that would act as a deterrent to completing the maneuver.

(3) In maneuvers with increased rates of deceleration, some degradation of characteristics is acceptable, associated with a transient excursion beyond the stabilized alpha-limit. However, the airplane must not exhibit dangerous characteristics or characteristics that would deter the pilot from holding the longitudinal controller on the stop for a period of time appropriate to the maneuvers.

(4) It must always be possible to reduce incidence by conventional use of the controller.

(5) The rate at which the airplane can be maneuvered from trim speeds associated with scheduled operating speeds, such as V_2 and V_{REF}, up to alpha-limit must not be unduly damped or significantly slower than can be achieved on conventionally controlled transport airplanes.

g. *Atmospheric Disturbances.* Operation of the high incidence protection system and the alpha-floor system must not adversely affect aircraft control during expected levels of atmospheric disturbances or impede the application of recovery procedures in case of windshear. Simulator tests and analysis may be used to evaluate such conditions but must be validated by limited flight testing to confirm handling qualities at critical loading conditions.

h. *Alpha-floor.* The alpha-floor setting must be such that the aircraft can be flown at normal landing operational speed and maneuvered up to bank angles consistent with the flight phase, including the maneuver capabilities specified in 25.143(g), without triggering alpha-floor. In addition, there must be no alpha-floor triggering, unless appropriate, when the airplane is flown in usual operational maneuvers and in turbulence.

i. *Proof of Compliance:* In addition to the requirements of § 25.21, the following Special Conditions apply:

The flying qualities must be evaluated at the most unfavorable center of gravity position.

j. *Longitudinal Control:* (1) In lieu of the requirements of § 25.145(a) and 25.145(a)(1), the following Special Conditions apply:

It must be possible—at any point between the trim speed for straight flight and V_{min}—to pitch the nose downward, so that the acceleration to this selected trim speed is prompt, with:

The airplane trimmed for straight flight at the speed achievable by the automatic trim system and at the most unfavorable center of gravity;

(2) In lieu of the requirements of § 25.145(b)(6), the following Special Conditions apply:

With power off, flaps extended and the airplane trimmed at 1.3 V_{SR1}, obtain and maintain airspeeds between V_{min} and either 1.6 V_{SR1} or V_{FE}, whichever is lower.

k. *Airspeed Indicating System:* (1) In lieu of the requirements of subsection 25.1323(c)(1), the following Special Conditions apply:

V_{MO} to V_{min} with the flaps retracted.

(2) In lieu of the requirements of subsection 25.1323(c)(2), the following Special Conditions apply:

V_{min} to V_{FE} with flaps in the landing position.

14. High Intensity Radiated Fields (HIRF) Protection

a. *Protection from Unwanted Effects of High-intensity Radiated Fields.* Each electrical and electronic system which performs critical functions must be designed and installed to ensure that the operation and operational capabilities of these systems to perform critical functions are not adversely affected when the airplane is exposed to high intensity radiated fields external to the airplane.

b. *For the purposes of this Special Conditions, the following definition applies: Critical Functions:* Functions whose failure would contribute to or cause a failure condition which would prevent the continued safe flight and landing of the airplane.

15. Operation Without Normal Electrical Power

In lieu of the requirements of § 25.1351(d), the following Special Condition applies:

It must be demonstrated by test or combination of test and analysis that the airplane can continue safe flight and landing with inoperative normal engine and APU generator electrical power (*i.e.*, electrical power sources, excluding the battery and any other standby electrical sources). The airplane operation should be considered at the critical phase of flight and include the ability to restart the engines and maintain flight for the maximum diversion time capability being certified.

Issued in Renton, Washington, on March 30, 2006.

Ali Bahrami,

Manager, Transport Airplane Directorate, Aircraft Certification Service.

[FR Doc. 06–3359 Filed 4–10–06; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No.: FAA–2004–18775; Amendment No. 25–119]

RIN 2120–AI41

Safety Standards for Flight Guidance Systems

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: This action amends the airworthiness standards for new designs and significant product changes for transport category airplanes concerning flight guidance systems. The standards address the performance, safety, failure protection, alerting, and basic annunciation of these systems. This rule is necessary to address flight guidance system vulnerabilities and to consolidate and standardize regulations for functions within those systems. In addition, this rule updates the current regulations regarding the latest technology and functionality. Adopting this rule eliminates significant regulatory differences between the U.S. and European airworthiness standards.

DATES: Effective Date: This amendment becomes effective May 11, 2006.

FOR FURTHER INFORMATION CONTACT: Gregg Bartley, FAA, Airplane and Flight Crew Interface Branch (ANM–111), Transport Airplane Directorate, Aircraft Certification Service, 1601 Lind Avenue SW., Renton, Washington 98055–4056; telephone (425) 227–2889; facsimile 425–227–1320; e-mail *gregg.bartley@faa.gov.*

SUPPLEMENTARY INFORMATION:

Availability of Rulemaking Documents

You can get an electronic copy using the Internet by:

(1) Searching the Department of Transportation's electronic Docket Management System (DMS) web page (*http://dms.dot.gov/search*);

(2) Visiting the FAA's Regulations and Policies Web page at *http://www.faa.gov/regulations_policies*; or

(3) Accessing the Government Printing Office's Web page at *http://www.gpoaccess.gov/fr/index.html.*

You can also get a copy by sending a request to the Federal Aviation Administration, Office of Rulemaking, ARM–1, 800 Independence Avenue SW., Washington, DC 20591, or by calling (202) 267–9680. Make sure to identify the amendment number or docket number of this rulemaking.

Anyone is able to search the electronic form of all comments received into any of our dockets by the name of the individual submitting the comment (or signing the comment, if submitted on behalf of an association, business, labor union, etc.). You may review DOT's complete Privacy Act statement in the **Federal Register** published on April 11, 2000 (Volume 65, Number 70; Pages 19477–78) or you may visit *http://dms.dot.gov*.

Small Business Regulatory Enforcement Fairness Act

The Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996 requires the FAA to comply with small entity requests for information or advice about compliance with statutes and regulations within its jurisdiction. If you are a small entity and you have a question regarding this document, you may contact its local FAA official, or the person listed under **FOR FURTHER INFORMATION CONTACT**. You can find out more about SBREFA on the Internet at *http://www.faa.gov/regulations_policies/rulemaking/sbre_act/*.

Authority for This Rulemaking

The FAA's authority to issue rules regarding aviation safety is found in Title 49 of the United States Code. Subtitle I, Section 106 describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the agency's authority.

This rulemaking is promulgated under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, ''General requirements.'' Under that section, the FAA is charged with promoting safe flight of civil aircraft in air commerce by prescribing minimum standards required in the interest of safety for the design and performance of aircraft; regulations and minimum standards in the interest of safety for inspecting, servicing, and overhauling aircraft; and regulations for other practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it prescribes—New safety standards for the design of transport category airplanes, and New requirements that are necessary for safety for the design, production, operations, and maintenance of those airplanes, and for other practices, methods and procedures relating to those airplanes.

I. Executive Summary

This rule revises the airworthiness standards for transport category airplanes to improve the performance of flight guidance systems in assisting the flightcrew in the basic control and guidance of the airplane. As discussed in more detail later, for purposes of this rulemaking, a ''flight guidance system'' consists of equipment providing autopilot, autothrust, flight director, and related functions. This rule adopts requirements to provide workload relief to the flightcrew and a means to fly an intended flight path more accurately. This rule responds to a series of incidents and accidents that have highlighted difficulties for flightcrews interacting with the increasing automation of flight decks.

Accident History

The National Transportation Safety Board (NTSB) issued the following safety recommendations that are addressed by this rule:

- NTSB Safety Recommendation A–92–035 is a result of the Airbus Industries A300 accident in Nagoya, Japan, on April 26, 1994, where 264 people died. Contributing to that accident were conflicting actions taken by the flightcrew and the airplane's autopilot. The NTSB recommended that the FAA ''revise Advisory Circular 25.1329–1A to add guidance regarding autopilot failures that can result in changes in attitude at rates that may be imperceptible to the flightcrew and thus remain undetected until the airplane reaches significant attitude deviations.''
- NTSB Safety Recommendation A–98–098 is a result of an accident on November 12, 1995. A Boeing MD–80 operated by American Airlines descended below the minimum descent altitude, clipped some trees, and landed short of the runway in what was very nearly a fatal accident. The NTSB recommended that the FAA ''require all manufacturers of transport-category airplanes to incorporate logic into all new and existing transport-category airplanes that have autopilots installed to provide a cockpit aural warning to alert pilots when the airplane's bank and/or pitch exceeds the autopilot's maximum bank and/or pitch command limits.''
- NTSB Safety Recommendation A–99–043 is a result of an accident on July 13, 1996. A Boeing MD–11 operated by American Airlines experienced an in-flight upset during the descent to 24,000 feet by means of the autopilot. During the descent, the captain instructed the first officer to slow the rate of descent. Flight data recorder data show the airplane experienced an immediate 2.3 G pitch upset followed by more oscillations, resulting in four injuries. The NTSB recommended that the FAA ''require all new transport category airplane autopilot systems to be designed to prevent upsets when manual inputs to the flight controls are made.''

In response to these NTSB safety recommendations and several incidents and accidents that highlight difficulties for flightcrews interacting with the increasing automation of flight decks, the FAA formed a Human Factors Team (HFT). The HFT issued a report on June 18, 1996, titled ''The Interfaces Between Flightcrews and Modern Flight Deck Systems.''

Past Regulatory Approach

Currently, § 25.1329, ''Automatic pilot system'' addresses only the autopilot system, and § 25.1335, ''Flight director systems'' addresses the flight director switch position. Not addressed is the autothrust system and how it relates to flight guidance. The existing regulations need to be updated to match technology advances. Current regulations do not fully address the latest technology or newly available functionality. In addition, proposed and recent rulemaking activity regarding the interaction of systems and structure, flight test, and human factors will make certain aspects of the existing flight guidance systems regulations redundant, in conflict with other regulations, or confusing and difficult to understand.

Summary of the Rule

This rule adopts new airworthiness standards specifically to address potential pilot confusion about various aspects of the operation of flight guidance systems (FGS), including automatic mode reversions, hazardous disengagement transients, speed protection, and potential hazards during an autopilot override. These new standards will apply to new designs and some design changes (as required under 14 CFR 21.101) for transport category airplanes.

This rule revises, reorganizes, and adds additional material to address the performance, safety, failure protection, alerting, and basic annunciation of these systems. This rule addresses the autopilot, autothrust, and flight director in a single section. This rule covers the portion of the head up display (HUD) that contains flight-guidance information displayed to the pilot while manually flying the airplane.

Finally, this rule harmonizes the regulations for FGS between the FAA

and the European Airworthiness Authorities. This harmonization will not only benefit the aviation industry economically, but also maintain the necessary high level of aviation safety.

Summary of the Regulatory Evaluation

The FAA's analysis of the economic impacts of this final rule is consistent with various Federal directives and orders. The FAA determined that this rule:

- Has benefits that justify its costs;
- Is not a significant regulatory action;
- Will not have a significant impact on a substantial number of small entities;
- Is in compliance with the Trade Agreements Act; and
- Will not impose an unfunded mandate of $100 million or more, in any one year, on state, local, or tribal governments, or on the private sector.

This rule affects manufacturers of small part 25 airplanes and the occupants of these airplanes. The manufacturers may incur costs; however, the occupants in the affected airplanes will receive safety benefits.

This rule incorporates the FAA and European Aviation Safety Agency's (EASA) harmonized standards that result in the assessed improvements in the operation of autopilot systems and has potential cost savings.

The FAA has determined that this rule will be cost-beneficial if seven accidents are averted over a 34-year benefits period.[1] Although it is not certain that earlier events could have been prevented by these autopilot changes (or, how many of any potential future accidents would be catastrophic), the expected prevalence of more sophisticated autopilot systems in business jets, combined with the occurrence of serious accidents involving large transport category airplanes, mandates regulatory action. For these reasons, the FAA finds this rule to be cost-beneficial.

II. Background

A. General Discussion of the Rule

This amendment is based on notice of proposed rulemaking (NPRM), Notice No. 04–11, which was published in the **Federal Register** on August 13, 2004 (69 FR 50240). In the Notice, you will find the background material and a discussion of the safety considerations supporting our course of action. You also will find a discussion of the current requirements and why they do not adequately address the problem. We refer to the recommendations of the Aviation Rulemaking Advisory Committee (ARAC) and the NTSB that we relied on in developing the final rule. The ARAC report is available at the following Web address: *http://dms.dot.gov*. The NTSB recommendations No. A–98–098 and A–99–043 are available at the following Web address: *http://www.ntsb.gov/Recs/letters/letters.htm*. The FAA Human Factors Report and NTSB recommendation No. A–92–035 are available in the public docket for this rulemaking. The NPRM also discusses each alternative that we considered and the reasons for rejecting the ones we did not propose.

The background material in the NPRM contains the basis and rationale for this rule and, except where we have specifically expanded on the background elsewhere in this preamble, supports this final rule as if it were contained here. The table in the NPRM describing non-normal conditions has been updated. Refer to the table in Advisory Circular (AC) 25.1329–1B, ''Approval of Flight Guidance Systems'' for the newest language. We refer inquiries regarding the intent of the requirements to the background in the NPRM as though it was in the final rule itself. It is therefore not necessary to repeat the background in this document.

B. Overview of the Flight Guidance System

The FGS is intended to assist the flightcrew in the basic control and guidance of the airplane. The FGS provides workload relief to the flightcrew and a means to fly an intended flight path more accurately. The following functions make up the flight guidance system:

1. *Autopilot*—automated airplane maneuvering and handling capabilities.
2. *Autothrust*—automated propulsion control.
3. *Flight Director*—the display of steering commands that provide vertical and horizontal path guidance, whether displayed ''head down'' or ''head up.'' A head up display is a flight instrumentation that allows the pilot of an airplane to watch the instruments while looking ahead of the airplane for the approach lights or the runway.

Flight guidance system's functions also include flight deck alerting, status, mode annunciations (instrument displays), and any situational information required by those functions displayed to the flightcrew. Also included are those functions necessary to provide guidance and control with an approach and landing system, such as:

- Instrument landing system (ILS).
- Microwave landing system (MLS) (an instrument landing system operating in the microwave spectrum that provides lateral and vertical guidance to airplanes having compatible avionics equipment).
- Global navigation satellite system landing system (GLS).

The FGS definition does not include flight planning, flight path construction, or any other function normally associated with a flight management system (FMS).

C. Authorities

In addition to the FAA and JAA, a new aviation regulatory body, the EASA, was established recently by the European community to develop standards to ensure the highest level of safety and environmental protection, oversee their uniform application across Europe, and promote them internationally. The EASA formally became operational for certification of aircraft, engines, parts, and appliances on September 28, 2003. The EASA will eventually absorb all of the functions and activities of the JAA, including its efforts to harmonize the European airworthiness certification regulations with those of the U.S.

The Joint Aviation Regulation (JAR)-25 standards have been incorporated into the EASA's ''Certification Specifications for Large Aeroplanes,'' (CS)–25, in similar if not identical language. The EASA's CS–25 became effective October 17, 2003.

The standards in this amendment were developed before the EASA began operations. They were developed in coordination with the JAA and JAR–25. However, since the JAA's JAR–25 and the EASA's CS–25 are essentially the same, all of the discussions relative to JAR–25 also apply to CS–25.

D. Harmonization of U.S. and European Regulatory Standards

When airplanes are type certificated to both sets of standards, the differences between part 25 and JAR–25 can result in substantial added costs to manufacturers and operators. These added costs, however, frequently do not bring about an increase in safety.

Representatives of the FAA and JAA, proposed an accelerated process to reach harmonization, the ''Fast Track Harmonization Program.'' The FAA initiated the Fast Track Harmonization Program on November 26, 1999.

For ''fast track harmonization'' projects, the FAA and the JAA agreed that, ''During the development of the NPRM, the rulemaking team should coordinate closely with the JAA HWG [Harmonization Working Group]

[1] A copy of the full regulatory evaluation is available in the Docket.

representative to ensure continued harmonization of approaches between the NPRM and JAA NPA [Notice of Proposed Amendment]. During these discussions, it should be emphasized that harmonization means that the regulations *would have the same effect*, thereby allowing single certification/validation, *rather than be worded identically*. To the extent necessary, the rulemaking team will have cooperation from other HWG members to ensure a full understanding of the issues.'' [2] This rulemaking has been identified as a ''fast track'' project.

Further details on ARAC, and its role in harmonization rulemaking activity, and the Fast Track Harmonization Program can be found in the tasking statement (64 FR 66522, November 26, 1999) and the first NPRM published under this program, ''Fire Protection Requirements for Powerplant Installations on Transport Category Airplanes'' (65 FR 36978, June 12, 2000).

III. Disposition of Comments

Safety Standards for Flight Guidance Systems

In response to the NPRM request for comments, ten commenters responded (with one commenter sending a duplicate). The commenters include one foreign regulatory authority, foreign and domestic airplane operators and manufacturers and the aviation organizations representing them, and individuals. One supportive comment finds the level of safety significantly improved. A number of comments, while generally supporting the proposal, suggest changes. Two comments ask for clarification of a term or definition. A few comments suggest rulemaking actions not addressed by the proposal, and several comments concern changes to the proposed AC. No substantive changes were made to the proposed rule; however, we revised the rule text in paragraph (h) to clarify our intent. The comments and our responses are below.[3]

1. Significant Transient, Paragraph (e)

Transport Canada, Canada's airworthiness authority, stated that the proposed rule's definition of a ''significant transient'' is inappropriate, as it includes criteria containing an injury level (*i.e.*, ''non-fatal injuries'') to crew and passengers. Transport Canada believes that the term could be open to considerable individual interpretation, and needlessly complicates the issue. In addition, this commenter argued that both the rule and the guidance material allow for a significant transient following autopilot disengagement during non-normal and rare-normal events. The more logical approach would be to delete any reference to injury level, and allow for the discretion of the certification specialist to determine whether any transients, be they minor or significant, are acceptable.

As discussed in the NPRM, the reference to ''non-fatal injuries'' was made for several reasons. The terms ''significant transient'' and ''minor transient'' are used in § 25.1329(c), (d), and (e). These terms are defined using AC 25.1309–1A language for ''major failure condition'' and ''minor failure condition,'' respectively. The FAA intends a strong correlation between the terms used in these rule paragraphs regarding allowable transient conditions and the hazard classifications of failures of AC 25.1309–1A. Therefore, identical language is used so there would be no confusion about the hazard classification of the different transient levels defined in § 25.1329. This is consistent with the ARAC recommendation regarding the meaning of these terms and their relationship to acceptable means of compliance with § 25.1309. One reason for establishing this close relationship is to enhance standardization in the application of these terms and to make this application less dependent on the judgment of individual certification specialists. No changes were made to the rule due to this comment.

2. Changed Product Rule (CPR), § 21.101

The NPRM addressed the applicability of this rule given the intent behind the CPR, in depth, under the section entitled ''Discussion of Proposal.'' In its comment, Boeing neither raised any questions regarding this explanation, nor identified issues for which this explanation was inadequate, although it did request further clarification of the inter-relationship between the two rules generally. To summarize the NPRM discussion, the CPR must be considered when updating or adding a flight guidance system. If a proposed change to a FGS is part of a ''significant'' product change, then § 21.101(a) is applicable unless one of the other exceptions of § 21.101(b) applies. For changes that are limited to the FGS itself, the only time a change may be considered a ''significant change'' is when a substantially new function is included in an already certified product. Advisory Circular 21.101–1, Change 1, further discusses how to evaluate whether a change made to a previously certified product is significant or not significant.

In accordance with § 21.101(b)(3), an applicant proposing a significant change would not be required to comply with this amendment if compliance were determined to be impractical. So, applicants for design changes, even if they are significant, will not be required to comply with this amendment if they show that it is impractical to comply. The determination of whether compliance is impractical is made for each amendment on a requirement-by-requirement basis. For example, in this rule it may be determined that it is impractical to comply with certain paragraphs of § 25.1329, but practical to comply with others. The applicant and the FAA may consider the question of whether or not complying with the latest amendment of the rule is impractical during the certification of a changed product. No change was made due to this comment.

3. Pilot Override, Paragraph (d), and Preamble Changes

Dassault Aviation disagreed with the statement made in the NPRM that an autopilot override and subsequent disengagement is considered to be a normal event. This topic is discussed in the NPRM under the heading, ''What Are The Specific Proposed Changes?'' for proposed § 25.1329(c), (d), and (e).

Dassault believes that part 25 aircraft certified to the current standards have an excellent safety record. However, it recognized that part 25 aircraft are becoming increasingly automated. The commenter further recognized that recent technological improvements make it feasible to include a level of protection against override events, thus making future part 25 aircraft and their flight guidance systems even safer.

Consequently, the commenter supports reasonable and feasible steps to provide additional protection against a manual override of an engaged autopilot. Nevertheless, Dassault emphasized that the primary responsibility for proper operation of the FGS (or any other system) rests with the pilot in command and the only way for the pilot to fulfill that responsibility is to possess adequate knowledge of aircraft systems and to use proper operational procedures, especially those that pertain to the FGS.

The FAA included the explanation regarding a pilot override as a normal event in the NPRM due to a comment received during discussions among the

[2] See Fast Track Harmonization Program (ANM–99–356–A) referred to in FAA Order 1100.160, and the NPRM mentioned above.

[3] The full text of each commenter's submission is available in the Docket.

FGS working group. The comment, that a pilot override of an engaged FGS should be a ''non-normal condition,'' was made because the commenter believed that, since an override is not the primary means to disengage an engaged FGS, it must, therefore, be a non-normal condition.

As discussed in the NPRM, the FAA disagrees with that assessment.

The current generation of FGS has flown for millions of flight hours and is safe. However, there have been several accidents and incidents in the past 15 years whose initiating event was a pilot override of an engaged FGS. This specific scenario, a pilot override of an engaged FGS, is one of the known ''vulnerabilities'' of current FGS systems, and one that was addressed by ARAC's proposed rule language and accompanying AC.

We disagree with the commenter's implication that the pilot will always disconnect the FGS before making a manual input to the flight controls. History has shown that the pilots may not always follow this training, sometimes resulting in the accidents and incidents discussed in the NPRM. Whether a pilot chooses to override an engaged FGS because of an immediate need to maneuver the airplane, such as a need to avoid oncoming traffic, or a desire to ''assist'' the FGS because the pilot does not believe the FGS is performing as desired, the results of this pilot action must be safe and must not put the crew or passengers in jeopardy. This is the effect of treating pilot override of the FGS as a ''normal'' event under this rule. No change was made due to this comment.

4. Minor Transient Used in the Icing Table and in the Definition of Icing Conditions in Paragraph (c)

An individual commented on the preamble explanatory material of proposed § 25.1329(c), (d), and (e); the discussion of transients and their definition; and the explanatory text in proposed paragraph (c) that reads: ''For purposes of this section, a minor transient is an abrupt change in the flight path of the airplane that would not significantly reduce airplane safety, and which involves flightcrew actions that are well within their capabilities involving a slight increase in flightcrew workload or some physical discomfort to passengers or cabin crew.''

This commenter disagreed with the definition in paragraph (c) of ''minor transient,'' stating that the definition conveys that it is necessarily abrupt, that it does involve an increase in crew workload, and that it does involve physical discomfort. Even though paragraphs (c) and (d) do state ''* * * may not cause * * * any greater than a minor transient,'' the commenter thinks it would be helpful if the ensuing definition incorporated the same concept. This commenter recommended changing paragraph (c) to read ''For the purposes of this section, a minor transient is a response that produces no greater than an abrupt change * * *''

The FAA does not agree with the suggested revision and has made no rule language change due to this comment. The rule defines the minimum performance safety requirements for an FGS. The FAA agrees that any transient, regardless of the duration or abruptness, is not desirable in a modern FGS. However, the purpose of the rule is not to address nuisance performance issues that are not safety critical.

Rule paragraphs (c) and (d) state that, for the conditions described in each paragraph, the resultant response may not be any greater than a minor transient. This addresses the commenter's concern that is reflected in the suggested revision. The definition of a ''minor transient'' does not need to reflect the possible range of response from ''no response at all'' to the maximum allowable transient that can be categorized as a minor transient.

5. Icing Definitions Listed in the Table

The same individual also stated that the definitions for icing conditions given under the description of ''normal conditions'' in the NPRM preamble should include ''icing, (trace, light and moderate).'' The commenter suggested that the current text may ''possibly constitute a significant regulatory difference (SRD) between § 25.1329 and the corresponding JAR regulations, without referring to the AC or ACJ, which is only one means of compliance.'' Additionally, the commenter suggested that the wording in the proposed rule text and NPRM preamble is not as stringent as the ARAC working group recommendation.

The commenter suggested adding another sentence in the table for ''normal conditions '' icing'' that conveys the concept that ''Operationally, normal icing conditions include trace, light, and moderate icing levels.''

The FAA disagrees with the statement that the proposal would create an SRD, and made no change. As recommended by ARAC, the proposed rule text uses the terms ''normal conditions,'' ''rare normal conditions,'' and ''non-normal conditions'' to distinguish the types of conditions under which the FGS must be evaluated. As explained in the ''Discussion'' section of the NPRM, these terms are not subject to precise definition. However, the Discussion section includes a table providing extensive examples of each category of conditions. In particular, the table states that ''normal conditions'' include ''All icing conditions covered by 14 CFR part 25, appendix C, with the exception of ''asymmetric icing'' discussed under ''Rare Normal Conditions'' below.'' While appendix C does not use the terms trace, light, and moderate icing levels, appendix C clearly encompasses those terms. Therefore, we have retained the intent of the ARAC recommendations, and the rule is no less stringent.

6. Icing and Autopilot

One individual stated that, although the NRPM and AC contain significant discussions of the effects of icing upon FGS operations, there is not enough discussion to conclude that ''icing can mask or impair the handling qualities of an autopilot.''

The FAA believes that this issue has been covered adequately. The NPRM proposed requirements regarding the allowable transients during a disengagement of the FGS system in normal conditions and rare normal conditions, both of which contain icing conditions. An FGS would have to meet these requirements despite any ''masking'' effect or impairment of handling qualities of the autopilot. Likewise, the proposed AC 25.1329–1X, that accompanied the proposed rule contains discussions of many different aspects of this issue, such as the functions of a new flight deck alert and how the effects of icing upon autopilot performance should be evaluated.

7. Autopilot Disengagement Clarification in Paragraph (b)

The same individual also expressed concern that the rule language does not adequately address the need for a positive FGS disengagement (autopilot or autothrottle). The commenter stated that most current mechanically controlled systems uncouple from the system they are controlling, and will leave some mechanical connections attached to the system. These components increase the probability for control jams, as they can never be removed from the system.

Based on ARAC's recommendation, the FGS, as the term is used in this rule, does not include the mechanical connections. The accompanying AC to this rule states, in the ''Overview of FGS'' section, that anything that remains attached to the primary flight controls or propulsion controls when the FGS is not in use is regarded as part

of the primary flight controls and propulsion system, and the airworthiness standards for those systems are applicable. This means that the concerns stated by the commenter fall under the requirements that govern those systems, such as §§ 25.571, 25.671, 25.689, 25.901, and 25.1309. Specifically, §§ 25.671(c), 25.901(c), and 25.1309(b) cover the possibility of mechanical jams of the flight controls and propulsion systems. The FAA's position is that these regulations adequately cover the concerns described by the commenter.

This rulemaking action does not propose any changes to the regulations governing those systems. Therefore, no change to was made.

8. New Functions and Control Directions, Paragraph (f)

Dassault Aviation stated that § 25.1329(f) and § 25.1329(i) are redundant, and that paragraph (i) is worded more in terms of design than regulation. Section 25.1329(f) has to do specifically with the marking and labeling of the FGS controls, while § 25.1329(i) deals generally with the controls being designed to minimize confusion regarding FGS operations. While related, these two paragraphs deal with different aspects of the flightcrew interface with the FGS. The FAA disagrees with the commenter's assertion that the two paragraphs are redundant, and has made no change to the proposed rule text due to this comment. Rule paragraph (f) is the FGS specific regulation analogous to § 25.1555(a), ''Control Markings.'' Rule paragraph (i) is the FGS specific regulation analogous to § 25.777, ''Cockpit Controls,'' which addresses a broad range of human factors design issues. Both of these paragraphs are necessary to achieve this rule's safety objectives, and were recommended by ARAC.

9. Speed Protection Domain, new Paragraph (h)

Dassault Aviation stated that the rule text of § 25.1329(h) is more restrictive than the NPRM preamble discussion. The draft rule text states: ''* * * the flight guidance system must not provide guidance or control to an unsafe speed.'' The NPRM discussion stated, ''[H]owever, an implementation providing increased awareness of airspeed and/or alerts for immediate crew recognition and intervention of a potential airspeed excursion may also be an acceptable means of complying with this regulation.'' The commenter stated that FGS designs that would comply with the option discussed in the NPRM preamble would not be compliant with the formal regulation. The commenter then suggested the following revision to § 25.1329(h): ''* * *the flight guidance system must not provide guidance or control to an unsafe speed unless an implementation providing increased awareness of airspeed and/or alerts for immediate crew recognition is provided.''

The FAA partially concurs with Dassault's comment. While it was not our intent, we recognize that the proposed rule language could be interpreted as requiring the FGS itself to prevent operation at an unsafe speed, without pilot intervention. To clarify that such intervention is an acceptable means of compliance with this standard, we have revised the paragraph to state, ''a means must be provided to prevent the flight guidance system from providing guidance or control to an unsafe speed.'' This means may consist of either an automated means of preventing such guidance or pilot intervention. This philosophy was used elsewhere in this proposed rule and accompanying proposed AC. The NPRM discusses the use of another flight deck alert (sometimes referred to as ''Bark Before Bite'') to mitigate transients in the flight path of the airplane that occur immediately after the disengagement of the autopilot system. This alert to ensure awareness of the pilot to the speed of the airplane is similar to this example. The proposed rule, accompanying preamble material, and proposed AC are consistent in that the use of a flight deck alert to ensure pilot action is considered to be an acceptable means of compliance to the rule. This approach is also fully harmonized with that of JAA/EASA.

10. General Comments

The General Aviation Manufacturers Association (GAMA) supports the FAA's and ARAC's effort in generating this proposed rule. The GAMA noted several specific NPRM preamble paragraphs that explain the intent and interpretation of the several proposed rule paragraphs that its organization supports.

Boeing, while making a comment on the proposed AC accompanying this proposed rule, included the following statement concerning the NPRM, ''The NPRM has been changed from the JAA [Joint Aviation Authority] NPA product * * *'' Boeing noted all instances of differences between the rule language contained in the NPRM and NPA.

The NPRM, in the section entitled ''Discussion of the Proposal,'' explained editorial instances where the FAA proposed rule language was different than the JAA NPA rule language. For further information on harmonization, refer to section II, paragraph D, Harmonization of U.S. and European Regulatory Standards, of this final rule.

Because of the differences in the rulemaking processes and requirements of the two Agencies, it is common that slight differences exist between their harmonized regulations. The FAA believes the rule text is harmonized between the FAA and JAA/EASA even though some terms used are different. Since the FAA and JAA/EASA versions of the final rule are harmonized—meaning the effect of both rules is identical—no changes were made due to these comments.

11. Comments and Suggestions for Rulemaking Actions Not Addressed by This NPRM

The FAA received several comments on subject areas that are not addressed in the proposed rule, and therefore, no comments were requested on these subjects. These comments are discussed below.

Adding Flight Testing Criteria

One commenter suggested that flight testing criteria be included in the rule if an FGS is to be certified based on its similarity to a previously approved design. The FAA disagrees with this approach. The commenter's suggestion is more appropriate for an AC in that it would define one (but not the only) method to show compliance to the regulations. However, in this case, the FAA disagrees with making this change to the accompanying AC. The AC represents the most detailed approach of demonstrating compliance. To use similarity as a method of compliance, the applicant would need to propose this method, instead of the method in the AC, to the FAA aircraft certification office (ACO) in charge of that project. The FAA believes that it would be extremely problematic, due to the numerous possibilities of systems, aircraft, and aerodynamic differences between a system to be certified and a previously certified system, to try to define a prescriptive method that would be acceptable. This evaluation is best left to the ACO engineer evaluating the project.

Current Systems or Component Items

Another comment by the same individual made several observations regarding ''known frailties of current systems or components as they are implemented.'' The examples given concerned mechanical flight controls issues, such as control surface servo actuators, rudder boost pumps, and

worn and out of tolerance flow control valves.

Under the definition of an FGS given in the NPRM, these items are not considered to be part of the FGS. They are part of the primary flight control system of the airplane. Therefore, no changes were made due to this comment. Additionally, the commenter made no specific recommendations to address the concerns. The FAA considers that § 25.1309 adequately covers the concerns listed.

Autopilot and Flight Standards Issue, § 121.579

One commenter reminded the FAA that the FGSHWG report recommended updating § 121.579, ''Minimum Altitudes for Use of Autopilot.'' The proposed AC 25.1329–1X included an updated method for calculating the autopilot Minimum Use Height (MUH). The method contained in the proposed AC was harmonized with the JAA/EASA method. The working group recommended that the part 121 rule be revised so there would be no confusion about making the MUH calculation or placing the correct method in the Airplane Flight Manual (AFM).

While we acknowledged the ARAC recommendation, we did not propose to revise § 121.579 as part of this rulemaking, and we have not provided the public an opportunity to comment on the proposal. No changes were made due to this comment. We may consider this recommendation in future rulemaking.

Helicopter Autopilot, Part 27 and 29

Rowan Companies, Inc., as the parent company of Era Aviation, Inc., provided detailed input on helicopter autopilot design and specific suggestions to include these considerations. This commenter suggested that the § 25.1329 rulemaking and advisory material be expanded to include helicopters. Several specific suggestions were made to address what the commenter regarded as deficiencies in current rotorcraft regulations.

The activity to revise part 25 material is, by its nature, applicable to transport category airplanes only. Part 27 of 14 CFR covers normal category rotorcraft, and part 29 covers transport category rotorcraft. Revisions to the regulations contained in parts 27 and 29 are not covered in the proposed rulemaking for the FGS on transport category airplanes. However, these comments may be considered in future rulemaking applicable to rotorcraft.

IV. Editorial Change

For clarification only, we have moved the definitions of ''minor transient'' and ''significant transient'' from paragraphs (c) and (e), respectively, to a new paragraph (n).

V. Rulemaking Analyses and Notices

Paperwork Reduction Act

The Paperwork Reduction Act of 1995 (44 U.S.C. 3507(d)) requires that the FAA to consider the impact of paperwork and other information collection burdens imposed on the public. We have determined that there are no new information collection requirements associated with this final rule.

International Compatibility

In keeping with U.S. obligations under the Convention on International Civil Aviation, it is FAA policy to comply with International Civil Aviation Organization (ICAO) Standards and Recommended Practices to the maximum extent practicable. The FAA has determined that there are no ICAO Standards and Recommended Practices that correspond to these regulations.

Executive Order 13132, Federalism

The FAA analyzed this rule under the principles and criteria of Executive Order 13132, Federalism. We determined that this action would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government and, therefore, would not have federalism implications.

Summaries of the Regulatory Evaluation, Regulatory Flexibility Determination, Trade Impact Assessment, and Unfunded Mandates Assessment

Executive Order 12866 and DOT Regulatory Policies and Procedures

This portion of the preamble summarizes the FAA's analysis of the economic impacts of this final rule. We suggest readers seeking greater detail read the full regulatory evaluation, a copy of which has been placed in the docket for this rulemaking.

Changes to Federal regulations must undergo several economic analyses. First, Executive Order 12866 directs that each Federal agency propose or adopt a regulation only upon a determination that the benefits of the intended regulation justify its costs. Second, the Regulatory Flexibility Act of 1980 requires agencies to analyze the economic impact of regulatory changes on small entities. Third, the Trade Agreements Act prohibits agencies from setting standards that create unnecessary obstacles to the foreign commerce of the United States. In developing U.S. standards, this Trade Act requires agencies to consider international standards and, where appropriate, use them as the basis of U.S. standards. Fourth, the Unfunded Mandates Reform Act of 1995 requires agencies to prepare a written assessment of the costs, benefits, and other effects of proposed or final rules that include a Federal mandate likely to result in the expenditure by State, local, or tribal governments, in the aggregate, or by private sector, of $100 million or more annually (adjusted for inflation).

In conducting these analyses, FAA has determined this rule: (1) Has benefits that justify its costs; (2) is not a ''significant regulatory action'' as defined in section 3(f) of Executive Order 12866, and is not ''significant'' as defined in DOT's Regulatory Policies and Procedures; (3) will not have a significant economic impact on a substantial number of small entities; (4) will reduce barriers to international trade; and (5) will not impose an unfunded mandate on state, local, or tribal governments, or on the private sector.

Total Costs and Benefits of This Rulemaking

This rulemaking affects manufacturers of small part 25 airplanes that incur costs and occupants in affected airplanes that receive safety benefits.

Assumptions and Standard Values

- Discount rates: Base case 7%; sensitivity case 3%.
- Period of analysis: Overall, 2006–2041. Costs, 2006–2016 (consist of design, testing, and production costs). Benefits, 2008–2041 (based on 25-year operating lives of newly-certificated aircraft, all of which will be produced between 2007–2016).
- Value of statistical fatality avoided: $3 million.

Basis of Costs

As noted in the regulatory evaluation, the revised requirements will affect part 25 smaller transport airplanes (turboprops and regional jets) and business jets; part 25 larger commercial airplanes either already meet the new requirements or will have only minor costs in complying. Since part 25 turboprops and regional jets are not currently manufactured in the United States, the final rule will directly affect only U.S.-manufactured business jets.

The relevant changes and associated incremental costs are as follows:

1. *Autopilot Override*—Nonrecurring costs (design, development, and testing) related to installation of a force sensor (new force transducer) on control column totals $200,000 for a new type certificate. Recurring costs (per unit) for a new force transducer equal $12,000.

2. *Speed Protection*—Nonrecurring costs total $210,000; recurring costs (per unit) equal $40,000 (this amount may include new or modified components such as sensors).

3. *Pilot Awareness/Flight Deck Annunciation*—Nonrecurring costs total $120,000; recurring costs per unit are minimal (essentially no new costs).

Non-recurring and recurring costs total $116,520,000, or $76,592,390, and $96,553,992 in present values at 7% and 3% discount rates, respectively.

Basis of Benefits

Since current type certificates for part 25 larger commercial airplanes already voluntarily meet the key provisions of the rule, future averted accidents (benefits) attributable to the rule must be limited to part 25 business jets.

Although there were no directly-aligned accidents involving autopilots in part 25 business jets in a recent 20-year period, there were four incidents that involved autopilot disconnect and/or improper pilot procedures; the FAA expects this rule to prevent such events. Autopilot disruptions are serious occurrences, and it is reasonable to postulate that such incidents could just as easily have been accidents. Furthermore, given that part 25 business jets increasingly incorporate more sophisticated autopilot systems, the risk of future accidents intensifies. As previously noted, difficulties for flightcrews interacting with the increasing automation of flight decks in part 25 larger commercial airplanes prompted this rulemaking. (There were at least two accidents and several serious incidents involving large commercial airplanes).

Accordingly, the FAA has estimated the minimum levels of averted losses, in terms of avoided fatalities and airplane damage (each accident is valued at $40 million) that will be necessary to offset the estimated compliance costs.

Applying the base case 7% interest rate, the FAA has determined that approximately seven catastrophic accidents are necessary in the 34-year benefits period to make the rule cost-beneficial (note that four events in the 20-year period examined mathematically equates to seven events in the future 34-year benefits period in this analysis). Alternatively, using a 3% interest rate as a sensitivity case, only four accidents are necessary to make the rule cost-beneficial.

Based on the history of accidents and incidents in large commercial airplanes, and the occurrence of incidents concomitant with the increasing complexity of flight guidance systems in large business jets, the FAA finds this rule to be cost-beneficial. A summary of costs and benefits is shown below.

Base Case—Use of 7% Discount Rate

- Estimated present value costs (11-year analysis period)—part 25 certificated smaller airplanes (large business jets): $76.592 million.
- Estimated present value benefits (34-year period)—part 25 certificated smaller airplanes (large business jets): As discussed above, with seven potential averted accidents, the present value of benefits is equivalent to present value costs of $76.592 million, and the rule is cost-beneficial.

Sensitivity Case—Use of 3% Discount Rate

- Estimated present value costs (11-year period)—part 25 certificated smaller airplanes (large business jets): $96.554 million.
- Estimated present value benefits (34-year period)—part 25 certificated smaller airplanes (large business jets): As discussed above, with four potential averted accidents, the present value of benefits is equivalent to present value costs of $96.554 million, and the rule is cost-beneficial.

Regulatory Flexibility Determination

The Regulatory Flexibility Act of 1980 (RFA) establishes ''as a principle of regulatory issuance that agencies shall endeavor, consistent with the objective of the rule and of applicable statutes, to fit regulatory and informational requirements to the scale of the business, organizations, and governmental jurisdictions subject to regulation.'' To achieve that principle, the Act requires agencies to solicit and consider flexible regulatory proposals and to explain the rationale for their actions. The Act covers a wide-range of small entities, including small businesses, not-for-profit organizations and small governmental jurisdictions.

Agencies must perform a review to determine whether a proposed or final rule will have a significant economic impact on a substantial number of small entities. If the determination is that it will, the agency must prepare a regulatory flexibility analysis as described in the Act. However, if an agency determines that a proposed or final rule is not expected to have a significant economic impact on a substantial number of small entities, section 605(b) of the 1980 act provides that the head of the agency may so certify and a regulatory flexibility analysis is not required. The certification must include a statement providing the factual basis for this determination, and the reasoning should be clear.

This rule will affect manufacturers of part 25 airplanes produced under future new type-certificates. For manufacturers, a small entity is one with 1,500 or fewer employees. None of the part 25 manufacturers has 1,500 or fewer employees; consequently, none is considered a small entity.

Based on the above, I certify that this rule will not have a significant economic impact on a substantial number of small entities.

International Trade Impact Assessment

The Trade Agreements Act of 1979 prohibits Federal agencies from engaging in any standards or related activities that create unnecessary obstacles to the foreign commerce of the United States. Legitimate domestic objectives, such as safety, are not considered unnecessary obstacles. The statute also requires consideration of international standards and, where appropriate, they be the basis for U.S. standards. In accordance with the above statute, the FAA has assessed the potential effect of this rule for part 25 airplanes. This rulemaking is consistent with the Trade Agreements Act since it eliminates significant regulatory differences between the U.S. and European airworthiness standards.

Unfunded Mandates Reform Act

The Unfunded Mandates Reform Act of 1995 (the Act) is intended, among other things, to curb the practice of imposing unfunded Federal mandates on State, local, and tribal governments. Title II of the Act requires each Federal agency to prepare a written statement assessing the effects of any Federal mandate in a proposed or final agency rule that may result in an expenditure of $100 million or more (adjusted annually for inflation) in any one year by State, local, and tribal governments, in the aggregate, or by the private sector; such a mandate is deemed to be a ''significant regulatory action.'' The FAA currently uses an inflation-adjusted value of $120.7 million in lieu of $100 million.

This final rule does not contain such a mandate. The requirements of Title II of the Act, therefore, do not apply.

Regulations Affecting Intrastate Aviation in Alaska

Section 1205 of the FAA Reauthorization Act of 1996 (110 Stat. 3213) requires the Administrator, when modifying regulations in a manner affecting intrastate aviation in Alaska, to consider the extent to which Alaska is not served by transportation modes other than aviation, and to establish appropriate regulatory distinctions. In the NPRM, we requested comments on whether the proposed rule should apply differently to intrastate operations in Alaska. We did not receive any comments, and we have determined, based on the administrative record of this rulemaking, that there is no need to make any regulatory distinctions applicable to intrastate aviation in Alaska.

Environmental Analysis

FAA Order 1050.1E identifies FAA actions that are categorically excluded from preparation of an environmental assessment or environmental impact statement under the National Environmental Policy Act in the absence of extraordinary circumstances. The FAA has determined this rulemaking action qualifies for the categorical exclusion identified in paragraph 312f and involves no extraordinary circumstances.

Regulations That Significantly Affect Energy Supply, Distribution, or Use

The FAA has analyzed this final rule under Executive Order 13211, Actions Concerning Regulations that Significantly Affect Energy Supply, Distribution, or Use (May 18, 2001). We have determined that it is not a ''significant energy action'' under the executive order because it is not a ''significant regulatory action'' under Executive Order 12866, and it is not likely to have a significant adverse effect on the supply, distribution, or use of energy.

List of Subjects in 14 CFR Part 25

Aircraft, Aviation safety, Reporting and record keeping requirements, Safety, Transportation.

The Amendment

■ In consideration of the foregoing, the Federal Aviation Administration amends Part 25 of Chapter 1 of Title 14, Code of Federal Regulations, as follows:

PART 25—AIRWORTHINESS STANDARDS: TRANSPORT CATEGORY AIRPLANES

■ 1. The authority citation for part 25 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701, 44702 and 44704.

■ 2. Revise § 25.1329 to read as follows:

§ 25.1329 Flight guidance system

(a) Quick disengagement controls for the autopilot and autothrust functions must be provided for each pilot. The autopilot quick disengagement controls must be located on both control wheels (or equivalent). The autothrust quick disengagement controls must be located on the thrust control levers. Quick disengagement controls must be readily accessible to each pilot while operating the control wheel (or equivalent) and thrust control levers.

(b) The effects of a failure of the system to disengage the autopilot or autothrust functions when manually commanded by the pilot must be assessed in accordance with the requirements of § 25.1309.

(c) Engagement or switching of the flight guidance system, a mode, or a sensor may not cause a transient response of the airplane's flight path any greater than a minor transient, as defined in paragraph (n)(1) of this section.

(d) Under normal conditions, the disengagement of any automatic control function of a flight guidance system may not cause a transient response of the airplane's flight path any greater than a minor transient.

(e) Under rare normal and non-normal conditions, disengagement of any automatic control function of a flight guidance system may not result in a transient any greater than a significant transient, as defined in paragraph (n)(2) of this section.

(f) The function and direction of motion of each command reference control, such as heading select or vertical speed, must be plainly indicated on, or adjacent to, each control if necessary to prevent inappropriate use or confusion.

(g) Under any condition of flight appropriate to its use, the flight guidance system may not produce hazardous loads on the airplane, nor create hazardous deviations in the flight path. This applies to both fault-free operation and in the event of a malfunction, and assumes that the pilot begins corrective action within a reasonable period of time.

(h) When the flight guidance system is in use, a means must be provided to avoid excursions beyond an acceptable margin from the speed range of the normal flight envelope. If the airplane experiences an excursion outside this range, a means must be provided to prevent the flight guidance system from providing guidance or control to an unsafe speed.

(i) The flight guidance system functions, controls, indications, and alerts must be designed to minimize flightcrew errors and confusion concerning the behavior and operation of the flight guidance system. Means must be provided to indicate the current mode of operation, including any armed modes, transitions, and reversions. Selector switch position is not an acceptable means of indication. The controls and indications must be grouped and presented in a logical and consistent manner. The indications must be visible to each pilot under all expected lighting conditions.

(j) Following disengagement of the autopilot, a warning (visual and auditory) must be provided to each pilot and be timely and distinct from all other cockpit warnings.

(k) Following disengagement of the autothrust function, a caution must be provided to each pilot.

(l) The autopilot may not create a potential hazard when the flightcrew applies an override force to the flight controls.

(m) During autothrust operation, it must be possible for the flightcrew to move the thrust levers without requiring excessive force. The autothrust may not create a potential hazard when the flightcrew applies an override force to the thrust levers.

(n) For purposes of this section, a transient is a disturbance in the control or flight path of the airplane that is not consistent with response to flightcrew inputs or environmental conditions.

(1) A minor transient would not significantly reduce safety margins and would involve flightcrew actions that are well within their capabilities. A minor transient may involve a slight increase in flightcrew workload or some physical discomfort to passengers or cabin crew.

(2) A significant transient may lead to a significant reduction in safety margins, an increase in flightcrew workload, discomfort to the flightcrew, or physical distress to the passengers or cabin crew, possibly including non-fatal injuries. Significant transients do not require, in order to remain within or recover to the normal flight envelope, any of the following:

(i) Exceptional piloting skill, alertness, or strength.

(ii) Forces applied by the pilot which are greater than those specified in § 25.143(c).

(iii) Accelerations or attitudes in the airplane that might result in further hazard to secured or non-secured occupants.

§ 25.1335 [Removed]

■ 3. Amend part 25 by removing § 25.1335.

Issued in Washington, DC, on April 5, 2006.

Marion C. Blakey,

Administrator.

[FR Doc. 06–3467 Filed 4–10–06; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No. NM344; Special Conditions No. 25–314–SC]

Special Conditions: McDonnell Douglas DC–8–72F Airplanes; High-Intensity Radiated Fields (HIRF)

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final special conditions; request for comments.

SUMMARY: These special conditions are issued for McDonnell Douglas DC–8–72F airplanes modified by Avionics and Systems Integration Group, LLC. These modified airplanes will have a novel or unusual design feature when compared to the state of technology envisioned in the airworthiness standards for transport category airplanes. The modification incorporates the installation of Universal Avionics Systems Corporation EFI–600 Electronic Flight Instruments that perform critical functions. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for the protection of these systems from the effects of high-intensity radiated fields (HIRF). These special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

DATES: The effective date of these special conditions is March 17, 2006.

We must receive your comments by May 11, 2006.

ADDRESSES: You must mail two copies of your comments to: Federal Aviation Administration, Transport Airplane Directorate, Attention: Rules Docket (ANM–113), Docket No. NM343, 1601 Lind Avenue SW., Renton, Washington 98055–4056. You may deliver two copies to the Transport Airplane Directorate at the above address. You must mark your comments: Docket No. NM343. You can inspect comments in the Rules Docket weekdays, except Federal Holidays, between 7:30 a.m. and 4 p.m.

FOR FURTHER INFORMATION CONTACT: Greg Dunn, FAA, Airplane and Flight Crew Interface Branch, ANM–111, Transport Airplane Directorate, Aircraft Certification Service, 1601 Lind Avenue SW., Renton, Washington 98055–4056; telephone (425) 227–2799; facsimile (425) 227–1320.

SUPPLEMENTARY INFORMATION:

Comments Invited

The FAA has determined that notice and opportunity for prior public comment is impracticable because these procedures would significantly delay certification of the airplane and thus delivery of the affected aircraft. In addition, the substance of these special conditions has been subject to the public comment process in several prior instances with no substantive comments received. The FAA, therefore, finds that good cause exists for making these special conditions effective upon issuance; however, we invite interested people to take part in this rulemaking by sending written comments, data, or views. The most helpful comments reference a specific portion of the special conditions, explain the reason for any recommended change, and include supporting data. We ask that you send us two copies of written comments.

We will file in the docket all comments we receive as well as a report summarizing each substantive public contact with FAA personnel concerning these special conditions. You may inspect the docket before and after the comment closing date. If you wish to review the docket in person, go to the address in the **ADDRESSES** section of this preamble between 7:30 a.m. and 4 p.m., Monday through Friday, except Federal holidays.

We will consider all comments we receive on or before the closing date for comments. We will consider comments filed late, if it is possible to do so without incurring expense or delay. We may change these special conditions, based on the comments we receive.

If you want the FAA to acknowledge receipt of your comments on these special conditions, include with your comments a pre-addressed, stamped postcard on which the docket number appears. We will stamp the date on the postcard and mail it back to you.

Background

On September 2, 2005, Avionics and Systems Integration Group, LLC, 2734 Burbank St., Dallas, Texas 75235, applied for a Supplemental Type Certificate (STC) to modify McDonnell Douglas DC–8–72F airplanes. These models are currently approved under Type Certificate No. 4A25. The McDonnell Douglas DC–8–72F is a transport category airplane. The airplanes are powered by 4 CFM International Turbofan CFM56–2–C1, CFM56–2–C3, CFM56–2–C5, or CFM56–2–C6 engines and have a maximum takeoff weight of 335,000 pounds. This airplane operates with a pilot, co-pilot, and flight engineer and can hold up to 201 passengers. The modification incorporates installation of Universal Avionics Systems Corporation EFI–600 Electronic Flight Instruments. The EFI–600 displays are replacements for the mechanical heading (HSI) and attitude (ADI) instruments. The avionics/electronics and electrical systems installed in this airplane have the potential to be vulnerable to high-intensity radiated fields (HIRF) external to the airplane.

Type Certification Basis

Under 14 CFR 21.101, Avionics and Systems Integration Group, LLC, must show that the DC–8–72F, as modified, continues to meet the applicable provisions of the regulations incorporated by reference in Type Certificate No. 4A25, or the applicable regulations in effect on the date of application for the change. The regulations incorporated by reference in the type certificate are commonly referred to as the ''original type certification basis.'' The certification basis for the DC–8–72F airplanes includes provisions from both the Civil Air Regulations Part 4B and 14 CFR part 25, as listed on Type Certificate No. 4A25. The certification basis also includes special conditions, additional requirements, and exemptions listed in the type certificate data sheet that are not relevant to these special conditions.

If the Administrator finds that the applicable airworthiness regulations do not contain adequate or appropriate safety standards for the McDonnell Douglas DC–8–72F airplanes because of a novel or unusual design feature, special conditions are prescribed under § 21.16.

In addition to the applicable airworthiness regulations and special conditions, the DC–8–72F airplanes must comply with the fuel vent and exhaust emission requirements of 14 CFR part 34 and the noise certification requirements of 14 CFR part 36.

Special conditions, as defined in 14 CFR 11.19, are issued under § 11.38 and become part of the type certification basis under § 21.101.