

DEPARTMENT OF TRANSPORTATION**Federal Aviation Administration****14 CFR Parts 71 and 93**

[Docket No. 26968; Notice No. 92-13]

RIN 2120-AE32

Offshore Airspace Reconfiguration; Additional Control Areas; Continental Control Area; Area Low Routes; Control Areas Associated With Jet Routes Outside the Continental Control Area; Reporting Points; Flushing (New York) Airport Traffic Rule; and Valparaiso, Florida Terminal Area**AGENCY:** Federal Aviation Administration (FAA), DOT.**ACTION:** Notice of proposed rulemaking (NPRM).

SUMMARY: This notice proposes to amend the Federal Aviation Regulations (FAR) by designating additional control areas as offshore airspace areas or en route domestic airspace areas, as appropriate; revising certain additional control areas; adding restricted and prohibited areas in the Continental Control Area; eliminating domestic area low routes; eliminating control areas associated with jet routes outside the Continental Control Area; eliminating domestic high and low altitude reporting points; eliminating the special air traffic rules for Flushing, New York; and replacing the Valparaiso, Florida terminal area and special air traffic rules with the Eglin, Florida Class D airspace area. The proposals in this NPRM respond to recommendations from the National Airspace Review (NAR) and meet a goal of the Airspace Reclassification final rule—to simplify airspace assignment and use.

DATES: Comments must be submitted on or before November 2, 1992.

ADDRESSES: Comments on this NPRM should be mailed, in triplicate, to: Federal Aviation Administration, Office of the Chief Counsel, Attention: Rules Docket (AGC-10), Docket No. 26968, 800 Independence Avenue SW., Washington, DC 20591. Comments delivered must be marked Docket No. 26968. The official docket may be examined in the Office of the Chief Counsel, room 915G, weekdays, except Federal holidays, between 8:30 a.m. and 5 p.m.

FOR FURTHER INFORMATION CONTACT: Mr. William M. Mosley, Air Traffic Rules Branch ATP-230, Federal Aviation Administration, 800 Independence Avenue SW., Washington, DC 20591, telephone (202) 267-9251.

SUPPLEMENTARY INFORMATION:**Comments Invited**

Interested persons are invited to participate in this proposed rulemaking by submitting such written data, views, or arguments as they may desire. Comments that provide the factual basis supporting the views and suggestions presented are particularly helpful in developing reasoned regulatory decisions on the proposal. Comments relating to the overall regulatory, economic, aeronautical, environmental, energy-related, or federalism impacts of the proposals contained in this NPRM are also invited. Substantive comments should be accompanied by actual and anticipated cost impact statements, as appropriate. Comments should identify the regulatory docket number and be submitted in triplicate to the Rules Docket address specified above. Commenters wishing to have the FAA acknowledge receipt of their comments on this NPRM must submit with those comments a self-addressed, stamped postcard with the following statement: "Comments to Docket No. 26968." The postcard will be date stamped and mailed to the commenter. All comments received on or before the closing date for comments will be considered by the Administrator before taking action on the proposed amendments. The proposals contained in this NPRM may be changed in light of comments received. All comments received will be available for examination in the Rules Docket, before and after the closing date for comments. A report summarizing each substantive public contact with FAA personnel regarding this rulemaking will be filed in the docket.

Availability of NPRM's

Any person may obtain a copy of this NPRM by submitting a request to the Federal Aviation Administration, Office of Public Affairs, Attention: Public Inquiry Center, APA-220, 800 Independence Avenue, SW., Washington, DC 20591, or by calling (202) 267-3485. Communications must identify the docket number of this NPRM.

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

Background

On April 22, 1982, the NAR plan was published in the Federal Register (47 FR 17448). The plan reviewed airspace use and the procedural aspects of the air

traffic control system. The main objectives of the NAR were to:

(1) Develop and incorporate a more efficient relationship among traffic flows, airspace allocation, and system capacity in the air traffic control system. This relationship would permit improved air traffic flow management to maximize system capacity and improve airspace management;

(2) Review and eliminate, wherever practicable, governmental restraints on system efficiency, thereby simplifying the air traffic control system; and

(3) Revalidate air traffic control services within the National Airspace System (NAS) in light of state-of-the-art and future technological improvements

On December 17, 1991, the final rule on Airspace Reclassification was published (56 FR 65638). The new airspace classes described in the final rule will be effective on September 16, 1993. That final rule amends FAR part 71 (14 CFR part 71) to reclassify U.S. airspace in accordance with the airspace classes adopted by the International Civil Aviation Organization (ICAO).

Under the Airspace Reclassification final rule, effective September 16, 1993, positive control areas (PCA's), jet routes, and area high routes are classified as Class A airspace areas; terminal control areas (TCA's) are classified as Class B airspace areas; airport radar service areas (ARSA's) are classified as Class C airspace areas; control zones for airports with operating control towers and airport traffic areas that are not associated with the primary airport of a TCA or an ARSA are classified as Class D airspace areas; all other controlled airspace is classified as Class E airspace; and airspace that is not otherwise designated as controlled airspace is classified as Class G airspace.

In addition, the Airspace Reclassification final rule incorporated part 75 into part 71 and established subpart M—Jet Routes and Area High Routes in existing part 71, effective December 17, 1991. This new subpart includes the sections formerly found in part 75, which has been removed and reserved. The Airspace Reclassification final rule also amended parts 1, 45, 61, 65, 91, 93, 101, 103, 105, 121, 127, 135, 137, 139, and 171 and Special Federal Aviation Regulation (SFAR) Nos. 51-1, 60, and 62, effective September 16, 1993, to change the terminology and integrate the adopted airspace classifications into the respective regulations that relate to airspace assignments and operating rules.

Related Agency Actions

The Airspace Reclassification final rule discussed the need to revise, by separate rulemaking actions, certain existing controlled airspace areas to implement the new airspace classification. These actions are addressed in this NPRM and in another rulemaking action. These actions are being issued after the publication of the Airspace Reclassification final rule, but before the reclassification effective date of September 16, 1993. Therefore, the actions proposed in this notice use both existing and future terminology. However, the actual airspace areas are essentially the same, whether the airspace area is entitled, for example, and "additional control area" (existing terminology) or a "Class E airspace area" (future terminology). The actions would not change the basic requirements for operations under visual flight rules (VFR) or instrument flight rules (IFR).

The final rule on the first rulemaking action, "Terminal Airspace Reconfiguration," which addressed control zones, transition areas, and specific TCA's and ARSA's, was published on August 27, 1992 (Docket No. 26852; 57 FR 38962).

This NPRM is the second rulemaking action. It addresses offshore airspace and other areas related to the reclassification of airspace. This proposal, if adopted, would be effective no later than September 16, 1993.

The Proposal

The FAA proposes to revise certain existing airspace areas designated in FAA Order 7400.7, effective November 1, 1991, which is incorporated by reference in 14 CFR 71.1. This NPRM also proposes to revise the corresponding airspace areas and to establish airspace areas in FAA Order 7400.9, effective September 16, 1993, which is also incorporated by reference in 14 CFR 71.1.

The FAA also proposes other revisions in this NPRM, which are in concert with the goal of the Airspace Reclassification final rule—to simplify airspace assignment and use. This NPRM proposes to eliminate the special air traffic rules at Flushing, New York airport and to replace the Valparaiso, Florida terminal area with the Eglin, Florida, Class D airspace area.

Additional Control Areas

As part of the implementation of the Airspace Reclassification final rule, the FAA is proposing to designate additional control areas as either offshore airspace areas or en route

domestic airspace areas, as appropriate. This NPRM is in accordance with Executive Order 10854, which requires the FAA to consult with the Departments of State and Defense before designating international airspace as controlled airspace.

This NPRM also revises controlled airspace in accordance with Presidential Proclamation No. 5928, "Territorial Sea of the United States of America," signed on December 27, 1988, which extended the sovereignty of the U.S. Government for international purposes to 12 nautical miles from the coast of the United States (including its territories) in accordance with international law. On January 4, 1989, the FAA published Amendment Nos. 71-12 and 91-207, "Applicability of Federal Aviation Regulations in the Airspace Overlying the Waters Between 3 and 12 Nautical Miles From the United States Coast" (54 FR 264). These amendments extended controlled airspace and applied certain flight rules to the airspace overlying the waters between 3 and 12 nautical miles from the U.S. coast.

The proposed revisions to additional control areas would: (1) Designate additional control areas as offshore airspace areas or en route domestic airspace areas, as appropriate; (2) implement, to the extent practicable, a uniform base of 5,500 feet MSL for offshore airspace areas; (3) identify offshore airspace areas by name, to the extent possible; (4) classify offshore airspace as Class A or Class E airspace areas, as appropriate; and (5) classify en route domestic airspace areas as Class E airspace areas. These proposals are addressed below under the title "Offshore Airspace Areas" or "En Route Domestic Airspace Areas."

The proposed separation of additional control areas into offshore airspace areas or en route domestic airspace areas would only apply to the airspace areas found in subpart E of FAA Order 7400.9, which is effective September 16, 1993. Specifically, the FAA proposes to revise, effective September 16, 1993, § 71.33 to designate Class A offshore airspace areas, § 71.71(e) to designate Class E en route domestic airspace areas, and to add § 71.71(f) to designate Class E offshore airspace areas.

Offshore Airspace Areas

The FAA proposes to modify the additional control areas in § 71.163 of FAA Order 7400.7 as discussed below. These are airspace areas for which the United States has jurisdiction through an ICAO regional agreement.

As noted above, the FAA has decided to establish a uniform base of 5,500 feet MSL to the extent possible for offshore

airspace areas. This is higher than the NAR recommendation of a uniform base of 1,200 feet above the surface for offshore airspace areas. After reviewing the requirement for air traffic control services over the high seas, the FAA has decided to propose establishing this higher uniform base, except in areas that require air traffic control services below 5,500 feet MSL. This decision is based upon the limited volume of air traffic, and the reduced requirement for air traffic control services over the high seas below 5,500 feet MSL. In most cases, a proposed uniform base of 5,500 feet MSL would raise the floor of existing airspace areas.

In addition to the modifications discussed specifically for each airspace description, all modifications to offshore airspace areas are being proposed to: (1) Replace the existing lateral boundaries designated at 3 nautical miles from the U.S. coast with lateral boundaries designated at 12 nautical miles from the U.S. coast; and (2) replace all references to distances in statute miles to the corresponding nearest equivalent in nautical miles.

The FAA proposes to eliminate the existing control areas entitled Newport, Oregon; San Francisco, California; and Santa Barbara, California, and to establish the Pacific High and Pacific Low offshore airspace areas. The lateral boundaries of the Pacific High and Pacific Low offshore airspace areas would be based upon the existing lateral boundaries of the Newport, Oregon; San Francisco, California; and Santa Barbara, California control areas except that the eastern boundaries would be changed from 3 to 12 nautical miles. The Pacific Low would extend upward from 5,500 feet MSL up to, but not including, 18,000 feet MSL. The overlying Pacific High would have a floor of 18,000 feet MSL and a ceiling of flight level (FL) 600.

The FAA proposes to eliminate the existing control areas entitled Barnegat, New Jersey; Brunswick, Maine; North Atlantic; and South Atlantic; to revise the South Florida control area; and to establish the Atlantic Low and Atlantic High offshore airspace areas.

The FAA proposes to revise the existing South Florida control area by aligning its lateral boundaries with the Miami Oceanic control area (CTA)/flight information region (FIR) lateral boundaries. This revised boundary would include the existing portion of the South Atlantic control area south of latitude 28°00'00" North. Because of the high volume of air traffic and the requirement for air traffic control services below 5,500 feet MSL, the South Florida Low offshore airspace area

would extend upward from 2,700 feet MSL up to, but not including, 18,000 feet MSL. However, the proposed floor of 2,700 feet MSL would be higher than the current floor of 1,200 feet MSL.

The lateral boundaries of the Atlantic Low would be based upon the existing boundaries of the Brunswick, Maine; North Atlantic; and South Atlantic control areas, north of latitude 28°00'00" North except that the western boundaries would be changed from 3 to 12 nautical miles. The Atlantic Low would extend upward from 5,500 feet MSL up to, but not including, 18,000 feet MSL.

The FAA proposes to establish the Atlantic High offshore airspace area, which would have a floor of 18,000 feet MSL and a ceiling of FL 600. The lateral boundaries of the Atlantic High would be based upon the existing boundaries of the following control areas: (1) Brunswick, Maine; (2) North Atlantic; and (3) South Atlantic, north of latitude 28°00'00" North; as well as the proposed boundaries of the South Florida Low offshore airspace area. As with the Atlantic Low, the western boundary would begin at 12 nautical miles from the parallel to the shore.

The FAA proposes to revise the existing Gulf of Mexico control area by dividing it into two airspace areas: The Gulf of Mexico Low and Gulf of Mexico High offshore airspace areas. The lateral boundaries of the proposed areas would be based on the existing lateral boundaries for the Gulf of Mexico control area, except the eastern boundaries of the proposed areas would be aligned with the Houston Oceanic CTA/FIR and the northern boundaries would be changed from 3 to 12 nautical miles. The Gulf of Mexico Low would extend upward from 1,200 feet MSL up to, but not including, 18,000 feet MSL. The floor of the proposed Gulf of Mexico Low would remain at 1,200 feet MSL due to the high volume of air traffic and the requirement for air traffic control services below 5,500 feet MSL. The Gulf of Mexico High would have a floor of 18,000 feet MSL and a ceiling of FL 600.

The FAA proposes to revise the existing control area for San Juan, Puerto Rico, which is currently a portion of the San Juan, Puerto Rico transition area in § 71.181 of FAA Order 7400.7. The floor would be raised from 2,000 feet MSL to 5,500 feet MSL. However, the low altitude, inter-island traffic in the vicinity of Saint-Martin and Anguilla would require a floor of 2,700 feet MSL. The offshore airspace area would be redesignated as the San Juan Low, and listed in § 71.163 of FAA Order 7400.7.

Controls 1141, 1142, 1143, 1144, and 1146 are each proposed to be

redesignated with an "L" suffix to denote a low area. The floors for these offshore airspace areas are proposed to be raised to 5,500 feet MSL and the ceilings would extend up to, but not including, 18,000 feet MSL.

Control 1155, Control 1156, Control 1176, Control 1177, Control 1316, Control 1318, Control 1415, Control 1416, Control 1418, Control 1419, Control 1486, and Control 1487 are each proposed to be divided into two offshore airspace areas. These areas would retain their current lateral boundaries. One offshore airspace area would extend upward from 5,500 feet MSL up to, but not including, 18,000 feet MSL. The other offshore airspace area would have a floor at 18,000 feet MSL and a ceiling at FL 450. To distinguish between the offshore airspace areas with the same identification, the titles of those offshore airspace areas proposed to be below 18,000 feet MSL would have an "L" suffix and the titles of those that are proposed to be above 18,000 feet MSL would have an "H" suffix.

Control 1154 and Control 1173 are proposed to be divided into two offshore airspace areas each. The western boundaries of the areas would be revised to meet the current western boundary of the Oakland Oceanic CTA/FIR. The current areas were established to meet the western boundary of the Oakland Oceanic CTA/FIR that existed at the time. However, they were never revised when the western boundary of the Oakland Oceanic CTA/FIR was moved to its current position. The current southeast boundary of Control 1173 would also be revised to meet Warning Area 283, Warning Area 285A, and Warning Area 285B, which are adjacent controlled airspace areas. Control 1154L and Control 1173L would have floors of 5,500 feet MSL and ceilings of up to, but not including, 18,000 feet MSL. Control 1154H and Control 1173H would have floors at 18,000 feet MSL and ceilings at FL 450.

Control 1234 would also be divided into two offshore airspace areas. Control 1234L would retain the existing floor of Control 1234, which is 2,000 feet above the surface, so that aircraft operating under IFR at low altitudes over the Alaskan Peninsula, the Aleutian Islands, and the surrounding waters would remain within controlled airspace. Control 1234L would extend up to, but not including, 18,000 feet MSL. Control 1234H would have a floor at 18,000 feet MSL and a ceiling at FL 450. Both Control 1234L and Control 1234H would retain the current lateral boundaries of Control 1234.

The Gulf of Alaska control area would be divided into two offshore airspace

areas. Both areas would retain the current lateral boundaries except the northern boundaries would be changed from 3 to 12 nautical miles. The Gulf of Alaska Low would extend upward from 700 feet MSL to, but not including, 18,000 feet MSL. The Gulf of Alaska High would have a floor of 18,000 feet MSL and a ceiling of FL 450.

The control areas for Norton Sound and Woody Island, Alaska, are proposed to be divided into two offshore airspace areas. Both areas would retain their current lateral boundaries except the eastern boundaries for Norton Sound would be changed from 3 to 12 nautical miles. The Norton Sound and Woody Island Low areas would extend upward from 14,500 feet MSL to, but not including, 18,000 feet MSL. The Norton Sound and Woody Island High areas would have floors of 18,000 feet MSL and ceilings of FL 450.

The FAA proposes to designate Control 1485 as Control 1485H. The revised offshore airspace area would retain its existing lateral boundaries, and would have a floor of FL 230, and a ceiling of FL 450.

The FAA proposes to revise subparts A and E of FAA Order 7400.9, effective September 16, 1993, by: (1) Revising, as described above, the areas that correspond to the proposed revisions to the offshore airspace areas in § 71.163 of FAA Order 7400.7; and (2) designating these control areas as Class A or Class E airspace areas as noted below.

The FAA proposes to designate those offshore airspace areas listed below, which would have a floor of 18,000 feet MSL, or higher, as Class A airspace areas. The Airspace Reclassification final rule established 18,000 feet MSL as the floor of Class A airspace areas. These offshore airspace areas meet the criteria of Class A airspace as adopted by ICAO and the United States. For example, pilots who operate in these areas are already required to conduct operations under IFR and the pilots are subject to air traffic control clearances and instructions. By designating these areas as Class A airspace areas, the FAA would simplify airspace by designating airspace with a floor of 18,000 feet MSL, or more, as Class A airspace.

Proposed Offshore Airspace Areas That Would Become Class A Airspace

Atlantic High
Control 1154H
Control 1155H
Control 1156H
Control 1173H
Control 1176H
Control 1177H

Control 1234H
 Control 1316H
 Control 1318H
 Control 1415H
 Control 1416H
 Control 1418H
 Control 1419H
 Control 1485H
 Control 1486H
 Control 1487H
 Gulf of Alaska High, Alaska
 Gulf of Mexico High
 Norton Sound High, Alaska
 Pacific High
 Woody Island High, Alaska

The offshore airspace areas listed below would be designated as Class E airspace. These airspace areas would have a floor set at a specified altitude and extend up to, but not including, 18,000 feet MSL.

Proposed Offshore Airspace Areas That Would Become Class E Airspace

Atlantic Low
 Control 1141L
 Control 1142L
 Control 1143L
 Control 1144L
 Control 1146L
 Control 1154L
 Control 1155L
 Control 1156L
 Control 1173L
 Control 1176L
 Control 1177L
 Control 1234L
 Control 1316L
 Control 1318L
 Control 1415L
 Control 1416L
 Control 1418L
 Control 1419L
 Control 1486L
 Control 1487L
 Gulf of Alaska Low, Alaska
 Gulf of Mexico Low
 Norton Sound Low, Alaska
 Pacific Low
 San Juan Low, Puerto Rico
 South Florida Low
 Woody Island Low, Alaska

En Route Domestic Airspace Areas

The FAA proposes to revise § 71.163 in FAA Order 7400.7. The additional control areas entitled Kirksville, Missouri and Ottumwa, Iowa, would be eliminated. The airspace described for these areas is already encompassed in the statewide transition areas for Iowa and Missouri, which have floors at 1,200 feet above the surface. The additional control area entitled Sault Sainte Marie, Michigan, would be renamed Upper Peninsula, Michigan. This would distinguish the additional control area entitled Sault Sainte Marie, Michigan, from the transition area entitled Sault Sainte Marie, Michigan.

The FAA also proposes to modify subpart E of FAA Order 7400.9, effective September 16, 1993, by eliminating the corresponding airspace designations that are proposed to be eliminated in § 71.163 of FAA Order 7400.7, and by renaming the area entitled Sault Sainte Marie, Michigan, as Upper Peninsula, Michigan. In addition, the FAA proposes to designate the following en route domestic airspace areas as Class E airspace areas.

Proposed En Route Airspace Areas That Would Become Class E Airspace

Badlands, South Dakota
 Boardman, Oregon
 Boise, Idaho
 Bozeman, Montana
 Browerville/Barter Island, Alaska
 Burley, Idaho
 Colville, Washington
 Lakeview, Oregon
 Ogden, Utah
 Olympic Peninsula, Washington
 Omak, Washington
 Rattlesnake, Wyoming
 Reveille, Nevada
 Schloredt, Wyoming
 Sidney, Montana
 Upper Peninsula, Michigan
 Zuni, New Mexico

Continental Control Area

Currently, the Continental Control Area consists of the airspace at and above 14,500 feet MSL overlying the 48 contiguous States including the waters 12 nautical miles from the coast, the District of Columbia, and Alaska including the waters 12 nautical miles from the coast, excluding the Alaska peninsula west of longitude 160°00'00" West. The Continental Control Area does not include: Airspace less than 1,500 feet above the surface; prohibited areas; or restricted areas other than the restricted areas currently listed in part 71, subpart D. Effective September 16, 1993, the Continental Control Area will be designated as Class E airspace extending upward from 14,500 feet MSL to, but not including 18,000 feet MSL.

The FAA proposes that the Continental Control Area include the airspace in any prohibited area and restricted area that extends at or above 14,500 feet MSL. To ensure that the following discussion is clear, it refers to the Continental Control Area (existing terminology); however, the proposal would also include the corresponding Class E airspace area (future terminology).

The proposal to include the airspace in any prohibited and restricted area that extends at or above 14,500 feet MSL in the Continental Control Area would not have an adverse effect on flight

operations. The current practice of automatically excluding prohibited areas or restricted areas other than the restricted areas currently listed in part 71, subpart D from the Continental Control Area does not facilitate the goal of real time joint use of special use airspace. Regardless of whether a restricted area is in the Continental Control Area, a pilot still requires permission from the using or controlling agency before entering the area. Additionally, the inclusion of a restricted area in the Continental Control Area would promote the use of this airspace by pilots who are operating aircraft under IFR when the airspace is released to air traffic control by the using agency.

Because of the proposal to include any prohibited and restricted area that extends above 14,500 feet MSL in the Continental Control Area, the FAA proposes to: (1) Revise existing § 71.9 "Continental control area" by deleting the provision to exclude prohibited and restricted areas; (2) revise § 71.71(a), effective September 16, 1993, by deleting the provision to exclude prohibited and restricted areas; (3) remove and reserve § 71.151 in FAA Order 7400.7, which lists all restricted areas included in the Continental Control Area; and (4) revise subpart E of FAA Order 7400.9, effective September 16, 1993, by eliminating the restricted areas included in the Class E airspace area described in § 71.71(a), effective September 16, 1993.

Area Low Routes

Currently, in the national airspace system, no area low routes exist and the FAA has no plans to create any new area low routes. Therefore, the FAA proposes to remove the provisions for establishing area low routes.

To accomplish this, the FAA proposes to: (1) Remove and reserve existing § 71.6, "Extent of area low routes"; (2) remove and reserve § 71.301 in FAA Order 7400.7 which, if any existed, would list the airspace designations for area low routes; (3) remove and reserve § 71.77, "Extent of area low routes," effective September 16, 1993; (4) revise subpart E of FAA Order 7400.9, effective September 16, 1993, by deleting the provision that would list the airspace designations for area low routes; and (5) revise § 71.71(d), effective September 16, 1993, by eliminating the reference to area low routes.

Control Areas Associated with Jet Routes Outside the Continental Control Area

To provide protection for expanding air carrier activity outside the

Continental Control Area, the FAA designated control areas to be associated with jet route segments outside the Continental Control Area. They have a floor of 18,000 feet MSL and a ceiling at FL 450.

The FAA proposes to revise subpart E of FAA Order 7400.7 which is currently in effect, and subpart A of FAA Order 7400.9, effective September 16, 1993, by eliminating control areas associated with jet routes outside the Continental Control Area. The FAA is of the opinion that these areas are no longer necessary; they were first established in 1964 and have not been revised since 1978. If the proposal to designate airspace areas off the U.S. coast and over Alaska, that extend upward from 18,000 feet MSL to FL 450 is adopted, these areas would encompass the airspace in the control areas associated with jet routes outside of the Continental Control Area. Therefore, retaining these control areas associated with jet routes outside of the Continental Control Area would be unnecessarily duplicative.

Reporting Points

The FAA proposes to eliminate the provisions for designating mandatory reporting points. This action would remove and reserve existing § 71.203, "Domestic Low Altitude Reporting Points," and § 71.207, "Domestic High Altitude Reporting Points," in FAA Order 7400.7. In addition, the FAA proposes to revise subpart H of FAA Order 7400.9, effective September 16, 1993, by deleting domestic low altitude reporting points and domestic high altitude reporting points.

Because of extensive domestic radar coverage, pilots are seldom required to report passing these points. For example, whenever an air traffic controller advises a pilot of "radar contact," the pilot can discontinue reporting over compulsory reporting points. Nevertheless, air traffic controllers would retain the option of requiring pilots to make position reports in instances of radar system limitations or as circumstances warrant.

Flushing (New York) Airport Traffic Rule

The special air traffic rules for Flushing, New York, specified in subpart P of FAR part 93 establish special communications, operations, and equipment requirements for arriving and departing aircraft at Flushing Airport.

The Flushing, New York airport is now closed and no known plans exist to reopen it in the immediate future. Therefore, this NPRM proposes to eliminate the special air traffic rules for the Flushing, New York airport. Under

this proposal, the FAA would remove and reserve subpart P of part 93.

Valparaiso, Florida Terminal Area

The special air traffic rules for Valparaiso, Florida, are specified in subpart F of FAR part 93. The rules require a pilot who desires to enter that area to establish two-way radio communications with air traffic control and to receive an air traffic control advisory on operations being conducted in the vicinity of Eglin Air Force Base. The area is divided into a north-south corridor and an east-west corridor.

The FAA proposes to replace the Valparaiso, Florida Terminal Area, with the Eglin, Florida, Class D airspace areas: one for the north-south corridor and one for the east-west corridor. Under the Airspace Reclassification final rule, a pilot who operates an aircraft in Class D airspace is required to establish two-way radio communications with the air traffic control facility having jurisdiction in that airspace. Therefore, the operating rules for a pilot who operates in the Valparaiso, Florida terminal area would not change if it were replaced with the Eglin, Florida, Class D airspace areas. The FAA believes this proposal contributes to the goal of simplifying airspace by replacing special rules with standard rules.

The FAA proposes to revise the lateral boundary that currently separates the existing north-south and east-west corridors. The separation between the corridors would be moved from north of Eglin Air Force Base to south of Eglin Air Force Base. This revision would ensure restricted access to the north-south corridor during military testing without constraining access to the east-west corridor.

The FAA also proposes to revise the current vertical limits of the area. The existing east-west corridor extends upward from the surface up to, but not including 8,500 feet MSL. The FAA proposes that the corresponding portion of the Eglin, Florida, Class D airspace area also have a ceiling of 8,500 feet MSL, except that the portion of the existing corridor that does not underlie Restricted Areas R-2915C, R-2929B, and R-2914B is proposed to extend upward from the surface to, but not including, 18,000 feet MSL. The existing north-south corridor does not have a specified ceiling; the FAA proposes that the corresponding portion of the Eglin, Florida, Class D airspace area have a vertical limit up to, but not including, 18,000 feet MSL.

Under this proposal, the FAA would remove and reserve subpart F of part 93, "Valparaiso, Florida, Terminal Area"

and would revise subpart D of FAA Order 7400.9, effective September 16, 1993, by establishing the Eglin, Florida, Class D airspace areas. The Eglin Air Force Base and Eglin AF Aux No. 3 Duke Field, Florida, Class D airspace areas would be encompassed by the proposed Eglin, Florida, Class D airspace area. Therefore, the FAA proposes to revise subpart D of FAA Order 7400.9, effective September 16, 1993, by deleting these areas. A portion of the Hurlburt Field, Florida, Class D airspace area and the Crestview, Florida, Class E airspace area would overlap a portion of the proposed Eglin, Florida, Class D airspace area; therefore, the FAA proposes to revise subpart D and subpart E of FAA Order 7400.9 by modifying these areas to exclude that airspace in the proposed Eglin, Florida, Class D airspace area.

Incorporation by Reference

The FAA proposes to amend the airspace descriptions of certain additional control areas and to eliminate domestic low altitude reporting points, domestic high altitude reporting points, restricted areas included in the Continental Control Area, area low routes, and control areas associated with jet routes outside the Continental Control Area. The descriptions of these airspace areas, reporting points, and routes are not listed in the Code of Federal Regulations (CFR) and are not set forth in the full text of this NPRM. The full listing for all additional control areas, domestic low altitude reporting points, domestic high altitude reporting points, restricted areas included in the Continental Control Area, area low routes, and control areas associated with jet routes outside the Continental Control Area are contained in FAA Order 7400.7, Compilation of Regulations, effective November 1, 1991, which is incorporated by reference in 14 CFR 71.1. The airspace descriptions proposed to be amended or created by this notice would be published subsequently in the Handbook.

Under the Airspace Reclassification final rule, descriptions of additional control areas, restricted areas included in the Continental Control Area, area low routes, and control areas associated with jet routes outside the Continental Control Area are set forth as Class E airspace areas in subpart E of FAA Order 7400.9, and descriptions of domestic low altitude reporting points and domestic high altitude reporting points are set forth in subpart H of FAA Order 7400.9. Class D airspace areas are set forth in subpart D of FAA Order 7400.9. FAA Order 7400.9, Airspace

Reclassification, effective September 16, 1993, is also incorporated by reference in 14 CFR 71.1. These descriptions are not listed in the CFR and are not set forth in the full text of this NPRM.

Paperwork Reduction Act

In accordance with the Paperwork Reduction Act of 1980 (Pub. L. 96-511), there are no requirements for information collection associated with this proposed rule.

Regulatory Evaluation Summary

This section summarizes the regulatory evaluation prepared by the FAA. The regulatory evaluation provides more detailed information on estimates of the potential economic consequences of this proposal. This summary and the evaluation quantify, to the extent practicable, estimated costs of the proposal to the private sector, consumers, and Federal, State, and local governments, as well as the 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 executive 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. Executive Order 12291 defines a "major" rule as one that is likely to result in an annual effect on the economy of \$100 million or more, a major increase in costs or prices, or significant adverse effects on competition, employment, productivity, or innovation.

The FAA has determined that this proposal 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 the proposal, has not been prepared. Instead, the agency has prepared a more concise document termed a "regulatory evaluation," which analyzes only this proposed rule without identifying alternatives. In addition to summarizing the regulatory evaluation, this section also contains an initial regulatory flexibility determination required by the 1980 Regulatory Flexibility Act (Pub. L. 96-354) an international trade impact assessment. If the reader desires more detailed economic information than this summary contains, the reader should consult the regulatory evaluation contained in the docket.

Costs

The costs of the offshore airspace proposal are encompassed within the \$1.9 million cost of the Airspace Reclassification final rule, including modification of manuals, charts, and training materials. For a detailed discussion of how these costs were derived, the reader is directed to the regulatory evaluation summary of the Airspace Reclassification final rule (56 FR 65638; December 17, 1991). A brief discussion explaining each of these costs is presented below.

Revisions to Aeronautical Charts

The cost to modify the aeronautical charts to reflect the new offshore airspace areas is part of the total estimated \$1.2 million discounted cost specified in the Airspace Reclassification final rule. This cost estimate was provided by the National Ocean Service, which publishes and distributes aeronautical charts. The estimate represents the cost of changing the airspace dimensions and symbols on the plates from which aeronautical charts are printed.

Revisions of Air Traffic Training Courses

The cost of revising the courses used to instruct air traffic controllers in offshore airspace areas is part of the estimated \$53,000 (discounted) in controller training costs noted in the Airspace Reclassification final rule. This includes developing and conducting a 1-week seminar for FAA student controllers (\$10,000) and revising lesson plans, visual aids, handouts, laboratory exercises, and tests (\$43,000).

Re-education of the Pilot Community

The cost of re-educating the pilot community on the modifications in the offshore airspace proposal is part of the estimated \$625,000 (discounted) specified in the Airspace Reclassification final rule. This includes the publication and mailing of an advisory circular (\$550,000) and the production of a videotape documenting the new airspace classifications (\$75,000).

Conversion of Statute Miles to Nautical Miles

The statute mile designations in FAA Order 7400.7, Compilation of Regulations, and FAA Order 7400.9, Airspace Reclassification, are being converted to nautical miles as part of the Airspace Reclassification final rule. The offshore airspace proposal would share some of the \$1.2 million

(discounted) cost to complete the revision to aeronautical charts.

Revising Offshore Airspace Areas

The current base levels of offshore airspace areas, except those off the coast of Alaska, range from 700 feet MSL to 6,000 feet MSL. Most of the base levels, however, are below 5,500 feet MSL, so the proposal would, in effect, raise them. This would convert controlled airspace into uncontrolled airspace and consequently lower the minimum visibility and cloud clearance requirements. The volume of air traffic offshore and the requirement for air traffic control services are minimal below 5,500 feet MSL. Thus, the FAA contends that raising the base levels would not result in a decrease in safety or impose any costs on the FAA or the flying public.

Deletion of Area Low Routes

Because no area low routes currently exist, and the FAA has no need to create any, no monetary cost or decrease in safety would occur if their reference is removed from the FAR.

Removal of High and Low Altitude Reporting Points

Advances in radar technology have increased domestic radar coverage so extensively that reporting points have become an unnecessary redundancy in the air traffic control system. Therefore, there would be no reduction in safety if domestic high and low altitude reporting points are removed.

Continental Control Area

The proposal to include prohibited and restricted areas above 14,500 feet MSL in the Continental Control Area would not impose costs or decrease safety. This is because restricted or prohibited airspace would be released to air traffic control only with the permission of the using agency; and then IFR aircraft operators would be allowed in only with a clearance from air traffic control.

Benefits

The offshore airspace proposal would enhance aviation safety and operational efficiency, like the Airspace Reclassification final rule. Like the costs, most of the benefits of this proposal have already been attributed to the Airspace Reclassification final rule. However, some additional unique safety and efficiency benefits of this proposal are discussed below.

Offshore Airspace Reconfiguration

The proposal would reclassify certain airspace areas that were not specifically addressed in the Airspace Reclassification final rule. However, these changes would be carried out in conjunction with that rule. The areas that would be reclassified by the offshore proposal are as follows:

- Offshore airspace areas from 18,000 feet MSL to FL 600 would be designated as Class A airspace.
- Offshore airspace areas between 5,500 feet MSL, or other specified altitude, and 18,000 feet MSL, would be designated as Class E airspace.

These new offshore airspace classifications would enhance aviation safety by simplifying the airspace classifications and by reducing airspace complexity. The airspace areas affected by the proposal would be designated on aeronautical charts with fewer airspace names, terms, and symbols. Furthermore, the new airspace classifications would mirror those established by ICAO, making U.S. airspace more standardized and more familiar to foreign pilots. All of these changes would generate easier and more precise navigation and safer operation in offshore airspace areas.

Uniform Base Levels

Establishing a uniform base of 5,500 feet MSL for offshore areas would convert controlled offshore airspace into uncontrolled airspace and lower the minimum visibility and cloud clearance requirements. Pilots would benefit by being able to operate in more uncontrolled offshore airspace with less stringent requirements.

Continental Control Area

By eliminating the automatic exclusion of prohibited and restricted areas from the Continental Control Area, these areas automatically revert to controlled airspace when released to air traffic control by the using agency. This action benefits aircraft operators and air traffic control by allowing air traffic control to route IFR aircraft through the special use airspace.

Simplification of U.S. Airspace

The offshore airspace proposal would generate a simpler and more efficient airspace system. This would be accomplished by deleting several airspace designations that have become obsolete or redundant due to advances in radar technology, expansion of radar and radio coverage, and changes in air traffic control and aircraft operator's airspace requirements.

High and Low Altitude Reporting Points

Advances in radar technology have increased domestic radar coverage so extensively that domestic reporting points have become an unnecessary redundancy in the air traffic control system. Currently, air traffic control is able to determine the location of an aircraft with radar and pilots are not required to report passing such points. Therefore, there would be no reduction in safety if domestic high and low altitude reporting points are removed.

Area Low Routes

Deleting area low routes would not reduce aviation safety because no routes exist.

Conclusion

The cost of the offshore proposal is part of the estimated \$1.9 million cost (discounted, 1990 dollars) previously accounted for in the Airspace Reclassification final rule. The benefits of the proposal would be a simpler, more efficient, and more uniform airspace system. This would ultimately result in increased safety to the aviation community. Thus, the FAA contends that the proposal is cost beneficial.

International Trade Impact Analysis

Because the proposed rule would only affect U.S. airspace and airspace over which the United States has jurisdiction, it would not impose any adverse operating requirements on foreign aircraft operators. By September 16, 1993, virtually all foreign aircraft operators will be operating under requirements similar to those proposed in this NPRM and the Airspace Reclassification final rule. These requirements are based on those established by ICAO's airspace reclassification. Thus, this proposal would have no effect on the sale of foreign aviation products or services in the United States, nor would it affect the sale of U.S. products or services in foreign countries.

Initial Regulatory Flexibility Determination

The Regulatory Flexibility Act of 1980 (RFA) was enacted by Congress to ensure that small entities are not unnecessarily and disproportionately burdened by government regulations. The RFA requires agencies to review rules that may have "a significant cost impact on a substantial number of small entities." The small entities that the proposed rule could potentially affect are pilot training schools.

Training materials used in the courses offered by the pilot training schools would have to be modified to reflect the

changes of the airspace reclassification. However, pilot training schools would not incur any cost impact because the documents they use must be regularly updated as a normal cost of doing business. Thus, the proposal would not have a significant cost impact on pilot schools classified as small entities. Therefore, this proposal would not have a significant cost impact on a substantial number of small entities.

Federalism Implications

The amendments 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, the FAA has determined that this proposed rule 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 Initial 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 not considered significant under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979). An initial regulatory evaluation of the proposal, including an initial Regulatory Flexibility Determination and 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 71

Airspace, Airways, Incorporation by reference.

14 CFR Part 93

Special air traffic rules.

The Proposed Amendment

In consideration of the foregoing, the Federal Aviation Administration proposes to amend parts 71 and 93 of the Federal Aviation Regulations (14 CFR parts 71 and 93) as follows:

The following proposed amendments are to part 71 currently in effect:

PART 71—DESIGNATION OF FEDERAL AIRWAYS, AREA LOW ROUTES, CONTROLLED AIRSPACE, AND REPORTING POINTS, JET ROUTES, AND AREA HIGH ROUTES

1. The authority citation for part 71 continues to read as follows:

Authority: 49 U.S.C. app. 1348(a), 1354(a), 1510; Executive Order 10854, 24 FR 9565, 3 CFR, 1959–1963 Comp., p. 389; 49 U.S.C. 106(g); 14 CFR 11.69.

2. Section 71.1 is revised to read as follows:

§ 71.1 Applicability.

The complete listing for all jet routes, area high routes, Federal airways, control zones, transition areas, terminal control areas, airport radar service areas, positive control areas, reporting points, and other controlled airspace can be found in FAA Order 7400.7, *Compilation of Regulations*, which was last published April 30, 1991, and effective November 1, 1991. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. The approval to incorporate by reference FAA Order 7400.7 is effective as of December 17, 1991 through September 15, 1993. During the incorporation by reference period, proposed changes to the listings of jet routes, area high routes, Federal airways, control zones, transition areas, terminal control areas, airport radar service areas, positive control areas, reporting points, and other controlled airspace will be published in full text as proposed rule documents in the *Federal Register*. Amendments to the listings of jet routes, area high routes, Federal airways, control zones, transition areas, terminal control areas, airport radar service areas, positive control areas, reporting points, and other controlled airspace will be published in full text as final rules in the *Federal Register*. Periodically, the final rule amendments will be integrated into a revised edition of the compilation and submitted to the Director of the Federal Register for approval for incorporation by reference in this section. Copies of this order may be obtained from the Document Inspection Facility, APA-220, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, DC 20591, (202) 267-3484. Copies may be inspected in Docket Number 26968 at the Federal Aviation Administration, Office of the Chief Counsel, AGC-10, room 915G, 800

Independence Avenue, SW., Washington, DC 20591 weekdays between 8:30 a.m. and 5 p.m., or at the *Federal Register*, 800 North Capitol Street, NW., suite 700, Washington, DC. This section is effective as of December 17, 1991, through September 15, 1993.

§ 71.6 [Removed]

3. Section 71.6 is removed and reserved.

4. Section 71.9 is revised to read as follows:

§ 71.9 Continental control area.

The Continental Control Area consists of the airspace at and above 14,500 feet MSL overlying the 48 contiguous States, including the waters within 12 nautical miles from the coast of the 48 contiguous States; the District of Columbia; Alaska, including the waters within 12 nautical miles from the coast of Alaska; excluding the Alaska peninsula west of longitude 16°00'00"W.; but does not include the airspace less than 1,500 feet above the surface of the earth.

The following proposed amendments are to part 71 in effect as of September 16, 1993:

PART 71—DESIGNATION OF CLASS A, CLASS B, CLASS C, CLASS D, AND CLASS E AIRSPACE AREAS; AIRWAYS; ROUTES; AND REPORTING POINTS

1. The authority citation for part 71 continues to read as follows:

Authority: 49 U.S.C. app. 1348(a), 1354(a), 1510; Executive Order 10854, 24 FR 9565, 3 CFR, 1959–1963 Comp., p. 389; 49 U.S.C. 106(g); 14 CFR 11.69.

2. Section 71.33 is amended by adding paragraph (c) to read as follows:

§ 71.33 Class A airspace areas.

(c) The airspace areas listed as offshore airspace areas in subpart A of FAA Order 7400.9 (incorporated by reference, see § 71.1) that are designated in international airspace within areas of domestic radio navigational signal or ATC radar coverage, and within which domestic ATC procedures are applied.

3. Section 71.71 is amended by revising paragraphs (a), (d), and (e), and by adding paragraph (f) to read as follows:

§ 71.71 Class E airspace.

(a) The airspace of the United States, including that airspace overlying the waters within 12 nautical miles of the

coast of the 48 contiguous states and Alaska, extending upward from 14,500 feet MSL to, but not including, 18,000 feet MSL, and excluding—

- (1) The Alaska peninsula west of longitude 16°00'00" W.; and
- (2) The airspace below 1,500 feet above the surface of the earth.

(d) The Federal airways described in subpart E of FAA Order 7400.9 (incorporated by reference, see § 71.1).

(e) The airspace areas listed as en route domestic airspace areas in subpart E of FAA Order 7400.9 (incorporated by reference, see § 71.1). Unless otherwise specified, each airspace area has a lateral extent identical to that of a Federal airway and extends upward from 1,200 feet above the surface of the earth to the overlying or adjacent controlled airspace.

(f) The airspace areas listed as offshore airspace areas in subpart E of FAA Order 7400.9 (incorporated by reference, see § 71.1) that are designated in international airspace within areas of domestic radio navigational signal or ATC radar coverage, and within which domestic ATC procedures are applied. Unless otherwise specified, each airspace area extends upward from a specified altitude up to, but not including, 18,000 feet MSL.

§ 71.77 [Removed]

4. Section 71.77 is removed and reserved.

PART 93—SPECIAL AIR TRAFFIC RULES AND AIRPORT TRAFFIC PATTERNS

5. The authority citation for part 93 continues to read as follows:

Authority: 49 U.S.C. app. 1302, 1303, 1348, 1354(a), 1421(a), 1424, 2451 *et seq.* 49 U.S.C. 106(g).

Subpart F—[Removed]

6. Part 93 is amended by removing and reserving subpart F (§§ 93.81 and 93.83).

Subpart P—[Removed]

7. Part 93 is amended by removing and reserving subpart P. (§§ 93.181, 93.183, 93.185, 93.187, 93.189, and 93.191).

Issued in Washington, DC on September 3, 1992.

Harold W. Becker,

Manager, Airspace-Rules and Aeronautical Information Division.

[FR Doc. 92-21969 Filed 9-15-92; 8:45 am]

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Parts 21 and 36

[Docket No. 26910; Amendment Nos. 21-71, and 36-20]

RIN: 2120-AE50

Alternative Noise Certification Procedure for Primary, Normal, Transport, and Restricted Category of Helicopters not Exceeding 6,000 Pounds Maximum Takeoff Weight

AGENCY: Federal Aviation Administration (DOT).

ACTION: Final rule; Request for comments.

SUMMARY: This final rule adds a new appendix to the noise standards regulations. The new appendix provides for an alternative noise certification procedure for primary, normal, transport, and restricted category helicopters not exceeding 6,000 pounds maximum takeoff weight. The new appendix is an optional alternative to existing helicopter noise requirements and is not an additional regulatory requirement. Applicants for certification may demonstrate compliance with the noise standards of either Appendix H or the less costly but more stringent new Appendix J. The new certification procedure is intended to provide regulatory relief to manufacturers of light helicopters by substantially reducing the costs of demonstrating compliance with the noise regulations.

DATES: Effective September 11, 1992.

The incorporation by reference of certain publications listed in the rule is approved by the Director of the Federal Register as of September 16, 1992.

Comments must be submitted on this final rule on or before January 15, 1993.

ADDRESSES: Send comments on this final rule in triplicate to: Federal Aviation Administration, Office of the Chief Counsel, Attn: Rules Docket (AGC-10), Docket No. 26910, 800 Independence Avenue SW., Washington, DC 20591, or deliver comments in triplicate to: FAA Rules Docket, room 915G, 800 Independence Avenue SW., Washington, DC. Comments may be inspected in room 915G between 8:30 a.m. and 5 p.m., weekdays, except Federal holidays.

FOR FURTHER INFORMATION CONTACT: Mr. Kenneth E. Jones, Research and Engineering Branch (AEE-110), Technology Division, Office of Environment and Energy, FAA, 800 Independence Avenue, SW.,

Washington, DC 20591; telephone (202) 267-3554, facsimile (202) 267-5594.

SUPPLEMENTARY INFORMATION: The purpose of this rulemaking is to add an alternative noise certification procedure to the existing requirements prescribed in the Federal Aviation Regulations (14 CFR part 36). This amendment is based on Notice No. 92-7 (57 FR 28142, June 24, 1992; Docket No. 26910) in which comments were invited. All comments received were fully considered in the issuance of this Final Rule.

Additional Comments Invited

Interested persons are invited to participate in this rulemaking by submitting written data, views, or arguments and by commenting on the overall regulatory, environmental, energy, or economic aspects that might suggest a need to modify the rule. The additional comment period, subsequent to this publication of the final rule, is being initiated to accommodate requests for extension of the comment period for the Notice of Proposed Rulemaking (NPRM). Comments should identify the regulatory docket number (26910) and be submitted in triplicate to the address above. All comments received, as well as summaries of substantive public contact with Federal Aviation Administration (FAA) personnel on this rule will be filed in the docket, and will be considered by the Administrator. The docket is available for public inspection both before and after the closing date for comments. The FAA will acknowledge the receipt of a comment if the commenter includes a self-addressed, stamped postcard on which the following statement is made: "Comments to Docket No. 26910." When the comment is received by the FAA, the postcard will be dated, time stamped, and returned to the commenter.

Background

Helicopter Noise Standards Development: FAA

On July 9, 1978, the FAA first addressed helicopter noise certification requirements by publishing an NPRM, Notice No. 79-13 (44 FR 42410). After consideration of the economic impact of the proposed rule, the NPRM was withdrawn (46 FR 61486, December 17, 1981). Because of advances in helicopter noise abatement technology, the FAA again initiated rulemaking and issued NPRM No. 86-3 (51 FR 7878, March 6, 1986), which resulted in the present helicopter noise certification standards, part 36, appendix H (53 FR 3534, February 5, 1988). Appendix H was effective upon publication.

Data submitted recently to the ICAO by various helicopter manufacturers indicates that the cost of an appendix H noise test for a light helicopter can range from \$121,000 to \$239,000. These figures do not include the substantial non-recurring costs for equipment and training. In addition, because the current rule requires that an applicant for a supplemental type certificate (STC) either demonstrate that the modified helicopter is no noisier than the original helicopter or perform a noise test, the costs associated with helicopter STC's have had an adverse effect on the development of helicopter modifications.

In the 1980's, the United States (in appendix H) adopted a complex and comprehensive helicopter noise test procedure that was developed with the support of ICAO. During the development of the ICAO-recommended procedure for the original helicopter noise certification requirements, the relative cost and complexity of the proposed testing procedures were debated as a potential problem for manufacturers of small, low-cost helicopters. Because the majority of civil helicopters produced in the United States are exported, the unilateral adoption by the United States of an additional simplified noise certification procedure for light helicopters would have little practical benefits for the U.S. manufacturers without the adoption of a similar procedure by foreign countries that would make U.S.-manufactured helicopters acceptable to importing nations. Therefore, the United States and other members of ICAO addressed this issue by participating in the research and development of a simplified noise certification procedure with the support of ICAO. The final rule adopts a similar procedure to provide immediate regulatory relief to U.S. light helicopter manufacturers and modifiers in anticipation of the formal adoption of the standards proposed by ICAO.

Helicopter Standards Development: ICAO

The current ICAO helicopter noise standards (Chapter 8, Annex 16) parallel those of appendix H. When ICAO adopted its helicopter noise standards in 1985, it recognized that a simpler flight test procedure was needed for lighter helicopters. Accordingly, the ICAO committee responsible for formulating noise certification standards, the Committee on Aviation Environmental Protection (CAEP), formed a working group and charged it with the development of a new standard applicable to light helicopters. The

product of the working group's efforts an alternative noise certification procedure for piston-powered helicopters, was amended at the request of the United States during the most recent CAEP meeting (December 1991) to include turbine-powered helicopters and to establish the maximum weight at 6,000 pounds. Compared to the current ICAO standard (Chapter 8), the new ICAO Chapter 11 standard will: (1) Change the noise metric from Effective Perceived Noise Level (EPNL) to Sound Exposure Level (SEL); (2) reduce the required microphone locations from three to one; (3) require only a level flyover test instead of level flyover, approach, and takeoff tests; and (4) reduce the complexity of the data corrections procedures. However, these changes make it impossible to set a limit that is equally stringent for all helicopters. For this reason, it was undesirable to attempt to develop a replacement standard for the existing ICAO Chapter 8 standard. Thus, the CAEP decided to develop an alternative standard (ICAO Chapter 11) that is simpler to perform, but that has an SEL limit that is more stringent (by two decibels) than the current ICAO Chapter 8 EPNL limit. After an extensive analysis of existing data, the CAEP set the Chapter 11 SEL limit such that it is unlikely that an applicant would pass the newly recommended ICAO Chapter 11 standard and yet fail a full ICAO Chapter 8 test if the Chapter 8 test were also performed.

The new ICAO Chapter 11 standard was approved by the CAEP during its December 1991 meeting in Montreal, Canada. The CAEP approval was the major hurdle facing the new ICAO standard. Before formal adoption, the CAEP recommendations must be submitted to the ICAO Council, which in turn will send them to ICAO member States for comment. If member States unanimously concur, the Council will issue the recommended standard. If member States do not concur, the Council will refer the issue to the ICAO Air Navigation Commission (ANC) along with member States' comments. The ANC will review the CAEP recommendations and member States' comments, and make recommendations to the Council, which in turn will send the revisions back to the member States for approval. The ICAO staff estimates that the new ICAO Chapter 11 will be formally adopted in November 1993.

Synopsis of the Rule

Part 36 of the Federal Aviation Regulations (14 CFR) contains noise standards for aircraft type and airworthiness certification. Subpart H

and the related appendix H prescribe noise levels and test procedures for civil helicopters certificated in the primary, normal, transport, or restricted category, including the rules governing the issuance of original, amended, or supplemental type certificates for helicopters for which application is made on or after March 6, 1986.

This final rule adds and reserves a new appendix I, and adds a new appendix J to part 36. It also amends subpart H of part 36 to incorporate the requirements of the new appendix J. The amendments to subpart H and the new requirements of appendix J do not represent additional regulatory requirements, but rather provide an alternative helicopter noise certification procedure for light helicopters that complements the existing helicopter noise test requirements of appendix H. The term "light helicopters" as used in this preamble refers to helicopters in the primary, normal, transport, or restricted category not exceeding 6,000 pounds maximum certificated takeoff weight. Compared to the existing appendix H requirements, the test procedures of appendix J are simpler and less costly, but more stringent relative to the existing noise limits under appendix H. An applicant has the option of certificating a light helicopter under appendix H or the new, less costly but more stringent appendix J. The noise limits prescribed under appendix J are, on the average, two decibels more stringent than the noise limits prescribed under appendix H. If an applicant fails the more stringent limits prescribed under appendix J, the applicant would be able to apply for certification under the existing requirements prescribed under appendix H. The need for this optional certification standard is based on the unanticipated and disproportionate costs to small helicopter manufacturers that are associated with the testing requirements of appendix H.

The following is a section-by-section discussion of the final rule.

Section 21.115 Applicable Requirements

This section sets forth the airworthiness, noise, and fuel venting and exhaust emissions requirements that must be met by each applicant for a supplemental type certificate. Section 21.115(a) is amended to reinstate a reference to the noise requirements of 14 CFR Part 36. This reference was inadvertently removed in recent rulemaking.

Appendix J to Part 36

Part 36 is amended by adding a new appendix J. Appendix J provides an alternative noise certification procedure for certain civil helicopters certificated in the primary, normal, transport, or restricted category.

Appendix J follows the general outline and all applicable definitions, technical specifications, reference conditions, reference flight procedures, and the specific language of the existing appendix H on a section-by-section basis. Appendix J provides a high degree of commonality between U.S. standards and those expected to be adopted by ICAO and other ICAO member countries. However, subsequent to development of the specifications for the ICAO Chapter 11 standard, three technical issues of significance were identified by the FAA, that have led to differences between appendix J and the ICAO Chapter 11 test standards that are presently proposed. After review of these issues, the FAA found the potential errors associated with them to be excessive and contrary to the agency's expectations regarding the accuracy and integrity of the aircraft noise certification process. The three issues are discussed below.

As proposed, chapter 11 does not provide for a correction of off-reference conditions (in particular, ambient temperature) regarding the mechanical generation of noise at its source during the flyover test procedure. Noise levels generated by a typical helicopter vary as a function of rotor tip speed and the speed of sound. Since the speed of sound varies as a function of ambient temperature, helicopter noise levels will also vary as a function of ambient temperature. Appendix J and chapter 11 require the measurement of noise levels at, or corrected to, the reference ambient temperature of 77 degrees Fahrenheit. At temperatures above the reference, the helicopter noise generated at the source is less than the noise generated at the reference temperature. At temperatures less than the reference, the noise generated is correspondingly greater than at reference conditions. The FAA's solution to the off-reference generation of noise caused by off-reference temperature is to require an adjustment to the reference airspeed so the helicopter is flown at the reference advancing blade tip Mach number. Such a calculated adjustment to the reference airspeed will be made just prior to the actual flight test, and will account for the ambient temperature at the time of the test. This is the procedure proposed by the International Coordinating

Council of the Aerospace Industries Association in their working paper WP/48 presented at the recent CAEP meeting in Montreal (December 1991). A copy of working paper WP/48 is included in the docket.

Chapter 11 also does not provide for a correction of off-reference atmospheric attenuation. The FAA's solution to the error caused by failure to correct for off-reference atmospheric attenuation is to reduce the size of the test window prescribed under section J36.101(c) to preclude testing in the portion of the temperature and relative humidity test window where high rates of atmospheric absorption are encountered. By restricting the test window, any error caused by off-reference atmospheric absorption is reduced, and the need for correction is negated.

The FAA's third concern is the Chapter 11 provision allowing the use of a strip chart recorder and an "estimation" equation to determine SEL from the duration and the maximum A-weighted level of the noise trace. During development of the NPRM, the FAA examined data from numerous helicopter noise tests which indicated that the error introduced by the strip chart method ranged from zero to 1.7 decibels when compared with helicopter noise measured and analyzed by the Appendix H procedure. The error did not favor the applicant in any of the data. Accordingly, the NPRM did not include the strip chart method as one of the allowable measurement methods specified under proposed section J36.109(d). As proposed, appendix J would have allowed the use of an integrating sound level meter to directly measure the SEL during the flyover, or the helicopter flyover noise signal could be tape recorded for subsequent analysis by an integrating sound level meter.

After further consideration of this issue subsequent to issuance of the NPRM, the FAA has decided to permit the use of a strip chart recorder and an "estimation" equation as an optional method of calculating SEL from maximum level and duration readings taken from the strip chart trace. This change is made in the interest of harmonizing appendix J and ICAO Chapter 11. The addition of the strip chart method as an optional measurement method has no impact on any other provision of appendix J. Since the amount of error, if any, is unpredictable from helicopter to helicopter, the consequence of the use of the strip chart method relative to the other measurement methods is also unpredictable. However, since the

FAA's data indicate that any error from the strip chart method works against applicants, the FAA advises all applicants wishing to use such a procedure that errors are possible, and suggests that the applicants choose one of the other SEL-measurement methods specified under appendix J. The strip chart method involves the use of strip chart recorder and equations for calculating SEL from the time-history trace recorded on the strip chart. Accordingly, section J36.109(d)(1) includes the strip chart recorder as an optional measurement method. Further, a new section J36.109(b)(5) is added to the final rule to incorporate the equations necessary to calculate the SEL from the strip chart trace.

Appendix H has a provision that allows less stringent limits, i.e., Stage 2 plus 2 EPNdB, for acoustical changes for Stage 1 helicopters, and a provision that allows similar less stringent limits for the first civil version of a military helicopter. In the interest of harmonizing the U.S. and ICAO helicopter noise certification regulations, these provisions were not included in the proposed rule. The practical effect of not including these provisions is that certain older helicopters will not have the benefit of the more liberal noise limits allowed under appendix H.

With the adoption of appendix J, applicants have a choice of two noise certification procedures for certain helicopters. An analysis performed to demonstrate a "no acoustic change" must assume that either appendix H or appendix J is the noise certification basis of the parent helicopter. For the purpose of demonstrating "no acoustic change" under § 21.93(b), the demonstration must be consistent with the noise certification basis of the parent helicopter. Thus, if the parent helicopter is certificated under part 36, appendix H, the "no acoustic change" analysis must consider all three flight configurations (flyover, approach, takeoff). If the parent is certificated under part 36, appendix J, the "no acoustic change" analysis is limited to consideration of flyover noise levels. If the parent helicopter is a Stage 1 helicopter, the noise certification basis of the parent helicopter is under appendix H. Subject to the approval of the FAA, the noise certification basis of a Stage 2 helicopter having a maximum certificated takeoff weight of not more than 6,000 pounds may be changed from appendix H to appendix J through an FAA-approved reanalysis of the original appendix H noise test data for that helicopter, or by retesting that helicopter under the requirements of appendix J.

Helicopters that are noise certificated under appendix J can be converted to appendix H noise certification only by performing the noise tests prescribed under appendix H.

Section 36.1, 36.6, 36.801, 36.805, and 36.1581 are also amended to add a reference the alternative noise certification procedure contained in the new appendix J.

Discussion of Comments

Interested persons were afforded the opportunity to participate in development of this rulemaking by submitting written comments to the public regulatory docket on or before July 8, 1992. All comments received have been reviewed and duly considered in promulgating this amendment; comments received after July 8, 1992, have been considered to the extent possible without delaying this rulemaking action. Seven comments were received; two from individuals, two from helicopter industry groups, and three from a foreign civil aviation authority.

Three requests for an extension of the comment period were received by the FAA. The FAA considered these requests and determined that any further delay in the issuance of this rule would result in an undue burden on U.S. manufacturers of light helicopters and would be contrary to the public interest. However, the FAA has determined that the interests of all affected persons will best be served by establishing a time during which comments on this final rule will be considered. At the conclusion of this comment period, the FAA will, if appropriate, take action to amend this rule.

One commenter suggests that use of the parenthetical phrase "(internal load)" is inappropriate and does not convey the proper intent as proposed in section J36.3(d) in prescribing the reference helicopter weight at which the noise tests are to be performed. The FAA agrees and offers the following discussion to clarify the matter. The maximum certificated takeoff weight to be used for noise certification purposes is the "maximum weight" defined under § 27.25(a) or § 29.25(a) of this chapter unless the applicant chooses a lesser noise certification weight and complies with any associated restrictions. If the applicant chooses to conduct the noise certification tests at a weight less than the maximum weight established under § 27.25(a) or § 29.25(a), then as prescribed under § 36.1581, that lesser weight must be furnished as an operating limitation in the operating limitations section of the Rotorcraft

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Flight Manual, in FAA-approved manual material, or on an FAA-approved placard. Alternatively, in anticipation of future changes in type design involving a change in weight, an applicant may choose to conduct supplemental flight tests to establish a sensitivity curve of noise versus weight whereby a noise certification level can be calculated, through interpolation, for the change in type design and the associated maximum weight. It is not the intent of the FAA to require noise certification testing at the weight defined under § 27.25(c) or § 29.25(c), "total weight with jettisonable external load." The effort in the NPRM to qualify the noise certification weight by the parenthetical phrase "(internal load)" in section J36.3(d) was found to be confusing and is not adopted in the final rule.

A commenter requests FAA guidance on supplemental noise flight testing to develop noise versus drag data in anticipation of future changes in type design involving the addition (or removal) of aerodynamically-significant optional external devices. Appendix J does not require supplemental noise flight testing. Requests for supplemental testing will be considered by the FAA under the equivalent procedure provision of § 36.801. The same commenter also suggests that the helicopter should be tested in a clean configuration and that all future changes in type design involving the addition of external drag-inducing attachments should be exempted from the acoustic change provisions prescribed under § 21.93(b) of this chapter. The FAA will study this suggestion for a future rulemaking action; however, the suggestion is outside the scope of this rulemaking action.

Three commenters note the difference in height (above ground) between the relative humidity and temperature measurement locations as prescribed in the NPRM, and recommend that the measurements be made at the same height. The FAA agrees that such measurements, which are used to determine absolute humidity by the off-reference atmospheric attenuation correction method of Aerospace Recommended Practice 866A, should be made at the same location and the same height above the ground. The FAA agrees that the temperature, relative humidity, and wind speed and direction measurements should be made between the heights of 4 feet and 33 feet. This provision will ensure that an applicant can make one set of meteorological measurements that will satisfy the requirements of appendix J and of ICAO

chapter 11. Section J36.101(c)(4) is adopted with the change noted above.

Several commenters suggest that the temperature and relative humidity test window proposed in section J36.101(c) be reduced in size to eliminate testing under highly absorptive regions of the test window. In a related suggestion, if the temperature and relative humidity test window is reduced in size, they suggest the adoption of a "zero correction window" over the remaining portion of the reduced temperature and relative humidity test window where correction for off-reference atmospheric attenuation would not be required. Such a "zero correction window" would be achieved by eliminating the requirement for correction of off-reference atmospheric attenuation proposed in section J36.113 and by eliminating the procedures for performing the correction of off-reference atmospheric attenuation proposed in section J36.205(c). The FAA agrees. The commenters differ slightly in the amount of reduction they recommend in the size of the test window. The final rule adopts the test window proposed in section J36.101(c) with the added requirement that testing may not take place where combinations of temperature and relative humidity would result in a rate of atmospheric attenuation greater than 10dB per 100 meters (30.5 dB per 1000 ft) in the one-third octave band centered at 8 kilohertz. With the test window thus restricted, any error caused by off-reference atmospheric attenuation is reduced and the need for correction is negated. These changes further serve to harmonize Appendix J with Chapter 11 and are adopted in anticipation of a similar restriction in the test window being adopted by ICAO member States during individual implementation of the Chapter 11 standards. Proposed section J36.113, which prescribed the requirement for off-reference atmospheric attenuation correction, is not adopted. Proposed section J36.205(c), which prescribed the procedures for the correction of off-reference atmospheric attenuation, is not adopted. Proposed section J36.101(c)(2), which prescribes the temperature and relative humidity test window, is adopted with the change noted above.

One commenter submits data demonstrating the adverse impact of anomalous conditions in temperature and relative humidity vertical profiles on the accuracy of the noise test results. The commenter suggests that proposed section J36.101(c)(6) be changed to add the phrase "other anomalous meteorological conditions" to the weather restrictions prescribed under

that section. The FAA agrees. The commenter is correct that the air temperature measured at the reference altitude, which is required elsewhere in the test procedure, will provide sufficient information for test personnel to detect the presence of an anomalous conditions along the noise propagation path. The FAA also agrees with the commenter that the proposed change is consistent with the requirements of ICAO chapter 11. Proposed section J36.101(c)(6), which is redesignated as section J36.101(c)(5) in the final rule, is adopted with the changes noted.

Two commenters suggest a clarification in the language describing the number and direction of the test flyovers in proposed section J36.105(b) to explicitly require flyovers in equal numbers in opposite directions so that the helicopter is tested with both headwind and tailwind components when winds aloft are present. The FAA agrees. The intent of the proposed provision is to nullify the effect of off-reference ground speed caused by winds aloft on the average noise level calculated from the individual noise levels of each flyover event. A test helicopter flying along the established reference flight path with a tailwind will experience an increase in the flyover velocity relative to the noise measurement position, thus reducing the acoustical duration of the flyover and lowering the measured SEL value. Conversely, if the helicopter is flown in the opposite direction with a headwind under the same meteorological conditions, lowering the groundspeed and increasing acoustical duration, the consequent increase in the measured SEL value caused by the headwind should numerically offset the opposite effects caused by the tailwind. By requiring equal numbers of flights in opposite directions, correcting individual flyovers for off-reference groundspeed is not necessary. Proposed section J36.105(b) is adopted with the suggested clarification. However, one of the commenters notes that applicants should be aware that, although Appendix J does not require the measurement of ground speed and the correction of off-reference ground speed for individual flyovers, failure to correct the individual flyovers for off-reference groundspeed can adversely affect the number of flyovers required to establish statistically a 90 percent confidence limit that does not exceed ± 1.5 dB(A) as prescribed under section J36.203(b). An applicant may elect to measure groundspeed during the flyovers and correct for off-reference groundspeed in order to improve the confidence limit

under the provisions of section J36.205(e) which simply states that such measurements and corrections are not required. Such measurement and correction procedures would require FAA approval. In a similar manner, applicants may perform the necessary measurements and apply corrections for off-reference source noise and atmospheric attenuations as permitted in section J36.205(d) and section J36.205(f), respectively.

One commenter states that any differences between Appendix J and ICAO chapter 11 would be economically burdensome because industry will have to test to two different procedures. The FAA disagrees. One of the basic criteria used by the FAA in developing appendix J was that any additional or different appendix J requirements would impose little or no additional costs on the applicant when compared to chapter 11 requirements. Appendix J differs from chapter 11 in two procedures. Appendix J has a temperature and relative humidity test window that is smaller than the test window allowed in chapter 11, and appendix J requires testing at an adjusted reference airspeed to offset the effects of off-reference source noise; Chapter 11 does not require that applicants make a similar adjustment. Foreign certification authorities have expressed their general acceptance of the adjusted reference airspeed procedure required under appendix J as an equivalency to the procedure prescribed under chapter 11. The smaller temperature and relative humidity test window in appendix J, or a similar restriction, is expected to be adopted by other ICAO countries. In the worst-case scenario where an applicant is required to test at two airspeeds to satisfy different certifying authorities, the addition of six additional flyovers during a certification test is not considered a significant technical, logistical, or economic challenge. The FAA concludes that these additional requirements do not involve a significant economic burden.

One commenter states that although the adjustment process in section J36.105(c)(1) for source noise variation is based on the tip speed of the main rotor blades, the main rotor system may not be the primary source of noise for a given helicopter, leading to substantial inaccuracies in the measurement procedure. The FAA disagrees. The actual source of noise is irrelevant to the correction process. This is an issue common to an appendix H test as well. For a typical noise certification test, the relative noise levels produced by various sources of noise on a given

helicopter will not be known accurately, nor is it necessary for the dominant source to be known. Since the RPM of the rotor system is a fixed value and ambient temperature is an uncontrolled variable, what is really measured by source noise sensitivity testing is helicopter noise versus airspeed as adjusted to a reference temperature, not main rotor, tail rotor, or engine noise versus tip speed. If, for example, a piston helicopter is entirely dominated by exhaust noise, the peak helicopter noise will be insensitive to changes in main rotor tip speed (and helicopter airspeed). Under appendix J, any change in the SEL caused by the change in duration from the difference between reference and adjusted reference airspeeds is corrected by the mandatory $\langle \Delta J_s \rangle$ correction. Thus, it is not necessary to account for the dominant source of noise for a given helicopter for purposes of correction of the effects of off-reference source noise.

In the worst-case situation where source noise is entirely independent of airspeed, RPM, or ambient temperature, the mandatory procedure for addressing off-reference source noise will have no net effect on the measured noise levels. In all other situations, the procedure will improve the accuracy of the test procedure. However, knowledge of the dominant source of noise would be important under appendix H and appendix J when an applicant for a change in type design alters the helicopter noise source(s) (i.e., blade diameter, RPM, etc.) and wishes to use the source noise sensitivity curves previously measured under Appendix H, or measured as an option under Appendix J, during the noise testing of the parent helicopter. In a related comment, one commenter states that the term "translational speed" as used in the calculation of advancing blade tip Mach number under section J36.105(c)(1)(i) is inappropriate and should be replaced with "true air speed". The FAA agrees that the terminology "true air speed" is more descriptive of the actual airspeed required in the calculation, and section J36.105(c)(1)(i) is adopted with the change as noted. The remainder of section J36.105(c)(1) is adopted as proposed.

One commenter requests a 3 dB reduction in the maximum allowable noise levels prescribed by section J36.305(a). The commenter states that the increase in maximum allowable noise levels proposed in ICAO chapter 11 over the maximum allowable noise levels contained in ICAO chapter 8, and consequently, appendix J over appendix

H, accounts for small inaccuracies inherent in the simplification process, and that such inaccuracies are removed by the addition of adjustment procedures for the effects of off-reference ambient temperature on source noise and off-reference temperature and relative humidity on atmospheric attenuation. The FAA disagrees. These limits are not based on a perceived inaccuracy incurred as a result of not providing for a correction for the effects of off-reference relative humidity and/or temperature on source noise and atmospheric attenuation. The process used to establish the maximum allowable noise levels were based entirely on fundamental differences between the SEL and EPNL metrics, and the helicopter-to-helicopter variation in the relationship between: (1) SEL and EPNL; (2) the centerline noise level and the average of the noise levels from three microphone locations; and (3) flyover noise levels and the relative noise levels from the flyover, approach, and takeoff test procedures. Accordingly, section J36.305(a) is adopted as proposed.

One commenter states that the ± 3 knot limit on airspeed variation is too restrictive operationally and suggests an alternative specification. The FAA disagrees. Appendix J prescribes a ± 3 knot airspeed specification under section J36.105(c)(1)(ii) as opposed to the ± 5 knot specification in appendix H under section H36.105(d). However, appendix H has a requirement for an adjustment for off-reference airspeed under section H36.205(e). Appendix J does not have a similar requirement. Therefore, appendix J requires a more restrictive limitation on variation in airspeed to minimize any error that might occur from the absence of a correction for off-reference airspeed. However, the FAA will consider an alternative specification as an equivalent procedure if the alternative specification provides a mechanism for ensuring that the average of the noise levels from the individual flyovers is representative of the noise level measured at reference airspeed conditions. Chapter 11 also has a ± 3 knot airspeed requirement. Accordingly, section J36.105(c)(1)(ii) is adopted as proposed.

One commenter states that a sound level meter will: (1) Result in a longer "10 dB down" duration time than would appendix H, which will increase the SEL; and (2) sample a wider frequency spectrum than otherwise required under Appendix H using the 24 contiguous one-third octave bands. The FAA agrees that the skill of the sound level meter

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operator in starting and stopping the integration at the precise 10 dB down points in the time history may have some small effect on the SEL value. The FAA reviewed data from recent helicopter noise research tests to assess the influence of the difference between the spectral width sampled by a sound level meter and that sampled using the appendix H data reduction procedure. The net SEL difference between the two procedures for twelve helicopter certification-type noise tests was found to be zero.

Two commenters request changes to or clarification of the requirement under section J36.111(b)(6) that helicopter speed, position, and engine performance data be recorded at an FAA-approved sampling rate. The FAA agrees. Section J36.111(b)(6) has been rewritten to better define the requirement. The phrase "FAA-approved sampling rate" is consistent with the requirements of ICAO chapter 11 and appendix H and recognizes that an appropriate sampling rate for a given parameter may depend on the equipment, operators, and procedures employed by the applicant. The requirement that the parameters must be "recorded" does not necessarily imply that electronic data recording systems must be used. For many of the parameters, an FAA-approved cockpit observer may scan the appropriate instrumentation throughout the measured portion of the flyover and record the data by hand. The observer may note the lateral position of the helicopter relative to ground markers to ensure that the helicopter stays within the prescribed limits for lateral deviation. Audio cassette recorders and video camcorders may be useful to augment a cockpit observer. The section is adopted with the change noted.

One commenter states that an inconsistency exists between appendix J and appendix H regarding the definition of the reference rotor RPM, and recommends that the word "maximum" (corresponding to the top of the green arc on the rotor tachometer) be added to the prescribed rotor operating condition prescribed under sections J36.3(c) and J36.105(c)(2). The FAA agrees. Sections J36.3(c) and J36.105(c)(2) are adopted with the change noted below.

One commenter states that the data adjustment limitation of 2 dB under proposed section J36.205(g) is too restrictive given the possibility that the correction for off-reference atmospheric absorption can alone approach this limit, and recommends that the restriction be eliminated. Although the requirement for correction of off-reference atmospheric absorption was

not adopted in the final rule, the comment is still valid and the FAA agrees in part. The final rule retains the 2 dB limitation, but changes the applicability of the restriction to only those corrections made to account for the differences between test and reference flight procedures prescribed under section J36.105. The change also brings the restriction in Appendix J into harmony with the similar restriction in ICAO chapter 11. Section J36.205(g) is adopted with the change noted above.

One commenter states that the requirement of section J36.109(e)(2)(i) to calibrate the noise measurement system at intervals not exceeding one hour is unnecessarily restrictive, and recommends a 1.5 to 2 hour maximum interval as more appropriate. The FAA disagrees. Experience has shown that the one-hour restriction is not a hindrance to the orderly conduct of the flight test. The time necessary to perform a required calibration is at most a few minutes for a tape recording system and even less for a sound level meter. The ICAO chapter 11 requires such calibrations before the start of testing and at intervals during the test. Unless substantial complications occur or the applicant extends the test to perform additional supplemental tests, the entire test series prescribed under this rule can be performed in less than one hour. Good engineering practice, in general, dictates frequent equipment calibration at available opportunities in order to monitor equipment performance. Accordingly, section J36.109(e)(2)(i) is adopted as proposed.

In proposed section J36.109(d), the FAA proposed to retain the discretion to require the applicant to tape record the noise signal from the flyover tests. This proposed provision is consistent with a similar requirement in ICAO chapter 11. The FAA intended to reserve the authority to require such recordings as an auditing procedure for a given test and for maintaining the integrity of the overall helicopter certification process by auditing the application of the rule and monitoring the rule's efficacy as a representative test for unusual and previously (acoustically) untested helicopter design configurations. One commenter requests that this provision be deleted, and that application criteria be provided if the provision is retained. After further consideration, the FAA has determined that the development of uniform and equitable application criteria across the broad spectrum of potential applicants is not practicable. Accordingly, the FAA agrees that the proposed provision should be deleted in the final rule. However, the FAA retains

the authority to perform acoustic measurements and recordings in parallel with the applicant during a noise test conducted for the purpose of demonstrating compliance with this rule. The FAA also retains the authority to independently review all recorded data, including the tape recorded helicopter flyover noise if recorded by the applicant. The proposed section J36.109(d)(1) is adopted with the change noted above and, as previously discussed in this preamble, with the added provision that a strip chart recorder may be used as one of the methods to measure the helicopter flyover noise.

One commenter suggests adding a requirement that multi-engine helicopters be tested with all engines operating at approximately the same power. The FAA agrees that this is an important factor and will consider it for further rulemaking, since such a requirement was not proposed in the NPRM. Accordingly, section J36.105(c)(3) is adopted as proposed.

No comments were received on the NPRM concerning the form of the equation for calculating the allowable noise limit in section J36.301. The proposed equation follows the general form of the equations incorporated in the ICAO aircraft noise standards. However, the FAA has previously published equations for part 36 noise limits in Advisory Circular 36.1 that are different in form from their ICAO counterparts. The FAA inadvertently overlooked the published FAA equations during the development of the NPRM. After further consideration, the FAA has changed the form of the proposed equation in section J36.301 to coincide with the general equation form used in the other appendixes of this part as presented in FAA Advisory Circular 36.1. The slight difference in the form of the FAA equations and the form of the ICAO equations may be the subject of future discussions regarding the harmonization of the FAA rules and the ICAO standards. However, the FAA does not wish to pursue the harmonization issue on a piecemeal basis. The maximum difference between the equation proposed in the NPRM and the equation adopted in the final rule is 0.0005 dB, which occurs at 6,000 pounds.

Proposed section J36.105(d) includes the appendix H requirement that "at least one flyover test in the flyover test series must be conducted at a test weight at or above the maximum takeoff weight for which certification under this part is requested." No comments were received on this proposed requirement. However, after further consideration,

the FAA has not adopted this requirement in the final rule. This change is made in the interest of harmonizing the requirements of appendix J with the requirements of ICAO chapter 11. Deleting this requirement in the final rule does not adversely affect the conduct of the test and does not diminish the integrity of the rule. The affected section retains the requirement that the helicopter test weight for each flyover must be within plus 5 percent or minus 10 percent of the maximum takeoff weight. However, applicants should understand that the deviations allowed under section J36.105 from reference test conditions must be random. An applicant will not be permitted to deliberately abuse the allowable random deviations prescribed in section J36.105 to artificially lower the noise levels measured during the flyover test. The proposed section J36.105(d) is adopted with the change noted above.

Regulatory Evaluation Summary

This section summarizes the regulatory evaluation prepared by the FAA on the amendments to 14 CFR part 36—Noise Standards: Aircraft Type and Airworthiness Certification. This summary and the full regulatory evaluation quantify, to the extent practicable, estimated costs to manufacturers, modifiers, and Federal, State, and local governments, as well as anticipated benefits.

Executive Order 12291, 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 Executive Order 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 effect on the economy of \$100 million or more, that is likely to result in a major increase in consumer costs, that has a significant adverse effect on competition, or that is highly controversial.

The FAA has determined that this final rule is not "major" as defined in the Executive Order; therefore, a full regulatory impact analysis that 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 final rule without identifying alternatives. In addition to a summary of the regulatory evaluation, this section also contains a Regulatory Flexibility Determination required by

the Regulatory Flexibility Act of 1980 (5 U.S.C. 601 *et seq.*) and an International Trade Impact Assessment. If more detailed information is desired, the reader may examine the full regulatory evaluation contained in the docket.

Under this final rule, an applicant seeking certification of a light helicopter will be permitted to choose between two noise certification procedures: Appendix H of appendix J. The new noise certification procedure, appendix J, will (1) reduce the required microphone locations from three to one; (2) require only a level flyover test rather than level flyover, approach, and takeoff tests as in Appendix H; and (3) reduce the complexity of the data correction procedures. Compared to Appendix H, each of these three factors will lower compliance costs.

Benefit Analysis

The FAA has determined that this final rule will accommodate the advancement of the helicopter manufacturing industry by reducing compliance costs and improving relationships among manufacturers, modifiers, and operators of helicopters, while providing a potential for a reduced level of noise. The following is a discussion of the benefits, including reduced compliance costs, that will accrue as a result of this final rule.

The Appendix J noise certification procedure will create a commonality with international standards. The International Civil Aviation Organization (ICAO), Committee on Aviation Environmental Protection, met in December of 1991 in Montreal, Canada, and recommended noise certification standards for light helicopters that are very similar to the U.S. certification procedures contained in this final rule.

In July 1991, the FAA conducted a series of acoustic flight tests of 12 helicopter configurations in order to supplement an existing light helicopter noise data base of seven helicopter models. An analysis of the 19 helicopter tests resulted in the establishment of an SEL-based limit under Appendix J that is, on average, 2.0 dB more stringent than the limit each of the 19 helicopters would have to meet under Appendix H.

The more stringent noise certification requirements may foster better relationships between the airports, heliports, local communities, and helicopter operators by providing the potential for quieter helicopters. In some instances, local communities have opposed the establishment of nearby heliports. For example, a zoning request for a heliport to be located just outside of Washington, DC, was denied in the

mid-to-late 1980's. Excessive noise was cited as one reason for not granting this request.

In recent years, the number of heliports, helistops, and helipads at airports has increased. In 1987, there were 3,325 heliports in the United States; by the end of 1990, that number had increased to 4,462. As the number of heliports has grown, so has the U.S. helicopter fleet. The FAA estimates that the new alternative procedure will encourage manufacturers to comply with the substantially less costly but more stringent Appendix J requirements, and therefore may result in the manufacturer of quieter light helicopters.

In addition to providing for a reduced level of noise, the FAA estimates that the manufacturers of light helicopters will have lower one-time noise certification procedure costs. These savings include those primarily associated with the noise abatement technology. The present value cost savings to helicopter manufacturers will be about \$5.43 million over the next 15 years.

A helicopter modifier may concentrate on a particular type of aircraft, and that entity may be in the business of continually developing, selling, and installing modification kits for a particular type of aircraft. The present value cost savings to helicopter modifiers will be \$17.01 million over the next 15 years. The FAA has examined the impact that this final rule will have on helicopter operators, and concludes that there will be no impact on helicopter operators. In addition, the FAA estimates that the agency will have lower costs because less labor will be required to process and witness the new test procedure. On a per-certificate basis, the annual cost savings to the FAA will be about \$12,300. The present value cost savings to the FAA is estimated to be \$1.78 million over the next 15 years.

International Trade Impact Analysis

The final rule will have little or no impact on trade for either U.S. firms doing business in foreign countries, or foreign firms doing business in the United States. In the U.S. market, foreign manufacturers will have the option of producing helicopters that satisfy the new standards and, therefore, will not be at a competitive disadvantage with U.S. manufacturers.

Regulatory Flexibility Determination

The Regulatory Flexibility Act of 1980 requires agencies to review rules that have "a significant economic impact on a substantial number of small entities".

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The FAA's criteria for "a substantial number" is a number that is not less than 11 and that is more than one-third of the small entities subject to this final rule.

According to FAA Order 2100.14A, "Regulatory Flexibility Criteria and Guidance," the definition of a small entity (aircraft and aircraft parts manufacturer) is one with 75 or fewer employees. There are no small U.S. helicopter manufacturers that are manufacturing helicopters for the U.S. market.

Although FAA Order 2100.14A does not specifically identify the aircraft modifiers affected by this rulemaking as an entity type in its lists of threshold criteria, an "aircraft repair facilities" entity is listed in the order. This entity would include repair stations certificated and rated under 14 CFR part 145 and shops employing persons who are holders of a mechanic or repairman certificate issued under 14 CFR part 65 that deal with helicopters. Mechanics employed by such entities may perform maintenance, preventative maintenance, and alteration work as prescribed by § 43.3 of 14 CFR part 43. The corresponding size threshold given in the order is 200 employees.

An aircraft modifier conducts engineering and supplemental type certificate application activities, and typically performs the alteration work. A modifier also may separately offer repair or maintenance services. The nature of the work performed by a modifier is generally analogous to that of an aircraft repair facility, and the corresponding threshold levels given in the order are assumed to apply here. For the purpose of this regulatory flexibility determination, an aircraft modifier is considered a small entity if it has 200 or fewer employees.

The Order does not define a threshold value for significant annualized cost for the aircraft repair facilities entity. The FAA estimates that the annualized 1991 cost threshold is \$5,400.

Based upon information presented in the cost analysis, the one-time cost savings to a small modifier will be about \$155,290 per supplemental type certificate. Annualized at 10 percent over 10 years, the costs savings will be \$27,270. This is above the annualized cost threshold.

The total population of modifiers is about 200, and in recent years, about 75 of them have applied for supplemental type certificates which require a noise test under 14 CFR part 36. Typically, between 10 to 12 modifiers would initiate a change annually. Using the lower population estimate, about 16 percent ($12/75=0.16$) of the total

population of rotorcraft modifiers would be affected annually.

The FAA concludes that a substantial number of small entities (more than one third) are not affected significantly by this final rule. Therefore, the final rule would not impose a significant economic impact on a substantial number of small entities, and thus, a regulatory flexibility analysis is not required.

Federalism Implications

The regulations adopted herein do 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 final rule does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

Environmental Analysis

The procedures implemented by this rule have been determined to not significantly affect the quality of the human environment.

Pursuant to the Department of Transportation "Policies and Procedures for Considering Environmental Impacts" (FAA Order 1050.1D), a Finding of No Significant Impact has been prepared and placed in the docket.

Justification for Immediate Adoption

The FAA has determined that further delay in the adoption of this rule would cause undue burden to U.S. manufacturers of light helicopters. Many U.S. manufacturers of light helicopters have new type certification projects that are nearing completion. These certification actions will require noise testing. These manufacturers have participated in and supported the establishment of the ICAO standards, similar to those adopted here. Without this rule, these U.S. manufacturers must comply with the more costly testing requirements of appendix H of this chapter. Accordingly, the FAA has determined that good cause exists to make this rule effective in less than 30 days.

Interested persons are invited to submit comments as they may desire regarding this amendment. Communications should identify the docket number and be submitted in triplicate to the address above. All communications received on or before the close of the comment period will be considered by the Administrator. Comments are specifically invited on the overall regulatory, economic, environmental, and energy aspects of

the rule that might suggest a need to modify the rule. After review of the comments, if the FAA finds that changes are appropriate, it will initiate rulemaking proceedings to amend the regulations. All comments will be available, both before and after the closing date for comments, in the Rules Docket for examination by interested parties.

Commenters wishing the FAA to acknowledge receipt of their comments submitted in response to this rule must submit a self-addressed, stamped postcard on which the following statement is made: "Comments to Docket Number _____." The postcard will be date stamped and returned to the commenter.

Because of the substantial public interest in this rule noted above, the FAA has determined that this rule is significant under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979).

Conclusion

For the reasons stated above, I certify that this final rule: (1) Is not a major rule under Executive Order 12291; (2) is a significant rule under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and (3) does not have a significant economic impact on a substantial number of small entities. In addition, this final rule has little or no impact on trade opportunities for U.S. firms doing business overseas, or on foreign firms doing business in the United States.

List of Subjects

14 CFR Part 21

Aircraft, Helicopters, Noise control.

14 CFR Part 36

Aircraft, Helicopters, Incorporation by reference, Noise control.

The Amendments

Accordingly, the Federal Aviation Administration amends 14 CFR parts 21 and 36 of the Federal Aviation Regulations as follows:

PART 21—CERTIFICATION PROCEDURES FOR PRODUCTS AND PARTS

1. The authority citation for part 21 is revised to read as follows:

Authority: 49 U.S.C. App. 1344, 1348(c) 1352, 1354(a), 1355, 1421 through 1431, 1502, 1651(b)(2); 42 U.S.C. 7572; E.O. 11514, 35 FR 4247, 3 CFR 1966-1970 Comp., p. 902; 49 U.S.C. 106(g).

2. Section 21.115(a) is revised to read as follows:

§ 21.115 Applicable requirements.

(a) Each applicant for a supplemental type certificate must show that the altered product meets applicable airworthiness requirements as specified in paragraphs (a) and (b) of § 21.101 and, in the case of an acoustical change described in § 21.93(b), show compliance with the applicable noise requirements of part 36 of this chapter and, in the case of an emissions change described in § 21.93(c), show compliance with the applicable fuel venting and exhaust emissions requirements of part 34 of this chapter.

**PART 36—NOISE STANDARDS:
AIRCRAFT TYPE AND
AIRWORTHINESS CERTIFICATION**

3. The authority citation for part 36 is revised to read as follows:

Authority: 49 U.S.C. App. 1344, 1348, 1354(a), 1355, 1421, 1423, 1424, 1425, 1428, 1429, 1430, 1431(b), 1651(b)(2), 2101, 2121 through 2125; 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).

4. Section 36.1 is amended by revising paragraph (h) to read as follows:

§ 36.1 Applicability and definitions.

(h) For the purpose of showing compliance with this part, for helicopters in the primary, normal, transport, and restricted categories, the following terms have the specified meanings:

(1) *Stage 1 noise level* means a takeoff, flyover, or approach noise level greater than the Stage 2 noise limits prescribed in section H36.305 of Appendix H of this part, or a flyover noise level greater than the Stage 2 noise limits prescribed in section J36.305 of appendix J of this part.

(2) *Stage 1 helicopter* means a helicopter that has not been shown under this part to comply with the takeoff, flyover, and approach noise levels required for Stage 2 helicopters as prescribed in section H36.305 of Appendix H of this part, or a helicopter that has not been shown under this part to comply with the flyover noise level required for Stage 2 helicopters as prescribed in section J36.305 of Appendix J of this part.

(3) *Stage 2 noise level* means a takeoff, flyover, or approach noise level at or below the Stage 2 noise limits prescribed in section H36.305 of Appendix H of this part, or a flyover noise level at or below the Stage 2 limit prescribed in section J36.305 of Appendix J of this part.

(4) *Stage 2 helicopter* means a helicopter that has been shown under this part to comply with Stage 2 noise limits (including applicable tradeoffs) prescribed in section H36.305 of Appendix H of this part, or a helicopter that has been shown under this part to comply with the Stage 2 noise limit prescribed in section J36.305 of Appendix J of this part.

5. Section 36.6 is amended by adding a new paragraph (c)(1)(v) to read as follows:

§ 36.6 Incorporation by reference.

- (c) * * *
- (1) * * *

(v) IEC Publication No. 804, entitled "Integrating-averaging Sound Level Meters," first edition, dated 1985.

6. Section 36.11 is revised to read as follows:

§ 36.11 Acoustical change: Helicopters.

This section applies to all helicopters in the primary, normal, transport, and restricted categories for which an acoustical change approval is applied for under § 21.93(b) of this chapter on or after March 6, 1986. Compliance with the requirements of this section must be demonstrated under appendix H of this part, or, for helicopters having a maximum certificated takeoff weight of not more than 6,000 pounds, compliance with this section may be demonstrated under Appendix J of this part.

(a) *General requirements.* Except as otherwise provided, for helicopters covered by this section, the acoustical change approval requirements are as follows:

(1) In showing compliance with the requirements of appendix H of this part, noise levels must be measured, evaluated, and calculated in accordance with the applicable procedures and conditions prescribed in parts B and C of appendix H of this part. For helicopters having a maximum certificated takeoff weight of not more than 6,000 pounds that alternatively demonstrate compliance under appendix J of this part, the flyover noise level prescribed in appendix J of this part must be measured, evaluated, and calculated in accordance with the applicable procedures and conditions prescribed in parts B and C of appendix J of this part.

(2) Compliance with the noise limits prescribed in section H36.305 of appendix H of this part must be shown in accordance with the applicable provisions of part D of appendix H of this part. For those helicopters that demonstrate compliance with the

requirements of appendix J of this part, compliance with the noise levels prescribed in section J36.305 of appendix J of this part must be shown in accordance with the applicable provisions of part D of appendix J of this part.

(b) *Stage 1 helicopters.* Except as provided in § 36.805(c), for each Stage 1 helicopter prior to a change in type design, the helicopter noise levels may not, after a change in type design, exceed the noise levels specified in section H36.305(a)(1) of appendix H of this part where the demonstration of compliance is under appendix H of this part. The tradeoff provisions under section H36.305(b) of appendix H of this part may not be used to increase any Stage 1 noise level beyond these limits. If an applicant chooses to demonstrate compliance under appendix J of this part, for each Stage 1 helicopter prior to a change in type design, the helicopter noise levels may not, after a change in type design, exceed the Stage 2 noise levels specified in section J36.305(a) of Appendix J of this part.

(c) *Stage 2 helicopters.* For each helicopter that is Stage 2 prior to a change in type design, the helicopter must be a Stage 2 helicopter after a change in type design.

7. Section 36.801 is revised to read as follows:

§ 36.801 Noise measurement.

For primary, normal, transport, or restricted category helicopters for which certification is sought under appendix H of this part, the noise generated by the helicopter must be measured at the noise measuring points and under the test conditions prescribed in part B of appendix H of this part, or under an FAA-approved equivalent procedure. For those primary, normal, transport, and restricted category helicopters having a maximum certificated takeoff weight of not more than 6,000 pounds for which compliance with appendix J of this part is demonstrated, the noise generated by the helicopter must be measured at the noise measuring point and under the test conditions prescribed in part B of appendix J of this part, or an FAA-approved equivalent procedure.

8. Section 36.803 is revised to read as follows:

§ 36.803 Noise evaluation and calculation.

The noise measurement data required under § 36.801 and obtained under appendix H of this part must be corrected to the reference conditions contained in part A of appendix H of this part, and evaluated under the procedures of part C of appendix H of

this part, or an FAA-approved equivalent procedure. The noise measurement data required under § 36.801 and obtained under appendix J of this part must be corrected to the reference conditions contained in part A of appendix J of this part, and evaluated under the procedures of part C of appendix J of this part, or an FAA-approved equivalent procedure.

9. Section 36.805 is revised to read as follows:

§ 36.805 Noise limits.

(a) Compliance with the noise levels prescribed under part D of appendix H of this part, or under part D of appendix J of this part, must be shown for helicopters for which application for issuance of a type certificate in the primary, normal, transport, or restricted category is made on or after March 6, 1986.

(b) For helicopters covered by this section, except as provided in paragraph (c) or (d)(2) of this section, it must be shown either:

(1) For those helicopters demonstrating compliance under Appendix H of this part, the noise levels of the helicopter are no greater than the applicable limits prescribed under section H36.305 of Appendix H of this part, or

(2) For helicopters demonstrating compliance under Appendix J of this part, the noise level of the helicopter is no greater than the limit prescribed under section J36.305 of appendix J of this part.

(c) For helicopters for which application for issuance of an original type certificate in the primary, normal, transport, or restricted category is made on or after March 6, 1986, and which the FAA finds to be the first civil version of a helicopter that was designed and constructed for, and accepted for operational use by, an Armed Force of the United States or the U.S. Coast Guard on or before March 6, 1986, it must be shown that the noise levels of the helicopter are no greater than the noise limits for a change in type design as specified in section H36.305(a)(1)(ii) of Appendix H of this part for compliance demonstrated under appendix H of this part, or as specified in section J36.305 of appendix J of this part for compliance demonstrated under appendix J of this part. Subsequent civil versions of any such helicopter must meet the Stage 2 requirements.

(d) Helicopters in the primary category:

(1) Except as provided in paragraph (d)(2) of this section, for a helicopter for which application for a type certificate in the primary category is made, and

that was not previously certificated under Appendix H of this part, compliance with Appendix H of this part must be shown.

(2) For a helicopter that:

(i) Has a normal or transport type certificate issued under this chapter,

(ii) Has a standard airworthiness certificate issued under this chapter,

(iii) Has not undergone an acoustical change from its type design,

(iv) Has not previously been certificated under Appendix H of this part, and

(v) For which application for conversion to the primary category is made, no further showing of compliance with this part is required.

10. Section 36.1581 is amended by revising paragraph (f) to read as follows:

§ 36.1581 Manuals, markings, and placards.

(f) For primary, normal, transport, and restricted category helicopters, if the weight used in meeting the takeoff, flyover, or approach noise requirements of appendix H of this part, or the weight used in meeting the flyover noise requirement of appendix J of this part, is less than the certificated maximum takeoff weight established under either § 27.25(a) or § 29.25(a) of this chapter, that lesser weight must be furnished as an operating limitation in the operating limitations section of the Rotorcraft Flight Manual, in FAA-approved manual material, or on an FAA-approved placard.

11. A new Appendix I is added and reserved.

12. A new Appendix J is added to read as follows:

Appendix J—Alternative Noise Certification Procedure For Helicopters Under Subpart H Having A Maximum Certificated Takeoff Weight Of Not More Than 6,000 Pounds

Part A—Reference Conditions

- J36.1 General.
- J36.3 Reference Test Conditions.
- J36.5 [Reserved]

Part B—Noise Measurement Procedure Under § 36.801

- J36.101 Noise certification test and measurement conditions.
- J36.103 [Reserved]
- J36.105 Flyover test conditions.
- J36.107 [Reserved]
- J36.109 Measurement of helicopter noise received on the ground.
- J36.111 Reporting requirements.
- J36.113 [Reserved]

Part C—Noise Evaluation and Calculation Under § 36.803

- J36.201 Noise evaluation in SEL.
- J36.203 Calculation of noise levels.
- J36.205 Detailed data correction procedures.

Part D—Noise Limits Procedure Under § 36.805

- J36.301 Noise measurement, evaluation, and calculation.
- J36.303 [Reserved]
- J36.305 Noise limits.

Part A—Reference Conditions

Section J36.1 General

This appendix prescribes the alternative noise certification requirements identified under § 36.1 of this part and subpart H of this part for helicopters in the primary, normal, transport, and restricted categories having maximum certificated takeoff weight of not more than 6,000 pounds including:

(a) The conditions under which an alternative noise certification test under subpart H of this part must be conducted and the alternative measurement procedure that must be used under § 36.801 of this part to measure the helicopter noise during the test;

(b) The alternative procedures which must be used under § 36.803 of this part to correct the measured data to the reference conditions and to calculate the noise evaluation quantity designated as Sound Exposure Level (SEL); and

(c) The noise limits for which compliance must be shown under § 36.805 of this part.

Section J36.3 Reference Test Conditions

(a) *Meteorological conditions.* The following are the noise certification reference atmospheric conditions which shall be assumed to exist from the surface to the helicopter altitude:

- (1) Sea level pressure of 2116 pounds per square foot (76 centimeters mercury);
- (2) Ambient temperature of 77 degrees Fahrenheit (25 degrees Celsius);
- (3) Relative humidity of 70 percent; and
- (4) Zero wind.

(b) *Reference test site.* The reference test site is flat and without line-of-sight obstructions across the flight path that encompasses the 10 dB down points of the A-weighted time history.

(c) *Level flyover reference profile.* The reference flyover profile is a level flight 492 feet (150 meters) above ground level as measured at the noise measuring station. The reference flyover profile has a linear flight track and passes directly over the noise monitoring station. Airspeed is stabilized at $0.9V_H$; $0.9V_{NE}$; $0.45V_H + 65$ kts ($0.45V_H + 120$ km/h); or $0.45V_{NE} + 65$ kts ($0.45V_{NE} + 120$ km/h), whichever of the four speeds is least. Rotor speed is stabilized at the power on maximum normal operating RPM throughout the 10 dB down time period.

(1) For noise certification purposes, V_H is defined as the airspeed in level flight obtained using the minimum specification engine power corresponding to maximum continuous power available for sea level, 77 degree Fahrenheit (25 degrees Celsius) ambient conditions at the relevant maximum certificated weight. The value of V_H thus defined must be listed in the Rotorcraft Flight Manual.

(2) V_{NE} is the never-exceed airspeed.

(d) The weight of the helicopter shall be the maximum takeoff weight at which noise certification is requested.

Section 36.5 [Reserved]

Part B—Noise Measurement Procedure Under § 36.801

Section 36.101 Noise certification test and measurement conditions

(a) *General.* This section prescribes the conditions under which helicopter noise certification tests must be conducted and the measurement procedures that must be used to measure helicopter noise during each test.

(b) *Test-site requirements.* (1) The noise measuring station must be surrounded by terrain having no excessive sound absorption characteristics, such as might be caused by thick, matted, or tall grass, shrubs, or wooded areas.

(2) During the period when the flyover noise measurement is within 10 dB of the maximum A-weighted sound level, no obstruction that significantly influences the sound field from the helicopter may exist within a conical space above the noise measuring position (the point on the ground vertically below the microphone), the cone is defined by an axis normal to the ground and by half-angle 80 degrees from this axis.

(c) *Weather restrictions.* The test must be conducted under the following atmospheric conditions:

(1) No rain or other precipitation;

(2) Ambient air temperature between 36 degrees and 95 degrees Fahrenheit (2 degrees and 35 degrees Celsius), inclusively, and relative humidity between 20 percent and 95 percent inclusively, except that testing may not take place where combinations of temperature and relative humidity result in a rate of atmospheric attenuation greater than 10 dB per 100 meters (30.5 dB per 1000 ft) in the one-third octave band centered at 8 kilohertz.

(3) Wind velocity that does not exceed 10 knots (19 km/h) and a crosswind component that does not exceed 5 knots (9 km/h). The wind shall be determined using a continuous averaging process of no greater than 30 seconds;

(4) Measurements of ambient temperature, relative humidity, wind speed, and wind direction must be made between 4 feet (1.2 meters) and 33 feet (10 meters) at the noise monitoring station. Unless otherwise approved by the FAA, ambient temperature and relative humidity must be measured at the noise measuring station at the same height above the ground.

(5) No anomalous wind conditions (including turbulence) or other anomalous meteorological conditions that will significantly affect the noise level of the

helicopter when the noise is recorded at the noise measuring station; and

(6) The location of the meteorological instruments must be approved by the FAA as representative of those atmospheric conditions existing near the surface over the geographical area where the helicopter noise measurements are made. In some cases, a fixed meteorological station (such as those found at airports or other facilities) may meet this requirement.

(d) *Helicopter testing procedures.* (1) The helicopter testing procedures and noise measurements must be conducted and processed in a manner which yields the noise evaluation measure designated Sound Exposure Level (SEL) as defined in section 36.109(b) of this appendix.

(2) The helicopter height relative to the noise measurement point sufficient to make corrections required under section 36.205 of this appendix must be determined by an FAA-approved method that is independent of normal flight instrumentation, such as radar tracking, theodolite triangulation, laser trajectory, or photographic scaling techniques.

(3) If an applicant demonstrates that the design characteristics of the helicopter would prevent flight from being conducted in accordance with the reference test conditions prescribed under section 36.3 of this appendix, then with FAA approval, the reference test conditions used under this appendix may vary from the standard reference test conditions, but only to the extent demanded by these design characteristics which make compliance with the reference test conditions impossible.

Section 36.103 [Reserved]

Section 36.105 Flyover test conditions

(a) This section prescribes the flight test conditions and allowable random deviations for flyover noise tests conducted under this appendix.

(b) A test series must consist of at least six flights with equal numbers of flights in opposite directions over the noise measuring station:

(1) In level flight and in cruise configuration;

(2) At a height of 492 feet \pm 50 feet (150 \pm 15 meters) above the ground level at the noise measuring station; and

(3) Within \pm 10 degrees from the zenith.

(c) Each flyover noise test must be conducted:

(1) At the reference airspeed specified in section 36.3(c) of this appendix, with such airspeed adjusted as necessary to produce the same advancing blade tip Mach number as associated with the reference conditions;

(i) Advancing blade tip Mach number (M_{AT}) is defined as the ratio of the arithmetic sum of blade tip rotational speed (V_R) and the helicopter true air speed (V_T) over the speed of sound (c) at 77 degrees Fahrenheit (1135.6 ft/sec or 348.13 m/sec) such that $M_{AT} = (V_R + V_T)/c$; and

(ii) The airspeed shall not vary from the adjusted reference airspeed by more than \pm 3 knots (\pm 5 km/hr) or an equivalent FAA-approved variation from the reference advancing blade tip Mach number. The adjusted reference airspeed shall be

maintained throughout the measured portion of the flyover.

(2) At rotor speed stabilized at the power on maximum normal operating rotor RPM (\pm 1 percent); and

(3) With the power stabilized during the period when the measured helicopter noise level is within 10 dB of the maximum A-weighted sound level ($L_{A_{MAX}}$).

(d) The helicopter test weight for each flyover test must be within plus 5 percent or minus 10 percent of the maximum takeoff weight for which certification under this part is requested.

(e) The requirements of paragraph (b)(2) of this section notwithstanding, flyovers at an FAA-approved lower height may be used and the results adjusted to the reference measurement point by an FAA-approved method if the ambient noise in the test area, measured in accordance with the requirements prescribed in section 36.109 of this appendix, is found to be within 15 dB(A) of the maximum A-weighted helicopter noise level ($L_{A_{MAX}}$) measured at the noise measurement station in accordance with section 36.109 of this appendix.

Section 36.107 [Reserved]

Section 36.109 Measurement of helicopter noise received on the ground

(a) *General.* (1) The helicopter noise measured under this appendix for noise certification purposes must be obtained with FAA-approved acoustical equipment and measurement practices.

(2) Paragraph (b) of this section identifies and prescribes the specifications for the noise evaluation measurements required under this appendix. Paragraphs (c) and (d) of this section prescribe the required acoustical equipment specifications. Paragraphs (e) and (f) of this section prescribe the calibration and measurement procedures required under this appendix.

(b) *Noise unit definition.* (1) The value of sound exposure level (SEL, or as denoted by symbol, L_{AE}), is defined as the level, in decibels, of the time integral of squared 'A'-weighted sound pressure (P_A) over a given time period or event, with reference to the square of the standard reference sound pressure (P_0) of 20 micropascals and a reference duration of one second.

(2) This unit is defined by the expression:

$$L_{AE} = 10 \log_{10} \frac{1}{T_0} \int_{t_1}^{t_2} \left(\frac{P_A(t)}{P_0} \right)^2 dt \quad \text{dB}$$

Where T_0 is the reference integration time of one second and $(t_2 - t_1)$ is the integration time interval.

(3) The integral equation of paragraph (b)(2) of this section can also be expressed as:

$$L_{AE} = 10 \log_{10} \frac{1}{T_0} \int_{t_1}^{t_2} 10^{0.1 L_A(t)} dt \quad \text{dB}$$

Where $L_A(t)$ is the time varying A-weighted sound level.

(4) The integration time (t_2-t_1) is practice shall not be less than the time interval during which $L_A(t)$ first rises to within 10 dB(A) of its maximum value ($L_{A\text{MAX}}$) and last falls below 10 dB(A) of its maximum value.

(5) The SEL may be approximated by the following expression:

$$L_{AE} = L_{A\text{MAX}} + \langle \Delta \rangle A$$

where $\langle \Delta \rangle A$ is the duration allowance given by:

$$\langle \Delta \rangle A = 10 \log_{10} (T)$$

where $T = (t_2-t_1)/2$ and $L_{A\text{MAX}}$ is defined as the maximum level, in decibels, of the A-weighted sound pressure (slow response) with reference to the square of the standard reference sound pressure (P_0).

(c) *Measurement system.* The acoustical measurement system must consist of FAA-approved equipment equivalent to the following:

(1) A microphone system with frequency response that is compatible with the measurement and analysis system accuracy prescribed in paragraph (d) of this section;

(2) Tripods or similar microphone mountings that minimize interference with the sound energy being measured;

(3) Recording and reproducing equipment with characteristics, frequency response, and dynamic range that are compatible with the response and accuracy requirements of paragraph (d) of this section; and

(4) Acoustic calibrators using sine wave noise and, if a tape recording system is used, pink noise, of known levels. When pink noise (defined in section H36.109(e)(1) of Appendix H of this part) is used, the signal must be described in terms of its root-mean-square (rms) value.

(d) *Sensing, recording, and reproducing equipment.* (1) The noise levels measured from helicopter flyovers under this appendix may be determined directly by an integrating sound level meter, or the A-weighted sound level time history may be written onto a graphic level recorder set at "slow" response from which the SEL value may be determined. With the approval of the FAA, the noise signal may be tape recorded for subsequent analysis.

(i) The SEL values from each flyover test may be directly determined from an integrating sound level meter complying with the Standards of the International Electrotechnical Commission (IEC) Publication No. 804, "Integrating-averaging Sound Level Meters," as incorporated by reference under § 36.6 of this part, for a Type 1 instrument set at "slow" response.

(ii) The acoustic signal from the helicopter, along with the calibration signals specified under paragraph (e) of this section and the background noise signal required under paragraph (f) of this section may be recorded on a magnetic tape recorder for subsequent analysis by an integrating sound level meter identified in paragraph (d)(1)(i) of this section. The record/playback system (including the audio tape) of the tape recorder must conform to the requirements prescribed in section H36.109(c)(3) of Appendix H of this part. The tape recorder shall comply with specifications of IEC Publication No. 561, "Electro-acoustical Measuring Equipment for

Aircraft Noise Certification," as incorporated by reference under § 36.6 of this part.

(iii) The characteristics of the complete system shall comply with the recommendations given in IEC Publication No. 651, "Sound Level Meters," as incorporated by reference under § 36.6 of this part, with regard to the specifications concerning microphone, amplifier, and indicating instrument characteristics.

(iv) The response of the complete system to a sensibly plane progressive wave of constant amplitude shall lie within the tolerance limits specified in Table IV and Table V for Type 1 instruments in IEC Publication No. 651, "Sound Level Meters," as incorporated by reference under § 36.6 of this part, for weighting curve "A" over the frequency range of 45 Hz to 11500 Hz.

(v) A windscreen must be used with the microphone during each measurement of the helicopter flyover noise. Correction for any insertion loss produced by the windscreen, as a function of the frequency of the acoustic calibration required under paragraph (e) of this section, must be applied to the measured data and any correction applied must be reported.

(e) *Calibrations.* (1) If the helicopter acoustic signal is tape recorded for subsequent analysis, the measuring system and components of the recording system must be calibrated as prescribed under section H36.109(e) of Appendix H of this part.

(2) If the helicopter acoustic signal is directly measured by an integrating sound level meter:

(i) The overall sensitivity of the measuring system shall be checked before and after the series of flyover tests and at intervals (not exceeding one-hour duration) during the flyover tests using an acoustic calibrator using sine wave noise generating a known sound pressure level at a known frequency.

(ii) The performance of equipment in the system will be considered satisfactory if, during each day's testing, the variation in the calibration value does not exceed 0.5 dB. The SEL data collected during the flyover tests shall be adjusted to account for any variation in the calibration value.

(iii) A performance calibration analysis of each piece of calibration equipment, including acoustic calibrators, reference microphones, and voltage insertion devices, must have been made during the six calendar months preceding the beginning of the helicopter flyover series. Each calibration shall be traceable to the National Institute of Standards and Technology.

(f) *Noise measurement procedures.* (1) The microphone shall be of the pressure-sensitive capacitive type designed for nearly uniform grazing incidence response. The microphone shall be mounted with the center of the sensing element 4 feet (1.2 meters) above the local ground surface and shall be oriented for grazing incidence such that the sensing element, the diaphragm, is substantially in the plane defined by the nominal flight path of the helicopter and the noise measurement station.

(2) If a tape recorder is used, the frequency response of the electrical system must be determined at a level within 10 dB of the full-scale reading used during the test, utilizing pink or pseudorandom noise.

(3) The ambient noise, including both

acoustical background and electrical noise of the measurement systems shall be determined in the test area and the system gain set at levels which will be used for helicopter noise measurements. If helicopter sound levels do not exceed the background sound levels by at least 15 dB(A), flyovers at an FAA-approved lower height may be used and the results adjusted to the reference measurement point by an FAA-approved method.

(4) If an integrating sound level meter is used to measure the helicopter noise, the instrument operator shall monitor the continuous A-weighted (slow response) noise levels throughout each flyover to ensure that the SEL integration process includes, at minimum, all of the noise signal between the maximum A-weighted sound level ($L_{A\text{MAX}}$) and the 10 dB down points in the flyover time history. The instrument operator shall note the actual dB(A) levels at the start and stop of the SEL integration interval and document these levels along with the value of $L_{A\text{MAX}}$ and the integration interval (in seconds) for inclusion in the noise data submitted as part of the reporting requirements under section J36.111(b) of this appendix.

Section J36.111 Reporting Requirements

(a) *General.* Data representing physical measurements, and corrections to measured data, including corrections to measurements for equipment response deviations, must be recorded in permanent form and appended to the record. Each correction is subject to FAA approval.

(b) *Data reporting.* After the completion of the test the following data must be included in the test report furnished to the FAA:

(1) Measured and corrected sound levels obtained with equipment conforming to the standards prescribed in section J36.109 of this appendix;

(2) The type of equipment used for measurement and analysis of all acoustic, aircraft performance and flight path, and meteorological data;

(3) The atmospheric environmental data required to demonstrate compliance with this appendix, measured throughout the test period;

(4) Conditions of local topography, ground cover, or events which may interfere with the sound recording;

(5) The following helicopter information:

(i) Type, model, and serial numbers, if any, of helicopter, engine(s) and rotor(s);

(ii) Gross dimensions of helicopter, location of engines, rotors, type of antitorque system, number of blades for each rotor, and reference operating conditions for each engine and rotor;

(iii) Any modifications of non-standard equipment likely to affect the noise characteristics of the helicopter;

(iv) Maximum takeoff weight for which certification under this appendix is requested;

(v) Aircraft configuration, including landing gear positions;

(vi) V_H or V_{NE} (whichever is less) and the adjusted reference airspeed;

(vii) Aircraft gross weight for each test run;

(viii) Indicated and true airspeed for each test run;

(ix) Ground speed, if measured, for each run;

(x) Helicopter engine performance as determined from aircraft instruments and manufacturer's data; and

(xi) Aircraft flight path above ground level, referenced to the elevation of the noise measurement station, in feet, determined by an FAA-approved method which is independent of normal flight instrumentation, such as radar tracking, theodolite triangulation, laser trajectory, or photostaging techniques; and

(6) Helicopter position and performance data required to make the adjustments prescribed under section J36.205 of this appendix and to demonstrate compliance with the performance and position restrictions prescribed under section J36.105 of this appendix must be recorded at an FAA-approved sampling rate.

Section J36.113 [Reserved]

Part C—Noise Evaluation and Calculations Under § 36.803

Section J36.201 Noise Evaluation in SEL

The noise evaluation measure shall be the sound exposure level (SEL) in units of dB(A) as prescribed under section J36.109(b) of this appendix. The SEL value for each flyover may be directly determined by use of an integrating sound level meter. Specifications for the integrating sound level meter and requirements governing the use of such instrumentation are prescribed under section J36.109 of this appendix.

Section J36.203 Calculation of Noise Levels

(a) To demonstrate compliance with the noise level limits specified under section J36.305 of this appendix, the SEL noise levels from each valid flyover, corrected as necessary to reference conditions under section J36.205 of this appendix, must be arithmetically averaged to obtain a single SEL dB(A) mean value for the flyover series. No individual flyover run may be omitted from the averaging process, unless otherwise specified or approved by the FAA.

(b) The minimum sample size acceptable for the helicopter flyover certification measurements is six. The number of samples must be large enough to establish statistically a 90 percent confidence limit that does not exceed ± 1.5 dB(A).

(c) All data used and calculations performed under this section, including the calculated 90 percent confidence limits, must be documented and provided under the reporting requirements of section J36.111 of this appendix.

Section J36.205 Detailed Data Correction Procedures

(a) When certification test conditions measured under part B of this appendix differ from the reference test conditions prescribed under section J36.3 of this appendix, appropriate adjustments shall be made to the measured noise data in accordance with the methods set out in paragraphs (b) and (c) of this section. At minimum, appropriate adjustments shall be made for off-reference altitude and for the difference between reference airspeed and adjusted reference airspeed.

(b) The adjustment for off-reference altitude may be approximated from:
 $\langle \Delta \rangle_1 = 12.5 \log_{10}(H_T/492)$ dB;
 where $\langle \Delta \rangle_1$ is the quantity in decibels that must be algebraically added to the measured SEL noise level to correct for an off-reference flight path, H_T is the height, in feet, of the test helicopter when directly over the noise measurement point, and the constant (12.5) accounts for the effects on spherical spreading and duration from the off-reference altitude.

(c) The adjustment for the difference between reference airspeed and adjusted reference airspeed is calculated from:
 $\langle \Delta \rangle_2 = 10 \log_{10}(V_{RA}/V_R)$ dB;

Where $\langle \Delta \rangle_2$ is the quantity in decibels that must be algebraically added to the measured SEL noise level to correct for the influence of the adjustment of the reference airspeed on the duration of the measured flyover event as perceived at the noise measurement station, V_R is the reference airspeed as prescribed under section J36.3(c) of this appendix, and V_{RA} is the adjusted reference airspeed as prescribed under section J36.105(c) of this appendix.

(d) No correction for source noise during the flyover other than the variation of source noise accounted for by the adjustment of the reference airspeed prescribed for under section J36.105(c) of this appendix need be applied.

(e) No correction for the difference between the reference ground speed and the actual ground speed need be applied.

(f) No correction for off-reference atmospheric attenuation need be applied.

(g) The SEL adjustments must be less than 2.0 dB(A) for differences between test and reference flight procedures prescribed under section J36.105 of this appendix unless a larger adjustment value is approved by the FAA.

(h) All data used and calculations performed under this section must be documented and provided under the

reporting requirements specified under section J36.111 of this appendix.

Part D—Noise Limits Procedure Under § 36.805

Section J36.301 Noise Measurement, Evaluation, and Calculation

Compliance with this part of this appendix must be shown with noise levels measured, evaluated, and calculated as prescribed under parts B and C of this appendix.

Section J36.303 [Reserved]

Section J36.305 Noise Limits

For compliance with this appendix, the calculated noise levels of the helicopter, at the measuring point described in section J36.101 of this appendix, must be shown to not exceed the following (with appropriate interpolation between weights):

(a) For primary, normal, transport, and restricted category helicopters having a maximum certificated takeoff weight of not more than 6,000 pounds and noise tested under this appendix, the Stage 2 noise limit is 82 decibels SEL for helicopters with maximum certificated takeoff weight at which the noise certification is requested, of up to 1,764 pounds and increasing at a rate of 3.01 decibels per doubling of weight thereafter. The limit may be calculated by the equation:

$$L_{AE(\text{limit})} = 82 + 3.01[\log_{10}(\text{MTOW}/1764) / \log_{10}(2)] \text{ dB};$$

where MTOW is the maximum takeoff weight, in pounds, for which certification under this appendix is requested.

(b) The procedures required in this amendment shall be done in accordance with the International Electrotechnical Commission IEC Publication No. 804, entitled "Integrating-averaging Sound Level Meters," First Edition, dated 1985. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be obtained from the Bureau Central de la Commission Electrotechnique Internationale, 1, rue de Varembe, Geneva, Switzerland or the American National Standard Institute, 1430 Broadway, New York City, New York 10018, and can be inspected at the Office of the Federal Register, 800 North Capitol Street NW., suite 700, Washington, DC.

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Thomas C. Richards,
Administrator.

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