1357, 1421, 1502, 1511, and 1522, 49 U.S.C. 106(g) and Pub. L. 102-143 (October 28, 1991), 105 Stat. 951.

5. Section 129.1(b) is revised to read as follows:

§ 129.1 Applicability.

* * * * *

(b) Sections 129.14, 129.16, and 129.20 also apply to U.S.-registered aircraft operated in common carriage by a foreign person or foreign air carrier solely outside the United States. For the purpose of this part, a foreign person is any person, not a citizen of the United States, who operates a U.S.-registered aircraft in common carriage solely outside the United States.

6. Section 129.16 is added to read as follows:

§ 129.16 Maintenance certification for U.S.-registered aging airplanes.

(a) *Heavy maintenance check* means an airplane's maintenance visit during which airframe structural inspections, airframe modifications, exterior painting, and overhaul of major systems and components are accomplished.

(b) Each foreign air carrier and each foreign person operating a U.S.-registered aircraft within or outside the United States in common carriage shall establish, as part of its FAA-approved maintenance program, a heavy maintenance check interval for each U.S.-registered airplane it operates.

(c) At each heavy maintenance check after the start of an airplane's fifteenth year in service and thereafter as part of each subsequent heavy maintenance check, the foreign air carrier and each foreign person operating a U.S.-registered aircraft within or outside the United States in common carriage shall make a maintenance record certifying that the airplane meets all maintenance program requirements.

(d) *Years in service* means the calendar time accrued since the airplane was issued its first United States or first foreign airworthiness certificate.

(e) Each foreign air carrier and each foreign person operating a U.S.-registered aircraft within or outside the United States in common carriage, subject to the requirement of paragraph (c) of this section, shall notify the Administrator at least 30 days prior to the start of an airplane's heavy maintenance check.

7. Section 129.20 is added to read as follows:

§ 129.20 Aging airplane limitation.

Each foreign air carrier and each foreign person operating a U.S.-registered aircraft within or outside the United States in common carriage may not operate a U.S.-registered airplane beyond an operational limit established in this part unless the airplane has met any additional prescribed maintenance requirements for extending the operational limit.

PART 135—AIR TAXI OPERATORS AND COMMERCIAL OPERATORS

8. The authority citation for part 135 is revised to read as follows:

Authority: 49 U.S.C. app. 1354(a), 1355(a), 1421 through 1431, and 1502; 49 U.S.C. 106(g) and Pub. L. 102-143 (October 28, 1991), 105 Stat. 951.

9. Section 135.168 is added to read as follows:

§ 135.168 Aging airplane limitation.

No certificate holder may operate an airplane beyond an operational limit established in this part unless the airplane has met any additional prescribed maintenance requirements for extending the operational limit.

10. Section 135.422 is added to read as follows:

§ 135.422 Maintenance certification for aging airplanes.

(a) *Heavy maintenance check* means an airplane's maintenance visit during which airframe structural inspections, airframe modifications, exterior painting, and overhaul of major systems and components are accomplished.

(b) Each certificate holder subject to § 135.411(a)(1) shall establish a heavy maintenance check interval as part of its inspection program under § 91.409(b) or (d) of this chapter.

(c) Each certificate holder subject to § 135.411(a)(2) shall establish a heavy maintenance check interval as part of its maintenance program.

(d) At each heavy maintenance check after the start of an airplane's fifteenth year in service and thereafter as part of each subsequent heavy maintenance check, the certificate holder shall make a maintenance record certifying that the airplane meets all maintenance and inspection program requirements.

(e) *Years in service* means calendar time accrued since the airplane was issued its first United States or first foreign airworthiness certificate.

(f) Each certificate holder operating an airplane subject to the requirement of paragraph (d) shall notify the Administrator at least 30 days prior to the start of an airplane's heavy maintenance check.

Issued in Washington, DC on September 24, 1993.

William J. White,

Acting Director, Flight Standards Service.

[FR Doc. 93-24278 Filed 10-4-93; 8:45 am]

BILLING CODE 4910-13-M

DEPARTMENT OF TRANSPORTATION**Federal Aviation Administration****14 CFR Part 91**

[Docket No. 27318; Amendment No. 91-234]

RIN 2120-AE85

Special Visual Flight Rules (SVFR) Operations

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: This action amends certain regulations governing special visual flight rules (SVFR) operations. By omission of certain words and phrases, the Airspace Reclassification Final Rule inadvertently altered the applicability and scope of the part 91 SVFR provisions. Further, some airspace revisions in the Terminal Airspace Reconfiguration final rule resulted in an unintentional reduction of the amount of airspace within which SVFR operations could be conducted at some airports. This action restores the applicability and scope of the SVFR provisions and reestablishes the amount of airspace for SVFR operations that is essentially equivalent to that which existed prior to those amendments.

EFFECTIVE DATE: Upon publication.

FOR FURTHER INFORMATION CONTACT: Melodie M. DeMarr, Air Traffic Rules Branch, ATP-230, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, DC 20591, telephone (202) 267-8783.

SUPPLEMENTARY INFORMATION:**Background**

When the Airspace Reclassification Final Rule became effective on September 16, 1993, control zones ceased to exist as a type of airspace. They were replaced by Class B, Class C, Class D, and Class E surface areas, as appropriate. However, that final rule inadvertently amended § 91.157 and removed the provision whereby a pilot could request and receive an air traffic control (ATC) clearance to conduct SVFR flight through such an airspace segment. That was not the intent of the FAA. On the contrary, in response to comments to the proposal that preceded that final rule (56 FR 65648), the FAA included in the preamble a discussion of its intent to continue to permit SVFR operations for through flights as well as flights for arrival or departure at airports within Class B, C, D, or E surface areas.

Additionally, the December 17, 1991, final rule replaced, effective September 16, 1993, the SVFR prohibition

provisions formerly contained in § 93.113 with the provisions in Section 3 of Appendix D to part 91. However, in establishing Section 3 of Appendix D as the replacement for § 93.113, the FAA inadvertently omitted the word "fixed-wing." That omission, in effect, results in the prohibition of SVFR operations by helicopters. This action restores the applicability of Section 3 of Appendix D to part 91 to only fixed-wing aircraft.

Further in the December 17, 1991, final rule, the FAA adopted a new § 91.155 that replaced the existing § 91.155 effective September 16, 1993. That action was intended merely to facilitate the reclassification of control zones to Class B, C, D, or E controlled airspace extending upward from the surface. However, the phrase "beneath the ceiling" in paragraph (c) of that section was unintentionally omitted. In effect, the omission prohibits operations conducted under visual flight rules (VFR) anywhere in such airspace, above as well as below a cloud ceiling, regardless of the meteorological conditions above the cloud layer, when the reported ceiling is less than 1,000 feet. It was the FAA's intent to prohibit VFR flight only beneath the ceiling when such ceiling is reported as less than 1,000 feet. This action will continue the VFR flight prohibition that existed until September 16, 1993.

Transition to the new airspace classifications began on October 15, 1992, when portions of the Terminal Airspace Reconfiguration Final Rule (57 FR 38962; August 27, 1992) became effective. That final rule, in pertinent part, revised the vertical limits of control zones at airports with an operating control tower. However, only the lateral limits were changed for control zones without an operating control tower.

The vertical limits of control zones for airports for which an airport radar service area (ARSA) or terminal control (TCA) was designated were reduced to the specified vertical limits of the ARSA or TCA. In all cases, the revised vertical limits are lower than they were prior to October 15, 1992. At other airports in control zones with an operating control tower, however, the control zone vertical limits were generally reduced to 2,500 feet above ground level (AGL). On September 16, 1993, those revised vertical limits represent the altitudes below which two-way radio communications between ATC and aircraft operating within the specific airspace segment will be required. However, that action had the unforeseen effect of reducing the amount of airspace available for SVFR operations. Such impact was not the intent of the

FAA since, prior to October 15, 1992, SVFR operations could be authorized within a control zone between the surface and 14,500 feet mean sea level (MSL).

In most cases, the reduced vertical limits of control zones will only have a minor technical impact; different types of airspace designations will permit different levels of SVFR use. For example, Class B airspace generally has a vertical limit of 8,000 to 12,500 feet MSL while most Class C airspace extends upward to 4,000 feet AGL, and the majority of Class D airspace extends upward from the surface to approximately 2,500 feet AGL. SVFR operations are permitted only to the vertical limit of these differing types of controlled airspace.

At airports without an operating control tower, the Class E airspace extending upward from the surface would technically terminate at the base of the overlying transition area (700 or 1200 feet AGL). Effectively, the airspace within which SVFR operations could be authorized would be significantly reduced, resulting in a severe limitation on SVFR arrival and departure operations at those airports. This was not the intent of the FAA in promulgating the Airspace Reclassification Final Rule. This action reestablishes airspace for SVFR operations essentially equivalent to that which existed prior to the amendment.

The Rule

This rule accomplishes four actions. The rule makes three editorial changes to ensure that the SVFR provisions are continued or established as appropriate for: (1) Prohibiting flight under VFR within Class B, Class C, Class D, and Class E surface areas beneath the ceiling when the ceiling is less than 1,000 feet; (2) prohibiting only fixed-wing SVFR operations at certain specified airports; and (3) allowing SVFR operations through the airspace of Class B, Class C, Class D, and Class E surface areas.

The fourth action amends § 91.157, Special VFR weather minimums, to restore the SVFR provisions virtually to the way they were prior to the Airspace Reclassification and the Terminal Airspace Reconfiguration Final Rules. Specifically, prior to October 15, 1992, most control zones extended from the surface upward to, but not including, 14,500 feet MSL, and SVFR operations could be authorized in all or part of such airspace. To reestablish consistency in the maximum altitudes applicable to SVFR operations regardless of airspace designation, the FAA is establishing 10,000 feet MSL as the altitude below which air traffic

control (ATC) may authorize an SVFR operation in controlled airspace designated to the surface for an airport. That altitude is consistent with the level at which the visibility requirement for daytime flight under VFR increases from 3 miles to 5 miles.

The FAA finds that good cause exists, pursuant to 5 U.S.C. 553(d), for making this amendment effective in less than 30 days after publication in order to promote the safe and efficient handling of SVFR operations.

Procedural Changes

To implement this rule, a number of phraseology and procedural changes are required. Procedural changes are of an editorial nature and occur without impact on aviation users. However, noticeable changes in phraseology will occur. Examples of phraseology for an ATC clearance authorizing a pilot to conduct SVFR operations might be changed in the following ways:

"Cleared to the (name) Airport, Maintain Special V-F-R."

"Cleared to the (name) Airport, Maintain Special V-F-R- at or Below (altitude)."

"Maintain Special V-F-R."

"Maintain Special V-F-R at or Below (altitude)."

The phrase, "while in the control zone," previously used in an SVFR ATC clearance, will be absent from the phraseology. This is intentional since effective September 16, 1993, control zones ceased to exist. Further, to avoid the use of cumbersome phraseology to describe the lateral limits of an SVFR ATC clearance, the FAA expects that pilots will refer to aeronautical charts to determine, as they do today, the airspace boundaries within which SVFR operations may be conducted.

Discussion of Comments

In response to Notice 93-6, the FAA received two comments. One commenter, who identified himself as a Certified Flight Instructor, was generally in support of the proposed rulemaking. He stated that the FAA should implement this amendment on the same date (September 16, 1993) that the Airspace Reclassification Final Rule becomes effective to avoid needless confusion in the general aviation community.

The commenter also cautioned the FAA to remember that, with implementation of the Airspace Reclassification Rule, the vertical limits of the Class D airspace associated with an airport will not always be clearly indicated on sectional aeronautical charts for reference by pilots. The

proposed rule stated that the FAA would expect pilots to refer to aeronautical charts to determine the airspace boundaries within which SVFR operations may be conducted. The example that the commenter gave encompassed Class D airspace underlying adjacent Class B airspace. In cases of overlapping airspace, chart clutter may preclude depicting the upper limits of both classes of airspace. SVFR will be allowed up to 10,000 feet MSL, however, regardless of the ceiling of the controlled airspace designated on the surface. Pilots should refer to the aeronautical charts for the lateral boundaries of the airspace, not the vertical limits.

The commenter also suggested that it may be necessary for all SVFR clearances to contain altitude limits in situations of overlapping classes of airspace. The FAA disagrees because the SVFR vertical limit will be standardized, making inclusion of the maximum permissible altitude unnecessary in an SVFR clearance.

The second commenter, the Air Line Pilots Association, concurred with the proposal.

Regulatory Evaluation

For the reasons set forth above, the FAA has determined that this action is not a "major rule" under Executive Order 12291. The proposed rule was considered "significant" under the Department of Transportation Regulatory Policies and Procedures (44 FR 11034; February 26, 1979) because the FAA focused on the impact of the inadvertent omission of provisions for SVFR operations in the Airspace Reclassification Rule on pilots. However, upon reanalysis, this rule is not significant according to the Department's criteria. A "significant rule" is one that (1) requires a Regulatory Analysis because of its major impact on the economy; (2) concerns a matter of substantial public interest or controversy; (3) has a major impact on another agency; (4) has a substantial effect on state or local governments; (5) has a substantial impact on a major transportation safety problem; (6) initiates a substantial regulatory program or change in policy; (7) differs substantially from international requirements or standards; or (8) involves important Department policy (44 FR 11040). None of these eight factors is implicated by the promulgation of this rule.

In accordance with the Regulatory Flexibility Act of 1980, the FAA has determined that this rule would not have a significant economic impact, positive or negative, on a substantial

number of small entities. This assessment is based on the fact that the rule would not impose any additional cost on aircraft operators.

The principal effect of this rule is to maintain the airspace available for SVFR operations; in the absence of the rule, the Airspace Reclassification Rule reduces the ceiling of the airspace in which an SVFR clearance could be obtained from 14,500 feet to approximately 2,500 feet AGL. The rule thus prevents an impact or operational change rather than creating one. Restoring the airspace for SVFR operations to 10,000 feet instead of 14,500 feet MSL will not impact ATC system users since, as a practical matter, SVFR operations have been rarely requested or authorized above 10,000 feet MSL. For these reasons, operators are not expected to incur any costs from compliance with the rule. Additionally, this rule will remove some of the restrictions put in place October 15, 1992, by allowing more operations in the designated airspace. This rule is considered relieving in nature. Therefore, a regulatory evaluation has not been prepared because the rule is essentially procedural in nature with no costs to aircraft operators.

Federalism Implications

The regulations herein will 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 rule will not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

International Trade Impact Assessment

The rule will not impose any costs on either aircraft operators or aircraft manufacturers (U.S. or foreign) that would result in a competitive disadvantage to either.

Paperwork Reduction Act

This rule contains no information collection requests requiring approval of the Office of Management and Budget pursuant to the Paperwork Reduction Act (44 U.S.C. 3507 et seq.).

List of Subjects in 14 CFR Part 91

Aircraft, Airmen, Aviation safety.

The Amendment

In consideration of the foregoing, the Federal Aviation Administration amends part 91 of the Federal Aviation Regulations (14 CFR part 91) as follows:

PART 91—GENERAL OPERATING AND FLIGHT RULES

1. The authority citation for part 91 continues to read as follows:

Authority: 49 U.S.C. app. 1301(7), 1303, 1344, 1348, 1352 through 1355, 1401, 1421 through 1431, 1471, 1472, 1502, 1510, 1522, and 2121 through 2125; articles 12, 29, 31, and 32(a) of the Convention on International Civil Aviation (61 stat. 1180); 42 U.S.C. 4321 et seq.; E.O. 11514, 35 FR 4247, 3 CFR 1966-1970 Comp., p. 902; 49 U.S.C. 106(g).

2. Section 91.155 is amended by revising paragraph (c) to read as follows:

§ 91.155 Basic VFR weather minimums

* * * * *

(c) Except as provided in § 91.157, no person may operate an aircraft beneath the ceiling under VFR within the lateral boundaries of controlled airspace designated to the surface for an airport when the ceiling is less than 1,000 feet.

* * * * *

3. Section 91.157 is revised to read as follows:

§ 91.157 Special VFR weather minimums.

(a) Except as provided in appendix D, section 3, of this part, special VFR operations may be conducted under the weather minimums and requirements of this section, instead of those contained in § 91.155, below 10,000 feet MSL within the airspace contained by the upward extension of the lateral boundaries of the controlled airspace designated to the surface for an airport.

(b) Special VFR operations may only be conducted—

- (1) With an ATC clearance;
- (2) Clear of clouds;
- (3) Except for helicopters, when flight visibility is at least 1 statute mile; and
- (4) Except for helicopters, between sunrise and sunset (or in Alaska, when the sun is 6° or more above the horizon) unless—
 - (i) The person being granted the ATC clearance meets the applicable requirements for instrument flight under part 61 of this chapter; and
 - (ii) The aircraft is equipped as required in § 91.205(d).

(c) No person may take off or land an aircraft (other than a helicopter) under special VFR—

(1) Unless ground visibility is at least 1 statute mile; or

(2) If ground visibility is not reported, unless flight visibility is at least 1 statute mile.

4. The heading of Section 3 to Appendix D of part 91 is revised to read as follows:

Appendix D to Part 91—Airports Locations: Special Operating Restrictions

* * * * *

Section 3. Locations at which fixed-wing Special VFR operations are prohibited.

* * * * *

Issued in Washington, DC on September 27, 1993.

David R. Hinson,
Administrator.

[FR Doc. 93-24436 Filed 10-4-93; 8:45 am]

BILLING CODE 4910-13-M

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 23

[Docket No. 26269; Amendment No. 23-45]

RIN 2120-AD20

Small Airplane Airworthiness Review Program Amendment No. 4

AGENCY: Federal Aviation Administration (FAA). DOT.

ACTION: Final rule; correction.

SUMMARY: This document contains corrections to the final rule entitled "Small Airplane Airworthiness Review Program Amendment No. 4," which was published on August 6, 1993 (58 FR 42136).

EFFECTIVE DATE: September 7, 1993.

FOR FURTHER INFORMATION CONTACT:

Kenneth W. Payauys, Aerospace Engineer, Standards Office (ACE-110), Small Airplane Directorate, Federal Aviation Administration, 601 East 12th Street, Kansas City, Missouri 64106, telephone (316) 426-5688.

SUPPLEMENTARY INFORMATION:

Background

On August 6, 1993, the FAA published a final rule amending the airframe and flight airworthiness standards for normal, utility, acrobatic, and commuter category airplanes. The document contained some minor errors, none of which the FAA anticipates will have any significant effect on persons affected by the final rule. As published, the final rule contains errors that may cause confusion and are in need of clarification.

The only error requiring explanation is the designation of appendices to part 23. In the NPRM (55 FR 26534, June 28, 1990), the FAA proposed to amend part 23 to include a new appendix H that covers seaplane loads. Subsequently, on April 9, 1993, the FAA published a separate final rule that included an appendix H to part 23 covering an automatic power reserve system. Accordingly, the appendix adopted in the subject final rule should have been adopted as appendix I. Changes in this document covering the designation of this appendix are necessitated by this situation.

Correction of Publication

Accordingly, in Federal Register document number 93-18569, published August 6, 1993 (58 FR 42136), make the following corrections:

1. On page 42137, column 1, in the table following the second paragraph,

add the following entries at the end of the table:

Proposal No.	Amendment No.
Appendix H	Appendix I.

2. In the preamble, change the words "append H to "appendix I" wherever they appear, except where appendix H refers to the proposed rule on page 42153, column 3, line 2 under proposal 83.

3. On page 42148, column 1, proposal 50, line 5, change "\$ 23.613" to "\$ 23.615".

4. On page 42151, column 1, proposal 66, line 8, change "\$ 23.685" to "\$ 23.865".

5. On page 42152, column 1, proposal 78, line 14, change "\$ 23.1523" to "\$ 23.23".

6. On page 42153, column 2, last paragraph under proposal 80, line 1, change "one" to "none".

7. On page 42153, column 3, paragraph 2 under proposal 83, line 3, remove the words "appendix H is adopted as proposed" and insert the words "proposed appendix H is adopted as appendix I."

§ 23.145 [Amended]

8. On page 42157, column 1, § 23.145(b)(1), line 3, change "interim" to "in trim"; and in the same paragraph the last line is changed to read "from 1.4 V_{SI} to 1.4 V_{SO} ."

9. On page 42157, column 2, § 23.145(b)(3), line 4, change " V_{FE} " to " V_{FE} ".

§ 23.149 [Amended]

10. On page 42157, column 3, § 23.149(a), line 9, insert the words "and level" after the word "straight".

§ 23.201 [Amended]

11. On page 42159, column 1, § 23.201(c), the second to last sentence is changed to read as follows: "Normal use of the elevator control for recovery is allowed after the pitching motion has unmistakably developed or after the control has been held against the stop for not less than two seconds."

§ 23.525 [Amended]

12. On page 42161, column 1, § 23.525(b), last line, change § 23.533(b) to § 23.533(c).

§ 23.527 [Amended]

13. On page 42161, column 1, § 23.527(b)(4), line 1, remove the "9"; in the last line of the same paragraph, change "appendix H" to "appendix I".

14. On page 42161, column 2, § 23.527(b)(6), line 2, change

"weighting" to "weighing"; in line 3 of the same paragraph, change "appendix H" to "appendix I".

15. On page 42161, column 2, § 23.527(c), line 6, change "appendix H" to "appendix I".

§ 23.533 [Amended]

16. On page 42161, column 3, § 23.533(b)(1), line 6, change "appendix H" to "appendix I".

17. On page 42162, column 1, § 23.533(b)(1) (continued), lines 6 and 13, change "appendix H" to "appendix I".

18. On page 42162, column 1, § 23.533(b)(2), line 6; change "appendix H" to "appendix I".

19. On page 42162, column 1, § 23.533(b)(2), line 6 after the indented equation, change "appendix H" to "appendix I".

20. On page 42162, column 1, § 23.533(c)(1), line 7 after the indented equation, change "appendix H" to "appendix I".

21. On page 42162, column 2, § 23.533(c)(2), the last line of this paragraph, change "appendix H" to "appendix I".

23.535 [Amended]

22. On page 42162, column 3, § 23.535(d), line 5, change 3.25 to 0.025.

§ 23.573 [Amended]

23. On page 42163, § 23.573(a)(2), column 2, line 2, insert a comma between the words "damage" and "under".

24. On page 42163, column 2, § 23.573(a)(6), lines 4 and 5, replace the parentheses with commas.

23.629 [Amended]

25. On page 42164, column 2, § 23.629(g), line 5, change " $V_D M_D$ " to read " V_D/M_D ".

§ 23.775 [Amended]

26. On page 42165, column 2, § 23.775(f), line 1, change "is" to "in".

§ 23.1522 [Amended]

27. On page 42166, column 1, § 23.1522, change "llimitations" to "limitations" in the section title.

23.1587 [Amended]

28. On page 42167, column 2, § 23.1587(c)(1), line 5, change "23.305" to 23.205".

Appendix H [Amended]

29. On page 42167, column 3, change the reference in amendatory instruction number 82 from "appendix H" to "appendix I".

30. On page 42167, column 3, last paragraph, change the title to read, "Appendix I to Part 23—Seaplane Loads".

31. On page 42168, change the title from "Appendix H" to "Appendix I".

32. On page 42169, line 1, change the title from "Appendix H (continued)" to "Appendix I (continued)".

Issued in Washington, D.C. on September 30, 1993.

Donald P. Byrne,

Assistant Chief Counsel for Regulations.

[FR Doc. 93-24437 Filed 10-4-93; 8:45 am]

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